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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 80

NO 1 THRU 13

JUL- SEP -1897

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXXX.

JULY 6 TO SEPTEMBER 28, INCLUSIVE,

1897.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

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ERRATA.

585,954, page 108, in heading, name of inventor, for "Ernst Flagg" read *Ernest Flagg.*

585,962, page 111, in heading, residence of inventor, for "Gale, Michigan" read *Yale, Michigan.*

586,291, page 251, in heading, residence of inventor, for "Summit, Ohio" read *Akron, Ohio.*

586,518, page 327, in heading, after residence of inventor, insert *Anna K. Henshall executrix of said Samuel Henshall, deceased.*

586,537, page 335, in heading, after the word "assignor" insert the words *of one-half.*

587,403, page 706, claim 6, line 8, for the word "an" preceding the word "intermediate" read *and.*

587,706, page 827, strike out all after number—title, drawing, and claim—and insert CANCELED.

589,036, page 1313, claim 1, line 3, before the word "muller" insert the words *shaft fixed to the.*

589,146, page 1353, in heading, after residence of patentee, insert *assignor to The Indiana Manufacturing Company, Indianapolis, Indiana.*

589,148, page 1354, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

589,342, page 1449, claim 1, line 3, and claim 2, line 3, for the word "sufficient" read *insufficient.*

589,462, page 1500, in heading, residence of inventor, for "Munich" read *München-Gladbach.*

589,979, page 1674, strike out all after number—title, drawing, and claims—and insert CANCELED.

590,330, page 1811, in heading, residence of inventor, for "McCrary" read *McCrory.*

590,375, page 1824, strike out all after number—title, drawing, and claims—and insert WITHDRAWN.

590,861, 590,862, and **590,863,** pages 1996-1997, in headings, assignments, after the word "assignor" insert *of nine-twentieths.*

27,289, (Design,) page 176, strike out all after number—title, drawing, and claim—and insert CANCELED.

27,290, (Design,) page 176, strike out all after number—title, drawing, and claim—and insert CANCELED.

27,651, (Design,) page 1883, strike out all after number—title, drawing, and claim—and insert CANCELED.

30,378, (Trade-Mark,) page 346, in heading, title, for "Milk, Condensed Milk, Butter, Cream, and Cheese" read *Milk, Condensed Milk, Butter, Cream, Evaporated Cream, and Cheese.*

Commissioner's Decisions, page 2038, second column, line 18 from bottom of page, after the names of counsel insert *and Mr. Fredric P. Fish;* line 17 for "Mr. Francis W. Parker" read *Mr. Stanley S. Stout;* page 2040, second column, lines 14, 36, 43, and 54, for "Roseveldt" read *Roosevelt;* same page and column, line 13, for "No. 209,595" read *No. 209,592.*

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(None.)

(None.)

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JULY—SEPTEMBER, 1897.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 1. TUESDAY, JULY 6, 1897. PRICE—$5 per year.

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The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Changes in Classification.

(ORDER No. 1,139.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1897.

The following changes in classification are hereby directed:

Subclasses are established in Division XIII as follows:

In Class 80, Metal-Rolling:

Tubes—
71. Cross.
72. Longitudinal—
73. Opening tubes,
74. Segmental rolls,
75. Welded-seam,
76. Mandrels,
77. Skelping,
78. Spiral—
79. Conical rolls,
80. Oblique rolls.

In Class 205, Metal-Drawing:

9. Grippers.
10. Tongs and tags.

Tubes—
11. From billets,
12. From planchets,
13. Welded—
14. Bells and dies.

Subclasses are established in Division XXXII as follows:

In Class 215, Bottles and Jars:

114. Bottle-valves, siphon-head—
115. Spring-controlled.

BENJ. BUTTERWORTH,
Commissioner.

Order in Relation to Drawings and Blue-Prints.

(ORDER No. 1,135.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 12, 1897.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

BENJ. BUTTERWORTH,
Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Privileges of the Scientific Library.

Persons who are not employés of the Office may, under the supervision and direction of the Librarian, make extracts from descriptions and drawings contained in the Scientific Library, such extracts, when in the nature of copies, not to exceed one-third of the descriptions or drawings from which the copies are made. Violation of this order will subject all persons and parties concerned in the violation to exclusion from thereafter making any such extracts or copies whatever.

Issue of July 6, 1897.

Patents	445—No. 585,645 to No. 586,089, inclusive.
Designs	35—No. 27,283 to No. 27,317, inclusive.
Trade-Marks	36—No. 30,314 to No. 30,349, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,619.
Total issue	517

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
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Arizona Territory	3		New Jersey	23	
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California	12		New York	33	11
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Idaho	1		Rhode Island	6	
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Kentucky	5	1	Vermont	1	
Louisiana	2	1	Virginia	3	
Maine	4		Washington	1	
Maryland	2	1	West Virginia	3	
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Mississippi	4		U. S. Navy		
Missouri	9	1			
Montana	1		Total to citizens of the United States	430	32
Nebraska	3				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales	1	
Belgium			New Zealand	1	
Bermuda			Norway		
Brazil			Orange Free State		
Canada	7		Portugal		
Canary Islands			Queensland		
Cape Colony			Russia		
Chile, Republic of			Scotland	2	
China			South African Republic		
Cuba			Spain		
Denmark			Sweden	1	
England	17	1	Switzerland	3	
Finland			Venezuela		
France	3	1	Victoria		
Germany	12	2	West Australia		
Guatemala					
Hawaii	1				
India			Total to citizens of foreign countries	50	4
Ireland	1				

APPLICATIONS UNDER EXAMINATION.

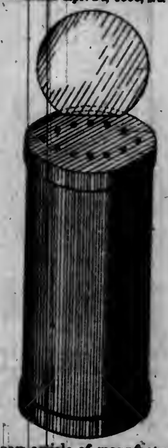
Condition at Close of Business June 29, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application awaiting office action. New.	Oldest amended application awaiting office action. Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	May 29	June 16	400
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	June 5	June 14	122
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	May 29	June 4	184
255	XII. Mechanical Engineering, Store-Service, etc.	May 29	June 1	294
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	May 29	May 26	250
106	II. Farm Stock, Products, etc.	May 31	May 20	410
221	XXIII. Instruments of Precision, Acoustics, etc.	May 29	May 17	350
	Between one and two months.			
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	Under one month in arrears.			
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PATENTS

GRANTED JULY 6, 1897.

585,645. STERILIZING AND PACKING BANDAGING MATERIAL. FRIEDRICH ACKERMANN, Frankfort-on-the-Main, Germany. Filed Mar. 10, 1896. Serial No. 582,601. (No model.) Patented in Germany Feb. 19, 1895, No. 84,214; in England Oct. 26, 1895, No. 20,223; in France Oct. 23, 1895, No. 251,272; in Belgium Feb. 27, 1896, No. 120,233; in Switzerland Mar. 2, 1896, No. 12,043; in Italy Mar. 31, 1896, LXXX. 216, and in Austria Apr. 24, 1896, No. 46/1,640.



Claim.—1. As a new article of manufacture a box having perforated ends and paper pieces fastened with a gum insoluble in steam, and having a lining of a gum soluble in steam, substantially as described.

2. A case for holding bandages and the like for sterilization and afterward, comprising a body having perforated sides, flexible covers hinged to each perforated side, by paste at one side of each cover and a lining of soluble gum to seal the cover to the body when it is pressed thereto.

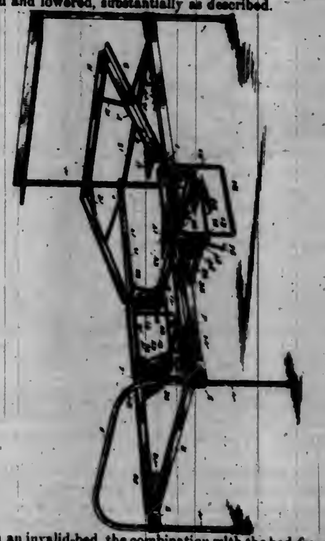
3. A case for holding bandages and the like for sterilization and afterward, comprising a body having perforated flat sides, flexible flaps pasted to the sides at one edge of the same and extending over them in an inclined plane, and adapted to close the perforated side, if the pressure inside the body is reduced, and a lining of paste soluble in steam intervening between each flap and the corresponding side of the body, to seal the flap, if it is pressed to the body.

585,646. INVALID'S BED. HELEN A. ANES, Brookline, Mass. Filed Jan. 7, 1897. Serial No. 618,305. (No model.)

Claim.—1. The combination with a bed-frame, of a vertically-movable auxiliary frame for carrying a section of the mattress or bed-bottom, a wheel journaled on the auxiliary frame, a chain passing under said wheel, a transverse shaft for winding said chain, and means for rotating said shaft whereby the auxiliary frame may be raised and lowered, substantially as described.

2. The combination with a stationary bed-frame, of a movable auxiliary frame for carrying a section of the mattress or bed-bottom, a sprocket-wheel on said auxiliary frame, a revoluble shaft, a chain adapted to be wound on said shaft and passing under the sprocket-wheel, a ratchet-wheel on said shaft, a detent engaging therewith, and means for operating said shaft, substantially as described.

3. In an invalid-bed, the combination with the bed-frame proper, of an intermediately-located and vertically-movable auxiliary frame, spaced U-shaped guide-frames depending from the under sides of the longitudinal side bars of the bed-frame, spaced sleeves carried by said auxiliary frame and embracing the vertical portions of said guide-frames, and a chain and windlass whereby said auxiliary frame may be raised and lowered, substantially as described.



4. In an invalid-bed, the combination with the bed-frame proper, of an intermediately-located and vertically-movable auxiliary frame carrying a movable section of the mattress or bed-bottom, wheels journaled on the under side of said auxiliary frame, a chain passing under said wheels and secured at one end to the bed-frame in about the horizontal plane of the bed-frame proper, a transverse shaft journaled in bearings attached to the bed-frame and having a drum mounted thereon and adapted to wind said chain upon it, and means for rotating said shaft, whereby said auxiliary frame is raised or lowered, substantially as described.

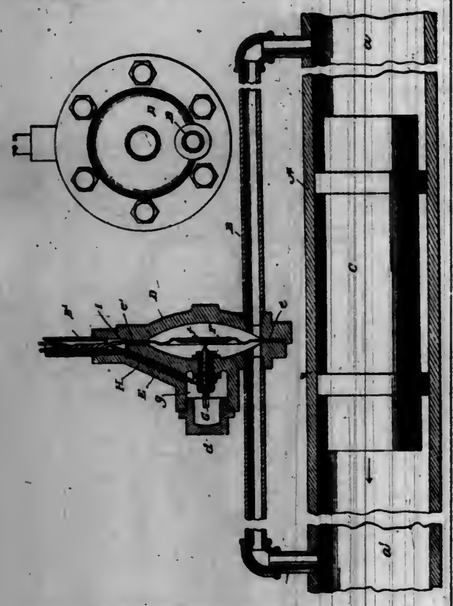
5. In an invalid-bed, the combination with the stationary bed-frame, of an intermediately-located and vertically-movable auxiliary frame carrying a section of the mattress or bed-bottom, sprocket-wheels journaled on the under side of said auxiliary frame, a revoluble shaft extending transversely of the bed-frame and journaled therein, a chain winding upon said shaft and passing beneath said sprocket-wheels and attached at its end to a fixed point on the bed-frame, a ratchet-wheel fast on said shaft, a detent engaging therewith, and a detachable crank fitted upon the end of said shaft, all arranged for joint operation, substantially as described.

6. An invalid bed comprising a transversely-divided or sectional bed-bottom, the head-section of which is pivoted and provided with means whereby it may be held at any desired angle, and an intermediate or central section made adjustable up and down, and a chain and windlass for raising and lowering said intermediate section and holding the same at any desired elevation, substantially as described.

7. An attachment for invalid-beds comprising a substantially T-shaped frame consisting of a vertical standard and a horizontal cross-bar at the upper end thereof, hooks on said cross-bar for the attachment of various articles, an adjustable clamp at the lower end of said standard, a clip having spaced hooks and slidingly mounted on said

standard, means for holding said clip fixed to the standard, and a grooved pulley located intermediate the ends of said standard, substantially as and for the purpose described.

585,647. ELECTROPNEUMATIC CIRCUIT-CLOSER. BERNEY C. BATCHELLER, Brooklyn, N. Y. Filed Apr. 6, 1896. Serial No. 586,366. (No model.)



Claim.—1. A circuit-closer, consisting in the combination with a pneumatic tube and a carrier therein, of a circuit-closing device operated by the differential pressure incident to the passing of the carrier

2. A circuit-closer, consisting in the combination of a pneumatic-transit tube, a carrier within the same, a diaphragm subjected on opposite sides to the air or fluid pressure, means whereby said diaphragm closes the circuit by a difference of pressures at the ends of a carrier when said carrier passes.

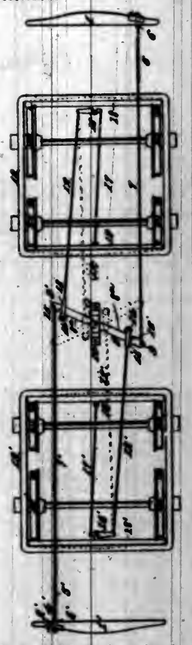
3. A circuit-closer, consisting in the combination with a pneumatic-despatch tube, of an auxiliary tube, a chamber interposed in said auxiliary tube, a diaphragm in said chamber subjected on opposite sides to the pressure of air in the main tube, means whereby the fluctuations of said diaphragm will close and open the circuit, all arranged to operate by the differential pressure resulting from the passage of a carrier.

4. The combination of a pneumatic-despatch tube, a carrier moving within the same, an auxiliary pipe connected to the main tube at certain points, an interposed chamber in the length of said auxiliary pipe, a diaphragm supported in said chamber and subjected on opposite sides to the air-pressure within the main tube, electric wires, means whereby the movement of the diaphragm will close the circuit through said wires, substantially as described.

5. The combination with a pneumatic despatch or transit tube, a carrier within it, an incident of whose movement is a differential pressure at opposite ends of the carrier, and a circuit-closing diaphragm subjected to said differential pressure, substantially as described.

585,648. CAR-BRAKE. JOHN L. BLACK, St. Louis, Mo. Filed Dec. 19, 1896. Serial No. 616,275. (No model.)

Claim.—1. A car-brake comprising a lever-bar having oppositely-extending arms formed with parallel vertical sides providing roller-tracks on opposite sides of the lever-bar and having stops adjacent to the ends of the arms, a hanger in which the lever-bar is centrally pivoted between the trucks of the car, the inner and outer brake-beams, the oblique levers pivoted to the outer brake-beams, the intermediate rods connecting the inner ends of the oblique levers with the inner brake-beams, the connecting-rods secured to the outer ends of the oblique levers, the stirrups secured directly to the connecting-rods, embracing the arms of the lever-bar, adapted to slide sidewise thereon, and limited in their outward movement by the stops, the cylindrical rollers mounted in the stirrups and adapted to run on the opposite sides of the lever-bar, the brake-rods connected with the outer ends of the lever-bar, and the chains connecting the brake-rods with the shaft-arms: substantially as described.



2. A car-brake comprising a lever-bar having stops adjacent ot its ends, a hanger having a slot and located between the trucks of the car, a floating pivot working in the slot and by which the lever-bar is centrally pivoted, the inner and outer brake-beams, the oblique levers pivoted to the outer brake-beams, the intermediate rods connecting the inner ends of the oblique levers with the inner brake-beams, the connecting-rods secured to the outer ends of the oblique levers, the stirrups secured directly to the connecting-rods and adapted to slide sidewise on the arms of the lever-bar and limited in their outward movement by the stops, the rollers mounted in the stirrups and adapted to run on the opposite sides of the lever-bar, the crank-shafts having arms, the brake-rods connected outside of the stops with the outer ends of the lever-bar, and the chains connecting the brake-rods with the shaft-arms; substantially as described.

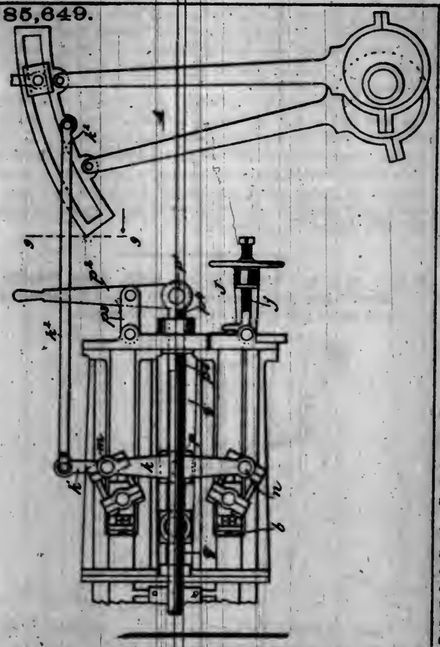
585,649. SHIFTING OR REVERSING GEAR. HENRICH BRINKMANN, Munich, Germany. Filed Oct. 20, 1896. Serial No. 609,204. (No model.)

Claim.—1. In a shifting-gear, the combination, with a pair of cylinders, a piston in each cylinder, and a piston-rod connected to each piston, of a walking-beam attached to both piston-rods, a movable pivot on which the walking-beam is fulcrumed, a valve device arranged to control the supply of fluid to the cylinder, and means connected to the walking-beam for operating the desired mechanism, substantially as set forth.

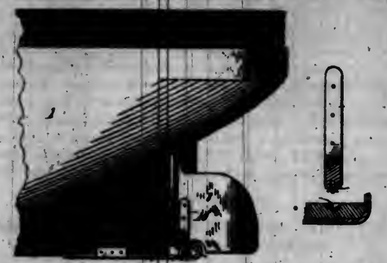
2. In a shifting-gear, the combination, with a pair of cylinders, a piston in each cylinder, and a piston-rod attached to each piston, of a valve for controlling the supply of fluid to each cylinder, a valve-rod connected to said valve, a guide-rod, a pivot-pin movably mounted on the guide-rod, a walking-beam fulcrumed on the pivot-pin and connected to the piston-rods, substantially at set forth.

3. In a shifting-gear, the combination, with a pair of cylinders, a piston in each cylinder, a piston-rod connected to each piston, of a valve-box provided with a double set of induction and eduction ports and with an exhaust-port, one induction-port and one eduction-port of each set leading to one of the cylinders, and the other induction and eduction port to the other cylinder, a slide-valve movable in the valve-box and arranged to control the flow of the fluid through the ports, means for operating the slide-valve, a walking-beam connected to the piston-rods, and means connected to the walking-beam for shifting the desired mechanism, substantially as set forth.

585,649.



585,650. RUDDER AND SUPPORT. HENRY REINSTAR, Baltimore, Md. Filed Jan. 11, 1897. Serial No. 618,861. (No model.)



Claim.—1. In combination, a bracket secured to the keel and having a bearing-surface, said bracket being extended and apertured, a rudder having a post operating through the aperture of the bracket and resting on the bearing-surface of the bracket, and means for securing the rudder against displacement, substantially as described.

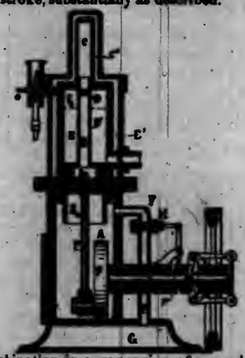
2. In combination with a barge, a bracket secured to its keel, a bearing and keeper formed by the bracket, a rudder having its post operating through the keeper and resting on the bearing of the bracket, a washer for holding the post in position and a cotter-pin for holding the washer in place, substantially as described.

585,651. GAS-ENGINE. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed Mar. 26, 1894. Serial No. 505,506. (No model.)

Claim.—1. The combination in a gas engine, of a combustion-chamber having a hollow extension, a plunger having a projection working in said extension, and ports controlled by said extension and projection and admitting explosive mixture to said chamber only when the plunger is at the limit of its stroke, substantially as described.

2. The combination in a gas-engine, of a combustion-chamber having a hollow extension, a plunger having a hollow projection working in said extension and provided with ports which are controlled by said extension and projection and which admit explosive mixture to said chamber only when the plunger is at the limit of its stroke, substantially as described.

3. The combination in a gas-engine, of a water-jacketed combustion-chamber having a hollow water-jacketed extension, a plunger having a projection working in said extension and provided with ports which are controlled by said extension and projection, and which admit explosive mixture to said chamber only when the plunger is at the limit of its stroke, substantially as described.

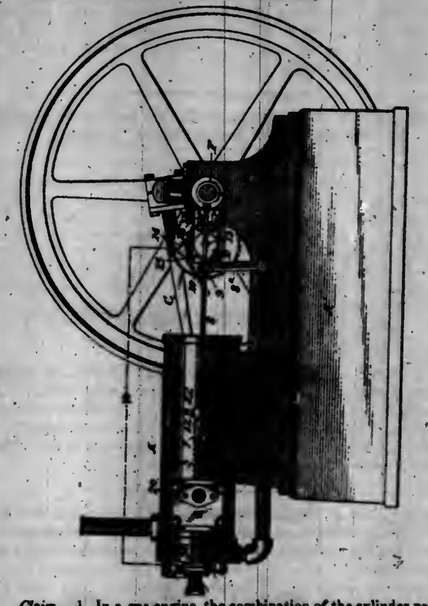


4. The combination in a gas-engine, of a combustion-chamber having a hollow extension, a plunger having an opening therethrough, and provided with a hollow projection in direct communication with said opening, and provided with ports which are controlled by said extension and projection, and which ports admit explosive mixture to said chamber only when the plunger is at the limit of its stroke, substantially as described.

5. The combination in a gas-engine, of a combustion-chamber having an exhaust at the point of limit of the stroke of the piston, and an igniter at the upper part of said chamber, a hollow extension of the chamber, and a plunger having a projection working in said extension and provided with ports which are controlled by the extension and projection, the said ports admitting explosive mixture to said chamber only when the plunger is at the limit of its stroke, substantially as described.

6. The combination in a gas-engine having the reservoir to the rear of the plunger, an additional reservoir, a passage or means of communication between the two reservoirs, and a valve in said passage connected with a governor, all substantially as shown and for the purpose set forth.

585,652. GAS-ENGINE. JAMES A. CHARTER, Beloit, Wis. Filed Sept. 26, 1896. Serial No. 607,067. (No model.)



Claim.—1. In a gas-engine, the combination of the cylinder provided with a piston, inlet and exhaust ports, and upon its exterior with a slotted casing, valves adapted to the inlet and exhaust ports, the stem of the inlet-valve projecting through the slotted casing and provided with a bearing, a reciprocating arm adapted to engage with

said bearing, and means for reciprocating the arm into engagement with the bearing upon the opening of the exhaust-valve, substantially as described.

2. In a gas-engine, the combination with a cylinder provided with inlet and exhaust ports, of valves adapted to said ports, the stem of the inlet-valve being provided with a bearing, a rod and means for reciprocating the same to actuate the exhaust-valve, a cam-sleeve upon said rod, a rock-shaft adjacent to said rod having two arms, one extending into engagement with the cam-sleeve and the other adapted to engage with the bearing of the inlet-valve stem, substantially as described.

3. In a gas-engine, the combination with the cylinder and its piston, of a stationary electrode and a movable sliding electrode within the same, the electrodes normally resting in contact and forming terminals of an electric circuit, the movable electrode being in position to be struck by the piston, substantially as described.

4. In a gas-engine, the combination with the cylinder and its piston, of two detachable insulated but connected electrodes extending into an opening in the cylinder-head, one electrode adjustable toward the piston and the other electrode normally in contact with the first and sliding longitudinally, said second electrode being arranged to be struck by the piston, substantially as described.

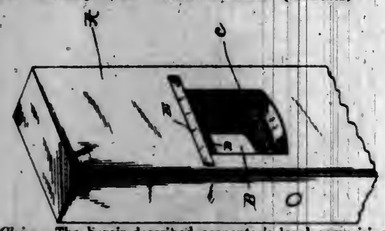
5. In a gas-engine, the combination with the cylinder of a piston provided with a projection, a stationary electrode and a movable electrode normally resting in contact therewith and projecting beyond the same in position to make contact with the projection of the piston, and means for maintaining the electrodes in contact, substantially as described.

6. In a gas-engine, the combination with the cylinder and its piston, of a stationary and a movable electrode within the cylinder forming terminals of an electric circuit and normally resting in contact, the movable electrode projecting inward beyond the stationary electrode into position to make contact with the piston and provided with stop devices for limiting its inward movement, and means for maintaining the electrodes in contact, substantially as described.

7. In a gas-engine, the combination with the cylinder and its piston, of an igniter supported upon the cylinder and comprising two castings insulated from the cylinder and from each other, and each being provided with sleeves projecting into the cylinder, one of said sleeves surrounding but out of contact with the other, said surrounding sleeve constituting an electrode, a second electrode guided in the inner sleeve, and means for maintaining it in contact with the outer sleeve, said electrode projecting inwardly beyond the other into position to make contact with the piston, substantially as described.

8. In a gas-engine, the combination of the cylinder, inlet and exhaust ports and valves, and means for locking the inlet-valve positively and immovably on its seat until the exhaust is fully closed and for then releasing the valve to permit it to open under the draft of the piston, substantially as described.

585,653. CARPENTER'S LEVEL. EDWARD T. CLOWE, Woodland, Cal. Filed May 27, 1896. Serial No. 593,292. (No model.)



Claim.—The herein-described carpenter's level comprising the combination of a body provided with a sight-opening and having an inclined slot extending through the body at one side of the sight-opening, a mirror D located in said slot and having an exposed face, fastening-strips E and F abutting on the outer edge of the mirror, and a bubble-tube C located in the opening.

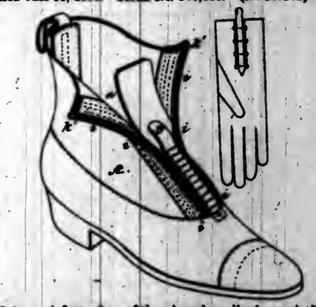
585,654. THILL-COUPLING. JAMES H. CRYDERMAN, Troy, Wis., assignor of two-thirds to Barney Alguire, same place, and Curtis Johnson, River Falls, Wis. Filed Apr. 10, 1897. Serial No. 631,519. (No model.)



Claim.—1. In a thill-coupling, a base-plate, ears projecting outward therefrom, said ears having half-bearings formed on their inner sides, spring-pressed jaws pivoted to said plate and extending forward completing the upper portion of said bearings, said jaws having slots formed therein with slanting bottom walls directly above the bearings, and a thill-iron having pivotal pins to fit in said bearings, substantially as described.

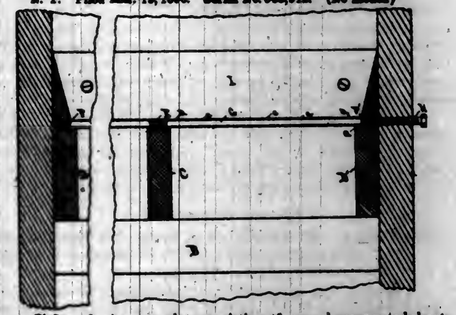
2. In a thill-coupling, a base-plate, ears projecting forward therefrom, said ears having half-bearings formed on their inner sides, jaws pivoted to said plate and extending forward completing the upper portion of said bearings, said jaws having slots with slanting bottom walls formed directly above the bearings, a lug formed on the plate between the jaws, a spring pressing the rear part of said jaws outward, and a plate having a tongue covering the space left between the jaws, substantially as described.

585,655. FASTENING FOR BOOTS, SHOES, CORSETS, &c. JOHN W. DENBO, Boston, Mass., assignor to Frank P. COX, Malden, Mass. Filed Jan. 18, 1896. Serial No. 576,005. (No model.)



Claim.—A fastening of the class described, consisting of a flexible band or tongue having secured thereto a series of transverse clips, each composed of a pair of rounded, ball-shaped or other projections connected by an interposed straight or curved shank, in combination with a pair of hollow guides formed of a series of devices, each having a shank with bifurcations only at its inner end or that contiguous to the opening; the bifurcated devices being arranged side by side, and secured between the upper or other article and its stay or lining, in such manner that the guide is endowed with the necessary flexibility to conform to the natural movements of the foot or other portion of the body or thing inclosed thereby, the bifurcated guide-pieces forming collectively a continuous channel, groove or guideway for the unobstructed passage of the projections of the clips therein, all constructed and arranged to operate substantially as described.

585,656. PULP-SCREEN. HENRY J. DICKERSON, Niagara Falls, N. Y. Filed Mar. 19, 1896. Serial No. 583,912. (No model.)

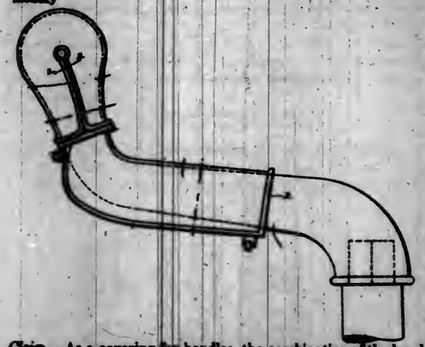


Claim.—1. A screen-plate consisting of several corrugated sheet-metal plates, having the corrugations sawed upon one side upon the line of the apexes of the corrugations with intervening points of division and support, movable supports connecting said plates, and means for securing all of said plates and supports simultaneously by pressure upon the line of corrugation, substantially as set forth.

2. A pulp-screen consisting of a frame provided with longitudinal cleats, transverse movable supports resting upon said cleats, dovetail plates secured to said movable supports, corrugated plates engaging with said dovetails, and set-screws threaded through said frame and forcing all of said movable supports and plates to place upon the line of said corrugation simultaneously, for the purposes set forth.

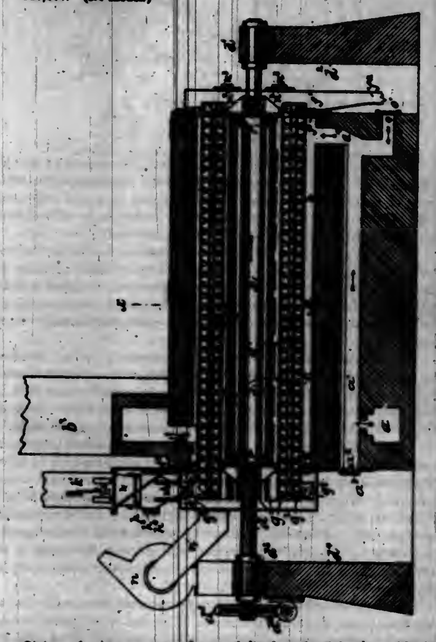
3. In a pulp-screen, the combination of a series of screen-plates made of corrugated metal, having the corrugations sawed upon one side upon the line of the apexes of the corrugations with intervening points of division and support, with a frame, longitudinal cleats secured thereto, movable transverse supports resting upon said cleats, dovetail plates secured to said movable supports and engaging the beveled sides of said plates, and set-screws for forcing all of said plates and said movable supports carrying said dovetails into place and into contact simultaneously, as set forth.

585,657. REMOVABLE COVERING FOR HANDLES. JOHN F. DEARDEN, Trenton, N. J. Filed Oct. 9, 1896. Serial No. 608,308. (No model.)



Claim.—As a covering for handles, the combination of the hood having a slit therein and a head upon the edges of said slit and a beaded flap and clasps for attaching the flap to a handle, substantially as shown and described.

585,658. APPARATUS FOR DECARBONIZING BONE-BLACK. JOHN O. DOUGHE, Ramsey, N. J., assignor to the American Sugar Refining Company, New York, N. Y. Filed Jan. 14, 1897. Serial No. 619,167. (No model.)



Claim.—1. An apparatus for partially decarbonizing bone-black, comprising a heating-chamber; means for heating and controlling the temperature in said chamber; a rotating system of decarbonizing-tubes arranged around and at like radial distances from a rotating shaft which constitutes their common axis of orbital revolution within said chamber; screw conveyers fixed within said tubes; means for successively introducing into each of said tubes prescribed charges of the material to be treated therein; and means for establishing and controlling currents of air through said tubes, whereby during the orbital revolution of each of said tubes the said material will be made to progressively tumble along the convolutions of the screw conveyer from the part of the tube into which said material is fed to the part of the tube from which said material is discharged after having been subjected to prescribed conditions of temperature and environment with the oxygen of the air.

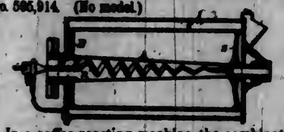
2. In apparatus for partially decarbonizing bone-black comprising a heating-chamber together with a feeding-chamber and a discharge-chamber arranged at opposite ends of the said heating-chamber; means for heating and controlling the temperature in said heating-chamber; a rotating shaft extending through said chambers, and means for rotating said shaft; disks affixed to said shaft and forming portions of the end walls of said heating-chamber; a system of decarbonizing-tubes, provided with interiorly-fixed screw conveyers, and grouped around said shaft and having their opposite ends affixed to and projecting through said disks into said feeding chamber and into said discharge-chamber respectively; each of said tubes provided at one end with a feed-opening adapting it to receive a prescribed charge of material to be treated at a prescribed stage in each of its successive traverses of the upper part of said feeding-chamber and adapted at its opposite end to progressively discharge its contents into said discharge-chamber; an exhaust-fan suitably connected with said feeding-chamber, and air-inlets provided with dampers for admitting air into said discharge-chamber, substantially as and for the purposes set forth.

3. In an organized apparatus for partially decarbonizing bone-black containing a rotating system of decarbonizing-tubes arranged within a heating-chamber and projecting therefrom into a feeding-chamber; hoppers affixed to the parts of said tubes projecting into said feeding-chamber, each of which hoppers is provided upon one of its edges with an inwardly-turned flange for the purpose of enabling the hopper to act as a scoop during its traverse of the lower part of said feeding-chamber.

4. In an organized apparatus for partially decarbonizing bone-black containing a rotating system of decarbonizing-tubes arranged within a heating-chamber and projecting therefrom into a feeding-chamber, and provided with suitable hoppers, the combination, as herein set forth, of a system of cams rotating with the said system of tubes; a vibrating charger, provided at the top with a feed-opening adapting it, when occupying one of its extreme positions to receive a charge of bone-black from a suitably-arranged spout; a system of levers adapted to be actuated by said cams successively for the purpose of moving said vibrating charger into position to receive its charge; a stationary shield for closing the mouth of the charger at the time when it is receiving its charge; a weighted arm for vibrating the charger to its opposite position when the lever system is released from the action of the cams, whereby the contents of the charger will be discharged into that one of the tubes which is at that time traversing the upper part of said feed-chamber.

5. The combination, as herein set forth, of the described rotating system of decarbonizing-tubes provided with hoppers arranged within a feeding-chamber; a system of cams rotating with said tubes; a vibrating charger adapted to contain a prescribed charge of bone-black; a weighted arm for rocking said charger in one direction; connections between said charger and the path of movement of said cams, whereby said charger will be alternately rocked in one direction to receive a prescribed charge of bone-black from a suitably-arranged spout and in the opposite direction to deliver its charge of bone-black into that one of the said hoppers which is at the time traversing the upper part of said feeding-chamber.

585,659. COFFEE-ROASTER. CARL H. DORRING, Hoboken, N. J., assignor to David B. Fraser, New York, N. Y. Filed June 17, 1896. Serial No. 595,914. (No model.)



Claim.—In a coffee-roasting machine, the combination with the roasting-cylinder, of the fruste-conical heating-chamber located within said roasting-cylinder, and the coiled heating-pipe located within the heating-chamber having the coils larger at one end and diminishing toward the other end; substantially as described.

585,660. THILL-COUPLING. VICTOR DUHAS, Jr., and ADAM KNAPP, Jr., Java, N. Y. Filed Apr. 16, 1897. Serial No. 632,317. (No model.)

Claim.—1. The combination with an axle-clip having forwardly-projecting arms A' A', a vertical recess a^3 between said arms and a recess a' on its under side terminating in an aperture a^3, of a spring-bar B bent at one end to engage the recess a' and aperture a^3 and curved at its other end to lie between the arms A' A', the spring-bar being held in place by the cross-bar of the axle-clip, substantially as shown and for the purpose set forth.



2. The combination with an axle-clip having forwardly-projecting members which support a transverse bolt, said clip being also provided with a vertical recess between the arms and on its under side with a recess a' terminating at its rear end in an aperture a^3, of a spring-bar B bent at one end to engage the recess a' and aperture a^3 and curved to lie between the members of the axle-clip, the spring being held in position by the cross-bar of the clip; together with a thill-iron having a flattened rear end forming a cam and provided in its upper portion with a serpentine channel C' presenting a curved wall c on one side and opposite thereto a projection c', the face of the cam having a groove c^3, substantially as shown and for the purpose set forth.

585,661. MEANS FOR HEALING PUNCTURES IN PNEUMATIC TIRES. GOLA R. DUNN, Chicago, Ill. Filed May 18, 1896. Serial No. 591,953. (No model.)



Claim.—1. A pneumatic vehicle-tire having in combination two non-solid substances arranged in the tread side thereof and held in separation but which substances when combined are capable of forming a clot for closing the puncture, substantially as set forth.

2. A pneumatic vehicle-tire having in combination a stratum of powder and a quantity of liquid in the tread side thereof held in separation, substantially as and for the purpose set forth.

3. A pneumatic vehicle-tire having in combination a hermetically-sealed cell located at the tread side thereof and being completely filled with a non-solid substance out of contact with air, and another non-solid substance contained within the tire in juxtaposition to but out of contact with said first substance, the said non-solid substances being adapted to form a clot when brought together, substantially as set forth.

585,662. SWITCHBOARD FOR CENTRAL TELEPHONE-STATIONS. CHARLES E. EGAN, Chicago, Ill., assignor, by mesne assignments, of one-half to Sterling L. Bailey, same place. Filed Dec. 2, 1895. Serial No. 570,830. (No model.)

Claim.—1. The combination of flexible arms having sockets mounted thereon, contact-points on each side thereof included in the circuit of the signaling apparatus, substantially as specified.

2. The combination of a flexible arm having a socket thereon and a contact-point at the side thereof included in the circuit of a signaling apparatus, substantially as specified.

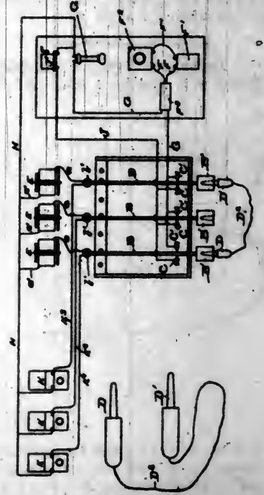
3. The combination of a flexible arm having a socket thereon, and a contact-point at the side thereof included in the circuit of a telephone, substantially as specified.

4. The combination of a flexible arm having a socket thereon, and a contact-point at each side thereof, one of said contact-points being included in the circuit of a signaling apparatus, and the other in the circuit of a telephone, substantially as specified.

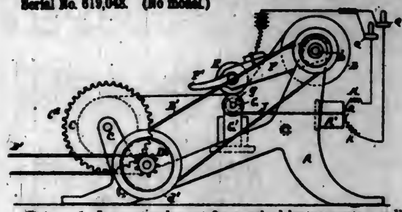
5. In a telephone-switchboard, the combination with the usual telephone-circuits, and the indicator-drops, of the flexible movable metallic arms B, each carrying a plug-socket or its equivalent, and each provided with the contact-points C C' together with the circuits F, G and J, the battery F', the transmitter F^2, the induction-coil F^3, the receiver G' and the call-generator J', all connected and operating substantially as specified.

6. In a central telephone-switchboard, the combination of the frame A, the flexible arm B, the connector B^3 mounted thereon, and the contact-points C C', substantially as specified.

7. In a telephone-switchboard, the combination of the frame A, the upright slotted strip A', the spring-arms B resting at their rear ends in the slots of said strip A', and secured therein by a single screw *b*, and the contact-points C C', one at each side of each arm B, and the socket B^3 or its equivalent, carried on the front end of each arm, substantially as specified.



585,663. ELECTRIC ATTACHMENT FOR MUSICAL INSTRUMENTS. WILLIAM B. FLEMING, Detroit, Mich. Filed Jan. 13, 1897. Serial No. 619,042. (No model.)



Claim.—1. In an attachment for musical instruments, a roller E, a conductor in electrical connection therewith, a shaft provided with series of disks adjacent to said roller, mounted upon said shaft and insulated one from the other, and spring contact-arms in electrical connection with said disks, substantially as set forth.

2. In an attachment for musical instruments, a roller, a conductor in electrical connection therewith, a series of disks adjacent to said roller, and spring contact-arms in electrical connection with said disks, said disks formed with hubs concaved on their peripheries to receive the corresponding contact-arms, substantially as set forth.

3. In an attachment for musical instruments, a roller, a conductor in electrical connection therewith, a shaft, a series of disks mounted upon said shaft adjacent to said roller, and spring contact-arms in electrical connection with said disks, the bore of said disks being of larger diameter than that of said shaft, substantially as set forth.

4. In an attachment for musical instruments, the combination of two rotatable feed-drums, a music-roll mounted thereupon, a roller E, intermediate said drums, an electrical conductor connected therewith, a series of disks insulated one from another adjacent to said roller, and spring contact-arms having independent electrical conductors connected therewith, said arms having electrical contact against said disks on the under side thereof, whereby the disks may be removed without interference with said contact-arms, substantially as described.

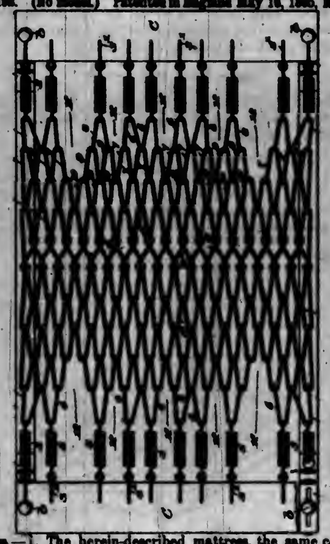
5. In an attachment for musical instruments, the combination of the feed-drums, the roller E mounted in an oscillatory frame, a conductor in electrical connection therewith, a series of disks adjacent to the roller insulated one from the other, and contact-springs in electrical connection with said disks, the shaft of said disks being removable from its bearings without disturbing said contact-springs, substantially as set forth.

6. In an attachment for musical instruments, a drum B, upon which a music-roll is placed, a drum C, upon which the music-roll is wound in the action of the device, means to actuate said drums, a roller E, a series of insulated disks H adjacent to said roller, an insulated shaft upon which said disks are mounted, and springs J in contact with said disks, said springs and roller provided with electrical conductors, substantially as described.

7. In an attachment for musical instruments, the combination of the drums, a perforated music-roll arranged to be fed from one drum to the other, a roller E, a shaft G provided with disks to contact with the roller E through the perforations of the music-roll, spring contact-arms in contact with said disks, and electrical conductors leading to the roller and to the disks, said disks insulated one from another, as set forth.

8. In an attachment for musical instruments, provided with a perforated music-roll, a roller, a series of insulated disks adjacent to said roller, between which disks and the roller the music-roll travels, and contact-arms, the roller and disks in electrical circuit and forming electrical contact through the perforations of the music-roll, said disks formed with hubs to receive the corresponding contact-arms, for the purpose set forth.

585,664. WIRE MATTRESS AND FRAME THEREFOR. FRANCIS G. GALE, Waterville, Canada. Filed Aug. 24, 1894. Serial No. 521,192. (No model.) Patented in England May 16, 1895, No. 10,332.



Claim.—1. The herein-described mattress, the same consisting of a plurality of transverse rows of resilient Λ-shaped wire links, the legs of the links of each row being hooked to the apices of the links of the adjacent row, the number of links in the body-rows being substantially the same, the number of links in the end row being less than the number in the body-rows, the number of links in successive rows from the end toward the middle gradually increasing until the full body-rows are reached, to thereby provide a constantly-diverging field of tension for and having its apex at each Λ-shaped link of the end series, and springs connected with the links of the said end series and fewer in number than the number of links in the body series, whereby the body of the mattress possesses the flexibility and ease due to a large number of relatively small links with a relatively small number of sustaining springs at the end of the mattress, substantially as described.

2. The herein-described mattress consisting of a plurality of rows of resilient Λ-shaped wire links, the legs of the links of each series being connected with the apices of the links of the next adjacent series, said links adjacent the end of the mattress being arranged to present one or more lines of weakness extending from the end of the mattress inwardly, for a distance exceeding the length of the endmost row of links, to thereby provide a flexibility exceeding that due to the spaces between adjacent links of full rows, substantially as described.

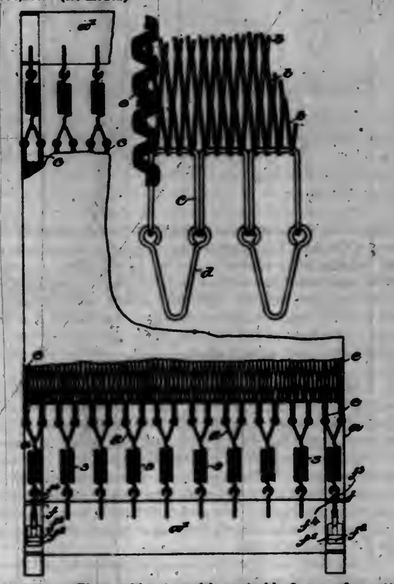
3. The herein-described mattress, the same consisting of a plurality of Λ-shaped links arranged in transverse rows or the links at opposite sides the transverse middle of the mattress facing in opposite directions, and a long transverse zigzag connection joining facing legs of the adjacent links at the middle of the mattress, substantially as described.

4. The herein-described mattress, the same consisting of a plurality of Λ-shaped links arranged in transverse rows, the links at opposite sides the transverse middle of the mattress facing in opposite directions, and a continuous transverse zigzag connection joining the facing legs of the adjacent links at the middle of the mattress, and having eyes to which the said legs are hooked, substantially as described.

5. A mattress-frame comprising side and end rails and slotted supports for the latter on and raised above the top of the former, bolts on the said end rails extended through and guided by the slots in the said raised supports, and adjusting devices arranged above said side rails and beneath the said end rails and connected with the said bolts for adjusting the position of the said end rails, substantially as described.

6. The combination with a suitable frame, of a wire mattress suspended at its ends by springs hung from said frames, said mattress comprising wires bent or arranged to present diverging portions the angle of divergence between which is of such acuteness that the diverging area of pressure developed by said diverging portions of the mattress-wires when a weight is sustained upon the mattress in any of the positions actually assumed by persons resting thereupon shall fall, at or substantially at the ends of the mattress, entirely within the portion of said ends, which are sustained by said end springs, substantially as described.

585,665. WIRE MATTRESS AND FRAME THEREFOR. FRANCIS G. GALE, Waterville, Canada. Filed May 22, 1895. Serial No. 550,206. (No model.)



Claim.—1. The combination with a suitable frame, of a mattress suspended at its ends therein, said mattress comprising a series of interlocked spirally-twisted wires or coils extended transversely of the mattress, mattress-suspending springs connecting the endmost coils at different points in their length with said frame, the spiral turns of one transverse wire interlocking with the spiral turns of the next adjacent transverse wire, said interlocking wires at each of said interlocking turns contacting at two points whereby the pull longitudinally of the mattress from one to the other of its end supports, due to a weight carried by said mattress, acts transversely of said interlocked spirals to cause one to laterally brace and support the other, to thereby prevent collapse of any spiral and the stiffening selvage coils or spirals extended lengthwise of the mattress at the side edges thereof, and interlocked with the transverse edges of said body-spirals, substantially as described.

2. The combination with a suitable frame, of a mattress suspended at its ends therein, said mattress comprising a series of interlocked spirally-twisted wires or coils extended transversely of the mattress, mattress-suspending springs connecting the endmost transverse coils, at different points in their length with said frame; and stiffening selvage coils or spirals extended lengthwise the mattress at the side edges thereof said selvage-spirals being interlocked with the ends of

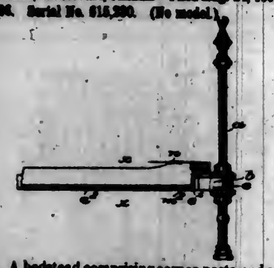
said transverse body-spirals and serving to reduce shortening of said transverse spirals and thus reduce the tendency of the mattress to contract in width under the action of a load, substantially as described.

3. The combination with a suitable frame, of a mattress therefor, composed of a series of transverse interlocking spirally-twisted wires, U-shaped holders each engaging at its extended middle portion a plurality of turns of the outside or endmost spiral wires, and springs connecting the ends of said holders with said frame, substantially as described.

4. The combination with a suitable frame, of a mattress therefor, composed of a series of transverse interlocking spirally-twisted wires, U-shaped holders having extended middle portions engaging thereat a plurality of turns of the outside or endmost spiral wires, springs on the said frame, and A-shaped holders end to end joining the said U-shaped holders to said springs, substantially as described.

5. The combination with the mattress and the end rails to which the same is connected, of the side rails, the slotted support carrying the end rails, bolts f^3 having slotted heads resting above said slotted supports, the threaded ends of bolts f^3 extending through the inner sides of the supports f and provided with nuts f^4 and bolts f' extending through the side rails, the slots of supports f and the slotted heads of bolts f^3 to afford rigid bearings for the latter, all combined substantially as described.

585,666. BEDSTEAD AND MATTRESS-FRAME THEREFOR. FRANKLIN G. GALE, Waterville, Canada. Filed Aug. 24, 1894. Renewed Dec. 10, 1896. Serial No. 615,220. (No model.)



Claim.—1. A bedstead comprising corner-posts, end and side rails connecting the same, and mattress-frame supports at the opposite ends of said bedstead adjacent and carried by the said posts, in combination with a removable rectangular mattress-frame resting at its ends upon said supports whereby the weight of said mattress-frame, together with any weight sustained thereby is transferred directly to the said corner-posts to thereby relieve the said side and end bedstead-rails from said weight, substantially as and for the purpose specified.

2. A bedstead comprising corner-posts, and end and side rails connecting the same, mattress-frame supports at opposite ends of the bedstead adjacent and carried by said posts, in combination with a removable rectangular mattress-frame resting at its ends on said supports, a mattress supported at its ends from and by the end rails of said mattress-frame, whereby the weight upon the mattress is taken by the ends of the mattress-frame and transferred thereby through the said supports directly to the said corner-posts, thereby relieving the side and end bedstead-rails from said weight, substantially as and for the purpose specified.

3. A bedstead, comprising corner-posts, and end and side rails connecting the same, mattress-frame supports at opposite ends of said bedstead adjacent and carried by the said posts, in combination with a mattress-frame composed of side and end rails, the latter recessed at their under sides at opposite ends to leave overhanging supporting-ears to rest upon and be sustained by said supports, whereby said side and end rails are relieved from the weight of the said mattress-frame and the weight carried thereby, substantially as described.

585,667. KNOCKDOWN FURNITURE. ARTHUR H. GURLEY, Grand Rapids, Mich., assignor of one-half to Malcolm C. Sinclair, same place. Filed Dec. 9, 1896. Serial No. 614,965. (No model.)



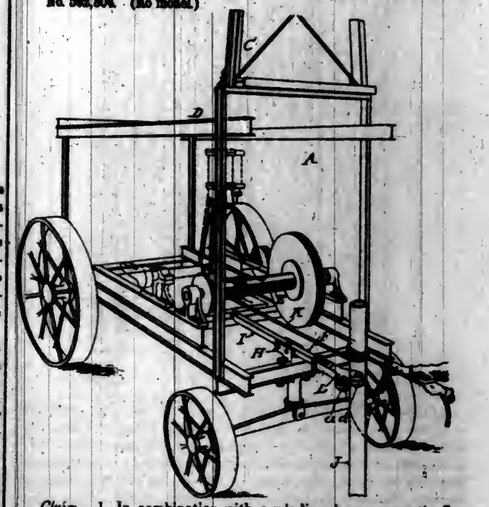
Claim.—1. In knockdown furniture, a center post having a flange and formed with a series of angular faces, a removable cap secured to said post, and a series of radial legs hinged together, and each in contact with one angular face of the post and having shoulders engaging said flange and cap and secured to said post thereby, substantially as described.

2. In knockdown furniture, a central post having a flange provided with recesses, a cap secured to the end of said post, and a series of legs having shoulders engaging the flange and cap, and angles engaging the recesses, and hinges connecting said legs to each other in series, substantially as described.

3. In knockdown furniture, a series of radial legs having adjacent vertical faces, and shoulders at each end for said faces, hinges connecting said legs in series, a polygonal center post, having a flange engaging the shoulder at the upper ends of said faces, a cap secured to the end of said post and engaging the shoulders at the lower ends of said faces, outwardly-projecting upper ends to said legs, and a top having a downwardly-projecting flange having recesses engaging the upper ends of said legs, substantially as described.

4. The combination of a polygonal post, having a flange at its upper end having peripheral recesses, a concave cap and screw at its lower end, a series of radial legs, having faces corresponding to the sides of the post, shoulders to engage the flange and cap, angles to engage the recesses, and outwardly-projecting upper ends; and a top having a downwardly-projecting flange, having recesses to engage said upper ends of the legs, and a piece of canvas secured to the faces of said legs, substantially as described.

585,668. WELL-DRILLING MACHINE. HARVEY S. GLENN and COULTER H. GLENN, New Brighton, Pa. Filed May 23, 1896. Serial No. 592,804. (No model.)



Claim.—1. In combination with a winding-drum, a practically rigid support to sustain a pipe or casing against the winding strain; and a rope or cable to wind about the drum and about the pipe or casing, substantially as and for the purpose set forth.

2. In combination with the drum of a well-drilling machine, a practically rigid support to sustain a pipe or casing; a rope or cable passing about the drum and adapted to encircle and to grip the pipe or casing; and means for turning the drum.

3. In combination with the winding-drum of a well-drilling machine, a rope or cable; and a practically rigid support carried by the drilling-machine and adapted to be moved to position to bear against and to support a pipe or casing in axial alinement with the well; and to be withdrawn to permit the drilling mechanism to operate.

4. In combination with frame A, having drum E; bar F provided with a forked or crotch-shaped head or end, substantially as and for the purpose set forth.

5. In combination with a drilling-machine, a supporting block or head to sustain a pipe or casing against lateral pressure, said block or head being provided with antifriction-rollers to facilitate the turning of the pipe or casing while resting against the support.

6. In combination with a drilling-machine and its drum, a guide-block secured to the frame or body of said machine; and a pipe or casing support hinged or jointed to said guide-block and adapted to be throw into and out of operative position at will.

585,669. VEST PENCIL-HOLDER. EDWIN F. GOULD, Machias, Me. Filed Sept. 12, 1896. Serial No. 605,535. (No model.)



Claim.—1. The herein-described pencil-holder, consisting of a plate adapted to be secured to a vest or other garment adjacent to the pocket thereof, an outwardly-curved strip secured to said plate, and a band of rubber or other suitable material secured to the inner surface of said strip and partially closing the space between said strip and said plate, as and for the purpose set forth.

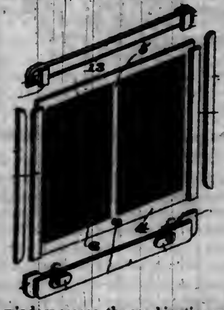
2. The herein-described pencil-holder, consisting of a plate, a pin at the upper end thereof for securing the same to a vest or other garment, an outwardly-curved strip of metal secured to said plate, and a hollow band of rubber or other suitable material secured to the inner surface of said strip and partially closing the space between said strip and said plate, as and for the purpose set forth.

585,670. PENCIL-SHARPENER. JAMES O. GRAVES, Pridd's Crossing, Mass. Filed Sept. 26, 1896. Serial No. 606,984. (No model.)



Claim.—A combined pencil-sharpener, point-guard and eraser all in a single device consisting of a body portion with tapered bore at one end with a knife arranged in a slit therein, a bore at the opposite end with cone-shaped inner end, and a cylindrical portion of less diameter between the tapered bore and cone-shaped portion whereby the tapered portion of the pencil is held by said cone-shaped portion and the point prevented from contact with the walls of the cylindrical portion of less diameter, and an eraser seated in an annular groove at one end of the body portion, substantially as shown and described.

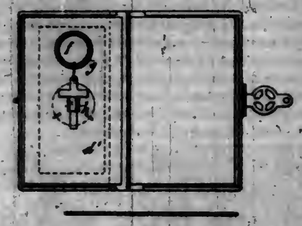
585,671. WINDOW-SCREEN. WILLIAM HALSEY, Jr., Afton, N. J. Filed July 31, 1896. Serial No. 600,980. (No model.)



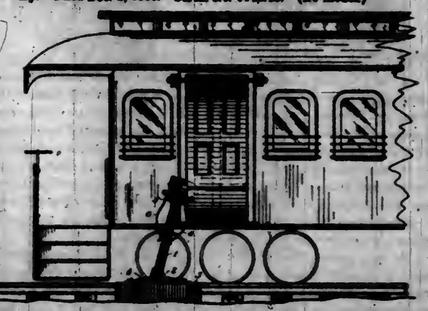
Claim.—In a window-screen, the combination with an upper locking-strip provided with a rabbet and having lugs which overhang the said rabbet and also provided with pockets at its ends, which ends are received in the window-frame grooves, of a lower locking-strip having flanges at its ends which project both upwardly and outwardly from said ends and which flanges are also received in the window-frame grooves, fastening-buttons on said lower locking-strip, a frame comprising the screen proper, which frame has vertically-disposed guide-strips secured to one side thereof and projecting out laterally from its ends and the frame having its upper edge received in the rabbet of the upper locking-strip and held by the lugs and its lower edge resting on the lower locking-strip and held against the end flanges thereof by the buttons, and independent detachable side guide-strips fitted in the grooves of the window-frame and lying against the ends of the screen-frame and the projecting portions of the guide-strips thereof, and said guide-strips having their upper ends received in the pockets of the upper locking-strip and their lower ends resting against the projecting portions of the flanges and the lower locking-strip.

585,672. CATHOLIC PRAYER-BOOK. LUDWIG HOSER, Inzlohn, Germany. Filed Sept. 28, 1895. Serial No. 563,963. (No model.)

Claim.—A prayer-book having a hollow cover which is made accessible by a hole for putting in it a chaplet and ears, hooks, or other suitable means that are arranged underneath the hole in order to take up the crucifix or the medal, as described and for the purpose set forth.



585,673. MAIL-POUCH CRANE. LUDOVIC B. HUNT, Somerset, Ky. Filed Dec. 2, 1896. Serial No. 614,213. (No model.)



Claim.—1. In a device of the kind specified, a pivoted arm provided with cushions, and a frictional device for holding said arm in an upright position, substantially as described.

2. In a device of the kind specified, a post provided with a spring, a pivoted arm having its lower end adapted to engage said spring when said arm stands in an upright position, a head upon said arm, and cushions upon the sides of said arm, substantially as described.

585,674. FAUCET-FILTER. SAMUEL H. JOHNS, Scranton, Pa. Filed Nov. 4, 1896. Serial No. 611,000. (No model.)



Claim.—1. A filter, made up of a casing adapted to be screwed upon an ordinary faucet having an opening in its lower end, a spout extending outwardly from the upper end of said casing, a filtering-screen therein, and a cap normally fitting upon the lower end of said casing and adapted to be screwed upon the lower end of said spout, substantially as and for the purpose described.

2. A filter, made up of a casing adapted to be screwed upon an ordinary faucet having an opening at its lower end, a spout extending outwardly from the upper end of said casing, a filtering screen therein, a cap normally fitting upon the lower end of said casing and adapted to be screwed upon the lower end of said spout, and means located in said casing for preventing the direct impact of the water from the faucet with the bottom thereof, but permitting the free passage of said water therethrough.

3. A filter, made up of a casing adapted to be screwed upon an ordinary faucet having an opening at its lower end, a spout extending outwardly from the upper end of said casing, a filtering-screen therein, a cap normally fitting upon the lower end of said casing and adapted to be screwed upon the lower end of said spout, a coil-spring fitting within the lower end of said casing, and a ball loosely mounted upon the upper end of said spring whereby the direct impact of the water against the bottom of said casing is prevented, but free passage of the same therethrough is permitted.

585,675. SEWING-MACHINE FOR LASTING BOOTS OR SHOES. THOMAS K. KEITH, Boston, Mass., assignor to the Keith Lasting Machine Company, Kittery, Me. Filed June 8, 1896. Serial No. 594,763. (No model.)

Claim.—1. In a sewing-machine for lasting shoes, stitch-forming mechanism, a gage for the bottom of the sole to position the shoe at the proper level for the action of the needle, a sliding carriage, a roller mounted thereon and having an attached bevel-gear, and a shaft having a bevel-gear in engagement with the bevel-gear of the roller, a gear feather-keyed to said shaft, a second shaft having a gear engaging and driving said feather-keyed gear, bearings for said shaft and means to rotate the latter shaft whereby the roller mounted on the carriage is driven positively while the carriage is being slid backward and forward, substantially as described.



2. In a sewing-machine for lasting shoes, stitch-forming mechanism, a gage for the bottom of the sole to position the shoe at the proper level for the action of the needle, a presser-foot, a sliding carriage, a roller mounted thereon and having an attached bevel-gear, and a shaft having a bevel-gear in engagement with the bevel-gear of the roller, a gear feather-keyed to said shaft, a second shaft in fixed bearings and having a gear engaging and driving said feather-keyed gear, and means to rotate the latter shaft whereby the roller mounted on the carriage is driven positively while the carriage is being slid backward and forward, substantially as described.

3. In a sewing-machine for lasting shoes, stitch-forming mechanism, a gage for the bottom of the sole to position the shoe at the proper level for the action of the needle, a sliding carriage, a roller mounted thereon and having an attached bevel-gear, and a shaft having a bevel-gear in engagement with the bevel-gear of the roller, a gear feather-keyed to said shaft, a second shaft in fixed bearings and having a gear engaging and driving said feather-keyed gear, and means to rotate the latter shaft whereby the roller mounted on the carriage is driven positively while the carriage is being slid backward and forward, and a locking device to engage and hold the said carriage in its backward position while the needle is in the work, substantially as described.

585,676. RAILWAY DANGER-SIGNALING. JAMES K. KENDRICK, Germantown, Cal. Filed Nov. 2, 1896. Serial No. 610,897. (No model.)



Claim.—1. In a device for signaling railway-trains the combination with a suitable locomotive and road-bed of a pilot-car mounted on suitable trucks and provided with suitable motive power and adapted to precede the locomotive at a suitable distance, a cow-catcher mounted in front of such pilot-car on horizontal parallel bars which are arranged longitudinally in suitable bearings on such pilot-car, a lever pivotally attached to the side of the pilot-car and adapted to engage with the parallel bars and a sliding lug 9, suitable electric connection between the lug 9 and a bell in the cab of the locomotive, and such bell, all arranged and operating substantially as shown and described.

2. In a device for railway-train signaling the combination with a locomotive and road-bed of a pilot-car adapted to precede the locomotive at a suitable distance, suitable motive power for propelling the pilot-car, a cow-catcher attached to longitudinally-sliding parallel bars, and adapted to project in front of such pilot-car, the longitudinally-sliding parallel bars arranged in bearings on the pilot-car, a laterally-extending arm 5 attached to the rear end of the parallel bars, the lever 7 pivotally attached to the side of the pilot-car, the lower end of such lever 7 being adapted to engage with the free end of the arm 5, the contact device composed of the lug 9 mounted on the bars 8, and adapted to engage with the upper end of the lever 7, the bars 8 rigidly attached to the side of the car and provided with electrical connection to an electric battery 12 suitably located on the pilot-car, the spring 10 adapted to engage with the lug 9, the wire 13 attached at one end to the spring 10 and at the other end to the trolley 14, such trolley 14 suitably mounted on the top of the pilot-car and adapted to engage with the trolley-wire 15, the trolley-wire 15 suitably suspended over the road-bed, the trolley 17 suitably mounted on the cab of the locomotive, and adapted to engage with the trolley-wire 15, the wire 20 attached at one end to the trolley 17 and at its other end to the bell 19, the bell 19 suitably situated in the cab of the locomotive, the wire 21 attached to the bell and to the electric battery 22, the battery 22 suitably located on the locomotive, and the ground-wires 23 attached to the batteries 12 and 22, all arranged and operating substantially as shown and described.

585,677. STOVE. FRANK A. KIESER, LAZARD KAHN, and HENRY OPPENHEIMER, Hamilton, Ohio, assignors to F. & L. Kahn & Bros., same place. Filed June 27, 1895. Serial No. 554,205. (No model.)



Claim.—1. In a stove having a draft-passage, the combination of a shaking grate, shaking mechanism for said grate accessible through said draft-passage, a guard-door for ashes situated within said draft-passage and a draft-door for closing said draft-passage.

2. As an article of manufacture, a stove having an ash-box, a door hinged thereto at one side edge of said door, and inner guard-door hinged to said ash-box and provided with a slot to give access to the shake-bar, and provided also with air-ports and a closing-plate mounted on said inner guard-door, and a device on the outer door engaging and forcing said closing-plate in position to open said air-ports when said outer door is closed, substantially as described.

3. In a stove, the combination, substantially as described, of an ash-box, a door hinged thereto at one of the side edges of said door, an inner guard-door also hinged to said ash-box and provided with air-ports and with a slot to give access to the shaker-bar, and a port-closing plate mounted on said guard-door in position to be engaged and moved to open position by said first-mentioned door when the latter is closed, substantially as described.

4. In a stove, the combination of an ash-box, a door hinged thereto at one of the side edges of said door, an inner guard-door hinged to said ash-box, a catch on said guard-door to hold it closed, and operative means on said outer door engaging said catch and throwing it to its closed position when said outer door is closed, substantially as described.

5. In a stove, the combination of an ash-box, a door hinged thereto at one of the side edges of said door, an inner guard-door also hinged to said ash-box, and provided with air-ports, a combined catch and port-closing plate mounted on said guard-door, and means on the outer door engaging and throwing said combined catch and port-plate when said outer door is closed, whereby the catch is caught and the ports are opened when the outer door is closed, substantially as described.

6. In a stove, the combination, substantially as set forth, of a fire-pot, a circular grate mounted therein and provided with ribs, a shake-bar pivoted to the center of said grate, and a pawl pivoted to said shake-bar and adapted to engage the ribs of the grate and give to the grate an intermittent rotary motion as the shake-bar is oscillated.

7. In a stove, the combination with a fire-pot and a circular grate mounted therein and provided with ribs, of a pivoted shake-bar, mechanism actuated by the shake-bar for rotating the grate, mechanism for securing the grate and shake-bar together by the elevation of the latter, and means for elevating the shake-bar.

8. In a stove, the combination, substantially as set forth, of a fire-pot, a circular grate mounted therein and provided with ribs and openings, a shake-bar pivoted to the central portion of said grate, a pawl pivoted to said shake-bar and adapted to engage the ribs of the grate, a spur upon the shake-bar adapted to engage the openings in the grate but disposed in such low position as to be normally out of engagement with the grate, and a guide-bar adapted to support the shake-bar in such high position that said spur will engage the grate.

9. In a stove, the combination, substantially as set forth, of a fire-pot having spiral ribs upon its inner surface and toothed at its base, a circular grate mounted therein and having its upper surface in conical form and provided with perforations and with spiral ribs, and means for rotating said grate.

10. In a stove, the combination, substantially as set forth, of a door provided with cylindrical hinge-pintles one of which is diametrically slotted, a door-jamb provided with open notches to receive said pintles, and pins projecting from the door-jamb over said pintles.

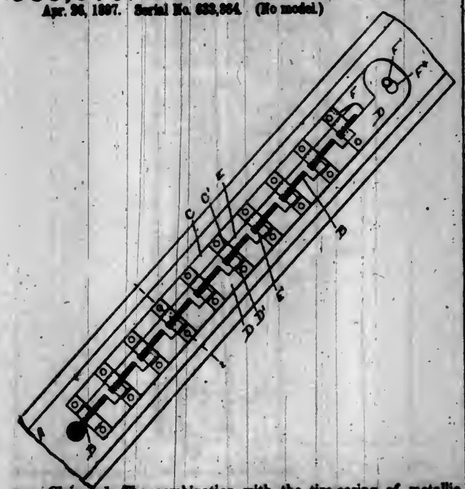
11. The combination with a stove and inner guard-door, of an outer door, and mechanism actuated by the outer door for latching the inner guard-door.

585,678. HITCHING DEVICE. SANDY KING and MARSHALL MYERS, Mexia, Tex. Filed Oct. 29, 1896. Serial No. 610,441. (No model.)



Claim.—In a hitching device, a rectangular body A, provided with an inwardly-extending bearing B at each end, combined with a loop C D, which is supported upon the body and which extends at right angles thereto, the loop forming a support for the strap upon the body after the strap has been passed back and forth through the body; the bearings upon the body allowing the loop a slight endwise play, substantially as shown.

585,679. BICYCLE-TIRE. SAMUEL KOHN, Chicago, Ill. Filed Apr. 26, 1897. Serial No. 633,864. (No model.)



Claim.—1. The combination with the tire-casing of metallic guides at one side of the slit therein, and a sliding bar moving in said guides and provided with hooks engaging interlocking devices at the other side thereof, substantially as specified.

2. The combination with a tire-casing of metallic strips at each side of the slit therein, both provided with guides, and a sliding bar held in position by the guides on one strip, and provided with hooks engaging the guides upon the other strip, substantially as specified.

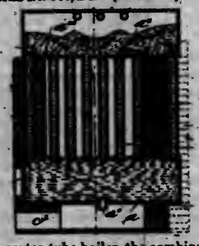
3. The combination with a tire-casing of a sliding bar at one side of the slit therein, means for holding and guiding said bar, and loops or engaging devices at the other side of said slit adapted to interlock with hooks carried by said bar, substantially as specified.

4. The combination with the tire-casing, of the sliding bar having hooks, essentially as described, and devices for interlocking with said hooks, and means for sliding said bar, substantially as described.

5. The combination with the tire-casing, of the sliding bar having hooks, essentially as described, and devices for interlocking with said hooks, and means for sliding and locking said bar, substantially as described.

6. The combination with the tire-casing, of the sliding bar having hooks, essentially as described, and devices for interlocking with said hooks, and a swinging lever F having a eccentric slot, substantially as specified.

585,680. WATER-TUBE STEAM-BOILER. ALVARO S. KNOX, Springfield, Ohio, assignor to Walter S. Lucas, Chicago, Ill. Filed Apr. 6, 1896. Serial No. 586,431. (No model.)



Claim.—1. In a water-tube boiler, the combination with a series of banks each consisting of tubes to which are connected a steam and a mud drum, the drums extending through the side walls, a recess within the outside of the side walls, and located between the ends of said steam and mud drums, of the same bank, said recess being in line with the generating-tubes, and down-current tubes located within said recess and connecting the drums together of the same bank.

2. In a water-tube boiler, the combination with a bank of tubes to which are connected a steam and a mud drum, the drums extending through the side walls, a recess within the outside of the side walls and located between the ends of said steam and mud drums, and down-current tubes located within said recess and connecting the drums together, and a metal or sheet covering over said recess.

3. In a water-tube boiler, the combination with upper and lower drums connected together by tubes, the banks thus formed being supported crosswise between the side walls, by the upper drums resting on their ends upon the side walls, the end tubes being partially protected from the heat by being located within a recess within the inside of the walls over which the ends of the drums pass, substantially as shown and described.

4. In a water-tube boiler, the combination with upper and lower drums connected together by tubes, a part of the tube being located within a recess within the inside of the side or end walls, and deflecting-plates in the upper drum placed at an angle over the generating-tubes and below the water-line, and a cross partition-wall placed between the generating and circulating tubes the top of said partition-wall being below the water-line.

5. In a water-tube boiler the combination with a series of banks consisting of up-current and down-current circulating-tubes, the down-current tubes being partially or wholly protected from the heat, deflecting-plates suspended crosswise in the drum and at an angle and above the generating-tubes and below the water-line, and a partition-wall placed between the circulating and generating tubes the top of said partition being below the water-line, substantially as shown and described.

6. In a water-tube boiler, the combination with a series of banks of tubes, each bank connected to a mud-drum below and a steam-drum above, deflecting plates or guides suspended crosswise in the drum and placed at an angle above the up-current tubes, said plates being turned or leaned toward the down-current tubes, and a division-wall between the outside row or rows of tubes and the generating-tubes; the upper portion of the division-wall being below the water-line, and feed or equalizing pipes entering the drum within the space occupied by the down-current tubes.

7. In a water-tube boiler, the combination with a series of banks of tubes connecting together mud and steam drums, the tubes at the end being a distance from the succeeding tubes and between which

a wall is located, said drums extending through, or over the wall, said end tubes being parallel with the wall but on a curve crosswise with the drums, substantially as and for the purpose specified.

8. In a water-tube boiler, the combination with double side walls upon which are supported a series of banks each consisting of steam-drums a mud drum or drums, and up-current and down-current water-circulating tubes connecting the drums together, the down-current circulating-tubes being located between the double walls the said banks placed parallel with each other, but crosswise with the double side walls, the ends of the drums passing through the inner side walls.

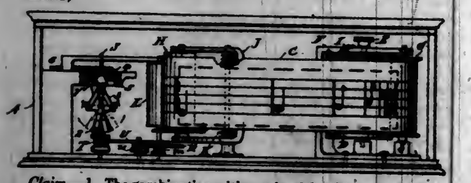
9. In a water-tube boiler, the combination with a series of banks, each consisting of two drums and up-current and down-current circulating-tubes connecting the drums together, said banks being surrounded by vertical walls, the ends of the top drums resting on the side walls and supporting the bank, feed-water connections to the farthest bank from the furnace and equalizer connections between the banks, substantially as and for the purpose specified.

10. In a water-tube boiler, the combination with a series of banks, each consisting of two drums and their connecting-tubes, means as described for producing circulation, the banks being surrounded by vertical separating or cross walls and end walls, and connected together by water-feeding pipes between the upper drums and in that part of the drums to which are connected the down-current tubes, the feed-water entering the farthest bank from the furnace and enter the space occupied or drained by the down-current tubes of said farthest bank, steam-pipe connections above the water-line and between all the top drums, openings through the cross-walls at opposite ends, and a space between the cross-walls on a line with the bottom drums greater than the diameter of said bottom drums.

11. In a water-tube boiler, the combination with a plurality of batteries, each consisting of two drums and their connecting-tubes, means as described for producing circulation, the banks being supported independently on the side walls and separated by vertical cross-walls out of contact with the sides of the bottom drums, and steam and water connection between the upper drums, the feed-in pipes entering over the space drained by the down-current tubes.

12. In a bank for water-tube boilers consisting of steam and mud drums connected together by up-current and down-current circulating-tubes, the down-current tubes being separated from the up-current tubes by a partition-wall, the top of said wall being below the water-line and feed in-water connections into the space occupied by said down-current tubes.

585,681. DEVICE FOR TEACHING TIME IN MUSIC. CHARLES LATTA, St. Louis, Mo. Filed Sept. 17, 1896. Serial No. 606,070. (No model.)

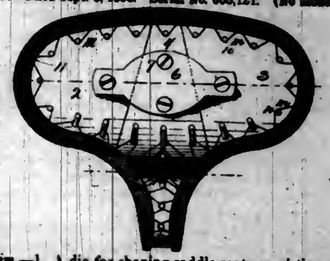


Claim.—1. The combination with a strip of flexible material bearing a continuous music-staff and notes as described, winding-spools therefor, an operative motor-gearing for said strip, of a speed-regulator connected with said gearing, consisting of a pinion and its shaft, a pair of weighted levers carried by the shaft, a cone slidingly mounted on the shaft, and operatively connected to said levers, an adjustable cap for said cone having a matching inner surface and a screw-threaded outer rim, and a threaded support for said cap in which it can be axially adjusted, substantially as described.

2. The combination with a spring-motor gearing and adjunctive devices driven thereby, of a speed-regulator consisting of a pinion and its shaft meshed with said gearing, angle-levers pivoted to said shaft having fly-weights on the lower ends, a slidable cone on the shaft, links connecting said cone with the lower ends of said angle-levers, a conical cap mounted above said cone and adjustable axially, a support for said cap, an indicator attached to said cap, and a scale for said indicator, substantially as described.

3. The combination with a closed box having a sight-slot in front, and a strip of flexible material bearing a set of five continuous horizontal lines and notes spaced as described, a wind-off spool for said strip, a tension-roller to receive said strip, a swing-frame carrying said roller, a pivot-pin supporting said frame, a coil-spring having one end connected to the frame, and the other to said pin, a friction-roller L, bearing on said tension-roller and interposed strip, a wheel and pinion axially mounted with said roller L, a spring-motor, and intermediate gearing between said motor and said pinion, and a retarding device consisting of a pinion *u*, meshing with the wheel of said roller L, a wheel U concentric with the pinion *u*, a pinion and its shaft meshing with said wheel U, a pendulum-governor carried by said shaft, a slidable friction-cone on said shaft and operated by said governor, an adjustable cap for said cone, and a bracket-support for said cap having a screw-threaded engagement with the rim of the cap for axial adjustment, substantially as described.

585,682. DIE FOR SADDLE-SEATS. FREDERICK LATHAM, Syracuse, N. Y., assignor of one-half to John L. Sherwood, Fayetteville, N. Y. Filed Sept. 8, 1896. Serial No. 605,121. (No model.)

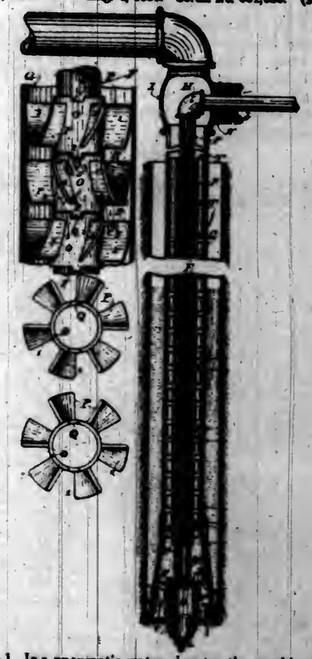


Claim.—1. A die for shaping saddle-seats consisting of sections abutting against each other and lacing-pins upon each section, and means to secure said sections together.

2. A die for shaping saddle-seats consisting of sections abutting against each other partly with straight and partly with sloping joints, lacing-pins upon each section, and means to secure said sections together.

3. In a die for shaping saddle-seats, the combination with multiple sections corresponding to the seat portions, rear, and horn of the saddle-seat, abutting against each other, and detachably secured together, of an auxiliary die-section adapted to be secured in a groove in the die to force the material for the saddle-seat into said groove and hold it there while drying.

585,683. PNEUMATIC WATER-ELEVATOR. JOHN G. LEITNER, Denver, Colo. Filed Aug. 4, 1896. Serial No. 601,623. (No model.)



Claim.—1. In a pneumatic water-elevator the combination with the air-conveying pipe, the water-inlet nozzle and the air-delivery pipe, of an automatic air and water subdividing and commingling device comprising a plurality of independent collars surrounding said air-delivery pipe above and adjacent to the ingress of the air, and having a row of separated partitions radiating therefrom and extending to the inner walls of the water-delivery pipe and inclined to the axis of the delivery-pipe, and the partitions of each alternating collar arranged to intersect the spaces between the partitions of the collar above and below it whereby a plurality of tortuous, zigzag, intersecting passages and partitions are formed in the delivery-pipe through which the water and air must pass, substantially as described.

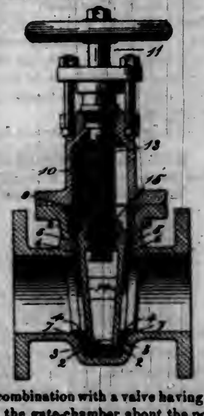
2. In a pneumatic water-elevator the combination with the conveying-pipe, of a plurality of independent partitions radiating in a circle across the pipe's area at a number of separated but adjacent points in a portion of said pipe's length and within said pipe adjacent to and above its water and air ingress end and having the partitions in each circle arranged above the spaces between the partitions in the circle below them and below the spaces between the partitions in the circle above them, substantially as described.

3. The combination in a pneumatic water-elevator, of the conveyer-pipe, the water-inlet nozzle having the tubular central portion provided with air-egress passages, the air-supply pipe and a plurality of collars arranged one above the other on said air-pipe adjacent to said nozzle, having on each collar a plurality of separated radiating blades extending to the inner periphery of the conveyer-pipe and forming radial partitions between the two and having the blades of each collar inclined to the axis of the air-pipe and arranged above the spaces between the partitions in the collar below them and below the spaces between the partitions of the collar above them, and the blades of each alternate collar inclined in opposite directions, and means for securing the collars one upon the other against rotary displacement and in positions to bring the blades of each collar to intersect in interdigitational order, the spaces between the blades of its adjacent collar, substantially as described.

4. The combination of the conveyer-pipe, the nozzle and the air-pipe, of a plurality of collars arranged in axial alinement on said air-pipe adjacent to said nozzle having each a plurality of radiating blades oblique to the axis of the air-pipe extending to the walls of the conveyer-pipe, and having the blades of alternate collars inclined in an opposite direction, means for locking the collars against rotative movement in positions to bring the blades of one collar to intersect in interdigitational order, the spaces between the blades of its adjacent collar, and a sleeve fitting over said air-pipe in juxtaposition to said collars having a plurality of straight partition-blades radiating to the inner periphery of said conveying-pipe, substantially as described.

5. The combination of a water-conveying pipe, a compressed-air-delivery pipe within said conveying-pipe, a water-inlet nozzle connected to both air and water pipes, means for delivering compressed air in said conveying-pipe from said air-pipe at or adjacent to said nozzle, means substantially as described comprising the independent collars and their interdigitationally-arranged partitions adapted to subdivide and commingle the air and water together and the pipe-fitting interposed in the conveying-pipe at the point of entrance of said air-pipe and having a packing-chamber and gland encircling the air-pipe and adapted to pack the entrance-aperture thereof against leakage, substantially as described.

585,684. GATE-VALVE. GEORGE R. MARTIN, Hartford, Conn., assignor to The Pratt & Cady Company, same place. Filed Apr. 24, 1897. Serial No. 633,697. (No model.)



Claim.—1. In combination with a valve having a body with mortises in the walls of the gate-chamber about the ports, seats located in the gate-chamber and provided with projections that rest in the mortises, a frame for retaining the seats in position, a bonnet closing the gate-chamber, a gate for opening and closing the ports, and a spindle for moving the gate, substantially as specified.

2. In combination with a valve having a body with grooves encircling portions of the ports and mortises in the walls about the ports, seats located in the gate-chamber with their edges resting in the grooves and provided with projections that lie in the mortises, a frame for retaining the seats in position, a bonnet covering the gate-chamber, a gate for opening and closing the ports, and a spindle for moving the gate, substantially as specified.

3. In combination with a valve having a body with grooves encircling portions of the ports and undercut sockets formed in the walls adjacent to the grooves, seats located in the gate-chamber with their edges resting in the grooves and with projections that fit into and are held by the undercut sockets, a frame for retaining the seats in position, a bonnet covering the gate-chamber, a gate for opening and closing the ports, and a spindle for moving the gate, substantially as specified.

4. In combination with a valve having a body with grooves encircling portions of the ports and mortises formed in the walls above the ports, seats located in the gate-chamber with their edges resting in the grooves and with upwardly-extending projections that fit into and lie in the mortises, a frame resting on the upper edges of the seats in front of the upwardly-extending projections, a bonnet covering the gate-chamber, a gate for opening and closing the ports, and a spindle for moving the gate, substantially as specified.

5. A valve-seat consisting of an annular body having a dovetailed projection from the back face near one edge and a straight projection extending from the back face near another edge, substantially as described and for the purpose specified.

585,685. PLOW OR CULTIVATOR. WARREN W. MARTIN and WARREN D. KING, Biddyville, Ky. Filed Feb. 24, 1897. Serial No. 624,787. (No model.)



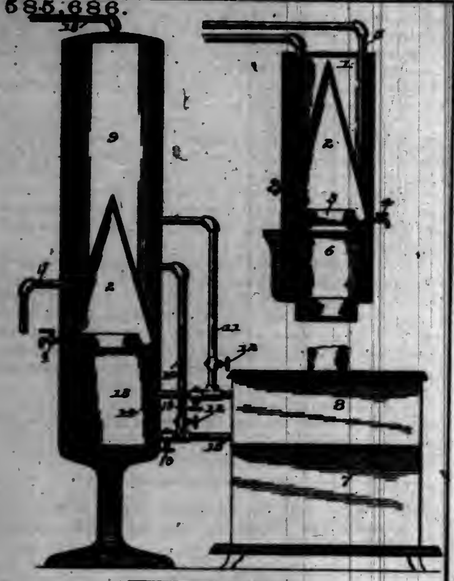
Claim.—1. In an agricultural implement, the combination of front and rear bars extending in parallel relation, braces having connection at their front ends with the extremities of the front bar and converging at their rear ends and secured together and to the rear bar at a middle point, plows having loose connection at their front ends with the end portions of the front bar and having adjustable connection at their rear ends with the terminal portions of the rear bar, handles having connection with the rear portions of the said braces, and braces 6 connecting the handles with the aforesaid rear bar, whereby the component parts of the frame are braced and strengthened, substantially as set forth.

2. In an agricultural implement, the combination of front and rear bars, braces connecting the said bars and converging at their rear ends, handles having connection with the braces, other braces interposed between the handles and the rear bar, plows having loose connection with the front bar, longitudinally-slotted clamp-bars receiving the rear portions of the beams comprising the plows, means for adjustably connecting the clamp-bars with the rear bar, fenders having connection with the converging braces, brackets applied to the fenders and having their horizontal portions slotted and overlapping, and a fastening for adjustably connecting the overlapping parts of the said brackets with the rear bar, substantially in the manner and for the purpose set forth.

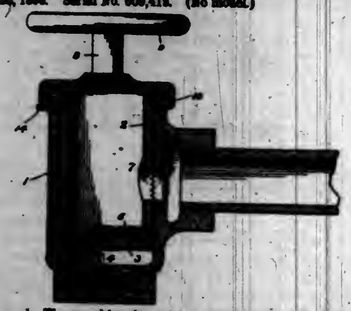
585,686. STILL ATTACHMENT FOR STOVES OR RANGES. ALEXANDER M. MILLER, Alderson, W. Va. Filed Apr. 22, 1896. Serial No. 588,560. (No model.)

Claim.—The combination with the water-back or heating-chamber of a range or stove, of a condensing-chamber having a cone-shaped bottom whose apex extends upwardly into the interior of said chamber, and an inwardly-extending annular ledge or trough at its lower end beneath said cone-shaped bottom, inlet and exhaust pipes connecting said chamber with the main water-supply, inlet and discharge pipes connecting said chamber with said water-back, cocks or cut-offs in each of said pipes, a boiler on the under side of said condensing-chamber, pipes leading from said water-back to the inside of said boiler, cocks or cut-offs in said pipes, and an outlet-pipe from said annular ledge provided with a cock, substantially as and for the purpose described.

585,686.



585,687. VALVE. WILLIAM G. MILNER, Belleville, N. J. Filed Oct. 20, 1896. Serial No. 609,412. (No model.)



Claim.—1. The combination with a casing having a bottom plate provided with an inlet, a lateral outlet, and a screw-threaded inner face, of a plunger consisting of a hollow, cylindrical piece exteriorly screw-threaded and provided at one end with an inlet-opening, and at one side with an outlet, substantially as described.

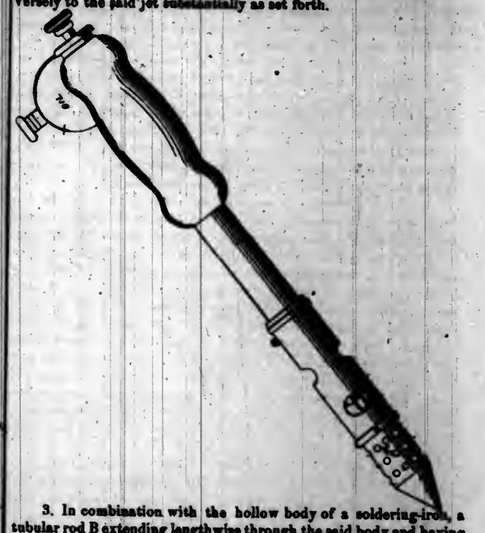
2. The combination with a casing having a bottom plate provided with an inlet, a lateral outlet, a screw-threaded inner face, and an open end opposite said inlet, of a hollow, cylindrical, exteriorly-screw-threaded plunger provided at one end with an inlet-opening, a lateral outlet, and an overhanging flange at the end of said casing opposite said inlet-port, an interposed packing between said flange and the adjacent end of the casing and a hand-wheel upon said plunger.

3. The combination with a casing having inlet and outlet ports and an open upper end, an exterior annular groove near said open end provided with ridges, of a rotatable plunger having inlet and outlet ports and provided with an overhanging flange, and a packing between said flange and groove.

585,688. SOLDERING-IRON. WILLIS MITCHELL, Malden, Mass. Filed Sept. 23, 1896. Serial No. 606,700. (No model.)

Claim.—1. In combination with the body, burner, jet-block and point of a soldering-iron, a pipe supplying gasolene to the jet, a relatively-fixed sleeve surrounding the jet, a regulating-point arranged opposite the jet, and fixed with relation thereto, and means for adjusting the jet-block back and forward within the sleeve, in order that the said point may close or open the jet more or less substantially as set forth.

2. In combination with the body, burner, jet-block and point of a soldering-iron, a pipe supplying gasolene to the jet, a relatively-fixed sleeve surrounding the jet, a screw-threaded rod engaging threads in a fixed part and also engaging the said jet-block to move it endwise, and a hook attached to the said sleeve and presenting its point reversely to the said jet substantially as set forth.



3. In combination with the hollow body of a soldering-iron, a tubular rod B extending lengthwise through the said body and having both external and internal screw-threads on its outer end, a nut receiving the said external screw-threads and adapted to be drawn thereby into contact with the end of said body, another rod R within the said rod B threaded to engage with the said internal threads, a jet-block connected to said inner rod R for endwise adjustment, and a regulating-hook presenting its point opposite the jet, substantially as and for the purpose set forth.

4. In combination with the hollow body of a soldering-iron, an air-pump inclosed therein and comprising a tubular piston-rod, a gasolene-receptacle, air and oil pipes for supplying the contents of the same under the action of the said pump to the jet, a jet-block adjustable longitudinally of the said iron, a regulating-point, presented opposite the said jet, a tubular rod clamped to the said body and extending lengthwise through the said piston-rod, and an adjusting-rod extending through the said tubular rod to the said jet-block and adapted to move the latter lengthwise, as set forth.

5. In combination with a hollow soldering-iron body, air-forcing means within the same, a source of oil-supply acted on by such means, communications therefrom to the heating-flame, a rod extending lengthwise through the said body and provided with a conoidal part near the forward end, and means for drawing the said conoidal part and a correspondingly-recessed part of the body together to prevent leakage of air, substantially as set forth.

6. In combination with the jet-block of a soldering-iron or other heated implement, a tubular coil supplied with fuel and arranged to discharge into the jet and be heated thereby, the said coil being provided with a conoidal part at its discharge end and the jet-passage being adapted to receive it, and a bifurcated clamp straddling the said conoidal part, as set forth.

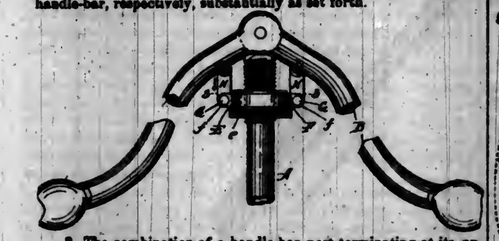
585,689. MOLD FOR HOLLOW ARTICLES. HARRY V. MOORE, Hamilton, Ohio, assignor to F. & I. Kahn & Bros., same place. Filed Mar. 12, 1897. Serial No. 627,093. (No model.)



Claim.—The combination, substantially as set forth, of a hollow pattern parted horizontally and having an opening in a plane substantially parallel with said parting, two half-molds parted in the plane of said pattern-parting, and a collar supported in one of said half-molds and extending from the outer face of such half-mold inwardly to engaging contact with the margin of the opening in said pattern.

585,690. ADJUSTABLE HANDLE-BAR FOR BICYCLES. HUGH MUIR, Chicago, Ill. Filed Aug. 21, 1896. Serial No. 603,441. (No model.)

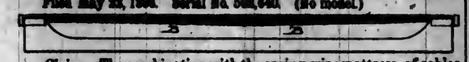
Claim.—1. The combination of the handle-bar post, a handle-bar formed in two parts articulated to the post, a screw-thread on the post, a nut fitting the screw-thread and having a circumferential groove, a collar fitting in said groove, and links pivotally connected at their opposite ends with the collar and with the two parts of the handle-bar, respectively, substantially as set forth.



2. The combination of a handle-bar post terminating at its upper end in a perforated ear, a handle-bar formed in two parts terminating at their inner ends in perforated ears, a bolt or pin passing through said perforated ears and pivotally connecting the two parts of the handle-bar to the handle-bar post, a screw-thread on the handle-bar post, a nut fitting the screw-thread and having a circumferential groove, a collar fitting said groove and links pivotally connected at their opposite ends to the collar and the two parts of the handle-bar, respectively, substantially as set forth.

3. The combination of a handle-bar post, a handle-bar formed in two parts articulated to the handle-bar post, a screw-thread on the handle-bar post, a knurled nut fitting the screw-thread and having a circumferential groove, a collar, occupying the groove, formed in two parts provided at their meeting ends with perforated ears, and a pair of links each pivotally connected at its upper end to one part of the handle-bar and each having its lower end disposed between the opposing ears on the two parts of the collar aforesaid, and bolts passing through the perforated ears of the collar and through perforations in the lower ends of the links, substantially as set forth.

585,691. SPRING-BED. GEORGE H. MCBRIDE, Charleston, S. C. Filed May 23, 1896. Serial No. 592,640. (No model.)



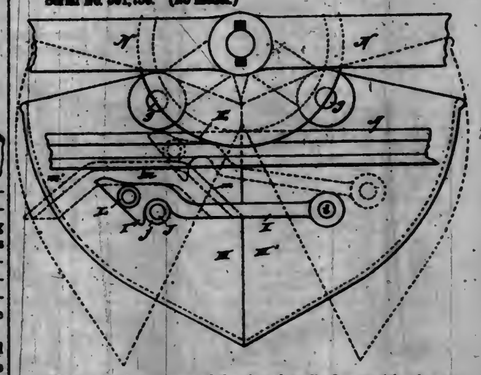
Claim.—The combination with the spring-wire mattress, of cables secured to the ends of the frame thereof and extending toward the center in opposite directions and having their loops at the center engage one in the other and free to slide one upon another, whereby when the fabric is stretched, the cables are drawn tight up against the under side thereof to form a support, substantially as described.

585,692. ATTACHMENT FOR CAR-STEPS. CHARLES MCLENNON, Spring Gulch, Colo. Filed Nov. 27, 1896. Serial No. 613,535. (No model.)



Claim.—The combination with car-steps of a supplemental step having its riser hinged beneath the edge of the lowermost tread of said step, the supplemental tread being hinged to the lower edge of the supplemental riser, a slotted tongue secured to the under side of said tread, a rock-shaft journaled beneath the steps at a point above the pivot of the supplemental riser, a rock-lever carried by said shaft, a pin carried by the free end thereof and working in the slot of said tongue, and a lever connected with and adapted to operate the rock-shaft, a plate attached to said steps and having a longitudinal slot through which the lever works and lateral recesses at the ends of said slot, and a spring secured to the outer face of the steps and acting upon said lever to normally urge it in the direction of said recesses, substantially as described.

585,693. CONVEYER. CHARLES H. NUTTER, Chicago, Ill., assignor of one-half to Walter S. Bogle, same place. Filed May 16, 1896. Serial No. 591,750. (No model.)

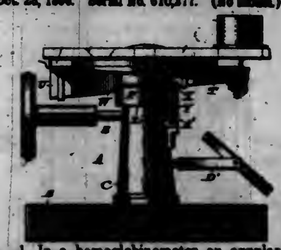


Claim.—1. A conveyer of the class described comprising in combination suitable track and guide rails, conveyer-buckets each composed of two sections pivoted at separated points upon a suitable frame, track-wheels journaled upon the bucket-frames, link chains flexibly connecting the bucket-frames and the journals of track-wheels being extended through and coupling the overlapped ends of the links of said chains, substantially as described.

2. A conveyer of the class described comprising in combination track-rails, carrying wheels adapted to travel thereon, bucket-frames upon which said wheels are journaled, chains having their links connected by the said journals and bucket-sections pivoted at separated points to the frame and adapted to open by the weight of the load and to close by gravity and a latch mechanism for holding the bucket-sections closed, substantially as described.

3. A conveyer of the class described comprising in combination track-rails, carrying wheels adapted to travel thereon, bucket-frames upon which said wheels are journaled, chains having their links connected by the said journals, bucket-sections pivoted at separated points upon said frame and adapted to open at their lower meeting edges, a latch pivoted upon one of said bucket-sections and a catch upon the other and a tripping device located in the path of the conveyer and adapted to release the latch, substantially as described.

585,694. HEMOGLOBINOMETER. HENRY OXFORD, Philadelphia, Pa., assignor to the Queen & Company, Incorporated, same place. Filed Oct. 28, 1896. Serial No. 610,277. (No model.)



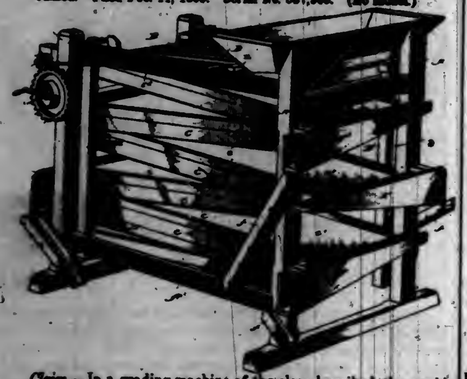
Claim.—1. In a hemoglobinometer, an annular wedge-shaped chamber adapted to contain a standard fluid, whose intensity is increased from the thin to the thick end of said chamber.

2. In a hemoglobinometer, a standard, a stage thereon with an opening therein, a two part receptacle held in said opening, a plate rotatable on said standard, a wedge-shaped chamber secured to said plate and adapted to pass beneath one of the parts of said receptacle, and a mirror below and in line with said chamber and receptacle.

3. In a hemoglobinometer, a standard with a stage secured thereon, a two-part receptacle secured to said stage, a plate connected with a collar mounted on said standard, an annular wedge-shaped chamber secured to said plate, mechanism for rotating said plate and thereby said chamber, a mirror in line with said chamber and receptacle, and a scale on said plate seen through an opening in said stage.

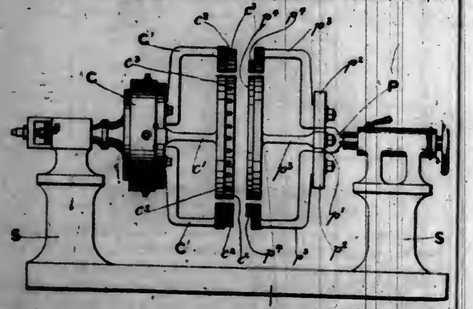
4. In a hemoglobinometer, a standard having a stage rigidly supported thereupon, an opening in said stage, a receptacle adapted to contain blood and water located over said opening, a second opening in said stage, a plate located underneath the latter, a sleeve rotatably supported on which said plate is mounted, a hollow annular transparent wedge-shaped chamber suitably supported, means for rotating said sleeve, a spring bearing on the latter and adapted to hold the same temporarily in position, and a reflector.

585,695. PRUNE-GRADER. GEORGE M. PETERSON, Salem, Oreg.; Martha A. Peterson administratrix of said George M. Peterson, deceased. Filed Feb. 11, 1895. Serial No. 537,669. (No model.)



Claim.—In a grading-machine of the class described, the combination of a stationary main frame, an upright longitudinally-vibrating separator-frame suspended within the main frame, a stationary hopper mounted transversely on the stationary main frame on one top corner thereof and provided in its inner side with a longitudinal discharge-opening, a pair of oppositely-located swinging links pivotally mounted respectively on opposite top sides of the stationary main frame, one of said links being a bell-crank, a longitudinally-movable bar arranged transversely and horizontally above the main and vibrating frames, and pivotally connected at its opposite ends respectively to the oppositely-located swinging links, said bar carrying a plurality of straight fingers working in the longitudinal discharge-opening of the hopper, whereby the slight oscillatory movement of the bar will provide for an alternate longitudinal thrust and retraction of the fingers, and the longitudinal reciprocatory movement of said bar will provide for the separate sidewise or horizontal lateral vibration of the fingers in the longitudinal opening in which they work, and a suitable operating connection with the bell-crank link to oscillate the same on its axis, substantially as set forth.

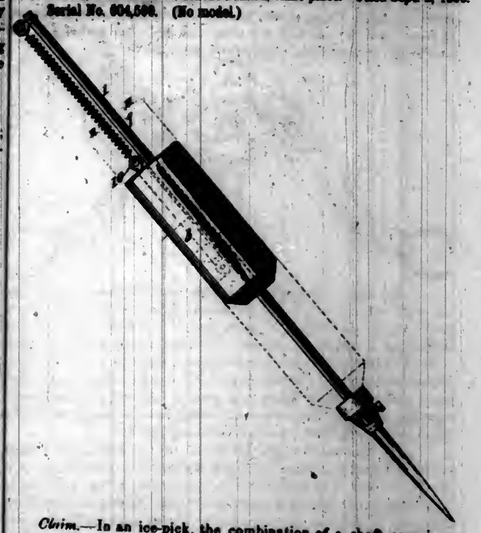
585,696. MACHINE FOR ASSEMBLING PARTS OF WHEELS. JOHN H. PLAYER, Coventry, England. Filed Nov. 24, 1896. Serial No. 613,332. (No model.) Patented in England Feb. 11, 1896, No. 3,067.



Claim.—1. A machine for assembling the parts of wheels consisting essentially of the adjustable arms or jaws c' with their segments c^2 in combination with the adjustable arms or jaws p^4 with their segments p^5 operated in the manner and for the purpose substantially as hereinbefore described and shown.

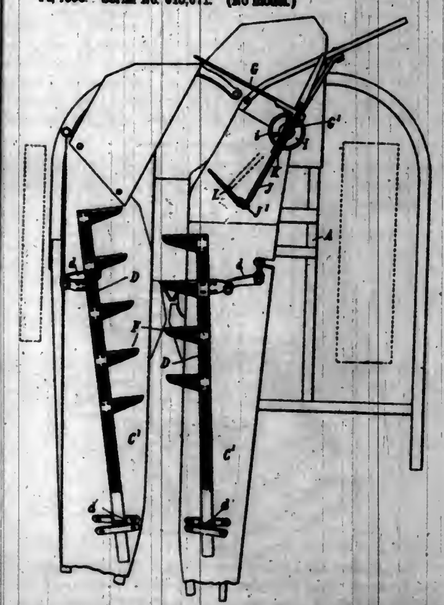
2. An assembling-machine for wheels comprising the chuck C, the puppet P, the adjustable arms carried thereby having bearings to engage the rims and bearings to engage the hubs, substantially as described.

585,697. ICE-PICK. WILLIAM A. POLLARD, Hot Springs, Ark., assignor to Otis Baird Pollard, Edward H. Johnson, Margaret Cook Gaines, and Walter Simmons Pollard, same place. Filed Sept. 2, 1896. Serial No. 604,569. (No model.)



Claim.—In an ice-pick, the combination of a shaft carrying a point, a collar on said shaft, a weight adapted to serve as a handle and arranged to slide upon said shaft, a stop arranged to limit the extent of movement of said weight on retraction, an eye on said shaft, an eye on said weight, and a spring having its ends connected to said eyes and arranged to retract said weight, substantially as described.

585,698. CORN-HARVESTER. JOHN W. PRIDMORE, Chicago, Ill., assignor to the McCormick Harvesting Machine Company. Filed Dec. 14, 1896. Serial No. 615,671. (No model.)



Claim.—1. A forwarding device for moving the corn endwardly in a corn-machine, consisting of a reciprocating rake-bar having a series of teeth attached thereto, the teeth being formed of sheets of metal triangular in shape and bifurcated on the side of the angle that is to form the base of the tooth, and then bent on a line from the center of the bifurcation to the apex of the opposite angle, whereby the angles upon the same side of the sheet as the bifurcation are brought together and the bifurcated portions of the sheet are attached on opposite sides of the rake-bar, substantially as and for the purpose specified.

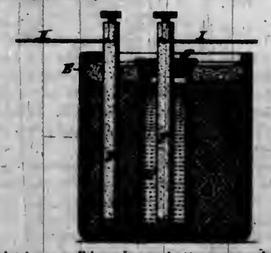
2. As an article of manufacture to form the teeth for the reciprocating, forwarding devices in a self-binding corn-harvester, a triangular sheet of metal, bifurcated at its base, whereby flanges are formed that, when the metal is bent to form a tooth, project upon opposite sides of the bar, substantially as and for the purpose specified.

3. In combination in a self-binding harvesting-machine, to form a retarder for the corn, an arm projecting across the path of the corn, practically in a line with the outer side of the forming bundle, a cam positioned on an operative shaft of the binder, a sleeve to which the arm is rigidly attached, mounted along the face of the cam, and devices on the cam and sleeve to move the arm as desired, substantially as and for the purpose specified.

4. In combination with the gathering-arms, forwarding devices and the vertical binding attachment of a self-binding corn-harvester, an arm positioned across the path of the forming-gavel and attached to a sleeve having a flange and cogs upon one end, to throw the arm in one direction, and upon the other end, to throw the arm in the other direction, a cam-wheel formed with a flange broken at opposite sides, and with cogs to mesh with the cogs on the sleeve, an arm upon which the sleeve is mounted, to hold it in proper relation to the face of the cam, a shaft on the binder to give movement to the cam, whereby, when the binder binds and discharges a bundle, the retaining-arm will be moved out of the path of the bundle, and when the bundle has been discharged, be returned into the path of the oncoming stream of corn.

5. In combination in a corn-binding machine, with the gathering-prongs, forwarding devices, and an upright binder positioned behind these devices, a discharge-arm on the binder, and an upstanding flange which is positioned just outside the sweep of the discharge-arm as it enters the corn passage-way whereby the ears of corn are prevented from lying on the prong and being caught between the discharge-arm and the prong.

585,699. REVERSIBLE PRIMARY BATTERY. LEON W. FULLER, Camden, N. J., assignor of thirteen-sixtieths to Charles L. Klauder and Albert R. Bainbridge, Philadelphia, Pa. Filed Oct. 23, 1896. Serial No. 609,807. (No model.)



Claim.—1. A reversible primary battery comprising a suitable cathode, a depolarizing mass in contact therewith and consisting of a mixture of finely-divided carbon, a salt of manganese and concentrated sulfuric acid uniformly distributed throughout said mixture and an anode arranged in a dilute electrolyte.

2. A reversible primary battery comprising a suitable cathode, a depolarizing mass in contact therewith and consisting of a mixture of finely-divided plumbago, concentrated sulfuric acid and a salt of manganese, and an anode arranged in a dilute electrolyte.

3. A reversible primary battery comprising a suitable cathode, a depolarizing mass in contact therewith and consisting of a mixture of finely-divided amorphous carbon and plumbago, concentrated sulfuric acid and a salt of manganese, and an anode arranged in a dilute electrolyte.

4. A battery consisting of an outer case, an inner porous diaphragm cup or vessel, a positive electrode arranged within the porous cup or diaphragm, dilute sulfuric acid within the porous cup and surrounding the positive electrode, and a negative electrode consisting of finely-divided amorphous carbon and graphite mixed with sulfate of manganese and concentrated sulfuric acid.

5. A battery consisting of an outer case, an inner porous diaphragm cup or vessel, a positive electrode arranged within the porous cup or diaphragm, dilute sulfuric acid within the porous cup and surrounding the positive electrode, a negative electrode consisting of finely-divided amorphous carbon and graphite mixed with sulfate of manganese and concentrated sulfuric acid, a seal arranged above the negative electrode and connecting the outer case with the porous cup, and a terminal extending from without the cell into the mass of the negative electrode.

6. In a battery an electrolyte-containing case, a negative electrode composed of an intimate mixture of finely-divided amorphous carbon, graphite and sulfate of manganese, a positive electrode consisting of a zinc, a porous diaphragm between the positive and negative electrodes, dilute sulfuric acid surrounding the positive electrode, and concentrated sulfuric acid intimately mixed with the negative electrode.

7. An electrode for a battery consisting of an intimate mixture of powdered gas-retort coke, graphite, sulfate of manganese, and a concentrated electrolyte substantially in the proportion specified, namely, one part of graphite by measure to one-half part of coke and one-quarter part of oxid of manganese, in combination with a conductor extending from the interior of the electrode outwardly.

8. An electrode for a battery consisting of an intimate mixture of powdered gas-retort coke, graphite, sulfate of manganese, concentrated sulfuric acid substantially in proportions specified, namely, one part of graphite by measure to one-half part of coke and the quantity of sulfate of manganese produced by mixing one-quarter part of oxid of manganese with concentrated sulfuric acid, in combination with a conductor extending from the interior of the electrode outwardly, an inclosing case to prevent expansion of the pasty mass, and a terminal extending through the case into the body of the electrode.

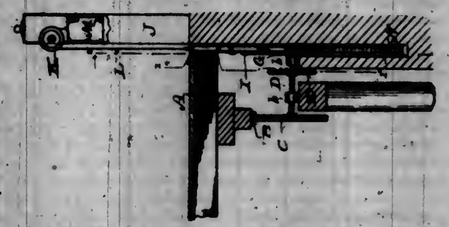
9. A reversible primary battery comprising a suitable cathode, a depolarizing mass in contact therewith and consisting of a mixture of finely-divided coke and plumbago, concentrated sulfuric acid and a salt of manganese, and an anode arranged in a dilute electrolyte.

585,700. STAMP-HOLDER. VIRGINIA B. PUTNAM, Mount Morris, N. Y. Filed Sept. 30, 1896. Serial No. 607,490. (No model.)



Claim.—In a device of the kind specified, a bottle having a screw-threaded lower and upper end portion, a central tube 3 extending into the bottle from the upper end thereof, a screw-threaded cap secured to the upper end of the bottle and provided with an upriging externally-screw-threaded flange, a screw-threaded cover fitting upon said screw-threaded flange, a brush secured in the outer end portion of said tube, and a box 7 having a screw-threaded receptacle to receive the lower end portion of said bottle.

585,701. BRIDGE-GATE. FERDINAND RAASCH, Milwaukee, Wis. Filed Aug. 17, 1896. Serial No. 602,950. (No model.)



Claim.—The combination of a swing bridge having each of its ends provided with a transverse depending rack, shafts in bearings supported beneath the bridge independent of the latter, a spur-wheel

on each shaft in the path of the bridge-racks, a sprocket-wheel on each shaft, a crossed drive-chain connecting the sprocket-wheel of one shaft with that of another, vertically-movable gates parallel to the bridge-abutments and provided with depending channel-bars, racks set in the channel-bars, pinions on the aforesaid shafts in mesh with the racks, hollow posts on said abutments, counterweights in the posts, and sheave-supported flexible connections for the gates and counterweights.

585,702. BURNER-WICK AND FLAME REGULATOR. WILLIAM S. REAMER, Oswego, Kans. Filed June 1, 1896. Serial No. 593,833. (No model.)



Claim.—In combination with a burner consisting of a pair of cylinders one arranged concentrically around the other, and provided at their upper ends with oppositely disposed and arranged angular flanges, consisting of horizontal base portions and vertical portions projecting upwardly therefrom, of an annular metallic ring resting upon the flange of the inner cylinder, and secured thereto, and having the outer margin of its horizontal portion notched as shown at 8, and overhanging the space between said cylinders, and thereby limiting the upward movement of the burner-wick, substantially as shown and described.

585,703. EGG-BEATER. EDWARD R. REEDY, Port Carbon, Pa. Filed Dec. 8, 1896. Serial No. 614,917. (No model.)



Claim.—An egg-beater and noodle-maker, comprising a cylinder provided with laterally-projecting locking-pins adjacent one end thereof, a plunger in said cylinder provided at its lower end with a ferrule, a removable perforated disk, and a fastening device provided with a vertical body portion having angularly-disposed slots adapted to engage said locking-pins, and an inturned flange to hold the said disk pressed against the cylinder end, and whereby the removal of one disk and substitution of another therefor may be readily and quickly accomplished, substantially as described.

585,704. REAPING OR MOWING MACHINE. SAMUEL S. SADORIS, Sarida, Idaho. Filed July 11, 1896. Serial No. 598,823. (No model.)

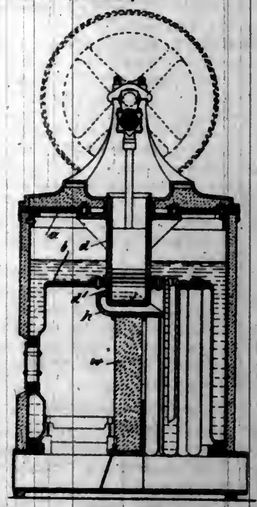


Claim.—1. The combination with the guard-fingers, of the finger-bar of a reaper or mower, of detachable plates connected with the under side of each of said guard-fingers, beneath which the cutters pass, said plates being provided with beveled and cutting edges, and being held in place by detachable plates, which are connected with each guard-finger at its forward end, by means of a hook or projection, operating in a cavity or recess formed therein, and by means of a bolt which passes through the rear end of the guard-fingers, and through the finger-bar, substantially as shown and described.

2. The combination with the guard-finger, of the finger-bar of a reaper or mower, of detachable plates connected with the under side of each of said guard-fingers, beneath which the cutters pass, said plates being provided with beveled and cutting edges, and being held in place by a detachable plate, which is connected with each guard-finger at its forward end, by means of a hook or projection, operating in a cavity or recess formed therein, and by means of a bolt which passes through the rear end of the guard-finger, and through the finger-bar, and said guard-finger being also provided with a transverse bar, which is connected therewith forwardly of the cutter-bars, and which assists in holding the detachable plates in position, substantially as shown and described.

3. The combination with the finger-bar of a reaper or mower, provided with the usual guard-fingers, and with the usual cutters, of detachable plates, connected with the under sides of the guard-fingers and directly over the cutters, and said plates being provided with cutting edges, and said guard-fingers being provided with a transverse bar secured to each in front of the passage-way for the cutter-bar and to which transverse bar the rear ends of detachable plates are secured, substantially as shown and described.

585,705. COMBINED STEAM-ENGINE AND STEAM-GENERATOR. WILHELM SCHMIDT, Ballenstädt, Germany. Filed Mar. 30, 1896. Serial No. 584,069. (No model.)



Claim.—1. In a steam-boiler with motor, the combination with one of the walls between the water-space of said boiler, and the heating-space of the same, of the cylinder of said motor; said cylinder being arranged rectangularly to said wall and extending with an end portion through the said wall into said heating-space; the end of the remaining portion of the cylinder being connected with the boiler-wall that lies opposite to the wall first mentioned, for the purpose as described.

2. In a steam-boiler with motor, the combination with one of the walls between the water-space of said boiler and the heating-space of the same, of the cylinder of said motor; said cylinder being arranged rectangularly to said wall, and extending with one end portion through the said wall into said heating-space; said end portion of the cylinder being exchangeable, for the purpose as described.

3. In a steam-boiler with motor, the combination with one of the walls between the water-space of said boiler and the heating-space of the same, of the cylinder of said motor; said cylinder being arranged rectangularly to said wall and extending with a portion through the same into said heating-space; a fire-bridge arranged below the said cylinder, and dividing said heating-space into two chambers, and a hood arranged upon said fire-bridge, and adapted to protect said portion of the cylinder against the direct action of the fire, for the purpose as described.

4. In a steam-boiler with motor, the combination with one of the walls between the water-space of said boiler and the heating-space of the same, of the cylinder of said motor; said cylinder being arranged rectangularly to said wall and extending with one end portion through the same into said heating-space, and a fire-bridge arranged below the said cylinder, and dividing said heating-space into two chambers; and a hood *b* located upon said fire-bridge and taking around the projecting end portion of the cylinder, one of said chambers forming the furnace proper, the other containing tubes of the Field type, for the purpose as described.

585,706. PACKING-JOINT FOR HEATERS. RUDOLPH J. SCHWAB, Milwaukee, Wis. Filed Sept. 3, 1895. Serial No. 561,201. (No model.)

Claim.—1. A packing-joint for heaters, consisting of a packing-recess formed in one section with integral walls and opposing inturned lips or ledges forming a contracted slot or opening between them for the reception of the edge of an adjoining section, and suitable packing held in said recess on both sides of the inserted section by the inturned lips or ledges of the other section, substantially as and for the purposes set forth.



2. A packing-joint for heaters consisting of a packing groove or recess formed in one section with integral walls converging downwardly toward inturned lips or ledges forming a downwardly-opening contracted slot for the reception of the edge of an adjoining section, and suitable packing held in said recess on both sides of the inserted section by the inturned lips or ledges of the other section, substantially as and for the purposes set forth.

3. The combination of two heater-sections, one having cast therein a packing groove or recess with integral walls and inturned lips or flanges forming a contracted slot or opening to receive a rim or edge of the adjoining section which is made of sheet metal, suitable packing held in said groove or recess on both sides of the inserted section by the inturned lips or ledges of the other section, and fastenings for securing said sections together wholly outside of said packing-recess, substantially as and for the purposes set forth.

4. The combination of two heater-sections, one being cast with ears and a packing-recess, having a contracted opening to receive the rim or edge of the other section which is embedded in packing held in said recess on both sides thereof and is bolted or riveted to said ears, the walls of said recess being cast or formed integrally with each other, substantially as and for the purposes set forth.

5. A packing-joint for heaters consisting of a groove formed integrally in one section with a contracted slot or opening through which the rim or edge of the adjoining section projects into said groove, the walls of said groove diverging from both sides of said slot or opening and forming a recess on both sides of the inserted section for receiving and holding suitable packing, substantially as and for the purposes set forth.

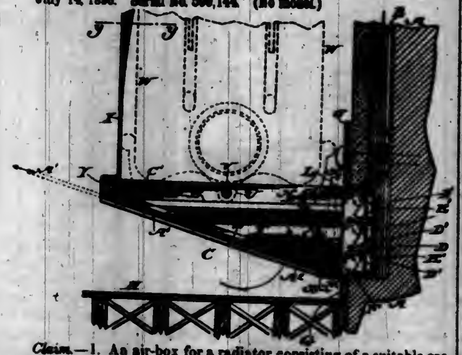
585,707. JOINT OR SPLICE FOR ELECTRIC WIRES OR CABLES AND METHOD OF MAKING SAME. FERDINAND SCHWEDTMANN, St. Louis, Mo. Filed Dec. 14, 1896. Serial No. 615,708. (No model.)



Claim.—1. The method of forming a joint for electric wires or cables which consists in forming hooks in the ends of the wire or cable, interlocking the said hooks, and then molding a conducting-metal around the said interlocked hooks.

2. A joint or splice for wires or cables, consisting of interlocking hooks on the ends of adjacent wires or cables and having metal cast thereabound, so as to incase the same.

585,708. AIR-BOX FOR RADIATORS. ROBERT SCOTT, Glenside, Pa., assignor to the H. B. Smith Company, of Massachusetts. Filed July 14, 1896. Serial No. 599,144. (No model.)



Claim.—1. An air-box for a radiator consisting of a suitable casing having openings in its rear wall and in its base, a sliding gate for controlling said opening in its base, a deflector mounted near the rear wall of said casing within the latter, a series of dampers supported upon the rear wall of said casing for controlling the openings therein and means for conducting air thereto, said deflector being between said sliding damper and said series of dampers.

2. An air-box for a radiator consisting of a casing, having an apertured back, top and bottom flanges projecting therefrom, an inclined bottom portion provided with a gate, sides attached to said back, having ledges thereon, dampers pivotally mounted adjacent said back and a movable deflector located intermediate of said dampers and gate.

3. An air-box for a radiator consisting of a casing, an apertured back therefor, having dampers pivotally mounted adjacent thereto, sides for said casing having interiorly-projecting lugs, a deflector within said casing, a gate controlling an opening in the lower portion thereof said deflector being between said dampers and gate and an upright deflector attached to the front of said casing.

4. An air-box for a radiator, consisting of a casing having openings in its back and base, dampers controlling the openings in its back, and a gate controlling the opening in its base, and a deflector between said dampers and gate and pivoted at its lower end and provided with a stem projecting through a slot in a side of said casing, and a clamping-nut on said stem.

5. An air-box for a radiator, consisting of a casing having an apertured back, automatic dampers therefor, the sides of said casing being provided with supporting-ledges, a base having a sliding gate, controlling and opening therein, and a movable deflector located within said box intermediate said gate and dampers.

6. An air-box having a back provided with passages therein, inwardly-swinging dampers adjacent thereto, the top and bottom flanges E and F, the upwardly and downwardly extending members J and G, the sides T having the ledges B', the base having the sliding plate A', a swinging deflector within said box, means for locking the same in position, and an upright deflector, in combination with radiator-sections supported upon said ledges and fastening devices common to said sections and sides substantially as described.

7. An air-box for a radiator consisting of a casing having a back with openings therein, automatic dampers for said openings, said back having laterally-extending top and bottom flanges, a depending member connected with said bottom flange, said casing having an inclined lower portion with an opening therein, a gate controlling said opening, a deflector pivoted within said casing between said automatic dampers and said gate and means for locking said deflector in the desired position.

8. An air-box for a radiator consisting of a casing with a back portion having an opening therein provided with an automatic damper, a base with an opening therein, having a controlling-gate and sides with ledges for supporting a radiator thereon, in combination with an adjustable deflector pivoted in said sides between said automatic damper and said gate.

9. An air-box for a radiator consisting of a casing having a back with openings therein, provided with automatic dampers, said back having the top and bottom ledges E and F, the depending member G connected with said bottom ledge the member J extending upwardly from said top ledge, the inwardly-projecting flanges L and M, an inclined base with an opening therein having a gate therefor and the deflector N pivoted in the sides of the casing between said automatic dampers and said gate.

10. An air-box for a radiator having a casing with a front ledge and a vertically-extending guard or deflector connected therewith, said box having interiorly-extending ledges adapted to support said radiator.

585,709. BOX-CLOSURE. WILLIAM SCOTT and JOHN W. HOLEY, Leavenworth, Kans., assignors to Isabella Scott, same place. Filed Mar. 25, 1896. Serial No. 584,816. (No model.)



Claim.—1. In a detachable cover of the class described, the combination of the frame having a transparent panel at one end, and means at such end for securing it to the top of a box or shelf, said cover having at its opposite end a pendent casing or bearing portion adapted to project over the outer edge of the box or shelf when such top or cover is placed thereon, a roller journaled within such casing, a curtain connected thereto having means at its free end for holding it to its extended position, said casing or bearing portion having means whereby it can be secured to the outer edge of the box, as specified.

2. In a detachable cover of the class described, the combination of a frame having a transparent panel at one end, bearing-blocks secured at the other end and adapted to project on the outside of a box or shelf when the cover is placed thereon, a roller journaled in said blocks, a curtain secured to said roller, a closure-strip connecting the outer ends of the bearing-blocks and together with the latter forming a casing for the roller, and means for securing the cover to the box or shelf, substantially as set forth.

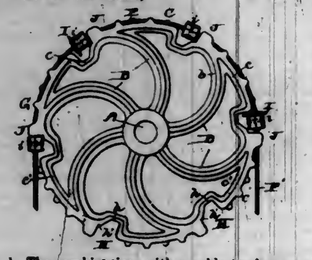
3. In a detachable cover of the class described, the combination of a frame comprising side pieces having their inner edges grooved and connected at their ends by transverse pieces, a transparent panel secured between the side pieces of the frame, a spring-actuated roller journaled in the frame opposite to the transparent panel, a flexible

curtain mounted on such roller and provided at one of its ends with a metallic binding-strip, and a spring-plate secured to such strip and provided with an opening adapted to receive a pin for holding the curtain in extended position to close a box or shelf when the cover is placed thereon, substantially as set forth.

4. In a detachable cover of the class described, the combination of a frame provided at one end with a pendent casing or bearing portion adapted to project over the outer edge of a box or shelf when such cover is placed thereon, a roller journaled within such casing, and a curtain connected thereto and having means at its free end for holding it in its extended position, substantially as described.

5. In a detachable cover of the class described, the combination of a frame comprising side pieces having their inner edges grooved and connected at their ends by transverse pieces, a transparent panel secured between the side pieces at one end of the frame, a cross-piece for holding the panel in said end, a spring-actuated roller journaled in a casing formed at the free outer end of the frame, a flexible curtain secured to said roller and adapted to slide in the grooves of the side pieces of the frame, and a spring-plate secured to the free end of the curtain and having an opening in one of its ends adapted to receive a pin carried by said cross-piece, said plate being provided with an offset adapted to place said opening in a plane corresponding to the outer side of the cross-piece in order that said pin may enter the opening, and thereby hold the curtain in extended position to close a box or shelf when the same is placed thereon, substantially as set forth.

585,710. SPROCKET-WHEEL. DAVID J. SHELDRICK, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Nov. 24, 1896. Serial No. 613,276. (No model.)



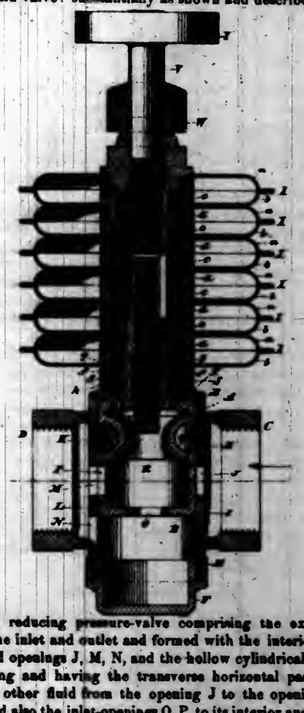
Claim.—1. The combination, with a cable having a series of attachments secured thereon at regular intervals, of a wheel comprising a hub, a rim having gaps or recesses H formed therein, each of said gaps having a seat *h'* formed in one of its walls beyond the inner wall of the gap, substantially as and for the purpose set forth.

2. The combination with a cable having a series of attachments secured thereon at intervals, of a wheel comprising a hub, a rim having a series of teeth J, and gaps or recesses H at one side of said teeth, each of said gaps having a relatively deep portion *h* and a seat *h'* formed in the wall adjacent to the tooth J and at a depth less than that of the portion *h*, and spokes connecting the rim and hub, substantially as set forth.

585,711. REDUCING PRESSURE-VALVE. CHARLES SMITH, Belleville, N. J., assignor to the Eastwood Wire Manufacturing Company, same place. Filed June 1, 1896. Serial No. 593,750. (No model.)

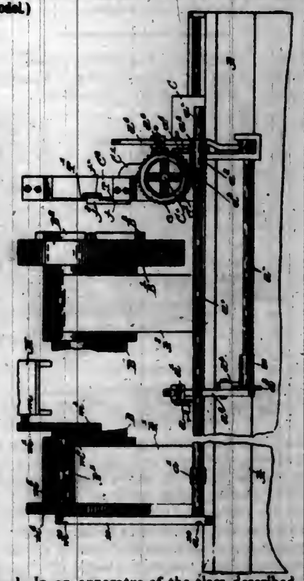
Claim.—1. A reducing-valve comprising the exterior casing having the inlet and outlet nozzles and forming directly intermediate said nozzles the vertical cylindrical chamber having in its walls the transverse inlet and outlet openings in line with said nozzles, and the hollow cylindrical valve in said chamber and fitting the walls thereof and having intermediate its ends the transverse passage for the fluid adapted to said inlet and outlet openings, said valve also having an inlet to its interior from the low-pressure side and an outlet from its upper end, combined with the valve-stem carrying said valve, and the diaphragm connected with said casing and communicating with the outlet from the upper end of said valve; substantially as shown and described.

2. A reducing-valve comprising the exterior casing having the inlet and outlet nozzles and forming directly intermediate said nozzles the vertical cylindrical chamber having in its side walls adjacent to said nozzles the transverse inlet and outlet openings, and the hollow cylindrical valve in said chamber and fitting the walls thereof and having intermediate its ends the transverse passage for the fluid adapted to said inlet and outlet openings, said valve also having in its vertical side the inlet-opening from the low-pressure side adapted to the opening on that side in the walls of said cylindrical chamber, and said valve also having the outlet at its upper end, combined with the valve-stem carrying said valve, and the diaphragm connected with said casing and communicating with the outlet from the upper end of said valve: substantially as shown and described.



3. A reducing pressure-valve comprising the exterior casing having the inlet and outlet and formed with the interior walls H, I, K, L, and openings J, M, N, and the hollow cylindrical valve within said casing and having the transverse horizontal passage for the steam or other fluid from the opening J to the opening M of said casing and also the inlet-openings O, P, to its interior and outlet opening T at its upper end, combined with the threaded valve-stem for said valve, and the diaphragms in communication with said valve; substantially as set forth.

585,712. SPEED-CONTROLLING APPARATUS FOR LATHES. EPHRAIM SMITH, Boston, Mass. Filed July 17, 1896. Serial No. 599,474. (No model.)



Claim.—1. In an apparatus of the class described, a rotatable work-holder, an electric motor to rotate it, a variable resistance in circuit therewith, a tool-holder, means to feed it transversely to said work-holder, connections between said means and the resistance, to vary the latter proportionally to the position of the tool-holder, and means to vary the speed of the apparatus between but not beyond predetermined points, substantially as described.

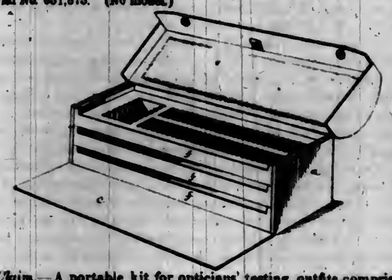
2. In an apparatus of the class described, a rotatable work-holder, a tool-holder movable transversely thereto, a tool rigidly mounted in the holder, and a movable guide adapted to embrace the back of and steady the tool as it enters the work, the work engaging and moving the guide away from the tool, as the latter enters the work, substantially as described.

3. A tool-holder, a tool held rigidly therein, and a guide movably mounted on and carried by the holder to embrace and steady the tool near its point as it enters the work, engagement of the surface of the latter with the guide moving it out of engagement with the tool, substantially as described.

4. In an apparatus of the class described, a work-holder, an electric motor to rotate it, a rheostat in circuit with the motor, a tool-holder, means to feed it transversely to the longitudinal axis of the work-holder, connections between said feeding means and the rheostat, to control the latter and thereby the speed of the work-holder, and means to stop the feed and movement of the rheostat at a predetermined point, substantially as described.

5. A tool-holder having a grooved seat, a tool rigidly held in the holder and having a beveled lower edge to rest in the seat, and a guide movably mounted on the holder to engage and steady the tool near its point, substantially as described.

585,713. PORTABLE KIT. FRED H. SMITH, Chicago, Ill., assignor to the Geneva Optical Company, same place. Filed Apr. 12, 1897. Serial No. 631,573. (No model.)



Claim.—A portable kit for opticians' testing outfits comprising a box-like case having its bottom, back and ends rigidly secured together and having a front hinged to said bottom and a chambered top hinged to said back and adapted to close over said ends and said front, and a series of superposed trays provided with recesses to receive the lenses, the ends of said trays projecting vertically beyond the sides to form ledges whereon the trays rest and whereby the trays will be interspaced, and a hinged lid beneath the top to close the chamber thereof, and guard the lenses against displacement, substantially as described.

585,714. BOOK-SUPPORT. JOSEPH F. A. SPARY, Moline, Ill. Filed Aug. 17, 1896. Serial No. 603,068. (No model.)



Claim.—1. A book or other support comprising a bar provided with a slidable clamp comprising two opposed members adapted to embrace and secure said bar to the round of a chair, an upright pivotally held to the bar so as to permit adjustment to various inclinations, a supporting-arm adjustably held upon the upright, and means for securing said support in various positions, whereby the supporting-arm may be rigidly held so as to support a book or other article in a convenient position for use, substantially as described.

2. A book or other support, comprising a bar adapted to be secured to a chair, an upright pivotally held to the bar so as to permit adjustment to various inclinations, a supporting-arm adjustably held upon the upright, means for securing said support in various positions, and an adjustable clamp *c c* slide arranged upon the upright adapted to rest upon the seat of the chair, whereby a book or other article may be rigidly supported in various positions within convenient reach of the user, substantially as described.

3. In a book or other support, the combination with a horizontally-arranged bar provided with slidable clamps each comprising two opposed members adapted to embrace and secure said bar to the rounds of a chair, of an upright pivotally held to the bar so as to swing either forward or backward, a supporting-arm adjustably secured to the upright, a rest for the book or other article arranged upon the supporting-arm, together with means for securing the rest in various positions, whereby a book or other article may be rigidly supported in various positions within convenient reach of the user, substantially as described.

4. In a book or other support the combination with an upright and means adapted to rigidly hold the same upon a chair, of a supporting-arm provided with a rest for a book or other article, together with a clamp adapted to slide upon the upright comprising two rotatable members and means for simultaneously securing the upright and rotatable members together, whereby the supporting-arm may be secured in various positions so as to place the book within convenient reach of the user, substantially as described.

5. In a book or other support the combination with an upright and means adapted to rigidly hold the same upon a chair, of a supporting-arm provided with a rest for a book or other article, together with a clamp arranged upon the upright comprising two members, a bolt passing through said members so as to rotatably hold the members together, a plate, and a nut for adjustably securing the upright, plate, and members together, substantially as described.

6. In a book or other support, the combination with an upright and means for adjustably supporting a book or other article thereon, of a horizontally-arranged bar provided with a sliding clamp or clamps adapted to secure said bar to the round or rounds of a chair, together with a clamping device comprising two members rotatable with respect to each other, one of which is secured to the bar and the other to the upright, and means for securing the members rigidly together, substantially as described.

7. A book or other support, comprising an upright, means for adjustably supporting a book or other article thereon, a horizontally-arranged bar provided with a sliding clamp or clamps adapted to secure said bar to the round or rounds of a chair, and a rotatable clamping device comprising two members, one of which is secured to the bar and the other to the upright, a bolt passing through said members, and a nut for securing the members together, whereby the book may be rigidly secured and held in various positions, substantially as described.

8. In a book or other support, a rotatable clamp comprising two members each provided with laterally-projecting lugs adapted to have the upright and the horizontal bar secured thereto, a bolt passing through the members, and a nut for securing the members rotatably together, substantially as described.

9. In a book or other support, a clamping device comprising two members rotatable with respect to each other, one of which is provided with laterally-extending lugs adapted to have the supporting-arm secured thereto, and the other member adapted to rest and slide upon the upright, a bolt passing through the members, a plate fitting over the bolt and adapted to abut against the opposite side of the upright, and a nut for simultaneously securing the plate and members together, substantially as described.

10. In a book or other support, the combination with an upright, of a slide or adjustable clamp comprising two opposed plates arranged on opposite sides of the upright, a bracket or angle-plate, a bolt passing through the plates and bracket, and a nut engaging the bolt so as to adjustably hold the clamp to the upright, substantially as described.

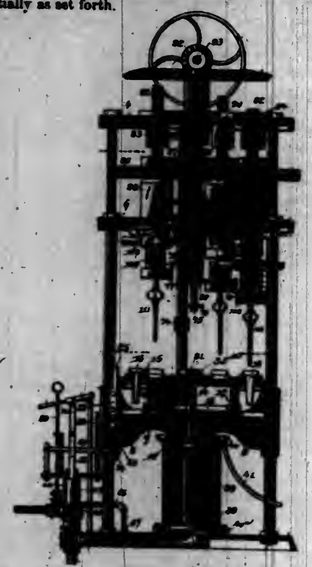
11. In a book or other support, a sliding clamp comprising two plates adapted to be arranged upon opposite sides of a horizontally-arranged bar, an angle-plate having a projecting portion or tongue adapted to project underneath the round of a chair, a bolt passing through the plates, and a nut arranged on the end of the bolt, substantially as described.

12. A book or other support comprising an upright, a horizontally-arranged bar, a supporting-arm, and means for rigidly supporting the parts upon a chair; said arm, upright, and bar, each consisting of a rod bent so as to form two parallel arms having screw-threaded ends and nuts arranged thereon for securing the same to the supporting means, substantially as described.

585,715. MACHINE FOR REAMING AXLE-BOXES. RALPH R. SPEARS, Wheeling, W. Va. Filed Oct. 3, 1896. Serial No. 607,784. (No model.)

Claim.—1. In a reaming-machine, a vertically-movable table, a plurality of reaming-tools supported for rotation above the table, means for rapidly feeding the table upward to the point where the reaming-tools begin to cut, means for automatically causing the table to stop

its own feed at such point, and separate means for slowly completing the upward feed of the table during the cutting of the tools, substantially as set forth.



2. In a reaming-machine, a vertically-movable work-table, fixedly-positioned reaming-tools supported above the table, means for rapidly moving the table upward by hydraulic pressure, and separate means for controlling said hydraulic pressure to provide for stopping the feed of the table at the point where the tools begin to cut and then slowly completing the feed during the cutting of the tools, substantially as set forth.

3. In a reaming-machine, an upright frame or stand, a vertically-movable table-support slidably mounted within said frame or stand, means for positively feeding said table-support in an upward direction, a horizontal holder-table rotatably mounted on said table-support and carrying a plurality of axle-box holders, a locking device for said table, means for causing said device to engage the table when the latter begins its upward movement, and a plurality of rotating reaming-tools arranged in a circular group above the table, substantially as set forth.

4. In a reaming-machine, an upright frame or stand, a vertically-movable table-support slidably mounted within said frame or stand, means for positively feeding said table-support in an upward direction, a horizontal holder-table rotatably mounted on said table-support and carrying a circular series of axle-box holders, a locking device for said table, means for automatically causing said device to engage with the table as it begins its ascent, a device for releasing the locking device from the table when it reaches its lower limit of movement, and a plurality of rotating reaming-tools arranged in a circular group above the table, substantially as set forth.

5. In a reaming-machine, an upright frame or stand, a vertically-movable table-support slidably mounted within the frame or stand, means for positively and automatically feeding said support in an upward direction, a holder-table rotatably mounted on said support and carrying a plurality of axle-box holders, said table being provided with a circular series of pin-openings, a gravity weight-lever pivotally supported intermediate of its ends on the table-support and provided with an outer weighted end, a vertically-movable locking-pin pivotally connected with the inner end of said lever and working through an opening in the table-support so as to engage in the pin-openings of the table, an upright fixed strike rod or post arranged at the base of the frame or stand with its upper end disposed in the path of the weighted end of said lever, and a plurality of rotating reaming-tools arranged above the table in line with the holders thereof, substantially as set forth.

6. In a reaming-machine, an upright frame or stand having a circular series of upright frame-rods, a vertically-movable spider table-support having a plurality of radially-extending arms provided with sleeves slidably engaging the upright frame-rod, a holder-table rotatably mounted on said support and carrying a plurality of axle-box holders, a pivot-bolt connection between the table and said support, manual means for rotating the table, and a plurality of rotating reaming-tools supported for rotation above the table, substantially as set forth.

7. In a reaming-machine, an upright frame or stand having a circular series of upright frame-rods, a vertically-movable spider table-support having a plurality of arms provided with sleeves slidably engaging the upright frame-rod, and an annular or circular guide-rib formed on its upper side, a holder-table carrying a circular series of axle-box holders and provided with a depending circular bearing-flange having a lower inner grooved edge embracing said guide-rib, a pivot-bolt connection between the table and said support, means for positively rotating the table for a limited distance, and a plurality of rotating reaming-tools arranged in a circular group above the table, substantially as set forth.

8. In a reaming-tool, a horizontal vertically-movable holder-table provided near its periphery with a circular series of tapered axle-box openings and with short upwardly-disposed securing pins or studs projected from its upper surface at diagonally opposite sides of each opening, separate detachable holder-plates arranged flat on the table over each opening therein and provided with perforated ears to engage with the diagonally opposite pins or studs, and centrally between their ends with collars having notches at diametrically opposite sides of the openings therein, and a plurality of rotating reaming-tools arranged above the table, substantially as set forth.

9. In a reaming-machine, an upright frame or stand having a circular series of upright frame-rods, a vertically-movable spider table-support having a plurality of slide-sleeves working on said frame-rods, a holder-table rotatably mounted on the support and carrying a plurality of axle-box holders, a pivot-bolt connection between said table and its support, a strike-cap fitted centrally on the table over the upper end of the pivot-bolt connection, stop-collars adjustably fitted on the upright frame-rods, a depending post supported centrally within the machine frame or stand above the table and provided with a threaded socket, and a central stop-screw adjustably working in said threaded socket and adapted to contact with the strike-cap of the table, substantially as set forth.

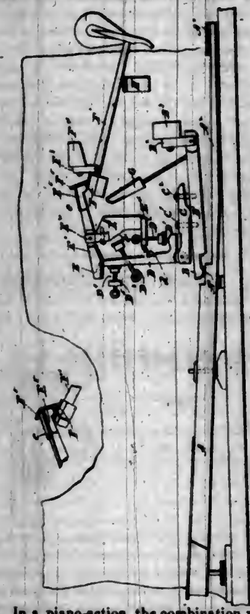
10. In a reaming-machine, an upright frame or stand, a vertically-movable table-support working within the frame or stand and carrying a holder-table, an upright cylinder supported at the base of the machine frame or stand, a piston-head working in said cylinder and having a rod connection with the table-support, rotary reaming-tools supported above the table, a pressure-supply pipe, a valve device interposed in the line of communication between said supply-pipe and the lower end of the cylinder, means for automatically operating said valve device by the upward movement of the table-support to provide for cutting off the fluid-supply from the cylinder when the table reaches a point where the reaming-tools begin to cut, and separate means for delivering a reduced head of fluid to the cylinder for slowly completing the upward feed of the table, substantially as set forth.

11. In a reaming-machine, an upright frame or stand having a base-plate formed with a water-passage therein, a vertically-movable table-support working within the frame or stand and carrying a holder-table, an upright cylinder supported on the base-plate and communicating at its lower end with the water-passage therein, a piston-head working in the cylinder and having a rod connection with the table-support, rotary reaming-tools supported above the table, a pressure-supply pipe, a valve device interposed in the line of communication between said supply-pipe and the lower end of the cylinder, means for automatically operating said valve device by the upward movement of the table-support to provide for cutting off the fluid-supply from the cylinder when the table reaches a point where the tools begin to cut, and a valved by-pass feed-pipe of a smaller diameter than the pressure-supply pipe and directly connecting said supply-pipe with the water-passage in said base-plate, substantially as set forth.

12. In a reaming-machine, the combination of a vertically-movable table-support carrying a holder-table, an upright cylinder supported below the table-support, a piston-head working in the cylinder and having a rod connection with the table-support, the reaming-tools, an upright valve-casing formed with separate upper and lower enlarged annular inlet and discharge chambers respectively and having a lower open end, a supply-pipe connection with the upper inlet-chamber of the valve-casing, a pipe connection between the lower discharge-chamber of the casing and the lower end of the cylinder, an inner plunger-cylinder fitted snugly within the valve-casing and provided with separate upper and lower perforate portions communicating respectively with the inlet and discharge chambers of the casing, a vertically-movable valve-stem working through the upper end of the casing, an elongated cylindrical plunger-valve fitted on said stem and provided on its lower end with a valve-head adapted to cover and uncover the lower perforate portion of said cylinder, and at its upper end with a packing-head, suitable lever connections between the valve-stem and the vertically-movable table-support to provide for the automatic upward adjustment of the plunger-valve, and a hand-lever connection with the valve-stem to provide for the setting of the plunger-valve, substantially as set forth.

13. In a reaming-machine, an upright frame or stand having within the upper part thereof an intermediate supporting-plate, a vertically-movable table working within the frame or stand and carrying a circular series of axle-box holders, a circular group of socket-bushings fitted to the intermediate supporting-plate of the frame or stand and provided with interiorly-threaded lower portions, exteriorly-threaded adjusting-sleeves working in the threaded portions of said socket-bushings and provided at their lower ends with a plurality of hand-grasps, split check-nuts adapted to be clamped on the adjusting-sleeves at the lower ends of the socket-bushings, a circular series of vertically-adjustable tool-spindles arranged within the upper part of the frame or stand and working in the smooth bores of said adjusting-sleeves, said tool-spindles being provided with threaded collars arranged below the lower ends of said adjusting-sleeves, washer-nuts fitted on the threaded collars of the tool-spindles, tool-holding chuck-blocks detachably fitted on the lower tip ends of the tool-spindles, and gearing for the several tool-spindles to provide for the rotation thereof in unison, substantially as set forth.

585,716. PIANO-ACTION. MORRIS STEINERT, New Haven, Conn. Filed July 29, 1896. Serial No. 600,876. (No model.)



Claim.—1. In a piano-action, the combination with a key, of a lever pivotally suspended by one of its ends above the key and having its opposite end arranged to coact therewith for operation thereby, a jack pivotally connected with the said lever, a hammer-lever having one of its ends arranged to coact with the upper end of the jack, and a hammer the butt-end of the arm of which is acted upon by the opposite end of the hammer-lever.

2. In a pianoforte-action, the combination with a key, of a lever the forward end of which coacts with the key, for operation thereby, while its rear end is pivotally suspended at a point above the key, a jack connected with a fly-lever, a hammer-lever the forward end of which is acted upon by the jack, and a hammer, the butt-end of which is acted upon by the opposite end of the hammer-lever.

3. In a pianoforte-action, the combination with a key, of a fly-lever pivotally suspended by its rear end and engaged at its forward end with the key for being lifted thereby, a fly mounted upon the said fly-lever, a jack pivotally mounted in the fly, a hammer-lever having its forward end arranged to coact with the upper end of the jack, and a hammer, the butt of the arm of which coacts with the rear end of the hammer-lever.

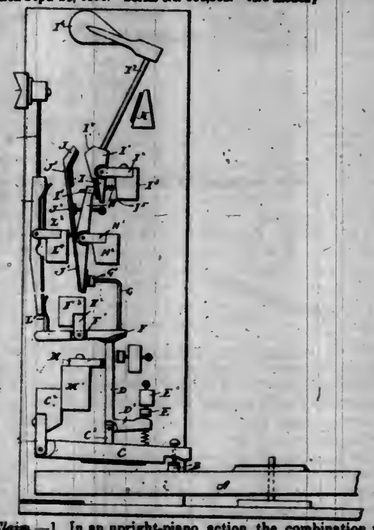
4. In a piano-action, the combination with a key, of a fly-lever pivotally suspended at one end above the key and coacting at the other end therewith for operation thereby, a fly mounted upon the fly-lever, a jack mounted on the fly and provided with a rearwardly-extending tripping-arm, a regulating-screw for engagement with the said arm, a hammer-lever having an obtuse-angled escapement-face with which the upper end of the jack coacts, and a hammer the butt-end of the arm of which coacts with the opposite end of the hammer-lever.

5. In a pianoforte-action, the combination with a key, of a lever suspended by its rear end and having its forward end engaged with the key for operation thereby, a jack connected with the said lever, a hammer-lever upon which the jack acts, a hammer, the butt of the arm of which coacts with the rear end of the hammer-lever, and a back-check mounted in the said fly-lever and coacting with the butt of the hammer-arm.

6. In a pianoforte-action, the combination with a key, of a fly-lever pivotally suspended by its rear end and engaging at its forward end with the key, a fly mounted upon the said fly-lever, a jack pivotally mounted in the fly, a hammer-lever the forward end of which coacts with the upper end of the jack, a hammer the butt of which coacts with the rear end of the hammer-lever, a hook mounted in the butt of the hammer-arm and coacting with the rear end of the said hammer-lever, and a back-check mounted in the fly lever and coacting with the butt of the hammer-arm.

7. In a piano-action, the combination with a key, of a lever pivotally suspended by its rear end above the key, and adapted at its forward end to coact with the key for operation thereby, a back-check mounted in the rear end of the said lever and extending upwardly therefrom, a jack connected with the said lever, a hammer-lever having its forward end formed with an obtuse-angled escapement-face which coacts with the upper end of the jack, a hammer having a hammer-arm the butt-end of which coacts with the opposite end of the hammer-lever and with the said back-check.

585,717. PIANO-ACTION. MORRIS STEINERT, New Haven, Conn. Filed Sept. 21, 1896. Serial No. 606,562. (No model.)



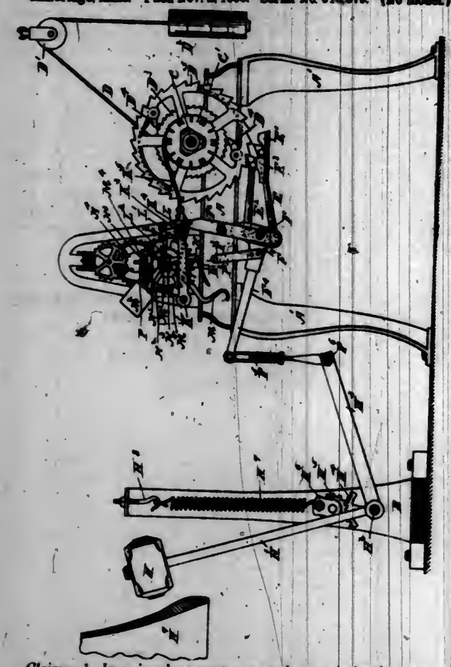
Claim.—1. In an upright-piano action, the combination with a key, of a jack-lever operated thereby, a jack pivotally mounted in the said jack-lever, an escapement-lever coacting with the jack and having an obtuse-angled escapement-face, a vertically-arranged operating-lever, connection between the same and the escapement-lever, a hammer, a hammer-arm, and connection between the same and the upper end of the operating-lever.

2. In an upright-piano action, the combination with a key, of a jack-lever operated thereby, a jack pivotally mounted in the said jack-lever and having a forwardly-extending tripping-arm coacting with an adjustable button, a horizontally-arranged escapement-lever having an obtuse-angled escapement-face coacting with the upper end of the jack, an upwardly-extending operating-arm carried by the escapement-lever, a vertically-arranged operating-lever engaging at its lower end with the said arm, and a hammer operated by the upper end of the said operating-lever, substantially as described.

3. In a piano-action, the combination with a key, of a horizontally-arranged jack-lever located above the rear end of the key by which it is operated, and pivotally suspended by its rear end, an adjustable button interposed between the key and the forward end of the jack-lever, a jack pivotally mounted in the jack-lever between its rear end and the said button, an escapement-lever coacting with the jack and having an obtuse-angled escapement-face, a vertically-arranged operating-lever, connection between the same and the escapement-lever, a hammer, and a hammer-arm which is acted upon by the upper end of the operating-lever.

4. In an upright-piano action, the combination with a key, a jack-lever and an escapement-lever, of a vertically-arranged operating-lever, a hammer, a hammer-arm, a hammer-arm butt with which the upper end of the operating-lever is connected and which is formed with a check-face, and a hammer-check secured at its lower end to the said operating-lever, and having its upper end formed for engagement with the inclined check-face of the hammer-arm butt.

585,718. BELL-STRIKING MECHANISM. GEORGE M. STRYENS, Cambridge, Mass. Filed Nov. 2, 1896. Serial No. 610,879. (No model.)



Claim.—1. In a signal apparatus, a stroke-regulating lever having a projection adapted to engage with a locking and let-off mechanism, a drop-latch attached to the said lever and adapted to engage with an oscillating arm connected to the stroke mechanism, and operating with the same, and the said oscillating arm substantially as and for the purpose set forth.

2. In a signal apparatus, a stroke-regulating lever having a projection adapted to engage with a locking and let-off mechanism, and an extension having a hook adapted to engage with a stroke-number-regulating mechanism, a drop-latch attached to said lever and adapted to engage with an oscillating arm connected to the stroke mechanism and operating with the same, and the said oscillating arm, substantially as and for the purpose set forth.

3. In a signal apparatus, a mechanism for giving motion to a signal-emitter, a swinging weighted arm, a segment-gear swinging with said arm, a pinion engaging with said segment-gear and a spring adapted to control said weighted arm substantially as and for the purpose set forth.

4. In a signal apparatus, the combination of a bell-hammer, with a segment-gear connected to said hammer, a pinion engaging with said segment-gear and a spring adapted to control said pinion, substantially as and for the purpose set forth.

585,719. BICYCLE. WILLIAM M. SUTTON, Tonawanda, N. Y. Filed July 15, 1896. Serial No. 599,997. (No model.)



Claim.—1. The combination with a flange on the top of the upward-extending stem of the front forks of a bicycle, of a handle-bar-clamping device formed of two half-round portions and provided with an annular groove, adapted to fit over and envelop said flange, and screw-bolts for securing the two portions to each other and around the flanged top, whereby when the screw-bolts are slightly loosened the handle-bar and the clamping device can be revolved on the flanged top and the bar and forks adjusted horizontally to each other, as set forth.

2. The combination with a handle-bar, provided with a series of slots forming a rack cut in its stem and a depression located opposite said slots and extending longitudinally the entire length of said stem, of the front forks and stem thereof, a clamping device rigidly secured to the said stem and fitting loosely enough around said handle-bar stem to permit an up-and-down movement therein, a feather fitting in said depression, and a toothed ratchet-wheel adapted to fit into said slots, whereby the handle-bar can be adjusted up or down but not revolved in said clamping device, as set forth.

3. The combination with a bicycle provided with a handle-bar having a series of slots in its stem, a longitudinal depression opposite said slots on said stem, and a flange on the top of the stem of the front forks, of a clamping device formed of two half-round portions, an annular groove in said portions adapted to encompass the flange on the top of the fork-stem, a feather secured between the rear ends of the said portions and projecting into the longitudinal depression in the handle-bar stem, a ratchet-wheel rotatably mounted between the front ends of said portions and provided with teeth adapted to fit into the series of slots in the handle-bar stem, and means for securing the two portions to each other, rigidly around the flanged top of the fork-stem and loosely enough around the handle-bar stem to permit of an up or down adjustment of the handle-bar, whereby the handle-bar may be adjusted up or down in the clamping device by turning the ratchet-wheel, or the handle-bar and the clamping device may be rotatably adjusted on the fork-stem by freeing the portions of the clamping device sufficiently to permit their turning on the flanged head of the fork-stem, as set forth.

585,720. MACHINE FOR STRAIGHTENING TUBING OR SHAFTING. ZACHARIAH TEETOR and CHARLES N. TEETOR, Hagerstown, Ind. Filed Feb. 8, 1896. Serial No. 578,528. (No model.)



Claim.—1. In a machine for straightening tubing a stationary group of concave rolls placed on opposite sides of said tubing and set obliquely thereto, a series of guide-rolls, a universally-mounted adjustable case in which said guide-rolls are mounted and a lever by which said guide-rolls are adjusted laterally, all as set forth.

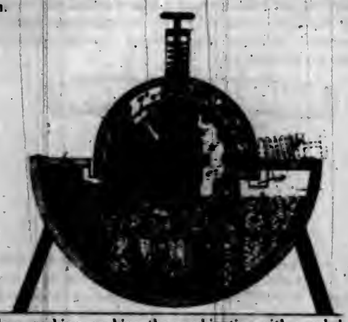
2. In a machine for straightening tubing a stationary group of concave rolls set obliquely relative to said tubing and in pairs so that concave section of said rolls on one side forms with rolls on opposite side a circular aperture for passage of said tubing, a set of guide-rolls, a universally-mounted case in which are mounted said guide-rolls, a lever by which said case and guide-rolls are adjusted laterally and a ratchet-toothed bracket adapted to engage with said lever to retain said guide-rolls when so adjusted, all as specified.

3. In a machine for straightening tubing two or more fixed groups of concave rolls fixed obliquely on each side of tubing to be straightened inclining in each direction on respective side and adjacent or intervening groups of concave rolls similarly disposed but laterally adjustable as specified.

4. Three or more groups of concave rolls placed obliquely on opposite sides of stock to be straightened and inclining in opposite directions, each group being independently compressible, alternate groups being fixed in line with each other, one or more groups of concave rolls being placed between said alternate groups laterally adjustable, so as to produce eccentricity in different sections of said stock, a set of universally-mounted deflection-rolls, means for adjusting said latter rolls all to operate as and for the purposes set forth.

585,721. WASHING-MACHINE. ROBERT TELFEROW, Sherville, Ind. Filed Oct. 5, 1896. Serial No. 607,914. (No model.)

Claim.—1. In a washing-machine, the combination with a suds-box, of a drum having a series of longitudinal slats which are movable laterally with relation to each other, and means for moving said slats, said means including a rock-shaft, an arm projecting therefrom and a link connecting said arm with one of the slats, substantially as set forth.



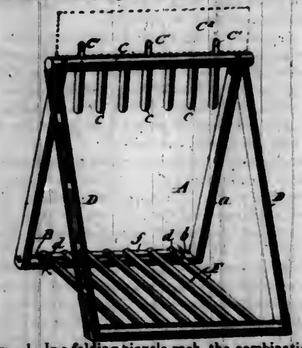
2. In a washing-machine, the combination with a suds-box, of a drum having a series of longitudinal slats that are movable laterally with relation to each other, and means for moving said slats and for holding them to their adjustment, said means including a rock-shaft passing through one head of the drum, means connecting said shaft with one of the slats, a lever secured to the projecting end of the rock-shaft, outside of the drum, and a rack secured to the head of the drum and adapted to engage and hold the lever, substantially as set forth.

3. In a washing-machine, the combination with a suds-box and a drum having means for securing thereto the articles to be washed, of a dome covering the upper portion of the drum, said dome being movable both vertically and horizontally in order to accommodate itself to the pressure of the articles being washed, and means for holding the dome down with a yielding force, said means including a yoke which spans the dome and is journaled to the shaft of the drum whereby it may be moved about said shaft to permit the removal of the dome, and a spring bearing in one direction against the dome and in the other direction against the yoke, substantially as set forth.

4. In a washing-machine, the combination with a suds-box and a drum having means for securing thereto the articles to be washed, of a dome covering the upper portion of the drum, said dome being movable both vertically and horizontally in order to accommodate itself to the pressure of the articles being washed, a yoke spanning the dome and journaled to the shaft of the drum, whereby it may be moved about said shaft to permit the removal of the drum, a hand-screw having a bearing in the yoke, and a spring interposed between the screw and the yoke, substantially as set forth.

5. In a washing-machine, the combination with a suds-box and a drum having means for securing thereto the articles to be washed, of a dome covering the upper portion of the drum, said dome being movable both vertically and horizontally in order to accommodate itself to the pressure of the articles being washed, a yoke spanning the dome and journaled to the shaft of the drum a hand-screw having a bearing in the yoke, a spring upon which said hand-screw is adapted to bear, and a slat interposed between the spring and the dome, said slat having at its ends engagement with the yoke whereby it is guided in its movement, substantially as set forth.

585,722. FOLDING BICYCLE-RACK. ABEL F. TEMPLE, Montrose, Mich. Filed Aug. 28, 1896. Serial No. 604,191. (No model.)

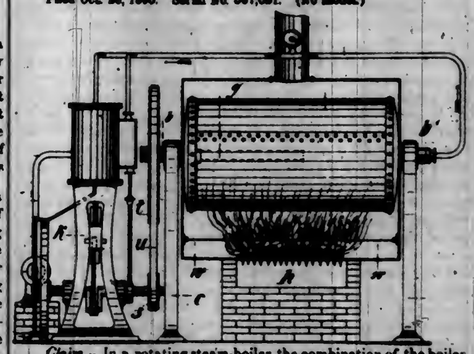


Claim.—1. In a folding bicycle-rack, the combination of a frame having vertical depending projections at its top, a frame pivoted thereto and designed to support it at an angle, a horizontal base-frame pivoted to the latter frame and consisting of parallel rails, and locking-loops on the base of the first frame engaging the latter frame, substantially as described.

2. In a folding bicycle-rack, the combination with a rectangular frame having loops on the bottom rod thereof, of the second frame pivoted to the first frame, and a horizontal folding base-frame, consisting of parallel rails engaged by the aforesaid loops, substantially as described.

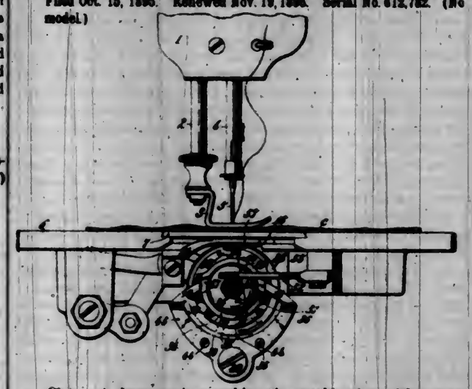
3. The combination of the rectangular frame having at its upper end vertically-depending projections, the second frame pivoted to the upper end of said frame, and the horizontal base-frame having rails, together with automatically-operating locking projections on the bottom rod of the first frame engaging the rails of the latter frame, substantially as described.

585,723. STEAM-BOILER. PAUL TRETTIN, Berlin, Germany. Filed Oct. 26, 1895. Serial No. 567,091. (No model.)



Claim.—In a rotating steam-boiler the combination of the boiler provided at both ends with hollow trunnions and a perforated pipe arranged inside and connected to the one of the hollow trunnions with a steam-engine jointed to the boiler by a pipe passing from the other of the hollow trunnions, a feed-pump connected with the said perforated pipe inside of the boiler, a rod adapted to be operated by the steam-engine and operating the feed-pump, a lever pivoted in a bearing and adjustably connected with the said rod and jointed to the piston-rod of the feed-pump, a cylinder being provided with a piston moved up and down according to the pressure in the boiler and jointed to the said operating-rod of the feed-pump, substantially as described.

585,724. SEWING-MACHINE. JAMES TRIPP, New York, N. Y. Filed Oct. 15, 1895. Renewed Nov. 19, 1896. Serial No. 612,782. (No model.)



Claim.—1. In a sewing-machine, the combination with a needle, and a rotary-hook-carrying ring, of a circumferentially-flanged bobbin-casing having a convexed back, an open front for insertion and removal of a bobbin, anteriorly-convexed segmental ribs above and below the opening, in said front, an upper transverse slot and a lower transverse slot in rear of said ribs, a tension-regulating spring arranged in said lower slot and provided with a threading-slot terminating in an eye, the said lower rib being provided with a slot for passage of the under thread to said spring, and means for holding said bobbin-casing against rotation and longitudinal displacement, within the rotary-hook-carrying ring, substantially as described.

2. In a sewing-machine, the combination with a needle, and a rotary-hook shaft, of an eccentric and a hook-carrying ring or head formed integrally and mounted in one body on the forward end of said hook-shaft, a bobbin-casing held from longitudinal displacement within the hook-carrying ring, a bobbin, and a positively-actuated locking device adapted to engage the bobbin-casing at two points alternately for locking said casing at all times against rotation and to provide free passage for the loop at each locking-point as required, said eccentric being arranged for actuating the said locking device, substantially as described.

3. In a sewing-machine, the combination with a needle, a rotary-hook-carrying ring having a portion of its periphery provided with a passage for the loop, and a bobbin-casing held from longitudinal displacement within said ring and provided with locking-recesses at two points in the path of the needle-thread loop that is to be bowed or spread around said casing to encompass the under thread, of a positively-actuated vibratory locking device provided with lugs or pallets adapted and arranged to engage both locking-recesses of the bobbin-casing for a time while the loop is not yet fully spread and to alternately disengage from and become fully engaged with the respective recesses of the bobbin-casing, whereby the said casing is at all times locked against rotation and a free passage afforded for the loop at each locking-point as required, substantially as described.

4. In a sewing-machine, the combination with a needle, a rotary-hook-carrying ring provided with a passage for the needle-thread loop and mounted on a shaft provided with an eccentric, and a bobbin-casing held from longitudinal displacement in the said hook-carrying ring, around which casing the loop of the needle-thread is to be bowed or spread, of a vibratory two-armed locking device provided with lugs or pallets adapted and arranged to simultaneously have a partial engagement with the bobbin-casing for a time while the loop is not yet fully spread and to alternately become disengaged from and fully engaged with the bobbin-casing as the loop is carried fully around the same, whereby the said casing is at all times locked against rotation and a free passage afforded for the loop at each locking-point as required, and means for vibrating said two-armed locking device from the eccentric on the hook-shaft, substantially as described.

5. In a sewing-machine, the combination with a needle, and a rotary-hook-carrying ring adapted to afford passage for the loop of the needle-thread around and in advance of the hook, of a bobbin-casing held against longitudinal movement in said hook-carrying ring and provided with a convexed back and an open front having anteriorly convexed ribs one above and one below the bobbin-receiving opening and with recesses between the end of said ribs and upper and lower transverse slots in rear of the ribs, and a positively-actuated vibratory locking device provided with lugs or pallets to engage in both of said recesses for a time and to alternately disengage from and fully engage with the respective recesses, whereby the bobbin-casing is at all times locked against rotation and a free passage afforded for the needle-thread loop at each locking-point, substantially as described.

6. In a sewing-machine, the combination with a needle, and a rotary-hook-carrying ring having a portion of its periphery reduced in width to afford passage for the loop of the needle-thread, of a bobbin-casing closed at the back and open in front for insertion and removal of a bobbin, the said bobbin-casing being provided with convexed surfaces for free passage of the bowed or spread loop around it and having transverse slots above and below the front of the bobbin-receiving opening and locking-recesses at the sides, a tension-regulating spring arranged in one of the slots of the bobbin-casing and provided with a threading slot and eye in said spring, and vibratory locking devices to alternately engage with and disengage from the said recesses in the sides of the bobbin-casing for holding it against rotary displacement within the hook-carrying ring and to permit free passage of the loop at each locking-point, substantially as described.

7. In a sewing-machine, the combination with a needle, a rotary-hook-carrying ring, and a bobbin-casing having an open front and provided with locking-recesses on opposite sides, of positively-actuated vibratory locking devices adapted to simultaneously engage for a time in both said recesses of the bobbin-casing and to alternately disengage from and fully engage with said recesses as the loop is carried around the casing, to lock the latter, and permit free passage for the loop at both locking-points in succession, and an arm to retain the bobbin in its casing, substantially as described.

585,725. LEVER-SUPPORT FOR INTERCHANGEABLE BRAKE-BEAMS. HENRY H. VAUGHAN, St. Paul, Minn. Filed May 3, 1897. Serial No. 635,635. (No model.)

Claim.—1. A lever-support for interchangeable brake-beams or other uses, comprising a fixed holder and a fulcrum-block mounted for rotary movement in said holder and having a lever-passage at an oblique angle to the plane of the said block's rotation, substantially as described.

2. A lever-support for interchangeable brake-beams or other uses, comprising a fixed holder and a fulcrum-block of disk-like form rotatively mounted on said holder and having a lever-passage at an oblique angle to the plane of said block's rotation, substantially as and for the purposes set forth.

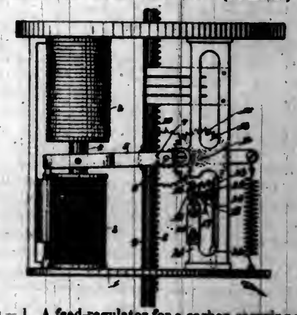


3. In a brake-beam, the combination with the beam-body and the truss or tension rod, of a strut constructed to serve as a lever-holder, and a fulcrum-block mounted for rotary movement in said holder and having a lever-passage at an oblique angle to the plane of said block's rotation, substantially as described.

4. In a lever-support, the combination with a fixed holder, of a fulcrum-block rotatively seated on said holder and having a lever-passage at an oblique angle to the plane of the block's rotation, and a keeper-ring constructed to interlock with a flanged seat for the same on said holder, for securing said block in working position, substantially as described.

5. In an interchangeable brake-beam, the combination with the beam-body 1 and the truss-rod 2, of the divided or double strut 3 constructed to afford a seat *a* for the fulcrum-block 4 and a flanged seat *a'* for the keeper-ring 5, of said fulcrum-block 4 rotatively mounted on said seat and having the lever-passage at an oblique angle to the plane of the block's rotation, the lever 7, the pin 8 and the keeper-ring 5, provided with the lock-flanges *c*, for engagement with the lock-flanges *c'* on the ring-seat flange *a'*, with the said ring and its seat of larger diameter than the seat for the fulcrum-block, all substantially as described.

585,726. ELECTRIC-ARC LAMP. JAMES J. WALSH, Paris, Tex. Filed July 29, 1896. Serial No. 600,905. (No model.)

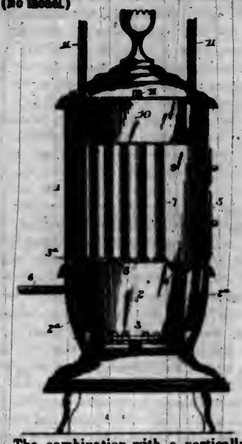


Claim.—1. A feed-regulator for a carbon-carrying rod of an arc-lamp, comprising a pair of escapement-wheels arranged on one shaft, the teeth of one wheel alternating with those of the other, and pendulum-governed escapement-dogs alternately coacting with the escapement-wheels, the said dogs being mounted to swing independently, one of the other, substantially as specified.

2. In an electric-arc lamp, a regulator for the carbon-carrying rod thereof, comprising a pair of escapement-wheels arranged side by side, the teeth of one wheel alternating with those of the other, escapement-dogs coacting with said escapement-wheels and mounted to swing independently, a holder for said dogs extending from the fixed frame of the lamp, and a pendulum for governing the movement of said dogs, substantially as specified.

3. An electric-arc lamp, comprising a fixed frame, a rocking frame mounted therein, a carbon-carrying rod extending through the fixed frame and through the rocking frame, a shaft in said rocking frame, a pinion on said shaft engaging with the rack on the carbon-carrying rod, a gear-wheel on said shaft, a second shaft mounted in the rocking frame, a pinion on said second shaft engaging with the gear-wheel, a pair of escapement-wheels mounted on said second shaft, the teeth of one escapement-wheel alternating with the teeth of the other escapement-wheel, a bracket adjustably supported on a portion of the fixed frame, dogs mounted to rock in said bracket and engage alternately with the escapement-wheels, a pendulum having its rod pivotally connected to the bracket, laterally-extended arms on said rod provided with slots, and rearwardly-extended stem portions on the dogs passing through said slots, substantially as specified.

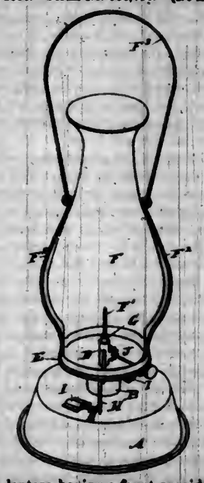
585,727. HOT-WATER HEATER. JOSEPH WALTHER, Aurora, Neb. Filed May 17, 1896. Renewed May 25, 1897. Serial No. 638,141. (No model.)



Claim.—1. The combination with a vertically-elongated stove having a circular fire-box, of a removable hot-water heater comprising an annular water-chamber arranged within said fire-box and constituting within itself the fire-box of the heater attachment, a second water-chamber arranged above the first and also within the stove-body, the main or lower water-chamber being cut away as to a portion of its upper edge to form a downwardly and inwardly slanting fuel-sill, a series of pipes connecting the two chambers and partially inclosing the space between said chambers and arranged to leave an open space registering with said slanting sill and the stove-door opening for permitting the introduction of fuel, and inlet and outlet pipes communicating with said chambers for conducting the water to and from the apartment to be heated, substantially as described.

2. The combination with a vertically-elongated stove, of a removable hot-water heater, comprising an inverted conico-cylindrical fire-box, a series of depending integral lugs or feet disposed around the lower edge thereof, a grate arranged within the lower end of said fire-box, an annular water-chamber formed integrally with and surrounding the fire-box and corresponding in shape thereto, a second annular water-chamber arranged in the upper portion of the stove, a series of pipes extending from one chamber to the other and in communication with both, and pipes connected to said chambers for conducting water to and from the apartment to be heated, substantially as specified.

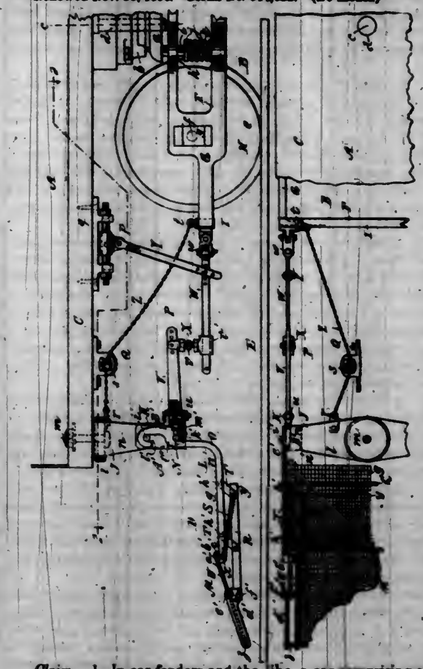
585,728. OIL-LANTERN. JULIUS L. WAESLER, Brooklyn, N. Y. Filed July 28, 1896. Serial No. 600,756. (No model.)



Claim.—1. A lantern having a fount provided with two eyes on its upper side and with a neck centrally located with relation to the eyes, a support located within the neck, a wick-tube passing through the support, a chimney-support held by the wick-tube, and two rods secured to the chimney-support and projecting downwardly therefrom, the rods respectively engaging the eyes upon the turning of the wick-support, substantially as described.

2. A lantern having a fount provided with two eyes on its upper side and with a neck centrally located relatively to the eyes, a support held within the neck, a wick-tube passing through the support, a chimney-support held by the wick-tube, arms arising from the chimney-support to engage the sides of the chimney, a handle attached to a number of the arms, and two rods projecting downwardly from the wick-support each rod having a centrally-disposed arm and the arms respectively movable into the eyes of the fount, substantially as described.

585,729. CAR-FENDER. JAMES H. WHELLY, Jersey City, N. J., assignor to George Holt Fraser, Brooklyn, N. Y. Filed Mar. 23, 1895. Renewed Nov. 20, 1896. Serial No. 614,052. (No model.)



Claim.—1. In car-fenders and the like, a car comprising a running-gear and a body portion carried thereby and movable relatively thereto, and a fender carried by and movable relatively to said car, in combination with a connection between said running-gear, body and fender, operated by the movement of the body relatively to the running-gear, and when thus operated moving said fender vertically opposite to the vertical movement of said body relatively to said running-gear, said connection comprising a vertically-swinging lever fulcrumed to the running-gear, and connected to the fender to move it, a coupling between said lever and fender yielding to longitudinal movements of the lever as it swings and transmitting only its vertical movements to the fender, and a connection between said lever and said body moving the lever as the body moves.

2. In fenders for cars, a car comprising a running-gear and a body carried thereby and movable vertically relatively thereto, and a fender carried by and movable relatively to said car, in combination with a connection between said running-gear, body and fender, moving the latter vertically relatively to the car, and operated by the vertical movement of said body relatively to said running-gear, and when so operated moving said fender upwardly as said body moves downwardly, comprising a vertically-swinging lever fulcrumed to the running-gear, a connection between said lever and said body moving the lever as the body moves, and a sliding connection between said lever and said fender, transmitting the vertical movements of the lever to the fender, and permitting longitudinal movement of the lever independently of the fender.

3. In fenders for cars, a car comprising a running-gear and a body carried thereby and movable vertically relatively thereto, and a fender carried by and movable relatively to said car, in combination

with a connection between said running-gear, body and fender, moving the latter vertically relatively to the car, and operated by the vertical movement of said body relatively to said running-gear, and when so operated moving said fender downwardly as said body moves upwardly, comprising a vertically-swinging lever fulcrumed to the running-gear, a connection between said lever and the car-body moving the lever with the latter, and an adjustable connection between said lever and fender, transmitting the vertical movements of the former to the latter.

4. In fenders for cars, a car comprising a running-gear and a relatively-movable body, in combination with a fender-support carried by said body, a fender-carrier pivoted thereto movable on its pivotal connection therewith and having a projecting arm, a fender carried by and movable with said carrier, a separable connection between said carrier and fender, a connection between said carrier, running-gear and body, consisting of a vertically-swinging lever fulcrumed to the gear, a link between said lever and the body swinging the lever with the body, and a flexible connection between the lever and said arm moving the latter therewith, whereby the motion of said body relatively to said gear is transmitted to said carrier and fender, and the latter can be detached, substantially as and for the purpose set forth.

5. In fenders for cars, a car comprising a running-gear and a body carried thereby and movable laterally relatively thereto, in combination with a fender carried by said car and movable laterally relatively thereto, and a flexible connection between said fender, body and running-gear movably connected to each, and moving said fender laterally, operated by the relative lateral movement of said body and gear, and when thus operated moving said fender relatively to said body in a direction substantially the reverse of the direction of movement of the latter relatively to said gear.

6. In fenders or cars, a car comprising a running-gear and body carried thereby and movable laterally relatively thereto, in combination with a fender-support pivoted to said body on a substantially vertical axis, swinging horizontally, a fender carried thereby projecting at its front end toward the front of said car, and a flexible connection between said fender-support, body and running-gear, moving said support on its pivotal axis when said body moves laterally relatively to said running-gear, said connection comprising a chain flexibly connected to and pulled by said gear.

7. In feeders for cars, a fender having a front guard movable vertically and rearwardly, means normally holding said guard in an upper and forward position and permitting its movement from such position under pressure, and parallel links carrying and moving said guard downwardly and rearwardly when force is applied thereto.

8. In fenders for cars, a fender having a rearward body L and a forward guard M, the latter movable downwardly relatively to the former, a frame R carrying said guard, supported by said body, and brackets *d'* pivoted to said frame and adjustable to vary the elevation of said guard relatively thereto, and means holding said forward guard normally in an upper position.

9. In fenders for cars, a fender having a rear body and an outer guard, the latter movable rearwardly relatively to said body, a frame beneath and supported by said body, and carrying said guard normally holding the latter in an outward position and permitting its movement toward said body under pressure and a movable connection between said body and frame moving the latter parallel with said body.

10. In fenders for cars, a fender having a body and a front guard, a body-frame and a guard-frame supported thereby movable longitudinally thereof, substantially parallel therewith and carrying said guard, a movable connection between said body and guard frames and a spring S, carried by said body-frame, reacting against said guard-frame, and thereby normally holding said guard in advance of said body.

11. In fenders for cars, a fender having a body and side frames, and a front guard having side frames movable relatively to said body, and connecting-links between the side frames of said parts carrying said guard from said body, and permitting the rearward and downward swinging of the guard relatively to the body.

12. In fenders for cars, a fender comprising a body having side frames, and a fender-support adapted to be carried by a car and to carry such fender, in combination with a separable coupling between said fender and support, consisting of two members, the one carried by the support and the other carried by the fender, the one having bearing-faces or projections spaced apart and the other having recesses having carrying-faces embracing said bearing-faces, and a body in which said recesses are formed traversing the space between said projections when said faces are in engagement, and removable through the space between said faces while said members are being separated.

13. In fenders for cars, a fender having a rear portion L having side frames, and an outer portion M having side frames, a movable connection between said portions, a web covering said rear portion, and an apron covering said outer portion in advance of and below said web, said outer portion and its frames movable bodily forwardly and rearwardly independently of said rear portion.

14. In fenders for cars, a fender-support consisting of a cross-piece adapted to be swiveled on a vertical axis to a car-body, and having downwardly-projecting posts, a forwardly-projecting fender carried by said posts, a pivotal connection on a horizontal axis between said fender and posts, means swinging said support on its vertical axis, and means swinging said fender on its horizontal axis.

15. In fenders for cars, a car comprising a running-gear and a body carried thereby and movable vertically relatively thereto, and a fender carried by and movable relatively to said car, in combination with a connection between said running-gear, body and fender, moving the latter vertically relatively to the car, and operated by the vertical movement of said body relatively to said running-gear, and when so operated moving said fender upwardly as said body moves downwardly, comprising a vertically-swinging lever fulcrumed to the running-gear, and connected to the fender, and a link connected to said lever and the car-body, moving the former as the latter moves, and adjustable to vary the movement of said lever.

16. In fenders for cars, a car comprising a running-gear and a body carried thereby and movable vertically relatively thereto, and a fender carried by and movable vertically relatively to said car, in combination with a connection between said running-gear, body and fender, moving the latter in opposition to the vertical movement of the body and operated by such movement, comprising a vertically-swinging lever fulcrumed to the running-gear and connected to the fender, and a link connected to said lever and said body for moving the former as the latter moves, said link adjustably connected to said body, whereby its action on said lever can be adjusted.

17. In fenders for cars, a car comprising a running-gear and a body carried by and movable vertically of the latter, and a fender carried by and movable vertically of the car, in combination with a connection between said parts moving the fender vertically in opposition to, and operated by, the vertical movement of said body relative to said gear, comprising a vertically-swinging lever fulcrumed to the running-gear, and connected to the fender for moving it, and a link connected to the body and said lever for moving the latter from the former, and an adjustable connection between said link and lever, whereby the movement of the latter can be adjusted.

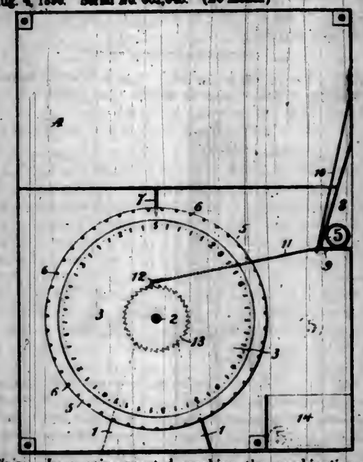
18. In fenders for cars, a car comprising a running-gear and a body carried thereby and vertically movable relatively thereto, in combination with a fender pivotally connected to said body on an axis fixed relatively thereto, a rearwardly-projecting arm rigidly connected to said fender, swinging vertically therewith in opposite direction thereto on said axis and moving said fender, and a flexible connection between the running-gear, car-body, and said arm, moved by the vertical movements of the body relatively to the gear and raising the rear end of said arm when the body rises and lowering it when said body lowers, said connection yielding to permit the swinging of said arm on said axis and transmitting only vertical movements to the arm.

19. In fenders for cars, a car comprising a running-gear and a body carried and movable vertically thereon, and a fender pivotally connected to said body, in combination with a vertically-swinging arm connected to and moving said fender, swinging on the pivotal connection between the latter and the body at rear of such connection, a lever fulcrumed to the running-gear, projecting toward said arm and swinging vertically at its outer end, a connection between said lever and body moving the lever as the body moves, and a yielding connection between the ends of said arm and lever moving the former vertically with the latter, and permitting independent longitudinal movement of the arm and lever.

20. In fenders for cars, a car comprising a running-gear and a body carried and movable vertically thereon, and a fender pivotally carried by said body and swinging vertically at front thereof, in combination with an arm swinging on the pivotal connection between said fender and body, projecting at rear of said connection and moving the fender, a lever fulcrumed to the running-gear, swinging vertically, and projecting at its outer end toward said arm, a connection between said lever and body moving the former with the vertical movement of the latter, and a coupling between the ends of said arm and lever, movably connected to each and transmitting the vertical movements of one to the other and yielding to their longitudinal movement.

21. In fenders for cars, a car comprising a running-gear and a body carried and vertically movable thereon, and a fender carried by said body, swinging vertically at its forward end in front thereof, in combination with a rearwardly-projecting arm swinging vertically and connected to said fender and swinging it, a lever fulcrumed to the running-gear, projecting at its forward end adjacent to said arm and swinging vertically, a connection between said lever and body moving the former with the latter, and an adjustable coupling between and movably connecting the swinging ends of said arm and lever and transmitting the vertical movements of the latter to the former.

585,780. COIN-OPERATED MACHINE. LINDLEY A. WRIGHT, ORIN L. PERCIVAL, and WILLARD H. ARNETT, Champaign, Ill. Filed Aug. 4, 1896. Serial No. 601,643. (No model.)



Claim.—In a coin-operated machine, the combination with a casing having a slot therein, of a disk mounted in said casing, parallel peripheral flanges on said disk, pins or wires extending from one flange to the other and spaced apart, said disk having gradnations, a rubber pin to be engaged by said pins or wires on the periphery of the disk, and devices adapted to be operated by a coin passed through said slot in the casing, for rotating said disk, substantially as set forth.

585,781. TELEGRAPH-SWITCH. JAMES S. ALLEN, Halsey, Nebr. Filed July 25, 1896. Serial No. 600,521. (No model.)



Claim.—1. In a telegraph-switch, the combination with contact-pins, of guide-arms, a plunger having a cylindrical portion working in one of the guide-arms and a flat portion working in the other guide-arm, of a coil-spring for urging the plunger forward, and a contact-plate carried on the end of said plunger and adapted to normally establish electrical connection between the contact-pins.

2. In a telegraph-switch, the combination with contact-pins electrically connected to the line-wires, of a spring-actuated plate, and a removable cut-out plug provided with separated contact-strips which are electrically connected to the instrument-wires, said plug being adapted for insertion between the plate and the pins, said plate serving to retain the plug and keep the contact-strips bearing against the contact-pins.

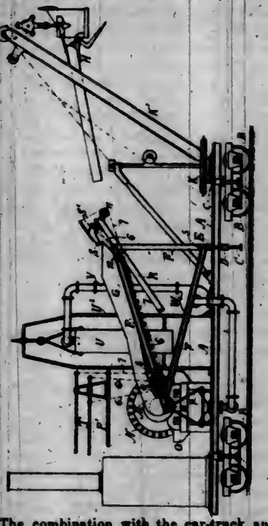
3. In a telegraph-switch, the combination with contact-pins, of a spring-pressed plate, and a cut-out plug having centrally-grooved contact-strips, said plug being adapted for insertion between the spring-pressed plate and the pins, and said plate serving to retain the plug and hold it so that the pins will lie in the grooves of the contact-strips.

4. In a telegraph-switch, the combination with contact-pins connected to the line-wires, of a spring-pressed plate normally adapted to contact with said pins having a portion inclined in relation to the contact-pins, and a cut-out plug having a beveled lower edge adapted to ride on the inclined portion of the spring-pressed plate, said cut-out plug being provided with contact-strips, and said spring-pressed plate being adapted to press the cut-out plug against the contact-pins so that the contact-strips will be in electrical connection with said contact-pins.

5. In a telegraph-switch, the combination with a lightning-arrester having respective plates connected to the line-wires, and provided with a "ground-plate," of contact-springs having parallel lips and located on the respective line plates, and a pivoted spring switch-arm adapted to be inserted between the lips of the contact-spring.

6. In a telegraph-switch, the combination with a lightning-arrester consisting of plates connected to the line-wires and another plate connected to the "ground-wire," and a pivoted switch-arm adapted for manipulation to electrically connect the ground-plate with either line-plate, of contact-pins electrically connected to the line-plates of the lightning-arrester, and a cut-out plug having contact-strips electrically connected to the instruments, said contact-strips being adapted for electrical connection with the contact-pins.

585,782. ORE-SEPARATING APPARATUS. THOMAS G. BARLOW-MANNOCK, Mannock, Ariz. Filed July 16, 1896. Serial No. 599,356. (No model.)



Claim.—1. The combination with the car-truck and a steam-shovel pivotally mounted upon the truck, of an inclined hopper into which the earthy materials are deposited by the steam-shovel, a washing-cylinder and a sluice leading from the hopper to the washing-cylinder, a nozzle for water to wash the material down the sluice into the washing-cylinder, levers and connections to the nozzle, substantially as described, whereby the attendant can direct the water upon the earthy materials for regulating the flow of such earthy materials into the washing-cylinder, substantially as specified.

2. The combination with a rotary washing-cylinder, a car-truck supporting the same and means for adjusting and supporting the truck, of a frame, a pivotal connection for one end of the frame adjacent to the end of the axis of the washing-cylinder, a trunk and hopper supported by the frame, means for adjusting the frame and regulating the inclination of the hopper and trunk, a nozzle for issuing water and means for moving the nozzle to direct the jet of water upon the earthy materials, substantially as set forth.

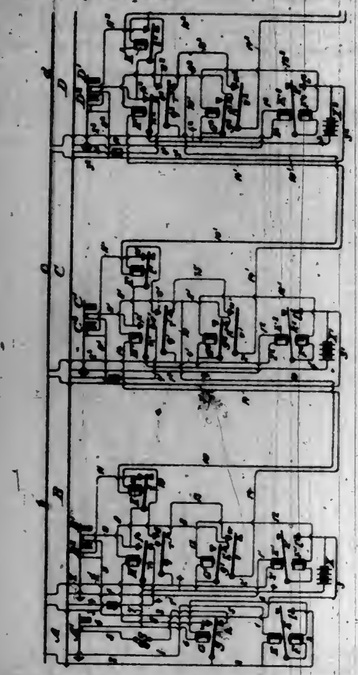
3. The combination in an ore-separating apparatus, of a truck, means for adjusting and supporting the same, a steam-shovel pivoted upon the truck, an inclined hopper into which the mass of earthy materials is transferred by the steam-shovel, a revolving washing-cylinder, an inclined trunk and riffle-plate between the hopper and the revolving washing-cylinder, a movable water-supply nozzle and mechanism adapted to be controlled by the attendant for directing the water upon the mass of material in the hopper, and unifying the discharge of the earthy material over the riffle-plate and into the cylindrical washer, a hopper below such cylindrical washer, an amalgamator and means for suspending the same, and a pump for transferring the earthy material from the hopper of the cylindrical washer to the upper portion of the suspended amalgamator, substantially as set forth.

585,788. RAILWAY SIGNALING SYSTEM. HENRY BERRY, New Rochelle, N. Y. Filed Apr. 22, 1895. Serial No. 546,697. (No model.)

Claim.—1. In a block-signaling system for traffic in one direction only, a series of signals arranged in blocks, each intermediate signal of each overlapping group of three signals having locking means controlling the end signals of the group, whereby each intermediate signal locks each end signal at "danger" when it fails to go to "danger" behind a train, substantially as set forth.

2. In a block-signaling system, a series of signals arranged in blocks, each intermediate signal of each overlapping group of three signals having circuit make-and-break devices controlling the end

signals of the group, whereby such intermediate signal locks such end signals at "danger" when it fails to go to "danger" behind a train, substantially as set forth.



3. In a block-signaling system, a series of signals arranged in blocks, circuit-controllers controlled by the operation of each intermediate signal of each overlapping group of three signals and controlling the circuits of the end signals of such group, whereby such intermediate signal locks such end signals at "danger" when it fails to go to "danger" behind a train, substantially as set forth.

4. In a block-signaling system, a series of signals arranged in blocks, train-operated means for controlling the circuits of said signals, and circuit-controllers controlled by the operation of each intermediate signal of each overlapping group of three signals and controlling the circuits of the end signals of each group, whereby such intermediate signal locks such end signals at "danger" when it fails to go to "danger" behind a train, substantially as set forth.

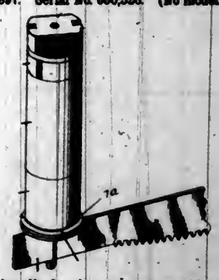
5. In an electric signaling system, the combination of a track-circuit, a signal-circuit controlling the operation of the signal, said signal-circuit including a pair of normally open contacts and also including a magnet controlling the said contacts, and another magnet in the track-circuit also controlling said contacts, whereby when the contacts are closed the signal-circuit magnet will be energized to make more certain the electrical connection between the contacts, substantially as set forth.

6. In a signaling system, a detaining-signal and a despatching-signal and electric circuits controlling said signals, said circuits including a circuit make-and-break device of the detaining-signal controlling the despatching-signal whereby the detaining-signal when in the "safety" position prevents the despatching-signal from going to "safety," and another circuit make-and-break device of the despatching-signal controlling the detaining-signal whereby the despatching-signal when in the "safety" position prevents the detaining-signal from going to "safety," substantially as set forth.

7. In a signaling system, a detaining-signal and a despatching-signal and electric circuits controlling said signals, said circuits including a circuit make-and-break device of the detaining-signal controlling the despatching-signal whereby the detaining-signal when in the "safety" position prevents the despatching-signal from going to "safety," and another circuit make-and-break device of the despatching-signal controlling the detaining-signal whereby the despatching-signal when in the "safety" position prevents the detaining-signal from going to "safety," and a train-despatching switch in the circuit of the detaining-signal, substantially as set forth.

8. In a block signaling system, in combination, a track-circuit including a source of electric current, a current-interrupter interposed between the track and the source of electric current, a signal in proximity to the advance end of the block, and means for actuating said signal, said actuating means controlling said current-interrupter, whereby the electric current is shut off from the track while the train is on the section after the advance-signal has been actuated, substantially as set forth.

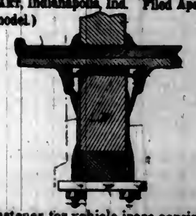
585,784. SAW-HANDLE. HIRAM S. BLOOM, Bayard, W. Va. Filed Apr. 3, 1897. Serial No. 630,526. (No model.)



Claim.—1. A handle for the purposes specified having a central bore and also provided with an upper flattened portion and projecting shoulders with grooves between the same, a collar on the lower end of the handle having openings therein, a washer resting against the said collar and provided with hooks to engage said openings, a cap or collar mounted on the upper extremity of the handle having inwardly-extending ribs to engage the grooves at the upper reduced end of said handle, the opening through said collar conforming to the shape of the said upper extremity of the handle, an enlarged head having a depending stem extending into the bore of the handle, and provided with internal screw-threads, and a rod having an opening at one end to receive the end of the saw therein, and at the opposite end screw-threaded to engage the said stem, substantially as described.

2. In a device of the character set forth, the combination of a tubular handle having an upper reduced end with grooves therein, a collar, an enlarged head having a depending hollow stem extending into the bore of the handle and provided with internal screw-threads, a rod having an opening in its lower end to engage the saw and on its upper end screw-threaded to adjustably fit the said stem, a collar with inwardly-extending ribs to engage the said grooves, and having an opening therethrough to conform to the shape of the upper end of the handle, a washer interposed between the said enlarged head and collar, a collar resting against the lower end of the handle and having an annular flange, and a lower washer bearing against the said flange and having an opening therethrough of less diameter than the bore of the handle, substantially as described.

585,785. MEANS FOR SECURING VEHICLE-IRONS TO AXLES. TIMOTHY L. BOBART, Indianapolis, Ind. Filed Apr. 22, 1897. Serial No. 633,254. (No model.)



Claim.—1. A fastener for vehicle-irons consisting of two halves having suitable heads, in combination with such vehicle-irons provided with recesses to receive said heads, the parts being arranged and operating substantially as shown and described.

2. The combination, with a lower fifth-wheel half for vehicles provided with dovetailed recesses alongside the point where it is designed to bear upon the axle, of a fastener composed of two halves adapted to extend down and embrace the axle, and provided with tapered heads adapted to fit into said dovetailed recesses, all substantially as shown and described.

585,736. LUBRICATOR. GEORGE W. DOWNS, Auburn, N. Y. Filed Oct. 19, 1896. Serial No. 608,277. (No model.)



Claim.—1. An oiler composed of inner and outer cups, the inner having fine tubes leading to the bearings, to which the oil is to be applied and the outer adapted to be screwed into the inner, and having an exterior opening through which oil may be introduced, and a valve and spring for normally closing said opening.

2. In a lubricating device for bicycle and similar bearings, the combination of an inner member threaded on its interior and having fine tubes leading therefrom to the bearings, and an outer member screw-threaded to fit said inner member, and having perforations through which the oil may be introduced, normally closed by a spring-valve, and an outer flange for clamping the oiler in position against the wall of the hub to which it is attached.

3. A lubricating device for bicycle hubs and crank-hangers, consisting of an inner cup threaded on its interior and provided with tubes leading from its base to the bearings, an outer cup having an inner opening communicating with said inner cup, and a spring valve for normally closing the outer opening, through which oil is introduced, said outer cup being also provided with a thread engaging with the thread of the inner cup, and a flange bearing against the shell of the hub and clamping the whole oiler securely in position.

4. For use in bicycles and other machines, a lubricating device composed of two members, an inner and an outer, fitting one within the other, secured together and provided with a tube or tubes for conducting the oil directly to the bearings, and a spring-valve for normally closing the opening through which oil may be introduced into the lubricating device and into said tubes.

5. A lubricating device for bicycle hubs and crank-hangers, composed of two members, fitting one within the other, one outwardly extending provided with an opening through which the oil is introduced, said opening being normally closed by a spring-valve, and the other or inner member provided with elongated tubes for conducting the oil simultaneously and directly to both bearings.

6. In combination, a tubular hub having ball-races at both ends and a perforation midway between, a lubricating device composed of inner and outer cups, the outer arranged to be inserted through said perforation and to engage with the inner, so as to clamp between them the wall of the hub, tubes leading from the inner cup to the ball-races, and a valve and spring arranged within said lubricating device for normally closing the opening in the outer cup through which the oil is introduced into the inner.

7. In combination a tubular bicycle-hub having ball-races arranged at both ends, and a perforation midway between the ends; a lubricating device composed of inner and outer cups, the inner arranged wholly within the hub-tube and provided with fine tubes for conducting the oil to the bearing-surfaces of the ball-races; the outer arranged partially without the hub-tube and screw-threaded to engage with a thread on the inner cup, and having an outwardly-extending flange whereby the hub-wall is clamped between the flange and the edge of the inner cup; and a spring-valve for closing the oil-hole through the outer end of the outer cup.

8. In combination, a tubular bicycle hub or crank-hanger having ball-races arranged at both ends, and a perforation midway between; an oiler composed of inner and outer cups correspondingly screw-threaded, and the outer provided with an outwardly-extending angular flange, whereby the outer is screwed into the inner, and the wall of the hub-tube clamped between the two cups, holding the oiler firmly in position, and having openings whereby the oil may be introduced into said inner cup, and containing in its interior a valve and spring for normally closing the outer of said openings, and the inner cup provided at its base with inclined tubes for conducting the oil directly to the bearing-surfaces of the ball-races.

9. The combination in a tubular hub fitted at both ends with ball-races and having a single perforation through its side wall midway between its ends, of an oiling device composed of an inner cup arranged wholly within the tube and an outer cup lying partly without said tube when the parts are assembled, the inner cup being slightly larger in diameter than said perforation and screw-threaded on its interior to receive the outer cup and having inclined tubes leading from its base to the bearings, and the outer cup through which oil is introduced into the inner adapted to be inserted through said perforation, and having a screw-thread on its interior to engage with said inner cup, and an outwardly-extending flange between which and the edge of said inner cup the wall of the tube is clamped and the oiling device secured in position, said outer oil-cup being provided with openings in both ends, the inner opening communicating with said inner cup, and the outer with the exterior of the hub, and arranged in the interior of said outer cup a spring and a valve having a head for closing said outer opening and a stem fitted to said spring.

585,737. MECHANICAL MUSICAL INSTRUMENT. GUSTAV A. BRAGENHAUER, Rahway, N. J. Filed Jan. 6, 1897. Serial No. 618,150. (No model.)

Claim.—1. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels the star-wheels of each series being independent of each other and means for effecting the movement of said star-wheels to operate the sound-producing device.



2. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other and a perforated note disk or sheet for effecting the movement of said star-wheels to operate the sound-producing device.

3. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, a perforated note disk or sheet for effecting the movement of said star-wheels to operate the sound-producing device, and a separate spring for each of said star-wheels.

4. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other and a perforated note disk or sheet cooperating with one series of said star-wheels to effect the operation of the sound-producing device.

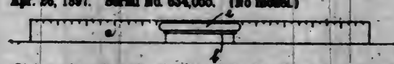
5. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other means for effecting the movement of said star-wheels to operate the sound-producing device, and means for locking the star-wheels against movement when the instrument is not in operation.

6. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, means for effecting the movement of said star-wheels to operate the sound-producing device, and means for automatically locking the star-wheels against movement when the instrument is stopped.

7. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, means for effecting the operation of said star-wheels, means for starting and stopping the operating means, means for locking the star-wheels and connections between the locking means and the operating means, whereby a movement of one will effect the movement of the other.

8. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other one series of said star-wheels operating upon said sound-producing device, and a perforated note disk or sheet adapted to bear directly upon anothes series of star-wheels and communicate motion to the star-wheels which operate the sound-producing devices.

585,738. RULER. FRANK M. BRITTAIN, London, England. Filed Apr. 26, 1897. Serial No. 634,055. (No model.)



Claim.—In rulers the slot *b* and the handle-piece *d* which comprises the end *c* and the handle proper *e*, the end *c* being adapted to pass through *b* and project beyond the under surface of the ruler *a*, substantially as shown and described.

585,739. BICYCLE-SUPPORT. HOWARD D. BRIERDALE, Newburg, N. Y. Filed June 27, 1896. Serial No. 597,160. (No model.)



Claim.—In a bicycle-rack, the combination with a frame, of a series of vertically-disposed concaved rollers journaled in the frame

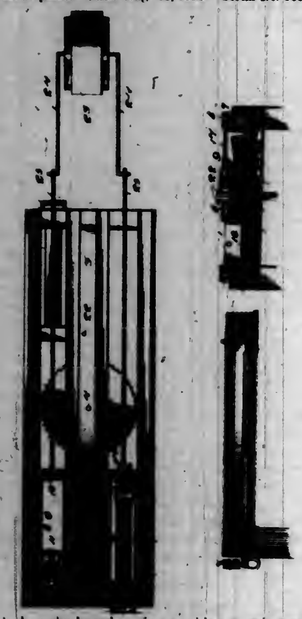
and having their axes located in parallel relation and between which the bicycle-wheel is received.

585,740. PIANOFORTE-ACTION. BENJAMIN F. CARR, Chicago, Ill. Filed Dec. 31, 1896. Serial No. 573,947. (No model.)



Claim.—The combination in a piano-action of clamps for the pivots each comprising a fixed and a movable part having the groove in the movable parts as and for the purpose set forth.

585,741. CLAPBOARD-MACHINE. PATRICK CONWAY, New Whatcom, Wash., assignor, by mesne assignments, of one-half to Jere Hotaver, same place. Filed Aug. 18, 1896. Serial No. 603,144. (No model.)

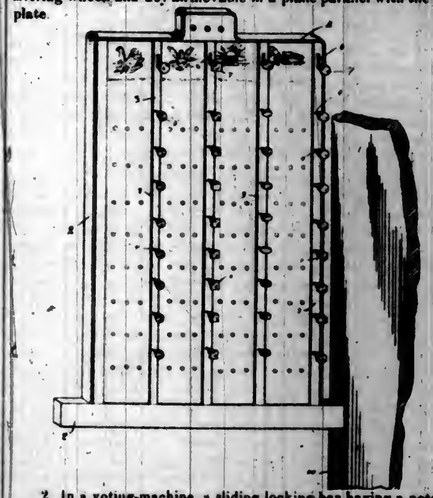


Claim.—1. In a clapboard-sawing machine, a reciprocating bolt-carrier consisting of an open rectangular frame having inwardly-projecting teeth on one of its end walls, and a flange extending from side to side in advance of the other end wall and parallel therewith, a toothed dog arranged in front of the flange and having a stem projecting rearwardly through the flange and the end wall of the carrier, a spring on the stem abutting against the end wall and tending normally to force the dog forward, an arm extending rearwardly from the dog through the flange and bent upwardly, a lever pivoted at one end to one side of the carrier and connected intermediate its ends with the said arm, and a fixed stop on the machine-frame to engage the free end of the lever and cause it to retract the dog, substantially as described.

2. In a clapboard-sawing machine, a tilting table provided with central end journals one of which is supported in the end bar of the machine-frame and projects outwardly beyond it, and the other in a suitable bearing within the frame, a segmental rack 21 secured to the outer face of the said end bar concentric with the projecting journal, and a spring-arm connected to the projecting journal to rock the table and adapted to engage the teeth of the rack to lock the table in its adjusted position, combined with a reciprocating bolt-carrier, and means to release the bolt from the carrier to permit it to drop onto the table, substantially as described.

585,742. VOTING-MACHINE. EDWIN B. CUMMINS, Indianapolis, Ind. Filed Mar. 27, 1895. Serial No. 543,430. (No model.)

Claim.—1. In a voting-machine, the combination of a base-plate, a locking-bar slidably mounted on the base-plate, registering-wheels mounted on the base-plate, a key-bar secured to the base-plate, and a key for actuating the locking-bar and registering-wheels mounted in the key-bar perpendicular to the base-plate, said locking-bar, registering-wheels and key all movable in a plane parallel with the base-plate.



2. In a voting-machine, a sliding locking-bar having a notch in it with the rear side a little shorter than its front side, and a key movable in the arc of a circle and adapted when operated to engage the locking-bar in such notch, substantially as set forth.

3. In a voting-machine, locking-bars having spring-hooks on their ends, a catch-bar having teeth adapted to catch the hooks and inclined surfaces between the teeth to push the locking-bars back into place, and means whereby such catch-bar will be actuated by the door of the voting-booth.

4. In a voting-machine, locking-bars having spring-hooks on their ends, the catch-bar 32 having the bolt 49 in it, the unlocking-bar 47 having the slot 48 to receive the bolt 49, and the hook 45 adapted to be actuated by the door of the voting-booth.

5. In a voting-machine, locking-bars, catch-bars adapted when operated to hold such locking-bars and prevent their operation, an unlocking-bar for actuating the catch-bar, and means for so securing the unlocking-bar in such position that all the parts of the machine will be rendered rigid and immovable.

6. In a voting-machine, suitable locking-bars, a catch-bar adapted to catch and prevent such locking-bars from further operation, an unlocking-bar adapted to actuate the catch-bar and hold the same in position and having one end extending beyond the casing of the machine when the machine is in a locked condition, and means for locking the end outside the casing so that it cannot be pushed in whereby the parts will be held rigid and immovable.

7. In a voting-machine, a registering mechanism for each candidate, a locking-bar for all the candidates for the same office provided with a hook, a catch-bar with teeth to engage such hook when actuated, and a voting-key for each candidate adapted simultaneously to actuate the locking-bar and registering mechanism.

8. In a voting-machine, a registering mechanism for each candidate, a locking-bar for all the candidates for the same office having on its end a spring-hook, a catch-bar with teeth to be engaged by such hook when actuated and an inclined face to push the locking-bar back in place, means for actuating such catch-bar, and a voting-key for each candidate adapted simultaneously to actuate the locking-bar and registering mechanism.

9. In a voting-machine, a base-plate, a registering mechanism for each candidate, a locking-bar for all candidates for the same office held in place against the base-plate by pins in the latter extending through the slots in the locking-bar, a catch-bar held in place on the base-plate and adapted to catch the locking-bar when actuated and return it after the voter has voted, a key for each candidate to actuate the locking-bar and registering mechanism, and means for actuating the catch-bar.

10. In a voting-machine, a locking-bar in sections whose ends abut, means for connecting the ends of the sections, and a voting-key to actuate the locking-bar and at the same time release the connecting means and separate the sections near the point of actuation.

11. In a voting-machine, a sectional locking-bar with one section for each candidate for the same office, a spring-latch connecting the adjacent sections, and a key adapted to raise such spring-latch when it actuates the locking-bar.

12. In a voting-machine, a sectional locking-bar with one section for each candidate for the same office, a spring-latch connecting the adjacent sections, a stop that is engaged by the latch when it is elevated, and a key adapted to raise the latch when it actuates the locking-bar.

13. In a voting-machine, a base-plate provided with stop-pins, a sectional locking-bar slidably mounted on the base-plate near the pins and having a notch in its upper edge, a spring secured to a section of the locking-bar and overlapping the adjacent section and having a catch to engage the notch in the locking-bar, a key adapted when operated to move the locking-bar and at the same time to elevate the engaging end of the spring, and a lug on such spring adapted to engage the pin in the base-plate when the spring is elevated, substantially as set forth.

14. In a voting-machine, a registering and indicating mechanism, suitable locking-bars, a catch-bar for catching the locking-bars when actuated, means for actuating such catch-bar every time a voter votes, and means for actuating the registering mechanism by the movement of the catch bar, all movable in the same plane.

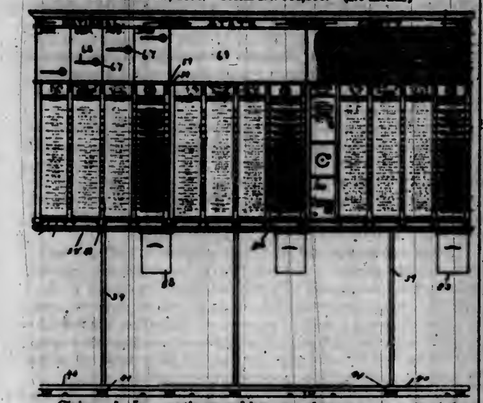
15. In a voting-machine, a registering and indicating mechanism, suitable locking-bars, a catch-bar for catching the locking-bars when actuated and having the bolt 58, means for actuating such catch-bar every time a voter votes, the sliding bar 57 having the inclined slot 59 adapted to receive the bolt 58, and the lever 54 pivoted to the sliding bar 57 and provided with suitable pawls for actuating the registering mechanism.

16. In a voting-machine, suitable registering and indicating mechanism for each candidate adapted to be actuated by the key for the candidate, a movable ballot with apertures near the name of each candidate that will register with a numeral on each indicating-wheel when desired, a sliding bar supporting the ballot while the voting is in progress so that the apertures in the ballot will not reveal any numeral on the indicating-wheels, and means for preventing any interference with such bar.

17. In a voting-machine, a key-bar provided with slots, a key for each candidate on any one ticket extending through such slots in the key-bar, a registering mechanism for each candidate actuated by such key, a straight-ticket bar slidably mounted on such key-bar provided with inclined shoulders adapted when moved to engage all the keys and actuate them.

18. In a voting-machine, the key-bar 3 provided with the slots 4 and 6, the voting-keys 5 for the individual candidates on one ticket, the straight-ticket bar 8, and the straight-ticket key 7, all combined substantially as set forth.

585,743. VOTING-MACHINE. EDWIN B. CUMMINS, Indianapolis, Ind. Filed Feb. 20, 1896. Serial No. 581,295. (No model.)



Claim.—1. In a voting-machine, a register, an arm pivoted at one end and carrying on its other end a pawl to actuate the register and held in contact by having passed the center of gravity, another arm pivoted at one end and carrying a voting-key, so arranged that the operation of the arm carrying the key will actuate the arm carrying the pawl and yet the arms be independent of each other, and means independent of the key for returning the pawl to its normal position after it has been operated.

2. In a voting-machine, a face-bar, a key for each candidate extending through said face-bar, a pawl mechanism actuated by said key, and a resetting-bar mounted on said face-bar adapted to engage said pawl mechanism after it has been actuated and return it to normal, said key, pawl mechanism, and resetting-bar all movable in parallel planes.

3. In a voting-machine, a register, a pawl mechanism for actuating the same, a sliding locking-bar, a driving angle piece or arm for actuating the locking-bar, a voting-key to actuate said angle-piece and pawl mechanism, said voting-key, angle-piece and pawl mechanism being independent of each other, means for resetting the locking-bar and angle-piece, and a sliding bar for resetting the pawl mechanism.

4. In a voting-machine, a register, a pawl mechanism to actuate the same comprising an arm pivoted at one end and carrying a pawl at its other end, a locking-bar, a drive angle-piece that is pivoted at one end and at the other end engages the locking-bar and which also engages and actuates the pawl mechanism, and a key that actuates the drive angle-piece.

5. In a voting-machine, a sectional bar, each section provided with pins or stops near its ends, an angle-piece pivoted at one end with its other end provided with a front face to engage and drive the forward section and a heel-piece to engage and stop the rear section, and a key for actuating such angle-piece.

6. In a voting-machine, a registering mechanism for each candidate, a pawl mechanism to drive such registering mechanism, a locking-bar for each row of candidates for the same office, means for actuating said locking-bars, means for actuating simultaneously the actuating means for both the registering mechanisms and the locking-bars, resetting-bars that engage and reset the register-actuating mechanisms, a resetting-bar that resets the locking-bars and their actuating mechanisms, and means for simultaneously actuating both classes of said resetting-bars.

7. In a voting-machine a group of independent machines or sections, a series of identical party divisions, a series of candidate-keys in each party division, a series of straight-ticket bars, one for each division in each machine or section, each when operated simultaneously actuating all the keys in its division, and a series of bars each of which is connected up with all the straight-ticket bars of one party division in all the machines or sections and which when operated simultaneously actuates all of such straight-ticket bars.

8. In a voting-machine, a group of independent machines or sections, a series of identical party divisions, a series of candidate-keys in each party division, a series of straight-ticket bars, one for each party division which when operated simultaneously actuates all the keys in its division, a series of horizontal bars slidably mounted on the base-plate of the machines, each provided with an inclined shoulder that engages the upper end of all the locking-bars of all the machines or sections that are devoted to the same party, and which when operated elevates said straight-ticket bars, a key on each of said horizontal bars for actuating the same, and springs for returning said bars to their normal position.

9. In a voting-machine, the combination with suitable voting mechanisms and locking-bars for multiple candidates for the same office on multiple tickets, of a repeater that is slidably mounted so that it can be moved into or out of engagement with the machine at the option of the voter.

10. In a voting-machine, the combination with suitable voting mechanisms and locking-bars for voting for multiple candidates on multiple tickets, and an unlocking-bar for resetting said locking-bars, of a repeater slidably mounted in the framework which, at the option of the voter, may be moved into engagement with said unlocking-bar, the engaging face of said unlocking-bar and of the repeater being so formed that when said unlocking-bar is operated it will simultaneously reset the locking-bars and also the repeater.

11. In a voting-machine, the combination with suitable locking-bars, an unlocking-bar for resetting said locking-bars having on its outer edge an inclined surface or shoulder, a repeater slidably mounted in the framework and having a back plate whose edge is provided with an inclined shoulder that engages a similar inclined shoulder on the unlocking-bar, and means for holding the repeater in engagement until the machine is reset.

12. In a voting-machine, the combination with a series of locking-bars for multiple candidates for the same office on multiple tickets, of a repeater provided with a series of locking-blocks slidably mounted therein with their abutting ends in a line with the ends of the locking-bars and so arranged that only one locking-bar can be inserted between them at one time and means on the repeater for resetting the locking-bar.

13. In a voting-machine, the combination with a series of locking-bars for multiple candidates for the same office on multiple tickets, of a repeater provided with a series of locking-blocks slidably mounted therein with their abutting ends in a line with the ends of the locking-bars and so arranged that only one locking-bar can be inserted at one time, a sliding plate mounted therein adapted when operated to engage the end of the locking-bar which has been inserted between the blocks and return the same to its former position, and means for actuating said sliding bar.

14. In a voting-machine, the combination with a series of locking-bars for multiple candidates for the same office on multiple tickets, of a repeater provided with a series of locking-blocks slidably mounted therein with their abutting ends in a line with the ends of

the locking-bars and so limited in their movement that only one locking-bar can be inserted between them at one time, a sliding bar mounted therein adapted when operated to engage the locking-bar which has been inserted between the blocks and return it to its former position, said sliding plate being provided with a longitudinally-extending slot, a disk or wheel rotatably mounted in the repeater provided with pins that pass through such slot when the disk is rotated and reciprocate said sliding plate, and means for rotating said disk.

15. In a voting-machine, the combination with a series of locking-bars for multiple candidates for the same office on multiple tickets, and an unlocking-bar for resetting the same, of a repeater provided with means for preventing the operation of all but one of such locking-bars at one time, a laterally-sliding plate which when operated returns the locking-bar that has been operated to its normal position, said sliding plate being provided with a longitudinal slot, a disk or wheel rotatably mounted in the repeater provided with pins that pass through the slot in the sliding plate when the disk is rotated and reciprocate said sliding plate, a key for rotating said disk, a spring to return the disk after it has been operated to its normal position, a catch that holds said disk in position after it has been operated, and means on the unlocking-bar for disengaging such catch when the machine is reset.

16. In a voting-machine, the combination with a suitable registering mechanism and locking-bar, of a drive mechanism which simultaneously actuates both, and a repeater whereby the voter may unlock the locking-bar a given number of times.

17. In a voting-machine, a series of registering and indicating mechanisms, one for each candidate, ballots slidably mounted in the framework of the machine with apertures that register with the numerals on the indicating mechanisms, and a series of rocking bars, one for each ballot, that hold the ballots up in a position to conceal the numerals on the indicating mechanisms, and means for simultaneously actuating the series of rocking bars.

18. In a voting-machine, the combination with a series of horizontal locking-bars, one for each row of candidates for the same office on the regular tickets, an independent-ballot box whose front face is provided with a series of slots to receive the ballots, one slot being provided for each office, a series of covers, one for each office to cover the slots in the face-plate, each plate being provided with a slot that registers with the slot in the face-plate when the cover is moved, a key for moving each cover so arranged as to simultaneously move said cover somewhat upward and horizontally, and a pin secured to the end of each cover that moves in a guideway parallel with the movement of the actuating-key and which when moved actuates the locking-bar for the candidates for the same office on the regular tickets, whereby when an independent ballot has been cast for any office the voter cannot vote for any candidate for the same office on the regular ticket.

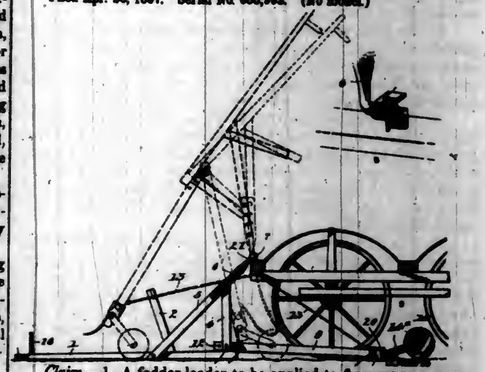
19. In a voting-machine, the combination with a series of sectional horizontal locking-bars, one for each row of candidates for the same office on the regular tickets, and means for operating the sections of such locking-bars and of locking the same after a section is operated, of an independent-ballot box whose front face is provided with a series of slots to receive the ballots, one slot being provided for each office, a series of covers, one for each office to cover the slots in said face-plates, and each cover abutting against the end of one of said locking-bars when the cover has been actuated, whereby said cover cannot be moved for the insertion of an independent ballot after a vote has been cast for any candidate on the regular tickets for the same office.

20. In a voting-machine, an independent-ballot box whose front face is provided with a series of slots to receive the ballots, there being one slot for each office, a chamber behind said face-plate whose dimensions from front to rear are substantially the same as that of the ballot, a vertical movable sliding plate within said chamber provided with slots which when said plate is in its upward position registers with the slots in the face-plate, suitable means for connecting said plate with the resetting mechanism of the machine, whereby after the voter has inserted his ballot, it will remain in the slot until he has left the platform of the machine, then the resetting mechanism of the machine will depress such vertically-moving plate and the ballot will be deposited.

21. In a voting-machine, an independent-ballot box whose front face is provided with a series of slots for the admission of ballots, there being one ballot for each office and said slots being of substantially the same dimensions as the ballots, a chamber behind the face-plate whose dimensions from front to rear are substantially the same as that of the ballot, a vertical plate centrally located in said chamber and movable in suitable guideways and provided with a series of slots which register with the slots in the face-plate when the vertically-movable plate is in an upward position, a lever centrally pivoted to the framework of the machine with one end pivotally connected up with the vertically-movable plate, a vertically-movable resetting mechanism for the machine to which the other end of said lever is pivoted, and means whereby said resetting mechanism is operated when the voter leaves the machine.

22. In a voting-machine, a registering and indicating mechanism, a movable plate having slots to receive a ballot and apertures that register with one numeral on each indicating-wheel, a cover for the slots and the apertures, a key that simultaneously actuates the register and removes the cover from the slots, and means for moving the plate and revealing the numerals at the close of the election.

585,744. FODDER-LOADER. DAVID J. FARTHING, Butler, Tenn. Filed Apr. 26, 1897. Serial No. 633,992. (No model.)



Claim.—1. A fodder-loader to be applied to farm-wagons, comprising a rack, a tongue having pivotal connection with the rack and provided at its free end with a point to enter the ground, a truck having pivotal connection with the free end of the tongue, and means for limiting the movement of the truck, substantially as set forth for the purpose described.

2. A loading attachment for farm-wagons, comprising a rack, a tongue having pivotal connection with the rack and provided at its free end with a point to enter the ground, a truck having pivotal connection with the free end of the tongue and adapted to swing from one side to the other of the tongue, and means for limiting the movement of the truck in each direction, substantially as set forth for the purpose described.

3. In a loading attachment for farm-wagons, the combination with a rack, and a tongue having pivotal connection with the rack and provided at its free end with a point to enter the ground, of a truck pivoted to the free end of the tongue to swing from one side to the other, and blocks secured to the sides of the tongue to engage with the truck and limit its movement in each direction, and formed with flanges to embrace the sides of the tongue, substantially in the manner set forth for the purpose described.

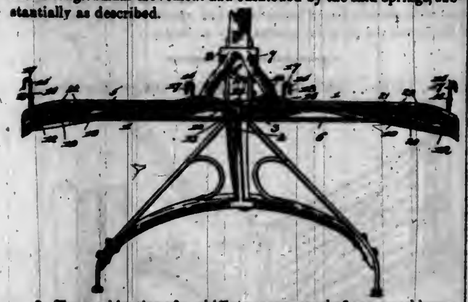
4. In a loading attachment for farm-wagons, the combination of a rack having pivotal connection with the wagon, a tongue pivoted to the rack and provided at its free end with a point to enter the ground, a truck applied to the free end of the tongue, and a rope or cord connecting the free end portion of the tongue with the wagon and adapted to hold the attachment in a trailing position, substantially in the manner set forth for the purpose specified.

5. The combination with a farm-wagon, and a loading attachment, of hooks applied to the wagon, irons secured to the loading attachment and having their ends bent to engage with the said hooks, and having their terminals flanged to engage with the outer edges of the hooks and prevent lateral movement of the loading attachment, and pins closing the open ends of the hooks and entering the wagon for strengthening the connections between the said wagon and loading attachment, substantially in the manner set forth.

585,745. WHIFFLETREE. CHANCY A. GAYLORD, Bassett, Iowa. Filed Nov. 30, 1896. Serial No. 613,962. (No model.)

Claim.—1. The combination of a whiffletree, central and end pulleys mounted on the whiffletree, a single continuous draft-strap extending from one end of the whiffletree to the other, passing around said pulleys and having its ends free and extending forward from the ends of the whiffletree and provided with outer trace-hooks, and the inner trace-hooks located at opposite sides of the central pulley and forming stops to limit the longitudinal movement of the draft-strap, substantially as described.

2. The combination of a whiffletree, springs mounted on the ends of the whiffletree and consisting of substantially U-shaped loops extending longitudinally of the whiffletree, pulleys mounted within the loops, and a continuous draft-strap passing around the pulleys, capable of longitudinal movement and cushioned by the said springs, substantially as described.



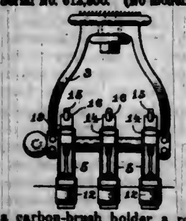
3. The combination of a whiffletree composed of upper and lower bars forming an opening, of end springs arranged between the upper and lower bars and consisting of substantially U-shaped loops and arms arranged adjacent to the inner face of the upper and lower bars, fastening devices passing through the eyes in the said arms and securing the end springs to the bars, pulleys mounted on the loops of the springs, and a draft-strap arranged on the pulleys, substantially as described.

4. The combination of a whiffletree composed of upper and lower bars, a central pulley mounted between the same, sleeves located at opposite sides of the pulley and arranged between the said bars, end pulleys, a single continuous strap extending from one end of the whiffletree to the other arranged on said pulleys and having its central portion passing between the central pulley and said sleeves, and trace-engaging devices located at the ends of the strap and at points at opposite sides of the central pulley, the latter devices forming stops to limit the longitudinal movement of the strap substantially as described.

5. In a whiffletree, a trace-hook constructed of a single piece of metal doubled to form an eye and extended from the eye to form a shank, the sides of the shank being rigid and contiguous throughout their entire length and having their terminals bent at right angles and forming laterally-extending arms projecting from opposite sides of the shank and serving as stops to engage a trace and retain the shank in the eye thereof, substantially as described.

6. The combination of a whiffletree composed of upper and lower bars forming a skeleton frame, springs arranged within the frame between the upper and lower bars and carrying pulleys, and a draft-strap passing around the pulleys, substantially as described.

585,746. BRUSH-HOLDER. HENRY GEISENHOFER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 20, 1896. Serial No. 612,850. (No model.)



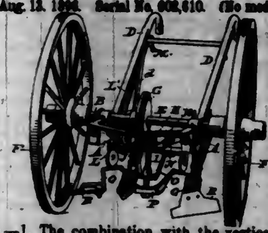
Claim.—1. In a carbon-brush holder, a rotatable stud, one or more brush-holders adapted to be rotated on and adjustably held in fixed position on said stud, and means for adjustably clamping and holding in fixed position said stud, as set forth.

2. In a carbon-brush holder, a rotatable stud, one or more brush-holders adapted to be swung on said stud and adjustably held in fixed position, a clamp engaging the stud, and means for tightening the clamp and stud in its bearings and holding the latter from rotating, as set forth.

3. In a carbon-brush holder, supporting-arms, a rotatable stud mounted on and adapted to rotate in said arms, brush-holders mounted upon and adapted to swing independently on and be secured in fixed position on said stud, clamps engaging the said stud-supporting arms, and means for clamping and adjustably holding the stud in fixed position in its bearings, as set forth.

4. In a brush-holder, a main support, a rotatable stud mounted in said main support, brush-holders mounted on said stud and adapted to independently swing thereon, with means for adjustably holding them in fixed position on said stud, clamps engaging the main support and the stud, and set-screws for drawing and tightening the clamps and stud into fixed position on the main support, as set forth.

585,747. COTTON-CHOPPER. ELIAS GEORGE, Cherry Ridge, Ia. Filed Aug. 13, 1896. Serial No. 602,610. (No model.)



Claim.—1. The combination with the vertical spindle and the means for rotating the same, of the jointed levers, the hoes carried thereon, and the springs acting upon said lever to hold the hoes in their uppermost position, as set forth.

2. The combination with the spindle and the jointed levers carried thereby, of the hoes carried by the levers, the springs acting upon the under side of the levers, and the wheel mounted in the path traversed by said levers in their rotation, all substantially as and for the purpose specified.

3. The cotton chopper and cultivator described, consisting of the frame, the curved bar at the front end thereof, the bevel-pinion on the axle of the wheels, the spindle, the bevel-pinion on the same, the cross-bar, the sliding plate, the wire and lever for operating the same, the hoes, the spring acting on the sliding plate, and the plows at the rear ends of the side bars of the frame, all substantially as shown and described.

4. In a cotton-chopper, the combination with a rotary shaft, and spring-elevated arm hinged thereto and carrying a shovel, of a cam device for positively depressing the arm with its shovel when the shovel reaches it in its rotary movement.

5. In a cotton-chopper, the combination with a rotary shaft, and a pair of spring-elevated arms hinged thereto, said arms carrying shovels, of two rotatable devices located in the path of the arms as they revolve and adapted to depress said arms and cause the shovels at that time to be depressed.

6. In a cotton-chopper, the combination with the main shaft or axle having a bevel-pinion thereon, of a vertical shaft having shovels connected with its lower end and a bevel-pinion on its upper end, a spring-actuated slide-bearing in which the shaft revolves at or near its upper end and means within control of the driver, for swinging the vertical shaft in the opposite direction from that in which it is thrown by the spring.

7. In a cotton-chopper, the combination with a drive shaft or axle having a bevel-pinion thereon, of a vertical shaft having a bevel-pinion on one end and shovel on the other end, a slide bearing-box in which one end of this vertical shaft rotates, a spring for normally sliding the box in one direction so that the pinion on the vertical shaft is thrown out of mesh with the pinion on the main shaft or axle, and a lever pivoted to the frame of the machine in position to engage and slide the bearing-slide in a direction opposed to that in which the spring tends to slide it, and means within the reach of the driver for operating this lever.

585,748. BOTTLE-WRAPPER MACHINE. HORACE S. GORDON, Dayton, Ohio. Filed May 18, 1896. Serial No. 592,093. (No model.)

Claim.—1. In a bottle-wrapper machine, the combination with primary feed-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions as the said wrapper passes through said rollers.

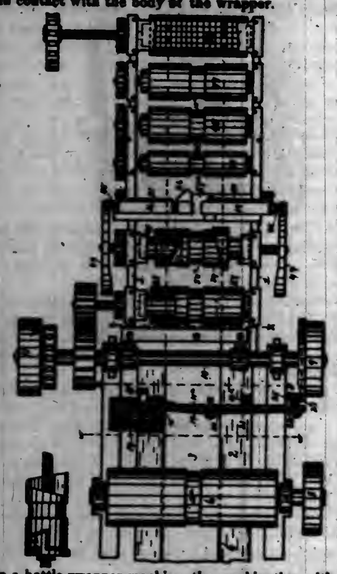
2. In a bottle-wrapper machine, the combination with feed-rollers, of bending-rollers adapted to turn corners of a wrapper in opposite directions as said wrapper passes through them, and mechanism for applying adhesive substance to the portions of the wrapper adjacent to the turned corners.

3. In a bottle-wrapper machine, the combination with feeding-rollers, and a main driving-shaft, of bending-rollers adapted to bend or turn corners of a wrapper in opposite direction, mechanism for applying adhesive substance to the upper and lower sides of said wrapper adjacent to the parts where the bends are made, and a cutting-blade carried on the main shaft for cutting said wrapper.

4. In a bottle-wrapper machine, the combination with feeding-rollers, of bending-rollers adapted to bend corners of a wrapper from above and below, sliding creasers adjacent to said rollers and adapted to seize said bent corners and crease them firmly against the body of the wrapper.

5. In a bottle-wrapper machine, the combination with feed-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions, mechanism adapted to apply adhesive substance to the wrapper adjacent to said corners and before the corners are turned

by the bending-rollers, and sliding creasers for firmly pressing said corners in contact with the body of the wrapper.

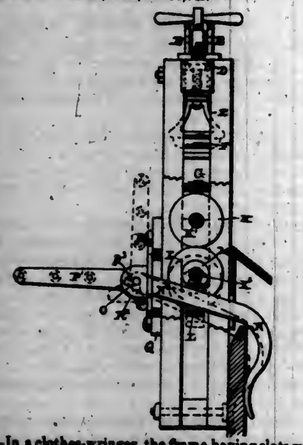


6. In a bottle-wrapper machine, the combination with primary feeding-rollers, and bending-rollers adapted to bend corners of a wrapper in opposite directions, of mechanism located between the primary feeding-rollers and the bending-rollers for applying adhesive substance to both sides of the wrapper, and sliding creasers adapted to crease the bent corners of said wrapper in contact with the body of the wrapper.

7. In a bottle-wrapper machine, the combination with feeding-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions, sliding creasers carrying hinged clamps adapted to open and close in opposite directions to crease said bent corners firmly against the body of the wrapper, and cams for simultaneously operating said sliding creasers.

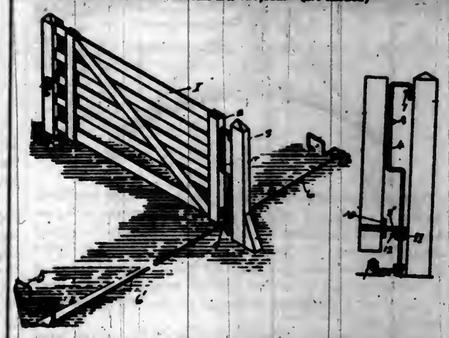
8. In a bottle-wrapper machine, the combination of rollers having peripheral shoulders adapted to bend corners of a wrapper in opposite directions, and horizontally-sliding bars provided with clamps adapted to in-crease said bent corners against the body of the wrapper, and means for operating said rollers and bars.

585,749. CLOTHES-WRINGER. MICHAEL H. GRIFFIN, Burlington, Canada, assignor of one-half to Walter Beattie Webber, Hamilton, Canada. Filed Apr. 13, 1896. Serial No. 587,847. (No model.) Patented in Canada Nov. 23, 1895, No. 50,645.



Claim.—In a clothes-wringer, the frame having slots made therethrough, the clamping-levers N extending through the slots, the rollers, and the bearings for the lower roller provided with perforated extensions through which extensions the clamping-levers pass, combined with plates secured to the frame and upon which the inner ends of the levers are pivoted, substantially as shown.

585,750. FARM-GATE. HENRY C. GUTHRIDGE, Nine Mile, Ind. Filed Feb. 13, 1897. Serial No. 623,262. (No model.)



Claim.—1. The combination in a swinging gate of the hinge-rod 4 constructed as described, the hinge-eyes attached to the gate-post, the hinge-eyes attached to the gate-frame through which the said rod 4 passes, and the lower hinge-eye of the gate-frame having its shank screw-threaded and adjustably mounted upon it the collar 10, a supporting-collar secured to said hinge-rod by an adjustable set-screw as shown, connecting-rods attached to the outer end of the lower arm of the hinge-rod and extending upon either side of the gate at right angles with the axis of the gate when closed, with crank-arms attached to the outer ends of the connecting-rods so arranged that when they are depressed by engagement with the wheels of a vehicle, they will cause the gate to swing upon its hinges, the gate, the supporting gate-post, and means for fastening the gate when closed, all arranged substantially as described and shown.

2. The combination in a swinging gate of a vertical hinge-rod, having an arm bent at its upper end rearward from the gate, and a pintle at its outer end adapted to engage in a hinge-eye secured to the gate-post, the said hinge-rod being also bent at its middle part in the same direction and in parallel alinement with the said bent upper arm, then bent vertically downward and passed through a hinge-eye secured to the lower end of the gate-post, and then bent forwardly approximately in parallel alinement ending with the said upper arm, with an upwardly-bent hook or pintle for engagement with the eyes of connecting-rods, the hinge-eyes attached to the gate-post, the hinge-eyes secured to the rear frame-bar of the gate, and the lower hinge having mounted upon it the screw-threaded adjustable collar 10, a collar secured to the hinge-rod by an adjustable set-screw adapted to support the gate upon its lower hinge, the rods connected by the hinge-rod at its lower end and crank-arms at their outer ends, so arranged that when they are depressed by engagement with a wagon-wheel, they will cause the gate to automatically open and close, all arranged substantially as described and shown.

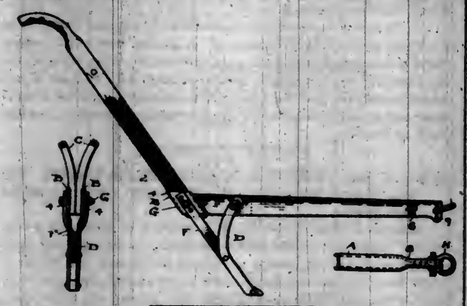
3. A hinge-rod for a swinging gate, comprising two integral vertical sections in parallel arrangement, and the upper and lower sections being arranged adjacent to the gate-frame and gate-post respectively for the purpose specified, the said upper section having a rearwardly-projecting arm with a supporting-post hinge and the said rod having upon its lower end a forwardly-projecting arm in approximate alinement with the closed gate and adapted when oscillated to so elevate the gate as to operate the same by gravity in combination with the gate, the gate-post, the hinges and connecting-rods, all arranged as described and shown and for the purpose stated.

585,751. PLOW OR CULTIVATOR. ELIAS HAIMAN, Cleveland, Ohio. Filed Apr. 7, 1897. Serial No. 631,063. (No model.)

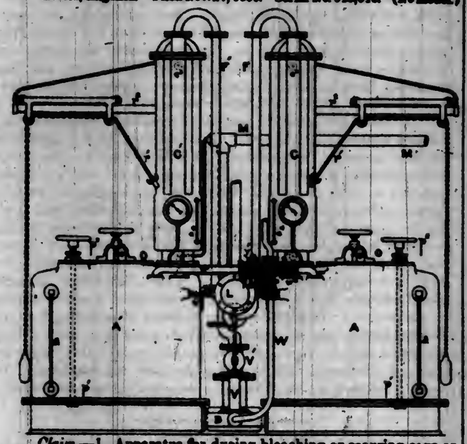
Claim.—1. As a new article of manufacture, a plow-beam straight from end to end and formed from sheet metal to substantially U shape in cross-section with the bend on top and the sides extending downward and constructed at its rear to attach the handles and at its front to attach a clevis, substantially as described.

2. As a new article of manufacture, a straight plow-beam formed of sheet metal and substantially U shape in cross-section, the beam being closed across the top and having flanges extending downward on each side, and the rear end of the beam provided with rearwardly-projecting side wings forming a continuation of the sides of the beam and constructed to socket the handles between them, substantially as described.

585,751.



585,752. APPARATUS FOR DYEING, &c. THOMAS HALLIWELL, Bolton, England. Filed Nov. 27, 1896. Serial No. 613,610. (No model.)



Claim.—1. Apparatus for dyeing bleaching or scouring cops or other textile materials constructed with two vats or dye-chambers connected with a bottom communicating pipe, two condensing-chambers placed above the vats connected with an ejector or exhauster, a slide-valve for alternately placing the vats in communication with the exhauster and the atmosphere, a hydraulic cylinder and piston for automatically operating the slide-valve, floats placed inside the vats for opening the water-supply to the hydraulic cylinder when the vat is filled with liquor to reverse the valves, and dye, steam, and water admission valves arranged substantially as and for the purpose described.

2. Apparatus for dyeing scouring and bleaching textile materials comprising the two vats A A' each provided with a false bottom P and inlet B by which they are connected together through which the liquor enters two auxiliary condensing-chambers through which the vats are exhausted, a slide-valve alternately placing each of the vats in communication with an exhauster, an ejector for exhausting the vats a hydraulic piston and cylinder connected to the slide-valve for actuating it a water-inlet valve placed at the side of the hydraulic cylinder and a float placed inside each vat which rises with the liquor therein and opens the water-inlet valve when the vat is full to reverse the position of the slide-valve substantially as described.

3. In apparatus for dyeing scouring and bleaching textile materials the combination with two vats A A' connected together so that the liquor can flow from one to the other and an ejector for exhausting them of condensing-chambers C C' comprising a central chamber fitted with a number of tubes extending throughout their length around which cold water circulates a number of side passages E divided longitudinally into two parts by division-plates e and a chamber at the bottom in which condensed moisture is collected substantially as described.

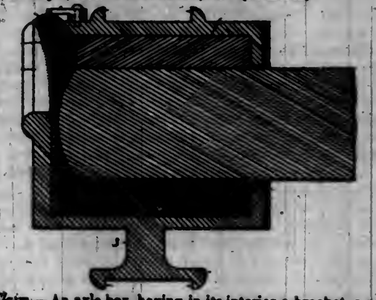
4. In apparatus for dyeing scouring and bleaching textile materials the combination with a vat A provided with false bottom P and inlet-pipe B of a cop-carrier plate R provided with a handle r placed over apertures p in the false bottom the skewers projecting from the carrier-plate R for the cops T the lever S pivoted to the side resting upon the handle r to hold the cop-carrier in position and the jointed links s for holding the lever S tightly down substantially as described.

5. In apparatus for dyeing bleaching and scouring textile materials the combination with two vats A A' connected together at the bottom by inlet-pipes B condensing-chambers C C' placed on top and exhaust-pipes F of a valve-chamber H provided with three ports with which the exhaust-pipes are connected, the slide-valve G placed therein which alternately opens and closes the ports leading to the exhaust-pipes F and hydraulic piston K connected to the slide-valve G by the piston-rod k a hydraulic cylinder provided with ports l l' in which the piston K works the exhauster D connected to the valve-chamber H and the water-inlet valve V' and discharge-valve U connected with the inlet-pipe B substantially as described.

6. In apparatus for dyeing bleaching and scouring textile materials the combination with a slide-valve H hydraulic piston K and cylinder L for actuating same and an ejector D for exhausting the vats of the steam-pipe W connected to the ejector to convey steam thereto the pipes Y and y connecting the ejector direct with the vats the three-way valve y' affixed therein the water-pipe M connected to the cylinder L and the valves m m' thereon for controlling the flow of water to the cylinder L substantially as described.

7. In apparatus for dyeing bleaching or scouring textile materials the combination of two dye-vats A A' connected at the bottom by a communicating pipe B two condensing-chambers C C' placed above the vats A A' connected with the ejector or exhauster D a slide-valve G for alternately placing the vats in communication with the exhauster and the atmosphere and hydraulic cylinder K and piston L for automatically operating the valve G floats N placed inside the vats for opening the water-supply valves m m' when the vat is filled with liquor to reverse the valve G and dye-inlet pipe B' with valve U a water-inlet pipe V with valve V' and a steam-pipe W carriers R placed inside to hold cops of yarn and pivoted levers S depending arms s and links s' to hold the carriers in position substantially as described.

585,753. CAR-AXLE BOX. WARREN H. HANCOCK, Epping, Ga. Filed July 9, 1896. Serial No. 598,561. (No model.)



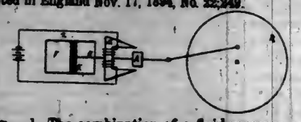
Claim.—An axle-box having in its interior a bracket, a removable brass adapted to be slipped longitudinally into said bracket, and a vertically-slidable door located in the front of the box and adapted to retain the brass from longitudinal movement.

585,754. ICE-CREAM FREEZER. JOHN W. HART, Guthrie, Okla., assignor of one-half to John McBrine, same place. Filed Apr. 28, 1896. Serial No. 589,698. (No model.)



Claim.—In an ice-cream freezer, the combination of a body, a vertical partition subdividing the body into two compartments, a cylinder rotatably mounted to one side of the partition, a scraper comprising a sheet-metal plate having transverse and longitudinal slits at its ends, and having the parts formed by the said slits deflected to provide ears and wings substantially as shown, the wings engaging over the top edge of the said vertical partition, and springs exerting a pressure against the said ears to hold the edge of the scraper against the cylinder, substantially as specified.

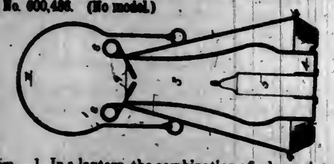
585,755. COMPENSATING DEVICE FOR ENGINES. FRITZ HASELWANDER, Frankfort-on-the-Main, Germany, assignor to Adolf Kolbe, same place. Filed Mar. 3, 1895. Serial No. 541,053. (No model.) Patented in England Nov. 17, 1894, No. 22,349.



Claim.—1. The combination of a fluid-pressure engine wherein there is compression of the working fluid, a two-part magnetic device one part of which is affixed to a moving part of such engine, the said magnetic parts being arranged to act upon one another to compensate for the increase in the amount of work to be done at the end of a stroke in compressing the working fluid, substantially as described.

2. The combination of a fluid-pressure engine wherein compression of the working fluid is had, a two-part magnetic device one of whose parts is affixed to a moving part of such engine, the said magnetic parts being arranged to act upon one another to compensate for the internal work due to the compression at the instant of such compression, and a winding upon one of the magnetic parts connected to a circuit, whereby during such compensation an electric current is produced, substantially as described.

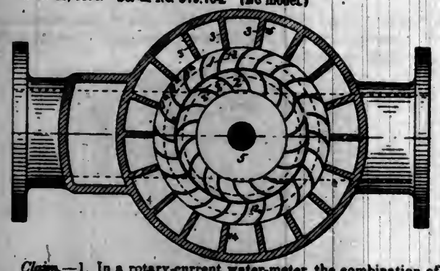
585,756. COMBINED LANTERN AND TORCH. NELSON M. HINMAN and JOHN P. HERTZLER, Lawrence, Kans. Filed July 25, 1896. Serial No. 600,498. (No model.)



Claim.—1. In a lantern, the combination of a base-plate, a burner thereon, a globe or chimney inclosing the burner and resting on the base-plate, and a pair of upwardly-converging arms, at opposite sides of the globe, consisting each of a spring-wire, having their lower ends secured to the base-plate, and bent to form at their upper ends hinge-coils, and downwardly-converging integral arms which bear upon and within the globe or chimney, substantially as described.

2. In a lantern, the combination of a base-plate, a burner thereon, a globe or chimney inclosing the burner and resting on the base-plate, a pair of upwardly-converging spring-arms at opposite sides of the globe, consisting each of a spring-wire, having their lower ends secured to the base, and bent to form hinge-coils, and downwardly-converging arms at their upper ends, which latter bear upon and within the globe, and bent also to form loops or eyes below said hinge-coils, substantially as described.

585,757. WATER-METER. FREEMAN W. HOOD, Newton, Mass., assignor to the Hersey Manufacturing Company, Boston, Mass. Filed Feb. 18, 1896. Serial No. 579,764. (No model.)



Claim.—1. In a rotary-current water-meter the combination of a horizontal annular wheel provided with buckets, an annular series of directing-vanes and an annular series of receiving-vanes, the wheel being disposed between said vanes in such a manner that the water passes through said wheel in a horizontal direction without impinging against it in such a way as to produce thrust in a vertical direction, substantially as described.

2. In a rotary-current water-meter the combination with an annular wheel provided with buckets, of an annular series of directing-vanes and an annular series of receiving-vanes, the said annular directing-vanes and receiving-vanes being so related to the buckets of said wheel numerically that the impulses on opposite sides of the wheel shall occur at the same time so as not to produce horizontal thrust, substantially as described.

3. In a rotary-current water-meter the combination with an annular wheel provided with buckets, of an annular series of directing-vanes and an annular series of receiving-vanes, the said annular directing-vanes and receiving-vanes being so related to the buckets of said wheel numerically that the wheel will be subjected to a series of maximum and minimum impulses at different parts of the wheel, substantially as described.

585,758. METHOD OF PREPARING EDIBLE TABLETS. WILLIAM HORLICK, Racine, Wis. Filed Sept. 3, 1895. Serial No. 561,323 (Specimens.)

Claim.—1. The herein-described method of preparing a compressed edible and soluble tablet, consisting in taking about equal quantities of coarsely broken or crushed barley-malt, and wheat or other flour, and macerating the same in pure fresh cold water; raising the temperature to about 160° to 165° Fahrenheit, and keeping the mash in agitation meanwhile until it becomes thin enough to filter; then filtering the same, and adding to a given quantity of the filtered extract a substantially equal quantity of pure fresh cows' milk, and mixing the two thoroughly; then pasteurizing the resulting product by holding it at a temperature of about 170° to 180° Fahrenheit for some thirty minutes; next evaporating this pasteurized product *in vacuo*, with agitation, until it is practically dry, and then removing the mass and subjecting it to heavy pressure in molds forming the desired tablets, substantially as set forth.

2. The herein-described method of preparing a compressed edible and soluble tablet, consisting in taking about equal quantities of coarsely broken or crushed barley-malt, and wheat or other flour, and macerating the same in pure fresh cold water; raising the temperature to about 160° to 165° Fahrenheit, and keeping the mash in agitation meanwhile until it becomes thin enough to filter; then filtering the same, and adding to a given quantity of the filtered extract a substantially equal quantity of pure fresh cows' milk, and mixing the two thoroughly; then pasteurizing the resulting product by holding it at a temperature of about 170° to 180° Fahrenheit for some thirty minutes; next evaporating this pasteurized product *in vacuo* to the consistency of a thick syrup or molasses; then adding from five to fifteen per centum of any desired flavoring, and thoroughly mixing the whole mass by stirring *in vacuo*, until it is evaporated to a practically dry form, and then removing the mass and subjecting it to heavy pressure in molds forming the described tablets, substantially as set forth.

585,759. APPARATUS FOR TREATING TOBACCO. ALPHEUS V. HYDORE, Richmond, Va., assignor of two-thirds to S. P. Mayo and W. J. Whitehurst, same place. Filed Jan. 7, 1897. Serial No. 618,247. (No model.)

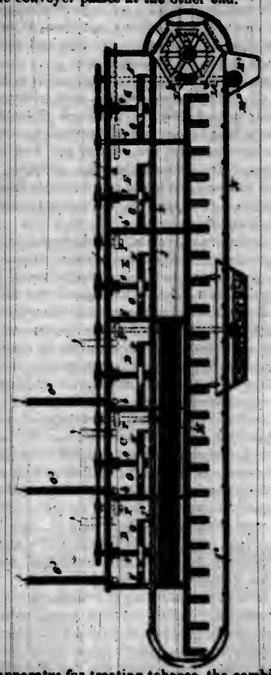
Claim.—1. An apparatus for drying tobacco, comprising a housing, a series of compartments separated by partitions, an endless conveyer passing lengthwise through the several compartments, a series of heating-pipes located immediately below the conveyer a fan located above the conveyer, and adapted to force air downward through the tobacco to the heating-pipes below, and outlet for the escape of the air substantially as set forth.

2. An apparatus for treating tobacco comprising a housing, a series of compartments separated by partitions, an endless conveyer passing lengthwise through the several compartments, a series of heating-pipes located immediately below the conveyer, a large fan for creating a downward blast of air located above the conveyer nearer one end of each compartment and a smaller exhaust-fan located near the other end.

3. An apparatus for treating tobacco comprising a series of heating-compartments, a cooling-compartment and an ordering-compartment and an endless conveyer passing lengthwise through the several compartments, the heating-compartments having a radiator or heating-pipes located in and practically filling the compartments below the conveyer, tracks extending throughout the several compartments for supporting the conveyer, a blast-fan in each compartment located above the conveyer and adapted to force air downward through the tobacco to the heating-pipes below, and a means of escape for the air.

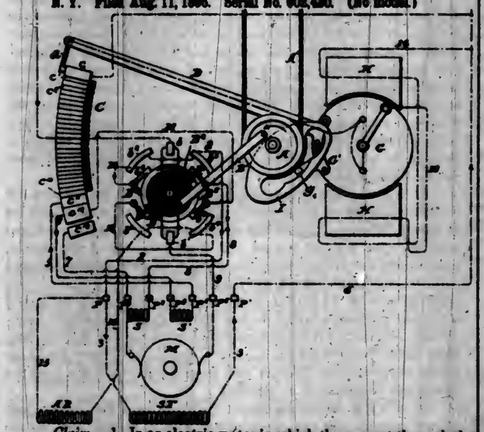
4. The combination with a drying-compartment and an endless elevator passing through same, of heating-pipes located below and practically filling the space below the conveyer, air-inlet pipe above the conveyer, a fan for forcing the air down through the conveyer and a small exhaust-fan located in a plane above the first-mentioned fan, substantially as set forth.

5. In an apparatus for treating tobacco, the combination with a housing, and a track extending throughout the length of same, of an endless conveyer comprising frames covered with wire-gauze, shafts mounted on rollers, each shaft connecting two adjacent frames, tracks located below the housing for supporting the returning portion of the conveyer, curved irons connecting the tracks at one end and a reel over which the conveyer passes at the other end.



6. In an apparatus for treating tobacco, the combination with a housing, and an endless conveyer passing through and supported within the same, of a scraper comprising a cylinder having yielding spiral ribs the latter adapted to move in contact with the conveyer and remove the tobacco therefrom.

585,760. ELECTRIC MOTOR FOR ELEVATORS. JOHN D. ILDEN, Yonkers, N. Y., assignor to the Otis Brothers & Company, New York, N. Y. Filed Aug. 11, 1896. Serial No. 602,430. (No model.)



Claim.—1. In an electric motor in which the current through the armature is reversed, a series field in sections, one section of which is reversed with the reversing of the armature, substantially as described.

2. In a compound electric motor in which the current from the armature is reversed, a shunt-field, and a series field in sections, one of the sections of which is reversed with the reversing of the armature, substantially as described.

3. The combination with a compound-wound motor, of a circuit-reverser connected to the armature-coils, and a series field in sections, one of the sections of which is connected to the circuit-reverser, substantially as described.

4. The combination with a compound-wound motor, of a circuit-reverser and a resistance device, a shunt-field-magnet circuit, an armature-circuit including the resistance device, and a series field in sections, one of which is connected to the circuit-reverser, and another of which is connected to the resistance device, whereby the latter may be cut out of circuit and the former may be reversed with the armature, substantially as described.

5. The combination with a compound-wound motor having a shunt-field and a series field in sections, of a circuit-reverser connected to the armature-circuit and to one of the sections of the series field, and an auxiliary resistance connected to the circuit-reverser to be active under one condition and short-circuited under another, substantially as described.

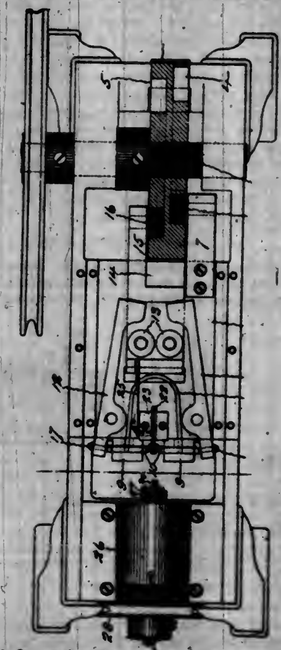
585,761. PLATE-HOLDER FOR HATS. REGINALD H. IRISH, Philadelphia, Pa. Filed Feb. 1, 1897. Serial No. 621,445. (No model.)



Claim.—1. A name plate or card holding device for hats, comprising a band curved to correspond with the shape of the hat, a card-holding frame carried thereby, means for adjustably connecting the ends of the band together for adjusting the said band longer or shorter, and a rough-surfaced sheathing or covering inclosing the band and adapted to prevent slipping thereof around the hat, substantially as described.

2. A name plate or card holding device for hats, comprising a band of metal curved to correspond with the shape of the hat and provided in one end with a slot, screws attached to the other end of the band and passing through said slot and confined by nuts or screw-caps, and a sheathing of cloth or rubber covering the metal band and having its surface serrated or roughened, substantially as described.

585,762. STUD-CUTTING MACHINE. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Nov. 18, 1896. Serial No. 612,622. (No model.)



Claim.—1. In a stud-cutting machine, in combination, a bed bearing a movable slide, mechanism for reciprocating the slide, movable jaws mounted upon the slide, mechanism for opening and closing the

jaws, a feed-trough supported by the bed with its groove terminating adjacent to the jaws, a stop supported by the bed and projecting below the jaws and the lower end of the groove of the feed-trough, and a cutter adapted to be rotated in line with the jaws, substantially as specified.

2. In a stud-cutting machine, in combination, a bed bearing a movable slide, mechanism for reciprocating the slide, movable jaws mounted upon the slide, mechanisms for opening and closing the jaws borne by the slide, a feed-trough supported by the bed with its groove terminating adjacent to the jaws, a stop supported by the bed and projecting below the jaws and the lower end of the groove of the feed-trough, and a cutter adapted to be rotated in line with the jaws, substantially as specified.

3. In a stud-cutting machine, in combination, a bed bearing a movable slide, movable jaws mounted upon the slide, levers for closing the jaws borne by the slide, a supplemental slide for oscillating the levers, cams for reciprocating the slides, and a cutter adapted to be rotated in line with the jaws, substantially as specified.

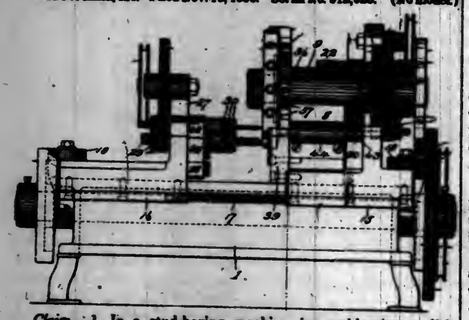
4. In a stud-cutting machine, in combination, a bed bearing a movable slide, movable jaws mounted upon the slide, levers for closing the jaws borne by the slide, a supplemental slide for oscillating the levers, a disk with cam-grooves in its opposite faces, connections between the opposite cam-grooves and the main and supplemental slides, and a cutter adapted to be rotated in line with the jaws, substantially as specified.

5. In a stud-cutting machine, in combination, a bed bearing a movable slide, movable jaws mounted upon the slide, levers for closing the jaws borne by the slide, a supplemental slide for oscillating the levers, cams for reciprocating the slides, a feed-trough supported by the bed with its groove terminating adjacent to the jaws, a stop-finger with its end projecting below the jaws and the lower end of the groove of the feed-trough, and a cutter adapted to rotate in line with the jaws, substantially as specified.

6. In a stud-cutting machine, in combination, a bed bearing a movable slide, movable jaws mounted upon the slide, levers for closing the jaws borne by the slide, a supplemental slide for oscillating the levers, cams for reciprocating the slides, a feed-trough supported by the bed with its lower end terminating adjacent to the jaws, a stop-finger with its end projecting below the jaws and the lower end of the groove of the feed-trough, a pin borne by the slide and adapted to make contact with the end of the stud for locating it in position, and a cutter adapted to be rotated in line with the jaws, substantially as specified.

7. In a stud-cutting machine, in combination, a bed bearing a movable slide, movable jaws mounted upon the slide, levers mounted upon the slide and adapted to engage the jaws, a supplemental slide borne by the main slide and adapted to engage the levers, a cam-disk mounted upon a shaft supported by the bed, connections between the cam-grooves in opposite faces of the disk and the main and supplemental slides, a feed-trough supported by the bed with the lower end of its groove adjacent to the jaws, a stop-finger with its end projecting below the jaws and the lower end of the groove of the feed-trough, a pin borne by the bed and adapted to make contact with the head of the stud for locating it in position, a friction-rod connected by a lever with the pin and adapted to move in a groove in a fixed part of the bed, and a cutter adapted to be rapidly rotated in line with the jaws, substantially as specified.

585,768. STUD-BORING MACHINE. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Nov. 18, 1896. Serial No. 612,633. (No model.)



Claim.—1. In a stud-boring machine, in combination, a disk rotarily supported upon the bed and provided with sockets formed from the periphery radially inward for holding the studs, mechanisms for imparting to the disk an intermittent rotary movement, carriages movable upon the bed toward and from each side of the disk, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle, the tools on one carriage being in a different section of the arc from that occupied by the tools on the other carriage and having a movement at an angle with the axes of the stud-holding sockets in the disk, and mechanisms for rotating the tools, substantially as specified.

2. In a stud-boring machine, in combination, a disk rotarily supported upon the bed and provided with sockets formed from the periphery radially inward obliquely to the axis of the disk-shaft, mechanisms for imparting to the disk an intermittent rotary movement, carriages movable upon the bed toward and from each side of the disk, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the disk, and means for rotating the tools, substantially as specified.

3. In a stud-boring machine, in combination, a carrier rotarily supported upon the bed and having a beveled periphery with holding-sockets formed from the periphery radially inward obliquely to the axis of the carrier-shaft and at right angles to the beveled periphery, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the carrier, and mechanisms for rotating the tools, substantially as specified.

4. In a stud-boring machine, in combination, a carrier with radial holding-sockets, rotarily supported upon the bed, ejecting-rods movable in the holding-sockets and adapted to be moved outwardly by a stationary part at one period of their travel with the carrier, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the carrier, and mechanisms for rotating the tools, substantially as specified.

5. In a stud-boring machine, in combination, a carrier with radial holding-sockets, rotarily supported upon the bed, ejecting-rods movable in the holding-sockets and adapted to engage with and be moved outwardly by a stationary part at one period of their travel with the carrier, said rods bearing pins that are adapted to engage with and be held from outward movement by a stationary part during most of their travel with the carrier, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanism for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the carrier, and mechanisms for rotating the tools, substantially as specified.

6. In a stud-boring machine, in combination, a carrier with radial holding-sockets, rotarily supported upon the bed, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the carrier, and a holding-plate attached to the bed and arranged to partially encircle the periphery of the carrier adjacent to the sockets to prevent the removal of the studs while they are being operated upon, substantially as specified.

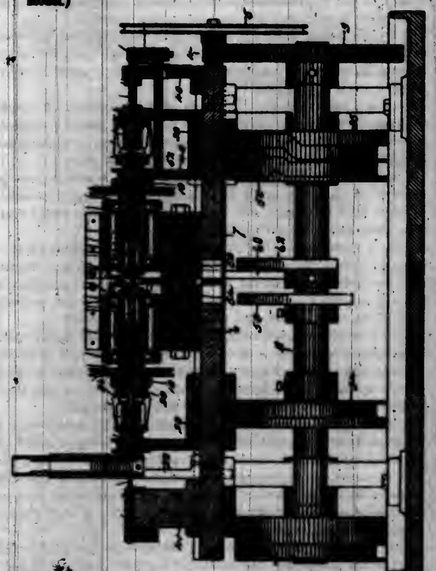
7. In a stud-boring machine, in combination, a carrier with radial holding-sockets, rotarily supported on the bed, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle the center of which is in line with the axis of the carrier, mechanisms for rotating the tools, and a holding-plate attached to the bed and arranged to partially encircle the periphery of the carrier adjacent to the sockets, said holding-plate having teeth which are adapted to engage and groove the heads of the studs whereby they are held from rotating while the tools are operating, substantially as specified.

8. In a stud-boring machine, in combination, a disk rotarily supported upon the bed and provided with sockets formed from the periphery radially inward, mechanisms for imparting to the disk an intermittent rotary movement, a carriage movable upon the bed toward and from one side of the disk, a shaft supported by the bed and bearing a cam near one end, said cam engaging a part borne by the carriage for reciprocating the carriage, drills mounted upon the carriage in the arc of a circle at an angle with the axes of the stud-sockets in the disk, the spindles of said drills bearing pinions, and a gear meshing with all the pinions whereby the drills are rotated simultaneously as the carriage reciprocates, substantially as specified.

9. In a stud-boring machine, in combination, a disk rotarily supported upon the bed and provided with sockets formed from the periphery radially inward, mechanisms for imparting to the disk an intermittent rotary movement, a carriage movable upon the bed toward and from one side of the disk, a shaft supported by the bed and bearing a cam near one end, said cam engaging a part borne by the carriage for reciprocating the carriage, drills mounted upon the carriage in the arc of a circle at an angle with the axes of the stud-sockets in the disk, the spindles of said drills bearing pinions, a gear borne by the carriage and meshing with said pinions, and mechanisms for rotating the gear borne by the carriage whereby all of the drills are rotated simultaneously as the carriage reciprocates, substantially as specified.

10. In a stud-boring machine, in combination, a carrier having a beveled periphery and holding-sockets formed from the periphery inward obliquely to the axis of the carrier, rotarily supported upon the bed, ejecting-rods movable in the holding-sockets and adapted to be moved outwardly by a stationary part at one period of their travel with the carrier, mechanisms for imparting to the carrier an intermittent rotary movement, carriages movable upon the bed toward and from each side of the carrier, mechanisms for reciprocating the carriages, operating-tools mounted upon the carriages in the arc of a circle, the tools on one carriage being in a different arc from the arc occupied by the tools on the other carriage, pinions mounted upon the spindles of the operating-tools, gears mounted adjacent to the pinions and meshing therewith, and pinions connected with the driving-pulleys meshing with the gears, substantially as specified.

585,764. STUD-TURNING MACHINE. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Nov. 18, 1896. Serial No. 612,634. (No model.)



Claim.—1. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, a chuck rotarily mounted upon the bed on each side of the cutter, means for opening and closing the chucks, a gage-plate movable between the chucks, a gage-rod located within and movable independently of one of the chucks, and a mechanism adapted to feed successive studs to one chuck when the gage-plate is between the chucks and then when the gage-plate is removed from between the chucks to the other chuck in which they are located by the gage-rod, substantially as specified.

2. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, a chuck rotarily mounted upon the bed on each side of the cutter, means for opening and closing the chucks, a gage-plate movable between the chucks, a gage-rod located within and movable independently of one of the chucks, and a slide with a yieldingly-supported rod that is adapted to feed the successive studs to one chuck when the gage-plate is between the chucks and then when the gage-plate is removed from between the chucks to the other chuck in which they are located by the gage-rod, substantially as specified.

3. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, a chuck rotarily mounted upon the bed on one side of the cutter, means for opening and closing this chuck, an automatically-movable gage-rod held in the shank of this chuck, a chuck rotarily mounted upon the bed on the other side of the cutter, means for opening and closing this latter chuck, and a mechanism adapted to feed successive studs first to one chuck and then to the other chuck, substantially as specified.

4. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, stationary bearing-blocks secured to the bed on each side of the cutter, a non-reciprocating spindle rotarily supported by one of the blocks, a reciprocating spindle rotarily supported by the other of the blocks, chucks borne by both of the spindles, means for opening and closing the chucks, a gage-plate movable between the chucks, a gage-rod located within and movable independently of one of the chucks, and a mechanism adapted to feed successive studs first to one chuck when the gage-plate is between the chucks and then when the gage-plate is removed from between the chucks to the other chuck in which they are located by the gage-rod, substantially as specified.

5. In a machine for turning studs, in combination, a bed, bearing-blocks secured to the bed, a pair of levers pivotally supported by the blocks, cutters mounted upon the levers, a gage-plate borne by one lever, a chuck rotarily supported by each of the bearing-blocks, means for opening and closing the chucks, and a mechanism adapted to feed successive studs first to one chuck and then to the other chuck, substantially as specified.

6. In a machine for turning studs, in combination, a bed, a lever pivotally mounted upon the bed, a cutter and a gage-plate borne by the lever, means for oscillating the lever, a chuck rotarily mounted upon the bed on each side of the cutter, means for opening and closing the chucks, a mechanism adapted to feed successive studs first to one chuck and then to the other chuck, and an independently-movable gage-rod held by the shank of one of the chucks, substantially as specified.

7. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, a chuck rotarily mounted upon the bed on each side of the cutter, means for opening and closing the chucks, a mechanism adapted to feed successive studs first to one chuck and then to the other chuck, and a gage-plate adapted to be intermittently moved between the chucks, substantially as specified.

8. In a machine for turning studs, in combination, a bed, a cutter movably mounted upon the bed, stationary bearing-blocks secured to the bed on each side of the cutter, a non-reciprocating rotary spindle supported by one of the blocks, a reciprocating spindle rotarily supported by the other of the blocks, chucks borne by and movable with both of the spindles, means for opening and closing the chucks, a gage-plate movable between the chucks, a mechanism adapted to feed successive studs first to the chuck in the non-reciprocating spindle and then to the chuck in the reciprocating spindle, a gage-rod having a limited movement within the chuck in the reciprocating spindle, and means for reciprocating this latter spindle independently of the gage-rod, substantially as specified.

9. In a machine for turning studs, in combination, a cutter movably mounted upon the bed, bearing-blocks attached to the bed on each side of the cutter, a non-reciprocating spindle rotarily supported by one of the blocks, a reciprocating spindle rotarily supported by the other of the blocks, chucks borne by and movable with both of the spindles, means for opening and closing the chucks, a mechanism adapted to feed successive studs first to the chuck borne by the non-reciprocating spindle and then to the chuck borne by the reciprocating spindle, and a gage-rod having a limited independent movement within the chuck borne by the reciprocating spindle and connected with the slide that moves the reciprocating spindle, substantially as specified.

10. In a machine for turning studs, in combination, a cutter movably mounted upon the bed, a bearing-block attached to the bed on one side of the cutter, a sleeve rotarily supported by the bearing-block, a spindle with a driving-pulley borne by the sleeve, a chuck longitudinally movable within the spindle, levers borne by the spindle and adapted to engage the chuck-shank, a wedge-block connected with a slide for oscillating the levers, a feed-tube located within the chuck-shank, a feed-trough with an opening near its lower end adjacent to the bore of the feed-tube, a feed-rod supported in line with the opening through the trough, and a slide adapted to reciprocate the feed-rod, substantially as specified.

11. In a machine for turning studs, in combination, a cutter movably mounted upon the bed, a bearing-block attached to the bed on each side of the cutter, a sleeve rotarily supported by each block, a spindle with a driving-pulley borne by each sleeve, a chuck longitudinally movable within each spindle, a pair of levers borne by each spindle and adapted to engage with the chuck-shanks, a wedge-block connected with a slide for reciprocating each pair of levers, a feed-tube located within one of the chuck-shanks, a feed-trough with an

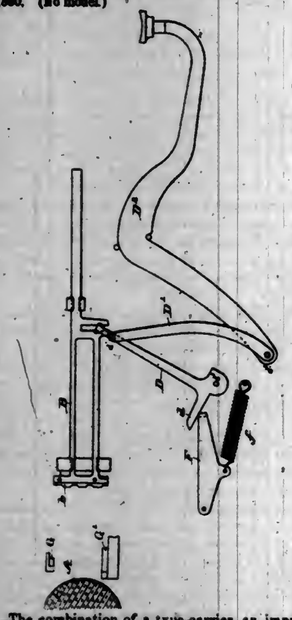
opening near its lower end adjacent to the bore of the feed-tube, a feed-rod supported in line with the opening through the trough, a slide adapted to reciprocate the feed-rod, a gage-rod located in the other of the chuck-shanks, and a slide adapted to reciprocate the gage-rod, substantially as specified.

585,765. CHINA-KILN. GEORGE JEFFERY, Portland, Oreg. Filed Feb. 11, 1897. Serial No. 622,920. (No model.)



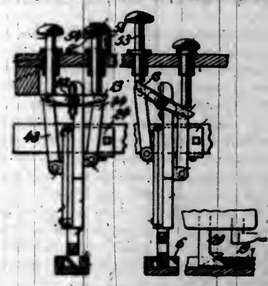
Claim.—In a china-kiln, the combination with the outer sections having annular recessed rims designed to receive a superimposed section, the cap-section having an aperture, M, of the inner series of superimposed sections, the brackets supporting same, the tube *k* secured to the upper of the inner sections K and extending through the aperture M, of the lamp C supported under the lower of the inner sections, substantially as shown and described.

585,766. KEY-ACTION FOR TYPE-WRITING MACHINES. WELLINGTON P. KIDDER, Boston, Mass. Filed Oct. 16, 1895. Serial No. 565,990. (No model.)



Claim.—The combination of a type-carrier, an impression-key; a rocker-arm engaging the type-carrier; a link pivotally connected to the inner end portion of the impression-key and to that end of the rocker-arm which engages the type-carrier; and a spring mounted to coöperate with the rocker-arm and to resist its forward stroke with an increasing tension; the pivots of the rocker-arm and impression-key connections with the link being in line when the type-carrier is at impression.

585,767. TRAMWAY-SWITCH. WILLIAM G. LEWI, Albany, N. Y. Filed Sept. 8, 1896. Serial No. 605,137. (No model.)



Claim.—1. In a railway-switch point, the free end of which is inclined from the vertical to present laterally-projecting edges adapted to be engaged by a traveling contact device.

2. In a railway-switch, a switch-point inclined from the vertical at its free end to present laterally-projecting upper and lower edges adapted to be engaged by a traveling contact device.

3. In a railway-switch, a switch-point provided with a laterally-projecting wing in combination with a guard-rail inwardly beveled or recessed on its inner face to receive the lower edge of the switch-point.

4. In a railway-switch, a switch-point the free end of which is transversely inclined from the vertical to present laterally-projecting upper and lower edges, in combination with a guard-rail recessed or beveled on its inner face, and notched at its inner edge.

5. In a railway-switch, the combination of a switch-point provided at its free end with a laterally-projecting wing, a switch-rail recessed at its inner face, and a guard-rail recessed or beveled at its inner face, and notched at its inner edge.

6. In a railway-switch, the combination of a switch-point provided at its free end with a laterally-projecting wing, and longitudinally beveled at said free end, a switch-rail recessed at its inner face, and a guard-rail recessed at its inner face to receive the projecting wing of the switch-point, and notched at its inner edge.

7. The combination with a car or the like, of switch-shifting mechanism comprising a vertically-movable shoe, said shoe being adapted to engage and shift a switch-point, and beveled to adapt it to ride up between the guard-rail and switch-point to raise the bar to normal position after the switch-point has been shifted.

8. In a railway-switch, the combination with a switch-point provided at its free end with a laterally-projecting wing, of switch-shifting mechanism comprising a pair of vertically-movable shoes, one of said shoes being adapted to project under the wing of the switch-point to shift the latter in one direction, and the other shoe being adapted to engage the switch-point above its wing to shift the switch in the opposite direction.

9. The combination with a car or the like, of switch-shifting mechanism comprising two vertically-movable shoes arranged one behind the other and supported beneath the car, a rock-shaft supported in bearings beneath the car, connections between the shoes and rock-shaft, push-rods arranged on the car-platform and adapted to simultaneously depress one of said shoes and raise the other, the forward shoe being beveled on its outer and under faces, while the shoe on the rear bar is beveled on its upper and inner sides and provided with a prong or projection for automatically raising its bar after the shifting of the switch.

10. The combination with a car or the like, of switch-shifting mechanism, comprising vertically-movable shoes, a rock-shaft, connections between the shoes and rock-shaft, push-rods extending through the car-platform and adapted to operate the shaft, and a pivoted catch provided with a hood which engages the head of one of said push-rods both above and below the head, thus locking both push-rods against movement.

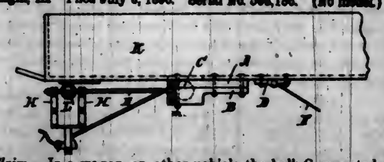
11. The combination with a car or the like, of switch-shifting mechanism, comprising a vertically-movable shoe, a rock-shaft, a connection between the shoe and rock-shaft, a push-rod extending through the car-platform and adapted to operate the shaft, and a pivoted locking-catch for said push-rod, provided with a slotted hood to engage the head of the rod, and a projecting foot-piece.

12. The combination with a car, or the like, of switch-shifting mechanism comprising a vertically-movable shoe-carrying bar consisting of telescoping sections, one of which is formed with a vertically-elongated slot, a cross-pin extending through said slot, and a spring interposed between the sections.

13. A traveling contact-shoe for switches, said shoe being rounded or beveled on its under and outer sides to adapt it to throw a switch-point, and to subsequently ride up between the switch-point and guard-rail.

14. A traveling contact-shoe for switches, said shoe being beveled on its upper and inner sides to adapt it to engage the switch-point and provided with a prong or projection adapted to ride up over the switch-point to raise the shoe.

585,768. WAGON OR OTHER VEHICLE. EDGAR W. LOOMIS, Elgin, Ill. Filed July 6, 1896. Serial No. 598,186. (No model.)



Claim.—In a wagon or other vehicle the ball C mounted on a rod E, the bed-plates A and B provided with hemispherical cavities *b*, the ball L mounted on the rod E, all constructed and operating in the manner and for the purposes herein set forth and described.

585,769. BABY-CARRIAGE. LILLIAN G. LOVE, Minneapolis, Minn. Filed Mar. 31, 1896. Serial No. 584,911. (No model.)



Claim.—1. A detachable frame for baby-carriages, consisting of a closed top and partial sides and rear end wall, adapted to be set down inside the walls of the carriage and when in position to form extensions of the sides and rear end wall of the carriage.

2. The combination, with a baby-carriage, of a removable frame adapted to extend above the body of the carriage proper, having a closed top and side and rear end walls, arranged when in position to form extensions of the sides and rear end wall of the carriage, and a door at the forward end of said frame.

3. The combination, with a baby-carriage, of the side frames having extensions adapted to extend down between the cushion and the side wall of the carriage and rest upon the floor of the carriage, a top secured upon said side frame and means closing the portions of said frame between the walls of the carriage and said top.

4. The combination, with a baby-carriage, of the frame adapted to extend above the body of the carriage proper, having side and end walls, with their lower edges conforming to the shape of the sides and rear end wall of the carriage-body.

5. The combination, with the baby-carriage, of a removable frame having the cleats or supports 20 arranged beneath the top wall thereof, and the detachable door 13 adapted when not in use to be supported upon said frame.

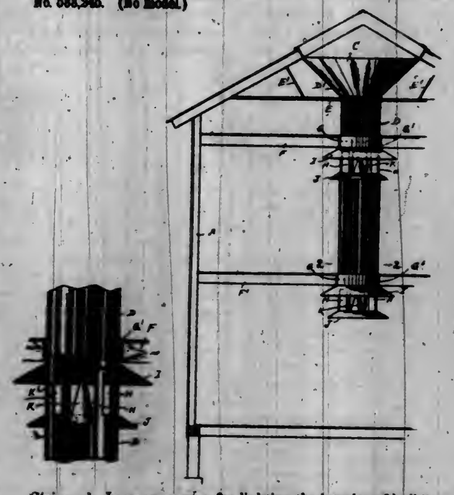
6. The combination, with the baby-carriage, of the frame secured thereon and provided with a door 6 in its top and slides 7 within which said door is adapted to slide, for the purpose specified.

7. The combination, with a baby-carriage, of a frame adapted to extend above the body of the carriage proper and consisting of side and rear end walls, said side walls having extensions adapted to be placed inside of the side walls of the baby-carriage to hold said frame in position, substantially as described.

8. The combination, with a baby-carriage, of a folding frame adapted to extend above the body of the carriage proper and consisting of the top, two side walls, a rear end wall, and a door at its front, and means for securing said frame to the walls of a baby-carriage, substantially as described.

9. The combination, with a baby-carriage, of a folding frame, adapted to extend above the body of the carriage proper and consisting of a top, side walls, and a rear end wall, and a front wall or door, adapted to slide up beneath the top, and means for securing said frame to a baby-carriage, substantially as described.

585,770. APPARATUS FOR LIGHTING INTERIORS OF BUILDINGS. HORATIO N. H. LUDKIN, Worcester, Mass., assignor to the Ludgrin Light Shaft Company, Portland, Me. Filed Apr. 20, 1896. Serial No. 588,245. (No model.)



Claim.—1. In an apparatus for lighting the interior of buildings the combination with a light-receiver of a continuous shaft passing through the floors but independently thereof, means for suspending said shaft from its upper portion with its lower portion hanging free and unconnected with the building, substantially as described.

2. In an apparatus for lighting the interior of buildings, a tubular shaft open at its upper end and provided with openings for delivery of light into the building, said shaft having an interior reflecting-surface bent into a series of alternate ridges and grooves, parallel with each other and with the axis of the tube whereby the sides of adjacent ridges will present opposing faces, substantially as described.

3. In an apparatus for lighting the interior of buildings the combination of a tubular light-conveying shaft open at its upper end and provided with a series of openings in its sides for the delivery of light into the building, and a body supported concentrically within said shaft and opposite said openings, and provided with a reflecting-surface, substantially as described.

4. In an apparatus for lighting the interior of buildings, the combination of a tubular light-conveying shaft open at its upper end and having side openings for the delivery of light into the building said tubular shaft having an interior corrugated light-reflecting surface, and a light-reflector supported concentrically in said tubular shaft, substantially as described.

5. The combination with a building provided with openings in alinement, of thimbles surrounding said openings, a tubular light-shaft, but capable of sliding therein, and means for suspending said shaft from its upper portion with its lower end free, substantially as described.
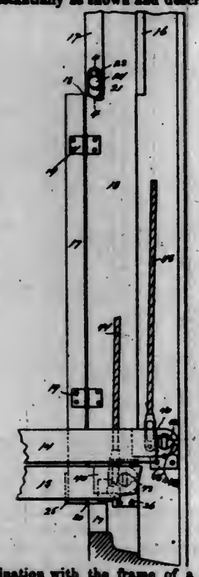
6. The combination of a tubular light-conveying shaft provided with openings in its sides for the delivery of light into a building, and a conical light-reflector supported in said shaft opposite said openings with its apex uppermost, substantially as described.

585,771. WINDOW. JAMES LUMSDEN, Aberdeen, Scotland. Filed Sept. 9, 1896. Serial No. 605,336. (No model.)

Claim.—1. The combination with the frame of a window, and with a sash mounted therein, and provided with a counterbalance-weight, of fastening devices or supports consisting of plates which are mounted in the frame at each side of the lower end thereof, said plates being provided with transversely-movable bolts, and corresponding plates secured to the sides of the lower end of the sash, and provided with transverse circular openings which open downwardly by means of slots, through which said bolts are adapted to pass, substantially as shown and described.

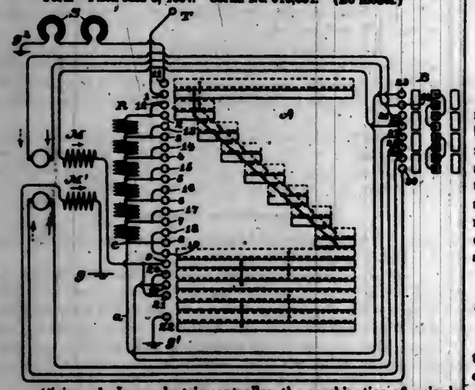
2. The combination with the frame of a window, and with a

sash mounted therein, and provided with a counterbalance-weight, of fastening devices or supports consisting of plates which are mounted in the frame at each side of the lower end thereof, said plates being provided with transversely-movable bolts, and corresponding plates secured to the sides of the lower end of the sash, and provided with transverse circular openings which open downwardly by means of slots, through which said bolts are adapted to pass, said plates which are secured to the sashes being also provided with pivotal connections for the cables or cords with which the counterbalance-weights are connected, substantially as shown and described.



3. The combination with the frame of a window, and with a sash mounted therein, and provided with a counterbalance-weight, of fastening devices or supports consisting of plates which are mounted in the frame at each side of the lower end thereof, said plates being provided with transversely-movable bolts, and corresponding plates secured to the sides of the lower end of the sash, and provided with transverse circular openings which open downwardly by means of slots, through which said bolts are adapted to pass, said plates which are secured to the sashes being also provided with pivotal connections for the cables or cords with which the counterbalance-weights are connected, and said locking-bolts being provided with means whereby they may be locked in a projected position, substantially as shown and described.

585,772. ELECTRIC CONTROLLER. ALEXANDER P. MACDONALD, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 6, 1897. Serial No. 618,091. (No model.)



Claim.—1. In an electric controller, the combination of a single set of moving contacts, two sets of brushes mounted for dissimultaneous engagement therewith, the two sets of brushes establishing different circuit combinations of the dynamo-electric machines, and means for changing the relation between the contacts and sets of brushes.

2. In an electric controller, the combination of a contact-cylinder mounted for rotary movement, stationary brushes mounted for engagement therewith, means for imparting a rotary movement to the cylinder, and means for moving the cylinder in a direction parallel to its axis when it is desired to establish a new relation of the motors.

3. In an electric controller, the combination of a cylinder mounted for rotary movement, a set of contacts mounted thereon, means for moving the cylinder parallel to its axis, two sets of brushes mounted for engagement with the contacts on the cylinder, one set of brushes being arranged to establish one combination of circuits when in engagement with the cylinder-contacts, the other set of brushes establishing a different combination of circuits when engaging with the same contacts.

4. In an electric controller, for electrically-propelled vehicles, the combination of a single set of moving contacts, a set of brushes so connected to the motors that the latter will propel the vehicle when the power-circuit is completed by the cylinder-contacts, a second set of brushes so connected as to establish the brake-circuit when the circuit is closed by the contacts on the cylinder.

5. In an electric controller, the combination of a contact-cylinder mounted for rotary movement, means for moving the cylinder in a direction parallel to its axis, brushes mounted for engagement with the cylinder, certain of them engaging with the cylinder-contacts when the cylinder is in one position, the remainder after the cylinder has been moved to a new position.

6. In an electric controller, the combination of a cylinder, a single set of contacts mounted thereon, a set of brushes so connected to the motors that the latter will propel the vehicle when the circuit is completed by the cylinder-contacts, a second set of brushes normally out of engagement with the cylinder-contacts and so connected as to establish the brake-circuit when the latter is closed by the cylinder-contacts, and means for moving the cylinder-contacts into a position for cooperating with the brushes connected to the brake-circuit.

7. In an electric controller, the combination of a cylinder provided with a single set of contacts permanently connected to give any desired motor combination, two sets of brushes mounted on a vertical support, the brushes of one set alternating with those of the second set, the stationary brushes and cylinder-contacts bearing such a relation to each other that only one set of brushes can be in contact at a given time, and means for moving the cylinder into position for engagement with either of the sets of brushes.

8. In an electric controller, the combination of a contact-cylinder provided with contacts mounted on the outer periphery of the drum, contacts mounted on the inner periphery, stationary brushes engaging with the outer peripheral contacts and stationary brushes engaging with the inner peripheral contacts.

9. In an electric controller, the combination of a spider or support insulation mounted thereon forming the drum, contacts mounted on the inner periphery, the inner and outer peripheral contacts being staggered, stationary brushes engaging with the outer set of contacts, and stationary brushes mounted on a suitable support within the drum making contact with the inner contacts.

585,773. NUT-LOCK. LEWIS B. MILLER and DANIEL A. BOOK, Johnsonburg, Pa. Filed Feb. 15, 1897. Serial No. 623,560. (No model.)

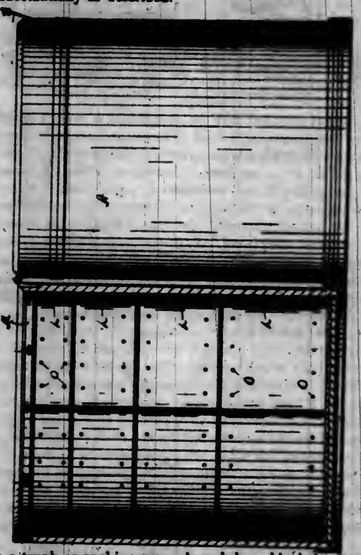


Claim.—In a nut-lock, the combination of a bolt provided with right and left hand screw-threads, the inner and outer right and left hand nuts arranged on the threaded portions of the bolt, the outer nut being provided with a notch forming a shoulder at its outer end, and a sleeve receiving and conforming to the configuration of both the nuts and provided with a resilient tongue formed by splitting one side of the sleeve and extending toward the outer face of the outer nut and engaging the said shoulder, whereby the sleeve is retained on the nuts and is positively locked against outward movement, substantially as described.

585,774. TRUNK. EDWARD W. MORGENTHALER, Paola, Kans. Filed Nov. 27, 1896. Serial No. 613,583. (No model.)

Claim.—1. In a trunk or packing-case, a barrel-shaped body transversely divided the two parts having a hinged connection with each other and provided at each chime with an external peripheral groove, a cushion at each end comprising a ring of resilient material located in the said groove and extending above the end and beyond the sides of the body, and a locking device for holding the two parts of the body closed, substantially as described.

2. In a trunk or packing-case, a barrel-shaped body having suitable heads and provided at each chime with an external peripheral groove, a cushion at each end comprising a ring of resilient material located in the said groove and projecting beyond the end of the chime and the sides of the body, the said ring being provided with an external peripheral groove, and a series of screws extending through the ring the heads of the screws lying within the said groove in the ring and the other ends of the screws being secured to the chime, substantially as described.



3. In a trunk or packing-case, a barrel-shaped body having suitable heads and provided at each end with an external peripheral groove, a cushion at each end comprising a ring of resilient material located in the said groove and provided with a vertical flange encircling the outside of the body, and a hoop encircling the said flange and secured to the body, substantially as described.

4. In a trunk or packing-case, a barrel-shaped body having suitable heads and provided at each end with an external peripheral groove and having the inside and outside of the chimes substantially parallel with each other, a ring of resilient material located in the said groove the said ring being provided with an external peripheral groove and a series of bolts extending through the ring and chime, the heads of the bolts lying within the groove in the ring, the inner ends of the bolts being provided with nuts having a screw-thread engagement therewith and adapted to be tightened against the inner wall of the chime, substantially as described.

5. In a trunk or packing-case, a barrel-shaped body having suitable heads and provided at each chime with an external peripheral groove and having the two sides of the chime substantially parallel with each other, the body being transversely divided into two parts which have a hinged connection with each other, a ring of resilient material located within the said groove, the said ring being provided with an external peripheral groove, a series of bolts which extend through the said ring and adjacent chime, the heads of the bolts lying within the groove in the ring and the inner ends of the bolts having mounted thereon nuts which bear against the chime, and a locking device for holding the two parts of the body together when in the closed position, substantially as described.

6. In a trunk or packing-case, a barrel-shaped body having suitable heads and transversely divided into two parts which have a hinged connection with each other, a series of trays located in each part of the body, means for preventing longitudinal movement of the trays in the body, and one or more rods which extend through the trays and trunk-heads, the said rod or rods being provided with a head at one end and a nut at the other, the rods serving both to hold the two parts of the trunk together and to prevent circumferential movement of the trays, substantially as described.

7. In a tray, the combination with the body portion L the sides of which are provided with openings, O, of the angle-plates R having the slot S and openings adapted for the insertion of bolts and corresponding to the openings, O, in the tray-walls, the adjustable partition-plates, Q, having the slot S, and the bolts T and nuts U adapted to unite the partition-plates and angle-plates through the medium of the slots S, substantially as described.

8. In a trunk, the combination with a body portion having suitable heads and transversely divided into two parts which have a hinged connection with each other, of the rods J extending through the trunk-heads and having mounted thereon the nut K, trays L provided with the tubes P adapted to receive the rods J, tray M having thumb-screws operating in screw-threaded openings in its wall and adapted to enter openings provided in the interior of the trunk-body, and a locking device for holding the two halves of the body in the closed position, substantially as described.

585,775. TIE-HOLDER AND COLLAR-BRACE. WILLIAM W. MCCALL, Kansas City, Mo., assignor to Carl K. Landes and Charles T. McDaniel, same place. Filed Sept. 18, 1896. Serial No. 606,198. (No model.)



Claim.—1. A tie-holder and collar brace comprising a substantially upright body portion having at its lower end a rearwardly and upwardly extending portion the upper end of which projects rearwardly, substantially as described.

2. In a tie-holder and collar-brace, the plate comprising an arc-shaped body portion, a portion of the upper end of which is rearwardly inclined, and the ends of which form two parallel extensions which are bent rearwardly and upwardly, the extreme ends of the parallel portions being rearwardly bent, substantially as described.

3. As an article of manufacture an arc-shaped plate having the upper end of the arc bent rearwardly, and provided at the ends of the arc with two upwardly-bent arms the upper ends of which are bent rearwardly, substantially as described.

4. In a tie-holder and collar-brace, the arcuate body portion A provided with the parallel extensions B which are bent rearwardly and then upwardly, the upper ends of the extensions B resting against the rear side of the body A and having the rearward projections C, the body portion A having a portion of its upper end rearwardly bent, substantially as described.

5. A tie holder and collar-brace comprising a substantially upright body portion having at its upper end a rearwardly-inclined portion and at its lower end a rearwardly and upwardly extending portion the upper end of which projects rearwardly, substantially as described.

585,776. HARNESS-HANGER. ALONZO R. MCCOY, Burlington, N. J., assignor to the Gleason & Bailey Manufacturing Company, Limited, of New York. Filed Mar. 1, 1897. Serial No. 626,541. (No model.)



Claim.—1. A harness-hanger, embodying two hinged sections, a set-bar pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, and a catch to lock the sections together.

2. A harness-hanger, embodying two hinged sections, a set-bar pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, and a spring-pressed catch to lock the sections together.

3. A harness-hanger, embodying two hinged sections, a set-bar pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, and a catch to lock the sections together, a buffer and a stop.

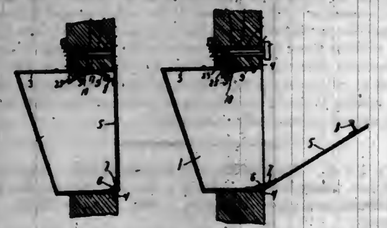
4. A harness-hanger, embodying two hinged sections, a set-bar pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, a catch to lock the sections together, a buffer-holder, a buffer and a stop.

5. A harness-hanger, embodying two hinged sections, a set-bar, pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, a catch to lock the sections together, a buffer-holder, an elongated elastic buffer, and a recessed stop.

6. A harness-hanger, embodying two hinged sections, a set-bar pivoted to one section and in sliding contact with the other section, a cord attached to the set-bar, a catch to lock the sections together, a buffer-holder, an elongated elastic buffer, and a recessed bell-mouthed stop.

7. A harness-hanger, embodying hinged sections, a catch to lock said sections in their extended position, said catch being provided with an upwardly-extended tripping-arm, and a depending hook to form the saddle-support.

585,777. MAIL-BOX. WILLIAM MCENDREE, Minden, Iowa. Filed June 18, 1896. Serial No. 595,967. (No model.)



Claim.—1. In a mail-box, the combination with the box proper, of a door therefor, a catch adapted for engagement with the door to hold the same closed, a lock comprising an elongated guide-casing and a spring-actuated member movable longitudinally therein, an independent and detachable push-key adapted for insertion in the case to move the member, and an operative connection between the said member and the catch that locks the door, said parts being so disposed and related that when the member is moved by the insertion of the key, the catch will be tripped and the door released.

2. In a mail-box, the combination with the box proper, of a door adapted to close the same, a pivoted spring-actuated catch-lever adapted to lock said door, a lock comprising a casing and a spring-actuated member movable therein, a push-key adapted for insertion in the casing to move the spring-actuated member, and a pivoted tripping-lever actuated by the movement of the said member and brought into engagement with the catch-lever, whereby the door is released.

3. In a mail-box, the combination with the box, of a door therefor, a pivoted catch-lever adapted to engage with said door to hold the same locked, a spring-actuated member, a casing housing said member, a push-key for moving the member, and a pivoted tripping-lever having a head or cam end adapted to ride on the catch-lever and move the same, and its other end connected by a slot-and-stop connection to the slidable spring-pressed member.

4. In a mail-box, the combination with the box proper, of a door therefor, a lock comprising a spring-actuated member, a rack connected to said member, a gong or bell, a clapper adapted to ring said gong and having a portion riding on the rack, releasable catch mechanism actuated by said member and adapted to hold the door closed when not actuated, and a key for moving the member.

585,778. MACHINE FOR RAISING OR LOWERING ELECTRIC LIGHTS. WILSON MCLEOD, Cannington, Canada. Filed Sept. 23, 1896. Serial No. 607,272. (No model.) Patented in Canada May 27, 1896, No. 53,422.



Claim.—1. In a device for raising and lowering a light or other object, the combination of the frame comprising the side bars each having an oppositely-bent end and provided with cord-guides integral therewith and a shaft fixed on said bars, with a reel rotatable on said shaft, a cord having parts oppositely wound on the reel, and cord-pulleys supported between the side bars adjacent their bent ends, and with a spring and spring-drum, the latter being composed of separate sheet-metal disks constituting the ends of the reel and connected by a separate intermediate bent strip or cylinder of sheet metal and a separate annulus 9 also secured to said strip, substantially as described.

2. In a device for raising and lowering a light or other object, a reel composed of disks and an annulus, said disks and annulus being secured to each other and to a bent strip or cylinder by lips integral with the strip and clenched to said parts and said bent strip, substantially as described.

3. In a device for raising and lowering a light or other object, a reel composed of a bent strip or cylinder, disks and an annulus, said disks and annulus being secured to each other and to the bent strip by lips integral with the strip and clenched to said parts, in combination with the shaft and a coiled spring, said spring being attached at one end to the strip by a tongue and slot, formed in the strip and spring respectively and at the other end to the shaft, substantially as described.

585,779. VENTILATOR FOR REFRIGERATOR-CARS. JACOB HOELINE and CHARLES E. JOHNSON, Chicago, Ill., assignors to George B. Robbins, Hinsdale, Ill. Filed Aug. 3, 1896. Serial No. 601,440. (No model.)

Claim.—1. In a car provided with an aperture A', a lid D, adapted to close the same, a hood formed upon the car at one side of the said aperture, a movable frame adapted to slide from a position in the hood to a position over the aperture, a cover hinged to said frame, a screen hinged to the free edge of the cover, and triangular side wings hinged to the sides of the cover, said wings and screen being adapted to support the cover in an inclined position when the ventilator is in use, and to be folded down upon the frame and the whole slid back into the hood when not in use, substantially as described.



2. In a car provided with an ice-aperture A', a lid D adapted to cover the said aperture; a hood C formed at one side thereof; a curb B surrounding the remaining sides of the aperture and provided with the guides B^3; a ventilator, consisting of a frame E adapted to slide on the guides B^3 and backward into the hood C, of a cover hinged at one edge to the frame, of a screen hinged to the free edge of the cover, and of triangular side wings hinged to the sides of the cover; the said screen and side wings being adapted to hold the cover in an inclined position, or to be folded upon the same and the whole laid flat upon the frame when the ventilator is out of use so as to be moved back into the hood; and means for locking the free edge of the screen to the edge of the ventilator-frame.

3. In a car provided with an ice-aperture A', a lid D adapted to cover the said aperture; a hood C formed at one side thereof; a curb B surrounding the remaining sides of the aperture and provided with the guides B^3; a ventilator consisting of a frame E adapted to slide on the guides B^3, and backward into the hood C, of a cover hinged at one edge to the frame, of a screen hinged to the free edge of the cover, and of triangular side wings hinged to the sides of the cover; the said screen and side wings being adapted to hold the cover in an inclined position, or to be folded upon the same when the ventilator is out of use; lugs A on the lower edge of the wings adapted to secure the lower edges of the latter to the ventilator-frame; and means for locking the free edge of the screen to the edge of the ventilator-frame.

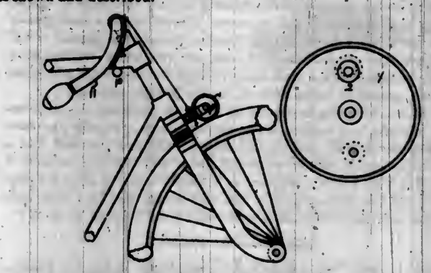
4. In a combined ventilator and refrigerator car provided with ice-apertures A', the curb B inclosing three sides of each aperture, and provided with guides B^3 on the sides thereof; the hood C constructed adjacent to the remaining side of the said ice-aperture, and open upon the side adjacent thereto; the guides C^3 upon the inner sides of the hood formed in continuation of the guides B^3; the lugs c^3 attached to the edge of the roof of the hood; the lid D adapted to close the ice-aperture hinged to the said edge of the roof of the hood and provided with the short arms d; a ventilator consisting of a slidable frame E provided with the rib e having apertures h'; a cover F hinged to the ventilator-frame; a screen hinged to the free edge of the cover F adapted to support the cover in an inclined position; means for locking the lower edge of the screen, when the ventilator is raised, to the ventilator-frame, and the side wings H hinged to the sides of the cover F, and provided on their lower edges with the lugs h adapted to enter the said apertures h', to secure them to the ventilator-frame E; the said screen and side wings being adapted to fold under the cover F when the same is lowered into a horizontal position, substantially as described.

5. In a car provided with an aperture A', a lid D, adapted to close the same, a hood formed at one side of the said aperture, lugs projecting outward from the front edge of the said hood, a slidable frame adapted to slide back into the hood and out over the aperture, a cover hinged to said frame and movable with it, a screen hinged to the free edge of the cover, and side wings hinged to the sides of the cover, the wings and screen being adapted to support the cover in an inclined position when the ventilator is in use, the said projecting lugs acting as stops to prevent the backward movement of the cover when the latter is in its inclined position, substantially as described.

6. In a car provided with an aperture A', a hood at one side of the aperture, a slidable frame adapted to slide back into the hood, and out over the aperture, a cover hinged to the frame and movable with it, a ventilator-screen and side wings hinged to the cover, and arranged to be folded down upon the frame, a lid D, hinged to the side edge of the hood, and downwardly-extending lugs or arms secured to the hinged edge of the lid and adapted when the latter is closed down over the aperture to prevent the ventilator-frame from sliding forward, substantially as described.

585,780. BICYCLE-BELL. JOSEPH OPPERMANN, Philadelphia, Pa. Filed July 20, 1896. Serial No. 599,860. (No model.)

Claim.—A bicycle-bell and means for operating the same, consisting of the combination of the following elements: one or two cup-shaped bells, each bell provided with a striking-lug, a revolving disk carrying one or more loose clappers, a steering-wheel of a bicycle, means for putting the disk into and out of contact with the steering-wheel; whereby when in contact the steering-wheel gives a rapid revolving motion to the disk; the centrifugal force causes the clappers to fly out, strike the lug and sound the bell, all substantially as shown and described.



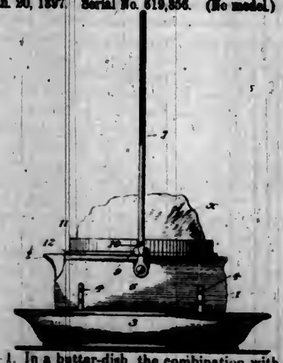
585,781. GARMENT-SUPPORTER. GEORGE H. PHELPS, Newton, Mass., assignor to the George Frost Company, Boston, Mass. Filed Feb. 8, 1897. Serial No. 622,478. (No model.)



Claim.—1. In a garment-supporter, a clip having a space or eye, combined with a supporting connection composed of cord provided with a ferrule, the ferruled end of said cord being bent backwardly between the two sides of the cord, substantially as described.

2. The clasp composed of a metallic loop and a back piece having a button, combined with a clip having prongs at its lower end, which prongs are extended through the said back piece and loop to form between them a hinged joint, substantially as described.

585,782. BUTTER-DISH. HANNAH R. PHILLIPS, New York, N. Y. Filed Jan. 20, 1897. Serial No. 619,856. (No model.)

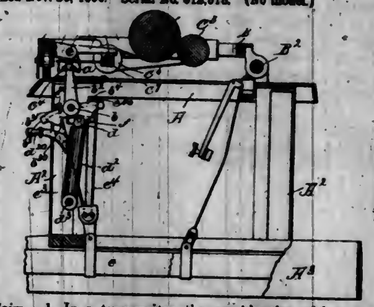


Claim.—1. In a butter-dish, the combination with a body, of a handle pivotally connected to said body, and an ice-receptacle slidably connected to the handle and adapted to support the butter.

2. In a butter-dish, the combination with a chambered body, of a handle having portions pivotally connected to the body, an ice-receptacle having supports provided with projecting finger-grasps and which supports normally rest on the body and are slidable on the handle, and a butter-tray supported by said ice-receptacle.

3. The herein described butter-dish, the same comprising the combination of a chambered body, a bail pivotally connected to said body, an ice-receptacle fitting within the body and having drip-openings, which receptacle is provided with an inner shoulder and an upwardly-extending annular portion and also has downwardly-extending supports resting on the upper edge of the body and slidable on the bail, and a removable butter-tray fitting within the upper annular portion and resting on the shoulder.

585,783. TYPE-WRITING MACHINE. JOHN B. PRICE, Wollaston, Mass., assignor to the Manhattan Typewriter Company, of New Jersey. Filed Nov. 30, 1896. Serial No. 613,818. (No model.)



Claim.—1. In a type-writer, the combination with a movable platen-frame, of a shifting-rod adapted to engage the same, a rock-shaft upon which said shifting-rod is supported having arms provided with engaging portions on opposite sides of its axis, and a spring-pressed plunger adapted to engage the under side of said arms and movable along said engaging portions from one side to the other of the axis of the rock-shaft, substantially as described.

2. In a type-writer, the combination with a movable platen-frame, of a shifting-rod adapted to engage the same, a rock-shaft upon which said shifting-rod is supported having arms provided with engaging portions on opposite sides of its axis, a spring-pressed plunger adapted to engage the under side of said arms and movable along said engaging portions from one side to the other of the axis of the rock-shaft, a shift-key cooperating with said rock-shaft, and means for shifting its point of engagement from one side to the other of the axis of the rock-shaft to correspond with the position of the spring-pressed plunger, substantially as described.

3. The combination with the movable platen-frame, of the shifting-rod therefor, a rock-shaft to which said shifting-rod is connected, said rock-shaft having arms transverse to its axis, a spring-actuated plunger adapted to engage the under surface of said arms, means for shifting said plunger thereon from one side to the other of the axis of the rock-shaft, a shift key having two engaging rods adapted to engage respectively with the upper surface of said arms, and an engaging portion of said spring-plunger adapted to engage and move said rods with relation to the axis of the rock-shaft during the movement of said plunger, substantially as described.

4. The combination with the movable platen-frame, of the shifting-rod therefor, a rock-shaft to which said shifting-rod is connected, said rock-shaft having arms transverse to its axis, said arms being provided with longitudinal slots, a spring-actuated plunger adapted to engage the under surface of said arms, means for shifting said plunger thereon from one side to the other of the axis of the rock-shaft, a shifting-key having two engaging rods, extending upward through the slots in said arms and provided with heads or enlargements adapted to engage the upper surfaces of said arms, and means for laterally shifting said rods, whereby one is moved toward the axis of the rock-shaft and the other away from the same, substantially as described.

5. In a type-writer, the combination with a movable platen-frame, of a spring-actuated rock-shaft adapted to control the position thereof, arms connected with said rock-shaft extending laterally therefrom at each side of its axis, a shifting-key provided with two connecting members adapted to engage said arms respectively, and means for laterally moving said connecting members whereby one is moved from a point near the end of the corresponding arm toward the axis of the rock-shaft, and the other is moved away from the said axis, toward the end of its corresponding arm, substantially as described.

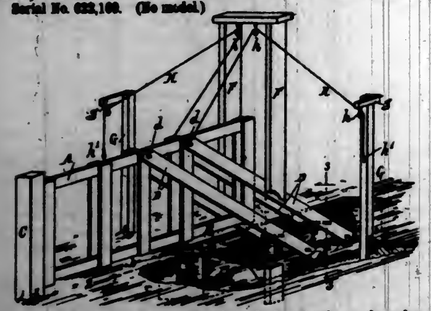
6. In a type-writer, the combination with a movable platen-frame,

of a rock-shaft adapted to control the position thereof, a spring-actuated controlling device engaging said rock-shaft from below, forked supports for said rock-shaft depending from the frame, and a pin extending across the open end of one of said forked supports below said shaft, the other end of the shaft being supported by said spring-actuated controlling device, substantially as described.

7. In a type-writer, the combination with a movable platen-frame, and supporting-carriage therefor pivotally connected to the frame of the type-writer, a hook pivotally supported upon said carriage, and normally in engagement with said platen-frame and a portion of said hook adapted to be engaged by the shift-rod of the machine to throw the said hook out of engagement with the platen-frame when the latter is to be shifted rearward on the carriage and a hook-retaining device, such as the friction-washer g^4, to prevent the hook from falling by gravity when the carriage is lifted, substantially as described.

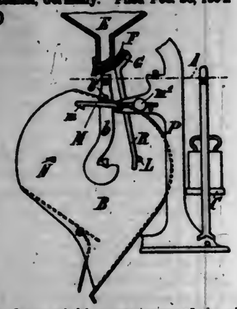
8. In a type-writer, the combination with a movable platen-frame, and supporting-carriage therefor pivotally connected to the frame of the type-writer, a hook pivotally supported upon said carriage, and normally in engagement with said platen-frame, a portion of said hook adapted to be engaged by the shift-rod of the machine, a friction device for retaining the hook against falling by gravity, and a yielding holding device for preventing the hook from changing its position when disengaged from the shift-rod, substantially as described.

585,784. GATE. JOHN G. PRIEM, Loyd, Ill. Filed Feb. 5, 1897. Serial No. 622,169. (No model.)



Claim.—In a gate, the combination of a box having a slotted top flush with the surface of the roadway, bolts passing transversely through said box, parallel arms supported in pairs on said bolts and swinging in the slots in the top of said box, bolts passing transversely through each pair of said arms near their lower ends, a sand-box supported on said last-named bolts, and a gate-frame pivotally connected with said arms, as set forth.

585,785. AUTOMATIC WEIGHING APPARATUS. MICHAEL H. REMBERT, Mosnef, Germany. Filed Feb. 20, 1894. Serial No. 500,896. (No model.)



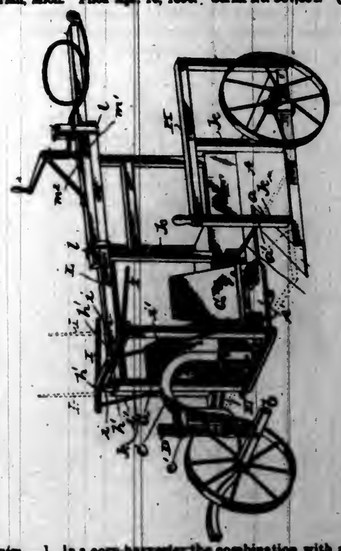
Claim.—1. In a weighing apparatus of the class described, the combination with the scale-beam and a receiver adapted to automatically tilt and discharge its contents under a predetermined or given load; of a locking device operating automatically to lock the receiver against tilting when the downward movement thereof under a load greater than the weight to be balanced thereby exceeds the normal or balancing downward movement of such receiver, for the purpose set forth.

2. In a weighing apparatus of the class described, the combination with the scale-beam and a receiver adapted to automatically tilt and discharge its contents under a predetermined or given load; of a locking device brought into operation by the downward movement of said receiver and operating automatically to lock the same against tilting when the downward movement thereof under a load greater than the weight to be balanced thereby exceeds the normal or balancing downward movement of such receiver, for the purpose set forth.

3. In a weighing apparatus of the class described, the combination with the scale-beam and a receiver adapted to automatically tilt and discharge its contents under a predetermined or given load; of a locking device operating automatically to lock the receiver against tilting when the downward movement thereof under a load greater than the weight to be balanced thereby exceeds the normal or balancing downward movement of such receiver, and a yielding abatment operating on the scale-beam to limit its downward movement under a normal or balanced load, for the purpose set forth.

4. In a weighing apparatus of the class described, the combination with the feed-hopper and an automatically-operating gate controlling the delivery-port of said hopper, said gate provided with a depending arm R rigidly secured thereto; of the tilting receiver B provided with a stud L adapted to engage the arm R after the gate has closed the delivery-port of the feed-hopper and lock said gate against movement, substantially as and for the purpose set forth.

585,786. CORN-HARVESTING MACHINE. RICHARD B. ROBBINS, Adrian, Mich. Filed Apr. 16, 1896. Serial No. 587,851. (No model.)



Claim.—1. In a corn-harvester the combination with a platform provided with a stationary knife and a stationary support for an operator adjacent thereto, of a hinged guard-platform adjacent to said stationary support lying over said knife when in a horizontal position and standing between the operator and the knife when in a vertical position, substantially as described.

2. In a corn-harvester the combination with a platform provided at each side with a stationary knife, and a central support for an operator located between said knives, of a guard-platform hinged to said central support at each side of the same, lying over said knives when in horizontal position and standing between the operator upon said central support and said knives on both sides of the central support when in vertical position, substantially as described.

3. In a corn-harvester the combination with a platform provided with a stationary knife, and a support for an operator adjacent to said knife, of a platform hinged to said support, lying over said knife when in horizontal position and standing between said knife and the operator when in vertical position, a horizontal guard-lever pivotally mounted above said hinged platform and occupying substantially the same vertical plane when the platform is in vertical position, said guard-lever when in horizontal position lying between the operator and the standing corn engaged by the knife, and operative connections between said guard-lever and hinged platform for securing their simultaneous movement, substantially as described.

4. In a corn-harvester the combination with the main platform provided with the stationary knives at opposite sides of the same and stationary supports for operators intermediate said knives, of pivoted guard-platforms pivoted to said supports and adapted to lie over said knives when in horizontal position, the pivotally-mounted guard-levers above said guard-platform and substantially in the vertical

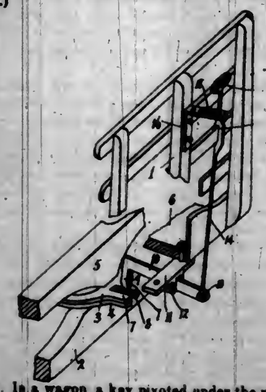
planes of their pivotal connections with the stationary supports and the links connecting one end of each of said levers with its adjacent platform, substantially as described.

585,787. WICK-PULLER. EDWARD M. ROBERTS, Atlanta, Ga., and JAMES F. BLACKWOOD and JAMES P. CAHILL, Charleston, S. C. Filed Aug. 4, 1896. Serial No. 601,645. (No model.)



Claim.—The herein described wick-puller, consisting of a bodkin or strip of sheet metal having perforations therein and a hook made up of a strand of wire passed through two of said perforations and having interned ends between which and said strip a lamp-wick is adapted to be inserted and clamped, as and for the purpose set forth.

585,788. LOCK FOR FIFTH-WHEELS OF WAGONS. CHARLES W. ROBINSON, Saginaw, Mich. Filed May 28, 1896. Serial No. 593,482. (No model.)



Claim.—1. In a wagon, a key pivoted under the wagon and independent of the gearing, and adapted to be actuated into a socket in the upper and lower layers of the fifth-wheel and thereby prevent the layers from moving one upon the other, as specified.

2. In a wagon, means for locking the fifth-wheel of a wagon and thereby preventing the lateral movement of the wagon-tongue, comprising a bolt adapted to be passed between two lugs extending from each of the upper and lower layers of the fifth-wheel, and means for actuating the bolt, substantially as specified.

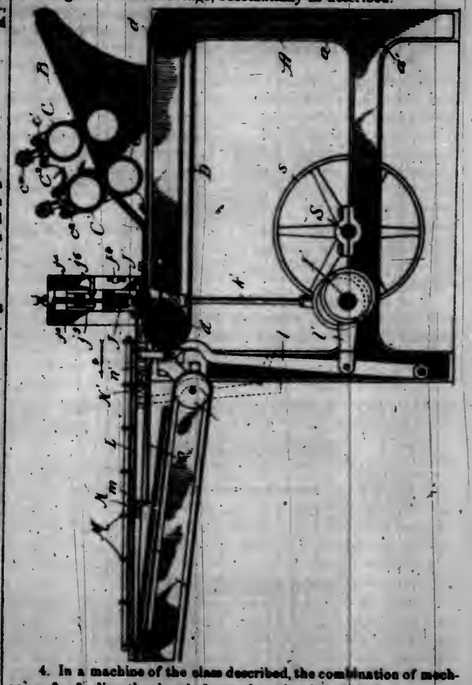
3. In a wagon, the combination with a lever extending upward from the front of the wagon and within reach of the driver, a pivoted bar connected to the lever and actuated by it, a key connected to the opposite end of the lever, and sockets in the upper and lower layers of the fifth-wheel adapted to receive the key when the lever is actuated and thereby lock the axle and bolster, substantially as specified.

585,789. MACHINE FOR CUTTING LOZENGES. FREDERICK P. ROSBACH, Chicago, Ill., assignor to the Pan Confection Company, same place. Filed July 31, 1896. Serial No. 601,162. (No model.)

Claim.—1. In machines of the class described, the combination of mechanism for feeding the dough forward, mechanism for cutting and forming the lozenge, a reciprocating table for receiving the ejected lozenge, and a vertically-movable scraper arranged to be moved up as the table is moved back and lowered to position to scrape the lozenge off the end away from the cutters as the table is moved forward, substantially as described.

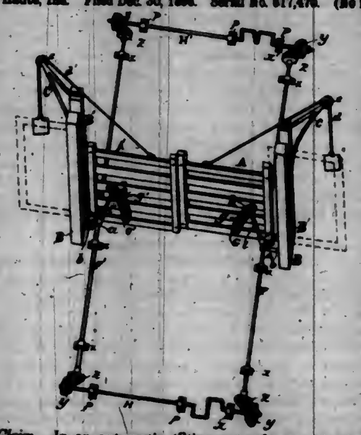
2. In a machine of the class described, the combination of mechanism for feeding the dough forward, mechanism for cutting and ejecting the lozenge, a reciprocating table for receiving the ejected lozenge, and several vertically-movable scrapers for discharging the lozenge off the end of the table away from the cutters, and mechanism for moving the scrapers up when the table is moved back from the cutter and down into operative position when the table is fed forward, substantially as described.

3. In a machine of the class described, the combination of mechanism for feeding the dough forward, one or more hollow punches for cutting the dough and shaping the lozenge, a piston ejector for each punch, means for giving the punches and ejectors a simultaneous movement during a portion of their motions, mechanism for operating the ejectors to give them an accelerated downward movement to emboss or press the lozenge, and means for operating the ejectors to discharge the formed lozenge, substantially as described.



4. In a machine of the class described, the combination of mechanism for feeding the dough forward, a plurality of hollow punches mounted upon a vertically-movable cross-bar, a plurality of piston ejectors, one for each punch, mounted upon a second cross-bar, means for moving each cross-bars simultaneously, adjustable spring mechanism for positioning the bars, stop mechanism for arresting the movement of the second cross-bar to cause the ejection of the formed lozenge, lever mechanism engaging the second cross-bar, and adjustable stop mechanism to contact the lever mechanism and give the second cross-bar an accelerated movement during the downward motion to emboss or press a lozenge, substantially as described.

585,790. AUTOMATIC TILTING GATE. SAMUEL ROTH, Terre Haute, Ind. Filed Dec. 30, 1896. Serial No. 617,470. (No model.)



Claim.—In an automatic tilting gate, the combination of the gates A and A', the hinges *a*, the blocks *b*, the guide-bars G and G', the guide-posts B and B', the cranes C and C', the pulley-wheels *c* and *c'*.

and the weighted cables d' and d'', with the shafts F and F', the double-crank shafts H and H', the four sets of bevel-gears y and z, the levers i and i' and the bolts A, all substantially as described and for the purpose set forth.

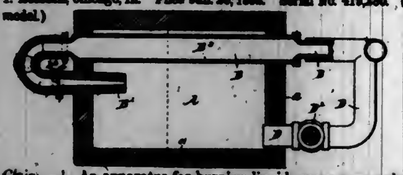
585,791. PLOW ATTACHMENT. BENJAMIN F. RUDY, Bound Brook, N. J., assignor of one-half to John Josephs, same place. Filed Oct. 24, 1896. Serial No. 609,980. (No model.)



Claim.—1. A plow comprising a frame, a plowshare upon said frame, a clod-crusher upon said frame, and a shield or plate secured upon said plowshare for directing the clods to the clod-crusher, substantially as described.

2. A plow comprising a frame, a plowshare upon said frame, a clod-crusher upon said frame, and a plate upon said plowshare for directing the clods to the clod-crusher, said plate being removably secured to the plowshare, substantially as described.

585,792. BURNING APPARATUS FOR LIQUID FUEL. HENRY T. RUSSELL, Chicago, Ill. Filed Jan. 26, 1892. Serial No. 419,290. (No model.)



Claim.—1. An apparatus for burning liquid, gaseous or pulverulent fuel, comprising an inclosure constituting a combustion-chamber, provided with an outlet for the products of combustion, a branched air-supply pipe, one branch of which passes through the said inclosure, and is provided outside of the same with a return-bend which projects through the wall of the inclosure to forcibly deliver hot air thereto, and the other branch of which enters the combustion-chamber through the wall which is opposite the open end of said hot-air pipe to forcibly deliver air into said inclosure, a fuel-supply pipe discharging into said hot-air pipe, and means for supplying air under pressure to said air-supply pipe.

2. An apparatus for burning liquid, gaseous or pulverulent fuel, consisting of a substantially rectangular inclosure, constituting a combustion-chamber, provided near its top with an outlet for the products of combustion, a branched air-supply pipe, one branch of which is provided with a detachable section which passes through the opposite walls of said inclosure, with a return-bend detachably connected with the end of said section outside of said inclosure and with a nozzle attached to said return-bend and projecting through the adjacent wall of said inclosure to forcibly deliver hot air thereto, and the other branch of which pipe enters the inclosure through the wall which is opposite the opening of said hot-air nozzle to forcibly deliver air to said inclosure, a fuel-supply pipe discharging into said hot-air nozzle, and means for supplying air under pressure to said air-supply pipe.

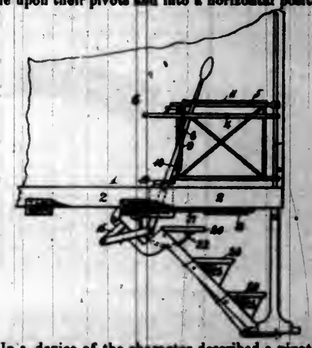
3. In combination with a furnace for burning liquid, gaseous or pulverulent fuel, and a pipe for supplying hot air under pressure thereto, of means for delivering fuel into said hot-air pipe, consisting of a space cast in said pipe between the outer circumference and the bore thereof and concentric with said bore, ports in the partition between said space and bore affording open communication therethrough, and a fuel-supply pipe for delivering fuel to said space.

585,793. CAR PLATFORM AND STEP. HERMAN SCHMIDT, Brooklyn, N. Y., assignor of one-half to William G. St. George, same place. Filed Jan. 9, 1897. Serial No. 618,565. (No model.)

Claim.—1. The combination with a car-platform, of a pivoted frame carrying a plurality of pivoted steps, a gate upon said platform swinging in a plane different from that in which said frame and steps swing, devices for swinging said frame upon its pivot and for moving said steps upon their pivots and for opening and closing said gate.

2. The combination with a car-platform, of a pivoted frame, devices for elevating and depressing said frame, a plurality of pivoted steps carried by said frame, devices for turning said steps upon their pivots, and a lower step carried by pivoted rods and situated in the path of the lower ends of the sides of said frame.

3. In a device of the kind specified, a pivoted frame provided with a plurality of pivoted steps, devices for elevating and depressing said frame, and a rigid hanger or block and a plurality of movable hangers or blocks situated in the path of said steps for moving the same upon their pivots and into a horizontal position.



4. In a device of the character described a pivoted frame provided with a plurality of pivoted steps, said steps being provided with beveled edges forming stops to engage the side pieces of said frame, and devices for moving said frame and said steps upon their pivots.

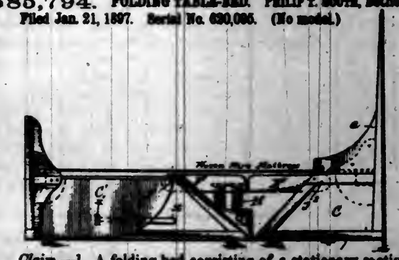
5. In a device of the kind specified, a pivoted frame provided with pivoted steps, a depending pivoted frame having an arm pivoted to said first-mentioned frame, said frame being provided with blocks situated in the path of said steps.

6. In a device of the character specified, a pivoted frame provided with a plurality of pivoted steps, depending pivoted rods provided at their lower ends with the lower step, and an arm pivoted to said frame and to said lower step and provided with blocks situated in the path of said pivoted steps.

7. In a device of the character specified, a pivoted frame having pivoted steps, an operating-lever connected with said frame for elevating and depressing the same, and a pivoted gate connected with said lever by devices to cause said gate to turn upon its pivot as said lever is reciprocated.

8. The combination with a car-platform having a pivoted frame carrying pivoted steps and devices for operating the same, of catches pivoted on opposite sides of the opening in said platform and in the path of said pieces of said frame, said catches being connected with each other and with a common operating foot-piece.

585,794. FOLDING TABLE-BED. PHILIP T. SOUTH, Bethel, Ohio. Filed Jan. 21, 1897. Serial No. 620,095. (No model.)



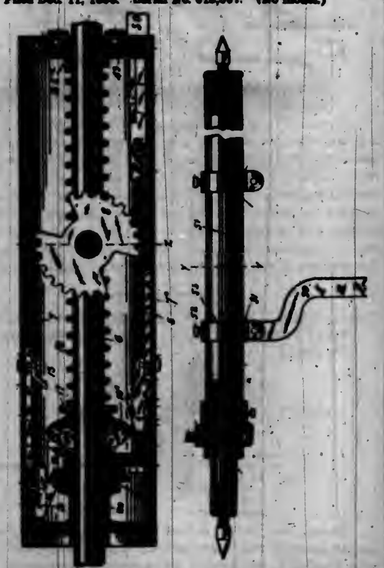
Claim.—1. A folding bed consisting of a stationary section and a section hinged thereto in combination with a mattress attached to the said sections and spreader-bars arranged in hinged pairs and adapted to be employed between the said sections for completing the side rails and tightening the said mattress substantially as set forth.

2. A folding bed consisting of a stationary section a section hinged thereto and opening out so as to leave a gap between said sections, a mattress attached to the said sections, a pair of spreader-bars adapted to fill the gap on one side of the bedstead, so as to complete the side rail and tighten the said mattress and a spring-support for the said spreader-bars substantially as set forth.

3. A combined folding bed and table consisting of a fixed section, a section hinged thereto in such manner that there will be a gap between them when opened out and provided with an end which becomes the head-board when the said hinged section is opened out and the table-top when it is folded together, a mattress attached to the said sections and means of tightening the said mattress when the bed is opened consisting of a pair of spreader-bars hinged together end to end and adapted to fill the said gap substantially as set forth.

4. A pair of spreader-bars hinged together at one end in combination with a bedstead consisting of two sections hinged together provided with rails which form a gap when opened out and adapted to be locked open by placing the said bars in the gap of the rails and forcing them into alinement substantially as set forth.

585,795. HAND ROCK-DRILL. ABRAHAM M. SOUTHARD, Denver, Colo. Filed Dec. 11, 1896. Serial No. 615,267. (No model.)



Claim.—1. In a rock-drill, the combination with a casing, a reciprocating shaft, and a power-spring, of a clamp mounted on the shaft and engaged by the power-spring, said clamp comprising members directly connected by gripping-dogs which are adapted to engage the shaft, one end of each dog having an elongated aperture where it is connected with the clamp member, the front end of the casing being provided with a suitable stop adapted to resist the movement of the clamp while the shaft feeds, the front end of the casing being provided with a suitable stop adapted to resist the movement of the clamp while the shaft feeds.

2. In a rock-drill, the combination with a casing, a reciprocating shaft and a power-spring, of a loose gripping-collar surrounding the shaft, racks slidingly mounted on the casing, spring-held dogs pivoted on the racks and adapted to engage the gripping-collar, means mounted on the casing for releasing the dogs when the shaft has reached its backward limit of movement, a clamp mounted on the shaft and engaged by the power-spring, said clamp comprising two members loosely connected by gripping-dogs which are adapted to engage the shaft, and a suitable stop attached to the front end of the casing and adapted to resist the movement of the clamp while the shaft feeds.

3. In a rock-drill, the combination with a casing, a reciprocating shaft, a power-spring and a mutilated gear, of two cogged racks slidingly mounted on the casing and engaged by opposite segments of the gear, a loose gripping-collar surrounding the shaft, spring-held dogs mounted on the racks and adapted to alternately engage the gripping-collar, trip-stops fast on the casing and engaging the dogs, a clamp mounted on the shaft immediately in the rear of the gripping-collar and comprising two members loosely connected by dogs which engage the reciprocating shaft, a tension-nut screwed into one member of the clamp and engaged by the power-spring, and a cushioned stop attached to the front end of the casing against which the gripping-collar strikes, allowing the drill-shaft to feed.

4. The combination with the casing and reciprocating shaft, of a clamp surrounding the shaft, a rod suitably connected with the clamp and adapted to reciprocate with the shaft, a device attached to said rod and provided with two tongues rigidly connected therewith and located out of line with each other, said tongues being separated by a suitable space and having beveled faces, the said rod engaging a guide in the casing whereby it has no rotary movement and can only move in a direct line, and a toothed wheel suitably incased and mounted on the shaft in such a manner as to cause the shaft and wheel to rotate together, while the shaft moves longitudinally in the wheel, the cogs of the gear engaging the tongues of the reciprocating shaft.

5. In a rock-drill, the combination with the casing and the reciprocating shaft, of a clamp surrounding the shaft, and comprising two members loosely connected by dogs adapted to engage the shaft, a rod suitably connected with the clamp and adapted to reciprocate with the shaft, said rod carrying a device having two tongues not in line, said tongues having separated beveled extremities, a cog-wheel suitably incased and splined on the shaft, the cogs of said wheel engaging the tongues of the turning device.

6. In a rock-drill, the combination with the casing, the reciprocatory shaft, and the power-spring, of the cogged racks movably supported on the casing, a gripping-collar surrounding the shaft, spring-held dogs attached to the racks and engaging the gripping-collar, trip-stops attached to the casing and lying in the path of the dogs, a clamp mounted on the shaft and comprising two members loosely connected by cams, said clamp being engaged by the power-spring on one side and by the gripping-collar on the other side, a mutilated gear journaled in the casing and having opposite segments engaging the two racks, and means for rotating the drill-shaft, comprising a rod attached to the clamp, a cogged wheel splined on the shaft, and a suitable device attached to the rod and engaging the cog-wheel whereby the latter together with the shaft is rotated.

7. In a rock-drill, the combination with the casing, the reciprocatory shaft and the power-spring, of two cogged racks movably supported on the casing and carrying dogs, a gripping-collar surrounding the shaft and alternately engaged by the dogs, a mutilated gear having opposite segments engaging the racks, a suitable lever for operating the gear, and a clamp surrounding the shaft and engaged by the power-spring, the front end of the casing being provided with a stop adapted to resist the movement of the clamp while the shaft feeds.

8. In a hand rock-drill, the combination with the reciprocating shaft and the power-spring, of a clamp surrounding the shaft and engaged by the spring, said clamp being composed of two members loosely connected with apertured dogs adapted to grip the shaft, one aperture of each dog being elongated, as and for the purpose set forth.

9. The combination with a rock-drill, of a supporting-bar to which the drill-casing is suitably attached, an extension-bar telescoping in the main bar, a loose gripping-collar connecting the two bars and adapted to automatically prevent the inward movement of the inner bar, a clamp surrounding the main bar and having a threaded projection passing through an opening in the drill-casing and secured by nuts screwed on said projection and engaging the casing on opposite sides, said bar being provided with two collars one located on each side of the clamp, and an arm attached to one of the collars and extending at a suitable angle to the bar and engaging the bracket on the casing of the drill.

10. The combination with a rock-drill, of a supporting-bar to which the casing is suitably attached, an extension-bar telescoping in the main bar, a loose gripping-collar connecting the two bars and adapted to automatically prevent the inward movement of the inner bar, two collars surrounding the main bar and locked thereon by set-screws, said collars being connected by a tongue, and a clamp attached to the casing of the drill and having a groove engaged by the tongue connecting the clamps.

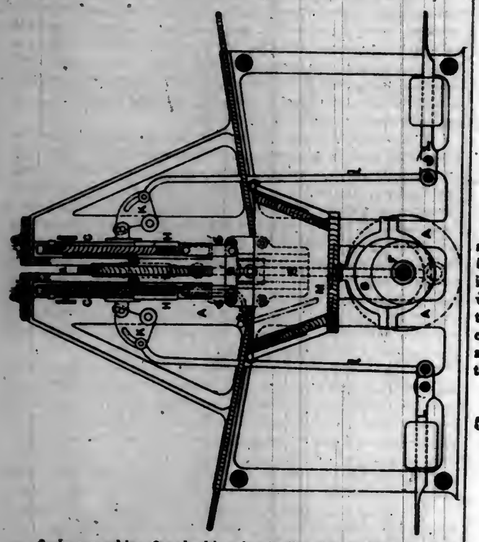
11. In a rock-drill, the combination with the drilling mechanism, of means for rotating the drill-shaft comprising a device connected with the shaft in such a manner as to reciprocate therewith, said device engaging a guide on the casing whereby it is permitted no rotary motion and can move only in a direct line, said device having two tongues out of line with each other and separated by a suitable space, said tongues having beveled faces, and a cogged or toothed wheel suitably incased and mounted on the shaft in such a manner as to cause the shaft and wheel to rotate together, while the shaft moves longitudinally in the wheel, the cogs or teeth of the gear engaging the tongues of the reciprocating device.

12. The combination with a rock-drill, of a supporting-bar to which the drill-casing is suitably attached, an extension-bar telescoping in the main bar, and a loose gripping-collar connecting the two bars and adapted to automatically prevent the inward movement of the inner bar, substantially as described.

585,796. APPARATUS FOR MANUFACTURING FELT HATS. ROBERT STALKER, Heaton Norris, and GEORGE BATT, Stockport, England, assignors of one-third to Arnold Turner, Denton, England. Filed June 26, 1896. Serial No. 597,094. (No model.) Patented in England May 2, 1896, No. 8,718.

Claim.—1. A machine for planking hat-bodies constructed with looped aprons a central reciprocating plank to which one edge of the looped aprons are affixed two side planks capable of being moved to and from the central plank and provided with hinged doors or flaps to which the other edge of the looped aprons are attached

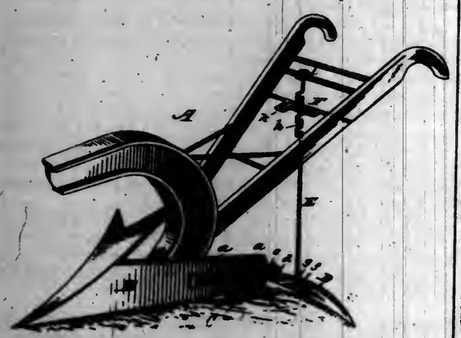
cranks or eccentrics for operating the planks and a trough or kettle for containing hot water or liquor substantially as described.



2. In a machine for planking hat-bodies the combination with the central reciprocating plank B the rotating cranks E by which the plank is reciprocated and apron D connected thereto and to the side plank C of the side planks C the eccentric G by which the planks C are reciprocated the connecting-rods *g* the cross-head G' and the links *f* which connect the cross-head with the cranks.

3. In a machine for planking hat-bodies the combination of the vertical central reciprocating plank B the two reciprocating side planks C the looped apron D suspended in a loop between the planks C and the plank B the cranks E and eccentrics G for actuating the reciprocating planks the connecting-rods *e* and brackets *b* for connecting the central plank with the cranks E the connecting-rods *g* cross-head G' and links *f* for connecting the side planks with the eccentrics G, the adjustable slides H in which the side planks C move up and down the tank M placed below the tanks to contain hot liquor and the pipes N for distributing the liquor over the aprons substantially as described.

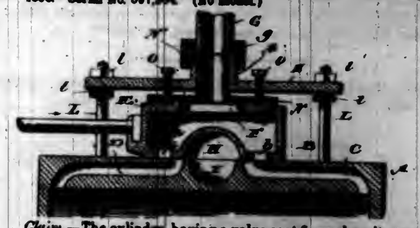
585,797. CUTTING ATTACHMENT FOR PLOWS. UNPHRY M. STONE, McGregor, Tex. Filed Mar. 22, 1897. Serial No. 628,603. (No model.)



Claim.—1. A cutting attachment for plows, consisting of a bracket having a longitudinal slot and means for connecting it to the landside of the plow by which said bracket is capable of horizontal adjustment, a cutting-blade pivotally connected to the bracket, and means for raising and lowering said blade on its pivotal connection, substantially as and for the purpose set forth.

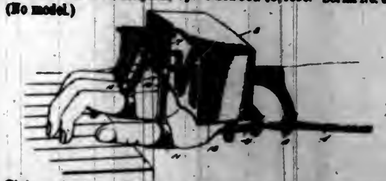
2. A cutting attachment for plows, consisting of a cutting-blade pivotally connecting with the landside of a plow, and means for raising and lowering the blade, consisting of a notched rod connecting with the blade and an L-shaped slotted releasing and locking bar with which said rod engages, as set forth.

585,798. SLIDE-VALVE. BENJAMIN H. TAYLOR, Rosedale, Miss., assignor of one-half to Oscar G. McGuire, same place. Filed June 27, 1896. Serial No. 597,304. (No model.)



Claim.—The cylinder having a valve-seat formed on its top, and a hollow valve which forms a combined steam-chest and valve, combined with the adjustable plate E, having a tubular collar N' upon its top to form a continuation of the steam-pipe; the plate K, also vertically adjustable, and provided with a tubular collar at its center to make connection with the steam-pipe; the rods L, rising from the cylinder and passing through the plate K, the jam-nuts *l* on the rods, and the set-screws O, which extend through the plate K and regulate the pressure of the plate N upon the valve, substantially as shown.

585,799. HAND AND ARM SUPPORT FOR PIANO-PLAYERS. ELLA V. THOMPSON, Grayson, Ky. Filed Oct. 13, 1896. Serial No. 608,774. (No model.)



Claim.—1. A sectional hand and arm support for piano-players, the same comprising connected main and auxiliary sections adapted to be secured to the inner or under surfaces, respectively, of the arm and hand, the auxiliary section being upwardly convexed to fit in the hollow of the palm, and the joint between the main and auxiliary sections occurring in the plane of the wrist-joint and consisting of stop-hinges, whereby the auxiliary section may be raised from, but cannot be depressed below, the plane of the main section, substantially as specified.

2. In a device of the class described, a plurality of yielding finger-supports provided with means for attachment to the fingers of a performer's hand and adapted to resist the downward movement thereof, locking devices for securing each support in its depressed position, and thereby securing the attached finger in its operative position, and tripping devices actuated by the finger-supports for releasing previously-depressed supports engaged by the locking devices, substantially as specified.

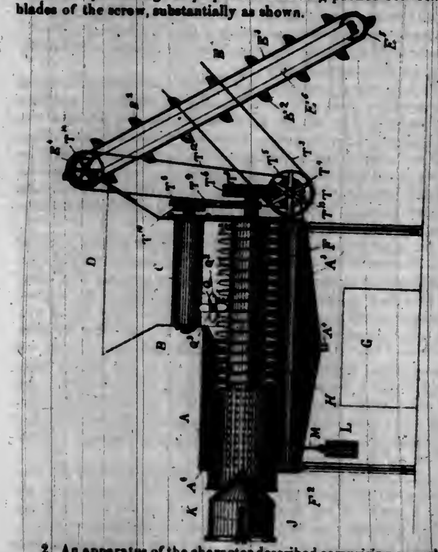
3. In a device of the class described, a plurality of yielding finger-supports provided with means for independent attachment to the fingers of a performer's hand, locking devices for securing the supports in their depressed or operative positions, and means for successively tripping the locking devices to release engaged finger-supports as succeeding finger-supports are depressed, substantially as specified.

4. In a device of the class described, a plurality of yielding finger-supports and means for independent attachment thereof to the fingers of a performer's hand, shouldered heads carried by the finger-supports, a yielding locking-bar for engaging the shoulders of said heads, and means carried by the supports for successively disengaging the locking-bar from the heads carried by previously-depressed supports, substantially as specified.

5. In a device of the class described, a plurality of yielding finger-supports and means for attaching the same to the fingers of a performer's hand, said supports consisting of spring-actuated levers, heads carried respectively by the said levers and provided with shoulders and contiguous trip-cams, and a spring-actuated locking-bar for engagement with said shoulders, and adapted to be repressed by the trip-cam of one lever to release a previously-depressed lever, substantially as specified.

585,800. APPARATUS FOR CRUSHING, PRESSING, AND CONVEYING FRUIT TO RECEIVING-TANKS. BERNARD TOULOUSE and JOHN DELORIEUX, San Francisco, Cal. Filed Mar. 8, 1897. Serial No. 626,147. (No model.)

Claim.—1. In an apparatus of the character described, a screw, a perforated cylinder in which it revolves, and means at the end of the cylinder for retarding the discharge of the pulp, combined with a revolving device, moving at right angles to the length of the screw, and provided with arms, for catching between the threads of the screw, and preventing the pulp from becoming packed between the blades of the screw, substantially as shown.



2. An apparatus of the character described comprising a crusher, a partly-open perforated cylinder thereunder, a driving or pressing screw in said cylinder, a wheel or disk having blades, paddles, or scoops meshing into the thread of said screw, a stopper adapted to exert a uniform pressure oppositely to the screw, and actuating mechanism, substantially as set forth.
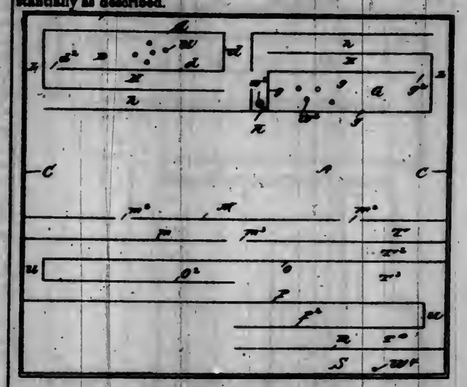
3. In an apparatus of the character described, a driving-shaft, provided with a pulley upon one end, and having a thread upon its surface, a belt passing around the pulley and conveying motion to the shaft, a worm wheel which engages with the thread upon the shaft, and a screw which is operated by said worm-wheel, combined with a sprocket-chain which is operated by a pinion upon the shaft of said screw, crushing-rollers operated by said chain, a hopper, in which the crushing-rollers are placed, a perforated cylinder in which the screw revolves, means for retarding the discharge of the pulp, means for catching the juice which is expelled from the pulp, and a revolving device provided with arms which catch between the blades of the screw and which device is made to revolve in a longitudinal line with the screw, substantially as set forth.

4. In an apparatus of the character described, a revolving screw, a perforated cylinder in which the screw revolves, and means for preventing the pulp from packing between the blades of the screw, combined with the inclosing shell which surrounds the perforated portion of the cylinder, means for retarding the discharge of the pulp from the cylinder, and a pan A^4 placed below the perforated cylinder to catch the juice, substantially as specified.

5. An apparatus of the character described comprising a suitably-supported perforated cylinder, a basin provided with one or more spouts thereunder, a driving or pressing screw arranged to revolve in said cylinder, a crusher discharging unto said screw, a yieldingly-supported stopper exerting a uniform set pressure in opposition to the screw, and means for clearing the screw as it revolves and preventing stoppages, substantially as set forth.

585,801. PUZZLE. IDA R. VANCE, Louisville, Ky. Filed June 11, 1896. Serial No. 595,114. (No model.)

Claim.—As a new article of manufacture a puzzle consisting of a box or casing comprising a bottom board, vertical side and end pieces secured thereto, folds or compartments arranged within the said box or casing by means of vertical partitions adjacent to one side or end of the same, each of said folds being provided at the outer ends of the same with gates or openings, other partitions forming lanes or passages adjacent thereto and opened at the opposite ends, other partitions forming also similar lanes or passages adjacent thereto and opened at either end, and a partition forming a chamber adjacent to the inner end of said first fold or compartment, said chamber opened outwardly, and a passage-way formed entirely around the said folds and compartments and said lanes or passages, and into which the latter open at one end, two longitudinally-extending parallel partitions secured to the side of the box opposite to the said fold or compartments having formed therein two passage-ways, other longitudinal partitions within the casings, one of which being folded upon itself and carried to the left, while the other being folded upon itself and carried to the right, and a longitudinal compartment being formed within the said box or casing, all of said compartments or passage-ways being in communication and a ball or spherical body being manipulated therein, all of the said parts being combined substantially as described.



585,802. TABLE. JAMES R. VARNER, Walnut Shade, Tenn. Filed July 8, 1896. Serial No. 598,473. (No model.)



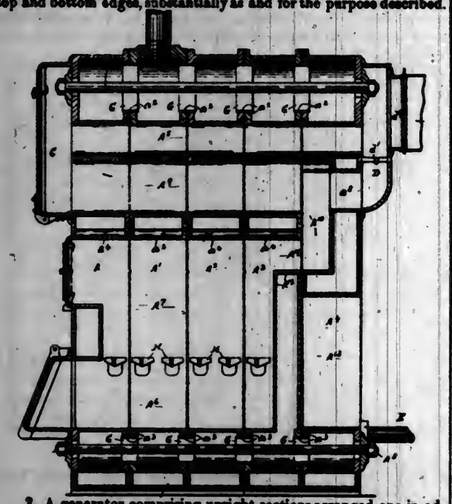
Claim.—1. In a table, the combination with a top mounted upon suitable legs, of an extension having a series of compartments or receptacles therein, doors for closing said compartments, false bottoms operated by said doors and a cap or cover having a flange upon its under side adapted to fit over and surround said extension, substantially as and for the purpose described.

2. The combination with a casing having compartments therein, doors or covers for said compartments, a false bottom slidingly mounted in each of said compartments having a lateral slot therein, a spring for normally urging said false bottom inwardly, a pair of levers fulcrumed on a stationary part of the device and located upon the under side of said false bottom, pins projecting upwardly from one end of said levers and fitting the slot in said false bottom, and cords leading from the other end of said levers around guide-pulleys and fastened to the inside of said door, substantially as and for the purpose described.

585,803. GENERATOR. EDWARD P. WARBURTON, Syracuse, N. Y., assignor to the A. A. Drilling Iron Company, Jersey City, N. J. Filed May 19, 1896. Serial No. 592,217. (No model.)

Claim.—1. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, a number of said sections being provided with top and

bottom walls formed with substantially smooth and continuous or unbroken outer faces having their opposite ends extended toward the longitudinal center of the generator, and substantially flat front and rear walls having their upper and lower portions decreased in width toward their top and bottom edges, said front and rear walls being formed with upper and lower fluid-openings interposed between their top and bottom edges, substantially as and for the purpose described.



2. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, a number of said sections being provided with substantially flat front and rear walls having their upper and lower portions decreased in width toward their top and bottom edges, and formed with upper and lower fluid-openings interposed between their top and bottom edges, connecting-tubes having their opposite ends arranged in adjacent openings, and bolts passed through said tubes and sections substantially as and for the purpose specified.

3. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, a number of said sections being provided with substantially flat front and rear walls having rounding top and bottom portions and upper and lower fluid-openings arranged substantially centrally in the contracted extremities of said rounding portions, the corresponding openings of adjacent sections being connected together, substantially as and for the purpose set forth.

4. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, said sections having their top and bottom walls formed substantially continuous and convex and being provided with substantially flat front and rear walls having fluid-openings in their upper and lower portions, the corresponding openings of adjacent sections being connected together, substantially as and for the purpose described.

5. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers and the ash-pit, said sections having their top and bottom walls formed convex, and being provided with substantially flat front and rear walls having rounding upper and lower portions, and upper and lower fluid-openings arranged substantially centrally in the contracted extremities of said rounding portions, the corresponding openings of adjacent sections being connected together, substantially as and for the purpose specified.

6. A generator comprising upright sections arranged one in advance of the other, and inclosing the combustion and heating chambers and flues extending one above the other through the heating-chamber, a number of said sections being provided with substantially continuous and convex top and bottom walls and substantially flat front and rear walls having their upper and lower portions decreased in width toward their top and bottom edges and formed with upper and lower fluid-openings, substantially as and for the purpose set forth.

7. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, the ash-pit, connected flues extending one above the other through the heating-chamber, and a fire-passage connecting the rear end of the lower flue to the combustion-chamber, a number of said sections being provided with substantially flat front and rear walls having their upper and lower ends decreased in width toward their outer edges and formed with upper and lower fluid-openings, substantially as and for the purpose described.

8. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers and the ash-pit, a number of said sections having the lower extremities of their front and rear walls provided with openings arranged beneath the ash-pit and forming water-passages extending lengthwise of the generator, and water-containing chambers extending upwardly and outwardly in opposite directions from said passages, substantially as and for the purpose specified.

9. A generator comprising upright connected sections arranged one in advance of the other, and inclosing the combustion and heating chambers and the ash-pit, one of the sections being provided with a bridge-wall, and a fire-passage above the bridge-wall, and a number of said sections having the upper and lower portions of their front and rear walls provided with openings forming water-passages extending lengthwise of the generator between its top and bottom walls, the lower openings being arranged beneath the ash-pit, substantially as and for the purpose described.

10. A generator comprising upright connected sections arranged one in advance of the other, and inclosing the combustion and heating chambers, a number of said sections being provided with openings extending therethrough from front to rear above the combustion-chamber said openings having their adjacent ends alined with each other and arranged in close proximity to each other for forming a closed flue extending lengthwise of the generator through the fluid-containing chambers of said sections, one of said sections being provided with a fire-passage depending from one extremity of the flue, and a section next in front of said one of the sections being provided with a hollow bridge-wall, and a fire-passage above the bridge-wall opening into the lower end of the former fire-passage, substantially as and for the purpose specified.

11. A generator comprising upright sections inclosing the combustion and heating chambers and arranged one in advance of the other, a number of said sections having the upper and lower portions of their front and rear walls formed with fluid-openings, and being provided with openings extending lengthwise therethrough from front to rear above the combustion-chamber said latter openings having their adjacent ends alined with each other and arranged in close proximity to each other for forming a closed flue extending lengthwise of the generator through the fluid-containing chambers of said sections, and one of said sections being provided with a fire-passage depending from one extremity to the flue, and connected to the combustion-chamber, substantially as and for the purpose set forth.

12. A generator comprising upright connected sections arranged one in advance of the other and each provided with openings extending therethrough from front to rear one above the other, the adjacent ends of corresponding openings being alined with each other and arranged in close proximity to each other for forming closed flues, one above the other extending lengthwise of the generator, one of said sections being provided with a fire-passage depending from the rear end of the lower flue and connected to the combustion-chamber, and chambers secured to the outer walls of the front and rear sections for connecting the corresponding ends of said flues, substantially as and for the purpose described.

13. A generator comprising upright sections arranged one in advance of the other and having their upper and lower extremities decreased in width toward their top and bottom edges, and the upper and lower portions of their front and rear walls formed with fluid-openings, said sections being provided with openings extending therethrough from front to rear above the lower fluid-openings for forming the ash-pit and the combustion-chamber, and additional openings extending therethrough from front to rear beneath the upper fluid-openings for forming a flue, said flue being connected to the combustion-chamber, substantially as and for the purpose specified.

14. A generator comprising upright sections arranged one in advance of the other and having their upper and lower extremities decreased in width toward their top and bottom edges, and the upper and lower portions of their front and rear walls formed with fluid-openings, said sections being provided with openings extending therethrough from front to rear one above the other beneath the upper fluid-openings for forming flues one above the other extending lengthwise of the generator, one of said sections being provided with a fire-passage depending from the rear end of the lower flue, and chambers secured to the outer walls of the front and rear sections for connecting the corresponding ends of said flues, substantially as and for the purpose set forth.

15. A generator comprising upright sections arranged one in advance of the other and having the upper and lower portions of their front and rear walls formed with fluid-openings, said sections being provided with openings extending therethrough from front to rear above the lower fluid-openings for forming the ash-pit and the combustion-chamber, and additional openings extending therethrough from front to rear beneath the upper fluid-openings for forming a flue, one of said sections being provided with a fire-passage depending from the rear extremity of the flue, and a section next in front of said one of the sections being formed with a hollow bridge-wall, and a fire-passage above the bridge-wall opening into the lower end of the former fire-passage substantially as and for the purpose described.

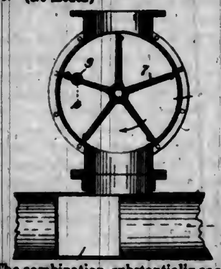
16. A generator comprising upright sections arranged one in advance of the other and having the upper and lower portions of their front and rear walls formed with fluid-openings, said sections being provided with openings extending therethrough from front to rear above the lower fluid-openings for forming the ash-pit and the combustion-chamber, and additional openings extending therethrough from front to rear one above the other beneath the upper fluid-openings for forming flues one above the other extending lengthwise of the generator, one of said sections being provided with a fire-passage depending from the rear extremity of the lower flue, and a section next in front of said one of the sections being formed with a hollow bridge-wall, and a fire-passage above the bridge-wall opening into the lower end of the former fire-passage, and chambers secured to the outer walls of the front and rear sections for connecting the corresponding ends of said flues, substantially as and for the purpose set forth.

17. In a generator, the combination of a base extending lengthwise of the generator, and having a lengthwise groove in its upper face, and upright connected sections mounted upon the base one in advance of the other, and extending downwardly into said groove, substantially as and for the purpose described.

18. In a generator, the combination of a base extending lengthwise of the generator and having its upper surface formed concave in cross-section, and upright connected sections mounted upon the base one in advance of the other and having their bottom walls engaged with the base and formed convex in cross-section, substantially as and for the purpose specified.

19. In a generator, the combination of a base extending lengthwise of the generator and having longitudinal separated bearing-surfaces inclined downwardly toward each other, and upright connected sections arranged one in advance of the other and having their bottom walls extended upwardly in opposite directions from their central portions, and mounted upon the bearing-surfaces, said bottom walls being provided with shoulders engaged with opposite sides of the base and having the central portions depressed beneath said bearing surfaces, substantially as and for the purpose set forth.

585,804. FEEDER FOR GRAIN-TRANSFER SYSTEMS. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed May 5, 1897. Serial No. 635,269. (No model.)



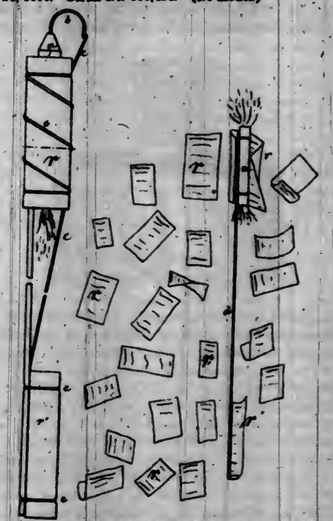
Claim.—1. The combination, substantially as set forth, of a vacuum-chamber, a discharge-pipe, a pipe connection from the base of the vacuum-chamber to said discharge-pipe, a cylindrical feeder-chamber arranged in and forming a part of such pipe connection, and a paddle-wheel arranged for rotation in said chamber and having close connections with the walls thereof.

2. The combination, substantially as set forth, of a vacuum-chamber, a discharge-pipe, a pipe connection from the base of the vacuum-chamber to said discharge-pipe, a cylindrical feeder-chamber arranged in and forming a part of such pipe connection, a paddle-wheel arranged for rotation in said chamber and having close connections with the walls thereof, and an outwardly-opening valve communicating with the interior of said cylindrical chamber.

3. The combination, substantially as set forth, of a vacuum-chamber, a blast-pipe connected with a source of air-pressure and leading to a point of discharge, a pipe connection placing the base of said vacuum-chamber in communication with said blast-pipe between its source of air-pressure and point of discharge, a cylindrical chamber forming a part of said pipe connection, and a paddle-wheel mounted for rotation in said cylindrical chamber and closely engaging the walls thereof.

4. The combination, substantially as set forth, of a vacuum-chamber, a blast-pipe leading from a source of air-pressure to a point of discharge, a divider disposed in said pipe and serving to divide the air-current passing therethrough, a pipe connection from the base of said vacuum-chamber to said blast-pipe at a point beyond said divider, a cylindrical chamber forming a part of said pipe connection, and a paddle-wheel mounted for rotation within said cylindrical chamber and closely engaging the walls thereof.

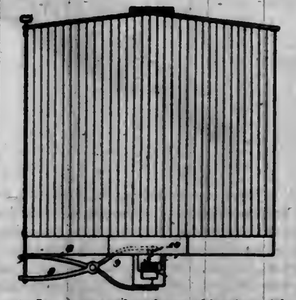
585,805. ROCKET. OTTO WILHELMI, Düsseldorf, Germany. Filed Sept. 21, 1896. Serial No. 606,458. (No model.)



Claim.—1. A rocket provided with a case, a roll of circulars coiled around the same, and a fuse or fuse-string coiled directly around the roll of circulars and adapted to release the same upon ignition, substantially as specified.

2. A rocket provided with a case, a roll of circulars coiled around the same, a second roll coiled around the stick, and a fuse or fuse-string coiled directly around the rolls and adapted to release the same upon ignition, substantially as specified.

585,806. CAR-COUPLING. ROBERT H. WILLIAMS, Powellton, Va., assignor of one-fourth to Edward P. Buford and Frank Buford, Lawrenceville, Va. Filed June 22, 1896. Serial No. 596,637. (No model.)



Claim.—1. In a car-coupler, the combination with a draw-head, a locking-lever fulcrumed therein and a link engaged by a shoulder or projection on said lever, of a pair of release-levers pivoted together at points intermediate of their outer ends, one of said levers secured at its inner end to the under side of said draw-head and the other engaging the rear end of said locking-lever, the said release-levers projecting outwardly to the sides of the car.

2. In a car-coupler, the combination with a draw-head, a locking-lever fulcrumed therein and a link engaged by shoulders or projections on said draw-head and lever, of a pair of release-levers pivoted together at points intermediate of their outer ends, one of said levers secured at its inner end to the under side of said draw-head and the other formed with a tooth or projection thereon engaging the rear ends of said locking-lever, the said release-levers extending outwardly to the sides of the car, substantially as and for the purpose described.

3. In a car-coupler, the combination with a draw-head, a locking-lever fulcrumed therein and a link engaged by a shoulder or projection on said lever, of a pair of release-levers pivoted together at points intermediate of their outer ends, one of said levers secured at its inner end to the under side of said draw-head and the other engaging the rear end of said locking-lever, and a rod or wire secured to the outer end of one of said levers and extending upwardly to the top of the car, substantially as and for the purpose described.

585,807. NON-REFILLABLE BOTTLE. CARRIE H. WOODS, Fort Scott, Kans. Filed Sept. 23, 1896. Serial No. 606,707. (No model.)

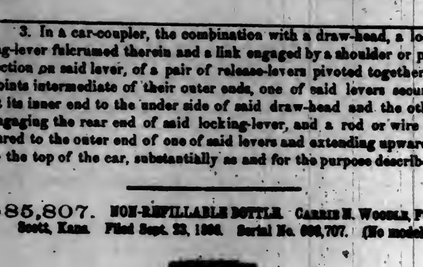


Claim.—1. A bottle having a ring secured to the neck thereof by small connecting-pins, and a sealing-cap secured upon said ring by arms having their end portions situated between said ring and end of the neck of the bottle, substantially as described.

2. A bottle having a ring secured to the neck thereof by small connecting-pins, in combination with a cap having a plurality of stationary arms and a removable arm adapted to be securely locked to said cap, said arms and end portions being situated between said ring and the end of the neck of the bottle, substantially as described.

3. The combination with a bottle having a ring secured thereto by small connecting-pins, of a cap having a plurality of hooked arms, a recess in said cap, a locking device within said recess, and an arm having an engaged end portion adapted to enter said recess, substantially as described.

585,808. MACHINE FOR DRYING TUBES. ROBERT WOOTTON, Birmingham, England, and FRANK L. MIDDLETON, Washington, D. C., ancillary administrator of Benjamin Hewitt, deceased, assignors to the British Tube Company, Limited. Filed Mar. 5, 1896. Serial No. 581,999. (No model.) Patented in England July 22, 1896, No. 13,921.



Claim.—1. In combination, a drying-chamber pivoted at or near its center and having openings at its opposite ends for the introduction and outlet of the material, the hot-air pipe connecting with the filling-opening at one end of the chamber to discharge hot air through said filling-opening directly into the interior of the chamber to impinge upon the material to be dried and the hot-air-discharge pipe leading from the discharge end of the chamber and communicating with the interior thereof, said pipes being adapted when the chamber is swung in one position to inclose the filling and discharge openings and when swung in another position to let said openings be free, substantially as described.

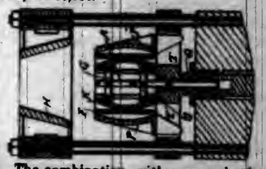
2. In combination, a chamber pivoted at or near its center and arranged to be swung from side to side to be in inclined position, said chamber having an inlet at one end and an outlet at the other end for the material to be dried a supply-pipe and a discharge-pipe for hot air at opposite ends of the chamber and in different horizontal planes, said discharge-pipe being elevated in relation to the supply-pipe whereby the hot air will rise through the chamber and when reversed the ends of said chamber will be out of line with the supply and discharge pipes for the discharge and the renewal of the material to be treated.

585,809. MACHINE FOR MANUFACTURING SEAMLESS STEEL TUBES. ROBERT WOOTTON, Birmingham, England, and FRANK L. MIDDLETON, Washington, D. C., ancillary administrator of Benjamin Hewitt, deceased, assignors to the British Tube Company, Limited. Filed Mar. 5, 1896. Serial No. 582,000. (No model.) Patented in England Mar. 14, 1895, No. 5,390.



Claim.—In combination, the upper and lower rollers, the shaft for the lower rollers, the bearings therefor, the adjusting-screws H' extending axially from the shaft, the blocks J' carrying the adjusting-screws and means for adjusting the bearings and blocks vertically to move the lower roller toward or from the upper roller, said means comprising the wedge with means for moving the same, substantially as described.

585,810. APPARATUS FOR MANUFACTURING WOODEN CASES, BARRELS, &c. JOHANN ARTMEN, Flensburg, Germany. Filed Oct. 1, 1895. Serial No. 564,257. (No model.) Patented in England Sept. 26, 1895, No. 18,006.



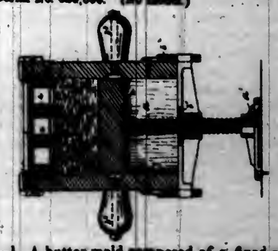
Claim.—1. The combination, with a press having a conical top and provided with a platen having radial guide-slots, of a mold comprised of contractible ribs arranged in a circle, provided with end portions slidable in the said slots, and downwardly and outwardly inclined back portions; a core comprised of expansible sections arranged in a circle and resting on the said platen, and means for expanding the core, substantially as set forth.

2. The combination, with a press having a conical top and provided with a platen having radial guide-slots, of a mold comprised of contractible ribs arranged in a circle, provided with end portions slidable in the said slots, and downwardly and outwardly inclined back portions; a core comprised of expansible sections arranged in a circle and resting on the said platen, a vertical bar slidable in the said platen, and toggle-levers pivoted to the said bar and to the sections of the core, substantially as set forth.

3. In a barrel-press, the combination, with an inner part or core, of an outer part or mold formed of slidable ribs surrounding the core, a guide constraining the said ribs to slide bodily upon a plane at right angles to the axis of the core, and mechanism operating to slide the said ribs toward the core, substantially as set forth.

4. In a barrel-press, the combination, with an inner part or core formed of collapsible segments, and means for holding the said segments expanded while the material is being pressed upon them; of an outer part or mold formed of slidable ribs surrounding the core, a guide constraining the said ribs to slide bodily in a plane at right angles to the axis of the core, and mechanism operating to slide the said ribs toward the core, substantially as set forth.

585,811. BUTTER-MOLD. DE LACY R. BALLAM, Brooklyn, N. Y., assignor to Elias B. Schlesinger, New York, N. Y. Filed Mar. 30, 1897. Serial No. 629,869. (No model.)

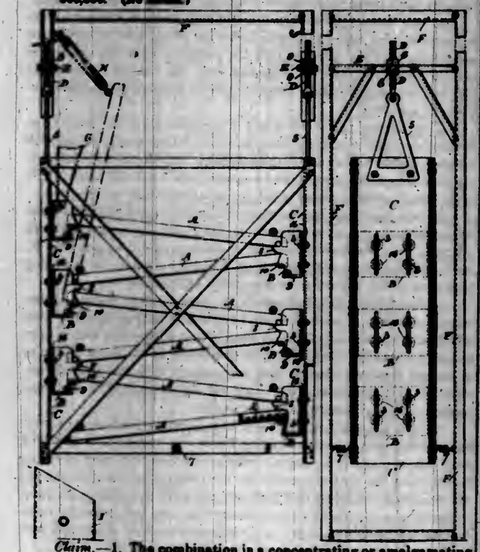


Claim.—1. A butter-mold composed of a fixed screw-standard, a piston-head supported thereon, a cylinder revolubly around the standard, and a mold connected to the cylinder above the piston-head, substantially as specified.

2. A butter-mold composed of a fixed screw-standard, a piston-head supported thereon, a cylinder having guideways and revolubly supported by the standard, and a sliding mold-plate engaging said guideways, substantially as specified.

3. A butter-mold composed of a fixed screw-standard, a piston-head supported thereon, a cylinder having guideways and revolubly supported by the standard, a sliding mold-plate engaging the guideways, and a glass slide above the mold-plate, substantially as specified.

585,812. AMALGAMATOR AND CONCENTRATOR. THOMAS G. BARLOW-MACKENZIE, Manitoba, Ariz. Filed May 7, 1896. Serial No. 590,930. (No model.)



Claim.—1. The combination in a concentrating or amalgamating apparatus, of riffle-plates at opposite inclinations, troughs at the ends of the riffle-plates, end plates to which the troughs are connected and a frame and suspending devices by which the apparatus is hung from the upper ends of the end plates for maintaining the troughs in a level position, substantially as set forth.

2. The combination in a concentrating or amalgamating apparatus, of riffle-plates at opposite inclinations, troughs at the ends of the riffle-plates, end plates to which the troughs are connected and a frame and suspending devices by which the apparatus is hung from the upper ends of the end plates or frame for maintaining the troughs in a level position, and adjusting-screws between the upper ends of the end plates and the supporting-frames for adjusting the apparatus and obtaining uniformity in the inclinations of the riffle-plates, substantially as set forth.

3. In an amalgamator or separator, a series of inclined riffle-plates over which the water and auriferous materials pass, in combination with means for connecting the plates permanently in their proper relative position, and means for suspending the entire amalgamator or separator so that it will assume its proper position by gravity after being moved from one place to another, substantially as set forth.

4. The combination with the riffle-plates in an amalgamating apparatus, of troughs with end plates receiving the ends of the riffle-plates between the ends of the troughs, there being flanges or supports for the lower ends of the upper riffle-plates, the upper ends of the lower riffle-plates resting upon the edges of the troughs, and a tackle or fall for raising the upper ends of the riffle-plates successively and discharging the mercury from the riffles into the troughs, substantially as set forth.

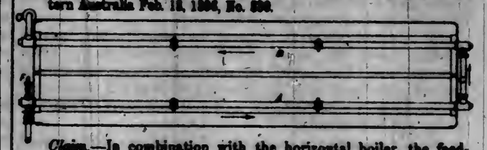
585,818. HOLDER FOR ADJUSTABLE GUARDS FOR EYE-GLASSES. FRANK L. BURROWS, Cranston, R. I., assignor to Charles A. Wilkinson, Warwick, and Dutee Wilcox, Providence, R. I. Filed Apr. 5, 1897. Serial No. 630,734. (No model.)

Claim.—1. The improved holding device for adjustable guards for eyeglasses herein described, consisting of the combination with an eye-rim, of a double-pronged holder, one end extending radially from said rim and the other parallel thereto, and a guard, having a slot near one end and two slots near its opposite end, with which last-named slots, respectively, the prongs of said holder are engageable, a post upon the eye-rim, and a spring and connecting-strap fastened upon said post, the end of said connecting-strap being engageable with the first-mentioned slot of the guard, substantially as specified.



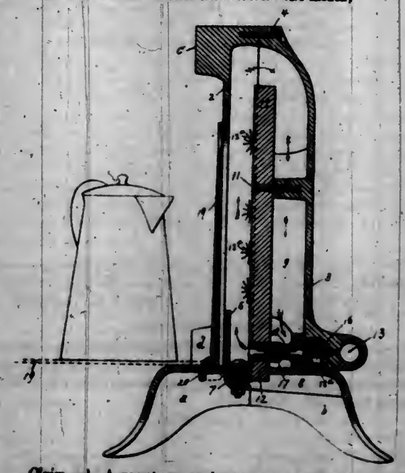
2. In an eyeglass having a pair of eye-rims, a post on each eye-rim, a spring and connecting-straps on said posts with the ends of said connecting-straps bent inwardly, the combination of a bent holder on each eye-rim and made of cylindrical wire, one end or prong thereof extending radially from the eye-rim and the other end or prong thinned and broadened at its extremity and extending parallel with said eye-rim, and two guards, each provided at one end with a slot to receive a bent end of a connecting-strap and provided at the opposite end with two openings, one of which is a round aperture sufficient to receive the first-mentioned prong of the adjacent holder and the other end of which is a round aperture of like diameter with a slot extending longitudinally therefrom sufficient to receive the broadened thinned edge of the other prong of said holder, all arranged and operating substantially as shown and for the purpose specified.

585,814. BOILER FEED-WATER HEATING AND PURIFYING APPARATUS. JAMES R. CARROLL, London, England. Filed Oct. 20, 1896. Serial No. 608,894. (No model.) Patented in England Mar. 6, 1895, No. 4,732; in France Jan. 4, 1896, No. 252,980; in Belgium Jan. 9, 1896, No. 119,464; in Transvaal Jan. 24, 1896, No. 1,054, and in Western Australia Feb. 18, 1896, No. 288.



Claim.—In combination with the horizontal boiler, the feed-water pipes extending longitudinally of the upper part thereof, the inlet-pipe A being on one side and the outlet-pipe B on the other side of the center of the boiler, the cross-tube C connecting the pipes A and B outside the rear end of the boiler, the mud-drum depending from the front or outlet end of the pipe B, the connection from the said mud-drum to the boiler, and the steam-pipe at the front of the boiler connecting the steam-space with the inlet-pipe A whereby said pipe A, the rear cross-pipe C the pipe B, and the mud-drum may be blown out, substantially as described.

585,815. GAS-STOVE. CHARLES H. DERBLER, New York, N. Y. Filed Oct. 10, 1894. Serial No. 525,491. (No model.)



Claim.—1. A gas-stove, or heater, composed of a closed back and open front; an interposed vertical bridge-piece; one or more tubes or conduits leading from the back of the bridge-piece to the front of the stove at or near the base of the bridge-piece, and provided with an opening or openings; one or more gas-tips having their front ends extending into said tubes so as to form Bunsen burners

and lead gas and air directly to the front of the bridge-piece without the intervention of a mixing-chamber: and a gas-supply pipe connected to said gas-tips or burners: whereby, the hot products of combustion rise directly in front of and over said bridge-piece and then descend, entering said burners to be reheated and more perfectly ignited or consumed, substantially as set forth.

2. A gas-stove, or heater, composed of a base: an open front and a closed back: an interposed bridge-piece: one or more tubes or conduits leading from the back of the bridge-piece to the front of the stove, at or near the base of said bridge-piece, and provided with an opening or openings; one or more gas-tips having their front ends extending into said tubes so as to form Bunsen burners and lead gas and air directly to the front of the bridge-piece without the intervention of a mixing-chamber: a gas-supply pipe connected to said burners; and a vertical deflecting-plate or deflector in front of said burners and bridge-piece for the purposes set forth.

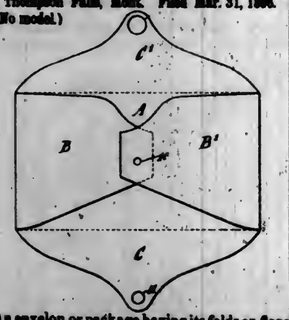
3. A portable gas-stove, or heater, composed of a base; an open front piece; a closed back piece provided with internal vertical ribs, as 9; an interposed bridge-piece resting against said ribs; one or more tubes or conduits leading from the back of the bridge-piece to the front of the stove, at or near the base of said bridge-piece and provided with an opening or openings; one or more gas-tips having their front ends extending into said tubes so as to form Bunsen burners and lead gas and air directly to the front of the bridge-piece without the intervention of a mixing-chamber; and a gas-supply pipe connected to said burners.

4. A portable gas-stove, or heater, composed of a base; an open front and closed back: an interposed bridge-piece: a gas-tip; and a tube surrounding the front of said gas-tip and passing through said bridge-piece to the front of the stove and provided with one or more apertures for the purposes set forth.

5. A portable gas-stove, or heater, composed of a base; an open front and closed back; an interposed bridge-piece; a gas-tip; a tube surrounding the front end of said gas-tip and passing through said bridge-piece to the front of the stove and provided with one or more apertures; and a deflecting-plate or deflector in front of said tube for the purposes set forth.

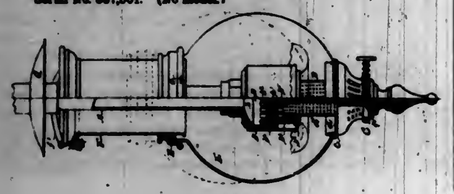
6. In a gas-stove, the combination of the following-named parts: an open front piece, as 2; a closed back piece, as 3 provided with internal ribs, as 9, and a lug, as 10; a vertical bridge-piece as 12, interposed between said front and back pieces; a gas-conduit, as 13; a gas-tip, as 16; a horizontal tube, as 17, surrounding the front end of said gas-tip and leading from the back of said bridge-piece to the front of the stove; and a vertical deflector, as 6, in front of said bridge-piece: for the purposes set forth.

585,816. FASTENING DEVICE FOR ENVELOPS. EDWARD A. GOODCHILD, Thompson Falls, Mont. Filed Mar. 31, 1896. Serial No. 585,584. (No model.)



Claim.—An envelop or package having its folds or flaps provided with graduated openings, adapted to register in the folded condition of the package or envelop, substantially as shown and described.

585,817. LAMP HAVING REGENERATIVE BURNER. THOMAS GORDON and WILLIAM R. SWIFT, New York, N. Y., assignors to the Gordon-Mitchell Gas Lamp Company, same place. Filed Apr. 3, 1891. Serial No. 387,501. (No model.)



Claim.—1. In a lamp, the combination of a regenerative burner, a combustion-chamber, a post extending below the burner and provided with notches at opposite sides, a tooth for engaging with the notches at one side and another tooth for engaging with the notches at the other side, the teeth being located in different planes, substantially as specified.

2. In a lamp, the combination of a regenerative burner, a combustion-chamber, a post extending below the burner and provided with notches at opposite sides, a tooth for engaging with the notches at one side and another tooth for engaging with the notches at the other side, the teeth being rigidly secured together, substantially as specified.

3. In a lamp, the combination of a regenerative burner, a combustion-chamber, a post extending below the burner and provided with notches at opposite sides, a tooth for engaging with the notches at one side, another tooth for engaging with the notches at the other side and a spring, the teeth being located in different planes, substantially as specified.

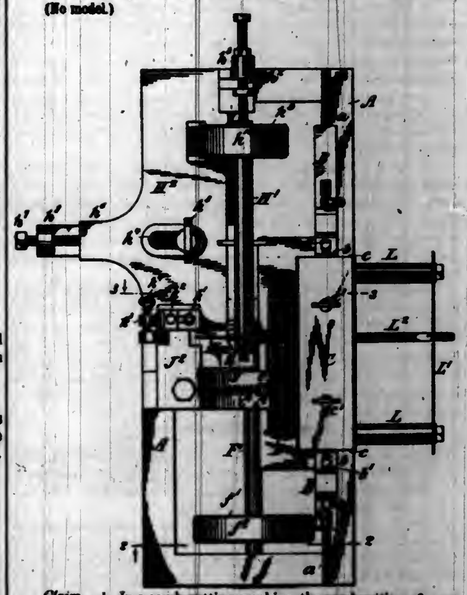
4. In a lamp, the combination of a regenerative burner, a combustion-chamber, a post extending below the burner and provided with notches, a part having a sliding connection with the post for supporting the combustion-chamber and a catch, J, provided with teeth, j', j^2, projecting in different horizontal planes substantially as specified.

5. In a lamp, the combination of a regenerative burner, a combustion-chamber, a waste-flue above the combustion-chamber with which said combustion-chamber has a sliding connection and rods, K, having outwardly-turned lower ends and having hooks for engaging with slots in the waste-flue, substantially as specified.

6. In a lamp, the combination of a regenerative burner, a combustion-chamber, a waste-flue above the combustion-chamber with which said combustion-chamber has a sliding connection and rods or fingers adjustable toward and from the center of the waste-flue so as to assume positions wherein they may engage with the combustion-chamber or positions in which they will not contact with the combustion-chamber, substantially as specified.

7. In a lamp, the combination of a regenerative burner, a combustion-chamber, a post extending below the burner and provided with notches, a part having a sliding connection with said post and constituting the normal support for the combustion-chamber, means for detachably securing said part to said post comprising a detent adapted to engage with the notches on the post and means for holding the combustion-chamber in its elevated position when said part is disengaged from said post, substantially as specified.

585,818. MACHINE FOR MANUFACTURING COMBS. FREDERICK W. GRELL, College Point, N. Y., assignor to the India Rubber Comb Company, same place. Filed Oct. 27, 1896. Serial No. 610,204. (No model.)

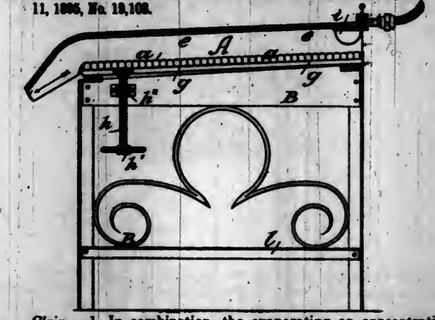


Claim.—1. In a comb-cutting machine, the combination of a cutter, a support for a comb-blank, means for reciprocating the support toward and away from the cutter, devices for intermittently feeding the comb-blank and its support longitudinally, and means independent of said feeding devices acting through the comb-blank for causing a relative movement between the comb-blank support and the cutter in the direction of the length of the blank, substantially as described.

2. In a comb-cutting machine, the combination of a cutter, a support, a holder for a comb-blank carried upon the support and capable of longitudinal movement thereon, means for reciprocating the support and its holder toward and away from the cutter, devices for intermittently feeding the support and comb-blank holder longitudinally, and means independent of said feeding devices acting through the comb-blank for causing the longitudinal movement of the comb-blank holder upon its support, substantially as described.

3. In a comb-cutting machine, the combination of a cutter, a support for a comb-blank, means for reciprocating the support toward and away from the cutter, devices for intermittently feeding the comb-blank and its support longitudinally, and means independent of said feeding devices adapted to act through the comb-blank by engaging the grooves therein to cause a relative movement between the comb-blank support and the cutter in the direction of the length of the blank, substantially as described.

585,819. EVAPORATING APPARATUS. ARTHUR M. HUGILL, JOHN OVERTON, and ROBERT H. GATLEY, Liverpool, England. Filed Aug. 10, 1896. Serial No. 602,240. (No model.) Patented in England Oct. 11, 1895, No. 19,103.



Claim.—1. In combination, the evaporating or concentrating tray, the floor of which is composed of straight D-shaped tubes with rounded backs, laid closely together so as to present a corrugated surface and communicating with each other at alternate ends, the said ends being closed by interlocking plates; substantially as described.

2. In combination, an evaporating pan, the floor of which is composed of a number of straight D-shaped tubes with rounded backs, said tubes communicating with each other at alternate ends, the said ends being closed by interlocking plates, the pan being furnished with a liquid strainer and distributer at the feed end, and exit-orifice at the delivery end, and mounted and hinged to a stand, with means for adjusting the pan to a suitable angle; substantially as described.

3. A tray made up of a series of transverse tubes having notches at their ends, and locking-plates fitting in the ends of the tubes and notches to close the tubes and lock them together, substantially as described.

585,820. BOX-COVERING MACHINE. HORACE INMAN, Amsterdam, N. Y. Filed Dec. 11, 1896. Serial No. 615,267. (No model.)

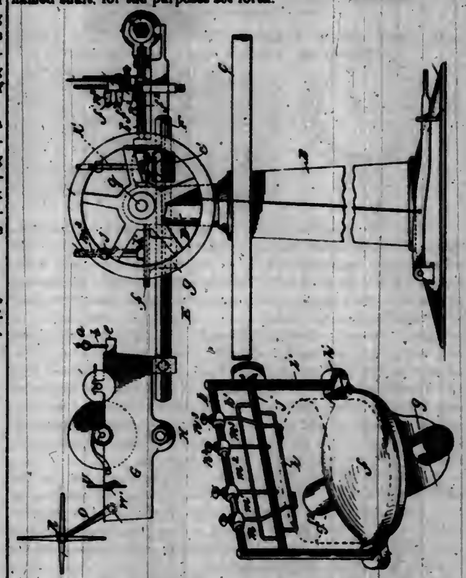
Claim.—1. In a box-covering machine, the combination of a single pillar or standard, a longitudinally-extending rod mounted thereon, upon which the several operative parts are supported, and driving mechanism mounted on the top of said pillar, for the purposes set forth.

2. In a box-covering machine, the combination of a single pillar or standard, a longitudinally-extending rod mounted thereon and movable relative thereto, upon which the several cooperative parts are supported, and driving mechanism mounted on the top of the pillar, for the purposes set forth.

3. In a box-covering machine, the combination of a single pillar or standard, a longitudinally-extending rod mounted thereon, a glue-pan, paper-guiding and paper-cutting devices, all mounted upon said rod and adjustable thereon, a revolving box-form and driving mechanism mounted on the top of said pillar transversely of said rod, for the purposes set forth.

4. In a box-covering machine, the combination of a single pillar or standard, a longitudinally-extending rod mounted thereon, a glue-pan and paper-guiding devices mounted on said rod, a laterally-extending arm supported upon said rod which carries paper-cutting mechanism, and a rotary box-form, for the purposes set forth.

5. In a box-covering machine, the combination of a suitable standard or base, a longitudinally-extending rod mounted thereon, a glue-pan and paper-cutting devices mounted on said rod, a laterally-extending arm supported upon said rod, a rotary shaft supported upon the outer end of said arm, cutting mechanism and a box-form actuated by said shaft, and a cross driving-shaft which actuates said first-named shaft, for the purposes set forth.



6. In a box-covering machine, the combination of a suitable standard or base, a longitudinally-extending rod mounted thereon, a glue-pan and paper-guiding devices mounted upon said rod, a laterally-extending arm supported upon said rod, a rotary shaft adjustably supported on the outer end of the arm, cutting devices and a box-form actuated by said shaft, and a cross driving-shaft which actuates said first-named shaft, for the purposes set forth.

7. In a box-covering machine, two independent, elastic, supporting devices for the paper, located adjacent to the cutting mechanism, one above and one below the paper, and adapted to yield under its pressure, for the purposes set forth.

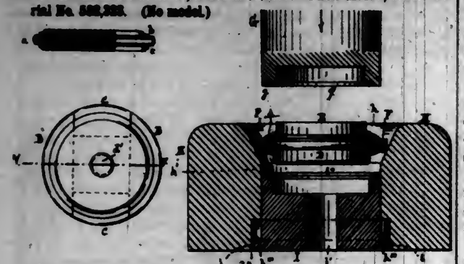
8. In a box-covering machine, driving mechanism comprising a belt-wheel loosely mounted upon a shaft, the hub of which is provided with a circular series of teeth, a pawl connected to the shaft and adapted to engage with said teeth, a movable pin located adjacent to said hub and adapted to throw the pawl into and out of said series of teeth, a latch to hold said pin in its retracted position, and a pin on the shaft to trip the latch, for the purposes set forth.

9. In a box-covering machine, the combination of a driving-wheel, the hub whereof is provided with a circular series of teeth or projections, a spring-actuated pawl upon the shaft adapted to engage said teeth, a sliding pin located adjacent to the said pawl and adapted to throw it into and out of engagement with the said teeth, a latch to hold the pin in its retracted position, and another pin upon the shaft adapted to trip the latch, the whole being so arranged that the mechanism is automatic and beyond the control of the operator, for the purposes set forth.

10. In a box-covering machine, a chuck for the box-form, comprising two parts movably connected together by a pin mounted on a spring which is attached to one of the parts, and which passes transversely through it and engages with an opening in the other part, a stationary device which engages with the spring upon the revolution of the clutch and automatically retracts it, means whereby the parts then have limited rotary movement relative to each other, and other means to return the parts to their primary position, for the purposes set forth.

11. In a box-covering machine, a counter-shaft for the support of the box-form, a two-part clutch on said counter-shaft, one part rigid therewith, and the other movable, a spring attached to the rigid part, a pin carried by the spring which passes transversely through the rigid part and engages with an opening in the movable part, another pin carried by the clutch which engages with a movable stop on the frame, a cam carried by the counter-shaft, which in the revolution of the machine depresses said movable stop, and means to automatically return the parts to their primary position, for the purposes set forth.

585,821. DEVICE FOR MANUFACTURING WATCH-RIM CENTERS. BENJAMIN P. KENT, Providence, R. I. Filed Mar. 9, 1896. Serial No. 582,393. (No model.)

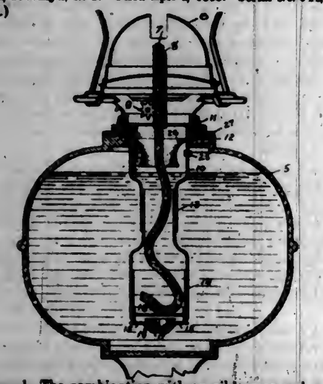


Claim.—1. In mechanism for making watch-rim centers, the combination of a die-block, having a tubular bore, which is provided with flaring or tapering sides at its top, opening outwardly, a die mounted in the die-block in the tubular portion thereof, dies adapted to receive on their edges and to support thereby the interior portions of a metallic annular blank, concavo-convex in cross-section, a plunger, whose end is fashioned into a die and adapted to cooperate with the die first aforesaid to shape said blank, and a split-ring die, adapted to surround and form the bead or central, peripheral part of the watch-rim center on the exterior of the latter, and having its ends normally spread apart, and its edge supported on the tapering sides of the bore of said die-block, but movable along said tapering sides by means of said plunger, and closable by said movement, substantially as shown and for the purpose specified.

2. The split-ring die F, herein described, having its ends *m* normally spread apart, but closable by an inwardly-directed lateral pressure, and provided with an ornamental configuration on its interior surface, together with means adapted to close said ring-die upon a blank therein and to impart by such closure its configuration reversely to said blank, substantially as specified.

3. The combination of the segmental dies B, B, and the dies C, C, having each an arc-shaped edge and three plane sides and arranged within said annular blank so that their curved edges form a true circle and their plane sides opposite said curved edges, respectively, are arranged to leave a central square aperture, a block D having a central square hub *d*, adapted to fill said aperture and provided with a screw-threaded boss *d'*, and a circular nut E, engageable with said boss *d'*, all combined as shown and adapted to shape the interior surface of an annular blank, the split-ring die F, having its ends *m* normally spread apart and arranged to surround said annular blank on the periphery thereof but closable by an inwardly-directed lateral pressure and having its interior surface made with an ornamental configuration to constitute a die-face, which is adapted by said closure to impart said configuration reversely to said blank, together with means for closing said die, substantially as shown.

585,822. OIL-BURNER. ALFRED L. LARWILL and FRANK R. SMALL, Brooklyn, N. Y. Filed Apr. 4, 1895. Serial No. 544,423. (No model.)



Claim.—1. The combination with an oil-burner and a reservoir containing oil of a wick-chamber, a valve having a transverse as well as a to-and-fro motion with reference to its seat moving on a plane inclined thereto interposed between said wick-chamber and said reservoir, the valve being constructed and arranged to automatically close when the lamp is laid horizontally and to automatically open when the lamp returns to its normal position.

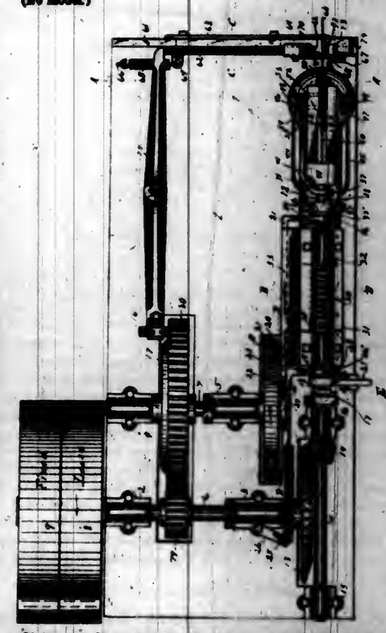
2. The combination with an oil-burner and a reservoir containing the oil, of a chamber in valved communication with said reservoir the valve of said chamber being constructed and arranged to automatically close when the lamp is tipped, a wick contained in said chamber and a flange forming a pocket when the reservoir is overturned.

3. The combination with an oil-burner of a reservoir containing the oil, of a chamber in valved communication with said reservoir, said chamber being of diminished section where submerged in the oil and of enlarged section above and the valve of said chamber being constructed and arranged to automatically close when the lamp is tipped.

4. The combination with an oil-burner and a reservoir containing the oil, of a chamber adjustable in length, in valved communication with said reservoir the valve of said chamber being constructed and arranged to automatically close when the lamp is tipped.

5. The combination with an oil-burner and a reservoir containing oil, of a wick-chamber, a flange forming a pocket when the reservoir is overturned and a wick-tube within said flange smaller in width than the width of the wick so that the latter is doubled or curved therein.

585,823. MACHINE FOR FORMING HOOKED HEADS ON WIRE BALE-TIES. GEORGE LEHERBER, Joliet, Ill., assignor to the Kilner Bale Tie Company, Chicago, Ill. Filed Aug. 3, 1896. Serial No. 601,500. (No model.)



Claim.—1. In a machine for forming hooked heads on the end of wire bale-ties, the combination of the twister-head 41, 42, 43 and its shaft 12, reciprocating former 53, 53', oscillating arm 51 having the sheave-wheels 52, oscillating hooked arm 50, cam-arm 56 operated by said arm, shafts 48, 49, sliding head 36, connecting-rods 44, 45, lever 40, spring 55, the means for rotating said shaft 12, and the rise mechanism for holding the bale-wire while being twisted, all arranged to operate substantially as and for the purpose set forth.

2. In a machine for forming hooked heads on the end of wire bale-ties, the combination of the twister-head 41, 42, 43 and its shaft, the former-block 53, 53' arranged to reciprocate in a transverse box in arm 43, the wire-bending arms 50, 51, 56, and the means for rotating said head and for operating said wire-bending arms and cam, and for operating said former-block, all arranged to operate substantially as and for the purpose set forth.

3. In a machine for forming hooked heads on wire bale-ties, the combination of the shaft 12, the twister-head 41, 42, 43 secured on its outer end and having the means for bending the bale-wire around the former 53', clutch-head 18 feathered on the inner end of said shaft, collar 29 secured on said shaft, coil-spring 30 sleeved on said shaft and bearing against the forward side of said collar, driven shaft 10 arranged in line with shaft 12 and having the matching clutch-head 17 for engaging clutch 18, shaft 7 having cam 24, slide 20 for engaging clutch-head 18, coil-spring 25, the stop mechanism 27, 28, and the vise mechanism for holding the bale-wire while being twisted, all arranged to operate substantially as and for the purpose set forth.

4. In a machine for forming hooked heads on the ends of wire bale-ties, the combination of a forked head secured on the end of an intermittently-rotating shaft, a former-block arranged in a suitable box in one of said forks or arms in such manner as to reciprocate across the space between them, the bending-arms and cam-arm for bending the end of the bale-wire around said former, the means for operating said bending-arms and former-block and for holding the return end of the bale-wire with the body-wire while being twisted together, all arranged to operate substantially as and for the purpose set forth.

585,824. WASHBOARD. MARSHALL B. LLOYD, Minneapolis, Minn., assignor to the White Manufacturing Company, same place. Filed Aug. 19, 1895. Serial No. 559,762. (No model.)

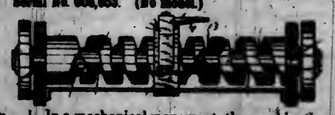


Claim.—1. The combination of the washboard-frame with a transversely-corrugated washing-surface therefor, comprising a series of coiled or crimped wires arranged longitudinally upon said frame, said wires being pressed together laterally or transversely of the coils and suitably fastened, substantially as described.

2. A washboard fabric comprising a series of coils interlocked and pressed or collapsed together laterally of the coils, adjacent coils occupying different longitudinal positions whereby alternately deep and shallow grooves or corrugations are formed, and means for fastening the coils together in the collapsed condition.

3. A washboard fabric, comprising a series of coils interlocked and pressed or collapsed together, laterally of the coils, and means for fastening the coils together in the collapsed condition, for the purpose set forth.

585,825. REVERSIBLE-SCREW MECHANICAL POWER. BENJAMIN F. MARTINDALE and FRANKLIN B. MARTINDALE, Wichita, Kans., assignors of one-half to Rudolph Hatfield, same place. Filed Sept. 28, 1896. Serial No. 606,653. (No model.)

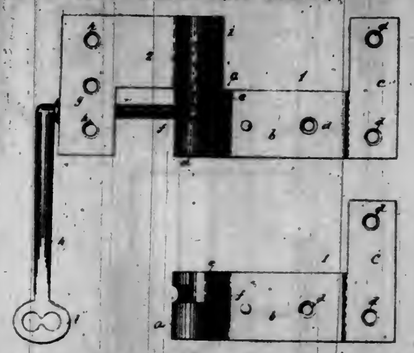


Claim.—1. In a mechanical movement, the combination of a cylinder having two threads circumscribing said cylinder in opposite directions, said threads being of different depths, the deeper of said threads having an incline at each end, and terminating the same, connecting it with the shallower thread, a nut adapted to alternately travel in each of said threads, and a sliding head-block adapted to yieldingly hold said nut in said threads.

2. In a mechanical movement, the combination of a cylinder having two threads circumscribing said cylinder in opposite directions and at different degrees of angle, said threads being of different depths, the deeper of said threads having an incline at each end, and terminating the same, connecting it with the shallower thread, a head-block adapted to move laterally from end to end on said cylinder, a nut yieldingly secured to said head-block, and adapted to ride in each of said threads, and means for guiding said nut from one to the other of said threads.

3. In a mechanical movement, the combination of a cylinder having two threads circumscribing said cylinder in opposite directions, and at different degrees of angle, said threads being of different depths, the deeper of said threads having an incline at each end, and terminating the same, connecting it with the shallower thread, a head-block sleeved on said cylinder and adapted to move laterally, a nut having a standard, a coil-spring sleeved on said standard for yieldingly holding said nut in said threads.

585,826. BLIND-HINGE. GEORGE W. MERRIAM, Boston, Mass. Filed Mar. 22, 1895. Serial No. 542,532. (No model.)
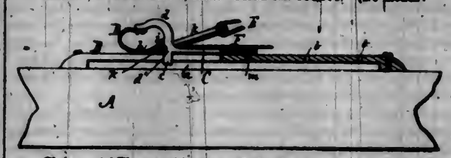


Claim.—1. A hinge comprising in its construction the member 1 composed of sheet metal and having a portion bent to form a socket *c*, and a member 2 also formed of sheet metal and bent to form a hollow pintle split or cloven, as described, and means for expanding the pintle in the socket.

2. A hinge comprising in its construction the member 1 composed of sheet metal and having a portion bent to form a socket *c*, and the member 2 also formed of sheet metal and bent to form a hollow pintle split or cloven, as described, and a key having its inner end cam-shaped and adapted to operate in the pintle to expand the same.

3. A hinge composed of the member 1 having the socket *a* provided with the slots *e f*; the member 2 having the hollow cloven pintle *i*, and the key provided on its inner end with a cam-shaped end or bit adapted to operate in the pintle to expand the same with its shank adapted to move in the slots *e f*, as set forth.

585,827. HOLDBACK ATTACHMENT FOR VEHICLES. JAMES MERRILL, Parma, N. Y., assignor of one-half to Michael Merrill, Newark, N. Y. Filed Dec. 7, 1896. Serial No. 614,891. (No model.)



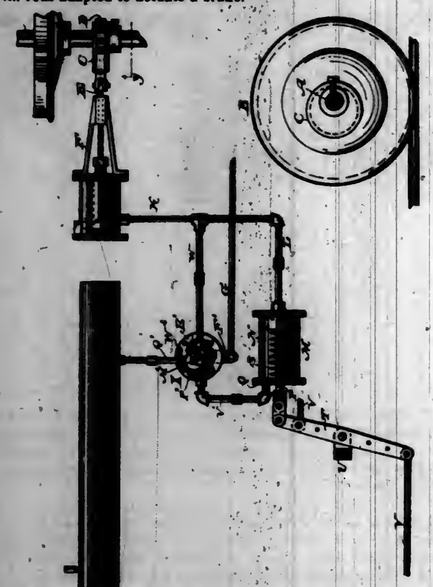
Claim.—1. The combination of the base-plate B provided with the holes *b b*, the slide C resting and moving thereon, the spring F attached to the slide and provided with a pin *m* for allowing adjustment of the slide, and the spring D attached to the slide curving around rearwardly and bearing on the holdback-ring when in place, as herein shown and described.

2. In a holdback consisting of a base-plate, a slide resting thereon, and a spring with a pin for producing adjustment of the slide, the combination, with the hook *d* of the slide, of the curved spring D, its end reaching back to the hook and its body touching the base-plate, the same capable of inclosing the ring of the holdback strap and holding it tightly in place, as herein shown and described.

585,828. FLUID-PRESSURE BRAKE. HARRY O. MÜLLER, Philadelphia, Pa., assignor to John H. Reyburn, same place. Filed Apr. 10, 1896. Serial No. 586,970. (No model.)

Claim.—1. In a fluid-pressure brake system, means for compressing air, a controlling-valve, a brake-cylinder, pipes leading from said means to said valve, and to an end of said brake-cylinder, a pipe leading from the other end of the latter to said valve, whereby air from the latter is caused to impact against the brake-piston and accelerate its return movement, one end of said brake-cylinder having an apertured head, and a spring intermediate said brake-piston and head.

2. In a fluid-pressure brake system, a brake-cylinder, means for compressing air or other fluid, pipes leading from said means to a controlling-valve, and to one end of said brake-cylinder, connections from said valve to the other end of said brake-cylinder, a safety-valve mounted on the casing of said first-mentioned valve, and connections from said safety-valve to a storage-reservoir, in combination with rods adapted to actuate a brake.



3. In a fluid-pressure brake system, the herein-described controlling-valve, comprising a casing, a partition therein, a valve-disk seated in said partition, ports in the latter and said disk adapted to be in alinement, a chamber above said disk, a conduit therefrom leading to an air-pump and one end of the brake-cylinder, and a chamber below said partition leading to the other end of said brake-cylinder, in combination with connections adapted to lead to the brake mechanism.

4. In a fluid-pressure brake system, a controlling-valve consisting of a casing, a partition therein, a disk seated on said partition, ports in the latter and said disk adapted to be in alinement, a dog mounted on said disk and adapted to contact with a projection on a safety-valve located above said disk, a conduit from the chamber above said safety-valve leading to a storage-reservoir, and pipes leading from above and below said diaphragm to the ends of the brake-cylinder, in combination with an air-pump.

5. In a fluid-pressure brake system, a controlling-valve, an air-compressor, a brake-cylinder, a safety-valve attached to the casing of said controlling-valve, a partition in said valve-casing forming upper and lower chambers, and means for causing a communication between said chambers, the ends of the brake-cylinder and said compressor.

6. In a fluid-pressure brake system, an air-compressor, a controlling-valve, a valve-disk therein, a storage-tank, connections from the latter to said valve, a brake-cylinder, connections common to said air-compressor, valve and brake-cylinder, a piston in the latter, a piston-rod passing through an apertured head in said cylinder and adapted to actuate the brake mechanism, a spring intermediate said piston and head, a spring-pressed safety-valve mounted above said valve-disk, and means for mechanically unseating said safety-valve.

7. In a fluid-pressure brake system, a valve-casing having upper and lower chambers, connections therefrom to an air-compressor, and a brake-cylinder, a safety-valve communicating with said upper chamber, a connection leading therefrom to a storage-reservoir, and means for mechanically unseating said safety-valve.

8. In a fluid-pressure brake system, a valve-casing having a partition therein forming upper and lower chambers, a port or ports in said partitions for exhausting the compressor and brake-cylinder, a valved connection to a storage-reservoir, a valve-disk controlling said ports, and means actuated by said valve-disk, for operating an emergency stop, the fluid-pressure being conveyed to the brake-cylinder by closing said valve.

9. In a fluid-pressure brake system, a storage-reservoir, normally out of communication with the air-pumping mechanism, a controlling-valve, an apertured partition within the casing of the latter, dividing the interior into upper and lower chambers, means for controlling the passage of air through said partition, a connection intermediate said reservoir and upper chamber, a valve located in said connection, and means for operating said valve.

10. In a fluid-pressure brake system, a storage-reservoir, a controlling-valve, an apertured partition within the casing of the latter, dividing the interior into upper and lower chambers, means for controlling the passage of air through said partition, a valved connection intermediate said reservoir and upper chamber, means for forcing air into said upper chamber, and for causing the application of the brake mechanism, and means for conducting any excess of air to said reservoir.

11. In a fluid-pressure brake system, a valve-casing having a partition therein, forming upper and lower chambers, an air-compressor operated from the car-axle, connections from said compressor to one of said chambers, ports in said partition for exhausting the compressor and brake-cylinder, and a valve-disk controlling said ports, in combination with means actuated by said disk for operating an emergency stop, the fluid-pressure being conveyed to the brake-cylinder by closing said valve.

12. In a fluid-pressure brake system, a controlling-valve, a casing therefor, a partition within the same dividing the interior into upper and lower chambers, a storage-reservoir, a connection from the latter to one of said chambers, a safety-valve in said connection, ports in said partition, a disk controlling said ports, a brake-cylinder, a connection intermediate the latter and said controlling-valve, and means common to said disk and safety-valve for unseating the latter.

13. In a fluid-pressure brake system, a brake-cylinder, a piston therein, connections from said piston to the brake mechanism, an air-compressor, a controlling-valve, conduits common to said compressor, valve and one end of said cylinder, the other end of the latter being provided with an apertured head, a spring intermediate the latter and said piston, a conduit intermediate said controlling-valve and head, means for causing a partial stoppage of a car, and means for effecting an emergency stop.

14. In a fluid-pressure brake system, a reservoir, a valve-casing, a disk within the same, having a dog attached thereto, a conduit intermediate said reservoir and valve-casing, and a safety-valve located in said conduit, said safety-valve having a boss thereon, with which said dog is adapted to contact.

15. In a fluid-pressure brake system, an air-compressor, a controlling-valve, a casing therefor, a brake-cylinder, a pipe leading from said compressor to said valve-casing and cylinder, a reservoir and a pipe leading therefrom to said casing, in combination with means for effecting the emergency stop by closing said valve.

16. In a fluid-pressure brake system, an air-compressor, a valve, a casing therefor, a brake-cylinder, a storage-reservoir normally removed from direct connection with said compressor and suitable connections therebetween, in combination with means for effecting an emergency stop, by closing said valve, and means for effecting a partial stoppage of a car.

17. In a fluid-pressure brake system, a storage-reservoir normally out of communication with the air-pumping mechanism, a valve-casing, a connection from the latter to said reservoir, a valve within said casing, means for conveying any excess of pressure to said reservoir, and means for applying a brake, by closing said valve.

18. In a fluid-pressure brake system, a storage reservoir normally out of communication with the air-pumping mechanism, a valve-casing, a connection from the latter to said reservoir, a valve within said casing, and means for applying a brake, by closing said valve.

19. In a fluid-pressure brake system, a controlling-valve, a casing, an air-compressor, a brake-cylinder, a partition in said valve-casing, forming upper and lower chambers, and means for causing a communication between said chambers, an end of the brake-cylinder and said compressor in combination with means for effecting an emergency stop, and means for effecting a partial stoppage of a car.

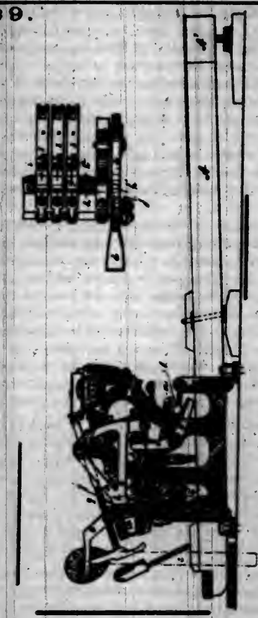
585,829. PIANO-ACTION. ADAM HICKEL, New York, N. Y. Filed Apr. 5, 1897. Serial No. 630,707. (No model.)

Claim.—1. A piano-action provided with means for changing the leverage and reach of the action, and means for simultaneously exerting a downward tension on the action upon the depression of the soft pedal, so as to maintain a uniform stroke of the key, substantially as specified.

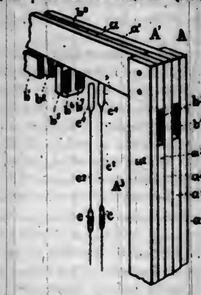
2. A piano-action provided with a rock-shaft adapted to be actuated by the soft pedal and with a spring adapted to be engaged by the rock-shaft, and to increase the tension of the action upon a depression of the soft pedal, substantially as specified.

3. A piano-action provided with a wippen, a spring extending rearwardly therefrom, a flanged rock-shaft, means for increasing the reach of the action, and means for simultaneously rocking the rock-shaft to engage or disengage the spring, substantially as specified.

585,829.



585,830. HEDDLE-FRAME. CHARLES H. NIEMEYER, Malden, Mass. Filed Feb. 1, 1897. Serial No. 621,404. (No model.)



Claim.—In a loom, the harness-frame composed of the top and bottom, A', A^2, each formed of two thin strips, a, a', the sides, A^3, each formed of the five thin strips, a^2, a^3, a^4, a^5 and a^6, all secured together as set forth and so arranged as to leave the apertures, b^2, b^4, in combination with the rods, b', b^3, passing through said apertures, and the heddles supported by said rods, substantially as and for the purpose set forth.

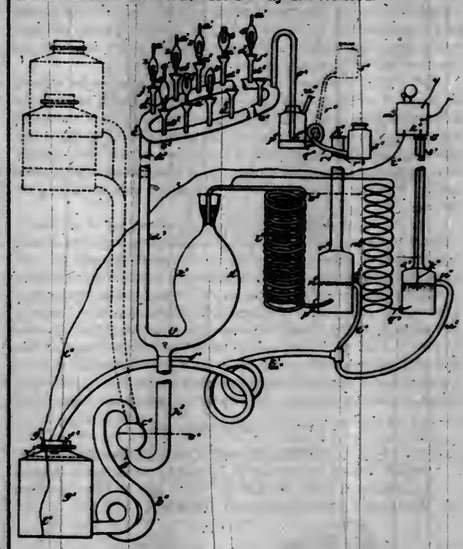
585,831. GAS-EXHAUSTING APPARATUS. JOHAN W. TH. OLÄN, New York, N. Y. Original application filed Mar. 13, 1893. Serial No. 465,761. Divided and this application filed June 5, 1897. Serial No. 639,573. (No model.)

Claim.—1. The combination with the vacuum-chamber, of a tube communicating with the base of said chamber and leading to the lamps to be exhausted, a tube likewise communicating with said base, said tube being bent at its lower end and widened to form a barometric well, and being of a length sufficient to contain a barometric column of the liquid employed, and a liquid-receptacle open at the top and connected to the bent-up end of the tube; substantially as described.

2. The combination with the vacuum-chamber, of a liquid-reservoir, a barometric tube and well leading from the base of the vacuum chamber, and opening into the base of the reservoir, a second barometric column and well leading from the top of the vacuum-chamber, and a return-conduit leading from the second well to the top of the reservoir.

3. An exhausting apparatus, having an air-outlet port provided with a barometric seal, said seal being contained within a vessel of a height sufficient to contain a barometric column of the liquid employed.

4. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, and a spiral tube leading from the top of the vacuum-chamber and having a liquid barometric seal at its end; substantially as described.



5. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, a tube leading from the top of the vacuum-chamber and having a barometric liquid seal at its end, and a return-conduit from said barometric liquid seal said return-conduit leading into the top of said liquid-receptacle into an air-space above the mercury-level therein; substantially as described.

6. The combination with the vacuum-chamber, of a liquid receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, and a tube of gradual descent leading from the top of the vacuum-chamber and having a barometric liquid seal at its end; substantially as described.

7. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, a tube leading from the top of the vacuum-chamber and having a barometric liquid seal at its end, and an additional tube of smaller size also communicating with the top of the vacuum-chamber and having a barometric liquid seal at its end; substantially as described.

8. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, a tube leading from the top of the vacuum-chamber and having a barometric liquid seal at its end, and an additional tube of smaller size also communicating with the top of the vacuum-chamber and having a barometric liquid seal at its end, and return-conduits from both of said barometric seals to the liquid-receptacle; substantially as described.

9. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, a tube leading from the top of the vacuum-chamber and having a barometric liquid seal at its end, and an additional tube of smaller size also communicating with the top of the vacuum-chamber and having a barometric liquid seal at its end both of said liquid barometric seal tubes being of gradual descent; substantially as described.

10. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, and a tube of gradual descent leading from the top of the vacuum-chamber and having a barometric liquid seal at its end, and an additional tube of smaller size also communicating with the top of the vacuum-chamber and having a barometric seal at its end, both of said liquid barometric seal tubes being spiral; substantially as described.

11. The combination with the vacuum-chamber, of a liquid-receptacle communicating with its base, a tube likewise communicating with said base and leading to the lamps to be exhausted, a tube leading from the top of the vacuum-chamber and having a liquid baro-

metric-seal at its end, and an electric annunciator one of whose terminals is connected with the liquid in the seal and the other with the liquid in the said receptacle; substantially as described.

12. The combination with the exhausting-apparatus for a group of lamps, of a tube for supplying gas to drive out the air from the lamp-bulbs prior to the exhausting operation, a well into which said tube extends and a liquid-supply receptacle communicating with said well whereby said tube may be barometrically sealed after the gas has been admitted; substantially as described.

13. The combination with the exhausting apparatus for a group of lamps, of a tube for supplying gas to drive out the air from the lamp-bulbs prior to the exhausting operation, a well into which said tube extends and an upwardly and downwardly movable liquid-supply receptacle communicating with the bottom of said well whereby on raising the supply-receptacle the tube will be barometrically sealed and on lowering it the tube will be unsealed; substantially as described.

14. In an exhausting apparatus the combination of a vessel g^3 adapted to be moved up and down and hermetically communicating from its bottom with a flexible tube b^4, said tube b^4 hermetically communicating from above with a chamber c^4 of a tube h^3, the length of which between lines f^3 and c^4 as shown, corresponds to a barometer-column of a liquid used in the apparatus, h^3 communicating hermetically through a tube d^3 with one or more lamp-globes to be evacuated as well as with the lowest portion of a vessel h^2, said vessel h^2 hermetically communicating from its top with vessels r^2 and s^2 and said vessels r^2 and s^2 communicating through outlets, as shown, and tubing t^2 and u^2 with the air-space v^2 of vessel g^2, substantially as described.

585,882. MACHINE FOR SETTING BUTTONS OR EYELETS. EUGENE PRINDLE, Gloversville, N. Y., assignor to Madison D. Shipman and Charles E. Bradt, De Kalb, Ill. Filed Apr. 20, 1896. Renewed Jan. 30, 1897. Serial No. 621,349. (No model.)



Claim.—1. A setting tool or mandrel for machines of the class described, consisting of a pin having an enlargement or shoulder back of its point for receiving and supporting the tubular or clenching end of an eyelet and for carrying it through the material, said enlargement or shoulder also formed to turn or clench the eyelet, as described.

2. In a button or eyelet setting machine, the combination of a resisting-anvil to back the eyelet or button member, and a coacting mandrel having an extremity adapted to enter the opening in said member, and provided with an enlarged periphery, as compared with said extremity, to receive the open end of the shank of said member and guide it through the fabric, and a movable anvil surrounding said mandrel and adapted to clench said member, substantially as and for the purpose described.

3. In a button or eyelet setting machine, the button or eyelet supporting piece and an elastic eyelet-mandrel having a clench-starting shoulder or enlargement below its receiving-point and a sleeve-form anvil surrounding the mandrel, substantially as and for the purpose set forth.

4. In a button or eyelet setting machine, the combination, with the button or eyelet head-piece, of a double or compound eyelet or button set consisting of a shouldered elastic mandrel, and an anvil through which the mandrel works, whereby the clench of the eyelet or button-shank is started on said mandrel and completed on said anvil, substantially as and for the purpose set forth.

5. In a machine for setting buttons or eyelets, the combination of the following elements: the set or piece for supporting the head end of the eyelet or button, a washer-supporting piece or anvil capable of movement toward the eyelet or button supporting piece and having a central perforation and provided with an annular surface which borders the outer end of said perforation, and the elastic eyelet-mandrel working in the perforation in the washer-supporting piece, and having its upper end portion reduced to enter the bore of the eyelet or button-shank, and an annular enlargement or shoulder which will start a turning of the clenching end of the eyelet or button-shank, all substantially as and for the purposes and operations set forth.

6. In a machine for setting buttons or eyelets, the combination, with an elastic eyelet-mandrel which has its upper end portion made with a reduced diameter for entrance into the bore of the eyelet or button-shank and its body portion below said reduced portion about corresponding with the central hole in the washer the eyelet is to be clenched on for starting the turning of the clenching end of the eyelet or button-shank, of a perforated washer-supporting piece having concentric anvil which will support the washer and clench the eyelet or button-shank on the lower side of the washer when it is moved toward a die or set having bearing on the head or flanged end of the eyelet or button, substantially as and for the purposes set forth.

7. In a machine for setting buttons or eyelets, the eyelet-setting device G, consisting of the combination with the tubular piece g and washer-supporting piece or anvil j, made with a central perforation and having the surface j' at its outer end and concentric to its bore, of the elastically-supported mandrel k having its body working through the perforation in the washer-supporting piece or anvil, and provided at its upper end with the reduced portion K and annular enlargement k', for operations and purposes as above described.

8. In a machine for setting buttons or eyelets, the eyelet-mandrel k having its reduced portion made with a diameter below the end portion corresponding with that of the bore of the eyelet to be clenched, and provided with an annular enlargement or shoulder k', and working in piece j, provided with surface j' for clenching the eyelet on the washer or fabric when said piece is moved toward a piece holding against the head end of the eyelet or button, substantially as and for the purposes set forth.

9. In a machine for setting buttons or eyelets, the combination of the button or eyelet head-piece C provided with perforation c', the mandrel k having the reduced or pin portion K projecting above shoulder k', the perforated anvil or piece j having the surface j' concentric to the body portion of the mandrel which works in said anvil or piece, and spring S, substantially as and for the purposes set forth.

10. In a machine for setting buttons or eyelets, a button head-piece provided with a shouldered shank, and an adjusting stop having a corresponding shoulder, for operation as described.

11. In a button or eyelet setting machine, the combination, with the eyelet or button head-piece C, the stem of which is provided with a shouldered step, of the adjustable stop C' having a shouldered step for operation with the shouldered stem of said head-piece, and means for securing the same to its adjusted situation in relation to a coacting eyelet or button, substantially as and for the purposes set forth.

12. In a machine for setting buttons or eyelets, the combination, with the reciprocating mandrel E, of lever F, provided with the cam-slot f and arm F^3 provided with friction-roller f' operating in said cam-slot, and the reacting spring F^2, substantially as and for the purposes set forth.

13. In a machine for setting buttons or eyelets, the combination, with lever F, jointed with the reciprocating mandrel E, which carries an eyelet-setting device, and having the cam-slot f, of arm F^3 provided with friction-roller f' which is operated in one direction at will by a foot-lever and in the opposite direction by a reacting spring, substantially as and for the purposes set forth.

14. In a button or eyelet setting machine, a tilting washer-hopper having a stationary bottom and provided with the shelf M' and ports m^3, one or more, which lead from the said stationary bottom to the conveyer, substantially as and for the purposes set forth.

15. In a machine for setting buttons or eyelets the washer-hopper M provided with a bottom and pivoted to the frame so as to be alternately tilted in opposite directions past a horizontal plane and provided with a shelf M' having below it a chamber which communicates with the passage-chamber leading to the exit of the conveyer of the hopper, and having ports or openings m^4, one or more, made with a form and size corresponding with that of the washer, eyelet or button operated within their cross directions, substantially as and for the purposes set forth.

16. In a machine for setting buttons or eyelets, the combination of a support for the head of a button or eyelet as C, with a yielding mandrel or set as k, having an eyelet-receiving point for conducting the end of the eyelet (or button-shank) through the material to which it is to be attached, as described, and turning or spreading the clench end of the eyelet or button-shank outwardly, substantially as and for the purpose set forth.

17. In a button or eyelet setting machine, the combination, with a yielding mandrel having one portion of diameter corresponding with that of the washer it receives, and another portion, commencing at an integral shoulder, of diameter corresponding with the bore of the stem of the button or eyelet which is to enter the hole of the washer, and a washer-support concentric to the washer-receiving portion of said yielding mandrel, of a button or eyelet hopper, provided with a conveyer which is moved to carry its discharge end opposite the die or button-head-supporting piece and the end of the mandrel which receives both the washer and the button or eyelet, substantially as and for the purposes set forth.

18. In a machine for setting buttons or eyelets, the combination, with the button or eyelet hopper of the same, of conveyer N having slot T made in the rear side wall for passage of the tube portion of the eyelet or button-shank and slot N^2 made in the vertical wall of the hopper and in a line with its bottom groove or recess r to the chamber of the conveyer, substantially as and for the purposes set forth.

19. In a button or eyelet setting machine, the combination of two movable hoppers, containing, respectively, the two parts to be seated oppositely on the fabric, with an eyelet and washer receiving mandrel, and means for causing said hoppers to successively register with said mandrel and at each action deposit on the latter one of their aforesaid contents, substantially as and for the purpose specified.

20. In a machine for setting buttons or eyelets, the combination, with the button or eyelet die or head-piece C, and the eyelet-setting device G, of hopper M provided with the conveyer for automatically placing washers over the eyelet-pin of the said setting device prior to its commencement of upper movement, hopper N provided with the conveyer for automatically placing and holding the eyelet or button in position below or opposite the die or head-piece, and the mechanism for operating successively with the said eyelet device G and hoppers M and N, substantially as and for the purposes set forth.

21. In an eyelet or button setting machine, the combination, with a mandrel which receives both a washer and a button or eyelet to be joined, of a hopper having shelf M' for containing washers, and a conveyer which delivers the washers from said hopper to said mandrel, and a second hopper for containing buttons or eyelets and provided with a conveyer which delivers the same to the same mandrel, substantially as and for the purposes set forth.

22. In a button or eyelet setting machine, the combination, with a mandrel which receives both a washer and a button, or eyelet, to be joined, of two independent tilting hoppers having each a conveyer, one hopper for holding washers and the other for holding buttons, or eyelets, and provision for carrying the discharge ends of the respective conveyers alternately to opposite the end of the said mandrel, substantially as and for the purposes set forth.

23. In an eyelet-setting device of a button-setting machine, the combination, with the eyelet-mandrel k, having the shoulder k' working in the anvil j and rendered elastic by a spring, of the adjusting-screw S' which can be set at will toward or from the foot end of the mandrel, substantially as and for the purposes set forth.

24. In a button-setting machine, the combination and arrangement, with the reciprocating mandrel E working in sleeve D, of the guard Y carried by said mandrel and closing around the sides and front surfaces of said sleeve, substantially as and for the purposes set forth.

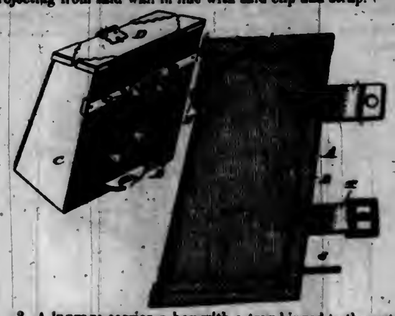
25. In a button or eyelet setting machine, the eyelet mandrel or set k, that advances and recedes independently through the sleeve or collar surrounding it, as washer-supporting piece J, said mandrel or set having an eyelet-turning surface at or near its eyelet-receiving end, in combination with the eyelet or button head supporting-piece, substantially as and for the purpose set forth.

26. In a button or eyelet setting machine, a mandrel having a reduced extremity adapted to enter the opening in the button or eyelet, and an enlarged periphery, back of said extremity, adapted to receive the clench end of the button or eyelet shank, to permit an aperture in the fabric to pass from the enlarged periphery over the eyelet-shank without obstruction and spread the end of said shank, substantially as shown and for the purpose described.

27. In a button or eyelet setting machine, the eyelet mandrel or set having an eyelet-turning surface at or near its end, and the washer-supporting piece or collar, surrounding and working on said mandrel, in combination with an eyelet or button head-support, substantially as and for the purpose set forth.

585,888. LUGGAGE-CARRIER. OMAR RENDOR, Philadelphia, Pa. Filed Feb. 3, 1897. Serial No. 621,753. (No model.)

Claim.—1. A luggage-carrier consisting of a box, a tray hinged thereto, a cross-piece secured on the rear wall of said box and provided with an offset, a spring-clip secured to said offset, a tightening-strap secured to said rear wall below said clip, and a socket-piece projecting from said wall in line with said clip and strap.



2. A luggage-carrier, a box with a tray hinged to the outer end of its base and adapted to be closed within the said box, overhanging flanges upon the sides of the tray and the top of the box, and attaching means consisting of a spring-clip, a strap, and a socket, each being connected with the rear wall of said box in line one with the other and in the order described.

3. A luggage-carrier, having attached to a suitable portion thereof a cross-piece, said cross-piece being provided with an offset, and a clip or similar fastening device secured to said offset, a recess being formed by the members of said clip for the passage of a brake-rod, and the outer portions of said clip being adapted to engage a bicycle-fork, and to be clamped in position thereupon.

585,884. MATTRESS. LEIFORD F. ROTH, Connellsville, Pa. Filed July 24, 1895. Serial No. 556,970. (No model.)



Claim.—1. An expansible and collapsible air-tight mattress-casing having its top, bottom and ends or sides formed by alternate inward and outward resilient folds having a normal tendency to close together, substantially as set forth.

2. An expansible and collapsible air-tight mattress-casing having its sides and ends at or approximately at right angles to the top and bottom, and having its top, bottom and ends or sides formed by alternate inward and outward resilient folds having a normal tendency to close together, substantially as set forth.

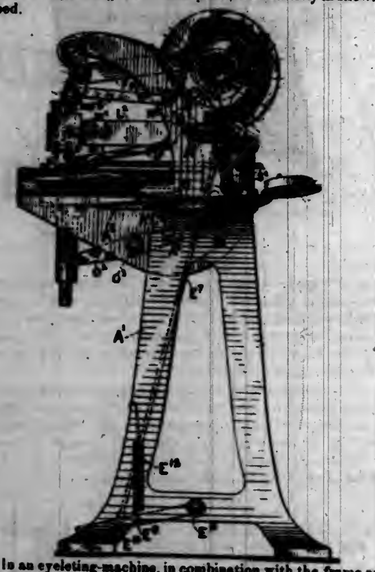
3. An expansible and collapsible air-tight mattress-casing, having its upper and lower walls connected by a plurality of sheet or plate stays, and having its end portions bent or creased between said stays, as distinguished from seamed or jointed, the folds so formed being resilient and having a normal tendency to close together, substantially as set forth, whereby, when distended, to form practically continuous or unbroken surfaces and when collapsed or drawn together in the longitudinal plane of the casing, the faces of the stays shall be brought together, and the end folds (determined by the previously-made creases) shall all be inward and inside the general contour of the mattress-casing.

585,885. PUNCHING AND EYELETING MACHINE. SAMUEL P. STERN, Jr., Philadelphia, Pa. Filed Feb. 25, 1896. Serial No. 580,692. (No model.)

Claim.—1. In an eyeleting-machine, the combination, with the frame, of a table secured thereto, a plunger-carrier adapted to reciprocate horizontally thereon, a punch and a top-set supported by said plunger-carrier and movable therein, a punch-block, also carried by the plunger-carrier, a toggle pivoted to the frame above the plunger-carrier, a hammer-lever also pivoted to the frame and to the lower end of the toggle, and means for operating the toggle to depress, through the medium of the hammer-lever, the punch and top-set when brought thereunder by the reciprocation of the plunger-carrier, substantially as shown and described.

2. In an eyeleting-machine, the combination, with the frame, of a table secured thereto, a plunger-carrier adapted to reciprocate longitudinally thereon, a punch and a top-set carried by said plunger-carrier and movable therein, a punch-block, also carried by the plunger-carrier, a toggle pivoted at its upper end to the frame above the

plunger-carrier, a hammer-lever pivoted to the frame and to the lower end of said toggle, a vertically-movable eyelet-plunger below the table in the axial line of the toggle, a reciprocating eyelet-run, and means for operating the various parts, substantially as shown and described.



3. In an eyeleting-machine, in combination with the frame and a table secured thereto, a U-shaped plunger-carrier, one arm of which is adapted to slide on the table at a right angle to the line of movement of the work to be operated upon and carrying a punch-block, the other arm, which extends above and overhangs the table, having a head at the end thereof, a punch and a top-set adapted to slide vertically through openings in the said head, the said punch and top-set being placed one behind the other in the line of movement of the plunger-carrier, and means for reciprocating the plunger-carrier through a space equal to the distance between the axes of the punch and the top-set, the said means having a moment of rest at the end of each reciprocation of the plunger-carrier, substantially as shown and described.

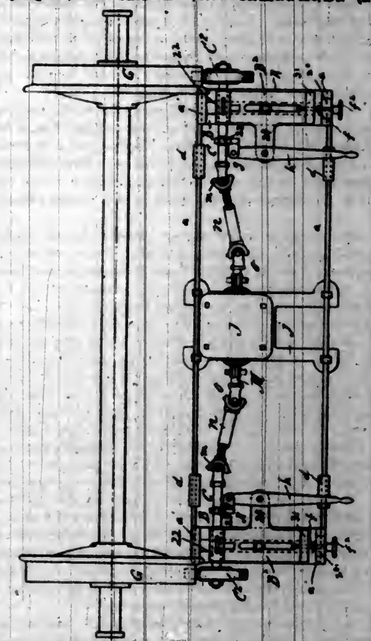
4. In an eyeleting-machine, in combination with the frame and a table secured thereto, a plunger-carrier supporting a punch-block adapted to slide back and forth in a guide on the table, the said plunger-carrier having an overhanging arm and head, a punch and a top-set adapted to slide vertically through openings in the head, the said punch and top-set being placed one behind the other in the line of movement of the plunger-carrier, a toggle, a hammer, means for reciprocating the plunger-carrier through a space equal to the distance between the axes of the punch and the top-set, the said means having a dwell or moment of rest at the end of each reciprocation of the plunger-carrier, and means for operating the toggle to depress either the punch or the top-set during the moment of rest, substantially as shown and described.

5. In an eyeleting-machine, in combination with the frame and a table secured thereto, a horizontally-reciprocating plunger-carrier, a punch and a top-set both adapted to move vertically therein, a punch-block secured to the plunger-carrier beneath the punch, a hammer-lever pivoted to the frame, a toggle also pivoted to the frame and to the hammer-lever, a vertically-moving eyelet-plunger below the table and secured thereto, means for reciprocating the plunger-carrier, and means, such as described, for operating the toggle at the end of each reciprocation of the plunger-carrier, and the eyelet-plunger at the end of each alternate reciprocation, substantially as shown and described.

6. In an eyeleting-machine, the combination of an eyelet magazine and run, mechanism for reciprocating the same in a longitudinal direction, a reciprocating brush within the magazine, an arm secured to the shaft of the brush and a lever connected through a link to the arm, the said lever being pivoted to the frame and to the eyelet-run, whereby the longitudinal reciprocation of the eyelet-run shall impart a rocking motion to the brush, substantially as shown and described.

7. In an eyeleting-machine, the combination of a table, a plunger-carrier sliding thereon, an arm secured to a rock-shaft connected with said plunger-carrier, a second arm secured to the rock-shaft having a slot at its outer end, and a rotating pin engaging with the slot, to vibrate the arm and move the plunger-carrier, a portion of the side wall of the said slot being curved on the same radius as that of the outer surface of the pin, whereby a delay occurs at the end of each reciprocation of the plunger-carrier, substantially as shown and described.

585,886. CAR-WHEEL-GRINDING MACHINE. DAVID C. SWEET, Springfield, Mass. Filed Jan. 22, 1897. Serial No. 620,491. (No model.)



Claim.—1. In a car-wheel-grinding machine, a frame constructed to be mounted on and extend between the car-tracks, comprising at its ends, base-supports, grinding-wheel standards movably mounted thereon, grinding-wheel shafts journaled in said standards, the motor supported on said frame, and driving connections between said motor and the grinding-wheel shafts, substantially as and for the purpose described.

2. In a car-wheel-grinding machine, a frame constructed to be mounted on and across a track, comprising at its ends, base-supports, grinding-wheel standards movably mounted thereon, grinding-wheel shafts, with grinding-wheels, journaled in said standards, and movable endwise therethrough, levers engaging the said endwise-movable shafts, a motor supported on said frame, and driving connections between the motor and the grinding-wheel shafts, substantially as described.

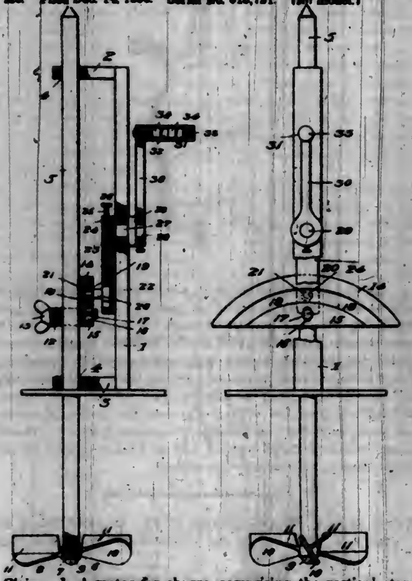
3. In a car-wheel-grinding machine, a frame constructed to be mounted on and across a track, comprising at its ends, base-supports which are adjustably fixed to the cross members of said frame, grinding-wheel standards movably mounted on said base-supports, grinding-wheel shafts with grinding-wheels journaled and endwise movable in said standards, means for feeding the standards forward, means for imparting endwise movements to the grinding-wheel shafts, a motor mounted on the said frame intermediate between said base-supports, and driving connections between the motor and the inner ends of the grinding-wheel shafts, substantially as described.

4. In a car-wheel-grinding machine, in combination, a frame comprising the base-supports A A and the cross tie-bars *a*, the standards B having their bases guided along said base-supports, the shafts C C journaled in, and adapted to move endwise through, said standards, and having at their outer extremities the grinding-wheels, levers pivotally supported on the bases of said standards and having engagements with said shafts for moving them endwise, means for moving said standards forward, a motor supported by said cross members of the frame between the base-supports, and mediums of driving connection between the driving-shaft of said motor and the inner ends of the grinding-wheel shafts, substantially as and for the purposes set forth.

5. In a car-wheel-grinding machine in combination, a frame comprising the base-supports A A, each having the upturned ear-lug and the cross tie-bars *a* having the clamps *d d* adjustably confined thereon, the standards B having the bases B^2 which are movably guided along said base-supports, and each provided with the ear-lug, the screw-shafts having feed engagements with the ear-lugs of the parts A and B^2, and having the hand-wheels, the shafts C C journaled in and adapted to move endwise through said standards and having at their outer extremities the grinding-wheels, levers pivotally supported on the bases of said standards and in engagement with said shafts for moving them endwise, a cross plate or bar extending between said tie-bars and located between the aforesaid base-supports, a motor suspended from said cross-plate and mediums of driving connection between the driving-shaft of said motor and the inner ends of the grinding-wheel shafts, substantially as and for the purposes set forth.

6. In a car-wheel-grinding machine, a frame constructed to be mounted on and across a track, comprising at its ends base-supports, standards movably mounted on said base-supports, grinding-wheel shafts, journaled and movable endwise in said standards, and having grinding-wheels, levers having connections with the said endwise-movable shafts, a motor supported on said frame, and two sets of driving connections between the motor and the grinding-wheel shafts, which are independent of each other, substantially as described.

585,887. CHURN-MOTOR. WILLIAM P. BLEE, Aurora Springs, Mo. Filed Dec. 14, 1896. Serial No. 615,731. (No model.)

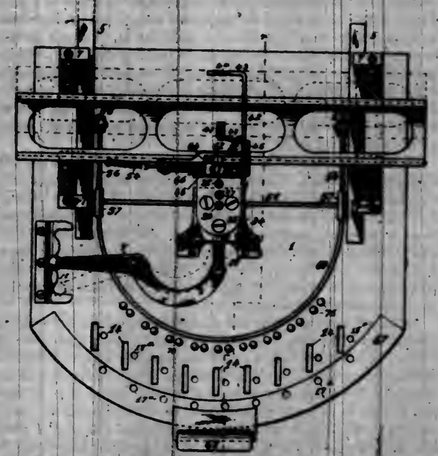


Claim.—1. A motor for churns, comprising the vertical standard provided with the horizontal arms, the rectangular dasher-rod mounted therein and provided with the rotatable dasher 8, the cross-head 12 adjustably mounted on said dasher-rod, and formed with an integral crescent-shaped flange 14, an adjustable block 15 secured to the face of said cross-head, in combination with the shaft 27 provided with the integral crank 24 having the dovetail groove 23, the dovetail block 22 mounted in said groove and provided with the integral crank-pin 20 and sleeve 21, the screw 25, mounted in said groove in the crank and engaging the block 22 and the crank-handle 30, substantially as shown and described.

2. A churn-motor comprising the standard 1 provided with integral arms, the rectangular dasher-rod mounted in said arms and having its lower end formed with a stud 6, the dasher 8 mounted so as to revolve on said stud, and formed with the inclined cross-blades 10 10 having fins 11 11, the cross-head 12 adjustably secured to said dasher-rod and provided with the integral flange 14 and the adjustable block 15 having a crescent-shaped edge 18, in combination with the shaft 27, the crank 24, the pin 20 engaging the groove 19 in the cross-head, and the operating crank-handle 30, substantially as and for the purpose set forth.

3. A churn-motor comprising the standard, the rectangular dasher-rod mounted in said standard, the cross-head adjustably secured to said dasher-rod and provided with the groove 19, in combination with the shaft 27, the pin 20 of which engages the groove 19 in said cross-head, and the crank-handle 30 secured to said shaft and provided with the hand-grip 31 formed with the longitudinal pocket 32 and the removable screw-cap 33, and the removable weights 34, substantially as and for the purpose set forth.

585,888. TYPE-WRITING MACHINE. LEE S. BURRIDGE, New York, N. Y., assignor to the Century Machine Company, same place. Filed Oct. 31, 1896. Serial No. 610,715. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-lever provided with a plurality of type or printing characters; a movable support to which said type-lever is pivoted: and a plurality of finger-keys or buttons each adapted to act upon said lever and to move the same longitudinally, and also to swing it about its pivot; whereby said lever is caused to print different characters through actuation of the different finger-keys or buttons.

2. The combination in a type-writing machine, of a platen or paper-support; a series of type-levers each provided with a plurality of printing-characters; a series of independently-movable supports to each of which is pivoted one of the type-levers: and a series of finger-keys arranged in groups of two or more, those of each group being adapted and arranged to act upon one and the same type-lever, to move the same longitudinally varying distances, and to swing the same about its pivotal support: whereby each printing-character of every type-lever is carried to and caused to make an impression at a common printing-point.

3. In a type-writing machine, the combination of a platen or paper-support capable of movement at right angles to the length of the line of printing; a type-lever provided with a plurality of printing-characters arranged in groups of two or more; a movable support to which said type-lever is pivoted: and a plurality of finger-keys each adapted to act upon said type-lever and to move the same longitudinally, and also to swing it about its pivot: whereby said type-lever is caused to move longitudinally varying distances, and to swing toward the platen or paper-support to bring one or another printing-character of a given group to the printing-point, and whereby the platen is brought into position to receive the impact of characters of different groups.

4. In combination with a longitudinally-movable type-bar bearing a plurality of printing-characters and having a pivotal axis at or near one end; a key-plate adapted and arranged both to move said bar longitudinally and to swing it about its pivotal axis; and a plurality of finger-keys carried by said plate and adapted each to control the movements of the bar.

5. In a type-writing machine, the combination of a longitudinally-movable type-lever provided with a plurality of printing-characters and having a pivotal axis at or near one end; a key-plate connected with said type-lever and serving to swing it about its pivotal axis; a series of divergent guides in one of said parts adapted to receive a projection from the other of said parts; and a switch carried by the key-plate and serving to determine into which of the guides the projection shall enter; whereby the position of the pivotal axis of the type-lever at the moment of printing is determined.

6. In combination with a longitudinally-movable type-lever provided with a plurality of printing-characters and with a pivot pin or axle at or near one end; a key-plate adapted to press against the type-lever and to swing it about its pivot-pin; a plurality of divergent slots in said key-plate each adapted to receive the pivot-pin of the type-lever; a finger-key applied directly to the key-plate and serving to move the same in line with one of its slots; and a separate finger-key movably supported upon said key-plate and carrying a switch or gate to direct the pivot-pin into a different slot of the key-plate.

7. In combination with the main frame of a type-writing machine, a platen or paper-support; a standard pivotally supported in the main frame and adapted to swing toward and from the platen; a type-lever pivotally supported upon said standard and provided with a plurality of printing-characters; a key-plate movable in a plane parallel with that in which the type-lever swings and having a loose connection with said type-lever; a plurality of divergent slots or ways in said key-plate; a projection extending from the swinging standard into or through the key-plate at the point of convergence of the slots; and a plurality of finger-keys carried by said plate and serving to direct said projection into one or another of the slots according as one or another finger-key is pressed, substantially as and for the purpose set forth.

8. In combination with a swinging type-lever bearing a plurality of printing-characters; a movable member to which said type-lever is pivoted, provided with a lateral projection; a key-plate having a slot in alinement with said projection and other slots divergent therefrom; a finger-key carried by said plate and serving to move the same in alinement with the first-mentioned slot; and separate finger-keys bearing gates or switches each adapted to close the first-mentioned slot and to direct the projection of the movable member into one or another of the divergent slots.

9. In a type-writing machine, the combination of a paper-support; a movable member adapted to support a type-lever; a type-lever pivotally connected with said member and provided with a plurality of printing-characters; a key-plate having a loose connection with and serving to swing said type-lever, and serving also to lock the movable member or to move the same toward or from the platen; and a plurality of finger-keys carried by said plate and arranged to determine the locking or the movement of the member supporting the type-lever according as one or another is pressed, substantially as set forth.

10. In a type-writing machine, a type-lever capable of longitudinal and of swinging movement; a key-plate loosely connected with said type-lever and adapted to effect both the longitudinal and the swinging movement or to produce the swinging movement alone; a plurality of finger-keys carried by said key-plate; and intermediate devices between the finger-keys and the type-lever, whereby the movements of said lever are determined and are made either simple or compound as one or another finger-key is pressed.

11. In a type-writing machine, the combination of a type-lever having a pivot-pin at or near one end; a key-plate provided with a plurality of divergent slots each adapted to receive the pivot-pin of the type-lever, and to hold the same against movement or to move it forward or backward; and a loose connection between said key-plate and type-lever at a point to one side of its pivot-axis, whereby said key-plate is adapted both to swing the type-lever about its pivot and to move the same longitudinally or to hold the same against longitudinal movement, substantially as set forth.

12. In a type-writing machine, the combination of a longitudinally-movable type-lever provided with a pivot at or near one end, and with a plurality of printing-characters at or near its other end; a key-plate having a loose connection with the type-lever and capable of movement in a plane substantially parallel with that in which the type-lever moves; a finger-key carried by said plate and serving to move the same; guides carried by the key-plate and adapted to receive the pivot-pin of the type-bar; switches carried by said plate and serving to direct the pivot-pin into one or another of said guides; and finger-keys also carried by said key-plate and adapted when pressed to actuate said switches and also to move the key-plate and type-lever, substantially as set forth.

13. In a type-writing machine, the combination of a type-lever provided with a plurality of printing-characters and adapted both to move longitudinally and to swing about an axis; a key-plate adapted both to move the type-lever longitudinally and to swing it about its axis or merely to swing it; and a plurality of keys each serving to move the key-plate and to cause or prevent a longitudinal movement of the type-lever.

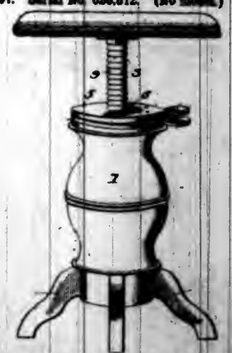
14. In a type-writer, the combination of a pivoted standard provided with a lateral projection; a type-lever having its fulcrum in the free or swinging end of said standard; a key-plate having a plurality of finger-keys; and switches controlled by said finger-keys and adapted to be thrown to one or the other side of the projection of the standard to cause said standard to be moved forward or backward.

15. In a type-writing machine, the combination with a main frame and a paper-support; of standards 13 pivotally connected at their lower ends with the main frame; type-levers E provided with a plurality of printing-characters and pivotally connected with the upper ends of said standards; sliding plates 16 provided with slots 20, 21, and 22; projection 23 extending from the standard 13 into the key-plate at the convergence of said slots; rigid key 25 for actuating said key-plate; and pivoted keys 24 and 26 provided with switch-arms 27ª and 28ª respectively, all substantially as shown and described.

16. In combination with the bail or universal bar of a type-writing machine; a series of swinging type-levers each provided with a plurality of printing-characters; movable supports to which said type-levers are pivoted; a series of key-plates each provided with an arm to bear upon the universal bar or bail and with a plurality of slots to receive a projection upon the type-lever support; and a plurality of finger-keys carried by each of said plates and serving both to depress the same and to determine into which of the several slots the projection shall pass.

17. In combination with a longitudinally-swinging type lever E provided with a plurality of printing-characters and with a projection 23; a key-plate 16 provided with slots 20, 21 and 22; rigid finger-key or button 25 carried by said key-plate; switch-levers 27 and 28 pivotally attached to the key-plate and provided with switch-arms 27ª and 28ª and with buttons 24 and 26; and springs 29 and 30 attached to the switch-arms and serving to hold them normally clear of the slot 20.

585,839. PIANO-STOOL. JOSEPH D. CLAY, Harrisburg, Pa. Filed Mar. 10, 1897. Serial No. 626,812. (No model.)



Claim.—In combination with a tubular support, a clamp-casing secured to the upper end thereof, provided with a central aperture registering with the passage through the support, and with transverse recesses intersecting said central aperture, clamping-levers pivoted in the transverse recesses and having outwardly-projecting handles, a spring secured to the support and having its ends engaging said handles for forcing the handles apart, a seat, a stem secured to said seat and provided with annular shoulders inclined downwardly, said stem adapted to pass through the central aperture of the clamp-casing into the tubular support, and be held in vertical adjustment by the clamps, substantially as set forth.

585,840. TRANSOM-SASH PIVOT. THOMAS F. DOLEN, Rochester, N. Y. Filed Oct. 29, 1896. Serial No. 610,456. (No model.)



Claim.—In a sash pivot or center, the combination with the bearing-plate having a cam groove or recess therein, of a plate provided on its rear side with a casing, a pivot-pin arranged in said casing and having a squared end projecting through the plate and adapted to engage in the said cam groove or recess of the bearing-plate, the said pivot-pin being provided on its inner end with a circular head having a series of notches in the periphery, a detent to engage said notches, and a spring to force the said pivot-pin outward and hold it to its engagement with the said cam groove or recess, substantially as described.

585,841. BARREL-CLEANER. EUGENE O. FRENCH, North Norway, Me. Filed Sept. 19, 1896. Serial No. 606,418. (No model.)

Claim.—1. A hand-operated revoluble barrel-cleaner, comprising spaced spring-arms, a brush rigidly secured to the lower end of each arm, an operating-handle extending transversely between the upper ends of the spring-arms, and elbows each having a horizontal arm secured to one end of the handle and a downwardly and outwardly extending arm connected to the upper end of one of the spring-arms, substantially as described.

2. The combination with an operating-bar, of elbows rigidly attached to the opposite ends thereof, knobs or handles arranged at the ends of said bars and connected to said elbows, diverging spring-arms rigidly secured to said elbows, and segmental brushes attached to the free ends of said arms, substantially as described.



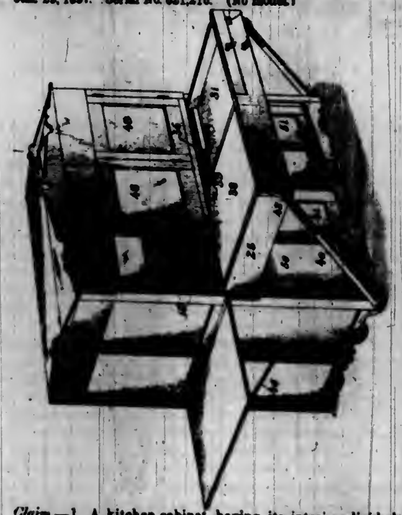
3. The combination with an operating-bar, of diverging spring-arms connected thereto, segmental brushes secured to the free ends of said arms, and a radially-disposed bottom brush having its outer end secured to one of said segmental brushes, substantially in the manner and for the purpose described.

4. The herein-described barrel-cleaner, comprising spaced elbows each having a tubular portion and an angular ear, an operating-bar having its opposite ends fitted in the said tubular portions, diverging spring-arms rigidly connected to said ears, and segmental brushes attached to the free ends of said arms, substantially as described.

5. In a barrel-cleaner, the combination with a pair of spaced elbows each having a tubular portion and an angular ear, of an operating-bar having its opposite ends mounted fixedly in said tubular portions, revoluble knobs or handles arranged at the ends of said bar and outside of said elbows, diverging spring-arms secured to said ears, and segmental brushes attached to the free ends of said arms, substantially as described.

6. In a barrel-cleaner, the combination with an operating-bar, of revoluble handles or knobs mounted at the ends thereof, diverging spring-arms secured rigidly to said operating-bar, segmental brushes attached to the free ends of said arms, one of said brushes being provided intermediate its ends and in its under side with a recess, a radially-disposed brush having one end arranged in said recess, and an L-shaped knee having its arms secured respectively to the segmental and radial brushes, substantially as described.

585,842. KITCHEN-CABINET. JONAS S. GILL, Flora, Ill. Filed Jan. 29, 1897. Serial No. 621,216. (No model.)



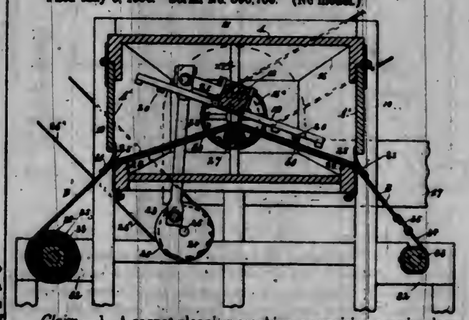
Claim.—1. A kitchen-cabinet having its interior divided into suitable compartments containing receptacles, in combination with a bread-drawer arranged to fit in a space in the cabinet and having its interior divided to form right and left hand compartments in one of which is arranged a bread-pan, and in the other of which are arranged receptacles, a bread-tray mounted upon the bread-drawer for independent sliding movement parallel with the path of said drawer and independently thereof, and normally arranged to cover the compartment of the drawer in which said receptacles are arranged, alined communicating guides formed in the upper edges of the bread-tray and in the walls of the compartment of the drawer containing said bread-pan, and a bread-board fitted to slide in said guides and adapted to be arranged to cover either the bread-pan or the bread-tray, substantially as specified.

2. A kitchen-cabinet having its interior divided to form compartments and receptacles, and including a flour-bin, flour-sifting devices, and a conveyer communicating with the sifting devices, in combination with a bread-drawer fitted in a space in the cabinet below the flour-bin, a bread-tray mounted to slide upon and independently of said drawer in a path parallel with that of the drawer, the upper edges of the tray being in the plane of the contiguous edges of the drawer and being provided, in common therewith, with guides adapted to be alined when the tray is in its normal position with relation to the drawer, and a kneading-board fitted in said guides and adapted to occupy a position over either the bread-tray or the contiguous compartment of the drawer, the bread-tray, when slid rearwardly within the cabinet, being in position to receive sifted flour from said conveyer, substantially as specified.

3. A kitchen-cabinet having its interior divided to form compartments and receptacles, and including a flour-bin, flour-sifting devices, and a conveyer communicating with the sifting devices, in combination with a bread-drawer fitted in a space in the cabinet below the flour-bin, a bread-tray mounted to slide upon and independently of said drawer in a path parallel with that of the drawer, the upper edges of the tray being in the plane of the contiguous edges of the drawer and being provided, in common therewith, with guides adapted to be alined when the tray is in its normal position with relation to the drawer, a kneading-board fitted in said guides and adapted to occupy a position over either the bread-tray or the contiguous compartment of the drawer, the bread-tray, when slid rearwardly within the cabinet, being in position to receive sifted flour from said conveyer, and means for preventing rearward movement of the kneading-board independently of the drawer, and locking the bread-tray in its normal position with relation to the drawer when the kneading-board is arranged thereover, to prevent the disposal of the kneading-board over the bread-tray when the latter is arranged in position to receive flour from the conveyer, substantially as specified.

4. A kitchen-cabinet having its interior divided to form suitable compartments and receptacles, and having flour sifting and conveying devices, in combination with a bread-drawer mounted to slide within a space in the cabinet and including right and left hand compartments, in one of which is arranged a removable bread-pan, and in the other of which is arranged a bread-tray mounted for forward and rearward sliding movement upon and independently of the main portion of the drawer, open-topped guides formed on the corresponding edges of the main and independently-sliding portions of the drawer, a removable bread-board fitted to slide in said guides, and adapted to occupy a position over either the bread-pan or the said tray, and a fixed dovetailed guide supported by the cabinet for engagement by a corresponding notch in the rear wall of the tray, the front extremity of said guide being adapted to form a stop to prevent rearward movement of the bread-board independently of the drawer, and to prevent the rearward movement of the drawer when the bread-board is disposed to cover the tray, substantially as specified.

585,843. CARPET-CLEANER. KELLY GERVIN, Brooklyn, N. Y. Filed May 8, 1896. Serial No. 590,706. (No model.)



Claim.—1. A carpet-cleaning machine, comprising a casing having an inlet and outlet for the carpet at opposite sides, a support for the carpet of yielding material arranged within the casing, said support inclining from a central rest downwardly to the inlet and outlet of the casing and having its edges secured to the sides of the said casing, and a rocking beater mounted adjacent to the center of the said support, substantially as described.

2. A carpet-cleaning machine, comprising a casing, having an in-

let and outlet for the carpet at opposite sides, a support for the carpet formed of a plurality of ropes or cables inclining from a central rest downwardly to the inlet and outlet of the casing and having their ends passed through said openings and secured to the sides of the said casing, and a rocking beater mounted adjacent to the center of the support, substantially as described.

3. A carpet-cleaning machine comprising a casing, upper and lower interior surfaces over which the carpet is adapted to pass, said surfaces diverging from their centers toward inlets and outlets formed in the sides of the casing, respectively above and below the centers of the carpet-receiving surfaces and a rocking beater mounted between the upper and lower surfaces at their centers, substantially as described.

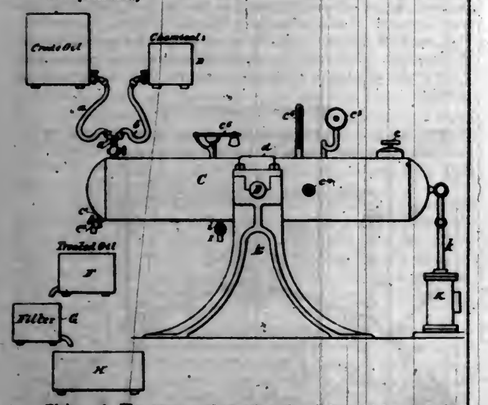
4. A carpet-cleaning machine comprising an elongated casing providing a chamber having inlet and outlet openings at the sides, a carpet-support ranging transversely between said openings, a rock-shaft having beater-arms at opposite sides, the carpet-support inclining from each side toward the rock-shaft, and an exhaust-fan located at one end of the casing and acting to draw air longitudinally of the casing and transversely of the carpet passing over the support, substantially as described.

5. A carpet-cleaning machine having a chamber for receiving the carpet, a rocking beater, and a carpet-support, said support inclining toward the axis of the beater and comprising a roller adjacent to the axis of the beater, and a yielding surface for the major portion of the support, substantially as described.

6. In a carpet-cleaning machine, a carpet-receiving chamber having openings at its sides, a roller located above the plane of the said openings within the said chamber, supporting-strands having their outer ends secured to pass through the openings in the chamber over the aforesaid roller, a reciprocating shaft located above the roller, and beater-arms secured to the shaft, extending beyond opposite sides of the same, opposite ends of the beater being adapted for alternate engagement with the carpet when the aforesaid shaft is rocked, substantially as set forth.

7. In a carpet cleaning machine, a cleaning-chamber, doors located at the sides of the said chamber, a space intervening the free ends of the doors and the adjacent portions of the chamber, flexible shields attached to the doors and normally covering the said spaces, the spaces constituting inlets for the carpet, a support for the carpet within the chamber, oscillating beaters also located within the said chamber adjacent to the said supports, and winding-shafts adapted to receive the ends of the carpet and located one adjacent to each carpet-receiving space, as and for the purpose specified.

585,844. REFINING GLYCERIDES AND PRODUCING GLYCERIN THEREFROM. JOSEPH GLATZ, Brooklyn, and ORAZIO LUPO, New York, N. Y., assignors to the International Manzbrino Chemical Company, Washington, D. C. Filed Nov. 17, 1896. Serial No. 612,684. (No specimens.)



Claim.—1. The process of treating glycerides which consists in forming an emulsion of the glyceride and an alkaline earth by the combined action of agitation and impact, and then heating the emulsion during continued agitation and impaction, substantially as described.

2. The process of treating animal fats and vegetable oils which consists in adding a reagent and forming an emulsion by the combined action of agitation and impact, and heating slightly above the boiling-point of water, substantially as described.

3. The process of treating glycerides which consists in adding to the glyceride a neutralizing reagent in quantity sufficient to form the chemical equivalent of the free fatty acids of the glyceride, forming an emulsion and then heating the mass to a point slightly above 212° Fahrenheit, substantially as described.

4. The process of treating glycerides which consists in adding to the glyceride and oxid of an alkaline earth, agitating the mass to form an intimate homogeneous emulsion, and then heating the emulsion slightly above the boiling-point of water, during continued agitation, substantially as described.

5. The process of extracting glycerin from glycerides, which consists in first forming an emulsion of the glyceride with an alkaline earth, the latter being used in such quantity as to neutralize all free fatty acids present and to avoid decomposition of the glyceride, eliminating the insoluble matter and then separating the glycerin from the fatty acids of the glyceride, substantially as described.

6. The process of extracting glycerin from glycerin-bearing substances, which consists in neutralizing the free fatty acids, removing the same and other impurities from the glyceride, and then decomposing the glyceride into fatty acids and glycerin, substantially as described.

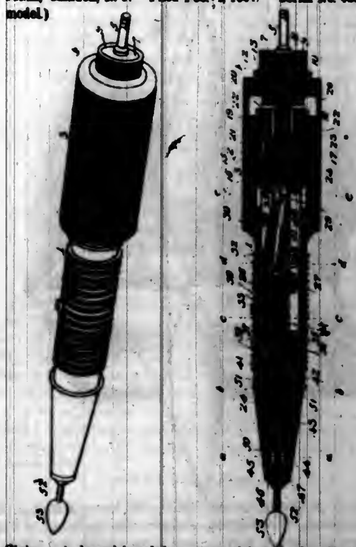
7. The process of extracting glycerin from glycerin-bearing substances which consists in mixing the latter with water, subjecting the mixture to the combined action of agitation and impact in the presence of heat, substantially as described.

8. The process of extracting glycerin from crude glycerides, which process consists in forming an emulsion of the glyceride with an alkaline earth, thereby forming insoluble compounds of the foreign bodies, removing the latter, thoroughly mixing the glyceride with water, so as to bring the particles of glyceride and of water into intimate contact, and subjecting the commingled mass to the action of heat, thereby separating the glycerin from the fatty acids, substantially as described.

9. The process of extracting glycerin from glycerin-bearing substances which consists in treating the glycerides with an oxid of an alkaline earth in a quantity sufficient to form the chemical equivalent of the free fatty acids in the glyceride, during the combined action of agitation, impact and heat, then eliminating the impurities by filtration, then mixing the purified glyceride with water and forming a hydrous saponification by impact and agitation during the application of heat, substantially as described.

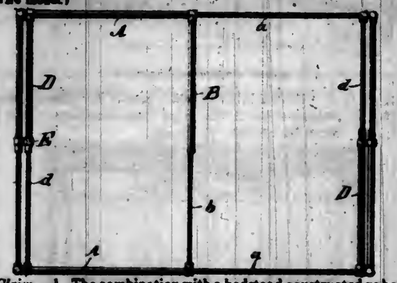
10. The process of extracting glycerin from glycerin-bearing substances which consists in removing the impurities from the glyceride, then forming a hydrous saponification by the action of impact, agitation and heat, substantially as described.

585,845. HANDPIECE FOR DENTAL ENGINES. HARRY F. JOHNS, Camden, N. J. Filed Feb. 4, 1897. Serial No. 622,041. (No model.)



Claim.—A dental handpiece, comprising the handle 1, provided with the longitudinal key 2, and the sleeve 3, provided with a corresponding keyway, the shaft 5 journaled in said sleeve, the sliding bar 16 hinged to the inner end of said shaft, and provided with the dog 31 having an inclined transversely-notched face 30, the hollow driving-spindle 24 provided with a central longitudinal slot 25, the lever 26 fulcrumed in said spindle and provided with a pawl 28 in operative contact with the notched face of the dog 31, and having its opposite arm formed with a beveled face 33, in combination with the cylindrical plunger 35, provided with a contiguous beveled head 34, the follower 38 encompassing the threaded shank 36 of said plunger, and the split chuck 43 arranged between the outer end of the hollow spindle and the end of the follower 38, substantially as shown and described.

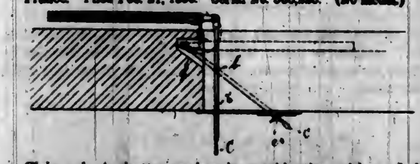
585,846. FOLDING BEDSTEAD AND FRAME. HELEN A. KEAN, New Haven, Conn., assignee of five-eighths to Waldo H. Miner and James R. Bolton, same place. Filed July 15, 1896. Serial No. 599,265. (No model.)



Claim.—1. The combination with a bedstead constructed as herein described and adapted to be contracted into a substantially square form, of a mattress and frame therefor composed of four parts hinged together and adapted to be folded into a similar form within the bedstead, and whereby engagement with the bedstead when folded is maintained, substantially as shown and described.

2. The combination with a bedstead, the sides and end of which are composed of telescopic sections, whereby it is adapted to be contracted into a substantially square form, of a mattress-frame which is also composed of four hinged sections attached to said sections of the adjustable bedstead, which sections are also adapted to be folded one upon the other within the bedstead-sections, substantially as shown and described.

585,847. SHUTTER-WORKER. ARTHUR LABARRIERE, Le Mans, France. Filed Feb. 21, 1896. Serial No. 580,236. (No model.)

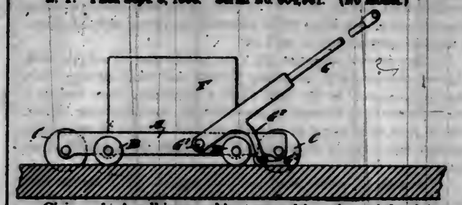


Claim.—1. A shutter-worker in combination with a window-frame, a shutter having a bar secured to the lower edge thereof and extending beyond the inner end of the same, a lever pivoted to said inner end of said bar and having at its other end a handle, said lever being provided with openings therein, a casing adapted to receive said pivoted connection of bar and lever and a base-plate having a longitudinal slot therein secured to the inner side of said window-frame and having thereon an adjustably-mounted plate, a catch secured to said latter plate adapted to engage said lever and a spring-actuated locking-bolt also adapted to engage said lever, all of said parts being combined substantially as described.

2. In a shutter-worker, a bar secured to the lower edge of said shutter and extending beyond the inner edge thereof, a lever pivotally connected to said bar and having a handle secured to its free end, a base-plate having a longitudinally-extending slot therein adapted to receive said lever, a spring-actuated bolt fastened to said plate and adapted to engage said lever, a plate having recesses at each end thereof, screws adapted to pass through said recesses and engage said main plate, a sleeve integral with said adjustable plate and having in its outer surface a horizontally and then vertically extending slot, a bolt mounted in said sleeve having a pin thereon adapted to pass through said horizontally and then vertically extending slot and a handle secured to the outer end of said pin, said bolt being adapted to engage said lever, all of said parts being combined substantially as described.

3. In a shutter-worker, a bar secured to the under side of said shutter and extending beyond the inner edge of the same, a lever pivotally secured to the extended arm of said bar and having openings therein, a handle secured to the free end of said lever, a metallic base-plate having a horizontally-extending slot therein through which the end of the said lever is adapted to pass, a spring-actuated bolt fastened near one end of said slot and adapted to enter said lever-openings, an adjustable plate having recesses near either end thereof, screws mounted in said metallic plate and adapted to clamp said adjustable plate thereto, a sleeve integral with said latter plate, having an angular slot therein, a bolt mounted in said sleeve having its lower end adapted to enter said lever-openings, a pin secured to said bolt and being adapted to pass through said angular slot and a handle secured to the other end of said pin, all of said parts being combined substantially as and for the purpose described.

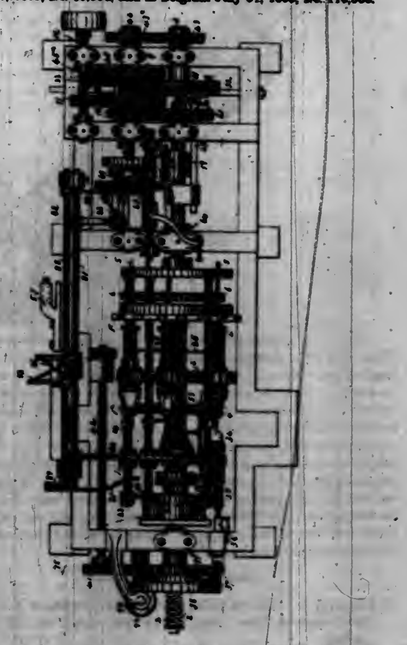
585,848. CALKING-MACHINE. JOSEPH D. MASLIN, New York, N. Y. Filed Sept. 5, 1896. Serial No. 604,961. (No model.)



Claim.—1. A calking-machine, comprising the weighted frame provided with traveling wheels, calking-disks journaled in the frame in alinement with each other and extending below the traveling wheels, and the forked handle pivoted to the frame and provided with downwardly-extending arms carrying friction-rollers, the forked members of the handle being arranged to engage the traveling wheels, as set forth.

2. A calking-machine, comprising the frame having traveling wheels, calking-disks journaled in the frame and extending below the traveling wheels, and the forked handle pivoted to the frame between the traveling wheels and provided with arms extending downwardly on each side of the frame beyond the said wheels and carrying friction-rollers, the said rollers being brought into engagement with the deck by downward pressure on said handle and the downwardly-extending arms and forked members of the handle into engagement with the traveling wheels at the angle formed by their connection, as set forth.

585,849. SCREW-CUTTING MACHINE. AUGUSTE NICOLE, Bienne, and SERAPHIN LAMBERT, Grenchen, Switzerland. Filed Oct. 23, 1895. Serial No. 567,137. (No model.) Patented in Switzerland May 6, 1895, No. 10,191, and in Belgium July 31, 1896, No. 116,508.



Claim.—1. In a screw-cutting machine, the combination of a fixed shaft, a holder adapted to revolve thereon, the said holder provided with disks $1, 1^a, 1^b$ and 1^c, with clamping devices for the screw-blanks, a series of tools for cutting the screw-points and a series of tools for cutting the screw-thread, the clamps and tools for cutting

the screw points and thread connected with the disk of the revolving holder, and adapted to operate, substantially as and for the purpose set forth.

2. In a screw-cutting machine, the combination of a fixed shaft and a sleeve adapted to revolve thereon, the said sleeve provided with flanges having clamping devices and tool-holders fitted therein, each clamping device provided with a pinion and a spring-actuated mandrel, as described, a shaft having a hollow end adapted to fit the rear end of the fixed shaft, and revolve thereon, a gear-wheel engaging the pinions of the clamping devices, the sliding disk 16 provided with pins 15, the rods 14 carrying cutting-tools and having adjustable arms, the drum 26 for adjusting said arms, and the springs 17 and 25, substantially as set forth.

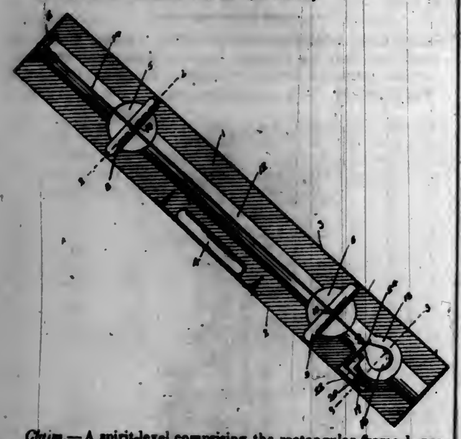
3. In a screw-cutting machine, the combination of a fixed shaft, a holder provided with clamping devices and screw-cutting tools, adapted to operate on the fixed shaft, a stationary drum having a series of elevations thereon, as described, the thread-cutters 13, and rods 14, each rod having an arm 23 and a pin 24, with the spring 25, whereby the cutter is automatically controlled substantially as set forth.

4. In a screw-cutting machine, the combination of the carriage 18, rod 29, and roller 30, as described, with the cam 33, and the spring-actuated rod 32 having an inclined plane 31, connected therewith, substantially as and for the purpose set forth.

5. The combination in a screw-cutting machine, having a revolving holder provided with disks 1 and 1', the pins 50 and bridges 49, the wedge-shaped parts 51 adapted to slide in slots in the aforesaid disks, and the regulating-wedges 53, substantially as and for the purpose set forth.

6. In a screw-cutting machine, the combination of a revolving holder, a series of clamping devices, and cutting-tools connected therewith, as described, with the worm 19, and nut 20, the carriage 18 and disk 16, pins 15 connected with said disk, the rods 14 provided with tools 13, and the springs 17, substantially as and for the purpose set forth.

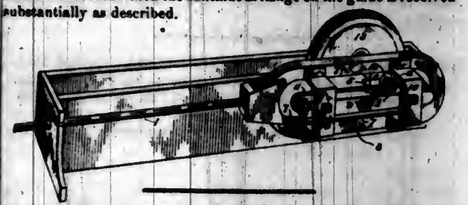
585,850. **LEVEL.** ANDREW H. PATRICK, Booneville, Miss. Filed Apr. 20, 1897. Serial No. 634,306. (No model.)



Claim.—A spirit-level comprising the rectangular frame 1, provided with the transverse orifices 5 and 6, the chamber 13, and the longitudinal orifice 12 bisecting the said orifices and chamber, in combination with the parallel spirit-level tubes 8 9 arranged in said orifices at right angles to the level-tube 4 and provided with the vertically-alined guide-lines 10 10, the plumb-line 14, fixed at its upper end and extending longitudinally through said orifice 12, the plumb-bob 15 secured to the lower end of said line within said chamber 13, the threaded shaft 17 mounted on its journals 18 18' in the frame, the nut 20 encompassing said shaft and provided with slots 21 21, the bell-crank lever 22 having one end engaging said nut and its opposite end formed with an eye 24 encompassing said plumb-bob, substantially as shown and described.

585,851. **MECHANICAL MOVEMENT.** PETTER C. H. PEDERSON, West Superior, Wis. Filed Apr. 30, 1896. Serial No. 589,716. (No model.)

Claim.—A reciprocating member, and an internally-toothed rim carried thereby, in combination with a rotating member, a gear-wheel thereon meshing with said rim, a guide arranged centrally of said rim and mounted rigidly on the reciprocating member, a flange extending continuously around said guide, and a roller on the rotating member outside of the gear-wheel traveling around and in rolling contact with the outer surface of said guide and provided with an annular rabbet in which the continuous flange on the guide is received substantially as described.

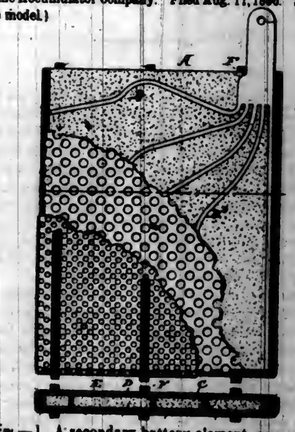


585,852. **AUTOMATIC CRADLE.** AUGUST W. PETERSON, Melrose Park, Ill., assignor of one-third to Peter Olson, same place. Filed Mar. 1, 1897. Serial No. 625,593. (No model.)



Claim.—The combination with a cradle, pendulums on the lower ends of which said cradle is secured; a rock-shaft from which said pendulums hang, and corresponding pallets projecting up from said shaft, of a suitably-supported overhead case, hangers depending therefrom, a mainspring, a grooved wheel actuated thereby, drum H, cord I connecting said wheel and drum, a ratchet G, gear F, pawl A pivoted thereon and engaging ratchet G, pinion E actuated by said gear and crown-ratchet D on the same spindle as pinion E the teeth of which engage said pallets, as and for the purpose set forth.

585,853. **SECONDARY BATTERY.** ISAK SAMUELS, New York, N. Y., assignor to Charles H. Burnett, assignee of the Samuels Dynamic Accumulator Company. Filed Aug. 11, 1896. Serial No. 602,428. (No model.)



Claim.—1. A secondary-battery element, comprising a plate of active material, a terminal embedded therein, and a case of conducting material inclosing the plate, the case consisting essentially of two portions each being perforated and having flanges at its sides and one end, and the two portions moving telescopically within each other inclosing the conducting-case except at one end and permitting of expansion and contraction of the plate, substantially as described.

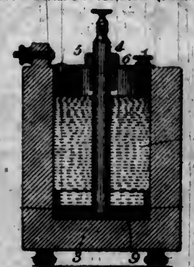
2. A secondary-battery element, comprising a plate of active material, a terminal embedded therein, a telescopic case of conducting material inclosing the plate, and a telescopic case of non-conducting material inclosing the conducting-case, substantially as described.

3. A secondary-battery element, comprising a plate of active material, a conducting-terminal embedded therein, and a telescopic case of conducting material inclosing the terminal, the said case being connected to or forming a part of the terminal, substantially as described.

4. A secondary-battery element, comprising a plate of active material, a conducting-terminal embedded therein, and a conductive perforated telescopic case embracing the plate and connected to or forming a part of the conducting-terminal, the conductive case being of flexible non-corrodible material, substantially as described.

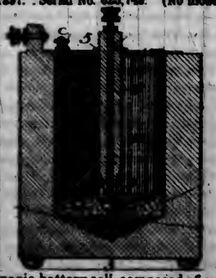
5. A secondary-battery element, comprising a plate of active material, a conducting-terminal embedded therein, a conductive telescopic case of perforated flexible non-corrodible material inclosing the plate, and perforated telescopic non-conducting plates embracing the conductive case, substantially as described.

585,854. **GALVANIC BATTERY.** JAMES SULLY, New York, N. Y. Filed Oct. 27, 1896. Serial No. 610,202. (No model.)



Claim.—A galvanic-battery cell, composed of a negative, porous, gas-coke, carbon, cylindrical containing vessel, rendered sufficiently dense on its external surface to prevent the passage, onto its surface, of an electrolytic fluid, without destroying the porosity of the surface of the vessel or its inner porosity, and insulated as described; and a positive zinc pencil immersed in an electrolytic fluid of carbonate of potash and kerosene-oil, contained within the carbon vessel, and resting in a small quantity of quicksilver contained within an insulation in the bottom of the vessel, all substantially as described.

585,855. **GALVANIC BATTERY.** JAMES SULLY, New York, N. Y. Filed Feb. 16, 1897. Serial No. 623,749. (No model.)

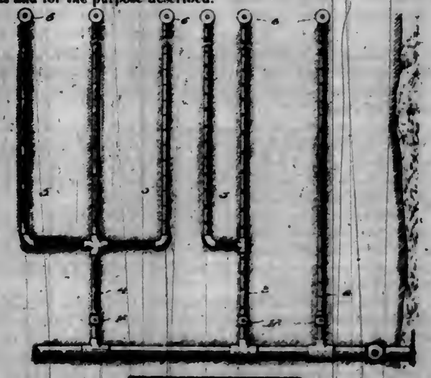


Claim.—A galvanic-battery cell, composed of a negative, porous, gas-coke, carbon, cylindrical, containing vessel, rendered sufficiently dense on its external surface to prevent the passage onto its surface of an electrolytic fluid, without destroying the porosity of the surface of the vessel or its inner porosity and insulated as described; and a positive electrode of carbon having pressed against or fastened to its lower end, a section of an easily-oxidizable metal, notably aluminium or zinc, the positive electrode being immersed in an electrolyte, composed of a solution of carbonate of potash mixed with kerosene-oil, contained within the carbon vessel and resting in a small quantity of quicksilver contained within an insulation in the bottom of the vessel, all substantially as described.

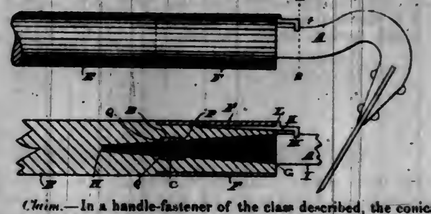
585,856. **UNDERGROUND IRRIGATION.** JOHN H. SWANSON, Chicago, Ill. Filed June 1, 1896. Serial No. 593,968. (No model.)

Claim.—1. The combination with a source of water-supply of a main supply-pipe connected therewith and located beneath the surface of the ground, a series of perforated or porous branch pipes leading outwardly therefrom, cut-offs in said pipes and an automatically-actuated vent-chamber and indicator connected to the outer end of each of said pipes, substantially as and for the purpose described.

2. The combination with a pipe located beneath the surface of the ground of a vent-chamber into which said pipe leads and having an extension leading to the surface of the ground, having an opening in its upper end a float in said chamber, a valve carried by said float adapted to fit within said opening and an arm extending upwardly through said extension and constituting an indicator, substantially as and for the purpose described.

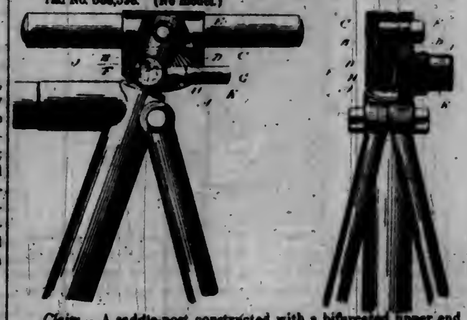


585,857. **HANDLE-FASTENER.** THOMAS E. WILSON, Farmland, Ind. Filed Mar. 11, 1897. Serial No. 626,953. (No model.)



Claim.—In a handle-fastener of the class described, the conical shank as described, provided with a notch, O the shank adapted to be made fast and firmly secured within the handle by its screw forcing the semicircular nuts into the recess provided in the hole in the handle, imparting their force against the resisting ferrule, as described; in combination with the key K of elastic metal, adapted to be forced into the recess N and having a lug l, engaging with the ferrule, as described, and having a lug M engaging with the notch in the shank, preventing the shank from being turned while so engaged, as described, and shown, and for the uses and purposes set forth.

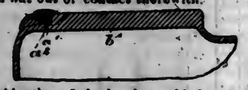
585,858. **TILTING SADDLE-BAR AND SEAT-POST FOR BICYCLES.** CHARLES WEBSTER, New York, N. Y. Filed Apr. 20, 1896. Serial No. 588,398. (No model.)



Claim.—A saddle-post constructed with a bifurcated upper end providing two extensions, a tilting cross-bar having a semicircular pendent flange formed with radial grooves, a lug adjacent to the pendent flange, a bolt whereby the cross-bar is pivoted to the bifurcated upper end, a locking-bolt beneath the pivot-bolt, and a disk formed with a slot receiving the lug, and with radial grooves and interposed between the locking-bolt and the pendent flange; substantially as described.

585,859. **HEEL-PROTECTOR.** THOMAS P. BOULTER, Lowell, Mass. Filed Sept. 8, 1896. Serial No. 605,125. (No model.)

Claim.—1. The combination of the head, provided with a dam or annular flange, and the attaching-point, secured in said head within said dam but out of contact therewith.



2. The combination of the head, provided on its inner face with a dam or annular flange and having its outer face roughened, and the attaching-point, secured in said head, within said dam but out of contact therewith.

3. The combination of the head, provided with a dam or annular flange, and the attaching-point, secured in said head within said dam but out of contact therewith, said dam having a less depth on the inside than on the outside, to contact the material, to which it is applied, within said dam around said attaching-point.

4. The combination of the head, provided with a dam or annular flange, and the attaching-point, secured in said head within said dam but out of contact therewith, said dam being contracted from its open end inward, to compress the material, to which it is applied, against said attaching-point.

5. The combination of the head, provided with a dam or annular flange, and the attaching-point, secured in said head within said dam but out of contact therewith, said dam having a less depth on the inside than on the outside and being contracted from its open end inward, to compress the material, to which it is applied, against said attaching-point.

585,860. BREAKDOWN FIREARM. JOHN H. BROWN, New York, N. Y., assignor of one-half to Robert M. Brown, same place. Filed Apr. 6, 1896. Serial No. 586,315. (No model.)

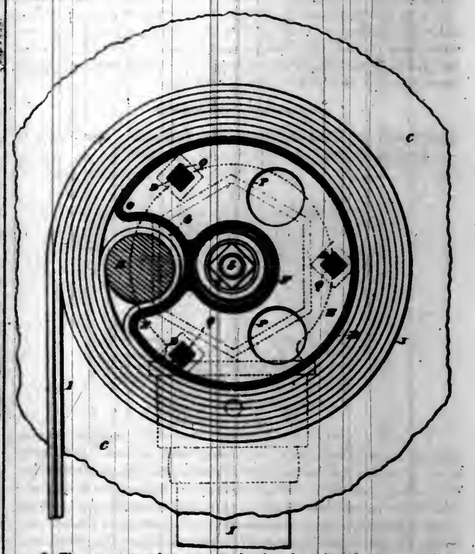


Claim.—1. The combination with the stock and the breech-block, of a screw-bolt extending through the breech-block into the stock for fastening the breech-block into the stock and a nut seated within a slot in the stock for engaging the screw-bolt to hold the parts in removable adjustment, substantially as set forth.

2. The combination with the hammer, the sear, the actuating-spring, the trigger and their support, of a longitudinally-sliding bar having a locking engagement with the trigger and a spring-actuated lever pivoted to the said support and having an engagement with the sliding bar to positively throw it out of and into engagement with the trigger as the lever is raised and lowered, substantially as set forth.

585,861. HOSE-REEL. EDWARD CLIFF, Newark, N. J. Filed Mar. 20, 1897. Serial No. 630,144. (No model.)

Claim.—1. The water-supply apparatus having the valve, the valve-casing, the hose-attaching nozzle directly on one side of and stationary with said valve-casing, and the valve-stem projecting from another side of said casing, combined with the reel mounted upon and connected with said valve-stem and adapted on being revolved to open and close said valve, and the hose at one end connected with said stationary nozzle and thence wound upon said reel; substantially as set forth.



2. The water-supply apparatus having the valve, the valve-casing, the projecting valve-stem, and the hose-attaching nozzle directly on and stationary with said valve-casing, combined with the reel mounted upon and connected with said stem, means permitting the revolving of said reel around said stem to rewind the hose without acting on said valve, and the hose at one end connected with said stationary nozzle and thence wound upon said reel; substantially as set forth.

3. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the reel receiving within its bore said stem and being keyed thereto, and means permitting said reel to be manually shifted in line with said stem to unkey itself therefrom and then be revolved around said stem to rewind the hose without acting on said valve; substantially as set forth.

4. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the said stem having the polygonal portion, the reel receiving within its bore said stem and having a conforming recess to receive said polygonal portion of said stem; substantially as set forth.

5. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the said stem having the polygonal portion at its outer end, the reel receiving within its bore said stem and having at its outer side a conforming recess to receive said polygonal portion of said stem; substantially as set forth.

6. The water-supply apparatus having the pipe L, the valve-casing M connected with said pipe and having as a permanent part thereof and stationary therewith the outlet-nozzle K, the valve within said casing, and the valve-stem projecting from said casing at right angles to said nozzle K, combined with the reel mounted on and adapted to operate said stem, and the hose at one end connected to said stationary nozzle K and thence wound upon said reel; substantially as shown and described.

7. In combination with the water-supply apparatus having the valve, projecting valve-stem and hose-attaching nozzle, the reel mounted on and adapted to operate said stem, and the hose at one end connected with said nozzle and thence while doubled at about its center wound upon said reel; substantially as set forth.

8. The water-supply apparatus having the pipe, the valve-casing M connected with said pipe, the outlet-nozzle K on and stationary with one side of the said valve-casing, the valve, the valve-stem projecting from another side of said casing, and the sleeve surrounding said stem and connected with said casing, combined with the reel having the central bore and receiving therein said sleeve and being keyed to said stem, and the hose at one end connected with said stationary nozzle K and thence wound upon said reel; substantially as and for the purposes set forth.

9. The water-supply apparatus having the pipe, the valve-casing M connected with said pipe, the outlet-nozzle K on and stationary with one side of the said valve-casing, the valve, the valve-stem projecting from another side of said casing, and the sleeve surrounding said stem and connected with said casing, combined with the reel having the hub and plates and the bore in said hub to receive said sleeve and stem, means locking the outer side of said reel to the projecting end of said stem and capable of manual removal to permit the revolving of said reel on said sleeve without affecting said stem, and the hose at one end connected with said stationary nozzle K and thence wound upon said reel; substantially as and for the purposes set forth.

10. The water-supply apparatus having the valve-casing, hose-attaching nozzle, threaded sleeve, valve and valve-stem, the latter extending through and beyond said sleeve and having the polygonal outer portion and threaded extremity, combined with the reel having the central bore and provided with the recess conforming to said polygonal portion of said stem, and the nut securing said reel on said stem; substantially as set forth.

11. In combination with water-supply apparatus, the reel and hose connected with said apparatus, said reel having within the periphery of its hub the recess to receive the folded part of the hose and the core within said fold, substantially as set forth.

12. In combination with water-supply apparatus, the reel and hose connected therewith, said reel having within the periphery of its hub the recess to receive the folded part of the hose and the core within said fold, the surface of said periphery below said recess being set inward from the circle of said periphery above said recess; substantially as and for the purposes set forth.

585,862. VEHICLE-FENDER. WILLIAM H. GIBBS, St. Louis, Mo. Filed Jan. 11, 1897. Serial No. 618,778. (No model.)



Claim.—1. As a new article of manufacture, a car-fender the body of the holding or receiving portion of which is made of solid rubber, substantially as set forth.

2. As a new article of manufacture, a car-fender having an outer section, the body of which including the striking and the holding or receiving portions is formed of solid rubber, substantially as set forth.

3. As a new article of manufacture, a car-fender the outer section of the body of which, including the striking and the holding or receiving portions, is made of solid rubber, and the inner section of wood or iron, substantially as set forth.

4. As a new article of manufacture, a car-fender the outer section of which is composed of a rim of natural or virgin rubber, and a lattice-work filling of vulcanized rubber, the transverse bars of which are U-shaped in transverse section, substantially as set forth.

5. As a new article of manufacture, a car-fender the outer section of the body of which, including the striking and the holding or receiving portions, is composed of solid rubber and the inner section of wood or iron, the end bars of the latter being extended to support the outer section, substantially as set forth.

6. As a new article of manufacture, a car-fender the outer portion of which is composed of a rim of rubber and a lattice-work filling of rubber, substantially as set forth.

7. As a new article of manufacture, a car-fender having an inner portion of unyielding material and an outer portion composed of a rim of rubber, and a lattice-work filling of rubber, substantially as set forth.

585,863. ARMORED ELECTRICAL CONDUIT. EDWIN T. GREENFIELD, Brooklyn, N. Y., assignor to the Interior Conduit and Insulation Company, New York, N. Y. Filed Oct. 7, 1896. Serial No. 608,146. (No model.)



Claim.—1. A conduit having an external metallic armor, an internal tube or lining of insulating material, and an interposed layer of fibrous material which is impervious to moisture, substantially as described.

2. A conduit consisting of a metal armor, a lining of insulating material and an intermediate lining of fibrous material treated with oil, substantially as described.

3. A conduit consisting of a metal armor, a lining of insulating material and an intermediate lining of fibrous material treated with oil, said intermediate lining firmly adhering to the interior wall of the armor and to the lining of insulating material, substantially as described.

4. A conduit-tube consisting of a metal armor and a lining of oil-cloth with its painted surface adhering to the inner wall thereof, in combination with an inner lining of insulating material adhering to the inner wall of the oil-cloth lining, substantially as described.

5. A conduit-tube consisting of a metal armor, a lining of oil-cloth having its painted surface closely adhering to the inner wall of the armor and an interior lining of paper treated with an insulating material, substantially as described.

6. A conduit-tube consisting of an iron armor, a lining of oil-cloth with the painted surface thereof adhering to the inner wall of the armor and an interior lining of paper, the whole having been treated with heated asphalt or pitch in such manner as to thoroughly impregnate the pores of the inner lining and cover the outer surface of the iron armor, substantially as described.

585,864. ARMORED ELECTRICAL CONDUIT. EDWIN T. GREENFIELD, New York, N. Y., assignor to the Interior Conduit and Insulation Company, same place. Filed Dec. 10, 1896. Serial No. 615,116. (No model.)



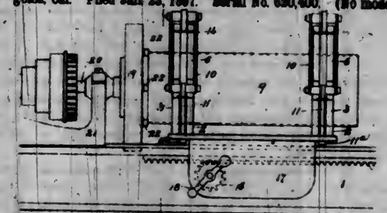
Claim.—1. A conduit-tube composed of a metal armor and an interior lining of oil-cloth with the painted surface thereof adhering to the inner wall of the armor, substantially as described.

2. A conduit-tube composed of a metal armor and one or more interior linings of fibrous material saturated with a moisture-resisting agent, substantially as described.

3. A conduit-tube composed of an armor having an interior lining of a fibrous material impregnated with a moisture-resisting agent, said lining and moisture-resisting agent acting also as an insulating medium, substantially as described.

4. A conduit-tube composed of a metal armor and one or more insulating-linings of fibrous material impregnated with a moisture-resisting agent, said linings and moisture-resisting agent acting also as an insulating medium, substantially as described.

585,865. PIPE-TRUING LATHE. CHARLES S. HAMLIN, Los Angeles, Cal. Filed Jan. 23, 1897. Serial No. 620,400. (No model.)



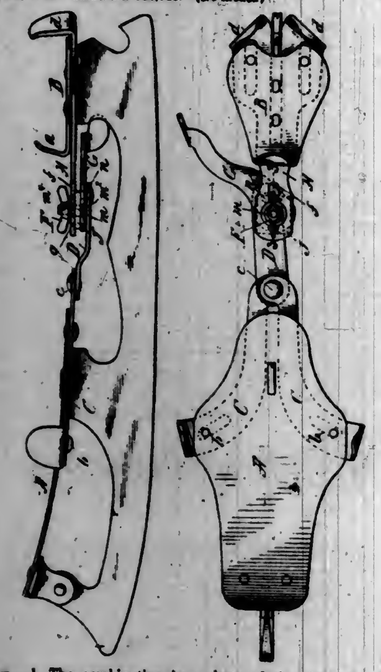
Claim.—1. A cutter comprising a bolt formed with a spindle of greater diameter than the body and with a head of greater diameter than the spindle, a radial pin secured to the body, adjacent to the spindle, a disk formed with a circular recess receiving the head, with a circular opening of less diameter receiving the spindle, with a cutting-face, and with a circumferential groove in rear of the cutting-face, and a nut threaded onto the body of the bolt; substantially as described.

2. A chuck comprising a series of concentric circles of circular holes having radial slots and cutters each having a body adapted to fit in the circular holes and provided with radial pins adapted to engage in the radial slots; substantially as described.

3. A cradle comprising a base, lower sections, upper sections, bolts extending through the ends of the lower sections whereby they are secured to the base, the bolts extending through the inner ends of the upper sections and pivoted to the bolts of the inner ends of

the lower sections, the links pivoted to the bolts of the outer ends of the lower sections, and embracing the outer ends of the upper sections and the cam-levers pivoted to the links: substantially as described.

585,866. SKATE. JOSEPH R. HARRISON, Chicopee, Mass. Filed Oct. 29, 1896. Serial No. 610,513. (No model.)



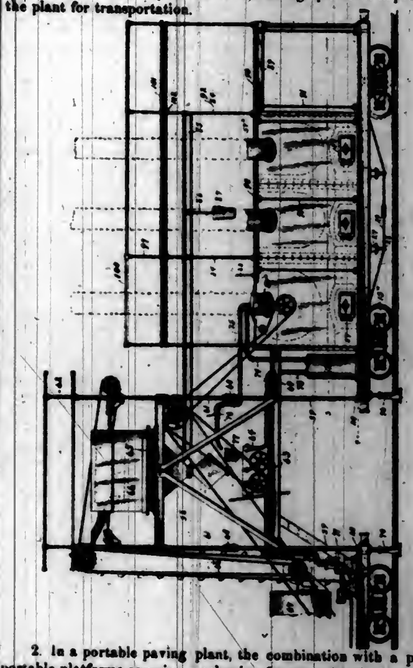
Claim.—1. The combination, in a skate of the character described, with the sole-clamps and the link pivotally connected thereto, of the heel-clamp longitudinally slotted, the block having an adjustable interlocking engagement with the heel-clamp, the lever pivotally connected to said link, and a bolt having an engagement with the lever, passed through the block and the slot in the heel-clamp and receiving the binding-nut, substantially as and for the purpose set forth.

2. In a skate of the character described, the combination with the sole-clamps and the link pivotally connected thereto, of the heel-clamp having on its under side the series of serrations, the block having on its upper side a series of serrations and having a squared opening through it, the lever pivotally connected to said link, and the bolt having on its lower end an enlargement loosely seated in a countersink therefor in the lever, having a portion thereof extending upwardly through the slot squared, whereby the block may not rotate on the bolt, and said bolt having its upper extremity threaded, receiving thereon the thumb-nut which is adapted to seat itself upon the upper side of the slotted heel-clamp, all substantially as and for the purposes set forth.

3. In a skate the sole-clamps, the link pivotally connected thereto, the operating-lever, G, provided with a pivot N which passes through the rear end of the link; and the bolt M, by which the parts are connected, combined with a separate bolt J serrated upon its upper face, and the heel-clamp provided at its front end with a slot F, and having its under surface serrated so as to engage with the block: and a thumb-nut which is applied to the upper end of the bolt for clamping the parts together: the block J being stationary on the bolt while the heel-clamp is adjusted back and forth in relation to the block so as to regulate the distance the clamp shall be moved substantially as shown.

585,867. PORTABLE PAVING PLANT. FREDERICK A. HETTENBERGER, Indianapolis, Ind. Filed Dec. 5, 1896. Serial No. 614,579. (No model.)

Claim.—1. In a portable paving plant, the combination of a pair of portable platforms carrying mechanism for preparing the ingredients of the paving, a platform mounted between said portable platforms, so as to form a driveway beneath said intermediate platform, a storage-platform mounted upon and carried by one of the portable platforms substantially in line with said first-mentioned platform, and ways, carried by the intermediate platform and the storage-platform, upon which the mixing mechanism may be mounted, the arrangement being such that the mixing mechanism may be moved from the intermediate platform to the storage-platform in preparing the plant for transportation.



2. In a portable paving plant, the combination with a pair of portable platforms carrying mechanism for preparing the ingredients of the paving, of standards mounted upon the adjacent ends of said portable platforms, a detachable intermediate platform secured to said standards between said portable platforms, so as to form a driveway beneath said detachable platform, a storage-platform mounted upon one of the portable platforms substantially in line with the detachable platform, and ways carried by the intermediate and storage platforms upon which the mixing mechanism may be mounted, the arrangement being such that the assembling mechanism may be moved from said detachable platform to the storage-platform in preparing the plant for transportation.

3. In a portable paving plant, a portable platform therefor consisting of the outer frame, the intermediate longitudinal beams, one or more pairs of headers mounted between the frame and one of said longitudinal beams, and a series of grate-bars mounted between each pair of headers with their ends resting upon or supported by said longitudinal beam and said frame and forming a portion of the floor of the platform, substantially as and for the purpose set forth.

4. A portable platform consisting, in part, of the outer frame of channel-iron, an angle-iron mounted between the ends of said channel-irons and secured thereto, a flange carried by said angle-iron and resting upon the upper flanges of the channel-irons, and a socket carried by said flange, substantially as described.

5. A portable platform consisting, in part, of the outer frame of channel-iron, and angle-iron mounted between the adjacent ends of said channel-irons and secured thereto, and a socket mounted at or near the corners of said frame, substantially as described.

6. A tile for furnace-settings having a socket formed at one end thereof and having the corners of said end beveled, and a lip extending from one or both of said beveled surfaces and forming a continuation of the socket, as and for the purpose set forth.

7. A tile for furnace-settings, having a socket formed at one end thereof and having the corners of said end beveled on lines substantially radial to the center of said socket, a lip formed integral with said tile extending from said beveled surfaces and arranged so as to form a continuation of said socket, a portion of the inner surface of said lips being removed so as to facilitate the removal of said lips upon a plane substantially in line with the beveled surface.

8. A tile for furnace-settings, having a socket formed at each end thereof and having the corners of each end beveled on lines substantially radial to the center of the adjacent socket, and a lip formed integral with the tile extending from each of said beveled surfaces and arranged to form a continuation of the corresponding socket, substantially as described.

9. A tile for furnace-settings having a socket formed at each end thereof and having the corners of each end beveled on lines substantially radial to the center of the adjacent socket, a lip formed integral with the tile extending from each of said beveled surfaces and arranged to form a continuation of the corresponding socket, a portion of the inner surface of said lip being removed so as to facilitate the removal of said lip upon a plane substantially in line with the beveled surface.

10. In a furnace-setting, the combination with the grate-bars, of a series of large hollow tiles mounted upon each side of said grate-bars, a vertical series of tiles mounted between said tiles and the grate-bars, and an arch mounted between said series of tiles and extending over the grate-bars, substantially as described.

11. In a paving plant, the combination with the melting-kettles, of an air-tight chamber, means for compressing air into and for exhausting the air from said chamber, a pipe leading from said exhausting and compressing means into said chamber, a pipe forming a communication between said chamber and kettles, and a pipe leading from said chamber to the exterior thereof, substantially as described.

12. A detachable roof structure consisting of two series of posts, a series of transverse bars secured to each pair of said posts and extending out beyond said posts, an upright carried by each transverse bar, means for connecting said uprights, the arrangement being such that each half of the structure above the posts will be balanced on said posts so that there will be no lateral stress upon said posts.

13. In a roof structure, a pair of uprights, a transverse bar carried by said uprights, and an upright carried by said transverse bar, the transverse bar extending beyond the supporting-uprights sufficiently to cause the weight to be balanced upon the supporting-uprights so that said uprights will be subjected to no lateral stress.

14. In a paving plant, the combination with the melting-kettles thereof, of pipes leading therefrom through which the melted material may be withdrawn, and covers for said kettles extending over and covering said pipes, whereby the material passing through said pipes is kept warm, substantially as described.

15. In a paving plant, the combination with the melting-kettles thereof, of pipes leading therefrom through which the melted material may be withdrawn, smaller pipes mounted in said pipes and connected with a suitable source of heat, whereby the contents of said first-mentioned pipes are kept warm, substantially as described.

16. In a paving plant, the combination with the melting-kettles thereof, of two pipes, one mounted within the other, one of said pipes being connected with a suitable source of heat and the other of said pipes communicating with the interior of the melting-kettles, substantially as and for the purpose set forth.

17. In a portable paving plant, a pair of portable platforms carrying means for preparing the ingredients of the paving material, standards erected on the adjacent ends of said platforms, an intermediate platform mounted between said standards and carrying means for assembling said ingredients, and supports detachably mounted beneath the portable platforms beneath the standards, as and for the purpose set forth.

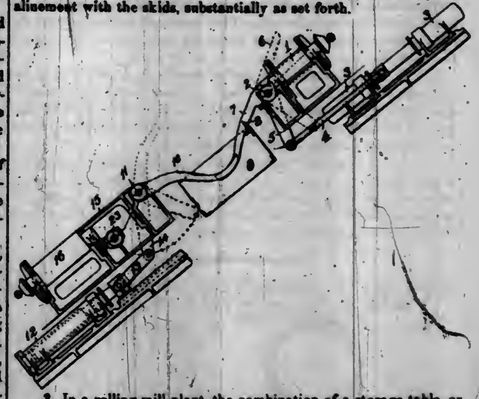
18. In a portable paving plant, the combination with the melting-kettles thereof, of platforms hinged at each side of said kettles near the top thereof, and means for supporting said platforms in position to form a running-board at the sides of said kettles, the arrangement being such that said platforms may be folded over into position to form a roof for the kettle-car.

19. In a paving plant, the combination with the melting-kettles thereof, of platforms hinged at each side of said kettles near the top thereof, the said platforms being slightly greater in width than one-half the distance between the hinge-line of the opposite platforms, and means for supporting said platforms in position to form a running-board at the sides of said kettles, the arrangement being such that said platforms may be folded over into position to form a roof for the car.

585,868. APPARATUS FOR BOSHING BARS, &c. SIGMUND V. HUBER, Youngstown, Ohio. Filed Dec. 28, 1896. Serial No. 617,175. (No model.)

Claim.—1. In a rolling-mill plant, the combination of a receiving-table, a boshing-tank arranged alongside of said table, inclined skids extending from the table to the tank, pivotally-mounted arms and means for moving the arms from a position beneath the plane of movement of a bar, &c., on the table into or approximately in alinement with the skids, substantially as set forth.

2. In a rolling-mill plant, the combination of a receiving-table, a boshing-tank arranged parallel or approximately parallel with the table, inclined skids exteeding from the table into the tank and having their lower ends shaped to stop and hold a bar in the tank, pivotally-mounted arms, and means for moving the arms from a position beneath the line of a bar, &c., on the table into or approximately into alinement with the skids, substantially as set forth.



3. In a rolling-mill plant, the combination of a storage-table, or supports, a boshing-tank arranged parallel or approximately parallel with the table, pivotally-mounted arms having their outer ends shaped to receive and support a bar, and means for raising the arms from the tank to such a height or inclination that the bars will slide along the arms onto the storage-table or supports, substantially as set forth.

4. In a rolling-mill plant, the combination of a feed-table, a storage-table or supports, a boshing-tank, the tables and tank being arranged parallel or approximately parallel, with each other, pivotally-mounted arms having their outer ends shaped to receive and support a bar, means for raising the arms from the tank to such a height or inclination that the bars will slide along the arms onto the storage-table, and means for shifting the bars from the storage-table onto the feed-table, substantially as set forth.

585,869. CATCHER'S TABLE FOR ROLLING-MILLS. SIGMUND V. HUBER, Youngstown, Ohio. Filed Jan. 21, 1897. Serial No. 620,039. (No model.)

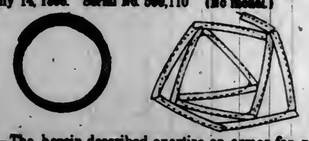
Claim.—1. In a rolling-mill, the combination of a feed-table having one or more positively-driven feed-rollers, an idler-roller mounted in movable bearings above the feed-table, a hood or deflecting-shield arranged transversely of the table in front of the idler, and means for moving the idler toward and from the feed-table, substantially as set forth.

2. In a rolling-mill, the combination of a feed-table having one or more positively-driven feed-rollers, means for raising and lowering the feed-table, an idler-roller mounted in movable bearings above the feed-table, a hood or deflecting-shield arranged transversely of the table in front of the idler, and means for moving the idler toward and from the feed-table, substantially as set forth.

3. In a rolling-mill, the combination of a feed-table having one or more positively-driven feed-rollers, an idler-roller mounted in movable bearings above the feed-table, and means operative both for raising and lowering the feed-table and for moving the idler toward and from the feed-table, substantially as set forth.

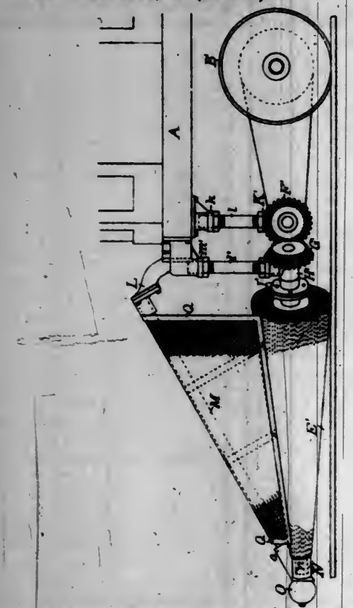
4. In a rolling-mill, the combination of a feed-table having one or more positively-driven feed-rollers, an idler-roller yieldingly mounted in movable bearings normally supporting the idler in inoperative position above the feed-table, and means for moving the idler toward the feed-table, substantially as set forth.

585,870. **PNEUMATIC TIRE.** JACOB R. JONES, Denver, Pa. Filed July 14, 1896. Serial No. 599,110. (No model.)



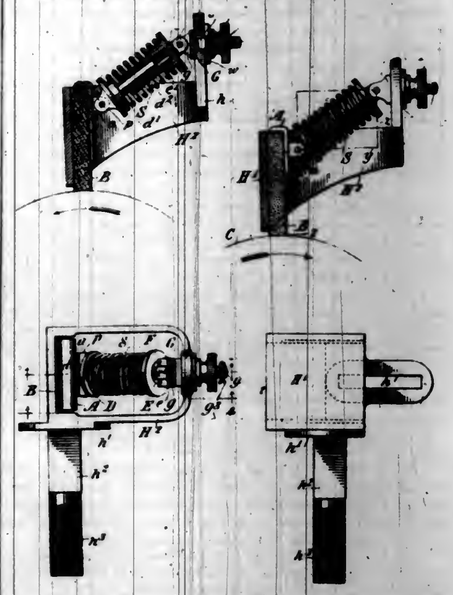
Claim.—The herein-described overtire or armor for pneumatic tires, consisting of a series of plates each of which is curved laterally and longitudinally and is formed with rib-like projections serving both to stiffen the plate and prevent slippage of the wheel, the ends of each plate overlapping and underlapping the contiguous ends of the adjacent plates, and a helically-coiled spring secured to said plates and connecting the same, said spring having its ends relatively formed to engage each other and attach the overtire around the tire proper, substantially as described.

585,871. **CAR-FENDER.** NICHOLAS KOEHLER, Paterson, N. J., assignor of one-half to Mortimer Ingis, same place. Filed Mar. 18, 1897. Serial No. 628,160. (No model.)



Claim.—In a car-fender, the car-track axle having the pulley C secured thereto, and the auxiliary rotating shaft P, having the fast and loose pulleys D, D', the bearings K and K' for shaft P suspended from brackets *k* and *k'*, by means of the threaded pipes *l l'*, and the bevel-gears F and F' keyed to each end of the shaft P, in combination with the rotating conical-shaped brushes E and E', the short shafts *n* and *n'* and *p* and *p'* coupled together, the bevel-gears G and G' keyed to the shafts *p* and *p'* and meshing with the bevel-gears F and F' on the shaft P, the brackets *m* and *m'*, threaded pipes *l* and *l'* and bearings H and H' for shafts *p* and *p'*, the frame having the brace M and the casting N, a bracket L to which the brace M is secured, bearings in the casting N for outer ends of shafts *n* and *n'*, a rubber cushion secured to casting N, the setting Q and means for communicating motion from the car-axle to the shaft P to rotate the conical brushes substantially as shown and described.

585,872. **BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES.** ROBERT LUNDELL, Brooklyn, N. Y., assignor of two-thirds to the Interior Conduit and Insulation Company, New York, N. Y. Filed July 11, 1896. Serial No. 598,801. (No model.)



Claim.—1. A commutator-brush holder provided with two sets of adjusting devices, one of which sets of adjusting devices tends to give to the brush downward pressure against the commutator and a lateral or side pressure against the stationary part of the holder, and the other gives to all of said parts vertical adjustment so as to adapt the entire structure for brushes of various lengths, substantially as described.

2. A commutator-brush holder provided with a stationary guideway for the brush and a movable part adapted to bear against the brush in two directions, said movable part being pivotally secured to an adjustable device, one part of which is mechanically connected with the stationary part of the holder, substantially as described.

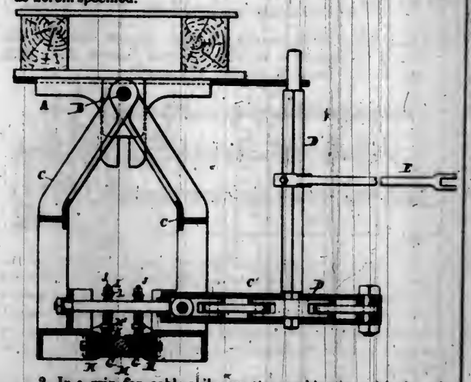
3. A commutator-brush holder consisting of a stationary part and a movable part adapted to exert a pressure upon the brush in two directions, in combination with adjustable means connecting said movable part with the stationary part whereby the pressure may be varied as desired, substantially as described.

4. A commutator-brush holder consisting of a stationary part provided with a guideway for the brush, a movable part pivotally connected to spring-actuated adjusting mechanism, which adjusting mechanism is in turn secured to the stationary part, all of said parts being so arranged that the adjusting mechanism tends to give to the brush movement in two directions, substantially as described.

5. A commutator-brush holder consisting of a stationary part provided with a guideway for the brush, a movable part adapted to bear against the brush in two directions and pivotally secured to a spring-actuated adjusting device which in turn is pivotally secured to a second adjusting device having mechanical connection with the stationary part of the holder, substantially as described.

585,873. **GRIP FOR CABLE-RAILWAYS.** CHARLES B. MARTIN, Brooklyn, N. Y. Filed Feb. 10, 1897. Serial No. 622,753. (No model.)

Claim.—1. In a grip for cable-railways, the combination with the gripping-jaws and mechanism for manually adjusting them in one of two or more positions, of gripping portions carried by said jaws and capable of an outward yielding movement independently of the jaws, adapted to release the cable when the downward pull becomes excessive without changing the position of the jaws, all substantially as herein specified.



2. In a grip for cable-railways, the combination with the gripping-jaws and mechanism for manually operating the same, of gripping portions carried by said jaws and springs I connected to the gripping parts and standing on abutments H^2, arranged to permit their automatic opening and to effect the return of the same, independently of the adjusting means, substantially as herein specified.

3. In a grip for cable-railways, the combination with the gripping-jaws and mechanism for manually operating the same, of gripping-blocks pivoted to said jaws to swing independently thereof, and connected springs arranged to automatically yield and again automatically restore the blocks to an operative position, substantially as herein specified.

4. In a grip for cable-railways, the combination with the gripping-jaws having convex bearing-faces, and mechanism for operating said jaws, of gripping-blocks pivoted to the jaws to swing vertically, and having concave rear faces to move on said bearings, and spring-yielding connections for normally holding the blocks in an operative position, substantially as herein specified.

5. In a grip for cable-railways, the combination with the gripping-jaws and mechanism for operating the same, of gripping-blocks pivoted to said jaws to swing vertically, and adjustable spring-yielding connections for normally holding the blocks in an operative position, substantially as herein specified.

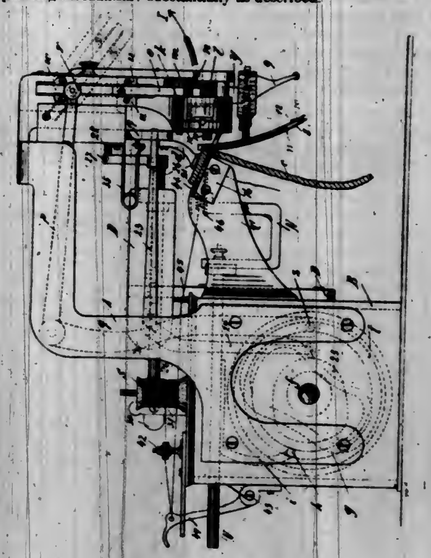
6. In a grip for cable-railways, the combination with the manually-operated gripping-jaws, carrying the backing-pieces having the end trunnions and upper supports H^2, of gripping-blocks held up by spring-yielding and suspended eyebolts J, guided in said supports, and a through-rod K passing through the eyebolts, and also through lugs on the gripping-blocks, substantially as herein specified.

7. In a cable-grip, in combination with the gripping-jaws C, and operating mechanism therefor, the gripping-blocks G arranged to liberate the cable not only by the opening of the jaws, but also by yielding to a sufficient downward pull of the cable, said blocks having bearings *g* of large diameter along the mid-length, arranged to receive the pressure when the grip is engaged and offer such friction to aid in holding the blocks firmly against ordinary disturbing forces, and having also arms C' taking hold of the jaws C by relatively frictionless bearings *g'* to insure that the blocks are properly guided and to allow them to be easily returned to position after thus yielding, all substantially as herein specified.

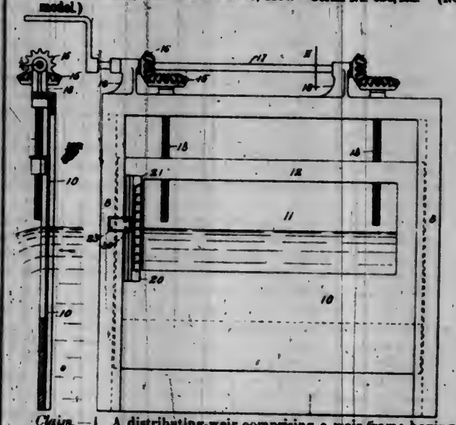
585,874. **MACHINE FOR SEWING SWEAT-BANDS IN HATS.** CARL BECKER, Berlin, Germany. Filed May 25, 1896. Serial No. 593,663. (No model.) Patented in England Mar. 28, 1896, No. 6,402.

Claim.—1. A machine for sewing sweat-bands to hat-bodies comprising a pendent pivoted shuttle-box carrying an annular holder, a spur-wheel on the holder, a second spur-wheel meshing with the first-named spur-wheel, a third spur-wheel fastened on the spindle carrying the second spur-wheel, the rack-guides secured to the shuttle-box, the rack sliding between the rack-guides and meshing with the third spur-wheel, an elbow-lever connected at one end with the rack, a groove-cam with which the other end of the elbow-lever is connected, means for supporting a hat-body, means for guiding and holding a sweat-band, a reciprocating needle-bar, and suitable operating mechanism; substantially as described.

2. A machine for sewing sweat-bands to hat-bodies comprising a hollow arm, the guide-bars secured to the hollow arm for supporting a hat-body, a feed device consisting of a slide formed with an opening at its lower end, a slot at one side thereof, a laterally-extending pin in the upper portion, and a presser-foot attached to said slide, an eccentric lever upon which the pin is adapted to bear, the elbow-lever having an arm extending into the opening, a spindle having a small crank provided with a pin working in the slot, and suitable operating mechanism; substantially as described.



585,875. **ADJUSTABLE DISTRIBUTING-WEIR.** JAMES B. POPE, San Bernardino, Cal. Filed Jan. 23, 1897. Serial No. 620,402. (No model.)



Claim.—1. A distributing-weir comprising a weir-frame having an opening, a movable weir-plate having an opening and a graduated scale thereon and adapted to slide in the weir-frame and to control the opening in the latter, a fixed vernier-plate having a graduated scale and secured to the weir-frame, and a movable connection between the vernier-plate and the wier-plate, substantially as set forth.

2. In a distributing-weir the combination of a movable weir-plate having a strip thereon, a graduated scale on said strip, a groove formed in said strip, a fixed vernier-plate having a graduated scale thereon, and a lug on the vernier-plate engaging the groove in the strip, substantially as set forth.

3. In a distributing-weir the combination of a movable weir-plate having a strip thereon, a scale secured to the strip, a dovetail recess in the strip, a vernier-plate and a dovetail lug in the vernier-plate engaging said dovetail recess substantially as set forth.

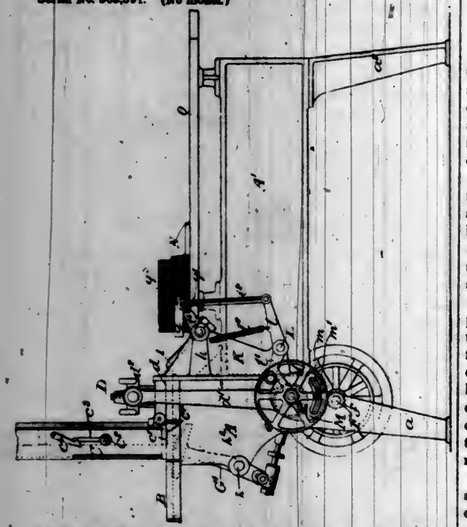
4. In a distributing-weir the combination of a fixed frame a movable weir-plate mounted therein, a scale secured to the weir-plate and a movable vernier-plate mounted in a recess in said frame, substantially as set forth.

5. In a distributing-weir the combination of a frame having a dovetail recess, a dovetail vernier-plate movably secured in said re-

com, a movable weir-plate and a scale secured to the weir-plate, substantially as set forth.

6. A distributing-weir comprising a weir-frame having an opening, a vernier-plate movably supported in the weir-frame and having a scale graduated to measure to the one-thousandth part of a foot, a movable weir-plate having an opening and a scale thereon graduated to measure to a one-hundredth part of a foot, and means for moving the weir-plate in a vertical direction to control the opening in the weir-frame; substantially as set forth.

585,876. MACHINE FOR PUNCHING AND STACKING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Filed Sept. 25, 1895. Serial No. 563,591. (No model.)



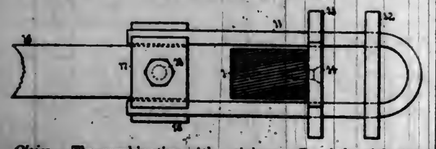
Claim.—1. The combination with the punching mechanism and means for moving the card in a horizontal plane away from the punching mechanism, of a rocking rest for receiving the card, and carrying it into an edgewise upright position, a stop for holding the card in one direction in its upright position and yielding retaining-hooks for holding the card in the opposite direction in its upright position during the return rocking movement of the rest, substantially as set forth.

2. The combination with the punching mechanism and standards or guides for retaining a supply-stack of cards in position to be fed to the punching mechanism, of lifting-slides engaged with the guides or standards of the supply-stack for elevating the supply-stack of cards at pleasure, substantially as set forth.

3. The combination with the punching mechanism and standards or guides for retaining a supply-stack of cards in position to be fed to the punching mechanism, of lifting-slides engaged with the guides or standards of the supply-stack for elevating the supply-stack of cards at pleasure and retaining devices for holding the stack of cards elevated, substantially as set forth.

4. The combination with a rocking sleeve for actuating the feed mechanism, of a washer in position to engage the end of the rocking sleeve and means for regulating the pressure of the washer against the end of the sleeve to retard it, substantially as set forth.

585,877. PICKER-STRAP FOR LOOMS. ORREN A. SAWYER and MOSES M. LAHUE, Lowell, Mass.; said Sawyer assignor to said Lahue. Filed July 9, 1896. Serial No. 598,534. (No model.)



Claim.—The combination with a picker-staff and the pick-strap, of a connection between the said strap and staff consisting of a U-shaped rod embracing the staff and secured to the strap, a piece 13, through which the rod plays, and which is attached to the staff, and a flat piece 12, strung upon the rod next the bend of the U, so as to subtend like a chord the arc of the bend, but located out of contact with the bend.

585,878. BEAMING ATTACHMENT. OTTO W. SCHAUM, Philadelphia, Pa., assignor to Benjamin Eastwood, Paterson, N. J. Filed Mar. 27, 1897. Serial No. 629,493. (No model.)



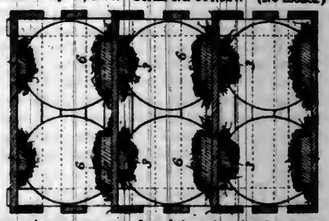
Claim.—1. A warping attachment, consisting of two parallel connected rods, a series of bracket-arms fulcrumed on one of said rods and adjustably secured with their other ends on the other rod, a series of pin-carrying disks revolubly and centrally mounted on said bracket-arms, and a series of beams carried by said disks, and mechanism for rotating said disks and beams, substantially as and for the purposes described.

2. A warping attachment, consisting of two parallel connected rods, of a series of bracket-arms, each of said arms being provided at one end with a sleeve loosely mounted on one of said rods and on its other end with a forked portion adapted to engage the other rod, and a series of beam-supports revolubly arranged on and carried by said bracket-arms, and means for rotating said beam-supports, substantially as and for the purposes described.

3. A warping attachment consisting of two end brackets, two parallel rods arranged in and connecting said brackets, one of said rods being above and in rear of the other; a series of bracket-arms fulcrumed on one of said rods and adapted to engage with their other ends the other rod, a series of shafts parallel with said rods and having their bearings in said bracket-arms, a series of pin-carrying disks mounted on said shafts and each provided with a central hole or recess, a series of beams carried by said disks and bearing with their trunnions in the holes or recesses of their respective disks, and means for rotating said disks and beams, substantially as described.

4. In a warping attachment, the combination with driving mechanism comprising a gear-wheel, a face-plate carried thereby, a pin eccentrically arranged on said face-plate, two parallel rods suitably connected together, a series of bracket-arms fulcrumed on one of said rods and engaging with their free ends the other rod, a series of pin-carrying disks revolubly mounted on said bracket-arms and parallel and in alinement with the face-plate, and a series of beams carried by said disks and the face-plate respectively, substantially as and for the purposes described.

585,879. PACKING-CASE. WALTER D. UPTEGRAFF, Pittsburg, Pa. Filed May 11, 1896. Serial No. 591,027. (No model.)

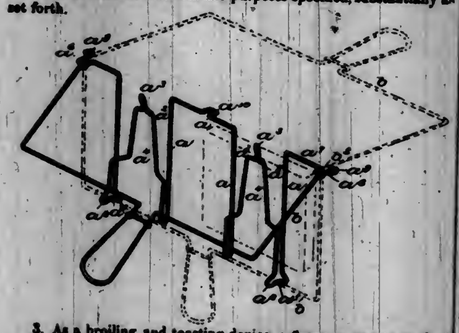


Claim.—A case or crate for globes, &c., having its bottom and top or cover provided with a series of blocks adapted to project into openings in the ends of globes, in combination with strips adapted to be secured transversely of the case or crate intermediate of the top and bottom, and provided on both sides with blocks adapted to project into openings of the globes above and below the strips, substantially as set forth.

585,880. TOASTER OR BROILER. EDWIN WALL, Portland, Oreg. Filed Oct. 24, 1896. Serial No. 609,990. (No model.)

Claim.—1. As a broiling and toasting device, a frame, *a*, constructed of wire of suitable elasticity and strength, and comprising a back, the frontal clamps, a^4, provided with tongues, a^5, for the purpose specified, and suitable feet on which to stand the frame; and a bail, or handle, *b*, loosely attached to such frame, substantially as set forth.

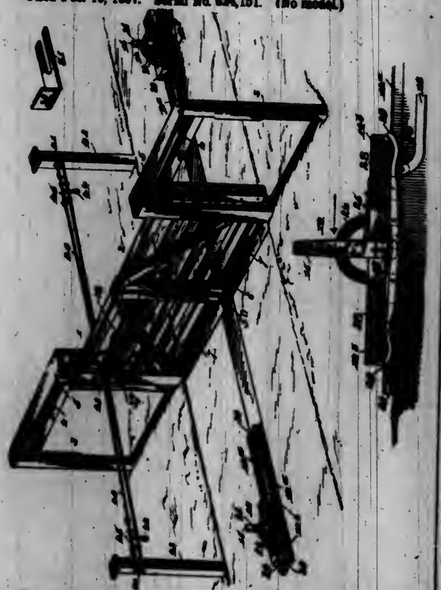
2. As a broiling and toasting device, a frame, *a*, constructed of wire of suitable elasticity and strength, and comprising a back, the frontal clamps, a^4, the feet, a^3, on which to stand the frame, the arms, a^7, and a bail, or handle, hung from their extremity, the arms, a^7, being flexible, and the feet, a^3, provided with protruding toes, leaving a depression between them, so that the bail or handle may be drawn over and held on the feet, for the purposes specified, substantially as set forth.



3. As a broiling and toasting device, a frame, *a*, constructed of wire of a suitable elasticity and strength, and comprising a back, the frontal clamps, a^4, the feet, a^3, on which to stand the frame, and the arms, a^7, having ears, a^8, at their extremities, to which is attached a bail, or handle, *b*; such ears extending horizontally, and being so constructed as to bring the handle-joint about centrally between the back and clamps of the frame, substantially as and for the purpose set forth.

4. As a broiling and toasting device, a frame, *a*, constructed of wire of suitable elasticity and strength, and consisting of a back, the frontal clamps, a^4, the feet, a^3, on which to stand the frame, and the arms, a^7, having ears at their extremities, and a bail or handle *b*, hung therefrom; and the back of the frame being provided with studs, a^9 and a^{10}, substantially as and for the purposes set forth.

585,881. AUTOMATIC GATE. DAVID F. BAKER, Vernonia, Oreg. Filed Feb. 19, 1897. Serial No. 624,151. (No model.)



Claim.—1. The combination of sliding gate-sections, transverse rack-bars connected with the sliding gate-sections, longitudinally-disposed rack-bars extending from opposite sides of the gate-sections, a pair of pinions meshing with the rack-bars, and means for operating the longitudinally-disposed rack-bars, substantially as and for the purpose described.

2. The combination of sliding gate-sections, slides disposed at opposite sides of the gate-sections, the longitudinal and transverse rack-bars geared together and connected, respectively, to the slides and to the gate-sections, pivoted bars mounted on the slides, extending upward therefrom and adapted to be engaged by an axle of a vehicle, whereby the slides are moved inward and outward, and means for tripping the pivoted bars at the ends of the movement of the slides to cause the said bars to swing downward and permit an axle to pass over them, substantially as described.

3. In an automatic gate, the combination of a slide, a sliding gate-section, gearing connecting the slide with the gate-section, a pivoted arm mounted on the slide, extending upward therefrom and adapted to be engaged by a vehicle, trip-levers fulcrumed between their ends at the bottom of the slide, extending in opposite directions from the lower end of the pivoted bar and provided at their inner ends with shoulders to be engaged by the same, whereby the pivoted bar is locked in an upright position, and projections arranged to engage the trip-levers to throw the same out of engagement with the pivoted bar, substantially as described.

4. The combination of a slide, a gate-section, gearing for connecting the slide with the gate-section, a pivoted bar mounted on the slide, a spring connected with the pivoted bar and adapted to return the same to a perpendicular position, longitudinally-disposed trip-levers fulcrumed on the slide, arranged to engage the pivoted bar and provided at their outer ends with inclined edges, and projections arranged to be engaged by the inclined edges of the trip-levers, substantially as described.

5. The combination of the sliding gate-sections, slides located at opposite sides of the same, gearing connecting the gate-sections with the slides, a catch mounted on one of the gate-sections and engaging the said gearing, and operating ropes or cables extending from opposite sides of the gate-sections and connected with the said catch and the gate-section upon which the said catch is mounted, whereby such gate-section is operated independently of the sides and the said gearing, substantially as described.

6. The combination of the sliding gate-sections 1 and 2, transverse rack-bars 8 and 9, longitudinally-disposed rack-bars, gearing connecting the rack-bars, an arm extending from the rack-bar 8, a catch mounted on the gate-section 1 and engaging the said arm, a catch-lever fulcrumed on the gate-section 1 and connected with the catch, an operating-lever mounted on the gate and adapted to engage the catch-lever, and operating ropes or cables connected with the operating-lever, substantially as described.

7. The combination of the sliding gate-section 1, a rack-bar 8 provided with horizontal and vertical arms, a loop depending from the gate-section 1 and receiving the horizontal arm of the rack-bar, a catch mounted on the bottom of the gate and engaging the vertical arm of the rack-bar, gearing for operating the rack-bar, a lever 37 fulcrumed on the gate and connected with the catch, an operating-lever mounted on the gate and arranged to engage the lever 37, and operating ropes or cables connected with the operating-lever, substantially as described.

8. The combination of the sliding gate-section, operating ropes or cables extending from opposite sides of the gate-section and connected with the same, sliding frames mounted on the operating-ropes and each comprising a longitudinal rod provided with a central eye, transverse links provided with eyes receiving the rod and the opposite portion of the adjacent rope or cable, and handles having eyes linked into the central eyes of the rods, substantially as described.

9. The combination of the transverse and longitudinal rack-bars, gearing connecting the rack-bars, adjustable plates arranged adjacent to the rack-bars and provided with rollers engaging the same, and adjustable braces connected with the adjustable plates, substantially as described.

10. The combination with the sliding gate-sections, longitudinal track-bars provided with horizontal flanges, a slide arranged on the track-bars and provided with depending flanges interlocked with the same, gearing connecting the slide with the gate-sections, and a bar mounted on the slide and adapted to be engaged by a vehicle, substantially as described.

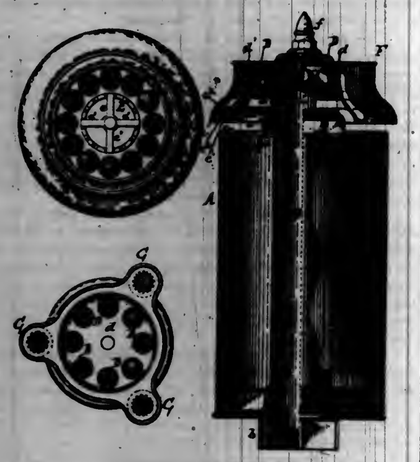
11. The combination with a gate-section and a rack-bar, of a locking device connecting the same composed of an upper section having an open eye or hook, a lower section engaging the open eye or hook and provided at one side with a stop, and a pivoted arm mounted on the other side of the lower section, substantially as described.

585,882. WHISTLE FOR BUOYS. EDWARD C. RATH, Boston, Mass., assignor to the Crosby Steam Gage and Valve Company, same place. Filed May 12, 1896. Serial No. 591,227. (No model.)

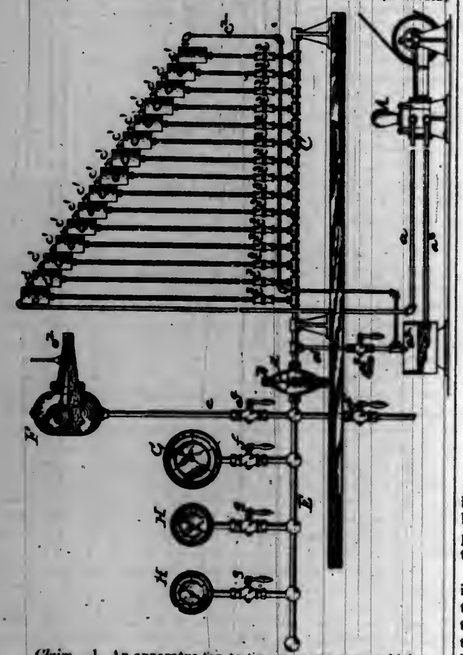
Claim.—1. The combination of the whistle-bell having an edge, a receptacle having a chamber and a slit into such chamber, the slit being opposite the edge of the whistle-bell; a valve in such receptacle opening to the outer air; and an air-tube communicating with the interior of the buoy and the receptacle, as set forth.

2. The combination of the bell, A; the air-tube, B; the cup, C, having the chamber, c^3, the slit, c^2, adjacent to the edge, *a*, of the bell, A, the diaphragm, *d*, having the perforations, d'; and the balls, D, as set forth.

3. The combination of a whistle with two deflecting-plates placed opposite each other and having a passage between them, as set forth.



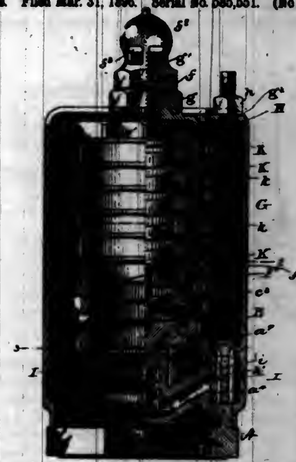
585,883. PRESSURE-GAGE TESTER. CHARLES B. BOSWORTH, Everett, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Jan. 24, 1896. Serial No. 576,673. (No model.)



Claim.—1. An apparatus for testing pressure-gages which consists of a number of fluid-columns of different heights; a pipe common to such columns, such pipe having an intercepting diaphragm, the columns being on one side of such diaphragm and the pipe being provided upon the opposite side of the diaphragm with connections for gages, in combination with a fluid-pressure device having a fixed pressure, such device being attached to that portion of the pipe to which the gage connections are attached, as set forth.

2. The combination of the pump, A; the pipe, *a*; the series of columns or tubes, *c*, of different heights; the pipe, C, common to all the columns, *c*; the overflow-pipe, *c'*, connecting the tops of the columns; the pipe, E, provided with the connections for the gages; the diaphragm between the pipes, C and E, and a fixed pressure device connected to the pipe, E, as set forth.

585,884. SAFETY-VALVE. CHARLES B. BOSWORTH, Everett, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Mar. 31, 1896. Serial No. 585,551. (No model.)

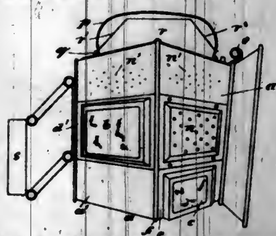


Claim.—1. The combination of the base, A, having the cup-shaped well, *a'*, the hollow arms, *a²*, leading therefrom; the ring, I, for regulating the openings of the arms; the rod, H, extending outside of the valve and having the pinion, *h'*, for operating the ring, I; the valve, C, having the cylindrical top, *c'*; the spring-casing, F, fitting snugly the top, *c'*; and the valve-spring, E, within the casing, as set forth.

2. The combination of the exterior valve-casing; and the spring-casing spaced apart; with the perforated annuli, K, and the cylinders, *k*; the top of the exterior casing being perforated, as set forth.

3. The combination of the exterior valve-casing, and the spring-casing spaced apart with the perforated annuli, K, and the cylinders, *k*, the top of the exterior casing having slits, as set forth.

585,885. LAMP FOR CYCLES, &c. EDWARD M. HARLEY, Edinburgh, Scotland. Filed Dec. 14, 1896. Serial No. 615,699. (No model.) Patented in England Nov. 4, 1896, No. 24,619.



Claim.—1. A cycle-lamp having a casing formed with inwardly-inclined side walls at the rear portion provided with windows or lights therein inclined toward the rear of the lamp and adapted to project the light from the lamp to the side or rear thereof, substantially as described.

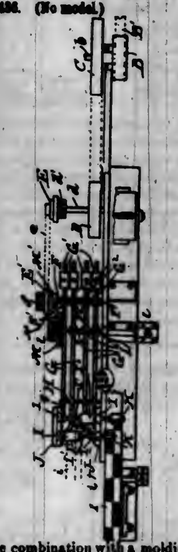
2. A cycle-lamp having a casing composed of two parts inclined inwardly in opposite directions and pivoted together, the rear portion of said casing being provided with a window or light inclined toward the rear of the lamp to project the light from said lamp at the side and rear thereof and the front portion of said casing having in the lower part thereof a window or light to project the lamp-light downwardly at the rear of the main lens of the lamp, substantially as described.

3. A cycle-lamp having a casing composed of two parts pivoted together and inclined from the central portion thereof inwardly in opposite directions, and a hood pivoted to one of said parts and adapted to engage the adjacent part so as to secure said parts together, substantially as described.

4. A cycle-lamp having a casing composed of two parts hinged together and inclined from the central portion thereof inwardly in opposite directions and each part provided with side windows or lights, an oil vessel with wick-tube fitted in one part and a lens fitted in the other part, and means for locking the two parts together when shut, substantially as described.

5. A cycle-lamp composed of two parts *a a'* hinged together and inclined from the central portions thereof inwardly in opposite directions, an oil vessel *i* with wick-tube *k* fitted in the part *a'*, rearward lights *b b'* located in the part *a'*, a lens *g* fitted in the part *a*, downward lights *c c'* fitted in the part *a*, and a hood *p* for locking the two parts together when shut, substantially as described.

585,886. AUTOMATIC ATTACHMENT FOR MOLDING-MACHINES. ANDREW J. LEMON, Lancaster, Pa. Filed Aug. 12, 1896. Serial No. 602,486. (No model.)



Claim.—1. The combination with a molding-machine of a series of vertical slides dovetailed thereto, cross-shafts connecting said slides, said shafts having cutters attached thereto and means for revolving the said shafts and cutters, a series of swinging rods for throwing the said slides alternately in an upward and downward position, a series of cams for throwing said rods, said cams being mounted upon a cross-shaft, and means for revolving the said shaft, substantially as shown and described.

2. In an attachment for molding-machines, the combination of a series of swinging rods, G, mounted on shaft H, said rods being adapted to be vibrated by cams F', mounted on shaft F, vertical slides I, pivotally connected to said rods G, and dovetailed to stationary plates J, cross-shafts I' connecting said slides, cutters K attached to the outer end of shafts I', weights G', adapted to maintain rods J, in normal engagement with cams F' and segmental projections or bearings G^2, whereby the slides are moved in downward position, substantially as shown and described.

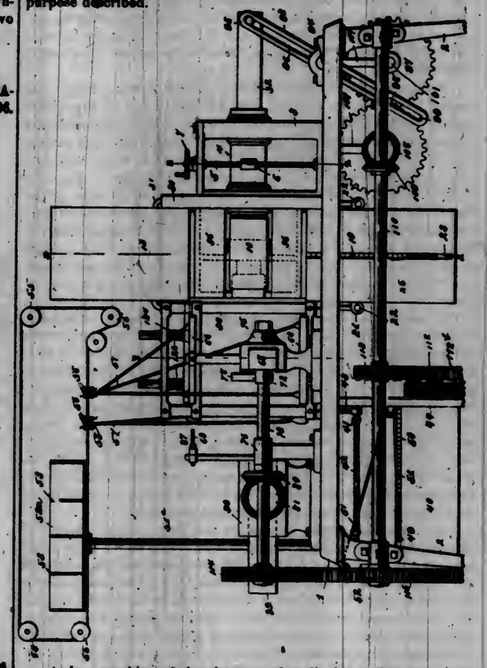
3. In an attachment for molding-machines of the character described, the combination, with the rods G, slides I, and shafts I', carrying the cutters K, of an auxiliary shaft L, journaled in bearings *l*, a series of cams L', mounted on said shaft L, toothed pinion M, attached to the outer end of said shaft and meshing with the worm-wheel N, mounted on shaft M', journaled in boxes *n*, and the handle-lever *n'*, adapted to operate said wheel, whereby the slides may all be simultaneously thrown into or out of action, substantially as shown and described.

585,887. AUTOMATIC BOX-MAKING MACHINE. WILLIAM T. MCRAE, Philadelphia, Pa., assignor of one-half to Jos. J. Macaulay, same place. Filed Jan. 2, 1896. Serial No. 574,122. (No model.)

Claim.—1. In a device of the character described, a hopper having slots in its bottom, parallel wires propelled beneath the slots in such a position as to convey nails from the hopper, spread-rolls located between the wires and chutes in front of the spread-rolls, as and for the purpose described.

2. In a box-nailing machine, box-supports hinged to swing downward springs to keep said supports normally in their elevated position and spring-catches on the hammer mechanism adapted to grasp lugs on the supports and swing said supports downward to let the box fall, as and for the purpose described.

3. In a device of the character described, a plunger-rod, a guide-box, in which said plunger-rod is adapted to slide, a feed-plunger composed of a hub secured on the plunger-rod, arms removably secured in sockets of the hub and corner-plates removably secured to the arms, in combination with gage-plates between the corner-plates removably secured to the guide-box by suitable arms, as and for the purpose described.



4. In a machine of the character described, a nail-feed consisting of a tube having an enlarged mouth, a block secured in said mouth, a spring-plate secured on the block and having two arms extending in the path of the nails in the tube, in combination with a hammer having a tapering shank to press the arms apart and allow the nails to fall on the block, as and for the purpose described.

5. In a device of the character described a plunger-rod, a guide-box in which said plunger-rod is adapted to slide a feed-plunger composed of a hub secured on the plunger-rod, arms removably secured in sockets of the hub, and corner-plates removably secured on the arms having spring-pressed pawls on their ends, in combination with gage-plates between the corner-plates removably secured to removable arms of the guide-box as and for the purpose described.

6. In a box-making machine, a reciprocating feed-plunger, a lever pivoted to the frame of the machine, a bolt projecting from the feed-plunger and sliding in a slot of the lever, a gear-wheel journaled in the frame, a crank-pin on the gear-wheel sliding in a slot of the lever, a disk having an indentation on its periphery secured to the gear-wheel, a spring-pressed dog pivoted to the frame having a nose to engage the indentation of the disk and a mutilated gear-wheel secured on the drive-shaft of the machine meshing with the gear-wheel, said mutilated gear-wheel having a blank in such a position as to disengage the gear-wheel when the dog engages the detent, as and for the purpose described.

7. In a device of the character described, a plunger having adjustable plates, a guide-box for the plunger, guides in which said box slides, a lug on the side of the box, a worm-screw threaded therein, having means for actuating to adjust the position of the box and detachable feed-boxes between which the plunger slides, as and for the purpose described.

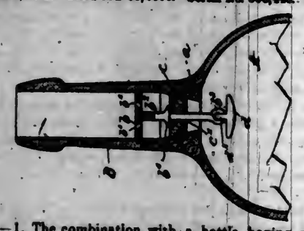
8. In an automatic box-making machine, a frame adapted to support the operative parts of said machine; a set of gage-plates against which suitable shooks are fed, feed-boxes for supporting said shooks, a plunger composed of angle-plates having feed-dogs pivoted thereto, a slide-bar guided in a suitable box and to which said plunger is secured mechanism for actuating the slide-bar to cause the plunger to feed the shooks, which are to compose the sides of the box forward into a suitable frame, a plunger 45, mechanism for actuating said plunger, in unison with the first-named plunger a hopper from which nails are fed, parallel rails caused to travel in close proximity thereto whereby the nails are conveyed from said hopper in a vertical position, spreader-rolls for increasing the distance between the rails, in order that the nails may drop therefrom, chutes having mouths

so formed as to receive the nails when dropping from the rails, said chutes terminating in enlargements having spring-forks arranged therein so as to place the nails in position for driving, hammers for forcing nails into shocks hammer-plates to which said hammers are secured, slide-bars carrying the hammer-plates, mechanism for imparting a reciprocating motion to said slide-bars and means for conveying the completed box from the machine, as and for the purpose described.

9. In an automatic box-making machine, a frame adapted to support the operative parts of said machine, a set of gage-plates against which suitable shocks are fed, feed-boxes for supporting said shocks a plunger composed of angle-plates having feed-dogs pivoted thereto, a slide-bar guided in a suitable box and to which said plunger is secured, mechanism for actuating the slide-bar to cause the plunger to feed the shocks which are to compose the sides of the box, forward into a suitable frame, a plunger 45, mechanism for actuating said plunger in unison with the first-named plunger, a hopper from which said nails are fed, parallel rails caused to travel in close proximity thereto, whereby the nails are conveyed from said hopper in a vertical position, spreader-rolls for increasing the distance between the rails in order that the nails may drop therefrom chutes having mouths so formed and placed as to receive the nails when dropping from said rails, said chutes terminating in enlargements having spring-forks arranged therein, so as to place the nails in position for driving, hammers for forcing said nails into shocks, hammer-plates to which said hammers are secured, slide-bars carrying the hammer-plates, housings in which said slide-bars are guided, rolls journaled to the sides of the slide-bars, eccentrics adapted to revolve in contact with said rolls for imparting reciprocation to said slide-bars, a series of beveled gears and connecting-shafts for causing the several eccentrics to revolve in unison and means connected to the hammer mechanism for causing the completed box to be conveyed from the machine, as and for the purpose described.

10. In an automatic box-nailing machine, a frame adapted to support the operative parts of said machine, a set of gage-plates against which suitable shocks are fed, feed-boxes for supplying said shocks, said boxes being adapted to be attached to and removed from the machine, push-bars guided in suitable slots in said boxes, weights connected to said push-bars by means of cords passing over suitable pulleys, the slide-bar 32, supported and guided in the box 4, a hub 34 secured upon the inner end of said slide-bar, angle-plates 36 adjustably attached to said hub, feed-dogs 37 pivoted to said angle-plates, a suitable hopper for holding the nails to be fed, rails adapted to travel beneath openings in the bottom of the hopper, said rails being at a distance from each other sufficiently to permit the passage of the nails therebetween but to prevent the passage of the heads of said nails, spreader-rolls for increasing the distance between the rails sufficiently to permit the passage of the heads of said nails, chutes having their mouths so arranged as to receive the nails when dropped from the said rails, said chutes terminating in enlargements at their lower ends, spring-forks arranged within said enlargements, the prongs of which are normally closed so as to retain the bottom nail in each of said chutes, the hammers 63 having enlargements adapted to spread the prongs of the forks to permit the bottom nail in each chute to assume a horizontal position, and means for operating said hammers, substantially as described.

585,888. NON-REFILLABLE BOTTLE. CHRISTIAN G. NORMAN, New York, N. Y. Filed Oct. 10, 1896. Serial No. 608,446. (No model.)



Claim.—1. The combination with a bottle having a shoulder within the neck, of a valve adapted for seating on said shoulder, and centrally perforated, a spindle playing through said opening and integrally carrying an upper disk having discharge-ports and pivotally suspending at its lower end, a cross-bar or keeper, the valve, spindle, and keeper, all being of glass, substantially as specified.

2. The combination with a bottle having a downwardly-contracting shoulder within the neck, of a valve adapted for seating on said shoulder and having a perforation, a spindle playing through said perforation, having an offset b^4, and upper perforated disk b, together with a cross-bar or keeper d, pivotally suspended from the lower end of the spindle, substantially as herein specified.

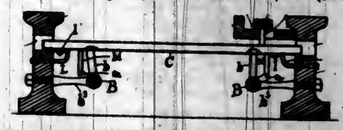
3. The combination with a bottle having a shoulder a within the neck, of a valve c, for seating on said shoulder, a spindle playing through the valve and carrying an upper disk having inwardly-inclined discharge-openings, and a cross-bar or keeper d, pivotally suspended from the lower end of the spindle and arranged to be stopped by the shoulder, substantially as herein specified.

585,889. PLANE. ALBERT A. PAGE, East Haven, Conn., assignor to the Sargent & Company, New Haven, Conn. Filed May 16, 1896. Serial No. 591,848. (No model.)



Claim.—In a plane, the combination with the frame; of the bit; a support on the frame for the bit; a locking device mounted on the frame; a clamping-cap above the bit, forming the main handle portion of the plane, and having its forward end adapted to engage with said locking device to lock the forward end of the bit, while its rear end is provided with a longitudinal slot; a substantially right-angled clamp pivoted in said clamping-cap, with one arm adapted to swing forward in said longitudinal slot, and the other arm to bear on the bit and lock the rear of the same, when the forwardly-swinging arm has assumed a position in alinement with the main portion of said clamping-cap; and means on said clamp for disengaging it from its locked position, substantially as described.

585,890. AUTOMATIC SWITCH. GEORGE T. PRATT, New Haven, Conn. Filed Apr. 24, 1896. Serial No. 588,875. (No model.)



Claim.—1. In an automatic switch, the combination with the rails and the switch; of horizontal rods parallel to the rails and secured thereto, and adapted to rotate on their axes; a cross-bar connected to the switch; vertical arms to said rods attached to said cross-bar; horizontal arms at the other ends of said rods; vertical plungers connected to said horizontal arms; and plates secured to the upper ends of said plungers, substantially as described.

2. In an automatic switch, the combination with the rails and the switch; of a cross-bar extending transversely to and having bearings in the rails, said cross-bar having a stud connected to the switch; horizontal rods extending parallel and attached to said rails, and being capable of rotating on their axes; vertical arms to said rods attached to said cross-bar; horizontal arms to said rods; and vertical plungers connected to said horizontal arms substantially as described.

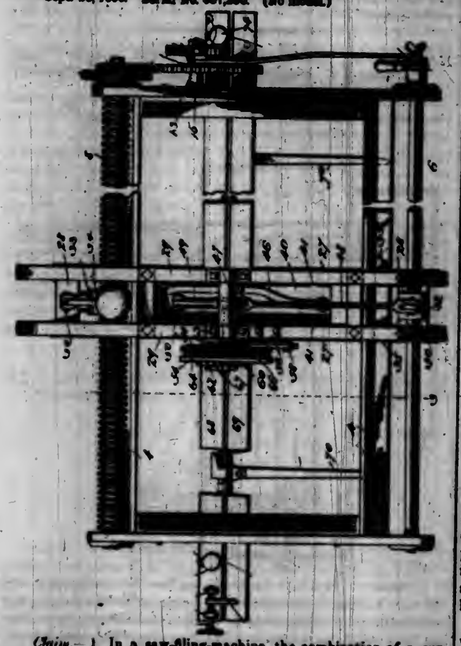
3. In an automatic switch, the combination with the rails and switch; of a cross-bar extending transversely to the rails and connected to the switch; V-shaped catches on the under side of said cross-bar; horizontal rods extending parallel to the rails, capable of being rotated on their axes; vertical and horizontal arms to said rods, said vertical arms being attached to said cross-bar; vertical plungers connected to said horizontal arms; and latches adapted to engage with said catches on the under side of said cross-bar, substantially as described.

4. In an automatic switch, the combination with the rails and switch; of a cross-bar extending transversely to the rails and connected to the switch; V-shaped catches on the under side of said cross-bar; horizontal rods extending parallel to the rails capable of rotating on their axes; vertical arms and arbors to said rods, said vertical arms being attached to said cross-bar; uprights pivoted to said arbors and bearing on the under side of said cross-bar; horizontal arms to said rods; vertical plungers attached to said horizontal arms; and latches adapted to engage with said catches on said cross-bar, substantially as described.

5. In an automatic switch, a locking device consisting of V-shaped catches depending from a cross-bar connected with the switch; latches rigidly secured to the rails of the track having vertical ends adapted to engage with said catches; and means for raising said cross-bar when it is moved longitudinally, substantially as described.

6. In an automatic switch, the combination with the switch; of a cross-bar connected therewith; V-shaped catches on the under side of said cross-bar; latches adapted to engage with said catches; arbors mounted to turn about a center; uprights pivoted to said arbors and bearing on the under side of said cross-bar; and means for operating said cross-bar and arbors, substantially as described.

585,891. SAW FILING AND SETTING MACHINE. FRANCIS J. STALLINGS, Billingham, Ill., assignor of one-half to John R. Selmer. Filed Sept. 26, 1896. Serial No. 607,202. (No model.)



Claim.—1. In a saw-filing machine, the combination of a supporting-frame, a squared bar supported in the frame to turn therein, a screw-rod journaled in the frame, a lever rigidly connected to the squared bar, a ratchet-and-pawl mechanism and gearing connecting the lever and screw-rod, a carriage supported at one end by the squared bar to slide thereon, and having at its other end a half-nut which engages the screw-rod, a reciprocating file-carrier supported by the file-carriage, bows connected to the carriage, a swinging bar pivoted at its upper end to said bows and connected at its lower end to the file-carrier, an arm 32, extending from the squared bar and a link connecting the said arm and the swinging bar substantially as and for the purpose described.

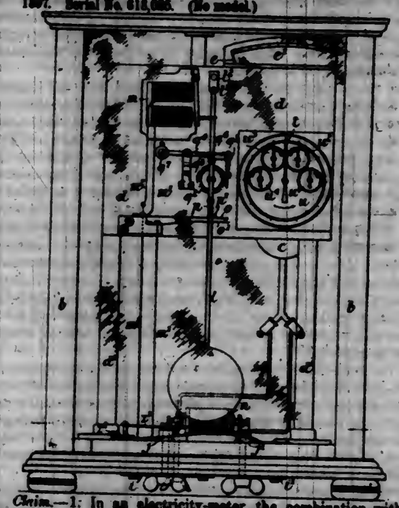
2. In a saw filing and setting machine, the combination with the file-carrier, its carriage, and a swinging bar pivoted on the carriage and connected to the carrier, of a saw-setting mechanism consisting of two oppositely-toothed disks loosely mounted on a pin projecting from the carriage, hammers carried by said disks, crossed levers pivoted on a pin projecting from the swinging arm, said levers having hooked lower ends to engage the teeth on the disks, and springs secured at one end to a fixed support and their free ends engaging the hammers, substantially as and for the purpose described.

3. A saw-setting mechanism consisting of two disks loosely mounted on a pin, each disk having two teeth on its periphery, the teeth on one disk being opposite those on the other, hammers carried by said disks, crossed, pivoted levers having hooked lower ends to engage the teeth on the disks, a spring connecting the upper ends of the levers, means to rock the crossed levers to partially rotate said disks alternately, a pawl pivoted on each disk, fixed stops engaged by said pawls when the disk is moved by its upper tooth, and springs secured at one end to fixed supports and engaging the hammers with their free ends, substantially as described.

4. In a saw-setting mechanism, two disks loosely mounted on a shaft, a swinging bar carrying rocking levers to partially rotate said disks alternately, springs to return said disks, arms carried by said disks and extending therefrom in opposite directions, each arm having a recess in its outer end, hammers adjustably supported in the said recesses, and means to lock the hammers in their adjusted positions, substantially as and for the purpose set forth.

5. In a saw filing and setting machine, the combination with the saw-clamp, of mechanism to adjust the saw in the clamp vertically and longitudinally consisting of rollers supported in the clamp and vertically adjustable therein to engage the back edge of the saw, a finger supported on the clamp to engage the end or a tooth of the saw, and devices to move the finger in order to adjust the saw longitudinally in the clamp, substantially as described.

585,892. ELECTRICITY-METER. ALWYN W. STAVELEY, ISAAC H. PARSONS, and THOMAS J. MURRAY, Leicester, England. Filed Jan. 5, 1897. Serial No. 618,085. (No model.)



Claim.—1. In an electricity-meter, the combination with the ammeter provided with an indicating-arm, operated thereby, of recording mechanism, an operating-lever for said recording mechanism, provided with an arm or feeler having a portion in the path of said indicating-arm, for regulating the position of said lever, and an actuating device having a uniform movement adapted to engage said lever, substantially as described.

2. In an electricity-meter, the combination with an ammeter provided with an indicating-arm operated thereby, of recording mechanism, an operating-lever for said recording mechanism, provided with an arm or feeler having a portion in the path of said indicating-arm, for regulating the position of said lever, and an actuating device having a uniform movement adapted to engage said lever, substantially as described.

3. In an electricity-meter, the combination with the ammeter provided with an indicating-arm operated thereby, of recording mechanism, an operating-lever for said recording mechanism provided with an arm or feeler having a part in the path of said indicating-arm, an actuating device having a uniform movement adapted to engage said operating-lever, and means for locking said indicating-arm while it is engaged by said feeler, substantially as described.

4. In an electricity-meter the combination with the ammeter provided with an indicating-arm, of recording mechanism, an operating-lever therefor provided with an arm or feeler having a part in the path of said indicating-arm, means for locking said indicating-arm while it is engaged by said feeler, and an actuating device for said lever, provided with means for releasing said locking device, substantially as described.

5. In an electricity-meter, the combination with the ammeter provided with an indicating-arm, of recording mechanism, an operating-lever therefor, having an arm or feeler provided with a part in the path of said indicating-arm, a locking device for said indicating-arm comprising a pair of parallel bars on opposite sides of said arm, adapted to clamp said arm at any position to which it may be moved, and an actuating device for said lever provided with means for releasing said locking device, substantially as described.

6. In an electricity-meter, the combination with the ammeter provided with an indicating-arm, of recording mechanism, an operating-lever therefor having an arm or feeler provided with a part in the path of said indicating-arm, a locking device for said indicating-arm comprising a pivoted frame provided with a pair of longitudinal parallel bars on opposite sides of said indicating-arm, a continuously-rotating actuating device having a part for engaging said operating-lever and a part for swinging said pivoted frame to release said indicating-arm, substantially as described.

7. In an electricity-meter, the combination with an indicating-arm, of a recording mechanism, an operating-lever therefor, having an arm or feeler provided with a part in the path of said indicating-arm, a locking device for said indicating-arm, a continuously-rotating actuating device for engaging said lever, provided with means for releasing said locking device, said lever having a curved portion concentric with the axis of rotation of said actuating device for holding said feeler out of engagement with said indicating-arm, while the locking mechanism is released, substantially as described.

8. In an electricity-meter, the combination with the ammeter, of recording mechanism controlled thereby, and an actuating device for said recording mechanism comprising among its members, a pendulum, an electric magnet for actuating the same, a circuit-controller for said magnet and a device on said pendulum adapted to engage said circuit-controller when the swing of the pendulum becomes reduced, substantially as described.

9. In an electricity-meter, the combination with the ammeter and recording mechanism controlled thereby, of actuating mechanism for said recording mechanism including among its members, a pendulum, an electromagnet for actuating the same, a circuit-closing device and a pivoted pawl on said pendulum adapted to pass over said circuit-closing device normally, and to operate said device when the swing of the pendulum becomes reduced, substantially as described.

10. In an electricity-meter, the combination with the ammeter and recording mechanism controlled thereby, of actuating mechanism for said recording mechanism comprising among its members a pendulum, an electromagnet for actuating the same, a circuit-closing device for said magnet having a movable member provided with projecting portions and a pawl on said pendulum adapted to engage the projecting portions of the circuit-closing member and operate the same, when the swing of the pendulum becomes reduced, substantially as described.

11. In an electricity-meter for recording at regular intervals the indications of an ammeter or wattmeter and totaling the results, an electrically-driven pendulum in combination with a trip contact-piece which only completes the circuit of the operating-electromagnet, when the arc of oscillation of the pendulum falls below a certain length, thus insuring correct timekeeping under variable loads, substantially as described.

12. In an electricity-meter wherein an indicating ammeter or wattmeter is employed and wherein a feeler is used for ascertaining the position of the hand or index of the said ammeter, a clamping device for holding the said hand or index of the ammeter against movement by the said feeler the said clamping device being periodically moved to disengage the said hand or index, substantially as, and for the purpose, described.

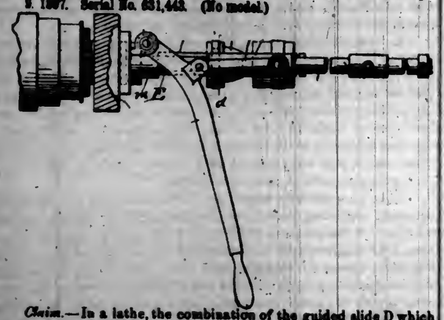
585,898. LIGHTING IMPLEMENT FOR CIGARS. ALFRED H. STEVENS, Philadelphia, Pa., assignor of one-half to Leo Frank, New York, N. Y. Filed Sept. 28, 1896. Serial No. 607,226. (No model.)



Claim.—1. A lighting implement for cigars and the like comprising a body or shank, having a wind-shield, and provided with an overlying plate spaced therefrom and adapted to clamp a match longitudinally therebetween and with serrations under said shield, substantially as described.

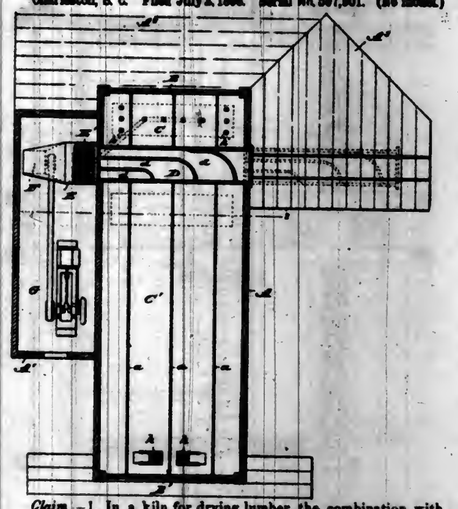
2. The combination of a lighting implement for cigars and the like comprising a body or shank having a shield and provided with an overlying plate and with serrations, with four parts and a lid constituting a box of which the other part comprises the body or shank, substantially as described.

585,894. FEED MECHANISM FOR SCREW-MACHINES. AMBROSE SWASEY and HENRY M. LEGAL, Cleveland, Ohio, assignors to Ambrose Swasey and Worcester R. Warner, same place. Filed Apr. 9, 1897. Serial No. 631,443. (No model.)



Claim.—In a lathe, the combination of the guided slide D which is adapted to operate the wire-feeding mechanism and the chuck-operating mechanism, with a hand-lever pivoted to fixed support adjacent to the machine-frame, and a link pivotally connected with said sleeve and with the said lever, substantially as and for the purpose specified.

585,895. LUMBER-DRYING APPARATUS. PATRICK P. TOALE, Charleston, S. C. Filed July 2, 1896. Serial No. 597,901. (No model.)



Claim.—1. In a kiln for drying lumber, the combination with the main building A, of a removable casing or drawer dividing said main building into compartments C and C', the casing or drawer having ways which communicate with a heat-supply and open into one of the compartments to present a series of outlets that extend across said compartment, substantially as shown and for the purpose set forth.

2. In a kiln for drying lumber, the combination with the main building A and structure A' adjoining the same, of a removable casing or drawer dividing the main building into compartments C and C', said casing or drawer having ways which open into one of the compartments C' to present a series of outlets that extend across said compartment, and with this casing or drawer communicating by said ways with a radiator located in the structure A', and a fan for forcing air through and over the radiator and into the compartment through the ways in the casing or drawer, substantially as shown and for the purpose set forth.

585,896. TELEPHONE-TRANSMITTER. ERNEST C. WILCOX and BURTON L. LAWTON, Meriden, Conn. Filed Aug. 31, 1896. Serial No. 604,209. (No model.)



Claim.—1. In a telephone-transmitter, the combination with a chambered head formed with two forwardly-projecting lugs, of a carrier-arm having its inner end inserted between the said lugs, a pivot passing through the lugs and arm for pivotally connecting the latter with the former, and one or more friction-springs interposed between the arm and lugs for holding the arm in any desired position of adjustment, and for improving the electrical connection between the arm and head, the inner end of the said arm, and the said lugs being constructed and adapted for the interposition of one or more friction-springs between them, and the said springs having constant positive contact with both the arm and the lugs, independently of the pivot.

2. In a telephone-transmitter, the combination with a chambered head formed with two forwardly-projecting lugs, of a carrier-arm having its inner end inserted between the said lugs and constructed with a recess in which a hub is located, a pivot extending through the lugs and arm for pivotally connecting the latter with the head, and a friction-spring located in the said recess so as to engage with the said hub, by which it is held against rotation, and adapted to engage with the inner face or wall of the adjacent lug.

3. In a telephone-transmitter, the combination with a chambered head formed with forwardly-projecting lugs, of a carrier-arm pivotally mounted between the said lugs, and having its inner end constructed with two recesses in each of which a hub is located, and friction-springs located in the said recesses so as to engage with the said hubs by which they are held against rotation, and adapted to engage with the inner faces or walls of the said lugs.

4. In a telephone-transmitter, the combination with a chambered head formed with forwardly-projecting lugs, of a carrier-arm pivotally mounted between the said lugs, and having its inner end constructed with two recesses in each of which a square hub is located, dished, disk-shaped friction-springs, having square central openings to adapt them to fit over the hubs, and divided by radial slots or slits into spring leaves or fingers, the outer ends of which engage with the inner walls of the said lugs.

5. In a telephone-transmitter, the combination with the body and cap thereof, of a carbon conducting-diaphragm interposed between the said body and cap, and an annular elastic conducting-washer bowed flatwise to produce a plurality of contact-points, and arranged between the body and cap so as to make a plurality of engagements with the diaphragm, whereby the same is firmly held in place, but not so closely as to interfere with its vibration.

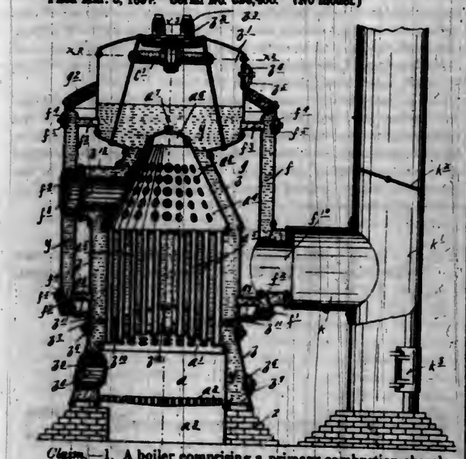
585,897. BROOM ATTACHMENT. FREDERICK WITTRAM, San Francisco, Cal. Filed Dec. 2, 1895. Serial No. 570,821. (No model.)



Claim.—1. The combination with a head A, of a scraper made of sheet metal bent at an obtuse angle longitudinally, having one portion attached to said head and having its ends bent substantially at right angles to its body whereby the bent portions stand on edge and extend down upon the outside of the ends of the head and are secured thereto.

2. A scraper consisting of a blank of metal trapezoidal in shape and having ends diverging from the upper to the lower edge, said blank being slitted near each end in line with the angles formed between the ends and the upper side, said ends being folded on the line of the slits whereby they stand on edge and substantially at right angles with the blank and said blank being bent longitudinally to an obtuse angle on a line which intersects the inner ends of the slits.

585,898. VERTICAL BOILER. MICHAEL EIKE, New Albany, Ind. Filed Mar. 8, 1897. Serial No. 626,400. (No model.)



Claim.—1. A boiler comprising a primary combustion-chamber, a water-jacketing chamber incasing said primary combustion-chamber, a secondary or supplemental combustion-chamber surrounding said water-jacketing chamber and in communication with said primary combustion-chamber, and an exterior water-jacketing chamber surrounding said secondary combustion-chamber and in communication with the aforesaid water-jacketing chamber, substantially as described.

2. A boiler comprising a primary combustion-chamber, a water-jacketing chamber incasing said primary combustion-chamber and terminating above the same in a steam-chamber, a secondary or supplemental combustion-chamber surrounding said water-jacketing chamber and in communication with said primary combustion-chamber, and an exterior water-jacketing chamber surrounding said secondary combustion-chamber and in communication with the aforesaid water-jacketing chamber, substantially as described.

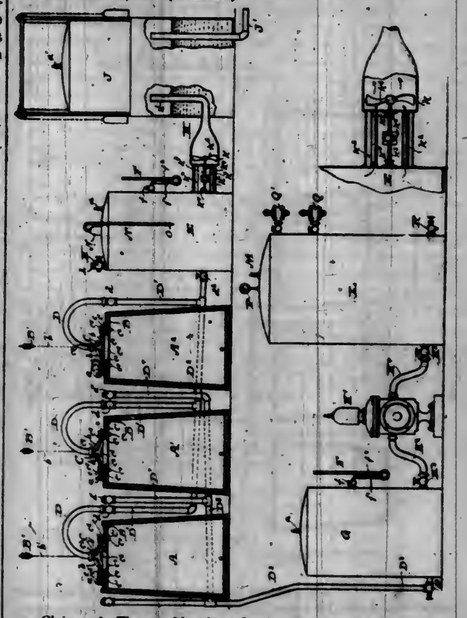
3. In a vertical boiler, the combination with a fire-box, of a primary combustion-chamber positioned above the same and in communication therewith, through a multiplicity of vertical draft-flues, a water-jacketing chamber incasing said parts and terminating at its upper end in a steam-chamber, a secondary or supplemental combustion-chamber surrounding said water-jacketing chamber and in communication with said primary combustion-chamber, and an exterior water-jacketing chamber surrounding said secondary combustion-chamber and in communication with the aforesaid water-jacketing chamber, substantially as described.

4. In a vertical boiler, the combination with a fire-box, of a combustion-chamber positioned above the same and in communication therewith through a multiplicity of vertical flues, a water-jacketing chamber surrounding said parts and extended at its upper end to form a steam chest or chamber, a secondary or supplemental combustion-chamber surrounding portions of said water-jacketing chamber and steam-chest, communicating passages between said combustion-chambers, an exterior water-jacketing chamber surrounding said supplemental combustion-chamber, and communicating passages between said exterior water-jacketing chamber and said steam-chamber and inside water-jacketing chamber, substantially as described.

5. In a vertical boiler, the combination with a fire box and vertical draft-flues rising therefrom, of the conical deflector b^{10}, submerged within the boiler and supported above the flue-sheet thereof, substantially as and for the purposes set forth.

6. In a vertical boiler, the combination with a fire-box and vertical draft-flues rising therefrom, of the conical deflector b^{10} supported above the flue-sheet thereof and provided at its center or apex with the perforation b^{12}, substantially as and for the purposes set forth.

585,899. APPARATUS FOR RECOVERING WASTE GASES IN BREWERIES. OTTO SWIETOCH, Milwaukee, Wis. Filed Feb. 3, 1896. Serial No. 577,909. (No model.)



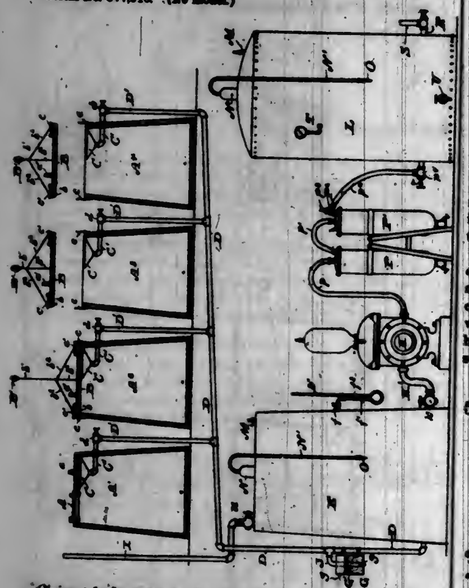
Claim.—1. The combination of a fermenting-vat, with a permanently-closed cover having an opening therein, and a combined gas-collecting and closing device of conical form rising to a plane above that of the cover proper, and having a depending guide-flange fitting within the said opening in the vat-cover, a horizontal annular flange, a packing-ring beneath said last-named flange, and a gas-outlet leading from the top of said combined device.

2. The combination of a fermenting-vat having an opening in its top, of a conical combined gas-collecting and closing device having flanges tightly fitting within and above said opening, and a neck or outlet at its top, a suspension device for supporting the closing device above said opening, and fastening devices for securing said closing device tightly to said vat-top, and a gas-leading pipe or tube connected to said neck or outlet exterior to and above said vat-top.

3. The combination with a series of closable fermenting-vats, of a gas-collecting tank of less size than that of any of the said vats and arranged upon the same plane therewith, gas-leading pipes connecting said vats with said tank, a suitable gas-reservoir located beyond said collecting-tank, a cylinder terminating at one end in a pipe of reduced diameter entering the said reservoir and thence projecting upwardly therein, said cylinder being closed at its other end, pipes leading from the said collecting-tank and passing through the closed end of said cylinder, a stuffing-box in said closed cylinder and between said pipes, a shaft journaled in said tank and closed end of the cylinder and passing through the said stuffing-box, a fan on the inner end of said shaft within said cylinder, and a driving-pulley on said shaft exterior to said cylinder.

4. The combination with a series of closable fermenting-vats having gas-collecting devices connected to or forming part of the tops or covers thereof, of a gas-collecting tank of less size than that of any of said vats, and arranged upon the same plane therewith, a gasometer located beyond said tank, a close-ended cylinder, containing a revolving fan forming a blower and communicating pipes interposed between and connecting said tank and gasometer, another small gas-collecting tank arranged upon a plane below that of said vats, a gas-reservoir located beyond said last-named tank, a pump or compressor and communicating pipes interposed between and connecting said tank and reservoir, separate pipes leading to each tank and each of said pipes having a series of valve-controlled branch pipes rising therefrom to a level with the tops of said vats, and adjacent thereto, and a series of flexible pipes or tubes, coupled to the said gas-collecting devices, and having their other ends provided with coupling devices for connection with the adjacent branch pipes of either of the described gas-leading pipes.

585,900. APPARATUS FOR RECOVERING WASTE GASES IN BREWERIES. OTTO SWIETRSEN, Milwaukee, Wis. Filed Feb. 3, 1896. Serial No. 577,910. (No model.)



Claim.—1. In apparatus for the recovery of waste gas, the combination with a suitable closed tank or receptacle, of a domed communicating extension rising from the top thereof, a flexible pipe leading from said extension, and a testing or try cock at the free end of said pipe.

2. In apparatus for the recovery of waste gas, the combination with a suitable closed tank or receptacle, having an open-ended upright pipe extending from the top thereof, of a low-pressure and vacuum indicator, comprising a doubled glass pipe, one end of which is in communication with said tank or receptacle below the plane of the base of the said open-ended upright pipe, the other end extending considerably above this point and there open to the air, and with the doubled parts or tubes extending below this point and communicating with each other, the free open end of said indicator terminating on a plane below that of the base of the said first-named open-ended upright pipe.

3. In apparatus for the recovery of waste gas, the combination with a fermenting-vat or series of vats, each vat having an air-tight top or cover, of a suitable closed tank or receptacle located on a plane below that of said vat or vats provided with a gas-outlet pipe, a gas-supply pipe or pipes leading from said vat or vats to said tank or receptacle, a valve-controlled open-ended upright pipe extending from the upper part of said tank or receptacle to about the plane of the top of said fermenting vat or vats, and a low-pressure and vacuum indicator communicating with the interior of said tank or receptacle, below the plane of the base of the said open-ended upright pipe.

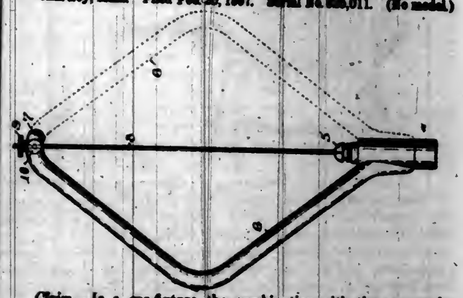
585,901. PUMP. ALBERT W. ARENBERG, Columbus, Nebr. Filed Aug. 24, 1896. Serial No. 603,740. (No model.)



Claim.—1. A pump having a barrel composed of detachable staves, spiders chimed into the inner surfaces of the staves and provided with central bearings, means for holding the staves in engagement with the peripheries of the spiders, an operating-shaft mounted in the bearings in the spiders, and a spiral lifting-blade carried by the shaft, substantially as specified.

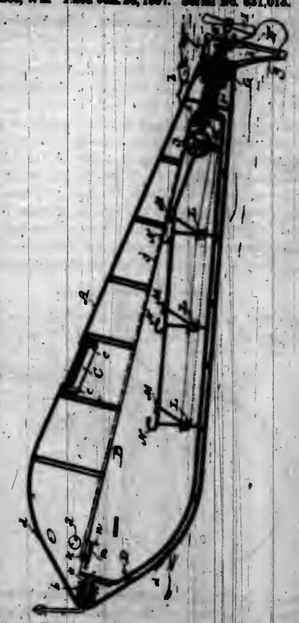
2. A pump having a barrel constructed of separable staves, spiders having their peripheries chimed into the inner surfaces of the staves and provided with central bearings, hoops encircling the staves contiguous to and between the planes of the spiders and provided with tension-adjusting devices, an operating-shaft mounted in the bearings in said spiders, and a spiral lifting-blade carried by the shaft, substantially as specified.

585,902. SELF-CLOSING GAS-BURNER. FRANK P. BARNEY, Chartley, Mass. Filed Feb. 25, 1897. Serial No. 626,011. (No model.)



Claim.—In a gas-fixture, the combination with the gas-supply tube 11, the valve-seat 12, the burner 5 secured to the gas-supply tube, the bracket 6 extending from the gas-supply tube upward to a point above the center of the burner, of the wire rod 8, the adjusting-nut 9 for regulating the tension on the wire rod, the clamping-screw 10, and the valve-disk 13 secured to the lower end of the wire rod 8, whereby the longitudinal expansion of the wire rod by heat opens the gas-supply and the contraction of the wire rod by cooling closes the gas-supply, as described.

585,903. LIFE-BOAT. REINHOLD BETTKE and BERNHARD BETTKE, Milwaukee, Wis. Filed Jan. 26, 1897. Serial No. 621,013. (No model.)



Claim.—1. A life-boat comprising a ventilated outer shell of conoidal form having glazed ports and a hatchway that is provided with a suitable closure, a cradle trunnioned in the shell, a rudder having its post hung in arm extensions of the rear cradle-trunnion, a sleeve rotative in said trunnion and geared to the rudder-post, a steering mechanism in gear with the sleeve, a propeller having its shaft rotative in said sleeve, a power-shaft in gear with the propeller-shaft, and suitable mechanism for driving said power-shaft.

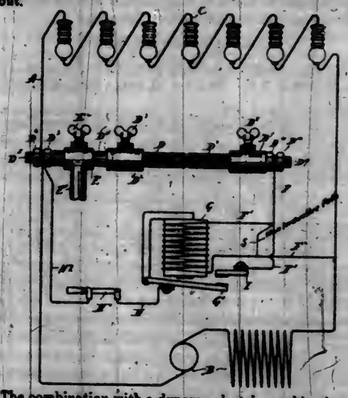
2. A life-boat comprising a ventilated outer shell of conoidal form having glazed ports and a hatchway provided with a suitable closure, a cradle trunnioned in the shell, a rudder having its post hung in arm extensions of the cradle-trunnion, a sleeve rotative in said trunnion and geared to the rudder-post, a steering mechanism in gear with the sleeve, a propeller having its shaft rotative in said sleeve, a power-shaft in gear with the propeller-shaft, a frame set in the cradle, pedal-driven crank-shafts mounted in the frame, seats and hand-bars on said frame, and link belt and sprocket-gear connecting the cranks with the power-shaft.

585,904. AUTOMATIC CUT-OUT. CHARLES H. BLACK, New Haven, Conn. Filed Mar. 15, 1897. Serial No. 627,473. (No model.)

Claim.—1. The combination with a dynamo-electric machine having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature circuits of the machine, and automatic cut-outs corresponding in number to the independent lamp-circuits which they are placed across and each providing a non-inductive path and operating to instantaneously short-circuit the respective lamp-circuits when the voltage therein exceeds a predetermined safe working limit.

2. The combination with a dynamo-electric machine having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature-circuits of the machine, automatic cut-outs located across the said lamp-circuit which they short-circuit when the voltage exceeds a predetermined safe working limit, and switches located in the said cut-outs.

3. The combination with a dynamo-electric machine, having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature-circuits of the machine, automatic cut-outs located across the said lamp-circuits which they short-circuit when the voltage exceeds a predetermined safe working limit, and comprising a primary circuit providing a non-inductive path, and also comprising a second circuit arranged in shunt with the primary circuit, and brought into operation by the passage of a current through the primary circuit, whereby the primary circuit closes the second circuit and cuts itself out.



4. The combination with a dynamo-electric machine having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature-circuits of the machine, and automatic cut-outs located across the said lamp-circuits which they short-circuit when the voltage exceeds a predetermined safe working limit, and each comprising two electrodes separated from each other by a non-inductive path, and also comprising a second circuit which is cut into action by the passage of a current through the electrodes which thus operate to cut themselves out.

5. The combination with a dynamo-electric machine having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature-circuits of the machine, and automatic cut-outs located across the said lamp-circuits which they short-circuit when the voltage exceeds a predetermined safe working limit, and comprising a primary circuit having an electromagnet connected with it in series, and also comprising a second circuit which automatically short-circuits the primary circuit but not the magnet, and a non-inductive shunt around the said magnet, making the primary circuit non-inductive.

6. The combination with a dynamo-electric machine having two or more independent armature-circuits, of two or more independent lamp-circuits connected in series with and between the independent armature-circuits of the machine, and automatic cut-outs located across the said lamp-circuits which they short-circuit when the voltage exceeds a predetermined safe working limit, and each comprising two carbon pencils or rods which are set with their ends separated more or less according to the voltage at which the cut-out is designed to act, and which have an electromagnet connected in series with them, and a second circuit which is closed by the passage of a current through the pencils and the said electromagnet, and short-circuiting the pencils but not the magnet.

585,905. BOX. FRANK BOSHEIN, Atchison, Kans. Filed Oct. 24, 1896. Serial No. 609,947. (No model.)



Claim.—1. The combination with a box, of the platform or table A having a plurality of supporting legs or pins loosely connected thereto, said legs being of different lengths and engaging the bottom of the box.
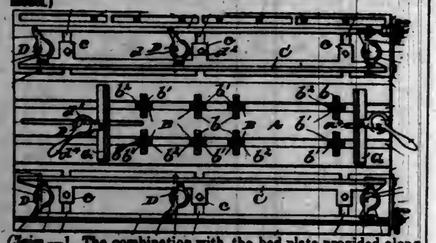
2. The combination with the platform or table A having studs

projecting therefrom, of a set of legs or pins having different lengths and pivoted on said studs.

3. The combination with the box B, of the platform A having an irregular surface and having at each corner thereof a plurality of loosely-connected legs or pins having different lengths and adapted to engage the bottom of the box to retain the platform at different predetermined elevations.

4. The combination with the box B, of the table or platform A having a plurality of sets of supporting legs or pins of different lengths to engage the bottom of the box, and said platform also having flexible strips connected thereto for lifting it.

585,906. PRESS FOR MAKING VENEER DOORS, &c. JOHN S. CARTER, Buffalo, N. Y. Filed Oct. 22, 1896. Serial No. 609,671. (No model.)



Claim.—1. The combination with the bed-plate provided along one of its longitudinal edges with a slotted portion of a series of presser-bars extending transversely over said bed-plate, each bar being provided at one end with a bolt pivoted thereto, and adjustably secured to said slotted portion of the bed-plate, and a series of yokes adjustably secured to the other longitudinal edge of the bed-plate and adapted to engage the free ends of said presser-bars, substantially as described.

2. The combination with the bed-plate, of a series of presser-bars extending transversely over the same, vertically and laterally adjustable devices connecting said presser-bars to said bed-plate on one side of the same, a guide on the opposite side of said bed-plate, a series of movable blocks engaging said guide, an eccentric mounted in each of said blocks, and provided with an operating-arm, and a yoke pivotally secured to each of said eccentrics and adapted to engage one of said presser-bars, substantially as described.

3. The combination with the bed-plate provided along one side with a slotted portion, of a series of presser-bars extending transversely over said bed-plate, each bar being provided at one end with a bolt pivoted thereto, and adjustably secured to said slotted portion of the bed-plate, a grooved guide on the side of said bed-plate opposite said slotted portion, a series of movable blocks engaging said guide, an eccentric mounted in each of said blocks and provided with an operating-arm, a yoke pivotally engaging each of said eccentrics, and adapted to engage one of said presser-bars and a set-screw in each of said blocks for holding it in its adjusted position, substantially as described.

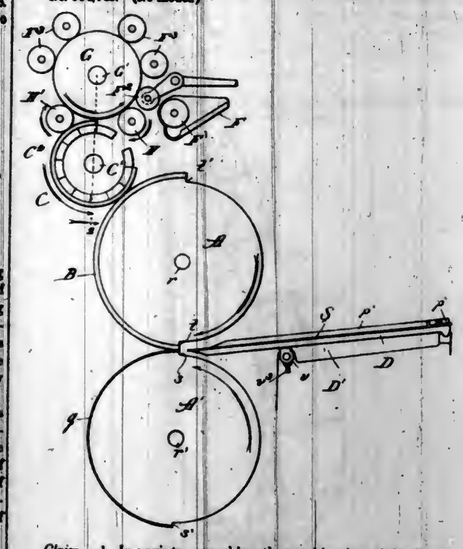
4. The combination with the bed-plate provided at one side with a longitudinally-slotted portion, of a series of presser-bars each provided with a securing device pivoted to the bar and having a screw-threaded portion engaging said slotted portion of the bed-plate, securing nuts on said threaded portions for clamping said securing devices to the bed-plate, and adjusting the presser-bar with respect to the same, the yokes adapted to engage the free ends of said presser-bars, and the eccentrics engaging portions of said yokes for clamping the presser-bars upon the work, substantially as described.

5. The combination with the bed-plate provided with slots disposed perpendicularly to one edge of the bed-plate of a horizontally-movable presser-bar, eccentric-straps connected therewith, eccentrics engaging said straps and pivoted to the bed-plate by bolts passing through said slots, a connecting-bar connected operatively to said eccentrics, for securing the simultaneous movement of the same and means for moving said connecting-bar longitudinally, substantially as described.

6. The combination with the bed-plate, provided with slots disposed perpendicularly to one edge of the bed-plate, of a horizontally-movable presser-bar, eccentric-straps connected therewith, eccentrics engaging said straps and pivoted to the bed-plate by bolts passing through said slots, a connecting-bar connected operatively to said eccentrics for securing the simultaneous movement of the same, said bar being provided with a threaded portion, a horizontally-slotted plate engaging said threaded portion of the connecting-bar and an operating-nut on said threaded portion adjacent to said slotted plate, substantially as described.

7. The combination with the bed-plate provided along one side with a slotted portion, of a series of presser-bars extending transversely across the same, each bar being provided at one end with a bolt pivoted thereto and adjustably secured to said slotted portion of the bed-plate, a series of movable blocks engaging the bed-plate on the side opposite said slotted portion, an eccentric in each of said blocks, a yoke pivoted on each eccentric and adapted to engage one of the said presser-bars, and a series of independently-adjustable presser-blocks on each of said presser-bars, whereby the presser-blocks of each bar can be adjusted independently of the blocks of other bars, substantially as described.

585,907. PRINTING-MACHINE. JOHN J. CLAUSS, Chicago, Ill., assignor to Franklin Rudolph, same place. Filed Mar. 24, 1896. Serial No. 584,643. (No model.)



Claim.—1. In a printing-machine, the combination of the distributing-cylinder G and form-cylinder C with the interposed form-rollers, the transfer-cylinder A carrying a blanket B, and cylinder A′ cooperating therewith, said cylinders A and A′ being reduced in diameter throughout a portion of the circumference of each to afford shoulders at the opposite ends of their cooperating surfaces to grasp the sheet to be printed and afford a gripperless feed, and a feed-table projecting between said cylinders A and A′, the whole being constructed and arranged to operate, substantially as described.

2. In a printing-machine, the combination with the cylinders A and A′, of a frame D′ having a front bar r^3, a feed-table D supported on said frame and adjustably fastened upon said bar, a rigid stop p p' extending along one side of the table and a stop p on the table for adjusting a sheet thereon to be printed at the rear end of the sheet, substantially as and for the purpose set forth.

3. In a printing-machine, the combination of a form-cylinder C comprising a rotary shaft C′ carrying heads near its opposite ends, the body of said cylinder being formed of segmental bars removably clamped endwise between said heads to surround said shaft, and a longitudinally-slotted cylindrical form C^2 surrounding and fitting about said body, substantially as and for the purpose set forth.

4. In a printing-machine, a form-cylinder C comprising, in combination, sleeves n and n' secured on a rotary shaft C near its opposite ends, collars m and m' adjustably supported on said sleeves to encircle them and provided with circumferential grooves m^3 and recesses m^4 in their opposing ends, nuts screwed upon said sleeves against the outer ends of the collars, and segmental bars C^3, tapered at their opposite extremities to enter said grooves and clamped between said collars, substantially as and for the purpose set forth.

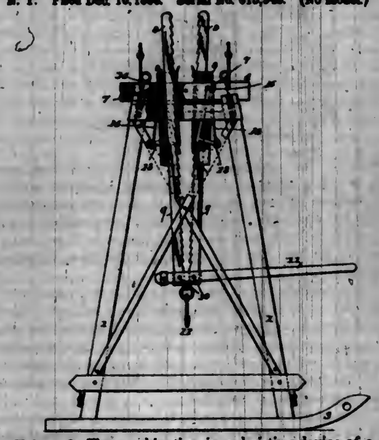
5. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, and means for adjusting said form-roller with relation to the form-cylinder without disturbing its adjusted relation to the distributing-cylinder, substantially as described.

6. In a printing machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, arms pivoted on the frame concentrically with said distributing-cylinder, journal-bearings for said form-roller adjustably supported on said arms, and means for independently adjusting said roller with relation to the distributing-cylinder and the form-cylinder, substantially as described.

7. In a printing-machine, the combination with the distributing-cylinder and form-cylinder and the frame in which they are journaled, of a form-roller supported to extend between said cylinders, arms pivoted on the frame concentrically with said distributing-cylinder, brackets supported on the arms to be adjusted lengthwise thereof and affording journal-bearings for said roller, and set-screw-adjusting means for turning the arm to adjust the form-roller with relation to the form-cylinder and to adjust said form-roller with relation to the distributing-cylinder, substantially as described.

8. In a printing-machine, the combination with the distributing-cylinder and form cylinder and the frame in which they are journaled, of arms K and K′ suspended on pivots k on said frame concentric with said distributing-cylinder and provided with set-screw bearings g and f and studs c' and with slotted lugs i and i embracing studs i^3, i^3, on the frame, brackets L and L′ on said arms and having slots c, c, at which they embrace studs c' thereon, said brackets terminating at their lower ends in journal-bearings, form-rollers H and H′ supported in said journal-bearings to extend between the distributing-cylinder and form-cylinder at opposite sides thereof, set screws g' and f' in said bearings g and f and abutting against stops g^3 and f^3 on said frame, and set-screws c^3 in the bearings c^2 and abutting against stops g^3, f^3, on said arms, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

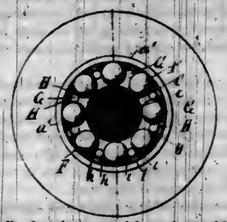
585,908. HOISTING DEVICE. JEREMIAH CLINE, Oppenheim, N. Y. Filed Dec. 16, 1896. Serial No. 615,948. (No model.)



Claim.—1. The combination in a hoisting device of a head, a pair of reciprocating racks, a lever to which the ends of the racks are secured by contiguous pivots, rack guide-boxes pivoted to the head, and suspended catches pivoted at the same point as the guide-boxes, substantially as set forth.

2. The combination in a hoisting device of a head 5, rack guide-boxes 8 8 independently pivoted in the head, the racks 9 extending through the boxes, the catches 13 and the operating-lever 11 to which the lower end of the racks are pivoted, substantially as set forth.

585,909. ROLLER-BEARING. GEORGE J. S. COLLINS, Chicago, Ill. Filed Jan. 20, 1896. Renewed Dec. 10, 1896. Serial No. 615,226. (No model.)



Claim.—1. A roller-bearing comprising a journal-box, an annular roller-race therein, main supporting-roller elements within the race, and roller-separating devices each embracing one or more smaller roller elements interposed between adjacent pairs of main supporting-roller elements, and supported free from contact with the journal and opposing wall of the housing.

2. A roller-bearing consisting of a journal-box an annular roller-race therein, main supporting elements within the race, and roller-separating devices each embracing one or more smaller roller elements, interposed between adjacent pairs of main support roller elements, and one or more guide-rollers arranged to support said ball-separating elements free from contact with the journal and housing.

3. A roller bearing comprising a journal-box, an annular roller-race therein, main supporting-roller elements within the race, and roller-separating devices each embracing three smaller roller elements arranged and confined in triangular relation to each other within the space between pairs of adjacent main supporting-rollers and one of the bearing-surfaces of the bearing.

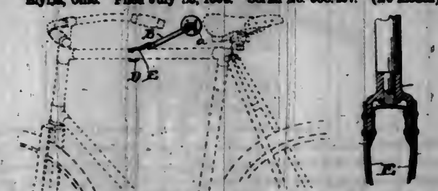
4. A roller-bearing comprising a journal-box, an annular roller-race therein, main supporting-roller elements within the race, and roller-separating devices each embracing three smaller roller elements arranged in triangular relation to each other, two of which are of axially-elongated form and held in fixed relation by means of a caging device, and the third of which is arranged to rest in rolling contact with the other two.

5. A roller-bearing comprising a journal-box, an annular roller-race therein, main supporting-roller elements within the race, and roller-separating devices arranged between each pair of adjacent main supporting-rollers, said devices each comprising three smaller roller elements arranged in triangular relation to each other, two of which are provided at each end with axially-arranged trunnions, held in parallel relation with each other by means of a caging device consisting of parallel side plates secured at a fixed distance apart by means of distance-studs, and provided with bearing-apertures with which the trunnions of said roller elements are engaged.

6. A roller-bearing comprising a journal-box, an annular roller-race therein, main supporting-roller elements within the race, and roller-separating devices arranged between each pair of adjacent main supporting-rollers, said devices each comprising three smaller roller elements arranged in triangular relation to each other, two of which are provided at each end with axially-arranged trunnions, held in parallel relation with each other by means of a caging device consisting of parallel side plates secured at a fixed distance apart by means of distance-studs, and provided with bearing-apertures with which the trunnions of said roller elements are engaged, said trunnions being extended through and beyond the side plates of the caging devices to form bearing parts which engage the sides of the ball-race and hold the caging devices from contact therewith.

7. A roller-bearing comprising a journal-box, an annular roller-race therein, a plurality of roller elements within the race, each of a diameter equal to the radial depth of said race, whereby the bearing-pressure is transmitted directly from the journal-box to the journal, and roller-separating devices, each embracing one or more smaller roller elements interposed between adjacent pairs of main supporting-roller elements and supported free from contact with the journal and the housing by means of guide-rollers.

585,910. BICYCLE-SUPPORT. JOHN C. CRISP and JAMES C. SMITH, Elyria, Ohio. Filed July 25, 1896. Serial No. 600,467. (No model.)



Claim.—The combination of a plate adapted to be secured to a fixed support, an arm pivoted to said plate on a horizontal pivot, an end piece loosely swiveled to the end of said arm, means preventing the longitudinal movement of said end piece relative to said arm and spring-jaws secured to said end piece, substantially as and for the purpose specified.

585,911. CONCRETE ARCH AND FIREPROOF CONSTRUCTION. GEORGE F. GRAY and HARRY H. GRAY, San Francisco, Cal. Filed Oct. 23, 1896. Serial No. 609,804. (No model.)

Claim.—1. A concrete arch and fireproof construction comprising supporting-beams, an intervening arch of concrete supported by said beams, a layer of fireproof material upon the beams and furring-strips supported above the beams by means of said fireproof material and incorporated directly in and flush with the upper surface of the arch.

2. A concrete arch and fireproof construction, comprising supporting-beams, a layer of fireproof material thereon, an intervening arch of concrete supported by the beams, and furring-strips resting on said layer of fireproof material so as to be supported above the beams, said strips being incorporated directly in and flush with the upper surface of the arch and extending transversely thereof.

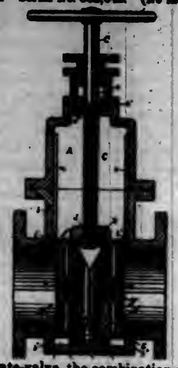


3. A concrete arch and fireproof construction, comprising supporting-beams, having a superposed layer of fireproof material, an arch of concrete supported by said beams and furring-strips resting on the layer of fireproof material so as to be supported above the beams, said strips being incorporated directly in and flush with the upper surface of the arch and having side grooves forming keys by which they are held in the concrete.

4. A concrete arch construction, comprising supporting-beams, a layer of fireproof material thereon, an intervening arch of concrete supported by said beams, furring-strips supported above the beams, on said fireproof material, and incorporated directly in and flush with the upper surface of said concrete arch, and a metallic strengthener incorporated in the lower portion of said concrete arch.

5. A concrete arch construction, comprising supporting-beams, a layer of fireproof material thereon, an intervening arch of concrete supported by said beams, furring-strips supported above the beams, on said fireproof material, and incorporated directly in and flush with the upper surface of said concrete arch, and a metallic strengthener incorporated in the lower portion of said concrete arch, said strengthener having interstices through which the concrete passes to fully incorporate it.

585,912. GATE-VALVE. CLAY H. GULBLIN, Fort Wayne, Ind. Filed Dec. 17, 1894. Serial No. 532,042. (No model.)

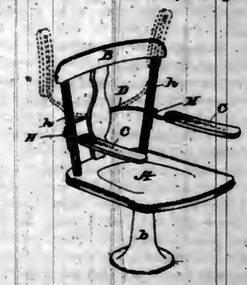


Claim.—1. In a gate-valve, the combination with a yoke having openings or sockets in its opposite faces, of gibs loosely fitting in the outer faces of said yoke and each having a portion projecting through said openings into the interior of the yoke, the said projecting portion being provided with inclined faces on the interior thereof, a wedge secured to the valve-casing and adapted to engage the said inclined faces of the gibs and force them outward, and a valve-disk connected to each gib by a central journal-and-socket connection, substantially as and for the purpose set forth.

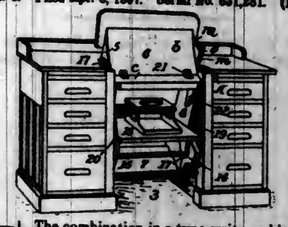
2. In a gate-valve, a yoke having openings in its opposite faces and a stem connecting with the yoke, in combination with lateral movable gibs loosely fitting in the openings of the yoke and having interior inclined surfaces at their lower ends, a removable bottom plate having a conical wedge adapted to bear upon the inclined surfaces of the gibs, and valve-disks loosely connecting with the gibs, by journal-and-socket connections, substantially as described.

585,913. ARM-REST FOR SCHOOL-CHAIRS, &c. CHARLES F. HAYNES, Boston, Mass. Filed Nov. 27, 1896. Serial No. 613,649. (No model.)

Claim.—In a chair, the combination with the seat and back, of a swinging frame D carrying the arm-rests C C, the back brace or support G provided at its upper end with ears or lugs *d d* having bearings for the frame D, said frame having a central offset or projection *f* arranged between the ears *d d*, the spring *g* secured to the brace G and bearing against the offset *f*, and stops for limiting the downward movement of the frame D, all operating substantially as described.



585,914. TYPE-WRITER DESK. JULIUS H. HEYWARD, Greenville, S. C. Filed Apr. 8, 1897. Serial No. 631,281. (No model.)



Claim.—1. The combination in a type-writer cabinet or support, of a box or casing swinging or turning upon a support, a movable table or platform between the sides of the box, and connections between said box and table whereby the latter is maintained in a horizontal position in both positions of the box as well as during the movement of the box from one position to the other, substantially as described.

2. The combination in a type-writer cabinet or support, of a box or casing adapted to be raised and lowered on a support, a movable table or platform loosely mounted or suspended between the sides of the box, and connections between said box and table whereby the latter is maintained in a horizontal position in both positions of the box as well as during the movement of the box from one position to the other, substantially as described.

3. The combination in a type-writer cabinet or support, of a box or casing having a swinging or pivotal support upon which the box is adapted to be raised and lowered, a movable table or platform raising and lowering with the box, and connections between said box and table whereby the latter is projected and withdrawn as the box is raised and lowered, substantially as described.

4. The combination in a type-writer cabinet or support, of a box or casing adapted to be raised and lowered on a support, a movable table or platform, and sliding reversible connections between the said box and table whereby the latter is projected forward and elevated, or vice versa, accordingly as the said box or casing is raised or lowered, substantially as described.

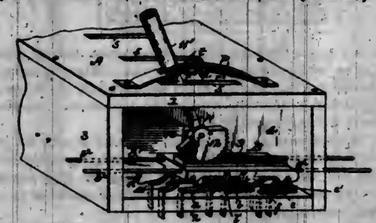
5. The combination in a type-writer cabinet or support, of a box or casing adapted to be raised and lowered on a support, and formed in its sides with curved slots, a movable table or platform mounted loosely on a support in the box, and supporting-bars having at their upper ends projections extending into the slots, and being loosely connected at their lower ends to the side edges of the table, substantially as described.

6. The combination in a type-writer cabinet or support, of a box adapted to be raised and lowered on a support, and having at its front a permanent and a hinged closing-section, the latter having a projection on its inner side, a movable table and reversing connections between said table and box, a part of which connections being adapted to engage the said projection as the box is raised, substantially as shown and for the purpose described.

7. The combination in a type-writer cabinet or support, of a box or casing adapted to be raised and lowered on its support, a movable table or platform, connections between said box and table whereby the latter is maintained in a horizontal position in both positions of the box as well as during the movement of the box from one position to the other, and a jointed brace working in the space between the box and the pedestal of the desk, and having its upper and lower ends respectively in movable connection with said box and the inner side of the pedestal, substantially as described.

8. The combination in a type-writer cabinet or support, of a box or casing having brackets pendent from the sides thereof and adapted to be raised and lowered on a support, a movable table or platform, and sliding reversible connections between the said box and table whereby the latter is projected and elevated, or vice versa, accordingly as the box is raised or lowered, said brackets being constructed and arranged to come directly beneath the table when the latter is in its raised position, substantially as described.

585,915. OPERATOR'S SWITCH FOR TELEPHONE-EXCHANGES. LOUIS JOHNSTON, La Crosse, Wis., assignor of three-fourths to William W. Cargill, Frank P. Hixon, and George H. Gordon, same place. Filed Mar. 12, 1897. Serial No. 627,207. (No model.)



Claim.—1. In an electric-circuit-changing mechanism, the combination with a non-conducting cam having a series of recesses in its working face and teeth or projections between said recesses, of a series of pairs of contacts arranged one in advance of the other in a plane parallel with the said working face; one member of every pair at the same side of the series normally tending to spring away from its opposed mating member and toward the said working face of the cam, whereby as the cam is moved predetermined distances certain of said contacts will spring into the cam-recesses and certain others will be moved into contact with their mates to make and break the determined circuits, substantially as described.

2. The combination with the circuit-changing cam herein described, composed of a non-conducting body formed with cam-lugs and depressions on its under face, supporting-rods projecting from the ends of the body, a rack-gear on its upper face and a lever having a segmental gear meshing with said rack, of a series of pairs of contacts all controlled by said projections and depressions on the cam.

3. The combination with a reciprocating circuit-changing cam having projections and depressions on its under face, of a series of pairs of contact-springs arranged in longitudinal series under the cam whereby when the cam is moved longitudinally a predetermined distance certain of the upper springs will be depressed by the cam-projections into contact with the lower mating contact springs or pieces and the upper springs of certain pairs of contacts will spring upwardly into the cam-recesses out of contact with their mating contact springs or pieces.

4. The combination with a reciprocating circuit-changing cam provided on its under side at opposite sides of its longitudinal center with alternately-arranged projections and depressions, of two longitudinally-aligned series of pairs of contact-springs under said cam and in the path of its two sets of projections and depressions.

5. In an electric-telephone-circuit-changing mechanism, the combination with the talking, call, and reply circuits having series of pairs of contacts arranged side by side in the same plane, one member of each pair at the same side of the series tending normally to spring away from its mate, of a non-conducting cam having its working face overlying said series of contacts and formed therein with parallel series of recesses and intervening teeth or projections; whereby as the cam is moved predetermined distances certain of the contacts will spring away from their mates into the recesses while others will be moved by the cam teeth or projections into contact with their mates to break and make determined circuits, substantially as described.

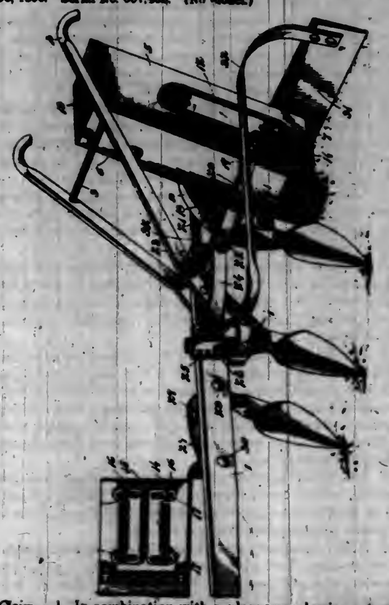
6. In an electric-telephone-circuit-changing mechanism, the combination of a system of telephonic circuits having spring-contacts interposed therein, one set or series of said contacts consisting of arched springs, a reciprocating circuit-changing cam formed with lugs and intermediate depressions on its under face, whereby any one of the determined circuits may be made and broken, and a lever to shift the circuit-changing cam.

7. In an electric-telephone-circuit-changing mechanism, the combination with the lower contact-pieces *a*, *b*, *c*, *d*, *e*, *f*, having connection respectively to wires forming one side of the circuit, and the upper contact-springs *a'*, *b'*, *c'*, *d'*, *e'*, and *f'*, having connection respectively to wires forming the other side of the circuit, and tending normally to spring away from their mating lower springs of a longitudinally-reciprocating circuit-changing cam B made of a suitable non-conducting material, formed with lugs on its under face to normally hold the talking-circuit through contacts *a a'*, *c c'*, by depressing springs *a'*, *c'*, and lugs and depressions also on its lower face to open and close other circuits in the operative series, by depressing certain of the upper springs and allowing others of such springs to move up into said depressions.

8. In combination with the contact-pieces *a b c d e f*, the contact-springs *a' b' c' d' e' f'*, and circuits connecting the same in series, of a circuit-changing cam composed of a suitable non-conducting material formed with lugs and depressions on its under face disposed to bear on and release the contact-springs and make and break determined circuits, and having a rack-gear on its upper face, sliding supports or bearings to sustain the circuit-changing cam, and a suitably-fulcrumed lever formed with a segmental gear to engage the rack on the circuit-changing cam to reciprocate it.

9. In electric-telephone-switch circuits, the circuit-changing cam herein described, comprising a non-conducting casing A, contact-pieces *a b c d e f*, in the floor of the casing and having connection respectively to one side of the circuits, arched contact-springs *a' b' c' d' e' f'* in the floor of the casing arranged to contact with their free ends the said contact-pieces and having circuit-wires connected thereto, a circuit-changing cam B formed with a plurality of lugs and depressions on its under face, and a rack-gear on its upper face, sliding rods arranged in bearings in the sides of the casing whereon the circuit-changing cam is supported to move transversely across the casing, a lever fulcrumed in the casing and formed with a segmental gear on its lower end to engage the rack on the circuit-changing cam and operate the same.

585,916. COMBINED PLANTER, FERTILIZER-DISTRIBUTER, AND CULTIVATOR. JAMES L. O. KIRK, Fair Play, S. C. Filed Sept. 30, 1896. Serial No. 607,462. (No model.)



Claim.—1. In combination with a plow-beam having a furrow-opener and handles connected by a cross-brace, a bolt projecting laterally from the beam, a hopper, a keeper applied to the upper end of the hopper and receiving the cross-brace of the handles, strap-irons secured to the lower portion of the hopper and having inwardly-extending lugs, links having pivotal connection at their rear ends with the said strap-irons and at their front ends with the laterally-extending bolt, a shaft journaled in the sides of the hopper and provided with spikes, and a ground-wheel mounted upon a projecting end of the said shaft, substantially as and for the purpose set forth.

2. In combination with a plow-beam having a furrow-opener and handles connected by a cross-brace, a bolt projecting laterally from the beam, a hopper having loose connection with the cross-brace of the handles, links having pivotal connection at their ends with the hopper and laterally-extending bolt, a stub-beam pivotally mounted upon the outer end of the said lateral bolt and having its forward

portion deflected toward the plow-beam, thence forwardly to touch the side of the said beam, and having its end portion expanded vertically and formed with a series of openings, means for adjustably connecting the front end of the stub-beam with the plow-beam, a shaft journaled in the sides of the hopper, and a ground-wheel secured to the said shaft, substantially as and for the purpose set forth.

3. In combination, a plow-beam having handles connected by a cross-brace, a standard secured to the plow-beam and provided with a shovel, a bolt projecting laterally from the plow-beam, a hopper having loose connection with the said cross-brace, links loosely connecting the hopper with the said lateral bolt, a shaft journaled in the sides of the hopper, a ground-wheel secured to the said shaft, a washer or collar mounted upon the shaft between the ground-wheel and the adjacent side of the hopper so as to properly position the ground-wheel, and spring-arms extending along the sides of the hopper and having their front ends deflected inwardly, thence forwardly, and clamped against the sides of the aforementioned standard, and bearing an earth-treating device at their rear ends, substantially as set forth.

585,917. BICYCLE-SUPPORT. ARTHUR S LAKE, Salem, Mass. Filed Feb. 27, 1896. Serial No. 580,994. (No model.)



Claim.—1. A bicycle-support, comprising a base, a supporting-arm extending forward therefrom and a substantially universal joint connecting said base and the rear end of said arm and permitting movement of the latter to support the bicycle in desired vertical or oblique position, substantially as described.

2. A bicycle-support, comprising a supporting-arm, a base, a joint connecting said base and arm and permitting movement of the latter to support the bicycle in desired position, and friction devices normally holding said parts in adjusted position, and permitting the same to yield to severe pressure, substantially as described.

3. A bicycle-support, comprising an arm arranged at its free end to hook over a portion of the bicycle, a base adapted to be secured to the floor or wall, and a universal joint connecting said arm and said base, substantially as described.

4. A bicycle-support, comprising a double-member arm arranged at its free end to hook over a portion of the bicycle, and a base to which one end of said arm is freely jointed so as to swing up and down and laterally, said base being adapted to be secured to the floor or wall, substantially as described.

5. A bicycle-support, comprising an arm arranged at its free end to hook over a portion of the bicycle, a base adapted to be secured to the floor or wall, a joint connecting one end of said arm and said base, said arm extending forward from said base a distance adapting the same to extend approximately diametrically across a wheel of the bicycle, and means to maintain said arm in its adjusted position, substantially as described.

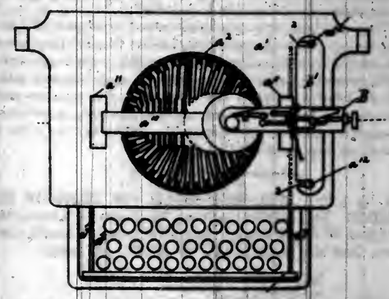
6. In a bicycle-support, a loop adapted to extend diametrically across and to hook over a wheel of the bicycle, and engage intermediate its length the axle of the wheel, and means to vary the angular position thereof, substantially as described.

7. A bicycle-support, comprising a base, a supporting-arm having two members c^3, c^4, a pivot-bearing therefor in or parallel to the same plane with said members, and a second pivot-bearing substantially transverse to the first-mentioned bearing, substantially as described.

8. A bicycle-support, comprising a loop secured at one end to a suitable base, and adapted to extend straight across a wheel of the bicycle, said loop having its sides straight and close together and adapted to engage the axle of the wheel on either side thereof between the fork and wheel, the free end of the loop being arranged to unyieldingly grip against the tire of the wheel, substantially as described.

585,918. TYPE-WRITER ATTACHMENT. EVERETT C. LEWIS, Woonsocket, R. I., assignor, by mesne assignments, to John T. Underwood, Brooklyn, N. Y. Filed Oct. 28, 1896. Serial No. 610,264. (No model.)

Claim.—1. In a type-writing machine the combination with the type and platen, of an inking-sheet suitably mounted on a reciprocating carrier to move said sheet into and out of the operative field of the type, substantially as described.



2. In a type-writing machine the combination with the type and platen, of an inking-disk suitably mounted on a reciprocating carrier, to move said disk into and out of the operative field of the type, and means operated by the movement of the type-writing machine, to rotate said disk, substantially as described.

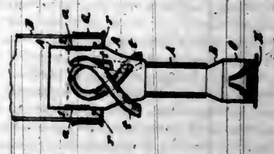
3. In a type-writing machine, the combination with the platen, of an inking-disk suitably mounted on a reciprocating carrier to move said disk into and out of the operative field of the type, and means operated by the movement of the type-writing space-bar to rotate said disk, substantially as described.

4. In a type-writing machine the combination with the type and platen, of an inking-disk suitably mounted on a reciprocating carrier to move said disk into and out of the operative field of the type, said disk being secured to the carrier by a spindle having at one end a ratchet-wheel, with a pawl for said ratchet, and a trigger engaging said pawl, operated by the movement of the machine to rotate said disk, substantially as described.

5. In a type-writing machine the combination with the type and platen, of an inking-disk suitably mounted on a reciprocating carrier, to move said disk into and out of the operative field of the type, said disk being mounted on said carrier by means of a spindle, having at one end a ratchet-wheel, with a pawl for said ratchet, and a trigger engaging said pawl while the disk is in the field of the type, said trigger being operated by the movement of the machine, substantially as described.

6. In a type-writing machine the combination with the type and platen, of an inking-disk suitably mounted on a carrier, said carrier being mounted to reciprocate on a frame secured to the top plate of the type-writer machine, at either side thereof, to move the disk into and out of the operative field of the type, said disk being mounted on said carrier by means of a spindle having at one end a ratchet-wheel with a pawl for said ratchet, and a trigger engaging said pawl while the disk is in the field of the type, said trigger being operated by the movement of the space-bar, substantially as described.

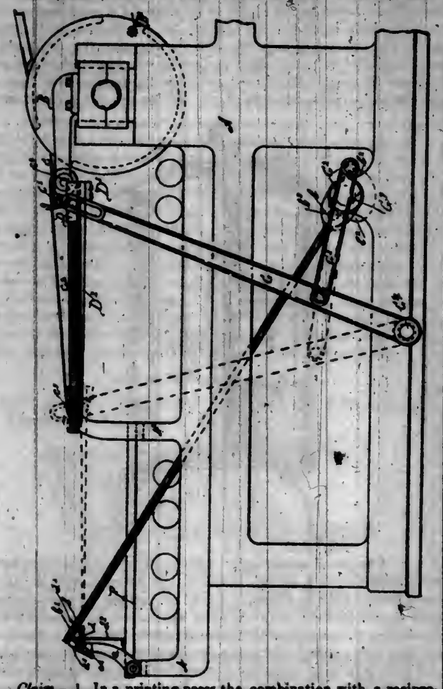
585,919. INCANDESCENT GAS-BURNER. JEAN BAPTISTE PAUL WABAULD DE MALBERG, Rheims, France. Filed July 26, 1896. Serial No. 600,493. (No model.) Patented in France Jan. 30, 1896, No. 253,433; in Belgium Mar. 14, 1896, No. 120,254, Apr. 17, 1896, No. 120,980, Apr. 23, 1896, No. 121,063, and May 1, 1896, No. 121,141, and in England Mar. 26, 1896, No. 6,581, and May 1, 1896, No. 11,100.



Claim.—1. In a Bunsen burner, the combination with the tube leading the gas and air to the burner proper, of three or more cylindrical tubes *t*, placed obliquely in said burner while projecting below the lower end of its head, which tubes are slightly flattened at their upper ends, in order to cause the different air-currents conveyed to the center of the flame, to acquire a whirling movement effecting a perfect mixture of gas and air substantially as and for the purpose described.

2. In a Bunsen burner, the combination with the tube leading the gas and air to the burner proper, and with cylindrical tubes slightly curved in a spiral manner and slightly flattened at their upper ends, of a ring *r*, adapted to cause a part of the air-current induced by the chimney to flow through the said cylindrical tubes, substantially as and for the purpose described.

585,920. SHEET-DELIVERY APPARATUS FOR PRINTING-PRESSES. ROBERT MIEHLE, Chicago, Ill., assignor, by mesne assignments, to the Miehle Printing Press and Manufacturing Company, same place. Filed Jan. 20, 1890. Serial No. 337,560. (No model.)



Claim.—1. In a printing-press the combination with a reciprocating fly-frame and receiving-table, of a sheet-stop and a gripping device comprising horizontally-movable lower gripping-fingers adapted to extend through apertures in the stop, and vertically-movable upper fingers acting against said lower fingers, substantially as described.

2. In combination with a receiving-table and reciprocating fly-frame, of a sheet-stop, and a sheet-gripping device comprising horizontally-movable lower fingers and vertically-movable upper fingers opposed to the same, a horizontally-movable support for the said lower fingers, and a rock-shaft sustaining said upper fingers mounted upon said movable support, substantially as described.

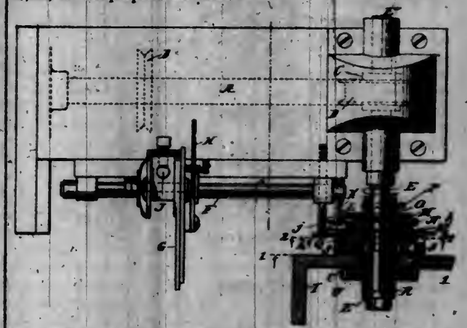
3. In a printing-press, the combination of a receiving-table, means for delivering the printed sheets thereto, a sheet-stop, a gripping mechanism comprising horizontally-movable lower gripping-fingers adapted to extend through apertures in the sheet-stop, vertically-movable upper fingers, pivotally-supported brackets sustaining said lower fingers, a rock-shaft for supporting the fingers mounted in said brackets, a lever rigidly attached to the rock-shaft and provided with a stud adapted to engage one of said brackets when the shaft is turned in a direction to lift the upper fingers, and means acting on said arm to actuate the rock-shaft and brackets, substantially as described.

585,921. BOX-COVERING MACHINE. AUGUSTUS H. MORRISON, Amsterdam, N. Y., assignor to the American Box Machine Company, same place. Filed Apr. 22, 1896. Serial No. 588,691. (No model.)

Claim.—1. In a machine for covering paper boxes, the combination of an intermittently-rotating box-form mounted on a continuously-rotating shaft, a device on the shaft for actuating a cut-off, and means actuated by the rotation of the shaft, which unlocks and locks the box-form to the shaft, for the purposes set forth.

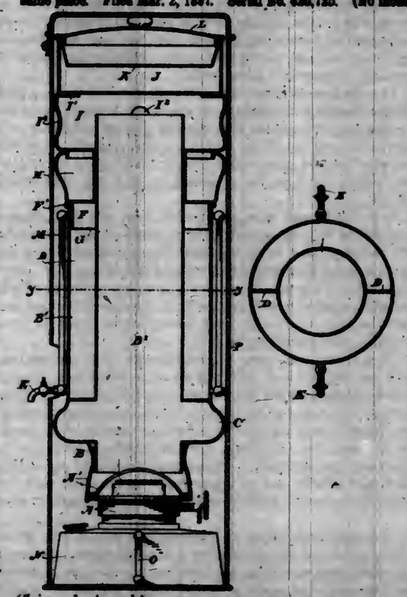
2. In a machine for covering paper boxes, an intermittently-rotating box-form, mounted on a continuously-rotating shaft, a device on the shaft for actuating a cut-off, and a reciprocating dog for unlocking and locking the box-form to the shaft, and a stationary device which engages with the dog at a point in its rotation whereby it is retarded, for the purposes set forth.

3. In a machine for covering paper boxes, the combination of an intermittently-rotated box-form, mounted on a continuously-rotating shaft, a device on the shaft for actuating a cut-off, and a reciprocating dog for unlocking and locking the box-form to the shaft, and a stationary device with which the dog engages during a part of its rotation, whereby it is retarded, and a spring for projecting the dog again, for the purposes set forth.



4. The combination in a box-covering machine of a continuously-rotating shaft carrying a device for operating a cut-off, and a box-form loosely mounted upon such shaft, a movable device constructed and arranged to unlock and lock the support for the box-form to the continuously-rotating shaft, and means, located in the path of said device, whereby it is actuated during the rotation of the shaft, for the purposes set forth.

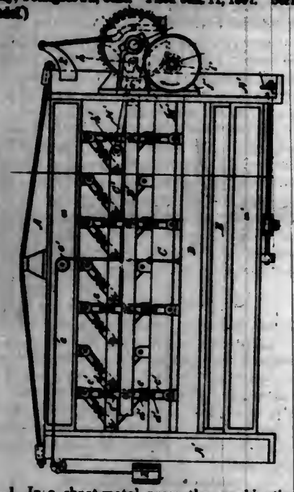
585,922. COMPARTMENT COOKING APPARATUS. LOUIS MOSES, San Francisco, Cal., assignor of one-half to Max Sutterman, same place. Filed Mar. 2, 1897. Serial No. 626,725. (No model.)



Claim.—1. A cooking apparatus comprising a burner, a superposed chamber B', divided into separate compartments, each provided with a draw-off, an expansion-chamber below and having its top wall forming a bottom for said chamber B', a tubular extension above and below the expansion-chamber and superposed chambers above the chamber B' one of which closes the top of the chamber B' and another receives the upper end of the upper tubular extension and is provided with openings for the escape of the heat.

2. A cooking apparatus comprising a burner, a superposed chamber B', an expansion-chamber below and having its top wall forming a bottom for said chamber B', a tubular extension of uniform diameter above and below the expansion-chamber, a vessel supported within and forming a closure for the upper end of the chamber B' and having a foraminous bottom, a chamber into which the upper end of the upper tubular extension projects, having side perforations for the escape of the heat, and a chamber below and surrounding the upper portion of the said extension.

585,923. PRESS FOR SHEET METAL. CORNELIUS C. MCHUGH, Jr., Warren, Ohio, assignor to the Youngstown Iron and Steel Roofing Company, Youngstown, Ohio. Filed Jan. 11, 1897. Serial No. 618,780. (No model.)



Claim.—1. In a sheet-metal press, the combination, with two plungers arranged side by side, of a crank and intermediate connections for operating one plunger, a cam and intermediate connections for operating the other plunger said cam having a portion of its groove concentric with its axis, driving devices, and separate clutch mechanisms operatively connecting the said crank and cam with the said driving devices and permitting them to be actuated simultaneously or separately, substantially as set forth.

2. In a sheet-metal press, the combination, with a frame, a plunger slidable therein, a horizontal bar, and toggle links or levers pivotally connecting the said bar with the said plunger and frame; of a cam secured to one end of the said bar, a link pivotally supporting the said cam from the upper part of the said frame, and a crank-plate provided with a crank-pin for operating the said cam, substantially as set forth.

3. In a sheet-metal press, the combination, with two plungers arranged side by side, and separate driving mechanisms for operating the said plungers; of a single driving-shaft, toothed wheels for connecting each said driving mechanism with the said driving-shaft, clutch mechanisms for connecting the respective driving mechanisms with the respective toothed wheels pertaining to them, and lever mechanism operating to move the said clutch mechanisms separately or simultaneously, substantially as set forth.

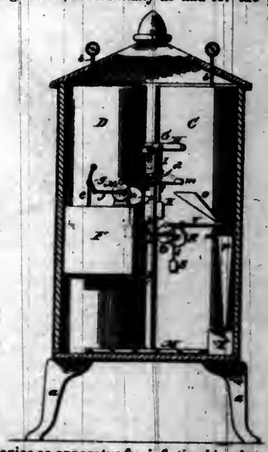
4. In a sheet-metal press, the combination, with two plungers arranged side by side, and driving devices provided with separate clutch mechanisms whereby the plungers may be operated simultaneously or one at a time; of two treadle-shafts, connections arranged between the said shafts and clutch mechanisms respectively, a treadle secured on one of the said shafts, a second treadle journaled on the same shaft and provided with a projecting arm and a lug overlapping the other said treadle, and an arm secured on the other said shaft and pivotally connected with the aforesaid arm, substantially as set forth.

5. In a sheet-metal press, the combination, with a single frame, and a front and a rear plunger slidable in the said frame, of separate driving mechanisms operating to actuate the said plungers separately or simultaneously, and a die provided with a channel under each plunger, and having an angle between the said channels, and a beveled portion on its rear edge for forming a joint-flange when the rear plunger is depressed, substantially as set forth.

585,924. DEVICE FOR INFLATING PNEUMATIC TIRES. ERNEST V. PRENOU, Newark, N. Y. Filed Jan. 7, 1896. Renewed June 3, 1897. Serial No. 638,909. (No model.)

Claim.—1. A device or apparatus for inflating bicycles or other pneumatic tires, consisting of a suitable tank for containing the air, a supplemental tank communicating therewith, a valve mechanism for automatically controlling the supply of air to the supplemental tank, tubes adapted for attachment to the pneumatic tire which communicate with the supplemental tank, and a coin-controlled valve-operating mechanism for controlling the discharge of air from the supplemental tank to the tubes, substantially as and for the purpose set forth.

2. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a storage-tank for the air, a receiving-tank communicating therewith, a supplemental tank or reservoir communicating with the receiving-tank, an automatically-operating valve or cut-off for controlling the supply of air from the storage-tank to the receiving-tank, suitable tubes adapted for attachment to the pneumatic tire and communicating with the supplemental tank, and a coin-controlled valve-operating mechanism which controls the supply of air to the supplemental tank and from the supplemental tank to the discharge-tubes, substantially as and for the purpose specified.



3. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a tank for containing the air, a supplemental tank or reservoir, means for forming a communication between the tanks, a valve-operating mechanism for automatically controlling the passage of air from one tank to the other, a distributing-pipe with means for forming a communication with the pneumatic tire to be inflated, a connection between the distributing-pipe and the supplemental tank or reservoir, a valve-operating mechanism controlling the supply of air through the distributing-pipe, the valve mechanism being operated by the descent of a coin deposited in the device or apparatus, substantially as and for the purpose specified.

4. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a storage-tank, a receiving-tank communicating therewith, a supplemental tank or reservoir communicating with the receiving-tank, a distributing-pipe connecting with said pipe, a coin-controlled operating mechanism for opening and closing the communication between the receiving-tank and the supplemental tank or reservoir, a coin-controlled operating mechanism for opening and closing the passage for the air from the supplemental tank or reservoir to the distributing-pipe, and an automatic valve-operating mechanism for controlling the supply of air from the storage-tank to the receiving-tank, substantially as and for the purpose specified.

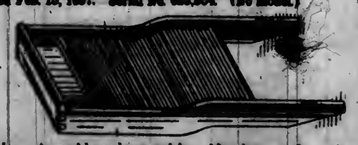
5. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a storage-tank for the air, a receiving-tank communicating therewith, an automatic valve-operating mechanism for controlling the communication between the tanks, which mechanism consists of a suitable pivoted pressure-arm and connections between it and the valve, and a hollow elastic ball communicating with the interior of the receiving-tank, and a weight for operating the arm to compress the ball, a supplemental tank or reservoir communicating with the receiving tank, a coin-controlled valve-operating mechanism to control the supply and discharge of air to and from the supplemental tank or reservoir, substantially as and for the purpose specified.

6. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a receiving-tank for containing air, a supplemental tank or reservoir communicating therewith, a coin-controlled operating-valve mechanism for controlling the supply and discharge of air to and from the tank or reservoir, said mechanism consisting of a rotary notched disk, a crank-arm connection between the disk and the valve, a toothed wheel connecting with a pinion on the disk, a weight for operating the wheel, a pivoted lever provided with a pawl at one end adapted to engage with the notch of the disk and having at its opposite end a basket or other suitable receptacle for receiving the coin, substantially as and for the purpose set forth.

7. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a storage-tank for the air, a receiving-tank communicating therewith, an automatically-operating device for controlling the supply of air from the storage-tank to the receiving-tank, a supplemental tank or reservoir communicating with the receiving-tank, a coin-controlled operating-valve mechanism for controlling the supply of air from the receiving-tank to the supplemental tank or reservoir, a distributing-pipe provided with faucets and rubber tubes, a coin-controlled operating-valve mechanism for controlling the passage of air from the tank or reservoir to the distributing-pipe, substantially as and for the purpose described.

8. A device or apparatus for inflating bicycle or other pneumatic tires, consisting of a suitable casing, a storage-tank and a receiving-tank for the air, said tanks communicating with each other and provided with suitable pressure-gages, an automatic device for controlling the supply of air from the storage-tank to the receiving-tank, a supplemental tank or reservoir communicating with the receiving-tank, a coin-controlled valve-operating mechanism for controlling the supply of air from the receiving-tank to the supplemental tank or reservoir, a distributing-pipe provided with faucets and rubber tubes for attachment to the pneumatic tire, a tubular connection between the distributing-pipe and the supplemental tank or reservoir, a coin-controlled valve-operating mechanism for controlling the discharge of air from the supplemental tank or reservoir, suitable chutes to receive the descending coin, and a receptacle in which the coin is finally deposited, substantially as and for the purpose set forth.

585,925. WASHBOARD. ABRA POMERLEAU, South Bend, Ind. Filed Feb. 15, 1897. Serial No. 623,804. (No model.)



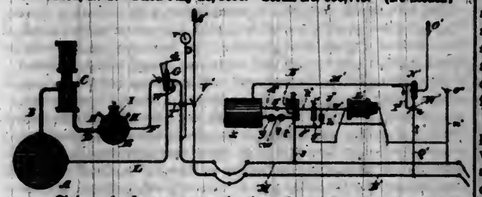
Claim.—A washboard comprising side pieces and a rub-surface having a flat section at the upper and lower ends thereof, and an intermediate reverse-curved section, substantially as described.

585,926. THYROID COMPOUND. CARL F. M. SCHAFFNER, Basle, Switzerland, assignor to F. Hoffmann-La Roche & Co., same place. Filed Dec. 1, 1896. Serial No. 614,130. (Specimens.)

Claim.—1. The herein-described process for the production of the active constituents of the thyroid gland, by precipitating by means of tannic acid, a solution obtained from thyroid glands by means of common salt.

2. As a new article of manufacture, the herein-described substance containing the active constituents of the thyroid gland in the form of tannates, which substance is insoluble in water, constitutes in a dry state a loose powder without smell and without savor, is transformed into a gelatinous mass on boiling with acetic acid and contains about 0.4 per cent. of iodin.

585,927. AIR-BRAKE MECHANISM. EDWARD A. TRAPP, New York, N. Y. Filed July 20, 1896. Serial No. 600,775. (No model.)



Claim.—1. In power mechanism, the main reservoir, and the pump for supplying the same, combined with the engineer's valve connected with said main reservoir and with the main pipe-line both for the supply of said main pipe-line from the main reservoir and for the exhaust from said main pipe-line, said engineer's valve comprising within its external casing the piston-valve and plug-valve operable in one direction from a hand-lever, the piston-valve being exposed to the pressure in said reservoir and controlling the passage of the air from said reservoir to the main pipe-line, and said plug-valve being conical in outline and seated at its upper and lower ends at opposite sides of the passage through the valve-casing through which the air from the main pipe-line exhausts; substantially as set forth.

2. In power mechanism, the main reservoir, and the pump supplying the same, combined with the engineer's valve connected with said reservoir and also with the pipe-line, said engineer's valve comprising the casing containing the piston-valve and the conical plug-valve operable in one direction by a hand-lever and in the opposite direction by the pressure from the said reservoir, said piston-valve controlling the passage through said casing of the compressed air to the main pipe-line, and said plug-valve controlling the exhaust of the air from said main pipe-line; substantially as set forth.

3. In power mechanism, the engineer's valve connected with the supply for compressed air, the main pipe-line and the exhaust from said pipe-line, said valve comprising the piston-valve at its inlet end for compressed air from the source of supply, the conical valve at its inlet end for the air exhausting from the main pipe-line, the chamber controlled by said piston-valve and leading to the main pipe-line, and the transverse passage under the control of said plug-valve intermediate the main pipe-line and the exhaust; substantially as set forth.

4. In power mechanism, the engineer's valve connected with the source of supply, the main pipe-line, and the exhaust, and comprising the casing containing the piston-valve and conical plug-valve and having at its inlet end the annular chamber Q, inlets R thereto, and the chamber V connected with the main pipe-line, and at its exhaust end the transverse passage intermediate the main pipe-line and exhaust and having the seats *k*, *m*, at its upper and lower edges for the reciprocating plug-valve, said plug and piston valves being adapted to be moved in one direction by a hand-lever and in the opposite direction by the pressure acting on the piston-valve; substantially as set forth.

5. In power mechanism, the valve-casing provided adjacent to its inlet end with the cylinder, and having at its opposite end the transverse passage through which the fluid must pass, combined with the piston located within said cylinder and exposed to pressure from said inlet and the conical plug-valve adapted to reciprocate within and at a right angle to the axis of said passage, said piston having a surface area larger than that of said plug-valve; substantially as set forth.

6. In air-brake mechanism, the main pipe-line supplied from the locomotive, and the auxiliary reservoir *r*, combined with the valve-casing *l* connected with said main pipe-line and with said reservoir by a valved pipe supplying air to said reservoir from the train-pipe, a return-pipe passing from said reservoir to said valve-casing, and the pipe passing from said valve-casing to the power-cylinder, said valve-casing having at its inlet end for air from the main pipe-line the piston-valve controlling said inlet, at its opposite end the piston exposed to the air-pressure from said reservoir, and at its intermediate portion the valve exposed at its outer surface to the pressure of air in said reservoir and being less in area than the said piston, said valve controlling the passage from said reservoir to the pipe leading to the power-cylinder, whereby upon pressure becoming exhausted against said piston-valve the pressure in said reservoir operating against said piston will open said valve and permit communication from said reservoir to said power-cylinder; substantially as set forth.

7. In air-brake mechanism, the main pipe-line supplied with compressed air from the locomotive, combined with the auxiliary reservoir on the car, the valve-casing *l* on the car and connected with said pipe-line, with said reservoir by supply and return pipes, and with the power-cylinder, said valve-casing containing at its inlet end the piston-valve exposed to the train-pipe pressure and controlling the inlet from the main pipe-line to said reservoir and at its opposite end the piston exposed to the pressure of the air in said reservoir, while intermediate said piston-valve and piston said casing is provided with a central chamber connected by a pipe with the power-cylinder and at one side of said chamber with the valve also exposed to the pressure of the air in said reservoir and controlling the passage of said air from the reservoir to said pipe leading to the power-cylinder, said central chamber being provided with an exhaust and a valve therefor; substantially as set forth.

8. In air-brake mechanism, the main pipe-line supplied with compressed air from the locomotive, combined with the auxiliary reservoir on the car, the valve-casing *l* adjacent thereto and intermediate said reservoir and said main pipe-line, the pipe connecting the inlet end of said casing to said main pipe-line, the valved pipe connecting the said end of said casing with said reservoir, the return-pipe connecting said reservoir with said casing, and the pipe passing from said casing to the power-cylinder, said valve-casing containing at its inlet end the piston-valve exposed to the train-pipe pressure, at its opposite end with the piston exposed to the pressure in said reservoir, at an intermediate point with the valve exposed to the air-pressure in said reservoir and having a smaller area than said piston and being intermediate the supply for air from said reservoir and the pipe leading to the power-cylinder, the rod connecting said piston-valve, piston and valve, the exhaust-valve operable from said rod, and an exhaust-port from the central portion of said casing; substantially as set forth.

9. In air-brake mechanism, the main train-pipe supplied with the compressed air from the locomotive, combined with the reservoir on the car, the valve-casing *l* connected with the main pipe-line and also by a valved pipe with said reservoir for supplying the latter, the

return-pipe from said reservoir to said casing, the outlet-pipe from said casing to the power-cylinder, the connected piston-valve, piston and outlet-valve within said casing and exposed respectively to the train-pipe pressure and reservoir-pressure, and the graduating-valves in said pipe leading to the power-cylinder and connected with the pipe passing from the main pipe-line to said valve-casing, said graduating-valves being exposed to the train-pipe pressure and to the pressure of the air passing through the outlet-pipe to the power-cylinder, and one of said graduating-valves comprising the conical plug-valve having on its stem the piston, while the other graduating-valve comprises the stem having upon its opposite ends the disk-valves; substantially as set forth.

10. In air-brake mechanism, the main pipe-line supplied from the locomotive, the auxiliary reservoir on the car, and the main valve controlling the inlet to said reservoir and the outlet therefrom to the brake-cylinder, combined with the graduating-valves in the outlet-pipe to the brake-cylinder and connected with the train-pipe whereby at their opposite ends they are exposed to the train-pipe pressure and to the reservoir-pressure, said graduating-valves having their casings connected and one of said valves comprising the conical plug-valve exposed at its upper end to air-pressure and at its lower end carrying a piston and being provided with the upwardly-acting check-valve in the passage leading over its reduced end, and the other graduating-valve comprising the stem having the disk-valves on its opposite ends and provided with a spring tending to open one of said valves and close the other thereof; substantially as set forth.

11. In air-brake mechanism, the main train-pipe line supplied with air from the locomotive, and the reservoir on the car connected by a valved pipe with said main pipe-line, combined with the auxiliary pipe-line connected at the locomotive with the supply-pipe, the valve V' for said auxiliary pipe-line, the valve-casing N' connected at one end with the said reservoir and at the other end with the auxiliary pipe-line, the branch pipe connecting the pipes at opposite ends of said casing and having the two-way valve W', and the signal O' connected with an intermediate portion of said valve-casing, the said valve-casing containing at its ends connected with the auxiliary pipe-line the piston and at the other end the valve adapted to be actuated by the movement of said piston and controlling the passage from the reservoir to the pipe leading to the signal, whereby the air allowed to enter said auxiliary pipe-line from the engine is enabled by acting against said piston to open said valve and permit the air from the reservoir on the car to sound the signal; substantially as set forth.

12. The air-signal on each car of the train, and means for storing compressed air, combined with means under the control of the engineer on the locomotive for directing said air to said signals for sounding the latter; substantially as set forth.

13. The signal on each car of the train, and the auxiliary reservoir on each car of the train, combined with means under the control of the engineer on the locomotive for opening the air in said reservoir to said signals for sounding the latter; substantially as set forth.

14. The engineer's valve connected with the main pipe-line and having the exhaust-passage *n*, chamber *h*, and inlet *a* to said chamber, combined with the conical plug-valve P adapted to reciprocate within said passage *n* and the piston O connected with said plug-valve and exposed to pressure in said chamber *h* to resist the movement of said plug-valve; substantially as set forth.

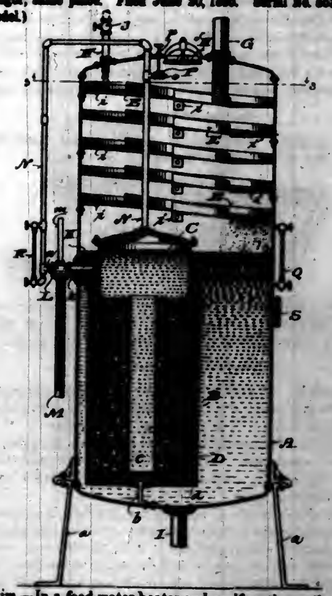
15. The valve-casing having the central chamber connected with the delivery-pipe, the valve-chamber at one side of said central chamber and connected with the main inlet-pipe, and the cylinder at the opposite side of said central chamber and also connected with said main inlet or supply pipe, combined with the piston in said cylinder and exposed to the fluid-pressure in said main supply-pipe, the valve in said valve-chamber adapted to be seated around the inlet to said central chamber, and the connection intermediate said piston and valve whereby the latter under the pressure of the fluid in the supply-pipe may open said valve and permit said fluid to pass through said valve-chamber into said central chamber and thence to said delivery-pipe; substantially as set forth.

16. The valve-casing having the central chamber connected with the delivery-pipe and having the exhaust, the valve-chamber at one side of said central chamber and connected with the main inlet or supply pipe, and the cylinder at the opposite side of said central chamber and also connected with said inlet or supply pipe, combined with the piston in said cylinder and exposed to the fluid-pressure in said main supply-pipe, the valve in said valve-chamber adapted to be seated around the inlet to said central chamber, the valve in said central chamber controlling said exhaust, and the rod connecting said valves and pistons, the whole being constructed and arranged and adapted to operate substantially as and for the purposes set forth.

17. In power mechanism, the reservoir *x*, means supplying the same with the fluid under pressure, and the main valve controlling the outlet therefrom and having the pipe passing to the power-cylinder for supplying the latter, combined with the casing *j'* in said pipe and also connected with the pipe supplying said reservoir, and the twin valves F', H'' in said casing and adapted to be moved under the varying pressures at the opposite ends of their casing; substantially as set forth.

18. In power mechanism, the reservoir *x*, means supplying the same with the fluid under pressure, and the main valve controlling the outlet therefrom and having the pipe passing to the power-cylinder for supplying the latter, combined with the casing *j'* in said pipe and also connected with the pipe supplying said reservoir, and the connected piston and plug-valve in said casing and exposed to the pressures at the upper and lower ends of the latter, said plug-valve controlling the passage through said casing of said fluid from the reservoir; substantially as set forth.

585,928. FEED-WATER HEATER AND PURIFIER. JAMES R. CRAWLEY, Milwaukee, Wis., assignor of one-half to Thomas L. McGregor, same place. Filed June 20, 1896. Serial No. 593,401. (No model.)



Claim.—In a feed-water heater and purifier, the vertical tank A, rested on legs, and containing a filter B, supported by a standard secured within the tank; said filter consisting of a perforated central pipe *c*, surrounded by a perforated tube *b*, and having the intermediate space filled with suitable filtering material, and its exterior coated with textile material; in combination with a receiver C, at top; a continuous spiral trough E, formed of a series of unobstructed, flat-bottomed, curved pans, provided with inner and outer vertical edge flanges, the sections of said continuous trough being supported by brackets bolted to the tank-wall, and the lower end of one pan-section fitting snugly within the upper end of the next pan-section, so as to form a continuous spiral trough, and cause a continuous shallow flow of water; and said spiral trough extending from a point below the feed-water inlet to a point above the water-level line in the tank; the steam-pipe G; the feed-water inlet F, the pipe N, with its connections; and the outlet-pipe K, all combined, arranged, and operating as hereinbefore shown and described.

585,929. TIRE FOR VELOCIPEDES. JULIUS DEBORDE, Hanover, Germany. Filed Feb. 16, 1897. Serial No. 623,596. (No model.)



Claim.—1. A tire composed of a tube of suitable material, resilient balls arranged therein, connecting-strings between the balls, and a filling of yielding material in the space between the connected balls and the tube, substantially as set forth.

2. A tire composed of an exterior tube of suitable material, resilient balls within said tube connected by a suitable covering twisted into a string intermediate of the balls, to form a string or chain of balls, and a yielding filling mass in the tube, surrounding the string or chain of balls, substantially as set forth.

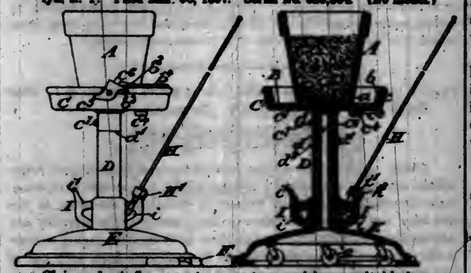
3. A tire consisting of an exterior tube of suitable material, a series of hollow resilient balls in the tube, said balls being connected by a suitable covering-web twisted into a string between the balls, and a yielding gelatinous filling mass in the space between the connected balls and the tube, substantially as set forth.

585,930. THIMBLE. WILLIAM J. FERGUSON, Baltimore, Md., assignor of one-half to George O. Gillingham, Mount Washington, Md. Filed Dec. 15, 1896. Serial No. 615,755. (No model.)



Claim.—A metal thimble having a cutter-blade integral with the wall of the thimble, said blade partly separated from said wall by a V-slit, the point of the blade bent outward slightly and having one inclined edge of the blade standing off from the slit farther than the other inclined edge so that only one edge cuts the thread, and also having at the base of the non-cutting edge a smooth or rounded-out opening, as set forth.

585,931. FLOWER-POT SUPPORT. WILBER D. GRIDLEY, Brooklyn, N. Y. Filed Mar. 30, 1897. Serial No. 629,864. (No model.)



Claim.—1. A flower-pot support comprising a suitable base, an upright, a pan or cup carried by the upright, a flange or ring seated within the cup or pan, means for removably securing the ring to the pan, means for removably securing the flower-pot to the ring, substantially as set forth.

2. A flower-pot support comprising a suitable base, an upright, a supporting pan or cup mounted to rotate upon said upright, a ring or flange seated within said cup removably secured thereto and means for removably securing the flower-pot to the said ring, substantially as set forth.

3. A flower-pot support comprising a suitable base, an upright, a pan or cup carried thereby, a ring fitted to lie within the cup or pan and means for removably securing the ring to the pan comprising a lug carried by the pan and a gravity-pin carried by the ring in position to engage the said lug, substantially as set forth.

4. In a flower-pot support a suitable cup or pan, a flower-pot-supporting ring, means for removably securing the ring to the pan comprising lugs upon the pan diametrically opposite each other and overlapping the said ring, one of said lugs having an inclined face, and a lug upon the ring having a vertically-sliding pin therein, the said pin being in position to travel along down the incline upon the lug on the pan and drop when released therefrom as the ring is twisted in one direction whereby the ring is prevented from being twisted in the opposite direction until the pin is raised, substantially as set forth.

5. A flower-pot support comprising a suitable base, an upright, a supporting pan or cup carried thereby, a ring fitted to seat within the said cup and means for removably securing the ring within the cup comprising lugs overlapping the said ring, one of said lugs having an inclined face and a gravity-pin carried by the ring in position to travel along down the said incline-faced lug when the ring is twisted in one direction, the engagement of the lug with the pin preventing the unintentional reverse movement of the ring, substantially as set forth.

6. In a flower-pot-supporting stand, a ring or flange and a device for removably securing the pot to the ring or flange comprising a key adapted to enter the interior of the pot through its bottom opening and overlap the edges of the same and a screw passing through the said ring or flange and having a screw-threaded engagement with the said key, substantially as set forth.

7. In a flower-pot-supporting stand, a suitable upright having a reduced top, said reduced top having an exterior circumferential groove therein, and a pan or cup having a hollow cylindrical lug fitted to said reduced top, the said lug being provided with an inwardly-extended screw adapted to engage the said circumferential groove for rotatably mounting the cup upon the upright and also securing it against unintentional removal, substantially as set forth.

8. A flower-pot support comprising a suitable base, upright and pan or cup, and a base-plate engaging the base for securing it against unintentional movement to form a permanent stand, substantially as set forth.

9. The combination with the base of a supporting-stand having casters, of a stationary base plate having a flange adapted to engage the base to prevent its unintentional movement, the said flange having cut-away portions for the passage therethrough of the casters of the base as the stand is removed from or is caused to enter the base-plate, substantially as set forth.

10. The combination with the base of a support having casters upon which the base runs, of a stationary base-plate having an open center, a flange adapted to engage the base for securing it against movement upon the base-plate, the said base-plate being provided with tracks and cut-away portions through the flange for directing the casters into and out of the base-plate, substantially as set forth.

11. The combination with the base of a supporting-stand having casters thereon, of a base-plate having a flange adapted to engage the periphery of the base when it is in position upon the base-plate, the said flange being provided with cut-away portions for permitting the casters to pass into and out of engagement with the base-plate and outwardly-extended guide-flanges located in proximity to the said cut-away portions for guiding the said casters positively onto the base-plate, substantially as set forth.

12. The combination with a flower-pot-supporting stand, of a handle for moving the said stand, the said handle having three bearings for engaging the stand, the one bearing being adapted for use in pushing the stand, the second bearing being adapted for use in dragging or pulling the stand and the third bearing being adapted to support the handle in its operative position, substantially as set forth.

13. The combination with the base and upright of a flower-pot-supporting stand, of an ear located at or near the base, the said ear being provided with a suitable eye and an upwardly-extending projection for use in connection with an operating-handle for moving the said stand, substantially as set forth.

585,932. HEATING APPARATUS FOR GAS-BURNERS. THEODORE GÜRKING, New York, N. Y. Filed Jan. 30, 1897. Serial No. 621,333. (No model.)



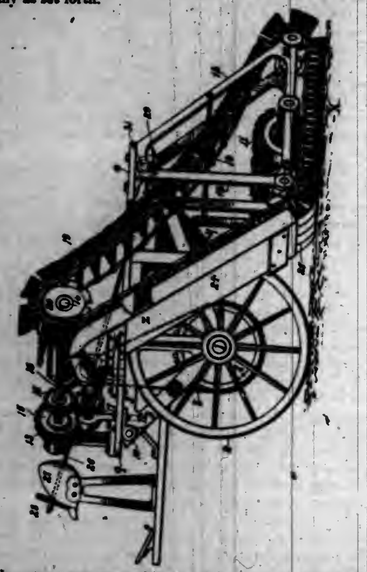
Claim.—1. A heat-radiator, comprising a lower cylinder, a centrally-perforated diaphragm at the top of said cylinder, an exterior deflector, openings in the upper part of the lower cylinder below said deflector, an upper cylinder, a diaphragm closing the top of the upper cylinder and a deflector at the upper end of the upper cylinder, said cylinder having outlet-openings below the upper diaphragm, substantially as set forth.

2. A heat-radiator, comprising a lower cylinder having an outwardly-flaring lower end and openings at the upper end, a centrally-perforated diaphragm at its top, a downwardly-extending lip extending around the central opening in the diaphragm, an upper cylinder, a closed diaphragm at its upper end, openings adjacent to said closed diaphragm, and a deflector at the top of the upper cylinder above said openings, substantially as set forth.

585,933. STREET-SWEEPER. JOHN A. HANLON, Brooklyn, N. Y. Filed Sept. 3, 1896. Serial No. 604,798. (No model.)

Claim.—1. In a street sweeper and loader, the combination with a frame and ground-wheels, a rotating broom arranged obliquely to the line of draft, and a conveyer-chute, also arranged obliquely to the line of draft, and substantially at right angles to the broom-axis, of an endless elevator and conveyer, arranged in the same vertical plane with the chute and having a horizontal portion extending back-

of the rear end of the broom, whereby, in the forward movement of the sweeper and loader the horizontal portion of the conveyer is drawn over the surface in a path oblique to its own movement, substantially as set forth.



2. In a street-sweeper and loader, the combination with a frame and ground-wheels, of a rotating broom arranged obliquely to the line of draft, a chute arranged obliquely to the line of draft and having its lower end laterally out of the path swept, an endless-chain elevator and conveyer arranged in the same vertical plane with the chute, said elevator and conveyer having a horizontal portion adjacent to the rear end of the broom and extending back of the axis of the same, and a side guard to said conveyer at the side thereof opposite to the rotating broom, whereby the apron of the chute is removed from the path swept, substantially as set forth.

3. In a street-sweeper and loader, the combination with the frame, and the oblique, rotating broom, of the endless conveyer and elevator 19 and the chute, said conveyer and elevator having L-shaped brushes 21, one branch of such brush extending transversely of the elevator to form a flight and the other branch extending along the outer side of the elevator to form a side guard, substantially as set forth.

4. In a street-sweeper and loader, the combination with a supporting-frame and wheels, of a rotating broom, arranged with its axis oblique to the line of draft, an endless-chain elevator and conveyer arranged in a vertical plane which is also oblique to the line of draft, said conveyer and elevator having a horizontal portion which sweeps the ground and extends back of the rear end of the broom, whereby the transverse flights of the conveyer are presented obliquely to the line of draft, a side guard for said conveyer on the side opposite to the broom and oblique to the line of draft, and the chute for the upright portion of the conveyer, substantially as set forth.

5. A street-sweeper and loader provided with a rotating broom, a moving conveyer and elevator for the sweepings, and a bin to receive the latter when elevated and having a lower frame on which said bin and the driving-shaft are mounted, an upper frame on which the broom, the elevator and the counter-shaft for driving same are mounted, said frames being hinged together as described, and means, under control of the driver for elevating said upper frame, substantially as set forth.

6. In a street-sweeper and loader, the combination with a supporting-frame, a chute 24, and an oblique, endless conveyer and elevator provided with flights formed of brushes and with side guards on each flight also formed of brushes, said conveyer having a horizontal portion X, substantiallly as set forth.

7. In a street-sweeper and loader, the combination with a supporting-frame and ground-wheels, and a rotating broom oblique to the line of draft, of the endless conveyer and elevator arranged obliquely to the line of draft and in a vertical plane substantially at right angles to the axis of the broom at the rear end of the latter, and a chute for the upright portion of the elevator, said conveyer and elevator having flights and side guard portions of an L shape, whereby in moving over the surface obliquely to the line of draft, these latter form sweepers and pockets, substantially as set forth.

585,984. BLUE DYE. CHARLES DE LA HARPE, Basle, Switzerland, assignor to L. Durand, Huguenin & Co., same place, St. Fons, France, and Hüningen, Germany. Filed Jan. 15, 1896. Serial No. 575,628. (Specimens.) Patented in France July 4, 1893, No. 231,316; in England July 4, 1893, No. 14,892, and Aug. 7, 1894, No. 15,094, and in Germany Oct. 6, 1893, No. 77,452, and July 28, 1894, No. 78,889.

Claim.—1. The herein-described process for the production of a blue coloring-matter from the leuco body produced by the condensation of resorcin with a gallocyanin dye, which consists in sulfonating the said body with sulfuric acid, then subjecting an alkaline solution of the sulfo derivative obtained to contact with the air and then precipitating the blue coloring-matter with sufficient acid to neutralize the alkali employed, as set forth.

2. The herein-described process for the production of a blue coloring-matter from the leuco body produced by the condensation of resorcin with a gallocyanin dye, which consists in sulfonating the said body with sulfuric acid, then subjecting an alkaline solution of the sulfo derivative obtained to contact with the air, then precipitating the product of oxidation with sufficient acid to neutralize the alkali employed, and finally transforming the product of oxidation into an alkaline salt, by its combination with an alkali, as set forth.

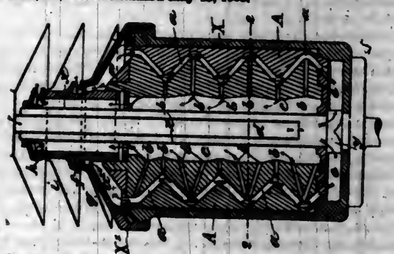
3. As a new article of manufacture, the herein-described sulfonated coloring-matter derived from the leuco body produced by the condensation of resorcin with a gallocyanin dye, which dyes non-mordanted wool and chromed wool and mordanted vegetable fibers a blue color, which dissolves in concentrated sulfuric acid with a blue coloration, which by addition of traces of nitric acid turns first to red and then to orange, which is only slightly soluble in alcohol and diluted hydrochloric acid, is soluble in the form of its alkaline salts in sodium acetate with a blue coloration, is soluble in alkalies and alkaline carbonates with a blue-violet coloration, and regenerating, by adding sulfurous acid to its alkaline solutions, the leuco body from which it is derived in the form of a brown-green powder.

585,985. DYEING-HORSE. JACOB KNOTT, Paterson, N. J. Filed Oct. 21, 1896. Serial No. 609,534. (No model.)



Claim.—A horse for dyeing establishments, consisting of longitudinal side bars, intermediate bars parallel with the side bars, transverse tie-rods provided with means for attaching the same to the side bars, and intermediate sleeves interposed between the side and intermediate bars and each set at their ends into two facing sockets in the adjacent sides of the side and intermediate bars, each end of said longitudinal side bars projecting beyond the intermediate bars to form a handle substantially as set forth.

585,986. CENTRIFUGAL SEPARATOR. OLOF LUNDIN, Stockholm, Sweden. Filed June 30, 1894. Serial No. 516,144. (No model.) Patented in Sweden Sept. 13, 1893, No. 5,436, and Apr. 21, 1894, No. 5,719; in England May 15, 1894, No. 9,533; in Norway May 16, 1894, No. 3,788, and in Denmark May 15, 1895.



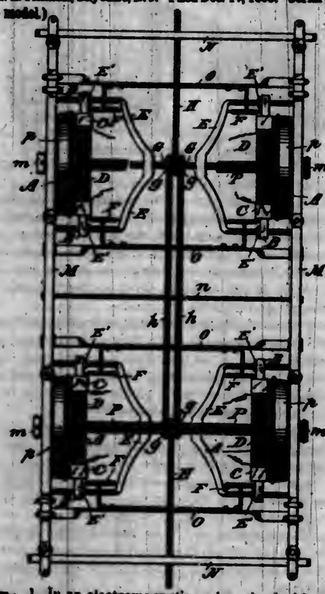
Claim.—1. In a centrifugal separator the combination with the drum of a downwardly-extending supply-tube disposed centrally within said drum, and that is provided with a discharge-outlet near the bottom of said drum; and a body A, adapted to fit into said drum, said body having in it a central bore, forming a space C, for the lighter constituent of the fluid, and vertically-extending channels *a*, in the body A for the heavier constituents of the fluid and radially-extending channels that connect the space C with the channels *a*, substantially as described.

2. In a centrifugal separator the combination with the drum, of a downwardly-extending supply-tube disposed centrally within said drum and that is provided with a discharge-outlet near the bottom of said drum; and a body A adapted to fit into said drum, said body having in it a central bore forming a space C for the lighter constituent of the fluid and a series of vertically-extending zigzag channels *a*, for the upward flow of the heavier liquid and several series of

radially-arranged channels, in tiers, and extending from the space C, to the channels *a* at the points where the latter approach nearest to the drum-axis, and others where the latter recede farthest from the drum-axis, substantially as described.

3. In a centrifugal separator the combination with the drum of a downwardly-extending supply-tube disposed centrally within said drum and that is provided with a discharge-outlet near the bottom of said drum; and a body A, adapted to fit into said drum, said body having in it a central bore, forming a space C, for the lighter constituent of the fluid, and vertically-extending zigzag channels *a*, for the upward flow of the heavier liquid, radially-arranged passages that connect the space C with the channels *a*, and pockets *r* exterior to the channels *a* and communicating therewith, substantially as described.

585,987. ELECTROMAGNETIC AND MECHANICAL BRAKE. JOHN B. PARKER, Bayonne, N. J. Filed Dec. 17, 1895. Serial No. 572,444. (No model.)

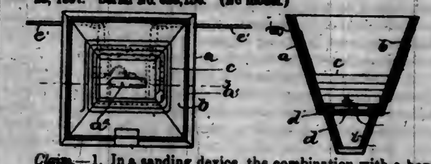


Claim.—1. In an electromagnetic and mechanical brake, and in combination, an electromagnetic brake bar and blocks placed horizontally in juxtaposition to car-wheels and a metal frame supporting said bar and blocks, engaging with a shaft placed transversely across the car and having a screw-thread at each extremity and controlled by hand by means of a sprocket-cylinder and sprocket-chains causing the brake-block to advance or retreat in respect to the inner surface of the car-wheels, substantially as described.

2. In an electromagnetic and mechanical brake, an apparatus for controlling the brake electrically consisting of a movable arm or pointer radiating from a center and carrying the main current from the line, and in movable connection with sectional metallic pieces placed on a base and forming a circular sectional conductor, said metallic sections being in connection with graduated resistances placed underneath the base and bridging the metallic sections U^4 U^5 U^6 U^7 U^8 U^9, said resistances being used to return the current to the motor by graduated steps after its use on the brake-circuit, and further, a device by means of finger-keys or the like, for graduating the application of the current to the brake-circuit by placing the main current in connection with the brake through graduated resistances V, substantially as described.

3. In an electromagnetic and mechanical brake, placed horizontally and movably in juxtaposition to the inner surface of car-wheels and attracted thereto when energized by an electric current and an apparatus consisting of an arm or pointer of metal radiating from a center and carrying the main current, and a circular sectional conductor of metal placed on a base, said arm being in movable connection therewith, the metallic sections being bridged by resistances for graduating the return of the current to the motor after its use on the brake-current, and further of a device, which by the use of finger-keys or the like the main current is brought into connection with the brake through resistances for the purpose of graduating its application to the brake, substantially as described.

585,988. SANDING APPARATUS. BERNHE PICARD, Holyoke, Mass., assignor of one-half to Maxime Ruel, same place. Filed Mar. 25, 1897. Serial No. 629,156. (No model.)



Claim.—1. In a sanding device, the combination with a hopper consisting of an outer casing and an inner lining separated therefrom by an air-space, of an electrical conductor arranged in loops around the inside of said hopper and adapted to come into contact with the sand therein so as to dry the same, substantially as described.

2. In a sanding device, a hopper having an elongated outlet-opening, a sliding gate arranged to operate beneath said opening, an outwardly-opening door for filling said hopper, the said door having a prop, means for drawing said gate, means for retracting the same, consisting of springs connected with the bottom of the hopper and engaging the said gate, and means in said hopper for heating the sand therein to dry the same.

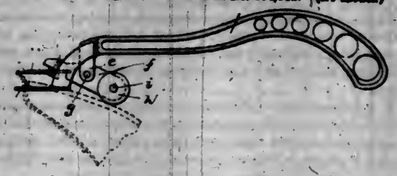
3. In a sanding device, in combination, a hopper consisting of an outer casing and an inner lining separated therefrom by an air-space, an elongated outlet-opening in said hopper, a gate arranged to operate beneath said opening, a discharge-chute arranged underneath said opening, a protecting-casing arranged outside of said chute and extending below the mouth of the same, an outwardly-opening door for filling the hopper, the said door having a prop, and an electrical conductor arranged in loops inside of said hopper, close to the sides thereof, the said conductor being adapted to make contact with the sand in the hopper so as to dry the same, substantially as and for the purposes described.

585,989. OVERSEAM FOR SEWED ARTICLES. RAYMOND L. PLUMLEY, Wilmington, Del., assignor to the Trump Brothers Machine Company, same place. Filed Aug. 8, 1896. Serial No. 602,197. (No model.)



Claim.—The improved overseam comprising a piece of goods and upper and lower threads D and E, of which the upper thread passes back and forth through the goods a short distance from the edge, and is formed into loops extending from said needle-holes to the edge of the goods on each side so as to lie flush or nearly so with the upper edges, and the lower of which threads passes back and forth across the edge but not through the goods, first up through one of the lower loops into and through an upper loop, then down through the adjacent upper loop into and through the same lower loop, then up through the next adjacent lower loop into and through the upper loop down which it first passed, and so on, leaving the portion of said thread between contiguous loops lying lengthwise along and flush or nearly so with each edge of the goods, and acting to hold said upper and lower loops distended at their ends and to form a purl on both edges of the goods, and a drawing and tightening thread F twisted around each of the upper loops and across the ends of the lower loops, and serving to draw and anchor the loops at or near the edge of the goods.

585,940. LASTING-PINCERS. ALBERT F. PERKINS, Boston, Mass., assignor to the Russell Lasting Machine Company, Boston, N. H. Filed Aug. 20, 1896. Serial No. 604,312. (No model.)



Claim.—1. A lasting-pincer comprising a jaw having a recess corresponding substantially in shape to the toe or heel of a last, a jaw having a convex edge and arranged in a plane parallel to and above the plane of the recessed jaw, and means for operating said jaws, the recessed jaw being arranged entirely below the jaw with the convex edge whereby the operator can see the work.

2. A lasting-pincer comprising a jaw having a recess corresponding substantially in shape to the toe or heel of a last, a jaw having a convex edge and arranged in planes parallel to and above the plane of the recessed jaw, a handle to which one of these jaws is secured, and a loose short lever pivoted to the handle and secured to the other jaw.

3. A lasting-pincer comprising a single handle bifurcated at its end, a concave jaw consisting of a flat recessed plate secured to the bifurcated end of the handle, and a convex jaw consisting of a flat plate hinged to the handle.

4. A lasting-pincer comprising a single handle formed at its end with two arms, a concave jaw secured to the said arms, a short lever hinged to the handle and adapted to have one end rest against the last, and a convex jaw secured to the other end of said lever.

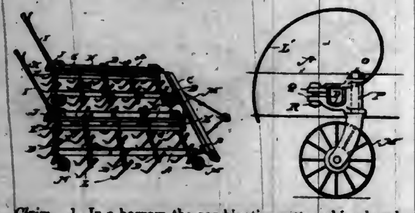
5. A lasting-pincer comprising a single handle formed at its end with two arms, a concave jaw secured to the said arms, a short lever hinged to the handle, a convex jaw secured to one end of said lever, and an antifriction-roller mounted on the other end of said lever.

6. A lasting-pincer comprising a concave jaw, a convex jaw, a handle secured to the concave jaw, a lever secured to the convex jaw and pivoted to the handle, and two separated rollers mounted on the lever.

7. A lasting-pincer comprising a concave jaw consisting of a recessed plate, a convex jaw consisting of a plate having a curved edge, and means for closing and opening them, one of said jaws being provided with a cutting edge.

8. A lasting-pincer comprising a concave jaw consisting of a recessed plate, a convex jaw consisting of a plate having a curved edge and means for closing and opening them, said convex jaw being provided with a cutting edge.

585,941. HARROW. ANDREW V. RYDER, Scio, Ohio. Filed May 22, 1896. Serial No. 592,690. (No model.)



Claim.—1. In a harrow, the combination with rocking bars having harrow-teeth, and means to rock said bars, of clips secured to said bars, a shank mounted in each clip, and a wheel mounted in each shank, said shanks being at an angle to said teeth.

2. In a harrow, the combination with rocking bars having harrow-teeth, and means to rock said bars, of clips secured to said bars, a shank rotatably mounted at its upper end in each clip, and a wheel mounted in the lower end of each shank, said shanks with their axes being at an angle to the said teeth.

3. A harrow attachment consisting of a wheel, a caster-shank in which the wheel is mounted and a clip in which said shank is mounted, the clip having jaws, and a fastening device to clamp said jaws to a harrow-bar.

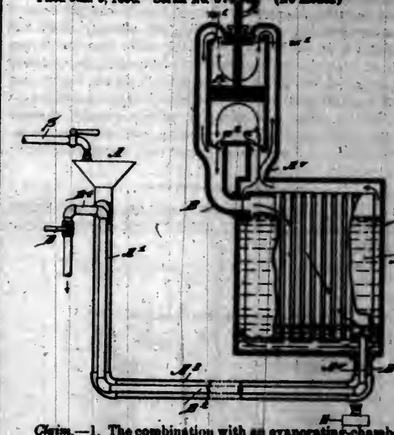
585,942. SHEARS-SHARPENER. ABRAHAM L. SMITH, New York, N. Y. Filed Apr. 8, 1896. Serial No. 586,737. (No model.)



Claim.—1. A shears or scissors sharpener, consisting of two pieces of material connected together, each of said pieces serving as a sharpener for one blade of a pair of shears or scissors and as a guide for the other blade of said pair of shears or scissors, substantially as set forth.

2. A shears or scissors sharpener consisting of two pieces of metal connected together, said pieces having meeting, beveled, file-like edges, said each of said pieces serving as a sharpener for one blade of a pair of shears or scissors and as a guide for the other blade of such pair of shears or scissors, substantially as set forth.

585,948. PROCESS OF AND APPARATUS FOR DISTILLING LIQUIDS. ADDISON C. WAYBRIGHT, Hartford, Conn., assignor of one-half to A. Wells Case and Lawrence W. Case, Highland Park, Conn. Filed Jan. 9, 1896. Serial No. 574,975. (No model.)



Claim.—1. The combination with an evaporating-chamber and a condensing-chamber, of a pump having its inlet connected with the former and its outlet connected with the latter, and means providing for the transference of the heat of condensation from the latter chamber to the contents of the former, the feeding and discharge pipes respectively of said chambers being in close proximity to each other for the purpose set forth.

2. The process of distilling consisting in heating the liquid to the boiling-point, withdrawing the vapor from said liquid and compressing the same, transferring the heat from the compressed vapor back to the boiling liquid, and transferring the heat of the liquid produced by the condensation of said vapor to the liquid on its way to the evaporating-chamber, substantially as set forth.

3. The process of distilling water or other liquid, consisting in applying heat thereto to bring it to the boiling-point, then mechanically withdrawing the vapor from the boiling liquid and compressing the same, thereby raising its temperature above that of the boiling liquid, then by conduction transferring substantially the entire heat of compression to the heat to be distilled, and continuously withdrawing and compressing the vapor and returning its heat to the liquid to be distilled without the further application of external heat other than may be required to replace that lost by radiation, substantially as set forth.

4. In a still, the combination of a boiling and a condensing chamber thermally connected, an inlet and an outlet pipe thermally connected outside the still, and leading to and from said chambers, and a pump leading from the boiling to the condensing chamber, substantially as and for the purposes set forth.

5. In a still, the combination of the chamber A^5, A^6, connected to or surrounded by the chamber B, B', and pump C, communicating from one to the other, and two passages thermally connected together, one forming an inlet for one chamber and the other an outlet for the other chamber, substantially as and for the purposes set forth.

6. The method of distilling by mechanical power, consisting of compressing the vapor of distillation, returning its heat to the liquid to be distilled, and conducting the heat from the hot distilled liquid, to the cold liquid, on its way to the still, substantially as and for the purpose set forth.

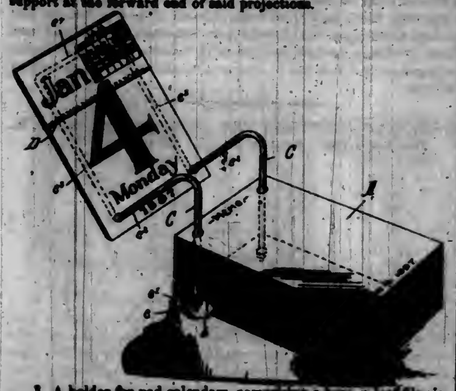
7. In a still run by mechanical energy, the method of retaining all of the heat used as a medium for distilling by compressing the vapor and returning its latent heat to the liquid to be distilled, and transferring by conduction the heat of the outgoing condensed liquid to the inflowing liquid to be distilled.

8. The combination of pipes or passages adapted to exchange heat between the hot distilled liquid as it leaves the still and the cold liquid as it enters the still, with the means described for returning the latent heat of the vapor to the liquid to be distilled, substantially as described.

585,944. MEMORANDUM-CALENDAR. JAMES R. WILSON, Chicago, Ill. Filed Mar. 15, 1897. Serial No. 627,060. (No model.)

Claim.—1. A holder for desk-calendars, comprising a base for resting on the desk, and two seats for the calendar-leaves, one seat being upon the base and upwardly facing, and the other being carried by and elevated above the base and rearwardly facing, and means for guiding the leaves when moved between their two seats.

2. A holder for pad-calendars comprising a base, parallel filing-wires rising above said base, downwardly and forwardly extending projections at the upper end of said filing-wires and a transverse back support at the forward end of said projections.



3. A holder for pad-calendars, comprising a base, a leaf-file rising above the base and projecting forward from the upper end of its initial portion, and a transverse leaf-supporting back rising from the forward-projecting portion.

4. The combination with the perforated leaves, of a holder comprising a base, filing-wires rising from said base, said filing-wires being formed of a single piece extending upwardly through the perforations in the leaves, thence forwardly, and thence upwardly again to a juncture, to form an elevated leaf-support above the base.

5. A holder for pad-calendars comprising a base and two seats for the calendar-leaves, one seat being upon the base and upwardly facing, and the other seat being elevated above the base and rearwardly facing, means for guiding the leaves when moved between their two seats and means for retaining the leaves upon their upper seat.

585,945. MACHINE FOR PRINTING HOSIERY. ALBERT YOUNG, Philadelphia, Pa., assignor of three-fourths to Albert E. Bontagy and Albert Davis, same place. Filed Feb. 11, 1897. Serial No. 623,042. (No model.)



Claim.—1. In a hosiery-printing machine, a framework, a movable sectional-jointed endless table, standards above the table having adjustable means for securing a type-shaft for automatic vertical adjustment, type-carriers adjustable upon the shaft, types secured thereto adjustably held in relation to the table, and means from the table-driving mechanism to revolve the type-shaft and types, substantially as and for the purposes set forth.

2. In a hosiery-printing machine, a framework, a movable sectional-jointed endless table, a hosiery-guide upon each section, means to mount a type-shaft adjustably above the table, types attached thereto, a color-roll also mounted above the table-sections and for contact with the types as they revolve, means to drive the type-shaft and the color-roll in opposite directions by means from the same shaft located below the table and moved by the the table-moving mechanism, in manner and form substantially as described.

3. In a hosiery-printing machine, a framework, a movable sectional-jointed endless table, means to mount a type-shaft upon the framework adjustably as to distance above the table, means to positively rotate the shaft in the same direction as the table, means to permit its self-adjustment above the surface to be printed, multiple type-bearers upon the shaft at different points of its length and means to adjust them to or from the shaft, also on the shaft transversely of the machine, and at an angle to the center line thereof, and a color-roll positively rotated in an opposite direction from the type-shaft and set to have contact with the types as they revolve, substantially as set forth.

4. In a hosiery-printing machine, a framework, a movable sectional-jointed table, means to secure a type-shaft transversely above the table and adjustably, as to height and thereafter automatically adjustable as to height therefrom, multiple type-holders upon the shaft, adjustable transversely of the table, types secured to the holders and means for their adjustment toward or from the shaft, and at an angle to the center of the machine, a color-roll, means to secure it adjustably in its relation to the types, means to positively revolve it in a direction opposite to that of the types, a distributing-roll lying upon and revolved by the color-roll, a drip-box above the table and an idler-roll running therein and in contact with the distributing-roll, substantially as set forth.

5. In a hosiery-printing machine, a framework therefor carrying a movable sectional-jointed endless table, a type-shaft secured to the framework and moved from the means for moving the table, adjustable means for elevating or depressing the shaft, type-holders upon the shaft and means for their adjustment transversely of the machine, types adjustably secured to the holders for movement toward or from the shaft, and means to permit the types to be adjusted in the holders at an angle to the central transverse line of the machine, substantially as set forth.

6. In hosiery-printing machines, a framework therefor carrying a movable sectional-jointed endless table, means upon the framework for moving the table, a type-shaft adjustably mounted above the table, and means to positively revolve it in direction with the table, types carried thereby and adjustable as to vertical and angular position, a color-roll mounted above the table, adjustable in its relation to the type-shaft and types, and means to positively revolve the color-roll from the table-moving mechanism and oppositely to the type, and to a distributing-roll in contact with and revolved by it, a drip-box, an idler-roll therein in contact with the distributing-roll, a color-receptacle, a mixer therein and means for its revolving, and means for permitting the flow of color from its receptacles to the distributing-roll, substantially as set forth.

7. In hosiery-printing machines, a framework therefor carrying a movable sectional-jointed endless table, means upon the framework for moving the table, printing-types adjustably held and guided, a color-roll mounted above the table and adjustable toward or from the types, means to positively revolve the roll from the table-moving mechanism, a distributing-roll yieldingly supported upon the color-roll, an idler-roll mounted over a drip-box and in contact with and revolved by the distributing-roll, and means to revolve a mixer within a color-receptacle above the table, means for permitting the flow of color to the distributing-roll, and means to revolve the mixer from the color-roll, as and for the purposes set forth.

8. In hosiery-printing machines, a framework carrying a movable sectional-jointed endless table, a type-shaft and multiple adjustable types thereon, and above the table, a color-roll and a distributing-roll moved in unison and adjustable toward or from the types, means to move the table and from said means to move types in the same direction and the color-roll in an opposite direction, a color-receptacle mounted above the distributing-roll, and means to discharge the color from the receptacle to the distributing-roll, and means to gather any surplus color and deposit it in a drip-box, substantially as described.

9. In hosiery-printing machines, a framework, an endless table formed of jointed sections, means upon the framework to couple the sections, means to move the sections, a type-shaft and types, a color-roll mounted above the frame and run from the table-moving mechanism, a distributing-roll and an idler-roll revolved by means from the color-roll substantially as described, a color-receptacle mounted above the distributing-roll, a mixer within the receptacle and means to revolve the same, substantially as set forth.

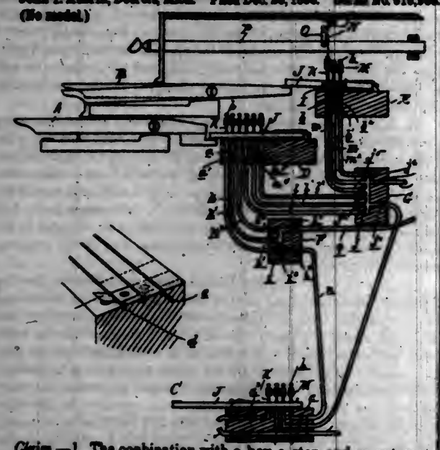
10. In hosiery-printing machines, a framework, an endless table formed of jointed sections, a hosiery-gage upon each section, a type-shaft and adjustable types, a color-roll, a distributing-roll, a color-receptacle and means for permitting the flow of color therefrom, a mixer in the receptacle and means for its driving, a drip-box under the color-box, and a roll therein bearing upon the distributing-roll, substantially as set forth.

11. In a hosiery-printing machine, a framework mounting an endless sectional-jointed table, means to move the table, standards upon the framework carrying a type-shaft and types, a color-roll, a distributing-roll, a color-receptacle, an idler-roll, and means for their operation from the table-operating mechanism substantially as described, and means to adjust the standards upon the machine-frame, as and for the purposes set forth.

12. In a machine for printing hosiery, a framework, a movable endless table, means for its moving, means to mount types adjustably above the table, a color-roll, means to run the roll in an opposite direction to the types and the table, a distributing-roll, and an idler-roll driven from the distributing-roll, means to hold and distribute color to the distributing-roll, means to hold the hose in place upon the table-sections, and means above the moving table to subject the

hose to heat for drying the printing before their removal from the machine, all in substance as and for the purpose set forth.

585,946. PNEUMATIC ACTION AND COUPLER FOR ORGANS. JOHN T. AUSTIN, Detroit, Mich. Filed Dec. 26, 1896. Serial No. 616,966. (No model.)



Claim.—1. The combination with a key, a stop, and an automatically-opening valve controlling a motor-current, of two independent mechanical means for holding said valve normally closed, the one adapted to be released by the operation of the key and the other by the stop.

2. The combination with a key, a stop, and a series of automatically-opening valves, each controlling a motor-current of mechanical means for holding said valves normally closed adapted to be released by the operation of the key, and independent mechanical means for holding said valves closed adapted to be individually released by said stops.

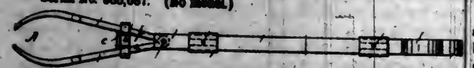
3. The combination with a key, stop and a valve-seat having a series of ports therein, each forming an exhaust-passage for a motor-current, of a flap-valve covering each of said ports adapted to be automatically opened by the pressure of air in the port, a damper holding said valves normally to their seats apertured opposite each of said ports, and adapted to be raised by the operation of said key, pins projecting through said apertures and resting on said valve, and means for separately lifting said pins operated by said stops.

4. The combination with a series of keys, stops, and a valve-seat having ports formed thereon arranged in longitudinal and transverse series and forming exhaust-passages for motor-currents, of a flap-valve for each port adapted to be opened automatically by the pressure in said port, key-actuated dampers normally closing said valves apertured opposite each port, pins passing through said apertures, resting on said valves, and a lifting-bar for each longitudinal series of pins actuated by a stop.

5. In an organ, the combination of a bar forming a valve-seat, having a series of ports therein and a saw-kerf beside said port, of flap-valves for said ports formed of a flexible sheet covering the ports and wedged into said saw-kerf, being cut to form individual valves.

6. In an organ the combination with a bar forming a valve-seat having ports therein arranged in longitudinal and transverse series and saw-kerfs between said longitudinal series of flap-valves for said ports formed of a flexible sheet covering said ports and wedged into said saw-kerfs, the individual valves being cut from said sheet and turned back to cover the ports in the adjoining series.

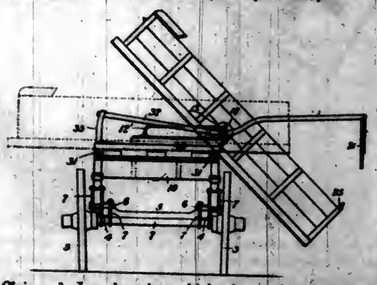
585,947. VETERINARY OBSTETRICAL INSTRUMENT. JOHN BARRY and MICHAEL L. SHAUGHNESSY, Lenox, Iowa. Filed Sept. 8, 1896. Serial No. 605,067. (No model.)



Claim.—1. In an obstetrical instrument, the combination, with an upper rod provided with an upwardly-cranked portion at its front end, and a lower rod provided with a clip and an upwardly-bent projection at its front end, said rods being provided with guides and slidable upon each other; of a pair of jaws provided with stems pivoted together and to the lower side of the said cranked portion and extending one on each side of the said projection inside the said clip, substantially as set forth.

2. In an obstetrical instrument, the combination, with two similar rods arranged side by side, each rod being provided with a handle at its rear end, and the lower rod being provided at its front end with a clip and an upwardly-bent projection; of a pair of jaws provided with stems passing between the said projection and clip and pivoted to the upper rod, the said jaws being opened and closed positively by sliding one rod upon the other, and the said handles being arranged so that both can be operated by one hand, substantially as set forth.

585,948. DUMPING-WAGON. WILLIAM BOHNERT, Reserve, Pa. Filed Aug. 3, 1896. Serial No. 601,416. (No model.)



Claim.—1. In a dumping-vehicle, the combination of a bed provided with supporting side-bars having closed roller-ways permanently mounted thereon, said ways being adapted to prevent dislodgment of the rollers rolling therein, and a dumping-body having affixed to its sides about midway thereof and approximating its center of gravity trunnions provided with suitable rollers adapted to roll in said closed ways; substantially as described.

2. In a dumping-vehicle, the combination of a bed provided with supporting side-bars having closed roller-ways permanently mounted thereon, said ways being adapted to prevent dislodgment of the rollers rolling therein, a dumping-body having affixed to its sides about midway thereof and approximating its center of gravity trunnions provided with suitable rollers adapted to roll in said closed ways, and supporting-rollers secured to the sides of the body at the ends thereof resting on the side-bars and adapted to roll thereon; substantially as described.

3. In a dumping-vehicle, the combination with the wagon-bed of the vehicle, of a plate immovably affixed thereto, a carriage revolubly secured to said plate and adapted to turn thereon, and a dumping-body having affixed to its sides about midway thereof and approximating its center of gravity, trunnions provided with suitable rollers adapted to roll in closed ways permanently mounted on said revoluble carriage; substantially as described.

4. In a dumping-vehicle, the combination with the wagon-bed of the vehicle, of a plate immovably affixed thereto, a carriage revolubly secured to said plate and adapted to turn thereon and being provided with transverse rollers upon which the wagon-body is adapted to roll, and a dumping-body having affixed to its sides, about midway thereof and approximating its center of gravity, trunnions provided with suitable rollers adapted to roll in ways secured to said carriage; substantially as described.

5. In a wagon, brackets secured to the opposite ends of the rear axle and extending upwardly and outwardly over the rear wheel-hubs, suitable reinforcing-backing upon the axle and brackets and extending between the brackets, and securing-clips whereby the brackets, backing and axle are attached firmly together; substantially as described.

6. In a dumping-vehicle, the combination of a wagon-body, end-gate-supporting bars pivoted to the wagon-body, brackets affixed to the rear portion of the wagon-body adapted to support said bars and their attached end-gate when the body is in its normal horizontal position, and brackets affixed to the wagon-bed for supporting said bars when the wagon-body is tilted to a dumping position; substantially as described.

7. In a wagon, brackets secured to the opposite ends of the rear axle and extending upwardly and outwardly over the rear wheel-hubs, suitable reinforcing-backing upon the axle and brackets and extending between the brackets, a spring or springs mounted on said backing, and clips for securing the axle, brackets, backing and spring firmly together; substantially as described.

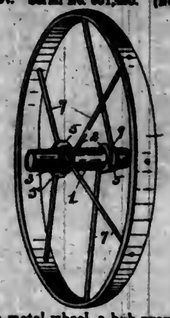
585,949. WINDOW FRAME AND SASH. FRANK H. BROWN, Concord, N. H. Filed Oct. 5, 1895. Serial No. 564,701. (No model.)

Claim.—1. In a window, the combination of a frame, a sill having a slope, a tongue at the upper edge of said slope having inclined walls formed thereupon or attached thereto, the outer incline being relatively narrow and making an acute angle with the vertical plane and the inner incline being wider and making an obtuse angle to the said plane and a sash having a double-inclined groove corresponding with that of said double-inclined tongue, and springs F pressing the narrow inclines in close contact, all substantially as described whereby dust or water is excluded and the sash suitably supported in vertical direction.



2. In a window, the combination of a frame, a sill having a slope, a tongue or rib at the upper edge of said slope having inclined walls, the outer incline being relatively narrow and making an acute angle with the vertical plane and the inner incline being wider and making an obtuse angle to the said plane and a sash having a double-inclined groove with its vertex in front of the central vertical plane of the sash and fitting said double-inclined groove, whereby the width of the sash-bearing is increased and a more efficient obstruction to dust and rain is provided, and springs F and beveled cleats H, said springs tending to force the sash against both the tongue and the cleat, substantially as described.

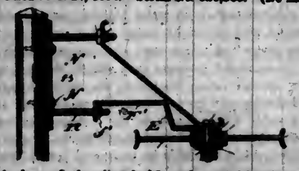
585,950. METAL WHEEL. HENRY C. BUSHING, Jr., Toledo, Ohio. Filed Apr. 10, 1897. Serial No. 631,495. (No model.)



Claim.—1. In a metal wheel, a hub provided with adjacent annular enlargements near each end, an annular groove formed between the same, webs connecting the enlargements at different points around the periphery of the hub, an orifice in each web, spokes passing through the orifice and resting within the groove, and secured at their outer ends to the rim.

2. In a metal wheel, a hub provided with adjacent annular enlargements near each end, webs connecting the enlargements upon opposite sides of the hub, the outer face of each inner enlargement being recessed from one of the webs to a point upon each side of the same midway of the hub, spokes passing through each web, one of the spokes resting within the recess formed by the enlargement, the opposite spoke resting in the groove formed between the two enlargements, the outer ends of the spokes being secured to the rim.

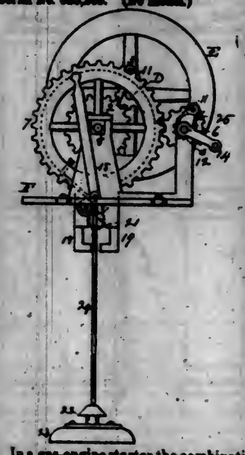
585,951. CLOTHES-LINE HOLDER. ALBERT CAMPBELL, Shade Gap, Pa. Filed Mar. 27, 1897. Serial No. 629,565. (No model.)



Claim.—1. In a clothes-line holder, the combination with a support, an upright bracket attached thereto, and two threaded rods projecting horizontally from the bracket one above the other; of a framework consisting of two arms each having a vertical inner end perforated and passed over one of said rods, nuts on the latter against such perforated ends, the upper arm leading obliquely downward and the lower arm leading outward, then downward in an elbow, and then outward again beneath the upper arm, and both having openings in their outer ends, and an upright bolt passing through said openings; a wheel journaled on the lower end of said bolt, a remote wheel, and a line passing around both wheels, as and for the purpose set forth.

2. In a clothes-line holder, the combination with two supports, bolts carried thereby, and an endless line; of two wheels, each journaled on its bolt and comprising flat radial arms and each arm having two tongues at its outer extremity, one tongue being bent downward and then sharply upward on itself and curved outward, and the other tongue being oppositely and similarly bent so that the two tongues form a curved foot at the outer end of each arm, as and for the purpose set forth.

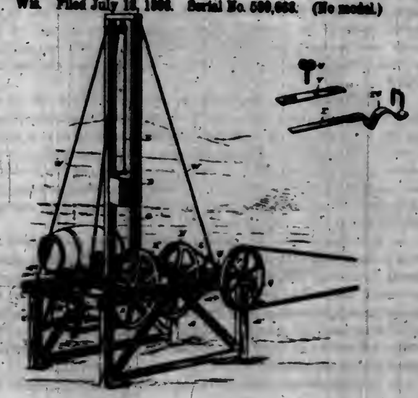
585,952. STARTING MECHANISM FOR GAS-ENGINES. BENJAMIN COLLEY, Sr., and BENJAMIN COLLEY, Jr., Springfield, Ohio. Filed Feb. 27, 1897. Serial No. 625,203. (No model.)



Claim.—1. In a gas-engine starter the combination of the ratchet-wheel rigidly attached to an engine-shaft, the pawl to engage said ratchet-wheel, the pinion, the arm fixedly attached thereto and to which said pawl is pivoted, the cog-wheel engaged by said pinion, provided with a groove for the cable, the weight attached to said cable, the sliding pinion 10 on shaft 6, the ratchet-wheel on said shaft, and pawl pivoted to the standard, these several parts being supported on a suitable frame, substantially as described.

2. The combination of the ratchet-wheel 3 on the engine-shaft, the pawl 4 and pinion held loosely on said engine-shaft, the cog-wheel 2 gearing with said pinion, the grooved cog-wheel 7, the sliding pinion 10 on shaft 6, the ratchet-wheel 13 with pawl, the crank to move said parts; the frame (, pivotal jaws 18 and 19, the triangular cam 21 abutting said jaws, the pinion 17 on the cam-shaft and the disengaging-lever 15, substantially as described.

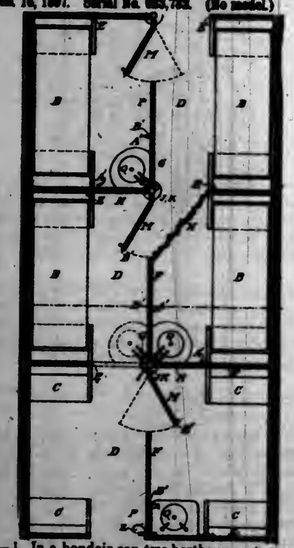
585,953. MECHANICAL MOTOR. HENRY EVANS, Wauseka, Wis. Filed July 18, 1896. Serial No. 599,662. (No model.)



(Arim.—1. In a mechanical motor, the combination of a main frame, a shaft, a loop mounted on the main frame at one side of the shaft, the brake-bar, consisting of a straight portion, a curved portion frictionally engaging such shaft, a hook portion detachably interlocked with the said loop, a plate secured to the main frame, an adjusting-screw mounted on such plate held to engage the straight portion of the brake-bar, and means for mounting the screw at different points along the brake-bar, substantially as shown and described.

2. In a mechanical motor, the combination of a main frame a shaft, a loop mounted on the frame at one side of the shaft a brake-bar detachably interlocked with said loop and engaging the shaft, a plate disposed longitudinally of the brake-bar and having a flange extending over the same, said flange being provided with a series of perforations located at different distances from the loop, and a screw engaging the brake-bar, mounted on said plate and adapted to be arranged in any one of the perforations of the flange substantially as described.

585,954. BOUDOIR-CAR. ERNST FLAGG, New York, N. Y. Filed Feb. 16, 1897. Serial No. 623,732. (No model.)



Claim.—1. In a boudoir-car, two berths or seats one at each side of the car, a passage-way between the berths, a longitudinal partition placed near the center of the passage-way and at or near the central line of the two opposite berths, and movable panels adapted to extend from one end of the short partition to one end of either one of two opposite berths; in combination with a movable curtain or panel extending from the other end of the said short partition, to either of the opposite ends of the said berths, substantially as and for the purpose described.

2. In a boudoir-car, two berths or seats, one at each side of the car, a passage-way between the berths, a longitudinal partition placed near the center of the passage-way, one or more movable panels adapted to extend from one end of the short partition to one of the opposite ends of the berths, a basin secured to one or both of the panels and movable therewith, and supply and waste connections movable with the basin, substantially as and for the purpose described.

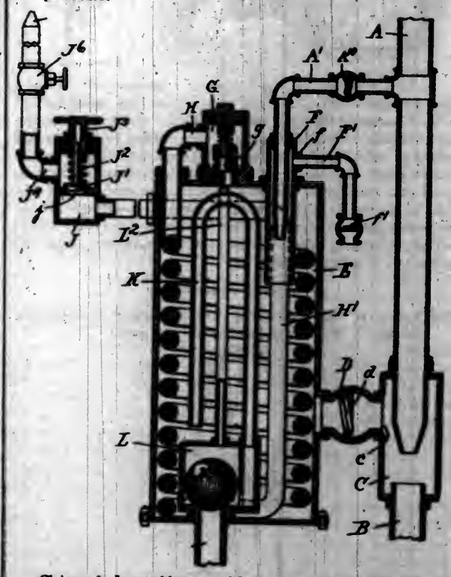
3. In a boudoir-car, two berths or seats, one at each side of the car, a passage-way between the berths, a longitudinal partition placed near the center of the passage-way, a frame consisting of two panels secured together at an angle to each other, and arranged to swing upon a pivot which is between the opposite ends of the berths, a basin secured to the inner part of the frame and movable therewith, and supply and waste connections movable with the basin, substantially as and for the purpose described.

4. In a boudoir-car, two berths or seats, one at each side of the car, a passage-way between the berths, a longitudinal partition placed near the center of the passage-way, a movable panel at each end of the berths, adapted to extend part way across the passage-way, additional panels extending from one or both ends of the longitudinal partition to meet the movable panels extending from the ends of the berths, and a door or curtain for the said compartment, substantially as and for the purpose described.

5. In a boudoir-car, two berths or seats, one at each side of the car, a passage-way between the berths, and cooperating panels for inclosing one only of said berths and a portion of the passage-way into a compartment, the arrangement being such that either one of said berths may be inclosed; all in combination with a movable basin, having one or more faucets, and connecting-pipes from a supply-pipe to said faucets, substantially as and for the purpose described.

6. In a boudoir-car two berths or seats, one at each side of the car, a passage-way between the berths, and cooperating panels for inclosing one of said berths and a portion of the passage-way into a compartment, the arrangement being such that either of said berths or seats may be inclosed, substantially as and for the purpose described.

585,955. AIR COMPRESSING AND COOLING APPARATUS. JOHN FLINDALL, Chicago, Ill. Filed Feb. 4, 1896. Serial No. 577,960. (No model.)



Claim.—1. In combination with a water-supply pipe of a house, a by-chamber communicating with said pipe at a point in the latter between the source of supply and the point of consumption, the watercourse between said points being complete independently of said by-chamber; said by-chamber having extent above the point of communication of the water-supply pipe therewith, and having an air-inlet and an air-outlet, also above said point of communication and suitable check-valves to control the same to permit the air to enter only by the inlet and escape only by the outlet, and a pipe or chamber into which the air is forced and compressed by the water entering the by-chamber from the supply-pipe.

2. In a refrigerating apparatus, in combination with suitable means for compressing air by water supplied under pressure, comprising a chamber into which the water under pressure is admitted; a check-valve past which the compressed air is forced by the compression, and which prevents its return; the water-chamber having a drainage-port larger than the supply-port connected to the water-supply system; and a check-valve which permits the water to pass out from the chamber through such port, but prevents its return, whereby the drawing of the water from the supply system tends to withdraw water from the chamber in excess of the supply thereto.

3. In a refrigerating apparatus, in combination with suitable means for compressing air by water supplied under pressure, comprising a chamber into which the water under pressure is admitted; a check-valve past which compressed air is forced by such compression; and a coil or extended passage into which the air is thus forced, such coil or passage being located in the water-chamber, the latter having a drainage-port larger than the supply-port and controlled by a check-valve which prevents the entrance of water into the chamber through such port; connections from such port to the water-supply system; whereby the intermittent flow of water through such system causes the alternate filling and emptying of the chamber and the cooling of the air in the coil.

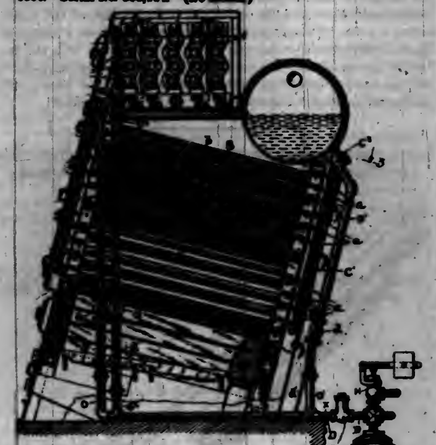
4. In a refrigerating apparatus, in combination with suitable means for compressing air by water supplied under pressure, comprising a chamber into which the water under pressure is admitted; a

siphon having its intake-opening in such chamber; a supplemental chamber into which the longer limb opens, said supplemental chamber having a free outflow and a float-valve to control the same, and having communication otherwise than through such siphon with the top of the water-chamber; whereby the water-chamber is emptied siphonically preparatory to refilling whenever the water rises therein above the level of the crest of the siphon.

5. In a refrigerating apparatus, in combination with the water-chamber, an air-pipe terminating in the chamber having an intake check-valve and a water-pipe protruding into and discharging in said air-pipe beyond the check-valve and through said air-pipe into the chamber, whereby the water-supply draws air into the chamber; a coil located in the water-chamber and communicating with the upper part thereof; a check-valve which controls such communication, and suitable means for intermittently withdrawing water from the water-chamber, whereby a fresh supply of air is admitted for compression and a fresh supply of water admitted to cool the air so compressed.

6. In a refrigerating apparatus, in combination with a chamber into which water under pressure is admitted and suitable means for supplying air to the upper part of such chamber; a check-valve controlling the emission of air from the chamber; a coil into which the same is emitted, said coil being located in the water-chamber and leading therefrom; a valve which controls the discharge of air from such coil, and means for regulating the pressure necessary to discharge the air past such valve: substantially as set forth.

585,956. PNEUMATIC ATTACHMENT FOR CLEANING STEAM-GENERATORS. WILLIAM D. HOXIE, Brooklyn, N. Y. Filed Oct. 17, 1896. Serial No. 608,184. (No model.)



Claim.—1. A steam-generator provided with a pneumatic apparatus for cleaning its interior, connected directly therewith and composed of a suitable air-compressor, a series of jet-pipes directed to such parts of the generator as desired, valves for governing the admission of air under pressure to such pipes, and means for automatically shutting off the air when the pressure falls below a predetermined point, substantially as set forth.

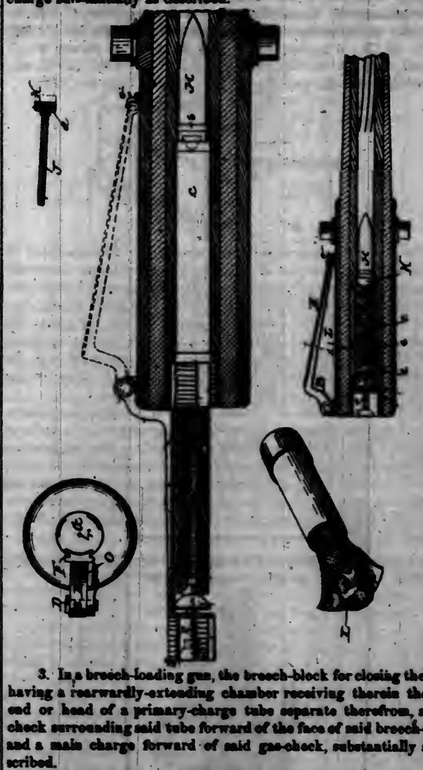
2. A steam-generator provided with a pneumatic apparatus directly connected with the generator and forming a part of the same whereby its interior may be cleaned during the use of the generator and while closed as set forth.

3. A steam-generator provided with a pneumatic apparatus for cleaning its interior connected directly therewith and composed of a suitable air-compressor; a series of jet-pipes directed to such parts of the generator as desired, and suitable valves for operating and regulating the same, as set forth.

585,957. BREECH-LOADING ORDNANCE. HARRY P. HUNT, Summit, Miss. Filed July 28, 1892. Serial No. 441,433. (No model.)

Claim.—1. A breech-block for breech-loading guns provided with a separable primary-charge-carrying tube independent thereof and seated and supported, when loaded, in a front-loading rear-extending chamber therein, substantially as described.

2. A breech-block for breech-loading guns having a front-loading, cartridge-receiving-and-supporting, primary or starting charge chamber therein, the face of the breech-block supporting the main charge substantially as described.



3. In a breech-loading gun, the breech-block for closing the same having a rearwardly-extending chamber receiving therein the rear end or head of a primary-charge tube separate therefrom, a gas-check surrounding said tube forward of the face of said breech-block and a main charge forward of said gas-check, substantially as described.

4. In a breech-loading gun, the breech-block for closing the same having a primary-charge-carrying tube, a main charge without said tube and an elongated subcaliber extension-body in said tube and extending forward and an independent body between the base of the projectile and said subcaliber-body, substantially as described.

5. In a breech-loading gun, the breech-block for closing the same having a primary-charge-carrying tube, a main charge without said tube, said main charge consisting of a series of powder-sections held together by a suitable casing, substantially as described.

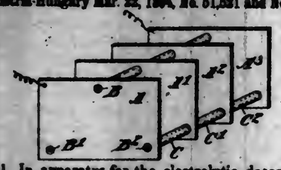
6. In a breech-loading gun, the breech-block for closing the same having a primary-charge-carrying tube telescoping with a tube extending forward therefrom to a buffer or sabot carrying a gas-check thereon, and a main charge without said tube, substantially as described.

585,958. PLUCKING INSTRUMENT. JOSEPH JOFFRIAUD, San Francisco, Cal. Filed Oct. 19, 1896. Serial No. 609,247. (No model.)



Claim.—A plucking instrument comprising coacting jaws suitably joined together by a hinge, a spring for opening said jaws, and means for connecting said spring with said hinge, the jaws being pointed at their ends and provided with broad flat edges extending from one end of the hinge to the other, substantially as described.

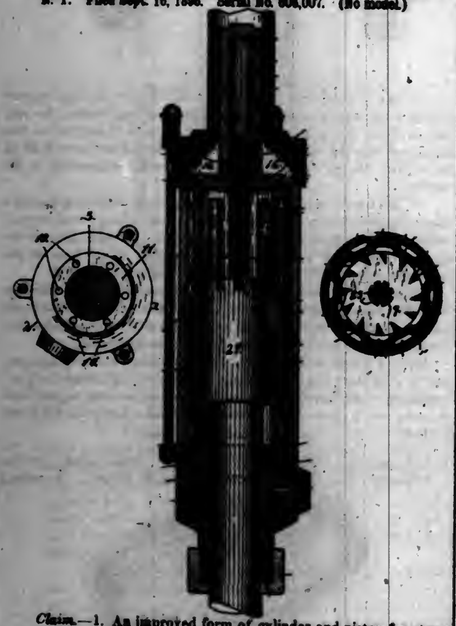
585,959. APPARATUS FOR ELECTROLYTICAL DECOMPOSITION OF SALT SOLUTIONS. CARL KELLNER, Vienna, Austria-Hungary. Filed Feb. 24, 1896. Serial No. 580,668. (No model.) Patented in Germany Sept. 23, 1893, No. 77,126; in Switzerland Oct. 17, 1893, No. 7,627; in France Oct. 17, 1893, No. 233,483; in Belgium Oct. 17, 1893, No. 105,791; in England Oct. 17, 1893, No. 19,542; in Norway Oct. 17, 1893, No. 3,518; in Italy Dec. 31, 1893, XXVIII, 25,098, LXVIII, 495, and in Austria-Hungary Mar. 22, 1894, No. 51,531 and No. 79,307.



Claim.—1. In apparatus for the electrolytic decomposition of common salt for the purpose of producing bleaching agents, electrodes consisting of a group of interspaced plates having one of their surfaces platinized and the other amalgamated, said plates rigidly connected by non-conductive connections passing through the plates, the opposite surfaces of each plate forming an anode and a cathode respectively, and electric conductors respectively connected with the platinized and amalgamated faces of the first and last plates of the group, for the purpose set forth.

2. The combination of a vessel containing a solution or common salt, one or more groups of electrodes each composed of a series of interspaced plate electrodes rigidly connected together by non-conductive connections, said grouped electrodes suspended in said vessel, means for passing a web of material in a zigzag way through the salt solution and between the plate electrodes, and suitable electric conductors for the first and last of the series of plate electrodes, for the purpose set forth.

585,960. DIRECT-ACTING ENGINE. WILLIAM A. KIDD, Buffalo, N. Y. Filed Sept. 16, 1896. Serial No. 606,007. (No model.)



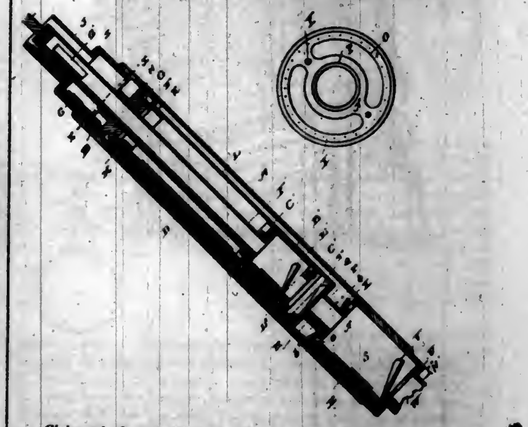
Claim.—1. An improved form of cylinder and piston for steam or compressed-air engines consisting essentially of a piston having an annular shoulder at the piston-rod end, a cylinder with unobstructed outer surface throughout its length, a cylindrical bushing in tight contact with the inner wall of the cylinder and within which the piston travels, the inner surface of the bushing being provided with a series of longitudinal grooves or depressions which form passages with the side surface of the reciprocating piston for conducting the steam or compressed air around the same and inlet and exhaust passages all operating substantially as stated.

2. An improved form of cylinder and piston for steam or compressed-air engines consisting essentially of a piston having an annular shoulder at its piston-rod end, and a series of notches or pockets at its opposite end for the purpose stated, a cylinder with an unobstructed outer surface throughout its length, a cylindrical bushing in tight contact with the inner wall of the cylinder and within which the piston travels, the inner surface of the bushing being provided with a series of longitudinal grooves or depressions which form passages with the side surface of the reciprocating piston for conducting the steam or compressed air around the same, the outer surface of the bushing having a series of longitudinal grooves or depressions communicating with the cylinder-space and which form passages with the inner wall of the cylinder for exhausting the steam or compressed air through one end thereof, the other end being provided with an inlet-passage all combined and operating substantially as stated.

3. An improved form of cylinder and piston for steam or compressed-air engines consisting essentially of a piston having an annular shoulder at the piston-rod end, a cylinder with unobstructed outer surface throughout its length, a cylindrical bushing in tight contact with the inner wall of the cylinder and within which the piston travels, the inner surface of the bushing being provided with a series of longitudinal grooves or depressions which form passages with the side surface of the reciprocating piston for conducting the steam or compressed air around the same, the outer surface of the bushing having a series of longitudinal grooves or depressions communicating with the cylinder-space and which form passages with the inner wall of the cylinder for exhausting the steam or compressed air through one end thereof, the other end being provided with an inlet-passage all combined and operating substantially as stated.

4. An improved form of cylinder and piston for steam or compressed-air engines consisting of a piston having an annular shoulder at the piston-rod end and a series of notches or pockets at its opposite end for the purpose stated, a cylinder with unobstructed outer surface throughout its length, a cylindrical bushing in tight contact with the inner wall of the cylinder and within which the piston travels, the inner surface of the bushing being provided with a series of longitudinal grooves or depressions which form passages with the side surface of the reciprocating piston for conducting the steam or compressed air around the same, the outer surface of the bushing having a series of longitudinal grooves or depressions communicating with the cylinder-space and which form passages with the inner wall of the cylinder for exhausting the steam or compressed air through one end thereof, the other end being provided with an inlet-passage all combined and operating substantially as stated.

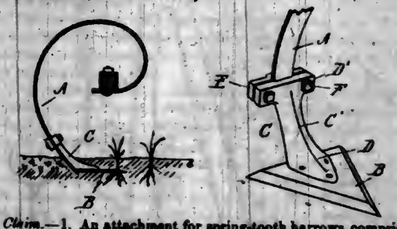
585,961. DOUBLE-ACTING FORCE-PUMP. DAVID LIPPY, Mansfield, Ohio. Filed July 20, 1896. Serial No. 600,866. (No model.)



Claim.—1. In a double-acting force-pump, a casing composed of the parts B, C, D and E, the part or portion B, cup-shaped and provided with discharge-ports, and suitable valve, the cup-shaped casting provided upon the under side with downwardly-projecting pins or posts, the inner or pump cylinder, the said posts adapted to center and hold the inner cylinder and form ports for the passage of the water to the upper portion of the cylinder, the casting C, secured within the portion B, the lower edge adapted to regulate the throw of the valve, the upper end provided with the discharge-pipe, substantially as shown and described.

2. In a double-acting force-pump, a casing consisting of the separate parts or portions B, C, D and E, the part or portion E, being the lower end of the casing and forming a hollow cylinder having an induction-port at the bottom, said port provided with a tongue-valve, the pump-cylinder L, secured to the upper portion of the casing and having in its sides near the top three or more induction-ports and having a valved port at its bottom, the pump-piston, the bottom port to supply the portion below said piston, the ports on the sides near the top to supply the portion above said piston, the side ports provided in the bottom of the cylinder D, having a double tongue-valve, a sleeve extending upward from the bottom cylinder D, and provided with a cup-shaped flange, said flange adapted to center and hold the lower end of the pump-cylinder, and a tongue-valve secured upon the top of the flange within the pump-cylinder and adapted to open and close the lower induction-port, substantially as shown and described.

585,962. ATTACHMENT FOR HARROWS FOR CUTTING THISTLES. CHARLES F. MAYO, Gale, Mich. Filed Nov. 20, 1896. Serial No. 612,814. (No model.)



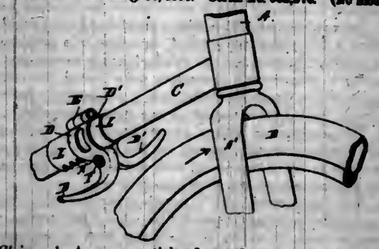
Claim.—1. An attachment for spring-tooth harrows, comprising a horizontal flat blade, a rearwardly-inclined bracket to which the blade is attached, and a clamp for detachably holding the bracket on the lower end of a spring-tooth.

2. An attachment for spring-tooth harrows comprising a horizontal pointed sharpened blade, a rearwardly-inclined bracket having the foot D and V-shaped face C secured to the rear portion of the blade and a clamp for detachably securing this bracket to the lower end of a spring-tooth, substantially as described.

3. An attachment for spring-tooth harrows, comprising a flat sharpened blade, a rearwardly-inclined bracket to which said blade is attached, means on the bracket for attachment to a harrow-tooth, and a gain or socket in the blade through which the tooth engages, substantially as described.

4. An attachment for spring-tooth harrows, comprising a pointed flat sharpened blade, a rearwardly-inclined V-shaped bracket to which said blade is attached, ears on the bracket comprising one member of the attaching means to the tooth, the plate E constituting the other member, and bolts clamping together and controlling the last two members, substantially as described.

585,968. FOOT-REST FOR BICYCLES. EDWARD MERRIAM, Springfield, Mass. Filed Aug. 10, 1896. Serial No. 602,276. (No model.)

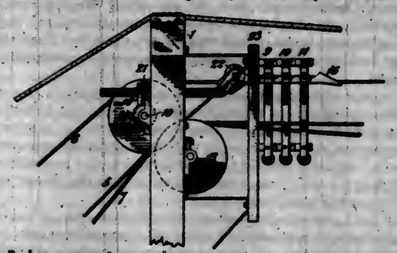


Claim.—1. As a new article of manufacture, a stamped-up foot-rest for bicycles, consisting of two parts pivoted together, and each part provided with outwardly-extending rests, combined with a clamping-screw for securing the two parts together upon the bicycle-frame; each part being provided with vertical flanges, the flanges of one part being made to fit snugly within those of the other at that point where the bolt passes through them, substantially as shown.

2. A struck-up foot-rest for a bicycle, consisting of two parts which are hinged together, each part being flat and curved where it comes in contact with the frame of the bicycle, straight at that part where they come in contact with each other and provided with vertical flanges, and having their lower ends turned outwardly and made concavo-convex, combined with a clamping-bolt which secures the two parts together and forces the flanges of one part tightly within those of the other, substantially as described.

585,964. CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J., and JAMES G. DELANEY, New York, N. Y. Filed Mar. 2, 1896. Serial No. 580,379. (No model.)

Claim.—1. In a conveying apparatus, in combination, a cable or track way, the supports therefor, a load-carriage, a rope-carrier, a support for said rope-carrier, means whereby said support is secured at a point toward and from which said load-carriage travels, a pusher whereby said rope-carrier is discharged from said support, a rope extending from the head of the span to the load-carriage and means whereby the movement of said rope produces a relative movement between said support and said pusher, substantially as described.



2. In a conveying apparatus, in combination, a rope-carrier, a rope whereby said carrier is supported, a movable support for said rope-carrier toward and from which the load-carriage travels, a rest connected with said movable support and resting upon said rope whereby the position of said support is regulated by said rope and means whereby said movable support is secured at or near a determined point of the span independently of the load-carriage, substantially as described.

3. In a conveying apparatus, in combination, a cable or track way, a load-carriage, a rope-carrier, a rope-carrier support, a stationary pusher and means whereby said support is retracted to discharge the carrier therefrom, substantially as described.

4. In a conveying apparatus, in combination, a cable or track way, the supports therefor, a load-carriage, a rope-carrier, a double-inclined projection extending into the path of said carrier, means whereby said projection is secured at a point toward and from which the load-carriage travels, a pusher and means whereby a relative movement is produced between said pusher and said projection to force the carrier over said projection, substantially as described.

5. In a conveying apparatus, in combination, a cable or track way, the supports therefor, a load-carriage, a rope-carrier, a double-inclined projection extending into the path of said carrier, means whereby said carrier is secured at a point toward and from which the carriage travels, a pusher, a rope extending from the head-support to the carriage and a screw actuated by said rope whereby a relative motion is produced between said projection and said pusher, substantially as described.

6. In a conveying apparatus, in combination, a cable or track way, the supports therefor, a load-carriage, a rope-carrier, a rope-carrier support, means whereby said rope-carrier support is secured at a point toward and from which the load-carriage travels, a rope extending from the head-support to the load-carriage, a screw and means whereby said screw is actuated from said rope whereby said carrier is released from its support, substantially as described.

7. In a conveying apparatus, in combination, the cable or track way, the load-carriage, the fall-rope, the traction-rope and a fall-rope carrier supported by said traction-rope, substantially as described.

8. A rope-carrier frame consisting of two connected loops open at top and bottom constructed of a single piece of metal, in combination with a separate rope-rest 27 whereby the bottom opening is bridged and a separate member 26 whereby the top opening is bridged, substantially as described.

9. In a conveying apparatus the combination of a way, a rope-support, a running line, mechanism stationarily located with respect to the supports of the apparatus, and the following parts located on said mechanism, viz: a retainer, a pusher, and means operatively connected with said running line whereby a relative motion is produced between said pusher and retainer substantially parallel with said way, substantially as set forth.

10. In a conveying apparatus the combination of a way, a rope-support, a running line, mechanism stationarily located with respect to the supports of the apparatus, and the following parts located on said mechanism, viz: a retainer whereby the rope-carrier is lifted out of engagement with said running rope, a pusher, and mechanism operatively connected with said running rope whereby a relative movement is produced between said retainer and pusher, substantially as described.

11. In a conveying apparatus, the combination of a way, a running line, a rope-support mounted upon said running line, and mechanism stationarily located relatively to the supports of the apparatus for automatically discharging said rope-supports onto said running line, as a support, substantially as described.

12. In a conveying apparatus, the combination of a way, a running line, a rope-support clutching said running line with the assistance of its own weight, and mechanism stationarily located relatively to the supports of the apparatus for automatically discharging said

rope-supports into connection with said running line, substantially as described.

13. In a conveying apparatus, the combination of a way, a running line, a rope-support mounted upon said running line, mechanism stationarily located relatively to the supports of the apparatus for automatically discharging said rope-support into connection with the running line, and means on said rope-support whereby it may fixedly engage said running line by which it is supported, substantially as described.

14. In a conveying apparatus, the combination of a way, a running line, a rope-support mounted upon said running line, and the following mechanism stationarily located relatively to the supports of the apparatus, viz: a retainer, a pusher, and mechanism operatively connected with said running line whereby the relative motion is produced between said retainer and pusher, substantially parallel with said way, substantially as set forth.

15. In a conveying apparatus, in combination, a way, a load-carriage; a traction-rope connected therewith, a rope-carrier and a horn extending adjacent to said traction-rope, substantially as set forth.

16. In a conveying apparatus, in combination, a way, a load-carriage, a traveling rope, a rope-carrier, a holder stationarily located relatively to the supports of the apparatus whereby said rope-carrier is picked up and supported and a member on said rope-carrier whereby it is supported on said running rope when not supported by said holder; said member being provided with converging sides adapted to clamp said running rope and hold the carrier stationary thereon, substantially as described.

17. In a conveying apparatus, in combination, a way, a load-carriage, a rope-carrier, a holder stationarily located relatively to the supports of the apparatus whereby the rope-carrier is engaged and held, means whereby the rope-carrier is disengaged from said holder, and a running rope to which the support of said carrier is transferred when disengaged from said holder, substantially as described.

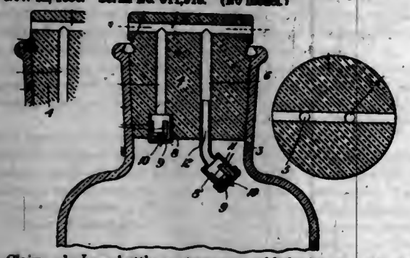
18. In a conveying apparatus, in combination, a way, a load-carriage, a traction-rope connected with the load-carriage, a horn 16 provided with the wheel 22 resting on said traction-rope, substantially as described.

19. In a conveying apparatus, the way, the load-carriage, the traction-rope connected therewith, the horn 16, the abutment 23, the screw 17 connected with said horn, the nut 21 on said screw and means for operating said nut, substantially as described.

20. In combination with a rope 6, a horn 16 extending longitudinally over said rope, a wheel 22 running on said rope and carrying said horn and means whereby said horn is reciprocated longitudinally of said rope, substantially as described.

21. In combination, a horn 16 provided with an undereath longitudinal channel, a rope 6 running in said channel and means whereby said horn is reciprocated longitudinally of said rope, substantially as described.

585,965. NON-REFILLABLE BOTTLE. LINTON H. RALPH, Pittsburg, Pa., assignor of one-half to Frank S. Hotsley, same place. Filed Nov. 12, 1896. Serial No. 611,913. (No model.)

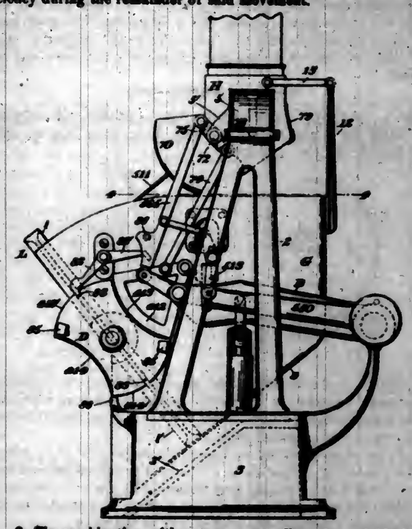


Claim.—1. In a bottle, a stopper provided with a perforating cross-port, separate vertical ports leading downwardly therefrom, a gravity check-valve inserted in an enlargement of one of the vertical ports, and a gravity check-valve having the neck of its casing inserted in the other vertical port, substantially as set forth.

2. In a bottle-stopper provided with a perforating cross-port, separate vertical ports leading downwardly therefrom, and a gravity check-valve inserted in an enlargement of one of the vertical ports; a gravity-check air-inlet port having a deflected neck inserted within the other port, substantially as set forth.

585,966. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 14, 1896. Serial No. 612,110. (No model.)

Claim.—1. The combination, with a stream-controller, of a variable-efficiency actuator therefor movable relatively to the stream-controller and having a progressively-decreasing efficiency during the first part of its working movement and a progressively-increasing efficiency during the remainder of said movement.



2. The combination, with a stream-controller, of a variable-force actuator therefor movable relatively to the stream-controller and having a progressively-decreasing force during the first part of its valve-actuating movement and a progressively-increasing force during the remainder of said movement.

3. The combination, with a stream-controller, of a variable-leverage actuator therefor movable relatively to the stream-controller and having a progressively-decreasing leverage during the first part of its valve-actuating movement and a progressively-increasing leverage during the remainder of said movement.

4. The combination, with a stream-controller having a two-period closing movement, of a variable-efficiency actuator therefor movable relatively to the stream-controller and having a progressively-decreasing efficiency during the first part of its closing movement and a progressively-increasing efficiency during the remainder of said movement.

5. The combination, with a stream-controller having a reducing movement, a drip period, and a cut-off movement, of a variable-force closing actuator therefor movable relatively to the stream-controller and having a progressively-decreasing force during the reducing movement of the stream-controller and a progressively-increasing force during the cut-off movement of said stream-controller.

6. The combination, with a stream-controller, of a variable-leverage actuator therefor having the first portion of its working movement in an arc of decreasing force and the succeeding portion of such movement in an arc of increasing force.

7. The combination, with a stream-controller, of a variable-leverage pendulous actuator therefor having the first portion of its working movement in an arc of decreasing force in one quadrant and the succeeding portion of such movement in an arc of increasing force in another quadrant.

8. The combination, with a stream-controller, of a variable-leverage actuator therefor having its point of application of power shiftable during its working movement from an arc of decreasing force in one quadrant to an arc of increasing force in another quadrant.

9. The combination, with a stream-controller, of a variable-leverage actuator therefor having its point of application of power shiftable during its working movement from an arc of decreasing force in one quadrant to an arc of increasing force in another quadrant and to a different distance from the fulcrum.

10. The combination, with an oscillatory valve of a variable-leverage valve-closing actuator supported on the valve during the first portion of the valve-closing movement and pivotally connected with the valve and oscillatory about such pivot relatively to the valve during the succeeding portion of its valve-closing movement.

11. The combination, with an oscillatory valve, of a variable-leverage valve-closing actuator supported on the valve below the axis of movement of the latter during the first portion of the valve-closing movement and pivotally connected with the valve above said axis and oscillatory about such pivot relatively to the valve during the succeeding portion of its valve-closing movement.

12. The combination, with stream-supplying means, of a valve

having a plurality of superposed stream-controlling members fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

13. The combination, with stream-supplying means, of a valve having a plurality of superposed valve-pans fixed relatively to each other and movable across and into and out of, the path of the supply-stream.

14. The combination, with stream-supplying means, of a valve having a plurality of substantially parallel superposed valve-pans fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

15. The combination, with stream-supplying means, of a valve having a plurality of substantially concentric superposed valve-pans fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

16. The combination, with stream-supplying means, of an oscillatory valve having a plurality of substantially parallel valve-pans fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

17. The combination, with stream-supplying means, of an oscillatory valve having a plurality of valve-pans substantially concentric with the axis of oscillation of the valve and fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

18. The combination, with stream-supplying means, of a valve oscillatory about an axis passing through the stream and having a plurality of substantially parallel valve-pans and fixed relatively to each other and movable across, and into and out of, the path of the supply-stream.

19. The combination, with stream-supplying means, of a valve embodying a plurality of superposed stream-supporting members the lowermost one of which has its discharge edge in the most advanced position.

20. The combination, with stream-supplying means, of a valve oscillatory about an axis passing through the stream and embodying a plurality of valve-pans substantially concentric with the axis of oscillation of the valve, the lowermost valve-pan having its discharge edge in the most advanced position.

21. The combination, with a supply-chute, of a valve having a plurality of superposed stream-supporting members coöperative with the chute to cut off the stream and in position to form, when the valve is closed, a relief-chamber adjacent to the discharge edge of the valve and at one side of the major portion of the mass supported thereon, for the reception of laterally-displaced material.

22. The combination, with a supply-chute having a pair of superposed stream-supporting members, of a valve having a valve-pan movable above, and adjacent to, the lower of said members of the chute.

23. The combination, with a supply-chute having a pair of superposed inclined stream-supporting members, of a valve having a valve-pan movable above, and adjacent to, the lower of said members of the chute.

24. The combination, with a supply-chute having a pair of superposed stream-supporting members the lower of which is substantially out of the path of the stream delivered from the chute, of a valve having a valve-pan movable above, and adjacent to, the lower of said members of the chute.

25. The combination, with a supply-chute having a plurality of superposed stream-supporting members, of a valve coöperative with said chute and having a plurality of superposed stream-controlling members fixed relatively to each other.

26. The combination, with a supply-chute having a plurality of superposed stream-supporting members, of an oscillatory valve coöperative with said chute and having a plurality of valve-pans substantially concentric with the axis of oscillation of the valve.

27. The combination, with a load-receiver, having a discharge-opening of a rotary closer therefor filling said opening and operative by the load through a determined arc on the release of said closer; auxiliary actuating mechanism for continuing the rotation of said closer through a determined arc; and closer-holding means.

28. The combination, with a load-receiver, having a discharge-opening of a duplex rotary closer having alternately-effective members for closing and opening and operative by the load through a portion of a half-rotation on the release of said closer; auxiliary actuating mechanism for continuing the movement of said closer through the remainder of said half-rotation; and closer-holding means for locking the closer in its shut position at the end of each half-rotation.

29. The combination, with a load-receiver, having a discharge-opening of a duplex rotary closer having alternately-effective members for closing and opening and operative by the load through a portion of a half-rotation on the release of said closer; auxiliary actuating mechanism for continuing the movement of said closer through the remainder of said half-rotation; closer-holding means for locking the closer in its shut position at the end of each half-rotation; and tripping means for releasing said holding means.

30. The combination, with a load-receiver, of a duplex rotary closer having alternately-effective members and operative by the load through a portion of a half-rotation on the release of said closer; actuating means for continuing the movement of said closer through the remainder of said half-rotation; a pair of oppositely-disposed stops carried by the closer and equidistant from the axis thereof; a latch for engaging said stops alternately; and latch-tripping means.

31. The combination, with a load-receiver, having a discharge-opening of a rotary closer therefor filling said opening and operative by the load through a determined arc on the release of said closer; spring-operated actuating means for continuing the rotation of said closer through a determined arc; and closer-holding means.

32. The combination, with a load-receiver, having a discharge-opening of a rotary closer therefor filling said opening and operative by the load through a determined arc on the release of said closer; a cam in fixed relation with the closer and having its axis of movement coincident with that of the closer; a spring-operated actuator coöperative with said cam, for continuing the rotation of said closer through a determined arc; and closer-holding means.

33. The combination, with a load-receiver, of a duplex rotary closer supported on said load-receiver and having alternately-effective members and operative by the load through a portion of a half-rotation on the release of said closer; a pair of oppositely-disposed stops equidistant from the axis of the closer; a stop on the frame for engaging said stops on the closer alternately to hold the closer in its respective open positions; actuating means for continuing the movement of said closer through the remainder of each half-rotation; a pair of oppositely-disposed stops equidistant from the axis of the closer and between the stops of said first-mentioned pair; and means for engaging said last-mentioned stops alternately to hold the closer in its shut position.

34. In a weighing mechanism, the combination, with stream-supplying means, of a stream-controlling valve; valve-actuating means for opening and closing the valve; a load-receiver having a discharge-opening; a rotary closer filling the opening in said load-receiver; a pair of valve-opening-movement limiters operative with the closer and effective, respectively, during the weighing of alternate loads; and a closer-rotation limiter operative with the valve and coöperative with the valve-opening-movement limiters alternately.

35. The combination, with a load-receiver, having a discharge-opening of a rotary closer therefor filling said opening and operative by the load through a determined arc on the release of said closer; means for holding the closer in its open position; auxiliary actuating mechanism for continuing the rotation of said closer, to shut the same on the discharge of the load from the receiver; and closer-holding means for locking the closer in its shut position.

36. The combination, with a load-receiver, having a discharge-opening of a rotary closer therefor filling said opening and operative by the load through a determined arc on the release of said closer; means for holding the closer in its open position on the release of the same and for releasing the closer on the ascent of the load-receiver; auxiliary actuating mechanism for continuing the rotation of said closer, to shut the same on the ascent of the load-receiver; and closer-holding means for locking the closer in its shut position.

37. The combination, with a load-receiver, having a discharge-opening of a duplex rotary closer therefor having alternately-effective members for closing and opening an operative by the load through a portion of a half-rotation on the release of said closer; means for holding the closer in either of its open positions; auxiliary actuating mechanism for continuing the movement of said closer through the remainder of said half-rotation; and closer-holding means for locking the closer in either of its shut positions at the end of such half-rotation.

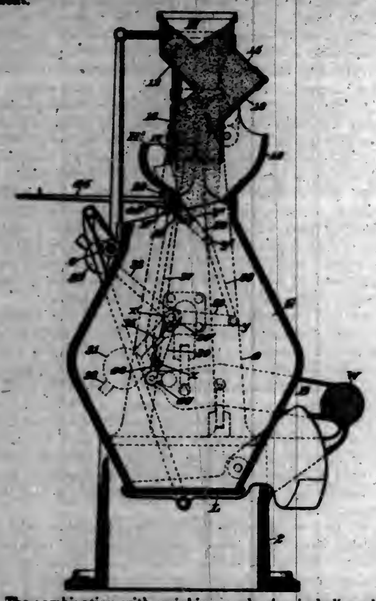
38. The combination, with stream-supplying means, of a stream-controlling valve; means for opening and closing the valve; a load-receiver; a rotary closer for the load-receiver; a pair of oppositely-disposed, alternately-effective, valve-opening-movement limiters operative with the closer and located at opposite sides of the axis of rotation of the closer; and a closer-rotation limiter operative with the valve and coöperative with said valve-opening-movement limiters alternately.

585,967. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Oct. 30, 1896. Serial No. 610,610. (No model.)

Claim.—1. The combination, with stream-supplying means, of a stream-controller; variable-efficiency means for advancing the stream-controller; and linkage connected with the stream-controller and the variable-efficiency means, said linkage serving to regulate the action of the stream-controller.

2. The combination, with stream-supplying means, of a stream-controller; variable-efficiency-actuating means for advancing the

stream-controller; and a plurality of links jointed together and connected with the stream-controller and its actuating means and serving to regulate the action of the stream-controller on its advancing movement.



3. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; variable-efficiency-actuating means for advancing said stream-controller; and means located between said actuating means and the stream-controller and operable for decreasing the action of said actuating means up to a certain point and for subsequently increasing said action.

4. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; variable-efficiency means for advancing said stream-controller: linkage operative with and located between said actuating means and the stream-controller and operable for decreasing the action transmitted to said stream-controller up to a certain point and for subsequently increasing said action: and instrumentalities for arresting the progress of the stream-controller when the power applied thereto is at its minimum.

5. The combination, with weighing mechanism including a load-receiver, of stream-supplying means: a stream-controller supported for opening and closing movements; variable-efficiency means for closing said stream-controller; and linkage located between the stream-controller and its closing means and operable for decreasing the action applied to said stream-controller up to a certain point and for increasing the same subsequently thereto.

6. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a valve; variable-efficiency means for closing said valve; and linkage cooperative with and located between the valve and its actuating means and operable for progressively decreasing the action applied to the valve up to a certain point and for subsequently increasing the same.

7. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a pair of connected valves; variable-efficiency means for closing the valves; and linkage located between and connected with one of the valves and the valve-closing means.

8. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; variable-efficiency means for advancing said stream-controller; a linkage located between the stream-controller and its advancing means and operable for decreasing the action applied to the stream-controller up to a certain point and for subquently increasing the same; a rod connected with said stream-controller; and a stop adapted to engage said rod when the power applied to the stream-controller is at its minimum.

9. The combination, with main and auxiliary hoppers, of main and auxiliary valves supported adjacent to their respective hoppers and connected together for simultaneous operation; variable-efficiency valve-closing means; and linkage located between and connecting said valve-closing means and one of the valves.

10. The combination with stream-supply means, of a stream-controller; and stream-controller-actuating means including a pair of cooperating levers which are loosely mounted; and means for transmitting the combined force of said levers to the stream-controller.

11. The combination with stream-supply means, of a stream-controller; and stream-controller-actuating means including a pair of loosely-mounted levers, one bearing against the other; and means for transmitting the combined force of said levers to the stream-controller.

12. The combination with stream-supply means, of a stream-controller; a pivot-pin; a pair of levers loosely mounted on said pivot-pin, the first-mentioned lever having a lug against which the other is adapted to bear during a certain period of its operation; and means for transmitting the combined force of said levers to the stream-controller.

13. The combination with stream-supply means, of a stream-controller; a link operative with said stream-controller; a pair of links pivoted, respectively, to the opposite extremities of said first-mentioned link; and a lever connected to said pair of links.

14. The combination with stream-supply means, of a stream-controller; a link operative with said stream-controller; a pair of links pivoted to the opposite extremities of said first-mentioned link; and a lever having arms, the said arms being pivoted, respectively, to said pair of links.

15. The combination with stream-supply means, of a stream-controller: a pair of cooperative levers mounted one to have an effective movement beyond the other; and means for transmitting the combined force of said levers to the stream-controller and for also transferring the force of one of said levers to said stream-controller beyond the point at which the other lever becomes ineffective.

16. The combination with stream-supply means, of a stream-controller; a pair of cooperative levers mounted one to have an effective movement beyond the other: and means for regulating the transmission of the combined force of said levers to the steam-controller and for also transferring the force of one of said levers to said stream-controller beyond the point at which the other lever becomes ineffective.

17. The combination with stream-supply means, of a stream-controller; a pair of cooperative levers mounted one to have an effective movement beyond the other; and a linkage connection located between said levers and the stream-controller and operable for regulating the transmission of the combined force of said levers to the stream-controller and for also regulating the transmission of the force of one of said levers to said stream-controller beyond the point at which the other lever becomes ineffective.

18. The combination with a hopper, of a valve and a supporting-shaft therefor provided with a crank-arm; a link pivoted to said crank-arm; a pair of links pivoted, respectively, to the opposite ends of said first-mentioned link; and a weighted lever having arms pivoted, respectively, to said pairs of links.

19. The combination with main and auxiliary hoppers, of main and auxiliary valves, the auxiliary valve being supported by a shaft; a link connecting said shaft with the main valve; a crank-arm on said shaft; a link pivoted to said crank-arm; a pair of links connected to the opposite ends of said last-mentioned link; and a weighted lever having arms pivoted, respectively, to said pair of links.

20. The combination, with weighing mechanism including a load-discharge member; of means comprehending a latch, for normally holding said load-discharge member against movement; stream-supplying means; a stream-controller; variable-efficiency means for advancing said stream-controller; linkage located between the stream-controller-advancing means and the stream-controller; and a tripper for said latch, connected with the stream-controller.

21. The combination, with a load-receiver having a closer; of means including a latch, for normally holding said closer against opening movement; a supporting scale-beam for the load-receiver; a hopper; a valve for said hopper, mounted to open and close; variable-efficiency valve-closing means; linkage located between the valve-closing means and the valve; and a rod connected with said valve and provided with a projection constituting a latch-tripper.

22. The combination with a main hopper, of a main or reducing valve having a movement across the plane of the discharge-orifice of said hopper; an auxiliary hopper having an inclined bottom and adapted to receive a stream of material delivered thereinto by the main or reducing valve: an auxiliary or cut-off valve supported adjacent to the discharge edge of the auxiliary hopper; and valve-actuating means.

23. The combination with a main hopper, of a main or reducing valve having a movement across the plane of the discharge-orifice of said hopper; an auxiliary hopper having an inclined bottom adapted to receive a stream of material delivered thereinto by the main or reducing valve: an auxiliary or cut-off valve supported adjacent to the discharge edge of the auxiliary hopper and operatively connected to the main valve; and valve-actuating means.

24. The combination with a main hopper, of a main or reducing valve having a movement across the plane of the discharge-orifice of said hopper; an auxiliary hopper having an inclined bottom adapted to receive a stream of material delivered thereinto by the main or reducing valve; an auxiliary or cut-off valve supported adjacent to the discharge edge of the auxiliary hopper and operatively connected to the main valve; means for actuating said valves; and force-modifying linkage located between said valves and their actuating means.

25. The combination with a main hopper having therein oppositely-inclined baffle-plates, of a main or reducing valve having a movement across the plane of the discharge-orifice of said hopper; an auxiliary hopper having an inclined bottom adapted to receive a stream of material delivered thereinto by the main or reducing valve; an auxiliary or cut-off valve supported adjacent to the discharge edge of the auxiliary hopper; and valve-actuating means.

26. The combination with a hopper and with a valve, of a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said actuator; shifting means for throwing said thrust-transferring member out of operative relation with said actuator; and instrumentalities for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

27. The combination with a hopper and with a valve, of a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said actuator; shifting means for throwing said thrust-transferring member out of operative relation with said actuator; and instrumentalities operative with said shifting means, for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

28. The combination with a hopper and with a valve, of weighing mechanism including a scale-beam which also constitutes a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said scale-beam to thereby transmit the thrust of the latter to the valve for opening the same; shifting means for throwing said thrust-transferring member out of operative relation with said scale-beam; and instrumentalities for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

29. The combination with a hopper and with a valve, of a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said actuator; shifting means; a toggle located between said shifting means and said thrust-transferring member and adapted to have its several centers thrown into line by said shifting means to thereby move said thrust-transferring member out of operative relation with said actuator; and means carried by one of the toggle members, for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

30. The combination with weighing mechanism including a bucket, of a hopper; a valve; a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said actuator; a poise-weight normally added to the weighing mechanism; shifting means for simultaneously throwing said thrust-transferring member out of operative relation with said actuator and for subtracting the poise-weight from the weighing mechanism; and instrumentalities for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

31. The combination with weighing mechanism including a load-discharge member, of means comprehending a latch for holding said load-discharge member against movement; a supply-hopper; a valve; a valve-opening actuator; a thrust-transferring member normally cooperative with the valve and said actuator and having a latch-tripper; a poise weight normally added to the weighing mechanism; shifting means for simultaneously throwing said thrust-transferring member out of operative relation with said actuator and for subtracting the poise-weight from the weighing mechanism; and instrumentalities for blocking the valve-opening movement of said thrust-transferring member when it is thus shifted.

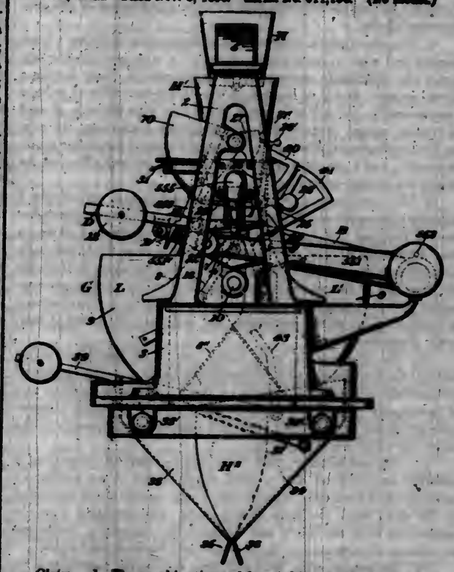
32. The combination, with a scale-beam having a knife-edge, of a bucket supported by said scale-beam; two apertured lugs, one of the apertures of which is larger than the other; a weighted post passing through said apertures and having at its lower end a notch that is positioned to rest on said knife-edge; and means for elevating said post.

33. The combination with weighing mechanism; of two apertured lugs, one of the apertures of which is larger than the other; a weighted post passing through said apertures and normally added to the weighing mechanism; and means for elevating said post.

34. The combination, with weighing mechanism including a load-receiver and with stream-supplying means therefor, said mechanism including a scale-beam provided with a knife-edge; of a series of apertured lugs on the framework of the machine; a weighted vertically-movable post passing through said apertures and having a notch at its lower end that normally rests on said knife-edge; and means for elevating said post.

35. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a valve supported for opening and closing movements; a plurality of variable-efficiency levers supported for oscillation by the framework; and linkage connected, respectively, with the valve and one of said levers.

585,968. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 5, 1896. Serial No. 611,186. (No model.)



Claim.—1. The combination, with weighing mechanism embodying a load-receiver and a main supply-chute, of a valve: and a supplemental chute operable with said valve in such manner as to exert, by its own weight and the weight of its contents, a closing force on said valve.

2. The combination, with weighing mechanism embodying a load-receiver and with a fixed main supply-chute, of a supplemental chute supported for reciprocatory movements bodily between the load-receiver and supply-chute; a reciprocatory valve supported on the framework, between the load-receiver and supplemental chute, and having means for supporting said supplemental chute; and actuating means for effecting simultaneous movements of the valve and supplemental chute in relatively transverse planes.

3. The combination, with weighing mechanism embodying a load-receiver and with a fixed main supply-chute, of an oscillatory valve pivotally supported on the framework, between the load-receiver and the main supply-chute; a supplemental chute supported upon and at one side the axis of the movement of the valve, for vertical reciprocatory movements; and means for effecting simultaneous movements of the valve and supplemental chute in relatively-intersecting planes.

4. The combination, with framework and with a fixed main supply-chute supported thereon, of a valve pivotally supported on the framework and having chute-supporting trunnions whose axes are located slightly at one side the axes of movement of said valve; and a supplemental chute mounted on said trunnions, whereby the weight of said supplemental chute and its contents tends to effect a closing movement of the valve.

5. The combination, with weighing mechanism, a load-receiver, and with a main supply-chute, of a supplemental chute shiftably supported between the load-receiver and main supply-chute, to have a movement toward and away from the load-receiver; and a stream-controller supported for reciprocatory movement and between the load-receiver and supplemental chute and effective upon its opening and closing movements for advancing and retracting said supplemental chute relatively to the load-receiver.

6. The combination, with weighing mechanism including a load-receiver and with a fixed main supply-chute, of an oscillatory stream-controller; a supplemental chute supported for oscillatory movement upon, and at one side the axis of, the stream-controller; and a gravitative actuator carried by said stream-controller.

7. The combination, with weighing mechanism including a reciprocatory load-receiver and with a fixed supply-chute, of an oscillatory stream controller located between the load-receiver and supply-chute and having its axis horizontally disposed: a supplemental chute pivotally supported on, and remote from the axis of movement of,

said controller and adapted to have a movement in a vertical direction toward and away from said controller; means carried by the main supply-chute, for guiding the supplemental chute in its vertical movement; means controlled by the weighing mechanism, for imparting an opening movement to the stream-controller; means for locking the stream-controller in its open position; and means carried by the stream-controller and adapted for effecting a closing movement thereof and for simultaneously effecting a vertical movement of the supplemental chute.

8. The combination, with weighing mechanism including a load-receiver and with a main supply-chute, of a stream-controller supported for oscillatory movement; a supplemental chute having a pivotal support that is so located on the stream-controller as to have a movement in the arc of a circle about and with the axis of said controller; means controlled by the weighing mechanism, for raising the supplemental chute and opening the stream-controller simultaneously; and a gravitative actuator carried by and effective for closing the stream-controller.

9. The combination, with weighing mechanism embodying a shiftable load-receiver and with a supply-chute, of a stream-controller located between the load-receiver and supply-chute and having a fixed horizontal axis of movement; a supplemental chute pivotally supported on the stream-controller and having its support shiftable about its axis of movement of the stream-controller; and means controlled by the weighing mechanism, for effecting a simultaneous movement of the stream-controller and supplemental chute in relatively transverse planes.

10. The combination, with framework, of an oscillatory valve having a fixed horizontal axis; a gravitative chute pivotally supported substantially midway of its height on the valve, remote from the axis of movement of said valve; and a valve-closing actuator comprehending means for effecting relatively transverse movements of the valve and chute simultaneously.

11. The combination, with weighing mechanism embodying a shiftable load-receiver and a fixed supply-chute, of an oscillatory valve having a fixed axis; a gravitative supplemental chute supported by the valve below the main supply-chute; and actuating means in connection with the valve and adapted for imparting transverse movements simultaneously to the valve and supplemental chute.

12. The combination, with weighing mechanism including a reciprocatory load-receiver and with a fixed main supply-chute, of an oscillatory stream-controller; a supplemental chute operable with said stream-controller in such manner as to exert, by its own weight and the weight of its contents, a closing force on said valve; a closer pivotally supported to have oscillatory movements in a vertical direction above the bottom edge of the receiver; a closer-opening actuator in operative connection with said closer; and means actuated by the stream-controller, on the closing movement thereof, for effecting a closer-opening movement of the closer-actuator.

13. In a weighing-machine, the combination, with a suitable frame and with beam mechanism pivotally supported on said frame, of a main supply-chute; a valve supported on the frame, for oscillatory movement, below said supply-chute; a supplemental chute pivotally supported on the valve, remote from the axis thereof and in such manner as to exert, by its own weight and the weight of its contents, a closing force on said valve; means in connection with the beam mechanism, for imparting an opening movement to the valve and a rising movement to the supplemental chute, simultaneously; a load-receiver supported on the beam mechanism and open at one side thereof; a closer pivotally supported on the load-receiver to have oscillatory movements in a vertical direction above the bottom edge of said receiver; a closer-opening actuator; and means controlled by the valve, on the closing movement thereof, for effecting a closer-opening movement of said actuator.

14. In a weighing-machine, the combination, with framework and with beam mechanism fulcrumed on said framework, of a main supply-chute; an oscillatory stream-controller pivotally supported on the framework below said supply-chute; a supplemental chute pivotally supported on the stream-controller at one side the axis thereof and between said controller and main supply-chute, whereby the weight of said supplemental chute and its contents will assist the closing movement of the controller; a controller-closing actuator adapted for imparting a variable movement to said closer; a controller-opening actuator in operative connection with the beam mechanism and effective for imparting relatively transverse opening movements to the controller and supplemental chute, simultaneously; a load-receiver mounted on the beam mechanism; two oppositely-disposed concentrically-shiftable closers pivotally supported on the load-receiver; a closer-opening actuator having a linkage connection with the two closers and effective for simultaneously opening both closers; and means controlled by the controller, on the closing movement thereof, for effecting a closer-opening movement of the closer-actuator.

15. The combination, with beam mechanism and supporting means therefor and with a load-receiver supported on said beam mechanism, of two stream-controlling members, one of which is in the nature of a gravitative member and is pivotally connected to the other member in such manner that the weight thereof will effect a relatively transverse movement of the other member; means connecting the two stream-controlling members and beam mechanism and adapted for imparting relatively transverse movements to the stream-controlling members during a movement of the beam mechanism in one direction; a closer pivotally supported on the load-receiver; a closer-opening actuator having a linkage connection with said closer; and means controlled by one of the stream-controlling members, on the gravitation thereof, for effecting a closer-opening movement of the closer-actuator.

16. The combination, with weighing mechanism including scale-beams and a load-receiver supported thereon and with a supply-chute located above the receiver, of an oscillatory valve having a fixed horizontal axis of movement; a supplemental chute pivotally supported on the valve at one side the axis of movement thereof in such manner as to exert, by its own weight and the weight of its contents, a closing force on said valve; an oscillatory closer pivotally supported on the load-receiver; a gravitative closer-opening actuator fulcrumed on the framework and having at the poising end thereof a linkage connection with the closer; a valve-opening actuator connecting the valve and beam mechanism; a locking device for normally retaining the closer-opening actuator with its counterweighted end in an elevated position; and means controlled by the valve, on the closing movement thereof, for releasing the locking device to effect a closer-opening movement of the closer-actuator.

17. The combination, with beam mechanism and with a load-receiver supported thereon, of a valve having a fixed horizontal axis of movement; a supply-chute pivotally supported on said valve at one side the axis of movement thereof in such manner as to exert, by its own weight and the weight of its contents, a closing force on said valve; a valve-opening actuator operatively connecting the valve and beam mechanism; a gravitative valve-closing actuator carried by the valve and effective for imparting to said valve a closing movement of varying velocities; two concentrically-movable closers pivotally connected to the load-receiver, with their axes coincident, and adapted to have an oscillatory movement above the floor-line of said receiver; a counterweighted closer-opening actuator fulcrumed intermediate its ends; links connecting the inner non-counterweighted end of said actuator with the two closers, respectively; a gravitative latch normally engaging and locking the closer-opening actuator, with its counterweighted end in an elevated position; a stop carried by the valve and effective, when the valve is in its open position, for blocking the latch against an actuator-releasing movement; and means controlled by the valve, on the last stage of the closing movement thereof, for releasing the latch from engagement with the closer-actuator, to thereby effect a closer-opening movement of said actuator.

18. The combination, with supply apparatus embodying a valve and a valve-actuator, of weighing mechanism embodying a reciprocatory bucket having an inclined bottom wall and having a discharge-opening at one side of, and above, said bottom wall; a parti-cylindrical closer pivoted to said bucket at a point substantially intersecting the longitudinal axis of, and adapted for normally closing, the discharge-opening of the bucket; a closer-opening actuator pivotally connected to said closer and effective, on the closing movement of the valve, for directly imparting an upward opening movement to the closer; a shiftable regulator-hopper; and means controlled by the regulator-hopper, for imparting a closing movement to the closer.

19. In a weighing-machine the combination, with supply apparatus having a valve and with weighing mechanism embodying a reciprocatory bucket having a closer, of two independent gravitative actuators; a regulator-hopper located below the bucket; means controlled by the valve, of the closing movement thereof, for effecting a closer-opening movement of one actuator; and means in connection with the regulator-hopper, for controlling the effective movement of the other actuator.

20. In a weighing-machine the combination, with a regulable supply apparatus and with weighing mechanism embodying a bucket having a bucket-closer, of a regulator-hopper supported below the bucket; and two reciprocally-effective bucket-closer actuators, one of which is controlled by the bucket, on the descent thereof, for opening the closer, and the other of which is controlled by the hopper and is effective, on a movement thereof, for shutting the bucket-closer; and locking devices for reciprocally locking the two actuators in their ineffective positions.

21. In a weighing-machine, the combination, with a supply apparatus and with weighing mechanism embodying a bucket-closer, of a valve in operative relation with the supply apparatus; a counterweighted closer-opening actuator in operative connection with the bucket-closer; and means controlled by the valve, on the closing movement thereof, for effecting a closer-opening movement of said actuator.

22. In a weighing-machine, the combination, with a supply apparatus and with an oscillatory stream-controlling valve in connection with said supply apparatus, of a shiftably-supported bucket having a closer; a mechanically-operated closer-opening actuator in connection with said closer; and means controlled by the valve, on the closing movement thereof, for effecting a closer-opening movement of said actuator.

23. In a weighing-machine, the combination, with a supply-chute and with a stream-controlling valve in operative relation with said chute, of a load-receiver supported for ascending and descending movements; a closer carried by said load-receiver; a valve-actuator in connection with said valve; and a counterweighted closer-opener controlled by the valve, on the closing movement thereof, for positively imparting an opening movement to the closer.

24. In a weighing-machine, the combination, with a supply-chute having a valve and with weighing mechanism embodying a vertically-reciprocatory load-receiver having a closer in pivotal connection therewith, of a valve-closing actuator in operative connection with the valve; a valve-opening actuator in connection with the weighing mechanism and valve; a closer-actuator having links in operative connection with the closer; and means controlled by the valve-closing actuator, on the closing movement of the valve, for effecting a closer-opening movement to the closer-actuator.

25. In a weighing-machine the combination, with a supply-chute having a valve and with weighing mechanism embodying a vertically-reciprocatory bucket having a bucket-closer in pivotal connection therewith; of a valve-closing actuator in operative connection with the valve; valve-opening-actuating means in connection with the weighing mechanism and valve; a bucket-closing actuator in operative connection with the bucket-closer; means controlled by the valve-closing actuator, on the valve-closing movement thereof, for effecting a closer-opening movement of the closer-actuator; a regulator-hopper supported below said bucket; and means controlled by said hopper, for imparting a closer-shutting movement to the closer-actuator.

26. In a weighing-machine the combination, with a supply-chute and with a stream-controlling valve and actuating mechanism therefor, of weighing mechanism embodying a bucket having a bucket-closer; a regulator-hopper shiftably supported below said bucket; a bucket-closer actuator in operative connection with the bucket-closer; means controlled by the valve, on the closing movement thereof, for effecting a closer-opening movement of said actuator; and means controlled by the opening movement of the regulator-hopper, for imparting a closer-shutting movement to said actuator.

27. In a weighing-machine, the combination, with weighing mechanism embodying a shiftably-supported bucket having a closer, of a chute located above the bucket; a valve in operative connection with said chute; means for imparting a closing and opening movement to said valve; a pivotally-supported gravitative bucket-closer actuator in operative connection with the bucket-closer; a regulator-hopper supported below the bucket; means controlled by said hopper, for imparting a closer-shutting movement to the closer-actuator just preceding the opening movement of the valve; and means intermediate the closer-actuator and valve, for normally locking said closer-actuator in a position to retain the closer shut, and which means is effective, on the closing movement of the valve, for releasing said actuator to facilitate a closer-opening movement thereof.

28. In a weighing-machine the combination, of weighing mechanism embodying a bucket supported for vertical movement and having an oscillatory closer; a chute shiftably supported above said bucket, for vertical movement; a valve supported for movement in a plane intersecting the plane of movement of the chute; a regulator-hopper supported below the bucket and embodying one or more openable and closable sections; cooperative actuating and interlocking devices primarily controlled by the weighing mechanism and effective, on certain movements of said mechanism, for closing the valve, opening the bucket-closer, and opening the regulator-hopper successively and in the order named and for locking said valve, closer, and hopper intermediate such successive operations.

29. In a weighing-machine the combination, with weighing mechanism embodying a shiftably-supported bucket having a bucket-closer, of an openable and closable regulator-hopper supported below said bucket; a bucket-closer actuator in operative connection with the bucket-closer and having a stop member; means for effecting an opening and closing movement of said closer-actuator; and a stop device controlled by the hopper and cooperating with the stop member of the closer-actuator, for locking said actuator against a closer-shutting movement while the hopper is in its open position.

30. In a weighing-machine the combination, with weighing mechanism embodying a bucket having a closer, of a closer-actuator; a normally-closed regulator-hopper located below the bucket and adapted to have an opening movement; and stop devices controlled by the hopper, on the opening movement thereof, for locking the closer-actuator in a position for preventing the shutting movement of the closer.

31. In a weighing-machine the combination, with weighing mechanism embodying a bucket having a closer and with a counterweighted lever for imparting an opening movement to the closer, of a regulator-hopper comprising two pivotally-supported openable and closable sections cooperatively connected together; a counterweighted lever in connection with one of said sections and effective for normally retaining said sections in a closed position; and interlocking devices controlled by said sections and cooperating with the closer-actuating lever, to prevent a closer-shutting movement of said lever while the hopper-sections are in their open positions.

32. In a weighing-machine the combination, with a scale-beam, of a bucket supported on said beam and having a V-shaped bottom, the apex of which is located near the central portion of the bucket; two oppositely-disposed oscillatory bucket-closers pivotally connected together at a point substantially in vertical alinement with the apex of the beam of the bucket; two oppositely-disposed weighted actuators, one actuator of which has a linkage connection with the two bucket-closers and is effective on the descending movement thereof for imparting an opening movement to the closers, and the other actuator of which is effective on the descending movement thereof for imparting a closer-shutting movement to the first-mentioned actuator; and means for controlling the movements of the two actuators.

33. In a weighing-machine the combination, of a valve-regulated vertically-shiftable chute; weighing mechanism embodying a vertical reciprocatory bucket located below said chute and embodying two oppositely-disposed oscillatory closers; means controlled by the chute, on the descending movement thereof, for imparting an opening movement to the closers; an openable and closable regulator-hopper located below the bucket; interlocking devices controlled by the hopper, for locking the closers in their open positions until the hopper is closed; means for automatically closing the hopper; and means for effecting a closing movement of the closers immediately succeeding the closing movement of the regulator-hopper.

34. In a weighing-machine the combination, with weighing mechanism embodying a reciprocatory bucket having a bucket-closer and with a chute having a stream-controlling valve cooperatively connected therewith, of a regulator-hopper located below the bucket and organized to have an opening movement; and cooperative stop devices controlled by the regulator-hopper, for locking the stream-controlling valve in its closed position and for simultaneously locking the bucket-closer in its open position.

35. In a weighing-machine the combination, with a bucket having a closer, of a closer-actuating mechanism for imparting opening and closing movements to said closer; an openable and closable regulator-hopper located below the bucket; and interlocking devices in operative relation with the closer-actuating mechanism and the hopper and effective for locking the hopper in the closed position when the bucket-closer is closed and for locking the bucket-closer in its open position when the hopper is open.

36. In a weighing-machine the combination, with weighing mechanism embodying a bucket having a closer and with a supply-chute and an oscillatory valve in connection with said chute, of a bucket-closer actuator controlled by the valve, on the closing movement thereof, for directly imparting an opening movement to the closer; an openable and closable regulator-hopper located below the bucket; cooperative stop devices in operative relation with the valve, closer-actuator, and hopper and effective, on the opening movement of the hopper, for simultaneously locking the valve in its closed position and the closer in its open position; and means controlled by the hopper, for imparting a closer-opening movement to the closer-actuator.

37. In a weighing-machine the combination, with a suitable framework and with beam mechanism; of a bucket supported on the beam mechanism, for ascending and descending movements and having two oppositely-disposed bucket-closers pivotally supported for movement about a common axis; and a counterweighted closer-actuator located above the bucket-closer; and two links pivotally connected one to each closer at opposite sides, respectively, of the axis of movement, and pivotally connected with the closer-opening actuator substantially in vertical alinement with the axis of movement of the closers, whereby the counterweighted actuators, on the descending movement, will impart an opening movement simultaneously to the two closers.

38. In a weighing-machine the combination, with weighing mechanism including a bucket having two oppositely-disposed bucket-closers; of actuating mechanism for said closers, comprising two gravitative levers, one of which has a linkage connection with, and is self-active for imparting an opening movement simultaneously to, the two closers, and the other of which has one end thereof in position for engaging the first-mentioned lever and is effective, upon the descending movement thereof, for imparting a closer-shutting movement to said lever.

39. In a weighing-machine the combination, with beam mechanism; of a bucket supported for vertical reciprocation on said beam mechanism and comprising two oppositely-disposed, pivotally-connected closer-sections, a support for said sections, and an inverted-V-shaped bottom interposed between the lower adjacent portions of the two closer-sections; a stream-supply chute; a stream-controller

in pivotal connection with said chute; a closer-section actuator effective, on the closing movement of the controller, for swinging the sections on their common axis upward and away from the V-shaped bottom; and means intermediate the valve and closer-section actuator and effective for normally locking said actuator in its closer-shutting position.

40. In a weighing-machine the combination, with beam mechanism; of a bucket supported for vertical reciprocation on said beam mechanism and comprising two oppositely-disposed, pivotally-connected closer-sections and an inverted support for said sections and an inverted-V-shaped bottom interposed between the lower adjacent portions of the two closer-sections; a stream-supply chute; a stream-controller in pivotal connection with said chute; a closer-section actuator effective on the closing movement of the controller, for swinging the sections on their common axis upwardly and away from the V-shaped bottom; a latch effective, on the opening movement of the stream-controller, for engaging and locking the closer-section actuator in the position it occupies when the closer-sections are shut; and means controlled by the closing movement of the stream controller, for tripping the latch to permit a section-opening movement of said actuator.

41. In a weighing-machine the combination, with weighing mechanism embodying a reciprocatory bucket having a closer and with a supply-chute having a stream-controller; of a gravitative closer-opening actuator in operative connection with, and effective for positively imparting an opening movement to, the bucket-closer; a latch in normal engagement with the closer-actuator and locking the same in position to retain the closer shut; a latch-tripper controlled by the stream-controller, on the closing movement thereof, for tripping the latch and to thereby release and effect a closer-opening movement of, the actuator; and a stop carried by the stream-controller and cooperating with the latch, to normally lock said latch against an actuator-releasing movement until the stream-controller is in its closed position.

42. In a weighing-machine the combination, with weighing mechanism embodying a reciprocatory bucket having a closer and with a supply-chute having a stream-controller; of a gravitative, closer-opening actuator in operative connection with, and effective for positively imparting an opening movement to, the bucket-closer; a latch in normal engagement with the closer-actuator and locking the same into position to retain the closer shut; a latch-tripper controlled by the stream-controller, on the closing movement thereof, for tripping the latch and to thereby release and effect a closer-opening movement of, the actuator; a stop carried by the stream-controller and cooperating with the latch, to normally lock said latch against an actuator-releasing movement until the stream-controller is in its closed position; an openable and closable regulator-hopper located below the bucket; and means controlled by, and effective on the opening movement of, said hopper, for locking the stream-controller in its closed position and the closer-actuator in its closer-opening position.

43. The combination, with weighing mechanism embodying a bucket, of a supply-chute supported above said bucket: an oscillatory valve having a fixed axis of movement; a valve-closing actuator located at one side of the axis of said valve; a supplemental chute supported on the valve in such manner as to exert a closing force thereon; a stop member located on the valve at the opposite side of the valve-axis; a shiftably-supported regulator-hopper located below the bucket; and a stop member controlled by the hopper and cooperating with the stop member on the valve, for locking said valve in its closed position.

44. In a weighing-machine the combination, with weighing mechanism embodying a bucket having a closer, of a supply-chute having an oscillatory valve; a shiftable valve-actuator located at one side of the axis of, and carried by, the valve and embodying means for effecting a change in the velocity of the valve at different points in the length of the movement thereof; a stop member located at the opposite side of the valve-axis; an openable and closable regulator-hopper located below the bucket; and a stop member actuated by said hopper, on the closing movement thereof, and cooperating with the stop member of the valve, to lock said valve in its closed position.

45. In a weighing-machine the combination, with a suitable framework and with weighing mechanism embodying a bucket, of a valve pivotally supported on the framework; a valve-actuator carried by the valve and embodying means for imparting to said valve a closing movement of differential velocities; and a supply-chute wholly supported on the valve in such a manner that the weight of said chute and its contents tend normally to accelerate the closing movement of the valve.

46. In a weighing-machine the combination, with a framework and with weighing mechanism including a bucket, of an oscillatory stream-controller having inwardly-projecting trunnions in eccentric disposition relatively to the axis of movement of said valve; a supply-chute supported on said trunnions; and guiding means for said chute.

47. In a weighing-machine a pivotally-supported stream-controller having chute-supporting trunnions whose axes are located slightly at one side the axis of movement of said controller; a supply-chute supported on said trunnions, for vertical movement with, and transversely the path of movement of, the stream-controller; and actuating means for said controller

48. In a weighing-machine the combination, with a pivotally-supported stream-controller; of a substantially conical chute supported on said stream-controller, for vertical movement simultaneously with, and in a plane intersecting the plane of movement of, the controller; and means for actuating the controller.

49. In a weighing-machine the combination, with a main supply-chute and with an oscillatory stream-controller pivotally supported below said main supply-chute and having a cut-off blade; of a substantially conical supplemental chute pivotally supported on the stream-controller, with the axis of said support slightly at one side the axis of movement of said controller, and having its enlarged receiving end surrounding the discharge end of the main supply-chute and having its smaller discharge end located below the pivotal support thereof and in juxtaposition to the path of movement of the cut-off blade of the stream-controller; means for actuating the stream-controller, to thereby impart, simultaneously, vertical reciprocations to the supplemental chute; and means for guiding the supplemental chute during its movements.

50. In a weighing-machine the combination, with a main supply-chute and with a stream-controller pivotally supported in the plane of longitudinal axis of said chute and having a curved cut-off blade, of a supplemental supply-chute supported for vertical reciprocations between the cut-off blade of the stream-controller and the main supply-chute; and means connecting the supplemental chute and stream-controller and operable for simultaneously moving said controller and chute in relatively intersecting planes.

51. In a weighing-machine the combination, of a supply-chute and valve cooperatively connected together; actuating mechanism operatively connected with the valve and chute and embodying means for imparting to said valve and chute unitary movements in relatively intersecting planes and for varying the velocities thereof at different points in the length of said movements.

52. In a weighing-machine the combination, with a main supply-chute and with a stream-controller supported below said main supply-chute, of a supplemental chute having an enlarged upper end telescoping the discharge end of the main supply-chute and supported for vertical movement with its longitudinal axis located at one side the axis of movement of the stream-controller; and actuating means in connection with the stream-controller and supplemental chute and embodying force-modifying means for progressively decreasing the velocities of the stream-controller and chute simultaneously during the closing movement of said controller.

53. The combination, in a weighing-machine, of an oscillatory stream-controller; a stream-controller actuator located at one side the axis of movement of said controller; and a supply-chute pivotally supported on the controller between the actuating means and the axis of movement of said controller.

54. In a weighing-machine the combination, with a framework and with weighing mechanism embodying a bucket, of a stream-controller pivotally supported on the framework; a gravitative actuator in connection with, and having its effective movement at one side the axis of movement of, the stream-controller; a supply-chute pivotally supported substantially midway its width upon a stream-controller between the axis of said stream-controller and the stream-controller actuator and adapted for accelerating the closing movement of said stream-controller.

55. In a weighing-machine the combination, with suitable framework and with weighing mechanism embodying a bucket and with a fixed main supply-hopper located above said bucket, of a stream-controller supported for oscillatory movement on the framework; a cam-faced actuating-lever carried by the stream-controller and having the cam-face thereof located at one side the axis of movement of said controller; a flexible counterweighted actuator pivotally connected to the cam-faced lever and adapted to cooperate with the cam-face of said lever, for imparting to the controller a closing movement of differential velocities; and a supplemental chute supported on the controller at a point between the cam-face and the axis of movement of the actuating-lever.

56. In a weighing-machine the combination, with a supply-chute and with an oscillatory stream-controller, of an arm carried by the stream-controller and having a cam-face located at one side the axis of said controller; and a flexible gravitative actuator pivotally secured to and cooperative with the cam-face of the lever, for imparting to the stream-controller a closing movement having different velocities at different points in the length of such movement.

57. The combination, with a supply-chute, of a stream-controller; and a controller actuator carried by the stream-controller and comprising two cooperative members, one of which is in the nature of a cam-faced arm having its axis of movement coincident with that of the stream-controller, and the other of which is in the nature of a flexible weight-carrier and is fixed to the upper end of said arm and cooperates with the cam-face thereof, for modifying the velocity of the stream-controller at different stages of its opening and closing movements.

58. In a weighing-machine the combination, with an oscillatory stream-controller; of an oscillatory, cam-faced arm fixed to, and having its axis of movement coincident with that of, the stream controller; and a gravitative arm-actuator fixed to, and supported on, the cam-faced arm, to have a rolling action over said cam-face to thereby modify the effective force of the cam-arm at successive points in the movement thereof.

59. In a weighing-machine the combination, with a stream-controller supported for oscillatory movement; of an arm fixed to the stream-controller, for movement about an axis coincident with that of said controller and having a peripheral cam-face of gradually-increased radius toward the lower end thereof; and a gravitative flexible actuator fixed to, and depending from the upper end of, said arm and having a cooperative rolling action with the cam-face of said arm, to thereby impart to the controller a closing movement of gradually-decreasing velocity throughout the first stages of such movement and of gradually-increasing velocity throughout the latter stages of such movement.

60. In a weighing-machine the combination, with a stream-controller supported for oscillatory movement; of a controller-actuator fixed to, and having its axis of movement coincident with that of, the steam-controller and comprising a rigid member and a flexible member, the latter of which is fixed to, and has a rolling action upon, the former for advancing the controller to its drip position with a gradually-decreasing velocity and for continuing the advancing movement of said closer beyond its drip position with a gradually-increasing velocity.

61. In a weighing-machine the combination, with weighing mechanism embodying a bucket and with a supply-chute having an oscillatory valve; of a cam-arm movable with, and having its axis of movement coincident to, the valve; a flexible weight-carrier carried on the cam-arm and cooperative with the cam-face thereof, to impart a closing movement to the valve of differential velocity; a stop member carried by the valve; a shiftable regulator-hopper located below the bucket; and a stop member controlled by the regulator-hopper and coacting with the stop member of the valve, for locking said valve in its closed position during the discharge of the load.

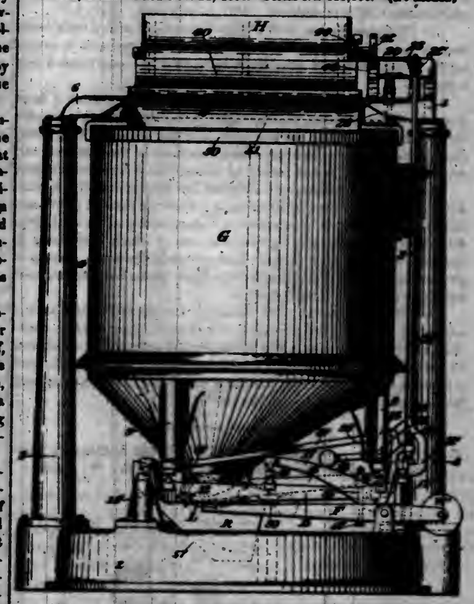
62. In a weighing-machine the combination, with weighing mechanism embodying a bucket having two oppositely-disposed front and rear closers separated at their lower adjacent edges by an inverted-V-shaped bottom wall and with means for actuating said closers simultaneously, of a regulator-hopper located below said bucket and comprising two oppositely-disposed pivotally-supported sections having relatively convergent lower walls and adapted to be opened and closed relatively to each other; a link pivotally connected at its opposite ends to opposing hopper-sections in such manner as to insure the opening and closing of both sections when one section is opened or closed; and a counterweighted arm carried by one section and adapted for normally retaining the two sections in their closed positions.

63. In a weighing-machine the combination, with a bucket having an inverted-V-shaped bottom and having two oppositely-disposed front and rear closers and with means for lifting the two closers simultaneously above and away from the lower edge of the V-shaped bottom; of a regulator-hopper located below the bucket and comprising two oppositely-disposed, pivotally-supported sections having inclined bottom walls so disposed as to form the bottom wall for the hopper which is oppositely disposed relatively to the bottom wall of the bucket; and connecting and actuating means for normally retaining the hopper-sections in their relatively-closed positions and for facilitating a simultaneous opening movement of said sections on the passage of material thereto to the hopper from the bucket.

64. In a weighing-machine the combination, with weighing mechanism embodying a bucket, of a regulator-hopper located below the bucket and comprising two oppositely-disposed and pivotally supported sections; a link pivotally connected at one end of one section above the pivotal point thereof and pivotally connected at its opposite end at its section below the pivotal point of said section; and a weighted arm carried by one section and effective for simultaneously closing the two sections.

65. In a weighing-machine the combination, with a bucket mechanism; of a regulator-hopper located below said mechanism and comprising two sections pivotally supported to have opening and closing movements relatively to each other and each section having a bottom wall which is inclined downward toward the adjacent section, and which bottom wall has an angularly-disposed extension at the lower end thereof; a link pivotally connecting the two sections in such manner as to facilitate simultaneous opening and closing movements thereof, and a weighted arm carried by one section, for normally retaining the two sections in their closed positions.

585,969. WEIGHING-MACHINE. FRANCIS E. RICHARDS, Hartford, Conn. Filed Nov. 21, 1896. Serial No. 613,009. (No model.)



Claim.—1. The combination, with weighing mechanism including a bucket, of a supply-hopper having two spouts for the delivery, respectively, of main and drip streams to the bucket; a pair of valves for controlling said streams; and inclined parallel main and auxiliary stream-receiving plates carried by the bucket and supported, respectively, beneath the main and drip spouts of the hopper.

2. The combination, with a bucket, of a ring embracing the same at its upper edge; and a spout having a series of superposed plates and provided with oppositely-disposed brackets connected to said ring.

3. The combination, with a reciprocatory bucket having a series of superposed stream-receiving plates, of means for delivering independent streams of material to said plates.

4. The combination, with weighing mechanism having a stop and comprehending a load-receiver and with discharging means for the latter, of an oscillatory regulator located to receive a load and to be depressed thereby and having a member operating in unison therewith which is located to engage the stop on the weighing mechanism, to thereby prolong the return movement of said weighing mechanism.

5. The combination, with weighing mechanism having a stop and comprehending a load-receiver and with discharging means for the latter, of an oscillatory regulator-hopper located to receive a load and to be depressed thereby and having a member operative in unison therewith which is located to engage the stop of the weighing mechanism, to thereby prolong the return movement of said weighing mechanism.

6. The combination, with a load-receiver and discharging means therefor, of weighing mechanism having a fixed stop; a movable regulator adapted to receive a load and be depressed thereby; and a carrier for said regulator, adapted to engage said stop on the discharge of a load, to thereby prolong the return movement of the load-receiver.

7. The combination, with weighing mechanism having a stop and comprehending a load-receiver and with discharging means for the latter, of an oscillatory regulator located to receive a load and to be depressed thereby; and a counterweighted carrier for said regulator, located to engage the stop of the weighing mechanism, to thereby retard the return movement thereof.

8. The combination, with weighing mechanism having a stop operative therewith and comprehending a load-receiver and with discharging means for the latter, of a regulator located to receive a load discharged by the weighing mechanism and to be depressed thereby; and a pivotally-supported counterweighted spider-frame the outside

members of which are connected to a regulator at opposite sides thereof.

9. The combination, with weighing mechanism having a headed bolt operative therewith and comprehending a load-receiver and with discharging means for the latter, of an oscillatory regulator having a member operative therewith which has an aperture through which said headed bolt is passed.

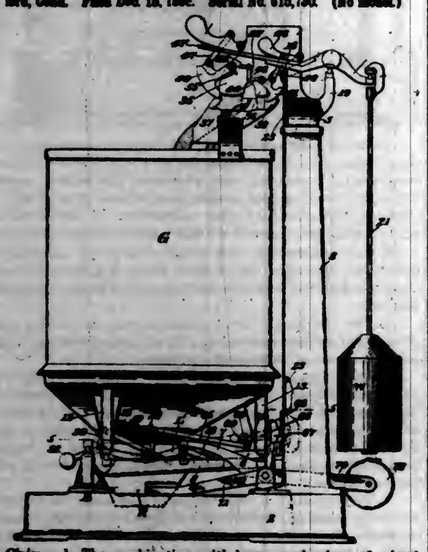
10. The combination, with a load-receiver and with a scale-beam therefor provided with a headed bolt, of a regulator and its carrying-frame provided with an aperture through which said headed bolt is passed.

11. The combination, with weighing mechanism having a fixed stop and comprehending a load-receiver and with discharging means for the latter; of means for engaging said stop when the load is discharged, to thereby retard the return movement of the load-receiver, said last-mentioned means including an oscillatory regulator-hopper.

12. The combination, with weighing mechanism including a load-receiver having a closer, of a stud on said closer; a hooked latch carried by the load-receiver, adapted to engage said stud; a latch-tripping device; a shaft carrying two arms one of which is disposed in the path of movement of said latch-tripping device; a connector pivoted to the other arm and also to the latch; and a counterweighted actuating-arm fixed to said shaft.

13. The combination, with beam mechanism and with a bucket supported thereby having a closer, of a closer-holding latch; a rock-shaft carried by the bucket and having a latch-actuator; a crank-arm on said shaft; a rod connecting said crank-arm with the latch; and a tripping device carried by the beam mechanism, for engaging said latch-actuator to thereby operate the latch.

585,970. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 15, 1896. Serial No. 615,730. (No model.)



Claim.—1. The combination, with beam mechanism, of a load-receiver supported thereby and having a discharge-outlet; a series of closers for the discharge-outlet, connected with the load-receiver and having interlocking stop faces located outside of the discharge-outlet and engaging each other when the respective closers are shut, said interlocking portions being disengaged on the opening of the closers; a crank-arm on one of the closers; and a link pivoted to the closer between its axis of movement and discharge edge, respectively, and also pivoted to said crank-arm and means for locking and unlocking the closers.

2. The combination, with a reciprocatory weighing-bucket having a discharge-outlet and with beam mechanism for supporting said bucket; of a series of closers for said outlet, connected with the bucket and each having a lug, one of said lugs being bent and adapted to engage over a pin on the other lug; a crank-arm secured to one of said closers; a link pivoted to the other closer, at a point between its ends, and also pivoted to said crank-arm; a latch mounted on the bucket, to engage one of the closers; a latch-actuator connected with said latch; and a tripping device on the beam mechanism, for operating the latch-actuator at a predetermined time.

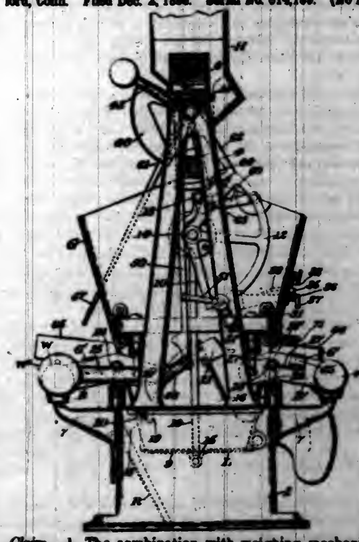
3. The combination, with a load-receiver and with a scale-beam, of a chute having a series of spouts, each of which is provided with a valve; actuators for said valves, connected thereto by links; a stop on the scale-beam, coöperative with said valve-actuators; a detent normally operative for maintaining one of the valves in its open position; and a detent-tripping device connected with the other valve.

4. The combination, with a load-receiver and with a scale-beam therefor, of a chute having a series of spouts for delivering material to the load-receiver; valves one for each of said spouts; valve-actuators connected to the valves by links; a detent normally operative for maintaining one of said valves in its open position; a detent-tripping device operative with the other valve; and a stop on the scale-beam, coöperative with the valve-actuators.

5. The combination, with a load-receiver and with a scale-beam therefor, of a chute having a series of spouts; valves, one for each of said spouts; valve-actuators; a detent located to engage a fixed arm on one of the valves; and a detent-tripping device operative with the other valve.

6. The combination, with a load-receiver having a series of stream-delivery plates and with a scale-beam, of a chute having a plurality of spouts located to deliver their streams to said plates; valves, one for each of said spouts; valve-actuators; a detent located to engage an arm on one of the valves; a detent-tripping device connected to the other valve; and a stop on the scale-beam, coöperative with the valve-actuators.

585,971. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 2, 1896. Serial No. 614,189. (No model.)



Claim.—1. The combination, with weighing mechanism including a bucket having an opening; of a door for said opening, hinged to the bucket; and locking means for said door, effective to block the opening movement thereof during the descent of the bucket and during the discharge of a load by the latter.

2. The combination, with weighing mechanism including a bucket having a closer and also having an opening in a wall, of a door for said opening; and locking means for said door, effective as such until the bucket has reached the limit of its upstroke.

3. The combination, with weighing mechanism including a bucket having an opening, of a door for said opening; and locking means for said door, effective as such until the bucket has reached a predetermined point in its movement and also operative to block the descent of the weighing mechanism when the door is opened.

4. The combination, of weighing mechanism including a bucket having an opening, of a door for said opening; and instrumentalities for blocking the descent of the weighing mechanism when the door is opened.

5. The combination, with weighing mechanism including a bucket having an opening; of a door for said opening, locking means for said door effective as such until the bucket has reached a predetermined point in its movement and also operative to block the opposite movement of the bucket when the door is opened.

6. The combination, with weighing mechanism including a bucket having an opening between its receiving and delivery ends, of a stream-controller; a door for said opening, hinged to the bucket; and locking means for said door, operative independently of the stream-controller and adapted to block the opening movement of said door during the descent of the bucket.

7. The combination, with beam mechanism and with a bucket supported thereby having a closer and also having an opening in a wall by which access may be had to the interior of the bucket; of a door for said opening, hinged to the bucket; a stream-controller; and locking means operative independent of the stream-controller and effective as such until the bucket has reached the limit of its upstroke, said locking means being also operable to prevent the descent of the bucket when the door is opened.

8. The combination, with a bucket and with beam mechanism for supporting the same for reciprocatory movement, said bucket having an opening; of a door for said opening; and a pair of oppositely-extending brackets, one of which is attached to the door, the other bracket being positioned to block the action of the bracket that is connected to the door until the bucket has reached a predetermined point in its movement.

9. The combination, with framework and with a bucket, of beam mechanism for supporting said bucket for reciprocatory movement, said bucket having an opening; of a door for said opening; and a pair of brackets attached, respectively, to the door and to the framework, one of which is positioned to limit the action of the other.

10. The combination, with a bucket and with beam mechanism for supporting the same for reciprocatory movement, said bucket having an opening; of a door for said opening; and a pair of coacting brackets one of which is attached to the door and has a curved pin.

11. The combination, with a bucket having a closer, of a toggle connected to the closer and located to hold the same shut; a stream-controller; and an actuating device carried by the bucket and operated by the stream-controller, for flexing the toggle.

12. The combination, with a bucket having a closer, of a toggle to lock said closer shut; a stream-controller; a lever on the bucket, operative to break one of the joints of said toggle and actuated by the power of the stream-controller.

13. The combination, with a bucket having a closer; of a toggle to lock said closer shut, one of the toggle members having a cam and the other constituting a stop; a stream-controller having a stop coöperative with the first-mentioned stop; and a device for riding along the face of said cam, to thereby break a joint of the toggle.

14. The combination, with a bucket having a closer; of a toggle to lock said closer shut, one of the toggle members having a cam and the other constituting a stop; a stream-controller having a stop coöperative with the first-mentioned stop; and a device for riding along the face of the cam, to thereby break a joint of the toggle, said device being operatively connected with the stop that is operative with the stream-controller.

15. The combination, with a bucket having a closer; of a toggle to lock said closer shut, one of the toggle members having a cam and the other constituting a stop; a stream-controller having a stop coöperative with the first-mentioned stop; a lever located to ride along the face of the cam, to thereby break a joint of the toggle; and a link jointed, respectively, to said lever and to the valve-operative stop.

16. The combination, with weighing mechanism including a shiftable load-discharge member having a flange thereon; of an adjacent swinging regulator located to receive a load of material from the weighing mechanism and having an arm which normally abuts against said flange, the latter having at one end an overrun face and into contact with which said arm may be thrust when the shiftable member has nearly reached the end of its movement by pressure of the discharging material against said regulator.

17. The combination, with weighing mechanism including a bucket having a closer provided with a flange; of a swinging regulator located adjacent to the closer, to receive the impact of a load of material discharged by the bucket and having an arm which normally abuts against said flange, the latter having at one end an overrun face into contact with which said arm may be thrust, when the closer has nearly reached the end of its opening movement, by the pressure of the discharging material against said regulator.

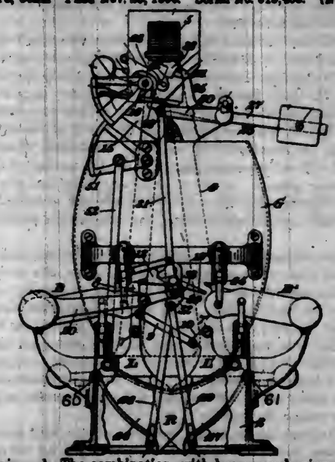
18. The combination, with weighing mechanism including a bucket having a closer provided with a segmental flange; of a swinging regulator located adjacent to the closer, to receive the impact of a load of material to the bucket and having an arm which normally abuts against said flange, the latter having at one end an overrun face in contact with which said arm may be thrust, when the closer has nearly reached the end of its opening movement, by the pressure of the discharging material against said regulator.

19. A guard for a scale-beam, consisting of a body portion or shank of resilient material and two alined knife-edge-protecting hoods extending therefrom and provided with curved portions at their free ends.

20. The combination, with a scale-beam having a knife-edge, of a guard consisting of a shank adapted to straddle the scale-beam and a knife-edge-protecting hood.

21. The combination, with a scale-beam having a knife-edge a portion of which is rounded, of a guard consisting of a shank adapted to straddle said scale-beam and a knife-edge-protecting hood provided with a curved portion which is contiguous to the rounded portion of the knife-edge.

585,972. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 26, 1896. Serial No. 613,408. (No model.)



Claim.—1. The combination, with beam mechanism and with a load-receiver supported thereby, of a supply-hopper; valve-opening mechanism including an auxiliary beam pivotally mounted on the beam mechanism for shifting movement relatively to said beam mechanism; and a regulator-hopper situated below the load-receiver and operable to shift and to hold said auxiliary beam in its shifted position and to also release the same.

2. The combination, with weighing mechanism comprehending a load-receiver and with a stream-controller, of stream-controller-actuating means including a member shiftably connected to the weighing mechanism; and a regulator consisting of two oscillatory sections, said regulator being operable to hold said shiftable member in its shifted position.

3. The combination, with a chambered supporting-base and with weighing mechanism including a load-receiver; of a regulator consisting of two hinged sections, supported within the chambered base and located to receive a load discharged by the load-receiver.

4. The combination, with a chambered supported base and with a load-receiver; of a regulator consisting of two hinged counterweighted sections, located within the chambered base and to receive a load discharged from the bucket.

5. The combination, with a chambered base and with weighing mechanism including a load-receiver; of a regulator consisting of two hinged sections, supported within the base and located to receive a load discharged by the bucket; and operative connections between the regulator and the weighing mechanism.

6. The combination, with weighing mechanism including a load-receiver, of a valve; a valve-actuating member shiftably supported by the weighing mechanism; and a regulator located to receive the contents discharged by the load-receiver and to shift and to hold said valve-actuating member in its shifted position as the weighing mechanism returns to its initial position.

7. The combination, with a load-receiver, of a series of scale-beams therefor two of which are connected and one of which constitutes a valve-actuator; a valve; and instrumentalities operative independent of the scale-beams, for shifting the connected members thereof.

8. The combination, with weighing mechanism including a series of scale-beams two of which are connected and one of which constitutes a valve-actuator, of a sliding weight carried by one of said scale-beams; a valve; and instrumentalities operative independent of the weighing mechanism, for shifting said connected scale-beams.

9. The combination, with weighing mechanism comprehending a plurality of scale-beams, two of which are operatively connected; of a stream-controller operated by a device on one of the scale-beams; and instrumentalities independent of the weighing mechanism, for shifting said scale-beams.

10. The combination, with a load-receiver and with stream-supplying means therefor, of a stream-controller; an actuator for advancing the same, to stop the supply to the load-receiver; a pair of coöperative dogs one of which is situated to hold the stream-con-

troller, said dog being held against action by the other dog at a predetermined point.

11. The combination, with weighing mechanism including a load-receiver and with stream-supplying means for said load-receiver, of a stream-controller and an actuator for advancing the same to stop the supply of material to the load-receiver; a pair of cooperative dogs, one of which is situated to hold the stream-controller; and instrumentalities operative with the weighing mechanism, for blocking the action of the other dog.

12. The combination, with a load-receiver and with a hopper for delivering a stream of material to said load-receiver, of a stream-controller and an actuator for advancing the same to stop the supply of material to the load-receiver; a pair of cooperative dogs mounted on the hopper, one of them being situated to hold the stream-controller and instrumentalities for blocking the action of the other dog.

13. The combination, with weighing mechanism including a bucket and with stream-supplying means for the bucket, of a valve; a valve-closing actuator; a pair of cooperative dogs, one of which is situated to intercept the valve at a predetermined point in its closing movement; and instrumentalities for blocking the action of the other dog.

14. The combination, with weighing mechanism including a load-receiver and with stream-supplying means therefor, of a stream-controller and an actuator for advancing the same, to stop the supply of material to the load-receiver; a dog having a stop-face merging in a notch and also having a shoulder; a second dog having two legs one of which is in contact with said shoulder, the other leg being provided with a lug; a stud on the valve, positioned to engage said lug; and a member operative with the weighing mechanism and adapted to travel along said stop-face to a point opposite said notch, to thereby release the valve.

15. The combination, with a load-receiver and with stream-supplying means therefor, of a stream-controller and an actuator for advancing the same, to stop the supply to the load-receiver; a dog having a stop-face and also having a notch; an arm on the beam, adapted to travel along said stop-face, to block the action of said dog and having a movement to a point opposite to said notch, to release the dog; and a device intermediate said dog and the stream-controller and positioned to be held by said dog and to also block the action of the stream-controller.

16. The combination, with a load-receiver and with a regulator therefor, of two cooperative scale-beams; a rod jointed to one of said scale-beams and having a notch located to receive the other scale-beam; and an operative connection between said rod and the regulator.

17. The combination, with a load-receiver and with a regulator therefor, of two cooperative scale-beams; a rod pivoted to one of said scale-beams and enlarged at its lower end and having a notch in said enlarged portion to receive the other scale-beam; and a connection between said rod and regulator.

18. The combination, with a bucket and with a series of supporting scale-beams therefor, one of which carries an auxiliary beam; of a second auxiliary beam having a rod pivoted thereto in which is formed a notch located to receive the first-mentioned auxiliary beam; a regulator for the bucket; and a connection between said regulator and the rod.

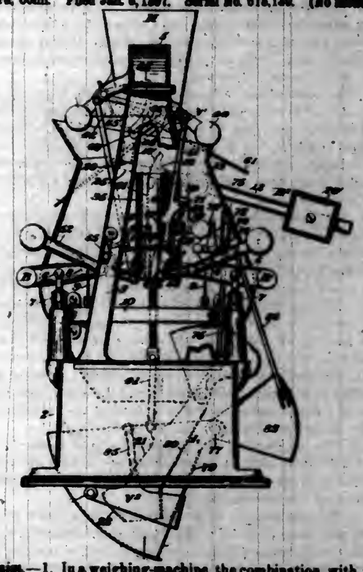
19. The combination, with a bucket and with beam mechanism therefor comprehending a pair of scale-beams to one of which is pivoted a rod having a notch located to receive the other beam; of a regulator for the bucket, consisting of two sections to each of which is connected a link, the opposite ends of said link being jointed to said rod.

20. The combination, with weighing mechanism including a shiftably-supported beam and a load-receiver and with stream-supplying means for said load-receiver; of a stream-controller and its actuator located to advance the same, to stop the supply to the load-receiver; a pair of cooperative dogs, one of which is situated to intercept the stream-controller; and instrumentalities operative with the weighing mechanism, for blocking the action of the other dog; a regulator for the load-receiver; and an operative connection between said regulator and said shiftable beam.

21. The combination, with a bucket and beam mechanism therefor; of a pair of operatively-connected closers for the bucket, one of which has a rigid arm; a latch located to engage said arm; a stop on the bucket; a connection between said stop and one of the closers; a stream-controller having a stop located to coact with the first-mentioned stop; and a tripper for the latch, carried by the beam mechanism.

22. The combination, with beam mechanism including a series of bucket-supporting main beams and a pair of auxiliary operatively-connected beams; of a regulator operatively connected to said auxiliary beams; a pair of closers for the bucket, connected by a link; a latch for engaging a member operative with one of said closers; a stop carried by the bucket; a connection between said stop and the closers; a stream-controller having a stop located to coact with said first-mentioned stop; and a latch-tripper carried by a main beam.

585,973. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Jan. 6, 1897. Serial No. 618,130. (No model.)



Claim.—1. In a weighing-machine, the combination, with a load-receiver having a counterweighted shiftable load-discharge member and with a supply apparatus having a valve and means for actuating said valve, of a dash-pot comprising a piston-cylinder having a valve-chest and also having a piston in direct connection with the load-discharge member; a fluid-valve located in said valve-chest; means controlled by the supply-valve, on the closing movement thereof, for actuating the fluid-valve to effect an opening movement of the load-discharge member; and means in connection with and controlled by the fluid-valve and load-discharge member, on the opening movement thereof, for locking the supply-valve against opening movement until the load-discharge member is in its fully-closed position.

2. The combination, in a weighing-machine, of a load-receiver having a load-discharge member or closer; a supply-valve; valve-actuating means; a fluid-controller having a piston in direct connection with said closer; and a fluid-controlling valve actuated by the supply-valve, on the closing movement thereof, to effect a closer-opening movement of said piston.

3. A weighing-machine comprising a load-receiver having a shiftable load-discharge member; a supply apparatus having an oscillatory valve; a piston-cylinder having a valve-chest with port-passages communicating at opposite ends of said cylinder; a piston working in said cylinder and having a piston-rod in operative connection with the load-discharge member; a fluid-valve supported for rotative movement in the valve-chest and having ports adapted for simultaneously communicating with the two port-passages; means controlled by the supply-valve, for imparting an opening movement to the fluid-valve to effect an opening movement of the load-discharge member; means carried by the load-discharge member, for imparting a closing movement thereto; a counterweighted fluid-valve-closing actuator; means controlled by the fluid-valve, on the opening movement thereof, for locking the supply-valve in its closed position; and means controlled by the load-discharging member, on the closing movement thereof, for unlocking the supply-valve.

4. In a weighing-machine, the combination, with two independent shiftable members, of a fluid-controller having a piston in operative connection with one shiftable member and also having a rotary fluid-controlling valve; means controlled by the other shiftable member, for imparting a rotative movement to the valve in one direction; means carried by the valve, for imparting to said valve a rotative movement in an opposite direction; and means for locking the valve temporarily in one of its positions.

5. The combination, in a weighing-machine, of a load-receiver having a shiftable discharge member; a supply apparatus having a shiftable stream-controller; a fluid-controller having a piston in operative connection with the load-discharger and having a fluid-controlling valve; means in connection with, and operated by, the stream-controller, for actuating the valve to facilitate a movement of the piston in one direction; means for temporarily locking the valve in this position; and means for effecting a movement of the valve in the opposite direction on the release of the locking means.

6. The combination, in a weighing-machine, of a load-receiver having a shiftable closer; load-supply means having a shiftable stream-controller; a dash-pot or fluid-controller having a piston in operative connection with the closer and also having a gravitative fluid-controlling valve; means operated by the stream-controller, on a closing movement thereof, for imparting an opening movement to the fluid-valve in one direction; a latch for locking the valve in its open position; and means controlled by the closing movement of the closer, for releasing the latch to facilitate a closing movement of said valve.

7. A weighing-machine comprehending a load-receiver having a shiftable discharger; a supply apparatus having a shiftable stream-controller; a fluid-controller embodying a piston in operative connection with the discharger; and a fluid-controlling valve for establishing and cutting off, alternately, communication between the upper and lower portions of the piston-cylinder; actuating means for the stream-controller; a thrust-rod carried by the stream-controller and effective for imparting an opening movement to the fluid-valve; a latch for locking the fluid-valve in its open position; means carried by the fluid-valve, for locking the stream-controller in its closed position; a latch-actuator carried by the load-discharger and effective, on the closing movement of said discharger, for actuating the latch to release, and facilitate a closing movement of, the fluid-valve and simultaneously unlock the stream-controller, to permit an opening movement thereof.

8. The combination, in a weighing-machine, of a load-receiver having a closer or discharge member; a supply apparatus having a shiftable stream-controller; a fluid-controller having a piston in operative connection with the closer and also having a rotative valve; an actuating member carried by the stream-controller, for imparting an opening movement to the valve on the closing movement of said controller, to thereby facilitate an opening movement of the closer; a gravitative locking device or latch for locking the fluid-valve in its open position; a latch carried by the fluid-valve, for engaging the actuating member and for locking the stream-controller temporarily in its closed position; means for imparting a closing movement to the closer; and means controlled by the closer, on the closing movement thereof, for releasing the fluid-valve-locking device; and means effective, on the release of said locking device, for imparting a closing movement to the valve and for simultaneously releasing the latch thereof from engagement with the actuating member of the stream-controller.

9. A weighing-machine comprehending a load-receiver having a load-discharge member; a supply apparatus having a stream-controlling mechanism; a fluid-controller having a piston in operative connection with the load-discharge member; a valve actuated by the stream-controlling mechanism and embodying means for locking the stream-controlling mechanism in one position; and means controlled by the closing movement of the closer, for effecting an unlocking movement of the fluid-valve and to thereby lock the closer in its closed position.

10. In a weighing-machine, the combination, with a load-receiver having a discharge-opening, of a closer pivotally supported on said load-receiver and having a plate or bottom wall adapted for covering the discharge-opening of said load-receiver and also having at the discharge end thereof a spout having a bottom wall which is downwardly inclined with respect to the plane of the closer-plate and conjugate thereto, and having a curved upper plate for controlling the volume of the stream as it flows from the closer; and means for actuating said closer.

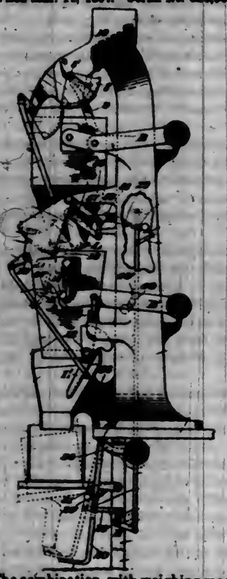
11. In a weighing-machine, the combination, with a load-receiver having a discharge member, of a regulator-hopper pivotally supported below said receiver and discharge member and having a discharge-opening; and a valve pivotally carried on said regulator-hopper in position to cover the discharge-opening thereof and having a pivotal connection with a fixed portion of the framework of the machine, whereby, on the descending movement of the regulator-hopper, its opening movement will be imparted to the hopper-valve.

12. In a weighing-machine, the combination, with the framework and with weighing mechanism embodying a load-receiver having a closer, of a counterweighted regulator-hopper pivotally supported on the framework and having a discharge-opening; a valve pivotally carried on the hopper and having a plate for closing the discharge-opening; and a link pivotally connected to the framework at one end and at its opposite end to the valve in such manner that an opening movement will be imparted to the valve on the descending movement of the hopper and a closing movement will be imparted thereto on the ascending movement of said hopper.

13. In a weighing-machine, the combination, with the framework thereof, of a hopper having two side walls connected together by a substantially straight bottom wall having an opening in one end thereof and a curved end wall terminating in juxtaposition to the opening in the straight wall; a valve pivotally supported on the side walls of the hopper and having a closer-plate located in position to close the bottom wall of said hopper; and a link pivotally connecting the valve to the framework in such manner that a descending movement of the hopper will effect an opening movement of the valve and an ascending movement of said hopper will effect a closing movement of said valve.

14. The combination, with beam mechanism and with a load-receiver having a discharge member, of a regulator-hopper pivotally supported under the load-receiver and having a valve-regulated opening; a valve pivotally carried on said hopper; an actuating-connector between the valve and a fixture of the framework of the machine and adapted for effecting an opening movement of the valve simultaneously with the discharge movement of the hopper; and a link connecting the hopper and beam mechanism.

585,974. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 11, 1897. Serial No. 626,960. (No model.)



Claim.—1. The combination, with weighing mechanism embodying a load-receiver, of a table for supporting a receptacle; a treadle adapted to uphold said table; and means for effecting the discharge of said load-receiver, said means being connected with the treadle for operation.

2. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of a table for supporting a receptacle; a treadle adapted to uphold said table; and means for opening said closer, said means being connected with the treadle.

3. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of a lever connected with said closer; a table for supporting a receptacle; a treadle adapted to uphold said table; and a device connected with the treadle for engaging said lever.

4. The combination, with a load-receiver having a closer, of a scale-beam for supporting said load-receiver; a valve having an arm movable therewith; a cooperating arm rigid with said scale-beam for controlling the actions of the valve; a table for supporting a receptacle; a treadle adapted to uphold said table; and means for operating said closer, said means being connected with the treadle for operation.

5. The combination, with weighing mechanism embodying a load-receiver, of a table for supporting a receptacle, said table having a cam; a treadle having a projection cooperative with said cam; and means for effecting the discharge of said load-receiver, said means being connected with the treadle for operation.

6. The combination, with weighing mechanism including a load-receiver, of a table for supporting a load-receiver, said table having cams thereon; a shaft furnished with a rod and with a treadle, said rod and treadle having projections cooperative, respectively, with said cams; and means connected with said rod for effecting the discharge of the load-receiver.

7. The combination, with weighing mechanism including a load-receiver, of a table for supporting a receptacle, said table having cams; a shaft; a rod and a treadle fixed to said shaft, said rod and treadle having projections thereon cooperative with the cams; and a second rod provided with means for effecting the discharge of the load-receiver, said rod being connected with the first-mentioned rod for operation.

8. The combination, with weighing mechanism embodying a load-receiver, of a tilting table for supporting a receptacle; a shaft and a rod and a treadle having projections cooperative with cams on the tilting table; a lever connected with said rod by a link; and a second rod attached to said lever, said rod carrying means for effecting the discharge of the load-receiver.

9. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of a rocking lever connected with said closer; a table for supporting a receptacle, said table having cams thereon; a shaft; a rod and a treadle fixed to said shaft and having projections cooperative, respectively, with said cams; a lever; a link connecting one arm of the lever with said rod; a second rod connected with the other arm of said lever; and a by-pass device on said rod for operating said rocking lever.

10. The combination, with weighing mechanism embodying a load-receiver, of a table for supporting a receptacle; a treadle adapted to uphold said table and shiftable in one direction to elevate the table; means for oppositely shifting said treadle; and instrumentalities connected with said treadle for effecting the discharge of the load-receiver.

11. The combination, with weighing mechanism embodying a load-receiver, of a tilting table for supporting a receptacle; a treadle adapted to uphold said table; a counterweight connected with the treadle; and means for effecting the discharge of said load-receiver, said last-mentioned means being also connected with the treadle for operation.

12. The combination, with weighing mechanism including a load-receiver, of a table for supporting a receptacle; a treadle adapted to uphold said table; means connected with said treadle for effecting the discharge of said load-receiver; independently-operative weighing mechanism also including a load-receiver; and instrumentalities cooperative with the first-mentioned weighing mechanism for effecting the discharge of the load-receiver of the last-mentioned weighing mechanism.

13. The combination, with a load-receiver and with a supporting scale-beam therefor, of a second load-receiver also having a supporting scale-beam and each of the load-receivers having a closer; means for opening the closer of the first-mentioned load-receiver; a rod connected with the first-mentioned closer; and a stop on the second-mentioned beam for engaging said rod on the opening of the first-mentioned closer for also releasing said rod at a predetermined time.

14. The combination, with a load-receiver and with a supporting scale-beam therefor, said load-receiver having a closer, of a second load-receiver also having a supporting scale-beam, said load-receiver having a closer and also having means for holding the same against movement, said means including a latch; a table; a treadle adapted to uphold the table; means connected with said treadle for opening the first-mentioned closer; and instrumentalities operative with the latter for tripping said latch.

15. The combination, with a load-receiver and with a supporting scale-beam therefor, said load-receiver having a closer, of a second load-receiver having a supporting scale-beam and also provided with a closer; instrumentalities including a latch, for holding said last-mentioned closer against movement; a table for supporting a receptacle; a treadle adapted to uphold said table; means connected with said treadle for opening the first-mentioned closer; a rod connected with the latter; a stop on the second-mentioned scale-beam for engaging said rod and for also releasing the same at a predetermined time; and means on said rod adapted to trip said latch.

16. The combination, with two weighing mechanisms one of which is located over, and is adapted to discharge the contents of, the other; a discharge-hopper located below the lower weighing mechanism; a table for supporting a receptacle; a treadle adapted to uphold said table; and means for discharging the upper weighing mechanism, said means being connected with the treadle for operation thereby.

17. The combination, with a load-receiver having a closer provided with a crank-arm, of an interlocking stop on the framework, said interlocking stop being furnished with a crank-arm connected with the first-mentioned crank-arm; and a second load-receiver also having a closer provided with an interlocking stop which is cooperative with the first-mentioned interlocking stop.

585,975. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Oct. 5, 1896. Serial No. 607,863. (No model.)

Claim.—1. In a weighing-machine, in combination, a supply apparatus comprising a casing having two independent parallel compartments that communicate with each other at opposite ends; a feeder supported in one of said compartments; means for continuously driving said feeder during the operation of the machine; and a valve for controlling the discharge of the material from the casing, the construction thereof being such that when the valve is closed or partially closed the feeder will cause the material to travel in a circuit through both compartments of the casing.



2. The combination, with weighing mechanism embodying a load-receiver, of a supply apparatus comprising a casing having inlet and discharge openings and also having a transversely-disposed screw-receiving compartment and a conduit in communication with opposite ends of said compartment; a continuously-driven screw-feeder mounted within the said compartment; means for continuously rotating said feeder during the operation of the machine; and a valve for controlling the discharge of material from the casing, whereby material will, when said valve is closed or partially closed, be caused to travel from the receiving end of the screw-compartment to the discharge end thereof and thence backward through the conduit to the receiving end of said compartment.

3. The combination, with weighing mechanism embodying a reciprocatory bucket, of a supply apparatus located above said bucket and comprising a casing having inlet and outlet openings and also having at the lower portion thereof two horizontally-parallel compartments separated from each other by a vertical partition and each communicating with the other at opposite ends thereof; a feeder mounted in one of said compartments; means for continuously driving said feeder while the machine is in operation; an oscillatory valve for governing the exit of material from the discharge-opening; and a valve-actuator effective on the descending movement of the bucket for imparting a progressive-feed-reducing movement to the valve, and whereby when said valve is closed the feeder will cause the material to have a circuitous movement through the two compartments.

4. The combination, with weighing mechanism embodying a load-receiver, of a supply apparatus supported above said receiver and comprising a casing having inlet and outlet openings and also having a feeder-supporting compartment and an independent conduit communicating with opposite ends of said feeder-compartment; a feeder supported in said compartment; means for actuating said feeder; and a valve for closing the discharge-opening, whereby when said valve is closed or partially closed material will be forced from the receiving end to the discharging end of the feeder-compartment and thence through the conduit to the receiving end of said feeder-compartment.

5. The combination, with weighing mechanism including a bucket, of feed mechanism comprehending a feed-casing having an inlet and a discharge opening and also having a series of compartments one of which is adapted for receiving a feeder; a feeder supported for rotative movement in one of said compartments; means for continuously rotating the feeder during the weighing operation; a valve pivotally supported for oscillatory movement with relation to the discharge-opening of the feed-casing; and a valve-actuator adapted on the descending movement of the bucket for imparting to said valve a closing movement of differential velocities.

585,976. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 13, 1896. Serial No. 612,563. (No model.)

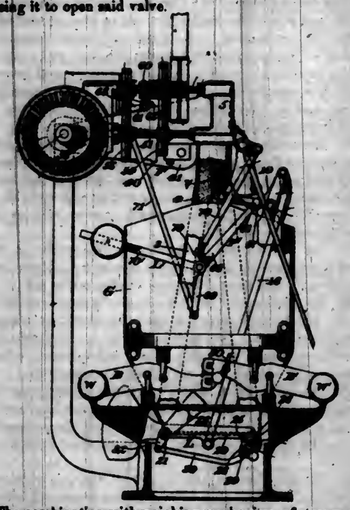
Claim.—1. The combination, with weighing mechanism, of a feeder; driving mechanism for actuating said feeder; means for stopping the feeder on the completion of a load; a flexible valve; and instrumentalities controlled by the weighing mechanism, for actuating said valve on the stoppage of the feeder, whereby it is adapted to catch material passing therefrom.

2. The combination with weighing mechanism, of stream-supplying means: an extensible valve attached at one end to the framework of said weighing mechanism; and a movable actuator fixed to the opposite end of the valve and acting both to open and close the same, said actuator being controlled by the weighing mechanism.

3. The combination with weighing mechanism, of stream-supplying means; a flexible valve attached at one end to a fixed part; and a movable actuator controlled by the weighing mechanism and attached to the opposite end of said valve, said actuator acting both to open and close the valve.

4. The combination, with weighing mechanism, of stream-supplying means; a flexible valve attached at one portion to a fixed part; and a counterweighted valve-actuator connected to another portion of said valve and acting both to open and to close the same.

5. The combination with weighing mechanism, of stream-supplying means; a flexible valve attached at one end to the framework of said weighing mechanism; a counterweighted rocking frame having a member connected to the valve, to thereby close the same; and means controlled by the weighing mechanism for operating said frame and causing it to open said valve.



6. The combination with weighing mechanism, of stream-supplying means therefor including a feed-conveyer: driving mechanism for said conveyer embodying a shaft and two loose power-transmitting members; a coupling device intermediate said power-transmitting members; an oscillatory actuator controlled by the weighing mechanism and connected to said coupling device; and a flexible valve operated by said actuator.

7. The combination, with two members one of which is shiftably connected to the other for reciprocatory movement, of a wiper carried by one of said members; and means supported by the wiper-carrying member, for actuating said wiper.

8. The combination, of a bucket having a depending lip and a closer hinged to said bucket and provided with a wiping-roll at its discharge edge which is contiguous to said depending lip when the closer is shut.

9. The combination, with two members one of which is shiftably carried by the other, of a wiper between said members, and mechanism for effecting an intermittent movement of said wiper.

10. The combination, with a reciprocatory weighing-bucket having a closer shiftably connected thereto, of a wiper carried by one of said parts; and a pawl-and-ratchet mechanism for actuating said wiper.

11. The combination, with a bucket, of a closer shiftably connected thereto and having a wiping-roll mounted thereon; a ratchet carried by the shaft of the roll; and an actuating-pawl for said ratchet.

12. The combination, with a bucket, of a closer shiftably connected thereto and having a wiping-roll mounted thereon, of cooperatively-connected links one of which is loosely jointed to the shaft of said roll and the other of which is connected to the resistance member; and an actuating member for said wiping-roll, cooperative with said links.

13. The combination, with a bucket, of a closer connected thereto by means including a bracket; a roll mounted on the closer; two cooperatively-connected links jointed, respectively, to the bracket and the shaft of the roll; and an actuating device for the roll, cooperative with said links.

14. The combination, with a bucket, of a closer shiftably connected thereto for reciprocatory movement; a wiper mounted on said closer; and means for actuating said wiper on one of the strokes of the closer.

15. The combination, with a bucket, of a closer shiftably connected thereto for reciprocatory movement; a wiper mounted on said closer; and means for actuating said wiper during the shutting movement of the closer.

16. The combination, with weighing mechanism and with stream-supply means therefor comprehending a feed-conveyer; of driving mechanism for said feed-conveyer, including a shaft and two loose power-transmitting members; a coupling device intermediate said power-transmitting members; an oscillatory member operative with the weighing mechanism and having a projection; and an operative connection between said projection and the coupling device.

17. The combination, with weighing mechanism and with stream-supply means therefor comprehending a feed-conveyer; of driving mechanism for said conveyer, embodying two shafts provided with differential meshing gears two of which are loose on one of the shafts; a slidable coupling device between said loose gears located to alternately engage the same; an oscillatory member cooperative with the weighing mechanism and having a projection; and a connection between said projection and the coupling device.

18. The combination, with weighing mechanism and with stream-supply means comprehending a feed-conveyer; of driving mechanism for said feed-conveyer, including a shaft carrying two loose power-transmitting members; a coupling device intermediate said power-transmitting members and having three distinct shifts on two of which it is adapted to alternately engage the power-transmitting members and on the third to be thrown into an ineffective position; and coupling-device-actuating instrumentalities cooperative with, and controlled by, the weighing mechanism.

19. The combination, with weighing mechanism, of stream-supply means; and a valve consisting of a pliable strip of material attached at one end to a fixed part and at the other end to a member cooperative with the weighing mechanism and constituting a valve opening and closing device.

20. The combination, with weighing mechanism, of stream-supply means comprehending a feed-conveyer; feed-conveyer-driving mechanism including a shaft carrying two loose power-transmitting members; a coupling device for alternately engaging said power-transmitting members; a flexible valve and its actuating device; and an operative connection between said valve-actuating and said coupling devices.

21. The combination, with weighing mechanism and with stream-supplying means therefor, of a loosely-hanging flexible valve connected at one end to a fixed part; and a valve-actuating device attached to the other end of said valve, said actuating device being controlled by the weighing mechanism.

22. The combination, with weighing mechanism and with stream-supplying means therefor, of a loosely-hanging flexible valve connected at one end to a fixed part; and a rocking frame having a member to which the other end of said valve is attached, said rocking frame being controlled by the weighing mechanism.

23. The combination, with weighing mechanism and with stream-supply means, of a flexible valve connected to a relatively-fixed part and hanging loosely therefrom; a rocking frame provided with a metallic strip to which said valve is attached.

24. The combination, with weighing mechanism and with a feed-conveyer and its driving mechanism comprehending two loose power-transmitting members and an intermediate coupling device; of an oscillatory member having a projection; and a rod operatively connected to said oscillatory member and to the coupling device, whereby the latter will be given three distinct shifts on each stroke of said oscillatory member.

25. The combination, with two members one of which is shiftable with respect to the other for reciprocatory movement, of a rotary wiper carried by one of said members; and means supported by the wiper-carrying member, for rotating said wiper.

26. The combination, with a bucket having a discharge-outlet, of a reciprocatory closer therefor having a movable discharge edge; and means for intermittently imparting a step-by-step action to said discharge edge.

585,977. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 13, 1896. Serial No. 612,016. (No model.)

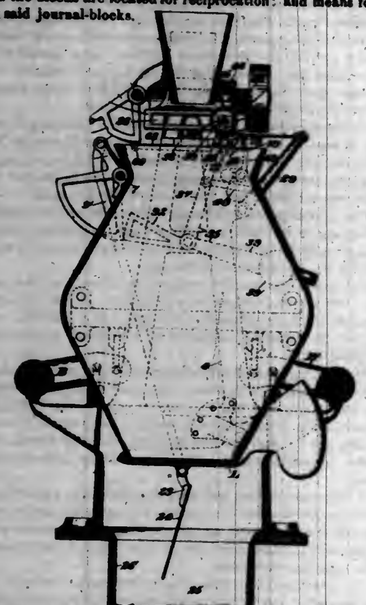
Claim.—1. The combination, with weighing mechanism, of stream-supplying means therefor; a flexible stream-controller fastened at one end to a fixed part adjacent to said stream-supplying means and at its other end connected with a reciprocatory member of the weighing mechanism; and means for engaging said stream-controller between its ends.

2. The combination, with weighing mechanism including a load-receiver, of a hopper; a flexible valve for said hopper, secured at one end to a fixed part adjacent to said hopper; a retracting device controlled by the weighing mechanism, secured to the opposite end of said valve; and means for engaging the valve between its ends to carry it across the discharge-orifice of the hopper.

3. The combination, with weighing mechanism including a load-receiver, of a hopper; a flexible valve for said hopper; means for carrying the valve across the discharge-orifice of said hopper; independent means for retracting the valve; and instrumentalities for blocking the action of said valve-retracting means on the discharge of a load.

4. The combination, with a hopper, of a flexible valve therefor; a roll for carrying the valve across the discharge-orifice of said hopper; and means independent of said roll for retracting the valve.

5. The combination, with a hopper, of a flexible valve for said hopper; a roll for carrying the valve across the discharge-orifice of the hopper; journal-blocks carrying the shaft of the roll; ways in which the blocks are located for reciprocation; and means for operating said journal-blocks.



6. The combination, with weighing mechanism, of a supply-hopper; a flexible valve attached at one end to a fixed part; a device for engaging said valve between its ends; a pin cooperative with said device; a screw; means for effecting an engagement between said pin and screw, whereby the valve can be advanced to stop the stream from the hopper; and means operative with the weighing mechanism, for retracting said valve.

7. The combination, with a hopper, of a flexible valve attached at one end to a fixed part; a valve-retracting device secured to the opposite end of said valve; a valve-advancing device for engaging the valve between its ends; and means controlled by the weighing mechanism, for operating said valve-advancing device.

8. The combination, with a hopper, of a flexible valve therefor fastened at one end to a fixed part adjacent to the hopper; a retracting device secured to the free end of said valve; a roll for engaging said valve between its ends; and means for operating said roll to thereby advance the valve.

9. The combination, with a hopper, of a flexible valve therefor; means for closing said valve, including a compound screw for imparting differential movements to the valve; and means for intercepting the progress of said valve at a predetermined point in the operation thereof.

10. The combination, with a hopper, of a valve therefor; a pin operative with the valve; a compound screw; and means for causing the pin to engage said screw.

11. The combination, with a hopper, of a valve therefor, a pin operative with said valve; a screw consisting of two sections; and means for successively causing said pin to engage said screw-sections.

12. The combination, with a hopper, of a valve therefor; a screw consisting of two sections of different diameters; a pin operative with the valve; and means for closing said pin, to successively engage said screw-sections.

13. The combination, with a hopper, of a valve therefor; a screw consisting of two sections; a pin operative with the valve; means for causing said pin to successively engage said screw-sections; and means for interrupting the movement of the pin when it passes out of contact with one of said sections.

14. The combination, with a hopper, of a valve therefor; a pin operative with said valve; a compound screw provided with a switch; and means for causing said pin to engage said screw.

15. The combination, with a hopper, of a valve therefor; a screw of variable pitch having a switch; a pin operative with the valve; a second screw-section of greater pitch than the other; and means for causing said pin to successively engage said screw-sections.

16. The combination, with a valve, of a pin operative therewith; a screw; and means for causing said pin to engage the screw, said screw having a cam adapted to retract the pin, whereby it may be carried beyond the effective range of action of the thread thereof.

17. The combination, with a valve, of a pin operative therewith a screw having a cam; means for causing said pin to engage the screw, the cam of said screw being adapted to retract the pin, whereby it may be carried beyond the effective range of action of the thread thereof; and a latch for holding the pin in such retracted position.

18. The combination, with a hopper, of a valve therefor; a screw consisting of two sections of different pitches; and a pin operative with the valve and located to engage successively said screw-sections.

19. The combination, with a valve, of a screw consisting of two sections; and an intermediate device operative with the valve and located to successively engage said screw-sections.

20. The combination, with a hopper, of a flexible valve fastened at one end to a fixed part adjacent to the hopper; a retracting device secured to the opposite end of said valve; a roll for engaging said valve between its ends; a pin operative with said roll; a screw; and means for effecting an engagement between said pin and screw to thereby advance the valve.

21. The combination, with a valve, of a screw; a sliding pin located to engage said screw; and a carrier for said pin, said carrier being movable in a plane transverse to that of the pin.

22. The combination, with a valve, of a screw consisting of two sections; an intermediate device operative with the valve and located to successively engage said screw-sections; and instrumentalities for preventing retractive movement of said valve-operative device when it passes out of contact with one of the screw-sections.

23. The combination, with a valve, of a screw; a pin and its carrier, said pin being adapted to engage the screw and terminating in a guide; a plate embraced by said guide; and plate-operating means whereby the pin may be carried into engagement with the thread of said screw.

24. The combination, with a valve, of a screw; a pin and its carrier, said pin being adapted to engage the screw and terminating in a guide; a self-acting plate embraced by said guide; and a stop for normally limiting the effective action of said plate whereby the pin may be held beyond the range of action of the screw.

25. The combination, with a hopper, of a flexible valve fastened at one end to the framework adjacent to said hopper; a screw; a sliding pin and its carrier; a plate jointed to said pin; means for actuating the plate, to carry the pin into engagement with said screw; and a device connected with the plate, for advancing the valve when the screw is engaged by said pin.

26. The combination, with a valve, of a screw; a pin and its carrier, said pin being adapted to engage the screw and being connected to a plate which has a projecting arm; and a notched rocking stop adapted to engage said projecting arm and to subsequently release the plate.

27. The combination, with weighing mechanism, of a hopper; a valve for said hopper; a screw; a pin located to engage said screw, said pin being connected to a plate which has a projection; and a rocking stop provided with a notch, said stop being normally operable to hold the plate, and consequently the pin, beyond the range of action of the screw.

28. The combination, with weighing mechanism, of a hopper; a flexible valve secured at one end to the framework adjacent to said hopper; a movable device for engaging said valve, and having a shaft; reciprocatory journal-blocks for supporting said shaft, one of said journal-blocks having a pin or projection operative therewith; means engaging said pin or projection, to thereby advance the valve; means for blocking the retractive movement of the valve during the discharge of a load; and a valve-retracting device.

29. The combination, with a hopper, of a flexible valve; a movable device for engaging said valve and having a shaft; reciprocatory journal-blocks for supporting said shaft, one of said journal-blocks having a pin or projection operative therewith; and a screw for engaging said pin or projection, to thereby actuate the valve.

30. The combination, with a valve, of a screw having sections of different diameters; a pin operative with the valve and located to successively engage said screw-sections; a plate to which the pin is joined, said plate having an arm; and a stop for limiting the action of said plate, said stop being provided with a series of notches.

31. The combination, with weighing mechanism, of a hopper; a flexible valve; a compound screw; a pin; means for actuating said pin to carry it into engagement with the screw; a stop for normally holding said pin against movement; and means operative with the weighing mechanism, for subsequently releasing said pin.

32. The combination, with a hopper, of a valve; a screw; a pin located to engage said screw; a plate to which said pin is joined; means for depressing said plate, whereby the pin will be disconnected from said screw; a latch for engaging and holding said plate when depressed; and a latch-tripping device operative with the pin.

33. The combination, with a hopper, of a valve; a screw; a pin operative with the valve and located to engage said screw; a pin-carrier in which said pin is longitudinally reciprocatory; a plate to which said pin is joined for reciprocation transverse to its effective movement; means for depressing said plate, whereby the pin will be disconnected from the screw; a latch for engaging and holding said plate when thus depressed; and a latch-tripping device on the pin-carrier.

34. The combination, with weighing mechanism; of, a hopper; a flexible valve for said hopper; a movable device for engaging said valve between its ends; and a retracting device controlled by the weighing mechanism, connected to said movable device.

35. The combination, with weighing mechanism, of a hopper; a flexible valve for said hopper; a movable device located to engage the valve, to close the same; and a pair of connected frames controlled by the weighing mechanism, one of which is attached to said movable device and is adapted to retract the valve.

36. The combination, with weighing mechanism, of a hopper; a flexible valve for said hopper; a movable device located to engage the valve, to close the same; two rocking frames, one of which is counterweighted and is connected with said movable device, and the other frame being connected with one end of the valve; and a link attached to said rocking frames.

37. The combination, with weighing mechanism including a shiftable load-discharge member, of a hopper; a flexible valve therefor; a movable device located to engage said valve between its ends, to close the same; a counterweighted frame connected to said valve for retracting the same, said frame having a stop; and a cooperative stop operative with the shiftable load-discharge member.

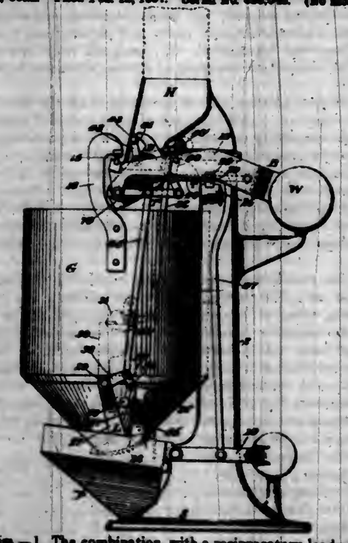
38. The combination, with weighing mechanism comprehending a shiftable load-discharge member, of a hopper and its valve having a stop operative therewith; a coacting stop operative with the shiftable load-discharge member; valve-closing means comprehending an actuating-screw and an engaging pin therefor; a pin-limiting stop mounted on a shaft and having a rod; a shiftable actuator in operative relation with said rod; and a second pair of coacting stops operative, respectively, with the pin-limiting stop and with the shiftable load-discharge member.

39. The combination, with weighing mechanism comprehending a shiftable load-discharge member and with a shaft operative therewith, of a fluid-casing surrounding said shaft; a disk on said shaft and located within the casing; and a blade passing, respectively, through said disk and shaft.

40. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, connected to the load-receiver; a shaft having a pair of crank-arms connected by rods to said closer, each of said rods being extended below said closer and having a shoe; and a plate attached to said shoes.

41. The combination, with a bucket having a closer, of closer-holding means including a pair of rods extended below the closer and each having a wing; and a regulator-plate attached to said wings.

585,978. WEIGHING-MACHINE. PRESCOTT H. RICHARDS, Hartford, Conn. Filed Feb. 12, 1897. Serial No. 622,948. (No model.)



Claim.—1. The combination, with a reciprocatory load-receiver having a discharge-opening and with a gravitative load-receiving regulator supported below said receiver, of a closer pivotally mounted on the receiver and having a cut-off plate located intermediate the receiver and regulator in position to close the discharge-opening of said receiver; means for imparting an opening movement to the closer; and means carried by the regulator in position to engage and impart a closing movement to the closer.

2. The combination, with a reciprocatory load-receiver having a discharge-opening and with a gravitative load-receiving regulator supported below said receiver, of a counterweighted self-opening closer pivotally mounted on the receiver and having a cut-off plate located between the receiver and regulator in position to close the discharge-opening of said receiver; and a closer-actuating device carried by the regulator and effective, on the ascending movement of said regulator, for directly imparting a return movement to said closer.

3. The combination, with a reciprocatory load-receiver having a discharge-opening at the lower end thereof, of an oscillatory closer located below the receiver and self-operative in one direction for discharging the contents of the receiver; and a load-receiving regulator shiftably supported below the closer and embodying means for engaging and imparting a return stroke to said closer.

4. The combination, with beam mechanism and with a load-receiver supported thereon and having a discharge-opening, of a closer located below the receiver in position to normally close the discharge-opening thereof; means for imparting a load-discharging stroke to said closer; a load-receiving regulator shiftably supported below the closer; means for imparting an ascending movement to said regulator; and means carried by the regulator, in operative relation with the closer and effective, on the ascending movement of said regulator, for imparting a return stroke to said closer.

5. The combination, with beam mechanism and with a load-receiver supported thereon and having a discharge-opening, of a closer located below the load-receiver in position normally to close the discharge-opening thereof; means effective at predetermined points in the ascending and descending movements of the receiver, for locking and releasing the closer; means carried on the closer, for imparting a discharging movement thereto; a gravitative load-receiving regulator shiftably supported below the closer and embodying means for imparting a return stroke thereto; and a closer-actuating device carried by the regulator, in operative relation with the closer and effective, on the return movement of said regulator, for imparting a return stroke to said closer.

6. The combination, with beam mechanism and with a load-receiver supported on said beam mechanism and having a discharge-opening located in the plane of its longitudinal axis, of a closer pivotally supported on the load-receiver above the discharge opening and in a plane substantially intersecting the longitudinal axis of said receiver and having a horizontally oscillatory cut-off plate located below the receiver; means carried by the closer, for normally exerting a closer-opening stress thereon; a latch on the receiver, for normally retaining the closer in its closed position; means for operating the latch to release the closer; a gravitative load-receiving regulator located below the closer; and an actuating device carried by the regulator and effective, on the rising movement of said regulator, for directly imparting a closing movement to the closer.

7. The combination, with weighing mechanism embodying a load-receiver having a discharge-opening in substantial alinement with the longitudinal axis thereof, of a counterweighted self-opening closer pivotally supported intermediate its ends on the receiver above the discharge-opening thereof; a latch for normally retaining the closer in its closed position; stream-supplying means located above the receiver and embodying an oscillatory self-closing stream-controller; means controlled by the closing movement of the stream-controller for actuating the latch to release the closer and permit an opening movement thereof; and a load-receiving regulator located below the receiver and embodying means for imparting a closing movement to the closer.

8. The combination, with weighing mechanism embodying a load-receiver, of a closer pivotally supported on the load-receiver substantially midway of the width thereof and above the discharge-opening; a laterally-disposed actuating-arm fixed to the closer; means on the closer for imparting an opening movement thereto; and a gravitative load-receiving regulator pivotally supported below the load-receiver and embodying means operative on the ascending movement thereof for engaging the actuating-arm of, and for imparting a closing movement to, said closer.

9. The combination, with weighing mechanism embodying a reciprocatory load-receiver, of a counterweighted self-opening closer pivotally carried on the load-receiver above the discharge-opening thereof and having a laterally-disposed actuator-arm; a latch for retaining the closer normally in its closed position; stream-supply means embodying a valve; means for actuating the valve; means controlled by the valve, on the closing movement thereof, for releasing the closer-holding latch; a gravitative load-receiving regulator

located below the discharge end of the receiver; and means carried by the regulator and effective, on the rising movement thereof, for engaging the actuator-arm of, and for imparting a closing movement to, the closer.

10. The combination, with weighing mechanism embodying a reciprocatory load-receiver having a discharge-opening in substantial alinement with the longitudinal axis thereof, of a self-opening closer having a pivot-support on the load-receiver above the discharge-opening and in a plane substantially intersecting the longitudinal axis of said receiver; a gravitative latch pivotally supported on the receiver in position for engaging and normally retaining the closer in its closed position; and means operative on the descent of the load-receiver for operating the latch to release the same from engagement with the closer.

11. The combination, with weighing mechanism embodying a load-receiver having an oscillatory closer normally locked in its closed position and with means carried on the closer for imparting an opening movement thereto, of a gravitative regulator-hopper supported below the receiver; and two cooperative closer-shutting members, one of which is carried on the closer and the other of which is carried on the regulator-hopper and which are effective on the ascending movement of said hopper for shutting the closer.

12. The combination, with weighing mechanism including a load-receiver having a discharge-opening in substantial alinement with the longitudinal axis thereof, of a closer pivotally supported on the receiver above the discharge-opening thereof and having its center of gravity in substantial vertical alinement with the longitudinal axis of the receiver: means carried on the closer for imparting an opening movement thereto; a latch carried on the receiver and normally engaging and holding the closer in its closed position; a stream-supply means embodying an oscillatory valve located above the receiver; means controlled by the valve, on the closing movement thereof, for actuating the latch to release, and permit an opening movement of, the closer; a load-receiving regulator pivotally supported below the load-receiver; means for imparting an upward movement to the controller; and means carried on the controller and operative on the upward movement thereof for shutting the closer.

13. The combination, with weighing mechanism including an oscillatory load-discharger movable in one direction for discharging a load, of a load-receiving regulator located below the discharger; means for imparting an upward movement to the regulator; and means, including a by-pass, mounted on the regulator and effective on the upward movement of said regulator for imparting a return movement to the load-discharger.

14. The combination, with weighing mechanism embodying a load-receiver having a discharge-opening, of a counterweighted self-opening closer pivotally mounted on the receiver in position to close the discharge-opening thereof; a counterweighted gravitative regulator located below the load-receiver; an actuating-arm on the closer; a closer-actuating by-pass pivotally mounted on the regulator in position for engaging the arm of the closer and effective, on an upward movement of the regulator, for shutting said closer; a locking device carried on the load-receiver in position for engaging and normally retaining the closer in its closed position; and means for actuating the locking device to release the closer.

15. The combination, with weighing mechanism embodying a load-receiver having a discharge-opening, of a counterweighted self-opening closer pivotally mounted on the receiver and effective for closing the discharge-opening thereof; a gravitative regulator located below the load-receiver; means for imparting an upward movement to the regulator; an actuating-arm on the closer; a closer-actuating by-pass pivotally mounted on the regulator in position for engaging the arm of the closer and effective, on the upward movement of said regulator, for shutting said closer; a locking device carried on the load-receiver in position for engaging and normally retaining the closer in its closed position; supply means embodying an oscillatory valve located above the load-receiver; means for imparting a closing movement to the valve; and means controlled by the valve, at the last stage of its closing movement, for actuating the locking device to release the closer and permit an opening movement thereof.

16. The combination, with a load-receiver having a discharge-opening at the lower end thereof and with a closer having a cut-off plate located below the receiver and in position for normally closing the discharge-opening thereof, of a load-receiving regulator located below the receiver and embodying means for engaging and imparting a closing movement to the closer; stream-supply means including an oscillatory valve located above the load-receiver; and a duplex-valve-actuating device operatively connecting the valve to both the closer and regulator in such manner that an effective movement of the valve will depend upon the successive movements of said closer and regulator.

17. The combination, with a load-receiver having an oscillatory valve and with a load-receiving regulator located below said valve; of means carried by the regulator, for imparting a return movement thereto; a closer-actuating arm carried by the regulator in position for engaging and imparting a closing movement to the closer on the return movement of the regulator; stream-supply means located above the load receiver and embodying a self-closing valve; and duplex actuating mechanism embodying two cooperative actuators, one of which is directly connected to the closer, and the other of which is directly connected to the regulator, and both of which are successively operated, on the successive movements of the closer and regulator, for imparting an opening movement to the valve.

18. The combination, in a weighing-machine, of a reciprocatory load-receiver having a self-opening closer; supply means including a self-closing valve; a gravitative regulator pivotally supported below and in position to receive the load from the load-receiver and to descend under the weight of said load; a duplex-valve actuator pivotally connecting the valve to the closer and to the regulator; means carried by the regulator in position for directly imparting a closing movement to the closer on the return movement of the regulator; and means for imparting a return movement to the regulator and for simultaneously imparting a valve-closing movement to the duplex-valve actuator.

19. The combination, with weighing mechanism including a load-receiver having a closer and with supply means including a stream-controller, of a regulator located to receive the load from the load-receiver and adapted to descend under the weight of such load; means for returning the regulator to its normal load-receiving position after the discharge of its load; a duplex stream-controller-actuating device operatively connecting the stream-controller with the closer and the regulator; and means including a by-pass, carried by the regulator in position for imparting a closing movement to the closer on the return movement of said regulator and for simultaneously imparting an opening movement to the stream-controller through the medium of the duplex stream-controller actuator.

20. The combination, with weighing mechanism including a load-receiver having a self-opening closer and with stream-supply means including a self-closing valve, of a regulator pivotally supported to receive the load from the load-receiver and adapted to descend under the weight of said load; means for returning the regulator to its load-receiving position after the descent thereof; a valve-opening actuator in operative connection with the closer and embodying a toggle; and means carried on the regulator and effective, on the return movement of said regulator, for shutting the closer and operating the valve-opening actuator.

21. The combination, with weighing mechanism including a load-receiver having a closer and with supply means including a stream-controller, of a regulator located to receive the load from the load-receiver and adapted to descend under the weight of said load; means for imparting a return movement to the regulator; a latch normally holding the closer in its closed position; means actuated by the closing movement of the stream-controller for releasing the latch from engagement with the closer; means operative with the regulator, on the return movement thereof, for imparting a closing movement to the closer; a controller-opening actuator; and toggle mechanism operatively connecting the controller-actuator, closer, and regulator and controlled by said closer and regulator on the closing and return movements, respectively thereof, for imparting an opening movement to the controller.

22. The combination, with an oscillatory beam and with a load-receiver supported on said beam and having a closer, of stream-supply means embodying an oscillatory valve; a closer-actuating regulator pivotally supported below the load-receiver; means for imparting a return movement to the regulator; a by-pass carried on the regulator in position for engaging and actuating the closer; valve-actuating means embodying a toggle operatively connecting the valve and the closer and regulator and controlled in its valve-actuating movements by the closer and regulator on the successive return movements thereof.

23. The combination, with weighing mechanism including a pivotal beam and a load-receiver supported on said beam and having a self-opening closer, of supply means embodying a self-closing oscillatory stream-controller; a counterweighted closer-actuating regulator supported below, and in position to receive the load from, the load-receiver and adapted to descend under the weight of said load; and a valve-opening actuator embodying a duplex-toggle device in operative connection with the beam, closer, and regulator, and effective, on the closing movement of the closer and the ascending movement of the regulator, for imparting an opening movement to the valve.

24. The combination, with weighing mechanism including a load-receiver having a closer and with a load-receiving regulator supported below the closer, of stream-supply means including a stream-controller; and stream-controller-actuating mechanism comprising two connected toggle devices, one of which is directly connected with the closer and the other of which is directly connected with the regulator: and means for actuating the two toggle devices in succession.

25. The combination, with weighing mechanism including a load-discharger movable in one direction for discharging the load and with a counterweighted regulator supported below and in position to receive the load from the discharger and adapted to descend under the weight of said load, of stream-supply means including a valve located above the discharger; means for imparting a closing movement to the valve; a valve-opening member pivotally supported in operative relation with the valve; two toggle devices, one of which operatively connects the valve-opening member and discharger, and the other of which operatively connects the valve-opening member and the regulator, and which toggle devices are actuated, respectively, by the discharge and regulator, one slightly in advance of the other, for imparting a valve-opening movement to said member; and means carried by the regulator for imparting a return movement to the discharger.

26. In a weighing-machine, the combination, with a load-receiver and its closer and with a gravitative load-receiving regulator and means for imparting a return movement thereto, of stream-supply means including a self-closing valve having a crank-arm; and a duplex-toggle device including a valve-opening cam located in position to engage the crank-arm and open the valve, and said duplex-toggle device comprising two toggles, one of which operatively connects the valve-opening cam and closer and the other of which operatively connects said cam and the regulator, the organization being such that the valve-opening cam is dependent for its effective operation upon the combined movements of the closer and regulator.

27. The combination, with weighing mechanism embodying a load-receiver having a closer and with stream-supply means including a valve, of a gravitative regulator supported below the receiver in position to receive and descend under the weight of a load from the receiver; a valve-actuating cam supported in operative relation with the valve; a compound toggle device carried by the weighing mechanism and operatively connecting the valve-opening cam, the closer, and the regulator and so constructed and organized as to first throw the cam into operative engagement with the valve simultaneously with the closing movement of the closer, and next impart a valve-opening movement to said cam during the latter stages of the return movement of the regulator; and means carried by the regulator and controlled by the return movement thereof for imparting a closing movement to the closer.

28. The combination, with weighing mechanism embodying a load-receiver and with stream-supplying means embodying a self-closing valve, of a valve-actuating mechanism including a closer and a regulator one of which is actuated by the other and both of which cooperate to control the opening movement of the valve.

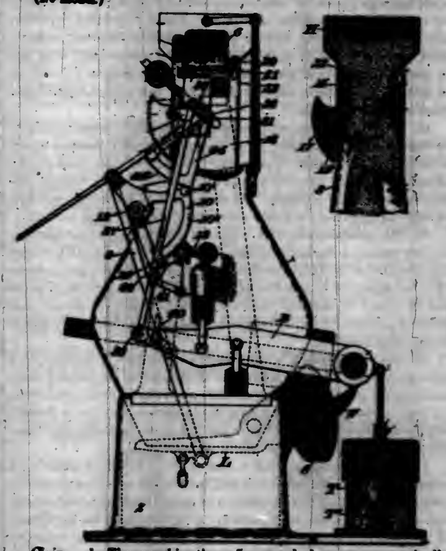
29. The combination, with weighing mechanism including a load-receiver having a closer and with stream-supply means including a stream-controller, of a gravitative regulator supported below and in position to receive the load from the receiver and adapted to descend under the weight of said load; a cam pivotally supported in operative relation with the valve; and two cooperating cam-actuators each embodying a toggle in operative connection with the cam and one of which constitutes a connector between the cam and closer, and the other a connector between said cam and regulator, and one of which actuators is effective, on the shutting of the closer, for advancing the cam through a portion of its stroke and the other of which is effective, on the return movement of the regulator, for completing the cam stroke to thereby impart an opening movement to the stream-controller.

30. In a weighing-machine, in combination, weighing mechanism embodying a pivotally-supported beam; a load-receiver carried on said beam and having an oscillatory closer; a gravitative regulator supported below and in position to receive a load from the load-receiver and adapted to descend under the weight of said load; stream-supplying means including a self-closing valve located above the load-receiver: a valve-actuating cam pivotally supported on the beam; two toggle-joints pivotally connected at their inner ends to the cam and at their outer ends to the beam; two toggle-actuating members, one of which is pivotally connected at its upper end to the knee of one toggle and at its lower end to the closer, and the other of which is pivotally connected at its upper end to the knee of the other toggle and at its lower end to the regulator: and means for shutting the closer and raising the regulator to thereby operate the toggle-actuating members one slightly in advance of the other.

31. In a weighing-machine, the combination, with stream-supply means including a valve, of valve-actuating mechanism comprising a cam pivotally supported in position to engage and actuate the valve, and two cam-actuating toggles in pivotal connection with the cam and operative one for shifting the cam into operative engagement with the valve and the other for imparting a valve-opening movement to said cam; and means for actuating said toggles.

32. The combination, with weighing mechanism including a beam and a load-receiver and with stream-supplying means including a valve, of two horizontally-disposed toggles pivotally connected at their outer ends to the beam; an intermediate vertically-disposed toggle pivotally connected at the outer end to the beam and at the lower end thereof to one toggle and pivotally connected at its knuckle to the inner end of the other toggle, and one of the members of said intermediate toggle constituting a valve-actuator; and means for operating the two horizontally-disposed toggles and connected intermediate toggle and thereby impart to the valve-actuating member of the intermediate toggle differential valve-opening movements.

585,979. AUTOMATIC WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 10, 1896. Serial No. 615,199. (No model.)



Claim.—1. The combination of a supply-hopper; a vertically-reciprocatory stream-reducer; and a cut-off valve for said hopper, supported for movement independently of and connected with said stream-reducer.

2. The combination, with a load-receiver, of stream-supplying means therefor; a pair of stream-reducers each consisting of a plate supported for vertical movement and having at its end a flange; and means for simultaneously reciprocating said plates in opposite directions, to thereby move the flanges toward and from each other.

3. The combination, with a load-receiver, of a supply-hopper; a plurality of vertically-reciprocatory stream-reducers on said hopper; and means for moving said stream-reducers toward and from one another.

4. The combination, with a load-receiver, of a supply-hopper; a plurality of stream-reducers supported for parallel reciprocatory movement; and means for moving said stream-reducers toward and from each other.

5. The combination, with a load-receiver, of stream-supplying means therefor; a vertically-reciprocatory stream-reducer; a cut-off; and a connection between said cut-off and the stream-reducer.

6. The combination, with a hopper; of a plurality of reciprocatory members operative in conjunction with said hopper and each having a flange, said flanges being movable toward and from each other; a valve; and actuating means for said reciprocatory members and valve.

7. The combination, with a load-receiver, of stream-supplying means therefor; a vertically-reciprocatory stream-reducer; a valve having an arm connected to said stream-reducer; and valve-actuating means.

8. The combination, with a load-receiver, of stream-supplying means therefor; a series of reciprocatory stream-reducers; a valve having oppositely-disposed arms connected, respectively, to said stream-reducers; and valve actuating means.

9. The combination, with a hopper having a series of pins projecting therefrom; of a plurality of stream-reducers longitudinally slotted, the slots of which embrace said pins; and means for oppositely reciprocating said stream-reducers.

10 The combination, with weighing mechanism including a shiftable load-discharge member having a stop, of stream-supplying means; a vertically-reciprocatory stream-reducer provided with a stop cooperative with the first-mentioned stop; and a valve.

11. The combination, with weighing mechanism including a shiftable load-discharge member having a stop, of stream-supplying means; a reciprocatory stream-reducer; a valve and its shaft; and a stop sleeved on said shaft and connected to the stream-reducer and cooperative with the first-mentioned stop.

12. The combination, with weighing mechanism including a shiftable load-discharge member having a stop, of stream-supplying means; a vertically-reciprocatory stream-reducer; a valve and its shaft; and a longitudinal sleeve on said shaft, connected to said stream-reducer and having a stop cooperative with the first-mentioned stop.

13. The combination, with weighing mechanism including a bucket having a closer, of means comprehending a latch for normally holding said closer against movement; a stop operative with said closer; stream-supplying means; a vertically-reciprocatory stream-reducer; a valve and its shaft having a stop cooperative with the first-mentioned stop and connected to the stream-reducer; a connection between said stream-reducer and valve; and a latch-tripper connected to the valve-shaft.

14. The combination, with weighing mechanism including a shiftable load-discharge member, of a discharge-conduit located below the weighing mechanism: a regulator disposed in said conduit and adapted to be acted upon by a load of material; and a flexible connector between said regulator and shiftable load-discharge member, whereby the regulator is freely movable in the discharge-conduit.

15. The combination, with weighing mechanism comprehending a bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket; a discharge-conduit located below the weighing mechanism: a regulator disposed in said conduit and adapted to be acted upon by a load of material; and a flexible connection between said regulator and the closer, whereby the regulator is freely movable in the discharge-conduit.

16. The combination, with a load-receiver having a closer, of a discharge-conduit situated below the load-receiver; a conical regulator disposed in said discharge-conduit and adapted to be acted upon by a load of material emptied from the load-receiver: and a flexible connection between said regulator and the closer, whereby the regulator is freely movable in the discharge-conduit.

17. The combination, with a load-receiver having a closer, of a discharge-conduit situated below said load-receiver; a regulator disposed in said conduit and adapted to be acted upon by a load of material emptied from the load-receiver; a rigid stem on the regulator; and a flexible connection between the same and the closer, whereby the regulator is freely movable in the discharge-conduit.

18. The combination, with a load-receiver having a closer, of a discharge-conduit situated below the load-receiver; a regulator having a rigid stem; and a chain connected, respectively, to said stem and the closer.

19. The combination, with a load-receiver having a closer, of a discharge-conduit situated below said load-receiver; a conical regulator disposed in the discharge-conduit at a point relatively remote from the closer, said regulator having a rigid stem; and a chain connected, respectively, with said stem and closer.

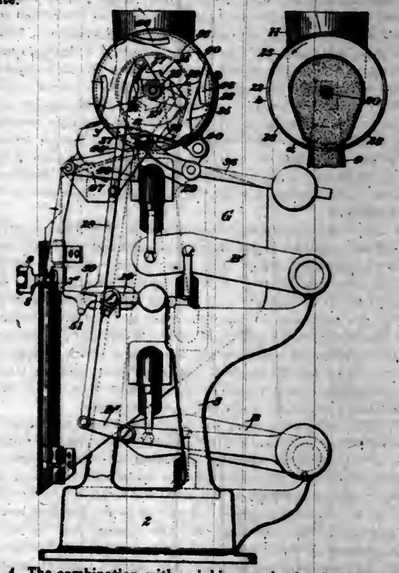
20. The combination, with weighing mechanism embodying a load-receiver and a supporting scale-beam therefor having a counterbalance-weight adapted to exert a constant force equal to that of the load-receiver and its predetermined charge, of stream-supplying means; a stream-controller; connections between the weighing mechanism and stream-controller, for governing the action of the latter; a fluid-receptacle; and a resistance member consisting of weights of two different sizes immersable in the fluid in said receptacle and connected to one of the members of the weighing mechanism.

585,980. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 3, 1896. Serial No. 614,318. (No model.)

Claim.—1. The combination, with weighing mechanism including a load-receiver, of stream-supplying means for said load-receiver; a stream-controlling device; and means controlled by the weighing mechanism, for operating said stream-controlling device to advance the same, thereby to reduce the volume of the stream, and also to impart a continued action to said device in the direction of its advancing movement to permit the flow of the stream.

2. The combination, with weighing mechanism, of a reciprocatory load-receiver; stream-supplying means; a stream-controlling plate supported to have an advancing movement to reduce the volume of the stream and to have a continued action in the direction of its advancing movement, to permit the flow of the stream; and means controlled by the weighing mechanism, for actuating said plate.

3. The combination, with beam mechanism and with a bucket supported thereby for ascending and descending movements, of a spout for delivering a stream of material to the bucket; a stream-controlling plate supported to have an advancing movement to reduce the volume of the stream and to have a continued action in the direction of said advancing movement, to permit the flow of the stream; and means controlled by the beam mechanism, for actuating said plate.



4. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller comprising a plurality of valve members; and means controlled by the weighing mechanism, for intermittently actuating said stream-controller to carry said valve members successively across the path of the supply-stream, thereby to reduce the volume thereof.

5. The combination, with weighing mechanism including a load-receiver, of stream-supplying means for said load-receiver; a rotary stream-controller comprising a plurality of valve members; and means controlled by the weighing mechanism, for intermittently actuating said stream-controller to carry said valve members successively across the path of the stream, thereby to reduce the volume thereof.

6. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a rotary drum having a series of supply-openings; and means controlled by the weighing mechanism, for actuating said drum.

7. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a rotary drum having a series of supply-openings in its periphery; and means controlled by the weighing mechanism, for actuating said drum.

8. The combination, with weighing mechanism including a load-receiver, of a supply-spout; a rotary drum within which the discharge end of said spout is located, said drum having a series of supply-openings; and means controlled by the weighing mechanism, for actuating said drum to bring the supply-openings thereof opposite the discharge-orifice of the spout.

9. The combination, with weighing mechanism including a load-receiver, of a spout located to deliver a stream of material to the load-receiver; a drum circumferentially supported by said spout for rotation and having a series of supply-openings; and means controlled by the weighing mechanism, for actuating said drum.

10. The combination, with weighing mechanism including a load-receiver, of a spout located to deliver a stream of material to the load-receiver; a drum having supply-openings and supported circumferentially at one end of said spout and at its other end carried by a shaft; and means controlled by the weighing mechanism, for rotating said shaft.

11. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a drum having a series of supply-openings; a ratchet operative with said drum; a cooperative pawl for said ratchet; and an operative connection between said pawl and the weighing mechanism.

12. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a drum having a series of supply-openings; a drum-supporting shaft having a lever loose thereon; a ratchet carried by said shaft; a pawl on said lever; and a connection between said lever and the weighing mechanism.

13. The combination, with weighing mechanism embodying a load-receiver and with stream-supplying means therefor, of a drum having a series of valve members; a ratchet operative with said drum; a pawl for cooperating with said ratchet, to advance the drum and to successively carry the valve members across the path of the stream; and a second pawl for operating the ratchet, to impart to the drum a continued action in the direction of its advancing movement, to permit the stream to flow toward the load-receiver.

14. The combination, with weighing mechanism including a reciprocatory load-receiver, of stream supplying means therefor; a stream-controller having a series of successively-effective valve members; means controlled by the weighing mechanism, for advancing said stream-controller to carry the valve members successively across the path of the stream; and independent means also controlled by the weighing mechanism, for imparting a continued action to said stream-controller in the direction of its advancing movement, to permit the stream to pass toward the load-receiver.

15. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a steam-controller having a series of supply-openings; means for advancing said stream-controller; and instrumentalities cooperative with the weighing mechanism, for retarding the advancing movement of said stream-controller during the weighing of a load, to thereby regulate the volume of the stream supplied to the load-receiver, automatically.

16. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a stream-controller having a series of successively-effective valve members; means for advancing said stream-controller; a cam operative with the stream-controller; and a stream-controller-retarding device located to coact with said cam.

17. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a stream-controller having a series of successively-effective valve members; means for advancing said stream-controller; a cam operative with said stream-controller; and a counterweighted lever located to coact with said cam, to retard the advancing movement of said stream-controller.

18. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a stream-controller having a series of successively-effective valve members; means for advancing said stream-controller; a multifaced cam operative with said stream-controller; and a stream-controller-retarding device located to coact with said cam.

19. The combination, with weighing mechanism including a load-receiver, of stream-supplying means therefor; a stream-controller having a series of successively-effective valve members; means for advancing said stream-controller; a multifaced cam having a series of stop-recesses between its working faces; and a stream-controller-retarding device located to coact with said cam and to have one arm thereof intermittently forced into said recesses.

20. The combination, with weighing mechanism including a shiftable load-discharge member, of stream-supplying means; a stream-controlling plate supported to have an advancing movement to reduce the volume of the stream and to have a continued action in the direction of said advancing movement, to permit the flow of the stream; a stop operative with said stream-controller; and a coacting stop operative with the shiftable load-discharge member.

21. The combination, with weighing mechanism including a load-receiver and a load-discharging device, of stream-supplying means; a stream-controlling plate supported to have an advancing movement to reduce the volume of the stream and to have a continued action in the direction of said advancing movement, to permit the flow of the supply-stream; and instrumentalities for blocking the advancing movement of the stream-controlling plate during the discharge of the load.

22. The combination, with weighing mechanism including a load-receiver supported for ascending and descending movements and with load-discharging means, of stream-supplying means; a stream-controlling plate supported to have an advancing movement to reduce the volume of the stream and to have a continued action in the direction of said advancing movement, to permit the flow of the stream; and instrumentalities for blocking the advancing movement of the stream-controller plate during the discharge of the load and the ascending movement of the load-receiver.

23. The combination, with weighing mechanism including a load-receiver having a load-discharging member and with load-discharging means, of stream-supplying means; a rotary drum having a series of supply-openings; a stop-wheel operative with said drum; and a stop cooperative with said stop-wheel and with the load-discharge member.

24. The combination, with weighing mechanism including a load-receiver having a load-discharging member and with load-discharging means, of stream-supplying means; a rotary drum having a series of supply-openings; a peripherally-recessed stop-wheel operative with said drum; and a stop operative with said stop-wheel and with the load-discharge member.

25. The combination, with a bucket having a discharge-outlet, of a closer for said outlet; a shaft having a bifurcated arm; a latch for engaging one of the branches of the bifurcation; and a member connected to the other branch of said arm by a slide-joint and also operatively connected with the closer.

26. The combination, with a bucket having a discharge-outlet, of a closer for said outlet; a counterbalanced shaft having a bifurcated arm; a latch for engaging one of the branches of the bifurcation; and a member connected to the other branch of the bifurcation by a slide-joint and operatively connected to the closer.

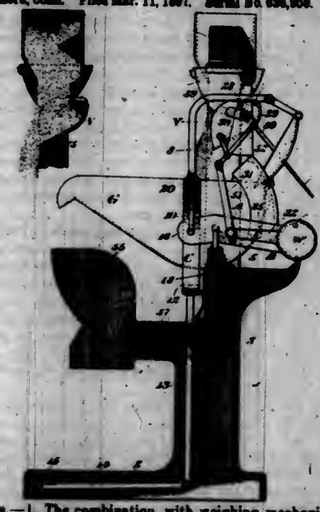
27. The combination, with a bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket; a shaft having a bifurcated arm; a latch for engaging one of the branches of the bifurcation; and a coupling device connected, respectively, to one of the branches of the bifurcation and to the hinge of the closer.

28. The combination, with a bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket; a counterbalanced rock-shaft having a bifurcated arm; a latch for engaging one of the branches of the bifurcation; and a coupling device connected to the other branch of the bifurcation by a slide-joint and connected to the hinge by a universal joint.

29. The combination, with a bucket having a discharge-outlet; of a closer for said outlet, hinged to the bucket; a counterbalanced shaft having a bifurcated arm; a latch for engaging one of the branches of the bifurcation; a device connected to the other branch of the bifurcation by a slide-joint and operatively connected to the closer; a stop on said shaft; and a stream-controller having a stop cooperative with the first-mentioned stop.

30. The combination, with weighing mechanism including a load-receiver, of stream-supplying means for the load-receiver; a stream-controller having a series of successively-effective valve members; and means controlled by the weighing mechanism for imparting a step-by-step movement to the stream-controller, whereby the valve members thereof will be brought into position, one after the other, to stop the supply of material to the load-receiver.

585,981. WEIGHING APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 11, 1897. Serial No. 626,858. (No model.)



Claim.—1. The combination, with weighing mechanism including tilting load-receiver, of stream-supplying means embodying a valve; valve-closing means; a resistance member; and a drizzle-catching device connected, respectively, with the load-receiver and resistance member, whereby, on the discharging movement of the load-receiver, said drizzle-catching device will be thrown under the discharge edge of the valve.

2. The combination, with weighing mechanism including a tilting load-receiver, of stream supplying means embodying a valve; valve-closing means; and a drizzle-catching device positively connected with the load-receiver for operation, whereby, on the movement of the load-receiver, said drizzle catching device will be thrown under the discharge edge of the valve.

3. The combination, with a tilting load-receiver, of a carrier for said load-receiver; a scale-beam for supporting said carrier; stream-supplying means embodying a valve; and a drizzle-catching device positively connected with the load-receiver and said carrier.

4. The combination, with weighing mechanism including a tilt-

ing load-receiver, of stream-supplying means embodying a valve; valve-closing means; a resistance member: and a drizzle-catching pan pivoted near its discharge edge to the load-receiver and also connected with said resistance member.

5. The combination, with weighing mechanism including a tilting load-receiver, of stream-supplying means embodying a valve; a drizzle-catching device supported independently of the valve and pivoted near its discharge end to the load-receiver; suspension-links connected to the opposite end of the drizzle-catching device; and a member to which said suspension-links are pivoted.

6. The combination, with a load-receiver having projecting trunnions, of a carrier sustaining said trunnions; a scale-beam for supporting said carrier; stream-supplying means embodying a valve; a drizzle-catching device adapted to be carried under the discharge edge of said valve; and connections between said drizzle-catching device and said carrier.

7. The combination, with a tilting load-receiver, of a carrier for said load-receiver; a scale-beam for supporting said carrier; stream-supplying means embodying a valve; a drizzle-catching device pivoted near its forward end to the load-receiver; and a suspension-link pivoted, respectively, to said carrier and drizzle-catching device.

8. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a valve; a swinging spout situated between the valve and the hopper: a plate pivoted, respectively, to said hopper and valve, whereby the valve is adapted to control the action of the spout, said plate also constituting a guard to prevent waste of material; and connections between said valve and the weighing mechanism.

9. The combination, with weighing mechanism embodying a tilting load-receiver, of a hopper; a valve; a swinging spout situated between the valve and the hopper; a connection between the spout and the valve; valve-closing means; a drizzle-catching device connected with the load-receiver; a resistance member connected with said drizzle-catching device; and means situated between the valve and the weighing mechanism, for controlling the action of the valve.

10. The combination, with weighing mechanism including a tilting load-receiver; of a carrier for sustaining said load-receiver, said carrier consisting of two upright members joined at the lower end by a transverse bar from which a rod depends; a guide-link connected, respectively, with said rod and framework; a scale-beam for supporting the carrier; stream-supplying means embodying a valve; valve-closing means; and a drizzle-catching device connected, respectively, with the load-receiver and with said carrier.

11. The combination, with weighing mechanism including a load-receiver, of a hopper; a valve; a swinging spout between the valve and the hopper; a stop connected with said spout; a coöperating stop attached to the load-receiver; stream-supplying means including a valve; a drizzle-catching pan pivoted near its discharge end to the load-receiver; and a resistance member connected with the opposite end of said drizzle catching pan.

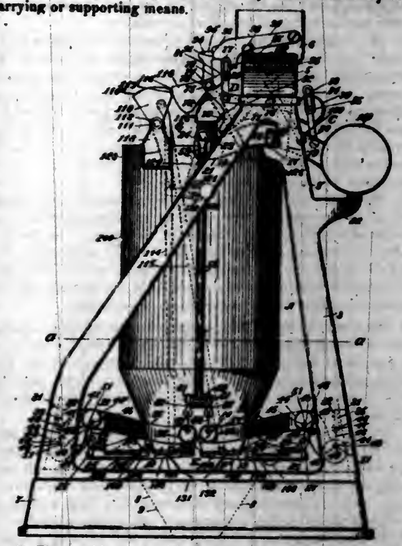
12. The combination, with weighing mechanism including a tilting load-receiver, of a hopper; a valve; a swinging spout situated between the hopper and the valve; a shiftable actuator supported by the weighing mechanism and connected with the valve; a connection between said valve and spout; a stop connected with the spout; a second stop attached to the load-receiver, coöperating with the first-mentioned stop; a drizzle-catching pan pivoted near its discharge end to the load-receiver; suspension-links pivoted to the opposite end of said drizzle-catching pan; and a resistance member to which said suspension-links are attached.

13. The combination, with a tilting load-receiver, of a carrier for sustaining the same; a scale-beam for supporting said carrier; a hopper; a valve; a swinging spout situated between the hopper and the valve and connected with the latter; a drizzle-catching device pivoted near its forward end to the tilting load-receiver; suspension-links pivoted, respectively, to the carrier and to the drizzle-catching device; an actuator shiftably supported by the scale-beam; a link connected with said actuator and also with the valve; and a discharge-hopper situated to receive the material from the load-receiver when the latter is tilted and to direct such material into a suitable receptacle placed below the same.

585,982. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 11, 1896. Serial No. 615,364. (No model.)

Claim.—1. The combination, with framework, of load-receiver mechanism embodying a load-receiver, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of movable members and a series of pivots connecting said movable members with the framework and receptacle and having an endwise or sidewise bodily-shiftable automatic adjustment relatively to their carrying or supporting means.

2. The combination, with framework, of load-receiver mechanism embodying a load-receiver, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of movable members and a series of spring-tension members or pivots connecting said movable members with the framework and receptacle and having a sliding automatic adjustment relatively to their carrying or supporting means.



3. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of movable members and a series of tension members or pivots connecting said movable members with the framework and receptacle, said tension members having a pivotal connection with the framework and receptacle and a sliding automatic adjustable connection with said movable members.

4. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of movable members and a series of tension members or pivots connecting said movable members with the framework and receptacle, said tension members having a pivotal connection with one or more of its carrying or supporting means and a sliding automatic adjustable connection with one or more of its carrying or supporting means.

5. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operative with the beam mechanism and comprehending a plurality of levers and a plurality of tension-pivots connecting said levers with the framework and receptacle and having a sliding automatic adjustment transversely of the plane of movement of said levers.

6. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of levers and a series of tension-pivots connecting said levers with the framework and receptacle and having a pivotal connection with said framework and receptacle, and a sliding automatic adjustment transversely of the plane of movement of said levers.

7. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means operative with the beam mechanism and comprehending a plurality of pairs of levers, each pair being operatively connected together for simultaneous movement, and a series of tension members or pivots connecting said levers with the framework and receptacle and automatically bodily adjustable transversely of the plane of movement of said levers.

8. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of levers and a series of spring-plate pivots pivotally connected to said framework and bucket and having a sliding connection with said levers whereby they are automatically adjustable transversely of the plane of their pivotal axes.

9. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means connected with the beam mechanism, for directly actuating the same, and comprising a series of levers and a series of tension members or pivots connecting said levers with the framework and

receptacle and having a sliding automatic adjustment transversely of the plane of movement of said levers.

10. The combination, with framework, of receptacle mechanism comprising a receptacle, beam mechanism, and supporting means connected with the beam mechanism, for directly actuating the same, and comprising a series of levers and a series of tension members or pivots pivotally connected to said framework and receptacle and having an automatically-adjustable sliding connection with said levers.

11. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of movable members, a series of tension members or pivots connecting said movable members with the framework and receptacle and having a sliding automatic adjustment relatively to said movable members, a plurality of supplemental movable members connected with said movable members, a connector carried by said beam mechanism, and tension members or pivots connecting said connector and supplemental members.

12. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of movable members, a series of tension members or pivots connecting said movable members with the framework and receptacle, a plurality of supplemental movable members connected with said movable members, a connector carried by said beam mechanism, and tension members or pivots connecting said connector and supplemental members and having a sliding automatic adjustment relatively to one of their carrying or supporting means.

13. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of levers, a series of tension-pivots connecting said framework and receptacle with said levers, a plurality of supplemental levers connected with said levers, a connector carried by said beam mechanism, and tension-pivots pivotally connected to said connector and having an automatically-adjustable sliding connection with said supplemental levers.

14. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of movable members, a series of tension members or pivots connecting said movable members with the framework and receptacle and having a sliding automatic adjustment transversely of the plane of movement of said movable members, a plurality of supplemental members connected with said movable members, a connector carried by said beam mechanism, and tension members or pivots connecting said connector and supplemental members and also having a sliding automatic adjustment transversely of the plane of movement of said supplemental members.

15. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of levers, a series of tension-pivots pivotally connected to said framework and bucket and having an adjustable sliding connection with said levers, whereby said pivots are adjustable transversely of the plane of their pivotal axes and also of the plane of movement of said levers, a plurality of supplemental levers connected with said movable levers, a connector carried by said beam mechanism, and tension-pivots pivotally secured to said connector and having an adjustable sliding connection with said supplemental levers, whereby they are adjustable transversely of the plane of movement thereof.

16. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism comprising a counterbalanced beam supported at one side of said receptacle, and supporting means operatively connected with said beam mechanism and comprising a series of movable members and a series of tension members or pivots connecting said movable members with the framework and receptacle and automatically adjustable transversely of the plane of movement of said movable members.

17. The combination, with framework, of receptacle mechanism comprising a receptacle or bucket, beam mechanism, and supporting mechanism operatively connected with said beam mechanism and comprising a series of levers and a series of automatically end or side wise adjustable tension-pivots connecting said levers with the framework and receptacle and organized whereby they are under flexure when the receptacle is in operation at its highest or lowest position and perpendicular when said receptacle is substantially midway of such positions.

18. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism comprising a counterbalanced beam pivotally supported at one side of said receptacle, and supporting means operatively connected with said beam mechanism and comprising a series of levers and a series of automatically end or side wise adjustable tension-pivots connecting said levers with the framework and receptacle and organized whereby they are under flexure laterally when the receptacle is in operation at its highest or lowest position and perpendicular when said receptacle is substantially midway of such positions.

19. The combination, with framework, of receptacle mechanism comprising a receptacle or bucket, a counterweighted beam mechanism, and supporting means comprising a series of main levers, a series of automatically end or side wise adjustable tension-pivots connecting said main levers with said framework and receptacle, a series of supplemental levers connected with said main levers and of greater leverage than said main levers, whereby a comparatively light-weighted beam mechanism is required, a connecting member carried by the beam mechanism, and automatically end or side wise adjustable tension-pivots connecting said supplemental levers and connecting member.

20. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of levers, hangers pivotally secured to said framework and receptacle, and tension members or pivots fixedly secured to said hangers and adjustably secured to said levers, for adjustment transversely of the plane of movement of said levers.

21. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means operative with the beam mechanism and comprehending a series of levers, hangers pivotally secured to said framework and receptacle, and tension-pivots fixedly secured to said hangers and secured to said levers, for sliding adjustment transversely of the plane of movement of said levers.

22. The combination, with framework, of receptacle mechanism embodying a receptacle or bucket, beam mechanism, and supporting means comprehending a series of main levers, hangers pivotally carried by said framework and receptacle, tension members or pivots fixedly secured to said hangers and adjustably secured to said main levers, for adjustment transversely of the plane of the pivotal axes of said hangers and of the plane of movement of said levers, a plurality of supplemental levers connected to said main levers, a connector carried by said beam mechanism, hangers pivotally secured to said connector, and tension members or pivots fixedly secured to said hangers and adjustably secured to said supplemental levers, for adjustment transversely of the plane of the pivotal axes of said hangers and of the plane of movement of said levers.

23. The combination, with framework having a series of hangers secured thereto, of receptacle mechanism comprising a receptacle or bucket having a series of arms provided with hangers also secured thereto, beam mechanism, a connector carried thereby and also having a plurality of hangers secured thereto, and supporting mechanism comprising a series of levers and tension members or pivots connecting said levers with the hangers of the framework, receptacle, and connector.

24. The combination, with framework having a series of hangers pivotally secured thereto, of receptacle mechanism comprising a receptacle or bucket having a series of arms provided with hangers also pivotally secured thereto, beam mechanism, a connector carried thereby and also having a plurality of hangers pivotally secured thereto, and supporting mechanism comprising a series of levers and tension members or pivots connecting said levers with the hangers of the framework, receptacle, and connector and having a sliding adjustment transversely of the plane of movement of such levers.

25. The combination, with framework having a series of hangers pivotally secured thereto, of receptacle mechanism comprising a receptacle or bucket having a series of laterally-extending arms adjacent to the bottom thereof and also provided with hangers pivotally secured thereto, beam mechanism supported at one side of said receptacle, a connector carried thereby and likewise having a plurality of hangers pivotally secured thereto, and supporting mechanism comprising a series of levers and tension-pivots connecting said levers with the hangers of the framework, receptacle, and connector and having a sliding adjustment transversely of the plane of movement of such levers and the plane of the pivotal axes of the hangers.

26. The combination, with framework having a series of four hangers pivotally secured thereto, of receptacle mechanism comprising a receptacle or bucket provided with a series of four laterally-extending arms also having hangers pivotally secured thereto, beam mechanism supported at one side of said receptacle, a connector pivotally carried by said beam mechanism and also provided with a plurality of hangers pivotally secured thereto adjacent to its lower end, and supporting mechanism comprising a series of four main levers, two of said levers having supplemental levers of greater leverage than the main levers, and tension-pivots rigidly connected to the hangers of the framework, receptacle, and connector and connected with the levers for sliding adjustment transversely of the plane of the pivotal axes of the hangers and the plane of movement of said levers.

27. The combination, with framework having a series of hangers pivotally secured thereto, of receptacle mechanism comprising a receptacle or bucket also provided with a series of hangers pivotally secured thereto, beam mechanism, a connector pivotally carried by

said beam mechanism and having a plurality of hangers pivotally secured thereto, and supporting means comprising a series of main levers and a plurality of supplemental levers extending at one side of said receptacle, tension-pivots connecting the hangers of the connector with the outer, upper ends of the supplemental levers, tension-pivots connecting the hangers of the receptacle with the under side of the main levers, and tension-pivots connecting the hangers of the framework with the upper side of said main levers.

28. The combination, with framework having a series of four hangers pivotally secured thereto, of receptacle mechanism comprising a receptacle or bucket provided with a series of four laterally-extending arms also having hangers pivotally secured thereto, beam mechanism supported at one side of said receptacle, a connector pivotally carried by said beam mechanism and having a plurality of hangers pivotally secured thereto adjacent to its lower end, and supporting mechanism comprising a series of four main levers, each pair thereof being connected by a shaft and each of said levers having a hub, and a pair of supplemental levers connected to two of the main levers at the hub portions thereof and extending at one side of said receptacle and also having hubs at their outer ends, the hubs and shaft portions of said levers carrying bearing members adjustable transversely of the plane of movement of said levers, and tension-pivots rigidly connected to said bearing members and hangers of the connector, receptacle-arms, and framework.

29. A pivot adapted for use in connection with weighing mechanism and comprising a spring member or plate having one or more enlarged ends; a filling member secured therein; and an independent bearing member into which one of said ends is secured.

30. A pivot adapted for use in connection with weighing mechanism and comprising a spring member or plate of differential thicknesses, and an independent bearing member having a bore or opening of differential diameters for the reception of said pivot.

31. A pivot comprising a spring member or plate and a hanger secured thereto and having an opening of differential diameters, whereby it can be removably secured in position on a pivotal device.

32. A pivot comprising a spring-plate having a pair of enlarged ends: a filling member in each enlarged end; a hanger rigidly secured to one end of said plate: and a bearing member rigidly secured to the opposite end thereof.

33. A pivot comprising a spring plate or member having a pair of enlarged ends: a filling member in each enlarged end: a hanger compressed on one end of said plate or member and having an opening of differential diameters, whereby it can be removably secured in position on a pivotal device: and a bearing member likewise compressed on the opposite end of said pivot.

34. A pivot comprising a spring member or plate of differential thickness, whereby it has a pair of enlarged ends: a filling member in each end thereof: a hanger having a bore or opening of differential diameters for the reception of an end of said pivot: and a bearing member also having a bore of differential diameters for the reception of the opposite end of said pivot.

35. A pivot comprising a member having a bulging end: a filling member therein: and a bearing member having a bore or opening of differential diameters for the reception of said bulging end.

36. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operatively connected with the beam mechanism and comprising a series of movable members, each of said movable members having one or more adjustable bearings and a series of tension members or pivots secured to said framework and receptacle and fixedly secured to said bearings for adjustment therewith relatively to said movable members.

37. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operatively connected with said beam mechanism and comprising a series of levers having adjustable bearings and a series of tension-pivots pivotally secured to said framework and receptacle and secured to said bearings for adjustment therewith transversely of the plane of movement of said levers.

38. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operatively connected with said beam mechanism and comprehending a series of levers and a series of tension members or pivots and adjustable bearing members connecting said levers with the framework and receptacle, and each of said pivots having one of its ends rigidly secured to a bearing member, whereby it is adjustable therewith transversely of the plane of movement of the bearing-member carrying or supporting means.

39. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means operatively connected with said beam mechanism and comprehending a series of levers and a series of tension-pivots and adjustable bearing members connecting said levers with the framework and receptacle, and each of said pivots being pivotally secured at one end to its carrying or supporting means and rigidly secured at its opposite end to a bearing member, whereby it is adjustable therewith transversely of the plane of movement of the bearing-member carrying or supporting means.

40. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism, and supporting means connected with said beam mechanism, for directly actuating the same, and comprising a series of levers provided with a series of adjustable bearings and a series of spring tension-pivots secured to said framework and receptacle and rigidly secured to said bearing for adjustment therewith transversely of the plane of movement of said levers.

41. The combination, with framework carrying a series of pivotal devices, of receptacle mechanism embodying a receptacle likewise carrying a series of pivotal devices, beam mechanism, and supporting means operatively connected with said beam mechanism and comprising a series of levers and a series of tension-pivots comprising spring-plates each having one of its ends secured to said levers and its opposite end secured to a hanger having an opening of differential diameters, whereby it can be removably secured in position on its respective pivotal device without removing said device, and whereby also said receptacle can be quickly and easily detached from its hangers.

42. The combination, with framework carrying a series of pivotal devices, of receptacle mechanism embodying a receptacle likewise carrying a series of pivotal devices, beam mechanism, and supporting means operatively connected with said beam mechanism and comprising a series of levers having transversely-adjustable bearings and a series of tension-pivots each secured at one end to one of said bearings for movement therewith, and having its opposite end secured to a hanger having an opening of differential diameters, whereby said hanger can be placed in position on its respective pivotal device without removing such device, and whereby also said receptacle can be quickly and easily detached from its hangers.

43. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism carrying a connector, and supporting means comprehending a series of levers and a series of tension-pivots and adjustable bearing members connecting said framework, receptacle, and connector with said levers, and each of said pivots having one of its ends secured to one of said bearing members, whereby it is adjustable therewith transversely of the plane of movement of said levers.

44. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism carrying a pivotally-disposed connector, and supporting means comprehending a series of levers, a series of tension-pivots, and adjustable bearing members connecting said levers with the framework, receptacle, and connector, and each of said pivots having a pivotal connection at one end to its carrying or supporting means and a rigid connection at its opposite end to one of the bearing members, whereby it has a sliding adjustment therewith relatively to the bearing-member carrying or supporting means.

45. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism carrying a connector, and supporting means comprehending a series of levers having adjustable bearings, and a series of tension-pivots pivotally secured to said framework, connector, and receptacle and fixedly secured to said bearings, for adjustment therewith transversely of the plane of movement of said levers and the plane of movement of the pivotal axes of the pivots.

46. The combination, with framework, of receptacle mechanism comprising a receptacle, beam mechanism, and supporting means operatively connected with the beam mechanism and comprising a series of levers, each of said levers having bores of differential diameters, a series of hangers pivotally secured to said framework and receptacle and also having bores of differential diameters, and a series of pivots, each of said pivots having differential thicknesses and adapted to fit in the differential bores of said hangers and levers.

47. The combination, with framework, of receptacle mechanism embodying a receptacle, beam mechanism carrying a connector, and supporting means comprising a series of levers having bores of differential diameters, a sliding bearing member adjustable in that portion of each of said bores having the largest diameter, a series of hangers pivotally secured to said framework, receptacle, and connector and also having bores of differential diameters, and a series of spring pivots or plates having the ends thereof fitting in the differential bores of the hangers and bearing members, and each of said pivots having a pair of enlarged ends and a filling member in each enlarged end.

48. The combination of a load-receiver having a plurality of main closers shiftable for discharging the load, and a plurality of supplemental closers disposed below and operable with said main closers to form a trough when said main closers are shut and thereby prevent leakage from said load-receiver.

49. The combination of a load-receptacle having a plurality of main closers shiftable for discharging the load; a plurality of supplemental closers carried by and operable with said main closers to form a tight-jointed trough when said main closers are shut and thereby prevent leakage from said receptacle.

50. The combination of a load-receiver having a plurality of main closers shiftable for discharging the load: a plurality of supplemental closers disposed below and operable with said main closers and one adapted to overlap the other to form a tight-jointed trough when said main closers are shut and thereby prevent leakage from said receptacle.

51. The combination of a load-receptacle having a pair of main closers shiftable for discharging the load; and a plurality of supplemental closers secured thereto and comprising spring members one adapted to spring into position to overlap and impinge its companion closer when the main closers are shut, and thereby form a trough to prevent leakage from said receptacle.

52. The combination of a load-receiver having a plurality of closers shiftable for discharging the load, and regulating means carried by each of said closers and operable to regulate the closing movements of said closers and also form a trough when said closers are shut to prevent drip or leakage from said receptacle.

53. The combination of a load-receiver having a pair of main closers shiftable to discharge a load; and a pair of supplemental closers comprising spring members or plates adapted to spring into position to overlap and impinge against each other, to thereby form a trough below said main closers to prevent leakage or drip from said load-receiver and each of said supplemental closers being secured to one of the main closers and operable therewith to regulate the closing movements of said main closers.

54. The combination of a hopper; a load-receptacle; a pair of primary closers secured to said receptacle and shiftable for discharging the load into said hopper; and regulating means comprehending a pair of supplemental closers disposed below, carried by, and shiftable with said primary closers and comprising a pair of spring-plates one adapted to overlap the other and impinge thereon, whereby they form a tight-jointed trough below said primary closers when the latter are shut, to thereby prevent drip or leakage from said receptacle, and each of said supplemental closers having a part thereof substantially conforming in shape to one of the walls of said hopper, whereby they are operable by the discharging load to regulate the closing movement of the said primary closers.

55. The combination of beam mechanism; a load-receptacle movable therewith; a valve for regulating the supply of material to said receptacle; locking means for locking the valve wide open; and independent means operated by the beam mechanism for positively actuating said locking means to release the valve from its wide-open position and permit the same to close.

56. The combination of beam mechanism; a load-receptacle movable therewith; a valve having successive closing movements for regulating the supply of material to said receptacle; means comprising a shiftable locker, for locking the valve open in its successive operative positions; and a locker-actuator operative with the beam mechanism to engage said locker during its successive locking positions and successively release the same and thereby permit the valve, first partially to close and reduce the size of the supply-stream and then completely to cut off the same.

57. The combination of beam mechanism; a load-receptacle movable therewith; a valve having successive closing movements for regulating the supply of material to said receptacle and provided with a stop: means comprising a pivotally-disposed locker having a plurality of stops successively coacting with the valve-stop for locking the valve open in its successive operative positions; and a locker-actuator secured to the beam mechanism and operable therewith to actuate said locker successively to release the same to thereby permit the valve, first, partially to close and reduce the size of the supply-stream, and then completely to cut off the same.

58. The combination, of beam mechanism; a receptacle movable therewith; a valve having successive closing movements, for regulating the supply of material to said receptacle, and provided with a stop; a shiftable locker provided with a pair of successively-acting stops coacting with said valve-stop, to thereby lock the valve open in its successive closing movements: and a locker-actuator secured to the beam mechanism and operable therewith as it moves to its poising-point, to operate said locker to disengage one of its stops from the valve-stop and permit the valve to partially close and thereby reduce the size of the supply-stream, and operable therewith as it moves beyond its poising-point, to again actuate the same locker to release its second stop from the valve-stop and permit said valve to completely cut off the supply to said receptacle.

59. The combination, with a supply-chute, of beam mechanism; a receptacle movable therewith: a valve for regulating the supply of material to said receptacle: means shiftably secured to the supply-chute and operable to lock the valve open: and means operative with the beam mechanism, to actuate said locking means, to thereby unlock the valve and permit the same to close.

60. The combination, with a supply-chute, of beam mechanism; a receptable movable therewith: a valve having successive closing movements for regulating the supply of material to said receptacle, and provided with a stop: a locker pivotally secured to the supply-chute and provided with a plurality of successively-acting stops operable to first lock the valve wide open and then lock the same partially open to form a drip-stream; and locker-actuating means secured to the beam mechanism and operable therewith to actuate the locker and permit the valve to close.

61. The combination of beam mechanism; a load-receiver movable therewith; a valve for regulating the supply of material to said load-receiver; means for locking the valve wide open; means operated by the beam mechanism positively to actuate said locking means to permit the valve to close; and weighted mechanism operatively connected with the beam mechanism and operable independently thereof during one predetermined period to open said valve.

62. The combination of beam mechanism; a load-receptacle movable therewith; a valve for regulating the supply of material to said receptacle; means for locking the valve open; means operated by the beam mechanism to actuate said locking means to permit the valve to close; and weighted mechanism directly operated by the beam mechanism in one direction and operable independently of said beam mechanism during one predetermined period to open said valve and also adapted to assist in locking such valve open.

63. The combination, with a supply-chute, of beam mechanism; a receptacle movable therewith; a valve having successive closing movements for regulating the supply of material to said receptacle, and provided with a stop; a locker pivotally secured to the supply-chute and provided with a plurality of successively-acting stops operable to lock the valve wide open and also partially open; locker-actuating means secured to the beam mechanism and operable therewith to actuate said locker and thereby permit the valve to close; and weighted mechanism for opening said valve and operative in one direction by the beam mechanism.

64. The combination, with framework, of a supply-chute; beam mechanism supported by said framework; a load-receptacle movable therewith; a valve for regulating the supply of material to said receptacle: means for opening the valve and comprising weighted mechanism also pivotally supported by the framework independently of the beam mechanism and connected with said valve and beam mechanism; a locker pivotally secured to the supply-chute and operable to lock the valve wide open; and a locker actuator secured to and operative with the beam mechanism, for actuating said locker to unlock the same and thereby permit the valve to close.

65. The combination, with a supply-chute, of beam mechanism; a receptacle movable therewith; a valve for regulating the supply of material to said receptacle; means shiftably secured to the supply-chute and operable to lock the valve open; means operative with the beam mechanism, to actuate said locking means and thereby unlock the valve and permit the same to close: and means for locking the valve closed.

66. The combination, with framework, of a supply-chute; beam mechanism supported by said framework; a load-receptacle movable therewith: a valve having successive closing positions for regulating the supply of material to said receptacle; means for opening the valve and comprising weighted mechanism also supported by the framework, independently of the beam mechanism, and connected with said valve and beam mechanism; a locker pivotally secured to the supply-chute and operative to lock the valve open in its successive closing positions; a locker-actuator secured to and operative with the beam mechanism, to actuate said locker to unlock the same from its successive locking positions and thereby permit the valve to close: and means for locking the valve closed.

67. The combination, with framework, of a supply-chute; beam mechanism supported by said framework; a receptacle movable therewith and provided with a closer shiftable for discharging the load; a valve for regulating the supply of material to said receptacle; means for opening the valve, and comprising weighted mechanism also supported by said framework and operatively connected with said valve and beam mechanism and operable in one direction simultaneously with said beam mechanism; means for locking the valve wide open, and comprising a locker shiftably secured to the supply-chute; a locker-actuator secured to and operative with the beam mechanism, for actuating said locker to unlock the same and thereby permit the valve to close; and valve-closer-locker means operable to lock the valve closed when the closer is open and to lock the closer shut when the valve is open.

68. The combination, with framework, of a supply-chute; beam mechanism carried by said framework; a load-receptacle movable therewith and provided with a closer shiftable for discharging the load: a valve for regulating the supply of material to said receptacle; means for opening said valve and comprising weighted mechanism supported by said framework above the beam mechanism and operatively connected with said beam mechanism and valve: means for

locking the valve open and comprising a locker shiftably secured to said supply-chute; a locker-actuator secured to and operative with the beam mechanism, for actuating said locker to permit the valve to close; valve-closer-locking means operable to lock the valve closed when the closer is open and to lock the closer shut when the valve is open; and independent means for locking said closer shut and operative on the closing movement of said valve to unlock the closer.

69. The combination, with a supply-chute, of beam mechanism; a load-receptacle movable therewith and having a closer shiftable for discharging the load; a valve having successive closing movements for regulating the supply of material to said receptacle; means shiftably secured to the supply-chute and operable, first, to lock the valve wide open and then partially open; means operative with the beam mechanism, successively to actuate said locking means thereby to unlock the valve and permit the same to close; valve-closer-locking means operable to lock the closer shut when the valve is open and to lock the valve closed when the closer is open; and supplemental locking means for said closer and operable by and with the valve, to unlock the closer.

70. The combination, of a receptacle or bucket provided with a plurality of closers shiftable for discharging the load; a swinging valve operable to regulate the supply of material to said receptacle; valve-closer-locking means operable to lock the closers shut when the valve is open and to lock the valve closed when the closers are open, and comprising a stop carried by the valve and a stop carried by the bucket, the latter operatively connected with said closers; and supplemental means for locking the closers shut and operative by and on the closing movement of the valve, to unlock said closers, and comprising a locker carried by the bucket; a member shiftable with the bucket-stop and with which said locker coacts; and a hammer or arm swinging in the same plane of movement with said valve, for engaging said locker, to thereby actuate the same and permit the closers to open.

71. The combination of a load-receptacle provided with a pair of closers shiftable for discharging the load; a valve operable to regulate the supply of material to said receptacle; means for opening said valve on the shutting of the closers; and regulating means carried by said closers and comprising spring-plates one overlapping and impinging on the other to prevent drip or leakage from said receptacle and operable by the discharging load to regulate the shutting of the closers and thereby the opening of said valve.

72. The combination of a load-receptacle provided with a pair of main closers shiftable for discharging the load; a valve operable to regulate the supply of material to said receptacle; valve closer-locking means operable to lock the valve closed when the closers are open and to lock the closers shut when the valve is open; supplemental locking means for said closers and operative with and by the valve on its closing movement to unlock the closers and thereby permit the same to open; and regulating mechanism carried by the closers, for regulating the shutting of said closers and thereby the opening of the valve and also operable to prevent drip or leakage from said receptacle and comprising supplemental closers comprehending a pair of overlapping and impinging spring-plates one secured to each closer and adapted to form a close-jointed trough when said main closers are shut.

73. The combination, with framework, of a supply-chute; beam mechanism carried by the framework; a load receptacle movable with said beam mechanism and having a pair of main closers shiftable for discharging the load; a valve having successive closing movements for regulating the supply of material to said receptacle; weighted mechanism also supported by said framework above said beam-mechanism and operable to open said valve and also to assist in locking the same open and operatively connected with the beam mechanism; a locker carried by the supply-chute and shiftable to lock the valve open in its successive operative positions; means carried by the beam mechanism and operative therewith to actuate the locker and thereby permit the valve to close; valve-closer-locking means operable to lock the valve closed when the closers are open and to lock the closers shut when the valve is open; supplemental locking means for locking the closers shut and operative with and on the closing of the valve for unlocking said closers; and regulating mechanism carried by the closers and operable therewith to regulate the closing of the same and thereby the opening of the valve, and also operable to prevent drip or leakage from said receptacle, and comprising supplemental closers comprehending a pair of overlapping and impinging spring-plates one secured to each closer and adapted to form a close-jointed trough when said main closers are shut.

74. The combination, with framework, of beam mechanism carried thereby; a receptacle having a pair of main closers shiftable for discharging the load; supporting means for said receptacle and comprehending a series of levers and a series of tension-pivots connecting said levers with said framework, beam mechanism, and receptacle and having a sliding adjustment relatively to said levers; a valve having successive closing positions and operable to regulate the supply of material to said receptacle; means supported by the framework, for opening the valve, and operatively connected with the beam mechanism; means for locking the valve open in its successive operative positions; valve-closing-locking means for locking the valve closed when the closers are open and for locking the closers shut when the valve is open; supplemental locking means for locking the closers shut and operative with and on the closing movement of the valve, to unlock the closers; and regulating mechanism comprising a pair of supplemental closers operative by the discharging load, to regulate the closing movement of the main closers and thereby the opening of the valve.

75. The combination, with framework, of a supply-chute; beam mechanism carried by the framework; a connector pivotally supported by said beam mechanism; a receptacle movable with said beam mechanism and having a pair of closers shiftable for discharging the load; supporting means for said receptacle and comprehending a series of levers and a series of tension-pivots connecting said levers with the framework, connector, and receptacle and having a sliding adjustment transversely of the plane of movement of said levers; a swinging valve having successive closing movements, for regulating the supply of material to said receptacle; weighted mechanism pivotally supported by said framework, for opening said valve and operable also to assist in locking the same open and operatively connected with the beam mechanism, for movement therewith in one direction; a locker pivotally supported on the supply-chute and operable to lock the valve open in its successive operative positions; a locker-actuator pivotally secured to the beam mechanism and operative therewith, to actuate said locker to thereby permit the valve to close; valve-closer-locking means operative to lock the valve closed when the closers are open and to lock the closers shut when the valve is open and comprising a pair of stops, one operative with the valve and the other operative with the bucket and the latter operatively connected with each of said closers; supplemental locking means for locking the closers shut and operative with and on the closing of the valve to unlock said closers, and comprising a locker carried by the bucket and having a trip-arm, a coacting member shiftable with the bucket-stop, and a trip-arm actuator or hammer swinging in the same plane of movement with the valve and operative to trip the locker and thereby unlock the closers, to permit the same to open; and regulating mechanism carried by the closers and operable to regulate the closing movement of the same and thereby the opening movement of the valve, and comprising a pair of spring members or plates operable by the discharging load, and one adapted to overlap the other, whereby they also act as supplemental closers to prevent leakage from the receptacle.

76. The combination, with framework, of receptacle mechanism embodying a receptacle: beam mechanism; and supporting means operative with the beam mechanism and comprehending a series of levers provided with curved or arc-shaped bearing members adjustable relatively thereto, and a series of tension-pivots pivotally secured to said framework and receptacle and secured to said bearing members, for bodily adjustment therewith, in the arcs of circles, with the pivotal points of said pivots as the centers thereof.

77. The combination, with framework, of receptacle mechanism embodying a receptacle; beam mechanism carrying a connector; and supporting means comprising a series of levers having curved or arc-shaped bores and provided with curved bearing members adjustable therein, a series of hangers pivotally secured to said framework, receptacle, and connector, and a series of tension-pivots connecting said hangers with said bearing members, whereby they have a sliding adjustment transversely of the plane of movement of said levers and in the arcs of circles, with the pivotal points of said hangers as the centers thereof.

585,988. AUTOMATIC WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 24, 1896. Serial No. 616,902. (No model.)

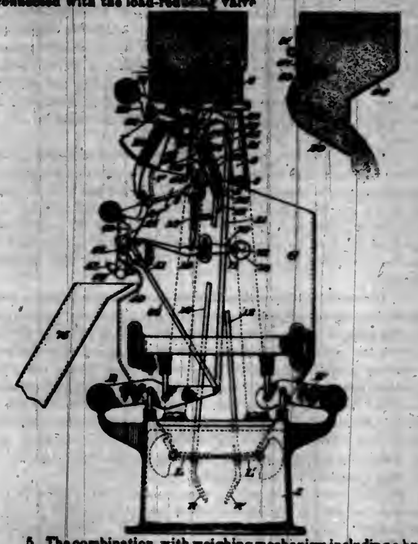
Claim.—1. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means, the overloading means including a valve; and instrumentalities operative with the load-reducing means, for holding said valve in its wide-open position and against movement until the load-receiver has reached a certain point.

2. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means, each including a valve; and means operative with the load-reducing valve, for holding the overload-controlling valve in its wide-open position and against movement until the load-receiver has reached a certain point.

3. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means, the overloading means including a valve; mechanism operable to prevent the premature discharge of a load, and including a stop which is connected with said valve; an arm on said stop; and a second stop operable to

engage said arm, to hold the same, and consequently the valve, against movement for a predetermined length of time.

4. The combination, with weighing mechanism including a load-receiver: of overloading and load-reducing means, each embodying a valve; an arm connected with the overload-controlling valve; and a cooperating stop positioned to engage said arm, said stop being connected with the load-reducing valve



5. The combination, with weighing mechanism including a bucket provided with a closer, of an interlocking stop connected with said closer; overloading and load-reducing means, the overloading means embodying an interlocking stop that is positioned to coact with the first-mentioned interlocking stop, and which also has an arm; and means operable for engaging said arm, to thereby hold the same against movement until the load-receiver has reached a certain point.

6. The combination, with stream-supplying means, of a stream-controller; an actuator operable to advance said stream-controller; and means for throwing said actuator out of connection with the stream-controller when the latter has reached the end of its advancing movement.

7. The combination, with stream-supplying means, of a cut-off valve; an actuator operable to shut said valve; and means for throwing said actuator out of connection with said valve when the latter has cut off the stream.

8. The combination, with weighing mechanism including a load-receiver, of stream-supplying means: a valve; means for maintaining said valve in its wide-open position; an actuator operable to shut the valve; and means for throwing said actuator out of operative connection with the valve when the latter has cut off the stream.

9. The combination, with a load-receiver, of stream-supplying means therefor; a stream-controller; an actuator operable to advance said stream-controller; and means on said load-receiver, for throwing said actuator out of connection with the stream-controller when the latter has reached the end of its advancing movement.

10. The combination, with a bucket having a closer, of stream-supplying means for the bucket; a stream-controller; an actuator operable to advance said stream-controller; and means connected to, and operated by, the closer, for throwing said actuator out of connection with the stream-controller.

11. The combination, with a load-receiver having a rocker thereon, of stream-supplying means; a stream-controller; an actuator operable to advance said stream-controller; and a connection between said rocker and the actuator, to throw the latter out of connection with the stream-controller at a predetermined point.

12. The combination, with a load-receiver having a rocker thereon provided with a pin or lug, of stream-supplying means; a stream-controller; an actuator operable to advance said stream-controller, and having a link, said link having a loop which is passed over said pin or lug.

13. The combination, with stream-supplying means, of a stream-controller; an actuator supported to advance said stream-controller; and means for throwing said actuator into and out of operative relation with the stream-controller, the last-mentioned operation taking place when said stream-controller has reached the end of its advancing movement.

14. The combination, with stream-supplying means, of a stream-controller; an actuator for advancing said stream-controller; and means for throwing said actuator into and out of operative relation with the stream-controller.

15. The combination, with stream-supplying means, of a stream-controller; an actuator for said stream-controller; and a latch for engaging said actuator to hold it out of connection with the stream-controller.

16. The combination, with stream-supplying means, of a stream-controller; an actuator for said stream-controller; a latch operable to engage said actuator, to hold it normally out of connection with the stream-controller; and latch-tripping means.

17. The combination, with weighing mechanism, of stream-supplying means; a stream-controller; an actuator for said stream-controller, supported for movement independently thereof; a latch located to engage said actuator; and latch-tripping means operative with the weighing mechanism.

18. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; an actuator for advancing said stream-controller; a latch for engaging said actuator, normally to hold it out of operative connection with the stream-controller; and latch-tripping means operated by the weighing mechanism.

19. The combination, with stream-supplying means, of a stream-controller; a counterweighted actuator for said stream-controller; and a latch for engaging said actuator, normally to hold it out of connection with the stream-controller.

20. The combination, with stream-supplying means, of an oscillatory valve; a valve-actuator movable concentrically to said valve; and a latch located to engage said actuator, normally to hold it out of connection with the valve.

21. The combination, with stream-supplying means, of a valve and its supporting-shaft; an actuator for said valve, loosely movable about said shaft; and a latch for engaging said actuator, normally to hold it out of connection with the valve.

22. The combination, with stream-supplying means, of a valve adapted to be opened by the pressure of the supply of material thereagainst; an actuator to shut said valve; and means for throwing said actuator out of operative relation with the valve when the latter has reached its cut-off position.

23. The combination, with stream-supplying means, of a stream-controller; an actuator supported to advance said stream-controller; and means for throwing the actuator out of connection with the stream-controller when the latter has reached the end of its advancing movement, and for also locking said stream-controller against retraction.

24. The combination, with stream-supplying means, of a stream-controller; an actuator for advancing the stream-controller, supported for movement independently thereof; and means carried by the framework, adapted to lock the stream-controller against retractive movement.

25. The combination, with weighing mechanism embodying a load-receiver: of overloading and load-reducing means, the first-mentioned including a stream-controller: an actuator for advancing said stream-controller and supported for movement independently thereof; and a detent positioned to engage said actuator at a predetermined point.

26. The combination, with a bucket having a closer and with stream-supplying means therefor, of a stream-controller; an actuator for advancing said stream-controller and supported for movement independently thereof: a latch operative independently of the closer; for holding the stream-controller against retractive movement, and means operated by the closer, for tripping said latch.

27. The combination, with weighing mechanism including a load-receiver and with load-discharge-controlling mechanism embodying a latch, of stream supplying means; a stream-controller; a latch for engaging said actuator, normally to hold it out of operative connection with the stream-controller; and a member provided with two trippers, one for each of said latches.

28. The combination, with weighing mechanism including a load-receiver and with load-discharge-controlling mechanism embodying a latch, of stream-supplying means; a stream-controller; a latch for engaging said actuator, normally to hold it out of connection with the stream-controller; and a reciprocatory rod provided with two trippers, one for each of said latches.

29. The combination, with a bucket and with a scale-beam therefor, of stream-supplying means; a stream-controller; an actuator for said stream-controller; a latch for engaging said actuator, normally to hold it out of connection with the stream-controller; and a tripper for said latch, connected to the scale-beam.

30. The combination, with weighing mechanism including a load-receiver; load-discharge-controlling mechanism comprehending a latch; overloading and load-reducing means, the last-mentioned com-

adying a valve; and means operative with the valve, to block the action of said latch on the opening movement thereof.

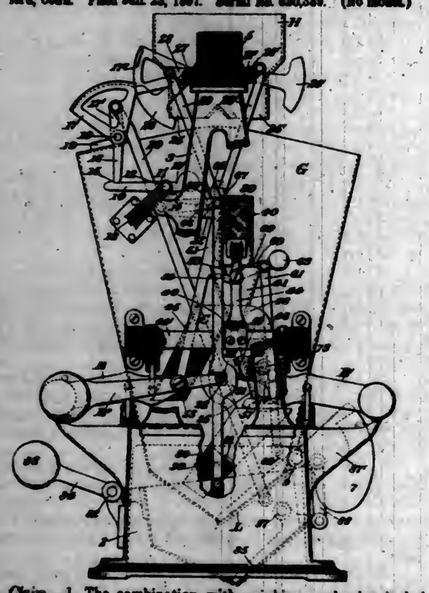
31. The combination, with weighing mechanism including a load-receiver and with load-discharge-controlling mechanism comprehending a latch; of overloading and load-reducing means, the last-mentioned including a valve; and a stop-segment connected with said valve, to block the action of the latch on the opening of said valve.

32. The combination, with a hopper, of a valve therefor; valve-closing mechanism; a longitudinal plate jointed to the valve and extending lengthwise thereof, the lower edge of said plate being substantially in contact with the rear edge of the valve; and a guide for said plate.

33. The combination, with a hopper, of a valve; valve-closing mechanism; a longitudinal plate jointed to the valve and extending lengthwise thereof, the lower edge of said plate being substantially in contact with the rear edge of the valve; and a second plate pivotally connected, respectively, with said first-mentioned plate and with the hopper.

34. The combination, with a bucket having a discharge-outlet, of a plurality of closers; a rocker on the bucket, connected by rods with said closers; and regulators, one for each of said closers, joined to said rods.

585,984. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Jan. 23, 1897. Serial No. 620,389. (No model.)



Claim.—1. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of a swinging spout situated to remove material from the load-receiver through said opening during the weighing of a load.

2. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of overloading means; and a swinging spout situated to remove material from the load-receiver through said opening during the weighing of a load.

3. The combination, with a load-receiver having a stationary spout leading therefrom, of a swinging spout supported below said stationary spout and operable to remove material from the load-receiver through said first-mentioned spout during the weighing of a load.

4. The combination, with weighing mechanism including a load-receiver: of a two-way conduit, the branches of which lead toward and from the load-receiver; means for removing material from the load-receiver and delivering it to the branch of said conduit that leads from said load-receiver during the weighing of a load; and a valved auxiliary load-receptacle disposed below said last-mentioned branch of the conduit.

5. The combination, with weighing mechanism including a load-receiver: of a two-way conduit, the branches of which lead, respectively, toward and from said load-receiver, said conduit being provided with a cut-off portion; a swinging spout normally located over said cut-off portion; and means for swinging said spout to deliver its contents alternately to the branches of the conduit.

6. The combination, with weighing mechanism including a load-receiver; of a two-way conduit, the branches of which lead toward and from the load-receiver; a swinging spout located to remove material from said load-receiver; and means operated by the weighing mechanism, for actuating said spout to deliver its contents to one of the branches of the conduit during the weighing of a load.

7. The combination, with weighing mechanism including a load-receiver; of a two-way conduit, the branches of which lead toward and from said load-receiver; a swinging spout located to remove material from the load-receiver; means operated by the weighing mechanism, for actuating said spout to deliver its contents into the branch of the conduit that leads from the load-receiver during the weighing of a load; and an actuator for oppositely swinging said spout at the conclusion of the weighing operation, whereby its contents will be delivered to the other branch of said conduit.

8. The combination, with weighing mechanism including a load-receiver having a load-reducing opening; of a two-way flanged conduit, the respective branches of which lead toward and from the load-receiver; a swinging spout situated adjacent to said opening; and means for swinging said spout toward the branch of the conduit that leads from the load-receiver during the weighing of a load, and for oppositely swinging said spout at the conclusion of the weighing operation.

9. The combination, with weighing mechanism including a load-receiver having a load-reducing opening; of a two-way flanged conduit, the respective branches of which are inclined and lead toward and from the load-receiver, one of them being in communication with an opening in said load-receiver, said conduit also having a flat cut-off portion between its branches; a swinging spout situated adjacent to the load-reducing opening and normally located over said cut-off portion; and means for swinging said spout toward the branch of the conduit that leads from the load-receiver during the weighing of a load, and for oppositely swinging said spout at the conclusion of the weighing operation.

10. The combination, with a load-receiver having a closer, of a two-way conduit the branches of which lead toward and from the load-receiver; a swinging spout situated to remove material from the load-receiver through an opening therein during the weighing of a load and to deliver it into one of the branches of said conduit; and means connected with the closer, for preventing the movement of said spout toward the other branch of the conduit while the closer is shut.

11. The combination, with a load-receiver having a closer, of an oscillatory load-reducing device; a two-way conduit, the respective branches of which lead toward and from the load-receiver; actuating means for swinging said load-reducing device in one direction; and means connected with the closer, for limiting the opposite action of said load-reducing device during the weighing of a load.

12. The combination, with weighing mechanism including a load-receiver having a closer, of overloading means; load-reducing means including a swinging spout; an actuator for said spout, provided with a pin; and a member connected with the closer, situated to uphold said pin for a predetermined length of time.

13. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading means; load-reducing means embodying a swinging spout having trunnions; a crank-arm loosely connected to one of the trunnions and also with said closer; and an arm projecting from said spout, furnished with a pin that is upheld by said crank-arm.

14. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading means; load-reducing means including a swinging spout provided with a counterweighted actuator furnished with a pin, said spout also having trunnions; and a crank-arm loosely connected to one of the trunnions and situated normally to uphold said pin, said crank-arm being connected with the closer.

15. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading means; load-reducing means including a swinging spout; an actuator for swinging the same in one direction, said actuator being furnished with a pin; an actuator connected with the weighing mechanism, for oppositely swinging said spout during the weighing of a load; and a crank-arm connected with the closer and situated to uphold said pin.

16. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading means; a two-way conduit, the branches of which lead toward and from the load-receiver, respectively; a swinging spout situated to remove material from an opening in the load-receiver during the weighing of a load and to deliver it into the branch of said conduit that leads from the load-receiver; an auxiliary valved load-receptacle adapted to receive the material removed from the load-receiver; means connected with the closer, for preventing the action of said spout in one direction when the closer is shut; and means also connected with the closer, for actuating the valve of the auxiliary load-receptacle on the opening of said closer.

17. The combination, with a load-receiver, of load-discharging means; and a valved regulator-hopper situated below said load-receiver and adapted to receive the contents therefrom, the valve of said hopper being connected with the framework.

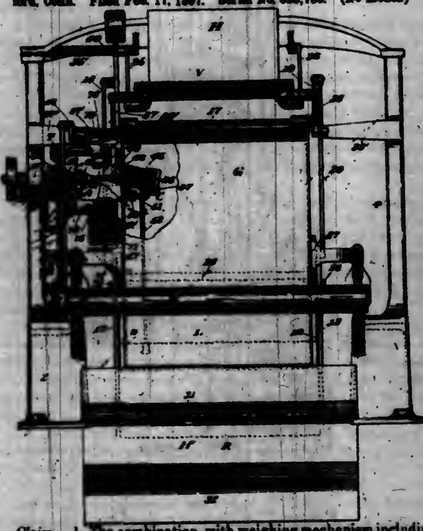
18. The combination, with a load-receiver, of a valved regulator-hopper situated below the load-receiver and adapted to receive the contents therefrom; and a resistance member connected with the valve of said hopper.

19. The combination, with a load-receiver, of a valved regulator-hopper situated to receive the contents discharged from said load-receiver; a resistance member; and a link attached, respectively, to said resistance member and valve.

20. The combination, with weighing mechanism including a load-receiver, of a valved regulator-hopper situated to receive the contents discharged from said load-receiver and connected with the weighing mechanism; and a connection between the valve of the regulator-hopper and the framework.

21. The combination, with weighing mechanism including a load-receiver, of overloading means embodying a valve; a shiftable valve-actuator; and a valved regulator-hopper, the valve of which is connected to the framework, said hopper being also connected with the valve-actuator and with said first-mentioned valve.

585,985. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 17, 1897. Serial No. 623,709. (No model.)



Claim.—1. The combination, with weighing mechanism including a load-receiver, of a conveyer; a casing for said conveyer, said casing being mounted on the load-receiver and having a part supported for movement relatively to the conveyer; driving mechanism for operating said conveyer during the weighing of a load, to remove material from the load-receiver; and means for shifting said movable casing part at a predetermined point.

2. The combination, with weighing mechanism including a load-receiver, of a conveyer; a casing for said conveyer, mounted on the load-receiver, the floor of said casing being supported for tilting movement relatively to the conveyer; driving mechanism for operating said conveyer during the weighing of a load, to remove material from the load-receiver; and means for shifting the casing-floor at a predetermined point.

3. The combination, with weighing mechanism including a load-receiver, of a conveyer; a casing for said conveyer, having a tilting floor; driving mechanism for operating said conveyer during the weighing of a load, to remove material from the load-receiver; and means for shifting said tilting floor on the discharge of a load.

4. The combination, with weighing mechanism including a load-receiver provided with a closer, of a conveyer; a casing for said conveyer, mounted on the load-receiver and having a tilting floor; driving mechanism for operating said conveyer during the weighing of a load, to remove material from the load-receiver; and a connection between said tilting floor and the closer, whereby on the opening of the latter the floor will be shifted.

5. The combination, with weighing mechanism embodying a load-receiver; of a conveyer mounted on the load-receiver, for effecting the removal of material therefrom; stream-supplying means; a valve; links carrying said valve; a rod connected with the valve; driving mechanism for said conveyer; and means operative with said rod, for controlling the action of the conveyer.

6. The combination, with weighing mechanism embodying a load-receiver, of overloading and load-reducing means, the load-reducing means including a conveyer; and a casing for said conveyer, said casing having a part thereof supported for movement relatively to the conveyer.

7. The combination, with weighing mechanism including a load-receiver, of a conveyer and its driving mechanism embodying a clutch; a clutch-actuator; two members in screw-threaded engagement, one of said members being cooperative with the clutch-actuator; and means controlled by the weighing mechanism, for operating the other screw-threaded member during the weighing of a load, whereby the clutch members will be coupled to start the conveyer.

8. The combination, with weighing mechanism embodying a load-receiver, of a conveyer; driving mechanism for said conveyer, including a clutch; an actuator for said clutch; two members in screw-threaded engagement, one of said members being connected with the clutch-actuator and the other being mounted on the framework; and means controlled by the weighing mechanism, for operating said last-mentioned member during the weighing of a load.

9. The combination, with weighing mechanism including a load-receiver, of a conveyer and its driving mechanism comprehending a clutch; an actuator for said clutch; an interiorly-threaded sleeve mounted on the framework; a bolt seated in said sleeve and connected with the clutch-actuator; and means controlled by the weighing mechanism, for turning said sleeve during the weighing of a load.

10. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on the load-receiver; driving mechanism for said conveyer, including a clutch; an interiorly-threaded sleeve on the framework, furnished with means for limiting its longitudinal movement; a threaded bolt seated within said sleeve and connected with the actuator; and means controlled by the weighing mechanism, for turning said sleeve, during the weighing of a load, whereby the members of the clutch can be coupled to start the conveyer.

11. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on the load-receiver; driving mechanism for said conveyer, including a clutch; an actuator for said clutch; two members in screw-threaded engagement, one of said members being connected with the clutch-actuator and the other member being mounted on the framework; a counterweighted arm for turning said last-mentioned member; and means operative with the weighing mechanism, for controlling the action of said arm.

12. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; a clutch-actuator; two screw-threaded members in engagement, one of them being connected with the clutch-actuator and the other being carried by the framework; a counterweighted arm connected to said last-mentioned member, for turning the same; and a reciprocatory rod pivoted to said arm and controlled by the weighing mechanism.

13. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; a clutch-actuator; two members in screw-threaded engagement, one of them being connected with the clutch-actuator and the other being mounted on the framework; a counterweighted arm for turning said last-mentioned member; means including a latch, for governing the discharge of the load; and a reciprocatory rod pivoted to said counterweighted arm and controlled by the weighing mechanism, said rod being furnished with a tripper for said latch.

14. The combination, with weighing mechanism, of load-discharge means therefor embodying a latch; a conveyer and its driving mechanism, comprehending a clutch; an actuator for said clutch; two screw-threaded members, one of which is connected with said actuator; an arm connected with the other screw-threaded member; and a rod controlled by the weighing mechanism, said rod having a tripper for the latch and being also connected with said arm.

15. The combination, with weighing mechanism including a load-receiver, of a hopper in position to supply a stream of material to the load-receiver; a valve situated below the hopper; links connected to said valve at opposite sides of one of its axes, said links projecting in reverse directions from the valve and being connected with the framework; a device for operating the valve, to stop the flow of material to the load-receiver; and means operative with the weighing mechanism, for actuating the valve.

16. The combination, with weighing mechanism including a load-receiver, of a hopper; a valve for said hopper; links extending rearwardly from the valve and at opposite sides of one of its axes, said links being attached to the framework; a shaft to which one of the links is attached; a valve-closing device mounted on said shaft; and

connections between the valve and the weighing mechanism, for controlling the action of the valve.

17. The combination, with weighing mechanism including a load-receiver, of a hopper in position to supply a stream of material to the load-receiver; a valve for the hopper; a valved spout on the framework; a reciprocatory rod provided with a pin and connected with the hopper-valve and bearing against the weighing mechanism; and a counterweighted arm connected to the valve of said spout and adapted to engage said pin.

18. The combination, with weighing mechanism including a load-receiver, of a hopper in position to supply a stream of material to the load-receiver; a valve situated below the hopper; links arranged in pairs and connected to the valve at opposite sides of one of its axes, said links projecting in reverse directions from the valve and being connected to the framework; a shaft secured to one of the links and provided with a crank-arm; a rod pivoted to said crank-arm and bearing against the weighing mechanism; a valved hopper, the valve of which is furnished with an arm adapted normally to engage a pin on said rod; load-reducing means; and a second reciprocatory rod having means operative therewith for controlling the action of the load-reducing means.

19. The combination, with weighing mechanism embodying a load-receiver; of a valved spout; a conveyer mounted on the load-receiver; a hopper situated to supply material to the load-receiver; driving mechanism for the conveyer, embodying a clutch; a valve; links connected with said valve; a shaft secured to one of the links and provided with a crank-arm; a rod pivoted to said crank-arm and furnished with a pin; an arm connected with the valve of said spout and adapted normally to rest on said pin; and a second rod controlled by the weighing mechanism and having means coöperative therewith for coupling and uncoupling the members of the clutch.

20. The combination, with weighing mechanism including a load-receiver; of means embodying a latch, for governing the discharge of a load; a conveyer mounted on the load-receiver; a valved spout secured to the framework; a hopper located to deliver a stream of material to the load-receiver; a valve for said hopper; a rod connected with said valve and provided with a pin; an arm on the valve of said spout, normally engaging said pin; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, comprehending a clutch; a second reciprocatory rod bearing against the weighing mechanism and having means coöperative therewith for coupling and uncoupling the members of the clutch; and a tripper for the latch, mounted on said last-mentioned rod.

21. The combination, with a load-receiver provided with a closer; of means including a latch, for holding the closer shut; a supply-hopper located to deliver a stream of material to the load-receiver; a valve for said supply-hopper; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, including a clutch; a reciprocatory rod governed by the weighing mechanism and connected with the valve, said rod having a pin; a valved spout mounted on the framework, the valve thereof being furnished with an arm normally engaging said pin; a second rod furnished with a tripper for the latch, said rod being also controlled by the weighing mechanism and having means operative therewith for coupling and uncoupling the clutch; a stop connected with the valve for the hopper; and a coöperating stop connected with the closer, each of said stops being adapted to block the action of the other.

22. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means therefor, the overloading means embodying a valve; an auxiliary load-receiver; a valve for said auxiliary load-receiver; a rod having a device for operating the auxiliary valve and connected with the first-mentioned valve; a shiftable actuator in position for imparting a stroke to said rod; a stop connected with the overload-controlling valve; and a coöperating stop mounted on the weighing mechanism.

23. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a valve having supporting-links connected thereto at different points; a shaft to which one of said links is attached; a rod coöperative, respectively, with said shaft and the weighing mechanism; means for removing material from the load-receiver; a valved receiver; a device on said rod, for operating the valve of said receiver; an interlocking stop coöperative with the first-mentioned valve; and a coöperating interlocking stop on the weighing mechanism.

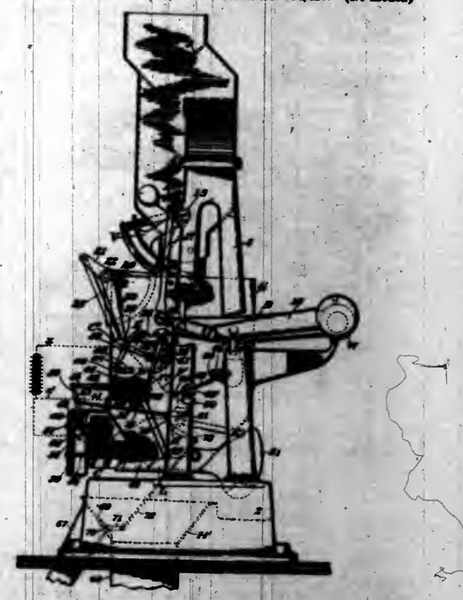
24. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a closer consisting of two oppositely-inclined sections adapted, when shut, to fit against the similarly-shaped lower end of the load-receiver; longitudinal rods secured to opposite ends of the closer; a closer-retarding regulator fixed between said rods; and counterweighted levers mounted on the opposite ends of the load-receiver and connected, respectively, to said rods.

25. The combination, with a load-receiver having a discharge-outlet, of a closer for said outlet, supported for reciprocatory movement relatively to the load-receiver; a rod fixed to said closer; and a counterweighted lever supported on the load-receiver and connected with said rod.

26. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of stream-supplying means; a valve controlled by the weighing mechanism; supporting-links for said valve, connected thereto at different points; an interlocking stop coöperative with said valve; rods fixed to said closer at opposite ends thereof; counterweighted levers mounted on the load-receiver and pivoted to said rods; a regulator fixed to said rods; and an interlocking stop coöperative with the first-mentioned interlocking stop and connected with said rods.

27. The combination, with weighing mechanism embodying a load-receiver; of overloading and load-reducing means therefor, the load-reducing means including a conveyer; driving mechanism for said conveyer, comprehending a clutch; two members in screw-threaded engagement; an actuator connected with one of said screw-threaded members; means for turning the other screw-threaded member; and a shiftable device mounted on the weighing mechanism, for controlling the action of the means that turn said screw-threaded member.

585,986. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 20, 1897. Serial No. 624,417. (No model.)



Claim.—1. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; driving connections between the motor and the conveyer; and means controlled by the weighing mechanism for closing said circuit at a predetermined point.

2. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; driving connections between the motor and the conveyer, including a clutch; and means controlled by the weighing mechanism for successively coupling the clutch members and closing the motor-circuit.

3. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; driving connections embodying a clutch, between the motor and the conveyer; a solenoid, the core of which is operable for coupling the clutch members; and means controlled by the weighing mechanism for energizing the solenoid and for closing the motor-circuit to thereby start the conveyer.

4. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; a casing for housing said motor, said casing being carried by the load-receiver; driving connections

between the motor and the conveyer; and means controlled by the weighing mechanism for closing said circuit at a predetermined point.

5. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; a casing for housing said motor, said casing being attached to the load-receiver; driving connections between the motor and the conveyer, said connections being also housed within said casing; and means controlled by the weighing mechanism for closing said circuit at a predetermined point.

6. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; a casing for housing said motor, said casing also constituting a partial hood for the conveyer and being attached to the load-receiver; driving connections between said motor and the conveyer; and means controlled by the weighing mechanism for closing said circuit at a predetermined point.

7. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; a casing for housing said motor, said casing having a part thereof concave, said concave portion constituting a partial hood for the conveyer, said casing being attached to the load-receiver; driving connections between the motor and the conveyer; and means controlled by the weighing mechanism for closing said circuit at a predetermined point.

8. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; an electric circuit having a motor therein for operating said conveyer; a casing for housing said motor, said casing being attached to the load-receiver and having a concave portion which constitutes a partial hood for said conveyer; a clutch and gearing also situated within said casing and coöperative, respectively, with the motor and the conveyer; and means controlled by the weighing mechanism for coupling the clutch members and for closing said circuit at predetermined points.

9. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the last mentioned embodying a conveyer; electric circuits, one of which has a motor therein, the other having a solenoid with which is coöperative means for throwing the motor into mechanical connection with the conveyer; and means controlled by the weighing mechanism for successively closing the solenoid and motor-circuits.

10. The combination, with weighing mechanism embodying a load-receiver having a discharge-outlet; of overloading and load-reducing means, the last mentioned including a conveyer; driving mechanism for said conveyer; and a closer for said discharge-opening, said closer being adapted, when shut, to form a partial floor for the conveyer.

11. The combination, with weighing mechanism embodying a load-receiver having a discharge-outlet; of overloading and load-reducing means, the last mentioned including a conveyer carried by the load-receiver; driving mechanism for said conveyer; a closer for said discharge-outlet, adapted, when shut, to form a partial floor for the conveyer; and closer-holding means comprehending a latch.

12. The combination, with weighing mechanism embodying a load-receiver having a discharge-outlet, of a conveyer carried by said load-receiver; a casing attached to the load-receiver and constituting a partial hood for said conveyer; driving mechanism for said conveyer, housed within said casing; and a closer for said discharge-outlet, adapted, when closed, to form a partial floor for said conveyer.

13. The combination, with weighing mechanism embodying a load-receiver having a discharge-outlet, of a conveyer carried by said load-receiver; means for starting the load-receiver before the discharge of a load thereby; and a closer for said discharge-outlet, said closer being adapted, when shut, to form a partial floor for the conveyer.

14. The combination, with weighing mechanism including a load-receiver, of a duplex hopper, one of the conduits of which is intended to receive the true load discharged by the load-receiver; means for removing material from said load-receiver before the discharge of the true load and for delivering the same to the other conduit of said duplex hopper; and a shiftable deflector controlling the delivery of material to said conduits.

15. The combination, with weighing mechanism including a load-receiver; of a duplex hopper, one of the conduits of which is situated to receive the true load discharged by the load-receiver; means for removing material from said load-receiver before the discharge of the true load and for delivering the same to the other conduit of said duplex hopper; a deflector controlling the delivery of material to said conduits; and means controlled by the weighing mechanism for operating said deflector.

16. The combination, with weighing mechanism including a load-receiver, of overloading means therefor; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, whereby it is adapted to remove the surplus from the load-receiver; a duplex hopper one of the conduits of which is situated to receive the surplus removed from the load-receiver; and means for effecting the discharge of the load into the other conduit of said duplex hopper.

17. The combination, with weighing mechanism embodying a load-receiver, of a conveyer; a motor; driving connections between said motor and conveyer, including a clutch; means for coupling the clutch members at a predetermined point; a duplex hopper; a deflector for controlling the delivery of material to the branches of said duplex hopper; and means for operating said deflector, said means being coöperative with the clutch-operating means.

18. The combination, with weighing mechanism including a load-receiver, of a duplex hopper; a deflector situated within said duplex hopper and controlling the delivery of material to the respective conduits thereof; a conveyer; a motor; driving connections between said motor and conveyer, including a clutch; a solenoid; an actuator for said clutch, connected with the solenoid; connections between said deflector and said solenoid; and means for energizing said solenoid.

19. The combination, with weighing mechanism including a load-receiver, of a duplex hopper; a deflector situated within said hopper; a conveyer; a motor; driving connections between said motor and conveyer, including a clutch; an actuator for said clutch; a solenoid, the core of which is connected with said clutch-actuator; a lever; and connections between said lever and solenoid and deflector, respectively.

20. The combination, with weighing mechanism including a load-receiver, of a conveyer; a motor; driving connections between said motor and conveyer, said connections including a clutch; a clutch-actuator; an electric circuit having a solenoid, the core of which is connected with said clutch-actuator; a circuit-controller; and a resistance member on the framework, coöperative with said circuit-controller.

21. The combination, with weighing mechanism embodying a load-receiver, of a conveyer operable for removing material from the load-receiver prior to the discharge of its load; load-discharge-controlling means including a latch; a motor; driving connections between said motor and conveyer, including a clutch; a clutch-actuator; a multiple solenoid, the core of which is connected with said clutch-actuator; an electric circuit having two terminals connected with the solenoid; a circuit-controller adapted to alternately pass in contact with said terminals as the load-receiver descends and ascends during the making of a load; and a latch-tripper coöperative with said solenoid-core.

22. The combination, with weighing mechanism embodying a load-receiver; a conveyer operable for removing material from the load-receiver; two electric circuits, one of which has therein a motor; driving connections between said motor and the conveyer, including a clutch; a solenoid in one of said circuits; a clutch-actuator connected to the core of said solenoid; a circuit-controller governed by the weighing mechanism and operable at a predetermined point for closing the solenoid-circuit; and a second circuit-controller also governed by the weighing mechanism and operable for subsequently closing the motor-circuit.

23. The combination, with weighing mechanism embodying a load-receiver, of a conveyer operable for removing material from the load-receiver; a motor; driving connections between said motor and the conveyer, including a clutch; a clutch-actuator; a solenoid, the core of which is connected to the said actuator; a circuit-controller consisting of an angle-lever carried by the load-receiver; and a resistance member on the framework, coöperative with one of the arms of said angle-lever.

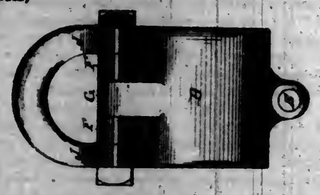
24. The combination, with weighing mechanism embodying a load-receiver, of means for supplying an overload to said load-receiver; a conveyer carried by the load-receiver; an electric circuit having a motor therein; driving connections between said motor and conveyer; and a circuit-controller connected, respectively, with the load-receiver and the framework, for closing the motor-circuit at a predetermined point, thereby to start the conveyer in operation to cause it to remove the surplus from the load-receiver.

25. The combination, with weighing mechanism embodying a load-receiver, of a conveyer operable for removing material from said load-receiver; a motor; driving connections between the motor and the conveyer, embodying a clutch; an actuator for said clutch; a shaft from which said actuator is suspended; a rock-arm attached to said shaft; a solenoid, the core of which is connected with said rock-arm; and means for energizing said solenoid at a predetermined point.

26. The combination, with a load-receiver having a discharge-outlet, of a conveyer carried by the load-receiver and operable for removing material therefrom before the discharge of a load; a closer for said discharge-outlet, having a part thereof constituting a partial

floor for the conveyer: and a duplex hopper, one of the conduits of which is situated to receive the material removed from the load-receiver.

585,987. SINGLETREE COUPLING-CLAMP. WILLIAM RODENHAMEL, Philadelphia, Pa. Filed Feb. 24, 1897. Serial No. 624,866. (No model.)



Claim.—1. A singletree-coupling having sections provided with lugs having openings, a clevis with openings in its limbs, and a bolt in the openings of said lugs and clevis, said sections having openings adjacent to said lugs to receive the angular ends of said limbs.

2. A singletree-coupling consisting of two sections having lugs for connecting said sections and ears with means for locking said sections in closed condition, a clevis provided with angular ends located in openings in said sections, and a bolt or fastening device passing through openings in the ends of said clevis and through said lugs.

3. A singletree-coupling composed of sections, ears attached to said sections, means for holding said ears in juxtaposition, lugs oppositely located with respect to said ears, the upper portions of said sections adjacent to said lugs having openings therein, a clevis having openings common to said lugs and its extremities adapted to enter the openings in said sections whereby independent oscillation or movement of the clevis relative to said coupling is prevented.

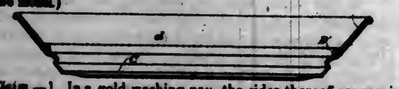
4. In a singletree coupling or clamp, sections, ears attached to said sections, means for holding the latter in juxtaposition, lugs attached to said sections opposite to said ears, squared openings in said sections adjacent said lugs a clevis having squared ends adapted to enter said openings, openings in the limbs of said clevis adapted to be in alinement with openings in said lugs, and fastening devices common to said clevis and lugs.

585,988. CAR-BRAKE. JOHN G. SCHUMANN, Pittsburg, Pa. Filed Mar. 27, 1897. Serial No. 630,503. (No model.)



Claim.—In an emergency-brake, the combination of the brake-shoes pivotally secured to the truck-beam said shoes being provided with a roughened gripping-surface to engage the rail, a curved cut-away portion to engage the wheel, a bell-crank pivotally secured to the truck-beam, a link connecting one arm of said bell-crank to the brake-shoe, means secured to the opposite arm of said bell-crank whereby the brake is applied to the wheel and rail, substantially as shown and described.

585,989. GOLD-WASHING PAN. FREDERICK SLETCHER, San Francisco, Cal., assignor of one-half to August Dannenbrink and Henry Dannenbrink, Gilta, Cal. Filed Feb. 25, 1897. Serial No. 624,945. (No model.)



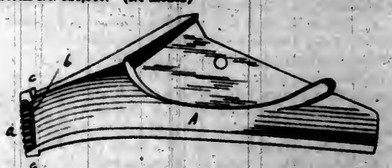
Claim.—1. In a gold-washing pan, the sides thereof converging from the top toward the bottom and having an inwardly-projecting rib, said bottom having crescent-shaped indentations of curved form laterally and lessening in depth near the ends.

2. In a gold-washing pan a sieve or screen frame fitting the interior of the pan, and having its upper edge curved or hooked to fit over the corresponding edge of the pan, and a sieve-bottom fixed to said screen-frame so as to leave a space between itself and the bottom of the pan.

3. In a gold-washing pan for hand washing, a pan having an annular rib formed upon its inner sides between the top and bottom, a screen-frame having a corrugated lower portion adapted to be supported on said rib and having its upper edge to fit over the top edge of the pan, and a sieve-bottom secured to the corrugated lower portion of the frame.

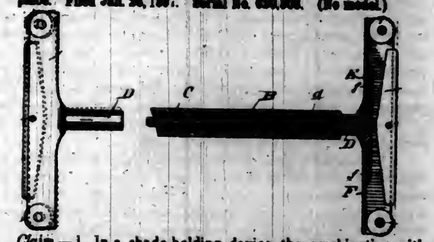
4. In combination with a gold-washing pan having a rib on its inner sides between the top and bottom, a sieve-frame having an annular, inwardly-projecting rib about its bottom to rest in contact with the first-named rib, and provided with perforations, and a screen or sieve formed of wires the ends of which are secured in said perforations.

585,990. PLOW-POINT. EDWARD L. TROUP, Dunbar, Ohio, assignor of one-half to David S. Troup, same place. Filed Mar. 6, 1897. Serial No. 626,319. (No model.)



Claim.—As an improved article of manufacture a plow-point provided with the teeth *a*, located upon the raised portion *b*, and upon the under face of the point, the teeth *c*, extended beyond the edges of the point and of greater size than the teeth located between said teeth *c*, substantially as and for the purpose specified.

585,991. SHADE AND CURTAIN HOLDING DEVICE. PITTELL VINCENT, Portland, Me., assignor to the H. P. Bertuves Company, same place. Filed Jan. 26, 1897. Serial No. 620,808. (No model.)

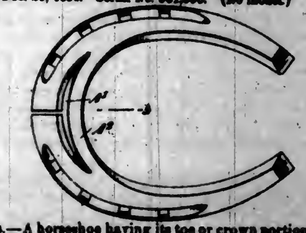


Claim.—1. In a shade-holding device, the combination with a shade-stick, of boxes at the ends thereof, antifriction-surfaces at or near the ends of the boxes, shoes pivotally supported in the boxes between the antifriction-surface and a spring or springs for pressing the shoes outward, substantially as described.

2. In a shade-holding device, the combination with a stick, of pivoted friction-shoes at the ends of the stick, means for forcing the shoes outward, and antifriction means above and below the shoes, substantially as described.

3. In a shade-holding device, the combination with a stick, of oblong friction-shoes pivotally supported and carried by the stick, antifriction devices above and below the pivotal plane of the shoes, and means for forcing the shoes outwardly.

585,992. HORSESHOE. ALBERT J. WALKER, Jacksonville, Fla. Filed Feb. 29, 1896. Serial No. 581,360. (No model.)



Claim.—A horseshoe having its toe or crown portion partly separated by a transverse slit extending from its outer toward its inner side, and having slits extending laterally from the inner end of said transverse slit in opposite directions, the said transverse and lateral slits separating the toe of the shoe into an unbroken inner yielding bridge portion and an outer wear portion separated to permit the yielding action of the bridge portion, all substantially as shown and described.

585,993. CRUCIBLE AND PROCESS OF MAKING SAME. ROBERT W. WALLACE, London, England, assignor to the Electro-Metallurgical Company, Limited, same place. Filed June 13, 1896. Serial No. 595,490. (No model.)

Claim.—1. The described improvement in the manufacture of

crucibles for fusion of chromium and similar metals and for production of alloys thereof with other metals, said improvement consisting in lining the crucible with the oxid of the corresponding metal by fusing a flux, such as borax, with addition of an oxid of the desired metal until the oxid is held in suspension in the flux, and then, by agitating the mass while the same hardens, forming a coating thereof upon the interior of the crucible, as set forth.

2. A crucible provided with an adherent interior coating of oxid of chromium free from other metallic base, substantially as described.

3. A crucible with an adherent interior coating of oxid of chromium free from other metallic base and a suitable flux, substantially as described.

585,994. EYELETS OR OTHER BUTTON FASTENER. GEORGE H. WILSON, Quincy, Ill., administrator of Alexander T. Miller, deceased, assignor of one-half to Michael Rooney, same place. Filed Nov. 22, 1895. Serial No. 569,861. (No model.)



Claim.—1. In a button-fastening machine, the combination of a grooved reciprocatory presser, having a foot formed with an opening, a device for feeding the staples to said opening and a plunger operating in said groove and having a reduced end designed to operate through said opening, substantially as described.

2. In a button-fastening machine, the combination of a grooved reciprocatory presser having a foot, formed with an opening and with depending spurs or projections, and a plunger operating in said groove and having a reduced end designed to operate through said opening, substantially as described.

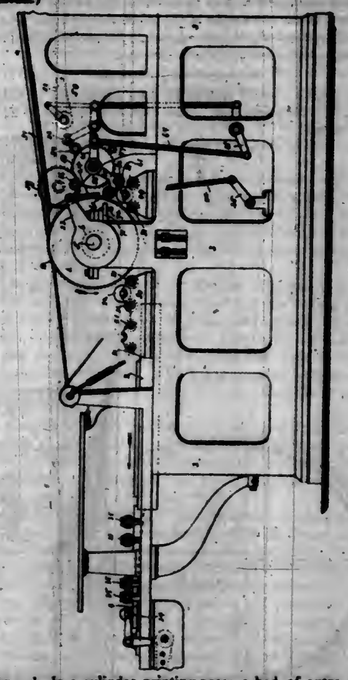
3. The combination with means for forcing staples through buttons and cloth and for clenching the ends of the staples, of a staple-feeding device, comprising a feed-bar upon which the staples are strung, a slide upon said bar, a drum connected with said slide and a spring-and-ratchet mechanism within said drum for forcing said slide in one direction, substantially as described.

4. In a staple-feeding device, the combination of a feed-bar upon which the staples are strung, a slide upon said bar, a drum having a spring-and-ratchet mechanism and cords connecting said drum to said slide, substantially as described.

5. In a button-fastening machine, the combination with a grooved reciprocatory presser, having a foot formed with an opening, and a plunger operating within said groove and having a reduced end, designed to operate through said opening, of a feed-bar, upon which staples are to be strung, said feed-bar extending to said groove and terminating immediately above said opening, a slide upon said bar and means for forcing said slide in one direction, substantially as described.

6. The herein-described button-fastening machine, comprising a button-reservoir having a clear unobstructed interior and open at the lower end, a presser having an opening in its foot and formed with grooves, a plunger reciprocating within said groove and at its lower end through said openings, a spring connection between said plunger and presser, a pivoted forwarding device for carrying the button from the receptacle to beneath the presser-foot, and a staple-feeder projecting to a place immediately above the opening in said presser-foot, the movements of said parts being relatively timed, substantially as described.

585,995. CYLINDER PRINTING-PRESS. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed Mar. 3, 1892. Serial No. 423,565. (No model.)



Claim.—1. In a cylinder printing-press, a bed of extra length, whereby a form may be placed in different positions thereon, an impression-cylinder cooperating therewith, means for adjusting the cylinder relatively to the different positions of the form, and means whereby the inking-rollers may be arranged to form either a double-end or a single-end press, substantially as described.

2. In a cylinder printing-press, the combination of brackets and ink-fountains, whereby the form-rollers may be set to form either a double or single end press, a bed of extra length whereby the forms may be set in different positions to coact with the different arrangement of form-rollers, an impression-cylinder, and means for adjusting the same relatively to the bed, whereby the cylinder may be set to properly coact with the forms in their different positions, and whereby the run of the bed may remain a constant, substantially as described.

3. In a cylinder printing-press, the combination of an impression-cylinder, a driving-gear, a starter-segment and a register-gear connected together, and an adjustable connection between the impression-cylinder and these parts, substantially as described.

4. In a cylinder printing-press, the combination of the shaft 5, the impression-cylinder mounted thereon, the bushing fitted on the shaft, the driving-gear fastened on said bushing, the starter-segment formed or fastened to the bushing, and means for connecting the starter-segment and impression-cylinder in different relative positions, substantially as described.

5. In a cylinder printing-press, the combination of the shaft 5, the impression-cylinder mounted thereon, the bushing fitted on the shaft, the driving-gear fastened to said bushing, a starter-segment formed or fastened to the bushing, a register-gear secured to said starter-segment, and means for connecting the starter-segment, register-gear and bushing and impression-cylinder in different relative positions, substantially as described.

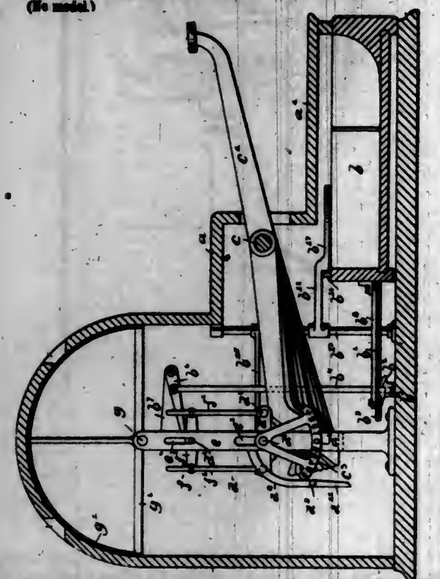
6. In a cylinder printing-press, the combination of form-rolls 31, distributing-roll 32, drum distributor 55, roll 61 bearing on drum 55, a roll 62 bearing on roll 61, and means for moving the rolls 61 and 62 alternately against roll 32, substantially as described.

7. In a cylinder printing-press, the combination of the shaft, an impression cylinder mounted or carried thereon, eccentric bushings mounted in the frame in which said shaft is journaled, means for oscillating said bushings to raise and lower the impression-cylinder, and springs arranged to push said shaft against the top of the bushings, substantially as described.

8. In a cylinder printing-press, the combination of a main shaft.

the impression-cylinder mounted thereon, the eccentric bushings mounted in the frame in which said shaft is journaled, means for oscillating said bushings to raise and lower the impression-cylinder, and springs arranged to push up on the under side of the main shaft to counterbalance the weight of the impression-cylinder, said springs being independent of and not attached to the eccentric-bushing-operating mechanism, substantially as described.

585,996. CASH REGISTER AND RECORDER. FRANK WOODBRIDGE, Indianapolis, Ind. Filed Sept. 8, 1896. Serial No. 605,207. (No model.)



Claim.—1. In a cash-register, a series of cash-keys representing units in any denomination, a series of indicating-wheels representing different denominations and each having numbers thereon corresponding to the units represented on the cash-keys, a movable frame operated by said cash-keys to contact with said indicators and move said indicators to a position corresponding to the number of the key depressed, and means, substantially as described, for successively advancing said traveling frame to cause it to engage with the indicators of different denominations by its successive operation by any key or keys of the same series, substantially as specified.

2. In a cash register and indicator, a single series of cash-keys representing units of any denomination and a series of indicators representing different denominations and each having numbers corresponding to the units of the cash-keys, a movable traveling head or frame adapted to be operated by said keys to move said indicators by the depression of one of said cash-keys, means connected with said traveling frame to successively move the same opposite the indicators of different denominations after any cash-key of the series has been depressed, a numbered part operated by said frame, and a recording device, adapted, by the successive movements of said frame, to be moved in steps across the face of said numbered part and successively contact with said numbered part as each of said keys is operated, substantially as specified.

3. The combination with a series of cash-keys, a rotating movable frame having a numbered segment thereon, a traveling head in said frame, movable parts connected with said keys having inclined surfaces adapted to contact with said frame and rotate the same to different positions of adjustment, and means connected with said frame to successively release and advance said traveling head after each operation of said movable frame, substantially as specified.

4. The combination with a series of cash-keys representing units in any denomination, and a series of indicators representing different denominations and each having numbers corresponding to the units on said cash-keys, intermediate mechanism adapted to successively operate said indicators by the successive depression of said keys, a normally-locked cash-receptacle, and means connected with said actuating mechanism to unlock said cash-receptacle when the last indicator has been operated, substantially as specified.

5. In combination with a series of cash-keys having connected thereto inclined parts arranged at different angles as described, a rotating movable frame adapted to be rotated to different angles by the operation of said keys, a series of indicators arranged adjacent to said frame, and a traveling head having engaging standards to engage said indicators on opposite sides of its pivotal center, said standards being adapted to be moved by said traveling frame and occupy the same angular position, and means for successively advancing said traveling head at each successive operation of said frame until said standards have successively contacted with each of said indicators, substantially as specified.

6. The combination with a series of cash-keys, a movable rotating frame having a numbered segment, as described, angularly-arranged parts connected with said keys to contact with said frame and move it to different angular positions of adjustment, and a recording device operated by the depression of said keys to record the numbers on said segment corresponding with the key depressed, substantially as specified.

7. The combination with the movable frame having the traveling head thereon, a single series of cash-keys having connected thereto angular parts adapted to successively change the angle of and elevate said frame, engaging parts on said head, and a series of indicators arranged adjacent to said engaging parts, means, substantially as described, for advancing said head after each operation of said frame to cause the engaging parts to be brought successively in line with the different indicators, a normally-locked cash-receptacle, and means connected with said frame for unlocking said receptacle when the traveling head is brought opposite the last indicator of the series, and means connected with said cash-receptacle for returning the parts to their normal positions by the operation of closing said cash-receptacle, substantially as specified.

8. The combination with the movable rotating frame, a series of cash-keys having inclined operating parts connected thereto adapted to first rotate and then elevate said frame, a series of indicators representing different denominations, and a traveling head on said frame having engaging parts adapted to successively operate said indicators by the movement of said frame, means for successively advancing said traveling head after each operation of said frame to cause the engaging parts of said head to successively contact with the indicators of different denominations, a numbered part connected to said frame and adapted to move therewith, said part having numbers corresponding to the numbers of said keys, and a movable recording device adapted by the operation of said frame to be successively moved across said numbered part and record the number brought opposite the same by the movement of said frame, a normally-locked cash receptacle, and means on said traveling head for unlocking said cash-receptacle by a movement of said frame after said head has moved in line with the last indicator of the series, and means connected with said cash-receptacle for returning all the parts to their normal positions in the operation of closing the same, substantially as specified.

9. The combination with a single series of cash-keys, of a movable rotating frame having a numbered part connected thereto, angularly-arranged parts connected with said keys to change the angular position of said frame, a traveling recording device adapted to be brought successively opposite the numbers on said numbered part, and means for moving said recording device after each movement of said frame so that the numbers on the keys depressed are successively recorded in their proper numerical order on said recording device, substantially as specified.

10. The combination with the movable rotating frame having the numbered segment thereon, cash-keys having connected parts for first rotating and then elevating said frame, a traveling recording device adapted to travel across said segment, and means connected with said frame for successively releasing said recording device to cause it to travel intermittently across said numbered segment after each movement of said frame, substantially as specified.

11. The combination with the cash-keys, the rotating frame, the traveling head on said frame, a series of indicators representing different denominations, engaging parts on said head for said indicators, a numbered segment connected with said frame, means for successively advancing said head after each operation of said frame, and operating parts connected to said cash-keys to first rotate said frame to different positions and then move the same to cause said engaging parts to move said indicators, substantially as specified.

12. The combination with a movable numbered segment, and cash-keys for setting the same, a traveling frame adapted to move laterally across the line of said segment, and means connected with said segment to successively release and permit the movement of said traveling frame after the operation of said cash-keys, and means, substantially as described, for returning said parts to their normal positions, substantially as specified.

13. The combination with the traveling frame having the recording-strip as described, a sliding bar for returning said frame to its normal position, a pawl-lever having a series of ratchet teeth in one end and adapted to engage a series of ratchet-teeth at the other end, a movable part for engaging and disengaging said pawl-lever by the

operation of a key to cause said frame to successively travel a limited distance corresponding to said teeth, means for returning said frame to its normal position, and engaging devices to operate and advance the recording-strip as said frame is returned to its normal position, substantially as specified.

14. The combination with the movable frame carrying the recording-strip, a sliding bar for returning said frame to its normal position, a toothed roll to engage said strip having ratchet-teeth thereon, an inclined or beveled arm arranged normally below but in line with said teeth, and means on said sliding bar to elevate said arm to cause it to engage said teeth as said frame is returned to its normal position and then advance said strip, substantially as specified.

15. The combination with a single series of cash-keys, of a number of indicators, each having numbers corresponding to the numbers on said keys, a movable frame having a traveling head, and parallel engaging arms on said head adapted to be brought successively opposite the respective indicators said parallel engaging arms being arranged on opposite sides of the pivotal center of said indicators and adapted to be moved to different angular positions by said movable frame to correspond to the keys depressed, and means for moving said frame by said keys to cause said arms to engage said indicators on opposite sides of the center thereof and thus positively move and stop said indicators in their proper position of adjustment determined by the key depressed, substantially as specified.

16. In a cash-register, an indicating-wheel journaled on a suitable shaft or support and having a cross-bar extending on opposite sides of its center of rotation, a movable rotatable frame having upwardly-projecting arms in line with said cross-bar, a series of cash-keys, and means connected with said keys for first rotating and then elevating said frame to cause said arms to engage with said cross-bar on opposite sides of the center of rotation and thus positively locate the position of said indicator, substantially as specified.

17. The combination with the rotatable movable frame, cash-keys having connected parts for operating the same, a traveling head in said frame adapted to be advanced at each successive operation of said frame, a normally-closed cash-receptacle, a numbered part connected to said frame, and a traveling recording-strip adapted to be successively brought in contact with said numbered part at each operation of said frame, and means connected with said traveling head to unlock said cash-receptacle after the frame has been operated a definite number of times, and means connected with said cash-receptacle for returning the parts to their normal positions by the operation of closing said receptacle, substantially as specified.

18. The combination with the cash-receptacle, a spring-catch thereon, stationary engaging parts for said spring-catch, a vertically-movable rod having a plunger normally under said catch a lever connected to said rod, a traveling part having engaging projections for said lever, cash-keys for moving said traveling part, and means for successively advancing the same after each operation whereby the cash-receptacle is opened after a predetermined number of operations of the cash-keys, substantially as specified.

19. A series of levers having beveled or inclined ends at different angles as described, a rotating movable frame arranged above the inclined ends of said levers and adapted to be rotated to a position corresponding to the angle of the lever operated when said lever is brought in contact therewith, engaging devices on said frame which assume the same angular position as said frame, and an indicator-wheel having a cross-bar arranged above said engaging devices and adapted to be moved thereby as said frame is moved to a position corresponding to the angle of the lever operated, substantially as specified.

585,997. COLD-TIRE-SETTING MACHINE. EDWARD H. ZELLER, Portland, Oreg. Filed Nov. 10, 1896. Serial No. 611,643. (No model.)



Claim.—1. A cold-tire-setting machine comprising a bed-plate, a series of radially-movable presser-blocks, an annular rim movable on the bed-plate, a series of toggle-arms connecting the rim and the presser members and a fluid-pressure mechanism for imparting a direct partial rotation to the rim substantially in the manner shown and for the purposes described.

2. In a tire-setter mechanism, the combination with the bed-plate the radially-movable pressers, the toggle members connected thereto, a rotatable rim for moving the toggles simultaneously and a fluid-pressure means for operating the rim as set forth.

3. The combination of the bed-frame having a central opening and radial guides, presser-blocks movable in such guides, the rotatable rim, the reinforce bands held thereon, the toggles pivotally connected with the rim and the presser-blocks, the fluid-pressure-operated pistons and the link members joining the pistons and rotatable rim all arranged substantially as shown and for the purposes described.

4. In a cold-tire-setting mechanism, the combination with the bed-plate, having a series of radial grooves, presser-blocks movable therein, an annular rim, having a rotary movement on the bed-plate, a series of toggles pivotally connected to the said rim and to the presser-blocks, fluid-pressure devices connected to the said rim and the supplemental presser-blocks L, all substantially as shown and for the purposes described.

5. In a cold-tire-setting mechanism the combination with the bed-plate having radially-disposed guide-grooves, the presser-blocks movable therein and the toggles, and movable rim of the cylinders H H' the pistons formed of three sections the link-arms connecting the pistons and the toggle members and the fluid-pressure mechanism substantially as described.

6. A cold-tire-setting machine comprising a bed-plate or supporting-frame, radially-movable presser-blocks, a rim having a limited rotation in a fixed manner on the frame, and having a series of cam members, one for each presser-block, a series of arms held to bear with one end against the presser-block and with the other against the cams on the rim, said arms being normally held at a tangent to the rim, and means for moving the rim substantially as and for the purposes described.

7. The combination with the bed-frame, the presser-blocks the toggles and the movable rim, of the cylinders H and H' the piston, said piston being flattened at the side adjacent the rim, and the fluid-pressure mechanism for operating the piston all substantially as shown and for the purposes described.

8. In a machine as described the combination with the radially-movable pressers, and the means for forcing them simultaneously inward, of the cylinders the pistons the link-arms connecting the pistons with the presser-operating means and the double-acting-pump mechanism having reversing-valve-lever devices and suitable connections with the cylinders substantially as shown and described.

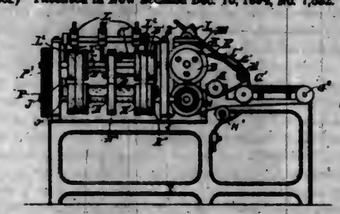
9. The combination with the frame, the radially-movable presser-blocks, and means for forcing such blocks inward, supplemental presser-blocks adapted to be detachably held in front of the movable presser-blocks substantially as shown and for the purposes described.

10. The combination with the frame, having radial grooves, the main presser-blocks mounted therein, and means for forcing such blocks inward, of the supplemental guides M, and the supplemental presser-blocks L, substantially as set forth.

11. The combination of a bed-plate, a series of presser-blocks, radially movable thereon, an annular rim movable in a circle about the presser-blocks, said rim having a series of cam-cents, guides movable thereon, and toggles pivotally connected at the front end to the presser-blocks, and at the outer ends to the cam-guides, and means for rotating the rim in reverse directions as specified.

12. A tire-setting machine, comprising a bed-plate, having a central opening for the wheel-hub, a series of presser-blocks radially movable toward such opening, an annular rim having rotatable movement on the bed-plate, means for partially rotating such rim, and connections operated by the rotary movement of the rim adapted to move the presser-blocks inward and outward substantially as shown and for the purposes described.

585,998. PAPER-TRIMMING MACHINE. ROBERT H. ADAMS, Dunedin, New Zealand. Filed Oct. 20, 1896. Serial No. 610,566. (No model.) Patented in New Zealand Dec. 10, 1894, No. 7,322.



Claim.—1. In a paper-trimming machine the combination with a plurality of shafts, of rollers adjustably mounted thereon, rollers mounted loosely on shafts above certain of said adjustable rollers, a circular knife carried on the outer face of each of the said loose rollers, a circular knife mounted on the outer face of each of the said adjustable rollers directly beneath the said loose rollers, springs attached to said loose rollers and to the adjustable rollers on the same shaft therewith means for preventing the upper knives from riding
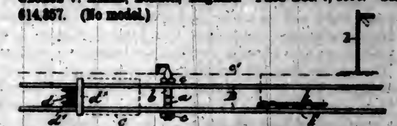
on the rollers beneath them, a shaft mounted at an angle to one of the aforesaid shafts and geared thereto, adjustable rollers mounted on said shaft, circular knives carried by certain of said adjustable rollers, a loose roller mounted above one of said adjustable rollers carrying a circular knife, a circular knife carried on the outer face of said loose roller, adjustable rollers carried on the same shaft with said loose roller, and means for keeping the circular knives in contact with each other and preventing the top knives from riding on the rollers beneath them, rollers and bands for feeding the paper to the said knives and means for periodically forcing the paper after being cut by the first set of rollers between the bands and rollers for carrying it to the second set, substantially as described.

2. In a paper-cutting machine the combination with the adjustable rollers A and A^5, of circular knives carried on the outer faces of the rollers A, the loose rollers B mounted above the said adjustable rollers, circular knives carried on the outer faces of the said loose rollers, adjustable rollers B^5 mounted between said loose rollers, springs carried by said adjustable rollers and connected to the said loose rollers for keeping the knives in contact with each other, stops carried by the said adjustable rollers for preventing the said loose rollers from riding, yielding bearings in which the shaft that carries loose rollers is journaled, a shaft a' mounted at an angle with the aforesaid shafts and geared with one of the same, the rollers A' and A^{5a} mounted on the said shaft, a circular knife carried by one of the rollers A', a gear-wheel carried by the shaft a', a second gear-wheel meshing with and mounted above the first, a shaft carrying the said second gear-wheel, adjustable and loose rollers carried by the said shaft, a circular knife carried by the said loose roller, means for keeping the upper circular knife in contact with the lower knife and for preventing said upper knife from riding the lower knife, a plurality of rollers and bands for feeding the paper to the knives, a plurality of arms L^5, rollers mounted on said arms, yokes attached to said arms, cams actuating said yokes so as to force the paper to be cut between the feed rollers and bands leading to the second set of knives, substantially as described.

3. In a paper-cutting machine the combination with the adjustable rollers A and A^5, of circular knives carried on the outer faces of the rollers A, the loose rollers B mounted above the said adjustable rollers, circular knives carried on the outer faces of the said loose rollers, adjustable rollers B^5 mounted between said loose rollers, springs carried by said adjustable rollers and connected to the said loose rollers for keeping the knives in contact with each other, stops carried by the said adjustable rollers for preventing the said loose rollers from riding, yielding bearings in which the shaft that carries the loose rollers is journaled, a shaft a' mounted at an angle with the aforesaid shafts and geared with one of the same, the rollers A' and A^{5a} mounted on the said shaft, a circular knife carried by one of the rollers A', a gear-wheel carried by the shaft a', a second gear-wheel meshing with and mounted above the first, a shaft carrying the said second gear-wheel, adjustable and loose rollers carried by the said shaft, a circular knife carried by the said loose roller, an adjustable shoulder carried upon the shaft with the said loose pulley, a spring-washer inserted between the said shoulder and the circular knife for keeping the upper circular knife in contact with the lower knife and means for preventing said upper knife from riding the lower knife, a plurality of rollers and bands for feeding the paper to the knives, a plurality of adjustable holders mounted above the shafts carrying the loose and adjustable rollers aforesaid, arms mounted in said holders, rollers carried by said arms for giving tension to the said bands, a plurality of arms L^5, rollers mounted on said arms, yokes attached to said arms, cams actuating said yokes so as to force the paper to be cut between the feed rollers and bands leading to the second set of knives, substantially as described.

4. In a paper-cutting machine the combination with the adjustable rollers A and A^5, of circular knives carried on the outer faces of the rollers A, the loose rollers B mounted above the said adjustable rollers, circular knives carried on the outer faces of the said loose rollers, adjustable rollers B^5 mounted between said loose rollers, springs carried by said adjustable rollers and connected to the said loose rollers for keeping the knives in contact with each other, stops carried by the said adjustable rollers for preventing the said loose rollers from riding, yielding bearings in which the shaft that carries loose rollers is journaled, a shaft a' mounted at an angle with the aforesaid shafts and geared with one of the same, the rollers A' and A^{5a} mounted on the said shaft, a circular knife carried by one of the rollers A', a gear-wheel carried by the shaft a', a second gear-wheel meshing with and mounted above the first, a shaft carrying the said second gear-wheel, adjustable and loose rollers carried by the said shaft, a circular knife carried by the said loose roller, means for keeping the upper circular knife in contact with the lower knife and for preventing said upper knife from riding the lower knife, a plurality of arms L^5, rollers mounted on said arms, yokes attached to said arms, cams actuating said yokes so as to force the paper to be cut between the feed rollers and bands leading to the second set of knives, substantially as described.

585,999. APPARATUS FOR SIGNALING ON RAILROADS. Thomas V. Allen, London, England. Filed Dec. 7, 1896. Serial No. 614,857. (No model.)



Claim.—1. In apparatus for signaling on railways, the combination of a main signal, a stop movable transversely to the track, a vertically-movable rail or bar between said main signal and stop, means for operating said stop, rail or bar, and signal in unison, a signal apparatus on the engine for indicating both "danger" and "safety," and means for causing said stop and rail or bar to operate such signal apparatus, substantially as described.

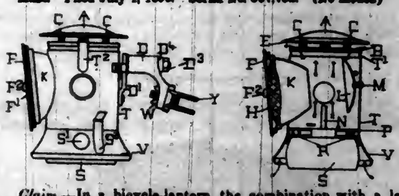
2. In apparatus for signaling on railways, the combination of a main signal, a transversely-movable stop which is brought midway between the rails when the signal is at "danger," and to one side when it is at "line clear," a rail or bar which is raised when the signal is at "line clear," means for operating said signal, stop, and rail or bar in unison, a series of depending arms on the engine adapted to be operated by said stop and rail or bar, and a signal apparatus, also upon the engine, operated by said arms and indicating the same signal as that given by the main signal, substantially as described.

3. In apparatus for signaling on railways, the combination of a series of depending arms on the engine, means working in unison with the main signal for operating one or other of said arms, a spring-actuated signal apparatus on the engine, and means for causing the arm which has been operated to release the said signal apparatus, substantially as described.

4. In apparatus for signaling on railways, the combination of a series of three depending arms on the engine, a signal apparatus comprising a pair of spring-actuated plates normally kept in their lowered position by spring-catches, means for causing the center arm to release the catch of one of the plates, and either of the outer arms to release the catch of the other plate, a transversely-movable stop and a rising-and-falling rail or bar for operating the arms according to the signal which is being given, substantially as described.

5. In apparatus for signaling on railways, a signal apparatus on the engine, comprising an outer casing *e* having a glazed aperture *e'*, a pair of plates *f*, *f'*, corresponding to the signals, a pair of springs f^3 for raising said plates, spring bolts or catches *g* for holding them down, bell-crank levers *i* connected with said bolts or catches, and wires *i*, *i'*, leading to depending arms on the engine, said arms serving, when operated, to release the catches, substantially as described.

586,000. BICYCLE-LANTERN. Irving H. Atwood, Amesbury, Mass. Filed July 1, 1896. Serial No. 597,733. (No model.)



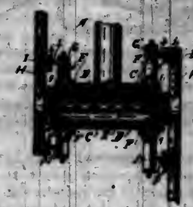
Claim.—In a bicycle-lantern, the combination with a lantern-body, the post D', provided with means of attachment to said lantern-body, the sleeve D, provided with a downward and rearward extension, the looped wire Y, hinged to said extension, the bolt Z, attached to said wire, the thumb-screw W, and the washer D^3, the said sleeve D, secured to the post D', by a nut and washer, for allowing a lateral swing to said lantern-body, substantially as described.

586,001. CLEANER FOR OIL-WELL TUBING. Frank W. Ballard, Allentown, N. Y. Filed Mar. 16, 1897. Serial No. 627,573. (No model.)

Claim.—A cleaning device for oil-well tubing consisting of two metal caps and a leather disk clamped between them, the leather disk being of such diameter as to fit snugly within the tubing, the caps and the leather disk being centrally bored to fit loosely over the stem of the pump-valve and also provided with a series of perforations through which the oil passes upwardly when the pump is working, substantially as described.



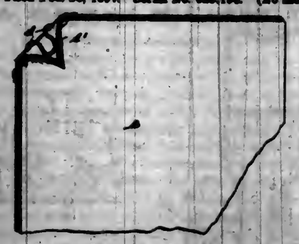
586,002. BICYCLE. Wells T. Barker, Nashville, Mich. Filed Apr. 17, 1896. Serial No. 588,080. (No model.)



Claim.—1. The combination, with a bicycle-frame, of a longitudinally-adjustable support for the pedal-shaft and means for adjusting said support, sprocket-wheels revolubly secured to the frame around said support, clutches for engaging the pedal-arms with said wheels, said clutches consisting of pins in said arms, springs for actuating said pins, and apertures in the wheels to receive said pins, one of said apertures being round and the other elongated, substantially as and for the purpose set forth.

2. The combination with a bicycle-frame, of a longitudinally-adjustable support for the pedal-shaft and means for adjusting said support; with sprocket-wheels revolubly secured to the frame around said support, and clutches for engaging the pedal-arms with said wheels, said clutches consisting of pins in said arms, springs for actuating said pins, and apertures in the wheels to receive said pins, one of said apertures being long and one round and said apertures varying in their distance from the radial center of the wheels substantially as and for the purpose set forth.

586,003. PAPER-FASTENER. George H. Bennett, New York, N. Y. Filed Feb. 26, 1897. Serial No. 626,196. (No model.)



Claim.—1. A paper-fastener made of a single piece of material, and formed with a back having its middle portion pliable so that it may be bent over and carry the corners of the sheets along, the said back terminating at its sides in loops extending upwardly and connected with each other by a cross-bar, substantially as shown and described.

2. A paper-fastener, comprising a back, loops at the sides of the back, a cross-bar connecting the loops with each other, and crossing the said back at a distance therefrom to form an opening for the entrance of the sheets to be fastened together, and a pliable portion on the said back, to permit of bending it over and carrying the corners of the sheets along, substantially as shown and described.

3. A paper-fastener, comprising a back, loops at the sides of the back, a cross-bar connecting the loops with each other and crossing the said back at a distance therefrom, to form an opening for the entrance of the sheets to be fastened together, a pliable portion on the said back to permit of bending it over and carrying the corners of the sheets along, and an eye for hanging up the fastener, substantially as shown and described.

586,004. ROD OR BOLT WRENCH. Martin M. Bellenir, Ashton, Ill. Filed Jan. 30, 1897. Serial No. 621,397. (No model.)



Claim.—An improved rod and bolt wrench, comprising the handle 1, terminating in the upwardly-curved parallel jaws 3 and 4, forming the bifurcated head 2 arranged at an obtuse angle to said handle 1, in combination with the lever 5, fulcrumed on the bolt 6 between said parallel jaws 3 and 4 and having its arm 7 arranged at an obtuse angle to said lever and at an approximately right angle to said parallel jaws and having its plane face 8 formed with a rectangular recess 9 having an inwardly-beveled retaining end 10, a set-screw 12 adjustably secured in the outer end of said arm 7 and the removable bit 13, provided with a beveled end 10 and adapted to be secured in the recessed face of said arm 7 and travel to and from said jaws 3 and 4 substantially as shown and described.

586,005. COOKING UTENSIL. Stephen S. Black, Pasadena, Cal. Filed Apr. 4, 1895. Serial No. 544,490. (No model.)

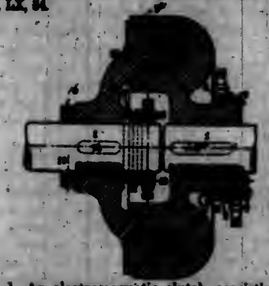


Claim.—1. As an article of manufacture, an egg-cooker comprising a graduated receptacle having a basin-like or flaring interior so shaped that the capacity of the receptacle below a given point is proportioned to the amount of hot water required to cook a predetermined number of eggs, substantially as set forth.

2. As an article of manufacture, an egg-cooker comprising a graduated receptacle having a basin-like or flaring interior so shaped that the capacity of the receptacle below a given point is proportioned to the amount of hot water required to cook a predetermined number of eggs, and means for retaining the heat in the receptacle whereby the size of a vessel required to hold an adequate amount of water to cook each egg is reduced to a minimum, substantially as set forth.

3. As an article of manufacture, an egg-cooker comprising a graduated receptacle having a basin-like or flaring interior so shaped that the capacity of the receptacle below a given point is proportioned to the amount of hot water required to cook a predetermined number of eggs, and a removable tray shaped to substantially conform to the interior shape of the receptacle, substantially as set forth.

586,006. MAGNETIC CLUTCH. Armand de Bovet, Paris, France. Filed Nov. 18, 1892. Serial No. 451,971. (No model.) Patented in France Jan. 18, 1892, No. 216,400; in Belgium Oct. 3, 1891, No. 96,697; in Switzerland Apr. 23, 1892, No. 5,698, and in Italy July 30, 1892, LX, 94.

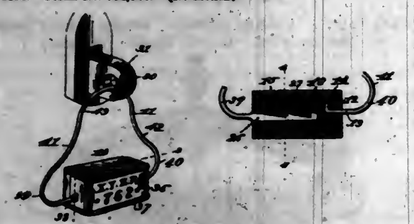


Claim.—1. An electromagnetic clutch consisting of a disk 3, splined on a shaft 1 and provided with an annular channel 3^a in its

vertical face, said channel having two surfaces converging from the outer face of the disk to an annular opening 4^a between the chamber 4 and the channel 3^a, a coil of wire 5 lying in said circular chamber 4, a non-conducting annulus 10, conducting-rings 8 and 9 mounted thereon and connected to the terminals of the coil 5, brushes 11 and 12, a disk 13 having its side face formed to enter and fit the channel 3^a in the disk 3, said disk 13 being splined to and adjustable on the shaft 2, and means for separating said disks 3 and 13, substantially as described.

2. An electromagnetic clutch, consisting of a disk 3 having an annular channel 3^a formed in its vertical face, said channel having two faces converging toward an opening 4^a, a coil of wire 5 lying in a circular chamber 4 just beyond the opening 4^a, conducting-rings 8 and 9, a non-conducting annulus 10 supporting said rings, which are connected to the terminals of the coil 5, brushes 11 and 12, a disk 13 having a side face adapted to fit the channel 3^a, a shaft 2 on which said disk is splined and adjustable, and elastic plates 17 lying between the inner face of the disk 13, and a collar 18 fast on the end of the shaft 2, the metal being distributed upon both sides of the channel 3^a and oppositely polarized on the respective sides, substantially as described.

586,007. SEAL. LEWIS A. BROWN, St. Louis, Mo. Filed Aug. 3, 1896. Serial No. 601,508. (No model.)



Claim.—1. The within-described method of embedding a spring-catch in the interior of a cast block, which method consists of compressing said spring, placing said spring upon a core, suspending said core in the casting-box, casting the block, withdrawing the core and leaving the spring to operate, substantially as specified.

2. In a seal, a cast block of frangible material having an opening to its interior, said opening being formed during the operation of casting, a spring-catch suspended in said opening by having one of its ends embedded in the material of said block during the operation of casting, and a tin tag having one of its ends embedded in said cast block during the operation of casting, said tin tag having an opening in its free end in position to come in alinement with the opening in said block, the inner face of said tin tag being designed to receive secret memoranda, substantially as specified.

3. In a seal, a cast block of frangible material having an opening to its interior, said opening being formed during the operation of casting, a spring-catch suspended in said opening by having one of its ends embedded in the material of said block during the operation of casting, a tin tag having one of its ends embedded in said cast block during the operation of casting, said tin tag having an opening in its free end in position to come in alinement with the opening in said block, the inner face of said tin tag being designed to receive secret memoranda, and a wire having an end designed to be inserted in said opening and teeth upon said end of said wire to be engaged by said spring-catch, substantially as specified.

4. In a seal, the spring-catch consisting of the free end 15, the bent portion 16, the straight portion 17, the bent portion 18, the inclined portion 19, the vertical portion 20 and the horizontal portion 21 all formed integral and suspended in the interior of the cast block during the operation of casting, substantially as specified.

5. In a seal, a cast block having the spring-catch suspended in the interior of said block during the operation of casting, an opening communicating with the space within which said spring-catch operates, a wire having an end designed to be inserted in said opening, teeth upon said end of said wire to be engaged by said spring-catch, and a head upon the end of said wire opposite said teeth, substantially as specified.

6. In a seal, the cast block 10 of frangible material and having the opening 24 to its interior, said opening being formed during the operation of casting said block, a spring-catch suspended in said opening during the operation of casting, a tin tag having one of its ends embodied in said block during the operation of casting, said tin tag having an opening in its free end in position to come in alinement with the opening in said block and the inner face of said tin tag being designed to receive secret memoranda, substantially as specified.

7. In a seal, the cast block 10 of frangible material and having the opening 24 to its interior, said opening being formed during the operation of casting said block, a spring-catch suspended in said opening during the operation of casting, a tin tag having one of its ends embodied in said block during the operation of casting, said tin tag having an opening in its free end in position to come in alinement with the opening in said block and the inner face of said tin tag being designed to receive secret memoranda, and flanges 37 projecting from the body of the block 10 and forming protection for said tin tag, substantially as specified.

586,008. BACK-BAND BUCKLE. DISHEY T. BRYAN, Rocky Mount, N. C. Filed Apr. 27, 1897. Serial No. 634,130. (No model.)



Claim.—1. A back-band buckle comprising a body having at one side a narrow slot, a tongue pivoted at the opposite side of the body and provided with a slot, the outer wall of the slot projecting over and registering with said narrow slot, the said outer wall extending inward and adapted to enter said slot, the parts combined to operate as described.

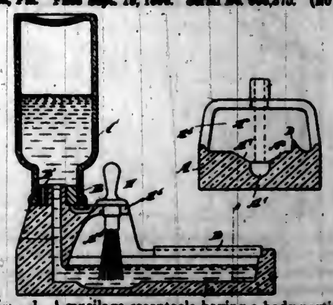
2. A back-band buckle comprising a body having a narrow slot at one side and an outwardly-projecting hook at the opposite side, a tongue pivoted to the body at the opposite side of the body from its slot and also provided with a slot, the outer wall of the tongue-slot being made wide and bent inward at right angles to the tongue and adapted to enter said slot, the opposite end of the tongue having an arm projecting into said hook, the parts operating as described.

586,009. HAIR-CRIMPER. CECIL BURGH, New Southgate, England. Filed Jan. 21, 1897. Serial No. 620,075. (No model.) Patented in England Feb. 11, 1896, No. 3,041.



Claim.—A hair-curler comprising a body portion and a strip formed respectively of cord or braid of different thicknesses and secured to one another at their end portions, and left free from one another intermediate said end portions, and a metal tongue and loop secured respectively to opposite end portions of the body and strip, said tongue being adapted to enter the loop and said tongue and loop having interlocking or engaging heads substantially as described.

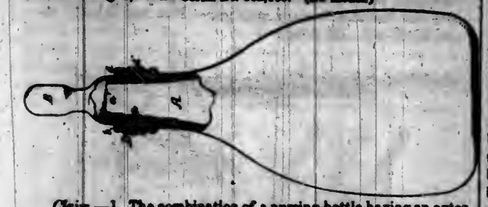
586,010. SUMMING APPARATUS. WILLIAM H. BURLAND, Punta Gorda, Fla. Filed Sept. 16, 1896. Serial No. 606,375. (No model.)



Claim.—1. A mucilage-receptacle having a body portion with a trough running longitudinally therewith, the body portion also having two beveled portions respectively on the sides of the trough and slanting downwardly toward the trough, the body portion also having a scraper running parallel with one of the beveled portions and the body portion having an overhanging seat capable of carrying a brush, and the body having an upwardly-projecting nipple communicating with the trough, and a reservoir having a neck wherein the nipple is received, substantially as described.

2. A mucilage-receptacle having a body portion with a trough running along a part of the upper side of the body portion, the body portion also having a seat overhanging one end of the trough and capable of carrying a brush, and the body portion further having an upwardly-projecting nipple adjacent to the seat and communicating with the trough and adapted for connection with the reservoir, substantially as described.

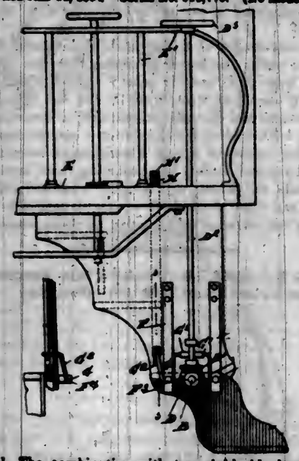
586,011. NURSING-BOTTLE. WARREN D. BUTZ, Norristown, Pa. Filed Aug. 6, 1896. Serial No. 602,115. (No model.)



Claim.—1. The combination of a nursing-bottle having an extension a', a flanged clamp D adapted to be secured to the bottle and a yielding rubber nipple secured to the bottle by the flanged clamp, substantially as described.

2. The combination of a nursing-bottle having an extension a' and a screw-threaded portion forming a shoulder, a screw-threaded clamp D adapted to the bottle and having a flange, a nipple B made of yielding material having a flange over which the flange of the clamp extends and by which it is held to the bottle, substantially as described.

586,012. EXTENSION CAR-STEP. JAMES A. CAMPBELL, Lenox, Mass. Filed Jan. 11, 1897. Serial No. 618,775. (No model.)



Claim.—1. The combination with two rigid side beams, of an extension-step pivotally mounted between and on the two, the extension-step having two treads and a riser connecting the treads, and the step being pivoted to the side beams at one of its treads, a gear-wheel in connection with the step, a rotary shaft carried by one of the side beams, and a gear fixed to the rotary shaft and meshing with the first-named gear, substantially as described.

2. The combination with two rigid side beams having stationary steps held between them, of an extension-step pivotally mounted between and on the side beams, the extension-step having two treads connected with each other by a diagonally-extending riser, and the extension-step being pivoted at a point adjacent to one of its treads, and means for turning the extension-step so that the tread of the extension-step which tread is removed from the pivot of the extension-step may be moved to lie directly beneath the lowermost stationary step or outward and downward from that tread of the extension-step which tread is adjacent to the pivot of the extension-step, substantially as described.

3. The combination with a rigid support, of an extension-step pivotally mounted thereon, the extension-step having a lug, two spring-pressed keepers carried by the support and capable of engaging the lug to hold the extension-step in either of two positions, a rod sliding longitudinally on the support, and a crank-shaft having connection with the spring-pressed keepers and with the sliding rod so that upon the movement of the rod the keepers will be disengaged from the lug of the extension-step, substantially as described.

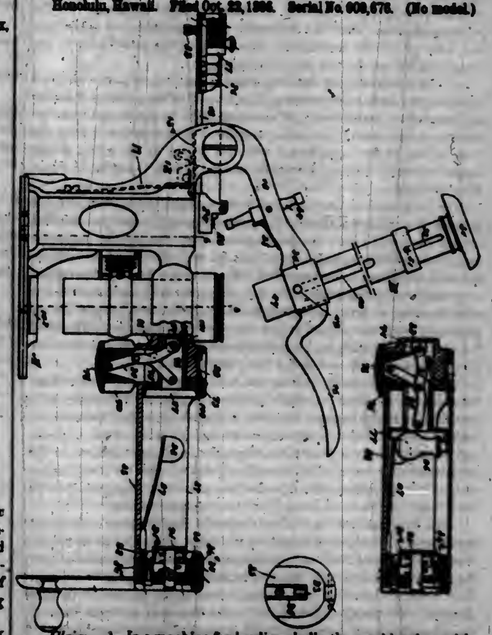
4. The combination with a rigid support, of a member pivoted thereon, two keepers capable of engaging the member and of holding the same in either of two positions, a rod slidably carried by the support, and a crank-shaft in connection with the rod and with the keepers whereby the keepers may be operated to release the said pivoted member, substantially as described.

5. The combination with a rigid support, of an extension-step pivoted thereon, gearing carried by the support whereby the step may be turned in its pivot, two keepers carried by the rigid support and respectively capable of holding the extension-step in either of two positions, a crank-arm mounted on the rigid support, and a sliding rod carried by the support and in connection with the crank-arm whereby the keepers may be released, substantially as described.

6. The combination of two rigid side boards with stationary steps held between them, one end of each side board being extended beyond the stationary steps, and an extension-step consisting in two treads connected by a riser, the extension-step being pivotally mounted between the side boards near the said ends of the side boards and being capable of swinging to lie directly against the adjacent stationary step or of extending outward therefrom.

7. The combination of two side boards, a stationary step rigidly secured between the side boards, one end of each side board being extended beyond said step, and an extension-step mounted between the said extended portions of the side boards and capable of swinging in its mountings so that the extension-step may lie directly against the stationary step or may extend outward from said step.

586,013. CARTRIDGE-LOADING IMPLEMENT. EDWIN H. CARY, Honolulu, Hawaii. Filed Oct. 22, 1896. Serial No. 609,678. (No model.)



Claim.—1. In a machine for loading shells, the combination, with a priming-chamber, of a magazine arranged to contain primers and having a follower for the same, the outlet of the magazine being at one end, and a hinge-support for the magazine, whereby the magazine may be carried at one side of the priming-chamber or across the same, with its outlet substantially centering the said chamber, as and for the purpose set forth.

2. In a machine for loading shells, the combination, with a chamber arranged to receive a shell and having an outlet, of a mandrel shaped to enter a shell, a plunger located in the said mandrel, and extracting-points carried by the said plunger, one of the said points being longer than the other, as and for the purpose set forth.

3. In a machine for loading shells, the combination, with a loading-chamber arranged to receive a shell, of a loading-plunger, a support therefor, the said plunger consisting of a main cylinder having sliding movement in its support, and an auxiliary cylinder having sliding movement in the main cylinder, the main cylinder of the plunger being closed at its lower end, and the auxiliary cylinder closed at its upper end, a rod attached to the closed portion of the auxiliary cylinder and extending within the main cylinder, terminating in a head, a spring surrounding the said rod, having a bearing on the said head and a bearing in the auxiliary cylinder of the plunger, and a second spring having a bearing against the head of the said rod and the bottom of the main cylinder, as and for the purpose specified.

4. In a machine for loading shells, the combination, with a crimping-chamber having a disk held to revolve at one end, provided with a flange, and a spring-controlled crimping-block sliding within the flange of the disk, the disk-flange being provided with a channel adjacent to the side of the block, of a follower having sliding movement in the said chamber, a button arranged to impart movement to the said follower, and a cover for the said chamber, having a hinge connection with the disk, the said cover being adapted to be carried to a locking engagement with the disk, as and for the purpose specified.

5. In a machine for loading shells, the combination, with a crimping-chamber having a disk held to revolve at one end, provided with a flange, and a spring-controlled crimping-block sliding within the flange of the disk, the said disk-flange being provided with a channel adjacent to the side of the block, of a follower having sliding movement in the said chamber, a button arranged to impart movement to the said follower, a cover for the said chamber, having a hinge connection with the disk, the said cover being adapted to be carried to a locking engagement with the disk, forming a crank-arm therefor, and a locking device for the said plunger, all arranged for operation, substantially as specified.

6. In a machine for loading shells, a priming-chamber, a magazine for primers hinged to the priming-chamber, whereby the magazine may be carried to a vertical or to a horizontal position, the said magazine being provided with an outlet arranged to extend over the priming-chamber when the magazine is at an angle to the said chamber, and means for forcing the primers from the said outlet of the magazine, as and for the purpose specified.

7. In a machine for loading shells, a priming chamber adapted to receive a shell, a primer-magazine hinged to the priming-chamber and having an outlet arranged in one position of the magazine to extend over the priming-chamber, a lever, and an extension from the lever arranged for engagement with the primer at the outlet of the magazine, and a locking device for the magazine, as and for the purpose set forth.

8. In a machine for loading shells, a priming-chamber adapted to receive a shell, a magazine for primers having a spring-controlled hinged connection with the priming-chamber, whereby the magazine may be locked at an angle to or parallel with the priming-chamber, the said magazine being provided with an outlet arranged to extend over the priming-chamber when the magazine is at an angle to the said chamber, a lever, an extension from the lever arranged for engagement with the primer at the outlet of the magazine, and a feed for the primers acting to carry them one after the other to the outlet of the magazine, as and for the purpose set forth.

9. In a machine for loading shells, the combination, with a chamber adapted to receive a shell having an outlet in its bottom, of a mandrel arranged to enter the shell in the said chamber, the mandrel being provided with an open lower end and a pocket at the opposite end adapted to contain an extracting-point, a plunger located in the said mandrel, a reversible extracting-point carried by the plunger, and a lever operating to force the plunger to an engagement with the primer of the shell, as and for the purpose specified.

10. In a machine for loading shells, the combination, with a loading-chamber arranged to receive a cartridge, a support to which the chamber is pivoted, and an expansion-head of a spring material having a fingered lower end, the said expansion-head being of substantially conical formation and located in the upper portion of the said chamber, of a plunger arranged to enter the shell and pass through the expansion-head, a tension device normally holding the chamber in position to receive the plunger, and a lever carrying the said plunger, as and for the purpose specified.

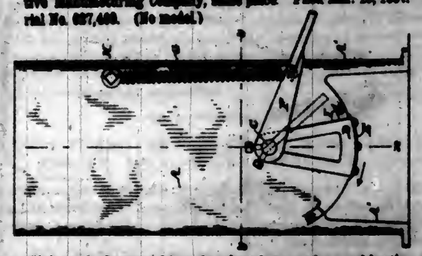
11. In a machine for loading shells, the combination, with a crimping-chamber having a disk held to revolve at one end, provided with a flange and a spring-controlled crimping-block sliding within the flange of the disk, the disk-flange being provided with a channel adjacent to the side of the block, of a follower having sliding movement in the said chamber, and a button arranged to impart movement to the said follower, and means for revolving the said disk, as and for the purpose set forth.

12. In a machine for loading shells, a priming-chamber, a magazine for primers adjustably connected with the chamber, a pivoted, tension-controlled loading-chamber, a lever extending over the loading and the priming chambers, a plunger carried by the lever, arranged to enter the loading-chamber, and a fixing-rod attached to the lever, being adapted to force the primers from the magazine, as and for the purpose specified.

13. In a machine for loading shells, a priming-chamber, a magazine for primers adjustably connected with the chamber, a pivoted, tension-controlled loading-chamber, a lever extending over the loading and the priming chambers, a plunger carried by the lever and arranged to enter the loading-chamber, a fixing-rod attached to the lever, being adapted to force the primers from the magazine, and a crimper located at one side of the loading-chamber and at an angle thereto, as and for the purpose specified.

586,014. SAND-BOX FOR ELECTRIC CARS OR SNOW-PLOWS.

EDWARD G. OBLLIN, Taunton, Mass., assignor to the Taunton Locomotive Manufacturing Company, same place. Filed Mar. 15, 1897. Serial No. 627,469. (No model.)



Claim.—1. In a sand-box for electric cars, the combination of a receptacle for holding the sand having a semicircular bottom provided with a discharge-orifice in the lowest part thereof; a valve for closing said opening arranged to be moved in an arc of a circle, concentric with the curve of the bottom of said receptacle; means to be operated by the motorman's foot, for opening said valve; and a spring for closing the same.

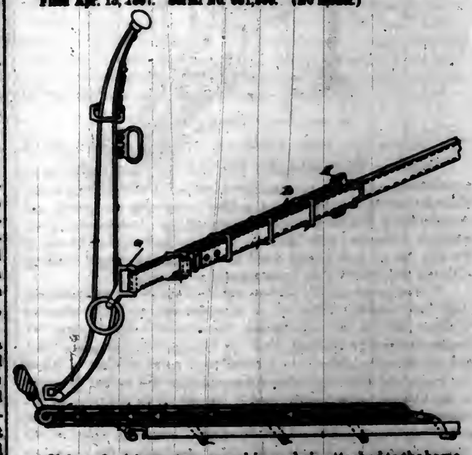
2. The combination of the receptacle A provided with a semicircular bottom having the opening B therein; the shaft C; the arms D, D; the valve-plate E carried by said arms D, D; the pedal F; and spring G.

3. The combination of the receptacle A provided with a semicircular bottom having the discharge-opening B therein; the shaft C; the arms D D and K K, and the pedal F carried by said shaft; the valve-plate E carried by the arms D, D; and the spring G, all constructed arranged and operating substantially as described.

4. In a track-sanding device for electric cars the combination of a sand-holding receptacle having a semicircular bottom and a discharge-orifice in said bottom; an oscillating valve located beneath said receptacle, and arranged to normally close said orifice; means for moving said valve in an arc of a circle to open it by a pressure imparted by the operator; and a spring for closing the same.

586,015. HAME-TUG. WILLIAM F. DALE, Brownsville, Canada.

Filed Apr. 13, 1897. Serial No. 631,899. (No model.)



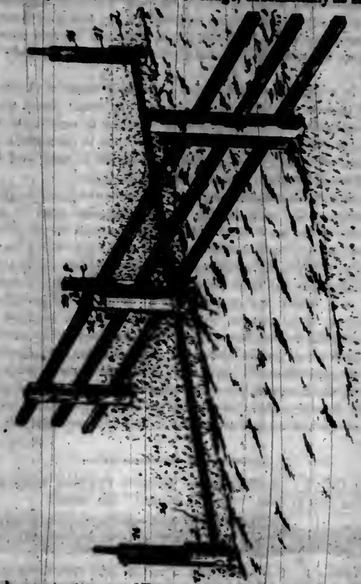
Claim.—1. A hame-tug, comprising a chain attached to the hame, a leather casing for the same, and a plurality of extra links passing through links of the chain and through the casing surrounding it, adapted to receive the trace attachment and act as holders for the trace-body, substantially as described.

2. A hame-tug, comprising a chain attached to the hame, a leather casing for the same, and a plurality of extra links passing through links of the chain and through the casing surrounding it and adapted to receive the trace attachment and act as holders for the trace-body, said extra links having enlarged shoulders formed on the inner side bar thereof and engaging the edges of the chain-links, substantially as described.

586,016. GATE. THOMAS DAVISON, West Conshohocken, Pa.

Filed Aug. 8, 1896. Renewed Mar. 31, 1897. Serial No. 630,169. (No model.)

Claim.—1. The post 2, having the triangular projections c, of greater height than the thickness of the top hinge, the cap 19 placed on the projections, and the top hinge 11, pivoted upon the top of the post 2, between the inner ends of the triangular projections, and projecting at both ends beyond the sides of the post: combined with the gate provided with the eye 9, the notched lever 14 pivoted on the post and engaging with the outer end of the top hinge; the rod 15, lever 16, post 17, and the lower hinge, substantially as shown.



2. In a gate, the post 17 cut away at *d*, and having vertical slits to receive the lower ends of the levers, and transverse openings to receive the ends of the connecting-rod, combined with the vertical levers 16 pivoted upon the posts, and the horizontal connecting-rod, which is connected to the lower ends of the levers in the transverse openings, and to the lever 14 pivoted upon the post 2, substantially as described.

586,017. CLOSURE FOR BOTTLES, JARS, &c. THEODORE DUBOIS, New York, N. Y., assignor of one-half to Edgar R. Moore, Brooklyn, N. Y. Filed Jan. 21, 1897. Serial No. 620,070. (No model.)



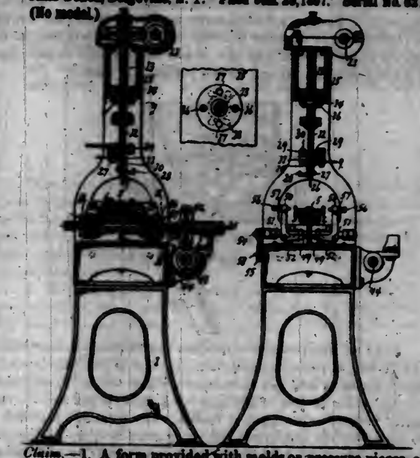
Claim.—1. A closure for jars, bottles and the like, comprising a head having a groove in its top, a disk of impervious material stretched over the under side of the head and extending over the edge thereof into the annular groove, and a fastening device for securing the edge of the disk in the groove, substantially as described.

2. A closure for jars, bottles and the like, comprising a head having an annular groove in its top, a disk of impervious material on the under side of the head and extending over the edge of the same into the groove, and a ring fitting in the groove and holding the edge of the disk therein, substantially as described.

3. A closure for jars, bottles and the like, comprising a head having an annular groove in its top, a disk on the under surface of the head and extending over the edge thereof into the groove, and a ring fitting in the groove and securing the edge of the disk therein, said ring being provided with upwardly-projecting opposite eyes for receiving a locking device, substantially as described.

4. A closure for jars, bottles and the like, consisting of a head having an annular groove in its top, a disk on the under side of the head and extending over the edge of the same into the groove thereof, a lining of cork between the head and disk, a ring in the groove and holding the edge of the disk therein, said ring being provided with eyes, and a fastening device mounted in said eyes, substantially as described.

586,018. MACHINE FOR MAKING PIANO-HAMMERS. ALFRED DOLGE, Dolgeville, N. Y. Filed Jan. 20, 1897. Serial No. 621,195. (No model.)



Claim.—1. A form provided with molds or pressure-pieces, combined with compression-jaws for the molds, and actuating bushings and screws for the jaws, said bushings and jaws having differentially-arranged fastener or bolt receiving perforations substantially as described.

2. A form and crimper, combined with a holder for the crimper, and an actuator for the holder, the holder having a veneer-clamp and being pivotally connected to the actuator to permit of setting and unsetting the crimper simultaneously with unsetting and setting the veneer-clamp, substantially as described.

3. A form and crimper, combined with a holder for the crimper, and an actuator to which the holder is jointed or movably secured so as to enable the crimper to be put out of action without interrupting or stopping the movement of the crimper-actuator substantially as described.

4. A form and crimper, combined with a holder for the crimper, and an actuator to which the holder is jointed or movably secured to permit the crimper to be set out of the work-engaging position or adjustment, said holder being provided with a clamp or releasable holding device for engaging a veneer substantially as described.

5. A form and crimper, combined with a holder for the crimper, and an actuator provided with locking-slides and to which the holder is jointed or movably secured to permit the crimper to be set out of the work-engaging position or adjustment, said holder being provided with a releasable veneer carrier or clamp and with shoulders adapted to be alternately engaged by the locking-slides for presenting the crimper and the veneer to the form substantially as described.

6. A form provided with molds, combined with centering-levers, a rock-shaft for actuating the levers, and a handle for the rock-shaft substantially as described.

7. A form and crimper, combined with a holder for the crimper, and an actuator provided with locking-slides and to which the holder is jointed or movably secured to permit the crimper to be set out of the work-engaging position or adjustment, said holder being provided with a releasable veneer carrier or clamp and with shoulders adapted to be alternately engaged by the locking-slides for presenting the crimper and the veneer to the form, and centering-levers for adjusting the work relatively to the crimper and veneer, said levers having adjustable faces or contactors substantially as described.

8. A form and crimper, combined with an actuating-screw for the crimper, a bushing for the screw, and a frame for supporting the bushing, said bushing and frame having differentially-arranged fastener or bolt receiving perforations substantially as described.

9. A form provided with lower molds fixed in the form, upper molds made movable toward and from one another across the top of the form, compression-jaws or actuators for the upper molds, and clamps or fixing devices for said last-named molds substantially as described.

10. A form provided with lower molds fixed in the form, upper molds made movable toward and from one another across the top of the form, combined with compression-jaws or actuators for the upper molds, and fastenings for securing the upper molds to the top or rim of the form substantially as described.

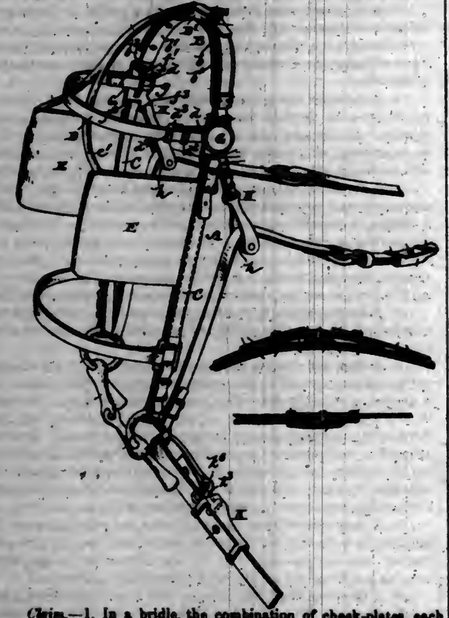
586,019. FERTILIZER-DISTRIBUTER. LUCIEN C. BLAKEN, Rock Hill, Ga. Filed July 8, 1896. Serial No. 598,013. (No model.)

Claim.—1. As an improvement in fertilizer-distributers, the combination with the hopper, of a feeding-disk provided with radial fingers mounted therein; a feeding-screw mounted beneath said hopper and provided upon its upper end with radial fingers adapted to engage the fingers on said disk and means, substantially as described, for driving said disk, as and for the purpose set forth.



2. As an improvement in fertilizer-distributers, the combination with the hopper and supporting-frame therefor, of a disk having radial fingers, rotatably mounted therein, said fingers taking through a slot provided in the bottom of said hopper; a conveyer and delivery tube located beneath said hopper, a feeding-screw rotatably mounted in the conveyer-tube and having radial fingers on its upper end designed to engage the fingers on the feeding-disk; a driving-sprocket attached to the shaft of said disk; a traction wheel and sprocket suitably mounted in the supporting-frame, and a sprocket-chain for operatively connecting said sprockets, all combined and arranged substantially in the manner and for the purpose set forth.

586,020. BRIDLE. PLAVIUS J. ETTINGER, Spring Valley, Ill., assignor of one-half to Theodore Ament and Joseph H. Ament, Worthington, Iowa. Filed Feb. 16, 1897. Serial No. 624,208. (No model.)



Claim.—1. In a bridle, the combination of cheek-plates, each having strap-attaching apertures, cheek-straps secured to said plates, a crown-strap also secured to the said plates and provided with a central loop-buckle for securing the ends of said crown-strap, an adjustable brow-band also secured to said cheek-plates, and winkers secured to the cheek-straps and provided with a strap which is secured in place by a loop-shaped buckle on the crown-strap, substantially as described.

2. In a bridle the combination with cheek-straps provided with blinds or winkers, straps secured to said blinds, a brow-band and a crown-strap having a buckle secured thereto adapted to engage and hold in place the ends of said crown-straps and the said winker-straps, substantially as described.

3. In a bridle the combination with cheek-straps provided with blinds or winkers, straps secured to said blinds, a brow-band and a crown-strap having a buckle secured thereto, said buckle having a pintle adapted to engage holes in the winker-strap and the ends of the crown-strap for holding the same in place, substantially as described.

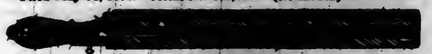
4. In a bridle the combination of a crown-strap, cheek-straps and a brow-band, cheek-plates for securing said parts together, comprising a plate provided with a longitudinal slot and a horizontal slot for engaging the ends of the said crown-strap and the said brow-strap and means for securing the cheek-strap thereto, substantially as described.

5. In a bridle the combination with cheek-straps of cheek-pieces secured thereto, the cheek-pieces comprising metal pieces provided with longitudinal slots open at one end adapted to receive the shanks of suitable rosettes for securing the brow-band in place and a crown-strap secured to said cheek-pieces and adapted to hold said rosette and brow-band in place, substantially as described.

6. In a bridle the combination with cheek-straps, of cheek-pieces for supporting the same, having longitudinal slots open at one end for attaching the brow-band and rosettes to said cheek-pieces, the upper end being provided with transverse slots for receiving the crown-strap whereby the said strap is secured to said cheek-pieces and locks the said rosettes and brow-band in place, substantially as described.

7. In a bridle the combination of cheek-pieces provided with longitudinal slots open at one end adapted to be engaged by the shank of suitable rosettes, a brow-band adapted to be secured to said cheek-pieces by the shanks of said rosettes, said cheek-pieces being also provided with transverse slots near their upper ends for receiving the straps of the crown-piece and also provided with one or more slots near their lower ends for engaging and supporting the cheek-straps and runner-straps for said bridle, substantially as described.

586,021. RAZOR-STROP. FRANK G. FARNHAM, White Mills, Pa. Filed July 31, 1896. Serial No. 601,220. (No model.)



Claim.—1. In a razor-strop, a handle, side walls forming part of a casing, a removable slide fitting a recess between said side walls, said slide being reversible within the recess to expose or conceal an operating-surface, substantially as described.

2. In combination, the casing and the strop normally held within a recess therein and arranged to be drawn out and held upon the back of the casing when in use, substantially as described.

3. In combination, the casing, the strop within said casing, the spring for holding said stop yieldingly therein, said strop being adapted to be drawn out and placed upon the bottom side of the casing, and means for holding it in position, substantially as described.

4. In combination, the casing, the reversible slide carried by said casing and having a honing-surface and the receptacle for the paste in said casing, substantially as described.

5. In combination, the casing having a central longitudinal partition, the slide reversibly carried on one side and having a honing-surface, the handle secured within one end of the casing, the strop held within the other side of said casing under spring tension and adapted to be drawn out and folded back upon the outer face of the casing, and means for securing the free end of the strop adjacent to the handle, substantially as described.

6. In combination, the casing having longitudinal grooves therein, the strop under spring tension, and the projections carried thereby adapted to slide in said grooves and to abut the end walls thereof to limit the movement of said strop, substantially as described.

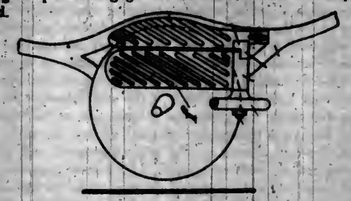
7. In combination, the casing, the strop under spring tension, and the means slidable with said strop independent of said spring and located within said casing for preventing the complete withdrawal, substantially as described.

8. In combination, the intermediate and bottom pieces having a slot between the faces thereof, the handle having a tenon fitted to said pieces, said handle having a longitudinal opening therein, a spring held within said opening and a strop within said slot carried by said spring.

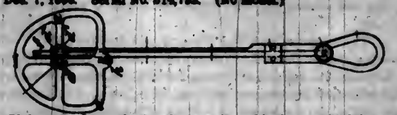
586,022. FOOT-REST AND GUARD. WILHELM FRELING, Vlotz, Germany. Filed Sept. 9, 1896. Serial No. 605,236. (No model.) Patented in Germany June 30, 1896, No. 88,168.

Claim.—1. In a guard, a plate secured to the frame of the machine an extension formed thereon, a bolt secured between the extension and the frame, a casing journaled on the bolt, a lug on the casing to engage an aperture in the frame, a spring adapted to force the lug into engagement with the aperture and a second plate on the casing, as and for the purpose described.

2. In a device of the character described, a frame, a plate, secured thereto, an extension formed on said plate, a bolt secured between the extension and the frame, a casing slidably journaled on the bolt, a lug formed on the casing to engage an aperture in the frame, a spring adapted to force the lug into engagement with the aperture, a shoulder formed on the extension and a second plate on the casing adapted to engage the shoulder, as and for the purpose described.



586,023. APPLIANCE FOR USE IN SOLDERING ARTIFICIAL TEETH TO MOUTH-PLATES. JOHN FLETCHER, Bristol, England. Filed Dec. 7, 1896. Serial No. 614,782. (No model.)



Claim.—1. In a device for use in soldering artificial teeth to mouth-plates, the combination with a holding-arm; a carrier-frame rotatably mounted at one end thereof and a handle for grasping the same provided at the opposite end: means carried by said holding-arm for rotating said carrier-frame: and means provided upon said carrier-frame for the attachment of the investment-tray, substantially as described.

2. In a device for use in soldering artificial teeth to mouth-plates, the combination with a holding-arm; a carrier-frame rotatably mounted at one end thereof and a handle for grasping the same provided at the opposite end: a pinion connected rigidly with said carrier-frame; a rack-bar carried by said holding-arm having teeth meshing with said pinion; means whereby said rack-bar may be moved longitudinally; and means provided upon said carrier-frame for the attachment of the investment-tray, substantially as described.

3. In a device for use in soldering artificial teeth to mouth-plates, the combination with a holding-arm: a carrier-frame fixed upon a spindle journaled in one end of said holding-arm: a pinion also fixed upon said spindle; a rack-bar mounted in guides upon said holding-arm, and having teeth thereon meshing with said pinion; a handle on said holding-arm: and a button or stud on said rack-bar by which the same may be moved, substantially as described.

4. In a device for use in soldering artificial teeth to mouth-plates, the combination with a holding-arm; a carrier-frame rotatably mounted at one end thereof, and a handle provided at the opposite end: means carried by said holding-arm for rotating said carrier-frame: an eye on said carrier-frame: a clamping-pin also mounted on said carrier-frame; of an investment-tray provided with a hooked stud adapted to engage said eye on the carrier-frame, and having a handle provided with a slot adapted to be engaged by said clamping-pin on said carrier-frame, substantially as described.

5. An investment-tray for use in soldering artificial teeth to mouth-plates, comprising a plate of suitable metal secured upon a frame provided with means for attaching the same to and detaching it from, the carrier-frame, substantially as described.

6. An investment-tray for use in soldering artificial teeth to mouth-plates, comprising a metallic plate secured upon a wire frame, the said wire frame being bent to form a handle, and having a slotted plate thereon adapted to be engaged by a clamping-pin on the carrier-frame, and the said frame being also provided with a hooked stud adapted to engage an eye on said carrier-frame, substantially as described.

586,024. NUT-LOCK. DARNEVILLE H. GARRISH, Cypre Mort, La. Filed Nov. 21, 1896. Serial No. 612,967. (No model.)



Claim.—The combination with the spring-washer comprising the two connected plates with registering bolt-holes therein, of the nut-lock consisting of the connected spring-arms one of which is provided with an apertured plate located between the plates of the washer and the other formed with a plate having an angular opening, substantially as described.

586,025. COMBINED GROCER'S PACKAGE, GRATER, SLICER, AND MOUSE AND FLY TRAP. ROBERT M. GARDINER, Hamilton, Canada, assignor of two-thirds to Charles S. Cochran and Henry B. Ralston, same place. Filed Jan. 13, 1897. Serial No. 618,088. (No model.)



Claim.—1. In a grocer's tin can or box, strips of flexible sheet metal secured at one end to the can, the same being capable of folding on the can and adapted to its cylindrical shape when not in use, and bent outward to form legs to sustain the can in a horizontal position when used as a grater, slicer, &c., substantially as, and for the purpose specified.

2. The combination in a grocer's can of the box A, cover B, the grater-perforations C, and the flexible strips *a*, *a*, for legs secured at one end of the can, the same being capable of folding on the can and adapted to its cylindrical shape when not in use, and bent outward to form legs to sustain the can in a horizontal position when used as a grater, slicer, &c., substantially as and for the purpose specified.

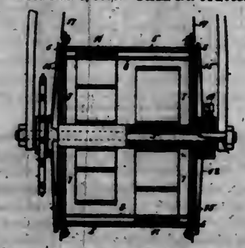
3. The combination in a grocer's can, the box A, the cover B, the grater-perforations C, the slicer-slots D, and the flexible strips *a*, *a*, for legs secured at one end of the can, the same being capable of folding on the can and adapted to its cylindrical shape when not in use, and bent outward to form legs to sustain the can in a horizontal position when used as a grater, slicer, &c., substantially as specified.

4. The combination in a grocer's tin can or box, of the body A, having its cover B, constructed with an opening *e*, and a trap-door *f*, hinged over the opening on the inside of the cover to close the opening from that side and the flexible strips *a*, *a*, for legs secured at one end of the can, the same being capable of folding on the can and adapted to its cylindrical form when not in use, and bent outward to form legs to sustain the can in a horizontal position when used as a grater, slicer, and mouse-trap, substantially as and for the purpose specified.

5. The combination in a grocer's tin can or box, of the body A constructed with three legs attached to the sides of the open end of the can, the inverted cover B, and the diaphragm *j*, all constructed substantially as and for the purpose specified.

6. In a grocer's tin can or box, the body A constructed with grater-openings C, slicer-openings D, provided with thin cutting edges *b*, opening *e*, in the cover B, with hinged trap-door *f*, behind it, the flexible strips *a*, *a*, for legs, secured at one end of the can, the same being capable of folding on the can and adapted to its cylindrical form when not in use, and legs A', attached to the sides of the open end of the can and the internal diaphragm fly-trap *j*, all arranged and constructed substantially as and for the purpose specified.

586,026. SPRING-WHEEL FOR VEHICLES. ELLIS D. GEHMAN, Berry, Ill. Filed Dec. 1, 1896. Serial No. 614,063. (No model.)

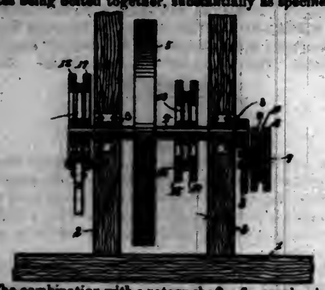


Claim.—In a spring for bicycles and other vehicles, the herein-described cylindrical hub, the spindle-boxing composed of a main section and an independently-revolvable supplemental section, the reversely-coiled adjustable springs having their inner and outer ends attached respectively to the spindle-boxing and the encircling rim of the hub, and means for adjusting and regulating the tension of the springs, substantially as and for the purposes specified.

586,027. OIL OR WATER WELL OPERATING POWER. GEORGE W. GRIMM, Bluffton, Ind. Filed June 1, 1896. Serial No. 593,849. (No model.)

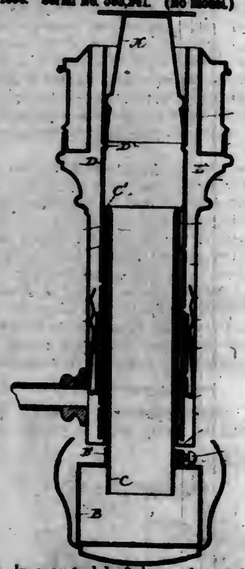
Claim.—1. The combination, with a rotary shaft and a power-wheel thereon, of a crank-arm having a series of perforations, a crank

attachment adjustably mounted on said crank-arm and having an outwardly-extending flange, and rod-actuating plates engaging the opposite sides of said flange and having inwardly-extending annular flanges to engage the periphery of the flange on the attachment, the said plates being bolted together, substantially as specified.



2. The combination with a rotary shaft, of a crank-wheel mounted rigidly thereon and having laterally-extended peripheral flanges, rod plates or rings engaging the outer edges of said flanges and having inwardly-extended flanges to engage the periphery of the crank-flange, the said plates or rings also having outwardly-extended perforated flanges for the engagement of rod-clips, substantially as specified.

586,028. CENTRAL-DRAFT LAMP. LEWIS F. GRISWOLD, Meriden, Conn., assignor to The Charles Parker Company, same place. Filed May 27, 1896. Serial No. 593,241. (No model.)



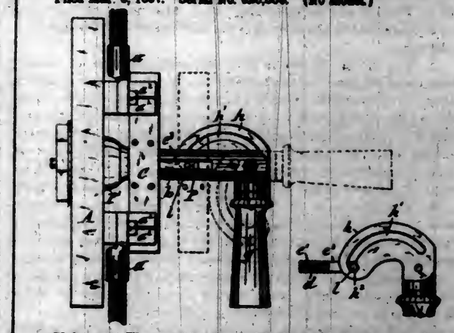
Claim.—1. In a central-draft lamp, the combination with an operating central draft-tube having its lower end screw-threaded, of a wick-carrier connected therewith so as to be raised and lowered thereby, a drip-cup, and a drum-shaped air-strainer located entirely within the said cup to which it is permanently fastened, and secured to the threaded lower end of the said draft-tube which is rotated in either direction by the cup.

2. In a central-draft lamp, the combination with a body-tube, of a suspension-tube located within the body-tube than which it is smaller in diameter so as to form an annular oil-chamber between the two tubes, an externally-threaded wick-tube extending downward into the said oil-chamber, an operating central draft-tube located within the suspension-tube, projecting above and below the same, having its upper end turned outward to form a flange which is rigidly connected with the inner face of the said wick-tube at a point well below the upper end thereof, and which rests upon the upper end of the said suspension-tube for supporting the wick-tube, a drip-cup containing an air-strainer, attached to the projecting lower end of the operating central draft-tube which is rotated in either direction by means of it, a wick-carrier located within the said annular oil-chamber and coacting with the wick-tube for being raised and lowered thereby, and an air-distributer or thimble located in the upper end of the wick-tube at a point above the operating central draft-tube and receiving the strained air rising through the said operating central draft-tube from the air-strainer in the drip-cup.

3. In a central-draft lamp, the combination with a body-tube, of a suspension-tube located within the body-tube than which it is smaller in diameter so as to form an annular oil-chamber between the two tubes, a flaring burner-supporting ring secured to and extending above the upper end of the said body-tube, a burner adapted to be supported in the said ring, and having an outer wick-tube, a threaded wick-tube entering the said oil-chamber, an operating central draft-tube located within the suspension-tube and connected at its upper end with the inner wall of the said threaded wick-tube at a point well below the upper end thereof, and at its lower end extending downward through and projecting below the said suspension-tube, a drip-cup secured to the projecting lower end of the said operating central draft-tube, and a wick-carrier comprising a band located upon the wick-tube, and coacting with the threads thereof for being vertically moved thereby, and also comprising spring wick-gripping jaws which normally engage with the body-tube and with the said outer wick-tube, but which expand into the burner-supporting ring and release the wick when the burner is removed from the said ring.

4. The combination with a drip-cup, of a drum-shaped air-strainer consisting of a perforated cylinder and heads, located entirely within the drip-cup, its upper head being furnished with a screw-threaded collar adapting the strainer and cup to be secured to the threaded lower end of the draft-tube of a lamp of the Argand type.

586,029. ELECTRIC SWITCH. FRANK D. HALL, Syracuse, N. Y. Filed Mar. 2, 1897. Serial No. 626,358. (No model.)

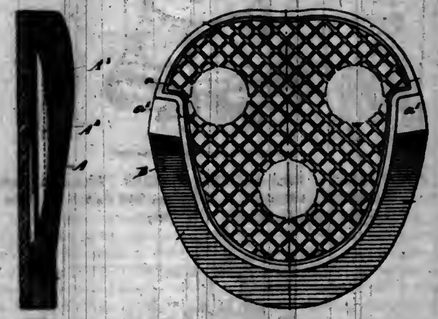


Claim.—1. The combination, with the insulating-base and a plurality of poles secured to said base and disposed in pairs, of a tubular post projecting from the base between the pairs of poles, a plunger guided rectilinearly in said post, switch-plates carried by said plunger permanently parallel with the respective pairs of poles, a lever fulcrumed in the post, an eccentrically-curved cam fixed to said lever and bearing on the end of the plunger to force the same toward the base, means for locking the lever to retain the switch-plates in contact with the poles, and a spring in the base of the post forcing said plunger outward, as set forth and shown.

2. The combination with the insulating-base and a plurality of poles secured to said base and disposed in parallel pairs, a tubular post projecting from the base between the pairs of poles and provided with longitudinal slots in opposite sides, a plunger sliding longitudinally in the interior of said post, two arms of insulating material fastened to the plunger and projecting through the longitudinal slots of the post, switch-plates attached to the free ends of said arms and sustained parallel with the respective pairs of poles, a lever fulcrumed on the post and having affixed to it a cam bearing on the outer end of the plunger to force the same inward, and a spring in the base of the post forcing the plunger outward, as set forth and shown.

3. The combination with the insulating-base and a plurality of pairs of poles secured to said base and disposed in parallel lines, a tubular post projecting from the base between the pairs of poles and provided with longitudinal slots in opposite sides, a plunger sliding longitudinally in said post, two arms formed in one piece of non-conducting material and secured at the center of its length to the plunger and extending through two of the diametrically opposite slots in the post, switch-plates fixed to the ends of said arms, a hand-lever pivoted to the free end portion of said post and having fixed to it a cam bearing on the end of the plunger and provided with a longitudinal slot curved to correspond to the curvature of the face of said cam and terminated with an abruptly-increased curvature, a pin fastened to an extension of the plunger and passing through the slot of the cam, and a spiral spring located in the post and forcing the plunger longitudinally outward, substantially as described and shown.

586,030. HORSESHOE-PAD. MICHAEL HALLAHAN, New York, N. Y. Filed Apr. 1, 1896. Serial No. 585,733. (No model.)



Claim.—1. A horseshoe-pad, having a face-block with a groove in its inner side at the heel, and rounding at the outer surface at such heel portion, and a backing-plate secured to the face-block, substantially as described.

2. A horseshoe-pad, having a face-plate, with a concavity in its inner side, and a plane or flat back-plate secured over the inner side of the face-plate to close the concavity and form a pneumatic cushion for the pad, substantially as described.

3. A horseshoe-pad consisting of a rubber face-plate hollow on the inner side, and a leather backing-plate, thereby forming a pneumatic cushion, substantially as described.

4. A horseshoe-pad, having a rounded surface at the lower side of the heel, the said surface being spread transversely for a distance equal to the width of the heel, and being stiff and firm to form a rolling support for the horse's foot when placed on the ground, substantially as described.

5. A horseshoe-pad, having a rounded surface at the lower side of the heel, the said surface being stiff and firm to form a rolling support for the horse's foot when placed on the ground, substantially as described.

6. A horseshoe-pad, having a rounded surface at the lower side of the heel, the said surface being spread transversely for a distance equal to the width of the heel, and the rounded surface forming a rolling support for the horse's foot when placed on the ground, substantially as described.

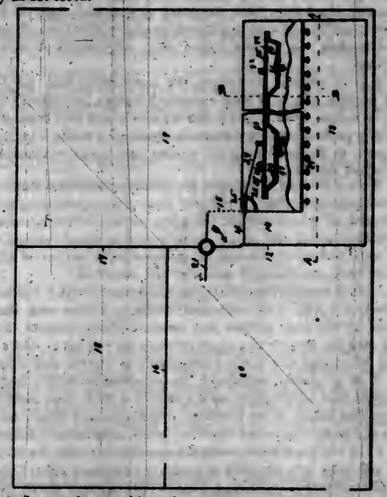
7. A horseshoe-pad, formed of flexible material and having a transversely-elongated recess at the inner side of the heel, and also having a rounded portion at the lower side of the heel, the recess extending into the rounded portion, and a back-plate arranged over the inner side of the pad and secured to the pad, the rounded portion of the pad being contracted to reduce the recess and enlarge the rounded portion, substantially as described.

586,031. VOTING-MACHINE. RUSSELL A. HART, Battle Creek, Mich. Filed Nov. 2, 1895. Serial No. 567,770. (No model.)

Claim.—1. In a voting-machine, the combination of push-keys for the voter's use, said keys being provided with lock-notches and a lateral projection in the rear thereof, vertically-movable frames, one being provided with dogs adapted to fall by gravity into said notches, the other being provided with upwardly-projecting wedges adapted to crowd back of the lateral projections of the keys and push them out when the frames are raised, a double cam-slide adapted to raise said frames one in advance of the other, a hinged door, and means connecting the door with the cam-slide to cause the latter to operate and raise the frames when the door swings on its hinge, substantially as set forth.

2. In a voting-machine, the combination of push-keys for the voter's use, said keys being provided with lock-notches and a lateral projection in the rear thereof, vertically-movable frames, one being provided with dogs adapted to fall by gravity into said notches, the other being provided with upwardly-projecting wedges adapted to crowd back of the lateral projections of the keys and push them out when the frames are raised, a double cam-slide adapted to raise said frames one in advance of the other, a hinged door, a ratchet-bar, a lever having a ratchet pivoted thereto, and adapted to tilt down at the ends, the same being hollow and provided with a weight-ball adapted to hold the ends of the ratchet tilted down when the ratchet-lever makes its sweep during the swing of the door, and a rod pivotally connecting the lever and cam-slide, substantially as set forth.

3. In a voting-machine, the combination of the vertically-movable frames, the voting-keys having the lock-notches, the dogs adapted to fall by gravity in said notches, a hinged door for entering the booth, a ratchet provided with the overhanging end arms, a lever adapted to be swung by the action of the door in swinging it on its hinges, and provided with a pawl pivoted thereto in a manner to be tilted by its ends passing beneath the overhanging arms of the ratchet, substantially as set forth.



4. In a voting-machine, the combination of vertically-movable frames having rollers at each end at lower side, a double cam-slide having the inclined surfaces on each, those on one being in advance of those on the other, a hinged door provided with a lever, and a connecting-rod attached to said lever and cam-slide, substantially as set forth.

5. In a voting-machine, the combination of push-keys for the voter's use, the eccentric cams and pivoted levers to which said cams are pivoted, stops between which the cams are located, and rods pivotally connecting the push-keys and cams whereby the pushing in of one key prevents the pushing in of any other key, substantially as set forth.

6. In a voting-machine, the combination of the push-keys for the voter's use, said keys having the lock-notches and lateral projections in rear thereof, the vertically-movable frames one of them being provided with the gravity-falling dogs, the other being provided with upwardly-projecting wedges adapted to crowd back of the lateral projections of the keys and to push them out when the frames are raised, substantially as set forth.

7. The combination of a row of push-keys for voter's use provided with lock-notches and the rear lateral projections, the vertically-movable frames one being provided with gravity-falling dogs and the other with upwardly-projecting wedges, a pull-key, a rotatable shaft provided with upwardly-extending arms for operating the push-keys and a downwardly-projecting arm pivotally attached to the end of the pull-key, substantially as set forth.

586,032. STRINGED INSTRUMENT. FREDERICK J. HARTMAN, Washington, D. C. Filed Sept. 9, 1896. Serial No. 605,304. (No model.)



Claim.—1. In a musical instrument having a hollow neck, the combination with a plurality of sounding-boards, of a principal set and an auxiliary set of strings adjacent to each of the sounding-boards, the auxiliary set of strings extending into the hollow neck portion of the instrument, substantially as shown and described.

2. In a musical instrument, the combination with a body portion and neck, of an auxiliary hollow neck located beneath the first-named neck, and a head uniting said necks, substantially as described.

3. In a musical instrument, the combination with the hollow

body portion, neck, and head, of a hollow auxiliary neck, an auxiliary head, a principal set of strings and adjusting mechanism therefor, an auxiliary set of strings arranged beneath the principal set of strings and within the body portion, and extending substantially the entire length of the hollow auxiliary neck, and auxiliary-string-adjusting mechanism, substantially as shown and described.

4. In a musical instrument, the combination with a hollow body portion provided with a perforated front piece constituting a sounding-board, of a hollow neck connected to said body portion, and an auxiliary perforated sounding-board located within the body portion and extending into the said hollow neck, substantially as shown and described.

5. In a musical instrument, the combination with the hollow body portion, of a solid neck connected thereto, an auxiliary hollow neck arranged directly below said solid neck and also connected to the body portion, and a head-piece extending vertically from the hollow neck to the solid neck for uniting said necks, substantially as shown and described.

6. In a musical instrument, the combination with a hollow body portion provided with a perforated front piece constituting a sounding-board, of a hollow neck, the upper portion of which constitutes a sounding-board, and an additional sounding-board located within the body portion and extending into the major portion of the said hollow neck, substantially as shown and described.

7. In a musical instrument, the combination with a hollow body portion, of a solid neck connected thereto, a hollow neck also connected to the body portion and located directly beneath the said solid neck, so as to form a space between the two necks, and a head-piece for uniting said necks, substantially as shown and described.

8. In a musical instrument, the combination with a body part provided with an auxiliary neck and with a front piece constituting a sounding-board, of an auxiliary sounding-board within the body part, and an auxiliary-neck sounding-board, substantially as specified.

9. In a musical instrument, the combination with the body portion and head, of a plurality of necks, one arranged above the other, and so constructed as to form a space between said necks, substantially as described and for the purposes set forth.

586,088. SKIRT. MARIA C. HARTMAN, Wilmington, Del. Filed Jan. 2, 1897. Serial No. 617,779. (No model.)



Claim.—1. A skirt comprising a body of flexible fabric, having a projecting portion near the waist; elastic hoops around and secured to the body near its lower end, and springs arched at the projecting portion and extending nearly vertically down the sides of the skirt and across the hoops and secured all the way to the skirt, substantially as described.

2. A skirt comprising a body of flexible fabric having a projecting portion near the waist; elastic hoops around and secured to the body near its lower end; springs arched at the projecting portion and extending nearly vertically down the sides of the skirt and across the hoops and secured all the way to the skirt, and other springs of hoop material extending around and secured to the rear side of the skirt above the hoops, and further secured near their ends to the nearly vertical springs, substantially as described.

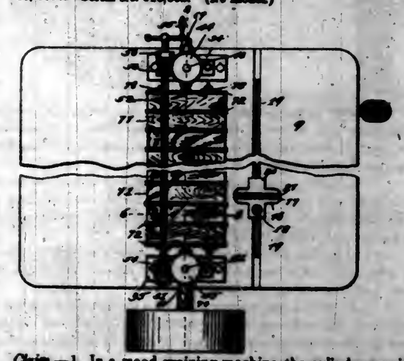
3. A skirt comprising a body of flexible fabric having a projecting portion near the waist, and narrow flat springs arched at the projecting portion and extending down the sides of the skirt and secured along one edge of each spring to the skirt, the other edge being free, substantially as described.

586,034. BUSTLE. MARIA C. HARTMAN, Wilmington, Del. Filed Jan. 2, 1897. Serial No. 617,780. (No model.)

Claim.—A bustle comprising two elements, a strip of fabric and a spring, one of which is endless; the fabric being in two layers one of which is in folds above the other and secured thereto along one edge; the spring being narrow and secured to the fabric along the other or free edge thereof and formed into loop-shaped folds therewith and so held thereby substantially as described.



586,085. WOOD-GRAINING MACHINE. WILLIAM B. HASSETT, St. Louis, Mo., assignor to W. J. Altheus, New York, N. Y. Filed Jan. 11, 1897. Serial No. 618,802. (No model.)



Claim.—1. In a wood-graining machine, the cylinder consisting of the hollow cast drum 56 having the key-seat 57 formed in its periphery and extending from end to end, the spiders 58 and 59 fixed in the ends of said drum, the spindles 66 removably screw-seated in said spiders, the rings 71 and 72 mounted upon said drum and having internal key-seats, and the keys 73 inserted in said key-seat 57 and engaging in said internal key-seats of said rings 71 and 72, there being one of said keys 73 for each of said rings 71, as required to allow said rings 71 to be adjusted independently of each other around said drum, substantially as specified.

2. In a wood-graining machine, the hollow cast drum 56, the spiders 58 and 59 fixed in the ends of said drum; each of said spiders consisting of the ring 60 fitting closely within the end of said drum, the arms 62 extending inwardly from the inner edge of said ring 60, the circular block 63 fixed to the inner ends of said arms 62, the arms 64 extending inwardly from the edge of the block 63, the circular block 65 joined to the inner ends of said arms 64 in position parallel and in alinement with the block 63, said block 63 having a screw-threaded opening formed horizontally through its center, and said block 65 having a flaring opening formed through its center in alinement with said screw-threaded opening through said block 63; the spindles 66 screw-seated in the circular blocks 63 and having conical inner ends fitting in the flaring openings in said blocks 65, substantially as specified.

3. In a wood-graining machine, a suitable frame, the plate 9 mounted in a horizontal position upon said frame, said plate having a T-slot 14 formed from its upper face and extending across said plate in a line transversely of the machine, and having the opening 19 communicating with said T-slot, the gage 16 slidingly and adjustably mounted in said T-slot, the yielding gage 20 mounted in opposition to said gage 16, the arm 22 extending downwardly from said gage 20 through the opening 19, the arm 23 extending laterally from the lower end of said arm 22, the rock-shaft 24 mounted below said plate and in position transversely of said opening 19, the arm 24 extending upwardly from said rock-shaft, the connecting-rod 26 connecting the upper end of said arm 25 with the free end of said arm 23, the arm 27 attached to said rock-shaft 24 and carrying a weight upon its free end, and means of operating said rock-shaft, substantially as specified.

586,086. HOT-AIR AND VAPOR BED. NELSON H. HAY, Battle Creek, Mich. Filed Mar. 4, 1896. Serial No. 581,702. (No model.)

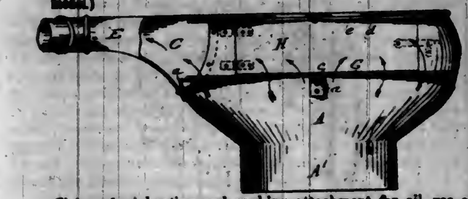
Claim.—1. A hot-air and vapor bed, comprising a sectional and folding stretcher, folding supporting-legs, an inclined collapsible hot-air sack located beneath and united at its edges closely to the stretcher and provided at its lowermost point with a reinforced opening for the application of a heater, and a flexible hood superposed above the stretcher and forming a sweating-chamber, the whole apparatus being capable of being folded compactly, substantially as described.



2. In a hot-air and vapor bed, an elevated stretcher, and a hot-air sack located beneath the same and provided with an opening, of a heater having its upper end removably fitted in said opening and provided with means whereby it may be supported from the floor, an inclosing case surrounding the heater and separated therefrom to form an intervening annular air-space, and one or more hot-air checks consisting of disks of less diameter than the internal diameter of the heater and supported concentrically therein, substantially as described.

3. The herein-described heater for vapor-baths, comprising a vertical tubular portion, a horizontal tubular portion, means for supporting the heater out of contact with the floor, and an inclosing case surrounding the vertical portion of the heater and provided with an opening registering with a corresponding opening in the heater through which the lamp or other heating device may be introduced, and the springs or plates for upholding the inclosing case, substantially as described.

586,087. HEATING AND COOKING ATTACHMENT FOR OIL, GAS, OR VAPOR STOVES. ANNIE M. HESS and SARAH MULHOLLAND, San Francisco, Cal. Filed Mar. 1, 1897. Serial No. 625,664. (No model.)

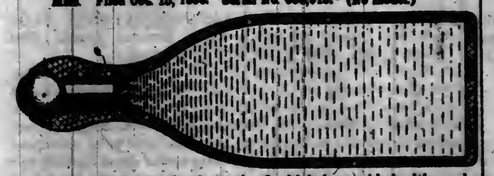


Claim.—1. A heating and cooking attachment for oil, gas or vapor stoves, consisting of a chamber adapted to be placed above the burner, and having a flat top plate provided with a register, and a perforated shelf within said chamber having an enlarged central opening in line with said register.

2. A heating and cooking attachment for oil, gas or vapor stoves, comprising a chamber of circular horizontal cross-section and of curvilinear vertical cross-section, having a flat top provided with a register, and an interior perforated shelf having a large central opening in line with said register.

3. A heating and cooking attachment for oil, gas or vapor stoves comprising in combination, a chamber or oven, of curvilinear outline both in plan view and elevation, and having a flat top provided with a countersunk register, a perforated shelf within said chamber, of less diameter than the same, and having a central opening in line with said register and an extension of the chamber having a coinciding flat top and provided with a heat-outlet adapted to receive a pipe.

586,088. BOTTLE AND STOPPER. WILLIAM J. HOPE, Clayton, Minn. Filed Oct. 15, 1896. Serial No. 608,915. (No model.)



Claim.—1. A bottle, the neck of which is provided with a substantially bell-shaped mouth, the outer end of which is extended inward to form an annular shoulder, and a spherical stopper of yielding material adapted to fit in said mouth with a portion projecting above the bottle-neck, said mouth having a sufficient depth to allow its shoulder portion to engage the stopper above its horizontal center line, substantially as specified.

2. A bottle having a substantially bell-shaped mouth, the outer end of which is extended inward to form an annular shoulder, and a hollow spherical stopper of flexible material adapted to fit in said mouth with a portion projecting above the bottle-neck, the said stopper being adapted to be removed outwardly, substantially as described.

3. A bottle having the opening in its neck at the outer end enlarged, said enlargement having curved walls, and a hollow spherical stopper of yielding material and fitting in the said enlargement with a portion projecting above the bottle-neck, whereby the stopper can be readily applied or removed, and at the same time will effectually resist the gas-pressure in the bottle, substantially as described.

586,089. HELMET. JAMES R. HOPKINS and ROBERT S. WRIGHT, Somerville, Mass. Filed Feb. 23, 1897. Serial No. 624,067. (No model.)



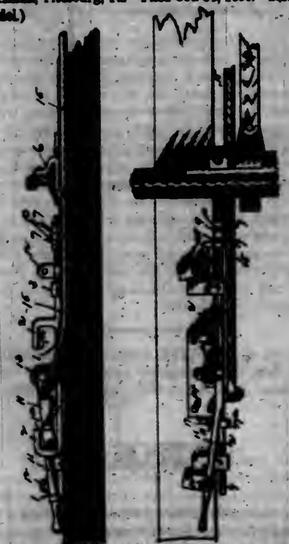
Claim.—A fireman's hat, comprising a metallic crown, a metallic cape, formed integrally with the crown, and projecting outwardly therefrom, said crown being formed with a groove opening on the inner face thereof and located above the juncture of the crown with the cape, and a sweat-band having its lower end held in said groove.

586,040. BICYCLE-SUPPORT. JAMES JUDGE, New York, N. Y. Filed Apr. 10, 1896. Serial No. 586,961. (No model.)



Claim.—A bicycle-support, comprising supporting-rods, tapered arms connected with the rods, and clamping-bands for securing the arms to fork members of a bicycle-frame, substantially as specified.

586,041. RAILWAY-SWITCH DETECTOR OR INDICATOR. ANDREW KEEBER, Pittsburg, Pa. Filed Oct. 31, 1896. Serial No. 610,731. (No model.)



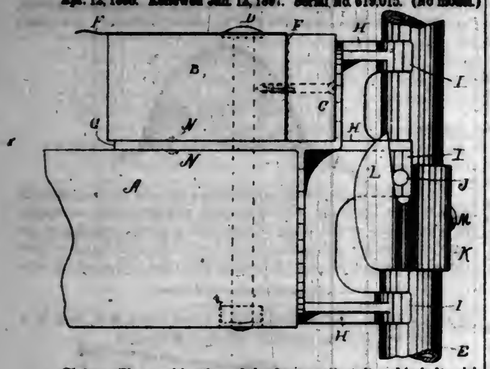
Claim.—1. In a switch, the switch-lever, and a detective pin applied thereto, and having a head provided with differential sides, combined with an endwise-moving bar or rod, having the angular pro-

jections upon its outer end, an adjustable connection secured to its inner end for attaching it to the switch-rail, and a rod connected to the switch-lever for moving the switch-rail, substantially as shown.

2. In a switch-detector a main bar operating in keepers angular standards formed on said bar, said bar having the free end inclined rearwardly, a bar connecting said main bar to the switch-rail, and a detecting-pin secured in the switch-lever, said pin having a head with differential sides, substantially as shown and described.

3. In a switch, the switch-lever, provided with a perforation, and a detective pin that is removably applied to the lever, and provided with a head having differential sides, combined with an endwise-moving rod having the angular projections upon its outer end, and which rod is connected to the switch-rail, substantially as set forth.

586,042. **BED-LOCK.** ALFONSO B. KENNEY, Boston, Mass. Filed Apr. 12, 1896. Renewed Jan. 12, 1897. Serial No. 619,015. (No model.)



Claim.—The combination of the frame-rails A B and bolt D, with the bracket having the flat tongue G and bolt-hole *g*, arms H, bearings I, and lateral lugs J, and with the hooked support K L L, fixed firmly on the tubular post to engage with the lugs of the bracket, substantially as set forth.

586,043. **MOUTHPIECE ATTACHMENT FOR TOBACCO-PIPES.** DAVID B. KISER, Pittsburg, Pa. Filed Jan. 23, 1897. Serial No. 621,094. (Model.)



Claim.—1. In combination in a mouthpiece attachment for pipes, a tube adapted to fit into the mouthpiece, the spider attached thereto at one end formed by arms radiating from the tube the ends of said arms being screw-threaded, the cup secured to the said spider by screw-threads, the said arms of the spider fitting within the open end of the cup whereby the smoke is drawn through the outer end of the tube into the cup to escape between the arms of the spider, and the stops on the edges of the arms, substantially as described.

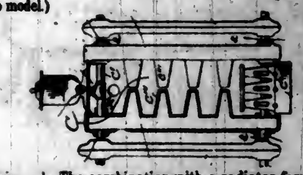
2. In combination in a mouthpiece attachment for pipes, a tube adapted to fit into the mouthpiece, the spider attached thereto at one end formed by arms radiating from the tube, the ends of said arms being screw-threaded, and the cup secured to the said spider by the screw-threads, the said arms of the spider fitting within the open end of the cup whereby the smoke is drawn through the outer end of the tube into the cup to escape between the arms of the spider, substantially as described.

586,044. **ELECTRIC STORAGE OR SECONDARY BATTERY.** FRANK KIDD, London, England, assignor to John Irving Courtenay, same place. Filed Jan. 26, 1897. Serial No. 620,898. (No model.)



Claim.—A secondary battery element consisting of a plate or support having perforations therethrough containing active material or material to be rendered active, and having applied to the sides thereof an adherent coating or membrane of india-rubber, perforations being made through the rubber and through the active material, so that the electrolyte may have access to the active material through said perforations, the faces of the plate being protected from contact with the electrolyte by the adherent coating of rubber, substantially as described.

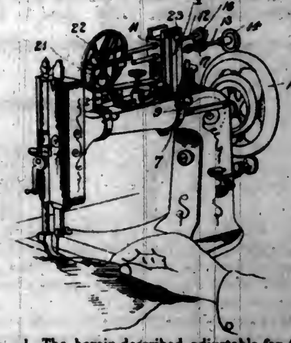
586,045. **ATTACHMENT FOR RADIATORS.** CHARLES H. KNOWLTON, Boston, Mass. Filed Jan. 2, 1896. Serial No. 574,118. (No model.)



Claim.—1. The combination with a radiator formed in sections, of a pair of water-heating compartments interposed between two adjacent sections of said radiator, panels extending between said compartments to form a closed chamber, and a heating device located beneath said chamber, said water-heating compartments having hollow lateral projections arranged in pairs extending from their inner walls into close proximity to each other whereby contracted passages are formed between the inner ends of the same, said projections being of less length than the length of the heating-chambers to leave free air-spaces between said panels and said projections, substantially as described.

2. In combination the radiator-sections connected by circulating-pipes, the water-heating compartments forming the side walls of a heating-chamber, and the independent plates forming the top and end walls thereof secured to said heating-compartments and extending between the same, substantially as described.

586,046. **VENTILATING-FAN.** CHARLES H. LARSOM, Plattsburg, N. Y. Filed Mar. 19, 1897. Serial No. 628,309. (No model.)



Claim.—1. The herein-described adjustable fan for sewing-machines or the like, consisting of the standards 1 and 2; the bearing-block 11 and the adjustable clamp affixed to the standards and designed to encircle and positively engage the arm of the machine or other object, and means for positively anchoring said clamp in position, substantially as described and for the purpose set forth.

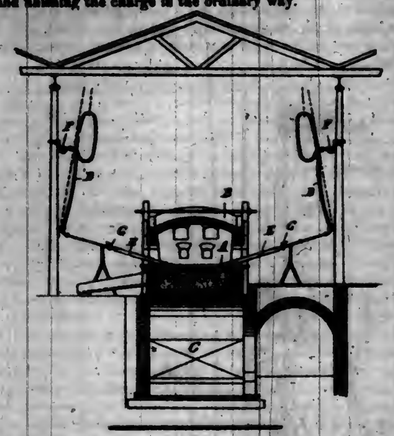
2. The herein-described ventilating-fan consisting of a fan rotatably mounted in the standard 2; an adjustable bearing-block secured between the members of the standard 1; shafts mounted in said bearing-block, one of which is designed to be reciprocated therein, while the other is operatively connected with the fan and the shaft 13, and means, substantially as described, for anchoring the standard in an adjusted position, as and for the purpose set forth.

586,047. **PROCESS OF MANUFACTURING STEEL.** FRANK B. LAST, Landore, and JOHN R. WRIGHT, Gowerton, England. Filed Apr. 27, 1896. Serial No. 589,112. (No specimens.)

Claim.—1. The manufacture of steel by introducing molten iron from a blast-furnace, cupola, or the like direct into a Siemens-Martin or Pernot or other open-hearth furnace operating in a neutral or reducing atmosphere and then forcing an oxygen-containing fluid into and up through the molten charge, the jets of fluid being introduced alternately from opposite sides and being moved about in the charge so as thoroughly to subject it to the action of the fluid, substantially as described.

2. The manufacture of steel by introducing molten iron from a blast-furnace, cupola, or the like direct into a Siemens-Martin or Pernot or other open-hearth furnace and then forcing an oxygen-containing fluid into and up through the molten charge as aforesaid the

jets of fluid being introduced alternately from opposite sides and being moved about in the charge so as thoroughly to subject it to the action of the fluid substantially as hereinbefore described and adding ore and finishing the charge in the ordinary way.



586,048. **SHAWL-STRAP AND LUGGAGE-CARRIER.** EDWARD A. LAFFERTY, Jr., Brooklyn, N. Y. Filed Mar. 3, 1896. Serial No. 582,202. (No model.)



Claim.—1. A shawl-strap and luggage-carrier, comprising a cylinder, a spindle mounted to rotate therein, a ratchet-wheel on said spindle, a pawl carried by the cylinder and adapted for engagement with said ratchet-wheel, a binding-strap having its ends passed through openings in the cylinder attached to said spindle, and a winding strap for rotating said spindle in one direction, substantially as specified.

2. A shawl-strap and luggage-carrier, comprising a cylinder, a spindle mounted to rotate therein, a binding-strap having its ends engaged with said spindle, a winding strap extended from said spindle, and a spring-yielding keeper for said winding strap on the outer side of the cylinder, substantially as specified.

3. A shawl-strap and luggage-carrier, comprising a cylinder having end closures, a spindle within the cylinder having trunnion-bearings in sockets formed on said end closures, and pawl-and-ratchet mechanism between the spindle and cylinder, a binding-strap having its ends secured to the spindle, and a winding strap extended from the spindle through an opening in the cylinder, substantially as specified.

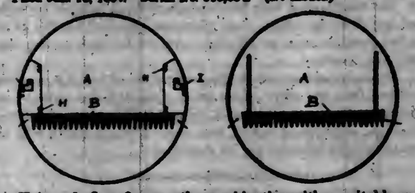
4. A shawl-strap and luggage-carrier, comprising a cylinder having end closures, a spindle mounted to rotate therein, a binding-strap having its ends engaged with said spindle, a device on the cylinder for engaging the binding-strap to form loops, a winding strap having connection with the spindle, a receiver for said winding strap when folded, and a retarding device between the spindle and cylinder, substantially as specified.

586,049. **RECEPTACLE FOR VISCOUS SUBSTANCES.** FRANCIS L. LITTLEFIELD, Portland, Me. Filed Mar. 23, 1897. Serial No. 628,577. (No model.)



Claim.—A receptacle for viscous material, the receptacle having a bottom and a top wall, the bottom wall having an opening therein, a valve seated in the opening and normally closing the same, the valve having a portion projected below the face of the bottom wall of the receptacle whereby as said projected portion is pushed inward the opening is uncovered, and a spring pressing the valve and engaging the top wall of the receptacle.

586,050. **FURNACE.** WILHELM O. A. LOWE, Liverpool, England. Filed Jan. 18, 1897. Serial No. 619,654. (No model.)



Claim.—1. In a furnace, the combination with a suitable grate, of side bearing bolts or rods, a series of separate detachable plates provided with bayonet-shaped slots in their rear edges whereby they are adapted to be detachably secured upon the said bearing-rods for forming side grids for the fireplace, spacing-lugs formed upon the said plates for holding them the proper distance apart so as to admit air to the sides and top of the fire, substantially as described.

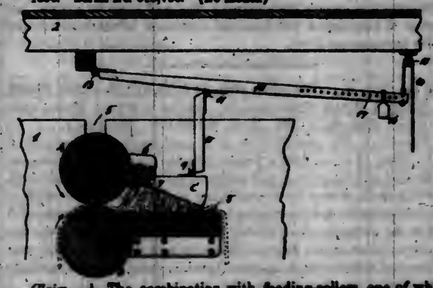
2. In a furnace, the combination with a suitable grate, of side bearing bolts or rods, separate tapering plates, means for securing the said plates to the said bearing-rods for forming grids, the rear edges of the said plates being also made to conform to the inner surface of the fire-box whereby they are held in proper upright place when secured upon the bearing-rods, spacing-lugs formed upon the plates for holding them a suitable distance apart to admit air to the sides and top of the fire, substantially as described.

586,051. **STRETCHING-MACHINE REGULATOR.** WILLIAM MATHER and DAVID P. SMITH, Manchester, England. Filed Feb. 1, 1894. Serial No. 577,740. (No model.) Patented in England Nov. 22, 1893, No. 22,209.



Claim.—The combination of the vertical rotary spindle D, the horizontal sprocket-wheel B loosely journaled on the spindle and carrying the clip-chain C, the beveled gear-wheel E fixed on the boss of the sprocket-wheel, the rotatable ring K provided with an inwardly-projecting stud, a beveled wheel F journaled on said stud and gearing with the wheel E, a beveled wheel G fixed on the spindle D and gearing with the wheel F, a spindle O provided with a plurality of hand-wheels, and a worm V fixed on said spindle and gearing with oblique teeth carried by the ring K, substantially as described and for the purpose specified.

586,052. **FULLING-MACHINE.** JOHN W. MILLER, Dolgeville, N. Y., assignor to Alfred Dolge & Son, New York, N. Y. Filed Nov. 26, 1896. Serial No. 613,706. (No model.)



Claim.—1. The combination with feeding-rollers, one of which is movable toward and from the other, of an apron composed of a plurality of independently-movable sections supported from and moving vertically with the said movable feed-roller, and independent devices for pressing the apron-sections downward, substantially as described.

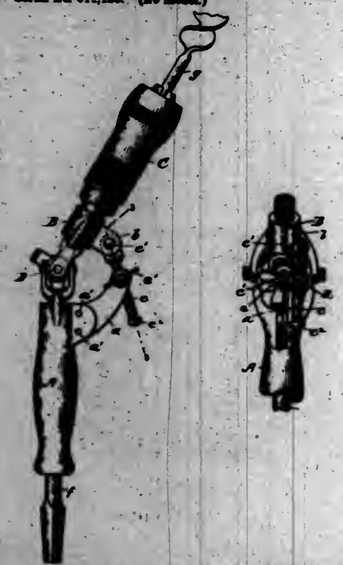
2. The combination with feeding-rollers one of which is movable toward and from the other, of an apron composed of a series of in-

dependent sections, each section having its independent actuating mechanism substantially as described.

3. The combination with feeding-rollers one of which is movable toward and from the other, of an apron composed of a series of independent sections, and an adjustable weight for each section substantially as described.

4. The combination with feeding-rollers one of which is movable toward and from the other, of an apron composed of a series of independent sections, and a series of independent levers to which the sections are respectively linked, each lever being provided with an adjustable weight substantially as described.

586,053. ANGLE-BORER. WILLIAM H. MCOY, Miller's Falls, Mass., assignor to the Miller's Falls Company, same place. Filed Nov. 5, 1896. Serial No. 611,126. (No model.)



Claim.—1. The angle-borer herein described, consisting of the handle part A, frame B, provided with the bit-holder C, the knuckle-jointed forked mechanism D, uniting the said handle part and frame, the fixed arm *a*, the bar *c*, pivotally connected with the frame B, the shell *d*, provided with a hole to receive the bar *c*, the interior stud *d'*, provided with the threaded end d^2, and having a hole to receive the bar *c*, and the thumb-nut *d'*, all combined and adapted to operate substantially as set forth.

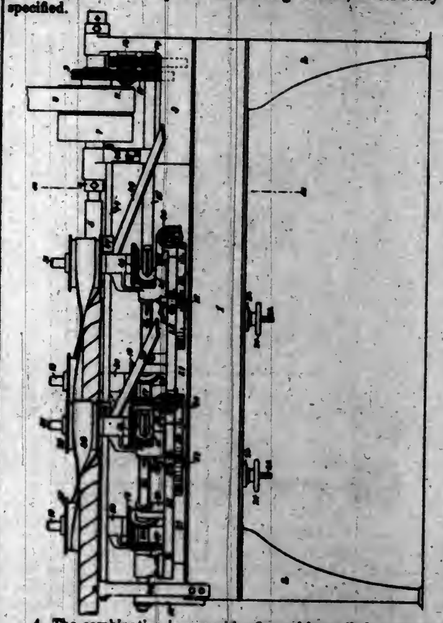
2. In an angle-borer, provided with a handle and frame, knuckle-jointed at the contiguous ends, a round bar, pivotally connected at one end with one part of the borer, and adapted to be adjustably secured to a fixed arm, secured to the other part of the borer, by means of a shell, movable screw-threaded stud and a thumb-nut, the said bar loosely passing through said shell and stud by a hole, and adapted to be gripped and held, all combined substantially as and for the purposes set forth.

586,054. MACHINE FOR MAKING COILED PAPER TUBES. HENRY A. HOBLE, Philadelphia, Pa., assignor to Wylie T. Wilson, same place. Filed Oct. 9, 1896. Serial No. 608,376. (No model.)

Claim.—1. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser-belt having one of its runs passing around said mandrel, a pair of shafts having pulleys for said belt, a driving-shaft, means for transmitting the motion of said shaft to said pulley-shafts, and a swinging bar having its axis concentric with that of the primary wheel of said transmitting devices whereby the angular relation of the presser-belt in respect to the mandrel may be changed without slackening or tightening said belt, substantially as specified.

2. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser-belt having one of its runs carried around said mandrel, shafts having pulleys for said belt, a driving-shaft, devices whereby the motion of said driving-shaft is transmitted to the pulley-shafts, and a swinging bar carrying one of said pulley-shafts and pivoted concentrically with the axis of the other pulley-shaft, substantially as specified.

3. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser-belt having one of its runs carried around said mandrel, a pair of shafts having pulleys for said presser-belt, a driving-shaft, devices whereby the motion of said driving-shaft is transmitted to the pulley-shafts, and a bar longitudinally adjustable on the frame of the machine and pivoted in line axially with the primary wheel of the power-transmitting devices, substantially as specified.



4. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser-belt having one of its runs passing around said mandrel, shafts having pulleys for said belt, a driving-shaft, devices for transmitting the movement of said shaft to the pulley-shafts, a bar adjustable longitudinally on the frame of the machine, and a second bar pivoted to said first bar in line axially with one of the pulley-shafts, said pivoted bar carrying the bearings for the other pulley-shaft, substantially as specified.

5. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser belt having one of its runs passing around said mandrel, shafts having pulleys for said presser-belt, a driving-shaft, devices for transmitting the movement of said driving-shaft to the pulley-shafts, a bar carried by the frame of the machine, and having a segmental rib thereon, a second bar pivoted to the first in line axially with one of the pulley-shafts, and a clamp carried by said swinging bar and engaging the segmental rib of the other bar, substantially as specified.

6. The combination in a machine for making coiled-paper tubes, of a mandrel, a presser-belt having one of its runs passing around said mandrel, shafts having pulleys for said presser-belt, a driving-shaft, devices for transmitting the motion of said driving-shaft to the pulley-shafts, a swinging bar having its axis concentric with that of the primary wheel of the transmitting devices, and a bearing for one of the pulley-shafts adjustable longitudinally on said swinging bar, substantially as specified.

586,055. MANUFACTURE OF INCANDESCENT LAMPS. JOHAN W. TH. OLAIN, New York, N. Y. Filed Mar. 13, 1896. Serial No. 583,761. (No model.)



Claim.—1. The process of manufacturing an incandescent lamp, which consists in arranging within a solid inclosure an electrically-conducting filament, foil, or body, adapted to become incandescent by an electric current, introducing liquid alkali-metal composition into said inclosure so as to fill the same, sealing the inclosure except at the exit for the liquid alkali-metal composition, removing the composition from said inclosure in such a way as to form a barometric vacuum therein, and finally hermetically sealing the inclosure; substantially as described.

2. The process of manufacturing an incandescent lamp, which consists in arranging within a solid inclosure an electrically-conducting filament, foil, or body, adapted to become incandescent by an electric current, introducing liquid alkali-metal composition into said inclosure so as to fill the same, sealing the inclosure except at the exit for the liquid alkali-metal composition, removing the composition except a small quantity thereof from said inclosure, and in such a way as to form a barometric vacuum therein and finally hermetically sealing the inclosure; substantially as described.

3. The process of manufacturing an incandescent lamp, which consists in arranging within a solid inclosure an electrically-conducting filament, foil, or body, adapted to become incandescent by an electric current, expelling the air contained in the inclosure by a non-oxidizing or neutral gas introduced therein, afterward removing said gas by a liquid alkali-metal composition introduced in the inclosure so as to fill the same, sealing the inclosure at the gas-exit, forming a barometric vacuum in the inclosure by removal of liquid alkali metal composition and finally hermetically sealing the inclosure; substantially as described.

4. The process of manufacturing an incandescent lamp, which consists in arranging within a solid inclosure an electrically-conducting filament, foil, or body, adapted to become incandescent by an electric current, expelling the air contained in the inclosure by a non-oxidizing or neutral gas introduced therein, afterward removing said gas by a liquid alkali-metal composition introduced in the inclosure so as to fill the same, sealing the inclosure at the gas-exit, removing the composition with the exception of a small quantity thereof from said inclosure in such a way as to form a barometric vacuum therein and finally hermetically sealing the inclosure; substantially as described.

5. The process of manufacturing an incandescent lamp, which consists in arranging within a solid inclosure an electrically-conducting filament, foil, or body, adapted to become incandescent through an electric current and connected to pole-conductors, electrically communicating with the exterior of said inclosure, expelling the air contained in the inclosure by H or N gas introduced therein, removing afterward said gas by liquid alkali-metal composition introduced in the inclosure so as to fill the same, sealing a tube of the inclosure, emptying the alkali metal except a small quantity thereof from said inclosure and in such a way as to form a barometric vacuum therein and finally hermetically sealing the inclosure, substantially as described.

6. The process of manufacturing an incandescent lamp, which consists in introducing alkali metal into the lamp and exhausting and sealing the lamp while alkali metal is still contained therein; substantially as described.

7. The process of manufacturing an incandescent lamp, which consists in expelling the air therein by the introduction of a neutral or non-oxidizing gas, introducing alkali metal into the lamp and then exhausting the neutral or non-oxidizing gas from the lamp and sealing the lamp while alkali metal is still contained therein; substantially as described.

8. An incandescing electric lamp, containing an electrically-conducting filament, foil, or body, adapted to become incandescent by an electric current, the interior of said lamp constituting a vacuum and containing a quantity of alkali metal; substantially as described.

9. An incandescent lamp having an incandescing body of carbon the interior of said lamp constituting a vacuum and containing a quantity of alkali metal; substantially as described.

10. An incandescing electric lamp, containing an electrically-conducting filament, foil, or body adapted to become incandescent by an electric current, the interior of said lamp constituting a vacuum and containing a substance adapted to chemically combine with and convert into non-gaseous form, any gases disturbing said vacuum; substantially as described.

11. An incandescent electric lamp, containing an electrically-conducting filament, foil, or body adapted to become incandescent by an electric current, the interior of said lamp constituting a vacuum and containing a substance adapted to chemically combine with and convert into solid form, any gases disturbing said vacuum; substantially as described.

12. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically connected by fusion, and a plug for sustaining the incandescing body within the inclosure.

13. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically connected by fusion, and a metal plug for sustaining the incandescing body within the inclosure, said plug and sleeve being hermetically sealed by metal at their junction.

14. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve to which the outer surface of the glass is hermetically sealed by fusion, the metal of which the sleeve is composed having an expansibility to heat not exceeding that of glass, and a plug for sustaining the incandescing body within the inclosure.

15. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically sealed by fusion, and a plug for sustaining the incandescing body, said plug being hermetically sealed to the sleeve and hermetically sealing the inclosure, but out of contact with the interior walls of the glass.

16. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically sealed by fusion, said sleeve being freely expansible with the glass, and a plug for sustaining the incandescing body within the inclosure.

17. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically sealed by fusion, said sleeve being freely expansible with the glass, and a metal plug for sustaining the incandescing body within the inclosure, said plug and sleeve being hermetically sealed by metal at their junction and said plug being out of contact with the interior walls of the glass.

18. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass to which the outer surface of the glass is hermetically connected by fusion, and a plug removably sealed to said sleeve, for sustaining the incandescing body.

19. An incandescent electric lamp, having a leading-in wire having the same expansibility to heat as glass, and made of metal of less expansibility to heat than glass, in combination with metal of greater expansibility to heat than glass.

20. An incandescent electric lamp, having a leading-in wire having the same expansibility to heat as glass, and made of osmium in combination with metal of greater expansibility to heat than glass.

21. An incandescent electric lamp having an incandescing body whose ends are electroplated with a non-oxidizable metal.

22. An incandescent electric lamp having an incandescing body whose ends are electroplated with a non-oxidizable metal in combination with the pole-conductors having their ends similarly electroplated, the ends of the incandescing body being joined to the pole-conductor ends by a non-oxidizable solder.

23. The combination in an electric incandescent lamp of a filament or body of carbon within a practically perfectly-evacuated and hermetically-sealed inclosure, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure and a quantity of alkali metal within said inclosure; substantially as described.

24. The combination in an electric incandescent lamp of a filament or equivalent of pure carbon within a practically perfectly-evacuated and hermetically-sealed inclosure, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure and a quantity of alkali metal within said inclosure; substantially as described.

25. The combination in an electric incandescent lamp of a filament or equivalent of pure carbon within a practically perfectly-evacuated and hermetically-sealed inclosure, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure, the one of said conductors so communicating by being connected to a metallic part of the inclosure, the other by penetrating the inclosure within a hermetical insulated seal therein, and a quantity of alkali metal within said inclosure, substantially as described.

26. The combination in an electric incandescent lamp of a filament or equivalent of pure carbon within a practically perfectly-evacuated and hermetically-sealed inclosure, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure through insulating glass tubes; said glass tubes penetrating said inclosure and being hermetically secured thereto by fusion, and forming hermetic seals around the said conductors, metal rings intimately surrounding said seals so as to prevent fracture and a quantity of alkali metal within said inclosure, substantially as described.

27. The combination in an electric incandescent lamp of a filament or equivalent of pure carbon within a practically perfectly-

evacuated and hermetically-sealed inclosure, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure, through insulating glass tubes, said glass tubes penetrating and hermetically secured to the inclosure by fusion, and forming around the conductors hermetical seals; said conductors being of the same expansion for heat as glass and being made from substances of less expansion from heat than glass, in proper combination with metals of which said expansion is higher, and a quantity of alkali metal within said inclosure, substantially as described.

28. The combination in an electric incandescent lamp, of a leading-in wire hermetically sealed within a glass tube, said glass tube extending within the lamp-bulb and being protected therein against fracture by a metal ring surrounding the seal; substantially as described.

29. The combination in an electric incandescent lamp, of a leading-in wire hermetically sealed within a glass tube, said glass tube extending within the lamp-bulb and being protected therein against fracture by a metal ring surrounding the seal, said leading-in wire being hollow or recessed at said seal; substantially as described.

30. The combination in an electric incandescent lamp, of an incandescing body, pole-conductors connected to said incandescing body and communicating with the exterior of the lamp through insulating glass tubes, said glass tubes penetrating the lamp and being hermetically sealed thereto by fusion, and forming hermetic seals around the said conductors, and metal rings intimately surrounding said seals so as to prevent fracture; substantially as described.

31. The combination in an electric incandescent lamp, of a filament or equivalent of pure carbon within a hermetically-sealed practically perfectly-evacuated inclosure, made partly of glass, partly of metal, pole-conductors connected to said carbon and communicating electrically with the exterior of the inclosure, and a substance within said inclosure adapted chemically to combine with and thereby to transfer into solid form any gaseous, carbonaceous product of combustion (chemical combination with carbon), substantially as described.

32. An incandescent electric lamp, containing an incandescing body, and provided with a glass inclosure therefor having about its base a metal sleeve whose expansibility for heat does not exceed that of glass and to which the outer surface of the glass is hermetically connected by fusion, and a plug for sustaining the incandescing body within the inclosure, the outer end of said plug being adapted to fit within a receiving-socket; substantially as described.

586,056. HORSE-COLLAR FASTENER. HENRY L. QUIGLEY, Jennings, Mo. Filed Aug. 14, 1896. Serial No. 602,752. (No model.)



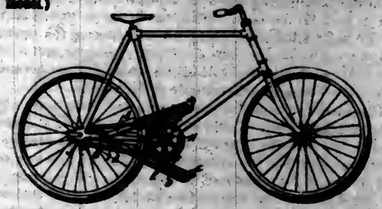
Claim.—1. A horse-collar divided at the throat and having its ends provided with ferrules arranged for close engagement, one ferrule having a recess in its upper portion and a snap-pin at its lower portion, together with a link, the opposite ferrule being provided with an eye arranged to enter the said link and a tongue adapted to enter the recess in the upper portion of the opposing ferrule, one of the said ferrules being provided upon its under surface with a loop and also a loop at one side, the opposite ferrule having a loop at its end only, as and for the purpose set forth.

2. A horse-collar, divided at the throat, the horse-collar having a ferrule secured to each contiguous end thereof, a tongue secured to one ferrule and projecting transversely therefrom, a stud carried by the tongue and extended downward therefrom, a projection extending downwardly from the section having the tongue and a spring-pressed pin carried by the remaining ferrule and capable of engaging with the projection to hold the ends of the collar in connection, one of the ferrules having a cavity capable of receiving the stud on the tongue.

3. A horse-collar having a division forming two contiguous ends, a ferrule secured to each of said ends, a projection attached to one ferrule, a link attached to the remaining ferrule and capable of receiving the projection, a pin carried by said remaining ferrule and adjacent to the link and capable of locking with the projection, a tongue extending on the ferrule having the projection, and a stud carried by said tongue and engaging with the opposite ferrule.

4. A horse-collar divided at the throat, one of the contiguous ends of the horse-collar having a tongue projecting toward the second contiguous end, a stud carried by said tongue and adapted to fit into a recess in the said second contiguous end by which means the said contiguous ends are prevented from being drawn apart in a longitudinal line, and means located oppositely to the tongue, such means preventing the movement of the contiguous ends laterally with reference to each other.

586,057. CYCLE-DRIVING MECHANISM. FREDERICK W. QUIN, Sydney, New South Wales, assignor of one-half to Frederick John Bird, same place. Filed Jan. 22, 1897. Serial No. 620,202. (No model.)



Claim.—1. In combination in a cycle, the cranks, the bearing, the pins, the slotted pedal-levers, the guiding-rib X projecting inwardly from the walls thereof, the collar T having a circumferential groove fitting said guide-rib, the collar Q between the collar T and the crank-pin, and the balls interposed between the collars T and Q and between the collar Q and the crank-pin, substantially as described.

2. In combination in a bicycle-gearing, the cranks the slotted levers, the crank-pins, the guide-rib X on the levers, the collar formed to fit the rib and having balls S on each side of its interior rib, the collar Q having sides to hold the balls S S and the balls between the collar Q and the crank-pin, substantially as described.

586,058. CORN-HOLDER. PATRICK H. REARDON, Yonkers, N. Y. Filed June 13, 1896. Serial No. 595,472. (No model.)

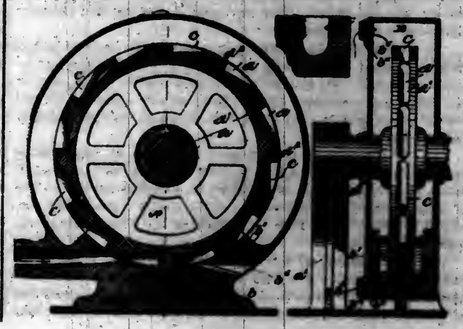


Claim.—1. A lengthwise-extensible corn-holder, comprising a tubular casing closed on both ends with caps, having rectangular apertures, arms having flat stems bent at right angles, inserted in the tubular casing through the apertures in the caps, spiral springs, slid on the stems and held thereon by plugs secured to the ends of the stems, checks having oppositely-projecting prongs, rotatably secured to the arms, and standards secured to the casing, and sustaining the holder in position with arms extending upward.

2. In a corn-holder, the combination with two arms, having checks with oppositely-projecting prongs rotatably secured thereto, flat stems bent at right angles, and springs slid on the stems of the arms and secured to the ends thereof, of a tubular casing closed on both ends with caps, having rectangular apertures, and standards secured thereto sustaining the holder in position with arms extending upward.

3. In a corn-holder, the combination with arms having flat stems adapted to slide in a tubular casing closed on both ends with caps, having rectangular apertures and provided with standards sustaining the holder in position with the arms extending upward, of chucks having oppositely-projecting prongs rotatably secured to the arms in position oppositely each other.

586,059. HYDRAULIC MOTOR. JAMES B. DE REMER, Glenwood Springs, Colo., assignor of one-half to Louis Behwers, same place. Filed June 24, 1895. Serial No. 553,226. (No model.)



Claim.—1. A hydraulic motor having a wheel provided with buckets in its periphery, and divergent guards between which said wheel is designed to rotate, the water supply and efflux being, respectively, at the convergent and divergent ends of said guards, substantially as set forth.

2. A hydraulic motor having a wheel provided with buckets in its periphery, a base having an upper concaved surface slightly flared at one end, divergent guards extending above said base and designed to inclose a portion of the wheel, the water supply and efflux being between said guards and located, respectively, between the convergent and divergent ends thereof, substantially as set forth.

3. A hydraulic motor having a wheel provided with buckets in its periphery, a base having an upper concaved and slightly-flared surface, a water-supply opening at one end above the vertex of said concaved surface, the efflux-opening at the other end of said base on a line with said surface, and the divergent guards extending upwardly from said base, substantially as set forth.

4. In a hydraulic motor, a wheel having buckets, the shaft therefor, the base having a concaved surface and divergent side guards, the standards, the journal-bearings supported by said standards and supporting said shaft, the screws, and the liner-plates having open-end slots, substantially as set forth.

5. In a hydraulic motor having a rotary wheel, a base having a guard projecting from one side thereof, the housing or casing for said wheel formed with said guard, one side of said housing or casing being removable and having a guard formed therewith, said guards being divergently arranged with relation to each other and screws for holding said side to the housing or casing and base, substantially as set forth.

6. The herein-described improved hydraulic motor comprising the base having a concaved and slightly-flared surface, divergent guards extending upwardly therefrom, an inlet-opening between said guards at the convergent ends thereof, its inner end being above the vertex of said concaved surface, the efflux-opening between the divergent ends of said guards, the wheel having buckets in its rim or periphery, the shaft therefor, the standards, the journal-bearings supported by said standards, and the liner-plates having open-end slots, substantially as set forth.

586,060. INCANDESCENT BURNER. FRANK REED, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Mar. 9, 1897. Serial No. 626,651. (No model.)



Claim.—1. In an incandescent burner a mantle-supporting post exterior to the mantle and means substantially as described for raising and lowering said post.

2. In an incandescent burner a mantle-supporting post exterior to the mantle guided against other than vertical motion and means substantially as described for raising and lowering said post.

3. In an incandescent burner a mantle-supporting post and a rotary adjuster engaging with said post and adapted to communicate vertical motion thereto, substantially as described.

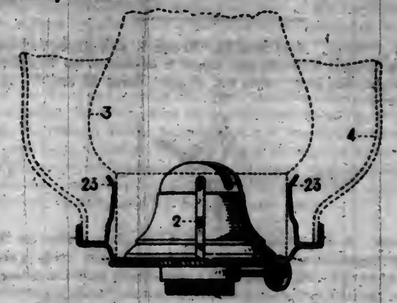
4. In an incandescent burner in combination, a mantle-supporting post consisting of a hook, a body and a reverted leg, a guide engaging said body and a rotary adjuster engaging with said leg, substantially as described.

5. In an incandescent burner in combination, a mantle-supporting post consisting of a hook, a body and a reverted screw-threaded leg, a guide engaging said body and a nut on said leg adapted to communicate rotary motion to said post, substantially as described.

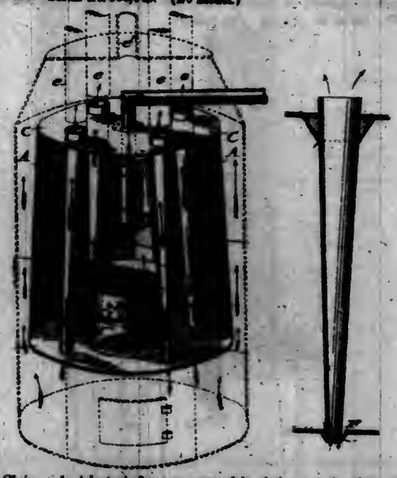
586,061. LAMP-BURNER. FRANK REED, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Mar. 27, 1897. Serial No. 629,303. (No model.)

Claim.—1. In a lamp-burner a combined chimney-holding spring, and globe-holding bracket, consisting of an integral wire or strip forming both said spring portion and said bracket portion, one of said portions being formed by doubling back said wire on itself, substantially as described.

2. In a lamp-burner a combined chimney-holding spring, and globe-holding bracket, consisting of an integral wire or strip, said bracket portion being formed by doubling back said wire on itself, substantially as described.



586,062. HOT-AIR FURNACE. HENRY H. RICE, Cheshire, Conn., assignor to the Turner Heater Company, Bristol, Conn. Filed May 7, 1896. Serial No. 590,643. (No model.)



Claim.—1. A hot-air furnace comprising in its construction an outside casing, a combustion-chamber inclosed by a tapering heat-radiator in the form of a frustum of a cone, a fire-box in the center of the combustion-chamber, and hot-air flues, each formed like an inverted frustum of a cone connecting the cold-air chamber below with the dome above and passing through the combustion-chamber between the fire-pot and the heat radiator, substantially as described.

2. In a hot-air furnace a fire-pot in the center of the combustion-chamber constructed with an outwardly and upwardly projecting flange slightly above the center and with a line of perforations in the fire-box casing within and below the rim of the flange, substantially as described.

3. In the above-described hot-air furnace, the combination of the pipes tapering from top to bottom, the upper and lower plates provided with the tapering collars, cement to close the joints of the pipes, and sand filling the space between the collars and the pipes, all substantially as described.

4. A hot-air furnace comprising in its construction an outside casing, a heat-radiator inclosing a combustion-chamber in the center of which is a fire-box, the tapering flues herein described passing from the cold-air chamber below into the base of the dome, and extending into the same, and hot-air pipes connecting with the apartments to be warmed extending into the dome to within a short distance, and over the mouth, of said tapering flues, substantially as described.

5. A hot-air furnace comprising in its construction an outside casing, a tapering heat-radiator formed like the frustum of a cone with an air-passage between it and the outside casing, inverted tapering flues extending from the top plate of the cold-air chamber through the combustion-chamber between the fire-box and heat-radiator through and a short distance into the dome, warm-air pipes beginning at a short distance above these flues and leading to the apartments to be warmed, a fire-box standing out in the center of the combustion-chamber with perforations slightly above the center, protected by a flange, so that all heat from the fire is thrown directly against the

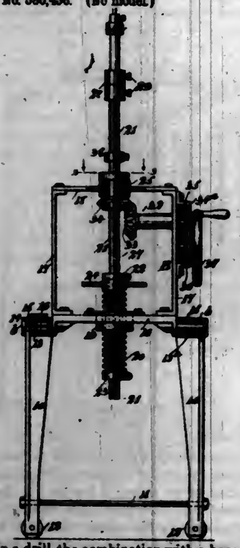
walls inclosing the passages conveying the cold air which broaden at the top to promote rapid circulation, substantially as described.

586,063. REIN-HOLDER. ROBERT R. RICHARDSON, Portland, Oreg., assignor of two-thirds to Russell R. Richardson and William H. Stemme, same place. Filed Jan. 19, 1897. Serial No. 619,767. (No model.)



Claim.—A rein-holder, comprising a base-plate, a yoke on the plate and open at one side, a hollow cam mounted to swing in said yoke and having a finger-piece, and a plate-spring extended through the cam, the said spring being secured at one end to the finger-piece and bearing at the other end against the yoke, substantially as specified.

586,064. DRILL. HERMAN RICHTER, Jr., Jersey City, N. J., assignor of one-half to Hugo G. Veith, New York, N. Y. Filed Feb. 24, 1896. Serial No. 580,436. (No model.)



Claim.—1. In a drill, the combination with a base provided with sockets or bearings in its upper end, of a frame provided with trunnions projecting from its lower end and fitting in said sockets or bearings, means for clamping the trunnions of the frame for holding said frame at different angles to the base, a nut in the lower portion of the frame, a tubular screw working in the nut, a drill-shaft mounted in the upper part of the frame to slide and turn, said shaft passing through the screw and having a stop above and below said screw, and means for rotating the drill-shaft, substantially as described.

2. In a drill, the combination with a base provided with bearings in its upper end at opposite sides, of a frame provided with trunnions projecting from its lower end and fitting in said bearings, means for clamping the trunnions of the frame for holding said frame at different angles to the base, a nut in the lower portion of the frame, a tubular screw working in the nut, a drill-shaft passing through the said screw and having a collar above and below the said screw, a sleeve loosely mounted in the upper part of the frame and in which the shaft is mounted to slide, but not to turn, and means for rotating the drill-shaft, substantially as described.

3. In a drill, the combination with a base provided with a bearing in its upper end, of a frame provided with trunnions projecting from its lower end and fitting in the said bearings, means for clamping the trunnions of the frame to hold the said frame at different angles on the base, a nut in the lower portion of the frame, a tubular screw working in said nut, a drill-shaft passing through the screw and having a collar above and below the screw, a sleeve loosely mounted in the upper part of the frame and in which the shaft is mounted to slide, but not to turn, a pinion splined to the drill-shaft below the sleeve, a transverse shaft mounted in the frame and provided with a pinion meshing with the pinion on the drill-shaft, and means for operating the transverse shaft, substantially as described.

586,065. MACHINE FOR WRAPPING COTTON SAMPLES. CLAUDE H. ROBINSON, Anniston, Ala. Filed Mar. 16, 1897. Serial No. 627,574. (No model.)



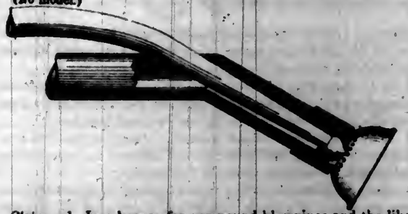
Claim.—1. A machine for wrapping cotton samples, consisting of a table, folding-strips located at the sides of the table, and a tension-controlled revoluble shaft near one end of the folding-strips, capable of being drawn from the package wrapped upon it, as set forth.

2. A machine for wrapping cotton samples, comprising a table, folding-strips hinged at each side of the table in a manner to extend over the table or be carried outward therefrom, tension-controlled boxes, a shaft mounted to turn in said boxes, being removable therefrom, and means for turning the said shaft, as and for the purpose specified.

3. In a machine for wrapping cotton samples, or samples of like character, the combination, with a table, sides for said table, and folding-strips hinged to be carried inward or outward from the sides, of supports fixed to the sides of the table, boxes loosely placed above the supports, bolts having bearing upon the upper surfaces of the boxes, being passed loosely through the same and through the supports, adjustable bearings located on the lower ends of the bolts, springs surrounding the bolts, resting against the adjustable bearings and against the fixed supports, and a shaft journaled in the said boxes, being removable therefrom, as and for the purpose specified.

4. In a machine for wrapping cotton samples, or samples of like character, the combination, with a table, sides for said table, and folding-strips hinged to be carried inward or outward from the sides, of supports fixed to the sides of the table, boxes loosely placed above the supports, bolts having bearing upon the upper surfaces of the boxes, being passed loosely through the same and through the supports, adjustable bearings located on the lower ends of the bolts, springs surrounding the bolts, resting against the adjustable bearings and against the fixed supports, a shaft journaled in the said boxes, being removable therefrom, and a roller journaled in the table, extending partially above its upper face and located below the said shaft, as and for the purpose specified.

586,066. BURNER FOR COMPOUND BLOWPIPES OR BRAZERS. WALTER SAMS, Warrensburg, Mo., assignor to William R. Sams and Frank R. Wadell, Clinton, Mo. Filed Mar. 23, 1897. Serial No. 628,760. (No model.)



Claim.—1. In a burner for compound blowpipes and the like, a bell-shaped body forming a discharge-opening for the gas-pipe, and a foraminous body secured in position between the tip of the blowpipe and the inner surface of said bell-shaped body in such a way that the gas must pass through said foraminous body, said foraminous body having an opening in its center to allow the air from said air-pipe to pass freely through said foraminous body, substantially as specified.

2. In a burner for compound blowpipes and the like, the bell-shaped body forming a discharge-opening for the gas-pipe, and the foraminous body secured in position between the tip of the blowpipe and the inner surface of said bell-shaped body in such a way that the gas must pass through said foraminous body, substantially as specified.

3. In a burner for compound blowpipes and the like, the bell-shaped body forming a discharge-opening for the gas-pipe and having a series of perforations concentrically arranged relative to the gas-pipe, and the foraminous body secured in position between the tip of the blowpipe and the inner surface of said bell-shaped body in such a way that the gas must pass through said foraminous body, substantially as stated.

586,067. SHEARS-BOLT. EDWARD W. SCALES, Covington, Ky. Filed Dec. 3, 1896. Serial No. 614,336. (No model.)



Claim.—1. In combination with shear-blades, a shear-bolt having a journal-bearing next the integral flanged head, a shear-blade journaling thereon, the other end of said bolt being screw-threaded, a second shear-blade having screw-threaded engagement with the end of said bolt, a screw-threaded bore in the end of the bolt and a screw-threaded set-nut tapping within said bore, the head of said set-nut bearing against the last-named shear-blade and locking it against rotary motion, substantially as specified.

2. In a pair of shears, the combination of a shear-bolt having a flanged head, a journal-space formed next to the flanged head, the end of the said bolt being screw-threaded and provided with a central bore internally screw-threaded, a shear-blade journaling on the bearing-surface of the bolt, the other blade having screw-threaded engagement with the end of said bolt, a set-nut tapping said central bore whereby the last-named blade is immovably secured to the said shear-bolt, substantially as specified.

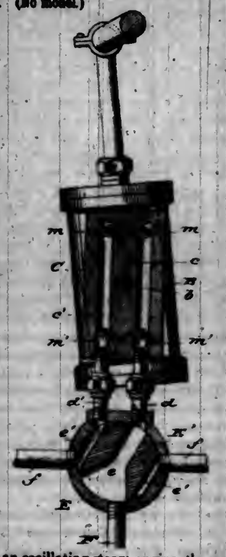
586,068. VISIBLE STRIP FOR WIRE FENCES. MICHAEL M. SHELLABERGER, Beaver Falls, Pa., assignor to the De Kalb Fence Company, De Kalb, Ill. Filed June 30, 1891. Serial No. 398,000. (No model.)



Claim.—1. A strip consisting of two continuous parallel strands and a continuous zigzag cross-wire, intersecting said strands alternately, and twisted with the strands at the point of intersection, substantially as specified.

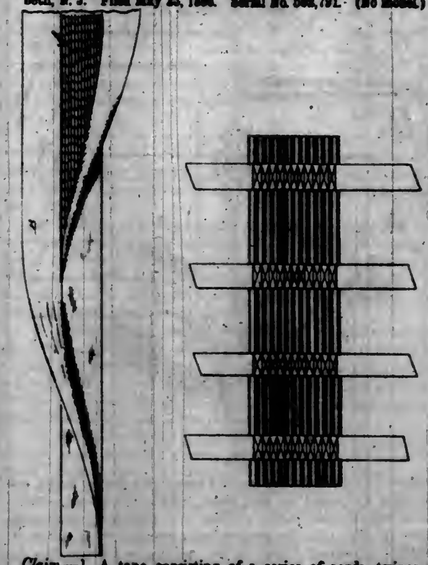
2. A strip consisting of two continuous parallel strands provided at intervals with coils, and a continuous zigzag cross-wire intersecting the said strands alternately and provided at its angles with coils which intermesh with the coils in the strands, substantially as specified.

586,069. OSCILLATING STEAM-ENGINE. WILLIAM H. STOCKEY and CONRAD J. HEUERMER, Lykens, Ohio. Filed May 7, 1896. Serial No. 590,571. (No model.)



Claim.—In an oscillating steam-engine, the combination with the base A, carrying on one side a stationary steam-chest C, and opposite thereto a standard *a* formed with a bearing at its upper end, the steam-chest having an aperture through the same opposite said bearing said steam-chest having parallel passages *c c* one on each side of the opening or aperture and converging ports *m m'*; a cylinder B, having a short trunnion which is journaled in the bearing at the upper end of the standard *a* and a long trunnion the ends thereof being threaded one end for engagement with an internally-threaded aperture in the cylinder, a helical spring *b'* which encircles the projecting end of the trunnion *b* so as to bear upon the steam-chest, a thumb-nut carried by the outer end of the trunnion and engaging with the spring, the cylinder having curved ports *n n'* the inner portions of said ports being extended; together with a turning valve mounted in a rigidly-supported casing and pipes *d d'* which connect the casing with the passages *c c* in the steam-chest, the parts being organized substantially as shown and for the purpose set forth.

586,070. BOOKBINDER'S TAPE. BENJAMIN F. KENDA, Elizabeth, N. J. Filed May 23, 1896. Serial No. 593,791. (No model.)



Claim.—1. A tape consisting of a series of cords, twines, or strands laid close together throughout the entire width, and a strip of fabric folded longitudinally around the same, the folded edges of said strip overlapping each other.

2. A tape composed of a series of cords, twines, or strands laid close together throughout the entire width, and a strip of fabric folded longitudinally around the same and glued or cemented thereto.

3. A tape composed of a series of cords, twines, or strands laid close together throughout the entire width, and a strip of fabric folded longitudinally around the same and glued or cemented thereto, the folds of said fabric overlapping each other and extending from edge to edge to form a tape of uniform thickness.

586,071. BURIAL-CASKET. HARRY T. LOOMIS, Oneida, N. Y., assignor to the National Casket Company, same place. Filed May 18, 1897. Serial No. 636,393. (No model.)



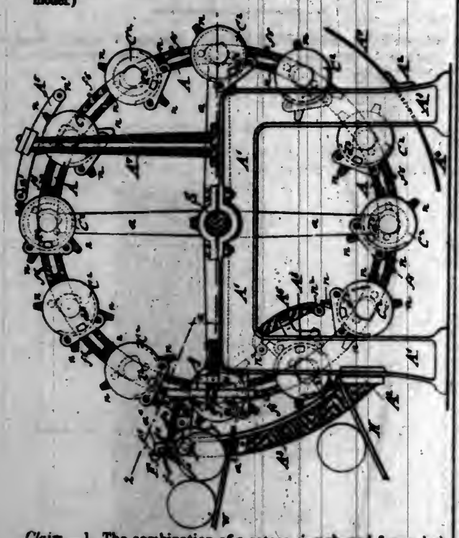
Claim.—1. A casket comprising a body, combined with leaves hinged thereon, and a solid cove mounted upon said body, said when closed inclosing said infolded leaves, and when opened releasing said leaves to be opened outwardly to cover the cove connection and the upper edges of said body.

2. A casket comprising a body, leaves hinged thereon, to stand at an angle thereto, and a solid cove mounted upon said body and interiorly beveled to inclose said infolded leaves, and when opened

to release them to be opened outwardly to cover the cove connection and the upper edges of said body.

3. A casket comprising a body, leaves hinged thereon to stand at an angle thereto inwardly or outwardly as desired, a solid cove mounted upon said body and interiorly beveled to inclose said leaves and when opened to release them to be opened to flare outwardly beyond the body and cover its edges and the cove connection thereto, a glass mounted in said cove, and a lid to cover said glass.

586,072. MACHINE FOR TESTING SHEET-METAL CANS. BERNET J. MALMFELT, New York, N. Y., assignor, by mesne assignments, to the Automatic Can Machinery Company, Westfield, N. J. Filed Aug. 25, 1894. Renewed Nov. 17, 1864. Serial No. 612,536. (No model.)



Claim.—1. The combination of a rotary ring-shaped frame, hollow spindles supported by said frame, elastic bell-shaped suction-heads on said spindles, having yielding rim portions projecting beyond the spindles, said rim portions being unsupported at the back, can-holders supported loosely on the spindles, and mechanism for successively feeding the cans to be tested to said holders, substantially as set forth.

2. The combination of a rotary ring-shaped frame, hollow spindles supported by said frame, valves for said spindles, can-holders supported loosely on said spindles, elastic suction-heads of bell shape attached to the spindles at their centers and having freely-yielding rim portions projecting beyond the spindles, said rim portions being unsupported at the back, mechanism for successively feeding the cans to be tested to said spindles, means for pressing the cans against the suction-heads, means for closing said valves so as to retain the cans on the suction-heads by the partial vacuum in the same, and means for opening the valves, substantially as set forth.

3. The combination of a rotary ring-shaped frame, hollow spindles on said frame, elastic suction-heads attached to one end of said spindles, valves connected with the opposite ends of the spindles, can-holders placed loosely on said spindles, mechanism for successively feeding the cans to be tested onto said holders, mechanism for pressing the can against its suction-head, means for closing the valves of the spindles so as to retain the cans on the suction-heads, means for turning the can-holders on their axes so as to compensate for the rotary motion of the frame, and means for opening the valves of the spindles so as to drop the tight cans from their suction-heads, substantially as set forth.

4. The combination of a rotary ring-shaped frame, having projecting lugs on its circumference, can-holders supported equidistantly thereon, inclined ways for guiding the cans to the holders, an arc-shaped retaining-plate, and a lever connected with the retaining-plate, said plate being intermittently actuated by the lugs for oscillating the retaining-plate and feeding one can after the other to the holders, substantially as set forth.

5. The combination of a rotary ring-shaped frame, can-holders supported by the same, inclined ways for feeding the cans to be tested, an oscillating retaining-plate, a fulcrumed and spring-actuated lever engaging a lug on said plate, and lugs on the rotary frame adapted to intermittently engage the fulcrumed lever and oscillate the retaining-plate, so as to deliver one can to each holder while retaining the next following can, substantially as set forth.

6. The combination of a rotary ring-shaped supporting-frame, hollow spindles supported by said frame, at right angles thereto, valves communicating with the inner ends of said spindles, can-holders placed loosely on said spindles, elastic suction-heads attached to the outer ends of the spindles inside of the heads of the can-holders, a sliding and spring-actuated head supported by and guided on the bottom of each of the can-holders, means for engaging said sliding head and pressing it toward the suction-head, and a stationary arm located in the path of the valve-lugs, so as to close the same as soon as the can has been moved up against the suction-head by the movable head, substantially as set forth.

7. The combination of a rotary ring-shaped frame, can-holders supported on said frame at right angles thereto, movable heads provided with outwardly-projecting lugs and arranged at the outer end of the can-holders, said heads being guided by spring-actuated rods in sleeves of the can-holders, a star-shaped frame pivoted to stationary supports at right angles to the movable heads, the arms of said star-shaped frame being adapted to engage said lugs so as to move the spring-actuated head of each can-holder toward the opposite head of the same, as the can-holders pass one after the other over the star-shaped frame, substantially as set forth.

8. The combination of a rotary ring-shaped frame, can-holders supported at right angles to the same and provided with sleeves at their under sides, movable heads for the outer ends of said can-holders, said heads being provided with spring-cushioned rods guided in sleeves of the can-holders, and means for engaging the movable heads so as to press them against the tension of their cushioning-springs toward the inner head of each can-holder, substantially as set forth.

9. The combination with a rotary ring-shaped frame, of can-holders attached at right angles to said frame around the circumference of the same, movable heads guided by spring-cushioned rods in sleeves of each can-holder, said movable heads being each provided with a projection at its outer side, a star-shaped frame supported at right angles to said movable heads and adapted to swing around a central pivot, and means for adjusting the said star-shaped frame toward the movable heads, substantially as set forth.

10. In a can-testing machine, the combination of a rotary ring-shaped frame, can-holders supported on said frame at right angles thereto, guided spring-cushioned heads at the outer ends of said can-holders, a star-shaped frame applied to a stationary horizontal piece on the supporting-frame, and means for adjusting the center pivot of said star-shaped frame on the horizontal guide-piece, so as to permit its adjustment relatively to the movable heads, substantially as set forth.

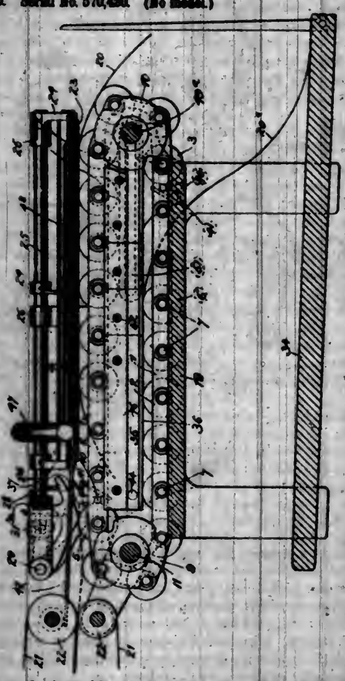
11. The combination of a rotary ring-shaped supporting-frame, can-holders supported at right angles on the same, said can-holders being provided with an inner disk, having lugs extending from the same, arms located respectively at the upper and lower part of the frame, provided with an antifriction-roller at each end, said antifriction-rollers being arranged to engage the projecting lugs of the heads of the can-holders, so as to turn the can-holders on their axes and return them into their initial position, substantially as set forth.

12. The combination of a rotary ring-shaped frame, hollow spindles supported on said frame, can-holders mounted loosely on said spindles, valves connected with the inner ends of said spindles, suction-heads on the outer ends of the same, means for intermittently turning the can-holders on the spindles in one direction back into their initial position, a spring-cushioned head guided on each can-holder, means for moving the spring-cushioned heads toward the suction-heads of the can-holders, means for closing the valves of each can-holder as soon as the can is pressed by the movable head toward the suction-head, means for shifting each can-holder on the spindle, so as to clear the holder and support the can by the suction of the suction-head, and means for opening the air-valves of the suction-heads so as to drop the tested cans, substantially as set forth.

13. The combination of a rotary ring-shaped frame, spindles applied to said frame, can-holders supported loosely on said spindles, the heads of said can-holders being provided with a radial center slot, pins located at opposite sides but at different distances from the center of the head of the can-holder, stationary cams located on the spindle adjacent to the heads of the can-holders, and means by which the can-holders are intermittently turned on their axes first in one then in return direction and simultaneously shifted on their spindles so that the head of the can-holder is placed eccentrically to said spindle, substantially as set forth.

14. The combination of a rotary ring-shaped frame, spindles supported by said frame at right angles thereto, can-holders provided with inner heads, which are loosely mounted on said spindles, lugs extending from the outer circumference of said heads, suction-heads applied to said spindles adjacent to the heads of the same, for supporting the cans by suction, stationary friction-rollers supported in the path of the lugs of the heads of the can-holders, so as to intermittently turn the same first in one, then in return direction, and means for shifting the can-holders on the spindles, first into position eccentrically thereto and then back into their normal position thereon while the intermittent turning of each can-holder takes place, substantially as set forth.

586,073. SHEET CARRYING AND PILING OR FEEDING MECHANISM. ROBERT MIEHLE, Chicago, Ill., assignor to the Miehle Printing Press and Manufacturing Company, same place. Filed Nov. 20, 1895. Serial No. 570,420. (No model.)



Claim.—1. A machine for the purpose described having in combination an endless carrier composed of a number of sections having spaces between them and each being provided with a roller upon which the sheet rests, and means for rotating said roller in a direction the reverse of its bodily movement, substantially as set forth.

2. A machine for the purpose described having in combination a carrier provided with a roller upon which the sheet rests, means for delivering the sheet onto said carrier and a bearer impinging the surface of the roller for rotating said roller reversely of its bodily movement when the sheet leaves the sheet-delivering mechanism, substantially as set forth.

3. A machine for the purpose described having in combination an endless carrier having a number of sections each provided with a roller upon which the sheet rests, and means for intermittently and alternately rotating said rollers in a direction the reverse of their bodily movement, substantially as set forth.

4. A machine for the purpose described having in combination a number of traveling sections, moving one over the other, for receiving the sheets, and each having a roller upon which the sheet rests, and means for rotating said roller in each section when the section reaches a substantially horizontal position, substantially as set forth.

5. A machine for the purpose described having in combination an endless carrier provided with a number of sections for supporting the sheet, having spaces between them, and means for arresting the movement of the sheet and causing it to fall through said spaces while the carrier continues to travel, substantially as set forth.

6. A machine for the purpose described having in combination a carrier having separated sections for supporting and carrying the sheet and each of said sections having a roller upon which the sheet rests, a shiftable bearer adapted to be alternately shifted into contact with a part of said rollers, and means operating in unison with said sections for alternately shifting said bearer into contact with a part of said rollers, substantially as set forth.

7. A machine for the purpose described having in combination a carrier having separated sections each having a roller upon which the sheet rests, a shiftable bearer adapted to be thrown into contact with a portion of said rollers, a trip for throwing said bearer in one direction and being arranged to be struck by one of said rollers, the other of said rollers being provided with a cut-away portion so as to pass said trip, and a second trip arranged out of the line of movement of said first roller but in the line of movement of said second roller, and adapted to throw said bearer in the opposite direction, substantially as set forth.

8. A machine for the purpose described having in combination a carrier having separated sections each provided with a roller upon which the sheet rests, one of said rollers being projected beyond the end of the other and having a cut-away portion, a bearer adapted to alternately engage with said rollers, a rock-shaft for operating said bearer, a pin or lug projecting from each side of said rock-shaft, a trip arranged in the line of movement of said cut-away portion of said roller and having a crank-arm engaging with one of the lugs upon said rock-shaft, a second trip arranged out of the line of movement of said cut-away portion of the roller and adapted to be struck by said roller and having a crank-arm engaging with said other lug or pin on the rock-shaft, said crank-arm on the right being connected with said trip on the left and the crank-arm on the left being connected with the trip on the right, substantially as and for the purpose set forth.

9. A machine for the purpose described having in combination an endless carrier having a number of separated sections each provided with a roller, means for delivering the sheet onto said carrier, and a guard 41 arranged in advance of each of said rollers, substantially as set forth.

10. A machine for the purpose described having in combination an endless carrier having sections each provided with a roller and having spaces between them, means for rotating said rollers in a direction the reverse of their bodily travel, and means arranged over said rollers for increasing the pressure of the sheet thereagainst, substantially as set forth.

11. A machine for the purpose described having in combination an endless carrier having separated sections and each provided with a roller upon which the sheet rests, means for rotating said rollers in a direction the reverse of their bodily movement, and an air-blast arranged over said rollers and adapted to force the sheet from between the sections, substantially as set forth.

12. A machine for the purpose described having in combination a carrier provided with a number of separated sections upon each of which the sheet rests, a lap-holder arranged to be actuated in unison with said sections and adapted to depress the rear end of the sheet on one section below the foremost end of the succeeding section, substantially as set forth.

13. A machine for the purpose described having in combination a carrier provided with a number of separated sections each for supporting and carrying the sheet, a lap-holder arranged in the line of movement of said sections and adapted to be depressed upon the final end of the sheet on one section by the succeeding section, substantially as set forth.

14. A machine for the purpose described having in combination a carrier provided with a number of separated sections, a pivoted lap-holder arranged in the line of movement of and adapted to be struck by said sections and moved in one direction, and means for returning said lap-holder to its normal position, substantially as set forth.

15. A machine for the purpose described having in combination a carrier having separated sections for supporting and carrying the sheet, a rock-shaft pivoted under said carrier and having lap-holding fingers projecting up between said sections, and a cam on said rock-shaft adapted to be struck and actuated by said sections, substantially as set forth.

16. A machine for the purpose described having in combination a carrier having separated sections for supporting and carrying the sheet, a shaft having lap-holding fingers projecting up between said sections, means for holding said fingers normally between said sections, and a double cam on said shaft adapted to be struck by said sections when moving in either direction for depressing said lap-holding fingers, substantially as set forth.

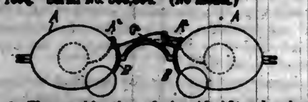
17. A machine for the purpose described having in combination a moving carrier having a roller upon which the sheet rests and a bearer impinging said roller at a point where the latter is adapted to support the sheet, for rotating said roller in a direction the reverse of its bodily movement, substantially as set forth.

18. A machine for the purpose described having in combination an endless carrier provided with removable links, an adjustable wheel over which said carrier travels and sectional tracks or ways for supporting said links, substantially as set forth.

19. A machine for the purpose described having in combination a flexible carrier consisting of a series of rollers, a guide or way for said rollers returned under itself whereby the carrier will be deflected partly under itself during its travel or operation, means for moving

said carrier on said way and means for rotating said rollers in a direction the reverse of their bodily movement, substantially as set forth.
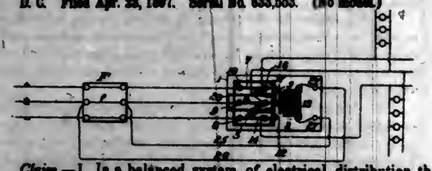
586,074. SPECTACLES. JAMES P. ORR, Pittsburg, Pa. Filed July 11, 1896. Serial No. 598,804. (No model.)



Claim.—1. The combination of pins A^1, A^2, and a sleeve rigidly mounted on a spectacle-frame, with a journal to turn in said sleeve having mounted thereon a wheel C at one end and on the other end a double crank having a link connection with swinging arms B, pivotally mounted on pins A^2 all substantially as specified.

2. The combination in a spectacle-frame of a double crank mounted on a journal, with arms B having link connections with said cranks and adapted to sustain arms B, in a horizontal position when said cranks and links are in position known as "dead-center," all substantially as described.

586,075. ELECTRIC SWITCH. BURTACE OXLEY, Washington, D. C. Filed Apr. 23, 1897. Serial No. 633,553. (No model.)



Claim.—1. In a balanced system of electrical distribution the combination with the balancing-wire, of a switch normally closed against spring-pressure, and completing the circuit upon all sides of the system, an electromagnet having a winding of comparatively high resistance, connected to the opposite sides of the fuse of the balancing-wire, and an armature for said magnet connected to a device which mechanically locks the switch in its closed or "on" position, substantially as set forth.

2. In a balanced system of electrical distribution, the combination with the balancing-wire of a normally-closed switch, which completes the circuit on all sides of the system, a spring normally tending to open said switch, an electromagnet having a winding of comparatively high resistance connected to opposite sides of the safety-fuse of the balancing-wire, a spring-supported armature, and a mechanical lock to hold the switch closed, which is released by the movement of the armature, when attracted, substantially as set forth.

3. In a balanced system of electrical distribution, the combination with the balancing-wire, of a switch normally closing the circuit on all sides of the system, a spring to throw said switch open, a finger on the switch-bar having a pin to enter an opening in a spring on the switch-base, an electromagnet having a winding of high resistance connected to opposite sides of the fuse of the balancing-wire, and an armature mounted on the spring, which locks the switch in closed position, substantially as set forth.

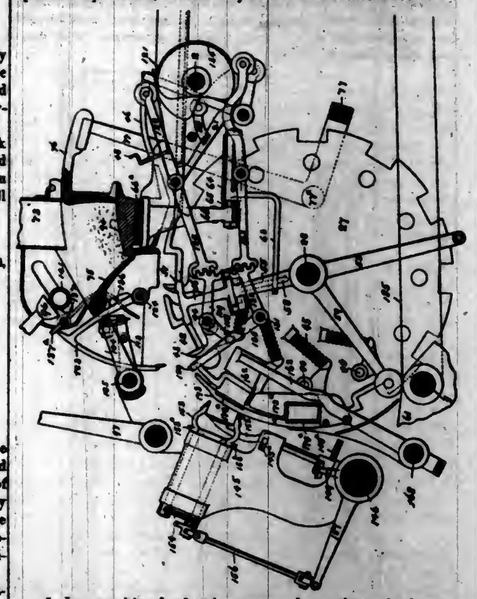
586,076. MACHINE FOR MAKING UP TOBACCO OR OTHER SIMILAR MATERIAL IN PACKETS. WILLIAM ESSE, Gainsborough, England, assignor to the Wright's Automatic Tobacco Packing Machine Company, Lynchburg, Va. Filed Apr. 1, 1896. Serial No. 585,756. (No model.)

Claim.—1. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed, of an endless belt for feeding wrappers in an unfolded condition, a deflecting-plate, as 19, arranged above the delivery end of the feed-belt, and downwardly-inclined arms, as 26, arranged above the mold-boxes when at rest, for guiding the wrappers into position, substantially as shown and described.

2. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed and means for feeding wrappers in an unfolded condition, of a two-part platform, each part pivoted to swing downwardly along the opposite ends of the mold-boxes for holding the wrappers in position over the mold-boxes, substantially as shown and described.

3. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed, means for feeding wrappers in an unfolded condition and devices for guiding the wrappers downwardly, of a two-part platform for holding the wrappers in position over the mold-boxes, each part being pivoted to swing downwardly at the opposite ends of the mold-boxes, substantially as shown and described.

4. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed, of wrapper feeding and receiving mechanism, a wrapper-presser plate provided with fingers conforming to one side of the mold-box and overreaching the top thereof, and means for operating said presser-plate to descend upon and press and fit the wrapper into a mold-box and bend its forward edge down upon the top thereof, substantially as shown and described.



5. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed and wrapper-receiving mechanism, of a wrapper-receiving platform arranged to swing downwardly on the outside of the mold-box at its opposite ends, and a wrapper-presser plate, whereby a wrapper fed upon the platform is grasped between the platform and the presser-plate and deposited in the mold-box, substantially as shown and described.

6. In a machine for forming rectangular packets of tobacco or similar material, the combination with movable mold-boxes or recesses in which the packets are formed and devices for pressing and fitting wrappers in the mold-boxes, of retaining devices for engaging and holding the wrappers in position while the mold-boxes are moving and means for moving the retaining devices into engagement with the wrappers and then moving them forward with the forward movement of the mold-boxes and then moving them out of engagement with the wrappers and then backward to their engaging position.

7. In a machine for forming rectangular packets of tobacco or similar material, the combination with a series of movable mold-boxes or recesses in which the packets are formed and devices for pressing and fitting the wrappers into the mold-boxes, of devices for engaging the ends of the wrappers projecting from the boxes and retaining them in position while the boxes are moving from the wrapper-receiving to the tobacco-receiving positions, substantially as shown and described.

8. In a machine for forming rectangular packets of tobacco or similar material, the combination of a series of movable mold-boxes or recesses in which the packets are formed and devices for pressing and fitting the wrappers into the mold-boxes and devices for delivering tobacco thereto, of devices for engaging the wrappers of two adjacent molds to retain them in position while the rear mold is moving from the wrapper-receiving to the tobacco-receiving position and the forward mold is moving away from the tobacco-receiving position, substantially as shown and described.

9. In a machine for forming rectangular packets of tobacco or similar material, the combination of an intermittently-rotating mold-wheel, carrying a series of mold-boxes or recesses in which the packets are formed, and devices for pressing and fitting the wrappers in mold-boxes, of retaining devices for engaging and holding wrappers in position in the mold-boxes and mechanism for moving the same with the rotation of the mold-wheel and restoring them to their original position, substantially as shown and described.

10. In a machine for forming rectangular packets of tobacco or similar material, the combination of a mold-wheel provided with mold-boxes or recesses in which the packets are formed and in which wrappers have been fitted, of tobacco delivering and compressing mechanism and blocks, as 84, and means for moving the blocks into and out of engagement with the ends of the mold-boxes, to form end walls for the boxes at the time the tobacco is delivered and compressed therein, substantially as shown and described.

11. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed and in which wrappers have been fitted, of tobacco delivering and compressing mechanism, blocks, as 84, devices for folding the edges of the wrappers around the tobacco, blocks, as 84^a, and means for simultaneously moving the blocks into and out of engagement with the ends of the mold-boxes, whereby blocks 84 will be in engagement with one mold-box while the tobacco is delivered and compressed therein and blocks 84^a will be in engagement with the next advanced block while the folding devices are operating, substantially as shown and described.

12. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed and wrapper-fitting and tobacco-feeding devices, of a compound wrapper-folding mechanism consisting of a presser-foot, as 112, fixed to a rock-shaft and a toggle mechanism for operating the presser-foot after it has folded down the wrapper edge to further depress the toe of the said foot without depressing the heel thereof, substantially as shown and described.

13. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed, wrapper-feeding mechanism, tobacco-feeding mechanism and devices for folding the wrappers around the tobacco, of a folding device for making the last end fold provided with an inclined portion whose inner face presses and creases the end tab, and a flat portion for wiping the several folds in position, substantially as shown and described.

14. In a machine for forming rectangular packets of tobacco or similar material, the combination with mold-boxes or recesses in which the packets are formed, wrapper-feeding mechanism, tobacco-feeding mechanism and devices for folding the wrappers around the tobacco, of a device, as 162, for making the last end fold, and means for giving a short upward movement to said device to crease the end fold against the edges of the side folders, as 153, and means for giving a further upward sliding or wiping movement to said device to press the several folds against each other and smooth out the end of the packet.

15. In a machine for forming rectangular packets of tobacco or similar material, the combination with wrapper-feeding and tobacco-feeding devices and devices for forming the tobacco into rectangular masses and folding the wrappers about the same, of dies for countersinking the folded ends of the packets, means for operating said dies consisting of slide-rods 170, links 172 adjustably connected in arc slots 172ª, arms 95 connected to rods 94 attached to arms 92 operated by cam 90, substantially as shown and described.

16. In a machine for forming rectangular packets of tobacco or similar material, the combination with an intermittently-rotating mold-wheel provided with mold-boxes or recesses in which the packets are formed, and end folding and countersinking devices, of a holding-plate adapted to press upon and hold the packets in position in two or more of the mold-boxes at the same time, while the wheel is stationary and the end folding and countersinking devices are operating, and means to withdraw the plate while the mold rotates, substantially as shown and described.

17. In a machine for forming rectangular packets of tobacco or similar material, the combination with a mold-wheel provided with mold-boxes or recesses in which the packets are formed, of a curved holding-plate provided with flat plates adapted to press upon the packets contained in the mold-boxes and covered by the said holding-plate, substantially as shown and described.

18. In a machine for forming rectangular packets of tobacco or similar material, the combination with a mold-wheel provided with mold-boxes or recesses in which the packets are formed, and end folding and countersinking devices, of a holding-plate adapted to press upon and hold the packets in position in the mold-boxes while the end folding and countersinking devices are operating, and adapted to be withdrawn while the mold-wheel rotates, said holding-plate being provided with laterally-projecting plates for locking the folds of the packets and protecting the same during the revolution of the mold-wheels.

19. In a machine for forming rectangular packets of tobacco or similar material, the combination with packet-forming devices, of an ejector operating to move into and out of the mold-boxes in which the packets are formed to thrust the same out and means for operating the same comprising cam-operated arm 182, sectors 185, arm 178 and slide-rod 179 carrying the ejector 181, substantially as shown and described.

20. In a machine for forming packets of tobacco or similar material, the combination with a tobacco-packing plunger, of a cleaning-brush mounted on a horizontal rotating shaft journaled in one arm of an elbow-lever and arranged to move in a circular path across the face of the plunger by the oscillation of the elbow-lever, and means for rotating the brush-shaft and oscillating the elbow-lever, substantially as and for the purpose set forth.

586,077. BARREL-FILLER. WILLARD A. SMITH, Providence, R. I. Filed Nov. 21, 1896. Serial No. 569,715. (No model.)



Claim.—1. In a barrel-filler, the combination with the valve, of the lever 20 having the finger-piece 23 and the shoulder 41, the catch-lever 25 having the arm 24 adapted to be operated by the lever in its ascent and the downwardly-extending arm 28, the latter having the catch 42 to engage the shoulder 41 and also having the toe 29, and the latch 32 having the tooth 30 to engage the toe 29, said latch being operatively connected with means actuated by the rising of the liquid in the barrel, to operate said latch, substantially as described.

2. In a barrel-filler, the combination with the valve, of a hand-lever for raising or opening the same, a catch arranged to be actuated by the movement of said lever when so raising said valve to throw the latch into a position behind said lever to restrain its return movement, a catch-lever actuated by the rising of the liquid in the barrel, said lever being, except when the liquid has reached a predetermined height, in such a position as to engage the aforesaid latch when thrown by the valve-lever, and automatically lock the latch in its position restraining said lever from return movement, substantially as described.

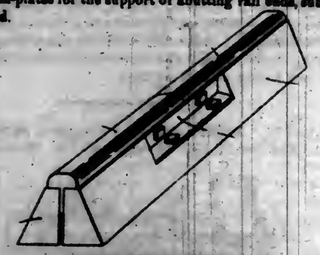
3. In a barrel-filler, the combination of a casing provided with an inlet for the liquid, a discharge-opening into the barrel, a passage between them, a valve closing said passage, said casing having an opening therethrough from side to side, closed to the liquid in the passage, the walls of said opening having extensions outside the casing to form fulcra, a lever for raising said valve fulcrumed at one end of the opening, extending through said opening and provided beyond the other end with a finger-piece, a catch at the latter end for holding said lever in its position raising said valve, and means, actuated by the rising of the liquid in the barrel, for operating said catch to release said lever, substantially as described.

4. In a barrel-filler, the combination of a casing provided with an inlet for the liquid, a discharge-opening into the barrel, a passage between them, a valve closing said passage, said casing having an opening therethrough from side to side, closed to the liquid in the passage, the walls of said opening having extensions outside the casing to form fulcra, a lever for raising said valve fulcrumed at one end of the opening, extending through said opening and provided beyond the other end with a finger-piece, a catch adapted to be moved by said lever into position to hold said lever in its position holding said valve, a latch automatically engaging said catch when so moved, and locking the same, and means, actuated by the rising of the liquid in the barrel, for operating said latch to release said catch, substantially as described.

5. In a barrel-filler, the combination of a casing provided with an inlet for the liquid, a discharge-opening, a passage between them, an air-chamber below said discharge-opening, a diaphragm extending across said air-chamber, the chamber having an opening into the barrel below said diaphragm of substantially the same size as the diaphragm, a valve closing the passage in said casing, said casing having an opening therethrough from side to side, closed to the liquid in the passage, the walls of said opening having extensions outside the casing to form fulcra, a lever for raising said valve fulcrumed at one end of the opening, extending through said opening and provided beyond the other end with a finger-piece, a catch at the latter end for holding said lever in its position raising said valve, a latch locking said catch, and a rod from said diaphragm, entering the opening through the casing, and connected with the latch, whereby the rising of the liquid operates the latch through the diaphragm and rod, to release said catch and valve-lever, substantially as described.

586,078. RAILWAY-JOINT. HERBERT L. STILLMAN, Charlestown, R. I. Filed Dec. 2, 1896. Serial No. 614,296. (No model.)

Claim.—A railway-joint composed of a pair of wooden fish-plates with a single metal angle fish-plate gained into one of the said wooden fish-plates for the support of abutting rail ends, substantially as specified.



586,079. FAUCET. JOHAN L. SULLIVAN, Columbus, Ohio, assignor to Willis I. Miller, same place. Filed Dec. 26, 1896. Serial No. 617,066. (No model.)



Claim.—1. A faucet composed of an inner tube and an outer tube, the inner tube being provided with a vent and closed at its outer end and having a circumferential shoulder, a spiral or inclined groove *a* and a lug 1^a to engage said groove whereby the shoulder on the inner tube may be drawn toward the end of the outer tube to close the vent and compress a washer between said shoulder and the end of the outer tube.

2. A faucet comprising an inner tube and an outer tube, the inner tube being provided with a vent and having its outer end closed, and a circumferential shoulder 4^a, a groove of substantially the form shown that is having the parts *a* and *b* upon the inner tube and a lug on the outer tube to enter and engage said groove in substantially the manner set forth.

586,080. TOWEL-RACK, &c. GEORGE I. THOMPSON, Chicago, Ill. Filed Aug. 31, 1896. Serial No. 454,492. (No model.)



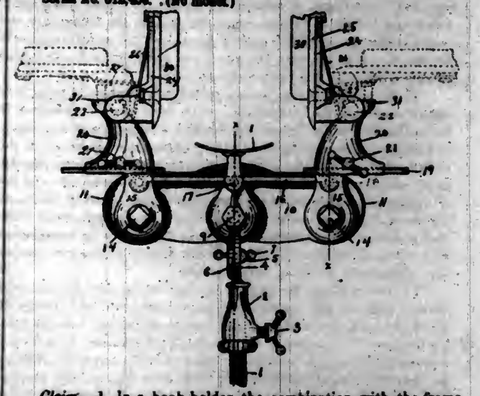
Claim.—1. A towel-rack comprising a towel-support provided near its ends with bracket-arms having attaching-screws at their inner ends, said towel-support being mounted between confining-shoulders upon pins or stems secured to said arms and passing loosely through said support, substantially as described.

2. A towel-rack comprising a towel-support, bracket-arms carrying said support and provided at their inner ends with attaching-screws, said bracket-arms being permanently swiveled to the towel-support by means of headed pins or stems of small diameter passing transversely through the towel-support and forming a longitudinal extension of the bracket-arms, substantially as described.

3. A towel-rack, comprising a bar or rod and coupling-pieces forming a towel-support, bracket-arms for sustaining said support provided at their inner ends with attaching-screws, said coupling-pieces connected with said bar or rod and mounted on said bracket-arms between confining-shoulders upon pins or stems secured to said bracket-arms, said pins passing loosely through said coupling-pieces, substantially as described.

4. A towel-rack comprising a bar or rod and coupling-pieces forming a towel-support, bracket-arms for sustaining said support provided at their inner ends with attaching-screws, said coupling-pieces being provided with bearing-apertures through which the bar or rod is adapted to slide longitudinally and being mounted on said bracket-arms between confining-shoulders upon pins or stems secured to said bracket-arms, said pins or stems passing loosely through apertures arranged at right angles to those receiving the bar or rod, substantially as described.

586,081. BOOK-HOLDER. WARREN H. WARNER, Rochester, N. Y., assignor to R. C. Stearns & Co., Syracuse, N. Y. Filed Nov. 17, 1896. Serial No. 612,456. (No model.)



Claim.—1. In a book-holder, the combination with the frame having the back-support secured rigidly thereto, of the cover-supports on opposite sides of the back-support, arms and brackets connected to said cover-supports, and the parallel levers connecting the arms, substantially as described.

2. In a book-holder, the combination with the frame having the back-support secured rigidly thereto, of the lever-plate 10, the lever 16, the covering-plate 12, the arms to which the levers are pivoted, the brackets on the arms, and the cover-supports pivoted to the brackets, substantially as described.

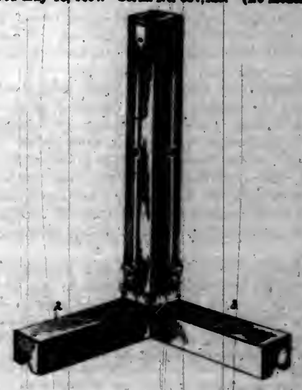
3. In a book-holder, the combination with the frame and the back-support thereon, of the lever 10, the arms pivoted to the ends of the lever, the lever 16 pivoted to the frame, and projections and recesses between the ends of the lever 16 and the arms, forming pivotal connections, and the cover-supports mounted on the arms, substantially as described.

4. In a book-holder, the combination with the frame and the back-support thereon, of the parallel levers pivoted on the frame, the arms pivoted to the ends of the levers having the ways, the brackets having the integral clamping-jaws, the cover-supports, the plates thereon pivoted to the brackets, and the springs engaging the brackets and plates, substantially as described.

5. In a book-holder, the cover-support and the plate secured thereto having the lug-seats open toward the side next the cover-support, of the bracket having the trunnions or lugs entering said seats and the projections thereon, and the spring engaging the projection to hold the plate and bracket in engagement and also holding the plate in two positions relative to the bracket, substantially as described.

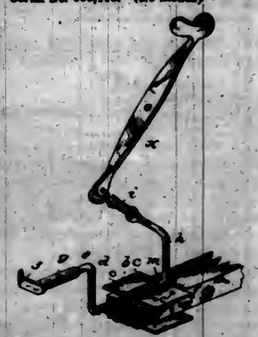
6. In a book-holder, the combination with the frame 6 the levers 10 and 16 pivoted thereon, and the arms 15 having the ways, of the bifurcated clamp-brackets engaging the ways and having the lugs and the projections 27, the plates 24, and the springs, substantially as described.

586,082. COMBINED PLUMB AND LEVEL. JOSEPH A. WEIGERT and HENRY OTTE, Philadelphia, Pa. Filed Sept. 23, 1895. Renewed May 18, 1897. Serial No. 637,128. (No model.)



Claim.—In an instrument of the character described, beams 2 and 3 meeting at right angles and having suitable grooves formed upon their bottom surfaces, an upright supported by said beams at their juncture, two pendulums, one pivoted to each of the inner surfaces of said upright, dials for indicating the inclination of said instrument and a spirit-level arranged upon the upper end of said upright, as specified.

586,083. WAGON-BRAKE. SANTIAGO HERRERIAS, Phœnix, Ariz., assignor of one-fourth to Matteo C. Dujmovich, same place. Filed Oct. 16, 1896. Serial No. 608,113. (No model.)



Claim.—1. An attachment for vehicles comprising a shaft, a journal-box for said shaft, said shaft having sliding movement in said journal-box, an arm upon said shaft, a post upon said arm adapted to be placed between the spokes of a wheel, a second arm upon said shaft, a member adapted to be secured to the wagon-body, connections between the second arm and the member for moving said member backwardly in the forward movement of said second arm, and means upon said member for the attachment of lines, substantially as described.

2. An attachment for vehicles comprising a shaft, a journal-box for said shaft, said shaft having sliding movement in said journal-box, an arm upon said shaft, a post upon said arm, a ferrule on the post adapted to be placed between the spokes of a wheel, a second arm upon said shaft, a member adapted to be secured to the wagon-body, connections between the second arm and the member for moving said member backwardly in the forward movement of said second arm, and means upon said member for the attachment of lines, substantially as described.

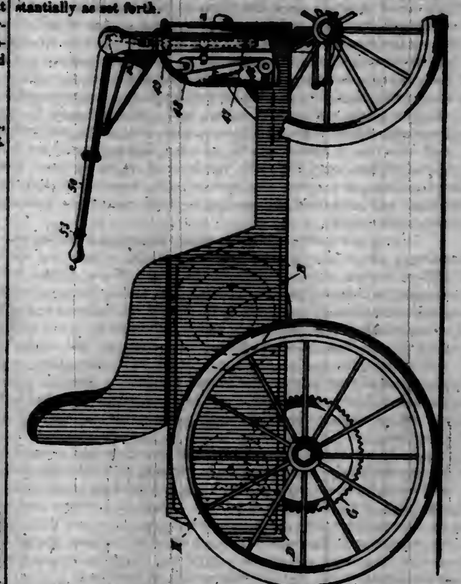
3. An attachment for vehicles comprising a shaft, a journal-box for said shaft, said shaft having sliding movement in said journal-box, an arm upon said shaft, a post upon said arm, a finger extending from said post, a second arm upon said shaft, a member adapted to be secured to the wagon-body, connections between the second arm and the member for moving said member backwardly in the forward movement of said second arm, and means upon said member for the attachment of lines, substantially as described.

4. An attachment for vehicles comprising a shaft, a journal-box for said shaft, said shaft having sliding movement in said journal-box, means for attaching said journal-box to the axle of a vehicle, an arm upon said shaft, a post extending at an angle to said arm, a finger upon said post and forming a shoulder therewith, a ferrule upon said post between the shoulder formed by the finger and the angle at which the post joins the arm, a second arm upon said shaft, a lever adapted to be attached to a wagon-body, and connections between said lever and the second arm whereby the forward movement of said second arm will cause a backward movement of the lever, substantially as described.

5. An attachment for vehicles comprising a shaft, a journal-box for said shaft, said journal-box being slotted, means upon said shaft for locking the wheel of a vehicle, and a member upon said shaft adapted to enter the slot in the journal-box when the device is in position for locking the wheel, substantially as described.

586,084. MOTOR-CARRIAGE. JAMES F. DURYEA, Springfield, Mass., assignor to the Duryea Motor Wagon Company, same place. Filed May 11, 1896. Serial No. 591,068. (No model.)

Claim.—1. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose pulleys thereon, a plurality of straight belts, and one crossed belt engaging said driving and said driven pulleys, and means for moving said belts singly and consecutively from said loose to said tight pulleys, and automatic means for singly and consecutively moving each of said belts back onto its loose pulley, and suitable connections between a motor and said driving cone-pulley and between said counter-shaft and the driving-axle or shaft of the conveyance, substantially as set forth.



2. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose pulleys thereon, a plurality of straight belts and one crossed belt engaging said driving and said driven pulleys, and means for moving said belts singly and consecutively from said loose to said tight pulleys, and automatic means for singly and consecutively moving each of said belts back onto its loose pulley, and an adjustable idler-pulley for each of said straight belts, and suitable connections between a motor and said driving cone-pulley and between said counter-shaft and the driving axle or shaft of the conveyance, substantially as set forth.

3. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose pulleys thereon, a plurality of straight belts and one crossed belt engaging said driving and driven pulleys, and a plurality of shipping-levers pivotally supported between said driving-cone and said counter-shaft pulleys, and means for imparting to each of said shipping-levers, consecutively, a swinging movement in one direction against the action of a retracting-spring, and suitable connections between a motor and said driving-cone, and between said counter-shaft and the driving axle or shaft of said conveyance, substantially as set forth.

4. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose pulleys thereon, a plurality of straight belts and one crossed belt engaging said driving and said driven pulleys, and a plurality of shipping-levers pivotally supported between said driving-cone and said counter-shaft pulleys, and means for imparting to each of said shipping-levers, consecutively, a swinging movement in one direction against the action of a retracting-spring, said means consisting of a member moving in proximity to the said shipping-levers and substantially at right angles thereto, and engaging consecutively with each of them, and means for imparting movement to said moving member, and connections between a motor and said driving-cone, and between said counter-shaft and the driving axle or shaft of a carriage or other conveyance, substantially as set forth.

5. In an automobile carriage or other conveyance, a driving cone-pulley and a driven counter-shaft having a tight pulley on said counter-shaft, and a loose pulley on each side of said tight pulley, suitable belts engaging said driving and driven pulleys, two shipping-levers pivotally supported for movement in a vertical plane, and in engagement with said belts, and a member moving in a line substantially at right angles to said shipping-levers, and engaging them at a point vertically between the pivotal points thereof for moving said belts singly from said loose pulleys to said tight pulley, and suitable connections between a motor and said driving-pulley and between said counter-shaft and the driving-axle of said carriage or other conveyance, substantially as described.

6. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose

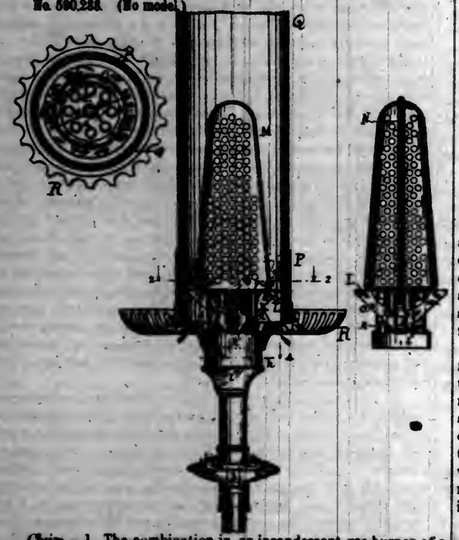
pulleys thereon, a plurality of straight belts and one crossed belt engaging said driving and said driven pulleys, and a plurality of shipping-levers pivotally supported between said driving-cone and said counter-shaft pulleys, and means for imparting to each of said shipping-levers, consecutively, a swinging movement in one direction against the action of a retracting-spring, said means consisting of a suitably-supported wire rope one portion of which lies in proximity to said shipping-levers, and having movements in a line substantially at right angles thereto, said portion having means thereon for engagement with said levers, and an operating-lever, as 50, with which said wire rope is connected, and by which said movements are imparted thereto, combined with suitable connections between said cone-pulley and a motor and between said counter-shaft and the driving axle or shaft of the carriage or other conveyance, substantially as described.

7. In an automobile carriage or other conveyance, a driving cone-pulley, a driven counter-shaft having a plurality of tight and loose pulleys thereon, a plurality of straight belts and one crossed belt engaging said driving and said driven pulleys, and a plurality of shipping-levers pivotally supported between said driving-cone and said counter-shaft pulleys, alternately above and below the line of movement of a member moving in a line substantially at right angles to said shipping-levers, an operating-lever, as 50, for imparting said movement to said member, and suitable connections between a motor and said driving cone-pulley and between said counter-shaft and the axle or shaft of a carriage or other conveyance, substantially as described.

8. In an automobile carriage or other conveyance, a motor, a driving-shaft and a counter-shaft, belts engaging pulleys on said shafts, and means for moving said belts in a line with the axes of said shafts, consisting of the shipping-levers 30, 31, 32, and 33, the wire rope 44, the operating-lever 50, and the buttons 54 and 55, on said wire rope, for moving said shipping-levers in one direction, and the springs 38 and 39, for moving said levers in a reverse direction, and the fixed guide-plates 57, 57ᵃ, and 57ᵇ, substantially as described.

9. In the herein-described belt-shipping mechanism, a tight pulley, a loose pulley on each side thereof, and having belts thereon engaged by shipping-levers pivotally supported respectively above and below the line of movement of the wire rope 44, having the buttons 54 and 55, thereon, for imparting movement to said shipping-levers by the engagement of said buttons with the levers 58 and 62, fixed to the frame 6, and the fixed guide-plates 57, 57ᵃ, and 57ᵇ, for said rope 44, substantially as described.

586,085. GAS-BURNER. LEONARD HENRLE, Rochester, N. Y., assignor, by mesne assignments, to the Consolidated Sterling Incandescent Gas Lamp Company, of New Jersey. Filed May 5, 1896. Serial No. 590,288. (No model.)



Claim.—1. The combination in an incandescent gas-burner of a mixing-chamber, a gas connection thereto, air-inlets through a wall of said mixing-chamber, a perforated valve centered and rotating on said wall and controlling said air-inlets, an eduction-tube carried by said valve, an enlarged head on said tube, and a plurality of gas and air delivery tubes on said head, substantially as described.

2. The combination in an incandescent gas-burner, of a mixing-chamber, a gas connection thereto, air-inlets through a wall of said mixing-chamber, a perforated valve centered and rotating on said wall and controlling said air-inlets, an eduction-tube carried by said valve, an enlarged head thereon, a plurality of gas and air delivery tubes on said head, a blind tube on said head, and an annular support for a mantle carried by said blind tube, substantially as described.

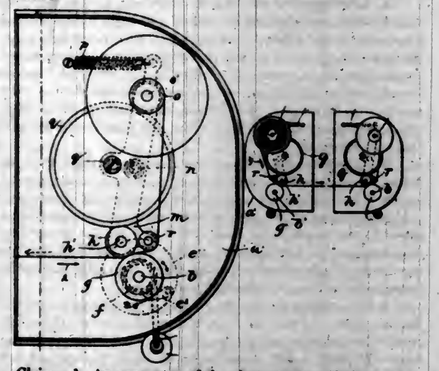
586,086. GAS-METER CASING. WILLIAM H. HOPPER, Philadelphia, Pa., and STEPHEN MILSTED, Hammonton, N. J. Filed Sept. 28, 1896. Serial No. 607,222. (No model.)



Claim.—1. A meter-casing consisting of a single strip of sheet metal bent to form the bottom and sides of the casing, a horizontal partition plate or table secured to said sides of the casing, grooved or V-shaped flanges extending inwardly from the edges of the bottom, sides and table, and front and back plates having flanges secured to said grooved or V-shaped flanges on the body of the casing, substantially as specified.

2. A meter-casing consisting of a single strip of sheet metal bent to form the bottom and sides of the casing, a horizontal partition plate or table secured to said sides of the casing below the top of the same, grooved or V-shaped flanges extending inwardly from the edges of the bottom and sides of the casing, and front, back and gallery plates having flanges secured in said grooved or V-shaped flanges on the body of the casing, substantially as specified.

586,087. STATION-INDICATOR. GEORGE A. HUNT and WILBERT C. TRUSSELL, Boston, Mass.; said Hunt assignor to said Trussell and said Trussell assignor of one-fourth to Charles E. Tingley and Harry H. Newcomb, same place. Filed June 30, 1896. Serial No. 597,331. (No model.)



Claim.—1. An apparatus of the character specified, comprising a feed-roll, means for rotating it in one direction step by step, a pivoted spring-pressed arm, an idle-roll mounted on said arm at one side of its pivot and yieldingly held against the feed-roll by said spring, a winding-roll mounted on said arm at the other side of its pivot, and a friction-roll also mounted on the said lever for imparting motion from the idle-roll to the winding-roll.

2. An apparatus of the character specified, comprising two feed-rolls, two independently-operating mechanisms therefor, one adapted to rotate one feed-roll in one direction, while the other is adapted to rotate the other feed-roll in the opposite direction, two spring-pressed arms each having at one end an idle-roll pressed yieldingly toward one of the feed-rolls and at the other end a winding-roll, and connections between the loose rolls and the winding-rolls, whereby each winding-roll is rotated simultaneously with the accompanying feed-roll, said connections having provision for making the other winding-roll loose.

3. An apparatus of the character specified, comprising in its construction, two feed-rolls rotatable only in opposite directions, a strip or band adapted to be moved in either direction by said feed-rolls, a roll for each end of the strip or band for winding up the latter thereon, means interposed between each of said feed-rolls and one of the winding-rolls for revolving the latter, and independent means for operating the said feed-rolls in opposite directions only.

4. An apparatus of the character specified, comprising in its construction a band or strip, two oppositely-rotatable rolls each adapted to move the band in only one direction, devices operated by the feed-rolls for winding up the ends of the said band or strip, and two separate means independent of each other, each for operating one of the feed-rolls and each in yielding engagement with its feed-roll and mounted on a separate shaft therefrom, and each consisting of a sleeve on the feed-roll shaft and provided with a pawl, a ratchet-wheel fast on the said shaft, a cord for rotating the sleeve on the shaft, and a spring having one end connected with the sleeve and the other end connected with the stationary framing.

586,088. INCUBATOR AND BROODER. WALTER P. JONES, Carlisle, Va. Filed Nov. 4, 1895. Serial No. 567,873. (No model.)



Claim.—1. An incubator or brooder comprising a closed chamber having a fresh-air inlet, means for heating the chamber, including a heating device and an exit-pipe connecting said chamber with the heating device whereby owing to the draft caused by such heating device a positive circulation of air within the incubator or brooder is produced substantially in the manner described.

2. An incubator or brooder comprising a closed chamber having a fresh-air inlet, means for heating the chamber and the fresh air before entering said chamber, and an exit-pipe connecting said chamber with said heating means whereby a positive circulation of air within said chamber is produced and the entrance of fresh air is controlled substantially as specified.

3. An incubator or brooder comprising a closed chamber, a heating device communicating with the upper part of said chamber, a fresh-air inlet also communicating with the upper part of said chamber whereby the fresh air is warmed before entering the chamber and an exit for vitiated air communicating with the heating device whereby owing to the draft caused by said heating device a positive circulation of fresh warm air within the chamber is produced substantially as in the manner specified.

4. In an incubator or brooder, a closed chamber, a water-reservoir, a fresh-air inlet passing through said reservoir, a water-heater communicating with said reservoir, a heating device for said heater and an air-conductor extending from said chamber and operatively connected with said heating device, substantially as specified.

5. The combination with the damper mechanism of an incubator or brooder, of a thermostat comprising two members, one of which is constructed to expand at a predetermined temperature and the other of which members is constructed to expand at a different degree of temperature substantially as described.

6. In an incubator, and in combination with the damper mechanism thereof, a thermostat comprising two members, each adapted to expand at a different degree of temperature from the other and both operatively connected with said damper mechanism; substantially as described.

7. In an incubator and brooder, the combination with a water-tank, of a water-heater made up of three concentric tubes, the intermediate and outer tubes being sealed at the top and bottom, and forming a closed chamber communicating with said tank, the inner tube being removable, adapted to rest upon a ledge projecting inwardly from said intermediate tube, perforated at intervals, and forming with said intermediate tube an annular flue for the escape of the products of combustion, a guide for said inner tube and a lamp or other heat-generating device discharging into the lower end thereof; substantially as described.

8. In an incubator and brooder, the combination with a water-tank, of a water-heater made up of three concentric tubes, the intermediate and outer tubes being sealed at the top and bottom and forming a closed chamber communicating with said tank, an annular disk or ledge secured to the lower end of said intermediate tube, the inner tube being removable, adapted to rest upon said disk or ledge, perforated at intervals and forming with said intermediate tube, an annular flue for the escape of the products of combustion, said flue being closed at its lower end, a perforated disk upon the upper end of said intermediate tube surrounding and forming a guide for said inner tube, and a lamp discharging into the lower end of the inner tube; substantially as described.

9. In an incubator and brooder having the usual egg or brooding chamber and a lamp for heating said chamber, the combination with means for admitting air to the chamber, of means for creating a suction from the chamber to said lamp to support the combustion thereof; substantially as described.

10. In an incubator and brooder having the usual egg-chamber and means for heating the egg-chamber, the combination with air-inlet supply-pipes for admitting air to the egg-chamber, of a discharge-pipe leading from said chamber, perforated arms rotatably connected to the inner end of said pipe, caps or collars fitting over the end of said arms and movable thereon, and means for creating a suction through said pipe; substantially as described.

11. In an incubator and brooder having the usual egg-chamber and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, and a suitable coupling connecting said discharge-pipe to a point adjacent to said lamp, whereby a suction is created through said pipe to the lamp to supply air to support the combustion of the said lamp; substantially as specified.

12. In an incubator and brooder having the usual egg-chamber and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, and a suitable coupling connecting said discharge-pipe directly to the lamp, whereby air to supply the combustion of the lamp is drawn from the egg-chamber; substantially as specified.

13. In an incubator and brooder having the usual egg-chamber and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, and a suitable coupling connecting said discharge-pipe with said lamp at a point between its oil-receptacle and the flame whereby air to supply combustion of the lamp is drawn from the egg-chamber; substantially as specified.

14. In an incubator and brooder having the usual egg-chamber and a lamp for heating the air in said chamber, the combination of means for admitting air to said chamber, means actuated by the burning of the oil in the lamp for creating a suction air from the chamber, and means for regulating the quantity of air drawn from the chamber to the lamp; substantially as specified.

15. In an incubator and brooder having the usual egg-chamber, and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, a suitable coupling connecting said discharge-pipe with said lamp, and a valve in said coupling, as and for the purpose set forth.

16. In an incubator and brooder having the usual egg-chamber, and a lamp for heating the air in said chamber, the combination of means for admitting air to said chamber, means actuated by the burning of the oil in the lamp for creating a suction of air from the chamber and from the outside of the machine to said lamp, and means for regulating the quantity of air drawn from said chamber; substantially as described.

17. In an incubator and brooder having the usual egg-chamber and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, a suitable coupling connecting said discharge-pipe with said lamp having an opening therein, and mechanism for covering and uncovering said opening, as and for the purpose set forth.

18. In an incubator and brooder having the usual egg-chamber, and a lamp for heating the egg-chamber, the combination with means for admitting air to the egg-chamber, of a discharge-pipe leading from the said chamber, a suitable coupling connecting said discharge-pipe with said lamp, having an opening therein, and a sleeve surrounding said coupling and movable thereon, for regulating the size of said opening, as and for the purpose set forth.

19. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat connected thereto, the same consisting of a pair of coacting, curved, hollow tubes containing an expansible substance; substantially as described.

20. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat connected thereto, the same consisting of a pair of expansible tubes, one of which becomes active at one degree of heat, and the other at a higher degree of heat, as and for the purpose set forth.

21. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat connected thereto, made up of a pair of curved, hollow tubes, each containing a substance expansible under the influence of heat, the substance in one of said tubes active at one degree of heat and that in the other active at a higher degree of heat, as and for the purpose set forth.

22. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat made up of a pair of coacting, curved, hollow tubes containing an expansible material, said tubes being secured at one end to a stationary part of the machine, and at the other to said damper-operating mechanism; substantially as described.

23. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat made up of a pair of coacting, curved, hollow tubes, elliptical in cross-section and containing a material expansible under the influence of heat, said tubes being secured at one end to a stationary part of the machine, and at the other end to said damper-operating mechanism; substantially as described.

24. In an incubator and brooder, the combination with damper-operating mechanism, of a thermostat made up of a pair of coacting sinuously-curved hollow tubes, elliptical in cross-section and containing a material expansible under the influence of heat, said tubes being secured at one end to a stationary part of the machine and at the other end to said damper-operating mechanism substantially as described.

25. In an incubator and brooder having a suitable heater, the combination with a lever carrying a damper for normally closing the main outlet for the products of combustion from said heater, and a bell-crank lever, one arm of which is connected to said lever, of a thermostat located in the interior of the machine, the same consisting of a pair of coacting, curved, hollow, tubes elliptical in cross-section, flexibly connected at one end to the other arm of said bell-crank lever, and at the other end to a stationary part of the machine in such a manner that at the joint or connection a slight lateral or downward movement is permitted, but a movement in the direction of the length of the tube is prevented, as and for the purpose set forth.

26. In an incubator, damper mechanism, comprising two dampers supported by a pivot common to both dampers, in combination with a thermostat, and suitable connections whereby a plurality of dampers are controlled by one thermostat; substantially as described.

27. Damper mechanism, for incubators, comprising a plurality of dampers supported by a pivot common to all dampers, a thermostat, and suitable damper-operating connecting devices; substantially as described.

28. In an incubator, the combination with the casing having a perforation in its side, of an egg-tray moving upon suitable ways in the interior of said casing, the said tray being made up of a frame composed of longitudinal and cross bars and a series of rollers rotatably mounted therein, disks having peripheral V-shaped grooves in them secured to the outer ends of said rollers and formed with pintles thereon adapted to fit recesses in the longitudinal bars of said frame, one of said pintles extending through said bar, formed with an angular recess therein and registering with the perforation in said casing, a cord encircling each of said disks and fitting the grooves therein, and a crank or key adapted to be inserted through the opening in said casing and to engage said recessed pintle, as and for the purpose set forth; substantially as described.

29. In an incubator and brooder having the usual water tank and heater, the combination with a water-pipe leading from said tank and an air-inlet pipe leading to the interior of the machine, of a moisture-pan, and means whereby said pan may be adjusted in juxtaposition to the entrance of the air-inlet pipe alone, at one time, and in juxtaposition to both the air-inlet and water pipes, at another time, as and for the purpose set forth.

30. In an incubator and brooder having the usual water-tank and water-heater, the combination with a return water pipe extending along the under side of the machine, and an air-inlet pipe whose outer end is adjacent thereto, of a moisture-pan, and means whereby said pan may be adjusted beneath the air-inlet pipe alone at one time, and beneath both the air-inlet and return-water pipes at another time, as and for the purpose set forth.

31. In an incubator and brooder having the usual water-tank and water-heater, the combination with a return-water pipe extending along the under side of the machine and an air-inlet pipe whose outer end projects beneath said machine, of two pairs of guideways secured to the under side of the machine between one of which pairs extends the lower end of said air-inlet pipe along, and between the other of which extend both the air-inlet pipe and the return-water pipe, and a moisture-pan adapted to fit and move in said ways, as and for the purpose set forth.

32. In an incubator and brooder, the combination with the casing, of a brooder-run attached to said casing communicating with the egg-hatching chamber thereof, the said casing being provided with an opening leading from said hatching-chamber into said run, and a plug for closing said opening, when desired; substantially as described.

33. In an incubator having the usual egg-chamber and egg-trays therein, the combination of a water-tank having water-legs depending downwardly therefrom and terminating at points in the plane with the egg-trays, and means for heating the water in said tank; substantially as described.

34. In an incubator and brooder having the usual egg-chamber, the combination of a suitable heater, an emergency-flue leading from the upper part of said egg-chamber, dampers for normally closing said emergency-flue, and the main outlet for the products of combustion from said heater, a single thermostat actuated by the rise of temperature in the egg-chamber, for first opening the damper of said heater, and afterward opening the damper of said emergency-flue, as and for the purpose set forth.

35. In an incubator and brooder having the usual egg-chamber, the combination of a suitable heater, an emergency-flue leading from the upper part of the egg-chamber, a lever, dampers carried by said lever for normally closing said emergency-flue and the main outlet for the products of combustion from said heater, the connection between said lever and the damper covering said emergency-flue providing for a slight degree of lost motion, and means actuated by the rise of temperature in the egg-chamber, for operating said lever and opening said dampers, as and for the purpose set forth.

36. In an incubator and brooder, the combination with the casing thereof having a port leading thereinto and a door opening into said casing, of means for automatically opening said port in the act of opening or closing said door, as and for the purpose set forth.

37. In an incubator and brooder, the combination with the casing thereof and a door opening into said casing provided with a port extending therethrough, of means for automatically opening said port in the act of opening and closing said door, as and for the purpose set forth.

38. In an incubator and brooder, the combination with the casing thereof and a door opening into said casing provided with a port extending therethrough, of means actuated by the opening or closing of said door for momentarily opening said port, as and for the purpose set forth.

39. In an incubator and brooder, the combination with the casing thereof and a door opening into said casing provided with a port extending therethrough, of a cut-off for normally closing said port, and means actuated by the opening or closing of said door for momentarily moving said cut-off out of the range of said port, as and for the purpose set forth.

40. In an incubator and brooder, the combination with the casing thereof, and a door opening into said casing provided with a port extending therethrough, of a cut-off for normally closing said port pivoted to the side of said door, a lock for said door, and connections between said cut-off and a movable part of said lock, as and for the purpose set forth.

41. In an incubator and brooder, the combination with the casing thereof, and a door opening into said casing provided with a port extending therethrough, of a cut-off for normally closing said port, pivoted to the side of said door and having bifurcated outer ends a spring-latch and its keaper for locking said door, and a projection on said latch engaged by the bifurcated ends of said cut-off, as and for the purpose set forth.

586,089. AUTOMATIC GAS-PRESSURE REGULATOR. ALFRED HALL, Chicago, Ill. Filed Feb. 12, 1897. Serial No. 623,136. (No model.)

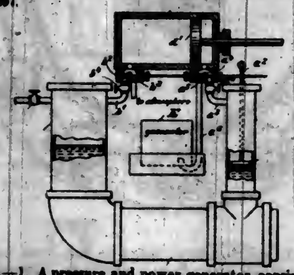


Claim.—1. In an automatic gas-pressure regulator, the combination of a shell or casing having internal screw-threads therein fitting over the outlet of a house gas-pipe and external screw-threads fitting into the screw-threads of a gas-tip, an upper and a lower chamber being formed in such casing, a diaphragm separating the chambers, with a depending cylinder on the under side of the diaphragm, a cross-opening in the cylinder, a piston having a downturned peripheral edge in the upper cylinder-chamber, a valve-stem depending from the piston and extending into the cylinder, with a valve at the lower end thereof fitting loosely in the cylinder, a hole in the piston to one side of the center, and a crowned diaphragm secured in the upper end of the casing with a central opening; substantially as described.

2. In an automatic gas-pressure regulator, the combination of a shell having internal screw-threads in the lower end thereof and external screw-threads on the upper end thereof, a diaphragm having a cylinder depending therefrom pressed into the shell and against a shoulder therein, a cross-opening in the cylinder, a piston in the shell above the diaphragm, such piston having downturned peripheral edges, a valve-stem depending from the piston, a valve in the cylinder on the lower end of the stem, such valve fitting loosely in the cylinder, and the piston to which the valve-stem is secured having an opening therethrough to one side of the center thereof, with a crowned diaphragm in the upper end of the shell, resting against a shoulder, with the beveled edge of the shell turned over on such crowned diaphragm, holding it in place.

REISSUES.

11,619. POWER AND HEAT GENERATOR. GEORGE WHITE, Jersey City, N. J., assignor to James B. Hatmaker, New York, N. Y. Filed Apr. 24, 1897. Serial No. 633,818. Original No. 575,819, dated Jan. 26, 1897.



Claim.—1. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, in the other of said reservoirs, substantially as described.

2. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, and means to expand the air thus condensed through an engine to operate the same from one side, and means to expand such gas thus generated through said engine from the other side, substantially as described.

3. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air into the other of said reservoirs and by the expansive property of the gas to condense air, and means to expand the air thus condensed through an engine, to operate the same from one side, and means to expand said gas thus generated through said engine from the other side, and to exhaust said gas from the engine into a gasometer, substantially as described.

4. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, in the other of said reservoirs, substantially as described.

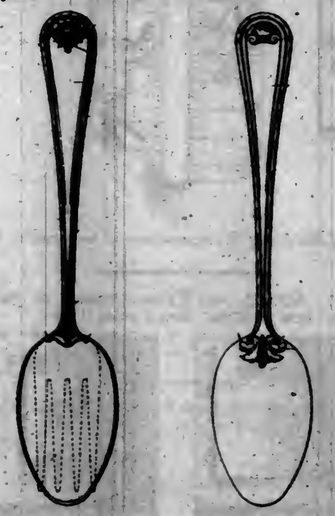
5. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air, and means to expand the air thus condensed through an engine to operate the same from one side, and means to expand such gas thus generated through said engine from the other side, substantially as described.

6. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a tubular connection between such reservoirs, with a hydraulic or equivalent balance interposed therein, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air into the other of said reservoirs, and by the expansive property of the gas to condense air, and means to expand the air thus condensed through an engine, to operate the same from one side, and means to expand said gas thus generated through said engine from the other side, and to exhaust said gas from the engine into a gasometer, substantially as described.

7. A pressure and power generator, consisting of a reservoir adapted to contain gas, in combination with a reservoir adapted to contain air, a balancing connection between such reservoirs, means to bring calcium carbid and water into contact within one of said reservoirs, and means to introduce air in the other of said reservoirs, and by the expansive property of the gas to condense the air in the other of said reservoirs, substantially as described.

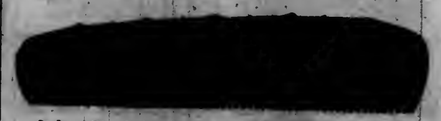
DESIGNS.

27,283. HANDLE FOR SPOONS, &c. EDWARD W. SCOTT, Attleborough, Mass., assignor to the Watson & Newell Company, Incorporated, same place. Filed May 26, 1897. Serial No. 638,168. Term of patent 14 years.



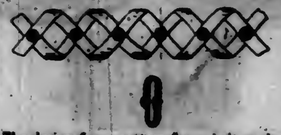
Claim.—The design for the handle of a spoon, fork, or similar article, herein shown and described.

27,284. COMB. JULIUS LIEBMANN, New York, N. Y., assignor to the Hannover Gummi-Kamm Company, Actien Gesellschaft, Hanover, Germany. Filed May 19, 1897. Serial No. 637,295. Term of patent 3½ years.



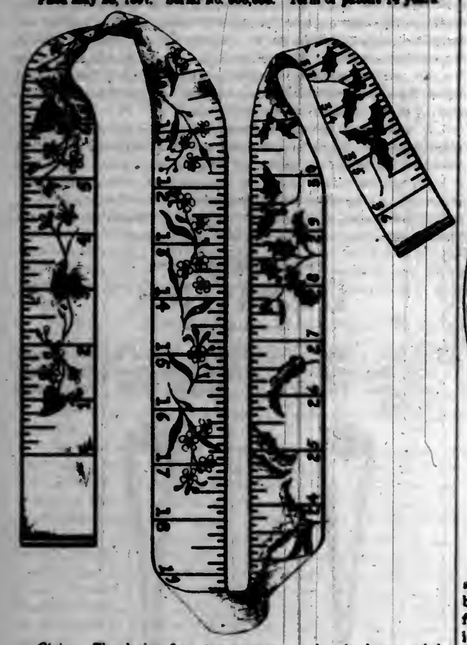
Claim.—The design for a comb, substantially as shown.

27,285. PATTERN FOR BELTS OR BANDS. WILLIAM C. ROSS, Newark, N. J. Filed Apr. 20, 1897. Serial No. 633,066. Term of patent 7 years.



Claim.—The design for a pattern for a belt or band as herein shown and described.

27,286. TAPE-MEASURE. ELLA G. BREWER, Brooklyn, N. Y. Filed May 28, 1897. Serial No. 638,632. Term of patent 14 years.



Claim.—The design for a tape-measure, as herein shown and described.

27,287. CONDUIT. JOHN W. KUEHLER, Pittsburg, Pa. Filed Mar. 13, 1897. Serial No. 627,452. Term of patent 14 years.



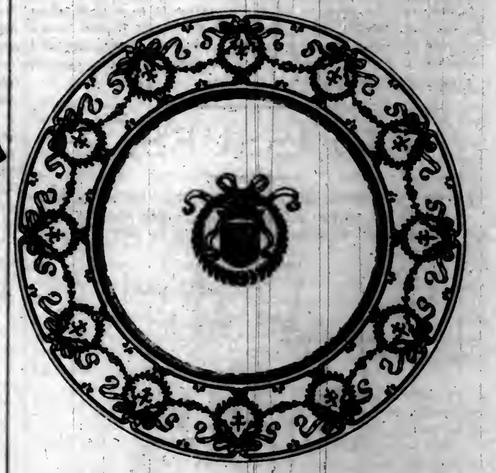
Claim.—The design for a conduit as herein shown and described.

27,288. GLASS VESSEL. DANIEL C. RIPLEY, Pittsburg, Pa., assignor to the United States Glass Company, same place. Filed May 20, 1897. Serial No. 638,513. Term of patent 3½ years.



Claim.—The design for a glass vessel substantially as herein shown and described.

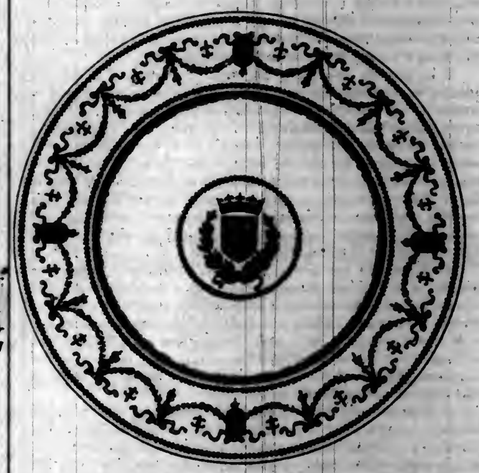
27,289. PLATE OR ANALOGOUS ARTICLE. LOUVIS S. IVERS, Malden, Mass., assignor to the Richard Briggs Company, of Massachusetts. Filed Jan. 14, 1897. Serial No. 619,265. Term of patent 7 years.



Claim.—1. In the decorative design for plates and analogous articles of crockery and porcelain ware, the border, comprising two border-lines broken at regular intervals and having between them festoons of flowers and leaves, tied with ribbons at the several breaks in the lines; wreaths of leaves held by the ribbons at the same points and a fleur-de-lis within the said wreaths, substantially as set forth.

2. The decorative design for plates and analogous articles of crockery and porcelain ware, comprising the ornamental border and coat of arms herein described and shown.

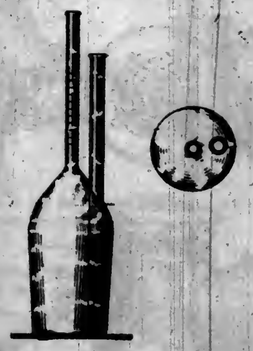
27,290. PLATE OR ANALOGOUS ARTICLE. LOUVIS S. IVERS, Malden, Mass., assignor to the Richard Briggs Company, of Massachusetts. Filed Jan. 14, 1897. Serial No. 619,266. Term of patent 7 years.



Claim.—1. In the design for plates and analogous articles of crockery and porcelain ware, a decorative border comprising two boundary-lines of leaves, festoons of flowers and leaves tied with ribbons, symmetrically arranged between said lines and shields placed at regular intervals over the festoons, substantially as set forth.

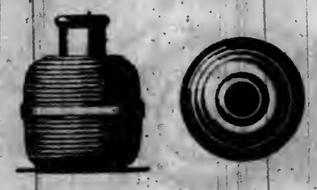
2. The decorative design for plates and analogous articles of crockery and porcelain, comprising the ornamental border and coat of arms herein described and shown.

27,291. BOTTLE. CLAY OSBORN, Newark, N. J. Filed Mar. 1, 1897. Serial No. 625,673. Term of patent 14 years.



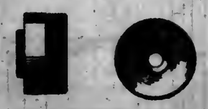
Claim.—The design for a bottle substantially as shown and described.

27,292. BOTTLE. FRANCIS M. UNDERHILL, New York, N. Y., assignor to Whittall, Tatum & Co., same place. Filed May 25, 1897. Serial No. 638,172. Term of patent 14 years.



Claim.—The design for a bottle, substantially as shown.

27,293. PILL CYLINDER-MOLD. CHARLES A. TATUM, New York, N. Y., assignor to Whittall, Tatum & Co., same place. Filed May 25, 1897. Serial No. 638,171. Term of patent 14 years.



Claim.—The design for a pill cylinder-mold, substantially as shown.

27,294. BOX. CHRISTIAN WILLIAM MEHRMER, Jersey City, N. J. Filed Mar. 25, 1897. Serial No. 629,282. Term of patent 14 years.



Claim.—The design for a box as herein shown and described.

27,295. FEATHER-DUSTER HANDLE. JOSEPH SPEKTORSKY, New York, N. Y. Filed May 29, 1897. Serial No. 638,816. Term of patent 7 years.



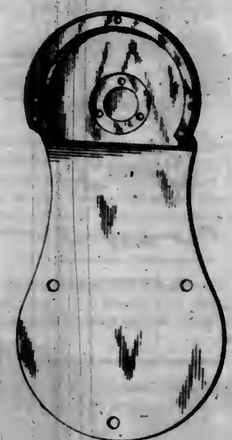
Claim.—The design for duster-handles herein described.

27,296. CAN-OPENER BLADE. ROBERT D. WEBB, Philadelphia, Pa. Filed May 26, 1897. Serial No. 636,636. Term of patent 7 years.



Claim.—The design for the blade of a can-opener, substantially as described and shown.

27,297. CASING FOR DOOR-HANGER FRAMES. DAVID HINKE, Morris, Ill. Filed May 17, 1897. Serial No. 636,997. Term of patent 7 years.



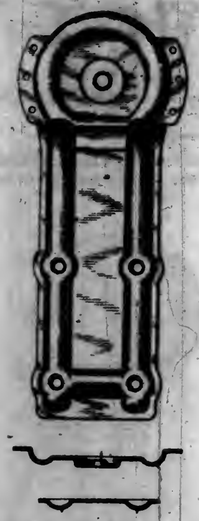
Claim.—The design for an outer casing for door-hanger frames; substantially as shown and described.

27,298. CASING FOR DOOR-HANGER FRAMES. DAVID HINKE, Morris, Ill. Filed May 19, 1897. Serial No. 637,294. Term of patent 7 years.



Claim.—The design for an outer casing for door-hanger frames, herein shown and described.

27,299. CASING FOR DOOR-HANGER FRAMES. GEORGE C. GARDNER, Chicago, Ill. Filed May 27, 1897. Serial No. 636,310. Term of patent 7 years.



Claim.—The design for an outer casing for door-hangers herein shown and described.

27,300. KNOB. ISAAC FINKELVER, New York, N. Y. Filed May 7, 1897. Serial No. 635,597. Term of patent 7 years.



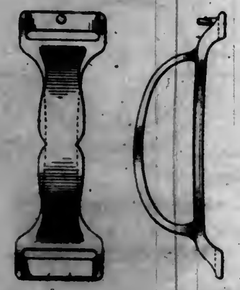
Claim.—The design for a knob, substantially as herein shown and described.

27,301. TOOL-HANDLE. JAMES SWAN, Seymour, Conn. Filed May 24, 1897. Serial No. 637,906. Term of patent 14 years.



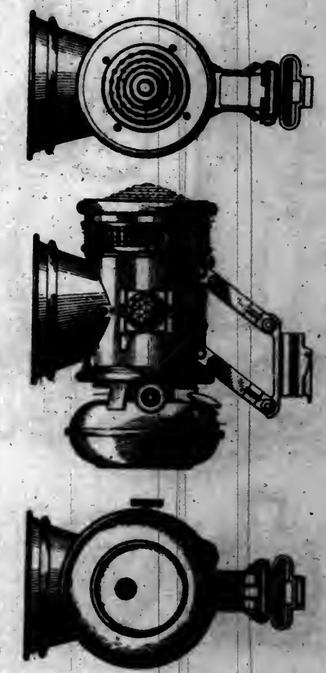
Claim.—The design for a tool-handle substantially as shown and described.

27,302. TRACE-SUPPORTER. ROBERT C. DARLEY, Macomb, Ill. Filed Jan. 18, 1897. Serial No. 619,699. Term of patent 7 years.



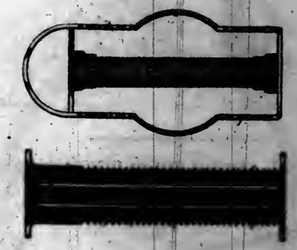
Claim.—The design for a trace-supporter as herein shown and described.

27,303. BICYCLE-LANTERN. FRANK THEODORE WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Apr. 20, 1897. Serial No. 633,054. Term of patent 3½ years.



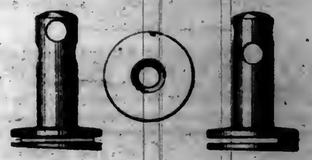
Claim.—The design for a bicycle-lantern as herein shown and described.

27,304. FOOT-REST FOR BICYCLE-PEDALS. JESSE T. HALL, Chicago, Ill. Filed May 6, 1897. Serial No. 635,430. Term of patent 14 years.



Claim.—The design for a foot-rest for bicycle-pedals, substantially as herein shown and described.

27,305. BAND-TIGHTENER FOR TIRES. FRANK B. GRISWOLD, Troy, N. Y. Filed Mar. 10, 1897. Serial No. 626,889. Term of patent 7 years.



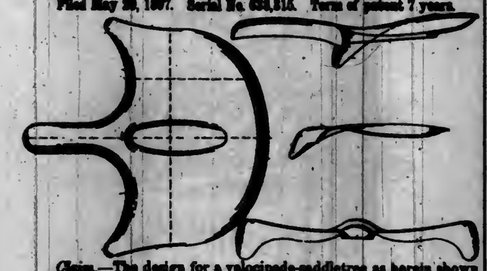
Claim.—The design for a band-tightener for vehicle-tires, substantially as shown and described.

27,306. CROWN FOR BICYCLE-FORKS. WALTER S. KING, Brooklyn, N. Y., assignor to the Phœnix Tube Company, same place and Jersey City, N. J. Filed May 19, 1897. Serial No. 637,209. Term of patent 7 years.



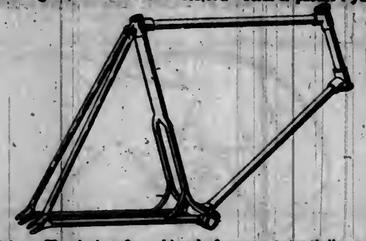
Claim.—The design for a crown for bicycle-forks, substantially as herein shown and described.

27,307. VELOCIPEDE-SADDLETREE. FRED KERN, Denver, Colo. Filed May 20, 1897. Serial No. 636,515. Term of patent 7 years.



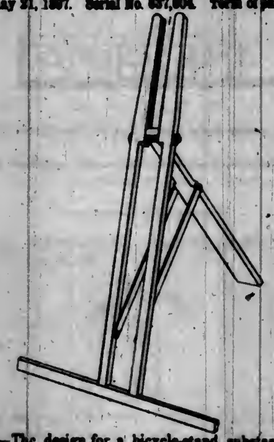
Claim.—The design for a velocipede-saddletree as herein shown and described.

27,308. BICYCLE-FRAME. ESBERT WHITWORTH, Lowell, Mass. Filed Aug. 12, 1896. Serial No. 602,674. Term of patent 7 years.



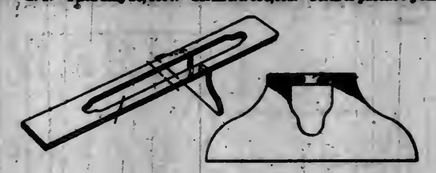
Claim.—The design for a bicycle-frame, substantially as herein shown and described.

27,309. BICYCLE-STAND. JAMES F. GROOMER, Buffalo, N. Y. Filed May 21, 1897. Serial No. 637,604. Term of patent 7 years.



Claim.—The design for a bicycle-stand, substantially as herein shown and described.

27,310. BICYCLE-SUPPORT. WILLIAM C. JIEDEMUS, Auburn, N. Y. Filed May 26, 1897. Serial No. 638,632. Term of patent 7 years.



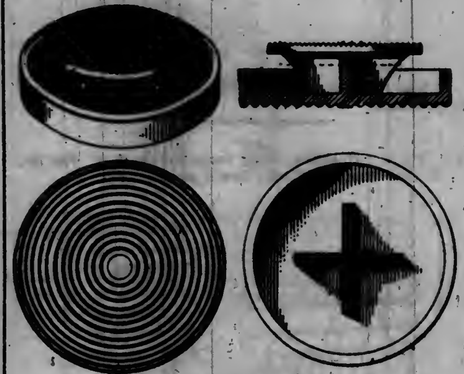
Claim.—The design for a bicycle-support, substantially as herein shown and described.

27,311. BRACKET. CHARLES A. BENSLEY, Providence, R. I. Filed May 20, 1897. Serial No. 637,455. Term of patent 3½ years.



Claim.—The design for a bracket for a towel-rack herein shown and described, comprising a perforated plate with parallel sides and curved ends, the two tongue-shaped openings *m*, *m*, therein, and the half-round bead or ridge on the edge of the plate throughout its extent, and the two perforated tongues extending from said plate at right angles therewith, substantially as set forth.

27,312. INSECT-GUARD FOR FURNITURE. JOHN CHARLES COLLINS, Galveston, Tex. Filed May 28, 1897. Serial No. 637,791. Term of patent 14 years.



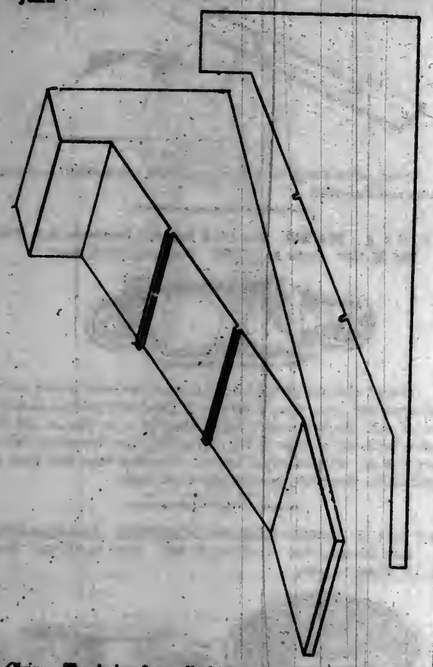
Claim.—The design for an insect-guard for furniture herein shown and described.

27,313. MILLINER'S DISPLAY-TREE. HARRY DOSSMER, Partridge, Kans. Filed May 20, 1897. Serial No. 637,456. Term of patent 7 years.



Claim.—A design for a milliner's tree as herein shown and described.

27,814. DISPLAY-STAND. WHITNEY MANUFACTURING BARRE, Waltham, Mass. Filed May 12, 1897. Serial No. 636,943. Term of patent 14 years.



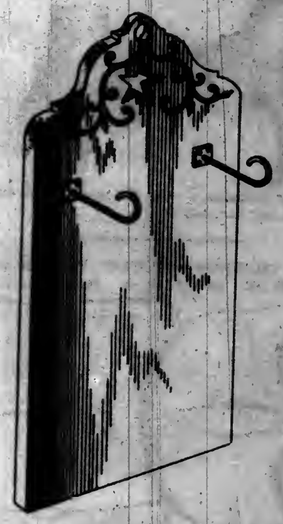
Claim.—The design for a display-stand, substantially as shown and described.

27,815. BEDSTEAD. JAMES GREEN, Brooklyn, N. Y. Filed May 17, 1897. Serial No. 637,060. Term of patent 3½ years.



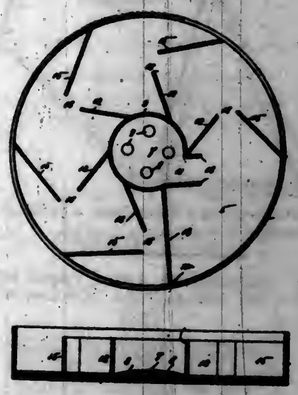
Claim.—The design for the head-board and foot-board of a bedstead, substantially as herein shown and described.

27,816. LETTER-FILE. JOHN KAUFFMANN, Wilkes-Barré, Pa. Filed May 25, 1897. Serial No. 636,161. Term of patent 14 years.



Claim.—The design for a letter-file, as herein shown and described.

27,817. PUZZLE-CASE. JAMES ARTHUR WILLIAMS, Essex, Conn. Filed May 11, 1897. Serial No. 636,103. Term of patent 3½ years.



Claim.—The design for a puzzle box or case herein shown and described.

TRADE-MARKS

REGISTERED JULY 6, 1897.

30,814. MEN'S HATS, OF FELT, SILK, AND STRAW. BENJAMIN P. HAWES, New York, N. Y. Filed Apr. 26, 1897.



Essential feature.—The words "HAWES GUARANTEED HAT," in combination with the figure of an eagle flying with wings outspread, the said word "HAWES" being in script and being a facsimile of the registrant's signature as used by him in his business. Used since July 1, 1896.

30,815. KNIT UNDERWEAR. CONTOOCOOK VALLEY COMPANY, Hillsborough Bridge, N. H. Filed May 22, 1897.



Essential feature.—A monogram comprising the letters "J B S." Used since 1896.

30,816. BICYCLE-SPROCKETS. J. B. TYLER SHEET COMPANY, Chicago, Ill. Filed May 24, 1897.



Essential feature.—The representation of a sprocket-wheel with the word "SPROCKET" extending across it. Used since December 1, 1896.

30,817. DRESS-LININGS. BRODERICK & WALTER, New York, N. Y. Filed May 26, 1897.



Essential feature.—The words "DRESS PERCALINE" in connection with a representation of a bear. Used since April 1, 1897.

30,818. DRESS-LININGS. BRODERICK & WALTER, New York, N. Y. Filed May 26, 1897.



Essential feature.—The word "PASSAIC" combined with a representation of a bear. Used since May 1, 1896.

30,819. FANCY LEATHER. GEORGE PLIMPTON & CO., Boston, Mass. Filed Mar. 16, 1897.



Essential feature.—A representation of an Indian's head. Used since May, 1896.

30,820. CHOCOLATE DROPS, CHOCOLATE CREAM DROPS, AND ANALOGOUS CONFECTIONERY. CEDAR RAPIDS CANDY COMPANY, Cedar Rapids, Iowa. Filed May 10, 1897.

ACME

Essential feature.—The word "ACME." Used since August 1, 1896.

30,821. CRACKERS, BISCUITS, CAKES, AND KINDRED ARTICLES OF FOOD. C. D. Bean & Son, New London, Conn. Filed June 12, 1897.

SOCIETY.

Essential feature.—The word "SOCIETY." Used since May, 1897.

30,822. CRACKERS, BISCUITS, CAKES, AND KINDRED ARTICLES OF FOOD. C. D. Bean & Son, New London, Conn. Filed June 12, 1897.

VACATION.

Essential feature.—The word "VACATION." Used since June, 1896.

30,328. CRACKERS, BISCUITS, CAKES, AND KINDRED ARTICLES OF FOOD. C. D. Bess & Son, New London, Conn. Filed June 12, 1897.

SEASIDE.

Essential feature.—The word "SEASIDE." Used since 1890.

30,324. CRACKERS, BISCUITS, CAKES, AND KINDRED ARTICLES OF FOOD. C. D. Bess & Son, New London, Conn. Filed June 12, 1897.

OCEAN SPRAY.

Essential feature.—The words "OCEAN SPRAY." Used since 1890.

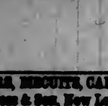
30,325. CRACKERS, BISCUITS, CAKES, AND KINDRED ARTICLES OF FOOD. C. D. Bess & Son, New London, Conn. Filed June 12, 1897.

CLOVER CREAM.

Essential feature.—The words "CLOVER CREAM." Used since January, 1897.

30,326. BAKING-POWDER. HAYS & MCCORD MERCANTILE COMPANY, St. Joseph, Mo. Filed June 10, 1897.

CLOVER LEAF



Essential feature.—The words "CLOVER LEAF" or the figure of a clover-leaf. Used since February 1, 1897.

30,327. CORN-FLOUR AND CORN-STARCH AND LAUNDRY STARCH. THE NATIONAL STARCH MANUFACTURING COMPANY, Covington, Ky., and New York, N. Y. Filed July 13, 1896.

DURYEA

Essential feature.—The word "DURYEA." Used since 1856.

30,328. WHEAT-FLOUR. THE GRAHAM & BLACK CO., Lancaster, Ohio. Filed May 27, 1897.

FOREST ROSE

Essential feature.—The words "FOREST ROSE." Used since January 1, 1877.

30,329. BUTTER. ELGIN CREAMERY COMPANY, Chicago, Ill. Filed June 10, 1897.

PINE APPLE



Essential feature.—The word "PINEAPPLE" and a representation of a pineapple. Used since May 1, 1897.

30,330. COLORS, ESPECIALLY ULTRAMARINE-BLUE. DUCHAMPS FRÈRES, Vieux Jeandheurt, France. Filed May 13, 1897.



Essential feature.—The letters "D" and "F" and a double cross. Used since 1878.

30,331. ALIZARIN COLORS. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Apr. 2, 1897.

DIAMOND BLACK BAYER

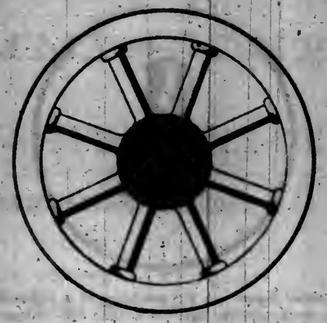
Essential feature.—The words "DIAMOND BLACK BAYER." Used since January 1, 1895.

30,332. OILS FOR USE UPON WOOL AND OTHER LIKE FIBERS. VACUUM OIL COMPANY, Rochester, N. Y. Filed June 5, 1897.

SAPOLINE.

Essential feature.—The word "SAPOLINE." Used since September, 1888.

30,333. DRY AND PULP PIGMENTS FOR PAINTS. A. & ANN BAUMER & Co., New York, N. Y. Filed Apr. 14, 1897.



Essential feature.—A representation of a wheel. Used since March 1, 1897.

30,334. DRY FINE POWDER FOR POLISHING METAL. BOSTON ROUGE, New York, N. Y. Filed Apr. 16, 1897.

BRILLANTINE

Essential feature.—The word "BRILLANTINE." Used since January 1, 1886.

30,335. CEMENTS. HASKELL & GILLESPIE, New York, N. Y. Filed May 20, 1897



Essential feature.—A likeness of Bismarck and the words "BISMARCK BRAND." Used since May 7, 1897.

30,336. REMEDIES FOR HEADACHE, NEURALGIC OR RHEUMATIC PAINS, AND NERVOUS DISEASES. CEPHALOGENE Co., Spencer, Mass. Filed June 9, 1897.

CEPHALOGENE

Essential feature.—The word "CEPHALOGENE." Used since January, 1875.

30,337. REMEDIES FOR DYSPEPSIA AND DERANGEMENTS OF THE STOMACH AND BOWELS. DR. JAMES WARE REMEDY CO., Lake Charles, La. Filed May 26, 1897.

WARE'S

Black Powder.

Essential feature.—The words "WARE'S BLACK POWDER." Used since January 1, 1891.

30,338. PHARMACEUTICAL PREPARATIONS FOR THE CURE OF CHLOROSIS AND ALL FORMS OF ANÆMIA. JOHANN HEIL STROSSMER, Berlin, Germany. Filed Jan. 13, 1897.

SPINOL

Essential feature.—The word "SPINOL." Used since May 1, 1896.

30,339. LAXATIVE MEDICINE. THE GEYSER CHEMICAL CO., Brooklyn, N. Y. Filed May 20, 1897.

GEYSER CRYSTALS



Essential feature.—The compound word "GEYSER-CRYSTALS" and a representation of a geyser in action. Used since May 1, 1896.

30,340. PILLS. FRANK M. BLANEY, Baltimore, Md. Filed May 20, 1897.



Essential feature.—A representation of globular bodies piled in the form of a pyramid, with the letters "F. M. B.'s" printed on the three topmost globular bodies and the words "ACME PILLS" on the two lowermost rows, each of the letters being on a separate globular body. Used since April 10, 1897.

30,341. PILLS, OINTMENTS, AND TABLETS, AND REMEDIES FOR CATARRH AND FEMALE TROUBLES. CHARLES A. BERRY and RASCOE H. BERRY, Chicago, Ill. Filed Apr. 20, 1897.



Essential feature.—The word "ZEBRO" and a representation of a zebra. Used since October, 1896.

30,342. SALVE. GEORGE C. WILSON, Tyrone, Pa. Filed June 1, 1897.

CLOVERINE

Essential feature.—The word "CLOVERINE." Used since September 8, 1896.

30,343. HAIR TONIC. GOLDE MUDGE, New York, N. Y. Filed May 20, 1897.

CANOCIDA.

Essential feature.—The word "CANOCIDA." Used since May 1, 1897.

80,844. BANDAGING MATERIAL FOR USE IN DRESSING WOUNDS, SORES, &c. VEREINIGTE CHEMISCHE-WAARDEN-FABRIKEN HARBURG-WIEN, VORMALS MENDEL-J. H. ERLENMEYER, Harburg-on-the-Elbe, Germany. Filed June 7, 1897.

Mesotig Battist

Essential feature.—The words "MESOTIG BATTIST." Used since January 26, 1896.

80,845. BICYCLES. Otto Kaemmlow, Cleveland, Ohio. Filed June 11, 1897.



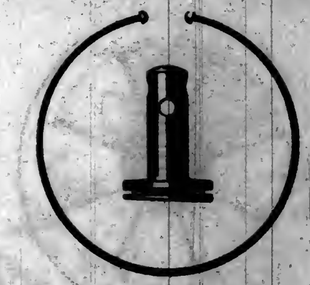
Essential feature.—The letters "O K." Used since September 1, 1896.

80,846. BICYCLES. JOHN WANAMAKER, Philadelphia, Pa. Filed Aug. 5, 1896.

JOHN WANAMAKER
CONTINENT
PHILADELPHIA

Essential feature.—The word "CONTINENT," with the name "JOHN WANAMAKER" above and the word "PHILADELPHIA" below said word "CONTINENT" on a convex and concave line, respectively. Used since March 1, 1896.

80,847. BICYCLES AND LIKE VEHICLES AND APPURTENANCES. FRANK P. CROWELL, Troy, N. Y. Filed Mar. 10, 1897.



Essential feature.—A representation of a tightener in outline inclosed by the circular figure of a band with buttons on the ends thereof. Used since February 10, 1897.

80,848. GRADING AND DITCHING MACHINES. FREDERICK C. AUSTIN, Chicago, Ill. Filed May 10, 1897.

NEW ERA

Essential feature.—The words "NEW ERA." Used since January 1, 1880.

80,849. BRASS, WOOD, OR LIKE WIND MUSICAL INSTRUMENTS. BESSON & COMPANY, LIMITED, London, England. Filed June 9, 1897.

CHICAGO
BORE

Essential feature.—The word "CHICAGO," combined with and in conjunction with the word "BORE." Used since August, 1893.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE SANCHE.

Decided June 15, 1897.

1. PATENTABILITY—DEGREE OF UTILITY.

The degree of utility of a device is unimportant in determining whether a device be patentable. If the invention is not frivolous or prejudicial to the public and has any degree of usefulness, no matter how slight the practical utility, then within the meaning of the law it is useful and may be patented.

2. SAME—SAME—PATENT OFFICE ARBITRARILY DETERMINING—THEORY.

The degree of utility is not a question for the Patent Office to arbitrarily determine. The mere assertion of theorists that they do not believe that a device possesses utility cannot prevail against the evidence of reliable witnesses who have by tests demonstrated that it does possess such utility as is claimed for it.

ON rehearing.

METHOD OF AND APPARATUS FOR TREATING DISEASES.

Application of Hercules Sanche filed October 27, 1887, No. 253,491.

Mr. J. L. Norris for the applicant.

BUTTERWORTH, *Commissioner:*

This is a rehearing of the question of passing the above-entitled application to issue.

The claims of the application as filed were as follows:

1. The method herein described of affecting the vital functions of the body in the treatment of disease, which consists in imparting to the body a polarity different from that indicated by the disease, substantially as set forth.

2. The method herein described of establishing within the animal body a definite electrical polarity of either quality, which consists in making a conductive electrical connection between the person and a remote body of matter of much higher or lower temperature than surrounding objects, the said body of matter being removed from range of direct heat conduction or radiation, substantially as and for the purpose described.

3. The combination with one or more metal cylinders O^4, of an electric wire or tinsel cord attached to the cylinder, a conductive pad W connected electrically to said cylinder by the cord and provided with tie-strings f^1 f^2, the said pad serving as a connecting-pad for the body of the patient, and also a jacket for inclosing the cylinder when not in use, substantially as shown and described.

On January 31, 1888, these claims were rejected by the Primary Examiner for the reason that—

the apparatus must if operative at all be subject to the laws of electricity, or of some other force, it is not at all satisfactory to present it as an electrical apparatus, and at the same time to say that it is not subject to ordinary electrical laws, as has been practically done. It is not admitted that the body is a magnet or subject to the laws of magnetism, and if it were, the apparatus described would have no influence upon it.

The numerous affidavits which have been filed relate to the treatment described in another application and have no bearing on the present case, and in any event affidavits of the patients would not demonstrate the operativeness of the apparatus as an electrical device.

On appeal to the Examiners-in-Chief this rejection was affirmed on March 27, 1888. On appeal to the Commissioner the decision of the Examiners-in-Chief was affirmed by the Assistant Commissioner on March 24, 1892. On February 27, 1893, a motion was made for a rehearing of the decision of the Assistant Commissioner, one of the grounds for the motion being—

that certain affidavits in the case showing the invention to be operative appear to have been overlooked or not considered in determining the question on appeal,

Accompanying the motion was a proposed amendment canceling the appealed claims and substituting therefor two others, the first of which was for—

the method of artificially producing beneficial influence in living organisms, etc.—

and the other for—

the clinical instrument comprising a contact-plate, etc.

On March 1, 1893, the Commissioner granted the motion and reversed the decision of the Examiners-in-Chief, on condition that all the claims be canceled and that the second proposed claim be substituted therefor. On March 8, 1893, an amendment was filed to comply with this decision of the Commissioner. On March 18, 1893, the Examiner called the Commissioner's attention to certain patents and asked if he was at liberty to reject the claim upon these references. On March 22, 1893, the Commissioner instructed the Examiner that—

the references cited herein have been examined and are held not to anticipate the claim heretofore approved by the Commissioner.

Thereupon the application was, on March 25, 1893, passed to issue on the claim which reads as follows:

The clinical instrument comprising a contact plate or member adapted to be attached to the body to be treated, a second plate or member adapted to be placed in or under the influence of a temperature higher or lower than the body to which the other plate is attached, or under the influence of matter which is electropositive or electronegative to the body having said other plate or member attached to it, and a flexible conducting or transmitting medium connecting said two plates or members, said medium being of a relatively small size to said plates or members and of a length sufficient to permit said two plates or members to be placed at such distances apart that the body having one plate or member attached thereto will be removed beyond the range or influence transmitted by direct radiation, conduction, or contact from said other plate or member, substantially as described.

On July 10, 1893, the Commissioner gave instructions that—

this case is withdrawn from the issue and remanded to the Primary Examiner for further consideration and to enable him to cite to the applicant the references mentioned in his letter to the Commissioner of March 18, 1893. For this purpose the order of the Commissioner, dated March 22, 1893, is suspended.

On December 12, 1893, the Assistant Commissioner rendered the following decision:

The above-entitled case has been brought to my attention by the Primary Examiner, it having been rejected by him and allowed by the Commissioner.

At the hearing of this and kindred applications by the same inventor various affidavits were offered and much evidence adduced to show that this and similar devices had proved beneficial in cases of illness.

While I do not doubt the sincerity of the persons who made the affidavits, I feel that I could not conscientiously sign the patent, if it were allowed and offered for signature.

The Examiner is, therefore, directed to refuse to allow the application.

On February 2, 1895, the Assistant Commissioner rendered a decision on a petition for rehearing and rejected the claim on the ground of inoperativeness.

Again, on March 22, 1897, a decision was rendered on a request for a rehearing. The language of this decision is as follows:

After a careful re3xamination and consideration of the arguments and evidence presented, my conclusion is unchanged; that is, that the invention is not "sufficiently useful and important" to warrant the grant of a patent. (Section 4892 of the Revised Statutes.)

The novelty of the apparatus is admitted, and the affidavits and testimonials presented, together with unsolicited reports that have come to me, leave no doubt in my mind that the use of the apparatus has in some way benefited some of the persons who have tried it. I am still of the opinion, however, that the favorable results obtained were due largely, if not wholly, to the imagination of the patient. It is a common practice among physicians to administer bread pills in certain cases, and the wearing of an iron ring upon the finger or the carrying of a potato in the pocket is regarded by hundreds of people as a certain cure for rheumatism. Scores of similar remedies could be referred to, all of which depend for their efficacy upon the power of the imagination. The present application, in my opinion, is of this description. I could not conscientiously sign a patent for the apparatus in question.

The former decision is adhered to.

Among other reasons given by the applicant for rehearing the former decisions are these:

First. The Assistant Commissioner erred in said decision in stating that after the examination and consideration of the arguments and evidence presented his opinion was unchanged; "that is, that the invention is not 'sufficiently useful and important' to warrant the grant of a patent," whereas in all previous decisions of the said Assistant Commissioner of Patents the ground of objection was not that the invention was not sufficiently useful and important, but on the contrary was on the ground that the invention was inoperative.

Fourth. The admissions of the Assistant Commissioner of Patents in his said decision of March 22, 1897, that the apparatus covered in this application is novel and undoubtedly useful and beneficial constitute in themselves the very best reason for an allowance of the application and the issuance of a patent thereon.

Fifth. The opinion of the Assistant Commissioner of Patents that the favorable results which he admits were obtained by the applicant's apparatus are due largely, if not wholly, to the imagination of the patient, are unfounded and are given no basis in the decision, either in reason or evidence, and even if it had basis, it is immaterial.

From the history of this case I take it that there is no question about the novelty of the device claimed; that it has been useful to some extent, and that it has benefited at least some of the persons who have used it. The sole ground for withholding the case from the issue-files seems to be that the device is not sufficiently useful and important under the statute to warrant the granting of a patent.

It seems to be well settled by all the authorities that the degree of utility of a device is unimportant in determining whether the device be patentable. (Rob. on Pats., sec. 841, and cases cited in note thereto.) Judge Treat in the case of *Westlake* v. *Carter* (4 O. G., 636, 637) said:

If the invention is not frivolous or prejudicial to the public, and has any degree of usefulness—no matter how slight the practical utility—then, within the meaning of the law, it is useful, and consequently not void for lack of utility.

The degree of utility is not a question for the Patent Office to arbitrarily determine. The mere assertion of theorists that they do not believe that a device possesses utility cannot prevail against the evidence of reliable witnesses who have by tests demonstrated that it does possess such utility as is claimed for it. Where there is doubt as to the utility of a device, the Office may resort to evidence to remove that doubt. There seems to be abundance of evidence in this case that the device here claimed is useful for the purpose set forth in the specification. Many affidavits of users who have been beneficially treated by the device under consideration and of reputable physicians setting forth that they know that the device in question is useful as a curative agent in different diseases are before me. In the face of this evidence to say that the device is worthless or not sufficiently useful as a curative agent is not defensible.

To the reason for refusing a patent on the ground that the results obtained are due largely, if not wholly, to the imagination of the patient reference may be made to what was said in the case of *ex parte Kram*, (26 MS. Dec., 424, 428,) where the same question was under consideration:

If some scientist will devise some way or means of working on the imagination so as to cure physical disease, he will be a public benefactor, and this Office will be prompt to issue a patent to protect him in the enjoyment of his invention or discovery, if it has the element of novelty. For we may be thus able to dispense, in part at least, with the nauseating decoctions that are now presented to our lips whenever we are ailing.

It is thought that this claimant is justly entitled to a patent under the law, and the decisions heretofore rendered denying him a patent are set aside.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of Ohio, Western Division.

POTTS & CO. *v.* CREAGER *et al.*

Decided November 23, 1896.

1. POTTS—CLAY-DISINTEGRATOR—VOID.

Letters Patent No. 322,393, granted July 14, 1885, and No. 368,898, granted August 23, 1887, both to C. and A. Potts, examined and in view of the prior art *Held* void for want of novelty.

2. PATENTS—INVENTION—ADAPTATION TO NEW USE.

Where the disintegration and shredding of clay had been accomplished by means of bars running across the face of rollers, *Held* that no invention was involved in adapting a mill for grinding or grating apples to the purpose of disintegrating and shredding clay, where the only change required was the substitution of bars of steel running across the face of the roller, parallel with the axis, in place of rows of thick steel knives.

ON rehearing.

STATEMENT OF THE CASE.

This is a suit in equity by C. & A. Potts & Co. against Frank F. Creager and others for alleged infringement of Patents No. 322,393, issued July 14, 1885, and No. 368,898, issued August 23, 1887, both to C. and A. Potts, for improvements in clay-disintegrating machines. This court originally entered a decree dismissing the bill, (44 Fed. Rep., 680;) but, on appeal to the Supreme Court, the decree was reversed and the cause remanded, with directions for further proceedings in accordance with the opinion there rendered. (70 O. G., 494; 15 Sup. Ct., 194; 155 U. S., 597.) On the coming down of the mandate this court entered an interlocutory decree awarding an injunction and an accounting. Thereafter complainants filed a petition for leave to file a supplemental bill to bring in newly-discovered evidence and for a rehearing. The petition for rehearing was granted, (71 Fed. Rep., 574,) and the cause has been accordingly reheard upon new evidence.

Mr. Chester Bradford and *Mr. E. W. Bradford* for Potts.

Messrs. Wood & Boyd for Creager.

SAGE, *J.*:

The question for decision upon rehearing is whether the prior patents and prior uses which are now for the first time presented to the court anticipate the complainants' patent. The only question which the court is at liberty to consider is whether the new evidence makes it clearly apparent that if it had been in the record when the case was before the Supreme Court the decision of the lower court dismissing the bill would have been affirmed. The testimony will be considered, keeping in mind that in granting the motion for rehearing the court said:

The opinion of the Supreme Court will, of course, be recognized as the law of the case; and unless the defendants, upon the matters suggested in the application for rehearing, can make a case radically different from that presented to the Supreme Court the rehearing will not avail. With this understanding and qualification the petition for rehearing will be allowed.

Considering, first, the alleged prior uses in the order in which they appear in the brief for the defendants, the Moore disintegrator was used at Elizabethport, N. J., in 1878 and for five years thereafter to grind clay for brick-making. It was provided with two sectional rolls of equal size. Each section had a set of teeth along the entire circumference, equidistant from the sides, and had also a smooth surface. The width of the teeth was one-half the width of the section, the remaining portion of which constituted the smooth surface. The teeth of each roll meshed against the smooth surface of the other roll, leaving a space of three-eighths of an inch between the smooth surface and the end of the teeth. These rolls were on shafts provided each with a gear-wheel, one of which was smaller than the other in order to obtain a differential speed of the two rolls. The clay was fed as it came from the clay-bank, and by being passed through the machine was cut in shreds about an inch wide and three-eighths of an inch thick and about two inches long. The clay then went through a pug-mill and from the pug-mill into the brick-machine. The capacity of each machine was one hundred tons of clay per day. This disintegrator establishes that the inventors of the complainants' patent were not pioneers in the art of disintegrating clay, as distinguished from crushing and grinding. The witness Rossi, who testifies to the Moore disintegrator, states also that while at the Elizabethport factory—that is, between 1878 and 1883—he had a disintegrator constructed. They had in use at the factory a pair of smooth rollers to grind the clay, and the lumps did not feed through. The engineer, by direction of the witness, who was superintendent of the manufacturing company, cut grooves on the face of each roller and inserted steel bars, so that as they struck the lumps of clay they kept them from sliding back. There were three bars for each roll. The rolls were fourteen inches in diameter and eleven and twelve inches long. The grooves were so cut that the bars were extended spirally across the face of the roller. These bars fed the clay through. The clay was cut into shreds, and from the rolls it went into the pug-mill. It was not treated any after it was taken from the bank and before it was passed through the rolls, which were in use about six months. When the company failed, they were disposed of with the machinery, which was sold at auction. "The most of it went for old iron."

The witness states that the arming of the smooth rolls with the square steel bars was suggested to him by the fact that when he was a young man his father owned a cider-mill, and the apples were ground by a roller which had steel plates inserted in grooves cut upon its face and ground the apples against a smooth stationary surface. In the clay-rolls one side of the groove was dovetailed and the other side straight, and the bars which he had caused to be constructed were driven from one end of the roller to position in the groove and held at the ends by screws. The bars projected beyond the face of the roll in which they were set at least three-eighths of an inch, and three-fourths of an inch from the face of the opposite roll. The testimony is that this disintegrator operated to cut the clay into shreds.

Upon cross-examination it was brought out that the witness made an affidavit, which was produced by complainants, in which he stated that the Moore machine was so geared that one of its rolls made about seventy-five and the other about ninety revolutions per minute; that stones passed through it; that it was used to break up the large clods or lumps before putting the clay into the soak-pit, where it was left to absorb water and disintegrate, after which it was run through smooth rolls to separate or crush the stones, then through a pug-mill, and thence to a brick-machine; that, moreover, the machine was a failure at first, because in twelve or fifteen revolutions of the rolls it would become clogged and "stalled;" that they afterward succeeded in providing a series of scrapers or cleaners, which when attached to the machine operated to prevent the clogging. He further stated that the machine had been discarded and another machine substituted.

The witness also testifies that he used a Watson machine for disintegrating. This machine was built in January, 1881, by Thomas Lingle, as appears from the testimony. It differs from the Moore machine in that the teeth are round and set in rows, projecting about an inch beyond the face of the roll, the rows on one roll working between the rows of its companion roll, the cylinder between the rows forming the abutment. This machine was used by the Watson Company for several years, and then for several years by the witness, who bought it from them. Rossi in the affidavit above referred to stated that after the clay was passed through the Watson machine it was run through a pair of small rolls, then through a pug-mill, and then to the brick-machine; that it was run through the small rolls, which were smooth, to rid it of stones, which passed through the Watson machine and had to be separated from the clay before the clay was put into the brick-machine; that one of the rolls in the Watson machine made about seventy-five revolutions per minute and the other about ninety, and that that machine was

also discarded and replaced by other machines. That the Moore machine and the machine which the witness Rossi had constructed and which he used at Elizabethport accomplished the shredding of clay is established by the testimony. What bearing that fact should have in this case will be considered later on.

The next alleged prior use is the mill devised by George Archenbronn, and constructed at Jackson, Mich., under his supervision in September, 1881, for grinding apples. It was provided with a cylinder-shell of one-fourth-inch thickness, eleven inches in length, by twelve inches in diameter. It had four concaves arranged to be pressed against the cylinder by levers and weights. There were eight knives fitted in the cylinder, each eleven inches in length by three-sixteenths of an inch thick. They projected beyond the face of the cylinder three thirty-seconds of an inch, were held in position by two rings on the outside of the cylinder, one at each end, and adjusted by set-screws, one underneath each knife. The mill would grind one hundred bushels of apples in ten minutes. The roll was driven at a speed of about two thousand revolutions per minute. The concaves were hinged on an axle against a weighted arm to hold them up to the cylinder. The weighted arm was swung on a bolt which acted as a pivot, so regulated by the weight as to allow hard substances coming in contact with the cylinder to pass through. It is in testimony that the Archenbronn roll would be appropriate for the reduction of clay if used in a properly-constructed machine, and that it suggested to McKinley the idea of using it in a clay-machine, and McKinley communicated this suggestion to John S. Smith, who on May 26, 1886, made an application for a patent for an improvement in clay-disintegrators (Serial No. 202,957) which were provided with two rolls or "roll crushers," to use his own expression, one large and one small roll, the small roll armed with steel bars and the two running at differential speed. His testimony is that he commenced making the model (one-third the size of the working machine) in June, 1885, and went to work constructing the large machine in the fall of that year. The model was first tried without the steel bars and did not prove satisfactory, and he put bars on the small roll and the machine worked all right. He ran the small roll at about one thousand and the large roll at about one hundred and fifty revolutions per minute. By experiments it was ascertained that the high speed kept the small roll clean from plastic clay by centrifugal force, while a low speed would allow the clay to stick to and clog the roll. In 1887 he sold his invention to the complainant company for $350, conceded to them priority of invention, and withdrew his application for a patent in their favor. The machine shown in complainants' first patent was constructed early in 1884, while the double-roll machine, or the machine described in the second patent, was devised and experimented with in the early summer of 1885. Smith's date for the beginning of the construction of his model is June, 1885, and of the full-sized machine is in the fall of that year. But it appears from his testimony that the model was first tried without the steel bar and did not prove satisfactory, and then the bars were put on and the machine was all right. Taking this testimony altogether it is not sufficient to establish anticipation of either of complainants' patents, and it may be dismissed from further consideration.

We come now to the patents for the disintegration of clay and other analogous substances set up in the defendants' petition for rehearing. The first is the patent to Gregg, 1867. This shows two conical smooth rolls, which revolve at differential speed, breaking and disintegrating the clay subjected to their action.

The next was granted to Thomas Mills and George M. Mills, June 10, 1873, for an improvement in machines for granulating cocoanuts and other like substances by the combined action of a toothed cylinder, a grooved plate, and a toothed roller. The "disintegrating-cylinder," as it is termed in the specification, is secured to a shaft and situated between vertical plates, the ends of the cylinder revolving in such close contact with the plates that no granulated material can pass between them. In grooves in the circumference of the cylinder and parallel with the line of the shaft are secured, at equal distances apart, bars having triangular teeth, which project from the face of the cylinder, and as the latter revolves these teeth pass through angular grooves formed in the upper edge of an inclined plate secured to the lower frame of the machine. The angular grooves in the plate correspond in number and shape with the teeth which pass close to the plate without being in absolute contact therewith. The toothed roller is a feed-roller grooved both circumferentially and in a direction parallel with its axis, so that its entire surface is studded with small pointed teeth, as shown in the drawings. This roller is actuated by the wheels shown in the drawings or by any other system of gearing revolving in the direction opposite to that of the disintegrating-cylinder, but at a much slower speed. The kernel of the cocoanut broken into nuts and placed in a hopper suitably located is fed to the machine and carried by a feed-roller to the revolving cylinder, the teeth of which scrape away the kernel and impel the pieces downward until they are arrested by the inclined plate above described, through the grooves of which the teeth of the cylinder must pass, and consequently further disintegrate the pieces of kernel already torn from the lumps in the hopper. The inventor states in the specification that the disintegration of the kernel is accomplished partly by the preliminary scraping action of the teeth of the cylinder on the lumps or kernel as they are slowly fed to it and maintained in contact by the slowly-revolving toothed roller and partly by the combined action of the teeth of the cylinder and the recessed inclined plate, the efficiency of this action being insured by the presence of the feed-roller, which maintains the partially-disintegrated kernel in a

position to be acted upon by the teeth of the roller in connection with the inclined plate.

The Gregg patent, dated April 17, 1879, for an improvement in disintegrating devices for pulverizing clay for brick-making, is next shown. The specification states that the apparatus is designed to provide improved means for thoroughly crushing and disintegrating clay and convert it to the proper condition for being supplied to the molds. The improvement consisted in the combination, with a pair of crushing-rollers, of a rotating brush or shaft armed with a series of flexible blades and placed beneath the rollers, so as to act upon the clay passing between them, as set forth. The rollers shown in the drawings are tapered or conical and smooth; but it is stated that cylindrical rollers may be employed, if preferred, without departing from the substance of the invention. The rollers are driven by pulleys and revolve at differential speed. The clay is fed from a hopper. A rotating brush consisting of a series of elastic metallic blades or beaters secured radially and with their edges in the direction of rotation upon a shaft is mounted in bearings on the frame of the machine in line with and immediately beneath the line of contact of the rollers and is rapidly rotated by means of a gearing apparatus described in the specification. The blades of the brush are made of gradually-increasing length from one end of the shaft to the other, proportionately with and in reverse direction to the inclination of the conical rollers, so that the distance between its periphery and the peripheries of the rollers shall be uniform throughout its length; but the specification adds that where cylindrical rollers are employed the blades should be of the same length from end to end of the shaft. In operation the action of the rapidly-rotating brush-blades upon the clay which falls upon them from the rollers above completes and perfects the crushing operation, breaking up the bands and strips which may be produced by the rollers when the clay is plastic and reducing it to a thoroughly-comminuted state.

The Dodson patent for a disintegrating-machine, issued March 27, 1883, shows and describes a rotary part and a fixed abutment, composed of sections, between which the material to be disintegrated is operated upon, the rotary part having V-shaped circumferential ribs or projections and the abutment having corresponding V-shaped grooves. The material to be disintegrated was introduced from a hopper and disintegrated in pieces between the abutment and the rotary part. By adjusting the abutment the degree of fineness of disintegration could be varied.

The Anderson patent of September 13, 1881, was for a clay reducer and disintegrator, described to be for the speedy reduction of clay shale, feldspathic and granite rocks, and other like substances into a fine powder. This machine is provided with a shell of cast-iron when clay alluvium or clay shales were to be disintegrated and from steel castings when the harder substances were to be treated. There were two of these cylinders, which in position for use were vertical. They were thirty inches long by fourteen inches inside diameter and joined side to side, with their contiguous sides cut away, forming in horizontal cross-section a figure 8 and resting upon a base-plate. A series of armed projections were formed as part of the shell, extended inwardly within the cylinders to the length of about three and one-half inches. Two inner cylinders about seven inches in diameter, each fitted on a rotating shaft and provided with projections similar to those of the outer cylinders and meshing therewith, completed the reducing receptacle or chamber. In operating the machine the materials to be disintegrated were shoveled into an adjustable chute set at a suitable pitch to allow them to pass into the receptacle slowly and regularly, the inner cylinders being rotated. The gravity of the materials was impeded by the motion of the armed projections, and the high peripheral speed of the armed cylinders moving in opposite directions sufficed to effectuate the process of reduction.

These are the only patents which are referred to by counsel for the defendants in their brief and recognized by them as the most available for the defense. Looking at them and at the prior uses hereinbefore referred to as indicating the state of the art, it must be conceded that the complainants are not to be classed as pioneers in the art of disintegrating clay, and that in this important respect the case as now presented is distinguishable from the case presented to the Supreme Court.

The defendants also put in evidence English patent No. 1,671, May, 1874, to Edwin Cook and others, for clay-mills. This patent, however, was in the original record in this case and was before the Supreme Court, and although not specifically mentioned in the opinion it is included in the general reference therein to "other patents," and it will not be further considered here.

The defendants also rely upon an extract from an English publication on bricks and brick-making, printed at Birmingham in 1878, wherein, after a description of the method whereby raw material to be treated is deposited in a capacious hopper, the author uses the following language:

> The work of disintegrating and agglomerating the mixed mass of marl and rock commences immediately it is deposited in the capacious hopper just mentioned. Immediately beneath this are two heavy iron rollers, fixed horizontally, and each furnished, at certain intervals on its surface, with stout steel bars. These rollers are set so as to revolve with an intervening space of one inch, and, as the material from the hopper above passes between them, it is rapidly reduced to this gage. It then falls, and passes between a second pair of rollers, set to a narrower gage, being thus reduced to a still finer grain.

The extract does not specify how the steel bars were fixed, and its meaning is open to doubt and capable of various constructions. This publication is without drawings and does not disclose the device "in such full, clear, and exact terms" as are required under the authority of *Seymour* v. *Osborne*, (11 Wall., 516.)

We come now to the question whether the complainants' machine is anticipated by any of the prior uses or patents relied upon for the defendants and brought to the attention of the court for the first time on rehearing. I do not think that the

Moore disintegrator anticipates the complainants'. There is, considering the two in the light of the decision of the Supreme Court in this case, a patentable difference. It does, however, establish that the inventors of the complainants' patent were not pioneers in the art of disintegrating clay, as distinguished from crushing and grinding. It is true that the surfaces of the rolls themselves were about two inches apart; but the space between the end of the teeth of each roll and the smooth surface of the other roll was only about three-eighths of an inch. The two rolls were run at a differential speed. It is also true that small stones would pass between the rolls and that the clay was subjected to other treatment before it went into the molds; but it is shown that whether such further treatment was necessary would depend upon the clay used, and that if free from rock and of the right kind it would be completely treated and fitted for the molds by being passed between the rolls. This machine, while it was a disintegrator, was also to a certain extent a grinding and pulverizing machine, and under the ruling of the Supreme Court in this case it lacked the patentable elements secured to the complainants by the Letters issued to them.

Next comes the machine constructed by Rossi at the Elizabethport factory before 1883. The rolls on that machine were in use about six months and until the failure of the company. The three steel bars of each roll were located spirally across its face and intended to feed the clay through. These bars extended within three-fourths of an inch of the face of the opposite roll. This also is recognized as establishing that shredding clay was accomplished by its operation.

The Watson machine has already been referred to as accomplishing the shredding of clay.

The Archenbronn mill, constructed for grinding apples and provided with a cylinder armed with eight knives located on a line parallel with the axis of the cylinder and across its surface, it is said, is almost a precise reproduction of the Butterworth mill, both being cider-mills. The Supreme Court rejected the Butterworth mill as an anticipation for the reason that the knives had serrated or toothed edges that formed chisel-shaped cutting projections and operated to cut or grind the apples, the only point of resemblance between that device and the Potts patent being that knives were set on a periphery of the cylinder in much the same way as the scraping-bars of the complainants' patent. The Court held that the Butterworth patent could not have been used as a clay-disintegrator without changes involving more or less invention. It appears by the testimony of two witnesses in this case that the Archenbronn knives, which were three-sixteenths of an inch thick and straight-edged, were adapted to shred clay. It further appears that that mill suggested to the witness McKinley, and through him to the witness Smith, the use of bars or rollers for the disintegration of clay for making brick. Taking these facts in connection with the fact that by the Moore machine, the Rossi machine, the Watson machine, and by other machines above referred to the disintegration and shredding of clay had been accomplished and was not original with the inventors of complainants' machine, and considering also that the only material change necessary to make the Archenbronn roller not only operative, but permanently effective, for the shredding of clay was to make the knives thicker, or, in other words, to substitute bars of steel for the thick steel knives, the Archenbronn mill must be recognized as anticipating complainants' patents.

I am not able to see that the mere substitution of the steel bars for the steel blade, in order to accomplish a known result—*i. e.*, the disintegrating and pulverizing of clay—involves invention, and I do not understand that the Supreme Court has given its sanction to any such proposition. Upon the other hand, that Court seems to have regarded it as indispensable that the use to which the complainants' rollers were to be put should be new, in the sense that it would supersede other methods of doing the same work—that is to say, that crushing the clay would be superseded by disintegrating and pulverizing it. The record now shows what the record before the Supreme Court did not show—that that use was not new, and therefore that that essential element of the complainants' invention was lacking, and that by reason of that lack their patents are invalid.

It is not necessary to consider separately the other patents. They are all recognized as bearing upon the state of the art, but not as anticipations.

The decree will be for the defendants.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 7, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that order of July 19, 1894, disbarring John S. Armstrong, of Xenia, Ohio, from practice before this Department and its Bureaus, has this day been rescinded and revoked.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Regulations in Relation to Mail-Matter.

(ORDER No. 1,199.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 18, 1897.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should me marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

BENJ. BUTTERWORTH,
Commissioner.

Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 20, 1897.

Rule 51 of the Rules of Practice, edition of February 9, 1897, is amended to read as follows:

51. If, during the pendency of an interference, another case appear, claiming substantially the subject-matter in issue, the Primary Examiner shall request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course, by the Examiner of Interferences, if no testimony has been taken. If, however, any testimony has been taken, a notice for the proposed new party, disclosing the issue in interference and the names and addresses of the interferants and of their attorneys, and notices for the interferants disclosing the name and address of the said party and his attorney, shall be prepared by the Primary Examiner and forwarded to the Examiner of Interferences, who shall mail said notices and set a time of hearing on the question of the admission of the new party. If the Examiner of Interferences be of the opinion that the interference should be suspended and the new party added, he shall prescribe the terms for such suspension. The decision of the Examiner of Interferences as to the addition of a party shall be final.

If a reference be found, the interference may be suspended at the request of the Primary Examiner until the final determination of the pertinency and effect of the reference and the interference shall then be dissolved or continued as the result of such determination. The consideration of such reference shall be *inter partes*.

BENJ. BUTTERWORTH,
Commissioner.

Department of Interior, May 20, 1897.
Approved:
C. N. BLISS,
Secretary of the Interior.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Privileges of the Scientific Library.

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Issue of July 13, 1897.

Patents	448—No. 586,090 to No. 586,537, inclusive.
Designs	55—No. 27,318 to No. 27,372, inclusive.
Trade-Marks	36—No. 30,350 to No. 30,385, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,620.
Total issue	540

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	.....	New Hampshire	2	.....
Arizona Territory	1	.....	New Jersey	26	1
Arkansas	.....	.....	New Mexico Territ'y	.....	.....
California	14	.....	New York	75	16
Colorado	1	.....	North Carolina	1	.....
Connecticut	12	.....	North Dakota	1	.....
Delaware	.....	.....	Ohio	39	4
District of Columbia	1	.....	Oklahoma Territory	.....	.....
Florida	1	1	Oregon	.....	.....
Georgia	2	.....	Pennsylvania	50	4
Idaho	1	.....	Rhode Island	8	.....
Illinois	77	3	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	2	.....
Indiana	13	.....	Tennessee	6	.....
Iowa	6	.....	Texas	5	.....
Kansas	3	.....	Utah	4	1
Kentucky	1	.....	Vermont	1	.....
Louisiana	4	.....	Virginia	6	.....
Maine	2	.....	Washington	4	.....
Maryland	8	.....	West Virginia	2	.....
Massachusetts	25	2	Wisconsin	13	1
Michigan	8	2	Wyoming	.....	.....
Minnesota	7	.....	U. S. Army	1	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	17	.....			
Montana	3	.....	Total to citizens of the United States	461	35
Nebraska	3	.....			
Nevada	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	1	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Portugal	.....	.....
Canada	9	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile, Republic of	.....	.....	Russia	.....	.....
China	.....	.....	Scotland	1	.....
Colombia	.....	.....	South African Republic	1	.....
Cuba	.....	.....	South Australia	.....	.....
Denmark	.....	.....	Straits Settlements	.....	.....
Egypt	.....	.....	Sweden	.....	.....
England	9	.....	Switzerland	.....	.....
Finland	.....	.....	Victoria	.....	.....
France	9	.....	West Australia	.....	.....
Germany	10	1			
India	.....	.....	Total to citizens of foreign countries	42	1
Italy	1	.....			
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 6, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
350	VIII. Furniture, Beds, Store Furniture, etc.	June 6	June 21	342
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	June 9	June 14	132
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 7	June 14	125
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 7	June 7	243
106	II. Farm Stock, Products, etc.	June 7	May 28	413
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	May 7	June 9	252
215	XVII. Paper Manufactures and Printing.	May 12	June 5	214
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 1	June 1	290
255	XII. Mechanical Engineering, Store-Service, etc.	June 1	June 1	337
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	May 18	June 1	295
246	I. Tillage and Fences	May 10	May 29	357
102	XIX. Stoves and Furnaces	May 8	May 29	415
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	May 26	May 26	278
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	May 26	May 26	331
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 1	May 25	311
221	XXIII. Instruments of Precision, Acoustics, etc.	June 1	May 25	358
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	May 10	May 24	403
98	XXI. Textiles, etc	May 8	May 24	237
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 19	May 22	469
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	May 17	May 17	416
122	XXIV. Sewing-Machines, Apparel, and Toilet.	May 20	May 14	316
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	May 15	May 10	308
	Between two and three months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Apr. 19	June 5	203
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 4	June 3	217
248	XVIII. Steam-Engineering, etc.	Apr. 24	May 28	382
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Apr. 13	May 22	378
190	IX. Hydraulics, Fire-Extinguishers, etc.	May 1	May 12	327
253	X. Carriages and Wagons	Apr. 29	May 7	288
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 5	May 6	570
240	VII. Velocipedes	May 1	May 4	1310
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 24	Apr. 27	479
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Apr. 17	Apr. 13	252
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Mar. 29	May 5	928
	Total number of applications awaiting action			12,276
	Under one month in arrears.			
	Designs	June 16	June 21	200
	Trade-Marks	June 18	June 24	65

PATENTS

GRANTED JULY 13, 1897.

586,090. RICE-HULLING MACHINE. HERMAN A. BARNARD, Moline, Ill., assignor to the Barnard & Leas Manufacturing Company, same place. Filed Dec. 30, 1896. Serial No. 617,495. (No model.)



Claim.—1. In a rice-hulling machine the combination with the casing and a rotating hulling member, of top plates for the casing, having their inner edges projecting therein whereby said plates are utilized for the double purpose of girders to bind the frame together and as retarders to the grain while being operated upon by the revolving member, substantially as herein set forth.

2. The combination in a rice-hulling machine with a truncated cone, of a casing, having stationary top metal plates located one on each side of the truncated cone, and adapted to serve as retarders to the grain when subjected to centrifugal action by the revolution of the cone, all adapted to operate substantially as described.

3. In a rice-hulling machine having a feed-opening at its smaller end and a discharge-opening at its larger end, of a revolving hulling member, provided with ribs adapted to operate upon the grain substantially as set forth, of top plates one on each side of the hulling member, their inner edges projecting in the casing for the purpose of retarding the grain in its revolutions, all constructed and arranged to operate substantially as specified.

4. In a rice-hulling machine the combination of the frame consisting of end pieces and horizontal connecting-plates, and a revolving ribbed truncated cone intermediate said plates; with a casing formed in halves located above and below said plates so that the inner edges of the latter form inwardly-projecting ribs for retarding the centrifugal motion of the grain in the casing, substantially as and for the purpose described.

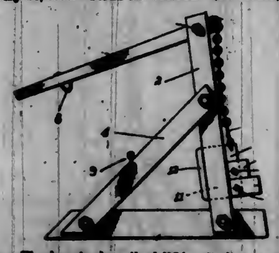
5. A frame for a rice-huller comprising two end pieces and two metal plates securely fastened to the tops of the end pieces and having their inner sides beveled so as to have a tapering space between them in combination with a ribbed truncated cone; and a casing composed of upper and lower halves separated by said plates, the inner edges of said plates projecting into the casing so as to form retarding-ribs therein, all substantially as and for the purpose described.

6. In a rice-hulling machine the combination of a truncated cone and an inclosing conical casing consisting of a semicircular imperforate top casing and a perforated lower casing, composed partly of perforated sheet metal and partly of cast-iron with chilled openings, in combination with metal plates located between the upper and lower half of the casing, so as to form inwardly-projecting ribs inside of said casing, substantially as and for the purpose described.

7. In a rice-huller, the combination of the conical casing having a feed-opening at its smaller end, and a discharge-opening at its larger end; with a cone within the casing provided with ribs so formed that the parts of the ribs on the small end of the cone under the feed-opening will assist in forwarding the grain through the casing, while the main portions of the ribs are arranged diagonally so as to hold back the grain; and opposite retarding-ribs projecting into the casing, all substantially as and for the purpose described.

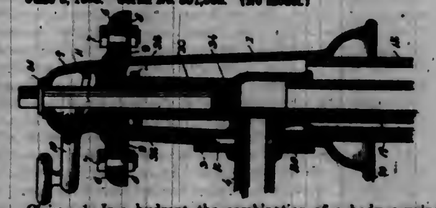
8. The herein-described rice-hulling machine, consisting of the end pieces, the top plates connected thereto and having their inner sides beveled, substantially as described; and a conical two-part casing, the upper part being imperforated but provided with feed and discharge openings, and supported on said plates, and the lower part being perforated and suspended from said plates, the casing being of such diameter that the inner edges of the plates project into the casing and form ribs therein adapted to retard the centrifugal movement of the grain; with a rotary cone within the casing provided with ribs arranged parallel with the axis of the cone at its small end and diagonal to the axis of the cone on the larger portion thereof, all substantially as and for the purpose described.

586,091. WAGON-JACK. CHARLES H. BRESTON, Coal Bluff, Ind. Filed July 26, 1896. Serial No. 600,844. (No model.)



Claim.—The herein-described lifting-jack comprising the combination with a base, of separated guides, a lifting-block slidable between said guides, an open link or bail pivotally connected to the lifting-block, a lever pivoted between the guides, a hook connected to the free forward end of the lever, a chain connected to the open link or bail and adapted to have its links detachably engaged with the hook, and a hook-and-loop connection, the members of which are connected to the frame and the lever, whereby the lever may be held locked when in depressed position.

586,092. HYDRANT. JAMES A. BROWN, Mitchell, S. D. Filed June 3, 1895. Serial No. 551,502. (No model.)



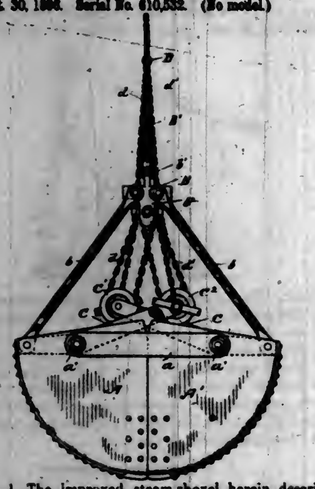
Claim.—1. In a hydrant, the combination of a body, a valve-casing connected with the lower end of the body, a discharge-pipe extending through the body and having a valved plunger at its lower end to control the supply of water, a centrally-apertured cap rotatably fitted to the upper end of the body and having a screw-thread connection with the discharge-pipe to move the latter vertically upon turning the said cap, and a plug passing through the cap and removably fitted within the upper end of the discharge-pipe to close the same, and providing means for thawing the discharge-pipe and hydrant, substantially as set forth.

2. In a hydrant, the combination with the body having an outer flange at its upper end and a valve-casing connected with its lower end, and a discharge-pipe extending through the body and having a valved plunger in connection with its lower end to control the supply of water, of a cap rotatably fitted to the upper end of the hydrant-body and having an outer flange at its lower end and formed with an outer handle and an inner thread, a ring secured to the flange of the body and having its inner edge rabbeted to receive the outer

flange of the cap, a T-coupling secured to the upper end of the discharge-pipe and forming a continuation thereof and exteriorly threaded at its upper end to match with the inner thread of the cap, whereby upon rotating the latter the discharge-pipe will be reciprocated within the hydrant-body and a plug fitted into the upper end of the T-coupling and operating through the cap, substantially as and for the purpose set forth.

3. In a hydrant, the combination of a body having a valve-casing provided with escape-openings connected with its lower end and having an outer flange at its upper end, a discharge-pipe located within the hydrant-body and having a valved plunger at its lower end to control the water-supply and the escape-openings of the valve-casing, a T-coupling having connection with the upper end of the discharge-pipe and having an exterior thread at its upper end and interiorly threaded at a point above its horizontal branch, a cap rotatably secured to the upper end of the body and having a handle and inner thread to match with the outer thread of the T-coupling, and a plug passing centrally through the cap and into the upper portion of the T-coupling and having positive connection with the inner threaded portion thereof, and having an outer flange near its upper end to extend over the opening in the cap, and having its outer portion made angular, substantially as set forth for the purpose specified.

586,093. STEAM-SHOVEL. JEREMIAH CAMPBELL, Chelsea, Mass. Filed Oct. 30, 1896. Serial No. 610,532. (No model.)



Claim.—1. The improved steam-shovel herein described, the same comprising the members A, A', the links *a* pivoted at their outer ends to said members, the rods *b* connecting the outer corners of the shovel with the block B, the arms C, one attached to each shovel member, the ends of which extend across each other and carry sheaves, the block B and its sheaves, the hoisting-rope B' and the opening and closing rope D, the ends of which extend about the sheaves on the block and at the ends of said arms as specified, and are attached to said arms C, as and for the purposes described.

2. The combination in a steam-shovel of the members A, A', the links *a*, the cross-rods pivoting the links to the end of the members and extending across them between the ends, the block B, the rods *b*, the arms C, one for each member, fastened thereto and having said cross-rods extending through it, sheaves at the ends of said arms, sheaves carried by the block B and the hoisting-rope D making engagement with said sheaves and arms as specified.

586,094. ALLOY. FRANCIS A. COTHIAS, Ivry-Port, France. Filed Apr. 2, 1897. Serial No. 630,444. (No specimens.) Patented in France June 2, 1896, No. 256,858; in Belgium June 30, 1896, No. 122,223; in England June 30, 1896, No. 14,479; in Austria July 31, 1896, No. 46/3,443; in Italy July 31, 1896, No. 42,231; in Luxemburg July 31 1896, No. 2,562, and in Spain July 31, 1896, No. 19,417.

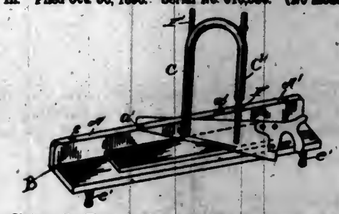
Claim.—1. The alloy described consisting of copper eighty parts, tin one hundred and ninety parts, zinc eight hundred parts and aluminium two hundred and thirty parts.

2. The process described, consisting in melting together copper and tin and cooling, adding thereto zinc and then remelting, allowing the mass to cool to a pasty composition, then adding aluminium and finally heating the mass to a high temperature, substantially as described.

586,095. ALLOY. FRANCIS A. COTHIAS, Ivry-Port, France. Filed Apr. 2, 1897. Serial No. 630,446. (No specimens.) Patented in France June 2, 1896, No. 256,853; in Belgium June 30, 1896, No. 122,223; in England June 30, 1896, No. 14,479; in Austria July 31, 1896, No. 46/3,443; in Italy July 31, 1896, No. 42,231; in Luxemburg July 31, 1896, No. 2,562, and in Spain July 31, 1896, No. 19,417.

Claim.—The described alloy consisting of copper forty parts; tin eighty parts and aluminium eight hundred and eighty parts.

586,096. MITER BOARD OR BLOCK. PETER DEMERS, Chicago, Ill. Filed Oct. 30, 1896. Serial No. 610,590. (No model.)

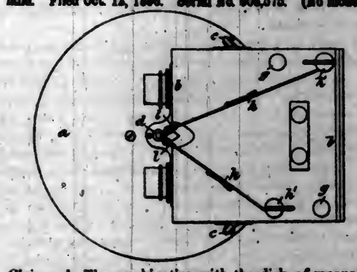


Claim.—1. The combination with a base-strip of the backboard-sections secured thereto, an arm pivotally secured to said base-strip near each of its ends, an adjusting-socket located about the middle of the base-strip and having a series of recesses, a guide-standard provided with a projection to engage said recesses, and a slot in its lower portion for the operation of the saw, and its upper part bent and formed with a slotted vertical arm, and the slotted retaining-pieces for the saw vertically located in the standard and said arm, substantially as described.

2. The combination with the base-strip B, of the backboard-sections A, and A', secured thereto and provided with sockets *a'*, in their upper surfaces, the adjusting-socket D, having the recesses *d*, and set-screw D', located about the middle of the base-strip, the slotted guide-standard C, provided at its lower end with a projection *c*, to engage said recesses and the base-strip, and at its upper part with a lateral extension and slotted vertical arm, and the slotted retaining-pieces F, and F', located in the said arm and standard respectively, substantially as described.

3. The combination with the base-strip B, and the backboard-sections A, and A', secured thereto and provided with sockets *a'*, in their upper surfaces, an arm pivotally secured near each end of the base, the adjusting-socket D, having the recesses *d*, and set-screw D', located about the middle of the base-strip, the slotted guide-standard C, provided at its lower end with a projection *c*, to engage said recesses and the base strip, and at its upper part with a lateral extension and slotted vertical arm, and the slotted retaining-pieces F, and F', located in the said arm and standard respectively, substantially as described.

586,097. PANORAMIC CAMERA. LOUIS JEFFERY, London, England. Filed Oct. 12, 1896. Serial No. 608,575. (No model.)



Claim.—1. The combination with the disk, of means for driving the film for pressing it against the edge of the disk and for retarding the revolution of the camera.

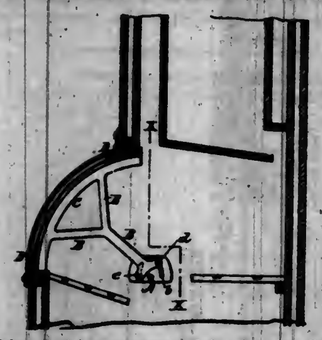
2. The combination of the disk, the camera free to revolve about the center of the disk, a bobbin on which the film is wound after exposure, means for driving this bobbin, a roller pivoted in the camera and pressing the film against the edge of the disk and means tending to retard the revolution of the camera.

3. The combination of the disk, the camera free to revolve about the center of the disk a bobbin on which the film is wound after exposure a cord wound on the bobbin and attached to a weight, a roller pivoted in the camera and pressing the film against the edge of the disk and a fly driven by the camera.

4. The combination of the stationary disk, the camera pivotally connected with the disk and mounted to revolve about the center

thereof, and means for driving the film and causing it to press against the edge of the disk and thereby to revolve the camera.

586,098. REFRIGERATOR-DOOR. FREDERICK M. KEITH, Boston, Mass. Filed Jan. 31, 1896. Serial No. 577,669. (No model.)



Claim.—1. In an apparatus of the class described, a roll-top cover having rigid supporting-arms, two fulcrum-pins on each arm, and fixed seats for said pins, whereby the path of movement of the cover varies as the fulcrum changes, substantially as and for the purpose described.

2. In an apparatus of the class described, a roll-top cover having rigid supporting-arms, two fulcrum-pins on each arm, and fixed pivot-plates each having two oppositely-curved slots therein at front and back of the center of curvature of the cover, to receive the fulcrum-pins, the ends of the slots cooperating with the pins to limit the rotative movement of the cover, substantially as described.

3. In a refrigerator, a roll-top cover provided with supporting members, pivot-plates rigidly secured to the ends of the body, each plate having oppositely-curved slots therein at front and back of the center of curvature of the cover, and two headed pins extended outwardly from each supporting member, to enter the slots in the pivot-plates, the heads retaining the pins from disengagement, substantially as described.

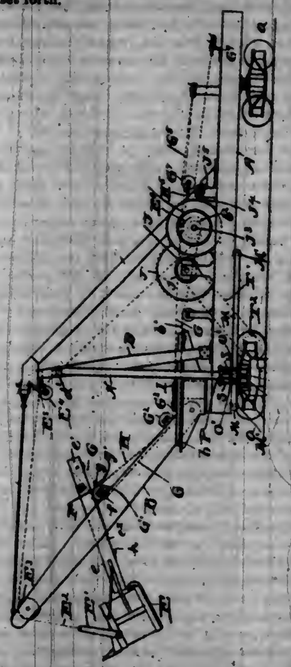
4. In a refrigerator, a roll-top cover having supporting-arms, a pair of fulcrum-pins on each arm, fixed plates having curved slots eccentrically located relatively to the center of curvature of the cover, to receive the pins, the center of one slot being located at the lower end of the other slot, the curved slots acting upon the fulcrum-pins when the cover is raised, to cause the latter to recede from and thereafter approach the lining as the fulcrum changes, substantially as described.

5. In a refrigerator, a roll-top cover having supporting-arms, two fulcrum-pins on each, pivot-plates slotted for the pins, one of the slots being located above and in front, and the other above and back, of the center of curvature of the cover, the upper ends of the slots approaching each other, substantially as described.

586,099. EXCAVATOR. GEORGE W. KING, Marion, Ohio. Filed Mar. 6, 1896. Serial No. 582,088. (No model.)

Claim.—1. The combination of the boom; suitably-supported excavating-shovel and its arm having its upper or inner portion slotted longitudinally and bearing a sheave within the outer end of said slot; two vertically-arranged pulleys arranged side by side and suitably supported from the boom and one of said pulleys being arranged in the same vertical plane with the shovel-arm sheave; a suitably-supported vertically-swinging U-shaped frame straddling the pulley lastly referred to, and said frame and the two boom-pulleys having their axes coincident; a suitably-actuated feed-cable attached to the central member of said U-shaped frame, thence extending upwardly to and over the shovel-arm sheave and thence returning and leading to and in under the straddled boom-pulley, and another suitably-actuated feed-cable attached to and nearer the arm's shovel-bearing end and thence extending to and over the other boom-pulley, substantially as shown, for the purpose specified.

2. The combination with the boom capable of being swung laterally, excavating-shovel, and the two suitably-actuated cables for feeding the shovel in opposite directions, respectively, said cables passing side by side and at opposite sides, respectively, of the boom's lower pivotal center, of a horizontally-arranged sheave having its axis coincident with said center and arranged between and engaging both of the aforesaid cables, and two other horizontally-arranged sheaves arranged at opposite sides, respectively, and forward of the central sheave, and having their opposite extremities arranged to be engaged by the different cables, respectively, substantially as and for the purpose set forth.



3. The combination with the horizontally-arranged turn-table and two suitably-actuated propelling cables or lines traversing said table side by side and at opposite sides, respectively of the table's axis, of a horizontally-arranged sheave having its axis coincident with the table's axis and engaged by the aforesaid propelling-lines at diametrically opposite points, respectively, and two other horizontally-arranged sheaves at opposite sides, respectively, and forward of the centrally-located sheave and having their opposing extremities arranged in line, or approximately in line, with the diametrically oppositely-located chain-traversed points, respectively, of the central sheave, substantially as and for the purpose set forth.

4. The combination with the boom capable of being swung laterally, excavating-shovel and the two suitably-actuated shovel-feed cables passing side by side and at opposite sides, respectively, of the boom's lower pivotal center, of a horizontally-arranged sheave having its axis coincident with said center and arranged between and engaged by both of said cables, a pair of horizontally-arranged sheaves arranged at opposite sides, respectively, and forward of the centrally-located sheave and having their opposing extremities arranged to be engaged by the different cables, respectively, and a pair of vertically-arranged sheaves arranged to bear upon the different cables, respectively, forward of the aforesaid pair of horizontally-arranged sheaves, substantially as and for the purpose set forth.

5. The combination with two cables for feeding the excavating-shovel in opposite directions, respectively, and the winding-drums engaging said cables and rotated simultaneously in opposite directions, respectively, and at different speeds, of two tension-cables engaging the different drums, respectively, and adapted to unwind from or wind upon the respective drum according as said drum winds up or pays out the engaging shovel-feed cable, and the tension-cable connected with the drum adapted to pay out the engaging shovel-feed cable more rapidly, having a loop formed therein and having the closed end of said loop connected with the other tension-cable, substantially as shown, for the purpose specified.

6. The combination of the suitably-supported excavating-shovel; a suitably-supported and suitably-driven shaft rotated, when operated, continuously in one direction; two winding-drums loosely mounted upon said shaft; a clutch for each of said drums for controlling operative connection between the respective drum and shaft; cables for feeding the shovel in opposite directions, respectively, said cables being operatively connected with the different drums, respectively, and being so arranged, applied and guided that the cable adapted to thrust or feed the shovel in excavating shall transmit slower movement to the shovel than the shovel-return cable, whereby the drum instrumental in effecting the excavating or slower stroke of the

shovel shall be rotated more rapidly in paying out the engaging shovel-feed cable than the other drum; two tension-cables operatively engaging the different drums, respectively, and arranged to wind upon or unwind from the respective drum according as the latter pays out or winds up the engaging shovel-feed cable, and the tension-cable engaging the drum instrumental in effecting the shovel's excavating or slower stroke having a loop formed therein and having the closed end of the loop connected with the other tension-cable, substantially as shown, for the purpose specified.

7. The combination with the suitably-supported excavating-shovel; a suitably-supported and suitably-driven shaft rotated, when operated, continuously in one direction; two winding-drums loosely mounted upon said shaft; a clutch for each of said drums for controlling operative connection between the respective drum and shaft; cables for feeding the shovel in opposite directions, respectively, said cables being operatively connected with the different drums, respectively, and being so arranged applied and guided that the cable adapted to thrust or feed the shovel in excavating shall transmit slower movement to the shovel than the shovel-return cable, whereby the drum instrumental in effecting the excavating or slower stroke of the shovel shall be rotated more rapidly in paying out the engaging shovel-feed cable than the other drum; of two tension-cables operatively engaging the different drums, respectively, and arranged to wind upon or unwind from the respective drum according as the latter pays out or winds up the engaging shovel-feed cable, and the tension-cable engaging the drum instrumental in effecting the shovel's excavating or slower stroke having a loop formed therein; a pulley-block having its sheave engaging the closed end of said loop and having its frame or strap connected with the other tension-cable, and suitable means connected with the looped tension-cable and acting to tighten both tension-cables, substantially as shown, for the purpose specified.

8. The combination with the stationary part of the excavator, of an external brace comprising a frame arranged to brace the machine's body portion laterally and provided, at its outer and lower end, with an upright nut, a screw extending through and engaging said nut, a cap-plate or head resting upon the screw's upper end, a platform, foot or base borne upon by the lower end of the screw, and suitable connections between said base and head, substantially as set forth.

9. The combination with the stationary part of the machine, of an external brace comprising a frame arranged to brace the machine laterally and suitably connected with said stationary part, and provided, at its outer lower end, with an upright nut, a screw extending through and engaging said nut, a head resting upon the screw, a foot or base arranged to be borne upon by the screw's lower end, and two vertical rods arranged at opposite sides, respectively, of the screw and operatively connecting the base or foot with the head, substantially as set forth.

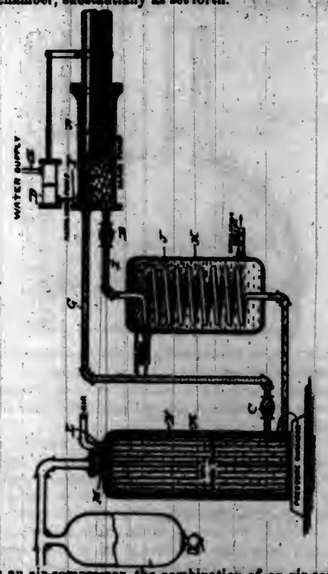
10. The combination with the stationary part of the excavator of an external brace comprising a frame arranged to brace the machine laterally and suitably connected with said stationary part, and provided, at its outer lower end, with an upright nut, a screw extending through and engaging said nut, a head resting upon the screw, a platform, foot or base arranged to be borne upon by the screw's lower end, any suitable number of vertical rods arranged between the head and base or foot, eyebolts having their eyes attached to the upper ends of said rods and extending upwardly through the head, nuts upon said bolts above said head, and other bolts secured to the foot or base and to the lower ends of the rods, substantially as set forth.

11. A machine of the character indicated, having its hoisting-drum and boom-swinging drum loosely mounted upon one shaft, and the shovel-feed drums loosely mounted upon another shaft arranged forward of and parallel with and operatively connected with, but speeded slower than, the first-mentioned shaft, and a clutch for each drum for establishing operative connection between said drum and the shaft supporting it, substantially as and for the purpose set forth.

12. A machine of the character indicated, having its shovel-feed drums loosely mounted upon a shaft operatively provided with a gear, another and parallel shaft rearward of the shovel-feed-drum shaft and provided, operatively, with a gear diametrically smaller than and meshing with the aforesaid gear, the hoisting-drum and the boom-swinging drums loosely mounted upon said rearward shaft, a clutch for each drum for controlling operative connection between the drum and shaft supporting it, a pulley loosely mounted upon the shovel-feed-drum shaft and operatively connected with the rear axle of the forward truck, and a clutch for controlling operative engagement between said pulley and shovel-feed-drum shaft, substantially as and for the purpose set forth.

586,100. AIR-COMPRESSOR. WALTER H. KNIGHT, New Brighton, N. Y. Filed May 7, 1896. Serial No. 590,613. (No model.)

Claim.—1. In an air-compressor, the combination of an air-compressing chamber or cylinder, a hydraulic pump communicating with said air-compressing chamber or cylinder, suitable air-valves to the air-compressing chamber, and means for causing the liquid to circulate through the hydraulic pump and air-compressing chamber in contradistinction to moving to and fro into and out of the air-compressing chamber, substantially as set forth.

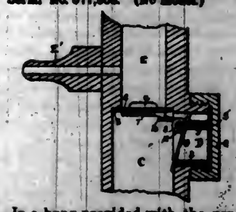


2. In an air-compressor, the combination of an air-compressing chamber or cylinder, a hydraulic pump or cylinder, two pipes or passages communicating between the hydraulic pump or cylinder and the air-compressing cylinder, suitable check-valves in said pipes to cause the fluid to always move in the same direction through said pipes and thereby circulate through the hydraulic pump, air-compressing cylinder and said pipes, and suitable inlet and outlet valves to the air-compressing cylinder, substantially as set forth.

3. In an air-compressor, the combination of an air-compressing chamber or cylinder, a hydraulic pump or cylinder communicating with the air-compressing cylinder through two pipes or passages, check-valves in said pipes or passages, means for cooling the liquid passing through one of said pipes or passages between the pump and air-compressing cylinder, and inlet and outlet valves to the air-compressing cylinder, substantially as set forth.

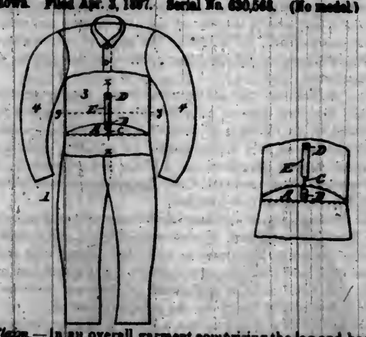
4. In an air-compressor, the combination of an air-compressing chamber or cylinder, a hydraulic pump or cylinder communicating with said air-compressing cylinder through two passages for forcing water into and withdrawing it from said chamber, a porous filling material within the air-compressing chamber for abstracting heat from the air and communicating the same to the water, means for cooling the water in its passage from the hydraulic pump to the air-compressing chamber, and suitable air inlet and outlet valves to the air-compressing chamber, substantially as set forth.

586,101. BUNG. HENRY P. KOLL, South Omaha, Nebr., assignor, by direct and mesne assignments, of two-thirds to Richard A. Pfiter, same place, and Theodore Wolf, Douglas County, Nebr. Filed Feb. 1, 1896. Serial No. 577,908. (No model.)



Claim.—In a bung provided with the usual vent and main escape-opening, the combination of valve-shoulders within and forming part of said main escape-opening, of an additional opening extending at right angles to and entering said main escape-opening below said valve-shoulders, a cap adapted to close said additional opening, inwardly-extending sockets within said additional opening and within the upper end thereof, an escape-way centrally within and opposite said sockets, a valve provided with projecting trunnions adapted to work against said valve-shoulders, said trunnions being removably held within said sockets, and a U-shaped spring working below said valve, winding about said trunnions and being adapted to work within said main escape-opening, the length of said spring's stems beyond the trunnions being equal to the distance between said sockets and said central escape-way, all arranged substantially as and for the purpose set forth.

586,102. OVERALLS. ANTON M. LUNDGARD, Council Bluffs, Iowa. Filed Apr. 3, 1897. Serial No. 630,568. (No model.)



Claim.—In an overall garment comprising the leg and body portions made in a single continuous piece, of the piece inserted in the back of the garment at or near the junction of the leg and body portions, the stiff strip secured at its upper end to said back and its lower end engaging with said insertion, and the elastic band or strip secured to said insertion at its lower end and its upper end connected with the back of the garment, substantially as described.

586,103. RAILROAD-TIE AND FASTENING. WILLIAM R. McDOWELL, Philadelphia, Pa. Filed May 29, 1896. Serial No. 593,579. (No model.)
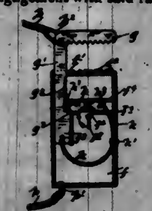


Claim.—1. In a railroad-tie and fastening, a tie having a transversely-extending recess having a narrow opening at top and a cheek-piece having a tongue on its under side between the ends of said piece adapted to fill said recess, the outer portion of said piece outwardly overhanging the wall of said recess, and the inner portion of said piece inwardly overhanging said wall.

2. A cheek-piece having a tongue on its under side with a narrow connecting-neck, the outer portion of said piece being adapted to rest on a tie in which said tongue is inserted, and the inner portion of the piece being adapted to rest on the base of a rail seated on said tie, said outer portion being adapted to outwardly overhang the wall of the recess in which said tongue is inserted, said neck having on one side a vertical wall.

3. A tie having a recess therein, and a cheek-piece having a depending tongue, and neck joining said tongue with said piece, said neck having a vertical wall on side thereof the sides of said neck being adapted to receive the side of the base of the rail and the upper ends of the wall of said recess, the outer portion of said cheek-piece outwardly overhanging said wall and the inner portion thereof inwardly overhanging said wall, the said tongue being adapted to be inserted transversely in the recess in said tie and to fill the same.

586,104. PADLOCK. THOMAS MCGLASHAN, Minneapolis, Minn. Filed July 13, 1896. Serial No. 598,978. (No model.)

Claim.—1. The combination with a padlock-case provided with a jaw or serrated clamping-surface, a movable serrated jaw cooperating with the serrated surface of said case, having a stem portion which works in the interior of said case and is provided with ratchet-teeth, a key-released locking-dog engageable with the ratchet-teeth of said stem, the engagement of said ratchet-teeth and said locking-dog being such as to permit the closing movement of said jaw, but to prevent the opening movement of the same, and a spring device or devices tending to throw said movable jaw and stem outward and said lock-dog into engagement with said ratchet-teeth, substantially as described.

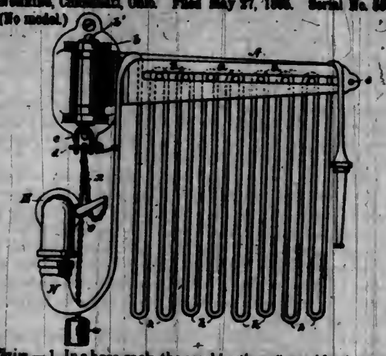


2. The combination with a padlock involving a pair of cooperating clamping jaws or surfaces, one of which is movable with respect to the other and adapted to clamp articles between the same, and means for securing said jaws in their clamping positions, of a locking connection secured at one end to one of said jaw members and detachably engageable at its free end between said jaws, substantially as described.

3. The combination with the padlock-case f provided with the serrated-jaw surface f^2, of the movable jaw g having the stem g' working in the interior of said case f and provided with the ratchet-teeth g^2, the sliding lock-dog h, h', and the spring k working respectively against the ends of the stem g' and the lock-dog h, h', substantially as described.

4. The combination with the padlock-case f provided with the serrated-jaw surface f^2, of the movable jaw g having the stem g' working in the interior of the case f and provided with the ratchet-teeth g^2, the key-operated lock-dog h, h', the spring k working respectively against the ends of said stem g' and the lock-dog h, h' and the chain or flexible connection p secured at one end to said case f and provided at its free end with the link or ring p^2, which is detachably engageable between said jaw portions f^2 and g, substantially as described.

586,105. FIRE-EXTINGUISHING APPARATUS. CHARLES NORRIS, Cincinnati, Ohio. Filed May 27, 1896. Serial No. 593,792. (No model.)



Claim.—1. In a hose-rack, the combination of two side pieces, each having a longitudinal slot, with pins or rungs adapted to engage and move in the slots of the side pieces, substantially as set forth.

2. The combination of a pivoted hose-rack: a swivel-yoke adapted to move with the rack: a pin carried removably by the yoke and connected to the last fold of the hose: a weight supported by a chain from the pin at an intermediate point in the chain: and a water-plug whose operating-handle is connected terminally with the chain, substantially as set forth.

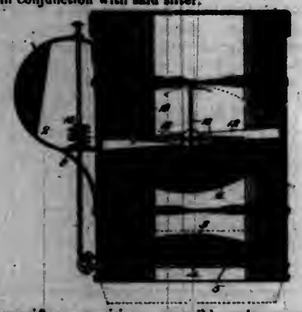
586,106. FLOUR-SIFTER. SARAH K. OSBUN, Fort Scott, Kans. Filed Aug. 26, 1896. Serial No. 603,903. (No model.)

Claim.—1. A flour-sifter, comprising a reversible casing, provided with a reversible sifter, and a rotary beater or stirrer, substantially as described.

2. A flour-sifter, comprising a reversible casing, having a pin projecting inwardly thereof, and provided with a reversible sieve which is adapted to engage one side or the opposite side of said pin, and a rotary beater operating in conjunction therewith.

3. A flour-sifter, comprising a reversible casing, having a pin projecting inwardly thereof, and provided with a bottom and a removable top, a reversible sifter mounted therein and adapted to engage

one side or the opposite side of said pin, and a rotary beater adapted to operate in conjunction with said sifter.



4. A flour-sifter, comprising a reversible casing, provided with a bottom and a removable top which forms at times a temporary bottom, a pin projecting inwardly from the casing, a reversible sieve within the casing and adapted to engage one side or the other of said pin, and a rotary beater operating in conjunction with said sieve, and provided externally of the casing with a crank-handle, substantially as described.

5. In a flour-sifter, the combination of a reversible casing, having a pin projecting inwardly, a bottom and a removable top, a reversible sifter therein provided with a sleeve extension which is journaled in the casing, and a rotary sifter journaled in the casing and in said sleeve, and adapted when rotated in one direction to revolve the sifter until it comes in contact with said pin, and adapted when rotated in the opposite direction to swing the sifter back to its original position, where it engages the opposite side of said pin, substantially as described.

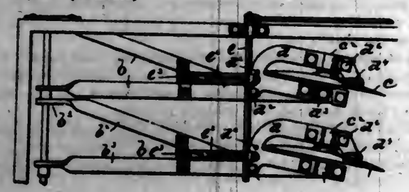
6. In a flour-sifter, the combination with a reversible casing, provided with a bottom and a removable top which forms at times a temporary bottom, a pin projecting inwardly from the casing, a reversible semispherical sieve within the casing and dividing it into two chambers which communicate only through said sieve, and adapted to engage one side or the other of said pin, and a rotary beater operating within the semispherical sieve at all times, and provided externally of the casing with a crank-handle, substantially as described.

7. A flour-sifter, comprising a suitable casing having a handle, a sieve, a beater, and provided with a bottom consisting of a pair of oppositely-disposed plates and an oscillatory valve bridging the space between said plates, a rock-shaft extending longitudinally of and carrying said valve and journaled in the casing, a push-rod extending vertically through the handle and pivotally connected to a crank-arm at one end of the rock-shaft, and a spring holding said push-rod normally elevated, substantially as described.

8. A flour-sifter, comprising a suitable casing, having a handle, a sieve, and beater, and provided with a bottom consisting of a pair of oppositely-disposed plates and an oscillating valve bridging the space between said plates, a rock-shaft extending longitudinally of and carrying the valve, and journaled in the casing, a push-rod extending vertically through the handle and pivotally connected to a crank-arm at one end of the rock-shaft, a spring holding said push-rod normally elevated, and a removable top or cover for the casing, substantially as described.

9. A flour-sifter, comprising a suitable casing having a handle, a reversible sieve, and beater, and provided with a bottom consisting of a pair of oppositely-disposed plates and an oscillating valve bridging the space between said plates, a rock-shaft extending longitudinally of and carrying the valve, and journaled in the casing, a push-rod extending vertically through the handle and pivotally connected to a crank-arm at one end of the rock-shaft, and a spring holding said push-rod normally elevated, substantially as described.

586,107. FURROW-OPENING DEVICE FOR SEEDING-MACHINES. FRANK R. PACKHAM, Springfield, Ohio, assignor to the Superior Drill Company, same place. Filed May 17, 1897. Serial No. 636,859. (No model.)



Claim.—1. In a furrow-opening device, a drag-bar, a frame or support connected to said drag-bar, a concavo-convex disk supported by said frame or support to which it is journaled, and a pivotal connection between said frame or support and said drag-bar, said pivotal connection being arranged in line with the axis of said journaled disk, and means, substantially as described, for holding said frame or support in different positions of adjustment about the pivotal connection so as to change the angle of said disk, substantially as specified.

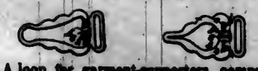
2. The combination with a drag-bar, of a pivoted frame or support, a disk journaled thereon, a conduit mounted on said frame or support adjacent to said disk and in the rear of the axis thereof, and means, substantially as described, for adjusting the angle of said frame or support with reference to said drag-bar, substantially as and for the purpose specified.

3. The combination with a supporting-frame, a series of drag-bars pivotally mounted thereon, an adjustable frame or support pivotally mounted on the free ends of each of said drag-bars, a conduit and disk supported on said frame, means for adjusting said frame with reference to said drag-bars, and a lifting and pressure device arranged between the pivoted end of said drag-bars and said furrow-opening disks, substantially as specified.

4. In combination with the drag-bar, a frame pivotally mounted thereon, a furrow-opening disk pivoted on said frame, and a conduit adjustably supported on said frame so as to be adjusted with reference to said disk, said frame being pivoted to said drag-bar and provided with means for holding said frame in different positions of adjustment, substantially as and for the purpose specified.

5. In combination with a drag-bar, a frame or support connected thereto, a journaled disk supported by said frame or support, and a conduit also supported by said frame or support and arranged adjacent to said disk in the rear of the axis thereof, a pivotal connection between said frame or support and said drag-bar, and means for holding said frame in different positions of adjustment with reference to said drag-bar so as to change the angle of said disk, the pivoted connection between said drag-bar and said frame or support being arranged in a plane passing through the axis of said disk, substantially as specified.

586,108. LOOP FOR GARMENT-SUPPORTERS. CHARLES W. STIMSON, New York, N. Y. Filed June 6, 1896. Serial No. 593,867. (No model.)



Claim.—1. A loop for garment-supporters, comprising a loop proper having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper portion, a plate having means of attachment to the fabric of the garment-supporter, and joining-tongues connecting said plate and the disconnected ends of the loop, and inclosing between them limiting-shoulders, whereby the degree of expansion of the sides of the loop is limited, substantially as described.

2. A loop for garment-supporters, comprising a loop proper having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper portion, and a plate 2 having means of attachment to the fabric of the garment-supporter and having likewise joining-tongues connecting said plate with the disconnected ends of the loop and inclosing between them limiting-shoulders 5, 5, on the disconnected ends of the loop, whereby the degree of expansion of the sides of the loop is limited, substantially as described.

3. A loop for garment-supporters, comprising a loop proper having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper part provided with openings 4, 4, and a plate having means of attachment to the fabric of the garment-supporter and having joining-tongues passing through said openings 4, 4, connecting said plate and the disconnected ends of the loop, and limiting the expansion of the sides of the loop, substantially as described.

586,109. LOOP FOR GARMENT-SUPPORTERS. CHARLES W. STIMSON, New York, N. Y. Filed Jan. 26, 1896. Serial No. 576,773. (No model.)

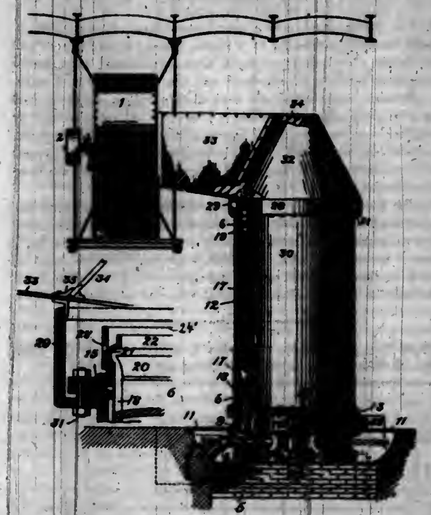


Claim.—1. In a loop for garment-supporters, the combination, with a loop having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper part, of a sleeve formed of thin sheet metal, wrapped around and inclosing within itself said disconnected ends, and engaging limiting-shoulders thereof, and adapted to limit the distention of the sides of the loop, substantially as described.

2. In a loop for garment-supporters, the combination, with a loop having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper part, of a sleeve formed of thin sheet metal, wrapped around and inclosing within itself said disconnected ends, and having projections engaging limiting-shoulders thereof, and adapted to limit the distention of the sides of the loop, substantially as described.

3. In a loop for garment-supporters, the combination, with a loop having an opening enlarged at one end and contracted at the other end, and having disconnected ends in its upper part, of a sleeve surrounding said disconnected ends, and having projections working in slots 7, 7 in the said disconnected ends, whereby the distention of the sides of the loop is limited, substantially as described.

586,110. EVAPORATION AND SURFACE CONDENSER. EDWARD P. WHITE, Bayonne, N. J. Filed Oct. 28, 1896. Serial No. 610,268. (No model.)



Claim.—1. An evaporation and surface condenser, consisting of the combination of a compartment for receiving steam, concentric pipes passing through said compartment, means for forcing water upwardly between the pipes, and into the inner pipe, and an aspirator for drawing air upwardly through the inner pipe and into the outside atmosphere.

2. An evaporation and surface condenser, consisting of the combination of a compartment for receiving steam, concentric pipes passing through said compartment, means for forcing water upwardly between the pipes, and into the inner pipe, an aspirator for drawing air upwardly through the inner pipe and into the outside atmosphere, and a water-deflector for causing the water to whirl around the inner surface of the inner pipe.

3. An evaporation and surface condenser, consisting of the combination of a compartment for receiving steam, concentric pipes passing through said compartment, means for forcing water upwardly between the pipes and into the inner pipe, an aspirator for drawing air upwardly through the inner pipe and into the outside atmosphere, a water-deflector for causing the water to whirl around the inner surface of the inner pipe, and other concentric pipes communicating with said aspirator, and provided with lateral openings, at which are deflectors for feeding some of the whirling water in the said first-named inner pipe into the other said inner pipes.

4. The combination with means for causing water to whirl around and down the inner surface of a pipe, of other pipes located concentrically therewith and with one another, and provided with lateral openings, sheets extending from the lateral and lower edges of said openings to within almost touching distances of the next larger respective pipes, and an aspirator communicating with the edges of the pipes, which at their lower ends open into a supply of air, a surrounding casing for the steam being provided.

5. The combination with means for causing water to whirl around and down the inner surface of a pipe, of other pipes located concentrically therewith and with one another, and provided with lateral openings, sheets extending from the lateral and lower edges of said openings to within almost touching distances of the next larger respective pipes, and an aspirator communicating with the edges of the pipes, which at their lower ends open into a supply of air, the outside pipe passing through a steam-compartment.

6. An evaporation and surface condenser, consisting of the combination of pairs of concentric pipes, located in a cylinder, adapted to contain an atmosphere of steam or vapor, or both, means for forcing water upwardly through the spaces between the inner and outer concentric pipes, and over and into the inner pipes, whereby water is thrown into the inner pipes, and means for producing a blast of gas upwardly against the water, which tends to fall downward by the action of gravitation.

7. An evaporation and surface condenser, consisting of the combination of a steam-containing cylinder, provided with given heads, at the respective ends, a water-holder below said cylinder, and communicating with a given force-pump, a hood above the said cylinder, and communicating with a given aspirator, water-pipes passing through said steam-condenser, and forming a communication between the water-holder and the hood, and having inwardly-projecting water-deflectors at their upper ends, and air-pipes passing through said steam-containing cylinder, and said water-holder, concentrically with, and located within said water-pipes, and communicating at the lower ends with the outside atmosphere and at the upper ends, with said hood.

8. An evaporation and surface condenser, consisting of the combination of a steam-containing cylinder provided with given heads at the respective ends, a water-holder below said cylinder, and communicating with a given force-pump, a hood above said cylinder, and communicating with a given aspirator, water-pipes passing through said steam-condenser, and forming a communication between the water-holder and the hood and having inwardly-projecting water-deflectors, at their upper ends, air-pipes, a netting throughout the air-pipes, and within a conduit which connects the said hood with the said aspirator, and a water-trap communicating between the lower edge of the said conduit, and the upper edge of said air-pipes.

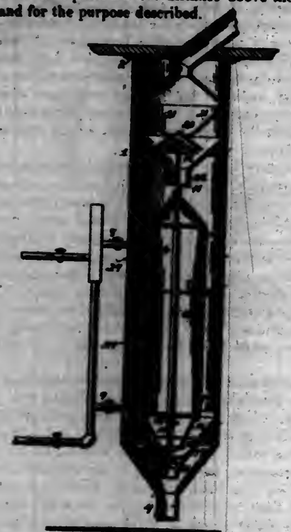
9. An evaporation and surface condenser consisting of the combination of a cylinder 30, hood 32 therefor, a blower 1, a conduit between the blower and the hood, a water-holder underneath the cylinder 30, air-pipes 6 communicating with the hood, and extending along the interior of the cylinder 30, through the lowest head 9 of the whole device, up and opening to the outside atmosphere, concentric pipes 17 surrounding the respective air-pipes 6, and of sufficient size to permit a passage-way, and communicating between the hood and a given water-reservoir, and a pipe for admitting steam and entering the space bounded by the nearest surface of the cylinder 30, and the outer surfaces of the pipes 17, means being provided for forcing water from the water-tank through said passage-ways between the pipes 6 and 17 over and into the pipes 6, which are provided with material adapted to expose a large condensing-surface.

10. An evaporation and surface condenser consisting of the combination of a cylinder 30, hood 32 therefor, a blower 1, a conduit between the blower and hood, a water-holder underneath the cylinder 30, air-pipes 6 communicating with the hood, and extending along the interior of the cylinder 30, through the lowest head of the whole device, up and opening to the outside atmosphere, concentric pipes 17 surrounding the respective air-pipes 6, and of sufficient size to permit a passage-way, and communicating between the hood and a given water-reservoir, a pipe for admitting steam and entering the space bounded by the inner surface of the cylinder 30, and the outer surfaces of the pipes 17, means being provided for forcing the water from the water-tank through said passage-ways, between the pipes 6 and 17, over and into the pipes 6, which are provided with a helical partition 19, arranged so as to make said passage-ways, helical passage-ways, between the water-holder and the hood.

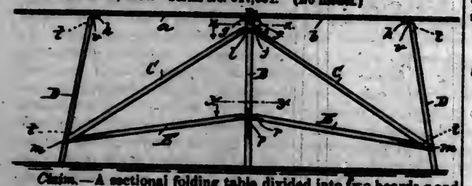
586,111. WHEAT STEAMER AND HEATER. FREDERICK ARNEST, Port Washington, Ohio. Filed June 22, 1896. Serial No. 596,472. (No model.)

Claim.—The combination with a casing having an inlet-opening at its upper end for the admission of grain and a discharge-opening at its lower end, a cone-shaped deflector suitably supported on the inside of said casing just beneath said inlet-pipe, a ledge just beneath said deflector and inwardly projecting, angularly-arranged annular ledges on the inside of said casing, of a steam-cylinder located centrally of said casing, having a series of perforations near its upper end, means for admitting steam thereto and for discharging the water of condensation therefrom, a pipe or sleeve extending centrally through said cylinder, a rod fitting within said sleeve, having a valve or cut-off upon its upper end which acts in engagement with said ledge, a coil-spring surrounding the lower end of said rod, an adjustable stop thereon against which the upper end of said spring bears and a cross-bar secured to a stationary part of the machine against which the lower end of said spring bears, an adjustable stop for limiting the upward movement of said rod, a discharge-funnel adjustably mounted upon the lower end of said rod and a stationary

funnel acting in engagement therewith secured to the side of the casing and located at a point a short distance above the same, substantially as and for the purpose described.

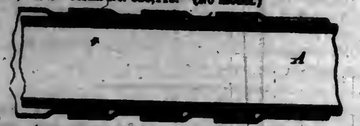


586,112. FOLDING TABLE. OSBORNE C. BELOIN, Riverside, R. I. Filed Dec. 26, 1896. Serial No. 617,091. (No model.)



Claim.—A sectional folding table divided into two boards *a* and *b* and having its top provided with legs B B and D D said legs connected to the top-sections by hinges *f f* and *r r* as set forth, the central legs B B having a supporting cross-piece *y*, said legs provided with movable sleeves *s s* with pins *l l*, with the stationary plates *n n* having fixed pins *p p*, said pins *l l*, and *p p* carrying, respectively, the outer and inner side braces C C and E E, said braces being provided with hinges *j j* and *r r* fastened thereon, the end legs D D having cross-pieces *t t* at top and bottom, with pins *m m* for connecting the ends of the outer and inner braces C C and E E and legs D D respectively, substantially as shown and described.

586,118. HOSE-COVERING. ARTHUR BOYD, Danville, Ill. Filed Jan. 21, 1897. Serial No. 620,113. (No model.)



Claim.—A protector for hose or tubing consisting of a series of sleeves or thimbles, each sleeve or thimble being composed of a main elongated cylindrical part and a short enlarged part whose walls are parallel to those of the main part, the juncture between the two being formed by a portion whose walls are at an angle to both the main and enlarged parts, the enlarged end of each sleeve or thimble receiving the end of the main portion of the adjacent sleeve or thimble, and the incline of the joining portion being at an angle corresponding to that described by the end of the main portion of an adjacent sleeve or thimble arranged adjacent to the joining portion, when the hose is bent, substantially as described.

586,114. BUNCHING ATTACHMENT FOR MOWING-MACHINES. CHARLES T. BOYER, Indianapolis, Ind., assignor to The American Buncher Manufacturing Company, same place. Filed May 11, 1896. Serial No. 591,685. (No model.)

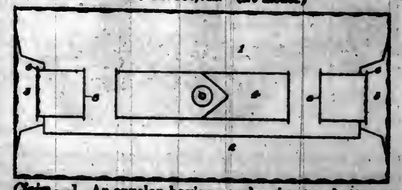
Claim.—1. The combination of a mowing-machine, a bunching attachment therefor, and couplings B adapted to connect the bunching attachment to the finger-bar of the mowing-machine, said couplings being connected to the finger-bar by means of bolts, and provided with loops to receive the transverse member of the bunching-attachment frame, the points thereof being adapted to be bent down and thus hold said bar securely in the members thereof without other fastening, substantially as shown and described.



2. The combination, with a mowing-machine, of a bunching attachment therefor, consisting of a frame, standards on the rear end of said frame, a rock-shaft mounted in said standards, a transverse bar extending below said rock-shaft and also secured to said standards, rake-teeth mounted on said rock-shaft, a clip on said rock-shaft having a tailpiece adapted to come in contact with a stop carried by said standard or cross-bar, and a spring attached thereto and operating to hold said rock-shaft to the predetermined point, said several parts being constructed, arranged and operating substantially as shown and described.

3. The combination, in a bunching attachment for mowing-machines, of the frame of said bunching attachment embodying the cross-bar F, a rock-shaft mounted above said cross-bar, a clip E^3 having a tailpiece c^3 mounted on said rock-shaft, a spring E^4 also mounted on said rock-shaft and secured by the same clip having the tailpiece, all substantially as shown and described and for the purposes specified.

586,115. ENVELOP. BENJAMIN G. BUTTON, Aurora, Ill. Filed Apr. 16, 1896. Serial No. 587,712. (No model.)



Claim.—1. An envelop having overlapping top, bottom and end flaps provided with openings, and a fastening-strip threaded through openings in the end and bottom flaps, its points of engagement with the end flaps being beyond the terminal edges of the top flap, passing inwardly over said terminal edges of the top flap, engaging intermediate openings in the top flap, and having its extremities overlapped in contact with the outer surface of the top flap and secured by a sealing device, substantially as specified.

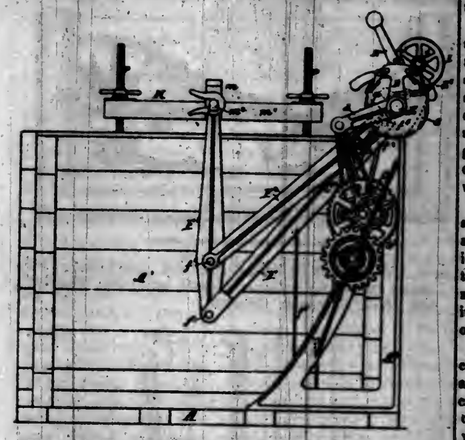
2. An envelop having end flaps provided with inner and outer slits or openings, a bottom flap provided with slits or openings registering with the inner slits of the end flaps, a top flap adapted to fold over said end and bottom flaps, and a fastening-strip threaded at its looped center through the registering slits or openings in the bottom and end flaps, extending outwardly upon opposite sides of its center and through the outer slits of the end flaps, and folded inwardly and engaged at its extremities with the top flap, substantially as specified.

3. An envelop having a bottom flap provided near its center with slits or openings 7, end flaps provided with inner and outer slits or openings 5 and 6, the former of which register with the slits 7, a top flap provided with twin parallel slits 8, and a fastening-strip threaded through the slits 5, 6 and 7, passing around the ends of the top flap, threaded through the twin slits 8, and terminally secured to the exterior surface of the top flap, substantially as specified.

586,116. ALLOY. FRANCIS A. COTHIAS, Ivry-Port, France. Filed Apr. 2, 1897. Serial No. 630,445. (No specimens.) Patented in France June 2, 1896, No. 256,882; in Belgium June 30, 1896, No. 122,235; in England June 30, 1896, No. 14,475; in Austria July 31, 1896, No. 46/2,443; in Italy July 31, 1896, No. 42,231; in Luxemburg July 31, 1896, No. 2,569, and in Spain July 31, 1896, No. 19,417.

Claim.—The herein-described alloy consisting of copper forty parts; tin two hundred parts; zinc three hundred and sixty parts and aluminium four hundred parts.

586,117. APPARATUS FOR DYEING. THOMAS C. DILL, Philadelphia, Pa., assignor to the T. C. Dill Machine Company, same place. Filed Mar. 26, 1896. Serial No. 585,296. (No model.)



Claim.—1. The combination in a dyeing-machine, of a vat, a yarn-frame, lever mechanism, and pawl-and-ratchet mechanism connected therewith for moving the yarn-frame within the liquor and also for elevating the frame from the liquor and swinging it clear of the vat, substantially as described.

2. The combination in a dyeing-machine, of a frame, a series of arms at each side, pawls, and ratchet-wheels, means for operating the pawls, a vat mounted between the side arms and a yarn-frame suspended from the arms within the vat, the whole being so arranged that the vat is independent of the frame, substantially as described.

3. The combination in a yarn-dyeing machine, of a vat, a frame and a yarn-frame, a driving-shaft, eccentrics and their rods, pawl-carrying levers, a shaft, a ratchet-wheel thereon, arms on said shaft adapted to carry the yarn-frame and shifting mechanism whereby the yarn-frame can be agitated within the liquid or removed therefrom, substantially as described.

4. The combination of a vat, a yarn-frame, longitudinal shaft-carrying arms engaging with the yarn-frame, two bell-crank levers, two pawls on each lever, a ratchet-wheel on each shaft with which the pawls engage, a driving-shaft, eccentrics thereon, and eccentric-rods adapted to each eccentric, one rod being connected to one bell-crank lever and the other rod being connected to the other bell-crank lever, substantially as described.

5. The combination in a vat, of the frame, the driving-shaft thereon, an eccentric-shaft geared to the driving-shaft, eccentrics on said shaft, two bell-crank levers one connected to one eccentric and the other connected to the other eccentric, a double ratchet-wheel, pinions on the bell-crank levers engaging with the ratchet-wheel, a longitudinal shaft carrying the ratchet-wheel, and an arm at each side of the vat secured to the shaft, one arm being connected to one side of the yarn-carrying frame and the other to the other side, substantially as described.

6. The combination in a dyeing-machine, of a vat, a frame, a longitudinal shaft, ratchet mechanism for operating said shaft, an arm secured to the shaft at each side of the vat, an extension of said arm, a yarn-frame with which said extension engages, a lever, an arm connected to the extension and pivoted to the arm near the shaft and a fixed cam engaging with the short arm of the lever, the whole so constructed that on the elevation of the yarn-frame from the tank it will be raised vertically and then swung over to one side of the vat, substantially as described.

7. The combination of a vat, a frame, longitudinal shafts on the frame, a series of arms at each side of the vat, one of said arms being fixed to the shaft, a yarn-frame carried by the said series of arms, a ratchet-wheel having two sets of teeth formed substantially as described, a bell-crank lever at each side of the wheel, mechanism for operating said bell-crank levers, two pawls on each lever one set of pawls adapted to move the wheel in one direction and the other set of pawls adapted to move the wheel in the opposite direction, pivoted weights and a shifting arm so arranged that when the shifting arm is in one position the yarn-frame will be reciprocated within the vat and when the shifting arm is in another position the yarn-frame will be raised and swung clear of the vat, substantially as described.

8. The combination in a vat, of the yarn-frame, the arms on each side of the vat supporting the yarn, the frame, the shaft carrying the arms, a double ratchet-wheel, levers hung on the shaft, pawls on said levers and weights for throwing one set of pawls out of gear while the others are acting a shifting arm and time-wheel adapted to throw the shifting arm when the yarn has been in the vat a certain length of time, substantially as described.

9. The combination of the vat, the yarn-frame, arms at each side of the vat supporting the yarn-frame, shafts carrying the arms, a double ratchet-wheel having teeth arranged substantially as described, levers at each side of the ratchet-wheel, mechanism for operating said levers, two pawls carried by one of said levers, a weight carried by each of said pawls, said weights being grooved in one side, two pawls carried by the other lever having pins adapted to grooves in the weights, and a pivoted shifting lever adapted to move one or other of the weights so as to allow the pawls with which the weight engages to be free, substantially as described.

10. The combination of the vat, the yarn-frame, a longitudinal shaft, mechanism for operating said shaft, fixed cams and arms secured at each side of the vat to the shaft, an extension of said arm engaging the yarn-carrying frame, and a lever pivoted to the arm and attached to the extension and adapted to ride upon the fixed cams and move longitudinally on its pivot whereby the yarn-frame is elevated in a vertical line out of the vat and turned on the shaft to one side of the vat, substantially as described.

11. The combination in a yarn-dyeing machine, of the vat, a yarn-carrying frame, arms at each side of the vat supporting the frame, a longitudinal shaft, ratchet mechanism thereon, a driving-shaft, a clutch and its lever, said lever being connected to one of the frame-carrying arms so that when the arms reach a certain point the lever will be shifted, substantially as described.

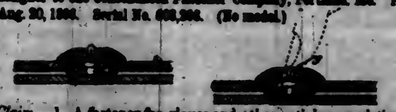
12. The combination in dyeing-machines, of the vat, the yarn-carrying frame made in two sections, sticks carried by the upper section on which the yarn is suspended, sticks carried by the lower section and supported by the yarn, vertical guides on which said lower section moves and stops within the vat with which the lower section engages so that as the yarn-carrying frame is raised and lowered within the vat during a certain portion of the stroke the yarn will be free from the sticks, substantially as described.

13. The combination of a vat, a yarn-carrying frame made in two sections, the upper section having side bars and a head, vertical screw-bolts connecting the head to the side bars, sticks adapted to the side bars carrying the yarn, the lower section consisting of sticks and split side bars and means for locking the two sections of the side bar so as to hold the sticks in place, substantially as described.

14. The combination of the vat, yarn-carrying frame made in two sections, the upper section consisting of two split side bars having recesses, sticks adapted to said recesses, screw-rods projecting from each side bar, nuts on the screws adapted to lock the sticks to the side bars, a head consisting of a longitudinal bar and cross-bar, said screws passing through the cross-bars and having nuts, projections on the longitudinal bar engaging with the lifting mechanism, with a lower section of the yarn-carrying frame consisting of side bars and sticks, substantially as described.

15. The combination in a dyeing-machine, of the vat, the yarn-frame, pins on the yarn-frame, an arm at each side of the vat, agitating and lifting mechanism connected to said arm, each arm being slotted and having the slot open at one side to engage with the pins on the yarn-carrying frame, the open slots being so arranged that when the yarn-frame is elevated it will be carried by the arms, substantially as described.

586,118. FASTENER. WILLIAM B. H. DOWNE, Newton, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Aug. 20, 1896. Serial No. 603,206. (No model.)



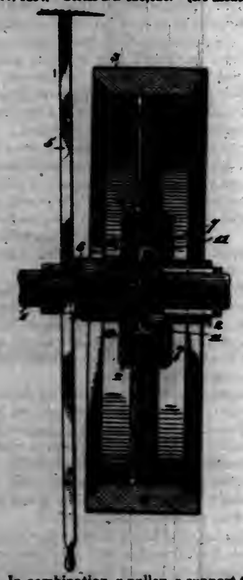
Claim.—1. A fastener for gloves and other articles, consisting of a male member attached to one flap of the article and a female member attached to the other flap, the female or socket member provided with a chamber having a latch therein, and a finger-knob for operating said latch from the outside of said chamber, said latch and knob, struck up from one piece of metal, substantially as described.

2. A fastener consisting of two members, a male member and a female member; the latter being provided with a perforated top, in combination with a latch located within the socket member, and having a knob or pusher which projects through the perforation in the female or socket member for releasing the latch, said latch and knob struck up from one piece of metal, substantially as described.

3. A fastener for gloves and other articles, comprising a male or ball member and means for attaching it to one flap of an article and a female or socket member and means for attaching it to the other flap; said socket member having a perforated top or cap and having within it a latch provided with a knob or pusher which projects

through the said perforation for releasing the latch, said latch and knob struck up from one piece of metal, substantially as described.

586,119. SPLIT PULLEY. FRANCIS X. BOSTYN, Sturgis, Mich. Filed Mar. 17, 1897. Serial No. 628,089. (No model.)



Claim.—1. In combination, a pulley, a support therefor adapted to be secured to the line-shafting to rotate therewith, levers pivoted at their inner ends to the support, gripping-blocks attached to the outer ends of the pivoted levers, and means for moving the pulley upon its support to cause the gripping-blocks to engage with and cause the pulley to rotate with its support, substantially as set forth.

2. In combination, a support adapted to be secured to the line-shafting to rotate therewith, a pulley having a chambered hub and slidably and rotatably mounted upon the said support, levers pivoted at their inner ends to the support, gripping-blocks having connection with the outer ends of the levers and operating in the said chambered hub, and means for sliding the pulley upon its support, substantially as and for the purpose set forth.

3. In combination, a support adapted to be secured to the line-shafting to rotate therewith, a pulley rotatably and slidably mounted upon the support, toggle-levers pivotally connected at their inner ends to each other and to the support, gripping-blocks having pivotal connection with the outer ends of the toggle-levers, and means for positively moving the pulley upon its support in each direction, substantially as and for the purpose described.

4. In combination, a support adapted to be secured to the line-shafting to rotate therewith, a pulley rotatably and slidably mounted upon the support, toggle-levers spanning the support and having pivotal connection therewith at opposite sides, gripping-blocks applied to the outer ends of the toggle-levers, and means for positively moving the pulley upon its support in opposite directions, substantially as set forth.

5. In combination, a bushing or sleeve forming a support and adapted to be secured to a line-shafting, a pulley rotatably and slidably mounted upon the support and having a chambered hub, gripping-blocks located within the chambered hub, toggle-levers of approximately semicircular form spanning the support and having pivotal connection therewith at opposite sides, and having pivotal connection at their outer ends with the gripping-blocks, and means for positively moving the pulley upon its support in each direction, substantially in the manner set forth for the purpose described.

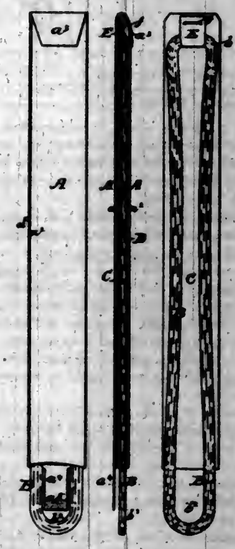
586,120. PICTURE-FRAME ATTACHMENT. PETER H. ELTING, New York, N. Y. Filed Mar. 11, 1897. Serial No. 626,860. (No model.)

Claim.—1. A picture-frame having a pivoted pointer secured to one of the horizontal rails thereof, said pointer having a weighted lower end.

2. A picture-frame having a slot in one of the horizontal rails thereof and a pivoted pointer situated within said slot and provided with a weighted lower end, the upper end of said pointer being of such length that it stands even with the upper edge of the rail when said pointer is at right angles thereto.



586,121. SILK OR THREAD PACKAGE. JOHN P. FRALEY, Philadelphia, Pa., assignor to Leonard O. Smith, same place. Filed Apr. 9, 1896. Serial No. 586,806. (No model.)



Claim.—In combination with a narrow paper pocket having a flap a^2 permanently and wholly crossing one end thereof and an open end provided with a tongue a^4, the card C, removable from said pocket and loop E secured to one end of said card, whereby all the strands of a skein are upon the same face of the card and one end of the latter is wholly inclosed within the pocket substantially as described.

586,122. BOX CORNER-FITTING. HENRY A. GALE, Hartford, Conn., assignor to Georgiana C. Gale, same place. Filed Feb. 11, 1897. Serial No. 622,869. (No model.)



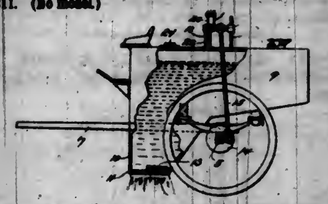
Claim.—A box-fitting formed in a single piece of metal having perforated legs that extend with their faces in planes at right angles with each other and adapted to be attached to the walls of a box near a corner, and having an angular part the walls of which are at right angles with each other and incline outwardly from the planes of the legs from which they project, said angular part being adapted to extend beyond and a little out from the edges at the corner of the box to which the fitting is attached and form a pocket for the adjacent corner of the next box to be stacked, substantially as specified.

586,123. TOOL. JOHN GUNNING and JAMES F. GUNNING, Amesbury, Mass. Filed June 13, 1896. Serial No. 595,470. (No model.)



Claim.—As a new article of manufacture a tool consisting of a brace and bit, and having said brace provided with handles, a cylindrical head secured to said brace opposite to said handle, an annular flange or shoulder mounted on the upper surface of said cylindrical head, a tubular casing having a closed lower end provided with a central passage therein mounted on said head and engaging at its upper end said shoulder, said central passage being of an angular or square form in cross-section, a pin or bolt secured to the upper end of said head, said tubular casing being provided with a transversely-extending slot therein, and having said pin passed therethrough, said head being provided with a central annular chamber therein and at one end thereof, a strong semicircular plate-spring partly surrounding said head, an outwardly-directed shoulder on the end thereof entering into a longitudinal groove or recess formed in the inner walls of said casing, a pin or bolt secured in the other end of said plate-spring, said head being provided also with a central longitudinal bore having formed in the opposite side walls longitudinally-extending grooves, said bore having a lower open end, a holder mounted therein of a cylindrical form, longitudinally-extending ribs on the opposite sides thereof adapted to enter said grooves, and being also provided with a central longitudinal chamber, an extension in communication with said central bore and said head and a spring mounted thereon adapted to actuate said holder, all of said parts being combined substantially as described.

586,124. APPARATUS FOR MELTING AND REMOVING SNOW. PETER B. HAMBURY, New York, N. Y. Filed July 31, 1896. Serial No. 601,311. (No model.)



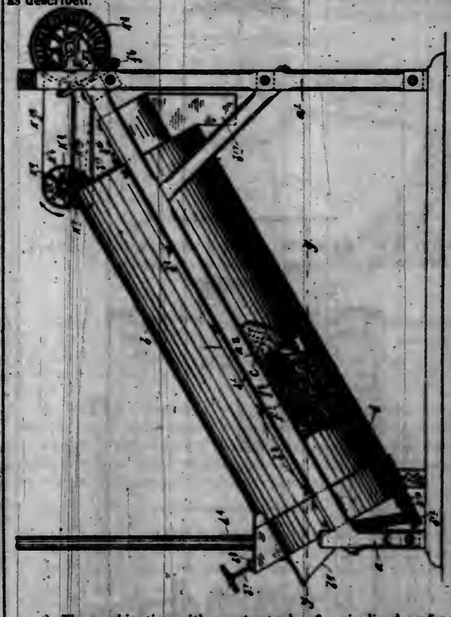
Claim.—1. The herein-described apparatus for melting snow, the same consisting of a suitable vehicle, a bed or body mounted thereon, and filled with gasolene or similar material, a portion of said body being carried downwardly in proximity to the ground, and the bottom thereof being provided with fine perforations through which the gasolene or other material is adapted to be forced, and an air-pump which is operated by the vehicle, for forcing air into said bed or body whereby the gasolene or other material is forced through said perforations, substantially as shown and described.

2. The herein-described apparatus for melting snow, the same consisting of a suitable vehicle, a bed or body mounted thereon, and filled with gasolene or similar material, a portion of said body being carried downwardly in proximity to the ground, and the bottom thereof being provided with fine perforations through which the gasolene or other material is adapted to be forced, and an air-pump which is operated by the vehicle, for forcing air into said bed or body whereby the gasolene or other material is forced through said perforations, said perforated body portion being also provided with a sliding plate or board which is mounted thereon, and adapted to close said perforations, substantially as shown and described.

3. The herein-described apparatus for melting snow, the same consisting of a suitable vehicle, a bed or body mounted thereon, and filled with gasolene or similar material, a portion of said body being carried downwardly in proximity to the ground, and the bottom thereof being provided with fine perforations through which the gasolene or other material is adapted to be forced, and an air-pump which is operated by the vehicle, for forcing air into said bed or body whereby the gasolene or other material is forced through said perforations, said perforated body portion being also provided with a sliding plate or board which is mounted thereon, and said bed or body being also provided in the top thereof with a safety-valve, substantially as shown and described.

586,125. GRAIN-WASHER. WILLIAM H. HASTINGS and CHAUNCEY B. FOSTER, Minneapolis, Minn. Filed Apr. 27, 1896. Serial No. 589,217. (No model.)

Claim.—1. The combination with a water-tank, of an inclined vessel and a combined beater and conveyer cooperative within the same, both set with their lower ends partially submerged in the water, a dashboard or baffle-plate, in said inclined vessel above the water-level of the same, and a fresh-water-spraying device discharging into the washed grain in said vessel above said dashboard, substantially as described.



2. The combination with a water-tank, of an inclined perforate rotary drum with its lower end partially submerged in the water of said tank, and provided thereat with a non-rotary head working with a grain-tight joint against the same, an adjustable bearing-piece working against the lower end of the lower hub of said drum, and a combined beater and conveyer working in said drum and journaled at its lower end in said head, substantially as described.

3. The combination with a water-tank, of an inclined drum and a combined beating and conveying reel cooperating within said drum, both set with their lower ends partially submerged in the water, a dashboard or baffle-plate carried by said reel above the water-level, and a fresh-water-spraying device discharging onto the washed grain above said dashboard, substantially as described.

4. The combination with a water-tank, of an inclined drum, a combined beating and conveying reel, involving a hollow shaft and screw-blades spaced apart therefrom but connected therewith by diverging arms, said drum and said reel cooperating, with their lower ends in the water, a dashboard or baffle-plate carried by said reel, above the water-level, and a spraying device discharging from said hollow reel-shaft into said drum, above said dashboard, substantially as described.

5. The combination with a water-tank, of an inclined rotary drum with non-rotary head at its lower end, a combined beating and conveying reel, involving a hollow shaft journaled at its lower end in said non-rotary head, and screw-blades spaced apart from said shaft but connected therewith, by diverging arms, a dashboard or baffle-plate carried by said reel, above the water-level, and a spraying device discharging from said hollow shaft above said dashboard, substantially as described.

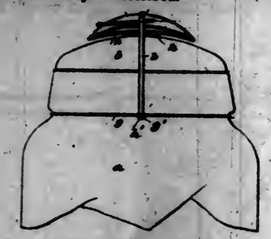
586,126. FRUIT-JAR. WILLIAM HESTON, Homestead, Pa., assignor to the Homestead Manufacturing Company, Limited, same place. Filed Oct. 24, 1896. Serial No. 609,866. (No model.)

Claim.—1. A valve for sealing vented fruit or preserve jars, having a teat for cooperation with the vent-plug, and a notched cam for cooperation with the bail, and adapted for use with a compressible vent-plug, substantially as described.

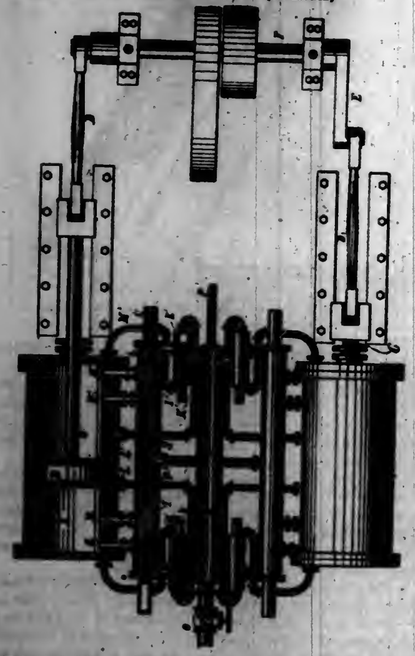
2. A valve for sealing vented fruit or preserve jars, having a teat about which a compressible vent-plug is crowded, a notched cam to be engaged by the bail, and a cast-off for the bail, substantially as described.

3. A fruit or preserve jar, having a swinging bail pivoted to it,

a cover having a vent, and a perforated compressible plug arranged in a recess around said vent, combined with a valve having a teat adapted to enter the opening in the plug, a notched cam adapted to receive the bail and thereby compress the plug about the teat to close the vent in the cover, and a cast-off pivoted to the valve beneath the bail, substantially as described.



586,127. AIR-MOTOR. JOSEPH H. HADLEY, New York, N. Y. Filed Dec. 30, 1895. Serial No. 573,212. (No model.)



Claim.—1. The combination of the piston B, cylinder A with admission-ports G, G' and exhaust-ports H, H' with a main valve controlling said ports, and operated by fluid-pressure from the source of fluid-pressure supply, and cut-off valves operated by fluid compressed at the end of the stroke by the piston to throw the said cut-off valves open, and by fluid-pressure from the cylinder through cut-off ports, to throw the said cut-off valves closed.

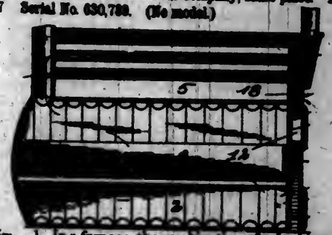
2. The combination in a fluid-pressure engine of the cylinder A, and piston B, fluid-actuated cut-off valves having one face exposed to cut-off ports leading from the cylinder, and the other face exposed to opening-ports leading from the end of the cylinder and a main valve also fluid-actuated and controlling admission, and exhaust-ports independent of each other and of the said opening-ports.

586,128. TOILET-PAPER HOLDER. FRANK H. HOBBS, Green Bay, Wis. Filed July 17, 1896. Serial No. 599,535. (No model.)

Claim. The combination with a wall-plate, of a fixed side arm projecting therefrom and provided with a paper-supporting cross-bar, a removable side arm temporarily secured to said wall-plate by a dovetail joint, a slotted thimble projecting from the detachable side arm, and provided with a hook pivotally supported in said slot, an extended notched rod projecting from the paper-supporting bar and adapted to fit into said thimble with the hook engaging in one of said notches and a spring arranged to project from a recess in the paper-supporting bar and adapted to resist the rotation of the roll, substantially as described.



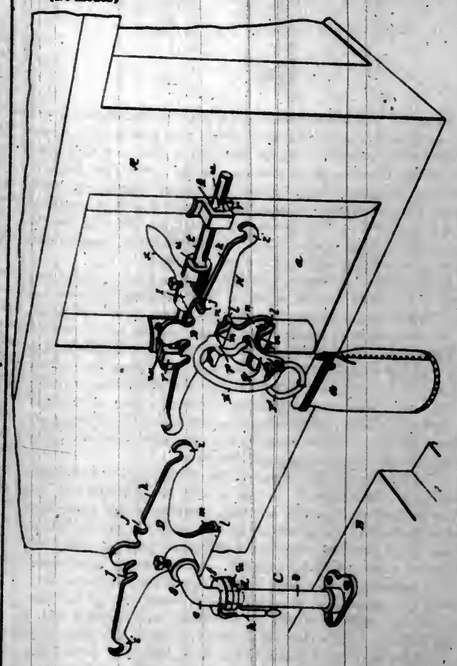
586,129. FURNACE. CHARLES D. HOWARD, Syracuse, N. Y., assignor to the Howard Furnace Company, same place. Filed Apr. 5, 1897. Serial No. 630,788. (No model.)



Claim.—1. In a furnace, the combination of a double-walled front forming a chamber, the upper portion of which communicates with the smoke-outlet and the lower portion of which communicates with the furnace below the grate, said front having an air-inlet near its top and adjacent to the smoke-outlet, in combination with valve mechanism for directing the air either to the smoke-outlet or to the combustion-chamber.

2. In a furnace, the combination of a double-walled front, forming a chamber, the upper portion of which communicates with the smoke-outlet and the lower portion with the furnace below the grate, said front having an air-inlet near its top and adjacent to the smoke-outlet, and a valve mechanism for directing the air from the ash-pit to said smoke-outlet.

586,180. MAIL-BAG CATCHER AND DELIVERER. JOHN H. KALVALAGE, New Orleans, La. Filed Mar. 6, 1897. Serial No. 626,470. (No model.)



Claim.—1. In a mail-bag-delivery apparatus, the combination of a railway-car, a catcher device arranged at one side of the car and extending longitudinally thereof and having its upper edge inclined and also having brackets on its outer side or face provided with upwardly-extending lugs, a stationary crane arranged at one side of the car-track, a device connected to the crane and extending in the same direction as the car-track and having its upper edge inclined and also having brackets provided with upwardly-extending lugs, and a ring adapted for use on the catcher and crane device and having the upper and lower external portions designed to rest on the brackets of said devices within the lugs and portions adapted to bear on the brackets between the lugs, substantially as specified.

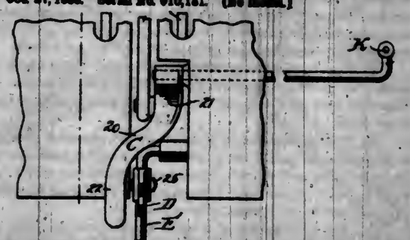
2. The combination with a mail-bag catching and holding device, adapted for use on a mail-bag catcher or crane, and having brackets arranged one above the other on its face and provided with upwardly-extending lugs; of a ring adapted for the connection of a mail-bag and having upper and lower lateral portions designed to rest on the brackets of the bag holding and catching device within the lugs thereof and portions adapted to bear on the brackets between the lugs, substantially as specified.

3. The combination with a mail-bag catching and holding device, adapted for use on a mail-bag catcher or crane, and having brackets, arranged one above the other on its face, and provided with upwardly-extending lugs; of a ring having upper and lower portions designed to rest on the brackets of the bag holding and catching device within the lugs thereof and portions adapted to bear on the brackets between the lugs and also having the pivoted gate portion g, substantially as specified.

4. The combination of a car having a door-opening, brackets connected to the car and arranged on opposite sides of the door-opening, a shaft or rod arranged in said brackets, the arm mounted on the shaft, a section pivotally connected with the outer end of the arm, means for normally securing the said section in alinement with the arm, and a bag holding and catching device carried by said pivotally-connected section, substantially as specified.

5. The combination of a car having a door-opening, brackets connected to the car and arranged on opposite sides of the door-opening and having apertures of angular form in cross-section, a shaft or rod arranged in the bracket-apertures and having portions of angular form conforming to the apertures of the brackets and also having reduced portions of circular form in cross-section and further having a plurality of apertures, a staple adapted to straddle one of the brackets and be inserted in the apertures of the shaft or rod, an arm mounted on the shaft or rod and disposed at right angles thereto, and a mail-bag catching and holding device carried by said arm, substantially as specified.

586,181. GRAIN-BINDER. MAURUS KANE, Chicago, Ill. Filed Oct. 27, 1896. Serial No. 610,181. (No model.)



Claim.—1. In a grain-binder, the combination with the needle, packers respectively arranged on opposite sides of said needle and operating mechanisms therefor, of a trip-arm having a portion thereof arranged to coöperate with one of the packers and another portion arranged to coöperate with the other packer; as and for the purpose set forth.

2. In a grain-binder, the combination with the needle, and the packers respectively arranged on opposite sides thereof and operating mechanisms therefor, of a trip-arm having one portion arranged adjacent to the plane in which one of the packers operates, and another portion arranged adjacent to the plane in which the other of said packers operates, as and for the purpose set forth.

3. In a grain-binder, the combination with the needle, and the packers and operating mechanisms therefor, of a trip-arm having a lateral bend or offset, whereby one portion thereof coöperates with one of said packers, and another portion thereof coöperates with the other of said packers; as and for the purpose set forth.

4. The combination with the needle, packers and compressor-hook, of a trip-arm mounted at a point grainward with respect to the needle-support and provided with a lateral bend or offset, whereby one portion thereof coöperates with one of the packers and another portion thereof coöperates with the other packer and means actuated by said trip-arm for throwing said needle into action; as and for the purpose set forth.

5. The combination with the needle, packers and compressor-hook, of a trip-arm mounted at a point grainward with respect to the needle-support and to one side of the plane in which the needle operates, said trip-arm arranged to project above the binder-deck and to extend stubbleward with respect to the needle and having one portion thereof arranged on one side of the plane in which the needle operates and adjacent to the plane in which one of the packers operates, and having another portion arranged on the opposite side of the plane in which the needle operates and adjacent to the plane in which the other packer operates; as and for the purpose set forth.

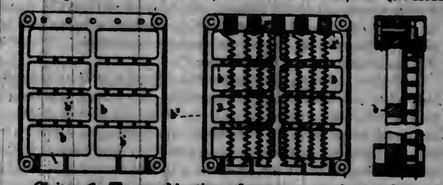
586,182. CAPE FOR GOSSAMERS. FREDERICK C. LAMB, Philadelphia, Pa. Filed Oct. 7, 1896. Serial No. 608,063. (No model.)



Claim.—1. A cape for gossamers, provided with fastening means along the side edges and with draw-strings at the upper and lower ends thereof, whereby the same may be converted into bag form for containing the gossamer in its folded condition, substantially as described.

2. A cape for gossamers made of waterproof material having fastening devices along the side edges thereof, whereby the same may be converted into bag form, draw-strings at the upper and lower edges thereof, and means at the upper edge of the cape for securing the same to a gossamer, substantially as described.

586,183. METHOD OF AND MEANS FOR SUPPORTING AND INSULATING ELECTRIC CONDUCTORS. HARRY W. LEONARD, East Orange, N. J. Filed Feb. 13, 1897. Serial No. 623,227. (No model.)



Claim.—1. The combination of a support and a conductor attached thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

2. The combination of a support and a conductor attached thereto at intervals through the agency of a vitreous material, the conductor being free to expand without subjecting the vitreous material to injurious strains, substantially as and for the purpose set forth.

3. The combination of a support and a ribbon-like conductor attached thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

4. The combination of a support and a ribbon-like conductor attached edgewise thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

5. The combination of a support and a ribbon-like conductor attached thereto at intervals through the agency of a vitreous material, the conductor being free to expand without subjecting the vitreous material to injurious strains, substantially as and for the purpose set forth.

6. The combination of a grid, grate or lattice like support, and a conductor attached thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

7. The combination of a grid, grate or lattice like support, and a conductor attached thereto at intervals through the agency of a vitreous material, the conductor being free to expand without subjecting the vitreous material to injurious strains, substantially as and for the purpose set forth.

8. The combination of a grid, grate or lattice like support, and a ribbon-like conductor attached thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

9. The combination of a support and a reflexed ribbon-like conductor attached thereto at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

10. The combination of a support and a reflexed ribbon-like conductor attached thereto at intervals through the agency of a vitreous material, the conductor being free to expand without subjecting the vitreous material to injurious strains, substantially as and for the purpose set forth.

11. The combination of a support, a layer of adhesive insulating material adherent thereto, and a conductor attached to said insulated support at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

12. The combination of a support, a layer of adhesive insulating material adherent thereto, and a ribbon-like conductor attached to said insulated support at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, substantially as and for the purpose set forth.

13. In a rheostat, the combination of a support, a conductor arranged in sections and attached to said support at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, a series of contact-plates to which the sections of the conductor are attached, and a contact-arm for making contact with said plates to place the sections of the conductor successively into or out of circuit, substantially as set forth.

14. In a rheostat, the combination of a support, a ribbon-like conductor arranged in sections and attached to said support at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, a series of contact-plates to which the sections of the conductor are attached, and a contact-arm for making contact with said plates to place the sections of the conductor successively into or out of circuit, substantially as set forth.

15. In a rheostat, the combination of a grid, grate or lattice like support, a conductor arranged in sections and attached to said support at intervals through the agency of an adhesive material, the conductor being free to expand without subjecting the adhesive material to injurious strains, a series of contact-plates to which the sections of the conductor are attached, and a contact-arm for making contact with said plates to place the sections of the conductor successively into or out of circuit, substantially as set forth.

16. In a rheostat, the combination of a support, a conductor arranged in sections and attached to said support at intervals through the agency of an adhesive insulating material, the conductor being free to expand without subjecting the adhesive material to injurious strains, a series of contact-plates to which the sections of the conductor are attached, and a contact-arm for making contact with said plates to place the sections of the conductor successively into or out of circuit, substantially as set forth.

17. In a rheostat or electric heater, the combination of two or more supports and a conductor adhesively attachdd to each support, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

18. In a rheostat or electric heater, the combination of two or more supports and a conductor attached to each plate at intervals through the agency of an adhesive material, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

19. In a rheostat or electric heater, the combination of two or more grid, grate or lattice like supports and a conductor adhesively attached to each support, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

20. In a rheostat or electric heater, the combination of two or more supports and a ribbon-like conductor adhesively attached to each support, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

21. In a rheostat or electric heater, the combination of two or more supports and a ribbon-like conductor attached to each plate at intervals through the agency of an adhesive material, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

22. In a rheostat or electric heater, the combination of two or more grid, grate or lattice like supports and a ribbon-like conductor adhesively attached to each support, the conductor attached to each plate being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation, substantially as and for the purpose set forth.

23. In a rheostat, the combination of two or more supports of the character herein described, conductors attached thereto at intervals through the agency of an adhesive material, the conductors being free to expand without subjecting the adhesive material to injurious strains, means for securing the supports together, and mechanism for controlling and operating the rheostat or electric heater, substantially as set forth.

24. In a rheostat, the combination of two or more supports of the character herein described, ribbon-like conductors attached to each support at intervals through the agency of an adhesive material, the said conductors being arranged in sections and the corresponding sections of each conductor being connected in multiple-arc relation to each other, means for securing the supports together, and mechanism for controlling and operating the rheostat, substantially as set forth.

25. In a rheostat, the combination of a support, a conductor arranged in sections and attached thereto at intervals through the agency of an adhesive material, a second support provided with a series of contact-buttons to which the sections of the conductor are attached, and a contact-lever mounted upon said second support, substantially as set forth.

26. In a rheostat, the combination of two or more supports, a conductor attached to each support, said conductors being arranged in sections and attached at intervals by the agency of an adhesive material and the corresponding sections of each conductor being connected in multiple-arc relation to each other, a support carrying a series of contact-plates with which the sections of the conductors are connected, and a contact-lever mounted upon said latter support, substantially as set forth.

27. In a rheostat, the combination of two or more supports, a conductor attached to each support, said conductors being arranged in sections and attached at intervals by the agency of an adhesive material and the corresponding sections of each conductor being connected in multiple-arc relation to each other, a support carrying a series of contact-plates with which the sections of the conductors are connected, and mechanism for controlling and operating the rheostat mounted upon said latter support, substantially as set forth.

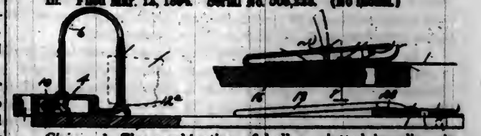
28. The combination of a support provided with a series of perpendicular partitions, and a reflexed ribbon-like conductor placed edgewise upon said support between said partitions, substantially as set forth.

29. The combination of a metal support provided with a series of perpendicular partitions, a reflexed ribbon-like conductor placed edgewise upon said support between said partitions, and a layer of suitable insulating material separating the conductor from the support and partitions, substantially as set forth.

30. The combination of a metal support provided with a series of perpendicular partitions, a reflexed ribbon-like conductor placed edgewise upon said support between said partitions, and a layer of vitreous insulating material like enamel separating the conductor from the support and partitions, substantially as set forth.

31. The combination of a metal support provided with a series of perpendicular partitions, a reflexed ribbon-like conductor placed edgewise upon said support between said partitions, a layer of suitable insulating material between said conductor and the partitions, and layers of adhesive insulating material at intervals between the inner edge of said conductor and the support and whereby the conductor is attached at intervals to the support, substantially as set forth.

586,184. LETTER OR BILL FILE. WILLIAM LUBLEY, Chicago, Ill. Filed Mar. 12, 1894. Serial No. 503,233. (No model.)



Claim.—1. The combination of hollow, slotted impaling-pins, with supplementary impaling-pins inserted within said hollow pins, and having their lower ends connected together, substantially as set forth.

2. The combination of hollow, slotted, open-ended impaling-pins, a base in which the ends of said pins are secured, and supplementary impaling-pins inserted within said hollow pins and having their lower ends connected together, substantially as set forth.

3. The combination of hollow, slotted impaling-pins with an extensible strip or wire having its ends located within said impaling-pins, respectively, substantially as set forth.

4. The combination with the impaling-pins, of supplementary impaling-pins consisting of coils telescoped with said impaling-pins, and having their lower ends connected together, substantially as set forth.

5. In a punch for letter-files, the combination of a folding spring-plate having dies or punches and openings therefor, and means for spreading the folds of said plate apart, said folds having a normal tendency to come together, substantially as set forth.

6. In a punch for letter-files, the combination with a plate having openings for the dies, of a spring carrying said dies and exerting a normal tendency to approach said plate, and a handle for withdrawing the dies, substantially as set forth.

7. In a punch for letter-files, the combination of a folded spring-plate having punches or dies and openings therefor, and a handle or lever having flattened ends arranged between the folds of said plate for spreading them apart, substantially as set forth.

8. In a punch for letter-files, the combination of a folded spring-plate having punches or dies and openings therefor, and a handle or lever having flattened ends arranged between the folds of said plate, and said plate being provided with recesses for said flattened ends, substantially as set forth.

9. In a punch for letter-files, the combination of a folded spring-plate having punches or dies and openings therefor, and means for spreading the folds of said plate apart, the edges of one of said folds having struck-up tongues and the other fold having notches for the passage of said tongues, so as to form gages for the papers, substantially as set forth.

586,185. BOLSTER-PLATE. BYRON MARKHAM, Helena, Mont. Filed July 27, 1896. Serial No. 600,630. (No model.)

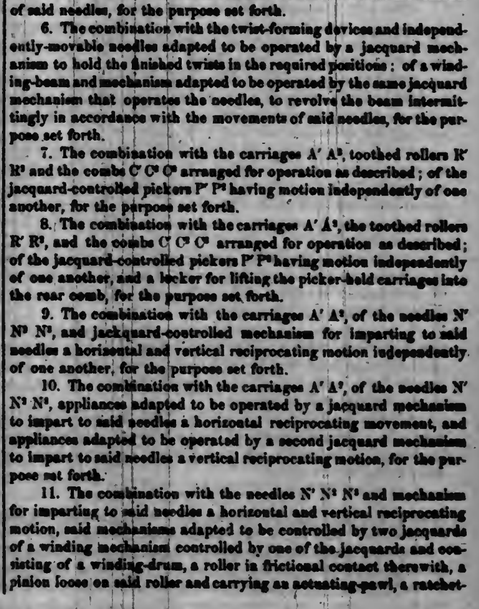


Claim.—The combination with the axle and sand-board secured thereto by suitable clips and bolts, of a plate K resting on the top of the sand-board provided with apertures and a key-slot and a recess under the slot, a bolster, a plate F on the under side of the bolster secured thereto by clips on the top of the bolster and bolts secured in countersunk apertures in the plate, the said plate resting on the plate on the sand-board and adapted to have a swiveled movement thereon, a king-bolt projecting from the plate on the bolster, a key-shaped head on the end of the bolt adapted to be inserted in the key-slot in the plate on the sand-board, a brace M on the lower side of the sand-board, bolts secured to the brace and countersunk in the apertures in the plate on the sand-board, and a similarly-formed brace N secured to the axle and projecting therefrom, the braces provided with a coupling-pin to which a coupling-pole is adapted to be attached, substantially as described.

586,186. LACE-MAKING MACHINE. ANTONY MATTHEUS, Vienna, Austria-Hungary. Filed Mar. 3, 1897. Serial No. 625,852. (No model.)

Claim.—1. The combination of three combs in the same arc of a circle, the center comb adapted to be shifted longitudinally, and carriages adapted to be moved out of one comb into another, of jacquard-controlled pickers, having independent motion, adapted to move the carriages back in the combs, for the purposes set forth.

2. The combination of three combs in the same arc of a circle, the center comb adapted to be shifted longitudinally, and carriages adapted to be moved out of one comb into another; of jacquard-controlled pickers having independent motion adapted to move the carriages back into the combs, and a locker for lifting the picker-hold carriages into the rear comb, for the purposes set forth.



3. The combination with the twist-forming carriages, of jacquard-controlled needles having motion independently of one another to hold the finished twists in any required position and as long as required, thereby preventing alterations in the form and position of said twists in the pattern, substantially as set forth.

4. The combination with the twist-forming devices, of a winding mechanism for the finished lace, comprising a winding-beam and a jacquard-controlled operating mechanism imparting to the beam an intermittent rotation in accordance with the formation of the fabric, for the purpose set forth.

5. The combination with the twist-forming devices and independently-movable jacquard-controlled needles to hold the finished twists in the required positions; of a winding mechanism comprising a winding-beam and jacquard-controlled operating mechanism to impart to said beam an intermittent rotation in accordance with the movements of said needles, for the purpose set forth.

6. The combination with the twist-forming devices and independently-movable needles adapted to be operated by a jacquard mechanism to hold the finished twists in the required positions; of a winding-beam and mechanism adapted to be operated by the same jacquard mechanism that operates the needles, to revolve the beam intermittingly in accordance with the movements of said needles, for the purpose set forth.

7. The combination with the carriages A' A^3, toothed rollers R' R^3 and the combs C' C^3 C^5 arranged for operation as described; of the jacquard-controlled pickers P' P^3 having motion independently of one another, for the purpose set forth.

8. The combination with the carriages A' A^3, the toothed rollers R' R^3, and the combs C' C^3 C^5 arranged for operation as described; of the jacquard-controlled pickers P' P^3 having motion independently of one another, and a locker for lifting the picker-hold carriages into the rear comb, for the purpose set forth.

9. The combination with the carriages A' A^3, of the needles N' N^3 N^5, and jacquard-controlled mechanism for imparting to said needles a horizontal and vertical reciprocating motion independently of one another, for the purpose set forth.

10. The combination with the carriages A' A^3, of the needles N' N^3 N^5, appliances adapted to be operated by a jacquard mechanism to impart to said needles a horizontal reciprocating movement, and appliances adapted to be operated by a second jacquard mechanism to impart to said needles a vertical reciprocating motion, for the purpose set forth.

11. The combination with the needles N' N^3 N^5 and mechanism for imparting to said needles a horizontal and vertical reciprocating motion, said mechanisms adapted to be controlled by two jacquards of a winding mechanism controlled by one of the jacquards and consisting of a winding-drum, a roller in frictional contact therewith, a pinion loose on said roller and carrying an actuating-pawl, a ratchet-

wheel fast on the roller-journal engaged by said pawl, a rack-bar in gear with the aforesaid pinion, and intermediate connections connecting the rack-bar with the jacquard, substantially as and for the purpose set forth.

586,187. SANITARY SHOE. CARL P. MEDERS, Weisser Hirsch, Germany, assignor to Otto Lehmann, New York, N. Y. Filed June 12, 1896. Serial No. 595,251. (No model.)



Claim.—1. A sanitary shoe consisting essentially of the sole, the heel and the uppers, a considerable portion of the uppers being formed of leather strips interlaced or interwoven, while the toe, the heel, the lower portion of the same near the sole and the top front portion are formed of a continuous uninterrupted piece of leather, the uppers being cut out so that one row of the leather strips is formed integral therewith, substantially as described.

2. In a sanitary shoe, the uppers a considerable portion of which is formed of leather strips interlaced or interwoven, while the toe, the heel, the lower portion of the same and the top front portion are formed of a continuous uninterrupted piece of leather, the uppers being cut out so that one row of the leather strips is formed integral therewith, substantially as described.

3. The combination with a boot or shoe, a series of strips formed in the upper of the same by a series of incisions and interlaced with a series of strips running at right angles thereto and secured at their ends to the upper.

586,188. MEANS FOR FASTENING SPOKES TO VEHICLE-WHEELS. ALEXANDER P. MONROW, Elmira, N. Y. Filed Oct. 12, 1896. Serial No. 608,574. (No model.)



Claim.—1. A wheel-hub provided with a series of annular flanges comprising a central and side flanges, each of said flanges being provided with slots or openings, in combination with headed spokes adapted to enter said slots or openings.

2. A wheel-hub provided with two annular flanges, one of said flanges having holes or perforations and the other provided with open slots extending to the periphery thereof, in combination with headed spokes adapted to enter said slots or openings.

3. The combination with a wheel-hub, of a series of annular flanges comprising a central flange and an inner and an outer flange, said flanges being provided with slots or openings, and a series of spokes provided with heads, each of said heads being adapted to enter an opening in the central flange, and an alined opening in one of the other flanges.

4. The combination with a wheel-hub, of a series of annular flanges comprising a central flange provided with openings to receive the cross-head of the spoke, and parallel inner and outer flanges provided with inclined or undercut slots.

5. A hub having two series of annular flanges, each series comprising a central flange provided with perforations, and a concentric outer and inner flange provided with slots, in combination with spokes provided with heads adapted to be secured to the central flange and to one of the slotted flanges.

6. The combination with a hub provided adjacent to each of its ends, with a series of concentric flanges provided with openings, of headed spokes, secured to the central flange, and alternately to the other flanges of the series.

586,189. GLOVE ATTACHMENT. GEORGE A. MOSS, San Francisco, Cal. Filed Oct. 5, 1896. Serial No. 607,842. (No model.)

Claim.—The combination with a glove, of the spring-stud secured to one side and the embracing button-eyelet attached to the opposite side of the wrist-opening, of a plate or strip having connected to one end thereof an embracing button-eyelet which engages with the spring-stud secured to one side of the wrist-opening of the glove, and of a spring-stud secured to the opposite end of the plate or strip which engages with the embracing button-eyelet secured to the opposite side of the wrist-opening of the glove.

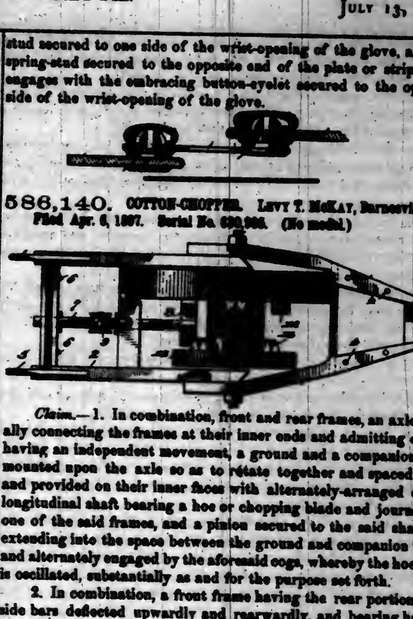
586,140. COTTON-CHOPPER. LEVI T. MCKAY, Barnesville, Ala. Filed Apr. 6, 1897. Serial No. 630,993. (No model.)



Claim.—1. In combination, front and rear frames, an axle pivotally connecting the frames at their inner ends and admitting of each having an independent movement, a ground and a companion wheel mounted upon the axle so as to rotate together and spaced apart, and provided on their inner faces with alternately-arranged cogs, a longitudinal shaft bearing a hoe or chopping blade and journaled to one of the said frames, and a pinion secured to the said shaft and extending into the space between the ground and companion wheels and alternately engaged by the aforesaid cogs, whereby the hoe-blade is oscillated, substantially as and for the purpose set forth.

2. In combination, a front frame having the rear portion of its side bars deflected upwardly and rearwardly, and bearing harrow-teeth, a rear frame bearing cultivator-shovels, an axle pivotally connecting the overlapping ends of the front and rear frames, a ground and a companion wheel mounted upon the axle so as to rotate together and provided on their inner sides with alternately-disposed cogs, a longitudinal shaft journaled to the rear frame and bearing a hoe-blade, and a pinion secured to the said shaft and alternately engaged by the aforesaid cogs, substantially as and for the purpose set forth.

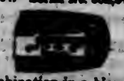
586,141. BICYCLE-GEARING. MARION I. HUSSEY, Westfield, N. J., assignor, by mesne assignments, to the Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Filed Aug. 7, 1894. Renewed Apr. 15, 1897. Serial No. 632,339. (No model.)



Claim.—1. The combination in a bicycle-gear, a bevel-gear, a spur-gear formed integral therewith or rigidly connected thereto, mounted on the pedal-shaft to rotate therewith but adapted to move endwise relative thereto, a bevel-pinion and crown-gear mounted on the transmitting-shaft and rigidly connected thereto, and a shifting-lever engaging a hub on the bevel and spur gear for throwing said gears into or out of action with the pinion or crown-gear, substantially as described.

2. The combination in a bicycle-gear, a bevel and spur gear mounted on the pedal-shaft to rotate therewith but adapted to move endwise thereon a bevel-pinion mounted and fixed on the transmitting-shaft, an enlarged crown-gear, also mounted and fixed on said shaft and means for throwing either the bevel-gear into engagement with the pinion or the spur-gear into engagement with the crown-gear substantially as described whereby the speed may be changed or the power increased or diminished at will.

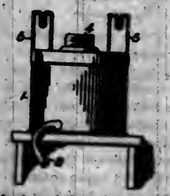
586,142. BICYCLE-BRAKE. MARION I. HUSSEY, Westfield, N. J., assignor, by mesne assignments, to the Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Filed Mar. 13, 1896. Renewed Apr. 15, 1897. Serial No. 632,340. (No model.)



Claim.—1. The combination in a bicycle, a brake to engage the axle or pedal-shaft, or a hub thereon, a handle of the handle-bar carrying a screw, and adapted to have an oscillating movement imparted thereto, a nut in the handle-bar with which the screw engages, a flexible connection between the brake and nut, and a spring inclosed in the handle for automatically oscillating the handle to release the brake, substantially as described.

2. The combination in a bicycle, a brake to engage the axle or pedal-shaft, or a hub thereon, a handle of the handle-bar carrying a screw, and adapted to have an oscillating movement imparted thereto, a nut pivoted in a swinging frame in the handle-bar to engage the screw, and a flexible connection between the nut and brake substantially as described.

586,143. COMBINED INK-WELL AND PENHOLDER. WILLIAM R. HOUSE, Stanton, Mo. Filed July 15, 1896. Serial No. 599,304. (No model.)



Claim.—1. In a device of the character set forth, the combination of an ink-well, a solid penholder separate from and adapted to be moved independently of said ink-well, and a flexible tube connecting said ink-well and said penholder, whereby a constant supply of ink is furnished to said penholder while the same is in its operative position.

2. In a device of the character set forth, the combination of an ink-well, a penholder, means for securing the pen-point in said holder, a tubular cap upon the outer end of the handle of said penholder surrounding said pen-point, and a flexible rubber tube connecting said ink-well and said tubular cap, substantially as and for the purpose described.

3. In a device of the character set forth, the combination of an ink-well having a nipple upon its lower end with an opening therethrough leading into said well, a penholder, means for attaching the pen-point to said holder, a tubular cap fitting the forward end of said penholder surrounding the pen-point therein, a nipple upon said cap, and a flexible rubber tube whose outer ends are attached to the nipples on said ink-well, and said cap, substantially as and for the purpose described.

4. In a device of the character set forth, the combination with an ink-well having a bracket or support for a penholder upon the upper side thereof, a nipple upon its lower end having an opening therethrough leading into said well, of a penholder, means for securing the pen-point in said holder, a tubular cap fitting the outer end thereof and surrounding said pen-point, a nipple upon said cap having an opening therethrough and a flexible tube secured to the nipples upon said ink-well and said cap, substantially as and for the purpose described.

586,144. AUTOMATIC CAR-COUPLING. JOHN PEIFFER, Dubuque, Iowa, assignor of three-fourths to Peter Apel, John Tousaint, and H. J. Tousaint, same place. Filed Dec. 17, 1896. Serial No. 616,022. (No model.)

Claim.—1. An automatic car-coupler, consisting of a bumper for each end of the car, a spring-actuated hook pivoted within the bumper a spring-actuated link pivoted within the bumper, a cam pivoted in the bumper and set to engage the rear end of the hook for throwing the hook out of engagement with the link and a lever for operating said cam, consisting of a bar F, angle-iron H, rod J, and levers K, and L, all combined to operate, as and for the purposes shown.

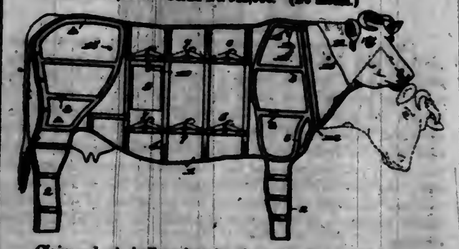


2. The combination of a bumper, hook B, link O, having the slots *p*, and *z*, spring R, cam D, and lever for operating said cam, consisting of the bar F, angle-iron H, pivoted to the base of the bumper, rod J and lever L, and K, all combined to operate as and for the purposes specified.

3. The combination of the bumper, hook B, spring C, link O, provided with slots *p*, and *z*, spring R, cam D, and means, as described for operating the same, a coupling-pin *x*, adapted to pass through the bumper and engage the slot *p*, in the link O, and a lever for operating the pin, consisting of the rod X, with handles Y and arms V, pivoted at one end to said pin, to operate, as and for the purposes specified.

4. An automatic car-coupler, consisting of a bumper for each end of the car, and a spring-actuated hook pivoted within the bumper, and a spring located in the bumper, and the link supported at its rear end by the spring, combined with a cam pivoted in the bumper and set to engage the rear end of the hook for throwing it out of engagement with the link, and a lever for operating the cam, substantially as specified.

586,145. HUNTING-DECOY. JOHN REVERE, Jr., Ames, Nebr. Filed Nov. 21, 1896. Serial No. 613,009. (No model.)



Claim.—1. A hollow hunting-decoy having a shell of flexible material provided with extensions forming leg portions, and a jointed collapsible distending frame fitted within the shell and including jointed braces adapted, when extended, to hold the members of the frame in their operative positions, substantially as specified.

2. A hollow hunting-decoy having a shell of flexible material within which a hunter may be concealed, and provided with hollow extensions forming leg portions to receive the legs of the hunter, and an inclosed distending framework comprising parallel annular ribs 5, connecting jointed braces 7, and front and rear brackets 3 and 4, substantially as specified.

3. A hollow hunting-decoy having a body portion provided with extensions forming leg portions, the side walls of said body portion being provided contiguous to the leg portions with movable sections adapted to be displaced to allow an inclosed hunter without exposure of himself to extend and discharge a fowling-piece, substantially as specified.

4. A hollow hunting-decoy adapted to accommodate a plurality of hunters and having leg portions in which the hunters may stand, the shell of the body portion having independent movable sections contiguous to each pair of leg portions adapted to be displaced by the hunters to allow them without exposure beyond the shell to extend and discharge fowling-pieces, substantially as specified.

5. A hollow hunting-decoy having a body portion in which a hunter in an upright position may be concealed, and provided with a hinged neck portion adapted to be displaced downwardly to open the front end of the body portion and allow egress of the muzzle of a fowling-piece, and means for normally holding said neck portion in its closed position, substantially as specified.

6. A hollow hunting-decoy having a body portion provided with a hinged neck portion adapted to be depressed to open the front end of the body portion at its top and sides, a locking device assemble

within the shell for securing the neck portion in its normal position, and an interiorly-accessible handle on the neck portion, substantially as specified.

7. A hollow decoy, having a body portion within which a hunter may be concealed, and provided with communicating leg portions, adapted to receive and conceal the legs of the hunter, and at the same time permit him to advance the decoy by walking, and a collapsible distending frame fitted within the shell to hold it in proper position, said frame being made in skeleton form, so as not to interfere with the person concealed within the decoy, substantially as described.

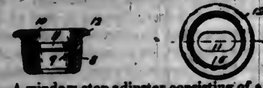
8. A hollow decoy, having a body portion within which a hunter may be concealed, and provided with communicating leg portions, adapted to receive and conceal the legs of the hunter, and at the same time permit him to advance the decoy by walking, and a collapsible distending frame fitted within the shell to hold it in proper position, said frame being made in three parts, front, rear and intermediate sections, each of which is in skeleton form, and is independent of the others, substantially as described.

586,146. BALL-BEARING HINGE. ADOLPH SCHNEVLOT, Laverne, Minn., assignor of one-half to S. R. Nelson and Nels C. Gunderson, same place. Filed June 1, 1896. Serial No. 593,954. (No model.)



Claim.—A hinge consisting of two members, one of which is provided with an inwardly-extending apertured projection having a seat, the other member being provided with inwardly-extending apertured projections, a pintle having a screw-threaded upper end portion and a reduced lower end portion extending through said apertured projections of both members, a ball-bearing face between said upper and lower end portions of the pintle, bearing-balls within the seat of said projection of the first-mentioned member and upon which the ball-bearing face of the pintle rests, and an adjusting-nut mounted upon said pintle between the projections of the first-mentioned member and the upper projections of the last-mentioned member.

586,147. WINDOW-STOP ADJUSTER. CLARENCE A. TAPLIN, Forestville, Conn., assignor to the Taplin Manufacturing Company, same place. Filed Aug. 31, 1896. Serial No. 604,370. (No model.)



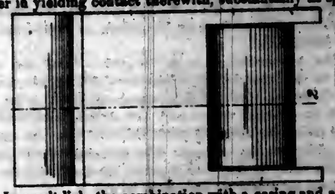
Claim.—1. A window-stop adjuster consisting of a tubular sheet-metal body having at about the middle of its length the internal flange 9, and the separately-constructed disk-like slotted diaphragm 10 seated on said flange and firmly secured within said body substantially as described.

2. A window-stop adjuster having a tubular body 8 with a plain wingless exterior surface along its sides, an outwardly-projecting rim-flange 12 at its outer end, a contracted inner end with its exterior corner rounded off, and an internal flange 9 in a plane about midway between said outer rim-flange 12 and exterior rounded corner of the contracted inner end, in combination with a separately-constructed disk-like slotted diaphragm 10, seated on said flange 9 and firmly secured thereon by the pressure of the sides of said body on the edge of said disk-like diaphragm, substantially as described.

586,148. SALT-LICK. GEORGE P. TOBIAS, Panora, Iowa. Filed Jan. 19, 1897. Serial No. 619,744. (No model.)

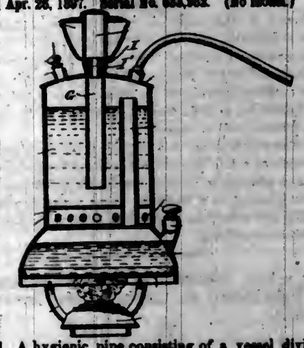
Claim.—1. In a salt-lick, the combination with a casing and lick-roller, of a yielding hopper comprising a plurality of sides arranged to contact at all times with the latter, substantially as specified.

2. In a salt-lick, the combination with a casing having a comparatively short front wall, of a lick-roller pivoted in line with said wall and projecting in advance thereof, and a gravity hopper above the roller in yielding contact therewith, substantially as specified.



3. In a salt-lick, the combination with a casing and a lick-roller journaled in line with the front wall thereof, of a gravity-hopper comprising side walls and yieldingly contacting with the roller, and a flexible strip extending along one of the longitudinal edges of the hopper adjacent to the discharge-opening thereof, said strip being carried by the hopper, substantially as specified.

586,149. HYGIENIC PIPE. JOSEPH R. TURNER, Kansas City, Mo. Filed Apr. 26, 1897. Serial No. 633,962. (No model.)



Claim.—1. A hygienic pipe consisting of a vessel divided into chambers, a tube leading from the lower chamber into the upper chamber and extending to near the top thereof, a bowl on the top of the vessel, a tube leading from the bowl downward into the upper chamber to near the bottom thereof, and a pipe-stem leading from the upper chamber, substantially as described.

2. A hygienic pipe consisting of a vessel divided into chambers, there being an air-space between the chambers, a tube leading from the lower chamber into the upper chamber and extending to near the top thereof, a bowl on the top of the vessel, a tube leading from the bowl downward into the upper chamber to near the bottom thereof, and a pipe-stem leading from the upper chamber, substantially as described.

3. A hygienic pipe consisting of a vessel divided into two chambers there being a space between the chambers, and apertures in the casing of the vessel leading into the space between the chambers, a tube leading from the lower chamber into the upper chamber and extending to near the top thereof, a bowl on the top of the vessel, a tube leading from the bowl downward into the upper chamber to near the bottom thereof, and a pipe-stem leading from the upper chamber, substantially as described.

4. A hygienic pipe consisting of a vessel divided into chambers, a tube leading from the lower chamber into the upper chamber and extending to near the top thereof, a bowl on the top of the vessel, there being an air-chamber surrounding the bowl, a tube leading from the bowl downward into the upper chamber to near the bottom thereof, and a pipe-stem leading from the upper chamber, substantially as described.

586,150. DIVIDER FOR MOWING OR REAPING MACHINES. SAMUEL H. WILCOX, Lebanon, Ind., assignor to The American Bunsher Manufacturing Company, Indianapolis, Ind. Filed Sept. 22, 1896. Serial No. 606,604. (No model.)

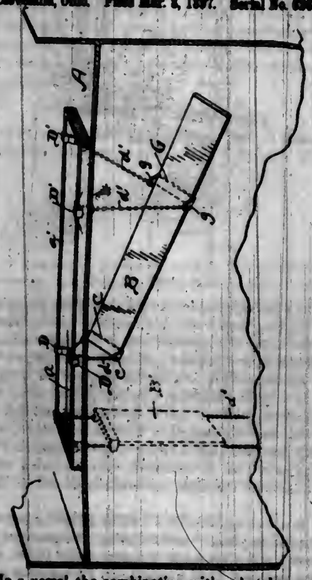


Claim.—1. A divider adapted to be attached to the shoes of mowing and reaping machines consisting essentially of a rod the extreme forward end of which is at a considerable elevation, the rod running thence rearwardly and downwardly to a point in front of the shoe close to the ground, then upwardly for a short distance, and thence rearwardly to where it is attached to the shoe, substantially as and for the purposes set forth.

2. The combination, with a mowing or reaping machine, of a rod C comprising a divider portion, and a guide portion 8, and secured to the shoe by the clip C' thereon and the adjustable plate C² through which it passes, substantially as shown and described.

3. An attachment for mowing and reaping machines consisting of a rod comprising the inclined divider part 1, and a rearwardly-extending guide part 6, and having the beads 2, 3, 4 and 5 at intermediate points, with suitable attaching devices whereby the same is secured to the shoe of the machine, substantially as shown and described.

586,151. VESSEL-LOADING APPARATUS. CHRISTOPHER C. ALLEN, Cleveland, Ohio. Filed Mar. 8, 1897. Serial No. 626,516. (No model.)



Claim.—In a vessel, the combination with a hatchway-coaming of a flat deflector-skid, two chains secured thereto at its inner end, and two chains secured thereto at the sides of the flat skid near its outer end, and hooks on said chain which engage with said hatchway-coaming and adapted to be adjusted to different positions along said coaming, whereby the skid is suspended at a desired point and the relative elevation of its sides and ends is determined, substantially as specified.

586,152. CURTAIN-HANGER. JOSEPHINE ALTHAUS, Uniontown, Pa. Filed Aug. 7, 1896. Serial No. 602,006. (No model.)



Claim.—1. In a curtain-fixture, the combination of a curtain-supporting bar consisting of a tube bent in the middle, and having its two sides closely parallel, and a wire similarly bent and adapted to have its ends inserted in said tube, with a bracket upon each side of the window adapted to support the ends of said bar, and means for raising and lowering said bracket at will, substantially as described.

2. In a curtain-fixture, the combination of a curtain-supporting bar, consisting of a tube bent in the middle, and having its two sides closely parallel, and a wire similarly bent and adapted to have its ends inserted in said tube, with a supporting device for said bar consisting of a split tube fastened to each side of the window, a rod sliding therein and bent at its upper ends so as to form a bracket, said bracket being sufficiently narrow to pass through the slot in the tube, and means for holding said bar at any point in the tube, substantially as described.

586,153. NAILING-MACHINE. GEORGE A. ANKLER, Newark, N. J. Filed Jan. 11, 1896. Serial No. 575,109. (No model.)



Claim.—1. In a nailing-machine, the combination, with the jack and the nailing device of the machine, of a feeding device for feeding the sole of the shoe beneath said nailing device, and arms, as *l* and *l'*, having gage-rollers thereon, and said arms being slotted at their lower ends and provided with screws *j*, for adjustably securing an arm to each side of said feeding device, substantially as and for the purposes set forth.

2. In a nailing-machine, the combination, with the jack and the nailing device of the machine, of a feeding device, comprising, a plate or block *c*, means for attaching said plate or block to the machine, a main spindle rotatively arranged in connection with said block, a feed-roller, as f^4, and a pulley-wheel c^9 on said spindle, and pulley-wheels c^2 and c^{10} on the frame of the machine, for operating said spindle, substantially as and for the purposes set forth.

3. In a nailing-machine, the combination, with the jack and the nailing device of the machine, of a feeding device, comprising a plate or block *c*, means for attaching said plate or block to the machine, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles, as f^3, gear-wheels on said spindles f^3, meshing with said pinion, and a feed-roller on each spindle f^4, substantially as and for the purposes set forth.

4. In a nailing-machine, the combination, with the jack and the nailing device of the machine, of a feeding device, comprising a plate or block *c*, means for attaching said plate or block to the machine, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles, as f^3, gear-wheels on said spindles f^3, meshing with said pinion, a feed-roller on each spindle f^4, and a pulley-wheel c^9 on said main spindle, substantially as and for the purposes set forth.

5. The herein-described feeding device, comprising therein a plate or block *c*, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles, as f^3, gear-wheels on said spindles f^3, meshing with said pinion, and a feed-roller on each spindle f^4, substantially as and for the purposes set forth.

6. The herein-described feeding device, comprising therein, a plate or block *c*, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles, as f^3, gear-wheels on said spindles f^3, meshing with said pinion, a feed-roller on each spindle f^4, and a pulley-wheel c^9 on said main spindle, substantially as and for the purposes set forth.

7. In a nailing-machine, the combination, with the operating mechanism of the machine, of a cutting device for trimming the edge of the sole of the shoe, comprising therein, a bracket *c*, a spin-

ple c^4, a wheel c^5 on said spindle, a guide in said bracket, a reciprocally-moving cutter in said guide, and means for adjustably connecting said cutter with said wheel, consisting, essentially, of an eccentric connected with said wheel, and a collar and set-screw connecting the one end of said cutter with said eccentric, substantially as and for the purposes set forth.

8. The herein-described cutter mechanism, comprising therein, a bracket c, a spindle c^4, a wheel c^5 on said spindle, a guide in said bracket, a reciprocally-moving shank in said guide, a cutter connected with said shank and means for connecting said shank with said wheel, consisting essentially, of an eccentric connected with said wheel, and a collar and set-screw connecting the one end of said shank with said eccentric, substantially as and for the purposes set forth.

9. The herein-described cutter mechanism, comprising therein, a bracket c, a spindle c^4, a wheel c^5 on said spindle, a guide in said bracket, a reciprocally-moving shank in said guide, a cutter connected with said shank, and means for connecting said shank with said wheel, consisting, essentially, of an eccentric connected with said wheel, and a collar and set-screw connecting the one end of said shank with said eccentric, and a pair of arms l and l', on said bracket having gage-rollers, substantially as and for the purposes set forth.

10. The herein-described cutter mechanism, comprising therein, a bracket c, a spindle c^4, a wheel c^5 on said spindle, a guide in said bracket, a reciprocally-moving shank in said guide, a cutter connected with said shank, and means for connecting said shank with said wheel, consisting, essentially, of an eccentric connected with said wheel, and a collar and set-screw connecting the one end of said shank with said eccentric, and a pair of arms l and l' on said bracket and having gage-rollers, substantially as and for the purposes set forth.

11. In a combined feeding device and trimming mechanism for nailing-machines, in combination, a plate or block c, a main spindle rotatively connected with said block, a pair of spindles f^3, a feed-roller on each spindle f^3, means for operating said spindles f^3 from said main spindle, a bracket c attached to said block c, a spindle c^4, a wheel c^5 on said spindle, a guide on said bracket, a reciprocally-moving cutter in said guide, and means connecting said cutter with said wheel c^5, consisting, essentially, of an eccentric connected with said wheel, and a collar and set-screw, connecting the one end of said cutter with said eccentric, substantially as and for the purposes set forth.

12. In a combined feeding device and trimming mechanism for nailing-machines, in combination, a plate or block c, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles f^3, gear-wheels on said spindles f^3, a bracket c attached to said block c, a spindle c^4, a wheel c^5 on said spindle, a guide on said bracket, a reciprocally-moving cutter in said guide, and means for connecting said cutter with said wheel c^5, substantially as and for the purposes set forth.

13. In a combined feeding device and trimming mechanism for nailing-machines, in combination, a plate or block c, a main spindle rotatively connected with said block, a pinion on said spindle, a pair of spindles f^3, gear-wheels on said spindles f^3, a bracket c attached to said block c, a spindle c^4, a wheel c^5 on said spindle, a guide on said bracket, a reciprocally-moving cutter in said guide, and means for connecting said cutter with said wheel c^5, consisting, essentially, of an eccentric connected with said wheel, and a collar and set-screw connecting the one end of said cutter with said eccentric, substantially as and for the purposes set forth.

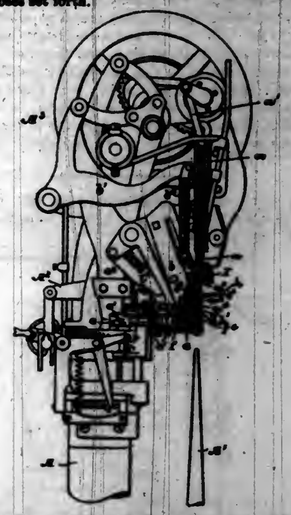
586,154. NAILING-MACHINE. GEORGE A. AMELIN, Newark, N. J. Filed June 13, 1896. Serial No. 595,432. (No model.)

Claim.—1. In a nailing-machine, the combination, with a cutting-box and a nail-carrier having two wire-passages, of a gripper or clamping device, comprising therein, a block o having wire-passages o' and o^2, a gripping-block o^3, loosely arranged between said wire-passages, a gripper-bar n, and means for actuating the same, substantially as and for the purposes set forth.

2. In a nailing-machine, the combination, with a cutting-box and means to support it, a pivoted carrier having two wire-passages, and a slide-bar, as e, adapted to reciprocate said carrier, of a gripper or clamping device, comprising therein a block o having wire-passages o' and o^2, a gripping-block o^3, loosely arranged between said wire-passages, a gripper-bar n, and means for actuating the same, substantially as and for the purposes set forth.

3. In a nailing-machine, a feeding-gripper comprising therein, a pair of gripping-plates, as i^3 and i^4, having wire-passages, a pair of gripping-teats arranged in holes in said plates, and means for actuating one of said teats, and a spring-bar adapted to actuate the other one of said teats, combined with a pivoted nail-carrier, and means to actuate said carrier, said carrier being adapted to engage said spring-bar and thereby actuate said other teat, substantially as and for the purposes set forth.

4. In a nailing-machine, a feeding-gripper comprising therein, a pair of gripping-plates, as i^3 and i^4, having wire-passages, a pair of gripping-teats arranged in holes in said plates, and means for actuating said teats, combined with a pivoted nail-carrier, a slide-bar, as e, adapted to reciprocate said carrier, and a gripper or clamping device, comprising therein, a block o having wire-passages o' and o^2, a gripping-block o^3, loosely arranged between said wire-passages, a gripper-bar n, and means for actuating the same, substantially as and for the purposes set forth.



5. In a nailing-machine, a feeding-gripper, comprising therein, a pair of gripping-teats i and i^7, a cam-rod k for actuating said teat i and a spring-bar k^2 connected with a post k for actuating said teat i^7, combined with a pivoted nail-carrier, and means to actuate said carrier, substantially as and for the purposes set forth.

6. In a nailing-machine, a feeding-gripper, comprising therein, a pair of gripping-plates i^3 and i^4, having wire-passages, a pair of gripping-teats i and i^7 arranged in holes in said plates, a cam-rod k for actuating said teat i and a spring-arm k^2 connected with a post k for actuating said teat i^7, combined with a pivoted nail-carrier, and means to actuate the same, substantially as and for the purposes set forth.

7. In a nailing-machine, a feeding-gripper, comprising therein, a pair of gripping-plates i^3 and i^4, having wire-passages, a pair of gripping-teats i and i^7 arranged in holes in said plates, a cam-rod k for actuating said teat i and a spring-arm k^2 connected with a post k for actuating said teat i^7, combined with a pivoted nail-carrier, a slide-bar, as e, adapted to reciprocate said carrier, and a gripper or clamping device, comprising therein, a block o having wire-passages o' and o^2, a gripping-block o^3, loosely arranged between said wire-passages, a gripper-bar n, and means for actuating the same, substantially as and for the purposes set forth.

8. In a nailing-machine, the combination, with the head-block c^2 and a post k thereon, having a spring-bar k^2, of a gripper or feeding device, comprising therein, a gripping-teat i^7 adapted to be actuated by said spring-bar k^2, substantially as and for the purposes set forth.

9. In a nailing-machine, the combination, with the head-block c^2 and a post k thereon, having a spring-bar k^2, of a gripper or feeding device, comprising therein, a gripping-teat i^7 adapted to be actuated by said spring-bar k to force it against the wire, and a pivoted nail-carrier, adapted to be rotated against said spring-bar to disengage said bar from said gripping-teat i^7, substantially as and for the purposes set forth.

10. In a nailing-machine, the nose-plate having a pair of nail-passages, and a pivoted nail-carrier provided with a pair of openings forming wire-passages, said carrier having at its inner side and at opposite sides of its center cam-surfaces f^4 and f^5, a slide-bar e adapted to vibrate and lock the said nail-carrier, as set forth, and a post k having a spring-bar adapted to be actuated by said nail-carrier, substantially as and for the purposes set forth.

11. In a nailing-machine, the nose-plate having a pair of nail-passages, and a pivoted nail-carrier provided with a pair of openings forming wire-passages, said carrier having at its inner side and at opposite sides of its center cam-surfaces f^4 and f^5, a slide-bar e adapted to vibrate and lock the said nail-carrier, as set forth, and a post k having a spring-bar adapted to be actuated by said nail-carrier, all combined with an upper feeding-gripper, consisting, essentially, of a pair of gripping-teats i and i^7, a cam-rod k for actuating said teat i, and the teat i^7 being actuated by said spring-bar, substantially as and for the purposes set forth.

12. In a nailing-machine, the nose-plate having a pair of nail-passages, and a pivoted nail-carrier provided with a pair of openings forming wire-passages, said carrier having at its inner side and at opposite sides of its center cam-surfaces f^4 and f^5, a slide-bar e adapted to vibrate and lock the said nail-carrier, as set forth, and a post k having a spring-bar adapted to be actuated by said nail-carrier, all combined with an upper feeding-gripper, consisting, essentially, of a pair of gripping-teats i and i^7, a cam-rod k for actuating said teat i, and the teat i^7 being actuated by said spring-bar, substantially as and for the purposes set forth.

13. In a nailing-machine, the nose-plate having a pair of nail-passages, and a pivoted nail-carrier provided with a pair of openings forming wire-passages, said carrier having at its inner side and at opposite sides of its center cam-surfaces f^4 and f^5, a slide-bar e adapted to vibrate and lock the said nail-carrier, as set forth, and a post k having a spring-bar adapted to be actuated by said nail-carrier, all combined with an upper feeding-gripper, consisting, essentially, of a pair of gripping-teats i and i^7, a cam-rod k for actuating said teat i, and the teat i^7 being actuated by said spring-bar, substantially as and for the purposes set forth, and a lower clamping or gripping device, consisting, of a block o having wire-passages o' and o^2, a gripping-block o^3, loosely arranged between said wire-passages, a gripper-bar n, and means for actuating the same, substantially as and for the purposes set forth.

14. The herein-described upper gripper or feeding device for nailing-machines, comprising, in combination, with the part a^3 of the lever A^3 of a nailing-machine, plates i^3, i^4 and i^5 secured to said part a^3, wire-passages i' and i^6, and gripping-teats i and i^7 extending into said passages i' and i^6, substantially as and for the purposes set forth.

15. The herein-described lower gripper or clamping device, comprising therein, a block o having wire-passages o' and o^2, and a gripper-block o^3 loosely arranged between said passages, substantially as and for the purposes set forth.

586,155. PNEUMATIC SHOE-SOLE. JULIA F. RAWSON, South Milwaukee, Wis. Filed Aug. 17, 1896. Serial No. 602,980. (No model.)



Claim.—A removable pneumatic sole for shoes and analogous articles of footwear, comprising a heavy flexible shell of impervious material, having the general outline of the entire under side of the shoe, and continuously hollow from toe to heel, the top and bottom of said shell being everywhere equidistant, and with the upper surface roughened and provided with a continuous upper projecting bead along its upper edge and with the top of the shell slit between the front wall of the heel portion, and the center of the sole portion, and there provided with a lacing-cord, together with a removable expansible bag filling the entire shell, and an inflating nozzle or valve communicating with said bag, and projecting through an opening in the said front wall of the heel portion and free from attachment thereto, all combined and adapted to operate substantially as set forth.

586,156. ADJUSTABLE SCHOOL-DESK. FRANCIS R. BEAL, Northville, Mich. Filed Sept. 12, 1896. Serial No. 605,567. (No model.)



Claim.—1. An adjustable school-desk, having its end frames each constructed in two parts adjustable the one upon the other, a rod connecting similar parts of the two end frames, a hollow shaft sleeved upon said rod and provided with crank-arms at its extremities, and connecting-bars having a jointed engagement with said crank-arms, and with the other similar portions of the end frames, said rod provided with a nut upon one end thereof, substantially as set forth.

2. An adjustable school-desk, having its end frames each constructed in two parts adjustable the one upon the other, a rod connecting similar parts of the two end frames, a hollow shaft sleeved upon said rod and provided with crank-arms at its extremities, and connecting-bars having a jointed engagement with said crank-arms, and with the other similar portions of the end frames, said rod provided with a nut upon one end thereof, said hollow shaft extending from one end frame to the other, whereby both end frames may be simultaneously adjusted by a partial rotation of the said shaft, substantially as set forth.

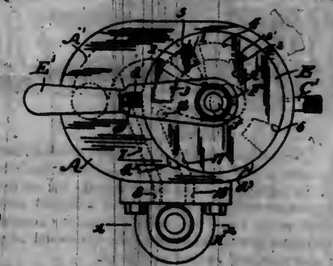
3. An adjustable desk, having two end frames each made of two parts having a sliding engagement the one with the other, a transverse rod connecting similar portions of each of the two end frames, a hollow shaft upon said rod provided with crank-arms at its extremities, and connecting-rods having a jointed engagement with said crank-arms and with the other similar portions of the end frames, said rod, provided with a head upon one end and with a nut upon the opposite end thereof, one of said adjustable parts of the end frames, when the nut is tightened, being clamped against the sleeve, and the other of said adjustable parts clamped against the adjacent parts of the end frames to hold the adjustable parts of the end frames firmly in desired position, substantially as set forth.

586,157. RULER. WILLIAM R. BENVIRE, Lovis, Canada. Filed Jan. 27, 1897. Serial No. 620,942. (No model.)



Claim.—In a ruler, the combination, with a case, and a marking-wheel journaled therein and provided with flanges; of a flap hinged at one end to the case, a spring-catch connecting the other end of the said flap to the case, and an inking-pad secured to the said flap and pressed thereby against the said flanges, substantially as set forth.

586,158. BRAKE-VALVE. WILLIAM J. BRADLEY, Jersey City, N. J. Filed June 1, 1896. Serial No. 593,711. (No model.)



Claim.—1. In a brake-valve, a casing comprising a solid valve-body having two ports, a removable valve-seat provided with three ports ground to the said valve-body, a removable valve mounted on a spindle secured in the solid valve-body, a handle for operating the valve, spring-actuated means for securing the valve in engagement with its seat, ball-bearings for reducing friction in operating the valve, and a feed-valve mechanism, substantially as shown and described.

2. An improved brake-valve, comprising a solid base or body having two ports therein and a removable valve-seat having three ports therein ground thereto, channels leading therethrough respectively from a source of air-supply and to a train-line of brakes, said channels communicating with a revolvable valve having a port therein for connecting the two said channels together, and a further port for exhausting air from the channel communicating with the train-pipe, the said body having further channels formed therein which communicate respectively with the said supply-channel and with the said revolvable valve; and a feed-valve which engages with the two last-named channels and comprises a hollow body having a diaphragm, a spring-pressed valve and a stop therein for regulating the pressure in the train-line, substantially as shown and described.

3. The combination of the metallic body having an inlet connected to an air-supply, an outlet-channel leading to a train-line, the revolvable valve for connecting the said channels, and the plate or seat for said valve ground thereon, the spring-pressed means, said means consisting of the collars with interposed roller-bearings and springs for maintaining it in engagement with its seat, and the operating-lever which is connected to the said valve; with the feed-valve comprising the compartmental casing having a valve, a regulating-diaphragm therein and the springs for operating the said parts, and channels for connecting the feed-valve chambers with the inlet and outlet channels of the said body, substantially as shown and described.

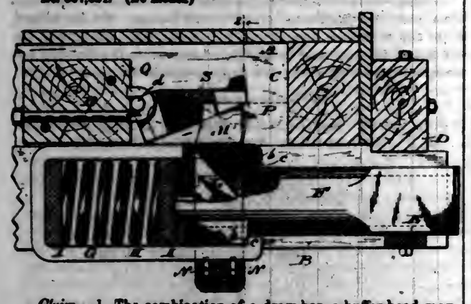
586,159. PROCESS OF TREATING ZINC-SULFID ORES. HUGO BROWN, Duisburg, Germany. Filed Sept. 12, 1896. Serial No. 605,694. (No specimens.)

Claim.—1. In a process of treating zinkiferous sulfate lyes resulting from the lixiviation of chlorinated roasted zinc-sulfid ores, adding sodium chlorid to such lye to saturation or in excess, and crystallizing out the resulting sodium sulfate (Glauber salt) by refrigeration as a by-product, for the purpose set forth.

2. The herein-described process of treating zinkiferous sulfate

lyes resulting from the lixiviation of chlorinated roasted zinc-sulfid ores, which consists in treating the lye with sodium chlorid to saturation or in excess, crystallizing out the sodium sulfate (Glauber salt) formed by refrigeration, treating the lye after removal of the sulfate with calcium chlorid, removing the calcium sulfate formed, eliminating from the lye the silver, if any be present, then the iron, and successively other metals if present, as nickel, cobalt and manganese in the manner substantially as described, concentrating the lye by heat, eliminating the sodium chlorid formed, treating the resultant lye electrolytically for the extraction of the zinc under simultaneous production of chlorin, whereby a final lye is obtained consisting essentially of a solution of calcium chlorid, and recovering the latter for use in the process, substantially as set forth.

586,160. RAILWAY DRAFT APPLIANCE. JAMES R. BROWN and ERNEST E. PRETZ, Waubeka, Wis. Filed Sept. 26, 1896. Serial No. 607,051. (No model.)



Claim.—1. The combination of a draw-bar, a buffer-head movable with the same in rear of a railway-car end sill, a spur extending forward from the buffer-head to be forced into the end sill in case of break or disarrangement of parts that would ordinarily permit the draw-bar to pull out of place, and suitable means for automatically preventing rearward movement of said draw-bar should an engagement of the spur with said end sill be effected.

2. The combination of a draw-bar, a buffer-head movable with the same in rear of a railway-car end sill, a spur in the form of the upper half of a cone extending forward from the buffer-head to be forced into the end sill in case of break or disarrangement of parts that would ordinarily permit the draw-bar to pull out of place, and suitable means for preventing rearward movement of said draw-bar should an engagement of the spur with the end sill be effected.

3. The combination of a draw-bar, a buffer-head movable with the draw-bar in rear of an end sill constituting part of a railway-car provided with said draw-bar, and a drop-dog that is normally supported on the buffer-head but which automatically comes in rear of the same when the aforesaid draw-bar tends to pull out of place.

4. The combination of a draw-bar, a buffer-head movable with the draw-bar in rear of an end sill constituting part of a railway-car provided with said draw-bar, a block supported intermediate of center sills pertaining to the car, and a dog in hinge connection with the block, this dog being normally supported on the buffer-head but having automatic descent in rear of the same in case the aforesaid draw-bar tends to pull out of place.

5. The buffer-head having a depending shank engageable with a draw-bar in rear of an end sill constituting part of a railway-car, a spur extending forward from the buffer-head, and a drop-dog that automatically finds its way in rear of said buffer-head in case the spur of the same is engaged with the end sill.

6. The buffer-head having a depending shank engageable with a draw-bar in rear of an end sill constituting part of a railway-car, and a drop-dog normally supported on the buffer-head but which automatically comes in rear of the same when said draw-bar tends to pull out of place.

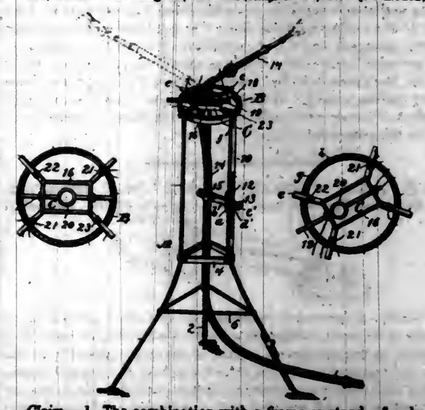
7. The buffer-head having a depending shank engageable with a draw-bar in rear of an end sill constituting part of a railway-car, a spur extending forward from the buffer-head, and a drop-dog normally supported on said buffer-head but which automatically comes in rear of the same when said draw-bar tends to pull out of place.

8. The combination of a draw-bar, a yoke having inturned ends in opposition to draw-bar shoulders, a draft-spring and its follower-plates embraced by the yoke in rear of the draw-bar, a buffer-head that rests on the yoke but is provided with a vertical shank that engages longitudinal slots in said yoke and draw-bar, and keys engaging apertures in the buffer-head shank below the aforesaid yoke.

9. The combination of a draw-bar, a yoke engaged therewith, a buffer-head having a depending shank engaging longitudinal slots in the yoke and draw-bar, keys engaging apertures in the buffer-head shank below said yoke, a spur extending forward from said buffer-head, a block arranged between center sills of the car, and a dog in hinge connection with the block, this dog being normally supported by the aforesaid buffer-head but having automatic descent in rear of the same in case the aforesaid draw-bar tends to pull out of place.

10. The combination of a draw-bar, a buffer-head movable with the draw-bar in rear of an end sill constituting part of a railway-car provided with said draw-bar, and a drop-dog that is normally supported on the buffer-head and provided with a recess in rear of that portion having contact with said buffer-head, this dog being automatically positioned in rear of the aforesaid buffer-head when the aforesaid draw-bar tends to pull out of place.

586,161. LAWN-SPRINKLER. ISAAC W. P. BUCHANAN, Lebanon, Tenn. Filed Aug. 10, 1896. Serial No. 602,315. (No model.)



Claim.—1. The combination with a frame or stand, of a device loosely mounted thereon, and a hose connected at a point near its nozzle end to said device, said hose having a rotary and rectilinear sliding motion relative to the frame or stand induced by the action of the water passing through the hose, substantially as set forth.

2. The combination with a stand, of a horizontal frame mounted thereon, said horizontal frame being constructed to receive a hose and the latter having a sliding connection therewith in such manner as to permit a transverse movement of said hose due to the pressure of the water flowing therethrough, substantially as set forth.

3. The combination with a stand and a hose, of a frame mounted thereon and a transversely-movable bar mounted in said frame and adapted to receive the hose and move in rectilinear direction, whereby the pressure of water flowing through said hose will cause said bar to move and the free end of the hose to be thrown over in the arc of a circle, substantially as set forth.

4. The combination with a stand and a hose, of a frame mounted thereon, a transversely-movable bar mounted in said frame and adapted to move automatically, and a ring between the ends of said bar for the reception of the hose, whereby the pressure of the water passing through said hose will cause the free end thereof to rise and the transverse bar to move until said ring engages the end of the frame, substantially as and for purpose set forth.

5. The combination with a stand, of a frame, arms projecting from said frame and resting on the top of the stand, said frame being adapted to receive a hose in such manner as to permit it to have a transverse movement and stops on said arms, said stops being so constructed and arranged that when the hose moves transversely and engages the end of the frame, the jar thus caused will effect a partial rotation of the frame on one of said stops as a fulcrum, substantially as set forth.

6. The combination with a stand, of a horizontal frame thereon, arms projecting from said horizontal frame and resting on the top of the stand, a transversely-movable device on said frame adapted to receive a hose, stops on diametrically opposite arms adapted to engage the top of the stand, and stops on the other diametrically opposite arms and adapted to be made to engage said top of the stand when said horizontal frame is moved, substantially as set forth.

7. The combination with a stand, of a horizontal frame, arms projecting from said frame, adjustable stops or pins on said arms and adapted to engage said horizontal frame and a reciprocating device mounted in said frame and adapted to receive a hose-pipe, substantially as set forth.

8. The combination with a stand, of a ring thereon having ratchet-teeth, a frame adapted to receive a hose, arms projecting from said frame and supported on said ring, dogs carried by some of said arms and adapted to engage said ratchet-teeth, and pins or stops on said arms and adapted to engage the ring, substantially as set forth.

9. The combination with a stand, of a movable frame supported thereby, a hose-pipe connected with said frame whereby to cause it to reciprocate and rotate when water is passed through said hose-pipe, and an adjustable weight on the hose-pipe between said movable frame and the nozzle end of the hose-pipe, substantially as set forth.

10. The combination with a series of vertical rods or uprights, of a ring at the upper ends of said rods or uprights, a horizontal frame, arms projecting from said frame and resting on said ring, stops on said arms, a transversely-movable bar mounted in said frame, and a ring between the ends of said bar for the reception of a hose, substantially as set forth.

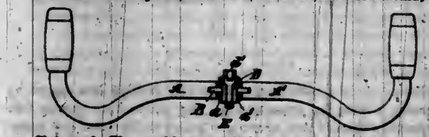
11. In a sprinkler, the combination with a series of uprights, of a ring at the upper ends thereof, a triangular frame below said uprights, and a rotator mounted on the ring at the tops of the uprights, for the reception of said hose, substantially as set forth.

12. The combination with a stand, of a rotator mounted on said stand and adapted to receive the hose, and a clamp adapted to receive the hose below the rotator, substantially as set forth.

13. The combination with a stand, of a rotator mounted on the stand and adapted to receive the hose and a hose-clamp adapted to receive the hose below the rotator, said clamp being adjustably connected with the stand, substantially as set forth.

14. The combination with a stand comprising a series of uprights, one of said uprights having an elongated slot, of a rotator mounted on the stand and adapted to receive a hose passing through the stand, a clamp to receive the hose below said rotator, and a screw adapted to pass through the slotted upright and enter the body of the clamp and having a shoulder to bear against said upright, substantially as set forth.

586,162. HANDLE-BAR FOR BICYCLES. LYMAN H. COBB, Portland, Me. Filed Apr. 27, 1896. Serial No. 589,169. (No model.)



Claim.—1. The combination of the handle-bar in two parts A A', the balls *a a'*, link B, socket D and means for tightening the socket, substantially as described.

2. The combination of the handle-bar in two parts A A', the toothed balls *a a'*, link B, socket D and means for tightening the socket, substantially as described.

586,163. ALLOY. FRANCIS A. CUTHIAS, Ivry-Port, France. Filed Apr. 2, 1897. Serial No. 630,447. (No specimens.) Patented in France June 2, 1896, No. 254,883; in Belgium June 30, 1896, No. 128,238; in England June 30, 1896, No. 14,479; in Austria July 31, 1896, No. 46/2,442; in Italy July 31, 1896, No. 42,231; in Luxemburg July 31, 1896, No. 2,562, and in Spain July 31, 1896, No. 19,417.

Claim.—The described alloy consisting of copper one hundred and sixty parts; tin fifty parts; zinc seven hundred and fifty parts and lead forty parts.

586,164. FLOOR-PLANER. PETER DEERING, Chicago, Ill. Filed Oct. 30, 1896. Serial No. 610,537. (No model.)



Claim.—The combination with a stock having in its lower portion a tapering recess and an oppositely-inclined transverse slot at each end of the recess, of a block located in said recess and having its ends inclined to correspond with the incline of the slots, a set-screw engaging the block and adapted to adjust the same, and a plate secured to the stock below the recess therein and between the said slots, substantially as described.

586,165. ORNAMENTAL SCREEN FOR LADIES' BICYCLE-SADDLES. JOHN J. DOUGHERTY, Paterson, N. J. Filed Sept. 3, 1896. Serial No. 604,831. (No model.)



Claim.—A screen for the saddle of ladies' bicycles consisting of the wire B bent fan shape, and having looped or hooked ends B', brackets C provided with the holes B^2 through which the hooked ends B' are passed, a net A laced to the bow portion of said fan-shaped wire B, and means for securing the brackets C, to the bottom of the saddle, substantially as shown and described.

586,166. COMBINED AUTOMATIC FENDER AND BRAKE. JAMES J. DOUGHERTY, Philadelphia, Pa. Filed Feb. 9, 1897. Serial No. 622,622. (No model.)



Claim.—1. In a car-fender, arms pivoted to the car to swing downward, fender-boards carried by the front ends of the arms, pawls pivoted to the arms, teeth engaged by the pawls to retain the arms in their lowered position and means for holding the arms normally elevated, substantially as described.

2. In a car-fender, brackets secured to the bottom of a car-platform, arms pivoted to the outer ends of the brackets, extensions running upward from the rear ends of the arms, pawls pivoted to the extensions, teeth on the brackets engaged by the pawls, and springs holding the arms normally elevated, and fender-boards carried on the front ends of the arms, substantially as described.

3. In combination, brakes pivoted to a car to swing into operative position by force of gravity, and drag-blocks on the brakes to engage the track and apply the brakes, and springs pressing the drag-blocks into engagement with the track-rails, substantially as described.

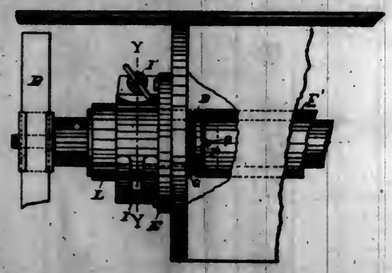
4. In combination with a car, brake-arms pivoted therebeneath, brake-shoes carried by said arms, rods attached to and guided by the arms, drag-blocks carried by the lower ends of the rods, and springs for forcing said drag-blocks into contact with the rail, whereby sufficient friction will be generated between the blocks and the rails for the proper application of the brake-shoes to the peripheries of the track-wheels, as specified.

5. The herein-described combination of the arms 1, 2 and 3 pivoted beneath the car, fender-boards carried by said arms and so arranged as to shed an obstruction with which they may come in contact, springs for holding said arms and boards in an elevated position, pawls carried by said arms adapted to engage with suitable teeth for hold-

ing said arms in their depressed position, means for releasing said pawls, brake-arms pivoted beneath the car, brake-shoes carried by said arms, spring-actuated rods also carried by said arms, drag-blocks also carried by the arms, a drum journaled beneath the car, cords attached to said drum and also attached to the arms for the elevation of the latter when the drum is revolved in the proper direction, a ratchet-wheel carried by the drum, a pawl for holding said ratchet-wheel against retrograde movement, suitable cords passing to the fender-arms, and a foot-lever whereby the pawl may be withdrawn from the ratchet by either the depression of the fender or the operation of said lever, substantially as and for the purpose set forth.

6. In combination, brakes pivoted to swing into operative position by force of gravity, a drum journaled on the bottom of a car, cords wound on the drum and attached to the shoes whereby when the drum is revolved in the proper direction the brakes will be elevated, means for normally preventing a retrograde movement of the drum, a fender and means whereby when the fender is lowered the drum will be released and the brakes permitted to fall into position, substantially as described.

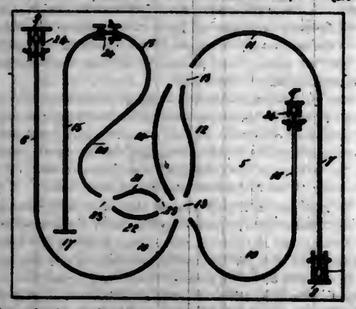
586,167. DEVICE FOR PREVENTING ROLLS OF PAPER FROM SLIPPING ON WINDERS. FRANK H. DUDLEY, Jay, Me. Filed Mar. 8, 1897. Serial No. 626,493. (No model.)



Claim.—1. In a device of the character specified, the combination with the winder-shaft and externally-threaded core-holder mounted thereon, of a divided nut provided with a divided disk adapted to be brought into engagement with the end of a roll of paper while being wound upon said core, substantially as and for the purposes set forth.

2. In a device of the character specified, the combination with the winder-shaft an externally-threaded core-holder mounted thereon, of a divided nut hinged together at one side and provided with means for locking the two parts together and having on the inner end a guard and on the outer end a flange to receive a tool for holding the guard while being placed in position on the core, substantially as and for the purposes set forth.

586,168. PUZZLE. CORA V. BEERSON and JOHN A. HILGEMEIER, Brooklyn, N. Y. Filed May 7, 1897. Serial No. 635,897. (No model.)



Claim.—1. A puzzle, comprising a base plate or board, which is provided with broken tracks or ways, the spaces between said tracks being provided with curved tracks or ways, and toy vehicles which are adapted to travel over said tracks or ways, substantially as shown and described.

2. A puzzle, comprising a plate or board, and two sets of broken tracks or ways, said tracks or ways being curved, and the spaces between each set being connected by double-curved tracks or ways, and each of said tracks or ways being provided with a toy vehicle, substantially as shown and described.

586,169. KILN FOR BAKING OR FIRING EARTHENWARE. CHARLES DUDEN D'ERSCHEN, ALPHONSE DUDEN D'ERSCHEN, LOUIS DUDEN D'ERSCHEN, and SYLVAIN DUDEN D'ERSCHEN, Manufacturers, Belgium. Filed Nov. 16, 1895. Serial No. 569,216. (No model.) Patented in Belgium Nov. 7, 1894, No. 112,576, and Feb. 26, 1896, No. 114,260; in England Nov. 14, 1894, No. 20,600, and Apr. 4, 1895, No. 7,914, and in France Nov. 15, 1894, No. 247,602.



Claim.—1. In a continuous-gallery kiln divided into spaces by fuel-grates, a main flue common to all said spaces, flues opening into said spaces in front of and above said grates at the outer end thereof, said flues connected with the main flue, and suitable dampers for controlling the flow of the products of combustion, substantially as and for the purpose set forth.

2. In a continuous-gallery kiln divided into spaces by fuel-grates, an ash-pit under such grates open to the atmosphere outside the kiln-walls, a main draft-flue, a flue connecting the ash-pit with said main flue and means for directing the products of combustion from above the grate into the open end of said ash-pit: of auxiliary flues opening at one end into the gallery-spaces in front of and at the outer end of the grates, said auxiliary flues in communication with the main flue, and suitable dampers for controlling the flow of said products of combustion to such main flue, substantially as and for the purpose set forth.

3. In a continuous-gallery kiln, a single partition-wall separating the galleries running lengthwise of the kiln and closing the inner side of the end connecting-spaces, fuel-grates dividing said galleries and end spaces into kiln-spaces, an ash-pit below each fuel-grate accessible respectively from the sides and ends of the kiln, and a main draft-flue formed in said partition-wall, in combination with flues connecting the ash-pits with said main flue, means for directing the products of combustion from above the grate directly into the ash-pits at the outer end thereof, auxiliary flues for connecting the gallery-spaces directly with the main flue, and suitable dampers for controlling the flow of the products of combustion from the aforementioned flues to the main flue, substantially as and for the purpose set forth.

4. A continuous-gallery kiln divided into spaces by fuel-grates, and having parallel longitudinal channels formed in the side walls of said spaces, substantially as and for the purpose set forth.

586,170. ENVELOP-OPENER. WILLIAM FAIRBAIRN, Caledonia, Canada. Filed Apr. 17, 1897. Serial No. 632,905. (No model.)

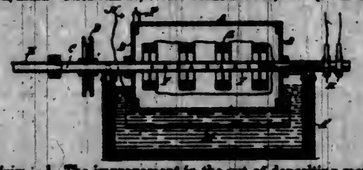
Claim.—1. In an envelop-opener, the combination with a body having a groove for the envelop, of a cutting-knife located in the groove and having inclined sides which are separated from the body by inclined diverging branch grooves.

2. In an envelop-opener, the combination with a body having a groove for the envelop, of a cutting knife located in the groove and substantially triangular in cross-section, said knife having inclined sides which converge to an apex and provided with an undercut nee-

dle-point lying in the main groove, the sides of the cutting-knife being separated from the body by inclined diverging grooves that lead into the main groove.



586,171. PROCESS OF AND APPARATUS FOR ELECTROPLATING COPPER OR OTHER METALS. CHARLES B. FLETCHER, Boston, Mass. Filed Jan. 27, 1892. Serial No. 419,417. (No model.)



Claim.—1. The improvement in the art of depositing metals by electrolysis which consists in dissolving by an electric current an anode immersed in an electrolytic bath and depositing the metal upon a cathode supported in the bath, and maintaining in the interior of the cathode during such deposition a source of artificial heat, whereby the heat is conducted outward through the metal as it is deposited.

2. An apparatus for refining and depositing metals by electricity comprising in combination a tank or vat, one or more anodes and a hollow revolving cathode mounted on a hollow shaft connected with a source of steam, as set forth.

3. The method, herein described, of heating the cathode of an electrodeposition-tank, by introducing steam into the hollow interior of the same, and superheating the steam by passing a current of electricity through the resistance-coils contained within said cathode.

4. The combination with a hollow rotating cathode of a source of steam connected with the interior thereof, electric heating-coils contained within the cathode and electrical connections therefrom to a source of electric current, as set forth.

586,172. SHUTTER HOWER AND LOCK. ISAAC FORSTER, Newburg, N. Y. Filed Mar. 1, 1897. Serial No. 626,557. (No model.)



Claim.—A device for operating shutters, comprising the guide-plate 15, the flexible packing-sleeve secured to said plate, the operating-rod 4, provided with the rib 18, and passing through said guide-plate and sleeve, and through an slotted transverse orifice in the window-frame, in combination with the wear-plate 20, having the slot, 19, and the connecting-rod pivoted at one end to a bracket fixed to the shutter, and at the other end to the other end of the rod 4, substantially as shown and described.

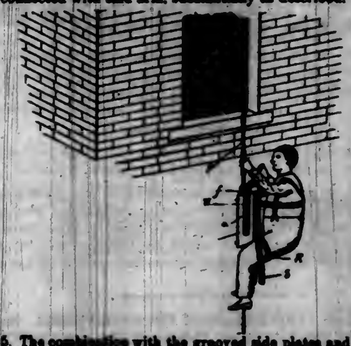
586,173. FIRE-ESCAPE. HANS FRANK, Bonzen, Holr. Filed Sept. 12, 1896. Serial No. 605,657. (No model.)

Claim.—1. A fire-escape comprising the side bars, rollers mounted therein, a pressure-block bearing on the shaft of the upper roller and an eccentric acting on said block, a lever connected with the eccentric, and means for holding the same in its adjusted position, substantially as described.

2. The combination with the side bars and the straps secured thereto of the rope-guides held between the side bars, the rollers mounted in grooves in said side bars, the rope passed through the rope-guides and around said rollers, a bearing-block acting upon the shaft of the upper roller, and an eccentric acting on said block, and a lever connected with said eccentric and having a notched plate and a pivoted pawl adapted to engage said plate, as described.

3. The combination with the grooved side plates and the rollers having their shafts mounted in said grooves of the bearing-block acting on the shaft of the upper roller, the eccentric mounted to act on said block, and a removable wedge adapted to be inserted above said block, substantially as described.

4. The combination with the grooved side plates and the rollers having their shafts mounted in said grooves of the bearing-block acting on the shaft of the upper roller, the eccentric mounted to act on said block, and a removable wedge adapted to be inserted above said block, an arm extending from the eccentric, and a lever pivotally connected with said arm, substantially as described.



5. The combination with the grooved side plates and the rollers having their shafts mounted in said grooves of the bearing-block acting on the shaft of the upper roller, the eccentric mounted to act on said block, and a removable wedge adapted to be inserted above said block, an arm extending from the eccentric, and a lever pivotally connected with said arm, a notched plate on said lever, and a pawl pivoted to one of the side bars and having a notched end engaging said plate, substantially as described.

6. The combination with the grooved side plates and the rollers having their shafts mounted in said grooves of the bearing-block acting on the shaft of the upper roller, the eccentric mounted to act on said block, and a removable wedge adapted to be inserted above said block, an arm extending from the eccentric, and a lever pivotally connected with said arm, a notched plate on said lever, and a pawl pivoted to one of the side bars and having a notched end engaging said plate, the upper and lower rope-guides, the straps secured to the side bars, and the rope passed through the rope-guides and around the rollers, substantially as described.

7. The combination with the grooved side plates and the rollers having their shafts mounted in said grooves of the bearing-block acting on the shaft of the upper roller, the eccentric mounted to act on said block, and a removable wedge adapted to be inserted above said block, an arm extending from the eccentric, and a lever pivotally connected with said arm, a notched plate on said lever, and a pawl pivoted to one of the side bars and having a notched end engaging said plate, the upper and lower rope-guides, the straps secured to the side bars, and the rope passed through the rope-guides and around the rollers, and a removable wedge adapted to be inserted above the bearing-block, substantially as described.

586,174. STOVE-VENTILATOR. FRANK FRASHER, Ironton, Ohio. Filed Mar. 30, 1897. Serial No. 630,021. (No model.)



Claim.—1. An adjustable ventilator of the class described comprising a plate provided with a circular orifice, a perforated bracket secured to said plate and extending across said orifice, and provided with reversely-arranged integral inclined planes 10 10, in combination with a disk adapted to close said orifice and formed with an integral shank and plate 17, formed with oppositely-disposed radial shoulders 19 19 having reversely-beveled edges 20 20, adapted to pass through said perforation and engage said inclined planes on the bracket to removably secure said disk in the orifice in said plate, substantially as and for the purpose set forth.

2. An adjustable ventilator, comprising the plate 1, having the circular orifice 2 formed with converging walls, the bracket 4 secured to said plate and extending across said orifice 2, and provided with the central circular orifice 7, having radial recesses 8 8, and parallel lugs 9 9, provided with reversely-inclined faces 10 10 in combination

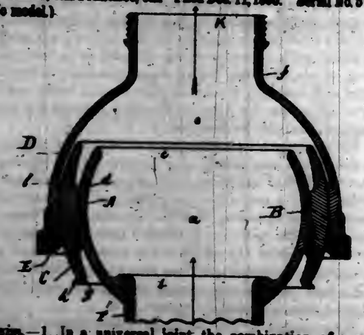
with the detachable disk 12 formed with the converging edges 14 14 and annular flange 15, and the integral shank 16 and rectangular plate 17 provided with the projecting lip 18, and reversely-beveled edges 20 20 substantially as and for the purpose set forth.

586,175. GAS-BURNER. RICHARD GANZ, Dresden, Germany. Filed Jan. 27, 1896. Serial No. 577,312. (No model.)



Claim.—In gas-burners, the combination of the shade-holder, with the central tube, a sleeve surrounding the tube and having its upper end flanged, a threadless insulating-ring surrounding the upper portion of the said sleeve, and located between the flange thereof and a portion of the shade-holder, substantially as and for the purpose set forth.

586,176. UNIVERSAL JOINT FOR COUPLING PIPES. HENRY H. GORTZE, San Francisco, Cal. Filed Dec. 11, 1896. Serial No. 571,794. (No model.)



Claim.—1. In a universal joint, the combination, of a socket-section, a hollow ball-section within the socket-section, and an intermediate section between the ball and socket sections, and having a universal connection with the ball-section.

2. A universal joint comprising a ball-section and socket-section, provided with passage-way, an intermedial shell between the two sections having a universal connection with the ball-section and having an annular coupling-bearing screwed to the shell—as set forth and for the purposes described.
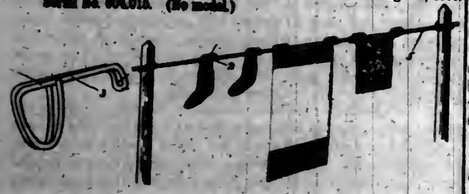
3. A joint consisting of a ball-section A, an intermedial shell, B, having a universal connection with the ball-section and provided with annular coupling-bearing C, and a socket-section D, provided with annular coupling-bearing E, and of packing interposed between the equatorial portion of the intermedial shell and the socket-section, as set forth and for the purposes described.

4. In a universal joint, the combination of a socket-section, a hollow ball-section within the socket-section, and a movable intermediate section between the ball and socket sections, said intermediate section having the projecting stopper *h*.

5. In a universal joint, the combination, of a socket-section, a perforated ball-section within the socket-section, and a annular section movably held between the socket and ball sections.

6. In a universal joint, the combination of a socket-section, a hollow ball-section within the socket-section, an intermediate section between the ball and socket sections, and annular bearing-rings between said sections, substantially as described.

586,177. CLOTHES-PIN. JOHN H. GRAPES, Clarksburg, W. Va., assignor to Sarah Virginia Lang, same place. Filed Aug. 26, 1896. Serial No. 604,015. (No model.)



Claim.—A clothes-pin made of a single strip of wire bent at its middle point, forming a loop which lies at right angles to the main part of said pin through which the clothes-line is adapted to pass, the outer ends of said pin being bent downwardly, rearwardly and upwardly forming V-shaped clamping ends, substantially as and for the purpose described.

586,178. CLOSURE FOR BARRELS. ROBERT C. GUERRARD, New Orleans, La. Filed Mar. 23, 1896. Renewed Dec. 19, 1896. Serial No. 616,334. (No model.)



Claim.—In the barrel-closure described, the combination of the barrel-head having the circular opening *a*, provided with the diametrically opposite branches *b*, and also having the inclined planes *c*, at its under side, extending in opposite directions from the branches *b*, a headed device *i*, connected to the upper side of the head at the side of the opening *a*, the turn-plug having the circular portion *d*, adapted to rest in the opening *a*, the flange *e*, adapted to bear on the barrel-head and the disk arranged below and connected to the portion *d*, and having the diametrically opposite lugs *f*, adapted to be passed through the branches *b*, of opening *a*, and engage the inclined planes *c*, of the head, and also having the diametrical groove *g*, in its upper side, and the strap *D*, having one of its ends fastened to the head at an opposite point with respect to the device *i*, and opening *a*, to the head; the said strap being designed to be stretched taut in the groove *g*, of the plug and wrapped around the device *i*, so as to hold the plug against turning and consequently against disconnection from the head, substantially as specified.

586,179. SHEET-METAL PIPE. CHARLES B. HAMLIN, Los Angeles, Cal. Filed Oct. 1, 1896. Serial No. 607,610. (No model.)



Claim.—1. As a new article of manufacture a sheet-metal pipe formed of an inner sheet of one width and an outer sheet of a greater width with a fold first formed in the edges of the outer sheet and then formed of the edges of the two sheets combined, substantially as set forth.

2. As a new article of manufacture a sheet-metal pipe having one or more rolled sheets of varying width, the edges of the outer rolled sheet being first secured together by folding and then folded collectively with the edges of the inner rolled sheet into one or more folds, substantially as set forth.

3. In a sheet-metal pipe the combination of one or more sheets of different widths, being rolled into pipe form, the outer rolled sheet being first folded at its edges upon itself and then folded together with the inner rolled sheet into one or more folds and then formed into a bead and pressed down against the body of the pipe and suitably secured in said position.

4. In a sheet-metal pipe the combination of one or more sheets of metal rolled to form a pipe and having their edges secured, of a loop formed out of the body of the pipe to which one end of the binding-wire is secured, said binding-wire being coiled about the pipe to give the same additional strength, substantially as set forth.

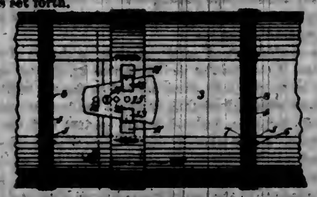
5. In a sheet-metal pipe the combination of a loop formed from the body of the pipe of a wire wound about the pipe having a right-angle extension inserted in said loop and then coiled over the loop and over the ends of the wire, said having the ends of the wire bent back upon the coils to hold them in position, substantially as set forth.

6. In a sheet-metal pipe the combination of two or more sheets rolled into pipe shape and having perforations in one or more of said sheets for the purpose of admitting galvanizing material, when the pipe has been immersed in a galvanizing-bath, substantially as set forth.

7. As a new article of manufacture the pipe formed of inner and outer sheets of metal, with the edges secured together, and having perforations formed in one of said sheets and a filling of galvanizing in the interstices between the sheets and in said perforations, substantially as set forth.

586,180. SHEET-METAL FLUME. CHARLES B. HAMLIN, Los Angeles, Cal. Filed Oct. 6, 1896. Serial No. 608,010. (No model.)

Claim.—1. As a new article of manufacture a sheet-metal flume, having its body formed in the segment of a circle and bound at suitable intervals with wire formed in groups, and cemented together substantially as set forth.



2. As a new article of manufacture a sheet-metal flume, having its body formed in the segment of a circle and bound with wire formed in groups at intervals throughout its length, the wires after being grouped being cemented together to form a rigid brace at the top of the flume and means for securing said wire to the flume, substantially as set forth.

3. In a sheet-metal flume the combination of the body of the flume, binding-wire wound around said flume and formed in groups, a tie-wire connecting the edge of the flume with the binding-wire and staples for connecting the body of the flume with the binding-wire, substantially as set forth.

4. In a sheet-metal flume the combination of the body of the flume, open on its upper side, one section of the flume being adapted to telescope a short distance into the adjoining section, an outer coupling-ring and an inner expansion-ring for forming a coupling at the point where the two sections telescope, substantially as set forth.

5. In a sheet-metal flume the combination of two sections of flume, one adapted to telescope a short distance within the other, an outer coupling-ring adapted to surround the flume, an inner expansion-ring adapted to be placed within the flume and means for expanding the expansion-ring and forcing the sections of the flume against the outer coupling-ring, substantially as set forth.

6. In a sheet-metal flume the combination of the flume proper adapted to telescope a short distance, an outer coupling-ring having the main portion formed in the form of a circle and having its upper side straight, slots in said straight portion, an expansion-ring adapted to fit within the flume and lugs on the expansion-ring adapted to extend through the slots in the coupling-ring, substantially as set forth.

7. In a sheet-metal flume the combination of the flume proper, an outer coupling-ring having slots within, an inner expansion-ring having lugs which extend through said slots, and a wedge-shaped key adapted to engage said lugs and expand the expansion-ring, substantially as set forth.

8. In a sheet-metal flume the combination of the flume proper an outer coupling-ring having slots, an inner expansion-ring having lugs adapted to extend through said slots and a wedge-shaped key having orifices and a pin which may be inserted in said orifices for preventing the withdrawal of the key, substantially as set forth.

586,181. ICE-CREAM FREEZER AND MOLD. THOMAS P. HANDLY, Allegheny, Pa. Filed Sept. 5, 1896. Serial No. 604,960. (No model.)



Claim.—In combination, a mold, cutters operating in the mold, one of said cutters extending in alinement with the lower portion of said mold, thence extending upward at right angles, said projecting portion being slotted, a spring secured to the handle of the mold with its end operating in the slot of the cutter and a head on the spring for holding it in the slot, substantially as described.

586,182. GAS-BURNER TIP. ISAAC HARRISON and ALBERT H. KILBURG, Scranton, Pa.; said Kilburg assignor of one-twelfth to Aaron Salsberg, Joseph Barron, and Isidor Finkelstein, same place. Filed Apr. 11, 1896. Serial No. 587,025. (No model.)



Claim.—1. In a gas-burner tip, the combination of a thermostat in the shape of a coiled strip having two ends thereof substantially parallel, one end of the same rigidly attached to the side of said tip, and the other end connected to a valve adapted to control the flow of gas, by means of a connecting-rod extending vertically down through a hole in the top of the said tip, to a horizontal valve-lid fitted to the lower rim of said tip, substantially as specified.

2. The herein-described automatic opening and closing device, consisting of the tip A having its lower edge or rim ground off so as to become the seat of the valve-lid C, the lid C and connecting-rod D sliding through the guides or holes *i* and *j*, the said rod connecting the lid C to one end of the coiled thermostat B, the thermostat B having an end rigidly attached to the side of the tip A and the other end attached to the said connecting-rod by means of which the said thermostat is adapted to operate the valve-lid C, substantially as shown and described.

586,183. CAR-COUPLING. BENJAMIN F. HARDY, Indianapolis, and GEORGE H. VIDITZ, Anderson, Ind. Filed Jan. 18, 1897. Serial No. 619,546. (No model.)



Claim.—1. A coupling-knuckle for car-couplers, having a hardened metallic resistance-strip cast in place in its bearing or coupling surface and flush with the said surface.

2. A coupling-knuckle for car-couplers, having a resistance-strip of a self-hardening material cast in place in its bearing or coupling surface and flush with the said surface.

3. A coupling-knuckle for car-couplers, provided with a resistance-strip of hard material formed with longitudinally-extending dovetail edges, and a series of countersunk holes distributed over the surface of said strip, substantially as and for the purpose set forth.

586,184. UPRIGHT PIANO. JAMES B. HERRT, Boston, Mass. Filed Mar. 31, 1897. Serial No. 630,092. (No model.)



Claim.—In an upright piano, the combination with the main portion thereof, of the herein-described improved hollow swinging cabinet-top hinged in the ordinary manner to the rear portion of the piano, said swinging top consisting of the top and bottom pieces D, B, back piece C, suitable end pieces, and the hinged lid consisting of the top piece D' hinged to the top piece D and the front piece E rigidly secured to the piece D' at angles therewith, substantially as set forth.

586,185. KITCHEN-CABINET. WILLIAM H. HENRICK and HARRY C. CROMLEY, Ironton, Ohio. Filed Sept. 12, 1896. Serial No. 605,567. (No model.)

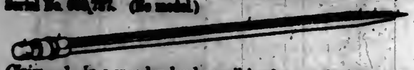


Claim.—1. In a kitchen-cabinet, the combination with the casing and the flour-bin, of the vertical elevator-casing having an opening at its front upper end, the roller at the lower end of the elevator-

casing and within the flour-bin, the roller journaled in the upper end of the elevator-casing above the opening and located in a different vertical plane from said lower roller, the endless elevator-belt passing around said rollers under tension, the cleats or slats secured thereto, and the inclined sleve secured over the opening at the upper end of the elevator-casing, the construction being such that as the endless belt is operated the cleats will elevate the flour and will also serve as knockers to vibrate the inclined sieve, substantially as described.

2. The combination with the cabinet having the sides and back extended upwardly and the sides of said cabinet having their front upper edges beveled or inclined and the removable top, of the extensible slide comprising the arms passing through apertures in the cabinet and their outer ends connected by a transverse bar, the lugs on the inner ends of said arms, the cleats secured to the cabinet, and the transverse bar secured to the exterior of the cabinet above the slide substantially as specified.

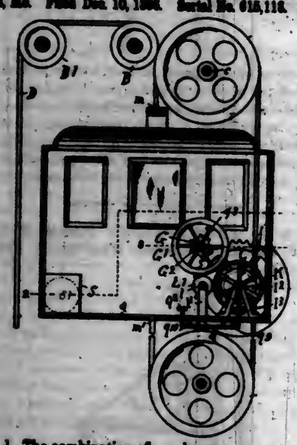
586,186. LEAD-PENCIL. DOUGLAS S. HEWITT, Toronto, Canada, assignor of one-half to ISAAC MOORE, same place. Filed July 28, 1896. Serial No. 600,777. (No model.)



Claim.—1. In a wooden lead-pencil having a pointed end, having a bore extending therethrough, a slot extending through the entire length of the pencil at one side only of the lead, a lead of less diameter than the bore and a pressure-key inserted into the pointed end of the slot, fixed therein, so as to complete the periphery of the wood pointed end of the pencil, and so arranged as to extend laterally into the bore beyond the inner surface thereof from the slotted side, as specified.

2. In a wooden lead-pencil having a pointed end and a bore extending therethrough, in combination, a slot extending through the entire length of the pencil at one side only of the lead and free and open at the butt-end, a lead of less diameter than the bore, a spring-sleeve, having a division, designed to have a lateral gripping pressure upon the periphery of the pencil and provided with single key-push plate forming part of the sleeve and extending into the bore diametrically, so as to abut the end of the lead and a pressure-key suitably held in the pointed end of the slot and forming a stop for the key-push plate as specified.

586,187. ELEVATOR. WILLIAM P. HILL and HENRY D. HILL, St. Louis, Mo. Filed Dec. 10, 1896. Serial No. 615,116. (No model.)



Claim.—1. The combination of an elevator-car; a revolvable device carried by the car, upon which a rope may be wound; two overhead sheaves; a sheave beneath the car; a weight; a rope having one end secured to the car and the other to the weight, and passing over one of the overhead sheaves; and another rope passing over the other overhead sheave, said winding device on the car, and the sheave beneath the car, and having both ends secured to the car, substantially as described.

2. The combination of an elevator-car; means for hoisting the car; mechanism for lowering the car including a spring; means for transmitting power from the hoisting device to the spring when the car is being raised, and for transmitting force from the spring to the lowering mechanism.

3. The combination of an elevator-car; winding mechanism carried by the car; a spring; means transmitting power to the spring, when the car is being raised; two overhead sheaves; a sheave beneath the car, a weight; a rope having one end attached to the car and the other to the weight, and passing over one of said overhead sheaves; and another rope passing over the other overhead sheave, the winding mechanism and the sheave beneath the car and having both ends secured to the car.

4. The combination of an elevator-car; a sheave above the car and one below it; a revolvable device carried by the car, upon which a rope may be wound; a fly-wheel carried by the car, means connecting said wheel with said winding device, a brake-shoe; means which automatically force the brake-shoe into contact with the periphery of the fly-wheel; means whereby the pressure of the brake-shoe upon the fly-wheel may be diminished and removed; and a rope passing over said sheaves and said winding device upon the car, and having both ends attached to the car, substantially as described.

5. The combination of an elevator-shaft; an elevator-car; a stationary overhead sheave; a stationary sheave at the bottom of the shaft; a double-faced sheave carried by the car; a crank carried by the car, means for transmitting motion from the crank to the sheave; a single-faced sheave, a rope attached to the top of the car and extending thence, first over the overhead sheave, thence downward under the double-faced sheave, thence over said single-faced sheave, thence back and over the double-faced sheave, thence down and under the sheave at the bottom of said shaft, and thence up to the bottom of the car, and attached to the bottom of said car, substantially as described.

6. In a winding device to be carried by elevator-cars for elevating or lowering them, a substantially horizontal shaft; journal-bearings supporting the shaft; a double-faced sheave attached to the shaft; a spring; means for transmitting power from the shaft to the spring when the shaft is turned in one direction and for transmitting force from the spring to the shaft for turning it in the opposite direction, and a sheave opposite the double-faced sheave; substantially as described.

7. The combination in a winding device to be carried by elevator-cars for elevating or lowering them; of a shaft, journal-bearings supporting the shaft; means for transmitting rotary motion to the shaft; a fly-wheel carried by the shaft; a brake having a shoe for application to the periphery of the fly-wheel; a double-faced sheave attached to the shaft; a sheave opposite the double-faced sheave; a rope passing over said sheaves, a spring and means for transmitting power from the shaft to the spring and motion from the spring to the shaft.

8. The combination of an elevator-car; two overhead sheaves; a sheave beneath the car; winding mechanism carried by the car; a spring; means transmitting power from the winding mechanism to the spring when the elevator is being raised and force from the spring to the car when the elevator is being lowered; a brake for governing the motion of the winding mechanism; a weight; a rope passing over one of the overhead sheaves and having one end attached to the car and the other end to the weight; another rope passing over the other overhead sheave, the winding mechanism and the sheave beneath the car and having both ends attached to the car substantially as described.

9. The combination of an elevator-car; a revolvable device carried by the car, upon which a rope may be wound; a wheel carried by the car, having a smooth rim; means connecting said wheel and said rope-winding device; a brake having a shoe; means normally pressing the brake-shoe against the rim of said wheel; means for removing said shoe from said wheel-rim; a shaft; a journal-bearing in which said shaft turns; means for turning said shaft; means for transmitting motion from said shaft to said rope-winding device; and means for disconnecting said shaft from said winding device, substantially as described.

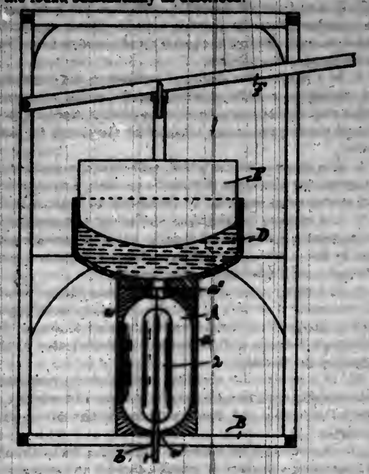
586,188. PROCESS OF AND APPARATUS FOR MANUFACTURING GLASS TUBING. ARTHUR A. HOUGHTON, Corning, N. Y. Filed Mar. 22, 1897. Serial No. 628,071. (No model.)

Claim.—1. The hereinbefore-described process of making glass tubing which consists in making a cylinder, casting under pressure an outer layer of glass upon the cylinder, and drawing out the blank thus formed into a tube, substantially as described.

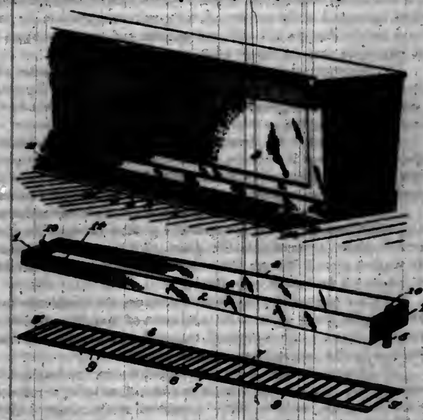
2. The hereinbefore-described process of making glass tubing which consists in making a cylinder, casting under pressure an outer layer of glass upon the cylinder of the same configuration in cross-section as the desired cross-section of the finished tubing, and drawing out the blank thus formed into a tube, substantially as described.

3. A mold to be employed in the forming of blanks from cylinders adapted to receive the cylinder and provided with an aperture for the passage of the pipe carrying the cylinder, and having a gateway for the admission of molten glass, substantially as described.

4. In a device to be employed in the manufacture of blanks from cylinders, the combination with a mold adapted to receive the cylinder and provided with an aperture for the passage of the pipe carrying the cylinder, a thrust for molten glass discharging into the mold, a plunger, and means for forcing the plunger upon the molten glass within the front, substantially as described.



586,189. SPITTOON. JOHN W. KERR, New Philadelphia, Ohio. Filed June 30, 1896. Serial No. 597,302. (No model.)

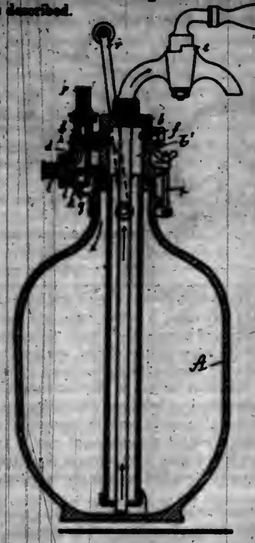


Claim.—A fixed spittoon, comprising the sheet-metal trough 2, formed with vertical parallel side walls 4 4 and parallel vertical end walls 1 1, having upwardly-projecting integral ductile ears 10 10, a longitudinally-inclined plane bottom 14, and an outlet-pipe 5, located at the lowermost end of said inclined plane bottom, and a removable open-slatted cover 6, the transverse end slats of which are adapted to engage said ductile ears 10 10 on the longitudinal ends of said trough, to removably secure said slatted cover in place, the whole constructed and arranged substantially as shown and described.

586,190. BEER-SIPHON. WILHELM KISTNER, Berlin, Germany. Filed Nov. 14, 1896. Serial No. 612,600. (No model.)

Claim.—1. In combination with beer-receptacle, the hollow stopper fitting therein, the acid-reservoir depending from the lower end of the stopper into the beer vessel, the discharge-pipe for the beer extending through the acid-reservoir whereby the same acts both as an acid-holder and as a cooling-receptacle for the beer, the reduction-valve case arranged laterally of the hollow stopper and having a passage connecting therewith, the valve controlling the passage, the diaphragm in the valve-casing, the lever connecting the diaphragm with the valve and the passage from the valve-casing extending down alongside of the reservoir through the stopper, substantially as described.

2. In combination with the beer vessel, the carbonic-acid reservoir, the reduction-valve with ports connecting the reservoir with the interior of the vessel, and the discharge-pipe for the beer extending through the reservoir whereby said reservoir serves both as a container for the acid and as a cooling-chamber for the beer-pipe, substantially as described.

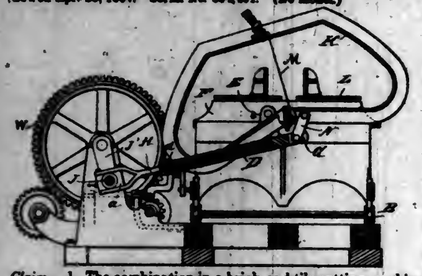


586,191. BALING-PRESS. JEFFERSON D. LANE, Bend, and WILL S. JAMES, Waco, Tex. Filed Mar. 31, 1896. Serial No. 585,614. (No model.)



Claim.—The combination of an S-shaped cross-head and means for imparting rotary motion thereto, said cross-head having oppositely-extending forwardly-convexed arms terminating in concentric extensions of which the outer surfaces are at all points at a uniform distance from the axis of rotation, an advancing lever S mounted at one end upon a fixed pivot in advance of the fulcrum of the cross-head and having the other end arranged in the path of the arms of the cross-head and connected to a plunger-beam, said free end of the advancing lever being adapted when retracted to occupy a position contiguous to the fulcrum of the cross-head and the center of the cross-head being arranged in the path of said free end of the lever to form a stop therefor, a returning lever pivoted in rear of the fulcrum of the cross-head and having a short arm arranged at its extremity in the path of the outer ends of the arms of the cross-head, and a connecting draw-rod between the long arm of the returning lever and the advancing lever at an intermediate point contiguous to its pivot, substantially as specified.

586,192. BRICK OR TILE CUTTING MACHINE. JOHN O. LUDLAM and JOHN L. MCKITTRICK, Canton, Ohio. Filed May 26, 1896. Renewed Apr. 20, 1897. Serial No. 634,461. (No model.)



Claim.—1. The combination in a brick and tile cutting machine, of a reciprocating clay-table, a cutter-frame, and means for simultaneously oscillating and transversely moving the cutter-frame in one direction through the uncut column of clay, and simultaneously oscillating and transversely moving the cutter-frame in the opposite direction through the uncut column of clay, substantially as set forth.

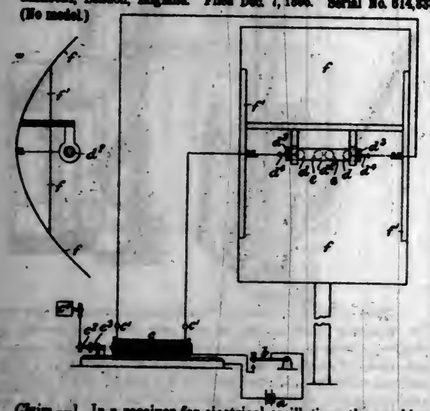
2. The combination in a brick and tile cutting machine, of a supporting-frame, and reciprocating table, the movement of which coincides with the movement of the column of clay, a pivoted cutter-frame, and means for rocking it in opposite directions through the column of clay to make two distinct cuts therethrough, substantially as set forth.

3. The combination in a brick and tile cutting machine, of a clay-table, a vibratable frame, D, a transversely-movable frame, F, pivotally secured thereto, a rotary crank-pin, J, to which said frame, D, is connected with one end, a cutter-frame pivotally connected to the opposite end of said frame, D, and to the frame, F, and adapted to rock on its pivotal connections with the frame, F, and move transversely of the clay-table, substantially as set forth.

4. The combination in a brick and tile cutting machine, of the longitudinally-movable frame C, the actuating-shaft O, having mounted thereon, a worm P, a segmental worm-wheel Q, having an outwardly-projecting arm R, and link T, whereby said arm is connected to frame C, substantially as set forth.

5. The combination, in a brick and tile cutting machine, of the longitudinally-reciprocating supporting-frame, an actuating-shaft provided with a gear, a mutilated gear meshing with the first-named gear, and a link connecting the mutilated gear with the longitudinally-reciprocating supporting-frame, substantially as set forth.

586,193. TRANSMITTING ELECTRICAL SIGNALS. GUGLIELMO MARCONI, London, England. Filed Dec. 7, 1896. Serial No. 614,636. (No model.)



Claim.—1. In a receiver for electrical oscillations the combination of an imperfect electrical contact, a circuit through the contact and means actuated by the circuit for shaking the contact.

2. In a receiver for electrical oscillations the combination of an imperfect electrical contact, metallic plates connected to it, a circuit through the contact and means actuated by the circuit for shaking the contact.

3. In a receiver for electrical oscillations the combination of an imperfect electrical contact, metallic plates connected to the contact, choking-coils connected to the contact, a circuit through the coils, and contact and means actuated by the circuit for shaking the contact.

4. In a receiver for electrical oscillations the combination of a tube containing metallic powder, a circuit through the powder and means actuated by the circuit for shaking the powder.

5. In a receiver for electrical oscillations the combination of a tube containing metallic powder, metallic plates connected to the powder, a circuit through the powder and means actuated by the circuit for shaking the powder.

6. In a receiver for electrical oscillations the combination of a tube containing metallic powder, metallic plates connected to the powder, choking-coils connected to the powder, a circuit through the coils and powder and means actuated by the circuit for shaking the powder.

7. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, a circuit through the powder, and means actuated by the circuit for shaking the powder.

8. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, metallic plates connected to the powder, a circuit through the powder and means actuated by the circuit for shaking the powder.

9. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, metallic plates connected to the powder, choking-coils connected to the powder, a circuit through the coils, and powder and means actuated by the circuit for shaking the powder.

10. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, a circuit through the powder and means actuated by the circuit for shaking the powder.

11. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, metallic plates connected to the powder, a circuit through the powder and means actuated by the circuit for shaking the powder.

12. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, metallic plates connected to the powder, choking-coils connected to the powder, a circuit through the coils and powder and means actuated by the circuit for shaking the powder.

13. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

14. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, metallic plates connected to them, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

15. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils and plugs and means actuated by the circuit for shaking the powder.

16. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

17. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, metallic plates connected to the plugs, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

18. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils plugs and powder and means actuated by the circuit for shaking the powder.

19. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

20. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, metallic plates connected to the plugs, a circuit through the plugs and powder and means actuated by the circuit for shaking the powder.

21. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils plugs and powder and means actuated by the circuit for shaking the powder.

22. In a receiver for electrical oscillations the combination of an imperfect electrical contact, a circuit through the contact, a relay actuated by the circuit and means actuated by the relay for shaking the contact.

23. In a receiver for electrical oscillations the combination of an imperfect electrical contact, metallic plates connected to it, a circuit through the contact, a relay actuated by the circuit and means actuated by the relay for shaking the contact.

24. In a receiver for electrical oscillations the combination of an imperfect electrical contact, metallic plates connected to the contact, choking-coils connected to the contact, a circuit through the coils and contact, a relay actuated by the circuit and means actuated by the relay for shaking the contact.

25. In a receiver for electrical oscillations the combination of a tube containing metallic powder, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

26. In a receiver for electrical oscillations the combination of a tube containing metallic powder, metallic plates connected to the powder, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder

27. In a receiver for electrical oscillations the combination of a tube containing metallic powder, metallic plates connected to the powder, choking-coils connected to the powder a circuit through the coils and powder a relay actuated by the circuit and means actuated by the relay for shaking the powder.

28. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

29. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, metallic plates connected to the powder, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

30. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powders, metallic plates connected to the powder, choking-coils connected to the powder, a circuit through the coils and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

31. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

32. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, metallic plates connected to the powder, a circuit through the powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

33. In a receiver for electrical oscillations the combination of a tube containing a mixture of metallic powder and mercury, metallic plates connected to the powder, choking coils connected to the powder, a circuit through the coils and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

34. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, a circuit through the plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

35. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, metallic plates connected to the plugs, a circuit through the plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

36. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, metallic powder between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils, plugs and powder, a relay actuated by the circuit, and means actuated by the relay for shaking the powder.

37. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, a circuit through the plugs and powder, a relay actuated by the circuit, and means actuated by the relay for shaking the powder.

38. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, metallic plates connected to the plugs, a circuit through the plugs and powder, a relay actuated by the circuit, and means actuated by the relay for shaking the powder.

39. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powders between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils, plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

40. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, a circuit through the plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

41. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, metallic plates connected to the plugs, a circuit through the plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

42. In a receiver for electrical oscillations the combination of a tube, metallic plugs in the tube, a mixture of metallic powder and mercury between the plugs, metallic plates connected to the plugs, choking-coils connected to the plugs, a circuit through the coils, plugs and powder, a relay actuated by the circuit and means actuated by the relay for shaking the powder.

43. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, an imperfect electrical contact at the receiving-station, an earth connection to one end of the contact an insulted conductor connected to the other end and a circuit through the contact.

44. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, an imperfect electrical contact at the receiving-station, an earth connection to one end of the contact an insulated conductor connected to the other end, a circuit through the contact and means actuated by the circuit for shaking the contact.

45. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, an imperfect electrical contact at the receiving-station, choking-coils connected to each end of the contact, an earth connection to one end of the imperfect contact an insulated conductor connected to the other end and a circuit through the coils and contact.

46. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, an imperfect electrical contact at the receiving-station, choking-coils connected to each end of the contact, an earth connection to one end of the imperfect contact, an insulated conductor connected to the other end, a circuit through the coils and contact and means actuated by the circuit for shaking the contact.

47. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, a tube containing metallic powder at the receiving-station, an earth connection to one end of the powder, an insulated conductor connected to the other end and a circuit through the powder.

48. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, a tube containing metallic powder at the receiving-station, an earth connection to one end of the powder an insulated conductor connected to the other end, a circuit through the powder and means actuated by the circuit for shaking the powder.

49. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, a tube containing metallic powder at the receiving-station, choking-coils connected to each end of the powder, an earth connection to one end of the powder, an insulated conductor connected to the other end and a circuit through the coils and powder.

50. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, a tube containing metallic powder at the receiving-station, choking-coils connected to each end of the powder, an earth connection to one end of the powder, an insulated conductor connected to the other end, a circuit through the coils and powder and means actuated by the circuit for shaking the powder.

51. The combination of a spark-producer at the transmitting-station, an earth connection to one end of the spark-producer, an insulated conductor connected to the other end, a tube containing metallic powder at the receiving-station, choking-coils and earth connection through condensers connected to each end of the powder, a circuit through the coils and powder and means actuated by the circuit for shaking the powder.

52. In a receiver for electrical oscillations, the combination of an imperfect electrical contact, a circuit through the contact, an electric trembler shaking the contact, and means for preventing the self-induction of the trembler from affecting the contact.

53. A receiver for electrical oscillatory impulses having a medium whose electrical resistance is altered by the received electrical oscillations, a trembler or shaker for acting upon the variable-resistance medium to restore it to its normal condition of electrical resistance, and means for controlling such trembler to cause it to act upon the

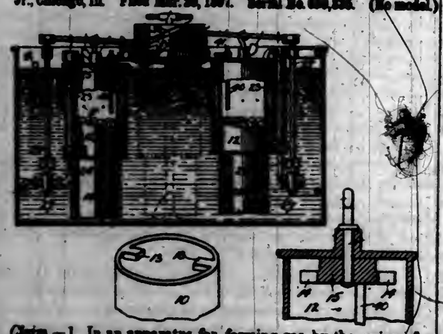
variable-resistance medium to restore it to its normal condition after each reception of such oscillatory impulses.

54. A receiver for electrical oscillatory impulses having a medium whose electrical resistance is altered by the received electrical oscillations, a trembler or shaker for acting upon the variable-resistance medium to restore it to its normal condition of electrical resistance, means controlling such trembler to cause it to act upon the variable-resistance medium to restore it to its normal condition after each reception of such oscillatory impulses, and means for rendering manifest said electrical oscillatory impulses consecutively received, whereby defined signals may be given out by the receiver.

55. The combination of a transmitter capable of producing at will of the operator electric oscillatory impulses or rays, and a receiver responsive thereto having a variable-resistance medium whose resistance is altered by such received oscillatory impulses, means controlled by the received oscillations for restoring such medium to its normal condition after each reception of such oscillations, and means for rendering manifest the received oscillations, whereby signals sent from the transmitter may be received upon the receiver.

56. The combination of a transmitter capable of producing electrical oscillations or rays at the will of the operator, and a receiver located at a distance and having a conductor tuned to respond to such oscillations, a variable-resistance medium, in circuit with the conductor, whose resistance is altered by the received oscillations, means controlled by the received oscillations for restoring the resistance medium to its normal condition after each reception of such oscillations, and means for rendering the received oscillations manifest.

586,194. ACETYLENE-GAS GENERATOR. CHARLES MATTHEWS, Jr., Chicago, Ill. Filed Mar. 20, 1897. Serial No. 628,326. (No model.)



Claim.—1. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquid to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head engaging said arms or levers, and means for conveying away the gas generated in the tanks, substantially as specified.

2. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquid to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head provided with means for locking said arms or levers to lie in different planes, and means for conveying away the gas generated in the tanks, substantially as specified.

3. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquid to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head provided with an inclined slot adapted to receive and hold one end of each of said arms or levers, and means for conveying away the gas generated in the tanks, substantially as specified.

4. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquids to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head provided with an inclined slot adapted to receive and hold one end of each of said arms or levers, devices for holding said arms or levers against lateral movement while in the slot, and means for conveying away the gas generated in the tanks, substantially as specified.

5. In ar apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the reception of the solid material, means for supplying liquid to said tanks successively, devices for holding said tanks at different heights, pipes connecting the several tanks so that an equal pressure is maintained in all, and means for conveying away the gas generated in the tanks, substantially as specified.

6. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the reception of the solid material, means for supplying liquid to said tanks successively, devices for holding said tanks at different heights, pipes connecting the several tanks so that an equal pressure is maintained in all, means for shutting off communication with one tank before it can be removed without disturbing the communication with the remaining tank or tanks, and means for conveying away the gas generated in the tanks, substantially as specified.

7. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a liquid-containing chamber, a series of tanks for the solid material arranged at different heights within said chamber and each provided with openings for the admission of water from the chamber, arms or levers to which said tanks are suspended, a rotatable head engaging said arms or levers, and means for conveying away the gas generated in the tanks, substantially as specified.

8. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a liquid-containing chamber, a series of tanks for the solid material arranged at different heights within said chamber and each provided with openings for the admission of water from the chamber, a pipe within the chamber with which each tank communicates, which pipe is adapted to conduct away the gas generated in the several tanks successively, and means for cutting off communication between such pipe and a tank when the tank is removed without disturbing the communication between the remaining tank or tanks and said pipe, substantially as specified.

9. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material, means for supplying water to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head provided with an inclined slot into which the inner ends of said arms or levers project, a pivoted latch adapted to be thrown across said slot and also adapted to be turned to bridge a portion of such slot, and means for conveying away the gas generated in the said tanks, substantially as and for the purpose specified.

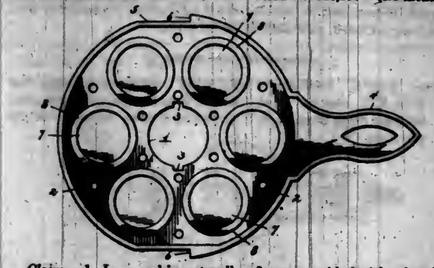
10. In an apparatus for forming gas by the union of a solid and a liquid, a liquid-containing chamber, in combination with a series of tanks for the solid material arranged at different heights within the chamber and each provided with openings for the admission of water from the chamber, an inverted vessel placed over each tank and removably connected with it, a tube connected with each inverted vessel and communicating with the interior of one of said tanks, a pipe rising within said tube and attached to a pipe for conveying away the gas, a lever or arm to which the tank is suspended, and a rod secured at its upper end to said lever and to a valve at its lower end, whereby upon the turning of said lever or arm said valve is turned and communication between the tank and the pipe for conveying away the gas is cut off, substantially as and for the purpose specified.

11. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquid to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head engaging said arms or levers, a device for preventing disengagement of the tanks from the levers when the levers are raised to rest on the upper surface of said head, and means for conveying away the gas generated in the said tanks, substantially as and for the purpose specified.

12. In an apparatus for forming gas by the union of a solid and a liquid, the combination of a series of tanks for the solid material arranged at different heights with relation to each other, means for supplying liquid to said tanks successively, arms or levers to which said tanks are suspended, a rotatable head engaging said arms or levers, stops arranged above the tanks and adapted to strike the supporting arms or levers when said arms or levers are raised at their inner ends to the upper surface of said head and thereby prevent the disengagement of the tanks from the said arms or levers, and means for conveying away the gas generated in the said tanks, substantially as and for the purpose specified.

13. In an apparatus for forming gas by the union of a solid and a liquid, a liquid-containing chamber, in combination with a series of tanks therein adapted to receive the solid material, a plate supported in the upper part of said chamber, a rotatable head located on said plate, fixed guides on said plate at the side of said rotatable head, tanks within the chamber adapted to receive the solid material and provided with openings in their sides for the admission of liquid from the chamber, pivoted arms or levers secured at their inner ends to said rotatable head and resting between the said guides and adapted to sustain said tanks at different heights within the chamber, and means for conveying away the gas generated in said tanks, substantially as specified.

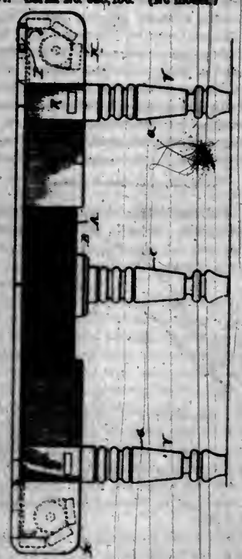
586,195. COOKING UTENSIL. OREN P. MORRIS, MacClure Settlement, W. Va. Filed Jan. 7, 1897. Serial No. 618,286. (No model.)



Claim.—1. In a cooking utensil, a frame provided with a handle and a plurality of circular openings 1 and smaller openings 2, said circular openings 1 having oppositely-arranged notches, and cups situated within said circular openings 1, said cups being provided with flanges at their upper ends and with laterally-extending ears below said flanges.

2. In a cooking utensil, a frame having a handle and provided with a plurality of openings and cups, said frame having oppositely-arranged flat sides and stops.

586,196. FLEXIBLE EXTENSION-TABLE. HENRY E. MOORMAW, Salem, Va., assignor of one-fourth to J. H. Boyd, same place. Filed Feb. 26, 1897. Serial No. 625,158. (No model.)



Claim.—1. In an extension-table, the combination of the stationary top, the end rails and end legs, journal-brackets secured to the ends of the table, inwardly-extending ribs formed on said brackets near the upper edge of the outwardly-extending arms of said brackets, the ends of said ribs turning downwardly, spring-rollers journaled in the brackets below the ribs, and a flexible apron or a series of extension-slats connected to the top and to the spring-rollers and running on the guide-ribs, substantially as described.

2. In an extension-table the combination of the stationary top, the end rails and end legs, journal-brackets secured to the ends of the table, spring-rollers mounted in said brackets, inwardly-extending ribs formed on said brackets above the rollers the outer ends of said ribs extending beyond the rollers, said ends being turned downwardly, whereby the slats, when partially folded, will turn down and form square ends to the table, a flexible apron formed of slats connected to the top and to the spring-rollers and running on the guide-ribs, and a latch to lock the flexible apron in its extended position, substantially as described

3. In an extension-table the combination of the stationary top, the end rails and end legs, journal-brackets secured to the ends of the table, spring-rollers mounted in said brackets, inwardly-extending ribs formed on said brackets, the outer ends of said ribs extending beyond the spring-rollers, a latch carried on the journaled brackets adjacent the outer ends of the ribs and adapted to engage the last slat on the ribs and lock the table in its extended position, the next adjacent slat on the outer side bearing against the ends of the ribs and forming a square end to the table, substantially as described.

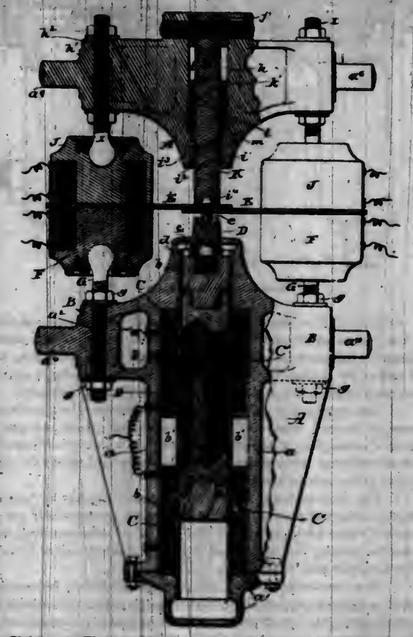
4. In an extension-table the combination of the stationary top, extension-slats at the end of the same, journaled brackets secured to the movable ends of the table, ribs formed on said brackets, a latch carried by one of said brackets at the outer end of the rib thereof, said latch engaging the outer edge of slat at the outer end of the rib N, the next adjacent slat extending substantially vertical below the latch and resting against the ends of the ribs, said vertical slat automatically raising the latch when the table is extended, substantially as described.

5. In an extension-table the combination of the stationary central portion, movable end portions, flexibly-connected slats secured to the central portion, means for folding said slats at the ends of the table, brackets secured to the movable ends, inwardly-extending ribs on said brackets said ribs supporting the slats, and means for adjusting the brackets laterally to receive the slats between them, substantially as described.

6. In an extension-table, the combination of a stationary part and a slidable end part, supports for both of said parts, a pair of brackets secured to the movable end part at either side of the table, a roller journaled in said brackets, a series of supports projecting from the end part of the table out over the roller, a flexible slatted apron connected at one end to the stationary part and at its other end to the roller and resting on said supports, and an automatic latch device carried by one of the brackets and adapted to engage the outer edge of the outermost slat resting on said support, as and for the purposes set forth.

7. In an extension-table the combination of the brackets K, the foldable slats moving between the same, and pawls pivoted on said brackets and passing through notches in the upper edges of the same and engaging the slats, substantially as described.

586,197. RIVETER. THOMAS R. MORGAN, Sr., Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Jr., John R. Morgan, and William H. Morgan, same place. Filed Sept. 5, 1894. Serial No. 522,207. (No model.)



Claim.—1. The combination with a frame, a tool-holder carried by said frame, and means for moving said tool-holder, of screws adjustably secured to said frame, and electromagnets connected to the screws by universal joints.

2. The combination with a frame, a tool-holder carried thereby and devices constructed and adapted to reciprocate said tool-holder, of screws adjustably secured to said frame, and electromagnetic de-

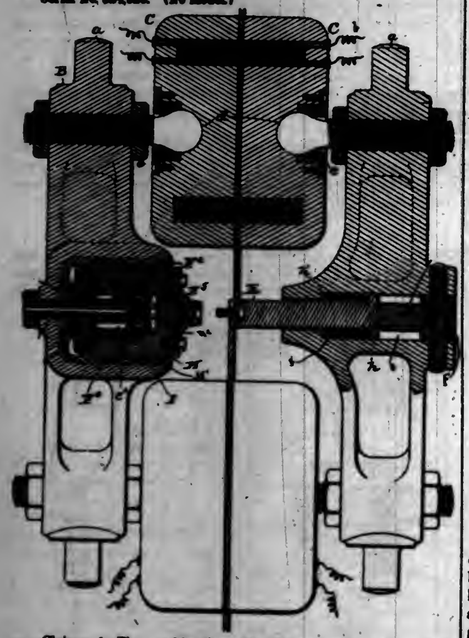
vices for retaining the frame in fixed relation to the work connected to the screws by universal joints.

3. The combination with two frames, one frame carrying a tool-holder and devices for moving said tool-holder, and the other frame carrying a holding-up tool, of screws adjustably secured to said frames, and electromagnetic devices for retaining said frames in fixed relation to the work, connected to the screws by universal joints.

4. In a riveter, the combination with two frames, one carrying a reciprocating electromoter having a riveting-tool, and the other frame carrying a holding-up tool, of screws adjustably secured to said frames, and electromagnetic devices for retaining said frames in fixed relation to the work, connected to the screws by universal joints.

5. The combination with two frames, a reciprocating electric motor mounted in one frame and carrying a riveting-tool, and a holding-up die carried by the other frame, of screws adjustably secured to each frame, and an electromagnet for each screw, each magnet being connected to its screw by a universal joint.

586,198. HYDRAULIC RIVETER. THOMAS R. MORGAN, Sr., Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Jr., John R. Morgan, and William H. Morgan, same place. Filed Oct. 1, 1894. Serial No. 524,626. (No model.)



Claim.—1. The combination with a frame and magneto-electric devices connected thereto and adapted when energized and placed against a metal plate to adhere to said plate, of a metal-working tool and means for turning the tool to either side and locking it against movement after it has been adjusted, substantially as set forth.

2. The combination with a frame and magneto-electric devices connected to said frame and adapted when energized and placed against a metal plate to adhere to said plate, of a metal-working tool, means for moving said tool lengthwise the frame, and means for turning it to either side of the frame.

3. The combination with a frame, magneto-electric devices adjustably connected therewith and adapted when energized and placed against a metal plate to adhere thereto, of a metal-working tool, means for moving said tool lengthwise the frame and means for turning it to either side of the frame.

4. The combination with a frame, magneto-electric devices connected to said frame, and adapted when energized and placed against a metal plate to adhere thereto, a screw lengthwise the frame, a carrier carried on said frame and engaging the screw and a worm-shaft carried by the carrier, of a frame mounted on the carrier and carrying a riveting-tool and a worm-wheel also on said latter frame and engaging the worm-shaft on the carrier.

5. The combination with two main frames each provided with magneto-electric devices adapted when energized and placed against a metal plate to adhere thereto, of a movable frame carried by each main frame, a riveting-tool carried by one movable frame, a holding-tool carried by the other movable frame, and means for moving said movable frames, and for locking them against movement after they have been adjusted, substantially as set forth.

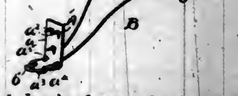
586,199. PNEUMATIC-TIRE PUMP. THOMAS L. MURPHY, New York, N. Y., assignor of two-thirds to Daniel J. Murphy, same place, and Isaac Hicks, Brooklyn, N. Y. Filed July 25, 1896. Serial No. 600,482. (No model.)



Claim.—1. A pump constructed of a single shell comprising two alined cylinders permanently closed at their outer ends and connected by a central case having a lateral opening, in combination with pistons having rods fixed thereto separably connected so as to form a rigid arm, said pistons fitting the cylinders with yielding contact so as to permit the deflection of their rods from the axis of the cylinders when disconnected, whereby the pistons may be removed toward one another and angularly through said lateral central opening of the shell, and rotary means in said connecting case for operating the pistons.

2. The combination in a pump, of a single shell comprising two alined cylinders permanently closed at their outer ends and connected by a central case having a lateral opening, pistons in said cylinders having rods fixed thereto separably connected so as to form a rigid arm, said pistons fitting the cylinders with yielding contact so as to permit the deflection of their rods from the axis of the cylinders when disconnected, a removable cover on said lateral opening, a rotary shaft journaled in said cover, an external hand-crank removably attached to said shaft, an internal crank on said shaft, and a pitman separably connecting said internal crank with said rigid arm of the pistons, substantially as and for the purposes described.

586,200. HAT-FASTENER. THOMAS G. MCPHERSON, Cleveland, Ohio. Filed Oct. 2, 1896. Serial No. 607,719. (No model.)



Claim.—1. In a hat-fastener, the combination of an angle-plate consisting of a vertical part which is adapted to be secured to the body of a hat, and a part extending outward at an angle thereto, the latter part having diverging guides for the legs of the hat-pin, with a hat-pin having two legs which are longitudinally movable in said guides, and are connected at their outer ends, substantially as and for the purpose specified.

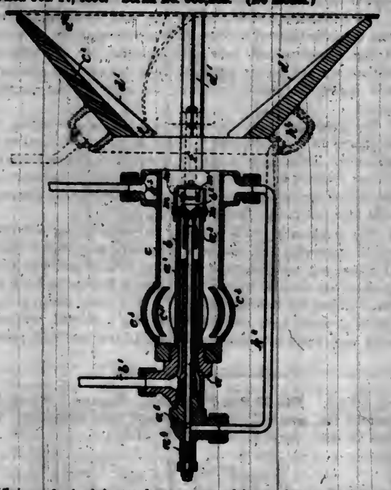
2. In a hat-fastener, the combination of an angle-plate consisting of the parts a a', the former being adapted to be secured to the body of a hat, the latter having diverging guides for the two-legged hat-pin, and the former having holes for the passage of said pin, with a two-legged hat-pin formed of a single piece of bent spring-wire, substantially as and for the purpose specified.

3. In a hat-fastener, the combination of a plate adapted to be secured to the body of a hat, and having two diverging guides for the hat-pin, with a hat-pin made of spring-wire, having two legs which are movable longitudinally in said guides, which legs are curved laterally away from each other, and are also curved downward at their inner ends and upward at their outer ends, substantially as and for the purpose specified.

4. In a hat-fastener, the combination of an angle-plate consisting of the parts a a', the latter having upwardly-bent straps a^4, and the former being adapted to be secured to the body of a hat, and having holes a^4, with the hat-pin having two legs which are formed integrally from the same bent wire, and are of ogee form, substantially as and for the purpose specified.

5. In a hat-fastener, the combination of an angle-plate consisting of a vertical part adapted to be secured to the body of a hat, and an approximately horizontal part having diverging guides for the hat-pin, with a two-legged hat-pin made of spring-wire, the legs of which are curved laterally away from each other, and are also curved downward at their inner ends and upward at their outer ends, substantially as and for the purpose specified.

586,201. INJECTOR. GUSTAVUS A. OSBORN, Hamburg, Germany. Filed Oct. 17, 1896. Serial No. 609,209. (No model.)



Claim.—1. An injector-burner comprising an inner spraying-pipe, a liquid-fuel pipe inclosing the spraying-pipe, the nozzle-mouth carried by the liquid-fuel pipe, the mouthpiece carried by the spray-pipe and movable toward and from the nozzle-mouth and the spring tending normally to press the mouthpiece into contact with the nozzle-mouth, the said mouthpiece being moved backward by the recoil of the escaping fluid for the purpose of automatically regulating the escape of the liquid fuel, substantially as described.

2. An injector-burner comprising a longitudinally-movable inner spraying-pipe, a liquid-fuel pipe inclosing the spraying-pipe, the nozzle-mouth carried by the liquid-fuel pipe, the mouthpiece carried by the spray-pipe, and the spring operating upon the longitudinally-movable spraying-pipe to press the mouthpiece normally against the nozzle-mouth, substantially as described.

3. An injector-burner comprising a longitudinally-movable inner spraying-pipe, a liquid-fuel pipe inclosing the spraying-pipe, the nozzle-mouth carried by the liquid-fuel pipe, the mouthpiece carried by the spray-pipe, the spring pressing upon the movable spraying pipe to hold the mouthpiece in contact with the nozzle-mouth but yielding under the recoil action of the spraying fluid, and the supply-pipe for the spraying fluid, the spraying-pipe having an opening to admit more or less of the spraying fluid according to the direction of movement of the spraying-pipe, substantially as described.

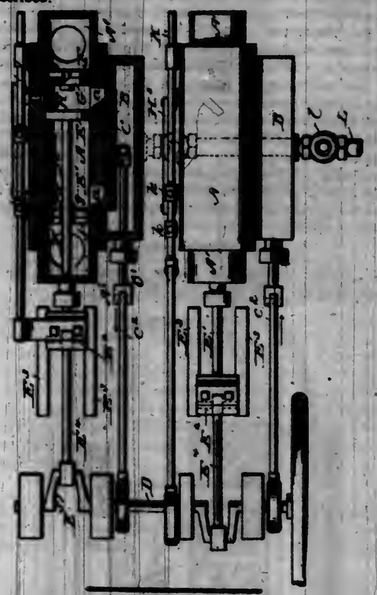
4. In combination with the air-supply jacket, the fuel-supply pipe within the same, the nozzle-mouth carried by said fuel-supply pipe, the tubular extension also carried by said fuel-supply pipe and having slots or openings, the spraying-pipe within the fuel-supply pipe movable longitudinally thereof, the supply-pipe for the spraying fluid, and the slot in the spray-pipe adapted to regulate the supply of the spraying fluid by the movement of the spraying-pipe, substantially as described.

586,202. HYDRAULIC ENGINE. JAMES M. PADDOCK, Atlantic Highlands, N. J., assignor, by mesne assignments, to Norman A. Johns, Huntington, Vt. Filed May 20, 1894. Renewed Dec. 14, 1896. Serial No. 615,711. (No model.)

Claim.—1. In a hydraulic engine, the combination with a cylinder of the exhaust-chambers at each end, a pivoted vibrating valve located at each end of the cylinder, the piston and means for operating the same, rock-shafts and fingers for vibrating the valves, and means connected with the piston-operating mechanism for operating the rock-shafts, substantially as shown and described.

2. In a hydraulic engine, the combination with a cylinder and its piston of the exhaust-chambers at each end, the valve-seats having radial ports, the vibrating valves having radial ports, the rock-shafts, arms at each end one of which engages the vibrating valve, the others being connected by a rod, the shifting rod and trips thereon all of said parts being arranged and operated substantially as shown and described.

3. The combination with the cylinder and piston of the exhaust-chambers, the seats having radial ports, the valves having radial ports, the arms engaging the valves, the rock-shafts to which they are attached, the arms upon the outer end of shafts, the rod connecting said outer arms, the shifting rod and trips, the piston-rod and cross-head, pitman and driven shaft all arranged substantially as shown and described.



586,203. RAILWAY-SWITCH. JULIAN A. PALMER, Hillsdale, Mich. Filed Feb. 25, 1897. Serial No. 624,905. (No model.)

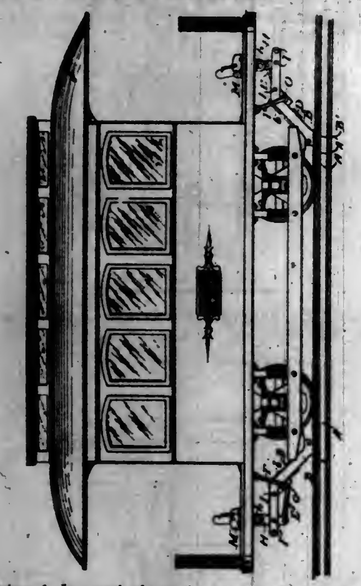


Claim.—1. In a railway-switch mechanism, the combination with switch-rails and a switch-lever connected thereto, of an operating-lever mounted for horizontal movement contiguous to the track-rails and operatively connected with said switch-lever, said operating-lever having a vertically-yielding locking-arm, and a lock having a horizontal guide and terminal offsets for engagement by said locking-arm, the locking-arm being adapted to be depressed against its vertical resilience to disengage it from one offset for horizontal movement into engagement with the other offset, substantially as specified.

2. In a railway-switch mechanism, the combination with switch-rails, of a horizontally-swinging operating-lever connected with the switch-rails and having a beveled extremity adapted to be engaged by a depressing-roller, a locking-arm carried by the operating-lever and yieldingly held thereby against depression, and a lock having a guide provided with terminal offsets in engagement with either of which the locking-arm is held by the resilience of the operating-lever, said operating-lever also having a diagonal shoulder or cam for engagement by a horizontal shifting-roller, substantially as specified.

3. In a railway-switch mechanism, the combination with a horizontally-swinging vertically-yielding operating-lever provided with a diagonal shoulder or cam, and locking devices in engagement with which said lever is held when in its normal position, and from which it is adapted to be disengaged by terminal depression, of operating devices including a depressing-roller to disengage the operating-lever from the locking device, and a shifting-roller to coact with said diagonal shoulder or cam and impart swinging movement to the lever, substantially as specified.

586,204. CAR-BRAKE. JOHN M. REEVES, Plymouth, Pa. Filed Sept. 26, 1896. Serial No. 607,053. (No model.)



Claim.—1. In a car-brake two legs connected together in a manner to allow relative lateral movement, a connection between said legs and a car to allow a longitudinal movement thereof, a brake-shoe on the lower ends of said legs, and devices for moving said legs longitudinally and for spreading them apart.

2. In a car-brake, two legs connected together to permit the relative lateral movement, a connection between said legs and a car to permit said legs to move longitudinally, a spring to draw said legs together, brake-shoes on the lower ends of said legs, and devices for moving said legs longitudinally and for spreading them apart.

3. In a car-brake, two longitudinally-movable legs having a relative lateral movement connected with a car, brake-shoes at the lower ends of said legs, said brake-shoes having a curved face for contact with the tread of the wheel, a flat face for contact with the tread of the track, and a downwardly-projecting flange to engage the inner face of the head of the track, and devices for moving said legs longitudinally and for spreading them apart.

4. In a car-brake, the longitudinally-movable legs having a relative lateral movement, a brake-shoe secured to the lower ends of said legs, said brake-shoe having a curved surface for contact with the tread of the wheels, a flat surface for contact with the tread of the track, and a downwardly-projecting flange for contact with the inner face of the head of the rail, said flange tapering toward its lower edge.

5. In a car-brake, the longitudinally-movable legs having a relative lateral movement, a brake-shoe fastened to the lower ends of said legs and provided with a curved face for contact with the tread of the wheel, a groove at one side of said curved face, a flat face for contact with the tread of the rail, and a downwardly-projecting tapering flange for contact with the side of the head of the rail.

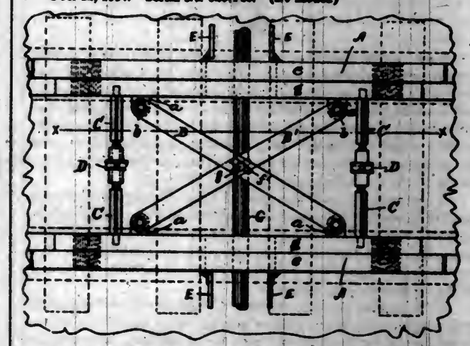
6. In a car-brake, the longitudinally-movable legs having a relative lateral movement, said legs being provided at their lower ends with a flat face and downwardly-projecting tapering flange at the inner edge thereof, a brake-shoe secured to said legs having a curved face for contact with the tread of the wheel, and a flat bottom face and downwardly-tapering flange at the inner edge thereof situated in alinement with the corresponding parts of the legs.

7. The combination with a car, of the legs connected together to permit a relative lateral movement, brake-shoes at the lower ends of said legs, swinging rods connected with said car and with said legs, and an operating-lever mounted upon the car and connected with said legs by devices for swinging the same and for spreading them apart.

8. The combination with a car, of legs having a swinging connection therewith and connected together to permit the relative lateral movement, brake-shoes at the lower end of said legs, a movable presser-foot situated between said legs and engaging inclined faces thereon, and an operating-lever mounted upon the car and connected with said legs and presser-foot for moving the same.

9. The combination with a car, of two legs having a swinging connection therewith and connected together to permit a relative lateral movement, brake-shoes at the lower ends of said legs, a movable presser-foot situated between said legs to engage inclined faces thereon, a spring for moving said legs toward each other, an operating-lever pivoted upon the car and having a pivoted connection with said legs, and a coupling between said lever and said presser-foot.

586,205. BRIDGE FOR FIRE-HOSE. WILLIAM T. SLIDER, Indianapolis, Ind., assignor of one-third to Joseph Metz, same place. Filed Feb. 12, 1897. Serial No. 623,149. (No model.)



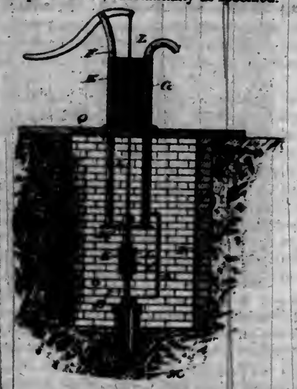
Claim.—1. The combination with a railway-track of a pair of arched bridge-rails having the upper surfaces corresponding to the upper surfaces of the street-rails, said arched rails having at the central part thereof a suitable aperture to receive lines of water-hose, doors hinged at one side of said bridge-rails providing a lateral support, when in their open position; claw-teeth at the under side of each end of said bridge-rails and at the outer side of the lower track thereof adapted to gouge into said street-rails; apertures at the inside of each end of said bridge-rails; a lug at each end of said bridge-rails at the inner side thereof, crossed braces pivoted to said lugs connecting the said pair of bridge-rails; spreading-arms adapted to enter said apertures in the rail ends; a spreading-nut suitably threaded and engaging the opposite ends of said spreading-arms by which said rails may be forced apart and in contact with said street-rails substantially as and for the purposes shown and described.

2. In a bridge for fire-hose of the character described the combination of the arched rails A having the claw-teeth c^4, g^6 and m at the lower sides of the ends thereof, and central opening F, said bridges having the apertures f' and provided with the doors E providing, when open, a lateral brace for said bridge-rails; the cross-braces B B' connecting said bridge-rails; the spreading-arms C adapted to engage at one end in said apertures f' and the spreading-nut D connecting the opposite ends of said arms to provide means for spreading said bridge-rails against the inner sides of said track-rails substantially as and for the purposes shown and described.

586,206. PUMP FOR TUBULAR WELLS. GEORGE O. SNYDER, Grand Ledge, Mich. Filed Jan. 15, 1894. Serial No. 496,926. (No model.)

Claim.—The combination with the pump-cylinder, having a detachable cap adapted to be secured to the upper end of the well-tubing, of the discharge-pipe, and the small pipe spanning the pump-cylinder, and connecting with the discharge-pipe and cap, to return the water left in the discharge-pipe to the well-tubing, the whole

arranged so as to permit the pump to be placed in position and removed with its parts intact, substantially as specified.

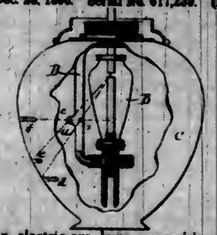


586,207. SPITTOON. JOHN SOLTWEDEL and EDWARD MATHIAS, Whiting, Ind. Filed Apr. 16, 1896. Serial No. 587,817. (No model.)



Claim.—The combination with a counter or other upright structure, and two pipes 1 and 8 located on opposite sides thereof, one a drain-pipe and the other a supply-pipe and the drain-pipe having the secondary function of serving as a foot-rest, of a spittoon having a short pipe leading from its bottom into the discharge-pipe, a pipe leading from the supply into and discharging at the top of the spittoon whereby the contents are washed down and out of the spittoon.

586,208. ELECTRIC-ARC LAMP. BERNARD A. STOWE, Cleveland, Ohio. Filed Dec. 28, 1896. Serial No. 617,239. (No model.)



Claim.—1. An electric-arc lamp comprising the carbons, the globe and a light-obstructing device at a point within the globe which is at all times in the light-field space of the arc.

2. An electric-arc lamp comprising the carbons, the globe and a light-obstructing device at a point within the globe which is at all times outside of the space marked by the cones of shadow formed by the obstruction of the light-field by the carbons.

3. An electric-arc lamp comprising the carbons, one of which is movable and the other fixed, the globe and a light-obstructing device fixed at a point within the globe which is at all times in the light-field space of the arc.

4. The combination with an arc-lamp, of two pins disposed so as to intercept rays of light from the arc and cast shadows on the globe, whereby to indicate the state of consumption of the carbons, substantially as set forth.

5. The combination with an arc-lamp, of two pins projecting from the frame thereof, one of said pins being longer than the other and both adapted to intercept rays of light from the arc whereby to cast shadows on the globe, said pins being so disposed as to be in line with each other and the arc when the latter reaches such point that the carbons will have been nearly consumed, substantially as set forth.

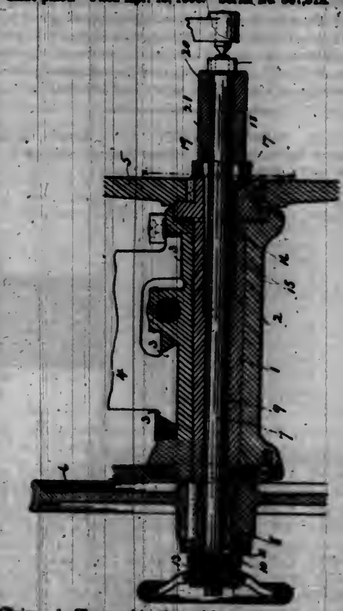
6. In an arc-inclosed electric-arc lamp, the combination with the carbons, the inner or arc-inclosing globe and the larger or outer globe, of a device so disposed as to intercept rays of light from the arc as they pass from the arc and through the inner globe, whereby to produce an indication on the outer globe of the extent of consumption of the carbons, substantially as set forth.

586,209. TEMPORARY CARTRIDGE-HOLDER. WILLIAM P. TRAVIS, Canastota, N. Y. Filed July 15, 1895. Serial No. 556,060. (No model.)



Claim.—In an ammunition-holder, the combination with a circular series of tubes secured rigidly together, each tube having a longitudinal slot in its outer side, a cap closing one end of the series of tubes, followers in said tubes, a ring on said tubes to slide thereon, connections between the ring and the followers and extending through the slots, and springs secured at one end to the tubes and lying in the recesses between them, the free ends of said springs being curved and entering apertures in the sides of tubes near their open ends, as and for the purpose described.

586,210. SUPPORTING-ARBOR. EBENEZER R. THAYER, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Apr. 12, 1896. Serial No. 587,312. (No model.)



Claim.—1. The combination with an arbor-support, of an arbor constructed to be withdrawn within said support, and means for clamping said arbor in said support, substantially as described.

2. The combination with an arbor-support, of an arbor passing through the support and constructed to be withdrawn within the same, and means for clamping said arbor to said support, substantially as described.

3. The combination with an arbor-support, of a split sleeve mounted therein and engaging therewith by one or more inclined surfaces, an arbor passing through said support, and said split sleeve, substantially as described.

4. The combination with an arbor-support provided with a tapered bore, of a split sleeve fitting said bore, an arbor passing through said support and said sleeve, and a nut threaded on the end of said sleeve, substantially as described.

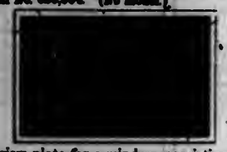
5. The combination with an arbor-support, of a split sleeve mounted therein and engaging therewith by one or more inclined surfaces, an arbor passing through said support and said split sleeve, and a nut on the rear end of said arbor, substantially as described.

6. The combination with an arbor-support, of a split sleeve mounted therein and engaging therewith by one or more inclined surfaces, an arbor passing through said sleeve, a taper on the front end of said arbor, and a nut on the end of said sleeve, substantially as described.

7. The combination with an arbor-support, of an arbor extending through said support, means for moving said arbor longitudinally in said support and means for securing the work upon the end of said arbor, substantially as described.

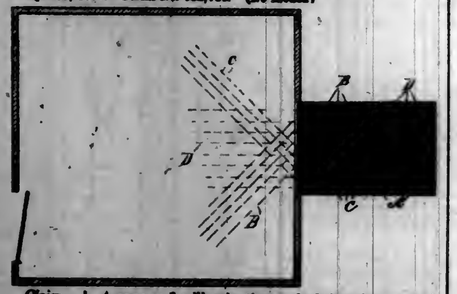
8. The combination with an arbor-support provided with a tapered bore, of a split sleeve fitting said bore, an arbor passing through said support and sleeve, a nut threaded on the rear end of said arbor, a taper at the front end of said arbor, a split bushing on said taper, and a nut threaded on the end of said sleeve between said support and said bushing, substantially as described.

586,211. WINDOW-LIGHT. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 8, 1897. Serial No. 626,394. (No model.)



Claim.—A prism-plate for a window, consisting of a series of individual prism-lights, each prism-light having on one side a receiving-surface and on the other a prism-surface comprising a series of prisms systematically arranged to produce an increased illuminating effect, and a frame whereby all of these prism-lights are attached together to produce a prism-plate, the individual prism-lights tilted or inclined in their positions in the plate so as to set the prisms at angles to each other to throw the light from any part of the completed plate in any desired direction, substantially as shown and described.

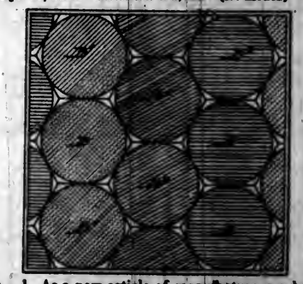
586,212. PRISMATIC CANOPY. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 19, 1897. Serial No. 633,711. (No model.)



Claim.—1. A canopy for illuminating a dark interior, comprising a frame projecting from the building opposite the aperture through which the light is to be introduced, with a series of prism-lights held in such frame, each prism-light provided with a series of parallel prisms systematically arranged thereon to produce an increased illuminating effect, said prism-lights arranged in groups with the prisms of one group tilted with reference to the prisms of another group, so that the light received upon one group is thrown through the aperture in one direction while the light received upon the other group is thrown through the aperture across the path of the light from the first group.

2. A canopy for illuminating a dark interior, comprising a frame projecting from the building opposite the aperture through which the light is to be introduced, with a series of prism-lights held in such frame, each prism-light provided with a series of parallel prisms systematically arranged thereon to produce an increased illuminating effect, said prism-lights arranged in at least three groups with the prisms of one group tilted with reference to the prisms of another group, so that the light received upon one group is thrown through the aperture in one direction while the light received upon the other group is thrown through the aperture across the path of the light from the first group, and a third group with its prisms set so as to throw the light directly in through the aperture.

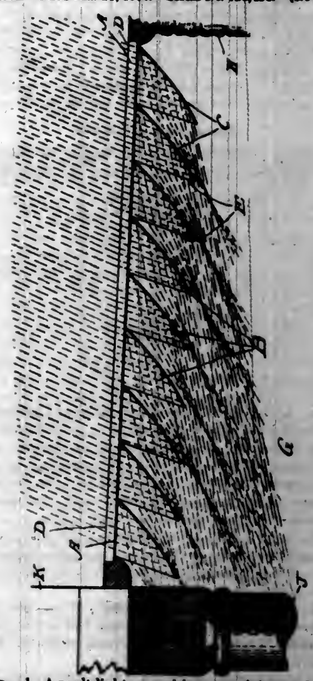
586,213. PRISM LIGHT AND PLATE. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 19, 1897. Serial No. 633,712. (No model.)



Claim.—1. As a new article of manufacture, a substantially flat prism-light comprising a body portion of transparent material having a receiving-surface and an outline other than circular, with an inscribed circular surface consisting of a series of substantially parallel prisms systematically arranged with each other and with the particular outline of the body portion of the prism-light to produce an increased illuminating effect and to throw substantially all the light into a predetermined direction, the diameter of such circular prism-surface not exceeding the shortest diameter of the body portion, so that the prism-surface can be set in any relation to the outline of the body portion and thus throw substantially all of the light affected in any predetermined direction with reference to the outline of such body.

2. A prism-plate comprising a series of prism-lights combined together in a suitable frame or grid, all the lights having bodies non-circular in outline but uniform, each body having a circular prism-surface consisting of a series of prisms systematically arranged to produce an increased illuminating effect, substantially as shown and described.

586,214. VAULT-LIGHT. OLIN H. RASSMUS, Chicago, Ill., assignor, by mesne assignments, to the Luxfer Prism Patents Company, of West Virginia. Filed Jan. 23, 1897. Serial No. 620,458. (No model.)



Claim.—1. A vault-light comprising a receiving-surface adapted to be placed in an approximately horizontal plane, one or more projecting ribs or prisms on the opposite sides thereof, each prism having two converging surfaces, one for reflecting, the other for refracting the light, and one of said surfaces curved in such manner that substantially all of the light falling upon the surface of the vault-light will pass thereinto and be successively treated by the two surfaces of the prism, so that it is converged upon a line a little farther from the receiving-surface than is the lower edge of such prism and in advance of the lower edge of such prism by a distance substantially equal to the greatest width of such prism measured in the direction toward which the light is to be thrown.

2. A vault-light comprising a receiving-surface adapted to be placed in an approximately horizontal plane, one or more projecting ribs or prisms on the opposite sides thereof, each prism having two converging surfaces, one for reflecting, the other for refracting the light, and both of said surfaces curved in such manner that substantially all of the light falling upon the surface of the vault-light will pass thereinto and be successively treated by the two surfaces of the prism so that it is converged upon a line a little farther from the receiving-surface than is the lower edge of such prism, and in advance of the lower edge of such prism by a distance substantially equal to the greatest width of such prism measured in the direction toward which the light is to be thrown.

3. A prism-light comprising a substantially flat body of glass with a receiving-surface on one side, and one or more prisms on the other side, said prisms forwardly projecting at their lower extremities and having two converging surfaces, one of which is curved, the lower extremity of each of said prisms projecting in front of a line drawn through the forward upper extremity of said prism and substantially perpendicular to the receiving-surface, so that substantially all of the light falling upon the surface of the vault-light will pass thereinto and be successively treated by the two surfaces of the prism so that it is converged upon a line a little farther from the receiving-surface than is the lower edge of such prism and in advance of the lower edge of such prism by a distance substantially equal to the greatest width of such prism measured in the direction toward which the lights are to be thrown.

4. A vault-light comprising a receiving-surface adapted to be placed in an approximately horizontal plane and provided with projecting ribs or prisms having each two converging surfaces, one for reflecting the light received, and the other for refracting the reflected light, the reflecting-surface being curved and the lower edge of such prism projecting forward of a line through the upper forward surface of such prism and substantially perpendicular to the receiving-surface, and the refracting-surface of such prism substantially parallel to the direction from which the light to be treated is to be received, so that substantially all of the light falling upon the surface of the vault-light will pass thereinto and be successively treated by the two surfaces of the prism so that it is converged upon a line a little farther from the receiving-surface than is the lower edge of such prism and in advance of the lower edge of such prism by a distance substantially equal to the greatest width of such prism measured in the direction toward which the light is to be thrown.

586,215. TESTING DEVICE. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, of West Virginia. Filed Feb. 9, 1897. Serial No. 622,947. (No model.)



Claim.—1. A testing device comprising a series of prisms of various angles connected together and adapted to be mounted in a testing-frame, provided with two openings, said prisms interposed between the openings in the testing-frame.

2. A testing device comprising a testing-frame provided with two openings, a series of prisms of varying angles, connected together and removably mounted in said testing-frame between said openings, said prisms adapted when held between the eye of the observer and a given window to indicate the proper prism to be used in order to best direct the light toward the point where the observer stands.

3. A testing device, comprising a series of prisms of various angles connected together and adapted to be interposed between the eye and the window or opening through which the light is admitted, said testing device adapted to indicate the proper prism to be used in said opening.

4. A testing device comprising a series of prisms of various angles connected together and adapted to be mounted in a testing-frame provided with two openings so as to be interposed between said openings, the angles of said prisms gradually increasing from one end of the series to the other, the whole mounted so that when held up between the observer's eye and the window or opening through which the light is admitted, the proper prism to be used in said opening is indicated by the first bright prism in the series.

5. A testing device comprising a series of prisms of various angles connected together and adapted to be mounted in a testing-frame provided with two openings, said prisms interposed between said openings, each prism being marked so as to indicate the angles thereof, said prisms uniformly varying from one end of the series toward the other whereby the proper prism for any given window may be found by interposing the series of prisms between the observer's eye and the window and noting the first bright prism in the series.

586,216. ORNAMENTAL PRISMATIC GLASS. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 8, 1897. Serial No. 626,395. (No model.)



Claim.—1. A prism-plate for windows comprising a series of prism-lights united together to form the plate, the prism-lights arranged in groups so as to form a predetermined design or figure, and the prisms of the prism-lights forming such design or figure inclined or tilted with reference to the prisms of the prism-lights surrounding the same, substantially as and for the purpose specified.

2. A prism-plate for a window having a receiving-surface and a series of projecting prisms systematically arranged to produce an increased illuminating effect for the apartment on the other surface, certain prisms arranged in groups to form a predetermined design, the prisms of the group which forms the design varied with reference to the surrounding prisms so as to throw the light in a different direction and thus exhibit the design.

586,217. LIGHT-DIFFUSING DEVICE. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 15, 1897. Serial No. 627,732. (No model.)



Claim.—1. A prism-light comprising a substantially flat glass body with prisms on one side, some of said prisms extending in a broken straight line across the body substantially from edge to edge.

2. A prism-light comprising a substantially flat glass body with prisms on one side, some of said prisms extending in a broken straight line across the body substantially from edge to edge, and the edges of the adjacent prisms substantially equidistant from each other throughout their lengths.

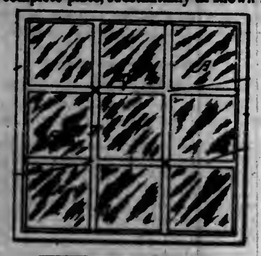
3. A prism-light comprising a substantially flat glass body having a substantially plane surface on one side and with prisms on the other side, some of said prisms extending in a broken straight line across the body substantially from edge to edge.

4. A prism-light comprising a substantially flat glass body having a substantially plane surface on one side and with prisms on the other side, some of said prisms extending in a broken straight line across the body substantially from edge to edge, and the edges of the adjacent prisms substantially equidistant from each other throughout their lengths.

586,218. MOUNTING PRISM-LIGHTS. OLIN H. RASSMUS, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 20, 1897. Serial No. 628,041. (No model.)

Claim.—A grid or net for uniting tile-like sections into a complete plate consisting of a series of corner-pieces each having as many legs as there are tile-like sections coming together at such corner, and each of said legs equal in length to the side of the section along which

it lies, and L-shaped in cross-section, in combination with a surrounding frame to hold the grid or net and its tile-like sections together so as to make a complete plate, substantially as shown and described.

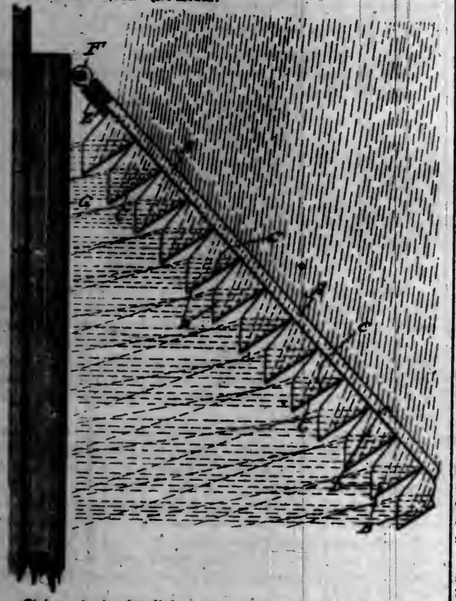


586,219. PRISM-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 23, 1897. Serial No. 628,542. (No model.)



Claim.—A prism-light having a plane surface on one side and a prism-surface on the other, such prism-surface composed of a series of primary prisms each having one plane surface and a prism-surface, such prism-surface on the primary prism being itself formed into secondary prisms each having a face at right angles to the plane surface of the prism-light, and a face parallel to the plane surface of the primary prism.

586,220. PRISM-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 23, 1897. Serial No. 628,544. (No model.)

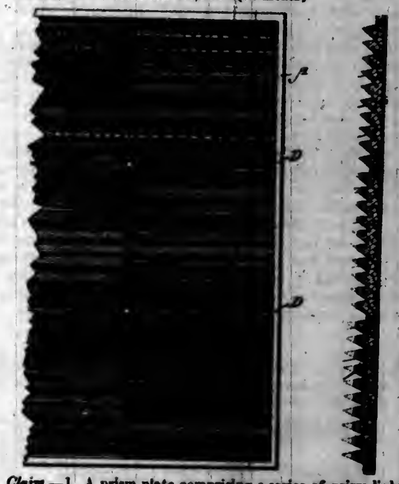


Claim.—1. A prism-light comprising a substantially flat glass part having a receiving-surface on one side and a series of projecting prisms on the other, each prism having one curved surface, the curvature of such surface and the character of the other prism-surface being such that substantially all the rays of light falling upon the receiving-surface from a given direction will be so treated successively by the prism-surfaces as part of them to be directed forward in parallel lines and part of them converged substantially along a line a little farther from the plane of the receiving-surface than the lower line of such prism and in advance of the lower line of such prism by a distance about equal to the greatest width of such prism, in the direction in which the light is to be thrown, but parallel to the plane receiving-surface.

2. A prism-light comprising a flat glass part with a receiving-surface on one side and a series of projecting prisms on the other, each prism having one curved surface and one plane surface, the curvature of such surface and the character of the other prism-surface being such that substantially all the light received from one direction will be so treated successively by the prism-surfaces as part of them to be directed forward in parallel lines and part of them to be converged substantially along a line a little farther from the plane of the receiving-surface than the lower line of such prism and in advance of the lower line of such prism by a distance about equal to the greatest width of such prism, in the direction in which the light is to be thrown, but parallel to the plane receiving-surface.

3. A prism-light comprising a flat glass part with a receiving-surface on one side and a series of projecting prisms on the other, each prism having its two surfaces so shaped and related to each other that substantially all the light received from one direction will be so treated successively by the prism-surfaces as part of them to be directed forward in parallel lines and part of them to be converged substantially along a line a little farther from the plane of the receiving-surface than the lower line of such prism and in advance of the lower line of such prism by a distance about equal to the greatest width of such prism, in the direction in which the light is to be thrown, but parallel to the plane receiving-surface.

586,221. PRISMATIC LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 23, 1897. Serial No. 628,545. (No model.)



Claim.—1. A prism-plate comprising a series of prism-lights secured together in a suitable frame so as to form such plate, each prism-light having uniform prisms but the prisms of different lights varying in angular arrangement.

2. A prism-plate comprising a series of prism-lights and a frame by which they are bound together to form the plate, the prisms of the plate having different angles but the number of prisms being uniform for each unit of distance measured transversely to the prisms.

3. A prism-plate comprising a series of prism-lights joined together to form such prism-plate, the prisms of the plate having different angles, such prisms arranged so that there are uniform numbers of prisms for equal distances measured transversely to such prisms, and all the prisms of an equal elevation measured from the plane side of the prism-plate.

4. A prism-plate comprising a series of prism-lights joined together to form such prism-plate, the prisms of the plate having different angles, such prisms arranged so that there are uniform numbers of prisms for equal distances measured transversely to such prisms, and all the prisms of an equal elevation measured from the plane side of the prism-plate and all the prisms having equal widths at their bases.

5. A prism-plate comprising a series of prism-lights joined together to form such prism-plate, the prisms of the plate having different angles, such prisms arranged so that there are uniform numbers of prisms for equal distances measured transversely to such prisms, and all the prisms of an equal elevation measured from the plane side of the prism-plate and all the prisms having equal widths at their bases, the plane surfaces of some of such prisms being connected by a curved surface.

6. A substantially flat prism-plate provided with a receiving-surface on one side and a series of prisms running across the plate on the opposite side substantially from edge to edge, such prisms systematically arranged to produce an increased illuminating effect in the apartment and having equal bases and equal elevation, equal numbers for equal distances measured across such prisms, and angles varying systematically and regularly from one portion of the plate to another to give an increasing refraction of the light from one portion of the plate to another.

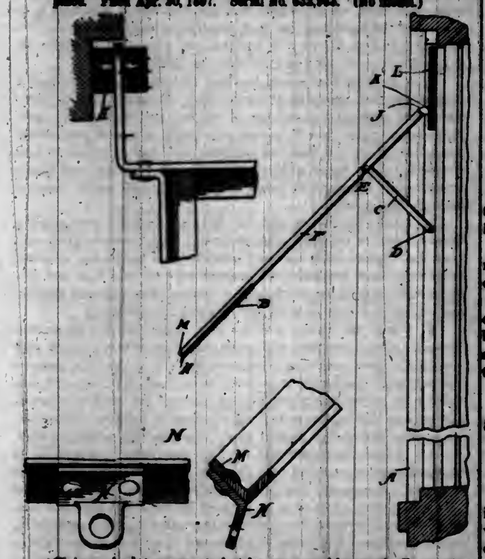
7. A substantially flat prism-plate provided with a receiving-surface on one side and a series of prisms running across the plate on the opposite side substantially from edge to edge, such prisms systematically arranged to produce an increased illuminating effect in the apartment and having equal bases and equal elevation, and angles varying systematically and regularly from one portion of the plate to another to give an increasing refraction of the light from one portion of the plate to another.

586,222. PRISMATIC WINDOW-PLATE. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 19, 1897. Serial No. 632,710. (No model.)



Claim.—A prism-plate comprising a series of prism-lights each of which has all of its surrounding edge interrupted at comparatively regular intervals by prism-grooves, in combination with a grid or net in the meshes of which the prism-lights are fixed and electrically-deposited metal attached to the net and projecting into the ends of all the prism-grooves.

586,223. ADJUSTABLE PRISM-CANOPY. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 20, 1897. Serial No. 632,963. (No model.)



Claim.—A plate supported at its upper end by vertically-moving pivots in combination with supporting-arms which are approximately one-quarter the length of the plate, are pivotally secured at a fixed point below the moving pivot, and are also pivoted to the plate at a distance from its upper end approximately equal to one-quarter of its length.

586,224. WINDOW. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Mar. 10, 1897. Serial No. 626,741. (No model.)



Claim.—1. A complete window comprising a series of tile-sections with a series of double-beaded metallic strips running in one direction, and a series of double-beaded metallic strips running at right angles to and passing through the first-mentioned strips, the sections of tile being placed within the squares formed by such strips.

2. A complete window comprising a series of strips, double beaded with strengthening parts within the strips, transverse similar strips running at right angles to and passing through said first-mentioned strips and tile-sections interposed between the squares thus formed between the several strips.

3. A complete window comprising a series of double-beaded strips running in one direction, thin strengthening-wires in the beads, a series of double-beaded strips running at right angles to and passing through the first-mentioned strips and a series of tile-sections interposed in the spaces between the said strips.

4. A complete window comprising a series of double-beaded metallic strips, each perforated and the beads spread at such perforations so as to make the length of the perforations equal to the width of the body of the beaded strip, a series of double-beaded strips passing through such perforations and a series of tile-sections in the spaces between such strips.

586,225. FRAMING PRISM-LIGHTS. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 632,700. (No model.)



Claim.—1. A prism-plate comprising a series of transparent sections with interposed supporting-bars, the bars whose broad sides lie in the path of the light being cut out or internally reduced.

2. A prism-plate comprising a series of sections of transparent material, and a series of supporting-bars interposed between the edges of such sections, the cross-bars internally perforated.

3. A prism-plate comprising a series of prism-sections placed close together edge to edge, an interposed frame consisting of flat bars between the several edges, the cross-bars cut out internally so as to admit of the passage of light therethrough, while at the same time presenting an unbroken exterior surface.

586,226. COMBINED PRISM AND ORNAMENTAL GLASS. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 632,702. (Model.)

Claim.—The combination of a stained-glass window with varying colors and varying degrees of translucency, with a prism-plate window comprising a transparent body having a series of prisms on one side systematically arranged to produce an increased illuminating effect and adapted to receive the light from without, bend the rays and direct them upon the stained-glass window in a prede-

termined manner to vary the effects produced by the stained-glass window.



586,227. METHOD OF MOUNTING PRISM-LIGHTS AND ORNAMENTAL GLASS. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 632,703. (No specimens.)

Claim.—1. A plate consisting of a series of sections united by means of a grid, a paste interposed between the grid and the sections, and an electrically-deposited coat of metal over the exposed surfaces of such cement.

2. A plate consisting of a series of sections united by means of grid, a paste interposed between the grid and the sections, and an electrically-deposited coat of metal over the exposed surfaces of such cement and over the exposed surfaces of the grid also.

586,228. MOUNTING PRISM-LIGHTS. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 632,704. (No model.)



Claim.—1. A prism-plate comprising a series of prism-lights, a grid or frame comprising bars which pass in opposite directions between the prism-lights, and disk-like keys, said prisms slotted at their bases and at the corners of the prism-lights to receive such keys, and thus hold all the parts securely in position.

2. A prism-plate comprising a series of prism-lights, a grid or frame comprising bars which pass in opposite directions between the prism-lights, and disk-like keys, said prisms slotted at their bases and at the corners of the prism-lights to receive such keys and thus hold all the parts securely in position, and a mass of electrically-deposited metal in and about the metal portions of such grid to hold the parts securely together.

586,229. FRAMING PRISM LIGHTS OR TILES. HENRY F. BELCHER, New York, N. Y., assignor to the Luxfer Prism Patents Company, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 632,706. (No model.)



Claim.—1. A frame for connecting separate pieces into a plate, comprising a surrounding outer frame, provided with a series of cross-pieces, a series of connecting-pieces between said cross-pieces and extending across the frame at an angle thereto, some of said connecting-pieces provided at one end with enlarged parts or lugs adapted, when the connecting-pieces are in position, to engage said cross-pieces; the other end of said connecting-pieces adapted to fit between the lugs or enlarged parts on the adjoining connecting-piece, and provided with projections, which project through openings in said lugs so as to connect the parts together.

2. A frame for connecting separate pieces into a plate, comprising a surrounding outer frame, provided with a series of cross-pieces, a series of connecting-pieces between said cross-pieces and extending across the frame at an angle thereto, some of said connecting-pieces provided at one end with enlarged parts or lugs adapted, when the connecting-pieces are in position, to engage said cross-pieces; the other end of said connecting-pieces adapted to fit between the lugs or enlarged parts on the adjoining connecting-piece, and provided with projections, which project through openings in said lugs so as to connect the parts together, said projections each provided with a beveled or inclined face.

4. A frame for connecting separate pieces into a plate, comprising a surrounding outer frame, provided with a series of cross-pieces, a series of connecting-pieces between said cross-pieces and extending across the frame at an angle thereto, some of said connecting-pieces provided at one end with enlarged parts or lugs adapted, when the connecting-pieces are in position, to engage said cross-pieces; the other end of said connecting-pieces adapted to fit between the lugs or enlarged parts on the adjoining connecting-piece, one of said lugs on each cross-piece being perforated so as to expose the connecting-piece and cross-piece engaged thereby, said parts being fastened together by means of solder inserted through said opening.

5. A frame for connecting separate pieces into a plate, comprising a surrounding outer frame, provided with a series of cross-pieces, a series of connecting-pieces between said cross-pieces and extending across the frame at an angle thereto, some of said connecting-pieces provided at one end with enlarged parts or lugs adapted, when the connecting-pieces are in position, to engage said cross-pieces; the other end of said connecting-pieces adapted to fit between the lugs or enlarged parts on the adjoining connecting-piece, and provided with projections, which project through openings in said lugs so as to connect the parts together, said projections being battered or riveted so as to lock the parts in position.

6. A frame for connecting separate pieces into a plate, comprising a surrounding outer frame, provided with a series of cross-pieces, a series of connecting-pieces between said cross-pieces extending across the frame at an angle thereto, some of said connecting-pieces provided at one end with enlarged parts or lugs adapted, when the connecting-pieces are in position, to engage said cross-pieces; the other end of said connecting-pieces adapted to fit between the lugs or enlarged parts on the adjoining connecting-piece, and provided with projections, which project through openings in said lugs so as to connect the parts together, said projections being battered or riveted so as to lock the parts in position, and a quantity of solder engaging the several parts so as to form the finished joint.

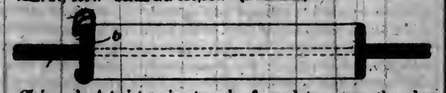
7. A joint for frames and the like, comprising a cross-piece, a connecting-piece provided at its end with projecting lugs, between which said cross-piece passes, one of said lugs provided with an opening through which said cross-piece is exposed, a second connecting-piece, having its end inserted between said lugs a portion of said connecting-piece being exposed through said opening, said pieces firmly united together by means of a quantity of solder inserted through said opening.

8. A joint for frames and the like, comprising a cross-piece, a connecting-piece provided with projecting lugs, between which said cross-piece passes, each lug being provided with an opening, a second connecting-piece adapted to be inserted between said lugs, and provided with projections which project through the openings therein, and engage said lugs so as to hold the parts in position.

9. A joint for frames and the like, comprising a cross-piece, a connecting-piece provided with projecting lugs, between which said cross-piece passes, each lug being provided with an opening, a second connecting-piece adapted to be inserted between said lugs, and provided with projections which project through the openings therein, and engage said lugs so as to hold the parts in position, said projections being battered or riveted so as to connect the parts together.

10. A joint for frames and the like, comprising a cross-piece, a connecting-piece provided with projecting lugs between which said cross-piece passes, each lug being provided with an opening, a second connecting-piece adapted to be inserted between said lugs, and provided with projections which project through the openings therein, said projections being battered or riveted so as to hold the parts in place; the several parts of the joint being rigidly connected together by means of solder or the like.

586,230. TWISTER RING-TRAVELER. JOHN BOOTH, Central Falls, R. I., assignor of one-half to Charles D. Wood, same place. Filed Mar. 27, 1897. Serial No. 629,517. (No model.)



Claim.—1. A twister ring-traveler formed to engage the edges of a twister-ring and having a thread-bearing which is located substantially in line with the vertical section of the ring when the traveler is in its operative position, and a thread-barrier below said bearing.

2. A twister ring-traveler having arms formed to engage the edges of a twister-ring, a thread-guiding eye above the upper arm, and having a thread-bearing which is located substantially in line with the vertical section of the ring, said eye being separated from the upper edge of the ring by a barrier having provisions for permitting the thread to be pulled upwardly into the guiding-eye, and for preventing loose downward movement of the thread from the eye.

586,231. SOAP. EDWARD S. BOYNTON, Brooklyn, N. Y., assignor to the Boynton Soap Process Company, of New York. Filed Oct. 10, 1896. Serial No. 608,473. (No specimens.)

Claim.—1. A soap or saponaceous compound containing as one of its essential ingredients a ferrocyanid, in substantially the proportions specified, said soap having the distinguishing characteristics that an acidulated solution thereof becomes blue when ferric chlorid is added thereto.

2. A soap or saponaceous compound containing as one of its essential ingredients, potassium ferrocyanid, in substantially the proportions specified.

586,232. SCREW. SAMUEL W. ENGLISH, Clayton, N. J., assignor of two-thirds to George F. English, same place, and Edwin S. Harrington, Philadelphia, Pa. Filed Oct. 16, 1896. Serial No. 609,080. (No model.)



Claim.—1. As a new article of manufacture, the herein-described improved screw, having a circular body portion or core surrounded by a thread whose edge portion is cut away or flattened off upon three or more sides of the screw without destroying the continuity of the thread and forming sharp cutting corners, substantially as described.

2. As a new article of manufacture, the herein-described improved screw, having a circular body portion or core surrounded by a continuous thread which is flattened off to an extent less than its depth upon four equal sides throughout its length without destroying its continuity, and providing sharp cutting corners, substantially as specified.

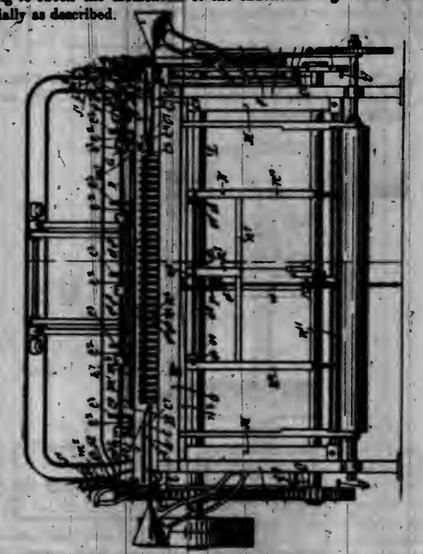
3. As a new article of manufacture, the herein-described improved screw, having a circular body portion or core surrounded by a continuous thread whose edge is flattened off upon three or more sides of the screw to an extent less than its depth, forming sharp cutting corners or edges, and whose tapered head is provided with grooves upon its under side, substantially as specified.

4. As a new article of manufacture, the herein-described improved screw having a circular body portion or core surrounded by a continuous thread which is flattened off upon three or more sides of the screw throughout its length to a less extent than its depth, whereby sharp cutting corners are provided, and whose neck portion or shank above the thread is of less diameter than the threaded portion with its thread, substantially as described.

586,233. LOOM. ALFRED GRUBB, East Providence, R. I., assignor to William F. Grubb, Boston, Mass. Filed Sept. 3, 1895. Serial No. 561,235. (No model.)

Claim.—1. The combination of the vertical shuttle-race, provided with the transverse openings for the shed of the warp-threads, and with the grooves to receive the fingers for beating up the weft, the shuttle, and means for operating the same, with the projecting fingers for beating up the weft, and means for actuating the said fingers downward from the warp-threads, backward to the grooves at the vertical face of the shuttle-race, thence upward in said grooves and between the warp-threads at the rear of the weft, and forward between the warp-threads, to beat up the weft, substantially as described.

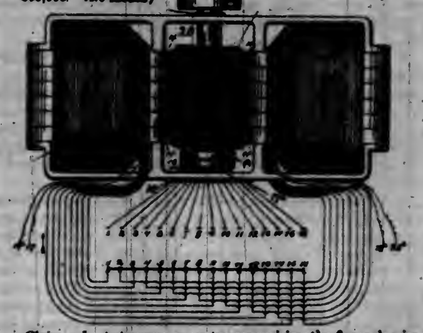
2. The combination of the vertical shuttle-race, and the shuttle provided with the rack, with the gears engaging with the rack, means for alternately reversing the movement of the gears to cause the back-and-forth movement of the shuttle through the shed, and the rotary friction device, actuated into engagement by the shuttle, and operating to check the momentum of the shuttle-driving means, substantially as described.



3. The combination of the vertical shuttle-race, the shuttle and means for causing the back-and-forth movement of the shuttle through the shed, with the stationary knife, and means adapted to be engaged by the shuttle, to cause the knife to sever the weft, substantially as described.

4. The combination of the vertical shuttle-race, and the shuttle provided with the spring-actuated gripping-jaws, the latch-cams for opening the jaws of the shuttle, the spring-actuated knife for cutting off the weft, means for raising the knife, the catch for holding the knife in its raised position, and means adapted to be engaged by the shuttle, for withdrawing the catch, substantially as described.

586,234. DYNAMO-ELECTRIC MACHINE OR ELECTRIC MOTOR. ABRAHAM R. GRIMES, Baltimore, Md. Filed June 2, 1896. Serial No. 593,966. (No model.)



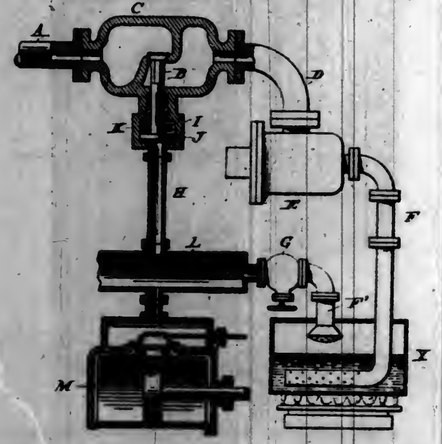
Claim.—1. A dynamo or motor comprising the frame having the field-magnets formed thereon, a supplier or collector suitably attached to the said frame provided with a series of segments, a commutator, and armature suitably mounted on a shaft, said commutator being provided with a series of segments adapted to be held in contact with the series of segments on the said collector.

2. A dynamo or motor comprising the frame, the field-magnets provided with beveled outer edges, a shaft journaled in the said frame carrying the armature and the commutator, said commutator being provided with a series of segments one insulated from the other, a supplier or collector suitably attached to the said frame provided with segments one insulated from the other, and means for holding the commutator-segments and the collector-segments into contact.

3. A dynamo or motor comprising the frame provided with field-magnets, a shaft journaled in said frame having an armature and commutator mounted thereon, said commutator being provided with an inner and an outer row of segments one insulated from the other, a collector or supplier secured to the said frame provided with an inner

row and an outer row of segments one insulated from the other, adapted to be held in frictional contact with the said segments of the said commutator.

586,235. STOP-VALVE. JOSEPH H. HARLEY, New York, and WALTER H. KNIGHT, New Brighton, N. Y. Filed July 27, 1896. Serial No. 600,582. (No model.)



Claim.—1. In combination with a source of high pressure, a reducing-valve for lowering the pressure to an apparatus for utilizing the lower pressure, a throttle-valve for controlling the admission of such lowered pressure to the apparatus, and an automatically-closed stop-valve operated by the lowered pressure, when the throttle-valve is opened, to open the passage between the source of high pressure and the reducing-valve, said stop-valve being automatically closed when the said throttle-valve is closed, substantially as set forth.

2. In combination with a consumer of fluid-pressure, such as a fluid-pressure engine, a valve for admitting and shutting off the fluid-pressure to said engine, a source of high pressure, a reducing-valve for reducing such high pressure, an automatic stop-valve located between the source of high pressure and the reducing-valve, said stop-valve being closed and held closed by the high-pressure fluid, and means for automatically opening said stop-valve by the reduced fluid-pressure when the throttle-valve is opened, substantially as set forth.

3. In combination with a consumer of fluid-pressure, such as a fluid-pressure engine, a throttle-valve for admitting or shutting off fluid-pressure to the engine, a source of high pressure, the reducing-valve, a hot-water heater located between the reducing-valve and throttle-valve, a stop-valve between the high-pressure supply and reducing-valve, and means operated by fluid-pressure for automatically opening the stop-valve when the throttle-valve is opened, as set forth.

4. In combination with a source of high pressure, an apparatus for utilizing low pressure, a reducing-valve for lowering the pressure to said apparatus, a throttle-valve for controlling the admission of the low pressure to said apparatus, a hot-water heater located between the reducing-valve and throttle-valve, a stop-valve between the high-pressure supply and reducing-valve, and a fluid-pressure-operated device connected with said stop-valve and communicating with the low-pressure supply between the throttle-valve and apparatus being operated, substantially as set forth.

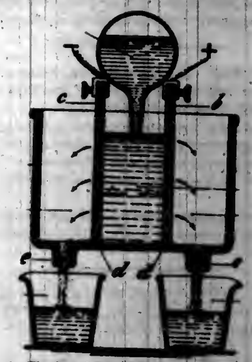
5. In combination with a source of high pressure, the stop-valve B, reducing-valve E, throttle-valve G, a low-pressure-supply pipe controlled by the throttle-valve, the passage H, extending from the low-pressure-supply pipe, and a piston J in said passage H operatively connected with the stop-valve B, substantially as set forth.

6. In combination with a source of high pressure, of a balanced stop-valve, a reducing-valve and a throttle-valve, with automatic means for opening the said balanced valve, when the throttle-valve is opened, and automatic means for closing said balanced valve when the throttle-valve is closed, substantially as set forth.

7. The combination of a source of high pressure, a reducing-valve, a hot-water heater, a passage leading from the source of high pressure through the reducing-valve to the hot-water heater, a passage leading from the hot-water heater to an apparatus to be run by the lowered pressure, a throttle-valve in said low-pressure passage, a passage H leading from the low-pressure-supply pipe, a stop-valve in the high-pressure passage between the source of high pressure and reducing-valve, and a piston movably supported in passage H and connected with the stop-valve and adapted to operate it.

8. The combination of a source of high pressure, a reducing-valve, a hot-water heater, a passage leading from the source of high pressure through the reducing-valve to the hot-water heater, a stop-valve in said passage between the source and reducing-valve, a spring for closing said stop-valve, a low-pressure-supply pipe leading from the hot-water heater, a throttle-valve in the low-pressure-supply pipe, a fluid-pressure-operated device in communication with the low-pressure-supply pipe and connected with the stop-valve and adapted to force it open against the action of its spring.

586,236. PROCESS OF ELECTROLYTIC DECOMPOSITION OF SOLUTIONS. LÉON P. HULIN, Médane, France. Filed July 6, 1896. Serial No. 598,705. (No specimens.) Patented in France Nov. 25, 1893, No. 234,237, and in Belgium Nov. 27, 1893, No. 107,262.



Claim.—1. The herein-described process of electrolysis, the same consisting in confining an electrolyte between two permeable electrodes constituting an anode and a cathode, in thereupon passing a current through the electrodes and electrolyte and causing the resulting anions to filter through the anode and the cations to filter through the cathodes, substantially as described.

2. The herein-described process of electrolysis, the same consisting in confining an electrolyte between two permeable electrodes constituting an anode and a cathode, in thereupon passing a current through the electrodes and electrolyte and carrying off the ions in solution through each electrode at the precise point where they are generated on the electrodes, substantially as specified.

3. The herein-described process of electrolysis, the same consisting in subjecting an electrolyte to the action of porous or filter electrodes having only one electrically-active surface exposed to the pressure of the electrolyte while the other electrically-inactive surface is subjected to a lesser pressure and gives passage to the ions, as specified.

4. The herein-described electrolytic apparatus, the same consisting of a tank or cell adapted to confine an electrolyte, two of whose sides are composed of porous electrodes, one of the said sides being an anode and the other a cathode, substantially as described.

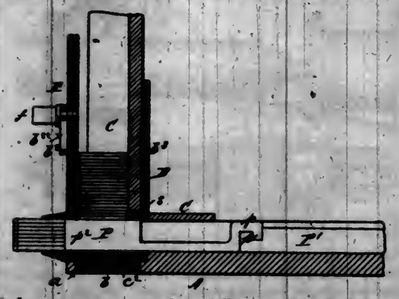
5. The herein-described process for the production of liquid products capable of being produced by electrolysis, the same consisting of confining a suitable electrolyte within a cell having walls composed of porous electrodes one of said electrodes being an anode and the other a cathode and in thereupon passing a current of electricity through the electrodes and regulating the current so as to maintain such a difference of potential between the electrodes that only soluble ions are formed in the operation upon the filter-electrodes.

586,237. TYPE-SETTING APPARATUS. LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, same place. Filed Aug. 3, 1896. Serial No. 602,136. (No model.)

Claim.—1. In a type-setter case substantially such as described, the combination of a type-containing channel having one wall of greater width than the other of a channel-holder and front guard, the latter formed with a rabbet to receive and retain the front edge of the wide wall of the channel, substantially in the manner and for the purpose described.

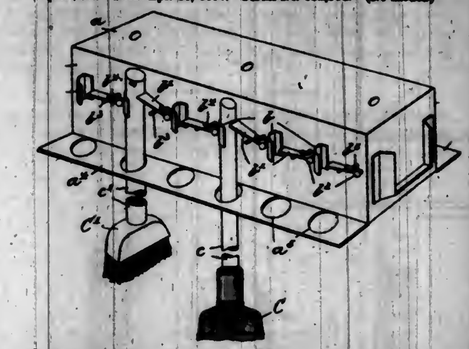
2. In a type-setter case substantially such as described, the combination of a type-containing channel having one side wall wider than the other and formed with a vertical slot in its spine of a channel-holder formed with a stud for engaging said slot in the spine of the channel and a front guard upon said holder with a rabbet to receive and retain the front edge of the wide wall of the channel, substantially in the manner and for the purpose described.

3. In a type-case substantially such as described, the combination of the type-channel C, formed with the vertical slot c, in its spine and with a type-floor c^2, of a holder B, having the standard b', rear flange b^3, formed with the vertical slot b^4, and stud a, and with the depressed floor b^2, for the reception of the floor of the type-containing channel, substantially in the manner and for the purpose described.



4. In a type-setter case, substantially such as described, the combination of a type-containing channel having one wall of greater width than the other and formed with the vertical slot c, in its spine, and with a slotted type-floor c^2, of the channel-holder B, consisting of the standard b', type-floor b', with depression b^2, and tenon b, rear flange b^3, formed with the slot b^4, and stud a, the front flange b^5, formed with the vertical slot b^{5a}, the front guard F, secured to the flange b^5, by set-screw f, and formed with the rabbet f', for receiving and retaining the front edge of the wide wall of the channel, substantially in the manner and for the purpose described.

586,238. MOP OR BROOM HOLDER. HUBERT KIRK, Philadelphia, Pa. Filed Apr. 16, 1897. Serial No. 632,391. (No model.)

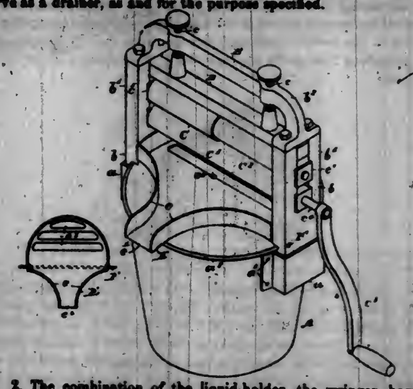


Claim.—1. A mop or broom holder, comprising a box-shaped device having side flanges or rims perforated to receive the handles of mops or brooms, a series of clamps each provided with a fixed semicircular member secured to the side of the device above each perforation in the rims, a movable spring-pressed member adjacent to said fixed member and a stop-pin adapted to limit the movement in one direction of each movable member, substantially as and for the purposes described.

2. A mop or broom holder, comprising an inverted-box-shaped device, the lower edge of which is flanged at right angles to the sides of the box, a series of perforations formed in said flanges to permit of the passage of a broom or mop handle through each of said flanges, a series of semicircular holders rigidly secured to the sides of the box and in alinement with said perforations, a series of narrow strips pivoted at one end to the sides of the box, the free end of each strip being adapted to confine a handle within a semicircular holder, a spring adapted to press said strip downward toward the holder, and a stop-pin adapted to limit the downward movement of said strip, substantially as and for the purposes described.

586,239. LIQUID-HOLDER AND WRINGER. MARLEIS KNOWLES, Lowell, Mass. Filed June 23, 1894. Serial No. 515,266. (No model.)

Claim.—1. The combination of a wringer, having rolls and having legs, a liquid-holder, having sockets to receive said legs, and a trough, pivoted below said rolls and provided with a nose which extends in front of said rolls beyond the side of said holder, to discharge outside of said holder, the liquid extracted by said wringer, said trough being enlarged and slotted in the rear of said rolls to serve as a drainer, as and for the purpose specified.



2. The combination of the liquid-holder, the wringer, having rolls and secured to said holder, a drip-trough, pivoted below said rolls, and having a nose which reaches over the rim of said holder in front of said rolls and having a slotted rear portion which serves as a drainer and, by its greater weight is adapted to turn said trough upon its pivot, and a catch to hold said nose down upon said rim, as and for the purpose specified.

586,240. HARNESS-BUCKLE. NATHAN F. MATHEWSON, Providence, R. I. Filed Sept. 14, 1896. Serial No. 605,713. (No model.)



Claim.—1. The improved buckle herein described, consisting of the curved or bent side bars A A with the cross-bars B C at the ends thereof, respectively, and an intermediate cross-bar D, provided with extension-flanges E, having a central interspace, the shaft F, loosely mounted in said side bars and having the bent tongue G and the central thumb-piece H, all arranged substantially as shown.

2. In a buckle, the combination of two bent side bars with a cross-bar at one end and a cross-bar at the other end, which has a recess and a projecting lip over said recess, a shaft loosely mounted in said side bars and having a thumb-piece and a bent tongue, whose end enters said recess and under said lip, substantially as specified.

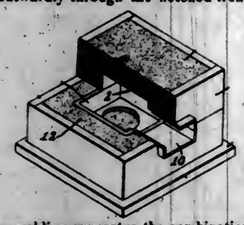
3. In a buckle, the combination of two bent side bars with a cross-bar at one end and a cross-bar at the other end, which has a recess and a projecting lip over said recess, a shaft loosely mounted in said side bars and having a bent tongue, whose end enters said recess and under said lip and an intermediate cross-bar, extending from one side bar to the other, parallel and in juxtaposition with said shaft, substantially as set forth.

4. In a buckle, the combination of two bent side bars with a cross-bar at one end and with a cross-bar at the other end, which has a recess and a projecting lip over said recess, a shaft loosely mounted in said side bars and having a thumb-piece and a bent tongue, whose end enters said recess and under said lip and an intermediate cross-bar extending from one side bar to the other, parallel and in juxtaposition with said shaft, substantially as described.

5. In a buckle, the combination of two bent side bars with a cross-bar at one end and with a cross-bar at the other end, which has a recess and a projecting lip over said recess, a shaft loosely mounted in said side bars and having a central thumb-piece and a bent tongue, whose end enters said recess and under said lip and an intermediate cross-bar, extending from one side bar to the other, parallel and in juxtaposition with said shaft and provided with an interspace, wherein said thumb-piece is movable, substantially as described.

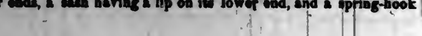
586,241. ASH-BOX-MOLDING APPARATUS. HARRY V. MOORE, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed May 4, 1897. Serial No. 635,693. (No model.)

Claim.—1. In ash-box-molding apparatus, the combination, substantially as set forth, of an ash-box pattern having a front opening and a top opening and having a parting substantially parallel with its top and through the front opening, half-flasks inclosing said pattern and having their front walls notched in line with the front opening of said pattern, and a shell conforming substantially to the front opening in the pattern and engaging the front wall of the pattern and projecting outwardly through the notched front walls of said half-flasks.



2. In ash-box-molding apparatus, the combination, substantially as set forth, of an ash-box pattern having a front and top opening and a parting substantially parallel with its top and through the front opening, a shell conforming substantially to the front opening in the pattern and projecting outwardly from said front wall, half-flasks inclosing said pattern parts and having their front walls notched to engage the exterior of said shell, and a removable plug fitting the interior of said shell.

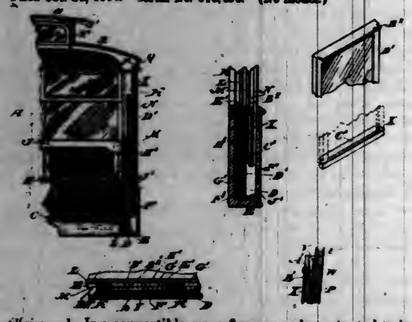
586,242. PENHOLDER. JUDSON C. PAINTER, Chicago, Ill. Filed Dec. 5, 1896. Serial No. 614,544. (No model.)



Claim.—1. A tubular penholder, the outer end of which is open, and provided with a pivoted arm, said arm being projected outwardly, and provided with a downwardly-directed extension, and a pen-stock provided with an extension which passes into said holder, and on which is mounted a spring by which the extension of the pen-stock is forced against the downwardly-directed extension of said arm, substantially as shown and described.

2. A tubular penholder, the outer end of which is open, and provided with a pivoted arm, said arm being projected outwardly, and provided with a downwardly-directed extension, and a pen-stock provided with an extension which passes into said holder, and on which is mounted a spring by which the extension of the pen-stock is forced against the downwardly-directed extension of said arm, said holder being also provided with a slot in the bottom thereof through which the extension of the arm passes, substantially as shown and described.

586,248. CONVERTIBLE CAR. MARY E. POST, Philadelphia, Pa. Filed Oct. 29, 1896. Serial No. 610,438. (No model.)

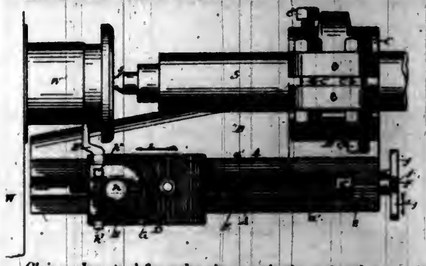


Claim.—1. In a convertible car, a floor, a pocket adapted to hold adjustable side panels and sashes, an angle-iron secured to the inner wall of said pocket and having an upper flange on which said floor is supported, and a lower flange substantially flush with the base of said pocket.

2. A convertible car having longitudinally-extending pockets D on each side thereof, panels H' contained therein, and each provided with a foot J' and lip E', window-sashes D', having the lips B^3, F', window-sashes X, provided with the lips C, and hooks V, a strip P located in the upper portion of a car, and having recesses U therein, adapted to be engaged by said hooks.

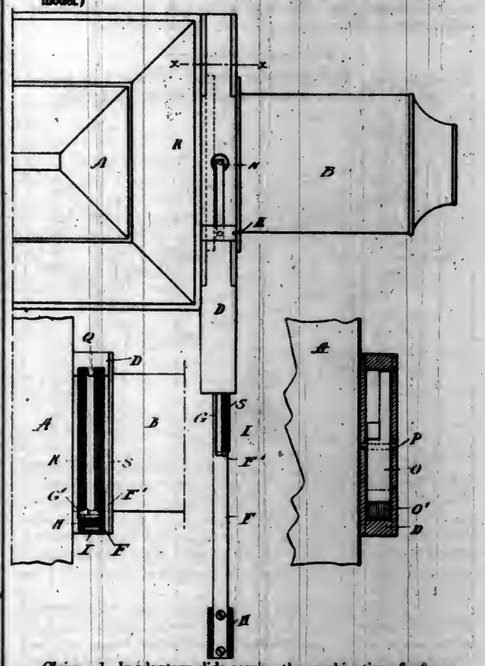
3. In a convertible car, a pocket, a panel contained therein provided with a foot and lip, a window-sash having lips on its upper and lower ends, a sash having a lip on its lower end, and a spring-hook on its upper end, a pin attached to said spring and passing through an opening in said latter-mentioned sash, and a recessed strip on the upper part of said car.

586,244. TOOL FOR REDRESSING CRANK-PINS OF LOCOMOTIVE-WHEELS. EDWIN PRIME, Bath-on-the-Hudson, N. Y. Filed Mar. 27, 1896. Serial No. 585,060. (No model.)



Claim.—In a tool for redressing crank-pins, a bracket provided with a split sleeve and ways, integral therewith in combination with a revolving spindle, clamping-bolts adapted to clamp the divided portions of the sleeve tightly on the revolving spindle, and set-screws c^2 c^2 for adjusting the ways in relation to the axial line of the said spindle as may be found necessary, substantially as and for the purposes set forth.

586,245. LANTERN-SLIDE CARRIER. HERBERT J. RILEY, Hackensack, N. J. Filed Nov. 25, 1896. Serial No. 613,258. (No model.)

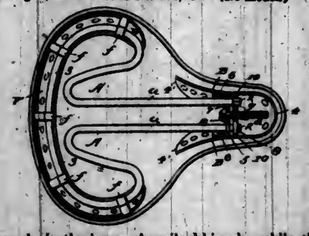


Claim.—1. In a lantern-slide carrier, the combination of a frame, an operating-handle carried by a supporting-arm I, the latter being hooked toward its inner extremity, and sliding within the lower part of the frame, and means as described for shifting the slides from the front to the rear of the frame and operated by a hook in said arm I, an extension-arm G carried by said handle and moving inside of the framework to form a groove on each side, inside of the frame, to support the slides, with a slide-centering stop pivotally mounted about midway in its length inside said carrier-frame and in the pathway of said slides, and operated by the end of the arm G.

2. In a lantern-slide carrier, means for inserting, seating and retracting separate lantern-slides, with a slide-centering stop O cut away on one side and toward its upper end, said stop being pivotally mounted about midway in its length in said carrier-frame and in the

path of said lantern-slides, and means for tripping said slide-centering stop when a slide of reduced proportions is inserted into the frame of the carrier, substantially as and for the purpose described.

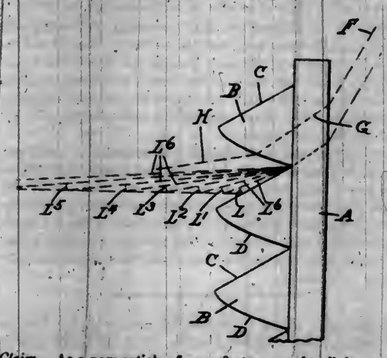
586,246. BICYCLE-SADDLE. WILLIAM G. SCHEER, Pueblo, Colo. Filed Aug. 6, 1896. Serial No. 601,917. (No model.)



Claim.—1. In the herein-described bicycle-saddle, the combination of a continuous spring so constructed as to have parallel forward members, the ends of said members being rectangular in shape, a forward support B, a brace situated in the inside of said support, holes situated in the said brace for the insertion of the parallel members, slots situated in the said support B, a second segmental-shaped brace situated inside of said support B, square holes in said piece of metal, in which are inserted the said rectangular ends of the said parallel members, projections on each side of the said brace, the said projections working in the said slots, a threaded bolt or screw working through holes situated in the said metal pieces, substantially as set forth and described.

2. In the herein-described bicycle-seat, the combination of the continuous spring terminating in parallel members, a forward support B, a brace riveted in the said support, the forward members passing through the said brace, slots situated in the sides of the said support B, a second brace or plate also situated in the said support B, legs on the inner end thereof and working in the said slots, the ends of the said parallel members keyed to the second brace or plate, a threaded bolt for adjusting the said braces, a curved brace having catches fitting around the rear support 3 and holding the rear support into position, the said catches being integral with the said support 3, substantially as set forth.

586,247. PRISMATIC GLASS. FRANK C. SOPER, Chicago, Ill., assignor, by mesne assignments, to the Luxfer Prism Patents Company, of West Virginia. Filed Dec. 28, 1896. Serial No. 617,171. (No model.)



Claim.—As a new article of manufacture, a prism-light comprising a substantially flat body of glass with a receiving-surface on one side and a series of prisms on the opposite side, extending substantially across the body and systematically arranged to produce an increased illuminating effect in the apartment, each prism having two faces, one a plane face and the other a curved face, the curvature being other than the arc of a circle, and such, substantially as shown and described, that all the rays of light falling from a predetermined direction upon the receiving-surface pass into the body and are thence transmitted in such manner that equal quantities of such light fall on equal areas taken at different distances from the prism-light along a horizontal line.

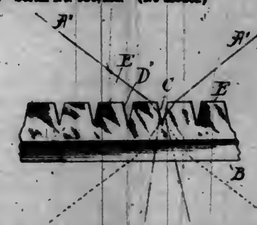
586,248. VAULT-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, of West Virginia. Filed Feb. 12, 1897. Serial No. 622,539. (No model.)

Claim.—1. A prism-tile consisting of a body of transparent material having on one side a receiving-surface and on the other side a prism provided with front and rear principal refracting and reflecting surfaces, and with edges which converge toward the receiving-surface which are substantially flat and lie in planes substantially parallel with the direction in which the light treated by the principal surfaces is projected, and secondary prisms on such edges.



2. A prism-tile consisting of a body or transparent material having on one side a receiving-surface and on the other a prism provided with front and rear principal refracting and reflecting surfaces, and edges which are provided with secondary prisms and lie in planes substantially parallel with the direction in which the light treated by the principal surfaces is projected.

586,249. WINDOW-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 8, 1897. Serial No. 626,462. (No model.)



Claim.—As a new article of madufacture, a prism-light comprising a glass body substantially flat and having on the receiving side extended plane surfaces and on the other side a series of prisms systematically arranged to produce an increased illuminating effect in the apartment, the receiving side being broken by a series of faces nearly perpendicular to the plane surfaces.

2. As a new article of manufacture, a prism-light comprising a glass body substantially flat, having on the receiving side extended plane surfaces and on the other side a series of prisms systematically arranged to produce an increased illuminating effect in the apartment, the receiving-surface being broken by a series of wide grooves whose sides are nearly perpendicular to the plane surfaces of such receiving side.

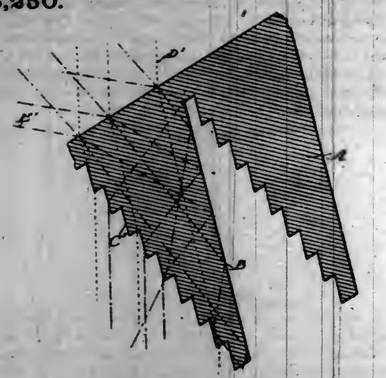
3. As a new article of manufacture, a prism-light comprising a glass body substantially flat and having on the receiving side extended plane surfaces and on the other side a series of prisms systematically arranged to produce an increased illuminating effect in the apartment, the receiving side being broken by a series of faces nearly perpendicular to the plane surfaces, such prisms and perpendicular faces running across the prism-light substantially at right angles to each other.

4. As a new article of manufacture, a prism-light comprising a glass body substantially flat, having on the receiving side extended plane surfaces and on the other side a series of prisms systematically arranged to produce an increased illuminating effect in the apartment, the receiving-surface being broken by a series of wide grooves whose sides are nearly perpendicular to the plane surfaces of such receiving side, such prisms and grooves running across the prism-light at substantially right angles to each other.

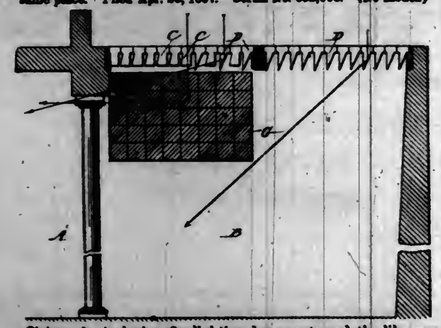
586,250. SKYLIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 8, 1897. Serial No. 626,463. (No model.)

Claim.—As a new article of manufacture, a prism-light for skylights or the like, comprising a body of glass with a receiving-surface on one side and a prism-surface on the other side, said prism-surface consisting of a series of projecting prisms having each one plane surface and one prism-surface, such last-named prism-surface made of a series of prisms having each one surface parallel with the receiving-surface, and the other surface inclined to the receiving-surface and parallel with the plane surface of the prism.

586,250.



586,251. DEVICE FOR LIGHTING BASEMENTS. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 20, 1897. Serial No. 632,968. (No model.)



Claim.—1. A device for lighting basements and the like comprising a series of prism-tiles arranged in a pavement-like body substantially at right angles to the building, said tiles arranged in groups, one group adapted to throw the light into the room to be illuminated, the other groups adapted to throw the light on opposite sides, in combination with deflectors placed at the sides and adapted to receive the light from such side-throwing prism-tiles and to direct it forward into the room to be lighted.

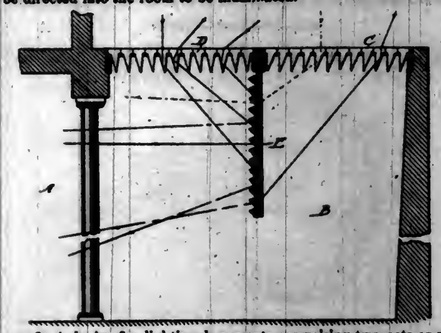
2. A device for lighting basements and the like comprising a series of prism-tiles arranged in a pavement-like body, substantially at right angles to the building, said tiles arranged in groups, one group adapted to throw the light into the room to be illuminated, the other groups to throw the light on opposite sides, in combination with transparent prism-deflectors placed at the sides and adapted to receive the light from such side-throwing prism-tiles and to direct it forward into the room to be lighted.

3. A device for lighting basements and the like comprising a series of prism-tiles arranged in a pavement-like body, substantially at right angles to the building, said tiles arranged in groups, one group adapted to throw the light into the room to be illuminated, the other groups adapted to throw the light on opposite sides, in combination with transparent prism-plates placed at the sides and adapted to receive light from such side-throwing prism-tiles and to direct it forward into the room to be lighted.

586,252. BASEMENT-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the LUXFER PRISM PATENTS COMPANY, same place. Filed Apr. 20, 1897. Serial No. 632,969. (No model.)

Claim.—1. A device for lighting basements and the like comprising a series of prism-tiles arranged in oppositely-facing sections, in combination with a transparent prism-plate, depending beneath and between such sections.

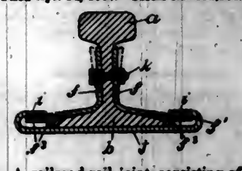
2. A device for lighting basements and the like comprising a series of prism-tiles arranged in sections, oppositely faced, in combination with a prism-plate having a comparatively smooth surface on one side with a prism-surface on the other side, the several prisms set at an angle so that the light will be thrown from the one section of the prism-tiles upon the prism-surface of the plate and be thence reflected into the direction desired, while light from the other section of tiles will be thrown upon the smooth surface of the plate and will be transmitted therethrough and be refracted thereby so as to be directed into the room to be illuminated.



3. A device for lighting basements comprising two sets or sections of prism-tiles, a receiving prism-plate intermediate between said two sets or sections and suspended in a substantially vertical plane, said prism-plate so formed as to refract the light received from one set of prism-tiles and direct it into the basement and reflect the light from the other set of tiles and also direct it into the basement.

4. A device for lighting basements and the like, comprising a transparent pavement-like body projecting substantially horizontally from the building and provided with two sets of prism-tiles adapted to throw the light in opposite directions, a substantially vertically-arranged transparent prism-plate, so suspended between the two sections that light from one section of tiles passes through the prism-plate and is refraced into substantially horizontal lines, while the light from the other section of tiles is reflected from the prism-plate into substantially horizontal lines.

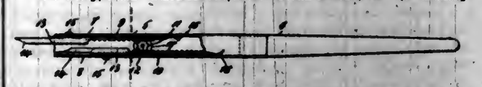
586,253. RAILROAD-RAIL JOINT. HENRY M. SVENSLIUS, Chicago, Ill. Filed Apr. 14, 1897. Serial No. 632,161. (No model.)



Claim.—1. A railroad-rail joint consisting of abutting ends of rails, and a clasp with a base in contact with the base of the foot of the rails, provided with inturned flanges and therewith operating yielding fish-plates with flanges transversely cut at center having an outer upturned border with a fulcrum on the rail-foot engaging under the flanges of the clasp, and bolts to bend said fish-plate to the rail, substantially as specified.

2. A railroad-rail joint consisting of abutting rails whereof the cap is cut to a bevel and the web and foot thereof at right angles thereto and a clasp with a base in contact with the base of the rail provided with inturned flanges and therewith operating yielding fish-plates with flanges transversely cut, at center, having an outer upturned border with fulcrum on the rail-foot engaging under the flange of the clasp, and bolts to bend said fish-plate to the rail, substantially as specified.

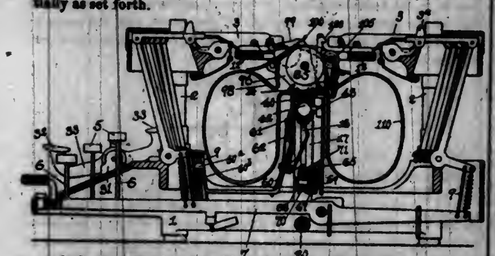
586,254. DUPLEX PENHOLDER. LEMERT C. VAN VOORHIS, Salt Lake City, Utah. Filed Mar. 17, 1897. Serial No. 628,050. (No model.)



Claim.—The herein-described penholder comprising a tube 5, having slots 7 and 8, pen-stock 6, two rack-bars 9 and 10, pinion 11, mounted on a shaft 12, said rack-bars being each provided with a head 13, each of which is provided with a pin 15; springs 16, and disks 17, substantially as and for the purpose set forth.

586,255. TYPE-WRITING MACHINE. JOHN N. WILLIAMS, Derby, Conn. Filed Jan. 11, 1896. Serial No. 575,096. (No model.)

Claim.—1. In a type-writing machine, the combination of the rock-arms, the shiftable track, the pins or screws passing through and loosely engaging perforations in the track and secured to the rock-arms, springs engaging the track and rock-arms for yieldingly connecting them, a centering-spring for the track, a carriage mounted on the track, and means for shifting the track horizontally, substantially as set forth.



2. In a type-writing machine, the combination of the frame, the rock-shaft journaled therein and provided with rock-arms, the shiftable track-frame mounted upon the rock-arms, and having a yielding connection therewith, a suitably-supported centering-spring engaging the shiftable track and frame, a carriage mounted on the track, and means for shifting the track and carriage in a horizontal plane, substantially as set forth.

3. In a type-writing machine, the combination of the rock-arms, the shiftable track mounted thereon and connected through a yielding connection, the carriage mounted on the track, the centering-spring, a shifting-bar connected to the track for shifting it in a horizontal plane, a shifting-lever having operative connection with the shifting-bar, and suitable means for adjusting the relation of the shifting-lever and shifting-bar, as set forth.

4. In a type-writing machine, the combination of the rock-arms, the shiftable track mounted thereon, and having connection therewith, the carriage mounted on the track, suitable spring-centering device, a shifting-bar connected with the track, and means for adjusting the relation of the shifting-bar and track, substantially as set forth.

5. In a type-writing machine, the combination of the shiftable track mounted upon a suitable support, a carriage working on the track, a centering-spring, a horizontally sliding shifting-bar, and adjustable means for connecting the shifting-bar with the shiftable track comprising bushings threaded into the carriage-frame and screws passing through the bar and engaging the bushings, as set forth.

6. In a type-writing machine, the combination of a suitable main frame, the shiftable track-frame mounted upon said main frame, a carriage working on the track, a centering-spring, a longitudinally-sliding shifting-bar supported on said frame and having two or more perforated right-angled ears or lugs arranged one above the other at its end, adjustable internally-threaded bushings seated in said track-frame, headed screws passing through the perforations of the right-angled lugs and engaging the threaded bushings, and means for operating the shifting-bar, substantially as set forth.

7. In a type-writing machine, the combination of the post 13 of the machine-frame, the perforated lugs on the post, the traveling paper-carriage, and a longitudinally-movable bolt mounted in said lugs and adapted to engage the carriage for locking it against movement, as set forth.

8. In a type-writing machine, the combination of the machine-frame, the shiftable track mounted thereon, the carriage on the track and a longitudinally-movable bolt mounted on the machine-frame and adapted to engage the track and carriage and lock them against movement, as set forth.

9. In a type-writing machine, the combination of the machine-frame, a shiftable track mounted thereon and formed with a bolt-opening, a carriage on the track also formed with a bolt-opening, one of said openings being screw-threaded, and a bolt mounted in the machine-frame and formed with a threaded portion and adapted to engage the bolt-openings in the track and carriage, as set forth.

10. In a type-writing machine, the combination of a girder track-frame, a carriage traveling on the track, an arm extending from said carriage, a block pivoted to lower end of said arm and having a wheel or roller journaled to it, said wheel or roller engaging and traveling upon the lower edge of the girder track-frame, and a spring between the pivoted block and arm, as set forth.

11. In a type-writing machine, the combination of a girder track-frame, a carriage traveling on the track, an arm extending from the carriage and formed with ears or lugs, a trunnion-block pivoted between said ears or lugs and carrying a journal-pin, a wheel or roller journaled upon said pin and engaging and traveling upon the lower edge of the girder track-frame, and a spring confined between the arm and trunnion-block for holding the grooved roller in position and to take up backlash, as set forth.

12. In a type-writing machine, the combination of the type-bar, and the pivoted key-lever, out of plane with each other, with the pivotally-mounted yoke-lever 8 having one arm connected to the key-lever and the other arm connected to the type-bar, substantially as set forth.

13. In a type-writing machine, the combination of the type-bar, and the pivoted key-lever out of plane with each other, with the pivotally-mounted yoke-lever 8 having arms 8^a and 8^b and pivot-ears 8^c, one of said arms being connected to the key-lever and the other arm being connected to the type-bar, substantially as set forth.

14. In a type-writing machine, the combination of the carriage, the paper-platen journaled therein, the arms pivoted to the carriage, a pressure feed-roll journaled in said arms, notched or grooved collars loosely journaled on the journal ends of the pressure feed-roll, springs engaging the notches of the collars and holding the roll against the platen, and means for operating.

15. In a type-writing machine, the combination of the carriage, the paper-platen journaled therein, the slotted bracket-arms, the arms pivoted to the carriage and engaging in the slots of the brackets, the pressure feed-roll journaled in said arms, notched or grooved collars loosely mounted on the journal ends of the feed-roll, springs mounted on the carriage and engaging the notches of said collars, and means for operating, as set forth.

16. In a type-writing machine, the combination of the carriage, the platen journaled therein, the arms pivoted to the carriage, the pressure feed-roll journaled in the arms, a ratchet-wheel keyed to the feed-roll, a vertically-movable pawl engaging the ratchet-wheel and working on one side of one of the pivoted arms and formed with an arm which works on the other side of said pivoted arm to guide the pawl, and an operating-lever pivoted to the pawl, as set forth.

17. In a type-writing machine, the combination of the carriage, the platen journaled therein, the feed-roll, the ratchet keyed to the feed-roll, the pawl-engaging ratchet, and a pivoted operating-lever loosely pivoted to the pawl and having a spring to compensate for the looseness of the joint and hold the pawl in engagement with the ratchet with a yielding pressure, as set forth.

18. In a type-writing machine, the combination of the carriage, the platen, the feed-roll, the ratchet-wheel on the feed-roll, the vertically-movable pawl having a headed pin at its lower end, a pivoted operating-lever having a right arm formed with an opening through which the headed pin loosely passes, and a spring compensating for the looseness of the joint and yieldingly holding the pawl to its work, as set forth.

19. In a type-writing machine, the combination of the carriage, the platen journaled therein, the arms pivoted to the carriage, and supporting the feed-roll, the ratchet-wheel on the feed-roll, a pawl provided with a controlling-arm, the pawl and arm straddling one of the levers, means for operating the pawl, and means for engaging the arm for controlling the pawl, as set forth.

20. In a type-writing machine, the combination of a carriage, a platen journaled therein, and a feed comprising a ratchet-wheel, a pawl adapted to engage the ratchet-wheel and provided with a controlling-arm, and an adjustable cam in engagement with the controlling-arm to cause the pawl to reciprocate tangentially to the ratchet-wheel; said cam being adjustable for throwing the pawl out of engagement with the ratchet at different parts of its stroke for regulating the feed action, substantially as set forth.

21. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed comprising a ratchet-wheel, an adjustable cam and a pawl reciprocating tangentially to the ratchet-wheel and in engagement with the adjustable cam, said cam being adapted to regulate the nearness of the pawl to the ratchet-wheel for controlling the length of feed, substantially as set forth.

22. In a type-writing machine, the combination of a carriage, the platen journaled in the carriage, a feed-roll provided with a ratchet-wheel, a reciprocating pawl supported tangentially to the ratchet-wheel, and an adjustable cam supported in engagement with the pawl and adapted to determine the distance of the pawl from the ratchet-wheel for regulating the length of feed, without interfering with the free reciprocation of the pawl, substantially as set forth.

23. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed-roll provided with a ratchet-wheel, a pawl, a rotatable head having a cam-finger adapted to control the action of the pawl, and means for adjusting head and holding it in adjusted position, as set forth.

24. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed-roll provided with a ratchet-wheel, a pawl adapted to operate the ratchet-wheel, an adjustable head having a cam-finger which is adapted to control the action of the pawl, a pin carried by the head, and a support for the head having a series of perforations with which said pin can engage, as set forth.

25. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed-roll provided with a ratchet-wheel,

a pawl adapted to operate the ratchet-wheel, a head loosely journaled on the extended journal of the feed-roll and confined thereon by a spring and screw, a cam-finger and pin on said head, and a support having a series of perforations or holes in which the pin engages, as set forth.

26. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed-roll provided with a ratchet-wheel, a pawl adapted to operate the ratchet-wheel, and a lever operated by the pawl adapted to engage and arrest the movement of the ratchet-wheel at the end of the stroke of the pawl, as set forth.

27. In a type-writer, the combination of the spacing bar or lever, suitable ratchet mechanism, an operating-arm extending from the ratchet mechanism and formed with a pair of ears or lugs at its end, a threaded rod extending from the spacing bar or lever and passing through an opening in the ratchet-operating bar, and a threaded nut engaging said threaded rod and confined between said ears or lugs, as set forth.

28. In a type-writer, the combination of the spacing bar or lever, suitable ratchet mechanism, an operating-arm extending from the ratchet mechanism and formed with a pair of ears or lugs at its end, a threaded rod extending from the spacing bar or lever and passing through an opening in the ratchet-operating bar, and a threaded nut formed with elevated ridges or central portions which bear upon the operating-arm, said nut engaging said threaded rod and confined between said ears or lugs, as set forth.

29. In a type-writing machine, the combination of the type-bars suitably mounted in the machine-frame, and the type-bar levers pivotally connected to the type-bars, with a plate 161 formed with guide-slots through which the type-bar levers extend and operate, whereby the type-bars are guided and held against vibration when operating, as set forth.

30. In a type-writer, the combination of a type-bar, a pivot therefor, a springy screw-pin connected to said pivot and adapted to pass through an opening in the frame out of the plane of the pivot, and a nut engaging the threaded portion of said springy screw-pin, as set forth.

31. In a type-writer, the combination of a type-bar, a pivot therefor, a springy screw-pin connected to said pivot, and an externally and internally threaded nut engaging the threaded end of said spring-pin and adjustably mounted in an opening in the frame out of the plane of the pivot, as set forth.

32. In a type-writer, the combination of a type-bar, a pivot therefor, a screw-pin connected to said pivot, and an externally and internally threaded nut adjustably mounted in a threaded opening of the frame and engaging the threaded portions of said pin; the internal and external threads of said nut being of different pitch, as set forth.

33. In a type-writer, the combination of a type-bar, a pivot therefor, a screw-pin connected to said pivot, and a nut having external and internal screw-threads engaging respectively the screw-pin and an opening in the frame; one of said threads being a right-hand and the other a left-hand thread, as set forth.

34. In a type-writing machine, the combination of a carriage, a platen journaled therein, a feed-roll provided with a ratchet-wheel, a pawl adapted to operate the ratchet-wheel, a pivoted lever formed with a finger which is adapted to engage and arrest the movement of the ratchet-wheel, and a lug on the pawl adapted to operate said lever, as set forth.

586,256. MOUNTING PRISM-TILES. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 16, 1897. Serial No. 628,101. (No model.)



Claim.—1. In a pavement, the combination of the pavement-frame with a series of combination-tiles consisting each of several tiles arranged so as to form an arch and adapted to be received in and be supported by the pavement-frame.

2. In a prism-pavement, the combination of the pavement-frame with a series of combination prism-tiles consisting each of several prism-tiles arranged so as to form an arch and adapted to be received in and be supported by the pavement-frame.

3. As a new article of manufacture, a combination-tile consisting of a series of tiles shaped so as to form an arch in combination with a supporting and surrounding frame to hold them together.

4. As a new article of manufacture, a prism-tile comprising a series of prism-tiles shaped so as to form an arch, a surrounding frame to take the stress received by the arch, and an intermediate filling between the prism-tiles

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586,257. MOUNTING TILE-SECTIONS. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 24, 1897. Serial No. 628,906. (No model.)

Claim.—1. A prism-plate comprising a series of prism-lights each having a receiving-surface on one side and a prism-surface on the other, and a supporting net or frame composed of strips beaded on one edge, the beads on one set of strips being placed on the receiving side of the prism-lights at an angle to the prisms, and the beads on the other set of strips placed on the prism side of the sections parallel to such prisms.



2. A plate comprising a series of substantially flat sections combined with a supporting net or frame consisting of strips beaded on one edge, the strips running in one direction having the beads on one side of the sections, and the strips running across the first-mentioned strips having their beads on the opposite sides of said sections, and the whole secured together substantially as shown and described.

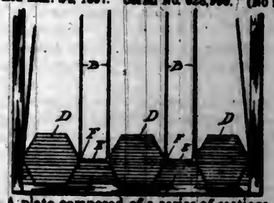
586,258. PRISM-LIGHT AND PRISM-PLATE. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 24, 1897. Serial No. 628,907. (No model.)

Claim.—1. As a new article of manufacture, a prism-light consisting of a body of glass with projecting ribs on the prism side and an excessively-elevated rough surface on the plane side adapted to be removed to constitute a smooth, uniform surface when assembled with other prism-lights in a prism-plate, substantially as shown and described.

2. The process of producing prism-lights which consists in putting in the mold an excess of molten glass and thus forming two surfaces, one, the established prism-light surface, the other an excessively-elevated surface on the plane side of the prism-light, then grinding such excessively-elevated surface to a uniformity with the established surface.

3. The process of producing prism-plates which consists in putting into the mold for each prism-light an excess of molten glass and thus forming two surfaces, one, the established prism-surface, the other the excessively-elevated surface on the plane side of the prism-light, then grinding said excessively-elevated surfaces to a uniformity with the established surface, then uniting the series of said prism-lights in a prism-plate with intermediate metallic portions then bringing the surface of said metallic portions to a uniformity with the established surface of the prism-lights and thus producing a prism-plate having a smooth unbroken surface on its plane side of glass and metal.

586,259. MOUNTING TILE-SECTIONS. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 24, 1897. Serial No. 628,908. (No model.)



Claim.—A plate composed of a series of sections, a surrounding frame, a series of zigzag strips extending across the frame in one direction and separated from each other by intervening sections, and a series of short transverse strips between the sections and connecting the zigzag strips at their points of nearest approach, the whole securely tightened together.

586,260. MOUNTING TILES OR THE LIKE. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 29, 1897. Serial No. 629,602. (No model.)

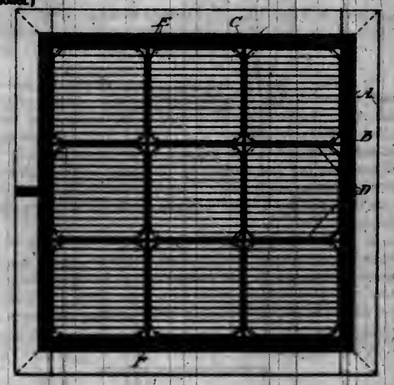
Claim.—1. A net or grid for holding together prism-sections so as to make a complete prism-plate, comprising a series of corner-pieces with radiating arms I-shaped in cross-section, the ends of the arms on associated corner-pieces meeting each other at points along the edges of the prism-lights between the corners thereof, and means for connecting such pieces together at such points.

2. A net or grid for holding prism-sections together to make a complete prism-plate, consisting of corner-pieces with socket-like formations to receive the corners of the prism-lights, and radiating arms

which project between the sections and meet and are secured to similar arms from other corner-pieces at points along the sides and between the corners of such prism-lights.



586,261. PRISMATIC PLATE AND FRAME FOR SAME. WILLIAM H. WIBLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 19, 1897. Serial No. 632,708. (No model.)



Claim.—1. A prism-plate comprising a series of prism-lights having corners each cut off and indented at the corners and a grid or frame with a mass of material at each corner, said material binding the portions of the grid together and projecting into indentations of the prism-lights to hold them in position.

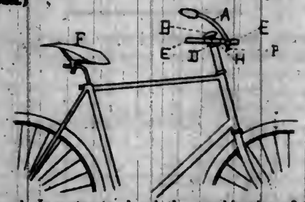
2. A prism-plate comprising a series of prism-lights, having corners, a net-like frame in the meshes of which the prism-lights lie, said prism-lights reduced and indented at the corners, a mass of solder about the corners of the lights and meshes and filling the space between the same and lying in the indentations of the lights.

3. A prism-plate comprising a series of prism-lights, a net-like frame in the meshes of which the prism-lights lie, said prism-lights reduced and indented at the corners of such meshes, a mass of solder about the corners of the meshes and filling the space between the same and the lights and in the indentations, and a mass of electrically-deposited metal between the sections of the net and the edges of the prism-lights and over the surface of such solder.

4. A prism-plate comprising a series of prism-lights, and a frame, and a surrounding outwardly-bent channel-bar edge, and a wood-filling frame adapted to be received within the channel-bar and thus to complete the plate.

5. A prism-plate comprising a series of prism-lights and a series of frame-pieces, said prisms reduced at the junction of the frame-pieces, and indented and deposited metal about the junction of the frame-pieces, and in such indentations so as to hold the parts together.

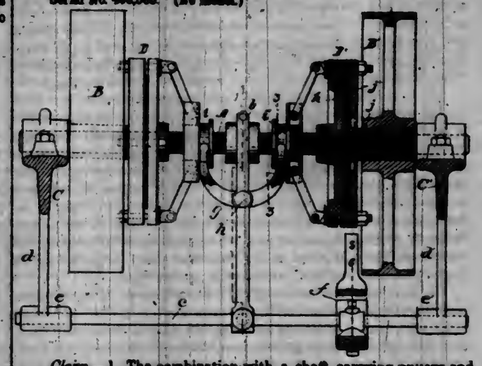
586,262. ADJUSTABLE STEERING-HEAD FOR BICYCLES. GEORGE F. WOODMAN, Newburyport, Mass., assignor of one-half to James F. Carens, same place. Filed Nov. 20, 1896. Serial No. 570,375. (No model.)



Claim.—1. In a steering-head, the combination of the yoke H, the grooved tubes E E which are attached to said yoke, the adjustable handles A A, the head D connected to the said yoke by the bolt N, whereby the said yoke and grooved tubes E E and adjustable handles A A are capable of adjustment at various angles to the head D, and secured in said adjustment by the set-screws L L, substantially in the manner described.

2. In a steering-head the combination of the head D, the adjustable yoke H attached to said head by the bolt N, the grooved tubes E E attached to said adjustable yoke, the adjustable handles A A; said adjustable handles capable of being held in any position on said tubes E E, either in front of or in the rear of the bicycle-head D by the set-screw P.

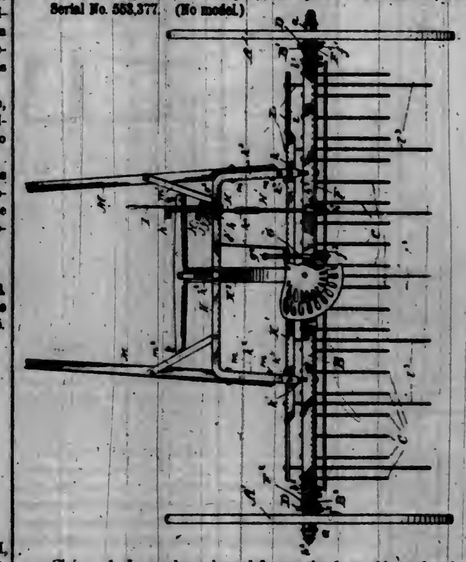
586,263. POWER-SHIFTING DEVICE FOR CLUTCH MECHANISM. THOMAS H. WORRALL and ALEXANDER LEMPERANIS, Laconia, N. H.; said Lemperanis assignor to said Worrall. Filed Mar. 18, 1893. Serial No. 466,583. (No model.)



Claim.—1. The combination with a shaft carrying pulleys and clutches, of a clutch-shipping mechanism comprising a collar loosely mounted on the shaft, means confining it against longitudinal movement thereon, a lever pivoted to said collar and carrying arms in engagement with the clutches, a sliding rod connected with said lever, and means applied to said rod to shift the same.

2. The combination with a shaft carrying pulleys and clutches, of clutch-operating collars on the shaft, a double fork engaging said collars, a lever-supporting collar loose on the shaft, means confining said last-named collar from longitudinal movement, a lever pivoted to said collar and connected to said fork, and means for operating the lever.

586,264. HAY-RAKE. EDGAR A. WRIGHT, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed June 19, 1895. Serial No. 553,377. (No model.)



Claim.—1. In a rake, a hound-frame, the front side and end of which consists of a single angle-bar so bent that the said end pieces may converge in a forward direction to contract the space between the thills secured thereto at their forward ends to the extent desired,

said angle-bar having its vertical member at the inner side of its ends, and the butts of said thills secured outside of said vertical member and beneath the horizontal angle, substantially as described.

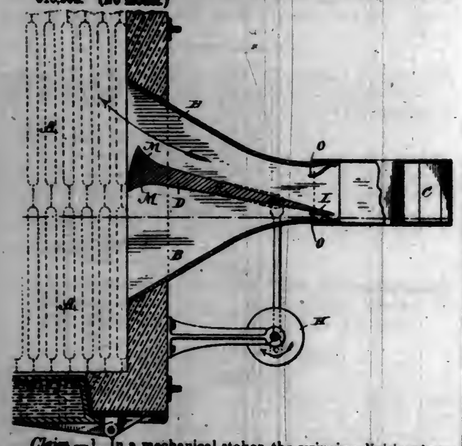
2. A rake hound-frame adapted to receive thills, said frame constructed of angle-iron and consisting of a rear bar, a front piece and end pieces formed by bending the same, said end pieces secured to said rear bar, the butts of the thills bolted within the angles of the said end pieces, and the latter converging in a forward direction to such an extent as to throw the forward extremity of the thills the proper distance apart, substantially as described.

3. In a rake, convertible thills and tongues and hounds constructed in the following manner: a hound-frame formed of a single piece of angle-iron, having end parts converging relative to each other in a forward direction and adapted to receive the butts of the thills substantially as described, secured to the bar K', and having the intermediate forwardly-projected bar K^2, secured to the said bent bar and to the bar K^2, adapted to receive the butts of the thills when placed side by side to form a tongue for the purpose set forth.

4. In a rake, convertible thills and tongue constructed in the following manner: a hound-frame having end parts converging relative to each other in a forward direction and adapted to receive the butts of the thills, substantially as described, and having the intermediate bar and forwardly-projecting bar K^2 adapted also to receive the butts of the thills when placed side by side to form a tongue, the said bars to which the thills are secured when formed into a draft-tongue deflected downwardly relative to the plane of the sides of the hound-frame to which they are secured when used as thills, whereby the tongue so formed is lower at the front end than the parts forming it are when used as thills, substantially as described.

5. In a rake, the combination of the rake-head of angle metal, with a series of teeth projecting through slots in the vertical portion of the said head, and having coils adapted to lie under the said head, said coils terminating in transverse portions which serve as journals, the ends of which are bent, and a series of the clips adapted with the said head to form bearings for the said journals, the angle that the bent portions of the said journals assume relative to the head determining the amount of free movement of the said teeth in their supports, substantially as described.

586,265. MECHANICAL STOKER FOR FURNACES. NATHAN S. BEEBE Springfield, and ABRAHAM A. BOURGEOIS, Long Meadow, Mass.; said Bourgeois assignor to said Beebe. Filed Nov. 3, 1896. Serial No. 610,902. (No model.)

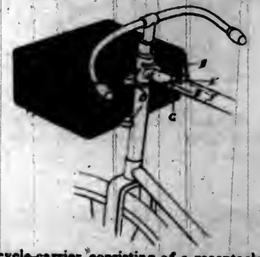


Claim.—1. In a mechanical stoker, the swinging divisional partition centrally located within the enlarged end of a fuel-delivering conduit, said partition being tapered from one end to the other, and the sides thereof at its larger end being outwardly tapering, and means for imparting a reciprocatory motion to said partition, substantially as described.

2. In a mechanical stoker, the swinging divisional partition centrally located within the enlarged end of a fuel-delivering conduit, said partition being tapered from one end to the other, and the sides thereof at its larger end being outwardly tapering, and buffer-springs to receive the impact of the end of said swinging partition, and means for imparting motion to said swinging partition, substantially as described.

586,266. BICYCLE-CARRIER. EDWIN DORAN, Greenwich, N. J., assignor of one-half to William W. Robbins, Bridgeton, N. J. Filed Sept. 21, 1896. Serial No. 606,494. (No model.)

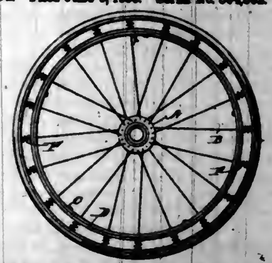
Claim.—1. A bicycle-carrier, consisting of a receptacle, blocks fitted thereto adapted to bear against the head of the bicycle-frame, a bridge, chains connecting said bridge to the receptacle, a threaded rod carried by the bridge, and a yoke run upon the threaded end of said rod, substantially as and for the purpose set forth.



2. A bicycle-carrier, consisting of a receptacle, the rear side of which is formed upon an angle approximately corresponding to the head of the machine, blocks secured to this incline side, chains attached to the receptacle, a bridge to which said chains are attached, said bridge having a notch adapted to fit the curvature of the top brace, a threaded rod carried by the bridge, and a yoke run upon said rod so as to be adjustable thereon for increasing the distance between the yoke and bridge, substantially as and for the purpose set forth.

3. In combination with a bicycle-frame, a receptacle having notched blocks adapted to fit the head of the machine, and a locking device attached to said receptacle by chains, the outer end of which is adapted to bear against the rear portion of the head and the inner end to be swung downward so as to cause the chains to pass the point at which the locking device bears, substantially as and for the purpose set forth.

586,267. WHEEL FOR VEHICLES. MARK D. GOODWIN, Philadelphia, Pa. Filed June 6, 1896. Serial No. 594,562. (No model.)



Claim.—1. In a wheel, the combination with the inner two-part rim, an outer rim composed of plates having side flanges, the coiled springs each fastened at one end to each of said plates and at the other to outer part of the inner rim, the spokes secured to the inner part of said rim and the rubber tire carried by the outer rim; substantially as described.

2. In a wheel the combination with the inner two-part rim, each part formed with a longitudinal channel or recess, the outer rim formed of a series of plates flexibly joined together and having the side flanges, as shown, the spoke-nut, held within the recess in one part, the coiled springs, the bolt for securing the spring to the inner rim, the nut located in the recess in the rim for holding the bolts, the rivet for securing the plates to each spring, and the rubber tread held between the side flanges on the links: substantially as described.

586,268. MUSTACHE-PROTECTOR. JOHN F. HAYGOOD, Watkinsville, Ga. Filed Dec. 22, 1896. Serial No. 616,629. (No model.)



Claim.—1. The combination of the plate 1, having the recess 4, arms 5, and 6, secured to the front edge and either end of the plate 1; arms 11 and 12, secured to the rear edge and either end of said plate and extending around to the rear part of the glass, clutches 13 and

14, secured to the rear ends of the arms 11, 12; slides 7 and 16, secured to the lower ends of the arms 6 and 15; slide-arms 8 and 17, provided with feet 9 and 18, working in said slides, substantially as shown and described and for the purposes set forth.

2. The combination of the plate 1, having the recess 4; arms 5 and 6, secured to the front edge and either end of the plate 1; arms 11 and 12, secured to the rear edge and either end of said plate and extending around to the rear part of the glass; clutches 13 and 14, secured to the rear ends of the arms 11, 12; slides 7 and 16, secured to the lower ends of the arms 6 and 15; slide-arms 8 and 17, provided with feet 9 and 18, working in said slides; thumb-screw 10, working through slides 7 and 16, and securing slide-arms 8 and 17 in position, substantially as shown and described and for the purposes set forth.

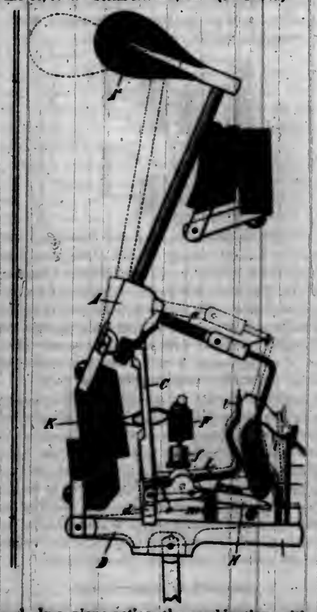
586,269. LAMP-BURNER. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Mar. 6, 1897. Serial No. 626,297. (No model.)



Claim.—1. A lamp-burner, the shaft of which is provided with a fixed collar 11 upon the inside of its bearing and with the collar 10, spring 15, and disk or knob C outside the said bearing, for holding the wick-shaft under tension, substantially as described.

2 A lamp-burner having the wick-raising shaft with fixed collar at the inner end of one bearing, a spring at the outer end of said bearing; an operating disk or knob, having the transversely-slotted hub and the pin-hole 17, in combination with the angular pin 18, substantially as described.

586,270. PIANO-ACTION. HEINRICH KAHL, Kirchheim, Germany. Filed June 10, 1896. Serial No. 594,941. (No model.)



Claim.—1. In a piano-action, the combination, with a hammer and a jack arranged to engage the hammer, and provided with two arms, one of which has a movable portion, of means for forcing said movable portion against the other arm, and an abutment arranged to limit the movement of said arms, substantially as described.

2. In a piano-action, the combination, with a hammer, and a jack arranged to engage the hammer, and provided with an arm having a movable portion pivoted to swing in the same plane as the jack, of means for actuating said movable portion, an abutment arranged to limit the movement of the arm and means for engaging the movable portion to limit its movement, substantially as described.

3. In a piano-action, the combination, with a hammer, a jack-bed, and a jack pivoted to the jack-bed and arranged to engage the butt of the hammer, of a back-catch tongue carried by the hammer, means carried by the jack for limiting the movement of the back-catch tongue in one direction, and a device carried by the jack-bed for limiting the movement of said back-catch tongue in another direction, substantially as described.

4. In a piano-action, the combination, with a hammer, a jack-bed, and a jack pivoted to the jack-bed and arranged to engage the butt of the hammer, of a pair of arms secured to the jack, one of which arms has a movable portion, means for forcing said movable portion against the other arm, an abutment arranged to limit the movement of said arms, a back-catch tongue carried by the hammer and arranged to engage one of the arms carried by the jack, whereby its movement in one direction is limited, and means carried by the jack-bed for limiting the movement of the back-catch tongue in another direction, substantially as described.

586,271. BUGGY-TOP ATTACHMENT. WILLIS W. KRUMBE, Colleyville, Kans. Filed Nov. 19, 1896. Serial No. 612,759. (No model.)



Claim.—1. In a buggy attachment, the combination with the bolt or arm, of the inner and outer plates arranged thereon, the coil-spring arranged between the said plates and connected therewith, and the inwardly-projecting sleeves or collars arranged at opposite ends of the said spring, substantially as shown and described.

2. In a buggy attachment, the combination with the bolt or arm, of the inner plate rigidly attached thereto, the outer plate movable upon the said bolt or arm, said inner and outer plates having inwardly-projecting sleeves or collars and having lugs upon their opposing faces, and a coil-spring adapted to engage the lugs and surround the sleeves or collars, substantially as shown and described.

3. In a buggy attachment, the combination with the bolt or arm, of the inner plate rigidly mounted thereon and having the inwardly-projecting sleeve or collar, and the stop-lugs upon the inner face, and the hook or finger upon the outer face, the top-stay, and securing-nut, all arranged and adapted to operate, substantially as shown and described.

4. A buggy attachment, the inner plate having the polygonal-shaped aperture, the inwardly-projecting collar or sleeve surrounding the said polygonal-shaped aperture, and the stop-lugs integral with the inner face, substantially as shown and described.

5. In a buggy attachment, the outer plate having a central circular bore, the inwardly-projecting sleeve or collar surrounding the said bore, the stop-lugs integral with the inner face of the plate, and the hook or finger integral with the outer face of the plate, all of said parts being arranged and adapted to operate, substantially as shown and described.

586,272. CAR-AXLE LUBRICATOR. JAMES S. PATTEN, Baltimore, Md. Filed Oct. 21, 1896. Serial No. 609,500. (No model.)



Claim.—1. The improvement in journal-lubricating appliances, which comprises a plate adapted to fit loosely in an axle-box and having its rear end projected upward and rearward, and extended inward, thus forming a baffle, as shown and described.

2. A baffle for a car-axle box which comprises a removable spring-plate, made of practically uniform width, and adapted to fit in said box, and having upward-projecting end portions and a centrally-projecting portion, whereby three transverse baffles are produced that extend across the box, as shown and described.

3. A lubricating appliance for use as specified, which comprises a removable plate-spring having an upturned end portion, whereby

it is adapted to serve as a baffle, and a device permanently attached to and carried by said spring, for taking up and transferring lubricant to the journal, substantially as shown and described.

4. A lubricating appliance for use as specified, which comprises a plate-spring adapted to rest on the bottom of the axle-box and having an upturned end portion to serve as a baffle, and a roller permanently attached to and elastically supported by the spring, substantially as shown and described.

5. A lubricating appliance comprising a spring-plate having a body portion provided with a central upward bend, an upward-curved spring a^3 attached to such body portion, and a lubricant-applying device attached to such upward-curved spring, as shown and described.

6. A lubricating appliance for use as specified, which comprises a spring having its ends upturned to serve as baffles, and a roller permanently attached to and elastically supported in an inclined position by said spring, substantially as shown and described.

7. A lubricating appliance for use as specified, which comprises a conical roller arranged with its axis inclined upward, and a spring-support for said roller, substantially as shown and described.

8. A lubricating appliance for use as specified, which comprises a spring adapted to rest upon the bottom of an axle-box, and having its ends extended and curved upward, to serve as baffle-plates, and provided with a transverse, central, upward bend, and a conical truncated roller mounted upon an inclined journal, supported on the spring, substantially as shown and described.

9. A lubricating appliance for use as specified, which comprises a spring adapted to rest upon the bottom of an axle-box, a journal attached to the spring, and inclined upward and tapered as specified, and a conical roller having a taper bore hub and mounted on said journal, as shown and described.

10. A lubricating appliance, comprising a plate-spring adapted to be used in an axle-box, and having an upward-projecting transverse portion, a metal piece secured to the upper end of such transverse portion, and provided with a journal, and a horizontal base or foot that bears on the spring proper, and a roller mounted on said journal, as shown and described.

11. A lubricating appliance for use as specified, which comprises a plate-spring having a central, upward-projecting portion 2^a, attached to it, for supporting a roller, and a rear spring 2, which is secured to the main spring adjacent to such central portion, and whose front end projects beneath and into contact with spring 2^a, as and for the purpose specified.

12. A lubricating appliance for use as specified, which comprises a spring and a conical, truncated roller having a recess in its face or narrower side, as and for the purposes specified.

13. A lubricating appliance for use as specified, which comprises a plate-spring having its front end upturned and recurved, as shown and described, to adapt it to serve as a hood, oil-guard, and handle, as specified.

14. A combined spring-baffle and oil-guard, comprising a spring-plate adapted to fit in an axle-box, and having an upward-extended front portion which overlies the upper portion of the journal, as shown and described.

15. A lubricatiog appliance comprising a spring-plate whose body portion is adapted to rest upon the bottom of an axle-box, and having its front end extended upward and provided with a top flange and pendent side flanges, or wings, constituting a hood for the end of the axle-journal, as shown and described.

16. The plate-spring for use in an axle-box as specified, having its front end provided with pendent wings having lateral flanges that are adjacent to or bear upon the main portion of the spring, as shown and described.

17. A lubricating appliance for use as specified, which comprises a plate-spring having its rear end curved and extended upward, and a combined baffle and wiper, or dust-guard, elastically supported thereby, and fitting the axle, substantially as shown and described.

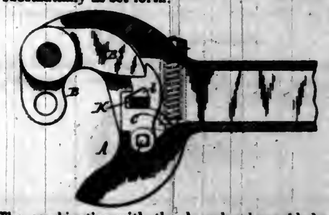
18. A lubricating appliance for use as specified, which comprises a plate-spring having its rear end upturned and curved inward, a wiper secured to the extremity of the same, and adapted to bear upon the journal, as shown and described.

19. An appliance or device which is freely insertible in and removable from an axle-box, and comprising parts performing the functions of a lubricant-applier, wiper, baffle, and dust-guard, such parts being permanently connected, substantially as shown and described.

20. A lubricating appliance, composed of a plate-spring having an upward-projecting portion and a roller attached to the same, and end portions which are curved inward or hooked, whereby the appliance is adapted to fold and retain its folded position, as shown and described.

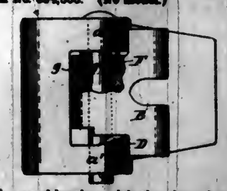
586,273. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Apr. 5, 1897. Serial No. 630,711. (No model.)

Claim.—1. The combination with a draw-head having a chamber closed at its top, bottom and sides and provided on its under side with a transverse pocket or housing, of a coupling-jaw pivoted to the draw-head, a horizontally-swinging lock arranged within the chamber of the draw-head and rigidly mounted on a vertical pivot-pin which passes through the bottom of the draw-head, an arm or lever secured to the portion of said pivot-pin projecting below the draw-head, a tension-rod arranged in said transverse pocket, connected at its front end with the arm of the lock-pivot and provided at its opposite end with a follower or enlargement, and a spring surrounding said tension-rod between its follower and the closed front end of said pocket, substantially as set forth.



2. The combination with the draw-head provided on its under side with a transverse pocket or housing, of the pivoted knuckle or coupling-jaw, a lock rigidly mounted on a vertical pivot-pin journaled in the draw-head, an arm or lever applied to the projecting lower end of said pivot-pin, a tension-rod guided in said transverse pocket and provided at its front end with a lip which is detachably connected with said arm or lever and at its rear end with a follower, and a spring applied to said tension-rod between said follower and the front end of said pocket, substantially as set forth.

586,274. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed May 3, 1897. Serial No. 634,808. (No model.)



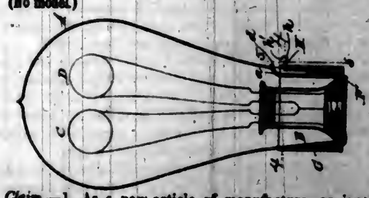
Claim.—1. The combination with the draw-head having an incline, of a pivoted knuckle resting on said incline, and a spring interposed between the top of the knuckle and the draw-head and tending to force the knuckle down said incline, substantially as set forth.

2. The combination with the draw-head having upper and lower lugs and an incline on its bottom, of a knuckle pivoted between said lugs and having in its upper side an annular recess surrounding its pivot-pin, and a spring seated in said recess and bearing at its upper end against the draw-head, substantially as set forth.

3. The combination with the draw-head having upper and lower lugs and an incline on its bottom, of a knuckle pivoted between said lugs and having in its upper side an annular recess surrounding its pivot-pin and separated from the pivot-hole of the knuckle by an intervening annular web or wall and a spring seated in said recess and bearing against the draw-head, substantially as set forth.

4. A knuckle for a twin-jaw car-coupling provided in its upper side around its pivot-hole with a recess or seat adapted to receive a spring and with a web or wall which separates said recess from the pivot-hole of the knuckle, substantially as set forth.

586,275. INCANDESCENT ELECTRIC LAMP. HERMANN F. SCHARDT, Cleveland, Ohio. Filed July 6, 1896. Serial No. 598,146. (No model.)



Claim.—1. As a new article of manufacture, an incandescent electric lamp consisting of the following parts, in combination, a globe A, the lamp-terminal E, the metal cap G which embraces the neck of the globe and serves as or is electrically connected with the other lamp-terminal, an insulated contact-plate d, the two carbons C and D which are contained within the globe, permanent electrical connections between the ends of carbon C and the terminal E and cap G respectively, permanent electrical connections between the ends of carbon D and the terminal E and contact-piece d, and a spring-switch secured to cap G and adapted to be thrown into electrical connection with piece d, and held in such connection by the resilience of the spring-switch, substantially as and for the purpose specified.

2. As a new article of manufacture, an incandescent electric lamp, consisting of the following parts, in combination, a globe A having a depression a in its neck, the lamp-terminal E, and the metal cap G which embraces the neck of the globe, and which serves as or is permanently connected with the other lamp-terminal, an insulated contact-piece which is secured in said depression a, the two carbons C and D contained in the globe, permanent electrical connections between the ends of the carbon C and the terminal E and cap G respectively, permanent electrical connections between the ends of the carbon D and the terminal E and insulated piece d respectively, and a switch for electrically connecting the cap G and piece d, substantially as and for the purpose specified.

586,276. JOINERY. PHILIPP SEELBINDER, Lennestadt, Germany. Filed June 20, 1896. Serial No. 597,231. (No model.) Patented in Germany Feb. 12, 1896, No. 82,667.



Claim.—1. In articles comprising wooden boards, such boards provided with a recess in combination with a metal brace rod or bar arranged in the recess, a ledge arranged on the surface of the board and means for connecting the ledge to the brace rod or bar, substantially as set forth.

2. In articles comprising wooden boards or plates, such a board provided with a recess, and a metal brace rod or bar arranged in such recess, in combination with a ledge and hook-screws hooked over the brace rod or bar, passing through the ledges and secured at their ends, substantially as set forth.

3. In articles comprising wooden boards or plates, such a board provided with a recess, and a metal brace rod or bar arranged in such recess, in combination with a ledge, hook-screws hooked over the brace rod or bar and passing through the ledge, a protecting-plate on the bottom of the ledge, and nuts for securing the lower ends of the hook-screws.

4. In articles comprising wooden boards or plates, such a board provided with a recess, and a metal brace-rod arranged in the recess, in combination with ledges provided with conical holes, legs engaging said conical holes in the ledges and bearing against the board, and means for connecting the brace-rods to the ledges, substantially as set forth.

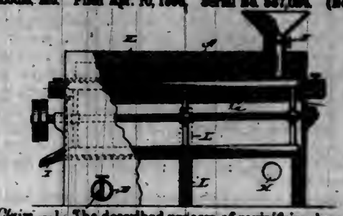
586,277. FASTENER FOR ENVELOPS. WILLIAM A. SMITH, Jersey Shore, Pa. Filed Jan. 26, 1897. Serial No. 620,720. (No model.)



Claim.—1. A seal or fastener for envelops, consisting of two metal plates, one of said plates being located inside the envelop below overlapping parts thereof, and having guides or ways and one member of an interlocking mechanism at its ends, and the other plate having the other member of the interlocking mechanism at its ends, said ends being adapted to enter the ways or guides on the inner plate, through incisions in the overlapping parts of the envelop, and be locked therein, substantially as described.

2. A seal or fastener for envelops, consisting of two plates, one being located inside the envelop below overlapping parts thereof, and having guides or ways and one member of an interlocking mechanism at each end, and the other plate having at each end the other member of the interlocking mechanism, the ends of this plate being adapted to enter the guides or ways through incisions in the envelop and be locked therein by said interlocking mechanism, and a series of points integral with the inner plate, extending through the envelop, and adapted to be folded down on the other plate to clamp the plates together with overlapping parts of the envelop between them, substantially as described.

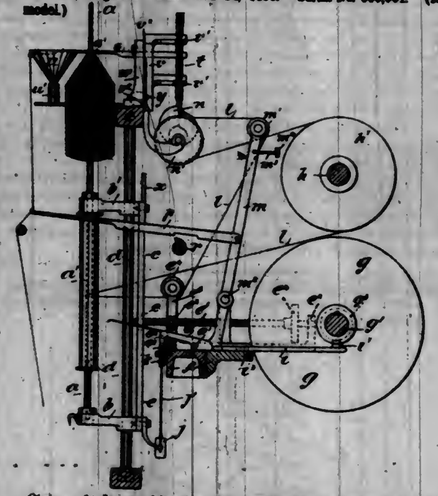
586,278. REVIVIFYING BONE-BLACK. MORIZ WEINRICH, St. Louis, Mo. Filed Apr. 10, 1896. Serial No. 587,094. (No specimens.)



Claim.—1. The described process of revivifying bone-black consisting in removing from it through oxidation all the organic impurities and certain inorganic impurities, and also any excess of carbon, by exposing the bone-black in a heated state and while being moved or agitated in some suitable device, to a regulated and continuous draft of atmospheric air, and to a regulated temperature, and under a regulated and continuous feed of the bone-black.

2. The described process of revivifying bone-black through oxidation, consisting in exposing the bone-black in a heated state to a regulated and continuous draft of atmospheric air, and to a regulated temperature, and under a regulated and continuous feed of the bone-black, and whereby the bone-black is deprived of all its organic impurities and certain inorganic impurities taken up during its prior use; or of all the organic impurities and certain inorganic impurities taken up during its use simultaneously with any excess of carbon; or of any excess of carbon and also certain inorganic matters, as set forth.

586,279. YARN-WINDING MACHINE. JOHN D. WHYTE, Manchester, England, assignor of one-half to the Whyte's Patents, Limited, Bradford, England. Filed Oct. 24, 1896. Serial No. 609,961. (No model.)



Claim.—1. In combination the cop-holding spindle, the yarn-guide and means for operating the same to produce a cop with a flattened bottom, said means comprising the sliding jack *t*, the pivoted stock *v* carrying the jack, means for operating the same about its pivot and the conical cam *s* for operating the sliding jack, substantially as described.

2. In combination the cop-holding spindle, the means for raising and lowering the same, the yarn-guide, the sliding jack carrying the same the pivoted stock carrying the sliding jack means moving with the spindle for casting the stock on its pivot and the conical cam for operating the sliding jack, substantially as described.

3. In combination, the spindle with the vertically-movable frame carrying the same, the yarn-guide, the sliding jack carrying the same, the pivoted stock carrying the sliding jack, the conical cam for reciprocating the sliding jack, and means for moving the pivoted stock on its pivot consisting of the slotted plate *x* connected with the spindle-frame to move therewith, substantially as described.

4. In combination, the spindle, the driving-band therefor, the lever *m* carrying an idle-wheel about which the band passes, the finger *p* connected to the lever and held in position by the thread, the cam *r* for operating the finger when the thread breaks, the vertically-movable frame for the cop-spindle, means for moving the same comprising the friction-disks, the lever for throwing said disks out of connection when the thread breaks, said lever being controlled by the lever *m* and the finger *p*, the weight for counterbalancing the spindle-frame and the brake for controlling the action of said weight, said brake being controlled by the lever *m*, substantially as described.

5. In combination, the vertically-movable cop-spindle, the means carrying the same, driving means for operating the spindle in one direction, a brake for holding the spindle against movement when the driving mechanism is thrown out and means controlling said driving means and brake, said controlling means being in turn controlled by the thread and to operate upon the failure of the same, substantially as described.

6. In combination the spindle, a carrier-frame therefor, said spindle and carrier-frame being movable vertically, driving means for moving the carrier-frame and spindle in one direction, driving means for turning the spindle, and means controlled by the thread for throwing both of the driving means out of action when said thread breaks, substantially as described.

7. In combination, the spindle, the vertically-movable carrier therefor, driving means for moving said carrier, the driving means for turning the spindle consisting of the endless band and the pulleys means controlling both the vertical and rotary movements of the spindle comprising the lever carrying a wheel engaging the band, and the connections between said lever and the means for moving the carrier vertically, substantially as described.

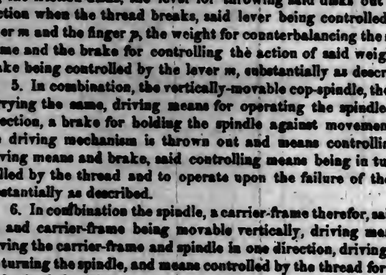
8. In combination the spindle with a carrier for moving the same vertically the driving means for moving said carrier, the band for turning the spindle, the yarn-guide, means for giving the same a traversing movement said means being operated by the band, a lever having a wheel engaging the band, said lever being controlled by the thread whereby both the turning of the spindle and the traversing of the guide will be stopped when the thread fails, said lever also controlling the driving means which operates the spindle-carrier vertically, substantially as described.

9. In combination, the rotary spindle, the yarn-guide, means for giving said guide a traversing movement, a band engaging said means and also giving the spindle its rotary movement, a lever having a wheel engaging the band, said lever having means engaging and controlled by the passage of the thread, means for driving the band and means to actuate the lever with its wheel to slacken the band when the thread breaks, substantially as described.

10. In combination with the spindle for holding the cop, the yarn-guide, and a cone arranged adjacent to the cop-spindle for taking up the slack, substantially as described.

11. In combination the cop-holding spindle, the yarn-guide, the stock adapted to be canted, the sliding jack carrying the yarn-guide and means for canting the stock from a vertical position at the commencement of the build of the cop to form the flattened or slightly-rounded bottom of the cop, substantially as described.

586,280. PHOTOGRAPHIC-PRINT WASHER. DANIEL ARMBRIGHT, Troy, Ohio. Filed May 26, 1896. Serial No. 593,023. (No model.)



Claim.—1. In a photographic-print washer, a rotating casing adapted to be completely filled with the washing liquid, said casing having outlet and inlet openings, and means, substantially as described, for automatically and intermittently rotating said casing for a portion of a revolution by the action of the washing liquid which passes through said casing and escapes at said outlet-opening, substantially as specified.

2. A washer, such as described, consisting essentially of a rotating casing having central supply and discharge openings, the point of discharge being elevated to a point above the top of said casing, and retaining-receptacles on the outside of said casing adapted to receive the liquid-discharge from said point of discharge and cause the receptacle to intermittently rotate, substantially as specified.

3. In a washer, such as described, a casing rotatable on hollow journals or trunnions adapted to form inlet and outlet openings for said casing, an air-escape in said casing with means for closing the same, a detachable door or lid in one side of said casing, a hose pipe or conduit connected to the outlet-opening and extended to a point above the top of said casing, and means on the outer periphery of said casing to cause the same to revolve intermittently by the discharge from said outlet-opening, substantially as specified.

4. The combination with a rotating casing having a detachable lid or cover on one side thereof, an outlet and an inlet opening for said casing, and means, substantially as described, for rotating said casing intermittently and automatically by the discharge from said outlet-opening, substantially as specified.

5. The combination in a washer, substantially as described, having a rotating casing adapted to rotate on hollow trunnions which form inlet and outlet openings for said casing, screens at each end of said casing adjacent to said openings, each of said screens being provided with a central deflector arranged opposite said inlet and outlet openings, substantially as and for the purpose specified.

6. The combination with the rotating casing, the hollow journals or trunnions on which the same rotates, outlet and inlet openings through said journals, a flexible hose or pipe connected to said outlet-opening, and an adjustable arm adapted to support said pipe so that the discharge end is above the top of said casing, substantially as specified.

7. The combination with the rotating casing having the outlet and inlet openings as described, of a series of troughs arranged on the outside of said casing, a pipe or conduit connected to the discharge-opening with the discharge end adjacent to the line of rotation of said troughs, each of said troughs being inclined or beveled at one end, substantially as specified.

8. The combination with an intermittently-rotating casing, and the hollow trunnions on which the same revolve, outlet and inlet openings extending through said trunnions, screens having deflectors arranged adjacent to said openings, a detachable lid on one side of said casing, and means for securing said lid in position, troughs or receptacles arranged around the outside of said casing, and a discharge-pipe leading from said discharge-opening to a point above said casing, and an adjustable holder for holding said discharge-pipe in different positions to cause the same to discharge into said troughs or receptacles, substantially as specified.

9. The combination with an outer rotatable casing having inlet and outlet openings extending through the journals on which said casing revolves, means for rotating said casing completely filled with water or other liquid, and means, substantially as described, for producing an intermittent rotary movement of said casing, substantially as specified.

10. The combination with a rotating casing, outlet and inlet openings extending through the trunnions or journals on which the same revolves, a pipe connection from the outlet-opening extended to a point above said casing, and troughs or projections on the outside of said casing into which said pipe is adapted to discharge, substantially as specified.

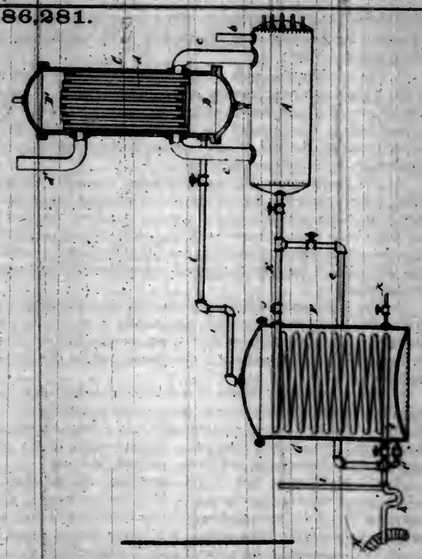
586,281. APPARATUS FOR COOLING WASTE WATER. JOHN E. BECKMAN, Buffalo, N. Y., assignor of one-half to John F. Derrick, same place. Filed Feb. 19, 1897. Serial No. 624,194. (No model.)

Claim.—1. The combination with a receiving-tank which collects the hot waste water and which is provided with an outlet-pipe for the escape of such water, of a surface cooler which is arranged below said outlet-pipe and which has its upper end connected therewith to receive the hot waste water from said tank, and which is provided with a cold-water supply by which the cooling-water is admitted to the cooler near the lower or discharge end thereof and with an escape for the heated cooling-water at the opposite end, substantially as set forth.

2. The combination with a receiving-tank which collects the hot waste water and which is provided with an outlet-pipe for the escape of such water and above said pipe with an ascending vapor-escape pipe, of a surface condenser which is arranged above said tank and connected at its lower end with said vapor-escape pipe, and a surface cooler which is arranged below the water-outlet of said tank and which has its upper end connected therewith to receive the hot water therefrom, substantially as set forth.

3. The combination with a receiving-tank which collects the hot waste water and which is provided with an outlet-pipe for the escape of such water and above said pipe with an ascending vapor-escape pipe, of a surface condenser which is arranged above said tank and connected at its lower end with said vapor-escape pipe, a surface cooler which is arranged below the water-outlet of said tank and which has its upper end connected therewith to receive the hot water therefrom, a supply-pipe for admitting the cooling-water to the lower end of said cooler, and a connecting-pipe whereby the partially-heated cooling-water is conducted from the upper end of said cooler to said surface condenser, substantially as set forth.

586,281.



586,282. RACEWAY FOR ELECTRICAL CONDUCTORS. JOHN H. RAGO, Brooklyn, N. Y., assignor to the American Rolex Company, New York, N. Y. Filed Apr. 13, 1897. Serial No. 631,959. (No model.)



Claim.—1. A raceway for the reception of a bare electric wire, the said raceway having an exposed inner metallic surface and capable of being bent, in combination with means for insulating the raceway from surrounding objects, substantially as set forth.

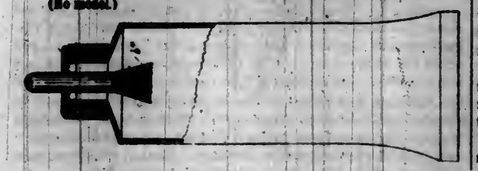
2. A metallic raceway for the reception of an electric wire, in combination with a pipe surrounding the said raceway and an interposed layer of insulating material between the raceway and pipe, the said insulating material consisting of granules or particles free to move relatively to one another to adjust themselves to any bending of the raceway and pipe, to keep the insulating-layer intact, substantially as set forth.

3. A raceway for the reception of a bare electric wire, the said raceway having an exposed inner metallic surface, in combination with a pipe surrounding the raceway and a layer of substantially pure powdered silex packed between the raceway and surrounding pipe, substantially as set forth.

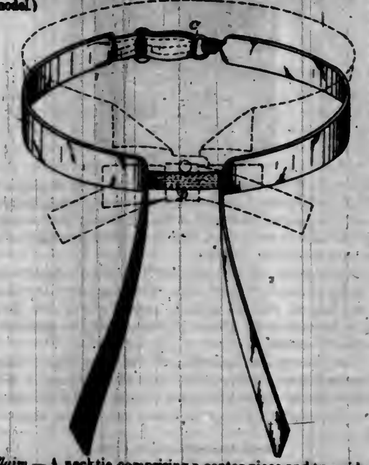
4. In combination, a plurality of pipe or conduit sections, metallic raceways for electric conductors located within said pipe or conduit sections, an insulating-packing intermediate of the raceways and the interior walls of the conduit-sections, wads of mica located at the adjacent ends of consecutive pipe or conduit sections and means for holding the ends of the pipe or conduit sections in close contact, substantially as set forth.

5. A plurality of pipe or conduit sections, means for insulating electric conductors from the interior walls of the sections, wads of mica fitted in the ends of adjacent sections and provided with corresponding recoding and projecting portions on their adjacent faces and means for drawing the adjacent faces of the mica wads into close contact, substantially as set forth.

586,283. FLUID HANDLING AND UTILIZING DEVICE. GEORGE W. COLE, Asbury Park, N. J. Filed Nov. 18, 1896. Serial No. 612,831. (No model.)



586,284. NECKTIE. CHARLES W. Y. DAVIES, San Francisco, Cal., assignor, by direct and mesne assignments, to the Hand-Tied Tie Company, same place. Filed Jan. 21, 1897. Serial No. 620,190. (No model.)

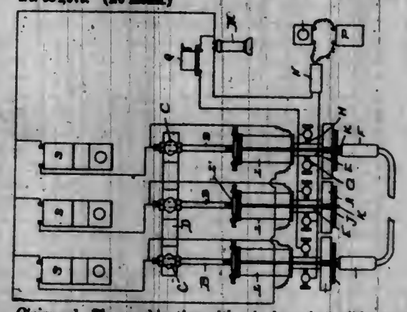


Claim.—1. The combination with a collapsible tube, and a cap for said tube, of a brush suitably secured through the center of said cap, and protruding into the tube whereby the tube may be rolled up to keep the brush submerged when not in use, substantially as described.

2. The combination of a collapsible tube, and a cap to close the nozzle thereof with a brush secured through the center of said cap and protruding into the tube whereby the tube may be rolled up to keep the brush submerged when not in use, and adapted to pass into said nozzle, as the cap is secured in position, substantially as described.

3. The combination of a collapsible tube and a cap to close the nozzle thereof with a brush secured through the center of said cap, and protruding into the tube whereby the tube may be rolled up to keep the brush submerged when not in use, and a handle secured to the top thereof, said brush adapted to pass into said nozzle as the cap is secured in position, substantially as described.

586,285. SWITCHBOARD. CHARLES R. BEAN, Chicago, Ill., assignor to Sterling L. Bailey, same place. Filed May 1, 1897. Serial No. 634,679. (No model.)



Claim.—1. The combination with a jack made flexible to permit it to be moved in effecting the electrical contacts, of the drop-magnet mounted upon and movable with the jack, substantially as specified.

2. The combination with a jack made flexible to permit it to be moved in effecting the electrical contacts, of the drop and the magnet for operating the drop, both supported upon and moving with the jack, substantially as specified.

3. The combination with a jack made flexible to permit it to be moved in effecting the electrical contacts, of the drop and a support

to which the drop is hinged, said support being mounted upon and moving with the jack, substantially as specified.

4. The combination with a jack made flexible to permit it to be moved in effecting the electrical contacts, of a drop, a support to which the drop is hinged, the latch and the magnet for releasing the latch, all mounted upon and moving with the latch, substantially as specified.

5. The combination with a jack made flexible to permit it to be moved in effecting the electrical contacts, of a drop and a support to which the drop is hinged, said support being mounted upon and moving with the jack and also forming a section of the front of the board, substantially as specified.

6. The switchboard composed of a series of movable sections A, a series of jacks each supporting one of said board-sections, and each made movable to enable the operator to effect the electrical contacts, and drops supported by the board-sections, substantially as specified.

586,286. TROUSERS-GUARD. EDWARD W. HANAUER, Philadelphia, Pa. Filed May 27, 1897. Serial No. 638,570. (No model.)

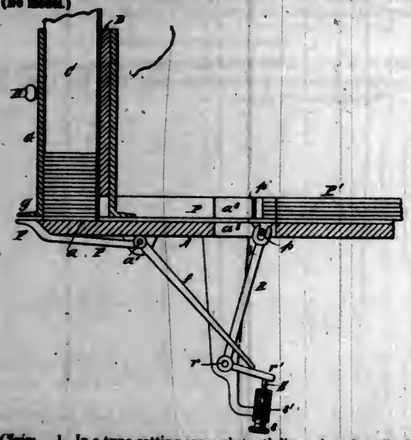


Claim.—1. A trousers-guard consisting of a skeleton frame, formed of spring-plates curved in the direction of their length with their ends overlapping and bars connected at top and bottom with the opposite ends of said plates, said plates coiling on themselves the greater portion of their lengths.

2. A trousers-guard consisting of a skeleton frame, formed of coiled spring-plates, with their ends overlapping, and bars connected at top and bottom with the opposite ends of said plates, the plates coiling on themselves the greater portion of their lengths and being longitudinally slotted.

3. A trousers-guard consisting of a skeleton frame, formed of coiled spring-plates, and bars at the opposite ends thereof, said bars being connected at top and bottom with said ends of the springs by means of pivots which permit the plates and bars to turn on each other.

586,287. TYPE-SETTING APPLIANCE. LOUIS K. JOHNSON and ABNER A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed May 9, 1896. Serial No. 590,806. (No model.)



Claim.—1. In a type-setting case substantially such as described, the combination with a type-channel, channel-holder, and type-supporting floor, of a type-forwarder provided with one or more supplementary type-blades which may be set for use in connection with the primary type-blade, substantially in the manner and for the purpose described.

2. The combination with the type-channel, channel-holder, and type-supporting floor, of a primary pusher provided with a series of supplementary type-blades carried thereon which may be adjusted into a forward position for use, or held in a retired position when not desired for immediate use, substantially in the manner and for the purpose described.

3. The combination with a type-containing channel, channel-holder, a type-supporting platform of the primary pusher P, formed with the pins p^3, p^3, and the secondary pusher-blades P', formed with the perforations p', substantially as described, together with means for reciprocating the said primary pusher P, for the purpose and substantially in the manner described.

4. The combination of a type-containing channel, a channel-holder, a type-supporting floor, a finger-lever actuated by the thumb during the withdrawal of a type or types, a rock-lever actuated by said finger-lever in one direction and by a spring-plunger or equivalent means in the opposite direction, and a type-forwarder connected with the said rock-lever, for the purpose and substantially in the manner described.

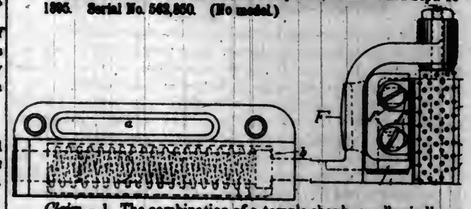
5. The combination with the type-channel, channel-holder, type-floor, finger-lever, rock-lever and type-pusher, of means for automatically returning the parts to their normal position after the release of the finger-lever, substantially in the manner and for the purpose described.

6. The combination of the type-channel, channel-holder, and type-floor, with a type-forwarder adjustable with relation to the type to be forwarded, and a type-guard adjustable on its channel-holder and formed with a type-foot in front and a pusher-retainer in the rear, substantially in the manner and for the purpose described.

7. The combination with a type-containing channel, channel-holder, type-floor, and type-forwarder, of the finger-lever F, f, the rock-lever R, and the spring-plunger S, the whole constructed and operating substantially in the manner and for the purpose described.

8. The combination of a type-channel, channel-holder, type-floor, type-forwarder, finger-lever, rock-lever, and spring-plunger S, with means for adjusting the tension of the spring of the latter, substantially in the manner and for the purpose described.

586,288. LOOM-TEMPLE. JOSEPH S. LUDLAM and JOSEPH A. CLAUS, Lowell, Mass., Annabella R. G. Ludlam administratrix of said Joseph S. Ludlam, deceased, assignors, by mesne assignments, to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Sept. 18 1895. Serial No. 562,860. (No model.)



Claim.—1. The combination of a temple-shank, a roll-spindle secured at its inner end to said shank, a temple-roll and a cloth-presser secured to said shank, said shank, spindle and presser being immovable with respect to each other, as and for the purpose specified.

2. The combination of a temple-shank, having an arm, the spindle, secured at its inner end to said arm, a temple-roll and a cloth-presser secured, to said shank, said shank, arm, spindle and presser being immovable with respect to each other, as and for the purpose specified.

3. The combination of the temple-shank, a pod or cloth-presser, rigidly secured to said shank, an arm, rigidly secured to said shank and extending as far as the free end of said presser, a spindle, rigidly attached at its inner end to said arm, and a temple-roll, turning on said spindle within said presser, and adapted to be retained on said spindle by the tension of cloth arranged between said presser and roll, as and for the purpose specified.

586,289. PROCESS OF TREATING NICKEL. PIERRE MANHES, Lyons, France, assignor of one-half to the Société Anonyme de Métallurgie du Cuivre, Procédés pré. Manhes, same place. Filed Apr. 26, 1894. Serial No. 508,984. (No specimens.) Patented in France Jan. 16, 1894, No. 235,897; in Germany Mar. 3, 1894, No. 80,467, and in England Apr. 7, 1894, No. 6,984.

Claim.—1. The herein-described process of treating nickel and cobalt ores containing iron and sulfur, said process consisting in adding thereto an alkaline or basic reagent or flux; heating the ore and added flux in the presence of an oxidizing-flame until the contained iron is oxidized and the oxid of iron combines with the reagent or flux to form a fluid scoria; adding to the molten metal a second series of alkaline or basic reagents with which is mixed a chlorid of the same nature, and continuing the heating process until the sulfurous impurities combine with the reagents to form an alkaline or basic sulfid leaving the nickel in a commercially pure condition.

2. The herein-described process of treating molten nickel ores containing iron and sulfur, said process consisting in first, placing in a converter or similar apparatus a quantity of molten nickel-matte; second, adding thereto an alkaline or basic reagent or flux; third, heating the nickel-matte and the added flux in the presence of an oxidizing-flame until the contained iron is oxidized and the oxid of iron is dissolved and combines with the reagent or flux to form a fluid scoria, fourth, removing the fluid scoria so produced; fifth, adding to the molten nickel-matte a second series of alkaline or basic reagents to which is added a chlorid of the same nature, continuing the heating process until the sulfurous impurities are combined with the reagents to form an alkaline or basic sulfid and leaving the nickel in a commercially pure condition.

3. The herein-described process of treating nickel ores containing iron and sulfur, said process consisting in adding to molten nickel-matte a borate of lime and heating the mixture in the presence of an oxidizing-flame until the iron combines with the borate of lime to form a fluid scoria, removing the fluid scoria and adding to the remaining nickel-matte a mixture of lime and chlorid of lime and continuing the heating until the sulfur contained in the nickel is combined with the lime and chlorid of lime to form a sulfid of lime, substantially as specified.

4. The herein-described process of treating molten nickel ores containing iron and sulfur, said process consisting in first, placing in a converter or similar apparatus a quantity of molten nickel-matte; second, adding thereto a quantity of borate of lime; third, heating the nickel-matte and borate of lime in the presence of an oxidizing-flame until the iron is oxidized and the oxid of iron is dissolved and combines with the borate of lime to form a fluid scoria; fourth, removing the fluid scoria so produced; fifth, adding to the molten nickel-matte a quantity of lime mixed with chlorid of lime, continuing the heating process until the sulfur combines with the lime and chlorid of lime to form a sulfid of lime and leaving the nickel in a commercially pure condition.

586,290. CAR-FENDER. TIMOTHY A. RESSEIN, Brooklyn, N. Y., assignor to Henry M. Lee, New York, N. Y. Filed Feb. 27, 1897. Serial No. 626,273. (No model.)



Claim.—1. In a car-fender, the combination of the rectangular frame having curved arms or sides, a rigid supporting-frame attached to the car, a wire frame pivotally attached to the supporting-frame, and the suspended bifurcated lever engaging the rectangular frame by means of its one arm and supporting-frame by means of its other arm, substantially as shown and described.

2. In a car-fender, the combination of the rectangular frame with curved sides and guides thereon, the supporting-frame attached to the car-body, the wire frame pivotally attached to the supporting-frame, the bifurcated lever attached to the wire frame and engaging both the supporting-frame and the rectangular frame, and the springs attached to the supporting-frame and the wire frame substantially as and for the purpose herein shown and described.

586,291. CROCK-PRESS. WILLIAM H. ROSE, Jr., Summit, Ohio, assignor to Taplin, Rice & Co., Akron, Ohio. Filed Dec. 21, 1896. Serial No. 616,468. (No model.)



Claim.—1. In a crock-press of the class designated, the combination with the mandrel of the press, of a concave-convex plate, with the concave face toward the bottom of the mandrel and its edge in contact therewith and a sliding bolt arranged to permit said plate to retain its normal shape until compressed by force from its opposite side substantially as shown and described and for the purpose specified.

2. The combination with the bottom of the mandrel, the concave-convex plate, and the sliding bolt; of the vent-holes in said mandrel-bottom to permit the entrance of air between said parts, substantially as shown and described.

3. In a crock-press of the kind specified, the combination with the outer die and mandrel, and the bottom-carrying plates; and the vent-holes in the mandrel-bottom and plates; of a concave-convex plate with its concave side to said mandrel-bottom and a sliding bolt, arranged to hold its edges normally in contact with said bottom; and a free plate adapted to fit and rest in said plates; all constructed and arranged to coact, substantially in the manner and for the purpose specified.

586,292. SEWING-MACHINE RIPPING ATTACHMENT. JOHN R. SCOTT and GEORGE W. SPINK, East Oakland, Cal. Filed May 7, 1897. Serial No. 635,503. (No model.)



Claim.—1. A ripping attachment consisting of a strip of metal attached to and movable with the needle-bar of a sewing-machine, having a knife fixed to it and a portion of its front edge extending above and below the knife, flanged outwardly away from the knife, another strip of metal of the same width as the first, similarly flanged and of the same length as the flanged portion of the first strip, both strips being provided with corresponding holes and means for fastening them together with the knife between them.

2. A ripping attachment consisting of a strip of metal attached to the lower end of the needle-bar of a sewing-machine having a knife fixed to it and a portion of its front edge extending above and below the knife flanged outwardly away from the knife, another strip of metal of the same width as the first similarly flanged and of the same length as the flanged portion of the first strip, both strips being provided with corresponding holes and means for fastening them together, with the knife between them, in combination with a guide secured to the cloth plate or table of the sewing-machine, and extending upward and parallel with the needle-bar of the machine and having its upper portion bent so as to clamp over the head of the machine and provided with an extension and slotted so as to guide the upper end of the strip carrying the knife.

3. A ripping attachment for sewing-machines consisting of a strip of metal vertically disposed and movable with the needle-bar, opposing surfaces intermediate between the ends of said strip, a knife or cutter secured between said surfaces with its edge substantially parallel with the needle-bar whereby simultaneous parallel reciprocations are produced, and means connecting the strip with the needle-bar.

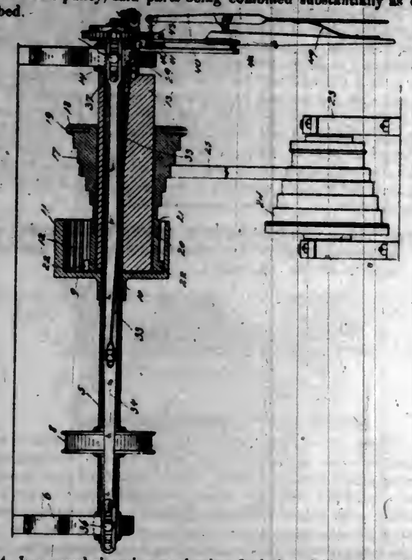
586,293. SPEED-CHANGING MECHANISM FOR LATHES, DRILLS, OR SIMILAR MACHINES. JOHN R. SMITH, Stafford, Conn. Filed Aug. 27, 1896. Serial No. 604,162. (No model.)

Claim.—1. In a speed-changing mechanism, for lathes, drills, and similar tools, or devices, the combination with a suitably-supported power-shaft, of a hollow gear mounted thereon and secured thereto, a sleeve-eccentric mounted on said shaft and in which said shaft is revoluble, a cone-pulley mounted on said sleeve-eccentric, and revoluble thereon, and adapted to be operated by the hollow gear on the power-shaft, and means for turning said sleeve-eccentric on the power-shaft, substantially as shown and described.

2. In a speed-changing mechanism for lathes, drills, and similar tools or devices, the combination with a suitably-supported power-shaft, of a hollow gear mounted thereon, and secured thereto, a sleeve-eccentric mounted on said shaft and in which said shaft is revoluble, a cone-pulley mounted on said sleeve-eccentric, and revoluble thereon, and adapted to be operated by the hollow gear on the power-shaft, and means for turning said sleeve-eccentric on the power-shaft, and devices connected therewith, for moving said pulley longitudinally on said sleeve-eccentric substantially as shown and described.

3. In a speed-changing mechanism for lathes, drills, and similar tools or devices, a power-shaft suitably supported, a hollow gear secured on said shaft, a sleeve-eccentric mounted on said shaft, and in which said shaft is revoluble, a cone-pulley eccentrically and revolubly mounted on said sleeve and engaging said hollow gear, means for turning said sleeve eccentrically on the said shaft, other means engaging said cone-pulley and moving the same longitudinally, and consisting of a gear-wheel engaging said sleeve-eccentric, a lever pivotally secured below the wheel, a segmental gear engaging said wheel, a crank secured to said wheel, a sliding bar engaging said

crank, an arm on said bar operating in a deep annular groove formed in said cone-pulley, said parts being combined substantially as described.



4. In a speed-changing mechanism for lathes, drills, and similar tools, a suitably-supported power-shaft, a hollow gear secured thereon, gear-teeth formed therein, a sleeve-eccentric mounted on said shaft and in which the same revolves, a lever pivoted below said eccentric, a segmental gear in connection therewith and operating in connection with a gear-wheel on said eccentric, a crank on said wheel, a sliding bar, an arm thereon operating in a deep annular groove formed in said cone-pulley, said parts being combined substantially as described.

5. In a speed-changing mechanism for lathes, drills, and similar tools, the combination with a suitably-supported power-shaft, of a hollow gear mounted thereon and secured thereto, a sleeve-eccentric mounted on said shaft, and in which said shaft is revoluble, a cone-pulley mounted on said sleeve-eccentric and revoluble thereon, and provided with an extension which enters said hollow gear, and gear-teeth formed thereon, which operate in connection with said hollow gear, said sleeve-eccentric being provided with a cylindrical extension through which said power-shaft passes, a circular gear on said extension, and means for operating said circular gear to turn said sleeve-eccentric on said power-shaft, and means for moving said cone-pulley longitudinally on said sleeve-eccentric, substantially as shown and described.

6. In a speed-changing mechanism for lathes, drills, and similar tools, or devices, the combination with a suitably-supported power-shaft, of a sleeve-eccentric mounted on said shaft, and in which said shaft is revoluble, a pulley mounted on said sleeve-eccentric and revoluble thereon, and adapted to be revolved by said power-shaft, and means for turning said sleeve-eccentric on the power-shaft, substantially as shown and described.

586,294. BICYCLE PARCEL-CARRIER. CHARLES H. STEPHENSON, Lynn, Mass. Filed May 20, 1897. Serial No. 637,393. (No model.)



Claim.—1. A parcel-carrier for bicycles comprising rectangular pieces of flexible material, such as leather or cloth, having stiffening rods or strips arranged lengthwise thereon, having holes at the corners thereof for the passage of a securing-cord, having metal engaging hooks on the back thereof, and having supporting-hooks permanently engaged in one set of the holes; in combination with suitable metallic clips adapted to be attached to the handle-bars of a bicycle, said carrier-hooks and said clips adapted to mutually engage, and a lacing-cord, substantially as described.

2. The combination in a bicycle parcel-carrier, of a main portion or apron consisting of superimposed layers of a flexible material, such as leather or canvas, having metallic stiffening rods or strips between the layers thereof, having eyelet-holes at the corners, lacing-hooks on the back thereof, and suitable suspension-hooks attached thereto; and suitable metallic clips adapted for engagement with the handle-bars of a bicycle, substantially as and for the purpose described.

3. A folding parcel-carrier for bicycles, consisting of superimposed layers of flexible material forming an apron, having metallic rods or strips between the layers so as to stiffen the same in one direction while permitting flexibility in a direction at right angles thereto, cord-engaging devices thereon, suspension-hooks therefor, a cord; in combination with engaging devices adapted to be permanently attached to the handle-bars of a bicycle, said carrier, with its contents, adapted to be disengaged from the bicycle by bending said suspension-hooks at an angle from their normal position, as described.

4. In a bicycle parcel-carrier the combination of, an apron flexible in one direction and stiffened in a direction at right angles thereto having lacing and looping cord engaging devices and having suspension-hooks attached thereto, a cord, and supporting-clips adapted to be attached to the handle-bars of a bicycle, as set forth.

5. In a bicycle parcel-carrier the combination of an apron or main portion L having lacing-openings O' O^2 &c., looping clips or hooks D' D^2, suspension-hooks J' J^2, a cord C, and clips K' K^2 adapted to engage the handle-bars of a bicycle and said suspension-hooks J' J^2, as herein described.

586,295. BICYCLE-LAMP BRACKET. ERNEST D. TERRY, New York, N. Y. Filed Dec. 26, 1896. Serial No. 617,018. (No model.)



Claim.—1. A lamp-bracket for bicycles and the like, comprising a front plate having two slots J, J', two detachable clamping-jaws, A and A', which have each a broad hook at its end adapted to engage the respective slots in the front plate and hinge the jaws to said plate, means substantially as described for drawing together the free ends of said jaws in clamping, and a holder for the lamp on said front plate.

2. A lamp-bracket for bicycles and the like, comprising a front plate B, having upright tubular sockets at its ends and two upright slots, J and J', adjacent to the respective sockets, a wire holder C, the branches of which are fixed in said sockets, two detachable clamping-jaws, A and A', each provided at its end with a broad hook adapted to engage the respective slots in the front plate for hinging the jaws detachably thereto, and a screw and nut for drawing together the ends of the jaws in clamping.

586,296. TELESCOPE-BAG. GEORGE C. THOMAS, Mayfair, Ill.; Georgiana T. Peters administratrix of said Thomas, deceased. Filed Dec. 4, 1896. Serial No. 570,977. (No model.)

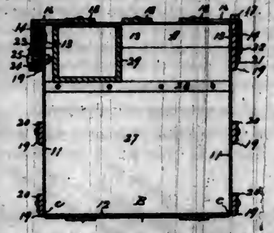


Claim.—In a telescope-bag the combination with the body and cover of the bag, of pairs of straps having one end of each secured on the inside to the top of the cover on opposite sides off from the walls, the other ends being free, the free ends on one side being provided with buckles and on the other side with holes for the buckle-tongue, and a partition-board having slots in one side adapted to receive the buckle-straps for hinging it to the cover, the linear dimensions of the partition-board and the points of securing the straps to the cover being such as to pass within the body of the bag whereby the partition and contents of the cover may be secured so as to allow the walls of the body to pass between them and the walls of the cover in telescoping, as specified.

586,297. SHEET-METAL TOOL-CHEST. WILLIAM VANDERMAN, Willimantic, Conn. Filed May 21, 1896. Serial No. 592,996. (No model.)

Claim.—1. The combination of the chest-body, the rear wooden stay-strip 19 extending along the back side of said body at its upper edge, the hinges with one leaf secured upon the outer surface of said stay-strip, the outer stop stay-strip 24 secured upon the outer side of said hinges and stay-strip 19 with its upper edge in about the same plane as the axis of said hinges, the cover and the rear stay-strip 14 extending along the lower edge of its back side, the outer leaf of said hinges being secured to the outer side of said brace 14, substantially as described and for the purpose specified.

2. A tool-chest consisting of body and cover with the cover corner-irons 16 at the upper front corners of the cover two flanges of said irons covering a portion of the front and end surfaces of said cover while the third flange covers a portion of the top of said cover and is perforated to receive the fastening-bolt, the body corner-irons 21 covering a portion of the front and end surfaces of said body and having the screw-hole boss, and the fastening-bolts for extending through the corner-irons 16 into the screw-hole boss of the corner-irons 21 at the corners of the said cover and body, substantially as described and for the purpose specified.



3. A trunk or chest body having at its upper front corners outwardly-projecting cleats forming a space at their adjacent ends, and corner-irons 21 each consisting of the two right-angular vertical surface flanges, one of which extends along over a portion of the front surface of one of said cleats and the other of which extends over the face of the other cleat, said flanges having at their junction the exteriorly-rounded and interiorly-threaded screw-hole boss 22 projecting into said space and beyond the outer face of said flanges, the vertical axis of said screw-hole boss being substantially in the planes of the inner faces of both of said flanges, substantially as described.

4. A trunk or chest body having right-angular corners throughout, the cover being formed from a notched and flanged sheet-metal blank and the body of which is formed of a plain rectangular blank and winged end pieces of sheet metal with the wings of the end pieces riveted to said body, the confronting raw edges of the said cover and body being provided with wooden stay-strips firmly secured by rivets upon the outside of said cover and body with the edges of the metal and stay-strips substantially even as set forth.

5. A trunk or chest body formed mainly of sheet metal, the wooden stay-strips secured to the outside of the metal of said body at its upper edge, and the keeper consisting of the hollow base-plate 32 of the same thickness as the stay-strip and provided with two surface internal bosses 34 and exteriorly rounded and the staple secured within said bosses, said keeper being secured to the front face of the metal of said body under the lower edge of said stay-strip and with the inner ends of the said staple resting on the said front face of metal, substantially as described and for the purpose specified.

586,298. PICKER FOR LOOMS. FRANK A. WARDWELL, Methuen, Mass. Filed Dec. 29, 1896. Serial No. 617,223. (No model.)

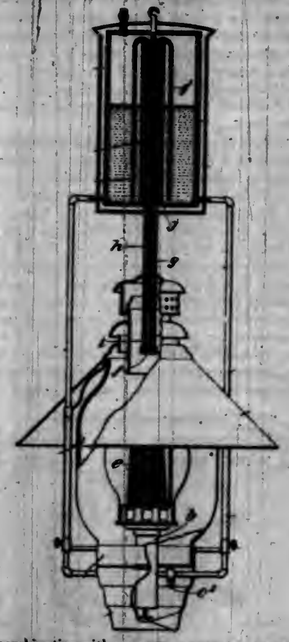


Claim.—1. In a loom-picker, in combination a picker-staff a loop or binder having a perforation *b*, adapted to receive said staff, and a continuous reduced perforation *b'*, at its front portion, a picker or filling D, having a shank *d'*, adapted to fit the reduced opening *b'* in the loop or binder and a head *d*, adapted to be introduced through the enlarged loop or binder-opening *b*, substantially as and for the purpose set forth.

2. In a loom-picker, in combination a picker-staff, a loop or binder having a perforation *b*, adapted to receive the picker-staff and a continuous reduced perforation *b'*, at its front portion and having a picker casing or shield B', a picker or filling D adapted to fit said casing or shield, and having a shank *d'* adapted to fit the interior of the reduced opening *b'* in the loop or binder, and having a head *d*, adapted to be introduced through the enlarged loop or binder-opening *b*, substantially as and for the purpose set forth.

586,299. HYDROCARBON-LAMP. CHARLES R. WHITE, Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Filed Oct. 15, 1896. Serial No. 608,977. (No model.)

Claim.—1. The combination with a pressure apparatus comprising a closed vaporizer having inlet and outlet pipes communicating with a reservoir or fount, of a wick interposed in said inlet-pipe for supplying fluid to the vaporizer in limited quantity, and a separate pipe leading from the reservoir or fount and provided with a hydrocarbon-burner, substantially as described.



2. The combination with a pressure apparatus comprising a closed vaporizer having inlet and outlet pipes communicating with a fount or reservoir, of a separate pipe leading from the fount or reservoir and provided with a hydrocarbon-burner, substantially as described.

3. In combination, a reservoir having a tube, a burner and burner-supply pipe communicating with said reservoir, nested pipes accommodated by said tube and communicating at their upper ends with the interior of the reservoir and closed at their lower ends to form a closed vaporizer exposed to the heat of the burner, and a wick in one of said pipes, substantially as described.

4. In combination a reservoir and its burner-pipe and hydrocarbon-burner, nested pipes whereof one contains a wick and whereof both communicate with the interior of the reservoir, a cap closing the lower ends of said pipes to form a vaporizer in communication with both of them, and a deflector surrounding the vaporizer and burner, substantially as described.

5. In combination a reservoir, a rod and a burner-supply pipe suspending a hydrocarbon-burner from the reservoir, nested pipes whereof one contains a wick and whereof both communicate with the interior of the reservoir and with each other at their lower ends which are closed in proximity with the burner to form a vaporizer, and devices mounted so as to slide on said rod and pipe and adapted to cover and uncover the burner, substantially as described.

586,300. PLATE AND SHEET FURNACE. HENRY WHITELEY, Philadelphia, Pa. Filed Apr. 6, 1897. Serial No. 630,963. (No model.)



Claim.—1. In a furnace the combination with a fire-chamber A of a sheet-heating chamber C, a series of parallel ridges E extending longitudinally through the sheet-heating chamber to form a support for sheets and parallel open-topped flues G, a series of flues H H' &c., one opening from the bottom of each of the flues G at their ends farther from the fire-chamber and separate flues I and J J' situated beneath the bottom of the furnace into which flues H H' &c., open.

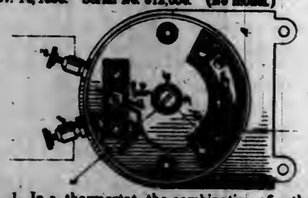
2. In a furnace the combination with a fire-chamber A of a sheet-heating chamber C, a series of parallel ridges E extending longitudinally through the sheet-heating chamber to form a support for sheets and parallel open-topped flues G, a bridge-wall F supported on top of the ridges G and a series of flues H H' &c. opening from the bottom of flues G at their ends farthest from the fire-chamber.

3. In a furnace the combination with a fire-chamber A of a sheet-heating chamber C, a series of parallel ridges E extending longitudinally through the sheet-heating chamber to form a support for sheets and parallel open-topped flues G, a bridge-wall F supported on top of the ridges G, a series of flues H H' &c., opening from the bottom of flues G at their ends farthest from the fire-chamber and separate flues I and J J' situated beneath the bottom of the furnace into which flues H H' &c., open.

4. In a furnace the combination with a fire-chamber A of a plate-heating chamber B, a sheet-heating chamber C, a series of parallel ridges E extending longitudinally through the sheet-heating chamber to form a support for sheets and parallel open-topped flues G, a series of flues H H' &c., opening from the bottom of flues G at their ends farthest from the fire-chamber and separate flues I and J J' situated beneath the bottom of the furnace into which flues H H' &c., open.

5. In a furnace the combination with a fire-chamber A of a plate-heating chamber B, a sheet-heating chamber C, a series of parallel ridges E extending longitudinally through the sheet-heating chamber to form a support for sheets and parallel open-topped flues G, a bridge-wall F supported on top of the ridges G, a series of flues H H' &c. opening from the bottom of flues G at their ends farthest from the fire-chamber, and separate flues I and J J' situated beneath the bottom of the furnace into which flues H H' &c., open.

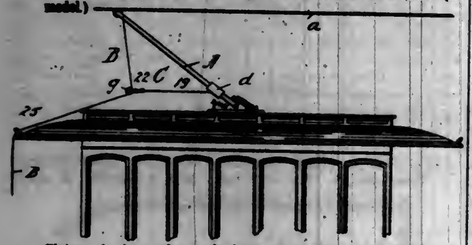
586,301. THERMOSTAT. OSCAR WIESENGOLD, Summit, N. J. Filed Nov. 14, 1896. Serial No. 612,056. (No model.)



Claim.—1. In a thermostat, the combination of a thermostatic coil E carrying a contact *e*, a contact-adjusting arm also carrying a contact and a notched scale receiving the contact-adjusting arm in the notches thereof and indicating the position of the said arm, whereby the thermostat may be set for a predetermined degree of heat.

2. The combination of an enveloping casing, a tube extending from side to side of the said casing and constituting the wall of a tubular passage through the thermostat, a thermostatic coil wholly contained within the said enveloping casing and closely surrounding the said tube and provided with a contact and a pivoted contact-arm within the casing and cooperating with the contact of the thermostatic coil.

586,302. TAKE-UP DEVICE FOR TROLLEY-CORDS. ALBERT J. WOOD, Springfield, Mass. Filed Apr. 9, 1897. Serial No. 631,382. (No model.)



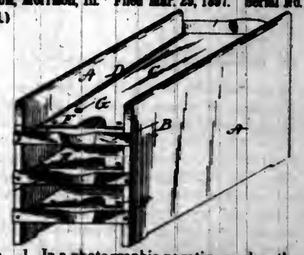
Claim.—1. As a take-up device for a trolley-pole cord, the combination with the trolley-pole, and its usual cord, of a spring take-up roller mounted near the base of the pole, a cord having a winding engagement with the take-up roller, and having at its end a cord-guide with which an intermediate portion of the trolley-cord has a running engagement, substantially as described.

2. As a take-up device for a trolley-pole cord, the combination with the trolley-pole, and its usual cord, of a casing mounted on, and near the base of the pole, a spring-roller in said casing, a cord having a winding engagement with the take-up roller, and having at its end a cord-guide with which an intermediate portion of the trolley-cord has a running engagement, substantially as described.

3. As a take-up device for a trolley-pole cord, the combination with the trolley-pole, and its usual cord, of a casing, having its back provided with the hinged strap, and confining means for the free end of the strap, a spring-roller in said casing, and a cord having a winding engagement with the take-up roller, and provided at its end with a cord with which an intermediate portion of the trolley-cord has a running engagement, substantially as described.

4. As a take-up device for a trolley-pole cord, the combination with the trolley-pole, and its usual cord, of a casing mounted on, and near the base of the pole, having an aperture through its side, an eye-bolt supported within the casing adjacent said aperture, a spring-roller in said casing, a cord having a winding engagement with the take up roller and extended through said guide-eye and aperture to the exterior of the casing, and having provided at its end a cord-guiding sheave with which an intermediate portion of the trolley-cord has a running engagement, substantially as described.

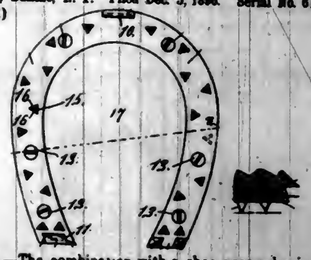
586,308. PHOTOGRAPHIC-NEGATIVE WASHER. FRED C. BARNUM, Morrison, Ill. Filed Mar. 29, 1897. Serial No. 629,750. (No model.)



Claim.—1. In a photographic-negative washer, the combination, with vertical side pieces, the adjacent faces of which are grooved longitudinally, alternately-arranged inclined plates within said grooves, each plate being of a less length than the length of the side pieces and having its upper end provided with a vertical flange, the ends of the flange extending over the ends of the side pieces, and being secured thereto, substantially as set forth.

2. In a photographic negative washer, the combination, with side pieces, of alternately-arranged inclined plates therein, upwardly-projecting retaining-bosses near the lower end of each plate, said plates being further provided with openings between said bosses and the upper ends, substantially as set forth.

586,304. HORSESHOE. VALENTINE F. COONS and LOUIS C. S. FRICK, Buffalo, N. Y. Filed Dec. 5, 1896. Serial No. 614,631. (No model.)



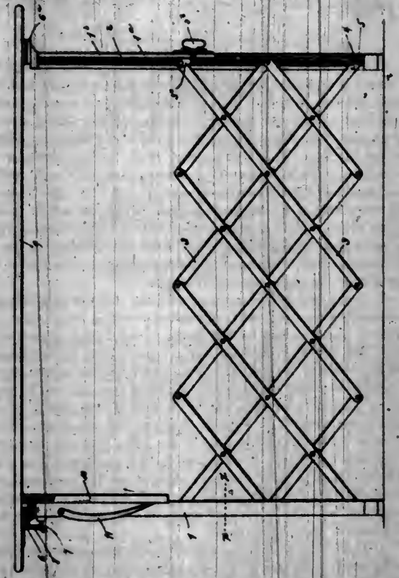
Claim.—The combination with a shoe proper having the usual toe-calk and vertically shouldered or recessed heel-calks, of a removable plate provided with pointed calks and vertically recessed in front for the reception of the toe-calk of the shoe and vertically shouldered or recessed at its rear ends for engagement with the vertically shouldered or recessed heel-calks of the shoe, a diaphragm of soft material secured between the shoe and plate, and a flexible metallic protective plate similar to the diaphragm and similarly secured in position, and means for securing the plate, diaphragm, and protective plate to the shoe proper, substantially as shown and described.

586,305. COMBINED SCRUB-BRUSH AND SOAP-HOLDER. FRANK J. CREQUE and FRANK R. MOORE, Cuyahoga Falls, Ohio. Filed Feb. 6, 1897. Serial No. 622,395. (No model.)



Claim.—As a new article of manufacture, a scrub-brush and soap-holder, the same consisting of the body 1 having suitable bristles secured therein, the central rectangular aperture 1' extending therethrough, the bales 7 secured in the upper face of said brush-back and extending diagonally thereacross, the cover 6 of such dimensions as to extend over said aperture, the reduced ends of said cover adapted to be passed under said bales, the supporting-wire 2 having spurs as 3, adapted to be secured in said back, the horizontal portion 2' adapted to extend across said aperture 1' below the plane of the under face of the brush-back, the plate 4 secured upon the horizontal portion 2' of said supporting-wire, the soap, as 5, adapted to enter said aperture 1' and to rest upon said plate 4, the follower 8 adapted to enter said aperture and to bear upon said soap, and the coiled spring 9 interposed between the cover 6 and said follower 8, substantially as set forth.

586,306. COMBINED STAND AND IRONING-TABLE. WILLIAM H. DANA, Chicago, Ill. Filed June 2, 1896. Serial No. 593,963. (No model.)



Claim.—1. A combined stand and ironing-table comprising legs 1 and 1^a provided with channels at their inner sides, a slot 1^b in one of said legs, a foldable lattice or lazy-tongs pivoted at opposite ends in said channels, a block 3^a pivoted on the lazy-tongs and contained within the channel having the slot, a clamp-screw passing through the slot and engaging the block for securing the lazy-tongs in adjusted positions, the head-piece 6^a the board 10 hinged to one of the legs, and having the longitudinal slot 11^a and transverse recess 11^b to receive head-piece 6^a, an eye 7 at the upper end of one of the legs, and the board 9 having pivot-pin 8 to engage the eye 7, substantially as shown and described.

2. In a stand for an ironing-board, the legs 1 and 1^a provided with channels at their inner sides, and head-pieces 6 and 6^a at their tops, the piece 6^a being shorter than the piece 6, a foldable lattice or lazy-tongs 3 pivoted at the opposite ends in the said channels, combined with a substantially rectangular board 12 provided with the projecting rim 12^a and guide cleats or pieces 12^c, and dowel-pins 12^b for engaging said head-pieces, substantially as described.

586,307. ADJUSTABLE HANDLE-BAR FOR BICYCLES. JOHN DICKSON, St. Paul, Minn. Filed Apr. 23, 1896. Serial No. 588,995. (No model.)

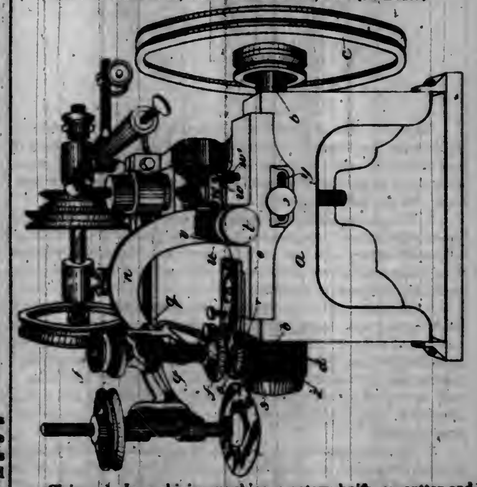


Claim.—1. In a bicycle, the combination with the handle-bar post, of a pair of handle-bars formed at their inner ends with notched disks or pivot-blades that are united together and to said post by a common pivot and a common sliding lock, on said post, engageable with the notches of both of said notched disks, for locking said handle-bars together and to said post, in any desired adjustment, substantially as described.

2. In a bicycle, the combination with the handle-bar post provided, at its upper end, with a bifurcated head, of the handle-bars formed at their inner ends with pivot plates or disks that are pivoted between the prongs of said bifurcated head and are provided with peripheral lock-notches, and a sliding, spring-held lock mounted on said post and engageable with the notches of both of said pivot-plates, to lock said handle-bars together and to said post, in any desired adjustment, substantially as described.

3. In a bicycle, the combination with the handle-bar post, provided at its upper end with the bifurcated head a^7, formed in its body portion with the lock-plunger seat a^8 and vertical slots a^9, of the handle-bars b formed at their inner ends with the perforated pivot plates or disks b' having the peripheral notches b^9, the notted pivot-bolt c c' c^3 c^4 passed through the perforations in the prongs of said bifurcated head a^7 and pivot-disks b', the lock-plunger f spring-mounted in the seat a^8 and provided with the stud f^3 working through said slot a^9, and the sliding-lock-releasing device g g^3, secured at its lower end to the projecting end of the stud f^3, and provided at its upper end with the vertical slot g' insertible over the head c' of the bolt c, substantially as described.

586,308. SKIVING-MACHINE. BENJAMIN F. DURHAM, Brockton, Mass. Filed Mar. 17, 1897. Serial No. 627,960. (No model.)



Claim.—1. In a skiving-machine, a rotary knife or cutter and its support and means for adjusting the angle or inclination of knife without varying the position of the center of the same, as set forth.

2. In a skiving-machine, the combination, with the feed-roll, of a rotary knife or cutter, and means for adjusting the same at varying angles without varying the position of the center of the cutter with relation to the feed-roll, as set forth.

3. In a skiving-machine, the combination, with the rotary knife or cutter and its shaft, and means for supporting said shaft, said means being in turn pivotally supported on a plane coincident with the center of the lower face of the knife, as set forth.

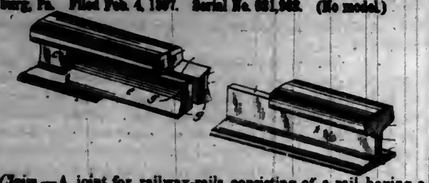
4. In a skiving-machine the combination, with the rotary knife or cutter and its shaft, means for supporting said shaft, said means being in turn pivotally supported on a plane coincident with the center of the lower face of the knife, and means for clamping the support for the shaft in fixed position.

5. In a skiving-machine, the combination, with the feed-roll, of the rotary knife or cutter, a gage, and a bed-plate to which the knife and gage are attached, said bed-plate being adjustable longitudinally whereby the parts mentioned may be adjusted in unison and at one operation, as set forth.

6. In a skiving-machine, the combination with the rotary knife or cutter and the gage, of means for adjusting the same in unison and at one operation, as set forth.

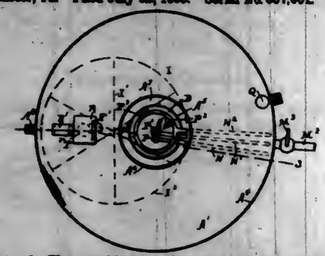
7. In a skiving-machine, the combination with the rotary knife or cutter and its shaft, of the overhanging arms supporting the same, the stud t to which the said arms is connected and the screw v for adjusting the said stud, as set forth.

586,809. JOINT FOR RAILROAD-RAILS. FREDERICK A. HUBNER, Christy Park, Pa., assignor of two-thirds to David J. Kruimeier, Pittsburg, Pa. Filed Feb. 4, 1897. Serial No. 621,962. (No model.)



Claim.—A joint for railway-rails consisting of a rail having a web extending beyond the head and foot thereof, said web having a seat formed therein, and a rail having its web and foot extending beyond the head, said web entering the seat in said first-mentioned rail, and the web of said first-mentioned rail extending beyond the line dividing the heads of said rails, substantially as set forth.

586,810. LUMINOUS FOUNTAIN. FRANK H. HUMPHREVILLE, Lancaster, Pa. Filed July 30, 1895. Serial No. 557,601. (No model.)



Claim.—1. The combination, in a fountain, of separate deliveries forming the fountain proper, a separate pipe supplying each of said deliveries, a cock having all of said supply-pipes connected therewith, and a plug adapted to open and close said supply-pipes successively, for the purpose specified.

2. The combination, in a fountain, of separate deliveries forming the fountain proper, a separate pipe supplying each of said deliveries, a cock having all of said supply-pipes connected therewith, and a plug automatically opening and closing said supply-pipes successively, for the purpose specified.

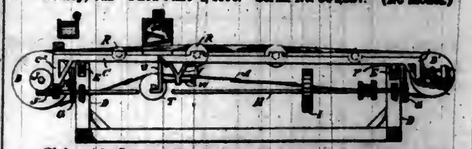
3. The combination, in a fountain, of separate deliveries forming the fountain proper, a revoluble frame carrying sectors of transparent material of different colors, a device for automatically actuating said frame and illuminating said fountain successively through each of said colored sectors, a separate pipe supplying each of said deliveries, a cock having all of said supply-pipes connected therewith, and a plug adapted to open and close said supply-pipes successively, for the purpose specified.

4. The combination, in a fountain, of separate deliveries forming the fountain proper, a revoluble frame carrying sectors of transparent material of different colors, a device for automatically actuating said frame and illuminating said fountain successively through each of said colored sectors, a separate pipe supplying each of said deliveries, a cock having all of said supply-pipes connected therewith, a plug adapted to automatically open and close said supply-pipes successively, and a connection between the plug and the device for actuating said frame, whereby a discharge is made through each of said supply-pipes while the fountain is illuminated through each of said colored sectors, for the purpose specified.

5. The combination, in a fountain, of a shaft, a frame on said shaft and carrying plates of different-colored glass, through which the fountain is illuminated, a spur-wheel on said shaft, having alternate segments of teeth and smooth sections of spur-line, a pinion having a segment of teeth adapted to mesh with the segments of teeth on the spur-wheel, separate deliveries to form the fountain, a separate pipe supplying each of said deliveries, a cock having all of said supply-pipes connected therewith, a plug adapted to successively open and close said supply-pipes, a shaft, on which said plug is rigidly secured, carrying a pinion having alternate segments of teeth and smooth sections of spur-line, and a spur-wheel on the first-named shaft, having a segment of teeth adapted to mesh with the segments of teeth on the pinion of the plug-shaft, substantially as and for the purpose specified.

6. The combination, in a fountain, of a shaft, a frame on said shaft and carrying sections of different-colored glass, through which the fountain is illuminated, separate deliveries to form the fountain, a separate pipe supplying each of said deliveries, a cock having all said supply-pipes connected therewith, a plug adapted to successively open and close said supply-pipes, a shaft, on which said plug is secured, carrying a pinion having segments of teeth equal to the number of supply-pipes and separated by smooth sections of spur-line, two spur-wheels of the same diameter on said frame-carrying shaft, one of said spur-wheels having segments of teeth equal to the number of sections of colored glass and separated by smooth sections of spur-line, and a pinion of the same diameter as the pinion on the plug-shaft, having one segment of teeth adapted to mesh with the segments of teeth on said spur-wheel, the other spur-wheel on the frame-carrying shaft, having one segment of teeth adapted to mesh with the segments of teeth on the pinion on the plug-shaft, substantially as and for the purpose specified.

586,811. ENDLESS-BELT CONCENTRATOR. JESSE JACOBS, Henley, Cal. Filed June 4, 1896. Serial No. 594,227. (No model.)



Claim.—1. In an endless-belt concentrator, a frame having drums or rollers at opposite ends, an endless belt passing around said drums, a main frame upon which the traveling-belt frame is supported, with mechanism by which a transverse oscillating and tilting movement is produced, a driving-pulley journaled upon the stationary frame at one end, having a polygonal opening made in it, a screw or worm journaled upon a downwardly-projecting portion of the oscillating belt-frame and engaging with a worm-pinion upon the drum-shaft, said screw having a polygonal opening in the end which faces the driving-pulley, a rigid shaft extending between the driving-pulley and the screw having the ends adapted to fit the openings in the drum and screw without intermediate support whereby motion is transmitted from the pulley to the worm-gear.

2. In an endless-belt concentrator, the side shaking frame with its supporting-bars and rollers, an endless traveling belt passing around drums at opposite ends of the frame, a worm-gear connecting with one of the drums, a shaft having a tapered end loosely connected with the screw of the gear extending parallel with the shaking frame and connected with a cone-pulley near the opposite end having stationary journals, a frame in which the shaft of said cone is journaled, and a screw turnable in vertical bearings and engaging a threaded extension of the box or journal of the cone whereby the cone and its supports are raised or depressed by the turning of the screw, a shaft journaled parallel with and exterior to the shaft and cone, a second cone fixed upon the exterior shaft and a belt extending between the two, the tension of which is adjustable by the vertical movement of the interior cone.

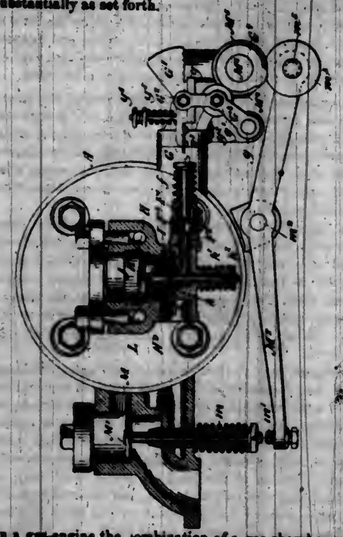
3. In an endless-traveling-belt concentrator, a side shaking frame having drums journaled at opposite ends around which the belt passes, rollers journaled across the frame intermediate between the drums having shafts supported in boxes upon the frame, cones fitting and turnable loosely upon said shafts, and washers having a diameter approximately that of the rollers and the inner ends of the cones, said washers turning loosely upon the roller-shafts and adapted to be transferred from the inner to the outer ends of the cones whereby the position of the cones may be adjusted to allow for a shrinkage in the width of the belt.

4. In an endless-traveling-belt concentrator, the side shaking frame with drums journaled at opposite ends, an endless belt extending around the drums, mechanism by which the belt is caused to travel slowly up the incline between the drums formed by the position of the supporting-frame, said belt being composed of sections of canvas overlapping and stitched together at intervals whereby a projecting riffle is formed by each overlapping edge of the canvas in the direction opposite which the belt is traveling.

5. In an endless-belt concentrator, a side shaking frame with drums journaled at opposite ends, an endless belt extending around the drums, mechanism by which the belt is caused to travel slowly up the incline between the drums, intermediate transversely-journaled rollers by which the upper part of the belt is supported, independently loosely rotatable cones and collars upon the shafts exterior to the rollers, the cones nearest the end drums having less inclination than those nearer the center of the frame, journal-boxes upon the frame in which the shafts are supported, said boxes being open at the top, and having the ends closed so that the ends of the shafts abut against the closed box ends and prevent independent transverse oscillation of the rollers.

586,812. GAS-ENGINE. CHARLES JACOBUS, Brooklyn, N. Y., assignor to the Climax Gas Engine Company, same place. Filed Sept. 24, 1895. Serial No. 563,569. (No model.)

Claim.—1. In a gas-engine, the combination of a mixing-chamber, a gas-chamber communicating with a gas-supply conduit and having a series of small gas-outlet openings therefrom into said mixing-chamber, an annular air-chamber separated from said mixing-chamber by a wall having a series of air-inlet openings into said mixing-chamber in direct opposition to said gas-inlet openings, whereby the gas and air enter said mixing-chamber in minute jets impinging upon each other from opposite directions, so as to intimately intermix them, substantially as set forth.



2. In a gas-engine the combination of a gas-chamber communicating with a gas-conduit and having a series of small radial outlet-openings in the periphery thereof, a mixing-chamber, a portion of which annularly surrounds said gas-chamber, an air-chamber surrounding the annular portion of the mixing-chamber and separated therefrom by an annular shell having a series of small radial air-inlet openings therethrough, substantially as and for the purpose set forth.

3. In a gas-engine the combination of a cylindrical gas-chamber communicating with a gas-conduit and having a series of small radial gas-outlet openings in the periphery thereof, a mixing-chamber, a portion of which is above the gas-chamber, and a portion of which annularly surrounds said gas-chamber and communicates with the upper portion thereof by means of a narrow passage, an annular chamber surrounding the annular portion of the mixing-chamber and separated therefrom by an annular shell having a series of small radial air-inlet openings therethrough, substantially as and for the purpose set forth.

4. In a gas-engine, the combination, of a vertical cylindrical gas-chamber communicating with a gas-conduit and having a series of small radial gas-outlet openings in the periphery thereof, a mixing-chamber, a portion of which is above the gas-chamber and a portion of which is on the same horizontal plane with and surrounds said gas-chamber and communicates with the upper portion thereof by means of a constricted annular passage, an air-chamber surrounding the annular portion of the mixing-chamber and on the same horizontal plane therewith and separated therefrom by an annular shell having a series of small radial air-inlet openings therethrough, whereby the gas-outlet openings and the air-inlet openings are on the same plane and diametrically opposite each other, whereby the incoming jets of air and gas impinge upon each other in substantially direct lines, substantially as and for the purpose set forth.

5. In a gas-engine, the combination of an engine-cylinder, an igniter, and a passage intermediate the engine-cylinder and igniter and made in two sections capable of being adjusted eccentrically, substantially as specified.

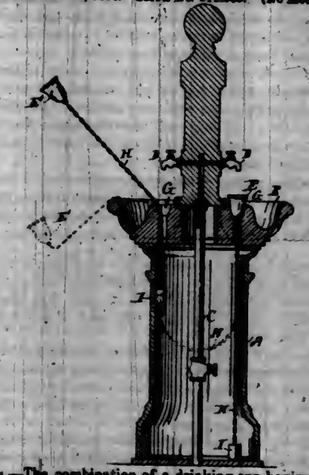
6. In a gas-engine, the combination of an engine-cylinder, an igniter, blocks L, L', adjustably connected with each other and having formed in them two sections of a passage K, leading from the cylinder to the igniter, substantially as specified.

7. In a gas-engine, the combination of an engine-cylinder, an igniter, blocks L, L', adjustably connected with each other and having formed in them two sections of a passage K, and means comprising an adjusting-screw L^4, for securing the blocks L, L', together, substantially as specified.

8. In a gas-engine, the combination of a gas-supply valve, a lever G^2 pivoted to a fixture of the engine, a lever G' pivoted to the lever G^2, a push-piece G affixed to the lever G', a cam for oscillating the lever G^2, a spring and weight for controlling the movements of the lever G', and stops or shelves g^3, g^4, for limiting the motion of the latter lever, substantially as specified.

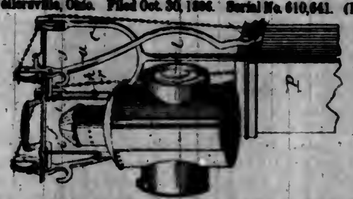
9. In a gas-engine, the combination of an exhaust-valve, a cam for operating said valve provided with two toes, a lever intermediate the cam and the valve, a roller upon the lever adapted to normally coöperate with one of said toes, an eccentric fitted to said lever, supporting said roller, and adjustable to a position to cause the coöperation of both toes with the roller, and means for holding the eccentric in a position to which it may be adjusted, substantially as specified.

586,813. DRINKING-FOUNTAIN. HENRY F. JENKS, Pawtucket, R. I. Filed Nov. 6, 1896. Serial No. 611,335. (No model.)



Claim.—The combination of a drinking-cup having a chain attached thereto, with a stationary eye or pocket through which the chain passes, and to which the cup will be drawn by the chain, and means for preventing the complete withdrawal of the chain from the eye or pocket, substantially as described.

586,814. RAILROAD-LAMP ELEVATOR. JOHN H. MILLER, Wellersville, Ohio. Filed Oct. 30, 1896. Serial No. 610,641. (No model.)



Claim.—1. In a signaling device, the combination of a lamp, a lamp-supporting base, means for elevating said lamp to and seating it upon said base, such elevating and seating means adapted to maintain horizontal alinement of said lamp, substantially as set forth.

2. In a signaling device, the combination of a lamp, a lamp-supporting base, means for elevating said lamp to and seating it upon said base, means adapted to secure said lamp upon said base, such elevating and seating means adapted to maintain horizontal alinement of said lamp, substantially as set forth.

3. In a signaling device, the combination of a lamp, a lamp-supporting base, means for elevating said lamp to and seating it upon said base, means adapted to secure said seating means whereby said lamp is also secured, such elevating and seating means adapted to maintain horizontal alinement of said lamp, substantially as set forth.

4. In a signaling device, the combination of a lamp, a lamp-supporting base, lamp elevating and seating means, means adapted to secure said seating means whereby said lamp is also secured, said elevating and seating means adapted to maintain horizontal alinement of said lamp, and means adapted to unseat said lamp, said unseating means also adapted to maintain horizontal alinement of said lamp, substantially as set forth.

5. In a signaling device, the combination of a lamp, a lamp-supporting base, lamp elevating and seating means, means adapted to lock said seating means whereby said lamp is secured, said elevating

and seating means adapted to maintain horizontal alinement of said lamp, said elevating means adapted to unlock and said seating means adapted to unseat said lamp and also adapted to maintain horizontal alinement of said lamp, substantially as set forth.

6. In a signaling device, the combination of a lamp, a lamp-supporting base, lamp elevating and seating means, said seating means adapted to secure said lamp, means adapted to lock said seating means, means adapted to unlock said seating means, means adapted to unseat and lower said lamp, said elevating, seating, unseating and lowering means adapted to maintain horizontal alinement of said lamp, substantially as set forth.

7. In a signaling device, the combination of a lamp, a lamp-supporting base, lamp elevating and seating means, said seating means adapted to secure said lamp, means adapted to lock said seating means, said elevating means adapted to unlock said seating means, and means adapted to unseat and lower said lamp, said elevating, seating, unseating and lowering means adapted to maintain horizontal alinement of said lamp, substantially as set forth.

8. In a signaling device, the combination of a lamp, a lamp-supporting base, means for elevating said lamp to and seating it upon said base, means for locking said lamp upon said base, said elevating means adapted to unlock said lamp, said elevating and seating means adapted to maintain horizontal alinement of said lamp during their operation, substantially as set forth.

9. In a signaling device, a lamp-elevator consisting of the combination of a lamp-supporting base, lamp-elevating means attached to said base, and lamp-seating means adapted to coöperate with said elevating means and guide said lamp to said base, substantially as set forth.

10. In a signaling device, a lamp-elevator consisting of the combination of a lamp-supporting base, lamp-elevating means attached to said base whereby said lamp may be lifted to said base, lamp-seating means adapted to receive and guide said lamp to said base, substantially as set forth.

11. In a signaling device, a lamp-elevator consisting of the combination of a lamp-supporting base, lamp-elevating means attached to said base and adapted to operate vertically without said base, and lamp-seating means adapted to transfer said lamp from without to said base, substantially as set forth.

12. In a signaling device, a lamp-elevator consisting of the combination of a lamp-supporting base, lamp-elevating means attached to said base and adapted to operate vertically without said base, lamp-seating means adapted to secure and transfer said lamp from without to said base, and means adapted to lock said seating means, whereby said lamp is secured upon said base, substantially as set forth.

13. In a signaling device, a lamp-elevator consisting of the combination of a pole adapted to form a lamp-supporting base, elevating means adapted to hoist a lamp to the top of said pole, pivoted arms on the top of said pole adapted to swing said lamp into place thereon, substantially as set forth.

14. In a signaling device, a lamp-elevator consisting of the combination of a pole adapted to form a lamp-supporting base, elevating means adapted to hoist a lamp to the top of said pole, pivoted arms at the top of said pole adapted to swing said lamp into place thereon and means adapted to lock said arms, whereby the lamp is also secured, substantially as set forth.

15. In a signaling device, a lamp-elevator consisting of the combination of a pole adapted to form a lamp-supporting base, elevating means adapted to hoist a lamp to the top of said pole, pivoted arms at the top of said pole adapted to swing the lamp in position thereon, means adapted to lock said arms and means adapted to unlock said arms and lower said lamp from said pole, substantially as set forth.

16. In a signaling device, a lamp-elevator consisting of the combination of a pole adapted to form a lamp-supporting base, elevating means adapted to hoist a lamp to the top of said pole, pivoted arms at the top of said pole adapted to swing the lamp into position, and means adapted to lock said arms when the lamp is in position, said elevating means adapted to unlock said arms and lower said lamp, substantially as set forth.

17. In a signal-lamp elevator, the combination of a lamp-seat, pivoted arms, cords or chains adapted to hoist a lamp to said seat, said arms adapted to receive and guide said lamp, whereby it may be placed on said seat, substantially as set forth.

18. In a signal-lamp elevator, the combination of a lamp-seat, pivoted arms, a cord or chain adapted to hoist a lamp to said seat, said arms adapted to receive said lamp and guide it, whereby it may be placed on said seat, and means adapted to lock said arms when the lamp is in position, substantially as set forth.

19. In a signal-lamp elevator, the combination of a lamp-seat, transversely-joined pivoted arms, a cord or chain adapted to hoist a lamp to said seat, said arms provided with means adapted to secure said lamp, said cord or chain adapted to engage said arms whereby it is swung into position, and means adapted to lock said arms when the lamp is in position, substantially as set forth.

20. In a signal-lamp elevator, the combination of a lamp-seat, transversely-joined and pivoted arms, a cord or chain adapted to hoist a lamp, said arms provided with projecting lugs adapted to receive and carry said lamp, said cord or chain adapted, during the operation of hoisting, to engage said arms whereby they swing said lamp into place, and means adapted to lock said arms when said lamp is in place, substantially as set forth.

21. In a signal-lamp elevator, the combination with means adapted to swing the lamp into place, said means consisting of arms pivoted to the lamp-seat and transversely joined by a cross-bar, said arms adapted to be engaged during the act of elevating and adapted to guide said lamp to said seat, of means adapted to secure said cross-bar when the lamp is upon its seat, substantially as set forth.

22. In a signal-lamp elevator, means for swinging the lamp into and out of its seat consisting of the combination of arms pivoted to said seat, said arms adapted to be engaged during the act of elevating and adapted to guide said lamp to said seat, means adapted to lock said arms when the lamp is upon the seat, and means adapted to unlock said arms whereby they may remove said lamp from its seat, substantially as set forth.

23. In a signal-lamp elevator, means for swinging the lamp into and out of its seat, consisting of the combination of arms pivoted to said seat, said arms adapted to be engaged during the act of elevating and adapted to guide said lamp to said seat, means adapted to lock said arms when the lamp is upon the seat, means adapted to unlock said arms, and means adapted to actuate said arms to remove the lamp from its seat when the said arms are unlocked, substantially as set forth.

24. In a signal-lamp elevator, means for swinging the lamp into and out of its seat, consisting of the combination of arms pivoted to said seat, said arms provided with a transverse cross-bar adapted to be engaged during the act of elevating, and adapted to guide said lamp to its seat, means adapted to secure said cross-bar when the lamp is upon its seat, whereby said arms are locked, the said lugs adapted, in said position of the lamp, to confine said lamp, means adapted to disengage said locking means, and means adapted to actuate said arms to remove the lamp from its seat when said locking means are disengaged, substantially as set forth.

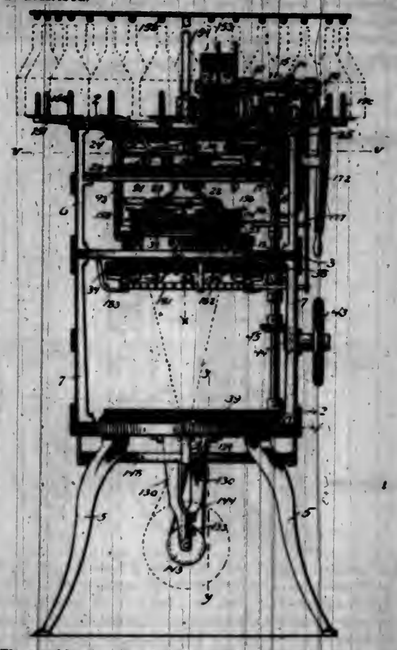
25. In a signal-lamp elevator, the combination of a lamp-seat, arms pivoted to said seat, a spring adapted to actuate said arms to project from said seat, a cord or chain, passing over pulleys journaled upon said arms and pulleys journaled upon said seat and adapted to hoist the lamp, said cord or chain adapted to engage the said arms during the act of elevating, whereby said arms are swung over and said lamp guided to its seat, a transverse cross-bar connecting said arms, a catch adapted to lock said bar when the lamp is over its seat, said catch adapted to be engaged by said lamp when raised off its seat whereby it is released and said spring is permitted to actuate said arms to remove the lamp from over the base, and whereby it may be lowered, substantially as set forth.

26. In a signal-lamp elevator, the combination of a lamp-seat, arms pivoted to said seat, a spring attached to said arms whereby they are caused to project from said seat, a cord or chain passing over pulleys journaled upon said arms and over pulleys journaled upon said seat and adapted to hoist a lamp, said cord or chain adapted to engage said arms during the act of elevating, whereby said arms are caused to swing over and carry said lamp to its seat, against the action of said spring, a catch adapted to engage and secure said arms when the lamp is over its seat, means adapted to release said catch whereby said spring is permitted to actuate said arms to throw them out of the sphere of said catch, whereby the lamp may be removed and lowered from its seat, substantially as set forth.

586,315. KNITTING-MACHINE. GEORGE D. MUNSING, Minneapolis, Minn., assignor of one-half to Henry A. Munsing, same place. Filed Aug. 16, 1894. Serial No. 520,532. (No model.)

Claim.—1. The combination, with the needle-cylinder provided with grooves, the needles mounted in groups upon needle-jacks, said jacks being arranged to slide in the grooves in said cylinder, the conical needle-dial provided with grooves, a second series of needles mounted upon jacks, said jacks being arranged to slide in the grooves in said dial, and means for reciprocating said jacks and said needles as said dial and cylinder are rotated, substantially as described.

2. The combination, with the needle-cylinder, of the needle-dial, the take-up mechanism, parts for supporting said cylinder, said dial and said take-up mechanism, gear-wheels in connection with each, the main shaft or spindle, pinions thereon engaging said gear-wheels respectively, means for revolving said shaft whereby said dial, cylinder and take-up mechanism are rotated independently, the belt-shaft whereto said spindle or shaft is geared, the belt-shifter and the automatic stop devices provided adjacent to said cylinder and said dial and operating upon said shifter, whereby the rotation of the cylinder, dial and take-up mechanism may be automatically stopped, substantially as described.



3. The combination, in a knitting-machine, of the cylinder and the dial and means for rotating the same, the stationary part arranged about the cylinder and the stationary part arranged above the dial, the movable drawing-cams and the stationary forcing-cams arranged upon said stationary parts to operate upon the needle carried by said cylinder and said dial, the shifting rings connected with said movable cams, the changeable-cam pattern-wheel and means for rotating the same, pivoted arms to be operated thereby and means connecting said arms and said shifting rings, respectively, whereby the positions of the cams are automatically changed to change the stitch, substantially as described.

4. The combination, in a knitting-machine, of the main frame, the needle-cylinder and the needle-dial, both revoluble therein, the stationary part arranged above the dial, the forcing and drawing cams provided thereon, some of said cams being movable and pivoted upon said stationary part, said movable cams being provided with pins to engage a shifting ring arranged upon said stationary part, the pattern-wheel, independent means for revolving the same at desired times and at a desired speed, and means in connection with said pattern-wheel for moving said shifting rings to alter the positions of said cams, substantially as described.

5. In a knitting-machine, the combination, with the needle-carrying dial and the needle-carrying cylinder, means for revolving the same, the movable needle-operating cams for both the dial and the cylinder, a pattern-wheel, arms to bear thereon, one arm being provided for one set of dial and both sets of cylinder cams and connected therewith to operate the same, and means for revolving said pattern-wheel, substantially as described.

6. In a knitting-machine, the combination, with the needle-carrying dial and the needle-carrying cylinder, means for revolving the same, the needle-operating cams for both the dial and the cylinder, a pattern-wheel, arms to bear thereon, an arm being provided for one set of dial and both sets of cylinder cams and connected therewith to operate the same, and automatically-regulable means for revolving said pattern-wheel, substantially as described.

7. In a knitting-machine, the combination, with the needle-carrying dial and the needle-carrying cylinder, means for revolving the same, the movable needle-operating cams for both the dial and the cylinder, a pattern-wheel, arms to bear thereon, an arm being provided for one set of dial and cylinder cams and connected therewith to operate the same, a pattern-chain having an adjustable irregular face, an arm to be operated thereby, means for operating said chain, means for revolving said pattern-wheel, and a shifting device connected with the pattern-chain arm to regulate the operation of said pattern-wheel, substantially as described.

8. The combination, with the movable needle-operating cams, of the dial and the cylinder of a knitting-machine, of a revoluble pattern-wheel provided with an annular row of holes, headed pins to be inserted in said holes to give the wheel an irregular or cam surface, an arm to bear upon said surface, a shifting device connected with said cams and with said arm, a ratchet device operating upon said pattern-wheel to revolve the same, and means for regulating the action of said device and thereby said wheel, and hence the needle-operating cams, substantially as described.

9. In a knitting-machine, the combination, with the movable needle-operating cams, of the shifting device in connection with the cams, a pattern-wheel, an arm to be operated by the rotation of said wheel and connected with said shifting device, a ratchet device for operating said pattern-wheel, the pattern-chain, the blocks carried thereon, the wheel whereover said chain revolves, the pivoted arm to bear against said chain to be operated by the blocks thereon, and said arm provided with an extension or finger for engaging the pawl of the ratchet device to withdraw the same from engagement with the pattern-wheel, whereby the movement of the pattern-wheel is stopped, as and for the purpose specified.

10. A needle-operating cam for knitting-machines, the same being formed of cast metal and provided with a soft-metal pin, tongues cast in the cam, substantially as described.

11. In a knitting-machine, the combination, with a needle-operating cam, of a stationary part whereon the same is pivoted, a movable but ordinarily stationary eccentric secured upon said stationary part, a bell-crank journaled thereon, one end or arm of said bell-crank being connected with the free end of said needle-operating cam, and a shifting device arranged in connection with the other end or arm of the bell-crank, substantially as described.

12. In a knitting-machine, the combination, with the middle frame, the plate or ring provided with movable tongues 37, of the gear-wheel provided with the annular channel to accommodate said tongues, whereby the gear-wheel is supported, said gear-wheel being arranged to support the needle-cylinder, substantially as described.

13. In a take-up mechanism for knitting-machines, the combination, with the frame, of a horizontally-arranged gear-wheel arranged therein, adjustable spring-bearings carried by said gear-wheel, the drawing-rolls supported in said bearings, an annular friction-surface provided upon the frame, and each of said take-up rolls being provided with a friction-wheel to engage said friction-surface, whereby as said gear-ring is revolved said rolls are rotated, the friction-wheels upon the drawing-rolls being arranged upon the opposite ends thereof, and so that as the ring and rolls are carried around the take-up rolls will be pressed together by the frictional engagement of the friction-wheels with said friction-surface.

14. The combination, in a take-up mechanism for knitting-machines, of the frame, with the gear-ring revoluble therein, the drawing-rolls carried by said ring, means for rotating the same, comprising an annular track, arms extending from said ring and a take-up roll or shaft arranged in and between the lower ends of said arms, a shaft carried on the upper parts of said arms and having a pulley, a friction-wheel arranged thereon and adapted to roll upon said track, a pulley also provided on the take-up shaft, and a belt extending over said pulleys whereby as said ring is revolved said take-up shaft is also revolved through the frictional engagement of said friction-wheel with said track, substantially as described.

15. The combination, with the ring, the frame whereon the same is revoluble, drawing-rolls carried by the ring, arms depending from said ring, a take-up shaft arranged in the lower ends of said arms and vertically movable therein, an annular track, a shaft, a friction pulley or wheel arranged on the shaft and adapted to travel upon said track, said shaft being vertically movable, the pulley arranged thereon, the pulley provided upon the take-up shaft, and a belt extending over said pulleys, substantially as and for the purpose specified.

16. The combination, in a knitting-machine, of the cylinder and the dial, the stationary parts opposite the same, the cylinder and dial cams carried thereby, a pattern-wheel provided with one or more rows of holes, the headed pins to insert in said holes, means for revolving said pattern-wheel at desired times, and desired distances, arms connected respectively with said cylinder and dial, cams to bear upon the face of said wheel and to engage headed pins arranged therein, and the vertical, pivoted levers connecting said arms with said cams, substantially as described.

17. The combination, in a knitting-machine, of the cylinder and the dial, the stationary parts opposite the same, the cams carried thereby, the horizontal pattern-wheel arranged above said cylinder and dial, and provided with one or more rows of holes, the headed pins to insert in said holes, an eccentric mechanism for rotating said pattern-wheel at desired times and desired distances, means connecting said cams and pattern-wheel, a pattern-chain, the wheel with which the same is revoluble, blocks upon said pattern-chain, an arm to be engaged by the blocks as the wheel is revolved, and means in connection with said arm for disengaging said eccentric mechanism

from said pattern-wheel to permit said wheel to stop, substantially as and for the purpose set forth.

18. In a knitting-machine, the combination, with the movable needle-operating cams, of shifting means therefor, a horizontally-arranged pattern-wheel, above said cams and said shifting means, means for rotating said wheel, and a horizontal arm arranged to bear upon the face of said wheel and connected with said shifting means whereby said cams are automatically operated to change the stitch, substantially as described.

19. In a knitting-machine, the combination, with the movable operating-cam, of shifting means therefor, a horizontally-arranged pattern-wheel, a horizontal arm arranged to bear against the same and connected with said shifting means, the pattern-chain, means for revolving the same, a pivoted arm to be operated thereby, and means adapted to be regulated by the pattern-chain, for preventing the revolution of said pattern-wheel, substantially as described.

20. In a knitting-machine, the combination, with the movable needle-operating cams, of the shifting rings therefor, a horizontal pattern-wheel, the horizontal arm bearing against the upper surface of the same, the pivoted lever connecting said arm with said shifting ring, a pattern-chain, means for revolving the same, comprising a swinging arm, and a ratchet device in connection therewith for revolving said pattern-chain, an arm to be operated thereby, and the lever adapted to be regulated by the movement of the pattern-chain, for preventing the revolution of said pattern-wheel, substantially as described.

21. In a machine of the class described, the combination with the central shaft and means for operating the same, of the sleeve 20 arranged upon said shaft, the cam-carrying cone secured to the lower end of said sleeve, the second sleeve surrounding said sleeve 20 at the upper end thereof, and a space being provided between said sleeve above said cam-carrying cone, for the purpose set forth.

22. In a machine of the class described, the combination with the central shaft and means for operating the same, of the sleeve arranged upon said shaft, the pattern-wheel supported by said sleeve, the arm 30 carried by said pattern-wheel, the pawl arranged at the outer end of said arm 30 to engage teeth provided in the edge of said pattern-wheel, an eccentric supported near said pattern-wheel, means for revolving said eccentric and an arm or lever connecting said eccentric with the outer end of said arm 30, whereby said pattern-wheel may be rotated simultaneously with the rotation of said eccentric, substantially as described.

23. The combination, with the central vertical shaft and the large gear provided thereon, of means for revolving the same, the pattern-regulator, comprising a sprocket wheel and chain, the shaft whereon said sprocket-wheel is secured, a ratchet-wheel also provided on said shaft, a swinging lever arranged adjacent to said ratchet-wheel and carrying a ratchet-pawl to engage said wheel and said large gear being provided on its under surface with a depending cam to engage the inner end of said swinging lever, substantially as described and for the purpose set forth.

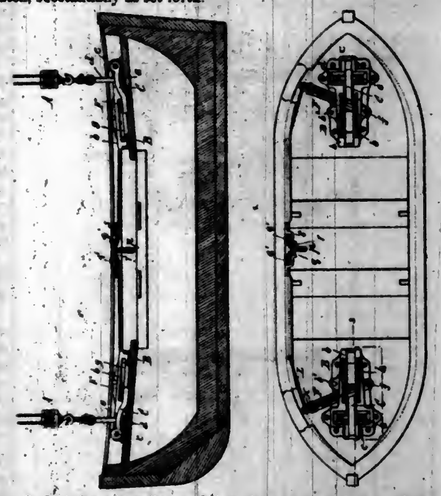
24. In a machine of the class described, the combination, with the cylinder and dial of the upright shaft 16, means for revolving the same, suitable gearing connecting said shaft with said cylinder, the shifter-rod, the vertical lever 171 in engagement therewith, the arm 177 provided upon said shaft 16 and having one end in engagement with said vertical shaft 171 and its opposite end extending toward said cylinder, and the finger 178 provided upon the inner end of said arm 177, for the purpose set forth.

25. In a machine of the class described, the combination, with the dial and cylinder, of the vertical shaft adjacent thereto, means for revolving said shaft, suitable connections between said shaft and said dial and cylinder, whereby the same will be rotated when said shaft is revolved, a shifter-rod, the pivoted lever 171, having one end normally in engagement with said rod, the ring 182 supported beneath said cylinder and provided with a series of teeth, bell-crank levers 185 pivotally supported above said ring and having an arm to project up within said cylinder, an arm 180 carried by said shaft 16 and having one end in engagement with said vertical lever 171 and its opposite end in position to be engaged by the teeth upon said ring 182, for the purpose set forth.

586,816. BOAT-DETACHING DEVICE. JOHN MURPHY, Buffalo, N. Y. Filed Mar. 5, 1897. Serial No. 625,992. (No model.)

Claim.—1. In a boat coupling and detaching device, the combination with a vertically-swinging tongue or latch pivoted to the boat and adapted to receive an attachment of the davit-tackle, of a horizontally-swinging locking-lever pivoted to the boat on one side of said latch and arranged to engage with the free end of the latch, substantially as set forth.

2. In a boat coupling and detaching device, the combination with a base-plate having raised longitudinal flanges separated by an intervening space and each having a horizontal slot, of a latch pivoted at one end to the base-plate by a horizontal pivot-pin and adapted to lie between the raised flanges of the base-plate, and a horizontally-swinging locking-lever pivoted to the base-plate and arranged in the slots of its flanges and adapted to engage with the free end of said latch, substantially as set forth.



3. In a boat coupling and detaching device, the combination with a base-plate and a vertically-movable coupling-latch arranged thereon and adapted to receive an attachment of the davit-tackle, of a horizontally-swinging locking-lever engaging with said latch for holding the same in its closed position, and an automatic catch whereby said lever is locked in position, substantially as set forth.

4. In a boat coupling and detaching device, the combination with a base-plate and a vertically-movable coupling-latch arranged thereon and adapted to receive an attachment of the davit-tackle, of a horizontally-swinging locking-lever for holding said latch in its normal position, an operating device for shifting the lever, and a retaining-catch for said locking-lever carried by the lever and connected with said operating device, substantially as set forth.

5. In a boat coupling and detaching device the combination with a base-plate and a coupling-latch pivoted thereto, of a locking-lever fulcrumed on said base-plate and arranged to engage with the free end of said latch, a spring-catch mounted on said lever and adapted to interlock with the base-plate, a releasing-lever pivoted to said locking-lever and connected with said spring-catch, and an operating device connected with said releasing-lever, substantially as set forth.

6. In a boat coupling and detaching device, the combination with a base-plate and a coupling-latch pivoted thereto, of a locking-lever fulcrumed on the base-plate and adapted to engage with said latch and having an antifriction-roller bearing against said latch, substantially as set forth.

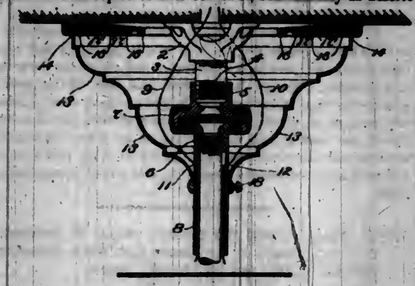
7. In a boat coupling and detaching device, the combination with a base-plate having raised flanges provided with horizontal slots, of a latch pivoted to said base-plate and arranged between said flanges, a slotted locking-lever pivoted to one side of the base-plate and passing through the slots of its flanges, and a pair of antifriction-rollers journaled in the slot of the locking-lever, one above the other, and bearing against the contiguous surfaces of the base-plate and said latch, substantially as set forth.

8. In a boat coupling and detaching device, the combination with a pair of coupling-latches arranged at the bow and the stern of the boat, and a locking-lever arranged to engage with each of said latches, of upright guide-rollers arranged on one side of the boat, at or near the middle thereof, a horizontal guide-roller arranged between said upright rollers, and operating cords or chains connected at their outer ends with said locking-levers and passing with their inner portions around said upright guide-rollers and over said horizontal guide-roller, the meeting portions of said cords terminating in a handle, substantially as set forth.

586,817. ELECTRIC-LIGHT FIXTURE. LOUIS MCCARTHY, Boston, Mass. Filed Mar. 18, 1897. Serial No. 628,082. (No model.)

Claim.—1. In an electric-light fixture, the combination with the ceiling or other support, and the canopy, of an intermediate insulating-disk between the canopy and ceiling or support, and formed with an annular groove in which the edge of said canopy rests, substantially as described.

2. The herein-described insulating-disk, constructed to be interposed between the edge of the canopy of an electric-light fixture and a ceiling or other support for said fixture, said disk having a plurality of grooves and ridges, or the equivalent thereof, to fit it for application to canopies of different sizes, substantially as described.



586,818. SPEED-INDICATOR. ALBERT L. PARCHER, Boston, Mass. Filed Dec. 18, 1896. Serial No. 616,120. (No model.)



Claim.—1. A speed-indicator comprising in combination a rotating spindle, a pivoted weighted arm rotating in unison therewith and provided with a compensating cam, a spring also rotating with the said spindle and acting against the said cam, an index or pointer, and means to actuate the said index or pointer from the said weighted arm, substantially as described.

2. A speed-indicator comprising in combination a rotating spindle, a weighted arm pivotally carried by the said spindle and adapted to swing away from the axis of rotation under the influence of centrifugal force, the said weighted arm having a toothed rack and a compensating cam, a spring also rotating with the spindle and bearing against the said cam, a loose pinion engaged by the said rack and provided with a cam at the side thereof, the movable piece in contact with the said cam and turning in unison with the spindle with capacity to move endwise thereof, an index, and means to actuate the same from the said movable piece, all substantially as described.

3. A speed-indicator comprising in combination a rotating spindle, a weight rotating in unison with the said spindle and adapted to move away from the axis of rotation under the influence of centrifugal force, means to oppose the outward movement and return the weight toward the axis of rotation, an arm, and means intermediate the same and the weight to move the arm, a hub provided with an inclined cam-slot which is engaged by the said arm, and an index connected with the said hub, all substantially as described.

4. A speed-indicator comprising in combination a rotating spindle, a weight supported by the said spindle and adapted to move away from the axis of rotation under the influence of centrifugal force, a spring tending to move the said weight toward the axis of rotation, a cam mounted concentrically with the said spindle, means to operate the said cam from the said weight, the movable piece in contact with the said cam and turning in unison with the spindle with capacity to move endwise thereof, the arm operated by the said movable piece, the hub provided with the inclined cam-slot which is engaged by the said arm, and an index connected with the said hub, substantially as described.

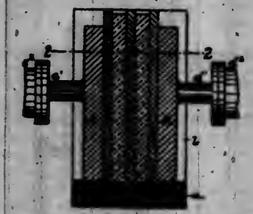
5. A speed-indicator comprising in combination a rotating spindle, a weighted arm carried pivotally by the said spindle and adapted to swing away from the axis of rotation under the influence of centrifugal force, the said weighted arm having a compensating cam, a spring also rotating with the spindle and bearing against the said compensating cam, the cam mounted concentrically with the said spindle, means to operate the said cam from the said weighted arm, the movable piece in contact with the said cam and turning in unison with the spindle with capacity to move endwise thereof, the arm operated by the said movable piece, a hub provided with an inclined cam-slot which is engaged by the projection of the said arm, and an index connected with the said hub, all substantially as described.

6. A speed-indicator comprising in combination a rotating spindle, a weighted arm pivotally carried by the said spindle and adapted to swing away from the axis of rotation under the influence of centrifugal force, the said weighted arm having a toothed rack and a compensating cam, a spring also rotating with the spindle and bearing against the said cam, the loose pinion engaged with the said rack and provided with a cam, a movable piece in contact with the said cam and turning in unison with the spindle with capacity to move endwise thereof, the arm operated by the said movable piece, a hub provided with an inclined cam-slot which is engaged by the projection of the said arm, and an index connected with the said hub, all substantially as described.

7. In a speed-indicating device actuated by centrifugal force, a weight capable of lateral movement from the axis of rotation, and a restraining-spring whose effective length or tension is changed in proportion to the movement of the weight from the axis of rotation, substantially as described.

8. In a speed-indicator, the combination of a weighted lever moving in a circular path from the axis of rotation and remaining in the same plane of rotation, said lever carrying a segment of a gear, an index-finger moved over a scale by the action of said weighted lever, and a restraining-spring whose effective length or tension is changed in proportion to the movement of the weighted lever, substantially as described.

586,819. MANUFACTURE OF COMBINED METAL BODIES. JOHN PEDDER, Pittsburg, Pa. Filed Feb. 4, 1895. Serial No. 537,210. (No specimens.)

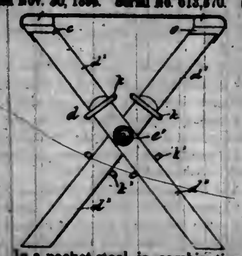


Claim.—1. The herein-described method of producing combined wrought-metal and cast-steel bodies consisting in casting molten steel between two or more wrought-metal plates, and while the steel is in a molten or plastic condition compressing the same by forcing such metal plates toward each other, and thereby causing a permanent union between the plates and layer of cast-steel, substantially as set forth.

2. The herein-described method of producing combined wrought-metal and cast-steel bodies consisting in casting the molten steel between wrought-metal plates and confining the end portions between end walls and while the steel is so confined forcing the plates toward each other, and so compressing the cast metal while in a molten or plastic condition and when confined by the end walls and thereby causing a permanent union between the plates and layer of cast-steel, substantially as set forth.

3. The herein-described method of producing combined wrought-metal and cast-steel bodies having outer and central layers of wrought metal and intermediate layers of cast-steel, consisting of casting the molten steel between the outer metal plates and on each side of the central metal plate and when the cast-steel is in a molten or plastic condition compressing the same by forcing the outer metal plates toward the central metal plate, and thereby causing a permanent union between the plates and layer of cast-steel, substantially as set forth.

586,820. POCKET-STOOL. EDWARD R. ROOT, New Hartford, Conn. Filed Nov. 30, 1896. Serial No. 613,370. (No model.)



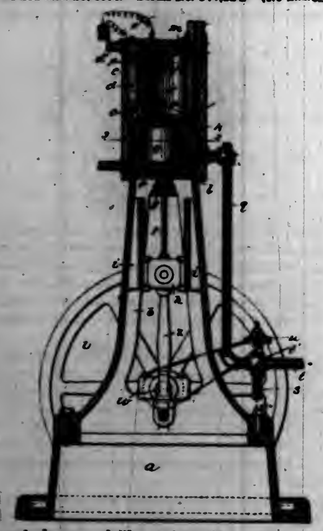
Claim.—1. In a pocket-stool, in combination, sectional legs located in pairs at opposite sides of the stool, a single pivot uniting each pair of legs, and also the sections of each leg, a lock for securing the sections of each leg in an extended position, a tie-rod uniting the pairs of legs, and a seat removably secured to the upper ends of the legs.

2. In a pocket-stool, in combination, sectional legs located in pairs at opposite sides of the stool and pivotally connected, a pivot uniting the sections of the leg, a U-shaped lock pivoted to one section of each leg and adapted to embrace the end of such section, and with its branches adapted to be extended on opposite sides of the adjacent section of the same leg, a tie-rod connecting the pairs of legs, and a seat secured to the upper ends of the legs.

3. In a pocket-stool, in combination, sectional legs located in pairs at opposite sides of the stool and pivotally connected, a single pivot-bolt uniting each of the pairs of each leg and also the sections common to each pair of legs, a bracket secured to the inner end of each of the bolts, a tie-rod pivotally connected to each of the brackets, and a seat removably secured to the upper ends of the legs.

4. In a pocket-stool, in combination, sectional legs located in pairs at opposite sides of the stool and pivotally connected, a single pivot-bolt uniting each of the pairs of each leg and also the sections common to each pair of legs, a bracket secured to the inner end of each of the bolts, a tie-rod pivotally connected to each of the brackets, a lock to hold the tie-rod in an extended position, and a seat removably secured to the upper ends of the legs.

586,321. GAS-ENGINE. JOHN D. RUSS, Rahway, N. J., assignor, by direct and mesne assignments, to Maxwell Wyeth & Co., Brooklyn, N. Y. Filed Jan. 29, 1896. Serial No. 577,234. (No model.)



Claim.—1. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having a port communicating with the space below the piston and above the lower head of said cylinder, a passage leading therefrom to the space above said piston when said piston is at its highest point, and a valve at the upper end of said passage, substantially as set forth.

2. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having an automatically valve-controlled port communicating with the space below the piston and above the lower head of said cylinder, a passage leading therefrom to the space above said piston when said piston is at its highest point, and a check-valve at the upper end of said passage, substantially as set forth.

3. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having a port communicating with the space below the piston and above the lower head of said cylinder, a passage leading therefrom to the space above said piston when said piston is at its highest point, a check-valve at the upper end of said passage and an exhaust-port opened and closed by said piston itself, substantially as set forth.

4. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having a port communicating with the space below said piston and above the lower head of said cylinder, and a valve-controlled passage leading therefrom to the space above said piston, the cubic contents of the upper portion of said cylinder when the piston is at its lowest dead-point being larger than the cubic contents of lower portion of said cylinder when piston is at highest dead-point, substantially as set forth.

5. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having a port communicating with the space below the piston and above the lower head of said cylinder, a passage leading from said port to the space above said piston when said piston is at its highest point, a valve controlling said passage, and an auxiliary port between said valve and said port leading from said passage to the piston-chamber and controlled by said piston, substantially as set forth.

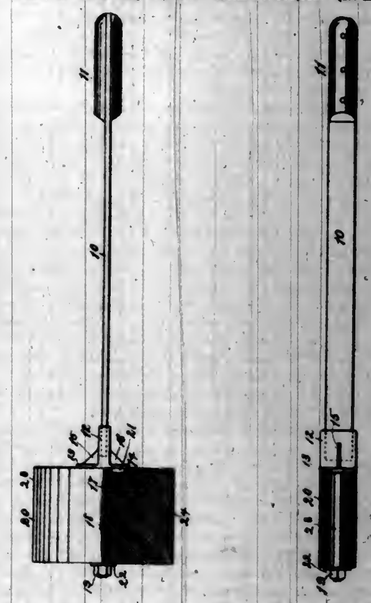
6. In gas and like engines, the combination of a cylinder closed at both ends, a piston therein, said cylinder having a port communicating with the space below the piston and above the lower head of said cylinder, a passage leading from said port to the space above said piston when said piston is at its highest point, a valve controlling said passage, an auxiliary port between said valve and said first-mentioned port leading from said passage to the piston-chamber, and an exhaust-port just above said auxiliary port, both said exhaust-port and auxiliary port being controlled by said piston, substantially as set forth.

586,322. LINGO FOR LOOMS. GEORGE W. STAFFORD, Providence, R. I., assignor to the Knowles Loom Works, Worcester, Mass. Filed Mar. 1, 1897. Serial No. 625,530. (Model.)



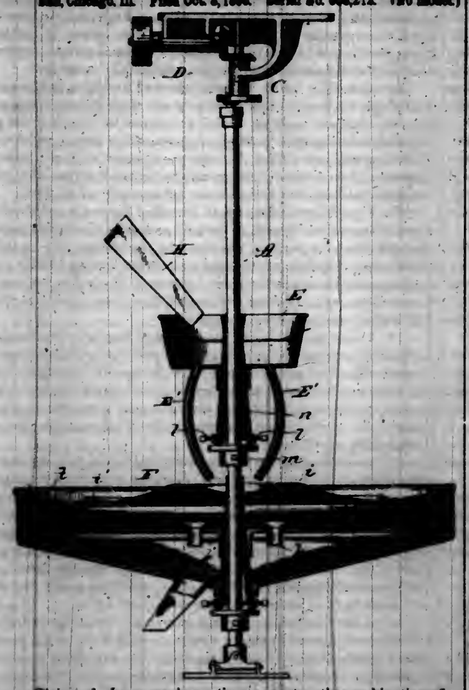
Claim.—The improved lingo consisting of wire reduced in diameter throughout the head portion thereof, and having a spring-head with a flattened tongue 5 and opposing flattened back portion 6, and a neck portion 4 of circular cross-section extending throughout the bend of the neck, substantially as described.

586,323. BUNG-STARTER. HENRY STERNLOFF, Jr., East St. Louis, Ill. Filed July 11, 1896. Serial No. 598,532. (No model.)



Claim.—The herein-described bung-starter consisting of a flexible stem having a handle 11 at one end and a head 12 at the other, flanges 13 and 14 extending from the upper and lower sides of the handle, bracing-webs 15 and 16 between said flanges and head on the inner face of the latter, an interiorly-threaded tubular boss 17 integral with and extending from the outer face of the head at right angles to the flanges and in line with the stem, lugs 21 also on the outer face of said head, a block 20 adapted to receive the lugs and having a central bore enlarged at its inner end to receive the boss so that the inner end of the block rests flat against the outer face of the head, a removable shank 18 passing through the bore and threaded at both ends, one of which engages with the threads of the boss, an independent and removable washer 22 surrounding the other end and resting against the outer end of the block and somewhat larger than its bore, and a nut 19 on said latter end adapted to hold the washer against the block and the parts in position, substantially as set forth.

586,324. AMALGAMATING APPARATUS. THOMAS R. TREGARDEN, Chicago, Ill. Filed Oct. 8, 1896. Serial No. 608,212. (No model.)



Claim.—1. In an amalgamating apparatus, the combination of a shaft supported in upright position at one end to be gyrated from its opposite end through a circuitous path about the center of its support, means for gyrating the shaft, and one or more amalgamating-plates supported on said shaft and tiltingly adjustable thereon with relation to the shaft, substantially as and for the purpose set forth.

2. In an amalgamating apparatus, the combination of a shaft supported in upright position at one end to be gyrated from its opposite end through a circuitous path about the center of its support, means for gyrating the shaft, a sleeve surrounding said shaft and adjustable thereon by tilting the sleeve with relation to the shaft, one or more amalgamating-plates supported on said sleeve, said shaft affording the center of motion for the plate or plates, and a feed-pan supported on the shaft above, and discharging upon said plate or plates, substantially as and for the purpose set forth.

3. In an amalgamating apparatus, the combination of a shaft supported in upright position at one end to be gyrated from its opposite end through a circuitous path about the center of its support, means for gyrating the shaft, a downwardly-flaring sleeve supported on the shaft and provided with means for adjusting it, and one or more amalgamating-plates supported on said sleeve, substantially as and for the purpose set forth.

4. In an amalgamating apparatus, the combination of a shaft supported in upright position at one end to be gyrated from its opposite end through a circuitous path about the center of its support, means for gyrating the shaft, downwardly-flaring sleeves supported one above the other on the shaft and provided with means for adjusting them, one or more amalgamating-plates supported on the lower sleeve and a feed-pan supported on the upper sleeve and discharging upon said plate or plates, substantially as and for the purpose set forth.

586,325. SHOE. FRANK C. WOLFF, Allentown, Pa., assignor, by mesne assignments, to Lizzie Moyer Weth, same place. Filed Jan. 9, 1897. Serial No. 618,046. (No model.)



Claim.—1. An armored shoe having a protective metallic counter surrounding the counter of the shoe and extending forward upon each side over the seam uniting the vamp and quarter, said metallic counter having an inturned edge inserted between the inner and outer soles and provided with oppositely-bent prongs engaging the inner and outer soles, substantially as described.

2. An armored shoe, having a protective metallic vamp surrounding and covering the fore part of the vamp of the upper and provided with rearwardly-extending wings projected toward the heel portion, and having an inturned flange inserted between the inner and outer soles, and inwardly-projecting perforated lugs arranged to receive fastenings to secure the vamp-protector to the insole, the spaces between said lugs permitting the passage of the fastenings securing the outsole to the insole, substantially as described.

3. An armored shoe provided with the metallic sole and heel guards, said sole and heel guard covering the edges of the sole and heel and projected inwardly toward the medial line of the sole and heel and secured to the sole and heel by suitable fastenings, substantially as described.

4. An armored shoe, comprising an upper, an insole, and an outsole secured to the insole by suitable fastenings extending through the outsole and upper and insole, of a protective metallic armor for the upper projected through the line of fastenings uniting the upper, insole and outsole, and provision on said armor to allow the passage of said fastenings, substantially as described.

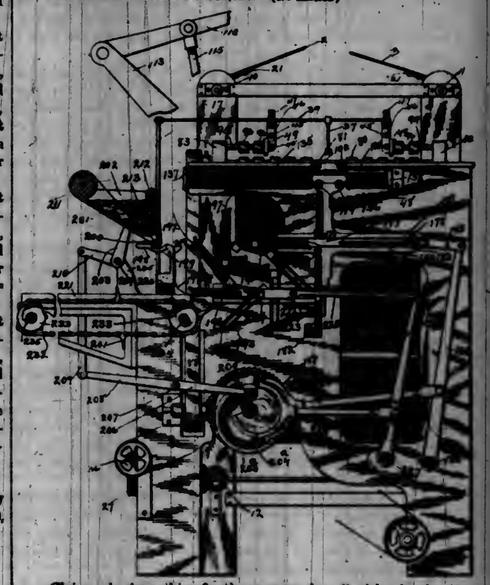
586,326. SHEET-METAL CAN. JOHN ZIMMERMAN, Chicago, Ill., assignor to The National Key-Opening Can Company, same place. Filed Sept. 15, 1893. Renewed Mar. 25, 1895. Serial No. 543,163. (No model.)



Claim.—1. In combination with a can-head having a filling-hole surrounded by an annular groove or depression, a cap having a conical, marginal, detachable strip provided with a tongue which is upturned from the edge of the cap to the top of the annular groove in the can-head and thence outwardly over said head.

2. As an article of manufacture, a sheet-metal filling-hole cap for can-heads, said cap having a conical, marginal, detachable strip terminating in a tongue which is bent upwardly from the edge of the cap and thence outwardly, so as to lie free upon the plane surface of a can-head provided with a groove around its filling-hole, substantially as described.

586,327. MACHINE FOR WRAPPING, FOLDING, AND ADDRESSING NEWSPAPERS, &c. LEE A. AGREW, Chicago, Ill. Filed Mar. 17, 1896. Serial No. 583,527. (No model.)



Claim.—1. A machine for the purpose described having in combination two vertical continuous series of rising supports or platforms, the supports or platforms in one series being arranged opposite those in the other, means for raising said platforms and a trip controlling said means and arranged over the platforms and adapted to be struck by the papers thereon, there being a passage-way between the platforms whereby the latter may pass said trip, substantially as set forth.

3. A machine for the purpose described having in combination two pairs of upright guideways, a shaft journaled at the upper and lower ends of each pair of said guideways, a sprocket-wheel on each end of each of said shafts, a sprocket-chain running over each pair of said sprocket-wheels, brackets pivoted to said chains and having projecting lugs engaging in said guideways, platforms for supporting the papers projecting toward each other from said brackets, means for driving said chains, and means for removing the papers from said platforms as the latter rise, substantially as set forth.

3. A machine for the purpose described having in combination an elevator having a support for the papers, a trip arranged over said support and adapted to be struck by the papers thereon, said support being provided with an opening for passing over said trip, and means for raising said elevator, having a throw-off device connected with said trip, substantially as set forth.

4. A machine for the purpose described having in combination a paper-elevating device, ways extending over said elevator, and reciprocating needles mounted on said ways for sliding the papers from said elevator, said elevator being provided with openings whereby it may pass said ways when the papers are removed, substantially as set forth.

5. A machine for the purpose described having in combination a paper-folding device, a pivoted bodily-reciprocating arm carrying needles for engaging with the papers and sliding the same from said holding device, a trip arranged in the path of said arm and adapted to be struck thereby for releasing the needles from the papers, a latch for holding said arm in its released position, and a trip for releasing said latch and allowing said needles to reengage, substantially as set forth.

6. A machine for the purpose described having in combination a paper-holding device, pivoted bell-crank arms carrying needles for engaging with the papers and sliding the same from said holding device, means for reciprocating said arms over the papers, a spring-latch arranged to engage one end of each of said arms, a trip for oscillating each of said arms, and forcing the end thereof into engagement with said latch, and a trip arranged in the line of movement of said latch and adapted to release the same from said arm, substantially as set forth.

7. A machine for the purpose described having in combination a paper-holding device, a bell-crank arm, needles secured in one end of said arm, a latch arranged over the other end of said arm and having a tooth or notch for engaging therewith, means for moving said arm back and forth over the papers, a trip located at one extremity of the movement of said arm and adapted to be struck thereby for raising the needles out of engagement with the papers, and a trip at the other extremity of the movement of said arm for engaging under the end of said latch and releasing the same from said arm, substantially as set forth.

8. A machine for the purpose described having in combination a paper-holding device, a guideway extending over said paper-holding device, a carriage mounted on said guideway, deflectible needles carried by said carriage and adapted to engage with the papers on said paper-holding device, a rock-shaft, a connection between said rock-shaft and carriage whereby the latter is reciprocated on said guideway, a series of tapes upon which said needles convey the paper, and tapes arranged over and parallel with said first tapes and on each side of the line of movement of said carriage, substantially as set forth.

9. A machine for the purpose described having in combination a folding-knife, a slotted table or support for the paper under said knife, a slotted support or table for the wrapper under said first table or support, and two sets of parallel oppositely-moving tapes over each of said supports respectively for carrying the paper and the wrapper under the folding-knife said tapes running lengthwise of the folding-knife, substantially as set forth.

10. A machine for the purpose described having in combination a revolving series of tangentially-arranged clamps or pockets for receiving the papers, a folding-knife and an ejector, said folding-knife and ejector being arranged to travel in line with two of said clamps or pockets respectively for respectively forcing the paper into one of said clamps or pockets and ejecting the paper from another, substantially as set forth.

11. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, a reciprocating ejector having a jaw located at each end of said clamps or pockets and out of the line of movement thereof, substantially as set forth.

12. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, guideways on each side of said series of clamps or pockets, blocks located in said guideways, and ejecting-jaws secured to each of said blocks for forcing the papers from said clamps or pockets, substantially as set forth.

13. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, a table arranged opposite said clamps or pockets and adapted to receive the papers therefrom, a lap-smoothing device arranged adjacent to said table, and means for ejecting the papers from said clamps or pockets and forcing them between said table and lap-smoothing device, substantially as set forth.

14. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, a table or support for receiving the papers from said clamps or pockets, a lap-smoothing device, an ejector for forcing the papers from said clamps or pocket onto said table or support, and a conveyer for carrying the papers between said table or support and lap-smoothing device, substantially as set forth.

15. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, a support for the papers after leaving said clamps or pockets, a lap-smoothing device having flexible bristles projecting toward said support, and means for ejecting the papers from said clamps or pockets and forcing them between said support and bristles, substantially as set forth.

16. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, an ejector for forcing the papers from said clamps or pockets, a table located opposite said ejector, a lap-smoothing device arranged over said table, and a conveyer running lengthwise of said table and transversely of said lap-smoothing device, substantially as set forth.

17. A machine for the purpose described having in combination a revolving series of clamps or pockets, means for forcing the papers into said clamps or pockets, a support for the papers as they come from said clamps or pockets, a lap-smoothing device arranged adjacent to said support, means for ejecting the papers from said clamps or pockets onto said support, a conveyer for continuing the movement of the papers along said support and between the latter and said lap-smoothing device, and means for imparting an intermittent movement to said conveyer, substantially as set forth.

18. A machine for the purpose described having in combination a folding mechanism having a clamp or pocket for receiving the papers, a table or support for the papers as they come from the clamp or pocket, a lap-smoothing device arranged over said table or support, a conveyer consisting of a belt arranged at each side of said table and having teeth or lugs crossing the ends of said clamp or pocket and projecting above said table, for conveying the papers between said table and lap-smoothing device, substantially as set forth.

19. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket for receiving the paper and wrapper, a lap-rest arranged contiguous to the line of movement of said clamp or pocket for supporting the lap of the wrapper projecting therefrom, having a countersink, and an oscillatory paste-applying device moving to and from said rest, substantially as set forth.

20. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket for receiving the paper, a lap-rest having a countersink arranged contiguous to the line of movement of said clamp or pocket, for supporting the lap of the wrapper projecting therefrom, and an oscillatory paste-applying device having a portion smaller than and adapted to enter said countersink, substantially as set forth.

21. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket for receiving the paper and wrapper, a lap-rest arranged contiguous to the line of movement of said clamp or pocket for supporting the projecting end of the wrapper, a lap-smoothing device arranged below said lap-rest, a table or support for the paper as it comes from said pocket, located under said smoothing device, and means for ejecting the paper from said clamp or pocket and carrying it between said smoothing device and table, substantially as set forth.

22. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket for receiving the paper, a lap-rest for the wrapper arranged contiguous to the line of movement of said clamp or pocket, a pivoted paste-pot arranged over said lap-rest and having a roller for pressing the lap toward said rest, a belt running through said paste-pot and over its edges and around said roller, substantially as set forth.

23. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket into which the paper and wrapper are forced, a lap-rest for the wrapper arranged contiguous to the line of movement of said clamp or pocket, a pivoted paste-pot arranged over said rest and having a roller for pressing the lap toward the rest, a belt running through said paste-pot and around said roller and a loose weighted roller resting upon said belt within the pot, substantially as set forth.

24. A machine for the purpose described having in combination a folding mechanism having a movable clamp or pocket for receiving the paper and wrapper, a paste-pot, pivoted arms carrying said pot, a roller journaled in said pot and having a pulley thereon, a pulley journaled concentrically with the pivot of said arms and having connection with said first pulley, a paste-belt running under said pot and over said roller and dipping into the paste in said pot, means for driving said pulley and oscillating said arms, and a lap-support for the wrapper arranged under said paste-pot, substantially as set forth.

25. A machine for the purpose described having in combination a revolving series of clamps or pockets for receiving the papers and wrappers, a disk connected thereto and having a series of notches equal in number to the number of said clamps or pockets, a drive-shaft, a pinion geared to said drive-shaft and having a lug working in said notches, an ejector for forcing the papers from said clamps or pockets, a lap-smoothing device, a table under said lap-smoothing device, a conveyer having a clutch geared with said pinion and said clutch having a pivoted arm for throwing its members out of engagement, a trip arranged normally in the path of said arm and a lever for oscillating said trip, said lever having operative connection with said driving-shaft, substantially as set forth.

26. A machine for the purpose described having in combination a pair of wrapper-cutting rollers, a pair of gripping-rollers for receiving the wrapper from said cutting-rollers, tapes passing around said second pair of rollers, a folding-knife arranged lengthwise of and between said tapes, means for rotating said second pair of rollers and for periodically rotating said cutting-rollers, substantially as set forth.

27. A machine for the purpose described having in combination means for folding the address-strip forward and shearing off the end thereof, said shearing mechanism having a projection for engagement with the paper to be addressed, for actuating such shearing mechanism, and a table or support for the paper having a cavity located under said projection and adapted to admit the latter when a paper is absent, substantially as set forth.

28. A machine for the purpose described having in combination a table or support for the papers to be addressed, an addressing device consisting of a pivoted casing having a paste-receptacle, a paste-belt running through said receptacle, a feeding-roller over which said belt runs, a support for the address-strip as it passes from said belt and roller, a blade pivoted adjacent to said support and having a flat side for pressing the clipping against the paper to be addressed, said blade being provided with a projection adapted to come against the paper to be addressed, means for raising the free end of said blade above said block, a ratchet for rotating said feed-roller and a pawl engaging said ratchet and operating in unison with said blade for rotating said ratchet, substantially as set forth.

29. A machine for the purpose described having in combination a folding and wrapping mechanism having a lap-smoothing device, a conveyer for forcing the paper under said lap-smoothing device, means arranged over said conveyer for shearing off the end of the galley-sheet and pressing the severed portion against the folded paper on said conveyer, said shearing mechanism and conveyer being connected to and operating in unison with said folding mechanism, substantially as set forth.

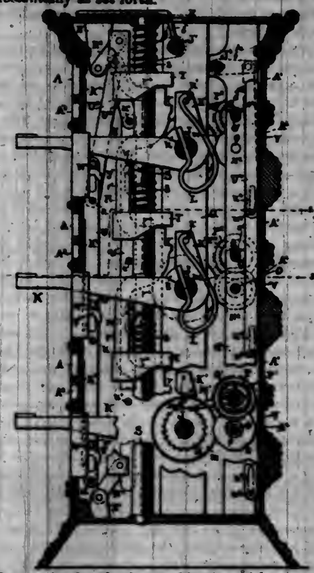
586,828. VOTING-MACHINE. CLINTON L. BABCOCK, Brown's, Nev. Filed Mar. 21, 1896. Serial No. 584,278. (No model.)

Claim.—1. In a voting-booth, the combination with a single hinged entrance-door and an exit-door, of a lock for the entrance-door, means operated by the opening of the entrance-door for placing its lock in locking position whereby when said door is again closed it will be locked, and means operated by the exit-door for releasing the entrance-door, substantially as set forth.

2. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door having a spring-actuated bolt, means for shifting said bolt out of locking position, a mechanical connection between the exit-door and said means for placing said bolt out of locking position, and a mechanical connection between said means and the entrance-door, upon the movement of which the spring-bolt is returned to its locking position, substantially as set forth.

3. In a voting-booth, the combination with a hinged entrance-door and an exit-door, of a lock for the entrance-door, means controlled by the opening of the entrance-door for placing its lock in locking position whereby when said door is again closed it will be locked, means operated by the exit-door for releasing the entrance-door, and means actuated by the entrance-door for resetting the locking mechanism of the voting-machine, substantially as set forth.

4. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door, comprising a movable lock-body and a spring-actuated bolt therein, connections between said lock-body and the entrance-door whereby the opening of the entrance-door will move the lock-body toward the same, and connections between said lock-body and the exit-door, whereby the opening of the exit-door will move the lock-body away from the entrance-door, substantially as set forth.



5. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door comprising a movable lock-body and a spring-actuated bolt therein, a slotted rod connecting said lock-body and the entrance-door, and a slotted rod connecting said lock-body and the exit-door, substantially as and for the purposes set forth.

6. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door comprising a movable lock-body and a spring-actuated bolt therein, a cam for moving said lock-body toward and away from the entrance-door, a slotted rod connecting said cam and the entrance-door, and a slotted rod connecting said cam and the exit-door, substantially as and for the purposes set forth.

7. In a voting-machine, the combination of a series of operating-keys, a separate counter actuated by each of said keys, a spring-pressed locking device for each key and normally held out of engagement therewith, a common tripping device for holding all of said locking devices in their normal positions, and so arranged relatively to the keys that upon the operation of any one of said keys the locking devices of the other keys will be tripped so as to lock the same, while the operated key will engage beneath its locking device so as not to be locked by the same until the key is returned to its normal position, and a resetting mechanism for withdrawing said locking devices, substantially as set forth.

8. In a voting-machine, the combination of a pivoted key-lever formed with an arm thereon, a spring-pressed locking-block normally held out of engagement with said arm, a tripping device for holding said locking-block in its normal position, but adapted to be engaged by said arm after the latter has passed beneath said locking-block so as to trip the locking-block and allow the same to engage the top of said arm, whereby upon the return of the key-lever the said arm will be withdrawn from beneath the locking-block which will thereupon be projected in the path of said arm, and resetting mechanism for withdrawing said locking-block, substantially as set forth.

9. In a voting-machine, the combination of a series of vertically-arranged pivoted key-levers each provided with an arm thereon, a spring-pressed locking-block for each arm normally held out of engagement therewith, a common tripping device for holding said locking-blocks in their normal positions, but adapted to be engaged by any one of said arms after the latter was passed beneath its locking-block so as to trip and project the other locking-blocks in the paths of the other arms and to trip the locking-block of the operated key-lever so as to allow the same to engage the top of the arm thereof, whereby upon the return of the operated key-lever its arm will be withdrawn from beneath its locking-block which will thereupon be projected in the path of said arm, and resetting mechanism for withdrawing said locking-blocks, substantially as set forth.

10. In a voting-machine, the combination of a movable shaft held normally stationary, a series of keys mounted on said shaft and

movable with respect to the same, a counter actuated by each key, stops on said shaft engaging said keys, whereby movement of the shaft will operate all the keys thereon, and a straight-ticket key rigidly connected to said shaft for partially rotating the same, substantially as set forth.

11. In a voting-machine, the combination of a series of movable shafts held normally stationary, a series of keys mounted on each of said shafts, a counter actuated by each key, stops on each shaft engaging the keys thereon whereby movement of any one of said shafts will operate all the keys thereon, a straight-ticket key rigidly connected to each shaft for partially rotating the same, and interlocking mechanism between said keys, whereby the operation of the keys on one shaft will lock all the other keys, substantially as set forth.

12. In a voting-machine, the combination of a movable shaft J, normally held stationary, a series of keys K mounted on said shaft and movable with respect to the same, a counter actuated by each key, a spring L for keeping each key in its normal position, said springs extending through the shaft and the ends thereof forming stops, a pin *k* on each key with which the end of the corresponding spring engages, and a straight-ticket key rigidly connected to said shaft for partially rotating the same, substantially as set forth.

13. In a voting-machine, the combination with a series of counters for individual candidates, of a series of individual keys for operating said counters, a shaft on which said keys are loosely mounted, a straight-ticket key mounted on said shaft and adapted to turn the same, and means carried by said shaft for engaging the individual keys when the shaft is turned by the straight-ticket key, whereby all the individual keys will be caused to operate their counters when the straight-ticket key is operated, substantially as set forth.

14. In a voting-machine, the combination with a series of keys for actuating the counters of the various candidates for the same office, of an electric alarm or telltale for indicating when two or more of said operating-keys are actuated, substantially as set forth.

15. In a voting-machine, the combination with a series of keys for actuating the counters of the various candidates for the same office, a normally-inactive electric alarm or telltale, and electric connections between said keys and said alarm whereby the simultaneous operation of more than one key in a series makes the alarm active, substantially as set forth.

16. In a voting-machine, the combination with a series of keys, for actuating the counters of the various candidates for the same office, a normally-inactive electric alarm or telltale, and an electric circuit for controlling said alarm extending through the said keys whereby the simultaneous operation of more than one key in a series makes the alarm active, substantially as set forth.

586,329. OVEN-THERMOMETER. WILLIAM BRIGHT, Plateau, Utah, assignor of one-half to W. H. Schenk, same place. Filed June 6, 1896. Serial No. 594,553. (No model.)

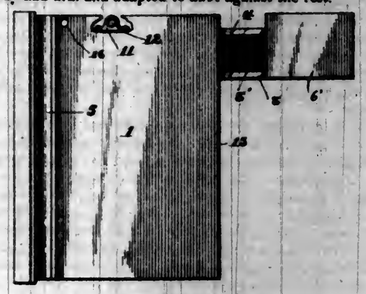


Claim.—In a device of the character set forth, the combination with a plate of metal, of a pair of bars of a metal having a higher coefficient of expansion acting in engagement with said plate, one of said bars being pivoted to said plate at one end and connected at the other end to one arm of a lever fulcrumed in said plate, and the other bar pivoted to the other arm of said lever and to a second lever fulcrumed in said plate, a dial-plate secured to said main plate and separated slightly therefrom, a shaft mounted to rotate in said plates, an arm upon the lower end of said shaft, a rod or pitman connecting said arm and the arm of said second lever, an index-finger or pointer secured to the other end of said shaft, a gong secured to the upper side of said dial-plate, a hammer therefor, pivoted in said plate and having a lug upon its rear end, a ratchet-wheel adapted to engage said lug, a pinion to which said ratchet wheel is secured, and a rod or bar having teeth along one edge adapted to engage said pinion and pivoted to said index-finger, substantially as and for the purpose described.

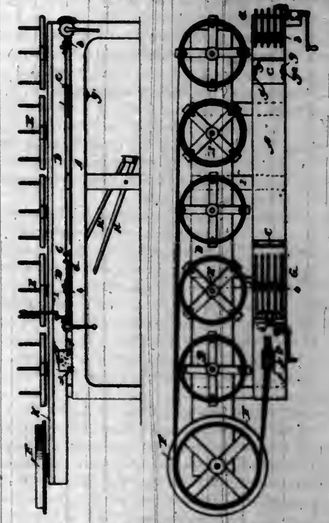
586,330. DESK. WILLIAM W. COOK, Bancroft, Iowa. Filed Nov. 7, 1896. Serial No. 611,356. (No model.)

Claim.—1. The combination with a desk-body, of a stationary arm-rest extending back therefrom, and a slidable top movable on the arm-rest and body.

2. In a school-desk, the combination with a desk-body, of a stationary arm projecting backward from the body and having at its outer end a top constituting a rest, and a sliding top movable on the body and arm and adapted to abut against the rest.



586,331. BALE-BAND MACHINE. PETER K. DEDERICK, Loudonville, N. Y. Filed Aug. 24, 1896. Serial No. 603,945. (No model.)



Claim.—1. In a bale-band-forming machine, the combination with the frame and the series of twister-heads geared together and mounted on a base adjustable on the frame, of a series of wire-reels mounted on the frame, individual guides for each of the strands of wire, a wire-clamp cooperating with all the wires and a stretching mechanism for straining the twisted bands; substantially as described.

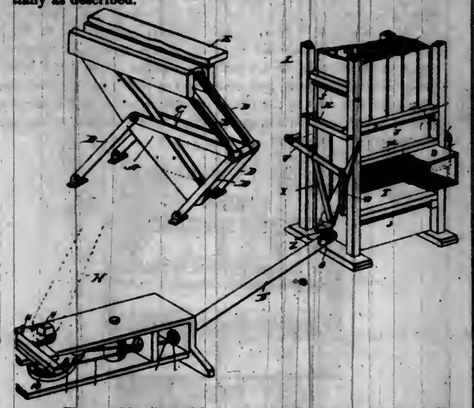
2. In a bale-band-forming machine, the combination with the base, the series of twister-heads geared together for simultaneous rotation and mounted on the base, of the series of wire-reels mounted in rear of the base, and the drum or wheel at the end around which the wires are turned; substantially as described.

586,332. BALING-PRESS. PETER K. DEDERICK, Loudonville, N. Y. Filed Feb. 24, 1894. Serial No. 501,379. (No model.)

Claim.—1. In a baling-press, the combination with the press-frame and box slotted for the passage of the power-levers, of the sectional girth K and the rod J passing through said girth between the posts and connected to the frame at the opposite end; substantially as described.

2. In a baling-press, the combination with the press-box having a feed-opening in the side, the traverser and the power mechanism, of a sliding door for closing the feed-opening and connections between said sliding door and power mechanism for advancing the sliding door faster than the movement of the traverser, whereby the feed-opening is closed and the hay is prevented from bulging out through the same as the traverser advances; substantially as described.

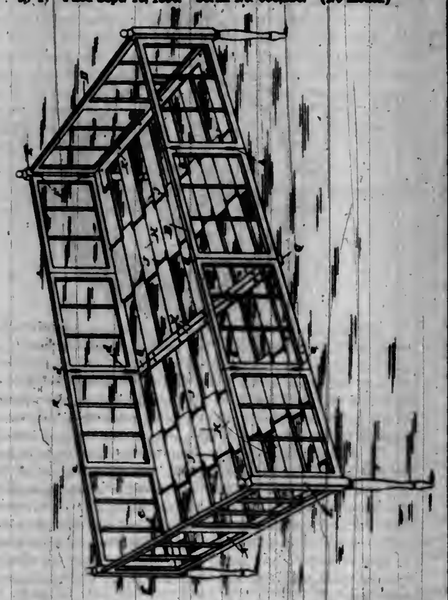
3. In a baling-press, the combination with the press-box having a feed-opening in the side, the hopper surrounding said opening, the traverser and power mechanism, of a sliding door for closing the feed-opening and a speed-multiplying mechanism for operating the door interposed between the door and power mechanism whereby the door is closed in advance of the traverser and the bulging of the hay through the door as the traverser advances is prevented; substantially as described.



4. The combination with the press and power parts in a baling-press, of the rigid pipe adjustably connected at opposite ends to the press and power parts, with sheares or bearings for the power connection located at the points of union, whereby the power may be located at a different level from the press; substantially as described.

5. In a press, the combination with the traverser, levers for operating the same and power mechanism for advancing the levers, of the check-line connected with the levers for checking their rearward movement and controlled by the power mechanism, whereby the levers may be lowered gradually; substantially as described.

586,333. FOLDING BED OR CRIB. PETER K. DORRAH, New York, N. Y. Filed Sept. 18, 1896. Serial No. 606,228. (No model.)



Claim.—1. In a bed two series of slats, each series being composed of two sets, one set being hinged at the end of the bed and the other set having the ends interlocking the ends of the first-named set and pivoted so as to fold or extend into the same plane therewith, and cranked rails secured to each set, as and for the purpose described.

2. In combination, sides composed of sections hinged together so as to fold upon a zigzag line, posts to which said sides are hinged, ends rigidly secured to the post, a cross-rail secured to the sides at their centers, so as to hold this point against lateral displacement, and two series of slats, each composed of two sets adapted to be folded into the same plane, substantially as and for the purpose set forth.

3. A folding crib comprising two sides, each consisting of sections hinged together so as to fold upon a zigzag line, corner-posts to which said sides are hinged, ends rigidly secured to said post, a cross-rail secured to the sides so as to maintain their centers against lateral displacement, a bottom composed of two series of slats, each series consisting of two sets hinged together at l, cranked rails stapled upon the slats so as to be turned to permit the slats to be opened or closed, and dowel-pins for rendering the bottom rigid when not placed, substantially as and for the purpose set forth.

4. In combination with a folding crib of the character described, a bottom comprising two series of slats, each series consisting of two sets hinged together at l, cranked rails stapled to one set of the slats in each series, so that these slats may be folded into the same plane or distended in line, substantially as and for the purpose set forth.

5. In a bed, two sets of slats forming the bottom of said bed, said slats having their ends interlocking and pivoted to fold in the same plane, crank-shaped rails secured near the ends of the slats, so that they may be turned to hold the slats in either of the positions, substantially as described.

586,334. APPARATUS FOR PREPARING ENDS OF STOVEPIPES FOR JOINING. ELIAS GRAHAM and JACOB JACQUART, Brocton, Ill. Filed Oct. 5, 1896. Serial No. 607,842. (No model.)



Claim.—1. The combination with a suitable base, of a lever mounted thereon, dies mounted upon said lever and base respectively for forming a bayonet-slot in the end of a stovepipe, a punch mounted upon the opposite end of said base and adapted to form a tent or projection upon the opposite end of said stove-pipe, substantially as described.

2. The combination with a suitable base, a block adjustably mounted upon the same, a stamp mounted upon said block and adapted to stamp a tent or projection upon one end of a stovepipe, a lever mounted upon said base and dies mounted upon said lever and base respectively, for stamping a bayonet-slot in the opposite end of said stovepipe, substantially as described.

3. The combination with a suitable base, of means mounted thereon for stamping a bayonet-slot in the end of a stovepipe, a slide mounted on said base, means for locking said slide in its adjusted positions, a curved support or cradle mounted upon said slide and adapted to receive the end of a stovepipe, and a punch also mounted upon said slide and adapted to punch a projection or tent upon one end of a stovepipe, substantially as described.

4. The combination, with a suitable base, of a die-lever pivoted upon the same, a segmental lever mounted on said die-lever and adapted to engage the base to operate said pivoted lever and dies formed on said die-lever and base respectively for forming a bayonet-slot in the end of a stovepipe, substantially as described.

5. The combination, with a suitable base, of a die-lever upon the same, a segmental lever pivoted to one end of said lever and adapted to engage the base to operate said die-lever, dies formed upon said pivot-lever and the base respectively and adapted to stamp a bayonet-slot in the end of a stovepipe, and gages mounted in said base to limit the movement of the stovepipe past the dies, substantially as described.

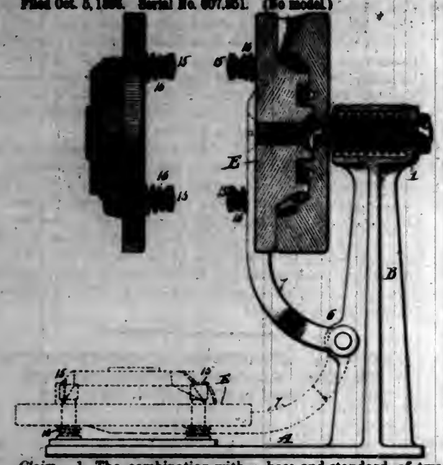
586,335. BICYCLE-STEP. ADDIE M. IRBY, Vernon Hill, Va. Filed Aug. 4, 1896. Serial No. 601,617. (No model.)



Claim.—1. A step for a bicycle adapted to be secured to the frame thereof adjacent to the axle of the rear wheel and having a heel-guard secured to or formed integral with it, the said heel-guard extending rearwardly from the step proper.

2. The combination with a bicycle, of a mounting-step therefor, the same having an upwardly and rearwardly extending arm constituting a heel-guard, secured to or formed integral therewith.

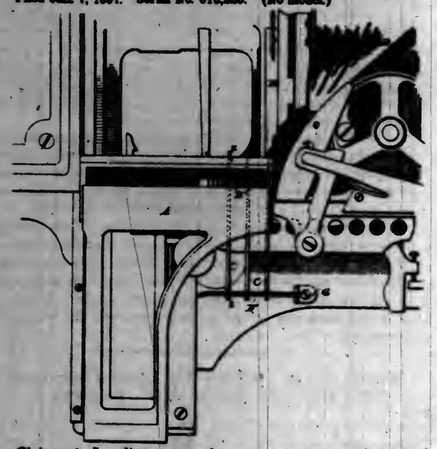
586,886. MOLDING DEVICE. CHARLES C. JEROME, Chicago, Ill. Filed Oct. 5, 1896. Serial No. 607,851. (No model.)



Claim.—1. The combination with a base and standard, of two half-molds one of which is supported by the standard, a pivoted arm carrying the other half-mold, and a series of spring-sustained ejectors passing through one half-mold whereby when the arm is dropped by the action of gravity the ejectors will strike said base and expel the casting from the half-mold.

2. The combination with a standard, a head thereon, and a pivoted arm carrying a half-mold, of a bolt passing through said head, a half-mold mounted on said bolt, a spring bearing against said head and half-mold whereby to maintain the latter in its normal position and also permit it to move to insure the alinement of the other half-mold therewith.

586,887. LINOTYPE-MACHINE. DAVID S. KENNEDY, Brooklyn, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Jan. 7, 1897. Serial No. 618,223. (No model.)



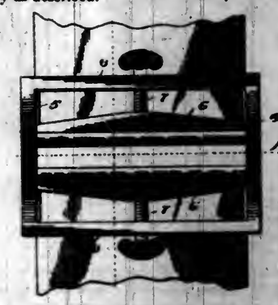
Claim.—1. In a linotype-machine, a spacer stop or buffer substantially as described located beneath the line-composing mechanism and adapted to check the descent of the spacers and also to prevent a twisting movement.

2. In a linotype-machine a spacer stop or buffer located beneath the composing mechanism and constructed and arranged to enter notches in the lower ends of the spacers substantially as and for the purposes described.

586,888. BELT-COUPLING. SAM KNOWLES, Gibbsville, Wis. Filed Mar. 2, 1897. Serial No. 626,775. (No model.)

Claim.—1. In a belt-fastener, the combination of a frame provided with two longitudinally-extending parallel clamping-rods, two movable or sliding clamping-bars adapted to clamp the meeting ends of the belt against the said fixed rods, and set-screws for adjusting said movable bars, substantially as described.

2. In a belt-lock, the combination with the belt ends, of a belt lock or fastener comprising a rectangular frame having two longitudinally-extending fixed clamping-rods which are parallel with each other and spaced apart and provided with teeth and serrations on the inner side thereof, two movable clamping-jaws sliding on flanged guides projecting from the end bars of the frame and adapted to clamp the extremities of the belt ends against the serrated faces of the fixed clamping-rods, and set-screws movable in threaded openings in the side bars of the frame and connected with the said movable clamping-bars and adapted to effect the adjustment of the same, substantially as described.



586,889. PUZZLE. MARY E. B. LANE, Transit, Ohio. Filed June 1, 1896. Serial No. 593,805. (No model.)



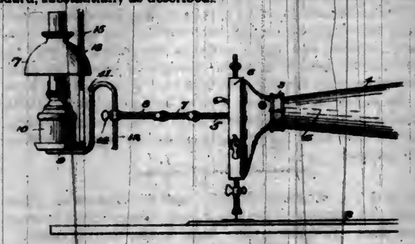
Claim.—1. A puzzle comprising a globe, a ring encircling the same and divided into spaces representing the twenty-four hours of the day, a movable object mounted on one end of a pivot passed through the center of the globe, said object being adapted to travel over said ring, and a pivoted pointer mounted on the opposite end of said pivot and traveling with said movable object and curved to conform to the curvature of the globe, substantially as described.

2. A puzzle comprising a globe, a ring encircling the same and divided into spaces representing the twenty-four hours of the day, and a movable object mounted on one end of a pivot passed through the center of the globe and said object being adapted to travel over said ring, and a pivoted pointer mounted on the opposite end of said pivot and traveling with said movable object and curved to conform to the curvature of the globe, and a space on said ring divided into spaces representing two sets of twelve hours each, substantially as described.

586,840. LAMP ATTACHMENT FOR SEWING-MACHINES. HENRY LOEFFLER, Brooklyn, N. Y. Filed Feb. 15, 1897. Serial No. 623,439. (No model.)

Claim.—In lamp-supporting attachments for sewing-machines, the combination with the arm of the machine, of a bracket attached to the rear side of said arm, a bracket-arm projecting therefrom past the needle-bar casing of the machine, a second arm jointed to said bracket-arm and adapted to be bent around the said needle-bar casing to the front of the machine, said jointed arm being provided with a vertical slot or opening, an inverted-U-shaped lamp-support having

one arm formed with an extension carrying a receptacle in which the lamp is adapted to fit and having its other arm fitted and vertically adjustable in the slot of said jointed arm, a set-screw clamping said arm, a vertical standard projecting from the lamp-receptacle, a lamp-shade, and an adjustable clamp connection between the shade and standard, substantially as described.



586,841. STEP-LADDER. ALBERT B. MACHIER, Stratford, Canada. Filed Jan. 18, 1897. Serial No. 619,644. (No model.)



Claim.—1. In a step-ladder, the combination, with the front legs provided with steps, and lateral projections at the end portions of the said legs: of bridges secured to the middle portions of the said legs and projecting above and below them, continuous-wire trusses having their end portions looped over and slidable on the said projections and having their middle portions carried by the said bridges, and a wire-tightening device connecting the end portions of each said continuous-wire truss, substantially as set forth.

2. In a step-ladder, the combination, with the front legs provided with steps, and lateral projections at the end portions of the said legs; of bridges secured to the middle portions of the said legs, trusses of twisted wires carried by the said projections and bridges, and grooved rectangular blocks having the ends of the trusses secured to them and affording a means for tightening the trusses by twisting the wires, substantially as set forth.

586,842. WIRE BASKET. ANDREW J. MUSSER, Antwerp, Ohio. Filed Aug. 17, 1896. Serial No. 603,087. (No model.)



Claim.—1. In a wire basket, the combination of top and bottom rims composed of stiff steel wires with the side wires, said side wires being coiled about the top and bottom rim wires, so that the said coils may act as spacers for the side wires, said side wires being uniformly kinked at one or more points intermediate their length, and a spacing wire or wires bound to the same at the kink, substantially as described.

2. In a wire basket, the combination of top and bottom rims composed of stiff steel wires with the side wires, said side wires being coiled about the top and bottom rim wires, so that the said coils may act as spacers for the side wires, a portion of said side wires being continued from the lower-rim wire toward the center, and a ring in the center of the bottom of the basket around which the ends of said side wires are bent, substantially as described.

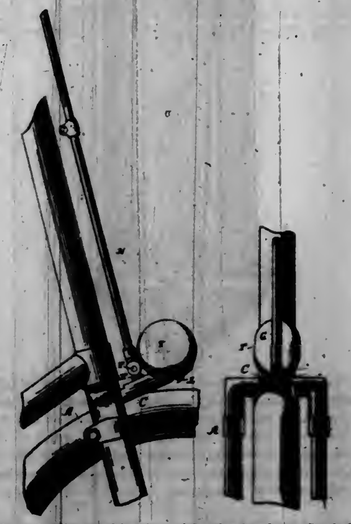
3. In a wire basket, the combination of top and bottom rims composed of stiff steel wires with the side wires, said side wires being coiled about the top and bottom rim wires, so that the said coils may act as spacers for the side wires, said side wires being uniformly kinked at one or more points intermediate their length, and a spacing wire or wires bound to the same at the kink, a portion of said side wires being continued from the lower-rim wire toward the center, and a ring in the center of the bottom of the basket around which the ends of said side wires are bent, substantially as described.

586,848. MOUTHPIECE FOR CIGARS. ARNEY POLLAK, Richmond, Va. Filed Apr. 20, 1897. Serial No. 633,976. (No model.)



Claim.—The herein-described cigar consisting essentially of the body, the tubular mouthpiece formed of cornstalk from which the pith has been removed, arranged and secured in one end of said body and having the rough interior surface *a*, and the nicotine-absorbing and smoke-cooling filling of excelsior C, occupying the tubular mouthpiece and having portions extending from the inner end of said mouthpiece into the body of the cigar so as to strengthen the connection of the mouthpiece of said body and at the same time hold the layers of tobacco apart so as to afford a free central passage for smoke, substantially as specified.

586,844. BICYCLE-BELL. CARL ROSENDOLS and JOHN W. CARLSON, Wardner, Idaho. Filed Aug. 3, 1896. Serial No. 601,541. (No model.)



Claim.—1. The combination with a brake-shoe, of a bell pivotally mounted thereon, and means connected with the bell adapted to be sounded by rotation of the wheel of a bicycle with which it is thrown into contact, substantially as described.

2. The combination with a pivotally-mounted brake-shoe, of a bell pivotally mounted thereon and on a brake-rod pivotally connected with the pivot of the bell, substantially as described.

3. The combination with a pivotally-mounted brake-shoe, of a bell pivotally mounted thereon and a brake-rod connected with the pivot of the bell, and a wheel projecting beyond the periphery of the bell and engaging the wheel of the machine, substantially as described.

4. The combination with a pivotally-mounted brake-shoe, of a bell pivotally mounted thereon and a brake-rod connected with the pivot of the bell, and a wheel projecting beyond the periphery of the bell and engaging the wheel of the machine, and a bell-hammer-actuating mechanism operated by said wheel, substantially as described.

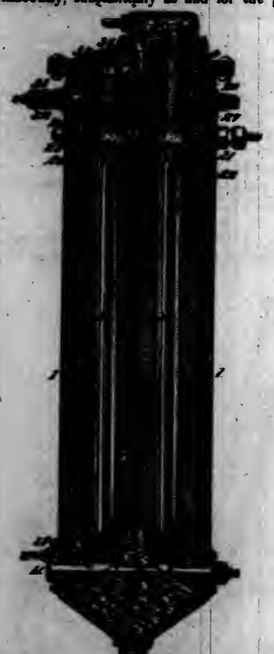
5. The combination with the body portion of a bell with the transverse arm therein, of a shaft mounted in said arm, an arm depending from the shaft, a wheel carried by a shaft journaled in the depending arm and projecting through an opening in the bell, a pivoted bell-hammer, a stud projecting from said wheel, and a sleeve mounted upon said shaft and having arms one adapted to be engaged by said stud and the other to actuate the bell-hammer substantially as described.

586,845. WATER-FILTER. WILLIAM F. STEWART, St. Louis, Mo. Filed Sept. 11, 1896. Serial No. 605,513. (No model.)

Claim.—1. In a water-filter, the combination of a tank, a pair of hollow, porous filtering-cylinders revolubly mounted in said tank arranged with their peripheries in contact with each other, and means arranged to revolve said cylinders simultaneously, substantially as and for the purpose set forth.

2. In a water-filter, the combination of a tank, a pair of hollow, porous filtering-cylinders revolubly mounted in said tank and arranged

with their peripheries in contact with each other, one of said cylinders being held from sidewise movement, and the other cylinder being arranged to be automatically pressed forward into contact with said first-mentioned cylinder, and means arranged to revolve said cylinders simultaneously, substantially as and for the purpose set forth.



3. In a water-filter, the combination of a tank, a pair of hollow porous filtering-cylinders revolubly mounted in said tank and arranged with their peripheries in contact with each other, one of said cylinders being held from sidewise movement, and the other movably mounted with respect to the first, springs arranged to press said movably-mounted cylinder toward the other cylinder, and means arranged to revolve said cylinders, substantially as and for the purpose set forth.

4. In a water-filter, the combination of a tank, a pair of filtering-cylinders revolubly mounted in said tank in contact with each other, a worm carried by each cylinder, an operating-shaft, and worms carried by said shaft arranged to engage with the worms carried by said cylinders, substantially as and for the purpose set forth.

5. In a water-filter, the combination of a tank, a pair of filtering-cylinders revolubly mounted in said tank in contact with each other, a worm carried by each cylinder, an operating-shaft, worms carried by said shaft arranged to engage the worms carried by said cylinders, and means arranged to press one of said cylinders forward against the other cylinder, substantially as and for the purpose set forth.

6. In a water-filter, the combination of a tank, a pair of filtering-cylinders revolubly mounted in said tank, one of said cylinders being held from sidewise movement, and the other being arranged to be moved toward the first, a tube leading from the first cylinder to an exit from the tank, a tube connected to the other cylinder, a movable bar attached to said tube, and having a hollow extension surrounding the tube, and a flexible tube forming a connection between said extension and the exit from the tank, substantially as and for the purpose set forth.

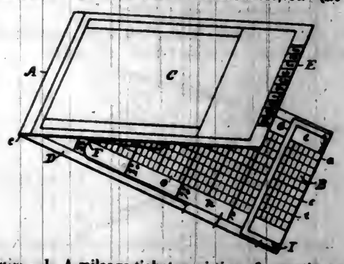
586,846. LAMP-BURNER HINGE. JAMES H. WHITE, Brooklyn, N. Y., assignor to the Manhattan Brass Company, New York, N. Y. Filed May 14, 1897. Serial No. 636,514. (No model.)



Claim.—1. The combination with the wick-raiser base and chimney-holding top, of the elongated wire ring *d* connected to the wick-raiser base, the plate *c* of metal bent double to form a stop-plate 2, the eye 3 for the wire ring, the same being passed through the plate of the chimney-holding top with the free ends bent over to secure the same in place, substantially as set forth.

2. The combination with the wick-raiser base and chimney-holding top, of the elongated wire ring *d* connected to the wick-raiser base, the plate *c* of metal bent double to form a stop-plate 2 the eye 3 for the wire ring, the same being passed through the plate of the chimney-holding top with the free ends bent over to secure the same in place, the depending stop-plate 2 being bent so as to be parallel with the rim of the wick-raiser base so as to form an even bearing against the same when the chimney-holding top is raised, substantially as set forth.

586,847. MILEAGE-TICKET. JESSE W. WINNINGHAM, Indianapolis, Ind., assignor to the Winningham Mileage Ticket Company, same place. Filed Mar. 2, 1897. Serial No. 626,706. (No model.)



Claim.—1. A mileage-ticket consisting of a continuous strip divided by a series of transverse lines into equal spaces throughout its length and by a series of longitudinal lines crossing said transverse lines into square spaces, said square spaces being numbered consecutively from "1" to "10" from left to right on each tenth mile and from bottom to top in series of ten in each column and arranged as shown, and a cover composed of a front and back provided with an indicator at the front edge of said front, a combined shearing and guide plate at the front edge of the back of said cover, and means for retaining said strip within said cover, substantially as shown and described.

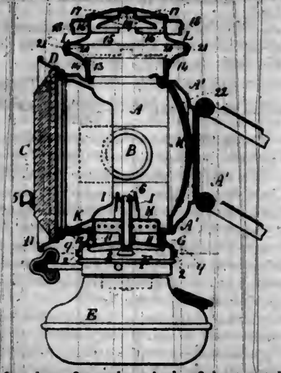
2. A mileage-ticket consisting of a continuous strip having on one side thereof a series of transverse and longitudinal lines forming a series of blocks of one hundred square spaces each continuously, numerals in said spaces as shown, marginal spaces at the sides of said blocks, numerals in said margins as shown, a cover for said strip into which it is retained in folds, an indicator on the top of said cover adapted to indicate the column in which the numeral "1" appears, and the guides adapted to retain said strip centrally to said indicator, substantially as shown and described.

3. In a mileage-ticket, the combination of the cover provided with the indicator at the front edge of the outside of the top thereof, the spring-clamp secured to the inside of the bottom of said cover, the combined shearing and guide plate secured to the front inside edge of the bottom of said cover, and the mileage-strip folded and secured within said covers, said strip having on its upper face columns corresponding in number and width to the spaces on said indicator, transverse lines dividing said columns into continuous series of square spaces, numerals in said spaces disposed consecutively from "1" to "10" from bottom upward and from left to right, and marginal indicating-numerals as shown, substantially as and for the purposes shown and described.

4. In a mileage-ticket, the combination of the cover comprising the hinged front and back, the mileage-strip folded and secured therein, the retaining-clamp F secured to the inner side of said back, and the combined guides G, H, H, and shearing-plate I secured to the front end of said back at the inner side thereof, substantially as shown and described.

5. In a mileage-ticket, the combination of the cover provided with the indicator at the front edge and the clamps and guides at the inner side of the bottom part, the strip folded and secured therein, the centrally-disposed lines and margins on the face of said strip, said lines being longitudinally continuous and also transversely forming square or rectangular spaces arranged in consecutive blocks of one hundred, the numbers arranged in series of ten consecutively in said spaces, beginning with the number "1" in the corner-space to the right, "1" in the second space to the left, and upward and continuing with "1" in each column to the left progressing upward one space for each following column, and the numerals and initials in said margins, substantially as shown and described.

586,848. LAMP FOR CYCLES. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Dec. 7, 1896. Serial No. 614,743. (No model.)



Claim.—1. In a lamp for cycles, a body of sheet metal extending across above the reservoir and having an opening through it for the wick-tube and surrounding parts on the removable reservoir, and perforations through the sheet metal around the opening, in combination with the annular deflector above the said perforations, and an air-distributer adapted to extend down around the burner upon the reservoir and passing at its upper end through the opening in the lamp-body and turned over to secure the annular deflector to the lamp-body, substantially as set forth.

2. The combination with the lamp-body having an opening in the lower part, of an air-distributer permanently connected to the lamp-body at such opening, and terminating at its lower edge with a hollow bead notched at opposite sides, an oil-reservoir and a wick-tube and burner upon the same with lugs at opposite sides of the burner to be received into the hollow bead, and stops in the hollow bead for holding the lamp-burner in its proper position with the wick-raiser shaft of the lamp-burner projecting at either one side or the other of the lamp, substantially as set forth.

3. The combination with the lamp-body having an opening at the bottom and a downward-projecting air-distributer permanently connected with the lamp-body at its upper end and having a hollow bead at its lower edge, of a lamp reservoir and a burner upon the same having a wick-tube and wick-raiser and projections upon the burner to enter the hollow bead of the air-distributer and interlock with the same, a draft-cap rising from the lamp-burner around the wick-tube and perforated with numerous small holes, an annular deflector around the draft-cap and secured within the lamp-body at the upper end of the air-distributer and covering a row of holes through the lamp-body so as to allow air to pass through such holes and escape closely adjacent to the interior surface of the lamp-body, substantially as set forth.

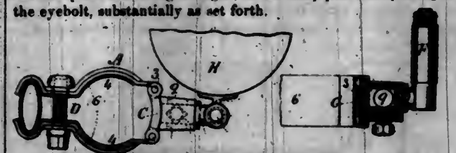
4. The combination with the lamp-body and removable oil-reservoir and burner, of a wind-guard in the form of a cylinder permanently connected at an opening in the upper part of the lamp-body, a flaring perforated base surrounding the wind-guard, a removable cap connected at its lower edges with the upper edges of the flaring perforated base and having a conical lower portion with connections to the top plate of the cap, such top plate having a cylindrical hanging flange at its outer edges and being perforated in the middle portion, and a deflector connected to the cap below the perforated portion of the top plate for preventing currents of air that pass through such perforations extending down into the lamp, and for deflecting the products of combustion as they rise through the wind-guard, substantially as set forth.

5. The combination with a lamp-body, of a removable reflector and a spring fastened at its lower end upon the back of the reflector and extending up behind such reflector and bent at the upper end to engage the lamp-body and hold the reflector in position, substantially as set forth.

586,849. BICYCLE-LAMP SUPPORT. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Dec. 7, 1896. Serial No. 614,744. (No model.)

Claim.—1. The combination with clamps adapted to be connected upon a cycle, of a lamp-post having a right-angle pivot-rod, a socket-block upon the clamps for receiving and holding the pivot-rod of the lamp-post and a socket attached to the lamp surrounding the cylindrical portion of the lamp-post, and a clamping-nut for securing the lamp in position upon the circular post, substantially as set forth.

2. The combination with two clamps and their actuating-screw, of a socket-block and hinges for connecting the clamps to the socket-block, such socket-block having half-circle openings at right angles to each other, an eyebolt at the intersection and a lamp-post and a circular pivot-rod at right angles to the lamp-post and passing into the eyebolt, substantially as set forth.



3. The combination with clamps adapted to be connected upon a cycle, of a lamp-post adapted to receive the socket of the lamp and having a pivot-rod at right angles to the lamp-post, and a socket-block upon the clamps having openings at right angles for receiving and holding the pivot-rod of the lamp-post, substantially as set forth.

586,850. HOISTING AND CONVEYING MACHINE. GEORGE C. AVERY, Louisville, Ky. Filed Apr. 26, 1897. Serial No. 633,942. (No model.)



Claim.—In a conveyer, or trolley, for the transportation of loads, the combination, with an inclined track-wire, or roadway, of the peripherally-grooved wheel, mounted to travel thereon; a centrally-arranged shaft, or spindle, made fast to said wheel; a suitable balancing-weight, depending from the said shaft and operating to bring the center of gravity of the said wheel, and its attachments, below the line of the track-wire; and depending bands, or cables, wound on the said wheel-shaft, and provided at their lower ends, with means for carrying the load, or weight, to be transported; all substantially as, and for the purposes hereinbefore set forth.

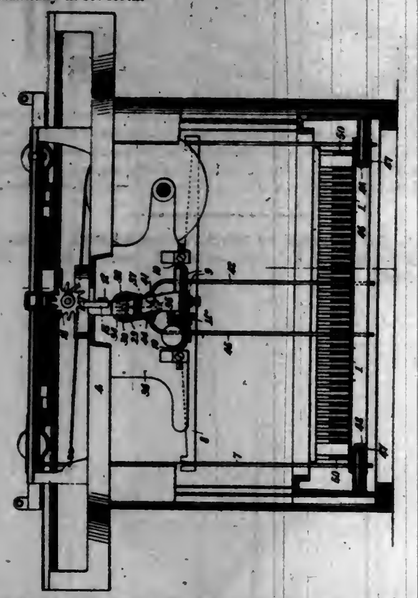
586,851. TYPE-WRITING MACHINE. BYRON A. BROOKS, Brooklyn, N. Y., assignor to The Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed July 7, 1896. Serial No. 598,208. (No model.)

Claim.—1. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism therefor, a pair of independent stops to limit the movement of said escapement mechanism, letter-keys all of which are connected to one of said stops, and a space-key connected only to the other of said stops; substantially as set forth.

2. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism including a rocking dog-holder, a pair of independent stops for limiting the vibration of said dog-holder, a bail connected to one of said stops and adapted to be actuated by all of the letter-key levers, and a second bail connected to the other of said stops and adapted to be actuated only by the space-key lever; substantially as set forth.

3. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism including a rocking dog-holder, a

pair of independent pivoted stops, one adapted to be actuated by the letter-keys only and the other only by the space-key, and means for returning said stops to their normal positions; whereby when any letter-key alone is depressed, or when the space-key alone is depressed only a single-letter-space movement of the carriage is obtained, but when any letter-key and the space-key are simultaneously depressed a double-letter-space movement of the carriage is obtained substantially as set forth.



4. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism, a pair of pivoted stops, a bail connected to one of said stops and adapted to be actuated by all of the letter-keys only, a second bail connected to the other of said stops and adapted to be actuated by the space-key only; whereby when any letter-key alone is depressed, or when the space-key alone is depressed only a single-letter-space movement of the carriage is obtained, but when any letter-key and the space-key are simultaneously depressed a double-letter-space movement of the carriage is obtained substantially as set forth.

5. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism including a rocking dog-holder having a contact device provided with antifriction-rolls, a pair of independent pivoted stops, a pin or pins for holding them in normal position, a spring or springs for returning them to normal position, a connecting-rod attached to each of said stops, a bail connected to each of said connecting-rods, the letter-keys, and the space-key; substantially as set forth.

6. In a type-writing machine, the combination of a paper-carriage, an escapement mechanism comprising essentially a toothed wheel, a dog-rocker having a pivoted spring-acted dog and a rigid dog provided with a slot or cut-away and with an oblique or slanting wall, stops for normally limiting the vibration of said dog-rocker so as to insure single spacing, and means for removing said stops so as to obtain double spacing; substantially as set forth.

7. In a type-writing machine, the combination of a paper-carriage having a toothed bar, a pinion engaging therewith, an escapement-wheel connected to said pinion, a dog-holder having a pivoted spring-acted dog and a rigid dog provided with a slot or cut-away for the passage of the teeth of said escapement-wheel, and with an inclined or oblique wall to enable said escapement-wheel to wedge back the dog-holder, a pair of stops adapted to limit the forward vibration of said dog-holder, letter-keys connected to one of said stops, and a space-key connected to the other of said stops; substantially as set forth.

8. In a type-writing machine, the combination of a paper-carriage having a toothed bar, a pinion engaging therewith, an escapement-wheel connected to said pinion, a dog-holder having a pivoted spring-acted dog and a rigid dog provided with a slot or cut-away for the passage of the teeth of said escapement-wheel and with an inclined or oblique wall to enable said escapement-wheel to wedge back the dog-holder, a pair of pivoted independent stops, a bail connected to one of said stops, letter-keys adapted to actuate said bail only, a second bail connected to the other of said stops, and a space-key adapted to actuate said bail only; substantially as set forth.

586,852. PNEUMATIC TIRE. FRANK B. CHAMBERLAIN, Newton, Mass., assignor to the Newton Rubber Works, of West Virginia. Filed Mar. 1, 1897. Serial No. 625,508. (No model.)

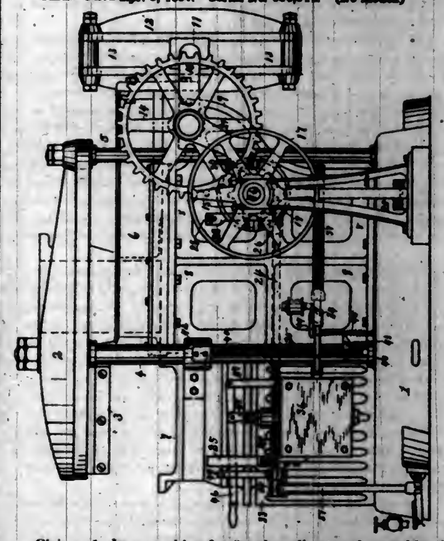
Claim.—1. An inflatable inner tube for pneumatic tires, composed of vulcanized india-rubber having closed beveled or wedge-shaped ends reinforced by a strip of adherent fabric applied to the interior surface of the beveled or wedge-shaped ends only, as set forth.

2. The improvement in the art of manufacturing inner air-tubes for pneumatic tires, which consists in forming a tube of india-rubber with closed beveled or wedge-shaped ends, reinforcing the ends only by applying and causing to adhere to the same strips of fabric, forming a slit or opening in the tube, and inverting the tube by drawing its ends through such opening, as set forth.

3. The improvement in the art of manufacturing inner air-tubes for pneumatic tires which consists in independently forming and partially vulcanizing short sections of tube with closed beveled or wedge-shaped ends, reinforcing the said ends exteriorly with fabric, uniting the sections to the open ends of an unvulcanized tube, vulcanizing the whole, then forming a slit or opening for the valve in the tube and inverting the tube by drawing its ends through said opening, as set forth.

4. The process herein described, which consists in forming caps of crude rubber on short mandrel-sections having beveled or wedge-shaped ends, and partially vulcanizing the rubber, then stripping the rubber from the short mandrels and drawing the caps onto the ends of a long mandrel, then wrapping or applying crude rubber to the long mandrel and overlapping the partially-cured caps, then subjecting the whole to vulcanization and withdrawing the mandrel through a hole or slit in the tube, as set forth.

586,853. OIL-CAKE FORMER. THOMAS DE ARNOS, Dayton, Ohio. Filed Apr. 3, 1897. Serial No. 630,511. (No model.)



Claim.—1. In a machine for forming oil-cake, the combination with a reciprocating carrier, and a crank-shaft to which said carrier is connected, of a former-plate upon which the carrier delivers the meal to be formed into cake, a valve through which the initial pressure is admitted to said former-plate, a manually-operated lever controlling the movement of said valve, a rock-shaft, and means thereon for locking said lever against any movement to open said valve until after the said reciprocating carrier has completed its movement, substantially as described.

2. In a machine for forming oil-cake, the combination with a reciprocating carrier, a crank-shaft to which said carrier is connected, of a clutch controlling the connection of said crank-shaft with the driving-shaft; a parallel rock-shaft adapted to actuate the clutch to engage the driving-shaft and the primary driving-pulley, and a cam carried on the crank-shaft adapted to disengage said clutch and driving-pulley, whereby intermittent movement may be imparted to the reciprocating carrier and means for forming oil-cake during the cessations in the movements of said carrier, substantially as described.

3. In a machine for forming oil-cake, the combination with a reciprocating carrier, and a crank-shaft to which said carrier is connected; of a former-plate to receive meal from said carrier and form it into cake; a piston upon which said former-plate is mounted; a slide-valve controlling the inlet of steam to cause an initial movement of said piston; an auxiliary gate-valve controlling a subsequent inlet of steam to said piston; and a rod rigidly carried on said former-plate to actuate said auxiliary gate-valve when said former-plate has been moved by the initial movement of the piston, substantially as described.

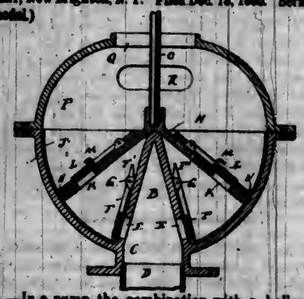
4. In a machine for forming oil-cake; a reciprocating carrier, and a crank-shaft to which said carrier is attached, in combination with a vertically-movable former-plate; a piston upon which said former-plate is mounted; a slide-valve controlling the inlet of steam to cause an initial movement of said piston; an auxiliary valve through which a subsequent inlet of steam is admitted to the piston, after it receives its initial movement; and a rod depending from said former-plate, having a tappet adapted to trip said auxiliary valve, as said former-plate moves upward, substantially as described.

5. In a machine for forming oil-cake, the combination with a horizontally-reciprocating carrier or delivery-box, and a crank-shaft to which said carrier is connected; of a vertically-reciprocating cake-former; a piston upon which said cake-former is mounted; a valve through which steam-pressure is admitted to cause an initial movement of the piston; an auxiliary or supplemental valve controlling a secondary admission of pressure to said piston after it has reached a certain point in its upper travel; clutch mechanism interposed between the crank-shaft, and the primary driving-shaft; a horizontal rock-shaft connected with said clutch mechanism; and means on said rock-shaft for locking the valve through which the initial steam is introduced to the piston, in a closed position, simultaneously with the movement that engages the clutch, substantially as described.

6. In a machine for forming oil-cake, the combination with a horizontally-reciprocating carrier adapted to carry oil-meal to the front of the machine; a vertically-reciprocating cake-former adapted to receive said meal and to form it into cake; and mechanisms controlling the transmission of movement to said carrier, and cake-former; of a horizontal rock-shaft a movement of which in one direction enables the transmission of motion to said carrier, and locks the mechanism through which motion is transmitted to the cake-former, and a movement of which in an opposite direction prevents the transmission of motion to said horizontally-reciprocating carrier, and enables a transmission of motion to the vertically-reciprocating cake-former, substantially as described.

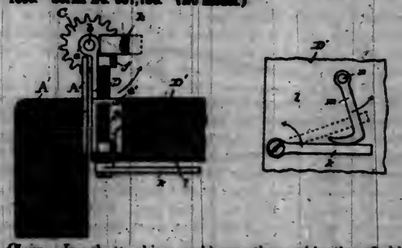
7. In a machine for forming oil-cake, the combination with a steam-cylinder, and a piston; of a cake-former mounted on said piston; a valve controlling an initial inlet of steam to move said piston and former to a point where a compression of the cake begins; a supplemental valve controlling the admission of steam to said cylinder to supply pressure required for said compression; a hand-lever to operate the valve through which the initial pressure is admitted; and trip mechanism carried on the cake-former for automatically operating the supplemental valve as said cake-former is moving upwardly, substantially as described.

586,854. PUMP. HARMER DENNEY, New York, and WILLIAM H. BRADLEY, New Brighton, N. Y. Filed Dec. 13, 1895. Serial No. 571,986. (No model.)



Claim.—In a pump the combination with a hollow body, of a wedge-shaped hollow transverse partition in the same, which partition has inlet-ports, valves for closing said ports a V-shaped plunger mounted to rock on said partition and having ports, valves for closing said ports and a U-shaped sliding packing-piece on each wing of said plunger, substantially as herein shown and described.

586,855. LOCK-HINGE. JOSEPH DUBBELDE, Baltimore, Md., assignor of one-half to John J. Dubbelde, same place. Filed Oct. 2, 1896. Serial No. 607,730. (No model.)



Claim.—In a shutter-hinge and bower the combination of a hinge-leaf, A, for attachment to the window-frame provided with a pintle-pin and a fixed cog-disk whose center is coincident with the axis of the said pin; a hinge-leaf, D, for attachment to the shutter having the usual eye part which takes on the pintle-pin and provided on the side attached to the shutter with bearings, *f*; a rock-shaft turning in said bearings and having on the outer end a swing-arm, *h*, which swings laterally to and from the said cog-disk; a lever, *l*, on the inner end of the said rock-shaft; and a swinging cam hook, the under side cam part to hold the said lever down when the device is locked, and the hook to take under the lever and hold the lever up when the device is unlocked.

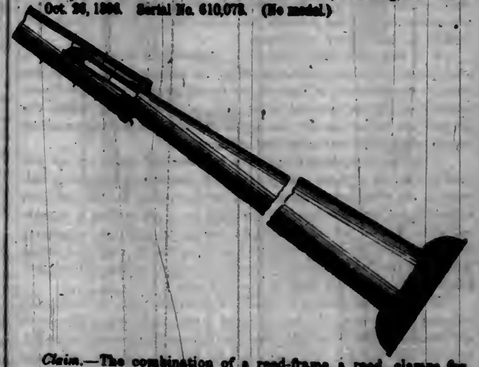
586,856. HORN. WILLIAM A. DUNLAP, Pittsburg, Pa. Filed Aug. 6, 1896. Serial No. 601,836. (No model.)



Claim.—1. The combination of a semicylindrical reed-frame, a stopper, one of said parts being provided with laterally-projecting wings adapted to be bent over around portions of the other part, so as to secure said parts together, and a reed arranged between the frame and stopper, substantially as set forth.

2. The combination of a semicylindrical frame, a reed, a semicylindrical stopper and clamps for securing said parts together, substantially as set forth.

586,857. HORN. WILLIAM A. DUNLAP, Pittsburg, Pa. Filed Oct. 26, 1896. Serial No. 610,078. (No model.)



Claim.—The combination of a reed-frame, a reed, clamps for securing the reed to the frame and a stopper formed by the upturned end of the reed, substantially as set forth.

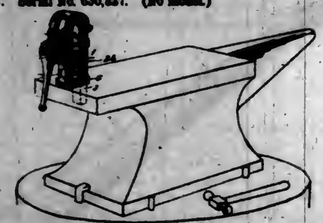
586,858. DUST-PAN. LEVI A. HAMBRIGHT, Paterson, N. J. Filed Apr. 6, 1897. Serial No. 630,971. (No model.)



Claim.—1. A dust-pan consisting of a body, provided at its rear portion with a cross-piece and handle, and in its front portion with a groove or depression, a lid or cover hinged with its rear portion to the said cross-piece, and having its front portion bent downward and adapted to engage with its lower edge the said groove or depression, a downwardly-extending flange on each side of the lid or cover and adapted to engage the sides of the said pan, a thumb-piece projecting from the rear portion of said lid or cover and centrally arranged thereon, and a spring controlling said lid or cover substantially as specified.

2. A dust-pan consisting of a body, provided at its rear portion with a cross-piece or bridge and with a handle, and in its front portion with a transverse groove or depression, a pin or axle suitably supported on said cross-piece and parallel with said groove or depression, a lid or cover fulcrumed on said pin or axle and having its front portion bent downward and adapted to engage with its lower edge said groove or depression, a downwardly-extending flange on each side of the lid or cover and adapted to engage the sides of the pan, a thumb-piece rearwardly projecting from the lid or cover and centrally arranged thereon, and a coil-spring on said pin or axle and bearing with one end on the top of the lid or cover, and with its other end on the under side of said cross-piece or bridge, substantially as and for the purposes described.

586,859. VISE. WILLIAM B. HOLT, Ayres, Mo. Filed Apr. 5, 1897. Serial No. 630,527. (No model.)



Claim.—1. A vise comprising a rigid jaw, a jaw pivotally secured thereto, means for controlling the outward movement of the said jaw consisting of a spring secured to the rigid jaw and bearing against the pivoted jaw, and means for controlling the inward movement of the pivoted jaw consisting of a cam journaled in bars extending from the rigid jaw, said cam being provided with a series of teeth, and a pawl secured to said pivoted jaw and adapted to engage the teeth of the cam.

2. A vise comprising a rigid jaw, bars secured thereto, a jaw pivoted in one set of the bars, and having ribs adapted to slide in guideways on the other set of bars, means for separating the pivoted jaw, and means for closing the said jaw, as set forth.

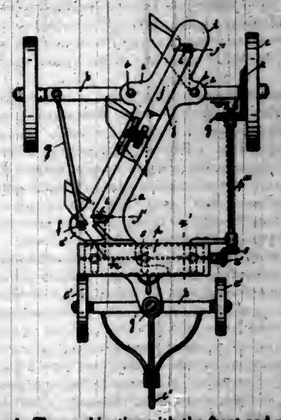
3. A vise comprising a rigid jaw, bars secured thereto, a jaw pivoted in one set of the bars and having ribs adapted to slide in guideways on the other set of bars, means for separating the pivoted jaw, and means for closing the said jaw, comprising a toothed cam, pivoted in the last-named set of bars.

4. A vise comprising a rigid jaw, bars secured thereto, a jaw pivoted in one set of the bars and having ribs adapted to slide in guideways in the other set of bars, means for separating the pivoted jaws, comprising a spring secured to the rigid jaw and resting against the pivoted jaw, and means for closing the said jaw, comprising a toothed cam pivoted in the last-named set of bars.

5. A vise comprising a rigid jaw, bars secured thereto, a jaw pivoted in one set of bars and having ribs adapted to slide in guideways in the other set of bars, means for separating the pivoted jaws comprising a spring secured to the rigid jaw, and resting in a channel in the pivoted jaw, and means for closing the said jaw, comprising a toothed cam, provided with an operating-handle, said cam being pivoted in the last-named set of bars, and a pawl on the pivoted jaw, adapted to engage the teeth of the said cam.

6. A vise comprising a rigid jaw, provided with an extension adapted to fit in a socket, bars secured to said rigid jaw, a jaw pivotally secured to one set of bars, said jaw having its lower end rounded, ribs on said pivoted jaw, designed to slide in curved guideways formed in the other set of bars, bearings on said jaw in which a pawl is pivoted, a recess in the head of the said jaw for the reception of the pawl when not in use, means for separating the pivoted jaws, comprising a spring secured to the rigid jaw, and resting against the pivoted jaw, and means for closing the said jaw, comprising a toothed cam, provided with an operating-handle said cam being pivoted in the last-named set of bars, and adapted to be held in position against the pivoted jaw by the hereinabefore-mentioned pawl.

586,860. PLOW AND SEED-PLANTER. BEER JAMES, Irvington, N. J. Filed Oct. 30, 1896. Serial No. 610,545. (No model.)



Claim.—1. The combination with the front and rear axles, each having wheels at opposite ends and the former having, between the wheels, draft connections, of a frame comprising an L-shaped casting, the short arm of which is inclined to the center line of draft between the wheels and receives the pivotal pin by which the said casting is pivoted to the axle, and the longer arm inclining backward from the rear end of the shorter arm across the center line of draft and being fastened to the rear axle between the wheels thereof and a series of plowshares held by suitable standards to said longer arm on opposite sides of said line of draft, all substantially as set forth.

2. The combination with the front and rear wheeled axles, the former provided with draft devices, centrally between the wheels thereof, of a frame comprising an L-shaped casting having a long and a short arm which are disposed at inclinations to the said axles, the shorter arm being pivoted to the forward axle in the center line of draft, midway between the forward wheels, and the longer arm extending across the said center line of draft and providing bearings on opposite sides of said center line for adjustable plowshares and moldboards, said adjustable plowshares and moldboards, and means for adjusting the same, substantially as set forth.

3. The combination with the parallel axles each having wheels at their extremities of an L-shaped casting, the long arm of which is rigidly secured to the rear axle between said wheels and the short arm, at its extremity is pivotally secured to the front axle midway between said wheels, the long arm extending across the line of draft in which the forward pivot lies, a brace connecting the angle of the L-shaped casting to the rear axle, draft devices between the front wheels, standards *i*, arranged in boxes or bearings in the longer arm and secured to a single adjustable slotted carrier *j*, on the upper side of the body, a ratchet *j'*, fastened to the casting, a pivotal hand-lever *k*, having pins or lugs *k'*, a pawl *k''*, and shares and moldboards attached to said standards, all substantially as set forth.

4. The improved plow herein described comprising a standard, a share consisting of a bent sheet-metal plate, projecting vertically downward from the inclined, rearwardly-extending line of bending to the horizontal plane of the point at one side and at the opposite side inclining downward to the said horizontal plane, and at the rear end having a recess to receive the standard and a moldboard secured at the inclined side of the share and at its upper part curving laterally forward beyond the limit of lateral extension of the share, substantially as set forth.

586,861. KNIFE SHARPENER AND BURNISHER. RUDOLF LOEB, Camden, N. J., assignor of one-half to Gustave Bourquin, Merchantville, N. J. Filed Nov. 16, 1896. Serial No. 612,299. (No model.)

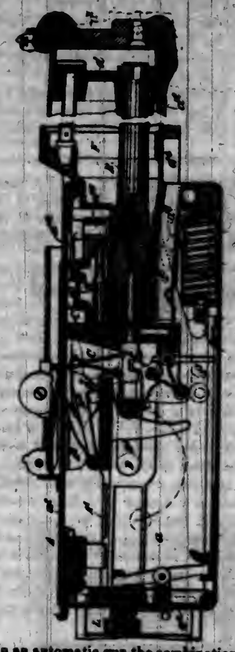
Claim.—1. In a device of the character described, the combination of a horizontally-rotating knife-bearing eccentric, a grinding-roll, and means for rotating the grinding-roll, for the purpose shown and described.

2. In a device of the character described, the combination of a horizontally-rotating knife-bearing eccentric mounted on a vertical stud of the frame, a horizontal grinding-roll, a reciprocating rack in guides of the frame, a pinion-gear and spur-gear on the same pinion-shaft, a pinion-gear on the grinding-roll shaft in engagement with the spur-gear, for the purpose shown and described.



3. In a device of the character described, the combination of a horizontally-rotating knife-bearing eccentric mounted on a vertical stud of the frame, a horizontal grinding-roll on a transverse shaft of the frame, a pinion-gear on said shaft, a reciprocating rack in guides of the frame, a pinion-gear and spur-gear on the same pinion-shaft, a burnishing-roll on said pinion-shaft, of the grinding-roll, whereby the rack actuates both the grinding and burnishing rolls, for the purpose shown and described.

586,862. GAS-OPERATED GUN. HIRAM S. MAXIM, London, England, assignor to the Maxim-Nordenfelt Guns and Ammunition Company, Limited, same place. Filed Sept. 30, 1896. Serial No. 607,316. (No model.)



Claim.—1. In an automatic gun the combination with a movable breech-block and a firing-pin sliding therein, of a cocking-hammer engaging directly with said firing-pin and acting as a strut therefor when the pin is in its fired position.

2. In an automatic gun, the combination with a reciprocating breech-block and the crank for operating it, of a firing-pin having a recess formed with an inclined shoulder and a cocking-hammer having a nose engaging with said recess and lying behind the said inclined shoulder so as to act as a strut when the firing-pin is in its fired position, as set forth.

3. In an automatic gun, the combination with a reciprocating breech-block and the crank for operating it, of a firing-pin having in its under side a recess provided with a curved shoulder, and a pivoted cocking-hammer having a nose engaging with said recess and a surface curved to correspond with and abutting against the curved shoulder on the firing-pin when the latter is in its forward or fired position and acting as a strut therefor, as set forth.

4. In an automatic gun, the combination with a reciprocating breech-block and a crank for operating the same, of a firing-pin having a recess in its under side provided with a curved shoulder, of a pivoted cocking-hammer having a nose engaging with the said recess and a curved portion abutting against the curved shoulder on the firing-pin when the latter is in its forward or fired position, and serving as a strut therefor, and a tail lying in the path of the crank, whereby the hammer is cocked, as set forth.

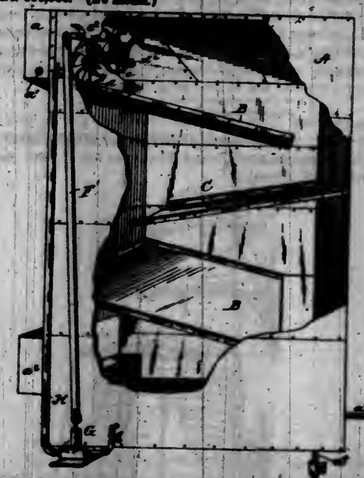
5. In an automatic gun the combination with a reciprocating breech-block and the crank for operating it, of a pair of pivoted lifting-levers engaging at their free ends with the sliding cartridge-carrier, of projections extending downwardly from such lifting-levers and having curved surfaces thereon, of curved horns on the crank for engaging with the curved surfaces on the aforesaid projections, and of a crank-pin working in a curved slot in the breech-block, substantially as described and for the purpose specified.

6. In an automatic gun provided with a reciprocating breech-block, a crank, and a gas-chamber into which the gases of discharge enter to actuate a movable portion of the gas-chamber; the combination with the said movable portion of a bifurcated rod, one member of which is connected to a bell-crank lever adapted to act on the crank, and the other member of which is coupled to an oscillatory lever that actuates the cartridge-feed device, and of a projection on the crank-shaft, which is adapted to operate in conjunction with the crank-actuating limb of the bell-crank lever so that in the event of the said bell-crank lever attempting to return to the firing position before a cartridge has been completely withdrawn from the belt by the cartridge-carrier the said crank-actuating limb of the bell-crank lever will be stopped by the aforesaid projection substantially as described.

7. In an automatic gun provided with a reciprocating breech-block, a crank, a gas-chamber into which the gases of discharge enter to actuate a movable portion of said gas-chamber and a rod for transmitting the movement of the said movable portion of the gas-chamber to the breech mechanism; the combination with the said rod of a spring inclosed in a telescopic casing, one portion of said casing being connected to the aforesaid rod and the other portion bearing against the framing of the gun, substantially as described.

8. In an automatic gun provided with a water-jacket and a gas-chamber into which the gases of discharge enter and actuate a movable portion of the said chamber to operate the breech mechanism; the combination with said chamber of a conduit extending from a transverse passage communicating with the steam-pipe of the water-jacket and having an exit-opening in proximity to the said movable portion, so that the steam and water escaping from the water-jacket are directed onto the movable portion substantially as described and for the purpose specified.

586,868. AIR COOLING, CLEANSING, AND VENTILATING DEVICE. JOSEPH MCCONNEY, Toledo, Ohio. Filed Oct. 26, 1896. Serial No. 610,206. (No model.)



Claim.—1. The combination of the case having an air-inlet and an air-outlet, and between the two a series of shelves, and a water-receptacle at the bottom of the case, with a wind-wheel located at the air-inlet, and a pump operated by such wind-wheel, the pump being connected with the water-receptacle at the bottom of the case, as set forth.

2. The combination of the case having an air-inlet and an air-outlet, and between the two a series of shelves, and a water-receptacle at the bottom of the case, with a wind-wheel located at the air-inlet, shutters between the wheel and air-inlet, and a pump operated by such wind-wheel, the pump being connected with the water-receptacle at the bottom of the case, as set forth.

3. The combination of the case having an air-inlet and an air-outlet, and between the two a series of shelves, and a water-receptacle at the bottom of the case, with a wind-wheel located at the air-inlet, and a pump operated by such wind-wheel, such pump consisting of a chain with buckets, the pump being connected with the water-receptacle at the bottom of the case, as set forth.

4. The combination of the case having an air-inlet and an air-outlet, and between the two a series of shelves, and a water-receptacle at the bottom of the case, with a wind-wheel located at the air-inlet, and a pump operated by such wind-wheel, such pump consisting of a chain with buckets, the buckets of the pump alternately opening in opposite directions, the pump being connected with the water-receptacle at the bottom of the case, as set forth.

5. The combination of the case having an air-inlet and an air-outlet, and between the two a series of shelves, and a water-receptacle at the bottom of the case, and a chain-pump communicating with said water-receptacle, and with the case at the air-inlet, the buckets of the pump alternately opening in opposite directions, as set forth

586,864. VENTILATING AND HEATING APPARATUS. JOSEPH MCCREERY, Toledo, Ohio. Filed Feb. 17, 1897. Serial No. 623,818. (No model.)

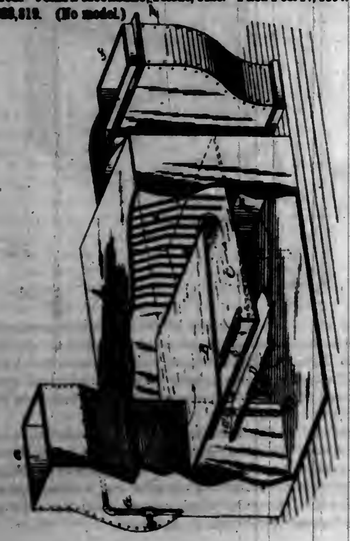


Claim.—1. The combination of a casing having an inlet and an outlet for air, and a radiator therein, consisting of a series of wings or sections spaced apart, and deflectors closing the space between the wings or sections and the casing at top and bottom and so arranged as to cause the air to move circuitously around and between the wings or sections, the space between the sides of the wings or sections and the casing being closed, as set forth.

2. The combination of a casing having an inlet and an outlet for air, and a radiator therein, consisting of a series of wings or sections spaced apart, and deflectors closing the space between the wings or sections and the casing at top and bottom and so arranged as to cause the air to move circuitously around and between the wings or sections, the space between the sides of the wings or sections and the casing being closed, the casing also being provided with a removable top or cover whereby the air may be allowed to escape at the top of the casing or be caused to pass around and between the radiator-sections before escaping, as set forth.

3. The combination of a casing having an inlet and an outlet for air, and a radiator therein, consisting of several wings or sections placed in such casing and spaced apart, and the deflector-plates, f f^2 and f^3, alternately connected at the top and bottom of the casing to the wings or sections and to the casing, as set forth.

586,865. AIR COOLING, CLEANSING, AND VENTILATING DEVICE. JOSEPH MCCREERY, Toledo, Ohio. Filed Feb. 17, 1897. Serial No. 623,819. (No model.)



Claim.—1. An air-cleansing device provided with a number of baffle-plates, the last of which has a trough at one end, and an outlet-pipe at such trough, as set forth.

2. An air-cleansing device provided with a number of baffle-plates, the last of which has a trough at one end, an outlet-pipe at such end, and a trough below such end, as set forth.

3. An air-cleansing device provided with a number of baffle-plates, the last of which has a trough at one end, an outlet-pipe at such end; and a trough below the lower end of said baffle-plate, the latter trough also having an outlet-pipe, as set forth.

4. An air-cleansing device provided with baffle-plates, and an ice-receptacle placed opposite the end of one of the baffle-plates, there being a space between such end and the ice-receptacle, as set forth.

5. An air-cleansing device provided with baffle-plates, and an ice-receptacle placed opposite the end of one of the baffle-plates, there being a space between such end and the ice-receptacle, and there being no ice-receptacle between the end of the last baffle-plate and the side of the air-cleansing device, as set forth.

6. An air-cleansing and cooling device provided with baffle-plates, and an ice-receptacle opposite to the end of one of the first baffle-plates, as set forth.

7. The air-cleansing and cooling device, A, having the baffle-plates, B and C, overlapping each other, the end, c, of the baffle-plate, C, being turned back to form a trough, and having the outlet-pipe, d'; the trough, D, across the case and under the lower end of the baffle-plate and having the down-pipe, d, as set forth.

8. The air-cleansing and cooling device, A, having the baffle-plate, B, secured at one end of the case, but stopping short of the other end, and the ice-receptacle placed between the baffle-plate, B, and the end of the case, as set forth.

9. The case, A, provided with the baffle-plates, B and C, the latter having a trough at one end, and the air-inlet, a, and air-outlet, a', with a water-supply pipe, G, connected to the air-inlet, a, as set forth.

586,866. ADVERTISING-CLOCK. JOHN A. PETERSON and WILBUR F. KELSEY, Marseilles, France. Filed Nov. 12, 1896. Serial No. 611,803. (No model.) Patented in France Mar. 17, 1896, No. 254,745; in Germany Aug. 12, 1896, No. 14,294, and in Belgium Sept. 30, 1896, No. 123,522.



Claim.—1. The combination in a clock of a frame surrounding the dial, and an opening in said frame, a disk pivoted upon the arbor and having a series of advertisements, announcements or the like imposed on its surface in a manner to show consecutively through said opening in the clock-frame by the rotation of the disk, a pair of studs upon said disk, and a retractile finger held between said studs, said finger being connected to the arbor and arranged to communicate movement to said disk, substantially as set forth.

2. The combination in a clock of a frame surrounding the dial and an opening in said frame, a disk pivoted upon the arbor and bearing advertisements or the like on its surface, a pair of guide-studs upon said disk and a row of stationary check-studs upon the clock-frame, a spring-actuated finger engaging said check-studs with the guide-studs, and means enabling said finger to slip the check-studs successively, to give an intermittent movement to the disk, substantially as set forth.

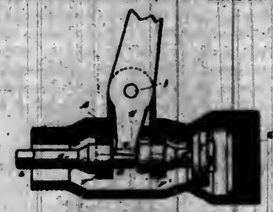
586,867. BICYCLE. ANTON FRASER, Chicago, Ill. Filed Mar. 22, 1897. Serial No. 628,642. (No model.)



Claim.—1. In a bicycle, the combination with three crank-axles journaled on the main frame, each having cranks, of a crank-axle for the rear wheel, pitmen or connecting-rods pivotally secured to the cranks of the rear axle and similarly secured to the cranks of the center crank-axle, vertical guideways located above the crank-axles, a pedal or foot-rest movably secured in each of said guideways, and rods pivotally connected to the pedals and the cranks of the crank-axles, and means to connect the pedals on the central uprights, with the pedals adjacent thereto, substantially as described.

2. In a bicycle, the combination with three crank-axles journaled on the main frame, each having cranks, of a crank-axle for the rear wheel, pitmen or connecting-rods pivotally secured to the cranks of the rear axle and similarly secured to the cranks of the center crank-axle, vertical guideways located above the crank-axles, a pedal or foot-rest movably secured in each of said guideways, and rods pivotally connected to the pedals and the cranks of the crank-axles, and the bars g, pivotally secured on one of the pedals or foot-rests, and adapted to be placed in engagement with the adjacent foot-rest, substantially as described.

586,868. WASH-OUT VALVE FOR STEAM-BOILERS. JOHN ROBERT, Detroit, Mich. Filed Feb. 5, 1897. Serial No. 622,070. (No model.)



Claim.—1. The combination of a valve-case forming an interior water-chamber, provided with a seat and with interior guides, a valve to seat upon said seat, said valve provided with a stem having an endwise movement within said guides, and a lever projecting through the case intermediate its ends to actuate the valve, said valve-stem constructed with an annular recess intermediate its ends to receive the inner end of the lever-arm, said lever-arm pivotally connected with the valve-case, and having a water-tight joint in connection therewith, substantially as described.

2. The combination of a valve-case open at one end and provided with a valve-seat toward the opposite end, and with interior guides, a valve provided with a reciprocatory stem having an endwise movement within said guides, and a lever-arm projecting through the case at an angle to the valve-stem, and engageable therewith to reciprocate the valve, said valve being rotatable independently of said lever-arm, substantially as described.

3. The combination of a valve-case provided with a seat toward one end thereof and being open at the opposite end, a valve provided with a stem recessed intermediate its extremities, and a lever-arm projecting through the valve-case intermediate its ends, to engage in the recess of the valve-stem, said valve being rotatable, said stem projecting through the open end of said case, whereby the valve may be rotated, substantially as described.

586,869. COMBINED PURSE, PARCEL-CARRIER, AND BELT-BUCKLE. JAMES SAWER, Walla Walla, Wash. Filed Oct. 8, 1896. Serial No. 608,041. (No model.)

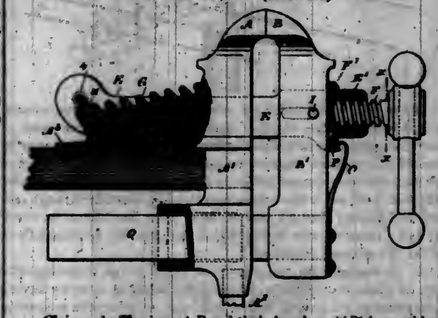


Claim.—1. A device of the character indicated comprising a plate having a cut-away portion in its center, a fabric secured by said plate in the cut-away portion, a pocket upon the plate in front of the fabric, an elastic strip carried by the back plate, and means upon said plate for securing the same to a belt, substantially as described.

2. A device of the character indicated comprising a plate, having a cut-away portion in the center, means for securing said plate, and a strip of elastic carried by the back plate upon a belt, springs upon the bottom of said plate, and a front plate carried by said springs and normally held by them against the first-mentioned plate, substantially as described.

3. A device of the character indicated comprising a back plate having a cut-away portion in the center, means upon said back plate for attaching the same to one end of a belt, a hook upon said back plate adapted to engage the other end of a belt, a fabric carried by the back plate in the cut-away portion, a pocket upon the front of said back plate opposite the fabric in the cut-away portion, spiral springs at the lower edge of said back plate, one of the ends of said springs being secured to the back plate and the other of the ends of said springs carrying a front plate, and a strip of elastic carried by the back plate, substantially as described.

586,870. VISE. WILLIAM R. SNEDIKER, Jersey City, N. J. Filed Feb. 23, 1897. Serial No. 624,545. (No model.)



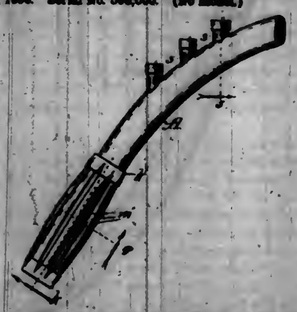
Claim.—1. The jaws A B and their jaw-legs A' B', in combination with the horizontal bar Q passing through a mortise in the jaw-leg A', the straps E passing at the sides of the jaw-legs and connected by the nut E', the screw passing through said nut, the stepped incline at the rear of the stationary jaw and the cross-key between the rear portions of the straps and engaging the stepped incline, substantially as set forth.

2. The combination with the jaws and jaw legs or levers, of straps passing at the sides of the jaw legs or levers and a nut connecting such straps, a screw passing through the nut, a stepped incline at the rear of the stationary jaw having teeth and intermediate cross-grooves with rounded bottoms, and a cross-key between the rear portions of the straps having a rounded lower edge fitting into the cross-grooves between the teeth, substantially as set forth.

3. The combination with the stationary and moving jaws and their legs or levers, of straps one at each side of the jaw legs or levers, a nut connecting the straps, a screw passing through the nut and a plate between the straps and between the end of the screw and the movable jaw, and a projection at the upper end whereby such plate is suspended, substantially as set forth.

4. The combination with the stationary and moving jaws and their legs or levers, of straps one at each side of the jaw legs or levers, a nut connecting the straps, a screw passing through the nut and a plate between the straps and between the end of the screw and the movable jaw, and a projection at the upper end whereby such plate is suspended, and a spring acting to press the nut toward the leg or lever of the moving jaw, substantially as set forth.

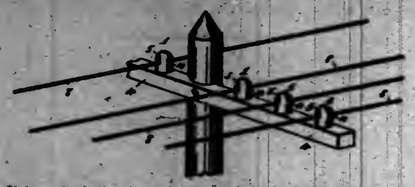
586,871. BICYCLE-HANDLE. PETER STEIN, Chicago, Ill. Filed July 3, 1896. Serial No. 598,005. (No model.)



Claim.—1. The combination of a hollow handle-bar having series of outlets at the handle and an air-inlet at its front side, a hollow nipple for said inlet, a screen for the nipple, strips of metal covered with leather, or the like, bent to engage the handle-bar and so disposed thereon as to afford longitudinal channels communicating with said series of outlets, and ferrules clamping said strips in place, substantially as and for the purpose set forth.

2. The combination of a hollow handle-bar having an air-inlet, and series of air-outlets, longitudinally-extending separable metal strips covered with leather or the like and so disposed as to afford channels communicating with said outlets, and means for securing the strips to the bar, substantially as and for the purpose described.

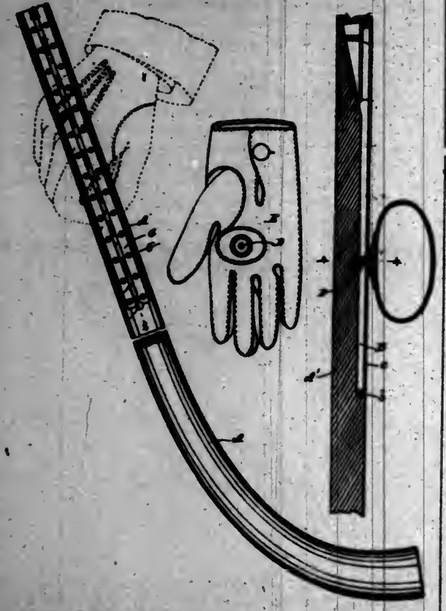
586,372. INSULATOR. HENRY W. STEPHENS, Jr., Walla Walla, Wash. Filed Dec. 2, 1896. Serial No. 614,272. (No model.)



Claim.—1. An insulator for telegraph and other wires, consisting of a block of glass or other insulating material, a screw cast or otherwise secured in said block by means of which the same may be attached to a suitable support, the said block being further provided with an irregularly-shaped slit in its upper end in which the line-wire is adapted to fit, and with an opening extending laterally through said block and passing through said slit at a point just above its lower end, and a securing-wire fitting within said opening, substantially as and for the purpose described.

2. An insulator for telegraph and other wires, consisting of a block of glass or other suitable insulating material, a screw having a polygonal or irregularly shaped head cast or otherwise secured in the lower end of said block and projecting outwardly therefrom, by means of which the same may be attached to a suitable support, the said block being further provided with a slit in its upper end which terminates at a point adjacent to the longitudinal center of said block and is formed with a central curved portion with outwardly-extending straight ends in a line one with the other, and with an opening extending laterally through said block and passing through said slit at a point just above its lower end, and a securing-wire fitting within said opening and having its outer ends bent for preventing the slipping or displacement thereof, substantially as and for the purpose described.

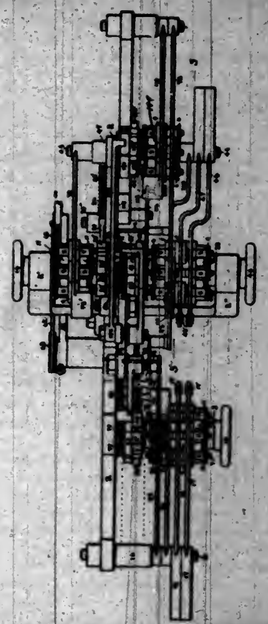
586,373. POLO-STICK. ALEXANDER W. WALKER, Boston, Mass. Filed Nov. 20, 1896. Serial No. 612,695. (No model.)



Claim.—1. In combination, a polo-stick, or other athletic or sporting device, having a longitudinally-grooved handle, and a glove or holder having a locking device adapted to be introduced and retained in said grooved handle, substantially as and for the purpose set forth.

2. In combination, a polo-stick or other athletic or sporting device having a longitudinally-grooved handle, a movable locking latch or gate arranged thereon and a glove or holder having a locking device adapted to be introduced and retained in said grooved handle, substantially as and for the purpose set forth.

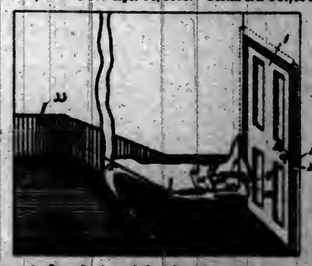
586,374. MULTIPLIER MECHANISM FOR LOOMS. WILLIAM WALTER, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Mar. 16, 1897. Serial No. 627,203. (No model.)



Claim.—1. In a loom of the class described, the combination with a main pattern-chain mechanism, a second or multiplier pattern-chain mechanism, intermediate connecting mechanism, and mechanism for operating said two pattern-chain mechanisms, of a third pattern-chain mechanism, and a fourth pattern-chain mechanism, and intermediate connecting mechanism, and mechanism for operating said third and fourth pattern-chain mechanisms, and mechanism intermediate and connecting the fourth pattern-chain mechanism with the main pattern-chain mechanism, to put into action the main pattern-chain mechanism from the fourth pattern-chain mechanism, substantially as shown and described.

2. In a loom of the class described, the combination with a main pattern-chain mechanism, a multiplier pattern-chain mechanism, and a shuttle-drop-box-shifting mechanism, and connections between the main pattern-chain mechanism and the box-shifting mechanism to operate said box-shifting mechanism from the main pattern-chain, of a third pattern-chain mechanism, a fourth pattern-chain mechanism, and connections between said third pattern-chain mechanism and the shuttle-drop-box-shifting mechanism, to operate said box-shifting mechanism from the third pattern-chain, and connections between the fourth pattern-chain mechanism and the main pattern-chain mechanism, to start the main pattern-chain mechanism from the fourth pattern-chain mechanism, substantially as shown and described.

586,375. DOOR OPENER OR CLOSER. DELVAN B. AKARD, San Francisco, Cal. Filed Apr. 30, 1895. Serial No. 547,654. (No model.)



Claim.—1. In a device of the class described, the combination of a stationary semicircular roadway 3, with a movable linked rod 5, formed with friction-wheel 6 adapted to bear on shoulders 7 in said roadway, connecting-link 8 pivoted to said linked rod and the hinged

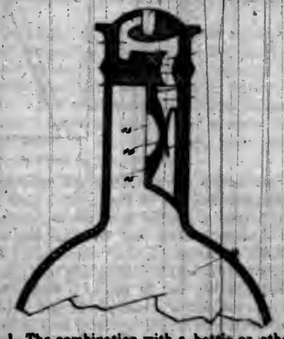
edge of the door, and a cut-away portion 4 in said roadway for the reception of said connecting-link, substantially as set forth.

2. In a device of the class described the combination of a stationary roadway 3 with a movable linked rod operating in said roadway and connected with the door, a metal box 13 bearing a sliding member 17, a coiled spring 18 connecting said linked rod with said sliding member, and an unlatching device engaging with said member and means for operating said sliding member substantially as set forth.

3. An unlatching device for doors consisting of a pivoted member ending in a cam, the terminal portion of the periphery of said cam being formed on the arc of a circle with the pivot of said member as a center substantially as set forth.

4. In a device of the class described the combination with a hinged door, a linked rod pivoted to said door at a point without its center of revolution, an operating device connected to said linked rod and by means of which said linked rod is moved in both directions, a guide for said linked rod, and an unlatching device connected to said operating device and by means of which said door is unlatched, for the purpose set forth.

586,376. SEALING DEVICE FOR BOTTLES. CHARLES P. BERMAN, Lindenhurst, N. Y. Filed Nov. 13, 1896. Serial No. 611,991. (No model.)



Claim.—1. The combination with a bottle or other vessel, provided with a neck, of a plug which is adapted to be secured therein, said plug being provided at one side with a downwardly-directed extension in which is formed a chamber, and with an irregular passage which communicates with said chamber, the inner wall of said chamber being also provided with an opening, and a spring-operated valve mounted in said chamber, and adapted to close said opening, said valve being adapted to be forced from its seat by the pressure of liquids within the bottle or vessel when the latter is inverted or tilted, substantially as shown and described.

2. The herein-described sealing device for bottles and other vessels, consisting of a plug which is adapted to be inserted into and secured in the neck of the vessel, said plug being provided at one side with a depending extension in which is formed a chamber which is in communication with an irregular passage formed in the plug, the upper end of which communicates with a vertical bore in the inner end of the plug, the inner wall of said chamber being also provided with an opening and a spring-operated valve which is mounted in said chamber and adapted to close said opening, substantially as shown and described.

586,377. MILK-PAIL. WILLIAM F. BOSWORTH, Lewistown, Pa. Filed Sept. 24, 1896. Serial No. 606,880. (No model.)

Claim.—1. The combination with a milk-pail, and a funnel-shaped cover therefor; of a funnel detachably connected with the center of said cover and communicating therewith, a valve hinged at one side of the opening at the lower end of the funnel and having an eye at its opposite edge, a track having a depressed center and higher ends secured to opposite sides of the exterior of the funnel, and a weight traveling on said track and connected with said eye, as and for the purpose set forth.

2. The combination with a milk-pail, a funnel therein having a bias outlet-opening at its lower end, and detachable water-tight connections between the upper ends of the pail and funnel; of a valve hinged to the funnel at the higher side of its outlet and having an eye at its opposite edge, a track having a depressed center and higher ends which latter are turned inward and secured to opposite sides of the funnel on the exterior of its body, a stiff wire linked into said eye and having an eye in its body loosely embracing the track, and a weight mounted on the upper end of this wire, as and for the purpose set forth.

586,377.



586,378. ADJUSTABLE SUPPORT FOR INCANDESCENT ELECTRIC LIGHTS. CHARLES A. CARMANY, Ephrata, Pa. Filed Mar. 22, 1897. Serial No. 628,706. (No model.)



Claim.—1. A device for adjustably supporting incandescent electric lights, comprising the non-conducting base, the parallel standards secured thereto, a non-conducting drum, conducting-disks fixed on the outer ends of said drum and journaled in said standards, a transversely-divided cylindrical shaft mounted in said drum and having the contiguous ends insulated from each other by a non-conducting disk, a spiral spring having its inner end fixed to one of said standards and its outer end connected to one of said disks, in combination with a duplex flexible conducting-tape having the contiguous ends of its conductors electrically connected to the insulated sections of said divided shaft, and adapted to be wound on said drum in the contrary direction to the spiral spring as and for the purpose set forth.

2. A device of the character described, comprising the parallel standards, the drum, the disks secured to said drum and journaled in said standards, the shafts 25 26, mounted transversely in said drum and separated by a non-conducting disk 29, the spiral spring connected to one of said disks and its contiguous standard and adapted to rotate said drum and disks in a reverse direction to that from which it is wound, in combination with the star-wheel journaled on the standard 13, a lever 40, having an obtuse-angled pawl 41 engaging said star-wheel, a spring 47 adapted to regulate the pressure of said pawl on the star-wheel and a projecting stud 46 on the face of the rotating disk 21, adapted to engage said star-wheel, substantially as and for the purpose set forth.

586,379. NECKTIE-HOLDER. WILLIAM B. CLEARY, Elizabeth, N. J., assignor of one-half to Benjamin H. Adams, Yonkers, N. Y. Filed Feb. 8, 1897. Serial No. 622,462. (No model.)

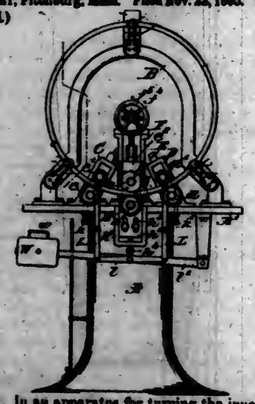
Claim.—1. As a new article of manufacture, a scarf-holder, having a substantially flat back with an orifice therein and a socket at the bottom thereof, and a neck or shank with projecting hooks.

2. As a new article of manufacture, a necktie-holder having a base or back, with an orifice therein and a socket with resilient sides

and neck, a shank, bent forward to permit its passage through the buttonhole, then back to assume a flat position with reference to the shirt-front, and a hook or hooks at the end of said shank with sharpened points said hooks being bent downward, substantially as described.



586,380. MACHINE FOR SHAPING WOODEN RIMS. CHARLES H. COWDERY, Pittsburg, Mass. Filed Nov. 23, 1895. Serial No. 569,767. (No model.)



Claim.—1. In an apparatus for turning the inner circumference of wheel-rims, &c., a vertical U-shaped guide-frame provided with three or more guide-plates extending radially therefrom at points substantially equidistant about a circle and having their outer supporting-surfaces lying in the same vertical plane to support an endless wheel-rim, a guide-arm for each plate and pivotally hinged thereto to receive the wheel-rim between said arm and plate and retain the same in proper position, and a horizontal cutter and cutter-shaft extending through, or between the arms of, said U-shaped frame, substantially as described.

2. In an apparatus for turning the inner circumference of wheel-rims, &c., a vertical guide-frame provided with three or more guide-plates extending radially therefrom at points substantially equidistant, and having their outer supporting-surfaces lying in the same vertical plane, and a spring-actuated hinged guide-arm for each plate and pivotally hinged thereto to receive the wheel-rim between said arm and plate and retain the same in proper position, and a horizontal cutter and cutter-shaft, substantially as described.

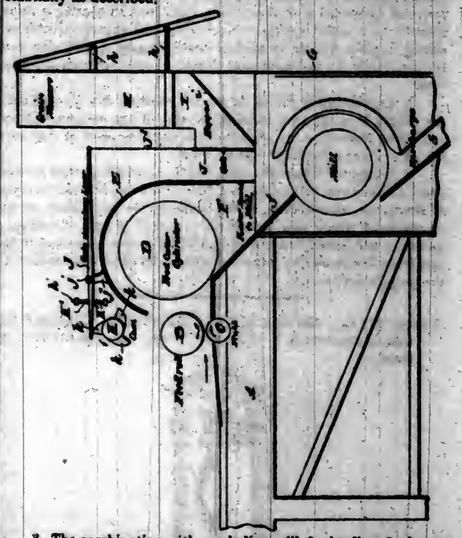
3. In an apparatus for turning the inner circumference of wheel-rims, &c., a vertical U-shaped guide-frame provided with three or more guide-plates extending therefrom having their outer supporting-surfaces lying in the same vertical plane, a guide-arm for each plate to receive the wheel-rim between said arm and plate and retain the same in proper position, vertical standards for the cutter-shaft, centrally disposed between the arms of said U-shaped frame, and yokes for the wheel-rim supporting and feeding devices, said yokes being inclined radially to the wheel-rim to be supported and arranged within said frame, one on either side of said standards, substantially as described.

4. In an apparatus for turning the inner circumference of wheel-rims, &c., adjustable supports to sustain the periphery of the rim at two points, means to adjust said supports to accommodate rims of different diameters, and clamping devices to bear on the inner side of the rim opposite said supports, and movable to and from the same, combined with a tension-lever having an adjustable weight at one end and pivoted at its other end to a fixed support, said weight being provided with a handle for readily lifting the same and said clamping devices, an equalizing-bar intermediately connected to said lever and links joining said equalizing-bar at either end thereof to said clamping devices respectively, whereby either or both of said clamping devices may yield and the tension thereof remain constantly uniform, substantially as described.

586,381. MILL. ALBERT P. DAVIS, Rutland, Vt. Filed May 29, 1896. Serial No. 593,627. (No model.)

Claim.—1. The combination with a grinding-mill, feed-rolls, a feed-cutter and a grain-supplying device, of a movable gate controlling the discharge from the grain-supplying device, and means for intermittently actuating said gate; substantially as described.

2. The combination with a grinding-mill, feed-rolls, a feed-cutter and a grain supplying and measuring device, of a movable gate disposed between the grain-supplying device and the feed-spout to the mill and constructed to control the discharge from the grain-supplying device, and means for intermittently actuating said gate; substantially as described.



3. The combination with a grinding-mill, feed-rolls, a feed-cutter and the grain-supply box and its hopper, of a gate controlling the outlet of said hopper, a pivoted lever flexibly connected with said gate, a shaft arranged beneath said lever and means on said shaft for intermittently actuating the lever; substantially as described.

4. The combination with a grinding-mill, feed-rolls, a feed-cutter and the grain-supply box and its hopper, a feed-cutter and a spout from the same to the mill, of a casing over said cutter, a gate controlling the outlet of said hopper, a pivoted lever pivotally supported from said casing and flexibly connected with said gate, a shaft arranged beneath said lever, and means on said shaft for intermittently actuating the lever, and springs upon opposite sides of said lever; substantially as described.

5. The combination with a grinding-mill feed-rolls, a feed-cutter and the grain-supply box and its hopper, a feed-cutter and a spout from the same to the mill, of a casing over said cutter, a gate controlling the outlet of said hopper, a pivoted lever pivotally supported from said casing and flexibly connected with said gate, a shaft arranged beneath said lever, springs upon opposite sides of said lever, and a rod passed loosely through said lever and around which the springs are coiled; substantially as described.

6. The combination of a grinding-mill, a feed-cutter with a spout leading to said mill, a grain-measuring box with a hopper leading to said mill, feed-rolls for said feed-cutter, a gate controlling the discharge from said hopper, a pivoted lever connected with the gate, and means for automatically, intermittently actuating said lever; substantially as and for the purpose specified.

586,382. BEATING-ENGINE. THOMAS P. FLAHERTY, Coventry, Conn. Filed June 27, 1895. Serial No. 554,181. (No model.)



Claim.—1. In a beating-engine the combination with a tank, a beater, a cradle having a pervious surface extending beneath the normal pulp-line and an outlet-opening, and means to vibrate the same in a vertical path of movement, substantially as described.

2. In a beating-engine, the combination with a tank and a grinder, of a constantly vertically vibrating cradle arranged to remove the surplus water from the tank, and means to vibrate the same in a vertical path of movement, substantially as described.

3. In a beating-engine, the combination with a tank, and grinder, of a cradle arranged above the pulp within said tank, having a perforated bottom, a support for one end of said cradle, an outlet for the removal of water by said cradle, and means to vertically vibrate the other end thereof, substantially as described.

4. In a beating-engine, the combination with a tank, and a grinder, of the cradle arranged to normally vibrate to remove the surplus water from the tank, one or more inlet-openings, and a side outlet therefor for the said removal of the water, substantially as described.

5. In a beating-engine, the combination with a tank, and grinder, of the cradle, adjustable supports for and to vary the height of one end of said cradle, means to vibrate the other end thereof, and an inlet and an outlet for the cradle, substantially as described.

6. In a beating-engine, the combination with a tank, and grinder, of the vibrating cradle, one or more inlet-openings therefor, the side outlet therefor, through the wall of said tank, and the closure on the said cradle, to close said tank-wall outlet when the cradle is raised, and means to raise the cradle, substantially as described.

7. In a beating-engine, the combination with a tank, and grinder, of the vibrating cradle having a curved bottom, and the splasher-board thereon at the upper side of said bottom, whereby the splash of the cradle against the flow of the pulp is prevented, one or more inlet-openings and an outlet for the water, substantially as described.

8. In a beating-engine, a tank, a rotating grinder, the cradle having a perforated bottom, its arms, a shaft from which said arms are suspended, and by which they are adjusted, a locking device for said arms to lock them in adjusted position, a crank connected with and to vibrate the opposite end of said cradle and connected with and driven from the grinder-shaft, and an outlet for the water, substantially as described.

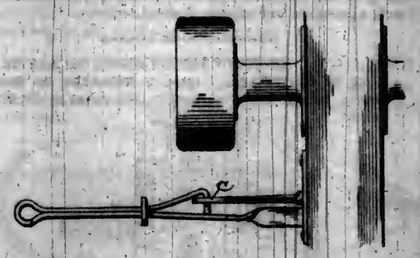
9. In a beating-engine, the combination with a vibrating cradle having a suitable inlet-opening, of a side outlet therefor opening near the bottom thereof, means to close said outlet, whereby the normal flow from said cradle is provided for and may be regulated, a scoop arranged to rotate in said cradle above said bottom, means to rotate the same, and a hollow discharge-shaft therefor, whereby, when liquid in the cradle rises above the dip of said scoop, it is automatically removed thereby, substantially as described.

10. In a beating-engine, the combination with a vibrating cradle, pervious inlet-surface therefor, of an outlet therefor opening near the bottom thereof, means to permit a restricted normal flow of the water from the cradle through said opening, means to close said outlet, whereby said flow may be regulated, a second outlet-opening at or near the top of said cradle, and means to automatically deliver through said second outlet all water that rises above a predetermined level within said cradle, substantially as described.

11. In a beating-engine, the combination with a tank, and grinder, of a cradle arranged above the pulp within said tank, and having a perforated bottom, a support for one end of said cradle, and means to vertically vibrate the other end thereof, substantially as described.

12. In a beating-engine, the combination with a tank, and grinder, of a cradle arranged to normally vibrate and to remove water from the tank, and a side outlet therefor, for the said removal of the water, substantially as described.

586,383. KEY-FASTENER. JOHN B. [illegible] WAGNER, Springdale, Pa. Filed Feb. 18, 1897. Serial No. 623,003. (No model.)

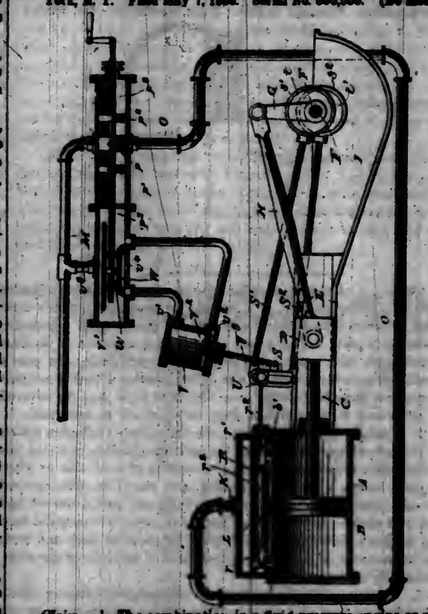


Claim.—1. A key-fastener comprising a plate having a vertical and a horizontal portion, a spring-arm substantially parallel with the horizontal portion, and means embracing the horizontal portion and the spring-arm for compressing the spring-arm, substantially as and for the purpose specified.

2. A key-fastener comprising a plate having a vertical and a horizontal portion, a spring-arm substantially parallel with and integral with the horizontal portion and having one end bent at right angles to its length, and a loop embracing the said arm and horizontal portion and mounted to slide, as and for the purpose specified.

3. A key-fastener consisting of a plate twisted between its ends to form a vertical and a horizontal portion, a spring-arm integral with and substantially parallel with the horizontal portion of the plate and having one end bent at right angles to its length to form a tongue, and a sliding loop embracing the horizontal portion of the plate and the parallel spring-arm, all substantially as shown and described.

586,384. FLUID-PRESSURE MOTOR. JAMES H. HOADLEY, New York, N. Y. Filed May 7, 1896. Serial No. 590,808. (No model.)



Claim.—1. The combination, in a fluid-pressure engine or motor, of suitable reversing mechanism, a fluid-pressure-operated device controlling the reversing mechanism, a fluid-supply pipe communicating with the engine or motor and the reversing controlling device, a throttle-valve in the supply-pipe controlling the supply of fluid to the motor, a valve controlling the supply of fluid to the reversing controlling device, and a suitable engine-controlling device constructed to simultaneously operate the throttle-valve and valve of the fluid-pressure-controlling device of the reversing mechanism.

2. The combination, in a fluid-pressure engine or motor, of the reversing mechanism, a fluid-pressure cylinder, a piston working in the cylinder and connected with the reversing mechanism of the engine, a valve controlling the admission and exhaust to and from the fluid-cylinder, the fluid-pressure-supply pipe communicating with the engine or motor and with the reversing fluid-cylinder, the main throttle-valve of the motor, and a single controlling device constructed to operate both valves simultaneously, substantially as set forth.

586,385. CANDLESTICK. JOHN F. LEHR and WILLIAM J. LEHR, Baltimore, Md. Filed May 5, 1897. Serial No. 635,125. (No model.)

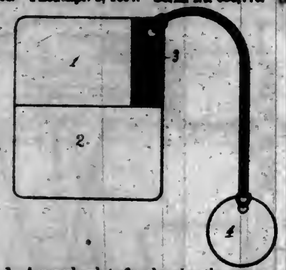


Claim.—1. A candlestick having in combination, a saucer; three upright spring-rods secured by their lower ends to the saucer, and each rod provided at its upper end with a broad flat face to press the sides of the candle; and a socket for the lower end of the candle having laterally-projecting clip ends which have a friction-grip on the upright rods, as set forth.

2. A candlestick having in combination, a saucer; three upright spring-rods secured by their lower ends to the saucer, and each rod provided with an outward curve or bend; and a socket for the lower end of the candle having laterally-projecting clip ends which have a friction-grip on the upright rods, and provided with a band or collar which surrounds the outsides of the said upright rods, and which rest on the said outward curves when the socket is at its lowermost position.

3. A candlestick having in combination, a saucer; three upright rods each having its lower end bent L shape; a disk having radial grooves and setting over said L-bends; a rivet through the disk and saucer to confine said parts together; and a vertically-movable socket between said rods and sliding thereon, as set forth.

586,886. SAMPLE-PLATE. OSCAR C. LITTLE, Menomonie, Wis., assignor to the O. C. Little & M. M. Schoetz Pulley Coating Company, same place. Filed Apr. 5, 1897. Serial No. 630,770. (No model.)



Claim.—1. A sample-plate for showing the comparative adhesive effects of a pulley-coating, or a coating for making a surface more or less adhesive than without said coating, consisting of a metallic, or other thin plate having a part of its surface upon one of its sides covered with said coating and immediately adjoining said part a smooth and uncovered surface, and in combination a leather or other belt-material piece for rubbing over, back and forth upon the covered and uncovered surfaces of said plate, substantially as described.

2. A sample-plate for showing the comparative adhesive effects of a pulley-coating, or a coating for making a surface more or less adhesive that without said coating, consisting of a metallic or other thin plate having a part of its surface upon one of its sides covered with said coating and immediately adjoining said part a smooth and uncovered surface, and a piece of leather or other belt material having a flexible connection with said plate for rubbing back and forth from the covered to the uncovered surfaces of said side of the plate, substantially as described.

3. A sample-plate for showing the comparative adhesive effects of a pulley-coating, or a coating for making a surface more or less adhesive than without said coating, consisting of a metallic or other thin plate having a part of its surface upon one of its sides covered with said coating and immediately adjoining said part a smooth and uncovered surface and also adjoining said covered part a portion having a textile fabric exposed to view, and in combination a disk of leather or other belt material for rubbing back and forth upon the coating covered and uncovered portions of said plate, substantially as set forth.

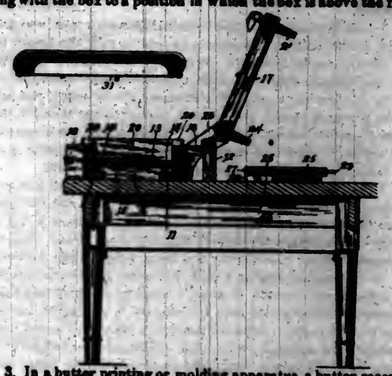
4. A sample-plate for showing the comparative adhesive effects of a pulley-coating, or a coating for making a surface more or less adhesive than without said coating, consisting of a metallic, or other thin plate having a part of its surface upon one of its sides covered with said coating and immediately adjoining said part a smooth and uncovered surface, and in combination a piece of leather or other belt material for rubbing over back and forth from the covered to the uncovered surfaces of said side of the plate, and the opposite side of said plate adapted to receive advertising matter, such as its name, a manufacturer's address, or other descriptive matter, substantially as described.

5. A sample-plate for showing the comparative adhesive effects of a pulley-coating, or a coating for making a surface more or less adhesive than without said coating, consisting of a metallic plate, or other thin material having a part of its surface upon one of its sides covered with said coating and immediately adjoining said part a smooth and uncovered surface, and also adjoining said covered part a portion having a textile fabric exposed to view, a disk of leather or other belt material having a flexible connection with said plate for rubbing back and forth upon the coating covered and uncovered portions of said plate, and the opposite side of said plate adapted to receive advertising matter, such as its name, a manufacturer's address, or other descriptive matter, substantially as shown and described.

586,887. BUTTER PRINTER OR MOLDER. GEORGE LESTER, Lake Mills, Wis., assignor to the F. B. Farge & Company, same place. Filed Feb. 20, 1897. Serial No. 624,626. (No model.)

Claim.—1. In a butter-molding apparatus, the combination of a box open at the top, a movable and removable bottom therein normally resting on supports in the box at a distance below the top, and a frame having butter-cutting wires arranged transversely thereof, said frame being hinged to the box so as to close on and open from the top of the box, and the box and the frame being hinged to a common support in such manner that the box may be swung over with the frame to a position above the frame.

2. In a butter-molding apparatus, the combination of a box open at the top and having flanges projecting inwardly from the walls thereof at a distance below the top, a movable bottom normally resting on the flanges, a frame provided with transverse cutting-wires hinged to the box so as to close down on the top thereof, a support to which the box and the frame are hinged at a common axis, and means on the frame to support it at a distance above the floor when swung with the box to a position in which the box is above the frame.



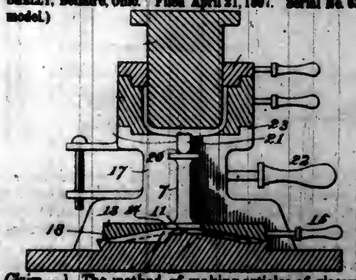
3. In a butter printing or molding apparatus, a butter-receptacle comprising a box with open top and bottom, an adjustable and removable bottom or print-board therein, means for adjusting the bottom with reference to the top edge of the receptacle, a frame having butter-cutting wires arranged transversely thereof, the frame being hinged to the receptable, and means adapted to secure the frame releasably to the receptacle.

4. In a butter printing or molding apparatus, a butter-receptacle comprising a box with open top and bottom, an adjustable and removable bottom or print-board therein, means for adjusting the bottom with reference to the top edge of the receptacle, a frame having butter-cutting wires arranged transversely thereof hinged to the receptacle, shoulders or supports on the receptacle to receive the frame thereon, there being recesses in the edges of the receptacle to receive the cutting-wires therein.

5. The combination with a butter-receptacle hinged to a support and having a movable bottom, and a butter-block-cutting device hinged to the receptacle and to said support, of a butter-receiving platform secured to the common support in such manner as to register with and be below the receptacle and cutting device when they are swung on their common hinge over above the platform.

6. In a butter-molding apparatus adapted for molding and dividing butter into a plurality of blocks or bricks, a butter-receiving platform comprising a plurality of boards of like size and form secured to each other separably by a plurality of parallel tying-straps all arranged in the same direction with reference to each other and obliquely with reference to the boards, said straps being independent of each other but severally pivoted to the boards, means for securing one of the board releasably in stationary position, and means on another of said boards for conveniently seizing it for separating the boards against the hold of such securing devices.

586,888. METHOD OF AND APPARATUS FOR MAKING ARTICLES OF GLASSWARE. PATRICK J. MCDONOUGH AND THOMAS R. SEELLY, Bellaire, Ohio. Filed April 21, 1897. Serial No. 633,133. (No model.)



Claim.—1. The method of making articles of glassware having bowls, stems, and feet, which consists in forming the stem with a complete foot on one end and surplus glass on the other end, fracturing the stem end by removing the surplus glass, and then applying the bowl to said fractured end, as set forth.

2. The method of making articles of glassware having bowls, stems, and feet, which consists in pressing the stem in a suitable mold with a complete foot on one end and surplus glass on the other end, breaking off the surplus glass, then blowing the bowl to the broken-off surface of the stem, as set forth.

3. A stem and foot press-mold comprising open and shut portions, a solid ring having a cover, and seated in the top of said portions, and a plunger operated through said cover in said ring, as set forth.

4. In a stem and foot press-mold, the combination with the open and shut portions, of a ring in the top of said portions, a ring in the bottom of said portions, and a plunger operated in the said top ring as set forth.

5. An apparatus for pressing the stems and feet of articles of glassware, comprising a base having a raised portion, a ring having a central aperture and surrounding the raised portion with an interval or space between said portion and ring, a split mold having a central bore and a gate contiguous with the bore and inclosing the ring, a solid ring upon the split mold and having a cover and a plunger adapted to be operated through the cover in said solid ring, substantially as set forth.

586,889. RAIL-JOINT AND NUT-LOCK THEREFOR. EDWIN PRAHL, Centerville, Pa. Filed Jan. 23, 1897. Serial No. 620,484. (No model.)



Claim.—1. In combination with the meeting ends of railway-rails, a plate placed beneath the same, blocks B and C adapted to bear against the webs of said rails and support the latter by their heads, a series of bolts passed through said blocks and rails, the heads of said bolts fitting within recesses in the block B, nuts run upon the threaded ends of the bolts, so as to bind the parts together, a locking-strip having holes therein adapted to fit over the nuts, a bolt H passed through the locking-strip, a nut J run upon the threaded end thereof, a bar adapted to bold the last-named nut against rotation, and means for securing said bar against displacement, as specified.

2. The herein-described combination of the meeting ends of two rails, a plate arranged beneath the same, blocks B and C so formed as to fit against the webs of the rails and support the latter by their heads, bolts D passed through said blocks and rails, the heads of said bolts being fitted in recesses formed in the block B, nuts run upon the threaded ends of said bolts for binding the several parts together, a locking-strip having holes formed therethrough for the passage of the nuts, a bolt H passed through the locking-strip, blocks and rails and having its head let into said strip, a nut J run upon the threaded end of the bolt H, a bar having a hole therethrough for the passage of the last-named nut, a bolt M passing through the plate and the outer end of the bar, a spring coiled about the lower portion of said bolt, and a nut run upon the threaded end thereof, all arranged substantially as and for the purpose set forth.

586,890. MEANS FOR PROPELLING SHIPS, &c. JEAN B. PINCHARD, San Francisco, Cal. Filed July 22, 1896. Serial No. 600,153. (No model.)



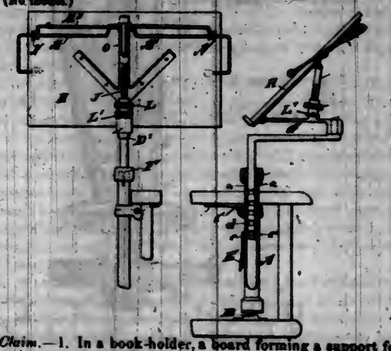
Claim.—1. In an apparatus for propelling vessels, suitable guides secured to the side of the vessel, reciprocating frames moving in said guides, and a mechanism for reciprocating the frames, combined with two sets of wings, one for propelling and the other for backing the vessel, hinged to the frames; hooks for locking each set of wings in a closed position, a slide for each frame and to which the two sets of hooks are secured, and means for adjusting each slide so that either set of hooks can be brought into use, substantially as set forth.

2. In an apparatus for propelling vessels, suitable guides secured to the side of the vessel, a sliding frame moving in the guides, and two sets of wings which operate in opposite directions, combined with an endwise-moving slide carrying hooks for each set of wings, an operating mechanism for moving the slides, located inside of the vessel, and connecting with the slides through the sides of the vessel, substantially as specified.

3. In an apparatus for propelling vessels, a sliding frame, provided with stops f' f^2 f^3 f^4, two sets of hinged wings F', F^2, F^3, F^4, which operate in opposite directions; and two sets of hooks, turned in opposite directions, for locking either set of wings in a closed position, combined with slides to which the hooks are secured; the pins projecting from the inner sides of the slides, the sliding bolts having outwardly-turned ends, and the levers H, and pins h', h^2 for reciprocating the bolts, substantially as shown.

4. In a propelling apparatus the combination of a slidable frame having two sets of oppositely-hinged wings, a locking-bar provided with oppositely-pointed hooks arranged to slide respectively and alternately over one set of said wings and lock the same, a lever, and suitable connections whereby said lever is made to shift said bar and said hooks, substantially as described.

586,891. BOOK-SUPPORTER. HENRY L. PINNEY and FRANKLIN LEMBURG, Cass City, Mich. Filed Sept. 3, 1896. Serial No. 604,702. (No model.)



Claim.—1. In a book-holder, a board forming a support for the book and carrying means for adjusting the angle of the same in combination with a leaf-holder consisting of wires pivoted near the upper edge of the said board, the outer ends thereof having a forward side bend and then a return-bend, said return-bend being at such a distance from the pivot of the wire as to swing over the upper edge of the board, the other or rear end of the wire beyond the pivot being offset in a direction opposite the forward portion, and a spring pressing upon this rear offset portion, substantially as described.

2. In a book-holder, a swinging arm adjustably pivoted on a vertical pivot, an arm pivoted thereon, and a board pivoted at its lower edge to the free end of said pivoted arm, in combination with a rod of adjustable length supporting the upper portion of said board and consisting of a screw-threaded rod pivoted to the board, and a nut upon said rod, and a pivoted support for said nut upon the pivoted arm, substantially as shown and described.

586,892. MOWING-MACHINE. HENRY R. PRESSER, Chicago, Ill., assignor to the McCormick Harvesting Machine Company. Filed Jan. 17, 1896. Serial No. 575,965. (No model.)

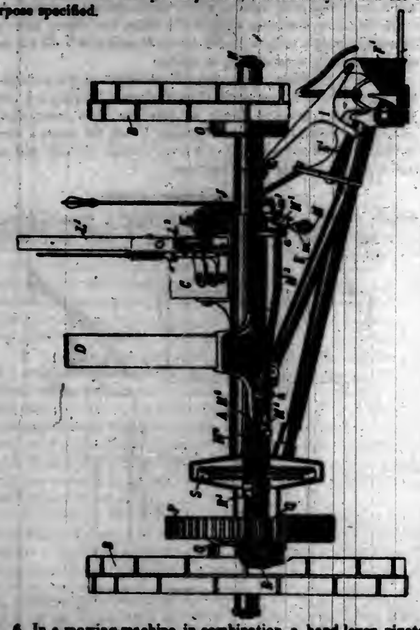
Claim.—1. In combination with the coupling-frame and finger-bar of a mowing-machine, a rigid link joining the two and sliding on the coupling-frame, a lifting device mounted on the frame and connected with the link, the link moving toward the machine-frame when the coupling-frame and finger-bar are raised.

2. In a mowing-machine a link attached to the finger-bar and connected to the coupling-frame by a bearing, on which it slides toward the frame of the machine when the coupling-frame and finger-bar are raised, in combination with a lifting device mounted on the machine-frame and connected with the link.

3. In a mowing-machine in combination with the coupling-frame and finger-bar jointed thereto, a link one arm of which is connected to a post on the finger-bar, a lifting device mounted on the machine-frame and connected to the other end of the link, the link being shorter than the distance between the post on the finger-bar and the vertical plane in which the lifting device is situated, and a guide on the coupling-frame along which the link moves when the coupling-frame and finger-bar are being lifted.

4. In combination in a mowing-machine with a coupling-frame pivoted to the main frame and a finger-bar pivoted to the coupling-frame, a link connected to the finger-bar, an inclined bearing on the coupling-frame along which the link slides, a lifting device on the main frame, the lifting device being positioned on the machine-frame outwardly and upwardly from the link to which it is attached.

5. In a mowing-machine in combination with a rising-and-falling coupling-frame and finger-bar, a hand-lever pivoted on the machine-frame, a primary lever pivoted on the hand-lever on a pivot outside of the pivot of the hand-lever, a connection between the primary lever and the coupling-frame, and a spring reacting between the frame of the machine and the primary lever, substantially as and for the purpose specified.



6. In a mowing-machine in combination, a hand-lever pivoted on the machine-frame, a primary lever pivoted on the hand-lever at a point in advance of the pivot of the hand-lever on the machine-frame, a connection from the primary lever to the rising-and-falling portion of the cutting apparatus, a spring reacting between the primary lever and the machine-frame, and a foot-lever pivoted to the primary lever, substantially as and for the purpose specified.

7. In a mowing-machine in combination, a hand-lever pivoted on the machine-frame, a primary lever pivoted on the hand-lever at a point in advance of the pivot of the hand-lever, bearings on the primary lever which limit its movements up and down in relation to the hand-lever, and a spring reacting between the frame of the machine and the primary lever and tending to transmit its force through the primary lever to the rising-and-falling portion of the cutting apparatus, substantially as and for the purpose specified.

8. In combination in a mowing-machine, a hand-lever pivoted on the machine-frame, a primary lever pivoted on the hand-lever and at a point outside the pivot of the hand-lever, the primary lever being connected with the rising-and-falling portion of the cutting apparatus, a spring reacting between the primary lever and the frame, a slot in the primary lever that encircles the pivot of the hand-lever, the metal at the extremities of which slot forms stops that limit the movement of the primary lever, substantially as and for the purpose described.

9. In combination in a mowing-machine, a hand-lever pivoted on the machine-frame, a primary lever pivoted to the hand-lever at a point in advance of the pivot of the hand-lever on the machine-frame, and a spring reacting between the primary lever and the machine-frame, the primary lever being connected to the rising-and-falling portion of the cutting apparatus, the stress of the spring being exerted thereon through the primary lever whereby the rising-and-falling portion of the cutting apparatus is lightened on the ground and its weight transferred to the hand-lever.

10. In combination in a mowing-machine, a hand-lever pivoted on the machine-frame and free to move in the direction that raises the coupling-frame and finger-bar, a stop on the frame that limits the movement of the hand-lever in the other direction, a primary lever pivoted on the hand-lever by a pivot on the same side of the hand-lever as the stop of the hand-lever on the machine-frame, the primary lever being connected at one end to the rising-and-falling portion of the cutting apparatus, a spring reacting between the frame and the other end of the primary lever, and stops on the primary lever to limit its movement in relation to the hand-lever whereby the force of the spring is transmitted through the primary lever to the cutting apparatus, tending to lighten it on the ground, the strain of which is transmitted to the hand-lever, holding it against its stop on the machine-frame.

11. In combination in a mowing-machine, a lifting device pivoted on the machine-frame consisting of a lever having a quadrant that is flexibly connected to the rising-and-falling portion of the coupling-frame and finger-bar, a roller so positioned and attached to the frame as to bear against the edge of the lifting-quadrant and hold the lifting-chain upon the quadrant, whereby the roller sustains any side stress on the lifting-quadrant.

12. In combination in a mowing-machine, a hand-lever pivoted on the machine-frame, a link extending from the hand-lever to a cam arranged to unclutch the machine, a stop on the machine-frame against which the hand-lever rests, a primary lever pivoted to the hand-lever at a point on the hand-lever on the same side of its pivot as the stop on the machine-frame, a spring reacting between the primary lever and the machine-frame, the primary lever being connected to the coupling-frame and finger-bar, a foot-lever on the primary lever, and stops on the primary lever that limit its movement to a distance equal to the length of movement of the foot-lever, the action of the spring and primary lever being transmitted through the primary lever to the coupling-frame and finger-bar, tending to lighten their weight upon the ground and transmit it to the hand-lever, whereby the hand-lever is held in position against its stop on the main frame through any vibration that shall not cause a disturbance in the parts greater than the distance between the stops on the primary lever.

13. In combination in a mowing-machine, a lifting-lever having a quadrant extension, a sliding link pivoted to the finger-bar and pivoted to the coupling-frame on a sliding connection, a roller mounted on the machine-frame and located against the edge of the quadrant, and a chain connecting quadrant on the lifting-lever with the sliding link, the chain passing beneath the roller, substantially as and for the purpose specified.

14. In combination in a mowing-machine, a lifting-lever connected to a cam loosely mounted on a sliding rod by a slotted link, a cam located on this rod and fixed thereto beside the loose cam, and an arm fixed to the rod and connected to the counter-shaft of a mowing-machine, whereby the movement of the hand-lever is transmitted to the counter-shaft after it has traveled a distance equal to the slot in the link, substantially as and for the purpose specified.

15. In combination in a mowing-machine, a lever pivoted on the machine-frame and connected to the arm of a cam loosely mounted on a sliding rod, a companion cam fixed to this rod, a spring on the rod, and an arm connected to the rod and joined to the counter-shaft whereby the motion of the hand-lever for a certain distance of travel is transmitted positively to pull the sliding rod in one direction while the rod is returned to its normal position on the return of the hand-lever by the strength of the spring.

16. In combination in a mowing-machine, a rising-and-falling cutting apparatus connected with a lifting-lever mounted on the machine-frame, gearing in the frame in which is positioned a clutch, a connection between the clutch and the lifting-lever, the connection composed of a sliding bar, a spring tending to hold the bar in one direction, and companion cams mounted on the bar, one of which is loose thereon and connected by a slotted link with the lifting-lever, substantially as and for the purpose specified.

17. In combination in a mowing-machine, a spur-pinion and bevel-wheel mounted upon a counter-shaft, the spur-pinion and bevel-wheel being placed end to end, completely filling the space in the frame, the counter-shaft upon which they are mounted loosely sliding in its bearings in the frame, a key in the counter-shaft, slots in the spur-pinion and bevel-wheel through which the key slides, whereby the shaft can be slid through the spur-pinion and bevel-wheel without their partaking of its motion and the spur-pinion and bevel-wheel may be locked together.

18. In combination in a mowing-machine, a counter-shaft loosely mounted in the frame of the machine, and having a flat key extended through it, a bevel-wheel and spur-pinion mounted on the counter-shaft end to end and filling the space in the main frame, the bevel-wheel having a slot cut in it at least equal to the depth of the flat key in the counter-shaft while the spur-pinion has a slot of sufficient depth to allow the key to be projected into it part of its width, and means for moving the counter-shaft back and forth, whereby the flat pin can be drawn its width into the slot in the bevel-wheel or projected a part only of its width into the slot in the spur-pinion, thus locking these pinions together, or unlocking them, as desired.

586,893. MORTISE AND MARKING GAGE. LARS H. PETERS, Baltic, S. D. Filed July 15, 1896. Serial No. 599,307. (No model.)

Claim.—1. A mortise and marking gage, consisting of guide-rods, end blocks to which said rods are secured, a screw-rod journaled within the end blocks, said rod having right and left handed threads formed thereon, adjustable marking-disks of different shapes adapted to slide upon the guide-rods and be actuated by the screw-rod, and a stationary marking-disk located equidistant from the first-named disks, as specified.



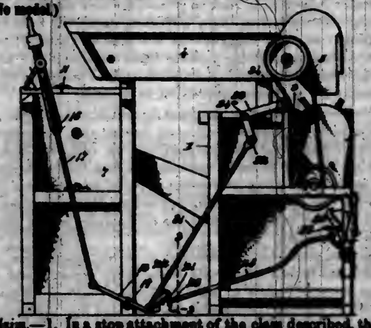
2. In a mortise and marking gage, a series of guide-rods, end blocks to which said guide-rods are secured, a gage-block arranged to slide upon the guide-rods, a set-screw for holding said block in its adjusted position, a screw-rod journaled within the end blocks, said rod having right and left handed threads formed thereon, the disks I and J adapted to slide upon the guide-rods, said disks having internally-threaded hubs for engagement with the threads upon the screw-rod, and a stationary marking-disk secured upon the guide-rods equidistant from the disks I and J, said disks being of different shapes substantially as and for the purpose set forth.

3. In a gage of the character described, a series of guide-rods, end blocks for holding said rods parallel with each other, a threaded rod D journaled within the end blocks, right and left handed threads F and G formed upon said rod, marking-disks I and J, each having an internally-threaded hub adapted to receive one set of the threads, a disk K secured upon the guide-rods midway between the disks I and J, said disks being of different shapes, a knob E for operating the rod D, a gage-block adapted to slide upon the guide-rods, and a set-screw N for holding said block in any adjustment, substantially as shown and described.

4. In combination with the guide-rods of gages of the character described, the disks I, J and K arranged upon said rods, the disk I having two flattened portions, and the disk K one flattened portion, substantially as and for the purpose set forth.

5. A gage having scratch-points composed of three disks slidable thereon, the first of said disks having two flattened portions in its perimeter and the second having one flattened portion in its perimeter registering with one of the flattened portions of the first disk, substantially as described.

586,894. STOP ATTACHMENT FOR COTTON-GINS. HENRY RENNERT, Galveston, Tex. Filed Oct. 13, 1896. Serial No. 608,748. (No model.)



Claim.—1. In a stop attachment of the class described, the combination with a gin having a hinged breast, the gin-flue, and an adjacent condenser communicating with the gin-flue; of a movable relief-valve arranged in the line of communication between the gin and the condenser, and mechanism for raising the gin-breast by the opening of said movable relief-valve, substantially as set forth.

2. In a stop attachment of the class described, the combination with a gin having a hinged breast, the gin-flue, and an adjacent condenser communicating with the gin-flue; of a movable relief-valve arranged at a point in the line of communication with the interior of the condenser and the gin-flue, trip mechanism for automatically raising the gin-breast, and a releasing device for said trip mechanism having a connection with said movable relief-valve, substantially as set forth.

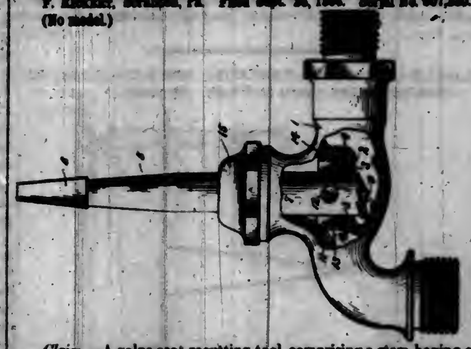
3. In a stop attachment of the class described, the combination with a gin having a breast hinged at its upper edge, and the gin-feeder having a drive-belt; of breast-controlling mechanism having an engagement with the lower edge of the breast to provide for positively swinging the latter upward on its hinge, means for holding said mechanism normally inactive, a movably-supported tightener-pulley normally bearing against the drive-belt, an operating connection between the breast-controlling mechanism and said tightener-pulley, and means for automatically causing said controlling mechanism to move in a direction to provide for automatically raising the gin-breast and simultaneously moving the tightener-pulley away from said belt, substantially as set forth.

4. In a stop attachment of the class described, the combination of a gin having a hinged breast, and an adjacent condenser provided in its top with a valve-opening, of a hinged valve-door working over said valve-opening and provided at one end with a series of notches, a transverse stop-shaft journaled at the front side of the gin-casing and provided at one end with a hand-lever and intermediate of its ends with upwardly-disposed adjusting-arms and adapted to work against the lower swinging edge of the gin-breast, a coiled spring arranged on the stop-shaft and provided with a central upwardly-disposed loop arranged at one side of one of said adjusting-arms of the stop-shaft, an oscillatory trip-shaft arranged between the gin of the condenser and provided at one end with a terminal crank and adjacent to one end with an intermediate crank, a pitman connected with said intermediate crank of the trip-shaft and the loop of said spring, a weighted arm pivotally mounted at one side of the condenser and carrying a pawl engaging with the notches of the valve-door, a trip-lever pivotally mounted at one side of the condenser and having one end engaging beneath the terminal crank of said trip-shaft, and a rod connecting one end of said trip-lever with said weighted arm, substantially as set forth.

5. In a stop attachment of the class described, the combination with a gin having a hinged breast, an adjacent condenser having a hinged relief-valve in its casing, and the gin-feeder having a drive-belt; of a device for raising the gin-breast, a suitably-arranged trip-shaft for operating said device and provided with a terminal crank at one end, a releasing device for the trip-shaft adapted to engage with its terminal crank and having a connection with said relief-valve, a bell-crank lever mounted at one side of the feeder and carrying an idler tightening-pulley adapted to bear against said drive-belt, and an adjusting-bar connection between said terminal crank and said bell-crank lever, substantially as set forth.

6. In an attachment of the class described, the combination of a gin having a hinged breast carrying at the inner side of its lower rail keeper-staples, a transverbe shaft journaled at the front side of the gin-casing and carrying upwardly-disposed adjusting-arms loosely extending through said keeper-staples, and provided with notches at their upper ends adapted to become automatically engaged with the lower rail of the gin-breast when the same is elevated, substantially as set forth.

586,895. RECUTTING-TOOL FOR VALVE-SEATS. ALPHEUS F. EMMERT, Scranton, Pa. Filed Sept. 26, 1896. Serial No. 607,255. (No model.)

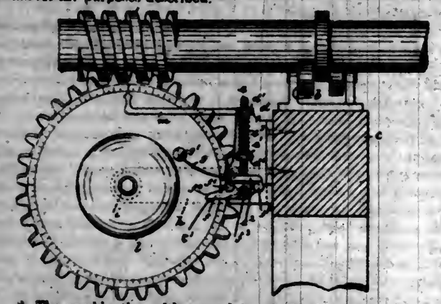


Claim.—A valve-seat-recutting tool, comprising a stem having a conical boring end formed with a cutting-rose which facilitates the insertion of said end through the valve-opening of a valve-seat, and a bit-plate 11, detachably fitted in a transverse opening through the stem and projecting beyond opposite sides thereof, said bit-plate being provided in one edge at opposite sides of the stem with rounded beveled notches having cutting edges, the portion of the stem between said cutting-rose and the cutting edge of the bit-plate forming a bearing for the tool while in operation, substantially as set forth.

586,896. INDICATOR FOR WINDING AND WARPING MACHINES. ROBERT J. REID, Paterson, N. J., assignor to Benjamin Eastwood, same place. Filed Mar. 6, 1897. Serial No. 626,014. (No model.)

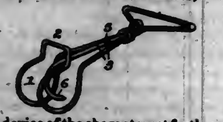
Claim.—1. The combination with a frame, of a stub-shaft carried by said frame, a gear-wheel revolubly arranged on said stub-shaft, a pin projecting from said gear-wheel, a gong supported by said stub-shaft, a bracket suitably connected with said frame, a spring-controlled rod or spindle slidingly arranged in said bracket, a shoe on said spindle, a hammer carried by said shoe, and a fulcrumed lever

on an bracket and adapted to operate said shoe, and having its projecting portion in the path of the pin, all said parts, substantially as and for the purposes described.



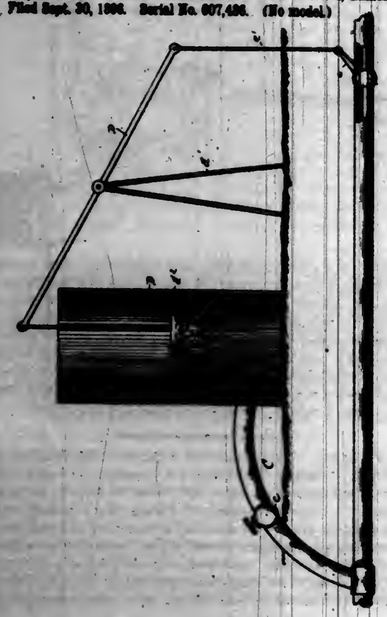
2. The combination with a revolving shaft, of a wheel operated from said shaft, a gong suitably supported in front of said wheel, a pin projecting horizontally from said wheel, a bracket provided with horizontally-projecting lugs suitably supported below the revolving shaft, a spring-controlled vertical spindle or rod slidingly arranged in the projecting lugs of the bracket, a shoe on one end of said spindle and carrying a hammer, and a fulcrumed lever in engagement with said shoe for operating the same, and provided with a projecting portion adapted to be engaged by the pin, all said parts, substantially as and for the purposes described.

586,397. SNAP-HOOK. PETER J. ROCK, Superior, Wis. Filed July 8, 1896. Serial No. 598,453. (No model.)



Claim.—In a device of the character set forth, a main hook formed of a double strand of wire bent in substantially circular form, whose shank extends rearwardly therefrom and terminates in a loop, ring or other analogous device, and a supplemental hook, whose shank lies between the strands constituting the shank of the main hook, and whose hook portion fits between the two strands of which the main hook is formed and extends in an opposite direction to said main hook.

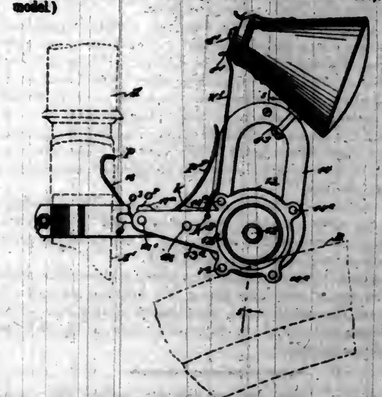
586,398. WATER-REGULATOR. JOHN B. RUHL, Lamona, Cal. Filed Sept. 30, 1893. Serial No. 607,429. (No model.)



Claim.—1. In a pressure-regulating apparatus for pipe systems, the combination with the main pipe, of a rotatable valve mounted therein, an open stand-pipe, a back water-pipe connecting said stand-pipe and the main pipe forward of the rotatable valve, a float mounted in said stand-pipe, a pivoted lever connected to said float, and a rod connecting said lever and the rotatable valve, whereby the latter will be opened or closed according to the height of the water within the stand-pipe, substantially as described.

2. In a pressure-regulating apparatus for pipe systems, the combination with a main pipe, a rotatable valve mounted therein, an open stand-pipe, a back water-pipe connecting said stand-pipe and the main pipe forward of the rotatable valve, a regulating-valve in said back water-pipe to govern the discharge of water therethrough into the stand-pipe, a float in said stand-pipe, a pivoted lever connected to said float, and a rod connecting said lever and said rotatable valve, whereby the latter is opened or closed by the rising or falling of the float within the stand-pipe, substantially as described.

586,399. ELECTRIC LAMP FOR VEHICLES. MALCOLM P. RYDER, Westfield, N. J. Filed Sept. 10, 1896. Serial No. 605,363. (No model.)



Claim.—1. The combination with a vehicle, of a magneto-electric generator supported to rock on projections from the frame of the vehicle, and a spring having limbs projecting oppositely from an integral coil thereon, that engages with the generator-support and is thus held in place, said spring pressing limbs thereof at one side of its coil upon the vehicle-frame, and opposite ends of the spring against the generator for its rocking depression, as specified.

2. The combination with the front frame-fork of a bicycle, and a pair of notched parallel arms clamped thereon, of a magneto-electric generator from which projects a pair of arms, connected by cross-bars that are adapted to rest in and interlock with the notches in the clamped arms, and a spring intermediately coiled on one of said cross-bars, having one extremity pressed against the frame-fork, and the other end portions contacting with the field-magnet of the electric generator, as specified.

3. In a magneto-electric generator, a current-transmitter, comprising the two-limbed brush, said limbs being spaced apart by a transverse member, means to draw the limbs of said brush toward each other by bending their spacing member and thus enforce their contact upon a current-collector ring, and electric connections extending from the generator to a lamp and return, for completion of an electric circuit, substantially as described.

4. The combination with the front frame-fork of a bicycle, and a pair of parallel arms clamped thereon, said arms having two pairs of opposite longitudinal slots all notched open on upper sides, of a magneto-electric generator, parallel arms extending from said generator, two spaced cross-bars engaged at ends with the arms of the generator and intermediately hooked in the slots of the clamped arms, the cross-bars being adapted by longitudinal adjustment to lock the electric generator projected from the frame-fork, and by a changed adjustment permit said generator to receive rocking movement, and a spring coiled on one cross-bar having its ends pressing the frame-fork and the generator so as to rock the latter downwardly, as specified.

5. In a magneto-electric generator of the construction described, a current-transmitter comprising an elastic-limbed brush held in an insulating holder-block by a central screw and a nut held from turning by the flanges of the holder-block, said brush having enforced contact with a current-collector ring forming part of the electric generator, substantially as described.

6. The combination of a support a revolving member thereon, a

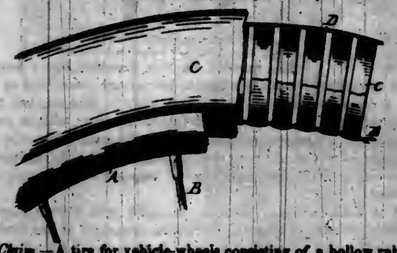
device driven by contact with the said revolving member said device being pivoted to the support and movable toward and from the said revolving member, and a spring having an intermediate coil embracing the pivot of the said device one end of the spring pressing the support and the second end of the spring pressing the said device whereby the device is held in cooperative relation to the revolving member, substantially as described.

7. The combination of an arm having two hooks pointing toward each other and located inward from the end of the arm, a second arm, and two bars carried on the second arm, the one of said bars being capable of locking with either hook of the first arm and the second of said bars being capable of engaging the first arm to assist in holding the two arms in rigid connection and being also capable of moving with the second arm to swing clear of the first arm, substantially as described.

8. The combination of an arm having two hooks pointed toward each other and also having a third hook at the outer portion of the arm and pointed inward, a second arm and two bars fixed thereon, the one bar being capable of engaging with either of the first-named hooks and the second bar being capable of engaging with the remaining hook, substantially as described.

9. The combination of one arm with two hooks pointed toward each other and with a third hook pointed inward from the outer portion of the arm, a second arm, two bars carried by the second arm, the first bar coacting with the two first-named hooks and the second bar coacting with the third hook, and a spring attached to the first bar at a point intermediate of the spring and having its terminals respectively actuating the arms, substantially as described.

586,400. BICYCLE-TIRE. ALBERT SHUWER, Sandusky, Ohio. Filed July 27, 1896. Serial No. 600,605. (No model.)



Claim.—A tire for vehicle-wheels consisting of a hollow rubber tube, a reinforcing means therefor, consisting of a series of separate hoop-shaped springs, the connecting-strip D at the outermost point thereof and the flexible tapes E woven between the innermost points thereof, as and for the purpose described.

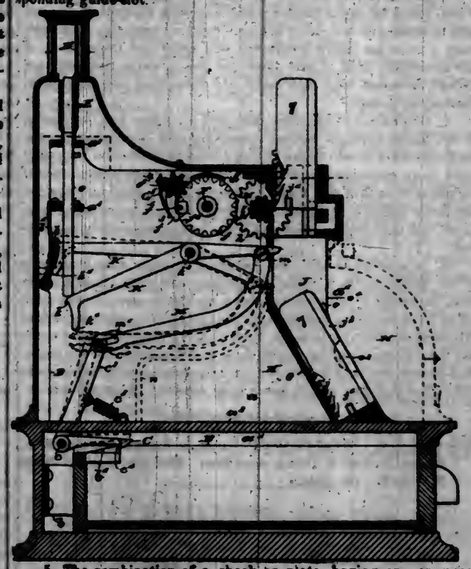
586,401. CASH REGISTER AND INDICATOR. ALBERTO SMITHSON, Dorset, Mass. Filed June 16, 1896. Serial No. 596,110. (No model.)

Claim.—1. A check or plate, having a definite number of teeth in combination with a toothed wheel, a guide to direct said teeth into engagement with said wheel, to rotate said wheel an angular distance measured by a number of teeth on said wheel equal to the number of teeth on said check or plate, and a locked receptacle to receive said check or plate after operating said wheel.

2. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having a gear, a second gear, engaging said first-named gear, pinions, rotary with said second gear, and toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said pinions an angular distance determined by the number of teeth on such check or plate.

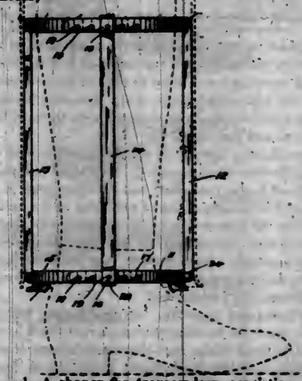
3. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having a gear, a second gear, engaging said first-named gear, pinions, rotary with said second gear, toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said pinion an angular distance determined by the number of teeth on such check or plate, signal-rods, guided vertically in said frame and carrying signals, and levers, reaching under said signal-rods and operated by said checks, to raise said signal-rods and signals.

4. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having a gear, a second gear, engaging said first-named gear, pinions, rotary with said second gear, toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said pinion an angular distance determined by the number of teeth on such check or plate, signal-rods, guided vertically in said frame and carrying signals, and levers, reaching under said signal-rods and operated by said checks, to raise said signal-rods and signals, a case, a drawer sliding therein, a drawer holder normally retaining said drawer in said case, and rods, each connecting said drawer-holder with one of said signal-raising levers, to release said drawer by the insertion of any check in the corresponding guide-slot.



5. The combination of a check or plate, having one or more teeth, a numbered registering-wheel, a gear, rotary therewith, a second gear, engaging the gear of said registering-wheel, a pinion, rotary with said second gear, a guide, to direct said check or plate into engagement with said pinion, and a retaining-pawl, to engage the gear of said registering-wheel and to prevent a reverse movement of the same.

586,402. TROUSERS PROTECTOR AND ADJUSTER. LOUIS D. TREDWAY, St. Louis, Mo. Filed Feb. 15, 1897. Serial No. 623,503. (No model.)



Claim.—1. A shaper for trousers-legs, consisting of the upper hoop formed of two pieces, there being a ratchet connection between the overlapping ends of said pieces, a lower hoop constructed of two pieces, there being a ratchet connection between the overlapping ends of said pieces, loops encircling and slidingly engaging said overlapping ends, a rear bar rigidly connecting said upper and lower hoops, a front bar rigidly connecting said upper and lower hoops, said bars being set edgewise relative to said hoops and outside of said hoops, substantially as specified.

2. In a device of the class described, an upper hoop constructed of two pieces, there being a ratchet connection between the overlap-

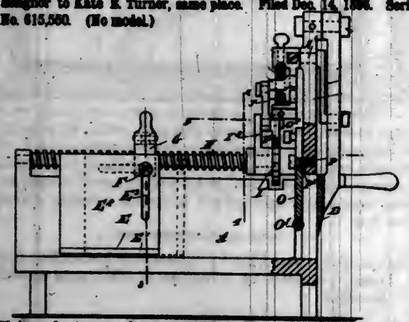
ping ends of said pieces, a lower hoop constructed of two pieces, there being a ratchet connection between the overlapping ends of said pieces, a front bar rigidly connecting said upper and lower hoops, a rear bar rigidly connecting said upper and lower hoops, said front and rear bars being set edgewise relative to said hoops and outside of said hoops, and side bars connecting said hoops, said side bars having loops at their ends to slidingly engage the overlapping ends of the pieces of said hoops, said side bars being set sidewise relative to said hoops, substantially as specified.

3. In a device of the class described, an upper hoop consisting of two pieces having a ratchet connection with each other, a lower hoop consisting of two pieces having a ratchet connection with each other, a front bar rigidly connecting said upper and lower hoops, a rear bar rigidly fixed to said upper and lower hoops, and side bars slidingly mounted upon said hoops and connecting said hoops, substantially as specified.

4. In a device of the class described, an upper hoop consisting of two pieces having a ratchet connection with each other, a lower hoop consisting of two pieces having a ratchet connection with each other, loops encircling and slidingly engaging the overlapping ends of the pieces of each of said hoops, a front bar rigidly fixed to said upper and lower hoops, a rear bar rigidly fixed to said upper and lower hoops, and shoe-fenders upon said lower hoop, substantially as specified.

5. In a device of the class described, an upper hoop consisting of two pieces having a ratchet connection with each other, a lower hoop consisting of two pieces having a ratchet connection with each other, loops encircling and slidingly engaging the overlapping ends of the pieces of each of said hoops, a front bar rigidly fixed to said upper and lower hoops, a rear bar rigidly fixed to said upper and lower hoops, shoe-fenders upon said lower hoop, and a hoop attached upon the inside and at the rear part of said lower hoop, substantially as specified.

586,403. MEAT-SHAVER. CALEB B. TURNER, Brooklyn, N. Y., assignor to Kate E. Turner, same place. Filed Dec. 14, 1896. Serial No. 615,560. (No model.)



Claim.—1. A meat-shaver, provided with a knife-frame carrying a knife and mounted to swing, a rocking arm adapted to be actuated from the said knife-frame, a screw-rod mounted to turn on the said rocking arm and carrying a nut fitted to slide on the said arm, a link connected with the nut, a feed-screw, and a pawl-and-ratchet mechanism on the said feed-screw and connected with the said link, substantially as shown and described.

2. In a meat-shaving apparatus, the combination with a frame, of a swinging knife-frame having a slot, a rock-shaft mounted in the frame, an arm fixed to the rock-shaft and having a portion working in the slot of the knife-frame, a second arm fixed to the rock-shaft, a screw revoluble on the arm and running longitudinally therewith, a nut sliding on the arm and actuated by the screw, a link pivoted to the nut, a meat-carriage, a feed-screw for the meat-carriage, and a pawl-and-ratchet device for turning the feed-screw from the movement of the link, substantially as described.

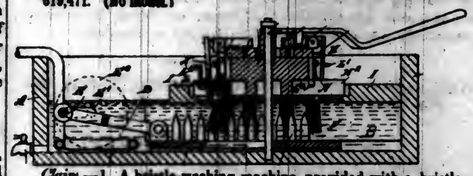
3. In a meat-shaving apparatus, the combination with a frame, of a knife-frame mounted to swing thereon, a rock-shaft journaled in the frame, an arm fixed to the rock-shaft and having at one end a sliding connection with the knife-frame, a second arm fixed to the rock-shaft, a screw running longitudinally with and turning on the second arm, a nut sliding on the second arm and actuated by the screw, a link connected to the nut, a screw-shaft, an arm swinging on the screw-shaft and connected to the link, a pawl carried by the arm, a ratchet-disk fixed to the screw-shaft and engaged by the pawl, and a carriage sliding on the frame and moved by the screw-shaft, substantially as described.

4. In a meat-shaving apparatus, the combination with a frame, of a knife-frame mounted to swing thereon, a rock-shaft mounted in the frame and oscillated by the knife-frame, an arm carried by the rock-shaft, a nut sliding on the arm, a screw actuating the nut, a link connected to the nut, a screw-shaft, an arm swinging on the screw-shaft and connected to the link, a pawl carried by the arm and the link, a ratchet-disk fixed to the screw-shaft and engaged by the pawl, and a meat-carriage carried on the frame and actuated by the screw-shaft, substantially as described.

5. In a meat-shaving apparatus, the combination with a frame, of a knife-frame mounted to swing thereon, an arm rockably mounted on the frame and actuated by the knife-frame, a nut adjustable on the arm, a link pivotally connected to the nut, a screw-shaft, an arm swinging on the screw-shaft and connected to the link, a pawl carried by the arm and link, a ratchet-wheel fixed to the shaft and engaged by the pawl, and a meat-carriage sliding on the frame and moved by the screw-shaft, substantially as described.

6. The combination of a main or body portion, cutting mechanism mounted on the main or body portion, a member sliding on the said main or body portion toward and from the cutting mechanism, the member having an angular form, one portion of which is provided with a slot, and means for advancing said member, such means comprising a part capable of fitting in the slot so that the member may be swung on said part to change the position of the said member and thus adapt the member both for carrying and pushing material on the main or body portion.

586,404. BRISTLE-WASHING MACHINE. CHARLES R. TYLER and JAMES DESPPER, Halifax, Canada. Filed Jan. 16, 1897. Serial No. 619,471. (No model.)



Claim.—1. A bristle-washing machine, provided with a bristle-holder comprising a body, a clamping-jaw at the lower end of the body, a screw-rod carried by the said body, a clamping-bar held loosely on the said screw-rod, and adapted to engage with its lower clamping end a bundle of bristles, to clamp the same in place on the clamping-jaw of the said body, and a handled nut on the said screw-rod for engaging the said clamping-bar, substantially as shown and described.

2. A bristle-washing machine, provided with a bristle-holder comprising a body, a clamping-jaw at the lower end of the body, a screw-rod carried by the said body, a clamping-bar held loosely on the said screw-rod, and adapted to engage with its lower end a bundle of bristles, to clamp the same in place on the clamping-jaw of the said body, a handled nut on the said screw-rod, for engaging the said clamping-bar, and a spring pressing on the said clamping-bar, for opening the latter upon unscrewing the handled nut, substantially as shown and described.

3. A bristle-washing machine, provided with a bristle-holder comprising a body, a clamping-jaw at the lower end of the body, a screw-rod carried by the said body, a clamping-bar held loosely on the said screw-rod, and adapted to engage with its lower end a bundle of bristles, to clamp the same in place on the clamping-jaw of the said body, a handled nut on the said screw-rod, for engaging the said clamping-bar, and a lever pivoted on the said body and having a cam-surface for engaging the said clamping-bar, to finally close the latter, substantially as shown and described.

4. A bristle-washing machine, provided with a disk having a body and two sets of radial arms extending from the said body, one set being provided with top recesses and the other with forwardly-projecting forks, bristle-holders having clamping devices for holding the bristles in place, and each holder being provided with a cleat, and a reduced portion for engaging the said recesses and forks in the radial arms, substantially as shown and described.

5. The combination with a liquid-receptacle, of a comb reciprocally mounted on the bottom thereof, means for sliding the comb, a disk revolubly mounted above the comb, and means on the disk for carrying bristles whereby the bristles may be held in the path of the comb, substantially as described.

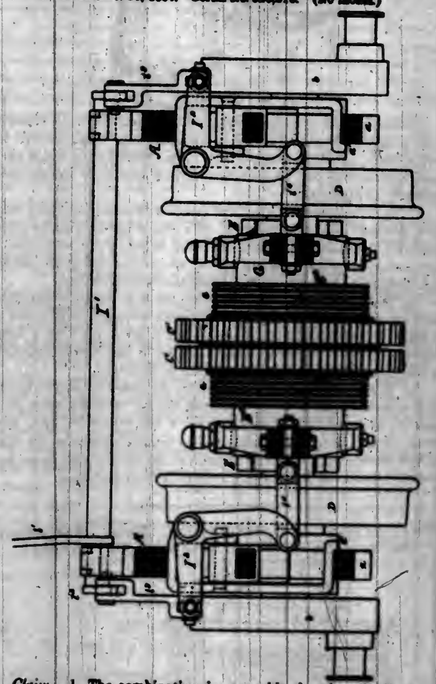
6. The combination with a liquid-receptacle, of a comb mounted to slide on the bottom thereof and having a slot run longitudinally therein, means for reciprocating the comb, a shaft standing rigidly on the bottom of the liquid-receptacle and passing through the slot of the slide, a disk mounted to turn on the shaft, and means carried by the disk for holding bristles in the path of the comb, substantially as described.

7. The combination with a support, of a disk revolubly mounted thereon, two arms projecting radially from the disk and having notches therein, a clamped body with lugs respectively fitted in the recesses of the arms, a clamping-bar pivotally connected to the clamped body, and a lever pivoted in the clamped body and engaging the clamping-bar whereby to move the clamping-bar with reference to the body, the lever having a pin capable of engaging and locking with the disk, substantially as described.

8. A clamp having a body portion, a clamping-bar, a bolt passed between the body portion and bar and serving to movably mount the bar on the body portion, a spring attached to the body portion and pressing the bar, and a lever mounted in the body portion and engaging the clamping-bar whereby to move the same relatively to the body portion, substantially as described.

9. The combination with a box, of a comb rested on the bottom thereof, means for imparting a reciprocal movement to the comb, a support in the box, the support overhanging the comb, and a rotary bristle-holder carried in the support and capable of moving the bristles circularly over the reciprocal comb.

586,405. COMBINED RACK AND ADHESION LOCOMOTIVE. SAMUEL M. VAUCLAIN, Philadelphia, and JACOB Y. MCCONNELL, Darby, Pa. Filed Mar. 18, 1897. Serial No. 628,218. (No model.)



Claim.—1. The combination in a combined rack and adhesion locomotive, of a driving-axle, a rack-wheel secured thereto, adhesion-wheels loose thereon and having clutch-faces, a sliding clutch-section for each wheel mounted on the shaft, means for shifting the clutch-sections from the cab and means for throwing the clutches into engagement after shifting, substantially as described.

2. The combination in a combined rack and adhesion locomotive, of the driving-axles, a rack-wheel secured to each axle, the adhesion-wheels loose on each axle and having clutch-faces, a sliding clutch-section for each wheel, said sections being mounted on the axles, a frame extending from one axle to the other and coupled to two clutch-sections one on each axle, with means for operating the said frames, substantially as described.

3. The combination of the two axles B B', the two adhesion-wheels loose on each axle, each adhesion-wheel having a clutch-face, sliding clutch-sections mounted on each axle back of each wheel, two frames extending from one axle to the other and each coupled to a clutch-section on each axle, an operating-lever connected to the two frames so that on moving the said lever the frames with their movable clutch-sections will be moved toward their wheels, substantially as described.

4. The combination of an axle, a wheel loose thereon and having a clutch-face, a clutch-section adapted to turn with but slide longitudinally on the axle and also having a clutch-face adapted to engage with the clutch-face of the wheel, a ring on the said section, springs mounted between the ring and the section, means for moving the rings toward and from the wheel so as to move the clutch-section against the wheel and compress the spring that when the clutch-face of the section alines with the clutch-face of the wheel the springs will force them into engagement, substantially as described.

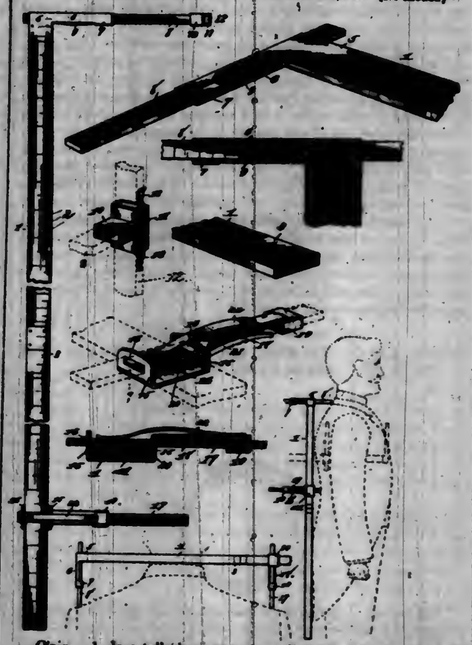
5. The combination of an axle, a wheel loose thereon having a clutch-face, a sliding clutch-section adapted to turn with but slide on the axle, a cellular ring E' on the said section and a cellular ring F', springs within the cells of the two rings tending to force the rings apart laterally, operating mechanism connected to the ring F' so that the clutch will be thrown into engagement with the wheel through the rings and springs, substantially as described.

6. The combination of the axle, a wheel loose thereon and having a clutch-face, a sliding clutch-section E adapted to turn with but slide on the axle so as to engage with the wheel, an annular recess in the said section E, the two-part rings F' and F² adapted to the annular recess, springs mounted between the rings and means for operating the clutch connected to the ring F', substantially as described.

7. The combination of the driven axle, a wheel loose thereon, having a clutch-face, a sliding clutch-section also having a clutch-face, said section adapted to turn with but slide on the axle, an annular groove in the periphery of the section, a two-part cellular ring E having a base and one side mounted within the groove, a two-part cellular ring F² mounted on the ring E and having an internal flange, with springs mounted between the said flange and the side of the ring E within the cells, with means for moving the ring F² toward and from the wheel so as to operate the clutch, substantially as described.

8. The combination of two axles B B', the wheels loose thereon having clutch-faces and sliding clutch-sections on the axles, a ring on each clutch-section, springs between the rings and the said sections, a frame consisting of two members, bent and secured together to form a double-forked frame, one end of the frame being coupled to one ring and the other end being coupled to the other ring, with means for moving the frame toward and from the wheels, substantially as described.

586,406. TAILOR'S MEASURE. ARCHER VAGNER, Carrollton, Ma., assignor of one-half to John C. Napier, St. Louis, Mo. Filed Feb. 8, 1896. Renewed June 3, 1897. Serial No. 638,330. (No model.)



Claim.—1. In a tailor's measure, an adjustable plate having integral upturned ends in which are formed rectangular apertures, a laterally-projecting arm formed integral with one of said upturned ends, a casing carried by the outer end of said arm, and leaf-springs carried by said plate and arm for engaging upon the measuring members which carry and are carried by said plate and arm.

2. In a tailor's measure, the main measuring member 1, the sockets 3 joining the sections of said member together, the metallic hous-

ing 5 rigidly fixed upon the upper end of said measuring member 1, the laterally-projecting portion 6 extending at right angles to said member, the rectangular bearing 7 upon the outer end of said portion 6, the measuring member 8 arranged to slide in said bearing 7 and in the upper end of the housing 5 and at right angles to the main measuring member, the leaf-spring 9 fixed to the bearing 7 and having its free end extending into the upper end of the housing 5 and operating directly upon the edge of the member 8.

3. In a tailor's measure, the main measuring member 1, the sockets 3 jointing the sections of said member together, the metallic housing 5 rigidly fixed upon the upper end of said measuring member 1, the laterally-projecting portion 6 extending at right angles to said member, the rectangular bearing 7 upon the outer end of said portion 6, the measuring member 8 arranged to slide in said bearing 7 and in the upper end of the housing 5 and at right angles to the main measuring member, the leaf-spring 9 fixed to the bearing 7 and having its free end extending into the upper end of the housing 5 and operating directly upon the edge of the member 8, the rectangular metallic socket 10 designed to fit upon the end of said member 8, the rectangular casing 11 arranged and fixed at right angles to said socket 10, the measuring member 12 arranged to slide through said casing, the leaf-spring 13 fixed to the inside of the said casing 11 and arranged to have its ends bear upon the said measuring member 12.

4. In a tailor's measure, an adjustable plate having upturned ends in which are formed rectangular apertures, a laterally-projecting arm formed integral with one of said upturned ends, a casing carried by the outer end of said arm, leaf-springs carried by said plate and arm for engaging upon the measuring members which carry and are carried by said plate and arm, a measuring member sliding through said plate, the metallic housing 5 rigidly fixed upon the upper end of said measuring member 1, the laterally-projecting portion 6 extending at right angles to said member, the rectangular bearing 7 upon the outer end of said portion 6, the measuring member 8 arranged to slide in said bearing 7 and in the upper end of the housing 5 and at right angles to the main measuring member, the leaf-spring 9 fixed to the bearing 7 and having its free end extending into the upper end of the housing 5 and operating directly upon the edge of the member 8, the rectangular metallic socket 10 designed to fit upon the end of said member 8, the rectangular casing 11 arranged and fixed at right angles to said socket 10, the measuring member 12 arranged to slide through said casing, the leaf-spring 13 fixed to the inside of the said casing 11 and arranged to have its ends bear upon the said measuring member 12.

5. In a tailor's measure, an adjustable plate having upturned ends in which are formed rectangular apertures, a laterally-projecting arm formed integral with one of said upturned ends, a casing carried by the outer end of said arm, leaf-springs carried by said plate and arm for engaging upon the measuring members which carry and are carried by said plate and arm, a measuring member sliding through said plate, the metallic housing 5 rigidly fixed upon the upper end of said measuring member 1, the laterally-projecting portion 6 extending at right angles to said member, the rectangular bearing 7 upon the outer end of said portion 6, the measuring member 8 arranged to slide in said bearing 7 and in the upper end of the housing 5 and at right angles to the main measuring member, the leaf-spring 9 fixed to the bearing 7 and having its free end extending into the upper end of the housing 5 and operating directly upon the edge of the member 8, the rectangular metallic socket 10 designed to fit upon the end of said member 8, the rectangular casing 11 arranged and fixed at right angles to said socket 10, the measuring member 12 arranged to slide through said casing, the leaf-spring 13 fixed to the inside of the said casing 11 and arranged to have its ends bear upon the said measuring member 12.

586,407. KEY-RING. GEORGE O. WALTON, Easton, Pa. Filed Nov. 24, 1896. Serial No. 613,254. (No model.)

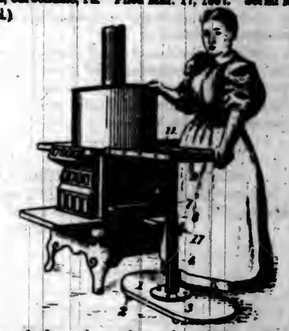


Claim.—1. A device of the class described comprising a plurality of open rings connected to permit oscillation of one within another, said rings having opposite bends arranged to be alternately alined with each other and with the openings.

2. A device of the class described comprising a plurality of open rings connected to permit oscillation of one within another, said rings having bends arranged to be alternately alined with each other and with the openings of the ring, and means for limiting the extent of oscillation.

3. A device of the class described comprising a plurality of open rings adapted to oscillate one upon another, said rings having opposite bends arranged to be alternately alined with each other and with the openings in the rings, slots formed in the rings and rivets carried by the rings and adapted to play in the slots in their opposite rings.

586,408. DOMESTIC TRUCK AND ELEVATOR. JOHN T. WILLIAMS, Carbondale, Pa. Filed Mar. 17, 1897. Serial No. 628,094. (No model.)



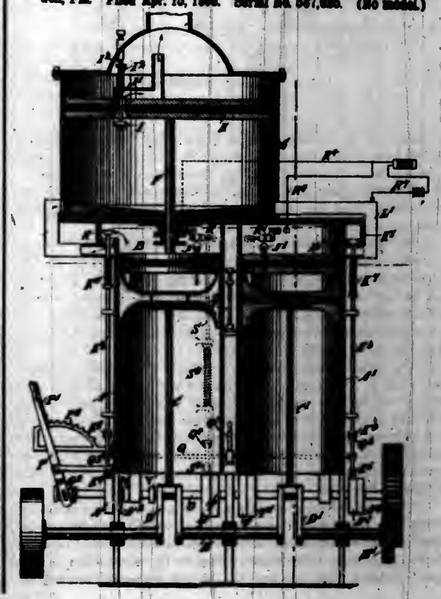
Claim.—1. In a domestic truck and elevator, the combination with a support mounted upon a screw-shaft, of a frame secured to said support, parallel rollers mounted in said frame, and a flange partially surrounding the frame and extending above the rollers, substantially as described.

2. In a domestic truck and elevator, the combination with a support mounted upon a screw-shaft, of a frame having parallel sides secured to said support, rollers extending between said sides, and a flange secured to the sides and passing around one end of the frame and extending above the rollers, substantially as described.

3. In a domestic truck and elevator, the combination with a platform having a series of parallel rollers upon its upper surface, and a support for said platform mounted upon a screw-shaft, of a base mounted upon rollers, and a standard carried by said base and adapted to receive said screw-shaft, substantially as described.

4. In a domestic truck and elevator, the combination with a support mounted upon a screw-shaft and having radiating arms, of a plate 12 having upturned ends 13 and a cross-piece 14, upon said arms, a frame 10 upon said plate, rollers extending between the sides of said frame, and a flange 15 secured to the sides of said frame and passing around one end thereof, substantially as described.

586,409. GAS OR VAPOR ENGINE. ROCHE P. WOLLARD, Sugden, Fla. Filed Apr. 15, 1896. Serial No. 587,626. (No model.)



Claim.—1. An explosive-engine, comprising high-pressure cylinders containing reciprocating pistons, a low-pressure cylinder containing a piston rigidly connected to one of the high-pressure pistons, the working chambers of the said low-pressure cylinder and of the corresponding high-pressure cylinder being located between the respective pistons so that impulses will be imparted to said pistons in opposite directions and means for discharging the exhaust from the high-pressure cylinders into the low-pressure cylinder, substantially as described.

2. An explosive-engine, comprising a cylinder, a piston therein, a valve controlling a port communicating with the cylinder, an igniting device, a rotatable shaft operated by the engine, operative connections extending to said shaft from the said valve and from the igniting device, two sets of juxtaposited actuating devices, such as cams, located on said shaft and adapted to engage said connections, said actuating devices being laterally movable in unison and each actuating device being arranged diametrically opposite to the other actuating device of the same set, and means for shifting said actuating devices to bring each of the above operative connections into registry with either one or the other actuating device of each set, whereby the engine may be reversed, substantially as described.

3. An explosive-engine, comprising a cylinder, a piston therein, a valve controlling a port communicating with the cylinder, an igniting device, a rotatable shaft operated by the engine, operative connections extending to said shaft from the said valve and from the igniting device, two sets of juxtaposited actuating devices, such as cams, located on said shaft and adapted to engage said connections, said actuating devices being laterally movable in unison and each actuating device being arranged diametrically opposite to the other actuating device of the same set, means for removing said operative connections from the path of travel of said actuating devices, and means for shifting said actuating devices to bring each of the above operative connections into registry with either one or the other actuating device of each set, whereby the engine may be reversed, substantially as described.

4. An explosive-engine, comprising a driven shaft having two cranks extending in the same direction, two high-pressure cylinders containing pistons each of which is connected to one of said cranks, a low-pressure cylinder containing a piston rigidly connected to one of the high-pressure pistons the working chambers of the low-pressure cylinder and its companion high-pressure cylinder being located between the respective pistons so that impulses will be imparted to said pistons in opposite directions, and means for discharging the exhaust from the high-pressure cylinders into the low-pressure cylinder, substantially as described.

5. An explosive-engine, comprising a high-pressure cylinder containing a piston, a low-pressure cylinder likewise containing a piston, a connection whereby the exhaust from the high-pressure cylinder may pass to the working chamber of the low-pressure cylinder, an exhaust-valve controlling a through-passage in the low-pressure piston, said valve opening into the working chamber of the low-pressure cylinder, and a stationary stop secured to the cylinder and adapted to open said valve substantially as described.

586,410. REVOLVING EGG-CABINET. LEONARD WOODS, De Soto, Mo. Filed Mar. 8, 1897. Serial No. 626,454. (No model.)



Claim.—1. In an egg-turner, the combination of a knockdown or foldable supporting-frame, an egg-turner frame mounted on a shaft journaled in said supporting-frame and provided with removable shelves each having a series of longitudinally-extending cleats, and a strip or layer of cushioning material between the same, a number of wire egg-clips between said cleats and adapted to hold the egg in position to rest upon the said cushioning material, a fixed stop-bar at one side of the egg-frame to limit the movement of the shelves in that direction, a removable bar at the other side adapted to be detached to allow the shelves to be removed, and a stay pin or bolt engaging one of the said standards of the supporting-frame and the egg-frame to hold the latter in fixed position, substantially as described.

2. In egg-holders, the combination of a case or frame, removable shelves fitted in said case or frame and each provided with egg rows formed by a series of longitudinally-extending cleats, a strip or layer of cushioning material between said cleats, and egg-clips in said rows each comprising two pieces of spring-wire bent to form semicircular, oppositely-projecting clamping portions, and downward and lateral terminal extensions projecting under and clamped by the said cleats, substantially as described.

586,411. BRUSH. MAURICE ALLEN, Brooklyn, N. Y., assignor to John F. Ebert, New York, N. Y. Filed June 23, 1896. Serial No. 594,998. (No model.)



Claim.—1. The combination with a flat-top brush-block having an aperture therein extending entirely through the same, of a socket-piece provided with a disk provided with a central aperture and adapted to lie flat against the top of the block, an eccentrically-located socket upon the socket-piece, the central aperture in the disk corresponding with the aperture in the block, correlative retaining mechanism located upon the opposing faces of the disk and block, respectively, a bolt adapted to enter the apertures in the disk and block, respectively, and a nut adapted to receive the end of the bolt upon the side of the block opposite the disk and unite the parts together, substantially as set forth.

2. The combination with a brush-block, having an aperture extending through the same, of a socket-piece provided with a flat disk having a central aperture, and an eccentrically-located socket, the diameter of the disk being equal to, but not greater than, the width of the block, correlative retaining mechanism upon the faces of the disk and block, respectively, the aperture in the disk corresponding with the aperture in the block, a bolt extending through the apertures in the disk and block, respectively, and a nut upon the end of the bolt, substantially as set forth.

3. The combination with a brush-block, having an aperture extending through the same, of a socket-piece provided with a disk having a central aperture, and a socket located eccentrically thereon, the aperture in the disk corresponding with the aperture in the block, depressions in the face of the block opposite the face of the disk, a projection upon the face of the disk opposite the depressions in the block, a bolt extending through the apertures in the disk and block, respectively, and a nut upon the end of the bolt, substantially as set forth.

586,412. ICE-VELOCIPEDE. CHARLES O. ANDERSON, Butte, Mont. Filed Nov. 2, 1896. Serial No. 610,941. (No model.)



Claim.—1. A velocipede consisting of a main frame having a front runner, a rearwardly-extending and overhanging frame connected with the main frame and movable with relation thereto, a rear runner upon the lower end of said overhanging frame, a propelling-wheel carried by said main frame and situated between said runner, and propelling devices.

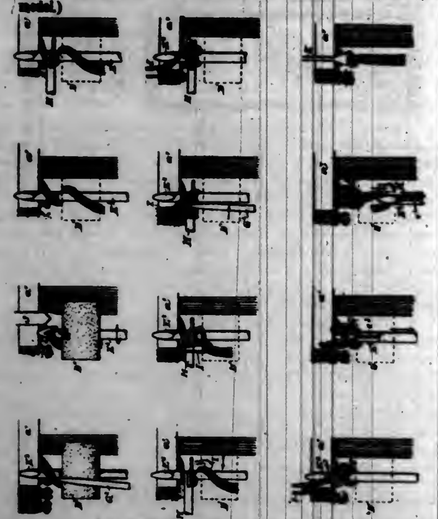
2. A velocipede consisting of a main frame having a steering-post, a front runner pivoted to said steering-post, a rearwardly-extending and overhanging frame connected to said main frame and movable with relation thereto, a rear runner upon the lower end of said overhanging frame, a flexible propelling-wheel, and driving mechanism.

3. A velocipede consisting of a main frame having a steering-post and front runner, an adjustable rearwardly-extending and overhanging frame pivoted to the said main frame and provided with a runner at its lower end, a propelling-wheel situated between said runners, and driving mechanism.

4. In a velocipede a wheel consisting of a hub, spokes, an inner rim, an outer rim, interposed springs, and teeth or projections secured upon said outer rim and consisting of sharpened or tapered blocks having side lugs to engage the side of said outer rim, and a stem passing through an opening in said rim.

5. In a velocipede, a frame having a front runner and propelling devices, a rear frame provided with a pivoted runner and having braces pivoted to the frame of the bicycle, a coupling-section rigidly secured to the frame and having a sliding connection with said rear frame, teeth upon said coupling-section, a gear-pinion upon said frame intermeshing with said teeth and having a winding-pulley, and a winding device upon said frame having a handle and detent and connected with the winding-pulley by a cable.

586,418. FRINGE-KNOTTING MACHINE. CLARENCE W. ARNOLD, Philadelphia, Pa. Filed Mar. 11, 1896. Serial No. 582,813. (No model.)



Claim.—1. The combination in a machine for tying knots in fringe, of the mechanism for holding the head of the fringe, devices for separating a bunch of loose ends, a hooked needle having a latch and adapted to turn to form the loop, a rod over which the knot is formed and a friction-hook adapted to hold the thread as the knot is being formed, substantially as described.

2. The combination of the heading-clamp, the brush for holding the free ends of the fringe, a selector for separating a number of ends to be tied, a friction-hook adapted to engage the free ends, a rod over which the ends are drawn by the hook and a needle for engaging the looped end, substantially as described.

3. The combination of the heading-clamp, the brush, the selector mounted above the brush, the needle, the friction-hook adjacent to the selector, an arm J for separating the threads selected extending above the selector, and a rod over which the threads are drawn, substantially as described.

4. The combination of the heading-clamp, the selector, a friction-hook, a rod over which the selected threads are drawn, a hooked needle, mechanism for rotating said needle to form the loop and mechanism for retracting the needle to draw the ends through the loop to form the knot, substantially as described.

5. The combination of the heading-clamp, the selector, a friction-hook, a rod over which the selected threads are drawn, a hooked needle, mechanism for rotating said needle to form the loop and mechanism for retracting the needle to draw the ends through the loop to form the knot, with an arm for forcing the formed knot out of the way, substantially as described.

6. The combination of a pivoted arm, a needle-casing adapted to said arm, said casing having a spiral rib and having a hooked end, a lever engaging with the rib by which the lever is turned, a rod extending through the needle-casing and forming the latch, a spring for retracting the rod, a lever for acting upon the rod to close the latch and cams actuating the several levers, substantially as described.

7. The combination in a knotting-machine, of the reciprocated hook-needle, means for rotating the same and means for reciprocating, a latch within the needle and means for closing the latch, a rod over which the loop is formed, a friction-hook, with a cam for moving said hook laterally and a cam for moving it forward at a given time, with a selector, substantially as described.

8. The combination in a knotting-machine, of the heading-clamp, the needle over which the loop is formed, a reciprocating rod, a clamping-hook for drawing the ends of the fringe over the rod, a selector for selecting the threads and placing them over the needle so that they will be engaged by its hook, a plate G to which the selector is attached, a cam for moving the plate laterally and a cam for moving the plate longitudinally, substantially as described.

9. The combination in a knotting-machine, of the heading-clamp, the mechanism for forming the knot, a comb for combing out the loose ends of the fringe, a frame C^4 to which the comb is attached, a frame C to which the comb-frame is pivoted, means for reciprocating the frame C^4 and a cam-lever C^5 which lifts the frame C^4 on its return movement so as to clear the threads, substantially as described.

10. The combination in a knotting-machine, of the heading-clamp, the knot-tying mechanism, a comb-frame, means for reciprocating said frame and means for moving the said frame laterally as it is drawing out the loose ends, and means for raising the frame on its return movement so as to clear the threads, substantially as described.

11. The combination in a knotting-machine, of the needle, carrier therefor, a cam for actuating the carrier, a lever for turning the needle and a cam for actuating the said lever, a selector, a shaft therefor, a frame carrying the selector-shaft, a cam for reciprocating the selector-shaft and a cam for moving the frame toward and from the heading-clamp, a shaft on which the several cams are mounted and means for rotating said shaft, substantially as described.

12. The combination in a knotting-machine, of the reciprocating and rotating needle, operating means therefor, a selector and a presser adapted to press against the ends held by the needle as the needle moves down to finish the knot, with means for actuating the said presser, substantially as described.

586,414. TOBACCO GUM OR RETAINER. THOMAS H. BETTY, Manchester, Va. Filed Oct. 30, 1896. Serial No. 610,601. (No model.)



Claim.—1. In a tobacco gum or retainer, two right-angular sections A, B, hinged together, the inner side face of section A (when the gum or retainer is closed), resting against the vertical edge of the back portion of section B, and the vertical edge of the front portion of section A resting against the inner side face of section B, in combination with a bottom secured to one of said sections, a removable top, and locking mechanism, comprising rigid right-angular interlocking members, one of said members having a slotted head, and the other member provided with a coupling bar or bolt adapted to pass in the slotted head, and a cam-lever secured to one end of the bar or bolt for securing the sections together.

2. In a tobacco gum or retainer, the combination with two right-angular hinged sections, of means for securing said sections together, comprising rigid right-angular interlocking members, one of said members having a slotted head, while the other is provided with a coupling bar or bolt, said bar or bolt being adapted to pass in the slotted head, and a cam-lever secured to one end of said bar or bolt.

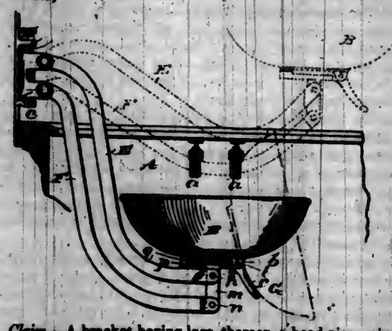
3. In a tobacco gum or retainer, the combination with two right-angular hinged sections A, B, of a bottom secured to or integral with section B, encompassing bands comprising rigid right-angular sections hinged together, and adjustable coupling bars or bolts, each bar or bolt being adapted to pass in the slotted head of one of the encompassing-band sections, and cam-levers secured to said bars or bolts at one end thereof for securing the band-sections together.

4. In a tobacco gum or retainer, the combination with two right-angular box-sections, of two rigid right-angular sectional bands hinged together and firmly secured to the box-sections, one of said right-angular band-sections having a slotted head provided with beveled shoulders, and the other band-section being recessed and provided with an adjustably-secured cam-lever, adapted to engage the beveled shoulders of said slotted head.

5. In a tobacco gum or retainer, the combination with hinged right-angular box-sections, of means for securing said sections together, comprising interlocking members one of which is provided with a horizontally-slotted head having beveled shoulders, while the other member is recessed and provided with a cam-lever secured by a coupling bar or bolt.

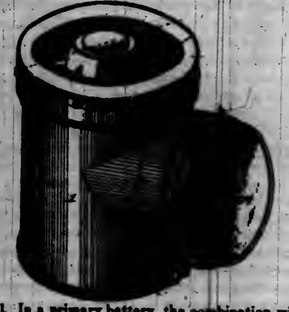
6. The combination with the right-angular hinged sections, of a band-section 6 provided with a slotted head having a beveled shoulder-section 7, provided with a beveled socket, a coupling bar or bolt secured in said socket, and a cam-lever secured to said bar or bolt, and adapted to engage said slotted head.

586,415. BASIN ATTACHMENT FOR BATH-TUBS. HORACE RUBLE, Trenton, N. J. Filed Jan. 23, 1897. Serial No. 620,463. (No model.)



Claim.—A bracket having lugs thereon, a head-piece pivotally secured thereto, vertically-adjustable arms secured to said head-piece and a basin-rest to which the lower ends of said arms are pivotally connected and provided with a horizontal and rearward-extending support for a basin and a forward and downward extending support and handle, in combination with a washbasin pivotally secured to said rest.

586,416. PRIMARY BATTERY FOR BICYCLE-LAMPS. THOMAS F. BOLAND and HARRY C. HUBBELL, Elmira, N. Y., assignors to H. H. Fulton, same place. Filed Dec. 24, 1896. Serial No. 616,891. (No model.)



Claim.—1. In a primary battery, the combination with the casing, of a metallic rod supported therein and slotted vertically at its upper end.

2. In a primary battery, the combination with the casing, of a metallic rod the lower end of which is embedded in the bottom of the casing, while its upper end is vertically slotted, and a zinc element provided with a hollow seat or cavity to adapt it to fit over the metallic rod.

3. In a primary battery, the combination with the casing, of a metallic rod secured at its lower end to the bottom of the casing and provided with a protecting coating or covering, and slitted or bifurcated at its upper end, and a zinc element provided with a socket adapting the zinc to fit over the rod.

4. In a primary battery, the combination with the casing, of a metallic rod secured at its lower end to the bottom of the casing and provided with a tapered protecting-covering, and slitted at its upper end, and a zinc element provided with a socket adapting the zinc to fit over the rod and the upper reduced portion of its protecting-covering.

5. In a primary battery, the combination with the casing, of a metallic rod constituting one terminal of the battery and enlarged at its lower end and embedded in the bottom of the casing, and vertically slitted at its upper end, a protecting-covering extending from the bottom of the casing part way upwardly of the height of the rod, and a zinc element provided with a socket or recess at its lower end and adapted to fit over the rod and extend downward to overlap the protecting-coating of the rod.

6. In a primary battery, the combination with the casing, of a cover provided with a central recess on its under side, a circular boss projected from its upper face and having a threaded recess, an opening communicating with said recesses, a cap externally screw-threaded, the under face of which is convex in form, a duct extending through the periphery of the cap to the recess in said boss, and a washer secured by the annular projecting portion of said cap, substantially as shown and described.

586,417. CAM. GEORGE W. BORROWS, Bodie, Cal., and GEORGE H. WINSLOW, Pittsburg, Pa. Filed Mar. 22, 1894. Serial No. 504,607. (No model.)



Claim.—1. The combination of a cam, a removable shoe or wearing-plate, and means for locking the shoe to the cam and constructed to take up any stretch or elongation of the shoe, substantially as set forth.

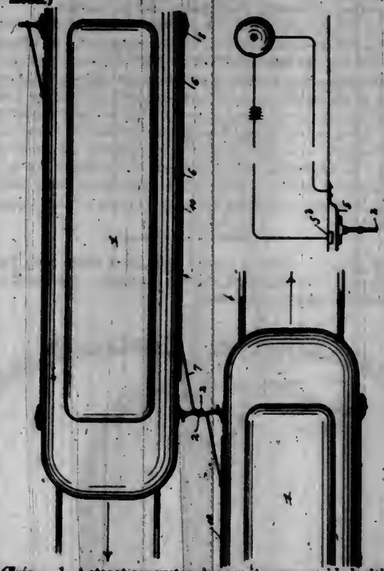
2. The combination of a cam having two wings or operative portions, wearing-plates or shoes provided with hooks for engaging the ends of the wings, and means for adjustably securing the opposite ends of the shoes in position, substantially as set forth.

3. The combination of a cam having two wings or operative portions, wearing-plates or shoes provided with hooks for engaging the ends of the wings, locks for holding the hooks in position, and means for adjustably securing the opposite ends of the shoes in position, substantially as set forth.

4. The combination of a cam having wings or operative portions, wearing-plates or shoes provided with hooks for engaging the ends of the wings, wedge-like pins for drawing the shoes against the faces of the wings, and keys for drawing the pins in, substantially as set forth.

5. The combination of a cam having two wings or operative portions, wearing-plates or shoes provided with hooks for engaging the ends of the wings, and wedges engaging the wings and projections on the opposite ends of the shoes, substantially as set forth.

586,418. CAR-SIGNAL. REUBEN S. CASSEL and GEORGE M. FISCHER, Columbus, Ohio. Filed Apr. 3, 1897. Serial No. 630,896. (No model.)



Claim.—1. A street-car system having its cars provided with horizontally-movable wings or frames 2 of such height and width or lateral extension that the frames or wings of cars passing each other on adjoining tracks shall certainly strike each other, combined with an alarm mechanism on each car adapted to be operated upon the striking together of said wings or frames 2, substantially as described.

2. A street-car system having the corners of its cars provided with wings or frames 2 of considerable height adapted to move or swing horizontally and of such width that they shall strike each other when the cars pass each other, an alarm mechanism on the end of each of the cars opposite to that on which the wing or frame is placed, and means for operating said alarm when the frames 2 of passing cars come into contact with each other, substantially as described.

3. A street-car system having the corners of its cars provided

with frames or wings 2 adapted to move or swing in a horizontal plane, said frames or wings being of such height and width that when the cars pass each other they shall be operated, a horizontally-movable rod 10 extending along the side of the car, a link 7 connecting said rod with the frame 2, and an alarm mechanism on the end of the car opposite to that on which the frame 2 is placed adapted to be operated by said rod.

4. A street-car system having the corners of its cars provided with frames or wings 2 adapted to move or swing in a horizontal plane, said frames or wings being of such height and width that when the cars pass each other they shall be operated, a movable rod 10, link 7 connecting said rod with the frame 2, an alarm mechanism adapted to be operated by rod 10, the cross-head 4 and spring 5 for returning frame 2 to the operative position, substantially as described.

586,419. INTERNAL-THREAD CUTTER. ALBERT COLLET, Paris, France. Filed Apr. 1, 1897. Serial No. 630,214. (No model.) Patented in France Aug. 5, 1895, No. 242,406.



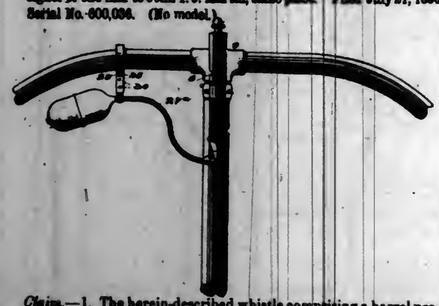
Claim.—1. A tap for screw-cutting the holes already made in railway-sleepers for fastening screw-threaded treenails, or for screw-cutting the holes made in any piece of wood, and which comprises a body part in cast-steel provided with a longitudinal hole opening at both ends and with a single transverse hole for the escape of the chips, and a cutting part, removable, easily replaced, and formed by a blade of insignificant weight in fine steel as usually used for tools, and which is dovetailed into the body of the tap and fixed in place by a metal strap placed at the lower end of the tap and which is always connected to the said tap and its cutting part by a sunk screw, substantially as described and for the purpose specified.

2. A boring-tool having a body with a cavity and with an exterior thread, a metallic plate dovetailed into the body and located adjacent to the cavity, a portion of the metallic plate having a cutting edge forming the start of the thread, and a band encircling the body portion and holding the metallic plate in position.

3. A boring-tool having a body with a cavity and an exterior thread, the cavity opening through one side of the body, a metallic plate dovetailed into the body and having a portion formed with an edge located at the cavity so as to throw chips into the same, the edged portion of the metallic plate forming the start of the thread, and a band encircling the body portion and holding the plate in position.

4. A boring-tool having a body with an exterior thread, and a cavity opening into the side of the body portion, a metallic plate having a portion edged to form the start of the thread and located at the cavity so as to throw the chips into the same, and a band encircling the body portion and engaging the plate to hold the same in position.

586,420. BICYCLE-ALARM. WILLIAM R. CRUMP, Sealy, Tex., assignor of one-half to John T. J. Martin, same place. Filed July 21, 1896. Serial No. 600,096. (No model.)



Claim.—1. The herein-described whistle comprising a barrel provided with a vent in its side and a removable stop which fits snugly within the barrel and is hollowed out into a chamber to which leads an air-supply passage and which chamber is in connection with said vent and passage only.

2. The herein-described whistle comprising a barrel having a bowl and provided with a vent in its side, of a removable stop which fits within the barrel and is hollowed out into a chamber that opens out through the said vent but is otherwise closed, and said stop being cut away on its side to provide in connection with the barrel an air-passage which leads into the bowl and the chamber.

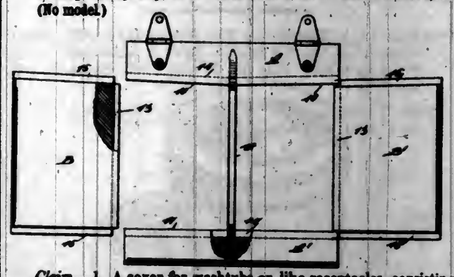
3. The herein-described whistle comprising a barrel provided with a bowl having a vent in its side, and a removable stop which is fitted snugly into the barrel and is hollowed out into a chamber whose lower end opens out through the vent and into the bowl and whose upper end is closed.

4. The herein-described whistle comprising a barrel having a bowl and provided with independent and separated vents in its side, and a stop fitted snugly into said barrel, which stop is hollowed out into independent chambers which are in communication with the bowl by independent air-passages and open out through their respective vents but are otherwise closed.

5. The herein-described whistle comprising a barrel having a bowl and provided with vents in its side which are located at proper distances apart along the length of the barrel to insure properly-pitched notes, of a removable stop which fits snugly in the barrel and is hollowed out into a number of independent air-chambers which open out through their respective vents, and said stop being cut away on its sides to form independent air-passages of different lengths leading to the chambers and to the bowl.

6. In a bicycle-whistle, the combination with a barrel provided with a vent, and having a conical bowl, of a stop located in the barrel and bowl, said stop being provided with an air-chamber opening out through the vent, and also being cut away to provide an air-passage leading to said chamber, means for connecting the whistle to the bicycle, an air-bulb and a pipe connection leading to the barrel.

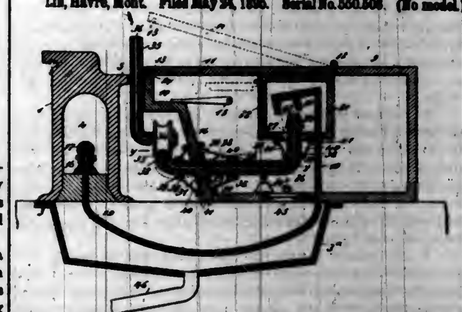
586,421. COVER FOR WASHTUBS OR LIKE RECEPTACLES. MARK DELANEY, Union Hill, N. J., assignor to himself and Henry I. Darling, Jersey City, N. J. Filed Mar. 9, 1897. Serial No. 626,567. (No model.)



Claim.—1. A cover for washtubs or like receptacles, consisting of side bars, a connecting-bar provided with screw-threads on both its ends and having such ends entering the opposing edges of said side bars, and leaves located between the side bars, said leaves having a tongue-and-groove connection with said side bars and concealing said connecting-bar, as and for the purpose specified.

2. A cover for washtubs or like receptacles, consisting of side bars or cleats, one of which has its inner face inclined from its transverse center in opposite directions to its ends, leaves having their ends conforming to the shape of the inner surfaces of the cleats or side bars with which they are to engage, a tongue-and-groove connection between the leaves and side bars or cleats, a connecting-rod having its ends entering said side bars at their opposing edges and stopping short of the outer edges of the same, and means, substantially as described, for concealing said connecting-bar by the leaves when said leaves are brought together, as and for the purpose specified.

586,422. ELECTRIC-RAILWAY SYSTEM. LAWRENCE K. DEVLIN, Havre, Mont. Filed May 24, 1895. Serial No. 550,508. (No model.)



Claim.—1. In a conduit for electric and other railways, the combination of a slot-rail constructed in sections having overhanging upper portions forming one side of the slotted top of the conduit, and track-boxes located between the ends of the slot-rail sections and provided with overhanging extensions corresponding to the overhanging upper portions of the slot-rail, said track-boxes being also provided with hinged covers, and said extensions being movable, substantially as set forth.

2. In a conduit for electric or other railways, the combination with a slot-rail constructed in sections and having overhanging upper portions, of track-boxes located between the ends of the slot-rail sections and provided with overhanging extensions corresponding with the overhanging upper portions of the slot-rail, said extensions being hinged and provided with hinged covers adapted to rest upon the upper edges of the said extensions, substantially as described.

3. A track-box for electric or other railways, consisting of a box having an overhanging extension, said extension being separate from the body of the box and hinged thereto, and provided with a hinged top, the free edge of which is adapted to rest upon the upper edge of the extension, substantially as described.

4. In an electric-railway system, the combination of a conduit, track-boxes located along said conduit flush with the inner surface thereof, circuit-closing devices in the track-boxes, movable contact-rail sections in the conduit, said sections being in alinement and extending between the track-boxes, and two levers pivoted in each track-box, said levers having one end projecting through the track-boxes and connected to the adjacent ends of the respective contact-rail sections and adapted to be operated by the same, the inner ends of the said levers being connected to and adapted to operate the circuit-closing devices, substantially as described.

5. In an electric-railway system, the combination of a conduit, track-boxes located along said conduit, circuit-closing devices in the track-boxes, movable contact-rail sections in the conduit, and extending between the track-boxes, said sections being in alinement and having their ends curved downwardly, and two levers pivoted in each track-box, said levers having one end projecting through the track-boxes and provided with sockets to receive and support the adjacent ends of the respective contact-rail sections, the inner ends of the levers within the track-boxes being connected to and adapted to operate the circuit-closing devices, substantially as described.

6. In an electric-railway system, the combination with a conduit, track-boxes located along said conduit, circuit-closing devices in the track-boxes, and movable contact-rail sections in the conduit and in alinement with each other, of two hollow levers in each track-box, said levers having their outer ends projecting through the track-boxes an equal distance and connected to the contact-rail sections and adapted to be operated by the same, the inner ends of the said levers being connected to and adapted to operate the circuit-closing devices, and conductors in said levers, substantially as described.

7. In an electric-railway system, the combination with a conduit, track-boxes along the conduit, casings within the track-boxes, circuit-closing devices in the casings, and movable contact-rail sections in the conduit, of levers pivoted in openings in the track-boxes, the outer ends of the levers carrying the contact-rail sections and the inner ends of the levers projecting into the said casings through openings in the bottom thereof, flexible diaphragms secured to the inner and outer faces of the openings of the track-boxes and to the levers, and flexible diaphragms secured to the casings and to the levers, substantially as described.

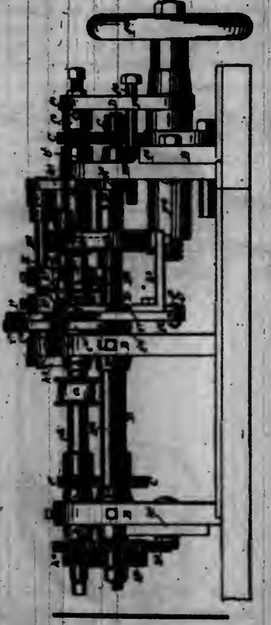
8. The combination of a box having a perforation in its wall, bearing-plates secured to the wall of said box on opposite sides of said perforation and provided with alined studs, and a lever pivoted between said studs and playing through the opening in the wall of the box, substantially as set forth.

586,423. MACHINE FOR WINDING THREAD. ALGERNON DEWHURST, Shipton, England. Filed Oct. 26, 1895. Serial No. 566,992. (No model.) Patented in England May 6, 1895, No. 6,609.

Claim.—1. In machines for winding thread or the like, the combination of a rotary thread-guide having a cam groove or space in its periphery to receive the thread to be wound, with means for rotating said thread-guide and means for maintaining the said guide at a uniform distance just clear of the surface of the coil or the like as it is being wound, substantially as hereinbefore described.

2. In machines for winding thread or the like, the combination with the winding-spindle, of the rotary thread-guide having a cam groove or space in its periphery to receive the thread to be wound with a disk or presser, with means for rotating the thread-guide and arms so connecting the thread-guide to the said disk as to constitute a parallel motion whereby as the presser is moved outward from the winding-spindle by the coil of thread or the like as it increases in diameter, the thread-guide is simultaneously moved out from the winding-spindle in the same proportion so as to retain the said thread-guide out of contact with the coil, substantially as hereinbefore described.

3. In machines for winding thread or the like into coils, or the like, the combination of a winding-spindle and mechanism for positively driving the same, with a rotary thread-guide having in its periphery a cam groove or space to receive the thread, mechanism for positively driving the thread-guide, and change-wheels connecting these driving mechanisms, whereby the speed of the thread-guide is caused to bear a uniform ratio to the speed of the winding-spindle, and such ratio that each spiral of thread will be laid in close juxtaposition to the preceding spiral, no matter what thickness of thread is being wound, all substantially as hereinbefore described.



586,424. BOTTLE. GEORGE F. DYE and EDWARD C. O'NEILL, Valparaiso, Ind. Filed Dec. 4, 1896. Serial No. 614,530. (No model.)



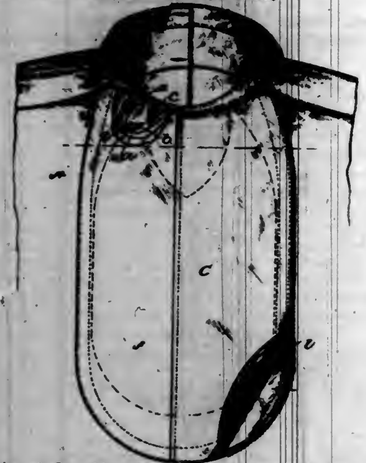
Claim.—1. In an antirefilling bottle, the combination with a bottle proper having a lateral passage and a vertical passage intersecting the same formed in its neck, of a stopper applied in the neck below the lateral passage, an apertured locking-pin applied in said lateral passage, and a vertical locking-pin passed down through the vertical passage and the aperture in the lateral pin and locking the latter in position, substantially as described.

2. In an antirefilling bottle, the combination with a bottle proper having a lateral passage formed in its neck of a stopper applied in

the neck below said passage, a locking-pin having an aperture in one end and passed through said lateral passage to lock the stopper in position, and a vertical locking-pin passed through the aperture in the horizontal locking-pin for preventing its withdrawal, substantially as described.

3. In an antirilling bottle, the combination with a bottle proper having a lateral passage and a vertical passage intersecting the same, and an annular weakening-groove formed in its neck, an apertured locking-pin applied in said lateral passage and adapted to lock a suitable stopper in position, and a vertical locking-pin passed down through the vertical passage and the aperture in the lateral pin to lock the latter in position, substantially as described.

586,425. SHIRT. GEORGE D. EICHNER, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,674. (No model.)

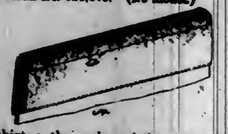


Claim.—1. In a shirt, a bosom having a lining comprising a plurality of plies, one of which is curved on its upper edge in different arcs of a circle, the smaller arc being in the middle portion, and on the line of which the neckband, in being stitched to the bosom, is stitched to said ply, the remainder of the curve being of greater radius and falling below the line of attachment of the neckband, for the purposes stated.

2. In a shirt, a bosom having one or more plies of lining of the same dimensions as the facing and stitched at its sides and lower end to the shirt-body, in connection with another ply of lining of less width and length stitched to the adjacent ply, the upper end of the smaller ply being flush with the upper ends of the other portions of the bosom and curved inward to such an extent as to be wholly secured by the stitching that secures the neckband to the bosom.

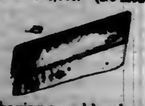
3. In a shirt, a bosom having one or more plies of lining, in connection with a small reinforce-ply stitched to the upper central portion of the lining in such position that its upper end will fall slightly below the line of attachment of the neckband to the bosom.

586,426. SHIRT. GEORGE D. EICHNER, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,675. (No model.)



Claim.—In a shirt, a three-ply wristband having an additional ply at its outer edge, the whole made from a single piece of material.

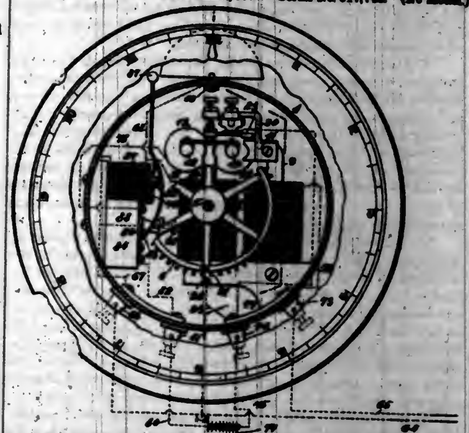
586,427. SHIRT. GEORGE D. EICHNER, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,676. (No model.)



Claim.—1. A shirt having a neckband made of a single piece of material folded upon itself longitudinally with the raw edges together, said edges being then stitched to the shirt, and the material then again folded longitudinally upon itself and stitched to the shirt, thereby forming a four-ply neckband seamless at its upper edge.

2. A shirt having a neckband made of a single piece of material cut of uniform width for a portion of its length from each end, the remainder of the material on both the upper and lower edges being cut on an inward curve, the material being then folded longitudinally upon itself and its raw edges stitched to the shirt, and then again folded longitudinally upon itself and stitched to the shirt.

586,428. WATER-REGISTERING DEVICE. SAMUEL J. EVANS, Elkhorn, W. Va. Filed Jan. 2, 1897. Serial No. 617,742. (No model.)



Claim.—1. A registering device, comprising a main source of electricity controlled by a circuit-closer, an electromagnet in said main circuit, a swinging electromagnet comprised in a local circuit and adapted to be swung by the first-named electromagnet, an indicator operated by the coaction of said electromagnets, and an electromagnet in the main circuit for controlling the local circuit of the swinging electromagnet, substantially as specified.

2. A device for registering the height of water in a tank, comprising an electric circuit, a circuit-closer arranged on the tank and operated by the rising or falling of a float in the tank, a casing having a dial, a pointer movable over said dial, a toothed wheel on the shaft of said pointer within the casing, a vertical and laterally-swinging finger for rotating said wheel, an electromagnet for drawing said finger into engagement with the wheel, the said electromagnet being in the main circuit, an electromagnet mounted to swing laterally to impart a lateral swinging motion to the finger, a local circuit in which said swinging electromagnet is located, and an electromagnet in the main circuit for controlling the said local circuit, substantially as specified.

3. A device for registering the height of water in a tank, comprising a main electric circuit, a circuit-closer in said electric circuit and arranged on a tank or similar water-container, a float for operating said circuit-closer, an indicating device comprising a casing having a dial, a pointer movable over said dial, a toothed wheel on the inner end of the shaft carrying said pointer, a vertical and laterally-swinging finger adapted for engagement with the wheel, said finger being pivoted on an armature, an electromagnet in the main circuit for drawing said armature downward, a laterally-swinging electromagnet, a connection between the swinging finger and the swinging electromagnet, whereby the finger may be swung laterally by the movement of said swinging electromagnet, and another electromagnet within the casing and comprised in the main circuit, and a local circuit with which the swinging electromagnet is connected, the said local circuit being controlled by the last-named electromagnet in the main circuit, substantially as specified.

4. A device for registering the height of water in a tank, comprising a source of electricity, means for making and breaking the current at a water-tank, a casing having a dial on its front, a pointer movable over said dial, a toothed wheel on the inner end of the shaft of said pointer, a retarding-spring for the wheel, a vertical and laterally-swinging finger adapted for engagement with said wheel, said finger being pivoted on and carried by an armature, an electromagnet coacting with said armature, the said electromagnet being located in the main circuit, a swinging electromagnet carrying a pin on its core, the said pin passing into a slot formed in one end of the swinging finger, a local battery with which said swinging electromagnet has connection, a spring-arm arranged in the casing and carrying an armature, an electromagnet for attracting said armature, the said electromagnet being located in the main circuit, a contact-finger adapted for engagement with the spring-arm and a connection between said contact-finger and the swinging electromagnet, substantially as specified.

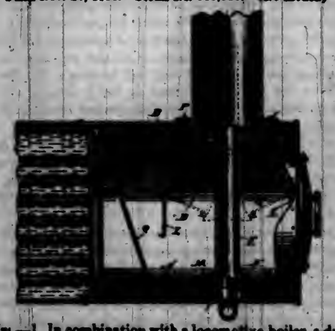
5. In an electric water-registering device, a register substantially such as described, an electric current for operating said registering device, a circuit-closer located over a tank or other water-container and comprising a rotary frame forming a portion of the circuit, a wheel carried by said frame, a chain extended over said wheel, a float on one end of said chain within the tank, a weight on the other end of said chain, a sliding block in said frame, contact-plates on said block for closing the circuit through the frame as the block moves from one end to the other thereof, and contact-plates having connection with the main current-wires, the said contact-plates being mounted on an oscillating shaft operated by a movement of the wheel, substantially as specified.

6. A water-registering device, comprising a source of electricity, a registering mechanism having electromagnets contained in said circuit, a circuit closer comprising a metal frame mounted to rotate, one side of said metal frame being insulated from the other side, a sliding block in said frame, contact-plates on the block designed to close the circuit through the sides of the frame, a sprocket-wheel carried by said frame, a sprocket-chain extended over the sprocket-wheel and having a float on one end within the water-tank, a weight on the opposite end of said chain outside the water-tank, stop-pins extended through one of the side walls of the frame and designed to hold the sliding block in the ends of the frame, means for drawing said pins outward, and means for forcing said pins inward, substantially as specified.

7. A circuit-closer for a water-registering device, comprising brackets supported on the upper end of a water tank or vessel, the said brackets being within the electrical circuit, a shaft supported by said brackets, a metal frame on the said shaft, a float and a weight for causing a rotary movement of said frame, a sliding block in the frame, contact-plates on the block for closing the circuit through the sides of the frame, a rocking shaft supported on one of the brackets, a contact-plate arranged within the circuit, a pair of contact-plates rigidly mounted on said rocking shaft and having connection with the main lead wires, a spring connected at one end to the inner cranked end of the rocking shaft, a lever pivoted on said rocking shaft and having an arc-shaped slot in its head portion, and a crank-finger on the outer end of the rocking shaft engaging in said arc-shaped slot, substantially as specified.

8. A water-registering device, comprising a casing, an electromagnet in said casing, a main source of electricity controlled by a circuit-closer operated by the rise and fall of water in a tank, the said electromagnet being included in said circuit, a swinging electromagnet adapted to be moved laterally by the first-named electromagnet, a finger moved downward by the first-named electromagnet and rocked laterally by the swinging electromagnet, a toothed wheel with which said finger is designed to engage, a local circuit within which the swinging electromagnet is contained, another electromagnet in the main circuit for controlling the circuit of the swinging electromagnet, an alarm consisting of a gong, a swinging arm operated by the controlling-electromagnet, for striking the gong, and a pointer movable over a dial by the movement of the toothed wheel, substantially as specified.

586,429. DRAFT HOOD AND REGULATOR FOR LOCOMOTIVES. JOHN FARRELL, EDWARD GORMAN, and EDWARD PURCELL, Philadelphia, Pa. Filed Nov. 27, 1896. Serial No. 613,530. (No model.)



Claim.—1. In combination with a locomotive-boiler, a draft-hood located within the smoke-chamber and registering with the lower end of the smoke-stack, an exhaust-hood projecting within the draft-hood, and dampers for closing the passage to the smoke-stack around the exhaust-hood, as specified.

2. In combination, a draft-hood secured within the smoke-chamber, an exhaust-hood projecting through said draft-hood and completely surrounding the exhaust-tip, dampers located in the draft-hood so as to regulate the passage therethrough, and means for operating said dampers from the cab of the locomotive, substantially as and for the purpose set forth.

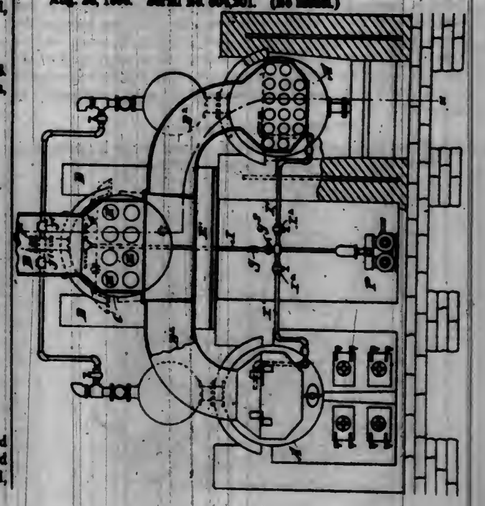
3. In combination with the smoke-chamber of a locomotive-boiler, a draft-hood secured therein so as to register with the smoke-stack, an exhaust-hood projecting through said draft-hood and completely surrounding the exhaust-tip, dampers arranged within the draft-hood so as to regulate the passage therethrough, means for causing the dampers to move in unison, a rod so connected to the dampers and passing to the cab as to permit the manipulation thereof by the engineer, a screen covering the lower portion of the draft-hood, a live-steam pipe leading to the lower portion of the exhaust-hood, and means for holding the exhaust-hood in an elevated position for cleaning the smoke-chamber, substantially as shown and described.

586,430. HARNESS SHAFT-TUG. WILLIAM FAWCETT, Brooklyn, N. Y. Filed Nov. 20, 1896. Serial No. 612,833. (No model.)



Claim.—As a new article of manufacture, the harness shaft-tug having its frame formed of a single piece of metal and curved at the lower portion to form a rest for the shaft, and having formed therewith the loop E, the pin F below said loop and adjacent thereto and the loop H adapted to be engaged by the belly-band, the inner portion of said frame forming a buckle having two longitudinal pins one above the other, the upper one of which carries a movable tongue, and a short strap of leather or similar flexible material in connection with the aforesaid frame, said strap having one end attached to the lower longitudinal pin of the buckle and having its free end arranged to extend over the open top of the frame and through the loop E, being engaged by the pin F, as and for the purpose set forth.

588,431. STEAM-BOILER. JOHN B. FLEMING, Frisco, Utah. Filed Aug. 28, 1896. Serial No. 604,201. (No model.)



Claim.—1. A steam-boiler having two horizontal boiler-shells, a furnace beneath each shell, a stack branching to communicate with each boiler, a feed-water heating and purifying shell located above the boiler-shells and intermediately of the same, fire-tubes within the purifying and heating shell, a wall beneath said shell to form a flue communicating with the stack and leading to the rear ends of the fire-tubes in the heating and purifying shell, a valve within the stack at a point between the flue and the discharge ends of the fire-tubes in the heating and purifying shell, and a pipe leading from the heating and purifying shell to the boiler-shells, substantially as described.

2. A steam-boiler having two horizontal boiler-shells, a furnace with each shell, fire-tubes within each boiler-shell, a stack at the front of the boiler, a branch leading oppositely from each side of the stack and respectively communicating with the front ends of the fire-tubes within the boiler-shells, a wall located above the boiler-shells and intermediately thereof, a feed-water heating and purifying shell located above the wall and forming a flue beneath the heating and purifying shell, a valve within the stack at a point above the front end of the flue whereby to direct the products of combustion rearward through the flue, fire-tubes within the heating and purifying shell and leading the products of combustion forward into the stack above the valve therein, and means establishing communication between the interiors of the three shells, substantially as described.

3. A steam-boiler having two horizontal boiler-shells, a feed-water heating and purifying shell located above the boiler-shells, a pipe leading to the heating and purifying shell, a second pipe leading from the heating and purifying shell and having branches respectively running to the boiler-shells, a valve located within the second pipe at a point above the branches, a third pipe running between and communicating with the two first-named pipes, a valve within the first-named pipe at a point above the third pipe, and a valve commanding the third pipe at a point between the two remaining pipes, substantially as described.

4. In a steam-boiler having two horizontal boiler-shells, a stack branch in connection with each of the boiler-shells, a stack arising from the juncture of the branches, a feed-water heating and purifying shell mounted above the boiler-shells and intermediately thereof, the heating and purifying shell having a series of fire-tubes running into the stack and capable of having a draft from the horizontal boilers pass through them, a feed-pump located below the horizontal boilers and intermediately thereof, a pipe passing upward from the feed-pump and into the heating and purifying shell, two perforated pipes running longitudinally through the heating and purifying shell and in connection with the vertical pipe, a perforated blow-out pipe within the heating and purifying shell and running longitudinally through it, and a valve located within the stack and below the discharge ends of the fire-tubes within the heating and purifying shell whereby the valve may change the direction in which the draft passes from the boiler-shells, substantially as described.

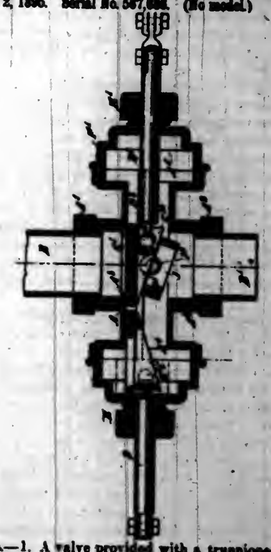
5. A steam-boiler having a boiler-shell, a wall running above the boiler-shell, a heating and purifying shell located above the wall and forming a flue between the heating and purifying shell and the wall, a stack running from the boiler-shell upward past the heating and purifying shell, the stack communicating with the gas-passages of the boiler-shell and of the heating and purifying shell, and the stack also communicating with the said flue, the rear end of the flue being in communication with the gas-passages of the heating and purifying shell, and a valve located within the stack and between the flue and the heating and purifying shell whereby the stack may be opened and closed and the draft caused to pass through the flue into the rear end of the heating and purifying shell and thence outward into the stack or to pass directly through the stack, substantially as described.

586,432. INVALID-CHAIR. SARAH GOWER, Arcanum, Ohio. Filed Jan. 9, 1897. Serial No. 618,565. (No model.)



Claim.—A chair comprising legs connected by upper and lower cross-bars, the upper side cross-bars of which have lateral slots intersected by vertical slots, a back-rest section hinged to the rear set of legs and provided with arms, and arm-posts, brace-rods connecting the arm-posts with the back-rest section, segmental racks secured to the brace-bars and extending through the vertical slots, a spring-rod secured intermediate its ends to the inner side of the forward upper cross-bar, and having its ends extending through the lateral slots and engaging the segmental rack-bars, substantially as and for the purpose specified.

586,433. VALVE. GEORGE W. GRAFFIN, Allentown, Pa. Filed Nov. 2, 1896. Serial No. 567,098. (No model.)



Claim.—1. A valve provided with a trunnioned abutment having a face for engagement with a valve, the axis of the trunnions being in the plane of the said face, substantially as described.

2. A valve provided with two valves and a trunnioned abutment adapted to be engaged at its face by either of said valves, the axis of the trunnions being in the plane of the said face, substantially as shown and described.

3. A valve having a valve-seat and provided with a valve proper formed with a body having a wedge shape and fitted to slide loosely in suitable guideways, and a trunnioned abutment having a face for engagement with the said valve proper, the axis of the trunnions being in the plane of the said face, whereby the face of the valve proper is pressed against the valve-seat at all points with equal force, substantially as shown and described.

4. A valve provided with a valve proper comprising a body having dovetailed recesses formed on the face thereof, the projecting portions between said recesses being of greater diameter at the top than at the bottom and a packing having integral offsets engaging and filling the said recesses on the face of the valve and extending around and on top of the said projections, substantially as shown and described.

5. A valve provided with a valve proper comprising a body, a disk adapted to be secured to the face of said body and formed with dovetailed openings of less diameter at the top than the bottom, and a packing held in the said disk and forming a face for the body of the valve, the back of the packing being formed with integral offsets engaging and filling the said dovetailed openings in the disk, substantially as described.

6. A valve provided with an abutment having a face for engagement with the valve and having projections above said face trunnioned to the support, whereby the axis of said trunnions may be set in the plane of the face engaged by the valve, substantially as shown and described.

7. A valve provided with an abutment having a face for engagement by the valve, and having opposite lugs or portions projected above said face and provided with trunnion-openings formed partly in said lugs or portions, whereby the axis of the trunnions may lie in the plane of said face, substantially as shown and described.

8. A valve provided with an abutment having opposite upwardly-projected lugs and trunnions supporting said abutment and arranged with their axis in the plane of the upper face of the abutment and the valve movable between the said upwardly-projected lugs and engaging the upper face of the abutment, substantially as shown and described.

9. A valve comprising a casing having an inlet and an outlet, and provided with a valve-seat at said inlet, two valves proper movably mounted in said casing and adapted to be seated on said valve-seat, an abutment movably secured in the casing opposite the valve-seat, and adapted to be engaged by either of the said valves proper, slidable valve-stems having ball-and-socket connections with the valves proper, a lever connected with the outer end of each valve-stem, and a locking device connected with the casing near the middle thereof and adapted to engage either of said levers to lock the same when the respective valve is in the closed position, substantially as shown and described.

10. A valve comprising a casing having an inlet and an outlet and provided with a valve-seat at said inlet, two valves proper movably mounted in said casing and adapted to be seated on said valve-seat, slidable valve-stems connected with the valves proper, a lever connected with the outer end of each valve-stem and a locking device for the said levers comprising a screw adapted to engage either of the said levers, and a yoke connected with the casing and engaged by the said screw, substantially as shown and described.

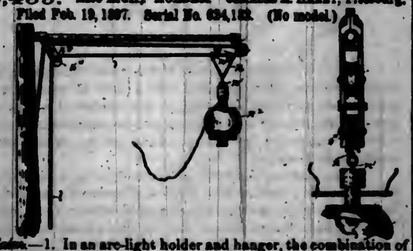
11. A valve comprising a casing having an inlet and an outlet and provided with a valve-seat at said inlet, longitudinally-extending guideways each formed by a guide-rib and the side of the casing, the said guideways extending from one end of the casing to the other, valves adapted to be seated on the said valve-seat and fitted to slide loosely in the said guideways, whereby a lateral as well as a vertical movement of the valve is permitted, a slidable valve-stem for each valve, a ball-and-socket joint for connecting each valve with its valve-stem, and a movable abutment in the said casing opposite the said valve-seat and adapted to be engaged by either of the said valves, substantially as shown and described.

586,434. PISTON-FAUCET. ERWIN R. GREENE, Providence, R. I. Filed Apr. 6, 1896. Serial No. 586,231. (No model.)



Claim.—A piston-faucet, comprising the cylinder formed at its inner open end with an exterior screw-thread adapted to engage a keg or receptacle, a collar limiting the inward movement of said end, and an outlet near its outer end, a cap inclosing the outer end of said cylinder and formed with an inwardly-extending cup-shaped bearing, a piston-rod extending through said bearing to the inner end of the cylinder, a piston on the inner end of said rod, a collar near the outer end of said rod and resting against the inner end of said cup-shaped bearing when the piston is flush with the inner end of the cylinder, whereby the cylinder is completely emptied when the faucet is closed, as and for the purpose set forth.

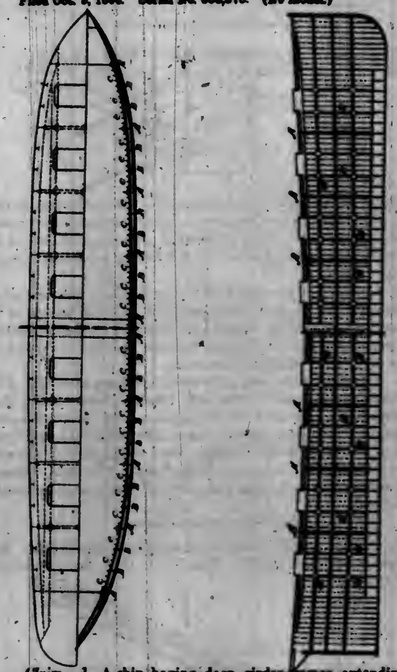
586,435. ARC-LIGHT HOLDER. CHARLES A. HASEY, Pittsburg. Filed Feb. 19, 1897. Serial No. 624,122. (No model.)



Claim.—1. In an arc-light holder and hanger, the combination of the upright or pole, carrying a stationary cross-arm, a casing on the side of said upright, a sprocket-wheel journaled in said casing, a hanger secured to the end of said cross-arm, a bracket provided with side pieces secured to the cross-arm near the upright and provided with a roller journaled intermediate the ends of said pieces, a roller secured to the end of each of said arms, a passage-way formed between the two pulleys of the bracket for the lamp-hanger and an endless chain engaging the sprocket-wheel and the said pulleys, and a hanger depending from said chain to support the lamp, substantially as shown and described.

2. In an arc-light holder, the combination of the upright, a casing on said upright, a sprocket-wheel in said casing a cross-piece carried by said upright, a hanger carried by said cross-piece, a pulley secured in said hanger, a bracket secured to the cross-piece near the upright, a roller secured to each arm of said bracket, a passage-way formed between the rollers of each arm for the lamp-bracket, an endless chain engaging the sprocket-wheel and pulleys, and a hanger carried by said endless chain to support the lamp and adapted to operate between the rollers, substantially as shown and described.

586,436. SHIP CONSTRUCTION. JOHN HAWS, Norristown, Pa. Filed Oct. 9, 1896. Serial No. 608,370. (No model.)

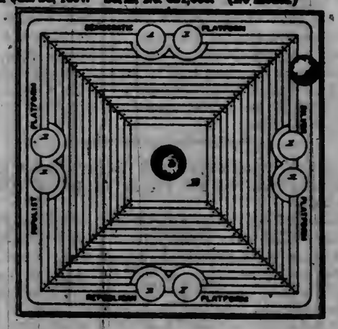


Claim.—1. A ship having deep girder-frames extending completely around its transverse section and spaced at intervals longitudinally, substantially as specified.

2. A ship having deep girder-frames extending completely around its transverse section at suitable longitudinal intervals, said deep girder-frames being alternated with web-frames and frames of the usual construction spaced intermediately of said deep girder-frames, substantially as specified.

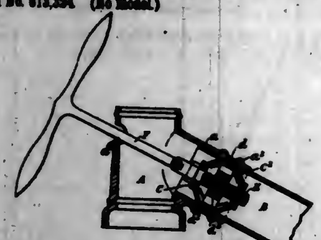
3. The combination of the deck-frames with horizontal longitudinal shelf-plates secured to the under sides of said deck-frames, and extending along each side of the row of hatches close to the sides of the same, substantially as specified.

586,437. GAME APPARATUS. GEORGE M. HOWE, Buffalo, N. Y. Filed Jan. 26, 1897. Serial No. 621,063. (No model.)



Claim.—The improved game or puzzle consisting of the combination of a box or case having a transparent cover, a centrally-spring-supported sensitive platform laid off into equal designated party-divisions and having a central seat or depression arranged within the case, and one or more spheres or balls.

586,438. MECHANISM FOR JOINING SECTIONS OF CYCLE-TUBES. JOHN G. INSHAW, Birmingham, England. Filed Nov. 24, 1896. Serial No. 613,394. (No model.)



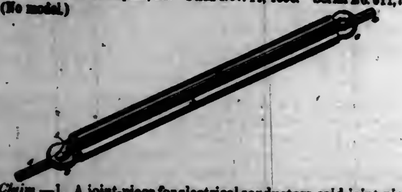
Claim.—1. A device for securing cycle-tubes to the fittings, consisting of an expansible slitted disk or disks combined with means for forcing such disk or disks outward to press the substance of the tube into securing engagement with the fittings, substantially as described.

2. A cycle-tube provided with a slitted disk or disks and means to keep such disk or disks expanded to press the substance of the tube outward in securing engagement with the fittings, an opening being provided in the tube for the insertion of a key to expand the disk or disks, substantially as described.

3. A device for securing cycle-tubes to fittings, consisting of the combination of expansible disks with distance-pieces forming abutments therefor and a screw for forcing the central parts of the disks together and their outer parts outward, substantially as described.

4. A device for securing tubular forks or like parts of cycles to fittings, consisting of the combination of expansible disks, distance-pieces and screw with a filling-piece and nut at the top, substantially as described.

586,439. JOINT-PIECE FOR ELECTRICAL CONDUCTORS. ELLWOOD IVINS, Philadelphia, Pa. Filed Nov. 11, 1896. Serial No. 611,732. (No model.)



Claim.—1. A joint-piece for electrical conductors, said joint-piece consisting of a seamless tube, indented so as to form three tubes or channels, two of which are available for the passage of the wires to be joined and the other for the reception of the backwardly-bent ends of said wires, substantially as specified.

2. A joint-piece for electrical conductors, said joint-piece consisting of a seamless tube having its sides indented so as to form three independent tubes arranged in triangular form, substantially as specified.

3. The combination of the joint-piece consisting of three closely-bunched tubes, with conducting-wires one passing in one direction through one of said tubes and the other passing in the opposite direction through another of the tubes, the end portion of one wire being bent back into one end of the third tube and the end portion of the other wire being bent back into the opposite end of said third tube so as to form, at each end of the joint-piece, a loop of one wire through which the other wire is passed and upon which it bears, substantially as specified.

586,440. WAGON-STANDARD. JULIUS G. KERNEK and HENRY H. KERNEK, Poplar Bluff, Mo. Filed Apr. 23, 1896. Serial No. 588,543. (No model.)

Claim.—The combination with a bolster or rocker of a wagon, of an extension wagon-stake consisting of the hollow rectangular post 4 having its lower end 13 sunk into the end of the bolster or rocker and having the aperture 12 in one of its side faces and communicating with its interior opening, the lug 5 projecting outwardly at right angles from near the lower end of said post and resting on top of the bolster or rocker, the lugs 6 and 7 projecting downwardly and inwardly from near the lower end of said post and engaging one on each side of the bolster or rocker, said post 4 and the lugs 5, 6 and 7 being cast integral, the bolt passing horizontally through the lugs 6 and 7 and through the bolster or rocker, the bolt passing vertically through the lug 5 and through the end of the bolster or rocker, the cast extension-piece 8 slidingly positioned within the hollow of said post 4 and having the recess 9 in its face and near its lower end, the cap 10 formed integral with the upper end of said extension-piece, said cap being of such a shape and size that when said extension-piece is resting in its lowermost position within the hollow of the post 4, said cap matches with the top of said post 4 in shape and size, the leaf-spring 11 attached to the outside of the post 4 and having its free end bent inwardly through the aperture 12 in said post and engaging the extension-piece 8, and then outwardly through said aperture and upwardly forming a handle for the operation of said spring, substantially as specified.



586,441. RIM-SPACING MACHINE. HARRY T. KENDERDINE, Keene, N. H. Filed Dec. 26, 1896. Serial No. 617,094. (No model.)



Claim.—1. The combination with a wheel-rim-holding device of an annular index-plate provided with a series of concentric rows of perforations arranged according to the number of spokes to be inserted in the rim and a catch or stop device adapted to be set to successively engage the perforations of any one row of said series, substantially as described.

2. The combination with a wheel-rim-holding device, of an annular index-plate provided with a series of concentric rows of perforations and a stop or catch device adjustable radially of said index-plate and adapted in the rotation of the latter to successively engage the perforations of that row with which it has been adjusted to register, substantially as described.

3. The combination with a wheel-rim-holding chuck, of an index-plate rotatable therewith, a vertically-adjustable swinging lever having a handle to engage a notched scale-plate and having a catch normally engaging with the index-plate, substantially as described.

4. The combination with a wheel-rim-holding chuck, of a rotatable index-plate, a spring-catch engaging the same, a scale-plate with which said catch also engages, and an adjustable rod or arm 5 adapted to bear against the rim held on the chuck, substantially as described.

5. In the herein-described device a rotatable index-plate, radial arms having a sliding engagement with said index-holding plate, means for operating said arms to cause them to simultaneously embrace or release the rim of a wheel and a spring catch or pawl adapted to engage the index-plate and successively to engage and release it as it rotates, substantially as described.

6. In the herein-described device the supporting-plate provided with a suitable axle, the index-plate thereon provided with lugs, the plate c secured to said index-plate, the radial rim-holding arms confined at one end within the lugs of the index-plate and having a sliding connection at their outer ends with said index-plate, means for expanding and retracting said radial arms and a spring pawl or catch normally engaging the index-plate and alternately stopping and releasing it as it rotates, substantially as described.

7. The combination with a rotatable wheel-rim-holding device having a series of rows of perforations corresponding in number to the number of spokes to be placed on the rim, of a device for engaging successively the perforations of any one row to automatically stop the wheel-rim-supporting device, substantially as described.

8. A wheel-rim-holding chuck comprising an annular rim with inwardly-extending arms provided with lugs, outwardly-extending arms, radial rim-holding arms having a sliding connection with the outwardly-extending arms, a plate c secured to the lugs on the inwardly-extending arms by which the inner ends of the radial arms are confined, a pinion engaging racks on the inner ends of said radial arms and means for rotating said pinion to expand or retract the radial arms, substantially as described.

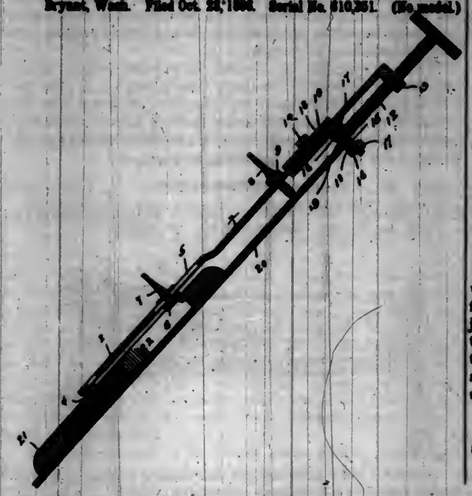
9. A wheel-rim-holding chuck comprising an annular rim with inwardly-extending arms provided with lugs, outwardly-extending arms, radial rim-holding arms having a sliding connection with the outwardly-extending arms, a plate c secured to the lugs on the inwardly-extending arms by which the inner ends of the radial arms are confined, a pinion engaging racks on the inner ends of said radial arms and means for rotating said pinion to expand or retract the radial arms, comprising a handle engaging said pinion and having a lug on the inner side adapted to engage teeth on the plate c, substantially as described.

10. The herein-described wheel-rim-holding chuck comprising an annular plate having a series of graduations, radially-extending arms having a sliding connection with said plate, said radial arms being provided at their inner ends with rack-teeth, a single pinion engaging all of said rack-teeth and means for operating said pinion, and a stop device engaging said graduations substantially as described.

11. The herein-described wheel-rim-holding chuck comprising an annular plate, radially-extending arms having a sliding connection with said plate, said radial arms being provided at their inner ends with rack-teeth, a pinion engaging said rack-teeth, and having oppositely-extending lugs, and a handle provided with recesses within which said lugs fit, substantially as described.

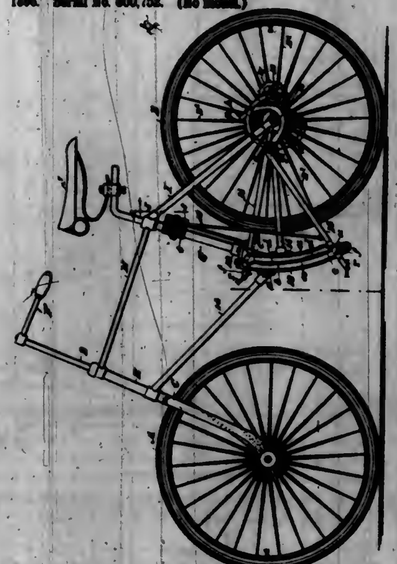
12. The combination with a rotatable wheel-rim-holding device of an index-plate graduated according to the number of spokes to be inserted in the rim and rotating with said wheel-rim-holding device, of a stop device independent of the rotating index-plate but adapted in the rotation thereof to successively engage the graduations and stop the plate, substantially as described.

586,442. JOINTER FOR CIRCULAR SAWS. GEORGE W. KEMP, Bryant, Wash. Filed Oct. 22, 1896. Serial No. 610,261. (No model.)



Claim.—A saw-jointer, comprising the bent frame or bar 1, the bifurcated end of which is formed with circular arms 2 2, provided with integral studs 4 4 on their outer ends, the longitudinal slot 5 located in the frame at the junction of the arms 2 2, the integral right-angular arm 13 on the other end of the frame, in combination with the stud 6 provided with the longitudinal tongue and the thumb-screw 7, adapted to be adjustably secured in the slot 5, the lateral gage-screw 8 secured in the frame 1, the adjusting-screw 12 mounted in the integral arm 13 parallel with said frame, the adjustable carriage 10 encompassing said frame and provided with a set-screw 14, and the cutting-tool 19 detachably secured in said carriage at a right angle to the path of motion of said carriage, substantially as shown and described.

586,443. MECHANICAL MOTOR FOR BICYCLES OR OTHER PURPOSES. CHARLES P. LABATT, Los Angeles, Cal. Filed July 28, 1896. Serial No. 600,752. (No model.)



Claim.—A driving-gear having a sliding lever, a guide-box having a longitudinally-extending partition forming two raceways, a pivoted spring-pressed tongue at each end of the partition, and a stud projecting from the lever and alternately moving through the raceways, substantially as described.

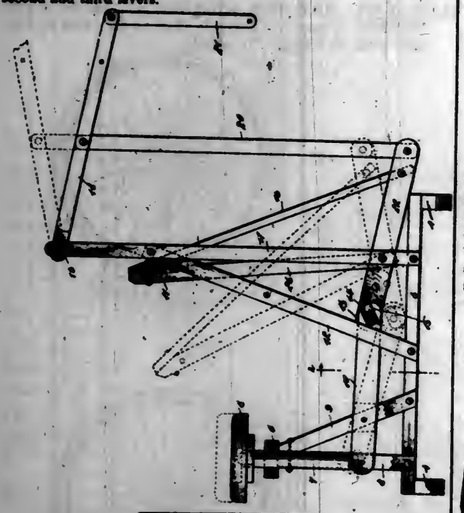
586,444. MACHINE FOR AGITATING SUGAR. JOSEPH A. LOSSE, Lockport, La., assignor of one-half to Pringle R. Holmes, same place. Filed Mar. 5, 1897. Serial No. 626,027. (No model.)



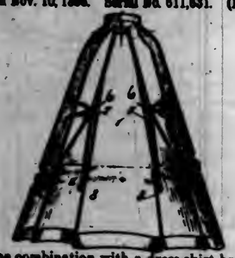
Claim.—In a sugar agitator and crystallizer, the combination with the cylinder, the heads having annular flanges on the inner faces, the rotatable shaft provided with blades or paddles, of the jacket surrounding said cylinder, having flanges at the ends bolted to said heads, the steam-supply pipe, the pipes at the lower side of the jacket for draining off the water of condensation, the diametrically opposite supply and discharge pipes communicating with said cylinder, and the pivoted gate, substantially as described.

586,445. WINDMILL-WHEEL. JULIUS HANSELL, Dexter, N. Y., assignor of one-half to Fred J. Manigold, same place. Filed Mar. 5, 1897. Serial No. 625,994. (No model.)

Claim.—The combination of a base-rail, two standards rising from one end of the base-rail, a block held by the standards, a seat and stem, the latter being vertically reciprocal through the block, two braces standing on the base-rail and attached to the standards, a lever fulcrumed between the braces and pivoted to the stem, two additional standards rising from near the second end of the base-rail, two guy-bars respectively for the said additional standards, a second lever fulcrumed between the second standards and pivoted to the first lever, a pedal carried at the pivot between the two levers, a bar rigidly carried on the second lever and extending upward between the second standards, a brace attached to the upper end of the bar on the second lever and running downward to near the rear end of the second lever, a third lever pivoted between the second-named standards and at the upper ends thereof, and a link connecting the second and third levers.



586,446. DRESS-SKIRT LIFTER. ESTHER MANNING, New York, N. Y. Filed Nov. 10, 1896. Serial No. 611,631. (No model.)

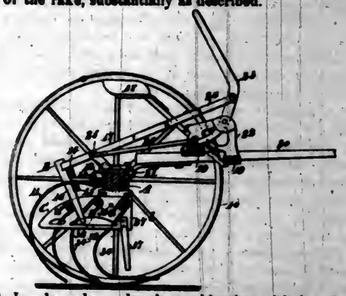


Claim.—The combination with a dress-skirt having a waistband and a placket, of rings secured to the opposite sides of the placket and below the waistband, tapes extended through the rings and through the placket so that the outer ends may be tied over the placket, a ring on the inner end of each tape, tapes attached to said rings, and rings on the lower ends of said tapes attached to the seams of the skirt-breadths, there being a sufficient number of the last-named tapes suspended from the first-named tapes to engage with the several breadth-seams of the skirt, the several depending tapes being of substantially equal length, but the connections at the front portion of the skirt being at a greater distance above the skirt-binding or lower edge than those at the rear, substantially as specified.

586,447. HAY-RAKE. BENJAMIN MELLINGER, Topeka, Kans., assignor of one-half to Samuel P. Mellinger, same place. Filed May 19, 1896. Serial No. 592,128. (No model.)

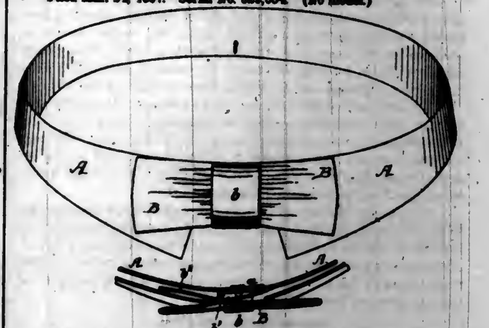
Claim.—1. In a horse hay-rake, a guard located at each end of the row of teeth, each guard consisting of a shield constructed in adjustable sections, and spring-teeth carried by one of the sections of the shield, the said teeth being curved downwardly and forwardly, substantially as described.

2. In a horse hay-rake, a guard for the ends of the rake, the said guard comprising a shield formed of adjustable sections and attached to the head of the rake to project rearwardly therefrom, spring-teeth rearwardly and downwardly curved from the said shield over the space between the end rake-teeth and forward portion of the rake-head, and a substantially straight and rigid tooth located at the forward end of the shield, the end teeth serving as a barrier against the outward passage of the hay while gathered up by the teeth of the rake, substantially as described.



3. In a horse hay-rake, the combination, with the rake-head and its teeth, of a guard located at each end of the line of rake-teeth, each guard comprising a shield consisting of a retaining-section attached to the rake-head and provided with a vertical and a curved slot, and a body-section having an apertured flange at its lower edge and provided with locking devices passed through the slots in the retaining-section of the shield, and teeth secured to the body-section of the shield, projecting through the apertured flange and extending downwardly and forwardly therefrom, as and for the purpose set forth.

586,448. COLLAR. SOLOMON K. METZKOFF, Philadelphia, Pa. Filed Mar. 24, 1897. Serial No. 629,054. (No model.)



Claim.—1. As a new article of manufacture a combined necktie and collar having a collar portion, an extension on one end thereof, a loop on the extension and a slot so that the extension can be doubled upon itself and the end passed through the slot to form a retainer for the tie, substantially as described.

2. A combined necktie and collar, of the collar-section having two short projections *a a*, buttonholes therein, with a long extension B having a loop at a point near the collar, and a slot in the extension at one side of the loop, said extension having a reduced end so that by doubling the section through the loop and passing the end through the slot it will form a tie, substantially as described.

586,449. CAR-FENDER. CHARLES S. MEYERS, Sharpsburg, Pa. Filed Jan. 27, 1897. Serial No. 620,894. (No model.)



Claim.—1. In a car fender, the side braces *a*, carrying a suitable netting, curved vertical braces *b*, pivotally attached to said side braces *a*, an elbow-lever *n*, pivotally connected thereto and fulcrumed to the angle-braces *p*, angle brace *o*, connected to said elbow-levers, a cross-brace *l*, extending above the fender and bearing against the spring *b'*, a rack *g* pivotally supported on the front of the car, said rack engaging a pawl *f*, carried by the cross-brace, and means for elevating the front portion of the fender when the object comes in contact therewith, substantially as shown and described.

2. In a car-fender composed of different sections, a suitable covering for each section, vertical curved braces, slotted side rods *p*, to which said elbow-levers are pivoted, a cross-brace carrying a bar and downwardly-extending arms, sliding blocks carried by vertical rods and connecting said blocks with said slotted side rods, said slotted rods having a rack therein to engage a spur-gear carried by a rod extending transversely of the car, substantially as shown and described.

586,450. CAR. RICHARD MCCOY, Riverton, Va. Filed July 15, 1896. Serial No. 599,286. (No model.)



Claim.—1. A shipping-car or other receptacle whose sides and roof are made of two layers with interposed packing between the layers, of wood fiber, cow-hair, or other suitable material, a sheathing upon the inner surface of said car which is air, water and acid proof, doors at each end of the car, and means for forming a tight joint between said doors and said car.

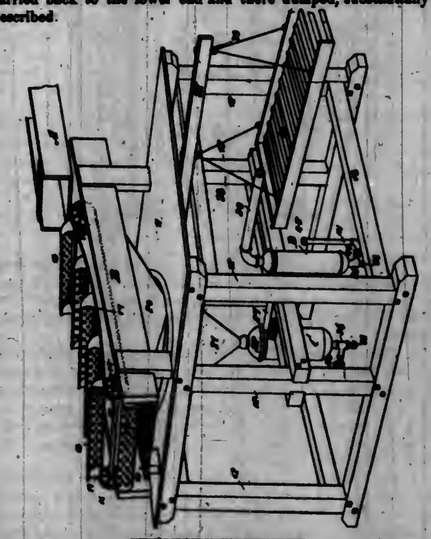
2. In a shipping-car or other receptacle for the purpose described, the combination with the main body part thereof, of a door-frame made up of a pair of uprights and a cross-beam connecting the same at their upper ends, strips of rubber or other suitable material secured to the front faces of said uprights, said cross-beam and the floor of the car, vertically-disposed rods secured to said uprights, doors hinged upon said rods whereby a sliding and reciprocatory movement is permitted, antifriction-rollers upon the lower ends of said doors, segmental tracks in the floor of said car upon which said rollers move, the inner ends of said tracks being depressed, and a locking device for said doors, substantially as and for the purpose described.

3. In a shipping-car or other receptacle for the purpose described, the combination with the main body part thereof, of a door-frame, made up of a pair of uprights and a cross-beam connecting the same at their upper ends, strips of rubber or other suitable material secured to the front faces of said uprights, said cross-beam and the floor of the car, vertically-disposed rods secured to said uprights, doors hinged upon said rods, whereby a sliding and reciprocatory movement is permitted, said doors having rabbeted inner surfaces which are adapted to fit between said uprights and said cross-beam when the doors are in their closed position, antifriction-rollers upon the lower ends of said doors fitting within segmental grooves in the floor of the car which are depressed at their inner ends, and a locking device for said doors, substantially as and for the purpose described.

586,451. CONCENTRATOR AND AMALGAMATOR. ADAM MCMILLAN, Salt Lake City, Utah. Filed Sept. 2, 1896. Serial No. 605,261. (No model.)

Claim.—1. The combination, with a screening-surface, a contracted pan or basin receiving the material from the said surface, and a hopper located beneath the pan or basin, taking the material from the latter, of a cylinder having an offtake-pipe in its top and adapted to be provided with mercury in its bottom, a pipe located within the cylinder at a point above the mercury and connected with the hopper, a valve located in the lower portion of the said cylinder, the said valve being of an elastic material and provided with a controlling-stem, and a capped pipe connected with the casing of the said valve, through which the mercury and the material held thereby may be withdrawn from the valve-casing when delivered thereto, as and for the purpose set forth.

2. The combination of an inclined screen with an endless belt provided with buckets attached to its outer surface and having their outer sides and bottoms composed of perforated plates and backs for the same attached to the chains, carrying and operating means by which the said buckets are, during the lower half of their circuit, moved up the incline of the said screen with their edges close to the same, whereby coarse material will be caught by said buckets and carried back to the lower end and there dumped, substantially as described.



586,452. SHOE. LAFRANDE F. NORMAN, Newton, and HOWARD R. BENNETT, Boston, Mass. Filed Jan. 11, 1897. Serial No. 618,894. (No model.)



Claim.—1. In a shoe, the outer sole *a*, having a number of perforations, and the slip or half-sole *b* having a number of rubber projections or plugs attached to it passing through the outer sole, and metallic fastenings for attaching said rubber plugs to said slip or half-sole, the heads of which are embedded in said plugs, substantially as described.

2. In a shoe, the outer sole *a*, having a number of perforations, and the slip or half-sole *b*, having a number of rubber plugs attached to it, which more or less snugly fit and project through the perforations made in said outer sole *a*, and metallic fastenings for attaching said rubber plugs to said slip or half-sole *b*, the heads of which are embedded in said plugs, and the legs of which are inserted through holes in said slip or half-sole and are then overturned or clenched, substantially as described.

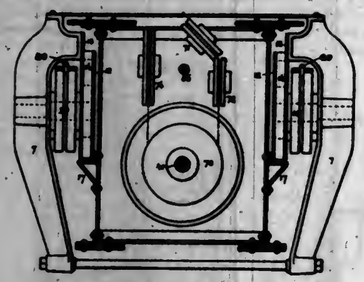
586,453. POCKET-KNIFE. ALEXANDER NORMAND, Klerksdorp, South African Republic. Filed Apr. 15, 1895. Renewed June 2, 1897. Serial No. 640,068. (No model.)



Claim.—1. A knife comprising a handle, a pivot-pin held on the said handle, a spring secured in the handle and extending with its free end close to the said pivot-pin, a tool having its heel formed with a slot for engagement with the said pivot-pin, the heel being also engaged by the free end of the said spring, a fixed jaw formed at the outer end of the said tool, a movable jaw, and an adjustable locking device carried by the said tool and adapted to lock the movable jaw in position, substantially as shown and described.

2. A knife, comprising a handle, a pivot-pin held on the said handle, a spring secured in the handle and extending with its free end close to the said pivot-pin, a tool having its heel formed with a slot for engagement with the said pivot-pin, the heel being also engaged by the free end of the said spring, an adjustable wrench-head held on the outer end of the said tool, the said adjustable wrench-head comprising a jaw integral with the tool, a movable jaw having a shank fitted to slide on the fixed jaw and formed with notches, and a tongue held adjustable on the said tool and adapted to engage one of the said notches, to lock the movable jaw in position, substantially as shown and described.

586,454. CRANE. CALVIN W. PARSONS, Scranton, Pa. Filed June 19, 1891. Serial No. 396,722. (No model.)



Claim.—1. A crane having a trolley-carrying portion in the form of a single rectangular box-girder, in combination with a trolley spanning or encircling said girder, and running on ways attached to the vertical webs of the girder on the outside of the same, substantially as specified.

2. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, with the trolley running on ways secured to the side webs of the girder and having hoisting-chain sheaves outside of said ways, and means for rigidly bracing or retaining the opposite sides of the trolley above and below said supporting-points so as to prevent either spreading or collapse of the trolley, substantially as specified.

3. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, with the trolley running upon ways secured to the outer vertical webs of the girder and having hoisting-chain sheaves outside of said ways, and means for bracing or retaining the opposite sides of the trolley to prevent distortion of the same, said braces or retainers consisting of rollers running against rails or ways carried by the girder, substantially as specified.

4. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, with the trolley running upon ways secured to the vertical webs of the girder, and having hoisting-chain sheaves outside of said ways, and braces or retainers for the sides of the trolley located above and below the supporting-points of said trolley, and consisting of rollers running against rails or ways carried by the girder, substantially as specified.

5. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, and having ways or tracks on the vertical webs, with a trolley having rollers, roller-bearing blocks, roller-housing, and hoisting-chain sheaves, the said bearing-blocks carrying the inner ends of the spindles on which said chain-sheaves turn, substantially as specified.

6. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, and the hoisting-chain extending from end to end of the girder with the trolley mounted on said girder and having sheaves for the hoisting-chains located at or near the lower flange of the girder whereby the tension upon the hoisting-chain serves to partially counterbalance the tension upon the lower flange of the girder, substantially as specified.

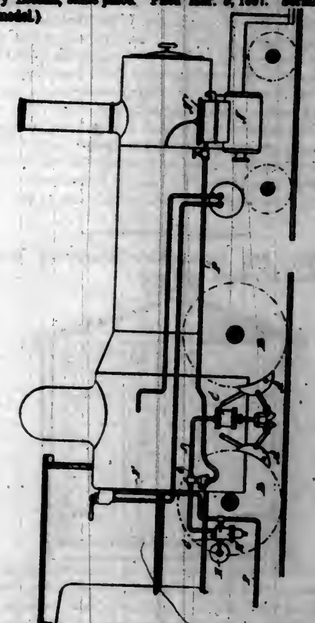
7. The combination of the rectangular box-girder forming the trolley-carrying portion of the crane, the trolley mounted on the outside of said girder and carrying sheaves for the hoisting-chain, and the hoisting mechanism located on the inside of the girder, substantially as specified.

8. The combination of the rectangular box-girder constituting the trolley-carrying portion of the crane, with the trolley mounted on the outside of the girder and carrying sheaves for the hoisting-chain, and the trolley and hoisting-chain-operating mechanism on the inside of the same, substantially as specified.

9. The combination of the rectangular box-girder, the trolley mounted thereon and having at each side a sheave for the hoisting-chain, a hoisting-chain passing around the trolley-sheaves, around sheaves on the outside of the girder, and around suitable guide-sheaves on the inside of the girder, sprocket-wheels on the inside of the girder, one for each end of the chain, and mechanism for rotating said sprocket-wheels, substantially as specified.

10. The combination of the rectangular box-girder, the trolley mounted on the outside of the same and having the sheaves for the hoisting-chain, a hoisting-chain running along each of the sides of the girder from end to end, sprocket-wheels on the inside of the girder for operating said chains, and carrier-sheaves for the chains on opposite sides of the girder, said carrier-sheaves being mounted on arms pivoted on the inside of the girder and projecting through openings in the side webs of the same so that the sheaves can swing out of the way when the trolley passes them, substantially as specified.

586,455. RELEASING DEVICE FOR BRAKES OF DRIVE-WHEELS. WALTER O. PELHAM, Denison, Tex., assignor of one-half to Henry Loomis, same place. Filed Mar. 6, 1897. Serial No. 626,162. (No model.)



Claim.—1. An automatic drive-wheel brake-release, provided with an exhaust device, independent of the triple valve, connected with the brake-pipe, and controlled by back pressure in the steam-chest, substantially as shown and described.

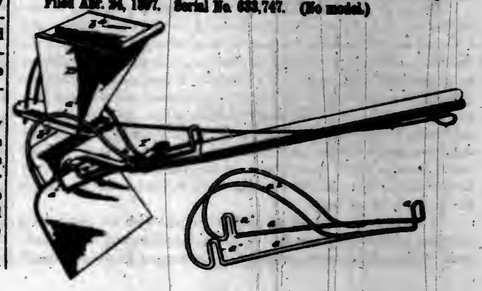
2. An automatic drive-wheel brake-release, provided with a valve mechanism arranged in the brake-pipe, and connected with a pipe leading to the steam-chest of the locomotive-engine, the said valve mechanism having a valve adapted to establish communication between the brake-pipe and the outer air, substantially as shown and described.

586,456. COAT-HANGER. GEORGE E. RINGOT, Boston, Mass. Filed May 26, 1896. Serial No. 593,180. (No model.)



Claim.—As a new article of manufacture a coat-hanger comprising two arms one hinged upon the other, a hook formed by the inner end of one arm and a stop formed by the inner end of the other arm whereby the hook may engage the stop to hold the arms extended or be released from the stop to fold the arms together substantially as set forth.

586,457. SEED-DROPPING ATTACHMENT. WILLIAM H. ROOK, Union City, Tenn., assignor of one-third to James M. Ownby, same place. Filed Apr. 24, 1897. Serial No. 633,747. (No model.)



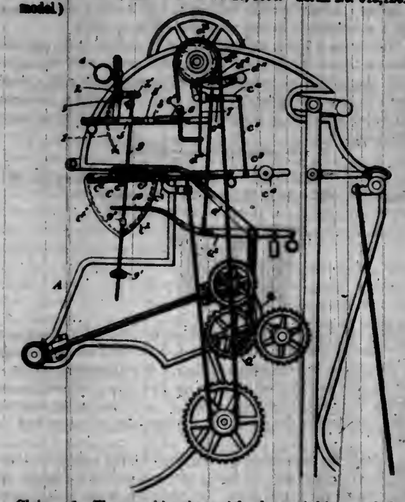
Claim.—1. A seed-dropping attachment for hand implements comprising a carrier constructed for application to the head and shank of an agricultural implement, a hopper mounted on the carrier and having a spout arranged to clear the implement, a slide with means for operating the same, and a clamp to hold the attachment rigidly in place on an implement, substantially as and for the purpose described.

2. In a seed-dropping attachment for hand implements, a carrier having its base formed with a shank and with seats to fit the staff and blade of an implement, combined with a hopper mounted on the carrier and having a spout arranged to clear the carrier and implement, a seed-dropper plate, and means for clamping the carrier in position, substantially as and for the purposes described.

3. In a seed-dropping attachment for hand implements, the carrier having its base formed with a shank, an eye or loop, and the seats and also provided with the arched or bowed upper member, combined with a hopper fastened to the arched member, a slide fitted in the hopper, a spring connected to the slide, and a pull rod or wire, substantially as described.

4. The combination with an agricultural implement, of a carrier fitted to the staff and head of said implement, means for clamping the carrier rigidly in place, a hopper mounted on the carrier and provided with a conducting-spout arranged to deposit its contents in advance of the implement-head, a dropping-slide in said hopper, and an operating-rod attached to the slide and fitted in guides on the implement, as and for the purposes described.

586,458. FEEDER FOR CARDING-MACHINES. GEORGE D. SIGGS, South Bend, Ind. Filed Dec. 10, 1896. Serial No. 615,129. (No model.)



Claim.—1. The combination with the weighing and feeding mechanism of carding-engines, comprising a scale-pan and means for discharging it when filled and for returning it to its proper normal position when emptied, substantially as described, of mechanism substantially as described, whereby the stock fed forward in the interval between the tipping of the scale-pan and the stoppage of the feeding mechanism is retained until the scale-pan returns to receiving position and is then discharged into the scale-pan, substantially as and for the purpose described.

2. The combination with a weighing and feeding machine for carding-engines, having a scale-pan, and weighing and tipping mechanism for operating it, of a retaining-pan adapted to catch the material fed forward during the interval between the tipping of the scale-pan and the stoppage of the feeding mechanism; means for holding the retaining-pan in position to catch the stock during the tipping of the scale-pan, and means for holding the retaining-pan out of the way when the scale-pan is in position to receive stock, for the purpose and substantially as described.

3. The combination of a feeder, of a scale-pan, the spike-apron, and mechanism for stopping the spike-apron when the scale pan is discharging its contents, substantially as described, with a retaining-pan above the scale-pan adapted to catch any material fed forward after the scale-pan has tipped and prior to the return of the scale-pan to receiving position; means for throwing the retaining-pan into position to catch such material upon the tipping scale; and means for returning said retaining-pan to normal position, out of the way, when the scale is in position to receive a new charge of stock, all substantially as and for the purpose described.

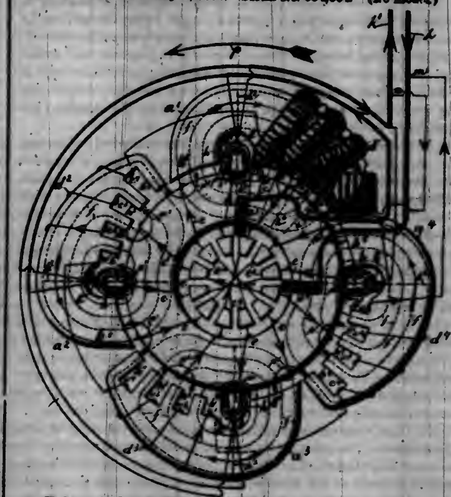
4. The combination of the scale-pan and its operating mechanism, substantially as described; with the retaining-pan, the weighted lever for throwing the retaining-pan into receiving position; a latch adapted to hold the retaining-pan in discharging position; a trip mechanism for releasing said latch, upon the tipping of the scale-pan; and mechanism for throwing the retaining-pan into discharging position when the scale-pan returns to receiving position, all substantially as and for the purpose set forth.

5. The combination of the retaining-pan, the lever on the shaft thereof, the latch pivoted to said lever, a bracket supporting the free end of said lever, the notched block 8 on said lever, and the retarding-spring 6" on the bracket adapted to engage block 8, for the purpose and substantially as described.

6. The combination with a feeder, of the retaining-pan; its weighted lever; the latch 6 for holding the pan in discharging position; the trip-rod 7 for releasing said latch; a weight for throwing the pan into receiving position; and the rod 9 and finger 10 for throwing the pan into discharging position, all substantially as and for the purpose described.

7. The combination of a weighing and feeding mechanism for carding-machines, and like purposes; of a scale-pan, and the weighing and tipping mechanisms for operating the same; a spike-apron, and mechanism for stopping the spike-apron upon the tipping of the scale-pan and while it is discharging its contents, substantially as described; with a retaining-pan located above the scale-pan; a weighted lever for throwing the retaining-pan into receiving position; a latch 6 for holding said retaining-pan in discharging position; a trip-rod 7 for releasing said latch connected to and operated by the mechanism for arresting the spike-apron, so that the latch is tripped simultaneously with the stoppage of the spike-apron; a rod 9 connected to said lever, and a finger 10 connected to the mechanism for releasing the spike-apron drive, adapted to engage rod 9 and force the retaining-pan into discharging position simultaneously with the return of the scale-pan to weighing position and the starting of the spike-apron, all substantially as and for the purpose set forth.

586,459. DYNAMO OR MOTOR. ALBERT W. SMITH, Washington, D. C. Filed May 3, 1897. Serial No. 634,894. (No model.)



Claim.—1. In an electrical generator or motor, the method of preventing the shifting of the neutral or commutating points, which method consists in causing the magnetism of an asymmetrically-wound field magnetizing-coil to be diverted from the general magnetic axis of said coil, by causing the magnetism generated by the several turns or sections of said coil to leak out through the sides of said coil, between the several turns or sections thereof.

2. In an electrical generator or motor, the method of preventing the shifting of the neutral or commutating points, caused by field distortion, due to armature reaction, which method consists in producing a prior, antecedent, and self-constituted distortion between a field magnetizing-coil and its field, and thus limiting the amount of further distortion which may be caused by the armature reaction.

3. In an electrical generator or motor, the method of preventing the shifting of the neutral or commutating points, which method

consists in placing all of those laps or portions of the field magnetizing-coils which lie contiguous to or near the armature, in or across the flux path of the magnet, and entirely on those sides of the neutral or commutating points of the field-magnet, on which the armature-coils have currents of opposite direction to the current in the contiguous laps or portions of the field-coils.

4. In an electrical generator or motor, the method of preventing the shifting of the neutral or commutating points, which method consists in juxtaposing all of those laps or portions of the field magnetizing-coils which lie contiguous to or adjacent to the armature, near to or in proximity to those of the armature-coils which have magneto-motive forces of contrary directions to those in the juxtaposed or contiguous laps of the field-coils.

5. In an electrical generator or motor, a field magnetizing-coil having some of its laps or portions wound contiguous to the armature, said contiguous portions being wound entirely on that side of the neutral or commutating point of the field-magnet on which the armature-coils have currents of opposite direction to the current in the said contiguous laps or portions of said field-coil.

6. In an electrical generator, the method of preventing the shifting of the neutral or commutating points, caused by field distortion, due to armature reaction, which method consists in displacing the field magnetizing-coils relative to the neutral or commutating points of the field-magnets, and inversely to the direction of rotation of the armature.

7. In an electrical generator or motor, a field-magnet having on one side of its neutral gap or point a single wide pole, and on the other side of said neutral gap or point several plural poles, said plural poles forming between them coil-containing spaces, said spaces being contiguous to the armature.

8. In an electrical generator or motor, a field-magnet having on one side of its neutral gap or point a single wide pole or polar area, and on the other side of said neutral gap or point a coil-containing space or spaces, said space or spaces being contiguous to the armature.

9. In an electrical generator or motor, a field-magnet having on one side of its neutral gap or point a single large pole, or polar area, and on the other side of said neutral gap or point a coil-containing space or spaces, said space or spaces being contiguous to the armature and containing portions or laps of the field-magnet coils, the returning laps or portions of said coils being situated at points remote from the armature.

10. In an electrical generator or motor, a field-magnet having on one side of its neutral gap or point a single wide pole, and on the other side of said neutral gap or point several plural poles, said plural poles forming between them coil-containing spaces, said spaces being contiguous to the armature, and containing portions or laps of the field-magnet coils, the returning laps or portions of said coils being wound around the outside of said magnet and remote from the armature

11. In an electrical generator or motor, the method of preventing the existence of self-induction due to the rise or increase of current in the commutable coils at the moment of commutation, or when their respective commutator-segments leave, or break contact with the brushes, which method consists in forestalling or anticipating said self-induction in said commutable coils by surrounding, embracing, enveloping, or interlinking said commutable coils at the moment of commutation with a prior or antecedent magneto-motive force of contrary direction to that which exists or tends to exist in the commutable coils at the moment of commutation.

12. In an electrical generator or motor, the method of preventing self-induction in the commutable coils at the moment of commutation, which method consists in surrounding, embracing, or interlinking said commutable coils at the moment of commutation with a magnetic field contrary in direction to the local magnetic fields which said commutable coils tend to set up at the moment of commutation.

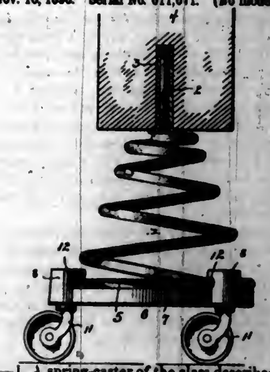
13. In an electrical generator or motor, the method of preventing self-induction in the commutable coils at the moment of commutation, which method consists in surrounding, embracing, or interlinking the commutable coils at the moment of commutation with a magnetic field contrary in direction, and equal or superior in strength to the local magnetic fields which said commutable coils tend to set up at the moment of commutation.

14. In an electrical generator or motor, the combination with the commutable coils thereof, of means for surrounding, embracing, or interlinking said commutable coils at their moments of commutation with a magnetic field contrary in direction to the local magnetic fields which said commutable coils tend to set up at the moment of commutation.

15. In an electrical generator or motor, the combination with the commutable coils thereof, of means for surrounding, embracing, or interlinking said commutable coils at their moments of commutation with a magnetic field contrary in direction, and equal or superior in strength to the local magnetic fields which said commutable coils tend to set up at their moments of commutation.

16. In an electrical generator or motor, the combination with the commutable coils *e e* thereof, of electromagnets A A wound with an equal number of ampere-turns as are contained in said commutable coils *e e*.

586,460. SPRING-CASTER. JOHN W. SPURLOCK, Ty Ty, Ga.
Filed Nov. 10, 1896. Serial No. 611,671. (No model.)



Claim.—1. A spring-caster of the class described, comprising the bracket 6 provided with integral sockets 8, having vertical orifices 9, the caster-rollers 11, having cylindrical shanks 10, and the conical coiled spring 1 formed with a horizontal coil 5 and a vertical integral pin 2, substantially as and for the purpose set forth.

2. The bracket 6 provided with integral sockets 8, having horizontal recess 12 and vertical orifice 9, in combination with the caster-roller 11, the cylindrical shank 10 of which is formed with a semi-circular circumferential groove 13, and the spiral spring 1, the lower coil 5 of which is formed in a horizontal plane, substantially as shown and described.

586,461. BRICK-DIE. CLARENCE M. STEELE, Statesville, N. C.
Filed Oct. 1, 1896. Serial No. 607,570. (No model.)



Claim.—1. A brick-die composed of die-sections, a chambered partition located between the sections and forming one of the sides of the die-orifices, and the casing or shell, a steam-chamber surrounding said sections and located between the casing or shell and the sections being provided within the casing or shell and communicating with the chamber in the partition, substantially as shown and described.

2. A brick-die comprising the die proper having a partition chambered to receive steam and the casing surrounding the die proper and forming a steam-space and means for supplying steam to said partition and casing substantially as shown and described.

3. The combination with the die-sections of a shell or casing encircling and holding said sections together and forming a steam-chamber around such sections the said sections forming the inner wall of the steam-chamber substantially as shown and described.

4. A brick-die comprising the die-sections having end flanges, the partition fitted between said sections and having end flanges coinciding with those of the die-sections and the casing inclosing said sections and partitions substantially as shown and described.

5. The combination of the die-sections, the partition clamped between the said sections and the shell or casing fitting around said sections substantially as shown and described.

6. The combination of the die-sections and the intermediate partition provided at their ends with flanges formed to fit the shell or casing and the shell or casing surrounding such die and partition substantially as shown and described.

7. The combination in a brick-die of the die-sections, the partition fitted at its edges between the said sections and devices connecting said sections and holding them to the partition substantially as shown and described.

8. The combination of the die-sections, the chambered partition open at its edges and fitting at such open edges between the edges of the die-sections, means connecting said sections and the casing encircling the die-sections and partition and forming a chamber in communication with the chamber of the partition substantially as shown and described.

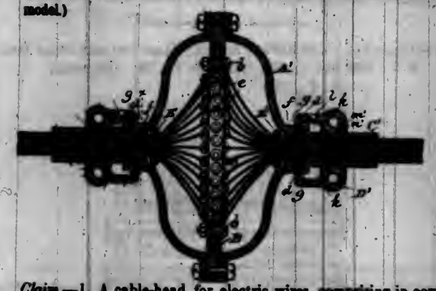
586,462. DOUBLETREE. LAWRENCE M. STEVENS, Shaw, Miss.
Filed Nov. 23, 1896. Serial No. 613,139. (No model.)



Claim.—1. The combination with a doubletree having an opening therein, of a bolt passing through said opening, a hook which straddles the bolt, being adapted to slide in the opening, and a singletree connected to the hook.

2. The combination with a doubletree having a horizontally-extending opening made therethrough, of a bolt fastened in said opening, a double hook slidable in the opening and having one portion straddling and engaging with the bolt, and a singletree having a shackle interlocked with the other hooked portion of the double hook.

586,463. CABLE-HEAD FOR ELECTRIC WIRES. HENRY A. TOBEY, Toledo, Ohio. Filed Jan. 14, 1897. Serial No. 618,157. (No model.)



Claim.—1. A cable-head for electric wires, comprising in combination, a casement; a connection-plate therein, means for connecting the wires, said wires diverging radially to said means of connection and detachably connected on the plate, whereby each wire may be directly and readily connected with any other wire, substantially as described.

2. In a cable-head for electric wires, a casement, the annular disk secured in said casement for affording ready access for change in wire connections, said disk provided with means for connection of the wires, substantially as described.

3. In a cable-head for electric wires, a connection-plate therein consisting of an open disk of non-conducting material, connecting-screws arranged around the center thereof, and branch connection-screws extending through said disk from its outer to its inner edge, in combination with the wires entering said cable-head, substantially as described.

4. In combination with a cable-head having a casement, a non-conducting circular-plate having a central opening secured in said casement, connection-screws passing from the exterior of said casement through said plate edgewise to the opening, and wires adapted to be connected to said screws, substantially as described.

5. In combination with a cable system of electric wires, a cable-head comprising shells forming a casement, openings in said casement for the admission of said cables, said openings provided with suitable sealing material, a connection-plate clamped between said shells, and means for hermetically sealing the junction formed by said shells and plate, substantially as described.

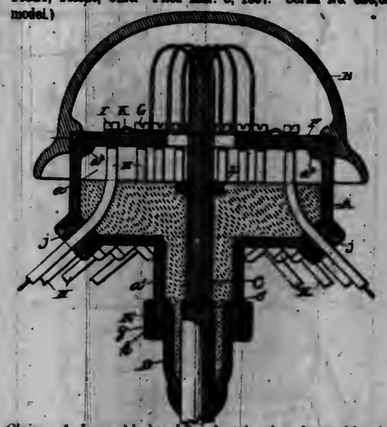
6. A cable-head casement provided with an opening to admit a section of lead-covered cable, connection means for the wires of said cable in the casement, in combination with a separate chamber through which said cable-section passes into the casement, said chamber filled around the cable with a non-conducting and sealing material, substantially as described.

7. A cable-head casement provided with an opening to admit a section of lead-covered cable, in combination with a separate chamber through which said cable-section passes into the casement, said chamber filled around the cable with a non-conducting and sealing material, and a ring of non-conducting material within said casement through which the wires of said cable pass, substantially as described.

8. A cable-head composed of a hollow box and cap united by an air-tight joint, in combination with an annular disk held in said joint, separate cables introduced into and united in said box, the cable-wires passed up through the central opening in said disk, the top surface of said disk provided with suitable binding-posts for making connections between the wires of said cables, substantially as described.

9. A cable-head box composed of a cap and a lower chamber, said chamber provided with projecting nipples, in combination with sections of cable passed through said nipples and chamber, said cap provided with outwardly-turned flanges corresponding with similar flanges on the chamber, a disk having a central opening and held between said cap and chamber flanges by an air-tight joint, a bearing-ring with a rounded surface at the head of said chamber through which the cable-wires are passed and by which they are centered, the wires from said cables passed through the central opening in said disk, and binding-posts on said disk to which the said wires are connected, substantially as described.

586,464. CABLE-HEAD FOR ELECTRIC WIRES. HENRY A. TOBEY, Toledo, Ohio. Filed Mar. 5, 1897. Serial No. 626,023. (No model.)



Claim.—1. In a cable-head for electric wires, in combination with a main body, a cover therefor, air-tight joints between said body and cover, a central aperture in said body, and a series of side apertures arranged circularly around said central aperture, main cable-wires entering said central aperture, branch wires entering said side apertures, sealing material in said body to seal the apertures, and a fixed connection-plate in said body provided with means of connection for said wires, substantially as described.

2. In a cable-head for electric wires, in combination with an annular disk of non-conducting material entirely inclosed by said head, main cable and branch wires, separate sets of connection-studs in said disk for said main and branch wires respectively, said sets arranged in concentric rows, and means for electrically connecting said sets of studs, substantially as described.

3. In a cable-head for electric wires, in combination with an annular disk of non-conducting material secured in and inclosed by said cable-head for affording ready access for change in wire connections, a removable cap for said head, main cable and branch wires entering said head, and connection-studs for said wires in said disk, substantially as described.

4. In a cable-head for electric wires, in combination with an annular disk of non-conducting material, concentric rows of connection-studs in said disk, a series of openings in said head corresponding to the studs of one of said rows, main cable-wires and branch wires, said branch wires passed through said openings and connected to the studs of one row, said main wires connected to the studs of the other row, and means for electrically connecting the studs of the respective rows, substantially as described.

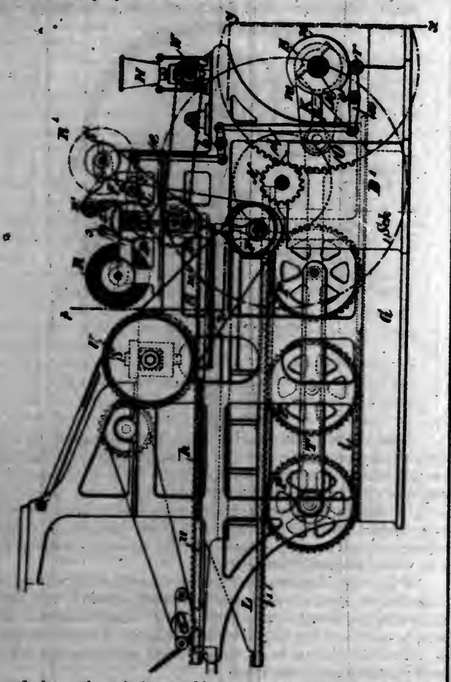
5. In a cable-head for electric wires, in combination with a connection-plate, a removable cap for said head above said plate, connection-studs in said plate arranged in circular rows around a common center to facilitate the connection of said wires, main and branch wires entering said head, all of said wires connected to said studs on the upper surface of said plate, whereby when the cap is removed said wires and their connections are exposed to view and accessible from above, substantially as described.

6. In a cable-head for electric wires, in combination with a connection-plate having a large central opening, and a series of smaller apertures, an inner and an outer row of connection-studs in said plate, a series of openings in said head, wires passing through said central aperture and connected to the inner studs, and branch wires passing through said head-openings and small disk-apertures and connected to said outer studs, and means for electrically connecting the studs of the respective rows, substantially as described.

586,465. PRINTING-MACHINE. VITTORIO TURATI, Milan, Italy.
Filed Sept. 5, 1896. Serial No. 605,017. (No model.)

Claim.—1. In a color-printing machine the combination, with an impression-cylinder and a table or bed adapted to reciprocate rela-

tively thereto, of a moistening-cylinder mounted above the line of movement of the said table or bed, means for feeding a liquid to the said moistening-cylinder, means for heating the latter to evaporate the said liquid, a transferring-cylinder mounted intermediate the said moistening and impression cylinders, a wiping-cylinder mounted above the said transferring-cylinder means for guiding a wiping-strip between the said wiping and transferring cylinders and means for intermittently moving the said wiping-cylinder and wiping-strip into and out of contact with the said transferring-cylinder, substantially as and for the purpose described.



2. In a color-printing machine the combination, with an impression-cylinder and a table or bed adapted to reciprocate relatively thereto, of a moistening-cylinder mounted above the line of movement of the said table or bed, means for feeding a liquid to the said moistening-cylinder, means for heating the latter to evaporate the said liquid, a transferring-cylinder mounted intermediate the said moistening and impression cylinders, a wiping-cylinder mounted above the said transferring-cylinder, means for heating the said wiping-cylinder, means for guiding a wiping-strip between the said wiping and transferring cylinders and means for intermittently moving the said wiping-cylinder and wiping-strip into and out of contact with the said transferring-cylinder, substantially as and for the purpose described.

3. In a color-printing machine the combination, with a table or bed adapted to reciprocate relatively to the impression-cylinder and to support a surface of colors, a moistening-cylinder, mounted above the line of movement of, and out of contact with, the said table or bed, means for feeding a liquid to the said moistening-cylinder and means for heating the latter to evaporate the said liquid in the intervening space between the said moistening-cylinder and a surface of colors to be mounted on the said table or bed, substantially as and for the purpose described.

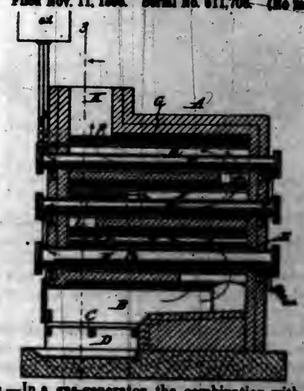
4. In a color-printing machine the combination, with a reciprocating table or bed, adapted to support a surface of colors and a stone or other plate as described, of a device as described for moistening the colors without coming into contact with them and mounted above the line of movement of the said table or bed, and a transferring-cylinder mounted above the line of movement of the said table or bed so as to roll alternately over the surface of colors and the stone or other plate during the reciprocations of the said table or bed, provided with a wiping mechanism intermittently brought in contact with the said transferring-cylinder, substantially as and for the purpose described.

5. In a color-printing machine a moistening device consisting of the receptacle H, provided with adjustable discharge-openings, and the rotatable hollow cylinder W journaled below the said receptacle, the said cylinder being provided with an absorbent outer surface to receive a liquid discharged from the discharge-openings in the said receptacle and with means for heating the said cylinder and distributing the heat therein to evaporate the liquid, substantially as and for the purpose described.

6. In a color-printing machine the transferring-cylinder A and the heating and wiping cylinder B mounted above the same in movable bearings to admit of being moved into and out of contact with the said transferring-cylinder, substantially as and for the purpose described.

7. In a color-printing machine the combination, with a reciprocating table or bed, adapted to support a surface of colors and a stone or other plate as described, and with a moistening device mounted above the line of movement of the said table or bed, of a transferring-cylinder mounted above the line of movement of the said table or bed so as to roll alternately over the surface of colors and the stone or other plate during the reciprocations of the said table or bed, of a wiping mechanism intermittently brought in contact with the said transferring-cylinder, and of means for heating the latter, substantially as and for the purpose described.

586,466. GAS-RETORT BENCH. JAMES TWAMLEY, Grand Forks, N. D. Filed Nov. 11, 1896. Serial No. 611,708. (No model.)



Claim.—In a gas-generator, the combination with the furnace, comprising the fireplace and the series of superimposed chambers having flame-passages at alternately opposite end openings, the retorts located in said chambers, connected together at their alternate ends, the oil-supply pipes located in the upper chamber and connected with the upper retorts, the protecting-covers above the lower retorts and extending from end to end thereof, and the coverings above the intermediate retorts and extending part way the length thereof, substantially as described.

586,467. DOOR-SADDLE. THOMAS VOSS, Iowa Park, Tex. Filed Mar. 17, 1897. Serial No. 627,944. (No model.)



Claim.—1. A door-saddle consisting of two parts, the lower part being recessed to removably receive the other, and having opposite end heads with front beveled surfaces extending slightly beyond the front termination of the recessed portion, a removable top having a series of transversely-arranged grooves on the under side thereof, and a projecting flange or eave applied to the beveled surfaces of the heads and covering the front portions of said grooves, the lower termination of said flange or eave being in a plane parallel with the bottom of the said lower part, substantially as described.

2. In a door-saddle, the combination of a saddle proper having a recess in the upper side thereof with an inclined surface and heads at the opposite ends, a removable top mounted in the said recess and heads and having grooves extending transversely across the under side of the same, a flange or eave projecting over the front portions of the said grooves, and braces interposed between the said grooves at the front portion of the under part of the removable top, substantially as and for the purposes specified.

3. The combination with a door-saddle having a rear vertical wall to form one portion of a longitudinal groove, of a removable top having transversely-arranged grooves on the under side thereof communicating with the said longitudinal groove, a flange or eave projecting over the front portions of the said grooves and braces attached to the said flange or eave and removable top at the under side thereof and interposed between the said grooves, substantially as and for the purposes described.

4. In a door-saddle, the combination of the saddle proper having an inner longitudinally-disposed groove, a removable top provided with transversely-arranged grooves in the under side thereof, an eave or flange projecting downwardly over the front portions of said transversely-arranged grooves, and braces interposed at regular intervals between the said grooves and secured to the under portion of the flange to obviate the formation of a longitudinal passage, substantially as and for the purposes described.

586,468. ADJUSTABLE DETACHABLE BICYCLE-HANDLE. MONTMERT WALLIS, Philadelphia, Pa. Filed Nov. 20, 1895. Serial No. 569,513. (No model.)



Claim.—1. In a device of the character described a handle-bar having serrations formed therein, a housing fitting over the handle-bar having openings to expose the serrations, a stem secured to the housing, a hollow steering-tube surrounding the stem, a serrated head on said tube engaging the serrations of the handle-bars as and for the purpose described.

2. In a device of the character described a serrated handle-bar, a clamp for engaging said handle-bar consisting of a casing surrounding the handle-bar having a stem an opening on either side thereof, a hollow steering-tube to receive the stem having a head to fit in the casing and provided with serrations to engage the serrations of the handle-bar through said openings as and for the purpose described.

586,469. CAR-DOOR CLOSURE. CHARLES H. WILSON, Aberdeen, Miss. Filed Mar. 15, 1897. Serial No. 627,673. (No model.)

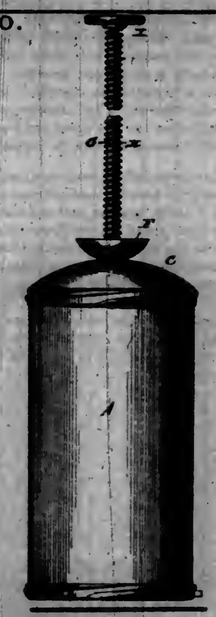


Claim.—In a car-door closure of the character set forth, the combination of a guard or shield comprising an attaching-flange and a groove or trough with a flange projecting outwardly therefrom and beyond the plane of the door and having recesses therein, hinge-plates for movably securing the said guard or shield, and latches removably engaging the said recesses in the flange of the guard or shield adjacent to the groove or trough, substantially as and for the purposes specified.

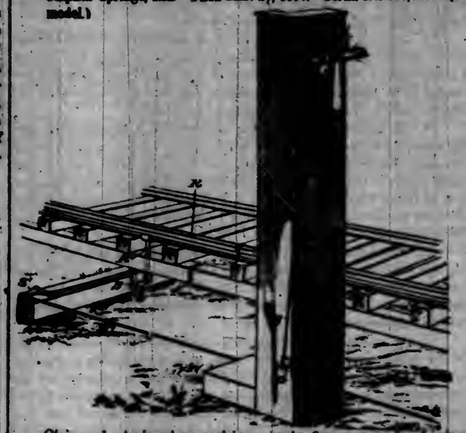
586,470. CHURN. JAKOB WIDDER, New York, N. Y. Filed Mar. 1, 1897. Serial No. 625,611. (No model.)

Claim.—In a churn of the class specified, the combination of a hollow conical perforated dasher, and the rod and spring for reciprocating it, with a churn-body having a hollow cone at the top and a corresponding hollow cone at the bottom, both such cones being fixed and conforming to the dasher, whereby it is adapted to fit closely within the one and upon the other, as shown and described.

586,470.



586,471. RAILROAD-CROSSING SIGNAL. WILLIAM S. WOODS, Sulphur Springs, Ind. Filed Mar. 27, 1897. Serial No. 629,583. (No model.)



Claim.—1. A signal comprising a main frame or casing having a ballway, a signal and devices connected therewith and projecting adjacent to the ballway whereby to be operated by a ball as it descends therein, substantially as described.

2. A signal comprising a ballway, a ball or balls to descend therein, a signal, and devices whereby the signal will be operated by the descent of a ball within the ballway substantially as described.

3. In a signal a main frame or casing having a consecutive series of inclined cross-partitions or baffle-plates forming a ballway and devices connected with the signal and projecting into said way adjacent to said partitions or baffle-plates, whereby to be operated by the ball descending therein, substantially as described.

4. In a signal, a casing, a main frame having a ballway through which the balls may descend and a ball-holding chamber in which a column of balls may be held, the upper end of such chamber discharging into the ballway substantially as described.

5. In a signal, the combination of the ballway, the ball-holding chamber communicating at its upper and lower end with the ballway and means for lifting said column of balls by which to discharge the uppermost one into the ballway, substantially as described.

6. An apparatus substantially as described, comprising a main frame or casing having a ballway and a ball-holding chamber, and a signal having a device projecting into the said ballway for operation by the ball descending therein, substantially as described.

7. An apparatus substantially as described, comprising a main frame, a casing having a ballway, an audible signal, a visual signal and devices whereby the descent of balls in the ballway will operate both signals, substantially as shown and described.

8. An apparatus substantially as described, comprising a main frame or casing having a ballway, a ball-chamber and alternate light and heavy balls in said chamber, the signal and means by which the heavy balls will in their descent operate the signals, substantially as described.

9. An apparatus substantially as described, comprising the main frame or casing having the reversely-inclined cross-partitions or baffle-plates projecting from its opposite ends and discharging at their lower ends onto the upper end of the next lower plate, the signal and devices connected with the signal and projecting into the path of the balls descending on said plates or partitions, substantially as described.

10. In an apparatus substantially as described, the combination of the main frame or casing having the ballway, the signal, a slide-rod arranged to operate said signal and devices spaced apart on said rod and arranged for operation at intervals by the ball as the latter descends in the ballway, substantially as described.

11. In an apparatus substantially as described, the combination of the main frame or casing having a ballway, the slide-rod having a plurality of projections arranged for engagement by the balls descending in said ballway the bell and the bell-hammer arranged for operation by said slide-rod, substantially as shown and described.

12. An apparatus substantially as described, comprising the casing having the ballway, the ball-holding chamber discharging at its upper end into said ballway, a lever arranged at one end beneath the ball-holding chamber, and adapted to elevate the column of balls therein and means whereby said lever may be operated, substantially as described and shown.

13. The combination in an apparatus substantially as described, of the frame or casing having a ballway and a ball-holding chamber adapted to contain a column of balls and arranged to discharge into said ballway, the elevating device for lifting the said column of balls and the detent above said device for permitting the passage of the ball resting on said device and for holding the column of balls elevated when lifted, substantially as described.

14. In an apparatus substantially as described the combination of the visual signal, the rock-shaft supporting such signal and having a crank-arm, a rocking bar connected with said crank-arm and arranged to be operated by a descending ball, and a ball-operated detent for said rock-shaft substantially as described.

15. An apparatus substantially as described, comprising the casing having a main portion and a lateral offset forming a ball-holding chamber, discharging at its upper end into the main portion, the baffle-plates in the main portion, the lever operating in the lower portion of the ball-holding chamber, the signal and the signal-operating devices, projecting into the casing in position for operation by the balls, substantially as described.

16. An apparatus substantially as described, comprising the casing the slide-rods having projections extending in the casing the reversely-inclined partitions or baffle-plates, the springs bearing beneath the slide-rods, the balls and means for supplying the balls, substantially as described.

17. In an apparatus substantially as described, the combination of the main frame or casing the signal rock-shaft having a crank at one end for engaging the detent and a crank at its opposite end for connection with the readjusting-bar, the plates or partitions in the casing forming a ballway, the tilting bar at the bottom of said casing, connections between said bar and the crank of the rock-shaft and means for discharging the balls into the ballway, substantially as described.

18. An apparatus substantially as described, comprising the main frame or casing having the ballway, the ball-supporting chamber, the ball-elevating lever, the signal devices arranged for operation by the descending balls, and the trip devices, arranged for operation by the passing train and connected with the ball-elevating lever, substantially as described.

19. An apparatus substantially as described comprising a ballway having a series of sections or stations, a ball or balls descending therein, a signal and devices at each station whereby the ball descending will repeatedly operate the signal substantially as described.

20. A signal comprising a frame or case having a series of baffle-plates forming a ballway, a ball descending in said ballway and a signal arranged to be operated by the ball as it descends said way substantially as described.

21. An apparatus substantially as described comprising a casing, a ball descending therein and a signal arranged to be repeatedly operated by said ball in its descent substantially as described.

586,472. DRIVE-CHAIN FOR CYCLES. ALFRED APPLEBY, Birmingham, England. Filed Nov. 21, 1896. Serial No. 613,005. (No model.)

Claim.—1. In a drive-chain, the combination with end links having perforations adapted to register with one another, of a pivot-pin arranged in said perforations and provided at one end with a contracted neck, a locking-plate pivoted at one end to one of said links and provided at its other end with a keyhole adapted to permit the passage therethrough of the end of the pivot-pin and also engage the said contracted neck, and a spring-tongue formed integral with said plate and engaging a corresponding slot formed in the link, said spring-tongue operating to normally hold the locking-plate in engagement with the said contracted neck, but permitting the locking-plate to yield laterally upon the insertion of the pivot-pin, substantially as described.



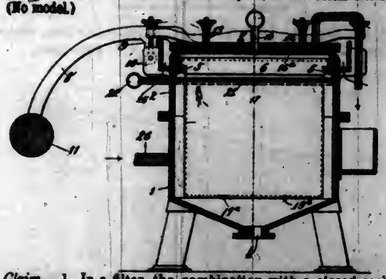
2. In a drive-chain, the combination with end links having perforations adapted to register with one another, of a pivot-pin arranged in said perforations and provided at one end with a rounded head and a contracted neck back of said head, a locking-plate pivoted at one end to one of said links and provided at its other end with a keyhole adapted to permit the passage therethrough of the end of the pivot-pin and also engage the said contracted neck, a spring-tongue struck up from said plate and engaging a corresponding slot formed in the link, said spring-tongue operating to normally hold the locking-plate in engagement with the said contracted neck, but permitting the locking-plate to yield laterally upon the insertion of the pivot-pin, and a thumb-piece formed on said locking-plate for throwing the latter out of engagement with the pivot-pin, substantially as described.

586,473. WRENCH. REUBEN R. BARROW, Marl, Ala. Filed July 23, 1896. Serial No. 600,214. (No model.)



Claim.—In a wrench of the character described, a shank, a fixed jaw at one end thereof, said jaw being provided with an opening at right angles to the length of the shank, and with a concavity adjacent to said opening and in the same end of the jaw, substantially as and for the purpose specified.

586,474. FILTER. ARISTIDE L. BARTHELEMY and LOUIS J. BARTHELEMY, New Orleans, La. Filed Sept. 2, 1896. Serial No. 604,645. (No model.)



Claim.—1. In a filter, the combination with a closed casing, of a series of parallel partitions arranged in the upper portion of said casing, filter-bags, rectangular in cross-section, suspended from said partitions, one of said bags being arranged between every two adjacent partitions, the upper edges of the bags being folded over the upper edges of the partitions, a cover arranged on the top of the filter-casing and resting on the folded edges of the filter-bags, discharge-pipes for discharging the contents of the bags, means for clamping the cover in place to bind the folded edges of the bags between the cover and the said partitions, flat, rectangular screens arranged within the filter-bags, and longitudinal rods supported in the bottom of the casing at right angles to the filter-bags, and forming supports for the bottoms of the bags and screens, substantially as described.

2. In a filter, the combination with a closed casing, of a series of parallel partitions arranged in the upper portion of said casing, filter-bags suspended from said partitions, one of said bags being arranged between every two adjacent partitions, a cover resting on the top of the filter-casing and said partitions, a water-supplying manifold, and a plurality of nipples, one for each filter-bag, connected at their upper ends to said manifold and communicating at their lower ends with the open ends of the filter-beds, substantially as described and for the purpose specified.

3. In a filter, the combination with a closed casing, of a series of parallel partitions arranged in the upper portion of said casing, filter-bags suspended from said partitions, one of said bags being arranged between every two adjacent partitions, a cover resting on the top of the filter-casing and said partitions, a water-supplying manifold, a plurality of nipples, one for each filter-bag, connected at their upper ends to said manifold and communicating at their lower ends with the open ends of the filter-bags, a fluid-supplying manifold, a plurality of perforated pipes arranged longitudinally between the upper portion of the filter-bags and connected at their outer ends with said fluid-supplying manifold and an outlet arranged in the bottom of the filter-casing, substantially as described.

4. In a filter, the combination with a closed casing of a series of parallel partitions arranged in the upper portion of said casing, filter-bags rectangular in cross-section suspended from said partitions, one of said bags being arranged between every two adjacent partitions with their upper edges folded over the upper edges of the partitions, a gasket disposed on the upper edge of the casing and resting on the folded edges of the filter-bags, the discharge-pipes, one for each bag, carried by said cover for discharging the contents of the bags, and means for clamping the gasket and cover in place to securely hold the folded edges of the bags, substantially as described.

586,475. BOTTLE. PARDON A. CAMPBELL, Pollasky, Cal. Filed Oct. 10, 1896. Serial No. 608,467. (No model.)



Claim.—1. In a bottle, a neck having openings therein, a cork in said neck lying across the openings, a pin through said openings and the cork, and means provided upon said pin whereby the bottle-neck can be broken to free the pin from the neck, substantially as described.

2. In a bottle, a neck having a portion of thin material, said portion being provided with openings, a cork in the neck across said openings, a pin through said openings and the cork, and means pivoted upon said pin whereby the thin portion of the neck can be broken, substantially as described.

3. In a bottle, a neck having openings in the side thereof, a cork in the neck over said openings, a pin through said openings and the cork, a member lying against the bottle-neck and pivoted to the pin, and arms extending from said member, whereby the member can be forced against the bottle-neck to break the same and permit the cork to be withdrawn, substantially as described.

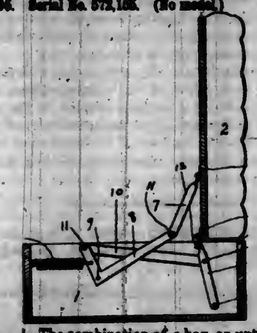
4. In a bottle, a neck having openings in the sides thereof, a cork over said openings, a pin extending through said openings and the cork, a member pivoted upon said pin and lying against the bottle-neck, said member being provided with a point to bear against the neck, and arms extending from said member whereby it can be forced against the bottle-neck to break the same and permit the cork to be withdrawn, substantially as described.

5. In a bottle, a neck having openings in the sides thereof, a cork in said neck over said openings, a pin extending through said openings and the cork, and a yoke pivoted upon said pin, said yoke having a top portion, arms extending from said top portion, eyes upon said arms, and a curved portion extending from the sides, said curved portion being provided with a point adapted to bear against the bottle-neck and break the same whereby the cork can be withdrawn, substantially as described.

6. In a bottle, a neck having a bead thereon, said bead being provided with openings in the sides thereof, a cork in said neck over the openings, a pin through said openings and the cork, said pin having its ends upturned and lying upon the bead, and arms upon the pin whereby the upturned ends can be forced upon the bead to break the same and thus permit the withdrawal of the cork, substantially as described.

7. In a bottle, a neck, a bead formed upon said neck, said bead having openings in the sides thereof, a cork in said neck across said openings, a pin through said openings and the cork, said pin having upturned ends lying upon the bead, a member pivoted upon said pin and lying about the bottle-neck, said member bearing against the under side of the bead, and arms extending from said member across the upturned ends of the pin, said arms lying on the side of the pin ends next to the member bearing against the under side of the bead, substantially as described.

586,476. BOX-COUCH. RAY G. CRAVEN, Pasadena, Cal. Filed Dec. 14, 1896. Serial No. 572,155. (No model.)



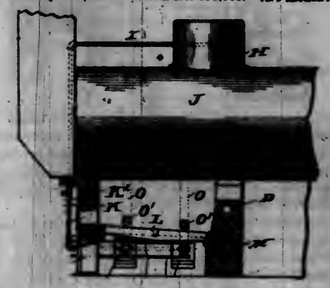
Claim.—1. The combination of a box, an upholstered top, a two-armed lever fulcrumed on the said box, means for connecting one arm of the said lever to the under side of the said top near its rear edge, and means for connecting the other arm of the said lever to a point on the under side of the said top but forward of its rear edge, whereby the angular movement of the top produces a forward lateral movement of the said rear edge, substantially as described.

2. The combination of a box, an upholstered top, a two-armed lever fulcrumed on the said box, means for connecting one arm of the said lever to the under side of the said top near its rear edge, means for connecting the other arm of the said lever to a point on the under side of the said top but forward of its rear edge, and a spring arranged to react on the said top with a force that is greatest when the said top is down, and ceases when the said top approaches a vertical position, substantially as described.

3. The combination of a box, an upholstered top, a swing-bar pivoted at its lower end to the said box and at its upper end to the under side of the said top near the rear edge of the latter, a two-armed lever fulcrumed on said box, a pivoted connection from one arm of the said lever to the said swing-bar, a pivoted connection from the other arm of the said lever to the under side of the said top but forward of its rear edge, substantially as described.

4. The combination of a box, an upholstered top, a swing-bar pivoted at its lower end to said box and at its upper end to the under side of the said top near the rear edge of the latter, a two-armed lever fulcrumed on the said box, a connection pivoted to one arm of the said lever and to the said swing-bar, a connection pivoted to the other arm of said lever and to the under side of the said top but forward of its rear edge, and a spring arranged to react on said top with a force which is greatest when said top is down and which ceases when said top approaches a vertical position, substantially as described.

586,477. SMOKE-CONSUMER. JOHN A. CRAWFORD, Allegheny, Pa. Filed Apr. 24, 1897. Serial No. 633,565. (No model.)



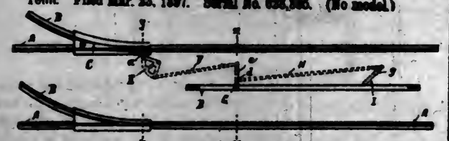
Claim.—1. In a steam-boiler furnace, the combination with the walls of the furnace, the ash-pit, the fire-chamber, grate-bars, baffle-walls and boiler thereof, of a series of flues or channels formed upon the inside of the fire-front in the front or long wall: hot-air pipes located in the air-chamber in the front wall and having branch pipes at the upper and near the lower end of the hot-air pipes, the lower branches being located above the grate-bars, and adjustable needle-valves or steam-jets located in the upper end of the hot-air pipes, said jets siphoning the air and gases through to the point of combustion, substantially as set forth.

2. In a steam-boiler furnace, the combination with the front and side walls having flues or channels therein of hot-air pipes located in said channels of the side walls and having the upper inclined branch

and the lower right-angular branch pipes projecting therefrom, adjustable needle and oscillating valves located in the bottom thereof and rods projecting therefrom through the ash-pit whereby the heated air and gases are controlled in their ascent through the hot-air front and side wall pipes, substantially as described.

3. In a steam-boiler furnace, the combination with the front and side wall pipes and their valves, of the bridge-wall pipe and its adjustable needle valve or jet, and valve situated in the continuous casing around the fire-chamber, supplying heated air, and steam connecting-pipes located across the front of the furnace and vertical and horizontal portions of the same connecting with the dome of the boiler, substantially as described.

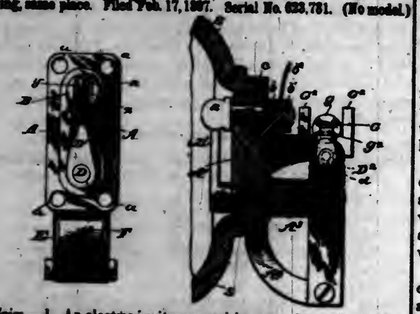
586,478. SWITCH DEVICE. HENRY M. DOAK, Jr., Nashville, Tenn. Filed Mar. 23, 1897. Serial No. 628,205. (No model.)



Claim.—1. The combination with the tongue-switch C of a railway, of a bell-crank lever E hinged thereto by a connecting-rod, a channeled way arranged midway between the rails, tripping-levers G and I arranged to alternately project at their free ends across said channeled way, a connecting-rod H pivotally connected at its ends to opposite ends of the tripping-levers, and a connecting-rod F connecting the tripping-lever G to the bell-crank lever, substantially as described.

2. The combination with the tongue-switch C of a railway, of a bell-crank lever E hinged thereto by a connecting-rod, a channeled way D arranged midway between the rails and provided with lateral slots to receive the ends of tripping-levers, tripping-levers I, G, pivoted midway between their ends in said way and arranged to alternately project at their free ends across the channel of said way, a connecting-rod H pivotally connected at its ends to opposite ends of the tripping-levers, and a connecting-rod F connecting the tripping-lever G to the bell-crank lever, substantially as described.

586,479. ELECTRIC IGNITER FOR GAS-ENGINES. HARRY S. DEAN, Baltimore, Md., assignor to George F. Obrecht and George Schelling, same place. Filed Feb. 17, 1897. Serial No. 623,731. (No model.)



Claim.—1. An electric igniter comprising two electrodes having their ends formed as extended plates, and means for suddenly separating the plates, said plates lying sufficiently close together to cause by their separation a rarefaction of the gaseous medium between them substantially as and for the purpose set forth.

2. In an electric igniter the combination of a base-plate, an insulated terminal contact arranged on the plate and in the cylinder, a rock-shaft journaled in the plate and having a radial arm with another terminal contact within the cylinder, and a crank-arm outside the cylinder, a spring acting on this external crank-arm to rock the shaft and close the contacts within the cylinder, and a separate spring acting upon the said external crank-arm in opposition to the first-named spring, and means for snapping said second spring against the external crank-arm to separate the contacts with a hammer blow substantially as and for the purpose described.

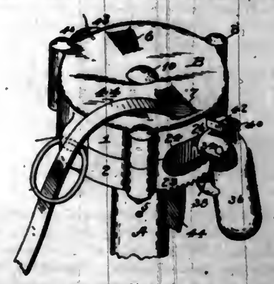
3. A spark-making device for an electric igniter for gas-engines, comprising a base-plate, an insulated terminal contact arranged within the plate, a rock-shaft journaled in the plate and having a radial arm with terminal contact-face and a shorter crank-arm on the other end, opposing springs acting upon opposite sides of the said short crank-arm, and a tripping device for one of said springs substantially as and for the purpose described.

4. The electric igniter consisting of the combination of the base-plate A, insulated bolt B with terminal contact x, rock-shaft D with crank-arm D' and terminal contact y on one end and a short crank-arm D^2 with pin d on the other end, the opposing springs E and F bearing upon opposite ends of the pin, the tripping-rod G with inclined face hub or collar g, the inclined bearing G', and spring g' substantially as and for the purpose described.

5. In an electric igniter, the plate A having hollow hub A^3 and arm A^2; in combination with the insulated bolt with terminal contact, the rock-shaft D with crank-arms on opposite ends, the springs E F mounted on the arm A^2 upon opposite sides of the rock-shaft and arranged to act against the external crank-arm, and means for operating the springs E with a hammer blow substantially as and for the purpose described.

6. In an electric igniter, the plate A having hollow hub A^3, arm A^2 and guide-lugs G^2 G^2 having inclined face G'; in combination with the insulated bolt with terminal contact, the rock-shaft D with crank-arms on opposite ends, the springs E F mounted on the arm A^2 upon opposite sides of the rock-shaft and arranged to act against the external crank-arm, and the sliding rod G with inclined hub g and spring g' arranged between the lugs G^2 G^2 and acting against the spring E substantially as and for the purpose described.

586,480. HITCHING-POST. CYRUS P. ERNEST, Keokuk, Iowa. Filed June 24, 1896. Serial No. 596,662. (No model.)



Claim.—1. The combination with a hitching-post provided with a pocket, of a pivoted clamping-jaw adapted to fit in the pocket and hold the hitching-rein therein, a rack formed integral with the hitching-post, and a gravity-operated dog pivoted to the clamping-jaw and provided with an arm adapted for engagement with the rack, whereby to hold the clamping-jaw locked.

2. The combination with a hitching-post, of a hollow head therefor, said head being provided with rein-holding slots communicating with its interior, a pivoted clamping-jaw inside the head and adapted to abut on a rein received in said slots and to clamp it against the head, and means for holding said clamping-jaw locked

3. The combination with a hitching-post, of a head therefor, a clamping-jaw pivoted to the head and adapted to clamp a rein therein, a dog connected to the clamping-jaw and adapted for engagement with the head to hold the jaw in locked position, and a locking-arm adapted to prevent the dog from being drawn out of engagement with the head.

4. The combination with a hitching-post, of a head therefor, a clamping-jaw pivoted in the head and adapted to hold a rein therein, a dog pivoted to the clamping-jaw and adapted for engagement with the head to hold the jaw in locked position, and a locking-arm pivoted to the dog and adapted for engagement with the head to prevent said dog from being thrown out of engagement with the latter.

5. The combination with a hitching-post, of a head connected thereto, said head being provided with a pocket, rein-holding slots, and a slot on its side, a clamping-jaw pivoted within the head and adapted to fit in the pocket and hold therein a rein passed through the alined slots, said clamping-jaw being provided with a portion which projects through the slot in the side of the head, a gravity-operated dog pivoted to the projecting portion of the clamping-jaw and normally adapted for engagement with the head, and a locking-arm pivoted to the dog and adapted to abut on the side of the head and hold the dog and jaw in a locked position.

6. The combination with a hitching-post, of a head therefor, said head being provided with a rack, an inner pocket, a slot in its sides, and two vertically-alined rein-holding slots connected to the side of the head, a clamping-jaw pivoted within the head and provided with a portion which projects through the slot in the side thereof, said clamping-jaw being adapted for movement across the rein-holding slots, and a gravity-operated dog pivoted to the projecting portion of the clamping-jaw and normally adapted for engagement with the rack to hold the clamping-jaw locked.

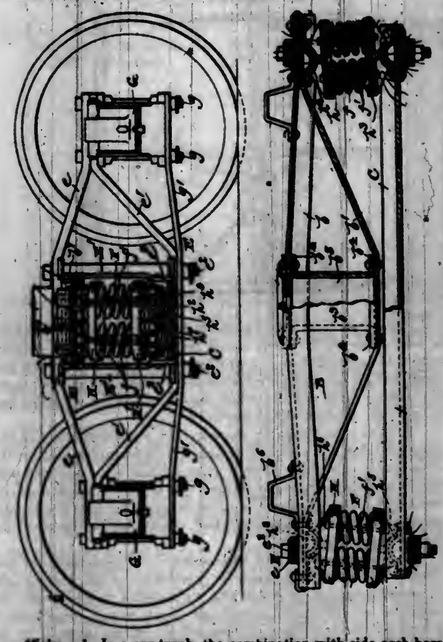
586,481. SADDLE. LOUIS REMELIUS, Leipsic, Germany. Filed Mar. 13, 1897. Serial No. 627,419. (No model.)



Claim.—1. The combination of a saddle and saddle-cloth, and a fastening-strip permanently attached to the saddletree at one end of the same, extending longitudinally along said saddletree and detachably attached thereto at the opposite end, said strip passing through orifices or recesses of the saddle-cloth and clamping the same to the saddle substantially as described.

2. The combination of a saddle and saddle-cloth, a bar pivotally attached at one end underneath the saddle and extending longitudinally along the same, means for detachably securing the free end of said bar underneath the saddletree and means for fixing the saddle-cloth between said bar and the saddle in the manner and for the purpose substantially as described.

586,482. CAR-TRUCK. GEORGE G. PLOTT, Sedalia, Mo. Filed Dec. 23, 1896. Serial No. 616,773. (No model.)



Claim.—1. In a car-truck, the combination with side arch-bars, of vertical guide-columns, a spring-supporting plank, a truck-bolster, and rocking supporting-springs normally occupying an inclined position, interposed between the said bolster and plank, substantially as described.

2. In a car-truck the combination of side frames, vertical guide-columns, a spring-supporting plank, a truck-bolster, rocking springs normally occupying an inclined position, cap and seat plates, having bearing-surfaces, and corresponding bearing upon the bolster and spring-plank, the bearings upon the bolster being nearer together than those upon the plank, substantially as described.

3. In a car-truck the combination of side frames, a bolster, a spring-supporting plank, springs interposed between said bolster and plank, pivot-bearings connecting said springs with the said bolster and plank whereby said bolster is adapted to have a swing motion, the upper bearings being nearer together than the lower one, for holding the springs normally in an inclined position, substantially as described.

4. In a car-truck, the combination of side frames, a bolster and spring-plank, of springs having cap and seat plates, pivot-bearings interposed between said caps and seats and the said bolster and plank, respectively, thimbles upon said caps and seats, and limiting-bolts passing through the same, said springs being normally inclined inward, substantially as described.

5. In a car-truck the combination of side frames, a bolster, a spring-plank, rocking springs interposed between the said bolster and plank, bearing-surfaces secured to said bolster and plank, and extending-crosswise of the same, and corresponding bearing-surfaces attached to the springs whereby the said bolster is adapted to have a swing motion, the bearing upon the bolster being located nearer the center of the truck than those upon the plank, substantially as described.

6. In a car-truck, the combination of side frames, a bolster, and spring-plank, of springs having cap and seat plates, pivot-bearings interposed between said caps and seats and the said bolster and plank respectively, and thimbles upon said caps and seats, adapted to extend into said springs, and prevent the bolster from dropping down, if a spring is broken or gives away, substantially as described.

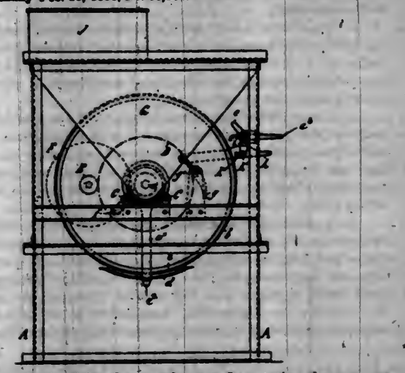
7. In a car-truck the combination of side arch-bars vertical guide-columns, a bolster, provided with guide-plates adapted to guide the said bolster with respect to said columns, a spring-plank, and rocking supporting-springs, normally occupying an inclined position substantially as described.

8. In a car-truck, the combination of side frames, a bolster, a spring-plank, bearing-plates secured to the under side of said planks, and provided with flanges, adapted to engage the lower arch-bar, for holding the said parts in true position and rocking supporting-springs normally occupying an inclined position, interposed between said bolster and spring-plank, substantially as described.

9. In a car-truck, the combination of upper and lower side arch-bars, guiding-columns connecting the same, a bolster adapted to move between the same, guide-plates secured to said bolster for guiding and limiting the movement of said bolster, a spring-plank secured to said columns, a bearing-plate secured to said plank and having flanges for engaging said lower arch-bar, and inclined rocking springs having pivot-bearings interposed between said bolster and plank, substantially as described.

10. In a car-truck, the combination with side frames, of a truck-bolster, a spring supporting-plank, and rocking supporting-springs normally occupying an inclined position interposed between the said bolster and plank, substantially as described.

586,483. MIXING-DRUM. ERNST GAUER, Ober-Lahnstein, Germany. Filed Dec. 16, 1896. Serial No. 615,967. (No model.) Patented in Germany Feb. 13, 1896, No. 88,880.



Claim.—1. A mixing-drum and means for rotating the same, an opening in the periphery of the same, a spring-cover to said opening, a bow loosely pivoted to the trunnions of said drum and adapted to press on the said cover, and means for arresting said bow and cover when the drum is rotating and allowing the orifice to slide from underneath the same in the manner and for the purpose substantially as described.

2. A mixing-drum and means for rotating the same, an orifice in the periphery of the same and a spring-cover to said orifice, a bow having its ends loosely pivoted on the axle of said drum, a bar e^x pivoted in proximity to said drum, a tripping-pawl e mounted on said bar and a lug on the cover-bow, and means for bringing the tripping-pawl e into the path of movement of the lug of the bow in the manner and for the purpose substantially as described.

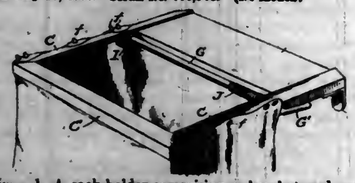
3. A mixing-drum and means for rotating the same, an orifice to said drum and a spring-cover to said orifice, a bow extending round the periphery of said drum and having its ends loosely pivoted to the trunnions of said drum, a lug at about the center of said bow, a bar e^x mounted in proximity to said drum and a tripping-pawl e on

said bar, an arm fast on the drum-axis and a pivoted pawl *g* having an upwardly or approximately upwardly extending arm, a lever to connect said arm to a lever of the bar *e*x, and means for projecting the pawl *g* into the path of movement of the arm of the drum, said arm being so mounted as to operate the pawl *g* when the orifice of the drum is under the cover and to force the tripping-pawl *e* out of the path of movement of the lug of the bow substantially as described.

4. A mixing-drum *b* having orifice *c*, a bow pivotally connected to said drum-axis, a hollow trunnion to said drum and a hopper having its mouth extending into the said hollow trunnion, a cover elastically pressed against the drum by means of the bow aforesaid, a bar mounted in proximity to said drum and having a tripping-pawl as specified, a lug on said bow adapted to contact with the tripping-pawl and means for adjusting the latter out of the path of movement of the said lug substantially as described.

5. The combination of a rotary drum having an orifice in its periphery, a spring-cover to said orifice, a bow loosely mounted on the trunnions of said drum and connected to the said spring-cover, a lug to said bow, and a tripping-pawl mounted in proximity to said drum and adapted to contact with said lug, and a set of stirrer-blades within said drum arranged slantingly to the direction of movement of the drum substantially as described.

586,484. SACK-HOLDER. FRANK H. GILBERT, Ridgefield, Wash. Filed July 25, 1896. Serial No. 600,561. (No model.)



Claim.—1. A sack-holder comprising a bracket and arms extending from opposite ends of the bracket and a connection between said arms, swinging plates mounted on said arms, and a transverse shaft adapted to engage said plates, substantially as specified.

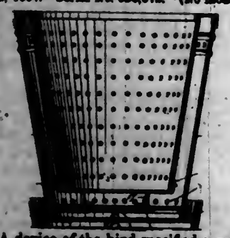
2. A sack-holder comprising a bracket and arms extending from opposite ends of the bracket and a connection between said arms, swinging plates mounted on said arms, and a transverse shaft adapted to engage said plates, and a spring acting upon said shaft, substantially as specified.

3. A sack-holder comprising a bracket and arms, swinging plates mounted on said arms, and a transverse shaft adapted to engage said plates, and a spring arranged around and acting upon said shaft, said arms having openings, and the plates provided with pins working therethrough, substantially as specified.

4. A sack-holder comprising a bracket and arms, swinging plates mounted on said arms, and a transverse shaft adapted to engage said plates, and a spring acting upon said shaft, said arms having openings, and the plates provided with pins working therethrough, said shaft having lugs near each end adapted to engage the inner faces of the plates, substantially as specified.

5. A sack-holder comprising a bracket and arms, swinging plates mounted on said arms, and a transverse shaft adapted to engage said plates, and a spring acting upon said shaft, said arms having openings, and the plates provided with pins working therethrough, said shaft having lugs near each end adapted to engage the inner faces of the plates, the said bracket being formed at its front edge with sockets into which said lugs close, substantially as specified.

586,485. FLOWER-POT. JOSHUA F. GUTH, Rowlandsville, Md. Filed Mar. 31, 1897. Serial No. 630,672. (No model.)



Claim.—1. A device of the kind specified consisting of an outer perforated receptacle, and an inner perforated receptacle removably secured therein, said inner member consisting of a collapsible upright wall and a bottom.

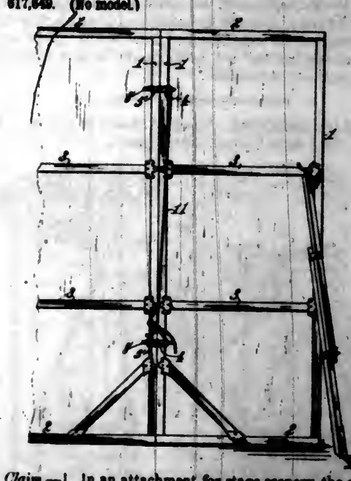
2. A device of the kind specified consisting of an outer perforated receptacle, an inner perforated receptacle, and a rim connecting the upper ends of said receptacles.

3. A device of the kind specified consisting of an outer perforated receptacle, an inner perforated receptacle, and a removable rim connecting the upper ends of said receptacles.

4. A device of the kind specified consisting of an outer perforated receptacle, and an inner perforated receptacle removably secured therein and provided at its lower end with feet to rest upon the bottom of said outer receptacle.

5. In a device of the kind specified, an inner receptacle consisting of an upright wall perforated as described and comprising a bent piece fastened together at its ends, and a removable bottom or cap secured to the lower end of said upright wall.

586,486. FASTENING ATTACHMENT FOR STAGE-SCENERY. CLAUDE L. HAGEN, New York, N. Y. Filed Dec. 31, 1896. Serial No. 617,649. (No model.)

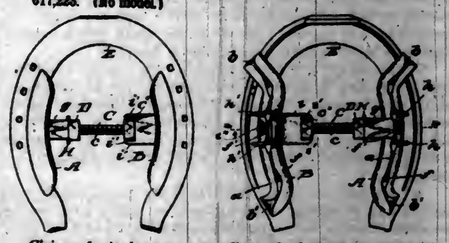


Claim.—1. In an attachment for stage-scenery, the combination of two cleats provided with means for attachment to the meeting rails of the scene-frames, said cleats at their adjacent ends being provided with interlocking projections and recesses and at their opposite ends provided with extensions projecting over the opposite edges of said rails, substantially as described.

2. In an attachment for stage-scenery, the combination of two cleats provided with means for attachment to the meeting rails of the scene-frames, said cleats at their adjacent ends being provided with interlocking projections and recesses, and at their opposite ends provided with extensions projecting over the opposite edges of said rails, one of said extensions being perforated, substantially as described and for the purpose specified.

3. In an attachment for stage-scenery, the combination of two cleats 4 5 provided with means for attachment to the meeting rails of scene-frames, and provided with right-angled flanges 6 and 7 arranged to embrace the adjacent edges of said rails, a conical stud 9 formed on the flange 6, a correspondingly-shaped recess 10 in the flange 7 in which said stud fits, and extensions formed on the opposite ends of said cleats and projecting beyond the opposite ends of said rails, substantially as described and for the purpose set forth.

586,487. ICE-CREEPER APPLIANCE FOR HORSESHOES. GEORGE C. HALE, Kansas City, Mo. Filed Dec. 28, 1896. Serial No. 617,223. (No model.)



Claim.—1. An ice-creeper appliance for horseshoes, comprising a pair of channeled plates having calks on the lower sides thereof, one plate provided with a forked hollow arm, and the other plate having a grooved or notched hollow arm, a non-rotatable bolt having a collar or nut to fit the forked arm of one plate, an adjustable nut with a grooved face arranged next to the arm with the notch or groove therein on the other plate, and a key or pin to fit in said notches or grooves of the adjustable nut and the arm of the last-mentioned plate, as set forth.

2. The combination with a horseshoe, of the channeled plates A, B shaped to fit the respective sides of said shoe and having the angular ends *b*, *b'* the middle lugs, and the hollow grooved arm *g* and the hollow forked arm *i*, respectively, a non-rotatable bolt fitted in said hollow arms and provided with a nut or collar which lies within the forked arm of one plate, a grooved nut fitted on the bolt and bearing against the grooved face of the arm on the other plate, and a key, substantially as described.

3. An ice-creeper appliance for horseshoes, comprising a pair of plates to fit the respective sides of the horseshoe, one plate provided with an inwardly-extending forked arm, and the other plate having an inwardly-extending arm the end face of which has a groove or grooves, the non-rotatable bolt having an enlargement fitted in the forked arm of one plate, an adjustable grooved nut threaded on the bolt and adapted to abut against the grooved face of the arm on the other plate, and a key or pin fitted in coincident grooves of the abutting faces of said arm and the adjustable nut, as and for the purposes described.

586,488. ICE-CREEPER APPLIANCE FOR HORSESHOES. GEORGE C. HALE, Kansas City, Mo. Filed Mar. 10, 1897. Serial No. 626,782. (No model.)



Claim.—1. As a new article of manufacture, an ice-creeper appliance consisting of plates having integral calks at intervals along their lengths and sockets at the ends of said plates, and insertible calks adapted to be fitted in said sockets of the plates, as and for the purposes described.

2. As a new article of manufacture, an ice-creeper appliance consisting of cast-steel plates provided at their ends with sockets and at intervals along their lengths with integral hardened and tempered calks between said sockets, and insertible steel calks fitted in said sockets, for the purposes described, substantially as set forth.

3. The combination of creeper-plates provided with elongated flared sockets, a single bolt having its ends fitted in said sockets to have long bearings therein, and means for holding the bolt rigidly connected to said plates, as and for the purposes described.

4. The combination with creeper-plates, of a single transverse bolt connected to both plates by long bearings which permit the plates to lie one slightly in advance of the other, and means for connecting said bolt rigidly to both plates, as set forth.

5. The combination of a creeper-plate having a calk-socket, an insertible headed calk fitted in said socket, and washers fitted on the calk below its head and arranged in the socket of the plate, as and for the purposes described.

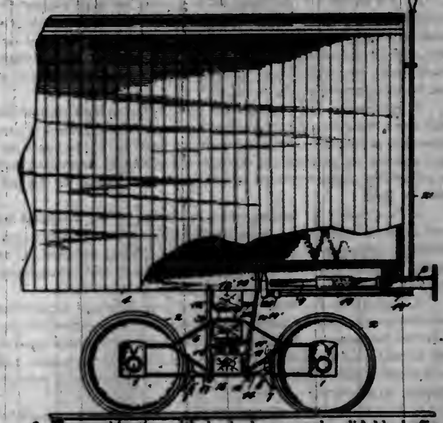
6. The combination of creeper-plates each having at its ends the calk-openings and the cavities in the upper face of said plates, the headed calks fitted in said openings, the washers fitted on the calks and in the cavities of said plates, and a bolt connected rigidly to the plates, substantially as and for the purposes described.

7. The creeper-plates having calk-openings at their ends, the integral calks between said openings, and the transverse flared sockets, and the insertible calks and washers fitted in said openings in the ends of said plates, combined with a single bolt fitted at its ends in the flared sockets of said plates and connected rigidly but detachably to one plate, and an adjustable nut fitted on the bolt and adapted to be fastened to the other plate, as and for the purposes described.

586,489. AUTOMATIC CAR-BRAKE. ANDREW J. HARPOLE, Union City, Tenn. Filed Dec. 28, 1896. Serial No. 617,318. (No model.)

Claim.—1. The combination with brake-beams and a slidable buffer or draw-bar, of a brake-controlling lever connected with said brake-beams, a shaft, and an arm slidable longitudinally on said shaft and forming an operative connection between the brake-controlling lever and the buffer or draw-bar, as and for the purposes described.

2. The combination with brake-beams and a slidable buffer or draw-bar, of a brake-controlling lever, a rock-shaft situated below the buffer or draw-bar and having means for operating the same manually, and an arm mounted on said rock-shaft to turn therewith and capable of movement with said buffer or draw-bar to actuate the brake-controlling lever, as and for the purposes described.



3. The combination with brake-beams and a slidable buffer or draw-bar, of a brake-controlling lever, a rock-shaft, and an arm fitted on the rock-shaft to slide thereon and rock therewith and arranged to be thrown into or out of operative relation to the buffer or draw-bar and the brake-controlling lever, substantially as described.

4. The combination with a slidable draw-bar or buffer, of a spring-actuated, brake-controlling lever, and a wedge-like rocking arm arranged to be thrust between said lever and buffer or draw-bar, for the purposes described, substantially as set forth.

5. The combination with a slidable draw-bar or buffer, brake-beams, and shoes, of a brake-controlling lever independent of said draw-bar or buffer, a stem movable with said draw-bar or buffer and terminating adjacent to the brake-controlling lever, a rock-shaft having means for operating the same, an arm slidably fitted on said rock-shaft and arranged to rock therewith so as to be thrown into and out of operative relation to the stem and lever, and connections between the brake-beams and the brake-controlling lever, as and for the purposes described.

6. The combination with brake-beams and a slidable draw-bar or buffer, of a brake-controlling lever, situated between the brake-beams, a rock-shaft adjacent to the slidable draw-bar or buffer, a rocking and sliding arm carried by said rock-shaft and adapted to be adjusted between said draw-bar and the brake-controlling lever, and operative connections including cushion-springs between the brake-controlling lever and the brake-beams, for the purposes described substantially as set forth.

7. The combination with brake-beams and shoes thereon, of a brake-controlling lever, rods connected with said brake-beams and with said lever, and cushion-springs fitted on said rods and seated directly against the brake-beams to be held in yielding contact with said brake-beams, and to force the shoes with a yielding pressure upon the car-wheels, substantially as described.

8. The combination with brake-beams, and a slidable draw-bar or buffer, of a brake-controlling lever to be actuated by said draw-bar or buffer, slidable rods operatively connected with said lever and fitted slidably in said brake-beams, and cushion-springs forming part of said connections between the lever and beams, said springs being fitted on said rods and seated directly on said brake-beams, substantially as described, for the purposes set forth.

586,490. DEVICE FOR FEEDING PRINTING-PRESSES. CHARLES G. HARRIS, Niles, Ohio, assignor to the Harris Automatic Press Company, same place. Filed Aug. 1, 1896. Serial No. 601,268. (No model.)



Claim.—1. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, an enlargement or protuberance supported adjacent to such press and having its upper surface tapered or inclined and formed with a central depression, said stock being designed to be passed longitudinally over said enlargement or protuberance as and for the purpose set forth.

2. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, an enlargement or protuberance supported adjacent to such press and having its upper surface tapered or inclined, and an adjustable member or support capable of being extended below or above a portion of said surface, as and for the purpose set forth.

3. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, an enlargement or protuberance supported adjacent to such press and having its upper surface tapered or inclined and formed with a central depression, and an adjustable support located in said depression, as and for the purpose set forth.

4. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, an enlargement or protuberance adjacent to such press, said stock being designed to be passed longitudinally thereover, the upper edge of said enlargement or protuberance being flat, as and for the purpose set forth.

5. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, an enlargement or protuberance adjacent to said press and having its upper surface tapered and formed with a flat edge at its top and a central depression, and an inclined plate capable of being adjusted and located in said depression, as set forth.

6. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, a block or enlargement adjacent to such press having its upper surface tapered and formed with a central depression and cut-out forming prongs, an inclined plate and an adjustable support therefor, said plate being located between said prongs, as and for the purpose set forth.

7. In a device for feeding stock to a press, having a support for such stock and means for advancing the same, a block or enlargement adjacent to such press having its upper surface tapered and formed with an upper flat edge, a central cut-out forming prongs and a depression, an inclined or tapered plate between said prongs, a rod on which said plate is mounted, and means for holding said rod, substantially as set forth.

586,491. WHIP-SOCKET. ROBERT A. HARTLEY, Brantford, Canada. Filed Mar. 16, 1897. Serial No. 627,762. (No model.)



Claim.—1. The combination with a whip-socket pivoted or hinged to a suitable support, a spring or equivalent means for bringing the socket to its normal or upright position, and devices for swinging the plate in opposition to the spring, substantially as shown and for the purpose set forth.

2. The combination with a whip-socket pivoted or hinged to a suitable support, of a spring or equivalent means connected to the socket for bringing the same to its normal position; together with devices for operating the whip-socket against the action of the spring consisting of an operating-lever and connecting-rod, substantially as shown and for the purpose set forth.

3. The combination with a whip-socket pivoted or hinged to its support, of a spring or equivalent means for bringing the socket to its normal position, stops for limiting the throw of the socket; together with an operating-lever and rod connecting said lever to the socket, substantially as shown and for the purpose set forth.

4. The combination with a whip-socket hinged or pivoted to a suitable support having a lateral projection, a spring or equivalent means engaging the bracket and socket or rigid part thereof, said rigid part of the socket having an extension and shoulder which engage the opposite edges of the projection of the bracket, and devices for throwing the whip-socket against the action of the spring consisting of an operating-lever and rod connecting said lever to the socket, substantially as shown and for the purpose set forth.

5. The combination with the whip-socket stamped from a plate to present the parts which embrace the whip and inclined foot bent downward, of a plate rigidly secured to the foot of the whip-socket and pivoted or hinged to a bracket, a spring or equivalent means connected to the bracket and to the pivoted or hinged plate, said plate having a projecting apertured ear; together with a lever and connecting-rod, the ends of said connecting-rod being bent to engage the lever and apertured ear of the plate, substantially as shown and described.

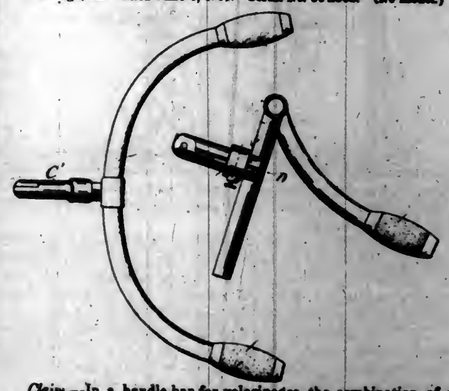
586,492. INKSTAND. GEORGE HAUMAN, Berlin, Wis. Filed Dec. 19, 1896. Serial No. 616,323. (No model.)



Claim.—1. A bottle having a pivoted cover, a spring for closing said cover, and a spring-actuated detent to engage a portion of said cover.

2. A bottle having a pivoted cover provided with a finger, a spring for closing said cover, a pivoted detent situated in the path of said finger, and a spring acting upon said detent and fastened to the bottom of said bottle and provided with a downwardly-extending projection 10.

586,493. HANDLE-BAR FOR VELOCIPEDES. BOBY C. HICKS, Chicago, Ill. Filed June 6, 1896. Serial No. 594,502. (No model.)

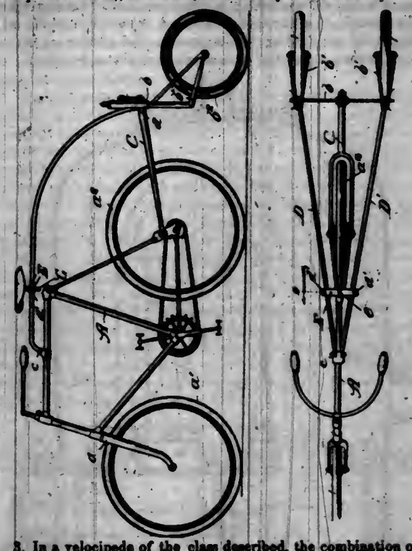


Claim.—In a handle-bar for velocipedes, the combination of a post or similar portion made in at least two parts and provided with lateral projections, a piece of non-vibratory material interposed between such portions, a clip or collar for holding the parts in operative engagement, and a piece of non-vibratory material inserted between the clip and at one side of the post portions, substantially as described.

586,494. VELOCIPEDE. BOBY C. HICKS, Chicago, Ill. Filed Oct. 26, 1896. Serial No. 610,114. (No model.)

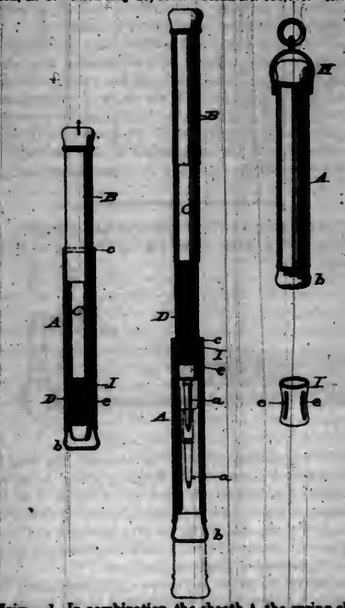
Claim.—1. In a velocipede of the class described, the combination of a main frame provided with a steering-wheel and a driving-wheel in line with each other, a supplemental frame consisting of two heads flexibly secured together, a trailing supporting-wheel in each head portion arranged opposite each other and having independent rotary and pivotal motions, a fork for flexibly securing the flexible connection of the supplemental frame to the main frame at a point adjacent to the driving-axle, and a bar or bars rigidly secured to the head portions of the supplemental frame and pivotally secured to the main frame and arranged to support the saddle or seat portion thereof, substantially as described.

2. In a velocipede of the class described, the combination of a main frame provided with a steering-wheel and driving-wheel in line with each other, a supplemental frame consisting of two head portions secured together by means of a cross-bar and vertical pivotal links, a trailing supporting-wheel in each head portion arranged opposite each other and having independent pivotal and rotary motions, a fork portion flexibly securing the cross-bar of the supplemental frame to the main frame adjacent to the driving-wheel, a substantially V-shaped bar rigidly secured to the head portions and pivotally secured to the main frame in front of the seat portion, and a seat portion arranged thereon, substantially as described.



3. In a velocipede of the class described, the combination of a main frame provided with a steering-wheel and a driving-wheel in line with each other, a supplemental frame provided with two trailing supporting-wheels, a V-shaped bar rigidly secured to the supplemental frame and flexibly secured to the main frame, a saddle-clip consisting of two parallel bars secured to the V-shaped frame and provided with a central aperture, and a seat-post carrying a saddle or seat portion passed through such apertures and loosely supported on the lower clip, substantially as described.

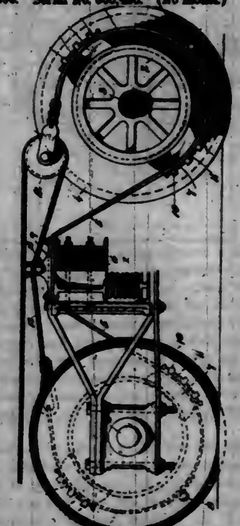
586,495. DETACHABLE PENCIL. EDWARD D. HICKS, New York, N. Y. Filed May 15, 1897. Serial No. 636,675. (No model.)



Claim.—1. In combination, the sheath A, the spring-clutch I arranged to slide in the sheath, and a telescopic pencil-case, all arranged to operate substantially as shown and described.

2. In combination, a sheath A, a friction-clutch I arranged to slide to and fro within the sheath, and a telescopic pencil-case provided with a magic movement, whereby the pencil-point is projected in the act of withdrawing the pencil from the sheath, substantially as specified.

586,496. CAR-BRAKE. RICHARD INGRAM, Roanoke, Va. Filed Sept. 10, 1896. Serial No. 605,620. (No model.)



Claim.—1. In a car-brake, the combination of a brake-wheel, oppositely-disposed brake-shoes arranged to engage the brake-wheel, a resilient strap or band extending around the brake-wheel, carrying the brake-shoe and composed of two sections hinged together at their adjacent ends, and means for springing the hinged sections apart at the hinge-joint, substantially as described.

2. In a device of the class described, the combination with a truck, of a pair of brake-wheels mounted on the axles of the truck, bands or straps secured to the truck and extending around the brake-wheels, a pulley mounted on the outer end of one of the bands or straps, and a flexible connection secured to the outer end of the band or strap extending across the truck and passing around the said pulley, whereby both band-brakes are simultaneously operated, substantially as described.

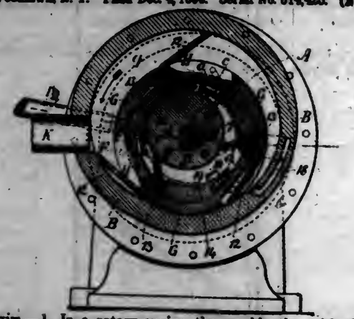
3. In a device of the class described, the combination with a truck, of a pair of brake-wheels mounted on the axles, bands or straps secured to the truck and passing around the brake-wheels, a pulley mounted on the outer end of one of the straps or bands, a flexible connection secured to the outer end of the other strap or band, extending across the truck, and composed of upper and lower leaves and passing around the said pulley, whereby both band-brakes will be simultaneously operated, and a pair of pulleys mounted upon the truck, receiving the lower leaf of the flexible connection between them and supporting the upper leaf of the same, substantially as described.

4. In a device of the class described, the combination with brake mechanism, rods connected with the same and provided with shoulders, a coupling-chain designed to connect the rods of two cars and adapted to be drawn taut should the cars become uncoupled, and catches mounted on the cars and arranged to engage the shoulders when the rods are drawn outwardly, substantially as and for the purpose described.

5. In a device of the class described, the combination of a car, brake mechanism, rods arranged at the ends of the car, connected with the brake mechanism and provided with shoulders, the oppositely-disposed spring-actuated catches mounted on the car and arranged to engage said shoulders when the rods are drawn outward, levers arranged in pairs and adapted to spread the catches to release the rods, and means for coupling the outer ends of the rods, substantially as and for the purpose described.

6. In a device of the class described, the combination of a car, brake mechanism, rods arranged at the ends of the car, connected with the brake mechanism and provided with shoulders, one of the rods being provided with a loop and the other rod having a hook, a chain linked into said loop, a spring-actuated catch mounted on one of the rods and arranged to close the mouth of the hook to retain the chain in engagement with the same, and catches mounted on the car, arranged to engage the shoulders of the rods when the latter are drawn outward, substantially as described.

586,497. COMPOUND ROTARY ENGINE. ROBERT H. ISBELL, Woodlawn, N. Y. Filed Dec. 4, 1896. Serial No. 614,425. (No model.)



Claim.—1. In a rotary engine, the combination with the case and its heads and a stationary hub carried by one of the heads, of a main shaft and its head, a cylinder carried by the head and pistons at equal distances around the cylinder each having a leaf projecting inward and a leaf projecting outward, there being a port for the high-pressure-steam ports in the revolving head through which the high-pressure steam passes to act upon the inner leaves of the pistons, a transfer-port for the high-pressure steam to pass from the inner chamber to the outer chamber, and act upon the outer leaves of the pistons, and an exhaust-port from the outer chamber, substantially as set forth.

2. The combination in a rotary engine, of an outer case and its heads, a hub carried by one of its heads, a shaft eccentric to the hub and a head upon such shaft, a cylinder composed of sections and intermediate pistons having inner and outer leaves, a ring for connecting the sections of the cylinder together and pivot-pins passing through the ring and head and upon which the pistons swing, a steam-inlet port, and ports through the head to which the cylinder is connected, a segmental transfer-port and branch for allowing high-pressure steam from the inner chamber to pass into the outer chamber, and an exhaust pipe or port from the outer chamber, substantially as set forth.

3. The combination in a rotary engine, of a main shaft and head, a cylinder supported by such head and pivoted pistons in the cylinder having inner and outer leaves, the cylinder being recessed for the reception of such leaves, and ports or pipes for allowing steam to pass into the recesses and beneath the respective leaves of the pistons for moving such leaves outward or inward to bring their edges into contact with the interior surface of the case or the exterior surface of the hub, substantially as set forth.

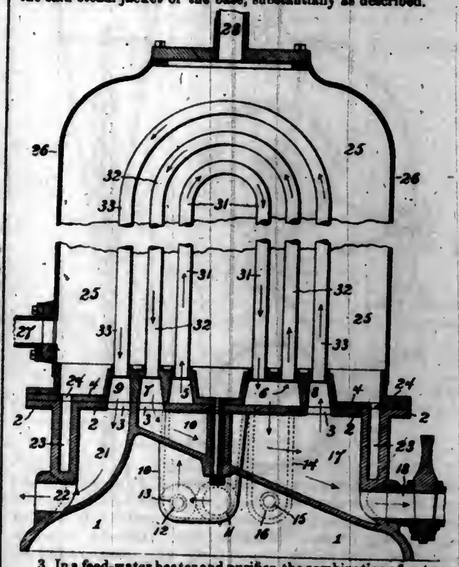
4. The combination with the case and its heads, of a hub carried by one of the heads, a main shaft, cylinder and pistons carried by such shaft, the pistons having inner and outer leaves to act within the crescent-shaped steam-spaces between the cylinder and the case, and the cylinder and the hub respectively, the cylinder being recessed for receiving the leaves of the pistons, steam-ports for admitting pressure into the recesses for swinging the respective pistons out of such recesses and a U-shaped port in the head of the case for allowing such steam-pressure to act in moving the outer leaves of the pistons out of their recesses, substantially as set forth.

5. The combination in a rotary engine, of a stationary case and a stationary central hub, an intermediate cylinder placed eccentric and pistons passing through and pivoted upon the said cylinder and having one leaf acted upon by pressure in the inner chamber and the other leaf by pressure in the outer chamber, there being recesses into which one leaf of each piston is swung while the other leaf is in action, substantially as set forth.

586,498. FEED-WATER HEATER AND PURIFIER. BENJAMIN P. KELLEY, Brooklyn, N. Y. Filed Mar. 13, 1897. Serial No. 627,308. (No model.)

Claim.—1. In a feed-water heater and purifier, the combination of the base inclosing the water-chambers 10 and 14, settling-chamber 17 and hot-water-outlet chamber 21; the tube-sheet 4 provided with elevated parallel and horizontally-arranged water-channels communicating with the said chambers in the base; the arched water-tubes connecting the said water-channels; the steam-jacket 23 surrounding said base and its inclosed chambers; the steam-chamber 25; discharge-cocks 13 and 16 for the chambers 10 and 14, respectively; and a blow-off cock 18 for the settling-chamber 17, said cocks being arranged to permit thorough emptying of the water tubes, channels and chambers, substantially as described.

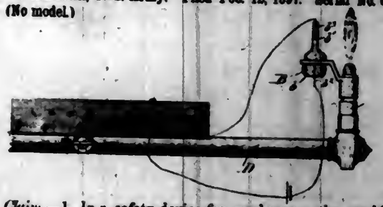
2. In a feed-water heater and purifier, the combination of the base 1 inclosing the settling-chamber 17 and hot-water-outlet chamber 21, the said base being provided with a top having perforations 3, as described; the tube-sheet 4 provided with elevated parallel and horizontally-arranged water-channels; the arched water-tubes arranged in sets and connecting said water-channels; the steam-jacket 23 surrounding the base and its inclosed chambers; and the steam-chamber 25 surrounding the water-tubes and communicating with the said steam-jacket of the base, substantially as described.



3. In a feed-water heater and purifier, the combination of a steam-jacketed base inclosing the cold water chambers 10 and 14, settling-chamber 17 and hot-water-outlet chamber 21; the tube-sheet 4 provided with parallel horizontally-arranged water-channels 5, 6, 7, 8 and 9 having passages communicating with the inclosed chambers of the base, as described; the arched water-tubes 31, 32 and 33 communicating with said water-channels; the steam-chamber 25 inclosing the said water-tubes and communicating with the steam-jacket of the base, through ports 24; and cocks to drain the several chambers and tubes of the heater, substantially as described.

4. In a feed-water heater and purifier, the combination of the base 1 provided with steam-jacket 23 and inclosing the cold-water chambers 10, 14, settling-chamber 17 and hot-water-outlet chamber 21; the tube-sheet 4 provided with the elevated water-channels 5, 6, 7, 8 and 9; the arched water-tubes 31, 32 and 33 connecting said water-channels; the steam-chamber 25 surrounding said water-tubes and communicating with the steam-jacket 23; and drainage or blow-off cocks for emptying the tubes and chambers, substantially as described.

586,499. AUTOMATIC CUT-OFF FOR GAS-BURNERS. DANIEL W. KETCHAM, U. S. Army. Filed Feb. 12, 1897. Serial No. 623,157. (No model.)

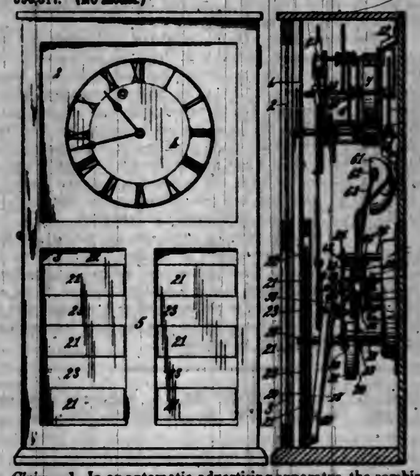


Claim.—1. In a safety device for gas-burners, the combination with an arm attached to the valve of the gas-pipe and having interior chambers adapted to be partially filled with a liquid, of an electro-magnet adapted, when excited, to attract said arm; a source of electricity connected to said magnet for exciting the same, and means for completing the electric circuit through said magnet-coils at such times as the gas is lighted substantially as described.

2. In a safety device for gas-burners, the combination with an arm secured to the valve of the gas-pipe, and having interior chambers adapted to be partially filled with a liquid, so that the liquid will create a preponderance of weight on either one side or the other of the point of support of the said arm, of an electromagnet adapted, when excited, to attract the said arm; a source of electricity connected to the coils of said magnet; a receptacle partially filled with mercury and mounted near the tip of the gas-burner; an electric conductor passing through the upper portion of said receptacle and not in contact with said mercury when the gas is normally turned off, and a conductor passing through the lower portion of said receptacle and extending into said mercury, one of the said conductors being connected to the source of electricity and the other to the coils of the said magnet substantially as described.

3. In a safety device for gas-burners, the combination with an arm secured to the valve of the gas-pipe, and having interior chambers adapted to be partially filled with a liquid, the chambers so arranged and the liquid so controlled as to cause the liquid to create a preponderance of weight on one side of the point of support holding the arm in the horizontal position before the electric circuit is completed, and to transfer this preponderance to the other side of the point of support, after the circuit is completed, in causing the said arm to fall after the circuit is broken; of an electromagnet adapted, when excited, to attract the said arm; a source of electricity connected to the coils of said magnet; a receptacle partially filled with mercury and mounted near the tip of the gas-burner; an electric conductor passing through the upper portion of said receptacle and not in contact with said mercury when the gas is normally turned off, and a conductor passing through the lower portion of said receptacle and extending into said mercury, one of the said conductors being connected to the source of electricity and the other to the coils of the said magnet, substantially as described.

586,500. AUTOMATIC ADVERTISING APPARATUS. AUGUSTUS W. KIRKPATRICK, Greeneville, Tenn. Filed June 20, 1896. Serial No. 596,317. (No model.)



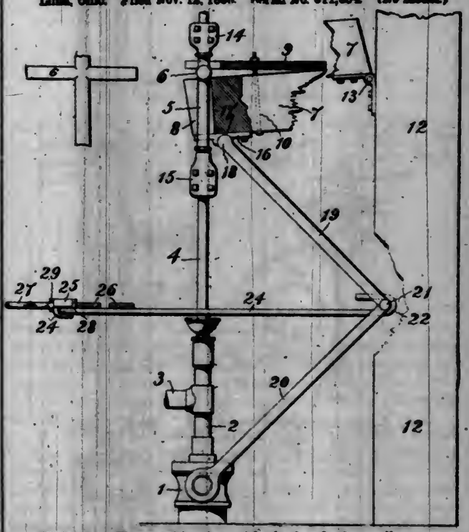
Claim.—1. In an automatic advertising apparatus, the combination with a plurality of advertisement-frames arranged to move in parallel right lines behind a screen having openings which expose the advertisements, of automatic mechanism connected to said frames to move the same, an automatic stop for arresting said mechanism after each movement, means for releasing said stop, and a train of clock-gearing connected to the releasing device to operate the latter at predetermined intervals, and permit it to shift the advertisement-frames simultaneously, substantially as described.

2. In an automatic advertising apparatus, the combination with a plurality of advertisement-frames arranged to move in parallelism behind a screen having openings which expose every other advertisement in each frame, of crank-arms connected to said frames, a train of gearing to drive the crank-shaft, a motive power for said gearing, a disk on a shaft geared to said train, a spring-lifted thrust-rod having one end over a spring-pressed pawl on a rigid support, the end of said pawl being in the line of travel of a pin on the disk, a train of clock-gearing, and a disk having multiple cam projections acting upon one end of the thrust-rod, substantially as described.

3. In an automatic advertising apparatus, the combination with constantly-driven gearing to operate said apparatus, of a spring-pressed pawl on a stationary support to arrest the movement of the gearing, a thrust-rod to disengage said pawl, a disk having a series of cam projections to operate the thrust-rod, a spring to restore the latter, and a train of clock-gearing to give uniform revolution to said disk, substantially as described.

4. In an automatic advertising apparatus, the combination with a plurality of advertisement-frames arranged behind a screen having openings and imperforate portions alternately, of a crank-shaft having arms connected to said frames, gearing to turn the crank-shaft, a disk having a pin projecting from one face and carried by a shaft driven by said gearing, a pawl on a rigid support having a spring to hold it in the path of said pin, a thrust-rod to disengage the pawl, a cam-disk to operate said thrust-rod, a spring to preserve the engagement between the latter and the cam-disk, and a separate train of gearing to operate the cam-disk, substantially as described.

586,501. PUMPING-JACK FOR OIL-WELLS. THOMAS G. LAMEY, Lima, Ohio. Filed Nov. 12, 1896. Serial No. 611,854. (No model.)



Claim.—1. The combination with the head of a well-pump casing, a walking-beam, and a polish-rod operated by the walking-beam, of pivots on the head of the pump-casing, jointed toggle-levers engaged with the pivots on the head of the pump-casing and pivotally engaged directly with said walking-beam, and means for connecting the toggle-levers with a pull-rod, substantially as described.

2. The combination of a hinged or pivoted walking-beam, a cross-head pivotally mounted thereupon, a polish-rod adjustable through the cross-head, jointed toggle-levers pivoted, respectively, to the walking-beam and to a suitable support, and a link connected with the toggle-levers and having means to connect with a pull-rod, substantially as described.

3. The combination of a hinged or pivoted walking-beam, a cross-head pivoted thereupon, a polish-rod engaged with the cross-head, a pump-casing having a head, jointed toggle-levers pivoted, respectively, to the walking-beam and to the head of the pump-casing, and a link connected with the toggle-levers and having means to connect with a pull-rod, substantially as described.

4. The combination of a hinged or pivoted walking-beam, a polish-rod, connections between the polish-rod and the walking-beam, jointed toggle-levers pivoted, respectively, to the walking-beam and to a suitable support, and a bifurcated link passing at opposite sides of the polish-rod and connected with the toggle-levers, substantially as described.

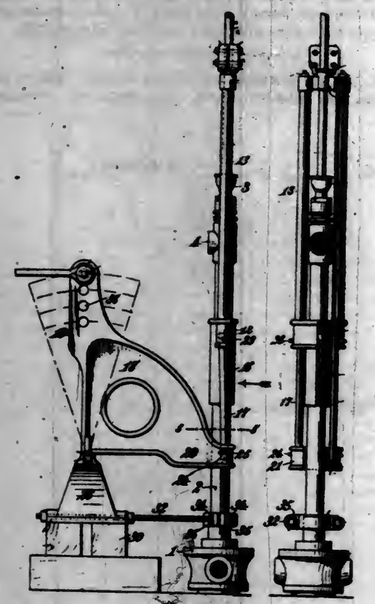
5. The combination of a hinged or pivoted walking-beam, a cross-head pivotally mounted thereupon, a polish-rod connected with the cross-head, a pump-casing having a head, jointed toggle-levers pivoted, respectively, to the walking-beam and to the head of the pump-casing, and a bifurcated link passing at opposite sides of the polish-rod and connected with the toggle-levers, substantially as described.

6. The combination of a hinged or pivoted walking-beam, a polish-rod, connections between the polish-rod and the walking-beam, jointed toggle-levers pivoted, respectively, to the walking-beam and to a suitable support, and a link having at one end hooks to engage the toggle-levers and at the other end a lengthwise-adjustable stem to engage a pull-rod, substantially as described.

586,502. PUMPING-JACK FOR OIL-WELL PUMPS. THOMAS G. LAMEY, Lima, Ohio. Filed Jan. 14, 1897. Serial No. 619,942. (No model.)

Claim.—1. The combination with the polish-rod, and tubing of a well-pump, of a collar or ring slidable on the tubing, rigid connec-

tions between the collar or ring and the polish-rod, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.



2. The combination with the polish-rod, and tubing of a well-pump, of a cross-head connected with the polish-rod, a collar or ring slidable on the tubing, rods connecting the cross-head with the collar or ring, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

3. The combination with the polish-rod, and tubing of a well-pump, of a collar or ring slidable on the tubing, rod connections between the collar or ring and the polish-rod, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one bifurcated to embrace the tubing and provided with segmental slots in which the said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

4. The combination with the polish-rod, and tubing of a well-pump, of a clamp secured to the polish-rod and rotatable for axially turning the polish-rod, a cross-head mounted on the polish-rod and to which said clamp is swiveled, a collar or ring sliding on the tubing, connections between the cross-head and the collar or ring, a pumping-lever having two lever-arms, pivotal connections between one of the lever-arms and said collar or ring, and a pull-rod connected with the other lever-arm, substantially as described.

5. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head held between the parts of the clamp and in which the polish-rod is susceptible of axial rotation, a collar or ring slidable on the tubing, connections between the cross-head and the collar or ring, a pivoted pumping-lever having two lever-arms, connections between one of the lever-arms and the sliding collar or ring, and a pull-rod connected with the other lever-arm, substantially as described.

6. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head secured between the two parts of the clamp and in which the polish-rod is susceptible of axial rotation, a collar or ring slidable on the tubing, rigid rod connections between the collar or ring and the cross-head, rods pivoted at their upper ends to the collar or ring, and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one bifurcated to embrace the tubing and provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

7. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head having a central portion held between the two parts of the clamp, a collar or ring slidable on the tubing, rod connections between the cross-head and the collar or ring, rods pivoted at their upper ends to the collar or ring, a pumping-lever having two lever-arms, pivotal connections between one of the lever-arms and the said pivoted rods, and a pull-rod connected with the other lever-arm, substantially as described.

8. The combination with the polish-rod, and tubing of a well-pump, of a pivoted bell-crank lever having two lever-arms, one of which is provided with a plurality of orifices arranged one above another, a sleeve constructed to fit any one of said orifices, pull-rods engaged with the ends of the sleeve, and connections between the other lever-arm and the polish-rod, substantially as described.

9. The combination with the polish-rod, and tubing of a well-pump, of a cross-head connected with the polish-rod, a collar or ring slidable on the tubing, connections between the cross-head and the collar or ring, rods pivoted at their upper ends to the collar or ring, a pivoted bell-crank lever having two lever-arms, one of which is provided with a plurality of orifices arranged one above another, a sleeve constructed to fit any one of said orifices, pull-rods engaged with the ends of the sleeve, and connections between the other lever-arm and the said pivoted rods, substantially as described.

10. The combination with the polish-rod, and tubing of a well-pump, of a lever-support having a pintle-socket in its top portion and bolt-holes in its base, tie-bolts engaging said bolt-holes and connected with the tubing, a foundation on which the said lever-support is mounted, a bell-crank lever having a pintle portion at its angle seated in the pintle-socket, a bolt connecting the pintle portion of the lever with the lever-support, connections between one arm of the lever and the polish-rod, and a pull-rod connected with the other lever-arm, substantially as described.

11. The combination with the polish-rod, and tubing of a well-pump, of a lever-support having a pintle-socket and upwardly-projecting ears or lugs at its top portion, and bolt-holes in its base, a two-part clamp mounted on the tubing, tie-bolts engaging the bolt-holes of the lever-support and connected with said two-part clamp, a foundation on which the lever-support is mounted, a bell-crank lever having a pintle portion at its angle seated in the pintle-socket between said ears or lugs, a bolt passing through the ears or lugs and the pintle portion of the lever, rod connections between one arm of the lever and the polish-rod, and pull-rods adjustably connected with the other arm of the lever, substantially as described.

12. The combination with the polish-rod, and tubing of a well-pump, of a pivoted bell-crank lever having two lever-arms, one provided with a plurality of transverse orifices, a sleeve constructed to fit in one of said orifices and having a detachable head at one end, a bolt for securing said head in position, pull-rods engaged with the ends of the sleeve, and connections between the other lever-arm and the polish-rod, substantially as described.

586,503. CHROMATIC TIMBAL. GUSTAVE F. LYON, Paris, France. Filed Mar. 23, 1897. Serial No. 628,886. (No model.)



Claim.—1. A chromatic timbal or kettledrum, having a vibratory diaphragm, two series of concentric hoops, one above and the other below the diaphragm, and means for simultaneously bringing one member of each series into contact with the diaphragm upon a line common to both members, substantially as described.

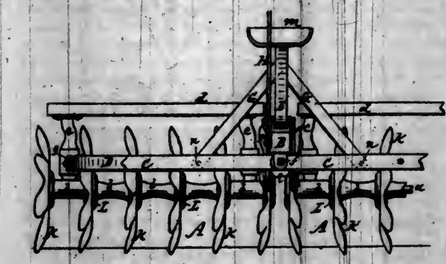
2. In a chromatic timbal or kettledrum, the combination with a vibratory diaphragm of an upper and lower series of hoops concentric with said diaphragm, a corresponding series of levers for each series having one end connected to the hoops in said series and the other end to the levers of the other series, and means for operating any pair of levers thus connected to bring one of the upper and one of the lower hoops into simultaneous contact with the corresponding faces of the diaphragm in the same concentric line, substantially as described.

3. In a chromatic timbal or kettledrum, the combination with a vibratory diaphragm of an upper and lower annular plate, hoops concentric with the diaphragm and arranged in grooves in each plate, a series of levers for each series of hoops connected at one end to said hoops and at the other end to the levers of the other series, and means for operating any pair of levers thus connected to bring an upper and a lower hoop simultaneously into contact with the diaphragm in the same circular line, substantially as described.

586,504. PREPARING MEDICATED CONFECTIONERY. OTTO MARBURG, Berlin, Germany. Filed July 6, 1896. Serial No. 598,208. (Specimens.)

Claim.—A process for producing medicinal confectionery which consists in mixing the medicine with a quantity of cocoa mass, grinding the same in a chocolate-mill, emulsifying the result and suddenly cooling by introducing a few drops of cold water into the mass substantially as described.

586,505. SPADING-HARROW. CHRISTIAN MAUL, Brockport, N. Y. Filed Oct. 20, 1894. Serial No. 526,458. (No model.)



Claim.—1. In a spading-harrow, the combination with the draft-pole and the two gangs of teeth, of the front bars C, C, attached at one end to standards connected with the gangs, and pivoted at the other end to the pole, the seat-support E pivoted to the pole, and the arms G, G, connecting the front bars with the seat-support, as shown and described and for the purpose set forth.

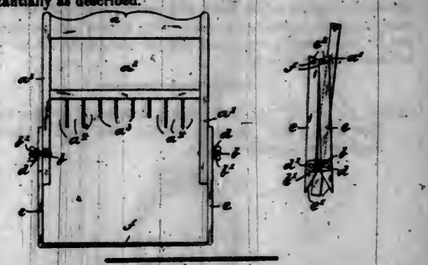
2. In a spading-harrow, the combination with the cutting-teeth carrying frames C, C, hinged to the opposite sides of the pole B, of a seat mounted between the said frames upon the outer end of the bar E, which is pivoted to the pole, and which is supported by diagonal bars G, G, the outer ends of which are pivoted to the inner ends of the cutting-teeth-carrying frames, the inner ends being pivoted to a vertical guide-bar J, the lower end of which is adapted to slide freely through a guide-socket located at the rear of the pole, the said vertical rod carrying at its upper end a pivoted bifurcated support *j*, through the bifurcation of which passes the seat-supporting rod E, all combining to operate substantially as described.

3. In a spading-harrow, the combination of the frame made in two sections hinged on opposite sides of the pole, the said frame comprising the rods C, C, the inner ends of which are pivoted to the pole, and the outer ends bent rearwardly, being pivoted vertically to the outer pair of vertical standards which carry the axles upon which the cutting-teeth are mounted, the inner pair of vertical standards being connected to the lever which is adapted to adjust the cutting-teeth carrying axles at the desired angle, of a diagonal seat-support pivoted to the pole, and passing through the bifurcated block *j*, which is pivoted to the upper end of the vertical rod J, which is adapted to slide freely through a guide-socket located at the rear end of the pole, the said seat-support and vertical rod being upheld by two diagonal rods G, G, disposed at opposite sides of the vertical rod, the lower ends of which are pivoted to the inner ends of hinged sections carrying the cutting-teeth, and the inner ends to the vertical rod, substantially as and for the purpose described.

4. The cutting-teeth of the class described comprising the disks L, L, each having the squared central eye *s*, in which fit the squared shoulders of the spools connecting together a series of the said cutting-teeth, and by which the said teeth are clamped together, the inner face of each disk having the sunken seat *u*, and the shoulders *w*, *w*, the said sunken seats *u* being adapted to receive the shanks of two of the blades of the said cutter, which fill the said sunken seats flush, the edge of the shank of the third blade resting against the shoulders *w*, *w*, the said third shank being clamped between the shanks of the other blades, substantially as described.

586,506. BICYCLE RACK OR HOLDER. SAMUEL B. MEECH, Philadelphia, Pa., assignor to Joseph T. Pearson, same place. Filed Sept. 5, 1896. Serial No. 604,945. (No model.)

Claim.—In a folding bicycle rack or holder, two sets of standards *c*, connected at their lower ends by cross-rods *f*, and having the upper and lower ends of each set beveled as at *c'* and *c²*, a plate *d*, pivotally connected to the upper end of each standard of a set, a frame *a*, having on its lower edge a series of downwardly-projecting pins to constitute a rack, bolts *b*, pivotally securing the frame to each plate *d*, and a tightening-nut *b'*, on each bolt adapted to clamp the frame to the plate and maintain said frame in upright position, all arranged so that the standards may be swung to angular position with the upper beveled ends *c'*, abutting to form a firm support, and the frame may be swung on the plate to fold down on the standards, substantially as described.



586,507. CYCLE-LAMP SOCKET. CHARLES A. MILLER and FREDERICK J. MILLER, Birmingham, England. Filed Feb. 13, 1897. Serial No. 623,263. (No model.) Patented in England Dec. 2, 1896, No. 27,380.

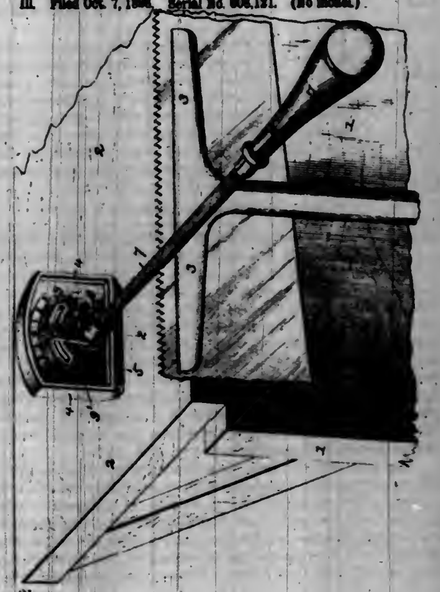


Claim.—1. The combination with a socket formed from a cruciform-shaped blank of sheet metal and having a cruciform-shaped aperture in one of its sides, of a traversing clip adapted to be introduced through said aperture into the socket, a sheet-metal screw-box attached to said traversing clip, and a traversing screw fitted in said screw-box and rotated in a fixed bearing on the socket, substantially as described.

2. The combination with a socket, of a traversing clip arranged therein, a screw-box attached to said traversing clip and extending through an aperture formed in the socket, a traversing screw fitted in said screw-box, and a cap or carrier attached to the socket, said cap or carrier forming a cover for the screw-box and screw and having a bearing in which one end of the screw is journaled, substantially as described.

3. The combination with a socket, of a traversing clip arranged therein, a screw-box bent up into tubular form from a sheet-metal blank and its ends inserted through a slot in the traversing clip and clenched thereunder, and a traversing screw fitted in said screw-box and journaled in a bearing on the socket, substantially as described.

586,508. SAW-FILING DEVICE. GEORGE MORRISON, Chicago, Ill. Filed Oct. 7, 1896. Serial No. 608,121. (No model.)



Claim.—The herein-described saw-filing appliance comprising a guide-head 4, the lower end of which is adapted to slide upon a suitable table, and a file-holding socket-piece secured in a circularly-adjustable manner in the head, and provided with an arm 8, and clamping-screw 9, the guide-head being formed with a segmental slot for the clamping-screw, and with an index-scale for the arm 8, substantially as set forth.

586,509. CYCLE-TIRE. JAMES MCCONNOCHY, Glasgow, Scotland. Filed Aug. 1, 1896. Serial No. 601,336. (No model.) Patented in England Apr. 18, 1896, No. 8,199.



Claim.—1. In an inflatable tire the combination with an inner air-tube, of an outer removable cover or casing inclosing said air-tube and provided along the inside of its tread portion with a continuous pocket, a chambered hoop or band of cork fitting in said pocket and composed of segmental strips overlapping at their ends, and a lubricant composed of graphite or similar substance, applied to the ends of said strips, substantially as described.

2. In an inflatable tire, the combination with an inner air-tube, of an outer removable cover or casing inclosing said air-tube and provided along the inside of its tread portion with a continuous pocket, a chambered hoop or band of cork fitting in said pocket and composed of segmental strips made up of two or more layers of varying width cemented together with the narrower layers on the outside, and overlapping at their ends, and a lubricant composed of graphite or similar substance, applied to the ends of said strips, substantially as described.

3. In an inflatable tire, the combination with an inner air-tube, of an outer removable cover or casing inclosing said air-tube and provided along the inside of its tread portion with a continuous pocket, a chambered hoop or band of cork fitting in said pocket and composed of segmental strips made up of two or more layers of varying width cemented together with the narrower layers on the outside, and overlapping at their ends, and a lubricant composed of graphite or similar substance, applied to the ends of said strips, and a protective covering inclosing said hoop or band, substantially as described.

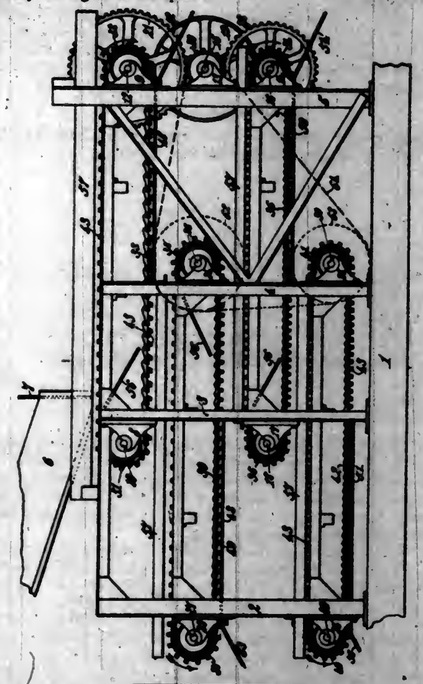
4. In an inflatable tire the combination with an inner air-tube, of an outer removable cover or casing inclosing said air-tube and provided along the inside of its tread portion with a continuous pocket, having transverse openings at intervals therein, a chambered hoop or band of cork fitting in said pocket and composed of segmental strips overlapping at their ends, and a lubricant composed of graphite or similar substance, applied to the ends of said strips, substantially as described.

5. In an inflatable tire the combination with an inner air-tube, of an outer removable cover or casing inclosing said air-tube and provided along the inside of its tread portion with a continuous pocket having transverse openings at intervals therein, a chambered hoop or band of cork fitting in said pocket and composed of segmental strips made up of two or more layers of varying width cemented together with the narrower layers on the outside, and overlapping at their ends, and a lubricant composed of graphite or similar substance, applied to the ends of said strips, substantially as described.

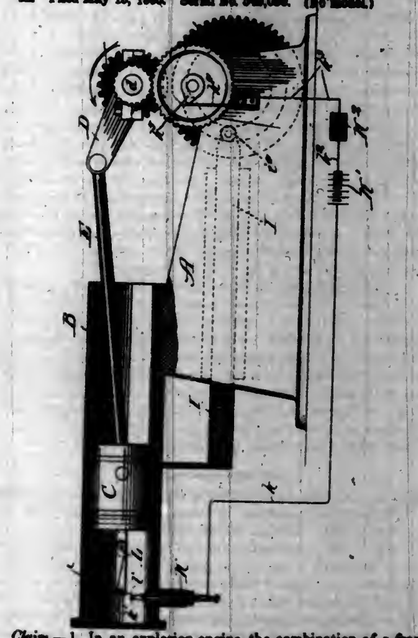
586,510. COAL-GRADING MACHINE. CALVIN W. PARSONS, Scranton, Pa. Filed Feb. 18, 1896. Serial No. 579,896. (No model.)

Claim.—1. A coal-grading machine, combining in its structure a plurality of independent gratings, each composed of a series of longitudinal separated bars, a plurality of movable endless aprons arranged respectively in operative connection with and traveling over said gratings, and each comprising a series of transverse bars cooperating with the longitudinal grating-bars to form meshes, the dimensions or size of which vary in the several aprons, and gratings, a series of platforms or tables arranged respectively under the lower stretches of the several aprons and over and along which the transverse bars thereof sweep the material from one apron to another, and mechanism for imparting motion to all the aprons.

2. The combination in a coal-grading machine, of a plurality of alternately-arranged independent gratings, each composed of a series of longitudinal separated bars, a plurality of alternating endless aprons traveling alternately in opposite directions and each comprising a series of transverse bars cooperating with the longitudinal grating-bars to form meshes, the dimensions or size of which vary in the several aprons and gratings, transverse shafts supporting and serving to move the aprons, a single main drive-shaft, and gearing between said drive-shaft and a shaft of each apron for simultaneously moving all of the aprons.



586,511. IGNITER FOR EXPLOSIVE-ENGINES. EDWARD J. PENNINGTON, Racine, Wis., assignor to Thomas Kane, trustee, Chicago, Ill. Filed May 13, 1895. Serial No. 549,092. (No model.)



Claim.—1. In an explosive-engine, the combination of a frame portion provided with a cylinder, a reciprocating piston moving in such cylinder, a rigid electrode on one of such portions—the cylinder or reciprocating piston—an elastic electrode formed of a helically-coiled spring on the other portion with its free end arranged to contact the rigid electrode and be mapped thereby during the reciprocation of the piston, substantially as described.

2. In an explosive-engine, the combination of a frame portion provided with a cylinder, a reciprocating piston movably mounted therein, an electrode on such cylinder portion and an electrode on the reciprocating piston, both of such electrodes so constructed and arranged that when in an electric circuit they form a primary spark previous to the ending of the backward movement of the piston, and a secondary spark after the piston has begun its forward motion, substantially as described.

3. In an explosive-engine, the combination of a cylinder portion, a reciprocating piston mounted therein, a rigid electrode on such cylinder portion and an elastic electrode on the piston portion, both of such electrodes being so arranged when in electric circuit that a primary electric spark is formed previous to the ending of the backward stroke of the piston, and a secondary spark is formed after the piston has begun its forward motion, substantially as described.

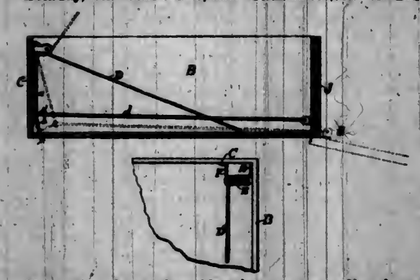
4. In an explosive-engine, the combination of a cylinder portion, a reciprocating piston mounted therein, a rigid electrode mounted in such cylinder portion, and an elastic helically-coiled electrode mounted on such piston portion, both of such electrodes being so arranged that when an electric circuit is formed a primary spark is formed just previous to the end of the backward motion of the piston, and a secondary electric spark is formed immediately after the piston has begun its forward motion, substantially as described.

5. In an explosive-engine, the combination of a cylinder, a reciprocating piston mounted therein, a rigid yoke electrode mounted in the cylinder portion, a supporting-bridge mounted on the piston portion, and an elastic helically-coiled-spring electrode on such supporting-bridge portion arranged in connection with the rigid electrode to form an electric spark just previous to the ending of the backward motion of the piston, and a secondary electric spark immediately after the piston has begun its forward motion, substantially as described.

6. In an explosive engine, the combination of a frame portion provided with a cylinder, a piston movably mounted therein, and two electrodes arranged to contact with each other during the movements of the piston and form a primary spark previous to final compression of the mixture of gases and air, and a secondary exploding spark after such final compression, substantially as described.

7. In an explosive-engine, the combination of a cylinder, a reciprocating piston moving in such cylinder, a rigid electrode on one of the above-named parts, an elastic electrode on the other part with its free end arranged to contact the rigid electrode and be mapped thereby during the movements of the piston, substantially as described.

586,512. DRAWER OR FILE-BOX. FREDERICK L. G. STRAUBEL, Green Bay, Wis. Filed Oct. 23, 1896. Serial No. 609,843. (No model.)



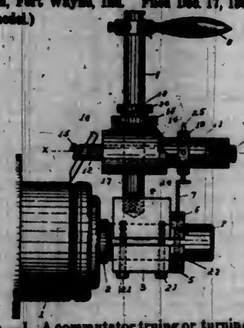
Claim.—In a drawer for cabinet letter or paper files, the rod I in connection with the hinged front J, the rod *a* in connection with the spring-compressor, and the rod or lever *b* in connection with the rods I and *a*, forming a combination of connecting-rods between and arranged to act upon, the spring-compressor and the hinged front J, substantially as and for the purpose described and set forth.

586,513. LAWN-SWEEPER. GEORGE M. WARNER, Springfield, Ohio. Filed Nov. 16, 1896. Renewed Jan. 14, 1897. Serial No. 619,270. (No model.)

Claim.—In a lawn-sweeper, the combination with the lateral frame-plates A, A', having each at its front edge an upper, forwardly-projecting arm P, and a lower arm P', and a forked handle attached to said plates, of a grass-pan pivotally connected with the said arms P and normally resting against the arms P', which form a stop to hold said pan in proper position, a rod loosely attached to the upper central portion of said pan and extending to and along said handle, a rotary brush journaled in said plates directly behind said pan, and clutch-controlled gear for operating said brush, substantially as specified.



586,514. COMMUTATOR-TRUING DEVICE. PERCY R. BENWORTH, Fort Wayne, Ind. Filed Dec. 17, 1896. Serial No. 615,992. (No model.)



Claim.—1. A commutator truing or turning device, consisting of a two-part base adapted to be rotatably mounted on the armature-shaft; means for securing the same against longitudinal displacement; a hand-crank fixed in said base at right angles to the plane of the said shaft and provided upon its free end with an operating-handle; a driving-head vertically adjustable on said crank, laterally apertured for the tool-holder, and provided with an internally-screw-threaded revoluble sleeve arranged on the same axial line with said lateral aperture; a cylindrical tool-holder mounted in said sleeve and said aperture, as shown, arranged in parallel relation with the said shaft, carrying a cutting-tool upon its working end and having in its rear end a rigid screw adapted for a horizontal feeding engagement with said sleeve, as described; a feed-wheel fixed on said sleeve and adapted for an actuating engagement with a feed-pin arranged in a fixed position relatively to said shaft, all substantially as described.

2. In a hand turning device for truing or turning down commutators, the combination of a hand-crank rotatably mounted upon the armature-shaft by means of a pair of adjustable and separable supporting-blocks; a two-part separable collar fixed on said shaft for the purpose specified; an actuating feed-pin fixed in said collars as shown; a laterally-apertured driving-head slidably mounted on said crank, having a pair of screw-threaded collars to afford a limited vertical adjustment as described, and having a forwardly-projecting rotatably-mounted and internally-screw-threaded sleeve whose longitudinal opening is coincident with said lateral aperture in the driving-head; a reciprocating tool-holder mounted in said driving-head and threaded sleeve as described, carrying in its working end a cutting-tool, and provided at its rear end with a rigid screw adapted for a horizontal feeding engagement with said sleeve; a rigid feed-wheel mounted on said sleeve and adapted for an actuating engagement with said feed-pin, substantially as described.

3. In a commutator truing or turning device, a driving-head provided with a revoluble feeding-sleeve for the reciprocating tool-holder; a tool-holder loosely mounted in said head, arranged in said sleeve by a screw-threaded connection, and adapted for a longitudinal feed therein; a rigid screw 13 mounted as shown, in the rear end of said sleeve, and having a horizontal feeding engagement therewith, a cutting-tool adjustably mounted in the working end of said tool-holder; a feed-wheel 10 fixed on said sleeve to rotate the same; means for rotatably mounting said driving-head on the armature-shaft with the reciprocating tool-holder in parallel relation therewith; and an actuating feed-pin fixed as shown in cooperative relation with said wheel for actuating the said feed-wheel, all substantially as described.

4. The combination in a commutator-truing device of a driving-head having a revoluble feeding-sleeve for the reciprocating tool-holder; a tool-holder loosely mounted in said head and arranged in said sleeve by a screw-threaded connection and adapted for a longitudinal feed therein; a rigid screw 13 mounted as shown in the rear end of said sleeve and having a horizontal feeding engagement therewith; a cutting-tool adjustably mounted in the working end of said tool-holder; a feed-wheel fixed as shown on said sleeve to rotate the same; means for rotatably mounting said driving-head on the armature-shaft with the reciprocating tool-holder in parallel relation therewith; and means for actuating the said feed-wheel, all substantially as described.

586,515. STAPLING-MACHINE. LEE S. BURRIDGE, New York, N. Y., assignor to the Century Machine Company, same place. Filed Jan. 4, 1897. Serial No. 617,871. (No model.)



Claim.—1. In a stapling-machine, the combination of a vertical slide or plunger, a bender suspended therefrom, a stationary anvil in the path of descent of the bender, means for retreating said bender after the formation of the staple about said anvil, a driver, and a paper-support beneath said anvil.

2. In a stapling-machine, the combination of a bed-plate, a framework, a stationary anvil supported by said framework above the bed-plate, a slide or plunger guided in said framework, and a bender loosely suspended from said slide or plunger and also independently guided in said framework.

3. In a stapling-machine, the combination of a slide or plunger, a stationary anvil, a bender carried by said slide or plunger and adapted to cut the staple material to staple size and to form the staple about said anvil, means for retreating said bender during the continued descent of the slide or plunger and causing said bender to remove the staple from the anvil and take it to a position in line with a clenching device, means for bringing said bender down upon the material to be stapled during a further descent of said slide or plunger, and a driver also connected to said slide or plunger and adapted to be moved independently during the final descent thereof and to force the legs of the staple through the material and, with the clenching device, cause them to be clenched or upturned on the under side of said material.

4. In a stapling-machine, the combination of a bed-plate having a clenching device, a framework, a slide or plunger adapted to slide therein, a stationary anvil supported by said framework above the bed-plate, a bender suspended from said slide or plunger, a driver also suspended from said slide or plunger and movable independently in said bender, and means for retreating said bender and driver after the formation of the staple, but before the completion of the descent of the slide or plunger, and means whereby, during the latter portion of the descent of the slide or plunger, the bender carrying the staple is first brought down upon the material to be stapled and then, during the final portion of the descending movement of the slide or plunger, the driver is forced down independently and causes the legs of the staple to be driven through the material.

5. In a stapling-machine, the combination of a bed-plate having a clenching device, a framework having a stationary anvil and guiding-slots, a spring-pressed slide or plunger having an L-shaped slot, a bender suspended from said L-shaped slot and having guiding-pins adapted to the guiding-slots in the framework, and a driver also suspended from said L-shaped slot.

6. In a stapling-machine, the combination of a bed-plate having a clenching device, a standard, a pair of side or cheek plates having guiding-slots, a front plate having an anvil and an inclined guideway for the wire or other material, a spring-pressed plunger comprising a plate-like portion, a rod or shank, and a head, and having in said plate-like portion an L-shaped slot, a bender suspended from said slot and having a spring and also guiding-pins adapted to the guiding-slots in said cheek-plates, and a driver also suspended from said L-shaped slot and adapted to slide independently in said bender.

7. In a stapling-machine, the combination of a bed-plate having a clenching device, a standard, a pair of cheek-plates terminating above said bed-plate and provided with guiding-slots comprising the vertical portions 15 and 17 and the intermediate inclined portion 16, the front plate having an anvil and a mouth or opening above said anvil, inclined slots in the cheek-plates communicating with said mouth or opening, a slide or plunger having an L-shaped slot, a bender suspended from said slot, a driver also suspended from said slot and adapted to slide independently in said bender, a spring connected to said bender and to said slide or plunger, and a returning-spring for said slide or plunger.

8. In a stapling-machine, the combination with an anvil and a bender, of a front plate having a mouth or opening above said anvil adapted to receive and support the wire or other substance to be cut and formed into a staple.

9. In a stapling-machine, the combination of a bender, a front plate having an anvil attached thereto at its lower end and having a mouth above said anvil, and side plates having slots communicating with said mouth.

10. In a stapling-machine, the combination with an anvil and a bender, of an open-mouthed inclined receptacle arranged over said anvil for the introduction and support of the material to be formed into a staple.

11. In a stapling-machine, the combination of a bed-plate, a standard, two side plates having each a pair of guiding-slots, one over the other, and consisting each of the vertical portions 15 and 17 and the intermediate inclined portion 16, the front plate supporting the fixed anvil, the wire-receptacle above said anvil, a slide or plunger, a bender loosely carried thereby so that it may be retreated, and guiding-pins on said bender adapted to the two pairs of slots in said cheek-plates.

12. In a stapling-machine, the combination of a slide or plunger, a bender suspended therefrom at its upper end and adapted to be retreated or moved transversely of the path of movement of said slide or plunger, and means for retreating said bender during the depression of said slide or plunger, after the formation of the staple.

13. In a stapling-machine, the combination of a slide or plunger, a bender supported therefrom at its upper end and adapted to be retreated or moved transversely of the path of movement of said slide or plunger, projecting pins on said bender, and inclined slots or walls for retreating said bender during the descent of said slide or plunger, after the formation of the staple.

14. In a stapling-machine, the combination of a slide or plunger having an L-shaped slot, a bender suspended from said slot and provided with laterally-projecting pins, a fixed anvil, and side plates having guiding-slots comprising the vertical parallel portions 15 and 17 and the inclined portions 16 to cooperate with said laterally-projecting pins in the bender.

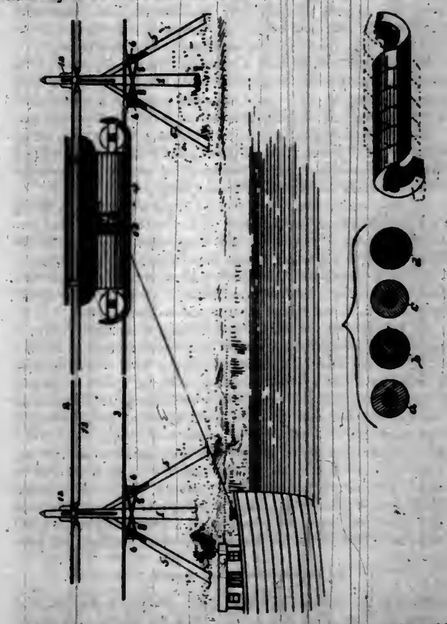
15. In a stapling-machine, the combination of an anvil, a bender having longitudinal grooves adapted to receive the legs of the formed staple, a driver adapted to reciprocate in said grooves and formed at its end with a transverse recess adapted to receive the crown of the staple, means for retreating said bender and driver, means for forcing the bender down onto the material in advance of the driver, and means for then depressing the driver and forcing the staple-legs through the material and clenching the same.

16. In a stapling-machine, the combination of a bed-plate having a clenching device, an anvil arranged above said bed-plate, a slide or plunger, a bender and a driver suspended therefrom, means for simultaneously retreating the bender and the driver, and means whereby the said slide or plunger is thereafter enabled to first cause the bender to clamp the material and then cause the driver to force the legs of the staple through the material and clench the same.

17. In a stapling-machine in which the staple is formed, retreated, inserted and clenched at one blow, the combination of a slide or plunger which receives the blow, a bender and a driver suspended therefrom, an anvil, means for retreating the bender and the driver, and a paper bed or support below the anvil and having a clenching device.

586,516. ELECTRIC TELPHER TOWING SYSTEM. HARDING F. GRAY, Passaic, N. J., assignor, by direct and mesne assignments, to the International Electric Transit Company, New York, N. Y. Filed Feb. 14, 1894. Renewed Oct. 19, 1896. Serial No. 609,366. (No model.)

Claim.—1. In an electric towing system, poles placed along the canal, braces placed to resist lateral and longitudinal strain upon said poles, a track supported in brackets extending from said braces, another track secured in brackets projecting from the upper ends of said poles, and a motor constructed to run between said tracks, substantially as shown and described.



2. In an electric towing system, a series of poles located outside of the tow-path and braced against lateral and longitudinal strains, electric tracks or cables one mounted upon said braces and another upon said poles, a motor running upon said tracks, and means for connecting said motor to a canal-boat.

3. In a telpher system, the combination with suitable supports located along the line of way, of an electric traction-cable supported thereby, a sectional working-circuit cable with each section insulated from the others at said supports and attached at its ends thereto, a feed-wire, taps leading from the feed-wire to each section of the working circuit at one of the attached ends thereof, switches in said taps, and magnets for operating said switches energized from a source of power carried by a car running on said cables.

4. In a telpher system, the combination with suitable supports, of the traction-cable used as a common return, the sectional working-circuit cable having long sections exteeding from one support to another and short sections located at the supports, the feed-wire with its taps leading to the long sections of the working circuit, branches from said taps leading to the short sections, electromagnetic switches located in said taps, a motor constructed to run on said cables, and a source of current thereon for successively closing said switches and transmitting the current to the traction-cable to hold each switch closed so long as the motor is on the section connected thereto.

5. In a telpher system, the combination with the traction-cable acting as the return-circuit, of a feed-wire, a working-circuit cable divided into sections extending from one support to another, short sections of said working-circuit cable interposed and insulated from the longer ones, an electromagnet located in a connection extending from a short section to one of the adjacent longer sections, an armature controlled thereby for closing circuit from the feed-wire to the working circuit, and a source of current carried on the train for closing circuit through said magnet.

6. In a telpher system, the combination of a feed-wire, a working-circuit conductor divided into sections extending from one support to another, short intermediate sections insulated from the longer ones, an electric light in a return-circuit branch leading from a short intermediate section, an electromagnet located in a connection extending from a short section to one of the adjacent longer sections, an armature controlled by said magnet for closing circuit from the feed-wire to the light and to the working circuit, and means for closing circuit through said magnet.

7. In a telpher system, the combination with an upper and a lower cable, of a car constructed to overhang the lower cable and provided with a suspension-trolley for engagement with the upper cable.

8. In an electric telpher system, the combination with the car traveling on the track thereof, of opposed gripping electrical contact-wheels carried by said car, a motor for rotating said wheels, a regulable tension device determining the gripping effect of said wheels upon the track, and means for throwing said wheels into and out of engagement with the track.

9. In a telpher system, the combination with the car and its track, of rotating shafts hinged at one end to the frame of the car and carrying gripping propelling-wheels engaging with the track, and a tension device for said wheels for causing them to grip said track and propel the car.

10. In a telpher system, the combination with the car and its track, of hinged shafts carrying gripping-wheels and also carrying a motor for rotating said wheels, and a tension device for causing said wheels to grip the track.

11. In a telpher system, the combination with the car and its track, of hinged shafts carrying gripping-wheels, a motor for rotating said wheels, and means for causing the wheels to grip the track and propel the car.

12. In a telpher system, the combination with a car and its track, of rotating shafts suspended by ball-and-socket joints, traction grip-wheels on said shafts engaging with the track, gear-wheels also on said shafts, and rotary motors carrying gears in mesh with said gear-wheels.

13. In a telpher system, the combination, with a car and its track, of a pair of shafts hinged on each side of one rail or cable of said track, a casing supported on each pair of shafts, a motor therein carrying gears on either end of its driving-shaft in mesh with gears on the hinged shafts, and traction-wheels engaging with said rail or cable.

14. In a telpher system, the combination with a car and its track, of a pair of shafts hinged on each side of the traction rail or cable of said track, an electric motor supported on each pair of shafts and provided with worms at the ends of its armature-shafts, gears upon said hinged shafts in mesh with said worms, grip-wheels located on the hinged shafts, and means for swinging said wheels to and from said rail or cable.

15. In a rotary traction-grip, the combination with the hinged shafts carrying the gripping-wheels, of a rod connected to said shafts, a spring operating thereon to swing the gripping-wheels toward each other, and means for swinging said wheels in the reverse direction.

16. In a rotary traction-grip, the combination with the hinged shaft carrying the gripping-wheels, of a rod connected to said shafts, a spring operating thereon to press said wheels toward each other, means on said rod for changing the tension of said spring, and a device for depressing said rod against the action of said spring to move the wheels away from each other.

17. In a rotary traction-grip, hinged shafts carrying the gripping-wheels, a screw-threaded spring-seated rod connected to said shafts, a hand-wheel on said rod for rotating it to change the tension of said spring, a screw-threaded sleeve encircling said rod and turning in a fixed nut, and a hand-wheel upon said sleeve provided with means for engaging said rod to force the grip-wheels from each other.

18. The combination with a traction cable or rail of a rotary traction-grip, a spring for holding the grip in engagement with the cable or rail, a tension device for said spring, and means for depressing the spring to throw the grip out of engagement.

19. The combination with the hinged shaft fluted at its lower end to form integral splines, of the grooved grip-wheel with its bore radially grooved to fit said splines, and a stop for retaining said wheel on its shaft.

20. The bracket for the traction-cable, provided with a prolonged loop for the reception of said cable, a depression in one side of the interior of said loop and with perforations opposite said depression one of which is screw-threaded, in combination with a plate to be placed under the screw-threaded perforation to receive the end of a tool used in depressing the cable.

21. The combination with a trolley-wheel concaved at its ends and mounted upon a fixed axle, insulated bushings for said axle, and concaved spring-disks confined within the concavities of the wheel between said bushings and the periphery of said wheel.

22. In a car for a telpher system, the combination with the main body portion thereof, of the motor and grip located below the floor of the car, grip-controlling devices projecting above the floor, and extensions from the sides of the car-body forming shields for the motor and grip.

23. The combination with the sides and floor of the car, of the mid-ribs in which the supporting-wheels are journaled, and the motors and grip mechanism attached to said mid-ribs.

24. The combination with a suspension-trolley wheel, of a support therefor provided with opposed apertures the side walls of which are beveled outward, journal-boxes for the trolley-axle beveled to fit

said apertures and mounted on springs therein, and guide-rods passing through said boxes and springs for retaining them in place.

25. The combination with the sides and floor of the car, of the mid-ribs extending therethrough, wheels journaled therein, motors and grip mechanism attached thereto, the split keel secured to said mid-ribs and passing beneath said mechanism and furnishing attachment for the extension of the sides of the car.

26. In a telpher system, the combination with a car provided with suspension-trolleys, of a cover for said trolleys extending from one to another and acting as a brace therefor.

27. In a telpher system, the combination of a sectional conductor, a car having suspension-trolleys running thereon, and a cover for said trolleys extending from one to the other to act as a brace therefor and suitably insulated from said trolleys.

28. A fastening for the end of a cable or conductor consisting of a block of conducting material provided with a channel therein through which the end of a conductor may pass, be recurved and secured, and means for securing the core of said conductor to said block.

29. A fastening for the end of an electric cable consisting of a block of malleable metal provided with a channel therein through which the end of the cable may pass and be recurved, and with a clip which may be driven down upon said recurved end.

30. The combination with a bimetallic cable, of a fastening for the end thereof consisting of a block of malleable metal provided with a channel therein through which the end of the cable may be passed and recurved, a clip for confining said recurved end, and means for securing the core thereof to said block.

31. In a telpher system, insulated conducting-sections of cable, and a coupling for joining the ends of adjacent sections provided with a section of conductor interposed between and insulated from the sections of cable and forming a part of a controlling-circuit in said system.

32. In a telpher system, the combination with a coupling for two sections of cable, of a graduated resistance mounted on the coupling between the ends of said sections to be engaged by the current-collector, as it passes from one section to the other.

33. A coupling between two sections of a conductor consisting of two metallic blocks provided with fastening means for said sections, insulation interposed between said blocks, and bolts for securing the two blocks together.

34. A coupling between two sections of conductor consisting of two metallic blocks one secured to the end of each section, a graduated resistance adjacent to each block, insulation interposed between said resistances, and bolts for securing together said blocks, resistances and insulation.

35. In a sectional conductor, the combination of the blocks secured to the ends of two sections, an interposed short section, insulation between the short section and said blocks, and means for securing together the blocks, short section and interposed insulation.

36. In a sectional conductor, the combination of the blocks secured to the ends of two meeting sections, an interposed short section, graduated resistances adjacent to the blocks and to the ends of said short sections, insulation between said resistances, and means for securing said parts together.

37. In a sectional conductor, the combination of blocks secured to the ends of two meeting sections, an interposed short section, insulation between said blocks and short section, projecting plates embedded in said insulation, bolts securing together said blocks, short section, insulation and plates, and means for securing said plates to a suitable support.

38. The combination with a suspended cable, of a securing means therefor consisting of a fixed plate provided with a perforation at one side of the cable, a detachable plate provided with a tongue fitting into said perforation, and means for clamping said plates together.

39. The combination with a suspended insulated electric cable, of a securing-clamp therefor, consisting of two plates hinged together one of which is provided with means for piercing the insulation and penetrating into the meshes of the cable.

40. The combination with an electric cable, consisting of several strands, of a tap connected thereto consisting of a clamp provided with a suitable conductor or contact and with several internally-projecting prongs for entering in between the meshes of the cable and making permanent contact therewith.

41. A switch-box secured to a suitable support, an electric cable passing therethrough, insulating-posts secured to the box on either side of the cable for supporting it, a cover for said box, and screws passing through said cover and into said posts.

42. The combination with a post, of a hollow bracket-arm with a screw-threaded end projecting through said post and serving as a conduit for conductors, of a switch-box screwed to said arm and secured to the post.

43. In an electric switch, the combination of a holder provided with contact-surfaces, and a magnet provided with strips of insulation and removably fitted to said holder and having the ends of its coils exposed and extended along said insulation for engagement with said contact-surfaces.

44. The combination with a suitable base, of conducting-posts arising therefrom and provided with means for securing conductors thereto, of a magnet provided with insulated ways for removably fitting it to said posts and having the ends of its coils bared and extended along said guideways for engagement with said posts.

45. The combination with a suitable conducting-support, of a magnet removable therefrom provided with insulated guideways, an armature pivoted to one of said ways and carrying a contact-bar, and transmitting and receiving contacts for engagement by said bar.

46. The combination with a pivoted armature-lever, of a spring therefor partially coiled about its pivot and having one end secured to the armature-support, and a tension-screw secured to the armature and engaging the free end of said spring.

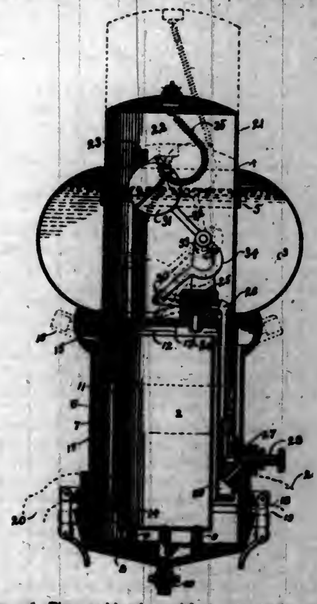
47. The combination with a pivoted armature-lever, of a spring having one end secured to the pivot of the lever and the other projected at the back of said lever, and a tension-screw pivoted to the back of the lever and engaging the projecting end of the spring.

48. In a bimetallic cable, the combination with an inner conductor, of an outer conductor consisting of spiral strips or bands substantially as shown wound thereon and welded together.

49. In a telpher system, the combination of an upper track or cable, a lower track or cable, one of said tracks serving as an electric lead and the other as an electric return, a car traveling between said cables, two or more electric motors in the car driven by the current from the tracks, and a gripping propelling device independent of the supporting-wheels of the car engaging one of said tracks, said devices consisting of several sets of wheels each set provided with a motor and operating on the side of the track opposite to another set.

50. In an electric railway, the combination with a car and its tracks of a frame hinged to suitable supports on the car, a motor mounted on said frame and traction gripping-wheels on shafts geared to said motor and journaled in said frame, said frame being adapted to swing toward the track for the engagement therewith of the gripping-wheels.

586,517. ACETYLENE-GAS LAMP. CHARLES G. HAWLEY, Minneapolis, Minn. Filed May 1, 1897. Serial No. 634,700. (No model.)



Claim.—1. The combination, with a water tank or reservoir, of a holder for gas-producing material, a water-duct between them, a valve provided in said duct, and means whereby as the level of water falls in said tank the opening through said valve is increased, substantially as described.

2. The combination, with a water tank or reservoir, of a holder for gas-producing material, a water-duct connecting the same, a valve in said duct, and a float in said tank connected with said valve to gradually open the same in proportion to the fall of the head of water in said tank, substantially as described.

3. The combination, with a suitable holder for gas-producing material, of a water-supply therefor, a valve in connection therewith, and means for regulating the opening of said valve in proportion to the water-pressure, as and for the purpose specified.

4. The combination, with a suitable holder for gas-producing material, of a water-supply tank communicating therewith, a valve in said duct, means in connection therewith for proportioning the size of the opening through the valve to the water-pressure, a movable part effected by the accumulation or pressure of gas, and a connection between the same and said valve to close said valve, substantially as described.

5. The combination, with a suitable holder for gas-producing material, of a water tank or reservoir arranged above the same, a water-duct through which the water flows from the tank to said holder, and a valve in said duct, said duct having a vertical part wherein a column of water is opposed to the gas-pressure within said holder, substantially as described.

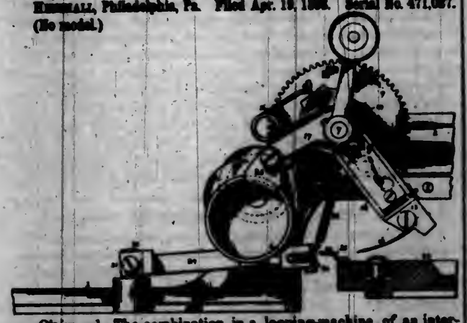
6. The combination, with a suitable gas-producing-material holder, of a gas space or chamber surrounding the same, a water-tank arranged above said holder, a water-leg depending from said tank into said space, said space having a gas-outlet, and said tank having an outlet through which the water enters said holder, substantially as described.

7. The combination, with the gas-producing-material holder, of a water-tank arranged above the same and having an opening or duct through which the water enters said holder, a water-leg depending from said water-tank and surrounding said holder, a movable gas-holder arranged in said tank and dropping into said water-leg, and a gas duct or pipe extending upward through said tank from said holder to the said gas-holder, substantially as described.

8. The combination, with the holder for gas-producing material, with a gas-space surrounding the same, a water-tank arranged above said holder, a water-leg depending therefrom into the space around said holder, both the inner and the outer surfaces of said water-leg being exposed to contact with the gas, a gas-outlet from said space, and means for feeding the water from said tank into said holder, substantially as described.

9. The combination, with the water-tank and the outer wall 7, of the water-leg depending from said tank and within said wall or cylinder 7, the holder for gas-producing material adapted to be inserted upward into the space within the inner wall of the water-leg, the bottom 8 detachably secured upon the lower end of said wall or cylinder 7, said tank having a duct or opening through which water enters said holder, and said gas-space having an outlet, substantially as described.

586,518. MACHINE FOR SEWING LOOPED FABRICS. SAMUEL HERSHALL, Philadelphia, Pa. Filed Apr. 19, 1886. Serial No. 471,027. (No model.)



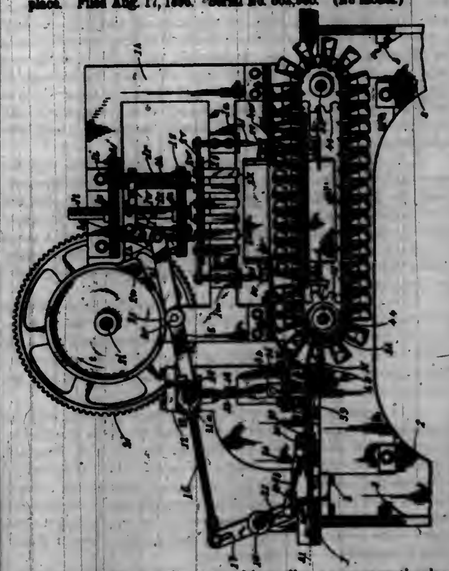
Claim.—1. The combination in a looping-machine, of an intermittently-rotated disk having projecting points to which the loops of the webs to be united are applied, a vibrating lever, an arm mounted upon the same so as to be capable of sliding toward and from the axis of vibration of the lever, a needle so mounted upon said arm that it will move in a plane parallel with the loop-holding points, a cam which serves to move the needle-arm away from the axis of vibration of the vibrating lever, and means for maintaining an engaging element of said arm in contact with said cam, substantially as specified.

2. The combination in a looping-machine, of an intermittently-rotated disk having projecting points to which the loops of the webs to be united are applied, a vibrating lever, an arm mounted upon the same so as to be capable of sliding toward and from the axis of vibration of the lever, a needle so mounted upon said arm that it will move in a plane parallel with the loop-holding points, a cam acting upon said needle-arm and serving to move the same away from the axis of vibration of the vibrating lever, and a spring acting upon said needle-arm and serving to move it in the opposite direction, substantially as specified.

3. The combination in a looping-machine, of an intermittently-rotated disk having projecting points to which the loops of the webs to be united are applied, a pivoted lever, a shaft having means for vibrating said lever, an arm mounted upon the vibrating lever so as to be capable of sliding toward and from the axis of vibration of the same, a needle so mounted upon said arm that it will move in a plane parallel with the loop-holding points, a cam whereby the arm can be moved away from the axis of vibration of the vibrating lever, a shaft carrying said cam, gearing whereby said shaft is turned at one-half of the speed of the shaft which operates the vibrating lever, and means whereby an engaging element of the arm is maintained in contact with the cam, substantially as specified.

4. The combination in a looping-machine, of a circular disk having radial projecting points to which the loops of the webs to be united are applied, a vibrating needle, a looper-hook, an arm carrying the same and having at the rear a projecting leg with a vertical pivotal bearing, and means for operating said parts, the looper and the pivot-leg projecting from the same side of the looper-arm, and the looper-hook, the axis of the looper-arm and the work-holding point which carries the loops that are being joined being in the same transverse plane, so that the acting portion of the looper-hook is, at its opposite extremes of movement, substantially equidistant from the point carrying the loops which are being joined, substantially as specified.

586,519. MEANS FOR MAKING CELL-CASES. HENRY C. HESS, Port Huron, Mich., assignor to the American Egg Case Company, same place. Filed Aug. 17, 1896. Serial No. 602,960. (No model.)



Claim.—1. In a machine for making cell-cases, a supporting base or table, having two feeding, punching, and cutting mechanisms located on the table at right angles to each other, means for operating them and for holding the paper to be fed therein, one strip being moved in a direction transversely to the movement of the other, in combination with two endless sprocket-chains mounted on sprocket-wheels at right angles to each other on shafts set in boxes on the frame of the machine and carrying clamping and holding jaws for receiving, holding and delivering the cell-case blanks, parts of each sprocket-chain passing between the upper and lower portions of the other, and means for giving each sprocket-chain and its cooperating mechanism, an intermittent movement, for the purposes described.

2. In a machine for making cell-cases, the combination with the beaters, the two endless carrier sprocket-chains and sprocket-wheels mounted at right angles to each other, their holding and clamping jaws and means for giving them an intermittent movement, of means for turning the hook portions 51^1, of the lower cell-blanks to one side out of the way while the upper cell-blanks are being forced into place by the beaters, substantially as described.

3. In a machine for making cell-cases, the combination with the feeding, punching and cutting mechanism, and the lower endless sprocket-chain mounted on sprocket-wheels on shafts set in bearings on the frame of the machine and carrying a series of clamping-jaws, the movable jaws of each clamping-jaw carrying an operating-bar,

of means for giving the sprocket-chain and its clamping-jaws an intermitting forward movement, circular disks mounted on the sprocket-wheel shaft opposite the feeding, punching and cutting mechanism, over which the lower ends of the clamp-jaw-operating bars move and keep the jaws open to receive the paper blank from the cutting mechanism, and tracks over which the operating-bars pass and close the clamping-jaws and hold the lower paper blanks in parallel rows in position to receive the upper blanks, substantially as described.

4. In a machine for making cell-cases, the combination with two endless sprocket-chains mounted on sprocket-wheels at right angles to each other, on shafts set in boxes on the supporting-table, means for giving the required intermittent movement to each sprocket-chain, and the feeding, punching and cutting mechanism, of a series of clamping-jaws mounted at equal distances apart on the lower sprocket-chain, and means for operating them, for receiving and carrying the lower cell-blanks as they pass in succession, into each clamping-jaw from their feeding, punching and cutting mechanism, a series of holding-jaws and means for operating them mounted on the upper sprocket-chain, for receiving and carrying the upper cell-blanks as they pass into each holding-jaw from their feeding, punching and cutting mechanism, and mechanism as described for forcing the upper parallel series of cell-blanks down into engagement with a lower parallel series of cell-blanks assembled at right angles to the upper series.

5. In a machine for making cell-cases, two sprocket-chains mounted on sprocket-wheels in suitable boxes on the machine so that one side of each chain extends at right angles to and through between the upper and lower sides of the other, and means for giving said chains a simultaneous intermittent forward movement, in combination with a series of clamping-jaws mounted upon the lower chain and means for operating them, for receiving and carrying a series of lower cell-blanks in parallel order, a series of holding-jaws and means for operating them mounted on the upper chain for receiving and carrying a corresponding series of upper cell-blanks in a corresponding parallel order at right angles to and above the lower series of cell-blanks, preparatory to forcing them down into engagement with the lower series of cell-blanks and thereby completing a cell-case, substantially as described.

6. In a machine for making egg-cases; the combination with the upper endless sprocket-chain, the beaters and their operating mechanism for forcing the upper cell-blanks into engagement with the lower cell-blanks, of a series of holding-jaws mounted on the upper endless sprocket-chain, each holding-jaw being provided with a series of vertical recesses which, when the two members of the jaws are closed, form vertical openings through which the beaters operate for the purposes described.

7. In a machine for making cell-cases, the combination with the operating-bars, the clamping-jaws, the sprocket-chain and its operating mechanism, of disk-wheels mounted on the sprocket-wheel shaft at the head of the sprocket-chain carrying said clamping-jaws, for limiting the opening of the clamping-jaws as the operating-bars are carried by the sprocket-chain around said disks.

8. In a machine for making cell-cases, the combination with the operating mechanism, the shafting and sprocket-wheels mounted at the ends of said shafting of two duplicate sprocket-chains, arranged parallel to each other and adapted to engage with the sprocket-wheels on the shafting, a base portion arranged between and extending from each link on one chain to its companion link on the opposite chain so as to locate the said base portion at substantially right angles to the running direction of the chains, and a series of clamping-jaws mounted on said base portions.

9. In a machine for making cell-cases, the combination with the operating mechanism and sprockets mounted on the shafting thereof, of a clamping-jaw sprocket-chain, each link of which consists of a plurality of clamping-jaws arranged along and extending from a base portion, a plurality of movable jaws coöperating with said clamping-jaws, and chain-links at each end of said base portion, fitting said sprockets.

10. In a machine for making cell-cases, a base portion, a series of clamping-jaws extending upward from the base portion, and provided with openings 50, and a chain-link rigidly secured to each end of the said base portion, in combination with a series of movable clamping-jaws extending upward from a base portion pivoted between the chain-links, and inward-extending curved portion on each jaw, and means for operating them, for turning outward the hook portion 51, on the lower blanks for the purposes described.

11. In a machine for making cells, the combination with the operating mechanism of devices forming a portion of said operating mechanism for bending and holding the hook portions of the lower or male blanks at substantially right angles thereto during the interval of time required to force or press the upper or female blanks into proper engagement with the said lower blanks.

12. In a machine for making cell-cases, the combination with the beaters, the upper holding-jaws, the sprocket-chain upon which they are mounted and means for operating them, of the pivoted plates 88, and means for turning them out of the way to allow the upper cell-blanks to be forced down through the holding-jaws by the beaters, substantially as described.

13. In a machine for making cell-cases, the combination with the operating mechanism, of means substantially as described for bending the hook portions of the male blanks out of the way to form an unobstructed opening for the female blanks to pass into.

14. A machine for making cell-cases, consisting of mechanism for feeding, punching, cutting and assembling an upper and lower series of cell-blanks simultaneously, mechanism for temporarily turning the hook portions of the lower blanks sufficiently to leave free openings, and mechanism for forcing the upper series of blanks into engagement with the lower series to form a cell-case.

15. In a machine for making cell-cases, the combination with the operating mechanism, of a series of combined sprocket-chain links and clamping-jaws, each of said series consisting of a base portion, fixed jaws rigidly depending from said base portion, a series of pins projecting from said base, at substantially right angles to the fixed jaws and a series of movable jaws.

16. In a machine for making cell-blanks, the combination of two endless sprocket-chains mounted at right angles to each other on sprocket-wheels and shafts located on the machine so that one side of each chain passes between the upper and lower sides of the other, mechanism for operating said sprocket-chains, sprockets and shafts intermittently, feeding mechanism, clamping and holding jaws mounted on said chains for receiving the paper blanks fed to each simultaneously and simultaneously carrying a series of lower and upper transverse paper cell-blanks and holding them, and means for releasing and moving the transverse cell-blanks down into engagement with the lower cell-blanks during one of said intermissions, substantially as described.

17. In a machine for making paper blanks, a combined sprocket-chain link and clamping-jaw, consisting of a series of clamping-jaws 45, having side openings 50, extending up from a base portion 45ᵇ, provided with a series of pins 45ᶜ, and a chain-link rigidly secured to each end thereof, in combination with a corresponding series of clamping-jaws 46, extending upward from a base portion 46ᵇ, pivoted between the chain-links, the base portion 46ᵇ, having a series of openings 45ᵈ, to receive the pins 45ᶜ, as described.

18. In a machine for making cell-cases, the combination with the operating mechanism, of a series of combined sprocket-chain links and clamping-jaws, each of said series consisting of the base portions, 45ᵇ, jaws 45, chain-links, 44 44ᵃ, and pins 45ᶜ, all formed in one integral piece, and the movable jaws 46ᵇ, pivotally connected to said base portions.

19. In a machine for making cell-cases, the combination with the feeding, punching and cutting mechanism, of two endless sprocket-chains mounted on sprocket-wheels set in boxes on the machine-frame, the chains being mounted at right angles to each other so that one side of each moves between the upper and lower sides of the other; a series of holding and clamping jaws and means for operating them mounted on said chains, means for giving said chains a simultaneous step-by-step movement with simultaneous stationary intervals between each step, for receiving and carrying a series of seven upper and seven lower cell-blanks to a point where the seven upper cell-blanks are located directly over and at right angles to the lower cell-blanks, and a series of beaters and means for operating them for forcing the upper cell-blanks down into engagement with the lower cell-blanks while the two sprocket-chains and their holding and clamping jaws remain stationary, substantially as described.

20. In a machine for making cell-cases, the combination with the beater-frame and its connecting mechanism, of the vertical bars 3ᵇ, attached to said beater-frame so as to operate with it, and the pivoted plates 88, and cam 3ᶜ, for operating it, substantially as described.

21. A machine for making cell-cases, consisting of the following elements, means located at right angles to each other for feeding, punching and cutting an upper and lower series of cell-blanks simultaneously, means for receiving and assembling the lower cell-blanks in parallel rows during regular intervals of time until a sufficient number has been assembled, means for simultaneously receiving and assembling during the same intermissions of time, a corresponding series of upper transverse cell-blanks, and means for releasing and forcing the upper series of cell-blanks down into engagement with the lower cell-blanks during the interval that follows the completion of the two series of cell-blanks and thereby completing a cell-case as above set forth.

22. In a machine for making cell-cases, the combination of step-by-step mechanism for feeding, cutting, punching and assembling a lower series of cell-blanks and simultaneously therewith, an upper series of cell-blanks, mechanism for stopping said assembling mechanism for a brief interval, and mechanism for forcing said upper series of blanks into engagement with said lower series during said interval.

23. In a machine for making cell-blanks, the combination with the sprocket-chains and mechanism for intermittently operating the same, of mechanism for feeding the paper blanks, mechanism mounted on said sprocket-chains for receiving, holding and carrying an upper and lower series of cell-blanks, and mechanism for releasing and directing the upper series into engagement with said lower series during an intermission of the sprocket-chain-operating mechanism.

24. In a machine for forming cell-blanks, the combination with the feeding, cutting and punching mechanism, of mechanism operated intermittently for assembling an upper series and lower series of blanks simultaneously, and mechanism for bending the hook portions of the male blanks to afford a free passage for the female blanks into engagement with said male blanks.

25. In a machine for forming cell-cases, the combination of step-by-step mechanism for feeding, cutting and punching an upper and lower series of cell-blanks coincidently, for assembling the upper series of blanks in proper position above the lower series for bending the hooked portions on the lower series at an angle therefrom, for forcing said upper series into engagement with said lower series, and for releasing the hooked portions and allowing them to spring into engagement with and lock the upper series of blanks to the lower series to form a complete cell-case.

26. In a machine for forming cell-cases, the combination of step-by-step mechanism for feeding the paper into the machine, for cutting the strips, for punching said strips into blanks, and for assembling a lower series of cell-blanks in parallel order, step-by-step mechanism for feeding the paper into the machine, for cutting the strips, for punching said strips into blanks, and for assembling an upper series of cell-blanks in parallel order, vertically above and transversely to the lower series, each step on the upper series being performed coincident with its companion step on the lower series, mechanism for bending portions on the lower blanks out of the way to leave a free passage, mechanism for forcing said upper series into engagement with its lower series, and mechanism for releasing said bent portions and allowing them to spring into engagement with the upper series thus locking the two series together and forming a complete cell-case.

27. In a machine for making cell-cases, the combination of mechanism for forming and assembling an upper and lower series of cell-blanks, mechanism for turning the locking portions on one series sufficiently to leave free openings for the introduction of the other series and mechanism for forcing said upper and lower series of blanks into engagement to form a cell-case.

28. In a machine for forming cell-cases, the combination of mechanism for feeding, punching and cutting a series of upper blanks one by one successively, mechanism for feeding, punching, and cutting a series of lower blanks, one by one successively, mechanism for assembling a suitable number of said upper blanks in parallel order, and a similar number of lower blanks in parallel order, vertically below and transversely to the upper blanks, and mechanism for forcing said upper series vertically downward into engagement with said lower series.

29. In a machine for forming cell-cases, the combination of mechanism for feeding, cutting and punching one by one the blanks of one series and simultaneously therewith the blanks of the other series, mechanism for assembling the blanks of each series in parallel order, and one series transversely to the other, and mechanism for forcing the two series into engagement, to form a complete cell-case.

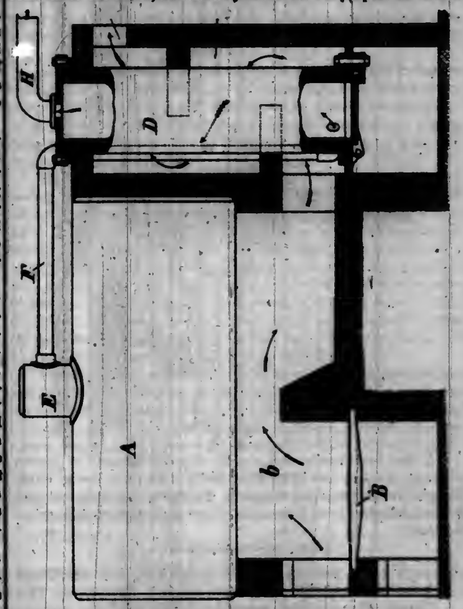
586,520. PROCESS OF REFINING PETROLEUM. George H. Moore, Cleveland, Ohio, assignor of seven-twelfths to Donald McKenzie and Charles R. French, same place, and John Van Horn, Jersey City, N. J. Filed Sept. 6, 1893. Serial No. 484,891. (No specimens.)

Claim.—1. The process of purifying Lima and Canadian petroleum-oils, and petroleums of that class, by removing the nitrogenous compounds and traces of the phenylic and naphthalene series by means of a porous compound of sodic hydrate, calcic hydrate and sulfate of soda in about the proportions specified, and which is applied to vapor of the oil previous to the removal of the sulfur, substantially in the manner described.

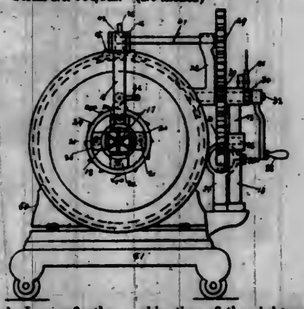
2. The process of purifying Lima and Canadian petroleum-oils, and similar petroleums, by vaporizing the same, and passing the vapors through a heated chamber or vessel containing a porous compound of sodic hydrate, calcic hydrate and sulfate of soda in about the proportions specified, and condensing the vapor so treated previous to the removal of the sulfur, substantially as described.

3. The process of treating Lima and Canadian petroleum-oils, and similar petroleums, by vaporizing the oil, passing the vapors through a heated vessel charged with a porous compound of sodic hydrate, calcic hydrate and sulfate of soda in about the proportions specified, condensing the vapor so treated, washing the resulting distillate with sulfuric acid, redistilling such distillate with hydrate of lime or its equivalent, and finally treating it with sulfuric acid and alkali and washing with water as and for the purposes described.

4. In the process of purifying Lima and Canadian petroleum-oils, and similar petroleums, the application to petroleum-vapors of a porous compound of sodic hydrate, calcic hydrate and sulfate of soda in about the proportions specified, which porosity admits of intimate mechanical and chemical union with said compound previous to the removal of the sulfur, substantially as and for the purpose described.



586,521. SAFE. Henry G. Moorman, Elizabeth, Pa. Filed Mar. 23, 1896. Serial No. 584,442. (No model.)



Claim.—1. In a safe, the combination of the right-angled arm connected to the door at one end, the shaft 27 secured to said arm at its opposite end and bearing in a bracket supported upon the safe, the spring-pressed rack, intermediate gearing between said rack and shaft, means for actuating said gearing and means for preventing reverse movement of said gearing, substantially as set forth.

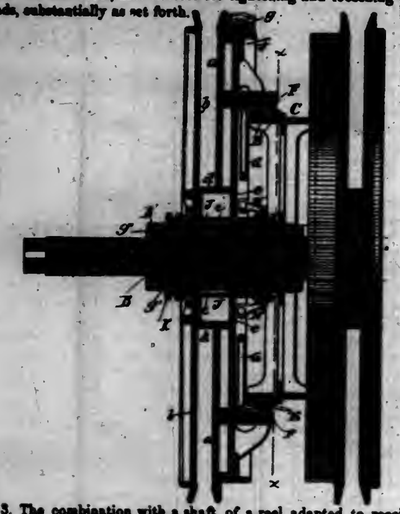
2. In a safe, the combination of the circular door having the face-plate, the hand-actuated shaft bearing at one end in said face-plate, a stationary casing, and the coiled spring connected to said shaft and casing and adapted to screw said door to its place, substantially as set forth.

586,522. WINDING-REEL FOR HOISTING-MACHINES. Stephen H. Fitch, Akron, Ohio, assignor to the Webster, Camp & Lane Machine Company, same place. Filed Aug. 20, 1896. Serial No. 604,207. (No model.)

Claim.—1. The combination with a main shaft, a pair of flat-rope-winding reels loose on the shaft, of a driving-head secured on the shaft in the space intervening between the two winding-reels, and clutching mechanism connected to the inside face of each reel and adapted to be made to engage the driving-head whereby said reels are secured to the shaft.

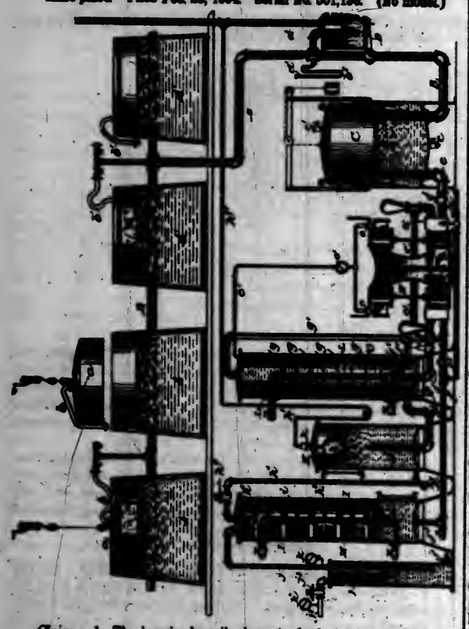
2. In combination with a main shaft, flat-rope-winding reels loose

on said shaft, and a friction-band attached to the inner face of each reel, of a driving-head having friction-surfaces for the two clutches, keyed to said shaft, and devices for tightening and loosening said bands, substantially as set forth.



3. The combination with a shaft, of a reel adapted to receive flat rope, the said reel being composed of two parts one of which has a cylindrical shoulder or seat for the rope and a brake-rim, and a clutch attached to and carried by the reel for locking said reel to the shaft.

586,523. METHOD OF AND APPARATUS FOR PRODUCING AIR-FREE CARBONIC-ACID GAS. JACOB F. THEURER and PAUL FEURER, Milwaukee, Wis., assignors to the Pabst Brewing Company, same place. Filed Feb. 23, 1894. Serial No. 501,126. (No model.)



Claim.—1. The herein-described method of obtaining carbonic-acid gas free from air, which consists in introducing mingled gas and air under pressure into a chamber containing a liquid capable of mechanically absorbing but incapable of chemically uniting with carbonic-acid gas, and substantially incapable of taking up air, whereby the gas is separated from the air; withdrawing the liquid containing the gas thus freed from air into another chamber; and liberating the gas from said liquid by reducing its pressure to a point materially below that at which absorption is effected but still above atmospheric pressure, substantially as and for the purposes set forth.

2. The method of obtaining carbonic-acid gas free from air, which consists in introducing mingled gas and air under pressure into a chamber containing a liquid capable of mechanically absorbing but incapable of chemically uniting with carbonic-acid gas, and substantially incapable of absorbing air, whereby a separation of the gas and air is effected; permitting the air thus segregated to escape; withdrawing the liquid containing the gas thus freed from air into another vessel; and finally liberating the gas from said liquid by reducing the pressure thereon to a point still above atmospheric pressure, substantially as and for the purpose set forth.

3. The method of producing air-free carbonic-acid gas, which consists in introducing mingled air and gas under pressure into a chamber with a liquid which is capable of mechanically absorbing but is incapable of chemically uniting with carbonic-acid gas, and is substantially incapable of absorbing air; whereby the gas is separated from the air and is bound and retained in the liquid, and the air is excluded therefrom; then withdrawing the liquid with its contained gas into another chamber; liberating the gas therefrom by reducing the pressure in the latter chamber to a point still above atmospheric pressure; and coptinuously returning the absorbing liquid into the first vessel, substantially as and for the purposes set forth.

4. In an apparatus for separating air from carbonic-acid gas, the combination of a gas-supply pipe or holder; a saturator; a liberator; pipes connecting the supply pipe or holder, the saturater and the liberator; and a return-pipe for conveying liquid from the liberator back to the gas-supply pipe; whereby the liquid is caused to circulate continuously through the apparatus without being exposed to the external atmosphere.

5. In apparatus for separating air from carbonic-acid gas, the combination of a saturater, a liberator connected therewith, a pump having a gas-supply connection and connected on the force side with the saturater and on the suction side with the liberator, whereby it is adapted to produce a continuous circulation of liquid through the saturator and liberator and to supply gas to the saturater under the required pressure, a pressure-reducing device between the saturater and liberator, and an air-separating device connected with the saturater, and comprising an escape-valve and a float arranged to operate said valve according to the varying level of liquid, substantially as and for the purposes set forth.

6. In apparatus for separating air from carbonic-acid gas, the combination of a saturater having a gas-supply connection, an air-separating chamber connected therewith and provided at or near the top with a float-valve and air-vent, and a liberator connected with the lower part of said chamber, substantially as and for the purposes set forth.

7. In apparatus for separating air from carbonic-acid gas, the combination of a saturater, a liberator connected therewith, a liquid-pump connected on the suction side with the liberator, and on the force side with the saturater, a gas-pump having a gas-supply connection on the suction side and connected on the force side with the suction side of the liquid-pump, and an air-separating device connected with the saturater, substantially as and for the purposes set forth.

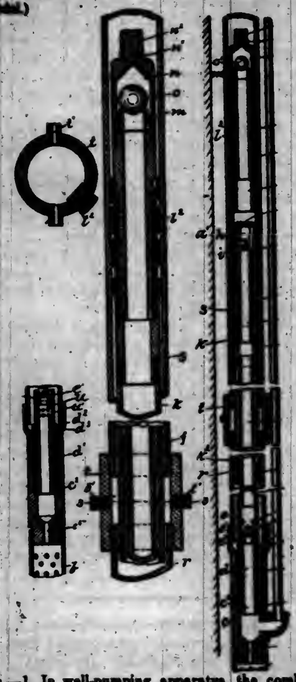
8. In apparatus for separating air from carbonic acid gas, the combination with a saturater, an air-separating device and a liberator connected therewith, of a liquid-pump connected on the suction side with the liberator, and on the force side with the saturater, a gas-pump having a gas-supply connection on the suction side and connected on the force side with the suction side of the liquid-pump, and a liquid-supply connection with the suction side of the gas-pump, substantially as and for the purposes set forth.

9. In apparatus for separating air from carbonic-acid gas, the combination with a saturater, an air-separating device and a liberator connected therewith, of a pump connected on the suction side with a source of gas and with the liberator, and on the force side with the saturater, and a pressure-regulated valve controlling the supply of the actuating medium to the pump and connected with the saturater, substantially as and for the purposes set forth.

10. In apparatus for separating air from carbonic-acid gas, the combination of a saturater provided with one or more perforated plates or partitions between its inlet and outlet, an air-separating device connected therewith, a liberator connected at its upper end with said saturater and provided with a number of deflecting-plates, a pressure-reducing device in the connection between the saturater and liberator, a gas-supply connection with the saturater, and a gas-delivery connection with the upper part of the liberator, substantially as and for the purposes set forth.

11. In apparatus for separating air from carbonic-acid gas, the combination of a saturater provided with a cooler, an air-separating device connected with said saturater, a liberator connected with said saturater and provided with a heater, and a pump connected with the saturater and with a source of unpurified gas, substantially as and for the purposes set forth.

586,524. PUMPING APPARATUS FOR WELLS. JAMES S. THEURER, Taylorstown, Pa. Filed Jan. 18, 1895. Serial No. 535,283. (No model.)



Claim.—1. In well-pumping apparatus, the combination of a working barrel, a second working barrel of smaller diameter, and pistons operating in said working barrels and of correspondingly-different diameters, said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

2. In well-pumping apparatus, the combination of an outer working barrel, and inner working barrel of smaller diameter, pistons operating in said barrels and of correspondingly-different diameters, said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

3. In well-pumping apparatus, the combination of an outer working barrel, a piston moving therein, a working barrel of smaller diameter carried by said piston, and a stationary piston within said inner working barrel, said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

4. In well-pumping apparatus, the combination of a working barrel, a piston moving therein, a working barrel of smaller diameter carried by said piston, and a stationary piston within said smaller working barrel, said stationary piston forming part of a hollow inlet-column, and said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

5. In well-pumping apparatus, the combination of a working barrel, a second working barrel of smaller diameter, pistons operating in said working barrels and of correspondingly-different diameters, and a tube connected to the smaller piston adapted to carry the fluid above said smaller piston, said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

6. In well-pumping apparatus, the combination of a working barrel, a piston moving therein, a working barrel of smaller diameter carried by said piston, a stationary piston within said smaller working barrel, and a tube supporting said stationary piston at the upper end thereof, said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

7. In well-pumping apparatus, the combination of a working barrel, a piston moving therein, a working barrel of smaller diameter carried by said piston, said smaller working barrel having an inwardly-projecting portion, a piston within said inner working barrel, said inwardly-projecting portion being adapted to engage said piston, and said apparatus having a vent to preclude equalization of pressures, substantially as set forth.

8. In well-pumping apparatus, the combination with a suitable shell, or casing, of an outer working barrel, an inner working barrel of smaller diameter adapted to receive the fluid, pistons operating in said barrels and of correspondingly-different diameters, the space between said inner working barrel and the inner walls of said shell having a vent, substantially as set forth.

9. In well-pumping apparatus, the combination with a suitable shell, or casing, of an outer working barrel, an inner working barrel of smaller diameter adapted to receive the fluid, pistons operating in said barrels and of correspondingly-different diameters, a tube within said inner working barrel carrying the smaller piston, the space between said inner working barrel and said tube being vented, substantially as set forth.

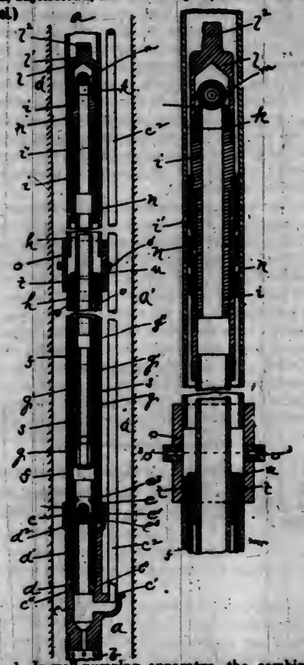
10. In well-pumping apparatus, the combination with a suitable shell, or casing, a pumping-piston working therein, a second piston of smaller diameter than said first-mentioned piston, a working barrel within which said smaller piston operates, said shell, or casing, having orifices therein for the admission and discharge of fluid, substantially as set forth.

11. In pumping apparatus, the combination of a suitable shell, or casing, a pumping-piston working therein, a second piston of smaller diameter than said first-mentioned piston, a working barrel within which said smaller piston works, and a sleeve having orifices therein for the admission and discharge of fluid, substantially as set forth.

12. In pumping apparatus, the combination of a suitable shell, or casing, a pumping-piston working therein, a second piston of smaller diameter than said first-mentioned piston, a working barrel within which said smaller piston works, and a sleeve having orifices therein for the admission and discharge of fluid and a valve adapted to admit fluid to said casing, substantially as set forth.

13. In pumping apparatus, the combination of a suitable shell, or casing, a working barrel, a piston working therein, a sleeve connecting said shell, or casing, and said working barrel, said sleeve having orifices therein for the admission and discharge of fluid, a smaller working barrel, and a piston working therein, substantially as set forth.

586,525. PUMPING APPARATUS FOR WELLS. JAMES S. THEURER, Taylorstown, Pa. Filed May 12, 1895. Serial No. 549,788. (No model.)



Claim.—1. In well-pumping apparatus, the combination of a working barrel, a pumping-piston working therein, a tube connected to said pumping-piston and extending down therefrom, a piston of smaller diameter than said first-mentioned piston on said tube, and a second working barrel below said first-mentioned working barrel within which said smaller piston works, the space between said working barrels being vented, substantially as set forth.

2. In well-pumping apparatus, the combination of a working barrel, a pumping-piston working therein, a tube connected to said pumping-piston and extending down therefrom, a piston of smaller diameter than said first-mentioned piston on said tube, and a second working barrel within which said smaller piston works, said appara-

tus having a vent to preclude equalization of pressures, substantially as set forth.

3. In well-pumping apparatus, the combination of a working barrel, a pumping-piston working therein, a tube connected to said pumping-piston and extending down therefrom, a piston of smaller diameter than said first-mentioned piston on said tube, said apparatus having spraying-orifices therein, and a second working barrel below said orifices within which said smaller piston works, substantially as set forth.

4. In well-pumping apparatus, the combination with a suitable casing, of a working barrel, a pumping-piston working therein, a tube connected to said pumping-piston and extending down therefrom, a piston of smaller diameter than said first-mentioned piston on said tube, said casing having orifices therein, a second working barrel below said orifices within which said smaller piston works, and packing between said second working barrel and said casing, substantially as set forth.

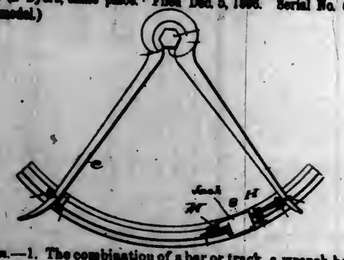
586,526. HAIR-CUTTING MACHINE. CONRAD P. VOLLAND, Baltimore, Md., assignor, by direct and mesne assignments, to Johnathan R. Moxley and John Wolfart, same place. Filed Sept. 25, 1896. Serial No. 606,972. (No model.)



Claim.—1. In a hair-cutter the combination of a stationary shear-plate having two handles, B, B', one at each end and projecting in opposite directions and said plate provided with an open slot, *r*; an oscillatory shaft mounted in bearings projecting above said shear-plate; a spiral cutter secured on said shaft and coacting with the shear-blade; a comb below the shear-plate and having two upwardly-turned pivot-arms, *o*, which project through the said open slot, said comb having a rear projecting arm, *p*, and a curved thumb-piece, *q*; a pivot-rod, *t*, uniting the said pivot-arms of the comb to bearings above the plate; and a spiral spring, *u*, wound around and secured to the pivot-rod and having a loop which bears on the said rear projecting arm of the comb, whereby the spring tilts the comb upward toward the shear-plate, and pressure on the curved thumb-piece tilts the comb downward, as set forth.

2. In a hair-cutter the combination of a stationary shear-plate having two handles, B, B', one in each end and projecting in opposite directions: an oscillatory shaft mounted in bearings projecting above said shear-plate; a spiral cutter secured on said shaft and coacting with the shear-blade; a spiral spring having its ends wound around and secured to the said shaft and the center of the spring forming a projecting loop which is held fast above the shear-plate; a pinion on the said shaft; a lever pivoted on the blade-plate adjacent one handle and having at one end a segment-gear meshing with the pinion and at the other end a thumb-piece to be operated by the thumb of the same hand which grasps one of the handles, whereby the tension of the spring turns the oscillatory shaft in one direction and pressure on the thumb-piece turns it in the reverse direction, as set forth.

586,527. MEANS FOR COUPLING OR UNCOUPLING OIL-WELL TOOLS. LAWSON R. BRACKNEY, Butler, Pa., assignor of one-fourth to John R. Byers, same place. Filed Dec. 5, 1896. Serial No. 614,654. (No model.)



Claim.—1. The combination of a bar or track, a wrench held stationary thereon, a movable wrench and a motor secured to said track to turn laterally thereon, and attached to the movable wrench.

2. The combination of a bar or track, a fixed and a movable wrench connected thereto and a motor movable on and detachably secured to said track and attached to said movable wrench by a swiveled connection.

3. The combination of a bar or track, a wrench held stationary thereon, a movable wrench, and a motor mounted on the track to turn laterally thereon and having a movable rod connected to the lever of said movable wrench by a swiveled connection.

4. The combination of a bar or track, a wrench held stationary thereon, an adjustable clamp engaging the lever of said wrench, and secured to the track, a movable wrench, a movable clamp provided with a swiveled connection engaging said wrench and a motor connected to said clamp.

5. The combination of a bar or track, a stationary wrench, a movable wrench, a motor connected to said track by a swiveled joint and connected to said movable wrench.

6. The combination of a bar or track, a stationary and a movable wrench, a motor connected to said track to move laterally and longitudinally thereon and to said movable wrench and a clamp engaging the track and the front end of the motor.

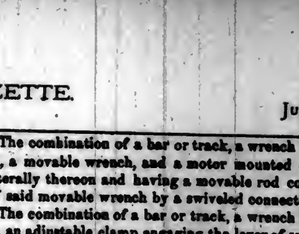
7. The combination of a bar or track, a stationary and a movable wrench, a motor engaging said movable wrench, a swiveled connection between the motor and the track and a clamp attached to said track and engaging the front end of the motor.

8. The combination of a bar or track, a stationary wrench, a clamp movable on the track having a member engaging said wrench, means for securing the clamp to the track, a movable wrench, a movable clamp connecting said wrench to said track and a motor connected to said movable wrench by a swiveled connection.

9. The combination of a bar or track, a stationary and a movable wrench, a clamp provided with a swiveled hook engaging the lever of said movable wrench and movably connected to said track, and a motor for operating said movable wrench.

10. The combination of a bar or track having a perforated web, a clamp engaging said track and secured to said web, a stationary wrench engaging said clamp, a movable clamp engaging the head and web of the track, a movable wrench connected to said movable clamp by a swiveled connection and a motor connected to the track and to the movable wrench.

586,528. CAR-COUPLING. PHILIP C. BROWN, Columbus, Ind., assignor of fifty-three one-hundredths to Joseph I. Irwin, same place. Filed Sept. 21, 1896. Serial No. 606,474. (No model.)



Claim.—1. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein through its rear arm, the forward surface of the front arm of said knuckle having the same contour as the forward surface of the rear arm thereof and the said forward surface of the rear arm projecting from the mouth of the draw-head upon both sides of the pivotal point of said knuckle in position to be engaged, upon both sides of the pivot, by the forward surface of the forward arm of the opposing knuckle when said knuckle is in its closed position, substantially as and for the purpose set forth.

2. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein through its rear arm, the forward surface of the front arm of said knuckle having the same contour as the forward surface of the rear arm thereof and the said forward surface of the rear arm projecting from the mouth of the draw-head upon both sides of the pivotal point of said knuckle in position to be engaged, upon both sides of the pivot, by the forward surface of the forward arm of the opposing knuckle when said knuckle is in its closed position, and means for yieldingly holding said knuckle in the normal, or coupled, position, substantially as and for the purpose set forth.

3. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein through its rear arm and the forward surface of said rear arm projecting from the mouth of the draw-head upon each side of the pivotal point of the knuckle, the arrangement being such that the forward surface of the forward arm of the opposing knuckle will engage the rear arm of said knuckle upon each side of the pivotal point thereof, substantially as described.

4. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein, and a locking-lever pivoted to said knuckle and adapted to be engaged by the cooperating knuckle of an opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, substantially as set forth.

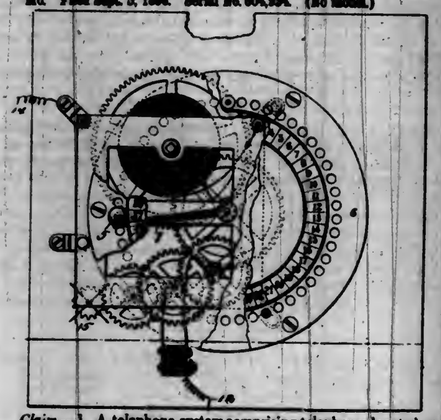
5. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted centrally therein through its rear arm, and a locking-lever pivoted to said knuckle and adapted to be engaged by the knuckle of an opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, substantially as described.

6. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein, a locking-lever pivoted to said knuckle and adapted to be engaged by the knuckle of the opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, means for yieldingly holding the knuckle in its normal, or coupled, position, and means for normally holding the locking-lever out of position to engage with the draw-head, substantially as described.

7. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein, a locking-lever pivoted to said knuckle and adapted to be engaged by the knuckle of the opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, means for yieldingly holding the knuckle in its normal, or coupled, position, and means, such as a chain, secured to the locking-lever and adapted to normally hold the said lever out of position to engage with the draw-head, the arrangement being such that the knuckle may be swung upon its pivot by the said means, substantially as and for the purpose set forth.

8. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein through its rear arm and having the forward surface of said rear arm projecting from the mouth of the draw-head and adapted to be engaged by the forward surface of the forward arm of the cooperating knuckle, a locking-lever pivoted in said knuckle and adapted to be engaged by the said cooperating knuckle and thereby forced into position to engage with the draw-head, the arrangement being such that when the forward surface of the front arm of the cooperating knuckle is brought into engagement with the forward surface of the rear arm of the first-mentioned knuckle the said locking-lever will be forced into engagement with the draw-head, substantially as and for the purpose set forth.

586,529. TELEPHONE SYSTEM. WILLIAM W. DAVIS, St. Louis, Mo. Filed Sept. 5, 1896. Serial No. 604,934. (No model.)

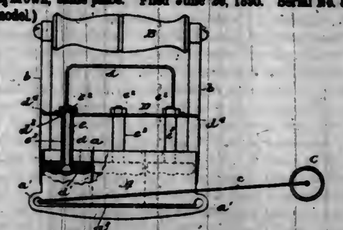


Claim.—1. A telephone system comprising telephones located at outlying stations, a dial or disk, a power-driven arm operating in juxtaposition to said disk, a stop to arrest the motion of said power-driven arm at any predetermined point, a make-and-break mechanism comprising a rotary shaft geared to said arm and provided with separated insulated portions, and a contact-arm adapted to bear against said shaft in the path of said insulated portions, all said parts located at each of the outlying stations, in combination with a central-exchange station comprising an electrical device in circuit with said make-and-break mechanism, a power-driven contact-making arm for each outlying station in the telephone-circuits, terminals from all the outlying stations in the path of each of said arms, and an escapement mechanism for each power-driven contact-arm, controlled by said electrical device, substantially as described.

2. A telephone system comprising telephones located at outlying stations, a make-and-break mechanism at each of said outlying stations, in combination with a central-exchange station comprising a power-driven contact-making arm for each outlying station in the telephone-circuit, terminals of said telephone-circuits from all the outlying stations in the path of each of said arms, a magnet for each arm, circuits independent of the telephone-circuits each including one of said make-and-break mechanism and magnets, an armature for each magnet provided with a bifurcated end, a rotary disk driven by the power used for driving the contact-making arm, stops on said bifurcated armature adapted to engage said disk, and connections between said disk and contact-making arm whereby the latter is controlled by said armature, substantially as described.

3. In a telephone, the combination with a bell-ringing circuit, the secondary circuit and the receiver-hook for closing the secondary circuit, of a foot-switch normally closing the bell-ringing circuit, and spring-contacts 54 and 55 with which said foot-switch is adapted to contact said contacts being terminals of the transmitter primary circuit, whereby, when the foot-switch is depressed, it cuts out the bell-ringing circuit and cuts in the transmitter primary circuit, substantially as described.

586,530. BUTTER-MOLD. DWIGHT R. DIX, Eau Claire, Wis., assignor, by mesne assignments, to Martha R. Dix, W. F. Bailey, and Bruce Brown, same place. Filed June 26, 1895. Serial No. 554,113. (No model.)



Claim.—1. In combination, the mold-box, the plunger with operating means therefor, said box having slots extending from side to side in the opposite walls thereof, and beyond the walls of the mold-box and in the plane of the bottom of said mold-box, and a wire cutter of rectangular form arranged in said slots and adapted to be drawn from end to end of the slots, the slots being straight parallel with the face of the mold-plungers and being closed at both ends forming the sole connection between the cutter and the mold-box, substantially as described.

2. In combination, the mold-box, the plunger with its stem, the side standards, the cross-plate guided thereby, the main handle, the supplemental handle f' with its stem f, the fixed bar f^2 through which the stem f passes and the stops f^3 f^4 on said stem, substantially as described.

586,531. INVALID-REST. JENNIE DRAWE, Marine City, Mich., assignor of seven-twentieths to John Drawe and William Perrin, same place. Filed Feb. 6, 1897. Serial No. 622,353. (No model.)
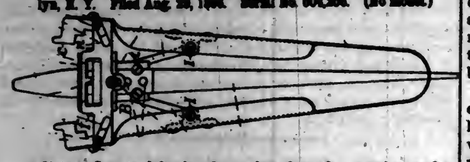


Claim.—1. An invalid bed-rest, comprising a bottom frame 1 and frame 3 hinged to the front end thereof, means for supporting such frame 3 at different inclines, a rest-frame 7 pivotally connected to the frame 3, having vertical and longitudinal movement, and bail means for supporting said rest member secured to the frame 3 as set forth.

2. In an invalid-rest, the combination with the bottom frame 1, the hinged frame 3 having a seat 6 at the rear of its upper end, means for holding such a frame 3 at different inclines, of the rest-frame 7 connected to the frame 3 and having longitudinal and vertical movement thereon, said frame being adapted to swing over the top of the frame 3 and having its front cross member seat in the recess 6, said frame 3 being adapted when folded down to lie close against the frame 1 within the seat 6, substantially as shown and described.

3. The combination with the bottom frame 1 having rack members 2 at the inner edges thereof, and hinge-frame 3 of the same width as the bottom 1, having side members adapted to close down flat on the top of such bottom, said side members having vertical slots 10^a, and having a seat-portion 6, in the upper end, and the bail 5 hinged to the frame 3 to engage the racks 2: of the rest member,

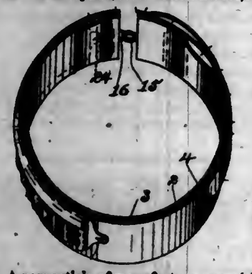
composed of side arms 8 having a rack 10ª on the under side and a longitudinal slot 10, the cross member 7 and the double screw 12 13 adapted to pass through the slot 10 and the slot 10ª in the frame 3, the bail 13ª hinged to the lower end of the frame 3, all being arranged substantially as shown and for the purposes described.

586,582. TOOL FOR FORMING HEADS OF BOTTLES. THOMAS C. DUFFIELD, Baltimore, Md., assignor of one-half to Jacob Penn, Brooklyn, N. Y. Filed Aug. 29, 1896. Serial No. 604,256. (No model.)



Claim.—In a tool for forming a thread on the exterior surface of a bottle-head, the combination of a pair of jaws which are normally distended by means of a spring-handle, a stationary central spindle or mandrel, an internally-threaded cylinder adapted to turn about the central mandrel having a toothed collar on its surface, a plate having inclined slots at its ends, pins which pass through the inclined slots and are secured in the jaws, a tooth on the said plate adapted to engage with the teeth of the revolable cylinder when the jaws are distended, and to move from engagement with the said teeth when the said jaws are contracted on the bottle-head, and levers loosely connected at their lower ends to the spring-handle and pivoted within a slot in the central spindle and its block with their upper ends arranged to disappear within the said spindle when the jaws are distended and project beyond the surface of the said spindle when the jaws are contracted on the bottle-head and thereby set out the soft glass tightly against the threaded inner surface of the cylinder while the same is free to revolve with the bottle, substantially as specified.

586,583. COMBINED BELT AND GUN-CASE. JULIAN H. GATES, Hartford, Conn. Filed Sept. 23, 1896. Serial No. 606,602. (No model.)



Claim.—1. A new article of manufacture comprising a combined belt and gun-case having pockets opening at the top edge of the belt, substantially as and for the purpose set forth.

2. A combination gun-case and gunner's belt, having gun-compartments extending lengthwise the belt, and a series of pockets at right angles to the said compartments, substantially as and for the purpose set forth.

3. A combined belt and gun-case, comprising the inner and outer portions, and gussets upon the edges of said portions adapted to be folded between the latter when in belt form and unfolded to form with the said portions a gun-case, as set forth.

4. A combined belt and gun-case comprising inner and outer portions united together to form lengthwise compartments and transverse pockets, as set forth.

5. A combined gun-case and gunner's belt composed of inner and outer parts with a strip dividing said parts into compartments, and having a long and short gusset, a pocket contiguous to the gun-barrel compartment, a pocket at the terminal end of said barrel-compartment, and a pocket at the mouth of the gun-stock compartment, all of said pockets opening at the top edge of the belt, as set forth.

586,584. VALVE FOR BICYCLES, &c. EDWARD F. PICKETT, Buffalo, N. Y. Filed Dec. 14, 1896. Serial No. 615,564. (No model.)

Claim.—1. In an air-valve, composed of a tubular body, having the outermost end within the dust-cap formed with a valve-seat, in combination with a dust-cap permanently engaged with and inclosing the said valve-seated end, formed with a valve-chamber, a valve within the said chamber, an air-passage through the dust-cap adjustable to a point where it shall open interiorly between the said valve and valve-seat, and an annular raised portion for externally connecting the pump to the dust-cap.



2. In an air-valve composed of a tubular body, having the outermost extremity within the dust-cap formed with a tapering valve-seat, a closing and permanently-engaged dust-cap having a valve-chamber, an elastic ball-valve independently placed within the said chamber to engage with the said valve-seat, and held thereto by the said dust-cap, the said dust-cap externally threaded on a slightly-raised portion for pump connection, and an air-passage opening from the side of the dust-cap into the side of the valve-chamber at a point between the said valve and the exterior threads.

3. In an air-valve composed of a tubular body, a closing dust-cap designed for permanent engagement with the said tubular body, having a valve-receptacle and an independently-placed ball-valve within the said receptacle; the said dust-cap formed with an air-passage through the side at a point capable of being opened and closed as the said point in the dust-cap is turned from, or over the edge of the tubular body, and having an externally-raised portion or collar whereby the pump is connected and the air-passage and air-valve is opened and closed without removing the dust-cap.

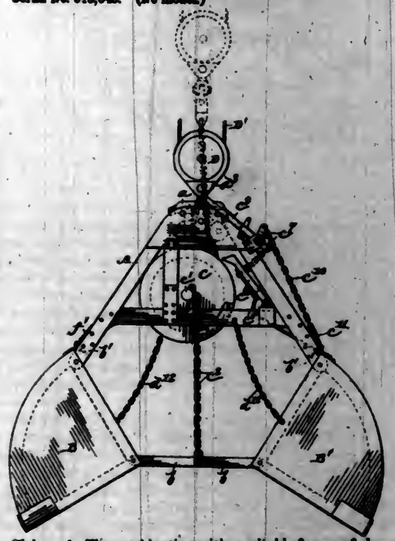
586,585. ANTIFRICTION HUB OR WHEEL BEARING. JOHN H. VINTON, Boston, Mass., assignor of two-thirds to Edward G. Ely, same place. Filed May 17, 1897. Serial No. 636,260. (No model.)



Claim.—1. A hub bearing, composed of a solid case or ring-like shell, provided at its interior with an annular groove, a nest of rolls, a bearing-ring notched exteriorly to receive the journals of said rolls, and an expansible loose ring adapted to enter both the annular grooves of the rolls and the groove at the inner side of the said solid case or ring-like shell, substantially as described.

2. A hub-bearing, composed of a solid case or ring-like shell, provided at its interior with an annular groove, a nest of rolls, a bearing-ring notched exteriorly to receive the journals of said rolls, and an expansible loose ring presenting segments, and adapted to enter both the annular grooves of the rolls and the groove at the inner side of the said solid case or ring-like shell, substantially as described.

586,586. CLAM-SHELL HOISTING OR DREDGING APPARATUS. CHARLES P. DOLE, Duluth, Minn., assignor of one-half to Charles B. Heneage, same place. Filed Nov. 30, 1895. Renewed Nov. 21, 1896. Serial No. 613,045. (No model.)



Claim.—1. The combination with a suitable frame, of clam-shells pivoted therein, a relatively-fixed drum rigidly mounted on a shaft journaled in said frame, a single operating-chain adapted to be wound upon said drum and connected to the hoisting-rope, means for connecting the hoisting-rope to the frame independent of the operating-chain, chains adapted to be wound about said shaft and connected directly to links pivoted on the shells whereby said shells are opened or closed according to the direction of rotation of said shaft, substantially as described.

2. The combination with a suitable frame, of clam-shells pivoted thereon, a relatively-fixed drum rotatably mounted in said frame, an operating-chain adapted to be wound about said drum, a hoisting-hook connected to said chain, a pawl pivoted in said frame and adapted to engage said hook, devices for locking said pawl in or out of operative position according to the position of the shells, and means for connecting said drum with the clam-shells whereby the latter are opened or closed by the rotation of the same, substantially as described.

3. The combination of a suitable frame, of clam-shells pivoted thereon, a fixed rotatable drum mounted in said frame, a pawl for engaging said drum, an operating-chain about said drum, a hoisting-hook connected to said chain, a pawl pivoted in said frame and adapted to engage said hook, means connecting said latter pawl with one of the shells whereby when the shell is open the pawl is drawn out of the path of the hook, and devices for connecting said drum with the clam-shells whereby the latter are closed by the rotation of the same, substantially as described.

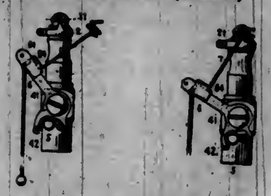
4. The combination with a suitable frame, of clam-shells pivoted thereon, a fixed rotatable drum mounted in said frame, a pawl engaging said drum, an operating-chain adapted to be wound about said drum and connected to the hoisting-rope, means connecting said drum with the clam-shells whereby the latter are allowed to open when the drum is free to rotate, and a trip-lever connected to the pawl and adapted to disengage the latter from the drum to permit of its rotation, substantially as described.

5. The combination of a suitable frame, of clam-shells pivoted thereon, a fixed rotatable drum mounted on a shaft journaled in said frame and extending beyond the drum at each end, a pawl engaging said drum, chains connected to the said shells and said extended ends of the shaft, an operating-chain adapted to be wound about said drum and connected to a hoisting chain, and a trip-lever for disengaging the pawl from the drum, substantially as described.

6. The combination with a suitable frame, of clam-shells pivoted thereon, a fixed rotatable drum mounted in said frame, a pawl engaging said drum, devices connecting said drum with the shells whereby the latter are allowed to open or are drawn together by the action of said drum, a chain adapted to be wound about said drum, a hoisting-hook connected to said chain, a pawl mounted in the frame and adapted to engage said hook, and a trip-lever connected to the pawl engaging the drum for throwing said pawl out of engagement with the drum, substantially as described.

7. The combination with a suitable frame, of clam-shells pivoted thereon, a fixed rotatable drum mounted in said frame an operating-chain adapted to be wound about said drum, a hoisting-hook provided with a lateral projection above its hook portion and connected to said chain, a spring-pressed pawl in said frame and adapted to engage said hook and be pressed out of engaging position with the hook by the projection upon the same, means for holding said pawl out of the engaging position, and means for connecting the drum with the shells whereby the latter are permitted to open or are drawn together by the operation of the former, substantially as described.

586,587. ELECTRIC GAS-LIGHTER. FRANK REIBD, Bridgeport, Conn., assignor to The Bridgeport Brass Company, same place. Filed May 17, 1897. Serial No. 636,262. (No model.)

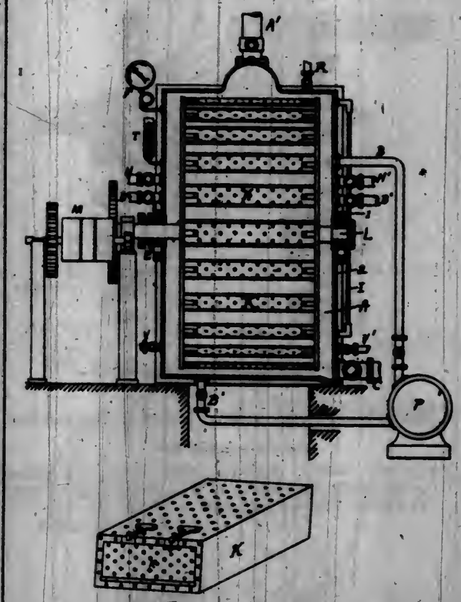


Claim.—1. In an electric gas-lighter in combination, a stationary electric terminal, a gas-cock, an operating-lever on said cock, a button pivotally attached at or near the end of said lever, a contact-arm secured to said button, a handle or pendant connected with said button and said lever and adapted to operate said cock through said lever and to rotate said button on said lever so that said contact-arm may be brought into contact with said stationary terminal during the opening of said cock and be carried back through a different path so as to avoid contact with said terminal during the closing of said cock and a spring pivotally attached to said lever and adapted to hold said cock either in its closed or open position, substantially as described.

2. In an electric gas-lighter in combination, a stationary electric terminal, a gas-cock, an operating-lever on said cock, a button pivotally attached at or near the end of said lever, a wire contact-arm formed with a spring-coil secured to said button, a handle or pendant connected with said button and said lever and adapted to operate said cock through said lever and to rotate said button on said lever so that said contact-arm may be brought into contact with said stationary terminal during the opening of said cock and be carried back through a different path so as to avoid contact with said terminal during the closing of said cock and a spring pivotally attached to said lever and adapted to hold said cock either in its closed or open position, substantially as described.

REISSUES.

11,620. PROCESS OF AND APPARATUS FOR DYEING. LEOPOLD LE BLON and GABRIEL PRIEST, Rheims, France. Filed Apr. 6, 1897. Serial No. 631,380. Original No. 570,316, dated Oct. 27, 1896. Patented in France Feb. 13, 1895, No. 245,234, and June 11, 1895, No. 243,077, and in Belgium July 20, 1896, No. 116,726.



Claim.—1. In the process of bleaching or dyeing textile and other materials, the method consisting in rotating the material through the bleaching or dyeing bath and creating a partial vacuum above the bath and alternately passing air through it.

2. In the process of bleaching or dyeing textile and other materials, the method consisting in rotating the materials through the bath and at the same time creating a rapid and continuous circulation of the bath through the material, creating a partial vacuum above the bath and alternately passing air through it, substantially as described.

3. An apparatus for bleaching or dyeing textile and other materials, comprising a closed vat having a rotary wheel or wheels therein with receptacles for the material to be treated, a valved pipe at the upper part adapted to be connected with a vacuum-pump and a valved pipe or pipes at the lower part adapted to be opened to the air.

4. An apparatus for bleaching or dyeing textile and other materials comprising a closed vat having at its upper part a valved pipe adapted to be connected with a vacuum-pump and at its lower part a valved pipe or pipes adapted to be opened to the air, with a rotary wheel or wheels within the vat provided with receptacles for containing the material to be treated and piping connected to different parts of the vat and to a pump whereby the liquid in the vat may be caused to circulate, substantially as described.

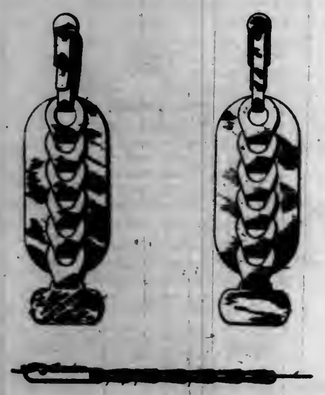
DESIGNS.

27,318. BADGE. CHARLES C. PENFOLD, Buffalo, N. Y., assignor to Grace S. Penfold, same place. Filed June 4, 1897. Serial No. 639,477. Term of patent 3½ years.



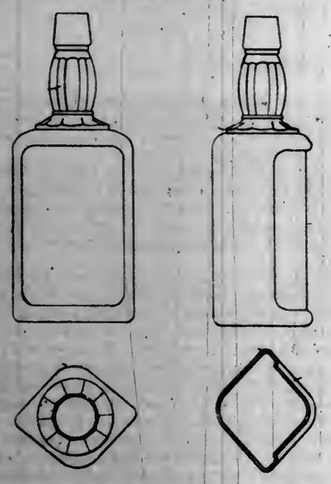
Claim.—The design for a badge substantially as herein shown and described.

27,319. WATCH-FOB. EDWIN L. PRICKETT, Mount Holly, N. J. Filed May 15, 1897. Serial No. 636,796. Term of patent 3½ years.



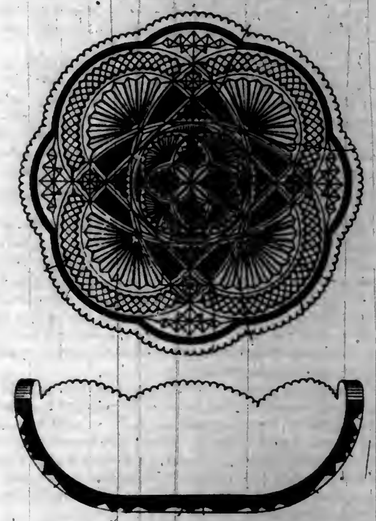
Claim.—The design for a watch-fob herein shown and described.

27,320. BOTTLE. WILLIAM T. MURPHY, Brooklyn, N. Y., assignor to Eldridge Packham, Jr., Baltimore, Md. Filed June 3, 1897. Serial No. 639,344. Term of patent 7 years.



Claim.—The design for a bottle, as herein shown and described.

27,321. GLASS DISH. HERMAN SEMBERMEIER, Dunkirk, Ind., assignor to the Ohio Flint Glass Company, of Ohio. Filed May 24, 1897. Serial No. 637,985. Term of patent 7 years.



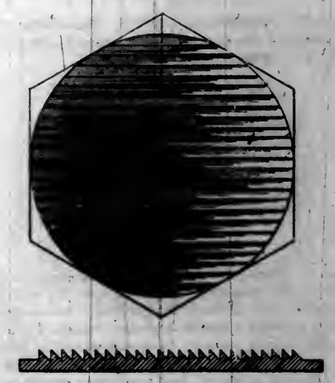
Claim.—The design for a glass dish, substantially as shown and described.

27,322. SHEET-GLASS. CHARLES C. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed May 14, 1897. Serial No. 636,563. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

27,323. PRISM-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,919. Term of patent 14 years.



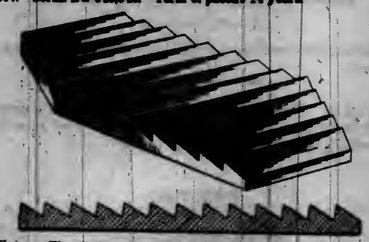
Claim.—The design for a prism-light substantially as shown and described.

27,324. PRISM-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,920. Term of patent 14 years.



Claim.—The design for a prism-light as herein shown and described.

27,325. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,940. Term of patent 14 years.



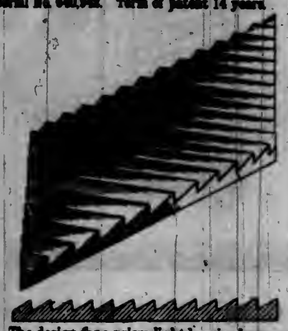
Claim.—The design for a prism-light as herein shown and described.

27,326. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,941. Term of patent 14 years.



Claim.—The design for a prism-light as herein shown and described.

27,327. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,942. Term of patent 14 years.



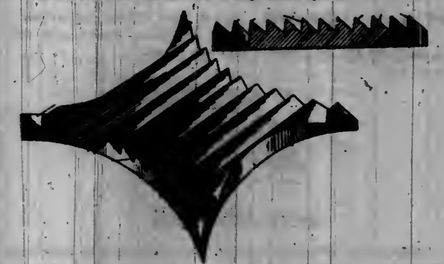
Claim.—The design for a prism-light herein shown and described.

27,328. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,943. Term of patent 14 years.



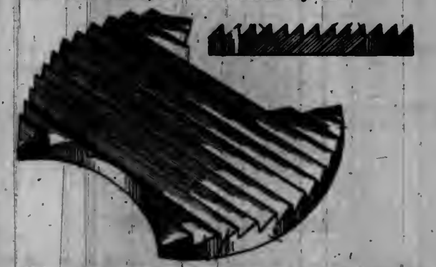
Claim.—The design for a prism-light herein shown and described.

27,329. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,944. Term of patent 14 years.



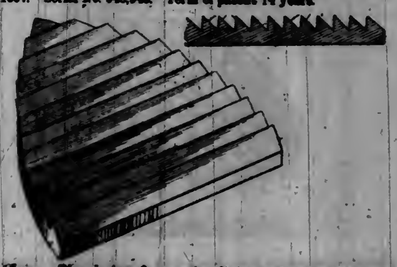
Claim.—The design for a prism-light as herein shown and described.

27,330. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,945. Term of patent 14 years.



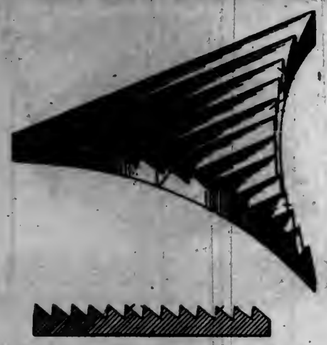
Claim.—The design for prism-lights as herein shown and described.

27,331. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,946. Term of patent 14 years.



Claim.—The design for a prism-light as herein shown and described.

27,882. PRISM-LIGHT. HERBERT F. BELKNAP, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,987. Term of patent 14 years.



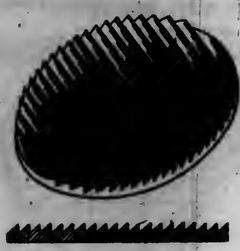
Claim.—The design for a prism-light as herein shown and described.

27,883. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,990. Term of patent 14 years.



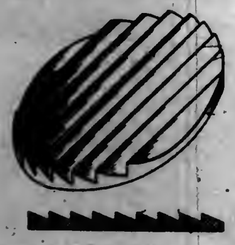
Claim.—The design for a prism-light substantially as shown and described.

27,884. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,991. Term of patent 14 years.



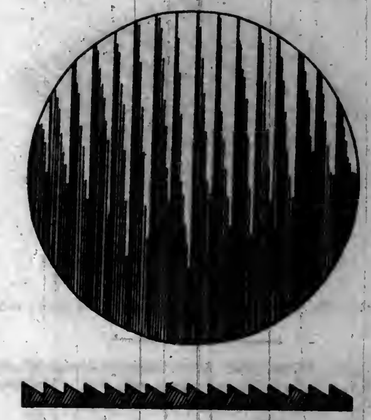
Claim.—The design for a prism-light as herein shown and described.

27,885. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,992. Term of patent 14 years.



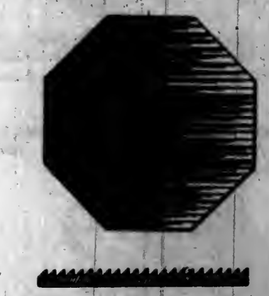
Claim.—The design for a prism-light substantially as shown and described.

27,886. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,994. Term of patent 14 years.



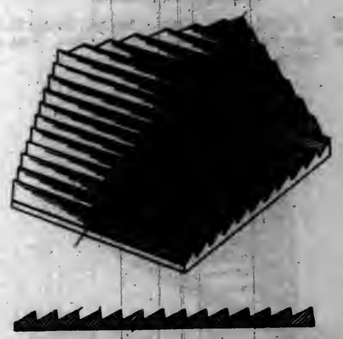
Claim.—The design for a prism-light substantially as shown and described.

27,887. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,997. Term of patent 14 years.



Claim.—The design for a prism-light substantially as shown and described.

27,888. PRISM-LIGHT. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,998. Term of patent 14 years.



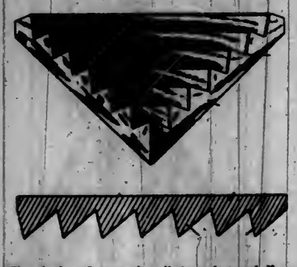
Claim.—The design for a prism-light substantially as shown and described.

27,889. PRISM-LIGHT. WILLIAM H. WINSLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,995. Term of patent 14 years.



Claim.—The design for a prism-light substantially as shown and described.

27,840. PRISM-LIGHT. JAMES G. PRESTONGE, Toronto, Canada. Filed June 15, 1897. Serial No. 640,927. Term of patent 14 years.



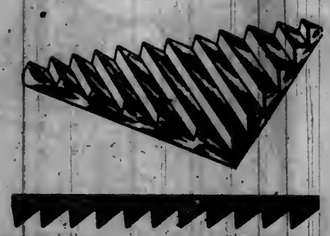
Claim.—The design for a prism-light substantially as shown and described.

27,841. PRISM-PLATE. JAMES G. PRESTONGE, Toronto, Canada. Filed June 15, 1897. Serial No. 640,928. Term of patent 14 years.



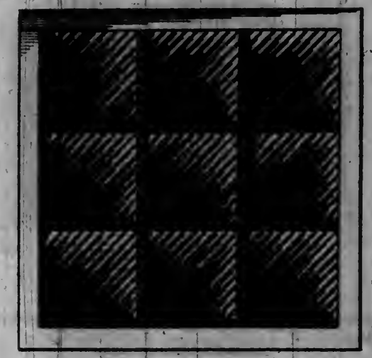
Claim.—The design for a prism-plate substantially as shown and described.

27,842. PRISM-PLATE. JAMES G. PRESTONGE, Toronto, Canada. Filed June 15, 1897. Serial No. 640,929. Term of patent 14 years.



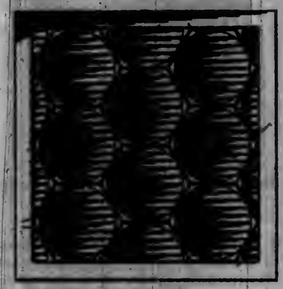
Claim.—The design for a prism-plate substantially as shown and described.

27,843. PRISM-PLATE. OLIN H. RANDEL, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,917. Term of patent 14 years.



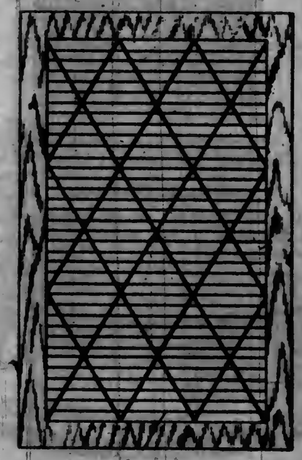
Claim.—The design for a prism-plate substantially as shown and described.

27,844. PRISM-PLATE. OLIN H. RANDEL, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,918. Term of patent 14 years.



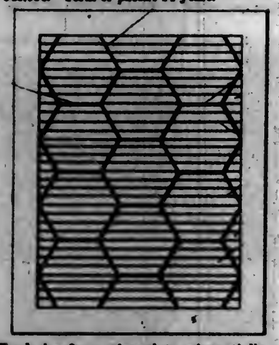
Claim.—The design for a prism-plate substantially as shown and described.

27,845. PRISM-PLATE. JOHN M. BYRNE, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,923. Term of patent 14 years.



Claim.—The design for a prism-plate substantially as shown and described.

27,846. PRISM-PLATE. JOHN M. EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,994. Term of patent 14 years.



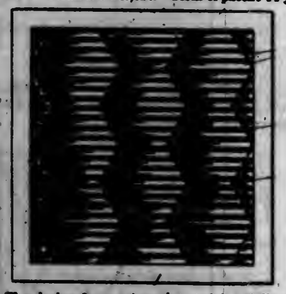
Claim.—The design for a prism-plate substantially as shown and described.

27,847. PRISM-PLATE. JOHN M. EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,993. Term of patent 14 years.



Claim.—The design for a prism-plate substantially as shown and described.

27,848. PRISM-PLATE. WILLIAM H. WINSLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 15, 1897. Serial No. 640,996. Term of patent 14 years.



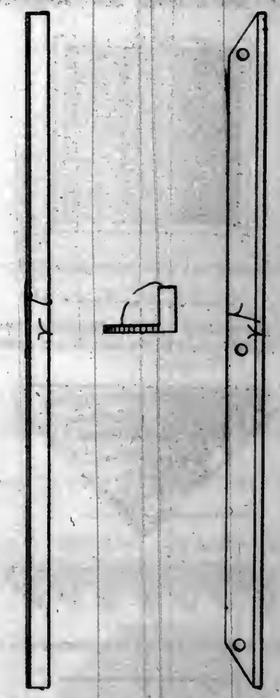
Claim.—The design for a prism-plate substantially as shown and described.

27,849. SHIN-PIECE FOR MOLDBOARDS FOR PLOWS. HARRY WIARD, Syracuse, N. Y. Filed May 28, 1897. Serial No. 638,637. Term of patent 14 years.



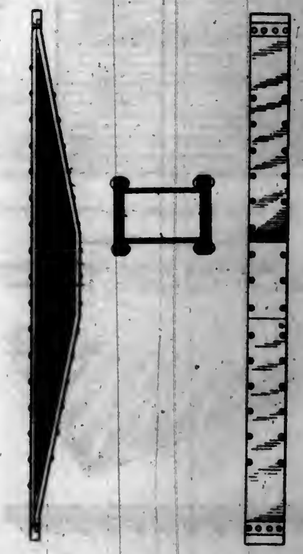
Claim.—The design for a shin-piece for the moldboard of a plow, substantially as herein shown and described.

27,850. SHOE FOR LANDSIDES FOR PLOWS. HARRY WIARD, Syracuse, N. Y. Filed May 28, 1897. Serial No. 638,636. Term of patent 14 years.



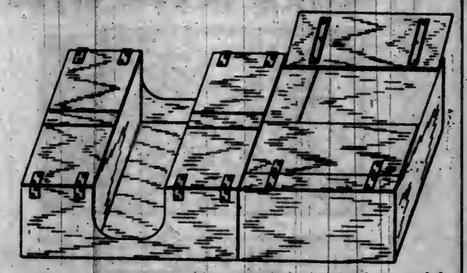
Claim.—The design for a shoe for the landside of a plow, substantially as herein shown and described

27,851. BODY-BOLSTER FOR RAILWAY-CARS. FRANK THOMPSON, Chicago, Ill., assignor of two-thirds to Thomas A. Fraser and Otto W. Meyssenburg, same place. Filed June 3, 1897. Serial No. 639,345. Term of patent 14 years.



Claim.—The design for a body-bolster for railway-cars, substantially as herein shown and described.

27,852. WAGON-BODY. WILLIAM T. SMITH, Dayton, Ohio. Filed Mar. 20, 1897. Serial No. 628,539. Term of patent 7 years.



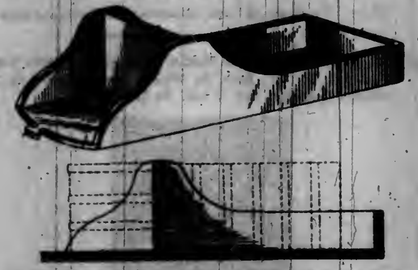
Claim.—The design for a wagon-body as herein shown and described.

27,853. CLOTHES-POUNDER. CLARENCE W. CROSS, Grinnell, Iowa. Filed Jan. 25, 1897. Serial No. 620,690. Term of patent 14 years.



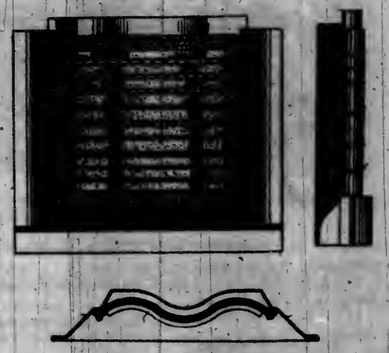
Claim.—The design for an ornamental clothes-pounder, substantially as shown and described.

27,854. SHELF-TRAY. JAMES GEORGE BRADLEY, Memphis, Tenn. Filed June 3, 1897. Serial No. 639,242. Term of patent 7 years.



Claim.—The design for a shelf-tray, substantially as herein shown and described.

27,855. FIREPLACE GAS-BURNER. JOSEPH F. HEWITT and ROBERT HEWITT, Allegheny, Pa. Filed Feb. 5, 1897. Serial No. 622,522. Term of patent 7 years.



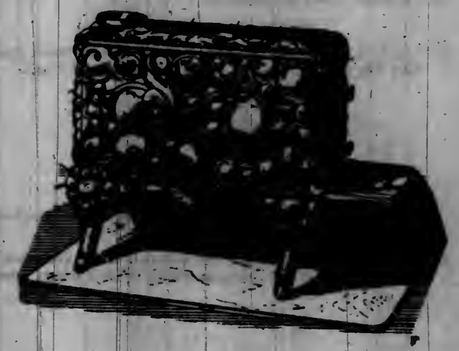
Claim.—The design for a fireplace gas-burner, substantially as herein described and shown.

27,856. STOVE. WILLIAM THOMPSON, St. Louis, Mo., assignor to the Buck's Stove and Range Company, same place. Filed June 3, 1897. Serial No. 639,243. Term of patent 14 years.



Claim.—The design for a stove substantially as herein shown and described.

27,857. STOVE. JAMES W. VAN CLEAVE, St. Louis, Mo., assignor to the Buck's Stove and Range Company, same place. Filed June 3, 1897. Serial No. 639,247. Term of patent 14 years.



Claim.—The design for a stove, substantially as herein shown and described.

27,358. STOVE OR RANGE. ALBERT H. GARDNER, Milwaukee, Wis., assignor to the Brand Stove Company, same place. Filed June 1, 1897. Serial No. 639,057. Term of patent 7 years.



Claim.—1. In a design for a stove or range, the design for the leg, substantially as shown and described.

2. In a design for a stove or range, the design for the skirt, substantially as shown and described.

3. In a design for a stove or range, the design for the lower portion, comprising the skirt and legs, substantially as shown and described.

4. In a design for a stove or range, the design for the oven-door substantially as shown and described.

5. In a design for a stove or range, the design for the side plate of the reservoir, substantially as shown and described.

6. In a design for a stove or range, the design for the fire-pot door, substantially as shown and described.

7. In a design for a stove or range, the design for the side plate of the ash-pit section, substantially as shown and described.

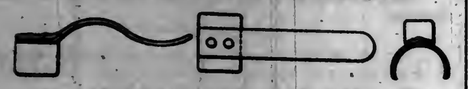
8. The design for a stove or range, substantially as shown and described.

27,359. BICYCLE-SEAT SUPPORT. LAMBERT UNDERDOWN, Winthrop, Mass. Filed June 3, 1897. Serial No. 639,355. Term of patent 7 years.



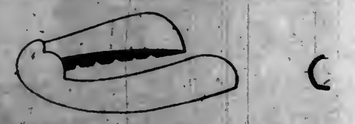
Claim.—The design for a bicycle-saddle support, substantially as shown and described.

27,360. HANDKERCHIEF-CLIP. FRANK H. SMALL, Brooklyn, N. Y., assignor of one-half to Frederick H. Small, Boston, Mass. Filed Apr. 10, 1897. Serial No. 631,630. Term of patent 7 years.



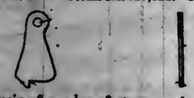
Claim.—The design for a handkerchief-clip for bicycles, substantially as herein shown and described.

27,361. METALLIC SHOE-TIP. HENRY WATERS, Bisbee, Ariz. Filed May 13, 1897. Serial No. 636,400. Term of patent 7 years.



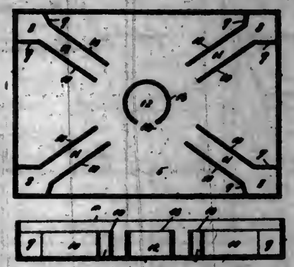
Claim.—The design for a shoe-tip as herein shown and described.

27,362. KEY-FASTENER. DEXTER BOOK STEPHENS, Youngstown, Ohio. Filed Feb. 13, 1897. Serial No. 623,322. Term of patent 7 years.



Claim.—The design for a key-fastener as herein shown and described.

27,363. PUZZLE BOX OR CASE. JAMES GARDELL, New York, N. Y. Filed May 21, 1897. Serial No. 637,608. Term of patent 7 years.



Claim.—The design for a puzzle box or case herein shown and described.

27,364. SHOW-CARD HOLDER. JOSEPH M. HILL and JOHN C. REMMER, Chicago, Ill. Filed Apr. 26, 1897. Serial No. 634,396. Term of patent 7 years.



Claim.—The design for show-card holder herein shown and described.

27,365. CORD. HERMAN GREBE, New York, N. Y. Filed Apr. 5, 1897. Serial No. 631,321. Term of patent 14 years.



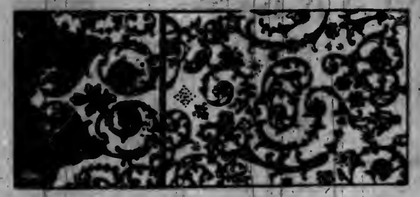
Claim.—The design for cord substantially as shown and described.

27,366. PATTERN FOR FABRIC. GEORGE DEAN, Derby, England. Filed Apr. 22, 1897. Serial No. 633,494. Term of patent 3½ years. Patented in England Mar. 10, 1897, No. 304,696.



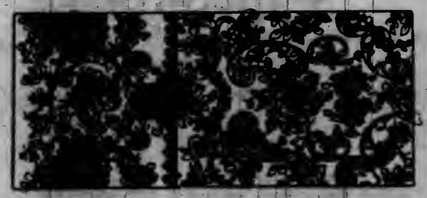
Claim.—The design for a pattern for a fabric as herein described and shown.

27,367. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 3, 1897. Serial No. 639,309. Term of patent 3½ years.



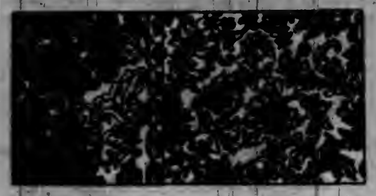
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,368. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 3, 1897. Serial No. 639,351. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,369. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 3, 1897. Serial No. 639,352. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,370. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 3, 1897. Serial No. 639,353. Term of patent 3½ years.



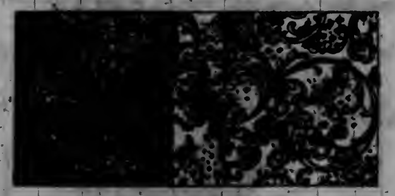
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,371. CARPET. WALTER CHARLES MARSH and WALLACE MELVILLE COX, New York, N. Y., assignors to Stephen Sanford & Sons, Amsterdam, N. Y. Filed June 3, 1897. Serial No. 639,354. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,372. CARPET. WALTER CHARLES MARSH and WALLACE MELVILLE COX, New York, N. Y., assignors to Stephen Sanford & Sons, Amsterdam, N. Y. Filed June 3, 1897. Serial No. 639,397. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

TRADE-MARKS

REGISTERED JULY 13, 1897.

80,850. PRINTED PUBLICATIONS. FREDERICK HOWARD, Boston, Mass. Filed June 1, 1897.



THE RISING SON

Essential feature.—A portrait of a man's face surrounded by conventionalized radiations, and the words "THE RISING SON." Used since April 15, 1897.

80,851. FLOWER, GARDEN, AND FIELD SEEDS. A. W. LIVINGSTON'S SONS, Columbus, Ohio. Filed June 19, 1897.

TRUE BLUE

Essential feature.—The words "TRUE BLUE." Used since 1885.

80,852. KID AND LAMBSKIN GLOVES. BOISSEREST & BERNHARDT, New York, N. Y. Filed June 16, 1897.



Essential feature.—The word "MARGUERITE." Used since January, 1891.

80,853. CORSETS, WAISTS, STAYS, AND SIMILAR ARTICLES. PRINCESS OF WALES COMPANY, New York, N. Y. Filed May 19, 1897.

PRINCESS

Essential feature.—The word "PRINCESS." Used since May 10, 1897.

80,854. DRESS-LININGS. BERNHEIMER & WALTER, New York, N. Y. Filed June 4, 1897.

Bear

Essential feature.—The word "BEAR." Used since February 1, 1896.

80,855. CYPRESS DOORS. SELDEN CYPRESS DOOR COMPANY, Palatka, Fla. Filed May 21, 1897.



Essential feature.—A representation of a palmetto-tree and the words "PALM TREE BRAND DOORS." Used since January 1, 1897.

80,856. PREPARATION OF MORTAR OR CEMENT IN A DRY STATE FOR PLASTERING WALLS. DIAMOND WALL CEMENT COMPANY, Williamsport, Pa. Filed May 22, 1897.

THE N. H. CULVER



DIAMOND WALL CEMENT.

Essential feature.—The words "THE N. H. CULVER DIAMOND WALL CEMENT" and a representation of a plasterer in the act of applying cement or mortar to the wall. Used since April, 1897.

80,857. PORTLAND CEMENT. MANHATTAN CEMENT COMPANY, New York, N. Y. Filed May 25, 1897.

SKY BRAND

Essential feature.—The words "SKY BRAND." Used since September 1, 1896.

80,858. PORTLAND CEMENT. THE MONARCH PORTLAND CEMENT COMPANY, Bronson, Mich., and Cleveland, Ohio. Filed May 11, 1897.

MONARCH

Essential feature.—The word "MONARCH." Used since March 8, 1897.

80,859. FIRE-CRACKERS. CONSOLIDATED FIREWORKS COMPANY OF AMERICA, New York, N. Y. Filed June 16, 1897.



Essential feature.—The word "RIPPER." Used since May 1, 1897.

80,860. DENTAL AND SURGICAL BURS. THE S. S. WHITE DENTAL MANUFACTURING COMPANY, Philadelphia, Pa., Chicago, Ill., New York and Brooklyn, N. Y., Boston, Mass., Atlanta, Ga., and Berlin, Germany. Filed June 14, 1897.

REVELATION

Essential feature.—The word "REVELATION." Used since 1891.

80,861. CYCLOMETERS, ODOMETERS, ENGINE-COUNTERS, AND FLUID-METERS. BUFFALO METER COMPANY, Buffalo, N. Y. Filed June 12, 1897.



Essential feature.—The words "GOOD LUCK" and a representation of a horseshoe. Used since December 30, 1896.

80,862. ELECTRIC BATTERIES. DAVID H. ALLEN, Miamisburg, Ohio. Filed June 15, 1897.

BURNLEY

Essential feature.—The word "BURNLEY." Used since June, 1893.

80,863. MUSIC-WIRE. ALFRED DOLGE & SON, New York, N. Y. Filed Apr. 8, 1897.



Essential feature.—The word "ATLAS" and a representation of Atlas bearing a coil of music-wire. Used since March 15, 1897.

80,864. FISH. THE JUDSON FIN COMPANY, Rochester, N. Y. Filed June 16, 1897.

Rosemary

Essential feature.—The word "ROSEMARY." Used since May 1, 1897.

80,865. FISH. THE JUDSON FIN COMPANY, Rochester, N. Y. Filed June 16, 1897.

PEACOCK

Essential feature.—The word "PEACOCK." Used since April 10, 1897.

80,866. HAIR AND FLESH BRUSHES. GRAND RAPIDS BRUSH COMPANY, Grand Rapids, Mich. Filed June 11, 1897.

TOKIO

Essential feature.—The word "TOKIO" and the letters "G" and "R." Used since May 20, 1897.

80,867. PERFUMERY, WATERS, SALTS, POWDERS, AND SOAPS. VAIL BROTHERS, Philadelphia, Pa. Filed May 15, 1897.



Essential feature.—A representation of a wivern conjoined with a belt. Used since March 1, 1894.

80,868. LINIMENTS, TONICS, AND BLOOD PURIFIERS. WILLIAMS & JAKEMAN, Lima, Ohio. Filed May 27, 1897.



Essential feature.—A representation of a buttercup above or partially inclosed by a garland. Used since February 24, 1897.

80,869. REMEDIES FOR DISEASES OF SWINE AND OTHER STOCK. SAMUEL D. CONNELLY, Warsaw, Ill. Filed June 16, 1897.

SUNSHINE

Essential feature.—The word "SUNSHINE." Used since March 5, 1897.

80,870. WINES, SPARKLING WINES, AND LIQUORS. CHRISTIAN F. ROEDERER, Kreuznach, Germany. Filed June 14, 1897.

BLUME DER NAHE

Essential feature.—The words "BLUME DER NAHE." Used since 1872.

80,871. CERTAIN NAMED LIQUORS AND BEVERAGES. ROLAND H. SMITH and HENRY K. L. SNYDER, Pittsburg, Pa. Filed May 14, 1897.



Essential feature.—A representation of a lady and gentleman sitting beneath a leafy bower, the vines of which meet and entwine in a wreath above the figures, the lady holding in one hand a filled glass and the gentleman likewise holding a filled glass in one hand and a bottle in the other hand. Used since January, 1897.

80,872. BEER. C. & J. MIELER, Brewing Company, La Crosse, Wis. Filed June 5, 1897.



Essential feature.—A monogram formed of the letters "C M J" associated with the word "PERFECTION." Used since May 1, 1897.

80,873. CARBONATED BEVERAGES. L. HOUSE & SONS, Syracuse, N. Y. Filed June 12, 1897.

CHERRIETT

Essential feature.—The word "CHERRIETT." Used since May 1, 1897.

80,874. MINERAL WATER. THE HOPPE & STRAUB BOTTLING COMPANY, Toledo, Ohio. Filed Apr. 26, 1897.

WEWOKA

Essential feature.—The word "WEWOKA." Used since March 15, 1896.

80,875. COFFEE SUBSTITUTES. MEYER & LANGE, New York, N. Y. Filed June 18, 1897.

ROSEN-KAFFEE

Essential feature.—The words "ROSEN KAFFEE." Used since 1869.

80,876. COFFEE AND TEA. JOSEPH J. O'DONOHUE'S SONS, New York, N. Y. Filed May 4, 1897.

GOLD SEAL

Essential feature.—The words "GOLD SEAL." Used since March 22, 1897.

80,877. COCOA, FLAVORING EXTRACTS, AND CONDENSED MILK. THE UNION PACIFIC TEA COMPANY, New York, N. Y. Filed May 7, 1897.



Essential feature.—A representation of an elephant. Used since January, 1877.

80,878. MILK, CONDENSED MILK, BUTTER, CREAM, AND CHEESE. NEW YORK CONDENSED MILK COMPANY, Jersey City, N. J., and New York, N. Y. Filed June 16, 1897.

WINNER

Essential feature.—The word "WINNER." Used since March 1, 1894.

80,879. BREAD, CAKE, AND PIES. GEORGE G. FOX COMPANY, Boston, Mass. Filed May 11, 1897.



Essential feature.—The letter "F," surrounded by two leaved branches arranged to form a wreath. Used since April, 1897.

80,880. FLOUR. HEZEL MILLING COMPANY, East St. Louis, Ill. Filed June 11, 1897.

80,880.



Essential feature.—A representation of a landscape representing a camp of Continental soldiers, flagstaff and American flag thereon, a picture of a soldier in uniform on duty, and the name and address "HEZEL MILLING CO., EAST ST. LOUIS." Used since August 10, 1880.

80,881. WHEAT-FLOUR. A. P. ROSSMEIN & Co., New York, N. Y. Filed Nov. 4, 1896.



LEON

Essential feature.—A representation of a lion and the word "LEON." Used since October 1, 1895.

80,882. BAKING-POWDER. WILLIAM P. O'HEARA, Salt Lake City, Utah. Filed Apr. 24, 1897.

SALTAIR

Essential feature.—The word "SALTAIR." Used since June 1, 1896.

80,883. CHEESE. CHARLES PERCIVAL, New York, N. Y. Filed May 13, 1897.



Essential feature.—A symbol of a ship. Used since January 1, 1891.

80,884. PICKLED OLIVES. SEVILLE PACKING COMPANY, New York, N. Y. Filed June 16, 1897.

Pim-Olas

Essential feature.—The compound word "PIM-OLAS." Used since May 10, 1897.

80,885. CHOCOLATE CREAMS. JOHN KRAUS, Chicago, Ill. Filed Apr. 7, 1896.

FLORENTINA

Essential feature.—The word "FLORENTINA." Used since March 15, 1896.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Ninth Circuit.

VON SCHMIDT *v.* BOWERS.

Decided January 4, 1897.

1. BOWERS—HYDRAULIC DREDGING-MACHINE—VALID—INFRINGED.
Claims 10, 16, 25, 53, and 59 of Letters Patent No. 318,859, granted May 26, 1885, to Alphonzo B. Bowers, for improvements in hydraulic dredging-machines, construed and *Held* valid and infringed by machines constructed under the Von Schmidt patents, Nos. 277,177, 300,333, and 306,368. (*Bowers v. Von Schmidt*, 63 Fed. Rep., 572, affirmed.)

2. SAME—SAME—SAME—SAME.
Claims 13, 17, and 18 of Letters Patent No. 355,251, granted December 28, 1886, to Alphonzo B. Bowers, for improvements in hydraulic dredging-machines, construed and *Held* valid and infringed by machines constructed under the Von Schmidt patents, Nos. 277,177, 300,333, and 306,368. (*Bowers v. Von Schmidt*, 63 Fed. Rep., 572, affirmed.)

3. SAME—SCOPE OF CLAIMS—PIONEER INVENTION.
The Bowers patents disclose and cover inventions of a pioneer character, standing at the head of the art, and their claims are entitled to a broad and liberal construction.

4. SAME—CLAIMS CONSTRUED—NOT FUNCTIONAL.
Said claims are not functional in form, nor are they claims for results, nor are they limited to any particular form of construction of the elements which make up the combinations, but they are broad generic claims, without any limitation as to the form of construction of the particular elements; and all subsequent machines which employ substantially the same means to accomplish the same result are infringements, notwithstanding the subsequent machine may contain improvements in separate mechanism which go to make up the machine.

5. SAME—SAME—NOT FOR AGGREGATIONS.
The Bowers claims are not mere aggregations, because the result produced is the product of the combination in which each element affects the action of all the others, and all of the elements coöperate in the one result of severing by the forward and side action of the machine the material in place where it is not wanted and depositing it in another place where it is wanted.

6. CLAIMS—COMBINATION—AGGREGATION.
No combination of elements that so operate can be regarded as a mere aggregation, for each one has a direct influence upon the action of each of the others, the result necessarily being the product of the combination itself and not a mere aggregate of several results each the complete product of one of the combined elements. (*Hailes v. Van Wormer*, 5 O. G., 89; 20 Wall., 353; *Royer v. Roth*, 49 O. G., 1997; 128 U. S., 201; 10 Sup. Ct., 68; *Reckendorfer v. Faber*, 10 O. G., 71; 92 U. S., 347; *Beecher Manufg. Co. v. Atwater Manufg. Co.*, 31 O. G., 306; 114 U. S., 594; 5 Sup. Ct., 1007.)

7. CLAIM—CONSTRUCTION OF.
The terms "inward delivery" in a claim for an excavator have direct reference to the mechanism itself, and cannot properly be limited to the description or effect of such mechanism. The clear meaning of a claim to "an excavator having inward delivery" or "with inward delivery through itself" is an excavator so constructed as to produce an inward delivery.

8. PIONEER INVENTION—JOINDER OF GENERIC AND SPECIFIC CLAIMS IN SAME PATENT.
A pioneer inventor is entitled in his patent to a generic claim, under which will be included every species of the genus, and in addition thereto he is entitled in the same patent to make specific claims for one or more species of the genus.

9. INTERFERING PATENTS—ANTICIPATION—TIME OF.
The defense of anticipation to be successful must be established as of a date anterior to the patented invention, not merely prior to the application for or date of the patent.

10. SAME—SAME—EARLY DRAWINGS AND MODELS.
As against the defense of anticipation the patentee may show the fact of invention by drawings, sketches, models, or any other competent proof.

11. ABANDONMENT—DELAY IN APPLYING FOR PATENT—REASONABLE DILIGENCE—STANDARD OF PROOF OF.
Delay in applying for a patent after an invention is made will not constitute abandonment where the inventor has used reasonable diligence to perfect the invention and avail himself of its benefits, and there is no general standard by which such diligence is to be established; but it must be reasonable under all the circumstances of the particular case. The character of the invention; the health, the means, the liberty of the inventor; his occupation upon kindred or subordinate inventions—are proper subjects for consideration. Such reasonable diligence does not involve uninterrupted effort nor the concentration of his entire energies upon the single enterprise.

12. INFRINGEMENT—DEFECT IN ORIGINAL MACHINE.
The fact that the first machine built by a patentee whose patent is sued on was not successful in operation is unimportant and no reason for denying him relief, especially where his subsequent machines have proved successful in practice.

APPEAL from the Circuit Court of the United States for the Northern District of California.

STATEMENT OF THE CASE.

This was a suit in equity brought by Alphonzo B. Bowers against Allexey W. Von Schmidt to restrain infringement of Letters Patent No. 318,859, for a dredging-machine, and No. 355,251, for improvements in hydraulic dredging-machines, both issued to Alphonzo B. Bowers, the first on May 26, 1885, and the second on December 28, 1886. The lower court sustained both patents and found infringement of claims 10, 16, 25, 53, 54, and 59 of Patent No. 318,859 and of claims 13, 17, and 18 of No. 355,251. (63 Fed. Rep., 572.)

The following are copies of the drawings annexed to Patent No. 318,859:

Fig. 1.

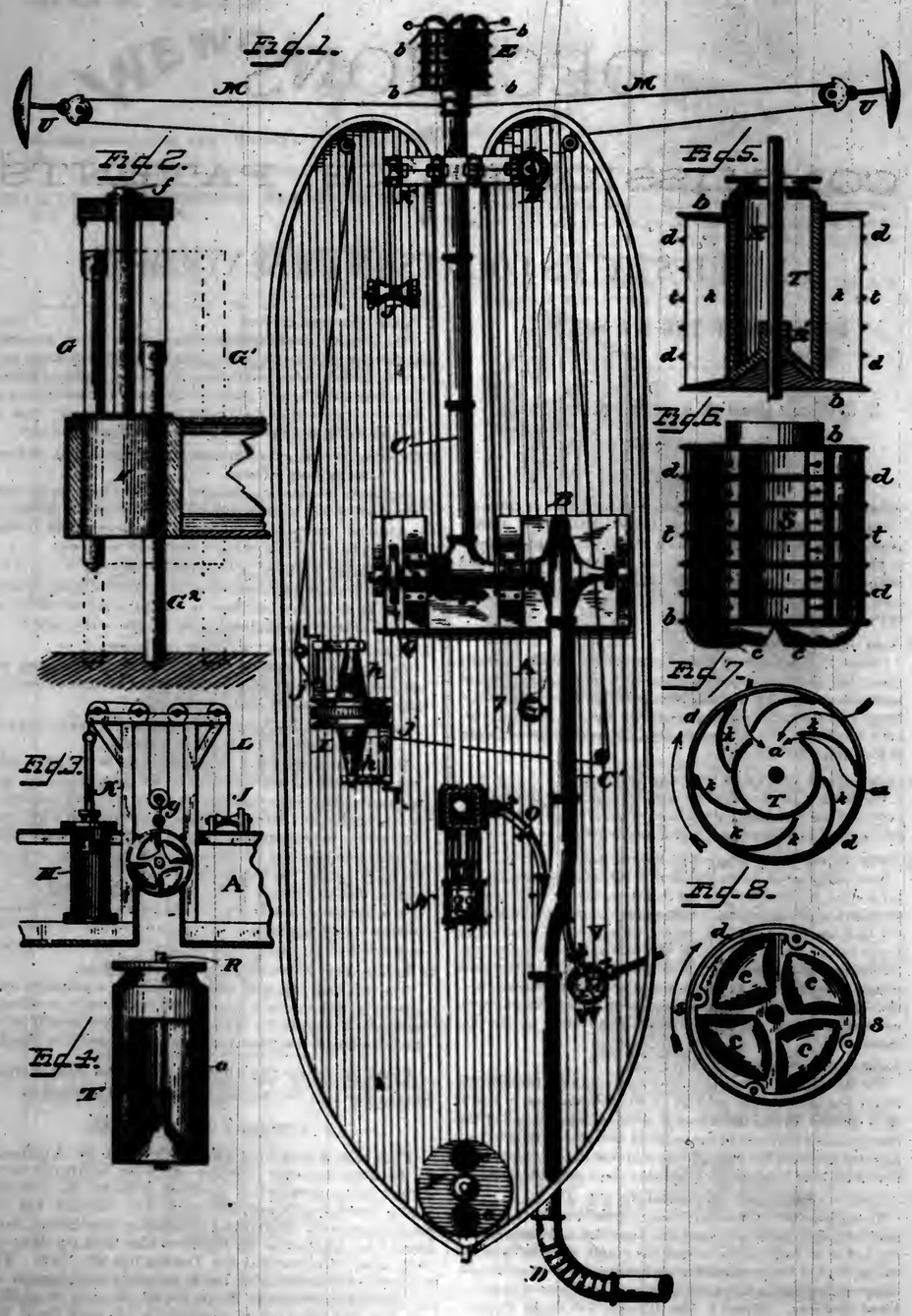


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.



Fig. 10.

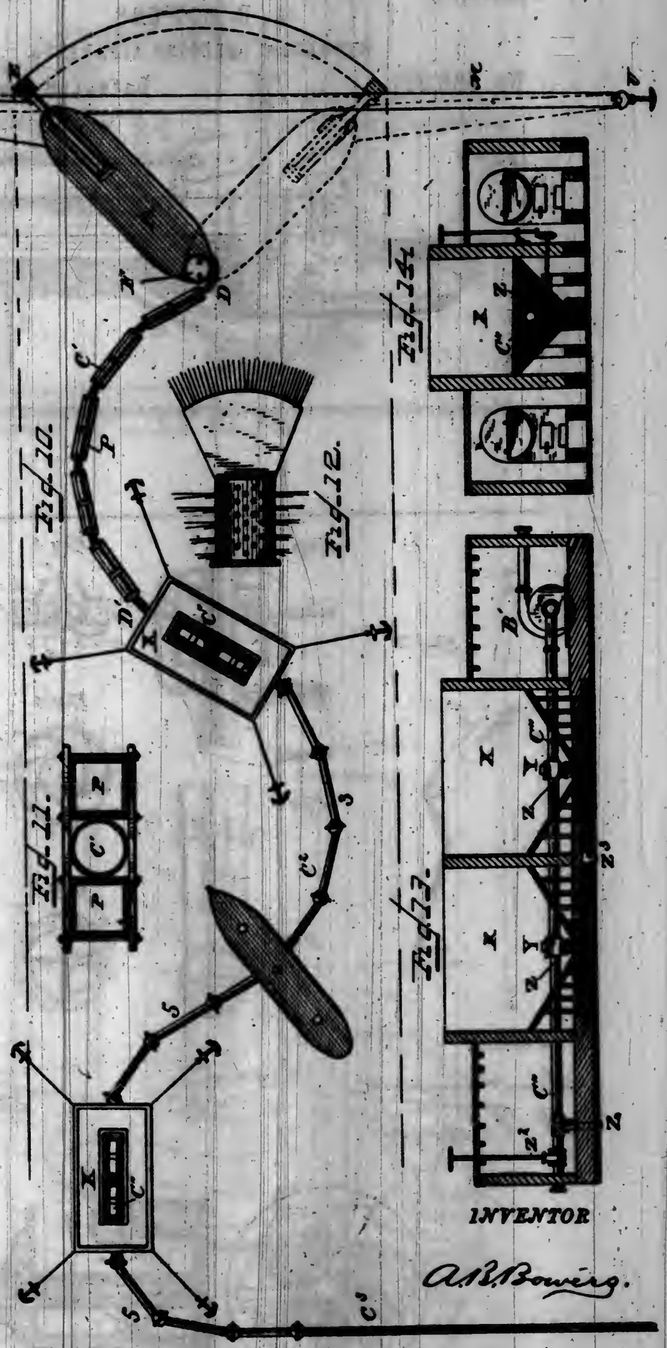


Fig. 11.

Fig. 12.

Fig. 13.

Fig. 14.

INVENTOR

A. B. Bowers.

The following are copies of the drawings annexed to Letters Patent No. 355,251:

(No Model.)

A. B. BOWERS.

HYDRAULIC DREDGING APPARATUS.

No. 355,251. Patented Dec. 28, 1886.

Fig. 1.

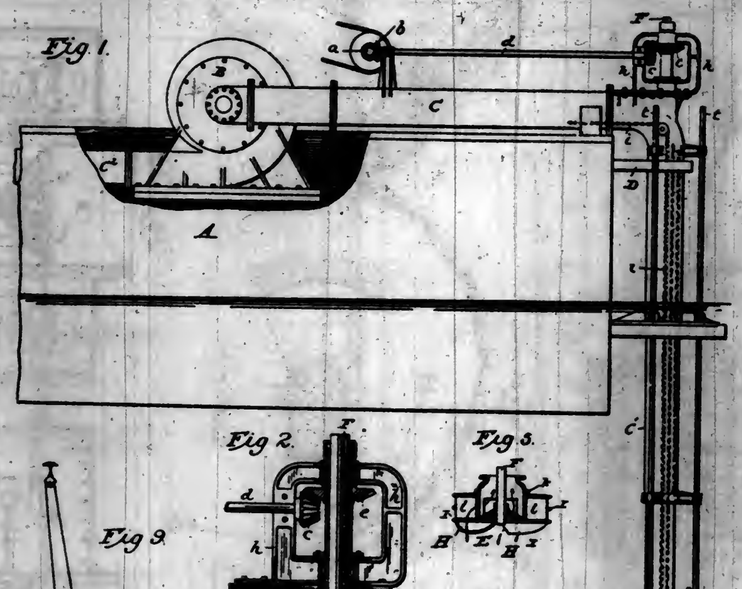


Fig. 2.

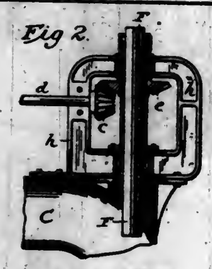


Fig. 5.

Fig. 9.

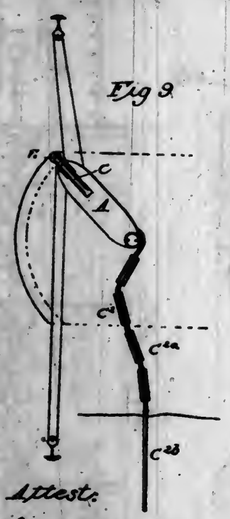


Fig. 3.



Fig. 6.



Fig. 4.



Fig. 7.



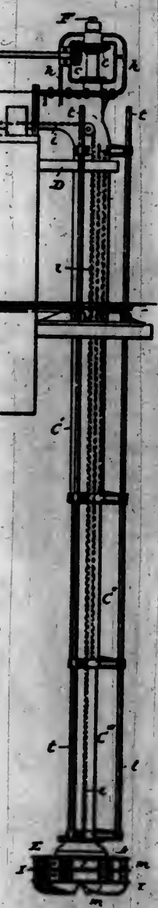
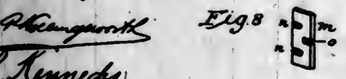


Fig. 8.



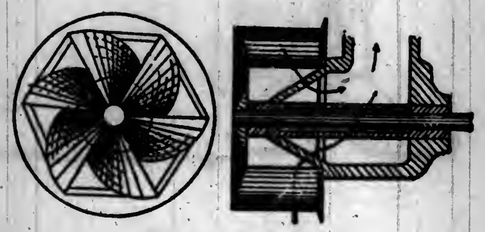
Attest:

Henry P. Kingsworth

W. R. Kennedy

Inventor:

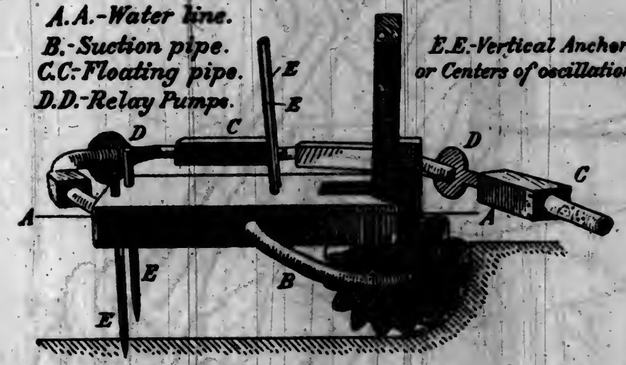
A. B. Bowers.



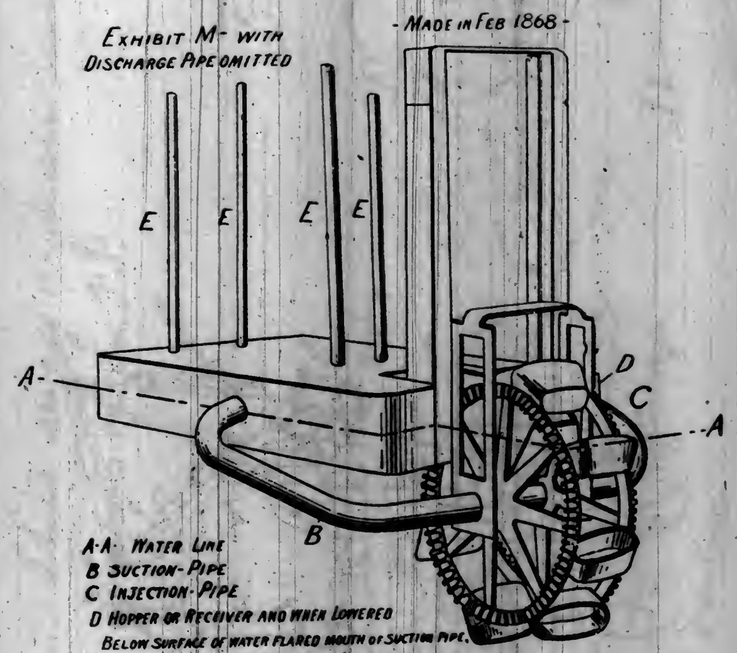
The following are photographic reproductions of exhibits "M2," "M," "N," and "I I," referred to in the opinion, being photographs of four models made by Bowers in 1868:

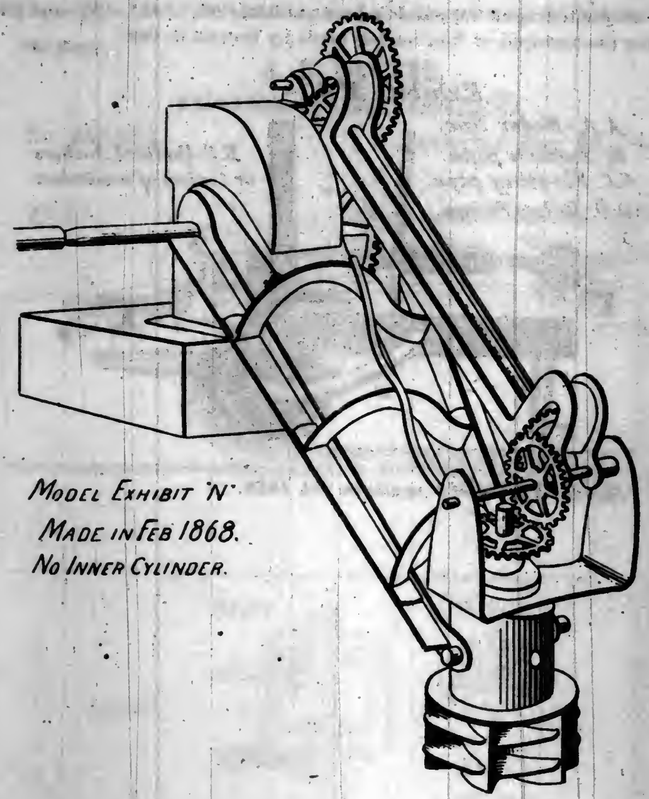
— Exhibit "M 2" —.

A.A.-Water line.
B.-Suction pipe.
C.C.-Floating pipe.
D.D.-Relay Pumps.
E.E.-Vertical Anchors or Centers of oscillation.



Model Exhibit "M2" made in Feb. 1868.





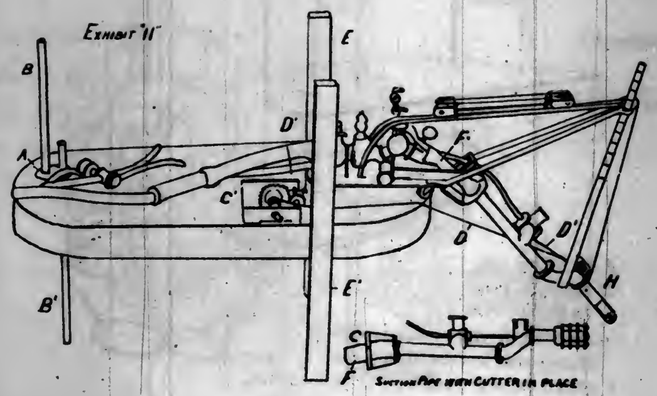
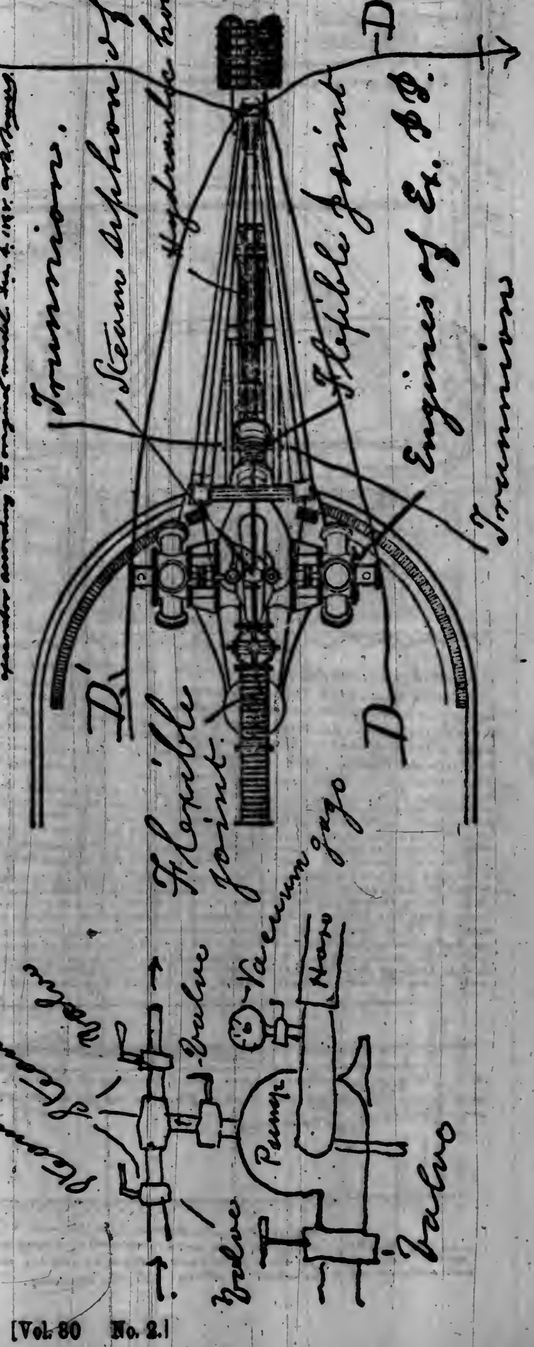
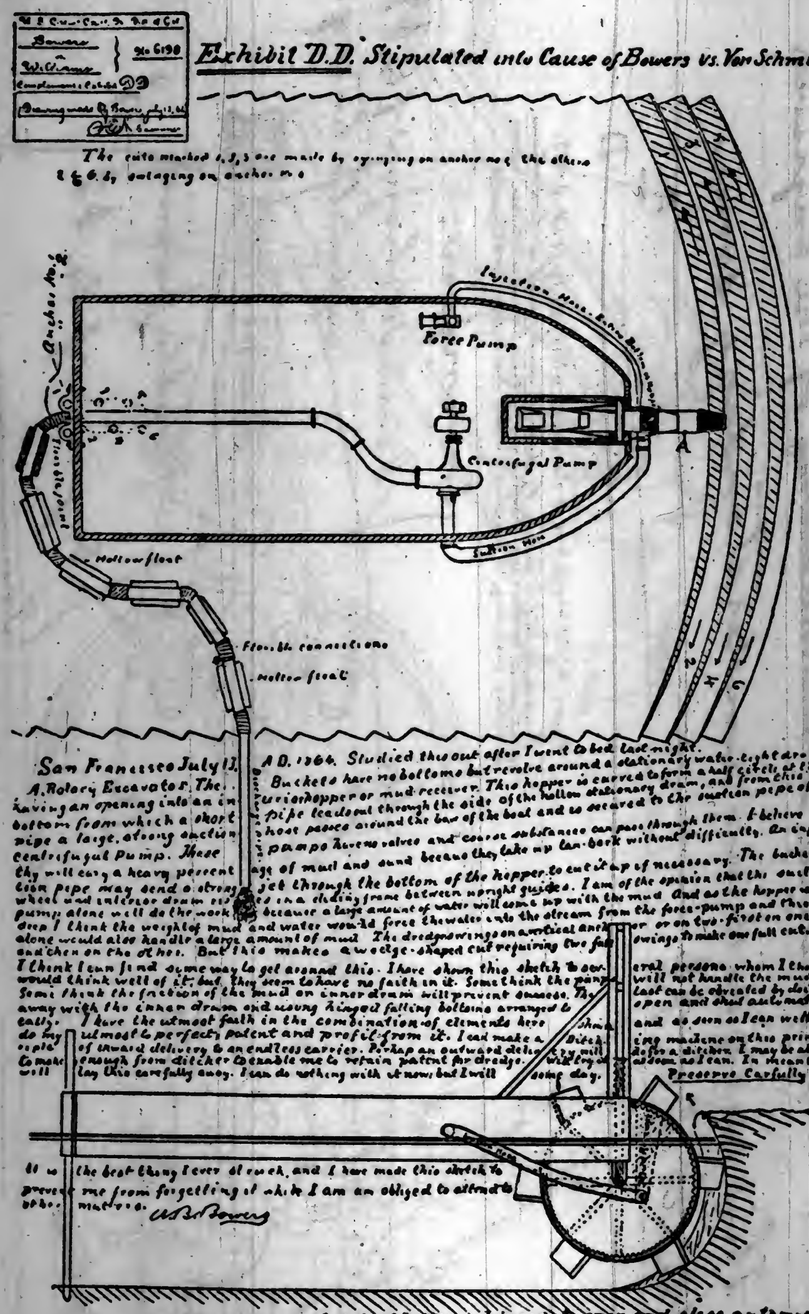
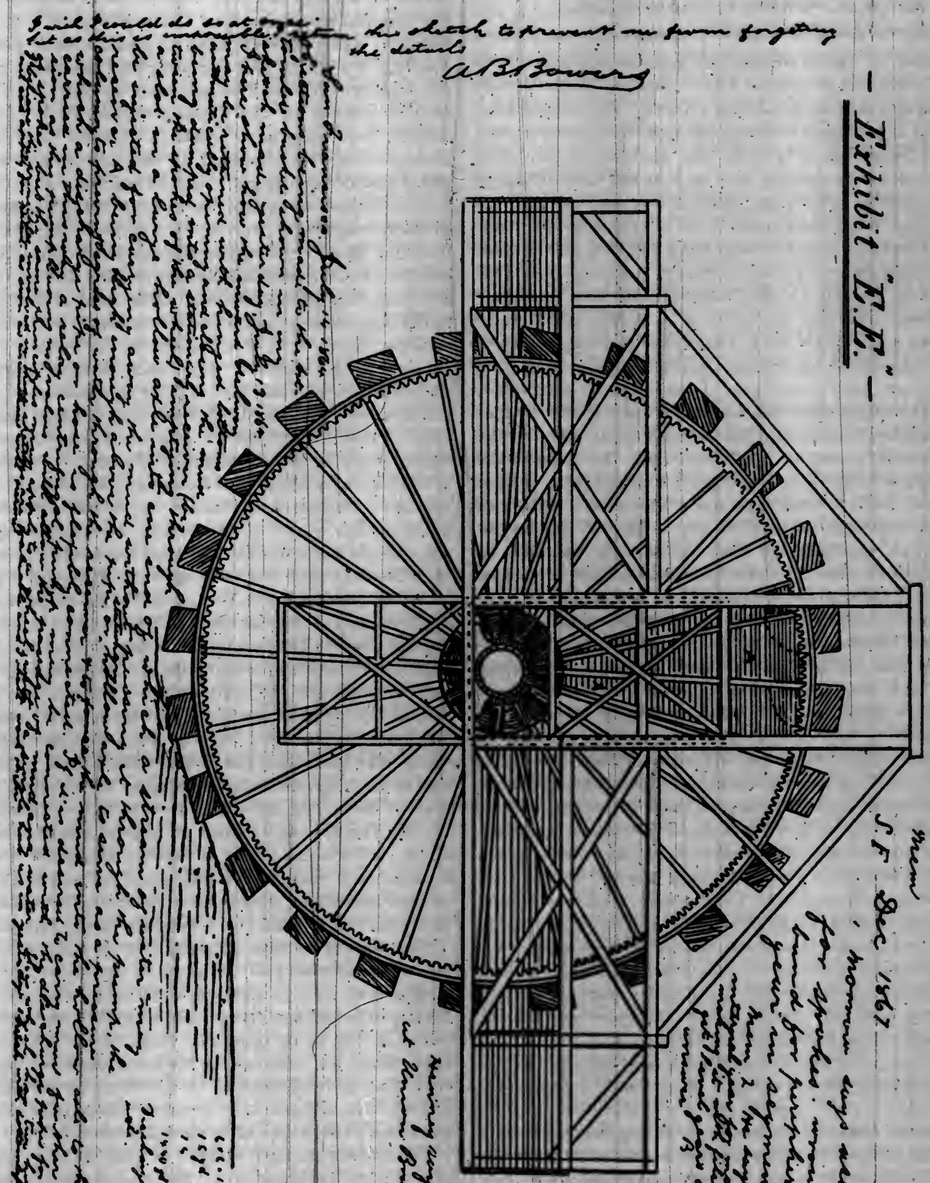


Exhibit of the engineers
for assistance rendered in mounting & dismounting
this may aid in understanding some
parts of Ex. #8.



The following are copies of the drawings and memoranda referred to in the opinion as exhibits "D D" and "E E," being original drawings made by Bowers on July 13, 1864, and July 14, 1864, respectively:





Before GILBERT and ROSS, Judges.

Mr. M. A. Wheaton for the appellant.
Mr. John H. Miller for the appellee.

ROSS, *J.*, (after stating the facts as above:)

This was a suit for the infringement of certain claims of certain Letters Patent. By his amended bill of complaint the complainant alleged that prior to December 9, 1876, he was the original and first inventor of certain new and useful inventions in dredging machines, machinery, and appliances which were not known or used in this country nor patented nor described in any printed publication in this or any foreign country prior to the inventions thereof by the complainant, nor had they been in public use or on sale in this country for two years prior to the complainant's application for a patent therefor, nor abandoned nor proved to have been abandoned; that, being such inventor, the complainant did, on December 9, 1876, duly and regularly make and file in the Patent Office of the United States an application for the issuance to him of Letters Patent for his said inventions, and that such proceedings were had in the matter of his application that on April 18, 1877, his application was allowed and a patent for his said inventions ordered to be granted and issued to him upon the payment of the final fee to the Government of $20 within six months from the date of said allowance; that the complainant failed to pay the fee within the time stated, by reason of which his application lapsed; that within two years after the said 18th day of April, 1877—to wit, April 16, 1879—under and pursuant to the laws of the United States and the rules of the Patent Office in that behalf made and provided, the complainant renewed his application in the Patent Office for a patent for his said inventions and filed a renewed application therefor, using the original specifications, drawings, and models which had been made and filed December 9, 1876, and which were then on file in the Patent Office; that both in his original application as also in his renewed application of April 16, 1879, more than one—to wit, several—independent inventions were described and claimed, which upon examination by the proper Examiners of the Patent Office were found not to be dependent upon one another and did not mutually contribute to a single result by reason of which a single patent could not be issued to cover them; that thereafter, and before the issuance of any patent therefor, and in accordance with the requirements of the Patent Office, and under and in accordance with the laws of the United States, the complainant did divide his original application and filed divisional applications for his said several inventions; that one of the inventions described and claimed in his original application of December 9, 1876, and in his renewed application of April 16, 1879, was entitled "Dredging-machines;" that while his original application was pending the complainant prepared and filed in the Patent Office a separate divisional application describing and claiming his improvements in dredging-machines; that nothing was included in his divisional application which had not been shown and described in his original application of December 9, 1876, and renewed April 16, 1879; that thereafter such proceedings were duly and regularly had and taken in the matter of his application; that on May 26, 1885, Letters Patent of the United States, numbered 318,859, were duly and regularly granted and delivered to the complainant for his said invention, granting and securing to him, his heirs and assigns, for the term of seventeen years from that date, the exclusive right and privilege of making, using, and vending the invention therein described throughout the United States and its Territories; that one of the complainant's inventions, shown and described in his original application of December 9, 1876, and renewed April 16, 1879, was a certain new and useful invention entitled "Hydraulic dredging apparatus;" that while his original application was pending—to wit, August 3, 1886—the complainant filed in the Patent Office a divisional application for the issuance of Letters Patent for said hydraulic dredging apparatus; that nothing was included in his last-mentioned divisional application which had not been shown or described in his original application of December 9, 1876, and renewal of April 16, 1879; that such proceedings were duly and regularly had and taken in the matter of his divisional application for a patent on said hydraulic dredging apparatus; that on the 26th day of December, 1886, Letters Patent, numbered 355,251, were regularly granted and delivered to the complainant for his said invention, granting and securing to him, his heirs and assigns, for the term of seventeen years from that date, the exclusive right and privilege of making, using, and vending the invention therein described throughout the United States and its Territories, of both of which patents and of all rights and privileges conferred thereby the complainant alleged he has since remained the owner and holder, and both of which patents the amended bill alleged the defendant has infringed.

The answer of the defendant to the amended bill of complaint put in issue its material averments, and also pleaded in defense of the suit, among other things, the abandonment by the complainant for more than two years of his original application for a patent, and alleged that the Patent Office unlawfully and in excess of its powers allowed the complainant to renew his application more than two years after such abandonment.

The answer further alleged a want of due diligence in the prosecution of the complainant's application, and averred that on June 14, 1882, and October 16, 1884, the complainant struck out all of the specifications in his application on file in the Patent Office at each of those dates and inserted in lieu thereof in each instance other and different specifications describing other and different inventions of which he well knew he was not the inventor and that he also withdrew from his original application all the drawings filed therewith and substituted other and different drawings therefor; that the descriptions, drawings, and claims in the patents issued to the complainant were changed from the descriptions, drawings, and claims contained in his original application, for the express purpose of including in and covering by his patents inventions and improvements which were made by and belonged to parties other than himself; that in accordance with the complainant's original drawings and specifications no useful or operative dredging-machine can be constructed, and that upon a fair and adequate trial a machine so constructed has been proven to be useless, and that it is only by reason of changes and modifications and omissions in the drawings and specifications under the complainant's original application and an appropriation of the inventions and improvements of others that there can be constructed, if at all, any operative dredging-machine in accordance with the divisional applications of the complainant.

The answer further averred that the defendant filed an application in the Patent Office on the 3d day of July, 1876, upon which his patent numbered 185,600 was granted to him December 9, 1876; that he made the plans of his dredger for which such patent was issued to him in the year 1874, and made a model thereof in April, 1875; that in 1875 and 1876 he built a dredging-machine which embraced the inventions described in his patent numbered 185,600; that in 1882 he built the hull of a new dredging-machine and finished the same by using a large part of the machinery which was put into his first dredger; that his second dredger contained the same inventions that were contained in his first, and that these two dredgers are the only dredging-machines that the defendant has ever constructed or used or sold in the State of California.

The answer further averred that the complainant saw and examined the defendant's model of his first dredging-machine and from that model obtained his (the complainant's) first idea of a suction-dredger; that both dredgers made by the defendant were suction-dredgers and were operated by a rotary pump and a telescoping suction-pipe with a rotary excavator having an internal delivery at the bottom of the suction-pipe, and also had connected therewith a floating conveying-pipe, through which the spoils were carried and deposited at a distance of a mile from the dredger; that the complainant from time to time examined and studied the defendant's dredger and its mode of operation and made sketches thereof, after which the complainant made his new applications for Letters Patent and changed his drawings and specifications on file in the Patent Office and purposely framed them so as to cover the dredging machinery and apparatus of the defendant; that in the Patent Office the complainant was referred to the patent of the defendant and changed his claims so as not to include the defendant's inventions, and thereby avoided having an interference declared with the defendant in the Patent Office.

The answer to the amended bill also set up various patents and publications as matters anticipating the complainant's alleged invention, and also alleged that the complainant kept the same on sale for more than two years before his application for a patent therefor, and also averred that the patents issued to the complainant contained a needless multiplication of nebulous claims, thereby rendering the patents void, and also that the claims in each of the complainant's patents purport to cover general combinations which may be included in general definitions and in general terms of description, and also cover what is not described in his specifications.

The foregoing constitute in substance the defenses set up in the answer to the amended bill. Exceptions to certain portions of the answer were sustained by the court below, which rulings constitute the first twenty-three of the fifty-seven assignments of error filed by the appellant; but as his counsel state in their brief that they—

> do not insist upon them unless the complainant claims that the material testimony taken should not be considered for want of a pleading—

and as there is no such insistence on the part of the complainant no further reference need be made to the exceptions.

The record in the case is very voluminous, embracing two thousand four hundred and seventy-seven printed pages and including a vast number of exhibits. The arguments of counsel are elaborate and able, and, while they have been carefully considered and all of the points made attentively noted, it is not practicable to make special mention of them all without extending this opinion beyond reasonable limits. The patent granted to the complainant May 26, 1885, and numbered 318,859, contains one hundred and three claims, and that issued to him December 28, 1886, and numbered 355,251, contains twenty-two claims. The court below found infringement by the defendant of claims 10, 16, 25, 53, 54, and 59 of complainant's Patent No. 318,859 and of claims 13, 17, and 18 of his Patent No. 355,251. In the specification contained in his first patent the complainant states that his invention—

> consists of a rotary bottomless-bucket excavator-wheel, of moderate size, novel construction, and great capacity, combined with a hydraulic transporting device of equal capacity, by means of which the spoils may be cheaply carried to a distance of several miles over land or water and across navigable channels without interruption of navigation, together with novel feeding devices, through which the percentages of earth excavated by the cutting-wheel and of the water therewith delivered are adjustable to the precise amount of each necessary for most economical working, and by means of which clean work is done, the excavator going twice over no ground and missing no ground, thus saving much time, and effecting a material reduction in the cost of apparatus, repairs, and cost of dredging and of disposing of the spoils, these being the chief objects of the invention.

And, referring to the accompanying plans and the figures thereon, the complainant thus described his machine and its operation:

> A is a floating vessel that carries the engines, boilers, and dredging machinery. It is shown in this instance with an elongated longitudinal well for the reception of the swinging portion of the suction-pipe.
>
> B is a large pump that draws the spoils from the buckets of the excavator up the suction-pipe and forces them through the discharge-pipe to a place of deposit.
>
> B', Figs. 9, 13, is a relay-pump or other auxiliary discharging apparatus, sometimes used in connection with a primary transporting apparatus to carry the spoils to a greater distance than could conveniently be done by the original agent, power, or pump, or than would be practicable without subjecting the apparatus to a pressure that might endanger some of the parts, or without the use of heavier or more expensive apparatus than would be desirable for ordinary purposes. It may also be used for discharging the receiver X, and for exhausting water from pipe C', (when said pipe is submerged,) for the purpose of rais-

ing it preparatory to floating it into a new position. As many of these pumps may be used as are necessary to transport the spoil to the required distance.

C is a suction-pipe connecting the excavator with the pump B. The swinging portion of this pipe is mounted at the inner end of the well upon strong trunnions, one of which forms an elbow of the pipe and passes through a stuffing-box or other suitable connection into the suction-pipe of the pump B. Through the other trunnion passes a shaft that actuates the gears *i*, that drive the shaft R and bucket-wheel E; and upon these trunnions the shaft R, suction-pipe, and excavator swing as the cutter is raised or lowered to suit the depth at which the work is progressing.

C′ is a discharge-pipe. It is provided with a strong flexible section, D, or other suitable joint or mounting, at or near the turn-table F, and other pivot or center of oscillation of the dredging-machine or excavating apparatus, and is constructed and arranged to permit said apparatus or machine to swing horizontally upon said pivot or pivots without materially changing the position of said discharge-pipe beyond said mounting, flexible connection, pivot, or pivots. When this pipe is several hundred feet in length, I usually support the inner portion by long, narrow, hollow floats, in which case it consists of two parts—an inner oscillating or swinging section (generally composed of several short sections flexibly joined together and to the dredge-boat) and an outer stationary or non-oscillating section, flexibly joined to said inner section. This permits the boat to feed forward and the oscillating section to swing with the advancing boat (as the work progresses) on the joint connecting the oscillating and non-oscillating sections. The discharge-pipe is provided with a pressure-gage, 7, Fig. 1, to give notice of overpressure and danger of choking of pipe from any sudden change in character of spoil. When pipe C′ is above deck and extends but a short distance from the mounting D for discharging alongside, it requires supporting, and is usually suspended from a mast, the claim for which is reserved for another application now on file.

C″ is a pipe passing through the receiver X to the exhausting apparatus of said receiver. When used in connection with the pipe C′, it may be regarded as the prolongation of said pipe.

C³ is an auxiliary discharge-pipe, used in connection with any suitable auxiliary transporting apparatus, and extends from said auxiliary to another auxiliary transporting agent or apparatus, or to the place of deposit.

C³, Fig. 10, is a discharge-pipe extending from a second relay discharging apparatus to a place of deposit. When a floating discharge-pipe would impede navigation, the greater portion may lie upon the bottom 4, Fig. 9, and when the water is too deep for this it may be suspended from the buoys 5 5, Fig. 9, and guys and anchors 6 may, if necessary, be used to prevent it from being disturbed by winds, waves, or currents. When the pipe is to be submerged, it may be advisable to construct it of thin metallic plates, uniting the several sections with ball-and-socket or other strong flexible connections. In other cases it may be made of wood or metal, according to the preferences of the user.

E is a rotary bucket-wheel excavator, having radiating bottomless buckets *k*, Figs. 4, 5, 6, 7, firmly secured at each end to the discal ends *b b* of said excavator. These buckets may be stiffened, strengthened, and protected by rings or screens *d*, passing around, secured to, and preferably projecting beyond the edges of said buckets, Figs. 1, 5, 6, 7, 8. These rings may be sharp to cut like the revolving disk colters of plows, and serve to subdivide the material entering the buckets, and to exclude substances too hard to be cut and too coarse to pass through the pipe and pump. They serve also as fenders to enable the cutter to ride over obstructions without catching and breaking. The edges of the bucket are sharp, and may be provided with detachable steel knives or cutters S, Fig. 6, for working in hard material. The outer discal end, Figs. 1, 3, 6, 8, may be provided with cutting edges, lips, or scoops *c* to obviate the danger of breakage from jamming against a hard bank as the dredger heaves in the swell of the sea. In making the necessary openings in the discal end to admit the silt from said scoops, said end plate becomes changed to the form of a spider or series of arms, which may be strengthened by the lower ring *d*, which in turn may be regarded as forming a series of braces extending between the said arms at or near their outer parts. The several parts of this excavator may be made separate and detachable, or it may be cast in a single piece. I do not confine myself to the precise mode described of mounting this wheel or of freeing it of its contents. It may be of any desired size and proportion of parts, and may discharge its contents inward through itself into any suitable conduit or receiver. The rings *d* may be omitted in soft mud free from substances too coarse to pass through the pipes and pump, though always at the risk of the projecting buckets catching upon obstructions and getting broken.

F, Figs. 1, 2, 10, is a small cylindrical turn-table rotating in a circular well or frame. It is provided with a strong flange or other suitable bearing, and is rotated in any convenient manner. Two or more vertical apertures, *e e*, pass through the turn-table from top to bottom on opposite sides, as shown.

G G² are vertical anchors passing loosely through the apertures *e e* in the turn-table into the mud below. They are raised by blocks and tackle attached to the mast *f*, or in any other usual manner.

H is a counterbalance-cylinder connected with the suction-pipe, excavator, and hoisting apparatus, to obviate the danger of breakage from pounding upon the bottom in a heavy swell. It is provided with a piston, piston-rod, and gland, like a steam-engine. Steam or compressed air is admitted to the upper side of the piston, the area of which is sufficient very nearly to balance under the given pressure the weight of the suction-pipe and excavator. To the upper end of the piston is attached the hawser L, passing over suitable sheaves in the frame K, thence through the block *g*, Fig. 3, whence it passes over other sheaves in said frame to the windlass J, by which means the excavator can be raised or lowered by said windlass without interrupting the action of the counterbalance. When the dredger rises on a swell, the excavator rises also, and as the dredger sinks in the trough of the sea the excavator falls upon the bottom, not with the full weight of the excavator and suction-pipe, but with the unbalanced weight only, striking so lightly as not to endanger the safety of the wheel. This device is necessary only when dredging a hard bottom in a heavy swell. When not required for this purpose, the cylinder H may be utilized as a steam or hydraulic hoist, or be dispensed with altogether.

I is a variable winding device, of which there are many suitable forms. I prefer ordinary winding-drums driven by a separate engine, though for simplicity of illustration I have shown tapering drums *h h*, loosely mounted on a shaft and driven (through V-shaped friction-couplings and suitable connections) by the main engine. The disengaged drum gives out one warping-line as the engaged drum takes in the other. The office of this device is to vary the speed of the side feed, for the purpose of regulating the percentages of earth and water delivered to the pump without affecting the speed of other parts of the machinery. This speed with the device shown is dependent upon the diameter upon which the warping-lines wind, and is varied by shifting the sliding guide-sheaves *j j* toward or from the larger ends of the drums by means of the hand-wheels and screws, as shown.

J is a windlass for raising and lowering the excavator.

K is a frame from which the suction-pipe and excavator are suspended.

L is a line or chain for raising, lowering, and counterbalancing the excavator.

M M are warping-lines passing from the hold to the winding-drums *h h*, around which they make a sufficient number of turns to prevent slipping, whence they pass around suitable guide-sheaves, to and through the anchored blocks U U, to the outer end of the suction-pipe, to which they are secured, so that the working side strain falls mostly upon the outer end of the suction-pipe, (or of the ladder supporting said suction-pipe, if such be used,) and but lightly upon the joints or trunnions supporting the inner ends of said pipe or ladder. As the outer ends of these lines wind upon the drums in the device shown, the inner ends unwind and descend to the hold. The office of these lines is to swing the excavating apparatus or the dredger from side to side in the process of dredging, and firmly to anchor the excavator end of the dredger when it is not at work, which latter is accomplished by simply engaging both drums *h h* in their friction-couplings.

N is a force and suction pump. It is used to exhaust the water from the discharge-pipe for the purpose of raising the submerged portion, to dilute the spoils, so that they will spread over a large area of land, or to enable them to be transported through long pipes without the aid of a relay-pump, to clear the pipes when accidentally choked, should this ever occur, and to prime the pump B, the latter or its suction-pipe being provided with the usual valve or valves for that purpose. Like most steam-pumps, it is provided with two suction-orifices on opposite sides of the water-chamber and a discharge directly over each suction. To the suction and discharge on one side is connected the branch pipe O, leading into the pipe C′. Each branch is provided with valves in the usual manner of arranging a branch pipe to serve for suction and discharge. The discharge branch only is shown, the suction being directly under it. To the suction on the other side of the water-chamber is secured a valve and pipe communicating with any suitable supply of water, (usually that in which the dredger floats,) and sometimes by a branch pipe and valve with the hold of the vessel for discharging leakage, and by another branch and valve with pump B for priming said pump by suction. To the discharge above this suction is connected a pipe or hose, that may also be used for priming the pump B by discharging into it, and for all the various purposes of an ordinary ship-pump. When O is used as a suction-pipe to draw from pipe C′, the valve on the discharge branch is closed, the suction-branch valve is opened, and the discharge is through the pipe or hose on the opposite side. When O is used as a discharge-pipe to force into pipe C′, the suction-branch valve is closed, the discharge-branch valve is opened, and the suction is through the opposite suction-pipe. When the suction is through the pipe opposite the suction branch of pipe O, the discharge may be through the pipe or hose above it or through the discharge branch of O into pipe C′, as regulated by the valves to suit the purposes of the user.

O is a pipe with branches and valves connecting both suction and discharge on one side of the pump N with pipe C′, and is either a suction or discharge pipe, as regulated by its valves.

P P are long, narrow, hollow floats, preferably extending longitudinally along each side of the short sections of the discharge-pipe, for supporting them on the water. They may be made of wood or metal, and be secured together and to the discharge-pipe by pieces of scantling passing crosswise over and under the pipe and floats and fastened with rods passing each side of the pipe and floats, as shown in Fig. 11, though I do not confine myself to this form of construction.

Q is a pulley or gear for actuating the gears *i* and excavator E. It may be connected with its shaft by a friction-coupling.

R is the driving-shaft of the bucket-wheel. It is keyed or otherwise secured to the hub of the wheel, whence it passes through suitable bearings in the inner chamber, up the suction-pipe, and through a stuffing-box to the gears *i*, by which it is actuated.

S is a strong detachable steel knife, sometimes used on the edges of the buckets when working in hard material. It may be serrated, chisel-toothed, or straight-edged, according to the character of the materials to be cut, a straight edge being preferable for ordinary work.

T is an inner chamber or shield, around which the bucket-wheel revolves, and into which it discharges. This chamber is

provided with a strong flange, by which it is secured to a similar flange on the end of the suction-pipe. It is also provided with a large opening, *a*, Figs. 4, 7, through which the spoils enter from the buckets, and through this opening, Fig. 4, is seen a portion of the driving-shaft R, and the bearing of said shaft in the end of said chamber. This chamber or shield forms a bottom for the buckets *k* until they reach the opening *a*, as shown in the cross-section of the wheel and chamber, Fig. 7. As the buckets pass this opening, they discharge mud and water into the chamber, as indicated by the inner arrows, the outer arrow showing the direction of rotation. The office, in part, of this chamber or shield is to prevent too large a percentage of water from entering with the mud; but when the spoils are of a character to require a large percentage of water to carry them up the suction-pipe, or to send them through the discharge-pipe, as may sometimes be the case, the chamber may be cut away until only enough remains to support the excavator and shaft R.

U U are blocks anchored at suitable points on each side of the dredger, through which pass the warping-lines M M, for the purpose of swinging the dredger or the excavating apparatus from side to side. They are usually placed from three hundred to six hundred feet apart, and a little in advance of the ends of the first cuts made by the excavator, to allow a wide swing and avoid the necessity for too frequent change of place as the work progresses.

V is a branch pipe and valve, through which samples of the spoils are drawn from the discharge-pipe, to enable the operator properly to regulate the speed of the side feed. It is preferably placed about one-third the diameter of the discharge-pipe from the lower side of said pipe in order to secure a fair average sample.

W is a small tank resting upon scales. It is provided with a discharge-pipe and valve. It is filled with spoils drawn from the discharge-pipe through the branch and valve V, and the speed of the side feed is increased or diminished according to the weight of the spoils.

X is a floating mud-receiver carrying the relay-pump or other auxiliary discharging apparatus B′ and its actuating apparatus. The main purpose of this receiver is to permit the excavator to run continuously, although the relay-pump be stopped for a little while, the receiver affording a receptacle for the spoils in the meantime. Longitudinally through this receiver passes the pipe C″ to the auxiliary discharging apparatus B′, whence the pipe C³ extends to another auxiliary discharging apparatus or to the place of deposit.

Y is a valve on the pipe C″, within the receiver X. This valve is adjusted to open automatically outward with slight pressure, and serves as a relief-valve in case of stoppage of the pump B′ while the pump B is running. It serves also as a guide to regulate the speed of pump B′, which should be increased beyond that necessary for preventing the opening of this valve in order to aid by suction as well as forcing. This valve may be set wide open for the purpose of filling the receiver, and may be securely closed when the pump B is used to force the material into the pump B′ for the purpose of increasing the efficiency of the latter. It is also opened to admit air into the discharge-pipe when the water is to be withdrawn therefrom by pump N.

Z is a branch and valve, through which mud is drawn from the receiver to be discharged through the pipe C³.

Z′ is a branch and valve for admitting water to wash out the pipe C³ after the mud has been discharged from the receiver.

Z² is a valve for closing the pipe C″ while the mud-receiver is being discharged, or when said receiver is disconnected from the pipe C′, and takes the mud directly from the dumping or dredging apparatus.

Z³ is a pipe and valve used for admitting water through the bottom of the receiver for the purpose of diluting the mud when it is too stiff to pass freely up the branch Z. It may have branch pipes with numerous small openings for the more thorough dilution of the spoils. This receiver may be used in connection with any dredging apparatus for continuous transportation of the spoils through pipes as the work progresses; or it may be filled, towed to the place of deposit, and there be connected with a discharge-pipe for putting the spoils on shore.

The operation of dredging is as follows: The vertical anchors and excavator being raised to allow freedom of motion, the dredger is placed in position with the turn-table in line with the longitudinal axis of the proposed cut. The turn-table is then rotated until the vertical anchors are also in line with said axis, and both anchors are then dropped into the mud. The discharge-pipe is placed in position, the blocks U U anchored at suitable points for swinging the machine, and the dredger swung around until the excavator reaches the side of the proposed cut, as shown in Fig. 10. The lines M M are drawn taut and the excavator lowered below the surface of the water. The pump B is then primed, started, and the excavator set in motion and lowered its entire diameter into the mud. The proper winding-drum is then engaged, and the dredger, swinging on the turn-table as a pivot or center of oscillation, rapidly cuts its way to the opposite side. To secure a steady side feed, the friction-coupling of the unwinding-drum may be adjusted to keep the unwinding line sufficiently taut to prevent the veering of the dredger with wind or tide. Upon reaching the opposite side the winding-drum is disengaged, the excavator again lowered its full diameter, the side feed reversed, and the dredger cuts back again. This process is repeated until the proper depth is obtained. The excavator is then raised above the bank in front, the anchor G raised, as shown in Fig. 2, and the turn-table rotated upon the anchor G² until G is squarely in front of G², in line with the longitudinal axis of the proposed excavation, as indicated by the broken-lined outline G′, Fig. 2. G is then dropped into the mud, and the work proceeds as before, the dredger having been fed forward the distance between the centers of the vertical anchors, which is fixed to correspond with the cut capable of being made by the excavator. This arrangement for feeding forward keeps the center of oscillation of the dredger coincident with that from which the arc to be cut by the excavator should be described. A less perfect forward feed is secured by placing the dredger so that the excavator is at the side, and the turn-table in line with the longitudinal axis of the proposed excavation. The turn-table is then rotated until the vertical anchors are in a line parallel with the transverse axis of the dredger, where it is made stationary. This leaves one anchor diagonally in advance of the other, the dredger lying diagonally across one half of the line of the proposed excavation. The forward anchor is now dropped into the mud to form a pivot, upon which the dredger swings as it cuts to the opposite side. The dredger then lies diagonally across the other half of the line of the proposed excavation, the swing having brought the rear anchor to the front. This anchor in its turn is dropped to form a new pivot, and the other anchor is then raised. The dredger swings first upon one and then upon the other anchor, these anchors being alternately raised and lowered for this purpose. As this mode of feeding by swinging alternately upon two different pivots gives a wedge-shaped cut, requiring two full swings to make one full cut, it is equivalent to a loss of one-half of the time, and is used only to prevent stoppage of work when the apparatus for rotating the turn-table is stopped for repairs or other cause, in which case it becomes valuable.

It will be seen from the foregoing that the fundamental elements of the complainant's Patent No. 318,859 and of the machine covered by it are a boat and excavator capable of working with a side feed, a non-rotating suction-pipe, an exhausting and discharging apparatus, a discharge-pipe, a self-concontained pivot or center of oscillation on which the boat swings from side to side while it is working, devices for swinging and for working the machine from side to side, devices for moving the machine ahead preparatory to a new cut, a floating discharge-pipe when the spoil is to be transported over water, a submerged discharge-pipe when the spoil is to be carried across a navigable channel without impeding navigation, and an outer stationary section of discharge-pipe when the spoil is to be carried over land.

The claims of this patent found by the court below to have been infringed by the defendant are the following:

10. A dredge-boat having a self-contained pivot forming a center of horizontal oscillation, with devices for swinging and working said boat upon said pivot, in combination with a suction-pipe, exhausting apparatus, and rotary excavator.

16. A dredge-boat and oscillating section of a conduit-discharge flexibly joined to a non-oscillating section, to allow said boat to feed forward and said oscillating section to swing upon the flexible joint connecting said oscillating and non-oscillating sections.

25. A discharge-pipe consisting of a series of sections flexibly joined together and supported by floats, in combination with a dredger having a rotary excavator.

53. The combination, with a non-rotative suction-pipe, of a rotary excavator having an inward delivery through said excavator.

54. The combination, with a dredge-boat and non-rotative suction-pipe, of a rotary excavator having an inward delivery through said excavator.

59. A rotary excavator with inward delivery, in combination with a non-rotating suction-pipe mounted upon strong trunnions or equivalent joints, to permit the excavator and outer end of the suction-pipe to be raised and lowered to suit the depth at which the work is progressing.

The defendant contends that the complainant was not the inventor of the machine thus patented to him, but that he copied its essential features from a machine built and invented by the defendant, and, moreover, that the complainant's machine was anticipated by various other patents and publications set up in the answer. If the evidence shows this to be true, we need go no further with the case. We therefore turn to the record to see what foundation, if any, there is for this contention. So far as the defense of anticipation is concerned it must be established as of a date anterior to the patentee's invention or discovery, not merely prior to the application for or the date of his patent. (Rev. Stats., secs. 4886, 4920; *Plow Works* v. *Starling* 140 U. S., 198; 11 Sup. Ct., 803; *Clark Thread Co.* v. *Willi-*

mantic Linen Co., 56 O. G., 395; 140 U. S., 492; 11 Sup. Ct., 846; *Webster Loom Co.* v. *Higgins*, 21 O. G., 2031; 105 U. S., 592; *Kneeland* v. *Sheriff*, 18 O. G., 242; 2 Fed. Rep., 901; *Woodman* v. *Stimpson*, 3 Fish. Pat. Cas., 105; Fed. Cas., No. 17,979; Merw. Pat. Inv., sec. 323.) And as against the defense of anticipation it is well settled that the patentee may show, if he can, the fact of invention by drawings, sketches, models, or any other competent proof. (Walk. on Pat., sec. 697; *Webster Loom Co.* v. *Higgins*, 21 O. G., 2031; 105 U. S., 594; *Bates* v. *Coe*, 5 O. G., 337; 98 U. S., 34; *Smith* v. *Vulcanite Co.*, 11 O. G., 246; 93 U. S., 486; *Consolidated Bunging Apparatus Co.* v. *Woerle*, 38 O. G., 1015; 29 Fed. Rep., 451.)

The record shows that for many years the complainant was investigating the subject of dredging, and had familiarized himself with most, if not all, of the dredgers in existence. He was familiar, too, with the sand-pump. The latter, while it would pump sand, would not cut and remove hard material. Before the complainant did anything in the direction of invention there were also dredgers in existence and in use that would cut and remove hard material. There were the "scoop," and the "clam-shell," and the "chain bucket," and Hart's dredger, and Fraser's dredger, and the patent to D. S. Howard of January 9, 1855, and Atkinson's patent of July 7, 1863, and the rotary-wheel dredge of Fondé and Lyons, and other rotary dredgers of which the complainant had knowledge, for in the original specification contained in his application for a patent he himself stated that—

> for more than two centuries rotary dredges have shown a capacity for cutting and lifting far in excess of any other dredging device; but in the forms of construction hitherto adopted it has been necessary to make the diameter of the wheel much greater than the depth to be dredged, thus making them too unwieldy for ordinary uses, while the best appliances for removing the spoils have fallen far short of the dredging capacity of the wheel.

But prior to the complainant coming into the field there was no machine, by whatever name known, that would by the simultaneous and continuous coöperation of its various elements cut and remove hard material from a waterway and itself transport the same to any desired distance and place. The complainant undertook to accomplish that thing. The accomplishment of the purpose necessarily involved the severing of the material in place, the lifting of it, and its transportation through some sort of conduit to the desired place of deposit.

The evidence shows that the complainant, having devoted much study and thought to the subject, embodied his ideas in a drawing marked "Exhibit D D," and which was introduced in evidence. Upon its face the drawing is dated July 13, 1864. Counsel for the appellant assert in argument that this date is false; that the drawing was actually made in the year 1884 and antedated twenty years. The ground of this contention on the part of the appellant is that the words "inward delivery," which appear upon "Exhibit D D," do not appear in the complainant's proceedings in the Patent Office prior to March, 1884. The words "inward discharge" appear, instead, in the complainant's original specification. The two expressions mean one and the same thing. The use of the word "discharge" in place of the word "delivery" in the original specification is explained by the complainant by saying that the first draft of the specification was prepared by his attorney, who used the term "inward discharge" instead of "inward delivery," and that when he (the complainant) revised and redrafted the specification before sending it to the Patent Office he followed the phraseology of his attorney, but that subsequently when he took personal charge of his application he redrafted the specification and claims and adopted the phraseology originally used by him in the drawings of 1864. There is nothing in the circumstance relied on by the appellant to cast any doubt upon the testimony of the complainant in respect to the true date of exhibits "D D" and "E E," especially as there is much testimony corroborative of that of the complainant, which is to the effect that he made the drawings on the day they respectively bear date.

The complainant testified that while holding a position as clerk in the office of the United States Surveyor-General for the State of California he was thrown in daily contact with all matters pertaining to swamp land and swamp-land reclamation and had many conversations with people desirous of reclaiming such lands and in regard to the best mode of doing so.

> This led me [said the witness] to continue my investigation of dredging and ditching machinery, and I soon came to the conclusion that the proper mode of leveeing a river was to take the material from the bed of the river. I then conducted a series of experiments with regard to the carrying capacity of water in pipes. I discovered that by cutting holes in the bottom of the pipe the sand would drop through those holes, while the water would pass over and be discharged where I wished to deposit the sand, and in this way I could build sand embankments. This led me to devise a hopper with an injection-pipe entering the bottom of the hopper directly opposite to the mouth of a discharge-pipe, and the material to be dumped into this hopper and carried by the injection-stream through the discharge-pipe. I then considered the mode of applying this method with reference to putting the material from the river on shore. This led me to connect with my pipe floats for supporting it. I then became convinced that centrifugal pumps would carry off a larger quantity of material than could be handled by ordinary dredgers, and I began to investigate for the purpose of discovering some method of supplying the pump with all the material that it could handle. This led to the combination with the aforesaid apparatus of a rotary excavator, and on the 13th day of July, 1864, I made a drawing showing this combination, which I now produce, and offer in evidence [being "Exhibit D D"]. The date above mentioned appears upon the drawing itself. I fix this date in three ways: First. Because I was so elated with the idea that I would never forget it if I would live to be a thousand years old. I thought I had discovered something that was going to make me a fortune. Second. Because of the date appearing on the drawing itself. Third. Because I was introduced the day before, by John S. Hittell, to the librarian of the Mercantile Library, and while there in that library, on the 12th day of July, I found in Cressley's Encyclopedia of Engineering an account of Bailey's rotary excavator used in the time of King Charles the Second of England; and that set me to thinking, and led me to devise the combination, which I thought out during the night, and of which I made a drawing the next day. This drawing represents a rotary excavator with inward delivery through itself to a suction-pipe. These buckets are of themselves bottomless, and revolve around an inner cylinder, which forms a bottom to the buckets until they reach a depression in the top of said inner cylinder, where the material is discharged into a receiver communicating with the suction-pipe. Objection being made to this sketch by certain parties to whom I showed it, on the ground that material might wedge in between the buckets and the drum, I devised and made a drawing of the rotary bucket-wheel excavator, with hinged falling bottoms, to obviate this difficulty. This drawing last referred to was made the following day, July 14, 1864, and that drawing I now produce, and offer in evidence [being complainant's "Exhibit E E."]

This testimony of the complainant in respect to the time when the drawings exhibits "D D" and "E E" were made finds corroboration in the testimony of the witnesses Houghton, McGann, Crane, Bender, Shaw, and Gray. We are satisfied from the evidence that they, together with the memoranda appearing upon them, were made at the time they respectively bear date. Copies of those drawings and memoranda are inserted on page 130. They show not only and altogether new combination of elements for the transportation of the spoils, but also something radically new in rotary excavators—namely, a rotary excavator with inward delivery through itself in combination with a suction-pipe. They show a dredge-boat having two self-contained pivots or centers of oscillation for the swinging of the boat while at work; a flexible joint near the pivots; a discharge-pipe consisting of an inner flexible oscillating section, a series of sections flexibly joined together and supported by floats, and an outer rigid non-oscillating section; a suction-pipe; a rotary excavator having inward delivery; the arc-shaped cuts of the excavator made by the dredge while swinging from side to side on the pivot, and devices for its working with a side feed. All of these are also shown in the complainant's Patent No. 318,859. In 1868 the complainant made four models showing different forms of construction of his invention, marked "M²," "M," "N," and "I I," respectively, and which were introduced in evidence and are inserted on pages 126–128. While these models show details of construction not shown in the drawings upon exhibits "D D" and "E E", ("I I," among other things, showing the inner cylinder at the end of the suction-pipe partially cut away, and "N" showing it entirely removed, and "N" also showing the trunnions of claim 59 of Patent No. 318,859,) they each and all embody the principle of the invention represented by those drawings and the memoranda thereon. All of this antedated by many years the defendant's patent for his first dredger, as well as his plans and model therefor, which, according to the averments of his answer, were not made until the years 1874 and 1875, respectively. Hence it cannot be true that the complainant got his ideas from any model or machine of the defendant.

The complainant did not, however, make any application for a patent for his invention until December 9, 1876; but from the time of its conception he was indefatigable in his efforts to perfect it and to demonstrate its practical utility. His long delay in applying for a patent, the appellant contends, constituted an abandonment of whatever invention was made by him. To review the many pages of evidence going to show the reasons for the delay in the complainant's application would serve no useful purpose. It is enough to say that, so far from showing any intentional abandonment on the part of the complainant, they show the most persistent and continuous efforts on his part, against very adverse circumstances, to perfect the invention and avail himself of its benefits, and excuses the laches with which he might otherwise be justly charged. It was so held by the Patent Office, where the question of abandonment was raised and was decided in favor of the complainant.

> No general standard by which diligence can be established has been established by the law; nor, in the nature of things, is such a standard possible. It must be reasonable under all the circumstances of the particular case in question. The character of the invention; the health, the means, the liberty of the inventor; his occupation upon kindred or subordinate inventions—are proper subjects for consideration. Such reasonable diligence does not involve uninterrupted effort, nor the concentration of his entire energies upon the single enterprise. (Rob. on Pats., sec. 387.)

The original application of the complainant for a patent for his invention was filed in the Patent Office, as has been said, December 9, 1876. It embraced a description of his invention and claims and was accompanied by a model. The original specification and claims were prepared by the complainant's attorneys and met with objections in the Patent Office. After amendments by the attorneys the Patent Office allowed twenty of the fifty-four claims embraced in the application. The complainant refused to accept the claims as allowed, on the ground that they failed to properly cover his invention, and allowed his application to lapse by failing to pay the Government fee within six months after the allowance; but within two years after that date—to wit, April 16, 1879—he filed a renewed application for Letters Patent for his said invention, asking therein that the original specification, oath, drawings, and model be used as a part thereof. Based upon the renewed application, the Patent Office demanded of the complainant's attorneys further description and illustration of the invention, which the attorneys insisted was unnecessary. Much correspondence ensued between the attorneys and the Patent Office upon that question, and finally the complainant concluded to take personal charge of his application, and accordingly addressed to the Commissioner of Patents the following communication:

> 613 MISSION ST., SAN FRANCISCO, *June 13, 1882.*
>
> *To the Commissioner of Patents, Washington, D. C.*
>
> SIR: Unable to fee attorneys to prosecute my cases at the Patent Office, they hang fire, while I grow gray. It becomes necessary for me to do the best I can with them myself. The power of attorney heretofore granted by me to Dewey & Co., of San Francisco, and A. H. Evans, of Washington, D. C., is hereby revoked in the case of the renewal application for improvements of dredging-machines. Ignorant of the changes that may have been made in specifications or drawings, I inclose $5 for copy of contents of the file-wrapper. I cannot give the serial number.
>
> Respectfully,
>
> A. B. BOWERS.

On the next day, June 14, 1882, the complainant sent to the Patent Office a communication amending his specification—

> by striking out all thereof save the signatures, preparatory to submitting a new specification, in accordance with the views of the Examiner;

and on July 26, 1882, he filed in the Patent Office the new and substituted specification. The Examiner having found that the specification as thus amended included new matter not disclosed in the original application, the complainant struck out all of the amended specification except the signatures, and on November 13, 1882, filed a second new and substituted specification. Much correspondence thereupon ensued between the Patent Office and the complainant, resulting in the complainant going to Washington in person, and there, concluding that his invention could not be covered by a single patent and that several patents would be necessary to properly cover it in all of its parts, determined to, and accordingly did, divide his ap-

plication into several divisional applications. The first divisional application so filed by him culminated in patent numbered 318,859, issued May 26, 1885. His second divisional application was patented on the same day, May 26, 1885, by patent numbered 318,860, for "The art of dredging." His third divisional application embraced all the remainder of his original application not comprised in the first and second divisions. This third divisional application was filed April 29, 1885, while the original application was pending and before the issuance of any patent. In the prosecution of his third divisional application it was found that several independent inventions were described and that it, too, would have to be divided accordingly. The complainant divided it into nine different divisions and filed divisional applications therefor while the third divisional application was pending and before the issuance of any patent therefor. The second of these last-mentioned divisional applications was filed August 3, 1886, and patented December 28, 1886, as No. 355,251, which is the second patent sued upon herein.

The defendant on July 3, 1876, made application for a patent for an improvement in dredging-machines, and for such improved dredging-machine a patent was issued to him December 19, 1876, and is numbered 165,600. It is conceded by both parties to the present controversy that nothing covered by that patent to the defendant constitutes any infringement of the invention claimed by the complainant. Subsequently the defendant applied for a patent for a new and improved excavating curved rotating plow for submarine work, and on May 8, 1883, a patent therefor was issued to him and numbered 277,177. Two other patents were afterward issued to the defendant—one of date June 10, 1884, for a new and useful improvement in dredging-machines, and the other of date October 7, 1884, for a new and useful improvement in rotary plows for submarine work. Under his patents the defendant built and operated two machines. The first machine so built and operated by the defendant was confessedly no infringement of anything patented to the complainant, and if, as is contended by the counsel for the appellant, the second machine built and operated by him—

with the exception of having a greater capacity and more power, was built just like—

his first machine, it would follow necessarily that the second and only other dredging-machine built or operated by the defendant within the State of California could no more be an infringement of anything patented to the complainant than was his first dredger. But is that assertion of the counsel for the appellant correct? The defendant's first machine was built in 1876 in accordance with his Patent No. 165,600. The machine there patented and as thus constructed had no self-contained pivot, and of course no devices for swinging or for working the boat on such pivot, nor did it contain any floating or submerged discharge-pipe. Its excavator, while rotary, consisted of radiating arms, the effect of which was the exact reverse of that of inward delivery. The defendant states in his patent for his second invention that it—

has for its object to so construct the plow that when connected with any suitable scow or float and properly geared with any suitable driving mechanism it may be readily rotated; and with these ends in view my invention consists of a rotary plow so curved on the landside that the rotary sweep of the plow will be within the circle described from the axis of motion of the plow.

And in his specification he proceeded to describe the construction and operation of the plow, referring by letters to the drawings accompanying the same, as follows:

A represents a series of plows made in the ordinary manner, except that the landside *b* is curved in a line drawn from the axis of motion of the rotating ring-support. These plows A are secured in position by vertical plates B and screw-bolts *a* to circular frame or ring D, formed with radial wrought-iron arms C and hub H, the latter being secured by a feather, or in any other suitable manner, to a vertical hollow shaft, E, provided near its upper end with a bevel-gear meshing with a similar gear on the end of a horizontal driving-shaft, which may be driven by an engine on the scow or float. The vertical hollow shaft E is secured by any suitable means to bearings on the side of a vertical frame, which in the instance illustrated in the drawings consists of a hollow tube, J, the lower end of which is provided with a foot-valve, K, and within this tubular frame may be arranged a suction dredging-tube, I, the frame J and tube I being so arranged with reference to the ring-frame D of the plows that the material loosened by the plows will be dredged from the center.

It will be observed that the landside *b* of the plows, being curved, causes the sand, mud, etc., loosened by the plows to be swept to the center, where it can be readily acted upon by the dredge.

L is a hood arranged over the plows and their supporting ring-frame D to protect the same, and the plows are set at an angle, so as to cut slightly outside said hood. To the upper end of the hollow shaft E, I connect, by a swivel-coupling, F, a hose, G, which I employ to conduct a stream of water under pressure, should the plows A be caved in on, this stream of water, as will be readily understood, serving to break up and scatter the sand or mud where it acts as an impediment to the action of the plows. The channel cut by the plows will be in the direction of the movement of the float or scow, on the same principle as a metallic "routing-machine."

I do not, of course, wish to limit myself to all of the exact details of construction shown, as they may be varied in many particulars without departing from the spirit of my invention—as, for instance, while I have shown the supporting-frame of the vertical shaft E as constituting a hollow tube with an exhaust or suction dredge-tube arranged within the same for the purpose of removing the material plowed up by the plows A, I may substitute therefor any suitable supporting-frame and employ any desired independent mechanism. I have shown the ring-frame D armed with four plows A; but I do not wish to be confined in this particular, as a greater or less number of plows may be employed, the gist of my invention resting in the idea of the rotary plows formed with a curved landside and connected with a rotary frame, so that they may be rotated from a central driving-shaft, and in combining with such arrangement a means for flushing and disintegrating the material cut up by the plows by means of a stream of water under high pressure.

The claims embraced in the defendant's Patent No. 277,177 are as follows:

1. The plows A, provided with landsides *b*, curved to conform to the circle of their rotation, in combination with a rotary frame or ring, D, and driving-shaft E, substantially as and for the purpose set forth.

2. In combination with the plows A, provided with curved landsides, as described, and the revolving frame or ring D, the driving hollow shaft E, and suitable hose and connections, G F, substantially as and for the purpose set forth.

That the plow of this patent, unlike the excavator of the defendant's first patent, has an inward delivery through itself to a non-rotating suction-pipe is plain, and indeed it is, in effect, so declared by the defendant himself in his specification above quoted, for he says:

It will be observed that the landside *b* of the plows, being curved, causes the sand, mud, etc., loosened by the plows to be swept to the center, where it can be readily acted upon by the dredge.

These specific devices thus described by the defendant in his specification and for which his Patent No. 277,177 was issued, and which were afterward embodied by him in his second machine, not being specifically described in either of the complainant's patents, it is urged on the part of the appellant that no infringement of those patents is thereby shown. If the complainant is to be limited

to the specific devices described in his patents, that would undoubtedly be true; but, as has already been said, he was the first to invent not only a rotary excavator having an inward delivery through itself to a suction-pipe, but also the combination of such an excavator with transporting and discharging devices by means of which hard material in place can be severed, lifted, and continuously carried over water or land to any desired place of deposit. He is therefore justly entitled to be regarded as standing at the head of the art in those respects and to a broad and liberal construction of his claims thereto. So regarding him, the objections of the appellant to the validity of the complainant's patents are not well taken. Those most urged are that the complainant's claims are merely for functions and results and that they constitute aggregations only.

By section 4888 of the Revised Statutes it is provided that every inventor when making his application for a patent shall file in the Patent Office a written description of his invention, and if the application be for a machine he is required to explain the principle thereof and the best mode in which he has contemplated applying the principle so as to distinguish it from other inventions; but he is not necessarily limited to the one mode shown. The pioneer inventor is entitled to a generic claim, under which will be included every species included within the genus. In addition to such generic claim he may include in the same application specific claims for one or more of the species. (*Morley Sewing Machine Co.* v. *Lancaster*, 47 O. G., 267; 129 U. S., 263; 9 Sup. Ct., 299; *Clough* v. *Barker*, 22 O. G., 2157; 106 U. S., 166; 1 Sup. Ct., 188; *Clough* v. *Manufacturing Co.*, 22 O. G., 2241; 106 U. S., 178; 1 Sup. Ct., 198; Rob. on Pats., sec. 535; *Hammerschlag* v. *Scamoni*, 20 O. G., 75; 7 Fed. Rep., 584; *American Bell Telephone Co.* v. *Spencer*, 20 O. G., 299; 8 Fed. Rep., 509; *Machine Co.* v. *Teague*, 15 Fed. Rep., 390; *Manufacturing Co.* v. *Buffalo*, 20 Fed. Rep., 126; *Brush Electric Co.* v. *Electric Imp. Co.*, 52 Fed. Rep., 965; *ex parte Nagle*, 1870, Com. Dec., 137; *ex parte Howland*, 12 O. G., 889.)

When the complainant claimed in claim 10 of his Patent No. 318,859—

a dredge-boat having a self-contained pivot forming a center of horizontal oscillation, with devices for swinging and working said boat upon said pivot, in combination with a suction-pipe, exhausting apparatus, and rotary excavator—

he was not claiming a result, which, of course, he could not do. Nor did he thereby limit himself to any particular form of construction of the several devices therein mentioned. What he there claimed, and what he, as the first inventor of any combination that would accomplish the desired result, had a right to claim, was the combination of a dredge-boat itself containing a pivot forming a center of horizontal oscillation with devices for swinging and for working the boat on the pivot, a rotary excavator for the severing of the material in place, a suction-pipe for its receipt and transmission to the exhausting apparatus, and the latter for the transportation and discharge of the spoils to the desired place of deposit. The record shows that the complainant was the first to combine those elements at all, and that the functions performed by his machine so constructed were entirely new. Hence he had the right to make the broad and generic claim embodied in claim 10 without any limitation as to the form of construction of the particular elements, and all subsequent machines which employ substantially the same means to accomplish the same result are infringements, notwithstanding the subsequent machine may contain improvements in separate mechanism which go to make up the machine. (Authorities, *supra*, and *McCormick* v. *Talcott*, 20 How., 402; *Chicago & Northwestern Railway Co.* v. *Sayles*, 15 O. G., 243; 97 U. S., 554; *Clough* v. *Barker*, 22 O. G., 2157; 106 U. S., 166; 1 Sup. Ct., 188; *Consolidated Safety-Valve Co.* v. *Crosby Steam Gauge & Valve Co.*, 30 O. G., 991; 113 U. S., 157; 5 Sup. Ct., 513.) Of course it remained open to any subsequent inventor to accomplish the same result by substantially different means.

Claim 16 of the complainant's Patent No. 318,859 is a combination of a dredge-boat, a floating pipe, a land-pipe, and a flexible joint between them. The same combination was, for the first time in the history of the art, made by the complainant July 13, 1864, and illustrated by the drawings and memoranda upon "Exhibit D D."

Claim 25 is for a combination of a discharge-pipe consisting of a series of sections flexibly joined together, floats for supporting the pipe on water, and a dredger having a rotary excavator.

Claim 53 is for a combination of a non-rotative suction-pipe with a rotary excavator having an inward delivery through itself.

Claim 54 added to the combination covered by claim 53 a dredge-boat, and claim 59 added to the combination covered by claim 53 trunnions or equivalent joints to permit the excavator and outer ends of the suction-pipe to be raised and lowered to suit the depth at which the work is progressing. The trunnions embraced by claim 59 are not shown in the complainant's drawings of 1864, but are shown in the model "N," made by him in 1868, and are thus described in his specification:

The swinging portion of this [suction] pipe is mounted at the inner end of the well upon strong trunnions, one of which forms an elbow of the pipe and passes through a stuffing-box or other suitable connection into the suction-pipe of the pump B. Through the other trunnion passes a shaft that actuates the gears *i*, that drive the shaft K and bucket-wheel E; and upon these trunnions the shaft K, suction-pipe, and excavator swing as the cutter is raised or lowered to suit the depth at which the work is progressing.

Claims 13, 17, and 18 of the complainant's Patent No. 355,251, found by the court below to have been infringed by the defendant, are as follows:

13. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator provided with detachable cutting edges.

17. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a swinging section of discharge-pipe flexibly joined to the boat and to an outer stationary section, to allow said boat to feed forward and said oscillating pipe to swing on the joint connecting the oscillating and non-oscillating sections.

18. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, rotary excavator, and a swinging section of discharge-pipe flexibly joined to the boat and to an outer stationary section, to allow said boat to feed forward and said oscillating pipe to swing on the joint connecting said oscillating and non-oscillating sections.

The element here introduced that is not embraced by any claim of Patent No. 318,859 is a

telescoping suction-pipe, which is thus described in the specification contained in Patent No. 355,251:

C is a suction-pipe provided with an elbow and telescoping section or sections, C'. It is also provided with stiffening slide-rods *f f f*, that pass through suitable slides or guides at the top and bottom of the elbow and at the lower end of each telescoping section, except the lowest, to the latter of which they are firmly secured by strong fastenings. These slide-rods are large and strong, to keep the telescoping sections of pipe and the bearings of the excavator-shaft in line and insure their easy working. The joints of the telescoping sections are placed below the surface of the water, to obviate the necessity for stuffing-boxes and packing. This pipe is also provided with a hollow (generally a rotary) excavator, that delivers its spoil inward through itself to said pipe. It is further provided with the chain *i*, secured to the lower end of the lowest telescoping section and passing over suitable sheaves to a hoisting device, by means of which it is raised and lowered in the process of dredging. Similar chains are attached to the lower ends of the intermediate telescoping pipes and to some suitable point above, to prevent said intermediate pipes from dropping out of the pipes above them.

While the telescoping suction-pipe was old, the record shows that the complainant was the first to combine it with the other elements of the several combinations specified in claims 13, 17, and 18 of Patent No. 355,251. In no just or proper sense can any of the combinations described in the complainant's claims involved on this appeal be said to be mere aggregations, for the reason that the result is the product of the combination, each element affecting the action of the others and all of them cooperating in the one result of severing by the forward and side action of the machine the material in place where it is not wanted and depositing it in another place where it is wanted. The flexible joints of the floating discharge-pipe and the vertical anchors or turn-table, as the case may be, permit the movement of the machine from side to side, as well as forward, and, in combination with the other elements specified, make possible the continuous cutting and lifting of the material in place and its continuous transportation to the desired place of deposit. No combination of elements that so operate can be regarded as a mere aggregation, for each one has a direct influence upon the action of each of the others, the result necessarily being the product of the combination itself and not a mere aggregate of several results each the complete product of one of the combined elements. (*Hailes* v. *Van Wormer*, 5 O. G., 89; 20 Wall., 353; *Royer* v. *Roth*, 49 O. G., 1987; 132 U. S., 201; 10 Sup. Ct., 58; *Reckendorfer* v. *Faber*, 10 O. G., 71; 92 U. S., 347; *Beecher Manufg. Co.* v. *Atwater Manufg. Co.*, 31 O. G., 1306; 114 U. S., 524; 5 Sup. Ct., 1007.)

The contention that the complainant limited the form of his excavator, so as to avoid an interference with the defendant in the Patent Office, is not supported by the evidence. That he amended it is true, but not for the purpose stated by the counsel for the appellant. As amended it described the excavator as shown in the drawings of July 13, 1864, and also as shown by the model "N," made by the complainant in 1868, one form containing an inner chamber at the end of the suction-pipe and the other showing the chamber cut away until only enough remains to support the excavator and its shaft, both having an inward delivery, the first to be used when the spoils do not require a large percentage of water to carry them up the suction-pipe and the second when they do. The clear meaning of a claim to an excavator having inward delivery or with inward delivery through itself is to an excavator so constructed as to produce an inward delivery. The terms "inward delivery" have direct reference to the mechanism itself and cannot be properly limited to the description of the action or effect of such mechanism.

The contention on the part of counsel for the appellant that no successful machine can be built and operated in accordance with the complainant's patents is not at all supported by the record, which contains abundant evidence to the effect that machines have been so built and have ever since been operated with very great success. The fact, if fact it be, that the first machine built by the complainant (called in the record the "Davis machine") was not successful in its operation is unimportant. As was well said by the court in answer to a similar objection in the case of *Mergenthaler Linotype Co.* v. *Press Publishing Co.*, (65 O. G., 2062; 57 Fed. Rep., 502, 506:)

It would certainly be a novel doctrine to deny to an inventor the fruits of a broad invention because the machine which first embodied it was rudimentary in character, and failed to do as good work as improved machines made subsequently. None of the great inventions could survive such a test. Ten years after the invention of Howe, the machine first made by him would hardly have satisfied the least exacting sewing-woman. The Dodds and Stephenson locomotive would, only a short time after its construction, have been discarded as behind the age, even by the savages of Tasmania. The telephone of Bell is not the perfected telephone of commerce. The Morse telegraph is looked upon to-day as an interesting antique. And yet it would be an unheard-of proposition to withhold from these illustrious men the credit they deserve because their machines were crude at first and were improved afterward.

Giving to the complainant's patents the broad and liberal construction to which we think them justly entitled, it is clear that the second machine of the defendant constitutes an infringement of the complainant's excavator with an inward delivery and of the combination claims of the complainant's patents adjudged by the court below to have been infringed.

The judgment is affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 3. TUESDAY, JULY 20, 1897. PRICE—$5 per year.

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Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

Austria-Hungary.
Barbadoes.
Belgium.
British Honduras.
Canada.
Ceylon.
Denmark.
Fiji.
Finland.
France.
Germany.
Great Britain.
Hungary.
Hawaii.
India.
Italy.
Jamaica.
Japan.
Leeward Islands.
Luxemburg.
Malta.
Mauritius.
Mexico.
Netherlands.
New South Wales.
New Zealand.
Norway.
Portugal.
Queensland.
Russia.
South Australia.
Spain.
Straits Settlements.
Sweden.
Switzerland.
Tasmania.
Trinidad.
Victoria.
West Australia.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti.
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Regulations in Relation to Mail-Matter.

(ORDER No. 1,190.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 15, 1897.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

BENJ. BUTTERWORTH,
Commissioner.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume, 26 pages. Paper covers, 25 cents.

Issue of July 20, 1897.

Patents	417—No. 586,538 to No. 586,954, inclusive.	
Designs	46—No. 27,373 to No. 27,418, inclusive.	
Trade-Marks	42—No. 30,386 to No. 30,427, inclusive.	
Labels	None.	
Prints	None.	
Reissues	2—No. 11,621 to No. 11,622, inclusive.	
Total issue	507	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3	----	New Hampshire	4	----
Arizona Territory	1	----	New Jersey	20	----
Arkansas	2	----	New Mexico Territ'y	----	----
California	9	1	New York	81	6
Colorado	2	----	North Carolina	1	----
Connecticut	16	2	North Dakota	----	----
Delaware	1	----	Ohio	33	3
District of Columbia	2	2	Oklahoma Territory	1	----
Florida	2	----	Oregon	1	----
Georgia	4	----	Pennsylvania	57	3
Idaho	----	----	Rhode Island	6	1
Illinois	36	5	South Carolina	----	----
Indian Territory	2	----	South Dakota	1	----
Indiana	13	1	Tennessee	2	----
Iowa	8	----	Texas	9	1
Kansas	1	1	Utah	----	----
Kentucky	10	----	Vermont	1	1
Louisiana	3	----	Virginia	1	----
Maine	3	----	Washington	1	----
Maryland	4	----	West Virginia	6	----
Massachusetts	31	----	Wisconsin	13	1
Michigan	10	1	Wyoming	----	----
Minnesota	6	3	U. S. Army	----	----
Mississippi	1	----	U. S. Navy	1	----
Missouri	12	2			
Montana	1	----	Total to citizens of the United States	422	35
Nebraska	3	1			
Nevada	----	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Mexico	----	----
Australia	----	----	Netherlands	1	----
Austria-Hungary	2	1	Newfoundland	----	----
Barbadoes	----	----	New South Wales	----	----
Belgium	----	----	New Zealand	----	----
Bermuda	----	----	Norway	1	----
Brazil	----	----	Portugal	----	----
Canada	3	----	Queensland	1	----
Cape Colony	----	----	Roumania	----	----
Chile, Republic of	----	----	Russia	----	----
China	----	----	Scotland	----	4
Colombia	----	----	South African Republic	----	----
Cuba	----	----	South Australia	1	----
Denmark	----	----	Straits Settlements	----	----
Egypt	----	----	Sweden	----	----
England	15	1	Switzerland	----	----
Finland	----	----	Victoria	----	----
France	7	----	West Australia	----	----
Germany	10	1			
India	----	----			
Italy	----	----	Total to citizens of foreign countries	41	7
Japan	----	----			

APPLICATIONS UNDER EXAMINATION.

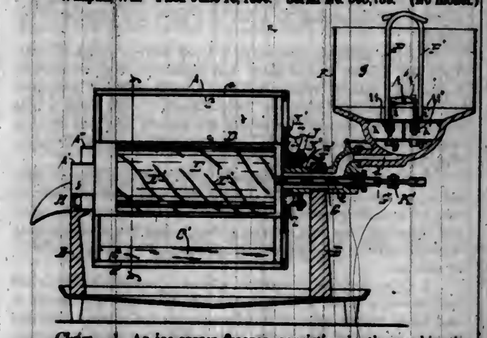
Condition at Close of Business July 13, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	June 17	June 26	182
250	VIII. Furniture, Beds, Store Furniture, etc.	June 14	June 21	280
106	II. Farm Stock, Products, etc.	June 14	June 20	347
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 14	June 19	113
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 14	June 14	247
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	May 17	June 24	224
255	XII. Mechanical Engineering, Store-Service, etc.	June 1	June 15	371
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 9	June 11	222
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	May 15	June 10	342
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 4	June 9	288
98	XXI. Textiles, etc	May 13	June 8	240
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 5	June 7	254
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	June 2	June 7	309
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 1.	June 5	268
215	XVII. Paper Manufactures and Printing.	May 18	June 5	215
231	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 1	340
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 20	May 29	448
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	May 20	May 25	436
122	XXIV. Sewing-Machines, Apparel, and Toilet.	May 14	May 14	363
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	May 15	May 10	238
	Between two and three months.			
261	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Apr. 28	June 22	177
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 3	June 12	201
248	XVIII. Steam-Engineering, etc.	Apr. 24	June 8	275
102	XIX. Stoves and Furnaces	May 8	June 1	480
246	I. Tillage and Fences	May 10	May 29	348
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Apr. 21	May 25	356
120	IX. Hydraulics, Fire-Extinguishers, etc.	May 1	May 21	296
240	VII. Velocipedes	May 1	May 15	1288
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 5	May 10	551
253	X. Carriages and Wagons	Apr. 29	May 10	282
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 26	May 4	501
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Apr. 22	Apr. 13	268
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	May 15	921
	Total number of applications awaiting action			11,987
	Under one month in arrears.			
	Designs	June 21	July 6	188
	Trade-Marks	June 18	July 6	79

PATENTS

GRANTED JULY 20, 1897.

586,538. ICE-CREAM FREEZER. CHARLES H. ACKERMAN, Waupun, Wis. Filed June 14, 1896. Serial No. 595,738. (No model.)



Claim.—1. An ice-cream freezer, consisting in the combination of a rotary ice-chamber provided with a central tubular opening therethrough, a cylindrical conveyer located therein and provided with sectional screw-flanges, means for feeding cream into the space between said conveyer and the walls of said tubular opening, a crank and suitable gearing for rotating said ice-chamber and connections adapted to communicate a reciprocal movement to the conveyer from the operating mechanism of the ice-chamber, substantially as described.

2. An ice-cream freezer, consisting in the combination of a rotary ice-chamber provided with a central tubular opening therethrough, a cylindrical conveyer located therein and provided with screw-flanges, means for feeding cream into the space between said conveyer and the walls of said opening, a manually-operated crank and suitable gearing for imparting motion to said ice-chamber, and connections adapted to communicate motion from said crank to the conveyer and cause the latter to reciprocate within the tubular opening, substantially as described.

3. An ice-cream freezer, consisting in the combination of a rotary ice-chamber provided with a central tubular opening therethrough, a cylindrical reciprocating conveyer located therein and provided with screw-flanges, a cream-storage chamber and ducts leading from said storage-chamber and discharging along the axis of the conveyer into the space between the conveyer and the walls of the tubular opening in the ice-chamber, substantially as described.

4. An ice-cream freezer, consisting in the combination of a rotary shell divided by cylindrical partitions into a tubular cream-chamber, an annular ice-chamber, and an air-chamber surrounding the ice-chamber, together with a cylindrical reciprocating conveyer located in the cream-chamber, and means for actuating the shell and conveyer, substantially as described.

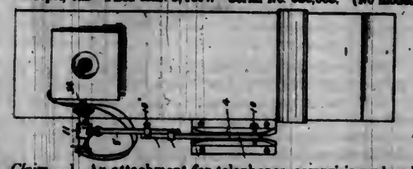
5. An ice-cream freezer, consisting in the combination of a rotary shell divided by a cylindrical partition into a tubular cream-chamber and an annular ice-chamber, with a cylindrical reciprocating conveyer located in the cream-chamber, an interior longitudinally-disposed flange located in the ice-chamber, and means for actuating the shell and conveyer, substantially as described.

6. In an ice-cream freezer, a cream-storage chamber, comprising an upper chamber and two measuring-chambers communicating therewith, said measuring-chambers being provided with air-inlet tubes and oppositely-disposed inlets and outlets, with double-faced valves adapted to interchangeably close the inlets and outlets, and connections for causing said valves to simultaneously alternate in position in their respective chambers, whereby the chambers are adapted to discharge their contents alternately into the freezer, substantially as described.

7. In an ice-cream freezer, an automatic ice-feed, consisting in the combination with the rotary shell provided with a sliding shutter having an upward-projecting pin, an ice-retaining hopper supported above said shell and provided with an eccentric guide adapted to be engaged by said pin, for opening and closing said shutter, substantially as described.

8. In an ice-cream freezer, a reversible bell-shaped discharge-spout adapted to serve as a spout to convey the frozen cream into receiving-dishes, when turned downwardly, and as a cream-retaining cup when turned upwardly, substantially as described.

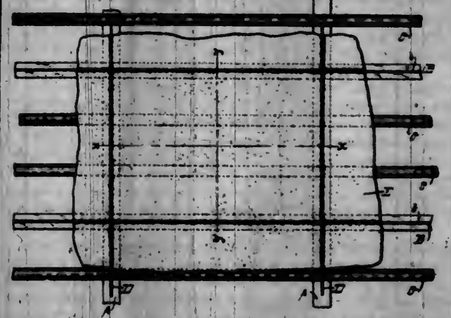
586,539. TELEPHONE ATTACHMENT. WILLIAM W. BECK, Sebastopol, Cal. Filed Mar. 5, 1897. Serial No. 626,003. (No model.)



Claim.—1. An attachment for telephones, comprising a bracket having two forwardly and inwardly projecting spring-metal clamping-walls forming a narrow opening at the front thereof, a plate or arm provided with a short slot, a screw-bolt projecting through said slot and clamping-walls and serving as a combined pivot and adjusting device, and a second arm provided with a clip adapted to receive and hold the telephone-receiver and adjustably connected with the arm first named, substantially as described.

2. An attachment for telephones, comprising a bracket having two forwardly and inwardly projecting spring clamping-walls, an arm fitting between the said walls, a set-screw through the walls and arm, a second arm extensibly adjustable on the said first-named arm and provided at the outer end thereof with a swiveled clip to receive the telephone-receiver, in combination with a telephone provided with the receiver hook or hanger, whereby when the attachment is out of use the said swiveled clip may be turned to a horizontal position to enable the neck of the receiver to be inserted in the said telephone-hanger, to cut out the electric current, substantially as described.

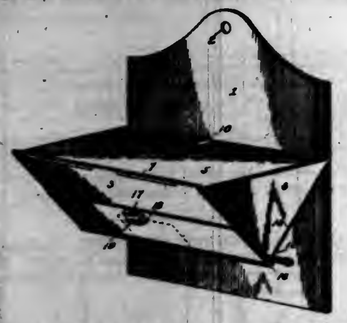
586,540. CEMENT SIDEWALK. WILLARD P. BECKWITH, Milwaukee, Wis. Filed Aug. 5, 1896. Serial No. 602,113. (No model.)



Claim.—1. A sidewalk comprising a series of beams A, a series of inverted T-irons B resting transversely upon the beams, and a series of cross-bars D running transversely of the T-irons and along the longitudinal center of the I-beams, together with a bed of cement partially partitioned or separated into blocks by the irons B and bars D, with the edges of said blocks supported on the base-flanges of the T-irons and I-beams, substantially as described.

2. A sidewalk, comprising a series of beams A, a series of inverted T-irons B resting transversely upon the beams, tubes C arranged in a parallel position between the T-irons, and cross-bars D resting on the tubes along the longitudinal center of the beams A, together with a bed of cement partially partitioned or separated into blocks by the irons B and bars D, with the edges of said blocks supported on the base-flanges of the T-irons and I-beams, substantially as described.

586,541. MATCH-SAFE. HOBE H. BROWN, Crandall, Fla. Filed Jan. 19, 1897. Serial No. 619,709. (No model.)



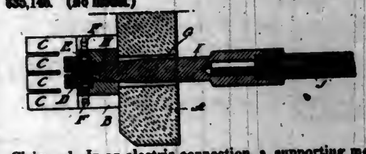
Claim.—A match-safe triangular in cross-section and provided with openings in its ends at their lower apexes to permit the passage of a single match lengthwise, and having its sides cut away at their lower converging edges about midway of their length to afford access for the thumb and finger to grasp the lower match in the safe and slide it through one of the end openings, combined with a jointed sectional cover hinged at one end to one of the sides of the safe and adapted to fold around the lower apex of the safe and be locked to its opposite side, substantially as described.

586,542. VEHICLE-SPOKE. HENRY BRULÉ, Hollisville, Wis. Filed Sept. 8, 1896. Serial No. 605,090. (No model.)



Claim.—A vehicle-spoke, comprising a single piece of wood, of proper shape, flat at each end having a longitudinal bore therethrough and a metallic rod driven through said bore and tightly fitting within the same, the ends of said wooden piece and the ends of said rod being flush at each end of the spoke, substantially as set forth.

586,548. CONNECTION FOR ELECTRIC SWITCHES. HERBERT A. BULLARD, Pittsfield, Mass., assignor to the Stanley Electric Manufacturing Company, same place. Filed May 5, 1897. Serial No. 635,146. (No model.)



Claim.—1. In an electric connection, a supporting means, a tapered opening therein, a detachable tapered plug, a nut loosely carried by one of said parts, holding means therefor, to permit the nut to be freely revolved, said means preventing independent longitudinal movement of said nut with respect to its supporting means, a screw-thread connection by which said parts are attached or detached.

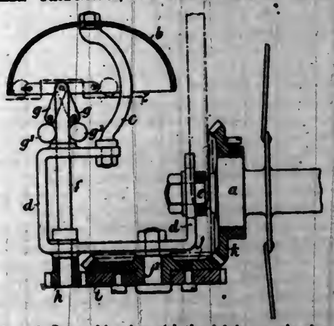
2. In an electrical connection, a block having a tapered opening, a nut, carried by said block and capable of being revolved independently thereof, holding means to prevent said nut from moving in a longitudinal direction, independently of said block, a plug having a screw-threaded extremity, the sides of said plug adjacent said screw-threaded extremity being tapered to correspond substantially to the tapered opening in the block.

3. In an electrical connection, a block having a tapered opening in one side, a recess in the opposite side, a nut carried in said recess, an annular groove around said nut, pins carried by said block and projecting into said annular groove in said nut, a tapered plug screw-threaded at its extremity to correspond with the screw-thread of said nut.

4. In an electrical connection, a block, a tapered opening in one side thereof, a recess in the opposite side thereof, a nut carried in said recess and means to prevent disengagement of said nut from said block, a tapered plug, said plug being screw-threaded at its extremity to correspond with the screw-thread of said nut.

5. In an electric switch, a board, a metallic block secured thereto, a tapered opening in the rear of said block adjacent to said board, an opening in said board concentric therewith but of greater diameter, a nut carried in the face of said block and capable of being revolved, means for preventing the detachment of the nut from said block, a tapered plug screw-threaded at its free extremity to correspond with the screw-threaded opening in the nut.

586,544. SPEED-INDICATING BELL. JOHN CLEMENS, London, England. Filed Nov. 13, 1896. Serial No. 612,008. (No model.)



Claim.—1. In combination with the driving mechanism, a spindle, a spindle-supporting bracket secured on the wheel-hub, an arm secured to the bracket and supporting a gong or bell, arms pivoted on the spindle and adapted when rotated thereby to swing up into the cavity of the bell, and hammers free to swing on the outer ends of these arms, and non-adjustable gearing normally made to cause the hammers to ring the bell only when the requisite or prescribed speed shall have been attained, all substantially as set forth.

2. A sound-signaling apparatus for cycles or other vehicles, having in combination with the hub or rotating axle, a bracket *d*, the spindle mounted in bearings in said bracket, hammer-arms pivoted on said spindle, a bell-supporting arm on said bracket, the pinion on the lower end of the spindle, spur-wheel *i*, and bevel-wheel *j*, secured concentrically thereto, and the bevel-wheel *k*, engaging with wheel *j*, and mounted on the hub of the axle, the combination being and operating substantially as set forth.

3. In a sound-signaling apparatus for cycles or other vehicles, the combination of a bell or gong, a spindle rotatable by gears from a rotating hub or axle, and slotted spring-hammers mounted on a disk on the end of such spindle, and adapted to overcome the force of the spring and by centrifugal action to fly outward to strike the gong or bell when and only when the spindle is rotated at the prescribed and predetermined speed, all as set forth.

586,545. PLOW. CHARLES T. CRATON, Byrd, Ga. Filed Apr. 30, 1896. Serial No. 589,668. (No model.)



Claim.—In an agricultural implement, the combination of a bar, plates placed upon opposite sides of the bar and projecting forward thereof, and having pivotal connection with the bar about midway of their ends, and having a vertical series of corresponding openings at their front and rear ends, and adapted to tilt about their pivotal connection with the bar, a pin passing through an opening in the bar and through registering openings of the plates to hold the latter in an adjusted position, a pole placed between the projecting ends of the plates and having pivotal connection therewith about midway of their ends, and a pin passing through an opening of the pole and corresponding openings at the front ends of the plates to hold the pole in an adjusted position, substantially as specified.

586,546. NUT-LOCK. JONATHAN DOUGHERTY, Agusta, Ohio. Filed Sept. 24, 1896. Serial No. 606,814. (No model.)



Claim.—1. A nut-lock consisting of the rail or beam, a washer having recesses or cut-away portions in the upper periphery thereof, a groove in the inner surface of said washer, a locking-key adapted to fit in said groove and the arms of said key adapted to turn out and bear against either side of the nut, locking the same as shown and described.

2. A nut-lock comprising the washer, a bolt-hole therein, a seat or depression formed in the edge of said bolt-hole, a groove in the inner surface of said washer, a key adapted to rest in said groove and having arms adapted to turn outwardly on either side of the nut for the purpose set forth.

3. In a nut-lock the combination of a washer, the recesses in the upper periphery thereof, a groove in its inner surface and a key loosely held in said groove and having arms adapted to turn outwardly and bear against either side of the nut substantially as described.

586,547. FOUNTAIN-PEN. BENJAMIN V. EATON, Brooklyn, N. Y. Filed Mar. 26, 1894. Serial No. 505,099. (No model.)



Claim.—1. In a fountain-pen, a feed-plug having a plurality of capillary feeding-channels inclosed within the plug and consisting of narrow slits in communication with one another at or near the center of the plug and in communication with the ink-reservoir and with the pen, substantially as shown and described.

2. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, a passage leading from the ink-reservoir to the feed-slot and forming the sole communication between them, and an air-vent consisting of a perforation or hole 7 passing horizontally through the feed-plug and intersecting the passage at or near the center of such perforation and in free communication with the air at both ends, substantially as shown and described.

3. In a fountain-pen, a feed-plug having an ink-channel in communication with the pen, and a plurality of capillary feeding-channels inclosed within the plug and consisting of narrow slits in communication with one another at or near the center of the plug and in communication with the ink-reservoir and with the ink-channel, substantially as shown and described.

4. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, and one or more capillary feeding-channels in communication with the ink-channel and with the ink-reservoir inclosed within the plug which has an imperforate peripheral wall, substantially as shown and described.

5. In a fountain-pen, a feed-plug having inclosed within the plug one or more capillary feeding-channels in the form of slits of less width than height through which the ink is fed to the pen, substantially as shown and described.

6. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, one or more inclosed capillary feeding-channels in communication with the ink-channel and with the reservoir, and an air-vent in communication with the passage formed by the ink-channel and the capillary feeding-channels, substantially as shown and described.

7. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, one or more inclosed capillary feeding-channels in communication with the ink-channel and with the reservoir, and an air-vent in communication with the ink-channel and the capillary feeding channel or channels at the junction thereof, substantially as shown and described.

8. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, and one or more inclosed capillary feeding-channels 5 in the form of slits of less width than height in communication with the ink-reservoir and with the feed-slot, substantially as shown and described.

9. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, and one or more inclosed capillary feeding-channels of the form of slits of less width than height in communication with the ink-channel and with the ink-reservoir, substantially as shown and described.

10. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, one or more inclosed capillary feeding-channels in the form of slits of less width than height in communication with the ink-channel and with the ink-reservoir, and an air-vent in communication with the passage formed by the ink-channel and the capillary feeding-channels between the reservoir and the feed-slot, substantially as shown and described.

11. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, one or more capillary feeding-channels in the form of slits of less width than height in communication with the ink-channel and with the ink-reservoir, and an air-vent consisting of a perforation or hole 7 passing through the feed-plug and communicating with the air at both ends and with the passage formed by the ink-channel and the capillary feeding channel or channels at or near the center of such perforation, substantially as shown and described.

12. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, and a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication with the ink-reservoir and with the feed-slot, substantially as shown and described.

13. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, and a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication at one end with the ink-reservoir and at the other with the ink-channel, substantially as shown and described.

14. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication at one end with the ink-reservoir and at the other with the ink-channel, and an air-vent in communication with the passage formed by the ink-channel and the slots 5 between the ink-channel and the ink-reservoir, substantially as shown and described.

15. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication at one end with the ink-reservoir and at the other with the ink-channel and which are inclosed by the imperforate peripheral wall of the plug, substantially as shown and described.

16. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communica-

tion at one end with the ink-reservoir and at the other with the ink-channel, and an air-vent in communication with the ink-channel and with the capillary feeding-channels at the junction thereof, substantially as shown and described.

17. In a fountain-pen, a feed-plug or ink-duct having a feed slot or groove adjacent to the pen, an ink-channel in communication with the feed-slot, a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication at one end with the ink-reservoir and at the other with the ink-channel, and an air-vent consisting of a perforation or hole 7 passing through the plug and intersecting the passage formed by the slits 5 and ink-channel 4 through which the ink flows from the reservoir to the pen, such perforation 7 being in communication with the air at both ends, substantially as shown and described.

18. In a fountain-pen, a feed-plug having an ink-channel 4 in communication with the pen, one or more capillary feeding-channels inclosed within the plug in communication with the ink-channel 4 and and with the ink-reservoir, and an air-vent in communication with the passage formed by the ink-channel and the capillary feeding-channels, substantially as shown and described.

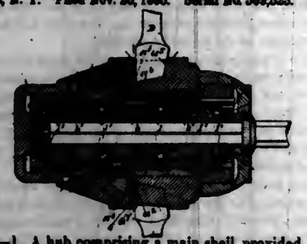
19. In a fountain-pen a feed-plug having an ink-channel 4 in communication with the pen, one or more capillary feeding-channels inclosed within the plug in communication with the ink-channel 4 and with the ink-reservoir, and an air-vent in communication with the ink-channel and the capillary feeding-channels at the junction thereof, substantially as shown and described.

20. In a fountain-pen, a feed-plug or ink-duct having an ink-channel 4 in communication with the pen, one or more inclosed capillary feeding-channels in communication with the ink-channel and with the ink-reservoir, and an air-vent in communication with the ink-channel and the capillary feeding-channels at the junction of the same, such air-vent being in communication with the air at both ends, substantially as shown and described.

21. In a fountain-pen, a feed-plug having an ink-channel 4 in communication with the pen, one or more capillary feeding-channels in the form of slits of less width than height in communication with the ink-channel and with the ink-reservoir, and inclosed within the plug, and an air-vent in communication with the passage formed by the ink channel and such capillary feeding-channels, substantially as shown and described.

22. In a fountain-pen, a feed-plug or ink-duct having an ink-channel 4 in communication with the pen, a plurality of capillary feeding-channels consisting of narrow slits 5 in communication with one another along the entire length thereof at or near the center of the plug and in communication at one end with the ink-reservoir and at the other with the ink-channel 4, and an air-vent in communication with the capillary feeding-channels and with the ink-channel at the junction thereof, substantially as shown and described.

586,548. HUB FOR VEHICLE-WHEELS. HARRY I. EATON, Manlius, N. Y. Filed Nov. 20, 1896. Serial No. 569,523. (No model.)



Claim.—1. A hub comprising a main shell provided with sockets extending inwardly from its outer peripheral face and one of its side faces, said sockets being formed with inclined side, end, and bottom walls, shoulders projecting from said side face of the main shell between the sockets, spokes having their inner ends tapered and arranged within the sockets, a washer or ring at one side of the main shell for holding the spokes in position, said washer or ring having apertures for receiving the shoulders, and a follower for holding the washer or ring in operative position, substantially as described.

2. A hub comprising a sleeve, a main shell encircling the sleeve and provided with sockets extending inwardly from its outer peripheral face and one of its side faces, said side face being provided with an annular projecting shoulder a^6 encircling the sleeve, and separated shoulders a^7 encircling the former shoulder and interposed between the sockets, spokes having their inner ends arranged within the sockets, a washer or ring encircling the shoulder a^6 for holding the spokes in position and having apertures for receiving the shoulders a^7, and a follower encircling the sleeve and adjustable lengthwise thereof for holding the washer or ring in operative position, substantially as specified.

3. A hub comprising a main shell for supporting the spokes, a sleeve arranged within the shell and having its inner peripheral face formed angular in cross-section, caps at the opposite ends of said sleeve provided with inner bearing-faces, and yielding washers interposed between the opposite ends of said sleeve and the bearing-faces of the caps, substantially as and for the purpose described.

4. A hub comprising a main shell for supporting the spokes, an axle, a sleeve arranged within the shell and fixed to the axle, caps at the opposite ends of said sleeve provided with inner bearing-faces, yielding washers engaged with said bearing-faces, and wearing-disks interposed between the yielding washers and the opposite ends of said sleeve, substantially as and for the purpose set forth.

5. A hub comprising a main shell for supporting the spokes, an axle, a sleeve arranged within the shell and fixed to the axle, said sleeve having grooves in its peripheral and end faces for receiving antifriction-balls, caps at the opposite ends of the sleeve provided with inner bearing-faces, and antifriction-balls interposed between the bearing-faces and said sleeves, substantially as and for the purpose specified.

6. A hub comprising a sleeve having one end formed with spirally-arranged sockets, a main shell encircling the sleeve and provided with peripheral sockets, spokes having their inner ends arranged within the sockets of the main shell, a follower encircling the sleeve and movable lengthwise thereof at one side of the main shell for holding the spokes in operative position, a screw for entering the sockets of the sleeve and engaging the follower, and inner and outer caps arranged at the outer sides of the main shell and follower, said caps encircling the sleeve and being adjustable lengthwise thereof, substantially as specified.

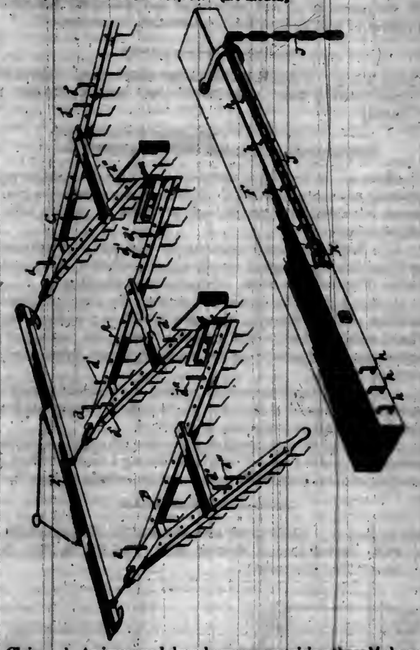
7. A hub comprising a sleeve having one end formed with spirally-arranged sockets, a main shell encircling the sleeve and provided with peripheral sockets, spokes having their inner ends arranged within the sockets of the main shell, a follower encircling the sleeve and movable lengthwise thereof at one side of the main shell for holding the spokes in operative position, a screw for entering the sockets of the sleeve and engaging the follower, inner and outer caps arranged at the outer sides of the main shell and follower, said caps encircling the sleeve and being movable lengthwise thereof and provided with inner bearing-faces, an inner sleeve within the former sleeve, and wearing-disks interposed between the bearing-faces and the opposite ends of the inner sleeve, substantially as and for the purpose described.

8. A hub comprising a sleeve having one end formed with spirally-arranged sockets, a main shell encircling the sleeve and provided with peripheral sockets, spokes having their inner ends arranged within the sockets of the main shell, a follower encircling the sleeve and movable lengthwise thereof at one side of the main shell for holding the spokes in operative position, a screw for entering the sockets of the sleeve and engaging the follower, inner and outer caps arranged at the outer sides of the main shell and follower, said caps encircling the sleeve and being movable lengthwise thereof and provided with inner bearing-faces, a second sleeve within the former sleeve consisting of sections arranged end to end and having its opposite ends supported adjacent to said bearing-faces, antifriction-balls interposed between the sections of the inner sleeve and between the ends of said sleeve and the bearing-faces and an intermediary sleeve interposed between the outer and inner sleeves, substantially as and for the purpose described.

9. A hub comprising a sleeve, a main shell encircling the sleeve and provided with peripheral sockets, spokes having their inner ends arranged within the sockets of the main shell, a follower encircling the sleeve and movable lengthwise thereof at one side of the main shell for holding the spokes in operative position, inner and outer caps arranged at the outer sides of the main shell and follower, said caps encircling the sleeve and being movable lengthwise thereof and provided with inner bearing-faces, a second sleeve within the former sleeve consisting of sections arranged end to end, wearing-disks interposed between the bearing-faces of the inner and outer caps and the ends of the second sleeve, and antifriction-balls interposed between the sections of the second sleeve, and between the wearing-disks and the ends of said sleeve, substantially as and for the purpose specified.

10. A hub comprising a sleeve having one end formed with spirally-arranged sockets, a main shell encircling the sleeve and provided with peripheral sockets, spokes having their inner ends arranged within the sockets, a follower encircling the sleeve and movable lengthwise thereof at one side of the main shell for holding the spokes in operative position, a screw for entering the sockets of the sleeve and engaging the follower, inner and outer caps arranged at the outer sides of the main shell and follower, said caps encircling the sleeve and being movable lengthwise thereof and provided with inner bearing-faces, an inner sleeve within the former sleeve consisting of sections arranged end to end, wearing-disks interposed between the bearing-faces and the opposite ends of the inner sleeve, antifriction-balls interposed between the sections of the inner sleeve and between the ends of said sleeve and the wearing-disks, an intermediate sleeve interposed between the outer and inner sleeves and having its opposite ends fixed to the wearing-disks, and yielding washers interposed between said bearing-faces and wearing-disks, substantially as specified.

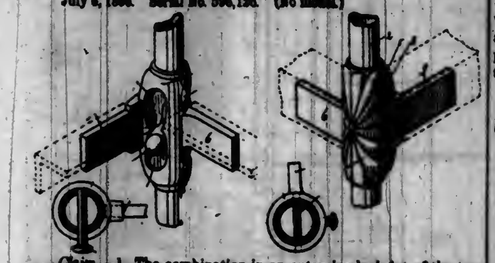
586,549. DRAG-HARROW. IRA T. EVANS, Clive, Iowa. Filed Dec. 4, 1896. Serial No. 614,518. (No model.)



Claim.—1. An improved drag-harrow comprising three V-shaped harrow-sections connected at their front and pointed ends with a drag-bar, the center section narrower at its rear end than the two outside sections, and its tooth-bearing bars at equal angles relative to a central line extending through the center of the front end rearward, and the two outside sections having their tooth-bearing bars at different angles relative to central lines extending through their front ends rearward, and the inner bars of the outside sections connected with the bars of the central section, by means of chains, to operate in the manner set forth for the purposes stated.

2. A drag-bar for harrows having staples fixed in its front edge, clevises at its ends, chains extended through the clevises and provided at their ends with open links of convolute shape adapted to be detachably fastened to the fixed staples in the manner set forth for the purposes stated.

586,550. BEDSTEAD. WILLIAM S. FOSTER, Utica, N. Y., assignor to the Foster Brothers Manufacturing Company, same place. Filed July 6, 1896. Serial No. 598,126. (No model.)

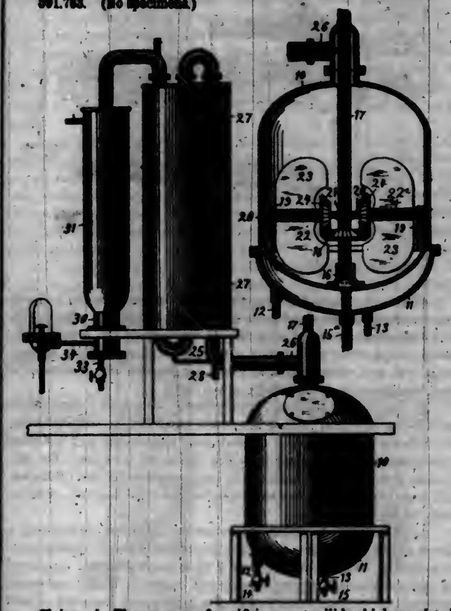


Claim.—1. The combination in an extension bed-slat of the two angle-sections thereof placed back to back and two T-shaped holders, the stem portion of which occupies a position between the adjacent backs of the sections and having hooked lips embracing the edges of the sections substantially as set forth.

2. The combination in a bedstead of a sleeve secured on the post having a lateral projection and a headed projection, a cross-bar secured to the lateral projection, a side rail, a rail-fastener secured on the end of the side rail having a pair of oppositely-disposed keyhole-like openings adapted to receive and engage on the headed projection of the sleeve, substantially as set forth.

3. The combination in a bedstead of a post having a headed projection, a rail-fastener secured to the end of the side rail having a pair of oppositely-disposed keyhole-like openings, adapted to receive and engage on the headed projections, substantially as set forth.

586,551. PROCESS OF MANUFACTURING ACETANILID. FREDERICK W. A. FREERKS, St. Louis, Mo. Filed May 16, 1896. Serial No. 591,763. (No specimens.)



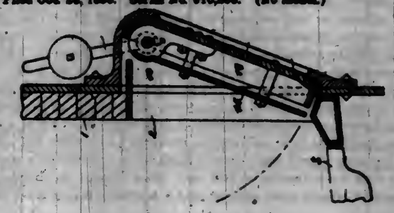
Claim.—1. The process of purifying acetanilid which consists in separating from it the main part of the anilin-oil and acetic acid by subjecting the same to distillation under reduced pressure while agitated.

2. The process of purifying acetanilid which consists in separating from it the last trace of anilin-oil and acetic acid by subjecting the same to distillation while under the action of live steam.

3. The process of purifying acetanilid which consists in separating from it the acetic acid and anilin-oil by subjecting the same to distillation under reduced pressure while agitated, until the greater portion of the acetic acid and anilin-oil is removed, and then subjecting the remaining product to the action of live steam and continuing the operation until the remaining quantities of acetic acid and anilin are removed.

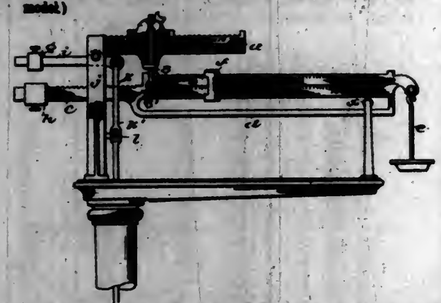
4. The process of manufacturing acetanilid which consists in subjecting acetic acid and anilin-oil to distillation while agitated, subjecting the product thus obtained to distillation under reduced pressure while agitated, until the greater portion of the free anilin-oil and acetic acid has been removed, and then subjecting the remaining product to the action of live steam and continuing the operation until all the acetic acid and anilin-oil has been removed.

586,552. FURNACE-DOOR. RUSSELL B. HOBSON, New York, N. Y. Filed Oct. 23, 1896. Serial No. 610,200. (No model.)



Claim.—The combination with a furnace, of a door-casing having an outwardly and downwardly curved hood at its upper side, downwardly and inwardly inclined end flanges, and a bottom flange having a transversely-curved inner surface, and a door mounted to swing inward in the casing and having a transversely-curved top flange to engage in the hood of the casing, a transversely-curved bottom flange to engage the curved surface of the bottom flange of the casing, and inwardly-extended end flanges to engage the side walls of the casing, substantially as specified.

586,553. WEIGHING AND COMPUTING SCALE. MYRON R. RUSSELL, Walcott, Vt. Filed Apr. 16, 1896. Serial No. 588,141. (No model.)



Claim.—1. The herein-described improvement in scales, comprising a scale-beam provided with a rearward extension, a carrier for said scale-beam provided with means for raising and lowering the latter, a support for said carrier, a steelyard-rod normally in engagement with said extension, and means for limiting the movement of said steelyard-rod, substantially as set forth.

2. The herein-described improvement in scales, comprising a scale-beam provided with a rearward extension, a longitudinally-movable carrier adapted to support said scale-beam and provided with means for raising and lowering the latter, a support for said carrier, a steelyard-rod normally in engagement with said extension, and means for limiting the movement of said steelyard-rod, substantially as set forth.

3. The herein-described improvement in scales, comprising a frame or support, an arm extending therefrom, a longitudinally-movable carrier mounted on said arm, a scale-beam pivotally supported by said carrier and having a rearward extension, means connected with said carrier adapted to effect the raising and lowering of said scale-beam and hold said carrier stationary, a steelyard-rod normally in engagement with the extension of said scale-beam, and means for limiting the movement of said steelyard-rod, substantially as set forth.

4. The herein-described improvement in scales, comprising a frame or support, an arm extending therefrom having lateral flanges, a longitudinally-movable carriage having wheels resting on said flanges, a scale-beam pivotally supported by said carriage and having a rearward extension, means carried by said carriage adapted to effect the raising and lowering of said scale-beam and hold said carrier stationary, a steelyard-rod normally in engagement with the extension of said scale-beam, and means for limiting the movement of said steelyard-rod, substantially as set forth.

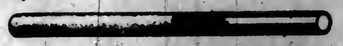
5. The herein-described improvement in scales, comprising a frame or support, an arm extending therefrom, a longitudinally-movable carrier mounted on said arm and having a movable member normally in engagement with the latter, a scale-beam pivotally supported by said carrier and provided with a rearward extension, means for holding the movable member of said carrier normally in engagement with said arm and adapted to effect the raising and lowering of said scale-beam, a steelyard-rod normally in engagement with the extension of said scale-beam, and means for limiting the movement of said steelyard-rod, substantially as set forth.

6. The herein-described improvement in scales, comprising a scale-beam provided with a rearward extension, a longitudinally-movable carrier for said scale-beam, a support for said carrier, a cam-lever adapted to hold said carrier stationary and effect the raising and lowering of said scale-beam, a steelyard-rod normally in engagement with the extension of said scale-beam, and means for limiting the movement of said steelyard-rod, substantially as set forth.

7. The herein-described improvement in scales, comprising a scale-beam, provided with a rearward extension, a longitudinally-movable carrier for said scale-beam, a support for said carrier, a cam-lever adapted to hold said carrier stationary and effect the raising and lowering of said scale-beam, a steelyard-rod normally in engagement with the extension of said scale-beam, means for limiting the movement of said steelyard-rod, and a counterbalanced lever pivotally connected to the upper end of said steelyard-rod, substantially as set forth.

8. The herein-described improvement in scales, comprising a frame or support, an arm extending therefrom having notches therein, a longitudinally-movable carrier mounted on said arm and having a movable member normally in engagement with said notches, arms depending from said carrier, a scale-beam pivotally supported by said arms and having a rearward extension, a cam-lever supported by said carrier and in engagement with the movable member and depending arms of the latter, a steelyard-rod normally in engagement with the extension of said scale-beam, and means for limiting the movement of said steelyard-rod, substantially as set forth.

586,554. FLEXIBLY-INSULATED CONDUCTOR. JOHN H. KELMAN, Pittsfield, Mass. Filed Nov. 27, 1896. Serial No. 613,483. (No model.)



Claim.—1. A flexibly-insulated conductor for electrical purposes, consisting of an extended length of electric conductor and a coating thereon of oxidized-oil varnish such as linseed-oil varnish, substantially as described.

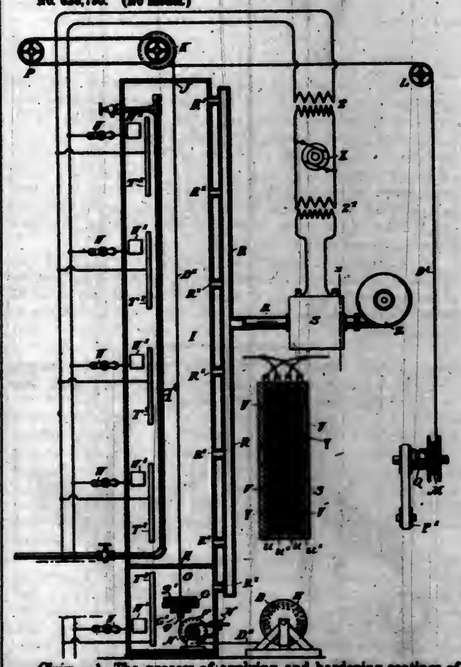
2. A flexibly-insulated conductor for electrical purposes consisting of an extended length of tinned copper conductor, and a coating thereon of linseed-oil varnish, substantially as described.

3. A coil of flexibly-insulated conductor for electrical purposes consisting of a coiled copper wire and a flexible and uniform coating of hardened-linseed-oil varnish adhering thereto, the coatings of the several turns being separate at the points of contact, substantially as described.

4. A coil of flexibly-insulated conductor for electrical purposes consisting of an electrical conductor and a coating of ozone-hardened-linseed-oil varnish, substantially as described.

5. A coil of flexibly-insulated conductor for electrical purposes consisting of a coiled copper conductor having a tinned surface, and a coating of ozone-hardened linseed-oil, substantially as described.

586,555. METHOD OF AND APPARATUS FOR APPLYING JAPAN. JOHN H. KELMAN, Pittsfield, Mass. Filed Mar. 30, 1897. Serial No. 630,795. (No model.)



Claim.—1. The process of applying and hardening coatings of japan or other materials having similar drying qualities to articles of extensive lengths consisting in continuously passing a continuous length of the article to be coated through a bath of the material to be applied, and then through a hardening-chamber, and subjecting succeeding portions of the coated article while in said hardening-chamber to the action of heat of continuously-increasing temperature, substantially as described.

2. The process of applying and hardening coatings of japan or other materials having similar drying qualities to articles of extensive lengths consisting in continuously passing a continuous length of the article to be coated through a bath of the material to be applied, and then through a vertical hardening-chamber and subjecting succeeding portions of the coated article while in a vertical position to the action of heat of continuously-increasing temperature, substantially as described.

3. The process of applying and hardening coatings of japan or other materials having similar drying qualities to articles of extensive lengths consisting in continuously passing a continuous length of the article to be coated through a bath of the material to be applied, and then through a vertical hardening-chamber and subjecting succeeding portions of the coated article while in a vertical position to the action of heat of continuously-increasing temperature with ozone, substantially as described.

4. The process of applying and hardening coatings of japan or other materials having similar drying qualities to extensive lengths of copper or other similar electrical conductor which consists in first tinning said conductor, then passing it through a bath of the material to be applied and then through a hardening-chamber and subjecting succeeding portions of the coated conductor while within said hardening-chamber to the action of heat of continuously-increasing temperature, substantially as described.

5. An apparatus for applying and hardening coatings of japan or other materials having similar drying qualities, consisting of a vertical hardening-chamber, and means for supplying heat of continuously-increasing temperature to the same, a bath of the material to be applied, and means for continuously passing extended lengths of the article to be coated through said bath and vertically through said hardening-chamber, whereby successive portions of the article are coated and the coating hardened while subjected to the action of heat of continuously-increasing temperature, substantially as described.

6. An apparatus for applying and hardening coatings of japan or other materials having similar drying qualities, consisting of a vertical light-proof ozone-chamber, and means for supplying heat of continuously-increasing temperature to the same, an ozone-generator supplying ozone to said chamber, a bath of the material to be applied and means for continuously passing extended lengths of the article to be coated through said bath and vertically through said ozone-chamber, whereby successive portions of the article are coated and the coating hardened while subjected to the action of ozone and heat of continuously-increasing temperature, substantially as described.

586,556. TROLLEY-GUARD. JAMES M. KIRKER, Louisville, Ky. Filed Aug. 26, 1896. Serial No. 603,702. (No model.)



Claim.—1. A trolley-harp having on each side of the sheave, on the same spindle, an eccentric-wheel adapted to hang, when at rest, with its longest diameter downward and to be revolved by the line-wire falling on its rim, having a flat rim with a raised outer edge at its shortest diameter, gradually changing to a beveled edge, at its longest diameter, substantially as described and for the purposes set forth.

2. The combination with a trolley-wheel, of an eccentrically-mounted wire catching and restoring wheel positioned alongside said trolley-wheel.

586,557. PRINTER'S BLOCK. JAMES L. LEE, Chicago, Ill. Filed July 14, 1896. Serial No. 599,326. (No model.)



Claim.—1. A printer's block having in combination the block proper, the clamping-jaw, a screw journaled at one end in said block for moving said jaw and having a shoulder thereon, a pinion for turning said screw, the end plate recessed for the reception of said pinion, and a bushing forming a bearing for said screw and being interposed between said pinion and shoulder, substantially as set forth.

2. A printer's block having in combination the block proper, the clamping-jaw, a screw for moving said jaw, having a shoulder, a pinion on the extreme end of said screw, the end plate having a recess in its outer surface receiving said pinion, and a bushing interposed between said end plate and block proper and forming an abutment for said shoulder, substantially as set forth.

3. A printer's block having in combination the block proper, the clamping-jaw, the screw for moving said jaw, having a shoulder or reduced journal, a pinion secured to the end of said screw, the end plate having a mortise in its outer surface receiving said pinion and a slotted bushing embracing said reduced journal and being let into the inner face of said end plate, substantially as set forth.

4. A printer's block having in combination the clamping-jaw, a screw having a pinion on one end thereof, said pinion being let into a recess in the outer wall of the printer's block and said screw being provided with a shoulder, and a bushing embracing said screw between said shoulder and pinion and being inserted into the printer's block at the inner side or face of said pinion, substantially as set forth.

5. A printer's block having in combination the block proper, the clamping-jaw, the screw for moving said jaw, having a shoulder thereon, an end plate having a recess in its outer face, a pinion let into said recess and being secured to said screw, a bushing interposed between said end plate and block proper and having a slot extending through its periphery and embracing said reduced journal, substantially as set forth.

6. A printer's block having in combination the block proper, the clamping-jaw, a screw for moving said jaw, an end plate having a recess, a pinion on said screw let into said recess, and a bushing interposed between said pinion and block proper and having a cut-away portion in its upper side for the passage of said clamping-jaw, substantially as set forth.

586,558. ELASTIC HORSESHOE. MATTHEW W. LOWER, Marine City, Mich. Filed Sept. 16, 1896. Serial No. 606,002. (No model.)



Claim.—A horseshoe constructed entirely of rubber, and provided adjacent to the rear ends of its sides with a substantially triangular cross-piece or frog yieldingly connecting the sides of the shoe, and having angularly-disposed straight front edges forming an apex, said cross-piece or frog having its lower or outer face beveled toward its front or apex, substantially as and for the purpose described.

586,559. ELECTRICAL METER. WILLIAM D. MARKS, Philadelphia, Pa., assignor to the American Electric Motor Company, same place. Filed Jan. 23, 1897. Serial No. 620,312. (No model.)

Claim.—1. In an electric meter or indicator, the combination with the actuating-coils and the movable member, of means for eliminating or reducing magnetic lag, substantially as set forth.

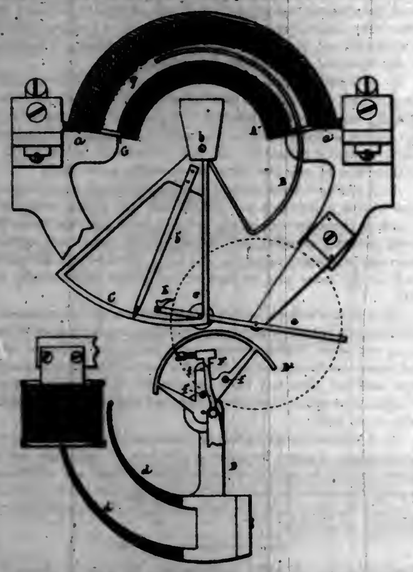
2. In an electric meter or indicator, the combination with the actuating-coils and the movable member, of an extra winding for eliminating or reducing magnetic lag, substantially as set forth.

3. In an electric meter or indicator, the combination with the actuating-coils and the movable member, of an extra winding for slightly magnetizing the movable member to eliminate or reduce magnetic lag, and means for interrupting the circuit of said winding to intermittently magnetize said movable member, whereby an intermittent movement is imparted thereto to disturb its bearing and overcome frictional lag, substantially as set forth.

4. In an electrical registering-meter, the combination with a register or counter and an actuating-motor, of an ampere-indicator for determining the rate of registration, and means for eliminating or reducing magnetic lag in said indicator, substantially as set forth.

5. In an electrical registering-meter, the combination with a register or counter and an actuating-motor, of an ampere-indicator for determining the rate of registration, and means for eliminating or reducing both magnetic and frictional lag in said indicator, substantially as set forth.

6. In an electrical registering-meter, the combination with a register or counter and an actuating-motor, of an ampere-indicator for determining the rate of registration, and an extra winding for said indicator producing magnetization of the movable part, to eliminate or reduce magnetic lag, substantially as set forth.



7. In an electrical registering-meter, the combination with a register or counter and an actuating-motor, of an ampere-indicator for determining the rate of registration, and an extra winding for said indicator producing magnetization of the movable part to eliminate or reduce magnetic lag, and a circuit-controller operated by the motor for interrupting the circuit of said winding, whereby the movable member is intermittently magnetized by said winding to produce an intermittent movement thereof and overcome frictional lag, substantially as set forth.

8. In an electric meter or indicator, the combination with the actuating-coil, of a movable member or core made of strands of wire and provided with a magnetizing-coil, substantially as set forth.

9. In an electric meter or indicator, the combination with the actuating-coil, of a movable member or core made of strands of fine iron wire and provided with a magnetizing-coil, substantially as set forth.

10. In an electric meter or indicator for recording or indicating the total current flowing through several actuating-solenoids, the combination with the solenoids, of cores actuated by the solenoids, and means for preventing incorrect indication due to unequal load, substantially as set forth.

11. In an electric meter or indicator for recording or indicating the total current flowing through several actuating-solenoids, the combination with the solenoids, of cores actuated by the solenoids, said cores being made of strands of fine wire and provided with magnetizing-coils, whereby incorrect indication due to unequal loading is prevented, substantially as set forth.

586,560. ELECTRIC METER. WILLIAM D. MARKS and GEORGE R. GREEN, Philadelphia, Pa., assignors to the American Electric Motor Company, same place. Filed May 20, 1897. Serial No. 638,682. (No model.)

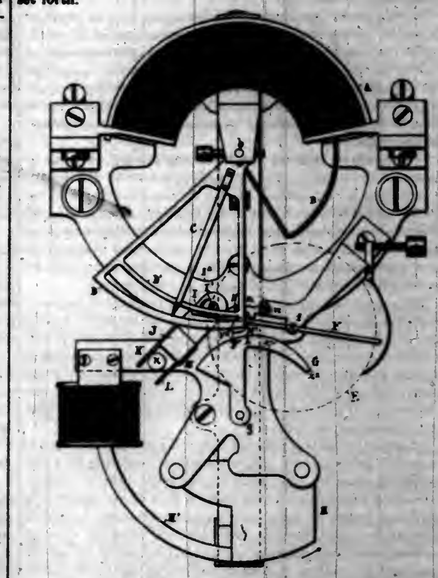
Claim.—1. The combination with an oscillating motor, of a brake carried by a stationary support and engaging periodically with a movable member of the motor, substantially as set forth.

2. The combination with an oscillating motor, of a brake engaging periodically with a movable member of the motor near one end of the swing of the motor and with a gradually-varying pressure, substantially as set forth.

3. The combination with an oscillating motor, of a gravity-brake periodically engaging the motor, substantially as set forth.

4. The combination with an oscillating motor, of a gravity-brake acting upon a movable member thereof, and means for increasing the pressure of the brake at a certain period, substantially as set forth.

5. The combination with an oscillating motor, of a brake comprising a pivoted body adapted to make contact with a movable member of the motor, and means for holding said brake out of contact with said movable member during a certain period, substantially as set forth.



6. The combination with an oscillating motor, of a brake comprising a pivoted weighted body adapted to make contact with a movable member of the motor, and means for holding said brake out of contact with said movable member during a certain period, substantially as set forth.

7. The combination with an oscillating motor, of a brake comprising a pivoted body adapted to make contact with a movable member of the motor, means for holding said brake out of contact with said movable member during a certain period, and a spring for increasing the pressure of the brake at a certain period, substantially as set forth.

8. The combination with an oscillating motor, of a brake comprising a pivoted weighted plate, a projection from said plate engaging a stud to hold said brake out of contact with a movable member of the motor during a certain period, and a spring projecting from said plate adapted to strike said stud at a certain period during the engagement of the brake with said movable member and whereby the pressure of the brake is increased, substantially as set forth.

9. The combination of an oscillating motor, an actuating device oscillated thereby, and a brake engaging with said device for periodically retarding the oscillations, substantially as set forth.

10. The combination of an oscillating motor, a cam oscillated thereby, a device oscillated by said cam, and a brake engaging with said cam for periodically retarding the oscillations, substantially as set forth.

11. In a registering-meter, the combination with an oscillating motor and a counter driven thereby, of a brake carried by a stationary support and engaging periodically with a movable member of the motor, substantially as set forth.

12. In a registering-meter, the combination of an oscillating motor, a cam oscillated thereby, a counter driven by said cam, and a brake engaging periodically with said cam, substantially as set forth.

13. In a registering electric meter, the combination with a register, of a controlling device adjusted by an ampere-indicator for controlling the rate of registration, and a device for periodically holding said controlling device against movement, substantially as set forth.

14. In a registering electric meter, the combination with an oscillating motor for driving a register, of a controlling device adjusted by an ampere-indicator for controlling the rate of registration, a device for holding said controlling device against movement, and means actuated through the oscillations of the motor for periodically releasing said holding device, substantially as set forth.

15. In a registering electric meter, the combination of an oscillating motor, a register, an actuating device driven by said motor to actuate the register, a controlling-arch adjusted by an ampere-indicator for controlling the rate of registration, a device engaging with said controlling-arch to hold the same against movement, and which device is periodically actuated by the motor to release the controlling-arch, substantially as set forth.

586,561. FLUID-PRESSURE BRAKE MECHANISM. OTIS B. MOSHER, Joliet, Ill. Filed July 3, 1896. Serial No. 598,482. (No model.)

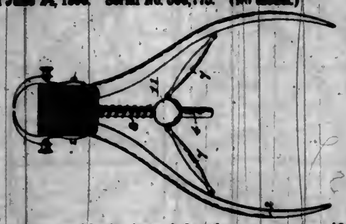


Claim.—1. A safety device for fluid-pressure brake mechanisms having a reversible casing adapted to form a union between contiguous extremities of train-pipe sections, and to be arranged in reversed positions upon opposite sides of the point of connection of the auxiliary reservoir with the train-pipe, an inwardly-opening valve arranged in the casing and yieldingly held unseated, and a permanently-open relief-vent maintaining a continuous communication throughout the train-pipe and adapted, after the valve is seated at the front end of a detached train-section, to bleed the contents of the portion of a train-pipe carried by the detached train-section, and apply the brakes gradually, substantially as specified.

2. A fluid-pressure brake mechanism having a train-pipe section carried by each car, in combination with reversible safety-valve casings in communication with the train-pipe section upon opposite sides of the point of connection of said train-pipe with the auxiliary reservoir of the brake mechanism, inwardly-opening valves seated in said casings, the casings being provided with relief-vents whereby a continuous communication is established between the portions of a train-pipe upon opposite sides of each valve-casing, and yielding means for normally holding the valves unseated, substantially as specified.

3. A safety device for fluid-pressure brake mechanisms, the same comprising a reversible casing provided with a fixed valve-seat and a contiguous relief-vent, and a valve adapted to fit said seat and yieldingly held unseated, said relief-vent being permanently open and the opening through the valve-seat, when the valve is unseated, being greater in area than the exhaust-opening of the engineer's valve, substantially as specified.

586,562. WATCHMAKER'S TOOL. FRANK L. OVERHOLSE, Fairfax, Minn., assignor of one-half to O. S. GOODSELL, Montevideo, Minn. Filed June 24, 1896. Serial No. 596,775. (No model.)

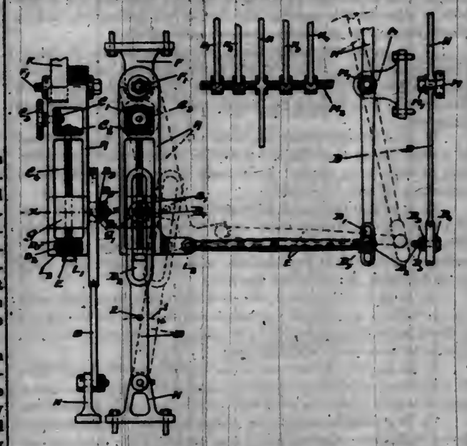


Claim.—A watchmaker's tool for the purposes specified, constructed substantially as set forth and comprising an approximately rectangular-shaped head having a longitudinal opening, jaws having their inner ends made elastic and rigidly secured to the opposite sides of the head, set-screws for adjusting the active ends of the jaws independently of each other and the head, handles pivoted to the inner or lower corners of the head and wholly independent of the jaws, a push-bar slidably mounted in the opening of the head, a coupling having adjustable connection with the push-bar, a spring mounted upon the push-bar and located between the coupling and the head, and toggle-levers connecting the coupling with the handles, substantially as set forth.

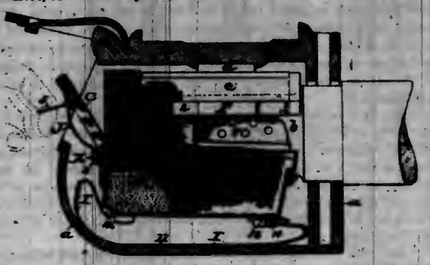
586,563. MEANS FOR TRANSMITTING MOTION. FRANCIS P. PARSONS, Paterson, N. J., assignor to Alfred Schiffer and Herman Schiffer, same place. Filed Jan. 6, 1897. Serial No. 618,162. (No model.)

Claim.—1. In means for transmitting motion, the combination of the following elements: two levers each pivoted to a stationary bearing, a pivot connecting said levers, means whereby said pivot can be adjusted longitudinally of said levers, a third lever, and a link connecting said third lever with one of the first-named levers, substantially as described.

2. In means for transmitting motion, the combination of the following elements: two levers each pivoted to a stationary bearing and each being longitudinally slotted, a nut movable in the slot of one of said levers, a guiding-block movable in the slot of the other lever and pivoted to said nut, means for simultaneously adjusting said nut and block in their respective slots, a third lever and a connection between said third lever and one of the first-mentioned levers, substantially as described and for the purposes as set forth.



586,564. CAR-AXLE LUBRICATOR. JAMES B. PATTEN, Baltimore, Md. Filed Sept. 26, 1896. Serial No. 607,080. (No model.)



Claim.—1. In an axle-lubricator, the oil-box provided with a journal cap, or hood, which is hinged at the outer end of said box, and thus adapted to be thrown back, substantially as and for the purpose specified.

2. In an axle-lubricator, the combination, with the oil-box and a journal cap or hood attached thereto, of a hinged front, forming a lid or cover for said cap, and means for holding the cover normally closed, substantially as shown and described.

3. In an axle-lubricator, the combination, with an oil-box, of a journal cap or hood, and a cover or front for the latter, said cap and cover being hinged at the same point, substantially as shown and described.

4. In an axle-lubricator, the combination, with the oil-box and journal cap or hood therefor and a cover for the hood, of a rod pivoting them together, and a spring coiled about said rod and bearing on the hood-cover, substantially as shown and described.

5. In an axle-lubricator, the combination with the oil-box, having perforated ears at its front end, the journal cap or hood, and the lid or cover for the latter, of a pivot-rod passing through such ears, and a spring attached to such rod and bearing on the cover, as shown and described.

6. In an axle-lubricator, the oil-box, having a trough-like oil-conductor which extends downward from the rear end of the oil-box and is open at each end, as shown and described, to adapt it to operate as specified.

7. In an axle-lubricator, the oil-box, provided with the trough-like oil-conductor which inclines downward from the rear end of the box, its open lower end being adjacent to the bottom of the latter, and its open upper portion held in elastic contact with the under portion and lateral sides of the axle-journal, as shown and described, to operate as specified.

8. In an axle-lubricator, the combination, with the oil-box, of a trough-like oil-conductor open at each end and inclined from the inner end of the box downward, the same being formed of soft, flexible material, and an elastic support for the curved upwardly-extended sides of said conductor, substantially as shown and described.

9. In an axle-lubricator, the oil-box, having the trough-like in-

clined oil-conductor and a support therefor, whose upwardly-extended sides are provided with perforations, to adapt them to operate as specified.

10. In an axle-lubricator, the oil-box having a trough-like oil-conductor inclined downward from its rear end, and composed of rawhide or other flexible material and having side perforations, and an elastic support for such sides, as shown and described.

11. In an axle-lubricator, the oil-box having the trough-like, inclined oil-conductor, formed of soft flexible material, an elastic support therefor which is extended and curved upward, and divided horizontally, thus forming two sets of wings, 6, and 7, as shown and described.

12. In an axle-lubricator, the elastic oil-conductor support formed of a sheet spring material, and curved or semicircular in cross-section, its sides being divided horizontally to form wings adapted to embrace a journal, as specified.

13. In an axle-lubricator, the elastic oil-conductor support, formed of a sheet spring material, and curved or semicircular in cross-section, its sides being divided horizontally to form wings adapted to embrace a journal, and provided also with pendent divergent wings at its front end, as shown and described.

14. In an axle-lubricator, the oil-box having a fixed rigid partition or baffle, a second baffle arranged over the first and having side pockets, and a third or flexible baffle arranged at the end of the box, substantially as shown and described.

15. In an oil-lubricator, the oil-box provided with the partition D, which is attached to the rear end and suspended from the sides of said oil-box, thus forming an oil-tight pocket, as shown and described.

16. In an axle-lubricator, the oil-box provided with an elastic or spring baffle-plate supported in the rear portion of the same and having its sides bent upward and occupying the space between the sides of the journal and oil-box, substantially as shown and described.

17. In an axle-lubricator, the combination, with the oil-box, of an elastic baffle arranged in and attached to the rear portion of the latter, and composed of a spring-plate which inclines downward toward the middle of the box, and extends across the box transversely, and whose ends are flared or extended vertically adjacent to the sides of the oil-box, and a support for said baffle, substantially as shown and described.

18. In an axle-lubricator, the combination, with the oil-box, of an elastic baffle arranged transversely in the rear portion of the latter, and composed of a spring-plate whose ends are bent upward and flared as shown, to form pockets in the space on each side of the journal, the said baffle being riveted at its rear edge to the sides of the box and left free at the front edge, to adapt it to be depressed when the oil-box is being inserted or removed from the axle-box, as shown and described.

19. In an axle-lubricator, the combination, with the oil-box, of the flexible baffle G, composed of soft, foldable material, which is attached to and forms a liquid-tight joint with the vertical opposite sides of the oil-box, and is held suspended and stretched vertically in the spaces between the journal and such sides of the box, as shown and described.

20. In an axle-lubricator, the combination, with the oil-box, of the flexible baffle G, the same being secured to the rear end and sides of the former, and its loose middle portion or tongue folded inward beneath the journal, as shown and described.

21. In an axle-lubricator, the combination, with the oil-box and the flexible chute E, of the flexible baffle which is riveted to the rear end and upwardly-extending sides of the oil-box, and provided with a loose central portion or tongue 10, that is folded and held beneath said chute, as shown and described.

22. The spring-support for the lubricator proper which is formed of a wire whose longitudinal members diverge from each other at the middle and from each other contiguous to the ends, the latter being recurved and extended inward toward each other, as shown and described.

23. The spring-support for the lubricator proper, which consists of the spring proper, whose longitudinal members are widely separated at the middle but converged and recurved at their ends, which are extended inward toward each other, and a metal plate attached to the upper side of each end, and arranged transversely as shown, one of the plates being pivoted, as shown and described.

24. In an axle-lubricator, the spring-support for an oil-box, of the spring whose members are twisted together at the ends and also bent inward or recurved as shown, and a transverse metal plate which has an obtuse angle and is on the front end of said spring, and another metal plate pivoted transversely on the rear end of the same, and provided with lateral ears adapted to bear upon the spring, as shown and described.

586,565. FUSIBLE CUT-OUT. CHARLES G. PERKINS and JOHN TRANCHARD, Hartford, Conn., assignors to The Perkins Electric Switch Manufacturing Company, same place. Filed Dec. 15, 1896. Serial No. 615,782. (No model.)

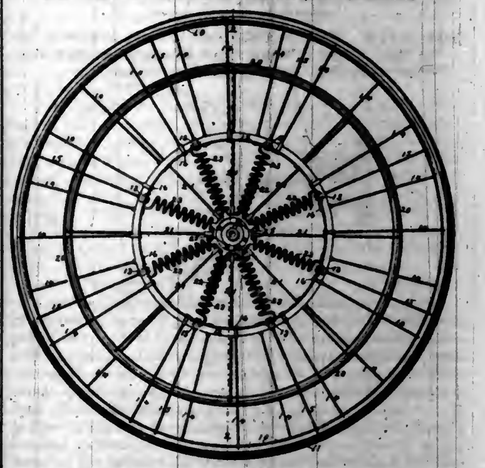
Claim.—1. A cut-out consisting of a base of insulating material bearing contacts adapted to be connected with the circuit-wires, said contacts having outwardly-projecting fastening-heads and binding and locking surfaces inclining outwardly and away from the fastening-heads, and a cap of insulating material bearing forked spring-arms bent so as to engage the inner edges of the fastening-heads and the outer faces of the inclining binding and locking surfaces and extend over the edges of the locking-surfaces when the cap is attached to the base, substantially as specified.



2. A cut-out, consisting of a base of insulating material having contacts adapted to be connected with the circuit-wires, said contacts having outwardly-projecting fastening-heads and wedge-surfaces that incline toward the plane of the fastening-heads as they extend away from the fastening-heads, and a cap of insulating material bearing forked spring-arms arranged so as to engage the inner edges of the fastening-heads and the wedge-surfaces, which wedge-surfaces, as the cap is attached to the base, bend the spring-arms out of their normal form and wedge them into locking curves back of the fastening-heads, substantially as specified.

3. In combination, in a cut-out of the within-described class, a fastening for securing the cap to the base, consisting of a contact adapted to be connected with a circuit-wire, said contact having an outwardly-projecting fastening-head and a wedge-surface that inclines toward the plane of the fastening-head as it extends away from the fastening-head, and a forked spring-arm arranged so as to engage the inner edges of the fastening-head and the wedge-surface, which wedge-surface, as the cap is attached to the base, bends the spring-arm out of normal form and wedges it into a locking curve back of the fastening-head, substantially as specified.

586,566. ELASTIC WHEEL. JACOB H. PETERSEN, Des Moines, Iowa. Filed Mar. 12, 1897. Serial No. 627,000. (No model.)



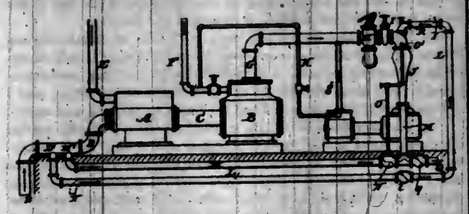
Claim.—1. A vehicle-wheel, comprising an outer rim, a second double rim arranged within and concentrically of the first, spokes connecting the outer rim and the double rim, a hub, a third rim mounted within the spokes of the other rims and capable of a rotary movement relative thereto, and springs for connecting the said hub and the double rim, for the purposes stated.

2. A vehicle-wheel, comprising an outer rim, a double rim arranged within and concentrically of the first, and having cross-pieces for connecting them, spokes for connecting the outer rim and the double rims, guides fixed to the outer rim and to the cross-pieces of the double rims, a hub having two or more outwardly-projecting arms at its central portion, a third rim arranged for rotation within the said guides, spokes for connecting the third rim with the hub, and a series of contractile springs connected with the said cross-pieces of the double rim and also with the said hub, and having the said extensions on the hub admitted into the central portion of two or more of the springs, substantially as and for the purposes stated.

586,567. PROCESS OF MAKING POLYSULFIDE. BERNHARD VON SCHERP, Heidelberg, Germany. Filed Oct. 18, 1895. Serial No. 566,169. (No specimens.)

Claim.—The herein-described process for the manufacture of polysulfids, the same consisting in combining and thoroughly mixing sublimed sulfur and hydrated lime in about the proportions of sixty per cent. of sulfur and forty per cent. of lime, boiling the mixture in water for a suitable period, reducing the specific gravity of the lye thus obtained by the addition of boiling water to about 10° Baumé, then decanting the lye, then further reducing its specific gravity to about 5° Baumé by the addition of water, then adding an alkali carbonate, then decanting and evaporating the mixture until it is dry, then cooling the dried mixture by exposure to the atmosphere, and finally grinding and sifting the dried mixture, substantially as set forth.

586,568. CONDENSER FOR PUMPS. LOUIS SCHUTTE, Philadelphia, Pa. Filed Apr. 7, 1897. Serial No. 631,069. (No model.)



Claim.—1. In combination with a pump actuated by a steam-engine and having a suction-pipe, a conduit leading from the steam-exhaust of the steam-engine to the suction-pipe, a valve situated in said conduit, a condenser arranged to utilize the water passing through the suction-pipe and means for actuating the valve aforesaid controlled by the vacuum in said condenser, all substantially as specified, and so as to close the valve when the vacuum in the condenser falls below a determined point.

2. In combination with a pump actuated by a steam-engine and having a suction-pipe, a condenser connected to the exhaust of the steam-engine, a waste-water conduit leading from the condenser to the suction-pipe of the pump, a valve situated in said waste-water conduit and means for actuating said valve controlled by the vacuum in the condenser, substantially as specified.

3. In combination with a pump actuated by a steam-engine and having a suction-pipe, a condenser connected to the exhaust of the steam-engine, a water-supply pipe leading from the suction-pipe to the condenser, a waste-water conduit leading from the condenser to the suction-pipe of the pump, a valve situated in said waste-water conduit and means for actuating said valve controlled by the vacuum in the condenser substantially as specified.

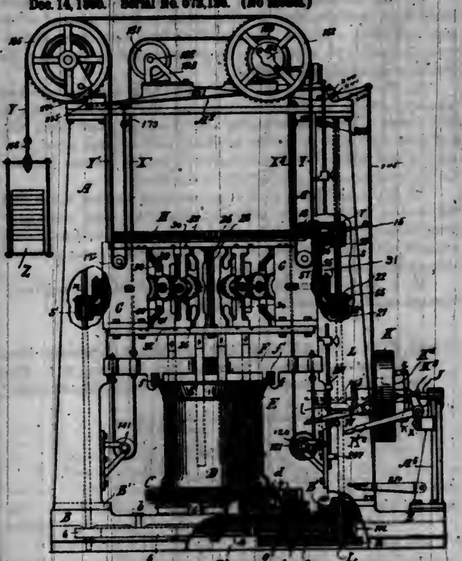
4. In combination with a pump actuated by a steam-engine and having a suction-pipe, a condenser connected to the exhaust of the steam-engine, a waste-water conduit leading from the condenser to the suction-pipe of the pump and having a branch as Q, a valve situated in said waste-water conduit, means for actuating said valve controlled by the vacuum in the condenser and a valve as *q* situated in branch Q, substantially as specified.

5. In combination with a pump actuated by a steam-engine and having a suction-pipe, a conduit leading from the steam-exhaust of said engine to the suction-pipe, a condenser arranged to utilize the water passing through the suction-pipe, a valve-casing N interposed in the conduit leading from the exhaust and embracing the valve-seat N^3 and cylinder N^4, a valve N^5 situated in casing N and having attached to it a piston N^6 working in cylinder N^4 and a pipe connecting cylinder N^4 and the condenser whereby the vacuum in the condenser will be maintained in said cylinder.

6. In combination with a pump actuated by a steam-engine and having a suction-pipe, a conduit leading from the steam-exhaust of said engine to the suction-pipe, a condenser arranged to utilize the water passing through the suction-pipe, a valve-casing N interposed in the conduit leading from the exhaust and embracing the valve-seat N^3, cylinder N^4 and cylinder N^{10}, a valve N^5 situated in casing N and having attached to it a piston N^6 working in cylinder N^4 and a piston N^{10}, a pipe connecting cylinder N^4 and the condenser whereby the vacuum in the condenser will be maintained in said cylinder and a pipe N^{12} connecting cylinder N^{10} with the outer air.

7. In combination with a pump actuated by a steam-engine and having a suction-pipe, a conduit leading from the steam-exhaust of said engine to the suction-pipe, a condenser arranged to utilize the water passing through the suction-pipe, a valve-casing N interposed in the conduit leading from the exhaust and embracing the valve-seat N^3, cylinder N^4, and cylinder N^{10}, a valve N^5 situated in casing N and having attached to it a piston N^6 working in cylinder N^4, and a piston N^{10} working in cylinder N^{10}, a pipe connecting cylinder N^4 and the condenser whereby the vacuum in the condenser will be maintained in said cylinder and a pipe N^{12} connecting cylinder N^{10} with the outer air and having a water seal.

586,569. MACHINE FOR MAKING PIPE. WELLS D. SHERMAN, Brooklyn, N. Y., assignor of three-fourths to Charles B. Johnson, John J. Wilson, Ellis H. Baffin, and Frank B. Johnson, same place. Filed Dec. 14, 1896. Serial No. 615,196. (No model.)



Claim.—1. In a pipe-making machine, the combination of a rammer-head a revoluble cam-plate thereon, a shaft and pinion at the periphery of and adapted to drive said cam-plate, rammers, eccentrics or cranks reciprocating said rammers, shafts for the same adapted to be driven by the first-named shaft, and connections between the rammers and the cam-plate so that the revolution of the cam-plate causes the rammers to move in and out from the center of the cam-plate, substantially as described.

2. The combination in a pipe-making machine, of a revoluble cam-plate, oscillating and reciprocating rammers, and trailers on the rammers adapted to engage the cam-plate and oscillate the rammers at right angles to their axis, substantially as described.

3. A rammer-head, rammers carried thereby, slides T adapted to reciprocate in said rammer-head and to move said rammers in and out, ways for the slides, a revoluble cam-plate carried by the rammer-head, trailers on the rammers adapted to engage the cam-plate, and means for rotating the cam-plate, substantially as described.

4. The combination with shafts L M, of a rammer-head, intermediate pinions carried by the rammer-head and certain of said intermediate pinions driven from said shafts L M, driving-pinions meshing with said intermediate pinions, shafts driven by but reciprocating through said driving-pinions, rammers actuated by said last-named shafts, a revolving cam-plate, and connections between said rammers and said plate whereby the revolution of the cam-plate causes the rammers to move in and out, substantially as described.

5. The combination of the annular top plates and bottom plates of a rammer-head, posts between the same, boxes through the posts, gears carried in the boxes, shafts working through and revolving with said gears, slides reciprocating between said top and bottom plates, rammers carried by the slides, a revoluble cam-plate on the rammer-head, and connections between the rammers and the cam-plate, substantially as described.

6. The combination of a core-bar, chains for raising and lowering the same and having three parallel lengths, a sprocket-wheel for driving the chains, and reversing-gear for arresting and reversing the direction of the sprocket-wheel, substantially as described.

7. A rammer-head, chains for raising and lowering said rammer-head, a counterpoise on the end of said chains, sprocket-idlers for said chains, and a brake for arresting at least one of said idlers, substantially as described.

8. The combination of a core-bar, a rammer-head, a chain for said core-bar, a chain for said rammer-head, a driving-sprocket for the core-bar chain, an idler 127 therefor, an idler 163 for the rammer-head chain adjacent to said idler 127, and a clutch adapted to connect and disconnect said idlers with and from each other, substantially as described.

9. The combination of a rammer-head, holddown-chains connected therewith and adapted to check the rising of the rammer-head, drums for the chains, and a brake for the drums, substantially as described.

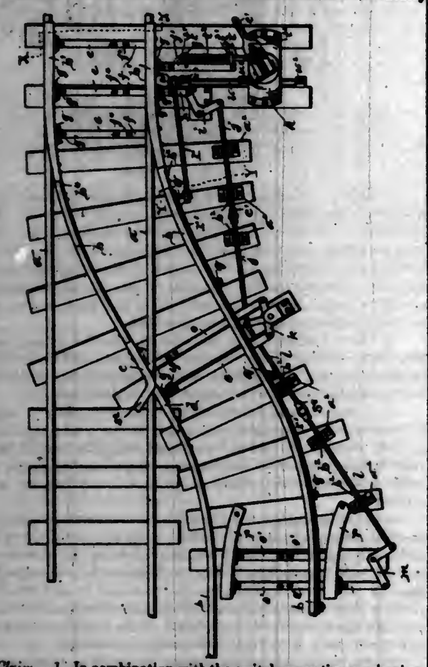
10. The combination of the core-bar, chain therefor, rammer-head, chain therefor, idlers for said chains, a clutch adapted to engage said idlers with and disengage them from each other, and devices adapted to be engaged by the rammer-head for operating the clutch, substantially as described.

11. The combination of the core-bar, chain therefor, sprocket-wheel for driving the chain, rammer-head, chain therefor, idlers for said chains, a clutch for engaging and disengaging said idlers with and from each other, levers for operating said clutches, a rod actuated by said rammer-head and adapted to engage first one and then the other clutch-lever, substantially as described.

12. The combination with a rammer-head adapted to rise and fall above a mold, rammers adapted to work in a mold, and a cam-plate carried by the rammer-head, of an external vertical main shaft adjacent to the rammer-head and adapted to drive the cam-plate and the rammers, substantially as described.

13. A rammer-head provided with a clear central through-and-through opening, substantially as described.

586,570. RAILWAY-SWITCH. CHARLES H. SHERWOOD, Utica, N. Y., assignor of one-half to Henry C. Lyman, Sherburne, N. Y. Filed Aug. 12, 1895. Renewed Dec. 21, 1896. Serial No. 616,530. (No model.)



Claim.—1. In combination with the switch-operating mechanism and supplemental section of track, a vertically-movable locking-rail parallel to and outside of one of the rails of said section, a rock-shaft mounted in suitable bearings connected with the aforesaid switch-operating mechanism and extending toward the track, an arm on the outer end of said shaft and a rod connecting said locking-rail and said arm for the purpose described and shown.

2. In combination with the vertically-movable and revoluble rod a''' of the switch-operating mechanism and supplemental section of track b, vertically-pivoted arms q secured to the side of the outside rails of said section, a locking-rail r' secured to said arms, collars v' v' formed on the lower portion of the rod a''', a rock-shaft u extending from beneath the switch-stand toward the track, an arm u'' secured on its end adjacent to said stand and loosely between the collars v' v', an arm u' on the opposite end of said rock-shaft, and a rod r connecting the latter arm to one of the aforesaid arms q secured on the rail b as described and shown.

3. In combination with the revoluble post c''' at the switch-stand, of a horizontal lever b''' secured on said post, a rod pivoted at one end to said lever and extending part way toward the adjacent laterally-shifting switch-rail b', plates g secured to the inner face of one switch-rail and having ears g' formed thereon, cross-bars e e and f f secured to said ears connecting said rails, a plate g on the outside of the outer rail having ears g' formed thereon, a bar f' pivoted to said ears and extending part way toward the switch-stand, parallel and in proximity to the rod t, adjacent collars or stops t' t' and f'' f'' respectively on the rod t and bar f' and a spring t'' on said rod and interposed between said stops as described and shown.

4. In combination with the main-track rails a a, laterally-shifting switch-rails b' b' movable on and off said main rails, plates g g secured to the inside of one of said switch-rails having ears g' g' formed thereon, cross-bars e and f extending from said ears and respectively from the inner and outer rails and pivoted together, a longitudinal slot c' formed in the web of the rail a for the reception of the bar f and means to shift the switch-rails as described and shown.

5. The combination with the main-track rails, of switch-rails and frog-sections movable simultaneously on and off said main rails, mechanism for moving the same, a rock-shaft operated by said mechanism, a locking-rail along the side of one of the rails of the siding, and a rod connecting said latter rail and rock-shaft as set forth and shown.

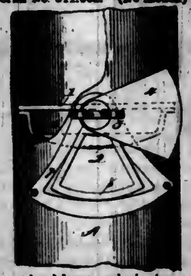
6. The combination with the main-track rails a a, the rail nearest the switch-stand having its web provided with slots c' c', of switch-rails b' b' connected by cross-bars e e and f f pivoted together, the bars f f passing through the aforesaid slots in the main-track rail, mechanism holding the said switch-rails on the main-track rails, the frog-sections c and d at the intersection with the main-track rail and movable on and off the same, connections between said frog-sections and the switch-rails b' b', a spring t'' in the switch mechanism forcing the switch-rails back on the main-track rails when moved off by a moving train, a rail r' movable vertically along the side of the side-track rails b b, and connections between the rail r' and switch-operating mechanism to prevent the operation of said mechanism when the side-track is occupied by a train or engine as described and shown.

7. The combination with the switch-rails b' b', of mechanism for moving the same on and off the main-track rails a a consisting of a case A suitably supported near the switch, a sleeve d''' journaled therein and resting in the seat g''' at the top of the case, a post c''' within the said sleeve provided with a vertical guide f'''', a vertically-sliding rod a''' in said guide, a vertical slot f''' formed in said post, a pin c'' passing through said slot to connect said rod and sleeve so as to turn together, a lever i' pivoted to the upper portion of the post and connected to the upper portion of the sleeve by means of vertical arms i i by which to raise said sleeve from its seat to turn the same, a laterally-swinging lever b''' secured on the lower end of the post, a horizontal rod t pivoted at one end to said lever and extending part way toward the railway-track, a bar f' extending from the switch-rail nearest the switch-stand part way toward said stand, stops t' t' and f'' f'' respectively on said rod and bar, and a spring t'' t'' on said rod and interposed between said stops as described and shown.

8. The combination with the switch-rails b' b' movable on and off the main-track rails a a and connected by the cross-bars e and f, a switch-stand consisting of a hollow case A formed with a seat g''' in its upper portion, the sleeve g''' within the said casing and resting in the said seat, post c''' within the said sleeve, formed with the vertical guide f'''', a rod a''' movable in said guide, a pin c'' passing through a slot f''' formed in the post and connecting said rod and sleeve, a lever pivoted to the upper portion of the post to turn the same, vertical arms i' i' connecting said lever to the upper portion of the sleeve by which to raise the same, a laterally-swinging lever b''' secured on the lower end of said post, a horizontal rod t extending from said lever part way toward the switch-rails and provided with stops t' t', a horizontal bar f' extending from the switch-rail part way toward the switch-stand parallel and adjacent to the aforesaid rod and provided with stops f'' f'', a spring t'' on the rod and interposed between one of the stops on said rod and the other stop on the bar, collars v' v' formed on the lower end of the rod a''', a rock-shaft u having secured on the end adjacent to the track a vertical arm u', an arm u'' extending horizontally from the other end portion of the form of a fork to receive the lower end portion of the vertical rod a''', said arm being held between the collars v' v' on said rod, a locking-rail r' extending along the side of one of the side-track rails b, and a horizontal rod r connecting said locking-rail to the vertical arm u' secured to the aforesaid rock-shaft as described and shown.

9. In combination with the main-track rails a a and side-track rails b b, the switch-rails b' b' secured at one end to the side-track rails by flexible plates b'' b'' secured to the sides of both rails, said switch-rails having their free end portion movable on and off the main-track rails, cross-bars e e and f f extending respectively from the switch-rail farthest set from the switch-stand and switch-rail nearest the switch-stand, said bars being pivoted together and the bars f f passing through slots c'' c'' formed in the main rail a nearest the switch-stand, the frog-sections c and d secured at one end to the side-track rails b b also by flexible plates and having their free end portion movable on and off the main-track rail nearest the switch-stand, cross-bars o o extending from said frog-sections, one passing through the slot c' of the side rail and the other cross-bar passing through both the side-track rail and intersecting main-track rail a, a lever k connecting the cross-bars, rods j extending from the said lever and connected at the opposite end to a lever i near the switch-rail b' nearest the switch-stand, a bar h connecting said rail and the lever i, and mechanism to operate all of said parts as described and shown.

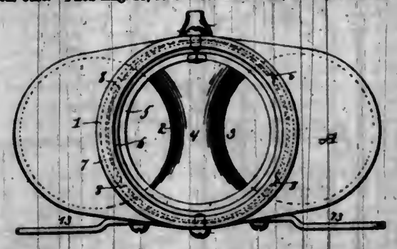
586,571. DAMPER. JOHN B. SLENTZ, Gettysburg, Pa. Filed Nov. 10, 1896. Serial No. 611,663. (No model.)



Claim.—1. A combined heat and air damper comprising an annular plate having an inverted-dome-shaped plate depending therefrom, connected therewith at a suitable distance from each other and an exterior damper arranged to cover an opening in the pipe below the heat-damper and means for operating the same whereby when the smoke-damper is closed the air-damper is opened, substantially as described.

2. A combined heat and air damper comprising an annular plate and an inverted-dome-shaped plate connected together by means of feet or brackets at a suitable distance from each other, a segmental plate with an opening through it, exteriorly secured to the pipe which has a corresponding opening below the heat-damper; a segmental plate for covering said opening, and an operating rod or spindle, substantially as described.

586,572. RAIN-WATER CUT-OFF. FRANK R. SNYDER, Massillon, Ohio. Filed Aug. 26, 1896. Serial No. 603,805. (No model.)

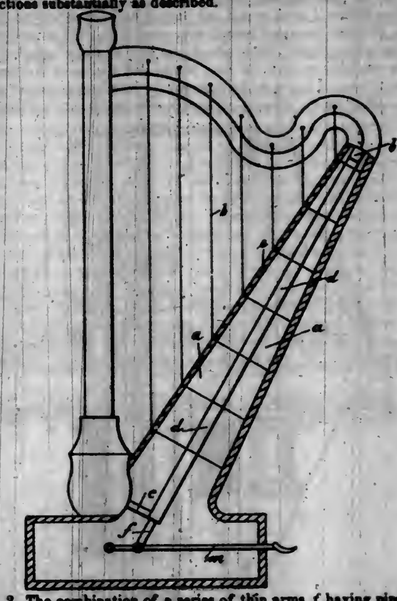


Claim.—1. In a rain-water cut-off the combination with conveying and communicating pipes, of a tube pivoted therein, a knob connected with one end of the tube and having a straight sliding connection with a wall of the communicating pipes, a sleeve or socket-piece resting on an end of the communicating pipes, screws or rivets extending from the pipes to the sleeve or socket-piece for holding them together and for constituting a guide for the upper end of the tube, substantially as set forth.

2. In a rain-water cut-off, the combination with a shell having a large inlet and two small outlets, of a movable pipe or tube within the shell adapted to conduct water from the inlet to one or the other of said outlets, a sleeve or socket-piece adapted to enter the inlet end of the shell and the pipe or tube, a flange projecting from the sleeve or socket-piece and resting on the upper end of the shell, and lugs between said sleeve and shell, substantially as set forth.

586,573. HARP. PAUL STARK, Markneukirchen, Germany. Filed July 3, 1895. Serial No. 554,827. (No model.)

Claim.—1. In a pedal-harp the combination of a series of arms having pins arranged as specified to actuate the strings, a common guide for all said arms, a pedal device to actuate said arms and means for retaining said pedal device in a position to raise or lower the pitch of the harp and to vary the various strings half a tone in one of two directions substantially as described.



2. The combination of a series of thin arms f having pins g to contact with the harp-strings as specified, a guide d in the harp-casement for said arms, and pedal device to operate said arms in the manner and for the purpose substantially as described.

3. The combination of a series of thin arms f having pins g to contact with the harp-strings as specified, a guide d in the harp-casement for said arms, and pedal device to operate said arms consisting of a series of pedal-levers attached to said arms and having their ends perforated and extending in one and the same plane, a conical rod to enter said perforations and a pivoted pedal to operate said rod substantially as described.

586,574. ROLLER BALING-PRESS. JAMES F. SWINNERTON, St. Louis, Mo., assignor, by mesne assignments, to George Kingsland, same place. Filed Sept. 12, 1895. Serial No. 562,374. (No model.)

Claim.—1. In a baling-press, a set of several compression-rollers between which a coreless bale is rolled, in combination with a second set of several compression-rollers to which said coreless bale is transferred for the purpose of applying the bagging to said bale, and means for rotating said rollers.

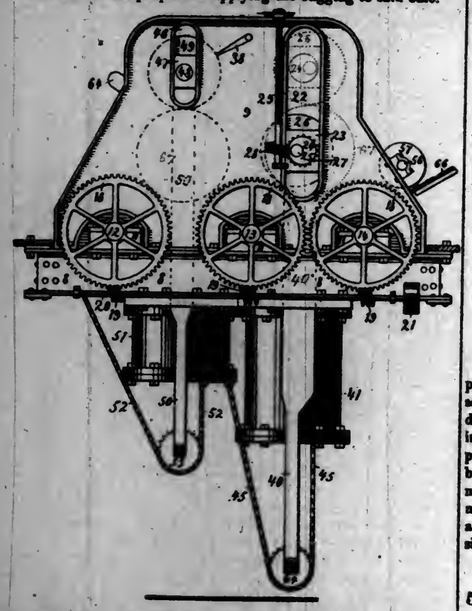
2. In a baling-press, a set of several compression-rollers between which a coreless bale is rolled, a second set of several compression-rollers to which said coreless bale is transferred, means for transferring said coreless bale from the first-mentioned set of compression-rollers to the second set for the purpose of applying the bagging to said bale, and means for rotating said rollers.

3. In a baling-press, three rigidly-journaled compression-rollers, a movably-journaled compression-roller arranged above the spaces between each of said rollers, said rigidly and movably journaled rollers adapted to roll coreless bales between them, means for transferring the coreless bale rolled between one set of rollers to the other set for the purpose of applying the bagging to said bale, and means for rotating said rollers.

4. In a baling-press, three rigidly-journaled compression-rollers, movably-journaled compression-rollers arranged above the spaces between said rollers, a fluid-pressure cylinder controlling each movably-journaled roller, flexible gearing passing over suitable wheels on the shafts of said rollers and over a wheel on the fluid-pressure-cylinder connections, means for transferring the bale from one set of rollers to the other for the purpose of applying the bagging to the bale, and means for rotating said rollers.

5. In a baling-press, a series of rigidly-journaled compression-rollers, a series of movably-journaled compression-rollers arranged above the spaces between said rollers, end frames for said rollers, arms pivoted at each side of said end frames, and a bar projecting from said arms in the path of the bale for the purpose of transferring the bale.

6. In a baling-press, a series of rigidly-journaled lower compression-rollers, movably-journaled upper compression-rollers arranged above the spaces between said rigidly-journaled rollers, end frames, means for rotating said rollers, boxes for said movably-journaled rollers sliding in slots in said end frames, fluid-pressure cylinders for said movably-journaled rollers, bars connecting said movably-journaled rollers to the piston-rods of said fluid-pressure cylinders, said bars operating to close the slots in said end frames as the movable rollers rise, and means for transferring the bale from one set of rollers to another for the purpose of applying the bagging to said bale.



586,575. LIGHTNING-ARRESTER FOR SWITCHBOARDS. ARTHUR M. TAYLOR, Niles, Mich. Filed Mar. 8, 1897. Serial No. 626,531. (No model.)



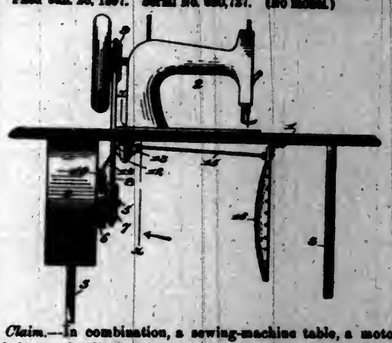
Claim.—1. A lightning-arrester comprising a board carrying a vertically-disposed arrester-bar, a series of jack-springs connected with the line secured to the board upon one side of and to cross said arrester-bar, a series of opposite-disposed contact-plates secured upon the opposite side of said arrester-bar and connected with the switch-board, a ground-plate secured to the board to cross the arrester-bar upon one side and a contact-plate adapted to cross said bar upon the opposite side thereof, an electromagnet-coil connected with the ground and an armature connected with the said arrester-bar and operated by the said magnet to ground the current, substantially as described.

2. In a lightning-arrester, the combination with the base-board, of a series of parallel and oppositely-disposed jack-springs and contact-plates, the wires connected therewith, an eccentrically-pivoted arrester bar arranged to cross said jack-springs and provided with a spring-actuated rod extending transversely therefrom, a ground-plate, a contact-plate, an electromagnet connected with said ground and contact plates and a latch-bar operated by the armature of the electromagnet to throw the jack-springs out of contact, substantially as described.

3. In a lightning-arrester, the combination with the base-board, of a pivoted eccentric contact-bar, a series of oppositely-disposed jack-springs and contact-plates connected respectively with the line and with the switchboard, an electromagnet having one of its coil-wires connected to the said contact-bar and the other of said wires connected to ground, mechanism connecting the bar with the armature of the electromagnet to release the bar and throw off the jack-springs and a ground-plate adapted to cross in close proximity to said contact-bar and bear upon the eccentric portion thereof and ground the current directly therefrom, substantially as described.

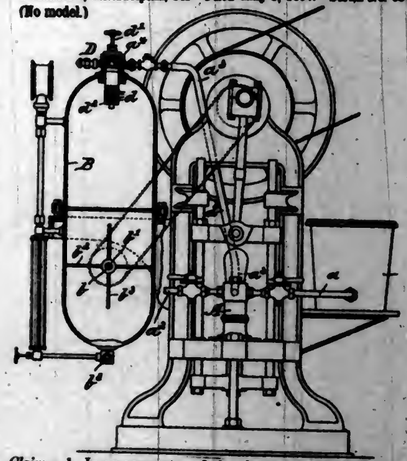
4. In a lightning-arrester, the combination with the base-board of a pivoted eccentric contact-bar, the jack-springs and contact-plates arranged transversely thereto, a spring-actuated rod connected to said bar, an electromagnet having a coil connected respectively to the ground and to a fusible wire secured to contact-plate of said bar, and a latch connecting the armature of the electromagnet with said rod, substantially as described.

586,576. BRAKE FOR SEWING-MACHINES. THOMAS A. TEATE, Lloyd, Fla., assignor of one-half to W. M. Strardess, Monticello, Fla. Filed Jan. 26, 1897. Serial No. 620,727. (No model.)



Claim.—In combination, a sewing-machine table, a motor applied thereto for driving the sewing-machine, a brake-shoe, a spring setting the brake-shoe to hold the motor in check under normal conditions, a knee-board pendent from the table, and a bell-crank lever intermediate of the brake-shoe and knee-board and having independent connection with each, whereby a movement of the knee-board from the vertical will release the brake-shoe and permit the motor to actuate the machine, and the knee-board will return automatically to a vertical position when released and supplement the action of the aforesaid spring in returning the parts to a normal position, substantially as described.

586,577. APPARATUS FOR CARBONATING LIQUIDS. SELDEN TWITCHELL, Philadelphia, Pa. Filed May 3, 1897. Serial No. 634,594. (No model.)

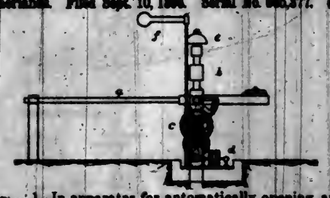


Claim.—1. In an apparatus of the character described, a spraying device consisting of a series of loosely-supported superposed disks having contiguous faces provided with radially-arranged interlocking notches through which liquid and gas or air are adapted to be forced under pressure, substantially as and for the purposes described.

2. In an apparatus of the character described, a spraying device consisting of a series of loosely-supported superposed disks having contiguous faces provided with radially-disposed interlocking notches through which liquid charged with gas or air is adapted to be forced under pressure, and means for clamping said disks more or less closely together, substantially as and for the purposes described.

3. In an apparatus of the character described, a spraying device provided with a spindle having a flanged base, a series of superposed disks loosely supported on said spindle by said base, an extension located on said spindle above said disks and communicating therewith, an inlet-chamber located on the spindle above said extension and in communication therewith, a cap threaded to said spindle, and means for rotating said spindle in said cap, whereby the disks, extension and inlet-chamber may be clamped more or less closely together, said disks being provided on contiguous faces with interlocking notches through which charged liquid with gas or air is forced under pressure, substantially as and for the purposes described.

586,578. ELECTRICALLY-OPERATED RAILWAY-BARRIER. CHRISTIAAN C. VAN DER VALK, Heerlen, Netherlands, assignor to the Syndicaat tot Exploitatie der Patenten C. C. Van der Valk, The Hague, Netherlands. Filed Sept. 10, 1896. Serial No. 605,377. (No model.)



Claim.—1. In apparatus for automatically opening and closing the barriers of a railroad-crossing, the combination with a barrier and its operating means, an electromotor and provision for limiting the period of the actuation of said means, a main or working circuit for the latter and an auxiliary circuit controlled by a railway-train to control said main or working circuit and preliminarily operate a warning-signal, substantially as herein specified.

2. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a barrier and its operating means including an electromotor and provision for limiting the period of the actuation of said means, a main or working circuit for actuating said means and an auxiliary circuit controlled by a moving train to control said main or working circuit and arranged to also preliminarily operate a signal visible to the engineer of the approaching train, substantially as herein specified.

3. In apparatus for automatically opening and closing the barriers of a railway-crossing, the combination with a barrier and its operating means, including an electromotor and provisions for limiting the period of the actuation of said means, a main or working circuit for actuating said means and an auxiliary circuit controlled by a moving train to control said main or working circuit, and arranged so as to operate a visible signal to turn the same from a position at right angles to the track to one parallel therewith, substantially as herein specified.

4. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a barrier and gearing for raising and lowering the same, of an electromotor for driving said gearing, contacts located at each side of the crossing, and circuit connections with mechanism controlling a working circuit through the electromotor, the arrangement being such that the main current will be first directed through the motor in one direction and then interrupted and thereafter automatically directed through the motor in a reverse direction and again interrupted, substantially as herein specified.

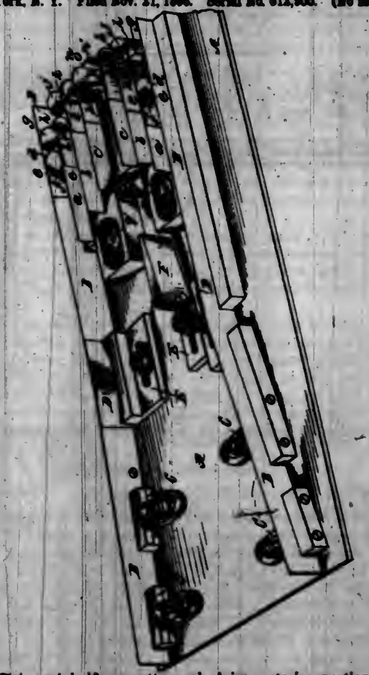
5. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a movable barrier and gearing for raising and lowering the same, of an electromotor for driving said gearing, an independently-actuated set of gear-wheels normally held by an armature-detent, an electromagnet for said detent, a track-contact for controlling an auxiliary circuit including said electromagnet, and a preliminary signal, and a circuit-closer operated by said train for closing a main or working circuit for the said electromotor, substantially as herein specified.

6. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a barrier and gearing for raising and lowering the same, of an electromotor for driving said gearing and included in a main or working circuit, a spring-actuated set of gear-wheels normally held by an armature-detent and comprising a rotating part with projections, an electromagnet, auxiliary circuit and track contacts for permitting a train to successively move the detent and permit the spring-actuated set of wheels through its projections to close and briefly hold closed the main or working circuit to primarily drive the electromotor in one direction and thereafter reverse the current, substantially as herein specified.

7. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a barrier and gearing for raising and lowering the same, of an electromotor for driving said gearing and included in a main or working circuit, a spring-actuated set of gear-wheels normally held by an armature-detent and comprising a rotating part with projections, an electromagnet, auxiliary circuit and track contacts for permitting a train to successively move the detent and permit the spring-actuated set through its projections to close and briefly hold closed the main or working circuit to primarily drive the electromotor in one direction and thereafter reverse the current, together with circuit-closers such as z' and z^2, operated by the barrier for breaking the main circuit at the end of the descending and ascending movements of the barrier, substantially as herein specified.

8. In apparatus for automatically opening and closing the barrier of a railway-crossing, the combination with a barrier and gearing for raising and lowering the same, of an electromotor for driving said gearing and included in a main or working circuit, a spring-actuated train of gear-wheels normally held by an armature-detent and comprising a rotating part with projections, an electromagnet, auxiliary circuit and track contacts for permitting a railway-train to successively move the detent and permit the spring-actuated gearing through its projections to move a pair of pivoted levers to close and briefly hold closed the main or working circuit to primarily complete the main circuit through the motor in one direction and subsequently in the other, armature-levers such as x and x', for holding said circuit-completing levers, electromagnets and suitable circuit connections with circuit-closers such as z' and z^2, operated by the barrier to release the circuit-completing levers, substantially as herein specified.

586,579. GLOVE-CUTTING DIE. LEONIDAS A. VAN PRAAG, New York, N. Y. Filed Nov. 21, 1896. Serial No. 612,955. (No model.)



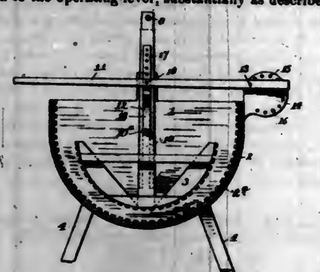
Claim.—A knife or cutter embodying exterior portions which give outline to the blank, finger-cutting portions, and tip-cutting portions, the latter located at the ends of the finger-cutters, and projecting beyond the same, some in line therewith, and some laterally thereof, said cutters having an omitted part adjacent to the tips, whereby the stock is uncut at such portions, for the purposes set forth.

586,580. WASHING-MACHINE. WILLIAM A. WALLINGFORD, Bloomington, Ind. Filed Mar. 31, 1897. Serial No. 630,125. (No model.)

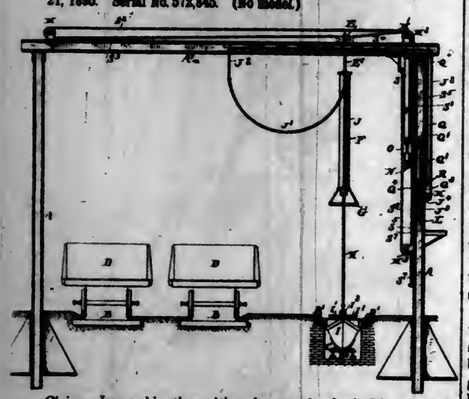
Claim.—1. In a washing-machine, the combination of a washing-machine body provided with a curved rubbing surface at its bottom, an operating-lever fulcrumed at its rear end on the body, a combined rubber and pounder provided with upwardly-extending arms and having a curved rubbing-surface, a transverse rod passing through the arms, extending beyond the same and having its terminals arranged in vertical ways of the sides of the body, and a substantially Y-shaped frame composed of divergent arms perforated to receive the said rod, and a stem composed of parallel sides receiving the

operating-lever between them and pivoted to the same, substantially as described.

2. In a washing-machine, the combination of a washing-machine body provided at its bottom with a curved rubbing-surface, and having vertical ways at its sides, the vertically-disposed ears extending from the top of the body at the back thereof and provided at its rear edge with a curved series of perforations, an operating-lever fulcrumed between the ears at the front edges thereof, a pin adapted to be arranged in one of the perforations of the curved series to hold the lever in an elevated position, a combined rubber and pounder having a curved rubbing-surface, and provided with upwardly-extending arms, a transverse rod passing through the said arms and arranged in the said ways, and a substantially Y-shaped frame pivotally connected to the rod and to the operating-lever, substantially as described.



586,581. DEVICE FOR HANDLING LOCOMOTIVE-ASHES. JOHN M. WALLIS and GEORGE W. STRATTAN, Altoona, Pa. Filed Dec. 21, 1895. Serial No. 572,845. (No model.)



Claim.—In combination with a depressed ash-pit C having rails as B' on each side thereof, and a track B^3 along its bottom, of a main track or tracks B, an overhead track crossing the ash-pit and tracks B, an ash car or cars adapted to run on track B^3, a trolley E adapted to run on the overhead track, a pneumatic hoisting-cylinder supported on the trolley, a piston movable in said cylinder and having connections whereby it can engage the ash-cars, a pneumatic cylinder and piston P, tackle actuated thereby by which the trolley is moved to and fro, an air-conduit L, a branch J^3 J^6 J' J leading to the lower end of the cylinder supported on the trolley, a three-way cock K situated in said branch, a branch Q^4 leading by branches Q and Q' to the top and bottom of the cylinder P and a four-way cock R regulating the admission and exhaust from cylinder P.

586,582. FILE AND HANDLE. ALFRED WEED, Anderson, Ind. Filed Dec. 28, 1896. Serial No. 617,243. (No model.)

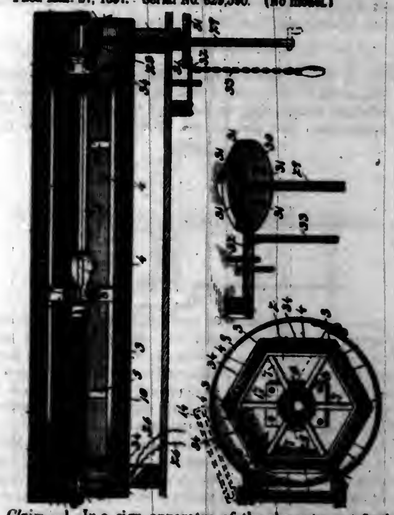


Claim.—1. A tool-handle provided with a transverse slot having extending into the slot a tapering rib having inclined sides, substantially as described.

2. A tool-handle comprising a ferrule having a transverse slot and having extending into the slot a tapering rib having inclined sides, the said rib being dovetailed into the ferrule, substantially as described.

3. The combination with a tool-handle provided with a transverse slot and having a tapering rib with inclined sides projecting into the slot, of a file provided with a tapering recess having inclined tapering sides, substantially as described.

586,583. STREET-CAR SIGN. GEORGE R. WEIS, Reading, Pa. Filed Mar. 27, 1897. Serial No. 629,590. (No model.)



Claim.—1. In a sign apparatus of the character set forth, the combination with a rotatable sign drum or cylinder, of a spider located within the said cylinder and comprising an annulus and arms, the latter being secured at their extremities to the frame-bars of the cylinder, and an illuminator or lamp supported solely by means of the spider whereby the sign-drum is free to rotate and the lamp will remain stationary, substantially as set forth.

2. In a sign apparatus of the character specified, the combination with a rotatable sign cylinder or drum, of a spider bracing and connecting the frame-bars of the said cylinder at a point about midway of their ends, and comprising an annulus, a gasket or cushioning-ring located within the annulus, and an illuminator or lamp loosely supported within the said gasket or cushioning-ring whereby the sign-drum is free to rotate and the lamp will remain stationary, as specified.

3. In a sign apparatus for the purpose described, the combination with the rotatable sign cylinder or drum, of a spider comprising an annulus and radial arms secured at their outer ends to the frame-bars of the cylinder, the annulus having inner flanges at its edges, a gasket or cushioning-ring secured between the flanges of the annulus, and an illuminator or lamp loosely supported within the cushioning-ring whereby the sign-drum is free to rotate and the lamp will remain stationary, substantially in the manner set forth for the purpose specified.

4. In a sign apparatus for street-cars, the combination of a casing, a rotatable sign cylinder or drum, a plate provided with a bearing forming a support for a journal of the said cylinder, and having detachable connection with the casing, and having a portion bent to engage over an edge of the casing, and means for securing the said plate in position, substantially as set forth.

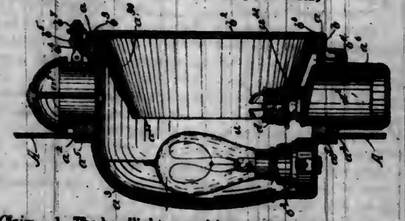
5. In a sign apparatus for street-cars, the combination of a casing having guides at an end, a rotatable sign cylinder or drum, a plate provided with a bearing to receive a journal of the said cylinder and mounted in the aforesaid guides, and having an end portion bent to engage over an edge of the casing, and means for securing the plate, substantially as set forth.

6. In a street-car sign apparatus, the combination of a casing, a rotatable sign cylinder or drum removably mounted within the casing and having an opening in one end, and provided at its opposite end with a journal fitted in a removable bearing, a fixed journal secured to the opposite end of the casing, a plate spanning the opening in the end of the cylinder adjacent to the fixed journal and detachably connected therewith upon opposite sides of the said opening, and mounted upon the fixed journal, and a collar secured to the last-mentioned journal and engaging with the aforesaid plate to prevent longitudinal displacement of the cylinder, substantially as set forth.

7. A street-car sign apparatus comprising a casing composed of upper and lower parts secured together at one edge by a hinge-joint, the lower part having an observation-opening, a storm-door applied

to the free edge of the upper part and adapted to close the said observation-opening, a rotatable sign cylinder or drum removably mounted within the casing, means for turning the cylinder, a graduated disk or plate secured to the shaft by means of which the cylinder is turned, and having a series of openings, a catch cooperating with the openings of the disk or plate to indicate the relative position of the cylinder and hold it in the located position, and a cord or chain having connection with the catch and extending within convenient reach to be drawn upon to release the catch, substantially as set forth.

586,584. HEADLIGHT. CHARLES RAGE, Boston, Mass., assignor, by mesne assignments, to Franklin R. Huntress, Somerville, Mass. Filed Nov. 2, 1895. Serial No. 568,410. (No model.)



Claim.—1. The headlight comprising a cylindrical casing having a concavo-convex rear wall, a reflector on said rear wall, a lamp-socket contained in the rear portion of the said casing, a pocket or support in the lower front portion of the said casing for an emergency-lamp, a transparent lid or cover for the front portion of said casing; an annular reflector secured to the inner side of the said cover and converging from the periphery thereof toward the interior of the chamber, and recesses in said reflector over the said pocket, substantially as and for the purpose described.

2. A headlight comprising a casing a, a lamp-socket c^2 therein, a downwardly-extending pocket or recess a' and the chimney or dome a^7, a pivotally-supported transparent cover b, b^2, the converging reflector a^{20} connected therewith and provided with recesses a^{21}, and the supporting-flange a^3 extending transversely around the periphery of the casing at the rear of the pocket a^5 and dome a^7, substantially as described.

586,585. PENCIL-HOLDER. WILLIAM H. BEDFORD, Lamar, Mo. Filed Sept. 12, 1896. Serial No. 605,623. (No model.)



Claim.—1. A pencil-holder comprising a clasp consisting of a lever-frame and composed of an engaging jaw, a handle portion forming substantially a continuation of the same, and an inwardly-extending fulcruming arm or support arranged to bear against a pencil, pen or the like, whereby the clasp is adapted to be rocked when the handle portion is depressed, and an elastic band connected with the clasp and arranged to embrace a pencil, whereby the clasp is secured to the same and is rendered resilient, substantially as and for the purpose described.

2. A pencil-holder comprising a clasp composed of a pair of engaging jaws or hooks, a pair of loops extending inward from the inner terminals of the same and adapted to fulcrum the clasp of a pencil, and a finger-piece extending from the fulcruming-loops in the opposite direction from the jaws and forming substantially a continuation of the same, and a flat elastic band arranged edgewise in the fulcruming-loops and adapted to embrace a pencil, pen or the like, substantially as described.

3. A pencil-holder comprising a clasp constructed of a single piece of wire and consisting of a pair of substantially L-shaped jaws or hooks, the fulcruming-loops 5 opened at their outer ends and disposed at an angle to the inner terminals of the hooks or jaws and adapted to bear against a pencil, pen or the like, said loops having their sides arranged in transverse alinement and their inner sides being connected with the inner terminals of the shanks of the hooks, and a U-shaped loop or handle portion disposed in substantially the same plane as the shanks of the hooks and extending in opposite direction from the outer sides of the fulcruming-loops, and a flat elastic band inserted edgewise in the fulcruming-loops, substantially as and for the purpose described.

586,586. SMOKELESS POWDER AND PROCESS OF MAKING SAME. JOHN B. BERNADOU, U. S. Navy. Filed Feb. 4, 1897. Serial No. 622,011. (No specimens.)

Claim.—1. The process for the manufacture of nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$; the said process consisting in immersing the cellulose in a mixture of nitric and sulfuric acids and bringing the same to a temperature of between 42° centigrade and 46° centigrade, then freeing the product from an excess of uncombined acids by washing and pulping in water at a temperature below 71° centigrade, dehydrating and washing in an excess of ethylic alcohol, and then drying substantially as described.

2. The process for the manufacture of an improved form of nitrocellulose colloid from nitrocelluloses of substantially uniform nitration, or 12.45 per cent. nitrogen, and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, which process consists in immersing cellulose in a mixture of nitric and sulfuric acids and bringing the mass to a temperature of between 42° centigrade and 46° centigrade, freeing the product from excess of uncombined acid by washing and pulping in water at a temperature below 71° centigrade, dehydrating and washing in an excess of alcohol, and then colloiding the mass, substantially as described.

3. The process for the manufacture of an improved form of nitrocellulose colloid from nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen, and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, which process consists in immersing cellulose in a mixture of nitric and sulfuric acids and bringing the mass to a temperature of between 42° centigrade and 46° centigrade, freeing the product from excess of uncombined acid by washing and pulping in water at a temperature below 71° centigrade, dehydrating and washing in an excess of alcohol, and then colloiding the product in a mixture of ethyl alcohol and ethylic ether, substantially as described.

4. The herein-described form of nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen, and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, which is soluble in a mixture of three parts by weight of ethyl alcohol and one part by weight of ethylic ether and is insoluble in ethyl alcohol alone, substantially as described.

5. A dried powder composed of a colloided nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, in the form of strips or grains, substantially as set forth.

6. As an explosive cement or toughening agent in progressive powders, an ether-alcohol colloid of nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, into which nitrates of metallic base are incorporated.

7. As an explosive cement or toughening agent in progressive powders, an ether-alcohol colloid of nitrocellulose of substantially uniform nitration or 12.45 per cent. nitrogen, corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$, into which nitrates of metallic base and insoluble nitrocellulose are incorporated.

8. An ether-alcohol colloid of nitrocellulose of substantially uniform nitration, or 12.45 per cent. nitrogen and corresponding to the formula $C_{36}H_{38}(NO_3)_{12}O_{26}$.

586,587. COMPENSATING DEVICE FOR WIRES, &c. HENRY BERRY, New Rochelle, N. Y. Filed Aug. 18, 1892. Serial No. 443,412. (No model.)

Claim.—1. In a device for compensating for expansion and contraction of lines for actuating signals or other devices, the combination of a weighted slide arranged to move back and forth in suitable ways, and a lever carried by said slide and connected with an actuating-line, said lever adapted to automatically lock the slide in its ways when the signal or other device is moved from its normal position, substantially as set forth.

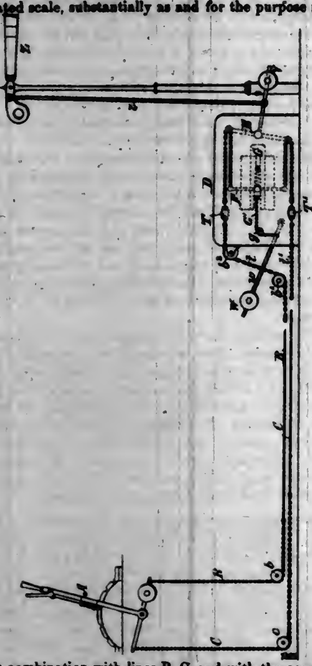
2. A device for compensating for expansion and contraction of pairs of lines or wires and the like, consisting of a sliding piece adapted to move back and forth in suitable ways and carrying a weight, a locking device carried thereby and connected with the lines, and a system of interposed levers operated by said lines to actuate a signal or other device, substantially as set forth.

3. The combination with the actuating-lines B, C, having adjusting devices T, T', and with means controlled by said lines for actuating a signal or like device, of the compensating device consisting, essentially, of the three-armed locking-lever F, locking-faces 2 2, slide G, and weight W, arranged to operate substantially as set forth.

4. The combination with a suitable supporting-bracket having locking-faces 2 2, of weighted slide G, three-armed lever F carried by said slide and having a pin adapted to lock against said faces, lines B, C connected to said lever, and means operated by said lines for actuating a signal, substantially as and for the purpose set forth.

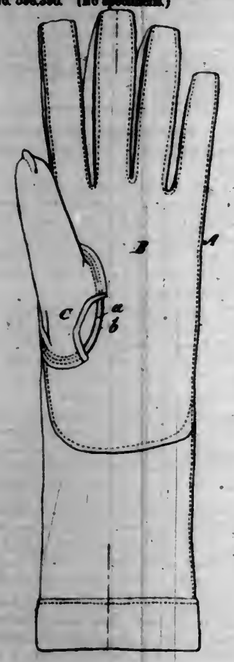
5. The combination with lines B, and C having adjustable tension devices, of locking-lever F in connection with such lines, and carrying pointer i, slide G carrying such locking-lever, a suitable supporting-bracket and the graduated scale S, all arranged so that

by adjusting the lines the pointer may be brought to any point of the graduated scale, substantially as and for the purpose set forth.



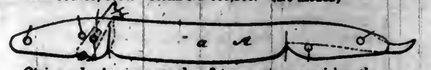
6. The combination with lines B, C, and with the compensating device arranged substantially as described, of the pivoted lever E having end pulleys for said lines, the weighted lever V, and connections with a signal or semaphore, substantially as set forth.

586,588. GLOVE. EMIL L. BLUM, New York, N. Y., assignor of one-half to Goldschmidt, Bachrach & Co., same place. Filed July 8, 1896. Serial No. 598,260. (No specimens.)



Claim.—A glove having a thumb-lining and provided on its inner side with a reinforcing-piece having a thumb-opening and extending entirely across the palm to the wrist portion of the glove, and separated strips forming a part of said piece and extending along the fronts of the fingers, and over the tips thereof for a short distance down the backs, the said piece being secured along the edges of the body and fingers of the glove, and also the inner edge of the thumb-lining, substantially as described.

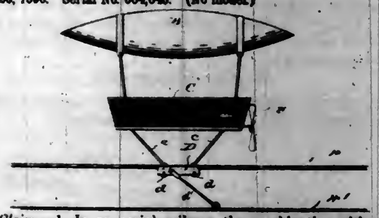
586,589. SAFETY-RAZOR. RICHARD S. BRADLEY, Houston, Tex. Filed Oct. 19, 1896. Serial No. 609,262. (No model.)



Claim.—1. An improved safety-razor, comprising the case embodying side pieces, the blade pivotally mounted at one end of said case and adapted to be inclosed therein with its edge projecting slightly below the case, one of said sides being cut away, substantially as set forth, and the catch-plate pivoted within the case at the opposite end and provided with a lip adapted to engage the free end of the blade, the pivot of said plate being elongated and the latter being provided with a lateral cam at its bottom adapted to engage a segmental way formed by recesses in the bottom of the case, and a stop for the catch-plate located in the said case, substantially as and for the purpose set forth.

2. In an improved safety-razor, the combination, with the case, carrying the blade pivoted at one end and adapted to project slightly below the case, and the stop-pin therein to limit the downward movement of the blade; of a catch-plate pivotally mounted in the case at the opposite end and adapted to engage the free end of the blade, said catch-plate being provided with an elongated pivot and with a lateral cam engaging a segmental guideway formed at the bottom of the case, and a stop-pin in the case to limit its outward movement, substantially as and for the purpose set forth.

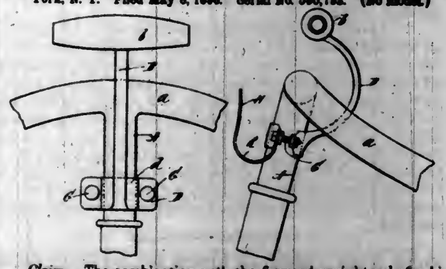
586,590. AIR-CAR. ADOLF BRODBECK, Chicago, Ill. Filed Aug. 28, 1896. Serial No. 604,043. (No model.)



Claim.—1. In an aerial railway, the combination with an elevated insulated electric rail, of a balloon having a conical point at each end, a car suspended from said balloon, and an electric propelling mechanism mounted on said car and electrically connected to said rail, an auxiliary insulated electric rail independent of the first-mentioned rail, and means electrically connecting said auxiliary rail with the electric propelling mechanism, substantially as described.

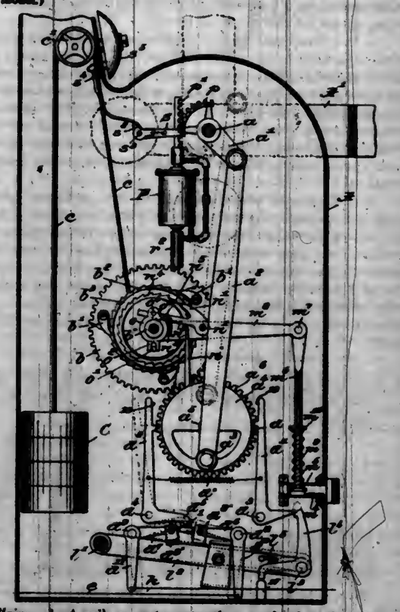
2. In an aerial railway, the combination with an electric elevated rail, of a balloon, a trolley-carriage mounted on said rail, rods connecting said balloon and said carriage, a car suspended from said balloon, electric propelling mechanism carried by said car, an auxiliary electric rail and a pivoted trolley contacting with said auxiliary rail and carried by the aforesaid trolley-carriage, substantially as described.

586,591. BICYCLE ATTACHMENT. WALTER C. BURBANK, New York, N. Y. Filed May 8, 1896. Serial No. 590,782. (No model.)



Claim.—The combination with the forward upright rod of a bicycle or similar vehicle with which the main handle-bar is connected, and a supplemental handle-bar and support therefor, consisting of a clamp which is adapted to be connected with said forward upright rod below the main handle-bar, and which is adjustable thereon, said clamp being provided with an upwardly-directed arm which projects above the main handle-bar, and to which the supplemental handle-bar is secured, substantially as shown and described.

586,592. GATE FOR RAILWAY-CROSSINGS. HARRY W. BURLEIGH, Franklin, N. H. Filed Oct. 5, 1895. Serial No. 564,805. (No model.)



Claim.—1. A railway-gate, actuating mechanism therefor, and an outer and an inner trip-bar, said trip-bars being adjacent to, but disjoined from and independent of, each other, combined with a starting device for the actuating mechanism, and intermediate connections, intermittingly connecting the same and said trip-bars whereby depression of the trip-bars, when the outer trip-bar is acted upon first, causes the said starting device to be operated: but when the inner trip-bar is acted upon first, causes the trip-bars to be disconnected from the starting mechanism, substantially as described.

2. A railway-gate, actuating mechanism therefor, and a starting device for the said mechanism, combined with two outer trip-bars located at opposite sides of the gate, two inner trip-bars independent of the said outer trip-bars located at opposite sides of the gate but between said outer trip-bars, and connecting devices between each of the said trip-bars and said starting device, whereby either outer trip-bar when acted upon in advance of its adjacent inner trip-bar acts to operate said starting device for lowering the said gate, substantially as described.

3. A railway-gate, actuating mechanism therefor, and a starting device to control said mechanism, combined with a trip located at a distance from said gate, and connecting devices between said trip and starting device and including a cable passed over a swinging pulley and held taut by a weight to connect said trip with and to operate said starting device, substantially as described.

4. A trip-bar-supporting block having a flange at one side adapted to hook upon the flange of a rail at one of its sides, and a body extending beneath the rail, combined with a plate adapted to hook over the flange of the rail at its opposite side and to rest along one of the faces of the body, and a bolt to draw the plate and flanged block together to clamp the foot of the rail between them, substantially as described.

5. A trip-supporting block having a flange at one side to hook over the flange of a rail at one side, a body extending beneath the rail, combined with a plate f^{10} adapted to hook over the flange of the rail at the side opposite said block-flange and to rest along the adjacent face of the body, and a bolt passed along the opposite face of the said body through said plate to draw the said plate and block together, substantially as described.

6. The combination with a trip supporting block adapted to be secured to a rail, of a shaft journaled in said block and provided at one side thereof with a crank-arm f^9, and a trip-bar mounted on the outer end of said crank-arm, a collar on the end of the shaft opposite the crank-arm, and a spring interposed between the collar and block to permit the shaft to yield longitudinally and return the crank-arm to its normal position, substantially as described.

7. A gate, normally-wound mechanism to actuate the same, and a shaft rotated by said mechanism and carrying a detent, combined with two pawls adapted to alternately engage said detent and restrain said mechanism from operation, and trip-bars independently connected respectively with and to move said pawls to operate, substantially as described.

8. A gate, and a normally-wound mechanism to actuate the same, combined with two pawls to alternately engage and restrain said mechanism from operation, two trips located at opposite sides of said gate, each connected with and to move one of the said pawls, and a third trip located between the said two trips, and connected with and to move the other of said pawls, to operate, substantially as described.

9. A gate, normally-wound actuating mechanism therefor, and two pawls to alternately engage and restrain said mechanism from rotation, combined with two oppositely-facing bell-crank levers connected with and to move one of said pawls, and trips located at opposite sides of said gate and connected respectively with and to move said bell-crank levers, substantially as described.

10. A gate, actuating mechanism therefor including a shaft b', a wheel b thereon; a drum loosely journaled about said shaft and connected with said wheel by a pawl-and-ratchet connection, a cable wound about said drum and sustaining a weight, combined with a lever pivoted on the shaft b', a trip to vibrate said lever, a spring-controlled pawl on the lever adapted to engage on one vibrating movement of the lever the ratchet-toothed wheel fast on said drum, and a device to come in contact with said pawl and thereby disengage it from said ratchet-toothed wheel upon the return or opposite movement of the vibrating lever, substantially as described.

11. A gate, actuating mechanism therefor including a shaft b', a wheel b fast thereon; and a weight-sustaining drum loosely journaled about said shaft b' and connected with said wheel by a pawl-and-ratchet connection, combined with a vibrating lever pivoted on said shaft and connected with and to rotate by its vibrations the said drum to wind up the weight, a trip, and a yielding connection intermediate the same and said pawl and lever, to operate the latter, substantially as described.

12. A gate, actuating mechanism therefor including a shaft b', a wheel b, a weight-sustaining drum on said shaft and connected with said wheel by a pawl-and-ratchet connection, a vibrating lever carrying a pawl to engage a ratchet-toothed wheel on said drum, and a trip, connections between said trip and lever to vibrate said lever and pawl to rotate the drum and wind the weight, and a sliding extension member, normally held yieldingly extended, forming part of said connections, whereby the shock from said trip is not transmitted to the winding mechanism, substantially as described.

13. A gate, actuating mechanism therefor including a wheel b mounted on a shaft b', a weight-sustaining drum loosely journaled about said shaft and connected with said wheel by a pawl-and-ratchet connection, a vibrating lever carrying a pawl to engage a ratchet-toothed wheel on said drum, and a trip connected with and to vibrate said lever and pawl to rotate the drum and wind the weight, combined with a collar threaded to move longitudinally on said shaft, and to engage said pawl, to operate, substantially as described.

14. A retarding device for railway-gates, consisting of a cylinder, a piston therein, connected with and reciprocated by the gate, their actuating mechanism, an opening in said piston, a longitudinal bar extended through said opening and reduced in diameter at its middle to increase the area of the surrounding opening in the piston as the latter moves through the middle portion of its track, a second opening through the piston, a valve rotatable across the face of the piston to close said second opening, and a stem on said valve, said stem extending through and beyond the adjacent end of the cylinder, whereby the valve may be externally operated, substantially as described.

15. A gate, mechanism to automatically move the same from one to another position, a cylinder containing a piston connected with and reciprocated by said mechanism, a cup surrounding the piston and adapted to be filled with liquid to form a liquid seal, and a connection between said cup and cylinder whereby the latter is maintained at all times full of fluid, substantially as described.

16. A gate, mechanism to automatically move the same from one to another position, a cylinder, a piston therein having its piston-rod connected with and reciprocated by the said mechanism, a valve on said piston having its stem extending through the opposite cylinder-head, a cup surrounding the piston-rod, and a chamber inclosing the valve-stem, a pipe connecting said cup and chamber, and a branch connecting said pipe with the interior of the cylinder, the cup, pipe,

chamber and cylinder being filled with fluid, to operate, substantially as described.

17. The winding mechanism, comprising a rotating shaft spirally grooved at one end, a drum fixed thereon at the other end, a ratchet-wheel secured to the inner end of the drum, a reciprocating pawl arranged to engage the ratchet-wheel thereby to rotate said drum, and a non-rotatable collar arranged to travel longitudinally of said shaft by means of the spiral groove thereof and carrying a finger to engage said pawl and lift the same out of engagement with the ratchet, substantially as described.

18. The winding mechanism, comprising a rotating shaft spirally grooved at one end, a drum fixed thereon at the other end, a ratchet-wheel secured to the inner end of the drum, a reciprocating pawl arranged to engage the ratchet-wheel thereby to rotate said drum, a flat spring on the inner side of said pawl, and a non-rotatable collar arranged to travel longitudinally of said shaft by means of the spiral groove thereof and carrying a finger to engage said pawl by means of said spring and lift the same out of engagement with the ratchet, substantially as described.

19. In a railway-gate, the lever-arm l^3, fixed on shaft l', and carrying pivoted to its free end the bell-crank pawl l^4 hooked at its upper end and spring-pressed at its lower end, combined with the post 17 and spring-retracted detent d', substantially as described.

20. The compensator and cable-moving mechanism, comprising a lever pivoted at one end, and the cable-pulley pivoted on the free end of said lever, combined with a rest for said free end, a cable passed over said pulley and provided with a weight thereon suspended beneath said pulley, a lever normally engaging said free end, and means to throw said lever out of said engagement, substantially as described.

21. The compensator and cable-moving mechanism, comprising a lever pivoted at one end, and the cable-pulley pivoted on the free end of said lever, combined with a rest for said free end, a cable passed over said pulley and provided with a weight thereon suspended beneath said pulley, a lever pivoted at one end carrying a bell-crank pivoted thereto at its other end, said bell-crank being normally in engagement at its outer end with the free end of said pulley-lever, and a second lever adjacent to said other lever and normally moving in unison therewith, and pivoted at its free end to the inner end of said bell-crank, whereby movement of the said second lever relatively to its companion lever engages and disengages said companion lever through its bell-crank with the pulley-lever, substantially as described.

586,593. FILTER-PRESS PLATE. HORACE P. CHAMBERLAIN, Buffalo, N. Y. Filed Mar. 8, 1897. Serial No. 626,463. (No model.)



Claim.—1. A filter-press plate consisting of two perforated plates separated a suitable distance, as described, a canvas covering on the outer sides of these plates, a heating-coil between these perforated plates, and a filling between the plates adapted to sustain the plates against pressure, and to permit the passage of the filtered substance, as and for the object specified.

2. In a filter-press plate, a heating-coil between two adjacent plates, a separating-ring between the said plates, and a filling of reticulated fabric, between the said plates and around the said heating-coil, as set forth.

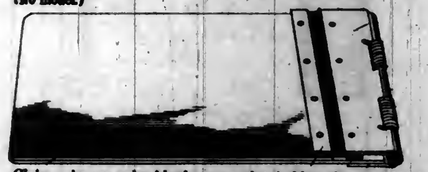
3. A filter-press plate composed of two perforated plates, an outer ring to which the two plates are secured at their periphery, an inner ring to which the two perforated plates are affixed around their central openings, a canvas covering on the outer sides of said perforated plates, a heating-coil, and a filling between said perforated plates, as and for the object set forth.

4. In a filter-press plate, the combination, with two perforated plates separated by an outer and inner ring, of two canvas covers, one on each side of the said perforated disks, said canvas covers having their outer periphery doubled, a U-shaped ring of canvas passed over the doubled-up portion of said covers and stitched thereto, a series of canvas rings interposed between said canvas covers near their central openings and stitched together as described, said canvas covers being tied together at their periphery, as and for the purpose stated.

5. A filter-press plate consisting of two perforated plates, an outer and an inner ring to which said plates are affixed, a heating-coil and reticulated rod fabric between said perforated plates, canvas covers on the outer sides of said perforated plates, a series of separating-disks on the outer surface of the canvas covers, and a like series of filling-disks between the perforated plates, said separating-disks and filling-disks being secured in position by bolts passing through the separating and filling disks, as and for the object set forth

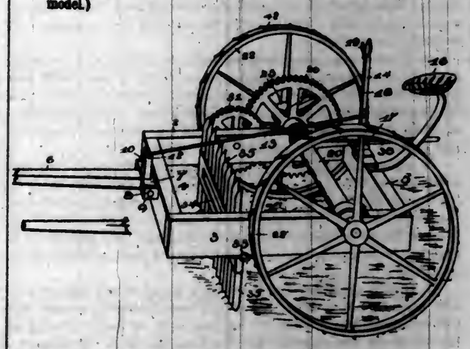
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586,594. METALLIC ORDER-BLANK AND RECEIPT HOLDER. JOHN F. CORBIN, Chicago, Ill. Filed Jan. 7, 1897. Serial No. 618,343. (No model.)



Claim.—In an order-blank or receipt holder, the combination with a pair of binding or clamping plates with interlapping perforated ears or sleeves cut away at spaced points adjacent to their pivotal connection, of a tubular hinged pin passing through the several interlapping ears or sleeves, spiral springs disposed around said pin at spaced points and having their terminals in engagement with said plates for normally closing the latter, a metallic cover rigidly secured to one of said plates, a second metallic cover flexibly secured to the opposing plate, a flexible strip or piece interposed between the adjacent edges of the last-named cover and the upper clamping-plate, said flexible plate having its opposing edges secured to said plates by metallic strips, substantially as and for the purpose described.

586,595. ROTARY HARROW. EDWARD T. CURRY and CLAUDE M. SLIFKER, Pierce, Ky. Filed July 14, 1896. Serial No. 599,105. (No model.)



Claim.—In a rotary harrow, comprising the frame 2, 3, 4, 5, carrying the hinged tongue 6, pitman 13 and hand-lever 14, and the axle 20 provided with clutch-sleeves 24, springs 25, and the carrying-wheels 22 22' having integral clutch-teeth 23, in combination with the sliding sleeve 27, its operating-lever 38, and attached gear-wheel

25, the pinion 29, gear-wheel 31, and pinion 32 rigidly secured to one end of the tooth-frame 34, journaled in the side pieces 2 and 3, substantially as and for the purpose set forth.

586,596. BICYCLE. REBA DEDERICK, Milwaukee, Wis. Filed Dec. 4, 1896. Serial No. 614,494. (No model.)



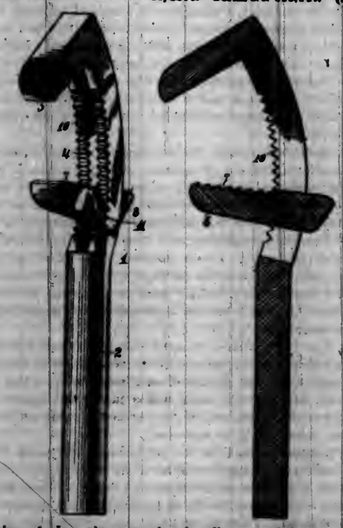
Claim.—1. A wheel comprising a central hub, a series of tubular spokes radiating therefrom, said spokes being connected by an outer circumferential rim provided with openings registering with the bores of the spokes, segments arranged around said rim, and coiled springs within the bores of the spokes and adapted to press outwardly against the segments.

2. A wheel, comprising a central hub, a series of tubular spokes radiating therefrom, said spokes being connected by an outer circumferential rim provided with openings registering with the bores of the spokes, segments arranged around said rim, and provided with inwardly-extending fingers passing a desired distance into the bores of the spokes, and coiled springs within the bores of the spokes and interposed between the hub and the inner ends of the fingers.

3. A wheel, comprising a central hub, tubular spokes radiating therefrom, said spokes connected by an outer circumferential rim provided with openings registering with the bores of the spokes, and said rim also provided with edge outstanding flanges, segments arranged around the periphery of the rim, said segments provided with inwardly-extending fingers passing into the bores of the spokes, said fingers provided with reduced portions or stems, and coiled springs encircling said reduced portions or stems, and interposed between the hub and the inner ends of the fingers.

4. The combination, with wheels, each consisting of a central hub having radiating tubular spokes connected by an outer circumferential rim, said rim provided with openings registering with the bores of the spokes, segments arranged around the rim, and springs within the spokes and adapted to press outwardly against the segments, of a wire or cable passing from one wheel to the other, and wound a plurality of times around the segments of each of said wheels.

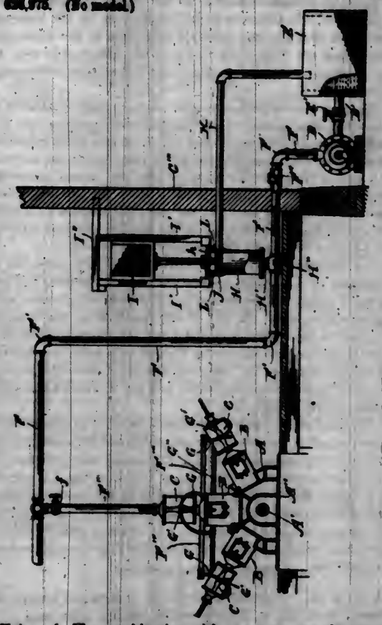
586,597. ADJUSTABLE PIPE-WRENCH. ADDIE R. FAUVER, Rockmart, Tex. Filed Dec. 18, 1896. Serial No. 616,147. (No model.)



Claim.—1. In a pipe-wrench, a handle or stock having a curved and toothed shank provided with a longitudinal slot opening out at the toothed side of the shank, and a fixed jaw at the extremity of said shank, in combination with a movable jaw having a reduced portion slidingly fitted in said slot, one or more teeth on said movable jaw at each side of the reduced portion for engaging the toothed shank, and a pin carried by the shank at each side of the slot of the movable jaw and bearing against the convex side of the wrench-shank, substantially as described.

2. In a pipe-wrench, a handle or stock having a curved shank provided upon its concaved side with teeth and also provided with a longitudinal slot, dividing the teeth into two rows and a stationary jaw at the extremity of said shank, in combination with a movable jaw having a reduced portion slidingly fitted in said slot, and provided with teeth at or near its rear side for engaging the teeth of the wrench-shank at each side of the slot, and a pin passing through the shank of the movable jaw near its front edge and bearing against the convex side of the wrench shank at each side of the slot, substantially as described.

586,598. HYDRAULIC-PRESSURE REGULATOR. FREDERICK R. FRENCH, Niagara Falls, N. Y. Filed Mar. 11, 1897. Serial No. 626,975. (No model.)



Claim.—1. The combination with a pressure-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and pump and connected to the system, a return-pipe leading from the pressure-reservoir to the source of supply for the pump, a weighted piston in the reservoir normally closing the return-pipe and adapted to be actuated by the pressure in the system for opening the return-pipe and allowing the water to escape from the reservoir back to the source of supply when the pressure becomes too great, substantially as described.

2. The combination with a pressure-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and pump-supply and connected to the system, a return-pipe leading from the pressure-reservoir to the pump-supply, a weighted piston in the reservoir normally closing the return-pipe and adapted to be actuated by the pressure in the system for opening the return-pipe and allowing the water to escape from the reservoir back to the pump when the pressure becomes too great, and a valve interposed between the pump-supply and pump for regulating the supply to the pump, substantially as described.

3. The combination with a pressure-water-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and pump and connected to the system and provided with oppositely-arranged ports, a return-pipe leading from the ports to the source of supply for the pumps and a weighted piston in the reservoir normally closing the ports and adapted to be actuated by the pressure in the system to open the ports when the pressure becomes too great, substantially as described.

4. In a pressure-regulator, the combination with a pressure-water-supply system for hydraulic presses, of a pump for supplying the system, a tank connected to the suction of the pump, a valve interposed between the suction of the pump and tank, a pressure-reservoir interposed between the press and pump, a check-valve in the system between the pressure-reservoir and pump, a return-pipe leading from the

pressure-reservoir to the tank, and a weighted piston in the reservoir adapted to be actuated by the pressure in the system and controlling the outlet of the water from the pressure-reservoir through the return-pipe to the tank, substantially as described.

5. The combination with a pressure-water-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and source of supply and connected to the system and provided with a port having inclined sides forming a contracted portion, a return-pipe leading from the port to the source of supply and a weighted piston in the reservoir controlled by the water-pressure for opening and closing the port and adapted to slide over the contracted portion of the port first when opening the port, substantially as described.

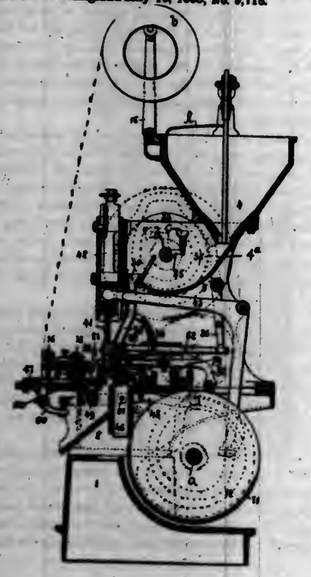
6. The combination with a pressure-water-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and source of supply and connected to the system, a return-pipe leading from the pressure-reservoir to the source of supply, a port having a tapered side connecting the return-pipe to the reservoir, and a weighted piston in the reservoir controlled by the water-pressure for opening and closing the port and adapted to slide over the tapering portion of the port first when opening the port, substantially as described.

7. The combination with a pressure-water-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and source of supply and connected to the system at its lower end, a return-pipe leading from the top of the reservoir to the source of supply, a port in the reservoir adjacent the top thereof connecting the return-pipe to the reservoir, normally below the port and closing the same and a weighted piston in the reservoir adapted to be raised by the water-pressure above the port for opening the port when the pressure becomes too great, substantially as described.

8. The combination with a pressure-water-supply system for hydraulic presses, of a pressure-reservoir interposed between the press and source of supply and connected to the system at its lower end, a return-pipe leading from the top of the reservoir to the source of supply, a port in the reservoir adjacent the top thereof having a tapering lower portion and connecting the return-pipe to the reservoir, and a weighted piston in the reservoir normally below the port and adapted to be raised above the port when the pressure becomes too great, substantially as described.

9. The combination with a pressure-water-supply system for hydraulic presses, of a pressure reservoir interposed between the press and source of supply and connected to the system and provided with a port having tapering inclined sides and back forming a contracted portion, a return-pipe leading from the port to the source of supply and a weighted piston in the reservoir controlled by the water-pressure for opening and closing the port and adapted to slide over the contracted portion of the port first when opening the port, substantially as described.

586,599. CIGARETTE-MACHINE. FERDINAND GIRARD, Paris, France. Filed May 16, 1895. Serial No. 549,533. (No model.) Patented in Switzerland Jan. 29, 1894, No. 8,034; in France June 23, 1894, No. 230,532, and in England May 16, 1895, No. 9,718.



Claim.—1. In a cigarette-machine, the combination with a receiving-chamber for the tobacco, a distributing-chamber and a molding mechanism, of a rotary distributing-cup arranged within the receiving-chamber and adapted to take up the tobacco and to discharge the same in measured quantities, and means for conducting the tobacco discharged from the distributing-cup to the molding mechanism, substantially as described.

2. In a cigarette-machine, the combination of a receiving-chamber for the tobacco, a molding mechanism, a rotary distributing-cup located within the receiving-chamber, a series of receiving-tubes adapted to receive and divide the charge delivered thereto by the distributing-cup, and means for conducting the charge delivered by the receiving-tubes to the molding mechanism, substantially as described.

3. In a cigarette-machine, the combination of a receiving-chamber for the tobacco, a molding mechanism, a rotary distributing-cup located within the receiving-chamber, a series of receiving-tubes adapted to receive and divide the charge delivered thereto by the distributing-cup, a distributing-chamber communicating with the receiving-tubes, and a discharger within the distributing-chamber for discharging the charge from the distributing-chamber to the mold, substantially as described.

4. In a cigarette-machine, the combination of a plunger-box, a mold comprising two separable sections, a plunger coöperating with the same to mold the charge and mounted to reciprocate in said plunger-box, a distributing-chamber in communication with the plunger-box, means for conducting a measured charge to the distributing-chamber, a discharger operating in the distributing-chamber and operated for delivering the charge into the plunger-box when the plunger is raised, and means for operating the several parts, substantially as described.

5. In a cigarette-machine, the combination of a mold comprising two separable sections, a plunger coöperating with the same to mold the charge and mounted to reciprocate, a plunger-box, a lateral distributing-chamber in communication with the plunger-box, means for conducting a measured charge to the distributing-chamber, a reciprocating discharger operating within the distributing-chamber to discharge the charge into the plunger-box when the plunger is raised, and means for operating the several parts, substantially as described.

6. In a cigarette-machine, the combination of a mold comprising two separable sections, a plunger-box above the mold-sections, a plunger mounted to reciprocate within the box and coöperating with the mold-sections, and a pronged lever having its prongs embracing the plunger-box and actuated to laterally close the plunger-cavity after the tobacco is thrown upon the paper, substantially as described.

7. In a cigarette-machine, the combination of a mold composed of two separable sections, a plunger-box arranged adjacent to the mold-sections, a plunger mounted to reciprocate in said box and coöperating with the mold-sections to mold the cigarette, a horizontal carriage supporting one of the mold-sections and adapted to move toward and from the plunger-box, a vertical carriage supporting the second mold-section, a cam, and a lever actuated by said cam and placed in operative connection with the carriage and slide, substantially as described.

8. In a cigarette-machine, the combination of a mold composed of two separable sections, a plunger-box arranged adjacent to the mold-sections, a plunger mounted to reciprocate in said box and coöperating with the mold-sections to mold the cigarette, a horizontal carriage supporting one of the mold-sections and adapted to move toward and from the plunger-box, a vertical carriage supporting the second mold-section, a cam, a lever actuated by said cam and placed in operative connection with the carriage and slide, and an air-blast apparatus for directing a jet of air upon the cigarette to effect its discharge from the mold when the mold-sections are separated, substantially as described.

9. In a cigarette-machine, the combination of a mold, two rotary heads arranged on opposite sides of the mold in line with the cavity thereof, a bayonet carried by one of said heads and movable longitudinally with respect to the same, and a jaw in the opposite head adapted to receive the free end of the bayonet to coöperate in rotating the same, substantially as described.

10. In a cigarette-machine, the combination of a mold, two rotary heads arranged on opposite sides of the mold in line with the cavity thereof, a bayonet carried by one of said heads and movable longitudinally with respect to the same, a jaw in the opposite head adapted to receive the free end of the bayonet to coöperate in rotating the same, and a reciprocating rod adapted to engage with the end of the cigarette on the withdrawal of the bayonet, substantially as described.

11. In a cigarette-machine, the combination of a hopper, a receiving-chamber in communication with the same, a rotary distributing-cup located within the receiver, a distributing-chamber, a tube adapted to receive the charge from the cup and communicating with the receiving-chamber, a vertical channel communicating with the distributing-chamber, a mold in communication with said chamber, a feed for conveying the paper to the mold, a paper-severing mechanism, means for folding in the ends of the cigarette, and a discharger for conveying the charge from the distributing-chamber to the vertical chamber, substantially as described.

12. In a cigarette-machine, the combination of the hopper 4, a receiving-chamber, a rotatable measuring-cup c located in the receiving-chamber, the distributing-chamber 33, a tube or tubes 32 adapted to receive the charge from the measuring-cup and communicating with the distributing-chamber, a plunger-box vertically placed and communicating with the distributing-chamber, a reciprocating plunger 41 in said plunger-box, a discharger 35 adapted to push the charge into the plunger-box when the plunger is in its upper position, separable mold-sections 44 and 45, a feed and severing device for the paper, a bayonet 62, end-folders, and operative connections, substantially as shown and described.

586,600. CYCLE-WHEEL. DUANE H. GLEASON, Brooklyn, N. Y. Filed Aug. 11, 1896. Serial No. 602,391. (No model.)



Claim.—1. The combination, in a cycle-wheel, of a metallic rim provided with corrugated edges, a series of tire-retaining hooks, and a series of lugs, both integral with said rim, a flexible tire attached to said hooks, and an interior cover secured by said lugs, substantially as and for the purposes described.

2. The combination, in a cycle-wheel, of a metallic rim provided with a circumferential groove and transverse corrugations, a series of tire-retaining hooks and a series of lugs, both integral with said rim, a flexible tire attached to said hooks, and an interior cover secured by said lugs, substantially as and for the purposes described.

3. The combination, in a cycle-wheel, of a metallic rim provided with a transversely-corrugated face, and longitudinally-corrugated edges, hooks formed integral with said rim, and an elastic tire surrounding the rim and retained by said hooks, substantially as described.

4. The combination, in a cycle-wheel, of a metallic rim provided with inwardly-rolled and longitudinally-corrugated edges, lugs formed integral with said rim, and an interior cover for said rim secured in place by said lugs, substantially as described.

5. The combination, in a cycle-wheel, of a metallic rim provided with a transversely-corrugated face and longitudinally-corrugated inwardly-projecting edges, and a cover detachably attached to the inner side of the rim, substantially as described.

6. The combination, in a cycle-wheel, of a metallic rim, provided with a transversely-corrugated face and longitudinally-corrugated inwardly-projecting edges, a flexible tire surrounding said rim and overlapping the edges thereof, and a cover detachably attached within the rim and overlapping the edges of the tire, substantially as described.

7. The combination, in a cycle-wheel, of a metallic rim, wire spokes projecting through and looped outside of the rim, the free ends of the spoke-wires extending inward, and an interior cover for said rim secured in place by the free ends of said spoke-wires, substantially as described.

8. The combination, in a cycle-wheel, of a metallic rim, provided with slotted spoke-holes having at one end enlarged seats, wire spokes with looped ends adapted to be inserted through said holes and retained in said seats by the loops resting transversely above the seats, substantially as described.

9. The combination, in a cycle-wheel, of a metallic rim, provided with hooks and lugs integral therewith, a flexible tire surrounding said rim and secured to said hooks and an interior cover laterally overlapping the edges of the tire and secured to the rim by said lugs, substantially as described.

10. The combination, with the hub and spokes of a cycle-wheel, of a metallic rim, formed in a single piece, and provided with a circumferentially-grooved and transversely-corrugated face, and with tubular edges, substantially as described.

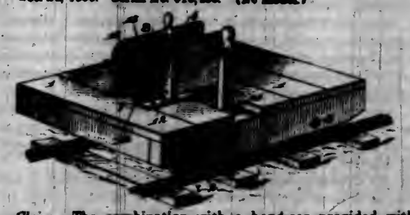
11. The combination, with the hub and spokes of a cycle-wheel, of a metallic rim, formed in a single piece and provided with a circumferentially-grooved and transversely-corrugated face and longitudinally-corrugated tubular edges, substantially as described.

12. The combination, in a cycle-wheel, of a metallic rim, formed in a single piece and provided with a circumferentially-grooved and transversely-corrugated face and longitudinally-corrugated tubular edges, a coiled spring surrounding the face of said rim, and a flexible tire embracing and uniting said spring and rim, substantially as described.

13. The combination, in a cycle-wheel, of a rim provided with a circumferentially-grooved and transversely-corrugated face, a coiled spring the loops whereof enter between such corrugations, and a flexible tire surrounding said spring, and securing the same to the rim substantially as described.

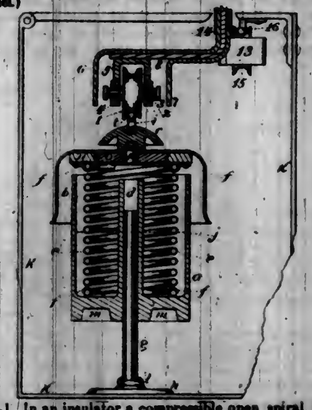
14. The combination, in a cycle-wheel, of a rim provided with a circumferentially-grooved and transversely-corrugated face, a coiled spring the loops whereof enter between such corrugations, and a flexible tire provided interiorly with transverse ribs, substantially as described.

586,601. HAND-CAR. ISAAC H. SLOVER, Andover, Ark. Filed Dec. 21, 1896. Serial No. 616,482. (No model.)



Claim.—The combination with a hand-car provided with an opening 17, of a pinion mounted on one of the axles of the hand-car, a spring-motor provided with a frame having a tapering bottom portion and pivoted at its apex to the hand-car, whereby it has a limited swing to carry the gearing into and out of mesh with the said pinion, a substantially L-shaped shifting-lever passing through the opening 17 and fulcrumed at its lower end to the frame of the hand-car, said lever being pivoted at its angle to the frame of the motor and being adapted to swing the same on its pivot, the standards 14 disposed substantially vertical, the check-lever fulcrumed between the standards and engaging the gearing, and a casing receiving the motor and mounted on the hand-car, said casing being provided with openings for the winding-shaft and the check-lever, substantially as described.

586,602. CONDUIT ELECTRIC RAILWAY. WILLIAM E. M. JACKSON, Indianapolis, Ind. Filed Oct. 5, 1894. Serial No. 525,000. (No model.)



Claim.—1. In an insulator a compressible open spiral, non-conductive, a containing-cup, a cover and a standard on which said cup and cover are adjustable, combined substantially as described.

2. In an insulating-support an open compressible spiral comprising a core of spring metal covered with an elastic insulating material, combined with suitable fastenings and with a support upon which it is adjustable, substantially as described.

3. A protection-covering for an insulator comprising a cup in which the insulator is supported, a standard on which said cup is adjustably mounted and a cover attached to the top of the insulator, said cup and cover being free from contact with the insulator, except where attached, and free from contact with each other, and said cover overlapping the edge of said cup, combined substantially as described.

4. An insulating-support comprising an open spiral, non-conductive, a containing-cup with an interior tube projection, a standard

fitting in said tube and a protecting-cover overlapping said cup, combined substantially as described.

5. In an insulating-support an open spiral, non-conductive, a containing-cup with an interior tube projection, a standard fitting in said tube, a bar to support said cup and a protecting-cover overlapping the cup, combined substantially as described.

6. In an insulating-support, a containing-cup with an interior tube projection, a standard fitting in said tube, a locking device to support said cup, a protecting-cover overlapping the cup, and an open spiral, non-conductive, with one end fastened to the interior of the cup and the other end to a ring fitting over a projection from the inside of the cover, combined substantially as described.

7. In an insulating-support a non-conductive open spiral, a standard supporting said spiral, a cup and its cover protecting said spiral and a locking device operative to hold these parts in proper relation to each other, combined substantially as described.

8. In an insulating-support an insulating open spiral, a standard and a containing-cup and its cover, said spiral being detachably connected to the cup-cover and also attached to the cup, and said cup being detachably supported by said standard and secured in position by a locking device, combined substantially as described.

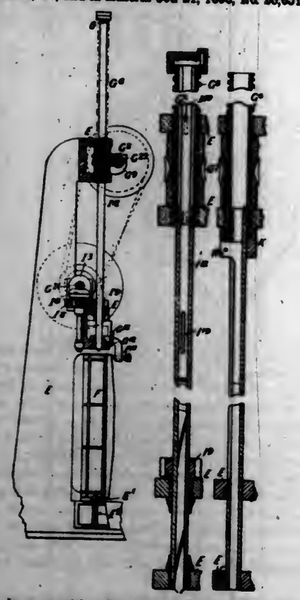
9. A locking device for an insulating-support comprising a bar with an eye at one end surrounding a standard, and a hook or projection at the other end to support the insulator and its attachments on said standard, substantially as described.

10. An adjustable support for an insulator comprising a tube attached to or forming part of the insulator or its attachments, and a standard on which said tube fits, supported in position by a locking device, substantially as described.

11. A trolley comprising a wheel and its containing-frame and bearings, and a protection-hood with ends extending beyond the trolley-wire, slotted or grooved to form a guide for said trolley-wire, combined substantially as described.

12. In an electric railway, a slotted conduit, accessible insulating-supports situated at intervals in chambers, each support comprising an open spiral, non-conductive, a containing-cup and its cover, a standard and a locking device to hold the parts in normal position, combined with trolley-wire, car and track equipment and with suitable trolley apparatus, substantially as described.

586,603. COMBINED MULTIPLE BORING OR DRILLING MACHINE WITH MEANS FOR DRIVING RODS, BARS, OR TUBES INTO HOLES DRILLED. VICTOR JEFLEY and GUSTAVE JEFLEY, London, England. Filed Oct. 15, 1895. Serial No. 565,755. (No model.) Patented in England Oct. 29, 1894, No. 20,896; in France Sept. 28, 1895, No. 250,038; in Belgium Sept. 28, 1895, No. 117,650; in Germany Oct. 11, 1895, No 90,283; in Hungary Dec. 9, 1895, No. 4,810; in Canada July 15, 1896, No. 52,951, and in Austria Oct. 21, 1896, No. 20,651.



Claim.—1. In a machine for boring holes and driving rods or tubes into said holes, the combination of a gang of tubular drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding gang of tubular ram-guides, and rams having endwise motion in their respective guides, of mechanisms for simultaneously revolving the drill-guides and for imparting endwise motion to the drills and rams, for the purpose set forth.

2. In a machine for boring holes and driving rods or tubes into said holes, the combination of a gang of tubular drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding gang of tubular ram-guides, rams having endwise motion in their respective guides, mechanism for simultaneously revolving the drill-guides in one or the other direction, and mechanism for simultaneously imparting to the drills and rams endwise motion in one or the other direction, of a track and a work-holder shiftable on such track from the gang of drills to the gang of rams, for the purpose set forth.

3. In a machine for threading rows of blocks on rods or tubes, a row of tubular drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding adjacent row of tubular ram-guides, rod or tube driving rams having endwise motion in their respective guides, and mechanisms for simultaneously revolving the drill-guides and imparting endwise motion to the drills and rams in one or the other direction, in combination with a track, a work-holder shiftable on said track from the gang of drill-guides to the gang of ram-guides, and means for clamping the blocks in rows in said holder.

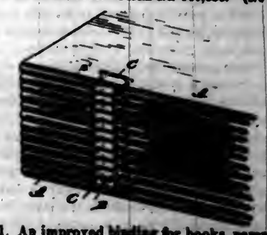
4. In a machine for threading rows of blocks on rods or tubes, a row of tubular drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding adjacent row of tubular ram-guides, rod or tube driving rams adapted to contain the tubes or rods on which the blocks are to be strung, and having endwise motion in their respective guides, and mechanisms for simultaneously revolving the drill-guides and imparting endwise motion to the drills and rams in one or the other direction, in combination with a track, a work-holder shiftable on said track from the gang of drill-guides to the gang of ram-guides, and means for clamping the blocks in rows in said holder.

5. In a machine for threading rows of blocks on rods or tubes, a row of revoluble tubular drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding adjacent row of tubular ram-guides adapted to receive the rods or tubes on which the blocks are to be threaded, rams having endwise motion in their respective guides, and mechanism for simultaneously revolving said drill-guides and for imparting endwise motion to the drills and rams, in combination with a work-holder, clamping devices to clamp said blocks against displacement, and a track on which the holder is movable from the drill-guides to the ram-guides, for the purpose set forth.

6. In a machine for boring holes and driving rods into said holes, a gang of revoluble tubular vertical drill-guides, drills revolved by and having endwise motion in their respective guides, a corresponding gang of tubular vertical ram-guides, rams having endwise motion in their respective guides and adapted to contain the rods or tubes to be driven, and means for covering and uncovering the lower ends of said guides after such rods or tubes are inserted, in combination with a track and a work-holder shiftable on said track from the drill-guides to the ram-guides, substantially as set forth.

7. In a machine for boring holes and driving rods or tubes into such holes, the combination with a gang of drills, a corresponding gang of rod or tube driving rams, and mechanism for simultaneously revolving the drills in one or the other direction and for imparting at the same time endwise motion to said drills and to the rams in one or the other direction, of a stop mechanism operating automatically and periodically to stop the rotation and endwise movement of the drills and the endwise movement of the rams, and means for reversing the direction of motion of the drills and rams, for the purpose set forth.

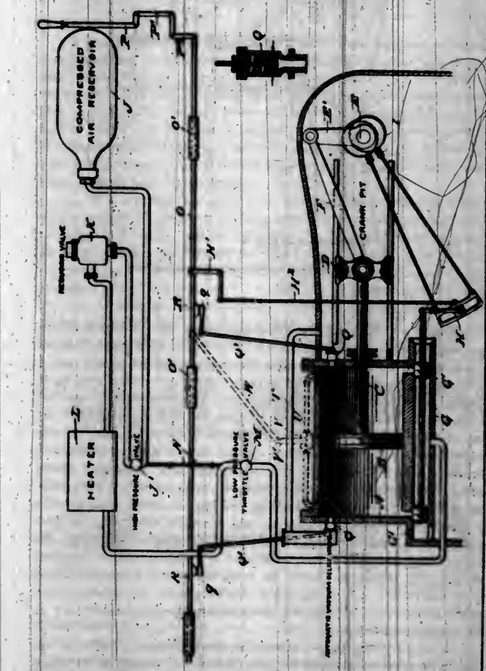
586,604. BOOKBINDING. TRUMAN C. KNEWORTHY, Oskaloosa, Iowa. Filed Oct. 22, 1896. Serial No. 609,863. (No model.)



Claim.—1. An improved binding for books, pamphlets, &c., consisting of metal bands B placed against the backs of the books or pamphlets and provided with bent ends which overlie or pass into the outer books or pamphlets, and separate wires C attached to one of the outer books or pamphlets, substantially as shown, brought around the back-bands, passed up through the next book or pamphlet, brought back around the back-bands and up through the next book, and so on until all the books or pamphlets are connected to the metal back-bands, in the manner shown and described.

2. A device for binding books, pamphlets, &c., comprising metal back-bands B having their ends bent to pass over or through the backs of the outer pamphlets, and a wire C one end of which is secured to the first book or pamphlet by looping the wire through said book or pamphlet and forming the terminal into an eye through which the other part of the wire is passed, the wire being then passed around the back-band, through the next pamphlet and back around the back-band, and so on, substantially as shown and described.

586,605. CONTROLLER FOR FLUID-PRESSURE MOTORS. WALTER H. KNIGHT, New Brighton, N. Y. Filed June 3, 1896. Serial No. 594,034. (No model.)



Claim.—1. The combination in an air-motor, of a throttle-valve, or other means of controlling the power of the motor, vacuum-relief valves opening inwardly to relieve the cylinder of vacuum, and mechanism for holding open said vacuum-valves, said mechanism being connected with the motor-controlling mechanism so that the said vacuum-valves will be held open when the motor is not doing work, in order to relieve the motor of compression occurring at the ends of the stroke.

2. The combination in an air-motor, of vacuum-relief valves, and means for holding the same open when the motor is not doing work, of a passage or passages communicating with both valves and also with the crank-basin or exhaust-chamber of the motor so that nothing but pure air will be drawn into the cylinder.

3. A controller for air-motor vehicles constructed to operate the high-pressure throttle leading from the high-pressure reservoirs, the low-pressure throttle, the variable cut-off, and reversing mechanism, and the compression-relief valves, with one handle, the off position of the handle closing both throttles and opening the relief-valves.

4. The combination of a fluid-pressure engine, provided with a compression-relief valve, with a high-pressure reservoir, a throttle-valve and a controlling device adapted to simultaneously operate the relief-valves and throttle-valve, substantially as set forth.

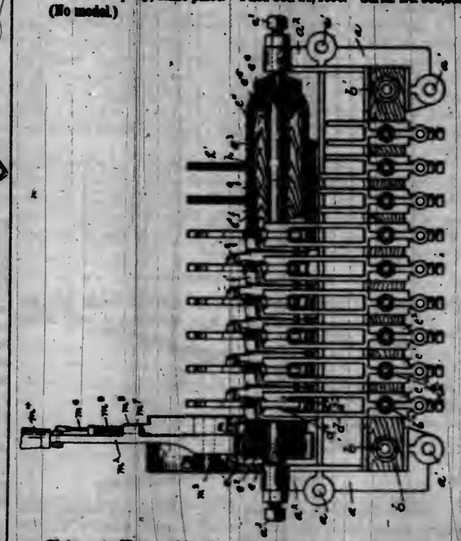
5. The combination of a fluid-pressure engine, provided with compression-relief valves and a fluid-distributing valve, suitable reversing mechanism, a fluid-pressure reservoir, a throttle-valve, and controlling means adapted to simultaneously operate the relief-valves, the reversing mechanism and the throttle-valve, substantially as set forth.

6. The combination of a fluid-pressure engine having suitable compression-relief valves and a fluid-distributing valve, suitable reversing mechanism, a compressed-air reservoir, a high-pressure throttle-valve, a reducing-valve, a low-pressure throttle-valve, and suitable controlling means adapted to simultaneously operate the cylinder-relief valves, the reversing mechanism and the two throttle-valves, substantially as set forth.

7. The combination of a fluid-pressure engine, provided with automatic vacuum-relief valves and a fluid-distributing valve, with a throttle-valve, and a controlling device adapted to open the relief-valves when the throttle-valve is closed and vice versa, substantially as set forth.

8. The combination in a fluid-pressure motor for motor-vehicles, of a motor-cylinder having compression-relief valves, with a motor-controlling device regulating the supply of fluid to the cylinder and operatively connected with the compression-relief valves, said controlling device being adapted to simultaneously operate said relief-valves to hold them open when the motor is not doing work, in order to relieve the cylinder of compression occurring at the ends of the stroke, substantially as set forth.

586,606. CIRCUIT-CONTROLLER FOR ELECTRIC VEHICLES. KARSTEN KRUMME, Chicago, Ill., assignor to the American Electric Vehicle Company, same place. Filed Oct. 21, 1896. Serial No. 609,305. (No model.)



Claim.—1. The combination with a number of collars mounted side by side upon a rotatable support, of contact-arms carried upon said collars, the ends or contact portions of certain of said contact-arms being laterally displaced to bring the ends of all the contact-arms in a common plane perpendicular to the axis of rotation, and a contact with which said arms severally engage as the support is rotated, substantially as described.

2. The combination with a number of collars mounted side by side upon a rotatable support, of contact-arms carried upon said collars, the ends or contact portions of the contact-arms of the several collars lying in a common plane perpendicular to the axis of rotation of the support, and a contact with which said arms severally engage as the support is rotated, substantially as described.

3. The combination with three collars mounted side by side upon a rotatable part, of a pair of contact-arms mounted upon the middle collar and occupying positions at right angle to each other, contact-arms mounted upon the other collars, lying between the above-mentioned contact-arms and having the ends laterally displaced to lie in a common plane with the contact-arms on the middle collar, and a contact-finger comprising two members of spring metal having opposed contact-surfaces at the ends, between which surfaces the contact-arms are adapted to be passed, the contact-surfaces normally resting at a distance apart less than the thickness of the contact-arms to cause the members of the contact-finger to resiliently press against the contact-arms, substantially as described.

4. The combination with three collars mounted side by side upon a rotatable part, of a pair of contact-arms mounted upon the middle

collar and occupying positions at right angle to each other, contact-arms mounted upon the other collars lying between the above-mentioned contact-arms and having the ends laterally displaced to lie in a common plane with the contact-arms on the middle collar, and a contact with which said contact-arms individually engage as the contact-arms are rotated, substantially as described.

5. As a new article of manufacture, a contact-finger for circuit-controllers formed from a single piece of metal and comprising two parallel members carrying at the ends inwardly-projecting contact-faces extending throughout a portion only of the length of the member the outer and inner edges of each of said projecting faces being oblique, whereby a contact-arm may be passed between said resilient members, substantially as described.

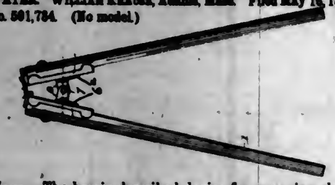
6. As a new article of manufacture, a contact-finger for circuit-controllers comprising two parallel members carrying at the ends inwardly-projecting contact-faces extending throughout a portion only of the length of the member, whereby a contact-arm may be passed between said resilient members to make and break contact with said projecting contact-faces, substantially as described.

7. The combination with a contact-finger comprising two resilient members, each member carrying at the end on the inner face an inwardly-projecting contact-face extending throughout a portion only of the length of the member, of a contact-arm moving in an axial direction between the resilient members of said contact-fingers and making and breaking contact with said finger by passing into and out of contact with the projecting contact-faces on the resilient members, substantially as described.

8. In a circuit-controller, the combination with the bar c^3 of insulating material of the collars *f*, *g*, *h*, mounted thereon and carrying contact-arms lying in a series of parallel planes and angularly arranged, the insulating-pieces c^4 between said collars, the rod *e* passing through a bore in said bar c^3 and journaled at the ends, the caps *e* and e^1 and the nut e^2 screwing upon the end of said rod *e* and clamping the collars between the caps *e* and e^1, substantially as described.

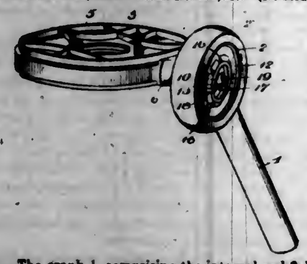
9. The combination with a rotatable support of a number of collars mounted thereon side by side, contact-arms carried upon said collars and arranged in groups the ends of certain of the contact-arms being laterally displaced to bring the contact portions of the arms of each group in a plane perpendicular to the axis of rotation of the support, substantially as described.

586,607. DEVICE FOR REMOVING CLOTHES FROM BOILING WATER. WILLIAM KRAUSE, Adams, Mass. Filed May 16, 1896. Serial No. 591,784. (No model.)



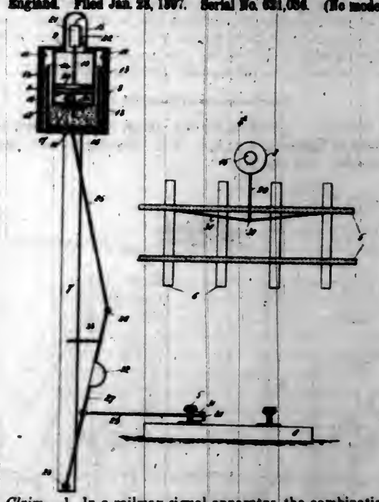
Claim.—The herein-described device for removing clothes from boiling water, which consists of a pair of arms made of suitable material, plates secured to the upper ends of said arms, having laterally-projecting ears thereon, a rod or shaft passing through said ears upon which said arms are pivoted, a coiled spring surrounding said rod or shaft and normally urging the lower ends of said arms outwardly and an adjustable stop on the upper end of one of said arms, made up of a plate having an elongated slot therein and a screw passing through the said slot, substantially as and for the purpose set forth.

586,608. BICYCLE-PEDAL. CHARLES F. LANCASTER, Petoskey, Mich. Filed Oct. 21, 1896. Serial No. 609,580. (No model.)



Claim.—The crank 1, comprising the integral end 2 having circular orifice 2 and internal annular groove 9, in combination with the bearing-balls 14, the pedal 3 having collar 7 formed with a beveled bearing-face 8 and screw-threaded hub 10 having radial slot 15, and the internally-threaded ring 12 having beveled bearing-face 13 and a series of radial slots 16, the washer 17 having radial arm 18, and means substantially as set forth, for securing said washer in place to lock the ring to the hub, as and for the purpose set forth.

586,609. RAILWAY-SIGNAL. WILLIAM H. J. LANCE, London, England. Filed Jan. 23, 1897. Serial No. 621,004. (No model.)

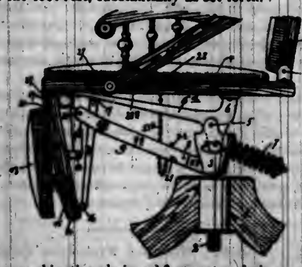


Claim.—1. In a railway signal apparatus, the combination with an upright post or standard which is provided with a casing at its upper end, of a vertically-movable receptacle mounted in said casing and open at its upper end and closed at its lower end, a stationary casing mounted in said receptacle, and provided with a tubular extension at its upper end which projects through an opening in the top of the casing in which the receptacle is mounted, said tubular extension being provided with a vertical slot or opening in the side thereof, adjacent to which is a scale, and said stationary casing being also provided with an opening in its lower end, a vertically-movable rod mounted in said casing and provided with a valve which is adapted to close said opening, said movable rod being also provided with a float which is mounted thereon above said valve, said valve being provided with a small port or opening, and devices connected with the lower end of the vertically-movable receptacle and with one of the rails of the track and adapted to be operated by a passing train so as to raise and lower said receptacle substantially as shown and described.

2. In a railway signal apparatus, the combination with an upright post or standard which is provided with a casing at its upper end, of a vertically-movable receptacle mounted in said casing and open at its upper end and closed at its lower end, a stationary casing mounted in said receptacle, and provided with a tubular extension at its upper end which projects through an opening in the top of the casing in which the receptacle is mounted, said tubular extension being provided with a vertical slot or opening in the side thereof, adjacent to which is a scale, and said stationary casing being also provided with an opening in its lower end, a vertically-movable rod mounted in said casing, and provided with a valve which is adapted to close said opening, said movable rod being also provided with a float which is mounted thereon above said valve, said valve being provided with a small port or opening, and devices connected with the lower end of the vertically-movable receptacle and with one of the rails of the track and adapted to be operated by a passing train, so as to raise and lower said receptacle, consisting of a rod which is pivotally connected with the lower end of said casing, and with a lever which is pivotally connected therewith, and one end of which is pivotally supported at the bottom of the post or standard, and a rod which is pivotally connected with said lever, and passed through the adjacent rail of the track, and connected with a spring plate or bar the central portion of which is inwardly curved, and the ends of which bear on said rail of the track, substantially as shown and described.

586,610. COMBINATION CHAIR AND FOOT-REST. CHARLES A. LEE, Canastota, N. Y. Filed May 18, 1896. Renewed Dec. 28, 1896. Serial No. 617,290. (No model.)

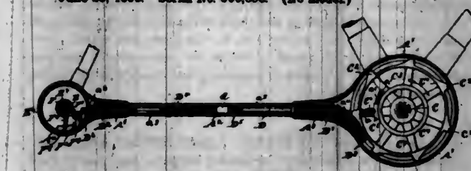
Claim.—1. The combination of a chair-support, a seat pivoted on the support on a horizontal pivot, a foot-rest hinged to the front edge of the seat and a rule-jointed arm 9 pivoted on the chair-support at a point below the pivot of the seat, and means for limiting the downward movement of the jointed arm, the arm connected at its outer end with the foot-rest, substantially as set forth.



2. In a combination chair and foot-rest, a chair-support, a jointed arm projecting forwardly from the support under the seat, a seat pivoted on the support, a swinging foot-rest support hinged to the front edge of the seat, and attached below its hinging-point to the jointed arm, a pivoted lever on the lower end of the foot-rest support on the end of which the foot-rest is hinged and a connecting-rod between the opposite end of the foot-rest lever and a point on the seat to the rear of the hinge of the foot-rest support and pivoted to each, combined substantially as set forth.

3. In a combination chair and foot-rest, the supporting-head 3 with a jointed arm composed of the members 9^a and 9^b, a seat pivoted to swing backwardly and forwardly on the head, a foot-rest support 11 hinged to the front end of the seat and connected below its hinging-point to the arm member 9^b, a rocking arm 14 pivoted on the swinging end of the support 11, a foot-rest 13 hinged on the end of the arm 14 and the connecting-rod 18 hinged at one end to arm 14, and at the other to the seat at a point to the rear of the hinging-point on the support 11, combined substantially as set forth.

586,611. BICYCLE. FRANCIS W. MALLETT, New York, N. Y., assignor to himself and Hulbert Brothers & Co., same place. Filed June 25, 1896. Serial No. 596,838. (No model.)



Claim.—1. In a bicycle, a spur driving-wheel, a flexible thrust-rod adapted to follow the curves in the inclosing frame members and casings, held yieldingly with one end in the path of the spurs and reciprocated by the passage of the latter, in combination with said frame members and casings and with a clutch engaging the rear wheel of the bicycle and operated by the reciprocations of said rod, all substantially as herein specified.

2. In a bicycle, a spur driving-wheel, a thrust-rod reciprocated by the passage of the spurs and having an inflexible middle portion and flexible ends adapted to follow the curves in the inclosing frame members and casings, in combination with the latter and with guide-rollers arranged at such curves on the opposite side of the rod to prevent buckling of said ends, and a clutch engaging the rear wheel of the bicycle and operated to drive the latter by the reciprocations of said rod, all arranged to serve substantially as herein specified.

3. In a bicycle, the thrust-rods D, D', D^4 inclosed within the members of the lower rear fork, the bushings a^3 and a^5 therein, the collars *d* on said rods, the springs D^4 and cushion springs D^5 arranged between said collars and bushings, the spur driving-wheel C for reciprocating said rods, and the clutch mechanism engaging the rear wheel of the bicycle, all combined and arranged to serve substantially as herein specified.

4. In a bicycle, the thrust-rods having the inflexible middle portions D and flexible ends D', D^3 inclosed within the lower rear-fork members, the bushings a^3 therein and collars *d* on the rods, the wheels C and spurs C^3 thereon, the springs D^4 forcing one end of each rod into the path of the spurs, clutch mechanisms engaging the rear wheel of the bicycle, and the flanges C^4 on said spur-wheels and the brake-shoes C^5, fixed stops d' and springs a^6 for engaging said flanges to prevent reversing the direction of motion of the spur-wheels, all combined and arranged to serve substantially as herein specified.

5. The clutch described consisting of a loose ring encircling the shaft on which the rear wheel turns, a spring-arm extending radially from the ring, a clutch-block, a link connecting the latter to the ring to form a toggle, and an annular flange on said rear wheel engaged by said clutch-block when the toggle straightens by pressure applied to said spring-arm, all combined and arranged to serve substantially as herein specified.

6. In a bicycle, the loose ring F encircling the shaft on which the rear wheel turns, a spring-arm F', F^2 extending radially therefrom, and connected to the reciprocating thrust-rod D, D', D^4, the clutch-block F^3, the link F^4 connecting the latter to the ring to form a toggle, an annular flange E^4 on the said rear wheel frictionally engaged by said clutch-block when the toggle straightens, the casing-flange F^7 and the spring F^6 interposed between the latter and the clutch-block, all combined and arranged to serve substantially as herein specified.

7. In a bicycle, the loose ring F encircling the shaft on which the rear wheel turns, a spring-arm F', F^2 extending radially therefrom and connected to the reciprocating thrust rod D, D', D^4, the clutch-block F^3, the link F^4 connecting the latter to the ring to form a toggle, an annular flange E^4 on the said rear wheel engaged frictionally by said clutch-block when the toggle straightens, in combination with each other and a stop fixed to the casing in advance of the throw of the clutch-block, a lever and a wedge thereon adapted to be thrust between said stop and clutch-block, and means for operating the lever, all arranged to serve substantially as and for the purposes herein specified.

8. In a bicycle, the loose ring F encircling the shaft on which the rear wheel turns, a spring-arm F', F^2 extending radially therefrom and connected to the reciprocating thrust-rod D, D', D^4, the clutch-block F^3, the link F^4 connecting the latter to the ring to form a toggle, an annular flange E^4 on the said rear wheel engaged frictionally by said clutch-block when the toggle straightens, the stop A^{47} fixed on the casing in advance of the throw of the clutch-block, the bell-crank lever G' and wedge β thereon, the rod G^2 inclosed within a member of the upper rear fork, the rod G^4 inclosed within the upper member of the frame, the flexible portion G^3 joining the said rods, and the operating-lever G^5 pivoted into said upper member, all combined and arranged to serve substantially as herein specified.

9. In a bicycle, the driving spur-wheels and flexible reciprocating thrust-rods, clutches operated by the latter and engaging the rear wheel of the bicycle, in combination with the casings A' and A^4 inclosing said spur-wheels and clutches, and the tubular lower fork members A^2 inclosing and guiding said rods, all substantially as herein specified.

10. In a bicycle, the driving spur-wheels, the flexible reciprocating thrust-rods, and clutches operated by the latter and engaging the rear wheel of the bicycle, in combination with the casings A' and A^4 inclosing said spur-wheels and clutches, and the tubular lower fork members A^2 inclosing and guiding said rods, the upper rear-fork members and upper tube A^6, and the brake-operating rods inclosed and guided therein, all arranged to serve substantially as and for the purposes herein specified.

586,612. TIRE-HEATER. JACOB J. A. MORATH, Clayton, Mo. Filed Oct. 12, 1896. Serial No. 608,670. (No model.)



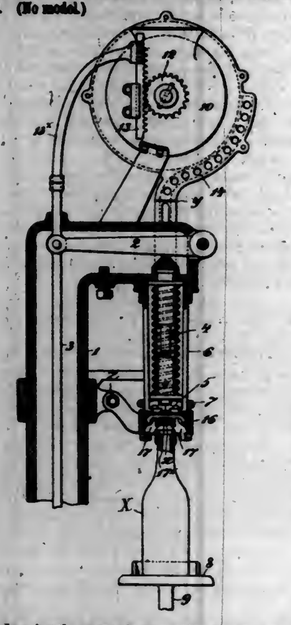
Claim.—1. A tire-heater having an annular drum or receptacle provided with interior tire-supports, an annular series of vaporizing-burners located within the drum and having mixing-chambers arranged in an approximately horizontal plane, the mixing-chambers of one burner having their outlet ends contiguous to and adapted to discharge toward the adjacent burner and hence parallel with a tire on said supports, and means for supplying fluid fuel to the burners, substantially as specified.

2. A tire-heater having an annular drum or receptacle provided with interior tire-supports, an annular series of burners located in the drum or receptacle and having vaporizing and burner tubes and mixing-chambers which are disposed at an upward inclination from the burner tube, the outlet ends of the mixing-chambers of one burner being located contiguous to and adapted to discharge toward the vaporizing-tube of the adjacent burner of the series, and means for supplying fluid fuel to the burners, substantially as specified.

3. In a tire-heater, the combination with a receptacle, of a fluid-fuel burner having vaporizing and burner tubes arranged in a common vertical plane, said burner-tube being provided with jet-tubes, a casting located contiguous to said tubes and provided with mixing-chambers arranged respectively in alinement with the jet-tubes and

inclining upwardly therefrom, an initial ignition pan or trough located below the burner-tube and adapted to receive drippings from the lower extremities of the mixing-chambers, and a shield spanning the interval between the vaporizing-tube and the contiguous side of the casting and extending over the jet-tubes, substantially as specified.

586,618. MACHINE FOR FEEDING STOPPERS AUTOMATICALLY TO BOTTLES. NELSON MUILAR, West Boylston, Mass., assignor to Nathaniel B. Abbott, Brooklyn, N. Y. Filed Mar. 31, 1897. Serial No. 630,093. (No model.)



Claim.—1. In a bottle-stoppering machine having an expander and means for pressing the bottle up to said expander, a centering device, comprising a ring or frame 16, fixed in position adjacent to the expander, a plurality of jaws, 17, having conical, concave faces at their free ends adapted to form a hollow cone when pressed together by their springs, and springs of equal strength behind the respective jaws, in combination with a feeder for the stoppers having a hinged shoe carrying the stopper projecting into the axis of the guide between adjacent jaws, said shoe adapted for being moved upward and outward by the ascending bottle, substantially as set forth.

2. In a bottle-stoppering machine, the combination with an expander and means for pressing the bottle up to said expander, of a centering device comprising a ring to support the centering-jaws, the said jaws pivotally mounted in the ring, and springs behind said jaws, of an automatic gravity-feeder for the stopper having at its lower end a shoe $14^{\times}$, which projects into the axis of the centering device between adjacent jaws, said shoe being adapted to be moved upward and outward by the bottle in its upward movement, substantially as set forth.

3. In a bottle-stoppering machine having an expander and means for pressing the bottle up to the expander, an automatic feeder for the stoppers, said feeder comprising a feed-box, an agitator within said box, a raceway 14, hinged at *y* and adapted to receive the stoppers *x* and lead them down into the shoe $14^{\times}$, the said shoe, hinged to the lower end of the raceway, beveled on its under side and arranged to extend, normally, in under the expander, the finger 14^{a} on the raceway, extending out part way over the shoe $14^{\times}$, and the spring which holds the raceway in its normal position, substantially as set forth.

4. In a bottle-stoppering machine having an expander and means for pressing the bottle up to the expander, the combination with a centering device for the bottle comprising a frame and a plurality of hinged, spring-jaws arranged below the expander and forming a cone to receive the bottle-mouth, and an automatic feeder for the stoppers, said feeder comprising a feed-box, an agitator within said box, a raceway 14, hinged at *y* and adapted to receive the stoppers *x* and lead them down into the shoe $14^{\times}$, the said shoe, hinged to the lower end of the raceway, beveled on its under side and arranged to extend, normally, in under the expander, the finger 14^{a} on the raceway, extending out part way over the shoe $14^{\times}$, and the spring which holds the raceway in its normal position, substantially as set forth.

5. In a feeder for bottle-stoppers *x*, the combination with a feed-box and an agitator therein for the stoppers and the raceway 14, of the segregating device at the delivery end of said raceway, the same comprising the shoe $14^{\times}$, hinged to the raceway and adapted to be pressed upward by the bottle, and the finger 14^{a}, fixed to the raceway and extending out over the shoe and the stoppers thereon, whereby said finger is adapted to press upon the stopper next behind the end one of the series when the shoe is elevated, substantially as set forth.

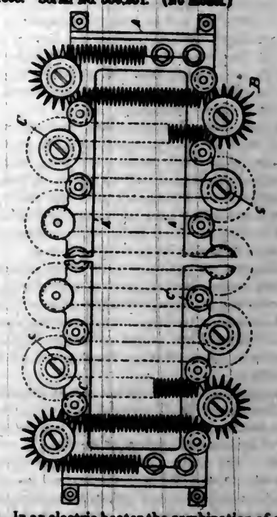
6. In a feeder for flanged bottle-stoppers *x*, the combination with the fixed feed-box 10, composed of a front plate and back plate and having on one of said plates beveled teeth 15, spaced so as to admit only the body of the stopper between them and of such length as to permit the flanges of the stoppers to pass between their ends and the other plate, of a raceway to receive the selected stoppers, and an agitator in said feed-box, substantially as set forth.

586,614. GEARING. WILLIAM A. MCCULLOUGH, Pasadena, Cal. Filed June 27, 1896. Serial No. 597,170. (No model.)



Claim.—In a mechanical movement, the combination with an outer frame or casing having vertically-extending slots, of a longitudinally-double open cam-rim each side of which is provided with an elliptical cam-surface, and said rim having opposite cam projections, and guide-rods connected to the rim on opposite sides thereof and extending loosely through the slots in the casing so that they will be free for vertical movement in said slots, of a rotary device carried on a shaft journaled in said casing and having arms, and wheels journaled to the arms and adapted to ride on the cam-surfaces, and cam projections whereby a combined oscillating and reciprocating motion is imparted to the cam-rim.

586,615. ELECTRIC HEATER. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Aug. 14, 1895. Serial No. 559,231. (No model.)



Claim.—1. In an electric heater the combination of a supporting-frame, insulated supports arranged thereon at its upper and lower edges, a continuous coil of wire wound between said supports top to bottom and from end to end of said supporting-frame, and insulating-blocks located and rigidly supported between said coils and between the supporting-points therefor, for the purpose specified and substantially as described.

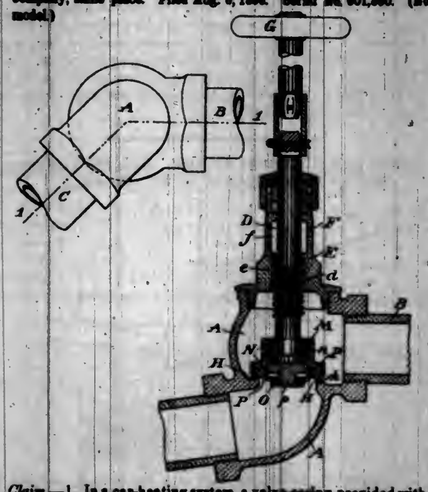
2. A supporting-frame for an electrical heater carrying thereon at its upper and lower edges insulating blocks or saddles, a continuous coil arranged in zigzag fashion about said insulating-blocks in such manner that said coils converge from top to bottom and bottom to top respectively as indicated, substantially as described.

3. A supporting-frame for an electric heater carrying thereon at its upper and lower edges insulating blocks or saddles, a continuous coil arranged in zigzag fashion about said insulating-blocks in such manner that said coils converge from top to bottom and bottom to top respectively as indicated, and insulating-blocks located between the straight portions of said coils, substantially as described.

4. A supporting-frame for an electrical heater carrying thereon at its upper and lower edges insulating blocks or saddles, a continuous coil arranged in zigzag fashion about said insulating-blocks in such manner that said coils converge from top to bottom and bottom to top respectively as indicated and insulating-blocks located between the straight portions of said coils, said insulating-blocks located between the straight portions of said coils in zigzag fashion being near the point of convergence of adjacent coils, substantially as described.

5. In an electrical heater the combination of a supporting-frame with slots located at its upper and lower edges, blocks adapted to be located within said slots and carrying thereon insulating-saddles and a coil extending alternately from the upper and lower saddles respectively and from end to end of said heater whereby said saddles are maintained in position by the tension in said coils, substantially as described.

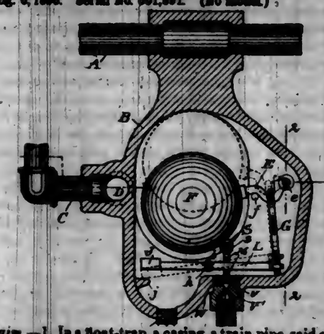
586,616. VALVE FOR CAR-HEATING SYSTEMS. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Aug. 6, 1896. Serial No. 601,980. (No model.)



Claim.—1. In a car-heating system, a valve-casing provided with two ports, with one of which the train-pipe communicates, the other arranged to communicate with a hose-connecting pipe, a valve in said casing adapted to regulate the passage of the contents of the train-pipe therethrough, a valve-stem, said valve-stem arranged and adapted to intermesh with threads in the valve-casing, an enlarged opening in said casing having means for allowing the water in said enlarged opening to escape into the valve-chamber, a valve-seat provided with a small opening allowing for a minute discharge from the train-pipe into the hose-pipe when the valve is closed, substantially as described.

2. In a car-heating system, a car, a train-pipe, a hose-connecting pipe, a valve-casing provided with two ports, with one of which said train-pipe communicates, the other arranged to communicate with said hose-pipe, a valve in said casing adapted to regulate the passage of the contents of the train-pipe therethrough, a valve-stem extending to the side of the car provided at its end with a hand-wheel, said valve-stem threaded and adapted to intermesh with threads in a projection on the valve-casing, an enlarged opening in said projection having means for allowing the water in said enlarged opening to escape into the valve-chamber, a valve-seat provided with a small opening allowing for a minute discharge from the train-pipe into the hose-pipe when the valve is closed, substantially as described.

586,617. FLOAT-TRAP. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Aug. 6, 1896. Serial No. 601,991. (No model.)



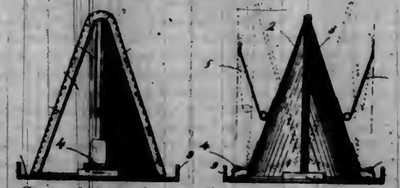
Claim.—1. In a float-trap, a casing, a train-pipe, said casing placed in metallic contact with said train-pipe, a pipe adapted to discharge its contents into a chamber in said casing, a screen in said chamber, a plug adapted to close an orifice in said chamber, said chamber communicating with the interior of said casing, a discharge-pipe from said casing, a valve in said discharge-pipe, a weighted lever arranged to hold said valve open when the trap is in its normal condition, a link adapted to lock on the end of said weighted lever, a ball-lever, said link connected with said lever, substantially as described and for the purpose set forth.

2. In a float-trap for car-heating systems, a pipe adapted to discharge the contents of said trap, a valve in said pipe, a valve-stem, guides connected with said valve-stem, so arranged that the valve and its stem may be turned within prescribed limits about the axis of said valve-stem, enabling to wear said valve evenly upon its seat, a weighted lever adapted to operate in connection with said valve-stem, so arranged that the lateral motion of the weighted lever cannot cause the binding of the valve-stem upon its bearings, a ball-lever, a hook connecting said weighted lever with said ball-lever, so arranged that the weighted lever is free to move within prescribed limits without lifting the hook connecting it to the ball-lever.

3. In a float-trap, a casing, a pipe adapted to discharge therein, a discharge-pipe from said casing, a valve in said discharge-pipe, a valve-stem provided with a pin movable in a bearing centered vertically above said valve, a valve-disk connected with said stem, a removable plug within which the valve operates, so arranged that by taking out said plug the valve may be removed from the casing, substantially as described.

4. In a float-trap, a casing, a pipe adapted to discharge therein, a discharge-pipe from said casing, a valve in said discharge-pipe, a valve-stem, a weighted lever, suitably mounted, said weighted lever passing through an opening in said valve-stem, said opening enlarged, allowing for the partial revolution of said valve-stem upon said lever, a removable cap on said casing, so arranged that when the cap is taken off the weighted lever may be removed from said casing, substantially as described.

586,618. SAFETY-TRAP. JOSEPH HOLL, Buffalo, N. Y. Filed Dec. 10, 1896. Serial No. 615,142. (No model.)



Claim.—1. In a safety-trap, the combination with a supporting-ring, adapted to fit between the joint of two pipe-sections, of two folding jaws presenting a substantially cone-shaped appearance when closed and each hinged to the said ring, at a point central between their vertical sides and adapted to be forced closely to each other and backward against the supporting-ring by the backward pressure of the water.

2. A safety-trap, consisting of a supporting-ring, adapted to be mounted in the joint of two pipe-sections, two folding jaws hinged by slightly-raised hinges to said ring, and devices projecting from one side of the said supporting-ring to separate the pipe-sections sufficiently to allow free action for the operating of the raised hinges of the folding jaws.

3. A safety-trap, consisting of a supporting-ring adapted to fit between the joint of two pipe-sections, two folding jaws presenting a substantially cone-shaped appearance when closed, hinged thereto and projecting centrally forward into one of said pipe-sections, springs fastened at one end to said jaws and pressing against the interior of the pipe-section at the other end for closing said jaws, and elastic packing-rings around the edges of each of said jaws, the said jaws opening when pressure is exerted against their interior surface and closing when said pressure is removed, pressure in the opposite direction against their exterior faces, tending to force them more closely together and against the upper side of the supporting-ring, and thus with the aid of the elastic packing-rings render the said trap gas and water tight.

4. A safety-trap, consisting of a supporting-ring, adapted to be secured in the joint of two pipe-sections, two folding jaws presenting a substantially cone-shaped appearance when closed, hinges elevated slightly above the supporting-ring for securing said jaws to said ring, raised portions projecting from one side of the said supporting-ring to separate the pipe-sections sufficiently to allow free action to the said elevated hinges, and an elastic packing-ring fitting the edges of said jaw, so that although the jaws bind tightly together at the bottom they still can be opened owing to the elastic character of the packing-rings.

5. A safety-trap, consisting of a supporting-ring, adapted to fit between the joint of two pipe-sections, two folding jaws presenting a substantially cone-shaped appearance when closed, and having their side edges bent at an angle therefrom sufficient to present a broad edge parallel to each other and to the supporting-ring when the vertical sides of the jaws are closed tightly against each other, and the horizontal sides against the upper face of the supporting-ring, and hinges attached to the jaws at a point substantially central between their side edges for securing said jaws to said supporting-ring, so that the backward pressure of the water forces the side edges to each other and the horizontal sides backward against the upper face of the supporting-ring.

586,619. BICYCLE-SUPPORT. JOHN R. NORELIUS, El Campo, Tex.
Filed May 13, 1896. Serial No. 591,336. (No model.)



Claim.—1. A bicycle, in combination with a horizontal plate secured to the lower portion of the bicycle-frame and having separate transverse holes therein inclined in two directions, supporting-rods sliding in said holes and having their upper ends pivoted loosely together above the plate so that the rods can spread to form the support when the rods are pushed down through the plate, and can draw together when the rods are drawn up at a decided angle to the plate, and a catch secured to the upper portion of the frame to hold the rods in their elevated position drawn together at an angle to the plate with their lower ends in said holes in the plate, substantially as described.

2. A bicycle-support comprising a head or plate having the three holes therein, one of said holes inclined in one direction and the other two holes inclined in approximately the same direction as the first-named hole, each of said last two mentioned holes inclined additionally in other directions to permit spreading of the supporting-rods, said plate provided with securing means, the three supporting-rods in said holes, the rod in the first-mentioned hole having its upper end provided with a handhold and the upper ends of the two rods in the remaining holes loosely joined to and on opposite sides of said first-mentioned rod, and a catch or holding means to hold the rods in elevated position when in use, substantially as described.

3. A bicycle, in combination with a clamp secured to a lower portion of the frame and carrying a horizontally-disposed plate having three separate vertical holes inclined in different directions, a clamp secured at an elevated portion of the frame and having a spring hook or catch, and the three supporting-rods sliding, respectively, in said holes, the upper ends of two of said rods pivoted directly and loosely to and on opposite sides of the third rod to permit lateral swing independent of said third rod so that the rods when forced down through the plate will be spread thereby to form a tripod and the pivotal point will be immediately above the plate and the two rods will lock against the third rod, the upper end of the third rod above the pivot having a head forming a handle and holding the rods in said hook when elevated, substantially as described.

586,620. ARTIFICIAL BAIT. HARMON R. OSBORN, Granville, N. Y. Filed Oct. 6, 1896. Serial No. 608,042. (No model.)

Claim.—1. A bait of the character described, consisting of a body made in two sections, said sections being hinged together, a head secured to said body by a central wire, hooks projecting from said wire and through suitable openings in the body, and fins revolubly mounted upon the central wire between the body and the head, substantially as and for the purpose set forth.



2. In combination, a body composed of two sections hinged together, a central wire passing through said body, a head secured to one end of the wire, fins revolubly mounted upon the wire between the head and the body, hooks projecting through suitable openings in the body, and feathers so located as to obscure the ends of the hooks, substantially as and for the purpose set forth.

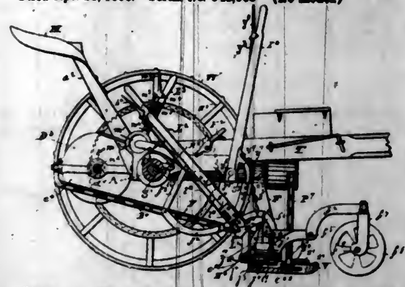
3. In a device of the character described, a body, a central wire passing therethrough, a head secured on the wire and fins revolubly mounted on the central wire between the head and body, as and for the purpose described.

4. In a device of the character described, a body formed in sections hinged together, a wire passing through the body, hooks on the wire passing through openings in the body and feathers secured to the wire and passing through openings in the body to hide the hooks, as and for the purpose described.

5. In a device of the character described, a body composed of two sections hinged together having notches formed on the meeting edges forming openings in the body, in combination with hooks secured within the body and passing out through the openings, as and for the purpose described.

6. In a device of the character described, a body composed of two sections hinged together having notches on their meeting edges forming openings in the body, a latch for locking said sections together, a central wire passing through the body, a hook formed on the rear end thereof, a head secured on the forward end, fins removably mounted on the central wire between the head and body, eyes removably secured in the head, hooks formed on the central wire passing through openings in the body and feathers secured on the central wire passing through said openings to hide the hooks from view, as and for the purpose described.

586,621. MOWING-MACHINE. JAMES PIKE, Lansingburg, N. Y.
Filed Apr. 21, 1890. Serial No. 348,903. (No model.)



Claim.—1. The combination with the lever L^3, attached at its lower end to a shaft having a bearing in which to turn, of a crank connected to said shaft; a link connecting with said crank; a bar f^2, pivoted to said link and extended frontwardly to connect pivotally with the ground-wheel stud, and intermediately pivoted to a bar f^3, that is upwardly projected from the coupler-bar; a shaft or rod adapted to turn in a recess in the rear of the shoe and finger-bar, said shaft or rod at its outer end provided with a crank having a tracking-wheel thereon and having a bearing in the swath-board shoe and at its inner end provided with a crank-arm connected by a chain with the bar f^2, back of where it is pivoted between its ends substantially in the manner as and for the purposes set forth.

2. The combination with the latch-lever L^3, made subetantially as described, of the shaft m, having a bearing or support m^2; the crank-arm f', provided with a link f^2; the curved bar f^3, connecting with said link and extending frontwardly to connect with the ground-wheel stud in which said wheel turns, and pivoted at f^4, to the bar f^5, upwardly projected from the bar B^3, a rod or shaft arranged in a recess in the shoe V; a crank j^3 on the outer end of said rod or shaft provided with a tracking-wheel j^2, a crank j^4, on the inner end of said rod or shaft making a connection with said bar f^3, and the crank j^4, substantially in the manner as and for the purposes set forth.

3. The combination with the interior gear I, of the vertically-arranged cover parts C^3, and C^4, which are hinged at their front to the crank-shaft sleeve, and are constructed with recesses for the passage of the axle-sleeve, and the upper cover part C^5, having a passage for the pawl-shipper rod, and adapted to be secured at their rear ends; with said covers arranged to open or close upon its inner side the area inclosed by said interior gear I, substantially in the manner as and for the purposes set forth.

4. The combination with the axle-sleeve S', of the inclosure e^5, made integrally with said axle-sleeve, and connected by the web w^3, at the rear of the said axle-sleeve, and having a top cover D^2, and the vertically-arranged side cover parts C^3, C^4, arranged to open or close that side of said inclosure next adjacent to the interior gear I, substantially in the manner as and for the purposes set forth.

5. The combination of the coupler-bar B^3 hinged to the pitman crank-shaft sleeve of the shoe V, pivotally connected to the down-turned end of the coupler-bar, in combination with the shaft j^3 having a crank on its inner end and a crank on its outer end having its bearings in the shoe V and the swath-board shoe and provided with a tracking-wheel arranged on its crank at the outer end of said rod or shaft and the ground-wheel f'' having its stud f' pivoted to a bar f^3, pivoted to a bar upcast from the coupler-bar constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

6. The combination with the latch-lever L^3, attached at its lower end to a shaft having a bearing in which to turn, of a crank-arm connected to said shaft, a link connecting with said crank-arm, a bar pivoted to said link and extended frontwardly to connect with the stud in which the ground-wheel turns, said bar being pivoted intermediate its length to the coupling-bar, a shaft or rod adapted to be turned in a recess at the rear end of the shoe V, said shaft or rod at its outer end being provided with a bearing and a crank having a tracking-wheel thereon and at its inner end constructed with a crank and a chain connecting said bar with the crank on the inner end of the shaft or rod, substantially in the manner as and for the purposes set forth.

7. The combination with the latch-lever L^3, made subetantially as described of the shaft M', having a bearing or support m^2, the crank-arm f', provided with a link f^2; the curved bar f^3, connecting with said link and extended frontwardly to connect with the forked stud f'', in which the ground-wheel turns, and pivoted to a support at f^4, on the bar B^3; a rod or shaft j^3, arranged in a recess in the shoe V; a crank j^3, on the outer end of said rod or shaft, provided with a tracking-wheel j^2; a crank j^4, on the inner end of the said rod or shaft, and the chain j' making a connection with the said bar f^3, and the crank j^4, substantially as and for the purposes set forth.

8. The combination with the inclosure E^3, arranged to contain the interior pinion P^3, and shipper-ring; of the cover part C^3, hinged to the front end and adapted to be raised up edgewise; the cover part C^4, also hinged at the front end and adapted to swing edgewise downwardly and the set-screw T^3, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

586,622. INDUCTION-COIL FOR MEDICAL APPARATUS. HENRY C. PORTER, Chicago, Ill. Filed Jan. 26, 1895. Renewed Jan. 18, 1897. Serial No. 619,679. (No model.)



Claim.—In an apparatus for applying electricity to medical and surgical uses the combination with a source of current generation of a plurality of current-regulators each of which is adapted to be included in circuit with the source of generation and each one of which is arranged in a circuit independent of the other together with an induction-coil included in circuit with one of the current-regulators and which induction-coil is independent of the other current-regulator whereby in one and the same apparatus either a high-tension or low-tension current may be interchangeably employed and each regulated as desired and a contact-breaker for the induction-coil together with means for varying the rapidity of vibrations of said contact-breaker consisting of a sliding member and a manually-operated adjusting-rod for said sliding member.

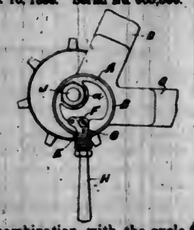
586,623. ANIMAL EXTRACT. EMIL REINERT, Stuttgart, Germany, assignor to The Firm of E. Merck, Darmstadt, Germany. Filed Feb. 4, 1897. Serial No. 622,027. (No specimens.)

Claim.—1. The process of preparing a remedial agent from the prostate glands of animals, the same consisting in subjecting the comminuted glands to a suitable solvent, as glycerin or water, and precipitating the same with alcohol, and then drying and powdering the precipitate, substantially as described.

2. The remedial agent obtained from the prostate glands of animals, which is soluble in water or glycerin, insoluble in alcohol, in a dried, powdered and permanently-preserved condition, substantially as set forth.

3. The remedial agent obtained from the prostate glands of animals, which is soluble in water or glycerin, insoluble in alcohol, combined with salt and in a dried, powdered and permanently-preserved condition, substantially as set forth.

586,624. ADJUSTING MEANS FOR CYCLE-CHAINS. BENJAMIN S. ROBERTS, Witton Green, and WILLIAM MORTON, Birmingham, England. Filed Sept. 10, 1896. Serial No. 605,300. (No model.)



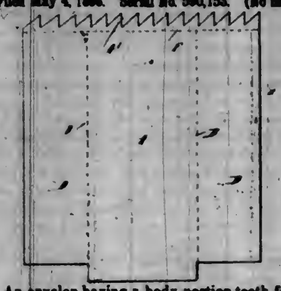
Claim.—1. In combination, with the cycle-frame, the sprocket with its axle, the solid bearing-ring on the frame, an expansible ring within the same carrying the axle and having the split ends and the hand-lever for spreading the expansible ring, said handle being pivoted to the ring and having a portion fitting between the split ends of the same substantially as described.

2. In combination with the cycle-frame, the sprocket with its axle, the solid bearing-ring on the frame, the expansible ring within the same carrying the axle and having the split ends, the lever having pivotal connection with the expansible ring and having a portion to operate between the split ends for expanding the same, said lever extending to the outside of the solid ring to clamp the parts in place against the same, substantially as described.

3. In combination, the frame, the solid bearing-ring, the expansible ring within the same and having the split ends, the sprocket-axle carried thereby, the lever formed in two parts one of which is for spreading the expansible ring having a portion to fit between the split ends thereof, extending to the outside of the solid ring, the clipping-block E on the outside of said ring, said lever being adjustable to force the clip to clamp the parts.

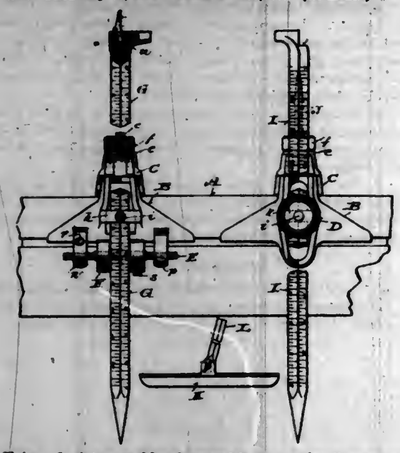
4. In cycle-chain-adjusting devices the combination of a split or expansible ring or annular bearing-piece A screwed within the boss B of the cycle-framing, with a clipping-block E, a roller or expanding-piece F, a pivoted bracket G having a screw-threaded socket and a handle-screw H, substantially as described.

586,625. ENVELOP. PERCY A. ROBERTS, Adelaide, South Australia. Filed May 4, 1896. Serial No. 590,153. (No model.)



Claim.—An envelop having a body portion teeth formed on the upper edge thereof and adapted to be bent inwardly and downwardly, side pieces integral with said body portion and similarly provided on their upper edges with teeth the teeth adapted to engage the said first teeth, a strip on the under side of said body portion adapted to be folded over and engage said side pieces all of said parts being combined substantially as and for the purpose described.

586,626. DRAFTING-TOOL. ROBERT H. ROCKEY, Milwaukee, Wis. Filed July 13, 1896. Serial No. 599,202. (No model.)



Claim.—1. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, and one of the sections provided with a tool-clamp.

2. A trammel-beam having at least two right-angle faces each provided with a longitudinal kerf so arranged that with said right-angle faces the beam presents diagonal corners and sufficient of four sides of a standard square, independent of its remaining dimensions or contour, upon which to grip right-angle jaws of a tool-supporting clamp.

3. A trammel-leg having one end in the form of a scribing-point and the other end provided with a pivotal gage the working face of which is in line with the scribing-point.

4. A trammel-leg having one end in the form of a scribing-point, the other end in the form of a caliper-point, and a pivotal gage at the latter end of the leg having its working face in line with the scribing-point.

5. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, a tool-clamp carried by one of the sections, and a scribe-point extended from the other of said sections.

6. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a spring intermediate of said sections, a nut operative on the stem to clamp said jaws on a beam, and a tool-clamp carried by one of the aforesaid sections of the head.

7. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, an angular leg fitting a seat in one of said head-sections, a bail extending from the same section and terminated in a screw-threaded stem, a leg-gripping gib loose on the bail-stem, and a gib-clamping nut adjustable on the latter stem.

8. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, an angular leg fitting a seat in one of said head-sections, a bail extending from the same section and terminated in a screw-threaded stem, a leg-gripping gib loose on the bail-stem, a washer opposing the outer face of the gib, a spiral spring in touch with the washer, and a chambered nut run on the latter stem against the spring and washer.

9. A trammel-head provided with a leg-clamp, a screw having a fine-thread connection with the head parallel to a beam upon which the same may be adjustably secured, and a leg-traveler adjustable on a coarse-threaded portion of the screw.

10. A trammel-head provided with a leg-clamp, a screw having a fine-thread connection with the head parallel to a beam upon which the same may be adjustably secured, a leg-traveler adjustable on a coarse-threaded portion of the screw, and suitable means for independently locking the screw and leg-traveler in adjusted position.

586,627. ACTIVE MATERIAL FOR SECONDARY-BATTERY PLATES. SIGMUND A. ROSENTHAL, London, England. Filed Oct. 15, 1896. Serial No. 608,961. (No specimens.)

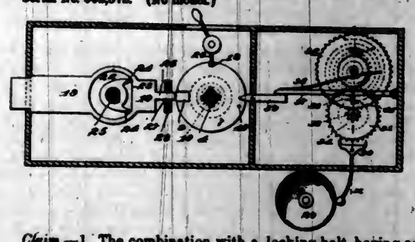
Claim.—1. An active material for secondary batteries composed of oxid of lead, a rubber binding material soluble in the usual acid exciting agent and sulfate of ammonium, substantially as set forth.

2. An active material for secondary batteries composed of oxid of lead, a rubber binding material soluble in the usual acid exciting agent, an inert substance and sulfate of ammonium, substantially as set forth.

3. A process for making secondary-battery plates, which consists in forming a paste of lead oxid and a solution of rubber, adding ammonium sulfate to harden the same, drying and "forming" substantially as described.

4. A process for making secondary-battery plates, which consists in forming a paste of lead oxid and a solution of rubber, adding an inert material and ammonium sulfate to harden the same, drying and forming substantially as described.

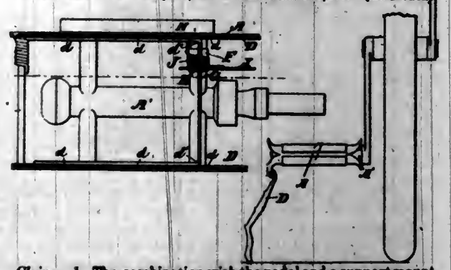
586,628. LOCK. JAMES D. ROSS, Olive, Ky. Filed May 22, 1896. Serial No. 592,572. (No model.)



Claim.—1. The combination with a locking-bolt having an extension on the rear end thereof and means for shifting said bolt, of a series of tumbler-disks rotatably mounted in the rear of said bolt and having peripheral notches or recesses therein, a shaft to which one of said tumbler-disks is secured, having a dial-plate thereon, a sleeve on said shaft upon which the other of said disks are loosely mounted and pins upon each of said tumbler-disks engaging pins upon the next adjacent disk, a stop-pin in the lock-casing adapted to engage peripheral slits in said disks and a handle for operating said pin projecting through the upper edge of the lock-casing, as and for the purpose set forth.

2. The combination with a locking-bolt, a series of tumbler-disks, one of said disks having a pin thereon and means for turning said disks to permit the operation of said bolt, of alarm mechanism, consisting of a gong and hammer therefor, an escapement-wheel through which said hammer is operated, a drive-wheel engaging a pinion and secured to said escapement-wheel, a stop-disk also secured thereto and having a notch or recess in one edge thereof, a stop-lever having a lug or projection thereon normally engaging said stop-disk and a trip-lever for throwing said stop-lever out of engagement with said disk, the said trip-lever being actuated by the pin on one of said tumbler-disks, substantially as and for the purpose described.

586,629. PEDAL BICYCLE-SUPPORT. WILLIAM J. SIMONS, Carey, Ohio. Filed May 19, 1896. Serial No. 592,173. (No model.)



Claim.—1. The combination with the pedal and a support mounted at one end thereof, of a spring serving as a brace and mounted to act on the support to normally hold the same in its extended position, a sleeve mounted upon a cross portion of the pedal, an arm extending from said sleeve and a lever on said arm adapted to engage the cross portion of said spring, substantially as described.

2. The combination with the pedal, of a shaft mounted at one end thereof, a support pivotally mounted on said shaft, a spring around said shaft having portions secured to the support and a spring-actuated pivoted catch adapted to engage the cross portion of said spring, substantially as described.

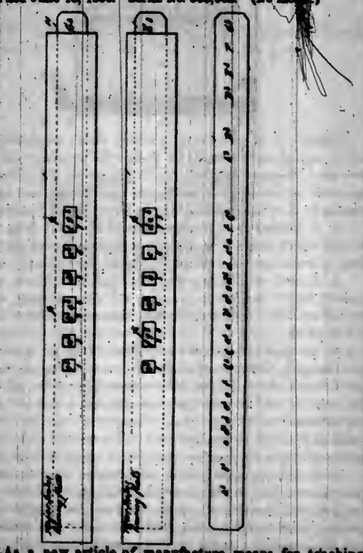
586,630. HAT-FASTENER. JOSEPH STAUBER, Brookville, Kans. Filed Nov. 16, 1896. Serial No. 612,234. (No model.)



Claim.—1. In combination with a hat, having a perforation, a hat pin or fastener, comprising a base-plate having a registering opening, a comb-like pin hinged to said base-plate, a curved arm secured to said pin and projecting through said registering openings, and a spring 9, formed by bending the arm back upon itself, with its free end disposed adjacent to the hat, substantially as described.

2. The combination with a lady's hat, provided with an elongated opening, and an eyelet therein, of a hat-pin, consisting of a base-plate secured to the inner side of the hat and provided with an opening registering with one end of the elongated eyelet, a comb-like pin hinged to said plate, an arm secured at one end to said pin, and extending through said opening and eyelet, and bent to form a foot portion at its outer end to limit the downward movement of the pin, and a spring connected to said arm and extending through said eyelet and opening, and adapted, when the pin is elevated, to be withdrawn from the opening and bear against the outer side of said base-plate within said eyelet, substantially as described.

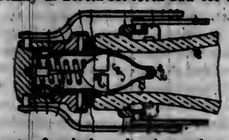
586,631. SCALE-INDICATOR. EUGENE STRENGER, Portland, Oreg. Filed June 15, 1896. Serial No. 595,602. (No model.)



Claim.—As a new article of manufacture means for teaching music consisting of an oblong casing, of any desired or predetermined length, a slide secured thereon, said casing being provided centrally thereof on each side with six openings arranged in longitudinal lines, and indicating respectively the keys of the major and a minor scale, numerals placed near said openings and characters on the said slides adapted to register with said openings so as to clearly indicate to the user the note or key to be played, all of the said parts being combined in the manner set forth and described.

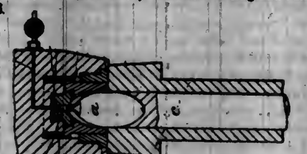
586,632. APPARATUS FOR CHARGING BOTTLES OR OTHER VESSELS WITH GASES BY MEANS OF CAPSULES OR CONTAINERS CHARGED WITH LIQUEFIED OR COMPRESSED GASES. EMILE STRENZ, Paris, France. Filed Apr. 5, 1897. Serial No. 630,812. (No model.)

Claim.—1. In apparatus for closing a bottle or other vessel and charging the same with gas, the combination of a hollow stopper-head, a perforator fixed in said head, a capsule-carrier fixed rigidly to a tube fitted within and telescopically movable in relation to such head, means for connecting the capsule-carrier tube hermetically with the head, and a spring placed between the head and the capsule-carrier, substantially as herein set forth and for the purpose stated.



2. In apparatus for closing a bottle or other vessel and charging the same with gas, the combination with a hollow stopper-head, of a fixed perforator within said head, a capsule-carrier fixed rigidly to a tube fitted within and telescopically movable in relation to said head, a spring placed between the capsule-carrier and the head, means for connecting the capsule-carrier tube hermetically with the head, a ring or washer on the capsule-carrier tube to effect hermetic closing of the bottle or other vessel, and means for forcing the stopper on and removing it from the neck of the bottle or other vessel, substantially as herein set forth.

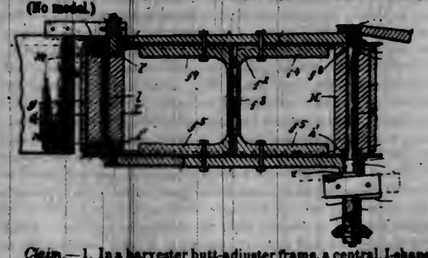
586,633. APPARATUS FOR FILLING AND CLOSING METAL CAPSULES. EMILE STRENZ, Paris, France. Filed Apr. 10, 1897. Serial No. 631,537. (No model.) Patented in England June 1, 1896, No. 11,998.



Claim.—1. In apparatus for filling and closing metal capsules or containers having small inlet-apertures, the combination of a die to receive the body of the capsule, a plunger in said die to fit the base of the capsule, a spring-actuated die to receive the shoulder of the capsule, a die fixed in the frame and having a recess somewhat smaller than the neck of the capsule, a passage connecting said last-mentioned recess with the supply of gas or fluid under pressure, and a valve to open and close the conduit of the compressed gas or fluid, the whole being operated so as first to press the neck of the capsule against the mouth of the small recess in the die connected with the supply of compressed gas or fluid for the filling operation, then to force the neck of the capsule into the said recess to close the aperture in said neck and finally to eject the filled and closed capsule, substantially as herein set forth.

2. In apparatus for filling and closing metal capsules or containers having small inlet-apertures, the combination of dies to receive the capsule, a recess in one of such dies communicating by a passage with the supply of compressed gas or fluid and somewhat smaller in diameter than the neck of the capsule, means for pressing the neck of the capsule against the mouth of said recess with sufficient force to secure a tight joint during the filling operation, means for opening and closing the passage for the compressed gas or fluid, means for closing the neck of the filled capsule or container by forcing it into the recess of the die communicating with the supply of compressed gas or fluid; and means for liberating the filled and closed capsule or container, substantially as herein set forth.

586,634. BUTT-ADJUSTER FOR GRAIN-BINDERS. BENJAMIN F. STEWART, Chicago, Ill. Filed Apr. 17, 1895. Serial No. 546,127. (No model.)



Claim.—1. In a harvester butt-adjuster frame, a central, I-shaped, metallic body having cross-heads extended on both sides of the upright, in combination with metallic beams arranged lengthwise of the body cross-heads, respectively secured thereto, and extending

beyond their respective ends, apron-rollers mounted respectively in the said projecting ends of the beams, and metallic plates arranged between the beams and cross-heads respectively and extending beyond the latter on each side, but with greater width at the inside or rear of the adjuster, and with ends projecting as far as or a little beyond the ends of the beams, substantially as described.

2. In a harvester butt-adjuster frame, the upper and lower longitudinal beams provided at their upper or inner ends with journal-bearings for the driving-roller shaft, in combination with a driving-shaft, to which the apron drive-roller is secured, journaled in the inner ends of said beams and at its lower end extending through and considerably below the journal-bearing, a short tube fitted to the lower projecting end of said shaft, secured to a suitable support on the upright frame of the harvester and provided with a narrow circular flange near its upper end and a journal-pin near its lower end, a bracket-arm secured at one end to the upper portion of the elevator-frame and at its outer end journaled to the outer portion of the enlarged end of the upper frame-beam, gearing journaled on the pin projecting from the said tube, and a gear secured to the lower end of the driving-shaft and engaging with the driving-gear on the pin, substantially as described.

3. In a harvester butt-adjuster frame, the upper and lower beams of the supporting-frame, with outward enlargements or projections at their inner ends, both of which are recessed or perforated for journal-bearings, with the lower one cut out or recessed around the outer portion of this bearing, in combination with a tubular journal-bearing adapted at one end to set into the said recess in the lower frame-beam, provided with a narrow annular flange near its upper end on which the outer edge of said beam-recess is seated, and at a little distance below the same with a projecting lug on the outside or front, an angle-iron support, the upright web of which fits the space between the said two projections on the tubular bearing and is secured thereto by any suitable fixed connection, and the driving-shaft of the driving-roller, journaled in the inner ends of the said beams and passing down through said tube as an extension-bearing, substantially as described.

4. In a harvester butt-adjuster frame, the upper and lower beams of the supporting-frame, in combination with a shaft at the outer or lower ends thereof, crank devices having circular bodies rigidly secured to the respective ends of the shaft, each extending inward a little way thereon, crank-arms journaled respectively in the ends of the beams, and an outer or lower apron-roller mounted loosely on said shaft and provided with circular recesses in each end, larger in dimension than the crank-heads and adapted to receive the latter when mounted in position, substantially as described.

5. In a harvester butt-adjuster frame, a main or supporting frame jointed at its upper end to suitable supports on which it is free to swing, in combination with a supplemental plate at the lower or outer end of said frame and standing a little distance beyond the latter, a strap-spring connecting the upper inner corner of the plate with the lower end of the upper beam, being attached at its ends to the said parts respectively and having its lower or outer end bent forward slightly when in normal position, a controlling or adjusting lever secured at one end to the said plate, and mechanism for securing said lever at different points of adjustment, substantially as described.

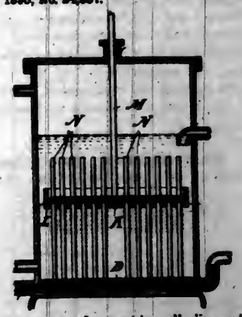
6. In a harvester butt-adjuster, the upper and lower beams of the supporting-frame; a shaft in the outer or lower ends thereof: crank devices, having disk-shaped bodies secured to the respective ends of the shaft, and extending inward a little way thereon: crank-arms journaled respectively in the ends of the beams: an outer or lower apron-roller mounted loosely on such shaft, and provided with a circular recess at each end, adapted to receive the crank-disks; a coiled spring surrounding and attached at one end to one of the crank-arms, and at the other end to the supporting-frame: and devices for adjusting the tension of the said spring, substantially as shown and described.

7. In a harvester butt-adjuster frame, a main or supporting frame jointed at its upper end to suitable supports on which it is free to swing, in combination with a supplemental plate at the lower or outer end of said frame and standing a little distance beyond the latter, a strap-spring connecting the upper inner corner of the plate with the lower end of the upper beam, being attached at its ends to the said parts respectively and having its lower or outer and bent forward slightly when in normal position, a controlling or adjusting lever bent at an obtuse angle and having its short section secured to said plate while the longer section extends backward at an inclination upward and is provided with a series of notches, and a grooved or channeled clip mounted on a suitable support between the upper ends of the elevator-frame and having a short stud or projection at its rear end adapted to engage with the notches in said lever, which passes through the said space or opening in the clip, substantially as described

8. In a harvester butt-adjuster, the combination with the upper and lower metallic beams, of a shaft at the outer or lower ends thereof, an enlarged circular head keyed to each end of said shaft, a crank-arm projecting outward from each circular head and journaled respectively in the upper and lower metallic beams, and an outer or lower apron-roller loosely mounted on said shaft and provided with circular recesses in each end which are adapted to receive the circular heads when mounted in position, substantially as described.

9. In a harvester butt-adjuster, the combination with the upper and lower metallic beams, of a shaft at the outer or lower ends thereof, an enlarged circular head keyed to each end of said shaft and extending inward a little way thereon, a crank-arm projecting outward from each circular head and journaled respectively in the upper and lower beams, an outer or lower apron-roller loosely mounted on said shaft and provided with circular recesses in each end which are adapted to receive the circular heads when mounted in position, a coiled spring surrounding and attached at one end to one of the crank-arms and having its free end bent outward to form a horizontal arm, and a notched projection carried by one of the beams with which the said horizontal arm of the spring is made to engage whereby the position of the roller is changed, as and for the purpose described.

586,635. AMALGAM-WASHING APPARATUS. HENRIK C. F. STORMER, Christiania, Norway. Filed Feb. 6, 1897. Serial No. 622,316. (No model.) Patented in Norway July 12, 1895, No. 4,697, and in England Dec. 27, 1895, No. 24,837.



Claim.—1. A process for washing alkali amalgam, which consists in taking up the amalgam from a lower level, raising the same through a decomposing liquid to a higher level and simultaneously therewith subdividing the amalgam into streams and allowing said streams to flow through the solvent liquid, for the purpose set forth.

2. A method for extracting the alkali metal from an amalgam thereof, which consists in subjecting streams of amalgam in tubulous form to the action of a dissolving liquid, substantially as described.

3. A method of extracting the alkali metal from an amalgam thereof, which consists in causing tubulous streams of amalgam, formed around a solid core, to flow through a solvent, substantially as described.

4. An apparatus for the extraction of alkali metal from amalgams thereof, consisting of a suitable vessel having inlets for amalgam and a dissolving liquid and outlets therefor and for gas, in combination with a body of amalgam therein and a solvent, a perforated tray adapted to lift a portion of amalgam from the bottom of the vessel and divide it into a series of fine streams when being raised, and means for reciprocating said tray, substantially as set forth.

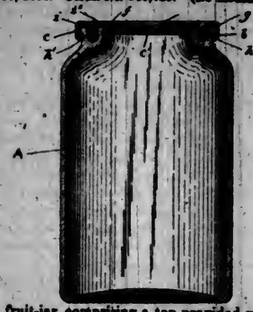
5. In an apparatus for the extraction of alkali metal from amalgams thereof, the combination with a suitable vessel having amalgam and a solvent therein, of a perforated tray adapted to be forced below the surface of the amalgam in the vessel and divide said amalgam into a number of fine streams when the tray is lifted, and means for reciprocating said tray, substantially as described.

6. An apparatus for the extraction of alkali metal from amalgams thereof consisting of a vessel adapted to contain a body of amalgam and a supernatant liquid solvent, in combination with a tray adapted to receive a reciprocating motion into and out of the body of amalgam through said liquid solvent, and means for causing the amalgam taken up by the tray to flow into and through the liquid solvent in streams while said tray is moving through such liquid, substantially as described.

7. In an apparatus for the extraction of alkali metal from amalgams thereof, a suitable vessel, an amalgam and a solvent therein, in combination with a perforated tray and means for reciprocating said tray and a series of stationary rods passing through said perforations, for the purpose set forth.

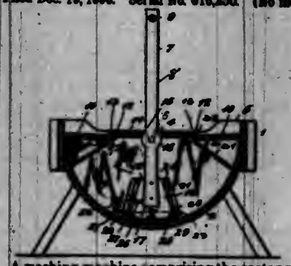
8. In an apparatus for the extraction of alkali metal from amalgams thereof, a suitable vessel, an amalgam and a solvent therein, in combination with a perforated tray and means for reciprocating said tray and a series of rods secured to the bottom of said vessel and passing through said perforations, for the purpose set forth.

586,636. JAR-TOP. THOMAS F. SULLIVAN, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,723. (No model.)



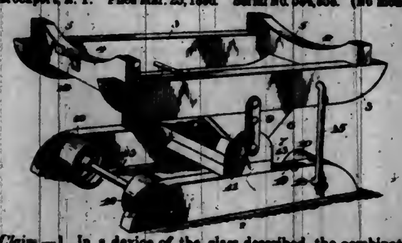
Claim.—A fruit-jar comprising a top provided with a comparatively wide and deep annular recess adjacent its mouth, adapted to contain a sealing medium and positioned inside the vertical plane of the jar-walls, the walls of said recess being in the same horizontal plane, and the exterior wall thereof provided with retaining devices, and a top or cover therefor having a dished center and a broad flat raised annular rim, a thin annular sealing-flange f seated in and pendent from the center of the rim and adapted to extend down within the recess at the center and to near the bottom thereof, and two sealing-rings on the under side of the rim to seat upon the upper edges of the recess-walls, one of the said rings being confined between the dished center and sealing-flange and the other between said sealing-flange and the vertical flanged wall g of the cover, said flanged wall being provided with means for engaging said retaining devices, substantially as described.

586,637. WASHING-MACHINE. HENRY C. SWAFFORD, Kalkaska, Mich. Filed Dec. 19, 1896. Serial No. 616,250. (No model.)



Claim.—A washing-machine comprising the rectangular tub provided with a semicircular bottom, inclined perforated plates 31 31, inclined transverse top plates 10 10, and having bearing-recesses 4 4 in its sides 5 5, in combination with the removable cover, and the oscillating dasher comprising the parallel arms 7 7 connected at their upper ends by the transverse handle-brace 9, the rubber plates 18 18 having radial dovetailed recesses 19 19 to receive the correspondingly-shaped ends of the arms 7 7, and having radial inwardly-beveled edges 20, 20, the folded packing 21 secured to said edges by a batten 23, the transverse semicircular perforated plate 26 secured to the lower semicircular edges of the plates 18 18, and provided with ribs, the end ribs and edges of the plate 26, having inwardly and upwardly beveled edges, and the folded packing fabric 28 secured to said edges by a batten 29, substantially as shown and described.

586,638. BARREL TRUCK AND STAND. PHILIP F. SWART, Brockport, N. Y. Filed Mar. 25, 1896. Serial No. 584,858. (No model.)

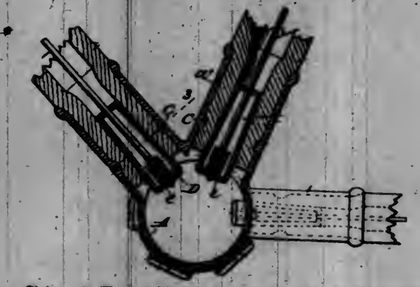


Claim.—1. In a device of the class described, the combination of a truck-frame, convex bearing-blocks located at opposite sides thereof and carried by the same, a tilting frame provided at opposite sides with concave saddle-blocks arranged on the bearing-blocks, and plates or bars arranged at the side faces of the saddle and bearing blocks, rigidly secured at their upper terminals to the saddle-blocks and pivotally connected at their lower ends with the support of the bearing-blocks, substantially as described.

2. In a device of the class described, the combination of a truck-frame provided with a perforation and having a notch at its upper edge, a tilting frame mounted on the truck-frame, and a support pivoted at its upper end at the tilting frame and provided at its lower end with an arm arranged horizontally in position to engage the perforation or the notch, whereby the tilting frame is locked in an inclined or a horizontal position, said support, when in engagement with the perforation, being capable of locking the tilting frame against upward or downward movement, substantially as described.

3. In a device of the class described, the combination of a rectangular truck-frame provided at opposite sides with wheels and having a stationary transverse bar, a movable bar arranged on the upper face of the transverse bar and centrally pivoted to the same, convex bearing-blocks secured to the ends of the pivoted bar and carried by the same, a rectangular tilting frame having the upper edges of its end bars made concave to form seats for a barrel, concave saddle-blocks, mounted on the bearing-blocks and connected with the tilting frame, and a support secured to and depending from the tilting frame and having its lower end detachably interlocked with the truck-frame, whereby the tilting frame is locked against turning and tilting, substantially as described.

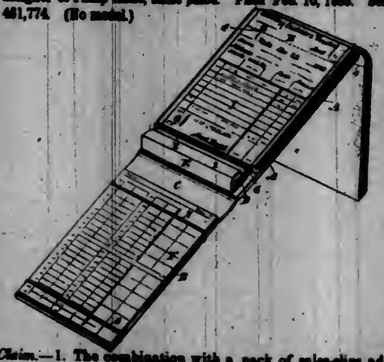
586,639. BICYCLE-FRAME. ARMS P. TEMPLE, Muskegon, Mich. Filed July 24, 1896. Serial No. 600,400. (No model.)



Claim.—1. The combination with a socket having projections on its inner face, of an inserted hollow wooden rod, a tapering screw-plug introduced into said wooden rod, and a central rod engaging said screw-plug, substantially as described.

2. The combination with a crank-hanger having lateral openings situated opposite the frame bar sockets and lateral integral metallic sockets which are provided with interior hemispherical projections, of the hollow wooden rods, the tapering screw-plugs, and the central inner rods engaging the screw-plugs, substantially as described.

586,640. MANIFOLD MEMORANDUM-BOOK AND CARBON-SHEET HOLDER THEREFOR. FREDERICK M. TURNER, New York, N. Y., assignor to Philip Hano, same place. Filed Feb. 10, 1893. Serial No. 461,774. (No model.)



Claim.—1. The combination with a pack of sales-slips adapted to be folded or doubled over a carbon or transfer sheet held between them, of said sheet and means carried thereby, whereby that portion of a sales-sheet that is to receive the written record is temporarily

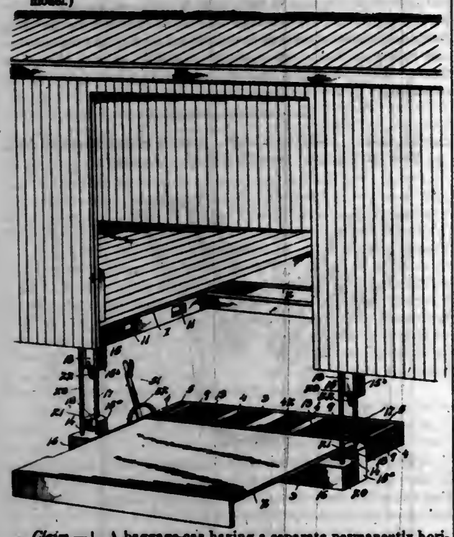
held in place to receive said record and cause the same to be transferred or duplicated, substantially as described.

2. A removable carbon or transfer sheet holder for manifold memorandum-books, consisting of a rigid supporting-frame having means for retaining the sheet stretched over it, and provided with a depending ledge or ledges adapted to project over the sides of the pack of record-slips and maintain the transfer-sheet in place, substantially as described.

3. The transfer-sheet holder provided with swinging side clamping-rods for the sheet, the bend *a* and step 14 by means of which said rods are hinged in the side ledge, and a concave channel *c* by which these rods are held in clamping position, substantially as described.

4. A transfer-sheet holder consisting of a rigid frame having sides 12, 13 provided with means for securing the said sheet and with depending ledges S, L, which sides are supported by doubled or multiplex cross-bars, substantially as described.

586,641. CAR-LOADING APPARATUS. CHARLES W. UNDERWOOD, Jeanerette, La. Filed Sept. 26, 1896. Serial No. 607,103. (No model.)



Claim.—1. A baggage-car having a separate permanently horizontal floor-section adapted to normally occupy a position in the plane of the main portion of the car-floor, and means for lowering said section and returning the same to its normal position, substantially as specified.

2. A baggage-car having a fixed or permanent main floor-section cut away contiguous to the car-door to form an opening, and a movable floor-section fitted in the opening and adapted to normally occupy a position with its upper surface in the plane of the main floor-section, and means for lowering the movable floor-section and returning the same to its normal position, substantially as specified.

3. A baggage-car having its floor cut away contiguous to a door-opening to form a floor-opening having an open outer side, a movable floor-section adapted to fit in said floor-opening in the plane of the floor of the car, and operating devices for displacing the floor-section and returning it to its normal position, substantially as specified.

4. A car-loading device having an elevator operating in an opening in the car-floor, and carrying a horizontally-movable platform, and means for actuating the elevator and platform, substantially as specified.

5. A car-loading device having an elevator operating in an opening in the car-floor, a horizontally-movable platform carried by the elevator, locking devices for the elevator operatively connected to the platform, and means for actuating said parts, substantially as specified.

6. A car-loading elevator mounted on a car and having a horizontally-movable platform adapted to be arranged in the plane of the floor of the car, locking-bolts on the frame of the elevator, diagonally-disposed guides attached to the bolts, pins depending from the platform and operating in said guides, and means for actuating said parts, substantially as specified.

7. A car-loading elevator mounted for vertical movement on a car and having a horizontally-movable platform adapted to be arranged in the plane of the car-floor, means for simultaneously lowering the elevator and extending or moving the platform outwardly, and vice versa, and locking-bolts mounted upon the frame of the elevator and operatively connected with the platform to engage fixed objects on the car, whereby the return of the elevator and platform to their normal positions is accompanied by the automatic locking of the same, substantially as specified.

8. A car-loading elevator and means for imparting vertical movement thereto, extensible guides depending from the car-frame, and slides on the elevator operating in said guides, substantially as specified.

9. A car-loading elevator and means for imparting vertical movement thereto, extensible guides depending from the car-frame and having vertically-movable members, slides on the elevator mounted upon said guides and adapted to engage and depress the movable members thereof, and means on the slides for engaging said movable members of the guides to return them to their normal positions when the elevator is raised, substantially as specified.

10. A car-loading elevator and means for imparting vertical movement thereto, extensible guides depending from the car-frame and having fixed and movable members provided with interlocking extremities, said movable members being provided with stems fitting in bores in the stationary members, means for temporarily locking the movable members in their elevated positions, and slides on the elevator for engaging and depressing the movable members of the guides, substantially as specified.

11. A car-loading elevator and means for imparting vertical movement thereto, extensible guides depending from the car-frame and having stationary and movable members of which the latter are mounted upon the former and are provided at their upper extremities with lips or shoulders, trip-fingers carried by the stationary members of the guides, slides on the elevator mounted in said guides and adapted to engage and depress the movable members thereof, and pawls carried by the slides to engage said lips or shoulders on the movable members to elevate the same, said pawls being disengaged by said trip-fingers when the movable members reach their normal positions, substantially as specified.

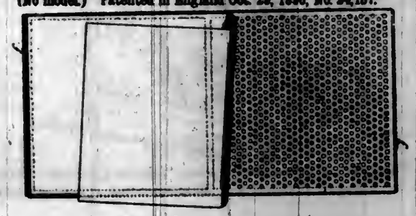
12. A car-loading elevator having a horizontally-movable platform, an operating mechanism for the elevator including main cylinders, pistons operating in the cylinders and having their stems connected to the elevator, an auxiliary cylinder having valved communication with the exhaust-ports of the main cylinders, an auxiliary piston operating in said auxiliary cylinder and having its stem connected to the platform, and valve mechanism for controlling the inlet and exhaust ports of the main cylinders, substantially as specified.

13. A car-loading elevator mounted for vertical movement and having a movable platform, main cylinders having inlet and exhaust ports, valve mechanism for controlling said ports, main pistons operating in said cylinders and having tubular stems connected to the elevator, said stems being provided contiguous to the pistons with ports and communicating at their outer extremities with conveyers, an auxiliary cylinder having valve-casings connected with said conveyers and including controlling-valves, and a piston operating in the auxiliary cylinder and having its stem connected to the platform, substantially as specified.

14. The combination with a car having opposite side door-openings, of elevators arranged in openings formed in the floor of the car contiguous to said door-openings, horizontally-movable platforms carried respectively by said elevators and exceeding the latter in width, whereby when folded the platforms extend toward each other beyond the inner sides of the elevators, and operating devices, substantially as specified.

15. A car-loading elevator having a horizontally-movable platform, and connected operating devices for the elevator and platform, as communicating cylinders having pistons connected respectively to the elevator and the platform, whereby the admission of motive agent to one of the cylinders causes the application of pressure to the pistons of both cylinders, and valve mechanism for controlling the admission of motive agent, substantially as specified.

586,642. APPARATUS FOR DRYING MACARONI. WILHELM VATER, Mannheim, Germany. Filed Dec. 28, 1896. Serial No. 617,264. (No model.) Patented in England Oct. 28, 1896, No. 24,137.



Claim.—1. An apparatus for drying macaroni without free access of air, which apparatus is characterized by two sheets of perforated metal or of wire-gauze *n* and *o* the inner surfaces of the sheets being lined with cardboard or strawboard, each having bent portions *n'* and *o'* respectively the one *n* on its long sides, the other *o* on its short sides so that the bent portions in conjunction with the packing-strips *f* and *f'* hermetically close the space between the plates or sheets, into which space the macaroni is placed, so that the drying of the macaroni proceeds with the exclusion of direct contact of air by absorption of the moisture into the cardboards or strawboards and evaporation from the surface of the latter.

2. An apparatus for drying macaroni, consisting of a sealed drying-chamber for containing the macaroni, having perforated walls for the escape of moisture, said walls being covered on their inner sides by air-tight but moisture-absorptive material, substantially as set forth.

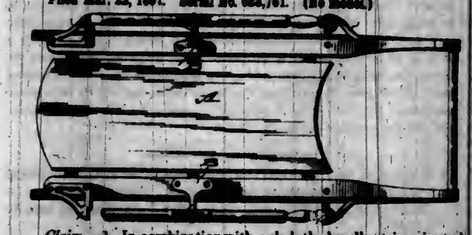
586,643. PURIFYING WATER BY ALTERNATING ELECTRIC CURRENTS. EDMUND VERMEARTE, St. Louis, Mo. Filed June 16, 1896. Serial No. 595,750. (No model.)



Claim.—1. The combination with a settling-basin adapted to contain a mass of liquid to be treated by alternating electric currents, of electrodes arranged substantially equidistant therein, a source of alternating currents, a plurality of tension-reducing devices, working circuits extending from the tension-reducing devices to the electrodes, and switches in said working circuits whereby the tension of the current supplied to the electrodes may be changed.

2. The combination with a settling-basin adapted to contain a mass of liquid to be treated by alternating electric currents, of electrodes arranged substantially equidistant therein, a source of alternating currents, a plurality of tension-reducing devices, working circuits extending from the tension-reducing devices to the electrodes, switches in said working circuits whereby the tension of the current supplied to the electrodes may be changed, and mechanical means for adjusting the height and immersion of the electrodes and thereby varying the resistance of the working circuit.

586,644. HAND-SLED. JOHN WALK, Nebraska City, Nebr. Filed Mar. 22, 1897. Serial No. 628,761. (No model.)



Claim.—1. In combination with a sled, the handle-strips pivoted to the sides of the sled, brackets to receive the ends of the said strips, and buttons for holding the ends of the strips to the brackets, substantially as shown and described.

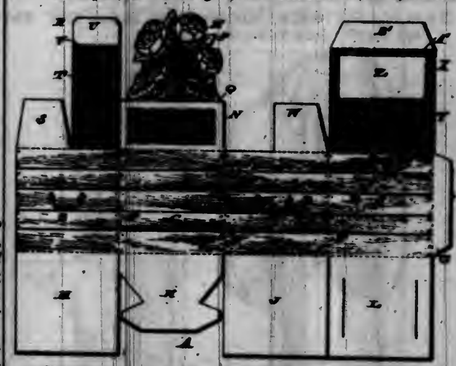
2. In combination with a hand-sled, the handle-strips pivoted to plates on the sides thereof, the said handle-strips recessed out at their ends, notched brackets secured to the sides of the sled and designed to receive the forward ends of the strips, buttons for holding the strips to the brackets, arranged substantially as shown and described.

586,645. ADJUSTABLE SPRING. JOHN WICKHAM, New York, N. Y. Filed Dec. 31, 1896. Serial No. 617,614. (No model.)

Claim.—The combination, in a bedstead, of the corner-posts, a sustaining-clamp engaging each post and consisting of two clamping-jaws hinged together and threaded interiorly to prevent slipping, said jaws being provided with upturned stop-lugs having position on the exterior side of the post, and a spring bed-frame provided at each end with a link-shaped hanger having one side arm pivoted thereto and the other side arm thereof resting upon the said stop-lugs, whereby when the spring bed-frame is in position, the said posts are inclosed between the two arms of the hangers, substantially as described.



586,646. KNOCKDOWN BOX. THEODORE R. WIENEKEMEIER, Jr., Philadelphia, Pa. Filed Aug. 13, 1896. Serial No. 602,803. (No model.)



Claim.—1. In a knockdown box having a front portion, an extension thereon, a flap attached to said extension and projecting at an angle thereto in combination with a flap adapted to hold said extension in position and means on the latter-mentioned flap for holding the same in position.

2. In a knockdown box having portions forming top, sides and bottom, an extension on one of said portions for closing that part of the box which is desired, a flap on said extension projecting at an angle thereto, and a second flat adapted to cover said extension.

3. In a knockdown box having flaps or portions forming top, sides and bottom, an extension on one of said portions, a flap on said extension projecting at an angle thereto, and another flap on one of said portions which is adapted to hold said extension in position.

4. A knockdown box, having a front portion C, the latter being provided with a continuation M, the same consisting of the extension N, having the flap P attached thereto, and adapted to simulate a flower, plant, or other device, in combination with the flap R, the latter having a body portion T and a tab U, whereby said flap is held in position.

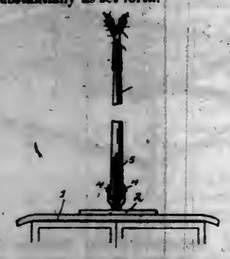
5. In a knockdown box, a blank consisting of a suitable body portion, having the tabs H, K, J and L, a tab S and flap R located adjacent to each other and opposite to said tab H, the flap M consisting of the portions N and P, located opposite to said tab K, the tab W located opposite the tab J, and the flap X consisting of the portions Y and B' located opposite said tab L.

6. In a knockdown box, a blank consisting of a body, divided by scoring into the side portions B and D, and the front and rear portions C and E, said side portions B being provided with the tabs H and S located opposite to each other, said tab S having the flap R adjacent thereto, said flap consisting of the portions T, and U, separated by the scoring V, said front portion C having the tab K, and the flap M located opposite thereto, said latter flap consisting of the portions N and P, separated by the scoring Q, said side portion D having the tabs W and J located opposite to each other, and said rear portion E having the tab L and the flap X located opposite to each other, said flap having the portions Y and Z and the tab B' separated from said portion Z by the scoring A'.

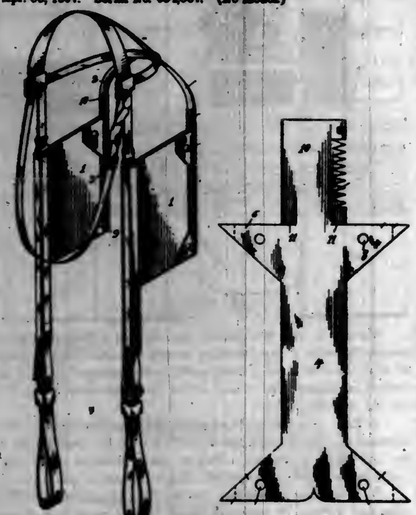
586,647. TROLLEY. WILLIAM WILLETT, Johnstown, Pa. Filed Mar. 22, 1897. Serial No. 628,717. (No model.)

Claim.—The combination with a trolley-pole, springs, the energy of which is exerted to draw the pole downward, of a harp hinged to the upper end of the pole and having a movement at right angles to

the movement of the pole, springs at the joint of the harp with the pole, and trolley-wheels arranged at obtuse angles to the pole and adapted to embrace and ride upon the upper side of the conducting or trolley wire, substantially as set forth.



586,648. BRIDLE. MATTHEW WILSON, Garrison, Iowa. Filed Apr. 30, 1897. Serial No. 634,587. (No model.)



Claim.—1. In a bridle, the combination with the blind and its stay-strap, of a sheet-metal coupling fitted over the entire front edge of the blind, and also around the lower end of the stay-strap, and means to secure the coupling to the blind and the strap, substantially as described.

2. In a bridle, the combination with the blind and its stay-strap, of a coupling, formed from sheet metal, secured to the blind and the end of the strap, that part of the coupling for the blind being bent upon itself to fit over the front edge of the blind and having pointed wings at its upper and lower ends, the points of opposite wings being bent inwardly toward each other and forced into the blind, and that part of the coupling for the strap having cuts extending inwardly from its side edges to permit it to fold around the strap, and teeth in one of its side edges bent inwardly at an angle to the main portion and forced into the strap, and rivets passing through said wings and the blind, substantially as described.

586,649. MARTINGALE-BUCKLE. GEORGE T. WOLFF, Bird Island, Minn. Filed Nov. 24, 1896. Serial No. 613,328. (No model.)



Claim.—1. In a martingale-buckle, the combination of a plate provided at one end with an eye, a loop adapted to receive a choke or collar strap, extending from one face of the plate and provided with eyes, and a loop extending from the opposite face of the plate and provided with a pintle engaging the eyes of said loop and said plate, whereby both loops are hinged to the plate, substantially as described.

2. In a martingale-buckle, the combination of a plate provided at one end with an eye and having slots intersecting the same, a loop adapted to receive a choke or collar strap, extending from one face of the plate and provided with eyes arranged in the said slots, and a loop extending from the other face of the plate and having a transverse portion arranged in the eye of the latter and engaging the eyes of the said loop, whereby the same is hinged to the plate, substantially as described.

586,650. WATER-BAG. ROSEN W. WOODBURY, Denver, Colo. Filed Jan. 7, 1897. Serial No. 618,364. (No model.)



Claim.—The combination of a water-bag having a flexible body portion and a contracted neck, both formed of an elastic material, of a stopper having an annular groove thereabout held within said neck by the contraction of the elastic material, a valve-seat formed within said stopper, a valve held within said valve-seat, and a countersunk button adapted to operate said valve.

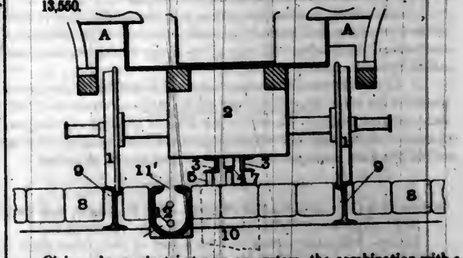
586,651. ATTACHMENT FOR CITHERNS. FRANK KINNERLY, Newark, N. J. Filed Mar. 6, 1897. Serial No. 626,221. (No model.)



Claim.—1. An attachment for stringed instruments, comprising a bridge presenting a plate located above the strings and having a slot, the edges of the plate below the slot being grooved: a block having lugs or projections which engage the grooves of the bridge and top plate thereof, said block being provided with a vertical recess contracted at its lower end; a pick or plectrum located within the recess and having a head or button at its upper end, and a spring located within the recess and interposed between the head of the plectrum and contracted portion of the block, substantially as and for the purpose set forth.

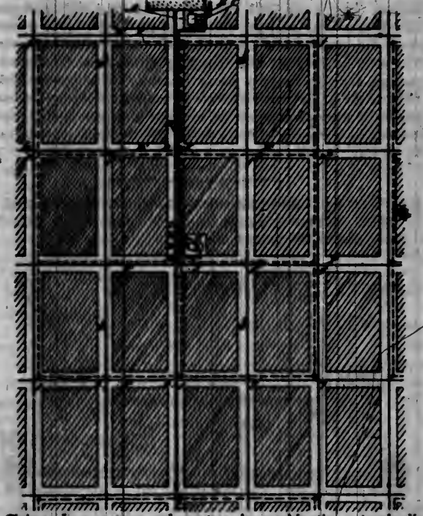
2. An attachment for stringed instruments comprising a bridge presenting a plate located above the strings and having a slot, the sides of the bridge below the slot being grooved, a block having lugs or projections which engage the grooves of the bridge and top plate, said block being provided with a vertical recess; together with a pick or plectrum having a threaded head, a spring interposed between the head and block, and a cap adjustable upon the threaded head of the pick or plectrum the latter being limited in its upward movement by a set-screw or equivalent means, substantially as shown and for the purpose set forth.

586,652. APPARATUS FOR WORKING ELECTRIC TRAMWAYS. CHRIS ANDERSON, Leeds, England. Filed Feb. 13, 1896. Serial No. 538,285. (No model.) Patented in England July 13, 1894, No. 13,560.



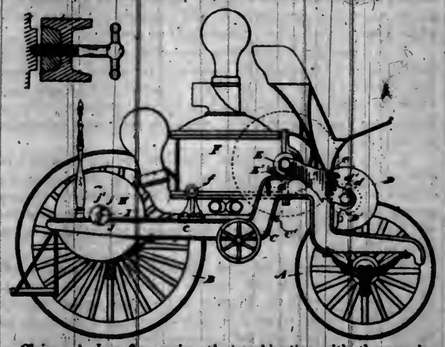
Claim.—In an electric-tramway system, the combination with a car carrying an electric motor, a contact-brush, a ramp, a switch-board, electrical connections from said switchboard to the contact-brush, motor and ramp, and a gripper, and with an electric-supply conductor, a peg for making electric connection between said conductor and the contact brush; and a haulage-cable for use as an auxiliary power actuated by an electric motor, of a haulage-motor cable or conductor for said motor; and a peg for making connection between said conductor and the ramp, substantially as described.

586,653. SYSTEM OF WATER-SUPPLY. ALBERT W. ASHTON, Toronto, Canada. Filed Feb. 24, 1896. Serial No. 580,445. (No model.)



Claim.—In a water-supply system, in combination, a main distributing-pipe, the ordinary distributing-pipes leading from the main pipe, and the independent distributing-pipes arranged in block system and paralleling said main and ordinary distributing-pipes, said independent system having a single connection with the main pipe, and being permanently out of connection with the ordinary pipes, substantially as described.

586,654. PUMPING-ENGINE. ALBERT W. ASHTON, Toronto, Canada. Filed Feb. 24, 1896. Serial No. 580,446. (No model.)

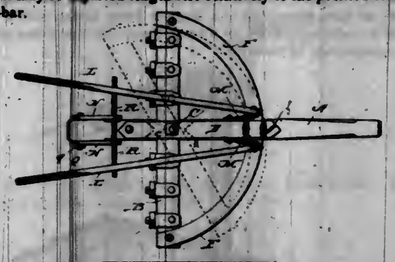


Claim.—1. In a fire-engine, the combination with the running-gear, of the electric motor supported in proximity to the front axle, the pump arranged in rear of the motor and having its rear edge pivotally mounted upon the frame, and set-screws passing through the frame and having pointed ends engaging recesses in the forward portions of the pump, and a reel in rear of the pump, substantially as described.

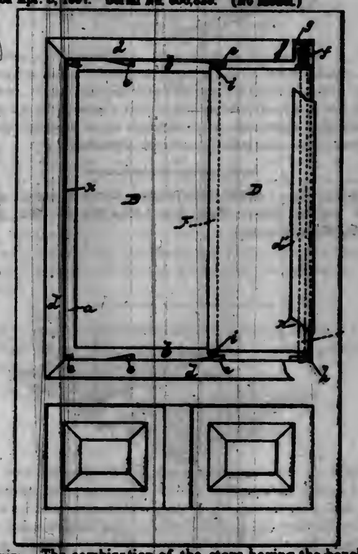
2. In a fire-engine, the combination with the motor supported above and to the rear of the front axle, of a pump pivotally supported at the rear upon the frame behind the motor and at the front upon the journals of the operating-shaft and set-screws extending through the side bars into recesses in the pump as and for the purpose specified.

586,655. CULTIVATOR. FRANK BENFIELD, Burke, Tex. Filed Feb. 24, 1897. Serial No. 624,234. (No model.)

Claim.—In a cultivator having a transverse tooth-bar pivoted midway of its length to the beam, the combination of the handles, the uprights M pivoted thereto and also to the beam forward of said tooth-bar, the uprights N, pivoted to the beam in rear of said tooth-bar and also to a round R journaled to said handles, whereby said handles may be adjusted lengthwise relatively to the position of said tooth-bar.



586,656. DOOR-SHADE. ESTUS H. FREEMAN, Markle, Ind. Filed Apr. 6, 1897. Serial No. 630,830. (No model.)



Claim.—The combination of the stops having the beveled surfaces, the rod provided with the beveled upper and lower ends and the shade said rod secured to said shade for operation as described.

586,657. SYRINGE. JOHN A. GROSSHEIDER, St. Louis, Mo. Filed Feb. 23, 1896. Serial No. 581,143. (No model.)

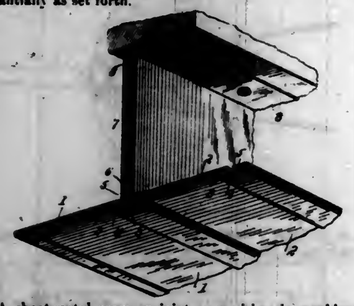


Claim.—1. In a syringe, the combination with a suitable reservoir provided with an aperture at its front end only, of a cap for closing the rear end of said reservoir, a cylinder A' extending from said cap into the reservoir, said cylinder being shorter than the reservoir and having at its inner front end a valveless aperture through which it is adapted to discharge into the reservoir, and a plunger arranged within the cylinder A', substantially as described.

2. In a syringe, the combination with a suitable reservoir provided with an apertured nipple at its front end, of a cap for closing said aperture, a cap for closing the rear end of the reservoir, a cylinder A' on said cap, said cylinder being of smaller dimensions than the reservoir, and apertured and communicating only with the reservoir at its front or inner end, and a plunger in said cylinder A', said plunger not operating directly upon the liquid, but through the medium of air, which it compresses; substantially as described.

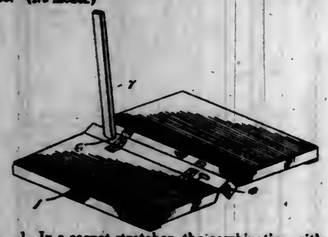
586,658. SHEET-METAL SEAM OR JOINT. GEORGE M. GROSS, Chicago, Ill. Filed Nov. 20, 1896. Serial No. 612,911. (No model.)

Claim.—1. A sheet-metal seam or joint, comprising in combination, a sheet of metal formed with a serpentine fold 3, a flat extension 4, in a plane removed from but parallel with the main sheet, and an open return-fold 5, a separate sheet formed with a return-fold 6, and a locking-strip 9, fitting between the fold 6 and extension 4, substantially as set forth.



2. A sheet-metal seam or joint, comprising in combination, a sheet of metal formed with a serpentine fold 3, a flat extension 4, in a plane removed from but parallel with the main sheet, and an open return-fold, a separate sheet formed with a return-fold 6, and a sheet formed with a right-angle bend or flange 9, the parts fitting together to form a seam, substantially as herein described.

586,659. CARPET-STRETCHER. EDWIN H. GURNEY and HIRAM D. LARNED, Chagrin Falls, Ohio. Filed Feb. 24, 1897. Serial No. 624,765. (No model.)



Claim.—1. In a carpet-stretcher, the combination with sections 1 and 2 having teeth on their under side, an interposed section hinged to the said outer sections at the upper edge of one and lower edge of the other, the inner edges of said outer sections being beveled inwardly from their connection with the interposed section, and a lever secured to the interposed section, substantially as shown and for the purpose set forth.

2. In a carpet-stretcher, the combination with the sections or boards 1 and 2, of plates secured to the edges thereof and having teeth, a leverage-shaft or rock-bar hinged to said sections at the upper edge of one and the lower edge of the other, said sections being beveled inwardly from the hinges, and a bar or lever rigidly connected to the leverage-shaft or rock-bar, substantially as shown and for the purpose set forth.

3. In a carpet-stretcher, the combination with the sections 1 and 2 having teeth at the outer edge of their under side, a leverage-shaft or rock-bar hinged to said sections at the upper edge of one and lower edge of the other, the sections being beveled inwardly from the hinges: together with a spur attached to the near inner edge of one section, and depending portion formed on the rock-bar adjoining said spur, substantially as shown and for the purpose set forth.

586,660. NUT-LOCK. HENRY K. HALLOPETER, Danville, Pa. Filed Feb. 1, 1897. Serial No. 621,379. (No model.)

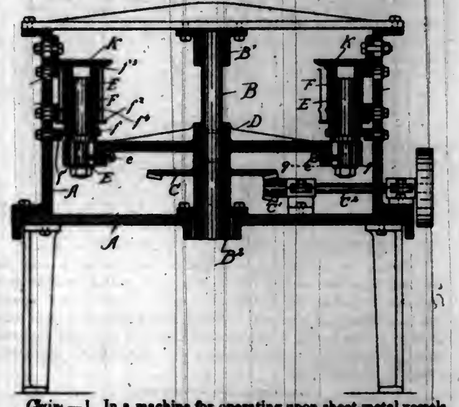


Claim.—1. A nut-lock comprising a nut, a locking-pin movable therein and provided with teeth, an operating-screw formed with projections for engaging the teeth of the locking-pin, and moving the latter, in combination with a bolt upon which said nut is adapted to be adjusted and be secured in said adjustment by the engagement of the locking-pin with the threads of said bolt, substantially as described.

2. A nut-lock comprising a nut, a locking-pin movable therein and provided with transverse teeth upon one of its sides, an operating-screw formed with longitudinal projections for engaging the teeth of the locking-pin to effect the movement of the same, in combination with a bolt upon which said nut is adapted to be adjusted, the locking-pin engaging the threads of said bolt for locking the nut thereon, substantially as described.

3. The combination with a bolt, of a nut adapted to be adjusted thereon, said nut provided with a screw-threaded horizontal passage having a vertical passage communicating therewith, an operating-screw adapted to be positioned in the horizontal passage and provided with a screw-threaded head for engaging the screw-threads of said passage, and a locking-pin movable in the vertical passage and provided on one of its faces with teeth for engaging the longitudinal projections of the operating-screw, whereby when the latter is rotated the locking-pin is moved downwardly into engagement with the bolt for locking the nut thereon, substantially as described.

586,661. MACHINE FOR OPERATING ON SHEET-METAL VESSELS. EDWARD P. HOLDEN, Chicago, Ill. Filed Nov. 23, 1894. Serial No. 529,708. (No model.)



Claim.—1. In a machine for operating upon sheet-metal vessels, the combination with a series of individual vessel-supports, of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said supports and flange movable with respect to each other, substantially as described.

2. In a machine for operating upon sheet-metal vessels the combination with a vessel-support capable of revolution on its longitudinal axis of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said vessel-support and flange movable with respect to each other, substantially as described.

3. In a machine of the class described the combination with a series of individual vessel-supports shaped to enter the interior of and support the vessel of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said support and flange movable with respect to each other, substantially as described.

4. In a machine of the class described the combination with a series of vessel-supports each capable of revolution on its own axis, of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, and means for moving the vessel-support past the operating-flange, substantially as described.

5. In a machine of the class described the combination with the main support capable of revolution about its own axis, said support carrying a series of individual vessel-supports, and a flange concave in the direction of its length against which the vessel is held, substantially as described.

6. In a machine of the class described, the combination with the main support, and means for revolving it about its own axis, said support carrying a series of individual vessel-supports, each capable of revolution about its own axis, of a flange concave in the direction of its length against which each vessel is held, substantially as described.

7. In a machine of the class described, the combination of a series of movable, individual vessel-supports of two flanges each concave in the direction of its length against which the vessel is held, substantially as described.

8. In a machine of the class described the combination of a series of individual vessel-supports of a flange concave in the direction of its length against which the vessel is held, said flange made adjustable, substantially as described.

9. In a machine of the class described the combination of a series of individual vessel-supports, each capable of revolution on its longitudinal axis, of a flange concave in the direction of its length against which the vessel is held, said flange being adjustable, substantially as described.

10. In a machine of the class described, the combination with a main support, and means for revolving it about its own axis, said main support carrying a series of individual vessel-supports, and means for revolving the latter about their own axis, of one or more flanges each concave in the direction of its length past which the vessels are moved and against which they are held, said flanges being adjustable, substantially as described.

11. In a machine of the class described, the combination with a revolving main support, carrying a series of pins on its periphery, and each of said pins supporting a vessel-support, and means for revolving the latter on their longitudinal axis, of a flange concave in the direction of its length against which the vessel is held and past which it is moved, substantially as described.

12. In a machine of the class described the combination with a series of individual vessel-supports, each capable of entering the interior of the vessel which it supports, said support being of considerably less diameter than the diameter of the vessel whereby the latter will fit the support loosely, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

13. In a machine of the class described the combination with a series of individual vessel-supports, each capable of entering the interior of the vessel which it supports and each capable of revolution on its longitudinal axis, said support being of considerably less diameter than the diameter of the vessel whereby the latter will fit the support loosely, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

14. In a machine of the class described the combination of a series of individual vessel-supports, each provided with a flange for supporting one end of the vessel, and each entering the interior of the vessel supported, and another holding-flange for holding the opposite end of the vessel after it has been placed upon its individual support, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

15. In a machine of the class described, the combination with a series of individual vessel-supports, each provided with a flange for supporting one end of the vessel, and each entering the interior of the vessel supported, and a flange concave in the direction of its length against which and past which the vessel is moved of another holding flange or disk provided with means for bringing it against the opposite end of the vessel after the latter has been placed upon its support, substantially as described.

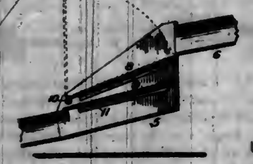
16. In a machine of the class described the combination with the main support carrying a series of individual supports each adapted to enter the interior of the vessel and each provided with a flange or disk for supporting one end of the vessel, means for revolving said individual supports on their longitudinal axes of a series of disks or flanges, one for each individual support, said disks or flanges provided with means for first carrying them away from the support until the vessel is placed thereon, and then to the support for holding the opposite end of the vessel, and a flange concave in the direction of its length against which the vessel is rolled, substantially as described.

17. In a machine of the class described the combination of a main shaft carrying a main support, the latter carrying a series of pins on its periphery, each pin carrying a vessel-support, and each vessel-support carrying a flange for supporting one end of the vessel, a collar on the main shaft keyed thereto and adapted to revolve therewith and with the main support and provided with a series of pivoted radial arms, each carrying a disk on its outer end for supporting the opposite end of the vessel, a cam-track for engaging the outer ends of the arms and adapted to move the said disks toward or from the vessels as the main support is revolved, and a flange concave in the direction of its length against which the vessel is rolled, substantially as described.

18. In a machine of the class described, the combination with a main support provided on its periphery with a series of pins carrying individual cam-supports, said pins capable of lateral adjustment, and an operating-flange against which and past which the vessel is moved, substantially as described.

586,662. STRAINER FOR CISTERNS. ISABELLA HOLMES, New Orleans, La. Filed May 26, 1896. Serial No. 593,493. (No model.)

Claim.—The combination with a cistern, an eaves-trough and a pipe connecting said trough and the interior of said cistern, of a strainer in said pipe, the same consisting of a casing having an open upper end, inwardly-projecting flanges on said casing, a screen of fine mesh resting upon said flanges and a screen of coarse mesh pivotally mounted in said casing at a point above the screen of fine mesh, substantially as and for the purpose described.



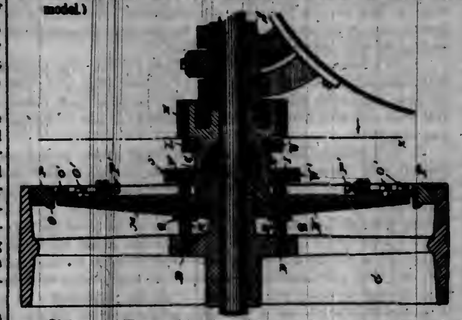
586,663. HINGE. RICHARD W. HUBBARD, Ashtabula, Ohio. Filed June 18, 1896. Serial No. 595,985. (No model.)



Claim.—1. A hinge comprising two sections or members the shanks of which have flat inner faces, said shanks bent outwardly so that they lie parallel and slightly placed apart when the hinge is closed, the shanks provided with fin-shaped toothed projections on their upper and lower edges, said fins inclining slightly outward and their teeth extending inward from the end of the shank.

2. The combination with a hinge, the sections of which are provided with a shank, of a centering-plate adapted to be temporarily interposed between said shanks, substantially as and for the purpose described.

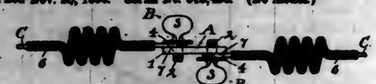
586,664. TRACTION-ENGINE CLUTCH MECHANISM. EDWARD HUBER, Marion, Ohio. Filed May 25, 1896. Serial No. 592,915. (No model.)



Claim.—1. The combination with a traction-engine driving-shaft and a balance-wheel fixedly secured thereto, a hub F carrying integral therewith, at one end, a driving-pinion, and at the other end a friction-clutch, said hub having on it, in a guide, an adjusting-collar for the hub itself, and being further provided with a cylindrical portion upon which is slidingly supported a second collar carrying pins which form a positive clutch, the pins connected to the sliding collar being slidingly supported in bearings in the frame of the friction-clutch, and the balance-wheel having bearings in which the pins engage, substantially as set forth and described.

2. The combination with a traction-engine driving-shaft and a balance-wheel fixedly secured thereon having an inwardly-extending hub, the hub F having its inner end loosely sleeved upon the driving-shaft and its outer end sleeved upon the inwardly-extending hub of the balance-wheel, a driving-pinion integral with the hub F at one end, and a friction-clutch integral with the hub at the other end, said hub having on it, in a guide, an adjusting-collar for the hub itself, and being further provided with a cylindrical portion upon which is slidingly supported a second collar carrying pins which form a positive clutch, the pins connected to the sliding collar being slidingly supported in bearings in the frame of the friction-clutch, and the balance-wheel having bearings in which the pins engage, the supporting-arms T, guide-shafts slidingly supported in bearings in said arms, connections between the guide-shafts, and the collars upon the hub F, and levers secured to the guide-shafts, substantially as described.

586,665. CONNECTOR FOR ELECTRICAL CONDUCTING-WIRES. SAMUEL P. HULL, Poughkeepsie, and JULIAN DU BOIS, Albany, N. Y. Filed Nov. 25, 1896. Serial No. 613,498. (No model.)



Claim.—1. A connector for electrical conducting-wires, consisting of a plate, 1, possessing electrical conductivity, and binding-screws, 3, arranged at opposite ends of said plate and each having a flat circumferential flange, 4, at the inner end of its head; said connector being arranged to swing freely with any swaying movement of said wires, as specified.

2. In a connector for electrical conducting-wires, the combination of a metallic plate, 1, that has electrical conductivity and is only fastened to said conducting-wires, binding-screws, 3, fitted to screw into the opposite ends of said plate, and metallic washers, 5, which engage on the stems of said screws and effect a separation of different conducting-wires; said connector being adapted to swing with a swaying movement of the conducting-wires, as specified.

3. The combination, with a connector, A, provided with binding-screws, 3, which have at their inner end a flat circumferential flange, 4, adapted to form an electrical contact with a conducting-wire, of electrical conducting-wires, C, which are each provided with a hook, 7, that is adapted to engage with the stem of a binding-screw and be clamped to the plate of said connector; whereby conducting-wires which differ in size can be electrically connected together, as specified.

586,666. TROUSERS-PROTECTOR. JOHN B. NEUENDORFF, San Antonio, Tex. Filed Sept. 17, 1896. Serial No. 606,168. (No model.)



Claim.—1. In a trousers-protector, the combination of a clip, reversible to fit over the top edge of the shoe or the pull-strap of the shoe, a locking device secured to the clip to engage the shoe or strap to lock the clip thereto, a clip adapted to be secured to the bottom edge of the trousers-leg, and a flexible strap adjustably connecting the clips, substantially as described.

2. In a trousers-protector, the combination of two clips adapted to be attached respectively to a shoe and trousers-bottom, and a flexible strap connecting said clips, one of the clips being made detachable from said strap and reversible, substantially as and for the purpose described.

3. In a trousers-protector, a clip comprising a body portion, an integral hook extending substantially parallel thereto, spaced ears projecting from the body of the hook, a clamping-lever also having spaced ears which fit between the ears on the body portion, a pin extending through the ears of the body portion of the lever and serving as a pivot for the lever, and a spring attached at one end rigidly to the body of the clip and having its free end arranged between said body and lever, and adapted to be forced into engagement with the hook through an opening in the body of the clip, combined with a strap connected at one end to the said pivot-pin between the ears of the lever, and a clip adjustably connected to the opposite end of the strap, substantially as described.

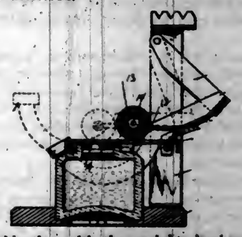
586,667. RANGE-FINDER FOR FIELD-GLASSES. JOHN W. PRICE, Attica, Ohio. Filed Sept. 1, 1896. Serial No. 604,572. (No model.)



Claim.—A range-finder for field-glasses consisting of a flat plate rigidly attached to the adjusting-screw near the rear end thereof, and a fixed pointer secured to the frame of the glasses and adjacent to said plate, said plate being subdivided to correspond with the focus of the glasses.

586,668. SELF-CLOSING INKSTAND. ANDREW K. SAGEN, La Crosse, Wis. Filed Sept. 26, 1896. Serial No. 607,063. (No model.)

Claim.—1. In an inkstand, the combination with a base having a socket, an ink-bottle situated within said socket, uprights upon said base, a pivoted apertured plate secured to said uprights and adapted to rest upon said bottle, of a vibratory frame pivoted to said uprights and having a spring-arm provided with a rotatable valve resting upon said apertured plate and adapted to close the aperture therein and a forwardly-extending arm and finger-piece, substantially as described.



2. The combination with the uprights having a pivoted plate provided with an aperture, a stop upon said plate, of the vibrating frame having a cross-piece to engage said stop, a spring-arm and valve to engage said plate, and a forwardly-extending arm provided with a finger-piece, substantially as described.

3. The combination with the base having the uprights and an ink-bottle, of a pivoted plate having an opening and resting upon said ink-bottle, and a vibrating frame having a spring-arm and ball and a finger-piece, substantially as described.

586,669. AIR-COMPRESSOR. ALFRED SHEDLOCK, Jersey City, N. J. Filed Oct. 16, 1891. Serial No. 408,861. (No model.)

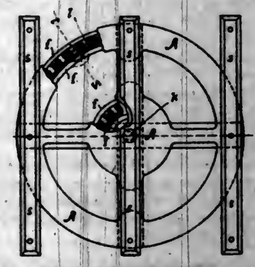


Claim.—1. The combination, substantially as set forth, of two cylinders, their pistons, a driving-cam, one half of which has a gradually-increasing rise, and the remaining half of which falls and then rises again, and connecting mechanism by which the cam reciprocates the pistons, the cylinder and pistons being diametrically opposed relative to the cam.

2. The combination, substantially as set forth, of the flanged or cup-shaped plates forming the casing, the cylinders secured to opposite sides thereof, their pistons, the standards on the pistons and the guide rod or rods rigidly secured to one of the standards of each piston and working in ways or apertures in the corresponding standard of the other piston, the driving-shaft, the cam carried thereby within the casing, and connecting mechanism by which the cam reciprocates the pistons.

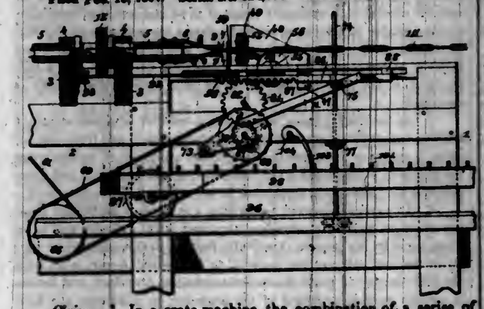
3. The combination, substantially as set forth, of a casing, the opposite cylinders mounted thereon, their pistons, the standards on the pistons and the guide rod or rods rigidly secured to one of the standards of each piston and working in ways or apertures in the corresponding standard of the other piston.

586,670. FIFTH-WHEEL FOR WAGONS. MATTHEW M. SHERWOOD, Scranton, Pa. Filed Feb. 1, 1896. Renewed Jan. 15, 1897. Serial No. 619,389. (No model.)



Claim.—In a fifth-wheel for vehicles the combination of the circular plate A having the annular flat surfaces *a* and *a'* concentric and opposed to two corresponding concentric grooves *b* and *b'*, the said grooves having edges *f f* turned inwardly to retain antifriction-balls *l l* &c. and one of the said edges adapted to be bent outward for admitting and removing said balls, and the balls *l l* arranged within said grooves but extending above the level of the said edges, for the purpose and in the manner shown, substantially as specified.

586,671. CRATE-MACHINE. FRANK B. SEITZ, Defiance, Ohio. Filed Feb. 18, 1897. Serial No. 624,011. (No model.)



Claim.—1. In a crate-machine, the combination of a series of wire-twisters, a pair of presser-rollers extending across the machine in advance of the twisters, means to adjust the rollers toward or away from the twisters, a rake-bar to carry the slats successively to the presser-rollers, and mechanism to operate the twisters and rake-bar intermittently and alternately, substantially as described.

2. In a crate-machine, the combination of a series of wire-twisters, a pair of presser-rollers, a rake-bar to carry the slats successively to the presser-rollers, mechanisms to operate the twisters and the rake-bar, and means connected to the rake-bar to automatically control the twister-operating mechanism, substantially as described.

3. In a crate-machine, the combination of a series of wire-twisters, and mechanism to rotate them, of a governing-gear to actuate a clutch mechanism to stop the twister-operating mechanism, substantially as described.

4. In a crate-machine, the combination with the driving-shaft, a driving-pulley loosely mounted thereon and having a clutch member, and a clutch member rigid on the shaft, of a pivoted shipping-lever engaging the pulley, a sliding bar connected to the shipping-lever, a series of wire-twisters operatively connected to the driving-shaft, a pair of presser-rollers, a reciprocating rake-bar to carry the slats successively to the rollers, and a rope connected to the rake-bar and the sliding bar to operate the latter to cause the engagement of said clutch members, substantially as described.

5. In a crate-machine, the combination with the driving-shaft, the driving-pulley loosely mounted thereon and having a clutch member, and a clutch member rigid on the shaft, of a series of wire-twisters operatively connected to the driving-shaft, a governing-gear to control the movement of the twisters, said gear having a projection on one of its faces, a pivoted sliding bar having an inclined face at one end arranged in the path of travel of said projection, a pivoted shipping-lever connected to the other end of the sliding bar and engaging the driving-pulley, a pair of presser-rollers, a reciprocating rake-bar to carry the slats to the rollers, and a cord connecting the rake-bar and the sliding bar to rock the latter and slide it endwise, substantially as and for the purpose specified.

6. In a crate-machine, the combination of a series of wire-twisters, a pair of presser-rollers, a reciprocating rake-bar to carry the slats successively to the presser-rollers, a carriage movable on the frame of the machine and adapted to engage the web to carry it forward as it is formed, devices connected to the rake-bar to intermittently move the carriage, and mechanism to intermittently and alternately move the twisters and the rake-bar, substantially as described.

7. In a crate-machine, the combination of a carriage to engage and carry forward the web, said carriage having a series of adjustable pins, a reciprocating rake-bar, dogs pivoted to the rake-bar to engage said pins, and means to intermittently reciprocate the rake-bar, substantially as described.

8. In a crate-machine, the combination of a carriage movable on the frame of the machine and adapted to engage and carry forward the web and having a series of holes formed in its side bars, a series of pins movably inserted in said holes, a reciprocating rake-bar supported on the machine-frame, dogs pivotally connected to the rake-bar with their ends downwardly curved and normally supported out of engagement with said pins but adapted to engage them when the rake-bar is moved forwardly, whereby the carriage moves a less distance than the rake-bar, and locking-dogs pivoted on the frame and engaging said pins to prevent back movement of the carriage, substantially as described.

9. In a crate-machine, the combination with the twisting mechanism, the presser-rollers, and the reciprocating rake-bar, of a carriage provided at its front end with vertical standards, a cross-bar adjustably connected to said standards, vertical projections on said bar adapted to engage one of the slats of the web, whereby the web is carried forward from the twisting devices and maintained in a taut position, substantially as described.

10. In a crate-machine the combination, with a series of wire-twisters, a pair of presser-rollers, a driving-shaft operatively connected to the wire-twisters, and a driving-pulley loosely mounted on the driving-shaft, of a reciprocating rake-bar to carry the slats to the presser-rollers, a sprocket-wheel attached to the driving-pulley to move with it, rack-bars connected to the rake-bar, gears engaging the rack-bars, and gearing interposed between said gears and the sprocket-wheel to transmit movement from the latter to the former, substantially as described.

11. In a crate-machine, the combination with a series of wire-twisters and a pair of presser-rollers, a driving-shaft operatively connected to the wire-twisters, and a driving-pulley loosely mounted on the driving-shaft, of a reciprocating rake-bar to carry the slats to the presser-rollers, a sprocket-wheel attached to the driving-pulley to move with it, rack-bars connected to the rake-bar, the gears engaging the rack-bars, gearing interposed between said gears and the sprocket-wheel to transmit movement from the latter to the former to move the rake-bar forward, and a spring connected to the rake-bar and a fixed part of the frame to move the rake-bar backward, substantially as described.

12. In a crate-machine, the combination with a reciprocating rake-bar, rack-bars connected to said rake-bar and operatively engaged with a revoluble gear, a pinion rigidly mounted on a shaft to engage said gear, a sprocket-wheel loosely mounted on said shaft, said sprocket-wheel and pinion each having a clutch member adapted to engage with each other, gearing connecting said sprocket-wheel and the main driving-shaft to transmit movement from one to the other, a pivoted shipping-lever engaging said sprocket-wheel, an operating-lever connected to said pivoted lever to throw the clutch members of the sprocket-wheel and pinion into engagement, and a device carried by the rack-bar to engage the shipping-lever to operate it to disengage the clutch members, substantially as described.

13. In a crate-machine, a wire-twister consisting of a tube through which the wires pass, spring-jaws secured at opposite points at one end of said tube, the free end portions of the jaws converging and normally engaging each other, the ends of said jaws being reversely curved, and each jaw provided with two openings for the passage of the wire, one of the openings being in the converging portion of the jaw and the other opening in the curved end, substantially as described.

14. In a crate-machine, a wire-twister consisting of a tube, spring-jaws secured at one end of the tube and each jaw provided with two openings for the passage of the wire, and a spring spool-holder at the other end of the tube in which the spools of wire are journaled and frictionally engaged by the sides of the spool-holder, for the purpose specified.

15. In a crate-machine, the combination with a series of wire-twisters, of a pair of presser-rollers journaled in bearings on slidable supports, said rollers being adjacent to and in advance of the ends of the twisters, means to adjust the slidable supports to move the rollers relatively to the twisters, and a reciprocating rake to carry the slats from the twisters to the presser-rollers, substantially as described.

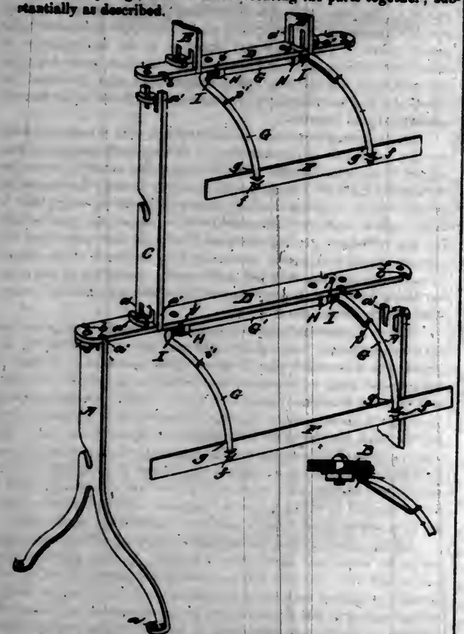
16. In a crate-machine, the combination with a series of wire-twisters, of plates slidably supported on the frame, said plates having vertical slotted openings, spring-actuated bearings in said slots, presser-rollers journaled in said bearings, cams mounted to work in openings in the plates to adjust said plates longitudinally to vary the distance between the presser-rollers and the wire-twisters, and a reciprocating rake to carry the slats from the twisters to the rollers, substantially as described.

17. In a crate-machine, the combination with the wire-twisters and presser-rollers, of a reciprocating rake-bar to move the slats from the twisters to the rollers, a carriage to support and carry the web from the rollers as it is formed, devices interposed between the rake-bar and the carriage, whereby the latter is moved a less distance than the former, and means to adjust the extent of movement of the carriage, substantially as described.

586,672. ROLL-PAPER CUTTER. CHARLES O. SCHERMER, St. Louis, Mo., assignor to Charles A. Davis and Arthur B. Bolt, same place. Filed Oct. 21, 1896. Serial No. 609,511. (No model.)

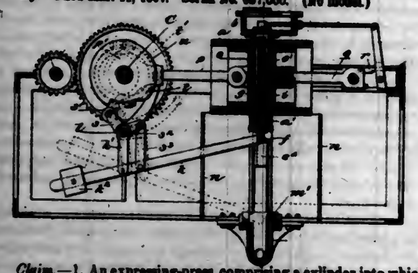
Claim.—1. In a roll-paper cutter, the combination with a standard, which is formed of bar iron or steel, the lower end being bifurcated, the prongs formed by said bifurcation, being bent or spread laterally, the upper end of said standard being formed with prongs or projections, between which is a tongue having a T-head bent at an angle to the prongs, a cross-piece formed with notches to receive the prongs on the upper end of the standard, and a securing-bolt which passes through said cross-piece and the bent T-head of the standard; substantially as described.

2. The herein-described joint, between the standard and cross-piece of a roll-paper cutter, the same consisting of prongs and a bent tongue on one of said parts, the other of said parts being notched to receive the prongs, and a bolt for securing the parts together; substantially as described.



3. In a roll-paper cutter, the combination with the blade formed with an offset, of an arm to which said blade is secured, said arm being formed with a reduced portion, and a shoulder near one end, and a notch near said end on the side opposite the reduced portion, whereby, when said parts are assembled the end of the arm is inserted beneath the offset so that the blade fits against the shoulder the offset being adapted to be pressed into the notch: substantially as described.

586,673. EXPRESSING-PRESS. FREDERICK STITZEL, Louisville, Ky. Filed Mar. 11, 1897. Serial No. 627,000. (No model.)



Claim.—1. An expressing-press, comprising a cylinder into which the material to be treated is fed, a plunger therein, a press-box interposed between said plunger and cylinder and containing the substance to be acted upon by it, means to reciprocate said press-box to bring it into position for action of the plunger and means for suddenly dropping said press-box to discharge the pressed material, substantially as described.

2. An expressing-press, comprising a cylinder into which the material to be treated is fed, oppositely-acting plungers, a press-box interposed between said plungers and containing the substance to be acted upon by them, means to reciprocate said press-box to bring it into position for action of the plungers and means for suddenly dropping said press-box to discharge the pressed material, substantially as described.

3. An expressing-press, comprising a cylinder, plungers arranged in said cylinder and moving toward and from one another, a press-box dividing said cylinder, means to reciprocate it and means for suddenly dropping the press-box from between the plungers to discharge its contents, substantially as described.

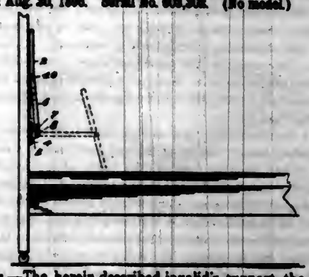
4. An expressing-press, comprising a cylinder and means to feed material thereto, plungers arranged in said cylinder and acting in opposite directions, a press-box adapted to be reciprocated vertically in said cylinder and between said plungers, a suspended lever having a changing fulcrum and connected with said press-box to raise and lower it, and means to actuate said suspending devices to give a sudden drop to the press-box to discharge its contents, substantially as described.

5. An expressing-press, comprising a cylinder, plungers arranged therein, means to reciprocate said plungers toward and from one another, a press-box arranged in said cylinder crosswise of and between the plungers, a suspended lever connected to said press-box, and cams adapted to vibrate said suspended lever, substantially as described.

6. An expressing-press, comprising a cylinder, a fluid-tight plunger arranged therein, a press-box arranged in the cylinder and to be acted upon by the plunger, a valvular feeding device adapted to supply to the said cylinder the material to be pressed, means to actuate the said plunger to press the material into the press-box, and means to cause a sudden dropping of the press-box to discharge the fluid and the solid matter from the press-box, substantially as described.

7. In an expressing-press, a sliding press-box, and means to cause it to fall suddenly and with a jarring action in combination with a compressing plunger and a cylinder, substantially as described.

586,674. BACK-SUPPORT. JOSEPH STRETON, East Orange, N. J. Filed Aug. 30, 1896. Serial No. 603,302. (No model.)



Claim.—The herein-described invalid's support, the same comprising a frame or back, a bracket connected to the head-board of a bed and provided with ears, a substantially V-shaped arm having a portion fitted in between the ears, a clamping-screw passing through said ears and the apex of the V-shaped arm and constituting a pivot for the latter, and additional clamping-screws passing through the diverged ends of the arm and into the frame or back, said parts being so disposed and related that any inclination can be given the arm in relation to the bed, said back or frame can be inclined, and the arm and back clamped in adjusted position, for said device is swung up vertically against the head-board and secured in folded arrangement.

586,675. BOLT-LOCK FOR COMMUNICATING DOORS. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Apr. 14, 1896. Serial No. 587,492. (No model.)



Claim.—1. A lock having a divided bolt, and a divided hub, each part of the hub being adapted to be moved independently of the other and to move only that part of the bolt with which it is in engagement, substantially as shown and described.

2. A lock having a bolt formed in two parts, and a hub formed in two parts, each independently movable of the other, an arm formed on each part of the hub and each having retracting and dogging engagement with a part of the bolt, whereby on a movement of one of the arms to retract one part of the bolt the arm on the other part of the hub will act to dog the other part of the bolt substantially as shown and described.

3. In a lock, the combination of a divided bolt, a divided hub each part of which is in engagement with a part of the bolt, and suitable means located in the path of travel of both parts of the bolt whereby when one part of the bolt is retracted the said means will act as a stop for the other part, substantially as shown and described.

4. In a lock, the combination of a divided bolt, a divided hub, each part of which is in engagement with a part of the bolt, and a pivoted lever having one end normally in the path of travel of both parts of the bolt and adapted when moved by one of the parts to act as a stop for the other part of the bolt, substantially as shown and described.

5. A lock having a divided bolt, a divided hub each part of which is in engagement with a part of the bolt, a series of teeth formed on the tail portion of each part of the bolt, and a pivoted lever formed at each end with teeth and arranged to normally have the teeth on one end in the path of travel of the teeth on the bolt, and adapted when moved by the teeth on either bolt to have the teeth on its other end dog the other portion of the bolt, substantially as described.

586,676. PADLOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Oct. 28, 1896. Serial No. 610,362. (No model.)

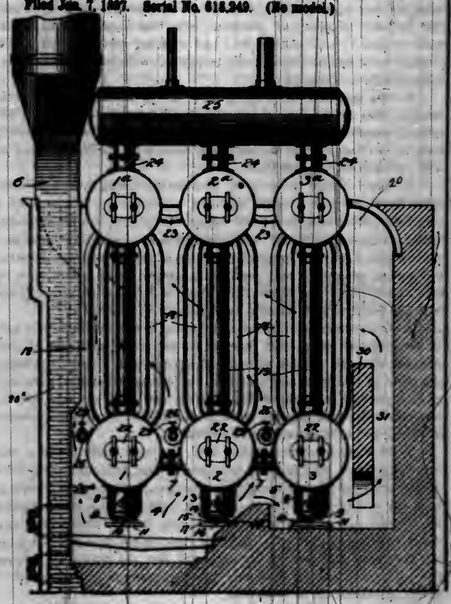


Claim.—1. In a padlock, the combination of a suitable shell, a shackle both ends of which slide in and out in said shell, a pivoted primary bolt engaging one end of the shackle, and carrying at the other end a fence which cooperates with the tumblers, a secondary locking-bolt engaging the other end of the shackle, and a swell on the primary bolt which engages the secondary bolt; said primary bolt also having a projection which receives impingement of the shackle as the latter is forced in, and thereby accomplishes the engagement of both bolts positively, as explained.

2. In a lock, the combination of tumblers pivoted upon a common center, and springs individually applied to the respective tumblers and having bearings at their ends and being of different length, to differentiate their resisting powers, as explained.

3. In a lock, the combination of the pivoted bolt, the tumblers controlling said bolt, and springs controlling the respective tumblers, some of which bear upon the free end of the bolt and others of which bear upon the pivot-boss of said bolt, for the purposes explained.

586,677. STEAM-BOILER. JOHN F. WARNFIELD, Green Bay, Wis. Filed Jan. 7, 1897. Serial No. 618,949. (No model.)



Claim.—1. The combination with a furnace, of a series of drums arranged transversely across said furnace and having contracted spaces between them, a second series of drums arranged over said first series, pipes connecting said upper and lower drums together, a partition or deflector arranged between the rear wall of the furnace and the rear one of said drums and having a passage under it, and an uptake arranged at the opposite end of said furnace whereby the heat and products of combustion will be compelled to pass under said first series of drums and to said uptake via the space between said partition and rear wall of the furnace, substantially as set forth.

2. The combination with a furnace, of a series of drums arranged transversely across said furnace and having contracted spaces between them, perforated air passages or chambers located between said drums, a second series of drums located over said first series, tubes connecting said upper drums with the lower ones, a deflector or partition arranged contiguous to the rear one of said drums and forming the passage 31 extending upwardly to the upper portions of said tubes, and an uptake arranged at a point remote from said partition, substantially as set forth.

3. The combination with a furnace, of a series of drums arranged transversely across said furnace, perforated air-chambers arranged between said drums and nearer to one drum than to the other, the perforations being located upon the side adjacent to the farther drum, a second series of drums located above said first series, and tubes connecting the two series of drums together, substantially as set forth.

4. The combination with a furnace, of a series of drums arranged transversely across said furnace, the perforated air-pipe 26 and the pipes 28 extending through the walls of the furnace and removably supporting said pipes 26, substantially as set forth.

5. The combination with a furnace, of a series of drums arranged transversely across said furnace, the necks 7 arranged on the exterior of said furnace and connecting said drums together, the perforated air-pipes 26 arranged in said furnace between said drums and being of less length than the distance between said necks 7, and the supporting-pipes 28 removably secured to said pipes 26, substantially as set forth.

6. The combination with a furnace, of a drum extending across said furnace, a second drum arranged over said first drum, a series of tubes connecting said drums together, and pipes located in the masonry of the furnace and connecting the ends of said drums together and supporting the upper drum, substantially as set forth.

7. The combination with a furnace, of a drum extending across said furnace and having a mud-drum at the end thereof, a second drum located over said first drum and being connected thereto by tubes arranged within the furnace, and a pipe shielded from the direct action of the heat and connecting said drums together at a point substantially over said mud-drum, substantially as set forth.

8. The combination with a furnace, of a drum extending across said furnace and having its end protruding therefrom, a mud-drum depending from said protruding end, a second drum extending across the furnace over and above said first drum and being connected thereto by tubes located within the furnace, and a pipe connecting said upper drum with said lower drum and being located at a point substantially over said mud-drum, substantially as set forth.

9. The combination with a furnace, of a series of drums extending thereacross and being connected together, the intermediate drum of said series being fixed against movement, and antifriction devices supporting the other of said drums, substantially as set forth.

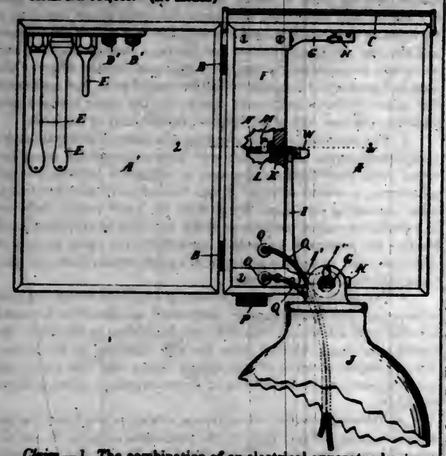
10. The combination with a furnace, of the abutment-walls 12, a series of drums extending across said furnace and having the mud-drums arranged over said abutment-walls, the plates 11 17, the plates 9 14 secured to the bottoms of said drums, the antifriction-rollers 10, the rib 16 and lugs 15, substantially as and for the purpose set forth.

586,678. HANDLE-BAR FOR BICYCLES. JOHN G. WALSH, New York, N. Y. Filed Aug. 4, 1896. Serial No. 601,634. (No model.)



Claim.—As an article of manufacture, a supplemental handle for bicycles and the like, consisting of a rearwardly-extending bar having at its rear a hand-grasp and at its front portion open-mouthed clips adapted to straddle and grip the customary handle-bar and to have removable and rocking bearing thereon, substantially as and for the purpose set forth.

586,679. COMBINED SYRINGE AND ELECTRICAL APPARATUS. LEONIDAS G. WORLLEY, Grand Rapids, Mich. Filed Dec. 7, 1896. Serial No. 614,695. (No model.)



Claim.—1. The combination of an electrical apparatus having a normally open circuit adapted to be closed by a weight, and a syringe acting as such weight and closing said circuit by the weight of the liquid in the bag thereof, and permitting said circuit to open as said liquid escapes therefrom, substantially as described.

2. The combination of an electric apparatus having a primary circuit normally held open by a spring, a lever closing said circuit, and a bag acting as a weight to close said circuit only while the liquid remains in said bag, substantially as described.

3. The combination of an electrical apparatus, consisting of a battery, an induction-coil, and a rheotome; a circuit-breaker in the exciting-circuit, and opened by a spring, and closed by a lever, and a syringe, having its bag attached to said lever to close the circuit by the weight of liquid in said bag, substantially as described.

4. In a combined syringe and electrical apparatus, a battery, an exciting-coil in circuit therewith, a rheotome and circuit-breaker in said circuit, an induction-coil and conductors, connected therewith, a spring to open the circuit-breaker, a bell-crank lever having a vertical arm to close said circuit-breaker, and a horizontal arm having a hook, and a syringe having its bag suspended from said hook, and operating said circuit-breaker by the weight of the liquid therein, substantially as described.

5. In an electrical apparatus, the combination of the case, consisting of two parts hinged together, an angle-plate located and hinged within one of said parts, and a battery and cooperating electrical devices, secured to the under side of said angle-plate and normally protected and concealed thereby when the case is open, substantially as described.

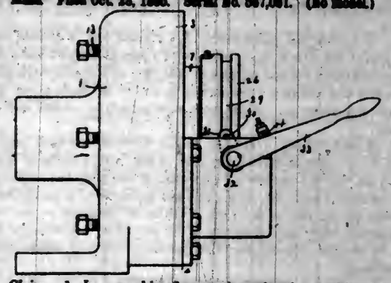
6. In a combined syringe and electrical apparatus, the combination of the case, consisting of two parts hinged together, nipples within one of said parts for supporting the syringe-nozzles, an angle-plate hinged within one side of the other part of the case, of such size relatively thereto as to leave a compartment within the latter for the syringe-bag, and electrical devices protected and wholly supported by the angle-plate, substantially as described.

7. In an electrical apparatus, the combination of a battery, an induction-coil, a rheotome, a contact-plate, a movable contact, a spring connected with said movable contact for holding the circuit normally open, and a lever connected with said movable contact for closing said circuit.

8. In an electrical apparatus, the combination with the case, and an angle-plate hinged therein, of electrical generating and distributing devices, embodying a generator, a movable contact, a contact-plate, and a spring connected with said movable contact for holding the circuit normally open, all secured to the inner surface of and protected by said angle-plate, and a weight-operated bell-crank lever connected with said movable contact for closing the circuit.

9. In a combined syringe and electrical apparatus, a rectangular case in two parts and hinged, an angle-plate, having arms hinged to one of said parts, a battery, induction-coil, rheotome, and circuit-breaker mounted within the angle of said plate, a lever and spring attached to said plate to operate said breaker, said lever having a vertical arm operating the breaker and a horizontal arm having a hook, and a syringe having a bag suspended from said hook, and closing said breaker by means of the weight of liquid therein, substantially as described.

586,680. WIRE-SWAGING MACHINE. LEROY COOK, Worcester, Mass. Filed Oct. 22, 1895. Serial No. 567,081. (No model.)



Claim.—1. In a machine for swaging wire the combination with a rotating head and swaging-dies carried by said head, of spindles journaled in said head, levers operatively connected with said dies and pivoted on said spindles between their journaled bearings, with the axis of said levers eccentric to the axis of said journaled bearings, means for rocking said levers on said spindles and means for rotating said spindles, whereby the fulcrums of said levers are varied, substantially as described.

2. In a machine for swaging wire the combination with a pair of swaging-dies, of a pair of rocking levers operatively connected with said dies and pivoted on rotating spindles eccentrically to their axis of rotation, rotating spindles held in journaled bearings eccentrically to the axes of said levers and mean for rotating said spindles, substantially as described.

3. In a machine for swaging wire, the combination with a rotating head and ring concentric with and inclosing said head, and provided with a series of cam-surfaces, of swaging-dies carried by said rotating head, levers fulcrumed on said head and operatively connected with said dies, rolls carried by the free ends of said levers, in contact with said ring and said cam-surfaces and means for changing the fulcrums of said levers, whereby the swaging action of said dies is varied, substantially as described.

4. In a swaging-machine, the combination with a rotating head and shell or case inclosing said head, of swaging-dies carried by said head, spindles journaled in said head, levers pivoted on said spindles eccentrically to the axis of said spindles and operatively connected with said dies, means for intermittently rocking said levers, cylinders attached to said spindles and provided with spiral slots, a sliding plate carrying studs entering said slots and means for moving said plate, whereby said spindles are rotated and the fulcrums of said levers changed, substantially as described.

5. In a wire-swaging machine, the combination with swaging-dies actuating-levers operatively connected with said dies, said levers being pivoted upon spindles eccentrically to their axes, cylinders carried by said spindles and provided with cam-slots, a sliding plate, studs carried by said sliding plate and entering said cam-slots and a pivoted lever-handle operatively connected with said sliding plate, substantially as described.

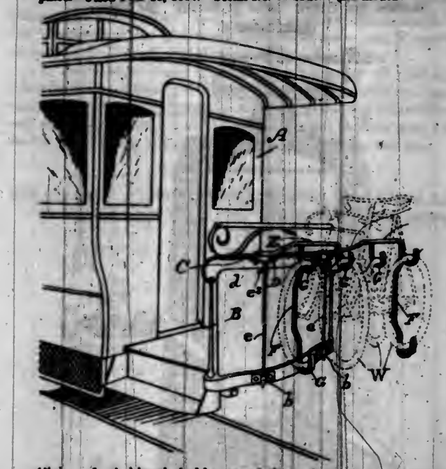
6. In a machine for swaging wire, the combination of a pair of swaging-dies, mechanism for actuating said dies and comprising a fulcrumed member and means by which the fulcrum of said actuating member is changed, and the action of said dies is thereby varied at will, substantially as described.

7. In a machine for swaging wire the combination with a framework provided with a flange inclosing a cylindrical chamber, of a ring held within said flange and capable of sliding in a line parallel with its axis and provided with cam-surfaces, a rotating head concentric with said ring, swaging-dies held in said head, die-operating mechanism carried by said head and arranged to be acted upon by said cam-surfaces and means for sliding said ring within said flange in a line parallel with its axis, substantially as described.

8. In a machine for swaging wire, the combination with a pair of swaging-dies of a lever operatively connected with one of said swaging-dies and pivoted at one end on a spindle, a spindle forming the pivot of said lever and journaled in bearings eccentric to the axis of said pivoted lever, means for rocking said lever on said spindle, and means for rotating said spindle in order to change the fulcrum of said lever, substantially as described.

9. In a machine for swaging wire, the combination with a pair of swaging-dies, of a lever pivoted at one end and operatively connected with one of said swaging-dies, means applied to said lever to rock the same on its pivot, an abutting surface on said lever opposite its pivoted end, a fixed opposing abutting surface with the normal space between said abutting surfaces just enough to allow the rocking motion of said lever to actuate said die, and means for varying the position of the pivot of said lever whereby it is thrown out of action, substantially as described.

586,681. BICYCLE-HOLDER. GEORGE W. DOUGLAS, San Francisco, Cal., assignor to the Market Street Railway Company, same place. Filed Feb. 18, 1897. Serial No. 624,102. (No model.)



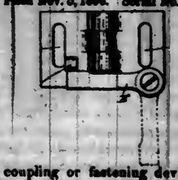
Claim.—1. A bicycle-holder, consisting of a pair of separated suspension-brackets, horizontally disposed and having, at their inner ends, pivotal connections with their support, whereby they may be swung in horizontal planes to extended and folded positions, a vertically-disposed hanger depending from each of said brackets, and hooks on said hangers in position and adapted to engage the bicycle by both wheels, to suspend it.

2. A bicycle-holder, consisting of suspension-brackets, horizontally disposed and having, at their inner ends, pivotal connections with their support, whereby they may be swung in horizontal planes to extended and folded positions, vertically-disposed hangers depending from said brackets, and hooks carried by the hangers in different vertical planes, and adapted to engage the bicycle-wheels both above and below, whereby the bicycle is suspended and carried.

3. A bicycle-holder, consisting of suspension-brackets, horizontally disposed and having, at their inner extremities, downwardly-extending rods forming hinge-pintles, said rods having square upper ends, clamps secured to the support and in which the pintles are mounted and vertically movable, said clamps having square sockets for engaging the square upper ends of the rods and holding the brackets in an extended or a folded position, as desired, a vertically-disposed hanger depending from each of said brackets, and hooks on said hangers in position and adapted to engage the bicycle by both wheels and to support it.

4. A bicycle-holder, consisting of suspension-brackets, horizontally disposed and having, at their inner extremities, downwardly-extending rods with square upper ends, guide-bearings below and above, said rods being vertically movable and axially rotatable in said bearings and clamps, and said clamps having square sockets for the engagement of the square upper ends of the rods, whereby the brackets may be held in an extended or folded position as desired, removable cross-pins in the rods to limit the lifting of the brackets when in the act of turning, vertically-disposed hangers depending from said brackets, and hooks on said hangers in position and adapted to engage the bicycle by both wheels and to suspend it.

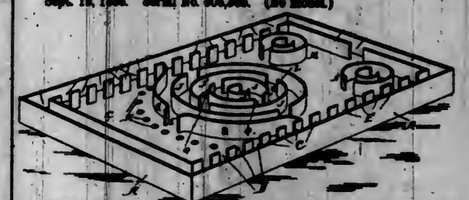
586,682. BALE-TIE. JOHN C. BEEBEE and FRANK M. CRANE, Newark, N. J. Filed Nov. 5, 1896. Serial No. 611,186. (No model.)



Claim.—1. A coupling or fastening device, for the ends of a bale-tie, consisting of two similar plates which are hinged together, each of said plates being provided with a slot or opening, and one of said plates being provided with an arm which is pivoted or hinged thereto, and which is adapted to be swung over the other plate when the said plates are extended, substantially as shown and described.

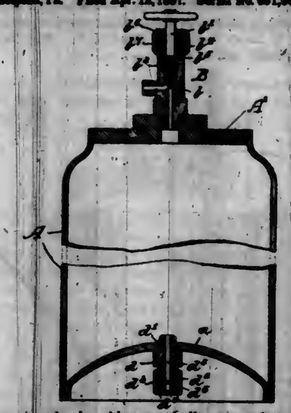
2. A coupling or fastening device, for the ends of a bale-tie, consisting of two similar plates which are hinged together, each of said plates being provided with a slot or opening, and one of said plates being provided with an arm which is pivoted or hinged thereto, and which is adapted to be swung over the other plate when the said plates are extended, and the plate opposite that to which the arm is hinged being provided with a lug or projection, substantially as shown and described.

586,683. PUZZLE. WILLIAM M. SEYER, Norristown, Pa. Filed Sept. 19, 1896. Serial No. 606,205. (No model.)



Claim.—In a puzzle, a rectangular tray, partitions running parallel with the outer wall, said partitions having thirteen openings formed in two parallel sides, one of the end partitions having a single opening formed therein of greater width than the first-named openings, a run-around formed in the center of the tray, said run-around being composed of circular partitions arranged concentrically and each partition having two openings formed therein at diametrically opposite points so that no two openings register, run-arounds formed in the two corners on the inner court, two curved partitions extending from each side around the central run-around, said partitions terminating a short distance from each other leaving an opening, the bottom of the tray having thirteen depressions formed around the last two partitions, thirteen larger depressions formed in the central run-around and still larger depressions formed in the corner run-arounds and the outer court of the central run-around three series of balls of different sizes adapted to fit in the depressions of corresponding size, substantially as described.

586,684. CARBONIC-ACID RESERVOIR. JAMES A. GRIFFITH, Philadelphia, Pa. Filed Apr. 12, 1897. Serial No. 631,695. (No model.)

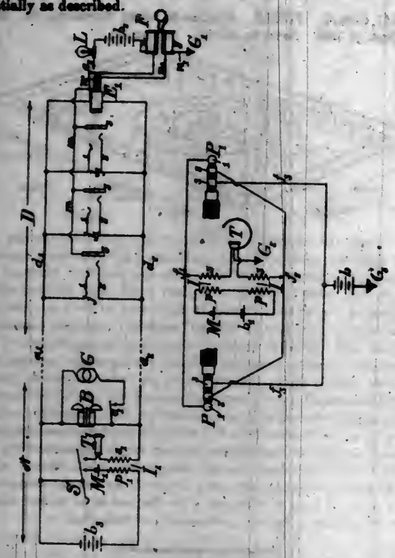


Claim.—A carbonic-acid-gas or similar reservoir A, provided with a head or casting A', having a detachable main valve B, with its accessories, the bottom of said reservoir concaved or bowed and perforated to receive a nipple d, reduced at the top and bottom and having an intermediate shoulder, a membrane or diaphragm and an internally-threaded cap d^2, provided with outlet-ports d^4, detachably fitted to one of the reduced portions of said nipple, substantially as and for the purposes described.

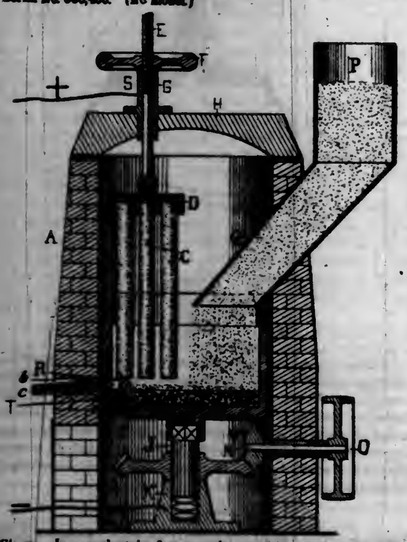
586,685. TELEPHONE-SWITCHBOARD. HARRISON V. HAYES, Cambridge, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed Jan. 29, 1897. Serial No. 621,168. (No model.)

Claim.—In a telephone-switchboard, the combination with a subscriber's line centering thereat, including the subscriber's line-signal mechanism, of first a registering mechanism of two movements; second an electrical mechanism the operation of which causes or permits the first movement of said registering mechanism to be taken, while its own operation for such purpose is caused by the operation

of the subscriber's line-signal mechanism; and third an electrical mechanism the operation of which causes or permits the second movement of said registering mechanism to be taken, while its own operation for such purpose is caused by the completion of the operator's answering-circuit; the two said electrical mechanisms being also so associated, that not only the effective operation of the second cannot take place without the previous operation of the first but the operation of the second prevents further operation of the first, substantially as described.

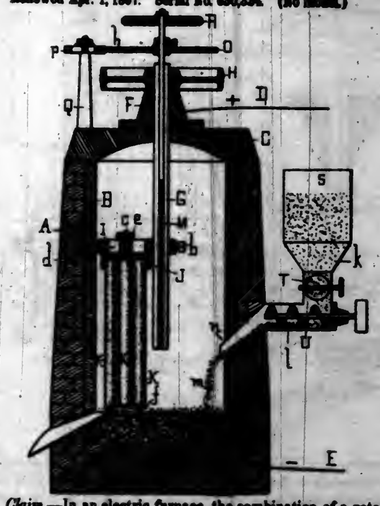


586,686. ELECTRIC FURNACE. ROBERT F. S. HEATH, Camden, N. J., assignor, by direct and mesne assignments, of forty-nine one-hundredths to Henry D. Hughes, Strafford, Pa. Filed Feb. 24, 1896. Serial No. 580,400. (No model.)



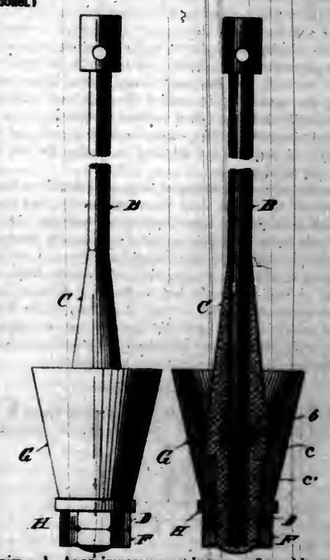
Claim.—In an electric furnace, the combination of depending stationary carbons, carbon-carrier, screw-rod for raising and lowering said carbons, a bearing for said screw-rod, a rotary melting-pot, a material-feeder, means for removing the carbid of calcium from the melting-pot, an antifriction vertical shaft for the rotary melting-pot, a bottom guide for the antifriction-shaft, bevel-gear of antifriction-shaft, bevel-gear of horizontal shaft, horizontal shaft, and means for actuating horizontal shaft, for the manufacture of the carbid of calcium.

586,687. ELECTRIC FURNACE. ROBERT F. S. HEATH, Camden, N. J., assignor, by direct and mesne assignments, of forty-nine one-hundredths to Henry D. Hughes, Strafford, Pa. Filed Feb. 21, 1896. Renewed Apr. 1, 1897. Serial No. 630,334. (No model.)



Claim.—In an electric furnace, the combination of a rotary carbon-carrying shaft, means for rotating said carbon-carrying shaft, a slotted arm or carbon-carrier adjustably fixed on the carbon-carrying shaft, a carbon-holder adjustably fixed in the slot of the carbon-carrier, and carbons depending from the carbon-holder, for rotating said carbons around the interior of said electric furnace, in the manufacture of the carbid of calcium.

586,688. PUMP FOR ACIDS OR OTHER LIQUIDS. JOHN T. MORROW, Great Falls, Mont. Filed Nov. 30, 1896. Serial No. 613,822. (No model.)



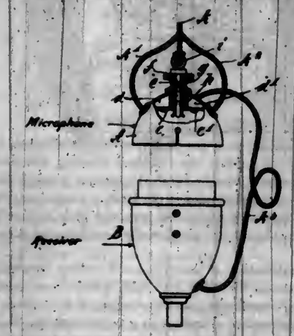
Claim.—1. As an improvement in pumps for acids and other liquids: the plunger-rod, B, screw-threaded at its lower portion, the nut *b'* thereon, the boss, C, incasing the lower end of the rod and the nut, and provided with an annular shoulder *c*, the plunger G upon the said boss and fitting against the shoulder *c*, and means for forcing and confining the said plunger against the said shoulder *c*, substantially as set forth.

2. As an improvement in pumps for acids and other liquids: the plunger-rod B, provided with an acid-proof boss incasing its lower end which has a shoulder *e* and means for securing an annular plunger upon or near the lower extremity of said boss, below the said shoulder, substantially as and for the purposes set forth.

3. As an improvement in pumps for acids and other liquids: the plunger-rod B, the boss C upon its end, provided with a shank *c'*, the plunger upon the said shank, and one or more nuts, D, screw-threaded onto the said shank, substantially as set forth.

4. As an improvement in plunger-rods for pumps for acids and other liquids, an interior rod of relatively stronger material, an incasing protective boss at its lower end, a protective material surrounding and extending upward upon the said rod above the said boss, and means for mounting and securing the plunger upon the said boss.

586,689. PENDENT MICROTELEPHONE. FRANZ MÜLLER, Berlin, Germany. Filed Dec. 12, 1896. Serial No. 615,673. (No model.)



Claim.—1. In a pendent microtelephone consisting of two separable parts containing one the microphone and the other the telephone, and having one of said parts arranged below, and held by, the other, the combination with the upper part, of an automatic switch interposed between said part and the means for holding the whole microtelephone; and being adapted to be operated in one direction by a spring having a strength adapted to overcome the weight of said upper part, and in the other direction by the combined weights of the said upper and said lower part, for the purpose as described.

2. In a pendent microtelephone consisting of two separable parts containing one the microphone and the other the telephone, and having one of said parts arranged below, and held by, the other, the combination with the upper part, of two stationary contact-pieces arranged within the latter, and insulated one from the other, and a movable contact-piece adapted to put said other pieces into, and throw them out of, contact; said movable contact-piece being interposed between said upper part and the means for holding the whole microtelephone, and being adapted to be operated in one direction by a spring having a strength adapted to overcome the weight of said upper part, and in the other direction by the combined weights of the said upper and said lower part, for the purpose as described.

586,690. NICKEL-IN-THE-SLOT-MACHINE ATTACHMENT. JOSEPH FAUPA, Chicago, Ill., assignor of one-half to Gustav Hochrein, New Orleans, La. Filed Feb. 1, 1897. Serial No. 621,863. (No model.)

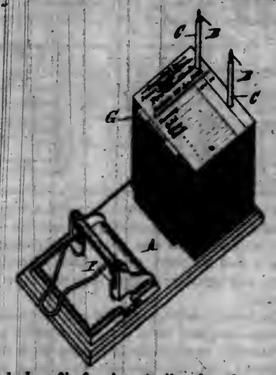


Claim.—1. In a device of the kind specified, a plate provided with slots, rearwardly-extending lugs on said plate, a plate carrying depending pockets mounted on said lugs, and a plate slidingly mounted between said first-named plates and provided with pockets adapted to be brought alternately into alinement with said slots and said pockets, substantially as described.

2. In a device of the kind specified, a plate provided with slots, rearwardly-extending lugs on said plate, a plate carrying depending pockets mounted on said lugs, a plate slidingly mounted between said first-named plates and provided with pockets adapted to be brought alternately into alinement with said slots and said pockets, and devices for operating said sliding plate, substantially as described.

3. In a device of the kind specified, a plate provided with slots, rearwardly-extending lugs on said plate, a plate carrying depending pockets mounted on said lugs, a plate slidingly mounted between said first-named plates and provided with pockets adapted to be brought alternately into alinement with said slots and said pockets, and devices for operating said sliding plate, consisting of a spring engaging said plate and adapted to hold the same so that the pockets therein are in alinement with said slots, and a spring-operated detent adapted to engage said plate to hold the same at the other limit of its movement to hold said pockets therein in alinement with said pockets in said rearmost plate, substantially as described.

586,691. FILE FOR DEPOSIT-SLIPS. JAMES H. RAND, North Tonawanda, N. Y. Filed Apr. 26, 1897. Serial No. 633,353. (No model.)



Claim.—1. In a file for deposit-slips, &c., the combination with a base and a pair of upright spindles secured thereto, of removable tubes or sleeves surrounding said spindles, and an approximately U-shaped tie or binding wire resting with its horizontal middle portion upon said base between the two spindles and having its branches confined between the spindles and said tubes, substantially as set forth.

2. In a file for deposit-slips, &c., the combination with a base and a pair of upright spindles secured thereto and having a flattened or recessed side, of removable tubes or sleeves surrounding said spindles, and an approximately U-shaped tie or binding wire resting with its horizontal middle portion upon said base between the two spindles and having its branches arranged in the spaces between the flattened sides of the spindles and their surrounding tubes, substantially as set forth.

586,692. FASTENER FOR GLOVES. FREEBORN P. RAYMOND, 2d, Newton, Mass. Filed Dec. 21, 1891. Serial No. 415,796. (No model.)



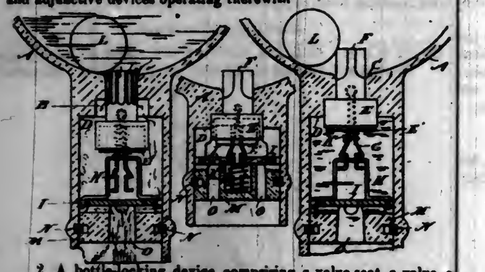
Claim.—1. In a fastener of the character specified, a resilient socket member comprising an eyelet having an upper or outer flange adapted to rest upon the surface of the material, and having its end upon the opposite side of said material bent outwardly into a recess formed by two plates of the piece E, the upper plate having a hole e^3 of a size somewhat larger than the diameter of the barrel of the eyelet, and the lower plate having an opening e^4, less in size than the diameter of the bore of the barrel of the eyelet, whereby the edge of the lower plate surrounding this hole extends inwardly beyond the wall of the barrel, as and for the purposes described.

2. The combination of an eyelet having a flange upon one surface of the material to which it is secured, and a conical piece E comprising superposed conical plates *e e'*, the latter being resiliently united at their outer edge, the upper plate having a hole of a size somewhat larger than the diameter of the barrel of the eyelet, the lower plate having a hole of less size than the diameter of the barrel, the said piece being united to the end of the eyelet opposite its flange by the turning of said end upon the under plate *e'* between it and the plate *e*, as and for the purposes described.

3. In a fastener of the character specified, a socket member comprising an eyelet having an integral cap or head *f* and an outwardly-extending flange *f'* with the socket-piece E formed of the two plates *e*, *e'*, the latter being resilient, as specified, and united to the open end of the eyelet as specified, the edge of the plate *e'* surrounding the hole therein, extending within the bore of the barrel of the eyelet, as and for the purposes described.

586,693. AUTOMATIC BOTTLE-LOCKER. JOSEPH J. REPPERGER, St. Louis, Mo. Filed Jan. 27, 1897. Serial No. 620,948. (No model.)

Claim.—1. A bottle-locking device comprising a valve-seat, a valve, a spring-catch normally supporting said valve away from its seated position, a support slidingly engaged by said catch in normal position and positively engaged by the same when the valve is seated, and adjunctive devices operating therewith



2. A bottle-locking device comprising a valve-seat, a valve, a double-legged spring-catch carried by said valve, a supporting means slidingly engaged by said spring-catch at or near the ends of its legs to support the valve above its seat, and positively engaging said supporting means to lock the valve when seated, a spring tending to close said valve, and means tending to open said valve in other than its locked position.

3. A bottle-locking device comprising a valve-seat, a valve, a spring-catch supporting said valve, having a shoulder, a support having an eye detachably engaged by said spring-catch in normal position, and positively engaging therewith in locking position, and a closing-spring for said catch-support and the valve, substantially as described.

4. A bottle-locking device comprising a bottle-neck having a valve-seat socket, a stem-opening and an enlargemeest above the socket, a valve having a stem and head fitting said stem-opening and socket respectively, a spring-supporting catch for said valve, a support for said catch having an opening detachably engaged by said catch in normal position, a spring acting upon said valve, tending to close the latter, and an interior weight tending to open said valve in a reversed position of the bottle.

5. An automatic-locking-bottle device comprising a bottle-neck provided with a valve-seat, having a cylindrical socket above said seat and enlarging above said socket, a valve having a cylindrical head slidingly fitted in said socket and matching said seat, a spring-catch consisting of a double-legged piece secured to said valve, a support embracing said spring-catch at or near the ends of said legs in detachable engagement to support the valve-head midway in said socket, and by positive engagement when the valve is seated, means to open said valve from its middle position, and a spring tending to return the valve after said opening.

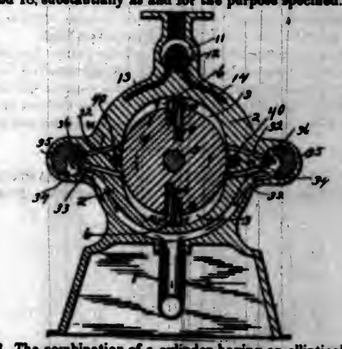
6. A bottle-locking device comprising a slidable valve, a spring-catch consisting of a double-legged shouldered support for said valve, a hanger having an eye normally embracing said catch below the shoulders, and bracing said catch when the valve assumes an extreme position, a spring for said valve and catch support to maintain the valve in its normal closing position, a socket to receive said sliding valve, and an operative weight to open the valve on reversal of the bottle under normal conditions.

7. An automatic-locking-bottle device comprising a bottle-neck provided with a valve-seat having a cylindrical socket B and an enlargement above said socket, a floatable valve having a stem and a cylindrical hollow head E slidingly fitted in said socket, a spring-catch G doubled to form legs with spreading ends, a support H slidingly engaged by said legs to support the valve midway in the socket, and positively engaged to lock the valve in seated position, a guard device above said valve provided with irregular passages, and an interior weight to open said valve from its normal position.

586,694. ROTARY STEAM-ENGINE. HERMAN F. RENZ, Canton, Ohio, assignor of one-half to George Hausman, same place. Filed Apr. 14, 1897. Serial No. 632,190. (No model.)

Claim.—1. In a rotary engine, the combination of a cylinder provided with an elliptical opening, a piston located within the cylinder and within the elliptical opening, said piston-wheel provided with pistons capable of radial movement, and steam-passages located upon the inner edges of the pistons and extended throughout their entire length, and ports leading from the steam-passages in the pistons to the side faces thereof, the disk-heads 16, provided with inlet-ports and the port 15, substantially as and for the purpose specified.

2. The combination of the cylinder 2, provided with an elliptical opening, a piston-wheel located therein, and pistons revolving with said piston-wheel and provided with the grooves 7, and 8, inlet-ports 15, and 14, formed in the cylinder, the disk 16, provided with the opening 31, and the flanges 19, and 20, the dividing-disk 21, spaced from the disks or heads 16, and the heads 25, secured to the ends of the cylinder and provided with the recesses 30, and the ports 17, and 18, substantially as and for the purpose specified.

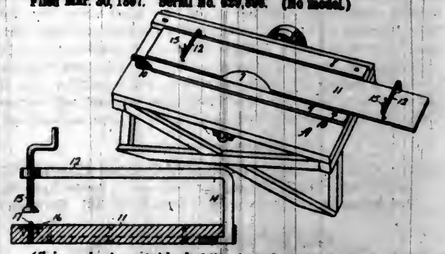


3. The combination of a cylinder having an elliptical opening, a piston-wheel located within the elliptical opening, pistons revolving with the piston-wheel provided with the grooves 7, and 8, ports 9, and 10, opening upon opposite sides of the pistons, heads located adjacent to the ends of the piston-wheel and provided with inlet-ports 17, and 18, and the ports 15, and 14, substantially as and for the purpose specified.

4. The combination of the cylinder 2, having located therein a piston-wheel, pistons revolving with said piston-wheel, impact chambers or grooves located upon the inner edges of the pistons, ports 10, leading from the impact chambers or grooves and opening upon the faces of the pistons, disks or heads located adjacent to the ends of the piston-wheel, and provided with inlet-ports 18, and the opening 31, the port 14, communicating with the opening 31, and the packing-bars 40, substantially as and for the purpose specified.

5. The combination of the cylinder 2, having located therein the piston-wheel provided with pistons, exhaust-ports 32, and 33, located upon opposite sides of the piston-wheel, impact-chambers formed in the inner edges of the pistons, ports 9, and 10, opening upon opposite sides of each of the pistons, the heads 16, provided with the inlet-ports 17, and 18, and the dividing-disk 21, substantially as and for the purpose specified.

586,695. SAW-TABLE GAGE. FRANK H. SAXTON, Bristol, Conn. Filed Mar. 30, 1897. Serial No. 629,866. (No model.)



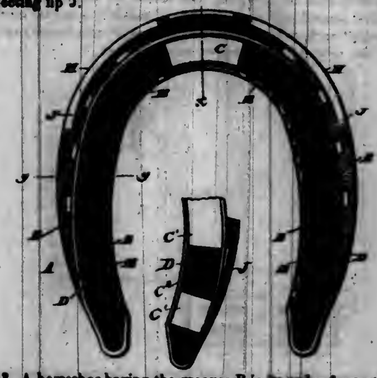
Claim.—1. A portable holding-board 11 for a saw-table, said board having a free and unobstructed work-holding face for work of indefinite length, straight and parallel edges and clamping devices for holding the work, said clamping devices being arranged to bear upon that side of the work which is opposite the work-holding face of said board substantially as described and for the purpose specified.

2. A saw-table gage which consists of a portable holding-board 11, having a free and unobstructed work-holding face, straight and parallel edges, and the bracket or clamp arm 12 extending up from its longitudinal back edge inside of the gaging-face of said edge, and provided with a clamp-screw at its front end for holding the work against the holding-face on said board, substantially as described and for the purpose specified.

586,696. SOFT-TREAD HORSESHOE. LIONEL D. SAXTON, Philadelphia, Pa., assignor to Louis Goodman, New York, N. Y. Filed Oct. 12, 1896. Serial No. 608,547. (No model.)

Claim.—1. A horseshoe having grooves in its under face with a separating downwardly-projecting neck, integral with the body of the shoe, and a horizontally-projecting rim with a depending lip, the walls of said grooves having depending lips.

2. A horseshoe having the grooves B in its under face extending from the heel to the toe portion thereof, the downwardly-projecting toe-piece C separating the front ends of said grooves, cushions held in said grooves, and the horizontal rim H having the downwardly-projecting lip J.



3. A horseshoe having the grooves B in its under face extending from the heel to the toe portion thereof, the downwardly-projecting toe-piece C separating the ends of said grooves, the horizontal rim H having the downwardly-projecting lip J, and the cushions of fibrous material and rubber held in said grooves.

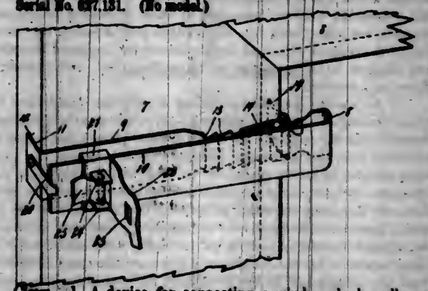
586,697. FENCE-STAY-FASTENING TOOL. GEORGE R. SECREST, Shenandoah, Ohio, assignor of one-half to John H. Burkholder, Ashland, Ohio. Filed July 31, 1896. Serial No. 601,209. (No model.)



Claim.—1. The clenching-tool for wire-fence-stay fasteners above described, comprising the pivoted arms having jaws which meet in the central line, and bending-jaws separated therefrom by a slot and which are shouldered and shut past each other to bend and clench the ends of the fastener, substantially as described.

2. The clenching-tool for wire-fence-stay fasteners above described, comprising the pivoted arms having jaws which meet in the central line, and grooved bending-jaws separated therefrom by a slot and which are shouldered and shut past each other to bend and clench the ends of the fastener, substantially as described.

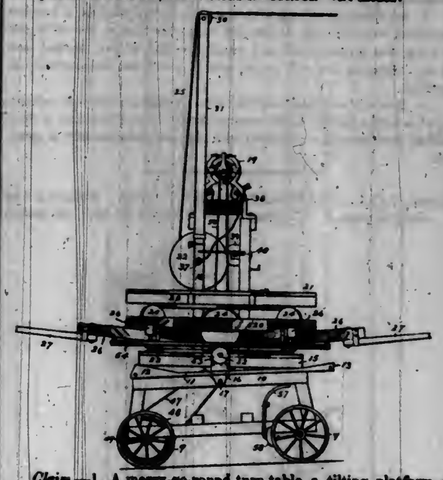
586,698. HOLDER OR SUPPORT FOR WINDOW-SHADE ROLLERS. BENJAMIN A. SLOCUM, Attleborough, Mass. Filed Mar. 13, 1897. Serial No. 627,131. (No model.)



Claim.—1. A device for connecting a window-shade roller or curtain-pole with a window-frame, said device consisting of a strip of sheet metal bent centrally to form two parallel sides, one of said sides being provided at its opposite ends with devices for connecting it with the side of a window-frame, said side being provided on the inner side thereof adjacent to one end with transverse teeth; a clamp through which said side of the holder is passed, and which is adapted to engage with the transverse teeth formed thereon, and the other side of the holder being provided with a longitudinally-adjustable sleeve or band which is provided with an outwardly-directed arm with which one end of a roller is adapted to be connected, substantially as shown and described.

2. The herein-described device for supporting shade-rollers or poles, the same comprising the combination with the frame of a window of two supports each of which consists of a strip of metal folded at 8, forming sides 9, and 10, said side 9, being provided with an extension 11, having teeth 12, and with teeth 13: a clamp 14, having an opening 15, and an angular head 16, provided with a set-screw 17, and said clamp being provided with a plate 18; said side 9 being also provided with a spring-clamp 20, and said side 10 being provided with an adjustable shade-holder, substantially as shown and described.

586,699. MARINE MERRY-GO-ROUND. ALFRED A. SOUMENS, Worcester, Mass., assignor of one-half to Hilmer Swanson, same place. Filed Nov. 9, 1896. Serial No. 611,511. (No model.)



Claim.—1. A merry-go-round turn-table, a tilting platform on which said turn-table is mounted and means for adjusting said turn-table relatively to said platform, substantially as described and for the purpose specified.

2. A merry-go-round turn-table, a tilting platform on which said turn-table is mounted and a truck for carrying the entire machine from place to place, substantially as described and for the purpose specified.

3. A merry-go-round turn-table, a truck for carrying the entire machine, a motor and means for connecting said motor with the mechanism for moving the truck and separate and independent means for connecting said motor with the mechanism for revolving the turn-table, whereby both the truck and the turn-table may be simultaneously operated or either may be operated while the other is at rest substantially as described and for the purpose specified.

4. A merry-go-round turn-table platform having a circular track fixed thereon, a motor-frame rising from the central portion of said platform and fixed thereon, an operator's platform supported on said motor-frame above said turn-table platform and bearing on its under side a companion circular track which is also fixed to said platform, and a turn-table frame surrounding said fixed motor-frame and mounted on wheels running between the said two fixed circular tracks to revolve the turn-table frame about the said fixed motor-frame, substantially as described and for the purpose specified.

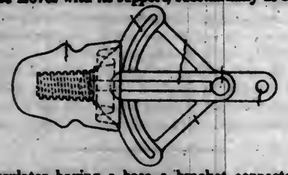
5. A merry-go-round turn-table arranged to revolve around a fixed supporting-frame, upper and lower circular tracks fixed to said supporting-frame for engaging respectively the upper and lower sides of the wheels of said turn-table, and radiating arms rigidly fixed to said turn-table and extending outwardly beyond the said upper and lower circular tracks whereby said tracks hold the turn-table against tipping when the said radiating arms are unevenly loaded substantially as described.

586,700. ELECTRIC-LINE INSULATOR. JOHN J. TRACY, Hartford, Conn. Filed May 27, 1897. Serial No. 636,233. (No model.)

Claim.—1. An insulator having a base adapted to be secured to a support that is liable to move, and a bracket with an insulating wire-holding part movably connected with the base and adapted to be held stationary by the wire that is connected with it when the base moves with its support, substantially as specified.

2. An insulator having a base adapted to be secured to a sup-

port that is liable to move, a bracket movably connected to the base, and an insulating-cap secured upon the end of the bracket and adapted to be held stationary by the wire with which it is connected when the base moves with its support, substantially as specified.

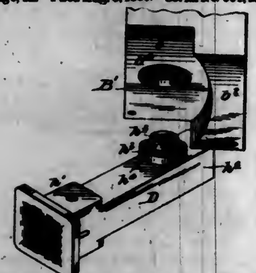


3. An insulator having a base, a bracket connected with the base, at one end by a pivot and at the other end by a lug, and an insulating-cap connected with the bracket, substantially as specified.

4. An insulator having a base with a curved mortise, a bracket connected with the base, at one end by a pivot and at the other end by a lug that projects into and engages a wall of the mortise, and an insulating-cap secured to the end of a bracket, substantially as specified.

5. As a new article of manufacture, an insulator-support consisting of a base adapted to be secured firmly in position and a wire-holding part movably connected with the base, substantially as specified.

586,701. DRAW-BAR FOR RAILWAY-CARS. WILLIAM T. VAN DORN, Chicago, Ill. Filed Aug. 3, 1896. Serial No. 601,466. (No model.)



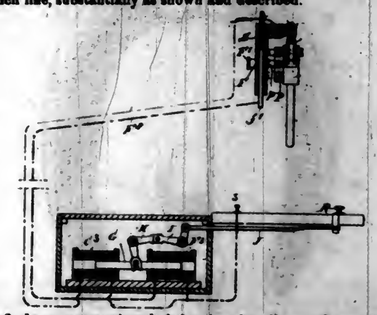
Claim.—1. In a draw-bar, the combination of the bearing-plate B' adapted to be secured to the timbers of a car and formed with a flat bearing-face on its under side and a downward-extending end flange b^3 having its inner vertical wall curved out, and formed with a bearing-seat consisting of upper and lower round bearing-recesses of different diameters and a bolt-hole through the said plate and central with the bearing-recesses therein, the draw-bar D formed on its upper face with a bearing consisting of two rings A^2 A^3 of different diameters and a bolt-hole centrally through the bearings, and a bolt through the bolt-holes on which the draw-bar swings on a horizontal plane.

2. In a draw-bar, the combination of the bearing-plate B' adapted to be secured to a car and formed with a flat bearing-face on its under side and a downward-extending end flange b^3 having its inner vertical wall curved out and formed with a bearing-seat consisting of upper and lower round bearing-recesses of different diameters and a bolt-hole through the plate central with the bearing-recesses, a flanged plate b^3 secured on the lower face of the flange b^3 to set under and support the rear end of the draw-bar, the draw-bar D formed on its upper face with a round bearing consisting of two rings of different diameters and a bolt-hole through the draw-bar and the bearing thereon, and a fastening-bolt through the parts at the bearings on which the draw-bar swings on a horizontal plane.

586,702. ELECTRICALLY-ACTUATED SWITCH MECHANISM. WALRAN S. BROWNE, Brooklyn, N. Y. Filed Nov. 25, 1896. Serial No. 613,632. (No model.)

Claim.—1. In an automatic switch for electric railways, the combination of an electrically-operated switch-moving mechanism, with a current-switch consisting of a short section of the trolley-wire, which is split vertically into two parts which are insulated from each other, one of said parts being connected with the trolley-wire circuit and the other with the circuit operating the switch-moving mechanism, and adapted to be connected by the passage of the trolley, to supply the current for throwing the switch, substantially as shown and described.

2. In an automatic switch for electric railways, the combination of an electrically-operated switch-moving mechanism, comprising two electromagnets of different strength, the weaker being connected to throw the switch for the main line and the stronger to throw the switch for the branch line, with a contact-piece adapted to be engaged by the rolling surface of the trolley-wheel and connected to the weaker or main line magnet, and a contact-piece extending each side of the first-named contact-piece and connected to the stronger or branch-line magnet, and adapted to be engaged by a special contact-piece projecting from the sides of the trolleys of cars bound over the branch line, substantially as shown and described.



3. In an automatic switch for electric railways, the combination of an electrically-operated switch-moving mechanism comprising two electromagnets of different strength, the weaker being connected to throw the switch for the main line and the stronger to throw the switch for the branch line, with a contact-piece adapted to be engaged by the rolling surface of the trolley-wheel and connected to the weaker or main-line magnet, and a contact-piece extending each side of the first-named contact-piece and connected to the stronger or branch-line magnet, and adapted to be engaged by a special contact-piece projecting from the sides of the trolleys of cars bound over the branch line, said branch-line contact-pieces upon the trolley and wire occupying different relative positions for different branches, substantially as shown and described.

4. In an automatic switch for electric railways, the combination of electrically-operated switch-moving mechanism, two electromagnets of different strength, the weaker being connected to throw the switch for the main line and the stronger for the branch line, with mechanism operated by the current-collector of all cars, to pass a current through the main-line magnet, and a special contact mechanism upon branch-line cars, adapted to pass a current through the branch-line magnet coincidently with that through the main-line magnet and for a short time before and after the same, substantially as shown and described.

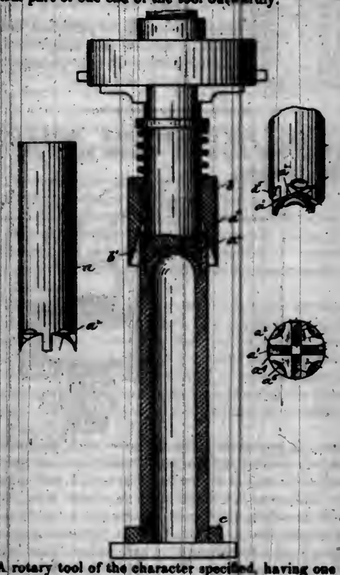
5. An electric-circuit maker for operating a switch, consisting of a bar shaped on its lower edge to correspond to the trolley-wire section, means for attaching the trolley-wire thereto, a longitudinal recess in one side of said bar extending to and including the central line of the bottom edge, and a plate therein but insulated therefrom and adapted to be connected by the trolley-wheel, substantially as shown and described.

6. An electric-circuit maker for operating a switch, consisting of a bar shaped on its lower edge to correspond to the trolley-wire section, a recess in the bottom edge at each end, holes through the bar, connecting with the inner ends of these recesses, a longitudinal recess in one side of said bar, extending to and including the central line of the bottom edge, and a plate therein but insulated therefrom and adapted to be connected by the trolley-wheel, substantially as shown and described.

7. An electric-switch-controlling mechanism, comprising two plates forming an L-shaped insulating-body, a metal bar longitudinally recessed near the middle of its length, a metal plate in said recess and insulated from the first metal plate, the lower edges of said plates being adapted to form a portion of the trolley-track, the longer plate being connected to the trolley-wire and the short plate to the mechanism for throwing the switch to the main line, a contact-bar pivoted in the lower or side member of the insulating-body and adapted to be engaged by side projections on the trolley-head, said contact-bar being located at variable heights in different switches, and connections from the contact-bars to the mechanism for controlling the branch-line switch, said mechanism being stronger than that for opening the main line, and the connection thereto being made before the connection with the contact-plate for the main line and continuing until the main-line connection is broken, substantially as shown and described.

586,703. TOOL FOR SHAPING ENDS OF PAPER TUBES, &c. ROBERT M. CLARK, Newton, Mass. Filed Aug. 15, 1896. Serial No. 602,903. (No model.)

Claim.—1. A rotary tool of the character specified having one or more cutters a' and one or more turning-surfaces extending from the central part of one end of the tool outwardly.



2. A rotary tool of the character specified, having one or more turning-surfaces extending from the center of its end outwardly, as and for the purposes described.

3. A rotary tool of the character specified having one or more turning-surfaces in its end curved as specified and inclined from one edge.

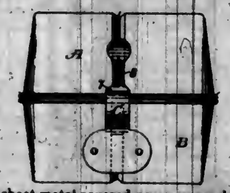
4. A rotary tool of the character specified, having one or more cutters a', one or more turning-surfaces in its end shaped as described, and a tube-guide.

586,704. PAPER CASE OR TUBE. ROBERT M. CLARK, Newton, Mass. Filed Aug. 15, 1896. Serial No. 602,904. (No model.)



Claim.—A case or tube having an end formed from a cut inner section thereof turned inward to a dome shape, as described.

586,705. COVERED PAN FOR CULINARY PURPOSES. GEORGE DEERSMYTH, Albany, N. Y. Filed Apr. 17, 1896. Serial No. 587,925. (No model.)



Claim.—A sheet-metal covered pan composed of two like parts, each having a series of transverse grooves and a longitudinal groove at its median line; one of said parts having fastening devices, substantially as described, adapted to take into the longitudinal groove of the other part and lock the two parts together, substantially as specified.

586,706. CABLE-STRAND. EDWARD P. FREDERICK, St. Louis, Mo. Filed Jan. 9, 1897. Serial No. 618,577. (No model.)

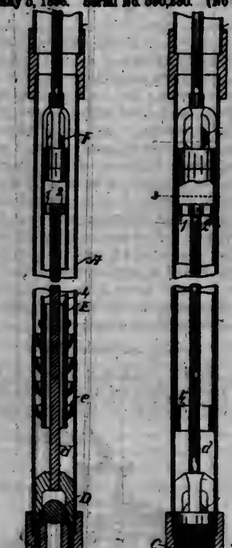
Claim.—1. In a cable-strand, a core composed of a number of wires and a ribbon placed at one side of said wires and lying parallel with the axis of the strand, in combination with covering-wires laid up around the core, substantially as set forth.

2. In a cable-strand, a core composed of a number of wires and ribbons placed at the sides of said wires and lying parallel with the axis of the strand, in combination with covering wires laid up around the core, substantially as set forth.

3. In a cable-strand, a core composed of a number of twisted wires arranged in oval form and ribbons placed at the sides of said wires and having flat inner and rounded outer surfaces, in combination with covering-wires laid up around the core, substantially as set forth.



586,707. OIL-WELL PUMP. FRANK A. GARBUTT, Los Angeles, Cal. Filed May 5, 1896. Serial No. 590,290. (No model.)



Claim.—1. In a deep-well oil-pump, a piston in the working barrel and hollow from end to end to form the oil-passage of the pump and internally screw-threaded at its lower end, with a collar screwed into such lower end and forming the oil-inlet into the lower end of the piston and also forming an annular inwardly-projecting shoulder; and the standing-valve rod fastened to the standing valve of the pump and working through the collar and provided at its top with the cross-head having arms to be engaged by the shoulder when the piston is withdrawn, and to allow the oil to pass up through the piston.

2. A deep-well oil-pump, comprising a working barrel, a hollow piston having an oil-passage from end to end therethrough and internally screw-threaded at the lower end, a collar having its upper end screwed into the lower end of the piston and projecting inwardly to form an annular shoulder and having below the piston, cup-packings which fit the working barrel; and a standing-valve rod attached to the standing valve and extending through the collar and provided with the cross-head having arms to be engaged by the collar and to allow the free passage of oil up through the collar and piston around the rod and cross-head.

3. In a deep-well pump, the piston with oil-passage therethrough from end to end and internally screw-threaded at its lower end and provided with a collar screwed thereinto with oil-passage therethrough and forming an inward projection to engage the head of the standing-valve rod to lift it.

4. The combination of the piston with oil-passage therethrough from end to end and provided at its lower end with an inwardly-projecting annular shoulder with the said oil-passage extending therethrough; and the standing-valve rod working through said oil-passage in the annular shoulder and provided at its top with a cross-head having arms to be engaged by the shoulder when the piston is withdrawn and to allow the oil to pass up through the piston.

586,708. ERECTING-PRISM. CHARLES S. HASTINGS, New Haven, Conn. Filed May 5, 1897. Serial No. 636,228. (No model.)

Claim.—1. An erecting system or apparatus, such as described, the same comprising four reflecting-surfaces, of which the intermedi-

ate surfaces are two planes intersecting at an angle of substantially ninety degrees, and the first and fourth surfaces are arranged one behind the other, in the direction of movement of light through the system, with the line of intersection of their planes substantially at right angles to the line of intersection of the intermediate surfaces, said first and fourth surfaces extending across and on opposite sides of the line of intersection of the intermediate planes: substantially as described.

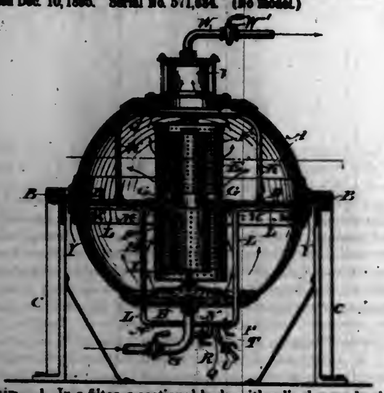


2. An erecting system or prism, such as described, the same comprising four reflecting-surfaces, *g*, *h*, *i* and *j*, of which the intermediate surfaces *h* and *i* are arranged on intersecting planes, and the first and fourth surfaces, *g* and *j*, are arranged in line longitudinally of said surfaces *h* and *i*, said surfaces *g* and *j* constituting converging planes lying transverse to and extending on opposite sides of the line of intersection between said surfaces *h* and *i*.

3. An erecting system of prisms, such as described, combining in its structure a prism 2, and two prisms 1 and 3, the latter arranged in line longitudinally of prism 2, with their reflecting-surfaces extending laterally across both reflecting-surfaces of said prism 2.

4. The combination to form an erecting-prism such as described, of the two reflecting-prisms 1 and 3, located one in front of the other, a right-angle prism 2, and a parallel-sided plate 4, interposed between said prisms 1, 3, and prism 2, the latter arranged with the line of juncture of its reflecting-surfaces in a plane bisecting both prisms 1 and 3; substantially as described.

586,709. FILTER. CHARLES A. KUHNEL, Jr., Hoboken, N. J., assignor to the American Filter and Ice Plants Manufacturing Company. Filed Dec. 10, 1895. Serial No. 571,634. (No model.)



Claim.—1. In a filter, a sectional body with a diaphragm having an opening in its center, a filtering-chamber supported on said diaphragm and communicating with the sections on both sides of said diaphragm, and discharge-pipes at the lower and upper ends of said body, a perforated ring in the upper part of the lower section, a pipe leading from said ring to the inlet-pipe, and a pipe leading from the upper section into said ring discharge-pipe, said parts being combined substantially as described.

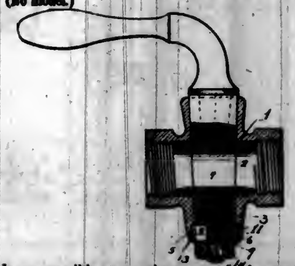
2. A filter having a sectional body journaled on standards, a diaphragm between said sections having a central opening, and depending inner flange, filtering-chamber in said opening, a perforated pipe below said diaphragm and above the lower edge of said depending flange, and a pipe leading from said perforated pipe to said inlet-pipe, said parts being combined substantially as described.

3. A filter having a sectional body with a diaphragm between the sections thereof, a filtering-chamber in an opening in said diaphragm, a perforated pipe below said diaphragm and above the lower edge of a depending flange on said diaphragm, a gas-discharge pipe leading from said perforated pipe to the outside of the filter, and inlet and discharge pipes for said body, said parts being combined substantially as described.

4. A filter having a sectional body with a diaphragm between the sections, said diaphragm having an opening therein, perforated inner and outer cylinders or shells connected with opposite sides of said diaphragm at said opening, forming filtering-chambers, a partition at said diaphragm in said outer chamber, and a stud or pin suitably connected with the lower section and supporting the cylinders which are below said diaphragm, said parts being combined substantially as described.

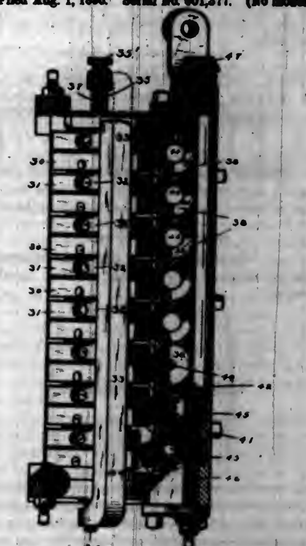
5. A filter having separated sections or chambers, filtering-cylinders forming a communication between said chambers and a perforated ring near the dividing-partition of said chamber, having a pipe connection with the inlet-pipe of said filter.

586,710. STOP AND WASTE COCK. JOSEPH H. LYONS, Cleveland, Ohio. Filed July 3, 1895. Renewed May 19, 1897. Serial No. 637,307. (No model.)



Claim.—In a reversible stop and waste cock, the combination of a cock-barrel, recessed at the outer extremity at 5 and provided with a transverse recess 12 in the wall of the recess 5, with a stop-plate 6 resting in said recess 5 and cut away to present arms 10, and provided with lateral lug 11 adapted to enter said recess 12 in the cock-barrel, a central stem 3 provided with a threaded extremity upon which are placed a clamping-nut 14 and washer 13, and a lateral extension 8 adapted to engage alternately the arms 10 upon said stop-plate, and passing longitudinally into the keyway 15 in said washer whereby the washer will turn with the stem, substantially as described.

586,711. NAILING-MACHINE. HENRY W. MORGAN, Rochester, N. Y. Filed Aug. 1, 1896. Serial No. 601,377. (No model.)



Claim.—1. In a nailing-machine, the combination with the nail-feeding devices, of the stationary plates 30, the movable plates 31, the bar 33 connecting the plates 31 having the downwardly-extending perforated ends, the guide-pin 34 at one end of the bar, the bolt 35 at the other end, the spring 37 operating to move the bar to separate the channel-plates, and the nut 35' engaging the bar opposite the spring, substantially as described.

2. In a nailing-machine, the combination with the driver-frame, the pitman actuating it, and the shaft to which the pitman is connected, of the driving-wheel, a positive clutch operating one way only and arranged between the wheel and shaft, and an automatic friction-clutch also between the wheel and shaft, substantially as described.

3. In a nailing-machine, the combination with a vertically-movable frame, a wheel and a shaft to one of which the frame is connected, of a positive clutch operating one way only and arranged between said wheel and shaft, and an automatic friction clutch or brake connecting said parts when rotating, substantially as described.

4. In a nailing-machine, the combination with the shaft, the pitman connected thereto, and the driver-head, of the rotary driving-wheel, having the recesses, the sleeve on the shaft, the rotary pin having the arm, the spring for operating it, the movable bolt cooperating with the arm, the friction-clutch between the sleeve and wheel, and the stationary projection for releasing it, substantially as described.

5. The combination with the driving member and the intermittingly-operating driven member, as the wheel and shaft, respectively, of a positive driving-clutch arranged between said members and connecting them for rotation in one direction only, means for controlling said clutch, and an automatic friction-clutch for connecting said members only after the positive clutch has become engaged, substantially as described.

6. The combination with the rotary driver and driven members, as the driving-wheel, and the shaft, of a positive driving clutch between said members connecting them only when the driver moves faster than the driven member, an automatic friction clutch or brake between the members, means operating to connect them only after the positive clutch has become engaged and means for disconnecting the friction-clutch when one of the members is arrested, substantially as described.

7. The combination with the rotary driver and driven members, as a driving-wheel and the shaft, of a positive driving-clutch between said members connecting them only when the driver member moves the more rapidly, an automatic friction-clutch between the members, means operating to connect them only after the positive clutch has become engaged, a relatively stationary projection for disconnecting the friction-clutch, and means for operating the driving-clutch, substantially as described.

8. The combination with the wheel, the shaft, the rotary clutch-pin between the wheel and shaft operating one way only, and means for operating it, the friction-clutch between the wheel and shaft, the projection for cooperating with it, and the bolt cooperating with the clutch-pin, substantially as described.

9. The combination with the shaft, the wheel thereon and positive clutch devices between them operating one way only, of the pivoted clutch-arm on the shaft cooperating with the wheel, the spring actuating the clutch-arm to engage the wheel and a relatively stationary projection in the path of the movement of the clutch-arm and adapted to engage the latter and hold it out of engagement against the tension of the spring at one point in its rotation.

10. The combination with the shaft, the sleeve thereon, the rotary clutch-pin having the extended arm, the spring for operating the pin, the friction clutch-arm pivoted on the sleeve, having the projecting end, and the spring for actuating it, of the wheel mounted on the sleeve having the interior recesses, and the overhanging edge, the bolt cooperating with the clutch-pin and the projection cooperating with the friction clutch-arm, substantially as described.

11. In a feeding device for nailing-machines, the combination of a rotary driving-wheel, a rotary selector-disk thereon having the notched periphery, and the spring for holding said disk and wheel in frictional connection when feeding nails, but permitting the arrest of the disk without interfering with the driving-wheel, substantially as described.

12. In a feeding device for nailing-machines, the combination of a rotary driving-wheel, the rotary selector-disk thereon, the beveled projections and recesses between the wheel and disk, and the spring for holding said wheel and disk together, substantially as described.

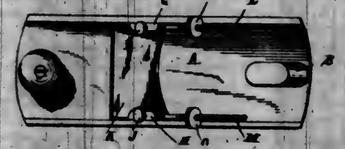
13. In a nailing-machine, the combination with the worm-shaft and a worm thereon, of the worm-wheel, the selector-disk thereon having notches in its periphery, and the springs for holding the worm-wheels and disks in frictional engagement, substantially as described.

14. In a nailing-machine, the combination with a series of positively-driven wheels, of a series of selector-disks, one on each wheel and having nail-notches in their peripheries, and springs for holding the disks and wheels in frictional engagement, substantially as described.

15. In a nailing-machine, the combination with a series of positively-driven wheels, of a series of selector-disks, one on each wheel, and having nail-notches in their peripheries, the beveled projections and recesses between said wheels and disks, and springs for pressing said wheels and disks together with the projections and recesses in engagement, substantially as described.

586,712. PLANE. CHARLES A. FAHL, Orlando, Okla. Filed May 11, 1896. Serial No. 591,136. (No model.)

Claim.—1. In a plane, the combination with a plane-body of inclined bit-slides securely fastened thereto, a bit having screw-threaded arms, located at opposite sides thereof and secured thereto and nuts carried on said arms and engaging with the bit-slides whereby either or both sides of the bit can be adjusted.



2. In a plane, the combination with a plane-body, of inclined bit-slides secured thereto, said slides being provided with notches, a bit movable on the slides and having screw-threaded arms secured thereto and located at opposite sides thereof, and circular nuts carried on the arms and loosely received in the notches.

3. In a plane, the combination with a plane-body, of inclined bit-slides securely fastened thereto, said slides being provided with notches, a bit movable on the slides and having screw-threaded arms at its opposite sides, nuts carried on the arms and loosely received in the notches, ears secured to the plane-body, and clamping-screws passing through the ears and binding on the bit-slides.

4. In a plane, the combination with a plane-body, of bit-slides secured to the body, a bit movable on said slides, said bit being provided with integral screw-threaded arms L and M, circular nuts N and O loosely received on the bit-slides, and clamping-screws I and J adapted to bind on the bit-slides.

5. The combination with the plane-stock having its sides provided with rearwardly-inclined bit-slides and arc-shaped notches at their upper ends and lugs projecting inwardly from the inner walls of the opposite sides, of a bit mounted for movement in said slides beneath said lug and provided with integral upwardly-projecting screws, one at each edge, nuts on said screws projecting into said notches and set-screws passed through said inwardly-extending lugs at right angles to the screws and bearing against the bit whereby the bit may be adjusted in either direction by manipulation of said nuts and also tilted to either the right or left to bring the cutting edge thereof parallel with the bottom of the plane, substantially as described.

586,713. BOW. HENRY C. PETERS, North Middletown, Ky. Filed Mar. 27, 1897. Serial No. 629,494. (No model.)



Claim.—1. A bow consisting of a pair of crossed levers, jointed together, and flexible bands applied to said levers for actuating the same, in the manner described.

2. A bow consisting of a stock; a pair of crossed levers pivoted thereto; and flexible bands engaged therewith and actuating said levers, in the manner described.

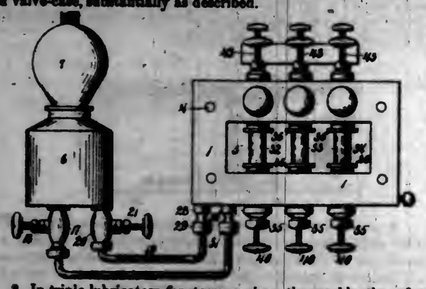
3. A bow consisting of a stock provided with an arrow-guide; a pair of crossed levers pivoted to said stock; and flexible bands that engage with said levers and actuate them, in the manner described.

4. A bow consisting of the stock A B, provided with guides C, C', a pair of shouldered and notched levers $E e F f$, $E' e' F' f'$, crossed in the manner shown, and pivoted upon said stock at D; and a pair of flexible bands G, G', engaged with said levers, in the manner described, and for the purpose stated.

586,714. LUBRICATOR. JOSEPH K. REESE, Roanoke, Va. Filed Apr. 16, 1897. Serial No. 632,208. (No model.)

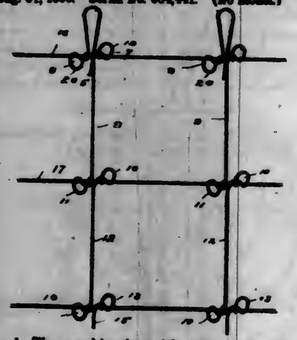
Claim.—1. In triple-feed lubricators for steam-engines, the combination of an oil-reservoir having a steam-dome, an oil-eduction tube and two independent ports or passages for steam, one leading to the interior of the reservoir and the other to the exterior thereof, a valve-case provided with a longitudinal opening and steam and oil ports or passages leading to pipes having connection with the two steam-cylinders and the air-brake cylinder of a locomotive, three

feed-tubes within the valve-case and exposed at the said opening, and steam and oil supply pipes connecting between the oil-reservoir and valve-case, substantially as described.



2. In triple lubricators for steam-engines, the combination of an oil-reservoir having a steam-dome, and two independent ports or passages for steam, one leading to the interior of the reservoir and the other to the exterior thereof, a tube 14 in communication with the latter port or passage and extending up into the steam-dome, a valve-case consisting of two separable sections provided with a longitudinal opening, a steam-passage extending from the bottom to the top thereof and thence longitudinally above said opening, an oil-passage in the bottom of the case below said opening, three sight-feed tubes within the valve-case and exposed at the said opening, said tubes connecting the oil and steam passages and provided at the lower ends thereof with feed-nipples, valves controlling the supply of oil thereto, and supply-pipes connecting between the oil-reservoir and the steam and oil supply passages of the valve-case, substantially as described.

586,715. WIRE-FENCE STAY. WILLIAM ROGERS, Leipsic, Ohio. Filed Aug. 31, 1896. Serial No. 604,441. (No model.)



Claim.—1. The combination with fence-wires, of a stay made from a single piece of wire which is bent into loops arranged in sets at intervals along said stay and the loops of each set being wrapped around its fence-wire in opposite directions.

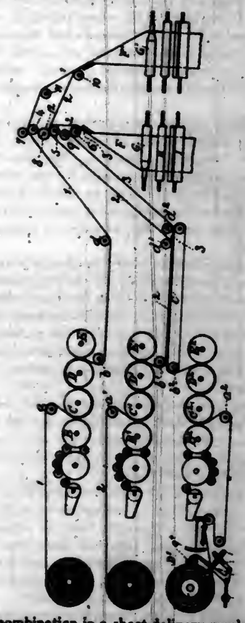
2. The combination with fence-wires, of a stay made from a single piece of wire which is formed into sets of loops located opposite and inclined in relation to the length of the stay, the loops of each set being wrapped around its fence-wire on opposite sides of the body of the stay.

3. The combination with fence-wires, of a stay constructed of a single piece of wire which is formed into sets of loops located opposite each other and into an uppermost top loop and a lower or downwardly-projecting portion, the loops of each set being wrapped around its fence-wire in opposite directions.

586,716. SHEET-DELIVERY MECHANISM FOR PRINTING-PRESSES. WALTER SCOTT, Plainfield, N. J. Filed Mar. 5, 1894. Serial No. 502,823. (No model.)

Claim.—1. The combination in a printing-machine, of two presses for printing upon separate webs and forwarding such webs in one general direction and in a flat condition, a roll over which such webs pass, two folding-inclines having converging edges and standing in opposite directions, a roll adjacent to the receiving end of each incline between which rolls and the inclines the webs of paper pass, the side of the roll from which the webs diverge in passing to the inclines being over and equidistant from the entrance ends of such inclines, so that the webs of paper can be passed in either direction without throwing the printed matter out of register, substantially as set forth.

2. The combination in a printing-machine, of two presses for printing upon separate webs and forwarding such webs in one general direction and in a flat condition, a roll over which such webs pass, two folding-inclines having converging edges and standing in opposite directions, a roll adjacent to the receiving end of each incline between which rolls and the inclines the webs of paper pass, the side of the roll from which the webs diverge in passing to the inclines being over and equidistant from the entrance ends of such inclines, so that the webs of paper can be passed in either direction without throwing the printed matter out of register, guide and drawing rolls for drawing the folded webs over both inclines, and cutters or perforators acting simultaneously on both folded webs, substantially as set forth.



3. The combination in a sheet-delivery mechanism, of a folding-incline, revolving perforating-cutters, forwarding-rolls between the folding-incline and the perforating-cutters, one of such forwarding-rolls having a longitudinal depression for liberating the pull upon the folded web periodically, and a breaker-bar acting to pull the perforated sheets or product from the web when the forwarding-rolls cease their hold upon the same for applying a tension to the web upon the longitudinal incline for straightening such web and maintaining uniformity in the delivery of the product, substantially as set forth.

4. The combination with a folding-incline for folding a web of paper longitudinally, of rolls adjacent to the apex of the folding-incline, such rollers being cylindrical, except at the end portion closely adjacent to the apex of the incline where such rolls are conical for guiding the paper near the fold, and forwarding-rolls for applying tension to the web of paper after the same has passed the folding-incline and its rollers, substantially as set forth.

5. The combination with a folding-incline, of rollers at the edges of the incline, and gearing for driving the same at the surface speed or nearly so of the paper, forwarding-rolls for acting upon the web after the same has been folded, and perforating-rolls for perforating the web transversely, substantially as set forth.

6. The combination in a sheet-delivery mechanism, of a folder for folding the web of paper longitudinally, forwarding-rolls with a longitudinal depression for releasing the grip upon the folded web periodically, mechanism for perforating the web transversely, and a breaker-bar acting to apply tension to separate the sheet or sheets at the line of perforations from the web and to apply a tension upon the web as it passes over the longitudinal folding mechanism, substantially as set forth.

7. The combination in a sheet-delivery mechanism, of a folder for folding the web of paper longitudinally, forwarding-rolls with a longitudinal depression for releasing the grip upon the folded web periodically, mechanism for perforating the web transversely, a breaker-bar acting to apply tension to separate the sheet or sheets at the line of perforations from the web and to apply a tension upon the web as it passes over the longitudinal folding mechanism, rollers

and belts or tapes for conveying the perforated web from the perforator to the breaker-bar, substantially as set forth.

8. The combination with the folding-incline over which the paper passes and is folded longitudinally, of a perforating device and drawing-rolls acting intermittently upon the web to apply tension to the same and to liberate or lessen the hold of such drawing-rolls upon the web while the perforating devices are acting upon the web to apply tension to the same, substantially as set forth.

9. The combination with the folding-incline, of drawing-rolls acting intermittently upon the folded web of paper, a perforating device and a breaker-bar acting to separate the product from the web at the time the drawing-rolls cease to act upon the web, substantially as set forth.

10. The combination in a folding and sheet-delivery mechanism, of an incline over which the web is folded longitudinally, perforating mechanism and a breaker-bar, drawing-rolls between the folding-incline and the perforating mechanism, such drawing-rolls acting automatically and intermittently to liberate their hold upon the folded web during the perforating operation and during the breaking operation, substantially as set forth.

11. The combination with the axis for the web or roll of paper, of a friction-wheel and friction-mechanism acting upon the wheel, the lever R' and block resting upon the surface of the roll of paper, a cam for acting upon the friction-clamp, and a connection therefrom to the lever R', whereby the friction applied to detain the web as drawn from the roll is automatically regulated according to the size of the roll of paper, substantially as set forth.

12. The combination with the folding-incline and the roll over which the web of paper passes to such incline, of converging rolls at the edges of the incline, bevel-gearing and a shaft by which such rolls receive a rapid rotary movement as the paper passes around such rolls and is folded, substantially as set forth.

13. The combination with the folding-incline over which the web is folded longitudinally, of two rolls for acting on the folded web, such rollers having conical ends that are closely adjacent to and support the paper as it passes from the apex of the folding-incline, substantially as specified.

586,717. ROTARY MOTOR. GEORGE H. SHEPARD, Ogdensburg, N. Y. Filed Mar. 24, 1897. Serial No. 628,907. (No model.)



Claim.—1. In a rotary device, the combination of two parts, one encircling the other, one adapted to revolve with reference to the other, one being provided with a surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and the other having a surface in part or in whole concentric with the axis of rotation, and a double-headed curved gate carried by one of the parts and having cam and bearing surfaces at or near both ends, so arranged that the portions of the gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the other part of the device upon the cam-surface of the other end of the gate and suitable inlet and outlet ports, substantially as set forth.

2. In a rotary device, the combination of two parts, one encircling the other, one adapted to revolve with reference to the other, one being provided with a surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and the other having a surface in part or in whole concentric with the axis of rotation, and double-headed curved gates carried by one of the parts and having cam and bearing surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the other part of the device upon the cam-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

3. In a rotary device, the combination of two parts, one encircling the other, one adapted to revolve with reference to the other, one being provided with a surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and the other having a surface in part or in whole concentric with the axis of rotation, and double-headed curved gates carried by one of the parts and having cam and bearing surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the other part of the device upon the cam-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

4. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the drum being provided with a surface having raised portions concentric with the axis of rotation, and depressed portions concentric with said axis, and the shell having a surface in part or in whole concentric with the axis of rotation, and provided with uniformly-curved slots to hold and guide the gates and double-headed uniformly-curved gates sliding in said slots and having cam and bearing surfaces at or near both ends so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the surface of the drum upon the cam-surface of the other end of the gate and suitable inlet and outlet ports, substantially as set forth.

5. In a rotary device, the combination of two parts, one encircling the other, one adapted to revolve with reference to the other, and a double-headed curved gate carried by one of the parts, and having bearing-surfaces at or near both ends adapted to be at all times in contact with the surface of the other part, and suitable inlet and outlet ports, substantially as set forth.

6. In a rotary device, the combination of the shell *c*, *c*, *d*, having a surface partly concentric with the axis of rotation, the drum *b* having the raised concentric portions *n n*, and the depressed concentric portions *o o*, and the curved gates *g*, *h*, having the cam-surfaces *i i*, and the bearing-surfaces *k k*, adapted to bear constantly at both ends against the surface of the drum, and suitable inlet and outlet ports, substantially as set forth.

7. In a rotary device, the combination of the shell *c*, *c*, *d*, having a surface partly concentric with the axis of rotation, the drum *b* having the raised concentric portions *n n*, and the depressed concentric portions *o o*, and the curved gates *g*, *h*, having the cam-surfaces *i i*, and the bearing-surfaces *k k*, adapted to bear constantly at both ends against the surface of the drum, the staggered inlet-ports *q* and the staggered outlet-ports *r*, substantially as set forth.

8. In a rotary device, the combination of two parts, one encircling the other, one adapted to revolve with reference to the other, and a double-headed curved gate carried by one of the parts and having bearing-surfaces at or near both ends adapted to be at all times in contact with the surface of the other part, and suitable inlet and outlet ports staggered with reference to one another, substantially as set forth.

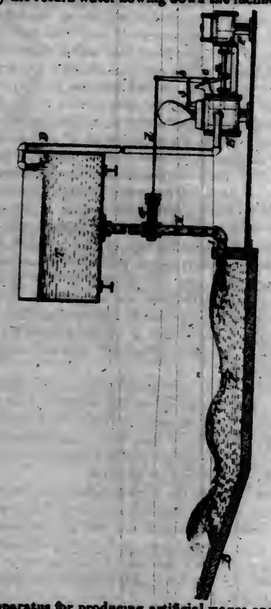
586,718. AMUSEMENT APPARATUS. WILLIAM WHARTON, Jr., Philadelphia, Pa. Filed Dec. 22, 1896. Serial No. 616,522. (No model.)

Claim.—1. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, a discharge-pipe extending downward and directed toward the water in the pond, and an intermittently-actuated valve to control the flow of the water through said pipe whereby excessive and intermittent rushes of water are delivered against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

2. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, a discharge-pipe extending downward and directed horizontally toward the water in an inclined or distant side or beach of the pond, and an intermittently-actuated valve to control the flow of the water from the storage-tank through said pipe whereby excessive and intermittent rushes of water are delivered horizontally against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

3. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, continuously-operating water-elevating power devices for supplying water to the storage-tank, a discharge-pipe extending downward and directed toward the water in the pond, and intermittently-operating means to control the flow of the water through said pipe whereby excessive

and intermittent rushes of water are delivered against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

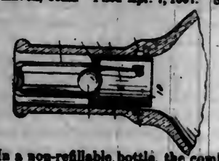


4. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach, with an elevated reservoir adjacent to the pond, apparatus for pumping water into the reservoir, and intermittently-controlled devices for permitting a large body of water to pass from the reservoir into the tank at a distance from the inclined side or beach to produce traveling waves of great length which are converted into breakers when they reach the beach by the reverse action of the water down the inclined beach.

5. A tank or pond having an inclined side or beach in combination with an elevated storage-tank T having an outgoing-pipe H adapted to discharge horizontally into the pond, a power-driven apparatus for pumping water into the storage-tank, and an intermittently-operated valve G under the control of the pumping machinery or driving apparatus for intermittently discharging the water from the storage-tank through the pipe into the pond.

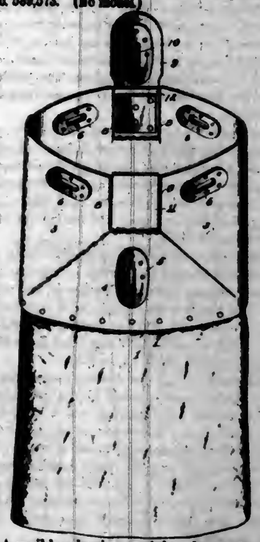
6. The method of producing breakers artificially, which consists in introducing into a relatively large body of water contained in a receptacle having a gradually-sloping side at a point opposite said side, intermittent jets of water in relatively small volume in a substantially horizontal direction against said large body, substantially as described.

586,719. NON-REFILLABLE BOTTLE. THOMAS E. WORTHINGTON, New Haven, Conn. Filed Apr. 7, 1897. Serial No. 631,093. (No model.)



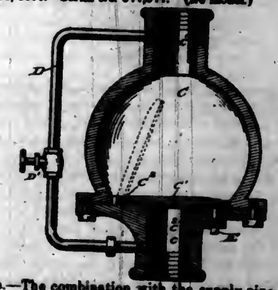
Claim.—In a non-refillable bottle, the combination with a bottle-neck provided with an internal annular groove near its base, of a valve chamber or casing comprising a hollow cylindrical portion adapted to fit snugly in the base portion of the neck, a reduced cylindrical portion having longitudinally-extending apertures and connected to the larger portion, an intermediate ring or diaphragm connecting the larger and smaller portions of the casing and having an opening to form a valve-seat, a ball-valve mounted loosely in the smaller portion of the casing, and spring locking devices arranged within the hollow larger portion of the casing and each consisting of a flat spring secured at one end within the casing and having its free end bent to form a catch projection which operates through an opening in the wall of the casing so as to engage in the groove in the neck, said locking devices being located within the hollow casing and above the horizontal plane of the lower edge thereof, substantially as described.

586,720. MAIL-BAG. BENJAMIN S. BAYLESS, Aberdeen, Md., assignor of one-half to Samuel S. Jay, same place. Filed Apr. 20, 1896. Serial No. 588,573. (No model.)



Claim.—A mail-bag having straight edges at its mouth arranged in the same plane when it is open, and provided at the front and back with tabs 11 and 12 formed by slitting the edges of the bag at both the front and back as at 8, the flexible flap 9 attached to the rear tab 12 and carrying a lock, the creased corner flaps 3, provided with openings 6, and a keeper on the outside of the bag, said mouth being closed by folding the front tab 11 within the bag, then folding down the corner flaps to cause all of the openings 6 to register, and finally folding the tab 12 and the flap 9 over the keeper, substantially as described.

586,721. VALVE. JAMES H. BROWN, Eau Claire, Wis. Filed Jan. 31, 1896. Serial No. 577,577. (No model.)



Claim.—The combination with the supply-pipe and the branch pipe, of a valve-casing located at the junction of the branch and supply pipes, said casing having a threaded nipple upon one side and upon the opposite side a detachably-flanged plate having a threaded nipple, a valve pivoted within the casing, a pipe arranged outside the casing and connecting the two nipples, a valve located in said pipe, and a threaded plug removably inserted in the bottom of the valve-chamber and against the upper end of which the valve C seats itself.

586,722. WINDOW-SHADE ATTACHMENT. EDWIN J. CLAYTON, Philadelphia, Pa. Filed Mar. 6, 1897. Serial No. 626,284. (No model.)

Claim.—1. A shade-roller bracket, consisting of a metal strip bent upon itself at an intermediate point to form a bearing for one end of a roller the terminals diverging therefrom and being then curved inward, crossed and reversely curved and finally extended in substantially straight lines and projected, substantially as and for the purpose specified.

2. A bracket comprising diverging resilient arms arranged to form bearing-points on a window-frame, said arms being crossed and extended so that their extremities project in opposite directions to form other bearing-points.



586,723. EXCESSIVE-CURRENT RECORDER. JAMES R. CRAVATH, Chicago, Ill., assignor to the Cravath Manufacturing Company same place. Filed Feb. 5, 1897. Serial No. 622,105. (No model.)



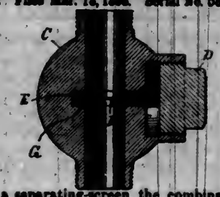
Claim.—1. The combination with a thin sheet of fusible metal, of a heating-conductor extending transversely thereto and heated by an electric current to cause said conductor to melt its way through said sheet of fusible metal, substantially as described.

2. The combination with a recorder-box, of a heating-conductor and a body of fusible material contained therein, a casing for the reception of said recorder-box, contacts provided upon said casing and connected with the working circuit, contacts upon said recorder-box connected with the heating-conductor and arranged to engage the contacts in the casing when the recorder-box is placed therein to complete the circuit through the heating-conductor and to break contact therewith upon the removal of the recorder-box to open the working circuit, substantially as described.

3. The combination with a casing provided with a cover or door and carrying contacts connected with the working circuit, of a recorder-box carrying the heating-conductor and the fusible material, and provided with contacts for engaging the contacts of said casing, said recorder-box being constructed to snugly fit said casing and to rest against the bottom thereof and preventing the closing of the door of the casing until the recorder-box is placed completely in position, substantially as described.

4. The combination with the recorder-box provided with a pair of contact-terminals, of a transverse electrical conductor within said box connected in circuit between said terminals, a narrow slot above said conductor and a thin sheet of fusible metal therein and resting upon said conductor, the plane of said slot being perpendicular to said conductor, a channel beneath said conductor and a weight moving therein, substantially as described.

586,724. SEPARATING-SCREEN. THOMAS H. RISDUNE, Washington, D. C. Filed Mar. 18, 1896. Serial No. 583,734. (No model.)



Claim.—In a separating-screen, the combination with a casing having a passage therethrough and provided with a recess transverse to the passage, of a screen adapted to fit in said recess and composed of two apertured framing-plates detachably secured together, and having a wire fabric firmly clamped between them, all substantially as and for the purpose set forth.

586,725. FOLDING EGG-CRATE. THEODOR ELLENBROEK, Fortsville, Wis. Filed Mar. 24, 1896. Serial No. 584,704. (No model.)

Claim.—A folding crate comprising a bottom, sides and ends connected by double hinges extending the entire height thereof and having removable pintles, a top hinged at diametrically opposite sides to the hinge of the bottom, hooks and staples for holding the bottom in its closed position and means on the cover for holding the same in its closed position, and a partition hinged at one edge to one of the sides and hooks for detachably holding the other end in its distended position when the crate is opened, substantially as described.

586,726.



586,726. UNDERWAIST. ISAAC H. FOOKS, Georgetown, Del. Filed Jan. 14, 1897. Serial No. 619,181. (No model.)



Claim.—1. In a child's low-necked undergarment, the combination of the body portion extending only to a point below the shoulder and having arm-notches open at the top and further having vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing laterally along each side of the said arm-notches for reinforcing the upper edges, the rear portions thereof of both arm-notches uniting across the upper edge of the garment at the back.

2. In a child's undergarment, the combination of the body portion having arm-notches at the top, with vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing upon each side of the arm-notches and uniting across the upper edge for reinforcing the edges of the garment, and detachable shoulder-straps detachably connected to the upper reinforced edges of the garment upon each side of the arm-notches.

3. In a child's low-necked undergarment, the combination of the body portion having arm-notches open at the top, with vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing integrally upon each side of the arm-notches for reinforcing the edges of the garment, and shoulder-straps detachably connected to the upper reinforcing edges of the garment upon each side of the arm-notches and provided with means for adjusting their length.

4. In a child's undergarment, the combination of the body portion having arm-notches at the top, with vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing upon each side of the arm-notches for reinforcing the edges of the garment, additional vertical reinforcing-strips secured to the body portion and terminating upon the upper reinforcing-strips at the top to one side of the strips below the arm-notches, and shoulder-straps detachably connected with the upper ends of the last-mentioned or additional reinforcing-strips.

5. In a child's undergarment, the combination of the body portion having arm-notches at the top, with vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing upon each side of the arm-notches for reinforcing the edges of the garment, an additional vertical reinforcing-strip secured to the body portion in the back and having lateral extensions terminating upon the upper reinforcing-strips at the top to one side of the arm-notches, shoulder-straps detachably connected with the upper portions of the reinforcing-strips upon each side of the arm-notches and provided with means for adjusting the length of the shoulder-straps, and means upon the waist portion of the last-mentioned or additional reinforcing-strips for sustaining a lower garment.

6. In a child's undergarment, the combination of the body portion having arm-notches at the top, with vertical reinforcing-strips secured to the body of the garment immediately below the arm-notches and continuing upon each side of the arm-notches for reinforcing the edges of the garment, additional vertical reinforcing-strips secured to the body portion and terminating upon the upper reinforcing-strips at the top to one side of the strips below the arm-notches, shoulder-straps detachably connected with the upper ends of the last-mentioned or additional reinforcing-strips, and a central vertical reinforcing-strip at the back of the garment having its upper end formed with lateral extensions secured to the upper edge of

the body portion and extending to the juncture of the shoulder-straps and additional vertical reinforcing-strips.

7. In an undergarment, the combination of the body portion A having the arm-notches B, with reinforcing-strips C arranged below the arm-notches and extended laterally at the top to bound the upper edge of the body portion forming the arm-notches and in which one of said portions is extended as at D^3 to bound the upper and vertical free edges of the body portion, and a middle back reinforcing-strip G having lateral bounding-strips H H at the top which meet the other lateral bounding-strips of the parts C C.

8. In an undergarment, the combination of the body portion A having the arm-notches B, with vertical reinforcing-strips C arranged below the arm-notches and extended laterally at the top to bound the upper edge of the body portion forming the arm-notches and in which one of said portions is extended as at D^3 to bound the upper and vertical free edges of the body portion, a middle back reinforcing-strip G having lateral bounding-strips H H at the top which meet the other lateral bounding-strips of the parts C C, and shoulder-straps detachably connected with the reinforcing bounding-strips upon each side of the arm-notches.

9. In an undergarment, the combination of the body portion A having the arm-notches B, with reinforcing-strips C arranged below the arm-notches and extended laterally at the top to bound the upper edge of the body portion forming the arm-notches and in which one of said portions is extended as at D^3 to bound the upper and vertical free edges of the body portion, a middle back reinforcing-strip G having lateral bounding-strips H H at the top which meet the other lateral bounding-strips of the parts C C, shoulder-straps detachably connected with the reinforcing bounding-strips upon each side of the arm-notches, and vertical reinforcing-strips I J secured to the body of the garment in alinement with the shoulder-straps and furnished at the waist with means for attachment to a lower garment.

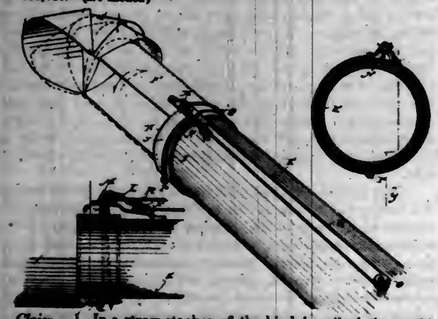
586,727. DENTAL INSTRUMENT. JOHN W. HARD, Tacoma, Wash. Filed Feb. 24, 1897. Serial No. 624,766. (No model.)



Claim.—1. A dental instrument comprising a stem, a head carried thereby, a swinging gripping member pivotally secured to the head and having its axis extending longitudinally of the stem, and a stationary gripping member constituting a fulcrum which is pivoted to the head with its axis extending transversely of the stem, substantially as described.

2. A dental instrument comprising a stem, a recessed head carried thereby, the recesses of said head being at right angles to each other, a swinging gripping member pivoted in one of said recesses, and a stationary gripping member pivoted in the other recess upon which the head and swinging member have a rocking movement, substantially as described.

586,728. PNEUMATIC STRAW-STACKER. EDWARD HUBER and JACOB W. MILLER, Marion, Ohio. Filed June 24, 1896. Serial No. 596,719. (No model.)



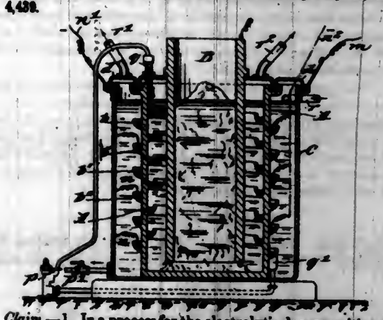
Claim.—1. In a straw-stacker of the kind described, the combination with the discharging-casing, of a delivery-pipe connected therewith, a head consisting of a deflector-casing and a hood and revolubly mounted on the free end of the delivery-pipe, said deflector-casing being open along one of its sides and said hood being over the open end of said deflector-casing and itself open in line with the open side of said deflector-casing, sheaves mounted on said delivery-pipe near said deflector-casing, and a continuous cord connected to said deflector-casing, with one branch running in one direction on the deflector-casing and over one sheave, and the other branch running in the other direction on the deflector-casing and over the other sheave, and thence both branches running to near the rear end of said delivery-pipe.

2. In a straw-stacker of the kind described, the combination with a delivery-pipe, of a head consisting of a deflector-casing and a hood revolubly mounted on the free end of said delivery-pipe, said deflector-casing being open along one of its sides, and said hood being over the open end of said deflector-casing and itself open in line with the open side of the deflector-casing so as to discharge in line with said open side.

3. In a straw-stacker of the kind described, the combination with the discharger-casing, of a delivery-pipe connected therewith, a revoluble head arranged upon the free end of the delivery-pipe, a standard secured to the pipe in proximity to the head, comprising a slotted arm, sheaves pivotally secured within said arm, and a sheave below the same, an extension or lug upon the revoluble head, and a continuous cord adapted to engage the lug and sheaves, substantially as and for the purpose set forth.

4. In a straw-stacker of the kind described, the combination with the discharger-casing, of a delivery-pipe connected therewith, a revoluble head arranged upon the free end of the delivery-pipe, a slotted arm secured to said pipe, said arm being twisted as and for the purpose described, sheaves pivotally secured within the arm, and a sheave below the same, a lug upon the revoluble head, and a continuous cord adapted to engage the lug and sheave, substantially as and in the manner set forth.

586,729. METHOD OF AND APPARATUS FOR EFFECTING ELECTROLYSIS. CARL KELLNER, Vienna, Austria-Hungary. Filed Feb. 24, 1896. Serial No. 580,509. (No model.) Patented in France Dec. 15, 1894, No. 243,673; in Belgium Dec. 15, 1894, No. 113,221; in Italy Dec. 31, 1894, XXIX, 37,828, and LXXIV, 179; in Austria Jan. 17, 1895, No. 45/206; in Hungary Feb. 28, 1895, No. 2,356; in Switzerland July 4, 1895, No. 10,558, and in Norway July 16, 1895, No. 4,429.



Claim.—1. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt, to a mercury cathode flowing uninterruptedly from a higher to a lower level and before reaching such lower level flowing alternately and repeatedly out of contact with the salt solution into contact with an agent capable of decomposing the compound or amalgam formed, for the purpose set forth.

2. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing uninterruptedly from a higher to a lower level and before reaching such lower level and while under the influence of the electric current flowing alternately and repeatedly out of contact with the salt solution into contact with an agent capable of decomposing the compound or amalgam formed while under the influence of such electric current, for the purpose set forth.

3. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing uninterruptedly from a higher to a lower level and before reaching such lower level and while under the influence of the electric current flowing alternately and repeatedly out of contact with the salt solution into contact with an agent capable of decomposing the compound or amalgam formed while under the influence of such electric current, for the purpose set forth.

4. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing in a contracted or ribbon-like streamlet uninterruptedly from a higher to a lower level and before reaching such lower level flowing repeatedly out of contact with the salt solution into contact with an agent capable of decomposing the compound or amalgam formed, for the purpose set forth.

5. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing in a contracted or ribbon-like streamlet uninterruptedly from a higher to a lower level and before reaching such lower level, flowing while under the influence of the electric current alternately and repeatedly out of contact with the salt solution into contact with an agent capable of decomposing the compound or amalgam formed, for the purpose set forth.

6. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a body of mercury included in the electric circuit, and moving a plurality of contracted or ribbon-like streamlets of said mercury alternately and repeatedly through said solution and through an agent capable of decomposing the compound or amalgam formed, for the purpose set forth.

7. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing uninterruptedly from a higher to a lower level and before reaching such lower level flowing alternately and repeatedly out of contact with said solution into contact with an oxidant and solvent of the cation in the compound or amalgam formed and using the mercury of said compound or amalgam as an electrode for a primary element, for the purpose set forth.

8. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt, to a body of mercury included in the electric circuit, moving a plurality of contracted or ribbon-like streamlets of said mercury simultaneously and alternately through an oxidant and solvent of the cation in the compound or amalgam formed, and using the mercury in said compound or amalgam as an electrode for a primary element, for the purpose set forth.

9. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing in a contracted or ribbon-like streamlet in a zigzag direction from a higher to a lower level and before reaching such lower level flowing alternately and repeatedly out of contact with said solution into contact with an agent capable of decomposing the compound or amalgam formed, for the purpose set forth.

10. An electrolytic apparatus comprising two compartments, a fixed anode in one of them, a mercury cathode, and means for causing said cathode to uninterruptedly flow from a higher to a lower level alternately and repeatedly from one compartment to the other before reaching such lower level.

11. A partition for electrolytic apparatus provided on both faces with a series of superposed channels, those on one face being inclined in a direction opposite to that of the channels on the other face, and openings in said partition leading from the lowest point of a channel on one of its faces to the highest point of a channel on the opposite face to form a continuous channel, for the purpose set forth.

12. An electrolytic apparatus comprising two compartments fixed electrodes for each of said compartments, a second electrode for both compartments formed of mercury, in combination with means for continuously moving the mercury in a downward direction alternately and repeatedly from one compartment to the other, and electrical connections connecting the mercury in one of the compartments to the fixed electrode for said compartment, for the purpose set forth.

13. An electrolytic apparatus comprising two concentrically-arranged vessels, the inner vessel provided on both faces with downwardly-inclined channels connected in series to form a continuous channel from the upper to the lower end of said vessel, a pump whose force and suction pipes are respectively connected with the initial and terminal of said channel, a body of mercury adapted to circulate through said channel and a cylindrical fixed electrode extending nearly to the bottom of the inner vessel; in combination with electric connections respectively connecting the mercury in the channel portions in the outer face of the inner vessel, and the fixed electrode in said inner vessel with opposite poles of a source of electricity, substantially as and for the purpose set forth.

14. An electrolytic apparatus comprising two compartments each provided with downwardly-inclined and interconnected channel-sections forming a continuous channel leading alternately from one compartment to the other, a body of mercury in said channel, and a pump whose force and suction pipes are respectively connected with the initial and terminal of said channel, whereby the mercury therein is caused to continuously flow in a downward direction through the channel, and alternately from one compartment to the other; in combination with a fixed electrode in one of said compartments connected with one pole of a source of electricity, electrical conductors connecting the mercury in the channel-sections of the other compartment with the other pole of said source of electricity, and a resistance interposed in the last-named connections, for the purpose set forth.

15. In a process for the electrolytic decomposition of salts of metals capable of combining with mercury, passing an electric current through a solution of such salt to a mercury cathode flowing from a higher to a lower level alternately and repeatedly out of contact with said solution into contact with an agent capable of decomposing the compound or amalgam formed, and short-circuiting the amalgam when brought into contact with said decomposing agent with a suitable cathode, for the purpose set forth.

586,730. WORD-COUNTER FOR TYPE-WRITING MACHINES. CARL H. MENOK, Grand Island, Nebr. Filed Mar. 17, 1897. Serial No. 627,939. (No model.)

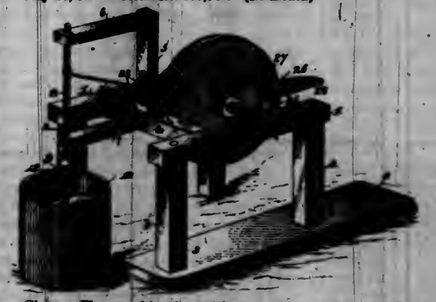


Claim.—1. In a word-counter for type-writing machines, the combination of an indicator, a pivoted finger, supporting devices whereon said finger may be given a second movement independent of its pivotal movement, connections whereby the second movement of said finger may be transmitted to and caused to operate said indicator, the said indicator being unaffected by the pivotal movement of the finger, substantially as described.

2. In a word-counter for type-writing machines, the combination of an indicator provided with an operating push-pin, clamping devices for securing said indicator to the frame of a type-writing machine, a sleeve or tube secured to said push-pin, a finger having a pivot-pin movably fitting said sleeve interiorly, and spring-governed latching devices arranged to yieldably hold said finger in any one of a plurality of predetermined positions, substantially as described.

3. The combination of a type-writing machine having a space bar or key, an indicator detachably secured to the frame of said machine, movable connecting devices constructed and arranged to engage the space-bar of said machine and transmit motion therefrom to actuate the indicator, guiding-supports whereon said connecting devices may be moved into and out of engagement with said space-bar, the said movement of engagement and disengagement being independent of the movement whereby said indicator is actuated.

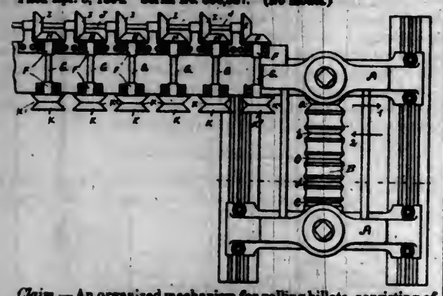
586,731. CHURN. CHARLES L. MONROE, Geneva, W. Va. Filed July 20, 1896. Serial No. 599,847. (No model.)



Claim.—The combination with a vertical dasher-spindle, of a belt-wheel arranged in a common vertical plane with and at one side of the spindle, twin upper and lower axially-horizontal guide-pulleys arranged between the spindle and belt-wheel and in the same vertical plane therewith, said pulleys having their axes arranged parallel with and approximately in the horizontal plane of the axis of the belt-wheel and spaced closely together at a less distance than the length of the diameter of said wheel, and upper and lower belt portions attached to and extending in opposite directions around the belt-wheel convergently toward the closely adjacent pulleys, carried between and respectively traversing the inner or contiguous sides of the pulleys, extending in divergent lines from the pulleys to the spin-

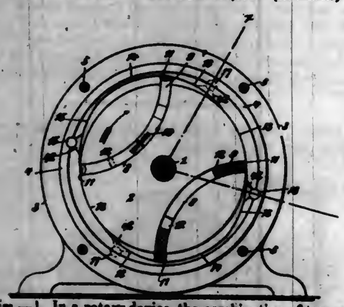
die, and attached to the latter at points respectively above and below the planes of the pulleys to reel thereon in opposite directions, each belt portion, when reeling, being adapted to move toward the horizontal plane of the belt-pulleys, substantially as specified.

586,782. ROLLING-MILL. CHARLES H. MORGAN, Worcester, Mass., assignor to the Morgan Construction Company, same place. Filed Apr. 5, 1894. Serial No. 506,527. (No model.)



Claim.—An organized mechanism for rolling billets, consisting of a set of three reducing-rolls, one above the other, and provided with circumferential grooves of varying size, whereby the billet is reduced by successive passes alternately between the central and upper rolls and the central and lower rolls of said set of rolls, a series of feed-rolls, each having a groove adapted to receive a billet, said grooves being in alinement with each other and with the first or end groove of said circumferential grooves between the central and upper rolls of said set of reducing-rolls, mechanism for positively driving said feed-rolls, whereby a billet is delivered to said first or end groove in the reducing-rolls, housings for said feed-rolls, said housings and said driving mechanism being arranged on one side of a line extending through the grooves in said feed-rolls and the said first or end groove of said circumferential grooves, and with the remaining grooves in said rolls upon the opposite side of said line, whereby a clear space is provided in front of said reducing-rolls to allow the billet to be raised or lowered vertically as it is successively fed to said reducing-rolls, substantially as described.

586,788. ROTARY MOTOR. GEORGE B. SHEPARD, Ogdensburg, N. Y. Filed Jan. 13, 1897. Serial No. 619,050. (No model.)



Claim.—1. In a rotary device, the combination of two parts one encircling the other, one of which is adapted to revolve with reference to the other, one being provided with a cam-surface having substantially equal portions concentric with the axis of rotation but at different distances therefrom, and inclined portions connecting said concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation, and a double-headed gate having bearing-surfaces at or near both ends, so arranged that the portions of the gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

2. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having substantially equal portions concentric with the axis of rotation but at different distances therefrom, and inclined portions connecting said concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation between which surfaces pockets are formed, and double-headed gates having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

3. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, said concentric portions being of substantially equal arc and equidistant from one another, and inclined portions connecting the concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation and double-headed gates having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate and suitable inlet and outlet ports, substantially as set forth.

4. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, said concentric portions being of substantially equal arc and equidistant from one another, and uniformly-curved inclined portions connecting the concentric portions, and the other having a surface concentric in part or in whole with the axis of rotation and double-headed gates having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

5. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having raised portions concentric with the axis of rotation, and depressed portions concentric with said axis, the concentric portions being substantially equal, and inclined portions connecting the concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation and double-headed gates equidistant from each other and having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

6. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, the concentric portions being substantially equal, and inclined portions connecting the concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation, and double-headed gates equidistant from each other and equal in number to the number of raised concentric portions on the cam-surface and having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

7. In a rotary device the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having substantially equal portions concentric with the axis of rotation and inclined portions connecting said concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation and provided with one or more interior slots to hold and guide the gate or gates, and one or more double-headed gates sliding in said slots and having bearing-surfaces at or near both ends so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

8. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and inclined portions connecting said concentric portions, and the drum having a surface in part or in whole concentric with the axis of rotation and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

9. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and inclined portions connecting said concentric portions, and a drum having a surface in part or in whole concentric with the axis of rotation and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, the said gates being equidistant from each other, and suitable inlet and outlet ports, substantially as set forth.

10. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, said concentric portions being of substantially equal arc and equidistant from one another, and inclined portions connecting said concentric portions, and the drum having a surface in part or in whole concentric with the axis of rotation and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

11. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, said concentric portions being of substantially equal arc and equidistant from one another, and inclined portions connecting said concentric portions, and the drum having a surface in part or in whole concentric with the axis of rotation and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

12. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and inclined portions connecting the concentric portions, the concentric portions and the inclined portions being all of substantially equal arc, and the drum having a surface in part or in whole concentric with the axis of rotation, and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

13. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and uniformly-curved inclined portions connecting the concentric portions, the concentric portions and the inclined portions being all of substantially equal arc, and the drum having a surface in part or in whole concentric with the axis of rotation, and provided with uniformly-curved slots to hold and guide the gates and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in contact with the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

14. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and uniformly-curved inclined portions connecting the concentric portions, the concentric portions and the inclined portions being all of substantially equal arc, and the drum having a surface in part or in whole concentric with the axis of rotation, and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, the said gates being equidistant from each other, and suitable inlet and outlet ports, substantially as set forth.

15. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, the shell being provided with an interior cam-surface having raised portions concentric with the axis of rotation and depressed portions concentric with said axis, and inclined portions connecting the concentric portions, the concentric portions and the inclined portions being all of substantially equal arc, and the drum having a surface in part or in whole concentric with the axis of rotation, and provided with uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with the cam-surface, the said gates being equidistant from each other and there being as many gates as there are raised concentric portions on the cam-surface, and suitable inlet and outlet ports, substantially as set forth.

16. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a suitable cam-surface and a double-headed curved gate having bearing-surfaces at or near both ends, so arranged that the portions of the gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, substantially as set forth.

17. In a rotary device, the combination of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a suitable cam-surface and the other having a surface concentric in part or in whole with the axis of rotation, and a double-headed curved gate having bearing-surfaces at or near both ends adapted to be in constant contact with different parts of the cam-surface and suitable inlet and outlet ports, substantially as set forth.

18. In a rotary device, the combination of a drum and an encircling shell, one adapted to revolve with reference to the other, one being provided with a suitable cam-surface and the other having a surface in part or in whole concentric with the axis of rotation and provided with interior uniformly-curved slots to hold and guide the gates, and double-headed uniformly-curved gates sliding in said slots and having bearing-surfaces at or near both ends adapted to be in constant contact with different parts of the cam-surface, substantially as set forth.

19. In a rotary device, the combination of the drum 2 having a surface concentric with the axis of rotation, the shell 3, 3, 4, having a cam-surface as described, the curved gates 9 adapted to bear constantly at both ends against the cam-surface, the inlet-ports 16, 16, and the outlet-ports 17, 17, substantially as set forth.

20. In a rotary device the combination of the drum 2 having a surface concentric with the axis of rotation, the shell 3, 3, 4, having a cam-surface as described, the curved gates 9 made in two parts, the springs 10, 10, connecting said parts, the gates being adapted to bear constantly at both ends against the cam-surface, the inlet-ports 16, 16, and the outlet-ports 17, 17, substantially as set forth.

21. In a compound rotary device, the combination of a primary consisting of two parts one encircling the other, one adapted to revolve with reference to the other, one being provided with a cam-surface having portions concentric with the axis of rotation but at different distances therefrom, and inclined portions connecting said concentric portions, and the other having a surface in part or in whole concentric with the axis of rotation between which surfaces pockets are formed, and double-headed curved gates having bearing-surfaces at or near both ends, so arranged that the portions of each gate at or near both ends successively constitute one of the walls of the working chamber and are positively moved to operative position for that purpose by the action of the inclined portion of the cam-surface upon the bearing-surface of the other end of the gate, and suitable inlet and outlet ports, and a secondary consisting of similar parts similarly constructed and arranged, the inlet-port of the secondary being connected in axial line with the outlet-port of the primary, substantially as set forth.

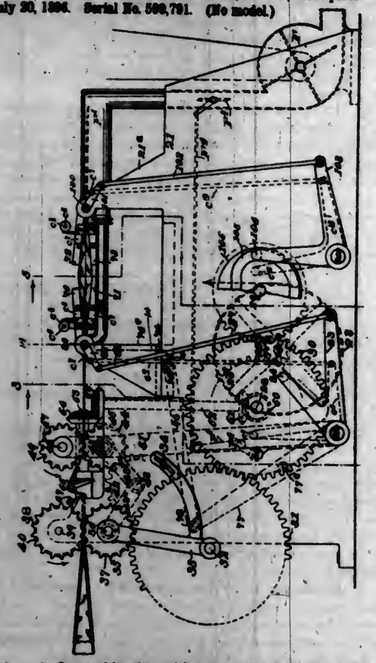
586,734. TOBACCO-PIPE. CHARLES W. VALENTINE, Lafayette, Ind. Filed Mar. 11, 1896. Serial No. 582,753. (No model.)

Claim.—As a new article of manufacture a pipe consisting of a bowl and stem in connection therewith, a mouthpiece engaging said stem, a tube connecting said stem and mouthpiece, and being provided with a screw-thread on both ends of the same, said stem being provided with a central bore, said tube also being provided with a central bore and likewise said stem, said bores being in communication, said stem being provided with a supplemental chamber in com-

munication with said main bore and extending backwardly to the stem end of the mouthpiece, all of said parts being combined substantially as and for the purposes described.



586,735. PAPER-BAG MACHINE. EDWARD E. GLASSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed July 30, 1896. Serial No. 600,791. (No model.)



Claim.—1. In combination with means for supporting a paper-bag blank, means for forming the primary transverse folds therein, consisting of a suction-box supported at one side only of the blank, to oscillate upon an axis located in substantial coincidence with the line of the desired primary transverse fold, and having an overhanging suction-surface extending across the plies to be folded, with an edge defining the line of the fold to be made, substantially as described.

2. Means for forming the primary transverse fold in a paper-bag blank, consisting of a suction-box journaled substantially in the plane of the blank to be folded, and having a perforated surface for engaging therewith, a pair of clips mounted upon the opposite edges of the suction-box, having beveled ends which in their closed position serve to define right-angled triangular folds in the blank, the suction-box having also mounted thereon a shaft and cams for simultaneously operating the clips.

3. Means for forming the primary transverse fold in a paper-bag blank consisting of a pair of suction-boxes disposed on the opposite flat sides of the blank and supported on independent bearings at the opposite edges thereof, the axes of the bearings being substantially coincident with each other and with the desired location of the transverse-fold line of the blank, substantially as described.

4. Means for forming the primary transverse fold in a paper-bag blank, consisting of a pair of suction-boxes, having independent bearings located at opposite edges of the blank, their axes being coincident with each other and with the plane of the blank, the blank-engaging portions of the suction-boxes projecting from their respective bearings past each other upon opposite sides of the blank, and having perforations in their adjacent walls, with means substantially as described for simultaneously oscillating the boxes away from each other upon their respective bearings.

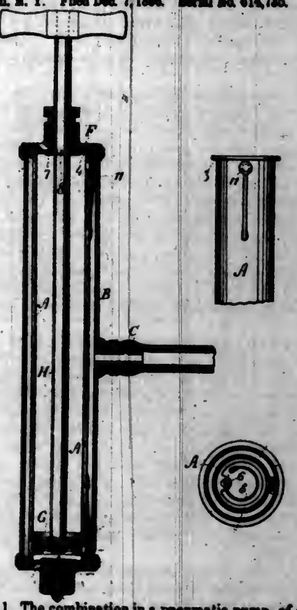
5. In a paper-bag machine, in combination with oscillating members thereof, having clips mounted thereon consisting of a clip-operating cam-shaft, a toothed pinion thereon, and a toothed gear journaled concentrically with the axis of the oscillating member, and engaging with the pinion, with means for operating the oscillating member and the clips, in suitable time and relation to each other, substantially as described.

6. Means for diamond-folding a double-length, bellows-sided blank, consisting of two pairs of oppositely-disposed suction-boxes, one pair being arranged to oscillate upon stationary bearings, and the other pair being arranged to oscillate upon a movable carriage, with means for moving the carriage so as to carry the suction-boxes mounted thereon toward and from the boxes mounted on the stationary bearings.

7. Means for diamond-folding a double-length, bellows-sided blank, consisting of two pairs of oppositely-disposed suction-boxes, one pair being arranged to oscillate upon stationary bearings, and the other pair being arranged to oscillate upon a movable carriage, with means for moving the carriage toward and from the boxes mounted on the stationary bearings, each of the suction-boxes being provided with a pair of bevel-ended clips for defining the right-angled triangular side folds in the blanks, substantially as described.

8. The combination of a pair of folding suction-boxes arranged to oscillate upon stationary bearings toward and from each other, a pair of suction-boxes similarly mounted upon a moving carriage, with means for exhausting the air from both pairs of suction-boxes and for moving the carriage so as to carry one of the two pairs of suction-boxes toward and from the other, substantially as described.

586,736. AIR-PUMP FOR PNEUMATIC TIRES. CHARLES DEE, Brooklyn, N. Y. Filed Dec. 7, 1896. Serial No. 614,735. (No model.)

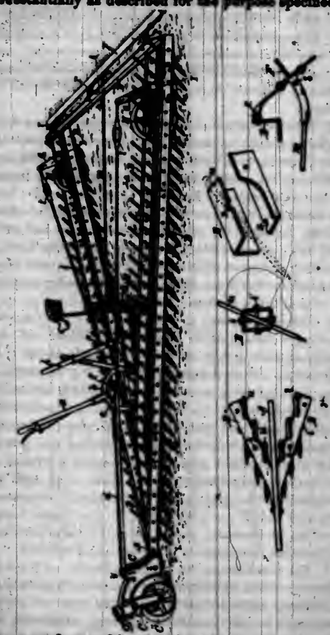


Claim.—1. The combination in a pneumatic pump, of a cylinder having end collars and valves on the exterior of such cylinder and near the ends, a case surrounding the pump-cylinder and the collars and forming an air-chamber between the case and pump-cylinder, heads screwed upon the case and washers intervening between the heads and the ends of the case and pump-cylinder, and inlet-valves within the heads, substantially as set forth.

2. The combination in a pneumatic pump, of a case, a pump-cylinder and end collars within the case, valves on the exterior of the pump-cylinder and near the ends, heads screwed upon the case, washers intervening between the heads and the ends of the pump-cylinder and valves formed of the material of the washers and covering the holes through the respective heads, substantially as set forth.

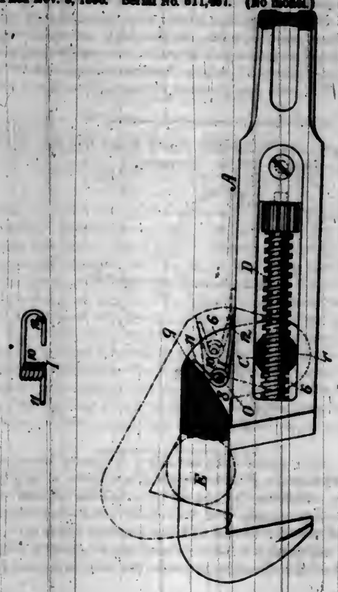
586,737. HARROW FOR RACE-COURSES. GEORGE B. GURNEE, Santa Rosa, Cal. Filed Jan. 16, 1894. Serial No. 497,059. (No model.)

Claim.—1. In a harrow for grading and cushioning purposes on race-courses, the combination of the side rails B, and the cross-piece D, united in the form of an isosceles triangle and bearing downwardly and forwardly projecting teeth, *n*, an adjustable wheel C, at the front of said harrow, independently-adjustable wheels H near each rear corner, the adjusting-lever *a*, connected by bar *d*, to the front wheel C, by the connecting-rods *i*, containing turnbuckles *i'*, to each of the rear wheels H, and the scraper F, pivoted to the rear of said harrow and connected by connecting-rods *m*, to the adjusting-lever *h*, all substantially as described for the purpose specified.



2. In a harrow a frame of beams joined in triangular form; the beams being composed of oppositely-facing angle-irons; in combination with spike-teeth extending downwardly and forwardly between the edges of the said angle-irons to stand in vertical planes parallel to the direction of the draft of the machine; bolts *t*, *t'*, extending through said angle-irons at right angles to each other and at right angles to the limbs of the angle-irons to clasp the teeth between the angle-irons as specified.

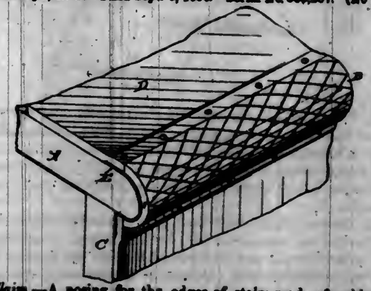
586,738. SCREW-WRENCH. CHARLES HALL, New York, N. Y. Filed Nov. 9, 1896. Serial No. 611,467. (No model.)



Claim.—1. The combination with the lever-handle, adjusting-screw and pivotal nut, of a swinging jaw having a deep recess adjacent to the side of the lever-handle, a coiled spring within the said recess, a cross-pin passing through the swinging jaw and through the coil of the spring, one end of the wire spring acting against the swinging jaw and the other end against the side of the lever-handle, substantially as set forth.

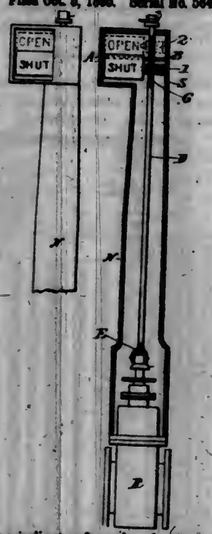
2. The combination with the lever-handle, adjusting-screw and pivotal nut, of a swinging jaw having a deep recess adjacent to the side of the lever-handle, a coiled spring within the said recess, a cross-pin passing through the swinging jaw and through the coil of the spring, one end of the wire spring acting against the swinging jaw and the other end of such wire spring being formed with a returned bend extending back into the recess, substantially as and for the purposes set forth.

586,739. MOLDING FOR EDGES OF STAIRS. CHARLES E. KNAPP, Brooklyn, N. Y. Filed Sept. 2, 1896. Serial No. 604,257. (No model.)



Claim.—A nosing for the edges of stairs made of rubber in a long narrow strip curved or bent to fit the edge of the stair, said nosing lined with canvas or other suitable material projecting a short distance beyond the nosing for the purpose of fastening to the carpet and stair substantially as and for the purpose set forth.

586,740. INDICATOR FOR VALVES. JOHN KNICKERBACKER, Troy, N. Y. Filed Oct. 5, 1896. Serial No. 564,777. (No model.)



Claim.—In an indicator for valves having a part of the operating-stem outside the valve threaded, and a nut working on said portion of the stem, which nut engages an indicator-block, the combination of an indicator-block which turns, said indicating-block being operated and held by the nut throughout its entire travel, to prevent rotary movement of said block, except as actuated by said nut, substantially as described.

586,741. STAND FOR BICYCLES. GEORGE B. LA BARR and CLARENCE V. HILL, Trenton, N. J. Filed July 9, 1896. Serial No. 598,563. (No model.)

Claim.—1. The combination with the two pairs of crossed and pivoted legs, of the two base-pieces connecting the lower ends of said legs, connecting devices joining the upper ends of said legs, and a frame or board connected to and sustained by said connecting devices, said frame or board and the said base-pieces constructed to conjointly give lateral support to the machine.

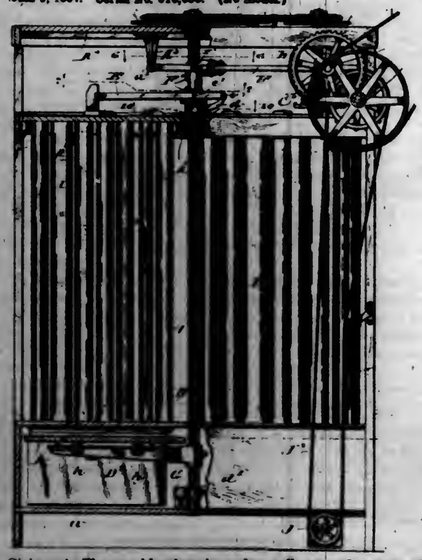


2. The combination with the two pairs of crossed and pivoted legs, of the two base-pieces connecting the lower ends of said legs, lugs or pins projecting upward from said base-pieces, links connecting the upper ends of the legs, a frame or board pivoted to and sustained by said links, and lugs or pins depending from the lower edge of said board.

3. The combination with the legs or standards crossed and pivotally connected together, of the two pairs of links connecting their upper ends, the frame or board pivoted between said links on a horizontal axis and formed with depending extensions having open notches and pins projecting from the legs in position to be straddled by the open notches when the legs are spread whereby in folding the stand the open notches will permit the board to be disengaged from the pins and reversed end for end.

4. The combination with the two pairs of crossed and pivoted legs, of the two pairs of links 13 pivoted to said legs below their point of connection, a horizontal bar 11 pivoted to said links, supporting lugs or pins on said bar, connecting devices joining the upper ends of the legs, a frame or board joined to and sustained by said connecting devices and supporting lugs or pins on said frame or board.

586,742. DUST-COLLECTOR. DANIEL W. MARMON, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed Jan. 9, 1897. Serial No. 618,650. (No model.)



Claim.—1. The combination, in a dust-collector, of groups of dust-collecting tubes arranged radially about a central shaft, said shaft, a hammer pivoted to an arm on said shaft above said tubes, an operating-lever pivotally connected at one end to a support and extending past said shaft to an operating trip-wheel, said trip-wheel, a sleeve surrounding said shaft and having pivotal connections to said lever and to said hammer, one of said connections being in the form of a trunnion-ring, whereby the hammer is enabled to be revolved while the lever remains in position, substantially as set forth.

2. The combination, in a dust-collector, of a central shaft, mechanism whereby said shaft is revolved intermittingly, a hammer carried by an arm secured to said shaft and pivotally and revolubly mounted on a sleeve thereon, said sleeve, and means for operating said sleeve.

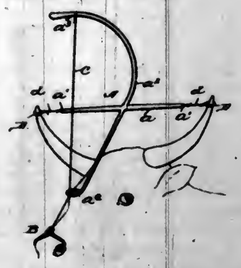
3. The combination, in a dust-collector, of dust-collecting tubes arranged in groups or sections and secured at the lower end in perforations leading to a dust-chamber, heads to which the upper ends of said tubes are attached and resting against the framework at the outer end and against a flange on a spider at the inner end, said spider consisting of a hub loosely surrounding the shaft and arms extending thence to the sides of the framework, and springs carried by said hub and supporting the said heads at the inner end, and corresponding springs carried by the framework and supporting said heads at the outer ends, said several parts being arranged and operating substantially as shown and described.

4. The combination, in a dust-collector, of a framework and casing having a dust-chamber therein at the lower end, dust-collecting tubes arranged in groups or sections radially about a central shaft, heads for the tubes composing each group or section carried by springs upon the framework, said springs, said central shaft, a hammer the handle whereof is pivoted to an arm on said shaft, said handle extending thence past said shaft and carrying the hammer-head upon the opposite end, a trunnion-ring surrounding and carried by a sleeve on said shaft to which said hammer-handle is pivoted, said sleeve, a lever pivotally supported from the framework and bifurcated and passing astride the shaft where it is pivotally connected to the said sleeve, and a shaft carrying a disk or trip-wheel containing pins or projections for operating said lever, said several parts being arranged and operating substantially as shown and described.

5. The combination, in a dust-collector, of the framework, the groups or sections of dust-collecting tubes, the central shaft, the pivoted hammer carried thereby, a pivoted lever whereby the hammer is raised and let fall, a shaft for operating said lever, a disk bearing a short toothed segment also on said shaft, a counter-shaft running at right angles therewith and bearing a toothed gear with which said segment will engage, said counter-shaft being connected to said central shaft, whereby the main shaft is permitted continuous motion, while said counter-shaft and said central shaft are given intermittent motion substantially as shown and described.
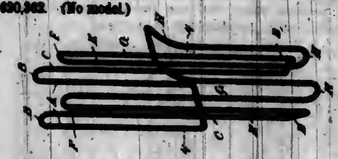
6. The combination, in a dust-collector, with the dust-collecting tubes and suitable mechanism for operating the same, of a dust-chamber below said tubes, ribs or flanges projecting downwardly from the upper wall or ceiling of said chamber and bounding an area corresponding to that occupied by each group or section of tubes, and a dust-receiving structure carried by an arm on the central shaft and consisting of a board or plate of similar size, which, when in position below any given group of tubes, together with said ribs or flanges, forms an inclosed receptacle into which the dust may be precipitated from the tubes, where it will remain free from contact with the tubes until swept off into the dust-chamber, substantially as shown and described.

586,743. ANIMAL-POKE. JOHN H. MOORE, Hye, Tex. Filed Mar. 29, 1897. Serial No. 629,789. (No model.)



Claim.—In an animal-poke and safety device for horned cattle, the combination of the short horizontal arm adapted to be pivotally connected to the horns, the upright forwardly-curved arm rigidly secured to said horizontal arm, the wire or wires secured near the upper end of said curved arm and engaging the lower end of said curved arm and passing thence to a nose ring to which it is detachably connected, said wire being in front of the horns to prevent goring.

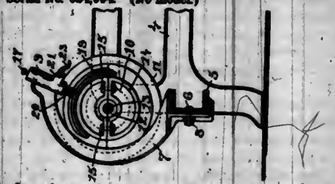
586,744. COMBINATION WHIP-SOCKET AND REIN-HOLDER. MARCUS D. PETERSON, Long Lake, Minn. Filed Jan. 28, 1897. Serial No. 620,962. (No model.)



Claim.—1. A combination whip-socket and rein-holder, formed of a single piece of wire and comprising the clip A, the bends B, the members C, D and E, providing the socket, the bends F, members G and H, all arranged and adapted to operate, substantially as shown and described.

2. The herein-described rein holder or supporter comprising a socket having the side members substantially as described, the bottom bars, a depending clip or clamp adapted to engage the dashboard, an upwardly-extending clip constructed as described for the reception of the reins, the upwardly-extending portions of said clip being flared or curved outwardly for the purpose set forth.

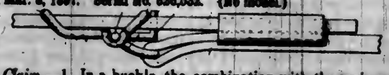
586,745. WARP-BEAM BRAKE FOR LOOMS. OTIS S. PIERCE, Pawtucket, and ARTHUR J. MCALLEN, Central Falls, R. I. Filed Feb. 25, 1897. Serial No. 624,094. (No model.)



Claim.—1. In a loom, the combination with the frame of the loom, the warp-beam and a friction-wheel secured to the warp-beam, of the bracket 7 having the cylindrical end 9, the brake 19 bearing on the brake-wheel, the post 20 supported in the cylindrical end 9, the coiled spring 18, the adjusting-screw 17 and a lever pivoted on the cylindrical end 9 and engaging with the post 20, whereby the brake may be raised off from the friction-wheel without altering the adjustment of the coiled spring, as described.

2. In a loom, the combination with the warp-beam, a friction-wheel detachably secured to the warp-beam and a bracket adjustably secured to the frame of the loom and forming the support of the friction-brake, of the cylinder 9 supported by said bracket having the slot 16, the brake 19, the post 20 extending from the brake, a projection on the post extending into the slot 16, the cavity 22 in the post, the lever 23 pivoted to projections on the cylinder 9 and provided with the cam end 24, the coiled spring 18, and the adjusting-screw 17, whereby the tension of the spring is adjusted and one warp-beam may be exchanged for another without changing the adjustment of the spring and frictional resistance, as described.

586,746. BUCKLE. LEWIS D. RANK, Williamsport, Pa. Filed Mar. 8, 1897. Serial No. 626,532. (No model.)

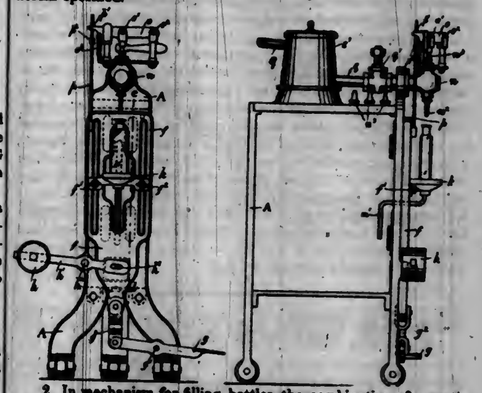


Claim.—1. In a buckle, the combination with the main rectangular member thereof, having upper and lower bars lying in different planes, the lower bars having a cross-piece connecting its side pieces, a second member adapted to be pivotally connected to the first, a triangular piece extending from the axis of the second member and carrying the tongue of the buckle, and a frame also extending from the axis of said member for attachment to the harness.

2. In a buckle, the combination with the main member thereof provided with bearings, a second member having journals resting in said bearings, a triangular piece extending from the axis of the second member and carrying the tongue of the buckle, a frame also extending from the axis of said member for attachment to the harness, and a friction-roller journaled on the axis of the second member.

586,747. BOTTLE-FILLING MACHINE. THOMAS ROBERTS, Bolton, England. Filed Oct. 7, 1896. Serial No. 608,108. (No model.) Patented in England June 23, 1894, No. 12,101.

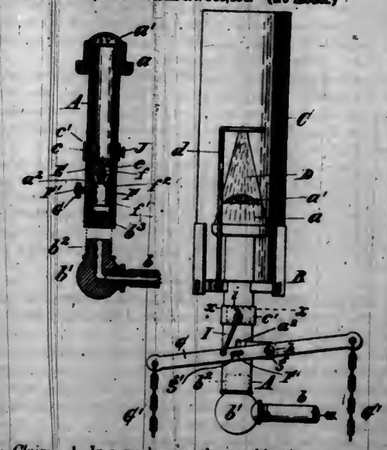
Claim.—1. In mechanism for filling bottles the combination of a vertically-moving slide, pedal-and-lever mechanism for operating said slide, an adjustable table for supporting the bottle to be filled secured to said slide, a cut-off valve for regulating the flow of liquid, the lever *e* connected with the stem of the valve, and the rod *p* connecting the slide with said lever and having adjustable nuts p' p^2 to operate on opposite sides of one end of the lever, substantially as herein specified.



2. In mechanism for filling bottles, the combination of a vertically-movable slide, pedal-and-lever mechanism for operating said slide, a table for supporting the bottle to be filled and adjustably connected with the slide, a supply-nozzle, a valve for controlling the flow through the nozzle, the lever *e* connected with the stem of the valve, a spring e^3 for moving said lever downward, and the rod *p* connecting the slide with said lever and having the adjustable nuts p' p^2 to operate on opposite sides of the lever, substantially as described.

3. In mechanism for filling bottles, the combination of a vertically-moving slide, pedal-and-lever mechanism for operating said slide, an adjustable table supporting the bottle to be filled attached thereto, a cut-off valve for regulating the flow of said liquid, means for operating said cut-off valve and means for receiving and agitating the liquid to be filled into said bottles the liquid-agitator being connected with said slide.

586,748. GAS-BURNER. JOSEPH STUBBINS, Covington, Ky. Filed Feb. 21, 1896. Serial No. 580,150. (No model.)



Claim.—1. In a gas-burner, the combination, of an open-ended burner-barrel, the side of which is provided with a longitudinal and with a circumferential opening, a stationary orificed disk in the barrel between said openings, a movable gas-orificed needle-pointed valve within the barrel below the disk, a handle in the valve projecting through the longitudinal opening in the barrel, and a band around the barrel at the circumferential opening, substantially as set forth.

2. A gas-burner composed of a burner barrel or tube having a valve-controlled air-inlet orifice therein; a stationary, gas-orificed disk or plug mounted in said barrel adjacent the air-orifice; a movable, gas-orificed needle-pointed valve arranged within said barrel below said disk and adapted to engage the gas-orifice therein; a manipulating cross-bar or lever pivotally mounted on the burner-

barrel and having an opening therein engaging a stud or pin projecting laterally and outwardly, through an opening in the said barrel, from the base of the needle-point valve; and a link-coupling between said lever and the air-controlling valve; the whole being constructed and adapted to operate so that the supply of gas and air to the burner is properly controlled and commingled, substantially as herein set forth.

3. A gas-burner composed of a burner-barrel having one or more air-orifices therein; a vertically-movable sleeve or band surrounding said barrel and controlling said air-orifices, and having means for securing it in the desired position; a gas-orificed plug or disk rigidly mounted in said barrel adjacent said air orifice or orifices; a gas-orificed needle-point valve movably mounted within said barrel below said stationary disk and adapted to engage the orifice therein; a manipulating cross-bar or lever pivotally mounted on the burner-barrel and having a frictional, expansion-washer mounted on its bearings; a stud or pin projecting outwardly, through a vertical slot in the barrel, from the needle-point valve, and engaging an elongated opening in said manipulating-lever; the whole being constructed and adapted to be operated so that the air and gas inlet orifices are controlled, substantially as herein set forth.

586,749. BED-PAN. CATHARINE VOORHIES, Elmira, N. Y. Filed Jan. 14, 1897. Serial No. 619,188. (No model.)



Claim.—1. As a new article of manufacture, a bed-pan provided at its head with a supplemental channel extending forward over the head, with its mouth in a position adapting it for use in the manner and for the purpose set forth.

2. The combination of a bed-pan provided with a hole or holes at each side of its aperture, and a pad or cushion provided with a pocket to receive the point of the pan and with arms extending up the sides of the pan, said arms being supplied with hooks adapted to engage said holes, substantially as described.

586,750. PRINTING AND MERCERIZING COTTON. JOSEPH WEISS, Heidenheim-on-the-Brenz, Germany. Filed Jan. 12, 1897. Serial No. 618,963. (No specimens.) Patented in France Dec. 11, 1895, No. 252,377; in Austria May 6, 1896, No. 46/1,732, and in Italy June 30, 1896, XXXI, 41, 360, LXXXO, 150.

Claim.—1. A process for forming crêpe-like patterns or effects on fabric or yarn of vegetable origin, consisting in impregnating the same with a caustic-alkali solution, and then printing with a neutralizing substance, such as specified, before the caustic alkali has commenced to act, substantially as described.

2. A process for forming crêpe-like patterns or effects on fabric or yarn of vegetable origin, consisting in impregnating the same, with a caustic-alkali solution, and then printing with a neutralizing substance and dyestuffs, before the caustic alkali has commenced to act, substantially as described.

3. A process for forming crêpe-like patterns or effects on fabrics or yarn of vegetable origin, consisting in impregnating the same with a caustic-alkali solution, and then before the caustic alkali has commenced to act, printing with a salt, such as specified, the oxids of which become fixed in the fibers and colored by the reaction so as to obtain a colored crêpe effect, substantially as described.

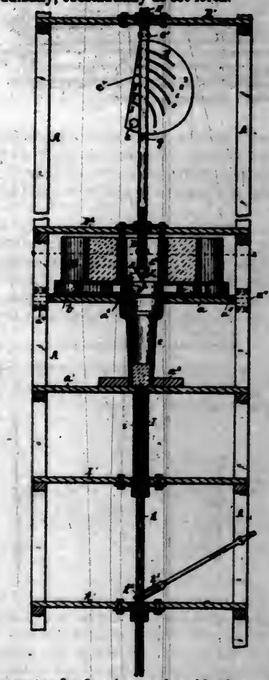
586,751. METHOD OF AND APPARATUS FOR MAKING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Aug. 4, 1890. Serial No. 360,891. (No model.)

Claim.—1. The herein-described method of forming cores and molds, consisting in feeding the sand to the box or flask, dropping the packer down onto the same until it rests on and is supported by the sand and then forcing down the packer to pack the sand, substantially as and for the purposes set forth.

2. In apparatus for forming molds, the combination of the frame carrying guideways for receiving the core-box or flask, and a table mounted on pivots at the rear end of said frame and extending forward and having a guiding-seat at the forward end thereof for the reception of the upper end of the core-box or flask, substantially as and for the purposes set forth.

3. In apparatus for forming cores or molds, the combination of a core-box or flask, a vertically-reciprocating packer carried on a bar and entering the same, and a cam constructed to engage said bar at different heights and force the packer against the sand within the flask, substantially as and for the purposes set forth.

4. In apparatus for forming sand molds, the combination of a core-box *c* supported in a suitable seat, the guideway I for the reception of the loose core-rod *i*, the vertically-moving bar *k* separate from the core-rod and adapted to enter said guideway and to be withdrawn from the guideway sufficiently to enable a core-rod to be placed in position below the core and mechanism for moving the bar *k* longitudinally, substantially as set forth.



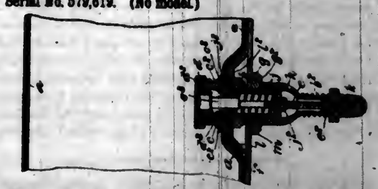
5. In apparatus for forming sand molds, the combination of the guide-seats a^2 a^3, the core-box *c* supported therein, the guideway I for the reception of the core-rod *i*, vertically-moving bar *k* adapted to enter said guideway, and a lever k^3 engaging with said bar *k*, substantially as and for the purposes set forth.

6. In apparatus for forming molds, the combination of the core-box, the removable block A, having the recess A^2, a guide below the core-box, a loose core-rod in said guide and a pusher below the same for forcing the core-rod through the core and into the recess A^2 of the removable block, substantially as and for the purposes set forth.

7. In apparatus for forming molds, the combination with a core-box or flask, of a packer secured to a vertically-reciprocating bar D, having a frame *f* provided with a pin *g*, and a rotating cam or like device having a series of eccentric wings on the face thereof at different distances from its center, to engage with the upper face of said pin, substantially as and for the purposes set forth.

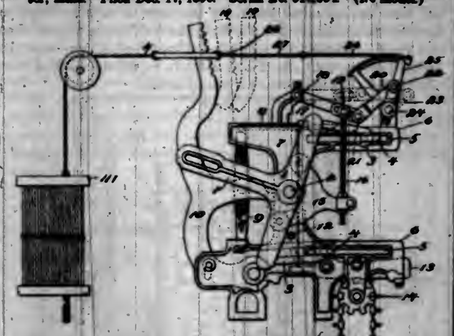
8. In apparatus for forming molds, the combination with a core-box or flask of a packer secured to a vertically-reciprocating bar D having a frame *f* and provided with pins *e'* and *g*, and a rotating cam engaging with the pin *e'* and having one or more eccentric wings on the face thereof to engage with the upper face of the pin *g*, substantially as and for the purposes set forth.

586,752. VALVE FOR USE WITH PNEUMATIC TIRES, &c. CHARLES FITZ ROY A. H. BAGOT, London, England. Filed Feb. 17, 1896. Serial No. 579,619. (No model.)



Claim.—A valve consisting of a socket-piece having a conical surface on its inner end to form a valve-seat, and a valve proper comprising a disk d^3 provided with a rim forming an undercut groove, a stem provided with a flange d^2 and a flexible pad adapted to be sprung into the undercut groove and under the flange d^2, all substantially as set forth.

586,753. LENO-MOTION FOR LOOM-DOBBIES. HENRY BARDSLEY, Providence, R. I., assignor to the Knowles Loom Works, Worcester, Mass. Filed Dec. 17, 1896. Serial No. 616,004. (No model.)



Claim.—1. The combination with a harness-actuator, its actuating devices, including lifters and a rocker by which such lifters are moved, a harness-frame, and harness connections having an elongated loop to engage with the said harness-actuator, the said harness-actuator operating to transmit full-length movements to the harness-frame, of the arm 25, also engaging with the said harness connections, the swinging arms 17 and 20 operatively connected with the said arm 25, and means to actuate said swinging arms from the rocker aforesaid to cause the arm 25 to make a complete half-and-return traverse at each complete one-way traverse of the said lifters, substantially as described.

2. The combination with a harness-frame, a harness-actuator, harness connections whereby to operate said harness-frame from said harness-actuator, the hooks or hooked jacks connected with said harness-actuator, the lifters engaging with the said hooks or hooked jacks to operate the said harness-actuator, and the rocker operatively connected with the said lifters, of devices operated from the said rocker and communicating to the said harness-frame a half-and-return movement, substantially as described.

586,754. CHURN-DASHER. PELEG C. HARLOW, Buckhannon, W. Va. Filed June 13, 1894. Serial No. 514,448. (No model.)



Claim.—A churn-dasher formed of a central member having a central collar perforated for the passage of a dasher-staff and provided with aligned arms projecting from opposite sides of said collar, the under sides of said arms being provided with recesses forming guideways extending longitudinally from the central collar and opening at the ends of the arms, said arms being also provided with longitudinally-extending slots of less width than and arranged centrally along the guideways, movable members having shanks fitting in and slidable along said guideways and provided with openings corresponding with the slots in the arms of the central member, enlargements on the outer ends of the shanks corresponding in cross-section with and forming shoulders to engage the ends of the arms when the movable members are adjusted toward each other, blades projecting at right angles from the enlargements and having their outer surfaces beveled to form an angle projecting beyond the other portions of the blade and shank and adapted to traverse the inner surface of the churn-body, bolts passed through the slots in the arms and the openings in the shanks, and nuts in the bolts, substantially as described.

586,755. TELEGRAPH-CABLE. JAMES M. BAIN, London, England, assignor of one-half to Charles Edmund Stanley Phillips, same place. Filed Dec. 28, 1896. Serial No. 617,073. (No model.)

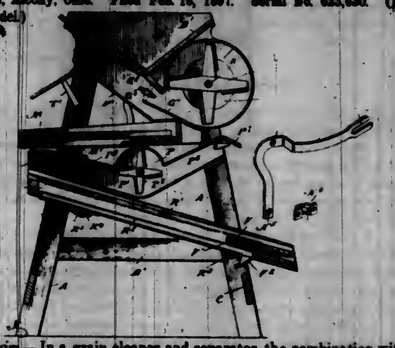
Claim.—1. In a telegraph apparatus the combination of a pair of parallel adjacent conductors connected at one end to a common return, a source of current having one pole connected to the common return, contacts connected to the conductors at the transmitting end, and a key connected to the other pole of the source between said contacts, all substantially as and for the purpose described.

2. In a cable telegraphic apparatus, the combination of two equal parallel groups of insulated conductors, each group being connected at one end of the line to a return-conductor, and each respectively connected at the other end of the line to a contact; a key interposed between the contacts, and an electrical supply connected at one pole to the key and at the other to the return-conductor, said key being adapted to throw either group of conductors into circuit and simultaneously throw the other group of conductors out of circuit, whereby, in the act of signaling, the energy in the one group as it is cut out of circuit falls, while the energy in the other group as it is brought into circuit rises, the rise of the electromotive force in one group corresponding to and compensating for the fall in the other, so that there is little or no self-induction and consequently no appreciable retardation; substantially as set forth.



3. In a cable telegraphic apparatus, the combination of two equal groups of insulated wires of the cable, each group being connected at one end of the cable to the armor thereof as return-conductor, and each provided at the other end of the cable with a contact; a key adapted to engage either contact and simultaneously disengage the other; and an electrical supply connected by one pole to the key and the other pole to the armor, whereby, in signaling, the rise of electromotive force in the group brought into circuit by the key is accompanied by a fall of electromotive force in the other group cut out of circuit by the key, the rise and fall in the respective groups so compensating each other that there is no self-induction in the cable, and consequently no retardation from that cause, all substantially as described.

586,756. GRAIN CLEANER AND SEPARATOR. JAMES C. BENSON, Accary, Ohio. Filed Feb. 16, 1897. Serial No. 623,630. (No model.)



Claim.—In a grain cleaner and separator, the combination with the main frame, of the lever, fan-chamber, and air-chamber all having common side boards, the fan and fan-shaft, said shaft having the pinion at one end and a sprocket at the opposite end, a drive-gear meshing with the pinion, the eccentric studs carried by the pinion and sprocket, the elbow-levers pivoted to the side boards slotted at their upper ends to engage the eccentric studs, the upper reciprocating shoe supported upon guide-rollers of the main frame and pivotally connected to the lower ends of the elbow-levers, the secondary fan-chamber, the fan and fan-shaft, the sprocket arranged upon one end of said shaft, and a disk arranged upon the opposite end, the sprocket-chain connecting the two sprocket-wheels, the elbow-levers pivoted upon the sides of the secondary fan-chamber and slotted at their upper ends, the eccentric studs carried by the sprocket and disk, the lower reciprocating shoe, the supporting rod or shaft, the pendent guide-hanger and the spring for holding the supporting rod or shaft in the said hanger all arranged and adapted to operate substantially as shown and described.

586,757. LOCK. DAVID O. BOOTH and CLAUDE R. DAVISSON, Mount Clare, W. Va. Filed Mar. 3, 1897. Serial No. 626,541. (No model.)

Claim.—1. A door-securing device comprising a casing, a bar secured to said casing, a bar-section mounted to reciprocate in said casing and provided with key-receiving bar-operating notches, and housings secured at opposite sides of the door on the casing or wall to receive the ends of said bars, substantially as specified.

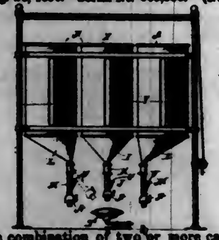
2. A door-securing device comprising a bar extending across the door and formed in sections one of which is secured to a case and the other terminating within a case secured to the door, one of said sections being provided with a key-receiving and bar-operating notches, a spring-latch within the casing for maintaining the bar in a desired position and a tumbler upon the latch and extending into the path of the blade of the key, substantially as specified.



3. In a door-securing device, the combination of a case, a spring-tumbler secured to the case and provided with a tumbler-ward depending therefrom, a bar provided with a recess having opposite walls between which said ward extends and which limit the movement of the bar, bar-operating notches, and a tumbler-seat upon the bar, substantially as specified.

4. The combination with a case adapted for the reception and operation of a key of the bar-section secured to the case and having its outer end chamfered and a bar-section slidable within the case and provided with bar-operating key-notches and means for retaining the bar in a locked and an unlocked position which means are controlled by the action of the key, substantially as specified.

586,758. COMBINATION-CANISTER. Amos R. Carter, Tayior, Iowa. Filed Aug. 21, 1896. Serial No. 603,565. (No model.)



Claim.—1. The combination of two or more canisters adapted to hold a quantity of material, a spout leading from each of said canisters having a hopper thereon, a flexible section arranged upon each of said spouts, and a cut-off valve adapted to control the passage through each of said spouts, as specified.

2. The combination of two or more canisters secured together within a frame, inclined bottoms formed upon said canisters, spouts having hoppers leading from said bottoms, flexible sections included in said spouts, valves arranged upon the lower ends of said spouts, and handles for operating said valve, as shown and described.

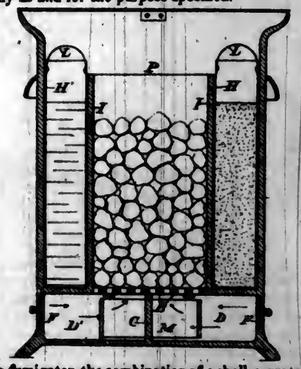
3. The combination of two or more canisters secured together in a frame, inclined bottoms carried by said canisters, flexible sections leading from said bottoms, spouts attached to said sections, valves carried by the lower ends of said spouts, hoppers connected with said spouts, and means for raising and lowering said canisters, substantially as and for the purpose set forth.

4. The herein-described combination of two or more canisters, a frame for securing said canisters together, uprights by which said frame is guided, cords and pulleys for supporting said frame, a windlass for raising and lowering said frame, inclined bottoms formed with the canisters, flexible sections leading from said bottoms, spouts attached to said sections, valves carried by the lower ends of the spouts whereby the passages in the latter are controlled, handles for operating said valves, and sight-gages for determining the amount of material in each of the canisters, substantially as and for the purpose set forth.

5. In combination with a series of canisters as described, spouts J connected to said canisters by flexible sections, semicircular valves pivoted to the lower ends of said spouts, tubes carried by said valves adapted to be turned into alinement with the spouts and out of alinement therewith, handles for operating said valves, hoppers connected with the spouts, valves for controlling communication between said hoppers and spouts, and covers for closing said hoppers, substantially as and for the purpose set forth.

586,759. FUMIGATOR. Lewis W. Cook, San Marcos, Tex., assignor, by direct and mesne assignments, to the Acme Fumigator Company, Chicago, Ill. Filed Feb. 16, 1895. Serial No. 538,676. (No model.)

Claim.—1. In a fumigator, the combination of a shell, a grate in the lower part thereof, for the support of combustible material, one or more vessels within the shell alongside of the combustion-chamber, from the top to the bottom of the same, so as to be interposed between such chamber and the shell, the shell having a space above said vessel or vessels into which the fumes produced may enter, and having a contracted outlet from such space for the commingled fumes, substantially as and for the purpose specified.



2. In a fumigator, the combination of a shell, a grate in the lower part thereof for the support of combustible material, and removable vessels within the shell, extending from the upper part thereof downward to or near the grate, the space above the latter, between the vessels being the combustion-chamber, the shell having a space above the chamber and above the vessels into which all fumes produced enter, and having a contracted outlet from such space, for the commingled fumes, substantially as and for the purpose shown.

3. In a fumigator, the combination of a shell, a grate in the lower part thereof above which is a combustion-chamber and below which is a draft-chamber divided into independent compartments, means for controlling the admission of air to each of said compartments, and several receptacles within the shell at the sides of the combustion-chamber, the shell having a fumes-receiving space above the receptacles that has a contracted fumes-outlet, substantially as and for the purpose set forth.

4. In a fumigator, the combination of a shell, a grate in the lower part thereof above which is a combustion-chamber and below which is a draft-chamber divided into independent compartments, means for controlling the admission of air to each compartment, and several receptacles arranged to rest in contact with combustible material upon the grate, the shell having a fumes-receiving space above the receptacles that has a contracted, fumes-outlet, substantially as and for the purpose described.

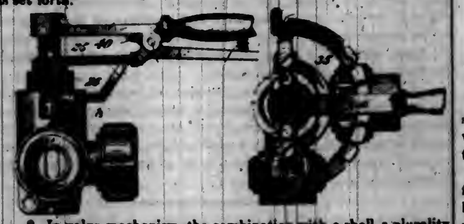
586,760. COMBINED BABY-CARRIAGE AND WHEEL-CHAIR. Jesse A. Crandall, Brooklyn, N. Y., assignor of one-half to Frank R. Caldwell, same place. Filed Feb. 13, 1897. Serial No. 623,208. (No model.)



Claim.—In a combined baby-carriage and wheel-chair, the combination of a pair of main wheels, a baby-carriage body supported thereon and provided with handles, said body being divided into two transverse sections about midway its length, the rear section being provided at its forward end with a depending support and step-piece, and the front section being secured to the front edge of the rear section and projecting out over the step-piece, whereby said front section may be removed to convert the baby-carriage into a wheel-chair, substantially as described.

586,761. STEAM HEATING APPARATUS. Robert M. Dixon, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, New York, N. Y. Filed June 1, 1896. Serial No. 593,931. (No model.)

Claim.—1. In steam heating apparatus, the combination with a main steam-supply pipe and local circulatory system with which the former makes operative contact, a valve-shell provided with two branches inserted into the steam-supply pipe, one branch communicating with the main line of the steam-supply pipe and the other with that part which makes contact with the circulatory system, of a valve working in the shell, a variable opening in the valve adapted to increase and diminish the size of the passage between the two branch pipes, in proportion to the pressure contained within the main steam-supply pipe, an indicator for setting the valve, and a pressure-gage communicating with the main steam-supply pipe, and adapted to designate the position at which the valve is to be set, substantially as set forth.



2. In valve mechanism, the combination with a shell, a plurality of branches, and a movable valve adapted to increase or diminish the size of the opening between the branches in proportion to the pressure exerted within one of the branches, of a steam-gage communicating with that branch, and an indicator graduated to conform to the numbers on the steam-gage, whereby the valve may be set as required to accommodate the pressure indicated by the gage, substantially as set forth.

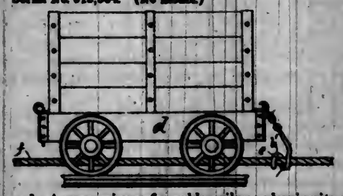
3. The combination with a shell, plurality of branches, and a revoluble plug in the shell, of a tapered groove in the plug designed to establish communication between the branches and to increase and diminish the size of the opening between the same throughout a variety of graduations, an indicator upon the shell graduated to conform to the groove in the plug, and means for fastening the plug opposite to any one of the series of graduations upon the indicator, as required, substantially as set forth.

4. The combination with a shell provided with a plurality of branches and a revoluble plug within the shell, of a tapered groove in the plug, and a segmental cleft into which the groove merges, both located opposite to the branches and adapted to increase and diminish the size of the opening between the branches in conformity to a graduated scale, substantially as set forth.

5. The combination with a shell, and plurality of branches, of a plug-valve located within the shell and adapted to establish and cut off communication between the branches, and a passage extending through the shell and communicating with one of the branches independently of the plug, substantially as set forth.

6. The combination with a shell and plurality of branches, of a plug-valve operatively secured within the shell, a pressure-gage aperture in the shell opposite to one of the branches, and a passage communicating between the last-named branch and the pressure-gage aperture, independently of the plug, substantially as set forth.

586,762. ROPE-GRIPPER FOR CABLE-RAILWAYS. Elan Eaves, Derby, and Alfred J. Tonge, Bolton, England. Filed Nov. 30, 1896. Serial No. 613,834. (No model.)



Claim.—1. A rope-gripper for cable-railways having its gripping part of spiral form and provided with a rigid arm extending substantially at a right angle to the longitudinal center of the spiral, one coil of said spiral being separated from the other to allow the application of the gripper to the cable, substantially as specified.

2. A rope-gripper for cable-railways having its gripping part of spiral form, one coil of which is for contact with one side of the cable while the other is for contact with the other side and provided with a rigid arm extending substantially at a right angle to the longitudinal center of the spiral, so that the pull on the arm extending from the coils causes them to grip said cable, substantially as specified.

3. A rope-gripper for cable-railways having a coiled part and an arm extending therefrom, said arm being bent so as to be clear of the flanges of any guide-pulley around which it has to pass substantially as specified.

586,768. STORM-FRONT FOR VEHICLES. Stephen R. Farrow, Beaver Meadows, Pa., assignor of one-half to C. L. Allen, same place. Filed May 7, 1897. Serial No. 635,544. (No model.)



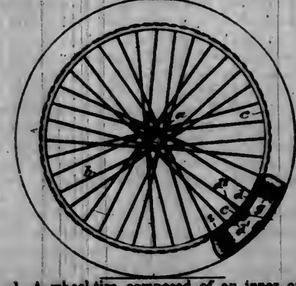
Claim.—1. A storm front or curtain for vehicles comprising two sections designed to be secured at their outer edges to bows of the vehicles, and an elastic strip connecting the inner vertical edges of the sections, substantially as and for the purpose described.

2. In a device of the class described, the combination of a storm front or curtain provided at its side edges with plates or tongues, brackets designed to be secured to bows and provided with casings receiving the tongues or plates, and a catch mounted on each bracket and securing the plate or tongue therein, substantially as described.

3. In a device of the class described, the combination of a storm front or curtain provided at its side edges with plates or tongues, and brackets designed to be secured to bows of a vehicle and each comprising a casing having a slot or opening to receive a tongue or plate, and a pair of clips having hinged sides and provided with adjusting-screws adapted to clamp the sides against a bow, substantially as described.

4. In a device of the class described, the combination of a storm curtain or front provided at its side edges with stiffening-bars, tapering plates secured between said bars and provided with perforations, brackets provided with clips and having casings provided with tapering openings conforming to the configuration of the plates, and spring-actuated levers fulcrumed on the casings and having engaging ends extending through the same and fitting in the perforations of the plates, substantially as described.

586,764. TIRE. Francis J. Fresse, Lowell, Mass., assignor of one-half to John Augustine Rafter, Montreal, Canada. Filed Oct. 10, 1895. Serial No. 565,282. (No model.)



Claim.—1. A wheel-tire composed of an inner open ring, an outer intact flexible ring, a series of yielding resistances located between such inner and outer rings and a flexible covering for the whole, for the purpose set forth.

2. A wheel-tire composed of an inner open ring, and an outer intact flexible ring, each ring being formed with a series of guides, a series of coiled springs having their ends located about such guides, and a flexible covering for the whole, for the purpose set forth.

3. A wheel-tire composed of an inner open ring, and an outer intact flexible ring, each ring being formed with a series of guides formed in one therewith, a series of coiled springs having their ends located about such guides, and a flexible covering for the whole, for the purpose set forth.

4. A wheel-tire composed of an inner open ring, an outer intact flexible ring, a series of yielding resistances located between such inner and outer rings and a flexible covering for the whole formed partially of textile or woven material and partially of elastic material, for the purpose set forth.

5. A wheel-tire composed of an inner open ring, and an outer intact flexible ring, each ring being formed with a series of guides formed in one therewith, a series of coiled springs having their ends

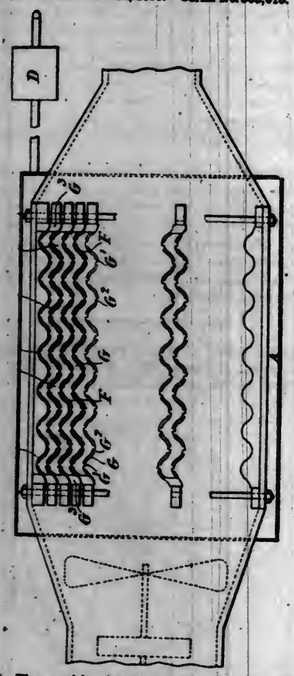
located about such guides, and a flexible covering for the whole formed partially of textile or woven material and partially of elastic material, for the purpose set forth.

586,765. MEANS FOR SECURING TIRES TO VEHICLE-WHEELS. ALBERT B. FREDERICK and DAVID O. ROSTICE, Livingston, Wis. Filed Oct. 26, 1895. Serial No. 566,999. (No model.)



Claim.—As a means for applying tires to vehicle-wheels the combination with the felly and tire, of an intermediate strip or layer of fire and water proof material or lagging and a compound which is hard at ordinary temperature but is softened on the application of heat to enable the tire to be placed in position substantially as described.

586,766. APPARATUS FOR COOLING AIR. ALFRED S. HASLAM, Derby, England. Filed Oct. 14, 1895. Serial No. 565,613. (No model.)



Claim.—1. The combination of a number of fixed vertical plates, distance-pieces between the tops of the plates forming the perforated bottom of a trough, means for supplying cold brine or other uncongealable liquid to the trough and means for carrying the air or gas between the plates.

2. The combination of a number of fixed vertically-corrugated plates, distance-pieces between the tops of the plates forming the perforated bottom of a trough, means for supplying cold brine or other uncongealable liquid to the trough and means for carrying the air or gas between the plates.

3. The combination of a number of fixed vertical plates, distance-pieces between the tops of the plates forming the perforated bottom of a trough, means for supplying cold brine or other uncongealable liquid to the trough, means for carrying the air or gas between the plates, and a receiver for the cold liquid into which the bottoms of the plates dip.

4. The combination of a number of fixed vertically-corrugated plates, distance-pieces between the tops of the plates forming the perforated bottom of a trough, means for supplying cold brine or other uncongealable liquid to the trough, means for carrying the air or gas between the plates, and a receiver for the cold liquid into which the bottoms of the plates dip.

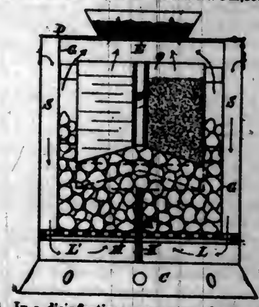
586,767. TRACE-HOLDER. THOMAS J. HATFIELD, Dublin, Ind. Filed July 16, 1896. Serial No. 599,289. (No model.)



Claim.—1. The herein-described trace-holder consisting of a plate having an opening for the passage of the whiffletree and provided at each end with attached arms for embracing the trace, and at the central portion thereof with a tube or sleeve projecting above its upper edge, and a bolt or pin carrying a coiled spring in said tube or sleeve, for the purpose set forth.

2. As a new article of manufacture, the herein-described trace-holder consisting of a plate having a central opening, the arms at the corners thereof being formed with the right-angled fingers, the sleeve or tube, the pin having a head and cross-bar, the coiled spring secured thereon, and the support-hook, all arranged and operating substantially as set forth.

586,768. FUMIGATOR. JOHN W. HILL, Chicago, Ill., assignor, by direct and mesne assignments, to the Acme Fumigator Company, same place. Filed Mar. 23, 1895. Serial No. 542,853. (No model.)



Claim.—1. In a disinfecting apparatus, the combination of the outer shell, a grate, an inner shell having imperforate sides extending to the grate, and arranged to form with the other a vertical flue, an opening or openings being provided, through which air may pass to the bottom of the grate, from said flue, means whereby air may pass directly from the atmosphere of the place being treated into the upper part of the flue, so as to prevent heating of the outer shell, and a disinfectant-holding vessel within the inner shell, a passage being provided to permit air passing upward through the grate, to pass such vessel and be charged with the vapors or fumes liberated from the material in the vessel, substantially as and for the purpose specified.

2. In a disinfecting apparatus, the combination of the outer shell, a grate supported above the bottom of the device and provided with an air-passage around its outer edge, an inner shell, above the grate, having imperforate sides, and extending down to the same, inside of said air-passage, and forming with the shell a cold-air flue, means for admitting air to the upper part of the flue, directly from the atmosphere of the place to be treated, and a vessel arranged within the inner shell to leave a space between it and said shell, for the passage of heated air, up around the vessel, substantially as and for the purpose specified.

3. In a disinfecting apparatus, the combination of the outer shell, a perforated cover therefor, a grate, an inner shell, above the grate, and extending down thereto, forming with the outer shell a cold-air flue, means for admitting air to the upper part of the flue directly from the atmosphere of the place to be treated, a passage for air from the flue to the space beneath the grate, and a vessel within the inner shell, around and by which air passing upward from the grate, may pass, substantially as and for the purpose set forth.

4. In a disinfecting apparatus, the combination of an outer shell, a cover having a perforated portion, a raised portion or wall around the latter, forming therewith a holder, a grate within the outer shell for the support of combustible material, an inner shell forming with the outer shell a flue, means for admitting air to the top of the flue, and a vessel within the inner shell, substantially as and for the purpose specified.

5. In a fumigator, the combination of an outer shell, a cover having a perforated portion, a raised wall, or part around the latter forming a holder, a grate within the outer shell for the support of combustible material, an inner shell forming with the outer shell a flue, means for controlling the admission of air to the flue, and a vessel within the inner shell, substantially as and for the purpose described.

6. In a fumigator, the combination of a shell having a suitable combustion-chamber, an uncovered vessel arranged within the latter to leave a space between them for the passage around the vessel of the products of combustion, and having a central, vertical passage for products of combustion, and means above the vessel for causing fumes or vapors given off from the contents thereof, to mingle with the products of combustion passing through said passage, substantially as and for the purpose set forth.

7. In a fumigator, the combination of the outer shell, the grate, the inner shell extending to the grate and forming with the outer shell a flue, means for admitting air to the upper part of the flue, an opening or openings being provided for air to pass from the flue below the grate, a vessel within the inner shell, a passage being provided to permit air to pass by the latter, and a lamp below the vessel to heat the same, substantially as and for the purpose described.

8. In a fumigator, the combination of the outer shell, the grate, the inner shell extending to said grate, and forming with the outer shell a diving-flue, means for controlling the admission of air to the upper part of the flue, an opening or openings being provided for air to pass from the flue, a removable vessel within the inner shell, a passage being provided to permit air to pass by the vessel, and a lamp below the vessel to heat the same, substantially as and for the purpose specified.

9. In a fumigator, the combination of the outer shell, a grate, an inner shell forming with the outer shell a diving-flue, means for admitting air to the upper part of said flue, means for passing air from said flue beneath the grate, a vessel within the inner shell, a cover, and a holder for a body of absorbent material attached to said cover, substantially as and for the purpose shown.

586,769. BALL-BEARING. WILLIAM HOAG, Ridgeway, N. Y. Filed Dec. 7, 1896. Serial No. 614,962. (No model.)



Claim.—In a ball-bearing, the combination of the axle provided with a cylindrical cup and a cone constituting part of the raceway for the balls, a sleeve adapted to surround the axle, and provided with a cup F adapted to constitute the other part of the raceway, and an annular beveled face outside of the cup F, and the balls, substantially as set forth.

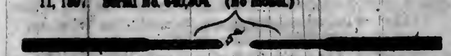
586,770. EYELET. ELEAZER KENDRALL, Newton, Mass., assignor to Theophilus King, trustee, Boston, Mass. Filed July 20, 1896. Serial No. 599,832. (No model.)



Claim.—1. An eyelet comprising in its construction a tubular-shaped body, a flange or enlargement at each end thereof, and a ring of plastic material formed on each of said flanges, and extending under the outer edge thereof to form shoulders adapted to bear on the material in which the eyelet is inserted.

2. An eyelet comprising in its construction a tubular-shaped body, having provisions for securing a ring of plastic material thereto, said material lining the inner wall of the eyelet-body, and extending beyond the lower end thereof to form a projecting portion *f'* of plastic material.

586,771. TIPPED LACING. ELEAZER KENDRALL, Newton, Mass., assignor to Theophilus King, trustee, Boston, Mass. Filed June 11, 1897. Serial No. 640,304. (No model.)



Claim.—1. A lacing comprising a woven body, a fibrous cord within the said body, and plastic bonding and stiffening material interposed between the end portions of the cord and body and united therewith, whereby the body and cord are firmly united at their ends and the ends of the lacing are suitably stiffened.

2. A lacing comprising a woven body, a fibrous core within said body, and tubes of plastic material interposed between the end portions of the body and core and pressed into the fibers of both the body and core to unite their end portions and stiffen the ends of the lacings.

3. The improved method hereinbefore described, of making tips on woven lacings, the same consisting in inclosing plastic sections in the end portions of a woven lacing-body and then interlocking said sections with said end portions by heat and pressure.

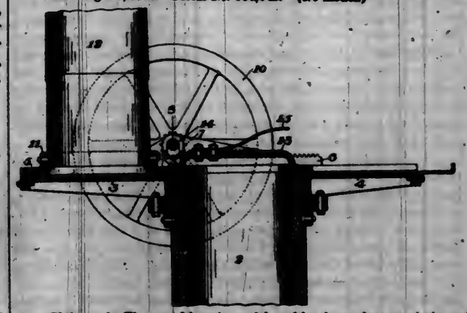
4. As an article of manufacture, a lacing comprising a woven body, and an end-stiffener of plastic material placed within the end portion of said body and interlocked with the meshes of said end portion.

586,772. LACING-HOOK. ELEAZER KENDRALL, Newton, Mass., assignor to the Boston Fast Color Eyelet Company, Boston, Mass. Filed Apr. 1, 1897. Serial No. 630,268. (No model.)



Claim.—A lacing-hook composed or formed of celluloid, an attaching means secured to the base thereof, having a member extending into the neck of the hook.

586,773. BLEEDER-VALVE. WALTER KENNEDY, Pittsburg, Pa. Filed Aug. 26, 1896. Serial No. 604,042. (No model.)



Claim.—1. The combination with a bleeder-valve consisting of a reciprocating plate arranged to travel across the bleeder-pipe, said plate having a hole arranged to register with the bleeder-pipe when the valve is in open position and having also a hole arranged to register with the bleeder-pipe when the valve is in closed position, of an explosion-door normally closing said latter hole and constructed and arranged to be opened by pressure within said pipe; substantially as described.

2. The combination with a bleeder-valve having a plate arranged to move across the bleeder-pipe, said plate having a hole which registers with the pipe when the valve is in open position, and also a hole arranged to register with the pipe when the valve is closed, of a swinging explosion-door pivoted to said plate and normally closing the latter hole; substantially as described.

3. A bleeder-valve comprising a plate arranged to travel across the bleeder-stack, said plate having a hole registering with an upper section of bleeder-pipe secured to the plate, and having also another hole which is normally closed by a swinging explosion-door pivoted to the plate; substantially as described.

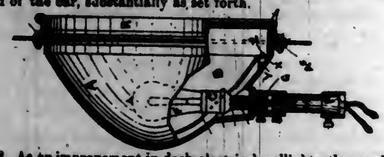
4. A bleeder-valve comprising a plate arranged to travel across the bleeder-stack, said plate having a hole registering with an upper section of bleeder-pipe secured to the plate, and having also another hole which is normally closed by a swinging explosion-door pivoted to the plate, said explosion-door having a spring arranged to contact with the upper section of the bleeder-pipe when the door is driven open; substantially as described.

5. In a bleeder-valve, a reciprocatory plate having transioned in bearings thereon a shaft provided with pinions engaging stationary racks, and a section of bleeder-pipe secured to said plate and registering with a hole therein, said plate having another hole normally closed by an explosion-valve, said valve having slotted lugs taking about the pinion-shaft upon the plate; substantially as described.

586,774. DASH ELECTRIC HEADLIGHT. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the United States Headlight Company, Utica, N. Y. Filed Jan. 8, 1897. Serial No. 618,439. (No model.)

Claim.—1. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car, of a headlight hav-

ing a case provided with a parabolic reflector secured therein and having a lamp-opening in its side in line with the focal point thereof, said case being provided with a housing forming a part thereof and located opposite the said opening in the reflector, a hollow sleeve depending from and communicating with the interior of said housing and containing a socket-holder movable therein on a line with the focal point of the reflector and parallel with a line drawn across the face thereof, and through which socket-holder current-conveying wires pass to, for connection with a lamp-socket held by said holder, a fastening device for securing the said holder within said hollow sleeve whereby the lamp held in said socket may be adjusted to its proper relation with the focal point of the reflector and securely held in such position and means for attaching the headlight to the dashboard of the car, substantially as set forth.



2. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car, of a headlight having a case provided with a parabolic reflector secured therein and having a lamp-opening in its side in line with the focal point thereof, a hollow sleeve opening into the case opposite the said opening in the reflector and containing a socket-holder movable therein on a line with the focal point of the reflector and parallel with a line drawn across the face thereof, and through which socket-holder current-conveying wires lead to, for connection with a lamp-socket held by the said holder, a fastening device for securing the said holder within said hollow sleeve, whereby the lamp held in said socket may be adjusted to its proper relation with the focal point of the reflector and securely held in such position, and means for attaching the headlight to the said dashboard, substantially as set forth.

3. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car, of a headlight having a case provided with a parabolic reflector secured therein and having a lamp-opening in its side in line with the focal point thereof; a hollow sleeve opening into the case opposite the said opening in the reflector and containing a socket-holder movable therein on a line with the focal point of the reflector and parallel with a line drawn across the face thereof; and through which socket-holder current-conveying wires lead to, for connection with a lamp-socket held by the said holder and registering with said opening in the reflector, a fastening device for securing the said holder within said hollow sleeve, whereby the lamp held in said socket may be adjusted to its proper relation with the focal point of the reflector and securely held in such position, a conduit connecting the headlight-case with the floor of the car-platform and through which conduit the current-conveying wires lead from underneath the car to the lamp-socket, and means for attaching the headlight to the said dashboard, substantially as set forth.

4. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car, of a headlight-case provided with means for attachment to said dashboard, a parabolic reflector secured within said case and having an opening in its side in line with the focal point of the reflector, a hollow sleeve attached to the headlight-case, a lamp-socket holder mounted therein and carrying a lamp-socket to which an incandescent electric lamp is attached, current-conveying wires leading from underneath the car to said lamp, an independent conduit extending substantially from said sleeve, to which its upper end is secured, to the floor of the car-platform and through which conduit the said wires pass, an independent conduit-socket adapted to be fixed to the car structure and to support the lower end of said conduit, and a fastening device by which said conduit is secured thereto, substantially as set forth.

5. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car, of a headlight-case provided with means for attachment to said dashboard, a parabolic reflector secured within said case and having an opening in its side in line with the focal point of the reflector, a hollow sleeve attached to the headlight-case, a lamp-socket holder adjustably mounted therein and carrying a lamp-socket to which an incandescent electric lamp is attached, means for securing the said lamp-socket holder within the said hollow sleeve, current-conveying wires leading from underneath the car to said lamp, an independent conduit extending substantially from said sleeve to which its upper end is secured, to the floor of the car-platform and through which conduit the said wires pass, an independent conduit-socket adapted to be fixed to the car structure and to support the lower end of said conduit, and a fastening device by which said conduit is secured thereto, substantially as set forth.

6. As an improvement in dash electric headlights, a headlight-case provided with a housing or pocket adapted to receive a lamp-socket holder, a reflector provided with an opening for the passage of a lamp-socket, a lamp-socket holder, a lamp-socket and an incandescent electric lamp mounted within the said case and removable therewith, in combination with the dashboard of a railway-car having a hole or opening cut through the same, a ring secured to the said dashboard on the outside thereof opposite the said hole or opening therein, means for securing the open end of the said headlight-case to the rear side of the said dashboard in register with the said hole or opening therein, a transparent cover located forward of the open end of the said reflector and arranged to permit of access to the interior thereof from the front side of the said dashboard, current-conveying wires leading from underneath the car to said lamp-socket, a conduit extending substantially from the headlight-case to the floor of the car-platform and through which conduit the said wires pass, fastenings for securing the upper and lower ends of said conduit in position, whereby the conduit can be removed without removing the headlight-case from its support, substantially as and for the purpose set forth.

7. As an improvement in dash electric headlights, a headlight-case provided with a housing or pocket adapted to receive a lamp-socket holder, a reflector provided with an opening for the passage of a lamp-socket, a lamp-socket holder, a lamp-socket and an incandescent electric lamp mounted within the said case and removable therewith, in combination with the dashboard of a railway-car having a hole or opening cut through the same, a ring secured to the said dashboard on the outside thereof opposite the said hole or opening therein, means for securing the open end of the said headlight-case to the rear side of the said dashboard in register with the said hole or opening therein, a transparent cover located forward of the open end of the said reflector and arranged to permit of access to the interior thereof from the front side of the said dashboard, current-conveying wires leading from underneath the car to said lamp, a conduit extending substantially from the headlight-case to the floor of the car-platform and through which conduit said wires pass, a conduit-socket adapted to be secured to the car structure at the lower end of said conduit, fastenings for securing the upper end of said conduit to said case and its lower end to said socket, whereby the conduit can be removed without removing the headlight from its support, substantially as set forth.

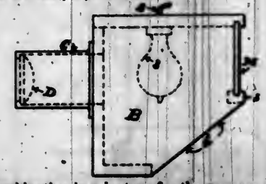
8. The combination with the end platform of a railway-car, of a dashboard attached to and extending upwardly from said platform, a headlight-case carried by said dashboard and inclosing a parabolic reflector having an opening in its side in line with the focal point thereof, a lamp-socket holder mounted within the case and carrying a lamp-socker registering with said opening in the reflector and to which an incandescent electric lamp is attached, current-conveying wires leading from underneath the car to said lamp, a conduit extending from the headlight-case to the floor of the car-platform, sockets into which the ends of the said conduit fit loosely, fastenings for securing the conduit in said sockets, the upper and lower ends of said conduit in position, whereby the conduit can be removed without removing the headlight-case from its mounting, and means for attaching the said case to said dashboard, substantially as set forth.

9. The combination with the end platform of a railway-car, of a dashboard attached to and extending upwardly from said platform, a headlight-case carried by said dashboard and inclosing a parabolic reflector having an opening in its side in line with the focal point thereof, a lamp-socket holder mounted within the case and carrying a lamp-socket registering with said opening in the reflector and to which an incandescent electric lamp is attached, current-conveying wires leading from underneath the car to said lamp, a conduit extending from the headlight-case to the floor of the car-platform and through which conduit said wires pass, a conduit-holder attached to or formed integral with the case and into which holder the upper end of said conduit fits loosely, a conduit-socket adapted to be secured to the car structure and into which socket the lower end of said conduit fits loosely, fastenings for securing the upper end of said conduit in said holder and its lower end in said socket, whereby the conduit can be removed without removing the headlight from its support, and means for attaching the headlight to the dashboard, substantially as set forth.

586,775. LANTERN AND ILLUMINATED SIGN FOR STREET-CARS. WASHINGTON I. LARKELLER, Cincinnati, Ohio. Filed Apr. 17, 1897. Serial No. 632,685. (No model.)

Claim.—1. The combination of an illuminated sign fixed to the roof of a car on the outside, separate from the lantern, a lantern throwing light onto the same by means of a suitable light-tube, and lens, with a sign on the inside of a car, forming a part of said lantern, as and for the purpose described and set forth.

2. The combination of illuminated signs, one on the outside of the car and the other inside; made of glass or other translucent material, upon which and through which the letters of the sign are shown both day and night, one of which signs is separate from the lantern, and has a light projected onto it, and one of which forms part of the lantern, and has a direct light onto it, both of which signs, inside and outside, are lighted by the same electric bulb, without diminution of the light of said bulb to the inside of the car, and both of which signs may be readily changed without disturbing said lantern, as and for the purpose set forth.

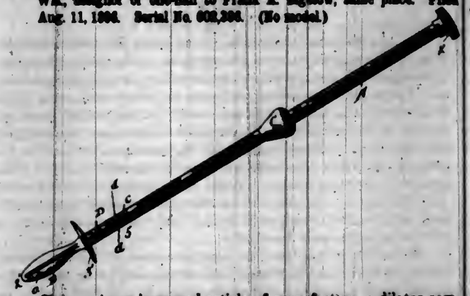


3. The combination in a lantern for the purpose described, of a substantially rectangular body, having at its front end a light-tube and lens, and at its rear, or opposite end, a suitable slide for a sign; and which is cut away as at *b* as and for the purpose described.

4. A combination of a frame E surrounding a suitable sign, a cushion *i* for said sign, and a holder G as and for the purpose set forth.

5. A combination of a forward front outside sign F, upon which are painted letters distinctly legible by day and by night without change of any apparatus; the letters being made legible by night simply by the same act, and at the same time by which the car itself is lighted: and an inside sign on the rear of the lantern-box B, distinctly legible by day and night, without change in the apparatus of the car, or in its lighting arrangements, the whole combination being a day and night sign, both inside and outside of the car, consuming no extra light, and requiring no separate attention from the general lighting of the car, as and for the purpose set forth.

586,776. UTERINE DILATOR. TIMOTHY A. LEWIS, La Crosse, Wis., assignor of one-half to Frank A. Bigelow, same place. Filed Aug. 11, 1896. Serial No. 602,396. (No model.)



Claim.—As an improved article of manufacture, a dilator comprising the cylindrical handle, provided with the fixed milled knob 2 and having its opposite end formed with the integral rectangular tongue *c*, the cylindrical rod D, formed with the integral parallel jaws *d d*, between the parallel walls of which the said rectangular tongue *c*, is pivoted by the transverse rivet *c*, the conical pear-shaped sleeve C, snugly encompassing the joint between the handle and the rod, to fix it rigid, the screw-stud 3 formed integral with said rod, and the detachable solid stem B, provided with the threaded orifice 4, and having the integral concave flange 3', encompassing its base and the longitudinal parallel grooves *a a* formed in the opposite sides of said stem, substantially as shown and described.

586,777. ELLIPTIC SPRING. TABER C. MANDT, Stoughton, Wis., assignor to the T. C. Mandt Vehicle Company, same place. Filed Aug. 4, 1896. Serial No. 601,606. (No model.)



Claim.—In an elliptic spring, the combination with the end clips arranged in pairs, consisting of the plates formed with inwardly-extending flanges at the outer edges and said plates at the lower sides formed with inwardly-projecting lugs and the connecting-bolts, of the upper spring-leaf having its ends bent around said bolts and bearing against the upper portions of said flanges, and the lower leaf confined between said lugs and flanges and having its ends bent around the ends of the upper leaf, substantially as described.

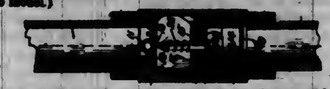
586,778. COTTON-GIN FEEDER. THOMAS P. MARLOW, Gadsden, Ala. Filed Aug. 24, 1896. Serial No. 603,749. (No model.)



Claim.—1. In a gin-feeder the feed-box, an endless feed-apron arranged to travel within the lower portion of the box, and a horizontal ovoidal or barrel-shaped distributing-drum arranged transversely above the apron, the greater diameter of the drum being at a point centrally between its ends to permit a greater quantity of cotton to pass under the end portions of the drum, whereby the roll-box of the gin may be fed heavier at its ends than at the center, substantially as described.

2. In a cotton-gin feeder, the combination of the feed-box having opposite side extensions at one end provided in their lower edges with upwardly-extending resistant curved bearing-slots, a feed-apron mounted for travel within the lower portion of the box, a horizontal drum mounted for rotation over the apron and carrying distributing-fingers, a spiked delivery picker-roll having its shaft extremities detachably resting in the upper ends of said curved bearing-slots of the side extensions, and a segmental screen-hood fitted on the outer ends of said side extensions beyond and concentric with the outer side of the picker-roll, substantially as set forth.

586,779. WASTE-VALVE FOR WATER AND STEAM PIPING SYSTEMS. HORACE P. HENNEYER, Macungie, Pa., and JONAS F. YOUNG, Niagara Falls, N. Y. Filed Aug. 16, 1896. Serial No. 602,127. (No model.)



Claim.—1. In a waste-valve, the valve-casing provided at a point near one end with a transverse waste pipe or passage open at both ends and provided intermediate of its ends in one side with a drain-port communicating with the interior of the casing, and a pressure-operated plunger-cup guided for movement within the casing and carrying a valve-point adapted to seat itself in said drain-port, substantially as set forth.

2. In a waste-valve, the valve-casing provided with a waste-pipe having an interiorly-arranged drain-port, a pressure-operated plunger-cup guided for movement within the valve-casing, and an independently-movable valve-pin slidably mounted in the closed end of the plunger-cup, substantially as set forth.

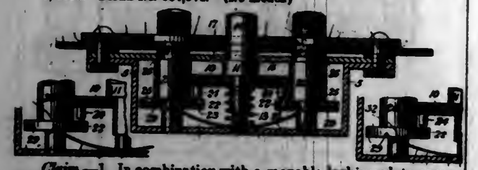
3. In a waste-valve, the casing having an interior guide-bore, and a waste-pipe having an interiorly-arranged drain-port, and a hollow plunger-cup sliding in said guide-bore and provided with a closed end carrying a valve-point and having therein small relief-openings, said plunger-cup being further provided with enlarged side ports covered and uncovered by the movement of the cup in said guide-bore, substantially as set forth.

4. In a waste-valve, the valve-casing having an interior enlarged valve-chamber, a guide-bore at one side of said valve-chamber, and a waste-pipe having an interiorly-arranged drain-port, and a hollow plunger-cup sliding in said guide-bore and provided with a closed end carrying a valve-point adapted to cover and uncover said drain-port, said plunger-cup being further provided with enlarged side ports adapted to be covered and uncovered by the movement of the cup in said guide-bore, substantially as set forth.

5. In a waste-valve, the valve-casing having an interior enlarged valve-chamber, a guide-bore at one side of said chamber, and a waste-pipe having an interiorly-arranged drain-port, a hollow plunger-cup sliding in said guide-bore and provided with a closed end and with enlarged side ports, and a movable valve-pin loosely mounted in the closed end of the plunger-cup and provided at one end with a point adapted to seat itself in said drain-port, substantially as set forth.

6. In a waste-valve, the valve-casing having an interior annular valve-seat, an enlarged valve-chamber above the valve-seat, a cylindrical guide-bore below the valve-seat and a transverse waste-pipe open at both ends and provided with a central drain-port, a hollow cylindrical plunger-cup sliding in said guide-bore and provided with a closed end having an annular valve-shoulder and small relief-openings, said plunger-cup being further provided with enlarged side ports, a valve-pin slidably mounted in the closed end of the plunger-cup and provided at one end within the cup with a disk head and at its opposite end with a point adapted to seat itself in said drain-port, and a spring coiled on and connected to the valve-pin at one side of the closed end of the plunger-cup, substantially as set forth.

586,780. LOCK. CHARLES J. PETERS, Pittsburg, Pa. Filed Oct. 5, 1896. Serial No. 607,971. (No model.)



Claim.—1. In combination with a movable locking-plate engaging a hasp-plate, and register-plates provided with openings for pins on the locking-plate mounted on dial-stems; a figured dial having a stop on its under surface and a spring-shoulder designed to engage such stop, substantially as set forth.

2. In combination with a movable locking-plate engaging a hasp-plate, and register-plates provided with openings for pins on the locking-plate mounted on dial-stems and provided with radial grooves thereon; a spring designed to engage such grooves, substantially as set forth.

3. In combination with a movable locking-plate engaging a hasp-plate and register-plates provided with openings for pins in the locking-plate mounted on dial-stems and provided with radial grooves thereon; a figured dial having a stop on its under surface, a spring-shoulder designed to engage such stop, and a spring designed to engage the radial grooves on the register-plates, substantially as set forth.

4. In a lock of the class described, in combination with a movable locking-plate provided with an upturned lip for engagement with a hasp-plate, a stem supporting the locking-plate having bearings in the case of the lock, one end of such stem constituting a push-button, and register-plates provided with openings for pins in the locking-plate mounted on dial-stems; a figured dial mounted on the stem provided with a stop on its under surface and a spring-shoulder designed to engage such stop, substantialy as set forth.

5. In a lock of the class described, in combination with a movable locking-plate provided with an upturned lip for engagement with a hasp-plate, a stem supporting the locking-plate having bearings in the case of the lock, one end of such stem constituting a push-button, and register-plates provided with openings for pins in the locking-plate mounted on dial-stems; a figured dial mounted on the stem provided with a stop on its under surface and a spring-shoulder designed to engage such stop, radial grooves on the under side of the register-plates, and a spring designed to engage such grooves, substantially as set forth.

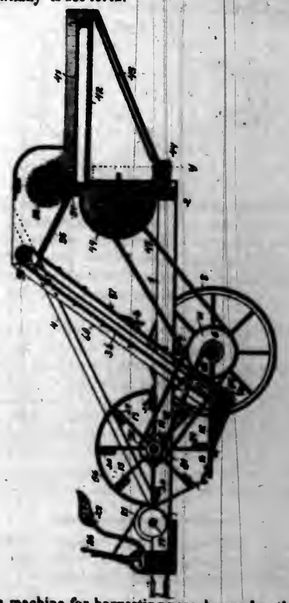
586,781. OIL-CAN. GEORGE A. RAWBOTHER, York, Pa., assignor of two-thirds to James A. Dale and Lewis B. Wampler, same place. Filed Sept. 15, 1896. Serial No. 605,862. (No model.)



Claim.—In an oil-can, the combination with the can-body, the cover, the delivery-spout, and the valves, of the cylinder supported in the cover, the piston, the hollow piston-rod, the post centrally supported by the lower cylinder-head, and the spiral spring surrounding the post and within the piston-rod, said spring being guided by said post and rod, substantially as described.

586,782. COMBINED HARVESTER AND SEPARATOR. JOHN L. SLATON, Newark, Tenn., assignor of one-half to Jesse D. Goff, Sparta, Tenn. Filed Mar. 24, 1896. Serial No. 584,602. (No model.)

Claim.—1. In a machine for harvesting peas, beans, &c., the combination of a relatively-fixed frame, a frame carrying the harvesting devices vertically adjustable with relation to the fixed frame, an elevator having its upper roller supported by the fixed frame and its lower roller by the adjustable frame, and means for varying the length of the elevator to adapt it to the distance between its supporting-rollers, substantially as set forth.



2. In a machine for harvesting peas, beans, &c., the combination of a relatively-fixed frame, a second frame having independent vertical adjustment and comprising similarly-formed side pieces, a resistance bar or plate connecting the lower front ends of the side pieces and having a rearwardly and downwardly inclined portion forming a pocket at its rear end, a reel journaled to the upper front ends of the side pieces and coöperating with the resistance-bar to strip the peas, &c., from the vines and force them into the said pocket, a roller applied to the fixed frame, a second roller carried by and movable with the adjustable frame, and a carrier-belt capable of being lengthened and shortened supported by the said rollers, substantially as shown for the purpose described.

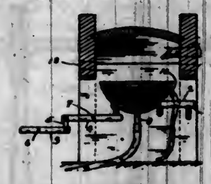
3. In a harvesting-machine, the combination of a relatively-fixed frame, an axle provided with ground-wheels supporting the frame, a second frame comprising side pieces formed of bars bent into an approximately triangular shape and loosely mounted at their rear ends or angles upon the said axle, means for vertically adjusting the front end of the second frame, a resistance-bar having adjustable connection with the forward portions of the lower members of the side pieces, and having a rear extension terminating in a pocket, a reel coöperating with the resistance-bar and journaled to the front ends of the upper members of the said side pieces, and an elevator capable of being lengthened and shortened supported on a roller carried by the fixed frame and by a roller carried by and movable with the adjustable frame, substantially as and for the purpose set forth.

4. A machine for harvesting peas, beans, &c., comprising a frame, an elevated thresher and separator in connected relation, side pieces pivotally supported at their rear ends upon the axle, a reel and resistance-bar supported at the front end of the said side pieces, means for adjusting the pivoted side pieces at their front ends, an elevator journaled at its lower end to the adjustable side pieces and at its upper end to the thresher, and means for lengthening and shortening the elevator to adapt it to the varying distance between its upper and lower supporting-rollers, substantially as set forth.

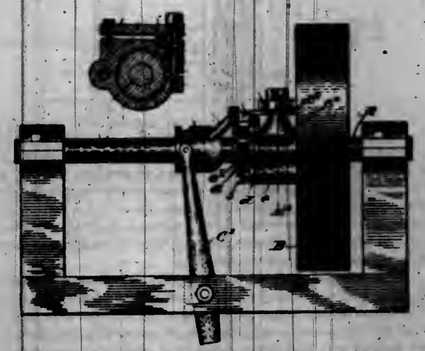
586,783. TEST FOR MANUFACTURING LITHARGE. WILLIAM H. WILLIAMS, Sharpsburg, Pa. Filed Mar. 10, 1897. Serial No. 626,760. (No model.)

Claim.—1. The combination with the furnace, of the pivoted frame located therein, the test consisting of the spirally-coiled pipe for the circulation of liquid or fluid, the fireproof twyers and the means for raising and lowering said test, substantially as shown and described.

2. The combination with the furnace, of the pivoted frame located therein, the test consisting of the spirally-coiled pipe, the lining therefor, the fireproof twyer-pipe for supplying air to the test, the fireproof twyer connected with said pipe and the pivoted levers and toggle-joint for raising and lowering the test, substantially as shown and described.



586,784. FRICTION-CLUTCH. JOHN R. WHEELE, Worcester, Mass. Filed June 26, 1896. Serial No. 597,074. (No model.)



Claim.—1. In a friction-clutch device, a driving member, a member to be driven, a clamp secured to one and adapted to engage the other of said members, a toggle mounted on one part of the clamp, and including a rocker, an independent abutment for the rocker, rigidly connected with the other part of the clamp, rotative movement of the rocker straightening the toggle to compress the clamp, and means to rotate the rocker, substantially as described.

2. A driving member, a member to be driven, a clamp composed of a split collar secured thereto and embracing the driving member, said collar having in one part a seat and an adjacent slot, an abutment connected with the other part of the collar, a rocker having a squared end to enter the seat and rest against the abutment, a blade-like member movable in the slot and in engagement with the end of the rocker, to form a toggle, whereby the clamp is contracted, and means to operate the toggle, substantially as described.

3. A driving member, a member to be driven, a clamp secured to one and adapted to engage the other, said clamp having a seat and adjacent slot in one part, an abutment adjustably connected with the other part of the clamp, a toggle mounted in the seat and slot, between the abutment and clamp, to contract the latter, and means to operate the toggle, substantially as described.

4. A driving member, a member to be driven, a non-continuous clamp secured to one member and to engage the other, an abutment or rest positively connected with the clamp at opposite sides of its opening, and means interposed between and to act in opposite directions upon the abutment and the adjacent portion of the clamp to separate them and thereby compress the latter, substantially as described.

5. A driving member, a member to be driven, a clamp composed of a split collar secured to one and surrounding the other, an abutment adjustably connected with the collar at opposite sides of its opening, a toggle interposed between the abutment and the adjacent portion of the collar, and means to operate the toggle, straightening of the toggle compressing the collar, substantially as described.

586,785. GASOLENE-TORCH. LARS ANDERSON, Chicago, Ill., assignor to Axel Blomfeldt and Oscar Rapp, same place. Filed Nov. 30, 1896. Serial No. 613,877. (No model.)

Claim.—The combination of the reservoir A, having in its top the basin A', surrounding the head B, with said head provided with the channels *c*, *c'*, and *c²*, and valve F, and having in its free end the generator E, comprising the recess *b'*, and the perforated concave cap *c*, and the wick-tube D, communicating with the generator, substantially as described.

586,785.



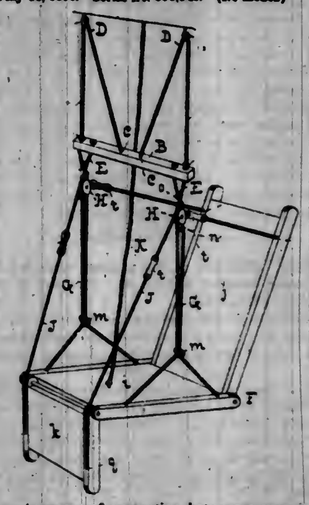
586,786. STEERING-HEAD FOR VELOCIPEDES. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Apr. 23, 1896. Serial No. 588,944. (No model.)



Claim.—1. The combination with a handle-bar holder comprising a split ring to receive the handle-bar and an expansible shaft and a tube to which said holder is to be secured, of a bolt passing through the free end of said ring and into the shaft and a nut to engage the bolt adapted to be drawn into the shaft to expand the same, substantially as shown and described.

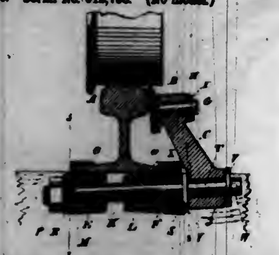
2. The combination with a socket-head supporting a part of the bearing of the steering-head, and a fork-tube having an expansible end and screw-threaded to receive the adjustable part of the said bearing, of a bolt entering longitudinally within the end of the fork-tube and a nut held from rotation and adapted to be moved by the bolt longitudinally within the tube to expand the same against the part of the bearing thereon and thereby to lock said part, substantially as shown and described.

586,787. SWINGING RECLINING-CHAIR. WILEY G. CROOM, Vicksburg, Miss., assignor of one-half to J. R. Jackson, same place. Filed July 16, 1896. Serial No. 599,240. (No model.)



Claim.—As means of connection between a swinging reclining-chair, and hooks secured to a joist or other stationary supporting object, a beam having at each side of the transverse center line thereof a single cord which is formed into a long loop above the beam, one end of the cord being passed through the beam near its transverse center and knotted underneath, and the other passed through the beam near its extremity and knotted above and below the same and then formed into a short loop and returned through the beam and knotted above the same, substantially as specified.

586,788. DETECTOR-BAR FOR RAILWAY-RAILS. WILLIAM DAVIS, Jersey City, N. J., assignor to John T. Cade, Arcola, N. J. Filed Nov. 20, 1896. Serial No. 612,753. (No model.)



Claim.—1. The detector-bar, and the pivoted arm supporting the same, combined with the clip engaging the base of the rail and extending horizontally beneath said base, the substantially horizontal bolt secured within said clip below the base of said rail and forming an axle at its outer exposed end for said pivoted arm, means engaging said bolt and clip to lock the said bolt against rotating under the action of said pivoted arm and permit, upon the manual loosening of the parts, the turning of said bolt to bring a fresh surface of said axle upward to receive the wear from said arm, substantially as and for the purposes set forth.

2. The detector-bar, and the arm supporting the same, combined with the clips E, F, engaging the opposite edges of the base of the rail, the bolt passing through said clips and having an extension on its outer end to receive and act as an axle for said arm, and the rigid washer or shoulder on said bolt between the clip F and said axle, the outer end of the clip F being provided with the shoulder to engage said washer; substantially as set forth.

3. The detector-bar, and the arm supporting the same, combined with the clips E, F, engaging the opposite edges of the rail, the bolt K passing through said clips and having beyond the clip F an extension operating as an axle for said arm, the nut at one end of said bolt, and the shoulder on said bolt to bear against the outer end of the clip F; substantially as set forth.

4. The detector-bar, and the arm supporting the same, combined with the clips E, F, engaging the opposite edges of the rail, the bolt K passing through said clips and having an extension operating as an axle for said arm, means for tightening the clips E, F, upon the rail without affecting said arm, and means for permitting the turning of said bolt to bring a fresh surface of said axle upward to receive the wear from said arm; substantially as set forth.

5. The detector-bar, the arm supporting the same, and the clips E, F, engaging the opposite lower edges of the rail, the clip E having a vertically-elongated aperture and a corrugated outer end, combined with the bolt K passing through said clips and having an extension beyond the clip F operating as an axle for said arm, the washer on said bolt to engage the outer end of said clip F, and the nut and corrugated washer upon said bolt at the outer end of the clip E; substantially as set forth.

6. The detector-bar B, and the arm C supporting the same, combined with the clips E, F, engaging the opposite edges of the rail, and the bolt K securing said clips and having a free extension operating as an axle for said arm; substantially as set forth.

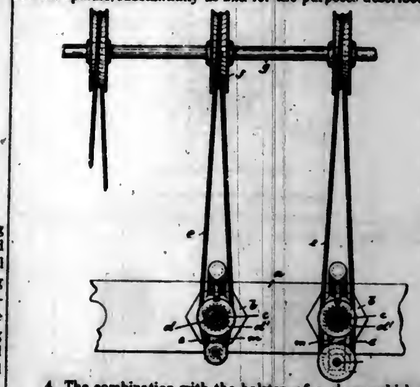
586,789. SPINDLE. ALFRED GARTNER, Paterson, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,798. (No model.)

Brief.—The auxiliary pulley takes the band-pull, and the spindle, being driven by the opposing pressures of the band, which engage it on opposite sides, is largely relieved of the usual pressure of the bearing.

Claim.—1. The combination with a sleeve-whirl spindle and its supporting-bolster, of an auxiliary wheel or pulley on one side of the spindle and carried by said bolster, driving means on the opposite side of said spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

2. The combination with a sleeve-whirl spindle and its supporting-bolster, of an auxiliary wheel or pulley arranged substantially in the plane of the whirl and on one side of the spindle and carried by said bolster, driving means on the other side of said spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley, and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

3. The combination with the bolster, of a sleeve-whirl spindle revolubly arranged in said bolster, a vertical pin or axle on one side of the spindle and carried by said bolster, an auxiliary wheel or pulley loosely mounted on said pin or axle, driving means at the other side of the spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.



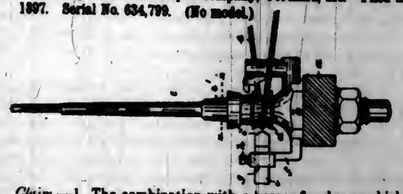
4. The combination with the bolster, of a sleeve-whirl spindle revolubly arranged in said bolster, a vertical pin or axle on one side of the spindle and carried by said bolster, an auxiliary wheel or pulley loosely mounted on said pin or axle and substantially in the plane of the whirl, driving means at the other side of the spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

5. The combination with a sleeve-whirl spindle and its supporting-bolster, of an auxiliary wheel or pulley on one side of the spindle and carried by said bolster, and being of smaller diameter than the whirl, driving means on the other side of said spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

6. The combination with the bolster, of a sleeve-whirl spindle revolubly arranged in said bolster, a vertical pin or axle on one side of the spindle and carried by said bolster, an auxiliary wheel or pulley loosely mounted on said pin or axle, and being of smaller diameter than the whirl, driving means at the other side of the spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

7. The combination with the bolster, of a sleeve-whirl spindle revolubly arranged in said bolster, a vertical pin or axle on one side of the spindle and carried by said bolster, an auxiliary wheel or pulley loosely mounted on said pin or axle and substantially in the plane of the whirl, and being of smaller diameter than the whirl, driving means on the other side of the spindle and diametrically opposite the said auxiliary wheel or pulley, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

586,790. MAGNETO-SPINDLE. ALFRED GARTNER, Paterson, N. J., assignor to the Draper Company, Portland, Me. Filed May 3, 1897. Serial No. 634,799. (No model.)



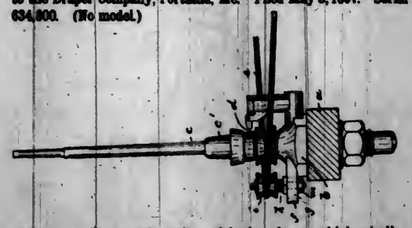
Claim.—1. The combination with a base, of a sleeve-whirl spindle mounted in said base, driving means for operating said sleeve-whirl spindle, and a magnet carried by said base and in close proximity with that portion of the sleeve-whirl which is in engagement with the driving means, substantially as and for the purposes described.

2. The combination with a base, of a sleeve-whirl spindle mounted in said base, driving means for operating said sleeve-whirl spindle, a bracket or arm projecting from said base, and a magnet adjustably arranged in said bracket or arm and in close proximity with that portion of the sleeve-whirl which is in engagement with the driving means, substantially as and for the purpose described

3. The combination with a sleeve-whirl spindle and with the driving means, and of a magnet adjustably and suitably supported and in close proximity with that portion of the sleeve-whirl which is in engagement with the driving means, substantially as and for the purposes described.

4. The combination with a whirl-driven spindle, of a driving-band for actuating the same, a base for supporting said spindle and a magnet carried by said base on the side of the spindle opposite to the pull of the driving-band, substantially as described.

586,791. SPINDLE. ALFRED GARTNER, Paterson, N. J., assignor to the Draper Company, Portland, Me. Filed May 3, 1897. Serial No. 634,800. (No model.)



Claim.—1. The combination with the sleeve-whirl spindle and its supporting-bolster, and with the driving band or belt intermediately engaging the whirl of said spindle, of an auxiliary wheel or pulley carried by said bolster and adjustably arranged thereon and carrying said band or belt, and means for adjustably securing said auxiliary wheel or pulley on the bolster, all said parts, substantially as and for the purposes described.

2. The combination with the sleeve-whirl spindle and its supporting-bolster, and with the band or belt intermediately engaging the whirl of said spindle, of an arm projecting horizontally from said bolster, a pin or axle adjustably arranged on said arm, and an auxiliary wheel or pulley revolubly mounted on said pin or axle and carrying the said band or belt, all said parts, substantially as and for the purposes described.

3. The combination with the sleeve-whirl spindle and its supporting-bolster, and with the band or belt intermediately engaging the whirl of said spindle, of an arm projecting from said bolster and provided with an elongated slot, a pin or axle adjustably arranged in said elongated slot, and an auxiliary wheel or pulley revolubly arranged on said pin or axle and substantially in the plane of the whirl, and carrying the band or belt, all said parts, substantially as and for the purposes described.

586,792. BAG-LOCK. HENRY S. GASKILL, Battle Creek, Mich., assignor of one-half to James J. Larmour, same place. Filed Sept. 28, 1896. Serial No. 607,200. (No model.)



Claim.—1. In a lock, the frame, the sliding latch having an opening through its top, an inwardly-turned inner end, and a depending leg, combined with a series of spring-actuated tumblers having openings in their inner ends and one of which has a laterally-projecting arm; and a spring placed between the arm and the inwardly-projecting end, substantially as shown.

2. In a lock, the frame having an opening in one side, and a sliding bolt having an inward projection, and a leg which extends in a line with the movement of the bolt, combined with a series of pivoted tumblers, having recesses in their inner ends to receive the leg, and one of them being provided with a laterally-projecting arm; a spring placed between said arm and the projection on the bolt; and a spring applied to all the tumblers on the other side of their pivot from the spring which moves the bolt endwise, substantially as described.

586,793. TELEPHONE ATTACHMENT. STEPHEN C. HOUGHTON, San Francisco, Cal. Filed June 15, 1897. Serial No. 640,574. (No model.)



Claim.—1. In combination with a support for a telephone-receiver movable laterally in two directions and having a swiveled section for supporting and reversing said receiver, duplicate electrical contacts, and means carried by said support for making either of said contacts by adjusting said arm in the appropriate lateral direction.

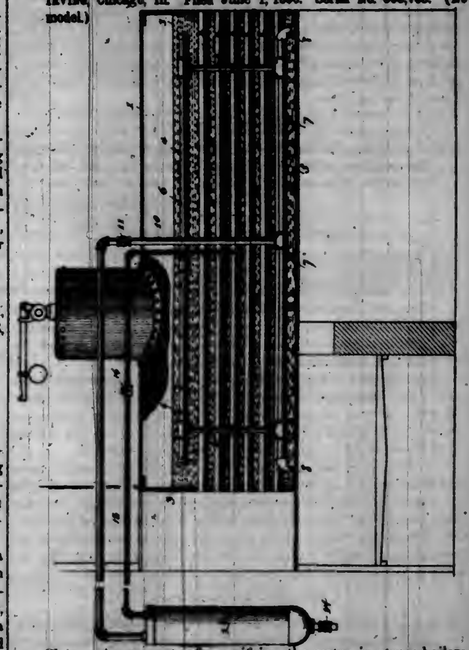
2. In a telephone, a supporting-bracket, a receiver-support connected adjustably thereto, a two-branch contact, two adjacent spring-contacts, and a projection from the receiver-support adapted by the adjustment of the latter to cause one of said branches to make contact with the adjacent spring.

3. In combination in a telephone, a transmitter, a receiver, a receiver-supporting arm movably supported, a projection carried by said arm and contact-springs on each side of said projection, substantially as described.

4. In combination with a pivoted laterally-adjustable telephone-support, a projection forming one arm of a lever of which said support is the other arm, and a two-branched spring embracing said projection and holding it in normal position, and arranged so that a sufficient lateral adjustment of the support in either direction will lock said support by producing a dead-line of resistance to the spring-pressure through the fulcrum of said lever.

5. In combination with an adjustable pivoted telephone-support having a projection forming one arm of a lever of which said support is the other arm, a spring bearing upon said projection and holding it in normal position, and an elastic electrical contact adjacent to said spring; whereby a sufficient lateral adjustment of the support will lock said spring and contact by producing a dead-line of resistance through the fulcrum of said lever, substantially as described.

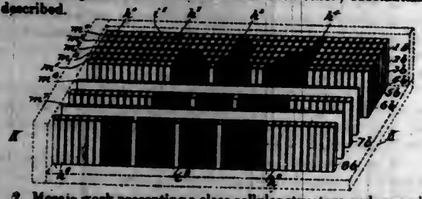
586,794. WATER-PURIFIER FOR STEAM-BOILERS. WILLIAM IRVINE, Chicago, Ill. Filed June 1, 1896. Serial No. 593,765. (No model.)



Claim.—An apparatus for purifying the water in steam-boilers comprising in combination a sediment-collecting tube extending longitudinally of the boiler close to the bottom thereof and having perforations in its lower side, a second sediment-collecting tube located near the water-level and having perforations in its upper side, a pipe or pipes connecting said tubes within the boiler, a discharge-pipe or riser connected with the lower of said tubes extending through the boiler-shell and having a valve therein, a sediment-chamber with which said discharge-pipe connects having a valve-controlled sediment-discharge outlet and a return-pipe having a check-valve therein opening toward the discharge end of said pipe, substantially as described.

586,795. MOSAIC WORK. GEORGE H. JOHNS, New York, N. Y. Filed Mar. 13, 1896. Serial No. 583,009. (No specimens.)

Claim.—1. Mosaic work presenting a close cellular structure and comprising series of single courses of tesseræ, series of partitions of comparatively strong or rigid material contrasting with the tesseræ, said partitions being severally interposed between the single courses, and disconnected transverse partitions separating the individual members of the single courses of tesseræ from each other; substantially as described.

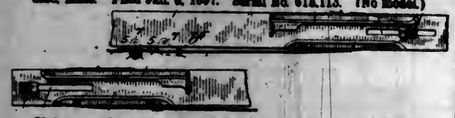


2. Mosaic work presenting a close cellular structure and comprising series of single courses of tesseræ, series of partitions of comparatively strong or rigid material contrasting with the tesseræ, said partitions being parallel with each other and being severally interposed between the single courses, and disconnected transverse partitions separating the individual members of the single courses of tesseræ from each other; substantially as described.

3. Mosaic work presenting a close cellular structure and comprising series of single courses of tesseræ, series of partitions of comparatively strong or rigid material contrasting with the tesseræ, said partitions being severally interposed between the single courses, and disconnected transverse partitions separating the individual members of the single courses of tesseræ from each other, the transverse partitions of adjacent courses being out of alinement with each other; substantially as described.

4. Mosaic work presenting a close cellular structure and comprising series of single courses of tesseræ h', h^2, &c., series of metallic partitions m' m^2, &c., contrasting with the tesseræ, said partitions being severally interposed between the single courses, and disconnected transverse metallic partitions i', i^2, &c., separating the individual members of the single courses of tesseræ from each other; substantially as described.

586,796. PICKER CHECK-STRAP. TIMOTHY MOONEY, Fall River, Mass., assignor to the Northrop Loom Company, Saco, Me., and Hopedale, Mass. Filed Jan. 6, 1897. Serial No. 618,113. (No model.)



Claim.—1. In a loom, a picker check-strap, and a tension device therefor, including guides over which the strap moves, and adjustable means intermediate said guides to bear upon and depress the strap thereat, substantially as described.

2. A tension device for picker check-straps, comprising guides over which the strap passes, a roll to bear upon the opposite side of the strap between the guides, and means to change the relative position of said guides and roll, to vary the bend in and the friction upon the strap effected thereby, substantially as described.

3. In a loom, the lay, a check-strap attached at its ends thereto and forming loops, picker-sticks movable in the loops, and a lug on the strap, combined with a stand mounted on the lay and provided with guides over which the strap moves, a roll to bear on the opposite side of the strap between the guides, means to adjust said roll toward and from the strap, and a stop to engage the lug when the strap is moved in one direction, substantially as described.

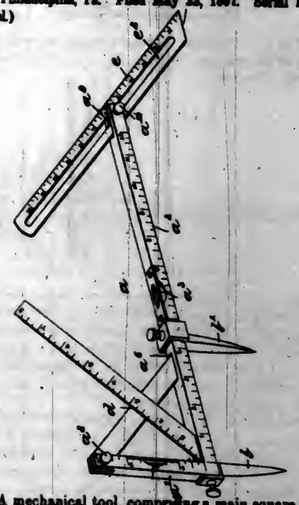
586,797. RAILWAY-SWITCH-POINT-CONTROLLING APPARATUS. CORYDON W. MUNSON, Toledo, Ohio. Filed June 26, 1896. Serial No. 596,991. (No model.)



Claim.—1. In a railway-switch-point-controlling apparatus, a plate located between the tracks and connections therewith and with the switch-point, said plate having a movement longitudinally of the tracks, a car having friction devices thereon for engagement with the plate to move the plate therewith by frictional contact having a resiliency to release the plate when the switch-point is thrown.

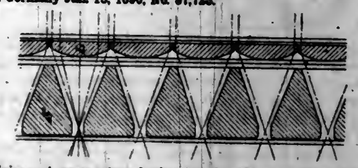
2. In a railway-switch-point-controlling apparatus, a switch-point, a friction-plate, an intermediate mechanism, means for moving the friction-plate comprising adjustable friction-brushes upon the car for engagement with the friction-plate.

586,798. COMBINATION MECHANICAL TOOL. GEORGE M. MCELLIOTT, Philadelphia, Pa. Filed May 22, 1897. Serial No. 637,213. (No model.)



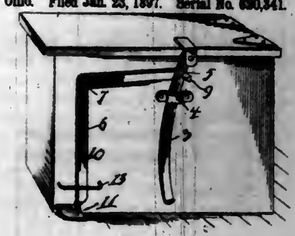
Claim.—A mechanical tool, comprising a main square having a spirit-level mounted in each of the arms a' and a^2 thereof, a trammel-point secured at the angle of the arms of said square, a centering or mitering square at one end fitted into a recess of the arm a', of said main square and secured by a thumb or tightening screw and the other end of said centering or mitering square engaging a groove formed in the arm a^2, of said main square, a movable trammel-point mounted on the arm a^2, of said main square and held in required fixed position by means of a thumb or tightening screw and a slotted graduated foot-rule pivoted to the free end of the arm a^2, of said main square, all arranged substantially as and for the purposes described.

586,799. PROTECTIVE DEVICE FOR DISPERSING-LENSES OF LIGHT-PROJECTORS. FIDELIS NERZ, Nuremberg, Germany, assignor to the Elektrizitats Aktien-Gesellschaft, vormals Schuckert & Co., same place. Filed Nov. 5, 1896. Serial No. 611,110. (No model.) Patented in Germany Jan. 18, 1896, No. 87,723.



Claim.—A protective device for the dispersing-lenses of light-projectors constructed of prismatic bars so arranged that the focal lines of the lenses always pass through the interstices between the bars, substantially as described and illustrated.

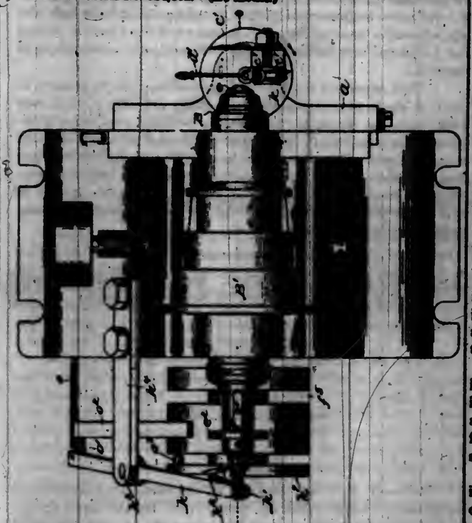
586,800. LOCK FOR CISTERN-COVERS. HENRY OBERJOHANN, Toledo, Ohio. Filed Jan. 23, 1897. Serial No. 620,341. (No model.)



Claim.—1. A lock for cistern-covers comprising a notched bar pivotally suspended from the cover and a locking-lever pivotally attached to the cistern-top having a catch to engage the notch.

2. A lock for cistern-covers, comprising a notched bar pivotally suspended from the cover, and an angled lever pivotally attached to the cistern-top, having an arm provided with a catch to engage the notch and a vertical arm adapted to swing outwardly to disengage the catch.

586,801. BALL-TURNING MACHINE. EDWARD RIVETT, Boston, Mass., assignor of one-half to David Hunt, same place. Filed Feb. 10, 1897. Serial No. 624,162. (No model.)



Claim.—1. In a ball-turning machine, a rotating chuck carrying the rod to be turned, combined with a reciprocating carriage, an oscillating tool-holder mounted thereon and a cutting-tool borne by said oscillating tool-holder having a semicircular cutting edge concentric to the axis upon which said tool-holder oscillates, substantially as described.

2. In a ball-turning machine, a rotating chuck carrying the rod to be turned, a tool-holding carriage, means for moving it in and out, an oscillating tool-holder mounted on said reciprocating carriage, and a tool carried by said tool-holder having a semicircular cutting edge concentric to the axis upon which said tool-holder oscillates, and automatic means for oscillating said tool-holder, substantially as described.

3. In a ball-turning machine, a rotating chuck carrying the rod to be turned, tool-holding carriage, automatic means for moving it in and out, an oscillating tool-holder mounted on said reciprocating carriage, and a tool carried by said tool-holder having a semicircular cutting edge concentric to the axis upon which said tool-holder oscillates, and automatic means for oscillating said tool-holder, substantially as described.

4. In a ball-turning machine, a rotating chuck carrying the rod to be turned, combined with a reciprocating carriage, an oscillating tool-holder mounted thereon, means for moving the carriage inward to bring the axis of the tool-holder coincident with the axis of the ball being turned, and means for then turning the tool-holder on its axis to cover the ball from the rod, substantially as described.

5. In a ball-turning machine, a rotating chuck carrying the rod to be turned, a cutting-tool having a semicircular cutting edge for forming the ball, an oscillating tool-holder carrying it, and means for oscillating said tool-holder to cause the cutting-tool to sever the ball from the rod on an arc concentric to the axis of the tool-holder, substantially as described.

6. In a ball-turning machine, a rotating chuck carrying the rod to be turned, a sliding carriage, an oscillating tool-holder borne by it, and a cutting-tool having a semicircular cutting edge concentric to the axis of said tool-holder, a pivoted lever adjustably connected with said sliding carriage, and a cam for actuating said lever, substantially as described.

7. In a ball-turning machine, a tool-holder, a sliding carriage bearing it, an adjustable pin a^3 screwed into one end of said carriage having a circumferential groove, an opening at the bottom of the carriage beneath the circumferential groove of said pin, a pivoted lever k, one end of which projects up through said opening and enters the circumferential groove of said pin, and the opposite end of which bears upon a cam by which it is actuated, substantially as described.

8. The cutting-tool having a semicircular cutting edge, an oscillating tool-holder bearing it, and a gage for setting said tool concentric to the axis of said tool-holder, substantially as described.

9. The cutting-tool having a semicircular cutting edge, an oscillating tool-holder bearing it, and a gage for setting said tool concentric to the axis of said tool-holder, and at a predetermined elevation, substantially as described.

10. An oscillating tool-holder, a cutting-tool carried by it having a semicircular cutting edge, a gage for setting said tool concentric to the axis of said tool-holder and at a predetermined elevation consisting of a circular pin movable vertically in a recess provided for it at the center of the oscillating tool-holder, substantially as described.

11. Feeding mechanism consisting of the tube or carrier g, means for causing it to engage a rod and for thereafter releasing it, means for moving said tube or carrier axially while the rod is engaged by it, and a torsional spring for returning it to its normal position after it has released the rod, substantially as described.

12. Feeding mechanism consisting of the tube or carrier g, having a screw-threaded portion g^2, a rotating nut g^3, a clamping device for engaging said tube or carrier to restrain it from rotation causing the nut to move it axially, means for operating said clamping device, and means for thereafter returning said tube or carrier to its normal position, substantially as described.

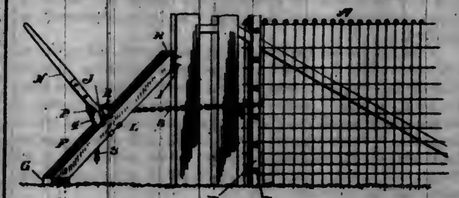
13. Feeding mechanism consisting of the tube or carrier g, having a screw-threaded portion g^2, a rotating nut g^3, means for restraining rotation of the tube or carrier causing said nut to move it axially, and a torsional spring for thereafter returning said tube or carrier to its normal position, substantially as described.

14. Feeding mechanism consisting of the tube or carrier g, having a screw-threaded portion g^2, a rotating nut g^3, means for restraining rotation of the tube or carrier causing the nut to move it axially, and an adjustable stop for limiting such axial movement, and means for thereafter returning it to its normal position, substantially as described.

15. Feeding mechanism consisting of the tube or carrier g, having a split end and a screw-threaded portion g^2, a rotating nut g^3, a clamping device for engaging said split end of the tube causing it to grip the rod and restraining it from rotation while the nut moves it axially, and means for thereafter returning said tube or carrier to its normal position, substantially as described.

16. Feeding mechanism consisting of the tube or carrier g having a split end, and a screw-threaded portion g^2, the rotating nut g^3, clamping device for engaging said split end of the tube causing it to grip the rod and restraining it from rotation while the nut moves it axially, and a torsional spring for thereafter returning said tube or carrier to its normal position, substantially as described.

586,802. WIRE-FENCE STRETCHER. CHARLES H. RALSBURY, De Kalb, Ill., assignor to the Hatch Manufacturing Company, same place. Filed May 5, 1897. Serial No. 635,142. (No model.)



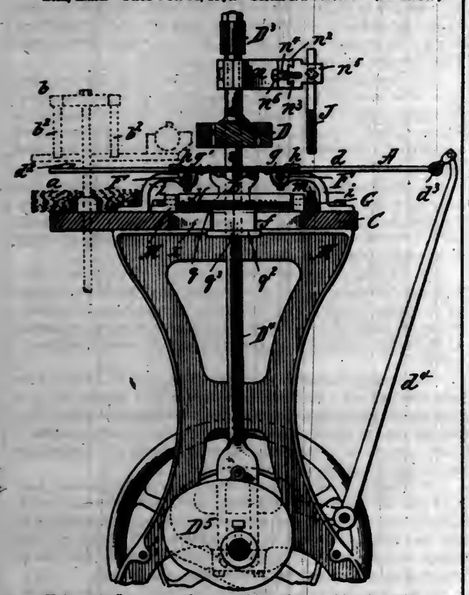
Claim.—1. The combination of the clamps D, suitably attached to the fence A, stretcher-frame F, temporary post C, wheel K provided with ratchet-teeth 4 and chain-recesses 3, pawl R, lever N provided with pawls P, seated on the axle of wheel K, and chain S, substantially as shown and for the purpose described.

2. In a wire-fence stretcher, the combination of vertical clamps D, suitably attached to the fence, temporary post C seated in the line of the latter, diagonally-seated stretcher-frame F provided with laterally-elongated foot-block G and with head-block H, provided with attaching-points 1 and adapted to engage the adjacent side of the temporary post C, frame J seated on frame F, wheel K pivotally seated in frame J and provided with ratchet-teeth 4 and chain-recesses 3, plate L seated on the lower surface of the frame F and oppositely to frame J and set-screw M, adjustably connecting plates J and L, pawl R, hand-lever N seated on the axle 5 of wheel K and provided with engaging pawls P adapted to actuate the wheel K, and chain S fastened at one end to the central portion of the clamps

D and the links thereof adapted to successively engage the recesses 3 on wheel K substantially as shown and for the purpose described.

3. In a wire-fence stretcher, the combination of a vertical clamp D adapted to be attached to the fence, a temporary post C, a stretcher-frame F seated diagonally in the line of the fence against the temporary post C, plates J and L seated on frame F, the set-screw M, uniting said plates and adapted to hold the latter at any point on said frame F, a chain-wheel K journaled in said frame J and carried thereby and having peripheral recesses 3, chain 8 connecting said clamp D with wheel K and adapted to engage the peripheral recesses 3 of the latter, the lever N and actuating and retaining pawls P and R, substantially as shown and for the purpose described.

586,803. PAPER-BOX MACHINE. CHARLES F. TAYLOR, Holyoke, Mass., assignor to the Brightwood Box Machinery Company, Springfield, Mass. Filed Feb. 21, 1896. Serial No. 580,230. (No model.)



Claim.—1. In a paper-box machine the combination with a reciprocatory former-plunger, of flap-turners mounted to have rocking movements and having portions thereof extending across the path of the plunger, said flap-turners having the spring-fingers projecting beyond their inner edges for preventing the finished box from being carried with the plunger on the return of the latter, substantially as described.

2. In a paper-box machine the combination with the reciprocatory former-plunger of the rolls having eccentric peripheries, mounted in parallelism at opposite sides of and adjacent the path of the plunger, having a length greater than that of the adjacent surface of the plunger, means for causing the rolling movement of said rolls in conjunction with the descent of the plunger, and opposing paired flap-turning mechanism bodily adjustable toward and away from the plunger in lines at right angles to the length of said eccentric rolls, substantially as described.

3. In a paper-box machine the combination with an interchangeable reciprocatory former-plunger, of a flap-setting mechanism consisting of rolls having cam-like peripheries and yielding journal-supports in which said rolls are mounted which are adjustable transversely of the lengths of the rolls, and all arranged for operation to set the flap of a paper box against the former, substantially as described.

4. In a paper-box machine the combination with an interchangeable plunger, the end-setting cam-rolls having the gears thereon, and adjustable supports in which said rolls are journaled of the racks mounted to move in unison with the plunger and adjustable toward and from each other, substantially as and for the purpose set forth.

5. In a paper-box machine the combination with the plunger-shaft and interchangeable plunger, the adjustable end-setting cam-rolls having the gears thereon, and adjustable supports in which said rolls are journaled, of the bracket a having the member a^9 which has the slideway a^9 and the slots a^4 the clips or blocks a^5 adjustably fitted in said ways, the confining-bolts a^6, and the rack-bars, J J, supported by said blocks a^5, substantially as described.

6. In a paper-box machine in combination the table having an opening therethrough, a former-plunger, rocking side-flap turners having the stay-section turners mounted thereon, with portions of said flap-turners projecting across the path of the plunger, said folders being adjustable bodily longitudinally of the machine and individually adjustable transversely of the machine, and end-setting devices which are adjustable transversely, substantially as described.

7. In a paper-box machine the combination with the table having an opening therethrough of side-flap turners, with the stay-section turners thereon, mounted to have rocking movements, having portions thereof extending across the path of the plunger, and being individually adjustable transversely of the machine and the conveyer having the horizontal bars thereof adjustable transversely, substantially as described.

8. In a paper-box machine the combination with the plunger, of the rock-shafts and longitudinally-adjustable brackets in which said rock-shafts are journaled, the side-flap turners *g g* individually adjustable along said shaft, having portions thereof projected inwardly across the path of the plunger and each having the upstanding lip or flange *h* which constitutes a stay-section turner, the intermediate auxiliary side-flap turner *g'* on each rock-shaft, and springs applied on said shafts for normally maintaining the flap-turners in horizontal positions, substantially as described.

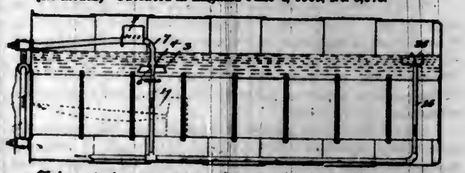
586,804. RAIL SPLICE-BAR. McLEOD W. THOMSEN, Altoona, Pa. Filed Mar. 26, 1897. Serial No. 629,333. (No model.)



Claim.—1. In a rail splice-bar of the character described the combination with the head and foot portions and the inbent flange, of the longitudinal stiffening and supporting rib; the end portions of the bar being devoid of the flange, substantially as and for the purpose described.

2. In a rail splice-bar of the character described the combination of the head and foot portions, the inbent flange, and the longitudinal stiffening and supporting rib, having its outer edge projecting beyond the line of junction of the rib with the said flange, and the end portions of the bar being devoid of the flange, substantially as specified.

586,805. APPARATUS FOR REMOVING SEDIMENT FROM STEAM-BOILERS. JOHN WATT, Birkenhead, England, assignor to William Irving, Chicago, Ill. Filed Feb. 16, 1897. Serial No. 623,740. (No model.) Patented in England June 4, 1885, No. 8,078.



Claim.—1. In an apparatus for removing impurities from water in steam-boilers, the combination of a vapor-collector having an opening thereto so located as to be submerged in the liquid when in use, a sediment-collecting tube located near the bottom of the boiler and discharging beneath said vapor-collector, a delivery-pipe connected to the upper side of the vapor-collector and having its orifice in line with the discharge-orifice of the sediment-tube and a passage or passages connecting the interior of the vapor-collector with the delivery-pipe and arranged concentric to the discharge end of the sediment-tube whereby a circulation of water may be caused or increased, substantially as described.

2. In an apparatus for causing or increasing a circulation of water during ebullition, the combination with a boiler of a sediment-collector connected with the boiler-space by delivery and return pipes, a vapor-collector located within the boiler-space and having the openings thereof adapted to be submerged in the liquid, a sediment-collecting tube arranged to discharge interiorly of the vapor-collector and a steam passage or passages arranged concentric to the discharge-orifice of the sediment-tube and connecting the vapor-space with the delivery-pipe, substantially as described.

3. In a water-purifier the combination with a steam-boiler of a sediment-collector and delivery and return pipes connecting with the boiler-space, of a vapor-collector connected to the delivery-pipe and having steam-jet orifices, a sediment-collecting tube extending along the bottom of the boiler and discharging within the vapor-collector axially of the steam-jet orifice, and a collector of suspended impurities arranged near the surface of the water and connected with the sediment-tube, substantially as described.

586,806. DEHORNING IMPLEMENT. GEORGE WIESTER, Christiana, Pa., assignor of one-half to Isaac H. Diffenbaugh, Quarryville, Pa. Filed Oct. 14, 1896. Serial No. 608,814. (No model.)



Claim.—1. In a dehorning implement of the character described, having two cooperating knives, one fixed, the other pivotally mounted, the combination of the apertured plate, 1, having the depression or socket, 3, therein, opening into said aperture, the fixed knife fitted in said socket, together with the apertured plate, 8, superposed upon and secured to the first-mentioned plate whereby the said knife is secured and braced, substantially as specified.

2. In a dehorning implement, the combination of the superposed apertured plates, 1 and 8, one of which is provided with the depression or socket, 3, and both plates provided with the opposite depressions, 6 and 7, forming a slot, between the plates, the knife in said socket, 3, its cutting edge projecting into said aperture, the knife pivoted in said slot with its cutting edge projecting into said aperture substantially opposite to the cutting edge of the first-mentioned knife, together with the handle connected to the plate, 1, and the handle connected to the pivoted knife, substantially as and for the purpose described.

586,807. ICE-CREAM DIPPER. JAMES R. CREA and WILLIAM H. CREA, Allegheny, Pa. Filed Mar. 20, 1897. Serial No. 629,753. (No model.)



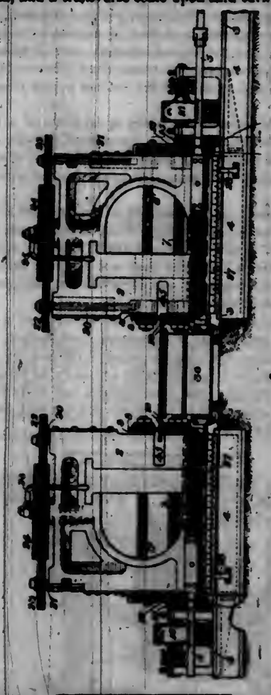
Claim.—In a dipper and mold, a mold, a hollow handle formed in two sections, one section formed integral with said mold, an operating-lever in said handle, a plate journaled in the apex of said mold, cutters formed integral with said plate, a pin in said plate to engage one end of the operating-lever, a wall carried by the detachable portion of the handle and provided with an opening to support the opposite end of the operating-lever, a finger-piece formed integral with said operating-lever, and a spring arranged on said lever to return the cutters to their normal position, substantially as shown and described.

586,808. ROTARY SHEARS. JOHN P. DITTMAR, Pittsburg, Pa. Filed July 23, 1896. Serial No. 600,166. (No model.)

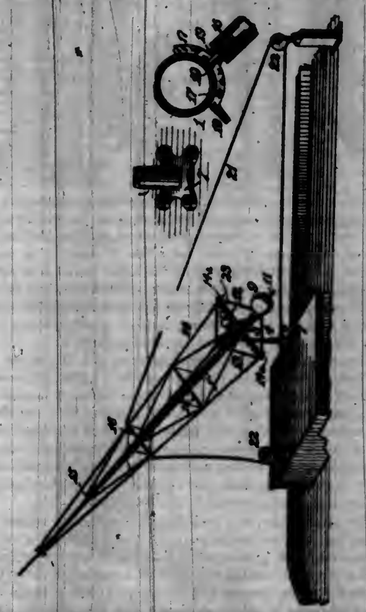
Claim.—1. In a rotary shear, a circular cutter having a peripheral groove, and a narrower circular cutter arranged to force the metal into said groove, the latter cutter being mounted loosely upon its shaft, whereby it may slip if it becomes jammed in the metal, in combination with mechanism for positively rotating said cutters.

2. The combination with a pair of rotary cutters, of a platform movable past the same, a rotatory turn-table mounted on the platform, and normally in a plane at least as low as that of the platform, means for moving the turn-table vertically above the platform, and means upon both the platform and turn-table for clamping a plate thereon; substantially as described.

3. The combination with a pair of rotary cutters, of a platform movable past the same, a rotatory turn-table mounted upon the platform and normally in a plane at least as low as that of the platform, means for moving the turn-table vertically to a plane above that of the platform, and a transverse scale upon said turn-table.



586,809. TROLLEY-POLE. CHAUNCEY H. DUTTON, New York, N. Y. Filed July 27, 1896. Serial No. 600,648. (No model.)



Claim.—1. The combination, substantially as set forth, of a trolley-pole, a fixed socket, a vertical support journaled at its lower end in said socket, and having a horizontal journal at its upper end, a transverse socket fixed to the trolley-pole adjacent to its inner end and fitting on said horizontal journal, and a counterbalance connected

to the trolley-pole on the side of its transverse socket opposite its outboard end.

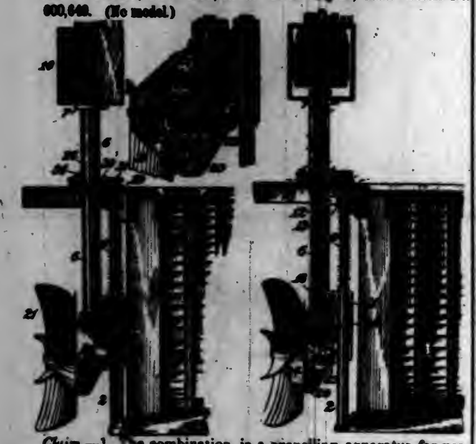
2. The combination, substantially as set forth, of a trolley-pole, a universal-joint system on which said pole is journaled, in position to allow it to bear, adjacent to its free or outboard end on a trolley wire or conductor, and a cord connected at each of its ends to the trolley-pole and passing around intermediate sheaves journaled in bearings in front and in rear of the journal of the universal-joint system.

3. The combination, substantially as set forth, of a tubular or tubulous bodied trolley-pole, a truss-frame fixed thereon, truss wires or rods connected to said truss-frame and to the body of the trolley-pole, and adjustable struts connected to the body and to the truss-wires.

4. The combination, substantially as set forth, of a tubular or tubulous bodied trolley-pole, a truss-frame fixed thereon, truss wires or rods connected to said truss-frame and to the body of the trolley-pole, sectional clamps fitting the body and carrying threaded stem-sections, and struts engaging said stem-sections and carrying eyes through which the truss-wires are passed.

5. The combination, substantially as set forth, of a tubular or tubulous bodied trolley-pole, a truss-frame fixed thereon, truss wires or rods connected to said truss-frame and to the body of the trolley-pole, sectional clamps fitting the body and carrying threaded stem-sections, struts engaging said stem-sections, and bolts threaded to engage with the outer ends of the struts and carrying eyes through which the truss-wires are passed.

586,810. PROPELLING MECHANISM FOR VESSELS. CHAUNCEY H. DUTTON, New York, N. Y. Filed July 27, 1896. Serial No. 600,649. (No model.)



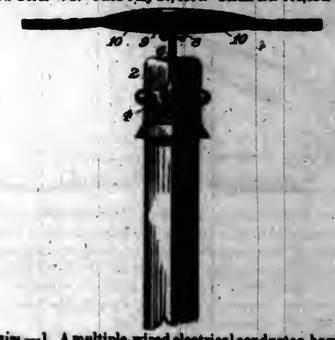
Claim.—1. The combination, in a propelling apparatus for vessels, of a supporting-bar, mounted in bearings on the outside of the hull of a vessel, a tubular frame supported on said bar and having a chamber or casing near its lower end which is open to its bore, a driving-shaft journaled in bearings in the upper end of said tubular frame and in the casing thereof, a motor connected to the driving-shaft, a propeller fixed on a shaft which is journaled in the casing, and gearing, inclosed in the casing, through which rotation is imparted to the propeller-shaft from the driving-shaft.

2. The combination, in a propelling apparatus for vessels, of a supporting-bar journaled in bearings on the outside of a vessel, a screw-thread on said supporting-bar, a frame having a lateral bearing fitting said supporting-bar, and a nut engaging the screw-thread thereon, means for holding said frame as against movement about the axis of the supporting-bar, mechanism for rotating the supporting-bar in its bearings, a driving-shaft journaled in said frame, a motor connected to the driving-shaft, and a propeller having its shaft journaled in the frame and actuated by the driving-shaft.

3. The combination, in a propelling apparatus for vessels, of a supporting-bar mounted in bearings on the outside of a vessel, a frame supported and pivoted on said bar, and carrying a driving-shaft and a propeller rotated by said shaft, a motor connected to the driving-shaft, a block connected to the frame, a fixed guide on which said block traverses in an arc concentric with the supporting-bar, a nut, a hand-wheel by which said nut is rotated, and a connecting-rod, having a screw-thread engaging said nut and coupled to the block.

4. The combination, in a propelling apparatus for vessels, of a supporting-bar mounted in bearings on the outside of a vessel, a frame supported and pivoted on said bar with the capacity of movement longitudinally thereon, a driving-shaft journaled in the frame, a motor connected to the driving-shaft, a propeller having its shaft journaled in the frame and rotated by the driving-shaft, a block engaging a spline or feather on the frame, a fixed guide on which said block traverses in an arc concentric with the supporting-bar, a pair of gears rotated by a hand-wheel, a nut coupled, by a universal joint, to one of said gears, and a connecting-rod having a screw-thread engaging said nut, and coupled to the block.

586,811. ELECTRICAL CONDUCTOR. CHAUNCEY H. DUTTON, New York, N. Y. Filed July 27, 1896. Serial No. 600,650. (No model.)



Claim.—1. A multiple-wired electrical conductor, having its wires woven around a forked support.

2. The combination of an electrical conductor, formed of a plurality of wires, twisted together sufficiently to prevent separation, and fixed members transverse to the conductor, around which each of said wires is independently twisted or woven at intervals in the length of the conductor.

3. The combination of an electrical conductor, formed of a plurality of wires twisted together sufficiently to prevent separation, and members fixed transverse to the conductor, in groups of two or more, at intervals in its length, each of the wires of the conductor being independently twisted or woven around said fixed members.

4. The combination of an electrical conductor, formed of a plurality of wires twisted together sufficiently to prevent separation, fixed members transverse to the conductor around which each of said wires is independently twisted or woven at intervals in the length of the conductor, and cover-plates connected to the fixed members for preventing the displacement of the conductor therefrom.

5. The combination of an electrical conductor, formed of a plurality of wires twisted together sufficiently to prevent separation, fixed members transverse to the conductor, around which each of said wires is independently twisted or woven at intervals in the length of the conductor, and cover-plates connected to the fixed members and drawn down to narrow ends which are inserted between the strands of the conductor.

6. The combination of a supporting-post, an insulating-cap covering the upper end portion thereof, a standard or support clamped to the post and separated therefrom by the insulating-cap, and an electrical conductor connected to the standard.

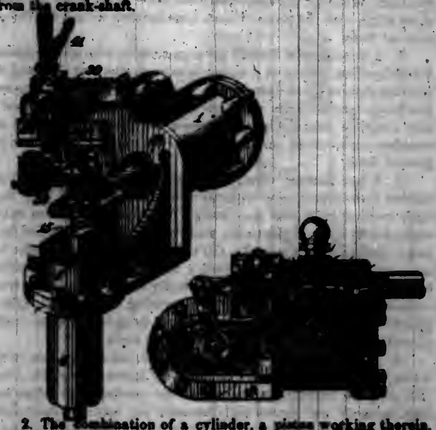
7. The combination of a supporting-post, an insulating-cap covering the upper end portion thereof, and having a flaring or outwardly-projecting rim around its lower end, a standard or support clamped to the post and separated therefrom by the insulating-cap, and an electrical conductor connected to the standard.

8. The combination of a supporting-post, an insulating-cap covering the upper end portion thereof, a standard or support clamped to the post and separated therefrom by the insulating-cap, a lateral pin fixed to the standard, and an electrical conductor formed of a plurality of wires twisted together, and having each of its wires independently twisted or woven around the standard and lateral pin or pins.

9. The combination of a supporting-post, an insulating-cap covering the upper end portion thereof, a standard or support clamped to the post and separated therefrom by the insulating-cap, a lateral pin fixed to the standard, an electrical conductor formed of a plurality of wires twisted together, and having each of its wires independently twisted or woven around the standard and lateral pin or pins, and a cover-plate fixed to the standard above the conductor, and having its ends inserted between the strands thereof.

586,812. STEAM-ENGINE. CHAUNCEY H. DUTTON, New York, N. Y. Filed July 27, 1896. Serial No. 600,652. (No model.)

Claim.—1. The combination of a cylinder, a trunk-piston working therein, a crank-shaft having a crank coupled to said piston, a valve-chest which is open at one end and provided with an exhaust-pipe at the other, a distribution-valve working in said valve-chest and having differential end pistons the larger of which is nearest the open end of the chest, internal ports and a passage in the distribution-valve for the exhaust of motive fluid from the trunk side of the piston to the opposite side, cylinder-ports controlled by the distribution-valve, and connections for reciprocating said distribution-valve from the crank-shaft.



2. The combination of a cylinder, a piston working therein, a crank-shaft having a crank coupled to said piston, a distribution-valve governing the supply and exhaust of motive fluid to and from said piston, a bell-crank coupled to said distribution-valve, a fulcrum on which one arm of said bell-crank is pivoted, and a connection coupling the other arm of said bell-crank to a pin on the crank-shaft.

3. The combination of a cylinder, a piston working therein, a crank-shaft having a crank coupled to said piston, a distribution-valve governing the supply and exhaust of motive fluid to and from said piston, a bell-crank coupled to said distribution-valve, a fulcrum on which one arm of said bell-crank is pivoted, a connection coupling the other arm of said bell-crank to a pin on the crank-shaft, and means for moving and fixing the fulcrum in position on either side of the line of traverse of the distribution-valve.

4. The combination of a cylinder, a piston working therein, a crank-shaft having a crank coupled to said piston, a distribution-valve governing the supply and exhaust of motive fluid to and from said piston, a bell-crank having one of its arms extended on opposite sides of its other arm, a pin at the junction of said arms, a stem fixed to the distribution-valve and fitting on said pin, a block carrying a fulcrum or pivot pin and adapted to slide longitudinally on the extended arm, an adjusting-block fitting on the fulcrum, and movable longitudinally on a fixed guide, means for moving and holding the adjusting-block in position on the guide, and a link coupling the other arm of the bell-crank to a pin on the crank-shaft.

5. The combination of a bell-crank or elbow lever for transmitting movement from the crank-shaft to the distribution-valve of a fluid-pressure engine, having one of its arms extending transversely to the other and connected thereto by a pin adapted to serve as a member of a joint, and a block fitted to slide longitudinally on the extended arm and carrying a fulcrum or pivot pin.

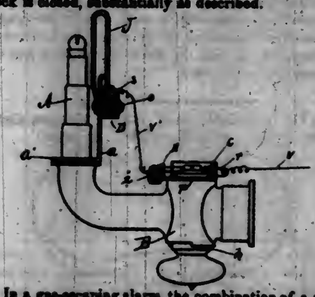
6. The combination of a cylinder, a valve-chest fixed thereto, and a bed-plate, connected to the cylinder and having a sleeve or socket adapted to fit a tubular support and a flange projecting from said sleeve for connection to said tubular support.

7. The combination of a cylinder, a piston working therein, a tubular support, a bed-plate connected to the cylinder and having a sleeve or socket fitting on said tubular support and a flange connected thereto, a bearing fixed in said tubular support, and a crank-shaft journaled in said bearing and having a crank coupled to the piston.

586,813. ELECTRICAL GAS-ALARM. JOHN BRENNEN, Providence, R. I. Filed Apr. 3, 1897. Serial No. 630,543. (No model.)

Claim.—1. In a gas-escaping alarm, the combination with a burner and a stop-cock, of a loop of wire having one leg held stationary and the other leg left free to break or make an electrical circuit by heating or cooling one of the legs, with means operated by the stop-cock to close the circuit when the gas is turned on and break it when the gas is completely turned off, and wires to form said electrical circuit, substantially as described.

2. In a gas-escaping alarm, a plate attached to the body of the stop-cock, a bolt sliding on said plate, a wire attached to said bolt, a wire attached to said plate, a spring on the bolt to press it into contact with the wire attached to the plate, a cam attached to the cock-plug arranged to push back the bolt and break its contact when the stop-cock is closed, substantially as described.



3. In a gas-escaping alarm, the combination of a plate attached to the burner, a loop of wire secured to the plate, said loop having one side exposed to the gas-flame, the other side of the loop being arranged to make an electrical connection between two plates when the gas is not burning and wires attached to said plates to connect with a source of electricity, substantially as described.

586,814. WASHING-MACHINE. ROBERT G. FERGUSON, Lakewood, N. J. Filed Sept. 15, 1896. Serial No. 605,912. (No model.)



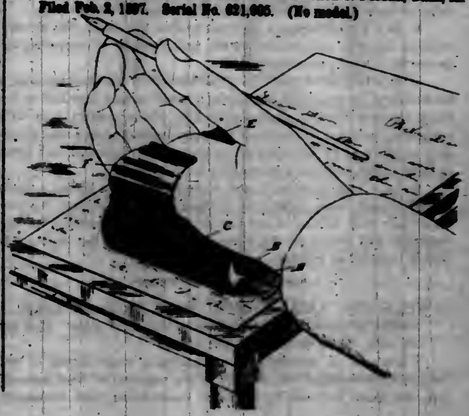
Claim.—1. In a device of the character described, a shaft, arms thereon, rods slidable on the arms and a flexible rubbing-surface on the rods, as and for the purpose described.

2. In a device of the character described, a tank, a shaft journaled therein, arms on the shaft, rods slidable on the arms, cables connecting the rods and lags secured to the cables, as and for the purpose described.

3. In a device of the character described, a tank, a shaft journaled therein, arms on the shaft having longitudinal slots therein, rods adjustably slidable in the slots, cables connecting the rods, rounded lags secured on the cables, spiral springs interposed between the lags and arms and means for automatically rocking the shaft and circulating the water in the tank, substantially as described.

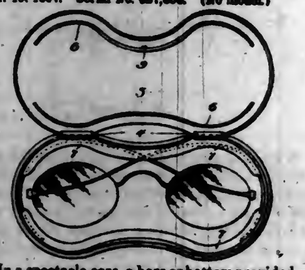
4. In a device of the character described, a tank, a shaft journaled therein, slotted arms on the shaft adjustably slidable in the slots of the arms and a flexible rubbing-surface connecting the rods as and for the purpose described.

586,815. REVOLVING BLOTTER. GEORGE S. FOSTER, Buda, Ill. Filed Feb. 2, 1897. Serial No. 621,605. (No model.)
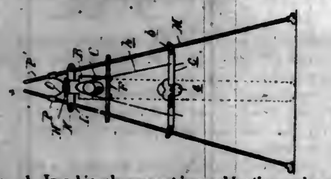


Claim.—In a device of the character described, an oblong piece of sheet metal, the ends being bent up and over to partially embrace a hand, ears formed on opposite sides of said piece of metal, said ears being bent downward, a spindle journaled between the ears, a number of disks of blotting-paper secured on the spindle to produce a cylindrical blotting-roll, two concavo-convex caps mounted at the ends of the spindle with their raised center portion fitting against the ears, the outer edge of said caps fitting around the outer edge of the outside blotting-disks to keep the disks from bending and spreading apart, substantially as described.

586,816. SPECTACLE-CASE. JOHN H. HARNER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,633. (No model.)



Claim.—In a spectacle-case, a base or bottom provided with elongated cavities and having an upwardly-projecting flange 2 forming the body portion or sides, said body portion carrying on the internal face an inwardly-projecting flange 7, a cover hinged to the body portion, having a flange engaging the outside of the box, a flange 6 having a lug or projection 9, said flange 6 adapted to engage the flange 7, to form substantially a dust-proof joint, and means for fastening the lid closed, substantially as shown and described.

586,817. BICYCLE-SUPPORT. WILLIAM HAYBALL, Jr., Detroit, Mich. Filed Mar. 6, 1896. Serial No. 582,069. (No model.)



Claim.—1. In a bicycle-support in combination, a clamp, a block or plate pivoted thereon, legs pivoted in the ends of the plate, a spring acting to draw the legs together, and handles formed by extensions of the legs above their pivotal point by means of which the legs may be rocked and the feet spread.

2. In a bicycle-support, in combination, a clamp, the plate pivoted to the clamp, the legs pivoted in the plate and extending above the same to form handles, means for forcing the legs together, and the rule-jointed levers connecting the legs to hold them in their spread position.

3. In a bicycle-support, in combination, a clamp, the plate pivoted to the clamp, the legs pivoted to the plate, the plate F having bayonet-slots G and the rule-jointed levers connecting the legs.

4. In a bicycle-support, in combination, the clamp, the pivoted rocking legs, the rule-jointed levers, and the loop A connecting the levers for the purpose described.

5. In a bicycle-support, the combination of the rocking legs, a brake-block between said legs, links pivoted to said legs and to the block adapted when in alinement to hold the legs apart or in their supporting position and adapted to apply the brake-block, and shoulders on the brake-block adapted to engage the links and lock them in their alined position, substantially as described.

6. In a bicycle-support and in combination, a clamp, a plate hinged to said clamp, legs pivotally connected to said plate intermediate their ends, means on one side of the pivot for holding the legs together, and means on the other side of the pivot for holding the legs in supporting position.

586,818. LACE-FASTENER. EMIL D. HEINEMANN, Chicago, Ill., assignor to the Titan Manufacturing Company, same place. Filed Apr. 18, 1897. Serial No. 632,042. (No model.)

Claim.—1. A lace-fastener, comprising a single strand of wire bent to form convolutions, the end of one convolution bent inwardly into the space inclosed by the other convolution, then outwardly, thereby forming a shoulder, and finally downwardly at an angle to the plane of the other convolution, as and for the purpose set forth.



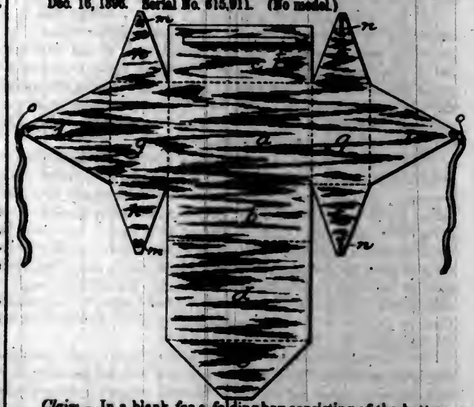
2. A lace-fastener, comprising a single strand of wire bent to form a lower complete convolution and an upper partial convolution, the end of the upper convolution being bent inwardly and downwardly and then outwardly and underneath the lower convolution and finally at an angle with the plane of such convolutions, as and for the purpose set forth.

3. A lace-fastener formed of a continuous wire and comprising a body portion formed of a complete convolution and a partial convolution superimposed thereon, the wire forming the partial convolution being bent inwardly and downwardly into the space inclosed by said complete convolution and thence outwardly underneath said complete convolution, and having securing ends, as and for the purpose set forth.

4. A lace-fastener, consisting of a single wire formed into continuous convolutions superimposed upon each other and lying in the same vertical plane, the free end of the lower convolution bent at substantially right angles to the plane of such convolution and in the same vertical plane therewith, the end of the upper convolution bent inwardly and downwardly forming a shoulder in the space inclosed by said convolutions, and thence outwardly underneath the lower convolution and finally terminating in a securing end bent at right angles to the plane of the convolutions and lying in the same vertical plane therewith, as and for the purpose set forth.

5. A lace-fastener comprising a single strand of wire bent to form a complete convolution and a partial convolution arranged to overlie the complete convolution, the end of the partial convolution being bent inwardly and downwardly beneath the complete convolution, the terminals of said convolutions forming securing ends for the fastener, as and for the purpose set forth.

586,819. FOLDING BOX. SOPHIE KLEIN, Allegheny, Pa. Filed Dec. 16, 1896. Serial No. 615,911. (No model.)



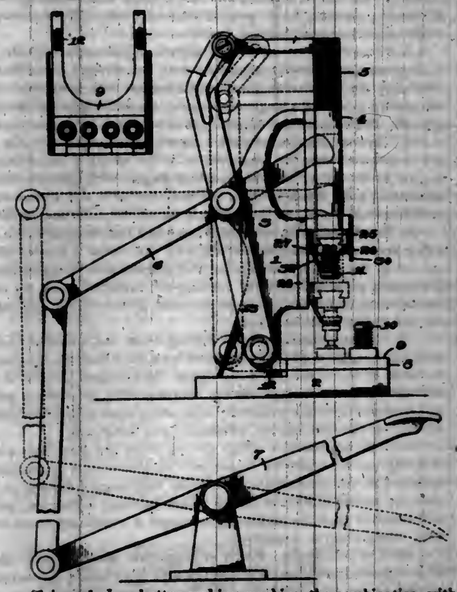
Claim.—In a blank for a folding box consisting of the bottom *a*, the sides *b*, *c*, top *e*, end pieces *g*, provided with flaps *h k* which extend from opposite edges of the end pieces, and the flaps *l*, which project outwardly from the outer edges of the end pieces, and at right angles to the flaps *k*; the side *c* being provided with the strap *f*, and the flaps *h k*, with fastening devices for connecting them, and the pointed flaps *l* with the cords *o*; the points of the flaps *l* meeting upon the top of the box, and being fastened in position by the cords *o*, so as to form a double thickness of material at this point, substantially as shown.

586,820. LEAK-STOPPER FOR PNEUMATIC TIRES. PERCY H. MATTERS, Philadelphia, Pa. Filed July 17, 1896. Serial No. 599,886. (No model.)



Claim.—The combination of a strap of flexible inelastic material, provided, at one end, with a buckle, and, at the other end, with a pair of tongues, a piece of flexible air-tight material cemented at some of its edges to the strap, and free from said strap at other edges and at its middle part and cement placed upon the inside of said flexible air-tight material substantially as described.

586,821. BUTTON-MAKING MACHINE. SOLOMON MENKIN, Philadelphia, Pa. Filed Apr. 28, 1896. Serial No. 589,281. (No model.)



Claim.—1. In a button-making machine, the combination, with the supporting-frame, of the lower dies arranged in sets as described, a horizontally-reciprocable support therefor, a vertically-reciprocable plunger, a head-block thereon, dies on said head-block adapted to coact with the lower dies at predetermined intervals, means for laterally reciprocating said head-block during the action of the plunger, and a rock-lever connected at its lower end with said support and at its upper end with the plunger, whereby during the downward stroke of the plunger the lower die-support is moved into alinement with the upper dies, and during the upward stroke said support is projected forwardly, substantially as described.

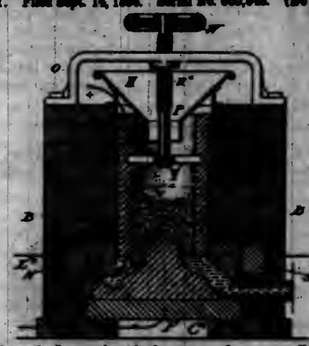
2. In a button-making machine, the combination, with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocable head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam, a connection between the head-block and said cam whereby the head-block in its descent is moved to the right or left as the position of the cam may dictate, and operative connections between said plunger and the lower dies whereby during the downward stroke of the plunger the latter dies are moved into alinement with the upper dies and during the upward stroke the lower dies are projected forwardly, substantially as described.

3. In a button-making machine, the combination with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocative head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam, and a connection between the head-block and said cam, whereby the head-block in its descent is moved to the right or left as the position of the cam may dictate, substantially as described.

4. In a button-making machine, the combination with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocative head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam, a fixed plate provided with a V-shaped recess therein, and studs on said head-block adapted to coact with the cam and recessed plate respectively, substantially as described.

5. In a button-making machine, the combination with the supporting-frame, of the lower dies arranged in pairs as described, the plunger, the laterally-reciprocable head-block thereon, the dies thereon, means for reciprocating said head, to effect their cooperation with the lower dies, and the depending arms fixed on the respective ends of the head-block and adapted to engage the outer lower dies in alternate succession, substantially as described.

586,822. ELECTRIC FURNACE. FRANCIS J. PATTEN, New York, N. Y. Filed Sept. 14, 1896. Serial No. 605,842. (No model.)



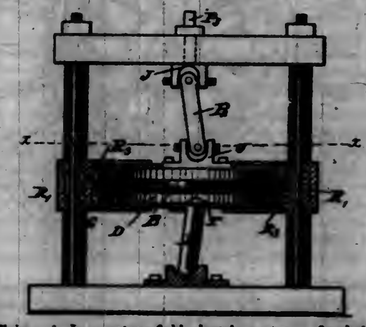
Claim.—1. In an electric furnace, a furnace-wall, a pair of carbon electrodes inclosed within said wall, one of said electrodes being circular in cross-section, means for rotating the arc between and relatively to said electrodes and passages arranged to convey material through the annular arcing-space traversed by the rotating arc, substantially as described.

2. In an electric furnace, the combination with the electrodes, passages for conveying material through the arcing-space between the electrodes, a ring of magnetizable material surrounding said arcing-space, means for creating a rotating magnetic field in said ring, and means for protecting the ring and its windings from the heat of the arc, substantially as described.

3. In an electric furnace the combination with the furnace-wall, of two inclosed electrodes consisting of a lower-carbon slab and an upper carbon of circular cross-section, means for rotating the arc about the axis of the upper carbon, means for adjusting the upper carbon, and passages arranged to convey the material through the annular arcing-space through which the rotating arc travels, substantially as described.

4. In an electric furnace the combination with electrodes consisting of a carbon slab and a tubular carbon electrode above said slab and separated therefrom by a suitable arcing-space, of passages for feeding material through the arcing-space between said electrodes, a ring of magnetizable material surrounding said space and means for creating a rotating magnetic field in said ring, whereby the arc is rotated through the annular arcing-space, substantially as described.

586,828. ELECTROMAGNETIC MOTOR. FRANCIS J. PATTEN, New York, N. Y. Filed Dec. 4, 1893. Serial No. 614,466. (No model.)



Claim.—1. In a rotary-field electric motor, a fixed-ring field-magnet energized by multiphase alternating currents provided with an internally eccentrically pivoted armature of magnetizable material tangentially in contact with the ring field-magnet internally at one pole thereof and adapted to follow the rotating magnetic field by rolling around the inside periphery of the ring substantially as described.

2. In a rotary-field electric motor, a fixed annular field-magnet energized by multiphase alternating currents, provided with a fixed internal ring or track, within and in contact with which an internal eccentrically-pivoted magnetizable armature is adapted to follow the rotating magnetic field by continually rolling around said inner ring, while turning around its own eccentrically-pivoted axis substantially as described.

3. In an electric motor, a ring field-magnet energized by multi-

phase alternating currents whereby a rotating magnetic field having a definite rate of rotation is established in the ring, an eccentrically-pivoted armature rolling in tangential contact with the ring internally actuated by the attraction of the moving magnetic field whereby an axial rotation of the rolling armature is produced that has a fixed different rate of rotation from that of the rotating magnetic field substantially as described.

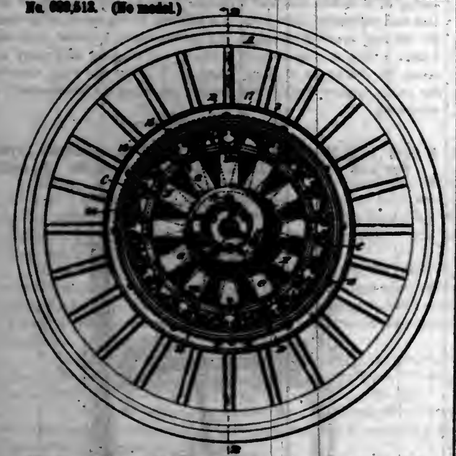
586,824. ELECTRIC FURNACE. FRANCIS J. PATTEN, New York, N. Y. Filed Jan. 30, 1897. Serial No. 621,317. (No model.)



Claim.—1. The herein-described process of electrically heating a homogeneous mass of material of low and approximately uniform conductivity, which consists in passing an electric current through such a mass, establishing around such mass a magnetic field, having its lines of force transverse to the line of current flow through the mass, and causing said field to rotate about said line of current flow.

2. In an electric furnace the combination of two or more terminal electrodes connected with each other by a carbon pencil of relatively small cross-section, said pencil being inclosed in a rotating magnetic field the lines of force of which are substantially transverse to said pencil; together with means for establishing a rotating magnetic field around said pencil.

586,825. ELECTRIC MOTOR. FRANK A. PERRET, Brooklyn, N. Y., assignor to Heber Stone, Brenham, Tex. Filed Mar. 27, 1897. Serial No. 630,513. (No model.)



Claim.—1. The combination with a driving-wheel and stationary axle, of an armature directly connected with the wheel, a commutator-support mounted directly on the armature, a field-magnet mounted directly upon the stationary axle, and a brush-support mounted directly on the field-magnet, substantially as described.

2. The combination with a driving-wheel, and stationary axle, of an armature directly connected with the wheel, a commutator-support mounted directly on the armature, a field-magnet mounted directly upon the stationary axle, and a stationary brush-support, substantially as described.

3. The combination with a driving-wheel and stationary axle, of a ring armature mounted directly on the wheel, a commutator carried by the armature, a multipolar field-magnet mounted directly on the stationary axle, and a brush-ring carrying the brushes and mounted directly on the field-magnet, substantially as described.

4. The combination with a driving-wheel and stationary axle, of a ring-armature mounted directly on the wheel, a commutator carried by the armature, a multipolar field-magnet mounted directly on the stationary axle, and a stationary brush-ring carrying the brushes, substantially as described.

5. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator-ring carrying the commutator, a multipolar field-magnet mounted directly on the stationary axle, and a brush-ring carrying the brushes and mounted directly on the field-magnet, substantially as described.

6. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet with interprojecting alternating poles mounted upon the stationary axle, and a stationary brush-support, substantially as described.

7. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet with interprojecting alternating poles and a single exciting-coil mounted upon the stationary axle, and a stationary brush-support, substantially as described.

8. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet with interprojecting alternating poles mounted upon the stationary axle, and a brush-support mounted directly on the field-magnet, substantially as described.

9. The combination with a driving-wheel and stationary axle, of a ring armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet with interprojecting alternating poles and a single exciting-coil mounted upon the stationary axle, and a brush-support mounted directly on the field-magnet, substantially as described.

10. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator mounted on the armature, a multipolar field-magnet divided at or near the median plane and having interprojecting alternating poles and mounted upon the stationary axle, and a brush-support mounted directly on the field-magnet, substantially as described.

11. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator mounted on the armature, a multipolar field-magnet divided at or near the median plane and having interprojecting alternating poles and mounted upon the stationary axle, and a stationary brush-support, substantially as described.

12. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet divided at or near the median plane and having interprojecting alternating poles and a single exciting-coil mounted upon the stationary axle, and a stationary brush-support, substantially as described.

13. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet divided at or near the median plane and having interprojecting alternating poles and a single exciting-coil mounted upon the stationary axle, and a brush-support mounted directly on the field-magnet, substantially as described.

14. The combination of a driving-wheel and stationary axle, a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet within said armature, a stationary brush-support, and metallic supports for said armature all arranged at the same distance from poles of the same sign, substantially as described.

15. The combination of a driving-wheel, a ring-armature directly connected with the wheel, a commutator carried by the wheel, a multipolar field-magnet with interprojecting alternating poles within said armature, a stationary brush-support, and metallic supports for said armature all arranged at the same distance from poles of the same sign, substantially as described.

16. The combination with a ring-armature, of a commutator-ring mounted directly on the armature, a field-magnet within the armature, and a brush-ring mounted directly upon the field-magnet, substantially as described.

17. The combination with an armature, of a commutator-ring mounted directly on the armature, a field-magnet, and a brush-ring mounted directly upon the field-magnet, substantially as described.

18. The combination with a ring-armature and commutator-ring, of a field-magnet within the armature, and a brush-ring mounted directly upon the field-magnet, substantially as described.

19. The combination with a ring-armature, and a commutator-ring, of a multipolar field-magnet within said armature having interprojecting poles, and a brush-ring mounted directly upon the poles of the field-magnet, substantially as described.

20. The combination with a ring-armature, of a commutator-ring mounted upon the armature, a multipolar field-magnet within said armature having interprojecting poles, and a brush-ring mounted directly upon the poles of the field-magnet, substantially as described.

21. The combination with a driving-wheel and stationary axle, of a ring-armature directly connected with the wheel, a commutator-ring mounted on the armature, a multipolar field-magnet mounted on the axle within said armature and having interprojecting alternating poles, and a brush-ring mounted directly on the field-magnet, substantially as described.

22. The combination with an armature and multipolar field-magnet, of metallic supports for the armature non-inductively located relatively to the poles, substantially as described.

23. The combination with an armature and multipolar field-magnet, of metallic supports for the armature all arranged at the same distance from field-poles of the same sign, substantially as described.

24. The combination with a ring-armature and its metallic supporting-ring, of a multipolar field-magnet within the armature, and metallic connections between the armature and supporting-ring all arranged at the same distance from poles of the same sign, substantially as described.

25. The combination with a driving-wheel and stationary axle, of a ring-armature and commutator carried by the wheel, a field-magnet and brushes mounted on the axle, and a cover carried by the wheel and inclosing the motor, substantially as described.

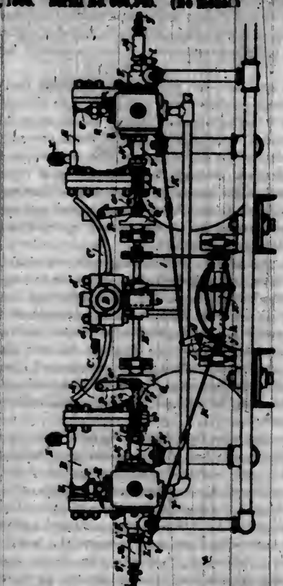
26. The combination with a driving-wheel and stationary axle, of an electric motor having its armature carried by the wheel and its field-magnet mounted on the axle, a plate carried by the wheel and inclosing the motor, and a stationary stuffing-box on the axle for the edge of the plate, substantially as described.

27. The combination with wheel A and axle B, of a ring-armature carried by said wheel, commutator-ring D on the opposite side of armature from the wheel, a multipolar field-magnet within said armature mounted on the axle and formed of the two rings E, E' having interprojecting poles *e*, *e'* and coil F, and brush-ring *g* on the poles *e*, substantially as described.

28. The combination with an armature-supporting ring, of commutator-ring D, and ring-armature core a secured between the commutator and supporting rings, substantially as described.

29. The combination with supporting-ring C having projections 13, of commutator-ring D having projections 14, and armature-core *a* between said projections, and bolts 15 or equivalent devices for securing the parts together, substantially as described.

586,826. EXPLOSIVE-ENGINE. FREDERICK A. RINGER, San Francisco, Cal., assignor to Bainbridge L. Ryder, same place. Filed Oct. 9, 1896. Serial No. 608,245. (No model.)



Claim.—1. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with a crank-shaft common to both, a driven shaft operated from said crank-shaft, having its extremities projecting directly into the explosion-chambers, electrodes in the explosion-chambers of the cylinders, and electrodes on the extremities of said driven shaft operating in connection with the first-named electrodes for producing the spark in each explosion-chamber at timely periods.

2. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with a crank-shaft common to both, a driven shaft operated from said crank-shaft, having its extremities projecting directly into the explosion-chambers, electrodes in the explosion-chambers of the cylinders, electrodes on the extremities of the driven shaft, for operating in connection with said first-named electrodes for producing the spark at proper times in each explosion-chamber, exhaust-valves in said explosion-chambers and connections whereby the exhaust-valve of each chamber is operated from the driven shaft.

3. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with a crank-shaft common to both, a driven shaft operated from the crank-shaft, spring-controlled exhaust-valves in the explosion-chambers of the cylinders, cams on the single shaft for operating the exhaust-valve of each chamber at proper times, and the hangers or links for supporting the outer extremities of the exhaust-valve stems and having the contacts against which the cams on the driven shaft operate.

4. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with a crank-shaft common to both, the driven shaft operated from said crank-shaft, electrodes in the explosion-chambers of the cylinders, stuffing-boxes in said chambers through which the extremities of the driven shaft enter, and electrodes on said extremities within the chambers for operating in connection with the first-named electrodes to produce the spark in each chamber at proper times.

5. In an explosive-engine, a movable electrode within the explosion-chamber thereof, in combination with an opposing electrode therein, and the means for holding and adjusting said opposing electrode, consisting of the casing insulated from the explosion-chamber, the slidable clamp within said casing and adapted to receive and hold the electrode, and the exterior screw engaging said clamp for moving it to adjust the electrode.

6. In an explosive-engine, a movable electrode within the explosion-chamber thereof, in combination with an opposing electrode therein, and the means for holding and adjusting said opposing electrode, consisting of the casing insulated from the explosion-chamber, the slidable two-part clamp within said casing and having pins adapted to receive and hold the electrode, the exterior screw engaging said clamp for moving it to adjust the electrode, and the screw passing through the casing and engaging a groove in the clamp to prevent its turning while being moved linearly.

7. In an explosive-engine, the suction-valve in the explosion-chamber having an outwardly-projecting stem with stop-nuts, a sliding sleeve on said stem controlled by a spring for impinging against said nuts to return the valve, in combination with the means for controlling the movement of said valve, consisting of a governor driven by the engine, power-transmitting connections from said governor, and a sliding sleeve operated by said connections to come into more or less proximity with the sleeve of the valve-stem to limit the movement of the latter.

8. In an explosive-engine, an inlet or suction valve having a spring-controlled stem, in combination with a sliding sleeve in the path of movement of said stem and adapted by its position to limit, at various points, the movement of said stem, and a governor driven by the engine and having connections to operate the sliding sleeve.

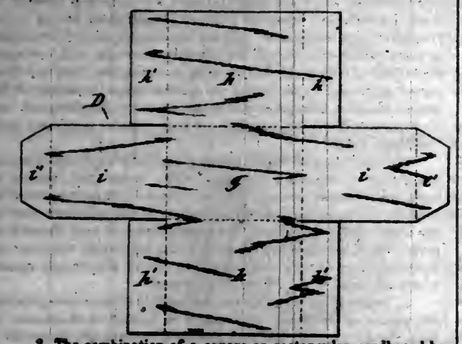
9. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with opposite cranks of a crank-shaft common to both cylinders, a driven shaft operated from the crank-shaft, spring-controlled inlet or suction valves in the explosion-chambers in said cylinders, a governor operated by the driven shaft, a sliding sleeve, one for each suction-valve and in the path of movement thereof, adapted by its position to limit, at various points, the movement of the suction-valve stems, and connections between the governor and said sliding sleeves for operating the latter.

10. In an explosive-engine, the combination of duplicate cylinders, the pistons of which are connected with a crank-shaft common to both, a driven shaft operated from said crank-shaft, exhaust-valves and connections from said driven shaft for operating said valves, an electrode in the explosion-chamber of the cylinders, and electrodes on the driven shaft operating in connection with said first-named electrodes, inlet or suction valves to the explosion-chambers having spring controlled stems, a sliding sleeve adapted by its position to limit at various points the movement of said inlet-valve stems, a governor operated by the driven shaft and connections from said governor to operate the sliding sleeve.

586,827. CARDBOARD BOX. HENRY SEMMENS, Syracuse, N. Y. Filed Nov. 13, 1896. Serial No. 612,022. (No model.)

Claim.—1. The combination of a rectangular box having its bottom composed of two layers, and a cover closing the top of the box and embracing the sides thereof and having flaps inserted at their

ends between the two layers of the bottom at the edges of said bottom, as set forth.



2. The combination of a square or rectangular cardboard box composed of separate rectangular blanks placed with their central portions at right angles one upon the other and forming thereat a double bottom of the box and bent with their end portions up at right angles from said central portions to form the sides of the box, and a cover formed of a blank consisting of a central portion closing the open end of the box, and of flaps extending from said central portion and bent at right angles therefrom to embrace the sides of said box, two of said oppositely-disposed flaps having lateral extensions lapping around the corners of the box, and the other oppositely-disposed flaps covering said lateral extensions and formed with end extensions inserted between the two plies of the bottom at the edges thereof, as set forth.

586,828. DRESS-STAY. ADOLPH TREUHOLTZ, New York, N. Y. Filed Apr. 24, 1897. Serial No. 633,503. (No model.)



Claim.—A dress-stay comprising an inner strip or stripe of hard, elastic material, as steel, a covering of fibrous material, and tips over and inclosing its ends, said tips being of celluloid incorporated with the fibers of the covering material, extending through apertures in the stay, and forming bushings about said apertures, the bushing and tip being integral.

586,829. MECHANISM FOR CONVERTING RECIPROCATING MOTION INTO ROTARY MOTION. JOHN ULRICH and CARL WITTER, Columbus, Ohio. Filed Sept. 3, 1896. Serial No. 605,204. (No model.)



Claim.—In an engine the combination with the main cylinder, a piston-head therein and piston-rod extending therefrom and means for imparting a reciprocating motion to said piston-head and rod, of parallel guide-plates extending from said cylinder, a sliding block or head 41 between said guide-plates with which said piston-rod is connected, diagonally-arranged ways or channels in opposite sides of said block or head, said channels running in diagonally opposite directions, driving-arms 43, 44, a roller projecting inwardly from each of said arms, said rollers bearing in said block or head channels, a shaft 49, a ring 55 keyed thereon, inclined teeth on the outer sides of said ring, said driving arms loosely surrounding the shaft 49 on opposite sides of said ring 55 and inclined teeth on said driving-arm ends corresponding and adapted to engage with the teeth of said ring, substantially as and for the purpose specified.

586,830. BICYCLE HANDLE OR GRIP. GEORGE W. WILLIAMS, Brooklyn, N. Y. Filed Aug. 1, 1896. Serial No. 601,300. (No model.)



Claim.—A grip or handle consisting of a series of annuli placed side by side, tips on the outer ends of said series, cords or wires passing through said annuli and tips and over the peripheries of said tips, and having their fastening ends on either of said tips and caps covering said tips and fastening ends.

586,831. APPARATUS FOR PASTEURIZING MILK. HORACE ATWOOD, Arden, N. Y. Filed May 22, 1895. Serial No. 550,269. (No model.)



Claim.—1. In an apparatus for pasteurizing milk, the combination of a rotary receptacle having milk-outlets leading out through the end and side of the cover and cream-outlets leading out through the side thereof, removable plugs for said outlets, and a casing surrounding the receptacle and to which heat is applied, substantially as described.

2. In an apparatus for pasteurizing milk, the combination of a rotary receptacle provided with a conical top having a cylindrical neck, said neck being provided with milk-outlets leading out through the end and side and with cream-outlets leading out through the side thereof, removable plugs for said openings, and a conical casing surrounding the receptacle and to which heat is applied, substantially as described.

3. In an apparatus for pasteurizing milk, the combination of a rotary receptacle provided with a conical cover having a cylindrical neck, said neck having openings leading out through the side for the exit of the cream, open-ended tubes or ducts extending up against the inner surface of the cover and its neck and provided with lateral openings leading out through the neck, the upper open ends of the tubes or ducts and the lateral openings thereof forming exits for the milk, removable plugs for the milk and cream openings, and a conical casing surrounding the receptacle and to which heat is to be applied, substantially as described.

4. In an apparatus for pasteurizing milk, the combination with a rotary receptacle provided with a conical cover having a cylindrical neck provided with cream-openings leading through the side thereof, open-ended milk tubes or ducts extending up against the inner face of the cover and its neck and provided with openings leading through the sides of the neck, removable plugs for the said openings, a conical heating-jacket surrounding the receptacle, and a pan mounted on the upper end of the jacket and provided with a cover having a tube extending down into the neck of the cover of the receptacle, substantially as described.

5. In an apparatus for pasteurizing milk, the combination of a rotary receptacle provided with a conical cover having a cylindrical neck provided with lateral cream-openings, open-ended milk tubes or ducts extending up against the inner face of the cover and its neck and provided with openings leading through the sides of the neck, removable plugs for the said openings, a conical heating-jacket surrounding the receptacle, a pan mounted upon the jacket and provided with an inner wall through which the neck of the cover of the receptacle loosely projects, and a cover for the pan provided with a receptacle on its top and from which leads a pipe into the neck of the said receptacle, substantially as herein shown and described.

6. In an apparatus for pasteurizing milk, the combination with a rotary vessel having a conical cover and provided with exit-openings, of a conical hollow jacket surrounding the vessel, and a perforated steam-pipe arranged spirally in the space between the walls of the jacket, substantially as described.

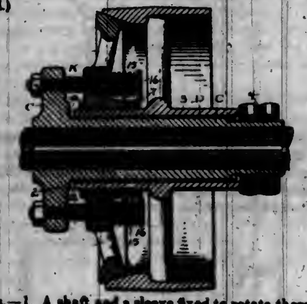
7. In a pasteurizing apparatus, the combination of a centrifugal

separator having outlets for the elements through which said elements are discharged laterally when separated, means for operating the separator, a hollow jacket surrounding the separator and adapted to receive on its surface the liquid discharged from said outlet as the separator is rotated, and a pipe coiled in the hollow of said jacket, said pipe being provided with perforations inside the jacket and being adapted for the supply of steam to said hollow, substantially as set forth.

8. An apparatus for pasteurizing milk, consisting of a rotary receptacle provided with a conical cover having a cylindrical neck provided with cream-openings leading through the side thereof, open-ended milk tubes or ducts extending up against the inner face of the cover and its neck and provided with openings leading through the sides of the neck, removable plugs for the said openings and the outer ends of the ducts or tubes, a conical hollow jacket surrounding the receptacle, perforated steam-pipes arranged in the jacket, a pan mounted on the said jacket through which the neck of the cover of the receptacle projects, and a cover for the pan provided with a pipe leading into the neck of the receptacle, substantially as described.

9. An apparatus for pasteurizing milk, consisting of a support provided with an annular trough having a lateral outlet, a rotary receptacle mounted in the support and provided with a conical cover having a cylindrical neck provided with cream-openings leading through the side thereof, open-ended milk tubes or ducts extending up the inner face of the cover and its neck and provided with openings leading through the sides of the neck, removable plugs for the openings of the neck and the outer ends of the tubes or ducts, a conical hollow jacket on the support and surrounding the receptacle, perforated steam-pipes in the jacket and a pan on the jacket and provided with a cover having a pipe extending into the neck of the receptacle, substantially as described.

586,832. FRICTION-CLUTCH. GEORGE C. BARROW and JOHN G. OLIVER, Cleveland, Ohio. Filed July 6, 1896. Serial No. 598,117. (No model.)



Claim.—1. A shaft and a sleeve fixed to rotate therewith, a pulley free to rotate on said sleeve, a friction-wheel free to rotate on the hub of said pulley, engaging mechanism between said wheel and said sleeve, and springs connected with said sleeve, in position to disengage the friction-wheel from the pulley, substantially as described.

2. In friction-clutches, a shaft and a sleeve fastened directly on the shaft to rotate therewith and having at one end a lateral projection rigid therewith, a friction-wheel on said sleeve and spring-pressed connections for the said friction-wheel between the same and said lateral projection, whereby the friction-wheel is disengaged from the pulley, a pulley free to rotate on said sleeve, and means to force said friction-wheel into engagement with said pulley, said means comprising levers pivoted on said sleeve, substantially as described.

3. In a friction-clutch, a shaft and a sleeved member fixed to rotate therewith and having a lateral projection at one end, a pulley on said sleeve and a friction-wheel between said pulley and said projection, rods fixed in said member and parallel to said shaft and having said friction-wheel in a sliding relation thereon, and springs on said rods to disengage said wheel, substantially as described.

4. The mechanism described, comprising the shaft and the sleeve rigid therewith, in combination with the pulley free on said sleeve, the friction-wheel supported on the hub of said pulley, means to press said wheel into engagement with the pulley, driving mechanism connecting the said wheel with the aforesaid sleeve, and springs to disengage the said wheel supported from said sleeve, substantially as described.

5. The parts described consisting of a shaft and a sleeve fixed to rotate therewith and having a laterally-projecting portion at one end and a pulley free on said sleeve, in combination with a friction-wheel, rods rigid with the said lateral projection engaging said friction-wheel in a sliding relation, and springs on said rods to carry said wheel away from the pulley when the wheel is released, whereby the pulley is kept free from frictional action by said springs, substantially as described.

6. The shaft and the sleeve thereon having a laterally-projecting portion at one end and a nut engaged on the other end, in combination with a pulley free to rotate on said sleeve and having a hub of less length than the length of the bearing therefor, a friction-wheel sleeved on the hub of the said pulley, actuating parts connecting the friction-wheel with the said sleeve, releasing-springs behind said wheel and mechanism for pressing said wheel into frictional engagement with said pulley, substantially as described.

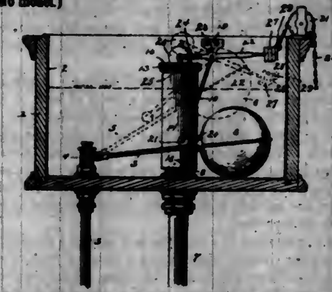
586,833. LIQUID VESSEL. GEORGE W. BROWN, Williamsburg, Pa. Filed July 17, 1896. Serial No. 599,672. (No model.)



Claim.—1. The combination with a vessel provided on its inner surface with diametrically opposite and inwardly-projecting pins or lugs, of a skeleton cover fitted to rotate in the vessel between the lugs or pins, said cover having its periphery interrupted or broken at diametrically opposite points and provided with downwardly-projecting and tapered flanges, substantially as described.

2. The combination with a vessel provided on its inner surface with diametrically opposite pairs of lugs and with diametrically opposite lugs spaced from the pairs of lugs, of a cover consisting of bars radiating from a common center, the outer end of the bars at each side being connected by a flange forming an interrupted or broken periphery, said flanges extending downwardly at right angles to the bars and tapered longitudinally, substantially as herein shown and described.

586,834. FLUSH-TANK FOR WATER-CLOSETS. BERNARD M. CARNEY, McKeesport, Pa. Filed Nov. 10, 1896. Serial No. 611,660. (No model.)



Claim.—1. A closet flushing-tank comprising the stationary siphon provided with the valve-seat 12, the crank-shaft 18, the lever 22 mounted on said crank-shaft, the valve 26 mounted on said lever and adapted to travel to and from the valve-seat 12, in combination with an induction-valve, its lever and float, the said lever 22 arranged to operate the crank-shaft 18, substantially as and for the purpose set forth.

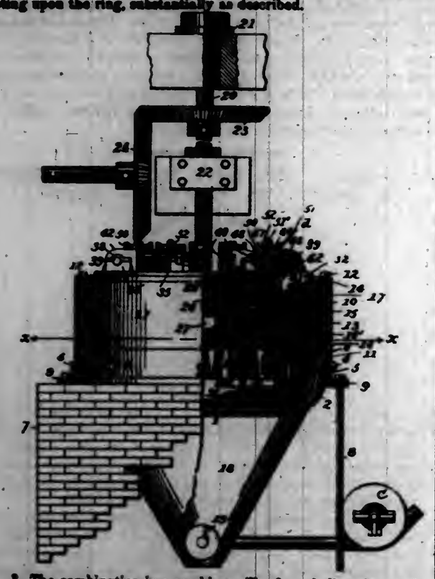
2. A closet flushing-tank comprising the siphon provided with a fixed valve-seat 12, the crank-shaft 18, formed with the arm 21, the roller 20 mounted on said arm, the horizontal lever 22 fixed on said crank-shaft, the valve 26 mounted on one end of said lever vertically above the valve-seat 12, in combination with the induction-valve having a lever and float extending across the path of the arm 21 of the crank-shaft 18, substantially as shown and described.

586,835. PULVERIZING-MACHINE. JOHN C. CLARK, Atlanta, Ga. Filed Sept. 26, 1896. Serial No. 607,060. (No model.)

Claim.—1. The combination in a grinding-mill, of a grinding ring, and a rotatory group of grinding-rolls acting upon each other to grind the material, each roll adapted to swing outward by centrifugal force, and the outer rolls of the group also acting upon the ring, substantially as described.

2. The combination in a grinding-mill, of a grinding-ring, and a series of rotatory groups of grinding-rolls, the rolls of each group be-

ing adapted to swing outward by centrifugal force and acting upon each other to grind the material, and the outer rolls of each group acting upon the ring, substantially as described.



3. The combination in a crushing-mill, of a grinding-ring, and a series of groups of crushing-rolls suspended from a common shaft, and each roll carried by a shaft rotatable in a swinging bearing, the rolls in each group operating upon one another, and the outer rolls thereof operating upon the grinding-ring, substantially as described.

4. The combination in a crushing-mill having a grinding ring or die, of a rotating circular plate or disk, a series of groups of swinging boxes suspended from said disk, and independently-rotating shafts turning in said boxes and each carrying at its lower end a roller, the said rollers in each group operating upon one another and the outer rollers thereof upon the surface of the grinding-ring, substantially as shown and for the purpose described.

5. The combination in a crushing-mill having a grinding ring or die, of a rotating circular plate having a series of slots or openings extending inward from the edge equidistant from each other, and another series of similar slots or openings alternating with and set in from the first, swinging boxes suspended through said slots in suitable bearings, independently-rotating shafts working in the boxes and each carrying at its lower end a grinding-roller, the said rollers operating upon one another in series and upon the surface of the ring, substantially as described.

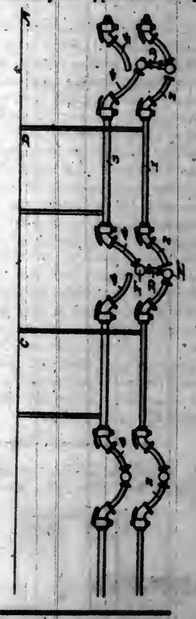
6. The combination in a crushing-mill having a grinding ring or die, of a rotating circular plate having a series of slots or openings arranged at equidistant points and extending inward from the edge of the disk, and also formed with another series of similar slots or openings alternating with and set in from the others and having continuations extending to the edge, swinging boxes working in said slots, independently-rotating shafts working in the boxes and each carrying at its lower end a grinding-roller, the said rollers operating upon one another in series and upon the surface of the ring, substantially as described.

7. The combination in a crushing-mill having a grinding ring or die, of a rotating circular plate having sets of slots or openings formed therein with the slots of one set intermediate of those of the other set, lugs or projections on the disk adjacent to the edges of the slots, swinging boxes suspended in bearings confined between the lugs on opposite sides of the slots, independently-rotating shafts working in the boxes, and grinding-rollers carried at the lower ends of the shafts and operating upon each other and upon the surface of the grinding-ring, substantially as described.

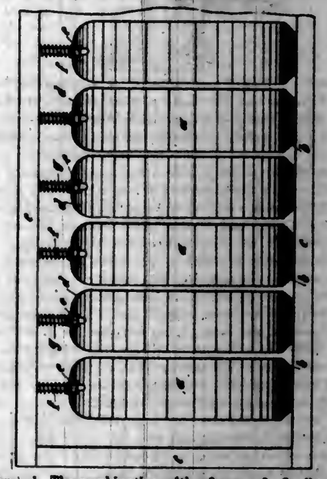
8. The combination in a crushing-mill having a grinding ring or die, of a series of groups of grinding-rollers suspended from a common shaft and each having an independent axis and carrying at its lower end a plow, the said rollers operating upon one another and upon the surface of the ring by centrifugal force, substantially as shown and described.

586,886. AIR-BRAKE FOR RAILWAY-CARS. JOSEPH F. COFFIN, Mobile, Ala. Filed Mar. 10, 1897. Serial No. 626,860. (No model.)

Claim.—The combination with the train-pipes and signal-pipes of a railway-train, said pipes being provided with flexible couplings, of an auxiliary or supplemental coupling having a train-pipe-coupling head and a signal-pipe-coupling head, whereby should the air-brake mechanism of one coach get out of order, the couplings of the signal-pipe and of the train-pipe may be disconnected, and one coupling of each coupled by the auxiliary or supplemental coupling, substantially as set forth.



586,887. SPRING-SEAT. JULES COUPIN, Montargis, France. Filed Mar. 23, 1897. Serial No. 628,022. (No model.) Patented in France Feb. 3, 1896, No. 253,646; in England Feb. 3, 1896, No. 10,344; in Belgium May 13, 1896, No. 121,246; in Germany May 20, 1896, No. 89,797, and in Austria Dec. 21, 1896, No. 46/5,066.



Claim.—1. The combination with a frame, of a flexible covering, a leaf-spring one end of which is attached to the frame and the other end of which is free, a rod carried by the frame and with which the free end of the leaf-spring has connection, and an expansive spiral spring carried on the rod and engaging the leaf-spring.

2. The combination with a frame, of a flexible covering, a leaf-spring one end of which is fixed to the frame and the second end of which is free, a rod carried by the frame and having slidable connection with the free end of the leaf-spring, and a second spring carried by the rod and pressing the leaf-spring.

3. The combination with a frame, of a flexible covering, a leaf-spring one end of which is attached to the frame and the second end of which is free, a rod carried by the frame, a thimble sliding on the rod and held by the free end of the leaf-spring, and an expansive spring embracing the rod and pressing the thimble.

4. The combination of a bowed spring, and a yielding bearing engaged by one side of said bowed spring, the bearing yielding laterally with reference to the spring as pressure is applied to the arch of said bowed spring.

5. The combination of a bowed spring, a rigid rod on which one end of the bowed spring is slidable, and a spring carried by the rod and engaging the bowed spring so as to yieldingly hold the end of the bowed spring which end is slidable on the rod.

6. The combination of a bowed spring, and a yielding bearing engaging one end of the spring, the bearing moving forward and back as pressure is applied to the arch of the spring, and the bearing serving to maintain the spring arched in normal position.

586,888. NEEDLE-GUARD FOR SEWING-MACHINES. WARREN R. DAVIS, Brooklyn, N. Y. Filed Jan. 21, 1896. Serial No. 576,303. (No model.)



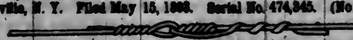
Claim.—1. A needle-guard, comprising an eye, and a shank projecting from the eye and formed with arms at its ends, said arms being bent outwardly and then inwardly toward each other to form a clamp for engaging the presser-foot shank, the said shank being of a length equal to the distance between the presser-foot shank and the needle, whereby the eye will be held in position for the passage of the needle therethrough, substantially as described.

2. A needle-guard, comprising an eye having its lower front portion recessed or cut away, a shank projecting from the eye, and a clamp on the end of the shank for engaging the presser-foot shank, substantially as described.

3. A needle-guard formed of a single piece of flat material bent upon itself to form an eye, a twin shank, and an arm at the end of each member of the shank, said arms being bent outwardly and then inwardly toward each other to form a clamp for engaging the presser-foot shank, substantially as herein shown and described.

4. A needle-guard formed from a single piece of flat material bent upon itself to form an eye, a twin shank of a length equal to the distance between the presser-foot shank and needle, and an arm at the end of each member of the shank to form a clamp, the lower front portion of the eye being provided with an opening, substantially as described.

586,889. ADJUSTABLE BALE-TIE. PETER K. DEDERICK, Londonville, N. Y. Filed May 15, 1896. Serial No. 474,845. (No model.)



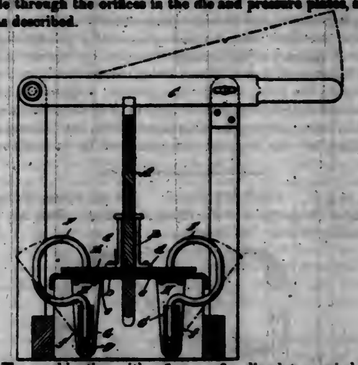
Claim.—A wire bale-tie having a duplication of relatively rigid strands at one end firmly twisted together with an eye formed in the twisted portion and the end beyond the eye projecting in substantial alinement with said eye and an adjustable end passed through the eye, doubled back on itself and bent into engagement with the body of the wire; substantially as described.

586,840. APPARATUS FOR MANUFACTURING CYCLE-GEAR CASES. HORACE W. DOVER, Northampton, England. Filed Feb. 2, 1897. Serial No. 621,693. (No model.)

Claim.—1. The combination of a die-plate having an orifice therein, and a rib extending around the orifice, a pressure-plate having one face engaged with the rib of the die-plate and having a rib on said face and projected toward the die-plate, and means movable through the orifice in the die-plate, for drawing a plastic sheet between the pressure and die plates, and molding said sheet, substantially as described.

2. The combination with a frame, of an orificed die-plate, a pressure-plate located above and bearing down on the die-plate, a plunger movable through the orifice in the die-plate, and a spring-pressed hook engaging the pressure-plate and holding the same in position, substantially as described.

3. The combination with a frame, an orificed die-plate carried thereon, and an orificed pressure-plate carried on the die-plate, of a spring-pressed hook carried by the frame and yieldingly holding the pressure-plate in position, and a plunger mounted on the frame and movable through the orifices in the die and pressure plates, substantially as described.



4. The combination with a frame, of a die-plate carried by the frame, a pressure plate mounted on the die-plate, means coacting with the die and pressure plates to mold a plastic material, a bracket pivotally mounted at each side of the pressure and die plates, and a spring-pressed hook carried in each bracket and yieldingly holding the pressure-plate in position, substantially as described.

5. The combination with a frame carrying a die, of means coacting with the die to mold a plastic material, a pressure-plate bearing down on the die, a bracket pivotally mounted on the frame, and a spring-pressed hook carried in the bracket and engaging the pressure-plate to hold the same in position, substantially as described.

6. In a tool for the preparatory molding of sheet xylonite, celluloid or like material roughly to the form of a gear-case, the combination of a male die or plunger, an apertured die-plate and a presser-plate, the adjacent faces of the die-plate and presser-plate being provided with oppositely-projecting ribs surrounding the die-aperture, the rib on one plate surrounding the rib on the other plate so as to act in succession on opposite sides of the material as scrapers extending entirely around the die-aperture whereby to smooth out wrinkles from the material drawn between the die and presser plates.

7. The combination of a die-plate having an orifice therein, and a rib on one face, the rib running around the orifice, a presser-plate bearing on the die-plate and having an orifice registering with the orifice in the die-plate, and also having a rib running around the orifice in the presser-plate and projecting toward that face of the die-plate which face has the first-named rib, the ribs being arranged one outward from the other, and a die movable through the orifices in the die and presser plates, the die and presser plates being capable of holding plastic sheet material between them so that said material may be drawn laterally by the die and the ribs serving to smooth said plastic material as it moves between the die and presser plates.

8. The combination of a die-plate having an orifice therein and having a rib on one face, the rib running around the orifice, a presser-plate bearing on the die-plate and having a rib projecting toward that face of the die-plate which has the first-named rib, the two ribs being located one outward from the other, and a die coacting with the die and capable of drawing plastic sheet material through the orifice in the die-plate, the die and presser plates being capable of holding the plastic material so that the material may be drawn between them, and the ribs serving to smooth the plastic material as it passes between the said die and presser plates.

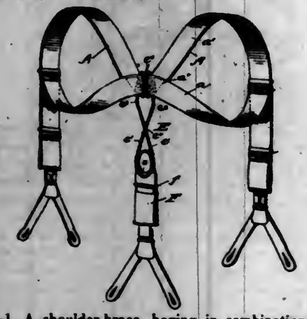
586,841. SWING-JOINT FOR GAS-FIXTURES. HENRY P. DREW, New York, N. Y. Filed Feb. 27, 1897. Serial No. 625,268. (No model.)



Claim.—1. A swing-joint for tubing, the joint having two sections one with a groove or chamber, and a central hub situated in said groove or chamber, the said one section also having a post rising from the hub, the second section having an annular groove or chamber matching with the groove or chamber of the first section, and the second section also having a central hub receiving the post of the first section whereby the two sections are pivotally connected, and two rings cemented respectively to the edges of the outer wall of the groove or chamber in the first section and to the upper side of the hub on the said first section, the rings respectively bearing against the hub and outer walls of the second section.

2. A swing-joint for tubing, the joint having two sections each having a hub surrounded by a groove or chamber, the hubs and the grooves or chambers being capable respectively of matching with each other, means passing through the hubs whereby to hold the sections together so that they may swing independently on a center coincident to the hubs, and two independent rings respectively secured around the outer wall of the groove or chamber and adjacent to the hub in one section, the rings moving with and forming part of said section, and the rings bearing loosely on the coacting section.

586,842. SHOULDER-BRACE. EDWARD FLICK, Chicago, Ill., assignor of one-half to John Flick, same place. Filed Dec. 7, 1896. Serial No. 614,715. (No model.)

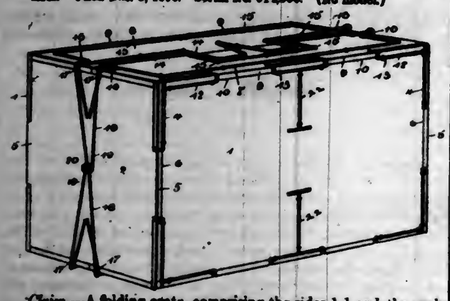


Claim.—1. A shoulder-brace, having, in combination, a back suspender-strap, a spring to which said strap is secured, whence the spring proceeds upward in the form of two substantially upright yielding branches which terminate at a point approximately between the shoulder-blades, and a pair of shoulder-loops, both sides of each loop being secured to the upper end of one, and only one, of the branches of the spring, so that when the loops are drawn apart the two branches of the spring will be deflected laterally, substantially as set forth.

2. A shoulder-brace, having, in combination, a back suspender-strap, a spring to which said strap is secured, whence the spring proceeds upward, in the form of two substantially upright yielding branches which cross each other and terminate at a point approximately between the shoulder-blades, and a pair of shoulder-loops, both sides of each loop being secured to the upper end of one, and only one, of the branches of the spring, so that when the loops are drawn apart the two branches of the spring yield laterally, substantially as set forth.

3. A shoulder-brace, having, in combination, a pair of independent shoulder-loops, a back suspender-strap, and a spring through the medium of which said loops and strap are connected, said spring being formed of a single piece of wire bent at its middle to form an eye to which the back suspender-strap is secured, whence it proceeds upward in the form of two substantially upright yielding branches which cross each other above said eye and terminate at a point approximately between the shoulder-blades, both sides of each shoulder-loop being secured to the upper end of one and only one of the branches of the spring, so that when the shoulder-loops are drawn apart the two branches of the spring will yield laterally, substantially as set forth.

586,843. FOLDING EGG-CRATE. JOSEPH J. GOLDRAUM, Tucson, Ariz. Filed Dec. 5, 1896. Serial No. 614,580. (No model.)



Claim.—A folding crate, comprising the sides 1 1 and the ends 2 2 hinged together at their contiguous edges by the bent rods 4 4, the hinged top pieces 7 and 8 provided with the guard-wires 14 14, formed with projecting integral end loops 16, in combination with the bolt 20 and the V-shaped hook 18, substantially as shown and described.

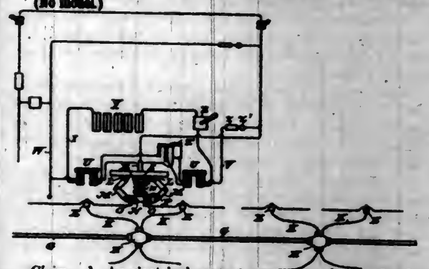
586,844. POTATO-CUTTER. SAMUEL A. GRAHAM, Boston, Pa., assignor of one-third to Samuel P. Furley, same place. Filed July 11, 1896. Serial No. 598,806. (No model.)



Claim.—1. In potato-cutters, the combination of a potato-holder; transverse and longitudinal knives arranged beneath said holder; jointed levers connecting said transverse knives with a rock-shaft whereby the distances between said transverse knives can be regulated and means for pressing the potato down whereby the holder is opened and the potato forced upon the knives.

2. In potato-cutters, the combination of two pivotally-hung doors forming a potato-holder; a series of folding levers connecting said doors; a spring acting to keep said levers spread and the doors closed at their base; knives arranged beneath said doors, a rock-shaft; levers connecting said rock-shaft with the transverse knives and means for pressing the potato down whereby the holder is opened and the potato forced against the knives.

586,845. ELECTROMAGNETIC THIRD-RAIL SYSTEM. WILLIAM GRIDOW, Jr., Bridgeport, Conn., assignor of one-half to Joseph A. McElroy, New York, N. Y. Filed Aug. 26, 1896. Serial No. 604,080. (No model.)



Claim.—1. An electrical contact system, consisting of a free or independent reciprocating electromagnetic contact, operated by the alternate action of a separate electromagnet and gravitation.

2. In combination, a contact-receptacle for electrical railways, a supply-conductor passing into said receptacle and means for closing the circuit between the contact-receptacle and supply-conductor, consisting of a free or independent reciprocating electromagnet carrying contact-surfaces.

3. In combination, a contract-receptacle for electrical railways, a supply-conductor passing into said receptacle and means for closing the circuit between the contact-receptacle and supply-conductor, consisting of a free or independent reciprocating electromagnet carrying contact-surfaces and insulated from said receptacle.

4. In combination, a contact-receptacle for electrical railways, a supply-conductor passing into said receptacle and means for closing the circuit between the contact-receptacle and supply-conductor, consisting of a free or independent reciprocating electromagnet, the poles of which form contact-surfaces located in same horizontal plane.

5. In combination, a contact receptacle for electrical railways, a supply-conductor passing into said receptacle and means for closing the circuit between the contact-receptacle and supply conductor, consisting of a free or independent reciprocating electromagnet carrying contact-surfaces and provided with elastic supporting connections.

6. In combination, a contact-receptacle for electrical railways, provided with a tubular extension, a supply-conductor passing into said receptacle through the extension and means for closing the circuit between the top of the contact-receptacle and supply-conductor consisting of a free or independent reciprocating electromagnet carrying contact-surfaces.

7. In an electrical railway system the combination with electromagnets upon the car or truck provided with suitable electric connections, means for operating said electromagnets, contact-shoes carried by toggle-levers connected with the car or truck, contact-

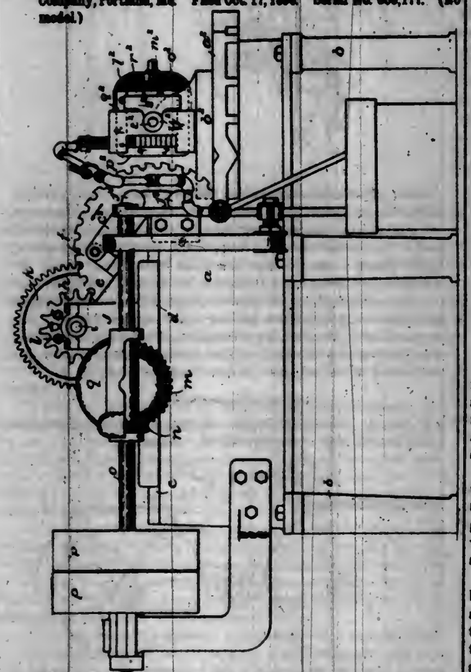
receptacles located at predetermined points along the track and a supply-conductor passing into said contact-receptacles and means for closing the circuit between the contact-receptacles and supply-conductor, consisting of a free or independent reciprocating electromagnet carrying contact-surfaces and provided with elastic supporting connections.

586,846. EGG-CRATE. JOHN H. HARNER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,635. (No model.)



Claim.—In an egg-crate a plate forming one section provided with openings, and a downwardly-projecting flange forming a support, cup-shaped cell removably secured in said openings, elastic lining for said cells, ventilating-space between the plates and means for locking the plates together, substantially as shown and described.

586,847. MACHINE FOR SAWING OFF BARS OR STRIPS OF METAL. ADELBERT P. HANSCOM, Medford, Mass., assignor to the G. & C. Company, Portland, Me. Filed Oct. 17, 1896. Serial No. 609,177. (No model.)



Claim.—1. In a machine of the character described, the combination with the stationary work-support, and a carriage traveling toward and from said support, of lateral supports for the saw, arranged to bear against the saw at two points on each side thereof, and arms pivoted on both sides of the saw to the carriage, and each arranged to receive two of said supports.

2. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, clamps for clamping the work vertically, a clamp for clamping it horizontally therein and means for adjusting the work toward and from the saw.

3. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, a clamp for clamping the work horizontally against the holder, a screw for operating said clamp, and screws for clamping the work vertically and means for adjusting the frame toward and from the saw.

4. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, said frame having a web or fin, a screw-shaft journaled in bearings in said web or fin, and a clamp for the work having a nut through which said screw-shaft passes.

5. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, said frame having a web or fin with guides, a clamp having a clamping-bar and sliding in said guides, and a screw-shaft engaging the clamp and journaled in said web or fin.

6. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, clamps for securing the work in the frame, and a movable gage mounted on the work-holder and adapted to be moved in front of and out of the path of the work, said gage having a stop to hold it in either of its two positions.

7. In a machine of the character described, the combination with the frame, the saw, and the means for rotating the saw, of a work-holder comprising a frame adapted to receive the work, clamps for securing the work in the frame, a shaft projecting from the work-holder, a gage adjustable along the shaft, and stops for said gage to hold it in either its operative or its non-operative positions.

8. In a machine of the character described, the combination with the frame, the carriage, a saw mounted on the carriage, and a feed-screw mounted on the frame, of a split nut traveling with the carriage, a disk having cam-slots to engage or disengage the sections of the nut with or from the screw, a spring for holding the disk in position to hold the sections apart, and a lock for holding the sections together in engagement with the screw and also for holding them apart.

586,848. ATTACHABLE SLEIGH-RUNNER. JOHN H. HOBBS, North Berwick, and BARTON M. WENTWORTH, Berwick, Me.; said Wentworth assignor to said Hobbs. Filed Nov. 7, 1891. Serial No. 411,181. (No model.)



Claim.—1. An attachable sleigh-runner provided with means for receiving the spindle of an axle, said means supported on the arm of a bracket-truss formed of two converging standards secured to said runner, said standards turned outwardly at their junction to form said arm and clamped or bolted together, substantially as shown and described.

2. An attachable sleigh-runner provided with means for receiving the spindle of an axle, said means supported on the arm of a bracket-truss formed of lateral standards secured to said runner and converging to each side of a central standard, said standards turned outwardly at their junction and forming said arm and held together by a clip and bolts, substantially as shown and described.

3. An attachable sleigh-runner consisting of a runner having a bracket-truss mounted thereon, said truss formed of two side standards converging at a distance above said runner and resting in contact with a third standard rising vertically from said runner, said truss turned outward nearly at a right angle, at the point of union of said standards and forming an arm for attaching the runner to the sleigh or carriage body, said standards held together by a clip at the beginning of said arm and a bolt passing through it near its free end, substantially as shown and described.

4. An attachable sleigh-runner consisting of a runner having mounted thereon a bracket-truss formed of two lateral standards rising from said runner and converging to the outer side of a central standard and forming with said central standard an outwardly-projecting arm held together by a clip at the beginning of said arm, a hub provided with a longitudinal recess to receive said arm mounted upon and secured to said arm by bands encircling the ends thereof and bolts passing through the ends of said bands and said arm, substantially as shown and described.

5. In an attachable sleigh-runner the combination with said runner, of a shaft coupling and support, said support consisting of two parallel bars secured to each other on opposite sides of the cap-bar and tie-bar of said runner forward of the axle-support mounted thereon and having their ends projecting inwardly to a distance from

said cap and tie bars and a coupling provided with a T-head supported between said bars and secured therein, substantially as shown and described.

6. In attachable sleigh-runners, the combination with a pair of said runners, of a loose-jointed rod for holding said runners parallel to each other, said rod secured in eyes in clips adjustably secured to the tie-bars of said runners, substantially as shown and described.

7. In attachable sleigh-runners, the combination with said runners, of a loose-jointed connecting-rod for holding said runners parallel to each other, said rod secured at each of its ends in eyes formed in bars secured to the cap-bars of said runners in front of the axle-support, substantially as shown and described.

8. In an attachable sleigh-runner the combination with said runner, of a bracketed truss mounted thereon having an outwardly-projecting arm, a hub recessed longitudinally on its under side to rest upon said arm, bands passing around the ends of said hub and having bolts through their ends and through said arm to secure said hub thereon, substantially as shown and described.

9. In attachable sleigh-runners the combination with the runner, of a hub mounted on an arm formed on a truss, said truss consisting of lateral standards rising from said runners and converging to the sides of a central standard, said standards turned outward at nearly a right angle and forming said arm, said standards held together by a clip at their point of junction, a hub recessed longitudinally to rest on said arm, bands passing around the ends of said hubs, the ends of said bands secured to said arm by bolts, substantially as shown and described.

10. An attachable sleigh-runner having a hub mounted thereon, said hub supported on an arm formed integral with a truss consisting of converging standards united to a central standard, said hub recessed longitudinally to rest on said arm, bands passing around the ends of said hub having the ends thereof secured on each side of said arm by bolts, the cap-bar and tie-bar of said runner passing under said arm and provided with upwardly-turned ends resting in contact with the ends of said bands and secured therewith to said arm, substantially as shown and described.

11. The recessed hub, H, with the bracket, B, substantially as set forth.

12. The combination of two opposite sleigh-runners, parallel bars, *m*, *n*, and loose-jointed connecting-rod, G, substantially as set forth.

13. The combination of two opposite sleigh-runners, the loops, *e*, and the loose-jointed connecting-rod, G, substantially as set forth.

14. In an attachable sleigh-runner, the combination of the short parallel bars, *m*, *n*, the flanged, adjustable shaft-coupling, *s*, and bolt, *b*, substantially as set forth.

586,849. COMBINATION-TOOL. BERNARDO IZELLI, New York, N. Y. Filed Sept. 19, 1896. Serial No. 606,371. (No model.)

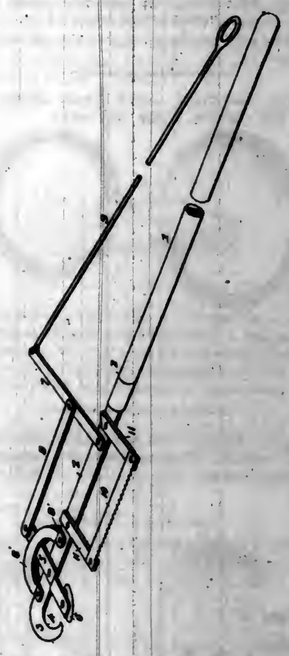


Claim.—1. A rule formed of two sections hinged together to be in alinement when opened, each section having a recess in one side, the recesses being in the sides of the sections that abut when the rule is folded, the rear wall of the recess of one section being of resilient material and free at its outer end, and a knife-blade hinged to the free end of the section having a resilient rear wall in the recess thereof and with its pivot parallel with the pivot of the rule-sections, whereby when the blade is folded in the recess and the rule folded, the back of the blade will enter the recess of the other section of the rule, substantially as described.

2. A combination-tool, comprising a rule formed of two sections, hinged together to be in alinement when opened, one section being formed with a recess and the other with a recess and a chamber in rear of the recess, knife-blades hinged to the free end of one section with their pivots parallel with the pivot of the sections, said blade being adapted to fold into the recess of its section and its back to enter the recess of the other section when the rule is folded, a scale-bar in the chamber of the other section, and a spring secured to the inner end of the bar and to the said section, substantially as described.

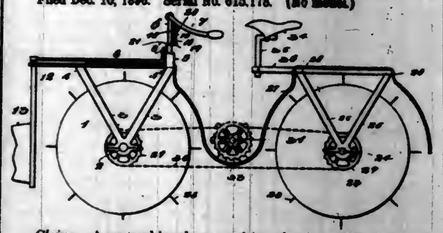
3. A combination-tool, comprising a rule formed of two sections hinged together, one section consisting of side plates having ears, and a resilient back bar free at its outer end, and the other section formed of side plates, a rigid back bar having an ear at its inner end and forming with the ears of the side plates of the other section the members of the rule-joint, a guide-block, and a transverse partition forming a rear chamber, knife-blades pivoted to the free end of one section, a scale-bar sliding in the chamber of the other section, and a spring secured to the inner end of the scale-bar and to the ear of the back bar of said section, substantially as herein shown and described.

586,850. PRUNING-SHEARS. GEORGE A. KNEPPS, Newberne, W. Va. Filed Mar. 23, 1897. Serial No. 628,731. (No model.)



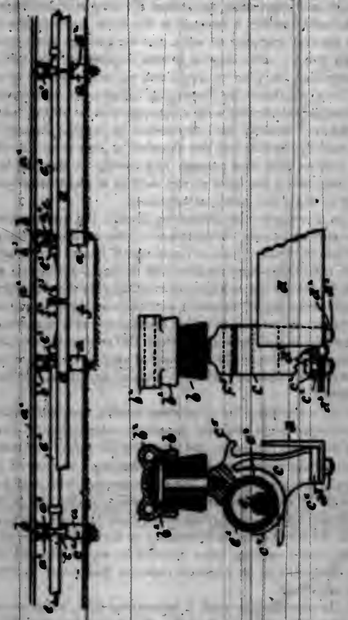
Claim.—The combination with a handle and a bar secured thereto, and having its upper end hooked and provided with a cutting edge, of two guide-plates secured on opposite sides of the bar, a cutter-bar pivoted to the hooked bar near its upper end and projecting between the guide-plates, a rotary cutter journaled to the inner end of the cutter-bar, an operating-lever pivoted to the hooked bar, a link connecting the operating-lever with the outer end of the cutter-bar, plates projecting laterally from the cutter-bar, a saw supported thereby, the lower one of said plates having a beveled end to form a stop for the lever for the purpose described, and an operating-rod secured to the outer free end of the said lever, substantially as set forth.

586,851. WATER-BICYCLE. CHARLES L. KNEPPER, Tocsin, Ind. Filed Dec. 10, 1896. Serial No. 615,178. (No model.)



Claim.—A water-bicycle comprising the frame 27, the brackets 25 depending therefrom, a forwardly-projecting horizontal bracket 36 secured to the rear portion of said frame, the standard 35 and seat 34 secured in said bracket 36, the air-tight cylinder 23 provided with the blades 28 and shaft 24 journaled in the brackets 25, the sprocket-wheel 29 mounted on said shaft, in combination with the crank-shaft 31, the sprocket-wheel 33 and the friction-rollers 37, the depending brackets 3 3 secured to the front end of the frame, the air-tight cylinder 1 provided with blades 28 mounted on the shaft 2 and journaled in said brackets 3 3, the sprocket-wheel 29 mounted on said shaft 2, the sprocket-chain 30 in operative engagement with said sprocket-wheels on the cylinders and crank-shaft, and the rudder 13 mounted in the forward end of the frame on the post 12, the lateral arm 8′ secured to said post, the vertical post 5, the tube 6 mounted on said post and provided at its upper end with the handle-bar 7, a lateral arm 8′ fixed on said tube 6, and the connecting-rod 8 connecting the arms 8′ and 10, substantially as shown and described.

586,852. UNDERGROUND SYSTEM FOR ELECTRIC RAILWAYS. ALVADO H. KNOX, Springfield, Ohio, and WILLIAM P. ALLEN, Chicago, Ill., assignors of one-third to Oliver S. Kelly, Springfield, Ohio. Filed Feb. 13, 1897. Serial No. 623,185. (No model.)



Claim.—1. A subway having supporting-yokes, feeding-conductors and working conductors in said subway, said feeding-conductors and working conductors being supported on a common support, an insulator connected to said support, said insulator being removably secured to one of said yokes, said working conductors being formed in lengths electrically connected together by a flexible connection and loosely attached to said support substantially as specified.

2. The combination with a feeding-conductor and a contacting rail, a support common to both, an insulator to which said support is attached, and a lip or shield on said support and between said insulator and said contacting rail, substantially as and for the purpose specified.

3. The combination with the main feeding-conductor and a contacting rail, a support common to both, a foot on said support having a slotted opening, as described, a screw-threaded bolt extending through said slotted opening and engaging in a screw-threaded opening in said rail, a flexible connecting-piece threaded onto said bolt, and a nut on said bolt adapted to clamp said piece to said rail, substantially as specified.

4. A subway having the supporting-yokes with the overhanging portions reinforced by webs or ribs which extend inwardly and upwardly from the sides of the yokes as described, in combination with an insulator having a cap with lugs or sleeves adapted to fit within said ribs, and removable pins extending through said ribs and sleeves, substantially as and for the purpose specified.

5. The combination with the contacting rails, a support therefor, an insulator secured to said support, a lip or shield on said support between said insulator and rail, a cap on said insulator having sleeves, yokes having depending ribs or lugs between which said sleeves are adapted to fit, and removable pins extending through said ribs and sleeves, substantially as specified.

6. In a subway having extended chambers at intervals therein, contacting rails and feeding-conductors extending through said subway, said feeding-conductors being supported in tubes or casings, the casings and contacting rails being formed in sections extending from one chamber to another, screw-threaded studs having insulated handles electrically connected together and connected respectively to said feeding-conductors and said contacting rails within said chambers, substantially as specified.

7. In a subway, the contacting rails and main feeding-conductors, said feeding-conductors being supported on common supports with said contacting rails, extended chambers in said subway extending across the line of said casings which extend from one chamber to another, the main feeding-conductors being deflected laterally from said casings in said chambers, independent supports for said conductors in said chambers, and independent connections from said conductors to the ends of the contacting rails which extend into said chambers, substantially as specified.

8. The combination with the feeding-conductors and contacting rails, of screw-threaded studs having insulated handles, and electrical conductors having perforated ends adapted to screw onto said studs, and means, substantially as described, for connecting said screw-threaded studs to the contacting rails and feeding-conductors respectively, substantially as specified.

9. An electrical connecting device consisting essentially of two or more screw-threaded studs having insulated handles, an electric conductor connected to each of said studs and provided with perforated ends adapted to screw onto said studs, and means substantially as described for connecting said studs to different metallic or conducting parts, substantially as specified.

10. The combination with a main conductor having attached thereto two-part clamping devices with a screw-threaded opening therein, a screw-threaded stud to fit in said opening having an insulated handle, and a conductor from said stud, said conductor being perforated and screwed onto said stud, substantially as specified.

11. A screw-threaded stud having an extended flange, and a reduced portion under said flange, an insulated handle on said stud and on the opposite side of said flange from the screw-threaded portion, a conductor having a perforated end adapted to screw onto said stud and rest in said reduced portion, and a connecting block or support having a screw-threaded opening into which said stud is adapted to be secured, substantially as and for the purpose specified.

12. The combination in a subway having a series of supporting-yokes and extended chambers arranged at intervals along the line of said subway, insulated supports suspended from said yokes, contacting rails and feeding-conductors on said supports, said feeding-conductors being supported in metallic casings formed in sections which extend between said extended chambers, said contacting rails being formed in lengths electrically connected together to form a section, the ends of which extend into the adjacent chambers, said main feeding-conductors being deflected at said extended chambers, and removable connections from said main feeding-conductor to the adjacent contacting rails in said extended chambers, substantially as specified.

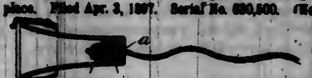
13. In a subway having extended chambers as described, and the tubular casings formed in sections and extending from one of said chambers to another, a feeding-conductor extending through said casings, said casings being provided at the ends with hoods or shields, substantially as and for the purpose specified.

14. The combination with the main feeding-conductors and the casing therefor, of a hood or shield on the end of said casing, said hood or shield being formed with an inwardly-curved top and an outwardly-curved bottom, substantially as specified.

15. The combination with the main feeding-conductor and the casing therefor, a hood or shield on the end of said casing, said hood or shield being adapted to extend around said feeding-conductor and being provided with an inwardly-curved top and an outwardly-curved bottom, said top being adapted to overhang said bottom, substantially as specified.

16. An electrical connecting device consisting essentially of two or more studs having insulated handles and projecting flanges as described, an electrical conductor removably connected to each of said studs, and means, substantially as described, for attaching and detaching said studs to different metallic or conducting parts, substantially as specified.

586,853. DEVICE FOR DRAWING AIR-TUBES INTO TIRE-CASINGS. HARRY K. LEWIS, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Apr. 3, 1897. Serial No. 630,500. (No model.)



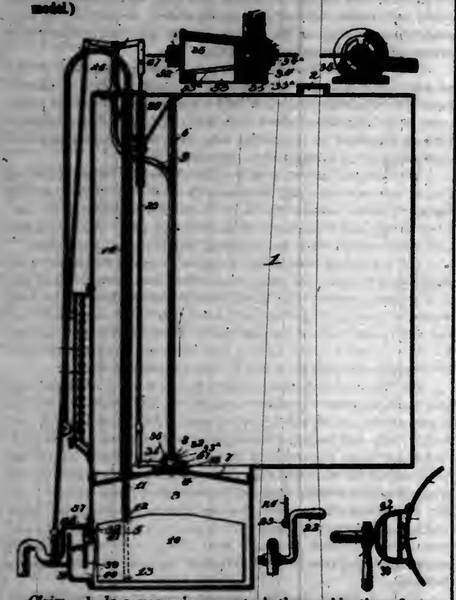
Claim.—A device for threading the passage in pneumatic-tire casings and for drawing inner tubes within the same, comprising a plug and sleeve between which an end of the inner tube can be gripped; a cord attached to the plug; and a catch for temporarily locking together the plug and sleeve whereby the device can be used as a weight for threading the passage within the tire-casing, preliminary to drawing in the inner tube, substantially as set forth.

586,854. PROCESS OF MAKING AMMONIACAL CASEIN. WILHELM MAINZ, Crimmitschau, Germany. Filed Feb. 17, 1896. Serial No. 579,816. (No specimens.)

Claim.—1. The process of direct manufacture of the ammonia salt of casein in solid form, which consists in bringing ammonia-gas into contact with finely-powdered dry casein, substantially as described.

2. A new compound in dry, solid form and easily soluble in water, consisting of casein in its combination with ammonia.

586,855. SELF-MEASURING STORAGE-TANK. JOHN H. MARTINDALE, Russell, Pa. Filed Sept. 15, 1896. Serial No. 605,941. (No model.)



Claim.—1. In a measuring-receptacle the combination of a supply-chamber, a measuring-chamber located below the supply-chamber, and arranged to be normally filled therefrom, and having a discharge-opening in its side above the bottom, a movable displacing-block resting normally on the bottom of said measuring-chamber movable upward to determine the quantity of liquid remaining above the discharge-opening and a suitable cut-off for controlling the communication between the storage-chamber and the measuring-chamber, as set forth.

2. In a measuring-tank the combination of storage and measuring chambers, the displacing-block in the measuring-chamber movable vertically therein to determine the quantity remaining above and below it the outlet in the side of the measuring-chamber having a faucet through which liquid may be drawn off at will and a communication between the chambers, kept normally open by the closing of the outlet-faucet, and closed upon the opening of said faucet, as set forth.

3. In a measuring-tank, the combination of the storage and measuring chambers, two air-pipes establishing communication between the top of the measuring-chamber and the top of the storage-chamber and the outer atmosphere respectively, a valve located in the bottom of the storage-chamber and having a plug with diametric passages located so as to admit the passage of air through the respective pipes alternately, an arm on said valve having a rod extending through the top of the receptacle, a pivoted lever on top of said receptacle with which said rod is connected and connection between said lever and the draw-off faucet substantially as and for the purpose set forth.

4. In a container for dispensing liquids, the combination with the measuring-chamber, of the displacing device, movable in the chamber to determine the amount of liquid to remain above the drawing-off level, and the siphon-outlet, determining by its high point, the drawing-off level, but having a communication at the bottom with the measuring-chamber to insure a free flow, as explained.

5. In a container for dispensing liquids, the combination of the measuring-chamber having a displacing device for determining the quantity of liquid remaining above the drawing-off level, an outlet-housing formed with an outflow-passage communicating with the measuring-chamber at or near the bottom, the wall for determining the level of the outflow, and the siphon-breaking passage opening into the measuring-chamber safely above the level of outflow, and communicating with the outflow-passage on the inside of the wall, substantially as set forth.

6. In combination with a faucet, the siphon-outlet therefor and the auxiliary air-passage 41 leading from a point safely above surface disturbance of the liquid and into the siphon to prevent closing of the same after reduction of the level of the liquids as set forth.

7. In a container for dispensing liquids, the combination of the storage-receptacle formed with a depression and a measuring-chamber below said depression, an arched dividing-wall between said receptacle and chamber, a passage at the high point of the dividing-wall, to prevent trapping of air, a pipe for passage of air to and from said high point a valve located in said depression, over said passage, and controlling the flow of liquid and air, substantially as set forth.

8. In a container for dispensing liquids, the combination of a storage-receptacle formed with a depression in its bottom and a measuring-chamber beneath said depression, a passage through the bottom of said depression into the chamber, a plug-valve cut-off resting on the bottom over said passage and having an opening in the end of the plug below the level of the bottom of the storage-receptacle in order to drain the latter, as explained.

9. In a container for dispensing liquids, the combination of the storage and measuring compartments with a valved passage in the wall which separates them, a drawing-off faucet in communication with the measuring-compartment and having a horizontal plug with a crank-handle, a connecting-rod extending up from the crank-handle of the drawing-off faucet, a vertically-swinging lever on top of the container, to one end of which the faucet-rod is connected, a controlling-valve in the passage between the compartments, and a rod connecting said valve to the other end of said levers, to open and close said valve, simultaneously with the opening and closing of the faucet, as explained.

10. In a container for dispensing liquids, the combination of the storage-compartment and the measuring-compartment, the valved passage between the same, the drawing-off faucet communicating with the measuring-compartment, and having a horizontal plug with a vertically-swinging handle, the rod connected with said handle, on the outside of the container and extending to the top of the same, the vertically-reciprocating rod controlling the valve in the passage between the compartments extending up through the top of the storage-tank, and a rocking lever pivoted on top of the container and having connected at its opposite ends the faucet-rod, and the valve-rod, as explained.

11. In combination with a measuring-tank, a siphon-outlet for same, comprising the overlapping vertical walls extending respectively from bottom and top of a suitable outlet-passage, and the safety air duct on one of the walls and leading from a point above surface disturbance of the liquid, into the space between the walls, substantially as and for the purpose set forth.

12. In a container for dispensing liquids, the combination of the measuring-chamber having a displacing device approximately fitting the same, and a drawing-off outlet formed through a housing, said housing having means for attachment to the wall of the chamber and formed with a concave face which leaves a space between it and the displacing device, to insure free access of the liquid to the outlet, as explained.

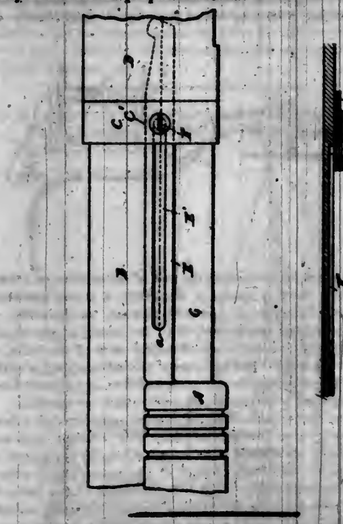
13. In combination with a container for liquids, a gooseneck-faucet having a controlling-valve and a suitable siphon cut-off interposed between the container and faucet, as explained.

14. In combination with a container for liquids, a gooseneck-faucet having a controlling-valve, a siphoning-outlet leading thereto, and a siphon cut-off interposed between said container and siphon-outlet, as and for the purpose set forth.

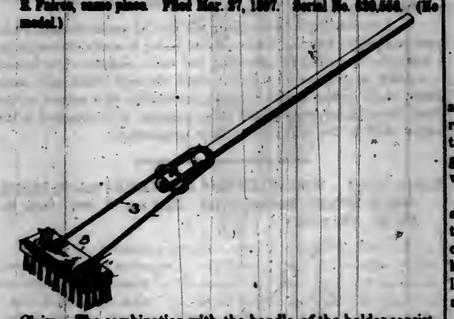
586,856. LIMITING AND RETAINING DEVICE FOR OPERATING-BARS OF BREECH-LOADERS. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Oct. 5, 1895. Serial No. 564,713. (No model.)

Claim.—In a take-down firearm, the combination with the frame thereof, of a gun-barrel, a tubular magazine located below the said gun-barrel, and connected at its forward end therewith, a band applied to the rear end of the gun-barrel and to the rear end of the tubular magazine, and permanently connecting them, and formed with a transverse opening; a sliding supporting and operating handle located upon the tubular magazine and movable back and forth in a line parallel with the longitudinal axis of the gun-barrel, a rearwardly-extending action-bar connected at its forward end with the handle, passing through the said transverse opening in the said band, adapted at its rear end to be connected with the action mechanism of the gun, and having a longitudinal slot formed in its outer face; and a retaining-screw or equivalent part permanently mounted in the band and entering the opening therein, and projecting into the slot in the action-bar, whereby when the gun is taken down and the barrel, magazine, band, handle and bar are disconnected from the frame of the gun, the said screw or equivalent part will coact with the ends of the slot in the bar to prevent the bar and hence the handle from undue shucking back and forth on the magazine, and whereby the sides of the slot will coact with the screw or equivalent

part to prevent the handle from rotating on the magazine, substantially as and for the purpose set forth.



586,857. COMBINED SCRUBBING-BRUSH AND MOP HOLDER. FRANCIS B. MATTHEWS, Glouster, Ohio, assignor of one-half to George B. Paton, same place. Filed Mar. 27, 1897. Serial No. 630,503. (No model.)



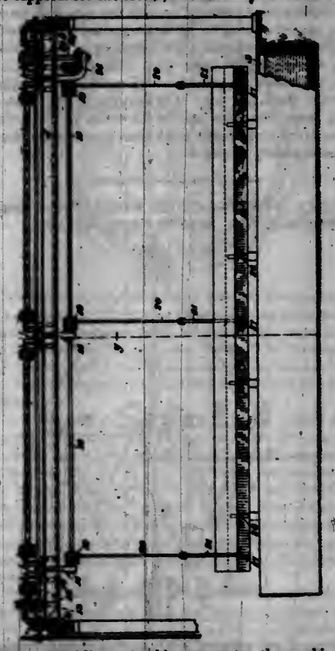
Claim.—The combination with the handle, of the holder consisting of a spring-metal rod bent at the center into a coil or loop, through which said handle passes, forming two expanded spring-arms, the ends of which are bent outwardly at approximately right angles to said arms and the extremities pointed, and the slide embracing said arms and movable thereon, substantially as described.

586,858. APPARATUS FOR PICKLING OR WASHING METAL. GEORGE MESTA, Pittsburg, Pa. Filed Mar. 12, 1896. Serial No. 582,980. (No model.)

Claim.—1. In metal pickling or washing apparatus, the combination with an overhead wheeled carrier arranged to move horizontally in parallel lines, of conveying mechanism thereon having means for supporting long sheets or strips at two or more points in their length, tanks located beneath the carrier in its path of travel and substantially parallel to each other, agitating apparatus mounted on the carrier, said apparatus being arranged to give the sheets or strips an agitatory motion in the tanks, and mechanism on the carrier for lowering the sheets into and raising them out of the tanks; said mechanism being independent of the agitating apparatus substantially as described.

2. The combination with an overhead traveling crane, of parallel tanks located beneath the same and in its line of travel, conveying mechanism on the crane having means for supporting long sheets or strips at two or more points in their length, agitating apparatus upon the crane arranged to give a vertical motion to the sheets while in the tank, a shaft extending longitudinally of the path of travel of the crane and having continuous actuating connections with the agitating apparatus, and means upon the crane for lowering the sheets into and raising them out of the tanks; substantially as described.

3. In metal pickling and washing apparatus, the combination with a traveling carrier, of reciprocatory cross-heads thereon, means for reciprocating the cross-heads and drums carried thereby and carrying the supports for the metal; substantially as described.



4. In metal pickling or washing apparatus, the combination with a traveling carrier, of reciprocatory cross-heads thereon, means for reciprocating the cross-heads, drums carried thereby and carrying the supports for the metal, and gearing for rotating the drums, said gearing having a vertical shaft provided with a traveling connection with means for actuating it; substantially as described.

5. In metal pickling or washing apparatus, the combination with a traveling carrier, of a crank-shaft mounted thereon and having a traveling connection with its actuating means, drums carried by reciprocatory cross-heads connected with the crank-shaft, said drums having supports for the metal, and means for rotating said drums to lower the metal into and raising it out of the tanks; substantially as described.

6. In metal pickling or washing apparatus, a support consisting of a comb-like rack arranged to receive the plates between its vertical bars, and a loose bar or bars extending across the rack-bars below the plates, the said rack-bars having slots to receive the retaining-bar; substantially as described.

586,859. ROCKING-CHAIR. CHARLES J. MICHAELSON, Charleston, W. Va. Filed Oct. 15, 1896. Serial No. 608,909. (No model.)



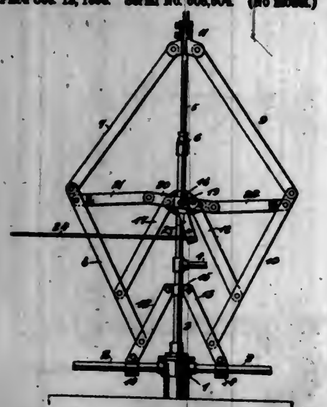
Claim.—1. A rocking-chair having an air-pumping mechanism beneath its seat, operating-arms for the same pivoted to the chair, and a fore-and-aft bar resting upon the floor having upward inclines at its ends adapted to engage the lower ends of the operating-arms during the latter portion of each stroke, substantially as described.

2. A rocking-chair provided beneath the seat with air-compressing mechanism, operating-arms for the same, pivoted centrally and extending forwardly and rearwardly, rollers upon the outer ends of said arms, a bar for the rollers to travel upon, provided with inclines which engage the rollers during the latter part of the stroke of the arms, a tube leading from the air-compressing device to the upper end of the chair-back, a wind music-box fastened thereto, a fan oper-

ated by the escape of the air, and connections from the fan to the music-box, substantially as described.

3. A rocking-chair provided beneath the seat with air-pumping mechanism, operating-arms for the same pivoted beneath and at the center of the chair and extending respectively to the front and rear therefrom, rollers upon the outer lower ends of said arms, a bar for the rollers to travel upon provided with inclines which engage the rollers during the latter part of the stroke of the arms, springs adapted to return the arms against the action of the inclines, and connections to the air-pumping mechanism intermediate the ends of the arms, substantially as described.

586,860. PUMPING-JACK FOR WELLS. FRED J. MOSER, Kane, Pa. Filed Oct. 12, 1896. Serial No. 608,804. (No model.)



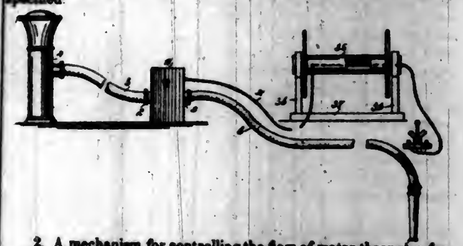
Claim.—1. A well-pumping jack comprising pairs of toggle-links, the upper link of each pair being adapted for a swinging connection with a sucker-actuating rod, the lower link of each pair being pivoted to a device adapted to maintain a fixed position, a collar adapted to move vertically on a pump-tube, a rod having pivotal connection with said collar and also with a member of one pair of toggle-links, another rod having pivotal connection with said collar and also with a member of the other pair of toggle-links, a rock-lever fulcrumed on said collar, a link extended from one end of said rock-lever to a connection with a member of one pair of toggle-links, a link extended from the opposite end of said rock-lever to a connection with a member of the other pair of toggle-links, and an angle-lever pivotally connected to the rock-lever and adapted to engage with the stud upon which said rock-lever is fulcrumed and also adapted for connection with an actuating device, substantially as specified.

2. A pumping-jack, comprising pairs of toggle-links, a collar adapted for engagement with a sucker-actuating rod and having oppositely-extended lugs to which the upper sections of the toggle-links are pivoted, upwardly-converging bars having clamps at their lower ends for engagement with gas-pipes leading from the well-tube, and adapted for connection at their upper ends with the well-tube, a collar adapted to move vertically on a well-tube, fulcrumed centering-rods pivotally connected at one end to said collar and at the opposite ends to the lower sections of the toggle-links, a rock-lever fulcrumed on said collar, link connections between the opposite ends of said rock-lever, and the lower sections of the toggle-links, and an angle-lever having pivotal connection with the rock-lever at a point between its fulcrum and one of its ends, the said angle-lever being adapted for engagement with the frame of the rock-lever and also being adapted for cosection with an actuating rod or line, substantially as specified.

3. A pumping-jack, comprising pairs of toggle-links, a clamp or collar adapted for connection to a sucker-actuating rod, and to which the upper sections of the links are pivoted, a fixed device to which the lower link-sections are pivoted, a collar adapted for connection to a pump-tube, a rock-lever fulcrumed on said collar, links connecting the opposite ends of the rock-lever to the lower sections of the toggle-links, and an angle-lever pivoted to the rock-lever and adapted to engage near its angle with the fulcrum-point of the rock-lever, substantially as specified.

586,861. ELECTRICALLY-OPERATED VALVE. FRANK MCDONALD, Portland, Me. Filed Apr. 22, 1897. Serial No. 633,364. (No model.)

Claim.—1. A mechanism for controlling the flow of water through a fire-hose, comprising a valve, a source of electricity, a motor in said source of electricity, a reversing-switch in said source of electricity, a broad gear-wheel on the armature-shaft of the motor, and a gear-wheel on a longitudinally-movable screw-threaded stem of the valve and engaging with the broad gear-wheel, substantially as specified.

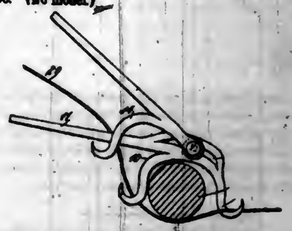


2. A mechanism for controlling the flow of water through a fire-hose, comprising a valve, a source of electricity, a motor operated from said source of electricity, a reversing-switch for the motor, a broad gear-wheel on the armature-shaft of the motor, a gear-wheel on the longitudinally-movable screw-threaded stem of the valve, a broad pinion on the screw-threaded stem of the valve, a gong, a shaft having a bearing in said gong for operating a striker, and a gear-wheel on said shaft engaging with the pinion, substantially as specified.

3. A mechanism for controlling the flow of water through a fire-hose, comprising a valve, a source of electricity, a motor operated from said source of electricity, a reversing-switch for the motor, a broad gear-wheel on the armature-shaft of the motor, a gear-wheel on the longitudinally-movable screw-threaded stem of the valve, a broad pinion on the screw-threaded stem of the valve, a gong, a shaft having a bearing in said gong for operating a striker, a gear-wheel on said shaft engaging with the pinion, and an indicator-ring on the gear-wheel mounted on the shaft having a bearing in the bell, substantially as specified.

4. A mechanism for controlling the flow of water through a fire-hose, comprising a casing, a valve in said casing, a source of electricity, a motor in the casing for operating the valve, electric wires formed in a cable, a reel having a hollow shaft through which said cable passes, and a reversing-switch having connection with certain of the wires, the said reversing-switch being adapted to be inserted in the hollow shaft of the reel, substantially as specified.

586,862. WIRE-STRETCHING AND STAPLE-PULLING DEVICE. JESSE R. MCELROY, Southmayd, Tex. Filed Apr. 28, 1897. Serial No. 633,490. (No model.)



Claim.—1. The combination with a jaw comprising two members, the members terminating in claws, of a handle connected with said jaw, and a second handle held to slide between the claws, and an arm extending from the second handle also terminating in a claw.

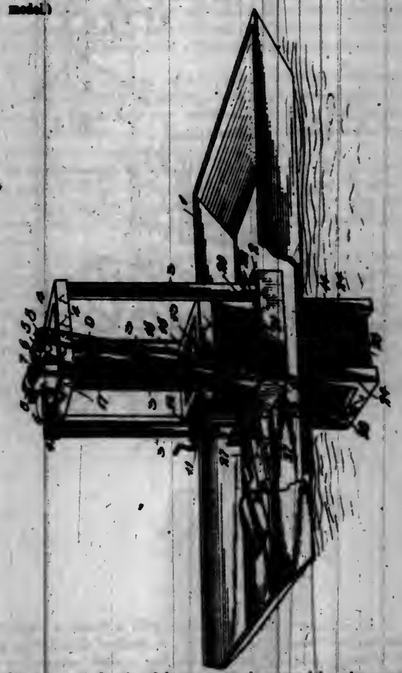
2. The combination with a curved jaw comprising a body and two members, the members terminating in claws, and a handle connected with the said curved jaw, having a longitudinal slot therein, of a second handle held to slide in said slot, the second handle being provided with a single-membered jaw also terminating in a claw.

3. The combination with a curved jaw having two members each terminating in a claw, the claws facing in opposite directions, and a handle connected with said jaw, provided with a slot in that portion adjacent to the jaws, of a second handle provided with a pivot-pin extending within the said slot, and a jaw consisting of a single member, curved in substantially the same manner as the adjacent member of the double-membered jaw, the said single jaw terminating in a claw.

4. A tool for stretching wire and for similar purposes, consisting of a U-shaped jaw the members whereof terminate in oppositely-facing claws, a handle connected with the U-shaped jaw, a second handle slidably and pivotally connected with that attached to the U-shaped jaw, said second handle being provided with a member at an angle thereto, and terminating in a claw.

5. A tool for stretching wire and for similar purposes, consisting of a jaw substantially U-shaped, terminating in claws facing in opposite directions, a handle attached to the body portion of the jaw, a second handle slidably and pivotally mounted upon the first-named handle, and an arm projected from the pivoted handle, terminating in a claw facing in direction of the claw on the adjacent member of the U-shaped jaw

586,868. COMBINED FISH-TRAP AND BOAT. GEORGE W. NELSON, Five Forks, Pa. Filed Dec. 10, 1896. Serial No. 615,143. (No model.)



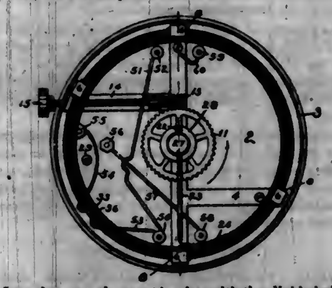
Claim.—1. A floating fish trap or weir, comprising the vessel 1, provided with the rectangular well-hole 2, the right-angular guide-standards 3 3 connected by the braces 4 4, the uprights 5 5 secured to said braces, the shaft 7 journaled in said uprights and provided with the flexible cords 17 and sprocket-wheel 8, the sprocket-chain 9, the shaft 11, its sprocket and ratchet wheels, paw and operating-handles, in combination with the rectangular cage 14, the detents 24 24 secured to said cage, and the pawls 19 and 20 pivoted to said standards and connected by the rod 21, substantially as and for the purpose set forth.

2. A floating fish-trap, comprising the vessel 1, provided with the inclined rails 27 and rectangular well-hole 2, the right-angular guide-standards 3 3 connected by the braces 4 4, the uprights 5 5 secured to the said braces, the shaft 7 journaled in said uprights and provided with the screw-eyes and flexible cord, the sprocket-wheel 8, the sprocket-chain 9, the shaft 11, its sprocket-wheel 10, and means for operating the same, in combination with the rectangular cage, the detents 24 secured thereto, the pawls 19 and 20 pivoted to the standards in the path of said detents and connected by the rod 21 and the traveling car 26, substantially as shown and described.

586,864. RHEOSTAT. OSCAR H. PIEPER and ALPHONSE F. PIEPER, Rochester, N. Y. Filed Mar. 23, 1897. Serial No. 628,310. (No model.)

Claim.—1. In a rheostat, the combination with a support or core and a series of conducting contact-plates insulated from the support and having apertures through which the support passes, of a continuous insulated wire wound upon the support between the plates of the series and electrically connected to the plates at the points of crossing from one space to the next, and a contact-arm cooperating with the exposed edges of the plates, substantially as described.

2. In a rheostat, the combination with a support or core, a series of conducting contact-plates insulated from the support and having apertures through which the support passes, and a series of insulated spacing-washers on the support and between the contact-plates, of a continuous insulated wire wound upon the washers between the plates, and electrically connected to the plates at the points of crossing the plates, and a contact-arm cooperating with the exposed edges of the plates, substantially as described.



3. In a rheostat, the combination with the divided ring support or core, a series of contact-plates having apertures through which the ring passes, of a continuous insulated wire wound upon the support between the plates, and electrically connected to the plates at the points of crossing, and a rotary contact-arm adapted to contact successively with the exposed edges of the contact-plates, substantially as described.

4. In a rheostat, the combination with the flexible support or core, a series of contact-plates having apertures through which the support passes, and a series of washers of insulating material on the support between the plates, of a continuous insulated wire wound upon the support between the contact-plates and electrically connected to the latter at the points of crossing from one space to the next, said wire being connected to one circuit-terminal and the movable contact-arm connected to the other circuit-terminal and adapted to be moved over and contact with the edges of the plates, substantially as described.

5. In a rheostat, the combination with the rod 30, the insulating-strips 31, the contact-plates 32 and insulating-washers 39, of the continuous insulated wire 35 wound upon the washers and electrically connected with the plates 32 as it passes over them, the plates 33 at the ends of the support, and means for connecting them, and a movable contact-arm adapted to cooperate with the edges of the plates 32, substantially as described.

6. In a rheostat, the combination with a variable resistance and a movable contact-arm cooperating therewith, of an operating knob or handle connected directly with said contact-arm for actuating it, a second operating knob or handle and a slow-gear mechanism connected thereto, and a detachable clutch device between the slow-gear mechanism and the contact-arm, whereby the contact-arm may be actuated directly at high speed or indirectly at a slower speed, substantially as described.

7. In a rheostat, the combination with a variable resistance, and a movable contact-arm cooperating therewith, of an operating knob or handle connected directly with said arm, a worm-wheel, a detachable clutch device between said worm-wheel and the contact-arm, and a worm cooperating with the worm-wheel and an operating knob or handle connected thereto, substantially as described.

8. In a rheostat, the combination with a variable resistance, and the movable contact-arm, of the arbor to which the contact-arm is connected, and the operating-knob and index thereon, the scale with which the index cooperates, the worm-wheel loose on the arbor, the worm-shaft cooperating therewith having the operating knob or handle, and a clutch between the arbor and worm-wheel, substantially as described.

9. In a rheostat, the combination with the variable resistance and the movable contact-arm, of the arbor 16 to which the arm is connected having the knob 17, the worm-wheel 10 and the friction-disk 12, the worm-shaft 14 having the worm 13 and knob 15, the friction-disk 28 moving with the contact-arm, and the rod 25 having the head 27 and nut 26 for clamping the worm-wheel and arm together, substantially as described.

10. In a rheostat, the combination with the frame having the arms 5, the variable resistance embodying the coils and contact-plates mounted on the said arms, the arbor 16, the index thereon, the contact-arm 23 on the arbor, the worm-wheel connected to the arbor, the worm and the worm-shaft having the operating-knob, substantially as described.

586,865. PROCESS OF DYEING BLACK. EMIL VON PORTHEIM, Prague, Austria-Hungary. Filed May 25, 1896. Serial No. 593,093. (No specimens.) Patented in Austria May 6, 1896, No. 46/1,880; in France May 9, 1896, No. 254,941; in England May 8, 1896, No. 9,912; in Italy July 3, 1896, XXXI. 41,636, LXXXI, 394, and in Hungary Sept. 10, 1896, No. 7,862.

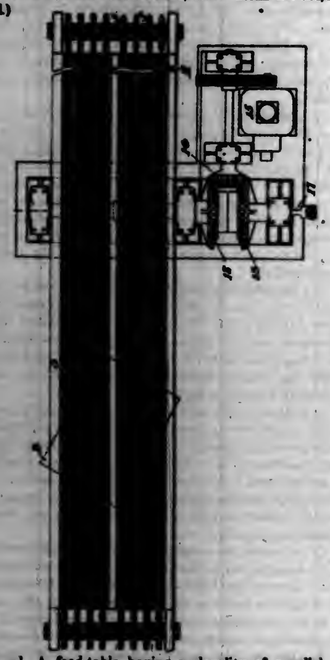
Claim.—1. In a process for dyeing fibrous materials black and

forming the dyestuff on the fiber itself, mordanting the same first with beta-naphthol sodium and then applying thereto a diazo combination of an amidochrysoidin base.

2. In a process for dyeing fibrous materials black and forming the dyestuff on the fiber itself diazotizing a base of an amidochrysoidin, adding to the diazotized liquor acetic-starch paste and acetate of sodium in about the proportions set forth, and applying the compound to the fibrous material previously mordanted with beta-naphthol sodium.

3. A process for dyeing fibrous materials black and forming the dyestuff on the fiber itself, by diazotizing a base of an amidochrysoidin, adding to the diazotized liquor acetic-starch paste, oxalic acid and acetate of sodium in about the proportions set forth, and applying the compound to the fibrous material previously mordanted with beta-naphthol sodium and a fatty acid compound.

586,866. FEED-TABLE FOR ROLLING-MILLS. JOHN A. PORTER, Cleveland, Ohio. Filed Feb. 1, 1897. Serial No. 621,463. (No model.)



Claim.—1. A feed-table having a plurality of parallel endless chains, and driving mechanism therefor constructed and arranged to operate them all in the same direction or a portion of them in a different direction from the remainder as desired.

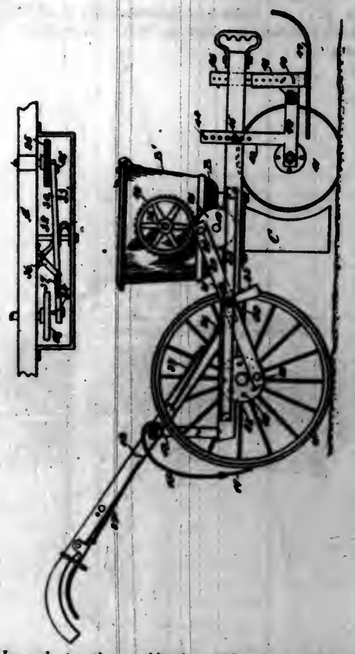
2. A feed-table having a plurality of parallel endless chains with rollers journaled thereon, and driving mechanism therefor constructed and arranged to operate them all in the same direction or a portion of them in a different direction from the remainder as desired.

3. A feed-table comprising a plurality of endless chains adapted to carry a burden which rests on and is supported thereby, idle-wheels over which the chains pass, and rotary driving mechanism operating on the lower branches or runs of the chains, whereby the upper branches of the chains in front of the burden thereon are maintained in tension during motion of the driving mechanism in either direction.

4. A feed-table, having a series of driving-wheels, part of the same connected with a shaft, and part with a sleeve on the shaft, driving-gearing, and a clutch adapted to connect the sleeve and shaft with the gearing to rotate the same simultaneously in the same or opposite directions, or to rotate one alone.

586,867. PLANTER. JOSEPH A. PRITCHARD, South Mills, N. C. Filed Dec. 2, 1896. Serial No. 614,169. (No model.)

Claim.—1. In a planter, the combination, with a frame, a supporting-wheel journaled in the said frame and provided with a connected disk having openings therein, of a seed-distributing device arranged to have a rotary movement, a connecting-lever connected directly with the said seed-distributing mechanism, the said lever being provided also with a spur to enter the openings in the aforesaid disk, a tension device arranged to normally hold the spur of the connecting-lever in engagement with the said disk, and a shifting device arranged to carry the connecting-lever from an engagement with the disk of the supporting-wheel when the machine is to be thrown out of gear, as and for the purpose specified.



2. In a planter, the combination, with a frame, a supporting-wheel for the frame, provided with an attached disk having openings circularly produced therein, a hopper, a shaft mounted to turn in the said hopper and provided with a seed-distributing cylinder, and a crank-disk attached to one end of the said shaft, of a lever fulcrumed on the frame, having one of its ends attached to the crank-pin of the crank-disk, the opposite end of the lever being provided with a projection arranged to enter the opening in the disk of the supporting-wheel, a tension device acting upon the connecting-lever in a manner to normally hold its projection in engagement with the said disk, and means, substantially as described, for carrying the connecting-lever away from the apertured disk, as and for the purpose specified.

3. In a planter, the combination of dropping mechanism, a drive-wheel, a disk driven by the drive-wheel and having orifices therein, a lever connected with the dropping mechanism and having a pin capable of being seated in any of the openings in the disk, a spring pressing the lever toward the disk, and shifting mechanism connected with the lever and by which the lever may be moved to disengage the disk, substantially as described.

4. In a planter, the combination of dropping mechanism, a driven wheel with openings therein, a lever in connection with the driving mechanism and having a pin capable of removably fitting within the openings of the said driven wheel, and a spring pressing the lever toward the driven wheel, substantially as described.

5. The combination of a driven rotary member with a plurality of differentially-located openings, a lever having a pin capable of removably fitting within the openings, and dropping mechanism in connection with the lever, substantially as described.

6. The combination of a lever movable axially, a driven rotary member with which the lever may have removable connection, and a spring pressing the lever in an axial direction and toward the driven rotary member, substantially as described.

7. The combination of a lever having axial movement, a driving member with which the lever may have removable connection, and means for yieldingly holding the lever in engagement with the driving member, substantially as described.

8. In a planter, the combination of a hopper, a boot below and communicating with the hopper, a spring-tongue running longitudinally through the boot, and a distributing-wheel mounted at the upper portion of the boot and engaging the spring-tongue, the distributing-wheel serving to pass the seed from the hopper to the boot and to vibrate the tongue within the boot, substantially as described.

9. A planter having a seed-boot, a movable tongue extending longitudinally through the boot and having its free end projecting to the discharge-orifice of the boot, and means for vibrating the tongue within the boot, substantially as described.

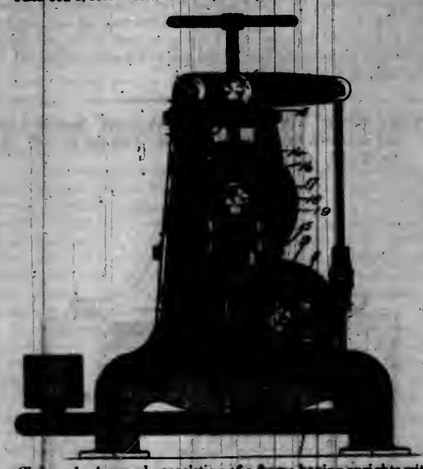
10. A planter having a boot, a seed-hopper above the boot and communicating therewith, a spring-tongue extending longitudinally in the boot and having its free end projected to the discharge-orifices of the boot, and a distributing-wheel mounted at the upper portion of the boot and serving to pass the seed from the hopper to the boot and also to vibrate the tongue within the boot, substantially as described.

11. A planter having a beam, a frame connected to the beam, a rotary colter carried by the frame, a feeder located forwardly of the colter and having its front end curved upward and its rear end bifurcated to embrace the colter, and a standard attached to the feeder and to the colter-frame, substantially as described.

12. A planter having a beam, a colter-frame connected with the beam, a colter carried by the colter-frame, and a feeder located forward of the colter and carried by the colter-frame, the rear end of the feeder being bifurcated to embrace the colter, substantially as described.

13. A planter having a beam, a colter-frame carried at the forward portion of the beam and beneath the same and being elongated longitudinally therewith, a colter carried at the rear portion of the frame, and a feeder carried at the forward portion of the frame and being bifurcated at its rear end to embrace the colter, substantially as described.

586,868. MANGLE. EPHRAIM A. RANNEY, Hartford, Conn. Filed Oct. 5, 1896. Serial No. 607,839. (No model.)



Claim.—1. A mangle consisting of a frame having uprights with shoulders on one side near the bottom and guides on one side near the top, plates with guides removably secured to the sides of the uprights opposite the stationary guides, stationary bearings supported by the shoulders below, vertically-movable bearings supported by the guides of the uprights and plates above, and journals supporting rolls held by the bearings, substantially as specified.

2. A mangle consisting of a frame having uprights with shoulders on one side near the bottom and guides on one side near the top, plates with guides connected with the sides of the uprights opposite the stationary guides and adapted to be oscillated outward therefrom, stationary bearings supported by the shoulders below, vertically movable bearings supported by the guides of the uprights and plates above, and journals supporting rolls held by the bearings, substantially as specified.

586,869. WIRE FENCING. BENJAMIN SHARLOW, De Kalb, Ill., assignor to the I. L. Hitwood Manufacturing Company, same place. Filed Nov. 24, 1896. Serial No. 613,260. (No model.)

Claim.—A wire fencing comprising in combination a series of longitudinal cable-strands and a series of tie or stay wires, each tie or stay wire having its body bent to provide vertically-elongated looped portions, said looped portions being oppositely and inwardly offset whereby to provide seats for the reception of the strands of the cable, substantially as described.

586,870. ARCH CENTER. GUSTAV A. SCHILLINGER, Chicago, Ill. Filed Nov. 11, 1896. Serial No. 611,760. (No model.)



Claim.—1. The combination with a bracket, socket-piece and retaining-arms uniting the bracket to the socket-piece to constitute one member of an arch center, substantially as set forth.

2. The combination with a bracket made of T-iron, bent to form a pendant, and a supporting-piece, a jaw formed in the pendant-piece, a socket, and means for uniting the socket to the bracket, substantially as set forth.

3. The combination with a bracket, retaining-arms provided with a plurality of holes, a socket supported in the bracket between the retaining-arms, and a bolt adapted to adjustably secure the socket within the bracket to the retaining-arms, substantially as set forth.

586,871. TENDER FOR TRACTION-ENGINES. PHILLIP SORRETT, Parker, S. D. Filed Oct. 5, 1896. Serial No. 607,903. (No model.)



Claim.—1. In a tender for traction-engines, the combination with the axle, the bolster, the horizontal board, the platform and the coupling-bars, of the crossed chains connected with the axle, the pivoted lever with which said chains are also connected, the rearwardly-extending rods secured to said lever having their free ends bent into hooks engaging with said chains and the forwardly-extending rods or bars connected with said lever and adapted to be connected with the front truck of a traction-engine, substantially as described.

2. In a tender for traction-engines, the combination with the axle, the bolster, the horizontal board, the water-tank or other receptacle, the king-bolt, the platform or foot-board and the coupling-bars secured thereto, of the eyebolts secured to the axle, the rods pivoted thereto, the crossed chains connected therewith, the pivoted lever having eyebolts with which said chains are connected, the rearwardly-extending rods secured to said lever having their free ends bent into hooks or eyes and engaging with said chains, and the forwardly-extending rods or bars connected with said lever and adapted to be connected with the front truck of a traction-engine; substantially as described.

586,872. SEWING-MACHINE ATTACHMENT. WILLIAM A. SCOTT, Newcastle, Colo. Filed June 17, 1896. Serial No. 595,953. (No model.)

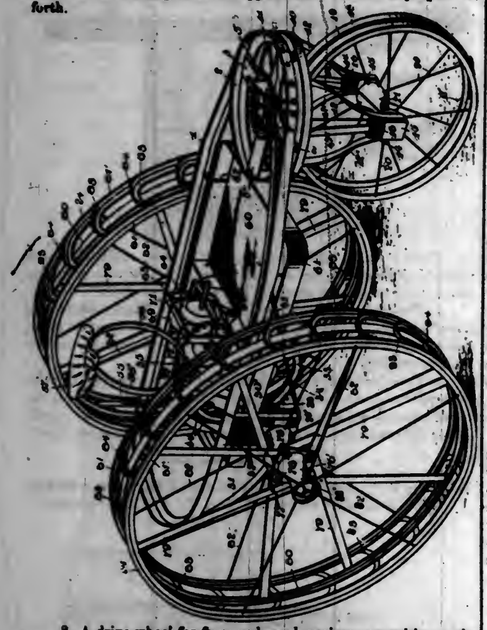


Claim.—A sewing-machine attachment, comprising a conical tube for turning the edge of cloth, holding-clips on the lower side of the same, and an arm movable in said clips and having transversely-extended fingers at one end, the said end being turned upward and curved rearward, substantially as specified.

586,873. TRACTION-ENGINE. HORTON H. SHEPHERD, Fairland, Ind. Ter. Filed Oct. 21, 1896. Serial No. 609,610. (No model.)

Claim.—1. A traction-engine comprising a main frame carrying a prime motor, a main driving-shaft provided with a fixed friction-wheel, a pivoted frame carrying a fixed shaft provided with two friction-wheels located one on each side of the fixed friction-wheel, a flexi-

ble shaft connected to one end of the fixed shaft and having its opposite end connected to a counter-shaft located in a circular frame in the forward end of the main frame, a worm-screw on said counter-shaft, and meshing with a worm-wheel mounted on a vertical steering-post journaled in said circular frame, and carrying a lower circular frame in which the steering-wheel is supported, as and for the purpose set forth.



2. A drive-wheel for farm and road engines, comprising a rim formed of angle iron or steel, a series of semicircular shoes secured to said rim, in combination with a series of tangential braces or spokes having their outer ends secured to the said rim, and secured about midway between the contiguous flanges of the divided hub, substantially as and for the purpose set forth.

3. A traction-engine comprising the main axle, the sleeves 27 and 28 mounted on said axle, in combination with the bearing-boxes 29 29' having antifriction-rollers 30×, substantially as and for the purpose set forth.

586,874. CAN-OPENER. WALTER A. SIMOND, Tilton, N. H., assignor to Arthur T. Cass, same place. Filed July 30, 1896. Serial No. 601,032. (No model.)



Claim.—1. A can-opener having a main stem at one end of which is a pivot-point, a rotary cutter freely slidable and revoluble on the main stem, a yoke embracing the rotary cutter and having its arms perforated to slidably mount the yoke on the main stem, one arm of the yoke having a downwardly-extending guide-spur capable of running around the outer edge of the can, and said arm of the yoke also having two oppositely-projected lateral arms capable of running along the upper surface of the can to hold the yoke in a vertical position, substantially as described.

2. A can-opener, having a stem with a pivot-point at one end, a yoke each arm of which loosely receives the stem whereby the yoke may move toward and from the pivot, and a cutter freely slidable and revoluble on the stem and inclosed by the yoke, the outer portion of one arm of the yoke being plane in a transverse line to rest said portion on the top of the can when the opener is operating and to hold the yoke in a vertical position, and a guide-spur projecting longitudinally from the lower end of the outer arm of the yoke and running in operation around the outer side of the can, substantially as described.

3. A can-opener, having a stem at one end of which is a pivot-point, a vertically-sustained yoke each arm of which has an opening receiving the stem, whereby the yoke is freely movable on the stem and a cutter slidable and revoluble on the stem and inclosed by the yoke, the yoke having a guide-spur projecting longitudinally from the outer arm of the yoke and running in operation around the outer side of the can, substantially as described.

586,875. INDEX. CHARLES C. SMITH, Exeter, Nebr. Filed May 11, 1896. Serial No. 591,055. (No model.)



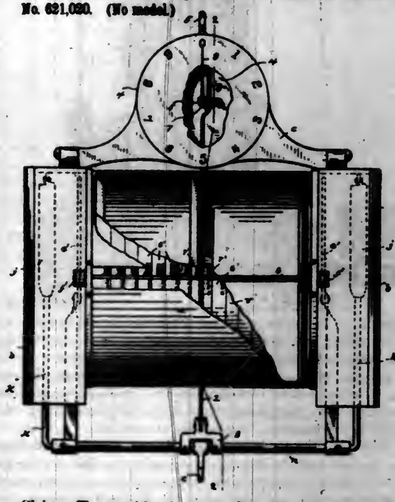
Claim.—1. As a new article of manufacture, an index consisting of a metal clip having spring-jaws, and a flexible tab secured to the clip forming a cover for the same and projecting therefrom, the projecting portion of the tab forming a tag, substantially as shown and described.

2. An index, comprising a clip made of a single piece of spring metal bent upon itself and formed at its free ends with inwardly-extending jaws normally contacting with each other, and a tab made of flexible material and bent upon itself, the said tab engaging with part of its free ends the outer surface of the clip and secured thereto forming a cover for the same, the remaining portion of the flexible tab projecting from the clip, substantially as shown and described.

3. An index, comprising a clip made of a single piece of spring metal bent upon itself and formed at its ends with jaws adapted to engage the article to which it is applied, a tab made of flexible material and bent upon itself, the end portions of the tab extending over the clip and secured thereto forming a cover for the same, the remaining portions of the tab extending outwardly from the bend of the clip and connected to each other by stitching, substantially as shown and described.

4. An index, comprising a clip made of a single piece of spring metal, bent over and formed at its ends with a pair of inwardly-extending jaws normally contacting with each other and adapted to engage and clamp the leaf of a book, a tab made of a flexible material and bent over to engage with part of its free ends the said clip forming a cover for the same, and a filling secured in the said tab and extending between the bend of the clip and the bend of the tab, substantially as shown and described.

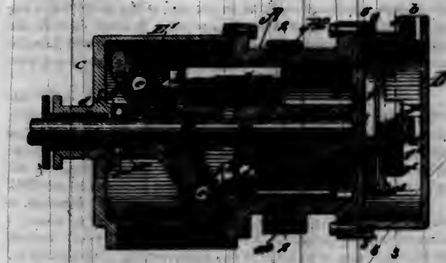
586,876. AUTOMATIC COMPUTING-SCALE. EDMOND C. SMITH and ALBERT U. SMITH, Saugatuck, Conn. Filed Jan. 28, 1897. Serial No. 621,090. (No model.)



Claim.—The combination with the casing *a* and uprights *b*, of the two-part drum *v* in said casing and having its periphery arranged to indicate both weight and price, the shaft *e* for said drum having a pinion *f'* at each end, the yoke-bar *n*, the racks *d'* and balance-springs *j* in the uprights *b* and connected with the bar *n* the rod 1 having a slot for the shaft *s* and extending through the casing between the two parts of the drum and connected with the bar *n*, the casing 4 having dials, the spindle 6 having pointers 9 and pinion 7, and the rack 8 at the upper end of rod 1 and engaging the pinion 7, substantially as and for the purpose described.

586,877. STEAM-ENGINE. CHARLES F. SPARKS, Alton, Ill. Filed Feb. 10, 1896. Serial No. 578,697. (No model.)

Claim.—1. In an engine the combination of a shaft; a head attached to the shaft having an inclined face; an annular groove in its face; a series of rolls in the groove; an antifriction-ring containing an annular groove within which said rolls extend, and back of said head and between it and a stationary rest a pair of grooved antifriction-rings surrounding said shaft and a series of rolls between said rings and resting in their grooves substantially as described.



2. In an engine a series of parallel stationary cylinders arranged around an axis and each having an exhaust-port; a piston in each cylinder; a revolvable shaft; a head having an inclined face in front of said pistons, receiving pressure from the pistons and forced to revolve thereby; cylinder steam-ports; a main valve closing said ports having a steam-port through it, and connected with said shaft and revolved by it; cut-off valve on said main valve; governor-weights pivotally attached to the main valve, means for transmitting motion from one or both weights to the cut-off valve; and means tending to hold the cut-off valve open and opposing the outward movement of the governor-weights.

3. The combination in a steam-engine, of a main shaft; means causing it to rotate; a disk-valve pierced by a steam-port in the shape of a segment, connected with said main shaft; a segmental cut-off valve seated on the disk-valve; a spring connecting said valves and tending to hold said cut-off valve open; a pair of governor-weights; means pivotally connecting said weights to the main valve so as to cause them to be supported thereby and rotate therewith; and means connecting said weights to said cut-off valve, substantially as described.

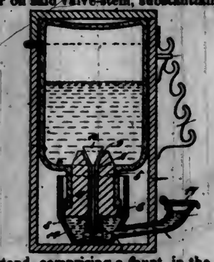
4. In a steam-engine having a plurality of cylinders and steam-admission ports; a main-valve seat; a shaft; means causing the shaft to revolve when the engine is in motion; the main valve F having a central circular part f' seated on said seat, and pierced by a segmental steam-port f^3; a cut-off valve G, seated upon the face of the central part f' of the valve F, and having a flange g^4 entering and extending across the port f^3 and resting against the main-valve seat; means connecting the valve F to said shaft; and a governor operating said cut-off valve substantially as described.

5. In a steam-engine having a plurality of cylinders and steam-admission ports, a main-valve seat; a shaft; means causing the shaft to revolve when the engine is in motion; the main valve F having a hub F, and a central circular part f', a rim f^2, surrounding the part f', and a segmental steam-port f^3 through the part f', and, seating on said seat; means connecting said valve to said shaft, and causing it to rotate therewith; a segmental cut-off valve G having an inwardly-projecting flange g^4 entering the valve-port f^3, and which cut-off valve rests against the face of the main valve, and moves between the hub F and the rim f^2; a pinion g surrounding said hub F and attached to the cut-off valve G; a coiled spring f^4 connecting the main valve and the cut-off valve and tending to keep the cut-off valve open; and a governor operating said cut-off valve and consisting of two gears g', g', pivotally attached to the main valve at opposite points, g^2, g^2, and meshing with said pinion g, and each provided with a heavy outer arm g^3 substantially as described.

586,878. INKSTAND. WILLIAM L. STEWART, Wilmerding, Pa., assignor of one-half to George B. Snyder, same place. Filed Dec. 19, 1896. Serial No. 616,269. (No model.)

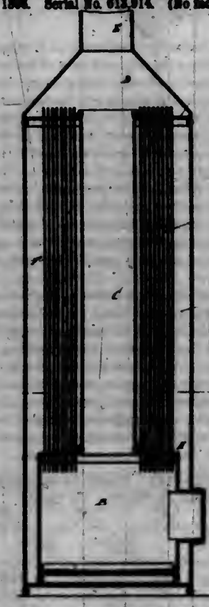
Claim.—1. An inkstand, comprising a casing, an ink-cup in the lower portion thereof and having a spout extended from its lower portion through a wall of a casing, an ink-fount in the form of a bottle and designed to have its neck portion extended into the ink-cup, a tubular stopper for the neck of the fount, a valve for closing the inner end of the opening through the stopper, a stem extended from said valve through the opening in the stopper and adapted to engage against the bottom of the ink-cup, and means for forcing the valve against its seat when the fount is lifted from the casing in an inverted position, substantially as specified.

2. An inkstand, comprising a casing having a cover, an ink-cup arranged in the bottom thereof and having a spout leading through a wall of the casing, a fount substantially in the form of a bottle, a stopper for the neck portion of the fount and having an opening longitudinally through it, the inner end of said opening being flared to form a valve-seat, the said stopper also being extended a short distance into the body of the fount, a conical valve adapted to engage in the valve-seat of the stopper, a stem extended from said valve through the opening in the stopper and adapted to engage against the bottom of the ink-cup, and a spring arranged between the stopper and a collar on said valve-stem, substantially as specified.



3. An inkstand, comprising a fount in the form of a bottle, a stopper for the neck of said fount and having an opening longitudinally through it, the said opening being provided with a conical valve-seat at the inner end, a hollow conical valve adapted to engage in said seat and having a port or ports through its side wall, a hollow stem extended from the valve, and a funnel-shaped outer end for said hollow stem, substantially as specified.

586,879. STEAM-BOILER. WILLIAM C. STUCKER, Chicago, Ill. Filed Nov. 30, 1896. Serial No. 613,914. (No model.)

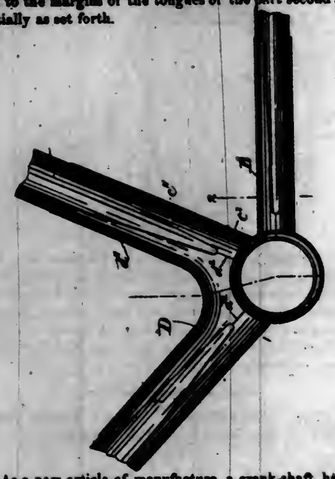


Claim.—A boiler having an upright shell with a stack centrally coincident thereto, a fire-box at the lower part of the shell, a smoke-flue running centrally through the shell from the crown-sheet of the fire-box to the upper portion of the shell, a head within the upper portion of the shell and through which the upper end of the smoke-flue passes, the smoke-flue being approximately alined with the stack, and a series of distributing-rods running vertically parallel with the smoke-flue and passing through the crown-sheet and through the head, the distributing-rods completely surrounding the smoke-flue and running continuously through the water-space of the boiler, substantially as described.

586,880. BICYCLE OR OTHER VELOCIPEDE. LEE STURGES, Chicago, Ill. Filed Oct. 26, 1896. Serial No. 607,995. (No model.)

Claim.—1. As a new article of manufacture, a crank-shaft hanger having a part comprising a barrel and a pair of hollow stubs project-

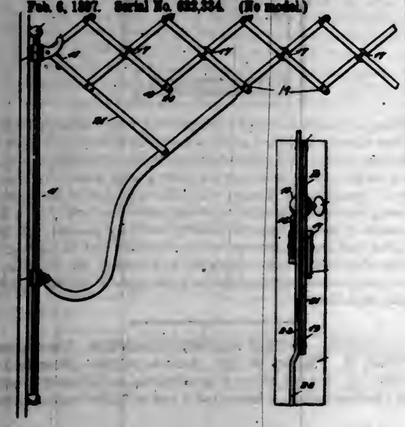
ing therefrom, said barrel and stubs being made of a single piece of sheet metal, bent to proper shape and having its margins brought together in the plane in which the axes of said barrel and stubs lie, in combination with a second part comprising a band that partly encircles the barrel and crosses the meeting margins of the blank of which it is made, said part having, at the extremities of said band, projecting tongues of curved shape in cross-section, and a third part having tongues of curved shape in cross-section whose margins are opposed to the margins of the tongues of the part second aforesaid, substantially as set forth.



2. As a new article of manufacture, a crank-shaft hanger having a part comprising a barrel and a pair of hollow stubs projecting therefrom, said barrel and stubs being made of a single piece of sheet metal, bent to proper shape and having its margins brought together in the plane in which the axes of said barrel and stubs lie, said barrel having intermediate of its ends a portion of reduced diameter resulting in a pair of shoulders located a suitable distance apart, in combination with a second part comprising a band which partly encircles the barrel and engages the shoulders thereof, said second part having, at the extremities of the band, projecting tongues of curved shape in cross-section and a third part having tongues of curved shape in cross-section whose margins are opposed to the margins of the tongues of the part second aforesaid, substantially as set forth.

3. As a new article of manufacture, a crank-shaft hanger having a part comprising a barrel and a pair of hollow stubs projecting therefrom in combination with a second part comprising a band which partly encircles the barrel, and radially-projecting tongues of curved shape in cross-section at the extremities of the band and a third part having tongues of curved shape in cross-section whose margins are opposed to the margins of the tongues of the part second aforesaid, said third part having also margins seated upon the barrel said third part being arched between the margins last aforesaid, substantially as set forth.

586,881. BRACKET. ALBERT TAUBERT, New York, N. Y. Filed Feb. 6, 1897. Serial No. 622,334. (No model.)



Claim.—1. A bracket consisting of a support, lazy-tongs connected with said support, a manipulating-arm attached to the lazy-tongs near its connection with its support, an extension from the lazy-tongs at its supported end, connected with the manipulating-arm, and a guide upon which the manipulating-arm has sliding movement, substantially as described.

2. In a bracket, a support, a guide-rod mounted to turn upon said support, lazy-tongs attached at one end of the guide-rod, a manipulating-arm connected with the lazy-tongs between its ends and having sliding movement on the guide-rod, and an extension from the inner end of the lazy-tongs, pivotally connected with the manipulating-arm, substantially as and for the purpose specified.

3. In a bracket, a support, a guide-rod held to turn in the support, a sleeve attached to said support, a locking device for the sleeve, lazy-tongs connected with said sleeve, a manipulating-arm connected with the lazy-tongs between its ends and having sliding movement on the guide-rod, and a connection between the manipulating-arm and the attached end of the lazy-tongs, as and for the purpose specified.

4. In a bracket, a support, a guide-rod, lazy-tongs attached to said guide-rod and having spacing devices between its members, a manipulating-arm connected with the lazy-tongs between its ends and having sliding movement on the guide-rod, and a connection between the manipulating-arm and the attached portion of the lazy-tongs, as and for the purpose specified.

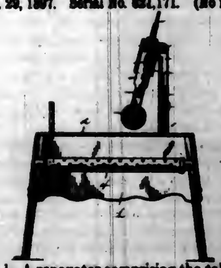
5. The combination with a support, of a rod carried thereon, a lazy-tongs mounted on the rod, two arms respectively extended from members of the lazy-tongs and pivotally connected with each other, and a sleeve sliding on the rod and pivotally connected to one arm.

6. The combination with a support, of a sleeve having extensions projecting outward from the sleeve and curved oppositely to each other, and a lazy-tongs, two end members of which have their outer ends pivoted between the said extensions of the sleeve.

7. The combination with a support, of a pivotally-mounted lazy-tongs, a manipulating-arm extended from one member of said tongs, and means pivotally connected with said manipulating-arm and slidable on the support.

8. The combination of a lazy-tongs, a rod on which the lazy-tongs is mounted, a manipulating-arm extended from one member of the lazy-tongs, and means pivotally connected to the manipulating-arm and slidably mounted on the rod.

586,882. RENOVATOR. WILLIAM H. THOMPSON, Wabash, Ind. Filed Jan. 29, 1897. Serial No. 621,171. (No model.)



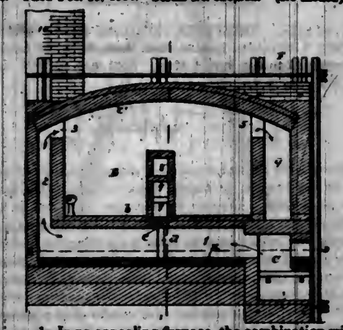
Claim.—1. A renovator comprising the table, the standards carried thereby, the fork having a pivotal connection with the standards and adapted to swing into a position approximately parallel therewith, the roller journaled in the fork, and means for limiting the movement of the fork in the direction of the standards, substantially as described.

2. A renovator comprising the table, the standards carried thereby, the rock-shaft journaled in the standards, the fork having a yielding connection with the rock-shaft, said fork being adapted to swing downward and inward into a position approximately parallel to the standards, the roller journaled in the fork, and means for limiting the movement of the fork, substantially as described.

3. A renovator comprising the table, the standards carried thereby, the rock-shaft journaled in said standards, the sleeve carried by said shaft, the fork having a sliding connection with said sleeve, the spring located within the sleeve and bearing on the fork with means for varying the tension of the spring, and the roller journaled in the fork, substantially as described.

4. In a device of the class described, the combination with a table, of uprights rising therefrom, the rock-shaft journaled to said uprights, a handle connected to the rock-shaft, a sleeve connected to the rock-shaft, a member having an arm fitting within said sleeve, a roller journaled in said member, a spring located in the sleeve and pressing against the arm whereby the roller is urged toward the table, a screw for regulating the tension of the spring, means for preventing detachment of the member from the sleeve, and stops connected to the uprights and adapted to limit the backward movement of said member.

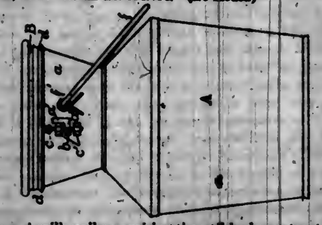
586,883. ANNEALING-FURNACE. JAMES TIBBS, Columbus, Ohio. Filed Feb. 13, 1897. Serial No. 623,208. (No model.)



Claim.—1. In an annealing-furnace, the combination with a fire-chamber, an oven, of a flue extending from the fire-chamber beneath the floor of the oven and upward within one side wall of the furnace and discharging into the top of the oven, and a flue leading from the top of the furnace downward over the fire-chamber, a flue beneath the oven to which this last-mentioned flue leads, and a flue extending through the oven to which the flue beneath the oven leads.

2. In an annealing-furnace, the combination with a series of fire-chambers and an oven, of a series of flues communicating with each fire-chamber and located under the floor of the oven, vertical flues at one side of the oven and communicating with said first-mentioned flues, said vertical flues discharging into the upper part of the oven, a flue located over the series of fire-chambers which receives products of combustion from the oven, a flue extending through the oven in communication with the flue over the fire-chambers and receiving products of combustion therefrom and a stack communicating with the flue in the oven, substantially as set forth.

586,884. MILK-PAIL. JACOB TUBOX, Litchfield, Minn. Filed Apr. 12, 1897. Serial No. 631,751. (No model.)

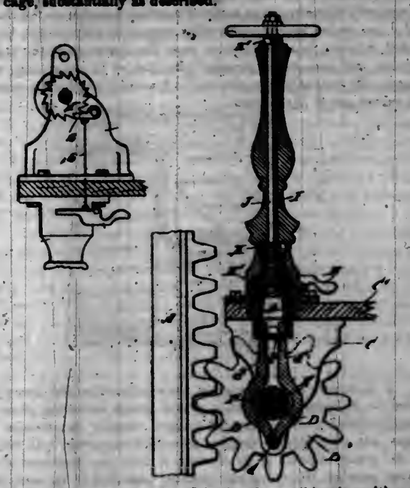


Claim.—A milk-pail comprising the pail-body contracted near its upper end and providing an outwardly-flaring flange, said flange having substantially L-shaped slots and a locking-bolt, a conical cover the sides of which are parallel with and adapted to fit closely said flange, said cover being provided with pins adapted to cooperate with the slots and bolt, and with a lower closed end adapted to project within the pail-body, and also with a plurality of strainer-openings located above said closed end and below the contracted portion of the pail-body, and a flange on the cover adapted to contact with the top of the flange, substantially as set forth.

586,885. ELEVATOR CLUTCH AND BRAKE. WILLIAM WEBMANN, New York, N. Y. Filed Mar. 22, 1897. Serial No. 626,803. (No model.)

Claim.—1. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the cage and meshing with said rack, of a ratchet-wheel connected to the pinion, a pawl acting on the ratchet-wheel to prevent the cage's descent while the pawl and ratchet-wheel are in engagement, and a manually-operated lever within the cage for disengaging said pawl, substantially as described.

2. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the cage and meshing with said rack, of a ratchet-wheel connected to the pinion, a pawl acting on the ratchet-wheel to prevent the cage's descent while the pawl and ratchet-wheel are in engagement, a manually-operated lever within the cage for disengaging said pawl, and a clamping device attached to the pinion and controlled from within the cage, substantially as described.



3. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the cage and meshing with said rack, of a friction-cylinder connected to the pinion, pivoted levers surrounding said cylinder, and manually-operated clamping mechanism therefor, within the cage, substantially as described.

4. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the cage and meshing with said rack, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging the free ends of said arms, and means for controlling the position of said block from the inside of the cage, substantially as described.

5. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the cage and meshing with the rack, a ratchet-wheel connected to the pinion, a pawl normally engaging the ratchet-wheel to prevent the descent of the cage, and means for disengaging the same at will, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging the free ends of said arms, and means for controlling the position of said block from the inside of the cage, substantially as described.

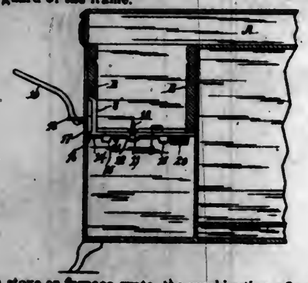
6. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the cage and meshing with said rack, a ratchet-wheel connected to the pinion, a pawl normally engaging the ratchet-wheel to prevent the descent of the cage, and a foot-lever within the cage connected to the pawl for disengaging the same, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging with the free ends of said arms, and means for controlling the position of said block from inside the cage, substantially as described.

7. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the cage and meshing with the rack, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging the free ends of said arms, a shaft screw-threaded into said block and journaled upon the cage, and a hand-wheel upon the upper end of the shaft, substantially as described.

8. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the cage and meshing with the rack, of a friction-cylinder having longitudinal grooves therein, a pair of clamping-arms embracing the cylinder and having similarly corrugated or grooved cavities fitting said cylinder, and means for clamping said levers together controlled from within the cage, substantially as described.

586,886. GRATE FOR STOVES OR RANGES. REINHARDT WEISS, Milwaukee, Wis., assignor of one-half to Charles Reuter, same place. Filed Mar. 6, 1897. Serial No. 626,068. (No model.)

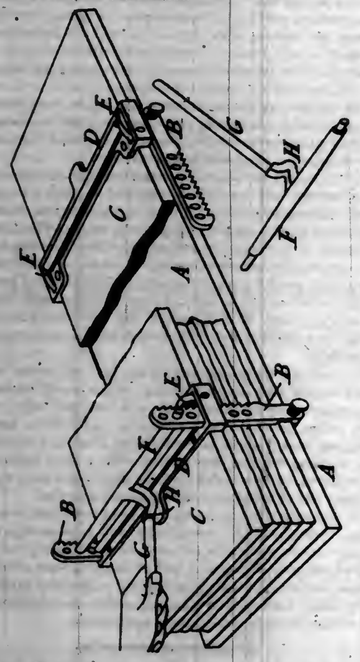
Claim.—1. In a stove or furnace grate, the combination, of a frame, provided at its outer edge with a grated guard, consisting of an upwardly-turned portion, a grated member mounted on the frame, and a non-grated member adjustably supported with respect to the grated member, so as to close or open the apertures of the grated member, said non-grated member provided at its outer edge with an upwardly-turned portion disposed in front of the upwardly-extending grated guard of the frame.



2. In a stove or furnace grate, the combination, of a frame provided at its outer edge with a grated guard, consisting of an upwardly-turned portion, a grated or open member mounted on the frame, and a non-grated member adjustably supported with respect to the grated member so as to close or open the apertures of the grated member, the non-grated member provided at its outer edge with an upwardly-turned portion formed or provided with a forwardly-extending lip, said upwardly-turned portion disposed in front of the upwardly-extending grated guard of the frame.

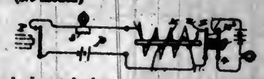
3. In a stove or furnace grate, the combination with a frame, of a tiltable and reciprocable open or grated member mounted on the frame and provided with lugs or ways on its under side, and a non-grated or tight plate member fitted to and slidable on said ways under the grated member and adapted to be removed therefrom at one side when desired.

586,887. APPARATUS FOR PRESSING TROUSERS, &c. GEORGE WHITAKER, London, England. Filed June 11, 1895. Serial No. 552,443. (No model.) Patented in England May 27, 1895, No. 10,471, and in France June 29, 1895, No. 242,898.



Claim.—In pressing apparatus, the combination with the bottom board having the swinging bars provided with ratchet-teeth and having holes therein, of an upper board having a cross-bar provided with slots for the swinging bars, said cross-bar having pivoted pawls arranged to engage with the teeth of said bars, and a rock-shaft arranged to be fulcrumed within holes in the swinging bars and having a cam projection to engage the upper board; substantially as described.

586,888. TELEPHONE SIGNALING RELAY AND CIRCUIT. ARTHUR S. WILLIAMS, Newton, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed May 20, 1897. Serial No. 637,436. (No model.)



Claim.—1. In a telephone system, the combination of a subscriber's line or main circuit, a shunted signal-receiving glow-lamp therefor in an associated or primary local circuit controlled by a relay in said main circuit, and an auxiliary local circuit containing a supplementary signal; with a separate relay controlling the said secondary local circuit, and wound with two magnetizing-coils both connected with the said primary local circuit, one, comprising many turns of fine wire and constantly included in said circuit, and the other formed of relatively few turns of coarser wire constituting a normally open branch thereof, adapted to be closed by the relay itself when excited by the operation of the said fine-wire coil, substantially as set forth.

2. The combination with a primary local electric circuit containing a glow-lamp signal shunted by a resistance higher than its own, and an auxiliary local circuit containing a supplementary signal device; of a relay having two parallel magnetizing-windings, one, of many turns of fine wire permanently included in the said primary local circuit, and the other, of relatively few turns of coarser wire forming a normally-discontinuous branch thereof, the said relay being adapted to control the said normally open branch and the said auxiliary local circuit, closing both on the movement of its armature in one direction, and opening both on its reverse movement; substantially as and for the purposes specified herein.

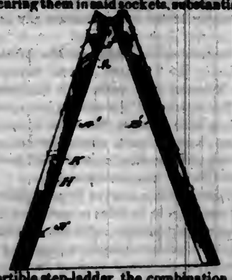
3. In a telephone system, the combination of a series of subscribers' lines or main circuits; a series of associated or primary local signal-circuits, one for each main circuit, controlled by a relay therein, and each containing a shunted signal-receiving lamp; a normally open auxiliary local signaling-circuit common to the said series of main and primary local circuits, containing a supplementary or pilot signal arranged to be displayed on the operation of the said lamp-signals of any and all of the said series of circuits, and having a number of pairs of branch terminals, at any or all of which it may be closed; and a series of auxiliary relays, one for each series of primary local circuits, each wound with two magnetizing-helices, one, permanently included in such circuit and having many turns of fine wire, and the other, forming a normally open branch thereof, having relatively few turns of coarser wire, each relay being adapted to control by its armature vibrations, one of the pairs of branch terminals of said auxiliary local circuit, and also the terminals of its own normally open exciting-helix; whereby a subscriber's line call-signal may be manifested by the pilot-signal, whether the shunted lamp-signal of such line be in order or not, substantially as described.

4. An electromagnetic relay comprising an electromagnet with a central iron core, an iron casing, an interposed exciting-helix, an associated maintaining-helix, a tilting-disk armature resting on its edge in front of said core, and two circuit-closers actuated by said armature one controlling the continuity of said maintaining-helix, and the other adapted to control an independent local circuit, substantially as described.

5. The combination substantially as hereinbefore described with an individual-line local signal-circuit, and an auxiliary local circuit also including a signal, of a relay connected with the former local circuit and controlling the latter, the said relay having two magnetizing-coils of diverse resistance, that of higher resistance being permanently included in the said former circuit, and that of lower resistance in a normally open branch thereof, and two circuit-controllers actuated by the armature of said relay, and controlling the continuity of the normally open branch of the individual local circuit, and the auxiliary local circuit respectively, whereby on the operation of said relay the resistance of the former circuit may be reduced and its current correspondingly increased.

586,889. CONVERTIBLE STEP-LADDER. HORACE S. WILLIAMS, Brisbane, Queensland, assignor of one-half to Peter Petersen, same place. Filed June 3, 1896. Serial No. 594,122. (No model.) Patented in Queensland Aug. 5, 1893, No. 2,695.

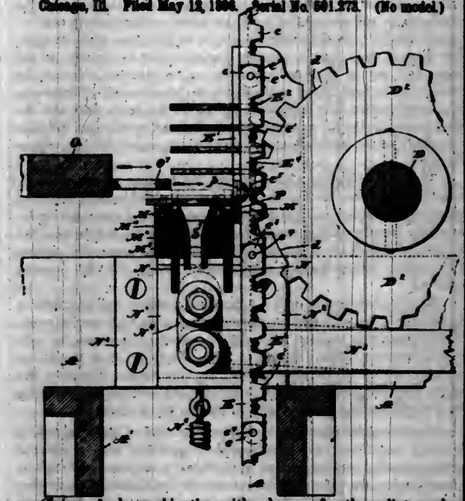
Claim.—1. In a convertible step-ladder, the combination, with the strings of the ladder-sections, of plates secured on the ends of said strings of one section and carrying sockets projecting beyond the strings, and plates secured on the ends of the strings of the other section carrying axles adapted to enter said sockets, said axles projecting both in the same direction from their plates, and being provided with means for securing them in said sockets, substantially as described.



2. In a convertible step-ladder, the combination, with the strings of the ladder-sections, of the plates secured on the ends of said strings, corresponding plates carrying sockets provided with stops, axles arranged to enter said sockets, and a pin on said axle limited by said stops to restrict the movement of said ladder-sections and prevent them from spreading, substantially as described.

3. In a convertible step-ladder, the combination, with the strings of the ladder-sections, of plates secured on the ends of said strings, corresponding plates carrying sockets provided with stops, axles arranged to enter said sockets, and a pin passed through an aperture of said axle to secure the same in said socket, said pin being limited by said stop to restrict the movement of said ladder-sections, substantially as described.

586,890. MACHINE FOR MAKING MATCHES. JACOB P. WEISER, New Haven, Conn., assignor to the Diamond Match Company, Chicago, Ill. Filed May 13, 1896. Serial No. 591,273. (No model.)



Claim.—1. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a swinging and reciprocating clearer, at or near the point where the feeder passes from the hopper, and means for swinging such clearer inward, with reference to the hopper, and raising it, substantially as and for the purpose specified.

2. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a clearer, at or near the point where the feeder leaves the hopper, having a pair of swinging and reciprocating plates, and means for swinging such plates inward, with reference to the hopper, and raising them, substantially as and for the purpose shown.

3. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a clearer, at or near the point where the feeder leaves the hopper, consisting of a series of pairs of swinging and reciprocating plates, and means for moving such pairs of plates successively inward and upward, with relation to the hopper contents, substantially as and for the purpose set forth.

4. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a clearer, at or near the point where the feeder leaves the hopper, having a plate supported so as to be capable of swinging and rising and falling motion, a rotary piece, and an eccentric on the latter engaging the plate, substantially as and for the purpose described.

5. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a clearer, at or near the point where the feeder leaves the hopper, having a pair of plates supported so as to be capable of both a swinging and a rising and falling motion, a rotary piece, and a pair of eccentrics thereon engaging and actuating the plates, substantially as and for the purpose specified.

6. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a series of pairs of plates, at or near the point where the feeder leaves the hopper, means for supporting such plates, so that they can swing and rise and fall, a rotary shaft, and a series of pairs of eccentrics thereon engaging and actuating the plates, substantially as and for the purpose shown.

7. In combination with a hopper for the splints and a traveling feeder with splint-receiving pockets, a series of pairs of plates, at or near the point where the feeder leaves the hopper, means for supporting such plates, so that they can swing and rise and fall, a rotary shaft, and a series of pairs of eccentrics thereon engaging and actuating the pairs of plates, the pairs of eccentrics being differently arranged on the shaft, with reference to the rotation of the latter, substantially as and for the purpose set forth.

8. In combination with a hopper for the splints, and a traveling feeder with splint-receiving pockets, a pair of clearer-plates, at or near the point where the feeder leaves the hopper, having slots, a rod engaging such slots, a rotary shaft and a pair of eccentrics thereon, engaging and actuating the plates, substantially as and for the purpose described.

9. In combination with a hopper for the splints, and a traveling feeder with splint-receiving pockets, a series of pairs of plates, at or near the point where the feeder leaves the hopper, each having a slot, a rod engaging the slots in the plates, a rotary shaft and a series of pairs of eccentrics on the shaft engaging and actuating the plates, the different pairs of eccentrics being situated on the shaft so that their portions of greatest eccentricity are in different planes radial from the axis of the shaft, substantially as and for the purpose specified.

10. In combination with a source of supply of splints, a traveling feeder, for taking the splints from such source of supply, having a series of separate parallel splint-receiving pockets, having portions upon which the splints can rest, sides extending across between the splint-supporting portions, and elongated openings in their bottoms extending between the splint-supporting portions, substantially as and for the purpose shown.

11. In combination with a hopper for the splints, a traveling feeder, for taking the splints from the hopper, having a series of splint-receiving pockets, and an unpocketed portion adapted to be moved under and past the drum by the motion of the feeder, substantially as and for the purpose specified.

12. In combination with a hopper for the splints, a traveling feeder for taking the splints from the hopper, having several series of splint-receiving pockets and intervening unpocketed portions, substantially as and for the purpose shown.

13. In combination with a hopper for the splints, a traveling feeder for taking the splints from the hopper, having a series of splint-receiving pockets, and an opening beyond the series of pockets, having at its sides portions of the feeder to support the splints in the hopper at or near the ends of the splints, substantially as and for the purpose set forth.

14. In combination with a hopper for the splints, a traveling feeder for taking the splints from the hopper, having portions to support the splints, and ribs extending between such portions, so as to form pockets or receptacles for the splints with bottoms open between the splint-supporting portions, to allow the passage of chips and pieces of splints, substantially as and for the purpose set forth.

15. In combination with a source of supply of splints, a rotary drum having a series of splint-receiving pockets, with elongated openings in their bottoms, and an exhaust device connected with such openings, substantially as and for the purpose specified.

16. In combination with a source of supply of splints, a hollow drum having a series of splint-receiving pockets with elongated openings in their bottoms, communicating with the interior of the drum, an exhaust device connected with such openings, and means for rotating the drum, substantially as and for the purpose set forth.

17. In combination with a source of supply of splints, a drum having a series of splint-receiving pockets having the end portions of their bottoms adapted to support parts of the splints, and elongated openings in their bottoms extending between such end portions and an exhaust device connected with such openings, substantially as and for the purpose specified.

18. In combination with a source of supply of splints, a traveling feeder, for receiving the splints therefrom, having a series of splint-receiving pockets with elongated openings in their bottoms, and an air-exhaust device connected with such openings on the side away

from the source of supply of the splints, substantially as and for the purpose set forth.

19. In combination with a source of supply of the splints, a traveling feeder for taking the splints from the source of supply, having the portions to support the splints on opposite sides of their middle points, and the separate ribs, with the bottoms of the spaces between them open, extending between the splint-supporting portions of the feeder, an exhaust-trunk communicating with the spaces between the ribs, and an exhaust device connected with the trunk, substantially as and for the purpose described.

20. In combination with a hopper for the splints, a traveling feeder for taking the splints from the hopper, having a series of splint-receiving pockets with openings in their bottoms, and one or more large openings beyond the series of pockets, and an exhaust device connected with the openings in the feeder, substantially as and for the purpose specified.

21. In combination with a hopper for the splints, a traveling feeder with a series of pockets to receive the splints, and openings between such series, an exhaust device connected with such openings, when they are passing the hopper, substantially as and for the purpose shown.

22. In combination with a hopper for the splints, a traveling feeder having the series of splint-receiving pockets with openings in their bottoms, and the larger openings between the series of pockets, an exhaust device connected with such openings and those in the bottoms of the pockets, substantially as and for the purpose set forth.

23. In combination with a hopper for the splints, the hollow rotary feed-drum, having the two parallel ends, situated so as to form, with their peripheries, supports for the splints, and the series of separated parallel ribs, connecting the two ends, so as to form, with them, separate splint receiving and holding pockets for the splints with their bottoms open between the drum ends, substantially as and for the purpose described.

24. In combination with a source of supply of splints, a hollow feed-drum having the two parallel ends situated so as to form supports for different parts of the splints, and the series of ribs connecting the ends of the drum, so as to form, with them, pockets to receive and hold the splints, having their bottoms open between the drum ends and an exhaust device connected with the interior of the drum, substantially as and for the purpose specified.

25. In combination with a source of supply of splints, a moving carrier having portions to support the splints on opposite sides of their middle portions, ribs extending between the splint-supporting portions of the carrier, so as to form, with the latter, pockets to receive the splints, having their bottoms open between the drum ends and an exhaust device connected with the spaces between such ribs, substantially as and for the purpose described.

26. In combination with a hopper for the splints, the hollow rotary feed-drum having the two ends with several series of ribs extending across between such ends, to leave, between the ribs, splint-receiving spaces with openings in their bottoms, circumferentially-extending ribs on the drum ends, between the series of ribs, and openings in the drum-periphery, between such circumferentially-exteading ribs, substantially as and for the purpose shown.

27. In combination with a hopper for the splints, the hollow rotary feed-drum having a series of splint-receiving pockets with portions to support the splints on opposite sides of the middle points of the latter, the side walls of the pockets extending across between the splint-supporting portions and the bottoms of the pockets, between such portions, left open, substantially as and for the purpose specified.

28. In combination with a hopper for the splints, the hollow rotary feed-drum having several series of splint-receiving pockets with openings in their bottoms, circumferential ribs between the series of pockets, and openings between such ribs, substantially as and for the purpose set forth.

29. In combination with a hopper for the splints, the hollow rotary feed-drum having a series of splint-receiving pockets with elongated clearing-openings in their bottoms, adapted to allow the passage of short splints or pieces of splints, and an exhaust device in communication with the interior of the drum, substantially as and for the purpose described.

30. In combination with a hopper for the splints, the hollow rotary feed-drum, having a series of splint-receiving pockets with portions of their bottoms adapted to support the splints on opposite sides of the middle points of the latter, and the remainder of the bottoms between such portions, open, and an exhaust device communicating with the interior of the drum, substantially as and for the purpose specified.

31. In combination with a hopper for the splints, the rotary drum having a series of splint-receiving pockets and an opening in its periphery beyond such pockets, and an exhaust device in communication with the interior of the drum, substantially as and for the purpose shown.

32. In combination with a hopper for the splints, the hollow rotary feed-drum having several series of splint-receiving pockets with portions of their bottoms left open, and large openings in its periphery between the series of pockets, and an exhaust device communicating with the interior of the drum, substantially as and for the purpose set forth.

33. In combination with a hopper for the splints, the hollow rotary feed-drum having the two ends, several separate series of ribs extending across between such ends, with the spaces between the ribs left open to the interior of the drum, circumferentially-extending ribs on the drum ends between the series of transverse ribs, and openings or spaces between such circumferentially-extending ribs, and an exhaust device communicating with the interior of the drum, substantially as and for the purpose described.

34. In combination with a hopper for the splints, the hollow rotary drum having openings in its sides or ends, and its periphery provided with splint-receiving pockets, with their bottoms between the drum ends open to the interior of the drum, a casing partially inclosing the drum, so as to form a chamber communicating with the opening in the drum ends, and an exhaust device having its trunk connected with such chamber, substantially as and for the purpose specified.

35. In combination with a hopper for the splints, the hollow rotary drum having openings in its ends, and its periphery provided with several series of splint-receiving pockets, with their bottoms between the drum ends open to the interior of the drum, and with openings between the series of pockets also communicating with the interior of the drum, a casing, in which the drum revolves, adapted to form a closed chamber with spaces on each side of the drum communicating with the openings in the drum ends, and a space through which the under side of the drum passes, and an exhaust device in communication with the interior of such casing, substantially as and for the purpose shown.

36. In combination with a hopper for the splints, the hollow rotary feed-drum having openings in its ends, and its periphery formed of two series of ribs extending between the drum ends, such series being separated by large spaces, such spaces, and those between the ribs being in communication with the interior of the drum and circumferentially-extending raised portions on the drum ends on opposite sides of such spaces, a casing inclosing the lower side of the drum, and having portions extending up on opposite sides of the drum, so as to form spaces or chambers on opposite sides of the drum, in communication only with the openings in the drum ends and the chamber below the drum, an exhaust device, and connections between the same and the latter chamber, substantially as and for the purpose set forth.

37. In combination with a hopper for holding match-splints, a rotating feed-drum having its periphery provided with a series of splint-receiving pockets and an unpocketed portion, an intermittently-traveling transfer-carrier, means for transferring the splints from the pockets of the drum to the transfer-carrier, and means for moving such carrier intermittently, substantially as and for the purpose specified.

38. In combination with a hopper for holding match-splints, a rotating feed-drum having its periphery provided with several series of splint-receiving pockets, with unpocketed spaces between the ends of such series, a transfer device to take the splints from the drum-pockets, an intermittently-traveling transfer-carrier receiving the splints from the transfer device, and means for intermittently moving the transfer-carrier, substantially as and for the purpose shown.

39. In combination with a hopper for holding match-splints, a rotating feed-drum having its periphery provided with a series of splint-receiving pockets, and an unpocketed portion beyond the end of such series, the rotary transfer-drum, the intermittently-traveling transfer-carrier receiving the splints from the transfer-drum, and means for moving such carrier intermittently, substantially as and for the purpose set forth.

40. In combination with a hopper for holding match-splints, the rotating feed-drum having its periphery provided with series of splint-receiving pockets separated by unpocketed portions, the transfer-drum having notches or pockets to receive the splints from the drum, the intermittently-traveling transfer-carrier having parallel portions provided with splint-receiving notches and means for intermittently moving such transfer-carrier, substantially as and for the purpose described.

41. In combination with a hopper for holding match-splints, the traveling feed device having series of splint-receiving pockets, and unpocketed portions between the ends of the series of pockets, a transfer device to take the splints from the feed-device pockets, the parallel transfer-chains provided with splint-holding notches to receive the splints from the transfer device, and means for intermittently moving such chains, adapted to move the chains only while the splints are being transferred to them from the feed device, substantially as and for the purpose specified.

42. In combination with a hopper for holding match-splints, the rotating feed-drum having its periphery provided with several series of splint-receiving pockets, and unpocketed portions between such series, the rotary transfer-drum having the notched flanks to receive the splints, guides to shift the splints from the feed-drum to the transfer-drum, the two parallel transfer-chains having splint-holding notches, guides for shifting the splints from the transfer-drum into the notches of the chains, and means for moving such chains while the splints are being delivered to their notches, substantially as and for the purpose shown.

43. In combination with the notched transfer-carrier and the driving-roller for moving it, a toothed wheel rotating with such roller, a driven rotary wheel, a rock-shaft journaled thereon, carrying a pawl to engage the toothed wheel and a trip-arm, a rotary piece carrying a lug in the path of the trip-arm, and suitable gearing to give such piece a rotation in the same direction as that of the pawl-carrying wheel, but at a slower rate, substantially as and for the purpose specified.

44. In combination with the notched transfer-carrier and the driving-roller for moving it, a toothed wheel rotating with such roller, a driven rotary wheel carrying a rock-shaft provided with a pawl to engage the toothed wheel and a trip-arm, a rotary piece carrying a trip-lug in the path of the trip-arm, and worm-gearing for rotating the rotary piece in the same direction as the rotation of the pawl-carrying wheel, but at a slower rate, substantially as and for the purpose shown.

45. In combination with the notched transfer-chains, having teeth on their inner sides, the guides for such chains having rabbets to receive the chains and deeper rabbets to accommodate the chain-teeth, and guide-plates to keep the chains in the rabbets having overhanging flanges to engage the outer or upper sides of portions of the chains below the notched portions, substantially as and for the purpose specified.

46. The transfer-carrier, consisting of chains each formed of notched links pivotally connected together, and toothed guide-links pivotally connected with alternate notched links, and having their upper or outer edges lower than the notches of the links, substantially as and for the purpose shown.

47. In combination with a splint-conveying carrier having two parallel notched portions to support the splints, an exhaust-trunk communicating with an opening or throat situated between the notched portions of the carrier, and an exhaust device connected with such trunk, substantially as and for the purpose set forth.

48. In combination with a splint-conveying transfer-carrier consisting of two parallel endless flexible portions provided with splint-receiving notches, an exhaust-trunk communicating with an opening or throat between the two parts of the transfer-carrier, and an exhaust device connected with such trunk, substantially as and for the purpose described.

49. In combination with the transfer-chains provided with splint-receiving notches, the plate between such chains provided with a slot or elongated opening, an exhaust-trunk communicating with such opening, and an exhaust device connected with the trunk, substantially as and for the purpose specified.

50. In a match-making machine, in combination with a source of supply of the splints, a carrier to receive and hold the splints while being treated, a conveyer from which the splints are transferred to the carrier, having splint-receiving pockets, an exhaust device connected with the conveyer, so as to act to hold the splints down in the pockets thereof, and means for intermittently moving the conveyer in one direction, to convey the splints from the source of supply into position in front of the receiving and holding carrier, substantially as and for the purpose specified.

51. In a match-making machine, in combination with a carrier, to receive and hold the splints in rows while being treated, an intermittently-moving transfer-carrier having pockets to receive a row of splints, means for supplying a row of splints to such pockets, and means for intermittently moving the transfer-carrier, in one direction, to bring a row of splints carried thereby into position in front of the carrier, substantially as and for the purpose described.

52. In a match-making machine, in combination with a carrier to receive and hold the splints in rows while being treated, an intermittently-moving transfer-carrier having pockets to receive and hold the rows of splints, an air-exhaust device connected with the transfer-carrier, so as to act to hold the splints down in the pockets thereof, means for supplying splints to the pockets of the transfer-carrier, and means for intermittently moving the transfer-carrier in one direction, to cause it to bring rows of splints successively in front of the carrier, substantially as and for the purpose specified.

53. In a match-making machine, in combination with a carrier to receive the splints and hold them while they are being treated, means for moving such carrier with a step-by-step movement, a traveling endless conveyer to receive the splints from a source of supply and convey them to a position in front of the receiving and holding carrier, and means for moving such conveyer forward in one direction intermittently, substantially as and for the purpose specified.

54. In a match-making machine, in combination with a carrier to receive the splints, and hold them while they are being treated, a traveling endless conveyer, provided with splint-receiving notches adapted to receive the splints from a source of supply and convey them to a point in front of the splint receiving and holding carrier, and means for intermittently moving such notched conveyer in one direction, substantially as and for the purpose shown.

55. In a match-making machine, in combination with a carrier to receive the splints and hold them while they are being treated, the transfer device consisting of a pair of endless notched flexible carriers adapted to receive the splints from a source of supply and carry them to a point in front of the receiving and holding carrier and means for moving such transfer device intermittently in one direction, substantially as and for the purpose set forth.

56. In a match-making machine in combination with the carrier to receive the splints and hold them while they are being treated, the parallel notched transfer-chains to carry the splints to a point in front of the splint receiving and holding carrier, and means for moving such chains intermittently in one direction, substantially as and for the purpose described.

57. In a match-making machine in combination with a carrier provided with means to receive and hold the splints in rows, a moving transfer device to bring a row of splints in front of the carrier, a lifter to lift the splints from such transfer device, and means for driving the splints on the lifter into the splint receiving and holding devices on the carrier, substantially as and for the purpose specified.

58. In a match-making machine, in combination with a carrier provided with means to receive and hold the splints in rows, a transfer device adapted to hold match-splints in position parallel to each other, means for moving such device, to bring the splints in front of the splint receiving and holding carrier, a notched lifter, means for lifting the same to raise the splints from the transfer device, and means for forcing the splints supported on the lifter, into the splint receiving and holding devices of the carrier, substantially as and for the purpose shown.

59. In a match-making machine, in combination with a carrier provided with means to receive and hold the splints, a transfer device adapted to receive and hold a series of splints, means for moving such transfer device to carry the splints in front of the splint receiving and holding carrier, a notched lifter to lift the splints from the transfer device, means for raising the lifter, a beater to engage the splints on the raised lifter and force them into the splint receiving and holding devices of the carrier, and means for actuating such beater, substantially as and for the purpose set forth.

60. In a match-making machine, in combination with a carrier provided with means for receiving and holding match-sticks, the transfer device having the parallel notched portions, means for moving such transfer device intermittently, the lifter having the two parallel notched plates to take the splints from the transfer device, means for moving the lifter, and means for moving the splints on the raised lifter into the splint receiving and holding devices of the carrier, substantially as and for the purpose described.

61. In a match-making machine, in combination with a carrier provided with means to receive and hold the splints, the parallel transfer-chains with notches to receive splints, the lifter having the two notched plates to raise the splints from the chain-notches, and means for forcing the splints supported on the lifter into the splint receiving and holding devices of the carrier, substantially as and for the purpose specified.

62. In a match-making machine, in combination with a carrier provided with means to receive and hold the splints, the two parallel notched transfer-chains, means for moving them intermittently the lifter having the two parallel notched plates to lift the splints from the transfer-chains, means for actuating such lifter, a beater-bar to engage the splints on the raised lifter and force them into the splint receiving and holding devices of the carrier, and means for actuating such bar, substantially as and for the purpose shown.

63. In a match-making machine, in combination with a carrier provided with means to receive and hold the splints, the two parallel notched transfer-chains, means for moving them intermittently, the lifter having the two parallel notched plates to lift the splints from the transfer-chains, means for actuating such lifter, a beater-bar to engage the splints on the raised lifter and force them into the splint receiving and holding devices of the carrier, and means for actuating such bar, substantially as and for the purpose set forth.

64. In a match-making machine, in combination with a carrier provided with series of splint receiving and holding devices adapted to hold the splints in rows, means for moving such carrier with a step-by-step motion, a transfer device to bring a row of splints in front of the carrier, means for moving such device intermittently, a lifter to raise the splints from the transfer device, means for actuating the lifter, and a beater to force the row of splints on the raised lifter into a row of splint receiving and holding devices of the carrier, substantially as and for the purpose described.

65. In a match-making machine, in combination with a carrier

provided with devices for receiving and holding splints, a rising-and-falling lifter to raise a series of splints into position opposite the receiving and holding devices of the carrier, means for forcing the splints so raised into said devices, and means for actuating the lifter, substantially as and for the purpose specified.

66. In a match-machine, in combination with a carrier provided with devices for receiving and holding splints, a rising-and-falling lifter to raise the splints up into position opposite the receiving and holding devices of the carrier, a beater-bar to force the splints from the lifter into such devices, having a guard to extend over the upper sides of the splints on the lifter, means for actuating the lifter, and means for actuating the beater-bar, substantially as and for the purpose shown.

67. In a match-making machine, in combination with a carrier provided with devices for receiving and holding splints, a rising-and-falling lifter having splint-holding notches, the beater-bar having a guard to extend over and close to the lifter when the latter is raised, means for actuating the lifter, and means for actuating the beater-bar, substantially as and for the purpose set forth.

68. In combination with the lifter having the splint-receiving notches, and means for raising and lowering it, the beater-bar made movable substantially at right angles to the travel of the lifter, and having a guard-frame attached to it extending over the lifter in position to keep any splints down in the notches of the lifter when the latter is raised, and means for actuating the beater-bar toward and from the lifter, substantially as and for the purpose described.

69. The splint-lifter, having the two reciprocating heads and the plates carried thereby having their upper edges notched, in combination with the levers, connections between the latter and the heads, cams to actuate the levers to raise the lifter, and one or more springs acting to lower it, substantially as and for the purpose specified.

70. The beater-bar supported on the two swinging arms in combination with the two levers, the links connecting the levers with the bar, the cams for actuating the levers in one direction, and one or more springs acting to swing the levers in the other direction, substantially as and for the purpose shown.

71. In a match-making machine, means for supplying the splints, a splint receiving and holding carrier, a beater-bar for driving the splints into the carrier, and means for movably supporting the same, in combination with the levers, the cams for actuating the same, and links connecting the levers with the bar made adjustably in length, substantially as and for the purpose set forth.

72. In a match making machine in combination with a step-by-step-moving carrier having series of splint receiving and holding devices adapted to receive and hold the splints in rows, means for moving such carrier, the endless transfer-chains with splint-holding notches moving at right angles to the travel of the carrier means for moving such chains intermittently to bring successive rows of splints in front of the carrier, a lifter to lift such splints out of the chain-notches when the chains are at rest, means for actuating the lifter, a beater-bar to force the splints on the raised lifter into the splint receiving and holding devices on the carrier, and means for actuating such beater-bar, while the carrier is at rest between its step-by-step movements, substantially as and for the purposes specified.

73. As a means for holding and carrying match-splints, a carrier having an opening to closely surround and engage a portion of a splint, so as to form a steadying-support for the same, and clamping devices, secured outside of the opening, to engage only a part of the splint projecting beyond such opening, substantially as and for the purpose described.

74. As a means for holding and carrying match-splints, a carrier having an opening to closely surround and engage a portion of a splint so as to form a steadying-support for the same, and a pair of spring-clamps, secured outside of the opening, to engage the splints only beyond such opening, substantially as and for the purpose described.

75. As a means for holding and carrying match-splints, a carrier having a series of openings to surround and engage portions of the splints, so as to form a steadying-support for the same, and separate pairs of clamping devices, one pair for each opening, secured outside of the opening, to engage the splints only at a point beyond the opening, substantially as and for the purpose described.

76. In a carrier for match-splints, in combination with a plate provided with a series of openings, each adapted to closely surround and engage a splint, so as to form a steadying-support for a portion of the same, and clamping devices secured to the plate outside of the openings, engaging the splints only at points beyond the openings in the plate, substantially as and for the purpose described.

77. In a carrier for match-splints, in combination with a plate provided with a series of openings, each adapted to surround and engage the splints, so as to form a steadying-support for a portion of the same, and a series of pairs of spring clamping-fingers, one pair for each opening in the plate, such fingers being secured upon the back of the plate, and adapted to engage the splints only at a point beyond the openings in the plate, substantially as and for the purpose described.

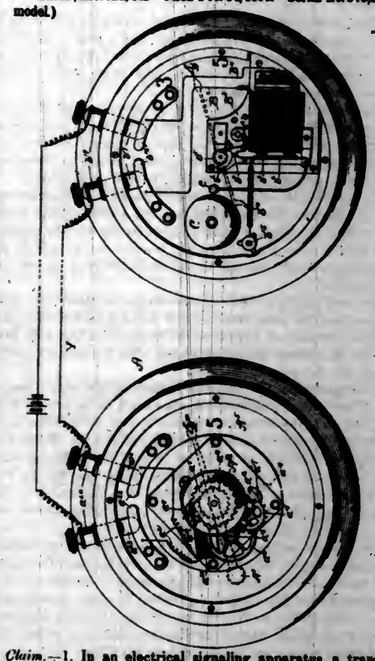
78. In a carrier for match-splints, in combination with a plate having an opening to receive and inclose a portion of a splint so as to form a steadying-guide therefor, a pair of spring clamping-pieces on the back of the plate, having their opposing faces grooved, substantially as and for the purpose shown.

79. In a carrier for match-splints, in combination with a plate having a series of openings to receive and inclose portions of the splints and form steadying-guides therefor, a series of splint-clamping devices on the plate, having their opposing faces grooved, arranged to receive and hold portions of the splints beyond the plate, substantially as and for the purpose set forth.

80. In a carrier for match-splints, in combination with a main plate having rows of openings to receive and inclose portions of splints, plates attached to the main plate between rows of openings therein, and having portions standing out from the main plate split or cut so as to form independently-movable splint-engaging spring-fingers, substantially as and for the purpose described.

81. In a carrier for match splints, in combination with a plate having rows of openings to receive and inclose portions of the splints, plates fastened to the main plate between the rows of openings, having upturned portions close to the sides of the adjoining rows of openings, grooved and split, or cut to form separate splint-clamping fingers with grooves in their splint-engaging sides, substantially as and for the purpose specified.

586,891. ELECTRICAL SIGNALING APPARATUS. ANDREW A. ANDERSEN, Altoona, Pa. Filed Feb. 14, 1896. Serial No. 579,313. (No model.)



Claim.—1. In an electrical signaling apparatus, a transmitter comprising a main arbor, a barrel rigid therewith and carrying a drive-wheel, a hollow arbor on the main arbor carrying a ratchet-wheel constituting a closure for one side of the spring-barrel, a spring connecting the barrel and the hollow arbor, a make-and-break wheel on the main arbor, spring-contacts adapted to engage with the make-and-break wheel, a train of gear for governing the movement of the make-and-break wheel, and a hand or pointer on the hollow arbor for placing the spring under tension, the said pointer being adapted to move in one direction only and to be followed immediately upon movement by rotation of the make-and-break wheel, substantially as described.

2. In an electrical signaling apparatus, a transmitter comprising a main arbor, a barrel rigid therewith and carrying a drive-wheel, a hollow arbor on the main arbor carrying a ratchet-wheel constituting a closure for one side of the spring-barrel, a spring connecting the barrel and the hollow arbor, a make-and-break wheel on the main arbor, spring-contacts adapted to engage with the make-and-break wheel, a train of gear for governing the movement of the make-and-break wheel, a hand or pointer on the hollow arbor for placing the spring under tension, the said pointer being adapted to move in one direction only and to be followed immediately upon movement by rotation of the make-and-break wheel, and stops for limiting the movement of the actuating mechanism, substantially as described.

3. In an electrical signaling apparatus, a transmitter comprising the following elements arranged in alinement, a main arbor, a spring-barrel rigid therewith and carrying a drive-wheel, a hollow arbor projecting beyond the dial of the transmitter and provided with a ratchet-wheel constituting a closure for one side of the spring-barrel, and a make-and-break wheel on the main arbor, in combination with spring-contacts to engage with the make-and-break wheel, and a hand or pointer on the hollow arbor for placing the spring under requisite tension, and also for indicating the number of the signal to be transmitted, substantially as described.

4. In an electrical signaling apparatus, a receiver comprising two electromagnets, a pivoted lever carrying an armature and a verge, and an escape-wheel actuated by the verge to operate a pointer, the said verge having one of its pallets rigid and the other pivoted, an adjustable stud, a link connected with the movable pallet, and a screw eccentrically mounted on the stud and serving to hold the link in place thereon, substantially as described.

5. A verge having one of its pallets rigid and the other pivoted, an adjustable stud, a link connected with the movable pallet, and a screw eccentrically mounted on the stud and serving to hold the link in place thereon, substantially as described.

586,892. RAILWAY-SWITCH. VICTOR ANDRESEN, Philadelphia, Pa., assignor to The William Wharton, Jr., & Company, Incorporated, same place. Filed Apr. 11, 1896. Serial No. 587,140. (No model.)

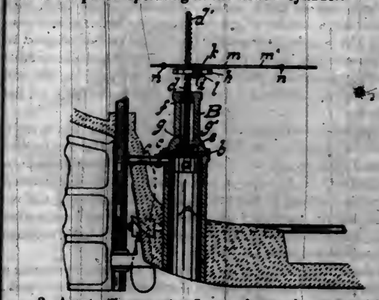


Claim.—1. The combination of a movable switch-tongue having a downwardly-projecting pivot-pin set back of its root end, a switch structure having an opening adapted to receive the pivot-pin, said opening forming both a vertical bearing and a step-bearing for the pivot-pin of the tongue, substantially as described.

2. The combination of a switch-tongue having a pivot-pin set back of the root end thereof, said pin extending to the face of the switch-tongue, with a switch structure having an opening for the reception of the pivot-pin and cut away to receive the tongue, the parts being so arranged that the tongue cannot be shifted by a wheel coming onto the tongue from the rear until it passes the pivot-pin, substantially as described.

586,893. CUT-OFF APPARATUS FOR MARINE ENGINES. FRANZ SUTTNER, New York, N. Y. Filed Mar. 5, 1897. Serial No. 626,042. (No model.)

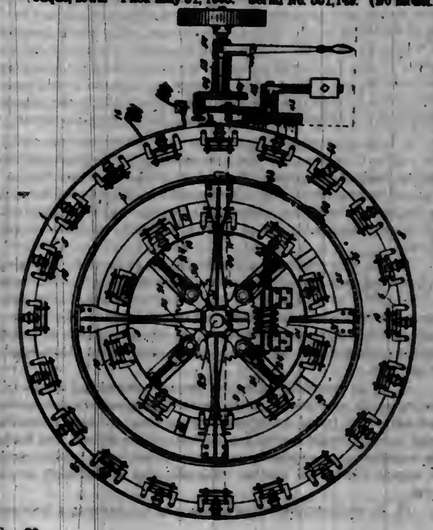
Claim.—1. The combination with a cut-off apparatus, comprising a hollow cylinder open on its lower end, adapted to be secured in the hull of a steam vessel, a weighted piston balanced to float on top of the water, set within the cylinder, a rod connected to the piston and projecting through the head of the hollow cylinder and mechanism for transmitting the motion of the rod to the valve-gear, of a closed air-cylinder provided with air-passages near its base and mounted concentrically on the top of the hollow cylinder, and of a piston, air-tightly fitted in the air-cylinder, and rigidly connected to the piston-rod of the piston operating in the hollow cylinder.



2. A cut-off apparatus for marine engines comprising a hollow cylinder open on its lower end, and provided with an outlet near its closed top, a hollow piston loosely fitted in the cylinder and having an air-tight compartment and an open space above the air-tight compartment, a hollow (air) cylinder closed on both ends set on top of the open cylinder, air-passages provided in the walls of the cylinder near its base, a connecting-rod secured to the hollow piston and projecting through the closed top of the cylinder, a piston, fitted air-tightly into the air-cylinder and secured to the piston-rod, a valve or slide set in the steam-supply pipe and means for transmitting the motion of the hollow piston to the valve.

3. A cut-off apparatus for steam vessels comprising a hollow cylinder open on its lower end, and provided with an outlet near its closed top, a hollow piston loosely fitted in the cylinder and having an air-tight compartment and an open space above the air-tight compartment, a hollow (air) cylinder closed on both ends set on top of the open cylinder, air-passages provided in the walls of the cylinder near its base, a connecting-rod secured to the piston and projecting through the closed top of the cylinder, a piston, fitted air-tightly into the air-cylinder and secured to the piston-rod, of a rack secured to or made in one part with the piston-rod, a guide for the rack, a spindle pillowed in the extended forked ends of the guide, a cog-wheel set on the spindle and gearing with the rack, a trunnion set on the same spindle, a rack mounted in bearings and gearing with the trunnion, a connecting-rod secured to the rack, a rack secured on the other end of the connecting-rod, and a cog-wheel set on the stem of the main valve of the engine and gearing with the rack.

586,894. ELECTRODEPOSITING DEVICE. JOHN BOMARD, Dubuque, Iowa. Filed May 31, 1895. Serial No. 551,149. (No model.)



Claim.—1. An electrodepositing device, consisting of a tank, with anode connection, a circular carrier having cathode connections from which a number of articles to be deposited upon are suspended within the bath and means for causing the carrier to rotate in a horizontal plane, carrying the articles to be deposited upon around in the bath, for the purposes shown.

2. An electrodepositing device, consisting of a tank containing a depositing-bath, one or more anodes suspended in the bath, with anode connections, a number of articles within the bath, cathode connection with the articles in the bath, a circular carrier adapted to revolve in a horizontal plane above the bath from which the articles to be deposited upon are suspended and means for revolving the said carrier, whereby the articles are carried around in the bath, for the purposes shown.

3. An electrodepositing device, consisting of a tank, one or more anodes, each suspended in the bath from an individual carrier and each provided with an individual switch with the anode element, a rigid carrier adapted to revolve by which the articles to be deposited upon are carried around in the bath, a shaft for sustaining and revolving said carrier, means for revolving said shaft and connection between the cathode element and the articles in the bath, substantially as described and shown.

4. An electrodepositing device, consisting of a tank containing a depositing-bath, one or more anode-plates suspended within said tank, one or more cathode-rings secured above the bath, electrical connection with said ring, a rigid carrier arranged to revolve above the bath; and hooks for suspending the articles within the bath, adapted to engage with the carrier and bearing against a cathode-ring, all combined to operate for the purposes shown.

5. An electrodepositing device, consisting of a rigid carrier, adapted to travel above the bath, hooks removably attached to the carrier for suspending the articles in the bath and connected with the cathode element, one or more rings beneath said carrier having one or more clamps adjustably secured to the edge or edges of said rings and means for revolving said carrier, whereby the articles to be deposited upon are carried around in the bath with the hooks from which they are suspended, bearing against the ring, and deflected by engaging with said clamps out of their line of travel, as and for the purposes shown.

6. In an electrodepositing device of the character described, a tank containing a bath, a revoluble carrier above the bath, hooks depending from the carrier, articles to be deposited upon carried by the hooks, and a ring between the bath and carrier and carrying adjustable cams adapted to engage with the hooks and deflect them out of the line of travel, substantially as set forth.

7. In an electrodepositing device, a tank for holding the depositing-bath, consisting of a base, outer and inner walls, said inner wall surrounding an open-bottomed well, and a carrier adapted to revolve, by which the articles to be deposited upon are advanced in a horizontal plane within the bath, a revolving shaft for sustaining and revolving said carrier set within the well surrounded by the said inner wall, and means for revolving said shaft located beneath the tank as and for the purposes shown.

8. An electrodepositing device, consisting of a tank having a base, an outer and inner wall, said inner wall encompassing a space, one or more anodes each suspended from an individual carrier and each having an individual switch with the anode element, a rigid carrier adapted to revolve by which the articles to be deposited upon, removably attached thereto, are carried around in the bath, a shaft for sustaining and revolving said carrier, set in the space encompassed by said inner wall, means for revolving said shaft and connection from the cathode element to the articles in the bath, as and for the purposes shown.

9. In an electrodepositing device a revoluble carrier from which the articles to be deposited upon are suspended, a ring beneath the carrier, hooks for suspending the articles in the bath from the carrier and bearing against the said ring and an oiler adapted to come in contact with said ring, whereby the passage-way of the body of the hooks along said ring is oiled, substantially as described and shown.

10. An electrodepositing device consisting of a tank containing a depositing-bath, one or more anode-plates suspended in said bath, a rigid carrier adapted to travel in a circular manner above the bath, one or more cathode-conductors secured to said carrier, having cathode connections and hooks by which the articles to be deposited upon are suspended in the bath, engaging said carrier, substantially as set forth.

11. In an electrodepositing device, a tank containing a bath and having anode connections, a rigid carrier having cathode connections and adapted to travel in a circular manner above the bath, a metallic band secured to said carrier and having notches therein, and hooks for suspending the articles to be deposited upon in the bath, adapted to engage within said notches upon the band, substantially as set forth.

12. In an electrodepositing device, a tank containing a bath and having anode connections, a rigid carrier having cathode connections and adapted to travel in a circular manner above the bath, a metallic strip secured to said carrier, hooks for suspending the articles within the bath and adapted to engage with said metallic strip, and means for retaining the hooks on the carrier at a given distance apart, substantially as set forth.

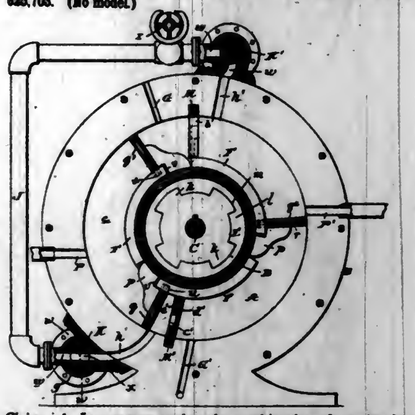
13. An electrodepositing device consisting of a tank containing a depositing-bath and having one or more tubes running through said tank and bath, one or more anode-plates suspended in said bath, a rigid carrier adapted to travel in a circular manner above the bath, hooks for suspending the articles to be deposited upon in the bath and engaging said carrier, and electric connections with the articles in the bath through said tubes, substantially as set forth.

14. In an electrodepositing device, a tank containing a depositing-bath, one or more cathode-rings above the bath, and a tube through said bath through which electric connection is made to the articles in the bath, substantially as set forth.

15. In an electrodepositing device, a circular tank containing a depositing-bath, having anode connections, a ring above the bath having cathode connections, one or more clamps secured to the outer edge of said ring, a rigid carrier adapted to travel in a circular manner above the bath, in combination with one or more hooks for suspending the articles in the bath, consisting of a hooked upper portion for engaging with the carrier, broadened middle portion for engagement with the clamps, for deflecting the articles out of the line of travel, and with the ring for making cathode connections with the articles in the bath, and means for attaching the lower portion of said hooks to the articles in the bath, all combined and arranged substantially as described.

16. An electrodepositing device, consisting of a circular tank, containing a depositing-bath and having one or more anodes suspended in said bath, a circular carrier adapted to travel in a horizontal plane above the bath, hooks for suspending the articles to be deposited upon in the bath and engaging said carrier and cathode connections with the articles in the bath, and means for revolving said carrier at an intermittent rate of speed, substantially as set forth.

586,895. ROTARY STEAM-ENGINE. CHARLES A. CALLENDER and NEIL W. PARSO, Greene, Iowa. Filed Mar. 2, 1897. Serial No. 625,703. (No model.)



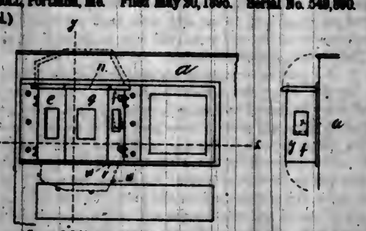
Claim.—1. In a rotary engine, the combination of a casing having an annular chamber and an opening or space at the inner side of said chamber and also having inlet and exhaust ports for steam, a rotary piston extending through said opening or space and provided within the annular chamber with blades, automatic valves controlling the steam-inlet ports, automatic gates or partitions for dividing the annular chamber, and a plurality of separate packing-bars resting loosely within the annular chamber and over the opening or space at the inner side of said chamber and arranged between the blades of the piston and having their forward portions connected and movable with the blades and their rear portions loose, substantially as and for the purpose set forth.

2. In a rotary engine, the combination of a casing having an annular chamber and an opening or space at the inner side of said chamber, a rotary piston extending through the said opening or space and provided within the annular chamber with blades, and suitable packing-sections resting loosely within the annular chamber and over the opening or space at the inner side thereof and connected at one end to and movable with the piston-blades and having their opposite ends loose; said packing-sections being adapted to be pressed by steam against the casing so as to prevent the escape of steam through the opening or space at the inner side of the annular chamber, substantially as specified.

3. In a rotary engine, the combination of a casing having an annular chamber and an opening or space on the wall of the chamber, a rotary piston extending through said opening and provided within the annular chamber with blades, and the metallic packing-bars conforming in curvature to the wall of the annular chamber and arranged in said chamber over the opening or space in the wall thereof and having recesses adjacent to one end receiving the blades of the piston and their opposite ends loose; said bars being adapted to be pressed by steam against the casing so as to prevent the escape of steam through the opening or space in the wall of the annular chamber, substantially as specified.

4. In a rotary engine, the combination of a casing having a central air-chamber, an annular piston-chamber surrounding the air-chamber and provided with a space or opening and a seat *t*, in its wall at the inner side thereof, casings intersecting the annular chamber, and inlet and exhaust ports for steam, a shaft journaled in the casing and extending through the air-chamber, a rotary piston fixed with respect to said shaft and extending through the opening or space on the wall of the annular chamber and provided within said chamber with blades, valves for automatically opening and closing the steam-inlet ports, gearing intermediate of the shaft and said valves, gates or partitions, for dividing the annular chamber, provided with openings corresponding in shape and size to the annular chamber, gearing intermediate of the shaft and the gates or partitions, and metallic packing-bars loosely arranged in the seat *t*, of the annular chamber over the opening or space in the wall thereof and also arranged between the blades of the piston and provided adjacent to one end with recesses receiving the piston-blades and having their opposite ends loose, substantially as specified.

586,896. WINDOW FOR LOCOMOTIVE-CABS. WILLIAM P. F. CARROLL, Portland, Me. Filed May 20, 1896. Serial No. 592,990. (No model.)



Claim.—In a folding cab-window, the combination with the sectional sash having spring-hinges designed to normally hold same closed, the lugs carried at the lower ends of the sash-sections, of the hinged sill, the apertured spring-plates in which the said lugs are adapted to engage to hold the sash open, of the top N hinged to the cab and having a rim about its free edge designed to fit over the upper ends of the sash-sections when opened, to cooperate with the said lugs and spring-plates, to lock the window open, all substantially as shown and described.

586,897. ATTACHMENT FOR BICYCLE-HANDLES. JAMES GOVERT, Pittsburg, Pa. Filed Aug. 21, 1896. Serial No. 603,473. (No model.)



Claim.—The combination, with a bicycle-head, of the vertically-adjustable, supplemental steering-handle, the clevis pivotally attached to the center of the handle-bar, the two slotted and curved pieces rigidly attached to said clevis and handle-bar, respectively, and adapted to slide on each other, and a device for clamping them in any adjustment, as shown and described.

586,898. PRINTING-MACHINE. ALFRED F. HARRIS, CHARLES G. HARRIS, and WILLIAM H. SHILEY, Niles, Ohio; said Alfred F. Harris and said Smiley assignors to said Charles G. Harris. Filed Apr. 27, 1895. Serial No. 547,205. (No model.)

Claim.—1. In a printing-press having a cylinder provided with eccentric bearings, an electric circuit, a circuit-closing device lying in the path of the paper to be fed and designed to be held open by the passage of the paper, a second circuit-closing device designed to be intermittently opened and closed, the arrangement being such that if the paper is properly fed the first circuit-closer will be open when the second is closed, and connections between said circuit and said eccentric bearings of said cylinder, as and for the purpose set forth.



2. In a printing-press having a cylinder provided with eccentric bearings and a belt-shifter comprising a spring-impelled rod engaging the belt, an electric circuit, a circuit-closing device lying in the path of the paper to be fed and designed to be held open by the passage of the paper, a second circuit-closing device designed to be intermittently opened and closed, the arrangement being such that if the paper is properly fed the first circuit-closer will be open when the second is closed, and connections between said circuit and said eccentric bearings and said belt-shifter, substantially as set forth.

3. In a printing-press having a cylinder provided with eccentric bearings, an electric circuit, a circuit-closing device having one of its members lying in the path of the sheet to be fed and designed to be closed in the event of more than one sheet being fed at a time, a circuit-closing device at another point in the circuit designed to be intermittently opened and closed, the arrangement being such that if the paper is properly fed one circuit-closer will be open when the other is closed, and connections between said circuit and said eccentric bearings, substantially as set forth.

4. In a printing-press having a belt-shifter comprising a spring-impelled rod engaging the belt, an electric circuit, a circuit-closing device having one of its members lying in the path of the sheet to be fed and designed to be closed in the event of more than one sheet being fed at a time, a circuit-closing device at another point in the circuit designed to be intermittently opened and closed, the arrangement being such that if the paper is properly fed one circuit-closer will be open when the other is closed, and connections between said circuit and said belt-shifter, substantially as set forth.

5. In a printing-press having a cylinder provided with eccentric bearings, an electric circuit, a circuit-closing device in the path of the paper to be fed and designed to be open during the uniform passage of the paper, a circuit-closing device at another point in the circuit having a movable member, and a shaft operated by said cylinder and designed to effect the movement of said member, and connections between said circuit and said eccentric bearings, substantially as set forth.

6. In a printing-press having a shiftable impression-cylinder and a disk on the journal thereof, an electric circuit, a circuit-closing device at one point in the circuit in the path of the paper to be fed and designed to be held open during the uniform passage of the paper, a circuit-closing device at another point in the circuit designed to be intermittently opened and closed, said latter circuit-closing device having a movable member, a periodically-operated rock-shaft to which said movable member is connected, said shaft being operated by said disk, and means for shifting said cylinder controlled by said circuit, substantially as set forth.

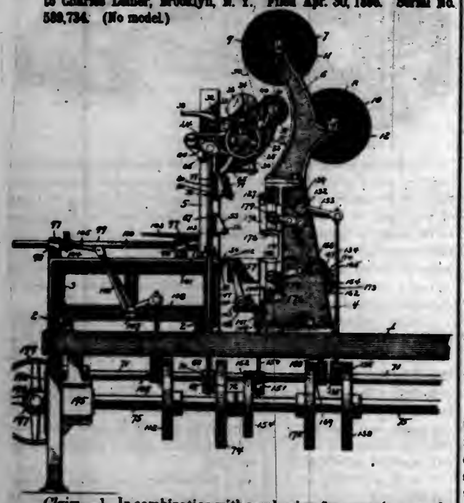
7. In a feeding apparatus for printing-machines, an electric circuit, a circuit-closing device at one point in the circuit lying in the

path of the sheet to be fed and designed to be held open by the passage of the sheet, a circuit-closing device at another point in the circuit designed to be intermittently opened and closed, one of said circuit-closing devices having a movable member, a periodically-operated rock-shaft to which said movable member is connected, a shiftable impression-cylinder, a disk on the journal of said cylinder for operating said rock-shaft, and means for shifting said cylinder controlled by said circuit, as set forth.

8. A printing-press having a shiftable impression-cylinder, a disk carried by said cylinder having a shoulder, means for shifting said cylinder, an electric circuit connected to said means and having contact-points and a switch provided with a movable arm, and an arm engaging said disk and by which said switch-arm is carried, whereby said latter arm is caused to close said circuit simultaneous with the contact of said contact-points in the event of any break or interruption in the feed-supply, as set forth.

9. The combination with a printing-press having fast and loose pulleys, of a shifter comprising a tube or cylinder having a slot, a spring-pressed rod in said tube or cylinder having lateral arms extending through said slot, a locking-lever fulcrumed on said tube and designed to hold said rod retracted, a trap connected to said locking-lever, and an electric circuit connected to said trap, said circuit having two contact-points which close said circuit in the event of any break or interruption in the feed-supply, substantially as set forth.

586,899. PACKAGE FOLDING OR WRAPPING MACHINE. FREDERICK C. HELMUTH, Long Island City, N. Y., assignor of one-sixth to Charles Loffler, Brooklyn, N. Y. Filed Apr. 30, 1896. Serial No. 589,734. (No model.)



Claim.—1. In combination with mechanism for wrapping a package, a device for feeding the wrappers thereto, comprising the paper-rolls, the feed-rolls 26 and 36, the annular recess in the said roll 36 and the feed-roll 40 impinging therein, combined with a mechanism for intermittently rotating the said feed-rolls, substantially as and for the purpose described.

2. A feed-roll device for wrapping-machines, comprising a journaled shaft, a feed-roll secured thereto, a gear-wheel 27 at one end thereof, a click-wheel and stop-pawl adjacent thereto, a click-wheel secured at the other end of said shaft, a sleeve mounted thereon, a pinion and a crank-arm secured to the said sleeve, the said crank-arm bearing a pivoted pawl at its end adapted to engage the click-wheel combined with a journaled roll 36 with a gear-wheel 35 meshing with the said gear 27 and having the annular recess 37 therein, a roll 40 adapted to enter the said recess, and a gear-wheel secured to said roll and meshing the gear-wheel 35, substantially as and in the manner described.

3. In a package-wrapping machine, the combination of wrapping mechanism, means for feeding the wrappers comprising a feed-roll, a click-wheel secured thereto, and rotatable crank-arm with a pawl engaging the same, a wrapper-cutting device comprising a fixed shear, a movable shear, a link and pivoted lever secured thereto, a cam, a roller on the end of the said lever racing in the groove of said cam, a click on the rim of said cam, a pawl pivoted to the said crank-arm and adapted to engage the said click, and a mechanism for actuating the said crank-arm, as and for the purpose described.

4. In combination with a package-wrapping mechanism, a wrapper feeding and cutting device therefor comprising a journaled shaft 25, a feed-roll and click-wheels 28 and 30 secured thereto, a sleeve 56 mounted thereon, the pinion 57 and the crank-arm 58 secured to the said sleeve, the cam 63 movably mounted thereon, clicks 62 and 94 on the rim of the said cam, a cam-actuated segmental gear meshing the pinion 57 and actuating the same and the crank-arm 58, pawls 60 and 61 pivoted to the said crank-arm and adapted to engage the clicks of the wheel 30 and the cam 63, a pawl 95 adapted to stop the said cam, and a shearing mechanism actuated by the said cam, substantially as and in the manner described.

5. In a package-wrapping machine, a wrapper-feeding mechanism, and means for engaging the object therewith combined with a wrapper-folding mechanism therefor comprising a slidable plate, a recess in the machine-frame retaining and guarding the said plate, the projecting shelf or table 142 of said plate, and means for reciprocating the said plate in its seat, substantially as described.

6. In a package-wrapping machine, a wrapper-feeding mechanism and means for engaging the object with the wrappers, combined with a wrapper-folding mechanism, comprising a slidable plate, a recess in the machine-frame retaining and guiding the said plate, a projecting shelf 142 of said plate, a connecting-rod pivotally secured to said plate and to a pivoted lever, and a cam mounted on the main shaft and adapted to actuate the said lever, for the purpose and in manner described.

7. In a package-wrapping machine, a wrapper-folding mechanism therefor comprising a cross-head slidably mounted upon guide-studs, projecting plates secured to the said cross-head, wrist-pins at the end of the said cross-head, the journaled shaft 145, the crank-arms secured thereto and to the wrist-pins, a pinion secured to said journal, a rack-bar meshing said pinion and means for reciprocating the said rack-bar in the manner and for the purpose described.

8. In a package-wrapping machine, a wrapper-folding mechanism therefor, comprising a slidable plate 141, a seat in the machine-frame therefor, means for reciprocating the said plate, guide-studs projecting from said plate, a cross-head sliding on the said studs, projecting plates secured to the said cross-head, combined with means for reciprocating the said cross-head upon its guide-studs, in the manner and for the purpose described.

9. In a package-wrapping machine, a wrapper-folding mechanism therefor, comprising a slidable plate 141, a seat in the machine-frame therefor, means for reciprocating the said plate, guide-studs projecting from said plate, a cross-head sliding on the said studs, projecting plates secured to the said cross-head, wrist-pins at the ends of the said cross-head, the journaled shaft 145, the crank-arms secured thereto and to the said wrist-pins, the pinion 146 secured to the said shaft, a lug 148 projecting from the plate 141, the rack-bar slidably mounted therein and meshing the said pinion, a journaled shaft 161, a slotted lever 160 secured thereto in the slot whereof the rack-bar is pivoted, a lever 162 likewise secured to the shaft 161 and actuated by the segmental cam 165, in the manner and for the purpose described.

10. In a package-wrapping machine, a wrapper-folder mechanism therefor, comprising upper and lower slidable plates 176 seated in recesses in the main frame, a journaled shaft 166, an arm 167 secured to the said shaft and actuated by a cam mounted on the main shaft, the pivoted levers 180 secured to the ends of said shaft and to the lower slidable plates 176, the pivoted levers 182 secured to the upper slidable plates 176 and rod-coupling levers 182 and 180, substantially as and for the purpose described.

11. In a package-wrapping machine, a wrapper-folding mechanism comprising a downwardly-slidable plate with means for actuating the same, an upwardly-slidable plate with means for actuating the same, horizontally-slidable plates mounted upon said upwardly-slidable plate and means for actuating the same, combined with upwardly and downwardly slidable plates with means to cause the same to synchronously approach each other and to recede, substantially as and for the purpose described.

12. In a package-wrapping machine, a wrapper-folding mechanism comprising a horizontal plunger 101 with means for actuating the same, a downwardly-slidable plate with means for actuating the same, an upwardly-slidable plate with means for actuating the same, horizontally-slidable plates mounted upon said upwardly-slidable plate and means for actuating the same, combined with upwardly and downwardly slidable plates with means to cause the same to synchronously approach each other and to recede, substantially as and for the purpose described.

13. In a package-wrapping machine, a mechanism for holding the package in position while being wrapped, comprising a pinion and head, a spring adapted to press the same against the package, a pivoted lever 118 secured thereto and a cam mounted on the main shaft actuating the said lever for the purpose and substantially as described.

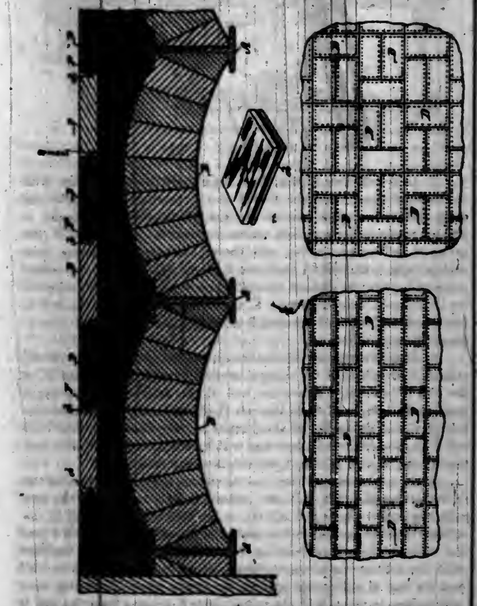
14. In a package-wrapping machine, the combination with mechanism for feeding and cutting wrappers and a mechanism for feeding the article to and for folding the said wrappers, a mechanism for holding the said package while being wrapped, comprising a pinion 115 and head 116, the spring 117 therefor, the release-lever 118 and the cam movement adapted to actuate the said lever, substantially as and for the purpose described.

15. In a package-wrapping machine, a repress device for the completed package, comprising plates, guide-studs therefor, springs actuating said plates and a dog adapted to release and to stop the said plates, in the manner and for the purpose described.

16. In a package-wrapping machine, a repress device for the completed package, comprising plates, guide-studs 188 projecting therefrom, and a piston 189 slidably secured in the machine-frame, the spring 190 actuating the said plates, a dog 191 pivotally secured in said frame, and the notches 193 in said dog adapted to stop the said plates, substantially as and for the purpose described.

17. In a package-wrapping machine, the combination of mechanism for feeding and cutting the wrappers, a mechanism for feeding the article and folding the wrappers thereabout, and a repress mechanism comprising the plates 187, the springs 189 actuating the same and the pivoted dog 191 adapted to stop and to release the said plates, substantially as described.

586,900. FLOORING. ALFRED T. HERBER, Boston, Mass. Filed Dec. 14, 1896. Serial No. 615,541. (No model.)



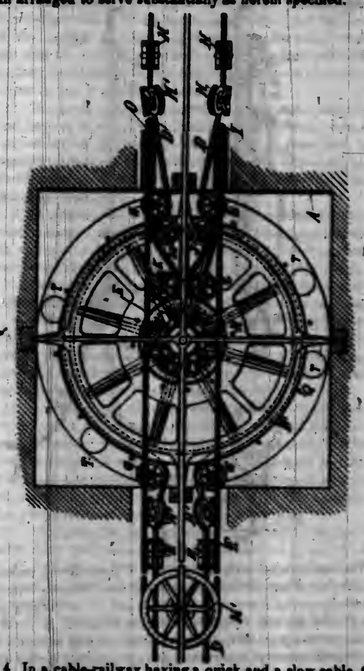
Claim.—The herein-described fireproof flooring consisting of a suitable supporting-base B, a body of concrete C, laid upon said supporting-base, a layer of plastic cement E, placed upon the top surface of the concrete body, and a series of wooden plates D, having their under sides firmly united to said plastic cement layer and their adjacent side edges cemented together, and each plate having meeting side grooves *d*, filled with plastic material F, to form interlocking tongues, substantially as described.

586,901. SECONDARY-CABLE MECHANISM. JAMES T. HUNTER and WILLIAM J. HUNTER, New York, N. Y. Filed Mar. 13, 1897. Serial No. 627,208. (No model.)

Claim.—1. In a cable-railway, a main high-tension cable depressed for an interval of its length, and an auxiliary cable driven from the main cable and located in the depression of the same, in combination with an automatically-yielding tension device exerting a gentle and approximately uniform tension on said auxiliary cable, all arranged to serve substantially as herein specified.

2. In a cable-railway, a main high-tension cable depressed for an interval of its length, and an auxiliary cable located in said interval, in combination with an automatically-yielding tension device exerting a gentle and approximately uniform tension on the cable, and with mechanism for driving the auxiliary cable at a reduced speed by power received from the main cable, all arranged to serve substantially as herein specified.

3. In a cable-railway, a main high-tension cable, and an auxiliary cable, in combination with an automatically-yielding tension device, and with the horizontal wheels B', B², revolving together and engaging the respective cables, and with self engaging and releasing clamps P, all arranged to serve substantially as herein specified.



4. In a cable-railway having a quick and a slow cable, two horizontal wheels B' B² fixed together and engaging the respective cables, in combination with blocks P arranged to grip the cable between themselves and the wheels, and with provisions as the tracks A', A², for automatically operating such grip, all arranged for joint operation substantially as herein specified.

5. In a cable-railway having a quick and a slow cable, two horizontal wheels B' B² fixed together and engaging the respective cables, in combination with blocks P, arranged to grip the cable between themselves and the wheels, the wheels having slots *b* on their working faces serving as guides for the blocks, the slots being widened above the working portions to allow the blocks to be applied and removed, all substantially as herein specified.

6. In a cable-railway having a quick and a slow cable, two horizontal wheels B' B², fixed together and engaging the respective cables, in combination with blocks P arranged to grip the cable between themselves and the wheels, the wheels having slots *b* on their working faces serving as guides for the blocks, and with tracks A', A², arranged to serve camwise to raise and lower such blocks, all substantially as herein specified.

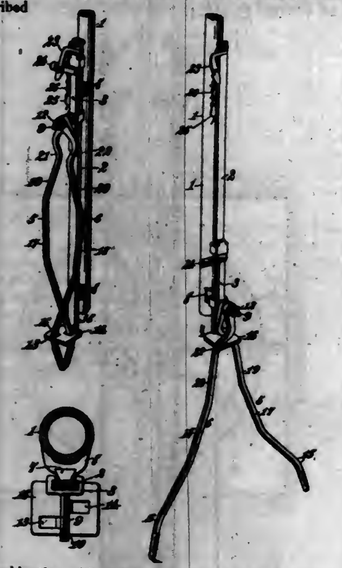
7. In a cable-railway having a quick and a slow cable, two horizontal wheels B', B², fixed together and engaging the respective cables, in combination with blocks P arranged to grip the cable between themselves and the wheels, the wheels having slots *b* on their working faces serving as guides for the blocks, and with tracks A', A², arranged to serve camwise to raise and lower such blocks, and means as the screws Q, R, for adjusting such action, all substantially as herein specified.

8. In a cable-railway having a quick cable and a separate slow cable, two horizontal wheels B' B² fixed together and engaging the respective cables, the slow cable being wound nearly around the small wheel in a single contact, and crossed the two parts of the cable being guided one above the other at the point of crossing, in combination with suitable further guiding-wheels, all arranged for joint operation substantially as herein specified.

586,902. FOLDING BICYCLE-SUPPORT. HENRY H. HUNTER, Berkeley Springs, W. Va., and EDWARD C. PENDLETON, Washington, D. C. Filed Feb. 20, 1897. Serial No. 624,373. (No model.)

Claim.—1. The curved legs crossing each other pivoted to the slide and having in juxtaposition to their pivotal point the abruptly-

bent offsets 21 and 22, combined with a head 4 having sockets or orifices, whereby the legs are suddenly spread apart at or near the limit of their downward motion and are locked extended by the interlocking of the said abrupt-bent offsets with the said head, substantially as described



2. The combination with a slide, and a head having sockets or orifices, of a pair of legs pivotally mounted on the slide and constructed with reversely-curved lower extremities 15 and 16, converging upper portions 19 and 20, and abrupt-bent offsets 21 and 22 in juxtaposition to the pivotal point of the legs, whereby the legs occupy a comparatively small space when elevated, and are suddenly spread widely apart at or near the limit of their downward motion and are locked extended by the interlocking of the said abrupt bent offsets with the said head, substantially as described.

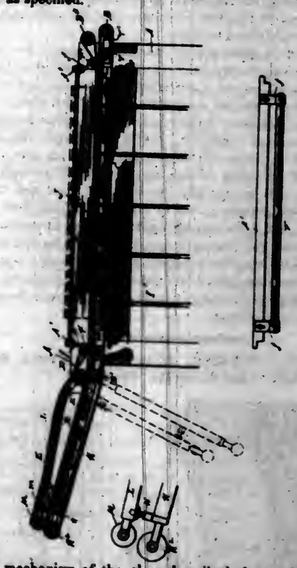
3. The combination of a supporting bar or rod 2, having a head 4, provided with sockets or orifices 13 and 14, a slide 3 having a plate or stud 24, a catch 23 mounted on the upper end of the bar or rod, and pivoted legs 5 and 6 carried by the slide, extending through the sockets or orifices in the head of the bar or rod and constructed with abrupt-bent offsets in juxtaposition to their pivotal point, whereby they are suddenly spread widely apart at or near the limit of their downward motion and are locked extended by the interlocking of the said abrupt-bent offsets with the said head, substantially as described.

4. The combination of a supporting-bar having at its lower end a laterally-projecting head constructed with sockets located at different distances from the bar, a slide movable on said bar and provided with a single pivot-pin, a pair of legs pivotally mounted at their upper ends on said single pivot-pin, constructed with reversely-curved lower extremities, converging upper portions, and abrupt-bent offsets in juxtaposition to the pivot-pin, said legs passing through said sockets of the laterally-projecting head and crossing each other both when the legs are retracted and when they are extended, and locked extended by the interlocking of the said abrupt-bent offsets with said head, substantially as described.

586,903. FOLDING MECHANISM FOR PRINTING-PRESSES. WILLIAM H. JESSUP, Poughkeepsie, N. Y. Filed Feb. 27, 1896. Renewed Mar. 27, 1897. Serial No. 629,576. (No model.)

Claim.—1. In mechanism of the class described, the combination with the rolls B, B', and D and with the tapes C carried by said rolls B and B' of the roll B^3 journaled above the roll B, the series of endless tapes turning from said roll B^3 to the roll D, the vertically-adjustable idle-rolls F, F', and the series of short tapes running from the rear idle-roll F' to the said roll D, substantially as specified.

2. In mechanism of the class described, the combination of the folder having the rolls B, B', the endless tapes C carried by said rolls, the roll D above roll B', the roll B^3 above roll B, the series of tapes B^4 connecting the rolls B^3 and D, the vertically-adjustable idlers F, F', which depress the tapes B^4, and the series of short tapes running from the idler F to the said roll D, together with the delivery or conveyer frame having the series of pulleys K^2 and the roll M above said pulleys, the lower tapes E' running from said pulleys to the roll B', and the upper tapes E running from the roll M to the roll D, substantially as specified.



3. In mechanism of the class described the combination with the folder-frame having the rolls B' and D journaled one above the other at the rear upper portion thereof, of the frame K hinged or pivoted to the folder at points concentric with the axis of roll B', the series of pulleys carried by said frame, the tapes E' running from said pulleys to the roll B', the arms L pivoted to the folder at points concentric with the axis of the roll D, means for adjustably supporting the frame L upon the frame K, the roller M pivoted in the arm L, and a series of tapes E running from the roll M, to the roll D, substantially as specified.

4. In mechanism of the class described, the combination with the rolls B, B' and D, with the tapes C carried by said rolls B and B', of the roll B^3 journaled above the roll B, the series of endless tapes running from said roll B^3 to the roll D, the vertically-adjustable idle-rolls F F' and the series of short tapes running from the rear idle-roll F' to the said roll D, together with means for automatically regulating the tension of the tapes, substantially as specified.

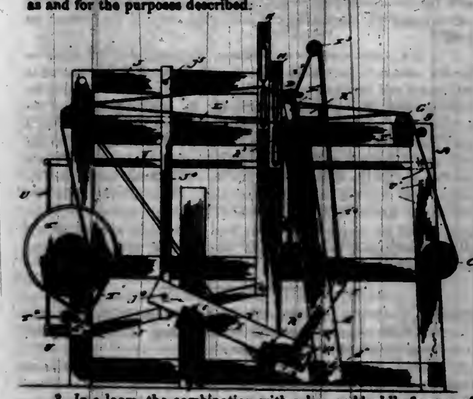
5. In mechanism of the class described, the combination of the folder having the rolls B B', the endless tapes C carried by the said rolls, the roll D above the roll B', the roll B^3 above the roll B, the endless tapes B^4 carried by the said roll B^3 and D, the idlers F F' and the series of short tapes running from roll D to the idler F', together with the delivery or conveyer frame having the series of pulleys K^2 and the roll M above said pulleys, the lower tapes E' running from said pulleys to the roll B', the upper tapes E running from the roll M to the roll D, and edgewise-disposed edge-guiding belts P, substantially as specified.

6. In mechanism of the class described, the combination of the folder-frame, having the rolls B' and D journaled one above the other at the rear upper portion thereof, the frame L connected to the folder-frame adjacent to the roll D, the frame K connected to the said folder-frame adjacent to the roll B', a tape-carrying roller or pulley carried by the rear portion of each of the said frames K and L, the two series of tapes E E' carried by the said rolls B' and D', and the respective rolls or pulleys of the said frames, the edgewise-disposed edge-guiding belts P, one at each side of the series of tapes E E', the laterally-adjustable carrying pulleys for said belts, and adjustable gear for driving the said pulleys, substantially as specified.

586,904. LOOM. WILLIAM P. KIRKPATRICK, Arrowsmith, Ill. Filed Apr. 25, 1896. Serial No. 589,122. (No model.)

Claim.—1. In a loom, the combination with a lay, a breast-beam, provided in its upper side with the notches or recesses *f*, the brackets adjustably fastened to the breast-beam and lying within the notches or recesses thereof, and a cloth-roller, of the conical stretching-rolls G, G' supported on the brackets on the breast-beam in reversed positions diagonally to the longitudinal axis thereof, said stretching-rolls provided with teeth of which those at the outer smallest ends of the rolls are longer than the teeth at the larger ends of said rolls, as and for the purposes described.

2. In a loom, the combination with a lay, a breast-beam, provided in its upper side with notches or recesses, *f*, the brackets adjustably fastened to the breast-beam and lying within the notches or recesses thereof, and a cloth-roller, of the conical stretching-rolls G, G' supported on said brackets, with their conicity reversed to each other and arranged in reversed positions diagonally to the longitudinal axis of said beam, each stretching-roll having teeth of different length inclined in a general direction toward the smaller, outer end thereof, as and for the purposes described.



3. In a loom, the combination with a lay, and heddle-frames, of connectors having a loose or slidable joint between the lay and heddle-frames, whereby the lay may be moved to and fro independently of vertical play of the heddle-frames, as and for the purposes described.

4. In a loom, the combination with a lay and the heddle-frames, of a tiltable frame connected to the heddle-frames to actuate the same, a hand-beam mounted on the lay, and connectors between said hand-beam and the tiltable frame, said connectors having a loose or slidable joint with said tiltable frame, as and for the purposes described.

5. In a loom, the combination with a lay and the heddle-frames, of a slotted tiltable frame connected with said heddle-frames, levers fulcrumed on the lay and loosely connected with the tiltable frame, and a hand-beam connected to the lay and to the levers, as and for the purposes described.

6. In a loom, the combination with a lay and the heddle-frames, of a tiltable frame connected with the heddle-frames and having the slotted front end, the levers fulcrumed on the lay-swords and carrying a pin or rod which fits in the slotted tiltable frame, a hand-beam pivotally attached to the lay, and connections between the hand-beam and the levers, as and for the purposes described.

7. In a loom, the combination with a lay, of a tiltable frame hung within the machine-frame, a heddle-frame pivotally and directly attached to the tiltable frame at one side of its pivot, the pivoted arms J, J' linked to the tiltable frame on the opposite side of its pivot from the heddle-frame, another heddle-frame pivoted to and carried by said pivoted arms, a hand-beam carried by the lay, and connections between the hand-beam and the tiltable frame, as and for the purposes described.

8. In a loom, the combination with shuttle-boxes, a tiltable frame, and means for operating said frame, of pivoted, horizontal, picker-sticks fitted in said shuttle-boxes to travel in horizontal paths therein, upright swords operatively connected with said picker-sticks, an actuator mechanism situated between said upright swords and operatively connected therewith, and means actuated by the tiltable frame and the operating devices to control the actuator device for moving the swords and picker-sticks, as and for the purposes described.

9. In a loom, the combination with shuttle-boxes and horizontal picker-sticks having free ends fitted to travel in arc-shaped horizontal paths, of a picker-throwing mechanism comprising a positively-actuated lever, as P, swords connected with said picker-sticks, and adjustable connections between said lever and said swords, as and for the purposes described.

10. In a loom, the combination with shuttle-boxes, and horizontal picker-sticks having free ends fitted in said shuttle-boxes to travel in a horizontal arc-shaped path therein, of a picker-throwing mechanism comprising picker-swords operatively connected with said picker-sticks, two levers, as P, O, connected together, and connections as N between the picker-swords and one of said levers, as and for the purposes described.

11. In a loom, a picker-throwing mechanism comprising a horizontal actuator-lever P, an upright vibrator operatively connected to said actuator-lever, and swords linked to said upright vibrator, in combination with shuttle-boxes, horizontal picker-sticks operating in said shuttle-boxes, and means to raise and lower the actuator-lever P, as and for the purposes described.

12. In a loom, the picker-throwing mechanism comprising a horizontal actuator-lever P having a forked end, an upright vibrator-lever provided with a foot fitted in said forked end of the actuator-lever, the upright swords, and connections between said upright swords and the upright vibrator-lever, in combination with shuttle-boxes, horizontal picker-sticks, and means to move the actuator-lever P, as and for the purposes described.

13. In a loom, the combination with horizontal picker-sticks, of upright swords having slidable connections at their free ends with said picker-sticks, and means, substantially as described, to vibrate the upright swords and cause their free ends to slide along the picker-sticks while moving the latter in horizontal directions, as and for the purposes described.

14. In a loom, the combination with horizontal picker-sticks, of inherently-elastic upright swords operatively connected to said picker-sticks, and means substantially as described to move said swords and throw the picker-sticks, as and for the purposes described.

15. In a loom, the combination with shuttle-boxes, and horizontal picker-sticks pivoted at one end and fitted, at their other free ends, in said shuttle-boxes, of upright inherently-elastic swords pivoted at their lower ends and having their free upper ends connected with said picker-sticks to have shiftable contact therewith, and means, substantially as described, for impelling said upright swords and the picker-sticks, as and for the purposes described.

16. In a loom, the combination with shuttle-boxes, and horizontal picker-sticks, of the upright swords pivoted at their lower ends, keepers carried by the picker-sticks and embracing the free upper ends of the swords to confine the picker-sticks and swords in operative relation and provide shiftable contact between said parts, and means, substantially as described, to impel the picker-sticks, as and for the purposes described.

17. In a loom, the combination with horizontal picker-sticks, an actuator-lever, and connections between said sticks and the actuator-lever, of a stirrup, a finger fitted in said stirrup to depress the same, and a shoe arranged to lift said actuator-lever, as and for the purposes described.

18. In a loom, the combination with a lay, a tiltable frame, of a horizontal actuator-lever P provided with a pendent stirrup R, a hand-beam, levers I' operatively connected with said hand-beam and having a pin *r* connected to said stirrup R, means carried by said tiltable frame to lift the actuator-lever, an upright vibrator-lever O connected to said actuator-lever, the horizontal picker-sticks, and upright swords linked to the actuator-lever and connected to the picker-sticks, as and for the purposes described.

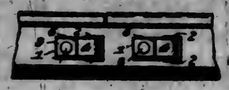
19. In a loom, the combination with a frame having a slotted beam Q, shuttle-boxes, and horizontal picker-sticks fitted therein, of the horizontal lever P fulcrumed in said slotted beam, means to positively raise and lower said lever P, an upright lever O fulcrumed to the beam and connected to the free end of the lever P, the swords M fulcrumed on the beam and having their upper ends connected by shiftable joints with the picker-sticks, and links N pivoted to the lever O and to the swords M, as and for the purposes described.

20. In a loom, the combination with a cloth-roller having a ratchet, of an automatic feed mechanism variable under manual adjustment and comprising the feed-lever S, pawls S', S^2 pivoted to said lever on opposite sides of its fulcrum, a handle attached to the feed-lever and extending to the front of the loom-frame, and an adjustable stop to limit the play of the feed-lever, as and for the purposes described.

21. The combination with a cloth-roller having a ratchet and a heddle-frame, of the loop-shaped pawl-lifter carried by said heddle-frame, a feed-lever slidably fitted in the loop of said pawl-lifter, a retractor connected with said feed-lever to depress the same, feed-pawls connected with said feed-lever, and an adjustable stop to limit the play of the feed-lever, as set forth.

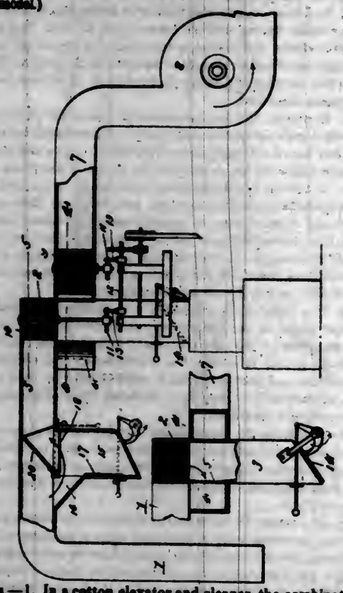
22. In a loom, the combination with a warp-roller having brake-disks, and an equalizer-bar T^2 having straps to engage said disks, of a lever U connected to said equalizer-bar, a hand-lever V extending to the front of the loom-frame, the pitman U' between said levers U, V, and stops with which the front end of the lever V may be adjusted to engage, substantially as described.

586,905. NUT-LOCK. ALBERT W. LAWSON, Hotchkissville, Ala., assignor of three-fourths to Vester M. Stapp and Charles G. Waters, same place. Filed Sept. 25, 1896. Serial No. 606,983. (No model.)



Claim.—In a nut-lock, the combination with the slotted plate having extensions bent outwardly at right angles and formed with triangular slots, of the locking-bar having one end turned outwardly at a right angle and the other end curved inwardly forming a springing, and the pivots, formed integral with said bar and engaging with said triangular slots, substantially as described.

586,906. SEED-COTTON ELEVATOR AND CLEANER. GEORGE LESNER, Pawtucket, R. I. Filed Nov. 30, 1896. Serial No. 613,993. (No model.)



Claim.—1. In a cotton elevator and cleaner, the combination of an elevator-flue, a plurality of cotton-boxes connected therewith, said boxes being divided into sets, screens in said boxes, an exhaust-fan connected to the cotton-boxes, and arranged to draw air through the screens thereof, and means for alternately cutting off each set of boxes from the exhaust-fan and the elevator-flue and simultaneously putting another set of boxes into communication with the exhaust-fan and the elevator-flue whereby the cotton-boxes may be emptied and the screen cleaned without stopping the flow of cotton through the elevator-flue, substantially as described.

2. In a cotton elevator and cleaner, the combination of an elevator-flue, a plurality of cotton-boxes connected therewith, screens in said boxes, an exhaust-fan connected to said boxes and arranged to draw air through the screens thereof, and means for cutting off the elevator-flue and the exhaust-fan from communication with a portion of the boxes and simultaneously putting said fan and flue into communication with another portion of said boxes; whereby the screens of the boxes may be cleaned and the boxes emptied, without interfering with the continuous flow of cotton through the elevator-flue, substantially as described.

3. In a cotton cleaning and elevating mechanism, the combination of an elevating flue, a cross-flue connected thereto, a rotary valve at the junction of these flues, a plurality of cotton-boxes connected to the cross-flue, said boxes being divided into sets, a flue connecting the boxes of each set, said flues being connected at their outlet ends, an exhaust-flue connected to these flues at their connected ends and a rotary valve in this flue at its junction with the connected flues, and means for operating said valves, whereby the cotton will be alternately fed to the different sets of boxes, substantially as described

4. In a cotton cleaning and elevating mechanism the combination of an elevator-flue, a cross-flue connected thereto, a rotary valve at the junction of these flues, a plurality of cotton-boxes connected to the cross-flue, said boxes being arranged in sets, a flue connecting the boxes of each set, at a point below the cross-flue, these latter flues being joined at their outlet ends, an exhaust-flue connected to these flues at the point where they meet, and a rotary valve at the junction of these three flues, screens in the boxes, said screens covering the openings into the flues which connect the boxes of each set, substantially as described.

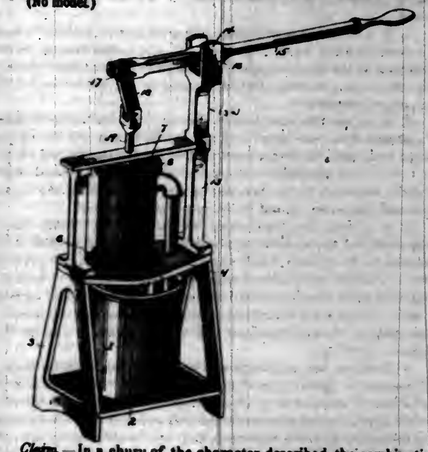
5. In a cotton elevator and cleaner the combination of an elevator-flue 1, a cross-flue 2 connected thereto, a rotary valve 10 at the junction of said flues, a plurality of cotton-boxes connected to the cross-flue said boxes being divided into sets, flues 4 connecting the boxes on each set, said flues being connected to the boxes on their front sides and just below the elevator-flue, said flues 4 extending around the ends of the sets of boxes, the outlet ends of said flues 4 being connected together at a point opposite the point of connection of the flue 1 with cross-flue 2, an exhaust flue connected to these flues at their point of junction, a rotary valve 9 in this flue at its junction with the connected flues 4, and means for simultaneously operating valves 9 and 10, substantially as described and for the purpose set forth.

6. In a cotton elevator and cleaner, the combination of an elevator-flue, cotton boxes connected thereto, an exhaust-fan connected to said boxes and adapted to draw the cotton into them, a toll-box depending from the elevator-flue between its receiving end and the cotton-boxes, a screen covering its opening into the elevator-flue, a gate closing the upper end of the toll-box and covering the screen, said gate being adapted to be swung into position to close the elevator-flue and at the same time to put the exhaust-fan into communication with the toll-box, a chute or short flue extending from the toll-box to the elevator-flue forward of the gate, whereby the cotton and air will be caused to dip down into the toll-box and the air and dirt will be caused to pass upward into the flue from the toll-box, substantially as described.

586,907. PROCESS OF PRODUCING LEATHER-LIKE SUBSTANCES. RICHARD LIEBAUER, Berlin, Germany. Filed Nov. 22, 1895. Serial No. 569,240. (No specimens.)

Claim.—A process for the production of leather-like substances consisting in saturating stuffs or materials containing cellulose fibers, and textile materials, with ammoniac copper and with albuminous substances, treating the material thus obtained with a solution of silicate of potassium and with a solution of chlorid of lime, saturating this material with a solution of resin in carbon disulfid and then drying and pressing the material thus produced, substantially as described.

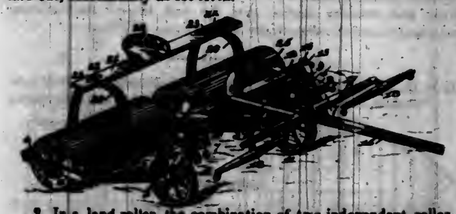
586,908. CHURN. ANDREW MEARNS, Maysville, Ky., assignor to L. W. Galbraith, same place. Filed Aug. 20, 1896. Serial No. 603,269. (No model.)



Claim.—In a churn of the character described, the combination with the stand, the standards and the top having holes therein, of the removable cream-receptacle, the sockets seated in said holes in the top, the downwardly-depending pipes removably connected with said sockets, of the cylinder located on said top having openings in the upper and lower ends and those in the lower ends registering with holes in said top, the alternately-operating check-valves, the opening near the top of said cylinder, the pipe connected therewith and with one of said sockets, and the pistons and piston-rod substantially as described.

586,909. LAND-ROLLER. JAMES M. MILLER, Richland, Ind. Filed July 14, 1896. Serial No. 599,163. (No model.)

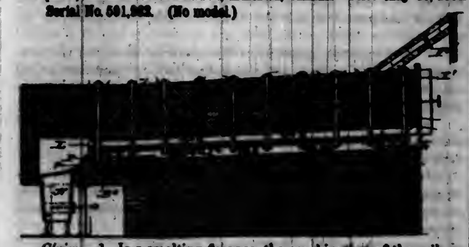
Claim.—1. In a land-roller, the combination of a pair of independent similarly-formed roller-frames placed in transverse alinement, each provided with a draft-frame having its front end curving upwardly and forwardly, a forked frame journaled vertically to the front end of each draft-frame and bearing a pilot-wheel, a bar having direct attachment with the vertical journals of the forked frames and connecting the draft-frames, and means for applying the draft to the said bar, substantially as set forth.



2. In a land-roller, the combination of two independent roller-frames, draft-frames applied to the roller-frames and having their front ends curving upwardly and forwardly, forked frames journaled to the front ends of each of the draft-frames and bearing pilot-wheels, a bar uniting the vertical journals of the forked frames, a pole or tongue having connection with the said bar intermediate of its ends, and braces between the pole and the said bar, substantially as and for the purpose set forth.

3. The herein-described land-roller, comprising independent roller-frames having the rollers journaled thereto, draft-frames having connection with the roller-frames and having their front ends curving upwardly and forwardly, and having a foot-rest and a bearing-sleeve, forked frames journaled in the bearing-sleeves of the draft-frames and bearing pilot-wheels, a bar uniting the vertical journals of the forked frames and adapted to have the draft applied thereto, arched bars spanning the rollers and having their ends connected with the front and rear bars of the roller-frames, and a plate bearing a seat and having adjustable connection with the upper ends of the arched bars, substantially as set forth.

586,910. SMELTING-FURNACE. JOHN D. MCDONALD, Sudbury, Canada, assignor of two-thirds to Richard Watson Demorest, same place, and Rinaldo McConnell, Maltawa, Canada. Filed May 15, 1896. Serial No. 591,962. (No model.)



Claim.—1. In a smelting-furnace, the combination of the rails or ways having notched or cut-out portions, the feeding-carriage moving on said ways or rails and the hangers arranged to support the carriage when it drops in the notches or cut-out portions, substantially as shown and described.

2. The combination of the bed, the ways or rails thereon cut out or notched as described, the swinging links forming hangers, and the carriage arranged to rest in said hangers when the wheels rest in the notches or cut-out portion of the ways or rails, substantially as shown and described.

3. In a smelting-furnace the crucible having its mouth inclined and provided with an inclined plate having portions extended alongside the mouth of the crucible substantially as shown and described.

4. The combination of the jacketed crucible, the ring surrounding the mouth thereof, and the jacketed inclined plate having its upper and lower sections secured above and below said ring-plate, substantially as shown and described.

5. In a smelting-furnace, the combination with the crucible and the inclined plate leading to the mouth thereof, of a deflector arranged on said plate in advance of the mouth of the crucible and adapted to direct the material to the sides of the mouth of the said crucible, substantially as set forth.

6. In a smelting-furnace, the combination of the furnace wall or frame, having longitudinal side grooves, the feed-carriage having at its sides dust-guard plates operating in the grooves of the furnace walls or frame, means for suspending said feed-carriage and means for vibrating the same, substantially as set forth.

7. The combination of the feeder comprising the suspended ore-carriage with the flue leading to the stack or uptake and the hanging damper arranged over the carriage and in advance of said flue, substantially as and for the purpose hereinbefore set forth.

8. The combination of the flue leading to the stack or uptake, the hanging damper and ore-carriage with the suspended hook-links supporting the carriage, the damper being arranged over the carriage and in advance of the flue leading to the stack, substantially as and for the purpose hereinbefore set forth.

9. The combination of the ore-carriage having the wheels with the rails having the slots or cut-out portion and means whereby to suspend said carriage with its wheels in the slots or cut-out portions, substantially as set forth

10. The combination of the ore-carriage and notched or cut-out rails, with the slide operating transversely of said rails and means for suspending the carriage, substantially as set forth.

11. The combination of the ore-carriage, notched or cut-out rails, the slides operating transversely of the rails and the dust-guards extending lengthwise of said carriage, substantially as set forth.

12. In a smelting-furnace, a feeding-carriage having its frame formed with base and upright side sections made hollow and forming water-jackets substantially as shown and described.

13. The combination of the feeding-carriage, the links suspending such a carriage, the furnace-walls and the boxes built in the furnace-walls and formed with chambers through which the links are passed and in which they swing substantially as shown and described.

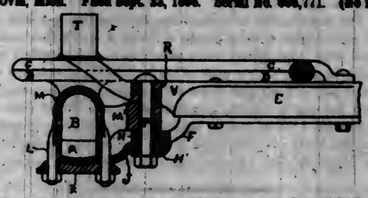
14. The combination of the feeding-carriage, the crucible below the lower end of said carriage, the inclined plate and the divider or deflector, said plate and divider being above the mouth of the crucible, substantially as set forth.

15. In a smelting-furnace, a crucible having its mouth inclined from its upper to its lower side and a plate coinciding with said mouth and extending alongside and from the upper to the lower side thereof substantially as shown and described.

16. The combination with the crucible and the inclined plate at the mouth thereof, of the divider or deflector on said plate above the mouth of the crucible and the slides or gates arranged on said plate alongside the mouth of the crucible, substantially as set forth.

17. In an apparatus substantially as described, the ore-carriage consisting of the frame having jacketed base and upright portions and having the latter provided on their inner faces near the surface of the base with inwardly-projecting ribs, and the wear-plate resting on the base of said frame and held beneath the ribs of the upright portions substantially as shown and described.

586,911. FIFTH-WHEEL FOR VEHICLES. JAMES MCLAUGHLIN, Ovid, Mich. Filed Sept. 23, 1896. Serial No. 606,771. (No model.)



Claim.—1. In combination with the front axle and bed of a vehicle, of a yoke adapted to embrace said axle and bed, said yoke being provided with a rearward projection, said projection provided with an eye adapted to receive the king-bolt, and also provided with an opening adapted to receive one leg of a clip, a clip adapted to clasp the yoke and attach the same to the axle, one leg of said clip passing through the opening, substantially as and for the purpose described.

2. In combination with an axle of a vehicle, a yoke provided with a projection as M', an eye as N, lugs adapted to rest against the bed, and a clip having one of its legs passing through an opening as S and adapted to attach the yoke to the axle, substantially as described.

3. The combination with an axle, of a yoke provided with an eye N, upper reach-irons having an iron R, lower reach-irons having two registering eyes H, H', of unequal diameter, a brace J fixed to the axle provided with an eye arranged between and registering with the eyes H and H', a bushing arranged in the eyes R, N and H and resting at its lower end on the upper surface of the eye H', and a king-bolt fitted in the bushing, substantially as described.

4. In combination with a king-bolt of a vehicle, reaches, and reach-irons provided with two eyed projections as H and H', a brace as J having one end fitting between H and H' and the other end secured to the vehicle-axle, substantially as described.

586,912. CHAIN-ADJUSTING DEVICE. FREDERICK J. OSBORN, Moseley, England. Filed Dec. 1, 1896. Serial No. 614,691. (No model.) Patented in England Feb. 5, 1894, No. 2,280, and in France Nov. 3, 1894, No. 242,897.

Claim.—1. The combination of a chain-stay fork constructed with longitudinal, hollow ends, each angular in cross-section, and an-

gular blocks movable in said hollow ends and provided with screw-threaded sockets, with a wheel-spindle having screw-threaded extremities engaging the screw-threaded sockets of said angular blocks, and means for adjusting said blocks longitudinally in the hollow angular ends of the chain-stay fork, substantially as described.



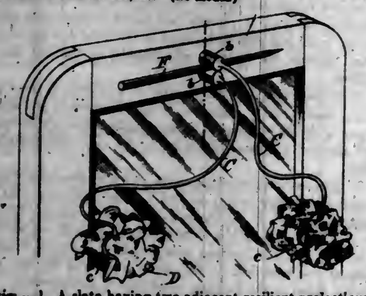
2. The combination of a chain-stay fork constructed with longitudinal, hollow ends, each angular in cross-section, and angular blocks movable in said hollow ends and provided with screw-threaded sockets and attached longitudinal screw-pins, with a wheel-spindle having screw-threaded extremities engaging the screw-threaded sockets of the angular blocks, and screw-nuts engaging the screw-pins for adjusting the angular blocks longitudinally in the hollow ends of the stay-fork, substantially as described.

3. The combination of a chain-stay fork constructed with longitudinal, hollow ends, each angular in cross-section, and angular blocks movable longitudinally in said hollow ends and provided with screw-threaded sockets and longitudinal screw-pins, with a wheel-spindle having screw-threaded extremities engaging the screw-threaded sockets of the angular blocks, screw-nuts engaging the screw-pins for adjusting the angular blocks longitudinally in the hollow angular ends of the stay-fork, and a locking device adjustable longitudinally of the wheel-spindle, substantially at right angles to the line of adjustment of the angular blocks, for locking the latter in their adjusted position, substantially as described.

4. The combination of a chain-stay fork constructed with longitudinal, hollow ends, each angular in cross-section, and angular blocks movable in said hollow ends and provided with screw-threaded sockets, with a wheel-spindle having screw-threaded extremities engaging the screw-threaded sockets of the angular blocks, means for adjusting the blocks longitudinally in the hollow angular ends of the stay-fork, and locking-nuts adjustable longitudinally of the wheel-spindle for locking the angular blocks in their adjusted position, substantially as described.

5. The combination of a chain-stay fork constructed with longitudinal, hollow ends, angular blocks movable in said hollow ends and provided with longitudinal screw-pins, closing-caps applied to the rear portions of the hollow ends of the stay-fork and through which said screw-pins extend, and screw-nuts engaging said screw-pins for adjusting the angular blocks longitudinally in the hollow ends of the stay-fork, with a wheel-spindle having its extremities engaged with said angular blocks and provided with a locking-nut for locking the angular blocks in their adjusted position, substantially as described.

586,918. SLATE. RICHARD T. PATTON, Savannah, Ga.; Julia I. Patton administratrix of said Richard T. Patton, deceased. Filed Dec. 10, 1896. Serial No. 615,323. (No model.)

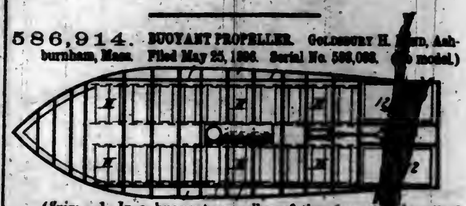


Claim.—1. A slate having two adjacent resilient projections extended from the frame thereof adapted for clamping a pencil, said projections having strings extended therefrom for retaining the device on the ends thereof for engagement with cleansing material, substantially as shown and described.

2. The combination of a slate and two adjacent projections extended from the face of the frame thereof, said projections being of resilient material and having strings extended therefrom, which strings have securing devices upon their outer ends for engagement with material adapted for cleansing the slate, substantially as shown and described.

3. The combination of a slate-frame with two plugs of rubber or other resilient material secured thereto, said plugs having heads thereon for engagement with a pencil, and strings projected therefrom, and retaining devices upon the ends thereof for receiving cleansing material, substantially as shown and described.

586,914. BUOYANT PROPELLER. GOLDSBURY H. POND, Ashburnham, Mass. Filed May 25, 1896. Serial No. 593,093. (No model.)



Claim.—1. In a buoyant propeller of the character described the combination with the endless rails, comprising the horizontal portions, and the connecting portions made on a compound curve, of the endless series of pontoons hinged together and resting on the rails, and the driving-wheels carried by said rails, substantially as described.

2. In a buoyant propeller of the character described the combination with the endless rails, the endless series of pontoons hinged together, and the wheels carried thereby, of the paddle-wheels connected with said rails and means for operating the same, substantially as specified.

3. In a buoyant propeller of the character described the combination with the endless rails and the rotatable guide-wheels thereon, of the endless series of pontoons hinged together, the transverse shafts secured thereto, projecting beyond the ends of the same, and adapted to engage with said wheels, and the flanged wheels journaled on said shafts, substantially as described.

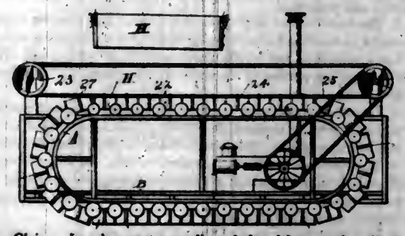
4. In a buoyant propeller of the character described the combination of the endless rails comprising the horizontal portions and the double-curved connecting portions, the horizontal guard-rails below said rails having their ends turned up concentric with said connecting portions, the endless series of pontoons hinged together and resting upon said rails, the transverse shafts extending beyond the ends of said pontoons, and the flanged wheels, substantially as described.

5. In a buoyant propeller of the character described the combination with the endless rails, the endless series of pontoons hinged together, and the supporting flanged wheels, of the boat-like frame inclosing said pontoons, substantially as specified.

6. A pontoon for a buoyant propeller of the character described, provided with a single transverse paddle and a horizontal keel at each end, substantially as specified.

7. In a buoyant propeller of the character described the combination with the frame, of the endless tracks secured thereto, consisting of the upper and lower horizontal portions and the compound or double-curved ends substantially as described.

586,915. BUOYANT PROPELLER. GOLDSBURY H. POND, Ashburnham, Mass. Filed May 25, 1896. Serial No. 593,094. (No model.)



Claim.—In a buoyant propeller of the character described, the combination with the endless rails, the pontoons hinged to each other and the wheels connected therewith, and the spring-clamps at the ends of the pontoons, of the pulleys, the endless horizontal cables, the lower runs of which engage with and are gripped by said clamps and means for operating said cables, substantially as described.

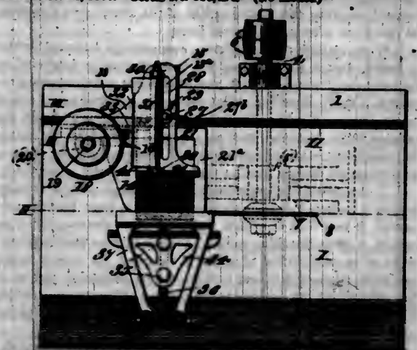
586,916. BUOYANT PROPELLER. GOLDSBURY H. POND, Ashburnham, Mass. Filed May 25, 1896. Serial No. 593,095. (No model.)

Claim.—1. In a buoyant propeller of the character described, the combination with the endless series of pontoons hinged together as shown, of the automatically-operating paddles connected with said pontoons, substantially as specified.

2. The combination with the pontoon the plates secured thereto, and the rods secured to said plates, of the rectangular paddle having a projection at each end sliding between said rods and the pontoon, substantially as described.



586,917. MACHINE FOR DRESSING PRINTERS' BLOCKS. CARL SCHRAUBSTADTER, Jr., and CHARLES B. SCHILLING, St. Louis, Mo., assignors to the Western Engravers' Supply Company, same place. Filed Dec. 21, 1896. Serial No. 616,454. (No model.)



Claim.—1. A machine for dressing printers' blocks, comprising a slide having a forwardly-projecting clamp-arm, a rearwardly-projecting arm, and a rack, an L-shaped clamp-plate having sliding connection with the slide beneath the rack, a stem secured to the clamp-plate adjacent to the rack, a knob having a helical thread for engaging the rack to adjust the clamp-plate with relation to the clamp-arm, and an adjustable stop-plate located on the rearwardly-projecting arm; substantially as described.

2. A machine for dressing printers' blocks, comprising a slide having a forwardly-projecting clamp-arm, a rearwardly-projecting arm and an inclined rack, an L-shaped clamp-plate having sliding connection with the slide beneath the rack, a stem secured to the clamp-plate adjacent to the rack, a movable knob mounted on the stem, having a helical thread for engaging the rack to adjust the clamp-plate with relation to the clamp-arm, and an adjustable stop-plate located on the rearwardly-projecting arm; substantially as described.

3. A machine for dressing printers' blocks, comprising a slide having a tooth-pin, a forwardly-projecting clamp-arm, a rearwardly-projecting arm, and a rack, an L-shaped clamp-plate having sliding connection with the slide beneath the rack, a stem secured to the clamp-plate adjacent to the rack, a knob having a helical thread for engaging the rack to adjust the clamp-plate with relation to the clamp-arm, an adjustable stop-plate located on the rearwardly-projecting arm, and a gage hinged to the stop-plate, having teeth with which the toothed pin engages; substantially as described.

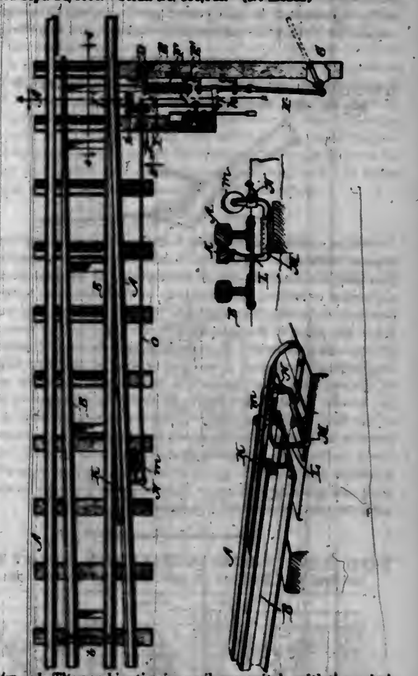
4. A machine for dressing printers' blocks, comprising a slide having a forwardly-projecting clamp-arm, a rearwardly-projecting arm, and a rack, an L-shaped clamp-plate having sliding connection with the slide beneath the rack, a stem secured to the clamp-plate adjacent to the rack, a knob having a helical thread for engaging the rack to adjust the clamp-plate with relation to the clamp-arm, and an adjustable stop-plate located on the rearwardly-projecting arm, and an adjustable straight-edge; substantially as described.

5. A machine for dressing printers' blocks, comprising a slide having a forwardly-projecting clamp-arm, a rearwardly-projecting arm, and a rack, an L-shaped clamp-plate having sliding connection with the slide beneath the rack, a stem secured to the clamp-plate adjacent to the rack, a knob having a helical thread for engaging the rack to adjust the clamp-plate with relation to the clamp-arm, an adjustable stop-plate located on the rearwardly-projecting arm, and the hinged straight-edge; substantially as described.

6. A machine for dressing printers' blocks, comprising a slide having a forwardly-projecting clamp-arm, and a rearwardly-projecting arm, an L-shaped clamp-plate having sliding connection with the slide, means for adjusting the clamp-plate with relation to the clamp-arm, and an adjustable stop-plate located on the rearwardly-projecting arm; substantially as described.

7. A machine for dressing printers' blocks, comprising a slide having a tooth-pin, a forwardly-projecting clamp-arm, and a rearwardly-projecting arm, an L-shaped clamp-plate having sliding connection with the slide, means for adjusting the clamp-plate with relation to the clamp-arm, an adjustable stop-plate located on the rearwardly-projecting arm and a gage hinged to the stop-plate having teeth with which the toothed pin engages; substantially as described.

586,918. RAILROAD-SWITCH. CHARLES TROUP, Waterloo, Ill. Filed Sept. 24, 1896. Serial No. 606,940. (No model.)



Claim.—1. The combination in a railway-switch, with the switch-points, of the locking-bar pivoted between its ends and arranged at its inner end to engage the switch-point and having its outer end beveled, and the hand devices for operating said switch-points having a moving part engaged with the beveled edge of the locking-bar substantially as shown and described.

2. The combination with the switch-points, of the locking-bar pivoted between its ends and engaged at its inner end with the switch-point, a bell-crank lever having one arm engaged with the outer arm of the locking-bar, a rod connected with the other arm of said lever, a shaft having at one end a crank connected with said rod, a second crank on said shaft and a tripping device arranged to engage said second crank substantially as shown and described.

3. The improvement in railway-switches herein described consisting of the switch-points, a lock consisting of a bar pivoted between its ends and arranged at its inner end to engage the switch-point and having its outer end beveled, the hand-operated devices having a moving part engaging said beveled end of the lock-bar, a slide-rod extended through a suitable guide and a nut threaded on said slide-rod and a spring bearing between said nut and guide, a bell-crank lever engaging the outer arm of the locking-bar, a shaft having a crank at its outer end connected with said bell-crank lever, and also provided with a crank at its inner end and a tripping device engaging and operating said inner crank, substantially as shown and described.

4. The combination in a railway-switch of the switch-points, the locking-bar pivoted between its ends and arranged at its inner end to engage the switch-point, and the hand devices connected with and operating such switch-points and having a moving part engaging and operating the locking-bar substantially as shown and described.

5. The combination of the switch-points, the locking-bar extending transversely such points and having its inner arm engaging one of such points, and the target connected with the outer end of said locking-bar substantially as shown and described.

6. The combination of the switch, the locking-bar, the bell-crank lever having one arm engaging the outer arm of the locking-bar, a

connecting-rod connected with the other arm of said bell-crank lever, the tripping device and the bell-crank lever between said tripping device and the connecting-rod substantially as shown and described.

7. The combination of the switch, the slide-rod connected therewith, a spring by which to actuate said rod, and the hand device having a portion moving into and out of engagement with the slide-rod whereby to actuate the same substantially as shown and described.

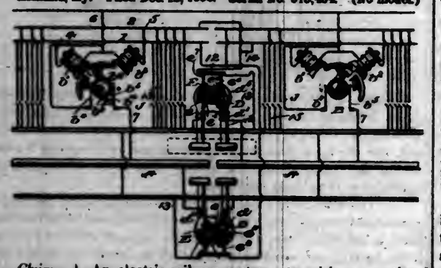
8. The combination of the switch, the slide-rod connected therewith, a spring operating said rod in one direction, the pivoted locking-bar engaged at its inner end with the switch-point, and the switch-operating device having a sliding part by which to actuate the slide-rod in opposition to its spring and a portion by which to engage and release the locking-bar substantially as shown and described.

586,919. DUST-PAN. ARMI L. VUILLEM, Brooklyn, N. Y. Filed May 23, 1895. Serial No. 550,287. (No model.)



Claim.—A dust-pan having a sectional handle comprising semi-tubular sections of which one is integral with the pan-body, and provided in alinement with its handle with an integral longitudinal depression extending approximately to the transverse center of the pan-body to prevent bending upon a transverse line, and depending below the plane of the bottom or floor of said body to form a rounded heel-rest upon which the pan-body may be rocked laterally and longitudinally to secure a uniform bearing of the front edge or toe of the pan-body upon the surface to be swept, the upper section of the handle having a flat tongue or extension arranged in the plane of the floor of the pan-body to close the open upper side of said depression, said upper handle-section and tongue being secured respectively to the lower handle-section and pan-body at their remote extremities, and a hood or guard attached to the rear edge of the pan-body and spanning said upper handle-section to secure it at an intermediate point, substantially as specified.

586,920. ELECTRIC-RAILWAY SYSTEM. HARLAN P. WELLMAN, Ashland, Ky. Filed Dec. 12, 1896. Serial No. 615,484. (No model.)



Claim.—1. An electric-railway system comprising a sectional conductor, a feed-in switch for each section for controlling the electric current thereto, a short-circuiting switch initially partially charged by the current of one section of said conductor, and means for operating said short-circuiting switch and completing the charge thereof, whereby it will throw in circuit, with another section of said conductor, the feed-in switch of the latter, as set forth.

2. An electric-railway system comprising a sectional conductor, a feed-in switch for each section, sectional wires, a main feeder-wire in circuit with said switch, a short-circuiting switch in circuit with one of said sectional wires, and designed to be initially partially charged by the current in one section, and means for operating said short-circuiting switch by completing the charge thereof, whereby through such latter wire the feed-in switch of the next forward section will be operated for cutting the current from said feed-wire into the conductor of said section, substantially as set forth.

3. An electric-railway system comprising a sectional conductor, a feed-in switch for each section, sectional wires in circuit with said feed-in switch, a main feeder-wire connected to said feed-in switch, a short-circuiting switch in circuit with one of said sectional wires and designed to be initially partially charged by the current in one section, and means carried by a motor-car for operating said short-circuiting switch by completing the charge thereof, whereby the feed-in switch of the next forward section will be operated, substantially as set forth.

4. An electric-railway system, comprising a sectional conductor, a feed-in switch for each section, sectional wires in circuit with said feed-in switch, one of said wires of one section being in circuit with the other wire of the adjacent section, a feeder-wire in circuit with said feed-in switch, a short-circuiting switch in circuit with one of said sectional wires and designed to be initially partially charged by the current in one section, and means carried by a motor-car for operating said short-circuiting switch by completing the charge thereof, whereby the feed-in switch of the next forward section will be operated, substantially as set forth.

5. An electric-railway system, comprising a sectional conductor, a feed-in switch for each section, constantly charged with electricity, the main feeder-wire connected to said feed-in switch, sectional wires alternately connected and both in circuit with said feed-in switch, a short-circuiting switch having an electromagnet in circuit with one of said sectional wires and designed to be initially partially charged by the current in one section, and means carried by a motor-car for operating said short-circuiting switch by completing the charge thereof, whereby the feed-in switch of the next forward section will be operated, substantially as set forth.

6. An electric-railway system, comprising a sectional conductor, a feed-in switch for each section thereof, a main feeder-wire connected to said feed-in switch, sectional wires also connected to said switch, a short-circuiting switch having an electromagnet connected to one section of said conductor, the neutral portion of said electromagnet being removed, and an inductor carried by the motor-car for contacting with and operating said electromagnet by temporarily supplying the neutral portion thereof, substantially as set forth.

7. An electric-railway system, comprising a sectional conductor, a feed-in switch for each section thereof, a main feeder-wire connected to said feed-in switch, sectional wires also connected to said switch, a short-circuiting switch having a bipolar electromagnet the yoke or neutral portion of which is removed, the coils of said magnet being connected to one section of said conductor, and an inductor carried by the motor-car for having sliding contact with said electromagnet and acting as the neutral portion thereof, substantially as set forth.

8. In an electric-railway system, a short-circuiting switch comprising an electromagnet having its yoke or neutral portion removed, and means carried by the motor-car for engaging said electromagnet and temporarily supplying said yoke or neutral portion, as set forth.

9. In an electric-railway system, a short-circuiting switch comprising an electromagnet having its yoke or neutral portion removed, and an inductor carried by the motor-car designed to have sliding contact with said magnet and temporarily supplying said yoke or neutral portion, as set forth.

10. In an electric-railway system, a short-circuiting switch having a magnet the cores of which are disconnected at one end, and an inductor carried by the motor-car and designed to contact with the said disconnected ends of said cores, as set forth.

11. The short-circuiting switch having an electromagnet the cores of which are disconnected, a waterproof box for said magnet, and a non-magnetic cover therefor having openings through which the upper ends of said cores project, and a waterproof compound surrounding said cover at its connection to said casing, as set forth.

12. In an electric-railway system, a short-circuiting switch having an electromagnet the yoke or neutral portion of which is removed, the feeder-wire, sectional wires, a feed-in switch to which said wires are connected, an armature adjacent to said magnet, connections between said short-circuiting switch and said feed-in switch, and an inductor carried by the motor-car designed to contact with said electromagnet and temporarily supply the yoke or neutral portion thereof, substantially as set forth.

13. An electric-railway system comprising a sectional conductor, sectional wires, a feeder-wire, a feed-in switch to which said wires are connected and in circuit with said sectional conductor, a short-circuiting switch having an electromagnet in circuit with said sectional conductor, said magnet having its yoke or neutral portion removed, an armature designed to be acted upon by said electromagnet, and an inductor carried by the motor-car designed to engage said magnet and temporarily supply the yoke or neutral portion thereon, substantially as set forth.

14. A switch having an electromagnet, a pivotally-mounted armature, opposite lugs carried by said armature, connected in series, and spring contact-arms connected in separate series and designed when contacting with said lugs to close a circuit, substantially as set forth.

15. A switch having an electromagnet, a pivotally-mounted armature, an insulated cylinder carried by said armature having opposite lugs connected in series, and spring-arms connected in separate series and designed when connecting with said lugs to close a circuit, substantially as set forth.

16. In an electric-railway system, short-circuiting switches located adjacent to the track-rails and having each an electromagnet the yoke or neutral portion of which is removed, the neutral ends of said magnet being exposed between said track-rails, an armature designed to be acted upon by said magnet and carrying a circuit-closer, and an inductor carried by the motor-car designed to have sliding contact with said neutral ends, whereby said magnet will act on said armature, substantially as set forth.

17. A feed-in switch comprising two spaced-apart magnets, an armature pivoted at its reduced end on a vertical line midway between and below said magnets, contact-lugs connected in series carried by said armature at or on line with said pivot, and two series of contact-arms designed to be engaged with said lugs when one of said magnets acts on said armature, substantially as set forth.

18. In an electric railway system having sectional conductors, sectional wires and a feeder-wire, a feed-in switch to which said wires are connected, said switch having electromagnets, a pivoted armature carrying opposite lugs connected in series, spring-arms connected in two series, and connected to said feeder-wire and said sectional conductor, and means for operating said electromagnets, whereby the current can be cut through said series of arms into said sectional conductor, substantially as set forth.

19. In an electric-railway system having sectional conductors, sectional wires and a feeder-wire, a feed-in switch to which said wires are connected, said switch having electromagnets, a pivoted armature carrying opposite lugs connected in series, spring-arms connected in two series, and connected to said feeder-wire and a short-circuiting switch having an electromagnet, an armature carrying opposite lugs connected in series, and connected to said sectional conductor, and an inductor carried by the motor-car designed to contact with and operate said short-circuiting switch, whereby said feed-in switch will be operated, said sectional switch being in circuit therewith, substantially as set forth.

20. In an electric-railway system having short-circuiting switches provided with electromagnets, the yokes or neutral portions of which are removed, a motor-car having an elongated inductor designed to have sliding contact with said electromagnets, and means for raising and lowering said inductor, substantially as set forth.

21. In an electric-railway system having short-circuiting switches provided with electromagnets, the yokes or neutral portions of which are removed, a motor-car having an elongated inductor designed to have sliding contact with said electromagnets, said inductor being composed of a flexibly-supported bar, a series of metallic plates connected together and carried by said bar, and means for raising and lowering said inductor, substantially as set forth.

22. In an electric-railway system having short-circuiting switches provided with electromagnets, the yokes or neutral portions of which are removed, a motor-car having an elongated inductor designed to have sliding contact with said electromagnets, said inductor being composed of a bar and a series of metallic plates, pivoted links supporting said bar, springs to which said links are connected, and means connected to one of said links for raising and lowering said inductor, substantially as set forth.

23. In an electric-railway system having a short-circuiting switch adjacent to the track-rails, a motor-car, an inductor flexibly supported thereby, and a pneumatic device connected to said inductor for raising or lowering the same, as set forth.

24. In an electric-railway system having a short-circuiting switch adjacent to the track-rails, a motor-car, an inductor flexibly supported thereby, a buffer designed to be struck when said inductor is lowered, and a pneumatic device connected to said inductor, as and for the purpose set forth.

25. The combination with the motor-car and the pivotally-supported inductor, of the pneumatic device comprising a cylinder, a piston, the rod of which is connected to said inductor, a grooved cross-head, and a spring-pressed catch designed to engage said grooved cross-head, substantially as set forth.

586,921. BALL-BEARING. GEORGE WOOD, Newark, N. J., assignor, by mesne assignments, of one-half to Annie Milne, same place. Filed Feb. 18, 1897. Serial No. 623,894. (No model.)



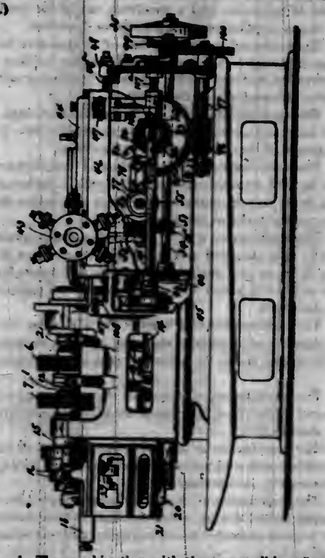
Claim.—1. The combination with a hub, of a roller-bearing at each end, one member of one of which bearings is movable, an axle passing through said hub, and a rod fitted in said axle for adjusting said movable member, substantially as described.

2. The combination with a hub, of a roller-bearing at each end, one member of which is movable and provided with a pin or lug, an axle passing through said hub and bearings and provided with a slot into which said pin projects, and a rod fitted in said axle and bearing against said pin for adjusting said movable member, substantially as described.

3. The combination with a hub, of a set of balls in each end thereof, a cup at each end, a slotted and hollow axle passing through said hub, cones on said axle, one of which is movable, and provided with a pin or lug extending into the slot therein, said cones bearing against said balls, and a rod threaded into said hollow axle, one end of which bears against said lug for moving the cone, and the other end projecting out beyond said axle, substantially as described.

4. The combination with a hub A, of cups fitted in the ends thereof, a set of balls contained in said cups, a hollow axle passing through said hub and provided with a slot A, a cone G secured to said axle and bearing against one of said sets of balls, a cone H, movable on said axle, a pin or lug i, secured to said cone H, and projecting through said slot, a rod I threaded into said hollow axle, having one end bearing against said lug and its opposite end projecting out beyond said axle, and a lock-nut O, threaded on said rod, and fitting against the end of said axle, substantially as described.

586,922. METAL-SCREW MACHINE. SAMUEL I. WORMLEY, Taunton, Mass., assignor to The Brown & Sharpe Manufacturing Company, Providence, R. I. Filed Nov. 13, 1896. Serial No. 611,970. (No model.)



Claim.—1. The combination with the turret-slide, of an adjustable bed on which said slide is mounted, and automatic mechanism for operating said slide, substantially as described.

2. The combination with the turret-slide, of an adjustable bed on which said slide is mounted, and automatic mechanism carried by said bed for operating said slide, substantially as described.

3. The combination with the turret-head, and turret-slide, of an adjustable bed on which said turret-slide is mounted, and automatic mechanism for operating the turret-head and turret-slide, substantially as described.

4. The combination with the turret-head and turret-slide, of an adjustable bed on which said turret-slide is mounted, and mechanism for operating said turret-head and turret-slide carried by said adjustable bed, substantially as described.

5. The combination with the turret-slide, of an adjustable bed on which said slide is mounted, mechanism for operating said slide, a shaft mounted in stationary bearings and so connected with said mechanism that the adjustment of said bed will not interfere with the operation of said mechanism, substantially as described.

6. The combination with the turret-slide, of an adjustable bed on which said slide is mounted, mechanism carried by said bed for operating said slide, a shaft mounted in stationary bearings and gearing between said shaft and said mechanism, substantially as described.

7. The combination with the turret-head and turret-slide, of an adjustable bed on which said slide is mounted, mechanism carried by said bed for operating said turret-head, a driving-shaft mounted in

stationary bearings, and gearing connecting said shaft and said mechanism, substantially as described.

8. The combination with the turret-head and turret-slide, of an adjustable bed on which said turret-slide is mounted, mechanism for operating said turret-head and turret-slide carried by said adjustable bed, a driving-shaft mounted in stationary bearings and connected to drive said mechanisms, substantially as described.

9. The combination with the turret-head and turret-slide, of an adjustable bed on which said slide is mounted, a driver carried by said bed for operating said turret, and means for controlling the operation of said driver, substantially as described.

10. The combination with the turret-head and turret-slide, of an adjustable bed on which said slide is mounted, a driver carried by said bed for operating said turret-head, and means also carried by said bed for controlling the operation of said driver, substantially as described.

11. The combination with the turret-head, of a driver for operating said head, and means comprising a series of adjustable tappets for controlling the operation of said driver, substantially as described.

12. The combination with the turret-head, of a driver for operating said head, means for holding said driver out of operation, and a tappet for operating said holding means, substantially as described.

13. The combination with the turret-head, of a driver for operating said head, means for holding said driver out of operation, and a series of tappets for operating said holding means, substantially as described.

14. The combination with a driver, of means for holding said driver out of operation, and a revolving tappet for rendering said holding means inoperative, substantially as described.

15. The combination with a driver, of a cam connected with said driver, an abutment in the path of said cam for holding the driver out of operation, and a revolving tappet for rendering said abutment inoperative, substantially as described.

16. The combination with the feeding-tube, of lugs connected with said tube, and a reciprocating slide provided with a pivoted arm for engaging said lugs, substantially as described.

17. The combination with a standard, a tool-support mounted to rotate in said standard and provided with a series of duplicate engaging faces, an arm engaging said faces, and means for adjusting said arm, substantially as described.

18. The combination with a standard, a tool-support mounted to rotate in said standard and provided with a series of duplicate engaging faces, an arm engaging said faces, and means for adjusting said arm and holding said support in its adjusted position, substantially as described.

19. The combination of a support for a circular tool provided with a plurality of duplicate engaging surfaces, an arm engaging said surfaces, and means for adjusting said arm, substantially as described.

20. The combination of a stud for supporting a circular tool, an arm secured to said stud, and means for adjusting said arm, substantially as described.

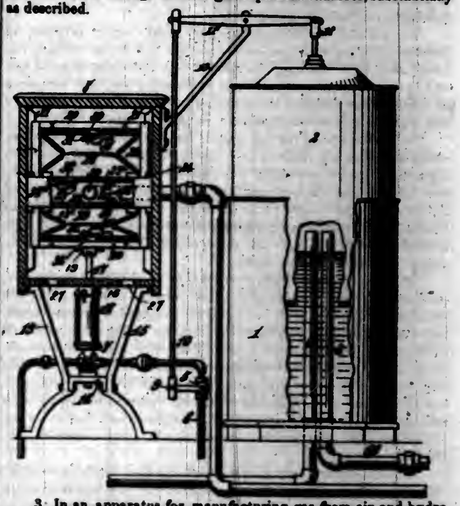
21. The combination of a stud for supporting a circular tool, an arm secured to said stud, and a screw-threaded rod for adjusting said arm, substantially as described.

22. The combination of a stud for supporting a circular tool, an arm secured to said stud, a screw-threaded rod connected with said arm, and a screw-threaded sleeve engaging said rod, substantially as described.

586,923. APPARATUS FOR MANUFACTURING GAS. ALBERT R. ALDRICH, Lexington, Ky., assignor of one-tenth to Frank M. Flenner, same place. Filed June 24, 1896. Serial No. 596,744. (No model.)

Claim.—1. In an apparatus for manufacturing gas from air and hydrocarbon liquid, the combination of a gas-holder, a carbureter, a hydrocarbon-reservoir communicating with a carbureter through an automatic-valve mechanism for controlling the flow of hydrocarbon liquid from said reservoir to the carbureter, a gas-expansion chamber located in the upper part of the hydrocarbon-reservoir and in communication therewith through a small vent, pipe connections for conducting gas from the carbureter to said expansion-chamber and from said chamber to the gas-holder, an air-pump for supplying air to the carbureter, a hydraulic motor for operating said air-pump, a valve for controlling the supply of water to said motor, and means for automatically opening and closing said valve from a moving part of the gas-holder, substantially as described.

2. In an apparatus for manufacturing gas from air and hydrocarbon liquid, the combination of a gas-holder, a carbureter, an air-pump for supplying air to the carbureter, means for automatically controlling the operation of the air-pump from a movable part of the gas-holder, a hydrocarbon-reservoir in automatically-controlled communication with said carbureter, a gas-expansion chamber located in the upper part of the hydrocarbon-reservoir, said expansion-chamber being in communication with the gas-holder and with the upper part of the carbureter and having a vent through which the said chamber communicates with the hydrocarbon-reservoir above the level of liquid therein, and a filling-pipe for said hydrocarbon-reservoir, extended through the said gas-expansion chamber, substantially as described.



3. In an apparatus for manufacturing gas from air and hydrocarbon liquid, the combination of a gas-holder, a hydrocarbon-reservoir having in its upper part a gas-expansion chamber in communication with the gas-holder and with the upper interior portion of the hydrocarbon-reservoir above the level of liquid therein, a carbureter having across its lower portion a diaphragm provided with numerous perforations, a pipe or casing communicating with the bottom of the hydrocarbon-reservoir and with the carbureter at a point above its perforated diaphragm, a float-valve mounted in said casing to automatically control the level of hydrocarbon liquid in the carbureter, a pipe connection from the upper part of the carbureter to the gas-expansion chamber, an air-pump for supplying air under pressure to the space below the perforated diaphragm of the carbureter, and means for automatically controlling the operation of said air-pump from a movable part of the gas-holder, substantially as described.

4. In an apparatus for manufacturing gas from air and hydrocarbon liquid, the combination of a gas-holder, a carbureter, a hydrocarbon-reservoir having in its upper part a gas-expansion chamber in communication with the carbureter and gas-holder, an air-pump for supplying air to the carbureter, a hydraulic motor for operating said air-pump, a vertically-movable yoke connection between the said motor and pump, a valve for controlling supply of water to said motor, and vertically-movable rod connections from said valve to a moving part of the gas-holder for automatically opening and closing said valve, substantially as described.

586,924. FLUSHING-TANK. JOHN C. FISHER, Wilkinsburg, Pa. Filed Nov. 20, 1896. Serial No. 612,903. (No model.)



Claim.—1. In a flushing-tank, the combination of the tank provided with an inlet-valve, an operating-rod connected to said valve, a sliding weight on said rod, an operating chain or cord attached to said weight, a rod carrying a float arranged in the tank, said rod carrying an arm adapted to engage the sliding weight to operate the rod and close the valve substantially as shown and described.

2. In a flushing-tank, the combination of the inlet-valve, an operating-rod, a sliding weight on said rod, a chain or cord attached thereto, a float-rod and float, a weighted arm carried by said float-rod to engage the sliding weight when the valve is open and operate same to close the valve, substantially as shown and described.

3. In a flushing-tank, a tank, a valve arranged therein, an operating-rod for said valve, a sliding weight on said rod, said weight carrying a lug and guide, a float-rod carrying a float arranged in the tank, said float-rod carrying a weighted arm adapted to engage the lug of the sliding weight and operate same on its rod to close the valve, substantially as shown and described.

4. In a flushing-tank, the tank, an inlet-valve, an operating-rod for said valve, a sliding weight on the rod, said rod also carrying a collar and set-screw to limit the movement of said weight, a float-rod and float having a supporting-rod, said float-rod carrying a weighted arm adapted to engage the sliding weight and operate same to close the valve, substantially as shown and described.

5. In a flushing-tank, the tank, an inlet-valve and siphon arranged therein, an operating-rod for said valve, said rod carrying a sliding weight having the chain attached thereto, a supporting-rod carrying a float-rod, and float, said float-rod carrying an arm engaging the sliding weight through the raising of the float, and moving the weight to operate the rod and close the valve, substantially as shown and described.

586,925. CASHIER'S AND SALESMAN'S CHECK-BOOK. CHAS. I. LOKARD, Washington, D. C. Filed Mar. 16, 1897. Serial No. 626,070. (No model.)



Claim.—An invertible cashier's and salesman's book of the character described, composed of a series of groups of sheets said groups consisting of one permanently-bound intermediate sheet and two outer sheets, the outer sheets being divided into removable sections by rows of perforations said sections imprinted with indicating-numerals in consecutive order from front to back of the book on the first sheet of each group, said numbering being continued invertedly from back to front of the book on the third sheet of each group both sides of each permanent sheet imprinted with numerals corresponding with those on the adjacent pages of the overlying sectional sheets, whereby upon said sheets permanently bound in the book, on both sides thereof will be preserved copies of all entries made, all in combination with a sheet of carbon-paper removably placed on face of the permanently-bound sheets and rearward of the sectionally-divided sheets, as and for the purpose intended, substantially as described.

586,926. PROCESS OF RENDERING TEXTILE PNEUMATIC TIRES PUNCTURE-PROOF. LEE H. STOUGHT, New York, N. Y. Filed Oct. 28, 1896. Serial No. 610,318. (No specimens.)

Claim.—The process herein described for rendering the textile material in a pneumatic tire puncture-proof, consisting in immersing the textile material in a solution of water and lime, then removing the material from the solution and drying it with the alkaline solution incorporated therein: then quickly passing the dried material through a solution of alcohol and gum sandarac, and then drying the material.

586,927. DEVICE FOR LAUNCHING BIFE OR OTHER BOATS. GEORGE W. BEERS, Brooklyn, N. Y. Filed Mar. 22, 1897. Serial No. 628,614. (No model.)

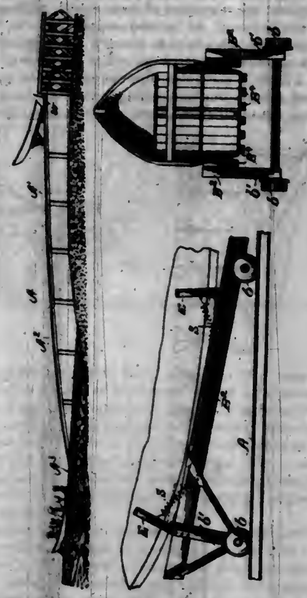
Claim.—1. A device for launching life and other boats, comprising a track or way of increasing inclination from its upper to its lower portion, and a launching-car on said track or way having supports which hold the boat on an approximately level keel when the car is at the point of greatest inclination on the track or way, substantially as described.

2. A launching device for life and other boats, comprising a track or way having an increasing inclination from its upper or land portion to its lower or water portion, and a launching-car on said track or way having supports which hold the boat on an approximately level keel only when the car is at the point of greatest inclination on the track or way, substantially as described.

3. A device for launching life or other boats, comprising a track or way of increasing inclination from its upper to its lower portion, and a launching-car on said track or way having a platform supporting the boat approximately level when the car is at the point of greatest inclination on the track or way, substantially as described.

4. A marine railway having an upper or land portion inclined down toward the water in a straight line, the same merging into a lower or water portion which is inclined toward the water on a curve of constantly decreasing radius, substantially as described.

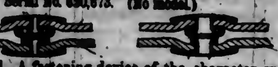
5. A launching-car, in combination with restraining means holding the boat firmly seated on the car in the act of launching, and devices automatically releasing the boat only when the same strikes the water, substantially as described.



6. A launching-car having its platform composed of longitudinally-placed yielding or flexible slats, substantially as described.

7. A launching-car, having a platform of longitudinally-placed, flexible slats which platform is inclined downward from front to rear when the car is on a level track, a brake device, and suitable clips for engaging a flange on a track or way to prevent tipping of the car, substantially as described.

586,928. GLOVE-FASTENER. WARREN B. PAGE, Newton, Mass., assignor of one-third to William B. Draper, Malden, Mass. Filed Jan. 25, 1897. Serial No. 620,673. (No model.)



Claim.—1. A fastening device of the character specified, comprising two dome-shaped members, one being a socket and the other a stud, each consisting of a crown portion having provisions for attachment to a glove or other article, and a marginal portion projecting from the crown portion, the marginal portion of the socket member being inelastic and provided with a contracted mouth, while the marginal portion of the stud member is resilient and adapted to enter the said mouth and to engage the marginal portion of the socket member within said mouth.

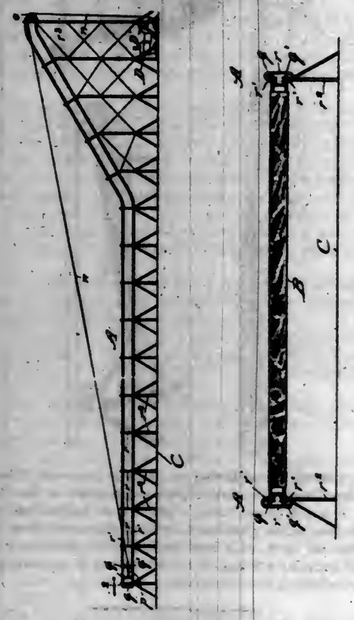
2. In a fastening device of the character specified, a dome-shaped socket member consisting of a crown portion having a boss or projection, and an inelastic marginal portion surrounding said boss and separated therefrom by an annular space adapted to receive the marginal portion of the dome-shaped stud member.

3. In a fastening device of the character specified, a dome-shaped member having a marginal portion formed for engagement with a complemental fastening member, and a crown portion provided with a boss formed internally to spread and engage an eyelet.

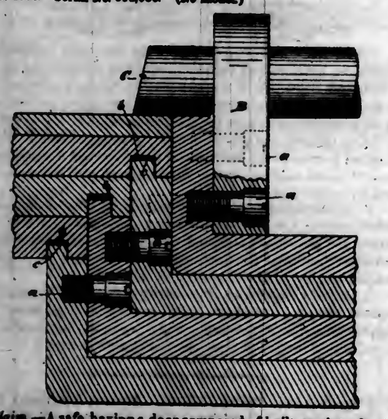
586,929. HORSE-STARTER. RICHARD K. SHERMAN, Chicago, Ill., assignor of three-fourths to John Condon, Dexter R. Kenyon, and Clem Creveling, same place. Filed Mar. 17, 1896. Serial No. 583,556. (No model.)

Claim.—1. A horse-starter comprising, in combination, a track extending along opposite sides of a race-course, horizontally throughout a portion of the extent of the track and at an upwardly-inclined angle throughout the remainder of its extent, a barrier provided with carriages at its opposite ends, at which it is supported to travel on the rails of said track unobstructedly from one end to the other thereof, a motor, and a flexible connecting medium between the motor and barrier for drawing the barrier along and up the track by operating the motor, substantially as and for the purpose set forth.

2. A horse-starter comprising, in combination, a track A having rails r' extending along opposite sides of a race-course, horizontally throughout a portion of their extent and at an upwardly-inclined angle throughout the remainder of their extent, guide-pulleys c on the higher extremities of the inclined sections, a barrier B provided with carriages at its opposite ends at which it is supported to travel on said rails unobstructedly from one end to the other of the track, a motor B, a drum D' connected with the motor to be driven thereby, and cords n connecting said carriages with the drum over said guide-pulleys, substantially as and for the purpose set forth.



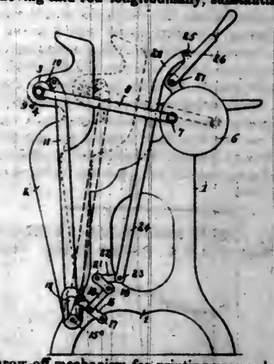
586,930. SAFE. WILHELM KOCH, Cincinnati, Ohio. Filed Nov. 13, 1896. Serial No. 611,980. (No model.)



Claim.—A safe, having a door composed of built-up plates having their edges flanged at right angles to the body thereof, and each pair secured by bolts passing from the inside through the flanges of the inner plate and into the flange of the one next outside, and boltwork secured by bolts screwing into the flanges and parallel with the front face of the door, substantially as described.

586,931. THROW-OFF FOR PRINTING-PRESSES. JAMES E. LEE, Chicago, Ill. Filed June 27, 1896. Serial No. 597,127. (No model.)

Claim.—1. A throw-off mechanism for printing-presses having in combination the operating mechanism of the press; the pivoted vibrating part of the impression mechanism having a shiftable connection with said operating mechanism whereby the impression may be thrown on or off; a longitudinally-movable rod connected at one end to said shiftable connection for shifting it and having its other end confined to travel across the axis of the pivot of said vibrating part whereby said axis will at all times pass through said rod, and means for moving said rod longitudinally, substantially as set forth.



2. A throw-off mechanism for printing-presses having in combination the operating mechanism of the press; the pivoted vibrating part of the impression mechanism having a shiftable connection with said operating mechanism whereby the impression may be thrown on or off; a pivot fixed concentrically with the center of vibration of said vibrating part of the impression mechanism; a longitudinally-movable rod connected at one end to said shiftable connection for shifting it and having its other end provided with sliding connection with said fixed pivot, and means for moving said rod longitudinally adapted to lock the rod against longitudinal movement when the impression is thrown off, substantially as set forth.

3. A throw-off mechanism for printing-presses having in combination the pivoted back legs, an eccentric carried by said back legs and having connection with some operating part of the press, a shiftable rod connected with said eccentric for rotating the same and having its end pivoted concentrically with the pivot of said back legs, and being longitudinally shiftable with relation to its own pivotal point, a link pivoted to said rod and an operating-lever connected with said link, for raising and lowering said rod, substantially as set forth.

4. A throw-off mechanism for printing-presses having in combination the pivoted back legs, an eccentric carried by said back legs and having connection with some operating part of the press, a shiftable rod for actuating said eccentric, having one end pivoted concentrically with the pivot of said back legs, a link pivoted to said rod and being substantially equal in length to the throw of said rod, and means pivoted to said link for raising and lowering it and thereby shifting said rod, substantially as set forth.

5. A throw-off mechanism for printing-presses having in combination the pivoted back legs, an eccentric carried by said back legs and having connection with some operating part of the press, a rod connected with said eccentric for actuating the same and having a slot, means engaging in said slot for pivoting said rod concentrically with the pivot of said back legs, and means for shifting said rod for throwing the impression on and off, substantially as set forth.

6. A throw-off mechanism for printing-presses having in combination the pivoted back legs, an eccentric carried by said back legs and having connection with some operating part of the press, a rod for actuating said eccentric, having a slot; a pivot arranged concentrically with the pivot of said back legs and engaging in said slot; a link pivoted to said rod; a pivoted lever having one end pivoted to said link, and an operating-lever having jointed connection with said first lever, substantially as set forth.

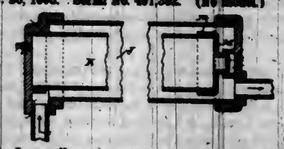
7. A throw-off mechanism for printing-presses having in combination the pivoted back legs; an eccentric carried by said back legs and having connection with some operating part of the press; a rod for actuating said eccentric provided with a slot; a pivot arranged concentrically with the pivot of said back legs and engaging with said slot; a link pivoted to said rod at one end, a lever pivoted to said rod at the other end; the distance between the pivotal points at the opposite ends of said link being substantially equal to the throw of said rod; and means for raising and lowering said lever, substantially as set forth.

8. A throw-off mechanism for printing-presses having in combination the pivoted back legs; an eccentric carried by said back legs and having connection with some operating part of the press; a rod for actuating said eccentric, having a slot; a pivot arranged concentrically with the pivot of said back legs and engaging in said slot; a link pivoted to said rod at one end; a lever pivoted to the other end of said link, the distance between said pivots of said link being substantially equal to the throw of said rod; a pivoted bell-crank having one arm connected with said lever; and an operating-lever having connection with the other arm of said bell-crank, substantially as set forth.

9. A throw-off mechanism for printing-presses having in combination the pivoted back legs; an eccentric carried by said back legs and having connection with some operating part of the press; a rod for actuating said eccentric, having a slot; a pivot arranged concentrically with the pivot of said back legs and engaging in said slot; a link pivoted at one end to said rod; a lever pivoted to the other end of said link, the distance between the pivots of said link being substantially equal to the throw of said rod; a pivoted bell-crank; a link connecting said lever with one arm of said bell-crank; an operating-lever, and a rod connecting said operating-lever with the other end of said bell-crank, the parts being so proportioned that when the impression is thrown off the pivotal point at the upper end of the last said rod will be back of a straight line passing through the pivotal point of said operating-lever and the pivotal connection of said bell-crank, substantially as set forth.

10. A throw-off mechanism for printing-presses having in combination the pivoted back legs; an eccentric carried by said back legs and having connection with some operating part of the press; a rod for actuating said eccentric, having a slot; a pivot arranged concentrically with the pivot of said back legs and engaging in said slot; a link 15 pivoted to said rod at one end; the lever 16 pivoted to the other end of said link, the distance between the pivots of said link being equal to the throw of said rod; the link 18 pivoted to the lever 16; a bell-crank having one arm pivoted to said link 18; the rod 24 pivoted to the other arm of said bell-crank; the operating-lever 26 pivoted to said rod 24, and the said parts being so proportioned that when they are in their thrown-off position the pivotal connection between the lever 26 and the rod 24 will be back of a straight line passing through the pivotal connection between the bell-crank and the rod 24 and the pivot of the lever 26; and when in the thrown-on position the pivot of the bell-crank and the pivotal connection between the lever 16, link 18 and bell-crank will be in a substantially straight line; whereby the parts will be locked in either position, substantially as set forth.

586,932. STORAGE-HEATER. JAMES F. MCELROY, Albany, N. Y. Filed Nov. 30, 1893. Serial No. 491,392. (No model.)



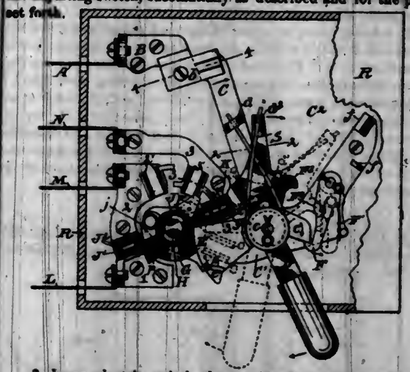
Claim.—1. In a railway heat-storage system, the combination of two pipes or cylinders differing in diameter and arranged one within the other forming between them a steam-chamber, said pipes or cylinders being provided at one end with a connecting-head common to them both, said head having a charging-orifice communicating with the inner pipe or cylinder, the outer cylinder being also provided with a head at its opposite end having a socket, and the inner cylinder being also provided with a head at its opposite end provided with a pin fitting said socket, with suitable supply and exhaust pipes communicating with the steam-space, substantially as described and for the purpose set forth.

2. In a railway heat-storage system, a car-seat provided in front with two series of apertures, one above the other, a heater placed beneath said car-seat, a deflector-hood suitably supported and partly enveloping said heater, said hood capable of a limited movement about said heater, said movement operating to open or close the upper series of said apertures, substantially as described and for the purpose set forth.

586,933. ELECTRIC SWITCH. JAMES F. MCELROY, Albany, N. Y. Filed Jan. 9, 1896. Serial No. 574,629. (No model.)

Claim.—1. In an electric switch, the combination of a snap-switch for opening the circuit, with an adjusting-switch consisting of terminal blocks fixedly arranged around a vertical post, conducting-pieces for varying the connection attached to a carrier which rotates on said vertical post, means for connecting said carrier to the electric switch, whereby the electric switch locks the adjusting-switch when the electric switch is closed and unlocks same when open, substantially as described and for the purpose set forth.

2. In an electric switch, the combination of a snap-switch for opening the circuit with an adjusting-switch, the terminal blocks of the adjusting-switch being fixedly arranged around the vertical post, conducting-pieces for varying the connections attached to the carrier, pivoted on said post and having a rotary and longitudinal motion thereon, and locking means for connecting the electric switch and the adjusting-switch, substantially as described and for the purpose set forth.

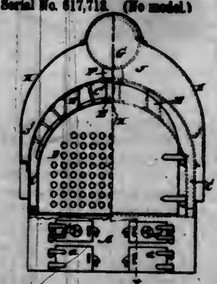


3. In an electric switch, the combination of a snap-switch, a wing attached to the side of the snap-switch bar, an adjusting-switch composed of a contact-carrying post adapted to move longitudinally and rotate upon a standard attached to the metallic plate connected with the lever-arm of the snap-switch, an annular plate on said contact-carrying post adapted to engage with said wing on said lever-arm when the snap-switch is closed, suitable contact-points with which said contact-carrying post engages, substantially as described and for the purpose set forth.

4. In an electric switch, the combination of a snap-switch, with an adjusting-switch composed of a contact-carrying post, a metallic standard upon which said post is adapted to rotate and move longitudinally, a metallic plate carrying said standard and connected with the contact-lever of said snap-switch, said contact-carrying post provided with a contact-finger insulated from said post, with a contact-finger connected with said post, contact-blocks arranged in such a manner that the said fingers may be connected therewith at the points desired with wires connecting said blocks with the work to be performed, with a means for interlocking said snap-switch and said adjusting-switch, substantially as described and for the purpose set forth.

5. In an electric switch, the combination of a snap-switch with an adjusting-switch composed of a contact-carrying post, a metal standard upon which said post is adapted to rotate and move longitudinally, a metal plate carrying said standard and connected with the contact-lever of said snap-switch, said contact-carrying post provided with contact-fingers, one of which is electrically connected to said post and one insulated from said post, contact-blocks arranged in such a manner that said fingers may be connected therewith at the points desired, with wires connecting said blocks with electric heaters, so arranged that by placing the adjusting-switch in the position indicated by O no current is connected to the heaters, when the indicator in placed at the numeral 1 the heaters in the different circuits are placed in series, when the position of the indicator is at the numeral 2 half of the heaters are in multiple series, and when the indicator is placed at the numeral 3 all of the heaters are placed in multiple series, substantially as described and for the purpose set forth.

586,934. BOILER. WILLIAM RADELFF, Philadelphia, Pa. Filed Jan. 8, 1897. Serial No. 617,712. (No model.)

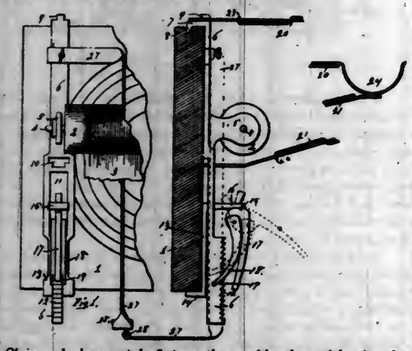


Claim.—1. A boiler having an arch-shaped water-chamber as C C C with water-heads B and B' at front and rear together with water-tubes as D connecting said heads and a drum-like water and steam chamber as G situated above and connected with the top of the top of the water-chamber C C C in combination with flue-spaces as J extending

over the top and down over the sides of the arch-shaped water-chamber so as to practically jacket said chamber, said flue-spaces also extending beneath the drum G and connecting with the fire-chamber on the inside of the said water-chamber.

2. A boiler having an arch-shaped water-chamber as C C' C with water-heads B and B' at front and rear said water-chamber having flue-passages as E E' E² formed through it at different distances from its front and together with water-tubes D connecting the heads B B' and a drum as G situated above and connected with the water-chamber aforesaid in combination with a flue J passing over the top and down on the sides of the arched water-chamber and also extending beneath the bottom of the drum said flue being in communication with the fire-chamber within the arched water-chamber through the flue-passages E E' E².

586,935. CURTAIN-FIXTURE. ALBERT J. ROTH, Hamilton, Ohio, assignor of one-half to Frederick Diesbach, same place. Filed July 23, 1896. Serial No. 600,286. (No model.)



Claim.—1. In a curtain-fixture, the combination, with a bracket, the base of which is provided with a lug and a toothed rack, a plate movably secured to the base and provided with a lug at each end, a locking-lever pivotally secured to one of the lugs upon the plate and a pawl pivotally secured to the lever, substantially as set forth.

2. In a curtain-fixture, the combination, with a bracket, the base of which is perforated and provided with a projection, of adjustable means for securing the bracket in position, and an extensible pole-support, one arm of which fits within the perforation of the base and the other end is provided with a perforation to fit upon the projection, substantially as set forth.

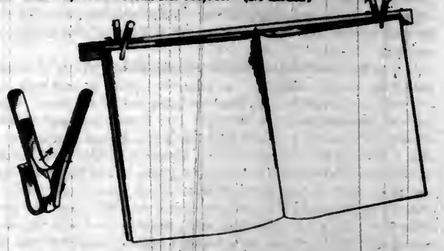
3. In a curtain-fixture, the combination, with a bracket, one end of the base of which is provided with a lug and the opposite end is provided with a toothed rack, the sides of the rack being recessed longitudinally, a plate, one end of which is provided with a lug, a lever at the opposite end of the plate, and a pawl pivotally secured to the lever, the free end of which is provided with side extensions to fit the grooved sides of the rack, substantially as set forth.

586,936. SHOE-NAIL. CHARLES F. ROTH, Ironton, Ohio, assignor of two-fifths to Fredrick William Hassenauer, same place. Filed May 25, 1896. Serial No. 592,957. (No model.)



Claim.—As a new article of manufacture, a cut shoe-nail for securing several thicknesses of leather together and binding thereto an outer imperforate layer only partially pierced by the head of the nail, so as to leave its outer surface imperforate; said nail being formed with a slender body portion which tapers gradually from its head to its point, and with a head-and-neck portion having a flat top and tapering sharply from its top to its junction with said body portion, so as to provide a shoulder at the base of said neck and triangular recesses between said shoulder and top; both the body portion and the head-and-neck portion of the nail being free from projections and having smooth surfaces from top to point; whereby the nail is adapted to be machine-driven and may easily pierce several thicknesses of leather and bind thereto as outer imperforate layer by the receding of the fibrous material partially pierced by the head so as to close the aforesaid triangular recesses, substantially as described.

586,937. MUSIC-LEAF HOLDER. OTTO SELL, Modesto, Cal., assignor of one-fourth to Rasmus Andresen Sorensen, same place. Filed Jan. 20, 1897. Serial No. 618,948. (No model.)



Claim.—1. A holder of the class described, comprising a pair of members hingedly connected together, a hook formed on one of said members and adapted to receive a strip of suitable material to retain in open position a book or other piece of music to which the holder is applied, and a spring-tongue secured to the other member and adapted to hold in open position the pages upon which the selection being performed is written, substantially as set forth.

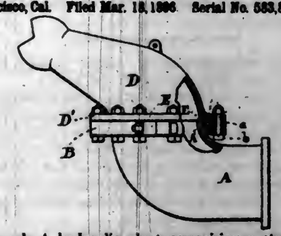
2. A holder of the class described, comprising a pair of members hingedly connected together, a hook formed on one of said members and adapted to receive a strip of suitable material to retain in open position a book or other piece of music to which the holder is applied, an offset formed on the other member, and a spring-tongue secured to the latter and adapted to normally contact with the said offset, whereby the pages upon which the selection being performed is written may be retained in open position and permit the same being readily turned without the necessity of removing the holder from the position in which it is originally applied, substantially as set forth.

3. A holder of the class described, comprising a pair of members, an approximately U-shaped spring for hingedly connecting said members together, whereby the same shall normally remain in a closed position, a hook formed on one of said members and adapted to receive a strip of suitable material for retaining a book or other piece of music in open position, an offset formed on the other member, and a spring-tongue secured to the latter and adapted to normally contact with said offset, whereby the pages upon which the selection being performed is written may be retained in open position and easily turned without the necessity of removing the holder from the position in which it is originally applied, substantially as set forth.

4. The combination with a pair of spring-holders adapted to be applied to the sides of a book or the like and each comprising a pair of members hingedly connected together, one of said members being provided with a hook, of a strip of suitable material adapted to be placed in said hooks when the holders are applied to the books or the like, whereby the latter is retained in open position, substantially as set forth.

5. The combination with a pair of spring-holders adapted to be applied to the sides of a book or the like, and each comprising a pair of members hingedly connected together, one of said members being provided with a hook, and the other having a spring-tongue adapted to receive the pages on which the selection being performed is written, of a strip of suitable material adapted to be placed in said hooks when the holders are applied to the book or the like, whereby the latter is retained in open position and the pages on which the selection being performed is written are adapted to be turned without the necessity of displacing the holders from the position in which they are originally applied, substantially as set forth.

586,938. HYDRAULIC MINING-GIANT. JOHN P. SIMMONS, San Francisco, Cal. Filed Mar. 18, 1896. Serial No. 583,606. (No model.)



Claim.—1. A hydraulic giant comprising a stationary pipe, a curved movable section and a ball-bearing-joint connection between them.

2. A hydraulic giant comprising a stationary pipe, a curved movable section and a water-tight ball-bearing-joint connection between them.

3. A hydraulic giant comprising a stationary pipe, a curved movable section and a ball-bearing connection provided with a ring or washer adapted to receive the thrust of the movable section.

4. A hydraulic giant comprising a stationary pipe, a curved movable section and a water-tight ball-bearing connection having a bearing-ring made in sections.

5. In a hydraulic giant the combination of a stationary pipe a movable section and a water-tight joint between said pipe and movable section consisting of flanges A' and B', suitable packing-rings as described secured in place by the grooved and jointed ring B, and ball-bearings C arranged substantially as described.

6. A hydraulic giant comprising a stationary pipe with a curved movable section, and a device connecting them having a holding-ring provided with antifriction-balls upon opposite sides for the purpose herein described.

586,939. CAR VENTILATION. HENRY F. STANLEY, New Orleans, La. Filed May 7, 1896. Serial No. 590,586. (No model.)



Claim.—1. In a freight-car, the combination with the car-body; of a box located within and at each endmost lower corner thereof, a shaft having axial trunnions journaled in the ends of the box proper, the trunnion at one extremity being provided with an angular socket, a plurality of straps connected with the shaft, a series of transverse slats carried by the straps, a removably-slatted flooring resting on the car-floor and having shouldered extremities engaging said boxes, and means for operating the shaft, substantially as and for the purpose set forth.

2. In a freight-car, the combination with the car-body, a boxing at each endmost lower corner thereof, and removable sills whose bodies rest upon the car-floor and whose ends have shoulders resting on the lower sides of said boxes; of a windlass in each box, and a slatted floor carried by each windlass, as and for the purpose set forth.

3. In a freight-car, the combination with the car-body and flooring, a box in each endmost lower corner thereof having notches in its lower side, and a series of removable sills whose extremities engage said notches and whose bodies comprise members pivoted together so as to allow them to be folded when removed, of a windlass in each box, a flexible flooring carried by each windlass and comprising longitudinal straps and transverse slats the former moving between the sills, and means for turning the windlass, as and for the purpose set forth.

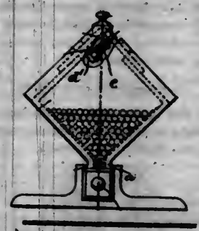
4. In a freight-car, the combination with the car-body having a flooring, a boxing secured in the lower corner thereof and having notches in its lower side, and a series of sills supported removably by such flooring and having shouldered extremities detachably engaging said notches; of a windlass in the box, a flexible slatted flooring carried by the windlass, and means for turning the windlass, as and for the purpose set forth.

5. In a freight-car, the combination with a car-body having a flooring, and a transverse strip in each lowermost end corner thereof provided with notches; of a series of sills resting removably upon such flooring, each comprising two members pivotally connected at their meeting ends, one member being shouldered at its outer extremity and the other member having a socket at its outer extremity, and a third member whose inner end removably engages said socket and whose outer end is shouldered, said shouldered ends removably fitting the notches in the strips, as and for the purpose set forth.
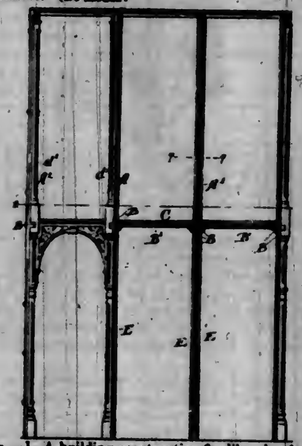
586,940. MATCH-BOX. MAURICE VANDERPOOLE, Weare, N. H. Filed Oct. 2, 1896. Serial No. 607,703. (No model.)

Claim.—1. In a match-box adapted for delivering one match at a time, the combination of a receptacle having angular sides and a channel leading from the lower end thereof, and a sliding receptacle having a recess therein for the reception of a match and arms extended upwardly therefrom for shaking the matches contained within the box, substantially as shown and described.

2. In a match-box, the combination of the compartment having a removable lid thereon and a longitudinal channel leading downwardly therefrom; with a sliding receptacle which communicates with said channel, said sliding receptacle having upwardly-extending arms projected therefrom for shaking matches, substantially as shown and described.



586,941. BUILDING CONSTRUCTION. WILLIAM H. WINSLOW and FRANCIS A. WINSLOW, Chicago, Ill. Filed Nov. 27, 1896. Serial No. 613,575. (No model.)



Claim.—1. A building construction for libraries, &c., comprising suitable vertical supporting-columns, horizontal floor-supporting members, clamps for securing the floor-supporting members to the vertical columns, tie-rods connecting the clamps, and channel-irons secured to the vertical columns and adapted to receive and support the shelf-brackets.

2. A building construction comprising suitable vertical supporting-columns, floor-beams adjustably secured upon the vertical columns, said vertical columns being made up of bars arranged side by side and separated by suitable washers, and channel-irons fastened to the bars and adapted to support shelf-brackets.

3. The combination with the vertical bars, D, D, having the notches, *b*, in the edges thereof, of the horizontal floor-beams, B, B, a clamp for securing the horizontal members to the vertical bars comprising substantially plates, *b'*, *b'*, arranged upon the outer faces of the horizontal members, and bolts passing between the bars, D, D, and connecting the clamps; substantially as described.

4. The combination with the vertical supporting-columns consisting of the bars, D, D, having the notches, *b*, *b*, and the channel-irons, E, E, secured to the bars, D, D, and adapted to receive and support the shelf-brackets, of the horizontal floor-beams, B, B, resting in the notches, *b*, *b*, clamping-plates, *b'*, embracing the outer faces of the floor-beams, B, B, bolts connecting the clamping-plates and passing between the bars, D, D, and the tie-rods, B', connecting the oppositely-arranged clamping-plates; substantially as described.

5. A library construction comprising vertical supporting-bars, D, D, and channel-irons, E, E, adapted to support shelf-brackets, the bars, D, D, having notches in their edges, floor-beams resting in said notches, clamps adapted to secure the floor-beams to the vertical supporting-bars, D, D, and shelf-brackets adjustably secured upon the channel-irons.

6. The combination with suitable vertical supporting-columns, consisting of bars, D, D, arranged side by side and suitably spaced apart, and channel-irons secured thereon and adapted to receive and support shelf-brackets, of floor-beams adjustably secured to the supporting-bars, D, D, and the angle-irons, C, C, arranged upon the floor-beams and adapted to receive and support the flooring; substantially as described.

7. In a device of the class described, the combination with a pair of horizontally-extending supporting-beams, B, B, of a vertical supporting-column and a clamping device adapted to secure the horizontal beams to the column, said column comprising substantially two

longitudinal bars, D, D, channel-irons, E, E, adapted to support shelf-brackets, washers, *d*, *d*, adapted to space the bars, D, D, apart and having the bosses, d^3, extending through the bars, and rivets passing through said bosses and channel-irons and clamping all the parts together: substantially as described.

586,942. TOY OR PUZZLE. JOSEPH ZWICK, New York, N. Y., assignor to himself and Anthony H. Jostera, same place. Filed Apr. 24, 1897. Serial No. 633,677. (No model.)



Claim.—1. A toy or puzzle comprising a box or casing, a series of partitions dividing said box or casing into compartments, and a movable body, the walls of the compartments having apertures through which the body may be struck but of less diameter than the body, and the partitions having apertures to permit the passage of the body through them, substantially as shown and described.

2. A toy or puzzle comprising a box or casing, a series of inclined and bent partitions dividing said box or casing into compartments, and a movable body, the walls of the compartments having apertures through which the body may be struck but of less diameter than the body and the partitions having apertures to permit the passage of the body through them, substantially as shown and described.

3. A toy or puzzle comprising a box or casing, a series of partitions dividing said box or casing into compartments, and a movable body, the wall of the first compartment having an aperture to admit said body, the walls of the several compartments having apertures through which the body may be struck but of less diameter than the body and the partitions having apertures to permit the passage of the body through them, substantially as shown and described.

4. The combination with a box or casing, a series of partitions dividing said box or casing into compartments, a movable body, the walls of the compartments having apertures through which the body may be struck but of less diameter than the body and the partitions having apertures to permit the passage of the body through them, and a striker having a point to enter the apertures in the walls of the compartments and a shoulder of larger diameter than said apertures to limit the distance to which said point can enter the compartment, substantially as shown and described.

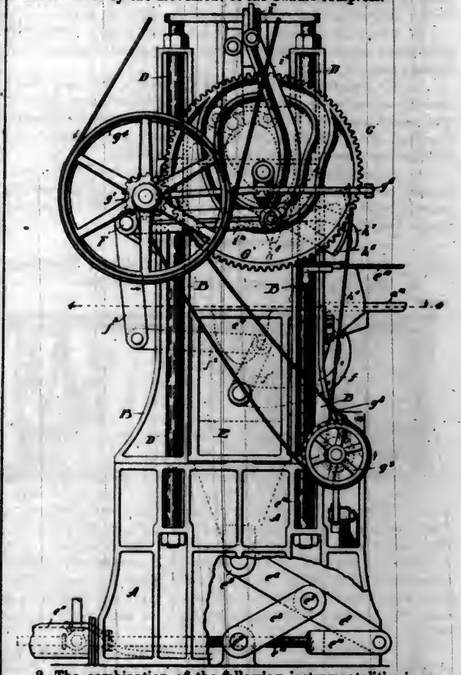
586,943. PERMUTATION-PADLOCK. FRANK I. ARLINGTON, Claremore, Ark., assignor of one-third to Henry Miller and George Miller, Little Rock, Ark. Filed Aug. 3, 1896. Serial No. 601,529. (No model.)



Claim.—The herein-described keyless combination-padlock consisting of a casing made up of a series of disks having ears upon opposite sides thereof, pins extending through said ears for securing said disks permanently and rigidly together, the said disks being slightly separated one from the other at all points and provided with alined openings therein, guide-plates connecting said disks at points adjacent to said openings, a series of tumbler-rings having numbers printed or impressed upon their outer edges, mounted to rotate between the pairs of said disks, held in place therein by means of said guide-plates and provided with notches along their inner edges which are adapted to be thrown into line with openings in said disks, and a staple adapted to fit within the openings in said disks, one arm of which is provided with a series of notches or teeth with which said tumbler-rings are adapted to engage, substantially as and for the purpose described.

586,944. MACHINE FOR BUNDLING WOOD. ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machinery Company, same place. Filed Feb. 10, 1896. Serial No. 578,671. (No model.)

Claim.—1. In a bundling-machine, the combination of a bundle-compress having a moving part, means for moving the same, a cord-carrier, a fastener-setter, and means for automatically starting the fastener-setter by the movement of the bundle-compress.



2. The combination of the following instrumentalities in operative relation, to wit: a bundle-compressing mechanism comprising separable compressing members, a bundle-binding mechanism comprising a means for surrounding a bundle with cord or its equivalent and for securing the same, the said compressing and binding mechanisms being distinct and independent mechanisms and means for starting the bundle-binding mechanism from the bundle-compressing mechanism.

3. A bundle-compressing mechanism combined with a bundle-binding mechanism, the said compressing and binding mechanisms being operated by independent means and being distinct and separate from each other and means for starting the bundle-binding mechanism from the bundle-compressing mechanism and for stopping the bundle-binding and bundle-compressing mechanisms by the movement of the bundle-binding mechanism.

4. In a machine of the character described, the combination of a two-part bundle-compress, an arm as A^7 for holding the bundle in one part of the compress, operating mechanism for the said arm, and a bundle-binding mechanism.

5. The combination of a two-part bundle-compress, an arm as A^7 for holding a bundle in the compress, operating mechanism for the said arm, a cord-carrying device, and a fastener-setter, all combined to operate, substantially as and for the purposes set forth.

6. In a machine of the character described, the combination of a bundle-compress having a movable member, means for moving the same, a cord-carrier actuated by the movement of the movable member of the compress and fastener-setting mechanism, as and for the purposes set forth.

7. In a machine of the character described, the combination of a two-part bundle-compress having a movable member, means for moving the same, a cord-carrying device carried by the movable member of the compress, and a fastener-setting mechanism, all combined substantially as set forth.

8. In a machine of the character described, the combination of a two-part bundle-compress, means for operating the same to compress a bundle, an arm as A^7 for holding the bundle in operative relation with one member of the compress, operating mechanism for the said arm, a cord-carrying device carried by one member of the compress, and means for connecting the free ends of the cord in order to complete the binding of the bundle by the cord.

9. In a machine of the character described, the combination of a two-part bundle-compress, means for operating the same to compress a bundle, an arm as A^7 for maintaining a bundle in operative

relation to one member of the compress, means for operating the said arm, a cord-carrying device to effect the wrapping of the bundle by the cord, fastener-setting mechanism and cord-cutting mechanism, as and for the purposes set forth.

10. The combination of a bundle-compress having a movable member, means for moving the same, a cord-carrying device to effect the binding of the bundle, a fastener-setting mechanism and a cord-cutting device combined with means for starting the fastener-setting mechanism from the bundle-compress.

11. In a machine of the character described, the combination of a bundle-compress consisting of a plurality of members, one of which is movable, means for moving the same, a cord-carrying device carried by one of the members, operating means therefor, and fastener-setting mechanism.

12. In a machine of the character described, the combination of a bundle-compress comprising separable members each consisting of a plurality of sets of presser-plates, a cord-carrying arm, and a fastener-setting mechanism combined for operation, substantially as and for the purposes set forth.

13. In a machine of the character described, the combination of a plurality of sets of presser-plates adapted to effect the compression of a bundle between the plates, a supporting-arm as A^7 for the bundle, operating mechanism for the said arm, a cord-carrying device for binding the bundle, and a device for effecting the connection of the ends of the cord surrounding the bundle.

14. In a machine of the character described, the combination of a plurality of sets of presser-plates, one of the said sets being movable, means for moving the same, a cord-carrier carried by one set of presser-plates, and a fastener-setting mechanism.

15. In a machine of the character described, the combination of a plurality of sets of presser-plates, one of the said sets being movable, means for moving the same, a cord-carrying device carried by one of the sets of presser-plates, a supporting-arm as A^7 for supporting the bundle, means for moving the said arm, and a staple-driving mechanism.

16. The combination in a machine of the character described, of a compress consisting of a stationary member, a movable member, a moving cross-head carrying the movable member, means for moving the same, a spring interposed between the cross-head and the movable member, whereby the movable member may have free motion in the cross-head, combined with a cord-carrying device, and mechanism for securing the ends of the cord whereby the cord may be made to bind the bundle.

17. In a machine of the character described, the combination of a plurality of sets of presser-plates, one of which sets is movable, means for moving the same, the said movable member being apertured for the passage of a shaft as F', and a cord-carrying device carried by the shaft F' and partaking of the movement of the presser-plates.

18. In a machine of the character described, the combination of a plurality of sets of presser-plates, one of the said sets being movable, a cord-carrying device and a fastener-setting device, the said cord-carrying device and fastener-setting device being started by the movement of the movable set of presser-plates.

19. In a machine of the character described, the combination of fixed and movable presser-plates constituting a bundle-compress, a cord-carrying device carried by the movable presser-plates, a driving mechanism and a connection between the cord-carrying device and the driving mechanism, whereby the cord-carrying device not only partakes of the movement of the movable presser-plates but likewise has an independent movement of its own, and a mechanism for effecting the securing of the ends of the cord which binds the bundle.

20. In a machine of the character described, the following organization of mechanism: a bundle-compress having a fixed and a movable member, a cord-holding device and fastener-affixing device comprising the driving-box B' carrying the said cord-holding and fastener-affixing devices and a cord-carrying device for effecting the binding of the bundle.

21. In a machine of the character described, the following organization of mechanism operating in substantially the manner set forth, to wit: a two-part bundle-compressing device having at least one compressing movable member, the driving-box B', comprising a cord-holding mechanism, a needle or cord carrying arm b^9, and mechanism for driving a fastener and a cord-cutting mechanism contained within the driving-box and operated in harmony with the movable member of the compress.

22. In a machine of the character described, the following organization of mechanism operating substantially as and for the purpose described which comprises in operative relation the following instrumentalities, to wit: a bundle-compress, a cord-carrying mechanism, a cord-holding mechanism, an arm as A^7 for maintaining the bundle in operative relation with the compress, means for operating the said arm, a fastener-setting mechanism and a cord-cutting mechanism.

23. In a machine of the character described, the following instrumentalities, namely, a stationary set of presser-plates, a spring-mounted set of presser-plates, a cord-carrying mechanism for effecting the binding of the bundle combined with means for fastening the cord around the bundle.

24. In a machine of the character described, the following instrumentalities, namely, a stationary set of presser plates, a spring-mounted set of presser-plates, a cord-carrying mechanism for effecting the binding of the bundle combined with means for securing the cord around the bundle, and mechanism for cutting the cord.

25. The combination in a machine of the character described, of a stationary set of presser-plates, a movable set of presser-plates carrying a cord-carrying device, an arm as A^7 for holding the bundle in the stationary set of presser-plates, means for operating the said arm, a fastener-driving mechanism and means for actuating the before-mentioned cord-carrying device from the movable presser-plates.

26. In a machine of the character described, the combination of a bundle-compress comprising a plurality of members, one of the said members being movable, a swinging cord-carrier carried by one of the members, all combined with means for securing and severing the cord, as and for the purposes set forth.

27. In a machine of the character described, the combination of stationary presser-plates, movable presser-plates, a swinging cord-carrier carried by the movable presser-plates, and means for imparting to the cord-carrier a swinging motion independent of its movement with the presser-plates, all combined with cord-retaining mechanism, and cord-severing mechanism, and a bundle-holding device.

28. Starting and stopping mechanism comprising a valve, a rod m^7 forming part of the operating mechanism for the valve, a connection between the valve and the rod m^7, a lever m^8 acting upon the lever m^7, a lever m^9 acting upon the lever m^8, and a cam m^{10} for acting upon the levers.

29. In a machine of the character described, the combination of a bundle-compress, a cord-carrier, a bundle-holder as A^7, means for operating the said bundle-holder, a driving-bar and a cord-cutter.

30. In a machine of the character described, the combination of a bundle-compress, the said compress comprising a plurality of gripping members one of which is movable carrying a cord-carrier, associated in operative relation with a grip-bar and a driving-bar.

31. In a machine of the character described, the combination of a bundle-compress carrying a cord-carrier, a bundle-holder as A^7, means for operating the said bundle-holder, a grip-bar, a driving-bar, a cord-cutter and a cord-holder.

32. In a machine of the character described, the combination of presser-plates *c'*, slotted presser-plates *c'*, a cross-head E in which the slotted presser-plates are carried, springs interposed between the plates and cross-head, and a cord-carrying arm b^2 and fastener-driving mechanism.

33. The combination of a two-part bundle-compress, and means for operating the same, combined with a cord-carrier and a bundle-holder, independently-moving grip and driving bars, and a cord-cutter and means for operating the said cord-carrier, bars and cutter.

34. In a machine of the character described, the combination of a plurality-member compress, one of whose members is movable, means for moving the same, and a bundle-binding mechanism, the said bundle-binding mechanism being set into operation by the movement of the movable member of the compress.

35. In a machine of the character described, the combination of a bundle-compress, a cord-carrier and a driving-box comprising in its structure a cord-retaining means, and a driving-bar actuating the cord-retaining means to cause the said cord-retaining means to release the cord.

36. In a machine of the character described, the combination of a bundle-compress, a cord-carrier and a driving-box comprising in its structure a movable fastener-feeder, a driving-bar, the said fastener-feeder being actuated from the driving-bar, and a guiding device for guiding the fastener to the driving-point.

37. In a machine of the character described, the combination of a plurality-member compress, one of whose members is movable, a cord-carrier and a driving-box comprising in its structure a cord-retaining mechanism and fastener-driving mechanism combined with means for releasing the cord by the movement of one of the members of the compress.

38. In a machine of the character described, the combination of a plurality-member compress one of whose members is movable, a cord-carrier and a driving-box comprising in its structure a cord-retainer and fastener-driving mechanism combined with means for locking the cord-retainer and with means for unlocking the said cord-retainer by the movement of the movable member of the compress.

39. In a machine of the character described, a cord holding and releasing means comprising a pivoted lever as b^{24}, means for swinging the lever as the lug b^{26}, a locking device as the pin b^{27} and releasing mechanism for the locking device consisting of a bar as b^{27}, and a movable actuating-lever therefor combined with cam mechanism to move the said actuating-lever, all combined with a bundle-binder.

40. In a machine of the character described, the combination of a fluid-pressure-actuated compressing mechanism, a cord carrier and a power-driven fastener-setting mechanism actuated independently of the compress and means for operating the said compressing and fastener-setting mechanisms in harmony with each other.

41. In a machine of the character described, the combination of a fluid-pressure-actuated compress, a cord-carrier, a power-driven fastener-driving mechanism actuated independently of the compress, and means for starting the fastener-driving mechanism from the movement of the compress.

42. In a machine of the character described, the combination of a bundle-compress, a cord-carrier, means for raising the cord-carrier by the movement of the compress and means for swinging the cord-carrier by the combined action of independent mechanism and the movement of the compress, substantially as described.

43. In a machine of the character described, the combination with a bundle-compress having a movable member in which the bundle is carried, a driving-box located in the line of movement of the bundle and comprising in its structure cord-retaining means, a fastener-feeder and a driving-bar.

44. In a machine of the character described, the combination with a compress which moves a bundle, of a driving-box comprising in its structure a cord-retainer, a movable grip-bar, a movable driving-bar and fastener-feeder.

45. In a machine of the character described, a driving-box comprising in its structure a pivoted cord-holder, a grip-bar, a separator-bar, a driving-bar and means for operating the said grip-bar, separator-bar and driving-bar.

46. In a machine of the character described, a driving-box comprising in its structure a spring-pressed cord-retainer, a grip-bar carrying a separator-bar, and a driving-bar.

47. In a machine of the character described, a driving-box comprising in its structure a cord-retaining device consisting of independently-operating cord-retainers, a grip-bar, a driving-bar, a separator-bar carried by one of the bars and acting upon one of the cord-retainers, and actuating means carried by the other bar acting upon the other cord-retainer.

48. In a machine of the character described, a driving-box comprising in its structure a cord-retaining device comprising a plurality of cord-retainers, independently-moving driving and grip bars, means for controlling the cord-retainers from the bars, and a locking device for one of the cord-retainers.

49. In a machine of the character described, a driving-box comprising in its structure a cord-retaining device, a grip-bar, a driving-bar moving independently of the grip-bar, and a fastener-feeder operated from the driving-bar.

50. In a machine of the character described, a driving-box comprising in its structure a cord-retaining device, a fastener-feeder and a driving-bar coöperating with the fastener-feeder and with the cord-retaining device to open the said cord-retaining device to release the cord.

51. In a machine of the character described, a driving-box comprising in its structure a cord-retaining device, a fastener-feeder, a driving-bar coöperating with the fastener-feeder and with the cord-retaining device to open the said cord-retaining device to release the cord, and a cutter.

52. In a machine of the character described, a driving-box comprising in its structure a cord-retaining mechanism, a driving-bar, a grip-bar, and a fastener-feeder interposed between the bars.

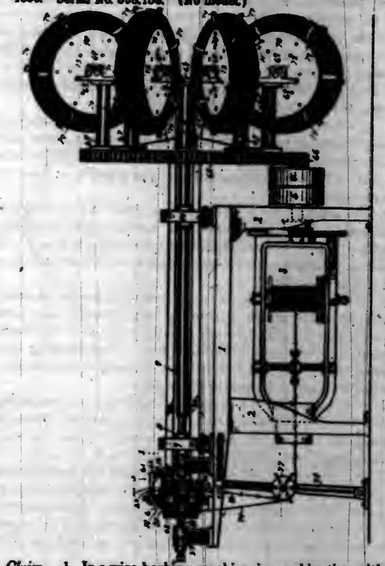
53. In a machine of the character described, a driving-box comprising in its structure a cord-retainer, a grip-bar and a driving-bar, one of which bars is slotted, a fastener-carrier entering the slot, a guiding device for the fastener, and a device for removing a fastener from the fastener-carrier.

54. In a machine of the character described, the combination of a bundle-compress having a movable member, a cord-carrier, a plurality of cord-retainers and means for successively operating the retainers in harmony with the movement of the movable member of the compress combined with devices for securing the ends of the cord to each other when the bundle has been completed.

55. A combination bundling structure comprising the following elements in operative relation, to wit: a bundle-compress having a movable member, a cord-carrier, operating mechanism therefor, to cause the same to surround a bundle, fastener holding and driving means and means for severing the cord after the fastener holding and driving means has operated the said cord-carrier-operating mechanism, fastener holding and driving means and cord-severing means being set into operation by the movement of the movable member of the compress.

56. A bundle-compressing mechanism combined with a bundle-binding mechanism, the said compressing and binding mechanisms being operated by independent means and being distinct and separate from each other and means for starting the bundle-binding mechanism from the bundle-compressing mechanism.

586,945. WIRE-BARBING MACHINE. ALBERT J. BATES, Joliet, Ill., assignor to the Columbia Wire Company, of Illinois. Filed July 6, 1896. Serial No. 598,136. (No model.)



Claim.—1. In a wire-barbing machine, in combination with a stationary circular frame provided with a semicircular row of internal gear-teeth, and with a semicircular internally-extending flange; an annular rotary head arranged within said frame and provided with a plurality of geared barb-coiling devices adapted to be rotated to coil barbs about a strand-wire when brought into engagement with said frame-teeth, and to be held from such rotation when brought into engagement with said frame-flange, substantially as specified.

2. In a wire-barbing machine, in combination with continuously-rotating mechanism whereby barbs are coiled about a strand-wire and severed from the infeeding barbing-wire; a rotary feed-head provided with a plurality of wire-feeding devices, and controlled in its movement so as to assume a fixed angle to its drive-shaft, thereby causing said feeding devices to be operated sidewise to consecutively grip and feed forward sections of barbing-wire, substantially as specified.

3. In a wire barbing machine, an annular rotary head, provided with a plurality of barb-prod cutters, and a plurality of geared barb-coiling devices arranged to engage stationary gear-teeth during a portion of their circuit for operating their barb-coilers, and to engage a stationary flange during another portion of their circuit for preventing operation of said coilers, and slotted longitudinally to the axis of said coilers to admit a strand-wire to said axis and discharge the same therefrom; rotary mechanism for feeding barbing-wires across said cutters and to said coilers in continual consecutive order; an annular guideway fixed to said rotary head for conducting a plain strand-wire thereabout; and a cutter-head geared to said rotary head and provided with barb-prod cutters arranged to register with said former cutters in continual consecutive order, substantially as and for the purpose specified.

4. In the wire-barbing machine described, the combination with the annular head provided with the barbing-wire-coiling devices equidistantly arranged on a common circle about the axis of said head; the barb-prod cutters radially and adjustably seated in said head; the ring fixed to said head and provided with the radially-extending guide-holders; and the guides fixed in said holders and head and adapted to guide the barbing-wires across said cutters and to said coiling devices, substantially as specified.

5. In the wire-barbing machine described, in combination with the stationary frame provided with the internally-arranged teeth and flange, and with the rotatable annular head arranged within, and provided with the flange at the side of said frame; the studs fixed in the side of said flange, extending within said frame and provided with the slotted heads and laterally-extending stems as shown; the combined spur and miter gears, provided with the side-flatted necks and sleeved on said studs; and the slotted miter-gears, provided with the extending coiling-pins, and placed on said stud-stems in mesh with said former miter-gears; wherein said spur-gears and flatted necks are respectively arranged in line with the teeth and flange of said stationary frame, substantially as and for the purpose specified.

6. In the wire-barbing machine described, in combination with the shaft 7 provided with the ball-bearing; the barbing-wire-feed head socketed on said ball and provided with a plurality of wire-feeding devices equidistantly arranged on a common circle about its axis; and the stationary holding fork, or forks, for controlling the movement of, and causing a side motion to be assumed by, feeding devices, substantially as and for the purpose set forth.

7. In the machine described, in combination with the compound rotary reel mechanism, and the plurality of rotary barbing-wire feeding, coiling, and cutting devices; the shaft 7 provided with the enlarged journals between said reel and barbing mechanism; and the bearings in which said journals rotate; wherein the barbing-wires are conducted from said reel mechanism to the feeding devices through openings of said journals, substantially as set forth.

8. In the wire-barbing machine, in combination with the stationary frame 6 and the rotatable annular head provided with the plurality of coiling devices slotted to take in and discharge a strand-wire passing up and over said head, and with forked or crotched arms for conducting a second strand-wire up and over said head; and sheaves studded to said frame for guiding said strand-wires to a position to be taken up over said head; substantially as set forth.

9. In the wire-barbing machine described, in combination with the compound rotary reel-frame; the reels each comprising a pair of oppositely-arranged disk heads removably fixed on a spindle; and a plurality of pairs of oppositely attached and facing curved wire-holding arms, substantially as set forth.

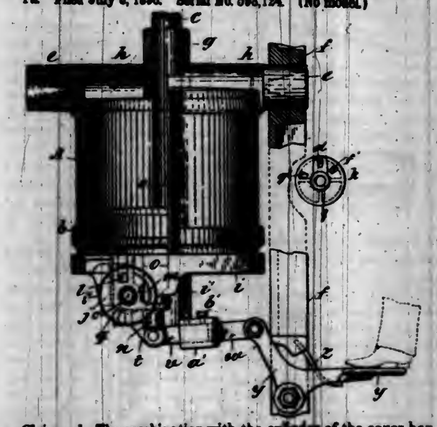
10. In the wire-barbing machine described, in combination with the plurality of barbing-wire reels; the compound rotatable reel-supporting frame provided with the plurality of pairs of side-extending forked reel-spindle bearings, and with pins placed through said forks for removably confining said spindles, substantially as set forth.

11. In the wire-barbing machine described, in combination with the annular rotary head, and the slotted coiling-pinions arranged on laterally-extending stems studded to the flange of said head, the radially-extending holding-plates arranged bearing against the rim of said pinions; substantially as and for the purpose specified.

12. In the wire-barbing machine described, in combination with the rotary heads, and the radially-extending barb-prod cutters seated therein and beveled at their inner end as set forth; the longitudinally-adjustable wedge-blocks seated in channels of enlargements of said head-shafts, and the set-screws for adjusting said blocks to radially adjust said cutters, substantially as and for the purpose specified.

13. In the wire-barbing machine described, the combination with the coiler-supporting studs provided with the slotted heads and laterally-extending slotted stems; the combined spur and miter pinions sleeved on said studs, and the slotted miter-pinions placed on said stems, in mesh with said combined miter-pinions, and provided with coiling-pins, substantially as and for the purposes specified.

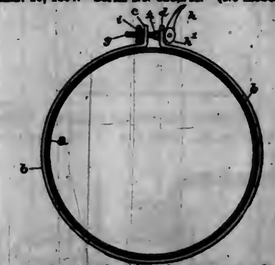
586,946. PNEUMATIC PRESS. PHILO C. BLANDELL, Bradford, Pa. Filed July 8, 1896. Serial No. 598,194. (No model.)



Claim.—1. The combination with the cylinder of the cover having the centrally-perforated port-face for a disk-valve, inlet and exhaust ports of said face, the disk-valve having the central perforated stem and port for admission of air through the port-face, means for holding the valve to the seat and means for oscillating the valve by its stem for controlling the cylinder-ports, said cylinder having the vent at the upper end substantially as described.

2. The combination with the vertical cylinder, of a pneumatic press, of the lower cover having the vertical and centrally-perforated port-face with ports communicating with the lower end of the cylinder, the vertically-arranged oscillatory disk-valve having the hollow stem and port for admitting the air, said stem arranged in the central perforation through the port-face and adapted for attachment of the supply-pipe for the air, the vertically-swinging arm of the valve-stem located intermediately of the port-face and the bearing-lug, vertically-operating foot-lever connected with said arm, and the retracting-spring for the valve substantially as described.

586,947. EMBROIDERY-HOOP. CHARLES S. BUCKLIN, Baltimore, Md., assignor to Josephine Bucklin and Mary W. Bucklin, same place. Filed Mar. 19, 1897. Serial No. 628,341. (No model.)



Claim.—A pair of embroidery-hoops having in combination an inner hoop; a split binding-hoop surrounding the inner hoop and having two lateral projecting ends one of which has a bolt-hole, *e*, and the other an oblong hole, *f*; a screw-threaded bolt having a flattened head, the threaded end being through the said bolt-hole and the head through the said oblong hole in which it is movable; a thumb-nut on the threaded end of the bolt; a cam-lever pivoted to the flattened head of the bolt; and a nut on the bolt between the two lateral hoop ends.

586,948. BEDSTEAD-LOCK. GEORGE H. CLINE, Dickson, Tenn. Filed Dec. 15, 1896. Serial No. 615,763. (No model.)



Claim.—1. The combination with a bedstead, of a locking device comprising the rectangular-shaped casting provided with the outer enlarged ends and having the inwardly-projecting spindle, means for securing said casting to the side rails of the bed, a socket-plate attached to the head or foot board adapted to engage the enlarged portion of the casting, the same having the approximately keyhole-shaped opening, the block provided with a coiled spring thereon, and the tightening-nut arranged on the inner end of the spindle, substantially as set forth.

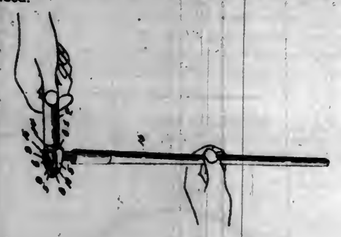
2. The combination with a socket-plate adapted to be secured to a head or foot board of a bedstead, of a casting adapted to be secured to the rail and provided with enlarged outer ends and a spindle projecting from its inner end, means for securing the said casting to the rail so as to have movement thereon, a socket-block through which the spindle of the casting projects and a nut on the end of the spindle, substantially as and for the purpose set forth.

3. In a bedstead-lock, a casting having dovetail projections at one end and provided with a threaded spindle projecting from its opposite end and a guide-plate having a central aperture for securing it in place and provided with flanges overlapping the members of the casting, and a nut on the end of the spindle, substantially as described.

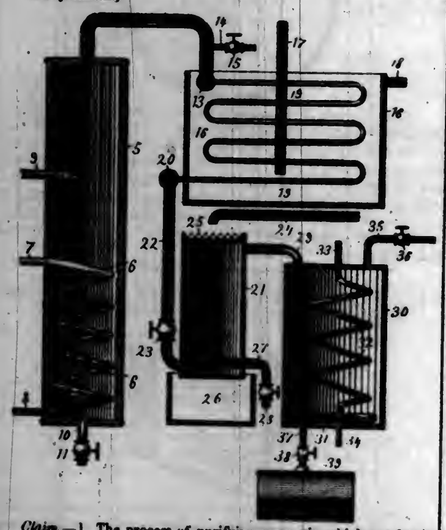
586,949. PEN-EXTRACTOR HOLDER. CHARLES O. FELDMAN and MATTHEW J. KOGEL, Pittsburg, Pa. Filed Mar. 29, 1897. Serial No. 629,622. (No model.)

Claim.—In a device of the class described, the combination of a tubular body portion forming a handle and a receptacle for pens, two arms formed integral therewith at one end thereof and projecting therefrom, said arms having a central outcurved or bulged portion forming a broad space between them into which the pen to be extracted is inserted, and a clamp consisting of a substantially triangular-shaped plate pivoted by its reduced end between said arms at the outer end thereof and extending transversely of the same, said

clamp provided at its broad base with a cam-face adapted to be brought into position to clamp the pen between it and the end of the handle while the penholder is being released therefrom, substantially as described.



586,950. PROCESS OF PURIFYING AMMONIA. FREDERICK W. A. FRERICHS, St. Louis, Mo. Filed Aug. 15, 1896. Serial No. 602,851. (No specimens.)



Claim.—1. The process of purifying ammonia which consists in subjecting commercial water of ammonia, while under pressure to a temperature, sufficiently high, at least 180° centigrade and preferably higher to set free all of the permanent gases, which can develop from commercial ammonia under conditions prevailing in ice-machines, and removing the permanent gases, substantially as described.

2. The process of purifying ammonia, which consists in subjecting commercial water of ammonia, while under pressure to a temperature sufficiently high, at least 180° centigrade and preferably higher to set free all of the permanent gases which can develop from commercial ammonia under conditions prevailing in ice-machines, removing the permanent gases, and liquefying the resulting ammonia-gas, substantially as described.

3. The process of purifying ammonia, which consists in subjecting commercial water of ammonia, while under pressure, to a temperature, sufficiently high at least 180° centigrade and preferably higher to set free all of the permanent gases, which can develop from commercial ammonia under conditions prevailing in ice-machines, removing the permanent gases, liquefying the resulting ammonia-gas, and subjecting the liquefied ammonia-gas to distillation at a low temperature preferably at a temperature from 10° to 20° centigrade below zero, substantially as described.

586,951. CAR-BRAKE. WILLIAM L. HIBBARD and ZERNA M. HIBBARD, Detroit, Mich., assignors of one-third to DUNCAN E. BROWN, same place. Filed Jan. 25, 1897. Serial No. 620,542. (No model.)

Claim.—1. In a rail-brake for cars, the combination with the truck-frame, of the vertically-movable plate mounted thereon, the brake-shoe carried by said plate standing adjacent to the rail of the track, the inclined cleat or plate fixed to the truck-frame, the lever pivoted at one end to said movable plate, the antifriction-roller on said lever engaging the inclined face of said fixed plate, and means for actuating said lever to force the shoe into contact with the rail.

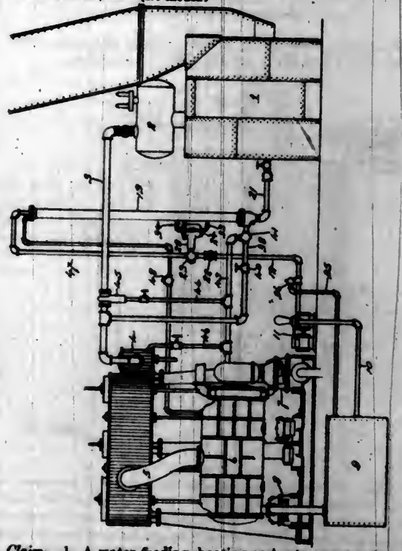


2. In a rail-brake for cars, the combination with the frame, the bracket mounted on the frame, the movable plate mounted in a way in said bracket, the brake-shoe on the lower end of said plate, the cross-plate having the inclined edges bolted to said bracket, the lever pivoted at its lower end to said movable plate, the antifriction-roller journaled on said lever and engaging the inclined edge of said cross-plate, said movable plate having a vertical slot in its upper end, the fixed stud projecting from said bracket lying in said slot, the spring lying in said slot engaging the stud and the upper end of the slot-opening, and means for actuating said lever to depress said movable plate and carry the brake-shoe into contact with the rail of the track.

3. In a rail-brake for cars, the combination with the truck-frame, the vertically-movable plate mounted on the frame, said plate having a rounded lower end, the shoe-holder having a curved socket in which the rounded end of said plate is pivoted and which bears therein, said socket being formed concentric with the point of pivot of said parts, the brake-shoe removably attached to said shoe-holder, the fixed plate having an inclined lower edge, said plate being bolted to the truck-frame adjacent to said movable plate, the lever pivoted at its lower end to said movable plate and having an antifriction-roller which engages the inclined edge of said fixed plate, and means for actuating said lever to depress the brake-shoe.

4. In a rail-brake for cars, the combination with the truck-frame, the vertically-movable plate mounted thereon having a rounded lower end, the shoe-holder carrying the brake-shoe having a curved socket in which the rounded end of said movable plate is pivoted, the pin fixed in the lower end of said movable plate, the curved slot in the face of said shoe-holder through which said pin passes, the lever pivoted at its lower end to said pin, the antifriction-roller journaled to said lever, the fixed plate having an inclined edge which is engaged by said roller, and means for actuating said lever to depress said movable plate and carry the shoe into contact with the rails of the track.

586,952. BOILER FEED-WATER FEEDING AND HEATING APPARATUS. EDGAR P. HOLLY, Hartford, Conn. Filed Dec. 8, 1896. Serial No. 614,912. (No model.)



Claim.—1. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

2. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a float operated by the level of the water in the heating-chamber, a valve in the water-main connected with the float, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

3. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a relief-valve connected with the water-main, a float operated by the level of the water in the heating-chamber, a valve in the water-main connected with the float, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

4. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, a suction-T located in the steam-pipe, and a return-pipe connected with a branch of the suction-T and adapted to be connected with the various drips of the plant, substantially as specified.

5. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, an escape-pipe connected with the heating-chamber, and a reducing-valve located in the escape-pipe, substantially as specified.

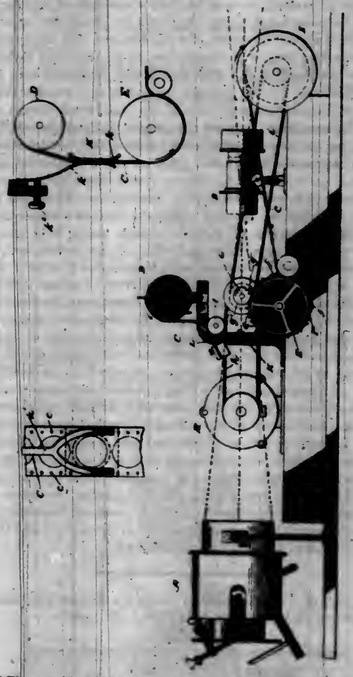
6. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a chamber connected by pipes with the heating-chamber at about the water-level of the heating-chamber, a float operated by the level of the water in the heating-chamber, a valve in the water-main connected with the float, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

7. A water feeding, heating and return apparatus consisting of a heating-chamber, a water-main connected with the heating-chamber and adapted to be connected with a water-supply, a chamber connected by pipes with the heating-chamber at about the water-level of the heating-chamber, a float located in the exterior chamber, a lever connected with the float, a valve in the water-main, said valve being connected with the exterior chamber by means of a plug, a spindle joining the valve-disks and the float-lever, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

8. A water feeding, heating and return apparatus consisting of a heating-chamber, a tubular supporting-post within the heating-chamber, dished baffle-plates supported by the tubular post in the heating-chamber, the baffle-plates being alternately arranged with the hollows up and down, a spraying device located in the upper part of the heating-chamber, a water-main connected with the spraying device and adapted to be connected with a water-supply, a feed-pipe connected with the heating-chamber and adapted to be connected with a boiler, a steam-pipe connected with the tubular support within the heating-chamber and adapted to be connected with a boiler, and a return-pipe connected with the steam-pipe and adapted to be connected with the various drips of the plant, substantially as specified.

586,953. PHANTOSCOPE. CHARLES F. JENKINS, Richmond, Ind., and THOMAS ARMAT, Washington, D. C. Filed Aug. 28, 1896. Serial No. 603,798. (No model.)

Claim.—1. An apparatus for exhibiting pictures so as to give the impression to the eye of objects in motion, comprising a picture-carrying surface, means for supporting said surface and permitting it to be moved so as to cause the pictures or objects thereon to be successively exposed for the required interval of time in an illuminated field, and mechanism adapted to intermittingly quickly move said surface at short intervals for exposing or exhibiting the pictures in the order of their succession, and for holding the surface stationary during the interval of illumination of each picture: the interval of illumination of the picture being made to exceed the interval of motion or change, substantially as described.



2. The combination, in an apparatus for exhibiting pictures so as to give the impression to the eye of objects in motion, of a movable picture-carrying surface and means for intermittingly moving said surface at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, substantially as described.

3. The combination, in picture-exhibiting apparatus for giving the impression to the eye of objects in motion, of a picture-carrying surface, means for supporting the same and means for feeding such surface intermittingly in such manner that the interval of illumination of the picture shall predominate the interval of motion, substantially as described.

4. The combination, in picture-exhibiting apparatus for giving the impression to the eye of objects in motion, of a picture-carrying surface, means for supporting and intermittingly quickly moving the same, and means for illuminating the pictures successively between the intervals of motion in such manner that the interval of pause and illumination of the picture shall predominate the interval of movement, substantially as described.

5. In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a transparent picture-carrying surface, of means for intermittingly moving the same step by step so as to present to view the pictures thereon in the order of their succession; the interval of time between the exhibition of successive pictures being instantaneous while the period of illumination is comparatively greatly prolonged, substantially as described.

6. In picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying surface, of mechanism for intermittingly moving said surface at short intervals so as to expose the pictures thereon successively in an illuminated field for an interval of time exceeding the interval of motion, comprising a peripherally-notched disk or wheel having semi-circular or concave depressions between said notches, and a smaller gear having substantially a toothless periphery except at one point where a tooth is provided to engage the notches of the disk or wheel, so as to impart an intermittent step-by-step movement to the picture-carrying surface, and to hold the same immovable during the intervals of pause, substantially as described.

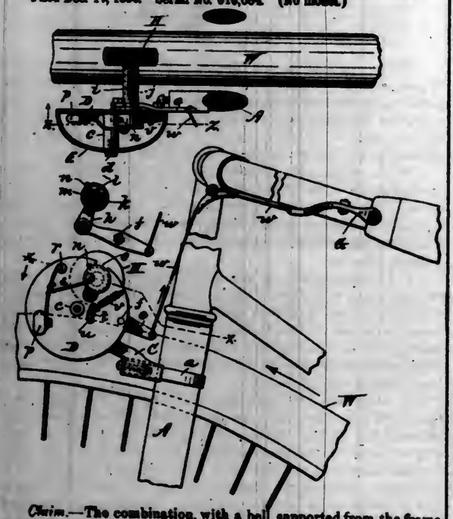
7. In picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with the picture-carrying film and means for intermittingly moving said film so as to expose the pictures thereon successively in an illuminated field for an interval of time exceeding the interval of motion, of the tension device comprising two members between which the film is adapted to pass, one member being adapted to yieldingly press the film toward the other so that it is held taut and prevented from flexing or puckering at the point of exposure of the picture, substantially as described.

8. In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with an illuminator and a projecting lens, of a transparent picture-carrying surface arranged in the focus of the objective of the projecting lens, means for intermittingly moving the said surface in such manner that the interval of illumination shall exceed the interval of change, and a tension device adapted to keep the picture taut and prevent flexing or puckering at the point of exposure, substantially as described.

9. An apparatus for exhibiting pictures so as to give the impression to the eye of objects in motion, comprising a picture-carrying film or surface adapted to be given an intermittent step-by-step movement for bringing the pictures or objects thereon successively into position for exposure in an illuminated field, means for illuminating pictures or objects exposed in said field, and mechanism for quickly moving said surface at intervals so as to successively expose the pictures or objects thereon, the exposed picture or object being uninterruptedly illuminated during the period of exposure, the construction being such that the impression made by the illuminated picture while stationary so greatly predominates any impression liable to be caused by the motion of the film as to render the latter imperceptible to the eye, owing to the persistence of vision, substantially as described.

10. An apparatus for exhibiting pictures, comprising a movable picture-carrying surface or film adapted to be given an intermittent step-by-step movement, so as to bring a series of pictures or objects thereon successively into an illuminated field, means for illuminating the picture or object exposed in said field, and mechanism for intermittently moving said surface so as to quickly substitute one picture for another without interrupting the illumination; the construction being such that the motion of the film is rendered imperceptible to the eye by the predominating impression of the picture and the persistence of vision, substantially as described.

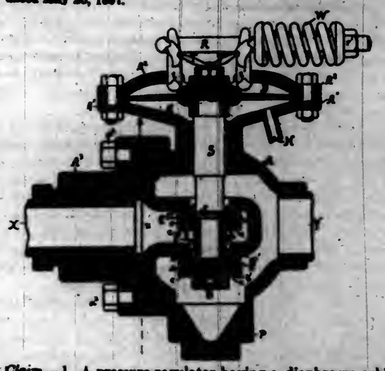
586,954. BICYCLE-BELL. HAROLD G. MARTIN, Providence, R. I. Filed Dec. 17, 1896. Serial No. 616,084. (No model.)



Claim.—The combination, with a bell, supported from the frame of a bicycle, having a stationary disk or plate D, with an operating-lever *e* pivoted thereon, and carrying the friction-roller shaft mounted to swing on said plate, the shaft *j* having its inner end *k* of an enlarged diameter and provided with a circumferential groove or slot *l*, a casing *m* loosely fitted over the enlargement of said shaft, with the pin *n* to engage in the slotted opening of the same, a spring-controlled hammer attached to the plate, with a connection therefrom to the side of the casing and eccentric thereto, and means for throwing the friction-roller into and out of contact with the wheel of the bicycle, consisting of the spring *v*, pull-wire *w*, and connections therewith, substantially as shown and described.

REISSUES.

11,621. PRESSURE-REGULATOR. JOHN M. FOURE, Elizabeth, N. J. Filed June 16, 1897. Serial No. 641,058. Original No. 538,306, dated May 28, 1895.



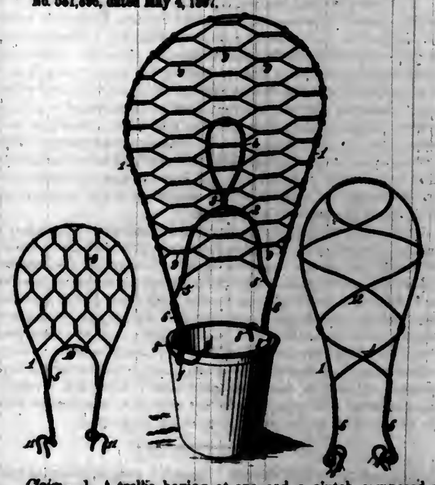
Claim.—1. A pressure-regulator having a diaphragm subjected to the action of delivery-pressure, a spindle passing through the casing with a close fit and connected to said diaphragm, two valve-clappers adapted to be secured to the spindle, the casing having seats for the clappers and an oblong opening leading to the space between the seats for the insertion therethrough of the upper clapper in putting the valve together, substantially as described.

2. A regulator-valve having a pair of clapper-disks with flat bearing-faces, bearing-rings secured thereto, flanged rings holding the outer edges of the bearing-rings in place and a shouldered spindle and sleeve to clamp the inner edges of the bearing-rings, substantially as described.

3. A pressure-regulator or other such device having a flexible diaphragm adapted to be subjected to the delivery-pressure, said diaphragm being composed of a number of plates, the upper ones having perforations, as and for the purpose described.

4. A pressure-regulator having a valve and diaphragm with a pressure-chamber on one side, and a contracted connection between this chamber and the delivery side of the valve, in combination with a controlled outlet from said pressure-chamber, whereby the delivery-pressure may be accelerated, when desired.

11,622. TRELLIS. GEORGE W. WARREN and FRED D. CLARK, Prattsburg, N. Y. Filed June 12, 1897. Serial No. 640,560. Original No. 581,896, dated May 4, 1897.



Claim.—1. A trellis having at one end a clutch composed of curved elastic members to engage the inside of a flower pot or receptacle, and a projecting contact-point to extend under and engage the bead, rib or flange on the pot, or receptacle, whereby the trellis serves as a handle to carry the latter, substantially as described.

2. A trellis, consisting of a bail-shaped frame having a pair of clutches constructed with projecting contact-points to engage under the bead, rib or flange on a flower-pot, or other receptacle, whereby the trellis is interlocked with the receptacle and constitutes a handle for carrying the latter, substantially as described.

3. A trellis, consisting of a wire frame having its lower end portion twisted and formed into a clutch comprising a sharp inward curve to provide a contact-point and arms or terminals extending in opposite directions from said contact-point and bent into elastic clutch-hooks, the contact-point constructed to engage under the bead or rib on a flower-pot and the elastic clutch-hooks constructed to bear against the inside of the pot, substantially as described.

4. A trellis, consisting of a wire frame having its lower end portion twisted and formed into two opposite clutches, each comprising an inward curve to provide a contact-point and two arms or terminals extending from said contact-point and bent into clutch-hooks, substantially as and for the purposes described.

5. A trellis, consisting of a frame having hooked terminals bent outwardly and provided with sharp inward curves to form contact-points for engaging the outer face of a flower-pot under the rib or shoulder at the top thereof, the hooks being arranged in pairs at the contact-point of each side of the trellis, and composed of upper curved portions to extend over the upper edge of the flower-pot and depending portions forming contact-points for engaging the interior of the pot, said hooked terminals forming spring-catches, substantially as described.

6. A trellis, comprising a body-frame, a brace-frame connected thereto and adapted to strengthen the same, and means for attaching the trellis to a flower-pot or similar receptacle, substantially as set forth.

7. A trellis, comprising a body-frame, and a brace-frame connected to said body-frame and adapted to strengthen the same, the ends of said brace-frame being connected to the ends of the body-frame and forming clutches adapted to hold the trellis upon a flower-pot or similar receptacle, substantially as set forth.

8. A trellis, comprising a body-frame, and a brace-frame, connected to said body-frame, the ends of said brace-frame and the body-frame being twisted and forming clutches adapted to secure the trellis detachably to a flower-pot or similar receptacle, substantially as set forth.

9. A trellis, comprising a body-frame, and a brace-frame connected to said body-frame, formed of a single piece and having its sides twisted to provide a loop arranged at approximately the center of the body-frame, said sides being extended from said loop and together with the sides of the body-frame twisted and forming clutches adapted to secure the trellis to a flower-pot or similar receptacle, substantially as set forth.

10. A trellis, comprising a body-frame, and a brace-frame connected to said body-frame and adapted to strengthen the same, said brace-frame being formed of a single piece and having its sides twisted to form a loop, said sides diverging from said loop and having their lower terminals twisted with the lower terminals of the sides of the body-frame, the terminals of each side of the body-frame and the brace-frame at each side of the trellis extending in opposite directions and forming attaching-hooks adapted to secure the trellis to a flower-pot or similar receptacle, and a filling secured to the body-frame and extending thereover, substantially as set forth.

11. A trellis, comprising a body-frame, and a brace-frame connected to said body-frame and adapted to strengthen the same, said brace-frame being formed of a single piece and having its sides twisted to provide a loop arranged at approximately the center of the body-frame, said sides diverging from said loop and each having its lower terminal twisted with the lower terminal of one side of the body-frame, said twisted terminals of the body-frame and the brace-frame being bent outwardly and provided with a sharp inward curve to form a contact-point, the terminals of each side of the body-frame and the brace-frame at each side of the trellis extending in opposite directions from said contact-point and being bent to form attaching-hooks, the contact-point and attaching-hooks at each side of the trellis constituting a clutch, said clutches being adapted to secure the trellis to a flower-pot or similar receptacle, substantially as set forth.

12. A trellis, comprising a body-frame and a brace-frame having hooked terminals bent outwardly and provided with a sharp inward curve to form contact-points for engaging the outer face of a flower-pot under the rib or shoulder at the top thereof, the hooks being arranged in pairs, at the contact-point of each side of the trellis, and consisting of upper curved portions to extend over the upper edge of a flower-pot and depending portions forming contact-points for engaging the interior of a flower-pot, said hooked terminals forming spring-catches, substantially as described.

13. A trellis, comprising a body-frame having a hook or clutch at each of its sides, and a brace-frame having a hook or clutch at each of its sides, said brace-frame having a portion of its length above the hooks or clutches twisted together with the body-frame, substantially as set forth.

14. A trellis, comprising a body-frame having a hook or clutch at each of its sides, a brace-frame having a hook or clutch at each of its sides, said brace-frame having a portion of its length above the hooks or clutches twisted together with the body-frame, and a filling secured to the body-frame, said brace-frame extending across the space bounded by the body-frame and connected to said filling, substantially as set forth.

DESIGNS.

27,373. BADGE. CHARLES C. DARLING, Providence, R. I. Filed June 9, 1897. Serial No. 640,076. Term of patent 7 years.



Claim.—The design for a badge or charm, substantially as herein shown and described.

27,374. BADGE. NICHOLAS LENZ, New Albany, Ind. Filed Apr. 17, 1897. Serial No. 632,674. Term of patent 14 years.



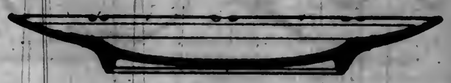
Claim.—The design for a badge, substantially as herein shown and described.

27,375. CIGARETTE-HOLDER. ESTHER STRAUS, Louisville, Ky. Filed May 15, 1897. Serial No. 636,797. Term of patent 14 years.

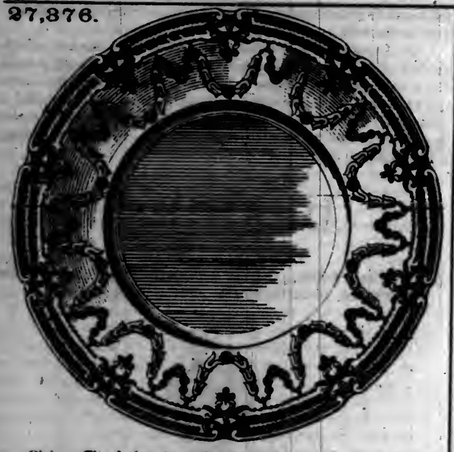


Claim.—The design for a cigar or cigarette holder, substantially as herein shown and described.

27,376. PLATE. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 5, 1897. Serial No. 638,668. Term of patent 7 years.

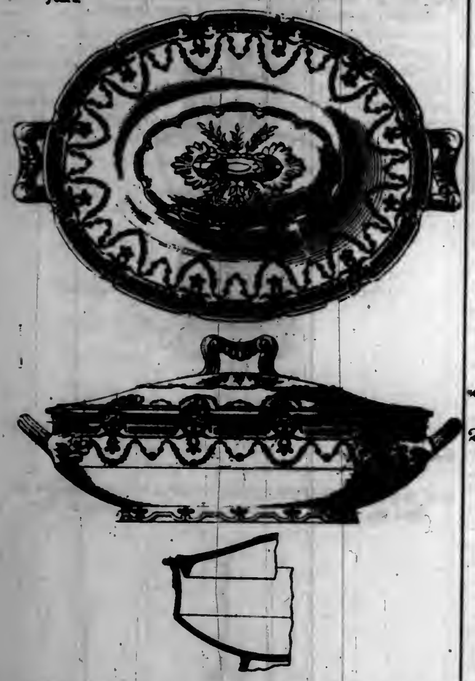


27,376.



Claim.—The design for a plate or similar article of a table-service, substantially as shown and described.

27,377. COVER-DISH. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 5, 1897. Serial No. 639,611. Term of patent 7 years.



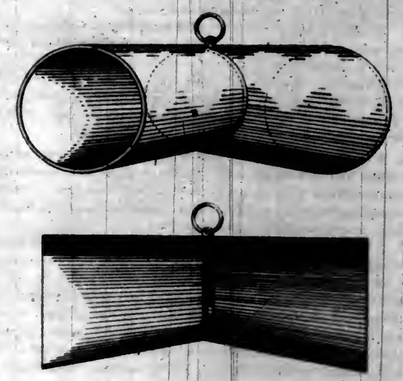
Claim.—The design for a cover-dish: substantially as shown and described.

27,378. CUP. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 5, 1897. Serial No. 639,610. Term of patent 7 years.



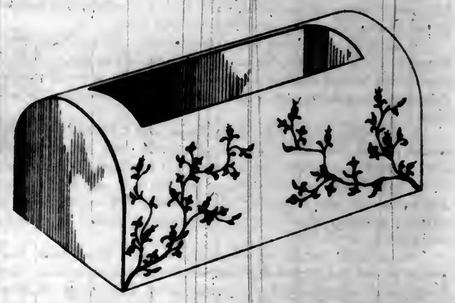
Claim.—The design for a cup or similar article of a table-service, substantially as shown and described.

27,379. BICYCLE DRINKING-CUP. SOPHIE STURMEL, Philadelphia, Pa. Filed June 16, 1897. Serial No. 641,071. Term of patent 7 years.



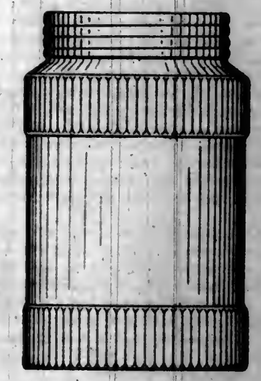
Claim.—The design for a drinking-cup as herein shown and described.

27,380. FLOWER-POT. JOSEPH EDWARD RIGGS, Clay City, Ind. Filed May 25, 1897. Serial No. 638,162. Term of patent 7 years.



Claim.—The design for a flower-pot, as herein shown and described.

27,381. JAR. GORDON PENDLETON, Jr., Carbondale, Pa., assignor to the Pendleton Manufacturing Company, same place. Filed June 16, 1897. Serial No. 641,068. Term of patent 14 years.



Claim.—The design for a package jar substantially as herein shown and described.

27,382. PACKING-POT. ADOLF MEWES, Bremen, Germany, assignor to the Norddeutsche Wollkämmerei und Kammgarnspinnerei, same place. Filed July 15, 1896. Serial No. 599,742. Term of patent 14 years.



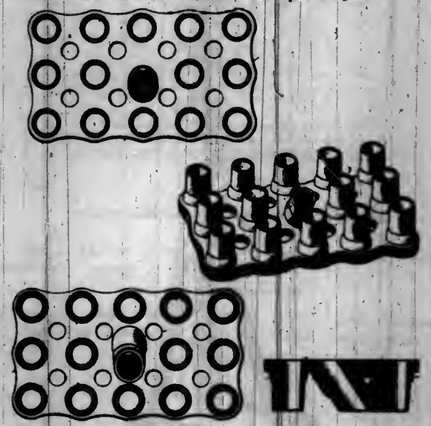
Claim.—The design for a packing-pot substantially as shown and described.

27,383. FRUIT-JAR SHIELD. ELIZABETH KOLLER, Bloomville, Ohio. Filed June 8, 1897. Serial No. 639,229. Term of patent 14 years.



Claim.—The design for a fruit-jar shield substantially as herein shown and described.

27,384. MOP-HEAD. WILLIAM W. WARD, Pelham, Ga. Filed June 8, 1897. Serial No. 639,236. Term of patent 7 years.



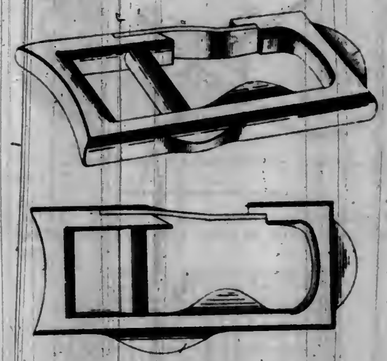
Claim.—The design for a mop-head herein shown and described.

27,385. COAT-HOOK AND HAT-HOLDER. OLAF H. LUND, Kenyon, Minn. Filed June 14, 1897. Serial No. 640,778. Term of patent 3½ years.



Claim.—The design for a combined coat-hook and hat-holder, as herein shown and described.

27,386. SNAP-HOOK. FLOYD H. RANCK and BYRON H. RANCK, Troy Mills, Iowa. Filed June 8, 1897. Serial No. 639,226. Term of patent 7 years.



Claim.—The design for a snap-hook, herein shown and described.

27,387. CHECK-HOOK. GEORGE A. CHAMBERLAIN, Greene, N. Y. Filed Apr. 24, 1897. Serial No. 633,813. Term of patent 7 years.



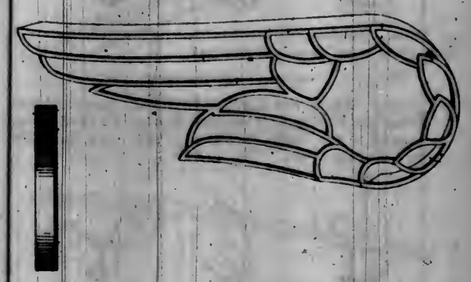
Claim.—The design for a check-rein-hook, substantially as herein shown and described.

27,388. WEDGE-BLOCK. THOMAS R. STANDING and WILLIAM V. BRATSHAW, Fall River, Mass. Filed May 25, 1897. Serial No. 638,163. Term of patent 3½ years.



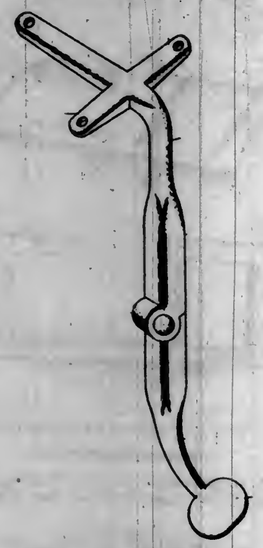
Claim.—The design for a wedge-block for rope-clamps as herein shown and described.

27,389. SPROCKET-WHEEL CHAIN-GUARD. HARRISON H. ROUTREE, Chicago, Ill. Filed June 9, 1897. Serial No. 640,074. Term of patent 3½ years.



Claim.—The design for a sprocket-wheel and driving-chain guard or shield for bicycles, substantially as herein shown and described.

27,390. VEHICLE-STEP. WILLIAM REBSER, Tuscarawas, Ind. Ter. Filed June 18, 1897. Serial No. 641,362. Term of patent 14 years.



Claim.—The design for a vehicle-step, substantially as herein shown and described.

27,391. COLTER-BRACE. ROBERT J. DARBY, Troupe, Tex., assignor of one-half to George W. Shaw, same place. Filed June 3, 1897. Serial No. 639,349. Term of patent 14 years.



Claim.—The design for a colter-brace, as herein shown and described.

27,392. BRUSH FOR ELECTRIC SWITCHES. CHARLES ROBBINS, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed June 14, 1897. Serial No. 640,731. Term of patent 7 years.



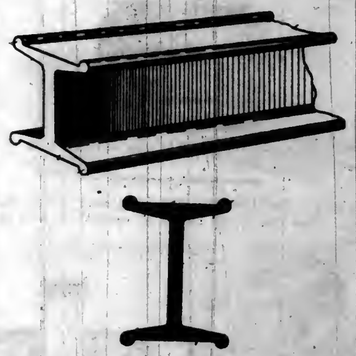
Claim.—The design for a contact-brush for electric switches, substantially as herein shown and described.

27,393. BRUSH FOR ELECTRIC SWITCHES. CHARLES ROBBINS, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed June 12, 1897. Serial No. 640,584. Term of patent 7 years.



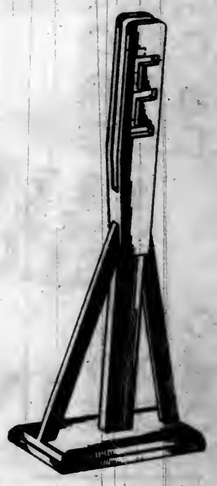
Claim.—The design for a contact-brush for electric switches, substantially as herein shown and described.

27,394. BUILDING STRUT OR COLUMN. CHARLES M. HORTON, Duluth, Minn. Filed June 8, 1897. Serial No. 639,980. Term of patent 14 years.



Claim.—The design for a building strut or column, herein shown and described.

27,395. FRAME FOR LIFTING-JACKS. HENRY CLEMONS, Cantaln, Ohio. Filed Jan. 19, 1897. Serial No. 619,810. Term of patent 14 years.



Claim.—The design for a lifting-jack frame, substantially as herein shown and described.

27,396. PLATE FOR IRONING-MACHINES. ARTHUR R. SELDEN, Rochester, N. Y. Filed May 24, 1897. Serial No. 637,964. Term of patent 7 years.



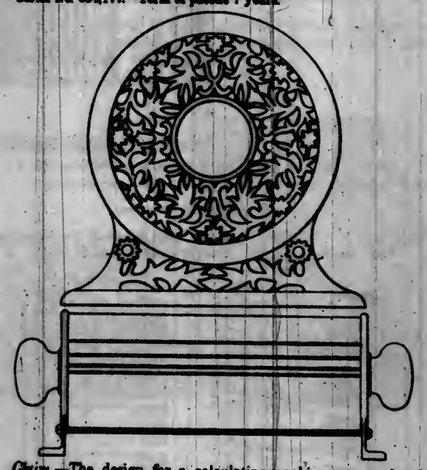
Claim.—The design for ironing-plates of ironing-machines substantially as shown and described.

27,397. METAL MOUNT. FREDERICK W. CLEMSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 26, 1896. Serial No. 617,116. Term of patent 7 years.



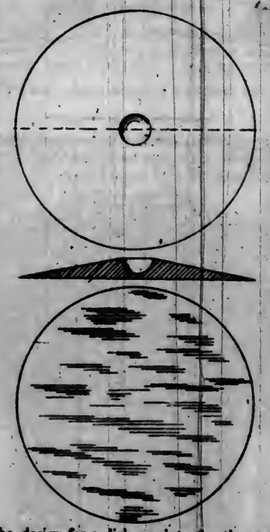
Claim.—The design for a metal mount, substantially as shown and described.

27,398. CASE FOR WAGE-CALCULATING MACHINES. WILLIAM H. KIRK and HERBERT R. TAYLOR, Newark, N. J. Filed Apr. 27, 1897. Serial No. 634,177. Term of patent 7 years.



Claim.—The design for a calculating-machine case as herein shown and described.

27,399. DISK FOR LAWN-POOL. JASON S. BENTZ, Columbus, Ohio. Filed June 11, 1897. Serial No. 640,386. Term of patent 14 years.



Claim.—The design for a disk or plate for the game of lawn-pool, substantially as described.

27,400. CURTAIN-HOLDER. WILLIAM E. BALL and ALICE C. BAILEY, Zanesville, Ohio. Filed June 8, 1897. Serial No. 639,936. Term of patent 7 years.



Claim.—The design for a curtain-holder, as herein shown and described.

27,401. WINDOW-GUARD. ANNE SOPHIA FROEHLICH, Philadelphia, Pa. Filed June 9, 1897. Serial No. 640,073. Term of patent 14 years.



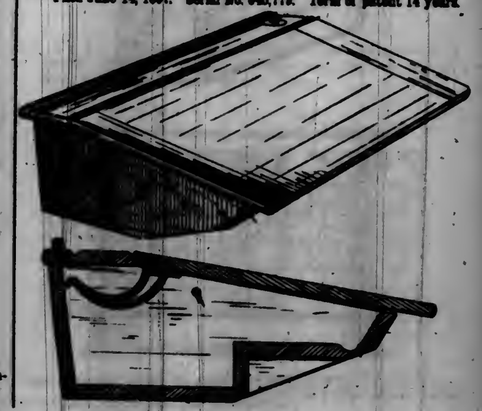
Claim.—The design for a window-guard, as herein shown and described.

27,402. LENS FOR SKYLIGHTS, &c. BYRNES J. SULLIVAN, River Forest, Ill., assignor to the Brown Bros. Manufacturing Company, Chicago, Ill. Filed Mar. 13, 1897. Serial No. 627,420. Term of patent 7 years.



Claim.—The design for a lens for skylights or the like, substantially as shown and described.

27,403. SCHOOL-DESK BODY. MARY SHERWOOD, Baltimore, Md. Filed June 14, 1897. Serial No. 640,779. Term of patent 14 years.



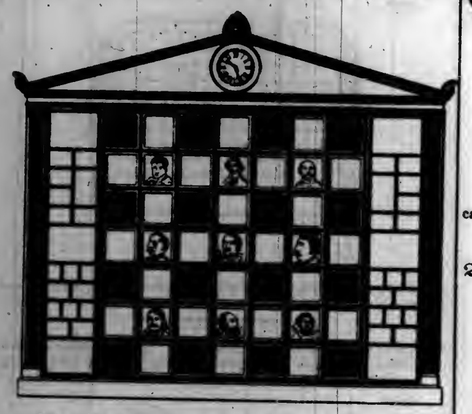
27,403.



Claim.—The design for a school-desk body, substantially as described and shown

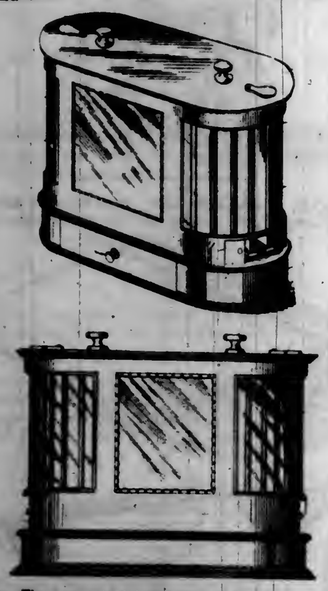
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27,404. ADVERTISING-FRAME. ALPHONSE KING, Chicago, Ill. Filed May 27, 1897. Serial No. 638,474. Term of patent 14 years.



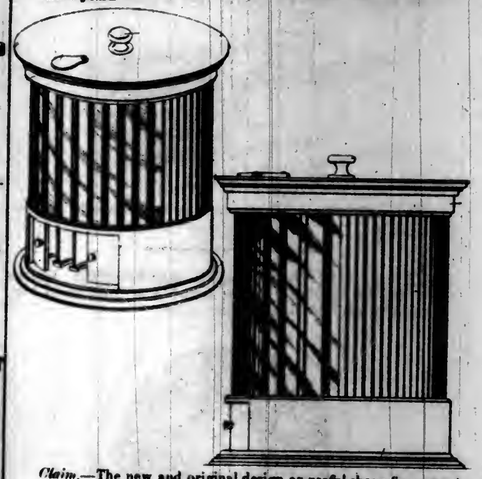
Claim.—The design for an advertising-frame substantially as herein shown and described.

27,405. THREAD CASE OR CABINET. BRINGTON N. GILFILLAN, Chicago, Ill. Filed June 10, 1897. Serial No. 640,255. Term of patent 7 years.



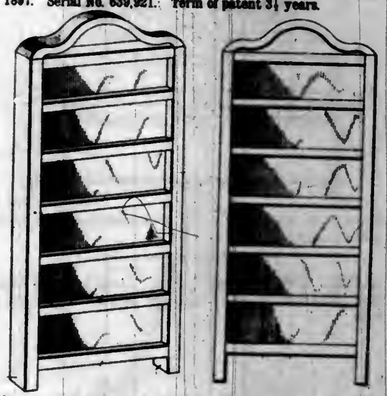
Claim.—The new and original design or useful shape for a spool case or cabinet substantially as herein shown and described.

27,406. THREAD CASE OR CABINET. BRINGTON N. GILFILLAN, Chicago, Ill. Filed June 10, 1897. Serial No. 640,254. Term of patent 7 years.



Claim.—The new and original design or useful shape for a spool case or cabinet substantially as herein shown and described.

27,407. SCREEN. GEORGE B. SNOW, Oneida, N. Y. Filed June 8, 1897. Serial No. 639,921. Term of patent 3½ years.



Claim.—The design for a screen, herein shown and described.

27,408. UNDERGARMENT. JULIUS HIRSH, Philadelphia, Pa., assignor to himself and Joseph Behal, same place. Filed May 8, 1897. Serial No. 635,744. Term of patent 7 years.



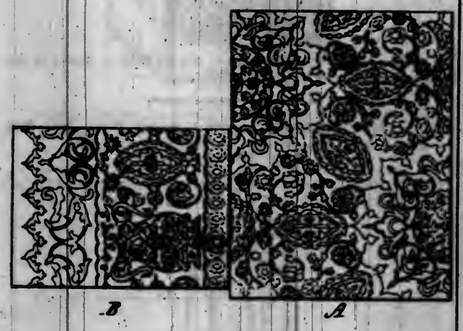
Claim.—The design for an undergarment, substantially as described and shown in the accompanying drawing.

27,409. TRIMMING. SIMON FRIEDENBERG, Philadelphia, Pa. Filed Feb. 5, 1897. Serial No. 622,229. Term of patent 7 years.



Claim.—The design for trimmings for fronts of undervests, undershirts, overshirts and the like, substantially as shown.

27,410. CARPET. WALTER B. BROWN, Newark, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed June 7, 1897. Serial No. 638,766. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for a carpet comprising the body A and the border B, substantially as shown.

27,411. CARPET. JOHN B. MOWBAY, Yonkers, N. Y., and WILLIAM P. BROWN, Newark, N. J., assignors to the Bigelow Carpet Company, of Massachusetts. Filed June 7, 1897. Serial No. 638,764. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for a carpet comprising the body A and the border B, substantially as shown.

27,412. CARPET. LOUIS PAROT, Union Hill, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed June 7, 1897. Serial No. 638,765. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

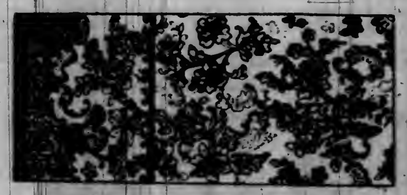
3. The design for a carpet comprising the body A and the border B, substantially as shown.

27,413. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 10, 1897. Serial No. 640,258. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown in the illustration accompanying this specification.

27,414. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 10, 1897. Serial No. 640,259. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown in the illustration accompanying this specification.

27,415. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 10, 1897. Serial No. 640,260. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown in the illustration accompanying this specification.

27,416. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 10, 1897. Serial No. 640,261. Term of patent 3½ years.



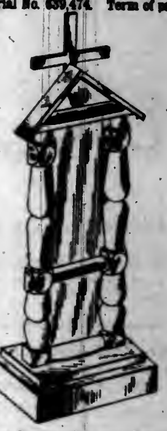
Claim.—The design for a carpet, substantially as shown in the illustration accompanying this specification.

27,417. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed June 10, 1897. Serial No. 640,262. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown in the illustration accompanying this specification.

27,418. TOMBSTONE. GILBERT S. MARTIN, Myrtle, Mo. Filed June 4, 1897. Serial No. 639,474. Term of patent 7 years.

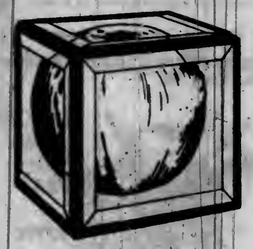


Claim.—The design for a tombetone substantially as herein shown and described.

TRADE-MARKS

REGISTERED JULY 20, 1897.

80,886. HARDY FRUIT-TREES. LOGANVITY APPLE COMPANY, Omaha, Nebr. Filed Apr. 5, 1897.



Essential feature.—A representation of a box having glass sides and containing a piece of fruit. Used since March 1, 1897.

80,887. PAPER AND ENVELOPS. CHARLES J. COHEN, Philadelphia, Pa. Filed May 19, 1897.

KENT

Essential feature.—The word "KENT." Used since April 16, 1875.

80,888. CHEMICAL PREPARATIONS IN THE NATURE OF INK FOR MARKING FABRICS. LOUIS HERRENDORF, Wittgensdorf, Germany. Filed June 21, 1897.

Nomin.

Essential feature.—The word "NOMIN." Used since November 8, 1896.

80,889. HATS. THE CROFUT & KNAPP COMPANY, South Norwalk, Conn. Filed May 10, 1897.

C&K

Essential feature.—The letters and character "C & K" and a representation of a hat. Used since April 1, 1897.

80,890. COTTON YARN AND SEWING-COTTON. J. & P. COATS, LIMITED, Paisley, Scotland. Filed Apr. 16, 1895.

J. & P. COATS

Essential feature.—The name "J. & P. COATS" appearing in an upper panel separated from three lower panels, the said lower panels with words and number arranged in three vertically-divided panels. Used since 1894.

80,891. COTTON YARN AND SEWING-COTTON. J. & P. COATS, LIMITED, Paisley, Scotland. Filed Apr. 16, 1895.



Essential feature.—A circular label or ticket with a central circular ornamental device in representation of lacework surrounded by two concentric circular spaces bearing name, words, and number. Used since 1894.

80,892. COTTON YARN AND SEWING-COTTON. J. & P. COATS, LIMITED, Paisley, Scotland. Filed Apr. 16, 1895.



Essential feature.—A circular ticket or label with a central circular panel having the word "YARDS" and numbers designating length and thread numbers of contrasting color, with a low triangular device arranged between the numbers, the whole surrounded by a circular space contrasting in color with the central panel and containing the words "J. & P. COATS. BEST CROCHET COTTON." Used since 1894.

80,893. COTTON YARN AND SEWING-COTTON. J. & P. COATS, LIMITED, Paisley, Scotland. Filed Apr. 16, 1895.



Essential feature.—An oblong rectangular label surrounded by a border composed of parallel lines with an interior ornamental device at each corner and the representation of a spool of crochet-cotton wound diagonally and projecting laterally beyond the ends of the spool, upon which is secured a ticket or label having a central space surrounded by two circular spaces with the numbers and words "200 YARDS 50" and "J. & P. COATS BEST CROCHET COTTON," the representation of the spool having the words and numbers above and below the same. Used since 1894.

80,894. HYDRAULIC HOSE. EUREKA FIRE HOSE COMPANY, New York, N. Y. Filed June 22, 1897.

EAGLE

Essential feature.—The word "EAGLE." Used since March, 1886.

30,395. METAL TUBING. THE POPE TUBE COMPANY, Hartford, Conn. Filed June 23, 1897.

PIONEER

Essential feature.—The word "PIONEER." Used since June 9, 1897.

30,396. CHEWING-GUM AND ARTIFICIAL STRAWS. THE OHIO GUM COMPANY, Lisbon, Ohio. Filed June 2, 1897.



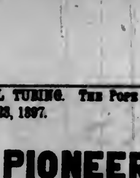
Essential feature.—The words "SODA MINT" in connection with a pictorial representation of several boxes or packages, a mountain, and the rising sun. Used since September 1, 1896.

30,397. CANDIES, ICE-CREAM, AND SODA-WATER BEVERAGES. JOHN H. FRANCIS, Jr., Peoria, Ill. Filed Apr. 6, 1897.

SILK

Essential feature.—The word "SILK." Used since April 3, 1897.

30,398. JELLIES, CANNED AND PRESERVED FRUITS, VEGETABLES, AND PICKLED EDIBLES. ALICE VAUGHAN, Salem, Ill. Filed May 12, 1897.



Essential feature.—The letters "A V" in monogram form. Used since May 7, 1895.

30,399. CANNED AND PRESERVED FRUITS, VEGETABLES, AND FISH, EXCEPT SALMON. R. C. WILLIAMS & Co., New York, N. Y. Filed Apr. 17, 1897.

ROYAL SCARLET

Essential feature.—The words "ROYAL SCARLET." Used since April 9, 1897.

30,400. TABLE-SAUCE. SCHARFF BROTHERS, St. Louis, Mo. Filed May 17, 1897.

Bismarck

Essential feature.—The word "BISMARCK." Used since 1887.

30,401. CERTAIN NAMED TABLE DELICACIES. THE OTTO EUREKA PRESERVING COMPANY, Topeka, Kans. Filed May 18, 1897.



Essential feature.—A representation of a leaf. Used since July 1, 1890.

30,402. MEAT-CURRIES. THE LYTLE MANUFACTURING CO., Danville, Ill. Filed May 4, 1897.



Essential feature.—A representation of a bull's head and neck in three-quarters view, a ring in the nose of the bull, the ears bent forward, the face wearing an expression of lordly taurine arrogance, and arranged on the neck the words in capital letters "LYTLE'S ANTI-DYSPEPTIC MEAT CURRIE." Used since April 1, 1896.

30,403. POWDERED HERBS. THE ALONZO O. BLISS CO., Washington, D. C. Filed June 8, 1897.



Essential feature.—A monogram placed on a representation of the dome of the Capitol with the words "OUR NATIVE HERBS" above and extending over the top of the dome. Used since January 1, 1897.

30,404. WHEAT, RYE, AND BUCKWHEAT FLOUR AND OTHER PRODUCTS FROM REDUCING CEREALS TO COMMINUTED CONDITION. EVERETT, AUGENBAUGH & Co., Wasoca, Minn. Filed June 21, 1897.

EVERBAUGH

Essential feature.—The word "EVERBAUGH." Used since January 1, 1897.

30,405. FLOUR. POWER, SON & Co., New York, N. Y., and POWER BROTHERS & Co., London, England. Filed June 18, 1897.

MARK LANE

Essential feature.—The words "MARK LANE." Used since January 26, 1876.

30,406. BUTTER. ELGIN CREAMERY COMPANY, Chicago, Ill. Filed June 24, 1897.

LAUREL WREATH

Essential feature.—The words "LAUREL WREATH" and a representation of a wreath of laurel. Used since May 1, 1897.

30,407. INDIGO-POWDER AND LIQUID BLUE. ESTHEL CHERRY, Philadelphia, Pa. Filed June 7, 1897.



Essential feature.—The representation of two crossed keys. Used since July, 1892.

30,408. PERFUMERY AND SOAP. ALBERT F. JANSEN, New York, N. Y. Filed June 10, 1897.

LÉON LIBERT

Essential feature.—The words "LÉON LIBERT." Used since January 1, 1883.

30,409. PHOSPHORUS AND ANALOGOUS CHEMICAL COMPOUNDS. ALBRIGHT & WILSON, Limited, Oldbury, England. Filed June 14, 1897.

A&W

Essential feature.—The letters and conjunctive sign "A & W." Used since 1867.

30,410. STOCK FOOD IN POWDERED FORM. LORIN B. LOUD, Burlington, Vt. Filed June 16, 1897.

CLIMAX STOCK FOOD



Essential feature.—The word "CLIMAX" in connection with the words "STOCK FOOD" and a picture of a trotting horse. Used since June 1, 1890.

30,411. WEEVIL-EXTERMINATOR. DANIEL P. GUTHERSBERRY, Gatesville, Tex. Filed June 11, 1897.



Essential feature.—A representation of several ears of corn arranged in juxtaposition to one another. Used since May 15, 1897.

30,412. TABLETS OF AN ANTISEPTIC AND GERMICIDAL CHARACTER. BROWN CHEMICAL CO., St. Paul, Minn. Filed May 7, 1897.

PREVENTO

Essential feature.—The word "PREVENTO." Used since November 1, 1896.

30,413. TABLETS FOR MEDICINAL PURPOSES. WALTER B. HOUSE, Detour, Mich. Filed June 10, 1897.

YELLOWZONES

Essential feature.—The word "YELLOWZONES." Used since January 1, 1896.

30,414. SALVES, OINTMENTS, CORN-CURE, LINIMENT, AND KINDRED PREPARATIONS. MARK TEMPEST, Olneyville, R. I. Filed June 17, 1897.

CYCLONE

Essential feature.—The word "CYCLONE." Used since June 1, 1896.

30,415. MEDICINES FOR TREATING THE EYE. FRANK R. REYBOLDS, Rio Claire, Wis. Filed June 25, 1897.

BRILLIANT

Essential feature.—The word "BRILLIANT" in connection with a representation of an eye. Used since 1895.

30,416. REMEDY FOR MORPHINE AND ALCOHOL HABITS. CORYDON LEE ROY COLE and ROBERT GOLDEN DONALDSON, Washington, D. C. Filed June 21, 1897.

IAMA

Essential feature.—The word "IAMA." Used since February 11, 1897.

30,417. REMEDY FOR ECZEMA. JOHN WOOD, Farmington, Mo. Filed June 19, 1897.

DERM ACEA

Essential feature.—The words "DERM ACEA," printed in diagonal position and crossing each other. Used since December, 1894.

30,418. REMEDIES FOR RHEUMATISM AND DISEASES OF THE LIVER AND KIDNEYS. SAMUEL R. THOMPSON, Los Angeles, Cal. Filed May 26, 1897.

H T HALL THOMPSON

Essential feature.—Two concentric circles, a monogram of the letters "H T," and the words "HALL THOMPSON." Used since May 15, 1897.

30,419. REMEDIES FOR DYSPEPSIA AND STOMACH TROUBLES. CHARLES J. ULRICI, New York, N. Y. Filed June 23, 1897.

STOMACHALINE

Essential feature.—The word "STOMACHALINE." Used since June 1, 1897.

30,420. TONIC, ALTERATIVE, AND BLOOD PURIFIER. MCCONNELL & Co., Winona, Minn. Filed Aug. 17, 1891.

DR. TOLSTOI'S
LIFE PROLONGER
SIBERIAN DISCOVERY

Essential feature.—The words "DR. TOLSTOI'S LIFE PROLONGER: SIBERIAN DISCOVERY." Used since February 1, 1890

30,421. METAL-POLISH. THE HARVEY CHEMICAL CO., Lafayette, Ind. Filed May 14, 1895.

Pride of the Housekeeper

Essential feature.—The words "PRIDE OF THE HOUSEKEEPER." Used since April 9, 1894.

30,422. WEIGHING AND COMPUTING SCALES. THE COMPUTING SCALE COMPANY, Dayton, Ohio. Filed Apr. 22, 1897.



Essential feature.—Two or more lines of contrasting color and of opposite ogee curvatures located upon the support for the upper framework of a scale and running substantially the length of such support. Used since March, 1891.

30,423. WEIGHING AND COMPUTING SCALES. THE COMPUTING SCALE COMPANY, Dayton, Ohio. Filed Apr. 22, 1897.



Essential feature.—Two oppositely-located reverse ogee-curved lines of color located upon the support of the upper framework of a scale and running substantially the length of said support. Used since March, 1891

30,424. STOVES. ESTATE OF CHARLES NOBLE, Philadelphia, Pa. Filed June 12, 1897.

IRON KING

Essential feature.—The words "IRON KING." Used since April, 1873.

30,425. DRIVE-CHAINS MADE OF MALLEABLE CAST-IRON. THE EWART MANUFACTURING COMPANY, Chicago, Ill., and Indianapolis, Ind. Filed June 1, 1897.



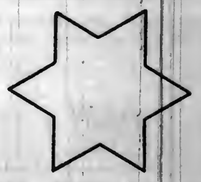
Essential feature.—A right line or straight mark formed with a slightly-bifurcated end and with a sort of arrow-head, much like an arrow. Used since February, 1892.

30,426. MAYONNAISE, A RELISH OR SALAD-DRESSING. MARY EMEROY STANLEY, Watervliet, N. Y. Filed Apr. 30, 1897.



Essential feature.—A square surrounded by four equal spaces, which are bordered by a circle, two of the spaces being covered with ermine and the square lying on a scepter. Used since June 4, 1897.

30,427. BICYCLE-CHAINS. GEBRÜDER BÖHLER & Co., Vienna, Austria-Hungary. Filed Dec. 15, 1896.



Essential feature.—The outline of a star having six rays or points. Used since March, 1894.

THE NORRIS PETERS CO., PHOTO-LITHO. WASHINGTON, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—First Circuit.

AMERICAN SULPHITE PULP COMPANY *v.* HOWLAND FALLS PULP COMPANY.

Decided April 16, 1897.

1. RUSSELL—PULP-DIGESTERS—VALID AND INFRINGED.
Reissue Patent No. 11,282, dated November 15, 1892, to George F. Russell, for improvements in pulp-digesters, consisting of an outer shell and a continuous lining of cement, examined and *Held* to be valid and infringed.
2. SAME—SAME—THE PATENT CONSTRUED.
This patent held to cover a digester having a structural lining composed of materials possessing plastic, adhesive, cohesive, and acid-resisting characteristics and not to be limited to a lining of hydraulic cement or any other particular cementitious ingredient.
3. SAME—SAME.
The law applicable to the patent distinguished from that in the *Incandescent Lamp Patent*, (159 U. S., 465.) In the latter Sawyer and Mann did not limit themselves to a particular material, or even to a class; but the patentee limits himself to a class of material, and, still further, within that class to a material possessing the required acid-resisting qualities.
4. PIONEER INVENTOR—TO WHAT ENTITLED.
A pioneer inventor is entitled to a patent covering his adaptation of the forces in matter which he has discovered and the compositions with which he has successfully experimented and such as would naturally develop in the growth of the art without invention, as well as those which he has described.

APPEAL from the Circuit Court of the United States for the District of Maine.

STATEMENT OF THE CASE.

This was a bill in equity by the American Sulphite Pulp Company against the Howland Falls Pulp Company for alleged infringement of Reissue Patent No. 11,282, (original No. 445,235,) for an improvement in wood-pulp digesters. The circuit court dismissed the bill, (70 Fed. Rep., 986,) and the complainant has appealed.

Before COLT, WEBB, and ALDRICH, Judges.

Mr. Causten Brown and *Mr. Alex. P. Browne* for the appellant.

Mr. John L. S. Roberts for the appellee.

ALDRICH, *J.*:

This cause involves the validity of a patent for an invention relating to improvements in the construction of vessels ordinary called "digesters," and as a leading feature of the improved construction provides for what the complainant calls a "protective lining" for the shells thereof. These digesters are used in the sulfite wood-pulp process, and may be either stationary or rotary, and are constructed with an outer shell of iron. The structures are large and expensive, varying in size, (sometimes fifteen feet in diameter by thirty in length,) and are designed to receive blocks of wood and wood substances to be subjected to the sulfite process, and the metal shell, being corrodible by the acids and gas used in the process of cooking or dissolving the wood fiber, requires an interior protective lining. It is manifest—indeed, it is conceded—that the practical workings of the sulfite process had disclosed a fundamental and imperative necessity for some means of protection against the hazard and explosive dangers incident to the corroding influences and the great pressure, under highly-heated conditions, of bisulfite acid solutions necessarily involved in the process for dissolving the wood substances, and in this connection we cannot do better than quote from the opinion of the circuit court on this phase of the case, where it is said:

It is very evident that the art to which the patent relates had been for a long time urgent for a practical lining for the iron or steel shells of digesters, which would be reasonably economical, and that the urgency had been so great as to have become a fundamental necessity. For several years no one had been able to respond; so that, under the circumstances, whoever should solve the whole problem, or should make advances of practical use in that direction, whether by adoption from other arts or otherwise, would have been entitled to be held an inventor, both by the common judgment and by the courts. Mitscherlich accomplished this in part, but he always had a lead lining in direct juxtaposition with the shell, and his interior material was not continuous. The Russell device displaced the lead, and furnished a continuous and homogeneous lining.

The prior state of the art, the anticipatory character of American and foreign patents, questions of fraud in reissue in respect to the patent in suit, questions as to prior public use in the United States and in foreign countries, and, finally, the question whether the problem presented to the patentee involved patentable novelty are not raised by the assignment of errors and are not before us. These questions were all resolved in favor of the patent in suit by the circuit court, and thus our investigations are narrowed to the question whether George F. Russell's conception and discovery in August, 1889, at the time he received information from Cologne, were so far reduced to operation and practical use, or, in other words, had so far generated an idea of practically operative means, as to become a discovery or an invention entitled to patentable protection, and if the problem of invention is determined favorably to the patent then the question as to the validity and meaning of the claims and specification and the question of infringement will

require our consideration. The claims are stated in the reissue patent as follows:

I claim—

1. The improved pulp-digester herein described, having an outer shell A and a continuous lining or coat B of cement, as described, applied to the interior of the said shell, for the purpose set forth.

2. The improved pulp digester herein described, having an outer shell A, a continuous lining or coat B of cement, substantially as described, applied to the interior of the said shell, and an inner lining of tiles C, all substantially as set forth.

The complainant contends for a broad construction of his claims and that his device and process, under reasonable construction—

consists in an improved pulp-digester, in which the metal shell, corrodible by the acid solution employed, is protected against its attacks by a continuous coat or lining of cement of proper thickness applied upon the interior of the shell; the term "cement" including any material or mixture of materials which resists the acid solution under high heat and pressure, and which is capable of being made plastic and adhesive to the digester-shell, and so compact as, in practice, to prevent the acid solution from reaching the iron shell in consequence of the high steam-pressure used in the process.

On the other hand, the defendant in error stands here, as in the court below, upon the defense that, while Russell was experimenting in that direction, he had made no advance in the art at the time he received information from Cologne that Wenzel, an Austrian, was successfully lining digesters with hydraulic cement and sand. The defendant does not urge that the Russell claims should be limited to hydraulic cement, and it may be here remarked that the learned counsel on both sides agree, in argument, that the construction limiting Russell's claims to hydraulic cement is impossible and cannot stand. The scope of the claims, however, will be considered later. The position of counsel in argument is given in this connection for the purpose of better understanding the questions which we are to consider.

The patentee claims a broad discovery, to become operative by applying, without joints or seams, plastic materials in the nature of cement, which he says he had sufficiently described, while the defendant, admitting that Russell had conceived the idea of a homogeneous protective lining, insists that he had made no invention, that he had not advanced beyond the field of experiment, had not discovered the material necessary to reduce his conception to practice, and that his claims, covering all materials or mixtures of materials which will serve as a one-piece or continuous lining, are void. There would seem to be no doubt upon the evidence that Wilhelm Wenzel had conceived the idea of a continuous digester-lining and that he was using a composition of cement and sand successfully for that purpose before Russell's discovery. Wenzel covered his device as early as May, 1888, by a secret Austro-Hungarian patent for an acid-resisting protective material, and on August 15, 1889, secured a Swedish patent covering the same device, which was not, however, published until November, 1889. On the 30th of July, 1889, Mr. Springer, who was connected with the Russell Paper Company and then traveling abroad, sent a communication to William A. Russell from Cologne, in which he said, in speaking of digesters:

I have found a cement lining which, if it turns out to be what it now appears, is the best thing yet. It is simply a cement and is put on as one would plaster a wall.

This information was conveyed to the patentee, Russell, early in August in the same year. It therefore becomes necessary to ascertain how far Russell had progressed in his discovery and invention, and whether he had so far advanced the art at the time he received knowledge of the Springer letter from Cologne as to entitle him to protection as an inventor. The circuit court approached this phase of the case with the observation that, while Russell—

must have had before that time a clear and positive conception of the substance of what was afterward patented,

where the "substantial question," as in the case at bar—

is whether the patentee, Russell, invented at all, we do not deem it in fact necessary that the complainant should prove that the alleged invention was put into a practical, concrete, or visible form before the patentee received the information contained in Springer's letter.

Holding this view, the circuit court, under its construction limiting the claims to hydraulic cement, found and held that Russell had not solved the problem of invention, and dismissed the bill. We are inclined to consider the question of invention here presented upon lines perhaps less favorable to the patentee than those drawn by the circuit court and to determine his rights with reference to the rules which would govern questions of patentability. Therefore, had his advance in the art at the time he received information of the Wenzel experiments reached such a stage as would entitle it to protection, as involving invention, if expressed in Letters Patent? If so, the information from Cologne would not deprive him of the fruits of his discovery. At least, a higher advance in the art is not required to protect him against information of this character than would be required to protect his discovery, as an invention described in a patent, under the rules regulating patentability and non-patentability. So it becomes necessary to inquire as to what Russell had done at the time he received information of the experiments and developments by Wenzel, and this, as all agree, could not have been earlier than the first week in August, 1889. Now, what was Russell's conception and what had he done to demonstrate the practicability of his discovery before August, 1889? Had he conceived the idea of such a structural lining before he received information from Cologne and had he so far demonstrated the practicability of his conception by devising and employing ideas and means for adapting it to the required use as to entitle him to the position of inventor? Or did he borrow the discovery from Wenzel? By this test the patent must stand or fall. It is clearly established by the uncontroverted evidence that Russell nearly a year prior to the Cologne letter, having observed the imperfect workings and the dangerous conditions incident to a lining composed of different materials with leaded and cemented joints, conceived the idea of a seamless homogeneous lining, to be composed of materials from which brick, tile, and artificial stone are made, which should be acid-resisting and so far adhesive that it would attach to the shell and become a part of the structural formation and so far cohesive, expansive, and resilient as to respond to the expansive and retractive

force of the iron shell when subjected to the varying conditions of heat and cold, as was necessary in the process of cooking and curing the wood. This was unquestionably a step in the direction of invention and one which contemplated an important and useful advance in the art.

Having conceived the idea of such a structural lining so adhering to the shell as to become a part of the main structure, he entered the field of experiment for the purpose of discovering the forces in nature which would respond to the required purposes and be equal to the test to which the structural lining in practical operation would be subjected. The invention did not start with a discovery of a force in nature or a particular ingredient, but with the idea of a homogeneous structural lining, and the search for material was for the discovery of means for reducing the inventive idea to practical utility, and in this line he had little digesters constructed, similar to those used in the actual process, made something like fifty experiments and tests with briquets, pipe-retorts, and little digesters, with various compositions in the nature of cement, including compositions of sand, pitch, and tar, tar and sand with cement and without, tar and sand with clay and asbestos, sand and silicate of soda and cement, and others of sand and cement alone, some of the compositions standing the test imperfectly, others fairly well, but sand and cement being the most satisfactory. Having conceived the idea of a homogeneous lining and having demonstrated the adaptation and utility of cementitious adhesive material or mixtures in plastic form for such purposes under digester conditions, should he have stopped on hearing of the Wenzel experiments, or was he entitled to perfect the art in a commercial sense and secure the fruits of his conception and invention by Letters Patent? At the time the information came from Cologne his homogeneous lining, to be composed of acid-resisting, adhesive, and cohesive mixtures in the nature of cement, was a foregone conclusion. That was his invention. That advanced the art. It had occurred to Russell, while experimenting for suitable cement materials to take the place of lead in the joints of the linings, that if he could succeed in finding a suitable cement for such purposes he could make the whole lining of the same material, and months before the Cologne letter, while reasoning from the fact that if, as was known, artificial stone, brick, and tile would withstand the digester conditions of heat, pressure, and acid the materials from which they were made would stand the same test, he had conceived the idea of a homogeneous lining whereby the artificial stone and brick with dangerous cemented and leaded joints were to be supplanted by a continuous wall composed of cementitious ingredients or materials from which artificial stone, brick, and tile were made, applied in a plastic state.

It should be observed at this point that the sulfite process cannot be conducted in an open vessel for the reason that the bisulfite liquor cannot be raised under such conditions to the required high degree of temperature without losing the sulfurous gas which is the sole or principal agent in effecting the required change, and, while continuous homogeneous linings were known in the arts, no method had been suggested or devised for adapting such conditions to digesters used in the sulfite process. This conception, therefore, of a one-piece structural lining for such purposes was new, and Russell's experiments had already demonstrated the fact, contrary to the belief of the scientific world, that cement mixtures which were known not to resist the effects of cold sulfite liquor would stand the test of such liquors under conditions of high heat and pressure. He had discovered that the thick inner coating of cementitious mixtures, adhering to and protecting the outer shell somewhat from intensity of heat and expansion, possessed sufficient expansibility and contractibility to withstand the maximum expansion and contraction of the iron under such changed and protected conditions. He had discovered that his continuous lining composed of cementitious material applied in a plastic state, when hardened, would stand against the hot sulfite liquor; that it adhered to and protected the iron from the corroding influences of the acids; that its cohesive, expanding, and resilient qualities would withstand the strains resulting from the expansion and contraction of the iron shell under the protective conditions incident to the thick homogeneous wall or lining when subjected to the degree of heat and pressure necessarily employed in the sulfite process. He had discovered a new property or force in matter (*Poillon* v. *Schmidt*, 6 Blatchf., 209; Fed. Cas., No. 11,241; *Smith* v. *Ely*, 5 McLean, 76; Fed. Cas., No. 13,043; *Parker* v. *Hulme*, 1 Fish. Pat. Cas., 44; Fed. Cas., No. 10,740; *Leroy* v. *Tatham*, 14 How., 156, 175; *Collar Co.* v. *White*, 2 Ban. & A., 60; Fed. Cas., No. 14,396; *Ansonia Brass & Copper Co.* v. *Electrical Supply Co.*, 58 O. G., 1692; 144 U. S., 11; 12 Sup. Ct., 601; Rob. on Pat., sec. 101) and had made practical application of such newly-discovered force to an object. His operative mode was to apply the matter containing the newly-discovered force in plastic form to his object, and his object was a homogeneous lining covering the inner metal walls of the digester-shell.

Having conceived the idea of a cementitious lining and having newly discovered the acid-resisting force of cementitious compositions as against highly-heated bisulfite liquor consisting of lime, sulfurous acid, and water, he was experimenting in the field of cementitious matter, including hydraulic cement and sand alone and hydraulic cement with other ingredients, including silicate of soda and sand. He had discovered the fact of this force (*Telephone Cases*, 43 O. G., 377; 126 U. S., 1, 534, 536; 8 Sup. Ct., 778) and had applied it to the inner walls of shells under conditions substantially like the conditions existing in the practical sulfite process, and had tested its adhesive, cohesive, and acid-resisting power, and, although not necessary in order to secure a patent for his conception, his discovery, and his process, (*Telephone Cases*,) was experimenting

with various materials in the nature of cement, all of which would do the work more or less successfully, for the purpose of "bringing his art to the highest degree of perfection" in the mechanical and commercial sense. At the time in question Russell had conceived and put in form a continuous lining more distinctively homogeneous than that of the metal bath-tub, (*Steel-Clad Bath Co.* v. *Mayor*, 77 Fed. Rep., 736,) for in his conception and practice the lining material, applied in a plastic form, in the hardening process, under heat and pressure, closely adhered to and became a part of the outer structure or shell itself. He had discovered acid-resisting forces in matter under new conditions. He had made successful experiments and put in operative form his newly-discovered force in ingredients and in compositions which stood the test of digester conditions. He had not, perhaps, discovered all the materials or all the matter or all the compositions which contained this force and which were capable of performing the necessary function; but as to such as he had discovered and put in operative form and such as he could describe with reasonable clearness he was entitled to protection, and these include sand, silicate of soda, and cement, sand, pitch, and tar, and hydraulic cement and sand as well. Some of these compositions stood the test better, made better linings, and did the work more successfully than others, and as to such as he used, such as he described, and such as those skilled in the art could understand he is entitled to protection. At this time he had advanced the art in the sulfite-process line, not in a slight degree, but in a high degree. He was an inventor, not in a narrow sense, but in a broad sense, and as such was entitled to a patent covering his homogeneous structural lining, his adaptation of the forces in matter which he had discovered, and the cementitious compositions in the nature of cement with which he had successfully experimented and which he had adapted to the required conditions and use, as well as those which he described with sufficient clearness to be understood by persons skilled in the art and such as would naturally develop in the growth of the art without invention. We look at this as an invention of an improved structure, with a devised and described process for creating it and putting it in operation in connection with a new and pressing emergency, and not for any particular ingredient or composition. It is true the ingredients must possess certain described characteristics, but after all the ingredients are only a part of the invention involved in the construction of the inner part of the shell, and in order to answer the prescribed purpose they must possess certain described plastic, adhesive, cohesive, and acid-resisting characteristics. The required characteristics being described, the kind and quality may be found by the ordinary mechanic skilled in the art, and applied according to the method described—namely, in plastic conditions, with a trowel.

It would seem that Russell at this time had practically solved the problem presented and that his discovery, demonstrations, and prescribed process present a meritorious and useful invention, and in our view Wenzel's unpublished and unknown discoveries in Austria should not deprive him of the benefits of his own independent and original discovery and experiments in this country. Upon the question whether Russell had so far completed his discovery and accomplished his purpose when he received information from Cologne as to entitle him to a patent, and before passing to other questions in the case, let us look for a moment at the development of his conception in connection with his newly-discovered fact or force in matter under heat, pressure, and acid conditions and his actual adaptation of means and process to the required purpose in the light of the reasoning of Mr. Chief Justice Waite in the *Telephone Cases*, (43 O. G., 377; 126 U. S., 1, 532; 8 Sup. Ct., 778.) There Bell was the first to discover the fact that by gradually changing the intensity of a continuous electric current so as to make it correspond to the changes in the density of the air caused by the sound of the voice vocal sounds could be transmitted and reproduced at a distance; but he had not advanced so far as to actually transmit spoken words so that they could be distinctly heard at the receiving end of the line. Bell had discovered the fact that a force in nature (the electric force) under changed conditions would produce a new and unknown result—that of reproducing vocal sounds at a distance from the speaker, although words had not been transmitted. Upon the question of the patentability of his discovery and his imperfect art Mr. Chief Justice Waite said:

> But it is insisted that the claim cannot be sustained, because, when the patent was issued, Bell had not in fact completed his discovery. While it is conceded that he was acting on the right principle, and had adopted the true theory, it is claimed that the discovery lacked that practical development which was necessary to make it patentable. In the language of counsel, "there was still work to be done, and work calling for the exercise of the utmost ingenuity, and calling for the very highest degree of practical invention." It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically spoken words so that they could be distinctly heard and understood at the receiving end of his line, but in his specification he did describe accurately, and with admirable clearness, his process (that is to say, the exact electrical condition that must be created to accomplish his purpose); and he also described, with sufficient precision to enable one of ordinary skill in such matters to make it, a form of apparatus which, if used in the way pointed out, would produce the required effect—receive the words, and carry them to and deliver them at the appointed place. The particular instrument which he had, and which he used in his experiments, did not, under the circumstances in which it was tried, reproduce the words spoken so that they could be clearly understood; but the proof is abundant, and of the most convincing character, that other instruments, carefully constructed, and made exactly in accordance with the specification, without any additions whatever, have operated, and will operate, successfully. A good mechanic of proper skill in matters of the kind can take the patent, and, by following the specification strictly, can, without more, construct an apparatus which, when used in the way pointed out, will do all that it is claimed the method or process will do. Some witnesses have testified that they were unable to do it. This shows that they, with the particular apparatus they had and the skill they employed in its use, were not successful; not that others, with another apparatus, perhaps more carefully constructed or more skilfully applied, would necessarily fail. As was said in *Loom Co.* v. *Higgins*, (105 U. S., 580, 586,) "when the question is whether a thing can be done or not, it is always easy to find persons ready to show how not to do it." If one succeeds, that is enough, no matter how many others fail. The opposite results will show that in the one case the apparatus used was properly made, carefully adjusted, with a knowledge of what was required, and skilfully used, and that in the others it was not. The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation. This Bell did.

And this Russell did in respect to his conception and process. And as to the Bell patent it may be

further observed in this connection that Bell was in doubt whether the magneto or the variable-resistance methods were the better for conducting the force, but thought the magneto method was, and as to this the Chief Justice says, (p. 538, 126 U. S., and p. 784, 8 Sup. Ct.:)

> Indeed, he said, in express terms, he preferred it, but that does not exclude the use of the other, if it turns out to be the most desirable way of using the process under any circumstances.

And again he says, (p. 539, 126 U. S., and p. 785, 8 Sup. Ct.:)

> Surely a patent for such a discovery is not to be confined to the mere means he improvised to prove the reality of his conception.

Under the reasoning of this case it would seem clear that Russell's patent should not be declared void because he was in doubt as to which of the compositions would prove the most satisfactory in a commercial sense or because he had not practically and finally tested and chemically isolated all the matter or material containing the required cohesive, adhesive, and acid-resisting qualities.

As has been said, the information from Cologne reached the patentee in August, 1889, and the fact that he remained silent as to his discovery until about the time of his application for a patent in October, 1890, requires our attention. The record shows that the patentee was in the employ of the Russell Paper Company, in which his father was treasurer and his uncle president, during the period covering the supposed acts of invention, as well as during the later period in which his application was pending in the Patent Office, and that certain experiments were made by the paper company during that time, in which the patentee took part without disclosing the discoveries and experiments involved in his invention. If there were a controversy upon the evidence as to what the patentee had actually done in the line of the art or if the conditions were such as to require him to speak, this evidence would have weight; but the evidence discloses no controversy in respect to the first proposition, and the only question fairly raised is whether his conception and discovery amount to invention, whether he had carried it forward to a practical demonstration by developing the idea of means. As to the second proposition, his father and uncle were prominent officers in the company and active and influential in the management of its business. The company of which they were officers was a member of a syndicate (to which it was responsible) composed of several large companies, where the purpose was to secure and control inventions useful in the sulfite process. According to the testimony of the patentee he feared that he might lose control of his discovery by disclosing it, and was in doubt about the proper course to pursue, but finally decided to say nothing until his rights were secured by the action of the Patent Office. Silence under conditions requiring a man to disclose would raise suspicion, but here the evidence as to the experiments is undisputed and undoubted. There is no question between this patentee and another person claiming the invention. There is no question about the Wenzel discovery and no question about the time at which knowledge of that came to young Russell. The only question is whether he had gone far enough to entitle him to protection at the time he acquired knowledge of what Wenzel was doing. It would seem that in remaining silent he was simply acting the part of precaution, and whether wisely or not is probably immaterial, as we think there was nothing in his conduct, under the circumstances, which in any way affects the credibility of his story.

The inventor having advanced the art in a certain line, as he believed, in order to secure his rights stated his claims and described his invention and the operative means for putting it into practice, and we now come to a consideration of the questions relating to the scope and validity of his patent, construing it with reference to his claims, description, and specification, as set forth in his application of October 18, 1890, and the Reissue Patent No. 11,282, dated November 16, 1892. In the circuit court, as has been said, a result was reached limiting the claims to a coat or lining of hydraulic cement. In discussing the question as to the scope of the claims that Court said:

> The whole substance of the patent is in the first claim. This consists of only two elements—the shell and the continuous lining or coat of cement. Its language is so unequivocal that its construction needs no aid from secondary rules, and is not enlarged nor limited by the redundant, and, in some particulars, somewhat obscure, language of the specification, whether of the original patent or of the reissue, except in one particular.

And again, in referring to the word "cement" as used in the claim, it was said:

> But this word has the ordinary commercial meaning of hydraulic cement, and also a larger, and perhaps more accepted, sense. It cannot, in this patent, be given the latter without substantially giving the patentee the whole art, and much more than he can claim to have actually invented or discovered. Therefore we are compelled to limit the word which he has himself chosen to its ordinary commercial sense. An examination of the file-wrapper leads to the same results, but we need not enlarge on this. The word "cement" having various significations, its precise definition for this purpose must thus be determined. With that exception, we need only say that we are not to construe what does not need to be construed, and that the simple phraseology of this claim can neither be added to nor taken from by what appears in the specification, by what occurred in connection with the reissue, or by any alleged implied disclaimer arising in relation thereto. We know of no mystery relating to ascertaining the legal meaning of claims in patents; and we apply to this case the fundamental rules by which is read every instrument whose language is clear in itself.

It would thus seem that the court below construed the claims without reference to the description of the invention and the method and process of putting it into operative form which the specification contained. In connection with this limited interpretation we feel bound to observe that counsel on neither side, either in brief or in argument in this court, maintain this position, but, on the contrary, expressly renounce it as one not possible and of which the claims are not susceptible. In our view this question of construction should not be determined upon lines so technically and closely drawn. We look upon this invention as one in which a description or specification is given, in accordance with the requirements of section 4888 of the Revised Statutes, of the manner and process of "making, constructing, compounding, and using" in order—

> to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same—

and where the claims and the specification are to

be read together not for the purpose of enlarging the invention stated in the claims, but "for the purpose of better understanding the meaning of the claim," (*Howe Mach. Co.* v. *National Needle Co.*, 51 O. G., 475; 134 U. S., 388, 394; 10 Sup. Ct., 570,) the limit and extent of the invention and the object of the inventor, and the construction, method, and process as understood by him. (*Vance* v. *Campbell*, 1 Fish. Pat. Cas., 483; Fed. Cas., No. 16,837; *Wilson* v. *Coon*, 19 O. G., 482; 18 Blatchf., 532; 6 Fed. Rep., 611; *Gottfried* v. *Brewing Co.*, 17 O. G., 675; 5 B. & A., 4, 36; Fed. Cas., No. 5,633; *Brass Co.* v. *Miller*, 9 Blatchf., 77, 97; Fed. Cas., No. 17,254; *Seymour* v. *Osborne*, 11 Wall., 516, 547; Rob. on Pat., sec. 750; Curt. on Pat., (4th ed.,) secs. 225, 227.) In the case last cited (*Seymour* v. *Osborne*) Mr. Justice Clifford said:

Where the claim immediately follows the description of the invention, it may be construed in connection with the explanations contained in the specifications, and where it contains words referring back to the specifications it cannot properly be construed in any other way.

Mr. Curtis in his explanation of the purposes of the claims and specifications and the relations which they sustain to each other observed (section 227) that—

the claim is not intended to be any description of the means by which the invention is to be performed, but is introduced for the security of the patentee—

and that one object of the specification—

is to make known the manner of constructing the machine, if the invention is of a machine.

And Mr. Chief Justice Fuller in *Howe Mach. Co.* v. *National Needle Co.* (51 O. G., 475; 134 U. S., 394; 10 Sup. Ct., 572) says:

Doubtless a claim is to be construed in connection with the explanation contained in the specification, and it may be so drawn as, in effect, to make the specification an essential part of it.

Now let us see what Russell stated in his claims and the means which he described in his specification to which he referred for reducing his invention to form and practice. The inventor in his claims, which immediately follow his description of the invention, says:

I claim—
1. The improved pulp-digester herein described, having an outer shell A—

thereby referring to his diagram and to his specification—

and a continuous lining or coat B of cement, as described—

again referring to his specification—

applied to the interior of the said shell, for the purpose set forth—

thus again referring to the specification.

The inventor in his second claim, which is substantially the same as the first, refers to his—

continuous lining or coat B of cement, substantially as described.

Now, what is the effect of this? Doubtless it is to limit his claim to a pulp-digester with a lining of cement. It does not cover structures with linings of other material, but limits itself to a cement-lined structure with an outer shell, described in the specification as a metal shell, and a lining described in the specification as of cement mixtures. In other words, he limits his patent to a cement-lined structure, and by express and necessary reference to his specification and diagram describes the material, the process, and the operative means for constructing the improved pulp-digester as a whole, and, while his reference to the specification may not enlarge or extend the invention claimed, it may and must be examined in order to understand the manner of making and constructing the shell and compounding the cement materials necessary to reduce his conception to use. This reference to and a consideration of the specification definitely exclude the idea that the conception and the operative means are limited to hydraulic cement or any one particular cementitious ingredient. Answering one part of the requirements of section 4888, he "particularly points out and distinctly claims" his invention as an improved digester, with an outer metal shell combined with an interior continuous cement lining, and then, further answering another part of the requirements of section 4888, he proceeds to—

file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same.

In this description, which the statute requires, he says:

My invention relates to improvements in the construction of the vessels ordinarily called "digesters," in which wood-pulp is manufactured by what is known as the "sulfite process." Its object is to improve the construction of these digesters so as to prevent their injury by the solution employed. * * * The shell of the digester is marked A, and within it are shown linings B and C, the construction whereof I will now proceed to describe. A represents the outer shell of the digester. It is ordinarily constructed of metal, such as iron, steel, or brass, which is liable to be injuriously affected by the acid solution employed. Upon the interior of the shell of the digester I form a continuous lining or coat B of acid-resisting material applied in a plastic condition. This lining or coat is of the nature of a cement, and may be composed of any material or mixture of materials which is acid-resisting and capable of being made plastic and adhesive to the shell of the digester, and so compact as to prevent the acid solution from reaching the iron shell in consequence of the high steam-pressure required in practice. A convenient material for the purpose is commercial cement, preferably Portland, made plastic with water and applied with any suitable implement upon the interior of the digester-shell, so as to form a continuous covering therefor. Other cement-like materials or mixtures having similar properties or characteristics may be used, such as the ordinary cement mixtures, sand and Portland cement, sand and tar, and the like.

He then proceeds to describe the necessary thickness and compactness of the lining under different conditions. Thus it would seem to be clear that the inventor intended to cover acid-resisting cementitious mixtures which could be applied in plastic condition, which would adhere to the outer shell, become a part of it, and so compactly form and harden under the pressure and process of application which he described as to prevent the acid from reaching the iron, and, while describing commercial cement as a convenient material and while he expressed a preference for Portland cement made plastic with water, as to other cementitious mixtures he left the acid-resisting and adhesive qualities to be ascertained by the practical chemist or other "person skilled in the art or science to which it" appertained. This is manifestly the purpose of the inventor, and the argument strenuously made against it is that it is so broad a claim of the art and so indefinite and vague as to be inoperative and void, and this presents, perhaps, the most serious question in the case. We will look at this question first in connection with the principle enunciated and elaborated in the *Telephone Cases*, (43 O. G., 377; 126 U. S., 1; 8 Sup. Ct., 778.) Let it be observed at the outset that this invention is not for a structure alone, but for a structural improvement which

involves a process of making the improved structure, and the process is the idea of means, and the idea of means in turn involves what might, perhaps, be called a subinvention or subdiscovery, whereby a newly-discovered force in matter is adapted to a useful purpose in becoming the means of making the broad inventive idea of a homogeneous adhesive structural lining operative and useful, or, in other words, through which cementitious materials which would not stand cold bisulfite conditions are adapted to the required purpose of resisting hot bisulfite conditions under steam-pressure. But, however this may be, the idea of a continuous structural lining and the process for making it are to be considered together. In the case to which we last referred the chief justice says, (p. 536, 126 U. S., and p. 783, 8 Sup. Ct.:)

The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation.

This, we think, Russell did. He said, in effect:

I have conceived the idea that the old linings of brick and tile with cemented and leaded joints, which do not stand under pressure and acid conditions, may be displaced, and we may have a homogeneous lining formed of the materials of which such bodies are made. We will let it harden as one piece, adhering to the outer shell as a continuous lining; and, if the brick and tile will stand the pressure and acid conditions, this will. I have experimented in the field of cementitious material, and I have found several mixtures that will answer the purpose which I have described, and I have found, by subjecting them to the sulfite-liquor conditions, that they will answer the purpose. I have said that the materials must be capable of being made plastic and adhesive to the shell, and must be acid-resisting; and this means acid-resisting under digester conditions, which means highly-heated-bisulfite conditions. I have said that other cement-like materials or mixtures, having similar properties or characteristics, may be used, such as the ordinary cement mixtures, sand and Portland cement, sand and tar, and the like; and this explanation of my discovery, and this explanation of the conditions which are necessary to make the tests, will enable any practical chemist or skilled person to discover the required qualities.

Now, considering this feature of the case upon the evidence, outside of the description of discoveries and of the necessary qualities in matter contained in his specification, Russell says repeatedly that his experiments demonstrated that mixtures of cement, generally speaking, did stand the test, and it may be observed that the expert evidence in the case abundantly shows that there exists in cementitious mixtures generally, when formed of acid-resisting materials, a common hot-bisulfite-resistant quality. It is not necessary to comment at length upon the testimony of the chemists and technologists, and it seems quite sufficient to refer to the statement of Dr. Carmichael as to the chemical action in the sulfite process. He says:

The remarkable fact appears that, while bisulfite liquors attack hydraulic cement quite freely at ordinary temperatures, they have no action whatever at the high temperature at which the sulfite process is conducted.

Again:

It is a curious fact, which the employment of the Russell lining has brought out, that, even if original defects exist in the Russell lining, they become filled in use.

Again:

All cement linings are more or less porous when first applied, but in use soon fill up with sulfate and sulfite of lime. They then become practically impervious to liquor, and afford complete protection to the shell beneath. Such liquor as may work through a crack is quickly rendered harmless through reaction with the lime salts composing the cement.

As said by Mr. Justice Strong in *Smith* v. *Vulcanite Co.*, (11 O. G., 246; 93 U. S., 486, 495:)

To find a material, with a mode of using it, * * * had been an object long and earnestly sought.

Russell discovered that cement materials generally which possess the quality of being made plastic, when applied in that condition as a thick one-piece lining to an iron shell to be used in the process of disintegrating wood substances, generally speaking, had the quality of adhering to the shell, of resisting the hot acid, and of performing the function of protecting the iron from the highly-heated conditions to which it would otherwise be subjected, and that the expansive and resilient qualities of such materials were equal to the expansion and contraction of the shell with the temperature of the iron so reduced. The evidence demonstrates—and quite likely Russell understood—that some cement mixtures, commercially speaking, were more desirable than others, and the word "cement" used in the claims must be understood, when considered in connection with the statutory description, as referring generally to cementitious mixtures having the qualities which he described. As to those which he expressly named—like commercial cement, preferably Portland, made plastic with water—and as to the ordinary cement mixtures—sand and Portland cement and sand and tar—there can, of course, be no doubt in the mind of any person possessing ordinary skill in the art as to what he intended, and as to his general expression—

any material or mixture of materials which is acid-resisting, and capable of being made plastic and adhesive to the shell of the digester, and so compact as to prevent the acid solution from reaching the iron—

he described the conditions which in the hands of persons skilled in the art would develop, whether in a given mixture the required property and qualities do or do not exist. He discovered that in such cementitious materials as could be made plastic, and where adhesive, cohesive, and self-hardening, the required properties in a degree existed as a quality common to them all. This, we think, brings his invention and description within the reasoning of the Supreme Court in *Incandescent Lamp Patent*, (73 O. G., 1289; 159 U. S., 465; 16 Sup. Ct., 75.) There Sawyer and Mann supposed they had discovered in carbonized paper the best material for an incandescent conductor; but instead of confining themselves to carbonized paper, as the Court say they might properly have done, they make a broad claim for every fibrous or textile material; while Russell, as it may be said, to contradistinguish his claim from that of Sawyer and Mann, limited his claims and specification to material in the cementitious class which possessed the required qualities. In other words, Sawyer and Mann, having discovered the required quality in carbonized paper, claimed all carbonized, fibrous, and textile material, whereas Russell, having discovered that his required quality was common to cement material generally, still in the general description employed in his specification limited his claims to such cement materials as were acid-resisting. He not only limited himself to a class of matter which, generally speaking, possessed the necessary qualities, but expressly described the tests and con-

ditions to which the required materials must respond. In other words, Sawyer and Mann claimed broadly in the fibrous and textile kingdoms, without limiting themselves to a particular material or even to a class, while Russell not only does not claim so broadly, but, on the contrary, expressly limits himself to a class of material, and, still further, though not claiming all material within that class, again expressly limits himself to a material possessing the required acid-resisting qualities. The reasoning of Mr. Justice Brown, used for the purpose of showing that Sawyer and Mann had discovered no general quality in fibrous and textile materials common to their purpose and that their claims were therefore invalid as claiming the art too broadly, includes propositions which are clearly applicable to the case under consideration, and sufficiently broad and comprehensive to sustain the patent in this suit. He says:

If the patentees had discovered in fibrous and textile substances a quality common to them all, or to them generally, as distinguishing them from other materials, such as minerals, etc., and such quality or characteristic adapted them peculiarly to incandescent conductors, such claim might not be too broad. * * * If, as before observed, there were some general quality running through the whole fibrous and textile kingdom, which distinguished it from every other, and gave it a peculiar fitness for the particular purpose, the man who discovered such quality might justly be entitled to a patent. * * * If Sawyer and Mann had discovered that a certain carbonized paper would answer the purpose, their claim to all carbonized paper would perhaps not be extravagant.

The *Incandescent Lamp Case*, just referred to, was recently under consideration by Judge Townsend in *Read Holliday & Sons* v. *Shulze-Berge* (78 Fed. Rep., 493) as to its bearing upon the somewhat analogous question of equivalents, where it was cited, together with the opinion of the circuit court in this case, (70 Fed. Rep., 988,) to the point—

that a patentee must clearly conceive and accurately state his invention of discovery, and that he cannot claim a monopoly of the whole art, nor by speculation include unknown elements within the limitations of his claim.

Judge Townsend then proceeds to explain what he understands to be the limitation upon this rule, as follows:

I think the law must be that where the new ingredient is such as would have been known to or employed by the ordinary skilled, practical chemist, or is such as would naturally have been developed in the growth of the art, and the substitution thereof involves no alteration or new operation or result, it is covered by the patent, provided the specifications and claims are sufficiently broad to include it. (Rob. on Pat., sec. 257; Walk. on Pat., sec. 354.)

In conclusion, the specification in the case at bar was so referred to in the claims that either may aid in the interpretation of the other. (*Pearl* v. *Ocean Mills*, 11 O. G., 2; 2 Ban. & A., 469; Fed. Cas., No. 10,876; Rob. on Pat., sec. 517.) And we think, upon principle and authority, that Russell, having discovered that cement material generally possesses the qualities required for his conception of a homogeneous digester-lining, should not be limited to such materials in the class of cementitious mixtures as he had chemically and commercially isolated as individuals, but that his claims and description should be construed as including all cementitious mixtures which ordinary skilled practical chemists might be expected to find as answering the requirements of the described conditions or such as would naturally develop in the growth of the art without invention.

In our opinion the patent is valid, and protection should be commensurate with the invention stated in the claims and the discovery and process described in the specification, and in our view the patent covers homogeneous structural linings composed of adhesive acid-resisting materials, in the nature of cement, which possess the required qualities described in the specification. The circuit court has found that—

if the patentee, Russell, was entitled to his patent at all, the defendant's method of obtaining a continuous lining of cement is plainly within its scope; and it differs so unsubstantially from the method described in the patent that it has the appearance of a mere evasion, easily devised when sought for, and plainly within the rules touching equivalents.

In this we fully agree, and as the result of our conclusions sustains the patent it follows that the decree of the circuit court must be reversed. The decree of the circuit court is reversed, and the cause is remanded to that court, with instructions to enter a decree in favor of the complainant for a perpetual injunction and an accounting, as prayed for, and for further proceedings in accordance with law, the complainant to have its costs in this court and in the court below.

U. S. Circuit Court—Northern District of New York.

KEYES *v.* UNITED INDURATED FIBRE COMPANY.

Decided July 1, 1897.

LARAWAY—PULP BARREL—NOT INFRINGED.

Letters Patent No. 339,064, granted March 30, 1886, to George W. Laraway, for an improvement in mechanism for preventing a molded barrel-body from shrinking in diameter at either end while being dried, *Held* to be for a doubtful invention and when properly construed not infringed.

Mr. Tracy C. Becker for the complainant.

Mr. Frederick P. Fish, Mr. W. K. Richardson, and *Mr. John E. Pound* for the defendant.

COXE, *J.:*

This action is based on Letters Patent No. 339,064, granted March 30, 1886, to George W. Laraway, for an improvement in mechanism for preventing a molded barrel-body from shrinking in diameter at either end while being dried.

The specification says:

Barrel-bodies molded from paper-pulp are now extensively made and used. In drying a body of such kind after its formation in a molding-machine it is important that each mouth or part that receives the barrel-head should retain its proper size and shape to fit such head, and this is the purpose of my invention or barrel-body-end supporter, which, on the barrel-body being taken in a moist state from the molding-machine, is inserted in it (the said body) at its end and kept there until the body may have become dry. The said body in becoming desiccated shrinks in size; but by having in the mouth or opening at each end of it one of the said supporters while the drying operation is taking place the mouth is preserved in its proper condition and size to receive a barrel-head.

The device shown in the drawings and described in the specification consists of a ring having an inwardly-extending flange and a cross fastened down on the flange, its arms extending a short distance beyond the outer periphery of the ring.

The claim is as follows:

As a new article of manufacture, for the purpose described, the pulp barrel end supporter substantially as represented, consisting of the cross and the flanged ring, substantially as set forth.

The defense of non-infringement only need be considered.

If there be any invention in the complainant's patent, and this is exceedingly doubtful in view of the use of rings for similar purposes in this and in analogous arts, it is clear that it must be confined to the precise mechanism described and shown.

The patent is not entitled to a broad construction. It is clear that when properly construed the claim is not infringed. The defendant uses a plain angle-iron ring. It has no inwardly-extending flange and no strengthening or supporting cross.

The bill is dismissed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 4. TUESDAY, JULY 27, 1897. PRICE—$5 per year.

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Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

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Notice.

(ORDER NO. 1,125.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 1, 1897.

It is hereby directed that on and after this date all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently-completed digest of irregular assignments.

BENJ. BUTTERWORTH,
Commissioner.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Labels.

6,550.—Title: "OLD STOCK LAGER." *The Bergner & Engel Brewing Company*, Philadelphia, Pa. Application filed June 10, 1897.

6,551.—Title: "FRANCIS ORIGINAL AND ONLY SILK MOLASSES CANDY." *John H. Francis, Jr.*, Peoria, Ill. Application filed April 6, 1897.

Issue of July 27, 1897.

Patents	337—	No. 586,955 to No. 587,291, inclusive.
Designs	32—	No. 27,419 to No. 27,450, inclusive.
Trade-Marks	24—	No. 30,428 to No. 30,451, inclusive.
Labels	2—	No. 6,550 to No. 6,551, inclusive.
Prints	None.	
Reissues	1—	No. 11,623.
Total issue	396	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama			New Hampshire		
Arizona Territory	1		New Jersey	19	2
Arkansas			New Mexico Territ'y		
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Colorado	2		North Carolina	4	
Connecticut	18	2	North Dakota		
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Maine	5		Washington		
Maryland	2	1	West Virginia	2	
Massachusetts	25	2	Wisconsin	4	1
Michigan	11		Wyoming		
Minnesota	2	1	U. S. Army	1	
Mississippi	1		U. S. Navy		
Missouri	16		Total to citizens of the United States	320	21
Montana	3				
Nebraska	1				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands	1	
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Cape Colony			Roumania		
Chile, Republic of			Russia	1	
China			Scotland	3	
Colombia			South African Republic		
Cuba			South Australia	1	
Denmark			Straits Settlements		
Egypt			Sweden	1	
England	13	1	Switzerland		
Finland			Victoria	2	
France	3	4	West Australia		
Germany	8				
Hawaii	1				
Italy			Total to citizens of foreign countries	49	5
Japan					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 20, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	June 21	July 3	134
106	II. Farm Stock, Products, etc.	June 21	July 1	328
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 21	June 24	207
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	May 21	July 13	221
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	May 20	June 28	173
98	XXI. Textiles, etc	May 22	June 26	223
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	May 22	June 25	261
250	VIII. Furniture, Beds, Store Furniture, etc.	June 14	June 21	428
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 14	June 19	110
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 7	June 19	225
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 1	June 19	298
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 5	June 18	227
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	June 9	June 16	305
255	XII. Mechanical Engineering, Store-Service, etc.	June 1	June 15	315
215	XVII. Paper Manufactures and Printing.	May 24	June 15	180
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 9	June 11	168
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	May 25	June 11	420
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 24	June 7	430
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 4	336
246	I. Tillage and Fences	May 20	June 2	359
	Between two and three months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 17	July 8	187
248	XVIII. Steam-Engineering, etc.	Apr. 24	June 24	338
120	IX. Hydraulics, Fire-Extinguishers, etc.	May 17	June 19	256
102	XIX. Stoves and Furnaces	May 8	June 10	430
240	VII. Velocipedes	May 1	June 1	1288
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Apr. 24	May 25	373
122	XXIV. Sewing-Machines, Apparel, and Toilet.	May 18	May 18	397
253	X. Carriages and Wagons	May 13	May 15	408
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 10	May 11	163
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 26	May 11	554
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	May 15	May 10	282
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 8	May 10	540
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	May 15	940
	Total number of applications awaiting action			11,396
	Under one month in arrears.			
	Designs	June 28	July 7	189
	Trade-Marks	July 8	July 12	56

PATENTS

GRANTED JULY 27, 1897.

586,955. HOSE-NOZZLE. JOSEPH ASKINS, Ridgefield, N. J. Filed Nov. 19, 1896. Serial No. 612,720. (No model.)



Claim.—1. A hose-nozzle, consisting of a casting formed integral with a cylindrical bore, a transverse opening or socket, a cylindrical delivery-passage and a flattened passage arranged laterally to, extending longitudinally of the cylindrical delivery-passage and having its mouth approximately coincident with the mouth of the latter, a rotary valve-plug located in the transverse opening or socket and provided with a shaft or stem, a handle for turning the plug, and means for retaining the plug in place, substantially as described.

2. A hose-nozzle, consisting of a casting formed integral with a cylindrical bore, a transverse opening or socket, a projecting screw-threaded ring, a cylindrical delivery-passage and a flattened delivery-passage arranged laterally to, extending longitudinally of the cylindrical passage and having its mouth approximately coincident with the mouth of the latter, a rotary valve-plug located in the transverse opening or socket and provided with a shaft or stem, a handle for turning the shaft or stem, a screw-cap engaging the said screw-threaded ring, and a packing between one end of the plug and the cap, substantially as described.

586,956. SPROCKET-CHAIN. FREDERICK W. BARNES, Dunellen, N. J., and VAN DYKE CRESSE, Brooklyn, N. Y. Filed Sept. 1, 1896. Serial No. 604,533. (No model.)



Claim.—1. In a sprocket-chain, in combination, pairs of side links arranged in parallel lines, center blocks arranged end to end in a single line between said side links, and forming spaces to receive sprocket-teeth, said center blocks consisting each of a central portion of rawhide, reinforce metallic side plates, together with pins riveted to said side links and being passed through pivotal holes in the center blocks, the holes in the reinforce-plates being countersunk, and the pins having collars to pivotally fit therein, substantially as and for the purpose set forth.

2. A sprocket-chain including pairs of side links arranged end to end, and center blocks uniting adjacent pairs of side links, said center blocks each consisting of a central portion of rawhide having reinforce metallic side plates, and means preventing said center blocks from spreading laterally by the impact of sprocket-teeth, substantially as set forth.

3. In a sprocket-chain, a pair of side links, and a compound center block between said links, said center block consisting of an inner portion of rawhide and side plates of metal, there being holes through said side links, rawhide, and side plates, the holes in said side plates being countersunk, and a pin connecting said parts together through said holes, said pin having collars which fit pivotally in the countersunk holes in said side plates, and said pin being secured to said side links, substantially as set forth.

4. A sprocket-chain-uniting pin, consisting of a hollow portion serving as a pivotal bearing for a center block, an annular shoulder at both ends of said hollow portion to locate the center block, and bearings extending outwardly from said annular shoulders to support the usual side links, together with means for securing said side links upon their bearings, substantially as set forth.

5. A sprocket-chain-uniting pin consisting of a hollow piece having an interior screw-thread, and a solid threaded portion, said portions arranged to screw together to form a pivotal bearing, and a collar upon each of said portions, near their outer ends, together with a screw-thread upon each of said portions, to receive nuts, substantially as set forth.

586,957. BRUSH-HOLDER. NEAL M. REDDS, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 5, 1897. Serial No. 636,153. (No model.)



Claim.—1. The combination, in a brush-holder, of an opening for the reception of a commutator-brush, a brush movable in said opening, a flexible connection leading from the brush, and a spring-clamp secured to the flexible connection, and making electrical connection with the body of the brush-holder.

2. The combination in a brush-holder, of receptacles for the brushes, carbon brushes mounted in the receptacles, spring-clips secured to the brushes, flexible leads fastened to the clips, spring-clamps secured to the leads, and lugs on the body of the brush-holder for holding the clamps.

3. The combination in a brush-holder, of a casting in which the brush is mounted, a spring-clip mounted on the brush, a flexible connection secured to the clip, a receptacle formed on the casting, and a contact secured to the flexible connection and mounted in the receptacle, the contact consisting of a sheet of spring metal bent back on itself and provided with means for holding it in the proper position.

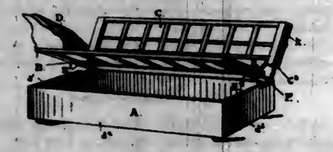
586,958. AUTOMATIC RESERVOIR OR FOUNTAIN INKSTAND. ROBERT BELL and LOUISA HALL, South Shields, England. Filed Nov. 7, 1896. Serial No. 611,363. (No model.)

Claim.—1. An automatic fountain-inkstand comprising a cylindrical body portion provided with a central cavity or recess, the upper part of said body portion being enlarged to form an annular rim which is interiorly screw-threaded, a cap or cover having a depending annular body portion provided with exterior screw-threads to afford engagement for the parts, the lower part of the depending portion of the cap having formed therein an annular groove, said cap being concave on its upper surface and having formed in the center thereof a cavity or chamber, the lower end of which is open and communicates with a depending tubular extension and a band of resilient material adapted to be secured in said annular groove to render the device air and water tight, substantially as described.

2. An automatic fountain-inkstand comprising a cylindrical body portion provided with a central cavity or recess, the upper part of said body portion being enlarged to form an annular rim which is

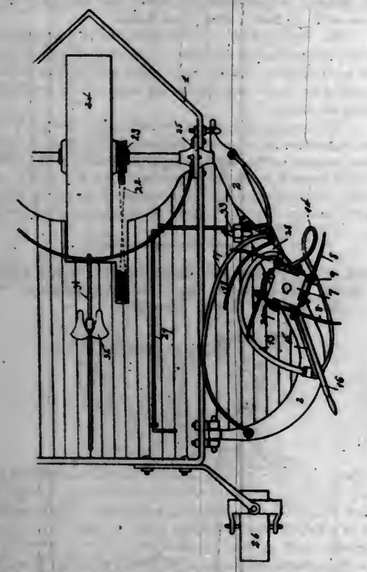
interiorly screw-threaded, a cap or cover having a depending annular body portion provided with exterior screw-threads to afford engagement for the parts, the lower part of the depending portion of the cap having formed therein an annular groove, said cap being concave on its upper surface and having formed in the center thereof a cavity or chamber, the lower end of which is open and communicates with a depending tubular extension and a band of resilient material adapted to be secured in said annular groove to render the device air and water tight, said cap having an auxiliary vent or opening formed therein, adapted to be closed by a plug, substantially as described.

586,959. BED-LOUNGE. LEON G. BELOUD, San Francisco, Cal., assignor to John Hoey, same place. Filed Oct. 5, 1896. Serial No. 607,995. (No model.)



Claim.—The herein-described improvement in bed-lounge frames, consisting of the box-base; the seat-frame comprising the rails $b' b^3$, slats B B and the bars $E' E^2$ recessed at the rear ends into the top edge of the box-base at the rear corners and let into the said box flush with the top edges thereof, said bars being attached at the rear ends by hinges to the box-base, said seat-frame being of less width than the box-base; the back-frame attached to the rear side of the seat-frame by hinges that allow the back-frame when turned down horizontally to rest upon and be supported by the bars $E' E^2$; the legs G G attached by hinge-pins in recesses in the back-frame; and the rigid braces I I pivotally attached to the legs near the lower ends thereof and to the bars $E' E^2$ of the seat-frame, constructed and combined for operation as described.

586,960. CORN-HARVESTER. ISAAC M. BLANCHARD, New Albany, Ohio. Filed July 16, 1896. Serial No. 599,355. (No model.)



Claim.—1. In a corn-harvester, the combination of a platform or wing 2, a rotatable shaft 4 supported vertically thereon, cutters at the lower end of said shaft, an adjustable head 7 carrying pivoted gathering-fingers on the upper end of the shaft, a longitudinally-movable sleeve on said shaft 4 adapted to engage the adjustable head, the inclined stationary guide-rail 13 for the corn attached to the sleeve and adapted to elevate the gathering-fingers, and means for adjusting the sleeve, substantially as shown and described.

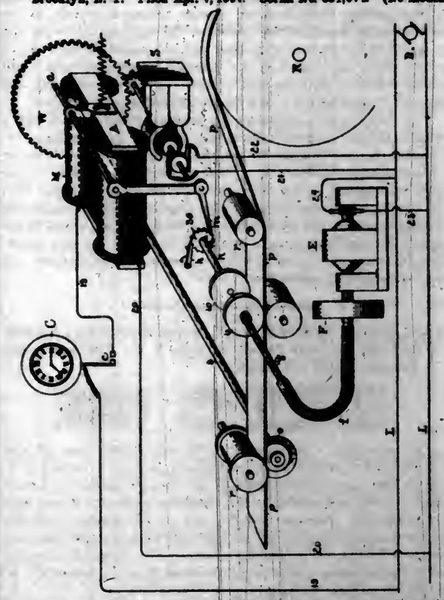
2. In a corn-harvester, the combination of a platform or wing 2, a rotatable shaft 4 supported vertically thereon, cutters at the lower end of said shaft, an adjustable head 7 carrying pivoted gathering-fingers on the upper end of the shaft, a longitudinally-movable sleeve on said shaft adapted to engage the head 7, an inclined stationary guide-rail 13 for the corn attached to the sleeve and adapted to elevate the gathering-fingers, latches to lock the fingers when not in contact with rail 13, a stop 30 attached to the sleeve adapted to be engaged by the latches to release the fingers, and means for adjusting the sleeve, substantially as shown and described.

3. In a harvesting-machine, a vertical rotatable shaft, cutters at the lower end of said shaft, a head carrying pivoted gathering-fingers on the upper end of said shaft, the guide-rail 13 arranged in the path of revolution of the gathering-fingers adapted by contact to elevate the same on their pivots and gravity-latches adapted to lock said gathering-fingers in fixed position when they are not in contact with said rail, and means for rotating said shaft, substantially as described.

4. In a corn-harvesting machine, a cutter-blade having a hinged plate attached to its rear edge, with means for temporarily inclining the same to afford an abutment against which the cut end of the cornstalk is supported while being carried on the cutter-blade, substantially as described.

5. In a corn-harvesting machine, a cutter-blade having a plate hinged to its rear edge, and an inclined finger on said plate to elevate the latter by its contact with the machine to afford an abutment against which the cut end of the cornstalk is supported while being carried on the cutter-blade, substantially as described.

586,961. RECORDING SPEED-INDICATOR. EDWARD P. DECKER, Brooklyn, N. Y. Filed Apr. 7, 1897. Serial No. 631,074. (No model.)



Claim.—1. In a recording speed-indicator the combination of a rotating type-wheel bearing a series of impression-characters indicating equal divisions of time, a motor for moving said wheel continuously and uniformly at a rate indicated by said impression-characters, a second type-wheel bearing a series of similar successive impression-characters indicating partial or entire revolutions, a severable mechanical connection between said wheel and a separate moving machine or apparatus to be timed, means for moving a recording-surface at a uniform rate, and a device for printing continuously from the type-wheels, substantially as described.

2. In a speed-recording indicator the combination of a rotating type-wheel bearing a series of similar impression-characters indicating equal divisions of time, a suitable motor for moving said wheel continuously and uniformly step by step under control of a clock or timepiece, a second type-wheel arranged in a parallel plane bearing a series of similar successive impression-characters indicating rotations and divisions of a rotation, a severable mechanical connection between said wheel and the moving element to be timed, means for advancing a suitable record medium at a uniform rate and a continuously-operating printing mechanism, substantially as described.

3. The combination of two rotating type-wheels located in parallel planes, a motor for rotating one wheel at a uniform predetermined rate, a motor for rotating the second wheel at a rate to be ascertained by comparison, a motor for moving a suitable recording-surface at a uniform rate and means for printing from said wheels continuously, substantially as described.

4. The combination of a rotating type-wheel having a series of similar, uniformly-spaced impression-characters on its periphery, a motor for moving a recording-surface at a uniform predetermined rate, means for connecting and disconnecting said type-wheel with respect to the moving element to be timed, and a continuously-operating printing device, substantially as described.

5. In a speed-recording indicator the combination of two rotating type-wheels located in parallel planes, a constant-speed motor for moving a paper strip continuously and uniformly, an electromagnetic device for advancing one type-wheel step by step controlled by a clock or timepiece through the medium of an electric circuit, a mechanical connection for uniting the second type-wheel to a separate moving element and means for printing from both type-wheels, continuously, substantially as described.

586,962. PHOTOGRAPHIC DEVELOPING-TRAY. WILLIAM V. BENSON, New York, N. Y., assignor to the E. & H. T. Anthony & Company, same place. Filed May 12, 1897. Serial No. 636,257. (No model.)



Claim.—1. A film-submerging device adapted to application to photographers' trays, comprising a roller journaled in two springs, one at each end, which are constructed and arranged to be detachably attached to the sides of the tray, and to be held thereon by reason of their resiliency, for the purposes set forth.

2. A film-submerging device adapted to be attached to a photographer's tray, comprising two springs, spindles connected with the springs, and a roller bored axially for the reception of the said spindles; for the purposes set forth.

3. In combination with a photographer's developing-tray, one or more submerging rollers or bars located on the interior of the tray and supported at its ends upon removable supports, which are held to the sides of the tray by springs, for the purposes set forth.

586,963. PHOTOGRAPHIC VIGNETTER. WILLIAM C. FARRAND, New York, N. Y., assignor to the E. & H. T. Anthony & Company, same place. Filed May 15, 1897. Serial No. 636,909. (No model.)

Claim.—1. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, means to elevate the shield, and means to oscillate the tube on its axis, for the purposes set forth.

2. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, and means inclosed within the tube, when connected with the said rod to elevate the shield, for the purposes set forth.

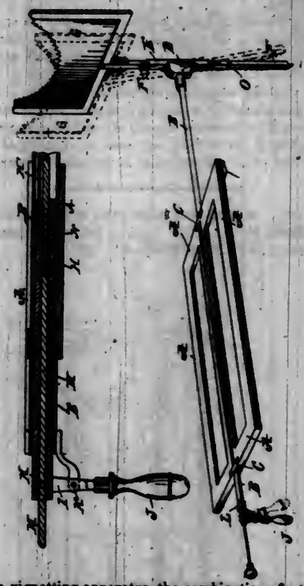
3. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, means inclosed within the tube when connected with the said rod to elevate the shield, and means to oscillate the tube on its axis, for the purposes set forth.

4. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, means to elevate the shield, other means to rock the slideway on its pivot and means to oscillate the tube on its axis, for the purposes set forth.

5. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, means to elevate the shield, and other means to rock the slideway on its pivot, for the purposes set forth.

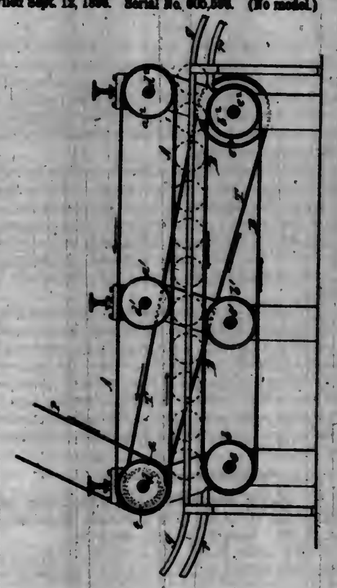
6. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, means inclosed within the tube for rocking the slideway upon its pivot, and other means likewise inclosed within the tube for elevating the shield, for the purposes set forth.

7. In a vignetting apparatus, the combination of a frame, a tube supported upon the frame and adapted to slide through it, a slideway pivoted to the tube, a shield supported upon a rod which slides through the slideway, a lever fastened to the tube and which engages with a sleeve inclosed within the tube, and which engages with the slideway whereby, upon manipulation of the lever the slideway may be tilted, and the tube oscillated on its axis, for the purposes set forth.



8. In a vignetting apparatus, the combination of a tube, a slideway pivoted to the tube, a shield supported on a rod which slides through the slideway, a lever rigidly attached to the tube and which engages with a sleeve or rod inclosed within the tube, which in turn engages with the slideway, another rod likewise inclosed within the tube provided with a chain, which engages with the lower end of the rod which supports the shield, and a friction device applied to said last-named rod, for the purposes set forth.

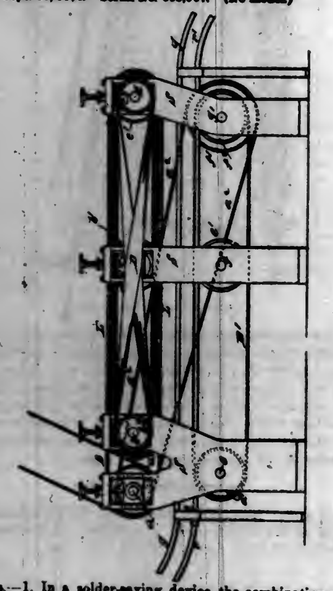
586,964. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. GLEN S. FELLOWS, Middletown, N. Y. Filed Sept. 12, 1896. Serial No. 605,596. (No model.)



Claim.—1. In a solder-saving device, the combination of an endless traveling surface and an opposed can-support arranged to receive the cans between them, and means for producing a relative motion between said traveling surface and can-support, whereby a speed of rotation is imparted to the cans sufficient to throw off from said cans, by centrifugal force, any excess of melted solder, substantially in the manner described.

2. In a solder-saving device, the combination of two endless belts with opposed surfaces arranged to receive the cans between them, said opposed surfaces traveling in opposite directions and at different speeds so that the cans are spaced and forwarded by the faster-moving belt while the slower-moving belt increases the axial rotation of the cans, and means for producing a relative motion between said opposed belt-surfaces whereby a speed of rotation is imparted to the cans sufficient to throw off from said cans, by centrifugal force, any excess of melted solder, substantially in the manner described.

586,965. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. OLIN S. FELLOWS, Middletown, N. Y. Filed Sept. 14, 1896. Serial No. 605,967. (No model.)



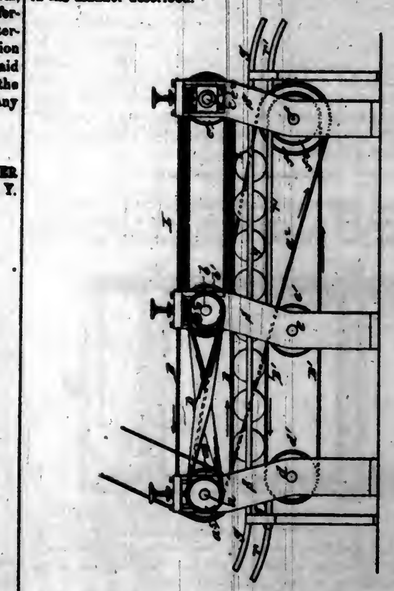
Claim.—1. In a solder-saving device the combination with an endless traveling belt and an opposed can-support arranged to receive the cans from a soldering-machine between them and to forward them while rotating them upon their axes, of an endless brush-belt in the same plane with and parallel to the propelling-belt, arranged to act on the freshly-soldered edges of the cans only, substantially in the manner and for the purpose described.

2. In a solder-saving device the combination with an endless traveling belt and an opposed can-support arranged to receive the cans from a soldering-machine between them and to forward them while rotating them on their axes, of an endless brush-belt in the same plane with and parallel to the propelling-belt, arranged to act on the freshly-soldered edges of the cans only, and in a direction opposite to their direction of axial rotation, for the purpose and substantially in the manner described.

3. In a solder-saving device the combination of an endless belt traveling in one direction at a comparatively high rate of speed, and an opposed endless belt traveling in the opposite direction at a lower rate of speed, said belts being arranged to receive the cans between them from a soldering-machine and to forward them while rotating them on their axes, and an endless brush-belt arranged to act on the freshly-soldered ends of the cans in a direction opposite to their direction of rotation upon their axes, for the purpose and substantially in the manner described.

586,966. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. OLIN S. FELLOWS, Middletown, N. Y. Filed Sept. 19, 1896. Serial No. 606,236. (No model.)

Claim.—1. In a solder-saving device, the combination with an endless traveling belt and an opposed can-support arranged to receive the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of melted solder adhering thereto while forwarding them and rotating them axially in the direction of their line of progress, of a brush arranged to act upon the soldered edges of the cans, thereby insuring perfect joints by brushing the solder in between the opposed surfaces of the can-bodies and end plates while removing the superfluous solder and polishing the exteriors of the joints, substantially in the manner described.



2. In a solder-saving device, the combination with an endless traveling belt and an opposed can-support arranged to receive the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of solder adhering thereto while forwarding and rotating them axially in the direction of their line of progress, of an endless brush-belt arranged to act upon the soldered edges of the cans in a direction opposed to their line of progress and the direction of their axial rotation, thereby insuring perfect joints by brushing the solder in between the opposed surfaces of the can-bodies and end caps, while removing superfluous solder and polishing the exteriors of the joints, substantially as herein set forth.

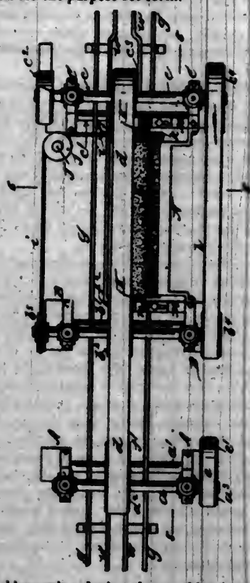
3. In a solder-saving device the combination of an endless belt traveling in one direction at a comparatively high rate of speed and an opposed endless belt traveling in the opposite direction at a lower rate of speed, said belts being arranged to receive the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of solder adhering thereto while forwarding and rotating them axially in the direction of their line of progress, of an endless brush belt arranged to act upon the soldered edges of the cans in a direction opposed to their line of progress and to the direction of their axial rotation, thereby insuring perfect joints by brushing the solder in between the opposed surfaces of the can-bodies and end caps while removing the superfluous solder and polishing the exteriors of the joints, substantially as described.

586,967. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. OLIN S. FELLOWS, Middletown, N. Y. Filed Oct. 12, 1896. Serial No. 608,597. (No model.)

Claim.—1. In a solder-saving device the combination with endless belts arranged to receive and advance the cans between them substantially as described, of a brush arranged to act upon the edges of a plurality of the cans substantially at right angles to their line of motion, substantially in the manner and for the purpose set forth.

2. In a solder-saving device the combination with endless belts traveling in opposite directions and arranged to receive and advance the cans between them substantially as described, of a brush arranged to act upon the edges of a plurality of the cans substantially at right angles to their line of motion, substantially in the manner and for the purpose set forth.

3. In a solder-saving device the combination with endless belts traveling at different speeds in opposite directions, arranged to receive and advance the cans between them substantially as described, of a brush arranged to act upon the edges of a plurality of the cans substantially at right angles to their line of motion, substantially in the manner and for the purpose set forth.



4. In a solder-saving device the combination with an endless traveling belt and an opposed can-support arranged to receive and advance the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of melted solder carried from the soldering-bath, of a brush arranged to act upon the edges of a plurality of the cans in a direction substantially at right angles to that of their line of motion, for the purpose and substantially in the manner described.

5. In a solder-saving device the combination with endless traveling belts, arranged to receive and advance the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of melted solder carried from the soldering-bath, of a brush arranged to act upon the edges of a plurality of the cans in a direction substantially at right angles to that of their line of motion, for the purpose and substantially in the manner described.

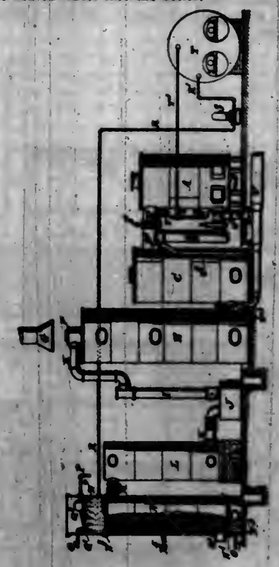
6. In a solder-saving device the combination with endless belts traveling in opposite directions arranged to receive and advance the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of melted solder carried from the soldering-bath, of a brush arranged to act upon the edges of a plurality of the cans in a direction substantially at right angles to that of their line of motion, for the purpose and substantially in the manner described.

7. In a solder-saving device the combination with endless belts traveling at different speeds in opposite directions, arranged to receive and advance the cans between them and to impart to the said cans a speed of rotation sufficient to throw off by centrifugal force the main portion of the excess of melted solder carried from the soldering-bath, of a brush arranged to act upon the edges of a plurality of the cans in a direction substantially at right angles to that of their line of motion, for the purpose and substantially in the manner described.

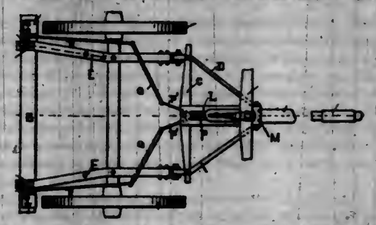
8. In a solder-saving device the combination with an endless traveling belt and an opposed can-support arranged to receive and advance the cans between them substantially as described, of a brush arranged to act upon the edges of a plurality of cans substantially at right angles to their line of motion, and means for adjusting said brush both horizontally and vertically substantially in the manner and for the purpose described.

586,968. FEED-WATER HEATER FOR GAS-MAKING APPARATUS. ARTHUR G. GLASGOW, London, England, assignor to himself and Alexander C. Humphreys, New York, N. Y. Filed Oct. 19, 1896. Serial No. 609,093. (No model.)

Claim.—In combination with a gas-making apparatus and a steam-boiler a surface condenser forming a part of the conduit through which the hot gases pass after leaving the gas-making apparatus, a well or receptacle as N^4 arranged to receive the water passed through the condenser for the purpose of cooling the gases, a supplemental water-supply pipe as Q opening into said well, a cock or valve Q′ situated in said pipe Q and controlled by the water-level in the well, an overflow as P arranged to permit the escape of water from the well when it reaches a determined height therein, a feed-water pipe as R leading from well N^4 to the boiler and means as pump S for forcing the heated water into the boiler.



586,969. AUTOMATIC WAGON-BRAKE. HENRY A. HIBBARD, Evergreen, Pa. Filed Mar. 17, 1897. Serial No. 627,997. (No model.)



Claim.—1. The combination with a vehicle, of a brake-beam mounted to slide bodily toward and away from the wheels and hinged to swing from the wheels by contact with their rims but only when the latter are rotating rearwardly, a spring arranged to yieldingly resist such swinging, through a certain angle, and to yieldingly resist return movement when such angle is exceeded, and means for forcibly sliding the beam toward the wheels.

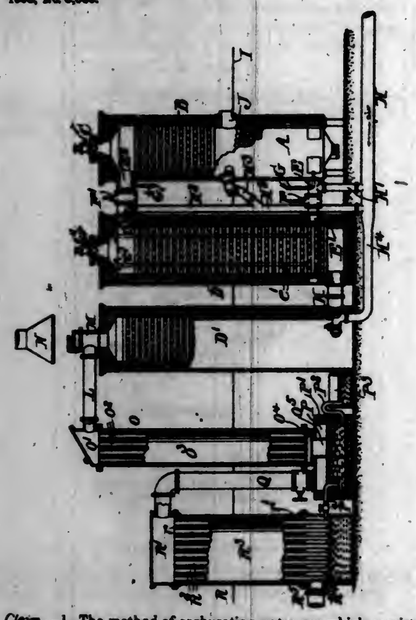
2. The combination with a vehicle, its axle and hounds rigidly connected to the latter, of a non-sliding tongue hinged to the front ends of the hounds, a draft and holdback device mounted to slide upon the tongue, a brake-beam mounted to slide bodily toward and away from the wheels and hinged to swing from the latter by friction of their rearwardly-rotating rims, and means whereby the sliding of said draft and holdback devices compels the brake-beam to slide in the opposite direction.

3. The combination with the wheels, the axle and the hounds rigidly fixed to the latter, of the slotted bars forming rearward extensions of the hounds, the non-circular brake-beam resting against the lower sides of said bars, the sliding hinge supporting the rear side of the beam, the springs supporting the front side of the beam and means for moving the beam bodily toward and away from the wheels.

4. The combination of the wheels, axle, hounds and slotted tongue hinged to the front ends of the hounds, of the hinged sliding brake-beam borne at the rear ends of the hounds, transverse levers

centrally pivoted to the hounds, rods connected to the outer ends of said levers and hinged to the corresponding ends of the brake-beam, rods extending forward from the inner ends of said levers approximately to the pintle-line of the tongue-hinge, and a vertically-swinging link connecting the forward ends of the rods last named to sliding draft and holdback devices upon the tongue

586,970. METHOD OF AND APPARATUS FOR MANUFACTURING CARBURETED WATER-GAS. ALEXANDER C. HUMPHREYS, Philadelphia, Pa., and ARTHUR G. GLASGOW, New York, N. Y. Filed Feb. 18, 1895. Serial No. 538,791. (No model.) Patented in England Feb. 12, 1895, No. 3,089.



Claim.—1. The method of carbureting water-gas which consists in passing the water-gas formed in the generator upward through a preliminary carbureting-chamber, and thence through main carbureting and fixing chambers thence through a surface condenser or condensers, injecting into the main carbureting-chamber liquid hydrocarbons so that they will pass through it in the same direction as the gas and introducing into the preliminary carbureting-chamber the heavy hydrocarbons condensed in the surface condenser and so that said heavy oil will pass therethrough in the opposite direction to the gas.

2. The method of carbureting water-gas which consists in passing the water-gas formed in the generator upward through a preliminary carbureting-chamber, thence through main carbureting and fixing chambers, all said chambers being maintained at temperatures not substantially exceeding those adapted to produce from the oils entering them gases having the maximum illuminating effect, and thence through a surface condenser or condensers, injecting into the main carbureting-chamber liquid hydrocarbons and introducing into the preliminary carbureting-chamber the heavy hydrocarbons condensed in the surface condenser.

3. The method of utilizing liquid hydrocarbons in the manufacture of carbureted water-gas, which consists in preheating a preliminary carbureting-chamber connected with the gas-generator then forcing steam into the base of the generator and passing water-gas from the generator upward through the preliminary carbureting-chamber and at the same time passing liquid hydrocarbons downward through said chamber and draining the heavy residue which is not vaporized and carried off by the water-gas into the generator, fixing the vapors by passing the mixed gases and vapors through a heated fixing-chamber, then cutting off the steam supplied to the base of the generator and the supply of liquid hydrocarbons to the preliminary carbureting-chamber and forcing steam into the top of the preliminary carbureting-chamber and down through it and the generator from the base of which the resulting gases are carried to the fixing-chamber.

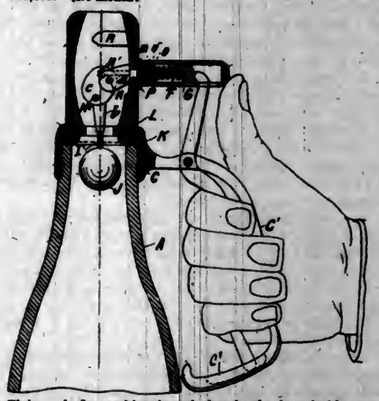
4. The combination with a single water-gas generator of a vertical preliminary carbureting-chamber filled with refractory checker-work and situated immediately above said generator, a separate substantially vertical main carbureting-chamber also filled with checker-work and the top of which communicates with the top of the preliminary carbureting-chamber and which is arranged to receive gases from the generator only at its top, and supply devices for liquid hydrocarbons whereby they can be introduced into the top of the main and preliminary carbureting-chambers, so that they may pass through the preliminary chamber in opposition to the current of gases and through the main chamber in the same direction with the current in said chamber.

5. The combination with a single water-gas generator of a vertical preliminary carbureting-chamber filled with checker-work and situated immediately above said generator, a separate substantially vertical main carbureting-chamber also filled with checker-work and the top of which communicates with the top of the preliminary carbureting-chamber, a fixing-chamber communicating with the main chamber at the bottom, supply devices for liquid hydrocarbons whereby they can be introduced into the tops of the main and preliminary carbureting-chambers, and a surface condenser in communication with the fixing-chamber at the top.

6. The combination with a water-gas generator of a preliminary carbureting-chamber situated immediately above said generator, a substantially vertical fixing-chamber, conduits between the top of said fixing-chamber the top of the preliminary carbureting-chamber and the bottom of the generator, means whereby said conduits can be closed at will, means for injecting oil into the top of the preliminary carbureting-chamber and steam-pipes entering the base of the generator and the top of the preliminary carbureting-chamber.

7. The combination with a water-gas generator of a carbureting or fixing chamber, a conduit leading from the top of the generator to the top of the carbureting-chamber, an annular chamber situated near the base of the carburetor, a series of pipes leading from said chamber through the walls of the carburetor and opening into the top thereof, a conduit leading from the base of the generator to the annular chamber, valves whereby either conduit leading from the generator can be closed at will, steam-pipes leading into the generator above and below its fuel-bed, and means for supplying oil to the top of the carbureting-chamber.

586,971. BOTTLE AND STOPPER FOR AERATED DRINKS. CHARLES KEMPER, Brussels, Belgium. Filed Feb. 22, 1896. Serial No. 581,162. (No model.)



Claim.—1. In combination, the bottle, the detachable cap, the collar for securing the cap to the bottle, the handle carried by the said collar, the ball within the bottle-neck, the pivoted support for the ball, the lever pivoted to said handle, and connections from the lever to the pivoted support, substantially as described.

2. In combination, the bottle, the cap, the collar for detachably connecting the cap to the bottle-neck, the handle carried by said collar, the ball within the bottle-neck, the pivoted support for the ball, the laterally-moving spring-pressed plunger passing through an opening in the cap and connected with the pivoted support and the lever pivoted to the handle and bearing against said plunger, substantially as described.

586,972. GARMENT-HANGER. HERMAN W. KNUDSON, New Portland, Me., assignor to the Somerset Novelty Manufacturing Company, same place. Filed Sept. 30, 1896. Serial No. 607,314. (No model.)

Claim.—1. A trousers-hanger comprising a body having a jaw, a movable jaw hinged to the body, a recess in the outer faces of the body and movable jaw, and a swinging clamping member in said recess and pivoted to the body and arranged to move into and engage the floor of the recess in the jaw and press the jaw into clamping position.



2. A trousers-hanger comprising a body having a jaw, a movable jaw at its upper edge hinged to the body and arranged beside the first-mentioned jaw and having a cam-surface, and a movable hand-operated member pivoted to the body and arranged to swing over said movable jaw and engage said surface to force said jaw into locking position, substantially as described.

3. A garment-hanger, comprising a body having two jaws, one of which is movable with respect to the other, a button pivoted between its ends to the body, the movable jaw having a cam-surface on which one end of the button rides while the opposite end of the button braces against the body, substantially as described.

4. A garment-hanger comprising a body having two jaws, one of which is movable with respect to the other, the body and movable jaw having a recess or depressed seat, said jaw having a cam-surface in the recess, and a button in the recess pivoted to the body and arranged to ride on the cam-surface to force the movable jaw in, substantially as described.

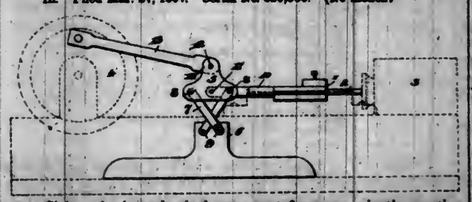
5. A garment-hanger comprising a body having a rigid jaw depending from its lower edge, the movable jaw having the rounded or curved lower inner edge and the intermediate depression to receive the vertical hem of the trousers-legs, hinges uniting the upper end of the movable jaw to the lower end of the body with the upper portion of the movable jaw a distance from the inner face of the rigid jaw so that the lower edge of the movable jaw moves in to clamp the trousers-legs leaving the space above for the bottom hems of the trousers-legs, and a swinging hand-operated locking member pivoted to the body and arranged to slide onto and press in the movable jaw, and to permit outward swing of the movable jaw by moving from the same and onto the body, substantially as described.

6. A garment-hanger comprising a body having a rigid jaw depending from its lower edge, a movable jaw, permanent hinges between the upper end of the movable jaw and the lower end of the body, and a hand-operated locking-lever on the outer face of and pivoted to the body between and independently of the hinges and arranged to swing onto the outer portion of the movable jaw and force said jaw in, and to permit opening of the movable jaw by moving from the same onto the body, substantially as described.

7. A garment-hanger comprising a body having a rigid jaw, a coacting movable jaw hinged to the body, and a turn-button pivoted between its ends so that its opposite ends swing onto the body and movable jaw, respectively, one of which is provided with a cam-surface on which one end of the button rides to press in the movable jaw, substantially as described.

8. In a garment-hanger, the combination of an elongated body provided with centrally-located suspending means and having its upper edge raised at the central portion so as to support a coat thereon, at or about the collar or neck portion only, said body having sockets extending horizontally inwardly from its opposite ends, horizontal rods in said sockets, each rod at its outer end having a horizontal circular disk or head rigid therewith and arranged to extend into the armhole of a coat, whereby the coat will be held shaped at the armholes and will have its shoulders stretched from the central portion of the body without being supported directly at certain intermediate portions of the shoulders, substantially as described.

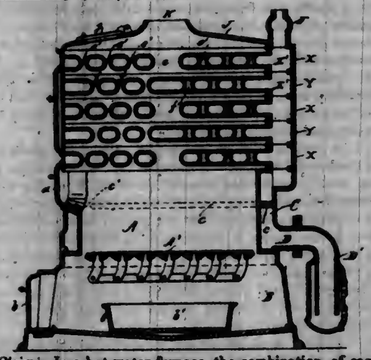
586,973. MECHANICAL MOVEMENT. HANS KOCH, Rhein Grove, Ill. Filed Mar. 27, 1897. Serial No. 629,560. (No model.)



Claim.—1. A mechanical movement for communicating motion from a reciprocatory member to a rotary member, the same comprising a rocker, supporting-arms arranged in intersecting planes, and pivotally connected at their extremities to the rocker and to a fixed object, a link connecting the reciprocatory member to the rocker and having a pivotal connection with the latter at a point between the pivotal points of said supporting-arms, and a pitman connecting the rotary member to the rocker and pivoted to the latter at a point outside of or beyond the pivotal points of said supporting-arms and link, whereby the pitman receives a throw in excess of that of the reciprocatory part, and hence is adapted to communicate motion to a rotary part having a path of which the diameter is greater than the path of the reciprocatory part, substantially as specified.

2. A mechanical movement for communicating motion from a reciprocatory to a rotary part, the diameter of the part of the rotary part being in excess of the path of the reciprocatory part, said movement having a rocker, a link connecting the reciprocatory part to the rocker, and pivotally mounted upon the latter, supporting-arms arranged in intersecting planes and pivoted at one end to the rocker at points upon opposite sides of the pivotal point of said link, and pivotally mounted at the other end, upon a fixed object, whereby the pivotal point of the link traverses an approximately straight path, and a pitman for connecting the rocker with the rotary part and pivotally connected to the rocker at a point in a plane perpendicular to a line connecting the pivotal points of the link and the contiguous ends of the supporting-arms, substantially as specified.

586,974. HOT-WATER FURNACE. EMILIEN A. MANEY, Beauharnois, Canada, assignor of one-half to Cyrille Guimond, same place. Filed Feb. 19, 1897. Serial No. 624,238. (No model.) Patented in Canada May 7, 1896, No. 52,207.



Claim.—In a hot-water furnace, the combination, of sections X and Y arranged alternately in a series one above the other, said sections having radially-arranged partitions dividing their water-chambers into halves, and openings E and E' arranged one on each side of the said partitions and connecting the water-chamber of each section with the water-chambers of the adjacent sections, and a series of narrow concentric openings *e'* and *f* each formed of the greater part of a circle, the said openings *e'* of the sections X being out of line with the openings *f* of the sections Y, and forming tortuous passages for the products of combustion, the said partitions being arranged between the ends of the openings *e'* and *f*, and the said water-chambers being divided into pipes by the said openings *e'* and *f*, substantially as set forth.

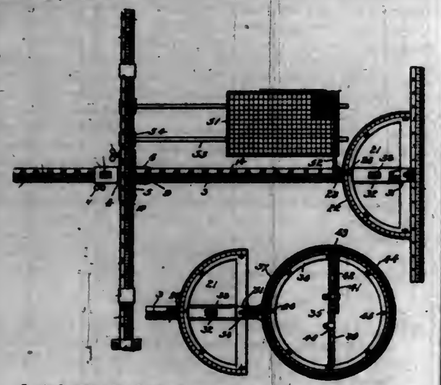
586,975. DRAFTING AND PLOTTING INSTRUMENT. SALATHIEL L. O'NEAL, Philippi, W. Va. Filed Jan. 15, 1896. Serial No. 576,063. (No model.)

Claim.—1. In a drafting implement, the combination with a latitudinal and an adjustable longitudinal bar, of a circle-gage having a rotary member, and a holder for a marking device mounted upon the rotary member for linear adjustment, substantially as specified.

2. In a drafting implement, the combination with a latitudinal and an adjustable longitudinal bar, of a circle-gage having a fixed ring, a rotary member mounted in said ring and having a diametrical linear gage, a holder for a marking device mounted for linear adjustment upon said gage, and connections between the holder and the ring whereby movement of the rotary member causes linear movement of the holder, substantially as specified.

3. In a drafting implement, the combination with a latitudinal and an adjustable longitudinal bar, of a circle-gage having a fixed ring, a rotary member mounted in said ring and having a diametrical linear gage, a holder for a marking device mounted for linear adjustment upon said gage, and a feed-screw connected with the holder and having a pinion meshing with a rack on the ring, to cause a linear movement of the holder when the rotary member is operated, substantially as specified.

4. A drafting implement having a stationary latitudinal bar, a longitudinal bar mounted for latitudinal and longitudinal movement, and an auxiliary latitudinal gage mounted to slide upon and parallel with the main latitudinal bar, and capable of independent movement to facilitate the measurement of independent latitudinal runs, substantially as specified.



5. A drafting implement having a fixed main latitudinal bar, an adjustable longitudinal bar mounted upon the latitudinal bar by means of a removable slide, and a removable auxiliary gage mounted to slide upon and parallel with the latitudinal bar, substantially as specified.

6. A drafting implement having a latitudinal bar, an adjustable longitudinal bar, a traverse-table adjustably mounted upon the latitudinal bar, and a pointer carried by the longitudinal bar to traverse said table, substantially as specified.

7. A drafting implement, having latitudinal and longitudinal bars, and a traverse-table adjustably mounted upon the latitudinal bar and having sections or members connected for relative adjustment, the graduations thereon being arranged to progress respectively in different directions, to suit the different general directions in which a line may be run from a given initial point, substantially as specified.

8. A drafting implement having latitudinal and longitudinal bars, and a pointer mounted upon the longitudinal bar and adapted to move latitudinally and longitudinally therewith, and a traverse-table mounted upon the latitudinal bar for latitudinal and longitudinal movement, substantially as specified.

9. A drafting implement having latitudinal and longitudinal bars, a pointer mounted upon the longitudinal bar for latitudinal and longitudinal movement, and a traverse-table mounted upon the latitudinal bar and constructed of relatively adjustable sections, each graduated to increase numerically in a different direction, substantially as specified.

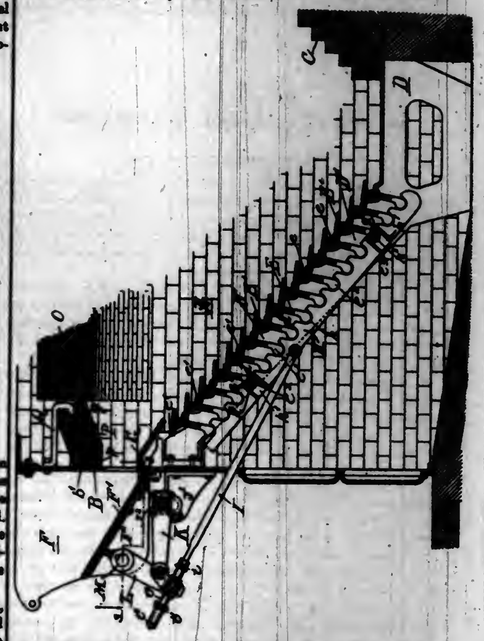
10. A drafting implement having latitudinal and longitudinal bars, a pointer carried by one of the bars, and a traverse-table carried by the other bar and comprising telescoping sections having terminal guides and adapted to fold within the area of a single section, substantially as specified.

586,976. BAR-ACTUATING DEVICE. WILLIAM R. ROWEY, Boston, Mass., WILLIAM W. CHURCHILL, New York, N. Y., and JOHN T. ARNOLD, Chicago, Ill., assignors to the Westinghouse, Church, Kerr & Company, Orange, N. J. Filed May 23, 1896. Serial No. 592,715. (No model.)

Claim.—1. In a furnace-grate-actuating mechanism, the combination of an agitator-arm, an apertured tappet-block provided with oppositely-extending trunnions mounted in said agitator-arm, a grate-actuating rod extending through said tappet-block, tappet-shoulders on said rod, and means for actuating the agitator-arm, substantially as set forth.

2. The combination with an agitator-arm, an apertured tappet-block provided with oppositely-extending trunnions mounted in said agitator-arm, a grate-actuating rod extending through said tappet-block, tappet-shoulders on said blocks and means for agitating the agitator-arm, said tappet-block and its trunnions being cast in one piece within a socket within said agitator-arm, substantially as described.

3. The combination with a reciprocatory grate-actuating bar of means for imparting reciprocatory motion to said bar comprising a continuously-rotating shaft, a pivotally-mounted agitator-arm, an oscillatory tappet-block pivotally mounted in the free end of said arm and provided with an aperture extending therethrough, an actuating-rod connected at one end with the grate-actuating bar and extending at its other end through the tappet-block, tappet-shoulders mounted upon said rod at each side of the tappet-block, and a connecting-bar extending from the crank of the crank-shaft to the agitator-arm, substantially as set forth.

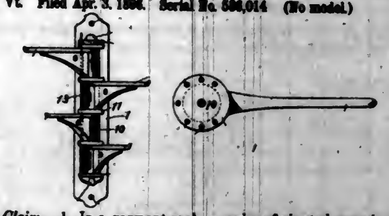


4. The combination with a grate-actuating bar, of means for imparting reciprocatory motion thereto, comprising a continuously-rotating crank-shaft, a pivotally-mounted agitator-arm slotted at its free end, an apertured tappet-block provided at opposite sides with integral trunnions engaging bearing-apertures in the opposite sides of the slotted end of the agitator-arm, a rod connected at one end with the grate-actuating bar and arranged to extend at its other end through the apertured tappet-block, tappet-nuts threaded upon said connecting-rod at each side of said tappet-block, and a connecting-rod extending from the crank of the crank-shaft to the agitator-arm, substantially as set forth.

5. The combination with an inclined grate and an arch extending over the upper part of the grate, of filling-pieces inserted between the furnace-front and the arch, said filling-pieces being supported by the furnace-front free from and independent of the arch and a space being provided between the said filling-pieces and the arch to admit air to the front of the furnace, substantially as described.

6. The combination with an inclined grate, a furnace-front, and an arch extending over the upper part of the grate and terminating at a distance from the said front, of filling-pieces inserted between the furnace-front and the arch, and means for supporting said filling-pieces independently of the arch comprising projecting parts on the furnace-front for engaging the front edge of the filling-pieces, and flanged brackets attached to the furnace-front for supporting the rear edge of the filling-pieces, substantially as described.

586,977. GARMENT-RACK. EDWARD L. SIBLEY, Bennington, Vt. Filed Apr. 3, 1896. Serial No. 586,014. (No model.)

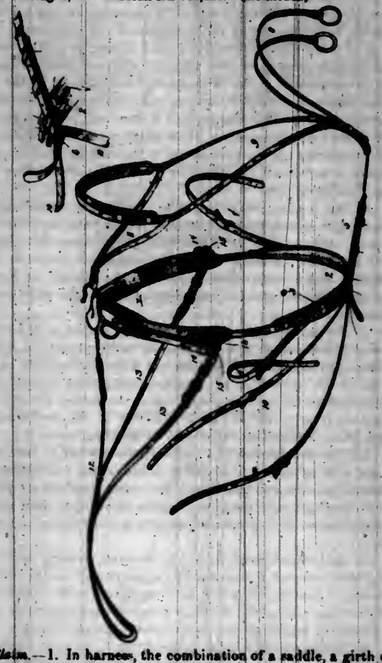


Claim.—1. In a garment-rack, a series of pivoted superimposed arms each provided with a boss having a series of holes, and a locking-pin passing through one of the holes in each boss, substantially as and for the purpose set forth.

2. In a garment-rack, a series of independently-pivoted arms arranged one above the other, each arm having a boss provided with a series of vertical holes, and a locking-pin passing through one of the holes in each boss, substantially as and for the purpose set forth.

3. In a garment-rack, a supporting-plate, ears extending therefrom and a bolt carried by said ears, combined with a series of superimposed arms pivoted on said bolt, each arm having a hub and a perforated boss, and a locking-pin passing through one of the perforations in each boss, substantially as and for the purpose set forth.

586,978. HARNESS. GEORGE R. SMITH, Shelbyville, Ky., assignor of two-thirds to J. W. Butch and Jos. A. Wight, same place. Filed Aug. 8, 1896. Serial No. 602,126. (No model.)



Claim.—1. In harness, the combination of a saddle, a girth connected therewith, a coupling composed of a series of layers and having a loop at its rear end and a buckle at its front end, a shaft-strap secured to the girth and passing transversely between the layers of the coupling to connect the latter with the girth, traces consisting of a strap passing through the loop at the rear end of the coupling, and a neck-yoke and martingales connected together at their lower ends and having the lower portion of one extended to the rear and adjustably connected with the front end of the said coupling, substantially as set forth.

2. The herein-described harness, comprising a saddle, a girth, a coupling composed of a series of layers and having a loop at its rear end, a buckle at its front end, and loops intermediate of its ends, a shaft-strap secured to the girth and passing transversely between the layers of the coupling to connect the latter therewith, a strap passing through the loop at the rear end of the coupling and forming traces, a neck-yoke and martingales connected at their lower ends and having a portion of one continued to the rear and adjustably connected with the front end of the coupling, a retaining-strap for connecting the upper portion of the neck-yoke with the check-hook of the saddle, a crupper-strap, shaft-tugs, and breeching-straps secured at their rear ends to the crupper-strap at a point about midway of its ends and at their front ends to the shaft tugs, substantially as specified.

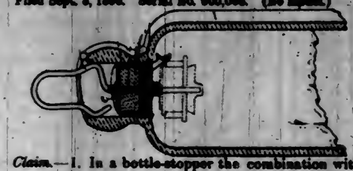
586,979. SHADING-PEN. WILLIE R. SPENCER, Vancouver, Canada. Filed Oct. 17, 1896. Serial No. 609,233. (No model.)



Claim.—1. A shading-pen comprising a tubular reservoir which is closed at one end and open at the other, a plug which is adapted to be inserted into the open end thereof, said plug being provided with an extension, a pen which is mounted in said extension, and which consists of two plates, one of which is provided with an opening or slot, and a tube which extends through said plug and through the extension thereof, and which is adapted to hold a sponge or other absorbing device over said opening, and longitudinally-movable rod mounted in said tube, substantially as shown and described.

2. A shading-pen comprising a tubular reservoir, which is closed at one end and open at the other, a plug which is inserted into the open end and provided with an extension, a pen mounted in the end of said extension and consisting of two spring-plates, which are connected at their inner ends, and one of said plates being provided with a slot or opening therein, and a tube which passes through said plug, and the extension thereof, and which is provided at its outer end with a head which is open on its under side, and in which is placed a sponge or other absorbing device which is held by said head over the opening formed in one side of the pen, and a longitudinally-movable rod which is mounted in said tube, substantially as shown and described.

586,980. BOTTLE-STOPPER. JOHN H. STONE, Toronto, Canada. Filed Sept. 8, 1896. Serial No. 605,066. (No model.)



Claim.—1. In a bottle-stopper the combination with a suitable stem, of a rubber sleeve connected thereto, a non-absorbent felt disk situated beneath the sleeve and a non-corrosible disk-nut secured on the stem beneath the sleeve and covering the end of such stem as and for the purpose specified.

2. In a bottle-stopper the combination with a suitable stem, of a wooden plug connected thereto provided with an upper flange, a rubber sleeve fitting the interior of the plug, a non-absorbent felt disk situated beneath the sleeve and plug and a non-corrosible disk-nut secured on the stem beneath the sleeve and covering the end of such stem as and for the purpose specified.

3. In a bottle-stopper the combination with a suitable stem, of a rubber sleeve connected thereto, a non-absorbent felt disk situated beneath the sleeve and a non-corrosible disk-nut of less diameter than the sleeve and beveled to allow of the downturn of the felt disk as and for the purpose specified.

4. The combination in an internal stopper, the stem, the rubber sleeve arranged thereon adapted to close the neck of a bottle with means for preventing the movement of said sleeve on said stem, and a non-absorbent flexible disk of greater diameter than said sleeve and arranged below the same on said stem, and the rigid disk below said flexible disk, whereby the neck of the bottle below said sleeve is sealed when said stopper is in place, substantially as described.

586,981. BOTTLE-STOPPER. GUSTAV VOGICKA, New York, N. Y. Filed Dec. 1, 1896. Serial No. 614,047. (No model.)



Claim.—1. A bottle-stopper, comprising a split collar for engagement with the neck of a bottle and a circular spring mounted upon said collar and a bow connected to said spring and a revoluble ball mounted upon said bow, said ball adapted to close the neck of the bottle, substantially as shown and described.

2. In a bottle-stopper, the combination of a split collar having a resilient ring mounted thereon, said ring having loops forming part thereof which carry a swinging bow and a ball pivotally attached to the said bow for closing the neck of the bottle, substantially as shown and described.

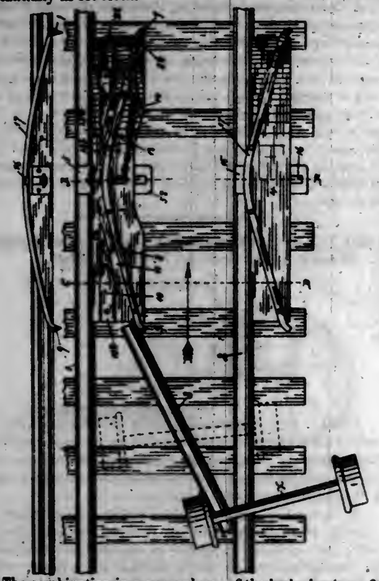
3. The combination of the split collar having the pin and lug projected from opposite sides thereof and the circular spring mounted thereon; with the bow which engages with loops of the said spring and the ball of flexible material which is mounted on the horizontal portion of the bow, substantially as shown and described.

586,982. CAR-REPLACER. DANIEL G. WALKER, Utica, N. Y. Filed Feb. 3, 1897. Serial No. 622,426. (No model.)

Claim.—1. The combination with a car-replacer of a rail-hook, a sliding hook-shank having a wedge-opening, and a securing-wedge having a notch adjacent to its lower end to receive the end of the shank, substantially as set forth.

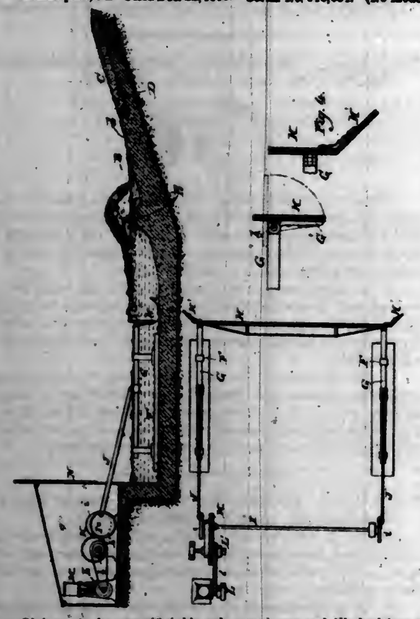
2. The combination in a car-replacer of a curved flange-rail, fixed blocks located to afford a flange-track between the blocks and flange-rail, and an outside flange-track between the blocks and a

track-rail with which the rail-replacer is used, and a removable block 13, substantially as set forth.



3. The combination in a car-replacer of the body, having a fixed flange-rail and fixed blocks having their upper surfaces transverse of the replacer horizontal and extending from the ends of the body toward the middle respectively and of a height from the body to support the wheels on their face and formed and arranged on the body to afford a flange-track between the blocks and flange-rail converging from each end of the body with the track-rail and also affording a flange-track between the blocks and track-rail, the two flange-tracks uniting at the middle of the replacer, substantially as set forth.

586,983. AMUSEMENT APPARATUS. WILLIAM WHARTON, Jr., Philadelphia, Pa. Filed Dec. 22, 1896. Serial No. 616,631. (No model.)



Claim.—1. In an artificial beach, a tank or pond filled with water and having an inclined side of small grade extending a distance below and above the water-level, in combination with power-driven wave-producing apparatus arranged in the tank or pond at a distance from and in front of the inclined side and adapted to force a succession of waves or motions of the water toward and up the inclined side to form breakers while permitting a person to walk down the inclined side.

2. A tank or pond provided with a sloping or inclined side formed of concrete or other artificial solid material having a shoulder approximately on a level with the water in the tank or pond and also furnished with a beach of sand or pebbles or both joining up to the shoulder of said solid artificial material and extending higher up the shore, in combination with power-driven wave-producing apparatus adapted to produce a motion of the water toward and cause it to break in breakers upon the said inclined side and beach.

3. A tank or pond provided with a sloping or inclined side extending above the water-level and also provided with a raised portion or obstruction at the lower part of and parallel to the length of the sloping or inclined side so as to be under the water-level adapted to retard the under part of a wave and to cause the upper part thereof simultaneously to comb or fall over, in combination with wave-producing apparatus arranged in the tank or pond adapted to produce a motion of the water toward the said obstruction and inclined or sloping side.

4. The combination of a tank or pond having an inclined beach extending from below to a distance above the water-level in said tank or pond, reciprocating wave-producing power apparatus adapted to force the water toward and up the inclined beach, power devices for actuating said wave-producing apparatus, and means for increasing or diminishing the speed of reciprocation of the said wave-producing apparatus.

5. The combination of a tank or pond having an inclined beach extending from below to a distance above the water-level, wave-producing apparatus adapted to force the water toward and up the inclined beach, consisting of a reciprocating feathering-board and power devices for actuating said board, and means for making the speed or velocity of the forward motion of the feathering-board faster than the speed or velocity of its receding motion.

6. The combination of a tank or pond having a sloping beach at one side extending from below to above the water-level, a long feathering-board arranged below the water, longitudinal guides for the feathering-board, and power devices acting upon each end of the board adjacent to its guides for imparting a simultaneous reciprocation.

7. An inclined beach formed of concrete or other artificial material with a recess or pocket at its upper portion and provided with a beach of sand or pebbles, or both, supported in the said pocket, in combination with power-driven wave-producing apparatus adapted to produce a motion of the water toward the said beach.

8. The combination of an inclined beach, wave-producing apparatus adapted to force the water toward and up the said beach, and means for rotating or oscillating the wave-producing apparatus so as to project the water in different directions at different times as may be desired.

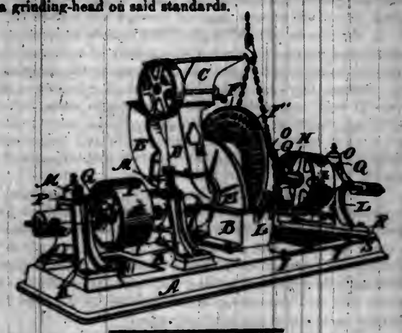
9. The combination of a tank or pond having an inclined beach, wave-producing apparatus adapted to propel the water toward the said beach consisting of a long reciprocating feathering-board H provided with sides H' H', longitudinal guides for said board, and power devices operating upon each end of said board for reciprocating it horizontally.

10. The combination of a tank or pond having a long raised obstruction parallel to its side and below the water-level, a wave-producing device consisting of a long feathering-board arranged parallel to the obstruction, and power devices for reciprocating the feathering-board to or from the obstruction to cause the waves produced to be forced upward and comb or break into artificial breakers.

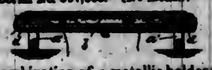
586,984. GRINDING-MILL. JAMES F. WINCHELL, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed June 14, 1896. Renewed June 17, 1897. Serial No. 641,163. (No model.)

Claim.—1. In a grinding-mill, the combination with the base having standards rigidly secured thereto at one side of its middle, a shaft mounted in said standards and having a grinding-head, and having on the other side of the middle two bearings depressed in its upper surface at or near the corners and a standard-plate fitted to rest upon said latter portion of the base and having two rounded projections forming journals fitted into said depressed bearings, standards rigidly secured to said standard-plate, a shaft mounted in said standards and a grinding-head on the shaft.

2. In a grinding-mill, the combination with the base, standards secured thereto at one side of its middle, a shaft mounted in said standards and a grinding-head on said standards, and bearings on said base at the other side of its middle, a standard-plate fitted to rest upon said latter part of the base and fitted to tip in said bearings, standards secured to said plate, a shaft mounted in said standards and a grinding-head on said standards.

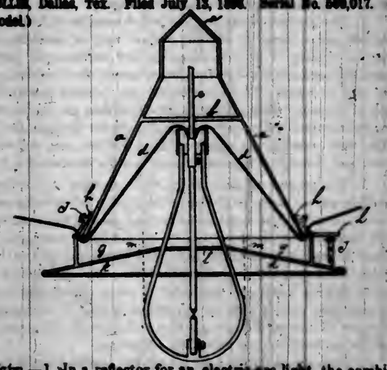


586,985. WAXING-PAD. EDGAR R. WOODARD, Pittston, Pa. Filed July 2, 1896. Serial No. 597,863. (No model.)



Claim.—The combination of a metallic holder shaped to conform to the contour of a sad-iron, provided with legs, and having an upwardly-extended flange projected around its edge, with a pad comprising a wooden block, a filling of wax and a casing of fabric, a resinous compound applied to the edge of the wax, means for securing the fabric to the block and for securing the pad to the holder, substantially as shown and described.

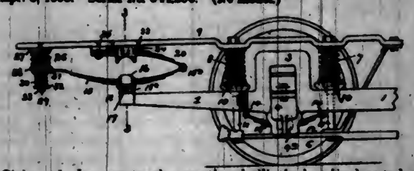
586,986. ELECTRIC-ARC-LIGHT REFLECTOR. CHARLES M. BOLLES, Dallas, Tex. Filed July 13, 1896. Serial No. 599,017. (No model.)



Claim.—1. In a reflector for an electric-arc light, the combination of the annular band *g*, and reflector *f* secured upon the lower edge of said band, and extending inwardly therefrom, having an aperture for the passage of the arc-light conductor, and means for securing said band upon an arc-light cone, substantially as described.

2. In a reflector for an electric-arc light, the combination of the reflector *f*, having an aperture for the passage of the arc-light conductor, and means for supporting the said reflector upon the arc-light cone, said reflector extending inwardly from the point of attachment to its supporting means, substantially as described.

586,987. CAR-TRUCK. JOHN A. BRILL, Philadelphia, Pa. Filed Apr. 3, 1896. Serial No. 544,256. (No model.)



Claim.—1. In a car-truck, a portional-elliptical spring located at each corner, said springs being composed of two unequal parts, a lower part attached to the truck-frame having one long end extending out beyond the truck-frame, a compressible resilient connection interposed between the extreme of the long end and the car-body, and a short end extending toward the truck-axle, and an upper part attached at one end to the car-body and extending toward the truck-axle and engaging with the short end of said lower part, combined with a spiral spring for supporting the car-body, substantially as described.

2. In a car-truck, the combination with a car-body, of three-quarter elliptic springs, each having its single end longer than its double end, and also having two bearings on the car-body, neither of which is inside the bearing of said spring upon the truck-frame, and a longer and single end projected out and beyond the truck-frame, a compressible resilient connection interposed between the long end and the car-body, acting directly against an overhanging portion of the car-body, and a spiral spring arranged upon the car-truck and supporting the car-body, substantially as described.

3. In a car-truck, a portional-elliptical spring located at each corner, said springs being composed of two unequal parts, a lower part attached to the truck-frame having one long end extending out beyond the truck-frame, oppositely-acting springs interposed between the extreme of the long end and the car-body, and a short end extending toward the truck-axle, and an upper part attached at one end to the car-body and extending toward the truck-axle and engaging the short end of said lower part, combined with a spiral spring for supporting the car-body, substantially as described.

4. In a car-truck, a portional-elliptical spring located at each corner, said springs being composed of two unequal parts, a lower part attached to the truck-frame having one long end extending out beyond the truck-frame, the spiral springs 26 30 above and below the extreme of the long end, the post 29 tying the springs together, the spring 26 engaging the car-body, and a short end extending toward the truck-axle, and an upper part attached at one end to the car-body and extending toward the truck-axle and engaging the short end of said lower part, combined with a spiral spring for supporting the car-body, substantially as described.

5. In a car-truck, the combination with the truck-frame, of an upper chord or car-sill, an extension of said frame formed at its four corners comprising a leaf-spring and a compressible resilient connection between said leaf-spring and said chord or sill, and other springs interposed between the frame and chord or sill, substantially as described.

6. In a car-truck, the combination of a truck-frame, and an upper chord or car-sill, a leaf-spring on said frame and extending beyond its ends, and a coil-spring interposed between the end of the leaf-spring and the sill or chord, substantially as described.

7. In a car-truck, the combination of an axle-box frame and a sill or upper chord which extends beyond the end of said frame, with a spring extending from said frame to the extended portion of said sill or chord, and oppositely-acting springs interposed between the end of said spring and said sill or chord, substantially as described.

8. In a car-truck, the combination of an axle-box frame and a sill or upper chord which extends beyond the end of said frame, with a spring extending from said frame to the extended portion of said sill or chord, and springs of varying capacity secured to the end of said spring and to said sill or chord, substantially as described.

9. In a car-truck, the combination of an axle-box frame and a sill or upper chord which extends beyond the end of said frame, with a spring extending from said frame to the extended portion of said sill or chord, and an elastic connection between the extended portion of said chord and spring, substantially as described.

10. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a spring carried by said frame and having one connection with said sill or chord above its connection with said frame, and an elastic connection with said sill or chord forward of said frame, substantially as described.

11. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a spring carried by said frame and having connections at its ends extending to different points on said sill or chord, and a further spring interposed between one of its ends and the sill or chord, substantially as described.

12. The combination with the car sill or truck upper chord, and an axle-box frame, of a spring having bowed elements connected at one end and entirely disconnected at the other, and oppositely-acting springs connecting the disconnected end with the sill or chord, substantially as described.

13. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a spring carried by said frame, a spring connecting its inner end with said sill or chord, and elastic connections between the outer end of said first-mentioned spring and the outer part of said sill or chord, substantially as described.

14. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a portional-elliptical or bow spring having its opposite ends connected to separate points on said sill or chord, the longer arm of said spring having a resilient connection with said sill or chord, substantially as described.

15. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a bow-spring carried by said frame, a bow-spring connected with one end of said spring, and a coiled spring connecting the other end of the first-mentioned spring with said sill or chord, substantially as described.

16. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a bow-spring carried by said frame, a bow-spring connecting the inner end of said spring with said sill or chord, a spring located between the outer end of said first-mentioned spring and said sill or chord, and a spring beneath the outer end of the first-mentioned spring, and a bar extending from said sill or chord to regulate the position of the third-mentioned spring, substantially as described.

17. In a car-truck, the combination of an axle-box frame and a sill or upper chord which extends forwardly beyond said frame, with a spring carried by said frame, and means for elastically connecting the outer end of said spring with the outer portion of said chord beyond the plane of the axle-box frame, substantially as described.

18. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a bow-spring centrally connected with said frame, another bow-spring carried by said sill or chord and extending rearwardly and pivotally connected with said first-mentioned spring, and a spring located between the outer end of said first-mentioned spring and said sill or chord, substantially as described.

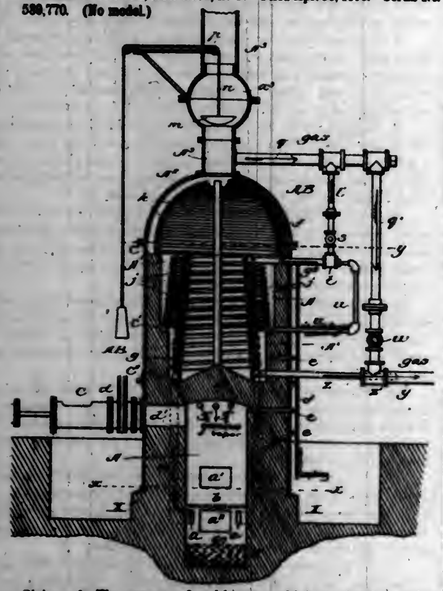
19. In a car-truck, the combination of an axle-box frame and a sill or upper chord, with a bow-spring 15, connections between the inner end of said spring and said sill or chord, a spring 26 between the sill and the outer end of the spring 15, a spring 30 located on the under side of the spring 15 beneath the spring 26, a rod 29 passing freely through the springs 26, 15 and 30 and connected with said sill or chord, a seat 32 beneath the spring 30, and a nut on the rod 29 to sustain said seat, substantially as described.

20. A spring comprising a semielliptic lower half, and a portional-semielliptic upper half, the opposing segments of the two halves being connected, and the other ends of the halves disconnected, an oppositely-acting element at the end of the lower half, combined with a truck-frame and sill or chord, substantially as described.

21. A portional-elliptic spring, comprising a lower full-semielliptic element, having an extension at one end, and an upper portional-semielliptic element, the extremes of the upper and lower elements at one end being connected, the other being disconnected, the lower element having a longer spread on one side than on the other, this end carrying an additional spring, combined with a truck-frame, and chord or sill, substantially as described.

586,988. PROCESS OF AND APPARATUS FOR MAKING GAS.

WILLIAM F. BROWNE, New York, N. Y. Filed Apr. 30, 1896. Serial No. 590,770. (No model.)



Claim.—1. The process of making gas which consists in burning a combustible gas or vapor in contact with a body of carbonaceous fuel, thereby heating it to incandescence, and passing the resulting products through the incandescent fuel, producing water-gas, and, by means of such hot water-gas, heating generating-coils, and, at the same time, generating hydrocarbon gas by forcing water and hydrocarbon oil or carbonaceous material through said heated coil.

2. The process of making gas which consists in burning a combustible gas or vapor in contact with a body of carbonaceous fuel, thereby heating it to incandescence, and passing the resulting products through the incandescent fuel, producing water-gas, and, by means of such hot water-gas, heating generating-coils, and, at the same time, generating hydrocarbon gas by forcing water and hydrocarbon oil or carbonaceous material through said heated coil and mixing the resulting hydrocarbon gas with said water-gas for carbureting it.

3. The process of making gas which consists in producing a gas or gaseous vapor by forcing water and hydrocarbon oil or carbonaceous material into a heated conduit, then burning the resulting gas or vapor in contact with a body of fuel, thereby heating it to incandescence, and passing the products through the incandescent fuel, producing water-gas, and passing such highly-heated water-gas, in contact with said generating-coil for maintaining the heat thereof, whereby oxidation of the coil is prevented.

4. The process of making gas which consists in producing a gas or gaseous vapor by forcing water and hydrocarbon oil or carbonaceous material through a heated conduit or coil, burning the resulting vapors at the top of a body of fuel, thereby heating it to incandescence, and passing the resulting products down through the incandescent fuel for converting the aqueous vapors and other volatile matter from the fresher fuel into fixed water-gas, and passing such heated water-gas in contact with said generating-coil, for maintaining the heat thereof and preventing oxidation of the metal of the coil.

5. The process of making gas which consists in continuously burning gas or vapor containing a suitable proportion of hydrocarbon or carbonaceous material, in contact with a body of fuel, thereby heating it to incandescence, charging fresh fuel at suitable intervals on the top of said body of fuel, and passing the resulting products of combustion and the vapors from said fresh fuel down through the incandescent fuel to produce fixed water-gas.

6. The process of making gas which consists in burning a combustible gas or vapor in contact with a body of carbonaceous fuel, thereby heating it to incandescence, and continuously passing the resulting products through the incandescent fuel producing water-gas, and by means of such hot water-gas heating generating-coils, and, at the same time, generating hydrocarbon gas by forcing water and hydrocarbon oil or carbonaceous material through said heated coils, then passing the resulting hydrocarbon gas, together with water-gas, through a separate heated coil for producing a fixed gas.

7. The process of making gas which consists in burning a combustible gas or vapor in contact with a body of carbonaceous fuel, thereby heating it to incandescence, and passing the resulting products through the incandescent fuel, producing water-gas, and by means of such hot water-gas heating a generating-coil and a carbureting and fixing coil, and, at the same time, generating hydrocarbon gas by forcing water and hydrocarbon oil or carbonaceous material through said heated coils, and by means of a jet of the resulting gas or vapor forcing said water-gas into and through the second heated coil for carbureting and fixing the water-gas.

8. In a gas-generating apparatus, the combination with the fuel and water-gas-generating chamber, of a coil-chamber above the same and containing suitable generating-coils, flues connecting said fuel-chamber with the coil-chamber for conducting water-gas to heat the coils, a gas take-off pipe leading from said coil-chamber and a gas take-off pipe leading from the coils and connecting with the fuel-chamber for burning gas therein, substantially as described.

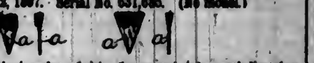
9. The fuel and water-gas-generating chamber having means for supplying air and combustible gases at the top thereof, in combination with a coil-chamber placed above said fuel-chamber, the two being separated by a horizontal partition, flues for water-gas leading from the base of the fuel-chamber into said coil-chamber, a set of generating-coils in said coil-chamber having a gas-outlet pipe, and a gas-outlet pipe leading from the coil chamber for water-gas, substantially as described.

10. The combination with the fuel and water-gas-generating chamber having a burner-head and twyers at the top thereof, of a coil-chamber above the same, a generating-coil in said chamber having a supply-pipe for oil and water and a discharge-pipe connecting with said burner-head, flues connecting the fuel-chamber with the coil-chamber, a gas take-off pipe for water-gas leading from the coil-chamber, and a second set of coils for generating hydrocarbon gas and having a discharge-pipe connecting with said take-off pipe for water-gas.

11. The combination with the fuel-chamber and the coil-chamber above the same, connected by suitable flues for passage of water-gas, of a generating-coil for producing hydrocarbon gas, a separate carbureting and fixing coil, a take-off pipe for water-gas leading from the coil-chamber, and pipes connecting said generating-coil and the water-gas pipe with said carbureting and fixing coil, substantially as described.

586,989. GLAZIER'S POINT.

CHARLES A. BRYANT, Wakefield, Mass., assignor to the Consolidated Safety Pin Company, Moorefield, N. J. Filed Apr. 12, 1897. Serial No. 631,695. (No model.)



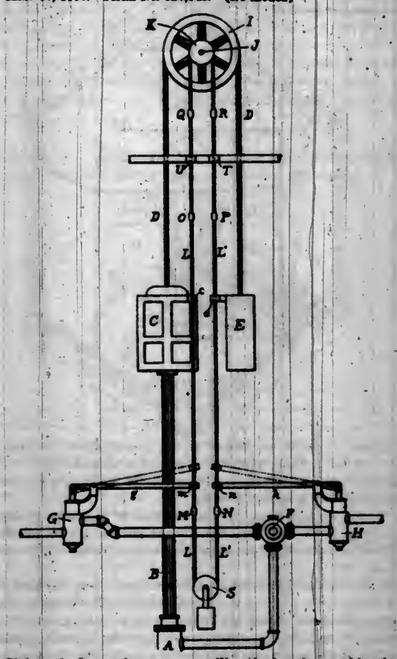
Claim.—1. A glazier's point of thin, flat metal, substantially triangular in outline, having one side or edge corrugated and a flat point and body, substantially as shown and described.

2. A glazier's point having one side folded over upon itself and corrugated and a flat point and body, substantially as shown and described.

3. A glazier's point of thin, flat metal, substantially triangular in outline, having a wide back corrugated and flat, twin driving-points, substantially as shown and described.

586,990. MECHANISM FOR OPERATING VALVES OF HYDRAULIC ELEVATORS.

WILLIAM F. COLE, Worcester, Mass. Filed Mar. 17, 1897. Serial No. 627,946. (No model.)



Claim.—1. In an elevator controlling device the combination of a car and a counterweight, a shaft and a sheave thereon, a rope connecting said car and counterweight and passing over said sheave, a drum positively connected with said shaft and always revolving therewith, a valve-rope driven by said drum, and a safety-valve arranged to be closed by the motion of said valve-rope.

2. In an elevator-controlling device, the combination of a moving car, a slower-moving valve-rope, a safety-valve arranged to be nearly closed by movement of this rope, a button, such as O, suitably connected with the safety-valve, and an eyelet on the car adapted to engage the button O and complete the closing of the valve.

3. In an elevator-controlling device, the combination of a moving car and counterweight, a slower-moving valve-rope, a safety-valve arranged to be nearly closed by movement of this rope, a button, such as P, suitably connected with the safety-valve, and an eyelet on the counterweight adapted to engage the button P and complete the closing of the valve.

4. In an elevator-controlling device, the combination of a moving-car and counterweight, a slower-moving valve-rope, two safety-valves (supply and exhaust) arranged to be alternately nearly closed by the movement of this rope, two buttons, such as O and P, suitably connected one with each of the safety-valves, and two eyelets, one on the car, the other on the counterweight, adapted to alternately engage one of the buttons and complete the closing of one of the safety-valves.

5. In an elevator-controlling device, the combination of a drum revolved by the counterweight-shaft, a valve-rope driven by said drum and having two sections hanging in the elevator-well, a weight normally acting simultaneously on each section of the valve-rope, two fixed eyelets through which the valve-rope sections pass, and two buttons so attached, one to each section of the valve-rope as to alternately engage the fixed eyelets and take the weight from one section of the valve-rope, all for the purposes above described and specified.

6. In combination with an elevator-controlling device, a drum revolved by the counterweight-shaft, a suitably-tensioned valve-rope driven by said drum and means for taking the tension from each section of the rope alternately as the elevator reaches the end of its run.

586,991. DRIVE-GEAR.

THOMAS CHELEY, Waltham, Mass. Filed June 30, 1896. Serial No. 597,314. (No model.)



Claim.—1. In a drive-gear, a sprocket-chain comprising blocks, having bodies lying above the draft-line of the chain, and engageable ends depending below such line, and side plates pivoted to said blocks, and having bodies lying wholly above the draft-line of the chain.

2. In a drive-gear, the combination with a wheel having sprocket-teeth and supports, the supporting-surfaces of the supports lying in the peripheral pitch-line of the sprocket, of a pivoted link chain, having engageable portions connected by the bodies lying outside the axial line of the pivots.

3. The combination with the sprocket 5 having the teeth 7 7 and members 8 8, the teeth 7 7 having lateral projections, of a chain comprising a series of blocks 12 having the ends 14 14' and the surfaces 15 extending in the axial plane of said ends, and the plates 16 16 pivoted to the blocks and having the end portions 17 17 and the lower edges 18 as described.

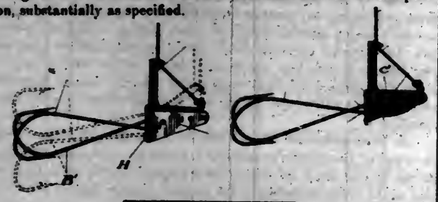
4. A drive-gear sprocket having a series of drive-teeth arranged around its periphery and furnished with lateral extensions, the supporting-surfaces of which are in the peripheral pitch-line of the sprocket, and a series of independent supports arranged alternately with the teeth, extending from the periphery of the sprocket, and adapted to act wholly in said peripheral pitch-line.

586,992. FISH-HOOK.

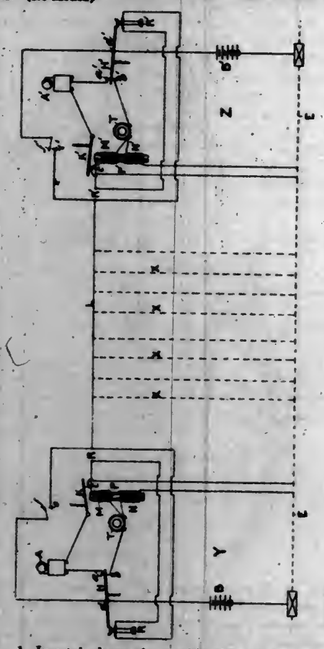
FREDERICK C. DAVIS, Toronto, Canada, administrator of Henry Mills, deceased. Filed Sept. 24, 1896. Serial No. 606,905. (No model.) Patented in Canada May 7, 1896, No. 48,573.

Claim.—In a trap-hook the combination of the works-case, the hooks, an eye formed at the end of the shank of each hook, a pin passing through said eyes and through the works-case to pivotally hold together the ends of the said hooks within the works-case, the shank of each of said hooks curved at that end contiguous to the

said eyes, a U-shaped spring arranged to bear upon the curved portion of each of said shanks, an operating-lever pivoted within the works-case provided with two lugs, said lugs arranged to bear against the shanks and move the fish-hooks in opposite directions, said spring arranged to return and hold the said fish-hooks in their normal position, substantially as specified.



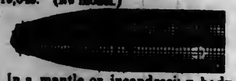
586,993. TELEPHONE SYSTEM. GUSTAF DILLBERG and PARNELL RAMMER, Sydney, New South Wales. Filed Sept. 9, 1895. Serial No. 562,001. (No model.)



Claim.—1. In a telephone, the combination of the speaking-circuit, a core, the two coils thereon, the call-circuit, one of said coils being connected in the speaking-circuit and the other in the local-battery circuit, the armature of the call-circuit being arranged to be attracted by the said core to close the call-circuit, the said coils acting as an induction-coil for the speaking-circuit and as a relay for the call-circuit, substantially as described.

2. In a telephone, the combination of the speaking-circuit, the call-circuit, an induction-coil having its primary and secondary coils in series in the speaking-circuit and an armature controlled by said induction-coil to control the call-circuit, substantially as described.

586,994. MANUFACTURE OF MANTLES FOR INCANDESCENT GAS-LAMPS. JOHN F. DUKE, London, England. Filed Jan. 13, 1897. Serial No. 619,049. (No model.)



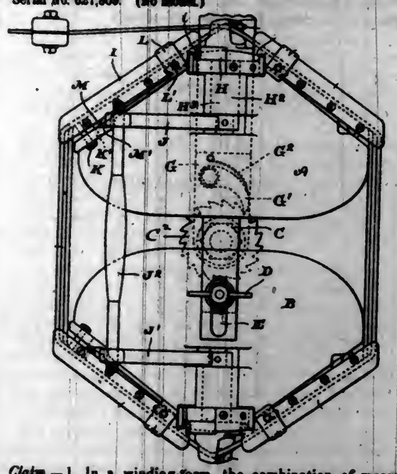
Claim.—1. In a mantle or incandescing body for incandescent gas-lamps the combination with an automatic gas-igniter at the upper part of said body, of a line of metallic platinum in a finely-divided state on said body, and in contact with said igniter, and a streak of incandescing material preferably mixed with a very small proportion of metallic platinum in a finely-divided state, said streak being applied upon said line, substantially as and for the purpose set forth.

2. In a mantle or incandescing body for incandescent gas-lamps, the combination with an automatic gas-igniter at the upper part of said body of a line of metallic platinum in a finely-divided state on said body and in contact with said igniter substantially as and for the purpose set forth.

3. In a mantle or incandescing body for incandescent gas-lamps, the combination with an automatic gas-igniter at the upper part of said body, of a line of metallic platinum in a finely-divided state on said body, and in contact with said igniter, a streak of incandescing material preferably mixed with a very small proportion of metallic platinum in a finely-divided state, said streak being applied upon said line, and a platinum wire attached to said igniter and extending down the incandescing body concurrently with said line, substantially as and for the purpose set forth.

4. In a mantle or incandescing body for incandescent gas-lamps, the combination with an automatic gas-igniter at the upper part of said body, of a line of metallic platinum in a finely-divided state, and a platinum wire attached to said igniter and extending down the incandescing body concurrently with said line, substantially as and for the purpose set forth.

586,995. FORM FOR WINDING COILS FOR DYNAMO-ELECTRIC MACHINES. HENRY GUEBHARD, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 16, 1897. Serial No. 627,809. (No model.)



Claim.—1. In a winding-form, the combination of means for giving the coil a shape while winding that is substantially the same as that of the finished article, and means for finally shaping the coil before removing it from the form.

2. In a winding-form, the combination of means for giving the coil a shape while winding similar to the finished article except for the offset in the ends, and means for forming an offset in the ends of the coil.

3. In a winding-form, the combination of means for giving the coil a shape while winding that is substantially the same as that of the finished article, means for simultaneously forming the offsets in the ends of the coils, and a device for operating the said means.

4. In a winding-form made in two parts, the combination of means for giving the coil a shape while winding which is substantially the same as that of the finished article, with means for adjusting the relation of the two parts of the form so that different sizes of coil can be wound thereon.

5. In a winding-form, the combination of grooved pieces in which the wire forming the coil is placed, arranged so as to give the coil a shape substantially the same as that of the finished article, supports for the pieces adjustable with respect to each other, and a bending device for forming the offsets in the ends of the coil.

6. In a winding-form, the combination of a support divided into upper and lower parts, movable grooved pieces mounted on the parts in which the wire forming the coil is wound, means for simultaneously moving the grooved pieces of each part toward one another, and means for forming the offsets in the coil.

7. In a winding-form, the combination of upper and lower parts adjustable with respect to each other, a clamp for securing the parts, a support in which the form is rotatably mounted, and means permitting a rotation of the form in one direction, but preventing it in the opposite.

8. In a winding-form, the combination of upper and lower parts adjustable with respect to each other, grooved pieces secured to inclined surfaces on both parts, cams for drawing the grooved pieces together, bending devices for forming the offsets in the ends of the coil, and means for actuating the cams and bending devices simultaneously.

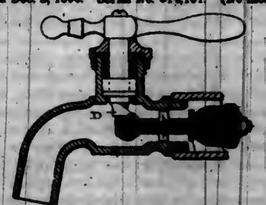
9. In a winding-form, the combination of grooved pieces in which the wire forming the coil is wound, a pivot for the outer end of each piece, grooves formed in the main body portion of the form in which the pivots are adapted to work, guides for the pieces, and cams for drawing the pieces inward.

10. In a winding-form, the combination of grooved pieces in which the wire forming the coil is wound situated on each side of a bending device, pivots for the outer ends of the grooved pieces, a bending device having slots coinciding with the grooves in the pieces, and guides for the pieces permitting them to move on their pivots when the bending device is actuated.

11. The combination in a winding-form divided into halves, of two inclined surfaces on each half making an angle with each other, grooved pieces pivotally secured to each half, a lug on the under side of each grooved piece working in slots, cams for drawing the grooved pieces together, a bending device for forming the offset in the ends of the coil, a ratchet and pawl arranged to permit rotary movement of the form in one direction but preventing it in the opposite, and means for releasing the halves of the form so that the coil can be removed.

12. In a winding-form, the combination of grooved pieces in which the wire forming the coil is wound, cams rigidly secured to shafts, bearings for the shafts formed in the main or body portion of the form, hooks on the under side of the grooved pieces working in spiral grooves on the cams, a bending device rigidly secured to the cam having slots coinciding with the grooves in the pieces, arms secured to the shafts, and a handle for operating the arms simultaneously.

586,996. LIQUID SHUT-OFF. JOSEPH E. GLAUBER, Cleveland, Ohio. Filed Dec. 2, 1896. Serial No. 614,161. (No model.)

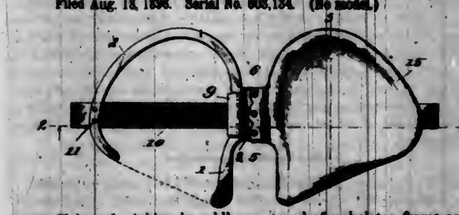


Claim.—1. The casing provided with a fluid-passage and valve-seat, said passage being of the same cross-section at all points beyond said seat, in combination with a valve-stem, a main valve and a substantially disk-shaped primary valve on said stem of a size to practically close the liquid-passage in advance of the main valve, said primary valve constructed to conform around its entire periphery to the wall of the said water-passage and to close the same evenly all around, substantially as described.

2. The casing having a single valve-seat, the valve-spindle and the main valve for said seat and a separate substantially disk-shaped primary valve supported movably on said spindle before the main valve and constructed to enter and substantially close the said fluid-passage, substantially as described.

3. The casing, a main valve therein and an expansible substantially disk-shaped primary valve supported in advance of the main valve and separately attachable and detachable, substantially as described.

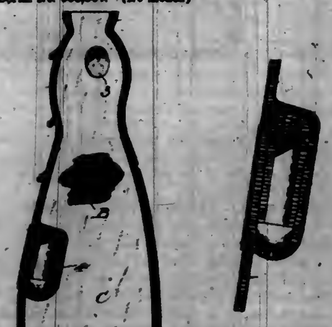
586,997. BICYCLE-SADDLE. JOHN C. GROUT, Brooklyn, N. Y. Filed Aug. 18, 1896. Serial No. 603,134. (No model.)



Claim.—1. A bicycle-saddle composed of a skeleton frame consisting of two curved rear cantles and two pommels, the forward ends of the pommels being spaced from the forward ends of the cantles and each set of cantles and pommels spaced from the other set, an intermediate depressed neck placed in the space between each set of cantles and pommels, and connecting one set with the other, said parts being arranged to form the spaces 5 and 6, a covering applied to the frame to span the space inclosed by each set of cantles and pommels and so as to leave the spaces 5 and 6 uncovered, and a curved spring extending transversely beneath the saddle and having its ends connected to the opposite sides of the skeleton frame, substantially as and for the purposes described.

2. A bicycle-saddle composed of a skeleton frame consisting of two curved rear cantles and two pommels formed of angle-bars, each set of cantles and pommels being spaced from the opposite set, an intermediate depressed neck placed in the space between each set of cantles and pommels and formed with outwardly-extending lips, said parts being arranged to form the spaces 5 and 6, a covering applied to the frame to span the space inclosed by each set of cantles and pommels and leave uncovered the spaces 5 and 6, and the transversely-extending loop-spring having inwardly-turned ends secured to the skeleton frame, substantially as and for the purposes described.

586,998. STORM-PROTECTOR. GEORGE W. HARNER, Pleasantville, N. J., assignor to Peter B. Risley, same place. Filed Oct. 9, 1896. Serial No. 608,267. (No model.)

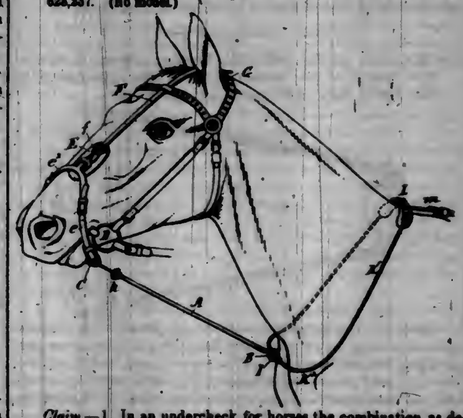


Claim.—1. A storm-protector, composed of an outer waterproof covering, an inner textile lining, and a woven-wire fabric separating the covering and lining and so arranged and formed as to provide a circulation of air between the covering and the lining.

2. A storm-protector composed of an outer waterproof covering, an inner textile lining, an intermediate woven-wire fabric separating the covering and the lining, and a fuel-pocket formed in the woven-wire fabric.

3. A storm-protector, comprising an outer waterproof covering, an inner textile lining, an intermediate woven-wire fabric separating the covering and the lining and composed of interwoven spiral wires, and a fuel-pocket in the garment made of woven spiral wires.

586,999. UNDERCHECK DEVICE FOR HORSES. THEODORE HARRINGTON, Southbridge, Mass. Filed Mar. 13, 1897. Serial No. 628,237. (No model.)

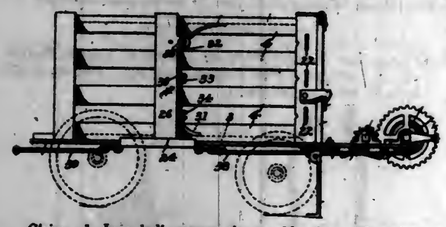


Claim.—1. In an undercheck for horses the combination, as described, of the check-bar A composed of the tube a^9 provided with the snap device B at its rear end, its fore end fitted with the slitted clamping-surface, the binding-nut A threaded upon the tapered end of said tube, and the rod a^4 telescoping within said tube; the trans-

verse chin-rest attached to the fore end of said rod by the ball-joint c, and having the projecting end straps c, the face-pad E provided with the wing-straps c', and the supporting-strap F, all substantially as shown and for the purposes set forth.

2. An undercheck for horses, comprising the wire collar having the attaching point or ring at the lower part, the check-bar provided at its rear end with a snap for connection therewith, the curved jaw-rest pad flexibly attached to the fore end of said bar, the nose-straps at the ends of said rest, the face-pad connecting with said nose-straps, the snap-hook thereon, and the strap for suspending said face-pad from the head stall, substantially as set forth.

587,000. HAY-PRESS. NATHANIEL H. HAWK, Blue Ridge, Tex. Filed Aug. 14, 1896. Serial No. 602,703. (No model.)



Claim.—1. In a baling-press, the combination with a plunger-box, of a frame slidable in relation thereto, means for sliding the frame, and a plunger movable in the plunger-box and hinged to the frame so that it may be swung aside.

2. In a baling-press, the combination with a plunger-box, of a frame slidable in relation thereto, said frame being provided with inwardly-projecting lugs, means for moving said frame, and a plunger provided with a curved scraping lower end and hinged at its upper end to the frame and adapted to abut against the lugs.

3. In a baling-press, the combination with a plunger-box, of a frame slidable longitudinally in relation thereto, means for moving said frame, a plunger hinged to the frame and adapted to act as a scraper for the bottom of the box, and a scraper also hinged to the frame and sliding against the under side of the top of the plunger-box.

4. In a baling-press, the combination with a plunger-box, of a frame slidable longitudinally in relation thereto, means for moving said frame, a plunger hinged to the frame and adapted to act as a scraper for the bottom of the plunger-box, and a spring-pressed scraper hinged to the frame and bearing on the under side of the top of the plunger-box.

5. In a baling-press, the combination with a plunger-box, of a frame slidable longitudinally in relation thereto, means for moving said frame, a plunger provided with a curved lower end which acts as a scraper for the bottom of the plunger box, said plunger having its upper end hinged to the upper end of the frame, parallel tubes extending transversely of the plunger and connected thereto, and a spring-pressed curved scraper hinged to the frame and pressing against the under side of the top of the plunger-box.

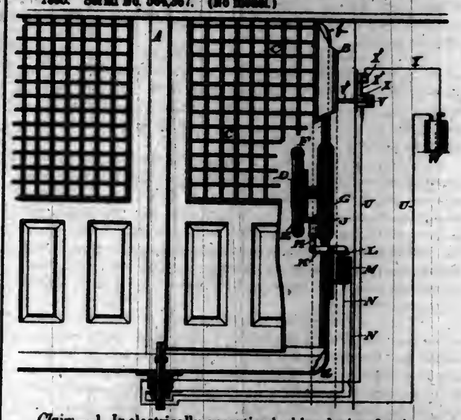
587,001. LAMP-SUPPORT. NICHOLAS JENKINS, Waterbury, Conn., assignor to the Holmes, Booth & Haydens, New York, N. Y. Filed Apr. 14, 1897. Serial No. 632,112. (No model.)



Claim.—1. The combination with a lower part or frame adapted to receive a lamp, of an upper part comprising a spring-drum and converging telescopic connections between the upper part and the lower part, said converging telescopic connections being connected at one end so as to be free to move inward and outward, substantially as specified.

2. The combination with a lower part or frame adapted to receive a lamp, of an upper part comprising a spring-drum, and converging telescopic connections consisting of rods and tubes between the upper part and the lower part, said converging telescopic connections being connected at one end so as to be free to move inward and outward, substantially as specified.

587,002. ELECTRICALLY-OPERATED LOCKING DEVICE FOR ELEVATORS. THOMAS W. JENKINS, Philadelphia, Pa. Filed Oct. 2, 1895. Serial No. 564,267. (No model.)



Claim.—1. In electrically-operating locking devices for elevators, a car with a power-controlling wheel and a door, a lock for said wheel, an electric circuit with magnet controlling said lock, and contact-points connected by the action of said door, said parts being combined substantially as described.

2. In an elevator, a car having a door and a power-controlling mechanism with a locking device, an armature connected with said device, and a magnet for said armature, in combination with an electric circuit, having contact-pieces and means operated by the movement of said door for connecting said contacts and thereby closing said circuit, said parts being combined substantially as described.

3. In an elevator, the power-controlling mechanism on the car thereof, a dog adapted to lock said mechanism, an armature connected to said dog, and a magnet adjacent to said armature in combination with a rod adapted to engage the door of the car, a contact-piece on said rod, a contact-piece adjacent to the first-named piece, an electric circuit, said armature and contact-pieces being in said electric circuit which is formed by conductors, part of which are carried by the car and part by the frame of the well, and contacts on said car and frame for closing said circuit, substantially as described.

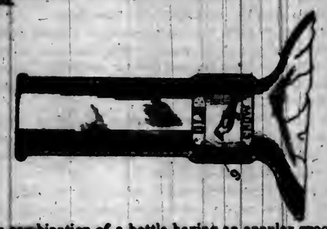
4. In an elevator, a car having a door and a power-controlling device, a locking-dog on said car for said controlling device, an electric circuit with contact-points supported by the frame of the elevator-well, means on said car for connecting said contact-points, and a magnet with wires adapted to be connected with said circuit, said magnet controlling an armature connected with said locking-dog, said parts being combined, substantially as described.

5. In an elevator, a car having a door and a power-controlling device, a locking-dog for said device, and a magnet for controlling said dog, insulated spools on said car connected with said magnet, an elevator-well frame having a door and provided with spring-plates, adapted to be engaged by said spools, a dog connected to one of said spring-plates and engaging said door on said well-frame, an electric circuit connected with said spring-plates, and having contact-points for making and breaking the circuit, and a spring-controlled rod carrying one of said contact-points, said rod being engaged by the door of the car, said parts being combined substantially as described.

6. In an elevator, a car having insulated shoes thereon, a well-frame having an electric circuit having contact-pieces for said shoes, a door on said frame, and a lock on said contact-pieces adapted to be operated by the shoe for releasing said lock when said car has reached its floor, in combination with means on the car for locking the power-controlling mechanism thereon, said means being in the electric circuit of which said contact-pieces form part, substantially as described.

587,008. NON-REFILLABLE BOTTLE. CLAUDE M. JOHNSON, Lexington, Ky. Filed Dec. 1, 1896. Serial No. 614,085. (No model.)

Claim.—1. The combination of a bottle having an annular groove in its neck, with a valved stopper of substantially uniform diameter, composed of a cork disk sprung into said groove and having a central passage, a series of parallel vertical guide-flanges and a valve-seat at the lower end of the passage, a cork disk having a passage therethrough and sprung into the groove in the bottle-neck to rest upon the upper end of the other cork disk, and a ball-valve arranged in the said central passage and guided by said flanges, substantially as described.



2. The combination of a bottle having an annular groove in its neck, with a compressible valved stopper composed of three superimposed cork disks sprung into said groove, the lower disk having a central valve seat and orifice, the uppermost disk having an outlet-passage, and the intermediate disk having a central passage and a series of parallel, vertical guide-flanges, and a loose valve movable in said central passage and guided by said guide-flanges, substantially as described.

3. The combination of a bottle having an annular groove in its neck, with a valved compressible stopper bearing an exposed brand or mark and composed of a cork disk sprung into said groove and having a central passage, a series of parallel guide-flanges and a valve-seat at the lower end of the passage, a cork disk having slots therethrough and sprung into the groove in the bottle-neck to rest upon the upper end of the other cork disk, and a ball-valve arranged in the said central passage and guided by said flanges, substantially as described.

587,004. TELEPHONE-EXCHANGE. MILO G. KELLOGG, Chicago, Ill. Original application filed July 20, 1896, Serial No. 600,062. Divided and this application filed June 15, 1895. Serial No. 552,919. (No model.)



Claim.—1. In a telephone-exchange system, multiple switch-boards each divided into two sections, which are distinct and placed apart from each other over different floor-space, an answering-section containing the annunciators and switches of the lines whose calls are to be answered at the board and a calling-section containing two switches on which the operator may call and connect any line which she has answered, the calling-sections being placed end to end and the answering-sections each convenient to and in front of its calling-section, substantially as set forth.

2. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other and occupy different framework placed over different floor-space, telephone-lines each having a terminal at the answering-section and a terminal at the calling-section and circuit connections between the two sections, by which a terminal of one line at the answering-section may be connected with the terminal of another line at the calling-section.

3. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other and occupy different framework placed over different floor-space, telephone-lines, each having a terminal at the answering-section and a terminal at the calling-section, and an annunciator at the answering-section, and circuit connections between the two sections whereby the terminal of a line at the answering-section whose annunciator indicates a call may be connected with the terminal of another line at the calling-section.

4. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other and occupy different framework placed over different floor-space, telephone-lines, each having a terminal at the answering-section and a terminal at the calling-section and an annunciator at the answering-section, central-office telephone apparatus and switching apparatus at the answering-section to at will connect operator's telephone apparatus with any line having an annunciator there, and circuit connections between the two sections whereby the terminal of a line at the answering-section whose annunciator indicates a call may be connected with the terminal of another line at the calling-section.

5. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section, the two sections being placed apart from each other and occupying different framework placed over different floor-space, telephone-lines, each running to the answering-section and to the calling-section, and circuit connections between the two sections whereby a connection may be made from a line at the answering-section to a line at the calling-section.

6. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section, the two sections being placed apart from each other and occupying different framework placed over different floor-space, telephone-lines, each running to the answering-section and to the calling-section and having an annunciator at the answering-section, and circuit connections between the two sections whereby a connection may be made from a line at the answering-section to a line at the calling-section.

7. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other and occupy different framework placed over different floor-space and each of which is provided with switches, telephone-lines, each running to a switch at the answering-section and also to a switch at the calling-section, and circuit connections between the two sections by which a line at the answering-section may be connected with another line at the calling-section.

8. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other and occupy different framework placed over different floor-space and each of which is provided with switches, telephone-lines, each running to a switch at the answering-section and also to a switch at the calling-section, and having an annunciator at the answering-section, and circuit connections between the two sections by which a line at the answering-section may be connected with another line at the calling-section.

9. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other, and occupy different framework placed over different floor-space, telephone-lines each having a terminal at the answering-section and a terminal at the calling-section, circuit connections between the two sections, by which a terminal of one line at the answering-section may be connected with the terminal of another line at the calling-section, two of said lines being thus connected together in a circuit for conversation and a clearing-out annunciator being then or while thus connected together in circuit with them.

10. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section, the two sections being placed apart from each other and occupying different framework placed over different floor-space, telephone-lines, each running to the answering-section and to the calling-section, circuit connections between the two sections whereby a connection may be made from a line at the answering-section to a line at the calling-section, two of said lines being thus connected together in a circuit for conversation and a clearing-out annunciator being then or while thus connected together in circuit with them.

11. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section which are placed apart from each other, and occupy different framework placed over different floor-space, telephone-lines each having a terminal at the answering-section and a terminal at the calling-section, circuit connections between the two sections, by which a terminal of one line at the answering-section may be connected with a terminal of another line at the calling-section, two of said lines being thus connected together in a circuit for conversation and a clearing-out annunciator being then or while thus connected together bridged across between the two sides of their combined circuit.

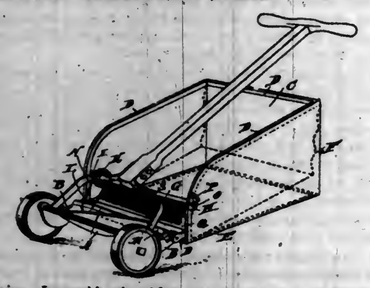
12. In a telephone-exchange switchboard system, the combination of the switchboard apparatus divided into two parts or sections, an answering-section and a calling-section, the two sections being placed apart from each other and occupying different framework placed over different floor-space, telephone-lines, each running to the answering-section and to the calling-section, circuit connections between the two sections whereby a connection may be made from a line at the answering-section to a line at the calling-section, two of said lines being thus connected together in a circuit for conversation and a clearing-out annunciator being then or while thus connected together bridged across between the sides of their combined circuit.

13. In a telephone-exchange system, a switchboard divided into

two sections, an answering-section and a calling-section, on said answering-section the annunciators and switches of the lines whose calls are to be answered at the board, and on the calling section the switches of the lines with which the operator may connect the calling-lines, in combination with pairs of switch-plugs adapted to be inserted for switching into said switches, the contact-pieces of each pair being connected by flexible conducting-circuits, one plug of each pair being located at the answering-section, and the other plug of the pair being located at the calling-section, substantially as set forth.

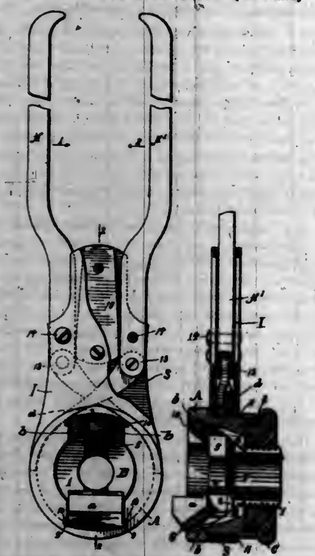
14. In a telephone-exchange system, multiple switchboards, each divided into two sections, an answering-section and a calling-section, on said answering-section, the annunciators and switches of the lines whose calls are to be answered at the board, and on the calling-section, the switches of the lines with which the operator may connect the calling-lines, the calling-sections being placed end to end and the answering-sections near their calling-sections, in combination with pairs of switch-plugs adapted to be inserted for switching into said switches, the contact-pieces of each pair being connected by flexible conducting-circuits, one plug of each pair being located at the answering-section, and the other plug of the pair being located at the calling-section, substantially as set forth.

587,005. LAWN-MOWER. DAVID M. KYLE, Chicago, Ill. Filed June 26, 1894. Serial No. 515,769. (No model.)



Claim.—In combination a lawn-mower, a box pivotally secured therewith, a plate secured to the box, a spring beneath the plate whereby to upwardly thrust said plate and a rotatable brush whereby to remove the cut grass from the plate, substantially as described.

587,006. NUT-WRENCH. CHARLES H. LAMBKIN, Mount Vernon, N. Y. Filed Oct. 9, 1896. Serial No. 608,351. (No model.)



Claim.—1. In a nut-wrench, the combination of a head revolubly supported, two pivoted handles, and a cross-strap encompassing the head and attached at opposite ends to said handles, substantially as described.

2. In a nut-wrench, the combination of a head revolubly supported, two handles, a strap encompassing the head and attached at opposite ends to said handles, and means for preventing retrograde turning of the handles, substantially as described.

3. In a nut-wrench, the combination of a head revolubly supported, two handles, a strap encompassing the head and attached at opposite ends to said handles, and a block or bearing intermediate of the handles for preventing retrograde turning of the same, substantially as described.

4. In a nut-wrench, the combination of a head revolubly supported, two handles, a strap encompassing the head and attached at opposite ends to said handles, and an abutment arranged adjacent to the head, substantially as described.

5. In a nut-wrench, the combination of a revoluble head provided with inclined ways, a jaw-holder mounted to reciprocate in said head and provided with a transverse way and with a threaded shank, jaws provided with inclined guides fitted to the inclined ways in the head and with flanges or heads fitted to the transverse way of the jaw-holder, and an operating-nut engaging the threaded shank of the jaw-holder, substantially as described.

6. In a nut-wrench, the combination of a revoluble head provided with inclined ways, a jaw-holder slotted longitudinally and mounted to reciprocate in said head; said jaw-holder being provided with a transverse way and with a threaded shank, jaws provided with inclined guides fitted to the ways in the head and with flanges or heads fitted to the transverse way of the jaw-holder, inclines 6 attached to the head and entering the slots in the jaw-holder and an operating-nut engaging the threaded shank of the jaw-holder, substantially as described.

7. In a nut-wrench, the combination of a revoluble head provided with inclined ways, inclines 6 formed on said head for guiding and supporting the upper ends of the jaws, a jaw-holder mounted to reciprocate in said head and provided with a transverse way and with a threaded shank, jaws provided with inclined guides fitted to the ways in the head and with flanges or heads fitted to the transverse way of the jaw-holder, and an operating-nut engaging the threaded shank of the jaw-holder, substantially as described.

8. In a nut-wrench, the combination of a revoluble head provided with inclined ways, inclines *b* and 6 formed on said head for guiding and supporting respectively the backs and heads of the jaws, a jaw-holder mounted to reciprocate in said head and provided with a transverse way and with a threaded shank, jaws provided with inclined guides fitted to the ways in the head and with flanges or heads fitted to the transverse way of the jaw-holder, and an operating-nut engaging the threaded shank of the jaw-holder, substantially as described.

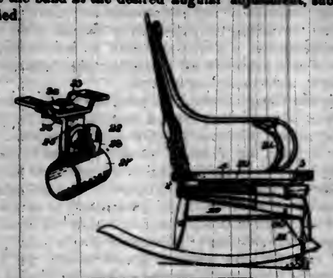
587,007. ILLUMINATED PICTURE. MARIE R. LEFEBVRE, Quebec, Canada. Filed Dec. 3, 1896. Serial No. 614,236. (No specimens.) Patented in Canada Aug. 5, 1896, No. 53,153.



Claim.—The herein-described method of ornamenting pictures, which consists in, first, coating a transparent plate or mount with a transparent adhesive substance; secondly, placing upon the transparent substance a photograph of the subject to be ornamented while the film is soft and moist; thirdly, drying the picture; fourthly, removing the paper from the film by hot water; fifthly, covering certain parts of the film with colored luminous paint; sixthly, covering the luminous paint with ordinary paint of the same shade; and, seventhly, applying a protective backing; substantially as set forth.

587,008. BELLOWS ATTACHMENT FOR ROCKING-CHAIRS. BERNARD LILLY and RICHARD R. KENNY, Coldwater, Mich. Filed Oct. 14, 1895. Serial No. 565,633. (No model.)

Claim.—The combination with bellows adapted to be carried by a rocking-chair seat, means for operating the bellows, and flexible conductors, of clamps, each comprising a clip-plate 23 adapted to be secured to a supporting object, an angular ear 25 having one of its arms pivotally mounted by means of a bolt 24 upon said clip to swing in a plane parallel with the clip-plate, and adapted to be secured at the desired adjustment by means of said bolt, a band 27 open at one side and having parallel extremities arranged upon opposite sides of the other arm of said angular ear, and a set-screw engaging said band and interposed portion of the ear to pivot the former upon the latter to swing in a plane parallel to the clip-plate, said set-screw serving to secure the band at the desired angular adjustment, substantially as specified.



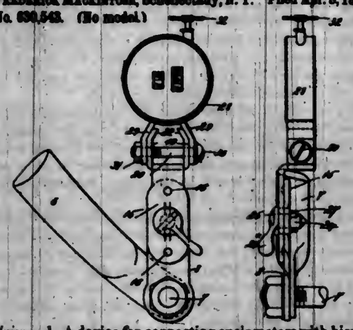
587,009. PNEUMATIC TIRE. LOUIS J. M. LOMBL, Turgnier, France, assignor to Michelin & Co., Clermont-Ferrand, France. Filed Feb. 27, 1893. Serial No. 463,791. (No model.) Patented in Germany Feb. 7, 1893, No. 69,614; in Italy Apr. 6, 1893, LXVI, 132, and in England Apr. 15, 1893, No. 7,733.



Claim.—1. In a pneumatic wheel-tire, the combination of a containing envelop, an air-chamber composed of thin supple and impermeable material contained within said envelop and having greater dimensions than the said envelop whereby its walls are puckered or gathered within said envelop, and a lubricating and packing liquid inclosed between the interior of said envelop and the exteriors of said walls, substantially as and for the purpose herein set forth.

2. The combination with an air-chamber having several compartments in a pneumatic wheel-tire, an air-box common to said several compartments, a valve in said box for opening or closing said several compartments simultaneously, a screw for operating the said valve constituting also a channel for the inflation of the several compartments simultaneously through said air-box, and a stopper on said screw for closing said channel, all substantially as herein set forth.

587,010. CYCLOMETER ATTACHMENT FOR BICYCLES. FREDERICK MACKINTOSH, Schenectady, N. Y. Filed Apr. 3, 1897. Serial No. 630,543. (No model.)



Claim.—1. A device for connecting cyclometers with bicycles and other vehicles, consisting of a main oblong plate 8, which is provided adjacent to one end thereof, with an opening at the opposite sides of which are formed slots, and tongues which project outwardly on one side of the plate, and a supplemental plate 15, which is also provided with an opening which corresponds with that in the main plate, and at the sides of which are formed slots, a key-bolt which is adapted to pass through said openings, and which is provided with a key-wedge, and at one end thereof with a handle, said supplemental plate being provided at its upper end with jaws through which a bolt is passed, substantially as shown and described.

2. A device for connecting cyclometers with bicycles and other vehicles, consisting of a main oblong plate 8, which is provided adjacent to one end thereof, with an opening, at the opposite sides of which are formed slots, and tongues which project outwardly on one side of the plate, and a supplemental plate 15, which is also provided with an opening which corresponds with that in the main plate, and at the sides of which are formed slots, a key-bolt which is adapted to pass through said openings, and which is provided with a key-wedge, and at one end thereof with a handle, said supplemental plate being provided at its upper end with jaws through which a bolt is passed, and said main and said supplemental plates being provided one with cavities or recesses, and the other with knobs or projections which correspond therewith, substantially as shown and described.

3. The device herein described for connecting a cyclometer with a bicycle, consisting of an oblong main plate 8, and a corresponding supplemental plate 15, said plates being provided with openings, and a key-bolt 24 which is adapted to be passed through said openings, said supplemental plate being provided with an angular extension 22, and the cyclometer being provided with corresponding jaws 29, said jaws being connected by a bolt 20, substantially as shown and described.

587,011. HARROW. WILLIAM I. MARSHALL, Port Perry, Canada. Filed Feb. 2, 1897. Serial No. 621,666. (No model.)



Claim.—1. A harrow-section consisting of side bars, a plurality of sets of harrow-teeth, independently and rotatively connected to the side bars, a coupling-bar to cause the united movement of each set, a spring to hold the harrow-teeth in their normal position, and to return them to their normal position after being actuated, a lever connected to one set of harrow-teeth, and a stop connected to the coupling-bar to arrest the motion of the lever, substantially as specified.

2. A harrow-section consisting of side bars, a plurality of sets of harrow-teeth, independently and rotatively connected to the side bars, a coupling-bar to cause the united movement of each set of teeth, a lever connected to one set of teeth, and a stop connected to the coupling-bar to arrest the movement of the lever, substantially as specified.

3. A harrow-section consisting of rigid side bars, a plurality of rock-shafts journaled in the side bars, a flanged clamping-bar adjacent to each rock-shaft, a plurality of teeth located between each rock-shaft and its adjacent clamping-bar, a coupling-bar connected to each set of teeth, a spring connected to the coupling-bar and to one of the clamping-bars, a lever connected to one set of teeth, and a stop connected to the coupling-bar to arrest the movement of the lever, substantially as specified.

4. In a harrow-section the combination of the side bars A, A, the rock-shafts B, B, journaled in the side bars, a clamping-bar C, C, for each rock-shaft, having flanges *c*, *c'*, the seats E formed in the flanges *c*, *c'*, the harrow-teeth F, F' located between the rock-shafts and clamping-bars and in the seats E, a coupling-bar G connected to the harrow-teeth F', a spring H connected to the coupling-bar G, and to one of the clamping-bars, a quadrant I connected to the coupling-bar, a lever K connected to one of the clamping-bars, an adjustable stop J connected to the quadrant to arrest the motion of the lever, a spring M connected to one of the rock-shafts and to the coupling-bar, to compensate the action of the spring H, substantially as specified.

5. In a harrow-section the combination of the side bars A, A, the rock-shafts B, B, journaled in the side bars, a clamping-bar C, C, for each rock-shaft, having flanges *c*, *c'*, the seats E formed in the flanges *c*, *c'*, the harrow-teeth F, F' located between the rock-shafts and clamping-bars and in the seats E, a coupling-bar G connected to the harrow-teeth F', a spring H connected to the coupling-bar G, and to one of the clamping-bars, a quadrant I connected to the coupling-bar, a lever K connected to one of the clamping-bars, an adjustable stop J connected to the quadrant to arrest the motion of the lever, a spring M connected to one of the rock-shafts and to the coupling-bar, to compensate the action of the spring H, and a chain connected to the front of the side bars, and adapted to be attached to the doubletree, substantially as specified.

587,012. NUT AND BOLT LOCK. TIMOTHY W. MURPHY, Washington, D. C. Filed Dec. 16, 1896. Serial No. 616,626. (No model.)

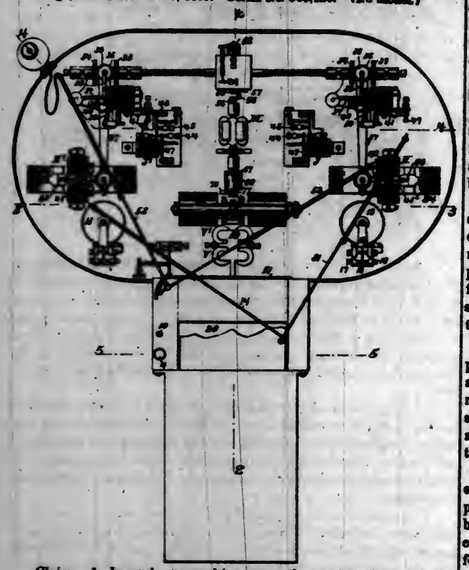
Claim.—1. In a nut and bolt lock the combination with a bolt having a threaded end, of a nut having a threaded opening adapted to receive said end, said nut having a dovetail groove in its upper face tangential to and intersecting its threaded opening, and a key

adapted to fit said groove, said key having a cutting edge on its lower side short of one end.



2. In a nut and bolt lock the combination with a bolt and a nut, the nut having a dovetail groove intersecting its threaded opening, of a key adapted to fit said groove, said key having a cutting edge short of its end.

587,013. TELAUTOGRAPH. LEON O. MCPHERSON, Highland Park, Ill., assignor to the Gray European Telautograph Company, Chicago, Ill. Filed Oct. 9, 1895. Serial No. 565,139. (No model.)



Claim.—1. In a telautographic system, the combination of mechanism for sending pulsations of successively-alternate polarity for controlling the operation of a receiving-pen, a reversing mechanism, a reversing-relay in the circuit of said pulsations for controlling the operation of the reversing mechanism, the same being controlled by changes in the strength of said pulsations, and means whereby the action of the reversing-relay is effected by changes in the rapidity of the succession of said pulsations, substantially as set forth.

2. In a telautographic system, the combination of mechanism for sending pulsations of successively-alternate polarity for controlling the operation of a receiving-pen, a reversing mechanism, a reversing-relay in the circuit of said pulsations for controlling the operation of the reversing mechanism, the same being controlled by changes in the strength of said pulsations, a circuit maker and breaker controlled by variation in the speed of the pulsations, and means whereby the operation of the last-named circuit maker and breaker is caused to prevent false movement of the reversing-relay, substantially as set forth.

3. In a telautographic system, the combination of mechanism for sending pulsations of successively-alternate polarity for controlling the operation of a receiving-pen, a reversing mechanism, a reversing-relay in the circuit of said pulsations for controlling the operation of the reversing mechanism, the same being controlled by changes in the strength of said pulsations, a magnet governing the reversing mechanism, a locking-circuit operated by the reversing-relay in one of its positions and a circuit and connections operated by changes in the rapidity of succession of said pulsations which controls the magnetic condition of the reversing-magnet, substantially as set forth.

4. In the sending of telautographic messages, the method of preventing false action of the reversing mechanism due to increased frequency of to-and-fro pulsations which consists in causing variations in the rapidity of the succession of said pulsations to control a circuit which offsets the tendency of the reversing mechanism to make false movements under the influence of said variations in rapidity, substantially as set forth.

5. The combination in a telautographic system of means for transmitting pulsations of successively-alternate polarity to drive a receiving-pen, a reversing-relay operated by changes in the strength of said pulsations and a circuit controlled by the rapidity of the succession of said pulsations for preventing false operation of the reversing-relay, substantially as set forth.

6. In a telautographic system, the combination of means for sending pulsations of successively-reverse polarity, means for changing the strength of said pulsations, a circuit-controller operated by said changes of strength, and a circuit-controller operated by changes in the rapidity of the succession of said reverse pulsations for correcting the effects of rapidity in the succession of said pulsations upon the first-mentioned circuit-controller, substantially as set forth.

7. In a telautographic system, the combination of a circuit, means for sending pulsations therein of successively-reverse polarity, a magnet in said circuit, a lever caused to vibrate thereby, and a second circuit for performing a function in the transmission of messages, said lever being a part of said second circuit and operating to close said circuit under one condition of frequency and to leave said circuit open under another condition of frequency, substantially as set forth.

8. In a telautographic system, the combination of means for sending pulsations of successively-reversed polarity to drive a receiving-pen, a reversing-magnet, a reversing-relay operated by changes in strength of said pulsations, a locking-circuit for preventing false movements of the reversing-relay affecting the reversing mechanism, and means for releasing said locking-circuit when the direction of motion of the transmitting-pen is reversed, substantially as set forth.

9. In a telautographic instrument, the combination of means for shifting the paper at the receiving-station, means for causing the receiving-pen to move in accordance with the movements of the transmitting-pen means for stopping the receiving instrument at a given position of the receiving-pen, a circuit-controller operated by the force of the instrument tending to advance at the point when so stopped, and a circuit controlled by said circuit-controller for controlling the paper-shifting mechanism, substantially as set forth.

10. In a telautographic instrument, as a means for shifting the paper at the receiving-station, the combination of a spring-stop for arresting the movement of the instrument at a given position of the receiving-pen, a circuit-controller operated by the movement of said spring-stop under the pressure of the instrument when arrested, and a circuit controlled by said circuit-controller and in turn controlling the paper-shifting mechanism, substantially as set forth.

11. In a telautographic system, the combination of means for effecting a given condition of the circuit when the transmitting-pen is placed at a given point in its field, connections whereby upon the bringing of said transmitting-pen to said point the receiving-pen is caused to travel to a corresponding point in the receiving-field, a stop for arresting the receiving mechanism when the receiving-pen has reached said point, a circuit-controller operated by the pressure of the receiving instrument due to its tendency to advance at said point, and a circuit controlled by said circuit-controller for operating the paper-shifting mechanism whereby unison is effected and the paper shifted by one operation, substantially as set forth.

12. In a telautographic instrument, the combination of a motor, a mechanism for storing power to drive the receiving-pen operated by the motor, means for disconnecting the motor from the said mechanism when the normal amount of power is stored therein, and a paper-shifting mechanism also operated by the motor, substantially as set forth.

13. In a telautographic instrument, the combination of a motor, a pen-driving mechanism connected therewith and operated thereby, a motor-circuit for causing the motor to operate upon the pen-driving mechanism, a paper-shifting mechanism also operated by the motor, and an independent motor-circuit for causing the motor to operate the paper-shifting mechanism when the other motor-circuit is open, substantially as set forth.

14. As a means for operating a frictional clutch, the combination of a magnet, a pivoted armature therefor, a bar pivoted to the armature and carrying the movable member of the clutch, a stop for said bar and a spring, substantially as set forth.

15. As a means for operating a frictional clutch, the combination of a magnet for moving the movable member of the clutch in one direction, a spring for moving it in the other direction, a pivoted armature for the magnet, and a bar pivoted to the armature and carrying the movable member of the clutch, whereby the tension upon the clutch member is in both positions equal to the tension of the spring, substantially as set forth.

16. The combination of magnet X', armature 30, bar 38 pivoted thereto, spring 39, stop 40, and a clutch member mounted upon bar 38, substantially as set forth.

17. In a telautographic instrument, the combination of a transmitting and receiving pen and mechanism for operating the same mounted upon the same base, two pairs of arms one for each pen projecting from the operating mechanism in the same direction and

overlapping each other and being mounted to move in different horizontal planes; the upper pair of said pairs of arms carrying the transmitting-pen and projecting beyond the lower pair, so that the pens may operate upon writing-fields contiguous to each other without interference, substantially as described.

18. In a telautographic instrument, the combination of a transmitting and receiving pen and mechanism for operating the same mounted upon the same base, two pairs of arms one for each pen projecting from the operating mechanism in the same direction and overlapping each other and being mounted to move in different horizontal planes; the upper pair of said pairs of arms carrying the transmitting-pen and projecting beyond the lower pair, and being curved downward near the point where they are attached to the pen so that the pens may operate upon writing-fields contiguous to each other without interference, substantially as described.

19. In a telautographic instrument, the combination of a motor, a circuit therefor, a pen driving mechanism connected therewith and operated upon thereby when said circuit is closed, a paper-shifting mechanism also operated by the motor, an independent circuit for the motor, and means for controlling said independent circuit when it is desired to shift the paper at times when the first-named circuit is broken, substantially as set forth.

20. In a telautographic instrument, the combination of the space-key by operating which the unison and shifting of the paper is effected, a master-switch, by means of which the instrument is thrown from the transmitting to the receiving position, and vice versa, and interlocking mechanism between the space-key and the master-switch such that when the space-key is operated, the master-switch is released and caused to move to transmitting position, substantially as set forth.

21. In a telautographic instrument, the combination of a master-switch for changing the instrument from transmitting to receiving position, a spring for holding the switch normally in transmitting position, a catch for holding the switch in receiving position, and a paper-shifting and unison switch controlling said catch and releasing the master-switch when operated, substantially as set forth.

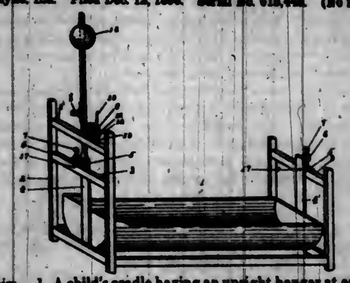
22. The combination of a transmitting-pen, the Prony brake 16, the three resistances R', R², R³, and circuit connections whereby the pulsations sent to line are reduced by the resistance R² for moving the pen in one direction and by the resistances R² plus R³ for moving the pen in the other direction, and by the resistances R', R² and R³ when the Prony brake is in an intermediate position, substantially as set forth.

23. As a means for sending pulsations of increased strength to line upon the lowering or the raising of the transmitting-pen, the combination of magnets D, D' and armatures therefor, pivoted block 29 having a contact-plate 28, springs 26, 27, and circuit-connections, substantially as set forth.

24. The combination with a telautographic pen, of an ink-reservoir, a tube of small diameter connecting the pen with the ink-reservoir, and a force-pump for operating upon the ink in the reservoir to clear out the tube and pen, substantially as set forth.

25. The combination with a telautographic pen, of an ink-reservoir, a tube of small diameter connecting the pen with the reservoir, and a compressible bulb with an aperture therethrough for applying pressure to the ink in the reservoir, substantially as set forth.

587,014. CHILD'S CRADLE. GRANVILLE F. PACKARD, Fort Wayne, Ind. Filed Dec. 12, 1896. Serial No. 615,448. (No model.)



Claim.—1. A child's cradle having an upright hanger at each end pivotally suspended upon a suitable frame and adapted for an oscillatory movement thereon, a supporting-bracket secured to each hanger having an adjustable vertical bolt mounted therein seated at its lower end upon a metal plate secured to said frame, a journal passing through a supporting-bar of the frame below the bearing of said bolt and loosely journaled in the hanger, and one of said hangers having an extended upright arm with a counterbalance-weight adjustable upon said arm to regulate the oscillation of the cradle, and the cradle-frame, all arranged substantially as described and shown

2. A child's cradle pivotally suspended in a suitable frame, with means for actuating the same, comprising a spring-armature pivotally attached to an electromagnetic frame across the arc of oscillation of the cradle, and adapted to accelerate the motion of said cradle at each alternate oscillation under the influence of an electromagnet as described, an electromagnet connected in the working circuit and adapted to actuate the said armature when the magnet is energized, by closing the circuit in combination with the frame all arranged substantially as described and shown and for the purpose stated.

3. In an electrically-operated child's cradle, the combination of a supporting-frame, a cradle pivotally suspended in said frame and adapted for an oscillating movement, and having an upright extended arm with a counterbalance adjustable weight thereon, an electromagnet attached to said frame having a spring-armature pivotally mounted in the magnet-frame in the path of oscillation, and connected in electrical circuit with the electromagnet and adapted to accelerate the movement of said cradle at each alternate oscillation thereof under the influence of the electromagnet, by the contact of the spring-armature with a spring upon the upright arm of the cradle, whereby the electric circuit is closed substantially as described and shown.

4. In an electrically-operated child's cradle or crib, the combination of a supporting-frame, a cradle or crib pivotally suspended in said frame and adapted for an oscillating movement and having an upright extended arm with a counterbalance adjustable weight thereon, an electromagnet fixed to said frame and having a spring-armature pivotally mounted in the electric magnet-frame in the path of oscillation, and connected in electrical circuit with the magnetic coil, and adapted to accelerate the movement of said crib at each alternate oscillation thereof under the influence of the electromagnet by the contact of the spring-armature, with a roller upon the upright arm of the crib, whereby the electric circuit is closed substantially as described and shown.

5. In an electrically-operated child's cradle or crib, the combination of a supporting-frame, a cradle or crib pivotally suspended thereon, and adapted for an oscillating movement, and having an upright extended arm with a counterbalance adjustable weight thereon, an electromagnet fixed to said frame and having an armature pivotally mounted in the frame of the electromagnet in the path of oscillation, and connected in electrical circuit with the electromagnet and adapted to accelerate the movement of said crib at each alternate oscillation thereof, under the influence of the energized electromagnet, by the contact of the armature with a spring fixed to the crib or cradle as shown when the electric circuit is closed, all arranged as described and shown.

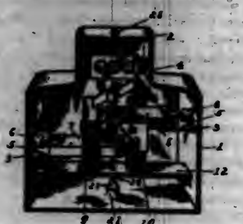
6. In an electrically-operated child's cradle, the combination of a cradle having an upright hanger at each end pivotally suspended upon a suitable frame and adapted for an oscillating movement therein, with means by an adjustable weight to regulate the oscillatory movement of the cradle when in motion, a supporting-bracket secured to each hanger having an adjustable vertical bolt mounted therein seated at its lower end upon a suitable metal plate secured to said frame, a journal mounted in the supporting-bar of the frame under the metal plate aforesaid and loosely journaled in the hanger to prevent its lateral displacement, and an electromagnet having a pivotally-mounted armature so arranged that by a contact of the cradle when oscillated with the said magnet the electrical circuit will be closed and an accelerated impulse be given to the oscillating movement of the cradle as described and shown and for the purpose stated.

7. In an electrically-operated child's cradle, the combination of a cradle having an upright hanger at each end pivotally suspended upon a suitable frame and adapted for an oscillating movement therein with means by an adjustable weight to regulate the oscillatory movement of the cradle when in motion, a supporting-bracket secured to each hanger having a vertical bolt mounted therein seated at its lower end upon a suitable metal plate secured to said frame, a journal mounted in the supporting-bar of the frame under the metal plate aforesaid and loosely journaled in the hanger to prevent its lateral displacement and an electromagnetic solenoid placed in such relation to an appropriate armature or plunger that by closing the electric circuit through the magnetizing coil or solenoid, an accelerated impulse will be given to the oscillating movement of the cradle, all substantially as described and shown and for the purpose stated.

587,015. ELECTRIC METER. GRANVILLE F. PACKARD, Fort Wayne, Ind. Filed May 6, 1897. Serial No. 636,260. (No model.)

Claim.—1. The combination, in an electric meter of an energizing coil or coils or field of force; a rotary armature comprising a plurality of separable radial vanes rigidly connected on their supporting shaft or spindle by a pair of recessed and slotted disks interlocking therewith as described, the said vanes being so arranged in inductive relation to said field as to be successively repelled therefrom; the clamping-disks 30 and 31 mounted on said shaft as shown

and having their inner faces recessed to receive interlocking lugs on said vanes and radially slotted for the purpose specified; a speed-regulator comprising a slotted base 17 fixed on said shaft and one or more adjustable strips 37 arranged thereon as shown; and a counting or registering train connected with said armature, all substantially as described.



2. In an electric meter or motive device, the combination of a rotatable armature comprising a plurality of separable radial retarding-vanes upon which are brought to bear the inducing field or fields of one or more electromagnets for the purpose of generating eddy-currents upon said vanes for the purpose of repelling the same, and a pair of clamping-disks adapted to rigidly secure said vanes by an interlocking union therewith; the vertical shaft 14 upon which the said armature is fixed; a jewel-bearing for the tapering lower end of said shaft comprising a screw-plug 24 mounted as shown in the upright boss 21 of the case 1, a hollow apertured cap 27 mounted on said plug by a screw-threaded connection and provided with a central perforation for the tapering lower end of said shaft, a lock-nut 26 mounted on said plug as shown, and a jeweled screw 13 adjustably arranged in said plug and provided upon its lower end with a holding-nut 25; an adjustable speed-regulator as described; and a registering-train connected with said armature and actuated thereby, all substantially as described.

3. In an electric meter or motive device a rotary armature arranged in inductive relation to an energizing field of force as shown, and comprising a plurality of separable retarding-vanes rigidly connected by a pair of clamping-disks adapted for an interlocking union therewith, as described, the said vanes being so arranged relative to said field as to have induced upon their surfaces eddy or vortex currents whose field is opposed or repelled by the inducing-field, thereby producing rotation, all substantially as described.

4. In an electric meter, a speed-regulator comprising a slotted base 17 fixed on the armature-shaft as described, and one or more strips or plates 37 adjustably mounted in the slots of said base, for the purpose of securing an accurate regulation of speed.

5. In an electric meter a core-casing or magnetic shield open as shown upon the side thereof adjacent to the rotatable armature, adapted to contain the laminæ or punchings and secure the same against displacement, and to concentrate the magnetic flux of the cores upon the armature-vanes, constructed and arranged substantially as described.

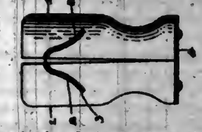
6. In an electric meter or motive device a jewel-bearing for the lower end of the armature-shaft, consisting of a screw-plug 24 removably mounted in an apertured vertical boss 21 on the base of the containing-case, a locking-nut 26 mounted on said plug as shown, a hollow cap 27 mounted on the upper end of said plug and provided with a vertical aperture adapted to receive the lower tapering end of said shaft, and a jewel-screw 13 adjustably mounted in said plug provided with a holding-nut 25 and adapted to pivotally support the said armature-shaft, all substantially as described.

7. The combination in an electric meter of a single magnet-core adapted to establish the line of magnetization C C parallel with the line of magnetization F F of the energizing-coils; a pair of energizing-coils connected in the main circuit; a speed-regulator as described attached to the armature-shaft; a revoluble metallic armature provided with a plurality of detachable radial retarding-vanes; and a registering-train actuated by the movements of the armature.

8. In an electric meter for alternating currents the combination with a revoluble metallic armature provided with detachable radial retarding-vanes, of a pair of energizing-coils whose axes are coincident with each other and with the line of magnetization established by the said coils; a pair of magnet-cores located on opposite sides of the shaft and in parallel relation with each other, each being adapted to establish a line of magnetization parallel with the line of magnetization F F of the energizing-coils; a speed-regulator as described; and a counting or registering train in gear with the armature-shaft, all substantially as described.

587,016. BILLIARD-CUE-TIP SHARPENER. CHARLES H. PAINE, U. S. Army. Filed May 13, 1897. Serial No. 636,359. (No model.)

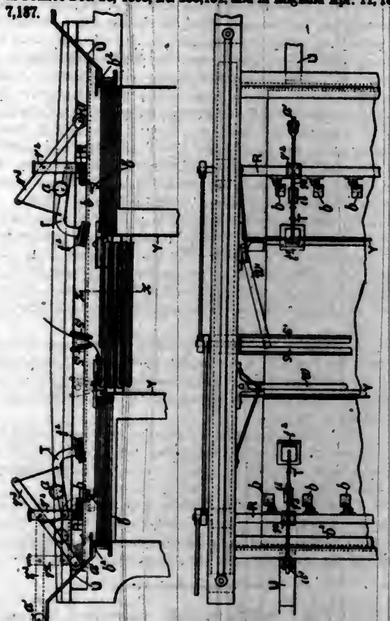
Claim.—1. A device for sharpening billiard-cue tips, and for similar purposes, having two flexibly-connected and bored parts, and an abrading material extending across the bore, substantially as described.



2. The combination in a device for sharpening cue-tips, of halves bored to be adapted to receive the end of a billiard-cue, having kerfs adapted to receive an abrading material, and a ring connecting the two halves, substantially as described.

3. The combination in a device for sharpening billiard-cue tips, and for similar purposes, of flexibly-connected parts, 1, kerfs or openings, 2, having a bore, 5, inclines, 6, recess, 7, and a flexible abrading material, 3, substantially as described.

587,017. CLOTH-FOLDING MACHINE. JOSEPH H. RILEY and EDMUND O'CONNOR, Bury, England. Filed Dec. 30, 1895. Serial No. 573,737. (No model.) Patented in Germany Dec. 27, 1893, No. 80,633; in France Dec. 28, 1893, No. 235,131, and in England Apr. 11, 1894, No. 7,157.



Claim.—1. In apparatus of the type set forth for inserting papers into the folds of textile fabrics the combination of a horizontally-reciprocating and vertically-oscillating foot for starting the paper and horizontally-reciprocating fingers for pushing it the remainder of the stroke and means for operating said parts.

2. In apparatus of the type set forth for inserting papers into the folds of textile fabrics, a device for inserting the papers consisting of the lever r^2 the arm T and foot t^3, means for connecting the arm and the lever, fingers b', the inclined path U and means for imparting motion to said parts constructed, arranged and operating substantially as and for the purpose hereinbefore described.

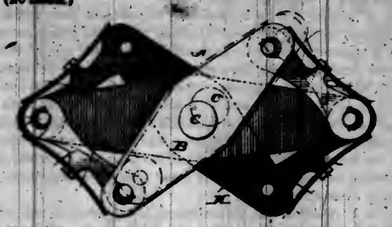
587,018. COIN-HOLDER. WADE ROBINSON, New York, N. Y., assignor to the Patent Purchase Company, of New York. Filed June 22, 1895. Serial No. 553,656. (No model.)



Claim.—1. A coin-holder, in which a tube of elliptical cross-section, closed at its lower end and having its upper end cut off obliquely to its length and partly closed, is combined with a helical spring seated upon the lower end of the tube and attached to a pushing device one face of which is parallel to the plane of the upper end of the tube; substantially as described.

2. In a coin-holder, the combination, with a tube of elliptical cross-section closed at its lower end and cut off obliquely at its upper end, of a pushing device having one face parallel to the plane of the upper end of the tube, a guiding-face in contact with the inner surface of the tube, and means for attaching it to a spring seated upon the lower end of the tube; as and for the purposes described.

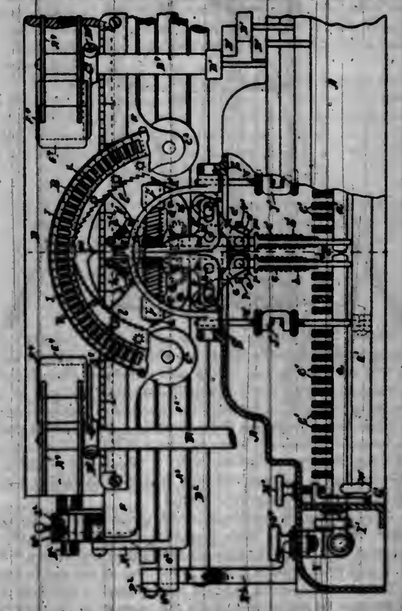
587,019. POWER-TRANSMITTING DEVICE. BLAKE A. SPERRY, Cleveland, Ohio, assignor, by mesne assignments, to the General Electric Company, of New York. Filed Mar. 6, 1893. Serial No. 464,651. (No model.)



Claim.—1. In combination, coupling members attached to shafts, secondary coupling members flexibly connected thereto and having lost motion in the connection, and springs taking up the lost motion attached to one of the coupling members and bearing upon the other, substantially as described.

2. In combination, a central link having a shaft attached thereto, secondary links attached to the central link, a second central link having a shaft attached thereto, secondary links attached to the second central link, an equalizer connecting the outer end of the secondary links, all of the connections being flexible and having lost motion in the connection, and means for taking up said lost motion and preventing rattling of the device, substantially as described.

587,020. TYPE-WRITING MACHINE. THOMAS H. STACKHOUSE, Philadelphia, Pa., assignor to The Wyckoff, Seamans & Benedict, of New York. Filed Aug. 21, 1893. Serial No. 483,698. (No model.)



Claim.—1. The combination of the type-wheel, the slots in the same adapted to receive the shanks of the type-bolts, a groove upon the periphery of said wheel reaching down to said slots, the type-bolts, notches upon the upper ends of the shanks of the same, a spring one end adapted to bear against the forward end of said notch in said bolts and the other against the rear side of said groove in said wheel, and a band adapted to close the top of said groove and means for securing said band to said wheel.

2. The combination with the type-wheel and means for supporting and for rocking the same upon its axis, of segmental racks carried by said type-wheel, dogs for engaging said racks, and mechanism for advancing said dogs when the type-wheel is operated and for returning these dogs when the type-wheel returns to its normal position.

3. In a type-writing machine, in combination, a frame, the keys and key-levers, a rod or pivot upon which the rear ends of said key-levers are pivoted, rods extending across the machine and under said key-levers, springs carried by said key-levers and engaging said frame and operating to support said levers, pivots upon which the outer ends of said rods are pivoted, straps supporting the inner ends of said rods, springs supporting the upper ends of said straps, rods extending upward through and supporting said springs, means for supporting and for lifting said rods, links pivoted to said rods, pins projecting through the upper ends of said links, springs secured to and connecting the upper ends of said links and rods, a type-wheel and means for supporting the same, cups upon said type-wheel adapted to be engaged by said pins upon said links, and springs for returning said type-wheel to its normal position after having been rocked upon its pivot.

4. In a type-writing machine, in combination, a frame, type-keys and key-levers, a rod or pivot carried by said frame and upon which the rear ends of said key-levers are pivoted, rods extending across and under said key-levers, pivots carried by said frame, or by brackets carried by said frame, to which the outer ends of said rods are pivoted, straps supporting the inner ends of said rods, springs supporting said straps, rods passing through and supporting said springs, an arm on said rods, links pivoted to said arms, a bell-crank pivoted to the frame of the machine and to the outer end of the lower arms of which said links are attached, dogs adapted to be operated in one direction by the movement of said bell-cranks, a bearing carried by the frame in which said dogs are supported, a spring for returning said dogs to their first position when the keys are released, a type-wheel and means for supporting and operating the same, and segmental racks carried by said type-wheel and adapted to be engaged by said dogs, all substantially as and for the purposes set forth.

5. The combination with the type-wheel, the segmental racks carried by said type-wheel, and means for supporting and rocking said wheel, of a dog provided with a groove running lengthwise, a bearing in which said dog is carried, a collar placed upon the rear end of said dog and adapted to slide thereon, a pin passing through said collar and entering said groove, a spring one end of which bears against the forward end of said groove and the other against said pin, and a spring surrounding said dog one end of which bears against the inside end of said bearing and the other against the outside end of said collar, all substantially as and for the purposes set forth.

6. The combination with the keys and key-levers, the rods a, a' under the key-levers, and devices as described for supporting these rods, of levers pivoted at one end to the frame of the machine, a rib extending from one lever to the other and adapted to be engaged by said key-levers, a vertical rod or rods pivoted to the forward ends of said levers, a hammer pivoted to the frame of the machine, a crank-arm upon the shank of the hammer to which the upper end of said vertical rod is pivoted, and a spring for raising said levers and their connected parts after they have been depressed by the key-levers.

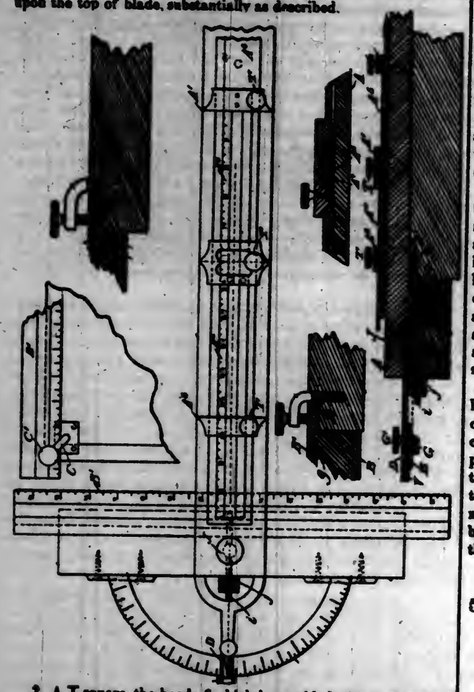
7. The combination with the platen, its shaft and frame, pins projecting downward from the ends of said frame, the carriage and holes in the ends of said carriage through which said pins pass, and the carriage-carrying frame, of a platen-raising frame the sides of which are pivoted to said carriage and the lower part of which extends along under said carriage and is engaged by the lower ends of pins on said platen-frame, springs one of which is secured to the upper ends of said platen-raising frame and the forward parts of which are adapted to rest upon the top of the platen-frame, levers pivoted at their rear ends to the carriage-carrying frame and the forward ends of which are adapted to engage the lower part of said rising frame, an arm secured to said levers and projecting downward, an arm secured to a key-lever and engaging the lower end of said downwardly-projecting arm, and said key-lever and its operating-key.

8. The combination with the platen and its connected parts, the carriage, the vertically-movable frame, the pins F^2 carried by said frame and passing down through corresponding holes in the carriage-frame, and the latch the upper end of which is pivoted to the carriage-frame, of an arm G^3, a key-lever to which said arm is attached and a key by means of which said lever and arm may be operated to cause the latter to engage the lower end of said latch, substantially as and for the purposes set forth.

587,021. T-SQUARE. MARK B. TEMPLIN, Galia, Ohio. Filed July 18, 1896. Serial No. 599,747. (No model.)

Claim.—1. A T-square, the head of which is provided with and made to slide upon a graduated rule; said rule fitted and removably clamped into special recesses in the upper corners of a drawing-board.

by removable clamping-screws; the blade provided with indicators having graduated rules attached thereto; the whole made to slide upon the top of blade, substantially as described.



2. A T-square, the head of which is provided with and made to slide upon a graduated rule, fitted within, flush with the top, and overlapping working edge of head; said rule of a length preferably equal to width of drawing-board and made attachable thereto, in recesses therein, by means of clamping-screws, and graduated along its entire length in inches and fractions thereof and laid off in longitudinal divisions, each of which is graduated in any units of measure desired; said graduations numbered and read from the center toward each end of rule, substantially as and for the purpose described.

3. A T-square, having in combination, a graduated rule fitted to slide within and overlap working edge of head, a drawing-board having a recess in its upper corners into which and flush with top of board said overlapping edge of rule is fitted and clamped when desired; said clamps removably attached to the drawing-board by screwing into plates set flush with top of same; the graduated rule when thus clamped also used as a straight and true edge for the working edge of the head of square, substantially as described.

4. A T-square, having in combination a graduated rule fitted to slide within and project over working edge of head; said rule graduated and numbered as described and clamped into recess in the drawing-board; a clamping bolt or hook placed through the center of the head; the hook on end of said bolt engaging a small recess in the under side of said rule as a means for rigidly securing head of square in desired position, substantially as and for the purpose described.

5. A T-square, having in combination a graduated rule fitted to slide within head, graduations numbered and read as described; a drawing-board having recess in upper corners into which said rule is clamped in the manner and for the purpose described; a clamping-hook for securing head of square to said rule; a pivotal joint between head and blade connected by a pivotal bolt whose head and nut are made flush with top and bottom of blade and head respectively; said pivotal bolt held from turning into and out of nut by passing clamping-hook through the body of pivotal bolt, substantially as and for the purpose described.

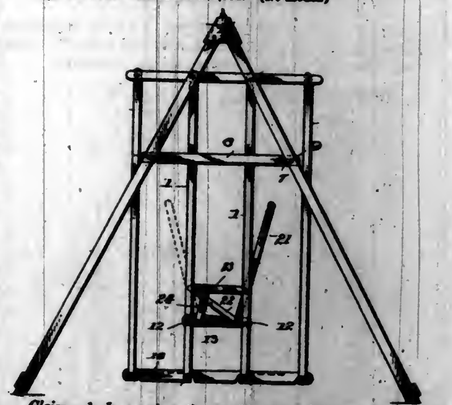
6. A T-square, having in combination a graduated rule fitted to slide within and overlap working edge of head, and graduated as described; a drawing-board with recesses into which said rule is clamped: a pivotal joint secured by pivotal bolt; a clamping-hook for securing head to said rule; a portion of blade extending beyond back edge of head and terminating in a pointer beneath which, and attached to or made as a part of head, a protractor, graduated as required; said extension to blade movably and rigidly secured to protractor by a grip with set-screw: said grip also used to hold head and blade at perfect right angles; a vernier-gage attached to terminal of blade extension, substantially as described.

7. A T-square, having in combination a graduated rule fitted within head, graduations numbered from center toward the ends of rule; a drawing-board, into the recesses of which said rule is clamped as described; a pivotal joint with bolt for same, a clamping-hook to secure head to said rule; an extension to blade, protractor, and means for holding blade at required position; and attached to or made as a part of the entire length of top of blade, a strip of metal or equivalent upon which are fitted to slide two or more movable indicators whose ends are brought outward and downward to the working edges of head, substantially as described.

8. A T-square having a graduated rule fitted to slide within the head thereof and graduated as described; a drawing-board having a recess in upper corners and means for clamping said rule thereinto; a pivotal joint with bolt for same; a clamping-hook for securing head to said rule; an extension to blade, protractor and means for holding blade in required position; indicators fitted to slide upon top of blade, and strips of metal attached to the edge of said indicators and extending toward head of square; said strips or rules graduated along the entire length of their edges and longitudinal divisions in any desired fractions of an inch or other units of measurement, substantially as described.

9. A T-square having in combination a graduated rule within head, as described; a drawing-board with recesses and means for clamping said rule thereinto; a pivotal joint and bolt therefor; a clamping-bolt for securing head to said rule; an extension to blade, protractor and means for holding blade in desired position; indicators fitted to slide on the top of blade; graduated rules attached thereto and passing beneath adjacent indicators in small grooves made in under side of same; said indicators held in desired position by small thumb-screws, as a safeguard against accidental movement thereof, substantially as described.

587,022. SWING. NICHOLAS THOMAS, Burlington, Wis. Filed Sept. 29, 1896. Serial No. 607,331. (No model.)



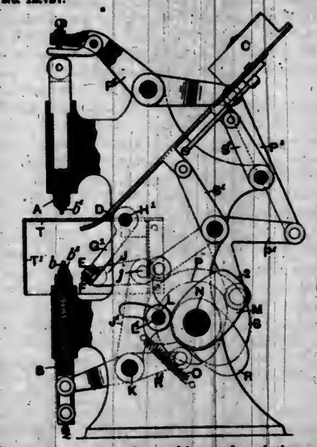
Claim.—1. In a swing, the combination of the two pairs of oscillating hangers, the foot-rest or platform having a pivotal connection with the lower portion of both pairs of hangers, the rods extending transversely from one hanger to the other of each pair of oscillating hangers at a point above the foot-rest or platform, and the chairs having their seat-bars formed with recesses to receive the rods which extend transversely from one hanger to the other of both pairs of hangers so as to permit the chairs to be adjusted to enable two persons to face in the same direction or vis-à-vis as desired, substantially as and for the purposes described.

2. In a swing, the combination with the two pairs of oscillating hangers, of the seat or chair supporting rods connecting the two hangers at each pair of hangers, and the chair or seat having its seat-bars formed with recesses in their lower faces at one end to receive one of the seat-supporting rods and with recesses in the front of the opposite ends formed at an angle to the recesses in the lower faces and adapted to receive the other rod, substantially as and for the purposes described.

3. In a swing, the combination with a suitable support comprising inclined legs pivotally connected at their upper ends and provided at a point below their top with studs or projections, and with transversely-extending cross-rods, brace-bars connecting the front and rear legs and having L-shaped slots receiving the studs or projections on said legs, oscillating hangers provided with connecting cross-rods and having slots at their upper ends which receive cross-rods connected to the front and rear legs, a foot-rest or platform formed with L-shaped slots receiving cross-rods which connect the hangers, and a seat or chair whose seat-bars connect the two pairs of oscillating hangers and are supported by the rods which connect the hangers of each pair of hangers substantially as and for the purposes described.

4. In a swing, the combination of a suitable support with oscillating hangers supporting at their lower end a foot-rest or platform and at a distance above the platform with reversible chairs side by side and supported by the hangers at both the front and rear of the chairs, substantially as and for the purposes described.

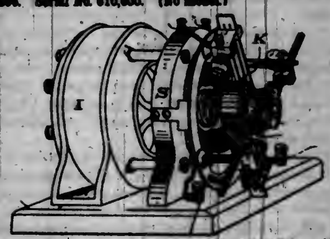
587,023. PUNCHING AND EYELETING MACHINE. THOMAS C. THOMPSON and SYDNEY THOMPSON, Manchester, England. Filed Dec. 30, 1895. Serial No. 573,743. (No model.) Patented in England July 2, 1895, No. 12,727.



Claim.—1. In a combined punching and eyeleting machine the combination of a punch, an eyeleting-plunger, a die and a toggle or jointed strut for adjusting and holding the die in punching position and for moving said die out of the range of the plunger substantially as described.

2. In a combined punching and eyeleting machine the combination of a punch, an eyeleting-plunger, an eyelet-chute automatically adjustable in and out of range with the punch, a die and a toggle or jointed strut to automatically adjust the die into range of the punch and out of range of the plunger substantially as described.

587,024. RECTIFIER. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Oct 31, 1896. Serial No. 610,655. (No model.)



Claim.—1. The improvement in the art of rectifying alternating current, which consists in passing the current through a rectifying device and by external power imparting to the rectifier a tendency to rotate at a speed greater than synchronism.

2. In combination, a rectifier, means for supplying the rectifier with alternating current, and an external source of power tending to drive the rectifier above synchronism.

3. In combination, alternating-current mains, a rectifying device supplied with current thereby, an electric motor upon the shaft of the rectifier, the motor arranged to run above synchronism for the rectifier at no load; whereby when under load the rectifier has a tendency to rotate at a speed slightly in excess of synchronism.

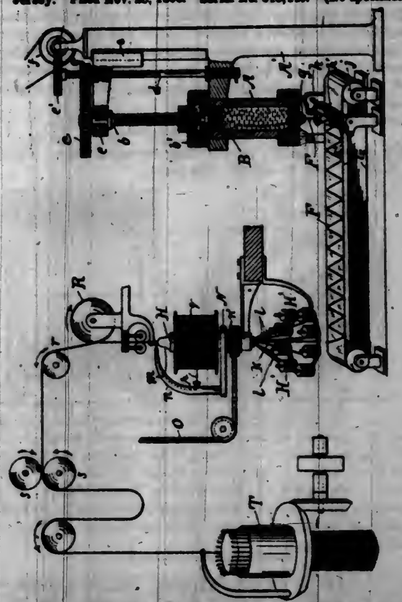
4. In combination, alternating-current mains, a rectifying device supplied with current thereby, and an alternating-current motor upon the shaft of the rectifier taking current from the mains, the number of poles in the motor being less than in the rectifier.

587,025. BELT-FASTENER. DIEDERIK VAN VEEN, Philadelphia, Pa. Filed June 22, 1896. Serial No. 596,891. (No model.)



Claim.—A belt-fastener consisting of the two side plates C with connecting cross-bars B at the ends thereof, the parallel jaws D pivoted to said cross-bars, the alternating spurs E and F on said cross-bar and jaws respectively, said spurs on said jaws being nearer the axis thereof than are the spurs on the cross-bars, and the lips on said side pieces extending beyond the axis of the jaws covering the sides thereof when the same are closed.

587,026. PROCESS OF MANUFACTURING FILAMENTS AND MANTLES FOR INCANDESCENT GAS-LIGHTING. WILLIAM L. VOELKER, Elizabeth, N. J., assignor to the Voelker Light Company, of New Jersey. Filed Nov. 25, 1896. Serial No. 613,449. (No specimens.)



Claim.—1. The process of manufacturing filaments for incandescent mantles hereinbefore described, and consisting in softening a mass composed of incandescible minerals and viscous binding materials, to a ductile condition; continuously expressing a filament from said mass; continuously forming said filament, as it comes from the die, into coils or zigzags; drawing the free end of the filament continuously from the foremost coil or zigzag; drawing threads of combustible fibrous material along with the filament, and while the filament and threads are moving, winding them around with a combustible thread which binds them all into a cord, substantially as described.

2. The continuous process of manufacturing stockings for incandescent gas-lights, hereinbefore described consisting in reducing a mass composed of incandescible minerals and viscous binding materials to a ductile condition; continuously expressing a filament from said mass; continuously forming said filament, as it comes from the die, into coils or zigzags; drawing the free end of the filament continuously from the foremost coil or zigzag; drawing threads of combustible fibrous material along with the filament, and while the filament and threads are moving along winding them around with a combustible fibrous material which binds them all into a cord; feeding said cord continuously along; and continuously knitting it into a stocking, whereby there is a continuous process from the die to the delivery of the knitted product.

587,027. LAMP-SOCKET. HERBERT G. WISE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 30, 1897. Serial No. 634,544. (No model.)

Claim.—1. An incandescent-lamp socket, formed of a two-part shell, one part thereof being provided with L-shaped open slots, and the other with screws projecting through the said L-shaped slots; in

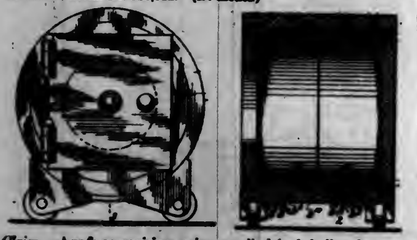
combination with a molded base having enlarged recesses into which the ends of said screws project and have play to lock the parts together, as and for the purpose set forth.



2. An incandescent-lamp socket, formed of a two-part shell, one of said parts having alining L-shaped open slots and a narrow open slot for the key-shaft, and a molded base in said part of the shell having enlarged recesses; in combination with a second part of the shell having locking-screws projecting through its periphery and adapted to project into said enlarged recesses, said second part of the shell being adapted to be pushed down and partly rotated upon the first part of the shell to engage its locking-screws with the L-shaped open slots in the first part of the shell and lock the parts together.

3. In an incandescent-lamp socket, a two-part shell, one part having L-shaped open slots, and the other screws engaging said L-shaped slots and forming therewith bayonet-joints to lock the parts together, one part of the shell also having a comparatively narrow open slot for the key-shank, and a molded base having enlarged recesses into which project and have play therein the screws of the bayonet-joints, as and for the purpose set forth.

587,028. SAFE. LEVI D. YORK, Portsmouth, Ohio. Filed Oct. 25, 1894. Serial No. 526,922. (No model.)



Claim.—A safe comprising an inner cylindrical shell and an outer cylindrical shell, the adjacent surfaces of the shells being provided with engaging shoulders, one of said shells consisting of a number of annuli whose adjacent edges overlap and are provided with mortises and tenons interlocked with each other by the aid of heat, the central annulus being provided with mortises and tenons for locking all the annuli of the inner and outer shell, substantially as shown and described.

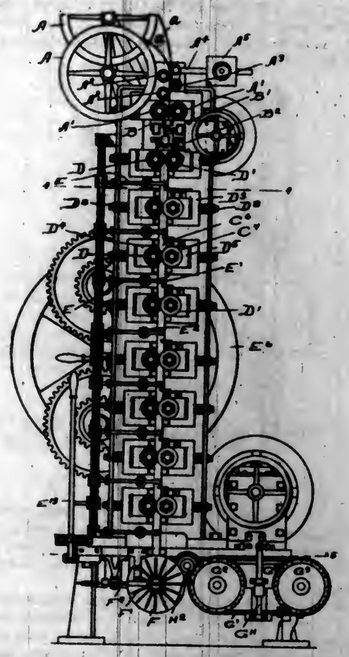
587,029. HORSE-NAIL MACHINE. BENJAMIN J. ABBOTT, Chicago, Ill., assignor to Charles H. Durphy, same place. Filed Feb. 23, 1897. Serial No. 624,567. (No model.)

Claim.—1. In a horse-nail machine of the roller-die type, and having a series of overhung roller-dies, the combination with said roller-dies constructed with a multiple series of matrices, of means for feeding into the machine several strips of nail-rod, multiple nail-blank passages extending to and connecting the successive pairs of rolls, and multiple sets of turning devices for giving the blank a quarter-turn on its way to the dies, one set for each passage, one set of turning devices operating the other, a turn-plate having two sets of radial passages and a pushing device for operating in both sets simultaneously for turning and delivering the nails, substantially as specified.

2. In a horse-nail machine of the roller-die type, and having a series of overhung roller-dies, the combination with said roller-dies constructed with a multiple series of matrices, of means for feeding into the machine several strips of nail-rod, multiple nail-blank passages extending to and connecting the successive pairs of rolls, and multiple sets of turning devices for giving the blank a quarter-turn on its way to the dies, one set for each passage, one set of turning devices operating the other, a turn-plate having two sets of radial passages and a pushing device for operating in both sets simultaneously for turning and delivering the nails to a duplicate heading-die mechanism, and said duplicate heading-die mechanism, substantially as specified.

3. In a horse-nail machine of the roller-die type, the combination with the series of die-rolls, of a turn-plate and pushing device for receiving the nails head first and delivering them shank first to a heading-die mechanism, said heading-die mechanism consisting of a series of solid dies mounted in a chain and passing over wheels, slotted to accommodate the depending shanks of the nails, a slotted anvil between the chain-wheels and a countering die or dies above the anvil, substantially as specified.

4. In a horse-nail machine of the roller-die type, the combination with the series of die-rolls, of a turn-plate and pushing device for receiving the nails head first and delivering them shank first to a heading-die mechanism, said heading-die mechanism consisting of a series of solid dies mounted in a chain and passing over wheels, slotted to accommodate the depending shanks of the nails, a slotted anvil between the chain-wheels and a countering die or dies above the anvil, said countering-die having a reciprocating motion and mounted in a head to which is connected a nail-discharging pusher placed between the chain-carrying wheels and operating to push the nails in the chain out of the same to discharge them from the machine, substantially as specified.



5. The mechanism for conveying a nail-blank to forming-dies and giving said blank a quarter-turn on its way, consisting of a tubular guideway a portion of which is mounted to revolve, and means for giving said portion a part revolution, said means consisting of a pinion mounted on said revoluble portion, and a cogged segment actuated by a cam mounted on one of the roller-die shafts, substantially as specified.

6. The mechanism for feeding several nail-blanks to roller-dies having duplicated matrices, consisting of duplicated guideways, each containing a revoluble portion, and each guideway being formed in two separable parts including said revoluble portion, and means for holding said guideways together when in operation, whereby facility for opening, cleaning and removing clogged nail-blanks is afforded, substantially as specified.

7. The mechanism for feeding several nail-blanks to roller-dies having duplicated matrices, consisting of duplicated guideways, each containing a revoluble portion, and each guideway being formed in two separable parts including said revoluble portion, and means for holding said guideways together when in operation, whereby facility for opening, cleaning and removing clogged nail-blanks is afforded, said means for holding all of said portions together being connected by intermediate parts with a latch or device for operating a clutch to stop the machine, substantially as specified.

8. In a horse-nail machine, the device for straightening the nail-rods, consisting of three idle-rolls, the middle one of which is mounted upon one arm of a bell-crank lever the other arm of which is provided with a sliding adjustable weight, substantially as specified.

9. The adjustable bearing-boxes for the roller-die shafts, consisting of two boxes having wedge-shaped sides, in combination with adjustable wedges, a yoke surrounding the whole, and draw-bolts for clamping the boxes to the yokes, substantially as specified.

10. The means for operating the knife-carriage and keeping the same free from lost motion by wear, consisting of an eccentric, a pitman therefor made adjustable as to length and pivoted to said carriage, a shoe on the carriage made in the form of an arc struck from the center of the pitman-pivot, and a bearing on the eccentric-strap acting against said shoe, substantially as specified.

11. The means for severing blanks from the nail-rod and delivering the severed blanks to a feed-passage, consisting of a stationary cutter with a stop at a suitable distance beneath it, a movable knife mounted on a carriage which reciprocates to and fro, and a yielding blank-holder mounted on said carriage to come in contact with the blank while the same is being severed, holding said blank and pushing it over the feed-passage while the movable cutter retreats and then releasing said blank to drop into the guideway, substantially as specified.

12. The means for severing blanks from the nail-rod and delivering the severed blanks to a feed-passage, consisting of a stationary cutter with a stop at a suitable distance beneath it, a movable knife mounted on a carriage which reciprocates to and fro, and a yielding blank-holder mounted on said carriage to come in contact with the blank while the same is being severed, holding said blank and pushing it over the feed-passage while the movable cutter retreats and then releasing said blank to drop into the guideway, said yielding blank-holder being slotted or forked at the end to surround the severed blank, substantially as specified.

13. The mechanism for receiving the blanks from the roller-dies head first and delivering the same shank first to the heading-dies, consisting of a turn-plate provided with radial slots, each of which has at its inner end a slide held in position in the turn-plate, in combination with a push-rod operated intermittently in time with the intermittent rotation of the turn-plate to push said slides toward the periphery of the turn-plate successively, substantially as specified.

14. The mechanism for receiving the blanks from the roller-dies head first and delivering the same shank first to the heading-dies, consisting of a turn-plate provided with radial slots, each of which has at its inner end a slide held in position in the turn-plate, in combination with a push-rod operated intermittently in time with the intermittent rotation of the turn-plate to push said slides toward the periphery of the turn-plate successively, the means for holding the slides in place consisting of a collar engaging cavities in said slides, perforated to permit the passage of the push-rod and slides, substantially as specified.

15. The turn-plate F, provided with two series of radial slots and a single series of slides operating in both series of slots, said slides being held by a single collar perforated to permit their passage, and a push-rod, all in combination substantially as specified, whereby means is afforded for receiving simultaneously two nail-blanks head first, and delivering the same shank first to heading-dies, substantially as set forth.

16. The device for receiving nail-blanks head first and delivering the same shank first, consisting of the combination of an intermittently-rotating plate provided with radial slots, a slide in each of said slots, a collar engaging each of the slides and being slotted at one point for the passage of a single slide at a time, and a reciprocating pusher timed to move with the plate and engaging the slides successively to push the same out and return the same toward the center of the plate, substantially as specified.

17. The combination with two carrying-wheels, an endless chain of dies, an anvil between the wheels and in contact with the chain of dies and a reciprocating die opposing the anvil, substantially as specified.

18. The combination with the endless chain of dies, of means for moving the same intermittently, an anvil in contact with the chain and a countering-die opposing the anvil, substantially as specified.

19. The combination of the endless chain of dies, each consisting of a solid block with a hole through it adapted to receive a nail-blank, the carrying-wheels moving with a step-by-step rotation and slotted to accommodate the nail-shanks, an anvil in contact with the chain between the wheels, said anvil being also slotted to accommodate the nail-shanks, and an opposing reciprocating die, substantially as specified.

20. The endless chain of perforated dies, in combination with the anvil, the carrying-wheels, the reciprocating die operating upon one ply of the chain, and the push-out rod connected to the head of said reciprocating die and operating upon the other ply of said chain, substantially as specified.

21. The combination with the roller-dies and mechanism for forming the nail-blanks, of the turn-plate for receiving said blanks head first and delivering them shank first to the heading-dies, the endless chain of heading-dies, the anvil and the reciprocating heading-die, substantially as specified.

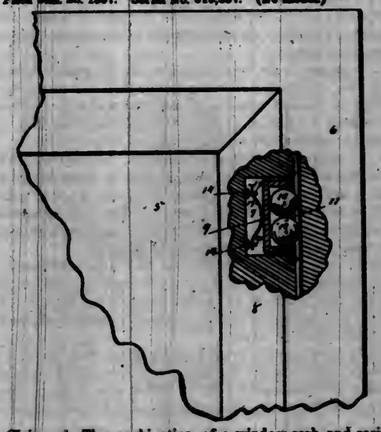
22. The combination of the endless chain of heading-dies, the anvil and two or more reciprocating heading-dies one following the other in its action upon the dies of the chain or their contents, substantially as specified.

23. In combination with the roller-die mechanism constructed to operate simultaneously upon two or more nail-blanks, the turn-plate constructed to receive and deliver simultaneously two or more nail-blanks, and the endless chain of dies, said chain consisting of two or more series of dies placed side by side, the chain carrying the wheels, the anvil and the reciprocating die-head opposing said anvil and carrying two or more die-heads side by side, substantially as specified.

24. The mechanism for imparting a step-by-step rotary motion to the chain-carrying wheels, and the turn-plate F geared thereto, which consists of a loose gear-wheel carried on a shaft and bearing a spring-pawl, a ratchet connected to the wheel to be actuated, a stationary cam on which the pawl rides and containing a depression which permits the pawl to engage one tooth at each revolution, a notched index-plate locked to said shaft, a stationary spring-latch for engaging said notches, and a cam on the gear-wheel for engaging and lifting said latch, substantially as specified.

25. The mechanism for imparting a step-by-step rotary motion to the chain-carrying wheels, and the turn-plate F geared thereto, which consists of a loose gear-wheel carried on a shaft and bearing a spring-pawl, a ratchet connected to the wheel to be actuated, a stationary cam on which the pawl rides and containing a depression which permits the pawl to engage one tooth at each revolution, a notched index-plate locked to said shaft, a stationary spring-latch for engaging said notches, a cam on the gear-wheel for engaging and lifting said latch, the housings for said pawl and said latch being cushioned with an elastic cushion, substantially as specified.

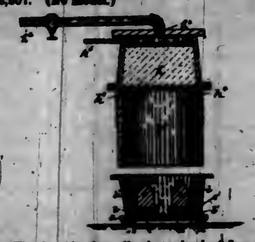
587,080. CAR-WINDOW. JOSEPH ADAMS, Kalamazoo, Mich. Filed Jan. 20, 1897. Serial No. 619,857. (No model.)



Claim.—1. The combination, of a window sash and casing, the open mortise, the ball-case having open side loose in said mortise, the retaining-plate, balls in the case, and the loose spring having the adjusting-screws in the ends, and being between the bottom of the mortise and the ball-case, substantially as set forth.

2. The combination of the mortise, the ball-case, and the bowed spring loose in the mortise between the bottom thereof and the ball-case, and the headed adjusting-screws in the ends of the spring, substantially as set forth.

587,081. METHOD OF AND APPARATUS FOR FORMING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Nov. 23, 1891. Serial No. 412,867. (No model.)



Claim.—1. The herein-described method of forming sand molds, consisting in setting a bulk or body of sand sufficient to fill the flask in motion, and causing it after motion is imparted to it to enter the sand-receiving cavity with sufficient velocity to pack therein, and at the same time providing free escape of the air from such cavity to permit the sand to pack evenly and solidly therein, substantially as set forth.

2. The herein-described method of forming sand molds, consisting in positively moving a bulk or body of sand contained within a holder by applying pressure thereto, and so projecting the body or bulk of sand first from such holder and then into the flask, substantially as and for the purposes set forth.

3. The herein-described method of forming sand molds, consisting in positively moving a body or bulk of sand by applying pressure thereto at a point away from the empty flask, and guiding it in its course to the flask and so projecting the body or bulk of sand into the flask, substantially as set forth.

4. The combination of a sand-holder for holding a body or bulk of sand, means for applying pressure to and projecting the body of sand in bulk from the holder, and a flask in line with but out of contact with the holder having perforations at or near the base thereof, substantially as set forth.

5. The combination of a sand-holder for holding a body or bulk of sand, means for projecting the body of sand in bulk from the sand-holder, a flask in line with the holder, and a guideway between the holder and flask, but out of contact with the flask, substantially as set forth.

6. The combination of a sand-holder for holding a body or bulk of sand, means for projecting the body of sand in bulk from the sand-holder, a flask in line with the holder having perforations at or near the base thereof, and a guideway between the holder and flask, but out of contact with the flask, substantially as set forth.

7. In apparatus for forming sand molds, the combination with a flask, of a sand-holder away from but in line with the flask, said sand-holder having an inclosed space above the sand to receive fluid under pressure to project the sand from the holder, substantially as and for the purposes set forth.

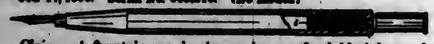
8. In apparatus for forming sand molds, the combination with a flask having a pattern extending up into the same, of a projection extending up within the flask, and provided with a face or faces inclined toward the pattern, to direct the sand fed to the flask against the pattern, substantially as and for the purposes set forth.

9. In apparatus for forming sand molds, the combination with a flask having inwardly-inclined walls, of patterns extending up within the same, and projections extending up within the flask provided with faces inclined toward the patterns, said inclined flask walls and faces acting to direct the sand fed to the flask against the patterns, substantially as and for the purposes set forth.

10. In apparatus for forming sand molds, the combination of a flask, a sand-holder for holding a body or bulk of sand away from but in line with said flask, and a base-plate closing the lower end of said flask and having air-escape openings extending through said plate, substantially as set forth.

11. In apparatus for forming sand molds, a flask having a base-plate closing the lower end thereof, and a pattern extending up within the flask, and having openings in the hollow base of the pattern and escape-outlets therefrom, substantially as and for the purposes set forth.

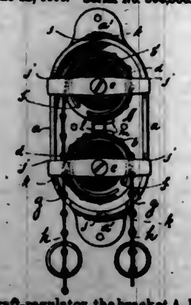
587,032. FOUNTAIN-PEN. JOHN BLAIR, Brooklyn, N. Y. Filed Oct. 17, 1896. Serial No. 608,910. (No model.)



Claim.—A fountain-pen having a layer of soluble ink-powder within the closed end of its hollow body, a porous plug fitted against said ink-powder, a supply of water in contact with the plug and means for conveying the ink solution through the pen-section to the nib when the pen is held in operative position

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587,033. COUNTERBALANCE FOR DAMPERS. JOHN H. COX, Syracuse, N. Y., assignor to the J. F. Pease Furnace Company, same place. Filed June 22, 1896. Serial No. 596,286. (No model.)



Claim.—In a draft-regulator, the bracket A, having the outturned edges or flanges *a*, which are provided within the notches *j*, having the inclined edges *k*; and the lug *l*, located between the two drums and projecting outwardly beyond their outer sides, combined with the spring-actuated drums having lugs or stops to engage the lug *l*, the bolts *c* which pass through the inner side of the bracket and upon which the drums turn; the finger-levers *e*, connected to the inner ends of the springs placed in the drums, and which levers are adapted to have their ends to catch in either two of the notches *j*, or have one end catch in one of the notches and the other catch against the lug *l*; and a chain connected to each drum, substantially as shown.

587,084. CLAMP. GEORGE M. DOUGALL, Prescott, Ariz. Filed Jan. 18, 1896. Serial No. 575,908. (No model.)



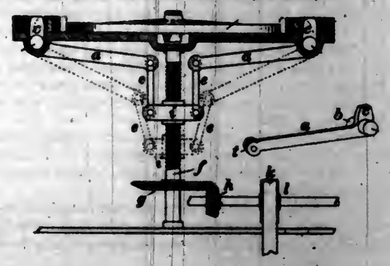
Claim.—1. As an improved article of manufacture, a clamp consisting of a front T-shaped, or substantially T-shaped, member constructed of wire, said wire being bent backward from the stem of the front T-shaped member, and then upward to form two rear members or limbs running parallel to the stem of the front member, but at a little distance from one another, leaving an opening between their ends, and also at a little distance from the front member, and being longer than said front member, and adapted to exert a pressure, when in use, toward one another, and at the same time to exert together a pressure toward the T-shaped front member, and at right angles to the pressure exerted between themselves.

2. As an improved article of manufacture, a clamp constructed of wire and consisting of a front T-shaped, or substantially T-shaped, member, the arms constituting the head of the T being curved rearwardly, and the stem of the T at its lower end being bent backward from the front T-shaped member, and upward to form two rear members or limbs running parallel to the stem of the front member, but at a little distance from one another, leaving an opening between their ends, and also at a little distance from the front member, and being longer than the front member, and adapted to exert a pressure, when in use, toward one another, and at the same time to exert together a pressure toward the T-shaped front member, and at right angles to the pressure exerted between themselves.

3. As an improved article of manufacture, a clamp consisting of a front T-shaped, or substantially T-shaped member, constructed from a loop of wire, the strands forming the stem of the T being twisted together, and then bent backward and upward to form two rear members or limbs running parallel to the stem of the front member, but at a little distance from one another, leaving an opening between their ends, and also at a little distance from the front member, and being longer than said front member, and adapted to exert a pressure, when in use, toward one another, and at the same time to exert together a pressure toward the T-shaped front member and at right angles to the pressure exerted between themselves.

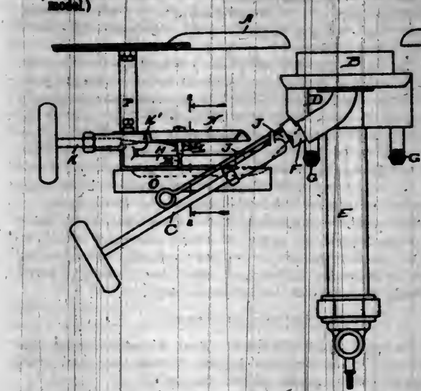
4. As an improved article of manufacture, a clamp constructed of wire, and consisting of a front T-shaped, or substantially T-shaped, member, the stem of the T being coiled at its lower end, and then bent backward and upward to form two rear members or limbs running parallel to the stem of the front member, but at a little distance from one another, leaving an opening between their ends, and also at a little distance from the front member, and being longer than said front member and adapted to exert a pressure, when in use, toward one another, and at the same time to exert together a pressure toward the T-shaped front member, and at right angles to the pressure exerted between themselves.

587,085. TIRE-SETTING MACHINE. PHILIPPE D. DUPONT, St. Johnsbury, Vt., assignor of one-half to Joseph Gauthier, same place. Filed Oct. 12, 1896. Serial No. 608,677. (No model.)



Claim.—In a tire-setting machine, the combination of a screw-threaded shaft *f* and means for rotating the same with a wheel-supporting plate or frame supported by the said shaft, an annular series of pressure-blocks on the face of the said plate and movable toward or from the center thereof, a series of angular levers *a* pivoted to the said plate and entering recesses or openings in the said blocks in order that each lever may move a block inward or outward, a nut movable up or down by the threads of the shaft and links connecting the said nut to the said levers in order that they may be actuated by the said nut substantially as set forth.

587,086. VAPOR STOVE AND BURNER. JOHN G. HARVEY and CHARLES MUENNER, Chicago, Ill., assignors to the George M. Clark & Company, same place. Filed Feb. 29, 1896. Serial No. 581,262. (No model.)



Claim.—1. In a vapor-burner, the combination with the auxiliary generator connected to a source of oil-supply and adapted when once started to be kept in continuous operation, of a drip-cup O containing a large mass of metal in proportion to the capacity of its oil-recess, whereby it is adapted to absorb the heat and keep the oil in it at a slow-evaporating point until entirely consumed, substantially as specified.

2. The combination in a vapor-stove with a burner and a generator of a drip-cup located under the generator, and formed upon the upper surface of a body of metal of considerable thickness, and also supported independently of the generator and burner, whereby the drip-cup is kept cool, substantially as and for the purpose specified.

3. The combination in a vapor-stove with a burner and a generator, of a drip-cup located under the generator and containing a large mass of metal in proportion to the capacity of its oil-recess, whereby it is adapted to absorb the heat and keep the oil in it at a slow-evaporating point until entirely consumed, substantially as specified.

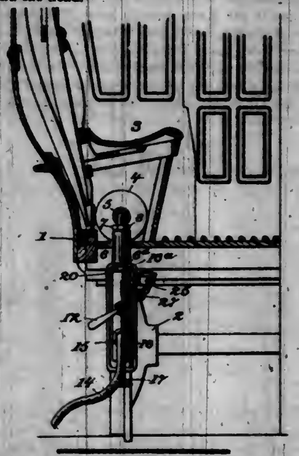
4. The combination with the generating-burner, of a tubular auxiliary generator H, having a connection J through which it receives its oil-supply, a burner K' projecting its flame along said generator H, the heat-communicating device L in the path of the flame, and deflecting-plate N above the flame, said heat-communicating device extending from said plate to said generator and connecting with the generator substantially as specified.

587,037. CHARGING APPARATUS FOR FLUID-PRESSURE MOTORS. JOSEPH H. HOADLEY, New York, N. Y. Filed June 20, 1896. Serial No. 596,254. (No model.)

Claim.—1. In a compressed-air or other fluid motor, the combination of a pressure-reservoir, a charging-head adapted to be coupled to the inlet of the reservoir and having a stop-cock or valve, a valved lubricant-supply passage entering the charging-head above the valve, a pipe communicating with the source of supply, and a yoke coupling the charging-head to the inlet of the reservoir, substantially as set forth.

2. In a compressed-air or other fluid motor, the combination of a pressure-reservoir, a charging inlet-pipe, a charging device, a yoke engaging the reservoir inlet-pipe and charging device for coupling them together, a stop-cock or valve in the charging device, and means for connecting the charging apparatus to a stationary supply, as set forth.

3. In a compressed-air or other fluid motor, the combination of a pressure-reservoir, a charging inlet-pipe having a flanged or grooved connecting end, a charging tube or head having a stop-cock or valve, a yoke engaging the flanged or grooved inlet-pipe of the reservoir, a screw engaging the yoke and charging-head for securing the head to the inlet-pipe, and a pipe communicating between a source of supply and the head.



587,088. PAD FOR BUFFING-MACHINES. EDWARD F. HOSKINS, Beverly, Mass., assignor to Sidney W. Winslow, trustee, same place. Filed Sept. 19, 1893. Serial No. 486,789. (No model.)



Claim.—1. As an improved article of manufacture a pad or foot for a buffing-machine composed of a disk having one of its faces provided with hollow flexible walled chambers, substantially as and for the purpose described.

2. In a pad for a buffing-machine the combination of the disk a^5 of soft rubber with the rubber tubing a^3, upon the surface thereof, substantially as described.

3. A foot or pad for a buffing-machine composed of a disk a^5 of rubber, a layer *b* of felt, upon the under surface thereof, and a number of concentric rubber tubes upon the marginal portion of the upper surface thereof, substantially as described.

4. The combination of the foot or pad for a buffing-machine consisting of a flexible disk and an abrasive cover therefor, with a stay supporting the marginal portion of the pad, substantially as and for the purpose described.

5. The combination of the hollow rotating spindle provided at its end with a plate, with a pad having a cooperating plate provided with a central stem, and means for fastening the said stem of the pad in the spindle with the plates of the pad and spindle in engagement, substantially as described.

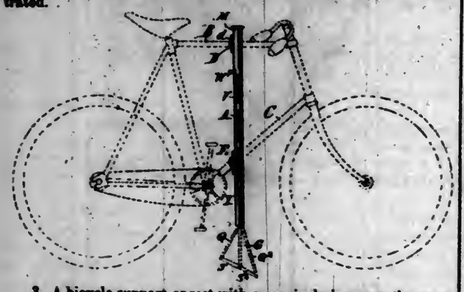
6. The combination of an abrasive cover having a flat flexible working face and a supporting-flange at the periphery thereof with an automatically-expansible pad or foot supporting said working face and entering between the same and the supporting-flange thereof whereby the working face of the pad-cover is maintained in a state of tension, substantially as described.

7. The combination with a pad or foot composed of a flexible disk provided on one of its faces with hollow flexible walled chambers, of an abrasive cover having a working face and a supporting-flange extending from the periphery of the working face over the flexible walled chambers of the pad, substantially as described.

587,089. BICYCLE SUPPORT AND REST. EARL L. HUSSEY and GEORGE B. ROGERS, Terre Haute, Ind. Filed Aug. 6, 1896. Serial No. 601,791. (No model.)

Claim.—1. In a bicycle support and rest, the case F, and the rod G, spool O, spring I, piston-head H, arms Q and Q^2, and braces S and S^2, normally drawn up within said case, in combination with slot V, stop Y, stop X, pin W, tripping-button M, catch J, spring L, spring P, and means for attaching said case to the bicycle-frame, substantially as set forth.

2. The combination of the case, the rod G, the spool O, centrally through which said rod passes, the braces Q and Q^2, having their upper ends jointed to the lower opposite sides of said spool and their lower ends jointed to the lower ends of arms S and S^2, said arms having their upper ends jointed to the lower end of rod G, and the spiral spring P, surrounding rod G, having its lower end fastened thereto, at P^2, and its upper free end pressing upward against the under side of spool O, substantially as and for the purposes described and illustrated.



3. A bicycle support or rest with a case inclosing operative parts thereof transversely attached to the tubes of the bicycle frame, in combination with the means described for securely attaching the case to the tube or tubes of the bicycle-frame, the actuating-rod within the case, the piston-head on said rod, the spring-compressing pin, the slot in said case for the movements of said pin, the spiral spring for carrying the actuating-rod downward, the projection K, the catch J, the spring L, the spring N, the tripping-button, the spool O, centrally through which rod G passes, the two braces jointed to said spool, the two arms jointed to said braces and to the lower end of rod G, and the spiral spring P, all substantially as set forth and for the purposes specified.

587,040. POCKET MATCH-BOX. HANS G. JOHNSON, Waukon, Iowa. Filed Oct. 17, 1896. Serial No. 609,215. (No model.)



Claim.—1. As an article of manufacture, a match-box adapted to receive matches, an ejector for removing a match part way from the box, and a pair of spring igniting-jaws formed from the shell of the box between which the ejected match passes, said jaws accessible from the outside of the box and capable of being compressed between the thumb and finger whereby they may be caused to ignite the match or not at the will of the user.

2. As an article of manufacture, a pocket match-box having a hole in one side to receive the end of a cigar and a knife projecting inwardly from the other side toward the hole for the cigar.

587,041. BELT-SHIFTER. FRANK LOMBARD, Hartford, Conn. Filed May 13, 1897. Serial No. 636,291. (No model.)



Claim.—1. In an antifriction belt-guide, a frame comprising a base-plate having a sleeve; a hollow roller-supporting pintle fixed to said base-plate with its axis in parallelism with the axis of the sleeve and having an oil-conduit communicating with the interior and exterior thereof; in combination with a roller supported on said pintle, and means for adjustably securing the frame to the finger of a belt-shifter.

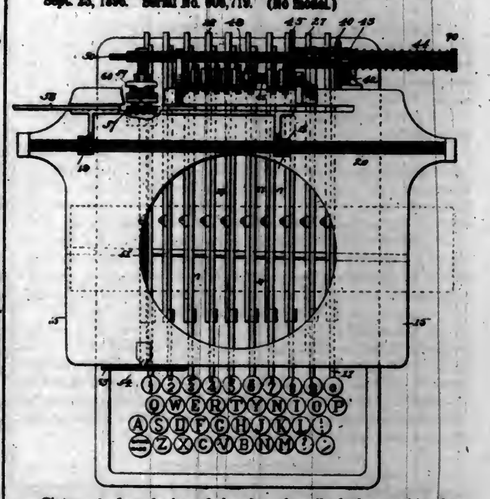
2. An antifriction belt-guide comprising a frame with a base-plate having a sleeve opening through said base-plate; two tubular roller-supporting pintles fixed to said base-plate with their axes in parallelism with, and substantially equidistant from, the axis of the sleeve, and each pintle having a transverse oil-conduit communicating with the interior and exterior thereof; two rollers supported one on each pintle; means for holding the rollers against longitudinal displacement; and means for adjustably securing the frame to the finger of a belt-shifter.

3. A belt-shipper comprising a shifter-bar; two fingers secured to said bar; and two oppositely-disposed belt-guides attached to the fingers, respectively, for longitudinal and circumferential adjustment, and each guide having two parallel rolls adapted for engaging the side edge of the belt at different points, respectively, in the length thereof.

4. The combination, with a belt-shifter finger, of a frame secured to the belt-shifter finger and provided with a roll-supporting pintle having a longitudinally-disposed oil-reservoir open to the end of the pintle and a transversely-disposed conduit communicating with the oil-reservoir and open to the periphery of said pintle; a tubular roll mounted on said pintle; and a cap for holding the roll against longitudinal displacement.

5. The herein-described belt-guide, it consisting of a triangular base-plate having a rectangularly-disposed sleeve or recessed post; two axially-recessed pintles secured to the base-plate at opposite sides of, and at substantially equal distances from, the axis of the sleeve, and each having a transverse conduit communicating at opposite ends with the interior and exterior, respectively, of said pintle, and said pintles also having their outer ends diametrically reduced to form cap-supporting shoulders; two tubular rolls mounted on the two pintles; a cap supported on the shoulders at the outer ends of the pintles; an interchangeable tubular bushing seated in the sleeve and having a flange at the upper end thereof adapted to enter a recess in the cap and hold the cap in place; and a set-screw extending through the sleeve and bushing and constituting a clamping device for securing the belt-guide to a belt-shifter finger.

587,042. CASH-REGISTER. ALVAH MAGAULEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Sept. 23, 1896. Serial No. 606,719. (No model.)



Claim.—1. In a device of the class described the combination with the digit-keys, of the registering-wheels, a longitudinally-movable non-revoluble transverse shaft, a sleeve movable on the shaft, a gear carried by the sleeve and arranged to engage the registering-wheels, means for moving the sleeve and the gear longitudinally on the non-revoluble shaft, and independent means for revolving the sleeve and the gear carried thereby.

2. In a device of the class described the combination with the digit-keys, of the registering-wheels, a gear carried by a sleeve on a transverse shaft and arranged to engage the registering-wheels, a sprocket splined upon the sleeve, a registering-board actuated by the keys and means for transmitting the movement of the said board to the said sprocket.

3. In a device of the class described the combination with the movable platen arranged to carry the paper, and the registering-wheels, of the keys, shiftable mechanism arranged to transmit the movement of the keys to the registering-wheels, shifting means arranged to throw said mechanism into operative engagement with said registering-wheels, and devices for automatically throwing the shiftable mechanism out of operative engagement.

4. In a device of the class described the combination with the series of keys, of a single platen arranged to move laterally a determined distance at each operation of any one of the keys, of the registering-wheels, normally-disengaged driving means connecting the keys and the registering-wheels, mechanism normally disengaged for transmitting the movement of the platen to a shiftable member of the driving means, and devices for simultaneously throwing the driving means into engagement with the registering-wheels, and the shiftable member of said mechanism into engagement to be moved with the platen.

5. In a device of the class described the combination with the series of keys, of a single platen arranged to move a determined distance at each operation of any one of the series of keys, of the registering-wheels, normally disengaging driving means connecting the keys and the registering-wheels, mechanism normally disengaged for transmitting the movement of the platen to a shiftable member of the driving means and a clutch and cooperating devices for simultaneously throwing the driving means into engagement with the registering-wheels, and engaging the shiftable member of said mechanism so that the latter will be moved with the platen.

6. In a cash-register the combination of the registering-wheels, driving means operating to transmit the movement of the keys to the registering-wheels, a normally-disengaged clutch, manually-operated means for setting the clutch, and means controlled by the clutch for shifting a member of the driving means into operative engagement to actuate the registering-wheels.

7. In a device of the class described the combination, of the registering-wheels, driving means operating to transmit the movement of the keys to the registering-wheels, a transverse shaft bearing a gear, a rack formed upon one side of the transverse shaft, and a pinion cooperating therewith, substantially as described.

8. In a device of the class described the combination with the platen, of the registering-wheels, driving means operating to transmit the movement of the keys to the registering-wheels, and a rack and pinion controlled by the movement of the platen and cooperating with the clutch, substantially as described.

9. In a device of the class described the combination with the platen and the registering-wheels, of the dial-shaft, the rack movable with the platen, the pinion carrying the clutch member 56 turning on said shaft, and meshing with said rack, the clutch member 59 splined upon the dial-shaft and arranged to engage the first-mentioned clutch member, and the gear 50 arranged to engage the rack of the drive-shaft 48 whereby said drive-shaft may be moved transversely by turning the dial-shaft.

10. In a device of the class described the combination with the registering-wheels, of the dial-shaft, the rack movable with the platen and actuating the clutch member 56, the clutch member 59 splined upon the dial-shaft, the gear 50 fixed upon the dial-shaft and actuating the drive-shaft 48, and the gear 45 arranged to drive the registering-wheels.

11. In a device of the class described the combination with the platen and the registering-wheels of the rack movable with the platen and actuating the clutch member 56 loose upon the dial-shaft, the clutch member 59 splined upon said shaft, so that when the clutch members are in engagement the dial-shaft will be turned whenever the platen moves, the gear 50, fixed upon and carried by the dial-shaft, the shaft 48 bearing the rack engaged by the gear 50, the gear 45 carried by the sleeve 44, which turns upon the said shaft 48, the upper sprocket-wheel 40 splined upon the sleeve, and means for transmitting the movement of the keys to said sprocket-wheel.

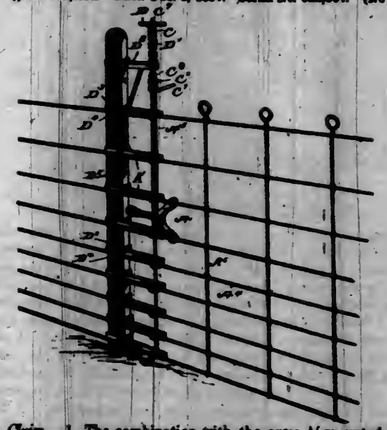
12. In a device of the class described the combination with the platen, the keys, and the registering-wheels, of the rack actuating the clutch member 56 loose upon the dial-shaft, the clutch member 59 splined upon said shaft and arranged to engage the first-mentioned clutch member, the gear 50 fixed upon and carried by the dial-shaft and engaging the rack carried by the shaft 48, the gear 45 loose upon said shaft, the key-cams actuated by the keys and means for transmitting movement from the key-cams to the said gear 45.

13. In a device of the class described the combination with the platen having a determinate movement, and the registering-wheels, of the rack 58 movable with the platen and meshing with the pinion 57 carrying the clutch member 56, turning loose upon the dial-shaft 51, the clutch member 59 splined upon said shaft and held normally disengaged from the first-mentioned clutch member, the gear 50, fixed upon the dial-shaft and engaging the rack 49 carried by the shaft 48, the gear 45 turning upon said shaft 48, the sprocket 40 splined upon the sleeve of the said gear 45, the chain 39 connecting the said sprocket with the lower sprocket 38, which turns with the ratchet 35, which is actuated by the pawl 34 carried on the arm 33, which is actuated by the registering-board.

14. In a device of the class described, the combination with the registering-wheels, the registering-board, and means for transmitting movement from the said board to the registering-wheels, of the keys, of the cam-bars, each having an operative connection with the keys at one end and bearing a key-cam at the other arranged to transmit the movement of the respective keys to the cam-bar, substantially as described.

15. In a device of the class described, the combination with the registering-wheels, the registering-board, and means for transmitting the movement of the said board to the registering-wheels, of the keys, and the bars each bearing a cam at one end which is arranged to cooperate with the registering-board, and having at the other end a hook arranged to engage the adjacent key, substantially as described.

587,043. WIRE-FENCE MACHINE. PEARIS H. MIDDLEBY, Hagerstown, Md. Filed Feb. 6, 1897. Serial No. 622,207. (No model.)



Claim.—1. The combination with the arms A′ mounted on the post D^3, of the hook A^3 and turret A^2, and means substantially as described for twisting the stay-wires.

2. The combination with the post provided with trolleys and horizontal arms, of the hooks and turrets secured to said arms, the rod C, spring D′, and wheel D, said spring encircling said rod and interposed between the arm D^3 and wheel D; the ring-forming device swiveled to the rod C, and the hand-lever C^3, substantially as described.

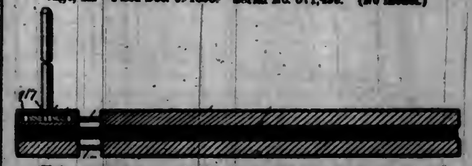
3. The combination with the holding device for the stay-wires, of the ring-forming device, comprising the vertical rod mounted on the arm D^3, the spring encircling said rod, and a hand-wheel, the swivel having the turrets C^{3a}, and the lever C^4, all substantially as described.

4. The combination of the post provided with the horizontal arms, trolley, and iron D^4 having the series of perforations, said arms having the hooks and turrets, the ring-forming device swiveled to a rod, the spring D′, and the lever C^4, hand-wheel D, turrets C^{3a} C^{3a}, and wrench A, all substantially as described.

5. In a wire-fence machine, the combination with the swiveled ring-forming device, and post provided with the arms having the hooks and turrets, of the trolley, and the twisting-lever provided with the V-shaped notch and handles for manipulating said lever, all substantially as described.

6. In a machine of the character described, the hooks and turrets mounted on the arms A′ attached to the post, said post having the trolley, the ring-forming device comprising the vertical rod and spring encircling the same, the wheel on the rod, said ring-forming device, also carrying the side pieces provided with the turrets and the angular forked lever C^4, one side C^5 of the ring-forming device being hinged at C^6, and the twisting device A having the handles and V-shaped notch, all substantially as described.

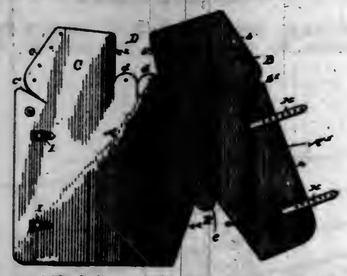
587,044. TEMPORARY BINDER. JAMES S. MCDONALD, Jr., Chicago, Ill. Filed Dec. 9, 1895. Serial No. 571,490. (No model.)



Claim.—A temporary binder having in combination two covers, one provided with impaling-pins projecting through the other, a casing through which said impaling-pins pass, a pair of loose jaws located

between said impaling-pins and within said casing, a loose cam located within the said casing between the ends of said jaws and being held in place by the upper and lower sides of said casing and the ends of said jaws, said cam being provided with a key-socket and said casing opposite said socket being provided with a slot extending longitudinally of said casing, substantially as set forth.

587,045. HUSKING-GLOVE. THERON A. ROWEN, Tuscarora, Ohio. Filed July 31, 1896. Serial No. 601,140. (No model.)



Claim.—1. A blank for a corn-husking glove formed with a main portion A A' with the opening D, at the upper portion, with the finger extensions C, B, having folding sides *c*, *b*, separated from the main portion by the cuts *c'*, *b'*, and with the projections *d*, *d* located in the opening for attaching the inner finger-stalls; substantially as described.

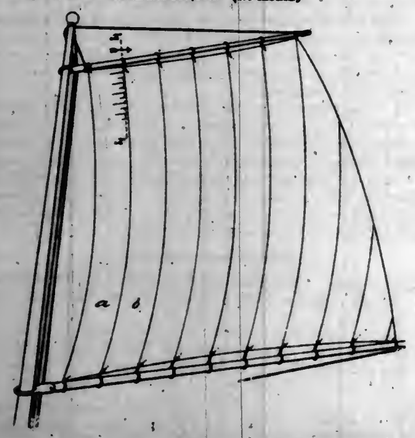
2. A blank for a corn-husking glove formed with the upper opening D, with the finger extensions C, B, having folding sides *c*, *b*, with the lower opening E, and with the tongue *e*, located in the lower opening, for attaching the thumb-stall; substantially as described.

3. A blank for a corn-husking glove formed with a main portion A A' with the upper opening D, with the finger extensions C, B, having folding sides *c*, *b*, separated from the main portion by the cuts *c'*, *b'*, with the projections *d*, *d*, located in the upper opening for attaching the inner finger-stalls, with the lower opening E, and with the tongue *e* located in the lower opening for attaching the thumb-stall; substantially as described.

4. A husking-glove comprising the main portion A, A', the finger extensions C, B, the projections *d d*, the tongue *e*, the finger-stalls G, G', and the thumb-stall F; substantially as described.

5. A husking-glove comprising a main portion A, A', having free edges *a*, *a'*, leaving an opening extending the whole length of the back of the glove, the middle and ring finger stalls being thus separated from each other, and being also secured to the main portion, and to the opposite sides of the opening, and means for adjusting the opening together with the middle and ring finger stalls, to fit any-sized hand; substantially as described.

587,046. SAIL. ROBERT R. SMITH, New Hartford, Conn. Filed July 13, 1896. Serial No. 598,978. (No model.)



Claim.—A sail wherein the united sections of cloth are uncrimped on one edge and crimped on the other and adapted to form lateral openings through the sail, all substantially as described and for the purposes set forth.

587,047. TROLLEY-WHEEL FORK. SAMUEL B. THOMPSON, Baltimore, Md., assignor to the Ajax Metal Company, Philadelphia, Pa. Filed Dec. 2, 1896. Serial No. 614,170. (No model.)



Claim.—1. A trolley-wheel fork having one of the prongs or supports for the axle formed of a flat spring the upper end of which presses against the hub of the trolley-wheel forming an electrical contact therewith and its lower end rigidly secured to the base of the fork, substantially as shown.

2. A trolley-wheel fork composed of the base B, and spring-prongs C, C, having the bent-over portions *b*, *b*, that impinge against the hub of the trolley-wheel, substantially as shown.

3. A trolley-wheel fork composed of the base B, having vertical channels therein and the spring-prongs C, C, fitting in said channels, said prongs having the bent-over top portions *b*, *b*, and provided with holes for the reception of the cotter-pins *c*, *c*, all arranged substantially as shown.

4. In a trolley-wheel fork, the combination of the base B, having therein vertical channels on opposite sides, the prongs C, C, fitting into the channels in the base and impinging against the shoulders a^3, and provided with the bent-over portions *b*, *b*, the cotter-pins *c*, *c*, passing through the top of the prongs C, and axle E, substantially as shown.

587,048. BRUSH. HENRY C. TOPP, Newark, N. J., assignor to the Hanson & Van Winkle Company, of New Jersey. Filed Apr. 15, 1896. Serial No. 587,591. (No model.)



Claim.—1. A circular brush, comprising therein, a solid hub, *a*, having annular shoulders on its cylindrical surface forming a groove or recess, a cushioning material *b*, forced in said groove or recess, and removably held therein by friction, and wire bunches *c* in said cushioning material, substantially as and for the purposes set forth.

2. A circular brush, comprising therein, a solid hub, *a*, having annular shoulders on its cylindrical surface forming a groove or recess a^2, and holes or perforations a^4, a cushioning material *b*, forced in said groove or recess, and removably held therein by friction, and having holes *b'* corresponding to the holes a^4 in said hub *a*, and wire bunches extending through said holes *b'* and fastened in said holes a^4, substantially as and for the purposes set forth.

3. A circular brush, comprising therein, a hub, as *a*, having an annular groove or recess a^2, and holes or perforations a^4, openings a^5 and a^6 on the opposite sides of said hub, a cushioning material *b*, in said groove or recess, and having holes *b'* corresponding to the holes a^4 in said hub *a*, wire bunches extending through said holes *b'* and fastened in said holes a^4, and soft-metal layers *d* in said openings a^5 and a^6, all arranged, substantially as and for the purposes set forth.

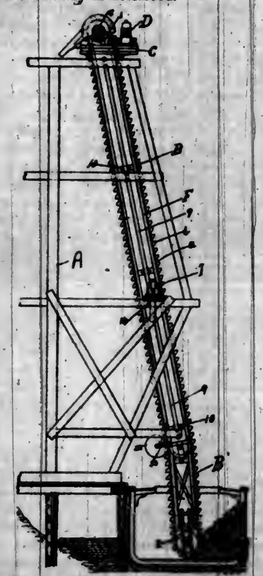
587,049. ELEVATOR. BENJAMIN W. TUCKER and WILLIAM S. CORWIN, Newark, N. J. Filed Apr. 8, 1896. Serial No. 586,671. (No model.)

Claim.—1. An elevator mounted to move longitudinally and provided at its upper end with a head, or platform, supported entirely by said elevator and forming a part of the same to participate in the movements thereof, and a prime mover placed on said head, or platform, and connected with the driving-shaft of the elevator, substantially as described.

2. An elevator mounted to move longitudinally and provided at its upper end with a head, or platform, supported entirely by said elevator and forming a part of the same to participate in the movements thereof, and an electric motor placed on said head, or platform, and coupled with the driving-shaft, substantially as described.

3. The combination with a framing, of upright rails secured to the same, an elevator guided on said rails, a worm-shaft mounted on the rails, a feed-screw having its upper end mounted in a box secured to cross-pieces attached to the rails and extending downwardly, a nut attached to the elevator below the feed-screw box and engaged by said feed-screw, and a worm-wheel connecting the worm to the feed-screw for operating the latter; all constructed to form a tension member of the feed-screw, substantially as described.

4. The combination with a framing, of upright rails secured to the same, an elevator guided on said rails, a worm-shaft mounted on the rails, a feed-screw having its upper end mounted in a box secured to cross-pieces attached to the rails and extending downwardly, a nut attached to the elevator below the feed-screw box and engaged by said feed-screw, a worm-wheel connecting the worm to the feed-screw for operating the latter, and a separate prime mover coupled to the worm, substantially as described.



5. The combination with a framing, of an elevator-frame pivotally suspended from said framing, an elevator guided to move longitudinally in said frame, a screw-spindle transversely arranged and placed in engagement with said frame for turning the same about its pivot, a worm-wheel engaging said screw-spindle, a worm-shaft engaging said wheel, and means for turning the worm-shaft for operating aforesaid parts to turn the elevator-frame about its pivot, substantially as described.

6. The combination with a framing, of an elevator-frame pivotally suspended from said framing, an elevator guided to move longitudinally in said frame, a screw-spindle transversely arranged and placed in engagement with said frame for turning the same about its pivot, a worm-wheel engaging said screw-spindle, a worm-shaft engaging said wheel, and a motor connected with the worm-shaft for operating aforesaid parts to turn the elevator-frame about its pivot, substantially as described.

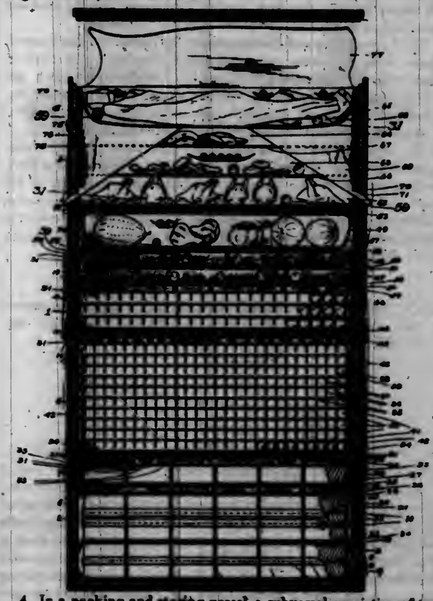
7. The combination with a frame pivotally suspended and provided with longitudinal guideways, of an elevator guided on said rails and provided at its upper end with a head, or platform, supported entirely by said elevator and forming a part of the same to participate in the movements thereof, a prime mover placed on said head, or platform, and connected with the driving-shaft of the elevator, mechanism for moving the elevator longitudinally, and mechanism for changing the angular position of the frame, substantially as described.

587,050. PACKING AND STORING VESSEL. ALBERT BAKER, Fort Wayne, Ind., assignor of one-half to William S. Hinke, same place. Filed Apr. 10, 1896. Serial No. 587,016. (No model.)

Claim.—1. In a storing-case in which two separate parts require to be attached and sealed, the one to the other, the combination with said two parts of a packing-band, composed of a strip or band of flexible material, coated with the two or more stripes longitudinally of different kinds of adhesive material, each being made adhesive by subjection to different elements respectively.

2. In a packing and storing vessel, a packing-band composed of a flat strip or band of flexible material coated with two or more stripes longitudinally of different kinds of adhesive material each kind made adhesive by subjection to different elements respectively, and a cord for strengthening and stiffening the same longitudinally placed underneath the coatings.

3. In a packing and storing vessel in which compartments for different kinds of food are placed, a removable compartment-case of waterproof material adapted to fit snugly in said vessel provided with interior receptacles or vessels and suitably sealed so that one closes the other in series, the whole forming a tier of double vessels in the compartment-case, a diaphragm placed over said tier, a second tier of vessels 21, provided with a band separating the open ends from each other, and adapted to hold a portion of the provisions, the two vessels and band sealed to each other as described, a diaphragm placed above said second tier secured to the walls of the compartment-case as described, a third tier of open or uncovered vessels 28, a double diaphragm 29 placed above said third tier and secured to the walls of the compartment-case, the lower diaphragm being made of porous material.



4. In a packing and storing vessel, a subvessel consisting of two parts adapted to hold provisions, their open ends of similar size and shape, a band placed between the open ends of said two parts adapted to hold a portion of the provisions, and packing-bands adapted to secure and hermetically seal them in position.

5. In a packing and storing vessel in which compartments for different kinds of foods are placed, a removable compartment-case, 3, adapted to fit in said vessel provided with partitions subdividing the case into tiers of square cells, the partitions being made of waterproof material practically odorless and flavorless, and so constructed as to permit a slight movement and have some elasticity, a diaphragm placed between the tiers, means to lift the tiers or fillers out separately, or one or more together—and two diaphragms placed above all the tiers, the lower one of which is porous, adapted to hold between them substances to be diffused through the lower double diaphragm into the cells below.

6. In a packing and storing vessel in which compartments for different kinds of foods are placed, a removable compartment-case adapted to fit in said vessel provided with diaphragms, adapted to separate provisions from each other, and to be secured hermetically to the walls of the compartment and capsules 31 placed between them.

7. In a packing and storing vessel in which compartments for different kinds of foods are placed, a movable case subdivided by a diaphragm into subcompartments, the diaphragm being arranged to form a sack which is provided with flaps to form drains to carry off the water from the sack through a tube leading to the outside of the case.

8. In a packing and storing vessel, double capsules 58, consisting of one capsule inclosed within another, and preserving material placed between them and held in place by the outer capsule.

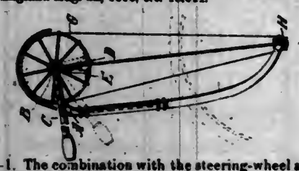
9. A packing and storing vessel consisting of the outside case 1 as described, containing four interior compartments all adapted to fit snugly in said outside case, the first compartment being provided with two vessels with a tier of double vessels constructed to coincide with each other so as to mutually close each other and secure the packing-band and also provided with a diaphragm over said tier and also provided with another tier of double vessels provided with a ring-section separating their open ends from each other and secured by the packing-band, and upon these a diaphragm to separate and secure said tier in place and above this a double diaphragm the lower wall of which is adapted to permit substances to diffuse through it.

and a cover or partition to such compartment: a second compartment provided with square cells adapted to form egg-fillers constructed of wood thoroughly coated with waterproof material for partition-walls running one way and of glass for partition-walls running the other way: a third compartment divided into subdivisions by the use of diaphragms: and a fourth compartment also divided into subdivisions by the use of diaphragms and also provided with an upper diaphragm adapted to form a sack which is provided with a drain to deflect and carry off the water from melting ice outside of the case: capsules adapted to contain substances and provided with means for their slow and gradual discharge into the contents of the various compartments where they may be placed.

10. In a packing and storing vessel, a compartment-case adapted to hold brine and other watery solutions, provided with tiers of square cells for eggs, filling the case the partitions of which are made of water and brine proof material practically odorless and flavorless and of sufficient gravity to sink in the brine and hold down the diaphragm or partition plates, placed between the tiers.

11. In a packing and storing vessel, a partition-plate in combination with a packing-band composed of a flat strip or band of flexible material coated with three or more stripes longitudinally of different kinds of adhesive material each made adhesive by subjection to different elements respectively, and a cord placed between the coating and the band or through its meshes adapted to form a shoulder for the partition-plate to rest on and be attached to.

587,051. VELOCIPEDE. CHARLES E. BECKMAN, Brisbane, Queensland. Filed June 18, 1896. Serial No. 596,023. (No model.) Patented in England Aug. 22, 1896, No. 18,611.



Claim.—1. The combination with the steering-wheel axle, a propelling-wheel thereon, a steering-fork provided with bearings, and a two-part steering-bar loosely mounted in said bearings: of a shaft to which the steering-bar sections are fitted, a driving-wheel on said shaft between the two parts of the steering-bar, said wheel having internal ratchet-teeth, a power-transmitter connecting the drive and propelling wheels, and pawls operated by the steering-bar sections and engaging the internal ratchet-teeth of the drive-wheel, for the purpose set forth.

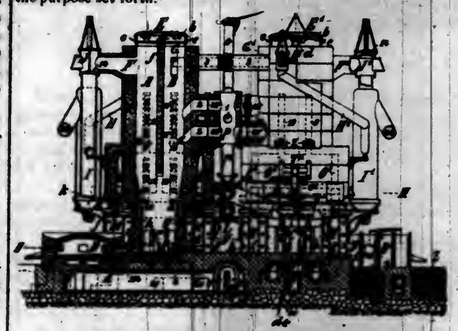
2. The combination with the steering-wheel axle, a propelling-wheel thereon, a steering-fork provided with bearings and a two-part steering-bar loosely mounted in said bearings; of a shaft to which the steering-bar sections are fitted, a driving-wheel on said shaft between the two parts of the steering-bar, said wheel having internal ratchet-teeth, a power-transmitter connecting the drive and propelling wheels, pawls operated by the steering-bar sections and engaging the internal teeth of the drive-wheel, and means for holding said pawls out of engagement with said teeth, for the purpose set forth.

3. The combination with the steering-wheel axle, a propelling-wheel thereon, a steering-fork provided with bearings and a two-part steering-bar loosely mounted in said bearings: of a shaft to which the steering-bar sections are fitted, a driving-wheel on said shaft between the two parts of the steering-bar, said wheel having internal ratchet-teeth, a power-transmitter connecting the drive and propelling wheels, levers rigidly secured to the steering-bar sections between the bearings thereof on opposite sides of the drive-wheel, and pawls pivotally connected with said levers and engaging the internal ratchet-teeth of said drive-wheel, for the purpose set forth.

4. The combination with the steering-wheel axle, a propelling-wheel thereon, a steering-fork provided with bearings and a two-part tunnlar steering-bar loosely mounted in said bearings; of a shaft to which the steering-bar sections are fitted, abutments in said sections for the ends of the shaft, the abutting faces being convex, lenticular loose washers interposed between said abutting faces, a driving-wheel on said shaft between the two parts of the steering-bar, said wheel having internal ratchet-teeth, a power-transmitter connecting the drive and propelling wheels, and pawls operated by the steering-bar sections and engaging the internal ratchet-teeth of the drive-wheel, for the purpose set forth.

587,052. APPARATUS FOR MANUFACTURING OR PRODUCING METALS FROM THEIR ORES. WLADIMIR P. BERNER, St. Petersburg, Russia. Filed Feb. 15, 1894. Serial No. 500,307. (No model.) Patented in Luxemburg Oct. 14, 1895, No. 1,010.

Claim.—1. A smelting-furnace, comprising twin blast-furnaces, valved gas-ducts connecting said furnaces at different levels, means for supplying a combustible gas to said furnaces, and appliances constructed, arranged and operating so that one of the blast-furnaces can be operated as a reducing-furnace, and the other as a decarbonizing-furnace, and the furnace-gases utilized in such operations, for the purpose set forth.



2 A smelting-furnace, comprising twin furnaces, valved gas-ducts connecting the same at different levels, means for supplying a combustible gas to one or both furnaces, hot-air-blast appliances provided with connections between one or both furnaces, and appliances constructed, arranged and operated so that both said furnaces can be operated as reducing-furnaces, or one as a reducing-furnace and the other as a decarbonizing-furnace and the furnace-gases utilized in said operations, for the purpose set forth.

3. A smelting-furnace, comprising twin furnaces, valved gas-ducts connecting the same at different levels, means for supplying a combustible gas to one or both furnaces, hot-air-blast appliances provided with connections between one or both furnaces, and appliances constructed, arranged and operating so that both said furnaces can be uninterruptedly operated as reducing-furnaces, or one as a reducing-furnace and the other as a decarbonizing-furnace and the furnace-gases utilized in said operations, for the purpose set forth.

4. A smelting-furnace comprising twin blast-furnaces, valved gas-ducts connecting said furnaces at different levels, a source of supply of combustible gas, valved ducts connecting said source with the furnaces, air and gas regenerators for each furnace, means for heating said regenerators by the furnace-gases, and appliances constructed, arranged and operating so that one of said furnaces can be used as a reducing-furnace and the other as a decarbonizing-furnace, for the purpose set forth.

5. A smelting-furnace comprising twin blast-furnaces, means for dividing the charges therein into several parts, valved gas-ducts connecting corresponding divisions of the furnaces at different levels, means for supplying a combustible gas to both, and appliances constructed, arranged and operating so that one of said furnaces can be operated as a reducing-furnace and the other as a decarbonizing-furnace and furnace-gases utilized in said operations, for the purpose set forth.

6. A smelting-furnace comprising twin blast-furnaces, valved conduits connecting the same at different levels, a source of supply of a mixture of generator-gas and water-gas, means for introducing such gas into both blast-furnaces, appliances for cutting off the supply of such gas from one or the other furnace, an air-blast apparatus, suitable twyers at different levels of the blast-furnaces connected with such blast apparatus, means for heating the air to a high temperature before it reaches such twyers, cut-off devices for cutting off the supply of air from one or the other apparatus and air and gas regenerators for and connected with said blast-furnaces, in combination with a refining-furnace for each of said blast-furnaces, valved passages connecting said refining-furnaces directly with the blast-furnaces, appliances for operating the refining-furnaces with the blast-furnace gases, and suitable valved passages whereby the blast-furnace gases may be cut off from one or the other refining-furnace, for the purpose set forth.

7. A blast-furnace provided with a shaft divided at its upper portion into separate compartments by a depending partition, air-supply twyers at the base or smelting-zone of the shaft, a chamber exterior of the shaft and communicating therewith by open passages and blast-pipes delivering into the shaft through some of said passages, said exterior chamber being further provided with valves for dividing it into an upper and lower portion, substantially as described.

8. A blast-furnace provided with a gas-jacket, vertical valved flues leading therefrom, and passages leading from said jacket and flues into the furnace, in combination with hollow columnar supports connected at one end with the interior of the blast-furnace and at the other with the gas-jacket, for the purposes set forth.

9. A blast-furnace provided with a gas-jacket, vertical valved flues leading therefrom, and passages leading from said jacket and flues into the furnace, in combination with columnar supports for the furnace, communicating at one end with its interior and at the other with the gas-jacket, and air-injectors extending through said jacket and vertical flues into the gas-passages leading therefrom into the furnace, for the purpose set forth.

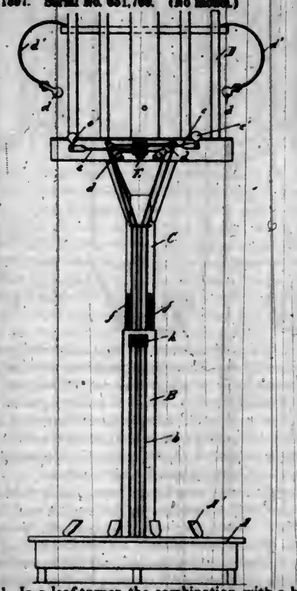
10. The combination of two blast-furnaces, each provided with a depending partition within its shaft dividing the shaft at its upper portion into separate compartments, pipes connecting one compartment of one furnace with a corresponding compartment of the other, and the remaining compartment of each furnace being provided with a gas-exit pipe having a suitable controlling-valve; whereby on closing one of the gas-exit-pipe valves and opening the other the gases from the one furnace will be directed into the other and will pass through the separated compartments, substantially as described.

11. The combination of two blast-furnaces each provided with a depending partition dividing the shaft at its upper portion into separate compartments, a pipe connecting one compartment of one furnace at its upper portion with a corresponding compartment of the other, and additional connections between the said two compartments at a lower level, said additional pipe connection being provided with a safety-valve; substantially as described.

12. The combination with two blast-furnaces divided vertically into two charge-chambers for a portion of their length from the top downward, valved pipes connecting the charge-chambers of the two furnaces in pairs near their upper end, and similar connections at a lower level; of a dust-collector interposed in the last named connections, and a gas-generator connected with said dust-collector, substantially as and for the purpose set forth.

13. In a blast-furnace, the combination with the main blast-pipes L and L', the main discharge-flue 22 for and located below the furnace, an air-compressor and a series of pipes located in said flue and receiving air from the compressor: of an injector receiving air from said pipes, an air-regenerator having its outlet connected with the injector-casing, and means for heating the regenerator by blast-furnace gases, for the purpose set forth.

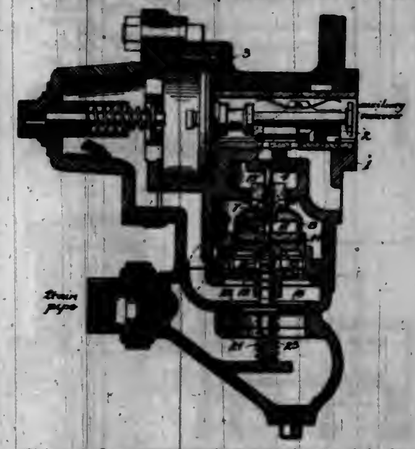
587,053. LEAF-TURNER. JOSEPH BERGON, Jackman, Me. Filed Apr. 12, 1897. Serial No. 631,769. (No model.)



Claim.—1. In a leaf-turner, the combination, with a base, a post secured thereto, a post slidable in the aforesaid post, and a desk secured to the said slidable post; of arms pivoted to the said desk, pedals pivoted to the said base, cords connected to the said arms and pedals, guide-pulleys for the cords supported by the said desk, post and base, and slidable guide-pulleys operating automatically to keep the said cords taut when the slidable post is moved vertically, substantially as set forth.

2. In a leaf-turner, the combination, with a stationary hollow post B provided with toothed racks, of a slidable post C also provided with toothed racks, plates guiding the post C in the post B, toothed pinions gearing into the racks on the posts B and C, a shaft carried by the said pinions, guide-pulleys *g'* journaled on the said shaft, guide-pulleys *h* carried by the upper part of the post B, leaf-turning arms supported by the post C, and operating-cords attached to the said arms and passing under the pulleys *g'* and over the pulleys *h*, substantially as set forth.

587,054. AIR-BRAKE TRIPLE VALVE. JAMES T. HAYDEN and GEORGE W. HAYDEN, Oak Park, Ill., assignors to the Crane Company, Chicago, Ill. Filed Dec. 3, 1896. Serial No. 614,269. (No model.)



Claim.—1. In emergency-valve mechanism for air-brake triple valves, the combination of an emergency-port, an emergency-valve controlling said port, a hollow cylindrical casing attached to said emergency-valve, a piston located within said cylindrical casing, abutting against the triple-valve casing, a supplemental port leading from the train-pipe to said piston, a supplemental valve controlling said supplemental port and a supplemental piston for operating said supplemental valve, arranged and combined substantially as shown and described.

2. In emergency-valve mechanism for air-brake triple valves, the combination with an emergency-port, an emergency-valve controlling said port, an emergency-piston for operating said emergency-valve, and a supplemental valve and piston cooperating with said emergency-valve, of a balancing-piston constructed to act with said emergency-piston to open the emergency-valve, substantially as described.

3. In emergency-valve mechanism for air-brake triple valves the combination with the triple-valve body, containing an emergency-port, an emergency-valve, a cylindrical casing attached to said emergency-valve and a supplemental valve and piston coacting with said parts, of a balancing-piston within said emergency-valve casing, having a stem abutting against said triple-valve body, substantially as described.

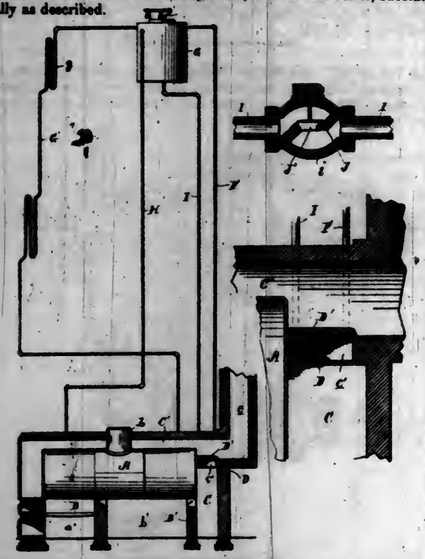
4. In emergency-valve mechanism for air-brake triple valves, the combination with an emergency-port, an emergency-valve, a cylindrical casing attached to said emergency-valve, and a supplemental valve and piston coacting with said parts, of a balancing-piston within said emergency-valve casing having a stem passing through said emergency-valve and abutting against the triple-valve body, substantially as described.

5. In emergency-valve mechanism for air-brake triple valves, the combination with an emergency-port, an emergency-valve, a cylindrical casing attached to said emergency-valve, a cap closing one end of said cylindrical casing, a supplemental port through said cap, a supplemental valve for controlling said supplemental port and a supplemental piston for operating said supplemental valve, of a balancing-piston contained within said emergency-valve casing, abutting against the triple-valve body, substantially as described.

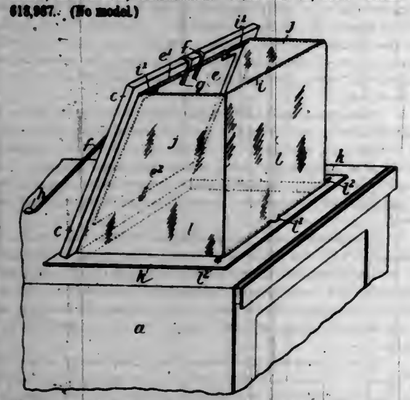
587,055. FEED-WATER HEATER AND WATER-HEATING SYSTEM. JOHN HERVEY, Kansas City, Kans. Filed Dec. 27, 1895. Serial No. 573,496. (No model.)

Claim.—The combination with a water-heating system, a feed-water system for boilers, a steam-boiler furnace and the back connection of the furnace having a cut-away portion at the top of the connection forming an opening, of a water-coil connected to the water-heating system resting over the cut-away portion and forming a cover for the opening a pipe leading from the water-heating sys-

tom to the feed-water system, and a non-combustible packing secured to the coil, the packing and coil forming an air-tight cover for the cut-away portion so that the products of combustion will pursue their normal course back through the flues of the boiler, substantially as described.



587,056. PHOTOGRAPHIC FINDER. LODEWYK JAN ROTGER HOLST, Amsterdam, Netherlands. Filed Jan. 12, 1897. Serial No. 618,967. (No model.)



Claim.—1. A photographic camera provided with a view-finder having a stationary ground-glass screen, on the upper side of the camera-body, a cover for said screen, a mirror secured to the under side of said cover, adapted to reflect the image on the ground-glass screen horizontally and an additional cover for said mirror whereby said view-finder may be used with or without said mirror, substantially as described.

2. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a hinged cover for said screen, a mirror permanently secured to the lower side of the said cover and a spring for elevating and supporting said cover and mirror in position to reflect the image on the ground glass horizontally, substantially as described.

3. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a hinged cover for said screen, a mirror secured to the lower side of said cover, and a cover for said mirror hinged to the upper end of said screen-cover and adapted when raised to form a shield for said mirror, substantially as described.

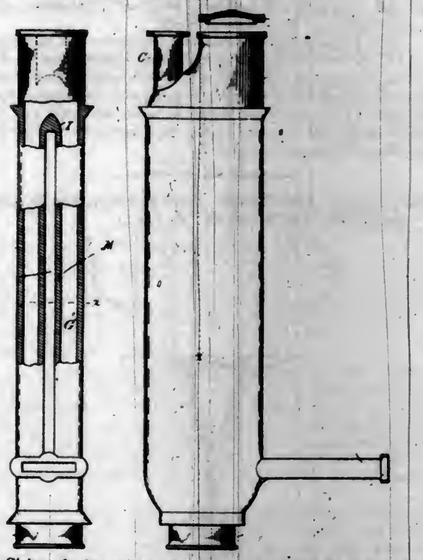
4. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a cover for said screen provided with a mirror on its under side and a cover for said mirror hinged to the said screen-cover adjacent to its outer end and provided with means for holding it in position to serve as a shield for said mirror, substantially as described.

5. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a cover for said screen, a folding frame secured to said cover provided with side portions adapted with said cover to surround said screen when the cover is raised, substantially as described.

6. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a hinged cover for said screen, a mirror on the under side of said cover, a mirror-cover hinged to the screen-cover adjacent to its outer end, a folding frame secured to said screen-cover having side walls and a removable front wall forming a shield for the ground glass, the mirror-cover adapted to form the top of said shield when open, substantially as described.

7. A photographic camera provided with a view-finder having a stationary ground-glass screen on the upper side of the camera-body, a hinged cover for said screen, a mirror on the under side of said cover, a cover for said mirror hinged to said screen-cover at its outer end, an elastic strap secured at one end to said mirror-cover and to the camera-body, means for securing the mirror-cover in closed position and means for securing the screen-cover in closed position whereby said strap will support both the screen and mirror cover in operative positions, substantially as described.

587,057. RETORT. DENNIS JARVIS, Detroit, Mich. Filed Feb. 3, 1897. Serial No. 621,769. (No model.)

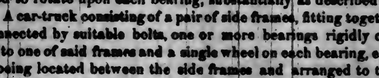


Claim.—1. An upright retort having a substantially rectangular body portion provided with vertical partitions dividing it into two substantially rectangular compartments and forming an open space between said compartments, a top portion having at its top a feed-opening and forming a single compartment increasing in cross-section from said feed-opening to said body portion, and a base portion forming a single compartment decreasing in cross-section from the body portion to a discharge-opening in its bottom

2. An upright retort comprising a substantially rectangular body portion provided with separated vertical partitions dividing it into two substantially rectangular compartments and forming an open space between said compartments, a top portion having at its top a feed-opening centrally above the said partitions, said top portion forming a single compartment increasing in cross-section from said feed-opening to the body portion, a base portion forming a single compartment and decreasing in cross-section from said body portion to a centrally-arranged discharge-opening, said partitions uniting on top between the compartments into a double inclined portion for guiding the material into the compartments, substantially as described.

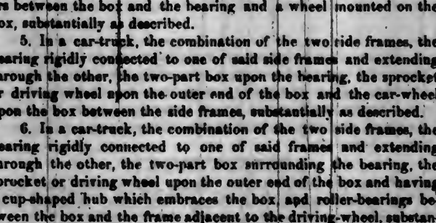
587,058. RUBBER-DAM CLAMP. SAMUEL R. KNOWLES, Alameda, Cal. Filed Feb. 1, 1897. Serial No. 621,494. (No model.)

Claim.—1. In a rubber-dam holder, a skeleton frame having one longer arm or member and two shorter arms or members converging toward each other in substantially the same plane, with the bend at each end of the longer member covered with elastic material, and a buckle or fastening means for a neck-strap at the junction of the shorter members.



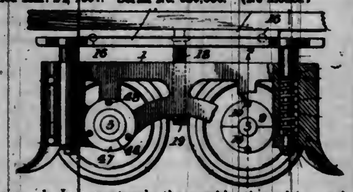
2. In a rubber-dam holder, the combination of a skeleton frame of triangular shape composed of a longer arm or member and two shorter arms or members, rounded dam-holding ends at the ends of the longer members, a loop formed by the junction of the shorter members and a sleeve covering the same, and a cross-bar in front of the loop, constructed for operation as set forth.

587,059. FIREPROOF FLOOR, CEILING, WALL, &c. JOHN J. MOFFAT, Birmingham, England. Filed Dec. 28, 1896. Serial No. 617,261. (No model.) Patented in England Nov. 26, 1896, No. 26,847.



Claim.—A plate having parts stamped out of its body so as to form tongues, and slotted at the ends so as to form fingers, the said tongues and fingers being adapted to be bent upward or downward at will, in order that the said plate may constitute a clip to bind the metallic lathing to the girder substantially as set forth.

587,060. CAR-TRUCK. MICHAEL F. HORAGOWE, Milton, Pa. Filed Mar. 24, 1897. Serial No. 629,066. (No model.)



Claim.—1. In a car-truck, the combination with a pair of side frames, of one or more spring-pockets in said frames, a spring in each pocket and a plunger resting upon the spring, one or more bearings rigidly connected to one of said side frames and a single wheel mounted to rotate upon each bearing, substantially as described.

2. A car-truck consisting of a pair of side frames, fitting together and connected by suitable bolts, one or more bearings rigidly connected to one of said frames and a single wheel on each bearing, each wheel being located between the side frames and arranged to turn freely upon the bearing, substantially as described.

3. In a car-truck, a pair of side frames connected together by suitable bolts, one or more bearings connected to the truck and provided with single wheels between the side frames, one or more spring-pockets in the side frames of the truck, springs in said pockets and plungers resting upon the springs, said plungers being adapted to support the car-body, substantially as described.

4. In a car-truck, the combination with two side frames rigidly connected together, one or more bearings rigidly connected to one of said frames, a two-part box mounted to rotate on each bearing, rollers between the box and the bearing and a wheel mounted on the box, substantially as described.

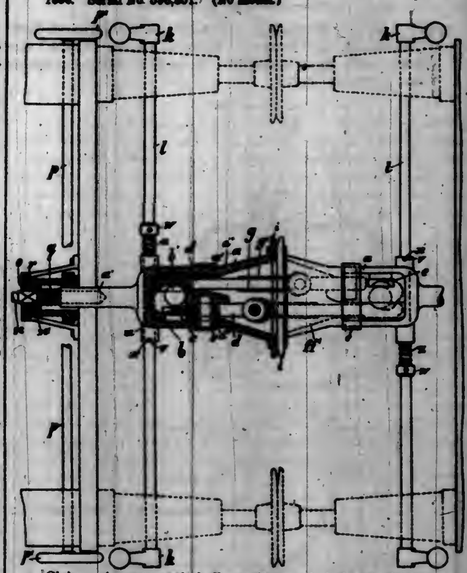
5. In a car-truck, the combination of the two side frames, the bearing rigidly connected to one of said side frames and extending through the other, the two-part box upon the bearing, the sprocket or driving wheel upon the outer end of the box and the car-wheel upon the box between the side frames, substantially as described.

6. In a car-truck, the combination of the two side frames, the bearing rigidly connected to one of said frames and extending through the other, the two-part box surrounding the bearing, the sprocket or driving wheel upon the outer end of the box and having a cup-shaped hub which embraces the box and roller-bearings between the box and the frame adjacent to the driving-wheel, substantially as described.

7. The combination of the car-body, the plate connected to the car-body, a second plate pivoted to the first, suitable ball-bearings between said plates, plungers connected to the lower plate and a car-truck having spring-boxes through which the plungers extend, and coiled springs upon which the plungers are supported, substantially as described.

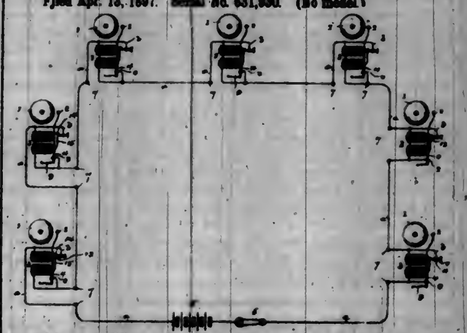
8. In a car-truck, a pair of side frames connected together, one or more wheels mounted between said frames upon suitable bearings and two-part wheel-fenders, the parts being formed integral respectively with the ends of the two side frames and extending downward and outward into proximity with the rail, substantially as described.

587,061. AUTOMATIC BALL-COUPLING FOR RAILWAY-WAGONS. HUGO F. OBERLAUTER, Leipsic, Germany. Filed July 11, 1896. Serial No. 598,851. (No model.)



Claim.—An automatic ball-coupling each half of which is provided with a fork *a*, a casting *b* slotted obliquely at its side and provided with a ball *b'*, and a tongue-piece *d* jointed to the coupling by a universal joint and hollowed out at its front end to receive the coupling-ball *b'* combined and operated substantially as described.

587,062. ELECTRIC BELL. JOHN T. O'BRIEN, Bridgeport, Conn. Filed Apr. 13, 1897. Serial No. 631,930. (No model.)



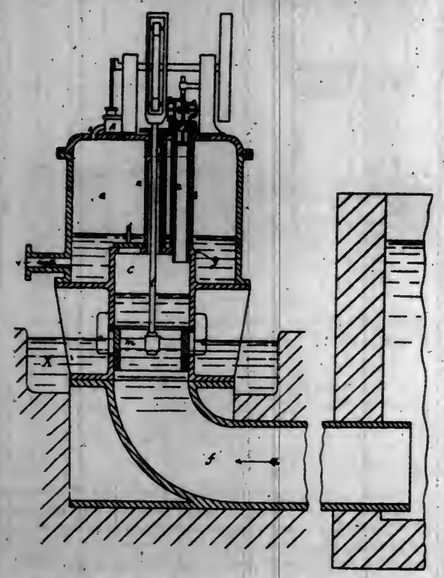
Claim.—1. The combination with a main circuit, a shunt-circuit, a bell and an electromagnet in the main circuit, of an armature in the shunt-circuit carrying a striker and a contact 15, and a pin 11 in the shunt-circuit carrying an insulating-block and a contact 14, said contact 15 being normally in contact with the insulating-block but being placed in engagement with contact 14, and thereby closing the shunt-circuit by the movement of the armature to the magnet which is caused by the closing of the main circuit.

2. In combination a main circuit, a shunt-circuit, a bell, an electromagnet in the main circuit, an armature in the shunt-circuit carrying a striker and a contact 15 and an adjustable pin 11 in the shunt-

circuit carrying an insulating-block and a contact 14, said contact 15 being normally in contact with the insulating-block but being placed in engagement with contact 14 and thereby closing the shunt-circuit by the movement of the armature to the magnet which is caused by the closing of the main circuit.

3. The combination with a main circuit, a shunt-circuit, a bell and an electromagnet in the main circuit, of an armature in the shunt-circuit which carries a striker, an adjustable pin in the shunt-circuit which carries an insulating-block and a U-shaped contact 14, and a contact 15 on the armature the free end of which normally engages the insulating-block and is adapted to be placed in engagement with contact 14 by the movement of the armature to the magnet when the main circuit is closed.

587,063. HYDRAULIC APPARATUS FOR RAISING OR FORCING WATER, &c. HOWARD D. PEARSALL, London, England. Filed Oct. 31, 1892. Serial No. 450,598. (No model.) Patented in England Jan. 4, 1889, No. 183.

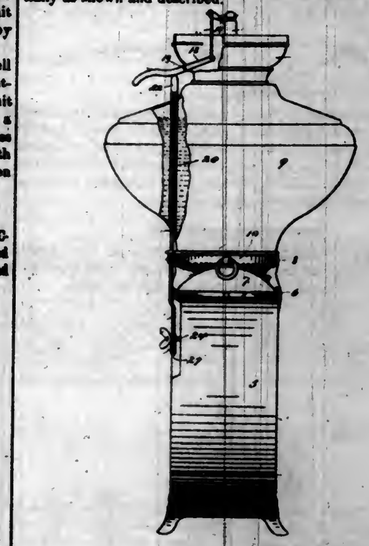


Claim.—1. In a hydraulic ram, the combination with the main supply-pipe, the receiving-chamber, the superposed air-chamber, the valve between these two chambers, the valve-controlled port establishing communication between said receiving-chamber and the outer air, and the main valve in said receiving-chamber, of a vertically-movable tube depending from and adjustable through the top wall of said receiving-chamber, and valves adapted to close the outlet from said movable tube, and means for operating said valves, substantially as described.

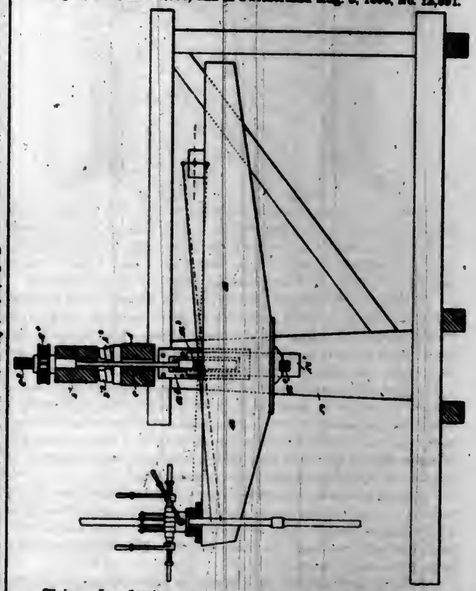
2. In a hydraulic ram, the combination with the main supply-pipe, the receiving-chamber, the superposed air-chamber, the valve between these two chambers, the valve-controlled port establishing communication between said receiving-chamber and the outer air, the main valve in said receiving-chamber, and a vertically-movable tube depending from and adjustable through the top wall of said receiving-chamber, and valves adapted to close the outlet from said movable tube, of the means for operating said valves consisting of a helix, a spindle, a cam, and a projection on the stem of aforesaid valves, substantially as described.

587,064. COMBINATION ALARM-CLOCK AND LAMP. ANTHONY PHERSON, Rochester, N. Y. Filed Sept. 14, 1896. Serial No. 605,786. (No model.)

Claim.—The combination of a clock suitably mounted in a frame, having an alarm connected therewith, a wheel eccentrically mounted on said clock, and operated by said alarm, a rod engaging the said wheel and a keeper on said frame for directing the rod, and of a lamp mounted over said clock, a wick-tube in said lamp, an extinguisher secured adjacent to said tube, a lever pivoted on the lamp and connected with the extinguisher, a tube passing through said lamp and a rod passing through said tube, said rod connected at one end with a lever and having its other end extending down to a point not below the base of the lamp and over the rod mounted on said clock, substantially as shown and described.



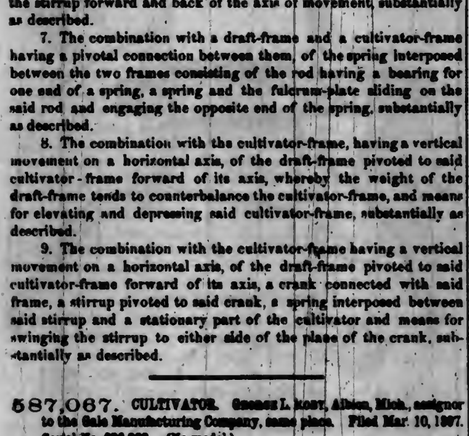
587,065. BORING APPARATUS FOR DEEP BORINGS WITH OSCILLATING BEAMS. ANTON RAKY, Rappreichtsau, Germany. Filed Apr. 23, 1897. Serial No. 633,326. (No model.) Patented in Germany Aug. 2, 1896, No. 91,266, and in Switzerland Aug. 5, 1896, No. 12,891.



Claim.—In a boring apparatus for deep borings having an oscillating beam supported by springs, the combination with the latter and with their support, of another support for said oscillating beam: said other support being carried by said springs, and means for changing the distance between the said beam and the said supports, for the purpose as described.

587,066. CULTIVATOR. GEORGE L. ROST, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed Mar. 8, 1897. Serial No. 626,484. (No model.)

Claim.—1. In a wheel-cultivator the combination with a tooth-frame having a movement about a horizontal axis, of a crank connected with said frame, a stirrup pivoted to said crank, a spring entering between said stirrup and a stationary part of the cultivator, and means for swinging the stirrup to either side of the plane of the said crank, substantially as described.



2. In a wheel-cultivator the combination with a tooth-frame having a movement about a horizontal axis, of two crank-arms connected with said frame, a stirrup pivoted to said crank-arms, a compression-spring extending between the said stirrup and a fulcrum-plate bearing against a stationary part of the cultivator, and means for swinging said stirrup and fulcrum-plate, substantially as described.

3. In a wheel-cultivator, the combination with a tooth-frame having a movement about a horizontal axis, of a compression-spring extending between the said frame and a fulcrum-plate having two bearings upon a stationary part of the cultivator, and means for swinging the frame end of the spring to either side of the frame axis, whereby the fulcrum-plate is swung from first one to the other of its bearings, substantially as described.

4. In a wheel-cultivator the combination with the tooth-frame and a draft-frame having a pivoted connection, of crank-arms rigidly connected with the tooth-frame, a stirrup pivoted to said crank-arms, a compression-spring extending from said stirrup to the draft-frame and means for swinging the said stirrup, substantially as described.

5. In a wheel-cultivator, the combination with a draft-frame pivoted to the axle, of a tooth-frame rigidly connected with the axle, a pair of crank-arms on said axle, a stirrup pivoted to said crank-arms, a compression-spring extending between the stirrup and the draft-frame, and means for swinging the stirrup, substantially as described.

6. In a wheel-cultivator the combination with a draft-frame pivoted to the axle, of a tooth-frame rigidly connected to the axle, crank-arms extending upwardly from the axle, a stirrup pivoted to the crank-arms, a compression-spring extending from the stirrup to a portion of the draft-frame above the axle, and means for swinging the stirrup forward and back of the axis of movement, substantially as described.

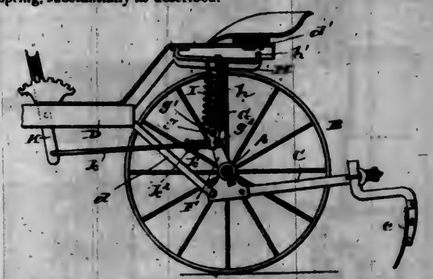
7. The combination with a draft-frame and a cultivator-frame having a pivotal connection between them, of the spring interposed between the two frames consisting of the rod having a bearing for one end of a spring, a spring and the fulcrum-plate sliding on the said rod and engaging the opposite end of the spring, substantially as described.

8. The combination with the cultivator-frame, having a vertical movement on a horizontal axis, of the draft-frame pivoted to said cultivator-frame forward of its axis, whereby the weight of the draft-frame tends to counterbalance the cultivator-frame, and means for elevating and depressing said cultivator-frame, substantially as described.

9. The combination with the cultivator-frame having a vertical movement on a horizontal axis, of the draft-frame pivoted to said cultivator-frame forward of its axis, a crank connected with said frame, a stirrup pivoted to said crank, a spring interposed between said stirrup and a stationary part of the cultivator and means for swinging the stirrup to either side of the plane of the crank, substantially as described.

587,067. CULTIVATOR. GEORGE L. ROST, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed Mar. 10, 1897. Serial No. 626,902. (No model.)

Claim.—1. In a wheel-cultivator the combination with a shovel-carrying frame having a movement about a horizontal axis, and having crank-arms extending from said axis, of a compression-spring extending between said crank-arms and a fulcrum-plate having two bearings upon a part of the stationary frame of the cultivator and means for moving the said crank out of and into alinement with the spring, substantially as described.



2. In a wheel-cultivator the combination with a shovel-carrying frame, having a movement about a horizontal axis, and having crank-arms extending therefrom, of a compression-spring extending from said arms to a fulcrum-plate having two bearings, one on each side of the said spring upon a part of the stationary frame of the cultivator, and means for moving the said crank-arms into and out of alinement with said spring, substantially as described.

3. In a wheel-cultivator, the combination with a shovel-carrying frame having a vertical movement about a horizontal axis, and having crank-arms adjacent to said axis, of a guide-rod pivoted to said arms, a fulcrum-plate having two separated bearing-points adapted to engage stationary seats, and a sleeve engaging said guide-rod, a spring surrounding said guide-rod and sleeve between said fulcrum-plate and said arms, an operating-lever and connections between said lever and the said arms, substantially as described.

4. In a wheel-cultivator, the combination with a shovel-carrying frame having a vertical movement about a horizontal axis, and provided with crank-arms adjacent to said axis, of a guide-rod pivoted to said arms, a fulcrum-plate having separated bearing-points, and a sleeve engaging said guide-rod, stationary bearing-seats for the fulcrum-plate, a spring surrounding said guide-rod and sleeve between said fulcrum-plate and said crank-arms, an operating-lever, a rod operatively connected with said lever and said arms, and a cushioning-spring interposed between said rod and its connection with said arms, substantially as described.

5. In a cultivator, the combination with the parallel horizontal supporting-bars located one above the other, of a shovel-securing clip comprising among its members, the bolt having a slotted portion to receive the shank of a cultivator-shovel, the spacing-block having an aperture for the passage of said bolt, and provided on one face with recesses to receive the said shank and on the opposite face with projections adapted to enter the space between said parallel bars, and the yoke having an aperture for the bolt, and having lugs to engage the exterior of said parallel bars, substantially as described.

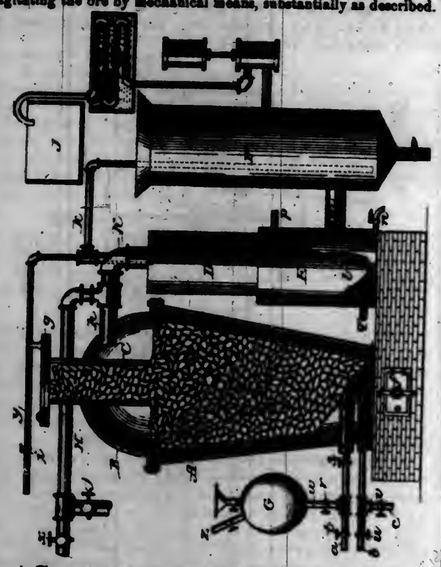
587,068. PROCESS OF AND APPARATUS FOR ROASTING ORES. CHARLES W. STOCKETT, Kotetown, Idaho. Filed Jan. 4, 1894. Serial No. 495,893. (No model.)

Claim.—1. The process of recovering sulfur in solid form from ore, by forcing currents of steam, and air under pressure, and gaseous fuel, composed largely of hydrogen under pressure, simultaneously into contact with the red-hot ore, and regulating the quantities of steam, air and fuel in such proportions that the ore is maintained at or above a red heat, while there is approximately no excess of either free sulfureted hydrogen, or free sulfurous acid in the final resulting gases, and cooling the vapors below the vaporizing-point of sulfur, substantially as described.

2. The process of recovering sulfur in solid form from ore, by forcing currents of steam and air under pressure and gaseous fuel composed largely of hydrogen under pressure simultaneously into contact with the red-hot ore, and regulating the quantities of steam, air and fuel in such proportions that the ore is maintained at or above a red heat, while there is approximately no excess of either free sulfureted hydrogen or free sulfurous acid in the resulting gases, and cooling the vapors below the vaporizing-point of sulfur and bringing the final vapors into intimate contact with the solution of a mineral salt, substantially as described.

3. The process of recovering sulfur in solid form from ore by forcing currents of steam and air under pressure and gaseous fuel, composed largely of hydrogen under pressure simultaneously into contact with the red-hot ore, and regulating the quantities of steam, air and fuel in such proportions that the ore is maintained at or above a red heat, while there is approximately no excess of either sulfureted

hydrogen or free sulfurous acid in the resulting gases, and cooling the vapors below the vaporizing-point of sulfur and simultaneously agitating the ore by mechanical means, substantially as described.



4. The process of recovering sulfur in solid form from ore by forcing currents of air under pressure and a gaseous fuel composed largely of hydrogen under pressure simultaneously into contact with the red-hot ore, and regulating the quantities of steam formed from the fuel and air and the remainder of the air injected in such proportions that there is approximately no excess of either free sulfureted hydrogen or free sulfurous acid in the final resulting gases and cooling the vapors below the vaporizing point of sulfur, substantially as described.

5. The process of recovering sulfur in solid form from ore by forcing currents of air under pressure and a gaseous fuel composed largely of hydrogen under pressure simultaneously into contact with the red-hot ore, mixed with a solid fuel and regulating the quantities of steam, formed from the fuel and air, and the remainder of the air injected, in such proportions that there is approximately no excess of either free sulfureted hydrogen or free sulfurous acid in the final resulting gases and cooling the vapors below the vaporizing-point of sulfur, substantially as described.

6. In apparatus for roasting ore, a closed ore-receptacle provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers, connected by conduits with sources of air under pressure greater than atmospheric pressure, and gaseous fuel under pressure and having a gas-exit conduit leading into a cooling-chamber, substantially as described.

7. In an apparatus for roasting ore, a closed ore-receptacle provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers connected by conduits with sources of air under pressure greater than atmospheric pressure and gaseous fuel under pressure and steam, and having a gas-exit conduit leading into a cooling-chamber, substantially as described.

8. In an apparatus for roasting ore, a closed ore-receptacle, provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers, connected by conduits with source of air under pressure and gaseous fuel under pressure and having a gas-exit conduit leading into a cooling-chamber, with means for keeping said chamber at a temperature below the vaporizing-point of sulfur and for keeping the walls of said chamber above the melting-point of sulfur, substantially as described.

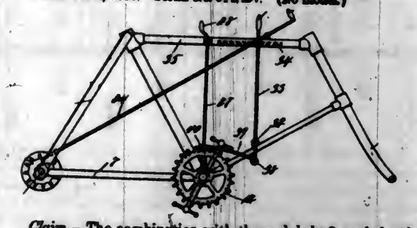
9. In an apparatus for roasting ore, a closed ore-receptacle provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers connected by conduits, with source of steam and of air under pressure greater than atmospheric pressure, and having a gas-exit conduit connected with a conduit from the source of an air-blast and leading into a cooling-chamber, substantially as described.

10. In an apparatus for roasting ore, a closed ore-receptacle provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers connected by conduits with sources of steam, of air under pressure greater than atmospheric pressure and gaseous fuel and having a gas-exit conduit connected with a conduit from the source of an air-blast and leading into a cooling-chamber, substantially as described.

11. In apparatus for roasting ore, a closed ore-receptacle, provided with means for feeding it with ore and for excluding casual and redundant air, and with twyers connected by conduits with sources of air under pressure greater than atmospheric pressure and gaseous fuel and having a gas-exit conduit connected with a conduit from a source of sulfurous-acid gas and leading into a cooling-chamber, substantially as described.

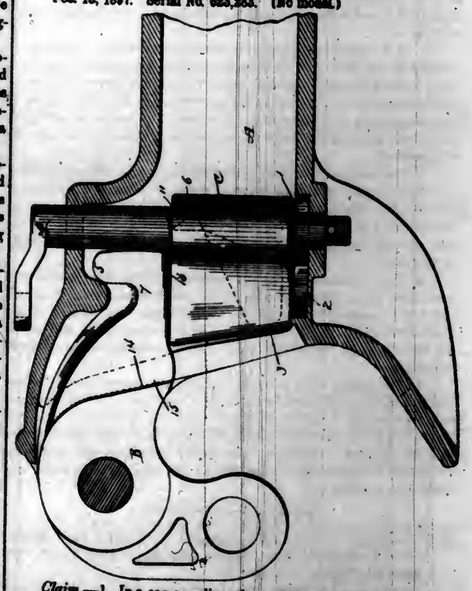
12. In an apparatus for roasting ore, a closed ore-receptacle provided with means for feeding it with ore and for excluding casual and redundant air and with twyers connected by conduits with sources of steam, air under pressure greater than atmospheric pressure and gaseous fuel, and having a gas-exit conduit connected with a conduit from a source of sulfurous-acid gas and leading into a cooling-chamber, substantially as described.

587,069. BICYCLE. WILLIAM F. STOLL, Pocahontas, Va. Filed Dec. 4, 1896. Serial No. 614,437. (No model.)



Claim.—The combination with the pedal-shaft, and the shaft of the drive-wheel of a bicycle or similar vehicle, of a sprocket-wheel revolubly mounted on each of said shafts, said sprocket-wheels being each provided at its inner surface with ratchet-teeth which are adapted to engage with ratchet-teeth formed on the hub of the drive-wheel, and on a disk or head secured to the pedal-shaft, a spring mounted on each of said shafts for forcing the said wheels inwardly, and means connected with the frame of the vehicle for forcing said wheels outwardly, the sprocket-wheel on the pedal-shaft being also provided on its inner side with an annular flange or rim having ratchet-teeth formed thereon, and said frame of the vehicle being provided with a lever having a pivoted arm which is adapted to operate in connection with said ratchet-teeth for revolving said sprocket-wheel, substantially as shown and described.

587,070. CAR-COUPLING. JAMES TIERS, Columbus, Ohio. Filed Feb. 13, 1897. Serial No. 623,283. (No model.)



Claim.—1. In a car-coupling, the combination with a draw-head, and a pivoted knuckle, of a gravity-drop pivotally supported and endwise movable in the draw-head and normally in position to be automatically caused to drop in front of the knuckle when the latter shall have been closed.

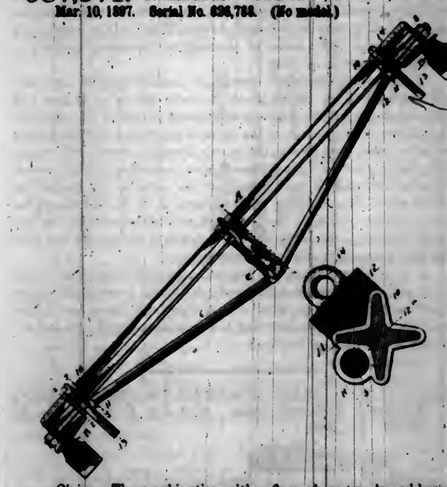
2. In a car-coupling, the combination with a draw-head, and a knuckle pivoted thereto, of a gravity-drop pivotally supported within the draw-head, said drop having an endwise as well as a swinging movement, means for supporting the drop in an elevated position and means whereby the drop is pushed from its support by the knuckle in swinging shut whereby the locking of the knuckle is automatically effected.

3. In a car-coupling, the combination with the draw-head, knuckle pivoted thereto and a support, of a gravity-drop pivoted in the draw-head in the path of the knuckle in closing, said drop having a curved outer face and provided at its lower end with a depending projection adapted to be struck by the knuckle whereby the drop is not only raised by the knuckle in swinging shut, but also forced endwise or laterally from its support.

4. In a car-coupling, the combination with a draw-head, a knuckle pivoted therein, said knuckle having a lateral projection and a shoulder on its tailpiece and a support, of a gravity-drop provided with a spiral groove and depending projection at or near the lower end of the groove and to one side of the latter, the lateral projection on the tailpiece constructed and adapted to enter the groove in turning to force the drop upward out of its way preparatory to locking and the shoulder on the knuckle adapted to strike the depending projection on the drop and cause the latter to move endwise or laterally from its support to permit it to fall in front of the knuckle to lock it, substantially as set forth.

5. In a car-coupling, the combination with a draw-head, of a knuckle pivoted therein, the draw-head and knuckle each having inwardly-inclining shoulders, substantially as set forth.

587,071. BRAKE-BEAM. JAMES TIERS, Columbus, Ohio. Filed Mar. 10, 1897. Serial No. 626,788. (No model.)

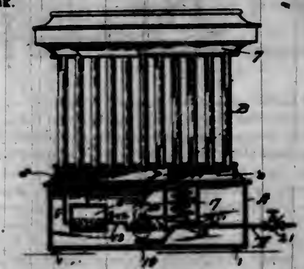


Claim.—The combination with a flanged or star-shaped beam in cross-section, a strut-post having a hole therein corresponding in shape to the beam and adapted to receive the beam, sleeves having each a hole therein corresponding in shape to that of the beam and adapted to receive the beam of brake-heads, each having a socket therein adapted to receive ends of the beam, and a brace, each sleeve having a hole therethrough to receive the brace, with a web between said hole and the hole which receives the beam, and the brake-heads each having a hole therethrough alongside and communicating with the sockets, the brace extending on an incline through the holes in the sleeve and through the holes in the brake-heads parallel with and against the beam.

587,072. STEAM-RADIATOR AND MEANS FOR HEATING SAME. FREDERICK V. WHITNEY, New York, N. Y., assignor of one-half to John A. York, same place. Filed Feb. 6, 1897. Serial No. 622,200. (No model.)

Claim.—1. The combination with a radiator, of a heating apparatus comprising a water-tank, a steam-pipe leading from the water-tank to the radiator, a heating-chamber interposed in said pipe, a superheating-coil in said pipe, and a pipe leading from the radiator to the water-tank.
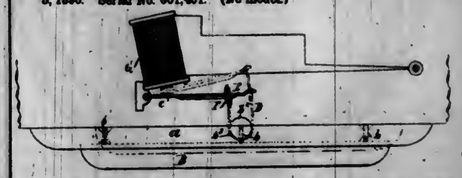
2. The combination with a radiator having a hollow top and a hollow bottom divided into two compartments, of a heating apparatus comprising a water-tank, a steam-pipe leading from the water-tank into one of the chambers in the bottom of the radiator, a heating-chamber interposed in the steam-pipe, a superheating-coil in the steam-pipe between the heating-chamber and the radiator, and a pipe leading from the other chamber in the bottom of the radiator into the water-tank.



3. The combination with the radiator having a hollow top and a hollow bottom with a partition therein, of a heating apparatus comprising a water-tank, a steam-pipe leading from the tank into one of the compartments in the bottom of the radiator, a heating-chamber interposed in the steam-pipe, a coil of pipe between the said heating-chamber and the radiator, a burner under the heating-chamber, a burner under the coil, and a pipe leading from the other compartment into the water-tank.

4. A portable radiator, comprising a base box or casing, a gas conduit-pipe therein, a superheating-burner and a main burner in said pipe, a radiator mounted on the base, having hollow top and bottom, the bottom thereof being divided into two compartments, a water-tank in the casing, a steam-pipe leading from the tank into one of the compartments in the bottom of the radiator, a heating-chamber in the pipe over the main burner, a coil of pipes in the steam-pipe over the superheating-burner, and a pipe leading from the other compartment in the bottom of the radiator into the water-tank.

587,073. CAR-STEP. ALBERT BLUM, Cincinnati, Ohio. Filed Aug. 3, 1896. Serial No. 601,461. (No model.)



Claim.—1. The combination, with a car having stationary steps, of a step, mounted upon arms hinged to the car, and adapted to swing horizontally into a position vertically beneath the stationary step or into a position vertically outside and below the stationary step, and yielding means for locking the step in the latter position, substantially as and for the purpose set forth.

2. The combination, with a car having stationary steps, of a series of arms hinged to the car-body below the stationary step; a step pivoted to the arms and adapted to swing horizontally thereunder, or into a position vertically outside and below the stationary step; a lever secured to one or more of the arms, an armature connected with the hinge-lever, and an electromagnet, adapted to cooperate with the armature and move the step, substantially as and for the purpose set forth.

3. The combination, with a car having stationary steps, of a series of arms hinged to the car-body below a stationary step; a step pivoted to the arms and adapted to swing horizontally thereunder, or into a position vertically outside and below the stationary step; a lever secured to one or more of the arms; an armature connected with the hinge-lever; an electromagnet, adapted to cooperate with the armature and move the step in one direction, and a spring adapted to move it in the opposite direction, substantially as and for the purpose set forth.

587,074. BICYCLE-PROPELLED BOAT. REID H. BRADSHAW, Chicago, Ill. Filed Aug. 3, 1896. Serial No. 601,468. (No model.)

Claim.—1. The combination with a boat and propeller, of two rollers adapted to support the driven wheel of a bicycle, one of said rollers being an idler and the other connected with the propeller, the frame I, secured to the sides of the boat and extending toward the

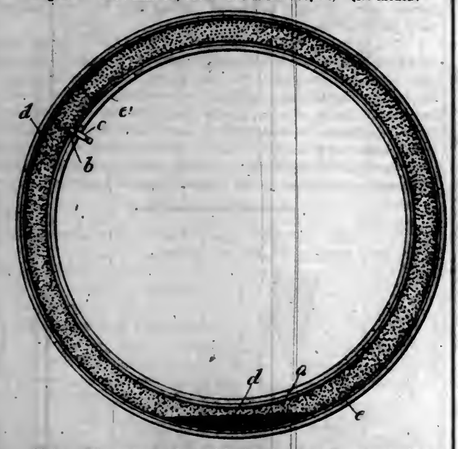
forward end of a bicycle and having the vertically-extending portions l', l', adapted to embrace one of the members of the frame of the bicycle, and the clamping-bolt i, adapted to clamp the members l', l', upon the frame of the bicycle.



2. The combination with a boat, of a propeller adapted to receive its motion from the driven wheel of a bicycle, a shoe H, adapted to receive the steering-wheel of a bicycle and pivoted in line with the steering-head of the bicycle, the guide h', adapted to support the shoe H, said shoe being longitudinally movable in said guide, and suitable means for holding it in any desired position therein.

3. The combination with a boat and propeller adapted to receive its motion from the driven wheel of a bicycle, of the shoe H, adapted to receive the steering-wheel of a bicycle, the plate h^3, having the block h, a guide h', the plate being longitudinally movable in the guide, the set-screw h^4, adapted to hold the plate at any desired position, the shoe H, being pivoted in the block in line with the steering-head of the bicycle.

587,075. PNEUMATIC TIRE. ALFRED H. CROCKFORD, Dartford, England. Filed Mar. 13, 1896. Serial No. 583,271. (No model.)



Claim.—The combination, with the air-tube of a pneumatic tire of a mixture of bran with a liquid such as water contained in the said air-tube, the bran and liquid being mixed in the proper proportions to sufficiently moisten the bran and to sweep the same around and distribute it throughout said tube while the wheel is in motion, substantially as heretofore described.

587,076. BOOK. JOHN DEER, Chicago, Ill. Filed Oct. 10, 1896. Serial No. 608,443. (No model.)



Claim.—1. In a cover of the class described, the combination with the lower cover B, provided with holes in one end, of a back composed of two angle portions notched into each other, the internally-screw-threaded tubes, c, c, secured in one of said angle-pieces and extending through the holes in the cover B, and the screws S, connecting the two portions of the back-pieces; substantially as described.

2. In a book, the combination with the filler, of a cover therefor comprising the back-pieces C, D, notched into each other and having the flanges c', d', the cover B, secured to the back-piece C, and rigid with respect thereto, the cover E, hinged to the back-piece D, the internally-screw-threaded tubes c, c, secured in one of the back-pieces and extending through the filler, and the screws S, passing through the back-piece D, and adapted to clamp a filler between the back-pieces; substantially as described.

3. In a book, the combination with the lower cover, back-piece C, and internally-screw-threaded tubes c, c, of the cover E, back-piece D, notched into the back-piece C, the clamping-plates c', d^3, the hinge e, secured between said clamping-plates, cover and back, respectively, and the screws S, adapted to clamp a suitable filler between said back-pieces; substantially as described.

4. In a book-cover, the combination with a cover and back adapted to hold a block of paper, of a second cover hinged thereto, brackets, g^3, secured upon said hinged cover and the spring-bail, G, sliding in said brackets, and comprising substantially the transverse member, g, and longitudinal members, g', the longitudinal members being bent to form oblique portions, g^7, whereby the transverse member may be pressed against the cover when the longitudinal members are seated in the brackets but drawn away therefrom when the oblique portions are seated therein; substantially as described.

587,077. PROTECTED PILE. CHARLES W. KENDON, Tampa, Fla. Filed Aug. 17, 1896. Serial No. 602,985. (No model.)



Claim.—1. The combination with a pile, log or other timber, of a palmetto wrapping applied directly to that portion of its surface which is to be submerged, said wrapping consisting of boards which have been passed through pressure-rolls to partially destroy the cohesion normally existing between the long fiber and the woody pulp of the palmetto, and a means of securing the wrapping to said pile, &c., substantially as set forth.

2. The within-described manner of protecting piles, logs, &c., and rendering them teredo-proof, the same consisting in first partially evaporating the moisture or sap from the trunk of the palmetto, then sawing it into boards of the required length and thickness while partially green, then passing the boards through pressure-rolls to partially disintegrate or destroy the cohesion normally existing between the long fiber and the woody pulp of the palmetto, to render the boards pliant, then bending them to conform to the surface of the exterior of the pile, &c. to be protected, and finally securing the palmetto covering so prepared, directly upon said surface, by any suitable fastening, substantially as described.

3. In combination—a pile, log, &c., a palmetto wrapping for that portion of the same to be submerged, shields for protecting the ends of said wrapping, wire coiled around its exterior between said shields and nails or staples for fastening the wrapping, the shields and the wire to the pile &c., as set forth.

587,078. DRAFT ATTACHMENT FOR VEHICLES. ARCHIE MACALPINE, Williscroft, Canada. Filed Aug. 5, 1896. Serial No. 601,707. (No model.)



Claim.—1. A draft attachment for vehicles comprising a bent strip secured to the pole of the vehicle, a rod secured in the bent strip, having a spiral spring wound thereon, a plate adapted to slide on the bent strip, and having an eye passing around the rod 6, in front of the spiral spring, a toggle-joint secured to the sliding plate, and means for securing the whiffletree to the sliding plate comprising a hook, as set forth.

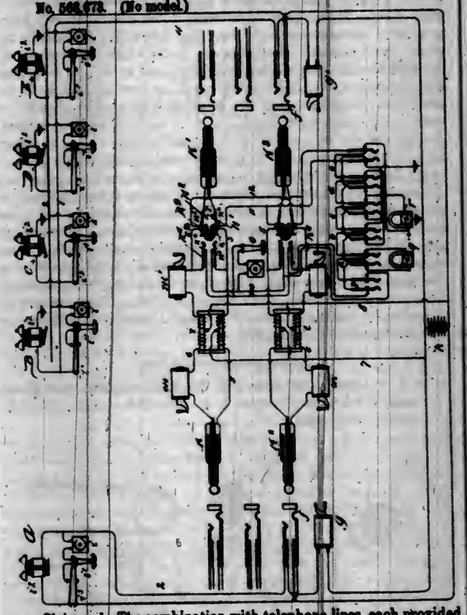
2. A draft attachment for vehicles comprising a bent strip secured to the pole of the vehicle, a rod secured in the bent strip having a spiral spring wound thereon, a plate adapted to slide on the top of the bent strip, said plate having an eye passing around the rod 6, behind the spiral spring, a toggle, having one portion secured to the pole and the other to the sliding plate and means comprising a hook for securing the whiffletree to the sliding plate, as set forth.

587,079. PROCESS OF EXTRACTING GOLD FROM GOLD ORES. WILHELM MAJERT, Falkenberg, Germany. Filed Sept. 30, 1896. Serial No. 584,909. (No specimens.)

Claim.—1. The process of extracting gold from its ores which consists in treating the ore in a finely-divided condition with a solution containing free hypobromous acid, in the presence of such a quantity of an alkaline salt of an alkali metal as contains a sufficient amount of alkaline metal to combine with all of the free acid present, and precipitating the gold from the solution, substantially as described.

2. The process of extracting gold from its ores which consists in treating the ore in a finely-divided condition, with a solution containing free hypobromous acid, in the presence of a carbonate of an alkali metal precipitating the gold from the solution and regenerating the filtrate by adding chlorin, substantially as described.

587,080. CALLING APPLIANCE FOR TELEPHONE-SWITCHBOARDS. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 12, 1895. Serial No. 568,673. (No model.)



Claim.—1. The combination with telephone-lines, each provided with signaling appliances adapted for selective operation, several pairs of plugs for uniting lines, their associated plug-circuits, the operator's telephone, of conductors and a group of keys each determining the transmission in the said conductors of a current adapted to operate a particular signal, and a key in each plug-circuit adapted to take either of two positions, said key being adapted when in one position to break the plug-circuit and to connect the telephone with one plug of the pair and the said conductors with the other plug of the pair, and in its other position to complete the plug-circuit, substantially as described.

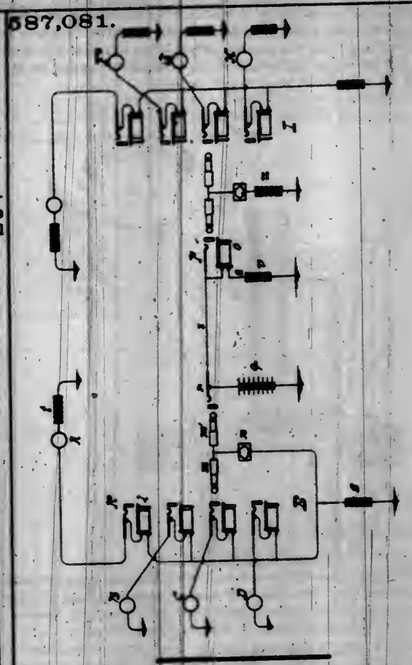
2. The combination with telephone-lines and a return-circuit therefor, each having oppositely-polarized signal-bells in branches between each line conductor and the return-circuit, of several pairs of connecting-plugs for uniting different telephone-lines, a key in each plug-circuit adapted to assume two positions, in one of which positions it severs the plug-circuit and connects the operator's telephone with one of the plugs and a pair of signaling-conductors with the other plug, and a group of keys connected with said signaling-conductors, one adapted to send current of each polarity on each line conductor to operate a corresponding bell, as described.

587,081. TELEPHONE-EXCHANGE APPARATUS. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed June 3, 1896. Serial No. 594,060. (No model.)

Claim.—1. The combination with a telephone-line grounded at two points subject to differences of potential and provided with a generator of alternating current at one substation and an annunciator at the other station, of a group of polarization-cells in one of the ground branches, substantially as described.

2. The combination with a system of telephone-lines grounded at points subject to differences of potential and provided with sources of signaling-current and with instruments responsive to such current, of polarization-cells in suitable ground connections to oppose the passage through the lines of current arising from such differences of potential, substantially as described.

587,081.



587,082. CORN-SHOCK LOADER. LEO SHAFER and JAMES W. SHAFER, Alta, Iowa. Filed Sept. 15, 1896. Serial No. 606,208. (No model.)



Claim.—1. In combination, a wagon, the loader pivoted thereto and provided with the tongue for elevating the same, the spiral auxiliary spring connecting the loader with the wagon, and a loader-stop encircled by the spring and rigidly secured, by one end, to the connection between the spring and wagon, substantially as and for the purpose specified.

2. In combination, a wagon, the shock-loader pivoted thereto and provided with the tongue for raising the same, the brackets, one fast to the wagon and one fast to the loader, the eyes threaded exteriorly and pivot-jointed to the brackets, the spiral auxiliary spring having its ends turned upon the threaded portions of the eyes, the loader-stop encircled by the spring and rigidly secured, by one end, to the threaded eye connected with the loader, the pulley suspended from the rear axle of the wagon, and the chain fast, by one end, to the loader, and passing over the pulley to lift the free end of the tongue thereof, substantially as and for the purpose specified.

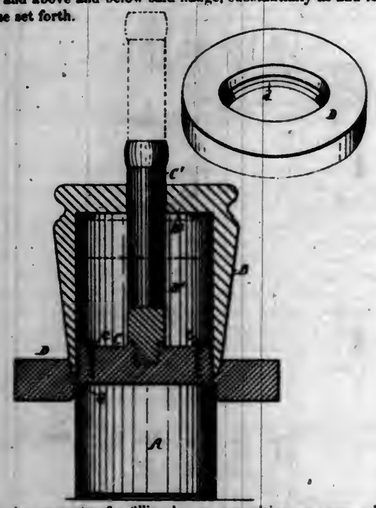
587,083. APPARATUS FOR FILLING BOXES. WILLIAM B. TROMSON, Detroit, Mich. Filed Oct. 5, 1896. Serial No. 607,872. (No model.)

Claim.—1. An apparatus for filling boxes, comprising a cylinder or chambered body, provided with a reciprocatory plunger or head, a rest or support constructed to seat upon the upper edge of a box and to form a seat for said cylinder or chambered body, substantially as set forth.

2. An apparatus for filling boxes, comprising a cylinder or chambered body, provided with a reciprocatory plunger or head, a handle engaged with said plunger or head, a rest or support constructed to seat upon the upper edge of a box and to form an interior seat for said cylinder or chambered body, said head or plunger having an adjustable engagement with said handle, substantially as set forth.

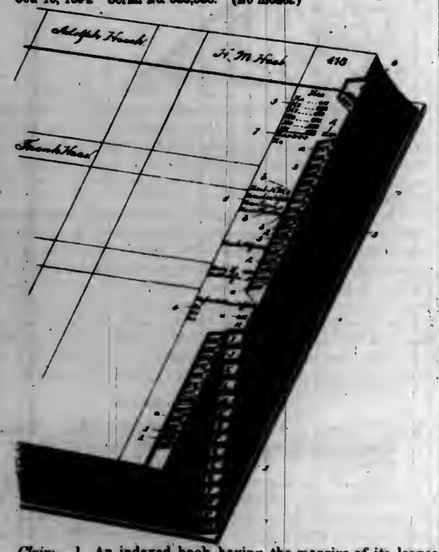
3. An apparatus for filling boxes, comprising an open cylinder or chambered body, provided with a reciprocatory plunger or head therewithin, a rest or support constructed with a central opening,

and an inner peripheral flange to rest upon the upper edge of a box, said flange forming a seat upon its upper surface for said cylinder or chambered body, said rest or support projecting outward from said flange and above and below said flange, substantially as and for the purpose set forth.



4. An apparatus for filling boxes, comprising an open cylinder or chambered body, provided with a reciprocatory plunger or head therewithin, a rest or support constructed with a central opening, and an inner peripheral flange to rest upon the upper edge of a box, said flange forming a seat upon its upper surface for said cylinder or chambered body, said rest or support projecting outward from said flange and above and below said flange, and said plunger provided with adjusting-screws *c* upon the upper surface thereof, for the purpose described.

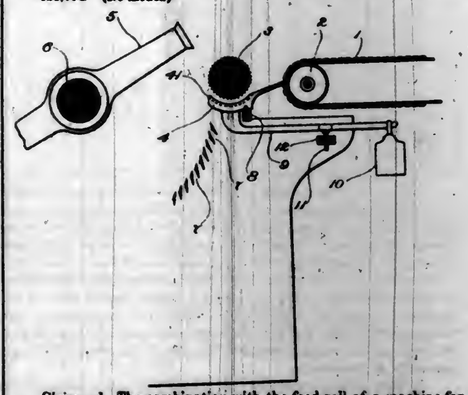
587,084. LEDGER. EDWARD L. WILSON, St. Louis, Mo. Filed Oct. 10, 1894. Serial No. 525,523. (No model.)



Claim.—1. An indexed book having the margins of its leaves cut or notched to form primary groups indicated by characters forming a primary index, having the marginal edges of the leaves in each primary group cut or notched continuously in series from the first to the last leaf in said group, secondary-index characters arranged at intervals upon exposed portions of the leaves between contiguous primary-index characters to subdivide each primary group of leaves into a plurality of secondary groups, the number of cuts or notches formed in the leaves in each primary group being greater than the number of characters in the secondary index, whereby a plurality of notches is arranged between contiguous characters of the secondary index, and tertiary index characters arranged between each two contiguous characters of the secondary index upon the exposed portions of the leaves in said additional notches between the characters of the secondary index, the series of notches in the portions of the leaves above the point of intersection thereof with the cuttings or notches for the primary index being formed in the edges of the leaves in alinement with said cuttings or notches for the primary index, and the series of notches in the leaves below the point of intersection thereof with the series of cuttings or notches for the primary index being formed inside of, and parallel with, the series of cuttings or notches for the primary index, substantially as specified.

2. An indexed book having the margins of its leaves cut or notched to form primary groups indicated by characters forming a primary index, having the marginal edges of the leaves in each primary group notched in series continuously from the first to the last leaf in the group, distinguishable secondary and tertiary index characters arranged upon the portions of said leaves exposed by the cuts or notches, the secondary-index letters being spaced to form an open series between the contiguous characters of which is arranged a plurality of leaves subdivided by interposed cuts or notches to form tertiary groups, and the tertiary-index characters being arranged in groups between the characters of the secondary index and upon the portions of the leaves exposed by said interposed cuts or notches, an auxiliary or name index under each character of the tertiary index and arranged in a ruled column parallel with the outer edges of the leaves embraced under each character of said index, the auxiliary or name index being formed by a column of primary and secondary index characters arranged to form the first portions of the names of accounts entered on the pages, whereby the following portions of said names may be appended, and a page-index having its characters arranged upon notched portions of the leaves included in each tertiary index, substantially as specified.

587,085. MACHINE FOR WORKING FIBROUS MATERIALS. ABEL T. ATHERTON, Warwick, R. I. Filed Feb. 3, 1897. Serial No. 621,764. (No model.)



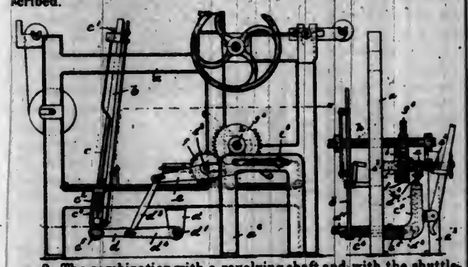
Claim.—1. The combination with the feed-roll of a machine for preparing fibrous materials, and the beater or corresponding part in such machine, of the feed-plate between which and the said feed-roll the fibrous material is nipped and formed with slight ribs or ridges and shallow flutes or depressions extending to and producing fine serrations in the forward upper or delivery edge of the said feed-plate.

2. The combination with the feed-roll of a machine for preparing fibrous materials, and the beater or corresponding part in such machine, of the feed-plate between which and the said feed-roll the fibrous material is nipped and formed with slight or fine serrations in the forward upper or delivery edge thereof.

3. The combination with the feed-roll of a machine for preparing fibrous materials, and the beater or corresponding part in such machine, of the feed-plate between which and the said feed-roll the fibrous material is nipped and having the surface thereof which coacts with the said feed-roll formed with alternating elevations and depressions extending in the direction of the line of feed.

587,086. SHUTTLE-BOX MOTION FOR LOOMS. THOMAS BIRCHALL, Paterson, N. J., assignor to Robert Atherton, same place. Filed Feb. 3, 1897. Serial No. 622,670. (No model.)

Claim.—1. The combination with a revolving shaft and with the shuttle-box supporting rods, of a gear-wheel on said shaft and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft, and in the plane of the gear-wheel and adapted to be operated by its toothed segmental sections, a lever eccentrically arranged on said crank-shaft, a rocking shaft parallel with the revolving shaft, a crank-arm securely mounted on said rocking shaft, a link adjustably connecting one end of said lever with the free end of said crank-arm, and means connecting said rocking shaft with the shuttle-box-supporting rods, substantially as described.



2. The combination with a revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel on said shaft and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft and in the plane of the gear-wheel and adapted to be operated by its toothed segmental sections, a lever eccentrically arranged on said crank-shaft, a rocking shaft parallel with the revolving shaft, a crank-arm securely mounted on said rocking shaft, a link adjustably connecting one end of said lever with the free end of said crank-arm, and a longer crank-arm also secured on said rocking shaft and having its free end pivotally connected with the shuttle-box-supporting rod, substantially as described.

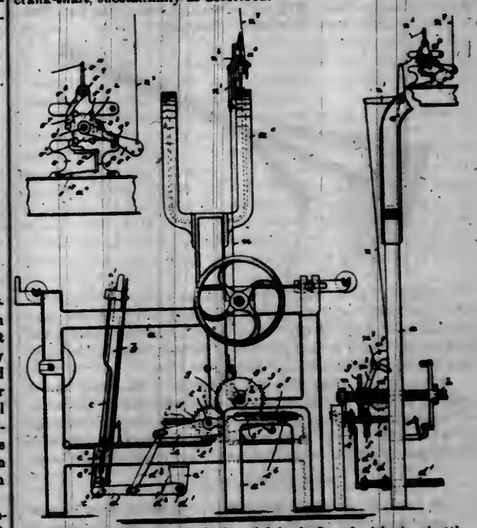
3. The combination with a revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel on said shaft and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft and in the plane of the gear-wheel and adapted to be operated by said toothed segmental sections, a lever eccentrically arranged on said crank-shaft, and provided at one end with an elongated slot, a stationary part, a pin adjustably arranged in said stationary part and penetrating said elongated slot, means connecting the other end of said lever with the shuttle-box-supporting rods, a brake-wheel on the crank-shaft, and a spring-controlled brake-block controlling said brake-wheel, substantially as described.

4. The combination with a revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel on said shaft and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft and in the plane of the gear-wheel and adapted to be operated by said toothed segmental sections, a lever eccentrically arranged on said crank-shaft, and provided at one end with an elongated slot, a stationary part, a pin adjustably arranged in said stationary part and penetrating said elongated slot, a rocking shaft parallel with the revolving-shaft, means connecting the other end of the lever with said rocking shaft to operate the same, and means connecting said rocking shaft with the shuttle-box-supporting rods, substantially as described.

5. The combination with a revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel on said shaft and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft and in the plane of the gear-wheel and adapted to be operated by said toothed segmental sections, a lever eccentrically arranged on said crank-shaft, and provided at one end with an elongated slot, a stationary part, a pin adjustably arranged in said stationary part and penetrating said elongated slot, a rocking shaft parallel with the revolving shaft, means connecting the other end of the lever with said rocking shaft to operate the same, means connecting said rocking shaft with the shuttle-box-supporting rods, a brake-wheel on the crank-shaft, and a spring-controlled brake-block for controlling said brake-wheel, substantially as described.

587,087. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. THOMAS BIRCHALL, Paterson, N. J., assignor to Robert Atherton, same place. Filed Apr. 28, 1897. Serial No. 634,223. (No model.)

Claim.—1. The combination with the picker-shaft and the shuttle-box-supporting rods, of a gear-wheel slidingly arranged on said picker-shaft, a crank-shaft parallel with the picker-shaft, a gear-wheel securely mounted on said crank-shaft, a lever eccentrically arranged on said crank-shaft, a rocking shaft parallel with the picker-shaft, a crank-arm securely mounted on said rocking shaft, a link adjustably connecting one end of said lever with the free end of said crank-arm, means connecting said rocking shaft with the shuttle-box-supporting rods, and means for shifting the gear-wheel on the picker-shaft into and out of engagement with the gear-wheel on the crank-shaft, substantially as described.



2. The combination with the picker-shaft and with the shuttle-box-supporting rods, of a gear-wheel slidingly arranged on said picker-shaft and provided with a grooved collar, a fulcrumed angle-lever engaging said grooved collar, a spiral spring surrounding said picker-shaft for holding said gear-wheel in normal position, a crank-shaft parallel with the picker-shaft, a gear-wheel securely mounted on said crank-shaft, a lever eccentrically arranged on said crank-shaft, a rocking shaft parallel with the picker-shaft, a crank-arm securely mounted on said rocking shaft, a link adjustably connecting one end of said lever with the free end of said crank-arm, means connecting said rocking shaft with the shuttle-box-supporting rods, and means for operating the angle-lever, substantially as described.

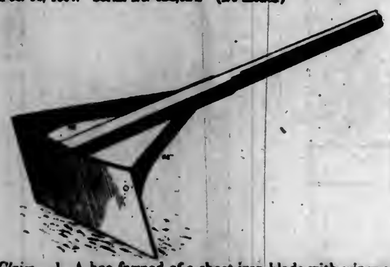
3. The combination with the revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel slidingly arranged on said revolving shaft, a crank-shaft parallel with the revolving shaft, a gear-wheel securely mounted on said crank-shaft, a lever eccentrically arranged on said crank-shaft and provided at one end with an elongated slot, a stationary part, a pin adjustably arranged in said stationary part and penetrating said elongated slot, means connecting the other end of said lever with the shuttle-box-supporting rods, and means for shifting the gear-wheel of the revolving shaft into and out of engagement with the gear-wheel on the crank-shaft, substantially as described.

4. The combination with the revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel on said shaft and slidingly arranged thereon, and provided with two oppositely-arranged toothed segmental sections, a crank-shaft parallel with the revolving shaft, a mutilated gear-wheel securely mounted on said crank-shaft, a lever eccentrically arranged on said crank-shaft and provided at one end with an elongated slot, a stationary part, a pin adjustably arranged in said stationary part and penetrating said elongated slot, means connecting the other end of said lever with the shuttle-box-supporting rods, a grooved collar carried by the gear-wheel on the revolving shaft and surrounding the same, a spiral spring controlling said grooved collar, a fulcrumed angle-lever engaging said grooved collar, an intermediate fulcrumed angle-lever connected with said first-mentioned angle-lever, and means for operating said intermediate angle-lever, all said parts, substantially as and for the purposes described.

5. The combination with the revolving shaft and with the shuttle-box-supporting rods, of a gear-wheel slidingly arranged on said shaft, a grooved collar carried by said gear-wheel and surrounding the revolving shaft, a fulcrumed angle-lever engaging said collar, an intermediate fulcrumed angle-lever connected with the first-mentioned angle-lever, a shaft suitably supported and at right angles to the angle-levers, a ratchet-wheel securely mounted on said shaft, a link loosely mounted on said shaft, a pawl pivotally arranged on said link and adapted to operate said ratchet-wheel, a star-wheel also securely

mounted on said shaft, a fulcrumed arm carrying a block, adapted to be engaged and operated by said star-wheel, a cord or wire connecting said fulcrumed arm with the intermediate angle-lever, means for operating the fulcrumed link, and means controlled by said sliding gear-wheel for operating said shuttle-box-supporting rods, all said parts, substantially as and for the purposes described.

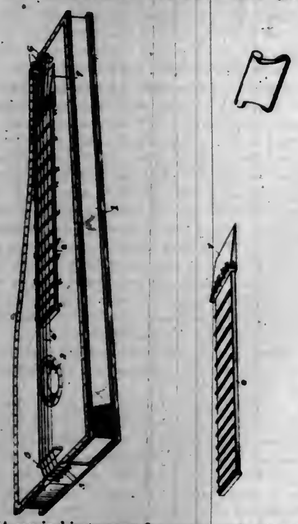
587,088. HOE. WILLIAM R. CHAMBLIN, Round Hill, Va. Filed Feb. 11, 1897. Serial No. 622,934. (No model.)



Claim.—1. A hoe formed of a sheet-iron blade with wings at its side edges at the upper corners and the handle having its end abutting and secured against the wall of the blade and also bolted to and between the ends of the wings in rear of the blade whereby the wings form braces for the handle and sides to the blade.

2. The combination with the hoe-blade of sheet-iron having wings at its upper vertical corner edges and the handle secured to the wings and to the inner face of the blade, of the stay-piece secured to the inner face of the blade beneath the handle and to the end of the tongue, forming a knee-brace thereto and reinforcing the blade.

587,089. MUSICAL INSTRUMENT. ALBERT G. DUCK, Waynesburg, Ohio. Filed June 30, 1894. Serial No. 516,190. (No model.)

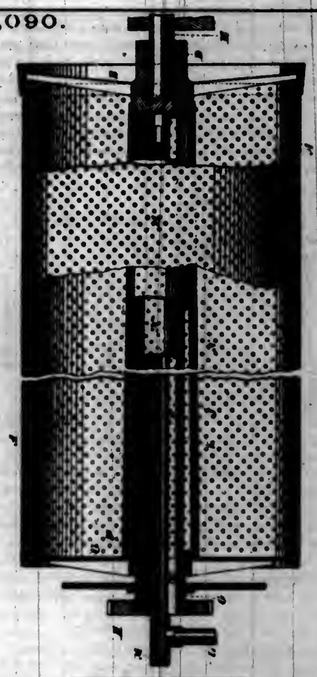


Claim.—A musical instrument for accompanying purposes, comprising a sounding-board, a finger-board provided with raised frets, and strings adapted to be tuned to produce a harmonic chord, and a separate stop consisting of a single piece of material, of a length sufficient to span the finger-board and having laterally-extending ears to be grasped by the hand, said stop designed to be moved to stop the strings at any fret to produce chords in any key within the scope of the instrument during the playing of a piece, substantially as described.

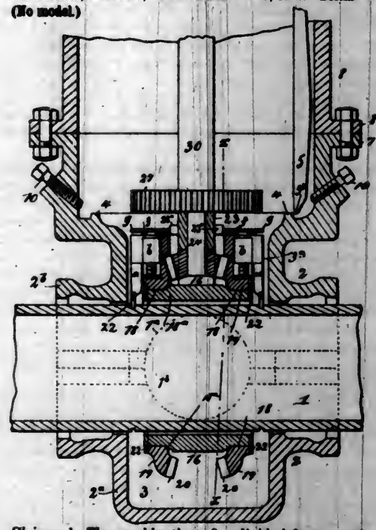
587,090. COFFEE-ROASTER. DAVID B. FRASER, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,543. (No model.)

Claim.—The coffee-roasting cylinder A containing the inner perforated cylinder I and intermediate perforated cylinder J, combined with the elongated burner K within said cylinder I: substantially as and for the purposes set forth.

587,090.



587,091. PIPE-CUTTER AND BRANCH CONNECTION. DAVID W. FRENCH, Hoboken, N. J. Filed Jan. 9, 1897. Serial No. 618,516. (No model.)



Claim.—1. The combination of a divided frame or ring having two parallel annular guideways and means to clamp said frame upon a pipe, with two divided cutter-carriers or rings mounted upon and adapted to travel around said guideways and having gear-teeth respectively projecting toward each other, means for clamping said cutter-carriers or rings around said guideways, means for supporting tools on each of said carriers or rings and for feeding said tools independently, a pinion or gear-wheel located between said cutter-carriers and meshing with the gears carried by both of said cutter-carriers, a shaft carrying said pinion, a gear-wheel to rotate said shaft, a pinion or gear-wheel to operate said wheel, and a shaft for operating said pinion or gear-wheel, substantially as set forth.

2. The combination of a casing adapted to be clamped around a pipe and having a chamber to receive a pipe-cutting machine, said

casing being provided with a stuffing-box or bearing, with a pipe-cutter adapted to be clamped around a pipe within the chamber of the casing, and a shaft journaled in said stuffing-box or bearing and connected with said pipe-cutter, and means for sustaining the pipe-cutting machine when the pipe is cut through, substantially as described.

3. The combination of a casing adapted to be clamped around a pipe and having a chamber to receive a pipe-cutting machine, said casing being provided with stuffing-boxes or bearings, with a pipe-cutter adapted to be clamped around a pipe within the chamber of said casing, said pipe-cutter having two parallel shafts or rods that project through said stuffing-boxes or bearings and serving to keep the pipe cutting machine from twisting within the casing.

4. A branch or casing adapted to be fastened upon a pipe and having a chamber adapted to surround the pipe, which chamber is greater radially than the pipe to be surrounded so as to receive a pipe-cutting machine within it whereby a tool can travel around said pipe within the casing, said branch or casing having an opening leading to said chamber for the passage of the pipe-cutting machine, a valve-seat and a valve to close said opening, said branch or casing also having an opening and a hub leading from said chamber, substantially as set forth.

5. A divided or split branch or casing adapted to be fastened upon a pipe and having a chamber adapted to surround the pipe and that is greater radially than the pipe to be surrounded, to receive a pipe-cutting machine within it whereby a tool can travel around the pipe, said branch or casing having an opening leading to said chamber, for the passage of a pipe-cutting machine, a valve-seat surrounding said opening, and a valve to close against said seat, said branch or casing also having a plurality of openings leading to said chamber, and hubs extending from said openings, substantially as set forth.

6. The combination of a divided or split branch or casing adapted to be clamped upon a pipe and having a chamber adapted to surround a pipe and that is greater radially than the pipe to be surrounded, and adapted to receive a cutting-machine within it to enable a tool to travel around the pipe, said branch or casing having an opening leading to said chamber, for the passage of a pipe-cutting machine, a valve-seat surrounding said opening, a valve to close against said seat, and a removable bonnet or cover adapted to be fastened to said branch or casing in line with said opening, the interior of said bonnet or cover constituting a prolongation of the chamber of said casing, said chamber and bonnet or cover being adapted to permit the passage of a pipe-cutting machine, said branch or casing also having an opening and a hub leading from said chamber, substantially as set forth.

7. The combination of a divided or split branch or casing adapted to be clamped upon a pipe and having a chamber adapted to surround a pipe and that is greater radially than the pipe to be surrounded, and adapted to receive a pipe-cutting machine within it to enable a tool to travel around the pipe, said branch or casing having an opening leading to said chamber, for the passage of a pipe-cutting machine, a valve-seat surrounding said opening, a valve to close against said seat, a removable bonnet or cover adapted to be fastened to said branch or casing in line with said opening, and whose volume is such as to permit the passage through it of the pipe-cutting machine, the interior of said bonnet or cover constituting a prolongation of the chamber of said branch or casing, and a stuffing-box carried by said bonnet or cover to receive the driving-shaft of a pipe-cutter, said branch or casing also having a plurality of openings leading to said chamber, and hubs extending from said openings, substantially as set forth.

8. A divided or split branch or casing adapted to be clamped upon a pipe and having a chamber adapted to surround a pipe and that is greater radially than the pipe to be surrounded, said branch or casing having an opening leading to said chamber, a valve-seat surrounding said opening, a valve to close against said seat, a removable bonnet or cover adapted to be fastened to said branch or casing in line with said opening, the interior of said bonnet or cover constituting a prolongation of the chamber of said branch or casing, and a stuffing-box carried by said bonnet or cover, combined with a pipe-cutter adapted to carry a tool around the pipe within said chamber, and also adapted to travel within said chamber and the bonnet or cover, and a shaft to pass through said stuffing-box to operate said pipe-cutter, and means to sustain said shaft and the pipe-cutter when the pipe is cut through, substantially as described.

9. A divided or split branch or casing adapted to be clamped upon a pipe and having a chamber adapted to surround a pipe and that is greater radially than the pipe to be surrounded, to enable a pipe-cutter to surround the pipe, said branch or casing having an opening leading to said chamber, a valve-seat and a valve to close said opening, a removable bonnet or cover adapted to be fastened to said branch or casing in line with said opening, the interior of said bonnet or cover constituting a prolongation of the chamber of said branch or casing, stuffing-boxes or bearings carried by said bonnet or cover, and two shafts or rods to pass through said stuffing-boxes or bearings, combined with a pipe-cutter adapted to be operated within said chamber of the branch or casing, and arranged to connect with said shafts or rods, said shafts or rods serving to keep the pipe-cutter from twisting within the casing, substantially as set forth.

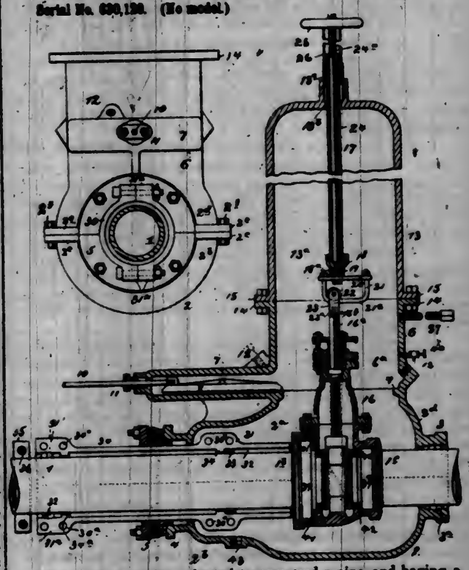
10. The combination of a divided or split casing adapted to be clamped around a pipe and having a chamber to surround the pipe and an opening leading to said chamber, with a valve and valve-seat, a removable bonnet or cover having a stuffing-box, a pipe-cutter adapted to travel within said chamber and bonnet or cover, a tube or shaft projecting from said pipe-cutter, a threaded rod extending therefrom, a tube to surround said threaded rod, and a threaded wheel or handle to operate on said threaded rod and said tube to raise the pipe-cutter, substantially as set forth.

11. The combination of a branch or casing having a chamber to surround a pipe to receive a pipe-cutting machine within it and an opening leading thereto, a valve-seat and a flange surrounding said seat, with a removable bonnet or cover having a stuffing-box or bearing and a flange to connect with the flange on the branch or casing, and a valve to close against said seat, and with a pipe-cutting machine, a shaft or rod to project therefrom through said stuffing-box or bearing, and means connected with said shaft or rod to sustain the latter and the pipe-cutting machine when the pipe is cut through, substantially as described.

12. The combination of a divided or split branch or casing having a chamber and an opening leading thereto, a valve-seat and a flange surrounding said seat, with a removable bonnet or cover having a flange to connect with the flange on the branch or casing, a valve having a threaded bore, and a screw adapted to enter said bore to sustain said valve, substantially as described.

13. The combination of a divided or split branch or casing having a chamber and an opening leading thereto, a valve-seat and a flange surrounding said seat, with a removable bonnet or cover having a flange to connect with the flange on the branch or casing, a valve having a threaded bore, and a screw adapted to mesh with the threads in said bore, and carried by the bonnet or casing, said screw being arranged to suspend the valve in an upright position outside of the seat and above the surface of the subtended metal, substantially as set forth.

587,092. MEANS FOR INSERTING VALVES IN PIPES OR MAINS. DAVID W. FRENCH, Hoboken, N. J. Filed Mar. 31, 1897. Serial No. 630,120. (No model.)



Claim.—1. A casing adapted to surround a pipe and having a chamber that is larger than the pipe to be surrounded so as to contain a valve that is to be connected with the pipe while within the casing, combined with a sleeve adapted to encircle the pipe and to travel therealong, said sleeve being arranged to pass through an opening in the casing so as to be partly within and partly without the casing, and adapted to connect said valve with said pipe, substantially as described.

2. A casing adapted to surround a pipe and having a chamber that is larger than the pipe to be surrounded so as to contain a valve

that is to be connected with the pipe while within the casing, combined with a sleeve adapted to encircle the pipe and to travel therealong, said sleeve being arranged to pass through an opening in the casing so as to be partly within and partly without the casing, and adapted to connect said valve with said pipe while within the casing, and means to make a tight joint between the sleeve and the casing, substantially as set forth.

3. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve that is to be connected with the pipe while within the casing and means to control said opening, combined with a sleeve adapted to be secured around the pipe and to travel therealong, and arranged to engage a valve to move one of its hubs over the end of the pipe, said sleeve extending through an opening in said casing, substantially as set forth.

4. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve, and means to control said opening, combined with a sleeve adapted to be secured around the pipe and to travel therealong, said sleeve being adapted to enter a hub of the valve and to push the other hub of said valve over one end of the pipe, substantially as set forth.

5. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve, and means to control said opening, said casing having an opening of greater diameter than the pipe to be received, and a stuffing-box or packing at said opening, combined with a sleeve adapted to be secured around said pipe and to travel therealong, said sleeve being adapted to travel through said stuffing-box or packing, said sleeve being adapted to make connection with a valve to retain the latter between the severed ends of the pipe, substantially as set forth.

6. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve, and means to control said opening, said casing having an opening of greater diameter than the pipe to be received, and a stuffing-box or packing at said opening, combined with a sleeve adapted to be secured around the pipe and to travel therealong, said sleeve being adapted to travel through said stuffing-box or packing, said sleeve being adapted to make connection with a valve to retain the latter between the severed ends of the pipe, and with means adapted to be secured to the pipe to operate said sleeve, substantially as set forth.

7. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve, and means to control said opening, said casing having an opening of greater diameter than the pipe to be received, and a stuffing-box or packing at said opening, combined with a sleeve adapted to be secured around the pipe and to travel therealong, said sleeve being adapted to travel through said stuffing-box or packing, said sleeve being adapted to make connection with a valve to retain the latter between the severed ends of the pipe, and with a clamp or frame adapted to be secured upon the pipe and a screw or screws carried thereby to move the sleeve along the pipe, substantially as set forth.

8. The combination of a casing of the character described, with a sleeve adapted to encircle a pipe and to travel therealong within said casing, said sleeve having an inner rib or shoulder to provide a space between the pipe and the sleeve to receive packing, said sleeve being adapted to make connection with a valve to retain it between the severed ends of the pipe, substantially as set forth.

9. A divided or split sleeve provided with means to secure it around a pipe and having closed walls, said sleeve having divided or split inner annular ribs or shoulders to provide a space between the pipe and the sleeve when the latter is in connection with the former, substantially as set forth.

10. A casing adapted to surround a pipe and having a chamber and an opening to receive a valve that is to be connected with the pipe while within the casing, and means to control said opening, combined with a valve adapted to pass within the casing, said valve having two hubs, one hub having a bore of greater diameter than the other, and with a sleeve adapted to be secured around the pipe and to travel therealong and to enter said larger hub, the other hub being adapted to pass over one of the ends of the pipe, substantially as set forth.

11. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive the valve within it and to be secured to said casing in line with said opening, and means to control the placing of the valve between the severed ends of the pipe while within the casing, combined with a sleeve adapted to be secured around the pipe and to travel therealong to make connection with the valve to push a hub of the latter over an end of the pipe, and means carried by a wall of the casing and adapted to be passed therethrough to direct the valve between the severed ends of the pipe, substantially as set forth.

12. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive the valve within it and to be secured to said casing in line with said opening, and means to control the placing of the valve between the severed ends of the pipe while within the casing, said casing having an opening of greater diameter than the pipe to be received, combined with a sleeve adapted to be secured around the pipe and to travel therealong and also to travel through said opening, and means for moving said sleeve along said pipe to make connection with the valve to secure the latter between the severed ends of the pipe, substantially as described.

13. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive the valve within it and to be secured to said casing in line with said opening, said casing having an opening of greater diameter than the pipe to be received, combined with a tube or rod adapted to travel through an opening in said bonnet or cover, a movable connection carried by said tube or rod to connect the latter with said valve, and with means carried by the pipe adapted to make connection with said valve to secure it between the severed ends of the pipe, said movable connection being adapted to permit the valve to move laterally while within the casing, substantially as set forth.

14. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive the valve within it and to be secured to said casing in line with said opening, said casing having an opening of greater diameter than the pipe to be received, combined with a tube or rod adapted to travel through an opening in said bonnet or cover, a movable connection carried by said tube or rod to connect the latter with said valve, and with a sleeve adapted to be secured around the pipe to travel therealong and to travel through the opening in the casing around the pipe, said sleeve being adapted to make connection with the valve to secure it between the severed ends of the pipe, said movable connection being adapted to permit the valve to move laterally while within the casing, substantially as set forth.

15. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive the valve within it and to be secured to said casing in line with said opening, said casing having an opening of greater diameter than the pipe to be received combined with a tube or rod adapted to travel through an opening in said bonnet or cover, a rail or way carried by said tube or rod, a roller to travel thereon, a frame or support connected with said roller for connection with the valve, and a sleeve adapted to be secured around the pipe and to travel therealong to make connection with the valve, said rail or way and the roller being adapted to permit the valve to move laterally while within the casing, substantially as set forth.

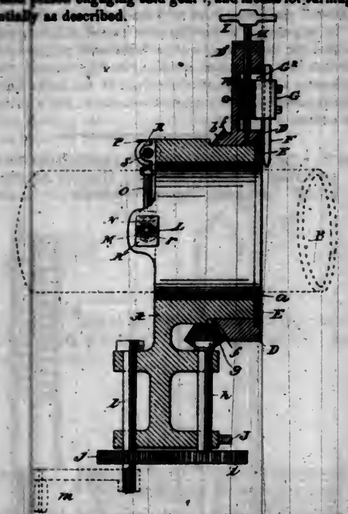
16. A casing adapted to be secured upon a pipe and having a chamber and an opening to receive a valve, means to control said opening, and a removable bonnet or cover adapted to receive a valve within it and to be secured to said casing in line with said opening, said casing having an opening of greater diameter than the pipe to be received, combined with a tube or rod adapted to travel through an opening in said bonnet or cover, a head 18 for connection with said tube or rod, a bar 20 connected therewith, a rail or way connected with said bar, a roller to travel on said rail or way, a frame connected with said roller for connection with the valve, and a sleeve adapted to be secured around the pipe and to travel therealong to make connection with the valve, said rail or way and the roller being adapted to permit the valve to move laterally while within the casing, substantially as set forth.

17. The combination of a casing adapted to be secured around a pipe and having a chamber and an opening, means to control said opening, a bonnet or cover to be connected with said casing, and means to permit a valve to be placed between the severed ends of the pipe, with a sleeve adapted to be secured around the pipe and to travel therealong, said casing having an opening to permit the passage of said sleeve toward the valve to make connection therewith to push a hub of the valve over one end of the pipe, substantially as set forth.

18. A valve having hubs or bells on opposite sides, the bore in one hub being of greater diameter than the bore in the other hub and a wall at the inner end of each hub, substantially as set forth.

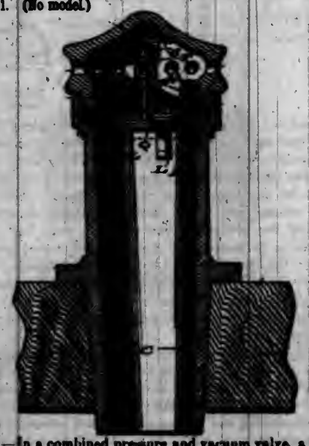
587,093. PIPE-CUTTER. DAVID W. FRENCH, Union Hill, N. J. Filed Feb. 2, 1893. Renewed May 21, 1897. Serial No. 637,623. (No model.)

Claim.—1. The combination of a frame adapted to receive a pipe, a cutter-carrier mounted thereon and having a gear-shaft *h* carried by said frame, pinion *g* and gear *i* carried by said shaft, said pinion *g* meshing with said gear on the cutter-carrier, pinion *j*, shaft *l* carrying it, said pinion engaging said gear *i*, and means for turning shaft *l*, substantially as described.



2. The combination of frame A, blocks K carried thereby, threaded shafts L, supported by said frame for actuating said blocks, shafts O, shaft S and gearing between said shafts S, O and L for turning the shafts L simultaneously by a single turning of shaft S, substantially as described.

587,094. COMBINED PRESSURE AND VACUUM VALVE. HENRY GOEHRING, Philadelphia, Pa. Filed Mar. 11, 1897. Serial No. 627,031. (No model.)

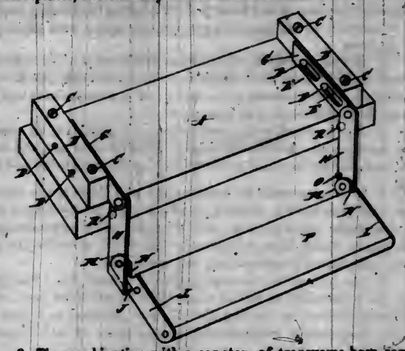


Claim.—In a combined pressure and vacuum valve, a body having a seat therein, a pressure-valve supported on said seat, a cap supported on said body, said cap serving as a closure therefor and adapted to limit the movement and prevent displacement of said pressure-valve, a web extending across the latter and having an opening therein, a vacuum-valve adapted to seat upon said pressure-valve in an opposite direction to the movement of the latter, a stem attached to said vacuum-valve and passing through said opening, a nut or projection on said stem and a spring interposed between said projection and web and adapted to hold said vacuum-valve normally upon its seat.

587,095. STEP FOR CARS. LOUISA C. HETWARD, Hardeeville, S. C. Filed Feb. 11, 1897. Serial No. 622,994. (No model.)

Claim.—1. The combination with a car-step, of transversely-movable plates, arms pivotally connected with the outer ends of said plates, other plates being pivotally connected with the lower ends of said arms, and a supplemental step secured between said last-named plates, substantially as shown and described.

2. In a car-step, the combination with a main stationary step, transversely-movable plates which are mounted at the ends thereof, arms pivotally connected with the outer ends of said plates, other plates pivotally secured to the lower ends of said arms, and adapted to be held in a horizontal position, said last-named plates being provided with notches or recesses which are adapted to receive pins secured to said arms, and a supplemental step secured between said last-named plates, substantially as shown and described.



3. The combination with a car-step, of transverse bars secured to the ends thereof, transversely-movable plates mounted adjacent to said bars, and adapted to be projected beyond the edge of said step, arms pivotally connected with the ends of said plates and provided at their free ends with inwardly-directed projections, other plates pivotally connected with said arms, and adapted to rest on said projections, and a supplemental step secured between said last-named plates, substantially as shown and described.

4. The combination with a car-step, of transverse bars secured to the ends thereof, transversely-movable plates mounted adjacent to said bars, and adapted to be projected beyond the edge of said step, arms pivotally connected with the ends of said plates and provided at their free ends with inwardly-directed projections, other plates pivotally connected with said arms, and adapted to rest on said projections, and a supplemental step secured between said last-named plates, and said last-named plates being also provided adjacent to their pivotal connection with said arms, with notches or recesses which are adapted to receive pins secured to said arms, substantially as shown and described.

587,096. WATERPROOF MATERIAL. ARTHUR L. KENNEDY, Burlington, Vt., assignor to The Marsden Company, Philadelphia, Pa. Filed July 1, 1896. Serial No. 597,740. (No specimens.)

Claim.—A waterproof material consisting of nitrocellulose and wool-fat or lanolin, substantially as described.

587,097. COMPOSITION OF MATTER AND ARTICLE TREATED THEREWITH. ARTHUR L. KENNEDY, Burlington, Vt., assignor, by mesne assignments, to The Marsden Company, Camden, N. J., and Philadelphia, Pa. Filed Jan. 19, 1897. Serial No. 619,791. (No specimens.)

Claim.—1. A composition of matter comprising nitrocellulose, lanolin and corn-oil, substantially as described.

2. As a new article of manufacture a leather or similar material having a body-coating of nitrocellulose, lanolin and corn-oil, and a outer finishing-coating of a solution of nitrocellulose, substantially as described.

3. A composition of matter to be applied as a coating solution to the surface of leather and other similar materials, the same being comprised of the following-named ingredients in about the proportions specified as follows, to wit: one gallon of amylacetate, twelve ounces of nitrocellulose, ten ounces of lanolin, and three ounces of corn-oil, the whole being mixed and combined with anilin or other coloring-matter, substantially as and for the purpose set forth.

587,098. THREAD-GUIDE. CARL KOTTINER, Hopedale, Mass. Filed Apr. 30, 1897. Serial No. 634,630. (No model.)



Claim.—1. In a yarn-guide the combination of a fixed jaw; of a movable jaw pivoted thereto by means of a screw, said screw serving also to adjust the pivoted jaw with relation to the fixed jaw.

2. In a yarn-guide the combination of a fixed jaw; of an adjusting-screw provided with a shoulder; of a key cooperating with the shoulder to prevent longitudinal movement of said screw; and of a movable jaw pivoted on said screw.

3. In a yarn-guide the combination of a fixed jaw having an inclined portion, provided with a stop or shoulder; of a movable jaw adjustably pivoted to said fixed jaw; of a spring for keeping the jaws in alinement; and of means to prevent said spring from slipping out of position.

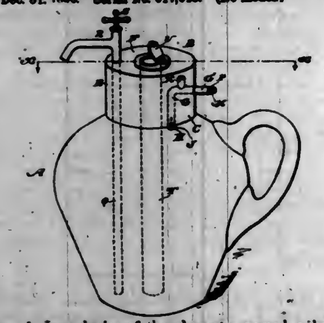
4. In a yarn-guide the combination of a fixed jaw; of a movable jaw pivoted to move transversely thereto, the movable jaw having a shoulder to limit its outward movement; of a spring to keep the jaws normally in alinement with each other.

5. In a yarn-guide the combination of a fixed jaw, an opposing jaw movable into or out of alinement with said fixed jaw, and means for normally holding said movable jaw in alinement with said fixed jaw.

6. In a yarn-guide the combination of a fixed jaw, a movable jaw, said jaws having opposing parallel faces, a pivot-pin upon which said movable jaw is pivoted said pivot-pin being perpendicular to the planes of said faces, whereby the face of the movable jaw is always maintained in substantially the same plane.

7. In a yarn-guide the combination of a fixed jaw, of an opposing jaw adapted to be moved transversely to said fixed jaw, and an adjusting device for varying the distance between said jaws in a plane substantially perpendicular to the plane of said transverse movement.

587,099. PRESERVING-SIPHON. HARRY LEVI, Philadelphia, Pa. Filed Dec. 31, 1896. Serial No. 617,615. (No model.)



Claim.—1. In a device of the character named, a hollow cap forming a chamber adapted to receive carbonic-acid gas, a receptacle to which said cap is attached, a tube extending through said chamber and having a plurality of outlets, one of the latter discharging into said cap and the other into said receptacle, a valve controlling said outlets and means for operating said valve.

2. In a device of the character named, a hollow cap, forming a chamber, adapted to receive carbonic-acid gas, a receptacle to which said cap is attachable, a tube extending through said chamber, and having a plurality of outlets, one of the latter discharging into said cap, and the other into said receptacle, a valve controlling said outlets, means for operating said valve and a tube for the reception of the cooling medium supported from said cap and adapted to extend into said receptacle.

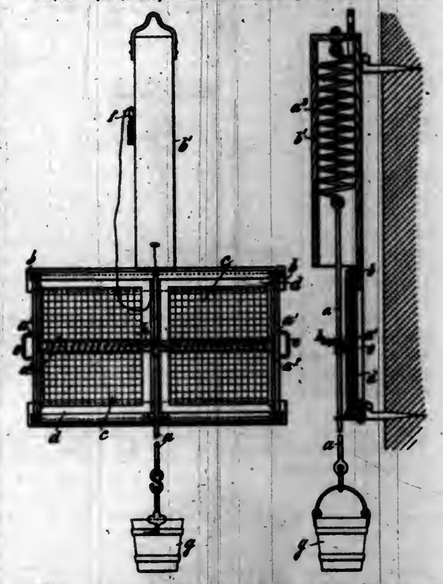
3. In a device of the character named, a hollow cap forming a chamber, adapted to receive carbonic-acid gas, a receptacle to which said cap is attached, a tube extending through said chamber, and having a plurality of outlets, one of the latter discharging into said cap, and the other into said receptacle, the latter outlet being adapted to have a connection therefrom to a carbonic-acid-gas tank and a valve controlling said outlets.

4. In a device of the character named, a hollow cap forming a chamber for the reception of carbonic-acid gas, a receptacle to which said cap is attached, a tube extending through said chamber, and having a plurality of outlets, one of the latter discharging into said cap, and the other into said receptacle, a valve controlling said outlets, a stem attached to said valve, a spring mounted on said stem, and provided with an abutment, a wall against which said abutment contacts when the valve is opened, and a spring intermediate said valve and wall.

5. In a device of the character named, a hollow cap, a tube G located therein and having a depending member H, a laterally-extending member G, and an outlet K into said cap, a valve L located in the latter, a valve-stem therefor, having a spring X provided with an abutment attached thereto, a wall P against which said spring abuts when the outlet K is open, a spring intermediate said valve and wall, a receptacle to which said cap is attached, an open-ended valved tube terminating near the body of said receptacle, an ice-chamber T depending from said cap and a cover therefor.

6. In a device of the character named, a hollow cap, forming a chamber for the reception of carbonic-acid gas, and adapted to be attached to a receptacle, a tube extending through said chamber, and having a plurality of outlets, one of the latter discharging into said cap and the other into said receptacle, and a valve controlling said outlets.

587,100. CONTROLLING AND REGISTERING SCALE. OTTOCAR LIDEMANN, Hasserode, Germany. Filed Oct. 14, 1896. Serial No. 608,662. (No model.) Patented in Germany July 31, 1895, No. 85,407.



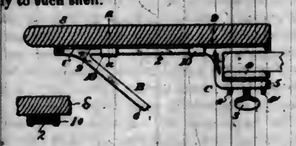
Claim.—1. In registering apparatus for weighing different quantities of a product, the weighing-scale for weighing successive charges, in combination with a graduated chart having a plurality of columns, a cross-bar opposite said chart and crossing its columns, said parts movable the one relatively to the other parallel with the direction of said columns, and one of said parts adjustable relatively to the other, and the connection between such scale and such movable part, moving the latter relatively to the other part according to the weight of the charge carried by the scale, whereby the weights of successive charges can be recorded by marking in successive columns the successive positions of the bar and chart during weighing, and said parts can be adjusted to bring the bar opposite the zero-point of the chart for accuracy.

2. In registering-scales for weighing different quantities, a weighing-scale, in combination with a chart having a number of vertical columns, a bar crossing said chart and having a number of indicating-points corresponding to the number and location of such columns, means, identifying and distinguishing each column, said chart and bar movable the one relatively to the other, and a connection between the movable part and the scale, moving the former in correspondence with the movements of the scale, whereby, by marking on the chart the position of the bar, at the column corresponding to the charge being weighed, individual charges can be recorded.

3. In registering-scales for weighing different quantities, a frame *b*, a changeable chart *c* carried thereby and having horizontal and vertical lines, a cross-bar *d'* in front of said frame and having a number of holes corresponding to the vertical columns on the chart, said frame and bar relatively movable, and connected with the movable parts of a weighing-scale, in combination with such scale, whereby the frame and bar are relatively displaced corresponding to the different weights of the charges to be weighed, so that the weight can be marked on the chart by a marker pushed through the corresponding hole in the cross-bar, substantially as described.

587,101. SHELF-BRACKET. FRANK LOMBARD and WILLIAM L. MAYNARD, Hartford, Conn. Filed Jan. 12, 1897. Serial No. 618,963. (No model.)

Claim.—A two-part separable shelf-bracket embodying two complementary members, one of which constitutes the bracket proper, and the other of which constitutes a bracket-holding plate adapted to be secured to a shelf, and is in contact with, and substantially of the same contour as, the shelf of the bracket proper, said plate having depending inturning ears at different points along its sides for engaging the under side of the shelf and securing the latter and the plate together; and means for fastening the bracket-holding plate directly to a shelf, to thereby permit the bracket as a whole to be secured fixedly to such shelf.



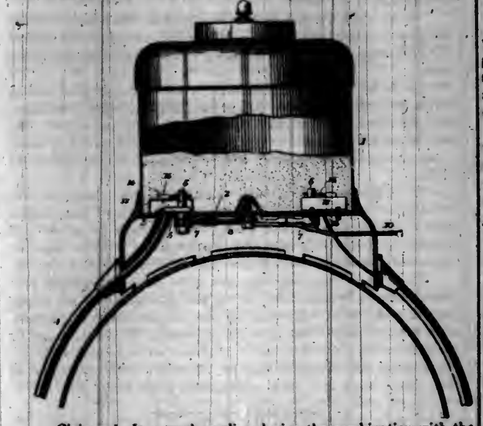
587,102. MEANS FOR CLOSING GAS-MAINS. RICHARD B. MEANY, Union, Hudson County, N. J. Filed Jan. 23, 1897. Serial No. 620,408. (No model.)



Claim.—1. The herein-described packing device for gas-mains, the same being hollow and flexible, and being cylindrical in form when inflated, said device being provided at one side thereof with a flexible tube, substantially as shown and described.

2. The herein-described packing device for gas-mains, the same being hollow and flexible, and being cylindrical in form when inflated, said device being provided at one side thereof with a flexible tube, and also with a flexible covering, substantially as shown and described.

587,103. TRACK-SANDING DEVICE. FREDERICK MERTENSMEIER, Kansas City, Mo., assignor to Fred B. Mertabetmer, same place. Filed Mar. 20, 1897. Serial No. 628,441. (No model.)



Claim.—1. In a track-sanding device the combination with the box provided with a discharge-opening, of a valve for controlling said opening and a casing or shield for the valve formed with an opening in its top for the entrance of the sand.

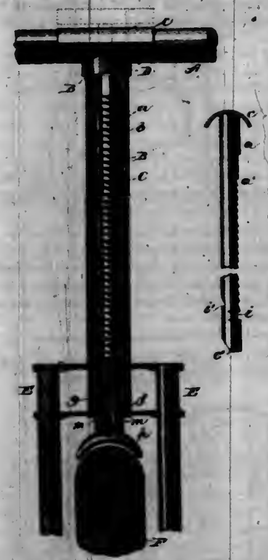
2. In a track-sanding device the combination with the box provided in its bottom with an opening, of a horizontally-movable valve for controlling the same, a casing inclosing the valve and provided in its top over the valve with an opening for the entrance of the sand.

3. In a track-sanding device the combination with the sand-box provided with a discharge-opening of a valve for controlling the same, a shield or covering above the valve formed with an opening for the entrance of the sand and a scraper-arm movable across said opening.

4. In a track-sanding device the combination with the sand-box provided in its bottom with a discharge-opening, of a horizontally-movable valve for controlling the same, a vertical stud carrying said valve, a shield or covering above the valve formed with an opening for the entrance of the sand and a scraper-finger connected to said stud above the shield with its free end in position to be moved across the opening as the valve is operated.

5. In a track-sanding device the combination with the reservoir for the sand and means for controlling the discharge of the sand therefrom, of a pipe for directing the sand to the rail, said pipe curved at its discharge end and having its sides adjacent to the track contracted laterally of the rail.

587,104. BICYCLE-BRAKE. THOMAS S. MILLER, Burlington, Iowa. Filed Jan. 9, 1897. Serial No. 618,595. (No model.)



Claim.—1. A plunger-brake for bicycles and similar vehicles, which is adjustable while riding, consisting of a brake-shoe, a plunger-handle independent of the handle-bar, and an extensible rod and shaft connecting the said brake-shoe and handle, with means for automatically catching and retaining the said connection in any required position of extension, substantially as specified.

2. In an adjustable plunger-brake for bicycles, a brake-shoe, a tubular brake-shaft connected thereto, a handle independent of the handle-bar, a brake-rod connected to the said handle and moving easily within the said brake-shaft, ratchet-teeth upon the said brake-rod, and a spring-pawl secured to the said brake-shaft at its upper end, cooperating with the said ratchet-teeth whereby the extensible rod is maintained in the extended position, substantially as specified.

3. In an adjustable plunger-brake, the combination of the independent handle, the ratcheted brake-rod, the tubular brake-shaft, the spring-pawl secured on the said brake-shaft, the brake-shoe, and a spring at the lower extremity of the said brake-shaft whereby the brake-shoe is normally held out of contact with the wheel-tire, substantially as specified.

4. In an adjustable plunger-brake for bicycles, an adjustable plunger-handle midway between the steering-handles, an extensible and adjustable telescopic rod and shaft with means for automatically catching and retaining them in any required position of extension when adjusted, a brake-shoe, a spring for sustaining the brake shaft and rod, and splines *n m* for preventing the said brake-shaft from turning, substantially as specified.

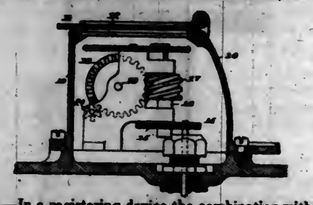
5. In an adjustable plunger-brake for bicycles, an adjustable plunger-handle midway of the handle-bar, concaved to fit and lie closely upon the same when not in use, a brake-shoe, an extensible and adjustable telescopic connection between said brake-shoe and said handle with means for automatically catching and retaining the same in any desired position of extension when adjusted, a supporting-spring for the said brake-shaft, and a spline for preventing the brake-shaft from turning, substantially as specified.

6. In an adjustable plunger-brake the combination of the concaved plunger-handle, the elongated ratcheted brake-rod having notches *i i'*, and beveled end *c'*, the tubular brake-shaft extending nearly to the top of the fork-stem, the spring-pawl attached to the said brake-shaft at the top by an adjustable connection, the sustaining-spring, means for preventing the brake-shaft from turning, and brake-shoe, all substantially as specified.

587,105. MANUFACTURE OF STEEL INGOTS. MYERS McCONNELL, Munhall, Pa. Filed May 6, 1896. Renewed May 21, 1897. Serial No. 637,626. (No model.)

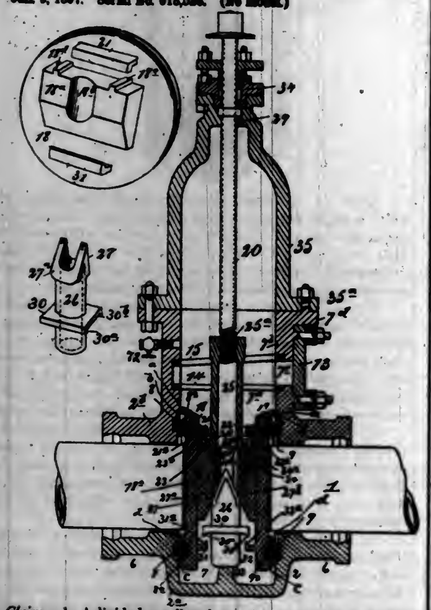
Claim.—An improvement in the manufacture of steel ingots, which consists in tapping steel from the furnace in which it has been refined, pouring it into an ingot-mold, and adding to it in the mold a small percentage of aluminium; substantially as described.

587,106. METER-REGISTER. LEWIS H. HASS, South Norwalk, Conn., assignor to the National Meter Company, New York, N. Y. Original application filed Apr. 26, 1896, Serial No. 589,490. Divided and this application filed Dec. 22, 1896. Serial No. 616,694. (No model.)



Claim.—In a registering device the combination with a series of index-wheels, of a series of pinions intervening between and intermittently actuated by said wheels, one of said pinions being rigidly mounted on its shaft and the others being loosely mounted thereon and driving mechanism independent of said pinion-shaft applied to said index-wheels.

587,107. VALVE. MORRIS R. SHERRERD, Newark, N. J. Filed Jan. 9, 1897. Serial No. 618,598. (No model.)



Claim.—1. A divided or split valve-casing adapted to be clamped around a pipe and having a chamber adapted to receive a pipe-cutting machine, and a divided or split valve-seat also adapted to surround a pipe, and a valve adapted to close against said seat, and means to permit the withdrawal of a pipe-cutting machine from said chamber without allowing a flow of water from the casing, substantially as set forth.

2. A divided or split valve-casing adapted to be clamped around a pipe and having a chamber adapted to receive a pipe-cutting machine, and divided or split valve-seats also adapted to be clamped around a pipe, combined with a gate-valve adapted to close against said seats, and means to permit the withdrawal of a pipe-cutting machine from said chamber without allowing a flow of water from the casing, substantially as set forth.

3. A divided valve-casing having a divided valve-seat and a chamber adapted to receive a pipe-cutter to operate therein around a pipe, a removable bonnet or cover carried by said casing communicating with said chamber, and a valve for closing off said casing between its chamber and the bonnet or cover, substantially as set forth.

4. A divided valve-casing having a divided valve-seat and a chamber adapted to receive a pipe-cutter to operate therein upon a pipe, a removable bonnet or cover carried by said casing communicating with said chamber, a housing carried by said casing and communicating with said chamber, a valve carried in said housing and means to operate said valve to close said chamber, substantially as set forth.

5. The combination of a divided valve-casing adapted to be clamped around a pipe and having a divided valve-seat and a chamber to surround the pipe, an extension carried by said casing and having an opening or way leading to said chamber and means to close said opening, with a bonnet or cover adapted to be connected with said extension, and means to cut a portion out of a pipe while within said chamber, substantially as set forth.

6. The combination of a divided valve-casing adapted to be clamped around a pipe and having a divided valve-seat and a chamber to surround the pipe, an extension carried by said casing and having an opening or way leading to said chamber, and means to close said opening, with a bonnet or cover adapted to be connected with said extension, said bonnet or cover having a stuffing-box, a pipe-cutting machine adapted to operate within the chamber of said casing, and a shaft to pass through said stuffing-box to operate said cutting-machine, substantially as set forth.

7. The combination of a divided valve-casing having a chamber and an opening leading thereto, and divided valve-seats, and means to close said opening, with a removable bonnet or cover having a stuffing-box and adapted to be connected with said casing, a screw journaled in said stuffing-box, and a gate-valve to be operated by said screw, substantially as set forth.

8. The combination of a divided valve-casing having a chamber and an opening leading thereto, and divided valve-seats, a hollow extension carried by said casing, a valve connected with said extension to close the opening therein, a removable bonnet connected with said extension, a stuffing-box or bearing carried by said bonnet, a gate-valve and a screw journaled in said stuffing-box or bearing, substantially as set forth.

9. The combination of a divided valve-casing having a chamber and an opening leading thereto, and a divided valve-seat, a hollow extension carried by said casing, a valve connected therewith, a removable bonnet or cover having a stuffing-box, a pipe-cutting machine, and a shaft journaled in said stuffing-box to operate said machine, substantially as set forth.

10. In a valve, a gate or disk having a seat and webs carried by said gate or disk on opposite sides of said seat, adapted to act against a pipe to keep the seat from engaging said pipe, substantially as set forth.

11. In a valve, the combination of two gates or disks having ledges, projections carried by said gates or disks having inclined faces, and lugs carried by said disks, with a lifter having arms to act with said ledges and arranged to engage said lugs, and a wedge or block to act on the inclined faces of said projections, substantially as set forth.

12. A gate-valve comprising two disks having valve-seats, projections carried by said disks having inclined opposed faces, ledges carried by said disks, a lifter having inclined faces to act on said ledges to draw the disks toward each other, and a wedge or block to act on the inclined faces of said projections, substantially as set forth.

13. A gate-valve comprising two disks having valve-seats, projections carried by said disks having inclined opposed faces, ledges carried by said disks, a lifter having arms to operate with said ledges, arms carried by said disks having projections 31^a, 32^a, a wedge or block to operate said disks, and extensions carried by said wedge or block to act with the projections 31^a, 32^a, to draw the lower parts of said disks toward each other, substantially as set forth.

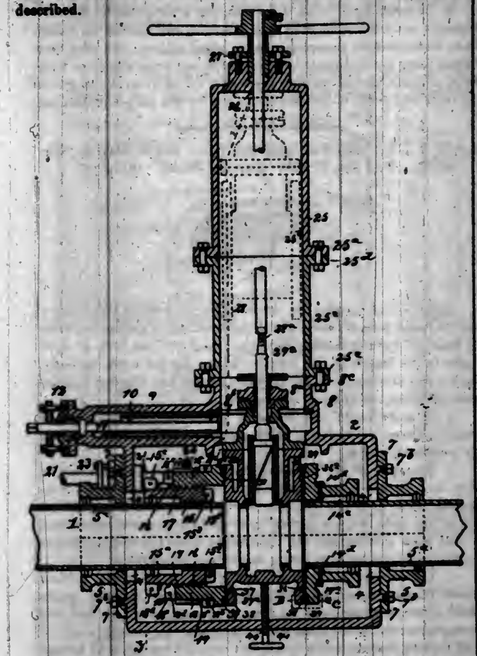
587,108. MEANS FOR INSERTING VALVES IN PIPES OR MAINS. MORRIS R. SHERRERD, Newark, N. J. Filed Mar. 1, 1897. Serial No. 625,560. (No model.)

Claim.—1. A casing adapted to surround a pipe and having an opening to permit the passage of a valve that is to be connected with the pipe, combined with means adapted to connect the valve with the pipe while within the casing, substantially as described.

2. A casing adapted to surround a pipe and having an opening to permit the passage of a valve that is to be connected with the pipe, and means to close said opening to permit the valve to be connected with the pipe while the latter is under pressure, combined with means adapted to connect the valve with the pipe while within the casing, substantially as described.

3. A casing adapted to surround a pipe and having an opening to permit the passage of a valve that is to be connected with the pipe, and means to close said opening to permit the valve to be connected with the pipe, while the latter is under pressure, combined

with a sleeve or ring adapted to encircle the pipe while within the casing, and means to move said sleeve or ring toward the valve to hold the latter between the severed ends of the pipe, substantially as described.



4. A casing adapted to surround a pipe and having an opening to permit the passage of a valve into the casing, a valve to close said opening, and a removable bonnet or cover adapted to contain the first-mentioned valve, and means to connect said bonnet or cover with said casing, combined with means adapted to connect the valve with the pipe while within the casing, substantially as described.

5. A divided or split casing having an opening or passage-way, a valve to close the latter and means for securing said casing upon a pipe, combined with clamping devices adapted to be secured upon the pipe within said casing and to receive and hold a valve between them while within the casing, substantially as described.

6. A divided or split casing adapted to be secured upon a pipe and having a passage-way or branch, a valve to close the latter, a bonnet or cover adapted to be secured in line with said passage-way or branch, and means for making a tight joint between the casing and pipe, combined with clamping devices adapted to be connected with the pipe within said casing to hold a valve between them, substantially as described.

7. A divided or split casing having apertures at its ends, means for clamping it upon a pipe, said casing having an opening or passage-way, a valve to close the latter, and divided or split hubs adapted to be clamped upon the pipe and removably connected with said casing to enable the casing to be secured fluid-tight upon pipes of different sizes, substantially as described.

8. A divided or split casing adapted to be clamped upon a pipe and having an opening or passage-way, and a valve to close the latter, combined with a sleeve or hub adapted to be clamped upon the pipe within the casing, and a sleeve or ring adapted to surround the pipe and to be moved toward said sleeve or hub to hold a valve between them, substantially as described.

9. A divided or split casing adapted to be clamped upon a pipe and having a branch or passage-way and a valve to close the latter, combined with divided or split sleeves or hubs adapted to be clamped upon a pipe within said casing, and means carried by one of said sleeves adapted to be moved toward the other sleeve to clamp a valve between it and the latter sleeve, substantially as described.

10. The combination of a divided or split casing adapted to be clamped upon a pipe and having a branch or passage-way and a valve to close the same, with divided or split sleeves or hubs adapted to be clamped upon a pipe within said casing, and a sleeve or ring carried by one of said sleeves adapted to be moved toward the other sleeve to clamp the valve between it and the latter sleeve, and means for operating said ring from without the casing, substantially as described.

11. The combination of a divided or split casing adapted to be clamped upon a pipe and having a branch or passage-way and a valve to close the same, with divided or split sleeves or hubs adapted to be mounted upon a pipe within said casing one of said sleeves or hubs having screw-threads, a ring mounted upon the latter sleeve and having threads to mesh with the threads carried by said sleeve, and means for rotating said ring to cause it to travel along the sleeve, substantially as described.

12. The combination of a divided or split casing adapted to be clamped upon a pipe and having a branch or passage-way and a valve to close the same, with divided or split sleeves or hubs adapted to be clamped upon a pipe within the casing, one of said sleeves or hubs having screw-threads, and a ring mounted upon said threaded sleeve and having threads to mesh with the threads carried by said sleeve, and a shaft projecting through said casing, and means within the casing for operating said ring by said shaft, substantially as described.

13. A divided or split casing, adapted to be clamped upon a pipe and having a passage-way or branch and a valve to close the same, combined with divided or split sleeves or hubs to be clamped upon a pipe within said casing, one of said sleeves or hubs having screw-threads, a divided or split ring adapted to be mounted upon one of said sleeves or hubs and having threads to mesh with the threads of the corresponding sleeve, gear-teeth carried by said ring, a pinion or gear-wheel to mesh with said teeth, and a shaft projecting through said casing, and adapted to operate said pinion or gear-wheel, substantially as described.

14. A divided or split casing adapted to be clamped upon a pipe and having a passage-way or branch and a valve to close the same, and a bonnet or hood adapted to be connected with the casing in line with said passage-way or branch, combined with means within the casing to hold a valve between the severed ends of the pipe and a stop arranged to regulate the position of the valve between said ends of the pipe, substantially as described.

15. A divided or split casing adapted to be clamped upon a pipe and having a passage-way or branch, and a valve to close the same, a bonnet or cover adapted to be connected with said casing in line with said passage-way or branch, and a pipe-cutter adapted to be placed upon a pipe within said casing and arranged to travel through said passage-way or branch and through said bonnet or cover, and a bearing and stuffing-box carried by said bonnet to receive the operating-shaft of said pipe-cutter combined with means arranged to be contained within the casing to hold a valve between the severed ends of the pipe, after the pipe-cutter and a section of the pipe have been removed, substantially as described.

16. A divided or split casing adapted to be clamped upon a pipe and having a passage-way or branch, and a valve to close the same, a bonnet or cover adapted to be connected with said casing in line with said passage-way or branch, and a pipe-cutter adapted to be placed upon a pipe within said casing and arranged to travel through said passage-way or branch and through said bonnet or cover, and a bearing and stuffing-box carried by said bonnet to receive the operating-shaft of said pipe-cutter, combined with clamping devices adapted to be secured upon the pipe within said casing on opposite sides of said pipe-cutter, and means comprised in said clamping devices for clamping a valve between the severed ends of the pipe after the pipe-cutter and a section of the pipe have been removed, substantially as described.

17. A divided or split casing adapted to be clamped upon a pipe and having a passage-way or branch and a valve to close the same, a shell adapted to be connected with said casing in line with said passage-way or branch, and a bonnet or hood adapted to be secured upon said shell, combined with valve-holding devices adapted to be mounted upon a pipe within said casing, to hold a valve in the line of pipe, and means for operating said clamping devices from without the casing, substantially as described.

18. The combination of a divided or split sleeve or hub adapted to be clamped upon a pipe, with another divided or split sleeve or hub also adapted to be clamped upon a pipe, a divided or split ring adapted to be mounted upon the said last-mentioned sleeve or hub and means for moving said ring along its respective sleeve or hub whereby a valve may be clamped in a line of pipe between said sleeves or hubs, substantially as described.

19. The combination of a divided or split sleeve or hub adapted to be clamped upon a pipe, with another divided or split sleeve or hub also adapted to be clamped upon a pipe, the last-mentioned sleeve or hub having peripheral screw-threads, a divided or split ring adapted to be clamped upon the last-mentioned sleeve or hub and having threads to mesh with the threads of said sleeve or hub, and means for rotating said ring upon the latter to cause it to travel along the pipe, substantially as described.

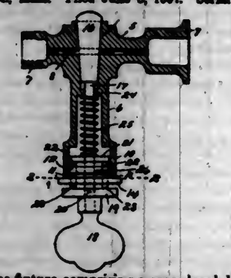
20. The combination of a divided or split sleeve or hub adapted to be clamped upon a pipe, with another divided or split sleeve or hub also adapted to be clamped upon a pipe, the last-mentioned sleeve or hub having peripheral screw-threads, a divided or split ring adapt-

ed to be clamped upon the last-mentioned sleeve or hub and having screw-threads to mesh with the threads of said sleeve or hub, said ring having gear-teeth, a pinion or wheel to mesh therewith, and means for operating said pinion or wheel to cause said ring to rotate around the corresponding sleeve substantially as described.

21. The combination of a divided or split sleeve or hub adapted to be clamped upon a pipe, with another divided or split sleeve or hub also adapted to be clamped upon a pipe, a divided or split ring adapted to be mounted upon the last-mentioned sleeve or hub, and means for moving said ring along the latter, with a valve adapted to be clamped between said first-mentioned sleeve or hub and said ring, and corresponding recesses and projections located between said valve and the first-mentioned sleeve or hub and the ring, substantially as described.

22. The combination of a casing adapted to be secured upon a pipe, said casing having openings in opposite sides or ends, combined with divided or split hubs adapted to be clamped upon the pipe to close said openings in the casing, and means for securing said hubs to said casing, substantially as described.

587,109. GAS-FIXTURE. ERNEST STEBBINS and OTTO W. STEBBINS, Boston, Mass. Filed June 5, 1897. Serial No. 639,495. (No model.)



Claim.—1. A gas-fixture comprising a cross-head, having a longitudinal bore, and a vertical conical bore in which is mounted a conical valve the larger end of said valve being projected upwardly, said cross-head being also provided with a downwardly-directed tubular portion, said tubular portion being enlarged at its lower end, and provided with inwardly-directed lugs or projections, and a plug which is adapted to be inserted therein to, said plug being provided with an annular groove, and with transverse notches or recesses through which said lugs or projections pass, and said plug being also provided with an annular flange or rim at its lower end, and said valve being provided with a downwardly-directed shank which passes through said plug and is provided at its lower end with a head on which is formed or to which is secured an annular disk or plate, and a disk or plate which is mounted on said shaft above said plug, and which is provided with pins which pass downwardly therethrough, and which is adapted to enter cavities or recesses formed in the upper side of the disk or plate which is formed on or secured to said head, and a spring mounted on said shaft between the disk or plate with which said pins are connected, and a bearing formed in said tubular portion of said head, substantially as shown and described.

2. A gas fixture, comprising a cross-head as 5, in which is formed a longitudinal bore, and a vertical transverse conical bore, in which is mounted a valve, the larger end of said valve being directed upwardly, said cross-head being provided with a downwardly-directed tubular extension as 6, which is enlarged at its lower end, and provided with inwardly-directed lugs or projections, and a plug as 12, which is adapted to be secured therein, said valve being provided with a downwardly-directed shank which passes through said plug, and which is provided at its lower end with a head as 18, on which is formed a disk or plate as 19, and a disk or plate as 21, mounted on said shaft above said plug, and provided with pins as 22, which pass downwardly through said plug, and a spring as 25, mounted on said shaft, substantially as shown and described.

587,110. NUT-LOCK. JOHN A. TEMPLE, Shamokin, Pa. Filed June 6, 1896. Serial No. 594,495. (No model.)



Claim.—1. In combination with a bolt having a longitudinal slot cut therein, a nut adapted to run upon said bolt, said nut having an annular wedge-shaped groove cut in its upper surface, said ring thus formed being slotted to form teeth and having a bevel around its outer edge, as and for the purpose described.

2 In combination with a bolt having a longitudinal slot cut therein, a nut adapted to slide upon said bolt, said nut having an annular wedge-shaped groove cut in its upper surface, said ring thus formed being beveled around its outer edge and being slotted to form teeth, said nut having the central opening cut away to the length of the teeth and depth of the threads as and for the purpose described.

587,111. RAILWAY HOSE-COUPLING. SAMUEL WALTERS, Warren, Pa. Filed Sept. 21, 1896. Serial No. 606,455. (No model.)



Claim.—1. A coupler for train service, consisting of a hollow body, a shank formed therewith and adapted to be attached to a flexible hose, an opening leading from the interior of the body at right angles to the length of the coupler, flanges formed upon the body, and a valve arranged to slide upon said flanges and adapted to automatically close the opening, as specified.

2. In a device of the character described, a coupler, flanges formed thereon and a sliding valve engaging the flanges, as and for the purpose described.

3. A coupler of the character described, consisting of a hollow body, an opening leading therefrom at right angles thereto, an overhanging lug so arranged as to provide a space therebetween and the face of the body, flanges formed upon said body, and a valve fitted to slide upon said flanges and adapted to close the opening in the coupler when the latter is swung downward, as specified.

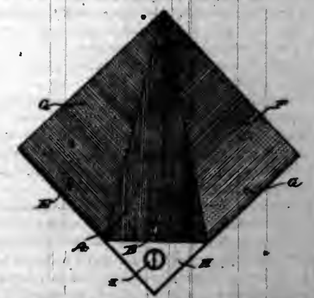
4. The herein-described combination of a hollow body C, a shank formed therewith, an opening leading therefrom at right angles thereto, flanges formed with the body, a valve E having hooked ends for engagement with the flanges, an overhanging lug I having a curved bead formed thereon, and a nose I, also having a curved bead formed thereon, the two beads adapted to engage corresponding beads formed upon a similar coupling, substantially as and for the purpose set forth.

5. In a device of the character described, a coupler, flanges D formed thereon, a valve E having hooked ends F adapted to embrace and slide on the flanges, as and for the purpose described.

6. In a device of the character described, a coupler, a bushing-ring secured thereon, flanges formed on said coupler, a valve slidable on the flanges having a raised portion to fit over the bushing, as and for the purpose described.

7. In a device of the character described, a coupler, a bushing-ring G set therein, flanges D formed on the sides of the coupler, a valve E having a central raised portion and a rib H to fit the bushing-ring, hooked ends F formed on the valve to engage and slide on the flanges and shoulders J at the end of the flange to limit the movement of the valve, as and for the purpose described.

587,112. PUZZLE. JOHN S. ALSTON, Atlantic City, N. J. Filed Sept. 11, 1896. Serial No. 605,504. (No model.)



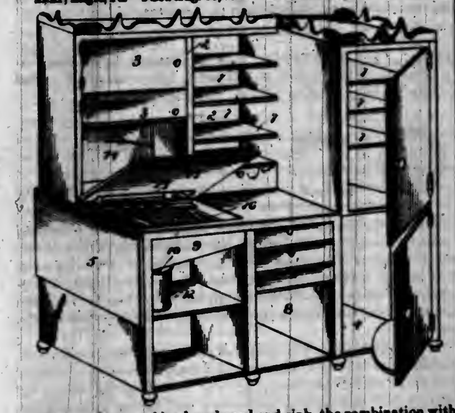
Claim.—1. A puzzle composed of a plurality of pieces constructed and arranged when placed together to form a square one having a compass and the others each a magnet, as set forth.

2. A puzzle consisting of a plurality of triangular pieces one of which has thereon a compass and the others each a magnet one of said magnets being stronger than the others, substantially as and for the purpose specified.

3. The puzzle described, consisting of a plurality of pieces of triangular form, one of them being an equilateral triangle and carrying a compass, and a magnet carried by each of the other pieces, one of the magnets being stronger than the others, substantially as specified.

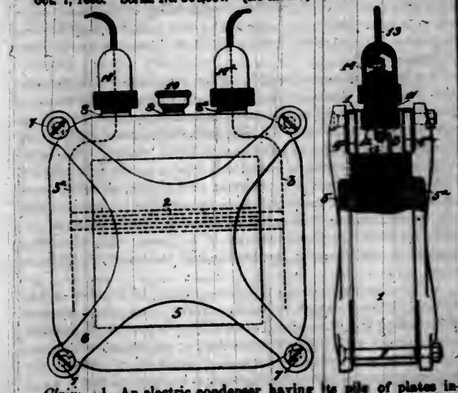
4. A puzzle composed of a plurality of pieces of triangular shape, adapted to form a square one having a compass and each of the others a magnet, substantially as and for the purpose set forth.

587,113. COMBINED CUPBOARD AND SINK. MARY M. BELKNAP, Eagle, Pa. Filed Aug. 19, 1896. Serial No. 603,218. (No model.)



Claim.—In a combined cupboard and sink, the combination with the sink-trough, of a hinged compressible draining-rack located across the top of the same.

587,114. ELECTRIC CONDENSER. CHARLES S. BRADLEY, Avon, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 7, 1895. Serial No. 564,887. (No model.)



Claim.—1. An electric condenser having its pile of plates inclosed in a fluid and air tight metallic casing hermetically sealed at all joints, whereby the access of moisture in the outside air is prevented and the capacity is kept unaltered.

2. A condenser comprising a pile of plates separated from one another by insulating material, a compressing-frame to squeeze the plates together, and a rim united to side plates to form a fluid-tight casing for the pile of plates.

3. A condenser comprising a pile of plates separated from one another by insulating material, stiffening-plates of rigid material, side plates and a rim united to the side plates to form a fluid-tight inclosing box.

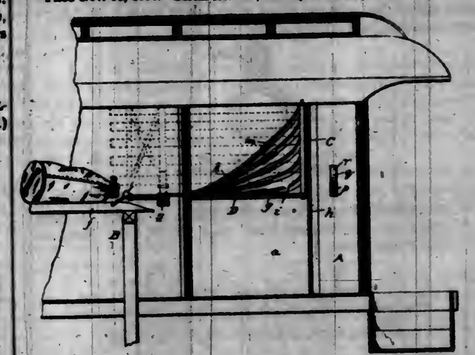
4. An electric condenser provided with a metallic casing composed of side plates, 4, 4^a flanged at the edges, an outer rim 1, and stiffening and compressing plates 5, 5^a, for the purpose specified.

5. An electric condenser provided with heat-radiating sides forced firmly into engagement with its pile of plates, and a clamping-frame holding said sides under compression and projecting beyond the casing to protect it from damage by shock.

6. An electric condenser having its pile of plates inclosed in an air-tight casing and provided with a filling-orifice fitted with an air-tight cap.

7. An electric condenser having its pile of plates inclosed in a casing, and its terminals housed within a removable insulating-cap.

587,115. MAIL-BAG CATCHER. MILES S. CODY, Stockton, Cal. Filed Nov. 11, 1896. Serial No. 611,720. (No model.)



Claim.—1. A mail-bag catcher comprising a scoop made up of sectional bars or strips slidably connected, a rock-shaft to which said bars are secured, and a lever secured to the outer sections of the bars, and having a handle for moving the bars into an approximate horizontal and vertical position respectively, the whole being adapted for attachment to a mail-car, substantially as specified.

2. A mail-car having an opening in one of its side walls, and a scoop disposed at one side of the car and connected at one end with the wall of the car at one side of the opening therein and curved downwardly and forwardly therefrom and having the horizontally-disposed forward portion, whereby it is adapted to take mail-bags from supports as the car passes the same and guide such bags into the car through the opening in the wall thereof, substantially as specified.

3. A mail-car having an opening in one of its side walls and a scoop disposed at one side of the car and connected at one end with the wall of the car at one side of the opening therein and curved downwardly and forwardly therefrom and having the horizontally-disposed forward portion; said scoop comprising bars disposed downwardly at their forward ends; in combination with a stationary support having bars upon its upper side disposed in the direction in which the car moves and adapted to support mail-bags, substantially as specified.

4. A mail-car having an opening in one of its side walls, and a scoop disposed at one side of the car and comprising resilient bars having inner sections connected with the car and outer sections connected together and adjustably connected with the inner sections, means for supporting the forward portion of the scoop in its operative, horizontal position, and means for adjusting the scoop; the said scoop, in its operative position, being adapted to take mail-bags from supports as the car passes the same and deliver such bags into the car through the opening in the wall thereof, substantially as specified.

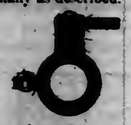
5. A mail-car having an opening in one of its side walls, a scoop comprising a vertical rock-shaft journaled at one side of the door-opening, and resilient bars having inner sections connected with the rock-shaft and outer sections adjustably connected with the inner sections, and a lever fulcrumed in one wall of the car and connected with the outer sections of the scoop-bars; said lever being adapted to support the scoop in its operative position and being also adapted, when its inner end is depressed, to raise the scoop flat against the outside of the car; the said scoop being adapted to take mail-bags from supports and deliver the same into the car through the opening in the wall thereof, substantially as specified.

6. The combination with a mail-car; of a scoop comprising bars or strips, a vertically-disposed rock-shaft secured at one end of said strips and bearing on one side of the door-opening, and a lever pivoted on the opposite side of said opening and secured at or near the opposite ends of said bars or strips, so that the movement in one direction will turn the scoop into a receiving position, and movement in an opposite direction will raise the scoop into an approximately flat contour against the side of the car, substantially as specified.

587,116. BICYCLE. MAJARIGUE CÔTÉ and AIMÉ VUILLIER, Mills, Mass. Filed Apr. 13, 1894. Serial No. 507,845. (No model.)

Claim.—The combination of the bicycle-frame, the drive-wheel mounted to turn therein, a head connected to the frame and provided with an enlargement from which projects a spindle and in the end of which is formed an annular cavity surrounding said spindle, a foot-lever pivotally mounted on the spindle and geared to the drive-wheel, said foot-lever serving to close said annular cavity, a screw engaging

a socket in the end of the spindle and arranged to hold the foot-lever in position, and a spring coiled in said annular cavity and connected at one end to the band and at the other end to the foot-lever to retract the same, substantially as described.



587,117. ASSEMBLING AND TRANSFERRING DEVICE FOR USE IN MOLDING COVERINGS UPON HEADS OF TACKS. ALANSON C. BRYANBROOK, Northampton, Mass. Filed Nov. 27, 1896. Serial No. 613,937. (No model.)



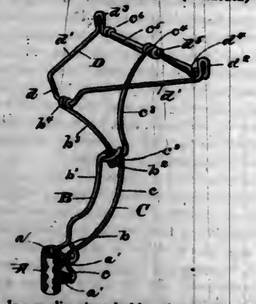
Claim.—1. An assembling device for tacks and the like articles, provided with a series of oppositely-movable overlapping plates 6 and 7 having openings or holes therethrough to permit passage of the tacks, substantially as described, and means to retain the tacks in position to enable their stems to be acted upon by the said plates and centered thereby when the plates are moved in opposite directions to close the said openings or holes, substantially as and for the purposes set forth.

2. An assembling device having receptacles for a series of tacks, and having a series of overlapping movable plates 6 and 7 formed with holes or openings therethrough as described, whereby when the plates are moved in opposite directions to close the said holes or openings the stems of the tacks will be centered, substantially as described.

3. The combination with a mold-plate constructed to receive the stems of a series of tacks or the like, and to assist in molding coverings of plastic material or the like on the heads thereof, of an assembling and transferring device for applying the tacks or other articles to the said mold-plate, the said device having a series of receptacles for the tacks, and overlapping movable plates 6 and 7 having the holes 61, 71, therethrough, as described, whereby when the said plates are moved in opposite directions to close the said holes the stems of the tacks will be set up and centered, and whereby after such stems have been introduced into the mold-plate the reverse movements of the plates will release the tacks and enable them to be left in the mold-plate, substantially as described.

4. The combination with the base-plate having the depressions 5, 5, and the top plate 2 having holes 3, 3, of the intermediate overlapping movable plates 6, 7, having holes 61 and 71, substantially as and for the purposes set forth.

587,118. DEVICE FOR HOLDING CURLING-IRONS TO BE ATTACHED TO GAS-BURNERS. WILLIAM R. FULLER, New Haven, Conn. Filed Jan. 7, 1897. Serial No. 618,400. (No model.)



Claim.—1. In a curling-iron holder, the combination with a sleeve adapted to be applied to a gas-burner, of a frame hinged to said sleeve and comprising two sections, and means connecting said sections whereby they may be either held in a raised operative position or permitted to fall down beside the burner at will, substantially as described.

2. In a curling-iron holder, the combination with a sleeve adapted to be applied to a gas-burner, of a frame hinged to said sleeve and provided with a hook, another frame also hinged to said sleeve and provided with an eye adapted to be engaged by said hook to hold the frames in an elevated position, and a third frame pivotally connecting the two aforementioned frames, substantially as described.

3. In a curling-iron holder, the combination with a sleeve adapted to be applied to a gas-burner, of two frames hinged thereto and provided respectively with an eye and a hook adapted to enter said eye, and a triangular frame connecting the upper end of the said frames and formed with a dip adapted to receive the metallic portion of the iron and upwardly-projecting loops adapted to hold the handle in position on said frame, substantially as described.

587,119. TELEPHONY. JOHN W. GIBBONEY, Lynn, Mass., assignor of one-half to Thomas J. Johnston, Schenectady, N. Y. Filed July 26, 1895. Serial No. 557,216. (No model.)



Claim.—1. The art of operating a telephone-receiver, consisting in passing through coils wound thereon an alternating current or currents periodically changing in value and capable of producing audible vibrations in the receiver, such current furnishing energy for operating the transmitting-circuits, modifying such current by a suitable transmitter, and neutralizing the effect of the periodic current in the receiver.

2. The improvement in the art of telephoning herein described, consisting in supplying a receiver with a main alternating current or a current of periodically-changing value furnishing the energy for operating the transmitting mechanism and having superimposed thereon undulations corresponding to the sound-vibrations to be transmitted, and neutralizing the effect of the main current in the receiver, whereby the superimposed undulations become more audible.

3. The art of telephonically transmitting sound, which consists in supplying an electric circuit with harmonically-varying waves furnishing the energy for operating the transmitting-circuit and of a period ordinarily audible in telephone-receivers, superimposing upon such waves other waves of a form corresponding to the sound-vibrations to be transmitted, and suppressing the main harmonically-varying waves in the receiver, leaving the sound-vibrations mainly audible therein.

4. The art of transmitting vocal or other sounds electrically, which consists in passing over a circuit alternating-current waves of a definite period and of selected and fundamental character with respect to the other waves in the line, such fundamental waves being perceptible by audition in telephone-receivers, causing said fundamental waves to directly or inductively furnish energy to the circuits containing the transmitters, modifying said current-waves in correspondence with the acoustic vibrations desired to be transmitted, and, lastly, neutralizing or weakening the effect of the fundamental current-waves in the telephone-receivers of the system while preserving the vocal or superimposed modifications as impressed by the transmitters.

5. The combination in a telephone system, of a source of harmonically-varying current primarily audible in telephone-receivers and furnishing the main initial transmitting current for the system, transmitters for modifying said current in correspondence with acoustic vibrations, and means for preventing the main or principal current from producing annoying fluctuations in the receivers.

6. In a telephone system, the combination of a source of harmonically-varying currents furnishing initial energy for operating the transmitters and of a frequency ordinarily audible in telephone-receivers, a transmitter for imposing upon such currents modulations or variations corresponding to sound-waves, and a receiver adapted to respond faintly or not at all to the main fundamental waves and readily responsive to the variations of current caused by sound-waves.

7. In a telephone apparatus, the combination of a source of alternating or periodically-varying current, a transmitter for modifying said current whereby there are superimposed thereon undulations of current corresponding to the sounds received by the transmitter, a receiver having two sets of coils or coil-circuits thereon adapted to convey the main generated current and having their magnetizing actions opposed, and an artificial self-induction in one of said receiver-circuits.

8. The combination in an electromagnetic instrument, of a core of magnetic material, an armature therefor, two differential windings on the core, the said windings being in parallel branches of the circuit, and one of said branches being characterized by high self-induction.

9. The combination with a telephone-receiver having upon its magnet-core two coils or coil-sections adapted to be connected with a source of alternating or periodically-varying current and to act in opposition in magnetizing said core, of an artificial self-induction in

the circuit of one of said coils or coil-sections, whereby said receiver becomes unresponsive, or nearly so, to current below a predetermined frequency or periodicity.

10. The combination in a telephone apparatus of a magnetic calling or signaling device having a winding connected in the line-circuit forming the primary winding, and a local secondary circuit also wound thereon deriving current by induction from the primary circuit, the local circuit including a transmitter.

11. The combination in a telephone apparatus of a bell-operating magnet having upon its core a primary coil in the main-line circuit, and a transmitter and receiver in a local circuit of coarser wire forming a secondary to said primary coil.

12. In an alternating-current-system telephone apparatus, the combination of a magnetically-operated signal or calling apparatus wound with coils connected in the line-circuit, a coarse-wire secondary circuit in inductive relation thereto, a receiver-telephone in such secondary circuit, and a transmitting apparatus in a circuit local to some or all of the coils of the said receiver.

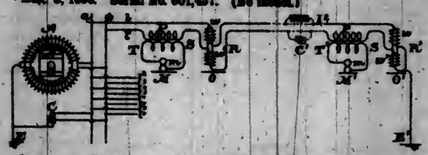
13. The combination in a telephone apparatus, of a polarized armature operating the bell-hammer, a coil traversed by the main alternating or varying current for energizing said armature, a secondary coil or circuit including the receiver and transmitting apparatus, and a separate laminated core for said coils.

14. The combination with the laminated core having the primary and secondary coils wound thereon, of an armature free to vibrate at one end of said core, and an outer magnet having its opposite poles adjacent to the ends of such armature, the coils imparting an alternating polarization to the armature.

15. The combination with a laminated core having primary and secondary coils wound thereon, of an armature free to vibrate and attached to one end of the core, and an outer permanent magnet disposed to affect the armature and having a free air-space between it and the laminated core.

16. A generator for use in a telephonic transmitting system, comprising a stationary armature having substantially a continuous winding, and a revolving field-magnet coil carried upon a shaft having reduced portions at each end making connection through mercury-cups to a source of current connected to said cups; said shaft being divided into two portions electrically insulated from each other and said field-magnet coil having its terminals connected respectively to said shaft portions.

587,120. TELEPHONY. JOHN W. GIBBONEY, Lynn, Mass., assignor of one-half to Thomas J. Johnston, Schenectady, N. Y. Filed Aug. 3, 1893. Serial No. 601,637. (No model.)



Claim.—1. The improvement in the art of electrically transmitting sound-waves, which consists in generating alternating currents of relatively-displaced phase, superposing upon one or more of such currents electrical undulations or vibrations corresponding to the sound-vibrations to be transmitted, and by such superposed electrical undulations or variations actuating a suitable receiver.

2. The improvement in the art of electrically transmitting sound-waves, which consists in transmitting over suitable conductors alternating currents of relatively-displaced phase, superposing upon one or more of such currents electrical undulations or variations corresponding to the sound-waves to be transmitted and by such electrical undulations or variations actuating a suitable receiver, while preventing the operation of the receiver by the fundamental currents of displaced phase.

3. The improvement in the art of electrically transmitting sound-waves, which consists in transmitting over suitable conductors two currents of normally-displaced phase, superposing upon one of such currents electrical undulations corresponding to the sound-vibrations to be transmitted, by such undulations actuating a suitable receiver, and causing the two out-of-phase currents to neutralize each other so as to prevent the effective magnetization of the receiver by the fundamental currents.

4. In combination, means for generating a plurality of alternating currents of relatively-displaced phase, a transmitter for superposing upon one or more of such currents electrical undulations or variations corresponding in character to the sound impulses communicated to the transmitter, and a telephone-receiver included in circuit with the transmitter.

5. In combination, a source or sources of a plurality of alternating currents of relatively-displaced phase, conductors connected therewith, a transmitting device for imposing upon one or more of such alternating currents electrical undulations or variations corresponding to the sound impulses communicated to the transmitting device, a receiver in circuit with the transmitter, and means for preventing the effective magnetization of the receiver by the fundamental currents.

6. In combination, a generating source of two alternating currents of opposite phase, line conductors extending therefrom, a transmitter connected in one of the line conductors, a receiver in circuit with the transmitter, and means for causing the two alternating currents to neutralize one another and prevent the effective magnetization of the receiver by such fundamental currents.

7. In combination, a generating source of two alternating currents of displaced phase, lines extending therefrom, a transmitter inductively superposing upon one of such lines electrical vibrations corresponding to the sound impulses communicated to the transmitter, and a receiver in circuit with the transmitter comprising differentially-connected coils, one in each of the line-circuits.

8. In combination, a generator of alternating currents of relatively-displaced phase, lines extending therefrom, a transmitting device inductively superposing upon one of such lines electrical vibrations corresponding to the sound impulses produced in the transmitter, and a differentially-connected receiver included in the lines.

9. A source of alternating currents of relatively-displaced phase, lines extending therefrom, a transmitting device inductively superposing upon one of the lines carrying the alternating currents electrical variations or undulations corresponding to the sound impulses communicated to the transmitter, a differentially-wound receiver in the lines, an earth connection for the generator, and an earth connection for the lines.

10. A generator of alternating currents of relatively-displaced phase, lines extending therefrom, a transmitting device for inductively superposing upon the current in one of such lines electrical undulations corresponding to the sound impulses to be transmitted, a differentially-wound receiver included in the lines, and a condenser shunting the generator.

11. A transmitting device for a telephone-receiver, comprising a transformer coil furnishing energy to two substantially independent circuits closed by different microphone-contacts, one or both of such circuits including means for displacing the phase of the current in one circuit relatively to that in the other.

12. A transmitting device for a telephone-circuit, comprising a coil or coils upon the transforming part of the transmitter furnishing energy to two substantially independent circuits closed by different transmitter-contacts; the independent circuits carrying alternating currents of relatively-displaced phase and being substantially equally transparent to the variations of the fundamental alternating current produced by the transmitter-contacts.

13. A transmitter for a telephone-circuit, comprising transformer-coils having two independent circuits closed by granular carbon or dust microphone-contacts, and means included in one or both of such circuits for producing currents of relatively-displaced phase therein.

14. A receiving-telephone having a plurality of coils arranged to be connected in different circuits, the circuits carrying currents of relatively-displaced phase, one of such circuits including a transmitter.

15. A receiving-telephone having a plurality of differentially wound or actuated coils, the differentially-wound coils connected in different circuits carrying substantially equal alternating currents of relatively-displaced phase, and one of such circuits including a transmitter.

16. A receiving-telephone comprising a core, a plurality of coils on the core differentially wound and connected the different circuits carrying fundamental alternating currents of relatively-displaced phase, one of the circuits including a transmitter and a diaphragm responding to variations of magnetism produced in the core by the coils.

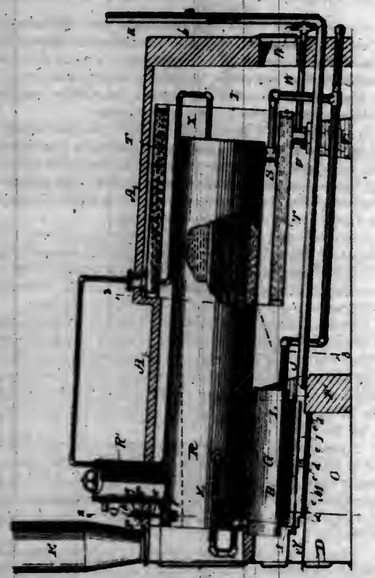
17. In a telephone transmitting apparatus, the combination of an iron core having magnetizing-coils therein, a microphone-transmitter having a plurality of sets of contacts, and separate circuits connecting the coils and the transmitter, one of said circuits containing a self-inductive device with a condenser in shunt thereto, and the other containing a compensating resistance.

18. In a telephone system, the combination of a microphone-transmitter having a plurality of sets of microphone-contacts, a source of alternating currents of relatively-displaced phase, separate circuits connecting the source of current and the transmitter-contacts, and a telephone-receiver.

587,121. STEAM-BOILER FURNACE. FRANKLIN B. GOSLER, Milwaukee, Wis. Filed Oct. 2, 1893. Serial No. 607,634. (No model.)

Claim.—1. A steam-boiler furnace provided with side boxes having discharge-gratings in detachable connection therewith above the fuel-grates and conveyers for air, steam or both in communication with the boxes.

2. A steam-boiler furnace provided with side boxes having discharge-gratings above the fuel-grates and door-controlled openings below said grates, together with conveyers for air, steam or both in communication with the boxes.



3. A steam-boiler furnace having a pair of boiler-connected Orvis-type steel arches in its fire-chamber and provided with side boxes that have discharge-gratings above the fuel-grates, together with conveyers for air, steam or both in communication with said boxes.

4. A steam-boiler furnace having a pair of boiler-connected Orvis-type steel arches in its fire-chamber and provided with side boxes that have discharge-gratings above the fuel-grates and door-controlled openings below said grates, together with conveyers for air, steam or both in communication with said boxes.

5. A steam-boiler furnace having a boiler-encircling water-jacket arranged within the combustion-chamber and connected at its lower portion with a feed-water pipe, the diametrical dimension of this jacket being sufficient to leave space between it and the boiler for the passage of products of combustion; an outlet-pipe leading from the upper portion of the jacket into said boiler, and a steam-pipe communicating with said jacket above its outlet.

6. A steam-boiler furnace having a boiler-encircling water-jacket arranged within the combustion-chamber and connected at its lower portion with a feed-water pipe, the diametrical dimension of the jacket being sufficient to leave space between it and the boiler for the passage of products of combustion; an outlet-pipe leading from a predetermined elevation in the upper portion of the jacket into said boiler, and a steam-pipe communicating with said jacket above its outlet.

7. A steam-boiler furnace having its fire-chamber provided with Orvis-type steel arches in water-circulating connection with the boiler, a water-jacket arranged within the combustion-chamber of the furnace to encircle the boiler and leave intermediate space for passage of products of combustion, a feed-water pipe in connection with the lower portion of the jacket, an outlet-pipe leading from the upper portion of said jacket into said boiler, and a steam-pipe communicating with the aforesaid jacket above its outlet.

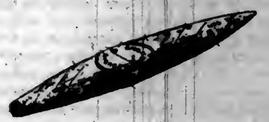
8. A steam-boiler furnace having a boiler-encircling water-jacket arranged within the combustion-chamber and connected at its lower portion with a feed-water pipe, the diametrical dimension of the jacket being sufficient to leave space between it and the boiler; an outlet-pipe leading from the upper portion of the jacket into the boiler, a steam-pipe communicating with said jacket above its outlet, a products-of-combustion conduit over that portion of the boiler forward of the jacket, partitions intermediate of said boiler and jacket longitudinally of the same to form a continuation of the conduit, and an apertured plate interrupting said conduit adjacent to the smoke-box.

9. A steam-boiler furnace provided with side boxes having discharge-gratings above the fuel-grates, conveyers for air or steam or both in communication with the boxes, Orvis-type steel arches in the fire-chamber having water-circulating connection with the boiler, a water-jacket arranged in the combustion-chamber to encircle the boiler and leave intermediate space, a feed-water pipe in connection with the lower portion of the jacket, an outlet-pipe leading from the upper portion of the jacket into the boiler, a steam-pipe communicating with said jacket above its outlet, a products-of-combustion conduit over that portion of the boiler forward of the jacket, partitions intermediate of said boiler and jacket longitudinally of the same to form a continuation of the conduit, and an apertured plate interrupting said conduit adjacent to the smoke-box.

10. A steam-boiler furnace provided with side boxes having discharge-gratings above the fuel-grates and door-controlled openings below said grates, conveyers for air or steam or both in communication with the boxes, Orvis-type steel arches in the fire-chamber having water-circulating connection with the boiler, a water-jacket arranged in the combustion-chamber to encircle the boiler and leave intermediate space, a feed-water pipe in connection with the lower portion of the jacket, an outlet-pipe leading from the upper portion of the jacket into the boiler, a steam-pipe communicating with said jacket above the outlet, a products-of-combustion conduit over that portion of the boiler forward of the jacket, partitions intermediate of said boiler and jacket longitudinally of the same to form a continuation of the conduit, and an apertured plate interrupting said conduit adjacent to the smoke-box.

11. A steam-boiler suspended wholly within its furnace and having its steam-dome partly inclosed by the same, together with a water-jacket encircling the boiler within the combustion-chamber of said furnace, a feed-water pipe in connection with the jacket, an outlet-pipe of the jacket in communication with the boiler, and a steam-pipe connected to said jacket above its outlet.

587,122. ADVERTISING DEVICE. WILLIAM G. RIDGERS, New York, N. Y. Filed Mar. 16, 1896. Serial No. 583,268. (No model.)



Claim.—1. An advertising or trick cigar comprising a solid core a wrapper covering the core in imitation of the natural-leaf tobacco, the lighting end of the core being made to resemble an ordinary tobacco-filler.

2. An advertising or trick cigar comprising a solid core, a wrapper covering the core in imitation of the natural-leaf tobacco, the lighting end of the core being made to resemble an ordinary tobacco-filler and the other end in imitation of the mouth end of a cigar.

3. An advertising or trick cigar comprising a solid core, a wrapper covering the core in imitation of the natural-leaf tobacco, the lighting end of the core being made to resemble an ordinary tobacco-filler and the other end twisted in imitation of the mouth end of a cigar, the whole being scented in imitation of a genuine tobacco cigar.

587,123. THIMBLE. LAFAYETTE HOLCOMB, Fort Logan, Colo. Filed Aug. 26, 1896. Serial No. 604,003. (No model.)



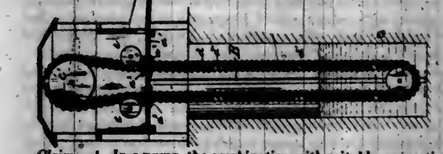
Claim.—1. The combination with a thimble proper having an outer roughened surface and spaced projections upon its inner surface, of a smooth perforated lining secured within the thimble and supported in the proper position by resting against said projections, substantially as described.

2. The combination with a thimble proper having an outer roughened surface and spaced projections upon its inner surface, of a smooth perforated lining secured in the thimble over said projections and having its ends fitted into grooves formed in the thimble, substantially as described.

3. The combination with a thimble proper having an outer roughened surface and spaced projections upon its inner surface, of a smooth perforated lining applied within said thimble so as to rest upon said projections and having a perforated flange at its lower end, which is burred into a groove formed in the interior of the thimble, substantially as described.

4. The combination with a thimble proper, having an outer roughened surface, corrugations forming ridges upon its inner surface near the bottom, and spaced projections upon said inner surface above said ridges, of a smooth perforated lining secured within the thimble and adapted to rest against the projections and be supported thereby, substantially as described.

587,124. PUMP. WARREN W. JAMES, Evergreen, Colo. Filed Dec. 7, 1896. Serial No. 614,807. (No model.)



Claim.—1. In a pump, the combination with suitable supporting-wheels mounted in the receptacle from which the water is to be lifted, of an endless conveying-tube formed of coil-springs, and solid heads mounted at intervals in said tube, and means for operating said tube to lift the water, substantially as described.

2. In a pump, the combination with a suitable frame, of supporting grooved wheels, an endless conveying-tube formed of closely-coiled springs, solid heads placed at intervals in said tube, and auxiliary coil springs applied about the first-mentioned springs and adapted to hold the coils of the same closely together, substantially as described.

3. In a pump, the combination with a suitable frame having grooved wheels mounted therein, of an endless conveying-tube applied about said wheels, and comprising a plurality of coil-springs, solid heads applied at intervals in said coils, and a trough through which said conveyer passes, adapted to catch the water discharged from the upper end of the same, substantially as described.

4. In a pump, the combination with a suitable supporting-frame, of grooved wheels mounted therein, an apertured partition also mounted on said frame, extended vertical flanges about the apertures of said partition, an endless conveying-tube adapted to pass through said apertures, and about said wheels, and comprising a plurality of coil-springs and solid heads applied in said springs at intervals, substantially as described.

5. In a pump, the combination with a suitable frame, of grooved wheels mounted in the same, an endless conveying-tube mounted upon said wheels and comprising a plurality of coil-springs and solid heads applied in said springs at intervals, and auxiliary grooved wheels mounted on said frame and adapted to cause the endless conveying-tube to pass about the greater portion of the aforementioned upper grooved wheel, substantially as described.

587,125. WATER-METER. ALBERT H. KENNEDY, Rockport, Ind. Filed June 29, 1896. Serial No. 597,220. (No model.)



Claim.—1. The combination with a service-pipe, of a fitting permanently connected therein and having concentric openings adapted for inflow and outflow therethrough under pressure, and a meter or other translating device adapted to be directly connected with both openings in said fitting and formed with corresponding inflow and outflow openings.

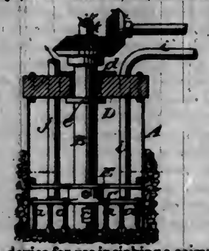
2. The combination with a supply-pipe, of a fitting provided with a partition extending across the bore thereof and outward to form a tube, a tube concentric thereto, one of said tubes being screw-threaded, and connections between said second tube and the pipe at the other side of the partition, and a translating device formed with like cavities and correspondingly screw-threaded and adapted to fit thereto, whereby the contents of the supply-pipe will be diverted into the translating device through one opening and returned again to the supply-pipe through the other opening and beyond the said partition.

3. A fitting formed with concentric flow-openings provided with suitable screw-threads, and also having inflow and outflow connections adapted for permanent connection with the service-pipe, said inflow connection extending through one of the concentric openings and the outflow through the other, both being adapted to convey liquid under pressure, and a screw-threaded cap adapted to fit said concentric openings and provided with concentric passages connecting the inflow and outflow of the concentric openings in the fitting through said cap.

4. The combination with a circular casing adapted to be placed in the ground, of a service-pipe passing centrally across the lower part thereof and provided with a fitting having upwardly-extending concentric inflow and outflow openings adapted to convey liquid under pressure, one of said openings being suitably screw-threaded, and said openings arranged centrally at the lower portion of the box, and a translating device provided at its lower, central portion with concentric inlet and outlet connections corresponding with those of the fitting, and suitably screw-threaded for connection therewith by rotation.

5. A fitting adapted to be connected in a service-pipe and provided with a partition extending across the bore thereof and outward to form a tube connecting with the supply end of said fitting, and an opening concentric thereto and extending to the delivery end of said fitting, said openings constituting inflow and outflow openings and adapted to convey liquid under pressure, and to deliver the same to, and receive the same back from a suitable translating device connected with said concentric openings.

587,126. MEANS FOR SINKING CAISSONS IN THE GROUND. JAMES McADAMS, New York, N. Y., assignor of one-half to Max Augsburger, Brooklyn, N. Y. Filed Feb. 16, 1897. Serial No. 624,019. (No model.)



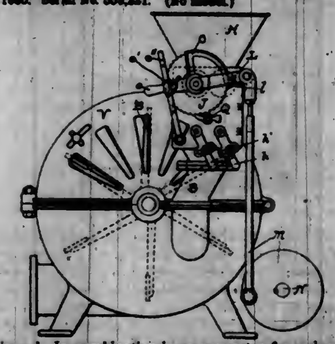
Claim.—1. A device for use in sinking a caisson by disintegrating the ground within it and removing the disintegrated matter from it, comprising a rotary shaft hollow throughout and open at top and bottom and having unobstructed lateral openings, a plow affixed to the lower part of said shaft, and guides for said shaft attached directly to the caissons to be sunk, substantially as herein described.

2. A device for use in sinking a caisson by disintegrating the ground within it and removing the disintegrated matter from it, comprising a rotary shaft hollow throughout and open at top and bottom and having lateral openings in its lower part, a plow affixed to said shaft above said lateral openings, and guides for said shaft attached directly to the caisson to be sunk, substantially as herein described.

3. A device for use in sinking a caisson comprising a rotary shaft hollow throughout and open at top and bottom and having lateral openings and an external shoulder, a plow affixed to said shaft, and a guide for the said shaft attached to the caisson to be sunk and supporting the latter upon the shoulder of the shaft, substantially as herein described.

4. A device for use in sinking a caisson by disintegrating the ground within it and removing the disintegrated matter from it, comprising a rotary shaft hollow throughout and open at top and bottom and having lateral openings in the lower part thereof, a plow affixed to said shaft, guides for said shaft attached directly to the caisson to be sunk, and means for introducing water to the caisson and into said shaft and for withdrawing from the caisson and shaft the said water and the disintegrated matter, substantially as herein described.

587,127. PULVERIZING AND FEEDING FUEL TO FURNACES. EDWARD C. SMITH, New York, N. Y., assignor, by mesne assignments, to the Smokeless Combustion Company, of West Virginia. Filed Aug. 14, 1895. Serial No. 559,221. (No model.)



Claim.—1. In combination in an apparatus for pulverizing and feeding fuel, the beater-blades and casing therefor, the adjustable feed-rolls for introducing a determinate quantity of fuel into the

pulverizer, a damper for admitting air to the said pulverizer adjacent to the fuel-supply from the said feed-rolls, a discharge-opening leading laterally through the end of the pulverizer-casing, and a gate for the said opening whereby the said opening in the rear end of the pulverizer may be more or less closed, substantially as set forth.

2. In combination in an apparatus for pulverizing and feeding fuel, the beater-blades and casing therefor, feeding apparatus for supplying fuel at one end of the said casing, a discharge-opening extending through the other end E of the said casing, a discharge-passage D leading therefrom, and a gate, G, for opening or closing the said opening through the end of the said casing, substantially as set forth.

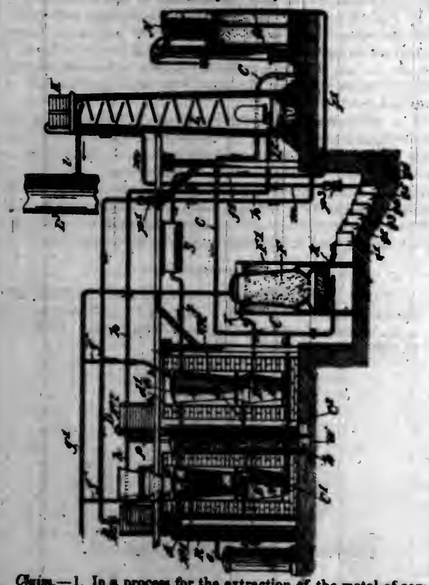
3. In combination in an apparatus for pulverizing fuel or other material, the rotary blades or beaters G, the shell or casing therefor, an outlet or discharge opening C through the end plate E of the said shell or casing of the curved form shown, and a gate adjustable across the said opening whereby the width of the said opening may be altered at will, substantially as set forth.

4. In combination in an apparatus for pulverizing and feeding fuel or other materials, the rotary blades or beaters, the shell or casing therefor, an outlet or discharge opening C through the end plate or wall E of the said shell or casing, the discharge D therefor, and the adjustable gate G working upon the face of the said end plate or wall E and controlling the discharge from the said casing into the said discharge-pipe D, substantially as set forth.

5. In combination in an apparatus for pulverizing fuel, or other material, the rotary blades or beaters G, the shell or casing therefor, an outlet or discharge opening C through the end plate, E, of the said shell or casing, and the adjustable gate G consisting of two or more parts pivotally secured together and provided with an edge, *g*, substantially conforming to the said opening or discharge, C, as set forth.

6. In combination in an apparatus for pulverizing fuel or other material, the rotary blades or beaters, G, the shell or casing therefor, and an outlet or discharge pipe D extending spirally from the end plate E of the said shell or casing, and an adjustable gate, G, working upon the face of the said end plate E and controlling the discharge from the said casing into the said discharge-pipe, D, substantially as set forth.

587,128. PROCESS OF TREATING ARGENTIFEROUS SULFID ORES. ERNST F. TURNER, Adelaide, South Australia. Filed Aug. 6, 1896. Serial No. 601,895. (No specimens.)



Claim.—1. In a process for the extraction of the metal of compound sulfid ores, disintegrating the latter by the combined action of aqueous and gaseous hydrochloric acid, whereby sulfureted hydrogen is produced, passing the acid gases successively through fresh batches of the ore until the hydrochlorid acid is neutralized, and utilizing the H_2S as fuel in the process of extraction, substantially as set forth.

2. In a process for the extraction of the metal of compound sulfid ores, disintegrating and decomposing the latter by the combined action of aqueous and gaseous hydrochloric acid, neutralizing the acid gases evolved whereby sulfureted hydrogen is obtained, heating the disintegrated ore by means of such sulfureted hydrogen, collecting the sulfur dioxid resulting from the combustion, bringing this gas into contact with sodium chlorid in presence of heat whereby hydrochloric-acid gas and sodium sulfate are obtained, and utilizing the former in the process of disintegration, substantially as set forth.

3. In a process for the extraction of the metal of compound sulfid ores, disintegrating and decomposing the latter by the combined action of aqueous and gaseous hydrochloric acid, neutralizing the acid gases evolved whereby sulfureted hydrogen is obtained, heating the disintegrated ore by means of such sulfureted hydrogen, collecting the sulfur dioxid resulting from the combustion, bringing this gas into contact with sodium chlorid in presence of heat whereby hydrochloric-acid gas and sodium sulfate are obtained, utilizing the former in the process of disintegration, converting the sodium sulfate into sodium sulfid by means of carbon, and utilizing the same for the extraction of the zinc in the ore and other purposes, substantially as set forth.

4. In a process for the extraction of the metal of compound sulfid ores, disintegrating and decomposing the latter by the combined action of aqueous and gaseous hydrochloric acid, neutralizing the acid gases evolved whereby sulfureted hydrogen is obtained, heating the disintegrated ore by means of such sulfureted hydrogen, collecting the sulfur dioxid resulting from the combustion, bringing this gas into contact with sodium chlorid in presence of heat whereby hydrochloric-acid gas and sodium sulfate are obtained, converting the gas into aqueous hydrochloric acid by means of brine, whereby sodium chlorid is recovered, utilizing the aqueous hydrochloric acid in the process of disintegration of the ore and the sodium chlorid in the production of hydrochloric-acid gas and other purposes, in the process, substantially as set forth.

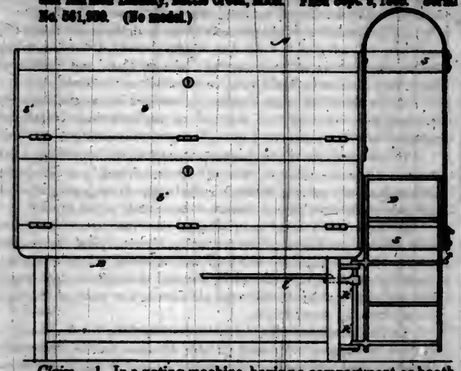
5. In a process for the extraction of the metal of compound sulfid ores, disintegrating the ore by the combined action of liquid and gaseous hydrochloric acid, converting the liquid portion resulting from this treatment into a neutral saturated solution of lead and zinc chlorids by passing it through successive batches of fresh ore, returning the neutral saturated solution to the solid residues of the process of disintegration, fusing the whole by heat and then extracting the metal separately therefrom, substantially as set forth.

6. In a process for the extraction of the metal of compound sulfid ores, disintegrating the ore by the combined action of liquid and gaseous hydrochloric acid, collecting the disintegrated material, neutralizing the liquid portion thereof by passing the same through fresh batches of ore, whereby a neutral saturated solution of zinc and lead chlorids is obtained, mixing the same with the residuary solid products of disintegration, heating the whole to dissolve the silver chlorid present, subjecting the mass to the action of sulfur dioxid (SO_2) to dissolve the soluble chlorids and to reduce any gold chlorid present to a metallic state by the sulfurous anhydrid formed, and finally extracting the metals from the material so treated by well-known means, substantially as set forth.

7. In a process for the extraction of the metal of compound sulfid ores, disintegrating the ore by the combined action of liquid and gaseous hydrochloric acid in the presence of heat derived from the combustion of sulfureted hydrogen, collecting the disintegrated material, neutralizing the liquid portion thereof by passing the same through fresh batches of ore, whereby a neutral saturated solution of zinc and lead chlorids is obtained, mixing this with the solid residues of the process of disintegration, heating the whole to dissolve the silver chlorid present, by heat also derived from the combustion of sulfureted hydrogen, subjecting the mass while still hot to the action of the products of combustion of the H_2S, to dissolve the soluble chlorids and reduce any gold chlorid present to a metallic state by the sulfurous anhydrid formed, and finally extracting the metals from the material so treated by well-known means, substantially as set forth.

8. In a process for the extraction of metals from compound sulfid ores, disintegrating and decomposing the latter by chlorination, neutralizing the acid gases evolved whereby sulfureted hydrogen is obtained, collecting the sulfur dioxid resulting from the combustion of the sulfureted hydrogen, in presence of sodium chlorid, steam and air and forming hydrochloric-acid gas and sodium sulfate, converting the gaseous into liquid hydrochloric acid, utilizing the liquid acid for disintegrating the ores and forming solutions of lead zinc and iron chlorids by passing the liquid portions, resulting from the treatment of the ores through successive batches of ore, returning this solution to the solid residues, fusing the mixture and subjecting it to action of the products of combustion of the sulfureted hydrogen which are thereby disintegrated, and boiling it in acidulated water, settling out the solids and drawing off the liquor, washing the solids with boiling water which is drawn off and mixed with the above-mentioned liquor, cooling and separating the lead chlorid from said liquor, precipitating the copper by metallic zinc, oxidizing and separating the iron, aerating and separating the manganese, separating the zinc by means of sodium sulfid and recovering from the final brine the sodium chlorid to be used in a prior stage of the process, substantially as set forth.

587,129. VOTING-MACHINE. JAMES G. HARDIE, Jr., and JOHN F. POST, Canton, N. Y.; said Post assignor of his right and said Hardie assignor of one-half of his right to Russell A. Hart, Archibald B. Henry, and Harmon Lindsay, Battle Creek, Mich. Filed Sept. 9, 1895. Serial No. 561,980. (No model.)



Claim.—1. In a voting-machine, having a compartment or booth with a single entrance and exit passage, the combination of a series of levers arranged in vertical and horizontal rows within the compartment, registering mechanisms connected with said levers to be operated thereby, a vertically-movable frame arranged in relation to said levers to lock and release the same, a duplex inwardly and outwardly swinging gate provided with lock or latch adapted to be operated from within only, and connections between said gate and frame to reciprocate the latter when the gate is swung back and forth.

2. In a voting-machine having a booth with a single passage to and from it, the combination of a series of levers, registering mechanisms connected therewith to be operated thereby, devices for engaging and holding said levers to prevent a return to normal position after being operated, a duplex inwardly and outwardly swinging gate having inside lock or snap-catch arranged to control the passage leading to and from the machine, and mechanism connected with the gate whereby the movement of the latter to permit the voter to pass from the machine releases the levers to permit their return to normal position.

3. The combination with a voting apparatus comprising a series of vibrating levers and registering mechanisms connected therewith to be operated thereby, of a voting booth or compartment having a single passage, two swinging gates arranged at right angles and rigidly connected together having inside lock or snap-catch controlling the passage leading to and from said booth and arranged to close the same after the voter passes out, devices for engaging and holding said levers to prevent a second operation, a vertically-reciprocating frame adapted and arranged to release said holding devices and to return the levers to normal position, and connections between said frame and gate whereby the movement of the latter operates the frame.

4. In a voting apparatus, the combination of a vibrating lever, a registering mechanism operatively connected therewith, a toothed or serrated bar connected with the lever, a pawl arranged and adapted to engage said bar on the operation of the lever and prevent a return to normal position, a vertically-reciprocating frame arranged and adapted to throw the pawl out of action, and an inwardly and outwardly swinging gate connected with, and adapted to operate, said frame.

5. The combination with the vibrating levers, the pawls for holding the same to prevent a second operation, and the vertically-movable frame for releasing said pawls, of a swinging gate, a movable cam connected with the gate to be operated thereby, and a lever connection between the cam and frame whereby, when the gate is swung in one direction, the frame is raised and the pawls permitted to assume an operative position, and when swung in the opposite direction the pawl is thrown out of action.

6. In a voting-machine, the combination with the vibrating levers, the registers, and the devices for controlling the operation of the levers, as shown and described, of a swinging gate, a sliding cam-block having a cam-slot therein terminating at either end in a straight slot, and pivoted levers connected with the frame and controlled by the cam-block.

7. In a voting-machine, the combination of an operating-lever, a register operatively connected therewith, a detent for said lever, a reciprocating frame arranged and adapted to control the operations of the lever and release said detent, a duplex inwardly and outwardly swinging gate arranged to control a passage leading to, and from, the apparatus, and connections between said gate and frame whereby the movements of the gate lock and unlock the lever.

8. In a voting-machine, the combination with an operating-lever, a register operatively connected therewith, and a reciprocating frame arranged and adapted to control the lever, of a sliding block provided with a cam-slot terminating in a straight slot extending in the direction of movement of the block, and connections working in said slots to operate the frame, whereby the movement of the block first operates the frame and then locks it in position.

9. In a voting apparatus, the combination with the operating-levers and the registers operatively connected therewith, of a reciprocating frame arranged and adapted to control the levers, two swinging gates rigidly connected together in angular arrangement and controlling a passage leading to, and from, the apparatus and adapted to move but a quarter-revolution in either direction and alternately opening and closing the same, and connections between said gates and frame for operating the latter, the connections being such that when one gate is closed the levers are free to be operated and when the other gate is closed they are locked.

10. In a voting-machine, the combination of a series of vibrating levers, registers operatively connected therewith to register the operations of the respective levers, and a series of cams each rotatably mounted on a separate shaft, and connected with the respective levers and arranged and adapted to permit the operation of more than one of a predetermined number, and to lock the remaining levers of the series, substantially as described.

11. In a voting-machine, the combination of a series of vibrating levers, registering mechanisms connected therewith to register the operations of the respective levers, a series of cams each rotatably mounted on a separate shaft and operatively connected with the respective levers, said cams being movable relatively to each other within a limited range, the range of movement being such as to permit the operation of more than one of a predetermined number of levers and then to lock the remaining levers and prevent further operation.

12. In a voting-machine, the combination of a series of vibrating levers, registering mechanisms connected therewith to register the operations of the respective levers, means for preventing the return of the levers after being operated, and cooating cams each mounted on a separate shaft and operatively connected with the respective levers to permit the operation of more than one of a limited or predetermined number thereof and to lock and prevent the remaining levers of the series from being operated.

13. In a voting-machine, the combination of a series of registering mechanisms, means for operating the same separately, two frames or stands, a series of rotary coacting cams mounted on independent shafts in each of said frames movable in a longitudinal direction therein, said cams being separately connected with the means for operating the respective registers, and a vibrating lever mounted between said frames with its ends projecting into the paths of movement of the two series of cams, the arrangement being such as described, whereby, after a predetermined number of cams have been operated, the lever will contact with both series and prevent further operation.

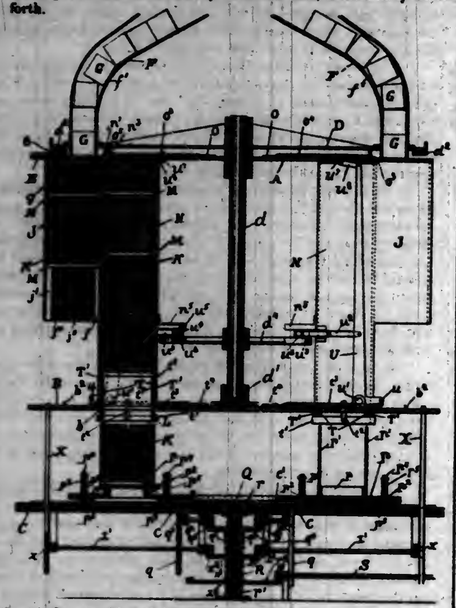
587,180. MACHINE FOR MAKING AND FRAMING MATCH-SPLINTS. MARCUS S. LEVÉ, Fruitvale, Cal., assignor to the American Match Company, San Francisco, Cal. Filed Dec. 6, 1895. Serial No. 571,236. (No model.)

Claim.—1. In a machine of the character described, a splint-material-carrying chute set upon a wheel with its bottom opening on a radial line, in combination with a table located in a plane parallel with said wheel, a row of scoring-knives arranged also on a radiating line on said table, and a slicing-knife back of said scoring-knives, the said slicing-knife being set so as to coincide with the back end of said chute as it passes said slicing-knife, whereby the severing of all the splints in a row is completed simultaneously along the whole line, substantially as set forth.

2. In a machine of the character described, the combination of a stationary cutting apparatus, a suitably-apertured table upon which the same is mounted, mechanism for carrying the wooden blocks in succession against the cutting apparatus over the table, an automatic framing mechanism beneath the table and in operative relation to the cutting apparatus and passage for the splints, and means for supplying slats to said framing mechanism, the whole being constructed and arranged so that the splints may be cut in successive rows and caused to push one another over the slats in the framing mechanism alternately with the slats, substantially as set forth.

3. In a machine of the character described, the combination of a table, a slat-box and a framing mechanism located centrally under said table, means for transferring slats from said box to said framing mechanism, and a fixed cutter on the table discharging splints into the

framing mechanism alternately with the slats, substantially as set forth.



4. In a machine of the character described, the combination of a cutting apparatus, means for carrying splint material thereto, framing mechanism adapted to receive the cut material from said cutting apparatus, a slat-holder, and means for taking loose slats from said holder and feeding the same over the cut material in the framing mechanism, substantially as set forth.

5. In a machine of the character described, the combination of a table, a series of framing devices and a series of adjoining slat-boxes both located entirely under the table, splint-cutters arranged upon said table and adapted to discharge through the same into said framing devices alternately with said boxes and mechanism for bringing splint material successively to said cutters, substantially as set forth.

6. In a machine of the character described, the combination of a slat-box provided with guides forming suitable divisions therein, a framing-chamber also provided with guides forming ways corresponding with said divisions, and mechanism for guiding and driving slats from the divisions of said box into the corresponding ways of said chamber, substantially as set forth.

7. In a machine of the character described, the combination of a cutting apparatus, a wheel carrying the splint material to said apparatus, a framing device adapted to receive the cut material therefrom, a slat-box, mechanism operated from said wheel whereby slats are passed through said box, and means for transferring said slats to said framing device alternately with the cut material lodged therein, substantially as set forth.

8. In a machine of the character described, the combination of a series of slat-boxes, a series of framing devices communicating therewith, a series of splint-cutters, a wheel carrying the splint material successively to said cutters and driving the material cut thereby into said framing devices, a shaft rotated by said wheel, and intermediate mechanism whereby the slats are ejected from said boxes into said framing devices in time to receive the cut material from the cutters, substantially as set forth.

9. In a machine of the character described, the combination of a slat-box, a carriage adapted to receive slats in piles and hold the same in position, a hoisting mechanism whereby said carriage may be elevated and the pile of slats thereon raised bodily into said box, and means for automatically receiving the slats from the carriage substantially as set forth.

10. In a machine of the character described, the combination of a series of slat-boxes arranged upon a suitable base and seated over openings therein, a carriage adapted to be driven into said base under said boxes, means for holding slats piled upon said carriage in position to enter said boxes, and hoisting mechanism, substantially as set forth.

11. In a machine of the character described, the combination of a slat-box, a carriage thereunder provided with a yieldingly-supported plate adapted to raise a pile of slats into said box, and means for hoisting said carriage, substantially as set forth.

12. In a machine of the character described, the combination of a slat-box, a carriage having a suitable opening, a centrally-raised spring-supported plate fitted within said opening and adapted to be raised to said box with said carriage, and hoisting mechanism, substantially as set forth.

13. In a machine of the character described, the combination of a carriage, means for holding slats in piles thereon, a slat-box, and means for automatically taking the slats from said carriage into said box while the machine is running, substantially as set forth.

14. In a machine of the character described, the combination of a carriage, rods adapted to hold slats in piles thereon, a slat-box, means for raising the slats on said carriage into said box, and mechanism for taking the slats off said rods, substantially as set forth.

15. In a machine of the character described, the combination of a slat-box with coacting bars notched throughout their length and adapted to take up slats by degrees therein, substantially as set forth.

16. In a machine of the character described, the combination of a slat-box adapted to receive slats having slotted ends, and compressible notched bars passing through and alternately engaging the slotted ends of the slats placed therein, substantially as set forth.

17. In a machine of the character described, the combination with a slat-box adapted to receive and guide slats piled therein and passing therethrough, of movable and stationary bars extending partly up said box, said bars being notched throughout their length and working together to take up said slats as the same are brought in, substantially as set forth.

18. In a machine of the character described, the combination of a slat-box having guides forming suitable divisions therein, oppositely-placed notched bars engaging slats placed in said divisions, and means for working said notched bars collectively, substantially as set forth.

19. In a machine of the character described, the combination of a slat-box, stationary bars fastened to the inner walls thereof, movable bars placed by the side of said stationary bars, both said stationary and movable bars being notched throughout their length, a collar adapted to hold said movable bars, and means for reciprocating said collar, substantially as set forth.

20. In a machine of the character described, the combination of a slat-box, coacting movable and stationary bars adapted to take up slats placed therein, a spring-supported device holding up and controlling the said movable bars, and means for reciprocating said device, substantially as set forth.

21. In a machine of the character described, the combination of a slat-box, movable and stationary bars coacting to take up the slats placed therein, a collar connecting the said movable bars with each other, a spring holding said collar, and a lever adapted to alternately depress and release said spring, substantially as set forth.

22. In a machine of the character described, the combination of a slat-box, stationary and movable bars coacting to take up the slats therein, a collar connecting the movable bars with each other, a forked spring linked to said collar, the branches of said spring extending by the sides of said box, a lever fulcrumed also on the sides of said box and provided with pins arranged to bear upon the said spring branches, a rotary shaft, a cam carried by said shaft, and intermediate connections whereby said lever may be oscillated from said shaft by said cam, substantially as set forth.

23. In a machine of the character described, the combination of a slat-box, slitted bars coacting to take up slats through said box, and cushions inserted into the slits of said bars, substantially as set forth.

24. In a machine of the character described, the combination of a slat-box adapted to receive slats having slotted ends, and compressible coacting bars passing through and alternately engaging the slotted ends of the slats therein, the said bars being notched to form a series of oppositely-laid steps, substantially as set forth.

25. In a machine of the character described, the combination of a framing mechanism, a slat-box adjacent thereto, a table extending entirely over both said framing mechanism and box and leaving a passage between the same, mechanism for taking up slats through said box, and mechanism for expelling said slats successively and automatically from the slat-box into the framing mechanism, through said passage, substantially as set forth.

26. In a machine of the character described, the combination of a framing device, a slat-box adjoining the same, a table extending over said slat-box and said framing device and forming a passage therebetween, and springs partly obstructing said passage, substantially as set forth.

27. In a machine of the character described, the combination of a framing device, a slat-box formed with a suitable passage leading into said device, means for bringing a pile of slats up to said passage, and springs partly obstructing said passage whereby square-cornered slats in the pile will be arrested and allowed to slide only one at a time through the passage, substantially as set forth.

28. In a machine of the character described, the combination of a framing device, a slat-box formed with a suitable passage leading into said device, means for bringing a pile of slats up to said passage, and springs partly obstructing said passage, the said springs being fitted in flaring recesses and adapted to be pushed aside by a wedge-shaped channeled slat covering another slat of lesser width and to thus allow the two said slats to slide together through said passage, substantially as set forth.

29. In a machine of the character described, the combination of a framing device, a slat-box discharging into said device, means for passing slats in piles through said box, the top slat of one pile fitting within the bottom slat of another pile, and a reciprocating bar adapted to drive the said top and bottom slats together into the framing device, substantially as set forth.

30. In a machine of the character described, the combination of framing mechanism, mechanism for driving splints in rows thereto, a slat-holder, means for taking up by degrees the slats in the holder, and a reciprocating bar working alternately with the splint-driving mechanism and operating to discharge the slats from the holder unto the splints in the framing mechanism, substantially as set forth.

31. In a machine of the character described, the combination of framing mechanism, a box open at both top and bottom and arranged to discharge thereinto, bars adapted to automatically receive slats through the bottom end of said box and take them up by degrees to the upper end thereof, a spring working said bars, a reciprocating bar arranged to drive the slats successively from said box to said framing mechanism, a lever actuating both said spring and said reciprocating bar, and means for operating said lever, substantially as set forth.

32. In a machine of the character described, the combination of a framing device, means for holding slats within the same, a table entirely covering said device and provided with a suitable channel leading thereinto, splint-cutters, and mechanism to carry the wooden blocks against said cutters and at the same time drive the splints through the channel in the table unto the slats in the framing device, substantially as set forth.

33. In a machine of the character described, the combination of a framing device, means for holding slats in layers therein, a suitably-apertured table extending over said device, splint-cutters, and mechanism for carrying the wooden blocks in groups against said cutters and driving the splints in successive rows unto the layers of slats in said framing device, substantially as set forth.

34. In a machine of the character described, the combination of friction-slides composed of spring-bars formed into branches with interposed cushions imparting to the same a uniform tension, and means for forcing splint-bearing slats down said slides, substantially as set forth.

35. In a machine of the character described, the combination of a framing-chamber, friction-slides for holding up splint-bearing slats yieldingly therein, and a depressor, substantially as set forth.

36. In a machine of the character described, the combination of a framing device, a slat-box, means for feeding the slats from said box to said device and a depressor adapted to guide said slats as they are driven from the box to the framing device, substantially as set forth.

37. In a machine of the character described, the combination of a framing device adapted to receive slats and splints to be piled in alternate strata therein, a slat-box discharging into said device, means for loading successively the discharged slats with splints, and a depressor arranged to bear on the splints while the slats are driven in, substantially as set forth.

38. In a machine of the character described, the combination of framing mechanism, a slat-holder, means for discharging loose slats from the holder into the framing mechanism, splint-cutters discharging unto the slats from the holder, and a reciprocating depressor adapted to lower the slats and splints as the same are introduced into the framing mechanism, substantially as set forth.

39. In a machine of the character described, the combination of framing mechanism, a slat-holder discharging into the same, a table thereover, splint-cutters also discharging into said framing mechanism from said table, and a reciprocating depressor fitted within the table over both the slat-holder and framing mechanism, substantially as set forth.

40. In a machine of the character described, the combination of a framing device, a slat-box and splint-cutting mechanism arranged to discharge alternately into said device, a table under the splint-cutting mechanism, and a depressor composed of suitable bars joined together fitting in grooves under the table and extending over both the slat-box and framing device, substantially as set forth.

41. In a machine of the character described, the combination of a framing device, a slat-holder discharging thereinto, splint-feeding mechanism arranged to discharge also into said device, a depressor adapted to guide the slats as they are discharged from the holder, and a cam connected with said splint-feeding mechanism and working said depressor, substantially as set forth.

42. In a machine of the character described, the combination of a framing device adapted to receive slats and splints to be piled in alternate strata therein, a suitably-apertured table, splint-cutters, a depressor located between the table and the framing device and having a spring-arm passing through and extending over the table, and mechanism adapted to feed the splint material to the splint-cutters and comprising a cam arranged to work the depressor alternately with the feed of the splint material, substantially as set forth.

43. In a machine of the character described, the combination of a table, a series of framing devices under the same, a series of adjoining slat-boxes discharging into said framing devices, a series of splint-cutters also discharging into said framing devices from said table, a series of depressors located between the table and the framing devices and boxes thereunder, and a wheel carrying the splint material successively to the cutters and having a series of cams arranged to periodically work the depressors after the splints are cut and discharged and while the slats are being fed thereover, substantially as set forth.

44. In a machine of the character described, the combination of a framing device, means for placing slats therein, means for driving splints in close rows across said slats, a depressor arranged to bear upon and keep said splints in the order that they are driven in, and guiding devices adapted to maintain the slats and splints in the shape in which they are left by said depressor, substantially as set forth.

45. In a machine of the character described, the combination of a table, cutters thereon, mechanism to carry wooden blocks successively against said cutters and drive the splints into a channel running through said table, having a flaring wall connected with said channel, and framing mechanism, substantially as set forth.

46. In a machine of the character described, a framing device provided with guides forming ways adapted to receive splint-bearing slats in parallel piles therein, the said guides being inwardly projected to keep the splints in close rows upon the slats while the said piles are being formed, substantially as set forth.

47. In a machine of the character described, a framing device provided with guides forming ways adapted to receive splint-bearing slats piled up therein, the said ways running parallel for some distance and then gradually diverging so that the splint-bearing slats are first kept close together and afterward gradually separated, substantially as set forth.

48. In a machine of the character described, the combination of a framing device adapted to receive alternate layers of slats and rows of splints, means for arranging said splints symmetrically across said slats and keeping the same in parallel piles and in a compact body for some distance therein, means for separating the symmetrically-arranged piles of splint-bearing slats, and partitions forming compartments adapted to receive the parted piles and space the splints therein preparatory to framing, substantially as set forth.

49. In a machine of the character described, the combination with a framing device adapted to receive slats bearing transversely-laid splints, of beveled ribs and intermediate grooves arranged to meet the ends of alternate splints, substantially as set forth.

50. In a machine of the character described, the combination of a framing device adapted to receive slats bearing close rows of transversely-laid splints, of diverging ribs and grooves arranged to part and shift the splints first endwise and then sidewise along the slats placed therein, substantially as set forth.

51. In a machine of the character described, the combination with a framing device adapted to receive slats bearing close rows of transversely-laid splints, of beveled and diverging ribs with intermediate grooves arranged to meet and work between the ends of alternate splints, whereby the same are shifted both endwise and sidewise, substantially as set forth.

52. In a machine of the character described, the combination of a framing device with spacing devices consisting of ribs and grooves formed on opposite walls therein, the said ribs facing said grooves, substantially as set forth.

53. In a machine of the character described, the combination of a framing device divided into ways adapted to receive splint-bearing slats in parallel piles therein, means for separating said piles preparatory to spacing the splints, and partitions and walls provided with oppositely-placed spacing devices whereby the splints in the several piles contained in the framing device can be spaced simultaneously therein, substantially as set forth.

54. In a machine of the character described, the combination of a framing device with spacing devices consisting of ribs and intermediate grooves, the said ribs and grooves running closely together in parallel planes for a short distance within said framing device, then gradually diverging toward a suitable point therein, and from that point again running in parallel planes, substantially as set forth.

55. In a machine of the character described, the combination of a framing device containing splint-bearing slats having slotted ends and put up in piles therein, spring-capped rods adapted to be inserted through the slotted ends of said slats and to engage with the top slat of each slat-pile, and means for clamping and holding up the bottom slat of each such pile on the lower end of said rods, substantially as set forth.

56. In a machine of the character described, the combination of a framing device arranged to hold splint-bearing slats in piles, rods adapted to be passed through said slats and to engage with the top slat of each slat-pile, and blocks carried by the lower end of said rods and adapted to clamp and hold the bottom slat of the slat-pile thereon, substantially as set forth.

57. In a machine of the character described, the combination of a framing device arranged to hold splint-bearing slats put up in piles therein and having slotted ends, the top and bottom slats of each pile having slots of varying shape, spring-capped rods adapted to be passed through the slotted ends of the slats in each pile, and to engage the top slat thereof, blocks sliding over said rods and brought to bear upon the bottom slat of each such pile, and spring-pressed pawls holding up said blocks, substantially as set forth.

58. In a machine of the character described, the combination of a framing-chamber, devices adapted to clamp and frame splint-bearing slats piled therein, and a carriage arranged to bring said devices into said framing-chamber, substantially as set forth.

59. In a machine of the character described, the combination of a series of framing-chambers, a series of slat-boxes surrounded by and discharging into said chambers, splint-cutters, mechanism operating to load the slats discharged from said boxes with the splints produced by said cutters, carriages adapted to surround the series of slat-boxes at the outlet end of the series of framing-chambers, clamping and framing devices mounted upon said carriages, and hoisting mechanism, substantially as set forth.

60. In a machine of the character described, the combination of a framing-chamber divided into compartments adapted to hold splint-bearing slats having suitably-slotted ends and disposed in piles therein, a carriage, and rods arranged in opposite rows upon said carriage and adapted to be inserted through the piles of slats in said compartments and simultaneously frame and clamp the groups of slat-piles therein, substantially as set forth.

61. In a machine of the character described, the combination of a carriage, clamping-rods inserted into suitable holes therein, clamping-blocks adapted to slide upon said rods and seated over said holes, and means for holding the rods in position on said carriage, substantially as set forth.

62. In a machine of the character described, the combination of a carriage, clamping-rods passing through flaring holes and sockets in said carriage, blocks located over said holes and provided with spring-pressed pawls playing therein, and a plate adapted to engage the lower end of said rods and hold the same on the carriage, substantially as set forth.

63. In a machine of the character described, the combination of a carriage, clamping-rods passed through suitable holes in said carriage, the said rods having a notched end, and a plate having D-shaped openings adapted to engage the notched end of said rods and to hold the same in position within the carriage, substantially as set forth.

64. In a machine of the character described, the combination of a framing device containing a pile of splint-bearing slats, a carriage, rods on said carriage adapted to be inserted through said pile of slats to clamp the same, and mechanism for raising and lowering said rods on the carriage, substantially as set forth.

65. In a machine of the character described, the combination of a framing device containing a pile of splint-bearing slats, a carriage, rods on said carriage adapted to be inserted through said pile of slats to clamp the same, a clamping-plate adapted to engage said rods, and a screw arranged to raise and lower said plate, substantially as set forth.

66. In a machine of the character described, the combination of a carriage, rods mounted oppositely thereon and adapted to be inserted simultaneously through a number of piles of splint-bearing slats to frame and clamp the same, a series of clamping-plates engaging the ends of opposite rods, screws adapted to move said plates to and from said carriage, interconnected sprocket-wheels on said screws, and means for turning said sprocket-wheels, substantially as set forth.

67. In a machine of the character described, the combination of a carriage, a number of rods mounted thereon in opposite rows adapted to be inserted simultaneously through piles of splint-bearing slats disposed in groups and to frame and clamp the same, a series of clamping-plates engaging the ends of opposite rods, screws adapted to move said plates to and from said carriage, sprocket-wheels on said screws, a sprocket-chain connecting said wheels, a main sprocket-wheel and bevel-gearing controlling the movement of said chain, and means for turning said gearing, substantially as set forth.

68. In a machine of the character described, a splint-frame consisting of superimposed slats having slotted ends, the top slat having slots of less width and the bottom slat being provided with an under channel, wedge-shaped rods carrying spring-blades adapted to be passed through the slotted ends of said slats and become engaged with the narrow slotted ends of said top slat, blocks sliding upon said rods and arranged to bear upon said bottom slat within the under channel thereof, and spring-pressed pawls adapted to clutch said rods and hold said blocks thereon, substantially as set forth.

69. A splint-frame consisting of superimposed slats having slotted ends, barbed spring-capped rods passing through said slotted ends and engaging the top slat, blocks sliding upon said rods and arranged to bear upon the bottom slat, and spring-pressed pawls carried by said blocks and adapted to hold the slats together by clutching the rods, substantially as set forth.

70. In a machine of the character described, the combination of framing mechanism, a slat-holder, means for transferring slats in single layers from the holder to the framing mechanism, and means for driving splints over the slats transferred from the holder, substantially as set forth.

71. In a machine of the character described, the combination of a table and splint-cutting mechanism with a series of chutes thereabove having their feed-openings in a small circle and their discharge-openings in a larger circle and lower plane, whereby the splint material is fed down by gravity and spread out before reaching the table and splint-cutting mechanism, substantially as set forth.

72. In a machine of the character described, the combination of splint-cutters with a traveling device having a number of splint-material-carrying channels placed so as to follow one another while in motion and forming groups of closely-adjoining compartments with intermediate spaces of suitable size between each group, substantially as set forth.

73. In a machine of the character described, the combination of a framing device adapted to receive slats and splints to be piled in alternate strata therein, with a depressor having parallel bars arranged to bear upon the splint-loaded slats, hold down the splints thereon, and guide the slats as they come in, substantially as set forth.

74. In a machine of the character described, the combination of framing mechanism with splint-feeding mechanism and a slat-holder discharging into said framing mechanism in directions at right angles one to the other, substantially as set forth.

75. In a machine of the character described, the combination of a framing device, means for placing slats in layers therein, and means for driving successive rows of splints across said slats to form a group of splint-frames in said framing device, the forward rows of splints being driven by the succeeding ones across all the slats in any one layer, substantially as set forth.

76. In a machine of the character described, the combination of a framing device adapted to receive alternately slats and splints to be piled therein, a reciprocating device for feeding the slats, and a rotary device to cut the splints and drive the same across the slats as they are fed in, substantially as set forth.

77. In a machine of the character described, the combination of a framing device containing splint-loaded slats put up in piles to be divided into several frames, and spring-capped rods adapted to be passed through the slats of more than one frame and to engage upon being retracted the top slat of the lower frame through which they are passed, substantially as set forth.

78. In a machine of the character described, the combination of a table, splint-cutters thereon, a splint-material or block-carrying device moving above said table, a slat-holder and framing mechanism located entirely under said table, and mechanism for transferring slats from said holder to said framing mechanism, substantially as set forth.

79. In a machine of the character described, the combination of a slat holder, means for passing slats therethrough, framing mechanism, means for transferring loose slats from the slat-holder to the framing mechanism, splint-feeding mechanism discharging into the loose slats transferred from the holder, and means for carrying the splint-bearing slats through the framing mechanism in an opposite direction to that of the slats passing through the holder, substantially as set forth.

80. In a machine of the character described, the combination of a table, splint-cutters at the edge thereof, and a movable chute for the splint material, said chute having its top located in a central position above the table, and at a higher elevation, and its bottom running downwardly and outwardly toward the cutters, substantially as set forth.

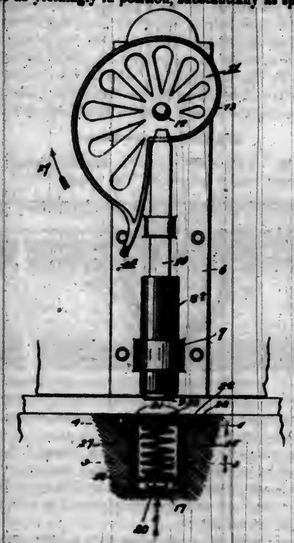
81. In a machine of the character described, the combination of splint-cutters with a chute movable toward the same, said chute being divided in the direction of its travel into passages adapted to convey the splint material to and against said cutters, and framing mechanism receiving the splints from the cutters, substantially as set forth.

82. In a machine of the character described, the combination of splint-driving mechanism, a slat-holder, framing mechanism receiving the splints and slats alternately from the splint-driving mechanism and the slat-holder, and spacing mechanism, substantially as set forth.

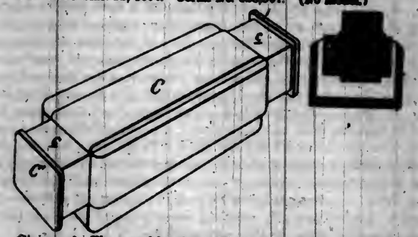
587,181. DOOR-STOP. GEORGE J. MARSHALL, St. Louis, Mo. Filed Feb. 15, 1897. Serial No. 623,572. (No model.)

Claim.—The combination with a sliding bolt of a socket consisting of the tubular portion 15 having the heads 16 formed in vertical

parallel positions upon its inner face, there being slots 17 cut in said heads near their lower ends, the disk 18 having the semicircular notches 19 formed in its periphery inserted in the lower end of said tube 15 and operating in said slots 17, the lug 20 projecting downwardly from said disk, the flange 21 projecting inwardly from the upper end of the tube 15, the flange 22 projecting outwardly from the upper end of the tube 15 in alinement with the flange 21, the plate 23 slidingly mounted in the tube 15 and having the enlarged lower portion 24 to engage below the flange 21 and having the semicircular recesses 25 to receive the heads 16, and the expansive coil-spring 27 inserted between the plate 23 and the plate 18 as required to hold said plate 23 yieldingly in position, substantially as specified.



587,182. SIDE BEARING. EDWARD S. MARSHALL, St. Louis, Mo., assignor to the Missouri Railway Equipment Company, East St. Louis, Ill. Filed Mar. 22, 1897. Serial No. 628,567. (No model.)



Claim.—1. The combination with a truck-bolster, of rotatable bearing-blocks having flat bearing-faces at different distances from their axial line, said bearing-blocks being arranged in suitable supports mounted on said bolster, and means for holding said blocks in fixed positions relative to their supports, substantially as described.

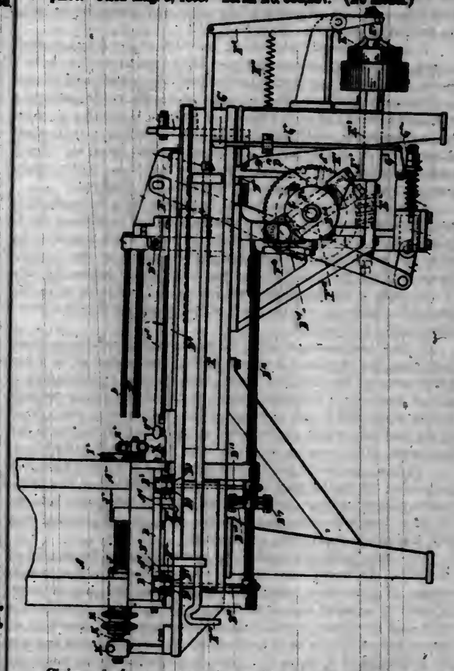
2. The combination with a truck-bolster, of suitable supports arranged thereon, rotatable bearing-blocks mounted in said supports, said blocks having flat bearing-faces on different sides and at different distances from their axial line, and angular studs projecting from the ends of the bearing-blocks for cooperating with angular recesses in the supports for holding said blocks in adjusted positions, substantially as described.

3. The combination with suitable supports, formed with rectangular recesses or notches in their upper edges, of a bearing-block, formed with flat bearing-faces, rectangular studs projecting from the ends of said bearing-block and adapted to fit in the recesses in said supports; substantially as described.

4. The combination with suitable supports, formed with rectangular recesses or notches in their upper edges, of a bearing-block, formed with flat bearing-faces, rectangular studs projecting from the ends of said bearing-block and adapted to fit in the recesses in said supports, said studs being eccentrically disposed to the longitudinal axis of said block; substantially as described.

5. The combination with a side-bearing pocket having rectangular recesses formed in the upper edges of its end walls, of a bearing-block formed with bearing-faces on different sides, studs projecting from the ends of said bearing-block, said studs being rectangular in cross-section and fitting in the end walls of the pocket, and heads on the outer ends of said studs; substantially as described.

587,188. AUTOMATIC MACHINE FOR BURNISHING TUBES FOR PAPER-SHELL CARTRIDGES. WILLIAM MARSH, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 5, 1896. Serial No. 601,827. (No model.)



Claim.—1. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism having two chutes, of a burnishing mechanism, and two automatically-operated arbors which act alternately in removing tubes from the respective chutes and then presenting them to the action of the burnishing mechanism, substantially as described.

2. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism having two chutes, of a burnishing mechanism, an oscillating head carrying two arbors, and means for reciprocating the said head toward and away from the said tube feeding and burnishing mechanisms and for oscillating it, substantially as described, and whereby while one arbor is preparing to remove a tube from one chute the other arbor is presenting a tube removed from the other chute to the burnishing mechanism and vice versa.

3. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism having two chutes, of a burnishing mechanism located centrally between the said chutes, an oscillating head, two parallel arbors carried thereby, means for reciprocating the said head toward and away from the said chutes and mechanism and for oscillating it, and a stripping mechanism located in the rear of and in line with the burnishing mechanism, substantially as described.

4. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with tube feeding and burnishing mechanisms, of an automatically-operated arbor to remove the tubes from one mechanism and subject them to the action of the other, and feed-rolls through which the arbor passes the tubes on their way to the burnishing mechanism, substantially as described.

5. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a hopper, of a vertically-arranged chute leading downward therefrom, two vertically-arranged pivotal jaws located below the open lower end of the chute, means for actuating the said jaws, an arbor which is entered into a tube while the same is gripped by the said jaws, means for automatically operating the said arbor, a burnishing mechanism to the action of which the

tube on the arbor is subjected after it is withdrawn by the arbor from said jaws, and a stripping mechanism for stripping the tube from the arbor after it has been burnished thereupon.

6. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a hopper provided with a chute, of stops consisting of vertically-adjustable posts having their upper ends concaved and located below the opening at the lower end of the chute, for receiving the tubes from the chute, vertically-arranged pivoted jaws extending above the said stops for closing upon the tube supported thereby, an arbor which is entered into the tubes when they are gripped by the jaws, a burnishing mechanism to the action of which the tubes are subjected by the arbor, and means for stripping the burnished tubes from the arbor.

7. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism having two chutes, of a burnishing mechanism located between the said chutes, an arbor-head provided with two arbors, means for reciprocating the said head toward and away from the chutes and burnishing mechanism, and means for oscillating the head and supporting it at the limit of each end of its oscillating movement, so that for every inward excursion of the head it is changed in position so as to alternately present its tubes to the chutes and burnishing mechanism.

8. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with tube feeding and burnishing mechanisms, of an automatically-reciprocated arbor which transfers the tubes one by one from the tube-feeding mechanism to the burnishing mechanism, feed-rolls between which the arbor passes the rolls on their way to the burnishing mechanism, and means for actuating the rolls in harmony with the speed of the reciprocation of the arbor, substantially as described.

9. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a feeding mechanism, of an arbor which removes the tubes one by one from the feeding mechanism, a pair of feed-rolls, a burnishing mechanism, a reciprocating carriage for the arbor, and a rack attached to the said carriage and geared to the feed-rolls which are therefore actuated in harmony with the movement of the carriage back and forth, substantially as described.

10. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a burnishing mechanism, of a reciprocating arbor-carriage, and a feed-roll carriage interposed between the burnishing mechanism and the arbor-carriage, and provided with two feed-rolls, substantially as described.

11. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with tube feeding and burnishing mechanisms, of a carriage, means for reciprocating the said carriage, whereby it is moved toward and away from the said mechanisms, a rock-shaft extending parallel with the movement of the carriage, an arbor-head provided with two arbors and connected with the carriage for oscillation in a plane at a right angle to the line in which the same reciprocates, means for rocking the said shaft, and connection between the shaft and head, whereby the latter is oscillated by the former independent of its movement back and forth with the carriage.

12. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with tube feeding and burnishing mechanisms, of a carriage, means for reciprocating the said carriage whereby it is moved toward and away from the said mechanisms, a rock-shaft extending parallel with the movement of the carriage, an arbor-head provided with two arbors and connected with the carriage for oscillation in a plane at a right angle to the line in which the same reciprocates, means for rocking the said shaft, two arms connected with the shaft, a bar carried by the said arms, and an arm connected with the said oscillating head and having sliding connection with the said bar, whereby the oscillation of the shaft is transmitted to the head for the oscillation thereof.

13. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism, of an arbor, a reciprocating carriage therefor, a lever connected with the said carriage for reciprocating the same back and forth, means for operating the said lever, a spring connected with the lower end of the lever, and yielding in case of accident, a friction-clutch, a spring exerting a constant effort to operate the same, and means actuated by the compression of the spring for permitting the spring last mentioned to act in throwing off the clutch and stopping the machine, substantially as described.

14. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination with a tube-feeding mechanism, of a burnishing mechanism, an oscillating arbor-head provided with two arbors, a reciprocating carriage to which the said head is attached, means for reciprocating the carriage, and means for oscillating the head, including a cam having two paths which intersect each other, two shifting cams located at the intersection of the said paths, and a coupling-yoke connecting the said cams, whereby when one cam is retired the other is brought into operating position, substantially as described.

15. In an automatic machine for burnishing tubes for paper-shell cartridges, the combination, in a burnishing mechanism, with two burnishing-dies, of a die-head in which the same are mounted, a hollow spindle to which the die-head is attached, a non-rotatable tube entering the said hollow spindle, an auxiliary tube secured to the forward end of the said non-rotatable tube, and having its forward end beveled, two semicircular jaws located within the auxiliary tube, and having their forward ends adapted to coact with the beveled forward ends thereof, and a spring acting upon the said jaws, and tending to push the same forward so as to force them together, substantially as described.

16. In a machine for burnishing tubes for paper-shell cartridges, a tube-feeding mechanism having a hopper, a chute leading downward therefrom, jaws located below the lower end of the chute, receiving the tubes therefrom, and having their upper ends beveled to lift the column of tubes when they come together and so isolate the tube gripped by the jaws from the tubes of the column, means for operating the jaws, and stops located below the lower end of the chute for arresting the tubes in position to be gripped by the jaws.

587,184. RAIL-BOND. JOHN A. MOSHER, Chicago, Ill. Filed June 21, 1897. Serial No. 641,564. (No model.)



Claim.—1. A rail-bond comprising a body portion and end pieces, the body portion being looped or hooked over a projection of each of the end pieces and secured by an overturned portion of the end piece compressed upon it.

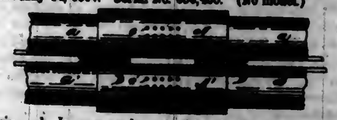
2. The combination in a rail-bond, of a flexible body portion having its ends in loop form, with end pieces having projections for engaging the loops of the body portion, and flanges adapted to be turned down upon the loops of the body portion to hold them in engagement with the end pieces.

3. In a rail-bond the combination with a body portion having its ends in loop form, of end pieces each comprising a plate, a stud projecting from the plate and adapted to enter one of the looped ends of the body portion, and a flange rising from the plate and being folded over the loop in engagement with the stud.

4. In a rail-bond the combination with a body portion comprising an oblong coil, with a pair of end pieces each comprising a plate, a riveting-stud projecting from one face of the plate, an attaching-stud projecting from the opposite face of the plate and entering one end of the oblong loop, and a flange rising from the plate and overlapping the end of the loop in engagement with the attaching-stud.

5. The combination with a plate having a stud rising from each of its opposite faces and in alinement, a longitudinal aperture opening through such studs and the plate, a flange rising from the plate and inclosing one of the studs but being spaced apart therefrom, and an oblong flexible loop caught over such inclosed stud, the flange being folded over the portion of the loop in engagement with the stud, and an expanding-pin for entering the aperture of the studs but being of greater diameter than such aperture.

587,185. PAPER-BAG MACHINE. SYLVANUS T. MURCHIE, Batavia, Ill., assignor to the Western Paper Bag Company, same place. Filed May 14, 1897. Serial No. 636,460. (No model.)



Claim.—1. In a paper-bag machine, hollow rotary suction-formers having flattened portions and perforations in said flattened portions, substantially as described.

2. In a paper-bag machine, the combination with rotary suction-formers having flattened portions with perforations located in and adjacent to said flattened portions and reciprocating blades or holders, substantially as described.

3. In a paper-bag machine the combination with rotary suction-formers having peripheral flattened portions, perforations in said flattened portions and also adjacent thereto and reciprocating blades or holders sliding over said flattened portions, substantially as and for the purpose described.

587,186. CLOCK. WILLIS R. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Apr. 13, 1896. Serial No. 587,354. (No model.)



Claim.—In a repeating, striking-clock of the rack-and-snail type, the combination with the center arbor thereof, of an hour-wheel mounted upon the said arbor and provided with a long, forwardly-projecting hour-wheel sleeve, a snail-sleeve removably mounted upon the hour-wheel sleeve to which it is adjustably secured, a snail mounted upon the rear end of the snail sleeve, and an hour-hand removably coupled with the projecting forward end of the snail-sleeve, substantially as and for the purpose set forth.

587,187. BICYCLE-BELL. HERBERT S. PULLMAN, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Mar. 1, 1897. Serial No. 625,522. (No model.)

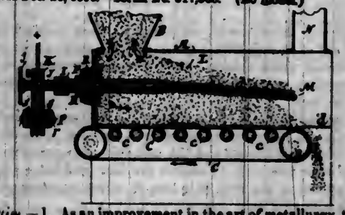


Claim.—1. In a bicycle-bell, the combination with the base and the gong thereof, of a finger-lever provided with a rack, a verge-like vibrating plate set into vibration by the rack, the teeth of which coact with its verge-like teeth; one or more hammers or strikers, and one or more links between the said verge-like vibrating plate and the said hammers or strikers, whereby the vibrating motion of the plate is transmitted to the hammers or strikers for the actuation thereof.

2. In a bicycle-bell, the combination with the base and the gong thereof, of a finger-lever provided with a segmental rack, a verge-like vibrating plate acted upon by the said rack, the teeth of which coact with the verge-like teeth of the plate for setting the same into rapid vibration; a link connected with the said vibrating plate, an oscillating hub connected with the said link, and a hammer or striker connected with the said hub which is oscillated by the vibrating plate through the medium of the said link.

3. In a bicycle-bell, the combination with the base and gong thereof, of a finger-lever formed with a segmental rack, a verge-like vibrating plate provided with teeth coacting with those of the rack, whereby the plate is thrown into rapid vibration by the movement of the lever, a link connected with one end of the said plate, an oscillating hub having its lower end furnished with an arm which is pivotally connected with the outer end of the said link, and a striker or hammer having a hammer-arm which is secured to the said hub.

587,188. PROCESS OF AND APPARATUS FOR MANUFACTURING METALLIC CARBIDS. ISAIAH L. ROBERTS, Niagara Falls, N. Y. Filed Dec. 29, 1896. Serial No. 617,205. (No model.)



Claim.—1. As an improvement in the art of metallurgy, the process of converting or changing an ore, substantially an insulator of electricity, which consists in establishing between electrodes within a non-conducting mixture of pulverized or granulated ore or oxid and a reducing agent, a conducting path of material which will be heated to incandescence by the passage of a current, passing electricity through said path and by the heat therefrom converting the adjacent portions of the mixture into a conductive body, and gradually drawing the mixture between the electrodes in a direction transverse to the direction of flow of the current through said path, whereby successive portions of the mixture are successively brought into the heating-field and thereby converted into a conducting-body and caused to act as an incandescent conductor to reduce the adjacent portions of the mixture, substantially as described.

2. As an improvement in the art of metallurgy, the process of converting or changing an ore, substantially an insulator of electricity, which consists in establishing between electrodes within a non-conducting mixture of pulverized ore or oxid and carbon, a conducting path of material which will be heated to incandescence by the passage of a current, passing electricity through said path and by the heat therefrom converting the adjacent portions of the mixture into a conductive body, and gradually drawing the mixture between the electrodes in a direction transverse to the direction of flow of the current through said path, whereby successive portions of the mixture are successively brought into the heating-field and thereby converted into a conducting-body and caused to act as an incandescent conductor to reduce the adjacent portions of the mixture, substantially as described.

3. As an improvement in the art of metallurgy, the process of converting or changing an ore of calcium commingled with carbon, substantially an insulator of electricity, which consists in establishing between electrodes within a non-conducting mixture of pulverized or granulated calcium oxid and carbon, a conducting path of material which will be heated to incandescence by the passage of a current, passing electricity through said path and by the heat therefrom converting the adjacent portions of the mixture into a calcium carbid, and gradually drawing the mixture between the electrodes in a direction transverse to the direction of flow of the current through said path, whereby successive portions of the mixture are successively brought into the heating-field and thereby converted into a conducting-body and caused to act as an incandescent conductor to reduce the adjacent portions of the mixture, substantially as described.

4. As an improvement in the art of metallurgy, the process of converting or changing an ore of calcium commingled with carbon, substantially an insulator of electricity, which consists in establishing between electrodes within a non-conducting mixture of pulverized or granulated calcium oxid and carbon, a conducting path of material which will be heated to incandescence by the passage of a current, passing electricity through said path and by the heat therefrom converting the adjacent portions of the mixture into calcium carbid, and gradually passing the mixture between the electrodes in a direction transverse to the direction of flow of the current through said path, whereby successive portions of the mixture are successively brought into the heating-field and thereby converted into a conducting-body and caused to act as an incandescent conductor to reduce the adjacent portions of the mixture, and maintaining the resulting slab of carbid within a surrounding cover of unconverted material, substantially as described.

5. The process of producing metallic carbids, which consists in surrounding horizontal electrodes with a mass of pulverized oxid and carbon, in establishing a temporary conducting path between said electrodes, in passing the pulverized mass of oxid and carbon horizontally between the electrodes without breaking contact with the produced carbids, in gradually widening the said slab of produced carbid by the gradual withdrawal of the electrodes, and in finally forming carbid by moving the mixed mass between parallel electrodes extending in the direction of travel of the mass, thereby forming such slab of carbid of the full width of the distance between the electrodes, and in supplying sufficient unconverted material to surround the electrodes and the slab so formed, and in simultaneously moving said unconverted material onward again with the so-formed carbid, substantially as described.

6. In an apparatus for effecting metallurgical operations, the combination of a continuous horizontal mechanical conveyer, two electrodes located in proximity thereto, and means for feeding a mass of material to be treated into said conveyer above and below said electrodes, thereby inclosing them in a mass of the material to be treated in their operation, substantially as described.

7. The combination in an apparatus for effecting metallurgical operations of an endless continuous horizontal mechanical conveyer, and two horizontally-adjustable electrodes placed in proximity thereto and capable of taking a parallel position, thereby effecting material moved by said conveyer, substantially as described.

8. In an apparatus for the treatment of substances by electrical heat, the combination of a conveyor made of wire-cloth the wires of which are severally covered with asbestos, and two electrodes located in proximity to said conveyer, substantially as described.

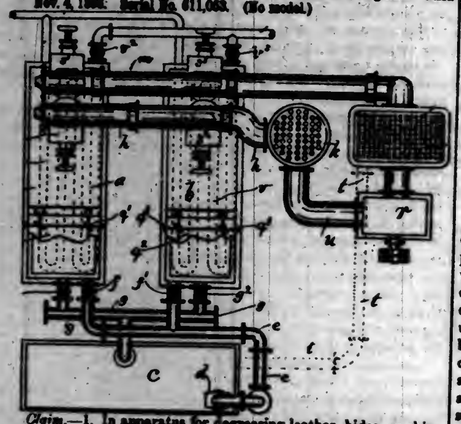
9. The combination in an apparatus for effecting electrical conversion, of a continuous horizontal mechanical conveyer, and two horizontal electrodes arranged in proximity to its upper surface, substantially as and for the purposes described.

10. The combination in an apparatus for effecting electrical conversion, of a continuous horizontal mechanical conveyer, two horizontal electrodes arranged in proximity to its upper surface, and means for causing the said electrodes to travel above said conveyer and in the same horizontal plane, substantially as described.

11. The combination in an apparatus for effecting electrical conversion, of the belt C, horizontally-adjustable electrodes F in prox-

inity thereto, the adjustable supports R, located above the belt and aiding in supporting the electrodes, and the plates P, located outside of the casing of the apparatus and carrying the moving holders of the electrodes, substantially as described.

587,139. APPARATUS FOR EXTRACTING OIL. WILLIAM SAGAR, Sr., ALFRED P. SAGAR, and WILLIAM SAGAR, Jr., Colne, England. Filed Nov. 4, 1896. Serial No. 611,063. (No model.)



Claim.—1. In apparatus for degreasing leather, hides, or skins, the combination of tanks which, in operation, are closed against the escape of liquid or vapor, and are provided with valved outlets for permitting the solvent to accumulate and be drawn off, means for supporting the leather, hides, or skins within these tanks, means for supplying a liquid solvent to said tanks to immerse the said articles without agitating or disturbing them, and means for desiccating the contents of the closed tanks, substantially as herein specified.

2. In apparatus for degreasing leather, hides, or skins, the combination of tanks which, in operation, are closed against the escape of liquid or vapor, and are provided with valved outlets for permiting the solvent to accumulate and to be drawn off, means for supplying a liquid solvent to said tanks to immerse the leather, hides, or skins, means for heating and cooling air and gases used to desiccate the contents of the closed tanks, and exhausting or propelling apparatus for causing air or other gases to circulate within said tanks, substantially as herein specified.

3. In apparatus for degreasing leather, hides or skins, the combination of closed tanks, means for supplying liquid solvent to said tanks, coiled or a series of pipes within said tanks arranged to allow the circulation of cold water for maintaining the solvent at a normally low temperature, means for condensing the solvent out of the air and gases circulating in the closed tanks, apparatus for reheating said air or gases and means for propelling the same substantially as herein set forth.

4. In apparatus for degreasing leather, hides or skins, tanks having their lids or upper surfaces at an angle to the horizontal plane, air delivery and exhaust pipes with elongated orifices leading into said tanks and means for deflecting the currents of said air and gases, in combination substantially as specified.

5. In apparatus for degreasing leather, hides or skins, the combination of tanks formed and arranged as described, air-conducting pipes with elongated orifices leading into said tanks, deflectors arranged beneath certain of said orifices regulating-valves in connection with said pipes and means for heating and condensing the air and gases charged with the solvent substantially as herein specified.

6. In apparatus for degreasing leather, hides or skins the combination of tanks formed as described, air-conducting pipes with elongated orifices, leading into said tanks, valves in connection with said pipes, means for deflecting the currents of air and gases within the tanks and means for propelling said air and gases to cause same to circulate substantially as herein specified.

7. In apparatus for degreasing leather, hides or skins, the combination of tanks, formed as described, air-conducting pipes with elongated orifices leading into said tanks, valves in connection with said pipes, means for deflecting the currents of air and gases within the tanks, worm and wheel gear for regulating and holding said deflector, and fan or like propelling apparatus to cause the air and gases to circulate substantially as herein specified.

8. In apparatus for degreasing leather, hides or skins, the combination of tanks formed and arranged as described, a coil or series of pipes within said tanks to enable the employment of cold water to cool the solvent, air-conducting pipes with elongated orifices leading into said tanks, means of deflecting the currents of air circulating therein, propelling means for causing said air to circulate and heating and condensing devices for acting thereon substantially as herein specified.

587,140. BUCKET-TOP. JOHN P. SEIBERT, Malden, W. Va. Filed Nov. 6, 1896. Serial No. 611,202. (No model.)



Claim.—The combination with a bucket or other similar vessel, of a spring-clip adapted to be applied to and removed from the upper side of said bucket, the said clip being made of a single strip of wire formed with a looped portion adapted to engage the upper side of said bucket or other vessel, with downwardly-extending arms on each side, loops or coils at the lower ends of the outer of said arms, upwardly-extending arms leading from said loops or coils, and a cross-bar connecting the latter pair of arms, a lid or cover pivoted to said cross-bar, and a plate projecting outwardly from said lid or cover adapted to engage the outer surface of said bucket and constituting a stop for limiting the outward movement of said lid or cover, substantially as described.

587,141. APPARATUS FOR MANUFACTURING CAR-WHEELS. GUIDO ALTHAUSEN, Duesseldorf, Germany. Filed Dec. 19, 1896. Serial No. 573,653. (No model.) Patented in Germany Jan. 17, 1893, No. 70,955; in Hungary Apr. 12, 1895, No. 2,626; in Belgium May 24, 1895, No. 104,808, and in Austria June 26, 1895, No. 2,270.



Claim.—In a machine for forging car-wheels, an anvil, a lower die supported thereon and corresponding in contour to the surface of the wheel to be formed, a smaller intermediate die having a central socket, and an upper die having forging-ways that permit a distention of the metal, substantially as specified.

587,142. HAIR-CRIMPER. FRANK H. BARNICLE, Lawrence, Mass. Filed Mar. 15, 1897. Serial No. 627,674. (No model.)

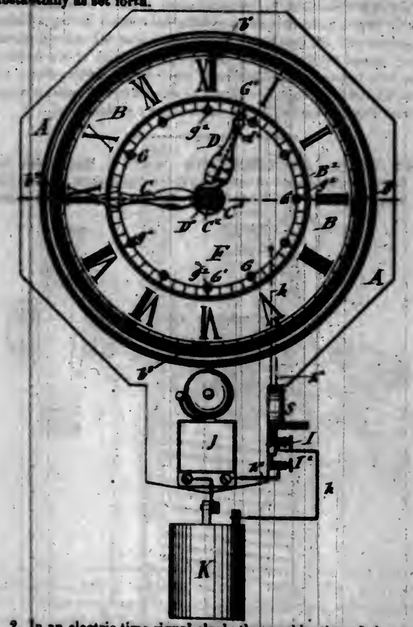


Claim.—1. A hair-curler comprising a flexible body which is provided at one of its ends with a slot adapted to receive and retain the other end, and which consists of two or more superposed strips connected together at the slotted end and adapted to be separated to receive the hair.

2. As a new article of manufacture, a hair-curler consisting of two superposed strips riveted together at one end, and each slotted transversely at the riveted end, the said strips being capable of separation at their free ends to receive the hair, and being adapted to be bent around in the form of a loop to effect engagement of said free ends with said slots.

587,143. ELECTRIC PROGRAM-CLOCK. ERNST ROESNER and SIGMUND L. PRAGER, Mount Vernon, N. Y. Filed Feb. 8, 1897. Serial No. 622,422. (No model.)

Claim.—1. In an electric time-signal clock, the combination of the main dial having a central opening and provided with a raised contact on its upper surface, the minute-hand sweeping over the face of the dial in contact with said raised contact, the hour-hand provided with a movable contact, said hands being insulated from their arbors, and said minute-hand being electrically connected with the hour-hand, an auxiliary or index dial arranged below and visible through said opening in the main dial, suitable insulating means between the auxiliary and main dials, a set of contact devices on the auxiliary dial, a source of electricity, an alarm, and electrical connections or wires leading from the source of electricity and alarm, respectively to the main dial and to the contact devices on the index-dial, substantially as set forth.



2. In an electric time-signal clock, the combination of the main dial provided with a raised contact on its upper surface, the minute-hand adapted to touch said contact portion and provided on its hub with a contact-finger, the hour-hand, the hub of which is engaged by said contact-finger, a pivoted contact on the under side of the hour-hand, a spring acting on the inner end of the pivoted contact for returning it into normal position, an auxiliary or index dial arranged below and visible through a central opening in the main dial, means for insulating the two dials from each other, a set of contact devices arranged on the auxiliary or index dial, a source of electricity, an alarm, and electrical connections or wires leading from the battery and alarm, respectively to the main dial and to said contact devices on the auxiliary or index dial, substantially as set forth.

587,144. WORK-SUPPORT FOR BOOTS OR SHOES. LOUIS A. CASGRAIN, Winchester, Mass., assignor to James W. Brooks, principal trustee, Peterham, and Frank P. Stanley, associate trustee, Swampscott, Mass. Filed Jan. 15, 1897. Serial No. 619,207. (No model.)

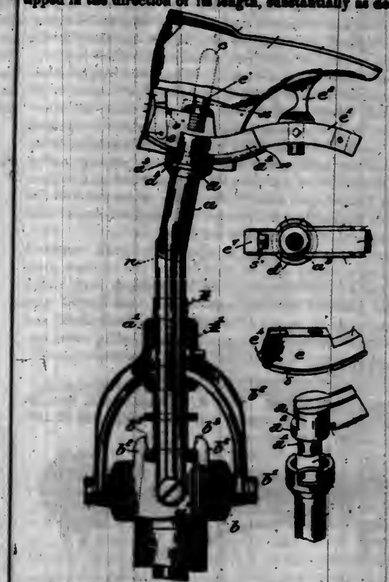
Claim.—1. A work-support for boots or shoes, consisting of a standard, a last-holder mounted to rotate thereon and adapted to be tipped in the direction of the length of the last, and means to normally prevent the last-holder from tipping, while permitting it to be tipped when rotated to a predetermined point, substantially as described.

2. A work-support for boots or shoes, consisting of a standard, a last-holder mounted thereon to turn in a lateral plane and adapted to be tipped at times in the direction of the length of the last, and means to permit the holder to be tipped at a predetermined point, and to automatically lock it thereat from lateral movement, substantially as described.

3. A work-support for boots and shoes consisting of a standard, a last-holder mounted to turn laterally thereon, and adapted to be tipped in the direction of the length of the last, means to permit the last-holder to be tipped at a predetermined point, and a stop to limit the extent of tipping movement of the last-holder, substantially as described.

4. A work-support for boots and shoes consisting of a standard forked at its lower end, a sustaining member upon which said forked end is pivoted, stops to limit the rocking movement of the standard thereon, a last-holder mounted to turn laterally on the standard, and adapted to be tipped in the direction of the length of the last, and means to normally prevent the last-support from tipping, substantially as described.

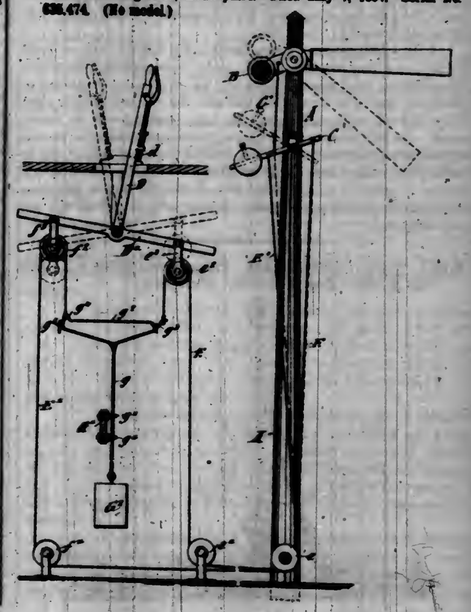
5. A work-support for boots or shoes consisting of a standard, a circular bearing thereon having an opening in its side, and a last-holder mounted to turn laterally upon the standard and engaging said bearing, rotation of said holder to bring its engaging portion opposite the opening of the bearing permitting the holder to be tipped in the direction of its length, substantially as described.



6. A work-support for boots or shoes consisting of a standard, a rotatable and tipping last-holder thereon provided with a fixed last-pin and a movable heel-support pivotally mounted on the holder, controlled as to its position by the counter of the boot or shoe, substantially as described.

7. A work-support for boots or shoes consisting of a standard, a rotatable and tipping last-holder thereon provided with a fixed last-pin, and a spring-controlled heel-support pivotally mounted on the holder, and positioned by the counter of the boot or shoe, substantially as described.

587,145. COMPENSATING ATTACHMENT FOR SEMAPHORE-SIGNALS. ADAM R. BOURET, Yonkers, N. Y., assignor of one-half to Albert H. Pangborne, same place. Filed May 7, 1897. Serial No. 636,474. (No model.)

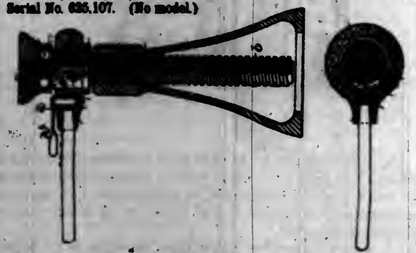


Claim.—1. The combination with a semaphore-signal, of a weighted balance-lever connected with the same, an actuating-lever for the same, guide-pulleys suspended from the lower part of the actuating-lever, front and back wires passing over the guide-pulleys of the actuating-lever and connected with the said weighted balance-lever, and a weighted compensating attachment operated by the breaking of either front or back wire, substantially as set forth.

2. The combination, with a semaphore-signal, of a weighted balance-lever connected with the same, an actuating-lever located in the semaphore-switch tower, guide-pulleys suspended from the lower part of the actuating-lever, connecting front and back wires passing over suitable guide-pulleys, and the pulleys on the actuating-lever, and a compensating attachment composed of a vertically-guided weighted rod having forked and hook-shaped upper ends and a disengaging-bar the hook-shaped ends of which are connected with the ends of the said front and back wires and with the hook-shaped ends of said weighted rod, substantially as set forth.

3. A compensating attachment for semaphore-signals, composed of a vertical rod, a weight applied to the lower end of same, arms at the upper end of same provided with hook-shaped ends, and a disengaging-bar provided with bent portions and hook-shaped ends engaging respectively the hooks of the arms of the vertical rod, and rings at the ends of the connecting semaphore-operating wires, substantially as set forth.

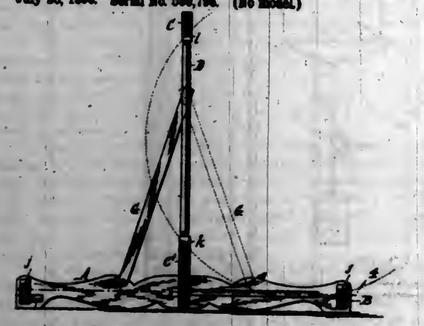
587,146. JACK-SCREW. JOHN W. EVANS, Haverhill, Mass., assignor of one-half to H. B. Newton, same place. Filed Feb. 26, 1897. Serial No. 625,107. (No model.)



Claim.—1. In a lifting-jack, the combination of a suitable base or standard having a fixed nut; a rotary screw-bar in engagement therewith; an oscillatory head loosely embracing the said bar and having an encircling groove in its internal wall and also recessed to form oppositely-inclined walls confronting the bar; wedging-rolls in the recesses; a spring lying in the internal groove and pressing at its ends against the rolls to impel them toward the narrow ends of the recesses; and a shifting block or bar confined in the groove between the rolls for engagement with the latter on their sides opposite those engaged by the spring.

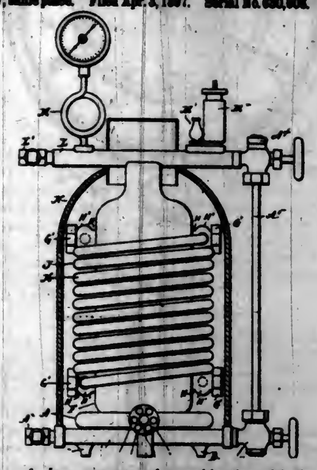
2. In a lifting-jack, the combination of a suitable base or standard having a fixed nut; a rotary screw-bar in engagement therewith; an oscillatory head loosely embracing the said bar and having an encircling groove in its internal wall and also recessed to form oppositely-inclined walls confronting the bar: wedging-rolls in the recesses; a spring lying in the internal groove and pressing at its ends against the rolls to impel them toward the narrow ends of the recesses; a shifting block or bar in the groove between the rolls and having a notch or socket; and a rock-shaft having a projection engaging the socket and a handle, substantially as and for the purpose described.

587,147. BICYCLE-RACK. FRANK X. HEIN, Buffalo, N. Y. Filed July 30, 1896. Serial No. 600,796. (No model.)



Claim.—A bicycle-rack comprising a base-frame having the sides and the cross-pieces at the ends thereof, said sides being grooved longitudinally of their inner faces from their central portion to near one end, a single wheel-holding frame adapted to coact with each cross-piece to form a holding-rack therewith, said frame having a sliding connection with the base-frame in the grooves of the side pieces and folding means for determining the upright position of the holding-frame with respect to the base-frame whereby the holding-frame will be reared and held centrally thereof, or may be folded entirely within the base-frame when not in use, substantially as described.

587,148. STEAM-GENERATOR. ARCHIE C. HOCHHEIMER, New Haven, Conn., assignor of two-thirds to the Buckingham Heath & Company, same place. Filed Apr. 3, 1897. Serial No. 630,608. (No model.)



Claim.—1. In a generator, the combination with the drum, of a base for supporting said drum and comprising a burner-ring, an inlet therefor, and a transverse passage for the inlet of water, which passage opens into the drum and projects on opposite sides of the base, substantially as described.

2. In a generator, the combination with the drum and coils thereof, of a base for supporting said drum comprising a burner-ring, inlet therefor, said inlet enlarged and formed with air-openings around the gas-inlet, and a transverse passage integral with the base for the inlet of water, which passage opens into the drum and projects on opposite sides of the base, substantially as described.

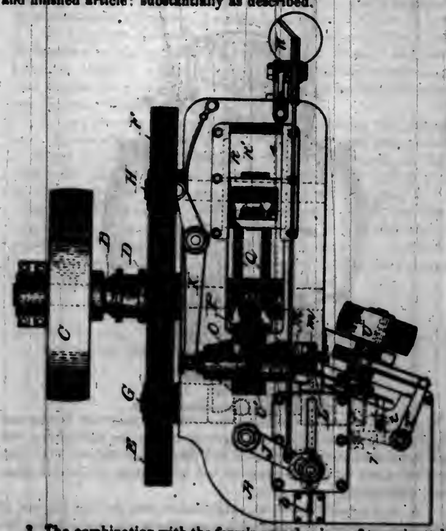
3. In a generator, the combination with the drum thereof, of transverse pipes extending through the drum near the upper and lower ends thereof, said pipes formed with central holes and with transverse holes outside the said drum, T's applied to the outer ends of said pipes and clamped thereon by nuts which close the ends of said pipes, the upper T's on the opposite sides of the drum connected with the lower T's by independent coils, whereby a double circulation is provided between the ends of the drum, substantially as described.

4. In a generator, the combination with the drum thereof, of transverse pipes extending through the drum near the upper and lower ends thereof, said pipes formed with central holes and with transverse holes outside the said drum, T's applied to the outer ends of said pipes and clamped thereon by nuts which close the ends of said pipes, and formed with chambers into which the holes near the ends of the pipe open, the upper T's on the opposite sides of the drum connected with the lower T's by independent coils, whereby a double circulation is provided between the ends of the drum, substantially as described.

587,149. MACHINE FOR FORMING NUT-LOCKS. GOTTHOLD LABBER, St. Louis, Mo., assignor to the American Brake Beam Company, Chicago, Ill. Filed Jan. 23, 1897. Serial No. 620,169. (No model.)

Claim.—1. In a nut-lock-forming machine, the combination with the forming mechanism, of a feeding device which grips and yieldingly feeds the material to the forming mechanism when said forming mechanism is operatively forming a nut-lock, a tension on said gripping and feeding device, and means for overcoming said tension and releasing the jaws thereof, said means also moving the gripping and feeding device to a position where it can get a new hold on the material to be fed to the forming mechanism; substantially as described.

2. In combination with a feeding mechanism which yieldingly feeds the material to the bending mechanism, a bending mechanism comprising a grooved revoluble member which also moves longitudinally its axis of rotation, and a mandrel slidingly mounted relative to said grooved revoluble member, and a saw for severing the bent and finished article: substantially as described.



3. The combination with the forming mechanism, of two pivoted gripping-jaws having concaved recesses in their inner faces, and a stud or roller extending between said gripping-jaws and coöperating with said concaved recesses; substantially as described.

4. The combination with the revoluble member of the forming mechanism, which is provided with a groove tangentially disposed to the axis of rotation of said member, said groove being closed at one end to gage the length of material feed therein, and a mandrel which coöperates with said grooved member.

5. The combination with a sleeve having a pocketed projection on its end, a spindle mounted in said sleeve and extending beyond said projection, and means for causing a rotary and longitudinal movement of said sleeve; substantially as described.

6. The combination with a sleeve having a pocketed projection on its end, a spindle mounted in said sleeve and extending beyond said projection, a cam for moving said sleeve longitudinally, a pinion for imparting a rotary movement to the sleeve, and means for moving the spindle lengthwise the sleeve, and independently of the longitudinal movement of the sleeve; substantially as described.

7. The combination with the forming mechanism comprising a sleeve, a pocketed projection on the end of the sleeve, and a movable spindle within the sleeve, of a cam arranged on the sleeve, a pinion conjoined with the cam, a weighted segment coöperating with the pinion, a sliding carriage, links connecting the segment and carriage, and a cam for sliding said carriage; substantially as described.

8. The combination with the feeding mechanism, of the bending mechanism, an independently-movable saw for severing the bent article, and means for automatically moving said saw into and out of operative position; substantially as described.

9. The combination with the feeding mechanism, of a bending mechanism, a reciprocating saw-carriage, a saw mounted in said carriage for severing the finished article, and cams for operating said parts at the proper time; substantially as described.

10. In a machine for forming nut-locks, the combination with the gripping and feeding device, of a forming mechanism comprising a sleeve having a pocketed projection on its end, a spindle within the sleeve, means for causing a longitudinal and rotary movement of the sleeve, a saw which is operated to sever the material after the sleeve has completed its rotary movement in one direction and a lever for withdrawing the spindle in the sleeve after the saw has severed the material; substantially as described.

11. The combination with a supporting-plate slidingly mounted in suitable guides, of a pair of oppositely-disposed gripping-jaws mounted on said plate, and means for reciprocating said plate and its carried gripping-jaws, said means operating between the jaws for opening and closing the same; substantially as described.

12. The combination with a rotary hollow shaft, of a grooved projection arranged on the end thereof and to one side of the axis of rotation of said shaft, said groove being closed at that end farthest from the axis of rotation, whereby, when material is fed therein, it is arrested by said closed end of the groove, and a mandrel slidingly arranged in said hollow shaft; substantially as described.

13. The combination with a rotatory member having a grooved projection arranged to one side of its axis of rotation, an axially-disposed spindle or mandrel which projects over the inner end of the groove, a feeding mechanism for delivering the material in said groove to be operated upon, and means for revolving said grooved projection around the mandrel; substantially as described.

14. The combination with a hollow rotatory member having a grooved projection arranged to one side of its axis of rotation, an axially-disposed spindle or mandrel which projects over the inner end of said groove, means for withdrawing said mandrel within the hollow rotating member when the material has been formed and severed, a saw for severing the formed material, and means for moving said saw into and out of operative relation to the material being operated upon; substantially as described.

587,150. DIFFERENTIAL-PRESSURE-REDUCING APPARATUS. CARL G. P. DE LAVAL, Stockholm, Sweden. Filed Jan. 22, 1895. Serial No. 535,617. (No model.)



Claim.—1. In differential-pressure-reducing apparatus, the combination of a cylinder provided with an inlet-opening and an outlet-opening for the pressure liquid, a piston arranged to move in the cylinder and provided with throttling channels or passages which lead from the inlet-opening to the outlet-opening, and a spring or its equivalent adapted to act on said piston, said piston being on one side acted on by the steam-pressure and on the other side by the reduced pressure of the liquid, as well as by said spring or its equivalent, substantially as set forth.

2. In differential-pressure-reducing apparatus, the combination of a cylinder provided with an inlet and an outlet opening for the pressure liquid, and constructed in its wall with a longitudinal passage leading from the bore to the space from which the outlet-opening leads, a piston guided in the cylinder and having communicating transverse passages, one of which communicates with the liquid-inlet opening, while the other communicates with the longitudinal passage in the wall of the cylinder, and a spring or its equivalent influencing the movements of the piston, said piston being on one side acted on by the steam-pressure and on the other by the reduced pressure of the liquid, as well as by the force of said spring, substantially as set forth.

3. In differential-pressure-reducing apparatus, the combination of a cylinder, a piston guided in the cylinder and provided with throttling means, and a spring or its equivalent influencing the movements of the piston, said cylinder having liquid inlet and outlet openings, the former of which terminates symmetrically around the piston for the purpose of avoiding the jamming of the same, substantially as set forth.

587,151. ADJUSTABLE LIGHT. FREDERICK A. LAVERCOMBE, St. Louis, Mo., assignor to Sophia Lavercombe, same place. Filed Mar. 3, 1897. Serial No. 626,403. (No model.)

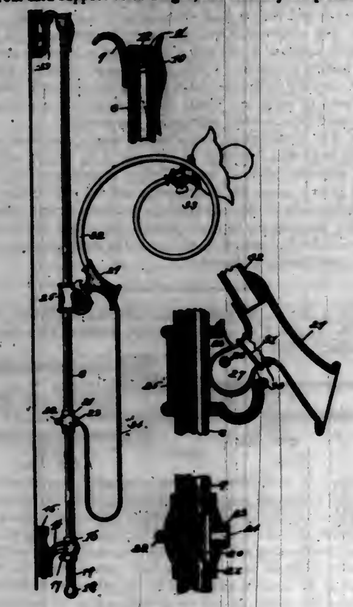
Claim.—1. In an adjustable light, a vertical support, a block slidingly mounted upon said support, a lever carried by said block and engaging said support to hold said block adjustably in position, and a light attached to the outer end of said lever, the weight of said light operating the lever to engage the support, substantially as specified.

2. In an adjustable light, a vertical support mounted for lateral adjustment, a block slidingly mounted upon said support, a lever carried by said block and engaging said support to hold said block adjustably in position, and a light attached to the outer end of said lever, the weight of said light operating the lever to engage the support, substantially as specified.

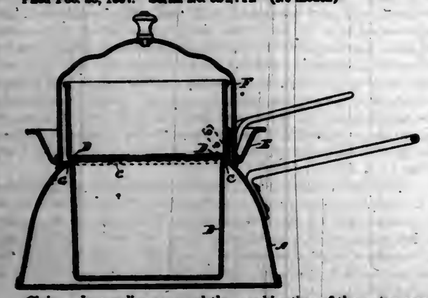
3. In an adjustable light, a vertical support, a block slidingly mounted upon said support, a lever carried by said block and engaging said support to hold said block adjustably in position, suitable packing between the contacting faces of said lever and said support, and a light attached to the outer end of said lever, the weight of said light operating the lever to engage the support, substantially as specified.

4. In an adjustable light, a vertical support, a block slidingly mounted upon said support, a lever carried by said block and engaging said support to hold said block adjustably in position, a light attached to the outer end of said lever, the weight of said light op-

erating the lever to engage said support, and a flexible conductor leading from said support to said light, substantially as specified.



587,152. CULINARY VESSEL. ALBERT LEAVITT, Medford, Mass. Filed Feb. 23, 1897. Serial No. 624,744. (No model.)



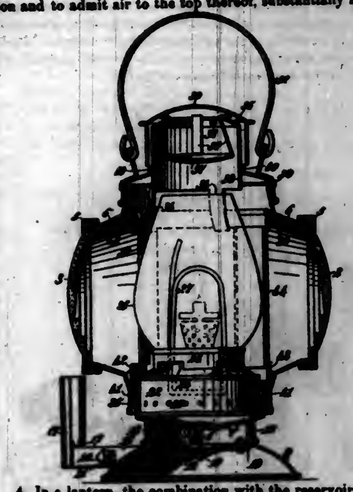
Claim.—In a culinary vessel the combination of the outer vessel A, having a flat annular ledge G, provided with projections C, and a flaring rim E above the ledge G, an inner vessel B, with a shoulder D below its upper edge, to rest upon the projections C, and a cover F to encompass the top of the inner vessel, and rest upon the ledge G, substantially as shown and described.

587,153. SIGNAL-LANTERN. EDWARD S. MANNING, Des Moines, Iowa. Filed Mar. 10, 1897. Serial No. 626,736. (No model.)

Claim.—1. In a signal-lantern, the combination with the casing having lens-openings therein, and a rotatable slide within said casing adapted to carry a series of removable screens, of an arm attached to said slide and passing horizontally through a slot in the casing and then bent downwardly and outwardly, and a fixed depending hood covering said slot from beneath which said arm projects, said slot being provided with depressions at its ends to receive and retain said arm at either extreme of its movement, substantially as set forth.

2. In a signal-lantern, a casing having lens-openings therein on opposite sides, the sides of said casing converging from the center line of the lantern toward said lens-openings, substantially as set forth.

3. In a signal-lantern, the combination with a casing having lens-openings therein, and a lamp-receiving socket in its base, said casing being provided with vent-openings at or near the bottom thereof, of a movable cover having vent-openings therein, a lamp adapted to rest in said socket, a chimney for said lamp, a collar on said lamp having a series of slots in its lower portion for the admission of air, a central annular sleeve depending from the cover and extended into resilient arms adapted to engage with and retain the chimney in position and to admit air to the top thereof, substantially as set forth.

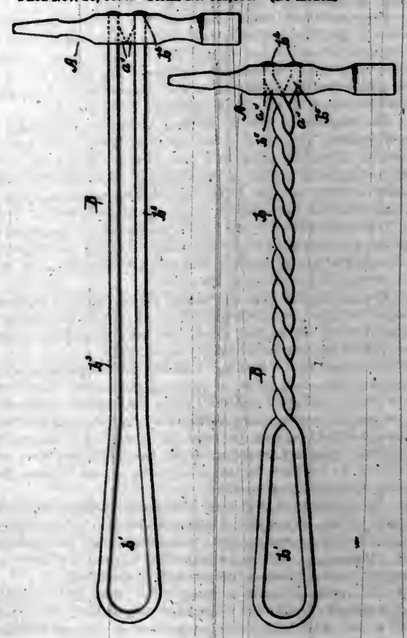


4. In a lantern, the combination with the reservoir, burner and chimney thereof, of a pipe leading from outside the chimney up into the same, then curved downward and passing into the reservoir, then upward again out of said reservoir and terminating within said chimney, substantially as set forth.

5. In a signal-lantern, the combination with the base thereof, of a supporting-bracket formed at its inner end into a ring bolted to the under side of said base, extending through said base and formed at its outer end so as to engage with and be retained by a suitable support, substantially as set forth.

6. In a signal-lantern, the combination with the base thereof, of a supporting-bracket formed in two sections, the inner section of which is engaged with the base, the two sections being formed with ends adapted to overlap and fit into angular recesses in each other, and means for retaining these ends together, substantially as set forth.

587,154. HAMMER. EDWARD G. MIESSNITZER, Chicago, Ill. Filed Nov. 20, 1896. Serial No. 612,902. (No model.)

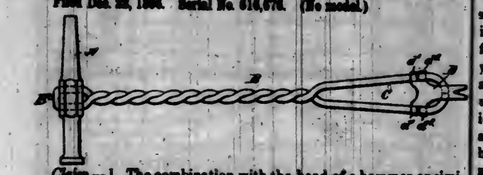


Claim.—1. A hammer consisting of a head having two sockets or passages, and a handle formed of two strands of wire having separated end portions, and twisted and held rigidly together beyond said end portions, said end portions of the wire strands being inserted into the sockets or passages in the head and surrounded by the metal of the head, and means positively engaging with said end portions to prevent their withdrawal from the head, substantially as set forth.

2. A hammer consisting of a head, a handle formed of two strands of wire having end portions extending through the head and terminating in heads, b^3, to prevent withdrawal from the hammer-head, said strands being twisted and held rigidly together beyond the said end portions, substantially as set forth.

3. In a hammer the combination of a head having two passages a, a', extending transversely thereof and the two diverging grooves, a^4 formed in the wall separating said transverse passages and adjacent to the inner ends thereof, a handle formed from a single piece of wire having its ends extending through said passages, a, a', a twisted portion extending outwardly from the head, and the diverging portions b^2, connecting the said twisted portion with the end pieces in said passages, fitted in the aforesaid grooves, a^4, and means for preventing withdrawal of the end portions of the wire strands from the hammer-head: substantially as set forth.

587,155. HAMMER. EDWARD G. MIESSNITZER, Chicago, Ill. Filed Dec. 22, 1896. Serial No. 616,670. (No model.)



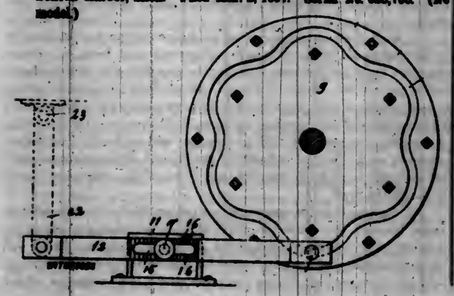
Claim.—1. The combination with the head of a hammer or similar implement, of a handle connected with and having two members extending from said head and twisted together for a portion of their length, and a tool, D, having its body arranged to connect the outer ends of said members together, substantially as set forth.

2. The combination with the head of a hammer or similar implement, of a handle, connected with and having two members extending outwardly from the head, and a plate or casting arranged between said members and having grooves or recesses d in its sides to receive said members of the handle, and clips, d', d^3, adapted to engage with the members of the handle and hold the same in the grooves or recesses, d, substantially as set forth.

3. The combination with the head of a hammer, or similar implement, of a handle connected with said head and having two members extending outwardly therefrom, and a connecting device arranged between said members of the handle and having in opposite sides apertures, each adapted to receive the outer end of one of said members, and also having means for engaging with the body of said handle members, substantially as set forth.

4. In a hammer, or similar implement, the combination of a head having two transverse-extending passages formed therein, and a handle formed of a single metallic rod, bent at an intermediate point of its length to provide two relatively long members which extend through the passages in the head, and a relatively short connecting portion that extends across the head from one passage to the other, said longer members being twisted together for more or less of their length immediately adjacent to the head to prevent any movement of the latter longitudinally of the handle and having their ends connected beyond said twisted portion, substantially as set forth.

587,156. VIBRATING OR GYRATING DEVICE. HENRY K. HOLD, Benton Harbor, Mich. Filed Mar. 2, 1897. Serial No. 625,700. (No model.)



Claim.—In a vibrating or gyrating device, a revoluble wheel provided with an irregular groove in one side thereof, which is arranged concentrically of the center of said wheel, a lever pivotally supported adjacent to said wheel, and provided with a pin which moves in said groove, said lever being adjustably connected with a suitable support by means of a slot which is formed in said lever, the sides thereof being provided with ratchet-teeth, and a bolt having ratchet-teeth on the head thereof, said bolt being provided with a sleeve and said lever being pivotally connected at its outer end with the article to be agitated or vibrated, substantially as shown and described.

587,157. BUSHING AND FAUCET FOR BARRELS. MASON S. MORTON, San Francisco, Cal., assignor to the American Faucet Company, same place. Filed Aug. 27, 1896. Serial No. 604,145. (No model.)



Claim.—1. A bushing for barrels having a closed inner end made smooth and continuous and provided with a central opening and an inwardly-facing seat, a second seat formed and facing toward the first named and having a central opening therethrough, a rotatable valve movable between the two seats having faces adapted to close alternately upon one or the other of said seats, screw-threads formed upon the exterior of the valve, corresponding screw-threads formed in the interior of the chamber within which the valve is movable, and a means comprising an intercngaging head-and-socket connection between the valve and a turnable key or faucet whereby the valve may be engaged and turned from the exterior of the cask, so as to close against either of the seats.

2. A bushing adapted to fit a cask or receptacle, having a closed inner end with a central opening and an interior valve-seat, a second sleeve or bushing fitting the interior of the first-named one having a seat formed upon its inner end and an interior chamber adapted to receive a key or faucet, a valve having faces adapted to close against either the inner or outer valve-seats, screw-threads formed upon the exterior of the valve, corresponding threads formed in the interior of the chamber in which the valve is movable, whereby it may be advanced in either direction when turned, a stem to said valve having a head extending into the interior of the sleeve so as to be engaged by the key or faucet, chambers or passages formed, through which liquid may pass the valve when the latter stands intermediate between the two valve-seats.

3. A bushing fitting a cask or receiver having a closed inner end with a central aperture and an interior valve-seat, a second sleeve or bushing fitting into the first named having a seat at its inner end and forming a space, a valve movable between the two seats, and passages through which liquid may pass when the valve stands intermediate between the seats, a cylindrical chamber within the inner sleeve or bushing adapted to receive the inner end of a faucet, a head upon the valve-stem and a correspondingly-shaped formation upon the inner end of the faucet which will engage the head of the valve when the faucet is introduced, a lug in the interior of the sleeve, a spiral channel around the faucet-barrel adapted to engage the lug so as to lock and advance the faucet simultaneously with the movement of the valve when the faucet is turned, and a washer adapted to make a tight joint between the faucet and the sleeve or bushing, said washer having an interior sleeve turnable upon the faucet-barrel whereby the latter is movable within the washer after the latter has become seated.

4. A device for forming a joint between the bushing or valve-case and the faucet, consisting of a soft collar or washer, a sleeve upon which the collar is fixed, said sleeve being turnable upon the faucet-barrel, and a hard-surfaced washer interposed between the collar and the shoulder of the faucet against which contact and compression take place.

5. A bushing for casks having a valve-seat, a screw-threaded valve turnable and adapted to close upon the valve-seat or be opened for the passage of liquid, male and female coupling ends upon the valve and the inner end of the faucet, a lug in the bushing and a channel in the faucet sufficiently wider than the lug, through which the latter passes when the faucet is introduced, whereby the faucet may be turned and adjusted to enable the couplings to engage.

587,158. STEM WINDING AND SETTING WATCH. OLAF OLSEN, Waltham, Mass. Filed July 23, 1896. Serial No. 600,207. (No model.)

Claim.—1. A device for shifting a clutch from the winding devices of a watch to the setting devices, or vice versa, comprising a clutch-lever and a shifting lever having a yielding portion bearing upon the clutch-lever so as to hold it yieldingly in either one of two positions, irrespective of any springs bearing upon either of the said levers.



2. A device for shifting a clutch for the winding devices of a watch to the setting devices, or vice versa, comprising a clutch-lever pivoted to the supporting-plate and having two inclined edges one on either side of the clutch-lever pivot, and a shifting lever formed with a spring having its end arranged to bear on either of said edges and hold said clutch-lever in either of two positions.

3. A device for shifting a clutch from the winding devices of a watch to the setting devices, or vice versa, comprising in its construction, a clutch-lever having a U-shaped portion with two edges inclined to each other, and a shifting lever having a spring-arm with its end resting against either of said inclined edges, said end being adapted to enter into the recess formed by the U-shaped portion.

4. A device for shifting a clutch from the winding devices of a watch to the setting devices, or vice versa, comprising in its construction a clutch-lever having a straight portion and a U-shaped portion at an angle to the straight portion and also having a short inclined edge and a long inclined edge, and a shifting lever having a curved spring whose end is adapted to extend into the recess formed by the curved portion and to rest upon either of the inclined edges.

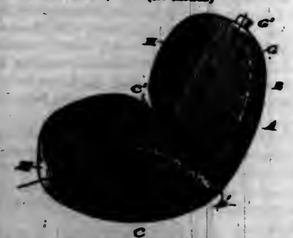
587,159. HOSE-BRIDGE. JOHN OWEN, Pittsburg, Pa. Filed Apr. 14, 1897. Serial No. 632,145. (No model.)



Claim.—1. In a hose-bridge, the combination of the rail or bridge, provided with standards and having clamps to receive cross-braces connecting the bridge of each rail together, and diagonal braces pivotally secured to said cross-braces, whereby they are permitted to fold together when removed from the bridge, substantially as shown and described.

2. In a hose-bridge, the bridge or rail having standards engaging the street-rail, clamps to receive the heads formed on the ends of connecting-braces, diagonal braces pivotally secured to said connecting-braces, and a folding cover for the braces, said cover carrying clamps adapted to engage the cross-braces and hold the cover in position, substantially as shown and described.

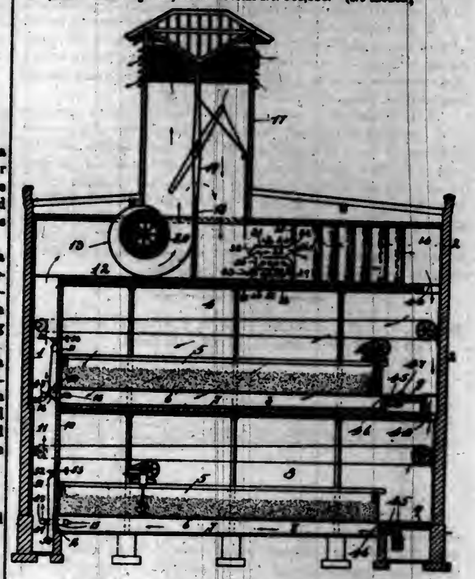
587,160. PURSE. HENRY W. FITZ, Philadelphia, Pa. Filed Jan. 15, 1897. Serial No. 619,260. (No model.)



Claim.—1. A purse consisting of two sections having a flexible connection, one of said sections having a base, side and top walls forming a compartment with a throat adjacent to said flexible connection and the other section having a base with a surrounding wall forming a tray, said surrounding wall of the tray being adapted to closely embrace the said side wall of the pocket.

2. A pocket-book consisting of the sections B and C, having the flexible joint C', the section B having the base F, upwardly-extending wall G, and top H forming the compartment H' with the throat H^2, the section C having the base D, and the surrounding wall E, said walls G and E terminating at the point D' near the flexible joint C', and the said section B being adapted to close within the said section C.

587,161. MALT-HOUSE. WILLIAM H. PRIEB, Chicago, Ill., assignor to the Saladin Pneumatic Malting Construction Company, same place. Filed Apr. 20, 1896. Serial No. 588,316. (No model.)



Claim.—1. In a malt-house, a fresh-air chamber, an air moistening and attemperating chamber, air-ducts establishing communication between said fresh-air chamber and said air moistening and attemperating chamber, situated successively above each other and communicating with each other alternately at opposite sides, heating-coils in the lower of said air-ducts, and valves on the lower and upper air-ducts to regulate the passage of the air and cause the same to pass either directly into said attemperating-chamber through said upper duct or over said heating-coils in said lower ducts, or partially through both.

2. In a malt house, a fresh-air chamber, air-ducts situated successively above each other at the delivery end of said fresh-air chamber, openings between said ducts situated successively at opposite sides of the walls between said ducts, heating-coils in said air-ducts, valves to regulate the passage of the air therethrough, and an air moistening and attemperating chamber communicating with said air-ducts and comprising a series of perforated plates, spray-nozzles between said plates, and a passage between the ends of said plates and shut off therefrom for permitting the passage of dry air therethrough.

3. In a malt-house, an air moistening and attemperating chamber comprising a series of perforated plates having spray-nozzles between them, and a passage between the ends of said perforated plates and divided therefrom, which is adapted to permit the passage of dry air therethrough.

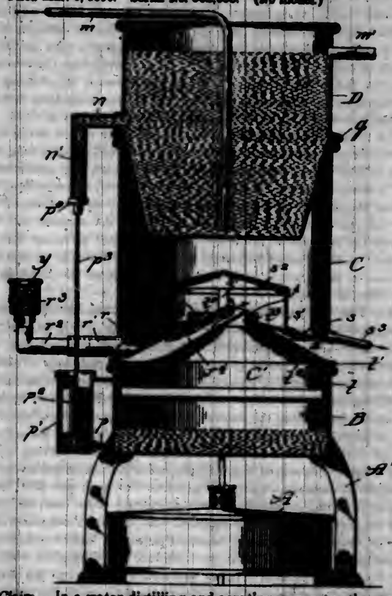
4. In a malt-house, an air moistening and attemperating chamber comprising a series of perforated plates having spray-nozzles between them, a transverse passage between the ends of said perforated plates and divided therefrom to permit the passage of dry air through said attemperating-chamber, and doors to shut off said passage.

5. In a malt-house, germinating-compartments provided with perforated floors and air-passages underneath said floors, a suction-chamber, openings between said air-passages and said suction-chamber to permit the exhaust of the air passing through the malt, valves in said openings, and pipes to establish communication between said air-passages and the germinating-room and pipes to establish communication between the said air-passages and said suction-chamber, whereby an air-current is passed through said air-passages to carry off carbonic-acid gas during the suspension of the passage of the air through the malt.

6. In a malt-house, germinating-compartments having air-passages beneath the same, an outlet for said air-passages, means for passing a current of air through the grain in said compartments and through said air-passages, and means for passing an air-current through said air-passages only during the intervals of the suspension of the passage of the air through said malt, to carry off the gases generated during such suspension of the passage of air through the malt.

7. In a malt-house, germinating-compartments having perforated floors, air-passages underneath said perforated floors, pipes establishing communication between said air-passages and the germinating-room independently of said perforated floor, and a pipe establishing communication between said air-passages and an exhaust-chamber, said pipe having a valve therein adapted to be operated from the germinating-room.

587,162. DISTILLING AND AERATING APPARATUS. FRANK ROSEBROOK, Chicago, Ill., assignor to Emma O. Rosebrook, same place. Filed Mar. 6, 1896. Serial No. 582,093. (No model.)



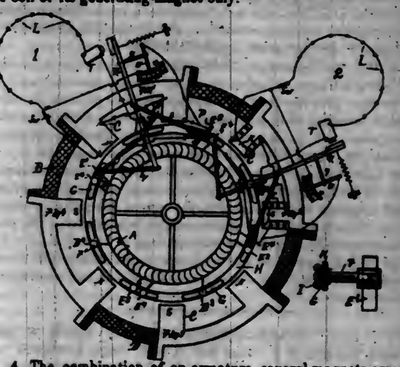
Claim.—In a water distilling and aerating apparatus the combination with a water-boiler, of a removable tapering cover for the boiler having an outlet at its upper end, a chamber having an opening in its base fitting the said outlet, said base being slightly tapered and providing an annular air-space between it and the cover, a discharge-opening at one side of said base, a cold-water receptacle fitting into the top of the said chamber, a deflector in the said chamber between the base-opening and the cold-water receptacle, means for supplying the boiler with water consisting of a cylinder connected with said boiler, a float in said cylinder, a tube connected with the cold-water receptacle and having a part extending downwardly in line with the cylinder and terminating in a valve-seat, a valve for said tube and a stem connecting the valve and float, and an air-supply tube attached to the cover, having its inner end terminating at the outlet therein, said tube extending from said cover through the annular air-space and provided at its outer end with an air-filter, substantially as described.

587,163. MULTIPOLAR DYNAMO-ELECTRIC MACHINE. SAMUEL W. ROSENBOOM, Brooklyn, N. Y. Filed Feb. 23, 1897. Serial No. 624,044. (No model.)

Claim.—1. The combination, in a multipolar dynamo, of an armature, several magnets arranged about the armature, and sets of brushes for separately collecting the currents generated in the parts of the armature under the different magnets, independently of other sections, and connections from each set of brushes through the field-coil of its magnet only.

2. The combination of an armature, several magnets arranged about the armature, each magnets being separated from each other by brass or non magnetic material so that the magnetism shall not flow from magnet to magnet, sets of brushes for separately collecting the currents generated in the sections of the armature under the different magnets independently of the other sections, connections leading from the different brushes, and separate circuits to which such separate currents are conducted.

3. The combination of a ring-armature with a continuous winding, several magnetically-independent magnets about the armature, brushes separately collecting currents generated under the different magnets, and connections carrying each such separate current through the coil of its generating-magnet only.



4. The combination of an armature, several magnets arranged about it, the magnets having separate magnetizing-coils, a brush between the poles of each magnet, and brushes between the magnets, whereby the current generated in the armature under the magnet can be separately collected, and connections for conducting such separate currents through the coil or coils of their generating-magnet only.

5. The combination of an armature, several magnets coöperating therewith, a commutator, brushes for collecting the current generated under the different magnets, one or more sets of brushes being connected to supply a circuit of translating devices, and feeders for such circuit connected to other sets of brushes, and means for controlling the currents in the circuit and feeders.

6. The combination of an armature, several magnets coöperating therewith, each being energized in whole or in part by the current generated under it, a main circuit to which a part of the armature-coils is connected, and a feeder connected to the main circuit to which another part of the armature is connected.

7. The combination of an armature, a field-magnet having alternate N and S poles around the armature being in pairs to constitute separate magnets, series coils for each magnet connected to the part of the armature under each magnet, other exciting-coils for such magnets, a main circuit to which a part of the armature-coils is connected, and a feeder-circuit connected to the main circuit to which another part of the armature is connected.

8. The combination of an armature, a field-magnet having alternate N and S poles around the armature being in pairs to constitute separate magnets, a brush between the poles of each magnet, and brushes between the magnets, whereby the current generated in the armature under each magnet can be separately collected, connections for conducting such separate currents through series coils of their generating-magnet only, and exciting-coils on the magnets in addition to the series coils.

9. The combination of a main circuit, a feeder-circuit therefor, a multipolar generator with alternate N and S poles in pairs to constitute separate magnets, connections for conducting the current from the armature beneath some of the magnets to the main circuit and for conducting the current from another part of the armature to the feeder-circuit, and means for varying the potential delivered to the feeder-circuit.

10. The combination of a multipolar field-magnet, an armature, a commutator, brushes to collect the current generated in a section of the armature-coil under a pair of the poles, other brushes to collect the current generated in other sections of the armature-coil under other pairs of the poles, and independent automatic regulating devices for the different sections.

11. The combination of a multipolar field-magnet, an armature, a commutator, commutator-brushes including the armature-coil under a pair of the poles and a brush between said poles, automatic means for moving the first-mentioned brushes toward and from each other, and connections whereby the current from the said part of the armature-coil is led through coils on said pair of poles only.

12. The combination with one of several field-magnets arranged around a single armature, of adjustable brushes E^3, E^4, D^4, lever R for moving the brushes, brushes E^3, E^4 being adapted to be connected to one side of an external circuit and brush D^3 to the other side, and a magnet operating on lever R and connected or adapted to be connected directly in an external circuit, said magnet and the field-magnet being in series.

13. The combination of a multipolar field-magnet, an armature, a commutator, several sets of commutator-brushes under the different poles of the field-magnet and including different sections of the arma-

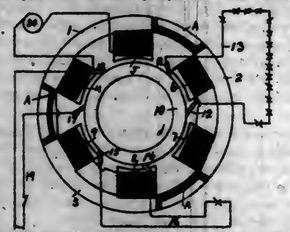
ture, automatic brush-shifting devices for each set of brushes adapted to shift each set of brushes and vary the strength of the magnet-poles acting on the armature-coils included between the brushes so shifted for maintaining a constant current in each of the separate sections of the armature and the circuit supplied thereby.

14. The combination of a field-magnet, an armature, a commutator, two commutator-brushes or sets of brushes, another brush or set of brushes between the first brushes, means for causing the outer brushes to separate from each other in a direction around the commutator, one brush moving at a rate faster than the other and means for causing the third or central brush to move at a rate and in a direction to maintain its central relation between the outer brushes.

15. A field-magnet of cast magnetic metal with sections of subdivided magnetic metal secured at the ends of the poles, in corners or edges thereof, said sections extending diagonally into the poles and being partially embedded in the casting.

16. A field-magnet of cast magnetic metal with sections made of formed sheets of iron or steel secured together and in corners or edges of the poles.

587,164. DYNAMO-ELECTRIC MACHINE. SAMUEL W. RUSHMORE, Brooklyn, N. Y. Filed May 14, 1897. Serial No. 636,518. (No model.)



Claim.—1. The method of operating a dynamo having a plurality of pairs of N and S poles which consists in collecting current under but one pole only of each pair, using the second pole of each pair to keep the magnetic flux of its section from flowing to other sections.

2. The method of operating a dynamo having a plurality of poles which consist in collecting the current from brushes including directly between them the coils of an armature acted upon by one pole only, and an adjacent pole of opposite sign with no brushes to collect current directly under it, such poles serving chiefly to complete the magnetic circuit of the pole under which current is directly collected.

3. The method of operating a dynamo having a plurality of pairs of N and S poles which consist in collecting current under but one pole only of each pair, using the second pole of each pair to keep the magnetic flux of the section from flowing to other sections, and separately adjusting the different pairs of brushes.

4. The combination in a dynamo of two or more pairs of N and S poles, an armature, a commutator, and commutator-brushes arranged to collect current under one pole of each pair, said brushes being independently adjustable.

5. The combination in a multipolar dynamo of a field having a plurality of pairs of N and S poles, an armature, a commutator, and commutator-brushes arranged in pairs to include between the brushes of each pair armature-coils carrying current generated under poles of one sign or one pole of each pair, of separate or independent circuits connected to the separate pairs of brushes, so that the current delivered from the brushes will not be equally divided through the winding of the armature but will be of greater volume under some of the poles than under other poles, whereby the magnetic flux due to current in the armature will be greater under some of the poles than under other poles.

6. The combination in a multipolar dynamo having two or more separated magnets arranged around an armature, a commutator and commutator-brushes arranged to collect current under one pole of each pair, said brushes being independently adjustable.

7. The combination in a multipolar dynamo having two or more magnets or pairs of N and S poles, an armature, a commutator, and commutator-brushes arranged to collect current under one pole of each pair, said brushes being independently adjustable, and separate circuits connected to different pairs of brushes.

8. The combination of a dynamo having a field with a plurality of pairs of adjoining N and S poles, an armature, a commutator, commutator-brushes for one pole of each pair, and an exciting-generator for the field, the brushes adjoining such poles being connected or adapted to be connected to separate circuits.

9. The combination, in a dynamo adapted to supply a plurality of separate circuits, of a field with a plurality of pairs of adjoining N and S poles, an armature, a commutator, pairs of commutator-brushes adapted to directly collect current generated under one pole only, means for holding the brushes, and means controlled by the currents in the working circuits to suitably shift the brushes to separately regulate the currents in said circuits.

10. The combination in a dynamo adapted to supply a plurality of circuits of a field with a plurality of N and S poles, an armature, a commutator, pairs of commutator-brushes adapted to include between them directly armature-coils under one pole only, a brush-holder for each pair of brushes, and means controlled by the current adapted to shift the brushes toward or away from the idle pole or poles under which no current is directly collected to maintain a constant current in the working circuit or circuits.

11. The combination of a dynamo having a field with a plurality of N and S poles, an armature, a commutator, two or more pairs of brushes adapted to include between them directly the sections of armature under poles of one sign, the poles of opposite sign having no brushes to collect current under them and independent circuits connected to the different pairs of brushes, and means for shifting the different brushes singly or in pairs to vary the electromotive force to maintain a constant current in each of the independent circuits.

12. A multipolar dynamo adapted to supply two or more independent circuits with currents of constant volume having a field with a plurality of pairs of M and S poles, an armature, and commutator with brushes arranged in pairs to collect current directly from sections of the armature under alternate poles, or under poles of one sign, only, so that but a small proportion of the current will flow through the sections of armature under the other poles, so that the flux due to the armature-current under such poles will be less than that due to the current in the armature between the brushes and under the other poles.

13. The combination with a multipolar dynamo having a number of magnetically-separated magnets surrounding a ring-armature, a commutator and commutator-brushes arranged in pairs, each pair adapted to collect current generated under one pole only of each of the separate magnets, of separate or independent circuits containing translating devices in series connected to different pairs of brushes, and means for shifting the pairs of brushes independently of the other pair or pairs to maintain a constant current in each of the circuits.

14. The combination with a multipolar dynamo having two or more magnets or pairs of N and S poles, an armature, commutator and commutator-brushes arranged in pairs so that each pair shall collect directly from the armature current generated under one pole only of each magnet, a main circuit supplied with current from some of the pairs of brushes at normally constant potential, feeders connected at distant points to such circuit, such feeders being supplied with current from other pairs of brushes, and means for varying the magnetism to vary the voltage between brushes connected to the feeders for the purpose of maintaining a constant potential throughout the length of the main circuit.

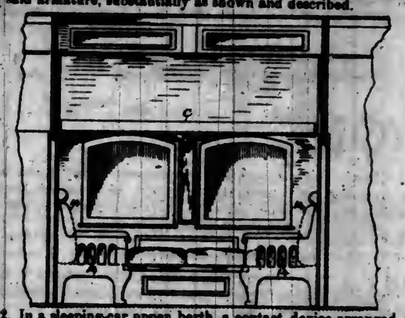
15. The combination with a dynamo having four or more poles, an armature, commutator, commutator brushes arranged in pairs so that each pair shall collect from the armature current generated under only the poles of one sign, one or more constant-potential circuits connected to the brushes or pairs of brushes, means for varying the strength of the different poles to vary the potential between the different pairs of brushes, and means for cross-connecting at will two or more of the brushes, so that the brushes will, when so connected, collect current generated under poles other than those of one like sign only.

16. The combination in a dynamo adapted to supply a plurality of separate circuits and having two or more magnetically-separated magnets around an armature, a commutator, commutator-brushes arranged in pairs and adapted to directly connect the current generated under only one pole of each of the separate magnets, coils for exciting the separate magnets, and other coils around one or more of the magnets, such latter coils being connected in series with the circuits supplied from the brushes collecting current generated under the magnet having such coils so that the magnetism of each of the separate magnets will automatically increase with an increase of current flowing from the brushes under each separate magnet.

587,165. SLEEPING-CAR-BERTH REGISTER. STEPHEN C. SHAFER, Toronto, Canada. Filed July 16, 1896. Serial No. 599,894. (No model.) Patented in Canada Aug. 7, 1896, No. 53,177.

Claim.—1. In a sleeping-car berth, an electric-circuit opening and closing device arranged on the frame of a seat so that the back-cushion operates to break circuit when in position and when said cushion is removed said device is changed to closed circuit within it, said device consisting of a casing having a compression-bolt projecting, a spring to operate said bolt, a T-lever operated by said bolt, an L-shaped armature to contact with said T-lever, a pair of magnets supported within the said casing, a contact-spring to bear on said T-lever, a second contact-spring connected by wire to a battery and arranged to contact normally with said contact-spring operated by

and operating said T-lever, and a connection between the magnets and said armature, substantially as shown and described.



2. In a sleeping-car upper berth, a contact device arranged at the central part of the berth and consisting of a plate having a chamber at center, a spring within the chamber, a cap over said chamber and resting on said spring, a shank from said cap through said plate, a spring-actuated bolt to engage a catch in said shank, a projection on the shank, a contact-spring to be deflected by said projection when passing, a second contact-spring to contact with said former spring when engaged with said projection, and a connection from said spring-actuated bolt to the ordinary latching-handle of the berth, substantially as shown and described.

3. In a sleeping-car, the upper berth having a weight attached by chain to the hinge-rail of the berth, a guide-rod secured to the car-wall to stand vertically, sleeves on said weight to move along said guide-rod, a stop-jointed arm projecting from said weight, a spring to actuate said arm at right angles to said weight, and contact-springs arranged so that one will contact with the arm on said weight and thereby contact with the other spring, substantially as shown and described.

4. In a sleeping-car, the combination of a battery, a register connected to said battery, a contact-spring connected to said register, a second contact connected to a circuit opening and closing device on the seat-frame and finally to said battery, a weight secured to the upper berth and adapted to slide vertically on a guide-rod, the guide-rod secured to the car-wall by its upper and lower ends, an arm on said weight and adapted to contact with one of said contact-springs, and a spring on the weight to operate said arm, substantially as shown and described.

5. In a sleeping-car, the combination of a battery, a register connected to said battery, an upper-berth contact device arranged near the center of the upper berth, a connection from the contact device to the battery, a weight supported by the hinge-rail of the upper berth, a guide to direct the weight vertically, a stop-jointed arm on the weight to cause the arm to deflect a contact-spring on descent, the said contact-spring, a wire from said spring to the circuit opening and closing device on the seat-frame in lower berth, a wire from said device on seat-frame to the battery, a second contact-spring near said weight, and a wire connection from said second contact-spring to the register, substantially as shown and described.

6. In a sleeping-car, the combination of a battery, a register connected to the battery, an upper-berth contact device in circuit between the battery and register, a lower-berth contact device on the seat-frame, wires from said lower berth contact device to the battery and a circuit opening and closing device, said circuit opening and closing device, a wire from the circuit opening and closing device to a contact-spring operated by depression of the weight, a second contact-spring, a wire from the second contact-spring to the register, a weight connected to the hinge-rail of the upper berth, an arm on the weight and provided with a spring and stop-joint so as to cause the contact-springs to contact on depression of the weight, substantially as shown and described.

587,166. CURTAIN-POLE. EPHRAIM K. WEST, Syracuse, N. Y. Filed Aug. 20, 1896. Serial No. 603,321. (No model.)



Claim.—1. The combination with a cylindrical curtain-pole having a longitudinal slot in one side, and curtain-hooks mounted in said slot; of holding-straps surrounding the pole and attached to a suitable support, and set-screws passing through the straps and into said slot, as and for the purpose described.

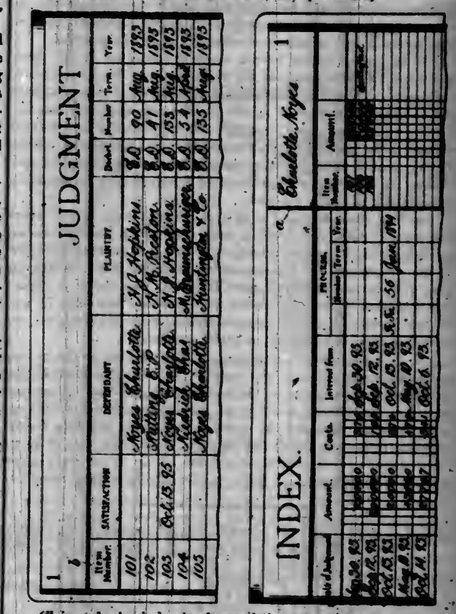
2. The combination with a curtain-pole; of a holding-strap 12 therefor, a screw 15 through one end thereof for supporting it, the body of the strap just below said screw having an outwardly-bent shoulder 12' behind which the other end of the strap is passed, and a set-screw 14 through this shoulder against the last-mentioned end, as and for the purpose set forth.

3. The combination with a cylindrical tubular curtain-pole having a longitudinal slot in one side, and means for supporting the pole and holding it against rotation; of hanging curtain-hooks, each having a back piece within the pole and larger in one direction than the width of its slot, a shank leading thence outward through the slot, a downwardly-bent body, and a hook proper at the lower end of the latter, as and for the purpose set forth.

4. The combination with a tubular curtain-pole having a slot in one side, and means for supporting the pole and holding it against rotation; of curtain-hooks each having a back piece within the pole larger in one direction but narrower in the other than the width of its slot, a shank leading thence outward through the slot to a body, and a hook proper on the latter, as and for the purpose set forth.

5. The combination with a tubular curtain-pole having a slot along one side, and supports therefor; of hanging curtain-hooks, each having a back-piece within the pole larger in one direction but narrower in the other than the width of said slot, a shank fixed thereto and leading thence outward through the slot, a downwardly-bent body, and a hook proper at the lower extremity of the latter, as and for the purpose set forth.

587,167. RECORD-BOOK. GUSTAVE S. WHITE, Franklin, Pa. Filed June 16, 1897. Serial No. 641,081. (No model.)

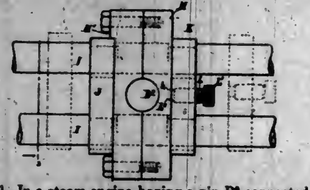


Claim.—1. An index-book consisting of numbered pages uniformly designated so as to adapt the book for the entry of items in consecutive order throughout, one portion of each page being provided with headed columns for data descriptive of the items, and a separate column for numbers progressing regularly through the book and denoting the items, and another portion of each page being ruled to adapt it for grouping together in ledger-like arrangement a plurality of items under one name or heading from the other pages, combined with an alphabetical index having spaces for the names of the items in the book, and for separate reference-numbers corresponding respectively to the numbers of the items, and the numbers of the pages of the book where the aforesaid ledger-like grouping of items occurs.

2. An index-book consisting of numbered pages uniformly designated so as to adapt the book for the entry of items in consecutive order throughout, one portion of each page being provided with headed columns for data descriptive of the items, and a separate column for numbers progressing regularly through the book and denoting the items, and another portion of each page being ruled to adapt it for grouping together in ledger-like arrangement a plurality of items under one name or heading from the other pages, combined with an alphabetical index containing the names of the items in the book, and also containing separate reference-numbers corresponding respec-

tively to the numbers of said items, and to the numbers of the pages of the book where the aforesaid ledger-like grouping of items occurs.

587,168. VALVE CONNECTION FOR STEAM-ENGINES. JOHN YOUNG, Newark, N. J. Filed Jan. 19, 1897. Serial No. 619,731. (No model.)



Claim.—1. In a steam-engine having a pin D^2 connected to the valves, and two parallel rods with connections for reciprocating them by the motion of the engine, each rod having two notches *i*, *i*, a block H turning on such pin and loosely embracing such rods and means for locking both the rods in the block or allowing it to slide freely at will, combined substantially as herein specified.

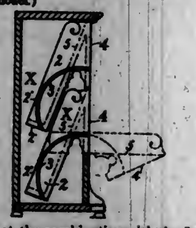
2. In a steam-engine having a pin D^2 connected to the valves and two notched rods I with connections for reciprocating them by the motion of the engine, a block H turning on such pin and loosely embracing such rods, and the two locking-pieces J and K, also embracing such rods and adapted to be readily shifted in position by the attendant, for locking the rods in the block or allowing them to slide freely at will, combined substantially as herein specified.

3. In a steam-engine having a pin D^2 connected to the valves and a rod I with connections for reciprocating it by the motion of the engine, a block H turning on such pin and loosely embracing such rod and having an offset H′ on one face the locking-piece J also embracing said rod arranged to engage with such offset so as to be held thereby in the position for maintaining the locked condition, and the locking-piece K acting on the opposite face of the block and controlling the condition, all combined and arranged for joint operation substantially as herein specified.

4. In a steam-engine having a pin D^2 connected to the valves two parallel rods I and I with a notch *i* in each, a block H turning on such pin and loosely embracing such rods, and the block G carried on the rocker-arm F for reciprocating it by the motion of the engine, and separate adjusting means G′, G^2, for each rod, in combination with each other and with the locking-piece J and offset H^2 and the locking-piece K and independent holding means for the latter, arranged to serve substantially as herein specified.

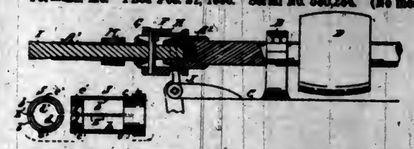
5. In a steam-engine having a pin D^2 connected to the valves, and reciprocated rods I, I, with notches *i* as shown, the block H, the locking-piece J for acting on one face and being confined against end motion by the offset H′ on the block, the locking-piece K for acting on the opposite face, and the screw L inserted in the piece K and arranged to perform the double function of confining such locking-piece against endwise movement and also taking up any slack in the junction of the rods with the block, all substantially as herein specified.

587,169. CABINET. JOHN F. BARROWS, Saginaw, Mich., assignor to Gertrude W. Barrows, same place. Filed Sept. 27, 1895. Serial No. 563,882. (No model.)



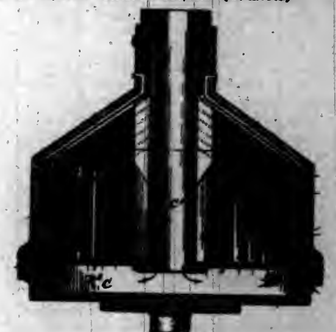
Claim.—In a cabinet, the combination with the frame of the cabinet, semicircular grooves in the sides of the cabinet commencing at the front edge of the sides and extending inward and downward, of a receptacle adapted to fit between the sides of the cabinet, semicircular lugs upon each side of the receptacle adapted to fit grooves in the sides of the cabinet and travel therein, whereby when the receptacle is open it will be in a horizontal position and when closed at an oblique angle to the front of the cabinet, and the part 4 of the receptacle secured to the outer edge of the bottom of the receptacle and depending therefrom to cover the opening into the cabinet when the receptacle is closed and thereby forming a panel of the cabinet-front, substantially as and for the purpose set forth.

587,170. ARBOR AND ATTACHMENT FOR HOLDING ARTICLES TO BE POLISHED AND FINISHED. CHARLES H. BARTLETT, New Portland, Me. Filed Feb. 21, 1896. Serial No. 580,284. (No model.)



Claim.—The combination of an expansible arbor A′, and means for expanding and rotating the same, with an expansible sleeve S, mounted upon the arbor and arranged to be expanded by and with the arbor, as and for the purposes specified.

587,171. CENTRIFUGAL SEPARATOR. EDWARD W. BEACH, Elgin, Ill., assignor to The De Laval Separator Company, of New Jersey. Filed Apr. 17, 1896. Serial No. 587,921. (No model.)



Claim.—1. A centrifugal-separator bowl having an independent compartment in connection with a charging-inlet, the main body of the bowl being divided into a series of compartments by shells having a vertical portion and a portion extending toward the center of the bowl, provided with passages projecting into the contiguous compartments whereby the heavier liquid is delivered from compartment to compartment beyond the lighter-liquid wall and into the heavier liquid of said compartment, and openings from the independent compartment to one or more of the compartments of the bowl.

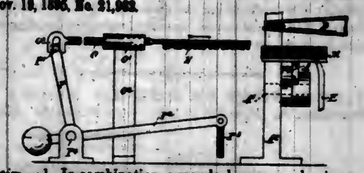
2. A centrifugal-separator bowl having an independent compartment in connection with charging-inlet, the main body of the bowl being divided into a series of compartments by shells having a vertical portion and a portion extending toward the center of the bowl, there being shoulders at the juncture of said portions of the shells, and orifices in one or more of said shoulders, there being openings from the independent compartment to one or more of the compartments in the main body of the bowl.

3. A centrifugal-separator bowl having an independent compartment in connection with charging-inlet, the main body of the bowl being divided into a series of compartments by shells having a vertical portion and a portion extending toward the center of the bowl, there being shoulders in one or more of said compartments at the juncture of said portions of the shells, and orifices in one or more of said shoulders, said shoulders extending into contiguous compartments, there being openings from the independent compartment to one or more of the compartments in the main body of the bowl.

4. A centrifugal-separator bowl having an independent compartment in connection with charging-inlet, the main body of the bowl being divided into a series of compartments by shells having a vertical portion, and a portion extending toward the center of the bowl, there being openings between the upper portion of one or more contiguous compartments, and openings between the lower portion of one or more contiguous compartments and openings from the independent compartment to one or more of the compartments in the main body of the bowl.

5. A centrifugal-separator bowl having an independent compartment in connection with charging-inlet, the main body of the bowl divided into a series of compartments by shells having a vertical portion and a portion extending toward the center of the bowl, there being in one or more of said compartments shoulders at the juncture of said portions of the shells, and orifices in one or more of said shoulders, said shoulders extending into contiguous compartments, and openings between the lower portion of one or more of said compartments, and openings from the independent compartment to one or more of the compartments in the main body of the bowl.

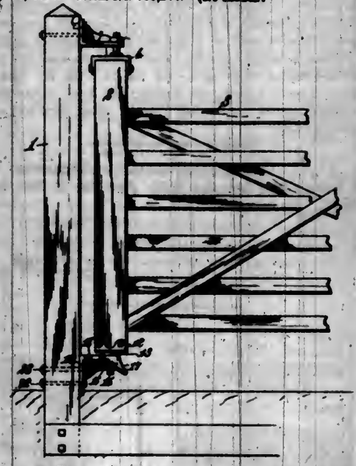
587,172. MACHINE FOR MANUFACTURING MOUTHPIECES FOR CIGARETTES. JOSEPH S. BERMAN, Melbourne, Victoria. Filed Nov. 26, 1895. Serial No. 570,233. (No model.) Patented in England Nov. 19, 1895, No. 21,982.



Claim.—1. In combination, a mandrel, a presser having a seat or depression therein to fit the mandrel, and a brush extending in a plane parallel with said seat to operate in a depression therein when the presser is withdrawn from the mandrel, substantially as described.

2. In combination, the presser with means for moving it toward and from the mandrel, a mandrel and a brush with means for reciprocating the same in between the mandrel and presser and in contact with the presser when retracted from the mandrel, substantially as described.

587,173. GATE-HINGE. JOHN S. BERRY, Tyler, Tex., assignor of two-thirds to William Guinn and Morris Dovier, same place. Filed Apr. 1, 1897. Serial No. 630,277. (No model.)



Claim.—1. The combination, in a gravity-hinge, of an upper hinge-section having inclines, with a lower hinge-section having a concavity and provided with means for adjusting it laterally in either direction, substantially as and for the purposes described.

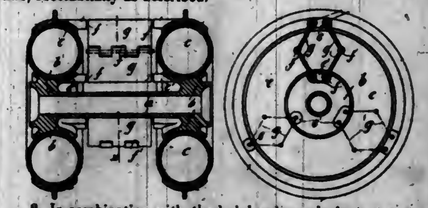
2. The combination, in a gravity-hinge, of an upper hinge-section, a lower hinge-section, a pivot-bolt on which the lower hinge-section is adapted to tilt laterally in either direction, and means for rigidly securing the lower hinge-section in its adjusted position, substantially as and for the purposes described.

3. The combination, in a gravity-hinge, of an upper hinge-section, with a lower hinge-section having a bolt-hole and a circular, or segmental slot, a pivot-bolt passing through said bolt-hole, and a clamping-bolt passing through the slotted part of the lower hinge-section for rigidly securing it in any position of lateral adjustment, substantially as and for the purposes described.

4. The combination, in a gravity-hinge, of an upper hinge-section, with a lower hinge-section having a bolt-hole and two curved, or segmental slots, a pivot-bolt adapted to pass through said bolt-hole, and clamping-bolts passing through the curved, or segmental slots for rigidly clamping the lower hinge-section in any position to which adjusted, substantially as and for the purposes described.

587,174. PNEUMATIC OR CUSHION WHEEL FOR VELOCIPEDES. HENRY C. BEVAN and WILLIAM R. JAMES, Exeter, England. Filed Mar. 15, 1897. Serial No. 627,653. (No model.) Patented in England Apr. 7, 1896, No. 7,421, and Sept. 17, 1896, No. 20,607.

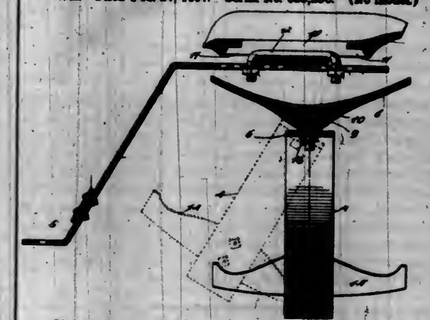
Claim.—1. In combination with the hub heads or flanges, the pairs of rims *d*, *d*, the pneumatic tubes between the same and the hub-heads, and the toggle-levers arranged between the members of the pairs of rims, the outer ends of the said toggle-levers being pivoted to the rims, the inner ends being pivoted to the hub-heads and the intermediate parts of the levers being pivoted together, the arrangement of said levers being substantially radial in respect to the hub, substantially as described.



2. In combination with the hub-heads made in two parts connected together, the rims made in two parts connected together, the air-tubes between the heads and rims, and the toggle-levers connecting the heads and rims and extending between the members of the pair of tubes, substantially as described.

3. In combination the hub-heads, the pair of rims, the pair of air-tubes between, the pintles extending from hub-head to hub-head and forming the connection between them, and the toggles pivoted on the pintles at their inner ends and pivoted to the rims at their outer ends, substantially as described.

587,175. SEAT FOR VEHICLES. JOHN G. BLACK, Lone Rock, Wis. Filed Feb. 27, 1897. Serial No. 623,950. (No model.)



Claim.—1. A vehicle-seat comprising a standard-plate, the upper end of which is bent to form a table having two openings therein, a seat proper, the lower side of which is provided with a longitudinally-extending rib having a rounded lower surface forming a rocker, the rib having a slot running through it, and a U-shaped bolt seated in the slot and having its ends secured in the table, substantially as described.

2. A vehicle-seat having a standard-plate, the upper end of which is bent to form a table, a seat provided with a rib running longitudinally along its lower surface, the rib having a convex surface, forming a rocker adapted to rest on the table, and means engaged with the seat proper, whereby the seat proper is held within the lower surface of the rib bearing on the table so as to rock from side to side, substantially as described.

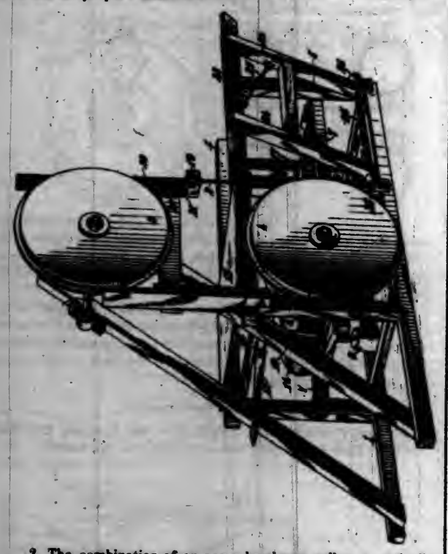
3. A vehicle-seat having a rib running longitudinally along the under surface thereof, the rib having a convex surface forming a rocker whereon the seat may roll from side to side, and the rib having a slot running longitudinally through it, and opening at each end of the rib, said slot being capable of containing means for holding the seat in place, substantially as described.

4. A seat having a standard-plate, the upper end of which is bent horizontally to form a table, a U-shaped bolt having its ends connected with the table, and a seat proper having a rib running longitudinally along the under side thereof, the rib having a slot receiving a point of the U-shaped bolt, and the rib having a convex under surface forming a rocker and bearing on the upper side of the plate, whereby the seat may roll freely from side to side, substantially as described.

587,176. WOOD-SAWING MACHINE. PETER BOYT, Jr., Clinton, Iowa. Filed Apr. 26, 1897. Serial No. 633,972. (No model.)

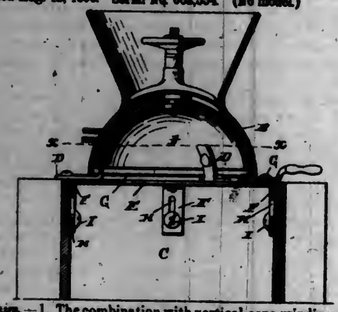
Claim.—1. A band sawing-machine, consisting of an upper band-saw pulley, a vertically-swinging frame pivoted at one end and weighted at the opposite end, a lower band-saw pulley having its shaft mounted on the weighted end portion of the swinging frame, a lever connected with the weighted end portion of said frame for raising the same, a band-saw passing around the pulleys and held under

tension by the weighted swinging frame, and a laterally-swinging timber-carrier pivotally mounted at its lower end, substantially as and for the purposes described.



2. The combination of an upper band-saw pulley, a vertically-swinging frame pivoted at one end and provided with two shafts, one carrying a driven pulley and the other a band-saw pulley, means for swinging said frame vertically, a band-saw engaging said band-saw pulleys, a table arranged between the stretches of the band-saw, a slotted guide-head in which one stretch of the band-saw moves, a laterally-swinging frame pivoted at its lower end and provided at its upper end with a log, or timber carrier, and a flexible connection between the said laterally-swinging frame and the main frame of the machine for limiting the motion of said frame in a direction away from the main frame, substantially as described.

587,177. GRINDING-MILL. DAVID W. BOYER, Waterloo, Iowa. Filed Aug. 12, 1896. Serial No. 602,554. (No model.)



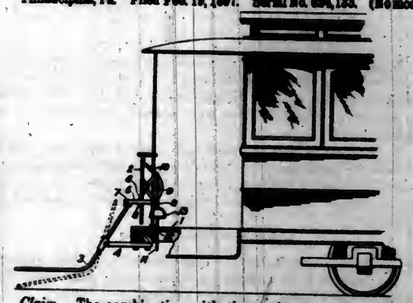
Claim.—1. The combination with vertical-cone grinding-surfaces, of a vertically and horizontally adjustable retainer supported below and adjacent the exit-space of the grinding-surfaces, for the purpose described.

2. The combination with vertical-cone grinding-surfaces, of a vertically-adjustable support situated below the exit-space of the grinding-surfaces, and a horizontally-adjustable retaining section or plate, situated between the supports and the exit-periphery of the surfaces and adjustable across said exit, for the purpose described.

3. The combination with vertical-cone grinding-surfaces, of a vertically-adjustable ring situated below and adjacent the exit-space between the surfaces, and radial horizontally-adjustable sections carried by the said ring and situated between the ring and the said grinding-surfaces, whereby the sections are adapted to move across the exit-space between the surfaces, for the purpose described.

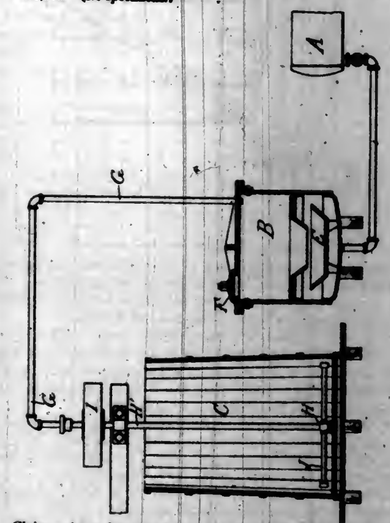
4. A grinding-mill in which the fineness of the ground product is regulated by obstructing the lower or discharge end of the space between the grinders and thus clogging the ground product in said space, consisting of two grinding-surfaces terminating at their lower ends in different horizontal planes, and retarding members adjustable horizontally beneath the grinders and in close proximity to the lowermost grinder, thus obstructing the discharge of the ground product by deflecting it in lateral course beneath the shorter grinding-surface, substantially as shown and described.

587,178. FENDER FOR STREET-CARS. WILLIAM S. BOWER, Philadelphia, Pa. Filed Feb. 19, 1897. Serial No. 624,123. (No model.)



Claim.—The combination with the stationary part of a vehicle having a pivoted fender, of a pivoted lever mounted upon said vehicle, a bar pivoted to said lever and extending through a guide-slot in the vehicle, a socket upon the outer end of said bar to receive an edge of said fender, stops upon said bar to limit the longitudinal movement thereof, a spring for moving said lever in one direction, and an operating-rod for moving it in the other direction, substantially as described.

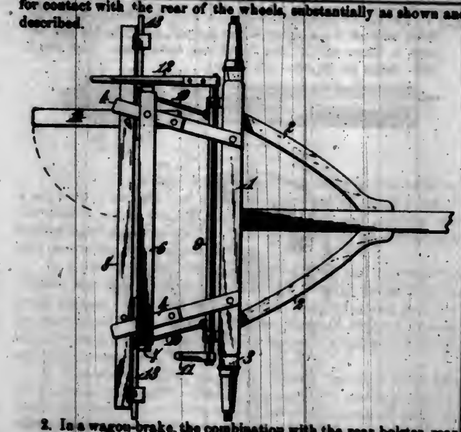
587,179. TREATMENT OF GOLD AND SILVER ORES. JOACHIM H. BURFEIND, Salt Lake City, Utah. Filed July 16, 1896. Serial No. 599,370. (No specimens.)



Claim.—As an improvement in the extraction of precious metals from their ores, the treatment of the cyanid product or precipitate containing said metals, preparatory to melting the said product with sulfurous acid, substantially as described.

587,180. WAGON-BRAKE. ABRAHAM W. BURKHOLDER, Pleasant Hall, Pa. Filed Mar. 13, 1897. Serial No. 627,266. (No model.)

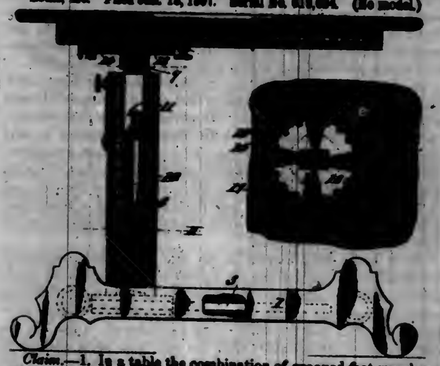
Claim.—1. In a wagon-brake, the combination with the rear bolster, rear axle and rear hounds, of the additional upper and lower rear hounds 4 and 5 located at the rear of the axle, the brake bar or rub-bar 8 supported at the rear of the wagon-wheels and between the rear ends of said additional hounds to operate on the wheels from the rear, brake-operating mechanism supported by the rear bolster and arranged for controlling the brake-bar from the side, rear and top of the wagon, and mud-scrapers carried by the brake-bar, for contact with the rear of the wheels, substantially as shown and described.



2. In a wagon-brake, the combination with the rear bolster, rear axle and rear hounds, of the additional upper and lower rear hounds 4 and 5 located at the rear of the axle, the brake-bar supported at the rear of the wagon-wheel and between the said additional upper and lower rear hounds to operate on the wheels from the rear, and brake-operating mechanism supported by the rear bolster and arranged for controlling the brake-bar from the rear, substantially as described.

3. In a wagon-brake, the combination with the rear bolster, rear axle and rear hounds, of the additional upper and lower rear hounds 4 and 5 located at the rear of the axle, a brake-bar supported at the rear of the wagon-wheels and between the said additional upper and lower rear hounds, a horizontally-swinging lever pivoted to the rear bolster and extended to the rear of the wagon, the said lever having at its pivotal end a lateral arm, links directly connecting said lever-arm with the brake bar, whereby a movement of the lever to one side or the other will apply or throw off the brakes, and wheel-scrapers pivoted to the brake-bar and connected with the bolster by stays, substantially as shown and described.

587,181. TABLE. ADOLPH A. BUSSE and ADOLPH MILLER, St. Louis, Mo. Filed Jan. 18, 1897. Serial No. 619,694. (No model.)



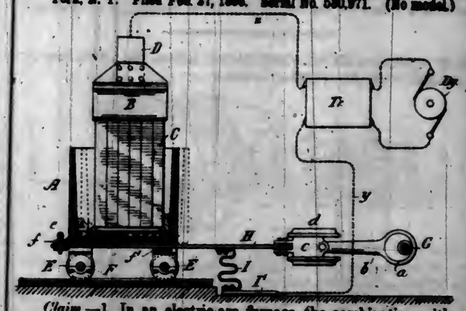
Claim.—1. In a table the combination of grooved foot members, a slide arranged to operate in the grooves of said members, a stem mounted on said slide, a top supported by said stem, and a catch arranged to hold said slide from movement, substantially as described.

2. In a table, the combination of grooved foot members, one of which is provided with recesses, a slide arranged to operate in the grooves of said members, a stem mounted on said slide, a top supported by said stem, and a catch carried by said slide arranged to engage said recesses, substantially as described.

3. In a table, the combination of a base, a stem, a top, channeled strips on the under side of said top, one of said strips being provided with a number of recesses, a slide arranged to operate in the channels of said strips, and a catch carried by said slide adapted to be engaged in said recesses, substantially as described.

4. In a table, the combination of a base, a stem, a rack, a top, a slide revolubly mounted on said rack, a notched disk, and a catch carried by said slide adapted to engage the notches of said disk, substantially as described.

587,182. ELECTRIC FURNACE. GUILLAUME DE CHALMOT, Louisville, N. C., assignor to the Willson Laboratory Company, New York, N. Y. Filed Feb. 27, 1893. Serial No. 580,971. (No model.)



Claim.—1. In an electric-arc furnace, the combination with a carbon pencil, of a crucible or hollow hearth into which said pencil may enter, and independent mechanism connected thereto for agitating or jarring said crucible in order to shake down the granular material fed thereto, and facilitate the feeding thereof into the arc.

2. In an electric-arc furnace, the combination with a carbon pencil, of a crucible or hollow hearth into which said pencil may enter, and independent mechanism connected thereto for communicating a horizontal reciprocatory movement to said crucible in order to shake down the granular material fed thereto, and facilitate the feeding thereof into the arc.

3. In an electric furnace, the combination with the carbon pencil of a crucible or hollow hearth, wheels on which said crucible is mounted, a track on which said wheels roll, and a mechanism for reciprocating said crucible by rolling it back and forth on said track.

4. The combination in an electric furnace, with a carbon pencil C and crucible A, of means for reciprocating said crucible consisting of a rotary shaft G, a longitudinally-reciprocating bar H, and means interposed between said bar and shaft for reciprocating the bar from said shaft, and a separable connection between said bar and the crucible.

5. In an electric furnace, the combination with a carbon pencil and a crucible or hollow hearth mounted to be movable longitudinally, of a longitudinally-movable bar adapted to be detachably connected to said crucible, mechanism for longitudinally reciprocating said bar, and an electric circuit one terminal of which is connected by a flexible conductor with said reciprocating bar, and the other terminal of which is connected with said carbon pencil.

6. In an electric furnace, the combination with a carbon pencil and a crucible or hollow hearth mounted to be movable back and forth, of a longitudinally-reciprocating bar and mechanism for driving it, and a clamping device for connecting said bar to the crucible consisting of clamping-jaws connected to the crucible, adapted to receive said bar between them, and provided with means for drawing them forcibly together to grip said bar.

7. In an electric furnace, a carbon-holder for the carbon pencil thereof consisting of a metal body portion comprising a head and opposite depending side flanges formed to embrace the sides of the head of the carbon pencil, inclined toward each other to form a dovetail space between them for receiving the pencil, and having a separable lining-plate fitted to the inclined inner surface of one of said flanges and in contact with one side of the carbon pencil, whereby the formation of an arc against that side of the pencil can injure only such removable plate.

8. In an electric furnace, a carbon-holder for the carbon pencil thereof, consisting of a metal body portion fixed on the bottom end of an upright conducting-bar, and comprising a head and opposite depending side flanges having inclined sides forming between them a dovetail space adapted to receive the head of the carbon pencil, and having separable lining-plates applied to said inclined sides at their surfaces of contact with the carbon, whereby the formation of an arc which fuses the contacting portions of the holder can injure only such removable plates.

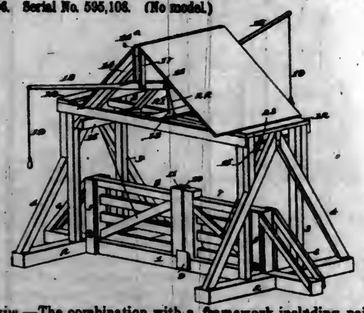
9. The combination of the carbon-holder B and separable plates J J, fitting within its side flanges, and reciprocal means for connecting said holder and plates consisting of projections on the one part engaging recesses in the other.

10. In an electric furnace, the combination of a carbon-holder formed with an undercut channel across its top, of an upright metal bar from which the carbon-holder is suspended, and plates fastened to the lower end of said bar shaped to fit said undercut channel, and adapted to enter the same to form a detachable connection between the carbon-holder and bar.

11. In an electric furnace, the combination of a carbon-holder B formed with a dovetail channel across its top, wedge-shaped plates

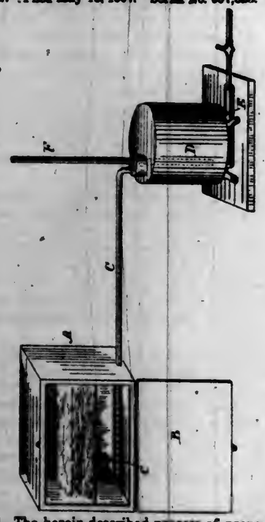
k k fitting said channel, and an upright metal bar D fastened between said wedge-shaped plates and extending upwardly above them to serve as a means for suspending the carbon-holder.

587,183. GATE. JAMES CHANEY, Lebanon, Mo. Filed June 11, 1896. Serial No. 595,108. (No model.)



Claim.—The combination with a framework including pairs of main and supplemental uprights on opposite sides of the roadway, and a supplemental framework secured to said uprights and extending above them, of a pair of gates pivoted in said supplemental uprights at their lower outer corners, one of said gates having a recess at its upper inner end and the other having a tongue at its upper inner end adapted to fit in said recess when the gates are in their closed positions, links pivoted to the opposite ends of a cross-beam in said supplemental framework and depending therefrom, levers fulcrumed respectively in said links and pivoted together at their lower ends, pull-cords on the long arms of said levers which extend outwardly on opposite sides of the gate, and cords connected respectively to said gates, extending upwardly therefrom and passing around sheaves or pulleys in cross-beams connecting the respective pairs of said uprights, the said cords being attached at their upper ends to the short arms of said levers at their pivotal points, substantially as and for the purpose described.

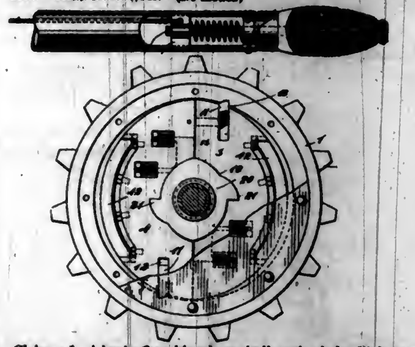
587,184. PREPARING SMOKING-TOBACCO. JULIUS COHEN, New York, N. Y. Filed May 18, 1897. Serial No. 637,025. (No model.)



Claim.—1. The herein-described process of preparing smoking-tobacco consisting in subjecting the same to the action of acid vapors, applying to such tobacco a solution of saccharine material and allowing such saccharine material to ferment to impart to the tobacco a vinous flavor, substantially as set forth.

2. The method herein specified of treating tobacco consisting in subjecting such tobacco to a vapor from acetic acid and water and immersing the same in a saccharine solution, packing such tobacco in a vessel, closing such vessel sufficiently to lessen atmospheric action and allowing the materials to ferment to impart a vinous flavor to such tobacco, substantially as set forth.

587,185. BICYCLE-BRAKE. FRANK J. COSSEN, Columbia Falls, Mont., assignor of one-half to Milton T. Small, Henry A. Stanley, Egmore A. Hilton, and William Vandervoer, same place. Filed Feb. 3, 1897. Serial No. 621,849. (No model.)



Claim.—1. A brake for a bicycle or similar wheeled vehicle, comprising a sprocket-rim having shoulders formed on its periphery, brake-shoes arranged in said rim and having recesses on opposite sides provided with cam-walls, a pedal-shaft, a cam secured to said pedal-shaft and engaging in the recesses at one side of the brake-shoes, a tube mounted to rotate on the shaft, a cam carried by said tube and engaging in the recesses of the opposite side of said brake-shoes, dogs carried by the brake-shoes, means for moving the same outward to engage notches formed in the sprocket-rim when the brake-shoe sections are moved together, and means for locking and releasing the cams, substantially as specified.

2. A brake for a bicycle or similar vehicle, comprising a sprocket-rim, brake-shoes arranged within the rim, a pedal-shaft, a cam on the pedal-shaft, for moving the shoe-sections apart, dogs movable in recesses formed in the periphery of the shoe-sections, pins on the shoe-sections, the pins of one section being adapted to engage with the dogs of the other section, for moving the same outward, and springs for drawing the said sections toward each other, substantially as specified.

3. A brake for a bicycle or the like, comprising a sprocket-rim, two shoe-sections arranged therein, each shoe-section having a tongue portion to engage in a recess formed in the other section, pins extended from said tongue portions into enlarged recesses in the shoe-sections, springs for drawing said pins inward, segmental brake-blocks on the shoe-sections, means for adjusting said blocks, and means for moving the shoe-sections from each other upon the movement of the pedal-shaft of the bicycle, substantially as specified.

4. A brake for a bicycle or the like, comprising a sprocket-rim, brake-shoe sections arranged in said rim, a pedal-shaft, a cam on the pedal-shaft engaging with cam portions of the shoe-sections, a tube mounted to rotate on the pedal-shaft, a cam carried by said tube and engaging with cam-surfaces on the shoe-sections, a ring movable on said tube, key-pins attached to said ring and movable through openings formed in the two cams, a spring rearward of the ring, and a connection between said ring and the hand-grip of a handle-bar, by means of which the ring may be drawn in one direction on the tube, substantially as specified.

5. A brake for a bicycle or the like, comprising a sprocket-rim, brake-shoes arranged therein, a pedal-shaft, collars on the pedal-shaft, ring-shaped side plates secured to the sprocket-rim and having antifriction-bearings on the collars, one of said collars being movable on the shaft and the other being fixed thereto, a cam on the shaft, a cam on the movable collar, the said cams being adapted to move the shoe-sections from each other, a sleeve extended from the movable collar and engaging around the shaft, a ring movable on said sleeve, a spring for forcing the ring forward, key-pins extended from the ring and designed to engage through openings in the movable collar and the two cams, a yoke engaging against one side of the ring, a stem extended from said yoke through a slot-opening in the hub, a tubular handle-bar, a hand-grip mounted to rotate relatively to the handle-bar, and a connection between the stem of the yoke and said hand-grip, substantially as specified.

6. The combination with a pedal-shaft, of a brake mechanism comprising shoes and means for forcing the same against the interior of a sprocket-rim, a sprocket-rim around said shoes, a tubular handle-bar, a block mounted to slide therein, a block secured in the end of the tubular handle-bar and having a cam portion, a hand-grip having a cam portion engaging with the cam portion of the block secured in the end of the handle-bar, a locking mechanism for the brake, and a connection between said locking mechanism and the sliding block in the handle-bar, substantially as specified.

587,186. WRENCH. CHARLES CHEMPLER, Clinton, N. C. Filed Feb. 5, 1897. Serial No. 622,176. (No model.)



Claim.—1. A wrench comprising a main stem having teeth and a jaw-head, a slidable jaw, and a lever one end of which is held in the slidable jaw by the said stem and the other end provided with teeth adapted to mesh with the teeth of said stem, to lock the slidable jaw to the stem, as set forth.

2. A wrench comprising a stem having teeth and a fixed jaw, a slidable jaw, and a spring-lever, the end of which forward of the spring portion being held in the slidable jaw by the said stem and the free end of which being provided with teeth adapted to mesh with the teeth of the wrench-stem to lock the slidable jaw to the said stem, as set forth.

3. The combination in a wrench, the stem having a fixed jaw and provided with teeth, a slidable jaw having a recess or cavity, and a lever one end of which is retained in said recess or cavity by the said stem and the other end having teeth to mesh with the teeth of the wrench-stem, as set forth.

4. The combination in a wrench, a wrench-stem having a fixed jaw and provided with teeth, a slidable jaw having a cavity in the path of said stem, a lever one end of which is confined in said cavity by the stem and the other end having teeth to mesh with the stem-teeth, and a link secured to the lever and surrounding the said stem, as set forth.

587,187. CAR-FENDER. GEORGE W. DOMINIS, Brooklyn, N. Y. Filed Oct. 21, 1896. Serial No. 609,560. (No model.)



Claim.—1. A car-fender comprising a guard-frame, a fender-frame pivotally connected therewith, a trigger-frame for holding the fender-frame normally raised, said trigger-frame being adapted to move horizontally, and to project beyond the fender-frame, whereby to contact with an obstruction, to release the fender-frame, means for projecting the fender-frame downward, when released by the trigger-frame, and means for lifting the trigger-frame upward and above the fender-frame, so as to clear the object picked up by the feeder-frame, substantially as described.

2. A car-fender, comprising a guard-frame, pivotally secured to the front of the car, a fender-frame pivoted thereto intermediate of the ends of the guard-frame, a pick-up net secured to the guard-frame and to the fender-frame, said fender-frame being projected beyond the outer end of the guard-frame, a trigger-frame carried by the lower portion of the guard-frame, and adapted to move longitudinally thereon, said trigger-frame being projected beyond the guard-frame, and provided with projections for sustaining the fender-frame in its raised position, and to release the fender-frame when struck, a spring for projecting the fender-frame downward, when released, and a weight for tilting the trigger-frame upward, substantially as described.

3. A car-fender comprising a guard-frame, a fender-frame pivotally connected therewith, a trigger-frame for holding the fender-frame normally raised, said trigger-frame being adapted to move horizontally and to project beyond the fender-frame, whereby to contact with an obstruction to release the fender-frame, means for projecting the fender-frame downward when released, means for lifting the trigger-frame upward and above the fender-frame, so as to clear the object picked up by the fender, and means for preventing the fender-frame from lifting when a body is resting upon the netting thereof, comprising rack-plates secured to the guard-frame of the fender, and pawls carried by the feeder-frame for engaging the rack-plates, substantially as described.

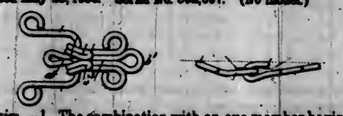
587,188. CAR-AXLE LUBRICATOR. JAMES DONOVAN, Brockville, Canada. Filed July 17, 1896. Serial No. 599,490. (No model.)



Claim.—1. In a railway journal-box the lubricator device consisting of an open rectangular frame having bearing-chambers thereon, a spiral spring in each of said chambers, bearings supported on said springs, plates to secure said bearings, rollers journaled at their ends in said bearings, and a distributing-frame carried by and in contact with said rollers, substantially as shown and described.

2. In a railway journal-box, the combination of an open rectangular frame, having bearing-chambers thereon, a spiral spring in each of said chambers, bearings supported on said springs, plates to secure said bearings in the chambers, rollers journaled at their ends in said bearings, a distributing-frame in contact with said rollers and the axle or journal and supported on the journals of said rollers, and the extension-strip on each side of the said frame and having pins to fit adapted holes in the sides of the frame, substantially as shown and described.

587,189. HOOK AND EYE. IRVIN P. DOOLITTLE, Redlands, Cal. Filed May 25, 1896. Serial No. 593,697. (No model.)



Claim.—1. The combination with an eye member having its bow provided with a locking head or enlargement which is connected with the bow by a contracted neck, of a hook member composed of a pair of laterally-yielding shanks arranged side by side and provided at their front ends with hooks adapted to engage with the bow of the eye member on opposite sides of said contracted neck and separated at their bends by an aperture adapted to admit said locking head or enlargement, said hooks having plain or unenlarged ends, whereby the same can be withdrawn through the spaces between said contracted neck and the opposing sides of the eye member by turning the two members at an angle to each other, substantially as set forth.

2. The combination with an eye member having its bow provided with a locking head or enlargement which is connected with the eye by a contracted neck, of a hook member formed of a single length of wire and comprising two parallel shanks connected at their rear ends by a spring-loop and each provided at its front end with a plain-ended hook, the branches which form said shanks being doubled backward upon themselves to form double shanks and the doubled branches being bent to form the plain-ended hooks of the shanks, the ends of said branches terminating in attaching-eyelets arranged on opposite sides of the shanks, substantially as set forth.

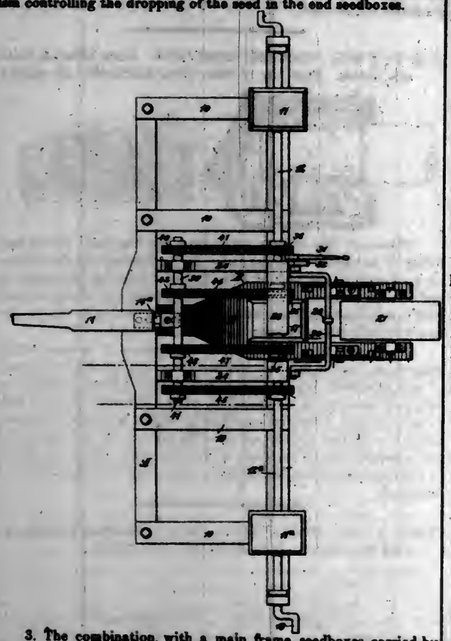
3. The combination with an eye provided in its bight or bow with a locking head or enlargement connected with the eye by a contracted neck, of a hook formed of a single length of wire and comprising two hook members, each containing two thicknesses of wire, the hooks of said members being bent outward to form an aperture between the same and the inner wires of said hooks extending outward beyond their outer wires, whereby the bights of the hooks converge toward said aperture, a spring connecting the shanks of said hook members, and attaching-eyelets formed on opposite sides of said shanks, substantially as set forth.

587,190. PLANTER. JOHN S. BARNHART and CHARLES MILLER, Millersville, Ill. Filed Apr. 23, 1897. Serial No. 633,807. (No model.)

Claim.—1. The combination, with a pair of seedboxes and supports therefor, of a central seedbox, a support for the central box capable of being raised and lowered, and being also independent of the support for the pair of boxes, and a driving connection between the distributing mechanism of the pair of boxes and the central box.

2. In a planter, a frame, seedboxes located at the ends of the frame, an auxiliary frame having a hinged connection with the main frame intermediate of the seedboxes thereof, a third seedbox located on the auxiliary frame, means for raising and lowering the auxiliary

frame, and a mechanism, substantially as described, for operating the seed-dropping device of the intermediate seedbox from the mechanism controlling the dropping of the seed in the end seedboxes.



3. The combination, with a main frame, seedboxes carried by the main frame, and a mechanism for controlling the dropping of the seed from said seedboxes, of an auxiliary frame attached to the main frame, extending rearwardly beyond the same, an intermediate seedbox secured upon the auxiliary frame, an adjustable roller carried by the auxiliary frame, controlling the depth at which the seed shall be planted from the intermediate seedbox, and means for operating the seed-dropping mechanism for the intermediate seedbox.

4. The combination, with a main frame, seedboxes carried by the main frame, and a mechanism for controlling the dropping of the seed from said seedboxes, of an auxiliary frame attached to the main frame, extending rearwardly beyond the same, an intermediate seedbox secured upon the auxiliary frame, an adjustable roller carried by the auxiliary frame, controlling the depth at which the seed shall be planted from the intermediate seedbox, means for operating the seed-dropping mechanism for the intermediate seedbox, a crank-shaft supported by the main frame, a connection between the crank-shaft and the auxiliary frame, and a locking device for the crank-shaft, whereby the auxiliary frame and all parts carried thereby may be raised or lowered.

5. The combination, with the main frame of a planter, seedboxes near the ends thereof, and a driving mechanism for the dropping devices of said end seedboxes, of an auxiliary frame having a hinged connection with the main frame and extending rearwardly beyond the same, the rear portion of the auxiliary frame being bifurcated and the bifurcated portion being constructed in hinged sections, adjustable engaging segments carried by connecting-sections of the bifurcated portion of the auxiliary frame, locking devices adjustably connecting engaging segments, a wheel journaled between the outer bifurcated sections of the auxiliary frame and seedboxes carried by said frame, and a driving connection between the seed-controlling mechanism of the end boxes and the seed-controlling mechanism of the intermediate box.

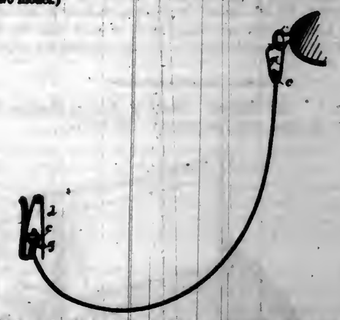
6. The combination, with the main frame of a planter, seedboxes near the ends thereof, and a driving mechanism for the dropping devices of the said end seedboxes, of an auxiliary frame having a hinged connection with the main frame and extending rearwardly beyond the same, the rear portion of the auxiliary frame being bifurcated and the bifurcated portion being constructed in hinged sections, adjustable engaging segments carried by connecting-sections of the bifurcated portion of the auxiliary frame, locking devices adjustably connecting engaging segments, a wheel journaled between the outer bifurcated sections of the auxiliary frame and seedboxes carried by said frame, a driving connection between the seed-controlling mechanism of the end boxes and the seed-controlling mechanism of the intermediate box, a shaft carried by the main frame above the auxiliary frame, a connection between said shaft and auxiliary frame, whereby the latter may be raised and lowered, a shifting-handle for said shaft, and a locking device for the handle.

587,191. VEHICLE-WHEEL. WILLIAM T. FARREY, Astley Abbots, England, assignor to Richard Nicholas and Ernest Trevor, Bridgenorth, England. Filed Oct. 3, 1896. Serial No. 607,776. (No model.) Patented in England Jan. 7, 1896, No. 301.



Claim.— A vehicle-wheel comprising a disk forming part of the hub, having the radial ribs to receive the end of the spokes between them, with the spikes between said ribs and with radial projecting arms to be secured to the spokes at points beyond the ribs and spikes, and a second disk to clamp the spokes, substantially as described.

587,192. EYEGLASS-HOLDER AND CORD ATTACHMENT. WATSON D. FENIMORE, San Francisco, Cal., assignor to the California Optical Company, same place. Filed Aug. 3, 1896. Serial No. 601,482. (No model.)



Claim.—1. An eyeglass-holding attachment consisting of a wire coiled within its length to form a tapering, conical space, said wire having its opposite ends adapted to form a clasp for engaging the eyeglass, a flexible connection passing through said conical coil and having an enlargement upon its end which is drawn into said coil, and a device at the opposite end for securing the connection to the garment of the wearer.

2. An eyeglass-holding attachment comprising a hook portion, a pin and catch by which it is secured to the garment of the wearer and a tapering conical space or chamber located between the hook and pin portions, a flexible connection to be passed through said conical space or chamber having its ends formed with an enlargement which is drawn into said space or chamber, and a clasp at the opposite end of the connection adapted to engage the eyeglass.

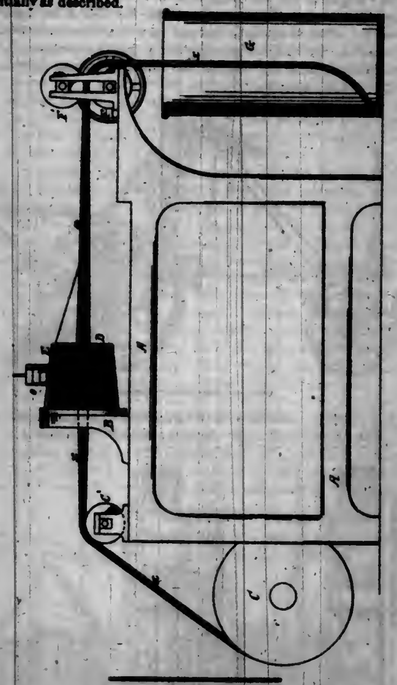
587,193. MUSTACHE-SHAPER. PAUL S. FERDY, San Francisco, Cal. Filed Feb. 24, 1897. Serial No. 624,761. (No model.)



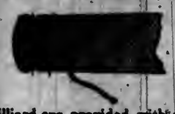
Claim.—A mustache-shaper consisting in a flat flexible band formed of two layers of material, the ends of which are turned in and stitched together, and an elastic loop at each end of the band, each loop being passed between the end portions of the material and having one portion lying snugly against the inner faces of the layers and the elastic loops projecting from the band at the side edges thereof whereby the bands are held open to readily engage the ears of the person using the mustache-shaper.

587,194. MACHINE FOR WRAPPING WARP-CHAINS. EDWARD T. GARSED, Greensborough, N. C., assignor of one-half to Cesnar Coon, same place. Filed Nov. 7, 1896. Serial No. 611,415. (No model.)

Claim.—The combination in a machine for wrapping warp-chains, of the bracket carrying a fixed bobbin or spool having an open center, feed-rolls for drawing the warp through the bobbin or spool and a brake resting upon the threads wound on the spool or bobbin, substantially as described.



587,195. BILLIARD-CUE. ROCCO GERBI and FERDINANDO BUSTORINI, New York, N. Y. Filed Feb. 27, 1897. Serial No. 625,272. (No model.)

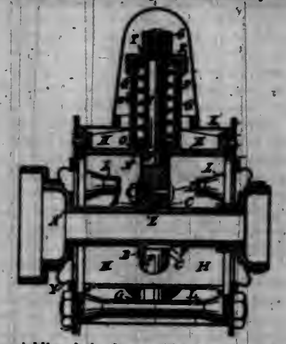


Claim.—1. A billiard-cue provided with a stick, formed at its top with notches, resilient strips held in the said notches and extending over the sides of the stick, and a ferrule carrying the tip and driven over the end of the stick and the said strips, substantially as shown and described.

2. A billiard-cue comprising a stick formed at its upper end with notches for receiving resilient strips adapted to extend along the sides of the stick, a ferrule formed with a notched top annular flange, and driven over the said strips at the end of the stick, and a tip formed with an annular recess registering with the said flange and having its material driven into the notches of the flange, substantially as shown and described.

587,196. SPRING-WHEEL FOR BICYCLES. WILLIAM G. GIBBS, Gulgong, New South Wales. Filed Apr. 10, 1897. Serial No. 631,606. (No model.)

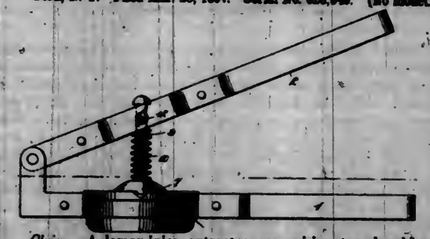
Claim.—1. In a yielding hub, the combination with an inner cylinder having a solid encircling flange thereon near its mid-length and a movable ring keyed on said cylinder near said flange; a pair of annular rings surrounding said cylinder; and spacing tie-rods between said pair of rings; of a plurality of radial pins pivoted at their inner ends between said flange and said ring on said cylinder, and each of said pins having a reduced portion screw-threaded at its outer end; a circular nut engaging said screw-threaded portion; a pair of rigid washers surrounding the reduced portion of each of said pins at opposite ends thereof; a coil-spring encircling the reduced portion of each of said pins and bearing upon said washers; a plurality of cylinders trunnioned radially in said pair of rings, and inclosing the reduced portions of said pins and said washers and springs thereon, and each of said cylinders having a reduced open inner end and externally-screw-threaded open outer end, the washers on said pins fitting closely within said cylinders; and a screw-cap upon the outer end of each of said cylinders provided with a central opening inclosing the said circular nut on each of said pins, substantially as described.



2. In a yielding hub, the combination with an inner cylinder having a solid encircling flange thereon near the middle of its length, and a movable ring keyed on said cylinder near said flange; a pair of annular rings surrounding said cylinder, and spacing tie-rods between said pair of rings; of a plurality of radial pins pivoted at one end between said flange and said movable ring on said cylinder; a plurality of cylinders trunnioned in said pair of rings and inclosing a portion of said radial pins; and a coil-spring confined in each of said cylinders and resisting the thrusts of said pins, substantially as described.

3. In a yielding hub, the combination with an inner cylinder, having a plurality of radial pins pivoted thereto at one end and having a reduced portion provided with screw-threads at its outer end; a circular nut engaging said screw-threaded portion; a pair of rigid washers surrounding the reduced portion of each of said pins at opposite ends thereof; a coil-spring encircling the reduced portion of each of said pins and bearing upon said washers; of a pair of annular rings surrounding said inner cylinder; a plurality of cylinders trunnioned radially in said pair of rings, and inclosing the reduced portions of said pins and said washers and springs thereon, and each of said cylinders having a reduced open inner end and externally-screw-threaded open outer end, the washers on said pins fitting closely within said cylinders; and a screw-cap upon the outer end of each of said cylinders provided with a central opening inclosing the said circular nut on each of said pins, substantially as described.

587,197. LEMON-JUICE EXTRACTOR. NICHOLAS GILBOY, New York, N. Y. Filed Mar. 23, 1897. Serial No. 628,249. (No model.)



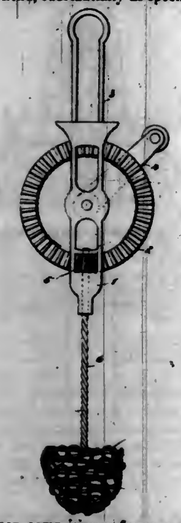
Claim.—A lemon-juice extractor, comprising two hand-levers pivotally connected together, a juice-cup supported by one of the levers, a dome-shaped support in said cup, a concaved plunger having a scalloped edge, a spirally-grooved stem on the plunger extended through an opening in one of the hand-levers, projections from opposite walls of the opening extended into said groove and a spring surrounding the stem bearing at one end on the lever and at the other end on the plunger, substantially as specified.

587,198. VESSEL-SCRAPER. NICHOLAS GILBOY, New York, N. Y. Filed Apr. 6, 1897. Serial No. 630,932. (No model.)

Claim.—1. A vessel-scraper, comprising a frame, a gear-wheel on said frame, a shank portion having bearings in the frame, a pinion on said shank portion meshing with the gear-wheel, a spring-yielding head on the shank, and a number of linked rings surrounding the head and attached to its upper portion, substantially as specified.

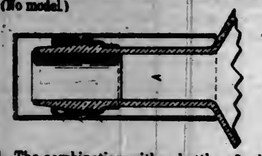
2. A vessel-scraper, comprising a frame, a gear-wheel mounted to rotate on said frame, a twisted-wire shank having bearings in the frame, a pinion on said shank meshing with the gear-wheel, a spi-

rally-wound spring yielding head on said shank, and a series of linked rings arranged substantially in the form of a basket and mounted on said spirally-wound head, substantially as specified.



3. A vessel-scraper, comprising a frame, a miter-gear mounted to rotate on said frame, a twisted-wire shank having bearings in the frame, a pinion on said shank engaging with the miter-gear, one end of said shank being turned outward and then spirally coiled, the diameter of the coils growing less toward the bottom portion, and a series of linked scraping rings arranged substantially in the form of a basket and mounted on the spirally-wound head, the upper rings being secured to the upper coil, substantially as specified.

587,199. BOTTLE-SEAL. FRANK S. CRAFT, Waterbury, Conn., assignor to Joseph Gallond, same place. Filed Jan. 12, 1897. Serial No. 618,998. (No model.)



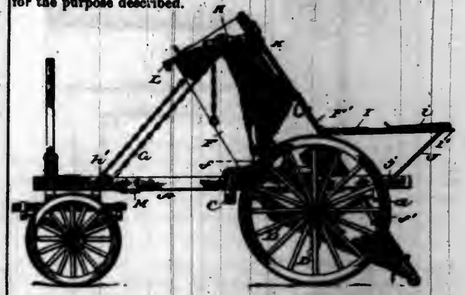
Claim.—1. The combination with a bottle, of a band or collar secured around the neck portion thereof and formed with a series of spring-fingers which extend upwardly around the mouth portion of the neck, each of said fingers having at its free end an outwardly and downwardly bent hook, and a frangible cap or seal adapted to fit over said neck portion and to pass the said fingers and their hooks in a downward or seating direction, but having an internal annular shoulder or projection at its upper portion which is designed to engage the ends of the hooks upon reverse movement, substantially as specified.

2. The combination with a bottle, of a band or collar secured around the neck portion thereof and formed with a series of spring-fingers which extend up around the mouth portion of the neck, each of said fingers having at its free end an outwardly and downwardly bent hook, said collar also having a series of similar downwardly-extending fingers whose free end portions are bent upwardly and inwardly, and a frangible cap or seal adapted to fit over said neck portion and to pass said fingers and hooks in a downward or seating direction, and having an internal annular shoulder or projection which is designed to engage with the hooks of the upwardly-extending fingers upon reverse movement of said cap or seal, substantially as specified.

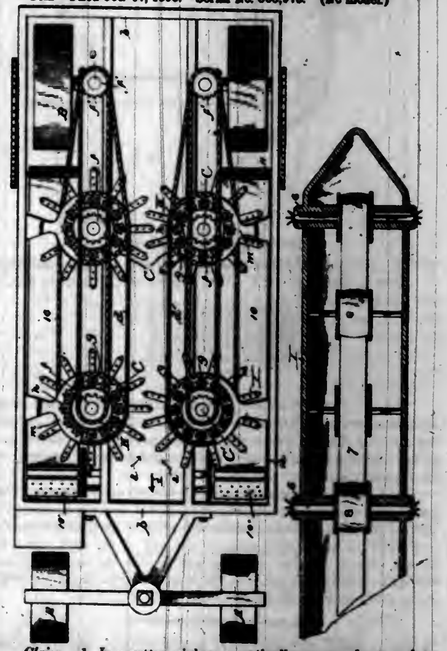
587,200. DUMPING-CART. CHARLES HARMER, South Bend, Ind. Filed May 15, 1897. Serial No. 636,636. (No model.)

Claim.—1. In a dumping-wagon, the combination of the supporting-frame and the dumping-body with covers I, *i*, therefor, cover *i* being hinged to cover I, and cover I to a transverse support on the body; fingers on cover I adapted to underlie cover *i* and cause the latter to ride with the former; and a bail attached to cover I and to the frame, adapted to uphold and thereby open the covers when the cart is dumped, all substantially as and for the purpose described.

2. In a dumping-wagon, the combination of the supporting-frame consisting of the beams A, A; platform B, and transverse bar C; and the body journaled on the beams having its bottom slanted upwardly at rear; the cover I hinged to a transverse support on the body; the cover *i* hinged to the rear edge of cover I and the front covers K, K,' hinged to a longitudinal support; with the bail J for upholding covers I, *i*, when the body is dumped; the chain and sheave-pulleys for returning the body to normal position, and the catches L, L,' and lever M for locking the body to the frame, all substantially as and for the purpose described.



587,201. COTTON-PICKING MACHINE. PETER P. HARING, Goliad, Tex. Filed Oct. 17, 1895. Serial No. 565,973. (No model.)



Claim.—1. In a cotton-picker, a vertically-arranged rotary drum having radially-set hollow arms, means for rotating the drum, the rotary pickers set within said arms transversely of the same, said pickers being disposed along the entire length of the arm and the means for rotating said pickers, substantially as described.

2. In a cotton-picker, the drums, the radial arms carried thereby, and the revoluble transverse spindles set within said arms and having pickers on each end thereof, substantially as described.

3. In combination with the hollow arms set in the rotary drum of a cotton-picking machine, the spindle-carrying picker ends, and the nipples fixed to said arms and fitting loosely around said spindles and projecting into close proximity to said picker ends whereby the fiber gathered by the picker is prevented from wrapping about said spindle, substantially as described.

4. The combination with the hollow arms set in the rotary drum of a cotton-picking machine, the rotary picker-spindle and the nipples fixed to said arm and fitted loosely about said spindle, said nipple having a beveled interior edge, substantially as described.

5. In combination with the hollow arms set in the rotary drum of a cotton-picking machine, the rotary picker-spindle and the nipple fixed to said arm and fitted loosely about said spindle, said nipple having a beveled interior and rounded outer edge, substantially as described.

6. In combination, the rotary drum with means for driving the same, the drum-shaft with means for rotating the same independently of said drum, the gear carried by said shaft, the shaft *g*, the gear carried thereby meshing with the gear on the drum-shaft, the radial arms, the picker-spindles journaled therein, the connection between said spindle and shaft *g*, the gear on the shaft *g* meshing with the gear on the drum-shaft, and the cam arranged in the path of the gear on the shaft *g* for lifting said gear out of mesh with the gear on the drum-shaft, substantially as described.

7. In combination, in a cotton-picking machine, the drum with means for driving the same, the drum-shaft with means for driving the same independent of the drum, the shaft *g*, the radial arms, the picker-spindles journaled therein, the gear carried by the shaft *g* meshing with the gear on the drum-shaft, the cam for lifting the shaft *g*, the second gear carried thereby and the rack adapted to engage therewith for reversely rotating the shaft *g*, substantially as described.

8. In combination, the drum with means for driving the same, the drum-shaft with means for driving the same independently of said drum, the shaft *g*, the pinion carried thereby meshing with the gear on the drum-shaft, the radial arms, the picker-spindles arranged transversely of the same, the pulley carried by said spindles and the shaft *g* and the belt connecting the same, substantially as described.

9. In combination, the frame, the drum carrying the radial arms, the driving means for said drum, the picker-spindles journaled in said arms transversely of the same, the pickers on each end of said spindles, the pulley carried by said spindles the shaft *g* and the belt driven therethrough, said belt engaging the pulley on said spindles to drive the same and means for driving said shaft *g*, substantially as described.

587,202. ROTARY STEAM-ENGINE. LEWIS S. HAYM, Cortland, N. Y. Filed Apr. 5, 1897. Serial No. 630,810. (No model.)



Claim.—1. In a rotary engine, the combination of a stationary shaft, having an axial steam-inlet and provided with a cone-shaped bearing having steam-inlet ports, a revoluble inner cylinder mounted on said cone-shaped bearing, means for adjusting the shaft and cone-shaped bearing with respect to said cylinder, a revoluble outer cylinder having its inner wall in contact with the periphery of the inner cylinder, and means connecting the two cylinders, whereby they are caused to revolve together.

2. In a rotary engine, the combination of a stationary shaft, having an axial steam-inlet and provided with a cone-shaped bearing having steam-inlet ports, a revoluble inner cylinder mounted on said cone-shaped bearing, means for adjusting the shaft and cone-shaped bearing with respect to said cylinder, a revoluble outer cylinder, eccentrically mounted, with its inner wall in contact with the periphery of the inner cylinder, and a web-shaped piston attached to the outer cylinder and loosely connected with the inner cylinder, whereby both cylinders are caused to revolve together.

3. In a rotary engine, the combination of a stationary shaft having an axial steam-inlet for a portion of its length and provided with steam-outlet ports, a revoluble inner cylinder concentrically mounted on the shaft, an outer revoluble cylinder mounted on bearings eccentric with said shaft whereby the inner wall of said cylinder will be in contact with the periphery of the inner cylinder, and means connecting the two cylinders to cause them to revolve together.

4. In a rotary engine, the combination with a stationary shaft inclosed in suitable bearings and provided with a steam-inlet, a cone-shaped valve secured on said shaft, and a revoluble inner cylinder mounted on the cone-shaped valve, of means for adjusting the shaft and valve with respect to the cylinder, to compensate for wear.

5. In a rotary engine, the combination with a stationary shaft inclosed in suitable bearings and provided with a steam-inlet, a cone-shaped valve secured on said shaft, and a revoluble inner cylinder mounted on the cone-shaped valve, of a set-screw arranged in an adjustable cap-block, whereby the shaft and valve may be adjusted with respect to the cylinder.

6. In a rotary engine, the combination of a stationary shaft provided with a cone-shaped bearing having steam-inlet ports, a revoluble inner cylinder mounted on said cone-shaped bearing, a revoluble outer cylinder mounted eccentrically to said inner cylinder, and means for preserving the peripheral contact of the two cylinders.

7. In a rotary engine, the combination with a stationary shaft mounted in suitable bearings and provided with a steam-inlet, a valve secured on the shaft, a revoluble inner cylinder mounted on the valve, and a revoluble outer cylinder mounted on said bearings, of means for adjusting the peripheral contact of said cylinders.

8. In a rotary engine, the combination of a stationary shaft provided with a cone-shaped bearing, said shaft mounted in suitable pillow-blocks which have the longitudinal bore for the shaft extended in the direction of the plane of contact between the cylinders, of a revoluble inner cylinder mounted on the cone-shaped bearing, an outer revoluble cylinder mounted on said blocks, eccentrically to said inner cylinder, and means for adjusting said shaft and bearing to preserve the peripheral contact of said cylinders.

9. In a rotary engine, the combination with a stationary shaft mounted in elongated bearings in suitable pillow-blocks and provided with a steam-inlet, a valve secured on the shaft, a revoluble inner cylinder mounted on the valve, and an outer revoluble cylinder mounted on said blocks, of adjusting-blocks and means for adjusting the same to preserve peripheral contact between said cylinders.

10. In a rotary engine, the combination with a stationary shaft mounted in elongated bearings in suitable pillow-blocks and provided with a steam-inlet, a valve secured on the shaft, a revoluble inner cylinder mounted on the valve, and a revoluble outer cylinder mounted on said blocks, of an adjusting-block adjustably secured at the outer end of each pillow-block and provided with set-screws, whereby the inner cylinder may be adjusted to preserve contact with the inner periphery of the outer cylinder.

11. In a rotary engine, the combination with the pillow-blocks, a shaft journaled in said blocks and provided with a cone-shaped bearing, steam-passages in the shaft and cone-shaped bearing, and a revoluble cylinder mounted on the cone-shaped bearing and provided with two sets of steam-passages said outer cylinder loosely connected to the inner cylinder, of a steam-passage extending through one of the pillow-blocks.

12. The combination, in a rotary engine, with the supporting-frame provided with suitable pillow-blocks, a stationary shaft, mounted in said blocks, having a cone-shaped bearing and provided with steam-inlet and steam-outlet ports and a revoluble inner cylinder mounted on said cone-shaped bearing, provided with passages for the admission of steam and with passages for the exit of steam, of means for taking up lost wear between said inner cylinder and the cone-bearing, and an exhaust-steam passage through one of the pillow-blocks.

13. In a rotary steam-engine, the combination of a stationary shaft mounted in suitable pillow-blocks, said shaft provided with a cone-shaped bearing and with inlet and outlet ports, a revoluble inner cylinder, mounted on said cone-shaped bearing an outer cylinder, revoluble eccentrically to the inner cylinder and loosely connected thereto, said inner cylinder provided with inlet and outlet passages so arranged that the solid portion of said cylinder will cut off the power-supply at each revolution of the cylinders and means for taking up the lost wear between the cone-shaped bearing and the inner cylinder.

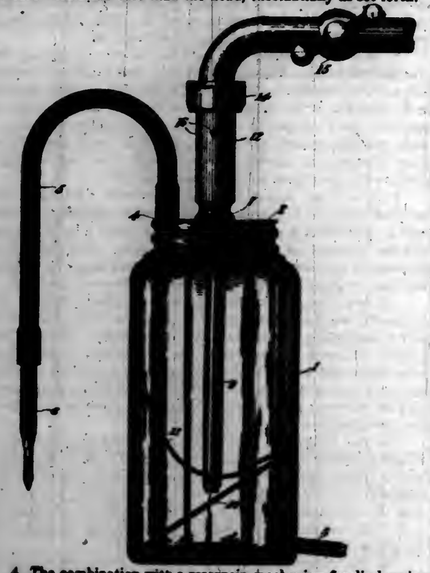
14. In a rotary engine, the combination of a stationary shaft, mounted in suitable pillow-blocks provided with a cone-shaped bearing and inlet and outlet ports, an inner cylinder, revoluble on said cone-shaped bearing and provided with inlet and outlet passages, and an outer cylinder revoluble eccentrically to said inner cylinder and in unison therewith, of means for adjusting the peripheral contact of the cylinders, and means for taking up the lost wear between the inner cylinder and the cone-shaped bearing, whereby leakage is prevented.

587,203. APPARATUS FOR COMPELLING FLOW OF GAS BY MEANS OF CURRENTS OF LIQUIDS. JOSEPH TRATON, Brunswick, Me., assignor of one-half to Eugene Thomas, Topsham, Me. Filed Nov. 11, 1893. Serial No. 611,726. (Model.)

Claim.—1. The combination with a reservoir, liquid-discharge outlet, and tube communicating therewith, of a valve-case located within the tube so as to define an air-passage around it within the tube, air-inlets in the walls of the tube, and a valve within the valve-case, adapted automatically to control the level, within the reservoir, of water passing through the valve-case into the reservoir, substantially as set forth.

2. The combination with a reservoir, liquid-discharge outlet, and tube communicating with the interior of the reservoir, of a valve introduced into the interior of the tube, so as to define an air-passage around it within the tube, air-inlets in the tube, communicating with the air-passage, and a palpitating, pressure-controlled valve located within the valve-case, substantially as set forth.

3. The combination with a reservoir, liquid-discharge outlet, and tube communicating with the interior of the reservoir, of a valve-case located within the tube and defining therein an air-passage around it, air-inlets communicating through the walls of the tube with the air-passage, a valve located within the case, and provided with a base and head, the base presenting a greater opposition to the pressure within the case than the head, substantially as set forth.



4. The combination with a reservoir, mechanism for discharging commingled air and water into the same, and a partition within the reservoir against which the same discharges, of a liquid-discharge outlet communicating with the lower part of the reservoir underneath the partition, substantially as set forth.

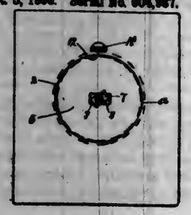
5. The combination with a tube provided with air-inlets, of a valve-case located within the same, the exterior diameter of the case being less than the interior diameter of the tube, and a palpitating valve working in the end of the case, substantially as set forth.

6. The combination with a tube provided with air-inlets, of a valve-case located within the same, the exterior diameter of the case being less than the interior diameter of the tube, and a valve operatively located within the end of the case, and provided with a base and head, the base presenting greater opposition to pressure within the case than the head, substantially as set forth.

7. The combination with a tube provided with air-inlets, of a valve-case provided with a valve-seat, located within the same, the exterior diameter of the case being less than the interior diameter of the tube, a valve operatively located within the end of the case, and provided with a head and flange, whose combined areas nearer the valve-seat, respectively, present greater opposition to pressure within the case than the areas of their other sides, and oblique recesses in the head and flange, respectively, substantially as and for the purpose specified.

8. A valve consisting of a body part, head, flange and inversely-tapered projection, of inclined upper surfaces upon the head and flange, respectively, flat bases upon the opposite sides thereof, respectively, and recesses in the edges of the head and flange, respectively, substantially as set forth.

587,204. SWITCHBOARD-ANNUNCIATOR. NEWMAN H. HOLLAND, Montreal, Canada, assignor of one-half to Charles Bate, same place. Filed Sept. 5, 1896. Serial No. 604,967. (No model.)



Claim.—1. In combination with a switchboard face-strip, an annunciator-magnet, a retaining frame-piece for said magnet, said frame-piece being grooved at right angles to the length of the magnet and a screw adapted to take into a screw-threaded boring in said face-strip adjacent to said frame-piece and having a head with a portion thereof cut away, the remaining portion of the head being adjustable into said groove, for the purpose set forth.

2. The combination with the switchboard face-strip having an aperture therethrough, of an annunciator-magnet located on the rear side thereof and with its core end projecting through such aperture; a carrying-plate for the armature and shutter of the annunciator located on the front side of such face-strip, and said core end and said carrying-plate being adapted to interlock, for the purpose set forth.

3. An annunciator having an electromagnet, with a projecting core end, an armature, a shutter and a carrying-plate for the two latter, the projecting core end being annularly grooved and formed with lugs and the carrying-plate having an opening through which such lugs can be passed, for the purpose set forth.

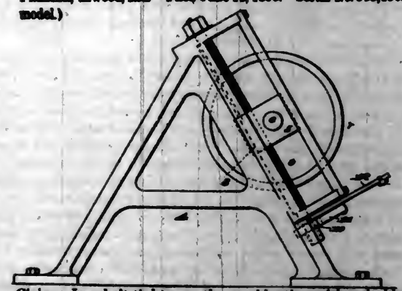
4. An annunciator having an electromagnet, with a projecting core end, an armature, a shutter and a carrying-plate for the two latter, the projecting core end being annularly grooved and formed with tapered lugs and the carrying-plate having an opening through which such lugs can be passed, for the purpose set forth.

5. In an annunciator, the combination with the magnet thereof, of an armature and a shutter, said armature and shutter consisting of a pair of pivotally-mounted vertical plates arranged parallel to one another and with the ends of each in approximate horizontal line with the ends of the other; the plate constituting the armature being fulcrumed adjacent to its upper end and provided at its upper end with one or more fingers projecting in the direction of and adjacent to the shutter, and an operating connection between said armature and shutter whereby the shutter will be normally held in a vertical position and allowed to drop when the magnet is energized, and said finger or fingers being caused to bear upon and displace the shutter simultaneously with the movement of the armature, for the purpose set forth.

6. In an annunciator, an armature, a shutter and a carrying-plate; said armature and shutter consisting of a pair of vertical plates arranged parallel to one another and with the ends of each in approximate horizontal line with the ends of the other; the plate constituting the armature being fulcrumed adjacent to its upper end to the said carrying-plate and provided at its upper end with one or more fingers projecting in the direction of the shutter; and the plate constituting the shutter being fulcrumed adjacent to its lower end to said carrying-plate and provided at its lower end with an offset portion adapted to project in the direction of and take under the lower end of the armature, substantially as and for the purpose set forth.

7. The combination with the switchboard face-strip having an aperture therethrough, of an annunciator-magnet located on the rear side thereof and with its core end projecting through such aperture, an inclosing casing adapted to inclose said magnet and bear at its forward end upon the rear side of said face-strip; a carrying-plate upon which said armature and shutter are operatively mounted, and said carrying-plate being located on the front side of such face-strip; means for detachably connecting said carrying-plate to the forward end of said magnet; the rear end of said core being provided with a screw-threaded boring longitudinally thereof; a screw adapted to project through an opening in said inclosing casing and take into said screw-threaded boring, substantially as and for the purpose set forth.

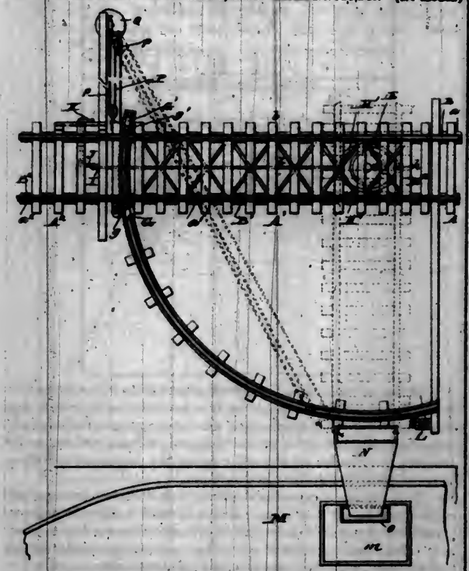
587,205. BELT-TIGHTENER. JAMES HOWARD and OLIVER B. FRASIER, Elwood, Ind. Filed June 11, 1896. Serial No. 595,126. (No model.)



Claim.—In a belt-tightener, the combination with suitable supports or standards having guides formed therein, of journal-boxes slidingly mounted in said standards each having an offset therein fitting within said guides and preventing the lateral movement of said boxes, a belt-tightening drum, a shaft to which said drum is secured

mounted in said boxes, threaded bolts mounted to turn in said standards and engaging threaded openings in said offsets, ratchet-wheels upon the lower ends of said bolts, levers fulcrumed on the lower ends thereof and adapted to oscillate thereon, pawls pivoted to said levers adapted to engage the teeth on said ratchet-wheels, and an operating-bar connecting said levers and pivoted thereto, substantially as described.

587,206. CAR-UNLOADING APPARATUS. LYMAN D. HOWARD, Columbus, Ohio. Filed Nov. 2, 1894. Serial No. 528,246. (No model.)



Claim.—1. The combination with the permanent track of the movable track-section, supported on a vertical pivot adjacent to the permanent track and adapted to move laterally about said pivot, and the downwardly-inclined guide upon which the outer end of the movable track-section rests when moving laterally, substantially as set forth.

2. The combination with the permanent track of the movable track-section pivotally supported upon vertical and horizontal pivots near one end, whereby it is adapted to be moved laterally and to have the other end depressed while so moving, substantially as set forth.

3. The combination with the fixed track of the movable track-section mounted to turn about a pivot, a disk connected with said movable section and arranged concentric with the pivot thereof, and shoes for engaging with said disk adapted to be actuated from the stationary track, substantially as set forth.

4. The combination with the stationary track, of the movable track-section mounted to turn about a vertical pivot, a disk or brake-wheel connected to said movable section, levers pivoted at one side of said disk and carrying shoes adapted to contact therewith, and means for operating said levers from the stationary track, substantially as set forth.

5. The combination with the track, of the movable track-section, the rotary head E connected with said track-section and mounted on a vertical pivot, the levers H pivoted at a common pivot and extending on opposite sides of said head, brake-shoes carried by said levers and adapted to contact with the outer face of the head E, and a draw-rod connected to the levers and extending to a point on the stationary track, substantially as set forth.

6. The combination with the permanent track-section, of a movable track having a horizontal pivot and a vertical pivot, an inclined guide upon which one end rests and down which it is adapted to travel and the counterbalancing-weight by which it is returned to its normal position, substantially as set forth.

7. In a car-unloading apparatus, the combination with a stationary track, A, for loaded cars, and a stationary track, A^2, for empty cars, of the movable track-section supported to move both vertically and horizontally and adapted to be held in line with the track, A, an inclined guide for said movable section extending concentric with the vertical pivot of said section, whereby when a loaded car is moved onto such movable track-section the latter will be automatically moved and the car thereon be held in position to discharge its load, and means for automatically moving the movable track-section into line with the other stationary track A^2 to allow the empty car to pass thereon, substantially as set forth.

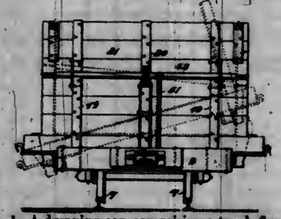
8. In a car-unloading apparatus, the combination with the two stationary tracks, A, A^2, of the intermediate, movable, track-section, A', a vertical pivot for such movable track-section, a horizontal pivot for said movable track-section, a downwardly-inclined guideway for the movable track extending concentric with the said vertical pivot, and a weight connected with said movable track-section, substantially as and for the purpose set forth.

9. In a car-unloading apparatus, the combination with the stationary track-sections, A, A^2, and a discharge spout or chute arranged at one side of one of the stationary tracks, of the movable track-section, a turn-table, for the movable track-section adapted to rock about a horizontal axis, a stationary, downwardly-inclined guide extending concentric with the vertical axis of the turn-table to a point adjacent to the discharge-chute, and a movable support mounted on said guide and connected with the movable track-section, substantially as and for the purpose set forth.

10. In a car-unloading apparatus, the combination with the two stationary track-sections, A, A^2, arranged in the same longitudinal line, of the movable track-section, a turn-table, a support for the movable track-section mounted on said turn-table to rock about a horizontal axis, a stationary, downwardly-inclined, guide extending concentric with the axis of the turn-table, and rollers mounted on said inclined guide and connected to the movable track-section, substantially as set forth.

11. In a car-unloading apparatus, the combination with a stationary track for loaded cars, and a stationary track for empty cars, of a movable track-section, means for securing a car on said movable track-section, a support for said movable track-section adapted to allow said section to simultaneously move from a position in line with and in the plane of the stationary track for loaded cars to a position out of the longitudinal line of and in a plane inclined to the plane of the last said stationary track and maintain the car on said movable track-section in position to discharge its load, and means for moving said movable track-section, and the empty car thereon, from the last said position to a position in line with and in the planes of the stationary track, for empty cars, substantially as set forth.

587,207. DUMPING-CAR. JOHN A. HUGHES, Honolulu, Hawaii. Filed Feb. 15, 1897. Serial No. 623,511. (No model.)



Claim.—1. A dumping-car, comprising a truck-frame, a platform mounted to swing or rock laterally in either direction on said frame, end body portions fixedly mounted on the truck-frame, side body portions having swinging connection with the end portions, and means for connecting one side body portion to move with the platform while the same is being tilted and while the opposite side body portion swings on the end portions, substantially as specified.

2. A dumping-car, comprising a truck, a platform mounted to rock in either lateral direction on said truck, end body portions fixedly mounted on the truck-frame, side body portions having a removable hinge connection with the end body portions at the top, posts on the said side body portions, pockets attached to the platform and in which the downwardly-extended lower ends of said posts are designed to engage, and means for locking said posts in the pockets, substantially as specified.

3. A dumping-car, comprising a truck, a platform mounted to rock thereon, fixed end pieces for the body portion, swinging side pieces for the body portion, posts on said side pieces having their ends extended below the side pieces, pockets attached to the sides of the platform and having an open front, bars designed for engagement with the upper ends of the pockets, and gravity-latches mounted to swing on the body portion and adapted to hold said locking-bars in their downward position, substantially as specified.

4. In a dumping-car, the combination, with a rocking platform and swinging body portion, of pockets for receiving the lower ends of posts secured to the swinging body-pieces, the said pockets being secured to the platform and having side walls and a rear wall, an opening at the front, an upwardly-extended portion at the bottom and extended across the front, flanges on the upper ends of the walls

forming the pockets, lugs on said flanges, bars adapted to abut against said lugs and engage against the posts in the pockets, and gravity-latches for holding said bars in their locking position, substantially as specified.

5. A dumping-car, comprising a truck, a platform mounted to swing to dump laterally in either direction, means on each side of the platform for engagement with a hoisting device, end body portions rigidly mounted on the truck-frame, plates at the upper portions of said end portions and provided with outwardly-opening notches, side body portions, straps on said side body portions having horizontally-extended trunnions which engage in said notches, and outwardly-opening pockets into which the lower ends of posts on the side portions of the body are designed to engage, substantially as specified.

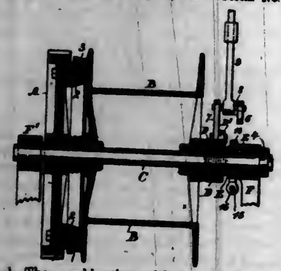
6. In a dumping-car, the combination with a truck-frame and a rocking platform, of a hinge-section connected to the platform and having downwardly-extended portions providing a bearing-wall, and hinge-plates secured to the truck-frame and having bolts with which the hinge-sections on the platform engage, substantially as specified.

7. The combination with a dumping-car, of stake or post pockets attached to the dumping-platform and having side walls and a rear wall, and open at the front, a flange extended around three sides of each pocket and engaging upon the upper side of the platform, a bar or lever mounted to swing laterally and vertically on said flange, a lug on said flange with which one edge of the bar or lever is designed to engage, and a gravity locking-latch for holding said bar or lever in its locking position, substantially as specified.

8. A dumping-car, comprising a truck-frame having side sills and end sills, the said end sills being extended above the plane of the side sills, end posts bolted to the end sills, intermediate end posts, brackets for securing the intermediate end posts to the end sills, end boards or strips secured to said end posts and forming the ends of the body portions, and side body portions having connection with the fixed end body portion, substantially as specified.

9. A car comprising a truck, brake-shoes having swinging connection with the truck-frame, a stem extended from the shoes of one pair of wheels, a vertical bar to which said stem is pivoted, a stem extended from the shoes of the other pair of wheels, an arm having pivotal connection with the last-named stem and with the vertical bar below its connection with the first-named stem, a draw-bar connected with the upper end of the vertical bar and also connected to one arm of a pivoted angle-lever, a rod extended upward from the other arm of the angle-lever, a bar fulcrumed to the car and having pivotal connection with the rod, and a rack for holding said bar as adjusted, substantially as described.

587,208. CLUTCH MECHANISM. CHARLES W. HUNT, West New Brighton, N. Y. Filed May 27, 1897. Serial No. 638,381. (No model.)



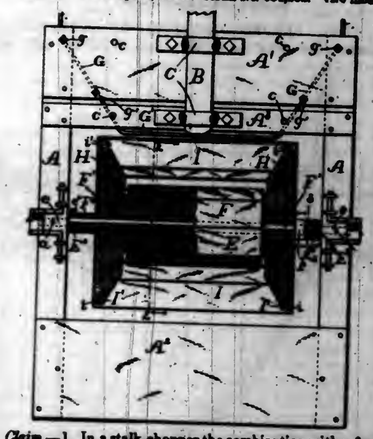
Claim.—1. The combination with the friction devices upon a rotating shaft, of two sleeves loosely surrounding such shaft and one sleeve screwing upon the outside of the other, arms extending out one from each sleeve, and mechanism for moving the arms away from or toward each other simultaneously, substantially as set forth.

2. The combination with the friction devices upon a rotating shaft, of two sleeves loosely surrounding such shaft and one sleeve screwing upon the outside of the other, arms extending out one from each sleeve, and links connected with the ends of the arms and mechanism for acting upon such links and moving the arms toward or from each other, substantially as set forth.

3. The combination with the friction devices upon a rotating shaft, of two sleeves loosely surrounding such shaft and one sleeve screwing upon the outside of the other, arms extending out one from each sleeve, and links connected with the ends of the arms and a joint connecting the outer ends of the links and a lever acting upon such joint to move it toward or from the rotating shaft and apply or release the friction, substantially as set forth.

4. The combination with the friction devices upon a rotating shaft, of two sleeves loosely surrounding such shaft and one sleeve screwing upon the outside of the other, arms extending out one from each sleeve, and mechanism for moving the arms away from or toward each other simultaneously, there being a clamping-eye on one lever by which it is connected to the screw-sleeve and can be adjusted substantially as specified.

587,209. COTTON OR CORN STALK CHOPPER. DARNEY C. IRBY, Irby, Ga. Filed Apr. 8, 1897. Serial No. 631,292. (No model.)



Claim.—1. In a stalk-chopper the combination with a frame having a pair of side timbers; of an axle journaled at its ends in said side timbers; a roller fixed on said axle; a chopping-cylinder loosely mounted upon said axle; and inclosing said roller; and means for stopping the rotation of said roller during the rotation of said chopping-cylinder, substantially as described.

2. In a stalk-chopper, the combination with a frame having a pair of side timbers; of an axle journaled at its ends in said side timbers; a roller fixed on said axle; a pair of cylindrical sleeves also fixed on said axle at opposite ends of said roller; a chopping-cylinder having end disks rotatably mounted upon said cylindrical sleeves, and inclosing said roller; and means for stopping the rotation of said axle during the rotation of said chopping-cylinder, substantially as described.

3. In a stalk chopper, the combination with a frame, of an axle journaled in said frame; a prismatoidal roller fixed upon said axle; a pair of cylindrical sleeves also fixed upon said axle, at opposite ends of said roller; a squared collar fixed on said axle; a clamping device mounted upon the frame and adapted to engage said squared collar, and thus stop the rotation of said axle and roller; and a cylinder having a pair of end disks rotatably mounted upon said cylindrical sleeves, and a plurality of chopping-blades radially mounted in the peripheries of said disks, substantially as described.

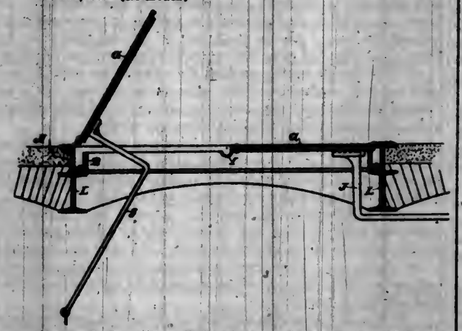
4. In a stalk-chopper, the combination with a frame; of an axle journaled in said frame; a prismatoidal roller fixed upon said axle; a pair of disks rotatably mounted upon said axle; a plurality of radial chopping-blades mounted in slots in the peripheries of said disks, and each provided with openings for the reception of binding-rods; a pair of curved binding-rods mounted in said openings and binding said chopping-blades upon said disks; and means for stopping the rotation of said axle and roller during the rotation of said disks, substantially as described.

5. In a stalk-chopper, the combination with a frame; of an axle journaled in said frame; a prismatoidal roller fixed upon said axle; a pair of cylindrical sleeves fixed upon said axle at opposite ends of said roller; a pair of disks rotatably mounted upon said cylindrical sleeves; a plurality of radial chopping-blades mounted in radial slots in the peripheries of said disks, and each provided with openings for the reception of binding-rods; a pair of curved binding-rods mounted in said openings and binding said chopping-blades upon said disks; a pair of squared nuts fixed on said axle adjacent to said cylindrical sleeves, a pair of clamping devices pivoted upon said frame and adapted to engage said squared nuts, and hold said axle and roller against rotation during the rotation of said disks and chopping-blades, substantially as described.

6. In a stalk-chopper, the combination with a frame having a pair of side timbers; of an axle journaled at its ends in said side timbers; a roller fixed on said axle; a chopping-cylinder loosely mounted upon said axle; and inclosing said roller; a rearwardly-converging frame mounted in front of said chopping-cylinder for gathering the stalks together in front thereof; and means for stopping the rotation of said roller during the rotation of said chopping-cylinder, substantially as described.

7. In a stalk-chopper, the combination with a frame having a pair of side timbers; of an axle journaled at its ends in said side timbers; a roller fixed on said axle; a pair of cylindrical sleeves also fixed on said axle at opposite ends of said roller; a chopping-cylinder having end disks rotatably mounted upon said cylindrical sleeves, and inclosing said roller; a rearwardly-converging frame mounted in front of said chopping-cylinder for gathering the stalks together in front thereof; and means for stopping the rotation of said axle during the rotation of said chopping-cylinder, substantially as described.

587,210. SIDEWALK HATCHWAY AND DOOR MECHANISM. PETER H. JACKSON, San Francisco, Cal. Filed June 24, 1896. Serial No. 596,763. (No model.)



Claim.—1. In a sidewalk hatchway and door-frame and in combination with the beams upon which the arches of the basement and the sidewalk are supported, the bars, angular in cross-section and having overlapping flanges supported by the said beams and riveted or bolted together.

2. In a sidewalk-hatchway construction and in combination with the beams upon which the arches of the basement and the sidewalk are supported, the door construction consisting of a Z-bar and an angle-bar, or channel-bar, supported upon the beam and having flanges adapted to overlap and to be riveted or bolted together.

3. A sidewalk-hatchway set horizontally in the sidewalk or floor and provided with a door or doors attached to the frame, and an angular lever secured to the door, said lever being bent down to the bottom of the supporting-beam and thence bent to one side so as to lie on the line of ceiling beneath the sidewalk or floor when the door is closed, substantially as herein described.

587,211. MEANS FOR CLOSING LEAKS IN PNEUMATIC TIRES. FREDERICK J. JOHNS and GWENDOLEN W. JOHNS, Kings Heath, England, assignors to the Tyre Puncture Curing Syndicate, Limited, London, England. Filed Mar. 1, 1897. Serial No. 625,856. (No model.)

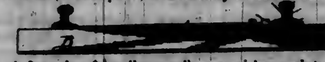


Claim.—1. An inflated rubber article having within it a sealing agent of dissolved pyroxylin rendered non-hardening by the addition of a non-drying medium.

2. An inflated rubber article having within it a sealing agent of pyroxylin dissolved in amyl acetate and amylic alcohol, with the addition of glycerin, treacle, or the like.

587,212. FASTENING FOR RAILWAY-TRACKS. WILLIAM M. KNIGHT, Jacksborough, Tenn. Filed Mar. 5, 1897. Serial No. 626,084. (No model.)

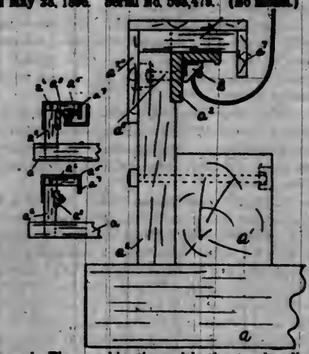
Claim.—1. The combination of the rails, the two plates one of which is flanged at one end to extend over the base of the rail on the outside thereof, and flanged at the opposite end to extend over the base on the inside of the rail and on the other of which is flanged to extend over the base of the rail on the outside and which is formed with a lug having an inclined end and extending through an opening in the first-mentioned plate, substantially as described.



2. A fastening for railway-rails comprising a plate formed with an opening, and with bolt-holes and provided with a flange adapted to extend over the base of the rail on the inside thereof, in combination with another plate provided with bolt-holes and a lug having an inclined end and extending through the opening in the first-mentioned plate, and provided also with a flange adapted to extend over the base of a rail on the outside thereof and having studs extending into holes in the adjacent ends of two abutting rails

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587,213. CONDUIT. ALVARO S. KNOTT, Springfield, Ohio, WILLIAM P. ALLEN, Chicago, Ill., and OLIVER S. KNOTT, Springfield, Ohio. Filed May 28, 1896. Serial No. 593,479. (No model.)



Claim.—1. The combination with the track-rails, a guard-rail adjacent to one of the track-rails, insulated standards or supports attached to said guard-rail, a contacting rail secured to and supported by said standards, a shield adjacent to said contact-rail and on the opposite side of said standards from said guard-rail, and a top or cover joining said side shield and extending over the tops of said supporting-standards and over said contacting rail, said top or cover being arranged in a plane above said guard-rail, substantially as specified.

2. The combination with track-rails, and the track-rail supports, of the insulating-supports arranged along the line of said track, and a contacting rail secured to and supported by said supports in line with one of said track-rails, a side shield on said supports adjacent to said contact-rail and on the opposite side thereof from the track-rail, and a top or cover joining said side shield and projecting over the top of said contacting rail, said contacting rail and cover being arranged in a plane above the track-rail and exposed laterally on the side adjacent to said track-rail, substantially as specified.

3. The combination with the track-rails and supports therefor, supporting-standards arranged along the line of said track, and a contacting rail having lateral and vertical projections as described, said contacting rail being attached to and supported by said standards, a side shield on said standards adjacent to and in line with the vertical portion of said contacting rail, and a top or cover joining said side shield and extending over the tops of said standards and contacting rail parallel with the horizontal portion of said contacting rail, substantially as and for the purpose specified.

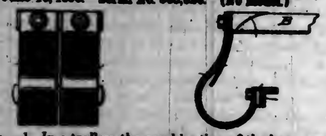
4. The combination with a contacting rail having the vertical and horizontal parts, the depth of one side of said rail being greater than the other, of an insulating-support attached to the side of greater depth, and a covering over said insulating-support and over said contacting rail, substantially as specified.

5. The combination with a base or support, a contacting rail insulated from said support, said contacting rail consisting of a horizontal piece of metal with downwardly-projecting sides, a covering over said contacting rail, and a side shield arranged adjacent to and parallel with one of the downwardly-projecting sides of said contacting rail, said contacting rail being exposed laterally on the opposite side from said shield, substantially as specified.

6. The combination with a railway-track, insulating-standards supported along the line of said track, a contacting rail supported by said standards, a side shield supported adjacent to said contacting rail on one side thereof, and a top or cover joining said side shield and projecting laterally therefrom and extending over said contacting rail, said side shield being arranged adjacent to said contacting rail on the side farthest from said track-rail, said contacting rail being ex-

posed laterally on the side adjacent to said track-rail, substantially as specified.

587,214. TROLLEY. ALVARO S. KNOX, Springfield, Ohio, WILLIAM P. ALLEN, Chicago, Ill., and OLIVER S. KELLY, Springfield, Ohio. Filed June 16, 1896. Serial No. 595,220. (No model.)



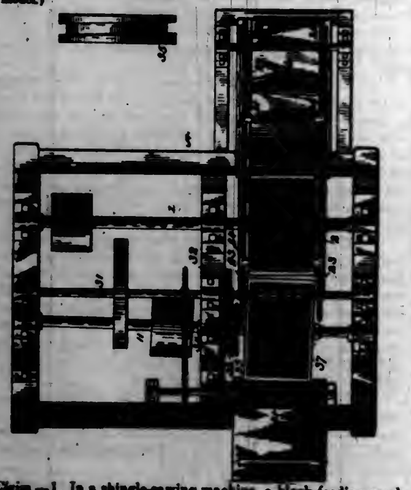
Claim.—1. In a trolley, the combination of the base, one or more spring-supports rigidly attached at one end to said base, a contact-shoe supported on the free end or ends of said spring support or supports, said spring support or supports consisting of a flat sheet of elastic metal and a rigid stop adapted to limit the travel of said spring or springs, substantially as specified.

2. In a trolley, the combination with a base, one or more spring-supports rigidly attached at one end to said base, a contact-shoe supported on the free end or ends of said spring or springs, said spring or springs being backed or faced with a strip of soft copper or other good conducting material.

3. In a trolley, the combination with a base, one or more flat spring-supports, a contact-shoe attached to the free end of said spring-supports, a conductor-strip of high conductivity connecting the contact-shoe and metal support or base and a stop, substantially as and for the purpose specified.

4. In a trolley, the combination with a base, of a flat spring-support and a contact-shoe attached to and supported by said spring-support, and a conductor-strip of high conductivity connecting the contact-shoe with the base or metal support, said spring-support being curved to substantially a U shape with one arm shorter than the other, with the shoe mounted on the shorter arm so that said shoe will stand in a plane between the base and the curved portion of said spring-support so as to maintain an even contact with the stationary conductor and compensate for vertical or lateral movement, substantially as specified.

587,215. SHINGLE-SAWING MACHINE. EDWARD H. KRUMM, Elizabeth City, N. C. Filed June 10, 1896. Serial No. 594,993. (No model.)



Claim.—1. In a shingle-sawing machine, a block-feeding mechanism, two gangs of circular saws, one gang immediately succeeding the other so that the second gang may engage the block before it leaves the first, and means for shifting one gang of saws laterally relatively to the other, all combined substantially as described.

2. In a shingle-sawing machine, the combination with the frame or table, of two gangs of circular saws, one gang in advance of the other, one arbor being inclined relatively to the other, and means for shifting one gang of saws laterally, substantially as described.

3. In a shingle-sawing machine, a power-driven feed mechanism, two gangs of circular saws one in advance of the other, and means connected to the feed mechanism and operating on one gang of saws to feed the same laterally while in operation.

4. In a shingle-sawing machine a gang of circular saws having rotary movement but fixed against lateral movement, a second gang in proximity thereto, having both rotary and lateral movement, a chain feed mechanism by which blocks are fed to both saw-gangs, and mechanism driven by said chain feed to shift the laterally-movable gang of saws during the progress of the work, all combined and arranged substantially as described.

5. In a shingle-sawing machine, a plurality of gangs of circular saws operating successively and means for rotating them, means for shifting one of the gangs laterally while in operation, an endless-chain feed mechanism, and fingers connected to said chain in position to pass between the saws of the gangs, all combined substantially as described.

6. In a shingle-sawing machine, the plurality of gangs of circular saws arranged in proximity, the endless-chain feed mechanism, the fingers connected to the feed-chains in position to pass successively between the saws of all the gangs, and the drawing-rolls at the delivery end of the last gang, all combined substantially as described.

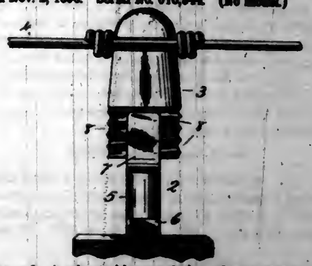
7. In a shingle-sawing machine, the combination with the saw-table and feed mechanism, of two gangs of circular saws, one in advance of the other, one gang being on an arbor inclined with reference to the other, and having a lateral movement thereon.

8. In a shingle-sawing machine, a gang of circular saws having lateral movement, that is, movement in the direction of the axis of the arbor, and a grating embracing said saws and moving laterally with them, in combination substantially as described.

9. In a shingle-sawing machine, a gang of saws, a sleeve on which said saws are hung, said sleeve moving lengthwise and carrying the saws laterally, a grating embracing said saws and connected to the sleeve, and power-driven mechanism for shifting said sleeve and grating in the direction of the length of the arbor, all combined substantially as described.

10. In a shingle-sawing machine, the plurality of gangs of circular saws and means for rotating said saws, means for shifting one gang laterally relatively to the other gang, an endless-chain feed mechanism having cross-bars provided with fingers which pass between the saws, and guideways operating on the bars of the feeder, all combined substantially as described.

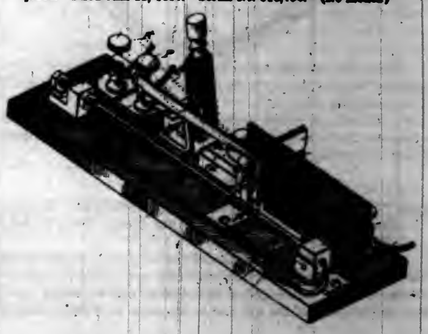
587,216. WIRE-HOLDER. JOSEPH B. LAWRENCE, Salem, N. J. Filed Nov. 2, 1896. Serial No. 610,844. (No model.)



Claim.—1. A wire-holder consisting of an upright standard having feet provided with openings, upwardly-projecting arms having interior screw-threads, and an exteriorly-screw-threaded insulator.

2. A wire-holder consisting of an upright standard, upwardly-extending arms having interior screw-threads, and an insulator screw-threaded exteriorly at its lower end portion.

587,217. FUSE-HOLDER AND ELECTRIC CUT-OUT. HARRY A. LEWIS, Norristown, Pa., assignor of three-fifths to John T. Dyer, same place. Filed Jan. 11, 1897. Serial No. 618,759. (No model.)



Claim.—1. A device of the class described, provided with a bridge formed of infusible and non-conducting plates arranged in close proximity to each other, and formed in their opposite edges with spaces or non-registering slots for the entrance and exit of the fusible wire, the latter extending between the plates and in contact with the sides thereof, whereby when the wire is fused by an excessive current, the portion of the wire between the plates will not be fused, substantially as and for the purpose set forth.

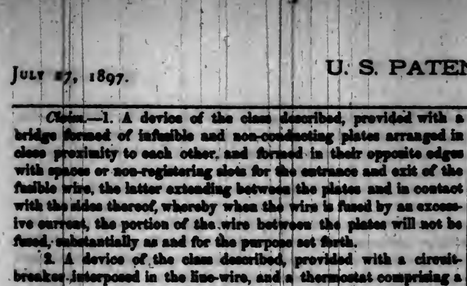
2. A device of the class described, provided with a circuit-breaker interposed in the line-wire, and a thermostat comprising a tube fixed at one end, and a line-wire passing through the tube to heat the same, an intermediate mechanism for connecting the said tube with the said circuit-breaker, substantially as described.

3. A device of the class described, provided with a circuit-breaker having a spring-pressed lever adapted to make contact with an arm connected with the line-wire, a lever having a shoulder adapted to lock the said first-named lever in a contact position, a thermostat having a tube fixed at one end and pressing at its other end on the said second lever, and a coil of wire forming part of the line and extending into the said tube, substantially as described.

4. In a device of the class described, the combination with a pivoted and spring-pressed lever adapted to make contact with an arm connected with the line-wire, said lever being provided with a depending arm having a foot at its end, of a second pivoted and spring-pressed lever provided with a shoulder engaging the foot of the first lever and with an upwardly-extending projection at its pivot end, a tube having one end abutting against the projection of the said second lever, and a coil forming a part of the line and extending into the tube, substantially as herein shown and described.

5. A device of the class described, comprising a bracket having a laterally-projecting arm and adapted to be connected with the line-wire, a pivoted and spring-pressed lever provided with a spring at its free end adapted to engage the said arm, and with a depending arm at its pivoted end, said arm terminating in a foot, a second pivoted and spring-pressed lever provided with a shoulder at its free end engaging the foot of the said first lever and with an upwardly-extending projection at its pivoted end, a tube having one end secured in a support and its other end engaging the projection of the second lever, and a coil forming a part of the line and extending into the tube, substantially as described.

587,218. CAR-COUPLING. CARL G. LEES, Philadelphia, Pa. Filed Feb. 20, 1897. Serial No. 624,464. (No model.)



Claim.—1. In car-couplers, the combination of a draw-head, a jaw pivoted thereto and provided with a curved inturned knuckle formed with a series of spaced leaves and a recess on its inner side between the adjoining leaves, a series of uncoupling devices each comprising a head fitting in the space between the leaves and formed with a lip having an outer or cam face adapted to engage the knuckle of an interlocking coupler to effect uncoupling, said lips being adapted to fit within the said recesses, a rod or pin passing through said leaves and head and pivoting the latter, and a lever engaging the rod for operating the said uncoupling device, substantially as described.

2. In car-couplers, the combination of a draw-head, a jaw pivoted thereto and provided with a curved inturned knuckle formed with a series of spaced leaves, a recess on its inner side between the adjoining leaves, a series of uncoupling devices each comprising a head fitting in the space between the leaves and formed with a lip having an outer curved or cam face adapted to engage the knuckle of an interlocking coupler to effect uncoupling, said lip being adapted to fit within the recesses, a rod or pin passing through said leaves and heads and pivoting the latter and provided with a hook-shaped shield at the upper end thereof, and a lever attached to the shield, substantially as and for the purpose described.

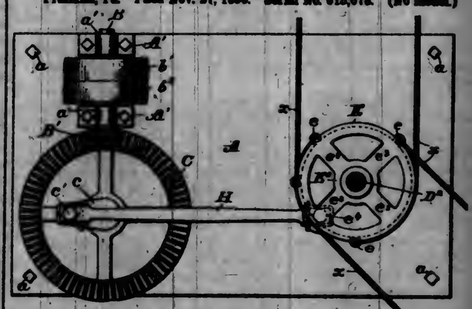
3. In car-couplers, the combination of a draw-head, a jaw pivoted thereto and provided with a curved inturned knuckle formed with a series of spaced leaves and recesses on its inner side between the adjoining leaves, a series of uncoupling devices each comprising a head fitting in the space between the leaves and formed with a lip having an outer curved or cam face adapted to engage the knuckle of the interlocking coupler to effect uncoupling, said lips being adapted to fit within the said recesses, a rod or pin passing through said leaves and heads and pivoting the latter and provided with a hook-shaped handle at the upper end thereof, a spring bearing against the outer side of the knuckle to limit the outward movement therein, and a lever pivoted to said hook-shaped handle and adapted to operate the parts, substantially as described.

587,219. WASHTUB-STAND. HENRY MANN and ARNOLD MANN, Marion, Wis. Filed Feb. 13, 1897. Serial No. 623,150. (No model.)



Claim.—A washtub-stand comprising two similar frames composed of upright supporting-bars and upper and lower horizontal connecting-bars disposed in pairs and arranged contiguous to each other and centrally pivoted together, a semicircular plate provided with perforations and secured to the lower edge of the upper horizontal bar of one frame and arranged contiguous to the adjacent edge of the upper horizontal bar of the other frame, and a spring-actuated bolt mounted on the upper horizontal bar of the latter in position for engaging the perforations of the curved plate, whereby the frames are locked in their folded and operative positions, substantially as and for the purpose described.

587,220. OIL-WELL PUMPING-RIGGING. JOHN H. MANER, Franklin, Pa. Filed Nov. 27, 1896. Serial No. 613,678. (No model.)



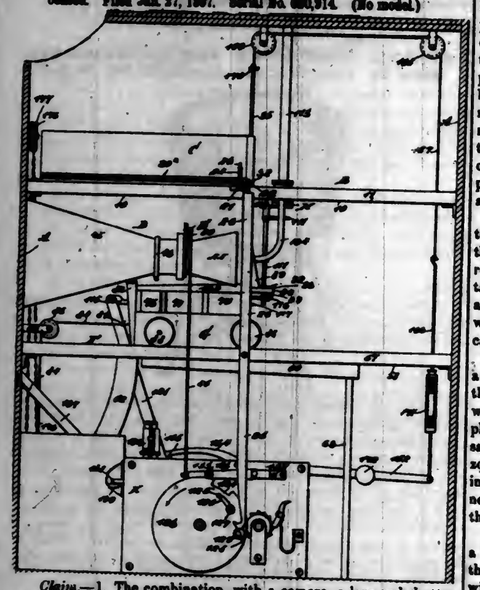
Claim.—1. In a rigging for oil-well pumps, the combination with a base, a bevel gear-wheel mounted thereon, a bevel-pinion also mounted thereon, a crank on the said bevel gear-wheel, and means for rotating the said pinion; of a standard mounted on the said base, a spindle formed on the said standard, a shoulder at the junction of the spindle and standard, a drum mounted on the said spindle, and connected with the crank on the bevel gear-wheel, and means for connecting the said drum with the pump-rods, substantially as described.

2. In a rigging for oil-well pumps, the combination with a standard, a spindle formed on the said standard, a shoulder and bearing-surfaces on the said spindle and standard, of a drum, a collar at each end of the said drum to fit the said spindle, antifriction-bearings between one of the collars on the drum and the shoulder on the spindle, grooves around the periphery of the said drum and eyes secured in the said grooves, and means for connecting the pump-rods to the said eyes, and means for oscillating the said drum, substantially as described.

3. In a rigging for oil-well pumps, the combination with a standard, a spindle formed on the said standard, a shoulder and bearing-surfaces on the said spindle and standard, of a drum mounted with

antifriction-bearings on the said spindle, means for connecting the pump-rods with the said drum, a wrist-pin secured in holes in the said drum, a rod connected with the said wrist-pin, and means for moving the said rod to oscillate the said drum, substantially as described.

587,221. AUTOMATIC PHOTOGRAPHIC APPARATUS. MARGARETA MANN, New York, N. Y., administratrix of Charles Mann, deceased. Filed Jan. 27, 1897. Serial No. 620,914. (No model.)



Claims.—1. The combination, with a camera, a lens and shutter for the same, a motor, and a shifting device for the shutter operated by the motor and arranged to regulate the time of exposure at the lens, of a plate-receptacle, a plate-holder provided with gripping devices, the said gripping devices being arranged to receive a plate from the receptacle and carry it in the field of the lens, a device arranged to release the plate from the grippers, said receptacle, holder and releasing devices being operated from said motor, substantially as described.

2. The combination, with a camera, a lens and shutter for the same, a motor, a shifting device for the shutter operated by the motor, and a regulating device carried by the motor and arranged to operate the shifting device, of a plate-receptacle, a plate-holder provided with gripping devices, said gripping devices being arranged to receive a plate from the receptacle and carry it in the field of the lens, a bath-carriage having its movement controlled by the motor in one direction, being tension-controlled in the opposite direction, and means, substantially as described, for reciprocating the plates in the bath-carriage and releasing the plates from the gripping devices.

3. In a photographic apparatus, the combination, with a camera, a lens, a shutter for the same, a motor, a shifting device for the shutter, a cam carried by the motor and adapted to operate the said shifting device, said cam being provided with an adjustable section arranged for engagement with the shutter-shifting device, whereby the time of exposure may be shortened or lengthened, a plate-receptacle operated from the motor, a plate-holder provided with gripping devices likewise operated from the motor, said gripping devices being arranged to receive a plate from the receptacle and carry it in the field of the lens, a bath-carriage having a platform to temporarily hold the plate, means for clamping the plate to the platform and releasing said plate therefrom, and a tension device controlling the movement of the carriage in one direction, the movement of the carriage in the opposite direction being controlled by said motor, as and for the purpose specified.

4. In a photographic apparatus, the combination, with the camera, a lens and a shutter for the same, a plate-receptacle located above the camera, gripping devices for the plates located beneath said receptacle, and a throat interposed between the receptacle and the plate-holder, arranged to guide the plates from one of said parts to the other, of a bath-carriage held to travel beneath the camera, a motor controlling the movement of the carriage in one direction, a tension device controlling the movement of the carriage in the opposite direction, the carriage being provided with a pocket to receive the washed and developed plate, a drop-bottom for said pocket, a feed connection between the motor and the plate-receptacle, and a reciprocating connection between the motor and the plate-holder, substantially as described.

5. In a photographic apparatus, the combination, with a camera, a lens, and a shutter for the same, a plate-receptacle located above the camera, a bottom for said plate-receptacle, means for holding the bottom stationary while the receptacle moves, and a plate-holder located beneath said receptacle, provided with gripping devices, said plate-holder being adapted to receive plates from said receptacle and carry said plates in the field of the lens, of a bath-carriage held to travel below the camera, provided with developing and washing compartments, and a pocket to receive the finished plate, said pocket being provided with a drop-bottom, a motor controlling the forward movement of the carriage, a tension device controlling the return movement of the carriage, a chute, a trip device near the chute, adapted to engage with and open the drop-door of the carriage on the return of said carriage, and a feed connection between the motor and the plate-receptacle and a reciprocating connection between said motor and said plate-holder, for the purpose set forth.

6. A photographic apparatus consisting of a camera, a support therefor, a lens, a shutter for the lens, a motor, a shifting device for the lens-shutter, a plate-receptacle located above the camera, a cam rotated by the motor, a shifting device connected with the plate-receptacle, a pin carried by the cam, operating the said shifting device, and a second shifting device connected with the said shutter, provided with a lever having an extension adapted to enter a depression in the cam, as and for the purpose specified.

7. In a photographic apparatus, the combination, with a camera, a lens and a shutter for the same, of a plate-receptacle located above the camera, a plate-holder located below the camera and provided with gripping devices, the said plate-holder being adapted to receive plates from the plate-receptacle, a motor, and cams carried by the said motor, connected with the plate-receptacle in a manner to horizontally move the same, being also connected with the lens-shutter in a manner to open and close the same, other of the cams being connected with the gripping devices of the plate-holder to open and close the same, substantially as shown and described.

8. In a photographic apparatus, the combination, with a camera, a lens and a shutter for the same, of a plate-receptacle located above the camera, a plate-holder located below the camera and provided with gripping devices, the said plate-holder being adapted to receive plates from the plate-receptacle, a motor, and cams carried by the said motor, connected with the plate-receptacle in a manner to horizontally move the same, being also connected with the lens-shutter in a manner to open and close the same, certain of the cams being connected with the gripping devices of the plate-holder to open and close the same, and a bath-carriage mounted to travel beneath the plate-holder, the said carriage having timed movement from the said motor, as and for the purpose set forth.

9. In a photographic apparatus, the combination, with a camera, a lens and a shutter for the same, of a plate-receptacle located above the camera, gripping devices arranged to receive the plates from the plate-receptacle, a bath-carriage held to travel beneath the lens and the plate-holder, the gripping devices being so located as to carry the plate in the field of the lens, and means, substantially as described, for operating the shutter, delivering the plates to the gripping devices, moving the carriage and moving the plates in the path of the said carriage, a pocket located at one end of the bath-carriage, adapted to receive the washed plate, a chute arranged to receive the plate from the pocket of the bath-carriage, and a shifting bottom for the aforesaid pocket, as and for the purpose specified.

10. In a photographic device, a camera, a plate-holder mounted to slide in front of the camera, a motor, a cam carried by the motor, a lever connected with the plate-holder, and held in engagement with said cam, an arm connected with the lever, and a reciprocating device actuated by the motor and engaged by said arm when the lever is upon the depressed portion of the said cam, as and for the purpose set forth.

11. In a photographic device, the combination, with a camera, a plate holder mounted to slide in the path of the lens of the camera, a motor, cams carried by the motor, one of the said cams being provided with a salient surface and a depressed body-surface, the other cam having a salient surface and a series of depressed surfaces of varying depths, and an agitating device operated by the motor, of a lever connected with the plate-holder, engaging with the cam having the single body depression, and an arm carried by the lever, arranged to engage with the agitating device, a bath-carriage, and a lever connected therewith, engaging with the cam having the multiple depressed surfaces, substantially as shown and described.

12. In a photographic device, the combination, with a camera, a plate-holder mounted to slide in the path of the lens of the camera, a motor, cams carried by the motor, one of the said cams being provided with a salient surface and a depressed body-surface, the other cam having a salient surface and a series of depressed surfaces of varying depths, and an agitating device operated by the said motor, of a lever connected with the plate-holder, engaging with the cam having the single body depression, an arm carried by the lever, arranged to engage with the agitating device, a bath-carriage, a lever connected therewith and engaging with the cam having the multiple depressed surfaces, adjusting-plates mounted upon the multiple-faced cam, having shoulders adjustable to and from the shoulders separating the various depressed surfaces of the said cam, substantially as described.

13. In a photographic device, the combination, with a camera, a plate-holder mounted to slide in the path of the lens of the camera, a motor, cams carried by the said motor, one of said cams being provided with a salient surface and a depressed body-surface, the other cam having a salient surface and a series of depressed surfaces of varying depths, and an agitating device operated by the said motor, of a lever connected with the plate-holder, engaging with the cam having the single body depression, an arm carried by the lever, arranged to engage with the agitating device, a bath-carriage, a lever connected therewith and engaging with the cam having the multiple depressed surfaces, adjusting-plates mounted upon the multiple-faced cam, having shoulders adjustable to and from the shoulders separating the various depressed surfaces of the said cam, a valve connected with a source of fluid-supply and also connected with a compartment in the bath carriage, and a trip for the valve, actuated by the lever controlled by the multiple-faced cam, substantially as described.

14. The combination, with a movable plate-holder, a camera and a source of fluid-supply, of a movable bath-carriage provided with various chambers, a fluid-conductor connected with one of the said chambers and the source of fluid-supply, a propelling-lever connected with the carriage, a trip for the fluid-supply and operated by the said lever, and a motor in operative connection with the said lever, substantially as set forth.

15. The combination, with a movable plate-holder, a camera and a source of fluid-supply, of a movable bath-carriage provided with various chambers, a fluid-conductor connected with one of said chambers and the source of fluid-supply, a propelling-lever connected with the carriage, operating it in one direction, a trip for the fluid-supply and operated by the lever, a motor in operative connection with the said lever, and means for returning the bath-carriage to its normal position independent of the motor, substantially as set forth.

16. The combination, with a movable plate-holder, a camera, a source of fluid-supply, a motor, and a reciprocating and timed lifting connection between the motor and plate-holder, of a movable bath-carriage provided with various chambers, a fluid-conductor connected with one of the said chambers and the source of fluid-supply, a propelling device for the carriage and operated from the motor, a return device for the carriage operating independently of the motor, and means for supplying fluid to the said conductor through the medium of the propelling device, as and for the purpose specified.

17. The combination, with a movable plate-holder, a camera, a source of fluid-supply, a motor, and a reciprocating and lifting connection between the motor and plate-holder, of a movable bath-carriage, a shutter for the camera, operated by the said motor in advance of the bath-carriage, and means for delivering a plate from the bath-carriage, the said bath-carriage being provided with various chambers, a fluid-conductor connected with one of said chambers, and the source of fluid-supply, a propelling device for the carriage, operated from the motor, a return device for the carriage and operating independently of the motor, and a device for supplying fluid to the said conductor through the medium of the propelling mechanism for the carriage, as and for the purpose specified.

18. The combination, with a motor and a lever having timed movement from the motor, of a bath-carriage receiving movement from said lever, the said carriage being provided with a receptacle for a developing, fixing and washing bath, a pocket for the washed plate, and a shifting bottom for the said pocket, substantially as described.

19. The combination, with a motor and a lever having timed movement from the motor, of a bath-carriage receiving advance movement from said lever, the said carriage being provided with receptacles having a developing, a fixing and a washing bath, a pocket for the washed plate, a shifting bottom for the pocket, a track upon which the said carriage travels, means substantially as described, to return the carriage, and a trip for the bottom of the pocket, as and for the purpose specified.

20. The combination, with a motor and a lever having timed movement from the motor, of a bath-carriage receiving advance movement from said lever, the said carriage being provided with receptacles having a developing, a fixing and a washing bath, a pocket for the washed plate, a shifting bottom for the pocket, a track upon which the said carriage travels, means substantially as described, to return the carriage, a trip for the bottom of the pocket, a plate-receiving chute located beneath the trip, a valve connected with a source of fluid-supply and with the washing-compartment of the carriage, and a trip-lever for the valve, operated by the mechanism for advancing the carriage, as and for the purpose set forth.

21. The combination, with a plate-receptacle, and a reciprocating plate-holder arranged to receive plates from the said receptacle, of a camera, a bath-carriage capable of movement beneath the plate-holder, a plate-receiver located upon the said carriage, clamping devices operating in conjunction with the receiver, and means, substantially as described, for moving the plate-holder and bath-carriage, and for moving the clamping devices in advance of the movement of the carriage, as and for the purpose set forth.

22. In a photographic device, a plate-receptacle, a throat in which the plates are received from the receptacle, a movable plate-holder located beneath the throat, and clamping or gripping levers carried by the holder and arranged to be opened by contact with an object which is in the path of the holder, as and for the purpose set forth.

23. In a photographic device, the combination, with a plate-receptacle, a support therefor provided with a throat, a bottom for the receptacle held stationary upon the support, a motor, and a connection between the motor and plate-receptacle for moving the latter, of a plate-holder, tension-controlled gripping-levers carried by the holder, being normally in gripping position and carried from said position by contact with the said throat, and a vibratory connection between the motor and the plate-holder, substantially as shown and described.

24. In a photographic device, the combination, with a plate-receptacle, a support therefor provided with a throat, a bottom for the receptacle held stationary upon the support, a motor, and a connection between the motor and plate-receptacle for moving the latter, of a plate-holder, tension-controlled gripping-levers carried by the holder, being normally in gripping position and carried from said position by contact with said throat, a vibratory and lifting connection between the motor and plate-holder, and a bath-carriage held to travel beneath the holder, time operated from the said motor, as and for the purpose set forth.

25. A bath-carriage provided with a developing-compartment, a fixing-compartment, a washing-compartment having an overflow, and a plate-receiving pocket located back of the washing-compartment, the said pocket being provided with a movable bottom, substantially as described.

26. In a photographic apparatus, a sliding plate-holder, a motor, cams carried by the motor, a bath-carriage, a lever connected with the plate-holder and engaging with one of the said cams, a second lever connected with the carriage, being in engagement with the other cam, adjustable shoulders located upon the carriage-cam, and arms adjustable with said shoulders, arranged for engagement with the lever of the plate-holder, substantially as set forth.

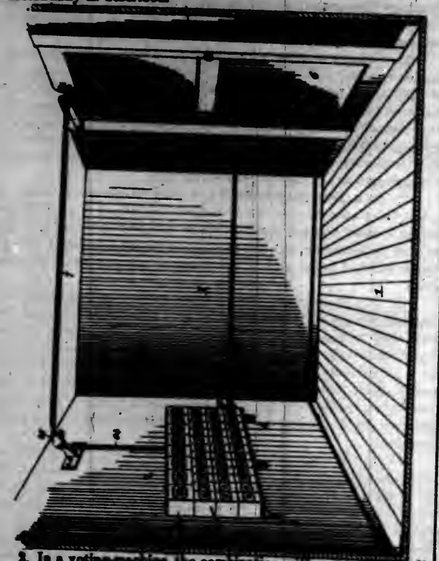
27. In a photographic apparatus, the combination, with a camera, its lens and the shutter for the lens, of a receptacle having a compartment for plates, means for releasing the plates, a feed device for the said plate-receptacle, a holder and a gripping device connected therewith, the holder being located below the plate-receptacle, receiving the plates therefrom, the said gripping device being arranged to hold a plate in the field of the lens, and a motor connected with and arranged to operate the lens-shutter and impart movement to the plate-receptacle and the plate-holder, as and for the purpose set forth.

28. In a photographic apparatus, the combination, with a camera, its lens and a shutter for the lens, of a receptacle having compartments for plates, a cover for the receptacle, and a retention device for the cover of the same, a gripping device located below the plate-receptacle, receiving the plates therefrom, the said gripping device being arranged to hold a plate in the field of the lens, and a motor connected with and arranged to operate the lens-shutter and impart movement to the plate-receptacle, a bath-carriage mounted to slide beneath the camera, the said carriage being provided with chambers, one adapted to receive a developing compound, another a fixing compound and another a washing compound, the said bath-carriage being operated from the said motor, and means for delivering the exposed plate from the bath-carriage to the exterior of the apparatus, as and for the purpose set forth.

587,222. MECHANICAL VOTING-MACHINE. JOHN A. MARKOE, White Bear, Minn., assignor to Lorenzo J. Markoe, same place. Filed Jan. 21, 1897. Serial No. 620,057. (No model.)

Claims.—1. In a voting-machine the combination with a group of candidate-indicating devices and a group of sets of coincident counting-wheels, of a series of reciprocating slides having opposing camfaces cooperating with said counting-wheels in their forward and return reciprocations, a push-rod having means for selecting and actuating a slide forwardly to initiate a vote-count on the selected set

of wheels and means for imparting return reciprocation to the slides, substantially as described.



2. In a voting-machine, the combination with a group of candidate-indicating devices, and a coincident group of counting-wheels, of a series of reciprocating slides having opposing cam-faces engaging and actuating said counting-wheels in their forward and return movements, and a rotatable push-rod provided with means for imparting a forward reciprocation to said slides and means for imparting a return reciprocation thereto, substantially as described.

3. In a voting-machine, the combination with a booth, and a group of candidate-indicating devices arranged therein, of a group of coincident sets of counting-wheels, a series of slides coöperating with said counting-wheels, a rotatable push-rod, an arm carried by said rod to actuate a selected slide, a gravity-latch adapted to automatically lock said push-rod from further operation after it has actuated a slide, means operated by the door of the booth for releasing said latch, means connected with said push-rod to return it to normal position when the latch is released, and a collar on said push-rod for returning said slide to normal position, substantially as described.

4. In a voting-machine, the combination with a group of candidate-indicating devices and a coincident group of sets of counting-wheels, a rotatable push-rod provided with means for selecting and actuating a set of counting-wheels in a group, a collar on the push-rod, a shaft arranged above the push-rod and provided with a finger in the path of said collar, a latch-holder carried by said shaft, and a latch supported by said holder and adapted to fall in front of the collar on the rod when the shaft is rotated through the medium of said collar and finger, substantially as described.

5. In a voting-machine, the combination of a group of candidate-indicating devices, a coincident group of counting-wheels, a series of reciprocating slides engaging and actuating said counting-wheels in their forward and return reciprocations, a rotatable push-rod having means to engage said slides and impart a forward reciprocation thereto to initiate a vote count on said wheels, means for automatically locking the parts, means operated by the door of the booth for releasing the locking device, and means for automatically returning said push-rod and slide to normal position to complete the initiated vote count, substantially as described.

6. In a voting-machine, the combination with a group of candidate-indicating devices and a group of sets of coincident counting-wheels, of a series of reciprocating slides having opposing cam-faces coöperating with said counting-wheels in their forward and return reciprocations, a push-rod having means for selecting and actuating a slide forwardly to initiate a vote count on the selected set of wheels, and means operated by the door of the booth for imparting return reciprocation to the slides and completing the vote count, substantially as described.

7. In a voting-machine, the combination with a case provided with radially-grouped candidate-indicating devices including unregistered candidates, of normally-closed means for voting for an unregistered candidate, a rotatable rod adapted to be actuated to vote for registered candidates or to permit a vote for an unregistered candidate, means for preventing a vote for an unregistered candidate when a registered candidate has been voted, and counting mechanism operatively connected with said rod, substantially as described.

8. In a voting-machine the combination with a case having a ballot-slot, and a guard normally closing said slot, of a set of wheels for counting the ballots cast, a slide coöperating with said wheels, a push-rod provided with a device for engaging said guard and slide to open the ballot-slot and actuate the counting-wheels, substantially as described.

9. In a voting-machine, the combination with a case having a ballot-slot, and a guard normally closing said slot, of a set of wheels for counting the ballots cast, a slide coöperating with said wheels, a push-rod provided with a device to engage said guard and slide to operate the ballot-slot and actuate the counting-wheels, and means to prevent a voter from casting more than a single ballot, substantially as described.

10. In a voting-machine, the combination with a casing having a ballot-slot, and a guard normally closing said slot, consisting of a plate having a flanged end to close the mouth of the slot and a cut-off at the inner end of the slot, of means normally locking the guard to close the slot, a set of ballot-counting wheels, and a push-rod carrying a device to release the guard and move it from the ballot-slot to open the latter and to actuate the ballot-counting wheels, substantially as described.

11. In a voting-machine, the combination with a casing having a ballot-slot, of a guard for said slot consisting of a plate having a flanged end to close the mouth of the slot, and a cut-off at the inner end of the slot, a spring engaging said guard, to hold it normally in position to close the slot, a set of ballot-counting wheels, a slide coöperating with said wheels, and a push-rod provided with a device to release said guard, move it from the ballot-slot to open the latter and to actuate the counting-wheels, substantially as described.

12. In a voting-machine the combination with a casing having a group of candidate-indicating devices and a group of coincident sets of counting-wheels, one of the indicating devices and a corresponding set of wheels being for unregistered independent candidates, a ballot-slot, a guard normally closing said slot, and a rotatable push-rod arranged centrally of the indicating devices and provided with a selection-button and a device for moving the guard from the slot and actuating the set of counting-wheels, substantially as described.

13. In a voting-machine, mechanism to accommodate split-ticket voting or voting for individual candidates for office and straight-ticket voting or voting for all the candidates of a given party for all offices, consisting of a plurality of dials provided with candidate-indicating devices, corresponding counting-wheels, push-rods provided with means for operating said counting-wheels, collars on said push-rods, and means for locking either of said mechanisms from operating when a voter has voted upon the other, consisting of a shaft arranged above the push-rods of the mechanisms and a wing, as 60, and a finger, as 28, projecting in different directions from said shaft, whereby when one of the mechanisms is operated the wing or the finger, as the case may be, is held in position to prevent operation of the corresponding push-rod, substantially as described.

14. In a voting-machine the combination with two dials provided with candidate-indicating devices arranged one above the other and having corresponding counting-wheels, and collared push-rods having means for actuating said wheels, of means for locking either of said mechanisms from operation when the voter has voted upon the other, consisting of shafts arranged above the push-rods, a wing, as 60, carried by one of said shafts, a finger, as 28, carried by the other of said shafts, and a coupling-rod connecting said shafts, whereby when one of said mechanisms is operated the wing 60 or the finger 28, as the case may be, is held in position to prevent operation of the corresponding push-rod, substantially as described.

15. In a voting-machine, the combination with two dials provided with candidate-indicating devices arranged one above the other and having corresponding counting-wheels, and collared push-rods having means for actuating said wheels, of means for locking either of said mechanisms from operating when the voter has voted upon the other, consisting of shafts arranged above the push-rods, a wing, as 60, carried by one of said shafts, a finger, as 28, carried by the other of said shafts, said wing and finger projecting in different directions from said shafts, means for retaining said wing normally out of the path of the corresponding push-rod, and a coupling-rod connecting said shafts, whereby when one of said mechanisms is operated the wing 60 or the finger 28 as the case may be, is held in position to prevent operation of the corresponding push-rod, substantially as described.

16. In a voting-machine, mechanism for voting constitutional amendments or the like, consisting of an indicating-dial and vote-counting wheels, a rotatable push-rod provided with a selection-button and means for actuating a selected set of counting-wheels, a cage free to move upon said push-rod, means for moving the cage rearward with the push-rod and means for retaining it in that position, while the push-rod is free to be again operated, until released by mechanism operated by the door of the booth, substantially as described.

17. In a voting-machine, mechanism for voting for or against constitutional amendments or the like, consisting of an indicating-dial, and a group of counting-wheels, a series of slides coöperating with said wheels, a rotatable push-rod provided with a selection-button and a device to actuate a selected slide, a cage loose upon said rod, a pin carried by said rod adapted to engage said cage, a shaft, a spring-arm carried by said shaft adapted to spring in front of said cage and retain it in rearward position while the push-rod is free to be again operated independently thereof, and a spring operatively engaging said cage and adapted to return the same with the rod and slides to normal position when the spring-arm is released by mechanism operated by the door of the booth, substantially as described.

18. In a voting-machine, the combination with a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of an adjustable toothed wheel provided with a stop, a shaft journaled in juxtaposition to the push-rod and provided with ears extending into the path of a collar on said push-rod, and a pawl carried by said ears and the nose of which is adapted to engage and rotate said toothed wheel, said pawl being actuated by said push-rod when the latter is operated, substantially as described.

19. In a voting-machine, the combination with a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of an adjustable toothed wheel provided with a stop, a shaft journaled in juxtaposition to the push-rod and a pawl carried by said shaft in the path of a collar on said push-rod and adapted to engage and rotate said toothed wheel when the push-rod is operated, substantially as described.

20. In a voting-machine, the combination with a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of an adjustable toothed wheel provided with a stop, a shaft journaled above and below said push-rod one of which is provided with a pawl arranged in the path of a collar on said push-rod and adapted to engage and rotate said toothed wheel when the push-rod is operated, and the other of which is provided with an arm to hold the wheel in the position to which it is rotated by the pawl, substantially as described.

21. In a voting-machine, the combination with a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of an adjustable toothed wheel provided with a stop and a returning-spring, shafts journaled above and below said push-rod one of which is provided with a pawl arranged in the path of a collar on said push-rod and adapted to engage and rotate said toothed wheel when the push-rod is operated, and the other of which is provided with an arm to hold the wheel in the position to which it is rotated by the pawl against the tension of the returning-spring, substantially as described.

22. In a voting-machine, the combination with a group of counting-wheels, and a rotatable push-rod for selectively actuating the same, of a cage free to move on said push-rod, means for moving the cage rearward with the push-rod means for retaining it in that position while the push-rod is free to be again operated, an adjustable toothed wheel provided with a stop, and a pawl operated by the push-rod for rotating said wheel, substantially as described.

23. In a voting-machine, the combination of a group of counting-wheels, an adjustable toothed wheel provided with a stop, a series of slides coöperating with said counting-wheels, a pawl coöperating with said toothed wheel, and a rotatable push-rod positively engaging and actuating a selected slide and also said pawl, substantially as described.

24. In a voting machine, the combination of a group of counting-wheels, a series of slides coöperating therewith, a toothed wheel provided with a stop, a pawl coöperating therewith, a rotatable push-rod, a cage free to move thereon, said push-rod provided with means engaging and actuating said slides, pawl and cage, substantially as described.

25. In a voting-machine, the combination with a plurality of dials having candidate-indicating devices, and corresponding counting-wheels, of rotatable push-rods for actuating said wheels, an adjustable toothed wheel journaled in juxtaposition to one of said rods and provided with a stop, a shaft journaled above said rods, a circuit-rod loosely supported by said shaft, and a pawl engaged and actuated by said circuit-rod and in turn engaging and rotating said toothed wheel, substantially as described.

26. In a voting-machine, the combination with a plurality of dials having candidate-indicating devices, and corresponding counting-wheels, of rotatable push-rods for actuating said wheels, an adjustable toothed wheel journaled in juxtaposition to one of said rods and provided with a stop, a shaft journaled above said push-rods, a circuit-rod loosely supported by said shaft, a pawl engaged and actuated by said circuit-rod and in turn engaging and rotating said wheel, and a sectional barrier coöperating with said push-rods to prevent the simultaneous operation of two or more thereof, substantially as described.

27. The combination with a voting-booth provided with a door, of a voting apparatus arranged in said booth comprising counting-wheels and push-rods for actuating the same, a shaft journaled above said push-rod and provided with a finger arranged in the path of the rod, a latch-holder normally supporting a gravity-latch out of engagement with said rod but permitting it to drop and lock said rod when the latter rotates said shaft by engaging said finger, a vertically-movable rod passing the push-rods, arms connecting the shaft to said rod, and a connection arranged in the path of the door of the booth for moving said rod to rotate said shaft and raise the gravity-latch from engagement with the push-rods, substantially as described.

28. The combination with a voting-booth provided with a door, of a voting apparatus arranged in said booth comprising counting-wheels and push-rods for actuating the same, a shaft arranged above said push-rods and provided with fingers arranged in the paths thereof, latch-holders normally supporting gravity-latches out of engagement with said rods but permitting them to drop and lock said rod when the latter rotates said shaft by engaging said fingers, a vertically-movable rod passing the push-rods, arms connecting the shaft to said rod, a bell-crank to which the upper end of the rod is connected, a link secured to said bell-crank, and a roller pivotally secured to said link and arranged in the path of the door, whereby when the door is opened the push-rod-locking devices are released and the vote count completed, substantially as described.

29. In a voting-machine, mechanism for counting the voters who pass into and out of the booth, consisting of a casing, a set of counting-wheels arranged therein, a slide coöperating with said wheels, a shaft journaled to the casing, a pitman carried by said shaft and a link connected to said pitman and said slide, a vertically movable rod having a connection arranged in the path of the door of the booth, said rod connected to and adapted to rotate said shaft to actuate said slide through said connections, substantially as described.

30. In a voting-machine the combination with counting-wheels and a collared push-rod for actuating the same, of a cut-off device the handle end of which extends outside the voting-booth and the inner end of which is recessed and adapted to be projected behind the collar of the push-rod to prevent operation of the latter.

31. In a voting-machine the combination with counting-wheels and a collared push-rod for actuating the same, of a cut-off device the handle end of which is outside the voting-booth and the inner end of which is recessed and adapted to be projected behind the collar of the push-rod, and a bell-crank interposed in said device, substantially as described.

32. In a voting-machine the combination with a case comprising a number of sections secured together, voting mechanism arranged in each section comprising sectional shafts sleeved together throughout the case, substantially as described.

33. In a voting-machine, the combination of a case comprising a number of sections secured together and containing voting mechanism, and each containing also one part of a sectional shaft, said sections provided with openings in the shaft-line, and said sectional shafts sleeved together through said openings, substantially as described.

34. In a voting-machine, the combination with a case containing mechanism for counting and indicating votes, of a group of stationary candidate-indicating devices carried by said case as a dial divided into sections, a rotary push-rod located centrally in such dial and adapted to actuate said voting mechanism, a recessed guide-plate encircling the exposed end of said push-rod within the dial, and a selection-button upon the exposed end of said push-rod, movable over the face of said dial and adapted to be inserted toward said dial through any given recess of said guide-plate simultaneously with the pushing in of said push-rod to actuate the voting mechanism for the selected candidate, substantially as described.

35. In a voting-machine, the combination with a case containing mechanism for counting and indicating votes, of a dial carried by said case and containing in radial arrangement a series of registered candidates and a slot to vote for unregistered candidates, a single device movable in front of and over the face of said dial for the selection of any given registered candidate or of the slot to vote for an unregistered candidate, said device being operatively connected with means for counting a vote for such registered candidate and also with means for permitting and counting a vote for an unregistered candidate, substantially as described.

36. In a voting-machine, the combination with a case containing mechanism for counting and indicating votes, of a dial carried by said case and containing in radial arrangement a series of registered candidates and a slot to vote for unregistered candidates, a rotary push-rod located centrally in such dial, and adapted to actuate said mechanism, a recessed guide-plate encircling the exposed end of said push-rod and within the dial, and a selection-button operatively attached to the exposed end of said push-rod, movable over the face of said dial and adapted to be inserted toward said dial through any given recess of said guide-plate for the selection of any given registered candidate or of the slot to vote for an unregistered candidate, simul-

taneously with the pushing in of said push-rod to actuate the voting mechanism for the selected registered candidate or to open the ballot-slot to permit a vote for an unregistered candidate and count the same, substantially as described.

37. In a voting-machine, the combination with a booth and a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of an adjustable toothed wheel provided with a stop and a returning-spring, shafts journaled above and below said push-rod one of which is provided with a pawl arranged in the path of a collar on said push-rod and adapted to engage and rotate said toothed wheel when the rod is operated, and the other of which is provided with an arm to hold the wheel in the position to which it is rotated by the pawl against the tension of the returning-spring; and means operated by the door of said booth to release said wheel by removing the arm from contact therewith, substantially as described.

38. In a voting-machine, the combination with a group of counting-wheels and a rotatable push-rod for selectively actuating the same, of a cage free to move on said push-rod, means for moving the cage rearward with the push-rod, means for returning it forwardly to its former position simultaneously with the return of the push-rod, said cage being adapted in its rearward and forward movements to actuate the means for counting a vote, leaving such vote-counting means ready for immediate further use, while the push rod is free to be again operated either upon the same vote-counting means or upon any other in the same group; an adjustable toothed wheel provided with a stop, and a pawl operated by the push-rod for rotating said wheel, said stop being so adjusted as to block the rotation of the wheel, and consequently the pushing in of the push-rod, after said rod has been pushed in a determined number of times, substantially as described.

39. In a voting-machine, the combination with mechanism for counting votes, and with a plurality of dials containing candidate-indicating devices and each having a slot to vote for unregistered candidates, of rotatable push-rods located centrally one in each dial for actuating the vote-counting mechanism; an adjustable toothed wheel journaled in juxtaposition to one of said push-rods and provided with a stop and a returning-spring, a shaft journaled above said push-rods, a circuit-rod loosely supported by said shaft and engaged and actuated by each one of said push-rods when moving inwardly and a pawl operatively attached to said circuit-rod and engaging and actuating said toothed wheel, substantially as described.

40. In a voting-machine, the combination with a booth and with mechanism therein for counting votes, and with a plurality of dials containing candidate-indicating devices and each dial having a slot to vote for unregistered candidates, of rotatable push-rods located centrally one in each dial for actuating the vote-counting mechanism; an adjustable toothed wheel in juxtaposition to one of said push-rods and provided with a stop and a returning-spring, a shaft journaled above said push-rods, a circuit-rod loosely supported by said shaft and engaged and actuated by each one of said push-rods when moving inwardly, a pawl operatively attached to said circuit-rod and engaging and actuating said toothed wheel with each inward movement of any one of said push-rods, means for returning said pawl and circuit-rod to normal position when such push-rod is withdrawn to normal position, mechanism for holding said toothed wheel in the position to which it is rotated by the pawl against the tension of the returning-spring, and means operated by the door of said booth to release said wheel from the operation of said last-mentioned mechanism for holding it, substantially as described

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587,223. HEAD-REST. STEWART D. MCKELVEY, Canton, Ohio, assignor to Frank E. Case, same place. Filed Oct. 1, 1894. Serial No. 524,554. (No model.)



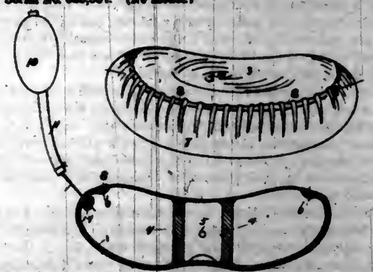
Claim.—1. A head-rest pad, consisting of the combination with a pneumatic cushion or pad, having central depressions on either side, of a plate hollowed out to fit said pad, and provided with a central projection entering one of said depressions, a removable cover for said pad and plate, and a supporting-cup within which said plate fits, and a securing-screw for detachably joining the plate and cup, substantially as described.

2. The combination with the elastic pad, of a reinforcing-plate conforming in contour to said pad, and provided with a central projection to engage said pad, and with an interiorly-threaded socket to receive a screw, a removable cover for said pad and plate, and concealing the edges of the cover, substantially as described.

3. The combination with the pneumatic pad formed with a central depression, of a reinforcing and supporting plate hollowed out and provided on its inner side, with a central projection to enter said depression, and on its outer side with a threaded socket, a cover inclosing the pad and plate, and provided with an edge draw-string, and a supporting-cup, removably secured to the plate, substantially as described.

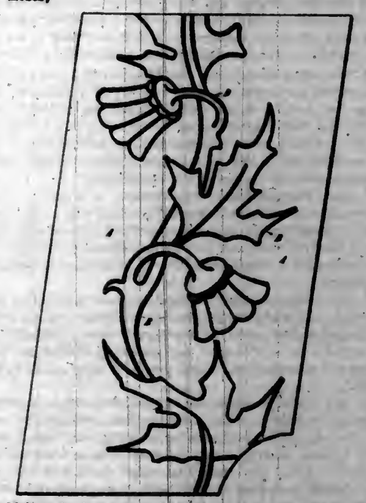
4. The combination with the pneumatic pad, plate, and cover, of a cup secured to the plate, and a securing-plate detachably secured to said cup, and provided with a threaded central opening, and a hollowed or concaved portion 18, substantially as described.

587,224. HEAD-REST PAD. STEWART D. MCKELVEY, Canton, Ohio, assignor to Frank E. Case, same place. Filed Oct. 10, 1894. Serial No. 525,637. (No model.)



Claim.—An inflated and sealed pad formed on its upper side with a central depression, and an annular groove, in combination with an interiorly-arranged bridge secured to and retaining the depressed portion in position, and a removable cover having a drawing-cord lying in the annular groove, substantially as described.

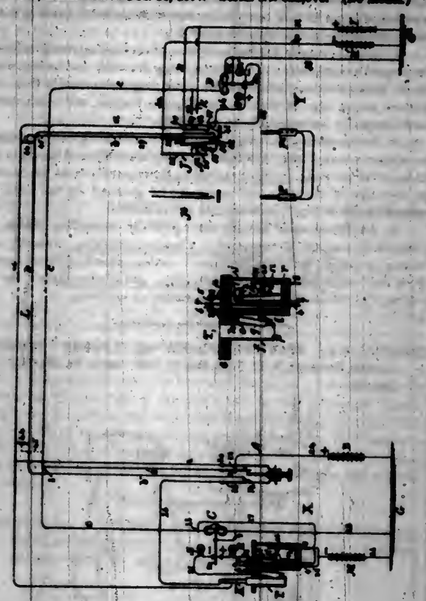
587,225. CLOISONNÉ-WORK FOR WINDOWS, &c. ARNOUX HAVARDIN, Paris, France, assignor to Theophil Pfister and Emil Barthels, London, England. Filed Mar. 3, 1897. Serial No. 626,877. (No model.)



Claim.—1. As a new article of manufacture the herein-described decorative article consisting of a transparent base, a plurality of metallic strips bent to form the outlines of a design and attached to said base by adhesive, a granular filling material disposed in the interstices between the bent metallic strips and bound together by fish-glue and bichromate of potash, and a backing cemented air-tight to the edges of the transparent base, substantially as described.

2. A decorative panel consisting of a glass plate, a plurality of polished brass strips bent to form the outlines of a design and attached at their edges to said plate by adhesive, broken glass of contrasting colors disposed in the interstices between said strips and bound together by fish-glue and bichromate of potash, and a glass plate superimposed upon the edges of the metallic strips and cemented air-tight to the edges of the first-named plate, substantially as described.

587,226. TELEPHONE TRUNK-CIRCUIT. JOSEPH J. O'CONNELL, Chicago, Ill., assignor to the American Bell Telephone Company, Boston, Mass. Filed Feb. 11, 1897. Serial No. 623,070. (No model.)



Claim.—1. In a telephone system, the combination of a trunk-circuit between two switchboards, an associated signal-circuit, and two local circuits containing call and disconnecting signals respectively, at each end of said trunk and signal circuits; with a polar relay in the signaling-circuit at each end thereof, and switch connections in the trunk-circuit at each end thereof, the said relay and switch connections at each point controlling jointly the said two local circuits at such point; whereby the display of either signal at either switchboard is determined in part by the condition of the switch connections, and in part by the operation of the polar relay at the said switchboard, such operation being responsive to signaling-currents transmitted from the other switchboard.

2. In a telephone system, a trunk-circuit between two switchboards, provided at one end with a switch-plug terminal, and at the other with a switch-socket or spring-jack terminal, an associated signal-circuit, a plug-seat for said plug-terminal, two local circuits at each switchboard, and independent call and disconnecting signals also at each switchboard included in the said local circuits respectively; combined with a polar relay in the signal-circuit at each end thereof, and circuit-controlling devices in the said switch-socket and plug-seat actuated in each case by the insertion and withdrawal of the switch-plug, the said relay and circuit controlling devices at each point being adapted and arranged to conjointly control the said two local circuits at such point; and means at each switchboard for transmitting currents of both direction or polarity over the signal-circuit for the operation of the polar relay at the other, substantially as described.

3. A trunking system comprising a trunk-circuit between two telephone-switchboards, terminating at both switchboards in suitable plug and spring-jack connecting devices; an associated signal-circuit; two local signaling-circuits at each switchboard, containing a call-signal and a disconnecting-signal respectively; a polar relay at each switchboard included in the main signaling-circuit, and controlling at one point the continuity of the two local circuits at such switchboard; and switches associated with said plug and spring-jack devices at the two ends of the trunk-circuit controlling at a second point the continuity of the said local circuits, the said switches being so arranged that they shall close at such point the call-signal local circuit when the trunk connections are not employed, leaving the disconnecting-signal local circuit open, and shall close the latter local circuit, and open the former when the said trunk connections are in use substantially as specified herein.

4. In a telephone system the combination with a trunk-circuit extending between two switchboards, an associated signal circuit, two local circuits at each end of said trunk and signal circuits, and independent call and disconnecting signals also at each end contained in the said two local circuits respectively, of a polar relay in the signaling-circuit at each end thereof, and switch connections in the trunk-circuit at each end thereof, the said relay and switch connections at each point controlling jointly the said two local circuits at such point, and means for sending currents of both directions over the signaling-circuit from either end thereof to the other; whereby the display of the signals at either station is made dependent partly upon the operation of its polar relay by a current sent from the other station, and partly on the condition of its own trunk-switch connections, substantially as described.

5. A telephonic conversation and signaling circuit provided at both ends with two lamp-signals in independent local circuits, a polarized relay adapted to alternately open one and close the other of said local circuits and vice versa, at one point, according to the direction of a signaling-current in the main signaling-circuit, two batteries with opposite poles to line, and means for uniting the said line to either battery; the said main circuit being also provided at one end only with a switch-plug terminal, and a plug-seat switch, and at the other end only with a spring-jack or switch-socket terminal: the said plug-seat switch at one end, and spring-jack at the other being both adapted when associated with switch-plugs to alternately open one and close the other of their respective local circuits, and vice versa, at a second point, whereby call-signals and disconnecting-signals may be displayed at either end of the main circuit, by the action of the polarized relay when the appropriate local circuit is already closed in the spring-jack or the plug-seat, as described herein.

6. A plug-seat switch, consisting of a seat for a plug, a casing inclosing two mechanically connected but insulated contact-springs, one of which plays between two contact-points and is provided with an extension into the plug-socket, a lever-connector adapted to be actuated by the movement of the other contact-spring to reverse its position, said spring being adapted to make electrical contact with the lever, substantially as described.

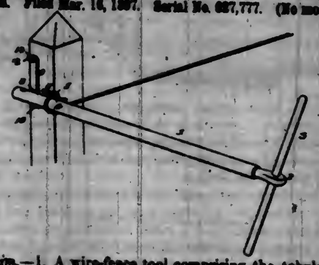
7. In a trunking system between two exchanges a combined talking and signaling circuit provided at each exchange with a signaling battery and key, a polarized relay, a battery and two lamp-signals in independent local circuits, and means for connecting with a substation-circuit consisting at the first exchange, of a plug and a seat-switch therefor; and at the second exchange of a spring-jack and connecting-cord and plugs; whereby when the said plug is restored to the seat-switch or the looping-plug is withdrawn from the said spring-jack a momentary current is caused to flow over the circuit and light a disconnecting lamp-signal at the other end.

587,227. NON-PUNCTURABLE BICYCLE-TIRE. JACOB A. O'DELL, Philadelphia, Pa. Filed July 3, 1896. Serial No. 598,404. (No model.)



Claim.—The combination with a crescent shaped rim, of a spacing-band extending entirely around the same, a plurality of springs connected to said band and held apart from the rim thereby, an outer case or cover extending around said springs and having its longitudinal edges inserted between the rim and springs, and lacings attached to the edges of the cover and insertible through centrally-arranged openings in the rim where they may be tied, the said lacings operating to draw the edges of the outer casing inward between the rim and springs and toward or against the spacing-band, substantially as described.

587,228. WIRE-FENCE TOOL. LEWIS W. ORTON, Cloud Chief, Okla. Filed Mar. 16, 1897. Serial No. 627,777. (No model.)



Claim.—1. A wire-fence tool comprising the tubular shank 1, provided at one end with the fixed eye 2, adapted to engage the de-

tachable handle 3, and provided with the transverse rectangular orifice 4, and the transverse circular orifice 8, in combination with the parallel arm 6 provided with the rectangular end 5, rigidly secured in the orifice 4 by the nut 7, and the bar 9 loosely secured transversely in said orifice 8 and provided with the nut 10 at one end, and having its opposite end formed with an integral right-angular hook 12, having its opening 13 extending in a parallel line with said bar, substantially as shown and described.

2. A wire-fence tool, comprising the tubular shank 1, provided at one end with the fixed eye 2, the handle 3, detachably secured therein, and provided with the parallel rectangular arm 6, in combination with the flexible cable 16, adapted to engage said arm, the conical thimbles 14 15 secured on the outer ends of said cable, and the open rings 17 17 encompassing said cable and adapted to engage said thimbles, substantially as shown and described.

3. A wire-fence tool of the clam described comprising the cylindrical shank 1, the rectangular hook 5 fixed transversely in said shank, the bar 9 loosely secured in said shank and formed with an angular hook 12, in combination with the flexible cable 16 adapted to engage said hook 5, the conical thimbles secured to the outer ends of said cable and the rings 17 17 encompassing the thimbles and provided with the openings 18, substantially as shown and described.

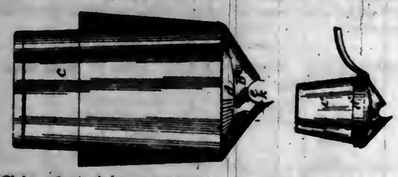
587,229. CAR-COUPLING. JOHN W. PARLEY, East Randolph, N. Y. Filed Oct. 3, 1896. Serial No. 608,260. (No model.)



Claim.—1. In a car-coupling, the combination with a car, of a draw-head provided with a coupling-pin, longitudinal guides rigidly mounted beneath the car, a link-guider provided with a pair of bars or shanks slidingly connected with said guides and also adapted to swing upward and downward, operating mechanism connecting with the coupling-pin, and chains depending at opposite sides of the draw-head and connecting the arms or shanks with the coupling-pin, whereby when the latter is raised, the link-guider will be lifted to a position at the front of the draw-head, substantially as described.

2. In a car-coupling, the combination of a car, a draw-head provided with a coupling-pin, a vertically-movable rod having its lower portion angularly bent and provided with a horizontal arm loosely connected with the coupling-pin, guides arranged beneath the car and disposed longitudinally thereof, a link-guider located beneath the draw-head and composed of a wedge-shaped head, and a pair of bars or shanks mounted at their inner ends on the said guides, chains adjustably connecting the link-guider with the vertically-movable rod, and a pair of operating-levers fulcrumed on the car, located at opposite sides thereof and adapted to engage the angular portion of the vertically-movable rod, substantially as and for the purpose described.

587,230. ICE SCRAPER OR SHAVER. RICHARD M. PARSONS, Camden, N. J. Filed Aug. 12, 1896. Serial No. 602,531. (No model.)



Claim.—1. An ice-scraper having an upwardly-extending flange adapted to support a receptacle to receive the disintegrated ice; a bottom tapering inwardly and having a slot at its lower portion; and a cutter extending downwardly from such bottom at one edge of such slot; in substance as set forth.

2. An ice-scraper having an upwardly-extending flange adapted to support a receptacle; a bottom tapering inwardly and having a slot at its lower portion; and a cutter extending downwardly from the bottom at one edge of the slot, said cutter being provided with a series of teeth, in substance as set forth.

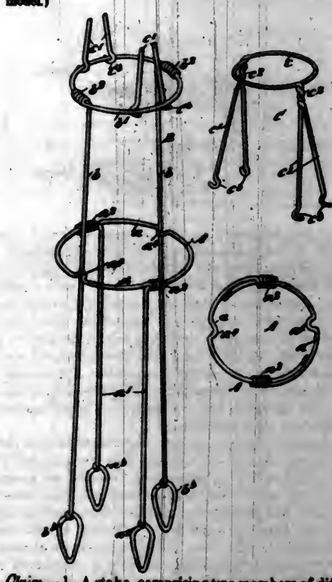
3. An ice-scraper having an upwardly-extending flange adapted to support a receptacle; a bottom tapering inwardly and having a slot at its lower portion; and a cutter extending downwardly from the bottom at one edge of the slot, said cutter being provided with a series of teeth having oval backs and with an extra mass of metal along the edge, in substance as set forth.

4. An ice-scraper having an upwardly-extending flange adapted to support a receptacle; a bottom tapering inwardly and having a slot at its lower portion; and a cutter extending downwardly from the bottom at one edge of the slot; said flange, bottom, and cutter being cast integrally, substantially as described.

5. An ice-scraper having an upwardly-extending flange adapted to support a receptacle; a bottom tapering inwardly and having a slot at its lower portion; a cutter extending downwardly from the bottom at one edge of the slot; and means to be grasped by the hand for operating the scraper, in substance as set forth.

6. An ice-scraper having an upwardly-extending flange *d'* adapted to support a receptacle; a bottom tapering inwardly and having a slot at its lower portion; a cutter extending downwardly from the bottom at one edge of the slot; and a receptacle *d* for receiving the disintegrated ice, in substance as set forth.

587,231. STAKE FOR PLANTS OR FLOWERS. THOMAS H. PARKER, Brooklyn, N. Y. Filed Feb. 27, 1896. Serial No. 581,090. (No model.)



Claim.—1. A stake, comprising two members of different heights affording an upper and a lower support, the lower member having a top frame formed with open loops for receiving and forming stays for the legs of the upper member, substantially as described.

2. A stake, comprising two members of different heights affording an upper and a lower support each in the form of a legged ring or frame, the lower ring being larger than the upper one and having open loops for receiving the legs of the upper member, substantially as described.

3. In a stake, a member consisting of two parts each having a leg and an upper horizontal bend or loop, one end of each being twisted around the opposite end of the other and holding the parts adjustably together, substantially as described.

4. A stake, comprising two members composed each of a frame and legs thereon, the legs of one being longer than the legs of the other, and a third member having legs provided with loops for removably holding it to the next lower member of the stake, substantially as described.

5. In a stake, a lower frame and a second frame having legs, the legs having outwardly-projecting hooks at their lower ends for engagement with the lower frame, substantially as described.

6. In a stake, a member consisting of a frame provided with legs having hooked lower ends, two of the legs being adjacent and diverging, substantially as described.

7. In a stake, a member comprising a frame and legs thereon, the same being in two parts bent at about their centers to form each a half of the frame, the said parts at the ends of said bends being twisted together and then continued downward to form legs, substantially as described.

8. A stake, comprising a lower member in the form of a frame at its top, formed with open loops and legs on said frame, the legs having anchors formed at their lower ends, and a second member likewise in the form of a frame at the top and having legs which are received in the loops of the lower member, the legs of the upper member further having anchors at the bottom, substantially as described.

9. In a stake, members consisting of a leg and an upper horizontal bend or loop, one end of each being twisted around the opposite end of the other, substantially as described.

587,232. RATCHET-BRACE. HARRIS H. GRIBBY, South Omaha, Nebr. Filed Nov. 17, 1896. Serial No. 612,622. (No model.)



Claim.—In a brace, the combination with a sweep, of a chuck or bit-holder journaled therein, a ratchet-wheel connected to the bit-holder, pivoted pawls adapted for engagement with the ratchet-wheel on opposite sides thereof and having cam-surfaces on their heels, a spring interposed between the heels and the pawls, a rotatable spindle extending transversely of the pawls and having a straight handle projecting therefrom, and independent locking-pins projecting from the spindle at right angles thereto and disposed at right angles to each other, one locking-pin being adapted to engage with the cam of one pawl when the other locking-pin is disengaged from the remaining pawl.

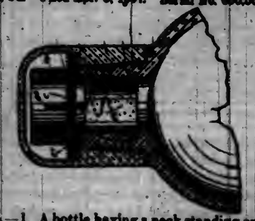
587,233. SEWING-MACHINE PRESSER-FOOT AND EMBROIDERING ATTACHMENT. ARNOLD RAUSCH, Covington, Ky. Filed July 15, 1895. Serial No. 556,090. (No model.)



Claim.—1. The combination with a bifurcated presser-foot, of a centrally-supported tubular guide, and a secondary tubular guide located at the side of the central tubular guide, both of said guides being rigidly secured to and arranged between the members of the bifurcated foot, substantially as described.

2. The combination with a bifurcated presser-foot, of a central tubular guide, and a curved horn, both rigidly secured to and arranged between the members of the bifurcated foot, substantially as described.

587,234. BOTTLE. ALFRED ROGERS and GEORGE PRIDE, Johnstown, Pa. Filed Apr. 3, 1897. Serial No. 630,506. (No model.)



Claim.—1. A bottle having a neck standing on a shoulder formed on the body of the bottle, an expansive spring pressed transversely through openings in the neck and projecting beyond the sides thereof, and a frangible cap with an interior shoulder, the cap inclosing the neck and resting on the shoulder on the body of the bottle, and the spring engaging the shoulder of the cap to prevent the removal of the unbroken cap.

2. A bottle, the neck of which has two oppositely-arranged and transversely-registering openings therein, an expansive spring run through the openings and projecting beyond the sides of the neck, and a frangible cap with an interior shoulder, the shoulder being engaged by the end of the spring to prevent the removal of the unbroken cap.

3. A bottle, the neck of which has a tapering lower portion, and the neck standing on a shoulder formed on the body of the bottle, the neck also having transversely-registering openings, an expansive spring run through the openings and projecting beyond the sides of the neck, and a frangible cap the crown of which incloses the top of the neck, and the lower portion of which has flaring interior sides conforming to the taper of the neck, the cap also having an interior shoulder engaged by the ends of the spring to prevent the removal of the unbroken cap.

4. A bottle having a neck, a cap inclosing the upper end of the neck, and an expansive spring run transversely through openings in the neck and projecting beyond the sides of the neck whereby to engage and hold the cap on the neck.

587,235. RAIL-JOINT. JOHN ROBLIN, Eureka, Kans., assignor of one-half to A. R. Shaw, same place. Filed May 13, 1897. Serial No. 636,244. (No model.)



Claim.—In a rail-joint, the combination of a chair comprising a bottom plate provided at one of its longitudinal edges with an upwardly-extending rib, and a fish-plate formed integral with the bottom plate and located at the opposite edge thereof and provided at its upper edge with a flange, said fish-plate being provided at its inner face with longitudinal convex ribs and forming with the bottom plate a longitudinal recess 19 and extensions 20 at the ends thereof, the rails recessed at their heads to receive the said flange and having their bottom flanges cut away at one side and fitting in the recess or groove 19 and the extension 20 thereof, the removable fish-plate engaging under the heads of the rails and abutting against the rib of the bottom plate, and fastening devices passing through the fish-plates and the webs of the rails, substantially as described.

587,236. BICYCLE-SUPPORT. DAVID REDONER, New York, N. Y. Filed Nov. 14, 1896. Serial No. 612,194. (No model.)



Claim.—1. A bicycle provided at each side with a movable support, and mechanism arranged in operative connection with both supports and automatically operated by tilting the bicycle to move either support downward against the ground, substantially as described.

2. A bicycle provided with oppositely-located movable supports and a weighted lever for bringing the support at the lower side of the bicycle into action substantially as described.

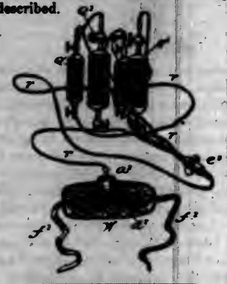
3. A bicycle provided with oppositely-located movable supports, a weighted lever for bringing the support at the lower side of the bicycle into action, and a three-armed connecting-lever linked or connected to the supports and to the weighted lever substantially as described.

4. A bicycle provided with oppositely-located movable supports, a weighted lever, a three-armed lever connected to the weighted lever, and links for connecting the three-armed lever and the supports, said supports and links being loosely connected to allow the links motion independently of the supports, said links having a detent-spring and said supports having a notched arm or segment adapted to be engaged by the spring to lock the lowered or active support substantially as described.

5. A bicycle provided with oppositely-located movable supports, a weighted lever for alternately bringing the supports to active position, and guides for throwing the supports outward when moving to such position substantially as described.

587,237. APPARATUS FOR TREATING DISEASES. HERMANN SARNER, New Orleans, La., assignor to the Antiseptum Company, New York, N. Y. Filed Oct. 27, 1897. Serial No. 283,491. (No model.)

Claim.—The clinical instrument comprising a contact plate or member adapted to be attached to the body to be treated, a second plate or member adapted to be placed in or under the influence of a temperature higher or lower than the body to which the other plate is attached, or under the influence of matter which is electropositive or electronegative to the body having said other plate or member attached to it, and a flexible conducting or transmitting medium connecting said two plates or members, said medium being of a relatively small size to said plates or members and of a length sufficient to permit said two plates or members to be placed at such distances apart that the body having one plate or member attached thereto will be removed beyond the range of influence transmitted by direct radiation, conduction or contact from said other plate or member, substantially as described.



587,238. TIRE-TIGHTENER. JOHN G. SARTER, Fort Logan, Mont. Filed July 24, 1896. Serial No. 600,432. (No model.)



Claim.—In a tire-tightener, the combination with a tire, and felly-sections, one of the felly-sections being provided with a smooth bore or opening and the other section having a polygonal socket, a stationary screw fitting in the bore or opening and provided with a polygonal head arranged in the said socket, whereby the screw is fixed to the adjacent felly-section, an adjusting-nut arranged to rotate on the screw, engaging the felly-section having the smooth bore or opening and provided with a series of peripheral recesses or notches adapted to receive a tool for rotating the nut, and a washer interposed between the nut and the other felly-section, substantially as described.

587,239. JAR AND SEALING DEVICE FOR SAME. JOHN SCHIRR, Anderson, Ind. Filed May 28, 1896. Serial No. 593,486. (No model.)



Claim.—1. A jar having a cover, the upper side of which is formed with four ribs in circular alinement with each other, two of the ribs being arranged with their contiguous ends in close proximity so as to form a narrow recess and the remaining two of the ribs having their contiguous ends separated to form a recess wider than the first recess, the center of the said wide recess being diametrically opposite the first-named recess and a T-shaped clamping device consisting in two pivotally-connected sections, the clamping device being resilient and the upper portion or head of the T being capable of bending to pass both arms through the large recess and the terminals of the said upper portion or head of the T being formed with hooks capable of engaging the neck of the jar, the remaining portion of the clamping device extending through the small or first-named recess and having a hook capable of engaging the neck of the jar at a point opposite the center of the large recess, substantially as described.

2. A jar having a cover, the upper side of which is plane and provided with two recesses, one recess being of a size greater than that of the remaining recess and the two recesses being oppositely arranged, and a T-shaped clamping device, the head of which is flexible and the arms of said T being passed through the large recess while the outer extremities of said arms engage the neck of the jar, and the remaining portion of the clamping device passing through the small recess and having its outer extremity engaged with the neck of the jar, substantially as described.

587,240. MIDDLINGS-PURIFIER. EMERICH ENGE, Dresden, Germany. Filed June 26, 1893. Serial No. 606,918. (No model.)

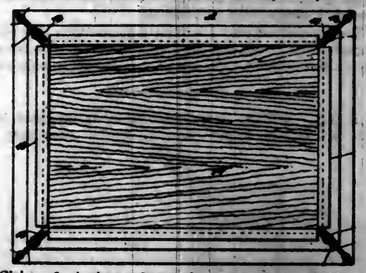


Claim.—1. In a machine for separating light from heavy substances, the combination of a sifting-chamber having a shaking-sieve located therein, a suction-chamber having in its bottom a series of pockets, inclined gutters located below and communicating with said pockets, but hermetically separated from the sifting-chamber, series of vertically-adjustable suction canals or tubes connecting the sifting-chamber with the said pockets of the suction-chamber, the said suction-tubes being arranged with their inlet ends close to the upper side of the shaking-sieve, and an exhaust-fan for the suction-chamber, substantially as described.

2. In a machine for separating light from heavy substances, the combination of a sifting-chamber having a shaking-sieve located therein, a suction-chamber having its bottom provided with a series of pockets, an exhaust-fan, series of vertical suction canals or tubes connecting the sifting-chamber with the said pockets and having their inlet ends close to the upper side of the shaking-sieve, inclined gutters located at the bottom of the pockets, said gutters being open to the suction-chamber but hermetically separated from the sifting-chamber, and conveying-gutters arranged on the outside of the machine, substantially as described.

3. In a machine for separating light from heavy substances, the combination with a closed sifting-chamber having located therein a shaking-sieve and means for separating out and receiving dust or other light particles, of one or more collecting and conveying gutters arranged outside of said sifting-chamber, whereby the discharged material in said gutters is visible without requiring the machine to be opened, and means for discharging into the said outside gutters the dust or other light particles from within the said sifting-chamber substantially as and for the purposes described.

587,241. PICTURE-FRAME. GOTTFRIED M. SEIDEL, Easthampton, Mass. Filed Feb. 1, 1897. Serial No. 621,494. (No model.)



Claim.—1. A picture-frame, the top, bottom and sides whereof have pockets formed at their rear lower edges, the body portion of the frame being bent upon itself to form the front member of the pocket the rear member of each pocket extending downward parallel with the main or body portion of the frame, which pockets are adapted to receive and hold a picture, its glass and its backing, substantially as described.

2. A picture-frame constructed in sections, each section being bent upon itself at its inner edge in a manner to form two parallel members and a connecting member, a picture, backing and glass being received between the parallel members of the frame-sections, flanges formed upon each section at the rear where the said sections engage, and fastening devices for the flanges, as and for the purpose specified.

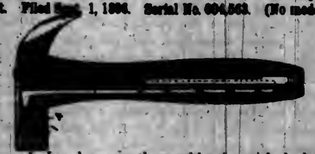
3. A picture-frame constructed in sections, each section being bent upon itself at its inner edge in a manner to form two parallel members and a connecting member, a picture, backing and glass being received between the parallel members of the frame-sections, flanges formed upon each section at the rear where the said sections engage, fastening devices for the flanges, and reinforcing-strips secured to the sections of the frame and extending over their return portions, covering the same, as and for the purpose specified.

4. A picture-frame constructed in sections, each section being bent upon itself at its inner edge in a manner to form two parallel members and a connecting member, a picture backing and glass being received between the parallel members of the frame-sections, flanges formed upon each section at the rear where the said sections engage, fastening devices for the flanges, and reinforcing-strips secured to the sections of the frame and extending over their return portions, covering the same, each reinforcing-strip being provided with a rearwardly-extending flange at its ends, the flanges of the reinforcing-strips being secured to the flanges of the main section of the frame, as set forth.

5. A picture-frame constructed in sections, each section being bent at its inner edge to form a pocket, the body portion of said section being returned upon itself to form the front member of said pocket, the rear member of said pocket extending downwardly and parallel with said returned portion, means for securing said sections together, and reinforcing-strips secured to said sections and engaging the bent portions of the same, substantially as set forth.

6. A picture-frame constructed in sections, each section being bent upon itself at its inner edge and forming two parallel members and a connecting member, flanges formed upon each section at the rear and where said sections engage, fastening devices for said flanges, and reinforcing-strips secured to said sections and engaging the bent portions of the same, each reinforcing-strip being provided with a rearwardly-extending flange at its ends, the flanges of the reinforcing-strips being secured to the flanges of the main section of the frame, substantially as set forth.

587,242. HAMMER. EDWARD SHEPARD, White Sulphur Springs, Mont. Filed [illegible] 1, 1896. Serial No. 604,863. (No model.)



Claim.—1. In a hammer, the combination with the head thereof having nail-extracting jaws, and a handle connected to said head, of a rotatable sleeve on said handle, a longitudinally-movable fulcrum-bar extending through the head and sleeve, and means actuated by the turning of said sleeve for throwing said bar outwardly.

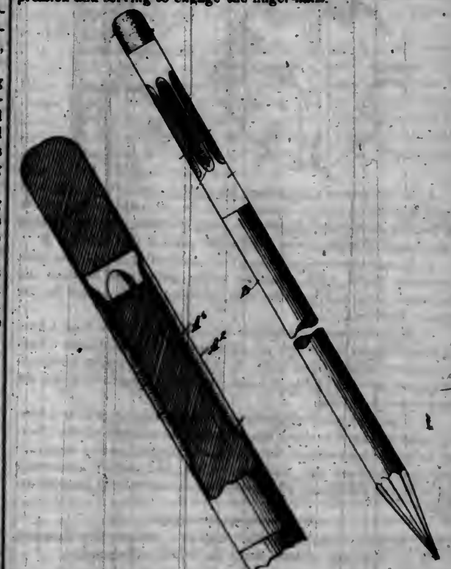
2. In a hammer, the combination with the head thereof, having nail-extracting jaws and a handle secured to said head, having a movable sleeve provided with internal screw-threads surrounding said handle, of a vertically-movable fulcrum-bar extending through said head and handle having a spline-and-feather connection between it and said handle and provided with notches or threads upon its lower end which are engaged by the threads on the inner surface of said sleeve substantially as and for the purpose described.

3. In a hammer, the combination with the head thereof, having the usual nail-extracting jaws and a slot extending through said head and the shank thereof, of a handle-bar secured to said head, having a longitudinal groove along one edge, a fulcrum-bar extending through the opening in said head, having a spline or feather thereon engaging the groove in said handle-bar and notches or threads upon the lower end thereof, a sleeve constituting a handle proper surrounding said handle-bar and said fulcrum-bar and provided with internal threads engaging the notches or threads on said fulcrum-bar, and a cap secured to the lower outer end of said handle-bar, substantially as and for the purpose described.

4. In a hammer, the combination with the head thereof, having the usual nail-extracting jaws, a laterally-extending recess in the upper surface of said head just above the rectangular opening therein and a longitudinal recess in the upper surface of said head, of a handle-bar, having a rectangular upper end fitting the slot in said head, a plate fitting the laterally extending recess in said head and secured to said handle-bar by a screw fitting the end thereof, the said handle-bar being further provided with an enlargement or shoulder which engages the lower end of the shank of said head and with a dovetail groove along one edge, a vertically-movable fulcrum-bar, having a head upon its upper end which fits the longitudinal recess in the hammer-head when said bar is in its normal position, said fulcrum-bar being further provided with a dovetail spline or feather fitting the dovetail groove in said handle-bar and with notches or screw-threads near its lower end, a sleeve constituting the handle proper surrounding said handle-bar and said fulcrum bar and provided with internal threads engaging the notches or threads on said fulcrum-bar, a cap screwed upon the lower end of said handle-bar and a washer interposed between said cap and said sleeve, substantially as and for the purpose described.

587,243. FINGER-NAIL TRIMMER. WILLIAM J. SLOAN, East Liverpool, Ohio. Filed Mar. 5, 1897. Serial No. 626,092. (No model.)

Claim.—1. A finger-nail trimmer consisting in a metallic tube having an elongated depression run longitudinally along the tube, the ends of the tube being unbroken by the depression and the face of the depression being provided with teeth run transverse to the depression and serving to engage the finger-nails.



2. A writing instrument and finger-nail trimmer, the writing instrument having a body, one end of which is provided with a plurality of longitudinally-extending grooves, a metallic tube with a series of longitudinally-extending portions, the ends of the tube being unbroken by the depression and the tube embracing the said end of the writing instrument so that the depressed portions of the tube will respectively fit in the grooves of the pencil, and an eraser held within the outer end of the tube, the outer faces of the depressions having teeth formed thereon to engage the finger-nails.

587,244. TIRE. WILLIAM D. SNOW, New Milford, N. J. Filed July 25, 1896. Serial No. 600,501. (No model.)



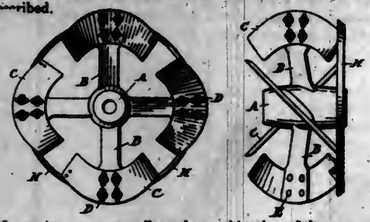
Claim.—1. A tire having a cushion portion provided at its sides with two inwardly-projecting resilient lugs or flanges, such lugs tending to extend inwardly from the sides to which they are attached, and a flexible pneumatic portion or tire the edges of which are respectively secured to the lugs or flanges of the cushion portion, the pneumatic portion or tire being capable of being inflated and of drawing the lugs or flanges from their normal position to extend outwardly from the cushion portion, such lugs or flanges being in turn capable of moving rearwardly with the pneumatic portion or tire when the said pneumatic portion or tire is deflated, substantially as described.

2. A vehicle-tire having a cushion portion provided at each side with a resilient lug or flange normally projecting inward from the cushion portion, and a flexible shell outward from the tread of the cushion portion and having its side edges respectively connected to the lugs or flanges, substantially as described.

587,245. MARINE SCREW-PROPELLER. WILLIAM STRAINER, Melbourne, Victoria, assignor of one-half to James Alfred Cooper, same place. Filed Dec. 28, 1896. Serial No. 616,701. (No model.)

Claim.—1. In marine screw-propellers, the combination of the blades and arms, with pitch-adjusting wedges interposed between the blades and arms, substantially as and for the purpose described.

2. In marine screw-propellers, the combination of the arms, with blades C each forming a complete segment of a circle detachably secured to and adjustable on the arms, substantially as and for the purpose described.



3. In marine screw-propellers, the combination of the arms, with detachable blades having recessed cross-shaped holes for the retaining bolts or rivets, and means for holding the bolts in proper position in the holes, substantially as and for the purpose described.

4. In marine screw-propellers, the combination of the arms, with detachable blades, pitch-adjusting wedges interposed between the blades and arms, and securing-bolts, all substantially as and for the purpose described.

5. In marine screw-propellers the combination of a boss A having integral arms B to which are detachably connected blades C having recessed cross-shaped holes D; with pitch-adjusting wedges G interposed between said blades and arms, all substantially as and for the purpose described.

6. In marine screw-propellers the combination of a boss A having integral arms B to which are detachably connected blades C having recessed cross-shaped holes D: with pitch-adjusting wedges G interposed between said blades and arms; and stays H connecting and stiffening the blades, all substantially as and for the purpose described.

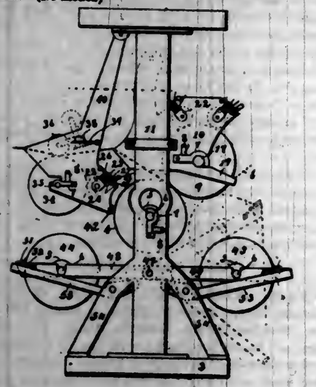
587,246. COAT-HOLDER. ROBERT J. STUART, New Hamburg, N. Y. Filed Nov. 3, 1896. Serial No. 610,923. (No model.)



Claim.—1. In a coat-holder, the combination of two pairs of spring-held clamps, one half of each set being fixed to the ends of a horizontal pipe, and the other half to a bar lying in said pipe, with a lever attached to said bar, a treadle, and connections between said lever and treadle, substantially as described.

2. In a coat-holder, the combination of two pairs of spring-held clamps, one half of each set being fixed to the ends of a horizontal pipe, and the other half to a bar lying in said pipe, and means for adjusting the height thereof, with a lever attached to said bar, a treadle, and connections between said lever and treadle, substantially as described.

587,247. ROLL-PAPER HOLDER AND PRINTING-MACHINE. JAMES K. THOMPSON, Kansas City, Mo. Filed Sept. 12, 1896. Serial No. 585,248. (No model.)



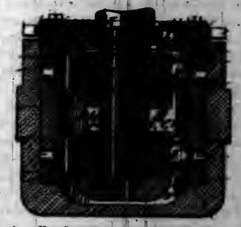
Claim.—1. In a roll-paper holder and printing-machine, the combination with a suitable framework, of a printing-roller revoluble in bearings having a sliding connection with the framework, a roll-paper drum revoluble in the framework and located in the path of the printing-roller, an auxiliary roll-paper holder hinged to the framework and having a roll-paper drum revolubly mounted thereon, and means for swinging the hinged holder so as to force the paper-roll against the printing-roller when paper is withdrawn from the roll, substantially as described.

2. In a roll-paper holder and printing-machine, the combination with a suitable framework, of a printing-roller revolubly mounted thereon, an auxiliary frame hinged to the framework and having a roll-paper drum revolubly mounted thereon and normally held out of contact with the printing-roller, and means for swinging the hinged frame so as to force the paper-roll against the printing-roller when paper is withdrawn from the roll, substantially as described.

3. In a roll-paper holder and printing-machine, the combination with a suitable framework, of a printing-roller revoluble in bearings which have a sliding connection with the framework, a roll-paper drum located in the path of the printing-roller, an auxiliary frame having a hinged connection with the main framework and adapted to rest by gravity against the paper-roll, a printing-roller revoluble in the said auxiliary frame and located normally out of the path of the paper as it is withdrawn from the drum, and means for bringing the auxiliary printing-roller and paper in contact, substantially as described.

4. In a roll-paper holder and printing machine, the combination with a suitable framework, of a printing-roller revoluble in bearings which have a sliding connection with the framework, a roll-paper drum located in the path of the printing-roller, an auxiliary frame-work having a hinged connection with the main frame, a friction-roller pivotally mounted in the auxiliary frame and adapted to rest against the roll of paper by gravity, an auxiliary printing-roller pivotally mounted in the auxiliary frame and located out of the path of the paper as withdrawn from the drum, a presser-roller having a swinging connection with the auxiliary frame and adapted to force the paper against the second printing-roller, and means for locking the presser-roller in the depressed position, substantially as described.

587,248. ROLLER-BEARING FOR CAR-JOURNALS. WILLIAM J. TRIPP, New York, N. Y. Filed Oct. 24, 1896. Serial No. 609,890. (No model.)



Claim.—1. A roller-bearing for car-journals, comprising a box, a thrust-cap on the end of the journal, and rings in the said box and forming with the said thrust-cap a ball-race for the balls, substantially as shown and described.

2. A roller-bearing for car-journals, comprising a box, rings held in the said box and formed with beveled edges, one of the rings abutting against the outer end of the box, and a thrust-cap held on the end of the journal and forming with the said beveled edges a ball-race, substantially as shown and described.

3. A roller-bearing for car-journals, comprising a box, a ring held in the said box against outward movement, a second ring adjacent to the first-named ring, and a thrust-cap held on the end of the journal and forming with the said rings a ball-race for the balls, substantially as shown and described.

4. A roller-bearing for car-journals, comprising collars held on the journal, a series of rings forming ball-races with the said collars, the outermost ring being held against movement, the remaining rings being free to move toward the outer ring, balls held in the said races, and sectional rings carrying pivots for the balls to turn on, substantially as shown and described.

5. A roller-bearing for car-journals, comprising a box closed at the outer end, a ring held in the closed end of the said box, a series of rings in alinement with the said outer ring, a collar and a thrust-cap held on the journal and forming ball-races with the said rings, a set of balls for each ball-race, and an adjustable dust-cap held on the inner end of the box and engaging the innermost ring, to adjust the several rings in their relation to each other and to the balls, substantially as shown and described.

587,249. SELF-STOPPING FUNNEL. THOMAS I. WRETON, Weston, S. C., assignor of one-half to Frederick H. Hyatt and Louis T. Wilds, Columbia, S. C. Filed Jan. 14, 1897. Serial No. 619,208. (No model.)



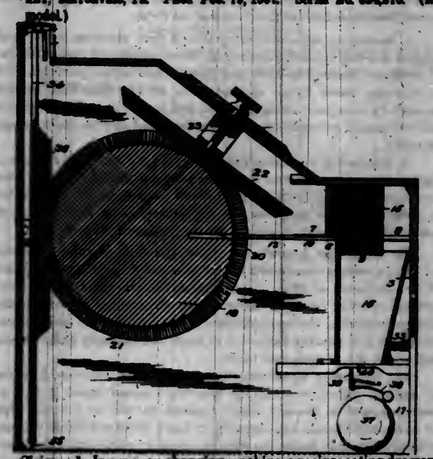
Claim.—1. A funnel whose stem is provided with a valve-seat, in combination with a ball-valve adapted to rest upon said seat and close the opening through the stem, means for holding said valve away from said seat, and means actuated by the rise of the liquid in the vessel to which the funnel is applied for releasing said valve, substantially as and for the purpose described.

2. A funnel whose stem is provided with a valve-seat, in combination with a slidingly-mounted rod or bar, a float upon the lower end of said bar adapted to project beneath the lower end of said stem, and a ball-valve adapted to be held in raised position by said rod or bar when the latter is in its lowered position, but which will be released when the same is elevated, substantially as and for the purpose described.

3. A funnel provided with a valve-seat in the stem thereof, in combination with a vertical tube located above said stem, slightly separated therefrom, and provided with a side opening near its upper end, a vertically-disposed slidingly-mounted rod or bar located on the outside of said tube and projecting down upon the outside of said stem, a float upon the lower end of said rod or bar, and a ball-valve fitting within the side opening in said tube and held in its raised position by the engagement therewith of said rod or bar, the said ball-valve being released when said rod or bar is elevated.

4. A self-closing funnel whose stem is provided with a contracted portion forming a valve seat, has a closed lower end, and side openings near its lower end, in combination with a vertical tube located above said stem, slightly separated therefrom, and provided with a side opening near its upper end, bracing rods or wires for supporting said tube, a vertically-disposed slidingly-mounted bar located on the outside of said tube, and projecting down beneath said stem, the said bar having a bent, inwardly-extending upper end provided with a downwardly and outwardly extending loop forming a socket at the upper end of said bar, a float upon the lower end thereof, and a ball-valve adapted to fit within the side opening in said tube and within the socket in said bar, whereby said ball will be held in its raised position while the vessel to which the funnel is applied is being filled, and will be released upon the elevation of said bar.

587,250. MONEY-CHANGING MACHINE. RANFORD M. WHITNEY, Barronvale, Pa. Filed Feb. 19, 1897. Serial No. 624,210. (No model.)

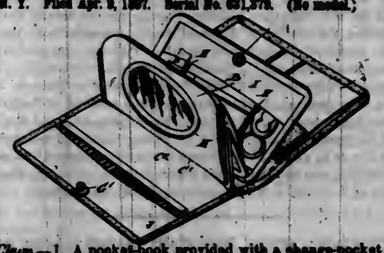


Claim.—1. In a money-changing machine, a reciprocating drawer provided with vertical pockets, a slide-bar and slide located in said drawer beneath each pocket, in combination with a cylinder having its axis in the same plane with the slide-bars in the drawer, and having its periphery formed with a series of radial recesses arbitrarily arranged to receive the said slide-bars, when said drawer is reciprocated, substantially as and for the purpose set forth.

2. A money-changing machine, comprising a reciprocating drawer provided with a series of vertical coin-pockets, a slide-bar and slide located in said drawer beneath each coin-pocket, in combination with a cylinder having its axis in the same plane with the slide-bars in the drawer, its periphery formed with a series of radial recesses as described, a dial rotating within a fixed scale, and means substantially as set forth for rotating said dial and cylinder in unison, as and for the purpose set forth.

3. A money-changing machine, comprising a reciprocating drawer provided with a series of vertical coin-pockets, a slide-bar and slide located in said drawer beneath each pocket, in combination with a cylinder having its axis in the same plane with the slide-bars in the drawer, and its periphery formed with a series of radial recesses as described, a dial rotating within a fixed scale, an indicator-disk, and means substantially as described for rotating said dial, cylinder and indicator-disk simultaneously, as set forth.

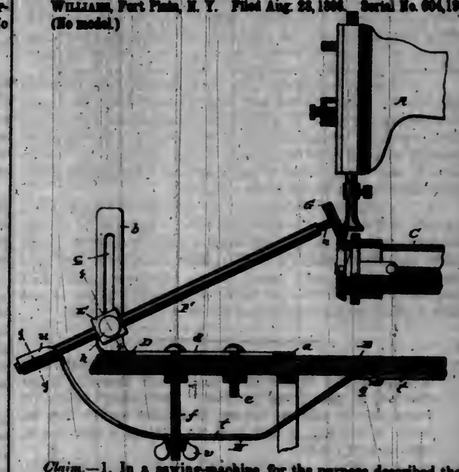
587,251. POCKET-BOOK. BERNHARD WILDENBERG, New York, N. Y. Filed Apr. 2, 1897. Serial No. 631,573. (No model.)



Claim.—1. A pocket-book provided with a change-pocket on a hinged frame, a second pocket having its mouth adjacent to the mouth of the said change-pocket, a connection between the adjacent walls of the said pockets to form between the same a clear space or opening for accommodating various articles outside of the said pockets and supporting devices for holding the articles in the said clear space, substantially as shown and described.

2. A pocket-book, provided with a change-pocket, a front pocket and a back pocket, the said pockets having their mouths adjacent one to the other, the said front and back pockets having hinge connections at their mouth ends with the opposite sides of the said change-pocket, and the adjacent faces of the said pockets being provided with auxiliary pockets, loops and the like for carrying various articles, substantially as shown and described.

587,252. SEWING-MACHINE ATTACHMENT. ARTHUR H. WILLIAMS, Fort Plain, N. Y. Filed Aug. 28, 1896. Serial No. 604,190. (No model.)



Claim.—1. In a sewing-machine for the purpose described the combination with an organized stitch-forming mechanism and feed mechanism; of a movable work-holder, a spring-pressed disk carried by said work-holder and arranged at the end of the same contiguous to the stitch-forming and feed mechanisms, and a spring exerting a pressure against the work-holder so as to press the periphery of the disk toward the feed mechanism, substantially as and for the purpose set forth.

2. In a sewing-machine for the purpose described, the combination with an organized stitch-forming mechanism and feed mechanism, of a movable work-holder, a spring-pressed disk carried by said work-holder and arranged at the end of the same contiguous to the stitch-forming and feed mechanisms and having its periphery milled and also having the annular milled portion on its face, and a spring exerting a pressure against the work-holder so as to press the periphery of the disk toward the feed mechanism, substantially as and for the purpose set forth.

3. In a sewing-machine for the purpose described, the combination of the bed, the organized stitch-forming mechanism and the feed mechanism; of the bracket or frame connected to the bed, the work-holding arm, the support connected to the bracket or frame and having a bore receiving the work-holding arm and the set-screw for engaging said arm, means by which the said support is adapted to be rocked and the spring connected to the bed and having the concave portion receiving the rear portion of the work-holding arm, substantially as and for the purpose set forth.

4. In a sewing-machine for the purpose described, the combination of the bed, the organized stitch-forming mechanism and the feed mechanism, the bracket or frame adjustably connected with the bed so as to permit of its adjustment toward or from the organized stitch-forming mechanism and the feed mechanism, the work-holding arm, the support adjustably connected to the bracket or frame so as to permit of its vertical adjustment thereon and adapted to be rocked and having a bore receiving the work-holding arm and the set-screw for engaging said arm, and the spring adjustably connected to the bed so as to permit of its adjustment in the same direction as the work-holding arm and having the concave portion receiving the rear portion of the work-holding arm, substantially as specified.

587,253. ROTARY HAND-STAMP. ALFRED C. ABLETT, Somerville, Mass. Filed Nov. 21, 1895. Serial No. 569,673. (No model.)

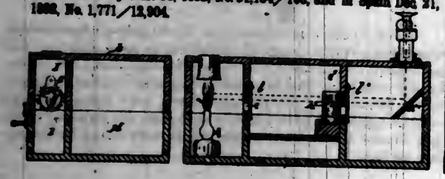


Claim.—1. In a self-inking stamp, the combination of a bifurcated frame provided with a straight flat portion to form a bearing-surface and having its arms downwardly deflected, a printing-roller journaled between said arms with its center arranged in a plane beneath the plane of the flat bearing-surface of the frame, a straight flat supplemental frame arranged on the flat bearing-surface of the said frame in a plane above the center of the printing-roller and provided with straight forwardly-extending arms, said supplemental frame having a longitudinal slot, a substantially vertically disposed clamping-screw passing through said slot and adjustably connecting the frames, and an inking-roller journaled between the arms of the supplemental frame and bearing against the printing-roller, substantially as described.

2. In a rotary self-inking stamp, the combination with the printing-roller, the frame in which said roller is mounted, and the handle for actuating said frame, of a longitudinally-adjustable inking-roller frame, a group of inking-rollers severally journaled in bearing-plates pivotally mounted in the inking-roller frame, and means for holding either of said inking-rollers in engagement with the printing-roller, substantially as and for the purpose described.

3. In a rotary self-inking stamp, the combination with the printing-roller and the frame in which said roller is mounted, of a longitudinally-adjustable inking-roller frame, a group or series of inking-rollers severally journaled in bearing-plates which are in turn journaled in the inking-roller frame, and an adjustable locking-plate adapted to be moved into and out of engagement with one of said bearing-plates, substantially as and for the purpose described.

587,254. METHOD OF AND APPARATUS FOR MEASURING INGREDIENTS IN COMPOUNDS. EMILE AGLOT, Marseilles, France. Filed Aug. 8, 1895. Serial No. 558,677. (No model.) Patented in France July 21, 1891, No. 215,008; in Belgium Jan. 21, 1892, No. 96,013; in Italy Mar. 30, 1892, No. 31,154/166, and in Spain Dec. 21, 1892, No. 1,771/12,904.



Claim.—1. A method of rapidly measuring ingredients consisting in placing in the path of rays proceeding from a source of light of constant intensity to an observer's eye, a layer of a liquid whose ingredient is to be measured, the layer-surfaces passed through by the said rays being parallel and bringing the said layer to a thickness such that the said layer just intercepts the said rays, substantially as herein described.

2. A method of rapidly measuring ingredients consisting in placing in the path of rays proceeding from a source of light of constant intensity to an observer's eye, a layer of a liquid whose ingredient is to be measured, the layer-surfaces passed through by the said rays being parallel, weakening the said rays, as by a piece of opaline glass or a screen, before they reach the said layer, and bringing the said layer to a thickness such that the said layer just intercepts the said rays, substantially as herein described.

3. A method of rapidly measuring ingredients, consisting in directing luminous rays on a definite thickness of a liquid containing the substance to be measured, and through a layer of a turbid liquid having a determined degree of lactescence and bringing the latter layer to a thickness such that the two liquids just intercept the passage of said rays to the eye of an observer, substantially as herein described for the purpose specified.

4. A method of rapidly measuring ingredients consisting in precipitating the ingredient to be measured, putting the precipitate into suspension in the liquid that contains it, rendering the said liquid milky by adding to it a thickening substance such as a solution of dextrine, gum-arabic, or glucose, placing a layer of the mixture thus formed in the path of rays proceeding from a source of light of constant intensity to an observer's eye, the layer-surfaces passed through by the said rays being parallel, and bringing the said layer to a thickness such that the said layer just intercepts the said rays, substantially as herein described.

5. A method of rapidly measuring ingredients consisting in reflecting rays from a source of light of constant intensity placed at one end of an inclosed space, through a layer of a liquid whose ingredient is to be measured, the said layer being placed at the other end of the said space and having parallel surfaces passed through by the said rays, and bringing the said layer to a thickness such that the said layer just intercepts the said rays, substantially as herein described.

6. Measuring apparatus comprising a dark chamber, a source of light at one end of the said chamber and at the other end of the said chamber a receptacle adapted to contain a layer of liquid bounded by parallel surfaces passed through by rays from the said source, substantially as herein described and for the purposes set forth.

7. Measuring apparatus comprising a dark chamber, a source of light at one end of said chamber, at the other end of the said chamber a receptacle provided with two parallel transparent plates and adapted to contain between the said plates a layer of liquid and a screen provided with an opening passed through by rays proceeding from the said source to and through the said plates, substantially as herein described and for the purposes set forth.

8. Measuring apparatus comprising a dark chamber, a source of light at one end of said chamber, at the other end of said chamber a receptacle adapted to contain a liquid, and a screen provided with an opening closed by an opaline glass or its equivalent passed through by rays proceeding from the said source to and through the said receptacle, substantially as herein described and for the purposes specified.

9. Measuring apparatus comprising a dark chamber, a source of light, a receptacle adapted to inclose a layer of turbid liquid between two transparent horizontal surfaces, and an inclined mirror adapted to reflect luminous rays from the said source upon the said layer, substantially as herein described for the purposes set forth.

10. Measuring apparatus comprising a dark chamber, a source of light, a receptacle adapted to inclose a turbid liquid and composed of two cylinders of which one surrounds the other and of which the internal cylinder can be displaced in the direction of the axis of the external cylinder, the two cylinders being furnished at their lower ends with two parallel flat pieces of glass, substantially as herein described for the purposes set forth.

11. Measuring apparatus comprising a dark chamber, a source of light, a cylindrical vessel for inclosing a turbid liquid, a plate or cover screwed to the said vessel, a sleeve carried by the said plate or cover, a telescopic tube capable of being displaced within the said vessel and the said sleeve, parallel flat pieces of glass closing the lower ends of the said vessel and the said tube, and graduated scales on the said cylinder and the said sleeve, substantially as herein described for the purposes set forth.

12. Measuring apparatus comprising a dark chamber, a source of light, a vessel for inclosing a turbid liquid, a telescopic tube capable of being displaced within and along the axis of the said vessel, and an enlargement in the upper part of the said vessel for the reception of liquid displaced by the said telescopic tube, substantially as herein described for the purposes set forth.

13. Measuring apparatus comprising a dark chamber, a source of light, a vessel for the reception of a turbid liquid, a telescopic tube, and means for displacing the said tube in the direction of the axis of the said vessel, substantially as herein described for the purposes set forth.

14. Measuring apparatus comprising a dark chamber, a source of light, a vessel for inclosing a turbid liquid, a telescopic tube capable of being displaced within, and in the direction of the axis of the said vessel, a rack carried by said tube, a pinion gearing into the said rack, and a disk or wheel fixed on the axis of the said pinion, substantially as herein described for the purposes set forth.

15. Measuring apparatus comprising a dark chamber, a source of light, a vessel for inclosing a turbid liquid, a telescopic tube capable of being displaced within the said vessel, and an enlargement at the upper part of the said tube, substantially as described and for the purposes set forth.

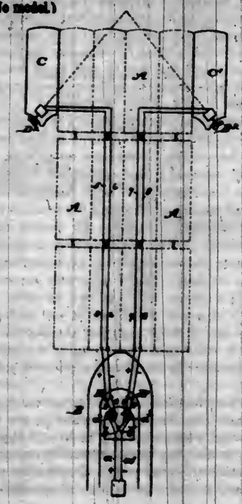
16. In apparatus for measuring ingredients, the combination of a portable box, a dark compartment, a source of light of constant intensity placed at one end of said compartment, a mirror placed at the other end of the said compartment and inclined at forty-five degrees to the horizontal, an ingredient-measurer arranged opposite to the said mirror provided with two parallel transparent plates arranged to be passed through by rays from the said source, and adapted to hold a layer of liquid between the said plates, and a compartment for reagent-receptacles and utensils, substantially as herein described for the purpose set forth.

587,255. ANIMAL-TRAP. JAMES W. ANDERSON, Fuller, Miss. Filed Feb. 27, 1897. Serial No. 625,266. (No model.)



Claim.—A decoy-trap comprising the bait or decoy chamber 1, provided with the inlet 3 surrounded by the pointed converging wires 4 4, the closed cover 5 hinged at one end to said bait-chamber, and fastened at the other end by a hasp and staple 6, and provided with the orifice 7 and the fixed transverse partitions 8 8 having alined slots 22, in combination with the spring-trap 9 having the open-frame platform 19 and the duplex spring 20, the outer ends 21 21 of which extend through the slots 22 and engage the rectangular jaws 12 12', substantially as shown and described.

587,256. MEANS FOR PROPELLING AND STEERING BARGES. ALBA D. ARMSTRALD, Covington, Ky. Filed Jan. 22, 1897. Serial No. 620,167. (No model.)



Claim.—1. A pair of steering-crafts each having its propeller set obliquely to the longitudinal axis of the craft and with the propeller-shaft of one craft at a reverse angle to that of the other craft substantially as shown and described.

2. The means herein described for propelling and steering gangs of barges, comprising a propelling-steamer arranged in rear of the gang and provided with a dynamo and electric switches, and one or more steering-crafts arranged to flank the gang, one on each side near the front, said steering-crafts being provided with electric motors and propellers geared thereto, and connecting circuit-wires for directing the current from the dynamo on the steamer to either or both of the motors on the steering-crafts substantially as and for the purpose described.

587,257. SEWING-MACHINE RUFFLER. JOHN M. GREBE, New Haven, Conn. Filed July 23, 1896. Serial No. 600,197. (No model.)



Claim.—1. In a sewing-machine ruffler, the combination with a suitable supporting-frame, of a reciprocating ruffling-blade, primary and secondary levers operatively connected with said frame, said secondary lever being provided with two shoulders and said primary lever having a screw-threaded stud and two contact parts and one of which parts consists of an adjustable nut movable on said threaded stud, and means for retaining said nut in any desired position of adjustment.

2. In a sewing-machine ruffler, the combination with a suitable supporting-frame, of a reciprocating ruffling-blade, primary and secondary levers operatively connected with said frame, said secondary lever being provided with two shoulders and said primary lever having a screw-threaded stud and two contact parts, and one of which parts consists of an adjustable nut movable on said threaded stud, said nut having an annular groove and a toothed portion formed at the bottom of said groove, and a resilient or yielding retaining device entering said groove and engaging the teeth at the bottom thereof, and serving to hold the nut in any desired position while permitting it to be turned for adjustment.

3. In a sewing-machine ruffler, the combination with a suitable supporting-frame, of a reciprocating ruffling blade, primary and secondary levers operatively connected with said frame, said secondary lever being provided with two shoulders and said primary lever having a screw-threaded stud and two contact parts, and one of which parts consists of an adjustable nut movable on said threaded stud, said nut having an annular groove and a toothed portion formed at the bottom of said groove, and a yoke-spring in said groove and engaging the teeth at the bottom thereof, said primary lever being also provided with a graduated scale, and said yoke-spring having an adjustable pointer or finger movable adjacent to said scale.

4. In a sewing-machine ruffler, the combination with the framework thereof, of a reciprocating blade, a primary operating-lever constructed to be actuated from the needle-bar of a sewing-machine and provided with contact parts or devices, a secondary lever operatively connected with said ruffling-blade and having contact-shoulders, and an adjustable device which may be interposed between one of said shoulders and a contact part of the said primary lever, to effect the proper timing of the ruffling-blade with a sewing-machine the needle of which has a different throw from the needle-bar of a machine for which the ruffler is adapted when said adjustable device is not thus interposed.

5. In a sewing-machine ruffler, the combination with the attachment-frame, the ruffling-blade and its operating mechanism, of a separator-plate the attaching portion of which is provided with inclined slots, and a fastening device by means of which said separator-plate may be held in any desired position on said frame, said inclined slots permitting the said plate to be withdrawn from operative position and lifted out of the way without necessitating the removal of said plate from the attachment when shirring is to be done.

587,258. SEWING-MACHINE-ATTACHMENT HOLDER. JOHN M. GREBE, New Haven, Conn. Filed Dec. 30, 1896. Serial No. 617,493. (No model.)

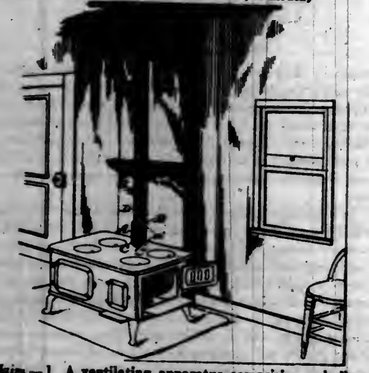
Claim.—1. A sewing-machine-attachment holder consisting of the combination with a bar, as A, of a bracket, as B, removably secured to said bar, and provided with a groove or seat, as *b*, for the reception of a portion of said bar, said bracket having through it a hole transverse to said groove or seat, combined with a bolt, as *c*, having a head, as *c'*, and having at its end opposite said head a screw-threaded

portion, a nut, as D, applied to said threaded portion of said bolt, and means for preventing endwise movement of said nut when it is turned, and thereby causing an endwise movement of said bolt in the bracket.



2. An attachment-holding device consisting of the combination with a bar A, of the bracket B provided with the groove or seat b and with the undercut groove b^3, said bracket having through it a hole transverse to said groove or seat b and slightly intersecting the latter, the bolt c fitted in said hole and having the clamping-head c', the flattened portion c^2 and a threaded portion at its end opposite said head, and the nut D having the flange d extending into said undercut groove b^3.

587,259. VENTILATOR. THOMAS R. HARPER, Wheeling, Mo. Filed July 18, 1896. Serial No. 599,606. (No model.)



Claim.—1. A ventilating apparatus comprising a hollow foot-piece or bowl for application to the heater, such bowl having a lateral air-inlet and means for controlling the same, a draft-tube leading from such foot-piece or bowl and having a controlling-valve, a collector receiving the hot air from said draft-tube and adapted to collect the foul air &c. drawn in by the suction of such hot air and a discharge-pipe leading from such collector substantially as shown and described.

2. A ventilating apparatus comprising the air-heating foot-piece or bowl, the draft-tube leading therefrom the collector receiving the heated air from said draft-tube and adapted to collect the foul air &c. drawn in by the suction of such hot air, the discharge-tube leading from said collector and the adjustable clamp thereon whereby to secure the apparatus firmly in position substantially as described.

3. A ventilating apparatus comprising the foot-piece or bowl adapted at one side to fit against a stovepipe and having a lateral air-inlet and means for controlling the same, the draft-tube leading from said foot-piece or bowl, the valve controlling said draft-tube, the collector, the discharge-tube leading therefrom and the adjustable clamp on said discharge-tube substantially as shown and described.

4. A ventilating apparatus comprising a funnel-shaped collector, a draft-tube and a spider joined to the upper end of the draft-tube and connecting the same with the large end of the funnel-shaped collector substantially as shown and described.

5. The ventilating apparatus herein described consisting of the air-heating foot-piece or bowl, the draft-tube leading upward therefrom, a valve controlling said draft-tube, the funnel-shaped collector, the spider connecting the large end of said collector with the upper end of the draft-tube and means for securing said collector in place substantially as shown and described.

6. A ventilating apparatus for stoves consisting of the air-heating foot-piece made concave on one side to receive the stovepipe and provided with means whereby said side may be held to the stovepipe, a draft-tube leading from said heater, and a collector by which to draw in foul air &c. by the draft of said tube substantially as shown and described.

587,260. CIRCUIT-CLOSER. STEPHEN C. HOUGHTON, San Francisco, Cal. Filed May 14, 1897. Serial No. 636,462. (No model.)

Claim.—1. In a circuit-closer and in combination, a movable slide carrying a pivoted contact-arm; a contact-plate substantially parallel with the slide; a spring tending to force the arm into contact with the plate; and a pivoted and spring-pressed guard adapted to intercept and divert the arm away from the plate during its motion in one direction, but permitting it to make contact and retain such contact throughout the length of the plate, during its motion in the opposite direction.



2. In a circuit-closer and in combination, a stationary plate-contact, a pivoted movable spring-pressed arm-contact, an interposed pivoted and spring-pressed guide and guard, and means for moving the arm-contact in one direction outside of and along the guard and around the end of said guard, and in the other direction inside of or between the guard and plate-contact causing a full-length contact of the arm with the plate during the latter movement.

587,261. PRINTING-DIE. FREDERICK G. JAHN, Brooklyn, N. Y., assignor, by mesne assignments, to De Forest Settle, receiver of The International Postal Supply Company, of New York. Filed Feb. 13, 1896. Serial No. 462,044. (No model.)



Claim.—1. In a marker, the combination of a type carrying section provided with a series of permanent type on its face and formed with a socket in said face having a shoulder on its wall, a type-carrying block removably mounted in said socket and having one of its sides provided with a shoulder engaged with the former shoulder, and a catch for engaging said block and retaining the same in its operative position, substantially as and for the purpose described.

2. In a marker, the combination of a type carrying section formed with a socket in its face having an inner wall and a side wall provided with a shoulder, a type-carrying block removably mounted in said socket and having its inner face bearing against said inner wall of the socket and having one of its faces provided with a shoulder for engaging the shoulder on the wall of said socket, and a catch for engaging said block and retaining the same in its operative position, substantially as described.

3. In a marker, the combination of a type-carrying section formed with a socket in its face having an inner wall, a block removably secured in said socket and formed with a side or wall having a shoulder, a type-carrying block removably mounted in said socket with its inner face bearing against said inner wall and having one of its sides provided with a shoulder for engaging the shoulder on said side of the former block, and a catch for engaging the type-carrying block and retaining the same in its operative position, substantially as set forth.

4. In a marker, the combination of a type-carrying section having its face formed with a socket having an inner wall and a side wall provided with a shoulder, a type-carrying block removably mounted in said socket and having its inner face bearing against said inner wall of the socket and its outer face provided with a series of type, a shoulder on the type-carrying block for engaging the shoulder on the wall of said socket, a second shoulder on said block, and a movable catch for engaging the latter shoulder on the type-carrying block, substantially as described.

5. In a marker, the combination of a type-carrying section provided with a series of permanent type on its face and formed with a socket in said face having a shoulder on its wall, a type-carrying block removably mounted in said socket and having one of its sides provided with a shoulder engaged with the former shoulder, a catch for engaging said block and retaining the same in its operative position, and a movable operating-piece for forcing the type-carrying block from operative position, substantially as specified.

6. In a marker, the combination of a type-carrying section formed with a socket in its face, a block removably secured in said socket, and formed with a side or wall having a shoulder, a type-carrying block removably mounted in said socket and having one of its sides provided with a shoulder for engaging the shoulder on said side of the former block, and a catch for engaging the type-carrying block and retaining the same in its operative position, substantially as set forth.

7. In a marker, the combination of a type-carrying section formed with a socket in its face having a shoulder on one wall, said section being also provided with an opening in its wall communicating with the socket, a type-carrying block removably mounted in the socket and having one side provided with a shoulder for engaging the former shoulder, and a catch having one extremity supported on the opposite face of the type-carrying section and its other extremity passed through said opening and engaged with the type-carrying block for holding the same in its operative position, substantially as and for the purpose described.

8. In a marker, the combination of a type-carrying section formed with a socket in its face having a shoulder on one wall, said section being also provided with an opening in its wall communicating with the socket, a type-carrying block removably mounted in the socket and having one side provided with a shoulder for engaging the former shoulder, a catch having one extremity supported on the opposite face of the type-carrying section and its other extremity passed through said opening and engaged with the type-carrying block for holding the same in its operative position, and a movable operating-piece for forcing the type-carrying block from operative position, substantially as and for the purpose specified.

9. In a marker, the combination of a type-carrying section having one face provided with type and with a socket having an inner wall formed with a perforation therethrough, and a side wall provided with a shoulder, a type-carrying block mounted in said socket and having one of its sides provided with a shoulder for engaging the former shoulder, a catch having one extremity secured to the opposite face of the type-carrying section and its other extremity passed through said perforation and engaged with the type-carrying block for holding the same in its operative position, substantially as described.

10. In a marker, the combination of a type-carrying section having one face provided with type and with a socket having an inner wall formed with a perforation therethrough and a side wall provided with a shoulder, a type-carrying block mounted in said socket and having one of its sides provided with a shoulder for engaging the former shoulder, a catch having one extremity secured to the opposite face of the type-carrying section and its other extremity passed through said perforation and engaged with the type-carrying block for holding the same in its operative position, and a movable operating-piece for forcing the type-carrying block from operative position, substantially as set forth.

11. In a marker, the combination of a type-carrying section having one face provided with type and with a socket having a shoulder on one wall, a type-carrying block removably mounted in the socket and having one side provided with a shoulder for engaging the former shoulder, a catch consisting of a base secured to the opposite face of the type-carrying section, a spring-arm having one extremity projecting outwardly from said base and secured thereto and its other extremity passed through the type-carrying section and engaged with the type-carrying block, and a movable operating-piece having one end secured to said base and its other end passed through the type-carrying section for engaging said block, substantially as specified.

12. In a marker, the combination of a type-carrying section having one face provided with integral type and with a socket having an inner wall formed with a pair of perforations therethrough, a type-carrying block mounted in the socket and formed with integral type on its outer face, a catch consisting of a base secured to the opposite face of the type-carrying section, a spring-arm having one extremity projecting outwardly from said base and secured thereto and its other extremity passed through one of said perforations and engaged with the type-carrying block, and a movable operating-piece having one end secured to said base and its other end passed through the other perforation of the type-carrying section for engaging said block, substantially as described.

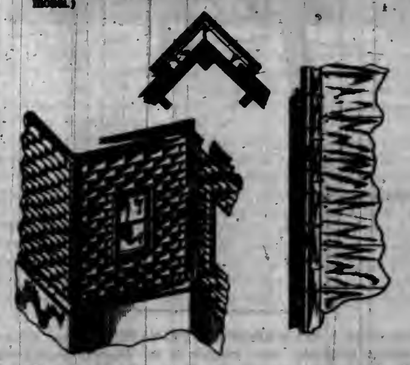
587,262. WATER-GAGE COCK. JOHN C. JAMES, Pentwater, Mich., assignor of thirteen-sixteenths to Fred Nickson and James T. Ash, same place. Filed Aug. 7, 1896. Serial No. 602,075. (No model.)



Claim.—1. In a gage-cock, the combination of a main stem or body portion having a bore closed by a plug-valve, a valve-chamber in communication with said bore, a detachable plug provided with a valve-seat for closing the valve-chamber, a valve-stem passing through the plug carrying a valve and an arm and lever attached to the stem for opening the valve, the closing of the valve being effected by the action of steam in the valve-chamber, substantially as described.

2. A water-gage cock comprising a stem or body portion having a comparatively small bore, a transversely-intersecting plug-valve for said bore, a valve-chamber at the outer end of said bore, a detachable plug at the lower end of said chamber and provided with a valve and seat in its upper end, a valve-stem passing through the plug, and having an enlarged head forming the valve, the stem provided with a right-angled bore, a detachable arm connected to the lower end of the valve-stem, and having a vertical branch passing through a detachable plug in line with the opening in the stem or body portion of the cock, and a lever for operating the arm to open the valve, the latter being closed by the lever or the pressure of steam in the chamber, substantially as described.

587,263. TILEWORK. DUKE H. LANYON, Chicago, Ill. Filed May 20, 1896. Renewed June 12, 1897. Serial No. 640,571. (No model.)



Claim.—1. In tilework, the combination with the walls of buildings or other structures, and facing-tile applied to the said walls without securing a finished joint at the angles, of tiling fitted to the angles and deflected between its edges and made hollow on the side facing the wall, and having its edge portions overlapping and cemented to the adjacent ends of the body or facing tile without interlocking therewith, substantially as set forth.

2. In tilework for facing buildings or like structures, a tile made hollow on its rear face and having top, bottom, side and intermediate flanges on the hollow face, and having a tongue at one end formed with transverse openings to receive fastenings, and having the flanges intermediate the top and bottom flanges formed with openings at right angles to the openings in the said tongue and extending lengthwise of the tile to receive other fastenings, substantially as and for the purpose set forth.

3. A facing-tile for buildings or like structures, having parallel flanges at its edges between which the mortar or cement is received for bonding or securing the tile in place, and having cross-pieces connecting the flanges to strengthen them and retain the mortar or cement in place, substantially as set forth.

4. A facing-tile for covering buildings or structures of kindred nature, having parallel flanges at its edges, the outer flanges being of greater depth than the adjacent inner flanges, substantially as set forth for the purpose described.

5. A facing-tile for covering buildings or structures of kindred nature, having parallel flanges at its edges, the outer flanges being of greater depth than the adjacent inner flanges, and having cross-pieces connecting the flanges at intervals in their length and corresponding in depth with the said inner flanges and coming flush with the outer edges thereof, substantially as specified.

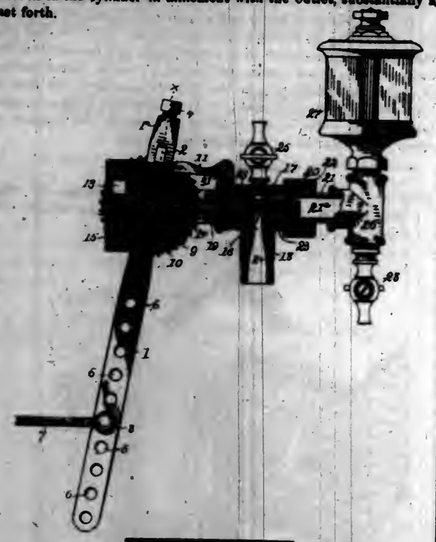
6. In tilework, the combination with facing-tiles applied to the walls of a building or like structure, of a series of two or more angular or quarter-round casing-tiles connected in horizontal line, and two or more courses of angular or quarter-round casing-tiles connected in vertical line, forming a cornice which overlaps the facing-tiles, substantially as set forth.

587,264. LUBRICATOR. HARRY W. LEAVITT, Hammond, Ill. Filed Jan. 18, 1897. Serial No. 619,614. (No model.)

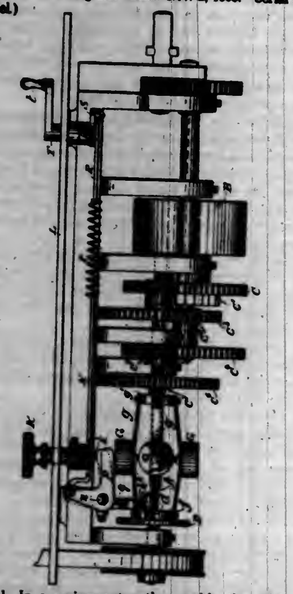
Claim.—1. In a lubricator, the combination of a pipe communicating with an oil-cup and having a contracted outlet and an annular outer rib, a cylinder having a lateral outlet-opening, a collar-nut bearing against the rib of the pipe and connecting the cylinder with the pipe, and a piston-rod having motion through the cylinder and into the pipe, such piston-rod having a transverse hole adapted to convey oil from the pipe to the outlet of the cylinder.

2. In a lubricator, the combination of a horizontal cylinder having an oil-reservoir and a lateral outlet-opening adapted to communicate with a steam-pipe, a piston-rod in the cylinder having a transverse hole adapted to carry oil from the reservoir to the outlet, and

a cock in the cylinder in alinement with the outlet, substantially as set forth.



587,265. SPEED-REGULATOR FOR MOTORS. THOMAS H. MACDONALD, Bridgeport, Conn., assignor to the American Graphophone Company, of West Virginia. Filed Nov. 2, 1895. Serial No. 567,728. (No model.)



Claim.—1. In a spring-motor, the combination with the main driving-spring thereof, of a friction speed-regulator comprising a relatively stationary member, means for adjusting the position thereof, a relatively movable member, connections whereby the spring presses the two members of the regulator together, and means for pressing the two members forcibly together to stop the motor without changing the adjustment for speed, substantially as described.

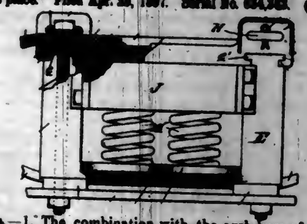
2. A speed-governor for motors, comprising in combination a shaft driven by the motor, a disk rotating with said shaft but movable lengthwise thereof, centrifugal devices for moving the disk lengthwise of the shaft, a relatively stationary friction device with which said disk engages, means for adjusting the position of said device to determine the rate of speed of the motor, and independent means for moving said device into engagement with said disk with force sufficient to arrest the motor, substantially as described.

3. A speed-governor for motors, comprising in combination a shaft driven by the motor, a disk rotating with said shaft, centrifugal devices for varying the position of said disk lengthwise of said shaft according to the speed of the latter, a lever controlling a friction device for engaging said disk, an adjusting-screw, a spring normally keeping said lever in contact with said screw, and means for overcoming said spring and forcibly pressing said friction device against said disk, without disturbing the position of said adjusting-screw, substantially as described.

4. In a frictional speed-regulator for motors, the combination with one of the motor-shafts of a disk rotating therewith, connections for displacing the disk longitudinally of said shaft by the motion of the latter, said disk constituting one member of the frictional regulator, a friction device or stud constituting the other member, adjusting mechanism for regulating the normal position of said stud relative to said disk thereby determining the speed of the motor, and means independent of said adjusting mechanism, for pressing said stud forcibly against said disk, thereby stopping the motor, substantially as described.

5. The combination with the shaft, the disk constituting one member of a frictional speed-regulator, said disk being connected with said shaft as specified, a stud forming the other member of said regulator, a holder therefor, a two-arm lever connected with said holder, an adjusting device acting on one arm of said lever but disconnected therefrom, and a switch arm or handle connected with the other arm of said lever, whereby said stud may be forcibly pressed against said disk to stop the motor without disturbing the said adjusting device, substantially as described.

587,266. TRUCK END CASTING. EDWARD S. MARSHALL, St. Louis, Mo., assignor to the Missouri Railway Equipment Company, same place. Filed Apr. 29, 1897. Serial No. 634,363. (No model.)



Claim.—1. The combination with the arch-bars of a truck, of column-guides, an integral cross-bar connecting the lower ends of said column-guides, said cross-bar comprising a spring-seat and being formed with a seat for the lower arch-bar, and a removable cross-bar adapted to be interlocked with the upper ends of the column-guides, said cross-bar being formed with a seat for the top arch-bar: substantially as described.

2. The combination with the arch-bars of a truck, of column-guides, an integral cross-bar connecting the lower ends of said column-guides, said cross-bar comprising a spring-seat and being formed with a seat for the lower arch-bar, a removable cross-bar adapted to be interlocked with the upper ends of the column-guides, said cross-bar being formed with a seat for the top arch-bar, and column-bolts adapted to be inserted through registering apertures in the arch-bars, top cross-bar and column-guides, to lock said parts in their proper relative positions: substantially as described.

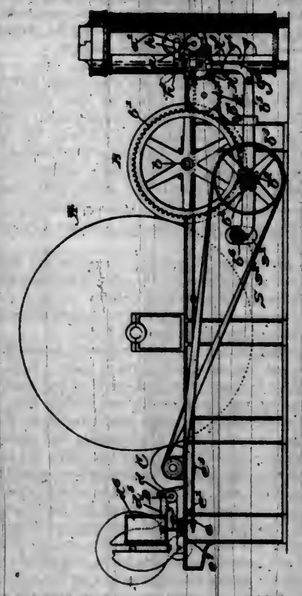
3. The combination with the arch-bars of a truck, of column-guides, an integral cross-bar connecting the lower ends of the column-guides, said cross-bar comprising a seat for the bolster-springs, a seat in the under side of said spring-seat for the reception of the lower arch-bar, tie-rods and cross tie-rods beneath the lower arch-bar, a removable cross-bar connected to the upper ends of the column-guides, and formed with a seat for the upper arch-bar, ears on the ends of said cross-bar, keys adapted to be inserted through suitable slots in said ears, said keys being formed with seats for the heads of the column bolts, and said keys being adapted to retain the upper arch-bar in its seat, when the column-bolt is removed, and column-bolts: substantially as described.

4. The combination with the arch-bars of a truck, of column-guides, a removable connecting-bar secured to their upper ends, into which connecting-bar the top arch-bar is seated, slotted lugs or ears extending up from the ends of the connecting-bar, and keys in said slots and above the top arch-bar: substantially as described.

5. The combination with the arch-bars of a truck, of column-guides, a removable connecting-bar secured to their upper ends, into which connecting-bar the top arch-bar is seated, slotted lugs or ears extending up from the ends of the connecting-bar, keys in said slots and above the top arch-bar, said keys being formed with seats or pockets for the reception of the ends of the column-bolts, a combined cross-bar and spring-seat integral with the lower ends of the column-guides, said cross-bar being formed with a seat for the lower arch-bar, and column-bolts; substantially as described.

6. The combination with the arch-bars of a truck, of an end casting arranged therebetween, said end casting comprising column-guides, a cross-bar connection between the upper ends of said column-guides, a spring-seat connecting the lower ends of the column-guides, and lugs extending above the top arch-bar, keys inserted in said lugs and on top of said arch-bar, said keys being formed with a seat or pocket in their upper faces for receiving the heads of the column-bolts, and column-bolts: substantially as described.

587,267. CARDING-ENGINE. JOHN T. MEATS and JOSEPH S. EATON, Taunton, Mass., assignors to the Mason Machine Works, same place. Filed July 27, 1896. Serial No. 600,630. (No model.)



Claim.—1. The doffer, its gear; a lever provided with a pulley having a connected pinion to engage said gear; an auxiliary lever pivoted to the lever carrying said pulley and pinion; and a handle pivoted on said auxiliary lever and provided with a point 3 and a projection 3'; an apron on which said point rests, and a pin or stop which is engaged by the projection of said handle when the latter is in a position to hold up the said auxiliary lever and effect the engagement of the said pinion and gear: combined with a rod cooperating with said handle, the tube-gear of the coiler-can, a lever partially overlapping said tube-gear, and devices intermediate said lever and the rod cooperating with said handle to actuate said rod and turn said handle to permit the descent of the said auxiliary lever and to effect the disengagement of said pinion and gear when the can is full, substantially as described.

2. The doffer, its gear; a lever provided with a pulley having a connected pinion to engage said gear, an auxiliary lever pivoted to said lever carrying said pulley and pinion; a handle pivoted on said auxiliary lever and provided with a point and projection, and an apron provided with a stop: combined with the lap-feeding roll, devices intermediate said lap-feeding roll and said auxiliary lever to move it laterally and cause the projection of said handle to meet the said stop and turn the said handle to permit said auxiliary lever to drop and effect the disengagement of said pinion and gear, substantially as described.

3. In a carding-machine, a doffer having an attached gear, a lever provided with a pulley having a pinion to engage said gear; an auxiliary lever pivoted to said lever carrying said pulley and pinion, means to temporarily hold said auxiliary lever elevated with the said pinion and gear in engagement, a rod connected to said auxiliary lever, a rock-shaft e having an arm connected with said rod, a lap-feeding roll, and means between it and the said rock-shaft e to turn the latter on the arrival under the lap-feeding roll of any hard substance or lumps which would damage the card-clothing of the machine, whereby, by the movement of said rod, the auxiliary lever may be released and lowered to effect the disengagement of the pinion and gear and the stopping of the doffer, substantially as described

587,268. REEFING-STRAP FOR FISHING-SEINES. JOHN W. MCFARLAND, Gloucester, Mass. Filed Apr. 15, 1897. Serial No. 633,327. (No model.)



Claim.—1. A reefing-strap for the pursing-aprons of fishing-seines, provided with an elastic tubular socket at one end for the reception of the opposite end properly shaped to fit therein, the two ends of the strap being detachably held together by the friction of one within the other, substantially as described.

2. The herein-described rubber reefing-strap having a tubular socket at one end, and having its opposite end tapered to fit within said socket, the two ends of the strap being detachably held together by the friction of one within the other, substantially as described.

3. A rubber reefing-strap, having at one end a tubular socket provided with an opening at its rear end, and having its opposite end tapered to fit within said socket and project through the opening at the rear end thereof, whereby it may be grasped to pull it more or less within said socket, the two ends of the strap being detachably held together by the friction of one within the other, substantially as set forth.

4. A rubber reefing-strap having at one end a tubular socket provided with an opening at its rear end, and having its opposite end tapered to fit within said socket and project through the opening at the rear end thereof, whereby it may be grasped to pull it more or less within said socket, said tapering end being provided with an enlargement to increase the friction, and the two ends of the strap being detachably held together by the friction of one within the other, substantially as described.

587,269. RECEPTACLE FOR MATCHES, &c. EDWIN I. NOTTINGHAM, Washington, D. C., assignor to Frederick W. Buckler, same place. Filed Feb. 25, 1897. Serial No. 625,050. (No model.)



Claim.—1. A receptacle comprising a body portion constructed at its lower end to permit the withdrawal of matches, said body portion being divided into two compartments by a movable partition adapted to be supported by live matches in the lower compartment, the upper compartment being adapted for the reception of dead matches, substantially as set forth.

2. A receptacle comprising a body portion constructed at its lower end to permit the withdrawal of matches, one at a time, and a tray for the reception of dead matches, said tray being adapted to be supported by the live matches in the receptacle, substantially as set forth.

3. In a receptacle, the combination with a body portion approximately the size and shape of a standard box of matches and adapted to contain matches in regular order and having a slotted bottom to support the matches, of a removable front to facilitate the placing of the contents of a full box of matches into the receptacle at one operation, said removable front having a slotted lower end to cooperate with the slotted bottom of the body portion of the receptacle, the lower end of said removable front having slits therein whereby to form spring-lips at each side of the slot in said front, substantially as set forth.

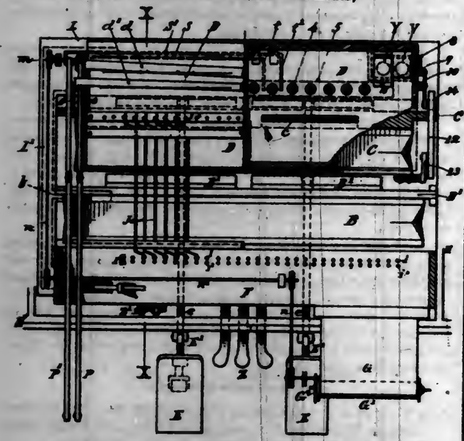
4. The combination with a base, of a receptacle revolubly supported over said base and constructed with two compartments, one above the other, for the reception of live and dead matches respectively, and means for permitting live matches in the lower compartment to be withdrawn one at a time, substantially as set forth.

5. In a receptacle, the combination with a body portion approximately the size and shape of a standard box of matches and adapted

to contain matches in regular order and having a slotted bottom to support the matches, of a removable front to facilitate the placing of the contents of a full box of matches in the receptacle at one operation, a curved lip on said removable front adapted to serve as a handle whereby to remove said front and also as a cigar-holder, said removable front having a slotted lower end to cooperate with the slotted bottom of the body portion of the receptacle, the lower end of said removable front also having slits therein whereby to form spring-lips at each side of the slot in said front, substantially as set forth.

6. As a new article of manufacture, a receptacle having an open slot in its bottom, a removable front having an open slot at its lower edge to cooperate with the slot in the bottom, a spring-jaw at each side of the slot in the front and a movable tray within the receptacle, substantially as set forth.

587,270. AUTOMATIC COMBINATION-PIANO. WILLIAM D. PARKER, Meriden, Conn., assignor to Edward H. White, same place. Filed Mar. 3, 1897. Serial No. 626,450. (No model.)



Claim.—1. In a combination-piano attachment, comprising a pneumatic-actuating mechanism, a pneumatic motor-engine for operating the music-sheet, and a series of organ-reeds with reed-board and wind-chest therefor; the two sets of bellows, one set adapted as high-tension bellows for inducing a strong air-current and connected for operating the motor and pneumatic-actions, the other set adapted as low-tension bellows for separately inducing a lighter air-current for sounding the reeds; said bellows each consisting of a reservoir and exhausters, the respective exhausters of both bellows joined with a hinged bar or rod, passing beneath the action and connected with the pedal-levers and pedals, for combined operation by the same pedal movement, substantially as set forth.

2. In combination as described, with the supporting-case H adapted for attachment to the piano-body, and having the pneumatic-chest F, the motor-chest L, and the reed-board wind-chest arranged therein; of the two stationary body-boards B^3 and C^3 supported in approximately upright or slightly oblique positions within said case between the pneumatic-chest and motor-chest, the exhausters B' and C' hinged to said boards at their upper edges, their movable edges connected with each other for united operation, and with the pedals, by the jointed links or rods *e* which pass beneath the case, as set forth.

3. In a combination-piano mechanism provided with pneumatic-action-operating devices, and a reed-organ attachment; the combination, as described, of a plurality of independently-exhausting, connectedly-operated bellows that separately induce air-currents for said action-operating devices and the reed-organ attachment, means consisting of an external free-air inlet having an opening-valve, for relieving the reed-exhaust bellows from labor while operating when the reeds are out of operation, and a closing device for said valve, operated by the organ-stop, substantially as set forth.

4. In an automatic combination-piano, the combination of two sets of bellows respectively adapted as described, one for furnishing wind for the operation of the automatic actuating mechanism, the other for inducing a separate air current for sounding the reeds, the exhausters in both said sets of bellows connected with the same pedals for simultaneous operation; a free-air inlet for the reed-sounding bellows, and means, operating in conjunction with the reed-stopping mute, whereby said free-air inlet is closed when the mute is open, and allowed to open when the mute is closed, for the purpose set forth.

5. In an automatic combination-piano, the combination, substantially as described, of the pneumatic-actuating mechanism, the bellows therefor, the reed-board with reeds and mutes, the wind-chest for said reeds provided with the free-air inlet, the inlet stop-valve controlling said inlet, a second bellows for exhausting said wind-chest, the mute for controlling the reed-sound, the stop-pull connected or linked to said mute, and the rocker-shaft also connected with said pull and having a finger for closing said inlet stop-valve when the mute is opened.

6. In a combination-piano having two sets of bellows respectively adapted for furnishing wind for working the pneumatic-action, and a separately-induced current for sounding the reeds, and simultaneously operated; the combination with said bellows, of a windway connecting the compartments of the two bellows, a normally-closed windway stop-valve, and means actuated by the movement of the movable back of the bellows-reservoir for automatically lifting said stop-valve and opening said windway when the effective strength of the reed-sounding bellows becomes weakened.

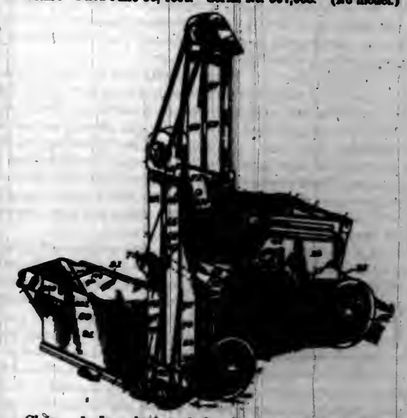
7. The combination, with the high-tension bellows adapted for exhausting the pneumatic and motor wind-chests, and the low-tension bellows adapted for exhausting the reed wind-chest; of the windway connecting the two exhaust-compartments, a stop-valve for said windway, an arm, connection and tilt-lever for opening said valve, and a reciprocating actuating bar or slide connected with the movable reservoir-back in said low-tension bellows, and having an incline for engaging the tilt-lever and effecting the opening of said windway-valve when said reservoir becomes unduly expanded, and permitting the valve to close when the reservoir is compressed, substantially as set forth.

8. The guard-valve Y operating in conjunction with the inlet stop-valve, in combination with the wind-chest having the free-air inlet and inlet stop-valve, the dual bellows having a windway connecting the two sets of bellows, and the automatically-actuated valve V in said windway, for the purpose set forth.

9. The combination, with the horizontal piano-frame, strings, piano-action and manual-keys in a grand piano; of the pneumatic-chest containing the controlling and operating pneumatics, with lift-puppets I, the tracker G and music-sheet-winding rolls, the bellows at the back of said chest, the wind-chest L and motor M at the back of the bellows, the wind-trunk L' connecting said motor-chest and pneumatic-chest with the bellows-reservoir inlet *b*, the music-driving belts *n* and shaft *n'*, the pitman-pins from said puppets to the manual-keys, the pedals E, and pedal-rods connected with said bellows beneath the case, all substantially as shown and described.

10. The combination, with the pneumatic-chest containing the controlling and the operating pneumatics, and the lifting-puppets actuated by said pneumatics, having heads that afford a step for two pins, of the direct pitman-pins impinging upon the under side of the manual-keys, the adjacent pitman-pins impinging on the rocker-wires, the rocker-wires extending over the bellows, the reed-board with reeds and reed-duct valves, the valve-pitmen engaging with said rocker-wires, the reed-sounding bellows, the pneumatic-supply bellows, and the pedal mechanism having rods that pass beneath the case and respectively connect with the exhausters of both sets of bellows, substantially as set forth.

587,271. GRAIN-ELEVATOR. SAMUEL M. PETERSON, Kent, Minn. Filed June 30, 1896. Serial No. 597,605. (No model.)



Claim.—1. In a device of the character set forth, the combination of a pair of drums or rollers located at opposite ends of the machine and having peripheral grooves or recesses in their outer ends, a tread apron or belt passing around said drums or rollers made up of a series of slats, rollers mounted in brackets on the inner surfaces of said slats adapted to pass within the peripheral grooves or recesses in said drums, and longitudinal rails upon which said rollers bear.

2. In a device of the character set forth, the combination of a pair of drums or rollers located at opposite ends of the machine having peripheral grooves or recesses near their outer ends, sprocket-wheels upon said drums, a tread apron or belt made up of a series of slats extending transversely of the machine and connected together by sprocket-chains secured to the inner surfaces of said slats, the said sprocket-chains engaging the sprocket-wheels on said drums, longitudinal rails secured to a stationary part of the frame and located beneath the bands of said belt or apron and rollers mounted in brackets secured to the inner surfaces of said slats, the said rollers fitting within the peripheral grooves or recesses in said drums and bearing upon the top surface of said rails.

3. In a device of the character set forth, the combination with a main frame mounted upon wheels, of a tilting treadmill-frame mounted to rock in said main frame, means for raising and lowering one end of said tilting frame, the said tilting frame being made up of a pair of side pieces, a hinged back piece adapted to be folded down for the purpose described and a tread-apron mounted upon suitable drums or rollers at the front and rear ends of said tilting frame and located between the side pieces of said frame, substantially as and for the purpose described.

4. In a device of the character set forth, the combination with a main frame mounted upon wheels, of a tilting treadmill-frame mounted to rock in said main frame, means for raising and lowering one end of said tilting frame, the said tilting frame being made up of a pair of side pieces, a hinged back piece adapted to be folded down for the purpose described, a tread-apron consisting of a series of transverse slats, passing around drums or rollers at the front and rear ends of said frame, antifriction-rollers upon the inner surface of each of said slats and a pair of longitudinal rails upon which said antifriction-rollers bear, a beam for supporting said rails, extending outwardly from the opposite sides of the tilting frame and brace-beams connecting the ends of said beams with the side pieces of said tilting frame.

5. In a device of the character set forth, the combination of a main frame secured to front and rear axles, having wheels upon the outer ends thereof, a tilting treadmill-frame mounted to rock on the rear axle of said main frame, means for raising and lowering said tilting frame, a pair of drums or rollers mounted at opposite ends of said tilting frame, a tread-apron passing around said drums for rotating the same, a sprocket-wheel upon the outer end of the drum at the rear of said tilting frame, a sprocket-wheel upon the rear axle of said main frame, a sprocket-chain connecting said sprocket-wheels, a beveled gear-wheel secured to or formed integral with the sprocket-wheel upon said rear axle and a longitudinal shaft extending to the front of the machine, mounted to rotate in suitable bearings, a beveled pinion upon the rear end of said shaft meshing with the gear-wheel upon said rear axle and means for transmitting power from the front end of said shaft, substantially as and for the purpose described.

6. In a device of the character set forth, the combination of a main frame secured to front and rear axles, having wheels upon the outer ends thereof, a tilting treadmill-frame mounted to rock on the rear axle of said main frame, means for raising and lowering said tilting frame, a pair of drums or rollers mounted at opposite ends of said tilting frame, a tread-apron passing around said drums for rotating the same, a sprocket-wheel upon the outer end of the drum at the rear of said tilting frame, a sprocket-wheel upon the rear axle of said main frame, a sprocket-chain connecting said sprocket-wheels, a beveled gear-wheel secured to or formed integral with the sprocket-wheel upon said rear axle, a longitudinal shaft extending to the front of the machine and mounted to rotate and slide in suitable bearings, a beveled pinion upon the rear end of said shaft meshing with the beveled cog-wheel on said rear axle, and clutch mechanism for shifting said shaft longitudinally to throw said pinion into and out of gear, substantially as and for the purpose described.

7. In a device of the character set forth, the combination of a main frame secured to front and rear axles, having wheels upon the outer ends thereof, a tilting treadmill-frame mounted to rock on the rear axle of said main frame, means for raising and lowering said tilting frame, a pair of drums or rollers mounted at opposite ends of said tilting frame, a tread-apron passing around said drums for rotating the same, a sprocket-wheel upon the outer end of the drum at the rear of said tilting frame, a sprocket-wheel upon the rear axle of said main frame, a sprocket-chain connecting said sprocket-wheels, a beveled gear-wheel secured to or formed integral with the sprocket-wheel upon said rear axle, a longitudinal shaft extending to the front of the machine and mounted to rotate and slide in suitable bearings, a beveled pinion upon the rear end of said shaft meshing with the beveled cog-wheel on said rear axle, a sector secured to said main frame adjacent to said shaft, an operating-lever fulcrumed in said sector and connections between one arm of said lever and said shaft, whereby the latter may be shifted longitudinally to throw the pinion of said shaft into and out of gear with said cog-wheel, substantially as and for the purpose described.

8. In a device of the character set forth, the combination of a main frame secured to front and rear axles, having wheels upon the outer ends thereof, a tilting treadmill-frame mounted to rock on the rear axle of said main frame, means for raising and lowering said tilting frame, a pair of drums or rollers mounted at opposite ends of said tilting frame, a tread-apron passing around said drums for rotating the same, a sprocket-wheel upon the outer end of the drum at the rear of said tilting frame, a sprocket-wheel upon the rear axle of said main frame, a sprocket-chain connecting said sprocket-wheels, a beveled cog-wheel secured to or formed integral with the sprocket-wheel upon said rear axle, a longitudinal shaft extending to the front of the machine and mounted to slide and rotate in suitable bearings near the front and rear ends thereof, a beveled pinion adapted to mesh with a beveled gear-wheel on said rear axle, means for shifting said shaft longitudinally to throw said pinion into and out of gear, a plate having an elongated slot therein to which the bearings at the front of said shaft are secured, whereby the front end of said shaft may be raised or lowered and adjusted in any position, substantially as and for the purpose described.

9. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine and an elevator-frame pivotally and slidingly mounted on the front of said main frame, whereby it may be folded back upon said tilting frame for convenience in transporting and may be thrown down and secured firmly in upright position when it is desired to put the same into operation, substantially as and for the purpose described.

10. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, a horizontal rod mounted in brackets upon the forward end of said main frame and an elevator-frame mounted to slide and rotate on said rod, substantially as and for the purpose described.

11. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, a horizontal rod mounted in brackets upon the forward end of said main frame, a block pivoted to and slidingly connected with said horizontal rod and an elevator-frame pivoted to the forward end of said block, substantially as and for the purpose described.

12. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, a horizontal rod mounted in brackets upon the forward end of said main frame, a block pivoted to and slidingly connected with said horizontal rod, an elevator-frame pivoted to the forward end of said block, a cross-bar connecting two of the parallel beams of said elevator-frame and a locking-lever pivoted to said block and having a hooked end which is adapted to engage the cross-bar in said elevator-frame, substantially as and for the purpose described.

13. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, an elevator-frame pivotally and slidingly mounted on the front of said main frame, the said elevator-frame being made up of two parts, one slidingly connected with the other, means for raising one of said parts and means for adjusting it at any desired elevation, substantially as and for the purpose described.

14. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, an elevator-frame pivotally and slidingly mounted on the front of said main frame, the said elevator-frame being made up of two parts, one of which is adapted to rest upon the ground when in operative position, a guide upon one edge thereof upon which the other part is adapted to slide, a windlass secured to the stationary part of said elevator-frame, pulleys mounted upon each part of said frame and a cord secured at one end to said windlass, passing around said pulleys and attached to the movable part of said frame, substantially as and for the purpose described.

15. In a device of the character set forth, the combination of a main frame mounted upon wheels, a tilting treadmill-frame, means

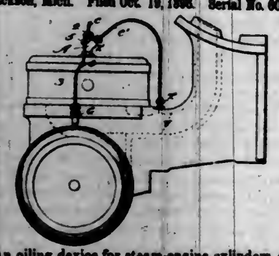
for raising and lowering one end of said frame, means for transmitting power from said treadmill to the front of the machine, an elevator-frame pivotally and slidingly mounted on the front of said main frame, the said elevator-frame being made up of two parts, one of which is adapted to rest upon the ground when in operative position, a plate secured to one edge thereof and projecting out beyond the sides, flanged plates secured to the movable part of said frame adapted to fit around and engage the projecting edges of the plate on said stationary part, a windlass secured to one part of said frame, pulleys mounted in both parts thereof and a cord attached at one end to said windlass, passing around said pulleys and connected at its opposite end to said movable part of the elevator-frame, substantially as and for the purpose described.

16. In a device of the character set forth, the combination with a main frame mounted upon wheels, a tilting treadmill-frame mounted to rock thereon, means for raising one end of said tilting frame, a longitudinal shaft for transmitting power from said treadmill-frame to the forward end of the machine, a sprocket-wheel upon the front end of said shaft and an elevator located at the front of the machine, of a hopper detachably connected to the front end of said main frame for receiving grain from the wagons in which it is conveyed from the thresher, having a flat bottom and an opening therein, a conveyer-belt mounted upon rollers on the under side of said hopper directly beneath the opening in the bottom thereof, a sprocket-wheel upon the outer end of one of the rollers upon which said conveyer-belt is mounted, and a sprocket-chain connecting said sprocket-wheel with the sprocket-wheel upon the forward end of said longitudinal shaft whereby the grain is conveyed from the hopper to the elevator, substantially as described.

17. In a device of the character set forth, the combination with a main frame mounted upon wheels, a tilting treadmill-frame mounted to rock thereon, means for raising one end of said tilting frame, a longitudinal shaft for transmitting power from said treadmill-frame to the forward end of the machine, a sprocket-wheel upon the front end of said shaft and an elevator located at the front of the machine, of a hopper detachably connected to the front end of said main frame for receiving grain from the wagons in which it is conveyed from the thresher, having a flat bottom and an opening therein, a sliding cut-off for closing the opening in said bottom, and a conveyer-belt mounted upon rollers on the under side of said hopper directly beneath the opening in the bottom thereof, a sprocket-wheel upon the outer end of one of the rollers upon which said conveyer-belt is mounted, and a sprocket-chain connecting said sprocket-wheel with the sprocket-wheel upon the forward end of said longitudinal shaft, whereby the grain is conveyed from the hopper to the elevator, substantially as described.

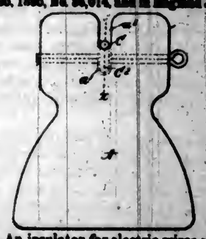
18. In a device of the character set forth, the combination with a main frame mounted upon wheels, a tilting treadmill-frame mounted to rock thereon, means for raising one end of said tilting frame, a longitudinal shaft for transmitting power from said treadmill-frame to the forward end of the machine, a sprocket-wheel upon the front end of said shaft and an elevator located at the front of the machine, of a hopper detachably connected to the front end of said main frame for receiving grain from the wagons in which it is conveyed from the thresher, having a flat bottom and an opening therein, one end of said hopper being hinged to the main part thereof, a canvas lining for said hopper, secured to the bottom thereof around the edges of the opening therein and loosely attached at other points, and a conveyer-belt mounted upon rollers on the under side of said hopper directly beneath the opening in the bottom thereof, a sprocket-wheel upon the outer end of one of the rollers upon which said conveyer-belt is mounted, and a sprocket-chain connecting said sprocket-wheel with the sprocket-wheel upon the forward end of said longitudinal shaft, whereby the grain is conveyed from the hopper to the elevator, substantially as described.

587,272. OILING DEVICE. JOHN H. PORTER and THOMAS J. HERBERT, Jackson, Mich. Filed Oct. 19, 1896. Serial No. 609,360. (No model.)



Claim.—An oiling device for steam-engine cylinders, comprising the casting A, secured to and communicating with the steam-chest S, and having the valve *n* therein, the oil-supply pipe *o* and the lateral feed-pipes *b b* attached thereto, the plugs G G secured to the outer ends of the lateral feed-pipes and communicating with the opposite ends of the cylinder, the valves *l l* located in said plugs G G, and the live-steam auxiliary pipe *c* connecting the casting A with the steam-passage leading from the boiler to the engine, substantially as shown and described.

587,273. INSULATOR. REINHOLD RUDOLF, Berlin, Germany. Filed Oct. 14, 1896. Serial No. 608,838. (No model.) Patented in Germany Apr. 26, 1895, No. 86,014, and in England Jan. 24, 1896, No. 1,667.



Claim.—1. An insulator for electric wires or conductors, consisting of a body portion having a head in which is formed a deep transverse groove in the bottom of which is a cavity or recess adapted to receive a bend or loop in the wire or conductor, said head being also provided with a transverse perforation which passes through said cavity or recess, and a locking-bolt which passes through said perforation, and which holds said wire or conductor in place, substantially as shown and described.

2. An insulator for electric wires or conductors, consisting of a body portion provided with a head across the top of which is formed a deep groove through which the wire or conductor is adapted to be passed, said groove being provided centrally of the bottom thereof, with a deep circular cavity or recess adapted to receive a bend or loop formed in said wire or conductor, and said head being also provided with a transverse perforation, and a locking bolt or key which passes therethrough, the arrangement being such that the locking bolt or key passes through the circular cavity or recess, and through the bend or loop in the wire or conductor, substantially as shown and described.

587,274. DITCHING-JACK. ROSS RUE, Alliance, Ohio. Filed Jan. 22, 1897. Serial No. 620,265. (No model.)



Claim.—1. The combination of the cylinders *a*, the cylinder *b*, located parallel within the cylinders *a*, the right and left hand screw-threaded shafts C, and C', provided with the balls A and A', the shoes B, and B', the thimble or collar *g*, located around the cylinder *b*, and the cross-bolt *g*, substantially as and for the purpose specified.

2. In a ditching-jack, the combination of the screw-threaded shafts C, and C', cylinders *a*, securely connected to said shafts, the cylinder *b*, and means for holding the screw-threaded shaft C, against rotation, substantially as and for the purpose specified.

587,275. BOTTLE CAP AND FASTENER. ALFRED L. BERNARDIN, Evansville, Ind. Filed Sept. 9, 1896. Serial No. 605,270. (No model.)



Claim.—1. A combined bottle cap and fastener comprising a band adapted to be removably secured to the bottle-neck and provided with arms projecting upwardly therefrom, together with a cap adapted to fit over the bottle-mouth and provided with pendent ears adapted to engage with the aforesaid arms; one of said engaging portions being provided with an eye and the other with a tongue fitting said eye and forming therewith a telescopic connection adapting the cap and band to be drawn toward each other when the arms and ears are locked together, whereby the device may be used with bottle-necks of different sizes for securing and holding a stopper within the bottle-mouth, substantially as described.

2. A bottle cap and fastener, comprising a cap adapted to fit over the mouth of a bottle, and a band adapted to be removably secured to the bottle-neck and provided with upwardly-projecting arms having their upper ends adapted to engage portions of the cap and be locked thereto; said arms being curved outwardly from the band so as to conform approximately to the curvature of the bulge or shoulder of the bottle-head and provided with ribs extending a portion of their length so as to strengthen the arms and retain them in their proper shape, whereby the arms may fit snugly against the bottle-head and the fastener rigidly held to the bottle, substantially as described.

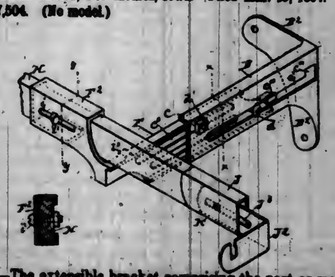
3. A bottle cap and fastener, comprising a cap adapted to fit over a bottle-mouth and provided with pendent ears or projections having eyes therein, a band provided with a loop end and an eye or opening adapted to be engaged by said loop end so as to be removably held to a bottle-neck, and arms extending upwardly from said band and engaging the eyes of the pendent ears so as to draw the band and cap toward each other when the ends of said arms are bent or forced over so as to lock the arms and ears together; whereby the cap and fastener may be made to fit bottle-necks of various sizes and rigidly hold a stopper in the bottle-mouth, substantially as described.

4. A stopper-fastener comprising a disk-shaped cap adapted to fit over the mouth of a bottle and provided with pendent ears or projections having eyes or openings therein, a band provided with a loop end and an eye or opening adapted to be engaged by said loop end so as to be removably held to the neck of a bottle, and arms extending upwardly from the band and engaging the eyes in the pendent ears of the cap, said arms being curved outwardly from said band so as to conform approximately to the curvature of the bulge or shoulder of the bottle-head and provided with ribs extending a portion of their length so as to strengthen the arms and retain them in their proper shape, whereby various adjustments may be secured and the stopper rigidly held in the bottle-mouth, substantially as described.

5. A bottle cap and fastener, comprising a band provided with a loop end and an eye or opening adapted to be engaged by said loop end so as to be removably held to the neck of a bottle, arms extending upwardly from said band, and a disk-shaped cap adapted to fit over the bottle-mouth and having pendent ears or projections thereon adapted to be engaged by the ends of said arms, said cap being provided with a conical protuberance adapted to spread the upper portion of the stopper tightly against the walls of the bottle-mouth, whereby various adjustments may be secured and the cap and fastener rigidly held to the bottle so as to retain the stopper in the mouth thereof, substantially as described.

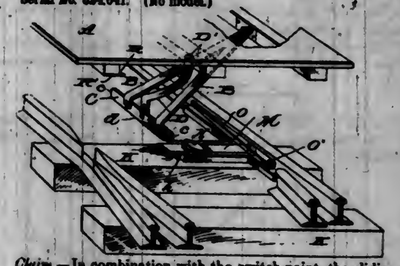
6. A stopper-fastener comprising a disk-shaped cap having a conical protuberance adapted to fit over the mouth of a bottle and engage a depression in the bottle-stopper so as to spread its upper portion tightly against the walls of the bottle-mouth, said cap being provided with pendent ears or projections extending outwardly from the periphery of the cap and having openings therein, a band provided with a loop end and an eye or opening adapted to be engaged by said loop end so as to be removably held to the neck of a bottle, and arms having outwardly-curved outer ends extending upwardly from the band and adapted to engage the eyes in the pendent ears of the cap, said arms being curved outwardly from said band so as to conform approximately to the curvature of the bulge or shoulder of the bottle-head and provided with ribs extending a portion of their length so as to strengthen the arms and retain them in their proper shape, whereby various adjustments may be secured and the stopper rigidly held in the bottle-mouth, substantially as described.

587,276. ADJUSTABLE SUPPORT FOR WINDOW-SHADES. WILLIAM H. REMER, Des Moines, Iowa. Filed Mar. 15, 1897. Serial No. 627,504. (No model.)



Claim.—The extensible bracket comprising the part or member B having a right-angled perforated extension B², flanges at its edges and a longitudinal slot having an enlargement at one end, a mating member F having a longitudinal slot and hook-shaped projection to enter and traverse the slot in the other member and a right-angled extension F² at its free end adapted to support a cross-piece and provided with a slot and a cross-piece H fitted to said right-angled extension and slidingly connected therewith by means of a screw extended through said slot, a sleeve J fitted to the end of the cross-piece, and an elbow-shaped roller-bearer J² fitted in said sleeve and provided with a slot J³ and slidingly connected with the cross-piece H by means of a screw, all arranged and combined to operate in the manner set forth for the purposes stated.

587,277. AUTOMATIC SWITCH. ARTHUR R. BURLAND, Newport, R. I., assignor to John R. Drexel, same place. Filed Feb. 22, 1897. Serial No. 624,041. (No model.)



Claim.—In combination with the switch-point, the sliding plate connected therewith, with a lug on said plate, of the shoe C, having arms pivoted in the side beams of the platform, of the arm D, secured at its lower end to the said shoe, its upper end pivoted to a plate D', of the operating-lever F pivoted to a plate on the platform, of the link E pivoted at one end to the operating-lever, and its other end pivoted to the lever D, substantially as shown and described.

587,278. PROTONUCLEIN AND METHOD OF PREPARING SAME. JOHN CARRICK, New York, N. Y. Filed Jan. 4, 1895. Serial No. 533,898. (No specimens.)

Claim.—1. The above-described protonuclein composition containing cellular nuclein possessing its normal cellular activity, having nutritive and antitoxic properties, and in dry, powdered form, capable of preservation, substantially as described.

2. The above-described protonuclein composition containing cellular nuclein, derived from different glands and organs of the animal organism, possessing its normal cellular activity, having nutritive and antitoxic properties, and in dry, powdered form, capable of preservation, substantially as described.

3. A nutritive and antitoxic preparation containing the cellular elements of nuclein, possessing its normal cellular activity, in a dry powdered form, the particles or granules of which are coated or invested with a suitable gum, as benzoin, for preserving it.

4. As an article of manufacture a nutritive and antitoxic preparation containing cellular nuclein in dry powdered form, capable of preservation, and milk-sugar.

5. A nutritive and antitoxic preparation containing cellular nuclein in dry powdered form, the particles or granules being coated with a suitable gum, for preserving its cellular activity, and milk-sugar.

6. The process of preparing a nutritive and antitoxic substance, containing nuclein from different animal organs which consists in dissecting the lymphoid tissue containing the largest percentage of nuclein from the muscular and other coarse tissues, drying the lymphoid tissues at a temperature below that which would coagulate the albuminous matter, then reducing it to a powder and separating the nuclein cellular matter from the scaly and fibrous matter, as by sieving.

7. The process of preparing a nutritive and antitoxic substance containing nuclein from different animal organs which consists in dissecting the lymphoid tissues containing the largest percentage of nuclein from the muscular and other coarse tissues, drying the lymphoid tissues at a comparatively low temperature, not exceeding 130° Fahrenheit, then reducing it to a powder and separating the nuclein cellular matter from the scaly fibrous matter by sieving or other means, then treating the nuclein cellular powder with a solution of a suitable gum, as benzoin for protecting and preserving it as described.

587,279. WELT-TRIMMER. ALBERT F. CHAMBLER, Bumpasset, Mass. Filed July 15, 1896. Serial No. 599,234. (No model.)

Claim.—1. In welt-trimmers, a holder provided with a circular recess and a shank, a cutter provided with a cutting edge and an annular groove arranged in the said holder by a set-screw as described, a

guard having a squared block with a bore therein and having said block arranged in a squared slot of said holder and held and regulated by a set-screw arranged in the bore of said block as described, adjusting-screws arranged to pass through said holder against the under side of said guard; all substantially as described and for the purpose set forth.



2. The cutter 9 provided with a knife-edge 10 and groove 12 substantially as set forth.

3. The guard 13 provided with the block 14 having a bore 15 substantially as described and shown.

4. The holder 1 having the circular recess 4 and squared slot 8 and bores 5, 6 and 7; substantially as described and for the purpose set forth.

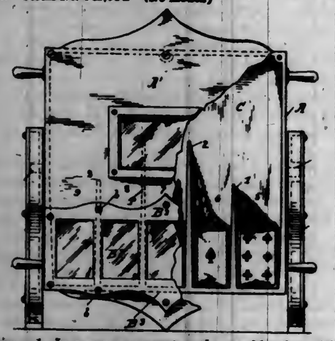
587,280. TROUSERS-CLAMP FOR BICYCLE-RIDERS. LYMAN P. CONVERSE, Chicago, Ill. Filed Nov. 29, 1895. Serial No. 570,449. (No model.)



Claim.—1. A trousers-clamp comprising bowed sections A', A^2 and A^3, of spring metal, the section A' having loops r and r' on its opposite ends, and the sections A^2 and A^3 being slidingly confined in said loops and provided with stops p on their adjacent ends, substantially as and for the purpose set forth.

2. A trousers-clamp comprising bowed longitudinally concavo-convex sections A', A^2 and A^3, of spring metal, the section A' having loops r and r' on its opposite ends, and the sections A^2 and A^3 being slidingly confined in said loops and provided with stops p on their inner ends and with grips x on their outer ends, substantially as and for the purpose set forth.

587,281. GAME APPARATUS. ROBERT B. CROOKS and FRANK B. CROOKS, San Francisco, Cal. Filed Oct. 22, 1896. Renewed July 6, 1897. Serial No. 643,614. (No model.)



Claim.—1. In a game apparatus, the combination with the side standards, of the card-shuffling box or casing mounted to swing between the standards, the lock mechanism for controlling the movement of the shuffling-box, and the cutting ribs or fingers secured within the shuffling box or casing.

2. In a game apparatus, the combination with the card-shuffling box or casing mounted to swing between side standards, of a series of cutting ribs or fingers located within the shuffling box or casing so as to divide the lower portion thereof into a series of independent compartments and its upper portion into a card-shuffling chamber, and of mechanism for controlling the movement of the shuffling box or casing.

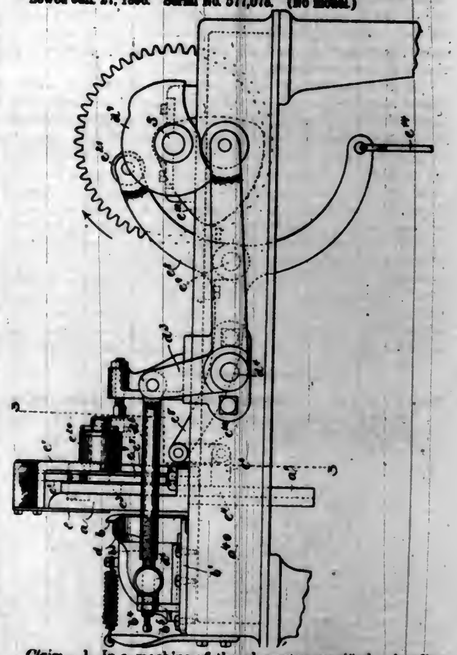
3. In a game apparatus, the combination with the card-shuffling box or casing mounted to swing between side standards, of a series of independent card-compartments formed in the lower portion of the box or casing, a chamber within which the cards are shuffled or intermixed formed in the upper portion of the box or casing, an opening formed in the lower portion of the top plate or cover of the box or casing, a transparent covering for said opening, and suitable mechanism for controlling the swing or movement of the shuffling box or casing.

4. In a game apparatus, the combination with the shuffling box or casing mounted to swing between side standards, of the trunnions upon which the said box or casing turns working within said side standards, the ratchet-wheels located within one of said standards and mounted on the trunnion working therein, the fulcrumed pawl which engages the teeth of the ratchet wheels, the tailpiece depending from the fulcrumed pawl, the counterbalance-weight for throwing one of the teeth of the pawl into locked engagement with one of the ratchet-wheels, a passage-way formed within the said side standard into and through which a weight or disk travels, which weight or disk during its travel through the said passage-way engages the tailpiece of the fulcrumed pawl and throws the same so as to release the pawl from locked engagement with the ratchet wheels in order that the shuffling box or casing may be free to swing.

587,282. CHECKREIN-LOOP. JASON T. FOOS, Garland, Me., assignor to M. C. Cushing, Skowhegan, Me. Filed Apr. 11, 1896. Serial No. 587,103. (No model.)

Claim.—As a new article of manufacture, the checkrein loop formed of a strip of leather folded into a loop at one end, the eye with ears receiving the ends of the folded portions of said leather strip, the parallel spring-strips embedded in said folded portions of leather strip, and the rivet securing the ends of said folded portions together and passing through said ears of eye, substantially as set forth.

587,288. MACHINE FOR MAKING HEEL-BANDS. ANASA C. HEATH and FRED H. WHITE, Boston, Mass. Filed June 10, 1895. Renewed Jan. 27, 1896. Serial No. 577,078. (No model.)



Claim.—1. In a machine of the character specified, a bending mechanism comprising a guide, a presser-foot yieldingly pressed toward the guide, and formers adapted to cooperate with the presser-foot and guide in bending and corrugating a blank, combined with a positively-acting pressing mechanism to which the bent and corrugated blank is presented by the bending mechanism.

2. In a machine of the character specified, a bending mechanism comprising a guide, a presser-foot yieldingly pressed toward the guide, and formers adapted to cooperate with the presser-foot and guide in bending and corrugating a blank, combined with a pressing-bed to which one side of the bent and corrugated blank is presented by the bending mechanism, and a follower movable toward and from said bed.

3. A rand-making machine comprising, first, bending devices which include opposing faces whereby a yielding pressure is exerted on an interposed blank, and formers movable between said faces, secondly, positively-acting pressing devices which receive the bent blank from the bending devices, and mechanism for successively operating said bending and pressing devices.

4. A rand-making machine comprising in its construction a fixed head having a guiding-face and pressing face or bed, a presser-foot normally pressed toward said guiding-face, formers movable on the head and adapted to cooperate with the presser-foot and head in bending a rand-blank into heel form and at the same time corrugating its inner edge, a heel-shaped follower movable toward and from the said pressing face or bed, and operating mechanism whereby the formers and follower are successively operated, the follower flattening the corrugations and finishing the rand after the bending operation.

5. A rand-making machine comprising in its construction a fixed head having a guiding-face and a pressing face or bed, a presser-foot normally pressed toward the head, a heel-shaped follower movable toward and from the head, formers movable on the guiding-face of the head and adapted to bend a rand-blank into heel shape, former-operating mechanism whereby the formers are moved to first insert the central part of a rand-blank between the head and the presser-foot and then bend the blank into heel form and at the same time corrugate its inner edge, the blank being under pressure from the presser-foot during the bending operation, whereby its outer edge is caused to conform closely to the shape of the formers, and follower-operating mechanism whereby the follower is held separated from the head during the bending operation, leaving room for the formation of the corrugations on the inner edge of the blank, and is then moved toward the pressing face or bed portion of the head to flatten the corrugations and finish the rand.

6. A rand-making machine comprising in its construction a fixed head having a guiding-face, a presser-foot movable toward and from the head and pressed normally toward the head, a heel-shaped follower also movable toward and from the head, connections between the follower and presser-foot whereby a backward movement of the follower is imparted to the presser-foot to separate the latter from the head, formers movable on the guiding-face of the head and adapted to bend a rand-blank into heel shape between the head and presser-foot, and operating mechanism whereby the formers and follower are operated successively to first bend and corrugate and then press and finish a rand, the follower and presser being subsequently withdrawn from the head to release the rand.

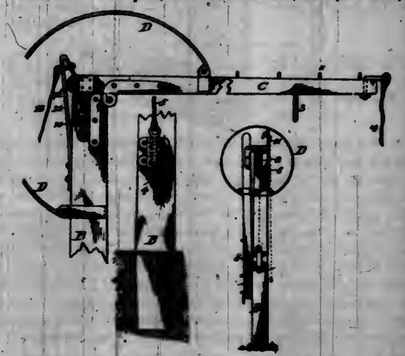
7. A rand-making machine comprising in its construction a fixed head having a guiding-face, a presser-foot normally pressed toward said face, a reciprocating primary slide having a limited movement on said head, former-carriers pivoted to said slide and provided with formers which are movable on the guiding-face of the head, a secondary slide connected by links with the primary slide, mechanism for reciprocating the secondary slide to cause first a movement of the primary slide and a rectilinear movement of the formers, and then a swinging movement of the formers after the stoppage of the movement of the primary slide, the said rectilinear movement causing the formers to insert the central portion of the blank between the head and the presser-foot, while the swinging movement causes the formers to bend the blank into heel form between the said head and presser-foot and to corrugate the inner edge of the blank, and means for pressing the bent blank to flatten said corrugations and finish the rand.

8. A rand-making machine comprising in its construction a fixed head having a guiding-face, formers movable on the head and adapted to bend a rand-blank into heel form, a heel-shaped follower movable in guides on the supporting-frame, mechanism for moving said follower toward and from the head, said mechanism having provisions for holding the follower stationary at different periods, first when separated from the head by a space sufficient to permit the free bending of the blank and the corrugation of its inner edge, and secondly when in contact with the head and while pressing and completing the rand, a presser-foot movable toward and from the head and adapted to cooperate with the formers as described during the operation of bending the blank, means for yieldingly projecting the presser foot forward from the follower while the latter is held stationary during the bending operation, and means for moving the presser backwardly from the completed rand.

587,284. ART OF IMITATING ONYX, &c. JOSEPH D. McDARBY, Chicago, Ill. Filed Aug. 26, 1896. Serial No. 604,016. (No specimens.)

Claim.—The process of treating glass to produce an imitation of marble, onyx, &c., which consists in coating the glass with a solution of balsam of fir allowing the same to become dry; then applying a suitable color to said coating and before said color has become dry sprinkling the prepared surface with spirits of turpentine, whereby the turpentine dissolves the color and balsam in various spots and causes the said colors to sink into the balsam of fir, thus producing a variegated aspect; and finally in providing the surface treated with a suitable backing or ground color, substantially as described.

587,285. STARTING-GATE. BENJAMIN R. HARRIS, San Francisco, Cal. Filed Apr. 2, 1896. Serial No. 585,983. (No model.)

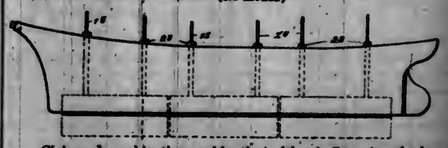


Claim.—1. In a starting-gate and in combination, oppositely-placed uprights, arms hinged thereto and supporting a barrier, flat leaf-springs connecting the uprights and arms, means for locking each arm to its upright, and means for releasing both arms simultaneously, substantially as described.

2. In a starting-gate, the combination with oppositely-placed uprights, of arms hinged at the tops of said uprights, and supporting a barrier and bow-springs hinged to said arms, and said uprights, substantially as described.

3. In a starting-gate, the combination with an upright, of an arm hinged at the top of said upright, a spring for throwing said arm upward, and a yielding buffer near the top of the upright, secured to the upright, and adapted to meet the impact of the end of the said arm, substantially as described.

587,286. SHIP. ERNST MOOSBRUGGER, St. Louis, Mo. Filed Mar. 1, 1897. Serial No. 625,547. (No model.)

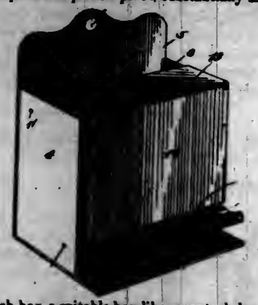


Claim.—In a ship, the combination with a hull having the longitudinally-extending slots 10 formed in its bottom, the housing-wall 11 extending upwardly from said bottom and upon one side of said slots, the housing-wall 12 extending upwardly from said bottom and upon the opposite side of said slots, the transverse walls 13 connecting the housing-walls 11 and 12 a suitable distance apart, the centerboard operating through the slots and between the housing-walls 11 and 12 and between the transverse walls 13, the plates 20 placed in horizontal positions and connecting the upper edges of the walls 11 and 12, the tubes 21 mounted in vertical positions between the plates 20 and the deck of the hull, the rods 18 operating through the plates 20, through the tubes 21 and through the deck and having a hinge connection with the centerboard, the upper ends of said rods 18 being screw-threaded for a considerable distance, and nuts upon the screw-threaded ends of said rods and above the deck as required to raise and lower the centerboards, substantially as specified.

587,287. MATCH-BOX. THOMAS W. DAVIES, St. Louis, Mo., assignor to Robert W. Hill and George G. Kenney, same place. Filed Jan. 16, 1897. Serial No. 619,591. (No model.)

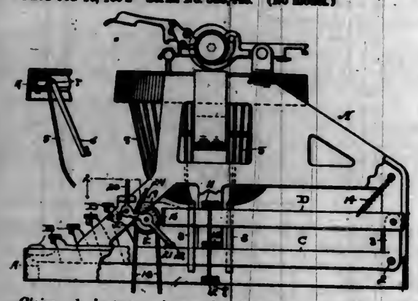
Claim.—1. In a match-box, suitable side pieces, a plate pivotally mounted between said side pieces in an approximately horizontal position and having a groove formed in its upper face immediately in front of its pivot, a resilient sheet-metal front piece connecting said

side pieces and with its lower edge in position to yieldingly operate in the upper part of said groove, said groove being designed to receive one match at a time and pass said match under said front piece as said plate is operated upon its pivot, substantially as specified.



2. In a match-box, a suitable box-like receptacle having an opening in the rear part of its top piece, a plate pivotally mounted below said opening, the forward upper edge of said plate being weighted to overbalance said plate and the rear lower edge of said plate engaging against the back piece of the box, a plate pivotally mounted in the bottom of the box in an approximately horizontal position, the last-mentioned plate having a groove formed in its upper face immediately in front of its pivot, a resilient sheet-metal front piece connecting said side pieces and with its lower edge in position to yieldingly operate in the upper part of said groove, said groove being designed to receive one match at a time and pass said match under said front piece as said plate is operated upon its pivot, substantially as specified.

587,288. TYPE-WRITER. ARTHUR R. BAILEY, Cleveland, Ohio. Filed Oct. 10, 1894. Serial No. 525,442. (No model.)



Claim.—1. In type-writers, a key-lever having a rigid annular extension near its pivot-point, a power-lever connected to said extension, a type-bar and a support for the free end of the power-lever connected with the said type-bar, and a power-communicating medium for the power-lever arranged to contact with the same at its front end, substantially as set forth.

2. In type-writers, the key-levers and the type-bars, the power-levers for the type-bars connected at one end with the key-levers and having their outer ends arranged to be engaged by the power mechanism, and power mechanism arranged to engage the said power-levers, substantially as set forth.

3. In a type-writer, the key-levers, the power-levers and the type-bars, arranged substantially as shown, and a rotating part constructed and arranged to make momentary contact with said power-levers, and thereby actuate the type-bars, substantially as set forth.

4. The mechanism described, comprising the depressible key-lever and the depressible power-lever pivoted on the key-lever at its rear end, a pivoted type-bar and suspensory means from said bar to said power-lever, and a power-communicating member for the power-lever at the front end thereof, substantially as set forth.

5. A pivoted key-lever and a power-lever connected thereto and a revolving cylinder at the free end of the power-lever having frictional contact therewith, substantially as set forth.

6. The key-lever having a bell-crank arm, a power-lever attached to said arm, a type-bar and connection between said bar and said power-lever and a power-cylinder arranged to be moved to and from the power-lever, substantially as set forth.

7. In a type-writer, a key-lever, a power-actuated lever secured thereto, a transverse cylinder arranged to be brought into frictional touch with the free end of said power lever, a type-bar connected to the said power-lever and means to withdraw the power-lever after an action, substantially as set forth.

8. The key-lever having an arm at its rear end, a power-lever pivoted on said arm and parallel to the key-lever, power mechanism to actuate the power-lever independently of the key-lever, and a connection from said power-lever to the corresponding type-bar, substantially as set forth.

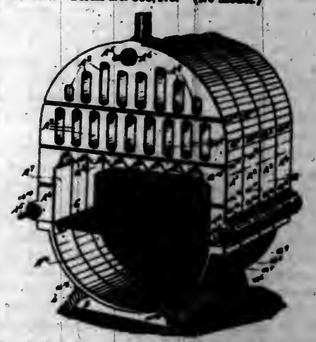
9. In a type-writer, a key-lever and a power-lever parallel therewith and operated thereby, a type-bar connected with the said power-lever and rotating power mechanism to engage the free end of the power-lever, substantially as set forth.

10. In a type-writing machine, a key-lever, a power-lever, and connections between the said levers at their rear ends to move the power-lever longitudinally, a type-bar, a suspensory connection between the said type-bar and the front end of the power-lever, power mechanism to depress the front end of the power-lever and means to withdraw the power-lever from contact with the power mechanism, substantially as set forth.

11. In a type-writer, a power-lever and a type-bar connected therewith, in combination with a line of mechanism to depress said lever at one end, and a separate line of mechanism to move said lever to depressible position, substantially as set forth.

12. The parallel key-levers and power-levers, one above the other and pivotally connected at their rear ends, type-bars connected with said power-levers, and means to connect the said levers to operate the type-bars by depressing the key-levers, substantially as set forth.

587,289. GENERATOR. EDWARD P. WAGGONER, Syracuse, N. Y., assignor to the A. A. Griffing Iron Company, Jersey City, N. J. Filed May 28, 1896. Serial No. 593,473. (No model.)



Claim.—1. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, said sections being composed of upper and lower divisions, a number of said sections being provided with substantially flat front and rear faces having their upper and lower portions decreased in width toward their top and bottom edges and having the front and rear walls of their upper divisions formed with upper and lower fluid-openings, connecting-tubes having their opposite ends arranged in adjacent openings, and bolts passed through said tubes and the upper divisions of the sections, substantially as and for the purpose specified.

2. A generator comprising an upper part composed of upright divisions arranged one in advance of the other and having their top walls deflected downwardly in opposite directions from their central portions, said upper part inclosing the combustion and heating chambers of the generator, and a lower part having its bottom wall deflected upwardly in opposite directions from its central portion, said lower part inclosing the ash-pit, substantially as and for the purpose described.

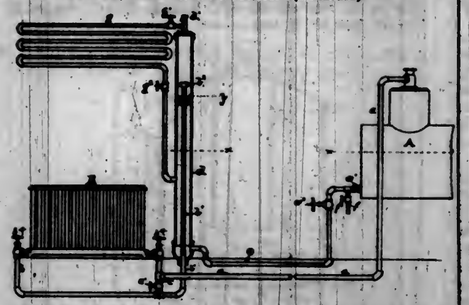
3. A generator comprising upright sections arranged one in advance of the other and having their top and bottom walls deflected toward each other in opposite directions from their central portions, said sections being composed of upper and lower divisions, the upper divisions inclosing the combustion and heating chambers, and the lower divisions inclosing the ash-pit, substantially as and for the purpose set forth.

4. In a generator, the combination of upright sections arranged one in advance of the other and having their top and bottom walls deflected toward each other in opposite directions from their central portions, said sections being composed of upper and lower divisions, the upper divisions inclosing the combustion and heating chambers, and the lower divisions inclosing the ash-pit, and having their inner sides provided with shoulders, and a grate supported on said shoulders, substantially as described.

5. A generator comprising a base extending lengthwise thereof, upright sections arranged one in advance of the other upon the base and each consisting of upper and lower divisions, the upper divisions being provided with connected fluid-containing chambers, and inclosing the combustion-chamber, and the lower divisions inclosing the ash-pit, substantially as and for the purpose set forth.

6. A generator comprising upright sections arranged one in advance of the other and consisting of upper and lower divisions, the upper divisions inclosing the combustion-chamber and being provided with connected fluid-containing chambers and openings extending through the fluid-containing chambers from front to rear for forming flues, and the lower divisions inclosing the ash-pit, one of said upper divisions being formed with a hollow bridge-wall arranged at the rear of the combustion-chamber, and a fire-passage arranged above the bridge-wall and communicating with the combustion-chamber and the adjacent flue-opening, and one of said lower divisions being formed with a wall arranged at the rear of the ash-pit and extending downwardly from the bridge-wall, substantially as and for the purpose described.

587,290. WATER-RETURN SYSTEM FOR STEAM-GENERATOR. EDGAR P. HOLLY, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed July 3, 1893. Renewed Dec. 26, 1896. Serial No. 617,095. (No model.)



Claim.—1. The combination with a steam-generator and a steam-pipe leading therefrom, of a riser communicating with said steam-pipe, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, an auxiliary condensing-chamber communicating with said former condensing-chamber, and means for controlling the communications between said condensing-chambers, substantially as described.

2. The combination with a steam-generator and a steam-pipe leading therefrom, of a riser communicating with said steam-pipe, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, an auxiliary condensing-chamber communicating with said former condensing-chamber, means for controlling the communications between said chambers and a return-pipe leading from said stand-pipe to said generator, substantially as described.

3. The combination with a steam-generator and a steam-pipe leading therefrom, of a riser communicating with said pipe, a stand-pipe communicating with said riser and extending above said riser to form a condensing-chamber in the upper end of said stand-pipe, an auxiliary condensing-chamber communicating with the upper part of said stand-pipe, means for controlling the communication between said stand-pipe and condensing-chamber, and a return-pipe leading from said stand-pipe to said generator, substantially as described.

4. The combination with a steam-generator and a steam-pipe leading therefrom, of a riser communicating with said steam-pipe, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, and a steam-using device communicating with the condensing-chamber, substantially as described.

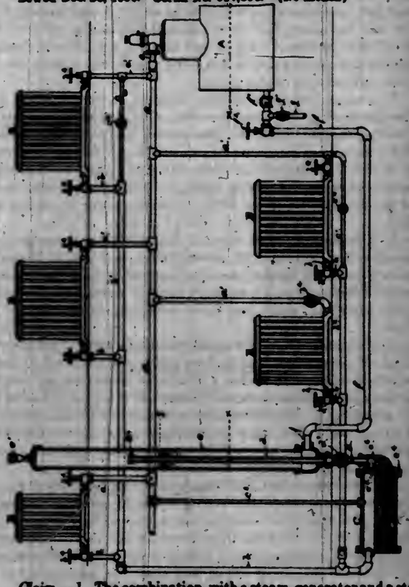
5. The combination with a steam-generator, of a steam-using device, a steam-pipe for conveying steam from said generator to said steam-using device, an exhaust-pipe leading from said steam-using device, an equalizing-pipe connecting said steam and exhaust pipes, a return-passage from said exhaust-pipe, to said generator and embodying a riser, and means for inducing a flow of steam through said riser, substantially as described.

6. The combination with a steam-generator, of a steam-using device, a steam-pipe for conveying steam from said generator to said steam-using device, an exhaust-pipe leading from said steam-using device, an equalizing-pipe connecting said steam and exhaust pipes, a riser communicating with said exhaust-pipe, a stand-pipe communicating with said riser, and a condensing-chamber communicating with said stand-pipe, substantially as described.

7. The combination of a steam-generator, a radiator or other steam-using device, a steam-pipe for conveying steam from said generator to said steam-using device, an exhaust-pipe leading from said steam-using device, an equalizing-pipe connecting said steam and exhaust pipes, a riser communicating with said exhaust-pipe, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

8. The combination, with a steam-generator and a steam-pipe leading therefrom, of a riser communicating with said steam-pipe and terminating in an open end, a stand-pipe communicating with said riser, a coil connecting with the upper end of said stand-pipe and constituting a condensing-chamber, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

587,291. WATER-RETURN SYSTEM FOR STEAM-GENERATOR. EDGAR P. HOLLY, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed July 3, 1893. Renewed Dec. 26, 1896. Serial No. 617,096. (No model.)



Claim.—1. The combination, with a steam-generator and a steam-pipe leading therefrom, of a series of branch pipes leading from said steam-pipe, a receiver in communication with all of said branch pipes to receive the water of entrainment or condensation therefrom, a riser communicating with said receiver and terminating in an open end, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

2. The combination, with a steam-generator and a series of radiators or other steam-using devices, of a steam-pipe leading from said generator to supply steam to said steam-using devices, an exhaust-pipe to receive the exhaust from said steam-using devices, a receiver in communication with said exhaust-pipe, a riser communicating with said receiver and terminating in an open end, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

3. The combination, with a steam-generator and a series of steam-using devices, of a steam-pipe leading from said generator to supply steam to said steam-using devices, an exhaust-pipe to receive the exhaust from said steam-using devices, an equalizing-pipe connecting said steam and exhaust pipes, a receiver in communication with said exhaust-pipe, a riser communicating with said receiver and terminating in an open end, a stand-pipe communicating with said riser, a condensing-chamber communicating with the upper end of said stand-pipe, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

4. The combination, with a steam-generator and a series of steam-using devices, of a steam-pipe leading from said generator to supply

steam to said steam-using devices, an exhaust-pipe to receive the exhaust from said steam-using devices, a receiver in communication with said exhaust-pipe and adapted to receive the water of condensation from all of said steam-using devices, an equalizing-pipe connecting said steam-pipe with said receiver, a riser communicating with said receiver and terminating in an open end, a stand-pipe communicating with said riser, a condensing-chamber communicating with the upper end of said stand-pipe, and a return-pipe leading from said stand-pipe to said generator and provided with a check-valve, substantially as described.

5. The combination, with a generator and series of steam-using devices, of a steam-pipe leading from said generator to supply steam to said steam-using devices, a receiver adapted to receive the water of condensation from said steam-using devices, and an equalizing-pipe connecting said receiver with said steam-pipe, substantially as described.

6. The combination of a receiver adapted to receive the water of condensation from a series of steam-using devices, a riser leading from said receiver and terminating in an open end, a stand-pipe communicating with said riser, and a condensing-chamber in communication with said stand-pipe, whereby the water of condensation from all of said steam-using devices will be first collected in said receiver, and will then be lifted up out of said receiver and into and through said riser, and accumulated in said stand-pipe to form a water column therein, substantially as described.

7. A steam and water receiver adapted to be connected to a steam-distributing system and provided at one end with an elongated vertically-arranged discharge-outlet whereby the water accumulating in the bottom of said receiver may be discharged through the lower end of said discharge-outlet while the steam may be discharged through the upper end of said outlet, and whereby the water-line in said receiver may be varied without entirely closing or sealing said outlet.

8. A steam and water receiver adapted to be connected to a steam-distributing system and provided at one end with an elongated vertically-arranged discharge-outlet, and with a neck arranged to cover said discharge-outlet, said neck being provided with an opening for the passage of steam and water therefrom, substantially as described.

9. The combination, with a generator and a series of steam-using devices, of a steam-pipe leading from said generator to supply steam to all of said steam-using devices, a receiver located below and adapted to receive the water of condensation from all of said steam-using devices, a return-passage leading from said receiver to said generator and embodying a riser, and a condensing-chamber located above the water-line of the generator and in communication with said return-riser, substantially as described.

10. The combination, with a generator and a series of steam-using devices, of a steam-pipe leading from said generator to supply steam to all of said steam-using devices, a receiver located below and adapted to receive the water of condensation from all of said steam-using devices, a return-passage leading from said receiver to said generator and embodying a riser, and means for inducing a flow of steam through the riser, substantially as described.

11. The combination, with a generator and a series of steam-using devices, of a steam-pipe leading from said generator to supply steam to all of said steam-using devices, a receiver located below and adapted to receive the water of condensation from all of said steam-using devices, a return-passage leading from said receiver to said generator and embodying a riser, said riser communicating with the receiver through an elongated vertically-arranged opening, and means for inducing a flow of steam through the riser, substantially as described.

12. The combination, with a steam-generator and a steam-pipe leading therefrom, of a series of branch pipes leading from said steam-pipe, a receiver in communication with all of said branch pipes to receive the water of entrainment or condensation therefrom, a riser communicating with said receiver and terminating in an open end, a stand-pipe communicating with said riser, a return-pipe leading from said stand-pipe to said generator, and means for inducing a flow of steam through the riser, substantially as described.

13 The combination, with a steam-generator and a steam-pipe leading therefrom, of a series of branch pipes leading from said steam-pipe, a receiver communicating with all said branch pipes to receive the water of condensation or entrainment therefrom, a riser terminating in an open end and communicating with said receiver through an elongated vertically-arranged opening, a stand-pipe communicating with said riser, a return-pipe leading from said stand-pipe to said generator, and means for inducing a flow of steam through said riser, substantially as described.

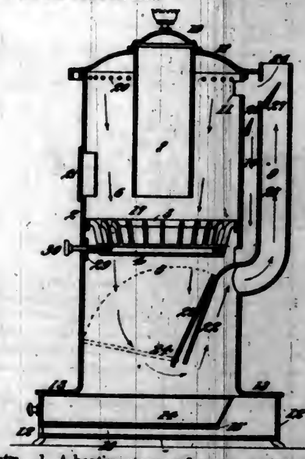
14. The combination, with a steam-generator and a series of steam-pipes communicating therewith, of a receiver in communication with all of said steam-pipes to receive the water of entrainment or condensation therefrom, a riser terminating in an open end and communicating with the receiver through an elongated vertically-arranged opening, a stand-pipe communicating with said riser, a condensing-chamber communicating with said stand-pipe, and a return-pipe leading from said stand-pipe to said generator, substantially as described.

15. The combination of a receiver, means for supplying steam to said receiver a riser leading from said receiver and communicating therewith through an elongated vertically-arranged opening, and means for inducing a flow of steam through the riser, whereby the water in the receiver is carried up in the riser with the steam, substantially as described.

16. The combination of a receiver, means for supplying steam to said receiver a riser leading from said receiver and communicating therewith through an elongated vertically-arranged opening, a condensing-chamber communicating with said riser, whereby steam is caused to flow through the riser and carry the water therewith, substantially as described.

REISSUES.

11,628. DOWNDRAFT STOVE OR FURNACE. EDWIN D. MCLEAN, Marion, Ill. Filed Apr. 22, 1897. Serial No. 633,411. Original No. 574,210, dated Dec. 29, 1896.



Claim.—1. A heating stove or furnace, consisting of a base, an ash-pan having air-circulating spaces at bottom and around the back and sides thereof, a casing above said base, a basket-grate and a shaking-grate supported in said casing, a fire-chamber above and a combustion-chamber below said grates arranged to be filled at the top thereof, a door opening into said fire-chamber, means for admitting air into the upper part of said fire-chamber, an auxiliary downdraft-passage leading from the upper part of said fire-chamber to the upper part of said combustion-chamber, a damper hung in said downdraft-passage arranged to open and close said passage, a partition situated below said dowdraft-passage lower opening extending across said combustion-chamber and to near the bottom thereof, a damper hung and arranged to connect the bottom of said partition and divide said combustion-chamber into an upper and lower compartment, an upper draft-passage leading from said lower compartment to the upper part of said furnace, a communicating passage between said auxiliary passage and said updraft-passage near the top thereof, and a damper arranged to either close said communicating passage or said draft-passage, substantially as and for the purpose shown and described.

2. The combination in a stove or furnace, of a casing, a fire-grate within said casing, a partition located beneath said fire-grate and extending downward to a point near the bottom of the combustion-chamber, a damper closing the space between said partition and the casing, an updraft-passage provided at the rear of the casing and opening into the combustion-chamber back of said partition, and opening into the flue, an auxiliary dowadraft-passage provided contiguous to said updraft-passage, a damper in said auxiliary dowadraft-passage, and a damper in said updraft-passage arranged to control either of said passages or the opening between said updraft-passage and said auxiliary dowadraft-passage, substantially as and for the purpose shown and described.

3. The combination in a stove or furnace, of a casing, a fire-grate within said casing, a partition located beneath said fire-grate and extending downward to a point near the bottom of the combustion-chamber, a damper closing the space between said partition and the casing, an updraft-passage provided at the rear of the casing and opening into the combustion-chamber back of said partition, and opening into the flue, a damper located in said passage, an auxiliary downdraft-passage provided with an opening into the fire-chamber above the grate and an opening into the combustion-chamber beneath the grate, and a damper located in said auxiliary passage, substantially as and for the purpose shown and described.

4. The combination in a stove or furnace of a casing, a fire-grate within said casing, a fire-chamber above said grate, a combustion-chamber below said grate, a partition in said combustion-chamber, an updraft-passage provided in connection with said casing and opening out of said combustion-chamber at the rear of said partition, and arranged to open into a flue, an auxiliary downdraft-passage provided in connection with said casing and opening out of said fire-chamber and opening into said combustion-chamber immediately beneath said grate above said partition, substantially as and for the purpose shown and described.

DESIGNS.

27,419. BADGE. ALBERT F. THOMSEN, Ackl, Iowa. Filed July 30, 1896. Serial No. 601,121. Term of patent 14 years.



Claim.—The design for a campaign-badge, substantially as herein shown and described.

27,420. BADGE-PIN. GEORGE E. DARLING, Providence, R. I. Filed Mar. 17, 1897. Serial No. 626,663. Term of patent 7 years.



Claim.—The design for a badge-pin, herein shown and described.

27,421. WATCH-CHARM, &c. SAMUEL STOPPLET, Kansas City, Mo. Filed Aug. 7, 1896. Serial No. 602,086. Term of patent 3½ years.



Claim.—The design for a watch-charm, pocket-piece or badge, substantially as herein shown and described.

27,422. GIRDLE. WILLIAM H. STARR, Decatur, Ill. Filed Mar. 1, 1897. Serial No. 625,671. Term of patent 3½ years.



Claim.—The design for a girdle as herein shown and described.

27,423. HAIR-PIN. ADOLPH KNIPPENBERG, Ichterhausen, Germany. Filed May 12, 1897. Serial No. 636,943. Term of patent 14 years.



Claim.—The design for a hair-pin as herein shown and described.

27,424. NOSE-CLAMP. LEON RAY, Warwick, England. Filed Feb. 17, 1897. Serial No. 623,891. Term of patent 14 years. Patented in England Oct. 20, 1896, No. 20,326; in France Apr. 23, 1896, No. 255,907, and in Germany Dec. 9, 1896, No. 97,992.



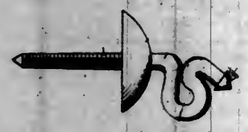
Claim.—The design for a nose-clamp, as herein described and shown.

27,425. SNAP-HOOK. WILLIAM J. WRIGHT, Pittsburg, Pa., and FRED C. DIETERICH, Washington, D. C.; said Dieterich assignor to said Wright. Filed Mar. 12, 1897. Serial No. 627,247. Term of patent 7 years.



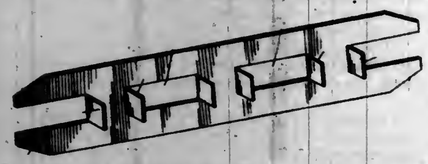
Claim.—The design for a snap-hook substantially as shown and described.

27,426. WINDOW-SHADE BRACKET. JAMES H. WALTERS and THOMAS P. BROWN, Harrisburg, Pa. Filed May 11, 1897. Serial No. 636,112. Term of patent 14 years.



Claim.—The design for a window-shade bracket, as herein shown and described.

27,427. NUT-LOCK. CHARLES C. PERRY, Olean, Mo. Filed May 3, 1897. Serial No. 634,951. Term of patent 7 years.



Claim.—The design for a nut-lock, as herein shown and described.

27,428. LOCK-PLATE. RICHARD W. OWEN, Glen Ellyn, Ill. Filed Apr. 30, 1897. Serial No. 634,649. Term of patent 7 years.



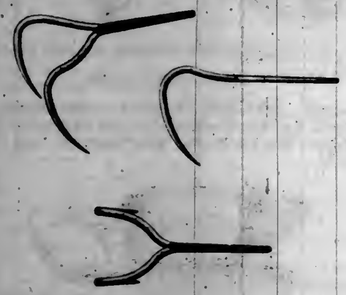
Claim.—The design for a lock-plate or escutcheon, as herein shown and described.

27,429. HORSESHOE-CALK. SAMUEL C. JONES, Maryville, Mo. Filed Apr. 26, 1897. Serial No. 634,044. Term of patent 7 years.



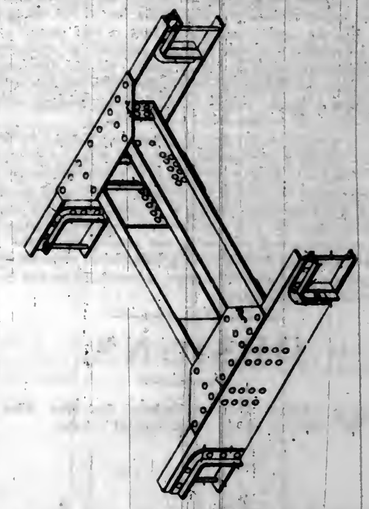
Claim.—The design for a horseshoe-calk, substantially as herein shown and described.

27,430. SUGAR-CANE HOOK. GEORGE ASHCOM BEALL, Velasco, Tex. Filed May 5, 1897. Serial No. 635,266. Term of patent 14 years.



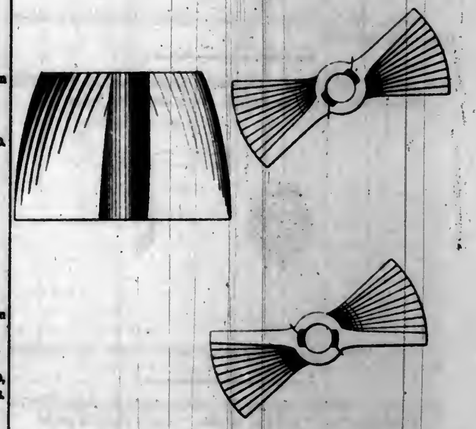
Claim.—The design for a sugar-cane hook substantially as herein shown and described.

27,431. METALLIC TRUCK-FRAME. LEWIS J. COX, Terre Haute, Ind. Filed June 14, 1897. Serial No. 640,783. Term of patent 14 years.



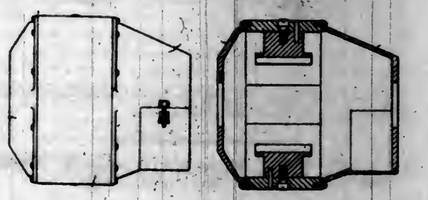
Claim.—The design for a metallic truck-frame, substantially as herein shown and described.

27,432. SCREW-PROPELLER. GEORGE H. BOSS, Philadelphia, Pa. Filed Feb. 11, 1897. Serial No. 623,003. Term of patent 14 years.

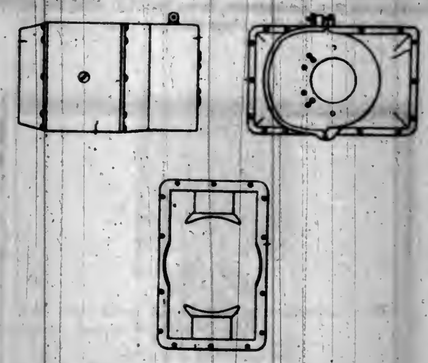


Claim.—The design for a screw-propeller as herein shown and described.

27,433. SHELL FOR ELECTRIC MOTORS. HARRY E. HEATH, Windsor, Conn., assignor to the Eddy Electric Manufacturing Company, same place. Filed June 15, 1897. Serial No. 640,963. Term of patent 7 years.

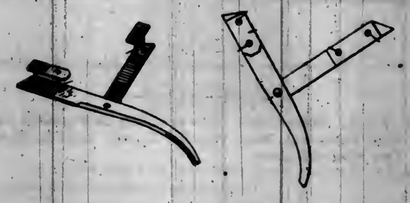


27,433.



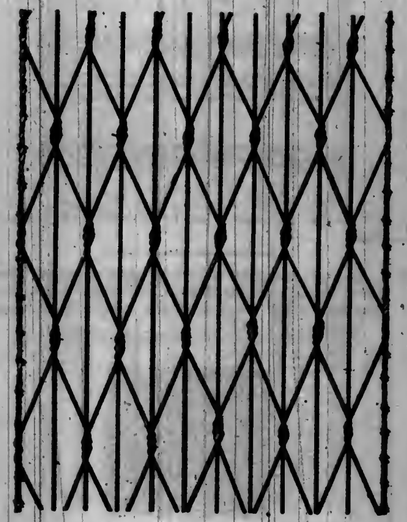
Claim.—The design for a shell for motor-carriage electric motors, herein shown and described.

27,434. CUTTER ATTACHMENT FOR PLOWS. JAMES C. HALL, Star Hill, La. Filed May 19, 1897. Serial No. 637,268. Term of patent 14 years.



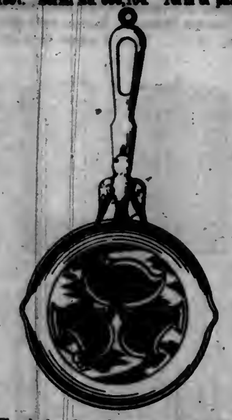
Claim.—The design for a cutter attachment for plows herein shown and described.

27,435. PATTERN FOR WIRE FENCING. ALVA I. KITSELMAN, Ridgeville, Ind. Filed June 16, 1897. Serial No. 641,070. Term of patent 7 years.



Claim.—The design for a wire-fence pattern, herein shown and described.

27,436. FRYING-PAN. RICHARD DEAN, Fall River, Mass. Filed May 11, 1897. Serial No. 636,104. Term of patent 7 years.



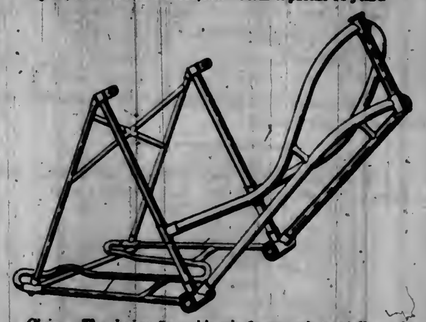
Claim.—The design for a frying-pan herein shown and described.

27,437. GEARING-COVER. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Apr. 26, 1897. Serial No. 634,049. Term of patent 14 years.



Claim.—The design for a gearing-cover for a vehicle-frame substantially as shown.

27,438. BICYCLE-FRAME. THOMAS S. CULP, Canton, Ohio. Filed Apr. 3, 1897. Serial No. 630,053. Term of patent 14 years.



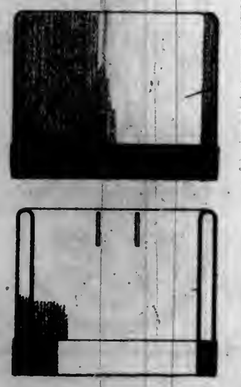
Claim.—The design for a bicycle-frame, substantially as herein shown and described.

27,439. WALL-SUPPORT FOR BICYCLES. HIRAM L. PITTS, Toronto, Canada. Filed May 5, 1897. Serial No. 635,263. Term of patent 7 years.



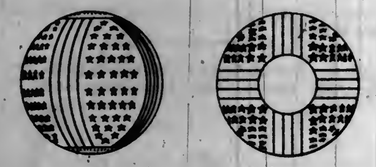
Claim.—The design for a bicycle-support, substantially as herein shown and described.

27,440. TOP FOR GOLF-STOCKINGS. TIMOTHY M. TWOMEY, New York, N. Y., assignor, by direct and mesne assignments, of two-thirds to Henry C. P. Koch and William G. Duncan, same place. Filed Apr. 1, 1897. Serial No. 630,312. Term of patent 3½ years.



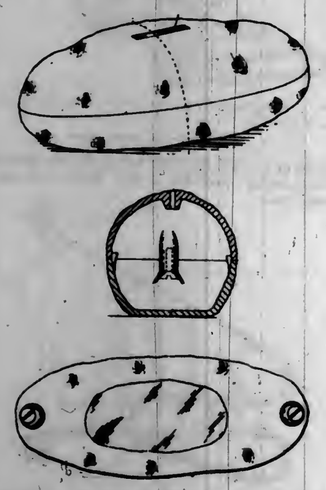
Claim.—The design for an ornamental top for golf-stockings, substantially as herein shown and described.

27,441. GOLF-BALL. WILLIE DUNN, Dobbs Ferry, N. Y. Filed May 15, 1897. Serial No. 636,900. Term of patent 7 years.



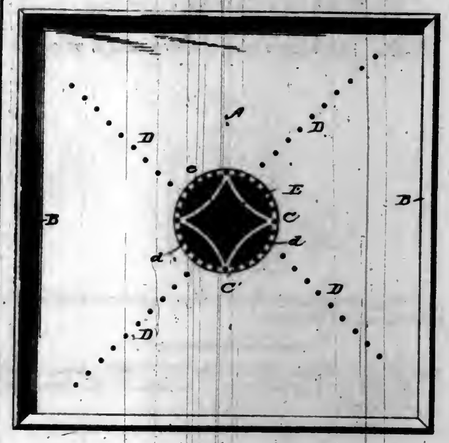
Claim.—The design for a ball, substantially as represented in the drawings and herein described.

27,442. TOY BANK. MARY A. MARTIN, Detroit, Mich. Filed June 17, 1897. Serial No. 641,205. Term of patent 7 years.



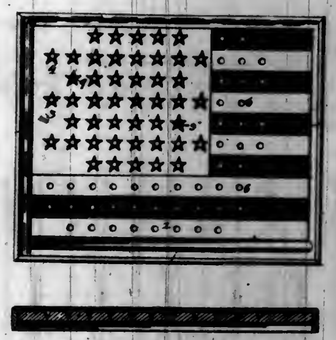
Claim.—The design for a toy bank substantially as herein shown and described.

27,443. GAME-BOARD. DANIEL KOEHLER, New York, N. Y., assignor to Montague Redgrave, Jersey City, N. J. Filed May 25, 1897. Serial No. 638,164. Term of patent 14 years.



Claim.—The design for a game-board herein shown and described.

27,444. GAME-BOARD. WALTER R. SMITH and WILLIAM M. HAMILTON, Marlborough, Mass. Filed May 10, 1897. Serial No. 635,942. Term of patent 3½ years.



Claim.—The design for a game-board substantially as shown and described.

27,445. SURFACE ORNAMENTATION OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed May 10, 1897. Serial No. 635,944. Term of patent 14 years.



Claim.—The design for the surface ornamentation of glass substantially as herein shown and described.

27,446. SURFACE ORNAMENTATION OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed May 10, 1897. Serial No. 635,945. Term of patent 14 years.



Claim.—The design for the surface ornamentation of glass substantially as herein shown and described.

27,447. SURFACE ORNAMENTATION OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed May 10, 1897. Serial No. 635,943. Term of patent 14 years.



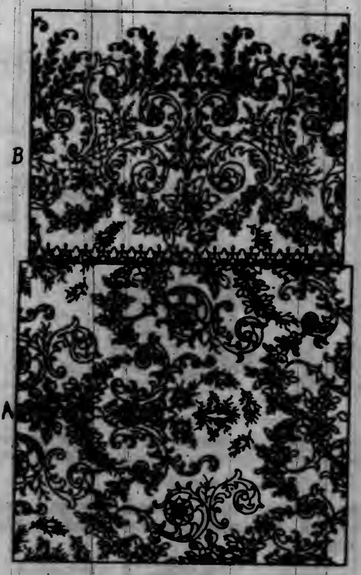
Claim.—The design for the surface ornamentation of glass substantially as herein shown and described.

27,448. TRIMMING. ISAAC A. BERNARD, Philadelphia, Pa., assignor to himself and Augustus A. Lehman, same place. Filed June 19, 1897. Serial No. 641,530. Term of patent 3½ years.



Claim.—The design for trimming, substantially as described and as shown in the accompanying drawings.

27,449. CARPET. JOSEPH S. WILMART, Brooklyn, N. Y., assignor to William James Hogg & Son, Worcester, Mass. Filed Feb. 10, 1897. Serial No. 622,261. Term of patent 3½ years.



Claim.—1. In a design for carpeting, the body A, substantially as shown.

2. In a design for carpeting, the border B, substantially as shown.

3. The design for carpets, consisting of the body A and the border B, substantially as shown.

27,450. CARPET. JOSEPH S. WILMART, Brooklyn, N. Y., assignor to William James Hogg & Son, Worcester, Mass. Filed Mar. 6, 1897. Serial No. 626,227. Term of patent 3½ years.



Claim.—1. In a design for carpeting, the body A, substantially as shown.

2. In a design for carpeting, the border B, substantially as shown.

3. The design for carpets, consisting of the body A and the border B, substantially as shown.

TRADE-MARKS

REGISTERED JULY 27, 1897.

30,428. BOOKS, PAMPHLETS, PAPER, AND ENVELOPES. AMERICAN NATIONAL RED CROSS, Washington, D. C. Filed June 26, 1897.



Essential feature.—A representation of a Greek cross, of red color, appearing upon a brassart. Used since August 22, 1864.

30,429. PENCILS, PENCIL ATTACHMENTS, PENS, AND OTHER STATIONERY. THE BLAISDELL PAPER PENCIL COMPANY, Philadelphia, Pa. Filed Mar. 8, 1897.

BLAISDELL PAPER PENCIL Co

Essential feature.—The words and abbreviation "BLAISDELL PAPER PENCIL Co.," with the initial letters "B" and "P" inclosed by an outline of a shield and the abbreviation "Co." also inclosed by the same figure. Used since October 20, 1896.

30,430. COTTON LININGS. F. A. FOSTER & Co., Boston, Mass., and New York, N. Y. Filed Apr. 17, 1897.

GIBRALTAR

Essential feature.—The word "GIBRALTAR." Used since April 1, 1897.

30,431. LAUNDRY STARCH. WALTER R. DONOVAN, New Haven, Conn. Filed July 2, 1897.



Essential feature.—A symbol composed of the body or figure of a Chinaman bearing in one hand a package on which are placed the words "CHINESE STARCH." Used since June 15, 1897.

30,432. CRABS, LOBSTERS, TURTLES, FROGS, OYSTERS, AND FISH, FRESH AND PROCESSED. CHARLES H. LOSTRITTER, Baltimore, Md. Filed May 7, 1897.

CHESAPEAKE'S BRAND

Essential feature.—The word "CHESAPEAKE" with an apostrophe and letter "s" (CHESAPEAKE'S) and the word "BRAND." Used since April 8, 1897.

30,433. CANNED MEATS, FRUITS, AND DAIRY PRODUCTS, SUCH AS BUTTER AND CHEESE. HENRY P. SCHELL, Norwich, Conn. Filed May 27, 1897.

DEL-HOFF

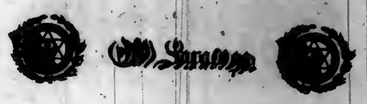
Essential feature.—The compound word "DEL-HOFF." Used since February 15, 1897.

30,434. CHEWING-GUM. THE GROVE COMPANY, Salem, Ohio. Filed Apr. 30, 1897.



Essential feature.—The words "YELLOW KID." Used since January 20, 1897.

30,435. WHISKY. ROSSKAM, GERSTLEY & Co., Philadelphia, Pa. Filed June 23, 1897.



Essential feature.—A representation of two seals with the words "OLD SARATOGA" between them. Used since August, 1878.

30,436. WHISKY, WINES, GINS, AND BRANDIES. ROSSKAM, GERSTLEY & Co., Philadelphia, Pa. Filed June 23, 1897.



Essential feature.—A circle inclosing the outline of a star, one-half of the circle being shaded. Used since August, 1878.

30,437. TOILET PREPARATIONS, INCLUDING SOAP, DENTIFRICE, AND HAIR RESTORATIVES. ROGER & GALLET, Paris, France. Filed June 26, 1897.

VERA ROSA

Essential feature.—The word "VERA-ROSA." Used since November 15, 1895.

30,438. TOILET PREPARATIONS, INCLUDING SOAP, DENTIFRICE, AND HAIR RESTORATIVES. ROGER & GALLET, Paris, France. Filed June 26, 1897.

ANTHEA

Essential feature.—The word "ANTHEA." Used since March 15, 1892.

30,439. TOILET RICE-POWDER. ROGER & GALLET, Paris, France. Filed June 26, 1897.



Essential feature.—The word "ANTHEA" upon a quadrangular label with rounded corners. Used since November 15, 1887.

30,440. COAL DERIVATIVES. THE GAS LIGHT AND COKE COMPANY, London, England. Filed Feb. 7, 1896.

BECKTON

Essential feature.—The word "BECKTON." Used since 1888.

30,441. SHAMPOO. CHICAGO VARNISH COMPANY, Chicago, Ill. Filed July 2, 1897.

STIKON

Essential feature.—The word "STIKON." Used since October 1, 1896.

30,442. PULLEY-COATING. O. C. LITTLE & M. M. SCHOUTE PULLEY COATING Co., Menasha, Wis. Filed May 13, 1897.



Essential feature.—The abbreviations and words "O. C. LITTLE'S ELECTRIC PULLEY COATING," printed upon a representation of a heavily-coated portion of a sample plate. Used since March 13, 1897.

30,443. ROOFING-CEMENT. FRANK W. TURPIN, New Orleans, La. Filed June 26, 1897.

MAGNO.

Essential feature.—The word "MAGNO." Used since May 25, 1897.

30,444. WALL PLASTER AND FINISH. ZENITH WALL PLASTER AND FINISH COMPANY, Minneapolis, Minn. Filed July 1, 1897.

ZENITH

Essential feature.—The word "ZENITH." Used since August 15, 1892.

30,445. RAT-POISON. NEWTON MANUFACTURING AND CHEMICAL COMPANY, Jersey City, N. J., and New York, N. Y. Filed July 1, 1897.

RAT CHEESE

Essential feature.—The words "RAT CHEESE" and a representation of a rat eating cheese from a box. Used since December, 1896.

30,446. LINIMENT FOR HORSES AND OTHER ANIMALS. LOUIS A. CROCCHELLO and FRANK CANAPA, Irvine, Cal. Filed July 2, 1897.

ECLIPSE

Essential feature.—The word "ECLIPSE." Used since January 1, 1893.

30,447. BICYCLES. THE THOMAS MANUFACTURING COMPANY, Springfield, Ohio. Filed May 13, 1897.



Essential feature.—A representation of the letter "S," a rectangular panel thereon, the words "THE NEW SPRINGFIELD" on the panel, and the associated name "THE THOMAS MFG. CO." on a loop of the letter. Used since November 15, 1895.

30,448. BICYCLES AND OTHER VELOCIPEDES. CLEMENT, GLADIATOR & HURRER, (FRANCE,) LIMITED, Paris, France, and London, England. Filed May 24, 1897.



Essential feature.—A pictorial representation of a cock-fowl in connection with the words, character, and abbreviation "CLEMENT" and "CLEMENT & Co., PARIS." Used since August, 1896.

30,449. BICYCLES, TRICYCLES, TANDEMS, AND GOODS OF IDENTICAL CHARACTER. THE SPENCER CYCLE COMPANY, New Castle, Ind. Filed June 23, 1897.

Alcazar

Essential feature.—The word "ALCAZAR." Used since September 20, 1893.

30,450. STEAM-TRAPS, FEED-WATER HEATERS, STEAM AND OIL SEPARATORS, EXHAUST-PIPE HEADS, AND LOW-WATER ALARMS. A. A. GRIFFING IRON COMPANY, Jersey City, N. J. Filed June 25, 1897.

HYDROX

Essential feature.—The word "HYDROX." Used since May 15, 1896.

30,451. INDICATORS FOR STEAM-ENGINES. CROSBY STEAM GAGE AND VALVE COMPANY, Boston, Mass. Filed Aug. 20, 1888.



Essential feature.—A representation of a shield, a pennon across it, two stars on the shield, and the name "CROSBY" on the pennon. Used since November, 1886.

PHOTO-LITH. WASHINGTON, D.C.
THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

GINDORFF *et al. v.* DEERING & Co. *et al.*

Decided March 1, 1897.

1. GINDORFF—SERRATOR FOR SICKLE-SECTIONS—VALID.

Letters Patent No. 524,965, granted to Matthew Gindorff August 21, 1894, for a method of and machine for serrating sickle-sections, examined and as to claim 1 thereof *Held* valid and infringed.

2. SAME—METHOD OF SERRATING SICKLE-SECTIONS—VOID.

Letters Patent No. 524,965, granted to Matthew Gindorff August 21, 1894, for a method of and machine for serrating sickle-sections, examined and as to claims 4 and 5 thereof *Held* void for lack of patentability, in view of *Risdon Iron and Locomotive Works* v. *Medart*, (71 O. G., 751; 158 U. S., 68.)

3. PROCESS—FUNCTION OF MACHINE—MANUAL OPERATION.

Where, except for the described functions of a machine, there is nothing stated in a claim save the manual transposition or turning of the articles undergoing operation, so that a fresh part may be treated, such transposition, superadded to the function of the machine, does not make the process which the patent law contemplates.

4. INVENTION—MECHANICAL SKILL.

Though a chuck at first sight seems to present nothing beyond a simple duplication of an old chuck, the fact that the single chuck was used for many years, while a need was felt for something to do the work which the double chuck now performs, and the further fact that defendants as soon as they heard of the improvement adopted it, are sufficient to establish original conception on the part of the inventor and not mere skill.

Messrs. Barton & Brown for the complainants.
Messrs. Banning & Banning for the defendants.

GROSSCUP, *J.*:

The bill is to restrain infringement of Letters Patent No. 524,965, issued to Matthew Gindorff August 21, 1894.

The defendants challenge the validity of the patent and deny infringement.

The invention relates to serrators for sickle-sections. The patent describes the previous art as follows:

Heretofore machines for this purpose have been constructed with a chuck adapted to hold in position a sickle-section, a pair of machine-actuated hammers with knife-edges being located one upon either side of the section and adapted to repeatedly strike the beveled edges thereof while being moved step by step from one end of the edge to the other, whereby a series of parallel indentations are formed in the beveled edges of the sections, the ends of the raised portion of the edge between the indentations projecting beyond the ends of the indentations to form teeth which constitute the cutting edge of the sickle-section. The hammer starts from the base end of the edge and travels toward the point of the section, and as the hammers would meet before the edges were completed if actuated simultaneously it has been customary to actuate one hammer at a time, thus entirely completing one edge of the section, and then after the hammer has been returned to its original position, the second hammer is started and completes the other edge.

There had also been previously an arrangement of machinery whereby two chucks, each adapted to a single sickle-section, were placed about three feet apart and the hammers actuated by machinery, as described above, and worked simultaneously upon the edges of these sections.

The complainant relies upon the first, fourth, and fifth claims, which are as follows:

1. In a serrator, the combination with a chuck adapted to maintain two sections in position side by side, of a serrating-tool adapted to be moved along the outer edge of one of said sections, a second serrating-tool adapted to be moved along the outer edge of the other section, and means for simultaneously moving said serrating-tools from the bases to the tips of the respective sections, or vice versa, substantially as described.

4. The method of serrating sickle-sections, which consists in maintaining the sections in position side by side, serrating the outer edges by machine-actuated serrating-tools, transposing the sections and then serrating in a similar manner the outer edges of the transposed sections, substantially as described.

5. The method of serrating sickle-sections, which consists in maintaining the sections in position side by side, simultaneously serrating one edge of each of the sections by machine-actuated serrating-tools, transposing the sections, and then simultaneously serrating in a similar manner the unserrated edges of the transposed sections.

The two last-mentioned claims are process claims. It is my opinion that under the case of *Risdon Iron & Locomotive Works* v. *Medart* (71 O. G., 751; 158 U. S., 68) these claims cannot be sustained. Except for the described functions of the machine there is nothing more stated in the patent than the fact of a manual transposition of the sickles after their outer edges have been serrated, so that the inner edges may undergo a like operation. Such transpositions, superadded to the functions of the machine, do not make the treatment and method or process or art such as the patent law contemplates.

The first claim is for a combination and depends upon whether the element of the combination described as a "chuck," adapted to maintain two sections in position side by side, is novel and patentable. Its novelty is not denied. The only serious question is whether it evinces invention or merely mechanical adaptation.

It is in a certain sense only the duplication of the old chuck, and seems very simple and obvious; but it must be remembered that the simple chuck was in use for many years, and that the need of some device whereby the two edges of the section could be serrated at the same time had been long felt and recognized. If this chuck were obvious to mere mechanical skill, why had not such skill, already called upon, supplied the need before? I fear that, under these circumstances, were I to hold it mere mechanical adaptation I would be considering myself a wiser and better mechanic than those who for years had overlooked this method of accomplishing a desirable result.

This opinion is reinforced by the fact that the defendants themselves immediately, on their attention being called to this device, recognized its value and importance and began negotiations for its acquirement. It seemed, doubtless, to them an important improvement, long needed but long overlooked. It is original conception, not skill, that supplies a remedy for a defect long but hitherto vainly looked for. The proof satisfies me that the defendants have used the combination described in the first claim.

A decree may therefore be entered in favor of the complainants upon the first claim, and dismissing the bill as to the fourth and fifth.

U. S. Circuit Court of Appeals—Sixth Circuit.

THOMSON-HOUSTON ELECTRIC COMPANY *v.* OHIO BRASS COMPANY *et al.*

Decided May 17, 1897.

1. VAN DEPOELE—SUSPENDED SWITCHES FOR ELECTRIC RAILWAYS—VALIDITY—PRIOR PATENT.

Letters Patent No. 424,695, granted April 1, 1890, to Charles J. Van Depoele, for improvements in suspended switches for electric railways, is not invalid because of the prior issuance of Patent No. 397,451, for certain improvements on the broad invention covered by the first-named patent, the application for which was filed more than a year before that of Patent No. 397,451.

2. SAME—SAME—SAME.

Letters Patent No. 495,443, granted April 11, 1893, to Charles J. Van Depoele, for improvements in suspended switches and traveling contacts for electric railways, not held invalid upon an appeal from a preliminary injunction heard upon affidavits and without a full review of the art because of the prior issuance to the same inventor of Patent No. 424,695, covering inventions of a similar character.

3. TWO PATENTS—EARLIER PATENT FOR IMPROVEMENTS—VALIDITY.

Where a patent for mere improvements was granted during the pendency of an earlier application for the broad invention, *Held* that a patent subsequently granted on the earlier application is not invalid, though the elements covered by its claims were shown and described but not claimed in the earlier patent. (Cases of *Suffolk* v. *Hayden*, 3 Wall., 315, and *Barbed Wire Patent*, 58 O. G., 1555; 143 U. S., 280, discussed.)

4. SAME—SAME—EXTENSION OF MONOPOLY—INFRINGEMENT—DAMAGES.

Where a patent for an improvement issues while the application for the broad invention is pending in the Patent Office, *Held* that the monopoly in the broad invention is not extended. The patent for the improvement expires in seventeen years. After that any one may use the improvement without infringing the patent issued upon it. If he uses the improvement without a license to use the main invention, he is liable for the infringement, not of the patent for the improvement, but of the patent for the main invention, and in estimating the damages for the same the value of the main invention, and not that of the improvement, would be the basis for estimating the damages.

5. SAME—SAME—SAME—PATENTS ISSUING TO DIFFERENT OR SAME PARTIES.

It can make no difference in considering this question whether the patent for the improvement issues to the patentee of the main invention or to another. The right of the public to use the improvement when the patent on it expires is exactly the same whether the patentees of the two inventions are the same or not, because in each case the improvement can only be used with the license of the patentee of the main invention.

6. PRELIMINARY INJUNCTION—APPEAL—WEIGHT OF DECISION OF LOWER COURT.

On an appeal from an order granting a preliminary injunction the case is ordinarily to be treated in the appellate court from the standpoint from which it was viewed by the circuit court, and the decision on the merits by a circuit court of another circuit sustaining the patent is therefore usually of controlling weight in the appellate court, as it should be in the court below.

7. CONTRIBUTORY INFRINGEMENT—SUPPLYING ELEMENT OF A COMBINATION.

Where one makes and sells one element of a combination covered by a patent, with the intention and for the purpose of bringing about its use in such a combination, he is guilty of contributory infringement and is equally liable to the patentee with him who in fact organizes the complete combination.

8. SAME—SAME—INTENT OF PARTY SUPPLYING ELEMENT—INJUNCTION.

Where a party makes a device which is adapted to be used only in a patented combination and is offering said device for sale to the public, he is legally presumed to intend the natural consequences of his act, and it is therefore *Held* that he intended that the device made should be used in the patented combination, and an injunction will be granted.

9. SAME—SAME—SAME—EFFECTIVE MODE OF PREVENTING INFRINGEMENT.

Many of the most valuable patents are combinations of nonpatentable elements, and the only effective mode of preventing infringement is by suits against those who by furnishing the parts which distinguish the combination make it possible for others to assemble and use the combination and who by advertisement of the sale of such parts and otherwise intentionally solicit and promote such invasions of the patentee's rights.

10. SAME—SAME—LIABILITY.

A party may furnish parts for repairing and renewing a patented combination; but when he does so he must ascertain, if he would escape liability for infringement, that the one buying and using them for this purpose has a license, express or implied, to do so.

APPEALS from the Circuit Court of the United States for the Northern District of Ohio.

STATEMENT OF THE CASE.

These are appeals in two patent cases between the same parties that present questions of such a similar character that they were argued together and may be properly disposed of in one opinion. The appeals are from orders of preliminary injunction made before a hearing upon the merits. The first case was a suit by the Thomson-Houston Electric Company to enjoin the alleged infringement by the Ohio Brass Company of United States Letters Patent No. 424,695, for certain new and useful improvements in suspended switches for electric railways, issued to Charles J. Van Depoele April 1, 1890, and assigned, by mesne assignments, to the complainant below. A preliminary injunction was issued against the making and selling by the defendant below of overhead conductor-switches for electric railways for use in the combinations covered by the third, fourth, and eleventh claims of the patent. The second case was a suit by the same complainant against the same defendant for an alleged infringement of United States Letters Patent No. 495,443, issued to Charles J. Van Depoele, for new and useful improvements in suspended switches and traveling contacts for electric railways, and assigned, by mesne assignments, to the complainant below. A preliminary injunction before the hearing on the merits was granted enjoining the defendant from the manufacture or sale of trolleys or trolley-bases intended to be used in the sixth, seventh, eighth, twelfth, or sixteenth claims of said patent. It appeared in the first case that in a suit before Judge Coxe, in the Northern District of New York, the validity of Patent No. 424,695 was in issue, and the validity of the claims here involved was sustained. (69 Fed. Rep., 257.) The cause was carried to the Circuit Court of Appeals for the Second Circuit, and the order of injunction, so far as the claims here involved were concerned, was affirmed, though the complainant was required to enter a disclaimer as to certain other claims in the patent—to wit, the second, ninth, and tenth—which disclaimer was duly made and filed in the Patent Office. (18 C. C. A., 145; 71 Fed. Rep., 396.) In the second case it appeared that the validity of Patent No. 495,443 had been at issue in a cause heard upon its merits and passed to final decree before Judge Townsend, in the District of Connecticut, and that the claims of the patent here involved were sustained.

There were two principal objections made in this court to the injunctions below. The first was that there was not any proof of actual infringement or of an intention to infringe the combinations covered by the claims set forth in the orders of injunction appealed from. The second objection was that the Patents Nos. 424,695 and 495,443 were both void, the latter because the former, a patent of earlier issue, was for the same invention, and the former because Patent No. 397,451, a still earlier patent issued to the same patentee, covered and was also for the same invention. Upon the first objection in the two cases the evidence was substantially the same. The claims in both patents covered combinations of parts used in an electric street-railway in which the track, the car, the overhead conductor and switches, and the trolley or contact device formed elements. The charge of infringement in the first case, involving Patent No. 424,695, was based on an admitted sale by defendant of an overhead switch, and the charge as to infringement of No. 495,443 was based on an admitted sale of a trolley, pole, and contact-wheel. The sales were made at the same time to an agent of the complainant. The agent of the defendant who sold says that he suspected that the purchaser was an agent of complainant. The memorandum of sale of these articles and receipt for the price, signed by defendant, were as follows:

MANSFIELD, OHIO, *Feb. 4, 1896.*

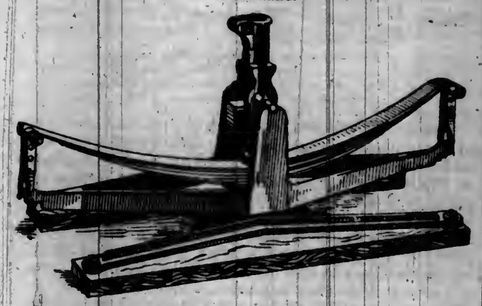
The Ohio Brass Co., sold to Edwin W. Hammer, Newark, N. J.

1 Str. Under-Running Adj. Switch, No. 1145 ..... $2 25
1-12 inch Pole Ohio Trolley Buck Harp T. H. Wheel 15 50
Paid.
Feb. 4, 1896.

THE OHIO BRASS CO.,
Per L. P. BENNETT,
Cashier.

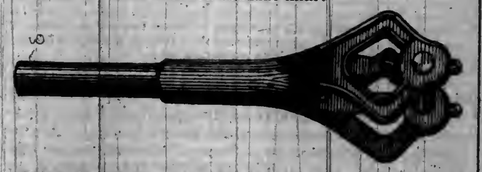
A book admitted to be a catalogue printed by defendant and circulated by it in the trade was offered in evidence. This purported on its face to be a catalogue of electric-railway material and supplies made by defendant and offered by it for sale generally to the trade. Below are excerpts from the catalogue containing illustrations of the articles exactly like those bought from the defendant by Hammer:

OHIO TROLLEY.



This trolley is one of the simplest and most effective on the market. It is made up of eight pieces, the working parts of which are made of steel, and malleable and wrought iron. The base and stand is three feet long, eight inches wide, and, when the trolley-pole is in a horizontal position, but thirteen inches high. The trolley-pole can be swung either forward or backward, or in a complete circle. It can be assembled or dismantled in a few minutes' time without the aid of tools. The tension on the pole is least when drawn down, and can be adjusted to suit, making it especially desirable for running under low structures.

BUCKEYE TROLLEY-HARP.



This style of harp is made for use with steel trolley-poles. It is light and strong in construction, and designed to avoid any danger from being caught by the overhead wires.

No. 1347—Harp complete, bronze ..... each $1 80
No. 1348—Harp complete, malleable iron ..... each 1 30
No. 1349—Contact-springs ..... each 09

STRAIGHT UNDERRUNNING ADJUSTABLE SWITCH.



These are similar in design to the Wood's adjustable switch, as shown on the preceding page, except that the tongues are so modified as to make a perfectly straight underrunning approach to the switch-pan for the trolley-wheel.

No. 1145—Two-way ..... each $5 50

There were also affidavits on information and belief introduced on behalf of complainant that two street-railway companies were using trolleys and switches bought from the defendant. Defendant filed counter affidavits, in which the defendant's agent selling the switch and trolley to the agent of complainant stated that he did not know that they were to be put to an unlawful use and denied that the defendant had sold switches or trolleys to the street-railway companies named in the complainant's affidavit; but there was no denial that the defendant had sold to others and no statement that such sales had been made only for use by licensees of complainant.

Patent No. 424,695 was applied for March 12, 1887, and was issued April 1, 1890. The inventor in the specification refers to his invention as follows:

My invention consists in certain devices and their relative arrangement by means of which a contact device carried by a rod or pole extending from the car and pressed upwardly into contact with the conductor is switched from one line to another correspondingly with the vehicle. * * * I also make claims in this application to a switch-plate particularly designed for the arrangement which forms the principal subject-matter of this application. More particularly my invention consists in a track-switch for the vehicle, a conductor-switch for the contact device or "trolley," as it is termed, and the trolley itself attached to the vehicle, these elements being so arranged relatively to one another that in operation the vehicle reaches the track-switch and is diverted laterally before the trolley reaches the conductor-switch, whereby the trolley, which partakes of the lateral movement of the vehicle, has imparted to it a laterally-moving tendency before its switch is reached, and it therefore passes through the switch in the proper direction, corresponding to the movement of the vehicle.

Fig. 1 is a side elevation of a car provided with my improved contact devices and otherwise embodying my invention.

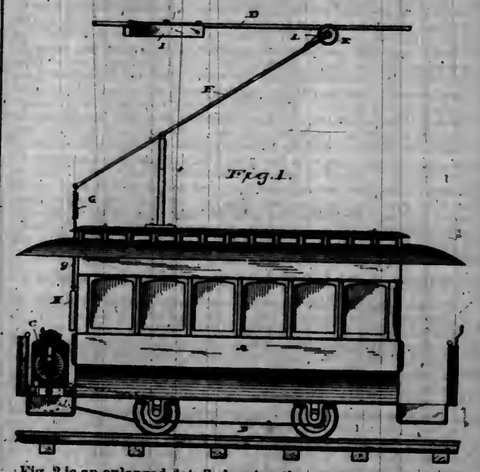


Fig. 2 is an enlarged detail showing the contact-wheel in position in the switch-box.



Fig. 4 is a top plan view of a portion of track, showing the conductor, the switch-box, and the rails.

Fig 4.

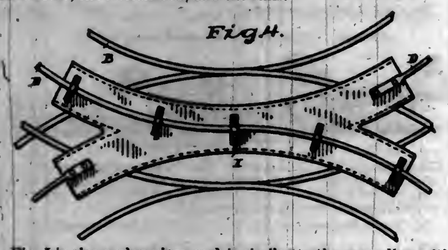
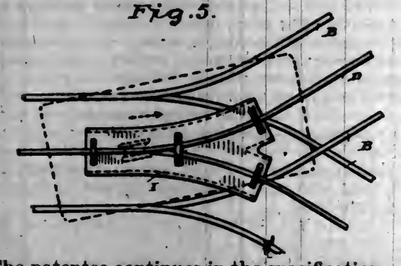


Fig. 5 is also a plan view, and is similar to the preceding with the addition of a car shown in dotted lines.

Fig. 5.



The patentee continues in the specification:

In order that the contact-wheel E shall be compelled to pass from one conductor to a branch or one attached thereto leading in a different direction, I provide the inverted open-bottom metallic boxes I, which are formed with branching compartments and constructed in the form of switches, conforming to the curves and angles of the track-switches by which the direction of the car is controlled. These boxes are in the form of open smooth curved passages and are free from obstructions within, so that the contact-wheel E, which is slightly depressed on meeting the end of the switch-box, may roll freely therethrough and move laterally therein in the desired direction without hindrance. Fig. 2 shows how the tips of the wheel-flange are received on the under surface of the switch-plate, and how that the depending edges or ribs on the side of the plate are separated a distance greater than the thickness of the contact-wheel, so that the latter is movable freely therein. The switch-box I may take almost any shape and may be made of thin sheet metal or of cast metal, as is most convenient; but I prefer castings. The electric switches I are to be placed directly over—that is to say, above—their counterparts. The track-switches and the contact-wheel, as before stated, are to be located so that as the front portion of the car swings in the desired direction as the front wheels pass the track-switch the contact-arm will be deflected and the direction of the wheel E correspondingly changed while still on the straight wire, so that on reaching the switch-box the wheel will be depressed and pass thereinto and naturally pass through and out of the proper compartment thereof. The switch-boxes I, being connected directly to the conductors D, are similarly charged, and when the wheel E is passing therethrough the current passes through the box I and thence into the contact-wheel through its flanges e, passing thence through the arm F or a separate conductor to the motor C. Since there are no moving tongues or springs or points to catch or impede the progress of the wheel when three or four grooves, as the case may be, exist in one switch-box, the wheel will intersect the grooves and pass along in the desired direction and go through without any difficulty whatever, its direction being previously indicated by the movement of the front portion of the car.

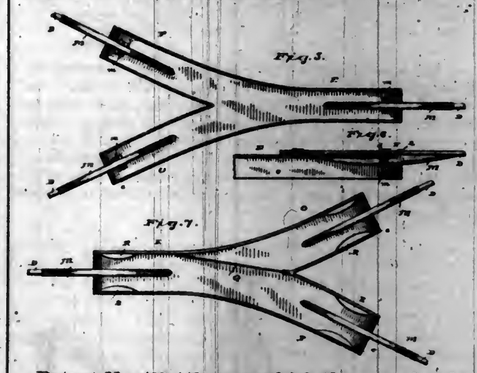
The claims here involved of the patent are:

8. The combination, with an overhead wire for receiving an underneath contact, of a switch-plate attached to the wire in about the same horizontal plane as the wire.

4. The combination of a track having switches, an overhead conductor above the track and having switches, and a car on the track provided with a contact-carrying arm arranged to engage the conductor at a point in rear of the front wheels of the car.

11. The combination, with an overhead line-wire, of a grooved contact device pressed against the wire and receiving the wire between the flanges of the groove, and a guiding switch-plate connected to the wire against which the said flanges bear in passing from one line to another.

The earlier patent claimed to avoid this one is No. 397,451 and was issued February 5, 1889. The application was filed November 12, 1888, more than a year after the filing of the application for Patent No. 424,695. The inventor states in his specification that the invention for which he seeks a patent is an improvement on the invention described in his application filed March 12, 1887, (on which Patent No. 424,695 afterward was issued.) The chief improvement consisted in providing the switch-boxes with ribs secured to the under side of the conductor a short distance in advance of where it enters the switch and continuing into the switch-box a short distance to guide the contact-wheel smoothly thereinto. The ribs are narrow tapering strips of metal rounded off toward their lower edges to fit the groove of the contact-wheel, and the lower edges are tapered from their longitudinal center toward each extremity. Another improvement is a narrowing of the passage-way at the extremities of the switch-boxes, so as to secure more firmly the movement of the contact-wheel in the center of the passage-way. Another improvement consisted in a device for lengthening and shortening the trolley-pole. The claims covered the new switch and combinations of the elements of the car, the track, the post, the pivotally-working trolley, the adjustable pole, and the tension-spring for maintaining contact, but each claim includes within its terms one or the other of the improvements above described. The drawings showing the improvements in switch-plates covered by Patent No. 397,451 are as follows:



Patent No. 495,443, upon which the second order of injunction appealed from was founded, is said to be void, because it covers the same inventions as Patent No. 424,695, already described. The two patents were issued upon the same application, filed March 12, 1887. An interference was declared and the application was divided the uncontested portion proceeding to patent and the remainder being delayed in the Patent Office until 1893, when a patent was also issued upon it. Patent No. 495,443 was intended to cover the main invention. In its specification the inventor says:

My present invention relates to electric railways of the class in which a suspended conductor is used to convey the working current, a traveling contact carried by the car for taking off the current for use in operating the motor by which the car is propelled, and the return-circuit completed through the rails.

The invention consists more particularly in an improved traveling contact and in improved arrangement and construction of the switches by which the said traveling contact is directed onto the proper conductor. These devices for switching the traveling contact from one conductor to another have been already claimed in my Patent No. 424,695, which was issued as a division of this application on April 1, 1890. I therefore do not lay claim to them herein, but the description and illustration of them is retained to show how my traveling contact is adapted to meet one of the essential requirements of railway service without special arrangements or other complications.

He then describes in the same language the same devices and combinations of parts with the same drawings which appear in the specification of Patent No. 424,695, except that he adds three drawings not substantially different from those in the prior patent, but which show the construction in a little more detail. He omits from the specification in the later patent the following words, which were in the prior patent, and which refer to the use of the spring and weight used to hold the contact device against the conductor:

And while the arm F is movable laterally with respect to the vehicle the spring and weight will constantly tend to restore the arm to its normal central position and assist in causing the contact-arm to partake of the lateral movement of the vehicle—

and also the statement that by reason of the weight "the [contact] wheel has a much greater range of action."

The claims relied on by the complainant below, and upon which the injunction was granted, were as follows:

6. In an electric railway, the combination with a suitable track and a supply-conductor suspended above the track, of a car provided with a swinging arm carrying a contact device in its outer extremity and means for imparting upward pressure to the outer portion of the arm and contact, to hold the latter in continuous working relation with the under side of the supply-conductor, substantially as described.

7. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, a swinging arm supported on top of the car, a contact device carried by one extremity of the arm and held thereby in contact with the under side of the electric conductor, and a tension device at or near the other end of the swinging arm for maintaining said upward contact, substantially as described.

8. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, an arm pivotally supported on top of the car and provided at its outer end with a contact engaging the under side of the suspended conductor, and a tension-spring at or near the inner end of the arm for maintaining said upward-pressure contact, substantially as described.

12. In an electric railway, the combination with a car, of a post extending upward therefrom and carrying a suitable bearing, an arm or lever carrying at its outer end a suitable contact-roller and pivotally supported in said bearing, and provided at its inner end with a tension-spring for pressing the outer end of the lever carrying the contact-wheel upward against a suitably-suspended conductor, substantially as described.

16. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, an arm pivotally supported on top of the car and provided at its outer end with a grooved contact-wheel engaging the under side of the suspended conductor, and a tension-spring for maintaining an upward-pressure contact with the conductor, substantially as described.

The claims of Patent No. 424,695, which are relied on by the defendant to show that it covers the same invention as Patent No. 495,443, are as follows:

15. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, a contact-carrying arm pivotally supported on top of the car and provided at its outer end with a contact-roller engaging the under side of the suspended conductor, and a weighted spring at or near the inner end of the arm for maintaining said upward contact, substantially as described.

16. In an electric railway, the combination of a car provided with a pivoted arm, as F, having a contact at its outer extremity, a tension-spring, as G, attached at its inner extremity, and a vertically-moving weight connected to said spring for holding the same in operative relation to the arm throughout its entire range of movement, substantially as described.

17. In an electric railway, the combination of the car having suitably-pivoted arm F, carrying a contact-wheel at its outer extremity, a spring G, secured to its lower extremity, and a connection extending from said spring and provided with a weight at its lower end, substantially as described.

31. In an electric railway, the conibination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of a trailing arm having a grooved contact-wheel at its outer end and moving laterally relatively to the vehicle, but provided with a spring tending to retain it in its normal central position.

32. In an electric railway, the combination, with an overhead conductor and a vehicle, of a trailing contact-arm guided at its outer end by the overhead conductor, and movable laterally relatively to the vehicle, but having a normal centralizing tendency by means of a spring or weight.

33. In an electric railway, the combination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of an upwardly-pressed trailing arm having a grooved contact-wheel at its outer end by which it is guided by the conductor, the said arm being free to swing laterally relatively to the vehicle, but tending to remain in its normal central position by means of a spring or weight.

34. The combination, with a vehicle and an overhead conductor, of a trailing contact-arm guided normally by the conductor, but having a spring connection with the vehicle tending constantly to maintain it in a definite position, while at the same time it is free to swing laterally with respect to the vehicle against the pressure of the said spring.

35. In an electric railway, the combination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of a rearwardly-extending arm guided at its outer extremity by engagement with the conductor and movable laterally relatively to the vehicle, but having a spring or weight tending to restore it to its normal central position.

Before TAFT, LURTON, and CLARK, Judges.

Mr. Frank T. Brown for the appellants.

Mr. Frederic H. Betts and *Mr. F. P. Fish* for the appellee.

TAFT, *J.*, (after stating the facts as above:)

The catalogue of the defendant shows that it is offering for sale to the public without restriction the switch and trolley to be used as part of the equipment of an electric street-railway. Defendant has not shown, and we infer from the evidence that it cannot be shown, that either the switch or trolley and harp can be used in an electric railway except in the combinations described and claimed in the two patents here in suit. The third claim of Patent No. 424,695 is for a combination of an overhead wire for receiving an underneath contact and a switch-plate attached to the wire in about the same horizontal plane as the wire. The description of the article sold by the defendant in its catalogue is that of an "underrunning adjustable switch," and it is said to make a perfectly straight underrunning approach for the trolley-wheel. It is apparent that the switch-plate has no practical utility except in such an arrangement of parts as that stated in the third claim. The same thing is true of the fourth and eleventh claims of that patent. The sixth claim of Patent No. 495,443 is a combination, in an electric railway, of (1) a suitable track, (2) a supply-conductor suspended above the track, (3) a car provided with (4) a swinging arm carrying (5) a contact device in its outer extremity, and (6) means for imparting upward pressure to the outer portion of the arm and contact to hold the latter in continuous working relation with the under side of the supply-conductor. The evidence sufficiently shows that neither the trolley nor the harp is adapted to be used on electric street-railways except in the above combination. Purchasers buy articles for practical use, and would only buy the switch and trolley, therefore, for use in complainant's patented combinations. One is legally presumed to intend the natural consequences of his act. Hence the defendant in offering the switch and trolley for sale to the general public may be reasonably held to intend that they should be used in combinations in an electric railway covered by the claims of complainant's patents.

It is well settled that where one makes and sells one element of a combination covered by a patent, with the intention and for the purpose of bringing about its use in such a combination, he is guilty of contributory infringement and is equally liable to the patentee with him who in fact organizes the complete combination. The leading case on the subject is *Wallace* v. *Holmes*, (1 O. G., 117; 9 Blatchf., 65; 29 Fed. Cas., 79.) It was cited with approval in *American Cotton Tie Co.* v. *Simmons*, (22 O. G., 1976; 106 U. S., 89; 1 Sup. Ct., 52,) and the same doctrine was applied and extended by this court in *Heaton-Peninsular Button-Fastener Co.* v. *Eureka Specialty Co.* (78 O. G., 171; 77 Fed. Rep., 288) to a case where the article sold was not even an element of the patented combination, but

was an article the use of which in connection with patented combination was a violation of the conditions of a license and destroyed the protection the license would otherwise have afforded. The cases in the circuit courts where the same general principle has been applied are legion. We cite a few of them: *Bowker* v. *Dows*, (15 O. G., 510; 3 Fed. Cas., 1070;) *Richardson* v. *Noyes*, (10 O. G., 507; 20 Fed. Cas., 723;) *Travers* v. *Beyer*, (26 Fed. Rep., 450;) *Willis* v. *McCullen*, (38 O. G., 1017; 29 Fed. Rep., 641;) *Alabastine Co.* v. *Payne*, (35 O. G., 1438; 27 Fed. Rep., 559;) *Celluloid Manufacturing Co.* v. *American Zylonite Co.*, (40 O. G., 1453; 30 Fed. Rep., 437.) The contention of the counsel for the defendant, if we understand it, is that the effect of the decision of the Supreme Court in the case of *Morgan Envelope Co.* v. *Albany Perforated Wrapping Paper Co.* (67 O. G., 271; 152 U. S., 425; 14 Sup. Ct., 627) is to do away altogether with the doctrine of contributory infringement.

If this is a proper reading of the judgment of the Supreme Court in that case, it was a somewhat startling departure from previously-understood principles in the law of torts. An infringement of a patent is a tort analogous to trespass or trespass on the case. From the earliest times all who take part in a trespass, either by actual participation therein or by aiding and abetting it, have been held to be jointly and severally liable for the injury inflicted. There must be some concert of action between him who does the injury and him who is charged with aiding and abetting before the latter can be held liable. When that is present, however, the joint liability of both the principal and the accomplice has been invariably enforced. If this healthful rule is not to apply to trespass upon patent property, then, indeed, the protection which is promised by the Constitution and laws of the United States to inventors is a poor sham. Many of the most valuable patents are combinations of non-patentable elements, and the only effective mode of preventing infringement is by suits against those who by furnishing the parts which distinguish the combination make it possible for others to assemble and use the combination and who by advertisement of the sale of such parts and otherwise intentionally solicit and promote such invasions of the patentee's rights. The *Morgan Envelope Company Case*, so far from departing from the doctrine of contributory infringement, expressly recognizes it and the authorities in which it is announced and enforced. The Court held, however, that the doctrine of contributory infringement could not apply in a case in which the claim of the patent embraces a machine and something to be treated thereby which is perishable in its nature and the alleged infringer furnishes the latter element to be used with the machine and consumed. Whether this holding is really a limitation upon the doctrine of contributory infringement or is to be regarded only as in effect deciding that such combinations are impossible in a patent may admit of question.

In *Heaton-Peninsular Button-Fastener Co.* v. *Eureka Specialty Co.* (78 O. G., 171; 77 Fed. Rep., 288) this court was obliged to consider with much care the *Morgan Envelope Case*. After quoting at length from Mr. Justice Brown's opinion, Judge Lurton, speaking for this court, said:

> It is true that Mr. Justice Brown, in discussing the question involved in that case, assumes that a combination of the machine for delivering the paper with the paper to be delivered was valid. But, before he finishes the argument, he shows that the assumption leads to an absurdity; and the decision, in effect, is that form of argument known as the *reductio ad absurdum*, establishing that his original assumption was not founded in reason. The illustration of the result of such a combination shows that what the Court was deciding was that a combination of the machine with an unpatentable paper or material to be operated upon by the machine was an impossibility, and the sale of the machine involved and implied the right of use of the material with which it was to be combined; and this is shown by the case of *Wilson* v. *Simpson*, (9 How., 109,) which is cited by Mr. Justice Brown as a case sustaining his conclusion. * * * Thus, with respect to the paper-holder, the Supreme Court in effect held that the sale of the paper-fastener with the paper in it contained the implication of a right to renew the paper when that paper sold should be exhausted, and did not require the purchase of the paper from the original patentee, the paper itself not being patented.

We are very clearly of opinion that the *Morgan Envelope Company Case* does not affect the question of contributory infringement before us.

It is said that no concert of action by defendant with any one for the purpose of accomplishing an infringement of complainant's patent-rights is shown. As already stated, it does appear that defendant is offering for sale articles that can only be used in combinations covered by complainant's claims. This is an effort to secure a concert of action by which the combinations of complainant's patents may be assembled. If successful, infringement will follow. Hence the preliminary steps which are intentionally taken to bring about the injury may be enjoined.

In considering the same point in *Wallace* v. *Holmes* (29 Fed. Cas., 79) Judge Woodruff said:

> Here the actual concert with the other is a certain inference from the nature of the case, and the distinct efforts of the defendants to bring the burner in question into use, which can only be by adding the chimney. The defendants have not, perhaps, made an actual prearrangement with any particular person to supply the chimney to be added to the burner; but every sale they make is a proposal to the purchaser to do this, and his purchase is a consent with the defendants that he will do it, or cause it to be done.

Now it is suggested that defendant had the right to sell parts to be used in complainant's combinations to the licensees of complainant and to those who, having once bought the articles of the combination from the complainant, it is said, have the implied right to repair and renew parts worn out with use. It being established that defendant is offering for sale articles, intending them to be used in combinations which, if unlicensed by complainant, would be infringements of complainant's patents, we think that it is the duty of the defendant to see to it that such combinations which it is intentionally inducing and promoting shall be confined to those which may be lawfully organized. We are unable to see why any different rule should be applied in such a case from that applicable to a case in which a defendant makes a patented machine to order. He may make such a machine upon the order of the patentee or a licensee, but not otherwise. Upon him is the peril of a mistake as to the lawful authority of him who gives the order. So he may knowingly assist in assembling, repairing, and renewing a patented combination

by furnishing some of the needed parts; but when he does so he must ascertain, if he would escape liability for infringement, that the one buying and using them for this purpose has a license, express or implied, to do so.

What we have said has application only to cases in which it affirmatively appears that the alleged infringer is offering the parts with the purpose that they shall be used in the patented combination. We have found that it does so appear here and is a matter of certain inference from the circumstance that the parts sold can only be used in the combinations patented. Of course such an inference could not be drawn had the articles the sale or offering of which was the subject of complaint been adapted to other uses than in the patented combination. In the latter case the intention to assist in infringement must be otherwise shown affirmatively, and cannot be inferred from the mere fact that the articles are in fact used in the patented combinations or may be so used. If defendant avers that he is selling to express or implied licensees of the patentee, the injunction should be granted in such form as shall permit the continuance of these lawful sales. In the case at bar the circuit court offered thus to modify the order; but the defendant declined to apply for the modification. It is hardly in a position now to assign for error the failure of the court to insert such a modification.

The conclusion we have reached as to contributory infringement is supported by the decison of the Circuit Court of Appeals of the Second Circuit on similar facts in *Thomson-Houston Electric Co.* v. *Kelsey Electric Railway Specialty Co.*, (76 O. G., 2008; 22 C. C. A., 1; 75 Fed. Rep., 1005,) affirming an order of injunction by Judge Townsend in the circuit court. Judge Wallace dissented; but we think the reasoning of the majority more satisfactory. The learned dissenting judge likened the case to one in which the seller of wire or rails should be enjoined from selling them because the articles might be used in any unlawful combination on an electric railway. Such articles could of course be used in so many lawful ways other than in the combinations of the patent that it would be quite unlikely that the sellers could have an intention to promote infringement of particular patents in their sale, and it would be most difficult to prove such intention; but where the article can only be used in a patented combination the inference of the intention of the maker and seller is certain, and the right of the patentee to injunction ought, we think, to be equally certain.

We come now to the second assignment of error in these cases—namely, that the patents relied on are void because the inventions covered by them were patented in prior patents to the same patentee. The circumstances make this question different, as it arises on the two patents, and we shall first consider whether Patent No. 424,695 is void by reason of the prior issue of Patent No. 397,451. We are clearly of opinion that it is not. The application for No. 424,695 was filed more than a year before that for the Patent No. 397,451. The inventor expressly states in his specification in No. 397,451 that his invention is an improvement on the switch and trolley devices and combinations shown in the application which subsequently resulted in Patent No. 424,695. An examination of the drawings and specification leaves no doubt that this statement is true. With respect to the switch or switch-plate in the patent of later application and earlier issue the inventor added to the simple switch-box center ribs and side contractions of the extremities of the passage-ways for the purpose of more certainly directing the trolley-wheel in entering and leaving the switch in the way in which it should go. With respect to the trolley-arm the improvement consisted in making it of adjustable length. The claims, all of them, include and refer to one or the other of these improvements. Now it is not material to this discussion whether these improvements are patentable or not. They are expressly claimed as improvements and no attempt is made by the patentee to cover anything but them. If inventions at all, then they are separable from the old switch and trolley combinations, and if they are not inventions the patents are void and cover nothing.

Since the case of *O'Reilly* v. *Morse* (15 How., 61, 121, 133) it has been well settled that a patent may issue for an improvement on an earlier invention either to the original inventor or to a stranger. Of course no one can use the improvement without right or license to use the fundamental invention; but, on the other hand, the right to use the original invention does not confer the right to use the improvement without license from the tributary inventor. We do not understand this general doctrine to be denied; but it is said that if, by some chance, the application for the fundamental patent is delayed in its course through the Patent Office until a patent on the avowed improvement has issued then the patent on the fundamental invention is void. In cases where the delay in the issuing of the patent for the main invention cannot be charged to the laches or fraud of the patentee such a rule would be a hard one, and unless it is required by the express words of the statute or by the express holding of the Supreme Court we should be inclined, if possible, to avoid declaring it to exist. The contention of counsel for the defendant in this behalf instead of having the support of the authority of the Supreme Court is in the teeth of two decisions of that tribunal.

In *Suffolk Co.* v. *Hayden* (3 Wall., 315) an inventor applied for a patent on improvements in the interior arrangements of an elongated trunk previously in use for cleaning cotton. While this application was pending he applied for an improvement on the form of the trunk—*i. e.*, its external form—and in his second application he described the improvement in the interior arrangements of the trunk without making any claim as to it. A patent issued on the second application before one was issued on the first, and the point at issue before the Court was whether the prior pat-

ent on the later application describing but not claiming the improvement for which a patent had first been applied for avoided the later patent on the earlier application for this improvement, and it was held that it did not. In disposing of the contention that the second patent was void the Supreme Court said:

> The first point of the plaintiff in error is that the description in the patent of March, of the improvement patented the December following, and on which the present suit is brought, and omission to claim it in such earlier patent, operated as an abandonment or dedication of it to the public, and that for this reason the subsequent patent of 1st December was void. But the answer to this ground of defense is that it appeared that Hayden, the patentee, had pending before the Commissioner of Patents an application for this same improvement at the time he described it in the specification of the 17th of March, which was doubtless the reason for not claiming it in this patent. The description in no sense affected this application thus pending before the Commissioner, and, while it remained before him, repelled any inference of abandonment or dedication from the omission to again claim it.

The same question arose again in the *Barbed-Wire Patent Case*, (58 O. G., 1555; 143 U. S., 280; 12 Sup. Ct., 443, 450,) and is stated and disposed of in Mr. Justice Brown's opinion in that case as follows:

> The application for the patent in suit was filed October 27, 1873, though the patent was not issued until November 24, 1874. Subsequent to the application for this patent, and on March 14, 1874, Glidden filed an application for an improvement in wire-stretchers for fences, upon which a patent was issued May 12, 1874. It is not perceived how this patent could affect in any way the pending application for the later patent. The patentee abandoned nothing he had claimed before, but sought, as an improvement upon the former, to claim a slotted tube midway between the posts, in which was put a coil-spring to spread the wires, and automatically tighten them, and keep them at the proper tension, as against expansion by heat and contraction by cold. If the later application had covered the same invention as the prior application for the November patent, the later patent might have been void, under our ruling in *Suffolk Co.* v. *Hayden*, (3 Wall., 315;) but this claim was for a combination of wires with the slotted tube, containing a coiled spring, and perched upon a post. In this application he makes no mention whatever of barbs as a feature of his claim, although in describing his invention he mentions the use of two wires, provided at suitable intervals with spurs coiled around them, and which are spread apart between the coils to keep the latter from moving longitudinally upon the wires. But he says of these spurs: "I do not claim to have originated the devices known as 'spurs' or 'prongs' on the wires, they having been used before, but confine myself to the means for holding the spurs at proper intervals on the wires, and to the means for attaining a uniform tension of the wires, as claimed." This disclaimer, it will be observed, is of spurs or prongs generally (not of the coiled barb either alone or in combination with the twisted wires) and is made with reference to that application only. It is true that this patent was subsequently reissued with a broadly-expanded claim for a combination with a fence-wire of a barb formed of a short piece of pointed wire, secured in place upon the fence-wire, by coiling between its ends, forming two projecting points; but this reissue was held to be unwarranted and void in *Manufacturing Co.* v. *Fuchs*, (16 Fed. Rep., 661, 667.) This attempted reissue, however, did not in any way affect his original application, which stood upon its own merits, and, after being rejected and amended three times, was finally passed with a claim substantially identical with the first claim of the original application, and the patent granted. In legal effect this was a prior patent, since the date of the application, and not the date of the patent, controls in determining the legal effect to be given to two patents issued at different dates to the same inventor, and the order in which they are to be considered. In any event, the reissue in 1876 of one patent would not affect another patent granted in 1874.

It will be observed that the case at bar is stronger than either of the cases cited, because in the application for the patent on the improvement not only is no claim made for the main invention, but the applicant expressly states that he has an application pending for the main invention necessarily described in describing the improvement, but not claimed, and thus shows beyond peradventure that he has no intention of abandoning or dedicating to the public his main invention. The authority and effect of these two cases counsel for defendant seeks to meet by the claim that the ground upon which he contends that the second patent in the cases before the court must be void was not presented to the court and was not considered by it. He says that the second patent for the main invention is void, not because it was dedicated to the public in the first patent, but because the effect of the second patent is to extend the monopoly of the first patent beyond the statutory period. The argument runs thus: The monopoly of the first patent, the one for the improvement, can legally be of no longer duration than seventeen years; but the improvement cannot be used except as applied to the main invention, and as the later patent (the one for the main invention) does not expire until some time after the expiration of the patent for the improvement the monopoly of the improvement patent is in fact extended until the expiration of the later patent (the one for the main invention) and so exceeds the statutory seventeen years. It may be conceded that it is doubtful whether the case of *Suffolk Co.* v. *Hayden* on its facts presented the question thus raised by counsel, because the two patents there under consideration were improvements on different parts of the same machine, and it did not appear that the earlier patent might not have been used without also using the later patent, and possibly the same thing is true of the *Barbed-Wire Patent Case*. However this may be, we cannot yield to the argument based on such a distinction, because we cannot accept its minor premise—to wit, that the later granting of the patent for the main invention extends the monopoly of the earlier improvement patent. The patent for the improvement expires in seventeen years. After that any one may use the improvement without infringing the patent issued upon it. If he uses the improvement without a license to use the main invention, he is liable for the infringement, not of the patent for the improvement, but of the patent for the main invention, and in estimating the damages for the same the value of the main invention, and not that of the improvement, would be the basis for estimating the damages.

It can make no difference in considering this question whether the patent for the improvement issues to the patentee of the main invention or to another. The right of the public to use the improvement when the patent on it expires is exactly the same whether the patentees of the two inventions are the same or not, because in each case the improvement can only be used with the license of the patentee of the main invention. If the patentee of the improvement is a stranger to the main invention, it is manifest that he can derive no benefit from the limitation upon the use of his invention after his patent expires because of the patent on the main invention. Why, then, does he derive an advantage if he happens to own the main patent? The only advantage conferred by the issue of the patent for the main invention is the legitimate monopoly for the statutory period of that invention and of no other. Did the personality of the owner of two different patents affect the validity of either then the anomalous result would follow that the owner of one patent would avoid it

by acquiring ownership of another. According to the argument of counsel the patentees of the earlier improvement patent and of the later main patent being the same person the main patent is void. Let us suppose that they were different persons, but that, by mesne assignments, the two patents became the property of one person. The effect upon the public use of the improvement patent is exactly the same as if the now owner had been the inventor and patentee of both. Does the unity of title avoid the main patent, which was valid before? It must do so if the argument of counsel for defendant in this behalf is to be followed, for the effect of the unity of title is "to extend the monopoly" of the earlier improvement patent in the sense in which counsel uses that phrase. To our minds this conclusion is *reductio ad absurdum*. The fact that a patent for an improvement may expire before the patent for the main invention is the result of several circumstances—one that a patent may be taken out for an improvement on a patentable invention, another that there is no limitation by statute upon the time within which a patent may issue upon an application after it is filed, provided the applicant is not guilty of violating the two years' restriction imposed by the statute, and a third that the counsel of an application for a generic or broad invention may legitimately take longer in its course through the Patent Office than a comparatively unimportant improvement on that invention.

The case upon which counsel for defendant chiefly relies to support his argument is *Miller* v. *Manufacturing Co.*, (66 O. G., 845; 151 U. S., 186; 14 Sup. Ct., 310,) where it was held that when two patents issued to the same patentee for the same invention the second patent was void for the reason that the new or later patent would prolong the monopoly beyond the period allowed by law. As pointed out by Mr. Justice Jackson, this was not a new doctrine, and found support in a number of earlier cases cited by him. The patents under consideration in that case were for a peculiar form of spring which when connecting the plow-beams of a plow with the upright portion of the axle assisted the operator in lifting the plow-beams when above the level and in depressing them when below it, and the patent first issued covered the spring thus used. The spring thus used had the additional function of increasing its lifting force and action the higher the beams were raised. The second patent was taken out to cover this feature of the spring. In effect the only difference between the patents was that the earlier patent covered a spring with both a depressing and a lifting function, while the second patent covered exactly the same spring with a lifting function increasing in force as the spring rose above the level. Now the function of the spring described in the second patent was necessarily present in the spring as it was shown in the earlier patent, for no change in form of the spring was suggested in either patent by which it might serve the purpose and claim of the first patent and discharge the functions therein described without also at the same time discharging the function which was supposed to distinguish the second patent and its claim from the first. In other words, the division of the original application into two patents was nothing more than an attempt to patent as two separate inventions the same device when discharging different functions. The opinion of Mr. Justice Jackson distinctly recognizes that—

> where the second patent covers matters described in the prior patent, essentially distinct and separable from the invention covered thereby and claims made thereunder, its validity may be sustained—

and—

> that an inventor may make a new improvement on his own invention of a patentable character, for which he may obtain a separate patent—

and—

> that a later patent may be granted where the invention is clearly distinct from and independent of one previously patented.

It is of course true that if an improvement is an invention separable from the generic invention the latter is an invention distinct and separable from the improvement. Hence it follows from the propositions above quoted from the opinion in the case of *Miller* v. *Manufacturing Co.* that a patent for a generic invention is not avoided by the fact that a prior invention has been issued for a distinct improvement on that invention, provided always that the language of the application for the first patent and the circumstances of filing it are not such as to dedicate the generic invention to the public. The case of *Miller* v. *Manufacturing Co.*, therefore, instead of sustaining the claim made for it, is distinctly an authority to the contrary. We are of opinion that Patent No. 424,695 is not rendered void by Patent No. 397,451. We are strongly fortified in this conclusion by the most satisfactory opinion of Judge Wallace, speaking for the Circuit Court of Appeals of the Second Circuit, upon exactly the same question, (*Thomson-Houston Electric Co.* v. *Elmira & H. Ry. Co.*, 18 C. C. A., 145; 71 Fed. Rep., 396,) affirming the decree of Judge Coxe in the circuit court in the same case. (74 O. G., 144; 69 Fed. Rep., 257.)

We come now to the question whether Patent No. 495,443 is rendered void by the prior issue of Patent No. 424,695. This presents much more difficulty than the question just disposed of. In this case the drawings and specifications of the two patents are substantially alike, and show a car, a track, a post on top of the car, a swinging and hinged arm pivoted in the post, with a contact-wheel at its outer end. A spring is secured to the lower end of the swinging arm, and to the spring is attached a weight which works in suitable vertical grooves down through the roof to the front platform, within reach of the driver. The swing and weight maintain the contact of the outer end of the swinging arm with the overhead conductor. Switches in the overhead conductor are maintained immediately over the point in the track where track-switches occur. The trolley post and arm are in such positions and of such size that the point of contact of the outer end of the arm and the overhead conductor is back of the front wheels of the car. This is for the purpose of imparting to the trolley-wheel as it enters the switch in the overhead conductor the direction already taken by the

front wheels of the car in entering the switches upon the track. The spring and weight working in vertical grooves are intended to keep the trolley-arm in the vertical plane of the longitudinal center of the car and thus to make its contact-wheel more certain to follow in the overhead switch the direction of the car as it turns into a track-switch. It is shown by the evidence that the inventor first used in his combination a spring attached to the top of the car to secure contact, and then a spring attached to the foot of the trolley-post, and finally the spring and weight arrangement shown in the drawings of the patents. The claims of the second patent in question are for the broad claims of a combination, in an electric railway, of a car, a track, an overhead conductor, a post and swinging hinged arm on the car, and a tension-spring for maintaining contact between the arm and the conductor, and the language of the specification shows that it was the intention of the inventor to make this cover the generic invention.

The claims of the first patent that embrace the whole combination include the weight as part of the means for maintaining upward pressure of the arm against the conductor. There are five claims of the first patent that cover the whole combination and include a spring or weight to perform the function of keeping the trolley-arm in the center line of the car. Now this same spring and weight in the drawings discharge the function of maintaining the upward pressure of the swinging arm. The contention of the counsel for the complainant is that the first patent was a patent for the special and improved form of the invention, including the spring and weight with their upward pressure and centralizing tendency, and that the second patent, though using the same drawings and specification, shows by the language of the latter and its claims that it was intended to cover, and did cover, a combination with a spring without a weight in such a position that it need only discharge the function of maintaining the upward pressure of the arm without the centralizing tendency, and that the modification of the drawings and specification to show such a tension-spring is only the work of a skilled mechanic.

To the objection that the last five claims of the earlier patent are exactly the same as the broad claims of the later patent with the mere statement of a necessary centralizing function of the same spring always present in it, it is answered that the second patent was intended to cover springs that had no centralizing tendency, and that the use of the function in describing the spring therefore is a limitation of the claim showing it to be a special form of spring. It is argued, therefore, that, as the claims of the first patent do not cover any of the broad claims of the second patent based on a simpler combination of parts than that shown in the drawings, the second patent may be held to be a separate generic invention, while the earlier patent is merely for improved forms of the same invention entitled to a separate patent. We think the case on these two patents much nearer *Miller* v. *Manufacturing Co.* than the case on the two patents already considered, but we are unwilling, upon an appeal from a preliminary injunction heard upon affidavits and without a full review of the art and without a fuller argument and closer consideration of the claims and specification, to decide the question mooted. The questions are whether, in determining the separability of the inventions, we may consult evidence *dehors* the record, and whether, in considering the gist of the second patent, we may supply such variations in the form of the combination shown in the drawings and specification suggested by mere mechanical skill as would make it one not covered by the first patent, but a simpler and more generic form, and whether the claims of the second patent are limited to the devices actually shown by the words "substantially as described."

The main invention is confessedly a meritorious one, and we shall be loath to declare it void because of a mistake in the Patent Office proceedings, if we can by any reasonable construction of the patents do otherwise. The second patent was sustained as valid after a full hearing on the merits before so good and experienced a patent judge as Judge Townsend of Connecticut. (*Thomson-Houston Electric Co.* v. *Winchester Ave. Ry. Co.*, 73 O. G., 2155; 71 Fed. Rep., 192.) This certainly justified the court below in assuming the validity of the patent on a motion for preliminary injunction. It is well settled that on appeals like this this court will ordinarily look into the case merely to see whether the discretion of the court below in issuing or withholding the order of preliminary injunction has been abused, and that only in exceptional cases in which a controlling question of law may be as fully and fairly considered as upon final hearing, and the court has no doubt upon it, will it finally dispose of the injunction and the case on a hearing like this. (*Duplex Printing-Press Co.* v. *Campbell Printing-Press & Manufg. Co.*, 16 C. C. A., 220; 69 Fed. Rep., 250; *Mayor, etc.*, v. *Africa*, 23 C. C. A., 252; 77 Fed. Rep., 501.) Questions on appeals of this character are ordinarily to be treated in this court from the standpoint from which they were viewed by the circuit court, and the decision on the merits by a circuit court of another circuit sustaining the patent is therefore usually of controlling weight here, as it should be in the court below.

In an appeal from a preliminary injunction on this same patent the Circuit Court of Appeals of the Second Circuit affirmed the order without examining or deciding the validity of the patent, justifying its course in this regard by the statement that in another cause, heard upon a voluminous record by Judge Townsend, the patent had been sustained. (*Thomson-Houston Electric Co.* v. *Kelsey Electric Railway Specialty Co.*, 76 O. G., 2008; 22 C. C. A., 1; 75 Fed. Rep., 1005.)

The orders of preliminary injunctions appealed from in both cases are accordingly affirmed, at the costs of the appellant, the defendant below.

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[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 27, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that the order of April 20, 1894, disbarring Christian Quien, of Danbury, Conn., from practice before this Department and its Bureaus has this day been revoked.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

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Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1895. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1895, to October 1, 1896. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1896, to March 1, 1895. One volume, 26 pages. Paper covers, 25 cents.

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Print.

No. 53.—Title: "AMERICAN BEAUTY." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed July 2, 1897.

Issue of August 3, 1897.

Patents	396	No. 587,292 to No. 587,687, inclusive.
Designs	46	No. 27,451 to No. 27,496, inclusive.
Trade-Marks	32	No. 30,452 to No. 30,483, inclusive.
Labels	None.	
Prints	1	No. 53.
Reissues	1	No. 11,624.
Total issue	476	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	....	New Hampshire	1	1
Arizona Territory	....	....	New Jersey	13	2
Arkansas	1	....	New Mexico Territ'y	2	....
California	15	1	New York	68	8
Colorado	3	....	North Carolina	....	....
Connecticut	28	....	North Dakota	1	....
Delaware	1	....	Ohio	20	3
District of Columbia	4	....	Oklahoma Territ'y	1	....
Florida	1	....	Oregon	1	1
Georgia	2	....	Pennsylvania	44	5
Idaho	....	....	Rhode Island	1	....
Illinois	58	2	South Carolina	....	....
Indian Territory	....	....	South Dakota	5	....
Indiana	9	....	Tennessee	....	....
Iowa	4	1	Texas	5	....
Kansas	8	....	Utah	....	....
Kentucky	2	....	Vermont	2	....
Louisiana	2	1	Virginia	6	....
Maine	1	....	Washington	4	....
Maryland	7	....	West Virginia	....	1
Massachusetts	44	2	Wisconsin	12	1
Michigan	12	....	Wyoming	....	....
Minnesota	9	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	13	....	Total to citizens of the United States	404	30
Montana	....	....			
Nebraska	3	1			
Nevada	....	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Mexico	1	....
Australia	....	....	Netherlands	1	....
Austria-Hungary	....	....	Newfoundland	....	....
Barbadoes	....	....	New South Wales	....	....
Belgium	1	....	New Zealand	....	....
Bermuda	....	....	Norway	....	....
Brazil	....	....	Orange Free State	....	....
Canada	8	....	Portugal	....	....
Canary Islands	....	....	Queensland	....	....
Cape Colony	....	....	Russia	....	....
Chile, Republic of	....	....	Scotland	2	....
China	....	....	South African Republic	....	....
Cuba	....	....	Spain	....	....
Denmark	....	....	Sweden	1	....
England	10	2	Switzerland	1	....
Finland	....	....	Venezuela	....	....
France	4	....	Victoria	2	....
Germany	5	1	West Australia	....	....
Guatemala	....	....	Total to citizens of foreign countries	38	3
Hawaii	....	....			
Ireland	1	....			
Italy	1	....			

APPLICATIONS UNDER EXAMINATION.

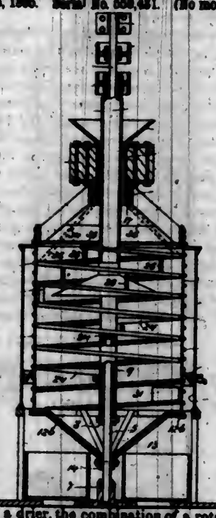
Condition at Close of Business July 27, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	June 26	July 15	191
106	II. Farm Stock, Products, etc.	June 28	July 10	297
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	June 30	July 2	133
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 26	June 21	423
	Between one and two months.			
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	May 29	July 17	243
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 7	July 9	243
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 1	July 8	245
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 9	July 3	229
93	XXI. Textiles, etc	June 1	July 1	219
255	XII. Mechanical Engineering, Store-Service, etc.	June 11	June 30	314
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 18	June 28	119
215	XVII. Paper Manufactures and Printing.	June 1	June 28	202
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 21	June 26	195
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	June 14	June 26	290
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 5	June 25	286
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 11	June 23	210
250	VIII. Furniture, Beds, Store Furniture, etc.	June 18	June 22	409
231	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 18	321
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 4	June 16	423
	Between two and three months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 15	July 15	183
248	XVIII. Steam-Engineering, etc.	Apr. 29	July 12	370
108	XIX. Stoves and Furnaces	May 6	July 6	406
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	May 21	June 28	191
120	IX. Hydraulics, Fire-Extinguishers, etc.	May 18	June 25	251
246	I. Tillage and Fences	May 20	June 17	321
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 26	June 7	467
253	X. Carriages and Wagons	May 15	June 1	413
240	VII. Velocipedes	May 5	June 1	1197
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Apr. 26	May 25	286
122	XXIV. Sewing-Machines, Apparel, and Toilet.	May 18	May 18	246
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 20	May 11	154
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	577
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	June 1	959
	Total number of applications awaiting action			11,913
	Under one month in arrears.			
	Designs	June 23	July 7	263
	Trade-Marks	July 9	July 16	110

PATENTS

GRANTED AUGUST 3, 1897.

587,292. CENTRIFUGAL DRIER. DAVID AIKMAN, St. Lambert, Canada, assignor of two-fifths to Theodore Doucet, Montreal, Canada. Filed Aug. 16, 1886. Serial No. 559,451. (No model.)



Claim.—1. In a drier, the combination of a rotating distributer, a cylindrical sieve encircling such distributer and rotating independently thereof, the speed of rotation of the distributer being faster than that of the cylindrical sieve; an inner main shaft on which such cylindrical sieve is carried and an outer tubular shaft on which the distributer is carried, a helix located in close proximity to the inside face of such cylindrical sieve and within said open space and intermediate of the distributer and cylindrical sieve, and means for operating the shafts of such distributer and cylindrical sieve at different speeds for the purpose set forth.

2. In a drier, the combination of a rotating distributer, a rotating cylindrical sieve encircling such distributer and forming an open unobstructed space between such distributer and cylindrical sieve and throughout the interior length of the cylindrical sieve, a helix located in close proximity to the inside face of such cylindrical sieve and within such open space, and means for operating such distributer and cylindrical sieve, for the purpose set forth.

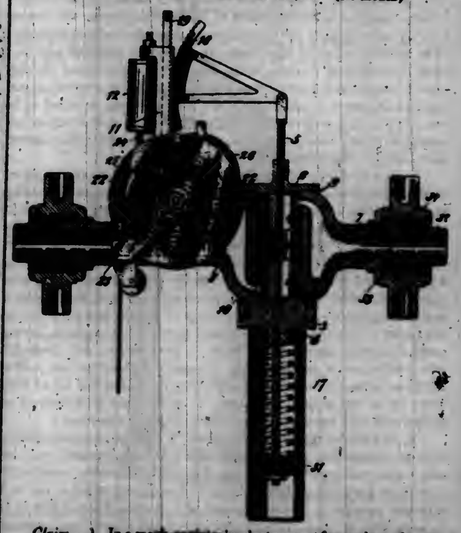
3. In a drier, the combination of a rotating distributer, a rotating perforated cylindrical sieve encircling such distributer and forming an open unobstructed space between such distributer and cylindrical sieve and throughout the interior length of the cylindrical sieve, a helix located in close proximity to the inside face of such cylindrical sieve and within said open space and intermediate of the distributer and cylindrical sieve, an inner main shaft on which such cylindrical sieve is carried and an outer tubular shaft on which the distributer is carried, with means for operating such shaft, a wall encircling such cylindrical sieve and means for operating the shafts of such distributer and cylindrical sieve at different speeds, for the purpose set forth.

4. In a drier, the combination of a rotating conical distributer, a rotating cylindrical sieve encircling such distributer, and forming an open unobstructed space between such distributer and cylindrical sieve and throughout the interior length of the cylindrical sieve, a wall encircling such cylindrical sieve, a helix located in close proximity to the inside face of such cylindrical sieve and within such open space and intermediate of the distributer and cylindrical sieve and means for operating such distributer and cylindrical sieve, for the purpose set forth.

5. In a drier, the combination of a rotating distributer, a rotating cylindrical sieve encircling such distributer and forming an unobstructed space between such distributer and cylindrical sieve and throughout the interior length of the cylindrical sieve, an inner main shaft on which such cylindrical sieve is carried and an outer tubular shaft on which the distributer is carried with means for operating such shaft, a wall encircling such cylindrical sieve, a rotatable helix in the form of an open helix freely working within such open space above and intermediate of the distributer and cylindrical sieve and the periphery of which is located in close proximity to the inside face of such cylindrical sieve and means for operating such distributer, cylindrical sieve, and helix, for the purpose set forth.

6. In a drier, the combination of a conical distributer secured rigidly upon a hollow shaft, a cylindrical sieve, encircling such distributer secured rigidly to a shaft partially within such hollow shaft and forming an unobstructed open space between such distributer and cylindrical sieve and throughout the interior length of the cylindrical sieve, a stationary wall encircling such cylindrical sieve, a rotatable open helix freely working within such open space and intermediate of the distributer and cylindrical sieve and connected to such hollow shaft, the periphery of such helix being located in close proximity to the inside face of such cylindrical sieve, and means for operating such distributer, cylindrical sieve and helix; for the purpose set forth.

587,293. WORK-REGISTERING INSTRUMENT. WALTER O. AMLER, Pittsburg, Pa., assignor to Schaffer & Budenberg, New York, N. Y. Filed Aug. 1, 1896. Serial No. 601,209. (No model.)



Claim.—1. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith and arranged to have two motions, one a rolling motion along the cylinder and parallel to the axis thereof, and the other a rotary motion about a radial axis which swings with the rolling of the segment, whereby the distance from the point of contact between the segment and cyl-

inder to the said axis about which the segment rotates is varied, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod arranged when the piston reciprocates to impart to the spherical segment one of its said motions, a spring opposing the movement of said piston, and a driving device, arranged to be driven from a moving part of the engine, and arranged when operated to impart to the spherical segment the other of its said motions, substantially as described.

2. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, mounted in a carriage arranged to roll the segment along the cylinder and parallel to the axis thereof, said segment being arranged also to have a rotary reciprocating motion about a radial axis which swings with the rolling of the segment, whereby when the segment rolls the distance from the point of contact between the segment and cylinder to the said axis is varied, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod arranged when the piston reciprocates to impart to the spherical segment one of its said motions, a spring opposing the movement of said piston, and a reciprocating driving device, arranged to be connected to and reciprocated by an indicator-rig on the engine, and arranged when reciprocated to impart to the spherical segment the other of its said motions, substantially as described.

3. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, mounted in a carriage arrranged to roll the segment along the cylinder and parallel to the axis thereof, said segment being arranged also to have a rotary reciprocating motion about a radial axis which swings with the rolling of the segment, whereby when the segment rolls the distance from the point of contact between the segment and cylinder to the said axis is varied, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod connected to said carriage and arranged to operate the same, a spring opposing the movement of said piston, and a driving-drum, arranged to be connected to and reciprocated by an indicator-rig on the engine, and arranged when it reciprocates to reciprocate the spherical segment about its axis, substantially as described.

4. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, rotatably mounted in a carriage movable in a direction parallel to the axis of the cylinder and having a gear having the same radius as the spherical segment and meshing in a rack the pitch-line of which is tangent to the cylinder at the point of contact of the segment therewith, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod pivotally connected to said carriage at a point corresponding to the center of the sphere of which said segment is a segment, whereby when said piston reciprocates the segment is caused to roll along the integrating-cylinder, a spring opposing the movement of said piston, and a driving-drum, arranged to be connected to and reciprocated by an indicator-rig on the engine, and arranged, when so reciprocated, to reciprocate the spherical segment about its axis, substantially as described.

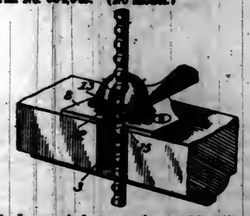
5. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, rotatably mounted in a carriage arranged, when operated, to roll said segment along the cylinder and in a direction parallel to the axis thereof, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod connected to the carriage and arranged to operate the same, a spring opposing the movement of said piston, a segmental gear, pivoted to said carriage at a point corresponding to the center of the sphere of which said segment is a segment, having teeth engaging corresponding teeth on the segment, and arranged, when reciprocated, to reciprocate the segment about its axis, a driving-drum arranged to be connected to and reciprocated by an indicator-rig on the engine, and means for causing the driving-drum to reciprocate said segmental gear, substantially as described.

6. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, rotatably mounted in a carriage arranged to roll said segment along the cylinder and in a direction parallel to the axis thereof, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod connected to said carriage and arranged to operate the same, a spring opposing the movement of said piston, a segmental gear, pivoted to said carriage at a point corresponding to the center of the sphere of which said segment is a segment, having teeth engaging corresponding teeth on the segment, and arranged when reciprocated, to reciprocate the segment about its axis: a driving drum arranged to be connected to and reciprocated by an indicator-rig on the engine, and a rack-bar, arranged to be reciprocated by said driving-drum, and engaging teeth on said segmental gear the pitch-circle of which has a radius equal to the radius of the spherical segment, substantially as described.

7. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith, mounted in a carriage arranged to roll the segment along the cylinder and parallel to the axis thereof, said segment being arranged also to have a rotary reciprocating motion about a radial axis which swings with the rolling of the segment, whereby when the segment rolls the distance from the point of contact between the segment and cylinder to the said axis is varied, and a spring pressing said spherical segment against said cylinder, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod arranged when the piston reciprocates to impart to the spherical segment one of its said motions, a spring opposing the movement of said piston, and a reciprocating driving device, arranged to be connected to and reciprocated by an indicator-rig on the engine, and arranged, when reciprocated, to impart to the spherical segment the other of its said motions, substantially as described.

8. In a work-registering instrument for engines, the combination, with an integrating device comprising a revolubly-mounted cylinder and a spherical segment in contact therewith and arranged to have two motions, one a rolling motion along the cylinder and parallel to the axis thereof, and the other a rotary reciprocating motion about a radial axis which swings with the rolling of the segment, whereby the distance from the point of contact between the segment and cylinder to said axis about which said segment rotates is varied, of a steam-cylinder adapted to be connected to the engine-cylinder and having a piston and a piston-rod arranged when the piston reciprocates to impart to the spherical segment one of its said motions, a spring opposing the movement of said piston, a reciprocating driving device, arranged to be connected to and reciprocated by an indicator-rig on the engine, and arranged when reciprocated to impart to the spherical segment the other of its said motions, and a registering device, operated by said integrating-cylinder, and arranged to register the revolutions thereof, substantially as described.

587,294. ADJUSTABLE SASH-LOCK. ADDIS J. ASHLEY, Chicago, Ill., assignor of one-half to Jesse L. Hentz, same place. Filed Sept. 2, 1896. Serial No. 604,643. (No model.)



Claim.—1. In a sash-fastener, the combination with a guide-rod supported upon one window-sash, of a locking device coöperating with the guide-rod, said locking device comprising a head having a vertical recess for reception of the guide-rod and an intersecting horizontal segmental recess, and a locking-piece embracing the head having a rotary reciprocating movement in the horizontal recess and adapted to be moved into and out of engagement with the guide-rod, substantially as described.

2. In a sash-fastener, the combination with a guide-rod supported upon one window-sash, of a locking device coöperating with the guide-rod, said locking device comprising a head having a vertical recess for reception of the guide-rod and an intersecting horizontal segmental or forked recess, and a segmental locking-piece embracing the head received in said horizontal recess and adapted to reciprocate therein the arms of said locking-piece being left separated, substantially as described.

587,295. NON-REFILLABLE BOTTLE. EDWARD C. BARTLETT, Lorain, Ohio. Filed June 26, 1896. Serial No. 597,052. (No model.)

Claim.—1. A device of the class described comprising a bottle provided with a frangible ligament and having an inner groove 5 and an exterior groove 12, upper and lower corks arranged within the neck of the bottle and forming an intermediate sample-chamber, a shield located above the lower cork and interlocked with the groove 5, an elastic ring seated in the exterior groove 12 of the neck and located at a point below the frangible ligament, and an inverted cup covering and protecting the frangible portion of the neck and frictionally engaging the elastic ring whereby it is retained in place, substantially as described.

2. In a non-refillable bottle, a bottle-neck provided with a frangible ligament at an intermediate point, and a cork arranged within the neck of the bottle below the plane of the ligament, an upper cork closing the top opening to the neck, the space between the two corks forming an intermediate sampling-chamber 9, an inverted cup fitting tightly over the upper portion of the neck of the bottle and extending down and around the neck, covering the frangible portion thereof and contacting with the neck below said frangible portion, the said cup being adapted to be readily removed without the breaking of the neck and when in position serving as a protecter for the latter, all substantially as described.



587,296. ELECTRIC BALE-TIE MACHINE. WILLIAM O. BATTY and WILLIAM J. HUTCHINS, Joliet, Ill. Filed Mar. 8, 1897. Serial No. 626,542. (No model.)



Claim.—1. In a machine for the manufacture of bale-ties, means for supporting and intermittently advancing one or more wires; means for severing the wire or wires into suitable lengths; means for bending the wire end or ends to form a loop or loops thereon; and electrodes arranged to grasp the coinciding wire parts of the loop or loops during a period of time sufficient to electrically weld said coinciding parts together, substantially as set forth.

2. In a machine for the manufacture of bale-ties, a tension device through which a plurality of wires are drawn; a multiple of wire-bending devices arranged to engage and bend the wire ends to form loops thereon; electrodes arranged to contact the coinciding wire parts of said loops during the period of time an electric current is applied to weld said coinciding parts together; a multiple of intermittent traveling devices arranged to engage with said loops and draw the wires through said tension device and advance the same in the machine; and a multiple of devices arranged to sever the advanced wire portions into lengths suitable for bale-ties, substantially as set forth.

3. In an electric welding-machine, means for supporting one or more wires; means for bending the end portion of the wire or wires to form a loop or loops thereon, and electrodes arranged to grasp the coinciding wire portions of the loop or loops during the period of time the electric current is applied to weld said coinciding portions together, substantially as set forth.

4. In an electric welding bale-tie machine; the plurality of loop-bending devices; the intermittently-traveling wire-advancing devices; the plurality of wire-tension devices actuated to exert a variable tension, whereby normal tension is maintained during the major portion of the travel of the wires, and an increased tension is exerted during the terminal portion of said travel; and a plurality of wire-cutting devices, substantially as and for the purpose specified.

5. In the machine described, the wire-tension device comprising the housing; the pairs of wire-clamping blocks; the spring-plates arranged upon the upper ones of said blocks; the tension-regulating screws; and the cross-shaft arranged under the lower ones of said blocks and adapted to be turned to raise and lower said blocks, substantially as and for the purpose set forth.

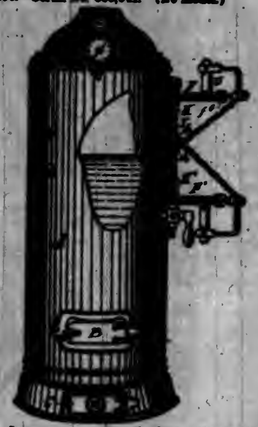
6. In the machine described, the stationary cross-bar having the series of upright arms provided with the stationary electrodes; the transversely-operating bar having the series of upright overreaching arms provided with the operative electrodes; and means for intermittently operating said bar and electrodes, substantially as and for the purpose specified.

7. In the machine described, the vertically-operative pins forked at their upper end; the wire-bending sleeves placed on said pins and provided with the wire-bending pin and with the gear-teeth; the transversely-operating rack arranged jointly in mesh with said gears; and means for operating said pins and rack in the manner substantially as and for the purpose specified.

8. In the machine described, in combination with the plurality of wire-bending sleeves, and forked pins about which said sleeves operate; the plurality of intermittently-traveling chains provided with the extending fingers adapted in their travel to wipe through the forks of said pins, substantially as and for the purpose specified.

9. In the machine described, in combination with the driving mechanism, and the traveling wire-pulling chains; the interposed clutch-and-lever mechanism; the cam arranged to actuate said mechanism to intermittently drive said wire-pulling chains, and the stop device for preventing back travel of said chains, substantially as set forth.

587,297. WATER-GAGE. DANIEL BEST, Kansas City, Mo. Filed July 27, 1896. Serial No. 600,941. (No model.)



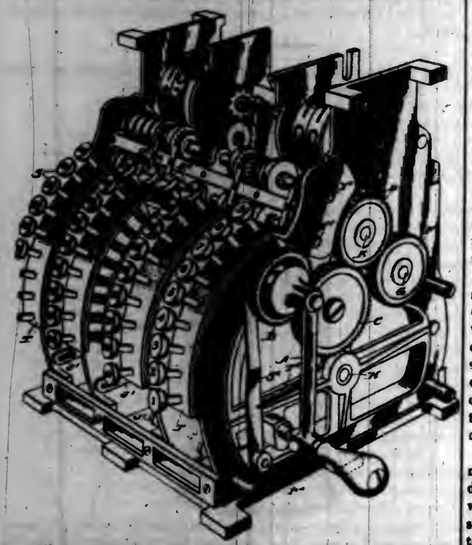
Claim.—1. In a water-gage a body portion consisting of separate water-conducting tubes, each tube having an opening in the side thereof, and a right-tube connected with the respective openings, a piston-valve and seat in one end of the respective water-conducting tubes and a cap at the other end, a valve-operating rod in each tube connected at one end with said valves and extending through said cap at the other end, a standard upon the said water-conducting tube and a bent arm pivotally connected with said standard and contacting with the end of said valve-operating rod, and adapted to retain the piston-valve in a normally open position, as and for the purpose described.

2. In a water-gage for steam-boilers a body portion comprising separate upper and lower horizontal water-tubes connected with the boiler, each tube having a perforate cap at one end and a piston-valve and valve-seat at the other end, a valve-operating rod in each tube connected with the piston-valve at one end, and having the other end extending through said cap and provided with an antifriction extremity, a standard upon the upper side of the upper tube and under side of the lower tube, an arm pivotally connected at one end with the respective standards, and the other end bent at an angle and having said bent end contacting with the antifriction end of said valve-operating rod, said upper and lower tubes having openings on the side opposite to each other, a sight-valve connected at each end with said openings in the respective tubes, and bands connected with the other end of the pivoted arms on each standard and also with the sight-tube, as and for the purpose described.

3. In a water-gage for steam-boilers, a body portion comprising separate upper and lower horizontal water-tubes connected with the boiler, each tube having a perforate cap at one end and a piston-valve and valve-seat at the other end, a valve-operating rod in each tube connected with the piston-valve at one end, and having the other end extending through said cap and provided with an antifriction extremity, a standard upon the upper side of the upper tube and under side of the lower tube, an arm pivotally connected at one end with the respective standards, and the other end bent at an angle and having said bent end contacting with the antifriction end of said valve-operating rod, said upper and lower tubes having an opening on the side opposite to each other, a sight-tube connected at each end with said openings in the respective tubes and separate springs, each spring having one end connected with the bent end of each pivoted arm on said standards, and the other end connected with the sight-tube, as and for the purpose described.

4. In a water-gage for steam-boilers the combination with said boiler and the sight-tube of a connecting-tube to the boiler, a piston-valve and seat at one end of said tube and a perforated cap at the other end, a valve-rod within said tube, having one end connected with said valve and the other end extending through said cap, a standard on said tube and a self-releasing rod-holder connected with the standard and also with the sight-tube, as and for the purpose described.

587,298. CASH REGISTER AND INDICATOR. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Jan. 29, 1895. Serial No. 536,516. (No model.)



Claim.—1. In a registering-machine, the combination of a reciprocating driving member having a uniform and positive movement, a series of reciprocating driven members having variable movements, means for positively connecting said driven members with the driving member to cause the latter to impart positive movements to them in both directions, a series of sets of keys controlling the positive connection of the respective driven members with the driving member and determining the degrees of movement imparted to them by the driving member, two registers mounted in a single movable frame normally holding both registers out of engagement with the driven members, and two shifter-keys and connections for moving the frame to connect either register at will with the driven members, substantially as described.

2. In a registering-machine, the combination of a driving mechanism, two registers normally disconnected therefrom, means actuated by the driving mechanism for independently connecting the registers with such mechanism, and means for determining the movement imparted by the driving mechanism to the connected register, substantially as described.

3. In a registering-machine, the combination of a driving mechanism, two registers normally disconnected therefrom, two shifter-keys, means actuated by the driving mechanism and controlled by said keys for connecting either register at will with the driving mechanism, and means for determining the movement imparted by the driving mechanism to the connected register, substantially as described.

4. In a register, the combination of a driving mechanism, two registers mounted in a movable frame normally holding both registers out of connection with the driving mechanism, means actuated by the driving mechanism for independently connecting the respective registers to such mechanism, and means for determining the extent of movement imparted by the driving mechanism to the connected register, substantially as described.

5. In a register, the combination of a driving mechanism, two registers mounted in a movable frame normally holding both registers out of connection with the driving mechanism, two shifter-keys, means actuated by the driving mechanism and controlled by said keys for moving the registering-frame to connect either register at will with the driving mechanism, and means for determining the extent of movement imparted by the driving mechanism to the connected register, substantially as described.

6. In a registering-machine, the combination of a driving mechanism, two registers mounted in a movable frame normally holding both registers out of connection with the driving mechanism, two cams and connections for moving the frame in opposite directions, to connect either register at will with the driving mechanism, two keys controlling the connection of said cams with the movable frame, and means for determining the extent of movement imparted by the driving mechanism to the connected register, substantially as described.

7. In a registering-machine, the combination of a driving mechanism, two registers mounted in a movable frame normally holding both registers out of connection with the driving mechanism, two cams actuated by the driving mechanism, a reciprocating frame connected to the register-frame and adapted to be moved in opposite directions by the respective cams to connect either register with the driving mechanism at will, two shifter-keys for connecting the reciprocating frame with the respective cams, and means for determining the movement imparted by the driving mechanism to the connected register, substantially as described.

8. In a registering-machine, the combination, with a driving mechanism, an oscillatory segment moved positively in both directions by said mechanism, means for connecting the segment with and disconnecting it from the driving mechanism, and a series of keys for determining the extent of movement imparted to the segment, of a register and means independent of said keys for throwing it into and out of gear with the segment at each operation of the machine, to cause it to be actuated by the segment during the movement of the latter in one direction, substantially as described.

9. In a registering-machine, the combination, with a driving mechanism, a series of oscillatory segments moved positively in both directions by said mechanism, means for connecting the segments with and disconnecting them from the driving mechanism, and a series of keys for determining the extent of movement imparted to the segments, of a register and means independent of said keys and operated by the driving mechanism for throwing the register into and out of gear with the segments at each operation, to cause the register to be actuated by the segments during their movement in one direction, substantially as described.

10. In a registering-machine, the combination, with a driving mechanism, a series of oscillatory segments moved positively in both directions by said mechanism, means for connecting the segments with and disconnecting them from the driving mechanism, and a series of keys for determining the extent of movement imparted to the segments, of a register, and a cam and connections operated by the driving mechanism independently of said keys for throwing the register into and out of gear with the segments at each operation, to cause the register to be actuated by the segments during their movement in one direction, substantially as described.

11. In a registering-machine, the combination, with a driving mechanism, a series of oscillatory segments moved positively in both directions by said mechanism, means for connecting the segments with and disconnecting them from the driving mechanism, and means for determining the extent of movement imparted to the segments, of two registers adapted to be independently thrown into gear with the segments, and means actuated by the driving mechanism for independently connecting the registers with the segments to cause the registering movement of the segments to be imparted to either register at will, substantially as described.

12. In a registering-machine, the combination of a series of reciprocating segments, a series of sets of keys representing different denominations, one set cooperating with each segment to determine its different degrees of movement at the operation of different keys, a plurality of registers for registering different classes of transactions, arranged to be independently actuated by the movements of said segments, a plurality of cash-indicators cooperating with the several segments to indicate the amounts registered, a plurality of special keys corresponding to the several registers for determining which register shall be actuated by the segments at each operation of the machine, and special indicating devices cooperating with said special keys to indicate the different classes of transactions registered.

13. In a registering-machine, the combination of a series of reciprocating segments hung upon a central shaft, a series of sets of keys arranged radially to said shaft and representing different denominations, each set consisting of a single row of nine keys representing the nine digits (or multiples thereof by ten), and one of said sets cooperating with each segment to determine the different degrees of movement of said segment at the operations of different keys in its set, a plurality of rotary indicator-wheels cooperating with the segments to indicate the amounts registered, a plurality of registers, for registering different classes of transactions, arranged to be independently actuated by the movements of the segments, and a plurality of special keys corresponding to the several registers, the operation of one or another of which determines which register shall be actuated by the segments at each operation of the machine.

14. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and a series of sets of keys for determining the extent of movement imparted to the segments, of a register, and means independent of said keys for throwing it into and out of gear with the segments at each operation of the machine to cause it to be actuated by the segments during their movement in one direction.

15. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and a series of sets of keys for determining the extent of movement imparted to the segments, of a register, and a cam and connections operated by the driving mechanism independently of said keys for throwing the register into and out of gear with the segments at each operation of the machine, to cause the register to be actuated by the segments during their movement in one direction.

16. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and a series of sets of keys for determining the extent of movement imparted to the segments, of two registers, and means operated by the driving mechanism independently of said keys for throwing the respective registers into gear with the segments, to cause the registering movement of the segments to be imparted to either register at will.

17. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and a series of sets of keys for determining the extent of movement imparted to the segments, of a plurality of registers, means for separately connecting the several registers with the driving mechanism to cause the latter to throw them into gear with the segments, and a plurality of special keys cooperating with such connecting means to determine the connection of the different registers with the driving mechanism, substantially as described.

18. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and means for determining the extent of movement imparted to the segments, of two registers mounted in a movable frame adapted to be shifted to throw either register into gear with the segments, and means actuated by the driving mechanism for shifting said frame for said purpose, substantially as described.

19. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft, and means for determining the extent of movement imparted to the segments, of two registers mounted in a movable frame adapted to be shifted to throw either register into gear with the segments, two cams operated by the driving mechanism, and means for connecting either cam at will with said frame to throw the corresponding register into gear with the segments, substantially as described.

20. In a machine such as described, the combination, with the operating-keys S and the detent-plates V^2 cooperating therewith, of the rock-shaft P^4, the hooks Q^4 fast thereon and adapted to cooperate with the plates V, and a connection with the driving mechanism for rocking the shaft P^4 at the beginning of the movement of said mechanism to throw the hooks Q^4 into engagement with the plates V, for the purpose described.

21. The combination of the rock-shaft H, the plates X fast thereon and carrying the lugs Y, the segments I loose upon the shaft, the latch-arms A′ carried by the segments and provided with the notches B′ cooperating with the lugs Y, the arms C′ fast upon the latch-arm A′ and cooperating with the edges of the plates X and notches therein, the keys S, the detent-plates V cooperating therewith, and the notched locking-plates G′ cooperating with the projections H′ upon the latch-arms A′ to lock the segments in the position at which they are arrested by the keys when said keys are released, substantially as described.

22. The combination of the rock-shaft H, the plates X fast thereon and carrying the lugs Y, the segments I loose upon the shaft, the latch-arms A′ carried by the segments, the arms C′ fast upon the latch-arms, the forwardly-projecting spring-arms E′ carried by the latch-arms A′, the keys S having the pins F′ cooperating with the springs E′, and the detent-plates V cooperating with the keys, substantially as described.

23. The combination of the rock-shaft H, the plates X fast thereon and having the lugs Y, the segments I loose upon the shaft, the latch-arms A′ carried by the segments, the arms C′ fast upon the arms A′ and having the laterally-projecting lugs B^2, the operating-keys S and cooperating detent-plates V, the sliding latch-bars J′ having the notches cooperating with the detent-plates, the plates M′ fast upon the bars J′ and cooperating with the lugs B^2 upon the arms C′, and the plates O′ carried by the plates X and cooperating with the rollers P′ carried by the latch-bars J′, substantially as described.

24. The combination of the keys S having beveled inner ends and provided with the inclined lugs F^3, the detent-plates V provided with the lugs F^4 having the beveled under sides *a*, with the outer ends of their upper sides cut away at *b* leaving upward projections *c* adjacent the plate V, the spring-pressed sliding latch-bars J′ having the notches cooperating with the plates V and operating when the plates V are lifted and the bars J′ pulled rearward by their springs to hold the plates V in elevated position and lock the operated keys in their inner position, and means for resetting the bars J′ at the end of the operation, substantially as described.

25. In a registering-machine, the combination, with the driving mechanism and the oscillatory segments actuated thereby, of a plurality of registers for registering different classes of sales mounted in a movable frame and adapted to be severally and independently connected with the segments, of an oscillatory indicator bearing indicating-signs representing the different classes of sales, and a connection between said movable frame and indicator for causing the frame to move the indicator to different positions corresponding to the particular register thrown into gear with the segments, substantially as and for the purpose described.

26. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, and means for connecting the segments with and disconnecting them from the rock-shaft to cause the latter to impart different degrees of movement to them, of a plurality of registers for registering different classes of sales mounted in a movable frame and adapted to be severally and independently thrown into gear with the segments, an oscillatory indicator bearing indicating-signs representing the different classes of sales, and a rocking lever intermediate the movable frame and indicator for causing the movement of the frame which throws a given register into gear with the segments to move the indicator to position to expose to view the sign representing the corresponding class of sale, substantially as described.

27. In a registering-machine, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, means for connecting the segments with and disconnecting them from the rock-shaft to cause the latter to impart different degrees of movement to them, of a plurality of registers for registering different classes of sales mounted in a movable frame and adapted to be severally and independently thrown into and out of gear with the segments, a plurality of special keys corresponding to the several registers and cooperating therewith to connect the movable frame with the driving mechanism so as to cause the latter to throw the register corresponding to the operated key into gear with the segments, and an indicator representing the different classes of sales and actuated at each operation to expose to view the indicating-sign corresponding to the register thrown into gear with the segments, substantially as described.

28. In the machine described, the combination of the rocking register-frame carrying the two registers, the rocking indicator P^5, and the intermediate lever O^2, substantially as described.

29. In the machine described, the combination of the rocking

register-frame carrying the two registers, the rocking indicator F^3, the intermediate lever O^3, and the spring-detent Q^3 for holding the indicator in its opposite shifted positions, substantially as described.

30. In a transfer mechanism for registering-machines, the combination of the gear L^2, the toothed disk F^2, reciprocating pawl-carrying plate A^4, the pawl B^4 carried thereby and having a heel K^4 adapted to coöperate with the teeth of the disk F^2, the spring-latch L^4 coöperating with the pawl B^4, and a stop coöperating with the latch, substantially as described.

31. In a transfer mechanism for registering-machines, the combination of the gear L^2, the toothed disk F^2, the plate U' having the cam-slot D^4, the reciprocating pawl-carrying plate A^4 mounted upon the plate U' by a screw passing through the slot D^4, the pawl B^4 carried by the plate A^4 and having the heel K^4 adapted to coöperate with the toothed disk F^2, the spring-latch L^4 coöperating with the pawl B^4, and a stop upon the plate U' coöperating with the latch, substantially as described.

32. In a machine such as described, the combination, with the type-carrier and platen, of a pair of feed-rollers having when at rest a free passage between them from their outer ends, to permit a loose sales-slip to be inserted laterally between them, and operating when turned to grasp the slip and advance it to the printing-point, and a single driving mechanism for actuating the type-carrier, platen, and feed-rollers, to set the carrier, advance the slip, and effect the printing.

33. In a machine such as described, the combination, with the type-carrier and platen, of a pair of feed-rollers, a portion of the periphery of one or both of which is cut away to form a free passage between the rollers from their outer ends when the cut-away space is intermediate the two rollers, to permit a loose sales-slip to be inserted laterally between the rollers from their outer ends, and operating when turned until the cut-away space is carried from between the rollers to grasp the slip and advance it to the printing-point, and a single driving mechanism for actuating the type-carrier, platen, and feed-rollers, substantially as described.

34. In a machine such as described, the combination, with the type-carrier and platen, of a pair of feed-rollers having when at rest a free passage between them from their outer ends, to permit a loose sales-slip to be inserted laterally between them, and operating when turned to advance the said slip to the printing-point, an automatic device engaging the slip and holding it in position after it has been released by the rollers and while the printing is being effected, and means for actuating the type-carrier, platen, feed-rollers, and slip-holding device.

35. In a machine such as described, the combination, with the type-carrier and platen, of a pair of feed-rollers having when at rest a free passage between them from their outer ends, a sales-slip support adjacent said rollers and projecting laterally beyond their outer ends, and adapted to have a loose sales-slip laid upon it and slid laterally between the rollers, the rollers operating when then turned to grasp the slip and advance it to the printing-point, and means for actuating the type-carriers, platen and feed-rollers.

36. In a machine such as described, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, and means for connecting the segments with and disconnecting them from the rock-shaft, of the type-carriers geared to the segments, the platen coöperating with the carriers, and a pair of feed-rollers actuated by the driving mechanism and having when at rest a free passage between them from their outer ends, to permit a loose sales-slip to be inserted laterally between them, and coöperating when turned to advance said slip to the printing-point, substantially as described.

37. In a machine such as described, the combination, with the rock-shaft of the driving mechanism, the segments loose thereon, and means for connecting the segments with and disconnecting them from the rock-shaft, of the type-carriers geared to the segments, the platen coöperating with the carriers, a pair of feed-rollers having when at rest a free passage between them from their outer ends, and a sales-slip support adjacent said rollers and projecting laterally beyond their outer ends, and adapted to have a loose sales-slip laid upon it, and slid laterally between the rollers, the latter then operating when turned to advance said slip to the printing-point, substantially as described.

38. In a machine such as described, the combination, with the type-carriers and platen, of a pair of feed-rollers, consisting of a type-cylinder and an impression-roller, having when at rest a free passage between them from their outer ends, to permit a loose sales-slip to be inserted laterally between them and operating when turned to print said slip and advance it to the printing-point between the type-carriers and platen, and means for actuating the type-carriers, platen and rollers, substantially as described.

39. In a machine such as described, the combination, with the type-carrier and platen, of the feed-rollers W^3 X^3, one having a portion of its periphery cut away to form a free passage between the rollers from their outer ends when they are in normal position, the sales-slip support Z^3 secured to the framework in a plane parallel with and adjacent the passage between the rollers and projecting laterally beyond their outer ends, and adapted to have a loose slip laid upon it and slid laterally between the rollers, and means for actuating the type-carriers, platen and rollers, substantially as described.

40. In a machine such as described, the combination, with the type-carriers and platen, of the feed-rollers W^3 X^3, one having a portion of its periphery cut away to form a free passage between the rollers from their outer ends, the sales-slip support consisting of the inclined shelf Z^3 secured at one edge to the framework and projecting at its other beyond the outer ends of the rollers, having an opening in it through which projects the roller X^3, and provided at its rear edge with the guard A^6, substantially as and for the purpose described.

41. In a machine such as described, the combination, with the type-carriers V^4 and the platen coöperating therewith, of the sales-slip-support shelf Z^3, and the type-cylinder W^3 and roller X^3 for advancing the slips from the support to the printing-point, said type-cylinder and roller having a free passage between them from their outer ends, to permit the slips placed upon the shelf Z^3 to be slid laterally between them, substantially as described.

42. In a machine such as described, the combination, with the type-carriers V^4 and the platen coöperating therewith, of the sales-slip-supporting shelf Z^3, the type-cylinder W^3 and roller X^3, the arm B^3 and the rotary disk D^3 coöperating with said arm, substantially as described.

43. In a registering-machine, the combination of a driving mechanism, two registers for registering different classes of sales, mounted in a movable frame and adapted to be independently connected with and actuated by the driving mechanism, a type-carrier bearing type indicating the different classes of sales and coöperating with the registers so that when one or the other of them is connected with the driving mechanism the type-carrier will be set to print a character indicating the class of sale to which such register belongs, and a platen actuated by the driving mechanism and coöperating with the type-carrier, substantially as described.

44. In a registering-machine, the combination of a driving mechanism, two registers for registering different classes of sales, mounted in a movable frame adapted to be shifted to connect either register with the driving mechanism at will, a type-carrier actuated by the register-frame and bearing type-characters representing the different classes of sales, and a platen coöperating with said carrier, substantially as described.

45. In a registering-machine, the combination of a driving mechanism, two registers for registering different classes of sales, mounted in a movable frame adapted to be shifted to connect either register with the driving mechanism at will, an indicator operated by the movable register-frame to indicate the class of sale being registered, a type-carrier also operated by the register-frame and bearing type-characters representing the different classes of sales, and a platen coöperating with said carrier, substantially as described.

46. In a registering-machine, the combination of a driving or operating mechanism, a plurality of registers for registering different classes of transactions, adapted to independently coöperate with the driving mechanism, means for controlling the coöperation of the several registers with the driving mechanism, printing devices for printing at each operation of the machine the amount added upon the register coöperating with the driving mechanism, and a special printing device for also printing at each operation of the machine a character indicating which register is actuated by the driving mechanism.

47. In a registering-machine, the combination of a driving or operating mechanism, a plurality of registers for registering different classes of transactions, adapted to independently coöperate with the driving mechanism, means for controlling the coöperation of the several registers with the driving mechanism, regular indicating devices for indicating at each operation of the machine the amount added upon the particular register actuated by the driving mechanism and special indicating devices for also indicating at each operation of the machine the particular register upon which such amount is added, and printing devices for printing at each operation of the machine the amount so added upon the register actuated by the driving mechanism.

48. In a registering-machine, the combination of a driving or operating mechanism, a plurality of registers for registering different classes of transactions, adapted to independently coöperate with the driving mechanism, means for controlling the coöperation of the several registers with the driving mechanism, regular indicating devices for indicating at each operation of the machine the amount added upon the particular register actuated by the driving mechanism and special indicating devices for also indicating at each operation of the machine the particular register upon which such amount is added, printing devices for printing at each operation of the machine the amount so added upon the register actuated by the driving mechanism, and a special printing device for also printing at each operation of the machine a character corresponding to the particular register upon which such amount is added.

49. In a registering-machine, the combination of a driving or operating mechanism, a plurality of registers for registering different classes of transactions, adapted to independently coöperate with the driving mechanism, a plurality of special keys controlling the coöperation of the several registers with the driving mechanism, and printing devices coöperating with such special keys and registers to print at each operation of the machine a character indicating which register coöperates with the driving mechanism.

50. In a registering-machine, the combination of a driving or operating mechanism, a plurality of registers for registering different classes of transactions, adapted to independently coöperate with the driving mechanism, a plurality of special keys controlling the coöperation of the several registers with the driving mechanism, special indicating devices coöperating with said keys and registers to indicate at each operation of the machine which register is actuated by the driving mechanism, and printing devices coöperating with such keys, registers and indicating devices to print at each operation of the machine a character corresponding to the register which is actuated by the driving mechanism.

51. In a registering-machine, the combination of a series of reciprocating segments, a series of sets of keys representing different denominations, one set coöperating with each segment to determine its different degrees of movement at the operations of different keys, a plurality of registers independently coöperating with said segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, indicating devices for indicating at each operation of the machine the amount added upon the register coöperating with the segments, and printing devices for printing at each operation of the machine the amount added upon the register coöperating with the segments.

52. In a registering-machine, the combination of a series of reciprocating segments, a series of sets of keys representing different denominations, one set coöperating with each segment to determine its different degrees of movement at the operations of different keys, a plurality of registers independently coöperating with said segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, indicating devices for indicating at each operation of the machine the amount added upon the register coöperating with the segments, printing devices for printing at each operation of the machine the amount so added upon the register coöperating with the segments, and a special printing device for also printing at each operation a character corresponding to the register coöperating with the segments.

53. In a registering-machine, the combination of a series of reciprocating segments, a series of sets of keys representing different denominations, one set coöperating with each segment to determine its different degrees of movement at the operations of different keys, a plurality of registers independently coöperating with such segments, means for determining at each operation of the machine which register shall coöperate with the segments, indicating devices for indicating the amount registered at each operation of the machine and special indicating devices for indicating the particular register upon which such amount is registered, printing devices for printing the amount registered at each operation of the machine, and a special printing device for also printing at each operation a character corresponding to the particular register upon which such amount is registered.

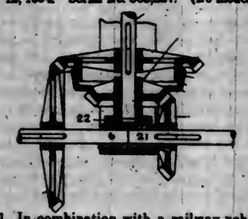
54. In a registering-machine, the combination of a series of reciprocating segments hung upon a common shaft or axis, a series of sets of keys, arranged radially to said shaft and representing different denominations, each set consisting of a single row of nine keys representing the nine digits (or multiples thereof by ten), and one of said sets coöperating with each segment to determine the different degrees of movement of said segment at the operations of different keys in its set, a plurality of registers independently coöperating with the segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, and printing devices for printing at each operation of the machine the amount added upon the register so coöperating with the segments.

55. In a registering-machine, the combination of a series of reciprocating segments hung upon a common shaft or axis, a series of sets of keys arranged radially to said shaft and representing different denominations, each set consisting of a single row of nine keys representing the nine digits (or multiples thereof by ten), and one of said sets coöperating with each segment to determine the different degrees of movement of said segment at the operations of different keys in its set, a plurality of registers independently coöperating with the segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, printing devices for printing at each operation of the machine the amount added upon the register so coöperating with the segments, and a special printing device for also printing at each operation a character corresponding to the particular register upon which such amount is added.

56. In a registering-machine, the combination of a series of reciprocating segments hung upon a common shaft or axis, a series of sets of keys arranged radially to said shaft and representing different denominations, each set consisting of a single row of nine keys representing the nine digits (or multiples thereof by ten), and one of said sets coöperating with each segment to determine the different degrees of movement of said segment at the operations of different keys in its set, a plurality of rotary indicator-wheels coöperating with the segments to indicate the amounts registered, a plurality of registers independently coöperating with the segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, special indicating devices for indicating at each operation of the machine the particular register so coöperating with the segments, and printing devices for printing at each operation of the machine the amount added upon the register coöperating with the segments.

57. In a registering-machine, the combination of a series of reciprocating segments hung upon a common shaft or axis, a series of sets of keys arranged radially to said shaft and representing different denominations, each set consisting of a single row of nine keys representing the nine digits (or multiples thereof by ten), and one of said sets coöperating with each segment to determine the different degrees of movement of said segment at the operations of different keys in its set, a plurality of rotary indicator-wheels coöperating with the segments to indicate the amounts registered, a plurality of registers independently coöperating with the segments, means for determining at each operation of the machine which particular register shall coöperate with the segments, special indicating devices for indicating at each operation of the machine the particular register so coöperating with the segments, printing devices for printing at each operation of the machine the amount added upon the register coöperating with the segments, and a special printing device for also printing at each operation a character corresponding to such register.

587,299. LOCOMOTIVE-CRANE. OLIVER CROSBY, St. Paul, Minn. Filed Mar. 12, 1894. Serial No. 503,227. (No model.)



Claim.—1. In combination with a railway-vehicle having traction-wheels on opposite rails independently connected to the vehicle, the common driving mechanism, the positive-gear connection between said driving mechanism and one of said traction-wheels, and the friction-gear interposed between said driving mechanism and an oppositely-arranged traction-wheel.

2. A variable-speed train, comprising in combination, the common driving part, the plurality of independent driven parts, the positive-gear connection between said driving part and one of said driven parts, and the friction-gear interposed between said driving part and other of said driven parts.

3. The combination of the common driving-shaft, the plurality of counter-shafts, the positive gear for driving one counter-shaft from said driving-shaft, and the friction-gear connecting said driving-shaft with another counter-shaft, whereby the latter is permitted to travel at less than normal speed by reason of interposed resistance.

4. The combination of the common driving-shaft, the plurality of counter-shafts, the positive gear for driving one counter-shaft from said driving-shaft, and the friction-gear connecting said driving-shaft with another counter-shaft, whereby the latter is permitted to travel at a relatively variable speed.

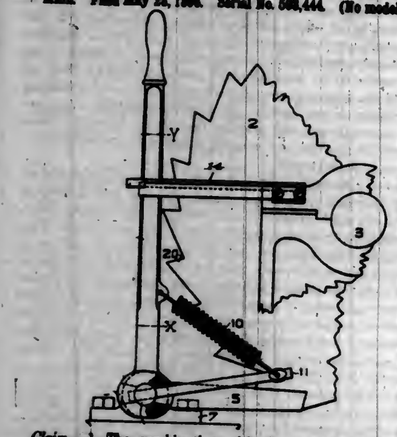
5 The combination of the vertical driving-shaft, the horizontal counter-shafts, the positive-gear connection between said driving-shaft and one of said counter-shafts, and the gravity friction-gear between said driving-shaft and the other counter-shaft.

6. The combination of the vertical driving-shaft, the pair of horizontal counter-shafts, the gear upon the driving-shaft meshing with the gear upon one of said counter-shafts so as to positively drive the same at a relatively uniform speed, the loose gear upon the driving-shaft engaging a gear upon the other counter-shaft and the gravity friction-clutch interposed between said loose gear and said driving-shaft.

7. In a locomotive-train, in combination the bogie-trucks arranged on opposite sides of the platform, each vibratable about a vertical axis and each provided with two track-wheels, the common driving mechanism and the trains of gears connecting a track-wheel in each of said trucks with said driving mechanism and having means for driving the

wheel upon the outer curve at a uniform relative speed, and the wheel upon the inner curve at a variable less relative speed.

587,800. PAWL AND RATCHET. OLIVER CROSBY, St. Paul, Minn. Filed May 28, 1896. Serial No. 593,444. (No model.)

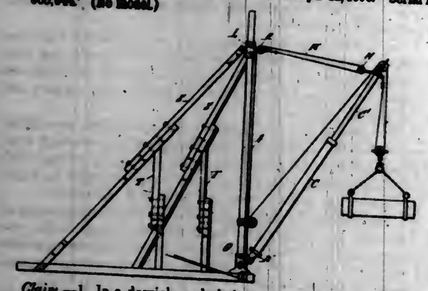


Claim.—1. The combination with the ratchet, of the spring-pressed, gravity-released pawl therefor, its pivot-shaft, the lever mounted on said shaft, the spring connecting said lever with said shaft, and means for locking said lever in normal position, so as to apply tension to said spring and hold said pawl in engagement with the ratchet.

2. The combination with the ratchet, its gravity-released pawl, and the pawl-pivot shaft, of the lever mounted on said shaft, the spring connection between said lever and shaft, and the spring-lock for holding said lever in normal position to apply tension to said spring and hold the pawl in engagement with the ratchet.

3. The combination with the ratchet, its gravity-released pawl and pawl-pivot, of the lever mounted loosely upon said pivot, the arm fixed to said pivot and working loosely in the hub of said lever, the spring connecting said lever in position to apply tension to said spring and hold the pawl in engagement with the ratchet, but permitting the lever to be released so as to disconnect the pawl from the ratchet.

587,801. APPARATUS FOR RAISING OR LOWERING HEAVY WEIGHTS OR BUILDING MATERIALS. EPHRAIM R. DEMAREST, New York, N. Y. Filed May 23, 1896. Renewed Sept. 12, 1896. Serial No. 605,644. (No model.)



Claim.—1. In a derrick or hoisting apparatus the combination with a suitable base plate or beam, of a mast mounted thereon, sectional braces or stays the lower ends of which are connected with the base plate or beam and the upper ends of which are pivotally connected with an adjustable sliding sleeve mounted near the upper end of the mast, substantially as described.

2. A derrick or hoisting apparatus, provided with a vertical mast, which is pivotally mounted on the base-frame, a boom pivotally connected with the bottom of said mast by means of a head, said boom being composed of sections which are longitudinally adjustable, and the upper part of said mast consisting of a sliding or adjustable sleeve, substantially as shown and described.

3. A derrick or hoisting apparatus, provided with a vertical mast, which is pivotally mounted on the base-frame, a boom pivotally connected with the bottom of said mast by means of a sliding head, said boom being composed of sections which are longitudinally adjustable, and the upper part of said mast consisting of a sliding or adjustable sleeve, said mast being also provided with braces or stays, which are composed of sections and said braces or stays being pivotally connected with or hinged to the sleeve at the top of the mast, substantially as shown and described.

4. In an apparatus for lifting or hoisting building material, a derrick provided with a mast, sectional braces, and an adjustable sectional boom, said mast being provided with a sleeve at the top thereof with which said braces are connected and to which the block or sheave for operating the boom is attached, and the outer end of said sectional boom being also provided with a hoisting block or sheave and with an operating block or sheave, substantially as shown and described.

5. The combination in a derrick or hoisting apparatus of the character described, provided with a vertical mast, pivotally mounted upon the base-frame, a boom hollow or oval and having cross-sections similar to a horseshoe in shape, and being longitudinally corrugated and reinforced upon the upper and lower faces and strongly collared at each end, said boom being pivotally connected with the bottom of said mast by means of a sliding head, and being formed of sections longitudinally adjustable, the head or adjustable sleeve upon the upper part of the mast, the braces or stays which are secured to the mast and composed of sections, which are pivotally connected with, or hinged to the top of the mast, substantially as herein set forth and described.

6. In a derrick or hoisting apparatus, in combination with the vertical mast pivotally mounted therein, a boom hollow, oval or circular, and having the cross-section similar to a horseshoe in shape, and provided with longitudinal corrugations and being reinforced on the upper and lower faces thereof and strongly collared by each end of the same, said boom having a groove or opening in the under side thereof, adapted to receive a traveler and a sliding head pivotally connecting said boom and the mast, said boom being formed of sections longitudinally adjustable, the adjustable sleeve upon the upper part of the mast, the braces or stays which are secured to the mast and composed of sections pivotally connected therewith, and the braces or stays composed of slidable sections, which are pivotally connected or hinged to the top of the mast, substantially as set forth.

7. The combination in an apparatus for lifting or hoisting building material, of a base-plate, a mast pivotally mounted thereon, an adjustable boom, sectional braces, said mast being provided with a sleeve at the top thereof with which said braces are connected and carrying a block or sheave for operating the boom, the outer end of said boom being provided with a hoisting-sheave, and a traveling sheave in combination with a carrier, consisting of the body portion, having connected therewith straps or bands, passing beneath the same, said straps being provided at their free ends with hook or eyes, and chains connecting said eyes and the traveling sheave, substantially as described.

587,802. SPEED-INDICATING AND DISTANCE-MEASURING MECHANISM. EDWARD G. DORCHESTER, Geneva, N. Y. Filed Feb. 22, 1895. Renewed Nov. 4, 1896. Serial No. 611,074. (No model.)



Claim.—1. A timing instrument, embodying a pulsator to be actuated by the vehicle or machine to be timed, a time-indicator, and mechanism transmitting motion from the pulsator to the indicator, said mechanism containing a set of gears of different diameters mounted on different shafts arranged around a common center, an arm pivoted at one end, and a pinion journaled on the free end of said arm and carried thereby into engagement with any one of said gears, substantially as described and for the purposes specified.

2. In a timing instrument, the combination of a pulsator to be actuated by the vehicle or machine to be timed, a time-indicator, and mechanism transmitting motion from the pulsator to the indicator, said mechanism containing two sets of gears disposed concentric to a common center and in different planes, and two pinions, each mounted on the free end of a pivoted arm and in the planes of the aforesaid sets of gears, so as to be swung into engagement with any one of the gears of their respective sets, substantially as described.

3. In a timing instrument, the combination with the shaft receiving intermittent motion from the machine or vehicle to be timed, and a time-indicator geared therewith, of a sector connected with the indicator, a tumbler connected with the sector, and adjustable fingers to be engaged by said tumbler, substantially as described.

4. In a timing instrument, the combination with the pulsator to be actuated by the machine or vehicle to be timed, and a time-indicator geared therewith, of a sector, a ratchet-and-pawl mechanism connecting the sector with the indicator, a revoluble plate provided with teeth, fingers adjustable thereupon, and a tumbler to engage said fingers, said tumbler having connection with the sector.

5. A timing instrument embodying a shaft to which intermittent motion is to be communicated from the vehicle or machine to be timed, a time-indicator, and gearing connecting the indicator with the shaft, said gearing having an accelerating means for the purpose specified.

6. A timing instrument consisting of an inclosing case, a clamp for securing said case to the vehicle, a shaft extending from the interior of the case, a star-wheel attached to the outer end of said shaft and actuated at intervals by the wheel of the vehicle, a main gear-wheel in one end of the case receiving motion from said shaft, revoluble time-indicators in the opposite end of the case, gears in said end of the case actuating said indicators, a series of twin gears of different diameters arranged between the aforesaid gears, an arm swinging about the axis of one of the latter gears, and pinions carried by said arm to transmit motion from the main gear-wheel to the gears in the opposite end of the case through the medium of the twin gears as set forth.

7. In combination with two gear-wheels mounted on axes extending in opposite directions and eccentric in relation to each other, twin gears forming two sets of gears disposed in circles respectively around the axes of the aforesaid gear-wheels, and in parallel planes between said wheels, the gears of one set being of varying diameters, two arms swinging about the axes of the eccentrically-pivoted gear-wheels, a pinion pivoted to one of said arms and transmitting motion from one of the eccentrically-pivoted gear-wheels to one of the twin gears, and a pinion pivoted to the other of the aforesaid arms and transmitting motion from said twin gears to the second eccentrically-pivoted gear-wheel, said swinging arms being connected together by a radially-movable coupling to allow said arms to swing in unison as set forth.

8. The combination of the gear-wheel f', provided with a hub having cylindrical and square portions, the main gear e mounted on said squared portion, means for driving said main gear from a moving part of the vehicle or machine to be timed, an accessible arm pivoted on the cylindrical part of said hub, a pinion g' mounted on the free end of said arm and meshing with said gear-wheel f', a pivoted arm h' coupled with said arm g' and movable in unison therewith, a pinion h'' on the free end of said arm h', a series of twin gears arranged concentric with respect to said gear f', the gears of one of said sets being of different diameters and arranged to be engaged one at a time by said pinion h'', and the gears of the other set being arranged to be engaged one at a time by said pinion g', an indicator, and gearing between the indicator and the upper of the twin gears.

9. A timing instrument consisting of a case attached to the vehicle, a shaft extending from the interior of said case and actuated by the wheel of the vehicle, a gear-wheel pivoted to the interior of the case and receiving motion from the aforesaid shaft, a revoluble rack in the case carrying a seconds-indicating hand, a revoluble minute-indicating rack concentric with the aforesaid rack, a train of gears transmitting motion from the aforesaid gear-wheel to the rack carrying the seconds-indicator, a lug on the latter rack, a star-wheel actuated by said lug, and a pinion attached to the shaft of said star-wheel and meshing with the minute-indicating rack as set forth.

10. The combination of the case A provided with means for attaching it to the vehicle, the shaft b pivoted to said case and provided with the worm d on its inner end, the star-wheel d' attached to the outer end of said shaft, the fixed arm c' having the gudgeon a' and post h extending from opposite sides of the arm and eccentrically in relation to each other, the gear-wheel f' pivoted to the gudgeon a', the gear-wheel e fastened to the wheel f', the pinion d' transmitting motion from the worm to the wheel e, the gear-wheel o' pivoted to the post h and provided with the ratchet-rim o'', the ratchet-wheel n'' pivoted to the hub of the wheel o', pawls $p\,p$ attached to the wheel n'' and engaging the aforesaid ratchet-rim, the gear-wheel n fastened to the hub of said ratchet-wheel, the arms g and h' pivoted respectively to the aforesaid gudgeon and post, the pinions g' and h'' pivoted respectively to the arms g and c' and meshing with the wheels f' and n, the yoke i attached to the arm g and provided with a radial groove, a hub on the arm h' sliding in said groove, a series of twin gears $l\,l'$ forming two sets of gears arranged in circles to permit the pinions g' and h'' to be thrown into engagement therewith by the swinging of the arms g and h', the revoluble rack l' provided with the pointer t'' and the shaft s' having affixed to opposite ends the pinions s and t meshing respectively with the gear-wheel o' and rack l'' substantially as described and shown.

11. A timing instrument consisting of a case sustained on the vehicle to be timed, a revoluble time-indicator in said case, a combined ratchet and gear wheel transmitting motion to said indicator, a shaft extending from the case, a wheel on said shaft receiving motion from the wheel of the vehicle, a train of gears receiving motion from said shaft, a pawl-and-ratchet mechanism transmitting motion from said train of gears to the combined ratchet and gear wheel, a circular plate moving with the main gear-wheel and provided with teeth on its periphery, a tumbler pivoted in the case and adjustable to and from the path of the teeth of the aforesaid plate and a pawl actuated by the tumbler and moving the aforesaid combined ratchet and gear wheel independent of the train of gears as set forth.

12. In combination with the main gear-wheel e, ratchet-wheel n'' and train of gears transmitting motion from said main gear-wheel to the ratchet-wheel, the wheel o' provided with the ratchet-rim o'', pawls p attached to the wheel o' and engaging the ratchet-wheel n'' to transmit motion to the wheel o', the indicator t'' receiving motion from the latter wheel, the oscillatory sector C having pawls r engaging the ratchet-rim o'', the tumbler 15 and spring 9 actuating said sector, the plate 10 secured to the wheel e, and the fingers 12 connected to said plate adjustably in a radial direction, as and for the purpose set forth.

13. In combination with the main gear-wheel e and the ratchet-wheel n'' receiving motion from said gear-wheel, the wheel o' provided with the ratchet-rim o'', pawls p attached to the latter wheel and transmitting motion thereto from the wheel n'', the indicator t'' receiving motion from the wheel o', the oscillatory sector C having pawls r engaging the ratchet-rim o'', the tumbler 15 and spring 9 actuating said sector, the adjustable stop 19 limiting the movement of the tumbler, the plate 10 moving with the wheel e and provided with teeth on its periphery, and the fingers 12 supported radially adjustable on said plate as set forth.

14. In combination with the main gear e, ratchet-wheel n'' receiving motion from said gear, and the wheel o' provided with the ratchet-rim o'' and the pawls p transmitting motion from the ratchet-wheel n'' to the wheel o', the sector C provided with pawls r engaging the aforesaid ratchet-rim, the tumbler 15 engaging the sector, the pivoted stop 19 limiting the motion of the tumbler, the eccentric 18 supporting the said stop, a spring holding the stop engaged with the eccentric, the spring 9 holding the sector in its position of rest, the plate 10 moving with the gear e and fingers 12 supported radially adjustable on said plate as set forth.

15. In combination with the gear-wheel e and tumbler 15, the plate 10 provided with radial grooves, the fingers 12 in said grooves, and the springs 13 sustaining said fingers in the grooves as set forth.

16. The combination of a ratchet-wheel n'', a sector pivoted to the hub thereof and carrying spring-pawls, a wheel o' having a rim, pawls projecting from said rim and engaging said ratchet-wheel, said rim having ratchet-teeth pitched in direction opposite those of the ratchet-wheel, and engaged by the pawls of said sector, an indicator; and connections between said wheel o' and indicator.

17. The combination of a ratchet-wheel n'', a wheel o' having ratchet-teeth, pawls attached to said wheel o' and engaging said wheel n'', an oscillatory sector having spring-pawls of different length, designed to engage the ratchet-teeth of wheel o', and means for operating said sector, constructed to impart variable impulses thereto, and an indicator connected with said wheel o'.

18. In combination with the gear-wheels f'' and n and the twin gears $l\,l'$, the arm g carrying pinion g' and the spring-latch k attached to said arm and slotted longitudinally to straddle the end of the shaft of the twin gear as set forth.

19. The combination with the gear-wheel o' having ratchet-teeth, and the indicator connected therewith, of a pivoted sector, spring-pawls projecting therefrom into engagement with said ratchet-teeth, said pawls being of varying lengths, a tumbler for actuating said sector, and means for actuating said tumbler constructed to vary the thrust of the same.

20. The combination with the gear-wheel o' having ratchet-teeth, and the indicator connected therewith, of a pivoted sector, spring-pawls projecting from the same into engagement with said ratchet-teeth, a revoluble plate 10 having radially-projecting grooved teeth, an adjustable finger in each of the grooves of the teeth, and a pivoted tumbler encountered by the teeth of said plate, said tumbler actuating the sector, substantially as described.

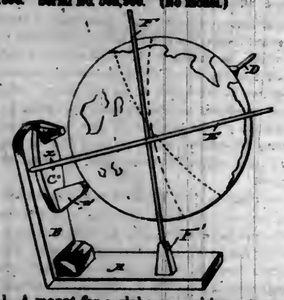
21. In combination with the wheel e, revoluble time-indicators and mechanism transmitting motion from said wheel to the indicators and including the independently-revoluble wheel o, segment C having ratchet-and-pawl connection with the latter wheel, the tumbler actuating said segment, and a wheel, fastened to the hub of the first-mentioned wheel and provided with teeth, and radially-movable fingers on said wheel, substantially as described.

587,808. ALLOY. FREDERICK A. ELLIS, London, England. Filed July 13, 1896. Serial No. 599,016. (No specimens.)

Claim.—1. The composition of an aluminium brase of which the essentials are that about five-sixths of the compound by weight is composed of pure grain tin and pure aluminium in the proportion of their atomic weights and the remaining part of about one-sixth is made up of copper and spelter, substantially as described.

2. The composition of an aluminium brase consisting of one ounce of pure aluminium 4.3 ounces of pure grain tin, one-half ounce of refined copper and one-fourth ounce of spelter.

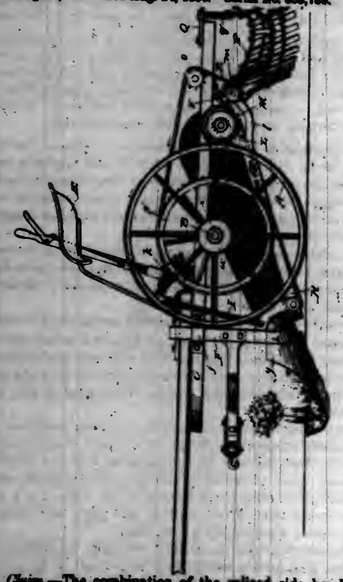
587,804. GLOBE-MOUNTING. THOMAS ELLIS, Leon, Ill. Filed May 26, 1896. Serial No. 592,969. (No model.)



Claim.—1. A mount for a globe comprising a base, an inclined standard at one end, a rotary disk on said inclined standard, a bar D mounted on said rotary disk and inclined toward the axis thereof, the globe on the bar D, the inclined bar F carried by the base representing the plane of the ecliptic and the inclined bar E crossing the bar F at right angles and representing the axis of the ecliptic while its ends represent the poles of the ecliptic, substantially as described.

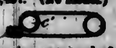
2. In combination the base, the pivoted disk, the bar D carried thereby and inclined to the axis thereof and the two bars E, F, extending alongside the globe at right angles to each other, the bar F representing the plane of the ecliptic while the bar E represents the axis thereof, substantially as described.

587,805. POTATO-DIGGER. EDWARD GREENBURG, Arlington Heights, Ill. Filed Aug. 24, 1896. Serial No. 603,730. (No model.)



Claim.—The combination of the spliced side bar H (with the prongs *l* and L) with the journal of the sprocket-wheel M and its support, the stirrup-strap *v*, permitting of a backward-and-forward movement upon the elevation, depression, or adjustment of the plow-share *g*, all substantially as set forth.

587,806. SAFETY-PIN. EDWIN T. GREENFIELD, New York, N. Y., assignor of one-half to Charles J. Kintner, same place. Filed Dec. 31, 1894. Serial No. 533,497. (No model.)

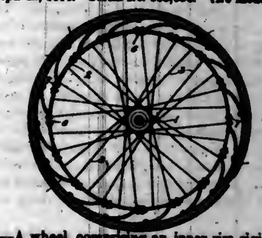


Claim.—1. A safety-pin composed of a single piece of wire coiled upon itself in three coils, two of said coils lying in substantially the same plane as the body portion of the pin, the third coil having its axis substantially parallel with the body of the pin, the second coil being of such diameter as to act frictionally against the material and hold it firmly against the removable portion of the pin, substantially as shown and described.

2. A safety-pin composed of a single piece of wire having two coils located substantially in the same plane as the body and movable portions of the pin, and a third coil the axis of which is parallel to that portion of the pin which joins the first-named coils, the movable portion of the pin being provided with a holding device and a bent end, substantially as shown and described.
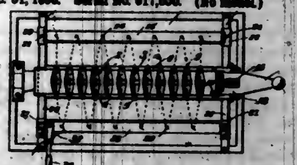
3. A safety-pin composed of a single piece of wire having three coils, one of which acts to separate the parts of the pin, another to lock the parts together and constitute a holding and safety attachment for the point, and another to hold the latter coil in locked position, the point of the pin being provided with means for locking it between the coils of the holding and safety attachment.

587,807. WHEEL. EMANUEL GRIFFITT, Trion Factory, Ga. Filed Sept. 12, 1896. Serial No. 605,638. (No model.)



Claim.—A wheel, comprising an inner rim rigidly connected to the hub, and an outer rim for the reception of the tire surrounding the inner rim and spaced at a distance therefrom, and a plurality of bow-shaped springs disposed tangentially to both rims, said springs being secured at their inner ends to the outer surface of the inner rim by spaced bolts and having their outer ends lapped upon each other and bolts passing through the lapped portions of the springs for holding the same to the outer rim, substantially as described.

587,808. NET-LEADER. EPHRAIM HAATAJA, Rosburg, Wash. Filed Dec. 31, 1896. Serial No. 617,693. (No model.)



Claim.—1. In a mold, the combination of a pair of mold-blocks having a series of molds therein, closure-strips removably attached to said mold-blocks and provided with openings through which is adapted to be led a rope, a trough carried above said mold-blocks provided with openings, each of which communicates with one of said molds, a handle adapted to rock said trough, and a lug upon said handle adapted to limit the rocking motion of said trough, substantially as described.

2. In a mold, the combination of a lower mold-block provided with a series of half-molds and having at the end thereof a recess, of an upper mold-block hinged to said lower block, having a complementary series of half-molds, openings extending from each of said molds through the top of said upper block, closure-strips attached to said blocks, each provided with semicircular notches adapted to form circular openings when the mold is closed, a rotatable trough carried by the upper mold, provided with openings registering with the openings from the molds, a handle attached to said trough and adapted to rock the same, means to limit the rotation of said handle, and an extension upon said handle adapted to engage said recess in the lower block and lock the mold-blocks together, substantially as described.

3. In a net-leader, the combination with a series of molds, of rotatably-mounted bars provided with pins, adjustable relative to said molds, substantially as described.

4. In a net-leader, the combination with a series of molds, of guides extending laterally relative to the mold-blocks, a bar provided with pins and carried by said guides, and clamps upon said bar, substantially as described.

5. In a net-leader, the combination with a mold, of guides extending laterally therefrom, slides mounted upon said guides, a rotatable bar carried by said slides and provided with a series of pins thereon, and means for holding said bar from rotation, substantially as described.

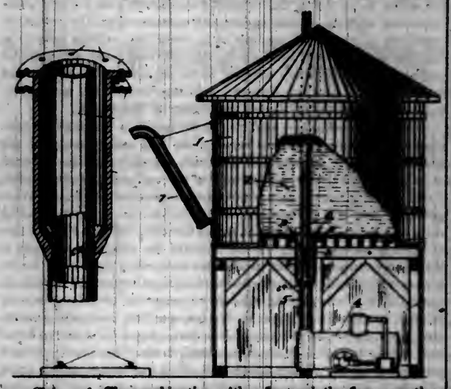
6. In a net-leader, the combination of a mold, guides extending laterally therefrom, slides mounted upon said guides, means for holding said slides in any desired position thereon, a toothed bar rotatably mounted upon said slides approximately parallel to the mold, a handle pivotally attached to said slide, a latch-hook adapted to receive and hold said handle, and a spring normally urging said handle toward said hook.

7. In a net-leader, the combination with a mold, of guides extending laterally upon either side thereof, slides mounted upon said guides, means for holding said slides in any desired position thereon, a toothed bar fixedly attached to said slides upon one side of the mold, a similar bar rotatably attached to said slide upon the opposite side of the mold, and means for holding said bar from rotation, substantially as described.

8. In a net-leader, the combination with a mold, of guides extending laterally upon either side thereof, slides mounted upon said guides, means for holding said slides in any desired position thereon, a toothed bar fixedly attached to said slides upon one side of the mold, a similar bar rotatably attached to said slides upon the opposite side of the mold, a handle pivotally attached to said rotatable bar, a latch-hook adapted to receive and hold said handle, and a spring normally urging said latch-hook toward said handle.

9. In a net-leader, the combination with a mold-block provided with a series of half-molds, of a similar block having openings from the half-molds therein through the top of said block, a trough provided with a series of coincident openings formed with a sharp edge, held above said block, a handle attached to said trough adapted to rock the same, means for limiting the rotation of said trough, means for locking the two halves of said blocks together, closure-strips detachably attached to said blocks provided with notches adapted to form circular openings when said blocks are closed, guides extending laterally upon each side of said mold-block, slides mounted upon said guides, means for holding said slides in any desired position relative to said guides, a toothed bar fixedly attached to the guides upon one side of said mold, a similar bar rotatably attached to the slides upon the opposite side, a handle rotatably mounted upon said bar, a latch-hook adapted to receive the handle and prevent the rotation of said bar, and a spring normally urging said handle in the direction of said hook, substantially as described.

587,809. WATER-JACKETED FLUE. FREDERICK HARION, Grand Forks, N. D. Filed Oct. 20, 1896. Serial No. 609,411. (No model.)



Claim.—1. The combination with a flue and the floor or other part through which the same passes, of a water-jacket open at its upper end and supported from the floor, and connecting with the flue by a water-tight joint, at a point below the floor, substantially as described.

2. The combination with a water-tank and a flue passing upward through the same, of a water-jacket surrounding said flue where it passes through the bottom of said tank open at its upper end to the interior of said tank and depending therefrom to increase the water-heating surface of said flue and to protect said tank-bottom, substantially as described.

3. The combination with a water-tank and a flue passing upward through the bottom of the same, of a water-jacket surrounding the flue where it passes through the tank-bottom, which jacket is open to the tank at its upper end and forms a tight joint with the flue at its lower end, below the floor, substantially as described.

4. The combination with the water-tank, of the smoke-flue passing through the same and the water-jacket surrounding the said flue where it passes through the floor of said tank, which jacket is open to the tank at its upper end and is provided at its lower end with the contracted and internal-threaded portion, adapted to form a tight joint with the flue, below the floor, substantially as described.

587,810. TROUSERS. PAULINE G. HERGET, Bogota, N. J. Filed Feb. 17, 1897. Serial No. 623,306. (No model.)



Claim.—1. The combination with a trousers-leg, of a strap, or tape, comprising vertical pendent portions, secured along the seams of the trousers, and a transverse portion secured to the rear lower edge of the trousers, suitably-guided cord or cords, and means for securing the slack of said cord or cords.

2. A trousers attachment, comprising a tape or strip consisting of vertical portions adapted to be sewed to the inner face of the side seams of a trousers-leg, and a transverse portion adapted to be sewed to the rear lower edge of the trousers-leg, each end of the transverse portion terminating in a right-angular fold to form said vertical portions, said folds being provided with eyelets for securing them in position, in combination with a cord, the ends of which are fastened to the upper ends of the vertical strip portions, said cord passing freely through openings in both the vertical and transverse portions and through the eyelets in the folds, and said cord being so secured and arranged, that by pulling upward on the cord the back-half portion of the trousers-leg will be gathered in at the same time that the remaining portion of the trousers-leg is gathered up, substantially as shown and described.

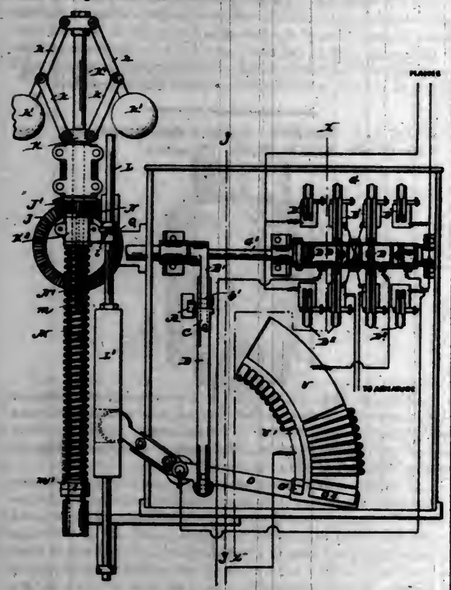
3. The combination with a trousers-leg, of a strip or tape, comprising vertical pendent portions secured along the seams of the trousers, and a transverse portion secured to the rear lower edge of the trousers, and an elevating-cord secured at its ends to the tape and passing through openings in the strip or tape, so that by pulling upward on the said cord the back-half portion of the trousers-leg will be gathered in at the same time that the remaining portion of the trousers-leg is gathered up and secured by said cord and fastening devices for said cord, substantially as and for the purpose set forth.

587,811. REGULATING ADMISSION OF CURRENTS TO MOTORS. FRANK B. KEENAN, Winnetka, Ill. Filed Nov. 27, 1896. Serial No. 613,690. (No model.)

Claim.—1. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, and a device connected with said switch adapted to render said means ineffective to move said current-regulating device during the closing of the switch.

2. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, a device connected with said switch adapted to render said means ineffective to move said current-regulating device during the closing of the switch, and adapted by a further definite movement of the switch to permit said means to be effective.

3. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, and a device connecting said switch with said current-regulating device, adapted to lock the current-regulating device during the closing of said switch.



4. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, a device connecting said switch with said current-regulating device, adapted to lock the current-regulating device during the closing of said switch and adapted by a further definite movement of said switch to unlock said current-regulating device.

5. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, an operating bar or shaft for controlling the switch, levers connected with the operating-bar and current-regulating device respectively, so connected together as to permit one to slide upon or in relation to the other, a latch on the last-specified lever, and a device independently supported adapted to be engaged by said latch and lock said lever and the current-regulating device from moving toward said operating-bar during the closing of the switch.

6. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means connected with and operated by the motor to normally control the position of the current-regulating device, a switch for admitting current to the motor, an operating bar or shaft for controlling the switch, levers connected with the operating-bar and current-regulating device respectively so connected together as to permit one to slide upon or in relation to the other, a latch on the last-specified lever, and a device independently supported adapted to be engaged by said latch and lock said lever and the current-regulating device from moving toward said operating-bar during the closing of the switch, the device being of such length as to disengage said latch and unlock said lever and current-regulating device by a further movement of the switch.

7. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, and a device connected with said switch adapted to render said governor ineffective to move said current-regulating device during the closing of said switch.

8. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, and a device connected with said switch adapted to render said governor ineffective to move said current-regulating device during the closing of said switch and adapted by a further definite movement of the switch to permit said governor to be effective.

9. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, and a device connecting said switch with said current-regulating device, adapted to lock the current-regulating device during the closing of said switch.

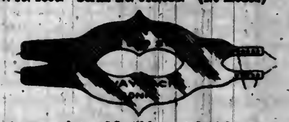
10. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, and a device connecting said switch with said current-regulating device, adapted to lock the current-regulating device during the closing of said switch and adapted by a further definite movement of the switch to unlock said current-regulating device.

11. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, an operating bar or shaft for controlling the switch, levers connected with the operating-bar and current-regulating device respectively so connected together as to permit one to slide upon or in relation to the other, a latch on the last-specified lever, and a device independently supported adapted to be engaged by said latch and lock said lever and the current-regulating device from moving toward said operating-bar during the closing of the switch.

12. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, a centrifugal governor driven by the motor, connection between said governor and the current-regulating device, the connection being such that the position of the governor normally controls the position of the current-regulating device, a switch for admitting current to the motor, an operating bar or shaft for controlling the switch, levers connected with the operating-bar and current-regulating device respectively so connected together as to permit one to slide upon or in relation to the other, a latch on the last-specified lever, and a device independently supported adapted to be engaged by said latch and lock said lever and the current-regulating device from moving toward said operating-bar during the closing of the switch, the device being of such length as to disengage said latch and unlock said lever and current-regulating device by a further definite movement of the switch.

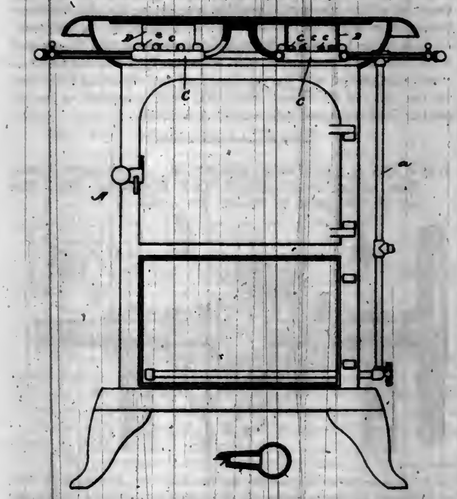
13. The combination with an electric motor, a source of current-supply, electrical connection between the field and armature of the motor and source of supply, of a current-regulating device adapted in its movement to vary the amount of current passing to the motor, means to operate said current-regulating device, a switch for admitting current to the motor, and a device connected with said switch adapted to render said means ineffective to move said current-regulating device during the closure of the switch.

587,812. NAME-PLATE. JOHN C. IVES, Waterbury, Conn. Filed Nov. 16, 1896. Serial No. 612,232. (No model.)



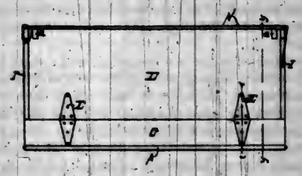
Claim.—A name-plate of flexible metal with an eye near one end and a tongue at the other end—provided with rivet-holes—and adapted to enter said eye and bend back upon itself so as to bring two rivet-holes into alinement, all substantially as described and for the purposes set forth.

587,813. GAS-STOVE. JONATHAN JOHNSON, Lowell, Mass. Filed Jan. 31, 1896. Serial No. 576,760. (No model.)



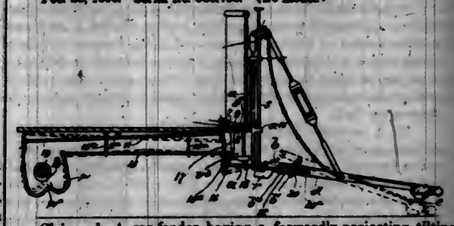
Claim.—In a gas-stove, the combination with one or more horizontally-arranged burners having hoods or bonnets for causing a horizontally-spreading flame, of a vertical shield or cylinder surmounting the burner or burners, and permitting a current of air to pass through said cylinder at right angles to the flame, substantially as described.

587,814. FOLDING BOX. JOHN H. KAMMERER, Milwaukee, Wis. Filed Mar. 8, 1897. Serial No. 626,417. (No model.)



Claim.—In a folding box, the combination with the bottom piece A of the folding end pieces I, I, respectively secured to the respective ends of said bottom piece by hinges B, B; central folding partition F hinged at its lower edge to said bottom piece and adapted to be folded in either direction over and upon the same: side strips C, C rigidly affixed at their lower edges to the sides of said bottom piece; folding side pieces D, D respectively hinged at their lower edges to the upper edges of said side strips C, C and adapted to be folded over and upon said folding end pieces; U-shaped retaining-brackets H affixed near the upper edges to the respective side pieces and adapted to engage the respective sides of said partition and hold the same in a vertical position; and two pairs of fastening-clamps K, K respectively secured by pivots to the upper edges of said end pieces and adapted, when the box is set up, to engage the upper edges of the respective side pieces, substantially as and for the purpose specified.

587,815. STREET-CAR FENDER. JAMES D. LAKE and JAMES H. CHAPMAN, Montreal, Canada, assignors of one-fourth to John James Durack, same place, and Patrick John Brennan, Ottawa, Canada. Filed Feb. 25, 1896. Serial No. 580,753. (No model.)



Claim.—1. A car-fender having a forwardly-projecting tilting section; rod-and-lever mechanism for operating said tilting section the rod of said rod-and-lever mechanism being variable in length and projecting vertically through the platform of the car and being provided with a laterally-extending head; and a spring-operated bolt adapted to engage the laterally-extending head of said rod when said tilting section is in its tilted position, for the purpose set forth.

2. The combination of a stationary back piece secured to the front of the car, a forwardly-projecting section pivotally connected to said stationary back piece; a rearward extension from said forwardly-projecting section; a vertically-adjustable rod carried in bearings upon said stationary back piece; the lower end of such rod being normally in contact with said rearward extension and means for retaining said rod against vertical displacement, in any position to which said rod may be adjusted, for the purpose set forth.

3. The combination of a stationary back piece; secured to the front of the car; a forwardly-projecting section pivotally connected to said stationary back piece; a rearward extension from said forwardly-projecting section; a screw-threaded vertical rod taking in screw-threaded bearings formed upon said stationary back piece; the lower end of such rod being normally in contact with said rearward extension, for the purpose set forth.

4. A car-fender having a stationary back piece; an intermediate section: a forwardly-projecting tilting section pivoted to said intermediate section; a lever fulcrumed to said intermediate section and adapted to engage the rear end and limit the movement of said tilting section; a coiled spring having one end bearing downwardly upon said lever and the other end thereof engaging said intermediate section: and means for operating said tilting section, for the purpose set forth.

5. A car-fender having a stationary back piece; an intermediate section: a forwardly-projecting tilting section pivoted to said intermediate section; a lever fulcrumed to said intermediate section and offset and having the forward end thereof slotted and adapted to take over and engage a pin projection upon the rear end of said tilting section; a coiled spring having one end bearing downwardly upon said lever and the other end thereof engaging said intermediate section: and means for operating said tilting section, for the purpose set forth.

6. A car-fender having a stationary back piece; an intermediate section: a forwardly-projecting tilting section pivoted to said intermediate section: a lever fulcrumed to said intermediate section and adapted to engage the rear end of said tilting section; a coiled spring having one end bearing downwardly upon said lever and the other end thereof engaging said intermediate section; and means for operating said tilting section and means for automatically locking said tilting section, in its tilted position, for the purpose set forth.

7. The combination of a stationary back piece secured to the front of the car; a forwardly-projecting section pivotally connected to said stationary back piece; a rearward extension from said forwardly-projecting section; a vertically-adjustable rod carried in bearings upon said stationary back piece; the lower end of such rod being normally in contact with said rearward extension, and means for retaining said rod against vertical displacement in any position to which said rod may be adjusted: a lever fulcrumed to said intermediate section and adapted to engage the rear end of said tilting section; a coiled spring having one end bearing downwardly upon said lever and the other end thereof engaging said intermediate section: for the purpose set forth.

8. The combination of a stationary back piece secured to the front of the car; a forwardly-projecting section pivotally connected to said stationary back piece a rearward extension from said forwardly-projecting section; a vertically-adjustable rod carried in bearings upon said stationary back piece; the lower end of such rod being normally in contact with said rearward extension; means for retaining said rod against vertical displacement in any position to which said rod may be adjusted: a lever fulcrumed to said intermediate section and adapted to engage the rear end of said tilting sec-

tion; a coiled spring having one end bearing downwardly upon said lever and the other end thereof engaging said intermediate section; and means for automatically locking said tilting section in its tilted position, for the purpose set forth.

9. A car-fender having a stationary back piece; an intermediate section; a forwardly-projecting tilting section pivoted to said intermediate section; a box or casing secured to the forward end of said tilting section and having a tapering and open bottom, a ball adapted to project partially through each open bottom and a removable retaining-plate adapted to hold said ball against displacement, for the purpose set forth.

10. A car-fender having a forwardly-projecting tilting section, rod-and-lever mechanism for operating said tilting section and a spring-operated bolt adapted to engage said rod-and-lever mechanism when said tilting section is in its tilted position, said rod having a head of extended width, a second rod carried adjacent to said first-mentioned rod; a lever fulcrumed to the under side of the car and connected at one end to said second rod; a U-shaped section straddling and adapted to be acted upon by the axle of the car and flexibly connected to the other end of said lever; a compound lever suspended adjacent to said lever and connected at one end to the other end of said U-shaped section; a knocker provided with a lateral extension and suspended adjacent to the other end of said compound lever, and a bell located adjacent to said knocker, for the purpose set forth.

587,816. HOD. GEORGE LAKE, Haverford, Pa. Filed July 25, 1896. Serial No. 600,563. (No model.)

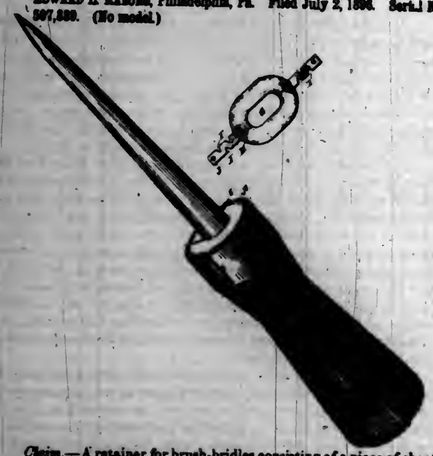


Claim.—1. The combination with a hod, of a trough secured thereto, straps connected to the trough, and a pneumatic cushion located in said trough and around which the straps pass.

2. The combination with a hod, of an elongated concaved trough received in the lower edge of the hod and provided with flanges which are fastened to the latter, a pneumatic tube constituting a cushion which is received in the trough, and means for holding said tube in the latter.

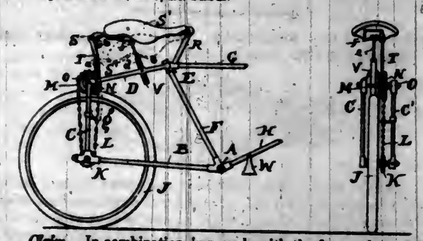
3. The combination with a hod which is cut away along its lower portion, of an elongated concaved trough provided with flanges which are fastened to the sides of the hod, straps connected to the trough, and an elongated pneumatic tube or cushion received in the trough and held therein by the straps which pass around the tube.

587,817. BRUSH-BRIDLE RETAINER. WALTER LEWIS and EDWARD L. RAMDS, Philadelphia, Pa. Filed July 2, 1896. Serial No. 597,880. (No model.)



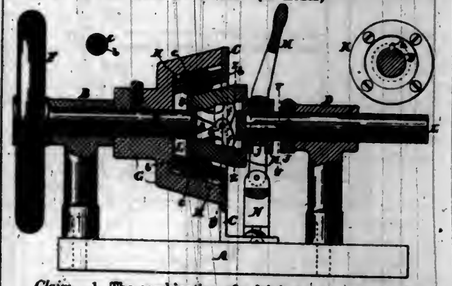
Claim.—A retainer for brush-bridles consisting of a piece of sheet metal in the shape of a ring to fit over the handle of a brush, and having strips provided with notches and holes for engagement with the ends of the bridling-cord, as and for the purpose described.

587,818. VELOCIPEDE. MATTHEW A. LILLY, Bristol, England. Filed Dec. 16, 1896. Serial No. 615,898. (No model.) Patented in England Dec. 18, 1895, No. 24,949.



Claim.—In combination, in a cycle with the frame, the standard R, the seat pivoted thereto at its front end, the vertical bar C extending up from the bearing of the rear wheel, the sprocket supported thereby at its upper end, the sprocket on the rear wheel, the vertical drive-chain between the sprockets, the rack-bar pivoted to the rear end of the seat and depending therefrom, the ratchet-wheel connected with the sprocket-wheel and engaged by the said rack-bar, the spring for holding the rack in engagement with the ratchet-wheel, the block *g* on the vertical frame-bar for throwing the rack out of engagement with the ratchet-wheel and the spring for elevating the rear end of the seat, said spring being supported on the upper bar D of the frame, substantially as described.

587,819. REVERSING MECHANISM. JOSEPH LIBOTTE, Quincy, Mass., assignor of one-half to Mellen H. Bray, Boston, Mass. Filed Apr. 13, 1897. Serial No. 631,689. (No model.)



Claim.—1. The combination of a driving-shaft and a shaft to be driven mounted in suitable bearings in axial line with each other and their adjacent ends in near proximity to each other; means for rotating said driving-shaft in a given direction; a cam-operated dog-gripping mechanism for coupling said shafts to cause said driven shaft to revolve in unison with and in the same direction as the driving-shaft; a frictional coupling mechanism constructed and arranged to rotate said driven shaft in a direction opposite to the rotation of said driving-shaft, both of said coupling mechanisms being mounted upon and revoluble with said shafts; and a shipping mechanism constructed and arranged to throw one of said coupling mechanisms out of action as the other coupling mechanism is thrown into action and vice versa.

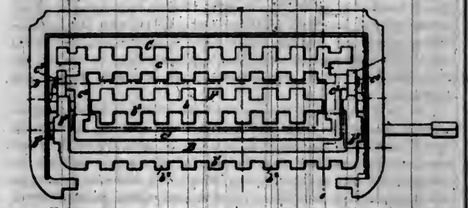
2. The combination of a driving-shaft and a shaft to be driven mounted in suitable bearings in axial line with each other with their adjacent ends in near proximity to each other; means for rotating said driving-shaft in a given direction; a pair of pivoted dogs or elbow-gripping levers carried by said driving-shaft and revoluble therewith; a shipper-hub mounted upon, movable endwise of, and revoluble with said shaft to be driven; a tubular hub or sleeve secured to said shipper-hub and movable therewith and inclosing said dogs, and provided with an annular inclined or cam surface to act upon and move said dogs about their fulcrums and cause them to engage the inner perimeter of said tubular hub; and a shipper-lever for moving said hub endwise of said shafts to couple or uncouple the same.

3. The combination of a driving-shaft and a shaft to be driven mounted in suitable bearings in axial line with each other and with their adjacent ends contiguous to each other; means for revolving said driving-shaft in a given direction; a hub firmly secured upon and revoluble with said driving-shaft, and having a frusto-conical chamber in its end toward the shaft to be driven; a pair of pivoted dogs or elbow-gripping levers carried by said driving-shaft, and revoluble therewith; a shipper-hub mounted upon, movable endwise of and revoluble with the shaft to be driven; a tubular frustum of a

cone secured to and movable with said shipper-hub and projecting into the frusto-conical chamber in the hub secured upon the driving-shaft, and inclosing said dogs and provided with an annular inclined or cam surface to act upon said dogs to move them about their fulcrums; a frusto-conical ring mounted in a fixed or non-revoluble position between the outer peripheral surface of said frustum of a cone, and the inclined walls of the frusto-conical chamber of the hub carried by the driving-shaft but removed from contact with both of said surfaces, and provided with a plurality of transverse openings through the same; a plurality of friction-rolls mounted in said openings and having diameters greater than the thickness of said ring; and a shipper-lever for moving said shipper-hub and frustum of a cone endwise of said shafts as and for the purposes described.

4. The combination of the shafts E and I; the stands B, C, D and N; means for rotating the shaft E in a given direction; the conically-chambered hub G carried by the shaft E; the grip-levers or dogs *f*, *f*, pivotally mounted in a slot in said shaft E; the shipper-hub K; the tubular frustum of a cone L provided with the annular inclined or cam surface *l*; the frusto-conical ring H secured in a fixed position to the stand C and provided with a plurality of transverse openings *a*, *a*; the pins *b*, *b*, set in said ring and spanning said openings *a*, *a*; the rolls *c*, *c*, mounted upon said pins but provided with longitudinal bores of greater diameters than said pins; and the shipper-lever M pivoted to the stand N, and engaging said hub K, all constructed, arranged and operating substantially as described.

587,820. FIRE-GRATE. ROBERT MEYER, Buffalo, N. Y. Filed Mar. 7, 1896. Serial No. 582,258. (No model.)



Claim.—1. A compound grate comprising a rocking section which is mounted on pivots and capable of a rocking movement on the same and a dragging section which is capable of a bodily movement toward and from the pivot-line of the rocking section and which is connected with the rocking section and actuated by the same, substantially as set forth.

2. The combination with a supporting-frame, of a compound grate comprising a rocking section which is mounted on pivots and capable of a rocking movement on the same, and a dragging section which is supported at different distances from the pivot-line of the rocking section by connections with the rocking section and by arms which are separate from the dragging section and pivoted to the supporting-frame and permit the dragging section to move bodily to and fro in following the movement of the rocking section, substantially as set forth.

3. The combination with a supporting-frame, of a dumping or rocking grate-section having trunnions journaled in said frame and provided on one side of said trunnions with cylindrical portions or journals, a laterally-movable grate-section provided on its under side with bearings which overlap said cylindrical portions or journals and means for retaining said journals in said bearings, substantially as set forth.

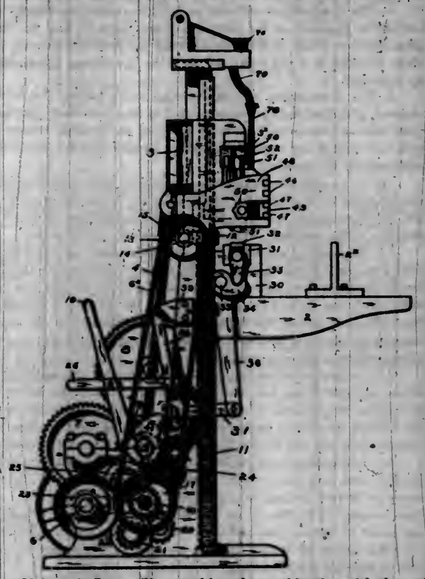
4. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame and having longitudinal bars connected together at their ends and separated by an intervening space, and a laterally-movable grate-section operated from said dumping or rocking section and having a pair of connected longitudinal bars, the inner bar of the rocking section being arranged between the longitudinal bars of the laterally-movable section and the inner bar of the last-mentioned section being arranged between the bars of the rocking section, substantially as set forth.

5. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame, laterally-swinging arms pivoted at the ends of said supporting-frame and provided in their free ends with openings or bearings, and a laterally-movable grate-section provided at its ends with trunnions journaled in the bearings of said arms and connected with said rocking grate-section, substantially as set forth.

6. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame, laterally-swinging carrying-arms pivoted at the ends of said supporting-frame, a laterally-movable grate-section journaled in the free ends of said carrying-arms and having bearings or depressions which overlap the adjacent side bar of the rocking grate-section, and retaining devices which confine said side bar in said overlapping bearings, substantially as set forth.

7. The combination with a supporting-frame, provided in its end walls with upright slots, of a rocking grate-section arranged in said frame, laterally-swinging carrying-arms having trunnions passing loosely through the slots in the end walls of said frame and each provided at its outer end with a radial lug, and a laterally-movable grate-section journaled in the free ends of said carrying-arms and connected with the rocking grate-section, substantially as set forth.

587,821. NAILING-MACHINE. HENRY W. MORGAN, Rochester, N. Y. Filed Dec. 9, 1896. Serial No. 615,003. (No model.)



Claim.—1. In a nailing-machine, the combination with the main frame, the nail-holders, the drivers and the driver-frame, and the intermittently-actuated crank-shaft for operating the driver-frame, of the vertically-adjustable work-holding table, a nail-clenching device thereon cooperating with the drivers, and direct connections between said clenching device and the intermittently-rotated shaft for operating the former, the constantly-rotating shaft from which the intermittently-rotating shaft is actuated, adjusting devices for moving the table vertically, and detachable and reversible connections between the constantly-rotating shaft and the adjusting devices, whereby the work-table may be quickly adjusted to different heights.

2. In a nailing-machine, the combination with the main frame, the nail-holders thereon, the drivers, the driver-frame movable on the main frame, the work-table adjustable on the main frame, the screw for operating it, the worm-wheel 12, the worm and the worm-shaft, and the belt-wheel thereon, of the driving-shaft, the friction-wheel 23, the belt-wheel 17, the gear thereon and the belt, the gears 20, 21 and 24, the lever 19, and the wheels 22 and 25, arranged and operating substantially as described.

3. In a nailing-machine, the combination with the nail-holder, the nail-driver, the movable driver-frame, and the crank-shaft actuating the frame, of the stationary work-support 31, the movable nail-clenching anvil normally below the plane of the support, and connections between the crank-shaft and anvil for raising the latter, while the driver-frame is held in lowest position, thereby clenching the end of the nail while it is held by the driver, substantially as described.

4. In a nailing-machine, the combination with the nail-holder, a nail-driver, and a rotary shaft connected to the driver for actuating it, of the stationary work-support out of the path of the nail, the movable nail-clenching anvil in the path of the nail, the lever 36 for actuating the anvil and the arm 41 on the rotary shaft actuating the lever to raise the anvil and clench the nail when the driver has reached the limit of its downward movement and is at rest, substantially as described.

5. In a nailing-machine, the combination with the work-support 31, the vertically-movable nail-clenching anvil at the side of the support, the lever 36 connected to the anvil for raising it, the links 37

and 38, the rotary shaft 5, and the arm 41 engaging the link to operate the anvil, substantially as described.

6. In a nailing-machine, the combination with the nail-driving mechanism, the stationary work-support 31, the movable nail-clenching anvil 32, the shaft 35, arms 34 engaging the anvil, the lever 36, and the rotary shaft 5 having the arm 41 for engaging and operating the lever 36, substantially as described.

7. In a nailing-machine, the combination with the main frame having the slot for the cleat-holder, nail-holders and driving devices, and a work-support beneath the nail-holders, of the block 81 movable in the slot in the frame and in rear of the front, the adjusting-screw 82 connecting the frame and block, and the removable bracket 80 having the hooked portion for extending over the block and arranged to support a cleat beneath the drivers, substantially as described.

8. The combination with the nail-holding chuck having the nail and driver channels, of the pivoted nail-holding jaws, and the back plate between which and the chuck-body the jaws are pivoted, said plate yielding in a plane parallel with the jaw-pivots, substantially as described.

9. The combination in a nail-holding chuck having the driver-channel, of the nail-holding jaws pivoted to the chuck-body, the back plate between which and the body the jaws are pivoted, having the rods and springs and movable in a plane parallel with the jaw-pivots, substantially as described.

10. In a nailing-machine, the combination with the main frame, the brackets 48, the supports 46 thereon, the blocks 49 movable on the brackets 48, and the supports 47, of the nail-holders mounted adjustably on the supports 46 and 47, substantially as described.

11. In a nailing-machine, the combination with the nail-holders, of the movable driver-bar, the drivers having the laterally-extending heads arranged in contact with the under side of the bar and provided with the downward extensions 53, the vertically-adjustable front plate 58, having the recess for the extensions 53 on the driver-heads, and securing devices for holding the plate 58 in elevated position, substantially as described.

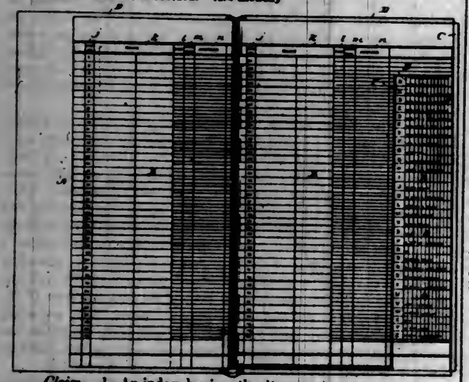
12. In a nailing-machine, the combination with the nail-holders, of the movable driver-bar, the bar 54 sliding beneath the driver-bar having the longitudinal recess, the plate adjustably connected to the bar 54, and the drivers having the heads engaging the driver-bar and supported by the bar 54 and the plate, substantially as described.

13. In a nailing-machine, the combination with two series of nail-holders and supports for each series adjustable relatively, of two series of drivers having the heads, the driver-bar with which said heads engage, the plate 58 on the driver-bar engaging the heads of one series of drivers, the movable bar 54 with which the heads of the other series of drivers engage, and the securing-plate 57 connected thereto, substantially as described.

14. In a nailing-machine, the combination of the driver-bar, the drivers having the heads and the depending lugs, the front plate 58 having the flange engaging the lugs and the slots 59, and the studs or screws 60, substantially as described.

15. The combination with the nail-supports having channels, and the rotary selector having recesses therein for engaging the nails beneath their heads, of the nail-conductors having the nail-passage, the throat 72 and the rib 75 between the throat and nail-passage, substantially as described.

587,822. INDEX. HARRY L. MOYER, York, Pa. Filed Oct. 16, 1896. Serial No. 609,132. (No model.)



Claim.—1. An index having the lines on its pages numbered, substantially such as described, and the underlying tabs on the margins of the index-pages, each tab provided with a series of combination-letters referring to the second letters of names beginning with the initial letter and also provided with numbers in juxtaposition to the second or combination letters, which numbers on the tabs refer to the numbered lines on the index-pages appropriate to names having the initial letter and the given combination-letters, as set forth.

2. An index each page of which has its lines grouped and numbered consecutively to receive names having given initial and second letters, and the series of underlying tabs arranged on the notched margins of the index-pages to be exposed in alphabetical order, each tab having its surface divided into columns containing, or adapted to contain, a series of combination or second letters and a series of figures in juxtaposition to said second or combination letters; said series of combination-letters in the tab-columns referring to the second letters of names inscribed in the index, and the series of figures on said tabs referring to the proper groups or numbered lines where names having the given initial and second letters are to be found on the index-pages, as set forth.

3. An index-book having the lines of its pages numbered in consecutive order, and the series of tabs provided with alphabetical initial letters, and attached to said pages to be exposed to view, each tab containing a series of exposed columns in which are inscribed letters and figures which refer to the second letter of the name entered in the index and the number of the line on the page in which the name is entered, respectively, as set forth.

4. An index having one or more of its pages provided with a double notch, as *g g'*, and a two-part tab, as G, G', one part G of said tab attached to the part *g* of the double-notched index-page, the other part G' of the tab attached to a notched edge on an adjacent page and projected into view through the notch *g'* of the preceding double-notched page, the two parts G, G' of the tab being arranged substantially in alinement with each and provided with columns containing letters and numbers which refer respectively to the second letters of the names entered on the index-pages and to the number of the line on which the names are inscribed, as and for the purposes described.

5. An index having its pages provided with lines which are numbered in consecutive order, and a series of tabs bearing alphabetical letters referring to the initials of names to be inscribed on the index-pages and arranged to expose the faces of all the tabs, each tab further provided with another series of letters and with a series of numbers set opposite to, or in alinement with, said second series of letters, as set forth.

6. An index having the lines on its pages numbered in consecutive order and a series of tabs bearing initial letters and a series of columns containing a second series of letters and figures opposite to or in alinement with said second series of letters, one or more of the index-pages having a double notch as *g g'* to accommodate a two-part tab G, G' which is devoted to one alphabetical initial letter and which has its two parts attached to the double-notched page and the next adjacent page, respectively, to have the two parts thereof exposed to view, as set forth.

587,823. MILK-PAIL. CHARLES R. MCKINSTRY, Mercersburg, Pa. Filed Apr. 3, 1897. Serial No. 630,538. (No model.)

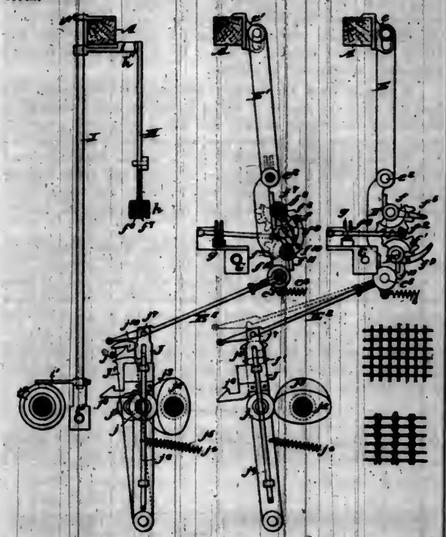


Claim.—A milk-pail comprising a pail-body provided with a top or cover having a depressed center with an opening therein and securing-lugs, a plate seated in said depressed center and provided with slots to enable the plate to be fitted over the lugs and then turned to engage the same, a valve-chamber secured in said plate and provided with a vent-opening and at the lower end thereof with a perforated plate, a valve in said chamber, a pendent strainer, and a ring threaded onto the lower end of the valve-chamber and clamping the strainer thereon, substantially as described.

587,824. LOOM FOR CROSS-WEAVING. ISAAC R. PALMER, Middletown, Conn. Filed Apr. 1, 1895. Serial No. 543,976. (No model.)

Claim.—1. In combination, a take-up roll, independent supply-rolls, means for manipulating the sheds of warp and a tension device for the reception of the warp from the different supply-rolls, the said tension device comprising a rocking plate and tension-pins extending from said rocking plate, one of said pins being adjustable to vary the tension of the warp-threads, substantially as set forth.

2. A tension device for looms, comprising a rocking plate, a spring for actuating the plate, tension-pins on the plate, and a reed for separating the warp-threads, one of the said tension-pins being adjustable to vary the tension of the warp-threads, substantially as set forth.



3. In combination, means for feeding sheds of warp, a take-up mechanism, a lower bank of needles for controlling a shed of warp, an upper bank of needles for controlling a shed of warp, and an auxiliary bank of needles for controlling an auxiliary shed of warp and means for rocking the different banks of needles, substantially as set forth.

4. In combination, means for feeding sheds of warp, a take-up mechanism, a lower bank of needles for controlling a shed of warp, an upper bank of needles for controlling a shed of warp, an auxiliary bank of needles for controlling an auxiliary shed of warp, means for moving the auxiliary bank of needles laterally with respect to one of the other banks and means for rocking the said banks, substantially as set forth.

5. In combination, means for feeding sheds of warp, a take-up mechanism, a lower bank of needles for controlling a shed of warp, an upper bank of needles for controlling a shed of warp, and an auxiliary bank of needles for controlling an auxiliary shed of warp, means for moving the upper bank of needles and the auxiliary bank of needles transversely simultaneously in opposite directions and means for rocking the said banks, substantially as set forth.

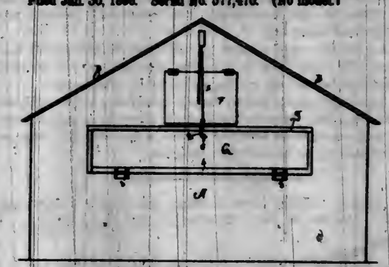
6. In combination, banks of needles having a rocking movement toward and away from each other, gear connecting the banks of needles, a swinging support for the needles, swinging tappets, means for interlocking the tappets at predetermined intervals, one of said tappets being connected with the swinging support, a drive-shaft carrying cams adapted to engage the tappets to swing them, and pattern-chains for further controlling the movement of the tappets, substantially as set forth.

7. In combination, banks of needles having a rocking movement toward and away from each other, gear connecting the banks of needles, a swinging support for the needles, swinging tappets, one of said tappets being connected with the swinging support, a drive-shaft carrying cams adapted to engage the tappets to swing them, and pattern-chains engaging the tappets, substantially as set forth.

8. In combination, banks of needles geared together so as to have a rocking movement toward and away from each other, a swinging support for the banks of needles, a drive-shaft having cams thereon, swinging tappets engaged by the said cams, a hooked connecting-bar between the swinging support and one of the tappets, pattern-chains for controlling the movement of the tappets, and an auxiliary pattern-chain for releasing the hooked connecting-bar from engagement with the tappet at intervals, substantially as set forth.

9. In combination, a frame, a needle-support hinged thereon, means for swinging the needle-support, banks of needles provided with gear-wheels which intermesh, a connection between one of the gear-wheels and the frame, whereby as the needle-support is swung, the banks of needles are caused to rock toward and away from each other, substantially as set forth.

587,825. STOCK-PEN. JAMES L. PAXTON, South Omaha, Nebr. Filed Jan. 30, 1896. Serial No. 577,470. (No model.)



Claim.—The combination in a stock-pen of a feed-reservoir, said reservoir comprising the inclined bottom, C, the sides, E, E, and the top, D, the dumping-gate, G, extending the full width of the reservoir, near the lower edge thereof, said gate acting as a closure so that said reservoir may be filled, said gate dumping outward so that said reservoir may be instantly emptied, and the hinged door, F, so that said reservoir may be filled.

587,826. COIN-FREED APPARATUS. CHARLES PETERS, London, England. Filed Jan. 11, 1897. Serial No. 618,830. (No model.) Patented in England Aug. 29, 1896, No. 19,119.



Claim.—1. In combination in a coin-freed apparatus the casing having an opening, a plug adapted to be inserted therein, the movable locking-plate within the casing adapted to engage and hold the plug, and a tilting coin-lever adapted to receive the coin at one end and connected at its opposite end with the locking-plate to retract the same from engagement with the plug under the weight of the coin, substantially as described.

2. In combination, in a coin-freed apparatus, the casing, the locking device therein, the coin-lever connected therewith, means for holding the locking device normally retracted, said device being arranged to release the locking device upon the insertion of connections leading from the article to be held and the said coin-lever being arranged to receive the coin and thus retract the locking device, substantially as described.

3. In combination, the casing, the locking device therein to engage the connection leading to the article to be held when said connection is inserted therein, a coin-lever for retracting said locking device to free said connection and the ejecting device for discharging said connection when released, substantially as described.

4. In combination, the casing, the locking-plate therein, the plug L adapted for insertion into the casing to be engaged by the locking-plate, the coin-lever for retracting the locking-plate, the spring-plate K adapted to hold the coin-lever and locking-plate normally retracted, the said spring-plate serving to eject the plug when the locking-plate releases it, substantially as described.

5. In combination, the casing, the locking-plate therein, the coin-freed lever connected with the locking-plate, the spring K for holding the locking-plate and lever normally retracted and the plug L adapted to be inserted, to press on the spring and thus to release the locking-plate, said plug having a groove to be engaged by the locking-plate, substantially as described.

587,827. CAPSULE. JOHN R. PLASTER, Brooklyn, N. Y. Filed Apr. 23, 1897. Serial No. 633,231. (No specimens.)



Claim.—1. A multiple empty gelatin capsule comprising a plurality of intercommunicating sacs, adapted to be severed one from another and to be used individually, and hermetically sealed at one point to prevent collapsing.

2. A multiple empty gelatin capsule comprising a pair of sacs connected with each other by a hollow intermedium, and divisible into individual capsules by cutting through said intermedium.

3. A multiple empty gelatin capsule comprising a pair of intercommunicating sacs connected with each other by a hollow intermedium and hermetically sealed at a point in line with said intermedium, substantially as hereinbefore specified.

587,828. STROP. JOHN D. RADER and JACOB T. RADER, Clyde, Ohio. Filed Dec. 20, 1896. Serial No. 617,265. (No model.)



Claim.—1. In a strop having an outer flexible covering, a means for renewing the friction-surface of said covering after it has become impaired by use, consisting of a pressure device applied thereto and adapted to stretch the covering transversely and in the direction of the width thereof.

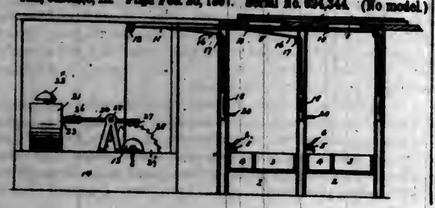
2. In a strop, the combination, of the central core or body, a flexible envelop or covering closely fitting the same, having one side perforate and the other side imperforate, a paste-like abrading substance beneath the perforate side and adapted to fill the perforations thereof, an oleaginous substance in rear of the imperforate side, and means for renewing the friction-surface after it has become impaired by use and which stretches the covering transversely or in a plane at right angles to the length thereof whereby the pores of the material are kept open to allow the abrading material and oleaginous substance to escape, and to renew the friction-surface of the strop.

3. In a strop, the combination, of a central core or body having grooved edges, a flexible envelop or covering fitted to said body, clamping-plates fitted in said grooves and against the contiguous narrow side of the envelop or covering and means for adjusting said plates against said sides whereby the covering is stretched transversely of the strop and of the line of movement of the blade in its sweep across the same.

4. As an article of manufacture, a strop having an outer envelop or covering one side of which forms a strop-surface and the opposite side a hone-surface, and means for stretching said envelop transversely of the path of movement of the blade after its friction-surface has become impaired by use, and thereby opening the pores of the material and renewing the friction-surfaces, and automatically supplying lubricant and abrading material thereto.

5. The combination, of a core or body having shallow depressions on opposite sides and having grooved edges, a flexible envelop or sheath for said body, having a perforate or hone side, and an imperforate or strop side, a lubricant in one of the depressions behind the imperforate side of the covering, a combined lubricating and abrading substance in the other depression behind the perforate side, adapted to enter the perforations thereof, and means consisting of clamping-plates in said grooved edges and adjustable securing devices for stretching the envelop transversely after its friction-surface has become impaired by use, to open the pores of the material and force the lubricant and combined lubricant and abrading material to the outer surfaces of the covering, and renewing said surfaces.

587,829. FEEDING AND WATERING DEVICE. NICHOLAS REUTER, Chicago, Ill. Filed Feb. 20, 1897. Serial No. 624,344. (No model.)



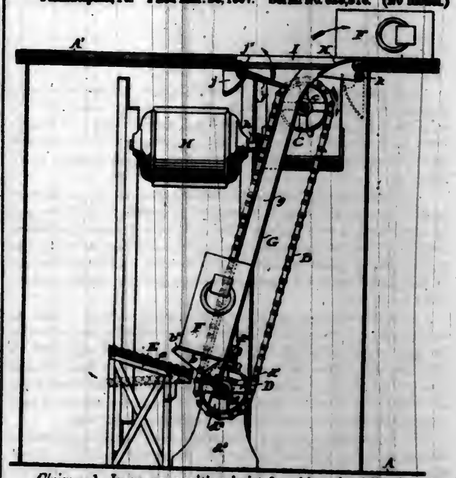
Claim.—1. In a device of the character described, the combination with a manger or suitable receptacle, of a counterweighted feed-door, automatic tripping mechanism connected therewith, a water-receptacle provided with a controlling-cock, and cooperative mechanism carried by the cock and counterweight, substantially as specified.

2. In combination with feed and water receptacles, of a feed-door, a cock designed to control the water-supply, a counterweight connected with the feed-door and designed to open or close the cock, tripping mechanism operatively connected with the feed-door, and timing mechanism designed to permit the tripping of the tripping mechanism, substantially as specified.

3. In a device of the character described, the combination with feed and water receptacles, of sliding feed-doors, a cock designed to control the water-supply and provided with a valve-lever, a counterweight connected with the feed-door, and provided with a projecting lug designed to actuate the valve-lever, a flexible piece connected with the feed-door, a drum designed to receive said piece, tripping mechanism operatively connected with the drum, and timing mechanism operatively connected with the tripping mechanism, substantially as specified.

4. In a device of the character described, the combination with feed and water receptacles, of a feed-door and cock provided with a valve-lever, a counterweight connected with a door and provided with a projecting lug designed to actuate the valve-lever and drum, a tripping-lever designed to control the movement of said drum and provided with a slotted sleeve, a timepiece and a rotatable key designed to be actuated by the timepiece and to engage the slot in said sleeve, and a flexible piece wound around the drum and connected to the feed-door, substantially as specified.

587,830. AMMUNITION-HOIST FOR SHIPS. WESLEY REDDEN, Philadelphia, Pa. Filed Mar. 26, 1897. Serial No. 629,216. (No model.)



Claim.—1. In an ammunition hoist for ships, the following elements in combination:—an endless carrier continuously operated in one direction and provided with carrying or hoisting plates fixedly applied to it and traveling continuously with it;—means for actuating the carrier and its applied plates to continuous travel in one direction;—means located near the bottom of the carrier for supplying to its upwardly-moving carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—and a movable discharge plate applied to said hatchway and operating when maintained in its raised position to receive the articles elevated by the carrier;—substantially as and for the purpose specified.

2. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with carrying or hoisting plates;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—a discharge plate applied to said hatchway and operating to receive the articles elevated by the carrier;—and a baffle plate applied to said hatchway opposite to said discharge plate,—substantially as and for the purpose specified.

3. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with hoisting or carrying plates;—a casing for said carrier provided with a deflecting and release plate;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—and a discharge plate applied to said hatchway and operating to receive the articles elevated by the carrier;—substantially as and for the purpose specified.

4. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with hoisting or carrying plates;—a casing for said carrier provided with a deflecting and release plate;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—and a discharge plate applied to said hatchway and operating to receive the articles elevated by the carrier;—substantially as and for the purpose specified.

5. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with carrying or hoisting plates;—means for actuating the carrier;—a loading platform at the base of the carrier, which cooperates with the carrying or hoisting plates to supply them with articles to be hoisted;—a hatchway at the upper end of said carrier;—a discharge plate applied to said hatchway upon the delivery side of the carrier, which operates to receive the articles lifted by the carrier;—and a baffle plate applied to said hatchway opposite to said discharge plate;—substantially as set forth.

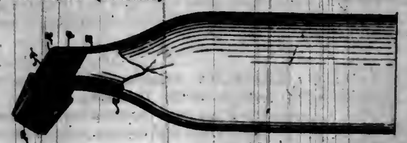
6. In an ammunition hoist for ships, the following elements in combination:—an endless chain carrier composed of a pair of parallel chains provided with transversely-extending carrying or hoisting plates;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a transversely-disposed guiding plate extending longitudinally of the carrier between its edges;—a hatchway at the upper end of said carrier;—and a discharge plate applied to said hatchway, forming a continuation of said guide plate, and operating to receive the articles lifted by the carrier;—substantially as and for the purpose specified.

7. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with carrying or hoisting plates;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—a discharge plate applied to said hatchway which is adapted to be, at will, removed for the application of a scuttle to close the hatchway;—and a removable scuttle adapted to close said hatchway when the discharge plate is dropped;—substantially as and for the purpose specified.

8. In an ammunition hoist for ships, the following elements in combination:—an endless carrier provided with carrying or hoisting plates;—means for actuating the carrier;—means located near the bottom of the carrier for supplying to its carrying plates articles to be hoisted;—a hatchway at the upper end of said carrier;—a pivoted discharge plate applied to said hatchway which is adapted to be, at will, dropped for the application of a scuttle to close the hatchway;—means for maintaining the discharge plate in its elevated position;—and a removable scuttle adapted to close said hatchway when the discharge plate is dropped;—substantially as and for the purpose specified.

9. In an ammunition hoist for ships, the following elements in combination:—a pair of parallel counterpart endless chains constituting an endless carrier;—counterpart pairs of driving and driven chain wheels for supporting and driving said chains;—means for driving the chain wheels;—a hatchway at the upper end of the chain carrier;—a discharge plate applied to said hatchway;—and a transversely-disposed carrying or hoisting plate connected with corresponding opposite portions of said chains,—the arrangement being such that one of said plates embodies an opening and the other is provided with a bearing surface substantially corresponding in plan with said opening;—substantially as and for the purpose set forth.

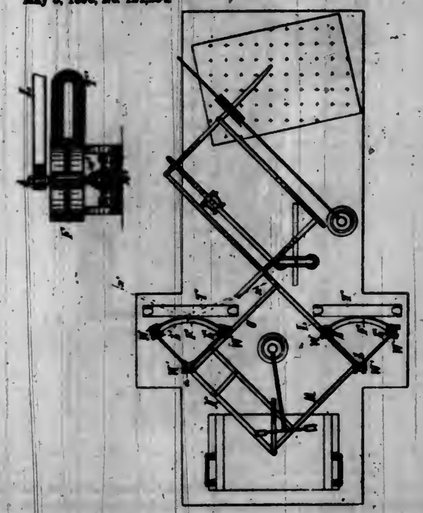
587,831. BOTTLE. VICTOR ROUILLOT, Philadelphia, Pa., assignor of one-half to Warren Harper, same place. Filed Jan. 6, 1897. Serial No. 618,108. (No model.)



Claim.—1. A bottle having a neck with a vertical portion and an extension therefrom at an obtuse angle thereto, and a cork with a beveled end seated against said vertical portion, said vertical and obtuse portions being closed except at their ends.

2. The combination of a bottle, having a neck B and the extension N deflected at an angle thereto, whereby an internal obtuse angle R is formed and a stopper P, the latter having its inner extremity beveled at an obtuse angle and adapted to engage said internal obtuse angle formed within the neck of said bottle.

587,832. ENGRAVING-MACHINE. FRIEDRICH W. SABEL, Coblentz, Germany. Filed July 24, 1896. Serial No. 600,343. (No model.) Patented in Germany Aug. 15, 1895, No. 86,324; in France Nov. 23, 1895, No. 251,924; in England Mar. 23, 1896, No. 6,669, and in Belgium May 6, 1896, No. 121,264.



Claim.—1. In an engraving-machine a series of arms forming the parallelogram L, O, N, M, connected to a tracing-point and carrying an engraving-point, the axes *a* and *b* occupying points on said bars the magnetizable segments or disks mounted on the said axes and magnetic rulers arranged to be in contact with their peripheries as the said disks turn substantially as set forth.

2. In an engraving-machine, a series of arms constituting a parallelogram connected to a tracing-point and carrying an engraving-point in combination with two magnetizable segments or disks having their axes *a*, *b* at points on said parallelogram, a magnetic ruler arranged to be in contact with said disks or segments as they turn, the small wheeled supporting-carriages W W' and the segmental brackets W^2 rolling thereon substantially as set forth.

587,833. AUTOMATIC LIQUID MEASURE AND REGISTER. CHAUNCEY R. SABIN, St. Louis, Mo. Filed May 4, 1896. Serial No. 590,163. (No model.)

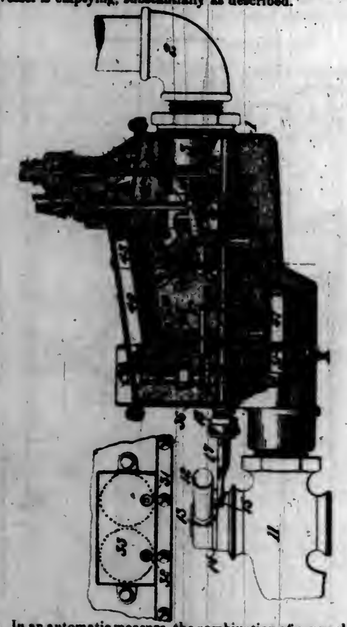
Claim.—1. In an automatic measure, the combination of a vessel, a discharge faucet or valve, a slide-rod connected to the means for opening and closing said faucet or valve and extending into said vessel, means for preventing the movement of said slide-rod until the vessel has become filled with liquid, and means for preventing the movement of said slide-rod after the faucet or valve has been opened until the contents of the vessel has been withdrawn, substantially as described.

2. In an automatic measure, the combination of a vessel, a discharge faucet or valve, a slide-rod connected to the means for opening and closing said faucet or valve and extending into said vessel, a float-carried slide arranged to engage said slide-rod while the vessel is filling, and a float-carried slide arranged to engage said slide-rod while the vessel is emptying, substantially as described.

3. In an automatic measure, the combination of a vessel, a discharge faucet or valve, a slide-rod connected to the means for opening and closing said faucet or valve, and extending into said vessel, said slide-rod being provided at its side with a cut-away portion, a float-carried slide arranged to engage in said cut-away portion while said vessel is filling, and a float-carried slide arranged to enter said cut-away portion while the vessel is emptying, substantially as described.

4. In an automatic measure, the combination of a vessel, a discharge faucet or valve, an operating-handle, a slide-rod connected to the stem of said valve, and extending into said vessel, said slide-rod

having at its side a cut-away portion, a float-carried slide arranged to engage in said cut-away portion while said vessel is filling, and a float-carried slide arranged to engage in said cut-away portion, while said vessel is emptying, substantially as described.



5. In an automatic measure, the combination of a vessel, a means of supply, a discharge faucet or valve, a sliding rod connected to the stem of said valve and extending into said vessel, an automatically-closing supply-valve controlling the entrance to said vessel from said means of supply, a lever arranged to press said supply-valve from its seat, a cam on said slide-rod arranged to engage said lever, a rack carried by said slide-rod, and a pawl arranged to engage said rack to prevent retrograde movement of said slide-rod: substantially as described.

6. In an automatic measure, the combination of a vessel, a supply-tank, a discharge faucet or valve, a slide-rod connected to the stem of said valve and extending into said vessel, a pipe leading from said vessel to the supply-tank, an automatically-closing valve in said pipe, a valve-rod on which said valve is carried, a cam on said rod through means of which said valve is unseated, a rack carried by said slide rod, and a pawl arranged to engage said rack to prevent retrograde movement of said slide rod, substantially as described.

7. In an automatic measure, the combination of a vessel, a discharge faucet or valve, a slide-rod connected to the stem of said valve and extending into said vessel, a pipe for the purpose of conveying air into said vessel, a spring-closing valve in said pipe, a valve-rod by which said valve is carried, a rocking lever arranged to engage said valve-rod, and a cam carried by said valve-rod arranged to move said rocking lever for the purpose of unseating said air-pipe valve, substantially as described.

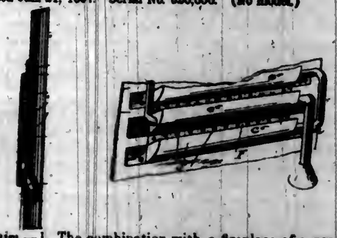
8. In an automatic measure, the combination of a vessel, a means of supply, a discharge faucet or valve, a pipe for the purpose of conveying air to said vessel, a spring-closing valve located in said air-pipe, a valve-rod by which said valve is carried, a spring-actuated catch-bar adapted to engage said valve-rod, and means for disengaging said catch-bar from said valve-rod, substantially as described.

9. In an automatic measure, the combination of a vessel, a means of supply, a discharge faucet or valve, a pipe for the purpose of conveying air to said vessel, a spring-closing valve located in said air-pipe, a valve-rod by which said valve is carried, a spring actuated catch-bar adapted to engage said valve-rod, a rocking lever adapted to retract said catch-bar, a float, and a finger carried by said float, said finger being arranged to rock said rocking lever on the rising of the said float, substantially as described.

10. In an automatic measure, the combination of a vessel, a discharge-faucet, a means for opening and closing said faucet, mechanism arranged to lock said means from movement, and a detention mechanism arranged to engage said lock mechanism, whereby said lock mechanism is preveated from retrograde movement after its initial start in either direction, substantially as described.

11. The combination of an auxiliary vessel having a pipe connection with a supply-tank, of a valve arranged in said pipe, mechanism for moving said valve, and mechanism for locking said valve-moving mechanism when said valve is closed, whereby said valve is held closed until all of the liquid is drained from said auxiliary vessel, substantially as set forth.

587,334. GAS-BURNER. GEORGE E. SHARPE, Steubenville, Ohio. Filed Jan. 21, 1897. Serial No. 620,050. (No model.)



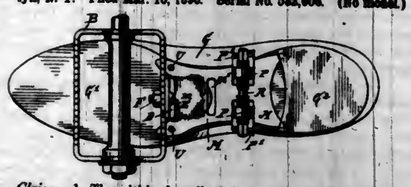
Claim.—1. The combination with a fireplace of a gas-heater, a gas-chamber and gas-and-air mixer, a removable fireback-wall having horizontal slots in the face thereof, a sheet of asbestos in rear of said wall, and a metallic sheet or plate in rear of the asbestos sheet, both sheets having registering apertures falling in said slots and forming ports to said gas-chamber, means for securing said fireback-wall, asbestos and metal sheets together over the front of said chamber, substantially as described and set forth.

2. The combination with a fireplace of a gas-heater, a gas-chamber and gas-and-air mixer, a removable fireback-wall having open spaces therein, forwardly-projecting flanges on said fireback-wall, inclined upwardly and underneath said open spaces, sheets of asbestos and metal in rear of and in contact with the fireback-wall, both sheets having registering apertures falling in said open spaces and forming ports to said gas-chamber, means for removably securing said fireback-wall and said sheets together over the front of said chamber, as and for the purposes set forth.

3. The combination with a gas-heater, of a gas-chamber and gas-and-air mixer, a fireback-wall provided with horizontal rows of gas-jets, a series of hollow flanges, above said rows of gas-jets, and means to connect said flanges with an air-supply, and with each other, substantially as described and set forth.

4. The combination with a fireback-wall having rows of gas-jets, a series of hollow flanges secured to said wall, between said gas-jets, and means to connect said flanges with an air-supply, substantially as described and set forth.

587,335. SHOE ATTACHMENT. HENRY W. SHEPHARD, Brooklyn, N. Y. Filed Mar. 10, 1896. Serial No. 582,606. (No model.)



Claim.—1. The within-described shoe-plate for bicyclists' use, the same being shaped to match the wearer's sole between the heel and ball of the foot and presenting the forwardly-opening socket *m* having sufficient length to act leverwise on the tongue received, together with suitable fastening means for securing such plate to a shoe, all substantially as herein specified.

2. In a pedaling attachment for bicyclists the combination with the plate M, having the long socket *m* and adapted for attachment to the shoe between the heel and ball of the foot, and provided with screw-clamps P, P, of a bicycle-pedal B, having a rigid tongue extending rearward and adapted to engage the plate, substantially as herein specified.

587,336. TELEGRAPHY. FRANK M. SHORT, Cleveland, Ohio. Filed Apr. 9, 1896. Serial No. 586,890. (No model.)

Claim.—1. In a system of telegraphy, and as a means for transmitting facsimile messages, designs and the like, prepared in conducting material, a transmitting instrument, comprising insulated points, one of said points included in circuit with a source of current and the other included in circuit with the line-wire, the circuit between said points adapted to be closed by the conducting material composing the message design or the like to be transmitted, a receiving instrument comprising a vibrating recording-style, and means energized by the current of the line-circuit for vibrating said style; as and for the purpose set forth.



2. In a system of telegraphy, and as a means for transmitting facsimile messages, designs and the like prepared in conducting material, a transmitting instrument comprising a pair of relatively insulated conducting-points freely movable with respect to the message, design, or the like arranged to complete the electrical circuit through the conducting material of the message, design or the like to the main line, a receiving instrument comprising a recording-style, and means actuated by the current of the main line for imparting to said style a rapid vibration while the circuit through said transmitting instrument remains completed and means for synchronizing the relative movements of the transmitting instrument, message, or design with respect to the corresponding movements of the receiver and its record-surface; as and for the purpose set forth.

3. In a system of telegraphy, a transmitting instrument for transmitting facsimile messages, designs and the like prepared in conducting material and arranged to make and break the circuit through the conducting material of the message, design and the like to the main line, a receiving instrument comprising a recording-style, means actuated by the transmitted current for imparting to the recording-style a rapid vibration so long as the main-line circuit remains closed, and means for freely moving the receiving instrument and receiving-blank relatively to each other, and means for synchronizing such relative movements and the corresponding movements of the transmitter and message or design to be transmitted; as and for the purpose set forth.

4. In a system of telegraphy, a transmitting instrument, for transmitting facsimile messages, designs, and the like prepared in conducting material and having a free relative movement with respect to the facsimile message or design to be transmitted and adapted to complete the main-line circuit through the conducting material of the message or design, a receiving instrument comprising a style, means arranged in circuit with the main line adapted to impart a rapid vibration to said style, means for relatively moving said style and the receiving-blank synchronously with the corresponding relative movements of the transmitting instrument and message or design to be transmitted; as and for the purpose set forth.

5. In a system of telegraphy, a transmitting instrument for transmitting facsimile messages, designs or the like prepared in conducting material comprising relatively insulated conducting-points between which the main-line circuit is completed through such message or design, means for moving said receiving instrument and message or design freely with respect to each other, a receiving instrument, comprising a recording-style, means arranged in the main-line circuit and energized by the transmitting-current for imparting to said style a rapid vibration, means for relatively moving said receiving instrument and the receiving-blank and means for synchronizing the movements of the transmitting instrument and blank, relative to the movements of the receiving instrument and blank; as and for the purpose set forth.

6. In a system of telegraphy, a transmitting instrument, for transmitting facsimile messages, designs and the like prepared in conducting material, and arranged to make and break the circuit through the conducting material of the message, design or the like to the main line, a receiving instrument comprising a fountain, a style arranged to operate therein and adapted to take up and transfer a tiny drop of ink from said fountain to the receiving-blank upon each vibration of such style, and means energized by the transmitting-current for rapidly vibrating said style: as and for the purpose set forth.

7. In a system of telegraphy, a receiving instrument comprising a fountain, adapted to contain the recording material, a style arranged to reciprocate in said fountain and at each reciprocation thereof adapted to take up and deposit said material upon the receiving-blank, and means for imparting a rapid reciprocation to said style by the transmitting-current: as and for the purpose set forth.

8. In a system of telegraphy, a receiving instrument comprising a fountain adapted to contain the recording material, a style arranged to deposit said material upon the receiving-blank, a magnet arranged in the main-line circuit, an arm carrying the armature for said magnet and adapted to rapidly make and break the circuit through said magnet, said arm connected to said style: as and for the purpose set forth.

587,337. FITTING FOR BICYCLES. CHARLES S. SMITH, Milwaukee, Wis. Filed Aug. 6, 1896. Serial No. 601,859. (No model.)

Claim.—The herein-described method of making seamless T-shaped fittings of sheet metal without lapping, welding or brazing, which consists in first forming from a sheet-metal blank a tube or cylinder having an open end and a closed end, forming transversely through and in opposite sides of said tube or cylinder near its closed end and in line with each other holes of smaller diameter than the cylinder, expanding the closed end of the tube or cylinder and flanging or turning outwardly its edges around said holes into cylindrical form, substantially as and for the purposes set forth.



587,338. LOOSE PULLEY. LEWIS J. SMITH, Surprise, N. Y., assignor of one-half to Thomas J. Rundel, New York, and W. S. Rundel, Greenville, N. Y. Filed Mar. 10, 1897. Serial No. 626,797. (No model.)



Claim.—1. The combination with the driving-shaft and a fast pulley thereon, of a supporting-bracket, a sleeve connected to the bracket and fitting loosely over the shaft adjacent to the fast pulley, a loose pulley mounted to turn on the sleeve and having an annular groove in its hub, ears projecting from said sleeve and spring-actuated pins slidably supported in said ears and having hooked ends engaging said groove, substantially as and for the purpose specified.

2. The combination with the driving-shaft and a fast pulley thereon, of a supporting-bracket, a sleeve loosely fitted over the shaft adjacent to the fast pulley and having upwardly and downwardly extending ears each provided with an angular opening, and the upper ear being bolted to the bracket, a loose pulley mounted to revolve on said sleeve and having an annular groove in its hub, pins fitted in said angular openings and having hooked ends engaging the said annular groove and having a nut on their outer ends, and springs interposed between said nuts and the ears on the sleeve, substantially as and for the purpose specified.

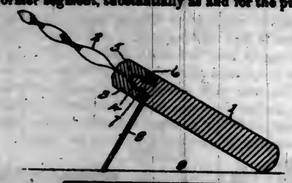
3. The combination with the driving-shaft and a fast pulley thereon, of a supporting-bracket, a sleeve fitted loosely over the shaft adjacent to the fast pulley and bolted to the said bracket, ears projecting from said sleeve, a loose pulley mounted to turn on the sleeve and provided with an annular groove in its hub, the adjacent edges of the rims of the fast and loose pulleys being beveled to form friction-clutch surfaces, and spring-actuated pins slidably supported in the said ears and having hooked ends engaging the said annular groove and normally holding the fast and loose pulleys apart but permitting movement of the latter into engagement with the former when the belt is being shipped from the loose to the fast pulley, substantially as described.

4. The combination with the driving-shaft and a fast pulley thereon, of a supporting-bracket, a sleeve formed in two sections fitted loosely over the shaft, the upper section being bolted to the bracket, devices to secure the two sections together, a pulley made in two sections and mounted on the sleeve to turn thereon and provided with an annular groove in its hub, means to secure the two sections of the pulley together, a spring-actuated pin supported in each section of the sleeve, said pins each having a hooked end engaging the annular groove in the hub of the loose pulley, substantially as described.

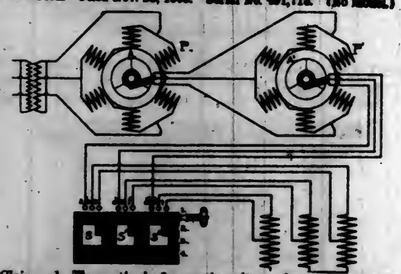
587,339. CORN-HOLDER. CHARLES W. STEBBINS, Hartford, Conn. Filed Nov. 19, 1896. Serial No. 612,993. (No model.)

Claim.—In a corn-holder, a revolving spiral blade, and a handle that is made in two abutting segments, one of these segments being formed with a terminal concavity, and the other segment being provided with a terminal grooved finger, in combination with a pin, which holds the said finger of the latter segment in the said concav-

ity of the former segment, substantially as and for the purpose specified.



587,840. OPERATING ALTERNATING MOTORS. CHARLES P. STEINMETZ, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Nov. 23, 1893. Serial No. 491,712. (No model.)



Claim.—1. The method of operating alternating-current motors, which consists in feeding alternating currents to one member of one such motor from a source of power-supply, converting the energy so supplied to the motor partly into mechanical energy expended in driving a driven mechanism, and partly into electrical energy in the form of alternating currents induced in the secondary element of the motor, and supplying a second alternating motor with the said secondary currents, as set forth.

2. The method of operating alternating-current motors, which consists in feeding alternating currents to one member of such a motor, converting that portion of the energy so supplied, which is not utilized as mechanical work performed by the motor, into electrical energy in the form of alternating currents induced in the secondary member of the motor, and supplying such currents to a second translating device directly or indirectly in circuit with the induced member of the motor, as set forth.

3. The method of operating alternating-current motors of the induction type, which consists in feeding alternating currents to the primary or inducing member of one such motor, inducing secondary currents of different frequency in the secondary member of the motor, and feeding such secondary currents to the inducing member of a second induction-motor, provided with a closed-circuited secondary member.

4. The method of operating alternating-current motors of the induction type, which consists in feeding multiphase currents to the primary member of an induction-motor, inducing secondary currents of different frequency in the secondary member of the motor by its rotation in the magnetic field of the primary member, and closing the circuit of the secondary member through the primary of a second induction-motor provided with a closed-circuited secondary.

5. The method of operating alternating-current motors of the induction type, which consists in supplying the primary member of one such motor with alternating currents from a source of power-supply, and the primary members of one or more other motors in succession with current induced in the secondary member of the preceding motor, and regulating the motors by varying the resistance of the circuit of the secondary member of the last motor.

6. The method of operating a plurality of alternating-current motors of the induction type, which consists in coupling them in tandem, as described, with the secondary of one motor in circuit with the primary of another motor, then coupling them in multiple-tandem groups, and finally, for a still higher speed, coupling them in multiple, as set forth.

7. The method of operating alternating-current motors of the induction type, which consists in connecting them in circuit tandemwise with a resistance in the local circuit of the last-induced member, then reducing and cutting out the resistance, then connecting the motors in multiple-tandem groups, and finally connecting them all in multiple.

8. The method of regulating alternating-current electric motors of the induction type, which consists in connecting the secondary or induced element of one motor with the inducing element of a second motor, and then connecting the inducing elements of the different motors in multiple with the same source of current-supply, as set forth.

9. The method of regulating alternating-current electric motors of the induction type, which consists in connecting the secondary or induced element of one motor with the inducing element of a second motor, and with the secondary of the second motor closed-circuited, and then connecting the inducing elements of the different motors in multiple with the same source of current-supply, and closing the secondary elements of the two motors, as set forth.

10. The method of regulating alternating-current electric motors, which consists in connecting the induced element of one motor with the inducing element of a second motor and with a resistance in circuit with the induced element of the second motor, then cutting out the resistance, and finally coupling the inducing elements of the motors in multiple, and closing the circuits of their secondary elements.

11. The method of regulating alternating-current motors of the induction type, which consists in feeding the inducing element of one motor with alternating currents, connecting the induced element of the motor with the inducing element of a second motor and with a resistance in the circuit of the secondary element of the last-mentioned motor, varying the resistance, coupling the inducing elements of the motors in parallel and closing the induced elements through a resistance, and finally cutting out the resistance, as set forth.

12. The combination of two alternating-current motors, each geared to a driven mechanism of which the inducing element of one is in circuit with the induced element of the other.

13. In combination, a plurality of alternating-current motors each geared to a driven mechanism having relatively revolving inducing and induced members, the induced member of each motor except the last connected to the inducing member of the next succeeding motor, and a resistance included in the induced circuit of the last motor, whereby alternating-current motors may be operated in tandem, as set forth.

14. The combination of a plurality of alternating-current motors each geared to a driven mechanism having relatively revolving primary and secondary members, and a resistance, with a switch, contacts and electrical connections for coupling the secondary element of one motor in circuit with the primary member of a second motor, and for coupling the whole or a desired portion of the resistance in circuit with the secondary member of the last-named motor.

15. The combination of two or more alternating-current motors geared together or mechanically connected to a common driven mechanism, and having the induced element of one motor in circuit with the inducing member of a second motor, as set forth.

16. The combination with two or more alternating-current induction-motors having relatively-revolving inducing and induced members, and mechanically connected to a common driven mechanism, with means for supplying multiphase alternating currents to the inducing member of one motor, and connections between the induced member of the motor and the inducing member of a second motor, as set forth.

17. The combination of a plurality of alternating-current induction-motors, and a switch for coupling the induced member of one motor to the inducing member of a second motor, and for connecting the inducing members of the two motors in multiple, as set forth.

18. The method of varying the speed of driven mechanism connected to a plurality of alternating motors of the induction type, which consists in connecting the motors in tandem, that is to say, with the induced element of one motor connected to the inducing member of another, and changing the number of the motors so connected, by cutting one or more motors into and out of the series so connected, as set forth.

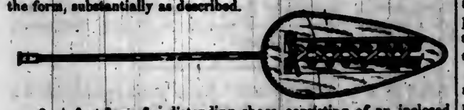
19. The method of operating alternating-current motors of the induction type mechanically coupled together or geared to a common driven mechanism, which consists in supplying to one such motor energy in the form of alternating electric currents from a source of power-supply, and supplying to a second motor the excess of energy not expended in mechanical work performed by the first motor, in the form of alternating currents induced in the secondary member of the first motor.

20. The method of operating alternating-current motors of the induction type, which consists in connecting them to a source of power-supply in tandem, in the manner described, then throwing the inducing element of one motor and the induced element of a second motor into multiple with the source of supply, and closing the circuit of the remaining elements of such motors, as described.

21. In combination, a plurality of alternating-current motors having inducing and induced members, and circuit connections from the induced member of each motor except the last feeding current into the inducing member of a succeeding motor, the induced member of the last motor being closed-circuited.

587,841. FOOT-FORM. EDWARD C. STEVENS, Boston, Mass., assignor to Lavinia Franc Membery, New York, N. Y. Filed Aug. 30, 1886. Serial No. 608,303. (No model.)

Claim.—1. A foot-form for distending shoes, consisting of an inclosed sack of rubber or other flexible material in shape approximately that of the interior of a shoe desired to be inflated, having a tube and air-valve attached to the rear end thereof, lacing-strips slightly separated from each other and attached to the bottom thereof, and a tube and air-valve attached to the rear end of the form, substantially as described.



2. A foot-form for distending shoes, consisting of an inclosed sack of rubber or other flexible material in shape approximately that of that portion of the interior of a shoe desired to be inflated, having a tube and air-valve attached to the rear end thereof, bands placed upon the side thereof near the rear end, and lacing-straps slightly separated from each other and attached to the bottom, substantially as described.

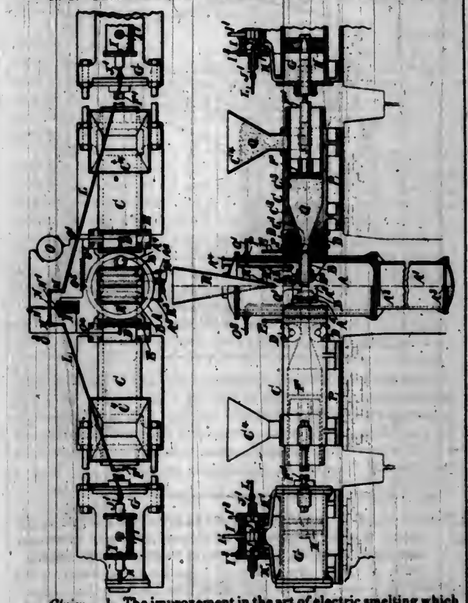
587,842. LUBRICATED BULLET. SAMUEL C. STEWARDSON, Santa Anna, Tex. Filed Dec. 24, 1896. Serial No. 616,994. (No model.)



Claim.—1. A bullet having a cavity or recess upon its outer surface whose upper edges are curved downwardly from two opposite points forming stops, substantially as and for the purpose described.

2. A bullet having a longitudinally-extending opening in its rear end terminating at a point adjacent to the center thereof, a laterally-extending opening leading outwardly from the end of said longitudinal opening, and a recess or cavity in its outer surface, the upper edges of said cavity being curved rearwardly from the ends of said laterally-extending opening, substantially as and for the purpose described.

587,843. ELECTRIC FURNACE. GEORGE B. STRONG, New York, N. Y. Filed Jan. 20, 1896. Serial No. 576,063. (No model.)



Claim.—1. The improvement in the art of electric smelting which consists in forming electrodes of a mass of material including a material which will bind the mass together under pressure and simultaneously agglomerating, forming, and feeding said mixture forward to a furnace by pressure.

2. The improvement in the art of electric smelting which consists in forming electrodes of a mass of material comprising ore or more of the materials used in the smelting operation and a material which will bind the mass together under pressure, simultaneously agglomerating, forming, and feeding said mixture forward to a furnace by pressure and feeding between the electrodes so formed and fed to the furnace further ingredients of the smelting operation in the form of a fine powder.

3. The improvement in the art of electric smelting which consists in forming electrodes of a mass of material including a material which will bind the mass together under pressure, simultaneously agglomerating, forming, and feeding said mixture forward to a furnace by pressure and subjecting said material after it is brought to the desired form and before it actually enters the furnace to the action of a high temperature.

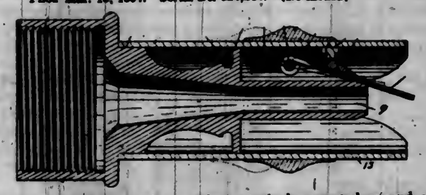
4. The combination of an electric smelting-furnace A with guides as B B for the electrodes, cylinders as C C adapted to contain a plastic mass of electrode-forming material and opening into the electrode-guides and means as pistons F for forcing the plastic material into and through the guides and into the furnace.

5. The combination of an electric smelting-furnace A constructed so as to exclude air from its interior with guides as B B for the electrodes, cylinders as C C adapted to contain a plastic mass of electrode-forming material and opening into the electrode-guides and means as piston F for forcing the plastic material into and through the guides and into the furnace.

6. The combination of an electric smelting-furnace A with guides as B B for the electrodes, cylinders as C C adapted to contain a plastic mass of electrode-forming material and opening into the electrode-guides, means as piston F for forcing the plastic material into and through the guides and into the furnace, and means as hopper R for feeding powdered material between the electrodes.

7. The combination of an electric smelting-furnace A with guides as B B for the electrodes, cylinders as C C adapted to contain a plastic mass of electrode-forming material and opening into the electrode-guides, means as pistons F for forcing the plastic material into and through the guides and into the furnace, cylinders and pistons G H for actuating the piston F, valves as I J arranged to effect the admission and discharge of fluid to the cylinders, an electric circuit of which the electrodes form a part, a resistance-shunt in said circuit, an electromagnet the coils of which are formed of the wire of said shunt and an armature actuated by said magnet and connected to the valves I J as described and so as to actuate the said valves and parts controlled thereby as the resistance through the electrode-circuit varies.

587,844. HOSE-NOZZLE. GEORGE W. TIBBLEY, Columbus, Ind. Filed Mar. 13, 1897. Serial No. 627,287. (No model.)



Claim.—1. A nozzle, a casing rotatively mounted around said nozzle, a finger mounted within said casing and rotating therewith, and means for throwing said finger across the nozzle-orifice.

2. A nozzle, a casing rotatively mounted around the nozzle, a finger pivotally mounted in said casing and longitudinally movable therein, means for moving said finger within the casing, and means for throwing said finger across the nozzle.

3. A nozzle, a casing rotatively mounted around the nozzle, a finger pivotally mounted in said casing and longitudinally movable therein, means for moving said finger within the casing, and a spring for throwing said finger across the nozzle as said finger is moved forward in the casing.

4. A nozzle, a pivoted finger longitudinally movable with relation to said nozzle, and means for throwing said finger across the nozzle-orifice by a longitudinal movement of said finger.

5. A nozzle, a pivoted finger longitudinally movable with relation to the nozzle, means for throwing said finger across the nozzle-orifice by a longitudinal movement of said finger, and means for rotating said finger about the nozzle.

6. A nozzle, a pivoted finger longitudinally movable with relation to the nozzle, means for throwing said finger across the nozzle-orifice by a longitudinal movement of said finger, and means for holding said finger in position across the nozzle-orifice.

7. A nozzle, a pivoted finger longitudinally movable with relation to the nozzle, means for throwing said finger across the nozzle-orifice by a longitudinal movement of said finger, means for holding said finger in said position, and means for rotating said finger about the nozzle.

8. A nozzle, a casing surrounding said nozzle, a finger pivotally mounted in said casing and longitudinally movable therein, means

for moving said finger within the casing and thereby throwing the said finger across the nozzle-orifice, and cooperating means carried by said finger and casing whereby, when the finger is thrown across the nozzle-orifice the said means will operate to hold said finger in said position.

9. A nozzle, a casing rotatively mounted around said nozzle, a finger pivotally mounted in said casing and longitudinally movable therein, means for moving said finger within the casing and thereby throwing the said finger across the nozzle-orifice, and cooperating means carried by said finger and casing whereby, when the finger is thrown across the nozzle-orifice the said means will operate to hold said finger in said position.

587,845. MANUFACTURE OF VARNISH-GUM. JAMES TODD, Allegheny, Pa. Filed Apr. 20, 1896. Serial No. 588,371. (No specimens.)

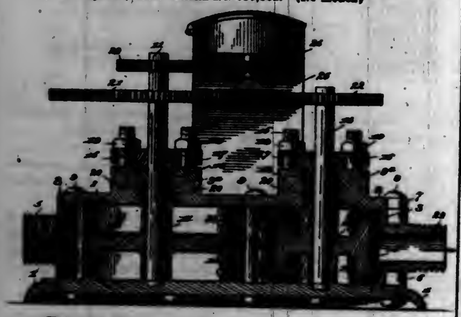
Claim.—1. The herein-described process of forming a varnish-gum compound, consisting in combining an acid gum having a comparatively low melting-point with a metallic oxid thus forming a metallic soap, and then raising the temperature thereof until a chemical change in the metallic soap takes place, evidenced by an evolution of carbon dioxid and watery vapor, and a gum compound with a comparatively high melting-point is precipitated, substantially as set forth.

2. The herein-described process of forming a varnish-gum compound, consisting in first dissolving an acid gum in a solvent in the presence of a metallic oxid and so forming a neutral soap, and then raising the temperature thereof until a chemical change in the soap takes place, evidenced by an evolution of carbon dioxid and watery vapor, and a gum compound with a comparatively high melting-point is precipitated, substantially as set forth.

3. The herein-described process of forming a varnish-gum compound, consisting in combining rosin with oxid of zinc to form a so-called "zinc soap," and then raising the temperature thereof until a chemical change in the gum takes place, and a gum compound with a comparatively high melting-point is precipitated, substantially as set forth.

4. The herein-described process of forming a varnish, or a varnish-base, having a high melting-point, consisting in first combining an acid gum having a comparatively low melting-point with a metallic oxid thus forming a metallic soap, then raising the temperature until a chemical change in the soap takes place evidenced by an evolution of carbon dioxid and watery vapor, and a gum compound is precipitated, and then introducing a suitable solvent for the gum compound and dissolving the same therein, substantially as set forth.

587,846. ROTARY METER. JOHN H. TURNER, Richmond, Ind. Filed Apr. 22, 1897. Serial No. 633,862. (No model.)



Claim.—1. In a rotary meter, the combination with two cylinders communicating with each other, one of said cylinders having an inlet-opening and the other an outlet-opening, of rotary pistons within the cylinders, the piston in the inlet-cylinder working loosely therein and that in the outlet-cylinder working fluid-tight therein, and gearing to transmit movement from the piston in the inlet to the piston in the outlet cylinder, substantially as described.

2. In a rotray meter, the combination with two cylinders communicating with each other, one of said cylieders being larger than the other and provided with an inlet-opening, and the smaller cylinder having an outlet-opening, of rotary pistons within the cylinders, the piston in the larger cylinder working loosely therein and that in the smaller cylinder fluid-tight therein, gears on the shafts of the pistons meshing with each other, and a registering mechanism operated by one of the pistons, substantially as described.

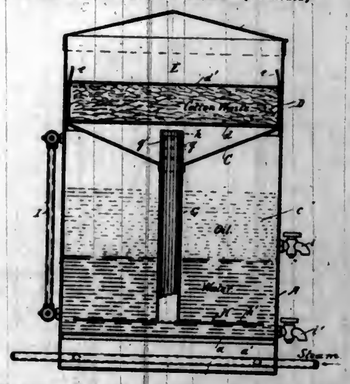
3. In a rotary meter, the combination with two cylieders communicating with each other, one of said cylinders being larger than the other and provided with an inlet-opening, and the smaller cylinder with an outlet-opening, of rotary pistons within the cylinders, the piston in the larger cylinder working loosely therein and that in the smaller cylinder fluid-tight therein, and the said inlet-opening and the communicating opening between the two cylinders being so arranged that the pistons are rotated in opposite directions to each other, gears on the shafts of the pistons meshing with each other, and a registering mechanism operated by the piston of the inlet-cylinder, substantially as described.

587,847. PIPE-COUPLING. THOMAS WAITE, Cramer's Hill, N. J. Filed Aug. 18, 1896. Serial No. 603,142. (No model.)



Claim.—A pipe-coupling having an exteriorly-threaded body portion provided with a terminal exterior or male cone adapted to fit in the flared extremity of the pipe-section, and also having an annular transversely-concaved washer-seat at the intersection of said cone and the threaded body portion, and contiguous to a shoulder formed by the extremity of the body portion, an annular washer arranged between the extremity of the pipe-section and the contiguous shoulder formed by the body portion, and a clamping ring or nut mounted upon said body portion and provided with a female cone adapted to engage the exterior surface of the flared extremity of the pipe-section, and also provided with an annular counterbore in the plane of the washer to allow radial expansion thereof, whereby as the extremity of the pipe-section bears against the washer, the latter is spread to cover the end of the pipe-section, substantially as specified.

587,848. OIL-FILTER. WILLIAM F. WARDEN, Akron, Ohio. Filed Mar. 3, 1897. Serial No. 625,831. (No model.)

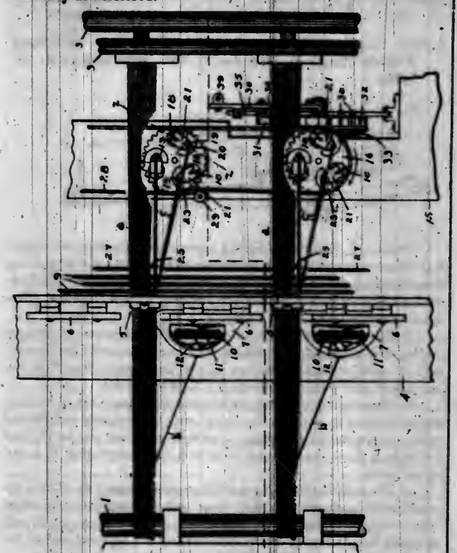


Claim.—In an oil-filter, the combination, with a vessel for holding water, and a conical plate in the upper part thereof; of a pipe projecting above the said plate and provided with rows of perforations at different levels in that portion of it above the said plate, and a flat disk provided with small perforations and secured level with the bottom of the said pipe, substantially as set forth.

587,849. FABRIC AND APPARATUS FOR MAKING SAME. LOUIS P. WARNER, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Dec. 21, 1896. Serial No. 616,504. (No model.)

Claim.—1. As a new article of manufacture, a woven fabric embodying a warp and a woft or filling and having at one edge a twisted cord composed of a plurality of compound twisted strands, the elements of the strands having a set or twist in themselves, and said strands being bound to the edge of the fabric by the weft of the latter, which is passed around the strands in a direction opposite to that of their initial twist, as set forth.

2. The combination with a weaving-loom, of a rotatable cord-twisting head arranged in rear of the lay and at one side of the warp and out of the plane of movement of the shuttle, a series of bobbins on said head, each carrying a cord-strand, a tension take-up device for each strand, and a vertically-movable shedding-hook into which the cord-strands are laid by the rotation of the twisting-head, substantially as described.



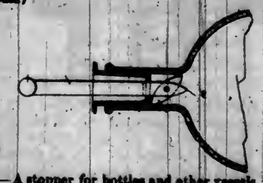
3. The combination with a weaving-loom, of a cord-twisting head located at one side of the shed and in a different plane from that in which the warp extends, said twisting-head having a series of bobbins carrying cord-strands, and a tension take-up for each strand, an intermittingly-operated shedding-hook for shedding the cord-strand next the warp, and mechanism for rotating the twisting-head intermittingly, substantially as described.

4. The combination with a weaving-loom, of a cord-twisting head rotatable on a vertical axis arranged in rear of the lay and at one side of the warp and out of the plane of movement of the shuttle, a series of bobbins on the head, each carrying a cord-strand, a tension take-up device for each strand, and a shedding-hook into which the cord-strands are laid by the rotation of the twisting-head, substantially as described.

5. The combination with a weaving-loom, of a cord-twisting head arranged in rear of the lay, at one side of the warp and out of the plane of movement of the shuttle, said head embodying a rotatable support, a series of spindles and bobbins thereon, a series of standards having guide-eyes at their ends, weights sliding on the standards and supported by the cord-strands, and stop devices, as pawls, retaining the bobbins adapted to be released by the weights, and a vertically-movable shedding-hook for shedding the cord-strands next to the warp, substantially as described.

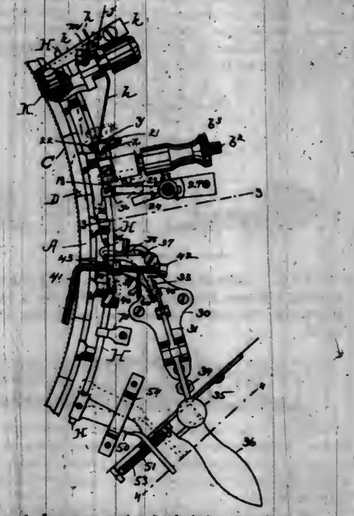
6. The combination with a weaving-loom, of a rotary cord-twisting head located at one side of the shed, carrying a series of cord-strands and a tension take-up device for each strand, of a ratchet-wheel connected to said twisting-head, and having a series of studs thereon, a lever, a pawl thereon engaging the ratchet-wheel, and an arm operated by the lever and adapted to engage the studs on the wheel to limit its motion when actuated by the movement of the lever, substantially as described.

587,850. STOPPER FOR BOTTLES OR SIMILAR VESSELS. GODFAY WEAR, Philadelphia, Pa. Filed Nov. 6, 1896. Serial No. 611,231. (No model.)



Claim.—A stopper for bottles and other vessels, which is tubular in form, and the lower end of which is closed, said stopper being composed of paper or similar material, and means for removing the same from the neck of the bottle or other vessel, consisting of a key, composed of a shaft and handle, the lower end of the shaft being pointed, and provided with a slot in which is pivoted a key-plug which is also pointed at both ends, substantially as shown and described.

587,851. STOP-MOTION FOR CIRCULAR-KNITTING MACHINES. ALBERT WHITE and DANIEL F. SULLIVAN, Lowell, Mass.; said Sullivan assignor to Mary Sullivan, same place. Filed Sept. 17, 1896. Serial No. 606,121. (No model.)



Claim.—1. In a stop-motion for knitting-machines a thread-supported drop-wire in combination with a sliding rod provided with a projection adapted to be engaged with and support said wire substantially as described.

2. In a stop-motion for knitting-machines a thread-supported drop-wire in combination with a sliding ring carrying a support for said wire and adapted to be moved by hand to disengage the same; and mechanism released by the dropping of said wire for engaging said support substantially as specified.

3. In a stop-motion for knitting-machines a thread-supported drop-wire; a spring-actuated shipper; locking mechanism therefor, a sliding ring carrying a support for the wire; and mechanism released by the dropping of the wire for actuating said ring to release said locking mechanism and engage said support with said wire all being combined substantially as set forth.

4. In a stop-motion for knitting-machines, a hand-shipper in combination with a thread-supported drop-wire; a sliding ring; a spring-reciprocated lever for moving said ring and operated by said shipper; and a projection on the ring for engaging the drop-wire substantially as and for the purpose specified.

5. In a stop-motion for knitting-machines, a sliding ring on the base in combination with the drop-wire; a projection on the ring for engaging said wire at a determined point in its movement; the hand-shipper; and mechanism operated by the release of said shipper for moving said ring substantially as specified.

6. The rocking lever, 41, the shipper and their connecting mechanism, in combination with a sliding rod; a thread-supported drop-wire; a projection on the ring for engaging said wire; and mechanism released by the movement of the shipper for actuating said ring substantially as described.

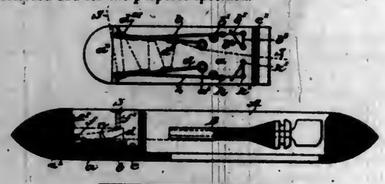
7. The combination with the tilting presser-wheel; of a drop-wire released locking mechanism therefor; a sliding ring; a shipper released by a movement of said ring; and a spring-actuating mechanism for the ring normally retracted by the support of said wheel substantially as set forth.

8. The combination with a tilting presser-wheel and its locking mechanism, of a sliding ring; a spring-actuated mechanism for moving said ring; a projection on the support of said wheel for locking said mechanism; a shipper and locking mechanism therefor released by the movement of said ring substantially as described.

587,852. TENSION DEVICE FOR LOOM-SHUTTLES. RALPH WHITLEY, Paterson, N. J., administrator of Bentley Weston, deceased. Filed Oct. 11, 1895. Renewed June 22, 1897. Serial No. 641,632. (No model.)

Claim.—In a tension device for shuttles the combination with

the shuttle, having the projection or lip A^2, of the plate *a* having the engaging lip *a'* adapted to slide under the projecting lip A^2, said plate extending longitudinally along the bottom of the shuttle, inside thereof, and being provided with the groove *c'* and secured therein by screw *e* which passes transversely through the shuttle along the groove *c'* in the plate *a;* the looped tension-bars *d d* secured at their engaging ends d^2 to said tension-plate, the tension-springs *b b* secured to the plate *a* and provided with the coils *b'*, the ends of said tension-springs *b b* being loosely connected with said looped tension-bars *d*, and cords *n n* passed from side to side of shuttle to prevent the silk from catching in the springs, all constructed substantially as shown and described and for the purposes specified.



587,353. CONDUIT AND PULLEY FOR CABLE TRACTION. ALEXANDER R. WILSON, Holywood, Ireland. Filed Dec. 4, 1895. Serial No. 571,079. (No model.) Patented in England Sept. 17, 1894, No. 17,622.



Claim.—1. In a conduit-railway system, a cable-conduit formed of girders, suitably secured at proper distances from the rails, and closed bell-shaped pulleys therein, having bearings adapted to project so far into the interior of the pulley as to tend to prevent the entrance of liquid thereto.

2. In a cable-conduit system, the combination of side girders suitably stayed and secured to the ties, with a removable cover, and having at suitable intervals chambers of substantially the same depth as the main conduit, containing pulleys revolving in vertical bearings, said pulleys so shaped inside as to prevent the entrance of liquids to the bearings.

3. In a cable-conduit system, the combination of a conduit of substantially the same depth as the road-bed, with a cover removable throughout its whole length, so as to expose the entire conduit; with pulleys of bell shape, and running in vertical bearings, which project so far into the bell, that water is prevented from entering the bearings.

4. A cable-conduit of substantially the same depth as the pavement in which it is laid, said conduit being formed of side girders, secured by stays to the rails, and abutting against shoulders on the ties; in combination with a removable cover, in two portions, the distance between which portions constituting a slot; and having at suitable intervals chambers of substantially the same depth as the main conduit; said chambers containing bell-shaped pulleys revolving in vertical bearings; said bearings having recessed lubricating-chambers.

5. The combination of a closed bell-shaped pulley, with the pulley-shaft, and substantially vertical bearings for the same, said bearings projecting so far into the under part of the confined air-space in the pulley as to tend to prevent the entrance of water to the shaft.

6. As a new article of manufacture, a pulley having a closed top and perimeter, having its shaft depending from the top, and adapted to run in substantially vertical bearings, projecting so far into the interior of the pulley, as to tend to prevent the entrance of liquids thereto.

7. The combination of a closed pulley, with substantially vertical bearings, said bearings formed with a lubricating-recess, and said bearings adapted to project so far into the closed interior of the pulley, as to tend to prevent the entrance of liquid thereto.

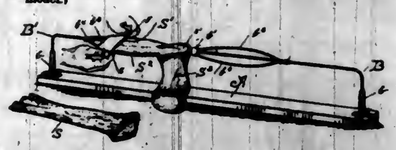
8. In a cable system, the combination of a conduit, a plurality of closed bell-shaped pulleys oppositely disposed with regard to the cable, with bearings projecting so far into the interior of the pulleys, as to tend to prevent the entrance of liquid thereto.

9. In a cable-railway system, the combination of a conduit, a cable, and closed pulleys, with bearings projecting so far into the hollow of said pulleys as to tend to prevent the entrance of liquids thereto.

10. The combination of a cable, and closed pulleys, with bearings projecting so far into the hollow of the same as to tend to prevent the entrance of liquids thereto.

11. In a conduit-railway system, the combination of girders suitably supported at the proper distances from the rails, forming one or more cable-conduits, with chambers at suitable distances, hollow pulleys in said chambers, having a closed top and perimeter with substantially vertical bearings, projecting so far into the pulleys as to tend to prevent the entrance of liquids thereto.

587,354. STOCKING-FOLDING APPARATUS. DUDLEIGHUS WORRALL, Chicago, Ill. Filed Aug. 31, 1896. Serial No. 604,396. (No model.)



Claim.—1. A stocking-folding apparatus comprising two opposing arms arranged with their inner ends in proximity, said arms being formed with resilient laterally-expansible portions located back from their proximate ends, whereby the stocking is held expanded when drawn over the arm.

2. The combination, in a stocking-folding apparatus, of two opposing arms arranged with their inner ends in proximity and formed with stocking-engaging members bulging backwardly from their adjacent ends and then contracted to a narrower width.

3. The combination, in a stocking-folding apparatus, of two opposing arms arranged with their inner ends in proximity and formed with resilient stocking-engaging members extending rearwardly and divergently from the adjacent ends and then converging to a narrower width.

4. The combination, in a stocking-folding apparatus, of two opposing arms arranged with their inner ends in proximity and formed with stocking-engaging members, and a spring urging one of said members longitudinally of the arm toward the adjacent end of the opposing arm.

5. The combination, in a stocking-folding apparatus, of two opposing arms arranged with their inner ends in proximity, and provided with resiliently-expanding stocking-engaging members, one of which is arranged to slide longitudinally of the arm, and a spring urging said sliding member toward the adjacent end of the opposing arm.

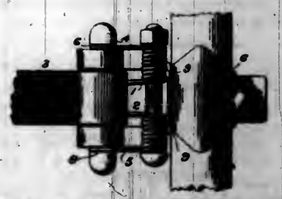
6. The combination, in a stocking-folding apparatus, of arms arranged with their inner ends in proximity, and adapted to enter and expand the stocking, and enlargements or knobs at the adjacent ends of the arms, one of said enlargements being adjustably connected to its arm, whereby the distance between the arms may be regulated.

7. The combination, in a stocking-folding apparatus, of arms arranged with their inner ends in proximity and adapted to enter and expand the stocking, enlargements or knobs at the proximate ends of said arms, one of said knobs having a sliding connection with its arm, and a spring applied to normally force said knob toward the other arm.

8. The combination with the base A, of the opposing arms B, B', mounted on said base and arranged with their inner ends in proximity, the enlargements b', b^2, at the proximate ends, and the lateral springs, b^3, secured to the arms, substantially as described.

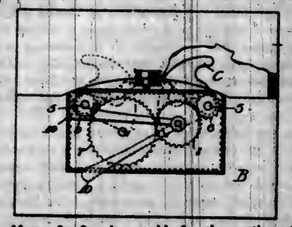
9. The combination with the base A, of the opposing arms B, B', mounted on said base and arranged with their inner ends in proximity, the enlargements b', b^2 at their proximate ends, the lateral spring b^3, the collar b^4, and the longitudinally-acting spring b^5, substantially as described.

587,355. ANTIRATTLING THILL-COUPLING. WILLIAM ABRAHAM, Fairchild, Wis. Filed Feb. 17, 1896. Serial No. 579,579. (No model.)



Claim.—In a thill-coupling, the combination with an axle-clip having forwardly-projecting apertured lugs, of an apertured shaft-iron, a pivot-pin passed through said lugs and said iron having extended grooved ends, an auxiliary pin, a spring formed of a single piece of wire having its ends passed under said clip, and wound around said auxiliary pin and formed into a loop adapted to bear upon the under side of the shaft-iron, springs coiled about said auxiliary pin and having their respective opposite ends engaging the clip and grooves in the ends of the pivot-pin, substantially as described.

587,356. APPARATUS FOR FORMING MOLDS FOR CASTINGS. JOHN ALLEBROS, St. Paul, Minn., assignor to the St. Paul Foundry Company, same place. Filed May 20, 1895. Serial No. 549,854. (No model.)



Claim.—Means for forming molds for the casting of objects in the form of circular segments having upon their convex faces a pair of similar, circular, segmental hooks, of less curvature than the body of the casting, and symmetrically positioned thereon with the hooks outwardly, oppositely extended toward the ends of the body of the casting, consisting of a frame adapted to be substituted for the drag of the molding-flask, and to operate in combination with the cope thereof, the pair of rotatable shafts journaled in said frame, the series of similar, oppositely-positioned, hook-shaped patterns mounted thereon conforming to the hooks to be formed upon the body of said casting, the outer contour of said patterns conforming substantially to arcs of circles of which the shafts are the centers, the train of gear interposed between said shafts, and the means for operating said train of gear to synchronously operate said shafts to project said patterns outwardly into position to form the mold, and to afterward inturn and withdraw them from said mold.

587,357. WHEEL FOR BICYCLES. MARTIN E. ANDERSON, De Kalb, Ill. Filed Mar. 1, 1897. Serial No. 625,543. (No model.)



Claim.—The combination with the wheel, having a spring-rim encircling its felly, at a distance therefrom, and connected therewith, of spring-clamps around at intervals along the under surface of said rim and extending transversely thereof, each of said clamps being attached at its center and formed with free hook-shaped ends, and a flexible guard extending around the wheel and covering the space between said felly and rim, said guard having welts along its longitudinal edges engaged with said hook ends of the spring-clamps and detachably held thereby, substantially as described.

587,358. MOUTHPIECE FOR PREVENTING SNORING. SVANTE ANDERSON, Chicago, Ill. Filed Feb. 15, 1897. Serial No. 623,445. (No model.)



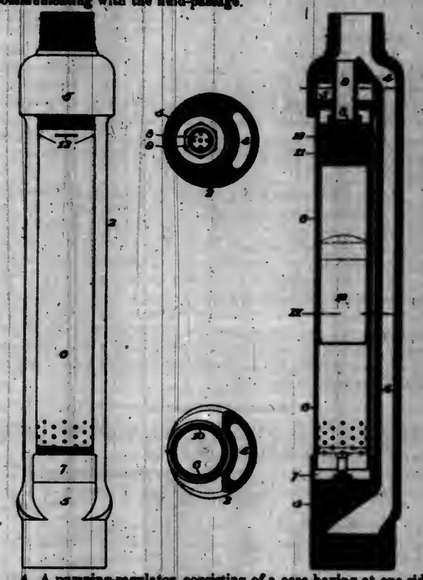
Claim.—As an improved article of manufacture, a mouthpiece having the central enlargement *a'*, provided with the intersecting openings a^2, the enlargements *a*, on the ends of the piece and reduced portions between said enlargements and the enlargement *a'*, and a securing-strap attached to the mouthpiece near its ends, substantially as described.

587,359. PUMPING-REGULATOR. WILLIAM H. BOWIE, Baltimore, Pa. Filed June 20, 1896. Serial No. 597,243. (No model.)

Claim.—1. A deep-well pump having an air-inlet admitting air to the suction-passage and stopping the flow of the liquid when the air-inlet is open, and a float-valve resting on the liquid in the well and arranged to close the air-inlet when the liquid reaches a certain level.

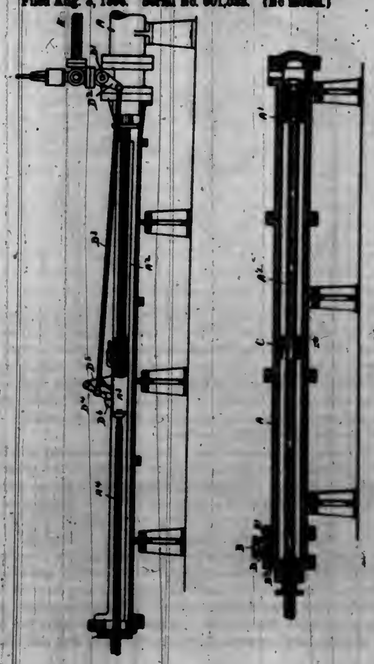
2. An attachment for deep-well pumps, consisting of a case having a suction liquid-passage, an air-inlet leading to the liquid-passage and admitting air to stop the flow of liquid when the inlet is open, and a float-valve moved and operated by the rising and lowering of the liquid in the well, said valve closing the air-inlet when the liquid rises to a determined level.

3. A pumping-regulator consisting of a case having a fluid-passage therethrough, a perforated valve-casing having a float-valve therein, and an air-passage leading from above the valve-seat and communicating with the fluid-passage.



4. A pumping-regulator, consisting of a case having at one side a fluid-passage therethrough and provided with a valve-casing perforated at its lower end and having air-admission holes in its upper portion, a valve-seat at the upper end of the casing having a passage leading to the fluid-passage, and a float-valve within the casing.

587,360. PISTON-ROD SUPPORT. ELBERT H. CARROLL, Worcester, Mass., assignor to the Morgan Construction Company, same place. Filed Aug. 3, 1896. Serial No. 601,522. (No model.)



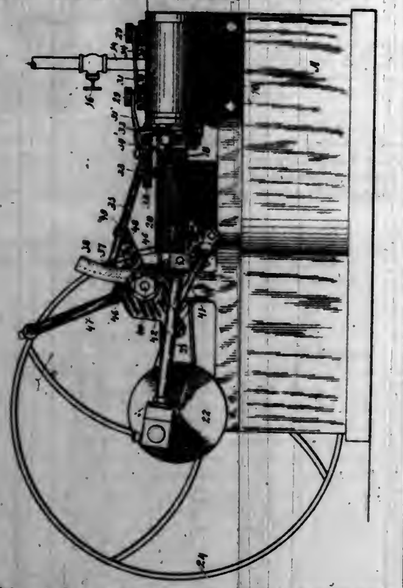
Claim.—1. The combination with a reciprocating piston and a cylinder for employing a fluid under pressure of a supplementary piston fitting said cylinder and said piston-rod and capable of sliding in said cylinder and along said piston-rod and a valve mechanism whereby a fluid under pressure can be applied alternately to opposite sides of said supplementary piston, substantially as described.

2. The combination with a cylinder for employing a fluid under pressure, a reciprocating piston inclosed in said cylinder and a piston-rod attached to said piston of a supplementary piston inclosing said piston-rod and capable of sliding thereon, passages for the admission of a fluid under pressure to both sides of said supplementary piston and means for alternately opening and closing said passages whereby said supplementary piston is moved in said cylinder, substantially as described.

3. The combination with a cylinder A, piston A', and piston-rod A^3 of a supplementary piston as C, capable of sliding in said cylinder and on said piston-rod, said cylinder having a passage B provided with the branch passages B' and B^2, and a valve as D arranged to alternately open and close said passages, substantially as described.

4. The combination with a cylinder for employing a fluid under pressure, and a reciprocating piston having a piston-rod moving in said cylinder, of a piston capable of sliding in said cylinder and on said piston-rod, and means operatively connected with said reciprocating piston-rod for controlling the admission of a fluid under pressure to said cylinder and alternately upon opposite sides of said piston, substantially as described.

587,361. **ENGINE.** JOHN P. DORAN, Bonduel, Wis. Filed Nov. 12, 1896. Serial No. 611,801. (No model.)



Claim.—1. In an engine for use with steam or analogous power medium, the combination with a member having induction and eduction ducts, of valves passing through and controlling one or more of the ducts each of which valves consists of a revolvable tubular shell and a revolvable cylindrical plug having ports registering with each other and with a duct aforesaid, a crank-arm on said tubular shell and on said plug respectively, and means adapted to oscillate the shell and the plug in opposite directions.

2. In an engine, the combination of a piston-containing cylinder, a member adjacent having induction-ducts leading to the cylinder, and a reciprocable plug-valve adapted to be pulled across or pushed out of the duct, and means, as a governor, for automatically actuating the valve.

3. In an engine for using an expansive power medium, the combination with a cylinder, a piston reciprocable therein, a cross-head connected to the piston, permanent ways on which the cross-head is supported and travels, a rock-shaft, an oscillating arm loose on the rock-shaft and connected to the cross-head by a thereto-pivoted connecting-rod, a tappet fixed on the rock-shaft disposed after lost motion to be contracted and actuated by the oscillating arm, and means actuated by the rock-shaft for opening and closing medium supplying cut-off valves.

4. In an engine for using an expansive power medium, the combination with a cylinder, a piston reciprocable therein, a cross-head connected to the piston, a rock-shaft, an oscillating arm loose on the rock-shaft and connected to the cross-head, a tappet fixed on the rock-shaft disposed after lost motion to be contacted and actuated by the oscillating arm, curved arms fixed medially on the rock-shaft and provided with ways, a block sliding in the ways and connected to medium-supplying cut-off valves, and means for shifting said sliding block in the ways.

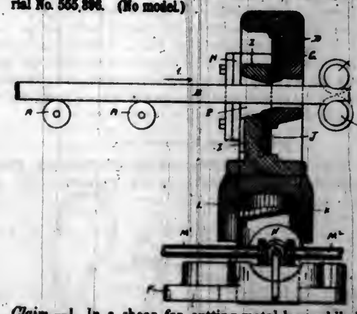
5. In an engine for using an expansive power medium, a means for controlling the power-supply, comprising a rock-shaft provided with a tappet, an oscillating arm on the rock-shaft connected to the engine cross-head and adapted to contact with the tappet and oscillating the rock-shaft, segmental arms on the rock-shaft having ways therein, a block sliding in the ways, means connecting the sliding block with cut-off valves and means for shifting the sliding block in the ways.

6. In an engine using a fluid-power medium, the combination with a rock-shaft and means for oscillating it intermittently, of segmental arms secured medially to the rock-shaft and having ways therein, an actuating-rod provided with a block sliding in the ways and pivoted at its other extremity to a reciprocating slide, the slide, ways in which the slide travels, rods connected to the slide and attached to the crank-arms of medium-cut-off valves, and means for shifting at will the actuating-rod in the ways in the segmental arms.

7. In an engine, a reciprocable cross-head, permanent ways on which the cross-head is supported and travels, a rock-shaft, a crank-arm fixed on the rock-shaft and connected with the cross-head, and a tappet on the rock-shaft adapted intermittently to be contacted by the crank-arm and oscillate the shaft.

8. In an engine, a rock-shaft, segmental arms fixed medially on the rock-shaft and provided with ways extending in both directions past the axis of the shaft, a block sliding in the ways, a rod connected to the block and to a valve-shifting rod or rods, a pivoted lever-arm connected medially movably to the block-rod and means for swinging the lever-arm whereby the position of the block in the segmental arms may be shifted at will.

587,362. **SHEARS FOR CUTTING METAL BARS WHILE IN MOTION.** VICTOR E. EDWARDS, Worcester, Mass., assignor to the Morgan Construction Company, same place. Filed July 13, 1895. Serial No. 555,898. (No model.)

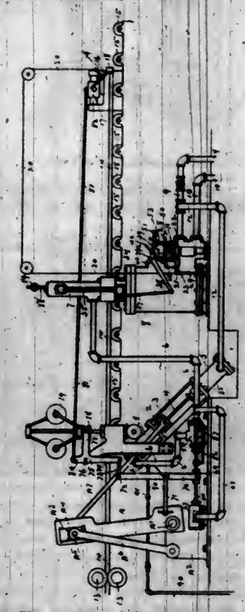


Claim.—1. In a shear for cutting metal bars while in motion, the combination of a rocking frame D pivoted at one end and provided with ways, of a sliding plate I, a cutting-blade attached to said rocking frame, a cutting-blade attached to said sliding plate, a cylinder L attached to said rocking frame and open at its upper end, and a cylinder K attached to said sliding plate and open at its lower end, said cylinder K inclosing said cylinder L and means for admitting fluid under pressure to said cylinder L, substantially as described.

2. The combination with a pair of rolls of a rolling-mill, whereby a metal bar is moved longitudinally, of a rocking frame pivoted at one end and provided with ways, a cutting-blade attached to said rocking frame, a sliding cutting-blade, sliding on said rocking frame, said cutting-blade being limited to a movement parallel with its plane of contact with said blade and attached to said rocking frame whereby the engagement of said cutting-blades with a metal bar, as moved by said rolls, will rock said rocking frame, and a hydraulic cylinder carried by said rocking frame and operatively connected with said sliding blade, substantially as described.

3. In a shear for cutting metal bars while in motion, the combination of rocking frame D having trunnions E, E, bed F, in which said trunnions are journaled, cutting-blade G attached to said frame D, plate I having a sliding motion on said frame D, cutting-blade J attached to said plate, cylinder L carried by said frame D, cylinder K carried by said sliding plate and inclosing said cylinder L, a pipe M held concentrically in one of said trunnions and communicating with said cylinder L and feed and exhaust pipes M' and M^3, and means for controlling the passage-ways in said pipes, substantially as described.

587,363. **APPARATUS FOR CONTROLLING METAL-CUTTING SHEARS.** VICTOR E. EDWARDS, Worcester, Mass., assignor to the Morgan Construction Company, same place. Filed July 15, 1895. Serial No. 556,068. (No model.)



Claim.—1. The combination with a pair of rolls by which a rod, or bar, is delivered to a shear at a speed determined by the speed of the rolls, of a shear capable of being moved with said rod, or bar, during the operation of cutting, mechanism for moving said shear in correspondence with the moving rod, or bar, but independently thereof, a speed-governor driven in correspondence with the speed of said rolls, said speed-governor being operatively connected with said shear-moving mechanism, whereby the speed of the shear is controlled and varied in correspondence with the speed of said rolls, substantially as described.

2. The combination with a pair of rolls, by which a rod or bar is delivered to a shear, of a shear capable of moving parallel with the axis of said rod, or bar, during the operation of cutting, mechanism by which a force is applied to move said shear independently of the moving rod or bar, a tripping-finger placed in the path of the moving rod or bar and capable of being moved out of said path by the movement of the rod, or bar, said finger being operatively connected with the shear-moving mechanism, whereby said shear-moving mechanism is set in operation by the contact of the moving rod with said finger, substantially as described.

3. The combination with a pair of rolls by which a rod, or bar, is delivered to a shear capable of moving with said rod, or bar, mechanism for moving said shear with the rod, or bar, and independently thereof, a finger placed in the path of said moving rod, or bar, and operatively connected with said shear-moving mechanism, and a series of rolls arranged to receive the severed rod, or bar, and means for rotating said rolls at a speed greater than the speed of said delivery-rolls, substantially as described.

4. The combination with a pair of rolls by which a rod or bar is delivered to a shear, and a shear capable of moving with said rod or bar during the operation of cutting, of a hydraulic cylinder operatively connected with said shear, a pipe connecting said hydraulic cylinder with a source of water-supply under pressure, throttling mechanism by which friction is applied to the water entering said hydraulic cylinder, an eduction-pipe of limited area through which a portion of the volume of water is forced out as it passes into said hydraulic cylinder and an inlet-pipe of limited area leading to a cold-water supply, through which a supply of cold water is admitted, whereby the said water-supply is gradually changed so as to prevent undue heating, substantially as described.

5. The combination with a pair of rolls by which a rod, or bar, is delivered to a shear and a shear capable of moving with said rod, or bar, during the operation of cutting, a hydraulic cylinder operatively connected with said shear, a pipe connecting said cylinder with a source of water-supply under pressure, a throttling mechanism by which a variable friction can be applied to the water passing through said pipe, mechanism by which said shear and said throttling mechanism are operatively connected, whereby the amount of friction upon the moving water is controlled by the movement of the shear, substantially as described.

6. The combination with a metal-cutting shear comprising a moving shear-frame and a hydraulic cylinder for actuating said shear, of a pipe leading from said hydraulic cylinder to a source of water-supply under pressure, a throttling mechanism by which the flow of water through said pipe is restricted, said throttling mechanism comprising a sliding tapered spindle, a lever pivotally connected at one end to said spindle and having its opposite end connected to a governor, a governor and a link connecting said shear-frame with said lever between its pivoted ends, whereby said spindle is controlled jointly by said governor and said moving shear-frame, substantially as described.

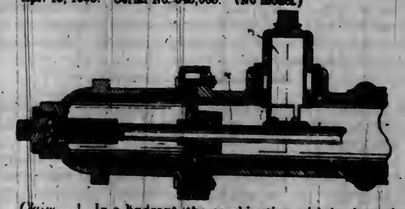
7. The combination with a pair of rolls by which a rod, or bar, is delivered to a shear, and a shear capable of moving with said rod, or bar, during the operation of cutting, of mechanism for moving said shear with the moving rod, a finger placed in the path of the moving rod and operatively connected with said shear-actuating mechanism, whereby the movement of said shear is controlled by the contact of said finger with the end of said rod, a sliding block carrying said finger and a governor operatively connected with said sliding block to move said finger along in the path of the moving rod and change its position, as the speed of the rod varies, substantially as described.

8. The combination with a pair of rolls by which a rod, or bar is delivered to a shear, of a shear capable of moving parallel with the axis of said rod, or bar during the operation of cutting, actuating mechanism for moving said shear parallel with the moving rod or bar, a tripping-finger placed in the path of said rod or bar and capable of being moved out of said path by the movement of the rod or bar, said finger being operatively connected with said shear-moving mechanism and a series of rotating rolls placed in front of said shear by which the severed rod or bar is carried past said finger, substantially as described.

9. The combination with a metal-cutting shear, and a hydraulic cylinder and inclosed piston operatively connected with said shear to actuate the same, of a source of water-supply under pressure, a pipe leading to said cylinder from said water-supply, a shell or case in said pipe, inclosing a valve-chamber, lugs projecting from the inner wall of said chamber and provided with parallel edges forming guides for a sliding check-valve, a check-valve inclosed between said lugs and capable of a sliding motion in said chamber, radial water-passages and a concentric longitudinal water-passage in said sliding valve and a spring to move it against a valve-seat and a valve-seat, substantially as described.

10. The combination with a metal-cutting shear, and actuating mechanism operatively connected with said shear, and comprising a steam-cylinder 8, of a steam-supply pipe and an exhaust-pipe communicating with said cylinder, a valve-stem 11 carrying a valve by which the flow of steam is controlled in said supply and exhaust pipes, a pivoted lever 26, by which said valve-stem is held at one end of its movement, a pair of rolls by which a rod, or bar, is delivered to said shear, a finger placed in the path of said rod, or bar, and intermediate connecting mechanism between said finger and said lever 26, whereby said valve-stem is released by the contact of said finger with the end of said rod, or bar, substantially as described.

587,364. **HYDRANT.** FRANK M. FARWELL, St. Paul, Minn. Filed Apr. 15, 1895. Serial No. 545,685. (No model.)



Claim.—1. In a hydrant, the combination with its lateral plug, of the sleeve or collar slidable in said plug, and the double valve and valve-seat connection between said sleeve and the fixed parts of said

plug whereby leakage around said sleeve is prevented in both open and closed positions thereof.

2. In combination with a hydrant plug or nozzle, the sleeve arranged therein, means for slidably adjusting its position, and the double valve and valve-seat connection between said sleeve and plug whereby leakage around said sleeve is prevented in its different adjusted positions.

3. In a hydrant, the combination with its lateral plug, of the sleeve or collar fixed in said plug, the slidable sleeve arranged within said fixed sleeve, and the double valve and valve-seat connection between the fixed and slidable sleeves.

4. In combination with a hydrant plug or nozzle, the sleeve fitted to said plug, the soft-metal filling anchoring the same therein, the slidable sleeve adjustably arranged in said first sleeve, the valve and valve-seat, one carried by said slidable sleeve and the other upon the fixed sleeve, and the collar having a circumferential groove and flange connection with said fixed sleeve and threaded upon said slidable sleeve.

5. In a hydrant, the combination with its lateral plug, of the fixed double valve-seat arranged therein, the sliding sleeve, the valve carried by said sleeve and fitted to the inner valve-seat so as to close the plug, and the second valve carried by said sleeve and adapted to be seated upon the outer valve-seat when the inner valve is open, so as to prevent leakage around the sleeve.

6. In a hydrant, the combination with the lateral plug, of the valve-seat arranged therein, the sleeve slidable in said plug, the valve carried by inwardly-projecting arms upon said sleeve, and fitted to said seat to close said plug, the oppositely-arranged valve-seat in said plug, and the second valve carried by said sleeve fitted to said second seat and adapted to cut off the flow of water from the hydrant around said sleeve when the first valve is open.

7. In a hydrant, the combination with its lateral plug, of the sleeve or collar fixed within the plug-flange and provided with a double valve-seat, the sleeve slidable within said fixed sleeve and carrying valves, and fitted to said seats, the one to close the plug and the other to cut off the flow of water between said sleeves when the other valve is open.

8. In a hydrant, the combination with its lateral plug, of the sleeve fixed within the flange of the plug, the double valve-seat within said sleeve, the second sleeve slidable within said first sleeve, the pair of valves carried by said second sleeve and adapted to be seated by its movement the one to close the plug and the other to cut off the flow of water between the sleeves when the plug is open, and the collar having journal connection with the plug, and threaded upon said inner sleeve so as to drive the same inward or outward.

9. In a hydrant, the combination with its lateral plug, of the sleeve fixed in said plug and provided with a double valve-seat, the exteriorly-threaded sleeve slidable within said first sleeve, the valves carried thereby adapted to be closed against their respective seats, the collar-nut threaded upon said second sleeve and having freely-turning engagement with the plug, whereby when operated it serves to drive the sleeve inward or outward according to the direction of its rotation.

587,365. MEANS FOR FASTENING VINES TO TRELLISES. THOMAS J. FORDE, Geneva, Ohio. Filed Feb. 15, 1897. Serial No. 623,370. (No model.)

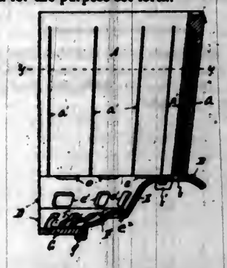


Claim.—A device for securing grape-vines and the like to wire trellises, consisting of a strip of straight flat spring metal having open recesses in its lower edge near its ends, said recesses constructed alike and having a hook in their outer portion to engage over the wires, whereby a reversible spring fastening device is produced, substantially as described.

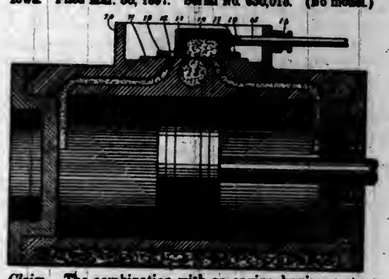
587,366. COMBINED FIRE-POT AND GRATE FOR STOVES. EDWARD G. SERBER, Erie, Pa. Filed Feb. 26, 1897. Serial No. 625,116. (No model.)

Claim.—1. The combination, of a fire-pot having vertical passages in the walls thereof, and vertical slits connecting said passages with the inside of the fire-pot, with a substantially closed grate, substantially as and for the purpose set forth.

2. The combination, of a fire-pot having vertical passages in the walls thereof, a supporting-ring having openings therein registering with the vertical passages in the fire-pot, vertical slits in the inner surface of the fire-pot opening into said vertical passages, and a grate having the openings therein so constructed as to admit but a small portion of the air necessary for combustion therethrough, substantially as and for the purpose set forth.

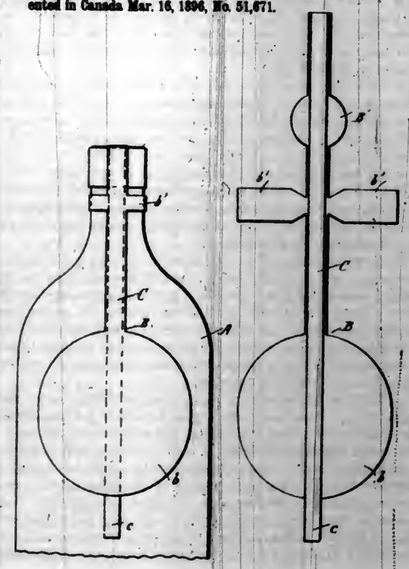


587,367. SLIDE-VALVE. WILLIAM GOODSPEED, Bloomfield, Iowa. Filed Mar. 30, 1897. Serial No. 630,018. (No model.)



Claim.—The combination with an engine having a steam-chest and induction and exhaust ports, of a slide-valve 14 having no inside or outside lap, a stem 15, a yoke 17 thereon fixed to the valve, an auxiliary cut-off 18, having slots 19 at its sides, standards 20 fixed to the valve-seat to project upwardly through the slots, washers on the said standards to engage the sides of the auxiliary cut-off, expansion-springs on the standards, and nuts on the top of the standards to engage the springs, all arranged and combined substantially in the manner set forth and for the purposes stated.

587,368. LABEL FOR BOTTLES. ARTHUR S. JACKSON, Montreal, Canada. Filed Jan. 14, 1897. Serial No. 619,156. (No model.) Patented in Canada Mar. 16, 1896, No. 51,671.



Claim.—A label provided at its lower part with a disk or shield, and with a disk and arms at its upper part, in combination with a strip of flexible material secured behind the label and having a projecting end, substantially as set forth.

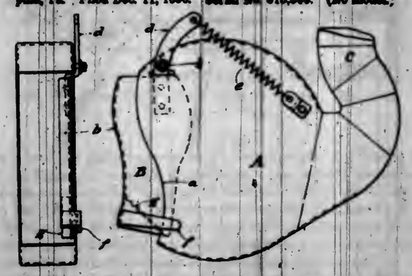
587,369. MILK-COOLER. LYNN B. LEWIS, Cortland, N. Y. Filed Apr. 9, 1897. Serial No. 631,690. (No model.)



Claim.—1. In a milk-cooler, the combination of the main cooling-chamber having an inclined top provided with a central opening surrounded by a collar, a detachable milk-reservoir, seated on the collar, having a central opening surrounded by a number of perforations so arranged that the discharge of milk will pass through the open air before falling upon the top of said chamber; a primary cooling-chamber extending up through said opening into the milk-reservoir, and an overflow-pipe having its inlet within the primary cooling-chamber and its outlet on the outside of the main cooling-chamber near the bottom thereof.

2. In a milk-cooler, the combination of the main cooling-chamber having an inclined top provided with a central opening surrounded by a collar, a detachable milk-reservoir, seated on the collar, having a central opening surrounded by a number of perforations for the discharge of the milk, a primary cooling-chamber extending up through said opening into the milk-reservoir, an overflow-pipe having its inlet within the primary cooling-chamber and its outlet on the outside of the main cooling-chamber near the bottom thereof, and a milk-receiving trough at the bottom of said cooling-chamber divided by a partition, whereby the milk is directed upon each side of said chamber toward the outlet-pipe in a slightly-accelerated flow.

587,370. EXHAUSTER-HOOD. HARRY H. MIDDLETON, Philadelphia, Pa. Filed Dec. 11, 1896. Serial No. 615,269. (No model.)

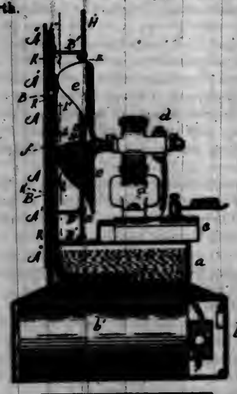


Claim.—A suction-hood having a movable mouthpiece attachment consisting of one or more side plates, an inclined deflecting-plate, hanger or slides for suspending and guide or guides for controlling the movement of same, together with tension spring or springs acting to throw said attachment outward from the mouth of hood: substantially as and for the purpose described.

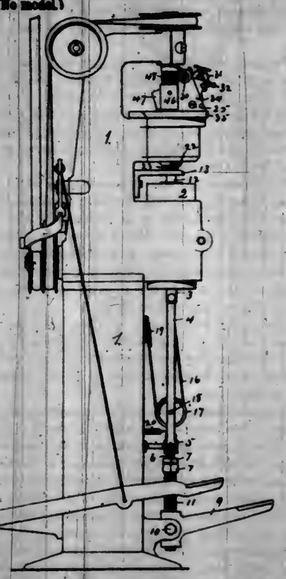
587,371. VAPORIZER. ABRAHAM R. MIRANDA, Boston, Mass. Filed Mar. 23, 1897. Serial No. 628,834. (No model.)

Claim.—1. In a vaporizer of the character described, a reservoir or tank: a vertical wall extending up from the front portion thereof, and consisting of ring-shaped plates arranged concentrically and thus being separated by concentric openings; wicking extending up from the reservoir and arranged substantially concentrically on and secured to the rear side of said rings or plates; a fan placed at the rear of said plates and wicking; and a motor suitably mounted to operate said fan, substantially as described.

2. In a vaporizer of the character described, a reservoir or tank; the vertical wall extending up from said reservoir and consisting of the concentric ring-shaped plates A A' A''; the radial wires or braces B secured to and connecting said plates; the semicircular plate H arranged at the rear of said concentric plates and supported by a frame resting on the reservoir; connecting-wires extending from the concentric plates to the support of the semicircular plate H; wicking extending up from the reservoir and arranged concentrically on the rear side of said concentric plates; and a fan and motor operating the same placed at the rear of said plates and wicking, substantially as set forth.



587,372. DIE-HAMMERING MACHINE. CHARLES H. MORGAN and VICTOR B. EDWARDS, Worcester, Mass., assignors to the Morgan Construction Company, same place. Filed Dec. 14, 1896. Serial No. 615,863. (No model.)



Claim.—1. In a die-hammering machine, the combination of a reciprocating hammer and anvil upon which the die is held, a spring supporting said anvil against the blows of said hammer, a fixed bracket by which the die is held by the pressure of said anvil-spring, and means for withdrawing said anvil against the tension of said anvil-spring, substantially as described.

2. The combination of an anvil upon which the die is supported, means for depressing said anvil to receive the die, and a retractile spring by which said anvil is raised, substantially as described.

3. The combination of an anvil upon which the die is held, said anvil being capable of a sliding motion, a rocking frame, links connecting said frame and said anvil, a lever projecting from said rocking frame and a retractile spring, whereby said anvil is moved longitudinally to receive the die and carry it into position, substantially as described.

4. The combination of an anvil upon which the die is held, a concentric centering-spindle capable of sliding in said anvil, withdrawing mechanism by which said anvil is moved longitudinally to receive the die, a flexible connection connecting said spindle with the fixed frame of the machine, said flexible connection passing around a pulley car-

ried by said anvil-withdrawing mechanism, whereby said spindle is moved faster than said anvil, substantially as described.

5. The combination of an anvil upon which the die is held, a rocking frame 8, a screw-threaded rod 6, carried by and capable of sliding in said frame, a nut 7 carried by said rod, a spring acting against said nut to raise the rod out of said frame, and links connecting said rod and said anvil, substantially as described.

6. The combination with an anvil upon which the die is supported of a carriage placed above said anvil and capable of rotatiog concentrically with the axis of the die, a sleeve held in said carriage at an angle with its axis of rotation, a hammer held in said sleeve, means for rotating said carriage and means for imparting a longitudinal reciprocating motion to said hammer, substantially as described.

7. The combination of an anvil upon which the die is supported, a carriage placed above said anvil and capable of rotating about the axis of a die held thereon, a rocking frame supported by said carriage, a reciprocating hammer held in said rocking frame, means for rocking said hammer-supporting frame, means for imparting a longitudinal reciprocating motion to said hammer and means for rotating said hammer-carriage, substantially as described.

8. The combination with an anvil upon which the die is supported and a concentric spindle by which the die is centered, of a rotating carriage having a rotation about an axis coincident with the axis of said centering-spindle, and a reciprocating hammer held by said carriage, said hammer being placed at an angle with the axis of said carriage, substantially as described.

9. The combination with an anvil upon which the die is supported and a centering-spindle held by said anvil, of a carriage having a rotary motion about an axis coincident with the axis of said centering-spindle, a reciprocating hammer held by a sleeve pivotally held in said carriage, whereby said hammer is capable of angular adjustment with reference to the axis of said carriage, substantially as described.

10. The combination of an anvil upon which the die is supported, a carriage carrying a reciprocating hammer, means for moving said carriage in a circular path coincident with the axis of the die, a hammer having a longitudinal reciprocating movement and supported by said carriage and means for changing the axis of the hammer relatively to the axis of the die, whereby the direction of the blow upon the face of the die is varied.

11. The combination with an anvil upon which the die is supported, and means for centering the die upon said anvil, of a carriage having a rotary motion about an axis coincident with the axis of the die, a reciprocating hammer carried by said carriage, whereby said hammer is carried in a circular path around the axis of the die and means by which the point of said hammer is moved radially upon the face of said die and causing the point of the hammer to move in a spiral path, substantially as described.

12. The combination with a rotating carriage, of a sleeve pivoted in said carriage, a reciprocating hammer sliding in said sleeve, a rotating cam engaging said hammer to raise the same off the die and a spring applied to said hammer to force it against the die, substantially as described.

13. The combination with a rotating carriage, by which the hammer is carried in a circular path around the axis of the die, of a hammer held in said carriage and capable of an angular variation with reference to the axis of said carriage, a cam acting to vary the angle of said hammer and a spring acting against said cam to reverse the motion of said hammer, substantially as described.

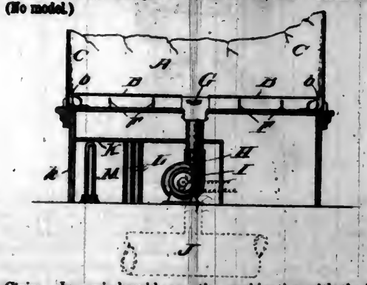
14. The combination with a reciprocating hammer held in a pivoted frame, by which the angle of the hammer is changed in order to vary the direction of the blow, of a rotating spindle, and a series of cams carried upon said spindle adapted to act upon said pivoted frame and rock the same, said spindle being capable of longitudinal movement, in order to bring each of said cams into action, substantially as described.

15. The combination of a rotating carriage, by which the hammer is carried in a circular path around the axis of the die, a rocking frame pivoted in said carriage, a reciprocating hammer carried in said rocking frame and means by which said frame is rocked, and the angle of said hammer varied with reference to the axis of said carriage, substantially as described.

16. The combination of a rotating carriage, a rocking frame pivoted in said carriage, a reciprocating hammer carried in said rocking frame, a rotating spindle mounted upon and carried by said rotating carriage, a worm-gear held upon said spindle, a stationary worm held concentrically with the axis of said rotating carriage and engaging said worm-gear, and a cam carried upon said spindle and acting to rock said rocking frame and thereby vary the path of the hammer over the face of the die, substantially as described.

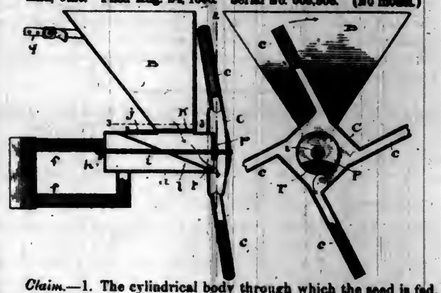
17. The combination of a rotating carriage, by which the hammer is carried in a circular path, a reciprocating hammer held in said carriage, a spindle concentric with said carriage, a pinion attached to said spindle and engaging a gear 41 attached to a spindle 42, journaled in said carriage, a pinion 43 on said spindle 42 and a fixed annular rack 44 engaged by said pinion 43, whereby a rotary motion is imparted to said carriage, substantially as described.

587,873. WINDOW-BLOWER. HERBERT L. PARKER and CHARLES R. MERTON, St. Louis, Mo., assignors to the Emerson Electric Manufacturing Company, same place. Filed Nov. 25, 1896. Serial No. 570,054. (No model.)



Claim.—In a window-blower, the combination with the horizontal distributing-pipes having longitudinal slots in their upper sides, of an air-supply pipe, a T-coupling between the distributing-pipes and supply-pipe formed with an inwardly-extending deflecting-section in line with the supply-pipe and having a continuous air-distributing slot extending through the walls and deflecting-section thereof in line with and forming a continuation of the slots in the distributing-pipes, and means for supplying air to the supply-pipe, substantially as described.

587,874. SEED-SOWING MACHINE. JOSEPH M. RICKEY, Cleveland, Ohio. Filed Aug. 24, 1896. Serial No. 603,806. (No model.)



Claim.—1. The cylindrical body through which the seed is fed, the hopper thereon and a substantially V-shaped opening from the hopper to the cylinder, a cut-off to regulate the flow of seed through said opening, and a pointer and graduated scale to fix the said cut-off at any desired position according to the flow of seed wanted, in combination with a centrifugal distributer, substantially as described.

2. The machine substantially as described, having a cylindrical body through which the seed passes at its front end, and bearings for a shaft in both ends of said cylinder, a shaft supported in said bearings and a seed-distributing head fixed rigidly to said shaft, whereby friction is reduced to a minimum, substantially as described.

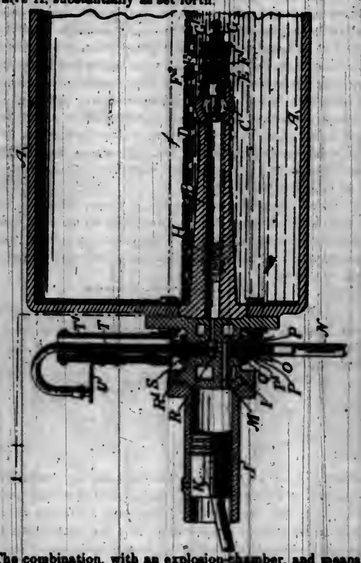
3. In a machine substantially as described, a revolving distributing-head having tubular distributing-arms set in lines at an inclination to radial lines from the axis of the head and off the axial center, substantially as described.

4. In a machine substantially as described, a centrifugal distributing-head for the seed having arms arranged to cause their outer ends to travel in different but substantially parallel planes and set in staggered relation to each other, substantially as described.

5. The machine substantially as described, having a centrifugal distributing-head, and arms in said head staggered in respect to each other so as not to sow on the same lines at the same time, and set at an inclination to lines radiating from the axis of the head, substantially as described.

587,875. STEAM-GENERATOR. CHARLES W. SIDDLE and ROBERT FIELD, Huddersfield, England. Filed Apr. 5, 1897. Serial No. 630,717. (No model.)

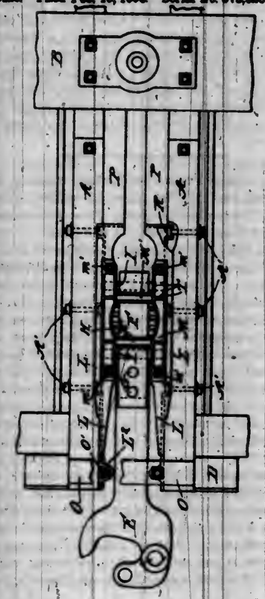
Claim.—1. The combination, with a boiler, of an explosion-chamber projecting within the boiler and provided with a spring-pressed outlet-valve D, a short chamber arranged beyond the said valve, and a second spring-pressed outlet-valve H closing the said short chamber, the pressure of the valve D on its seat being greater than that of the valve H, substantially as set forth.



2. The combination, with an explosion-chamber, and means for compressing an inflammable gaseous charge within the said chamber; of an ignition-tube, and a double valve R R' operating to close alternately the inlet to the explosion-chamber and the passage between the said ignition-tube and the explosion-chamber, substantially as set forth.

3. The combination, with an explosion-chamber, and an ignition-tube connected thereto and provided with an outlet-hole connecting with the atmosphere; of a spring secured at one end to a stationary support with its free end portion normally closing the said outlet-hole and permitting a portion of the products of combustion to pass out of the ignition-tube, substantially as set forth.

587,876. DRAFT-RIGGING FOR CARS. WILLIAM H. STARK, Toledo, Ohio. Filed Feb. 10, 1896. Serial No. 578,825. (No model.)

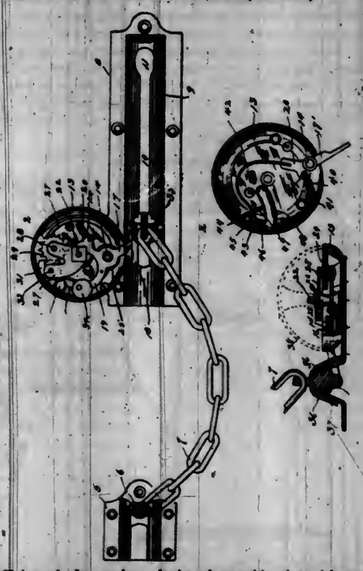


Claim.—1. In a draft-rigging of the kind described, the guides, L, formed with an enlarged or squared rear end, Z, the filling-block or projection P and provided with the guard or chafing-iron, L^3, stops, L', L', connected at their tops by a web, and one or more recessed parts, R, cast integral therewith; substantially as and for the purpose set forth.

2. In a draft-rigging of the kind described, the guide, L, formed with an enlarged or squared rear end, the filling-block or projection and provided with the guard or chafing-iron, L^3, stops, L', L', connected at their tops by a web, one or more recessed parts, R, and bosses or recesses, I, cast integral therewith; substantially as and for the purposes set forth.

3. In a draft-rigging of the kind described, the guide, L, formed with an enlarged or square rear end, the filling-block or projection and provided with the guard or chafing-iron, L^3, stops, L', L', connected at their tops by a web, one or more recessed parts, R, and a web connecting the recessed parts; substantially as and for the purpose set forth.

587,877. BURGLAR-ALARM. THOMAS J. SUTTON, New York, N. Y. Filed June 3, 1896. Serial No. 594,121. (No model.)



Claim.—1. In an alarm device, the combination with two plates, one of which is adapted to be secured to the door, and the other to the frame adjacent thereto, one of said plates being provided with an oblong slot in which is mounted a sliding head, which is connected by means of a chain or other device with the other plate, an alarm-bell or similar device secured to a lateral extension of the first-mentioned plate, and provided with a lever which projects through the slot formed in the plate, and means with said lever to operate the ratchet-wheel which is in engagement with a spring-actuated dog, whereby when the door is opened, the sliding head will be moved under said slot to operate said lever to sound the alarm, substantially as described.

2. In an alarm device, the combination with two plates or attachments, one of which is adapted to be secured to a door, and the other to the frame thereof, one of said plates being also provided with a sliding head, and an alarm-bell connected with one of said plates, and provided with a lever which is adapted to be operated by said sliding head, said lever being also in operative connection with a dog, which is provided with a clapper or ball by which the bell is sounded, and connection between the head and the plate upon the frame, substantially as shown and described.

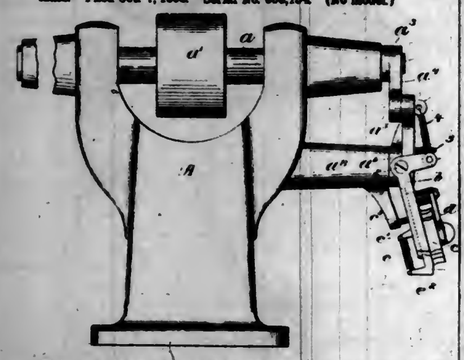
3. In an alarm device, the combination with two plates, one of which is adapted to be secured to a door, and the other to the frame thereof, one of said plates being also provided with a sliding head or attachment which is connected by means of a chain or other device with the other plate, and an alarm bell or gong provided with a lever which is adapted to be operated, by said sliding head, said lever being provided with a segmental gear, and with a spring by which it is held in its normal position, and said segmental gear being adapted to operate in connection with a pinion which is mounted on a shaft,

provided with a ratchet-wheel, and a pivoted dog adapted to operate in connection with said ratchet-wheel, said dog being provided with a spring-arm, to which a clapper or ball is secured, substantially as shown and described.

4. In an alarm device the combination with two plates one of which is adapted to be secured to a door or window and the other to the frame adjacent thereto, one of said plates being provided with an oblong slot in which is mounted a sliding head connected by means of a chain or other device with the other plate, and an alarm device connected with the first-mentioned plate and provided with a lever which projects through a slot formed in the plate, whereby when the door is opened the sliding head is moved along said slot and operates said lever, a segmental gear connected with one of the arms of said lever which is adapted to operate a pinion mounted on a shaft provided with a ratchet-wheel, a suitably-supported dog adapted to be operated by said ratchet-wheel said dog being provided with a spring-arm to which is secured a clapper.

5. In an alarm device, the combination with two plates, one of which is adapted to be secured to a door, and the other to the frame thereof, one of said plates being also provided with a sliding head or attachment which is connected by means of a chain or other device with the other plate and an alarm bell or gong provided with a lever which is adapted to be operated, by said sliding head, said lever being provided with a segmental gear, and with a spring by which it is held in its normal position, and said segmental gear being adapted to operate in connection with a pinion which is mounted on a shaft, provided with a ratchet-wheel, and a pivoted dog adapted to operate in connection with said ratchet-wheel, said dog being provided with a spring-arm, to which a clapper or ball is secured substantially as shown and described.

587,378. **EDGE-FINISHING MACHINE.** SETH D. TRIPP, Lynn, Mass. Filed Oct. 7, 1896. Serial No. 608,154. (No model.)



Claim.—1. In an edge-finishing machine, the combination of a vibratory frame bearing the pivot-pin b^2, an edge-finishing tool placed on said pivot-pin, and the fixed stud c, in continuous engagement with said tool, which causes said tool to turn on its axis as the frame bearing it vibrates, substantially as described.

2. In an edge-finishing machine, the combination of the vibratory frame having as a part of it the sliding spring-pressed bar b', the pivot-pin b^2 projecting from said bar, an edge-finishing tool mounted on said pivot-pin, and means for oscillating said tool independent of but in unison with the vibratory movement of the frame, substantially as described

3. In an edge-finishing machine, the combination of the vibratory frame having as a part of it the pivoted spring-pressed arm, a pivot-pin borne by said arm, an edge-finishing tool placed upon said pivot-pin, and means for oscillating said tool independent of the vibratory movement of the frame, substantially as described.

4. In an edge-finishing machine, the pivoted arm b, means for oscillating it on an axis at right angles to the axis upon which it is pivoted, the sliding bar b', pivot-pin borne by it, an edge-finishing tool placed on said pivot-pin, and means for oscillating said tool, substantially as described.

5. In an edge-finishing machine, the oscillating hub a^4, arm b pivoted to it bearing a pivot-pin, an edge-finishing tool placed on said pivot-pin, and means for oscillating said tool in unison with the oscillatory movement of the arm b carrying it, substantially as described.

6. In an edge-finishing machine, the oscillating hub a^4, arm b pivoted to it bearing the pivot-pin b^2, the edge-finishing tool placed on said pivot-pin, and the fixed stud c projecting through a hole in said arm b and engaging said tool, substantially as described.

7. In an edge-finishing machine, an oscillating edge-finishing tool carried by a vibrating frame, and a vibrating rest or support for the work, substantially as described.

8. In an edge-finishing machine, an edge-finishing tool, a vibrating frame carrying it, means for oscillating said tool in unison with the vibratory movement of said frame, and a rest or work-support attached to and movable with said frame, substantially as described.

9. In an edge-finishing machine, an oscillating frame bearing a rest or support for the work and an edge-finishing tool also borne by said oscillating frame, and means for oscillating said tool in unison with the movement of said frame, substantially as described.

10. In an edge-finishing machine, an oscillating rest or support for the work, an edge-finishing tool, and means for oscillating said tool in unison with the oscillatory movement of said rest, substantially as described.

11. In an edge-finishing machine, a frame, means for moving it back and forth, an edge-finishing tool carried by said frame, and means for oscillating said tool in unison with said frame, and a rest or work-support movable back and forth with said frame, substantially as described.

587,379. **DYNAMO-ELECTRIC MACHINE.** ERNST F. WARNER and HENRY H. WATT, Chicago, Ill., assignors to the Western Electric Company, same place. Filed June 8, 1896. Renewed Jan. 20, 1897. Serial No. 619,973. (No model.)



Claim.—1. In a dynamo-electric machine, the combination with an armature, of a pole-piece cut away or slotted to leave constricted necks or paths for the passage of the main field-lines of force, said necks or paths being so proportioned that the metal thereof will rise to a point near saturation during the normal operation of the machine to prevent the formation of a local field through the pole pieces due to the armature-coils; substantially as described.

2. In a dynamo-electric machine, the combination with cores carrying the field-coils, the pole-pieces connected therewith by two or more constricted necks or paths, said necks or paths being proportioned to carry the necessary lines of force of the main field when at practical saturation-point to thereby prevent the passage of lines of force due to the armature-coils; substantially as described.

3. In a dynamo-electric machine, the combination with a pole-piece, provided with a slot or slots, narrow at the pole-face and of increased width at portions removed from the face of the pole-piece, to thus leave constricted necks or paths between the face of the pole-piece and the remaining portions of the field-magnet circuit to prevent the formation of a local magnetic field; substantially as described.

4. In a dynamo-electric machine, the combination with a standard, of cores for the field-magnet coils mounted thereon and perpendicular thereto, pole-pieces mounted upon the ends of said cores, and extended toward one another to surround the armature, said pole-pieces being hollowed on cut away at the middle to leave a thin shell at the face of the pole-pieces, a slot extending from the front to the rear of said shell, said slot being of increased width at the rear to form two constricted necks or paths joining the face of the pole-piece with the core, upon which the field-magnet coil is mounted; substantially as described.

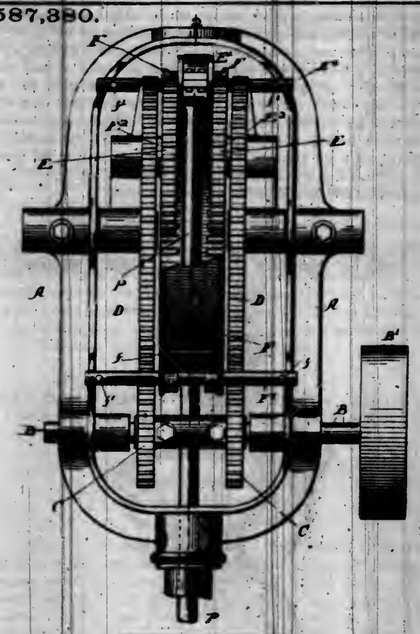
587,380. **MECHANICAL MOVEMENT.** OSCAR J. ZIEGLER, Freeport, Ill. Filed Sept. 27, 1895. Serial No. 563,860. (No model.)

Claim.—1. The combination with a suitable frame and a driving-shaft, B, mounted therein and provided with pinions, C, C, of the gear-wheels D, D, engaging said pinions, C, C, pinions E, E, mounted upon and between said gear-wheels, and provided with an interposed crank-pin, E', a stationary internal gear, F, mounted in the frame and engaging the pinions, E, E, and a pitman, P, hung on the crank-pin, E', and operated by the movement thereof, the internal gear being formed with a suitable opening for the passage of the pitman.

2. The combination with the frame, the shaft, B, and the rotating wheels, D, D, receiving movement from said shaft, of the pinions, E, E, mounted upon and between said wheels and connected by the integral crank-pin, E', the stationary internal gear, F, mounted in the frame and engaging the pinions, E, E, and the pitman, P, hung on the crank-pin, E', and operated by the movement thereof, the internal gear being formed with an opening for the passage of the pitman.

3. The combination with the frame, the shaft, B, the rotating wheels, D, D, operated by the shaft, the pinions, E, E, mounted on the wheels, D, D, and provided with an interposed crank-pin, E', and the pitman, P, hung on the crank-pin E', of the stationary internal gear, F, engaging the pinions, E, E, and the rods, F', F', passing transversely through said internal gear and seated in the frame, whereby the internal gear is held in suitable relation to the frame.

587,380.



587,381. **EXTENSION-TABLE.** EDWARD O. ABBEY, Oswego Centre, N. Y. Filed Nov. 27, 1896. Serial No. 613,552. (No model.)



Claim.—1. In an extension-table, the combination with the divided frame, end sections of the top rigidly secured to the frame, and the extension-slides between the end sections, of leaves provided with hinges having pintles on one member, bars secured near the lower sides of said leaves to retain the pintles, a pocket in one end section to contain the leaves, and a movable support g for the leaves, as set forth.

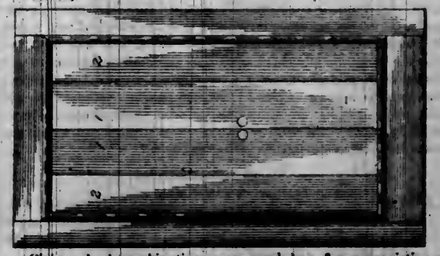
2. In an extension-table, the combination with the divided frame, end sections of the top rigidly secured to the frame, and the extension-slides between the end sections, of leaves provided with hinges on their lower sides, said hinges having pintles, bars below and in proximity to the lower surface of the leaves having upwardly-turned ends secured to the edges of the leaves, to retain the pintles, and a pocket in the frame of one end section of the table to receive the leaves, as set forth.

3. In an extension-table, the combination with the divided frame, end sections of the top rigidly secured to the frame, one section of said top having a beveled edge and the extension-slides between the end sections, of leaves provided with hinges on their lower sides, said hinges having pintles at the free ends of one of their members extending in opposite directions, bars with upturned ends parallel with and in proximity to the lower surfaces of the leaves to retain the pintles of the said hinges, and a pocket in the frame of one end section of the table to receive the leaves and hold them in an inclined position, as set forth.

4. In an extension-table, the combination with the divided frame, end sections of the top rigidly secured to the frame, and the extension-slides between the end sections, of leaves provided with hinges on their lower sides, said hinges having pintles at the free ends of one of their members extending in opposite directions, bars with upturned ends parallel with and in proximity to the lower surfaces of the leaves to retain the pintles of the said hinges, a pocket in the frame having an inclined side and a horizontal bottom to receive the leaves, and a pair of movable supports g on each side of the table to support a leaf in its horizontal position, substantially as described and shown.

5. In an extension-table, the combination with the divided frame, end sections of the top rigidly secured to the frame, and the extension-slides between the end sections, of leaves provided with hinges on their lower sides, said hinges having pintles at the free ends of one of their members extending in opposite directions, bars with upturned ends parallel with and in proximity to the lower surfaces of the leaves to retain the pintles of the said hinges, a pocket in the frame, having an inclined side to receive the leaves, and a pair of swinging supports mounted on the frame near the edge of the pocket to prevent the first horizontal loose leaf from tilting, substantially as described and shown.

587,382. **STORM-DOOR AND SCREEN COMBINED.** SARAH A. ADDIS, Neodesha, Kans. Filed Aug. 17, 1896. Serial No. 602,934. (No model.)

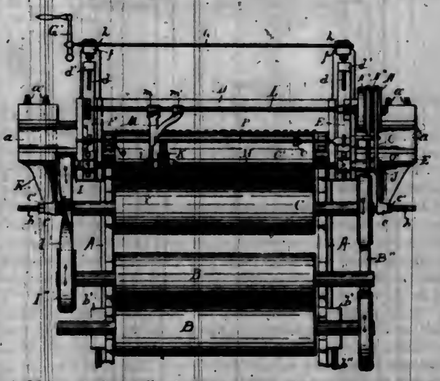


Claim.—1. A combination screen and door frame consisting of a door having a door-frame covered on its inner face by a screen, two upright stationary panels on the outside of said door-frame and two movable panels situated between said stationary outside panels and said screen and adapted to close the opening between the inner edges of said stationary panels.

2. A combination storm and screen door frame covered on the inside with a screen, stationary panels on the outside of said door, a transverse bar secured between said stationary panels and said screen, a slot in said bar and in said screen, and movable panels situated between said stationary panels and said screen and provided with knobs extending through the transverse slots in said bar and screen.

3. A combination storm and screen door frame covered on the inside with a screen, stationary panels on the outside of said door, a transverse bar secured between said stationary panels and said screen, a slot in said bar and in said screen, and movable panels situated between said stationary panels and said screen and provided with knobs extending through the transverse slots in said bar and screen, said knobs being provided with set-screws.

587,383. **ROLL-GRINDING MACHINE.** HUBERT L. BAKER and FRED W. WRIGHT, Reed City, Mich. Filed May 11, 1896. Serial No. 591,016. (No model.)



Claim.—1. In a roll-grinding machine, the combination of the frame having extensions between which the roll is journaled, the rotary shaft mounted on the frame and lying parallel to the axis of rotation of said roll, the rotary grinder adapted to slide on said shaft and means for moving said shaft parallel to and in the direction of the center of said roll, and means for rotating said roll

2. In a roll-grinder, the combination with the rotary roll, the frame carrying the grinding mechanism journaled to said roll so as to swing concentric with its axis of rotation, the rotary shaft journaled in said frame parallel with the axis of the roll, the grinding-wheel on said shaft turning therewith and adapted to slide longitudinally thereon, means for moving said shaft in the direction of the axis of the roll to feed the grinding-wheel thereto.

3. In a roll-grinding machine, the combination with the roller-mill machine having a series of rolls therein, said rolls having pulleys on the shafts thereof through which they are driven, the frame carrying the grinder mechanism pivoted to the journal of one of said rolls concentric with its axis of rotation, the rotary shaft journaled in said frame parallel with the axis of said roll, the grinder-wheel turning with said shaft and movable longitudinally thereon, a belt leading from a pulley on one of said rolls to the pulley on the shaft of the grinder, and means for moving the grinder-wheel transversely of the axis of said roll.

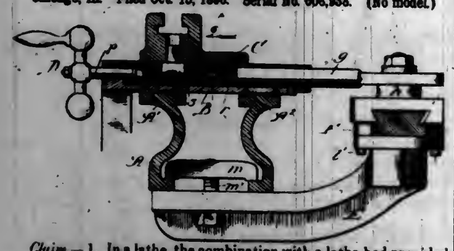
4. In a roll-grinder, the combination of the frame, the roll to which said frame is concentrically pivoted, the shaft carrying the grinder-wheel journaled in said frame parallel with said roll, means for rotating said shaft, a grinder-wheel turning with said shaft and movable longitudinally thereon, the screw journaled in the frame parallel with said shaft, pulleys on said screw, and belts leading therefrom to a drum on said shaft, the bracket actuated by said screw and engaging the hub of the grinder-wheel, means for automatically shifting said belts to change the motion of said screw, and means for feeding the grinder-wheel to the roll.

587,384. CRANK-HANGER FOR BICYCLES. WILLIAM R. BELL, Danbury, Conn., assignor of one-half to Eugene C. Dempsey, Theodore H. Benedict, and John R. Booth, same place. Filed May 12, 1896. Serial No. 591,215. (No model.)



Claim.—A bicycle crank-hanger comprising in its construction the casing formed of two substantially semicylindrical sections, the upper section 1 being connected to the frame and having a lip 6 projecting from one edge and lugs at the other edge, the lower section 2 having a grooved rib 5 at one edge and lugs at the other edge, both of the sections being interiorly threaded at their ends, screws 4 connecting the lugs, the two independent threaded cups 7, the crank-shaft having cones, and the balls 10 between the cones and the cups, substantially as described.

587,385. TAPERING ATTACHMENT FOR LATHES. JOHN BERG, Chicago, Ill. Filed Oct. 15, 1896. Serial No. 608,938. (No model.)



Claim.—1. In a lathe, the combination with a lathe bed provided at its inner lower edges with longitudinal ribs, and a cross-feed slide, of a detachably-supporting attachment carrying an adjustable guide-bar, a clamping-bar resting upon said ribs, bolt connection between the lower end of said supporting attachment and said clamping-bar, a slide upon said adjustable guide, and connecting means between said slide and the cross-feed slide, substantially as and for the purpose set forth.

2. In a lathe, the combination with the lathe-bed and the cross-feed slide, of an attachment carrying a guide-bar, a slide upon said guide-bar, and connecting means between said slide and the cross-feed slide, comprising, in combination, a connecting-rod having at one end an adjusting-slot and at its opposite end a socket, a bolt connecting said rod to the guide-bar, the cross-feed screw having a reduced end provided with a circumferential groove, and a pin passing through said socket of the connecting-rod and tangentially to said reduced end of the cross-feed screw at its groove to form a rotatable joint, substantially as and for the purpose set forth.

3. In a lathe, the combination with the lathe-bed and cross-feed slide, of a detachable guide-bar support clamped to the lathe-bed near its center and provided with a socket, a guide-bar having a post journaled in said socket, a graduating-scale and index on said posts, a slide upon said guide-bar, a clamp-screw for the guide-bar, and connecting means between said slide and said cross-feed slide comprising an adjustable connecting-rod having a socketed end, the cross-feed screw having a reduced end provided with a circumferential groove, and a pin passing through said socket and into the groove on said cross-feed screw, all being constructed and arranged to operate substantially as and for the purpose set forth.

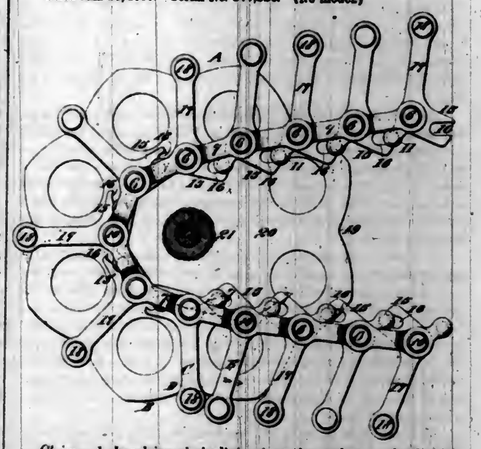
587,386. BELT. LOUIS B. BROWSON and JOHN PARMENTER, Belvidere, Ill. Filed Jan. 9, 1897. Serial No. 618,551. (No model.)



Claim.—1. The combination with a belt composed of a plurality of metallic links, of a buckle for securing said belt about the wearer's waist, two pendent rods having their upper ends pivotally mounted on the buckle-plate, and a purse pivotally secured to the lower ends of said arms so as to be held in a horizontal position substantially as described.

2. The combination with a belt, of a buckle for securing the same about the wearer's waist, two pendent rods having their upper ends pivotally mounted on the buckle-plate and a purse pivotally secured to the lower ends of said arms so as to be held normally in a horizontal position, substantially as described.

587,387. DRIVE-CHAIN. THOMAS J. CHRISTY, St. Louis, Mo. Filed Jan. 29, 1896. Serial No. 577,228. (No model.)



Claim.—1. In a drive-chain, links pivoted together; each of which links consists of a pair of bars in parallel position and a pivot passing through the end of one link and also passing through the next link at a point intermediate of its ends and thus forming a projection upon said link; bell-crank levers mounted upon said pivots and between said bars, each of said bell-crank levers having an opening in its short end which opening is engaged by said projection upon the next-adjoining link, substantially as specified.

2. In a drive-chain, links, each consisting of a pair of bars, a pin passing through one end of each link, said pin also passing through the next adjacent link at a point intermediate of its end, a bell-crank lever mounted between said bars and upon said pivot, connections between the free ends of said bars and engaging the short end of said bell-crank lever, and projections upon the long end of said bell-crank lever and designed to engage the sprockets of the driven wheel, said links carrying projections designed to engage the sprockets of the driving-wheel, substantially as specified.

3. In a drive-chain, the sections 8 and 9, the oppositely-arranged projections 6 at one end of said sections, the shouldered rivet 10 passing through said projections and connecting said sections, the extensions 11, the lugs 12 upon said extensions, the bell-crank lever 14 mounted upon the rivet 10 and between the sections 8 and 9 and having the recess 16 in its short end and designed to engage the lugs 12 of the next adjacent link, and the projections 18 upon the long end of said bell-crank lever, substantially as specified.

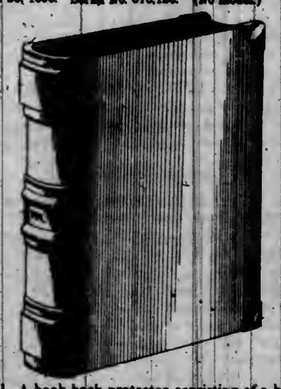
587,388. PNEUMATIC GRIP FOR BICYCLES. HENRY W. COMARD, Wymore, Nebr. Filed Sept. 14, 1896. Serial No. 605,772. (No model.)



Claim.—1. The combination with the body portion of the handle, of a flexible bag about the same, a base at one end having a passage extending transversely of the length of the handle, and a channel leading therefrom to the interior of the bag, a valve in said chamber, a spring arranged within the chamber acting on said valve, and a plug at the opposite end of said base, substantially as described.

2. The combination with the core, of a handle surrounding the same and comprising an outer wall of flexible material, and an inner tube also of flexible material, said inner tube being attached to the core, a cap secured in the outer end of the core and extending over the end of the inflatable portion, a base at the opposite end of the core having a passage at right angles to the length of the handle, and a channel communicating therewith and with the interior of the inflatable portion, a plug in one end of said chamber, and a valve in the other with an interposed spring, all substantially as herein specified.

587,389. BOOK-BACK PROTECTOR. GEORGE W. CRANE and JOHN W. BLOOMFIELD, Topeka, Kans., assignors to Crane & Co., same place. Filed Oct. 26, 1896. Serial No. 610,128. (No model.)



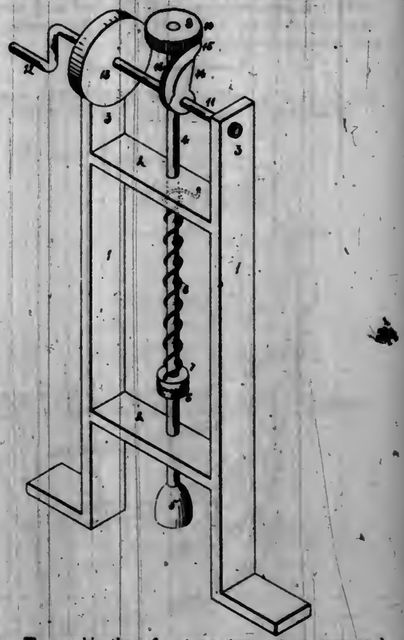
Claim.—1. A book-back protector consisting of a hub adapted to be secured to the back of an ordinary book, preferably a blank-book, the same consisting of a main body provided with bosses formed on the inside; in combination with means for securing them to the book-back, as set forth.

2. A book-back protector, consisting of a hub, the same consisting of a main body provided with bosses formed on the inside; in combination with screws and washers, as set forth.

3. A corner-protector consisting of a plate having a boss formed on the inside, in combination with a screw for holding it in a book-cover, substantially as described.

4. A corner-protector consisting of a plate having a boss formed on the inside; in combination with a washer and means for securing the washer on the boss to hold the plate to the book, substantially as described.

587,390. ORE STAMP-MILL. WILLIAM W. EDWARDS, Rockford, Ill. Filed May 18, 1896. Serial No. 592,092. (No model.)



Claim.—The combination of a stamp-stem, a stamp supported thereby, a coiled spring surrounding the stem and having one end stationary and its other end connected to a collar loosely mounted upon the stem and having its lower face serrated, a collar secured to the stem and having its upper face serrated, the serrations of the collars lying in contact, and means for raising the stem.

587,391. STOOL. NATHANIEL O. GANDY, Chester, Pa. Filed Dec. 10, 1896. Serial No. 615,120. (No model.)



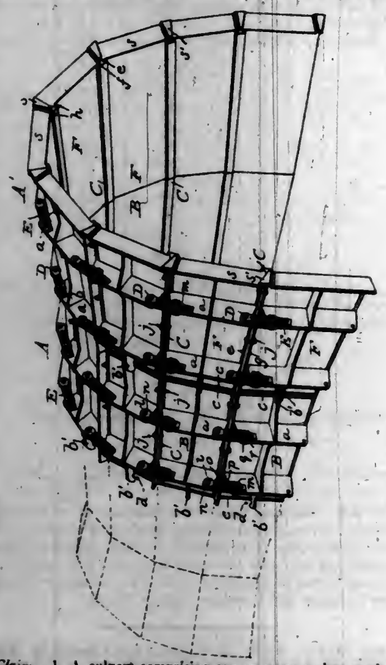
Claim.—1. A foldable stool for the purpose described comprising the tubular legs having the apertures *m*, at corresponding intermediate points of their lengths, a seat of flexible material connected to the upper ends of the legs, the bolt formed in one piece and arranged between the legs and having branches extending through the apertures *m*, into the legs, and devices arranged in the legs and detachably connected with the branches of the bolt and serving to secure the legs on said branches, substantially as specified.

2. A foldable stool for the purpose described, comprising the tubular legs having the apertures *m*, at corresponding intermediate points of their length, a seat of flexible material connected to the upper ends of the legs, the bolt *k*, arranged between the legs and having the threaded branches *l*, extending through the apertures *m*, into said legs, and the elongated nuts arranged in the legs and mounted on the threaded branches *l*, of the bolt, substantially as specified.

3. A foldable stool for the purpose described comprising two tubular legs of corresponding length having the apertures *m*, at equidistant points from their lower ends, a third tubular leg, shorter than the other two, having an aperture *m*, at a corresponding distance from its lower end; said third leg being so arranged that, when the upper ends of the legs are spread apart, its upper end will rest in a vertical plane midway the vertical planes in which the upper ends of the long legs rest, the bolt formed in one piece and arranged between the legs

and having branches extending through the apertures *m*, into the legs devices arranged in the legs and detachably connected with the branches of the bolt and serving to secure the legs on said branches; the said bolt being arranged at equidistant points from the lower ends of the legs, and the combined seat and back of flexible material and triangular shape in outline connected at its corners to the upper ends of the legs and occupying the space between said upper ends, substantially as specified.

587,392. METAL ARCH FOR CULVERTS. RICHARD GRAY, Bloomington, Ill. Filed May 10, 1897. Serial No. 635,871. (No model.)



Claim.—1. A culvert comprising one or more arches, made up of metallic plates adjustably connected with each other.

2. A culvert comprising a sectional metallic arch flaring at one or both ends.

3. A culvert comprising one or more arches, made up of unyielding metallic plates adjustably connected with each other.

4. A culvert comprising a body portion made up of one or more arches, each of which arches is composed of rectangular metallic plates suitably connected; and an end portion or arch made up of a series of metallic plates of trapezoidal form, also suitably connected to each other and to the plates of the body portion.

5. An arch made up of metallic plates connected adjustably with each other and having the interposed longitudinal filling-pieces.

6. An arch made up of metallic plates adjustably connected with each other on the outer face, and interposed ⊥-shaped longitudinal filling-pieces.

7. An arch made up of a series of metallic plates; and an adjustable connection between the plates on their outer faces, whereby any desired curvature may be given to the arch.

8. A culvert comprising a series of connected arches, each of which arches is made up of metallic plates adjustably connected with each other; the plates of similar arches being duplicates of each other.

9. An arch made up of a series of adjustably-connected metallic plates, and a metallic foot piece or base.

10. The section or plate provided with the longitudinal flange *b* having the ends *b'* thereof out of line.

11. The section or plate provided with a rib *c* and with undercut end *b'*.

12. An arch comprising a series of trapezoidal metallic plates connected with each other.

13. In combination with plates having the ribs *c*; the ⊥-shaped filling-piece C provided with seats *f*; and keys for uniting the piece C to the plates.

14. In combination with the plates or sections provided with perforate ribs *a*; bars or links connecting said ribs upon opposite sides thereof, the said bars being reversed in position; and bolts D, D, passing through said perforate ribs and holding the links in their adjusted position.

15. In combination with plates or sections; bolts D provided with stem *l* and eye *m*; bars E provided with slot *o* and eye *n*; and means for uniting the bars to the eyes *n*.

16. In combination with plates or sections; bolts D provided with stem *l* and eye *m*; bars E provided with eye *n*, and slot *o*, and wedges passing through the eyes *m*.

17. In combination with two plates or sections and bolts journaled therein; two bars or links each of which is journaled at one end upon the bolt and secured at the opposite end to the head of the bolt.

587,393. LETTER AND BILL FILE. WORCESTER HADDOCK, Chicago, Ill., assignor to Joseph H. Gerlach, same place. Filed Sept. 5, 1896. Serial No. 605,133. (No model.)



Claim.—1. In a letter and bill file, a hollow base provided with an opening in its upper face, a cross-piece below said upper face and provided with an opening in alinement with said opening therein, a clutch between said cross-piece and said upper face of said base, and a pin adapted to pass through said openings and to be engaged by said clutch.

2. In a letter and bill file, a base adapted to receive a pin and provided with a spring-clutch adapted to engage said pin and hold the same against removal, and a link pivoted to said base and provided with an opening at its other end adapted to receive a hook to hang said file upon a wall.

3. In a letter and bill file, a base adapted to receive a pin and provided with a spring-clutch adapted to engage said pin and hold the same against removal, a link pivoted to said base and provided with an opening at its other end adapted to receive a hook to hang said file upon a wall, and a flange on said base adjacent said hook adapted to abut against the wall and hold said base outwardly therefrom when said file is hung so that said pin is upright.

4. In a letter and bill file, a hollow base provided with openings to receive a pin, a flat spring-clutch mounted within said base and protruding therefrom provided with an opening adapted to receive and engage said pin, and means for hanging said file upon a wall in a horizontal or vertical position.

5. In a letter and bill file, a pin provided with a pivoted pointed end adapted to be turned to extend transversely thereto, an opening adjacent the lower end thereof adapted to receive a cord, and a recess in its lower end adapted to receive the pointed end of a wire or the like.

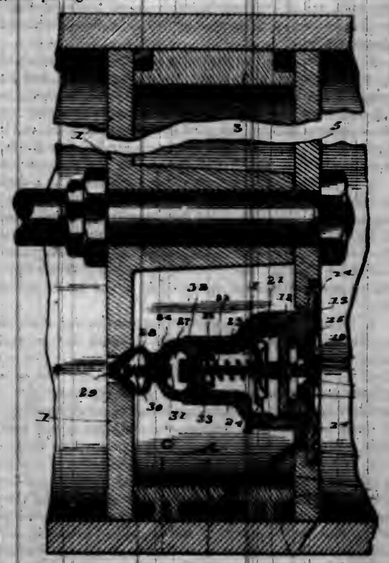
587,394. STEAM-ENGINE PISTON. HENRY M. HUNT, Indianapolis, Ind. Filed Jan. 6, 1897. Serial No. 618,137. (No model.)

Claim.—1. A piston for horizontal steam or other engines having a recess or chamber in its under side, and a continuous groove surrounding and inclosing said chamber, packing-strips fitted in said continuous groove, and means whereby the fluid under pressure is admitted to and the pressure thereof is regulated in said chamber.

2. A piston for steam or other engines having a recess or chamber in its under side, and a rectangular groove surrounding and inclosing said chamber, packing-strips fitted in said rectangular groove, and means whereby the fluid under pressure is admitted to and the pressure thereof is regulated in said chamber.

3. In a piston for horizontal steam or other engines, the combination of a piston having a bull-ring and packing-rings surrounding the reduced ends of said bull-ring, a recess or chamber in the under side of said bull-ring, a rectangular groove surrounding and inclosing said chamber, packing-strips fitted in said rectangular groove, and means whereby the fluid under pressure is admitted to and the pressure thereof is regulated in said chamber.

4. In a piston for steam or other engines, the combination with the bull-ring thereof having a steam-tight chamber formed in its under side, means for connecting said chamber to the pressure end of the cylinder wherein said piston reciprocates, and for closing connection between said chamber and the exhaust or low-pressure end of said cylinder, and means for regulating the pressure of the fluid in said chamber and for preventing the escape of the fluid therefrom through its passage of entrance.



5. In a balanced piston for horizontal steam-engines, the combination with a piston having a chamber formed in its under side, of a regulating-valve intermediate between the front and rear ends of said piston and communicating with the front and rear ends of the cylinder, suitable ports for connecting the said piston-counterbalancing chamber with said regulating-valve and suitable check-valves at the induction-openings of said regulating-valve, substantially as and for the purpose set forth.

6. In a counterbalanced piston for steam-engines, the combination with the piston thereof of a regulating-valve having two opposing end chambers and an intermediate pressure-regulating chamber, said opposing end chambers connected by a suitable port or passage, of inwardly-opening valves seated in said end chambers, an outwardly-opening valve between one of said end chambers and said pressure-regulating chamber, a diaphragm inclosing said regulating-chamber, a suitable pressure-spring at the rear of said diaphragm and means for regulating the tension of the same, all substantially as and for the purpose set forth.

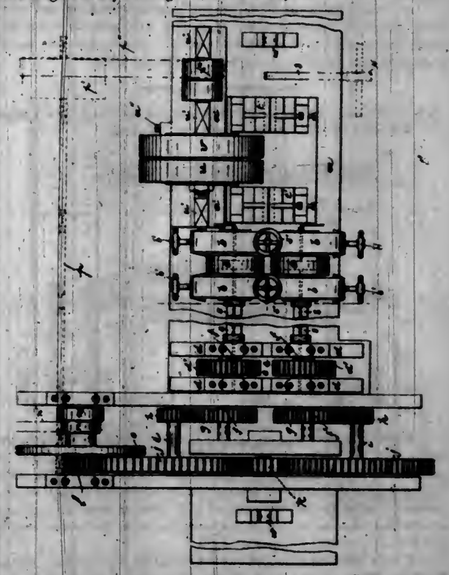
587,395. ROLLING-MACHINE FOR FINISHING SHAFTS OR RODS OF METAL. JOHN ILLINGWORTH, Newark, N. J. Filed Sept. 29, 1896. Serial No. 607,286. (No model.)

Claim.—1. The combination with a bed-plate and suitable driving mechanism, of a pair of reducing-rolls arranged on axes inclined to the line of movement of the rod to give to said rod or shaft a longitudinal movement in addition to its rotary movement, and grinding-wheels arranged in close proximity to said reducing-rolls and receiving the rotating rod therefrom to polish the same, substantially as set forth.

2. The combination with a suitable bed-plate and driving mechanism, of rolls arranged on axes inclined to the direction of longitudinal movement of the rod to be rolled, and coupling-spindles connecting the rolls with the journals of the driving gear-wheels, the said spindles admitting an independence of movement due to the inclinations, and adjustable grinding and polishing wheels arranged and adapted to receive the rod as it passes from the rolls to polish the same as said rod rotates under the action of the rolls, substantially as set forth.

3. The combination with the rolls arranged to effect a forward longitudinal movement of the rod, of means for operating said rolls, supports arranged at the sides of said rolls to receive the longitudinally-movable rod as it passes from said rolls, and adjustable grinding-wheels arranged to engage the periphery of the said rod or shaft, to grind and polish the same, substantially as set forth.

4. In a rod reducing and finishing machine, the combination of reducing-rolls arranged on axes inclined to one another, and adapted to rotate and longitudinally move the rod to the polishing-wheels, adjustable guides arranged between said reducing-rolls and adjustable grinding-wheels arranged to engage the periphery of the rotating and longitudinally-moving rod, substantially as set forth.



5. In a rod reducing and polishing machine, the combination with the reducing-rolls, the peripheries of which are rounded and convexed, as at *c'*, and made straight as at *c''*, the straight portion being a shade smaller in diameter, said rolls being arranged to give a rotary movement to the rod, pillow-blocks adapted to receive the rod from said reducing-rolls, and polishing-wheels arranged to engage the periphery of the rotating rod to effect a finish upon the surface of the same, substantially as set forth.

6. In a rod reducing and polishing machine, the combination with the bed and suitable operating means, of the reducing-rolls arranged oppositely to engage the opposite sides of the rod, guides *t*, *t*, between said rolls, means for adjusting said rolls and guides, pillow-blocks and finishing-wheels, all arranged and combined, substantially as set forth.

7. In a rod reducing and polishing machine, the combination with a suitable bed and operating means, of the reducing-rolls arranged at an inclination to one another and oppositely to engage the opposite sides of the rod and give a forward movement to the same, and guides *t*, *t*, of adjusting-screws *s'*, *s'*, for adjusting said guides in their relation to one another, substantially as set forth.

8. In a rod reducing and polishing machine, the combination with a suitable bed and operating means, of adjustable reducing-rolls, adjustable guides between the same, adjustable pillow-blocks to receive the rod from the rolls, and adjustable polishing-wheels, all arranged and combined substantially as set forth.

9. In a rod reducing and polishing machine, the combination with a suitable bed and operating means, of adjustable inclined reducing-rolls, which are peripherally rounded as at *c'*, and made straight at *c''*, and polishing-wheels arranged to engage the rotating rod as it moves forward from said reducing-rolls, substantially as set forth.

10. In a machine for reducing and polishing rods or shafts, the combination with the bed and operating means, reducing-rolls and polishing-wheels, of pillow-blocks having the body portions *f'*, sliding jaws *f''* arranged thereon and screws for adjusting said jaws, and sliding jaws *f'''*, arranged on the first of said jaws and a screw for adjusting said second jaw, substantially as set forth.

11. In a machine for reducing and polishing rods or shafts, the combination with the bed and operating means, of reducing-rolls and polishing-wheels, of pillow-blocks *f'*, *f'* and polishing-wheels arranged with their peripheries between said pillow-blocks, said pillow-blocks having jaws *f'''*, *f'''*, and screws *f''*, *f''''*, all substantially as set forth.

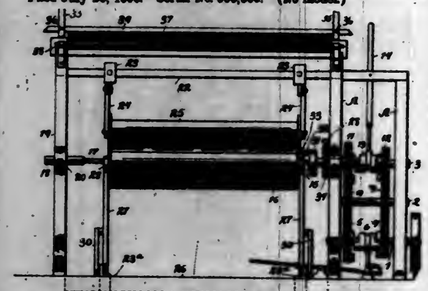
12. In a machine for reducing and polishing rods or shafts, the combination with the bed and operating means, of reducing-rolls arranged at inclinations to the line of the shaft to rotate and longitudinally move said rods, pillow-blocks, grinding and polishing wheels and means for rotating the rods after the same have passed from engagement with said rolls, substantially as set forth.

13. In a reducing-machine, the combination with a bed and operating means, of reducing-rolls rounded and convexed as at *c'*, and

straight as at c', the said rolls being arranged on axes inclined to one another, substantially as set forth.

14. In a reducing-machine, the combination with a bed and operating means, of reducing-rolls arranged on axes inclined to one another and rounded at c', and straight as at c'', the straight part being a shade smaller in diameter, substantially as set forth.

587,396. **BEAMING-MACHINE.** ROBERT MOCHRIE, Lowell, Mass. Filed July 28, 1896. Serial No. 600,809. (No model.)

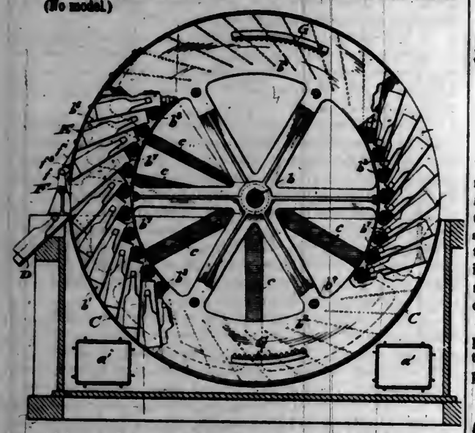


Claim.—1. In a beaming-machine, the combination with a frame and a base, the latter having a guideway, of a cylinder mounted in said frame, means for driving said cylinder, blocks mounted to slide in said guideway, a pair of arms pivotally connected to each block, beams mounted in the free ends of said pivoted arms, and springs connecting the arms of each pair whereby to impel the beams toward the cylinder, substantially as set forth.

2. In a beaming-machine, the combination with a frame and a base, the latter having a guideway, of a cylinder mounted in the frame, blocks mounted to slide in said guideway, a pair of arms pivoted to each block, beams mounted in the free ends of said arms, springs connecting the arms of each pair whereby to impel the beams toward the cylinder and props attached to said arms and serving to prevent contact of filled beams with the base, substantially as set forth.

3. In a beaming-machine, the combination with a base having a guideway therein, and a frame, of a cylinder mounted in the frame, driving mechanism for said cylinder, blocks adapted to slide in said guideway, a bar located in the frame above the cylinder and parallel with said guideway, collars adjustably mounted on said bar, arms pivotally attached to said collars and blocks and bearings at the free ends of said arms for the reception of the journal of beams, said arms and bearings being so disposed that all of said beams will receive motion simultaneously from said cylinder, substantially as set forth.

587,397. **BOTTLE-WASHER.** BRUNO V. HORBERG and ALFRED UHLEIN, Milwaukee, Wis. Filed June 23, 1894. Serial No. 515,953. (No model.)



Claim.—1. In bottle-soaking apparatus the combination of a tank, a wheel dipping at its lower side into said tank, and provided around its rim with bottle-receptacles, and a curved guide suspended from the axis of the wheel so as to close the outer ends of said receptacles on the under side of the wheel, and to be turned upwardly out of the tank, substantially as and for the purposes set forth.

2. In bottle-soaking apparatus the combination of a tank, a rotary wheel dipping at its lower side into the same, and provided around its periphery with a series of bottle-receptacles open at their outer ends, and a vertically-movable guard arranged close to the face of the wheel on its descending side, substantially as and for the purposes set forth.

3. In a bottle-soaking apparatus the combination of a tank, a rotary wheel dipping at its lower side into said tank, and provided around its rim with bottle-receptacles inclined forwardly at their outer open ends to radii of the wheel, means of retaining bottles in said receptacles during their passage through said tank and a vertically-movable guard arranged on the descending side of the wheel just above the tank, substantially as and for the purposes set forth.

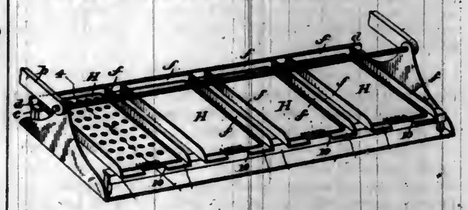
4. In bottle-soaking apparatus the combination of a tank, a rotary wheel dipping into it and provided around its rim with bottle-receptacles open at their outer ends, means of retaining bottles in said receptacles during their passage through said tank and a vertically-movable curved guard arranged on the descending side of the wheel above the tank, and pivotally connected with the axis of the wheel on each side thereof, substantially as and for the purposes set forth.

5. In a bottle-soaking apparatus the combination of a tank, a rotary wheel dipping at its lower side into said tank, and provided with a series of bottle-receptacles opening at their outer ends around the face of the wheel, means of retaining bottles in said receptacles during their passage through said tank, a vertically-movable curved guard arranged on the descending side of the wheel above the tank, and means of raising and limiting the elevation of said guard at a certain point, substantially as and for the purposes set forth.

6. In bottle-soaking apparatus the combination of a tank, a rotary wheel dipping into it, and provided with forwardly-inclined bottle-receptacles open at their outer ends around the face of the wheel, means of retaining bottles in said receptacles during their passage through said tank, a vertically-movable guard arranged on the descending side of said wheel above said tank, and a downwardly-inclined leaf below said guard, substantially as and for the purposes set forth.

7. In bottle-soaking apparatus the combination of a tank, a rotary wheel dipping on the under side into the same, and provided with forwardly-inclined bottle-receptacles open at their outer ends around the face of said wheel, a curved guide arranged to close the outer ends of said receptacles in the tank on the under side of the wheel, and a vertically-movable guard normally closing the outer ends of said receptacles on the descending side of the wheel above the tank, substantially as and for the purposes set forth.

587,398. **SHELF FOR BAKERS' OVENS.** WILLIAM P. O'CONNOR, Cambridge, Mass., assignor to James W. Hasen, same place. Filed Mar. 23, 1897. Serial No. 628,908. (No model.)

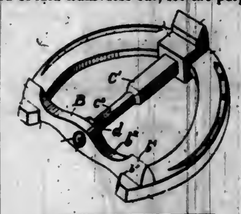


Claim.—1. The combination with an oven-shelf, of a supplementary sheet-metal plate supported above the level of the upper surface of the shelf and spaced at its sides from the ends of the shelf to leave a space for the free circulation of air between said shelf and supplementary plate, the latter being provided at its edges with upturned flanges, forming shields for deflecting the hot air and preventing it from impinging on and burning the edges of the side and end rows of cakes or other articles on the baking-pan, substantially as described.

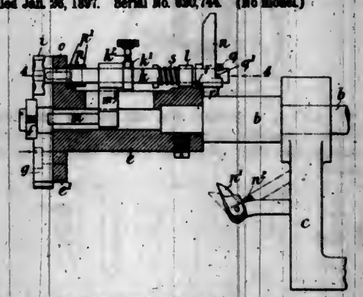
2. The combination with an oven-shelf, of a series of transverse pan-supporting plates supported above the level of the shelf with their edges spaced apart; the rear and side edges of said plates being provided with upwardly-projecting flanges, substantially as set forth.

587,399. **CALK FOR HORSESHOES.** AUGUST OTTE, Herington, Kans. Filed Mar. 30, 1897. Serial No. 629,968. (No model.)

Claim.—The combination with the horseshoe having a beveled or inclined surface upon its inner side, a plate extending over the outer and also the inner inclined surfaces at the toe of said shoe and adapted to carry a calk, and a transverse bar having calks at the heel of said shoe, said bar having a notch at each end, and the sides of each notch inclined or beveled conformably to the surface of the inner side of said shoe, and also provided with an opening at a point central from the opposite ends of said bar, and a brace-bar extending in the longitudinal direction of said shoe having one end connected rigidly with the said plate at the toe of said shoe and the other end screw-threaded and extending through the opening in said transverse bar, an internally-screw-threaded thimble upon the threaded end of said brace-bar concentric with the sides of the opening in said transverse bar, and a nut on the inner side of said transverse bar rigidly connected with said thimble, and a shoulder upon the inner side of each heel of said shoe adapted to receive the outer side portion of the notched end of said transverse bar, for the purpose described.



587,400. **MACHINE FOR THREADING RODS OR THE LIKE.** CHARLES H. PENNING and JOHN J. S. HESLOP, Sunderland, England. Filed Jan. 26, 1897. Serial No. 620,744. (No model.)



Claim.—1. In a machine for threading rods, tubes, bolts and the like, the combination with a vise for holding the article to be screw-threaded against rotation, and with a die-carrier adapted to be continuously rotated, such carrier being provided with holders pivoted to the face-plate, of a cam-piece serving automatically to separate the holders from each other when the desired length of screw-thread has been cut.

2. In a screw-threading machine, the combination of the following devices, namely: a rotary die-carrier, die-holders pivoted to the face-plate, arm m' and its push-piece m, and shaft k, this push-piece being adapted to be operated by the impingement against it of the rod or the like on which the thread is being cut, and the cam-piece i, between the holders, the combination serving to unlock the dies and to allow them to be separated to release the work, all substantially as described.

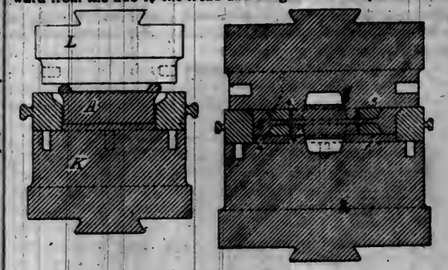
3. In a screw-cutting machine, the combination of die-holders pivoted upon the face of a face-plate, and moving in lines parallel therewith, a cam-piece i, located between them and serving to separate them to release the work, arm n, trip-piece n', and push-piece, substantially as set forth.

4. In combination with the plate e', and its pin-holes, and with the holders g, and their corresponding pin-holes, the cross-head p, and its pins for such holes, the shaft k, having the pins p', p', thereon and provided with a reacting spring and trip-piece n', the combination operating substantially as set forth.

587,401. **METHOD OF FORGING SOLID-METAL CAR-WHEELS.** SAMUEL H. RALSTON, Perth, Canada. Filed Oct. 23, 1896. Serial No. 609,811. (No model.)

Claim.—1. The method of producing car-wheels from suitable blooms, ingots, or billets, consisting essentially, first, in forging a rudimentary flange on a wheel-blank, and second, shaping and finishing, by forging the wheel-blank to flow radially outward from the hub to the tread and flange under an operative force, substantially as set forth.

2. The method of producing car-wheels from suitable blooms, ingots, or billets, consisting essentially, first in forging a rudimentary flange on a wheel-blank, by means of blows or pressure at right angles to the side of the blank; and second, shaping and finishing by forging the wheel-blank causing the metal to flow radially outward from the hub to the tread and flange under an operative force.



587,402. **RECIPROCATING ROTARY STEAM-ENGINE.** FREDERICK W. REEVES, St. Paul, Minn. Filed June 5, 1896. Serial No. 594,434. (No model.)



Claim.—1. In a reciprocating rotary steam-engine, a steam-cylinder attached to and adapted to be revolved with a steam-chamber, and having steam-ports leading from said steam-chamber to the interior of the cylinder and with a piston-head and piston-rod connected to transmit motion to a drum and shaft, a hollow head into which the live steam is fed and from which the exhaust-steam leads, a tube connected into said hollow head and fitting steam-tight into the rear of said steam-chamber, a valve within said steam-chamber and adapted to alternately admit and exhaust the steam to and from said cylinder, a hollow stem connected into said valve by one end and into said hollow head by the other end, and means whereby said hollow head is held from turning and left free to move toward and away from said steam-chamber, whereby the steam-pressure is utilized to hold the valve against its seat and also to balance the valve by the back pressure within the hollow head, substantially as and for the purpose set forth.

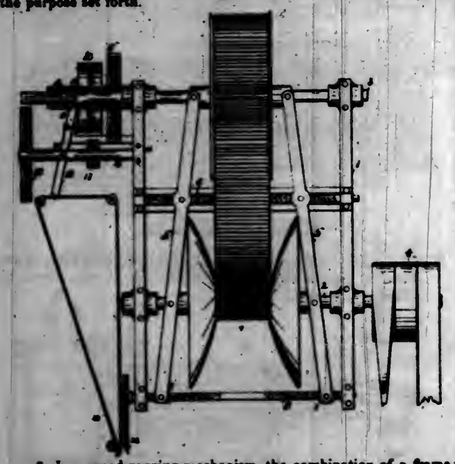
2. In a reciprocating rotary steam-engine, a steam-cylinder attached to a steam-chamber and revoluble therewith and provided with piston-head and piston-rod, and with steam-ports opening into said steam-chamber and segmentally arranged with relation to the center of said chamber, a valve fitting said chamber and held from turning therein, and with recesses in its face communicating with said ports, with the steam-inlet entering one of said recesses, and the exhaust-port leading from the other of said recesses, said valve being free to move lengthwise of said steam-chamber, whereby the steam-pressure is utilized to keep the valve upon its seat, a segmental plate fitting into said steam-inlet recess, and a governor connected to oscillate said segmental plate, whereby said plate is automatically adjusted to reduce or increase the area of said steam-inlet recess, as the speed is increased or decreased, substantially as hereinbefore set forth.

3. In a reciprocating rotary steam-engine, a steam-cylinder attached to a steam-chamber and revoluble therewith and provided with piston-head and piston-rod, a valve adapted to alternately admit and exhaust the steam to and from said cylinder, a shaft journaled out of line with but parallel to the axial line of said cylinder, and carrying a drum concentric to said shaft, an angular connecting-bar connected by its ends to opposite sides of the rim of said drum and at its central point to the free end of said piston-rod, side bars coupled by one end to said piston-rod and to each other at their other ends, and adapted to run in contact with the sides of said cylinder and assist in supporting it, substantially as hereinbefore set forth.

587,408. **SPEED-VARYING MECHANISM.** MILTON O. REEVES and HENRY K. HOOS, Columbus, Ind., assignors to the Reeves Pulley Company, same place. Filed Mar. 26, 1897. Serial No. 629,159. (No model.)

Claim.—1. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs;

a supplemental speed-varying mechanism connected with one shaft; means for moving the members of one pair of driving elements together, and the others apart concurrently, and means for engaging or disengaging the supplemental mechanism, substantially as and for the purpose set forth.



2. In a speed-varying mechanism, the combination of a frame; two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; a supplemental speed-varying mechanism connected with one shaft; means for moving the members of one pair of driving elements together, and the other pair apart concurrently, and means for engaging or disengaging the supplemental mechanism controlled by the means for actuating the disks, substantially as and for the purpose set forth.

3. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; a pulley loosely mounted on one shaft; a clutch splined to the shaft adapted to engage or disengage with the pulley; a gear carried by the clutch; a gear carried by the pulley; intermediate gears adapted to connect the aforesaid gears; means for disengaging the clutch and engaging the gears successively or vice versa, and means for moving the members of each pair of driving elements concurrently but in opposite directions, substantially as and for the purpose set forth.

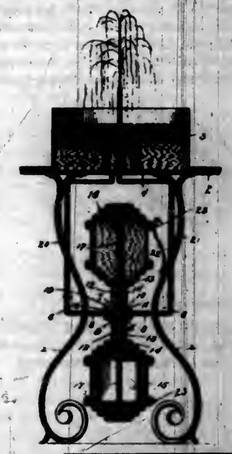
4. In a speed-varying mechanism the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; a pulley loosely mounted on one shaft; a clutch splined to the shaft, and adapted to engage or disengage with the pulley; a gear carried by the clutch; a gear carried by the pulley; a lever yoked to the clutch and adapted to slide it longitudinally; intermediate gears adapted to slide in mesh with the clutch and pulley gears and controlled by the lever, and means for actuating the driving elements concurrently in opposite directions, substantially as and for the purpose set forth.

5. In a speed-varying mechanism of the class described the combination of an initial and supplemental speed-varying mechanism an actuating-sprocket supported in a bearing and provided with a hollow hub; a spindle taking through the hub, carrying a second sprocket and adapted to slide longitudinally; a pin carried by one disk and adapted to engage with the other and means for normally holding the sprockets apart, substantially as and for the purpose set forth.

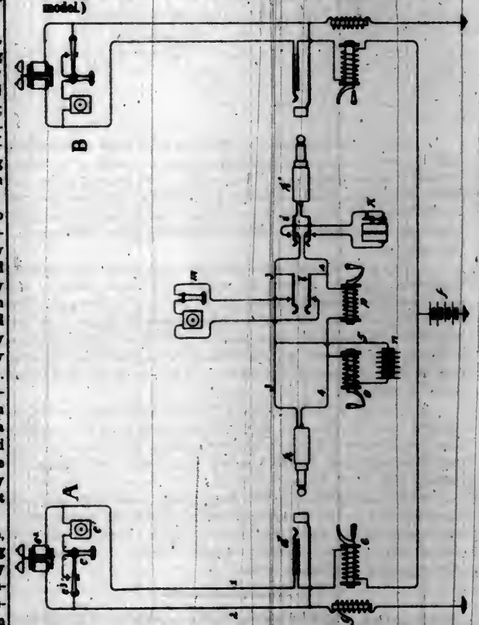
6. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; a pulley loosely mounted on one shaft; a clutch adapted to engage or disengage the pulley with the shaft, intermediate gearing adapted to engage with the pulley and shaft when the pulley is disengaged from direct connection with the shaft; a lever connected with the clutch, an intermediate gearing and adapted to actuate them successively; a sprocket adapted to actuate the disks concurrently in opposite directions; a sprocket adjacent thereto and adapted to actuate the lever, and means for engaging or disengaging the sprockets, substantially as and for the purpose set forth.

587,404. FOUNTAIN. EMIL SCHOTTE, Mankato, Minn. Filed May 20, 1896. Serial No. 593,616. (No model.)

Claim.—In a fountain, the combination of a stand comprising legs and a horizontally peripherally-flanged top, a basin of less area than and supported by the top whereby the exposed portion of the top forms a surrounding ledge adapted to support flower-pots, a central tubular open-topped guard 4 arranged concentrically in the basin, a vertical discharge-spout arranged concentrically in said guard and terminating above the plane of its upper edge, a supply-pipe communicating with the interior of the guard, and fountain mechanism connected with said supply-pipe and discharge-spout, substantially as specified.



587,405. SIGNAL FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Aug. 1, 1896. Serial No. 601,823. (No model.)

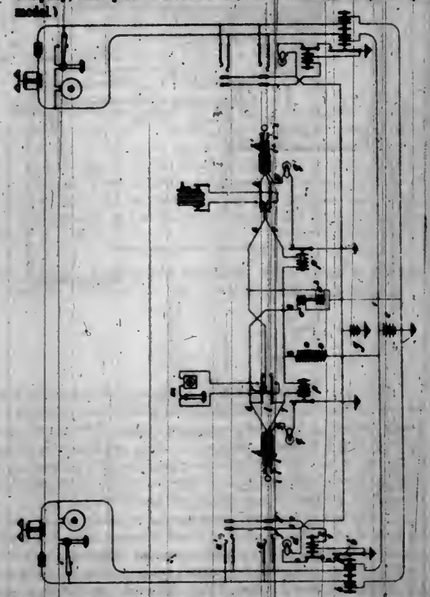


Claim.—1. In combination, two terminal plugs of a pair and the plug-circuit thereof, means for connecting a generator of signaling-current with one of the plugs, a bridge of the plug-circuit, a source of current and a signal in the bridge, and another signal included in a conductor of the plug-circuit between the said bridge and that plug with which the generator of signaling-current may be connected, as described.

2. In combination, two telephone-lines united by a plug-circuit, one of said lines being closed and the other open at its substation, a bridge of the plug-circuit, a source of current and a signal included in the bridge, another signal included serially in the circuit between the said bridge and that station at which the line-circuit is interrupted, and a switch for closing the line-circuit there during the use of the telephone, as described.

3. The combination with two telephone-lines and a pair of cords and plugs adapted to unite the said lines together, of a bridge-circuit across the cords in which bridge are included a signal device and a source of current, a source of signaling-current and a switching device adapted to connect the said source of signaling-current into the cord-circuit between the said bridge and the connecting-plug *A'* and a signaling device, as *p*, placed serially in one of the cords of the said connecting plug between the said bridge and said connecting-plug, whereby the signal in the bridge indicates the continued use or activity of either subscriber's telephone, and the connecting-plug signal *p* indicates when the called subscriber responds to signaling-current sent over the line.

587,406. APPARATUS FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 18, 1896. Serial No. 616,127. (No model.)



Claim.—1. The combination with a telephone-line, a source of current in the line, and means at the substation for determining the flow of current consequent on the use of the telephone, of a line-signal associated with the line in the central office and controlled by currents in the line, a relay adapted to break the circuit through the said signal when excited, a local circuit including said relay, and means for closing the said local circuit in the act of making connection with the line, whereby the line-signal is effaced when connection is made with the line, as described.

2. The combination with a telephone-line and means for producing current therein during the use of the substation-telephone, of a relay in the line-circuit at a central office, a subsidiary line-signal in a local circuit controlled by the relay, an electromagnet controlling switch-contacts adapted to interrupt the current through the subsidiary signal when excited, a circuit including the said magnet together with a source of current, and switch-contacts controlling the last-mentioned circuit closed together in the act of making connection with the line, substantially as described.

3. The combination with a telephone-line provided with means for creating current in the line during the use of the telephone, spring-jacks for making connection with the line, a relay included in the line at the central office, a subsidiary line-signal in a local circuit controlled by the relay, a magnet controlling switch-contacts adapted to interrupt the current through the subsidiary signal when the magnet is excited, a local circuit including the magnet, said local circuit including a source of current and being interrupted at normally-separated contact-terminals in the spring-jacks, one of said contacts in each spring-jack being a test-ring, and means for connecting the said contact-pieces together when a plug is inserted into any spring-jack; whereby the line-signal is effaced and the electrical condition of the test-rings is altered when a plug is inserted into a spring-jack, as described.

4. The combination with a telephone-line and means for producing current therein during the use of the telephone, of a relay in the line and a subsidiary signal controlled thereby, an electromagnet controlling switch-contacts adapted to interrupt the current through the subsidiary signal, a local circuit including the said electromagnet together with a source of current normally interrupted at separated contact-pieces in each of the spring-jacks, a plug adapted for insertion into the spring-jack and constructed to connect together the said contact-pieces and the plug-circuit thereof, a conductor terminating in that contact-piece of the plug which registers with the said terminals of the local circuit adapted to be brought into parallel with the said electromagnet when the plug is in the jack, a supervisory signal in the said conductor, and a relay in the plug-circuit controlling the current through the said supervisory signal in response to currents in the line-circuit; whereby the subsidiary line-signal is effaced, the condition of the test-rings is altered, and current is provided for exciting the supervisory signal, when the plug is inserted into a spring-jack, as described.

5. The combination with a telephone-line, a line-signal associated therewith, means for causing the display of the line-signal, and spring-jacks for the line each having two normally-separated local contact-pieces, of an electromagnet adapted to efface the line-signal in a circuit connected with one of said local contact-pieces in each spring-jack, a source of current connected to the other contact-piece in each spring-jack, a plug for making connection with the line, a contact-piece in the plug adapted to make connection with both of said local contact-pieces in the spring-jack, a circuit terminating in the said plug-contact, a lamp-signal in the last-mentioned circuit, and means for controlling the signal; whereby the said magnet is excited and current is provided for lighting the lamp when the plug is inserted into a spring-jack, substantially as described.

587,407. SAD-IRON. ESEK H. STRICKLER, Sioux City, Iowa. Filed May 18, 1896. Serial No. 592,092. (No model.)



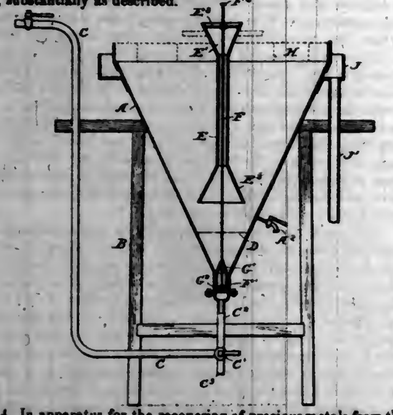
Claim.—In a reversible, self-heating sad-iron, the iron-body, 1, with draft-openings, 2, and opposite polishing-surfaces, 3 and 4, provided with a cavity extending to one end of the iron, and at one end with a trunnion, 22, and at the other end with an opening, 5, communicating with its cavity, having a handle, 26, provided at one end with a pivoted bearer 8, with which the handle is permanently connected, said bearer being provided with a cap 7, to close the opening 5 in the end of the iron, said iron being further provided at the other end with a handle-bearer 23, having an open-sided bearing 24, to receive the trunnion 22 of the iron, thumb-nut 25, for securing the bearer 23 to the trunnion, locking-pin 33, to secure either polishing-surface in operative position by engaging sockets 34, all in combination with burner 3, arranged within the cavity of the iron, carried by the handle-bearer 8, adapted to be introduced through the opening 5, into the cavity of the iron, having an interior burner-tube 16, a longitudinally-disposed vaporizing-conduit, 17, communicating by means of a valve-seat, 18, with the burner-tube, a needle-valve, 19, having an external operating device, arranged to control the flow of fuel from the vaporizing-conduit to the burner-tube, a supply-tank, 31, and a supply-pipe, 10, in communication with the vaporizing-conduit, by means of conductor 9, leading through handle-bearer 8, and a drip-cup 35, arranged beneath a drip projection 42, all substantially as described and for the purpose specified.

587,408. METHOD OF RECOVERING PRECIOUS METALS FROM THEIR SOLUTIONS. HENRY L. SULMAN, London, England. Filed Nov. 9, 1896. Serial No. 611,580. (No model.)

Claim.—1. The process herein described, for the recovery of precious metals from their solutions, the same consisting in imparting to the liquor an upward flow through a mass of finely-divided precipitant within a vessel, and gradually reducing the rate of such flow by uniformly increasing the area of the liquid as the height of the column increases, substantially as described.

2. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area, and having an inlet and a controlling-valve at the smaller end thereof, a precipitant-feed pipe extending down into the vessel and terminating short of the contracted wall thereof, and a rod connected with the valve and reaching to the top of the vessel, substantially as described.

3. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area, and an inlet at the smaller end thereof and provided with an inverted funnel a suitable height from the inflow, and means leading to said funnel for the passage or introduction of a precipitant, substantially as described.



4. In apparatus for the recovering of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area for its full height, and adapted to contain a precipitant, in combination with a perforated distributer located in the contracted bottom of said vessel, and a pipe for supplying the solution to the vessel in an upward direction or flow, substantially as described.

5. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area for its full height, and containing a precipitant, in combination with means for supplying the vessel with an upward flow of the solution, and an inverted cone arranged within the vessel with a space intermediate the lower end of the same and the wall of said vessel, substantially as shown and for the purpose described.

6. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area for its full height, and provided at its lower end with a supply, in combination with a body suspended within the vessel at near the lower end thereof, and leaving an annular space between the same and the wall of the vessel, substantially as described.

7. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area for its full height, in combination with a liquid-supply pipe at the lower end thereof, and an annular filter-screen supported at its upper end, substantially as described.

8. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area for its full height, and provided at its lower end with an opening and an inlet-pipe for the solution, a perforated distributer located in the lower end of the vessel, a valve for closing the opening and having a rod reaching to the upper end of the vessel, and a centrally-disposed vertical pipe provided at each of its ends with a cone, all being arranged and operating substantially as shown and described.

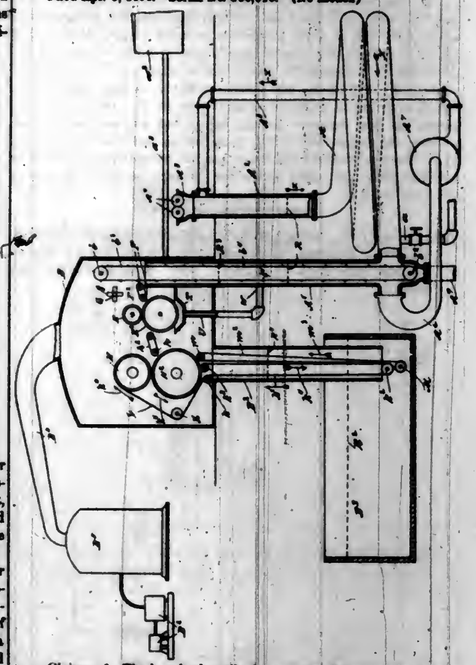
9. In apparatus for the recovery of precious metals from their solutions, a precipitating vessel having a uniformly-increasing cross-sectional area, means for supplying the solution to the vessel at the bottom, and a perforated distributer completely occupying the lower contracted end of the vessel and adapted to break up the stream of fluid as it enters the vessel, substantially as described.

587,409. LUBRICATOR. JOHN E. TAYLOR, Chelsea, Mass. Filed Dec. 24, 1896. Serial No. 616,393. (No model.)



Claim.—In a lubricator for bicycle-chains, the combination with a receptacle adapted to contain a lubricant and secured to the bicycle-frame, of an upper roller journaled in said receptacle and which is adapted to support the chain, and a lower roller journaled in said receptacle, which latter member serves to convey the lubricant directly to the chain.

587,410. APPARATUS FOR EXTRACTING OIL. CORNELIUS S. VOORHEES, Union City, Conn., assignor to Seneca D. Zeh, Hillsdale, N. Y. Filed Apr. 3, 1896. Serial No. 586,016. (No model.)



Claim.—1. The herein-described apparatus for extracting grease, fat and oil from wool, which consists of a coil through which a solvent is circulated, a stand-pipe or casing connected therewith, an elevator mounted in said stand-pipe or casing, pressure-rolls adjacent to the top of said elevator between which the wool is passed and incased heat-rolls adjacent to said pressure-rolls between which it is also passed, substantially as shown and described.

2. The herein-described apparatus for extracting grease, fat and oil from wool, which consists of a coil through which a solvent is circulated, a stand-pipe or casing connected therewith, an elevator mounted in said stand-pipe or casing, pressure-rolls adjacent to the top of said elevator between which the wool is passed and incased heat-rolls adjacent to said pressure-rolls between which it is also passed, and belts or bands one of which is mounted on said heat-rolls for conveying the wool therefrom into a water-tank, substantially as shown and described.

3. The herein-described apparatus for extracting grease, oil or fat from wool and other substances which consists of a suitable coil or receptacle in which a solvent is placed, a stand-pipe or casing communicating therewith, and suitable pressure and incased heat-rolls between which the wool is passed and means for conveying said wool through said coil or receptacle, through said stand-pipe or casing and through said rolls, substantially as shown and described.

4. The herein-described apparatus for extracting grease, oil, or fat from wool and other substances which consists of a suitable coil or receptacle in which a solvent is placed, a stand-pipe or casing communicating therewith, and suitable pressure and incased heat rolls between which the wool is passed and means for conveying said wool through said coil or receptacle, through said stand-pipe or casing and through said rolls, said rolls being located in a vacuum-chamber, substantially as shown and described.

5. The herein-described apparatus for extracting oil, grease and fat from wool, which comprises a suitable coil or other receptacle, a stand-pipe or casing communicating therewith, a pipe which communicates with the bottom of said stand-pipe or casing and with the top of the coil or receptacle, and which is provided with a force-pump, a closed box or casing in which the stand-pipe or casing terminates, an elevator for conveying the wool upwardly through said pipe or casing, pressure-rolls mounted within said box or casing adjacent to the elevator and means for conveying the wool therethrough, and heat-rolls adjacent to said pressure-rolls and means for conveying the wool therethrough, substantially as shown and described.

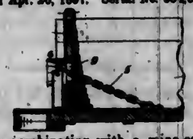
6. The herein-described apparatus for separating grease, oil and fat from wool which comprises a suitable coil or other receptacle, a stand-pipe or casing communicating therewith, a pipe which communicates with the bottom of said stand-pipe or casing, and with the top of the coil or receptacle, and which is provided with a force-pump, a closed box or casing in which the stand-pipe or casing terminates, an elevator for conveying the wool upwardly through said pipe or casing, pressure-rolls mounted within said box or casing adjacent to the elevator and means for conveying the wool therethrough, and heat-rolls adjacent to said pressure-rolls and means for conveying the wool therethrough, and means for conveying the wool from said heat-rolls into a water tank or receptacle, substantially as shown and described.

587,411. HUB-ATTACHING DEVICE. ADONIRAM J. WALKER, Dalton, Mass. Filed June 16, 1896. Serial No. 595,814. (No model.)



Claim.—The combination with the axle A, having the shoulders A', A^2 and threaded end A^3, the shoulder A^2 being grooved at B, of the ring or disk C, having an annular groove C' to receive the shoulder A', and the ring D thicker than the ring C and provided with internal longitudinal ribs E entering the grooves B of the shoulder A^2 of the axle, means for securing the rings C D together, and the nut G on the threaded end of the axle, substantially as shown and described.

587,412. LATCH FOR MINE-CAR DOORS. JOHN M. WESLEY, Peale, Pa. Filed Apr. 26, 1897. Serial No. 634,090. (No model.)



Claim.—1. The combination with a mine-car provided with a hinged door adapted to open outwardly, and a chain connected with the car-body, of a latch mounted on the door and provided with a gravity-lever engaging the chain and maintaining the door closed while the car body is in a horizontal position, and adapted to swing outward and release the chain automatically when the car is dumped, substantially as described.

2. The combination with a mine-car provided with a hinged door, and a chain connected with the body of the car, of a latch comprising a casing mounted on the car-door, and a lever pivoted in the casing near its upper end and provided at its top with a hook-shaped projection engaging the chain, said lever having its lower portion weighted, substantially as and for the purpose described.

3. The combination with a mine-car having a hinged door, and a chain connected with the body of the car, of a latch comprising a casing, a weighted lever pivoted in the casing and engaging the chain, a lug projecting from the lever, a keeper mounted on the door and receiving the lug, and a fastening device locking the lug in the keeper, substantially as described.

4. The combination with a mine-car provided with a door adapted to open outwardly, and a gravity-latch maintaining the door closed while the car-body is in a horizontal position and adapted to swing outward and release the door when the car is dumped, substantially as and for the purpose described.

587,413. LAMP-BURNER. WILLIAM H. WHITE, Harrold, S. D. Filed Oct. 13, 1896. Serial No. 608,728. (No model.)



Claim.—1. In a device of the class described, a chimney-retaining finger adapted to rise above and fall below the burner-frame to engage and disengage a chimney and facilitate cleaning of the burner.

2. A device of the class described, comprising a plurality of chimney-retaining fingers adapted to rise above and fall below the burner-frame to engage and disengage a chimney and facilitate cleaning of the burner, and means for holding them in an engaging position.

3. In a device of the class described, the combination with a burner of a chimney-retaining finger pivotally connected therewith to rise above and fall below the burner-frame to engage and disengage a chimney and facilitate cleaning of the burner, and means for holding the finger in an engaging position.

4. The combination with the burner of a chimney-retaining finger pivotally connected therewith through the medium of a binder passed around a portion of said burner, said finger being adapted to rise above and fall below the burner-frame to engage and disengage the chimney, and facilitate cleaning of the burner, and means for holding said finger in an engaging position.

5. The combination with a lamp-burner of a series of fingers connected therewith and adapted to engage and disengage a chimney, each of said fingers being provided with a depression adapted to engage a projection carried by a portion of the burner to retain the finger in a fixed position.

6. The combination with a lamp-burner of a series of chimney-retaining fingers pivotally connected therewith, and plates carried by the burner and having projections, said fingers being provided with depressions arranged to receive the projections on the plates to hold the fingers in fixed positions.

7. The combination with a burner of a finger pivotally connected therewith to engage and disengage a chimney and facilitate cleaning of the burner, said finger having a depression, and a plate carried by the burner and provided with a projection adapted to engage a depression in the finger and retain it in a fixed position.

587,414. THREAD-CUTTER AND ADDRESSING DEVICE FOR SPOOLS. WILLIAM H. WHITE, Harrold, S. D. Filed Jan. 12, 1897. Serial No. 618,922. (No model.)



Claim.—1. The combination with a spool of a metallic disk secured to one end thereof, said disk having a radial slot forming a thread-holder, a tongue struck up from the disk and having a sharpened edge, clips formed integral with the disk and a card secured to the disk through the medium of said clips.

2. The combination with a spool of a metallic disk having a central perforation and arranged at one end of the spool, clips at the inner and outer peripheries of the disk, a card held upon the disk through the medium of said clips, an expansible tube in frictional engagement with the inner surface of the spool and projecting therefrom through the perforations of the disk, the projecting end of said tube being turned outwardly to engage the surface of the disk, and recesses in said outturned portions adapted to receive the inner clips of the disk.

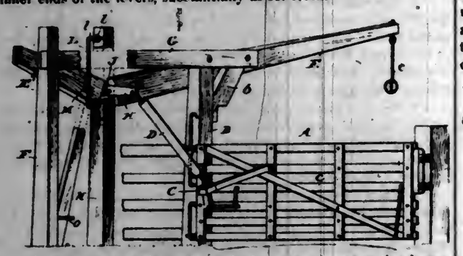
3. The combination with a spool of a metallic disk having a tongue struck up therefrom and provided with a sharpened edge, said disk being arranged at one end of the spool and having a central perforation concentric with that of the spool, clips at the inner and outer peripheries of the disk, a card held upon the disk through the medium of the clips, an expansible tube in frictional engagement with the inner surface of the spool and projecting therefrom through the perforation in the disk, the projecting end of said tube being turned outwardly to engage the surface of the disk, and recesses in said outturned portions adapted to receive the inner clips of the disk.

587,415. GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed Mar. 12, 1895. Serial No. 541,489. (No model.)

Claim.—1. In a swinging gate, the combination with the operating-levers the inner ends of which move in a vertical plane outside the plane of the hinge of the gate, of an arm carried by the operating-levers and extending to a point substantially opposite the gate-hinge, and connections between the arm and the gate, substantially as described.

2. The combination of a swinging gate provided with a laterally-projecting frame, the operating-levers inclined so that their outer ends extend toward the roadway, the connecting-bar connected at its lower end with the said laterally-projecting frame, and an arm carried by the operating-levers extending to a point substantially opposite to the gate-hinges, to which arm the upper end of the connecting-bar is connected, substantially as set forth.

3. The combination with a swinging gate, the operating-levers, and a connecting-bar between the operating-levers and the gate, of a coupling or connection uniting directly the inner ends of the operating-levers, a swinging fulcrum or support for one of the operating-levers, and a swinging guide for preventing lateral movement of the inner ends of the levers, substantially as set forth.



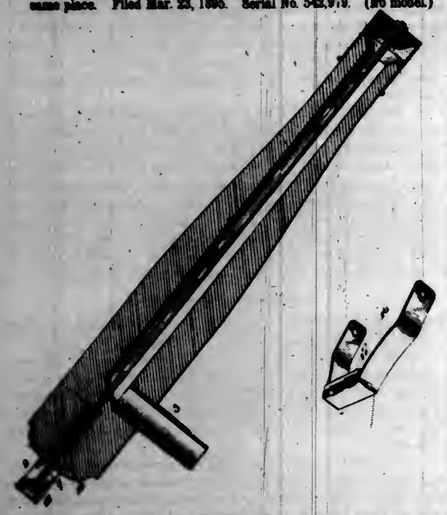
4. The combination with a swinging gate, the operating-levers and a connecting-bar between the operating-levers and the gate, of a guide which prevents lateral swaying or movement of the inner ends of the operating-levers, and a post arranged close to the inner ends of the operating-levers, the said guide being carried directly by the said post, and vertically disposed substantially as set forth.

5. The combination with a swinging gate, the operating-levers, and the connecting-bar between the inner ends of the operating-levers and the gate, of the posts upon which the levers are pivotally supported, the connecting-piece between the posts, the post N arranged between the said lever-supporting posts, and a guide for the inner ends of the levers carried by the said post N, substantially as set forth.

6. The combination with a swinging gate, the operating-levers, and a connecting-bar between the operating-levers and the gate, of a guide L for the inner ends of the operating-levers, the said guide having the horizontal portion *l* and the jointed connections *l'* with its support, and an eye carried by one of the operating-levers, which encircles the said guide-rod, substantially as set forth.

7. The combination of a swinging gate provided with a laterally-projecting frame, the operating-levers, one of them mounted upon a fixed pivot and the other upon a swinging or movable pivot, a connection or coupling between the inner ends of the operating-levers, an arm carried by the operating-levers extending to a point substantially opposite to the hinge-line of the gate, a connecting-bar between the said arm and the laterally-projecting frame of the gate, and a guide for the inner ends of the operating-levers which prevents them from having lateral or swaying movement, while allowing free vertical movement, substantially as set forth.

587,416. SELF-CLOSING STRAINING-FAUCET. THOMAS P. WHITEHEAD, Shreveport, La., assignor of one-half to Moses Kaufman, same place. Filed Mar. 23, 1896. Serial No. 583,979. (No model.)



Claim.—The combination with a faucet-body provided at its inner end with a valve-seat, and a spring-actuated valve-stem carrying at its inner end a valve and at its outer end beyond one end of the faucet-body an operating-button, of a U-shaped bail made of a single narrow strip of light sheet metal and comprising opposite side members and a cross-piece connecting the side members at one end, the cross-piece being wider than the side members and bent at one edge to produce an integral right-angularly-disposed flange 17 adapted to engage over the top edge of the button, and the side members of the bail embracing the opposite sides of the faucet-body and having pivotal connection therewith in line with the valve-stem to admit of the bail being thrown back upon the faucet-body entirely out of the way when not in use, substantially as set forth.

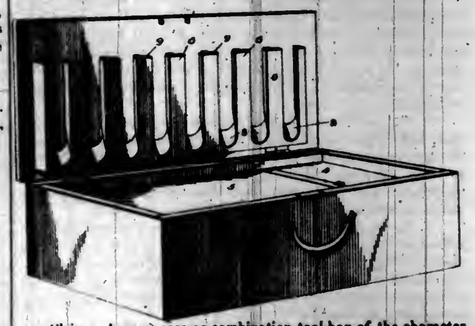
587,417. VESSEL-TILTER. HERMANN WITTMANN, La Crosse, Wis. Filed Nov. 25, 1896. Serial No. 613,453. (No model.)



Claim.—1. The combination with a vessel, of a bail hinged thereto, the ends of said bail being bent so as to form handles for operating the bail, the said bail adapted to bear upon the cover of the vessel, substantially as described.

2. The combination with a vessel, of a bail hinged thereto, the ends of said bail being bent so as to form handles for operating the same, the said bail being formed so as to bear upon the cover of the vessel, and to extend beyond the same, substantially as described.

587,418. RAZOR-CASE AND TOOL-BOX COMBINED. JOHN J. ZIEGEL, Monroe, La. Filed Mar. 10, 1897. Serial No. 626,729. (No model.)



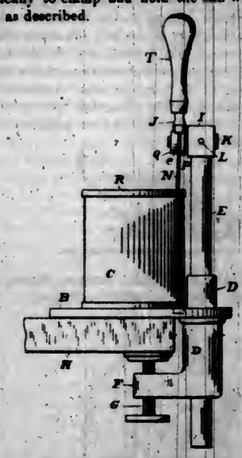
Claim.—A razor case or combination tool-box of the character set forth comprising a case proper having a series of compartments therein with suitable covers, a lid or cover for the case proper having a razor-rack on the inner side thereof, and comprising a series of ribs extending partially across the inner face of the said cover and provided with overhanging shoulders, and concavities at the base thereof, substantially as and for the purposes specified.

587,419. CAN-OPENER. WILLIAM H. ANDERSON, San Rafael, Cal. Filed Aug. 25, 1896. Serial No. 603,833. (No model.)

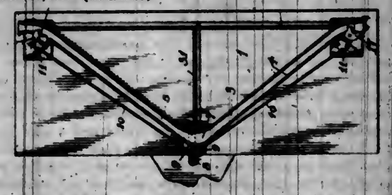
Claim.—1. In a can-opener having a fixed support, the sliding and revoluble stem E in combination with a lever fulcrumed thereon and having a cutting-blade at its lower end and operating in the manner and for the purposes substantially as described.

2. In a can-opener, the can-support B provided with the sleeve D, the sliding and revoluble stem E fitting loosely therein and a lever fulcrumed on the said sliding stem, and having a cutting-blade at its lower end, substantially as described.

3. In a can-opener, the combination of the can-supporting plate B provided with a fastening-clamp and sleeve D, the sliding and revoluble stem E, and a cutting implement pivoted on this stem and adjustable vertically to clamp and hold the can while being opened, substantially as described.



587,420. MEANS FOR OPENING OR CLOSING ELEVATOR-DOORS. CHESTER I. BELL, El Paso, Tex. Filed Nov. 28, 1896. Serial No. 613,767. (No model.)



Claim.—1. The combination with a sliding elevator-door, of a race secured to the inner surface thereof and having reversely-inclined portions, a latch pivotally mounted on the door, trips pivotally mounted at the upper and lower ends of said race, elbow-levers adapted to contact with and be operated by said trips, connections between said elbow-levers and the latch, and an operating device carried by the car, substantially as described.

2. The combination with a sliding elevator-door, of a race secured thereto and provided with reversely-inclined end portions, an operating device carried by the car or cage, a latch on the door, gravity-trips pivotally mounted at or near the opposite ends of said race and provided with lips which normally project partially across said race, and connections between said trips and latch, substantially as described.

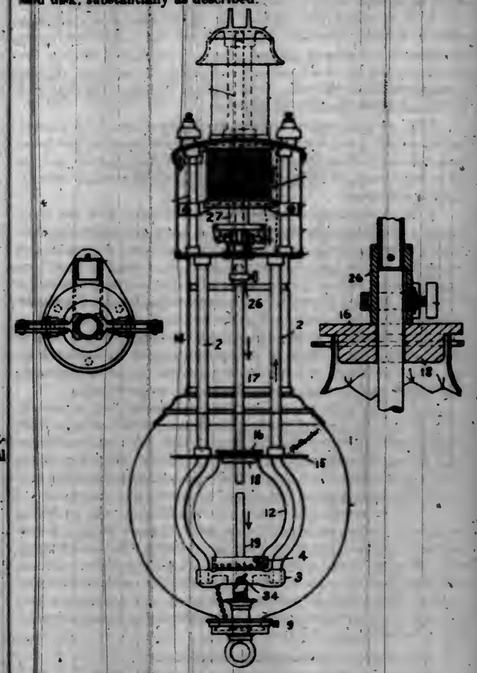
3. The combination with a sliding elevator-door, of a race on the inner side thereof and comprising reversely-inclined portions, an operating device on the car or cage adapted to traverse said race, a latch on the door, gravity-trips projecting partially across and pivotally mounted at the opposite ends of said race, elbow-levers arranged in the path of said trips and adapted to be vibrated by direct contact therewith, and connections between said elbow-levers and latch, substantially as described.

4. The combination with a sliding elevator-door, of a race attached to the inner side thereof, a rod extending vertically between the end portions of said race, and a vibratory operating device on the car movable toward and away from the door and adapted to traverse said race and also adapted to be shifted so as to rest and slide upon said rod, substantially as described.

587,421. ELECTRIC-ARC LAMP. SIGMUND BERGMANN, New York, and EDWIN LAVEN, Brooklyn, N. Y., assignors to the General Incandescent Arc Light Company, New York, N. Y. Filed Feb. 7, 1896. Renewed June 15, 1897. Serial No. 640,911. (No model.)

Claim.—1. In an arc-lamp, and in combination with the light-carbons, a globe closed at the bottom and having an aperture at the top, and a cap for said aperture adapted to fit the upper carbon, and provided with a depending flange slightly smaller in diameter than the aperture, thus serving to permit lateral play of the carbon, while holding said cap in place, substantially as described.

2. In a carbon-holder for the movable carbons of arc-lamps, a solenoid for controlling the movable carbon, a pair of links pivoted to the movable member of said solenoid, a pair of jaws adapted to hold the carbon, links pivoted to said first-named links to which said jaws are in turn pivoted, a disk through which the carbon extends, pivotally hung to said last-named links, and one or more stops under said disk, substantially as described.



587,422. AUTOGRAPHIC REGISTER. HENRY C. BIETTS, Toronto, Canada. Filed Sept. 15, 1896. Serial No. 605,868. (No model.)



Claim.—1. In an autographic register, the combination with a vertically-movable printing-roller, of a spring normally holding said roller out of operative position, a latch to retain said roller in operative position, and means to release said latch upon the rotation of the roller, substantially as described.

2. In an autographic register, the combination with the web feed and printing device, of connected mechanism to actuate the web feed and printing device, with which the printing device is normally disconnected, means under the control of the operator to connect said printing device with the actuating mechanism, and automatic means to disconnect said printing device after a single impression, whereby a check of any length may be formed under a single impression of the printing device, substantially as described.

3. In an autographic register, the combination with a spring-sustained printing-roller, a bed roller and frictional driving connections between the same, of a latch to retain the printing-roller and bed-roller in frictional contact with each other, and means to release the latch and permit a movement of the printing-roller away from the bed-roller upon the rotation of the printing-roller, substantially as described.

4. In an autographic register, the combination with a printing-roller, and a swinging spring-actuated lever supporting the same, of a latch arranged to engage said lever to hold the printing-roller in a depressed position and means to release said latch after a single rotation of the roller, substantially as described.

5. In an autographic register, the combination with a vertically-movable printing device, of a spring normally holding said printing

device out of operative position, a latch to retain said printing device in operative position, and automatic means to release said latch and allow the printing device to be raised by the spring, after a single impression has been made, substantially as described.

6. In an autographic register the combination with a printing-roller of a spring-controlled support for the same, a latch to retain the roller in a depressed position, means to rotate said roller in one direction while depressed, means for releasing the latch, and a spring arranged to rotate the roller in an opposite direction when released by the latch, substantially as described.

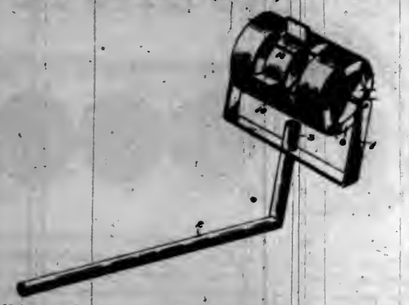
7. In an autographic register, the combination with a pivoted tablet or table provided with a slot along one edge arranged to receive the sheet of carbon-paper, of a pivoted clamping-bar upon its other edge arranged to clamp the carbon-paper in position, substantially as described.

8. In an autographic register, the combination with the cover having a check-exposing opening, and an apertured indicating-plate located adjacent to said opening, the apertures in said plate arranged to position certain records upon the check, the apertured plate having arbitrary words or symbols adjacent to the apertures therein, of a suitable printing device having corresponding words or symbols, and connected mechanism to feed the web and actuate the printing device, to print the arbitrary words upon the check above the records placed on said check through the apertures in the indicating-plate, and means to release said printing device from the actuating mechanism after a single impression, substantially as described.

9. In an autographic register, the combination with a storing-roller, a laterally-yielding bearing for one end of said roller, a shaft supporting the other end of said roller and removably connected therewith, arranged to rotate the same, a pinion loosely mounted upon said shaft, a friction-disk fixed on said shaft, and a spring surrounding said shaft and bearing against said pinion, substantially as described.

10. In an autographic register, the combination with a printing device and mechanism to actuate the same, the said printing device normally sustained out of its operative position with its actuating mechanism, of means under the control of the operator to connect said printing device with its actuating mechanism, and means to automatically disconnect said printing device from its actuating mechanism and return the same to its normal position after a single impression, substantially as described.

587,423. TOY. EDWARD A. BONDURANT, Lynchburg, Va. Filed Nov. 7, 1896. Serial No. 611,350. (No model.)



Claim.—1. In a toy, the combination with a wheel comprising end pieces, strips of different colors connecting the end pieces, and blades or vanes of different colors connected to the strips, of a blow pipe or tube whereby a current of air may be directed against the blades of the wheel.

2. The herein-described toy comprising a wheel consisting of sets of end disks, cross-strips connected to said end disks, different-colored strips passing around the cross-strips and connected thereto, and a series of blades or vanes connected to the cross-strips, and a blow pipe or tube whereby a current of air may be directed against the vanes of the wheel.

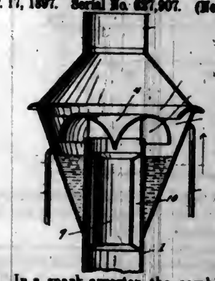
3. The herein-described toy comprising a frame and blow pipe or tube connected to said frame and a rotary wheel journaled to the frame, which wheel consists of sets of end disks, cross-strips extending from one set of disks to the other and having their ends secured between the disks, constituting a set, strips connected to the cross-strips, and blades or vanes connected to an annular strip and adapted to receive the air issuing from the blowpipe.

587,424. LOCK. ROBERT A. BOSHER, Altoona, Pa. Filed Dec. 17, 1896. Serial No. 616,026. (No model.)

Claim.—A fastening device for doors, &c., comprising a sector-shaped bolt having rounded, beveled edges, and provided with teeth in its periphery, a handle secured to the bolt at its axis, a series of teeth formed in the periphery of the bolt, the lower member of the casing having a lug formed with it which projects into a recess in the bolt and handle, a spring contained in said recess and adapted to move the bolt longitudinally of its axis, the upper member of the casing having a central opening and an elongated bearing-surface for the handle, and a pawl pivoted to the casing and adapted to engage with the teeth on the bolt.



587,425. SPARK-ARRESTER. RICHARD BRIGGS, Melvin, Mich. Filed Mar. 17, 1897. Serial No. 627,907. (No model.)



Claim.—1. In a spark-arrester, the combination with the main smoke-pipe 1, of a casing 2 secured to the upper end thereof and presenting a water-chamber surrounding the said upper end of the smoke-pipe, a funnel-shaped deflector mounted above the smoke-pipe and presenting depending sides which direct the smoke or products of combustion upon the surface of the water, and a pipe located within the main pipe and connected thereto at its ends to provide a dead-air space on a line with the water-chamber, together with a supply-pipe for the water-chamber and an overflow-pipe, substantially as shown and for the purpose set forth.

2. In a spark-arrester, the combination with the main pipe 1, of a casing secured thereto and presenting oppositely-inclined side walls and presenting a water space or chamber surrounding the upper end of the main pipe, a tube or pipe located within the main pipe to form a dead-air space on a line with the water-chamber; a funnel-shaped deflector located above the main smoke-pipe and having depending extensions to direct the smoke or products of combustion upon the surface of the water, a second deflector secured to the inner side of the casing and projecting downward therefrom, and an outlet ring or section secured to the upper end of the chamber; together with the supply-pipe and the overflow-pipe to maintain a level of water within the casing, substantially as shown and for the purpose set forth.

587,426. BOTTLE. HOMER L. BROWN, Hawthorn, Fla. Filed Sept. 16, 1896. Serial No. 606,008. (No model.)



Claim.—1. In a bottle, the combination with a bottle-body, of a neck independent thereof and having a fluid-passage extending from its top to bottom and in communication with the body at a point intermediate with the ends of the neck, an interfering-stopper in the neck above the passage leading into the body, and a locking-stopper in the neck below said latter passage.

2. In a bottle, the combination with a bottle-body, of a bottle-neck having a passage extending therethrough from end to end, and provided with an upper chamber and a lower groove, being in fluid communication with the body between said chamber and groove, an interfering-stopper movable in the chamber, a locking-stopper in the lower portion of the neck and on the upper end of which the interfering-stopper rests, and a locking device connected to the locking-stopper and adapted for reception in the groove.

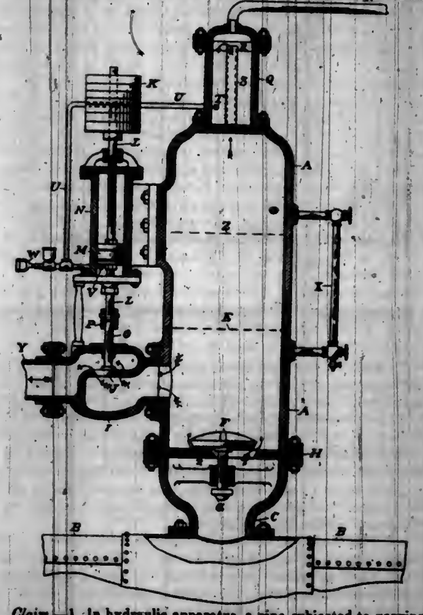
3. In a bottle, the combination with a bottle-body, of a bottle-neck having a passage extending therethrough from end to end and in communication with the bottle-body, said passage in the neck being made into an upper enlarged chamber, and the passage being formed into a groove at its lower end, a movable interfering-stopper in the chamber, a locking-stopper in the lower portion of the neck which is provided with a groove, the interfering-stopper resting on the upper end of the locking-stopper, and a locking-spring received in the groove of the locking-stopper and having ends which are received in the groove of the neck.

4. In a bottle, the combination with bottle-bodies, of a single neck for said bodies which has a fluid-passage and branch passages located one above the other which lead into the bodies, a locking-stopper in the neck, and an interfering-stopper also in the neck.

5. In a bottle, the combination with bottle-bodies, of a single neck therefor which is provided with a fluid-passage that extends through from end to end and is made into branch upper and lower passages which lead into the respective bottle-bodies, an interfering-stopper in the upper portion of the neck, and a locking-stopper in the lower portion of the neck.

6. In a bottle, the combination with bottle-bodies, of a single neck therefor which is provided with a fluid-passage that extends therethrough from end to end and has branch upper and lower passages which lead into the respective bottle-bodies, said fluid-passage of the neck being formed into an upper chamber and the lower portion of said neck being made into a groove, an interfering-stopper in the chamber, a locking-stopper in the lower portion of the neck on the upper end of which the interfering-stopper rests, and a spring-lock connected to the locking-stopper and adapted for reception in the groove.

587,427. HYDRAULIC APPARATUS. EDWARD S. COOK, San Francisco, Cal. Filed Nov. 10, 1896. Serial No. 611,825. (No model.)



Claim.—1. In hydraulic apparatus, a pipe subjected to varying pressure, an air vessel communicating therewith, a check-valve between the pipe and air vessel, opening outward from the pipe and closing to prevent return flow; in combination with a waste-valve actuated by augmented pressure in the air vessel, and discharging therefrom to equalize the pressure in the air vessel with that in the main pipe, substantially as described.

2. In hydraulic apparatus, a pipe subjected to varying pressure, an air vessel and a check-valve therein to prevent backflow from the air vessel to the pipe, a waste-valve to reduce the pressure in the air vessel, the latter valve loaded to maintain a predetermined pressure in the air vessel, in the manner and for the purposes substantially as described.

3. In hydraulic apparatus, a pipe subject to varying pressure, an air vessel and check-valve therein, a waste-valve operated by a piston, the latter communicating with the air vessel and actuated by pressure therefrom, all combined and operating substantially as described.

587,428. GAS OR VAPOR COCK. ORLANDO F. COSHEN, Boston, Mass. Filed Feb. 20, 1897. Serial No. 624,466. (No model.)



Claim.—1. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a valve in said case governing the passage of gas or vapor through said ports, a permanent key having a stem provided with means normally arranged below said valve and adapted to be pushed up in contact with the valve for operating the same, means to hold the key up in engagement with the valve when the latter is open, and means for engaging the key-stem to normally hold said key out of engagement with the valve when the latter is closed, substantially as described.

2. In a gas or vapor cock, the combination of a case, a valve in said case controlling the passage of gas therethrough and provided with a slot or groove, a key provided with a stem having a bit or projection normally arranged below said valve and adapted to be pushed up so as to bring its bit into engagement with the valve groove or slot in order that said valve may be operated, and a spring engaging the valve-stem to hold it out of engagement with the groove, substantially as described.

3. In a gas or vapor cock, the combination of a case having inlet and outlet ports, an oscillatory valve in said case and provided with a groove or slot, means for limiting the rotary movement of the valve, a key having a stem provided with a bit or projection adapted to engage with said groove or slot to operate the said oscillatory valve, and a spring engaging the key-stem to normally hold said key out of engagement with the valve, substantially as described.

4. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a valve in said case provided with a groove in the lower end and a chamber in the center thereof, means to limit the rotary movement of said valve, a key having a stem projecting through the valve into said chamber and provided with a bit adapted to be inserted into the said valve-groove so as to operate said valve, and a spring in said chamber and engaging the key-stem to force the key downward out of engagement with the valve when the latter is closed, substantially as described.

5. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a rotary valve in said case provided with a groove in the lower end thereof, a washer or diaphragm between said valve and lower end of the case and provided with a slot, and a key having a stem provided with a bit or projection adapted to be passed up through said slot and engage with the said groove in the valve to operate the latter, and said washer holding the stem in upraised position when the valve is open, substantially as described.

6. In a gas or vapor cock, the combination of a case, a cone-shaped valve in said case having a limited upward movement and provided with a passage extending therethrough and a groove in the bottom thereof, a washer or diaphragm between the lower portion of the case and the plug-valve, and having a keyhole-shaped slot, and a key provided with a stem having a bit or projection adapted to be inserted through said slot and engaged with the said groove of the valve whereby said valve may be operated and maintained in an open position by the said stem when resting upon the upper surface of the washer, substantially as described.

7. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a cone-shaped plug-valve in said case and provided with a central chamber adapted to be brought into coincidence with said ports, and a groove in its lower end, means to limit the rotary movement of said valve, a washer or diaphragm provided with a keyhole-shaped slot and located below the base of said valve, a key having a stem provided with a bit or projection adapted to be inserted through said slot and engaged with the said groove in the valve to operate the latter, said key being held in operative position when the valve is opened by the washer, and a spring engaging the key-stem to force the key downward when the valve is closed, substantially as described.

8. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a cone-shaped valve in said case provided with a central chamber and having a groove in its lower end, a washer or diaphragm provided with a keyhole-shaped slot and located below said valve, a key having a stem inserted up through said washer and valve-chamber and provided with a bit or projection adapted to be

inserted through said keyhole-shaped slot and engage with the groove in the valve to operate said valve, and means for normally pressing the disengaged stem downwardly so as to force its bit to a position below the said washer or diaphragm, substantially as described.

9. In a gas or vapor cock, the combination of a case having inlet and outlet ports, a cone-shaped valve located in said case and provided with a central chamber and having in its bottom a groove and a segmental-shaped slot, a diaphragm or washer provided with a keyhole-shaped slot, and located beneath said valve, a key having a stem provided with a bit or projection adapted to be inserted up through said keyhole-shaped slot and engage with the said groove in the valve to operate said valve, a pin projecting into the segmental slot of the valve and serving to limit the rotary movement thereof, and means to normally press the disengaged key-stem down so that its bit will have position below the said washer or diaphragm, substantially as described.

10. In a gas or vapor cock, the combination of a case having a central portion or body provided with a conical slot or passage, a dome-cap closing the upper end of said body portion and provided with a central chamber, a base-cap closing the lower end of said body portion and provided with a chamber and a socket, a conical valve occupying the chamber in said body portion and provided with a groove and a segmental-shaped slot in the bottom thereof, a washer or diaphragm provided with a keyhole-shaped slot and having position between said valve and base-cap, a pin projecting from said washer and occupying the segmental slot of the valve to limit the rotary movement of said valve, a key having a stem provided with a bit or projection adapted to be passed up through said keyhole-shaped slot and engage with the groove in the valve to operate said valve, and a spring to normally force the key-stem down when said stem is not in use so as to bring the bit thereof to a position below the said washer or diaphragm, substantially as described.

587,429. INSECT-DESTROYER. WILLIAM DEVOLD, St. Mary's, Kans. Filed May 13, 1897. Serial No. 636,336. (No model.)



Claim.—1. In a device of the class described, the combination with a lantern, of a pan or receptacle provided with an annular flange or partition forming a central socket to receive the bowl or reservoir of the lantern and providing an outer annular liquid-receiving space, and hooks mounted in the pan or receptacle and arranged to engage the frame of the lantern, substantially as described.

2. A device of the class described comprising a pan or receptacle provided with an annular flange or partition forming a socket to receive the bowl or reservoir of a lantern and providing an outer liquid-receiving space, and spiral springs arranged at opposite sides of the receptacle and terminating in hooks adapted to engage the frame of a lantern, substantially as described.

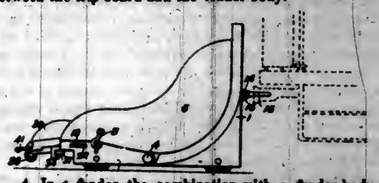
3. A device of the class described comprising a pan or receptacle provided with a socket to receive the bowl of a lantern and having a liquid-receiving space, fastening devices for detachably connecting a pan or receptacle to a lantern, and a removable shield provided with a central opening and having opposite slots and adapted to be mounted on the upper portion of a lantern, substantially as and for the purpose described.

587,430. CAR-FENDER. HORACE H. DOLL, Philadelphia, Pa. Filed Sept. 10, 1896. Serial No. 605,302. (No model.)

Claim.—1. In a fender, the combination with a main frame adapted for connection to the car, of a forwardly-extending auxiliary frame hinged to the main frame and adapted to be swung vertically and backwardly, rollers or wheels journaled in the main and auxiliary frame being adapted to run on the track, inwardly-foldable sides hinged to the main frame, a netting or other flexible device constituting the bed of the fender, and means for keeping the auxiliary frame and sides extended.

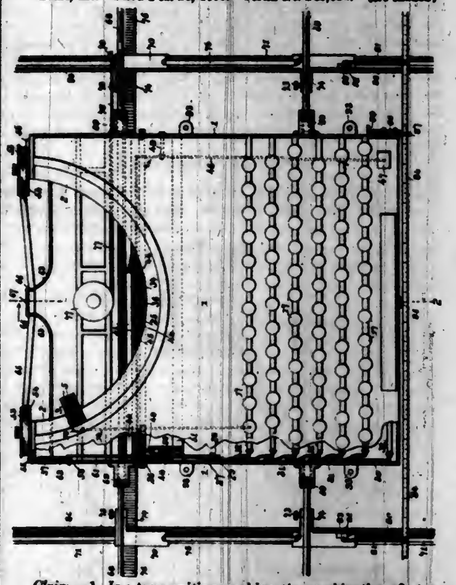
2. In a fender, the combination with a fender-body, of a spring-pressed trip-board having slots and guided by the fender-body, bell-crank levers pivoted to the fender-body and provided with portions that project into said slots, and a link connecting the bell-crank lever.

3. In a fender, the combination with a fender-body, of a spring-pressed bar movable in rotation thereto being provided with slots, bell-crank levers pivoted to the fender-body and provided with portions which project into said slots, a link connecting the bell-crank levers, a trip-board hinged to the bar, and a detachable connection between the trip-board and the fender-body.



4. In a fender, the combination with a fender-body provided with slots, of a bar movable in said slots and also provided with slots, bell-crank levers pivoted to the fender-body and having pins that project into the slots of the bar, a link connecting the bell-crank levers, a trip-board hinged to the bar, brackets connected to the fender-body, tongues connected to the trip-board and adapted to rest on said brackets, and rollers journaled to the trip-board.

587,481. TYPE-WRITING MACHINE. HARRY S. DURER, St. Louis, Mo. Filed Feb. 26, 1895. Serial No. 540,080. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-bar-supporting ring having perforations arranged in a zigzag or staggered series, bearing-brackets having a pair of parallel guiding-ears and a single depending stem secured in one of the perforations of the supporting-ring, the stems of adjacent brackets being arranged at different distances from the inner ends thereof to agree with the staggered disposition of the perforations in the supporting-ring and engaged below the ring by nuts, type-bars mounted between the parallel ears of the bearing-brackets, and operating connections for the type-bars, substantially as specified.

2. The combination with printing mechanism, of letter-spacing mechanism having a rock-shaft arranged parallel with the line of writing and operatively connected with the printing mechanism, an intermediately-pivoted pawl provided at one end with a fixed tooth 37 and at the other end with a depending spring-actuated pivotal tooth 38, the pivotal end of the tooth 38 and the spring whereby it is actuated being arranged in a cavity in the body of the pawl, whereby they are housed, an arm on the rock-shaft connected to the pawl, and a rack-bar for engagement by the tooth of the pawl, substantially as specified.

3. The combination with printing mechanism, of letter-spacing mechanism having a rock-shaft arranged parallel with the line of writing and operatively connected with the printing mechanism, an intermediately-pivoted pawl provided at opposite ends, respectively, with a fixed tooth and a spring-actuated pivotal tooth, an arm on the rock-shaft connected to the pawl, a rack-bar for engagement by the teeth of the pawl, a spring-pressed sliding block mounted in a

stationary parallel-sided guide for movement perpendicular to the plane of the rack-bar and carrying the pawl, and means for moving the block to disengage the pawl from the rack-bar, said means consisting of a release-key lever having a transverse rod, and pins carried by the block and arranged in the path of the transverse rod, substantially as specified.

4. In a type-writing machine, the combination with letter-spacing mechanism including a yielding spring-returned member, as a rock-shaft, of type-keys arranged in transverse series, transverse bars arranged respectively contiguous to the transverse series of keys and operatively connected therewith for depression thereby, duplicate pull-rods connected to the rock-shaft and provided with spaced transversely opposite buttons, and pairs of bell-crank levers arranged respectively at the extremities of said transverse bars, each lever having one arm connected to a bar and the other bifurcated to engage one of the buttons on the contiguous pull-rod, whereby the pull-rods are common to and are adapted to be operated independently of the type-keys, substantially as specified.

5. The combination with letter-spacing mechanism, having a rack-bar, a rock-shaft, and a rocking pawl operatively connected with the rock-shaft and engaging the rack-bar, draw-rods connected to arms carried by the rock-shaft, type-bars, keys operatively connected with the type-bars, and connections between the keys and said draw-rods, of rocking levers connected with the rock-shaft to receive motion therefrom, ribbon-spools provided with ratchet-teeth, bell-crank levers carrying pawls to engage said ratchet-teeth, and operatively connected with the rocking levers, and a movable ribbon-guide also operatively connected with the rocking lever, substantially as specified.

6. The combination with printing mechanism, and letter-spacing mechanism operatively connected with the printing mechanism, of ribbon-spools having ratchet-teeth, a rocking lever operatively connected with the letter-spacing mechanism, feed-pawls for engaging the ratchet-teeth of the ribbon-spools and operatively connected with the rocking lever, and a ribbon-guide having a looped portion arranged contiguous to the printing-point and having parallel arms mounted in guides and connected with said rocking levers, whereby the operation of the printing mechanism causes the retraction of the feed-pawl and the simultaneous extension of the ribbon-guide to carry the ribbon into the path of the printing devices, substantially as specified.

7. The combination with a frame, of type-bars, keys, connections between the key-stems and the type-bars, letter-spacing mechanism including a pawl and rack-bar and a rock-shaft operatively connected with the pawl, plate-return springs arranged in operative relation with fixed arms 49 carried by the rock-shaft, means including set-screws for adjusting the tension of said springs, draw-rods connected with other arms on the rock-shaft, transverse bars arranged parallel with the lines of keys and in the paths of the lower ends thereof, and bell-crank lever connections between said bars and the draw-rods, the draw-rods having spaced buttons against one side of which the arms of the levers bear, substantially as specified.

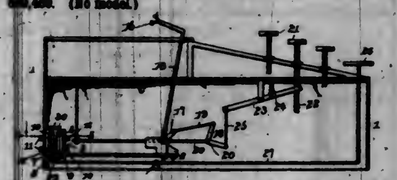
8. The combination with a frame, printing mechanism carried thereby, letter-spacing mechanism having a fixed rack-bar and a pawl carried by the frame to engage the rack-bar, and operating connections between the printing mechanism and the pawl, of longitudinal guides supporting the frame, transverse guides having racks, slides mounted upon the transverse guides and supporting the longitudinal guides, means for adjustably connecting the longitudinal guides to the slides, line-spacing levers mounted upon the slides and provided with pawls to engage said racks, a line-spacing key connecting said levers in front of the frame and graduated to form a scale for use in connection with a fixed pointer carried by the frame and means for adjustably securing the key to said levers, substantially as specified.

9. In a type-writing machine, the combination with a movable frame carrying printing mechanism, guides arranged parallel with the line of writing and supporting said frame, letter-spacing mechanism operatively connected with the printing mechanism, transverse guides supporting the longitudinal guides, and line-spacing mechanism for advancing the longitudinal guides upon the transverse guides, of a vertically-movable bar arranged parallel with the line of writing contiguous to and in advance of the movable frame and provided with graduations for use in connection with a fixed pointer carried by said frame, and connections between said bar and the line-spacing mechanism, substantially as specified.

10. The combination with a base, of a frame adapted to be supported by the base, means for detachably securing the frame to the base, line-spacing mechanism, letter-spacing mechanism having a pawl and operating devices carried by the frame and including an independent rack-bar, and printing mechanism carried by the frame, substantially as specified.

11. The combination with a frame carrying printing mechanism, of a stationary base adapted to support the frame, a paper-carriage mounted upon the stationary base below the frame for movement parallel with the lines of writing, letter-spacing mechanism having a rack-bar on said carriage, and line-spacing mechanism, substantially as described.

587,482. TYPE-WRITING MACHINE. HARRY S. DURER, St. Louis, Mo. Filed Feb. 26, 1895. Renewed June 4, 1897. Serial No. 639,469. (No model.)



Claim.—1. In a type-writing machine, a type-bar-supporting ring movable perpendicularly toward and from a printing plane, means for moving the supporting-ring, type-bars each having a plurality of type-heads arranged in different relatively angular positions, key-levers having fixed fulcrums and movable at their extremities in directions perpendicular to the printing plane, and connections between the key-levers and type-bars, substantially as specified.

2. In a type-writing machine, the combination with a stationary frame, of a type-bar-supporting ring mounted for independent movement toward and from a printing plane, type-bars each provided with a plurality of type-heads arranged in different relatively angular positions, means for moving the supporting-ring, and operating connections for the type-bars, including key-levers fulcrumed upon the stationary frame, intermediate levers connected to the key-levers and having fixed fulcrums, and links between each intermediate lever and a type-bar, substantially as specified.

3. In a type-writing machine, the combination with a frame, of guides arranged perpendicular to the writing plane, and having compensating blocks arranged for adjustment transverse to the length of the guides, means for adjusting said blocks, a type-bar-supporting ring provided with slides mounted in the guides, means for moving the supporting-ring toward and from the writing plane, type-bars carried by the supporting-ring and provided with a plurality of type-heads arranged in different relatively angular positions, and operating connections for the type-bars, substantially as specified.

4. In a type-writing machine, the combination with a frame, of guides arranged perpendicular to the plane of writing, a type-bar-supporting ring provided with slides mounted in said guides to move perpendicularly toward and from the writing plane and normally held by gravity in a depressed position, a case-key lever having arms arranged under the supporting-ring and provided with terminal cushions to bear against the same, type-bars mounted upon the supporting-ring and provided with a plurality of type-heads arranged in relatively angular positions, and operating connections for the type-bars, including key-levers having fixed fulcrums, bell-crank levers 18, and links between the arms of levers 18 and the key-levers and type-bars, respectively, substantially as specified.

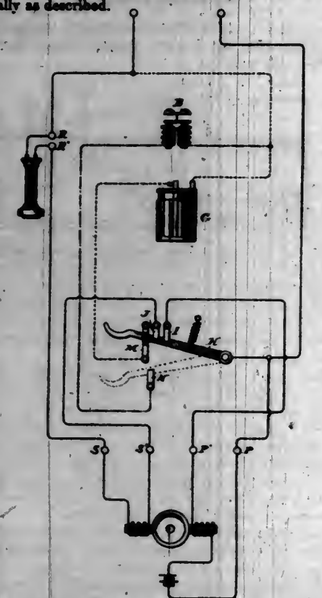
5. In a type-writing machine, the combination with a frame, of a type-bar-supporting ring mounted for movement perpendicularly toward and from the writing plane, type-bars mounted upon the supporting-ring and provided with a plurality of type-heads arranged in different relatively angular positions, means for moving the supporting-ring toward and from the writing plane, bell-crank levers having fixed fulcrums, connecting-rods between the bell-crank levers and arms 17 of the type-bars and occupying an approximately horizontal position, to provide for vertical movement of the type-bars without affecting the operation of bell-crank levers, keys, and connections between the keys and the bell-crank levers, substantially as specified.

587,483. ELECTRIC SIGNALING APPARATUS. MORTIMER DU PONOW, Washington, D. C. Filed July 10, 1896. Renewed May 17, 1897. Serial No. 637,805. (No model.)

Claim.—1. The normally open partial speaking-circuit having in it a telephone, or the primary and secondary coils thereof, and the independent normally open partial signal-transmitting circuit having in it a source of electricity only, in combination with the independent partial signal-receiving circuit having in it a signal and being normally closed by a switch adapted when moved in one direction to successively open the signal-receiving circuit, close and then open the signal-transmitting circuit, and finally close the speaking-circuit, and when moved back again to reverse these operations, substantially as described.

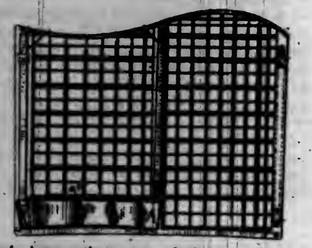
2. Two telephone-stations joined by a suitable electric circuit, one conductor thereof at each station having three branches, with their respective terminals, said branches having in them respectively

a speaking device, a signal-transmitting device, and a signal-receiving device, and the other conductor at each station being connected to a movable switch adapted in moving within its prescribed limits to automatically contact with each of said terminals in succession, substantially as described.



3. At a telephone-station, the normally open speaking-circuit having in it a telephone and a source of electricity, and the independent normally open signal-transmitting circuit having in it a source of electricity only, in combination with a circuit-changing switch connected to line and adapted when moved in one direction to successively close and then open the signal-transmitting circuit and close the speaking-circuit and when moved back again to successively open the speaking-circuit and close and then open the signal-transmitting circuit, substantially as described.

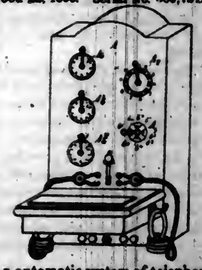
587,484. SUPPORTER FOR GENTLEMEN'S TROUSERS-LEGGINGS. CHARLES FISHER, San Francisco, Cal. Filed June 29, 1896. Serial No. 597,404. (No model.) Patented in England Nov. 25, 1895, No. 23,494; in France Dec. 3, 1895, No. 239,445, and in Belgium Dec. 16, 1895, No. 118,648.



Claim.—1. A supporting means or device for gentlemen's leggings, composed of a strip of stiff fabric to be secured by its top edge to the legging-body on the inside and above the bottom edge of the legging, and upright ribs secured to said strip at the edges thereof and attached to the legging-body from the top of the strip upward but detached below said point, the said strip being adapted to rest in the turned-up bottom of the trousers-leg and support the legging, as hereinbefore specified.

2. The combination, with the legging-body, of the supporting means or device consisting of a strip of relatively stiff fabric united by its top edge to the inside of the legging-body, and adapted to extend around the legging on the inside but detached therefrom at the ends and along its bottom edge, and upright ribs secured at the lower ends in the said strip and detached at such part from the legging, but attached to the material of the legging above said strip, substantially as hereinbefore described for operation as set forth.

587,485. AUTOMATIC TELEPHONE SYSTEM. MOSES FREDERICKS, Paris, France, assignor to Roger Williams Wallace, London, England. Filed Oct. 22, 1896. Serial No. 609,721. (No model.)



Claim.—1. An automatic system of telephone-switching in which the station of each subscriber is connected with a central-office switch divided into as many sectors as there are groups of subscribers and in which each sector of said central-office switch is connected with a carriage that passes over strips connected respectively with the subscribers' lines and is arranged to put itself in electrical connection with any given strip according to its position, the exchange being thus divided into groups in each of which there are as many carriages as there are subscribers to the exchange and as many strips as there are subscribers in that group, substantially as described.

2. An apparatus for a subscriber's station comprising (in addition to the telephone instruments proper) a switch arranged to send to line positive currents, a second switch arranged to send negative currents to line, a counter composed of a number of wheels, and an electromagnet arranged in a branch which is closed by said second switch and having its armature connected with said counter, in combination with a central-office switch responding to negative and positive currents, and arranged to connect the subscriber's line with wires which lead from different divisions of said office-switch substantially as described.

3. An apparatus for a subscriber's station comprising (in addition to the telephone instruments proper) a switch arranged to send to line positive currents, a second switch arranged to send negative currents to line, a counter composed of a number of wheels, and an electromagnet arranged in a branch which is closed by said second switch and having its armature connected with said counter, in combination with a central-office switch responding to negative and to positive currents and arranged to connect the subscriber's line with the wires that lead from the different sectors, and electrical devices responding to negative currents, and arranged to put said wires in electrical connections with other subscribers' lines, substantially as described.

4. In combination with the other parts of an automatic system of telephone-switching in which the station of each subscriber is connected with a central-office switch divided into as many sectors as there are groups of subscribers and in which each sector of said office-switch is connected with a carriage that passes over strips connected respectively with the subscribers' lines and is arranged to put itself in electrical connection with any given strip according to its position, a counter at a subscriber's station arranged to control the carriage belonging to such station so that it stops over the strip corresponding with the subscriber to be called, said counter being composed of a series of wheels with adjustable arms which can be set in a position to represent the number of the subscriber to be called and which being carried along with the wheels conjoin in sending to line a current to arrest the carriage at the central office substantially as described.

5. A counter composed of a series of wheels provided with adjustable arms, switch-points and connection for completing a circuit through the arms in series, and an electromagnet operating means for turning the wheels, substantially as described.

6. A counter composed of a series of wheels provided with adjustable arms, switch-points and connection for completing a circuit through the arms in series, and an electromagnetic operating means for turning the wheels, in combination with an automatic switching apparatus at the central office arranged to send currents to the subscriber's station for turning said wheels and to be arrested by a current sent out by the conjoint action of said series of arms, substantially as described.

7. A switch having two electromagnets for turning its switch-arm, and two sets of switch-points, one set of points being arranged for establishing the circuit through one of said electromagnets and the other for establishing connections with devices outside the switch, and movable circuit-closing means contacting with a member of each set of switch-points in one position and with a member of but one set of switch-points in another position, whereby the circuit is simultaneously closed through one of said magnets and said outside devices in one position of the circuit-closing means, and through said outside devices solely in the other position, substantially as described.

8. A switch having two electromagnets for turning its switch-arm, and two sets of switch-points, one set of points being arranged for establishing the circuit through one of said electromagnets and the other for establishing connections with devices outside the switch, in combination with electromagnetically-controlled switching devices responding to currents of opposite polarity to those which actuate the last-mentioned electromagnet and arranged in the branches which are connected with the last-mentioned set of switch-points, substantially as described.

9. In combination with the other parts of an automatic system of telephone-switching in which the station of each subscriber is connected with a central-office switch divided into as many sectors as there are groups of subscribers and in which each sector of said office-switch is connected with a carriage that passes over strips connected respectively with the subscribers' lines and is arranged to put itself in electrical connection with any given strip according to its position, a central-office switch having a switch-arm connected with the subscribers' line and two polarized electromagnets responding to positive and negative currents respectively for turning said arm and the said switch being provided with a sector of repose and two additional sets of switch-points, of which one set is connected with the positive electromagnet aforesaid and the others with the respective electromagnets which control the carriages belonging to the subscribers in the several groups, substantially as described.

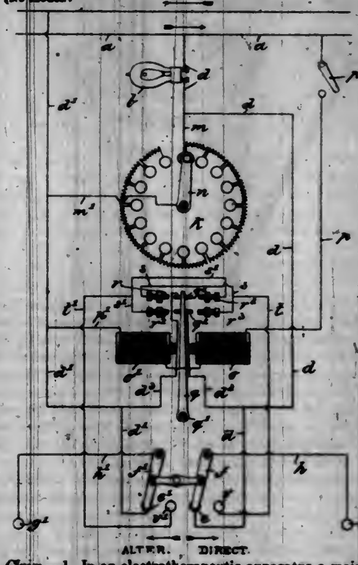
10. In the herein-described automatic system of telephone-switching, wherein each subscriber is provided at the central office with a movable carriage for effecting the desired connections, the central-office switch for each subscriber connected with the subscribers' station by wires leading respectively through the arm of said switch and through two electromagnets of opposite polarity whose armatures operate ratchet-wheels that turn the said arm, the plate of said switch carrying two concentric metallic rings of which one is connected with the said negative electromagnet while the other divided into ten insulated two-part sectors and a sector of one-third the width has one insulated part of each of the ten sectors connected with the said positive electromagnet and the other insulated part with one or other of the electromagnets which control the movements of the corresponding carriages, and the said switch-arm being provided with two brushes one of which is connected with the line and rubs over the sectors and the other of which is insulated and rubs over the ring and a part of the sectors, substantially as described.

11. A carriage system comprising an electromagnet arranged to control a system of bevel-wheels on a continuously-rotating shaft so that they are both out of contact with a third wheel or separately intermesh therewith according to their position, a screw connected with said third wheel and provided with a nut which constitutes or forms part of the carriage, an arm of said carriage, and strips which are depressed by said arm in passing and rise when it has passed, the said carriage not being arrested by the contact of said arms with the strips but continuing to advance and carrying a brush which during the depressions of the strips makes contact with a series of metallic points equal in number to the strips so as to close each time the circuit of a battery and send a positive current, substantially as described.

12. In combination with the other parts of an automatic system for telephone-switching in which the station of each subscriber is connected with a central-office switch divided into as many sectors as there are groups of subscribers and in which there is a counter at each subscriber's station, a carriage system corresponding with each sector of the respective switches and comprising an electromagnet arranged to control a system of bevel-wheels on a continuously-rotating shaft so that they are both out of contact with a third wheel or separately intermesh therewith according to their position, a screw connected with said third wheel and provided with a nut which constitutes or forms part of the carriage, an arm of said carriage, and strips which are depressed by said arm in passing and rise when it has passed, the said carriage not being arrested by the contact of said arms with the strips but continuing to advance and carrying a brush which during the depressions of the strips makes contact with a series of metallic points equal in number to the strips so as to close each time the circuit of a battery and send a positive current to the subscriber's station for operating the counter there, substantially as described.

13. An automatic system for telephone-switch in which the apparatus at each subscriber's station is composed of a series of wheels with adjustable switch-arms, means whereby a current may be sent to line by the conjoint action of the series of arms, a polarized electromagnet for operating said wheels, and means whereby at one time positive and at another negative currents may be sent to the central office independently of said adjustable arms, and whereby said polarized electromagnet may be connected in circuit at a particular time, and the apparatus at the central office is composed of groups of strips connected with different subscribers' lines, carriages for all the subscribers, one for each, arranged to pass over the strips of each group for establishing electrical connection with any desired strip in each group, means whereby the said carriage may be controlled by currents from the subscriber's station and may send currents to said station for operating the aforesaid series of wheels and switch-arms, and an electromagnet-switch for putting the subscriber's line in connection with a carriage in one or other of said groups according to the position of said switch, substantially as described.

587,486. ELECTROTHERAPEUTIC APPARATUS. FREDERIC GRAHAM, Philadelphia, Pa. Filed May 13, 1897. Serial No. 636,422. (No model.)



Claim.—1. In an electrotherapeutic apparatus, a main circuit, a patient or operator circuit, a fixed resistance in series with the operator-circuit, and a variable resistance in the main circuit and in shunt with the patient or operator circuit, substantially as and for the purposes described.

2. In an electrotherapeutic apparatus, a main circuit, a fixed resistance and a rheostat included in said main circuit, and an operator-circuit in series with said fixed resistance and in shunt with the rheostat, substantially as and for the purposes described.

3. In an electrotherapeutic apparatus, a main circuit, a fixed resistance and a variable resistance included in said main circuit, an operator-circuit in series with the fixed resistance and in shunt with the variable resistance, and a pole-changing switch interposed in the operator-circuit, substantially as and for the purposes described.

4. In an electrotherapeutic apparatus, a pole-changing switch consisting of two electromagnets included in the main circuit of an alternating current and having poles of opposite polarity facing each other, an oscillating permanent magnet having two contacts in circuit with the operator-line, and contact-screws also in circuit with said operator-line, substantially as and for the purposes described.

587,487. APPARATUS FOR MANUFACTURING CHLORATE OF POTASH BY ELECTROLYSIS. FERDINAND HURTER, Liverpool, England, assignor to the United Alkali Company, Limited, same place. Filed May 8, 1897. Serial No. 636,008. (No model.) Patented in England Aug. 12, 1896, No. 18,208.



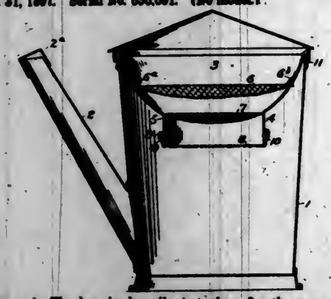
Claim.—1. In apparatus for use in the manufacture of chlorate of potash from potassium chlorid by electrolysis, a cathode consisting of a metallic vessel having a porous protective lining, substantially as described.

2. An apparatus for use in the manufacture of chlorate of potash from potassium chlorid by electrolysis, consisting of a metallic

vessel having a porous protective lining composed essentially of cement, said metallic vessel forming the cathode, and a sheet or rod of platinum projecting into the electrolyte contained in the vessel and forming the anode, substantially as described.

3. An apparatus for use in the manufacture of chlorate of potash from potassium chlorid by electrolysis, consisting of a series of superposed metallic vessels insulated from each other and each having a porous protecting lining, the said metallic vessels constituting cathodes, and platinum anodes suspended from the upper vessels and projecting respectively into the vessels beneath, substantially as described.

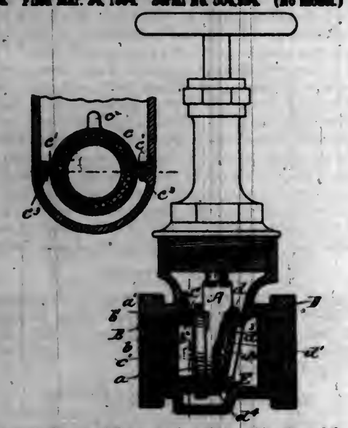
587,438. STRAINER. THOMAS D. IRWIN, Oil City, Pa. Filed Mar. 31, 1897. Serial No. 630,091. (No model.)



Claim.—1. The herein-described strainer for the purpose specified, comprising a semispherical body portion having a central opening, and an annular flange depending therefrom and surrounding said opening, a screen pivotally arranged in the spherical portion of the strainer, a removable screen applied around the depending flange, a removable hoop surrounding said flange for holding the removable screen in place thereon, spring-catches mounted on said flange for engaging and retaining said hoop in place, and an intermediate screen permanently arranged at the intersection of the spherical and annular portions of the screen, substantially as described.

2. A strainer for the purpose specified, comprising a semispherical body having a central opening, a depending flange surrounding said opening, spring-catches arranged at diametrically opposite points on and projecting outwardly from said flange, a removable cloth or screen of flexible material, and a removable hoop surrounding said flange and engaged by said catches for holding the removable screen in place, substantially as described.

587,439. STRAIGHTWAY VALVE. CHARLES JENKINS, Boston, Mass. Filed Mar. 24, 1894. Serial No. 504,894. (No model.)



Claim.—1. In a straightway valve, the combination of the valve-body having a narrow wall b^5 immediately about the steamway and a shoulder b' extending outwardly from the base of said wall, a disk B of compressible packing of a size to fit over the said wall and against said shoulder and forming a stationary compressible valve-seat, and a metal ring C upon the exterior of said packing and said shoulder, means for securing the ring to the exterior of the shoulder, the oppositely-ground-metal seat E also surrounding the steamway, and the gate A having the ground-metal seat adapted to close upon the compressible seat B, and the oppositely-arranged compressible seat D detachably secured to the said gate and adapted to be brought into contact with the stationary ground-metal seat E, all as and for the purposes described.

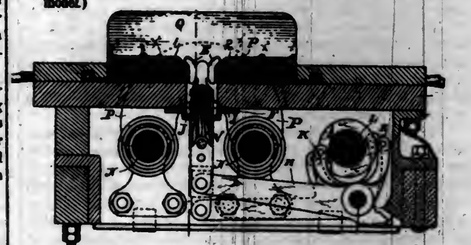
2. The combination in a straightway valve of the wall b^5 surrounding the steamway, a shoulder b' upon the outer side of said wall, a recess in the valve-body about said shoulder, a ring or disk of packing B to fit over said wall and bear upon said shoulder and a removable packing-holding ring C to fit over said ring or disk of packing and said shoulder having lugs and a turning ear c^2 and stationary ears c^3 upon the valve-body extending into the recess about the shoulder or wall and adapted to be engaged by the ears c' upon the turning of the ring C, as and for the purposes described.

587,440. THILL-COUPLING. ANDREW C. KANE, Peoria, Ill. Filed Nov. 10, 1896. Serial No. 611,645. (No model.)



Claim.—In a thill-coupling, the combination with an axle-clip, of a bracket having a central cylindrical opening and a slot extending therefrom, a slotted disk provided with a peripheral groove adapted to rotate therein, a set-screw in the bracket adapted to enter said peripheral groove and hold the disk within the bracket, a shaft having a bifurcated end adapted to closely engage said bracket, a web adapted to fit within said slotted disk, and hook-shaped ears, and projections upon said bracket in the path of said ears.

587,441. REGULATING APPARATUS FOR ELECTRICALLY-DRIVEN MECHANISM. WALTER H. KNIGHT, Newton, and WILLIAM B. POTTER, Lynn, Mass. Filed May 31, 1892. Serial No. 433,906. (No model.)



Claim.—1. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of two electric motors, and a switch connecting them in series with each other and with a resistance, the switch provided with contacts and connections arranged to shunt one motor, leaving the other in series with a resistance, to disconnect one motor and to connect the two motors in multiple, all by successive steps.

2. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of two motors, and a switch for placing them in series with each other and with a resistance, the switch provided with contacts and connections adapted to cut out the resistance, for one rate of speed, to again cut in the resistance, to shunt one motor, to disconnect one motor and cut out the resistance, and to connect the two motors in multiple.

3. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of two electric motors in series with each other and with a resistance, with a switch provided with contacts and connections adapted to cut out the resistance, to shunt one motor, leaving the other in circuit with the resistance to disconnect one motor, to connect the two motors in multiple, and to open or close a circuit changing the field-magnet strength of the motors.

4. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of two motors in series with a switch provided with contacts and connections adapted to insert a resistance, to shunt one motor leaving the other in circuit with the resistance, and to connect the motors in multiple.

5. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination with two motors in series with each other and with a resistance, of a switch provided with contacts and connections adapted to shunt motor while a resistance is included in the circuit, and to connect the motors in multiple.

6. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of two motors

in series with a switch adapted to insert a resistance, to shunt one motor leaving the other motor in series with the resistance, to disconnect one motor and to connect the two motors in multiple.

7. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of a resistance and two motors arranged in series, with a switch provided with contacts and connections adapted to shunt one motor leaving the other motor in circuit with the resistance, and to connect them both in multiple.

8. In an apparatus for regulating the power and speed of mechanism driven by two electric motors, the combination of a resistance, two electric motors, and a switch adapted to throw them into series or multiple relation, the switch provided with contacts and connections for including the resistance in series and for shunting the field-magnets of the motors to a greater or less extent.

9. In an electrically-driven mechanism the combination with two motors of a switch placing the motors successively in series and multiple arc, and magnetic pole-pieces placed adjacent to the several contact-plates of the switch whereby the different combinations of circuits may be perfected without injury to the switch.

10. In a regulator for electrically-driven mechanism the combination with two motors, of a switch for placing the motors successively in series and multiple, magnetic pole-pieces adjacent to the several contact-plates of the switch, and a common magnetic core for energizing the said pole-pieces.

11. In a regulator for electrically-driven mechanism the combination with two motors, of a switch for placing the motors successively in series and multiple, the several contact-points of the said switch being provided respectively with a separate magnetic field acting to rupture any arc that may be formed thereat.

12. The combination with an electric switch having a series of points at which the circuit is to be interrupted, of a series of pole-pieces adjacent to the said points respectively, whereby a separate magnetic field may be produced at each point.

13. In a regulator for electrically-driven mechanism the combination with two motors of a switch for connecting them successively in series and multiple, the switch having a series of pairs of contact-plates, the two plates of each pair being respectively provided with a movable insulated connecting-piece by which the circuit is completed or broken through the different pairs respectively.

14. In a switch for making a series of electrical connections the combination with a series of pairs of contact-plates, of a corresponding series of insulated connecting-pieces adapted to connect the two plates of each pair respectively, and magnetic pole-pieces adjacent to the several points of contact between the two plates of each pair.

15. In a switch for making a series of electrical connections the combination with a series of contact-plates of a series of intermediate magnetic pole-pieces, succeeding pole-pieces being of opposite polarity and placed adjacent to the several points at which the circuit is to be interrupted.

16. In an electric circuit-breaker the combination with two contact-plates of an intermediate, movable, insulated connecting-piece, with means for maintaining a magnetic field adjacent to the space separating the two plates.

17. In a regulating-switch the combination of a series of contact-levers with a common actuating device adapted to move the said levers positively in both directions in a predetermined order to establish a series of electrical connections.

18. In a regulator for electrically-propelled mechanism, the combination with two motors of a switch for connecting the motors in series or multiple, said switch consisting of a series of contact-levers provided with a common actuating device for moving the levers in a predetermined order to establish the desired electrical connections.

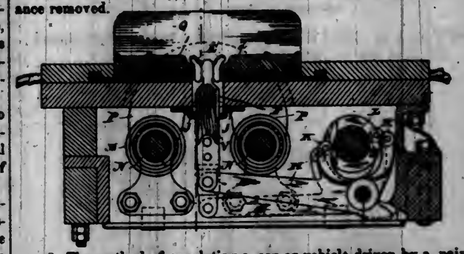
19. In a regulator for electrically-driven mechanism the combination with two motors of a switch to connect the two motors in series or multiple, consisting of a series of pairs of contact-plates, a corresponding series of movable connecting-pieces, one for each of the pairs of plates, and means for actuating the said pieces in a predetermined order to establish the desired electrical connections.

20. In a regulator for electrically-driven mechanism the combination with two motors of a switch for connecting the motors in series or multiple, consisting of a series of contact-plates connected to the motor-terminals, a corresponding series of insulated connecting-pieces with a common actuating device, composed of a series of cams differently placed on a common shaft, so as to engage with and actuate the said pieces in a predetermined order.

587,442. METHOD OF REGULATING ELECTRICALLY-DRIVEN MECHANISM. WALTER H. KNIGHT, Newton, and WILLIAM B. POTTER, Lynn, Mass. Filed May 31, 1892. Serial No. 433,907. (No model.)

Claim.—1. The method of regulating the power and speed of mechanism driven by a plurality of electric motors, which consists in first coupling the motors in series, then shunting a part of the motors and protecting the remaining unshunted part thereof from the increased voltage delivered thereto by, for example, an external resistance, and finally reconnecting the motors in multiple.

2. The method of regulating the power and speed of mechanism driven by a plurality of electric motors, which consists in first coupling the motors in series, then shunting a part of the motors and protecting the remaining unshunted part thereof from the increased voltage delivered thereto by, for example, an external resistance, and finally reconnecting the motors in multiple with the protecting resistance removed.



3. The method of regulating a car or vehicle driven by a pair of electric motors, which consists in connecting the motors in series, shunting one motor while maintaining a circuit through the remaining motor and through a resistance protecting the same, opening the circuit of the shunted motor and connecting the two motors in multiple.

4. The method of regulating the power and speed of mechanism driven by a pair of series-wound electric motors receiving current from a constant potential circuit, which consists in first connecting the motors in series and in circuit with a resistance, then reducing the resistance until it is substantially cut out, then shunting one motor and again making use of the resistance to protect the unshunted motor, then disconnecting the shunted motor from circuit and finally reconnecting the motors in multiple.

5. The method of regulating the power and speed of mechanism driven by two electric motors, which consists in placing them in series with each other and with a resistance, cutting out the resistance, shunting one motor, disconnecting one motor leaving the other in series with a resistance, and connecting the two motors in multiple.

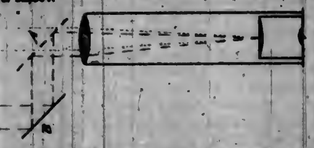
6. The method of regulating the power and speed of mechanism driven by two electric motors, which consists in placing them in series with each other and with a resistance, cutting out the resistance, shunting one motor, disconnecting one motor leaving the other in circuit with a resistance, and finally connecting the two motors in multiple with the resistance removed.

7. The method of changing motors from series to multiple connection, which consists in inserting a resistance, disconnecting one motor so as to leave the other motor in series with the said resistance, and then connecting them both in multiple.

8. The method of changing motors from series to multiple connection which consists in disconnecting one motor from the circuit leaving the other motor in series with a resistance, and then connecting them both in multiple.

9. The method of regulating the power and speed of mechanism driven by two electric motors, which consists in placing the two motors in series for slow speed, and changing them from series to multiple for higher speed by first cutting one motor out of circuit, replacing it by a resistance in series with the other motor, and finally placing the two motors in multiple with the resistance cut out.

587,443. DOUBLE-IMAGE MICROMETER. ALBERT KÖHLER, Jena, Germany, assignor to The Firm Carl Zeiss, same place. Filed May 20, 1897. Serial No. 638,760. (No model.) Patented in Germany Nov. 25, 1896, No. 92,867.



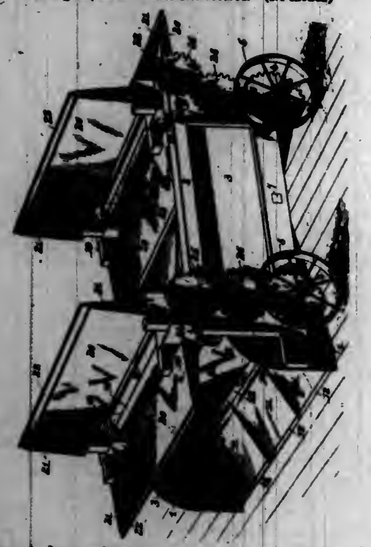
Claim.—1. The combination with a telescope of two surfaces, of which one is both reflecting and translucent and the other only reflecting, the first being arranged before the object-glass and the second aside of the first, this first surface consisting of reflecting and transparent sections arranged alternately, substantially as and for the purpose set forth.

2. The combination with a telescope of two surfaces, of which one is both reflecting and translucent and the other only reflecting, the first being arranged before the object-glass and the second aside

of the first, this first surface consisting of a thin layer of metal, substantially as and for the purpose set forth.

3. The combination with a telescope of two surfaces, of which one is both reflecting and translucent and the other only reflecting, the first being arranged before the object-glass and the second aside of the first, this first surface being situated between two prisms cemented together and shaped so as to present plano-parallel outer surfaces to the rays of light, which pass through them in the direction of the telescope, substantially as and for the purpose set forth.

587,444. MALT-TURNING MACHINE. EDWARD KRAFT, Madera, Pa. Filed Aug. 19, 1896. Serial No. 603,281. (No model.)



Claim.—1. In a malt-turning machine, a traveling scoop-box open at both ends and carrying a shovel sliding on the floor over which the box travels, and a rotating beater-reel working within the box over said shovel, substantially as set forth.

2. In a malt-turning machine, a traveling scoop-box open at both ends and carrying a self-adjusting shovel working on the floor over which the box travels, and a rotating beater-reel mounted within the box over said shovel, substantially as set forth.

3. In a malt-turning machine, a wheeled scoop-box, carrying oppositely-inclined shovels, substantially as set forth.

4. In a malt-turning machine, a wheeled scoop-box carrying oppositely-inclined self-adjusting shovels, and rotating beater-reels mounted within the box over said shovels, substantially as set forth.

5. In a malt-turning machine, a wheeled scoop-box open at both ends, opposite sets of oppositely-inclined self-adjusting shovel-shoes mounted within the box and having their lower ends contacting with the floor over which the box travels, and rotating beater-reels mounted within the box over the opposite sets of shovel-shoes, substantially as set forth.

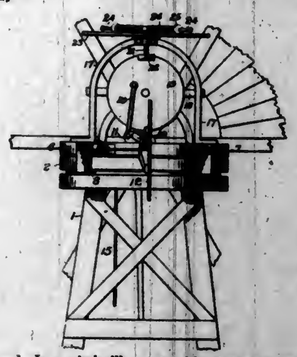
6. In a malt-turning machine, a wheeled scoop-box open at both ends, an inverted-V-shaped crown-plate transversely connecting the opposite sides of the box centrally between their ends, opposite sets of oppositely-inclined self-adjusting shovel-shoes hinged at their inner upper edges, to the opposite edges of said crown-plate, and rotating beater-reels mounted to rotate in the box over the opposite sets of shovel-shoes, substantially as set forth.

7. In a malt-turning machine, a wheeled scoop-box open at both ends, a transverse cross-bar connecting the opposite sides of the box centrally between their ends and carrying rest-cleats at opposite lower sides, an inverted-V-shaped crown-plate supported on said cross-bar, a transverse series of self-adjusting shovel-shoes arranged at an incline at each side of said crown-plate and hinged at their inner upper edges to such plate, said shovel-shoes being provided with beveled lower ends and adapted to engage at their inner ends below their hinges against said rest-cleats, and rotating beater-reels mounted to rotate in the box over the opposite set or series of self-adjusting shovel-shoes, substantially as set forth.

8. In a malt-turning machine, a wheeled scoop-box open at both ends and provided at each end in its opposite sides with transversely-opposite pairs of bearings, the separate bearings of each pair being respectively disposed in different vertical planes and at different elevations, oppositely-inclined shovels mounted within the box, and rotating beater-reels arranged to rotate over the opposite shovels and having their axles interchangeably journaled in either of the different bearings at the ends of the box, the extremities of the reel-axles being geared directly with the wheels supporting the scoop-box, substantially as set forth.

9. In a malt-turning machine, a wheeled scoop-box open at both ends and carrying a shovel adapted to slide on the floor over which the box travels, and a rotating beater-reel journaled in the sides of the box above the shovel and comprising a transverse axle, a series of radial hub-blocks near the ends of the axle, and a series of regularly-spaced radially-disposed beater-wings, each beater-wing comprising a pair of flat plates fitted at their inner edges in the radial hub-blocks and convergently disposed toward their outer edges, and flexible edge strips fitted between said outer edges of the convergently-disposed plates of each beater-wing, substantially as set forth.

587,445. SPEED-REGULATOR FOR WINDMILLS. OSCAR R. LALE, Shawnee, Okla. Filed Sept. 30, 1896. Serial No. 607,487. (No model.)



Claim.—1. In a windmill, a rotatable plate or support carrying the wind-wheel, power-shaft, and pump-rod, a horizontally-arranged table, radial arms mounted above said table and connected with the moving parts of the windmill for rotating the same, rotatable rollers carried by said arms and moving longitudinally thereon, and springs for moving said rollers toward the inner ends of said arms.

2. In a windmill, a rotatable plate or support carrying the wind-wheel, power-shaft and pump-rod, a horizontally-hinged table, an upright shaft mounted upon the frame and passing through said table, gearing between said shaft and a moving part of the windmill for rotating said shaft, radial arms carried by said shaft and situated close to said table, rotatable rollers carried by said arms and moving longitudinally thereon, and springs for moving said rollers toward the inner ends of said arms.

3. In a windmill, a rotatable plate or support carrying the wind-wheel, power-shaft and pump-rod, a rotatable wheel or disk mounted upon a frame secured to said plate or support and connected by means of a link 20 with said pump-rod, gearing between said rod or disk and horizontally-arranged arms 24 to cause the latter to rotate, a table below said arms 24, sliding balls carried by said arms 24, and a spring 26 for moving said balls toward the inner ends of said arms.

587,446. BALL-BEARING. WILLIAM P. LEE, Jackson, Ga. Filed Aug. 26, 1896. Serial No. 604,046. (Model.)



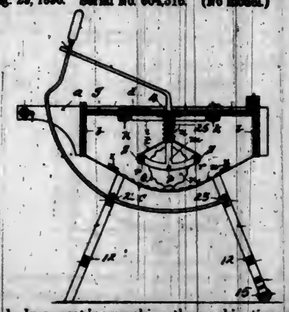
Claim.—1. The combination with the hub-boxing having interior threads, of the sleeve having threads its entire length upon its interior, the right and left threaded ball-cases, and the right and left threaded check-nuts, all substantially as and for the purpose specified.

2. The combination with the threaded spindle, and the hub-boxing having interior threads, the sleeve provided with interior threads and cone-shaped ends, the ball-cases and the check-nuts, all substantially as shown and described.

3. The combination with the spindle having threads and a shoulder at the end of the threads, of the hub-boxing having screw-threads, the sleeve threaded its entire length, the nut on the end of the spindle, the ball-cases right and left threaded, and the right and left threaded nuts, all substantially as and for the purpose specified.

4. The combination of the spindle having screw-threads and a shoulder at the end of said threads, the hub-boxing having interior threads and a keyhole, the sleeve having interior threads and cone-shaped ends and a keyhole, the nut on the end of the spindle, the right and left ball-cases and the right and left check-nuts, all substantially as herein shown and described.

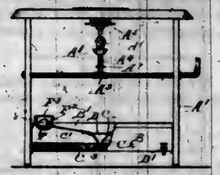
587,447. WASHING-MACHINE. JOSEPH D. LOCKE, Bonan, Iowa. Filed Aug. 29, 1896. Serial No. 604,316. (No model.)



Claim.—1. In a washing-machine, the combination with a receptacle for the clothes, of a frame having a slot and provided with an arm, a pin passing through said slot, a rubber journaled in the frame, and a spring-arm having a free portion in slidable engagement with the arm of the frame.

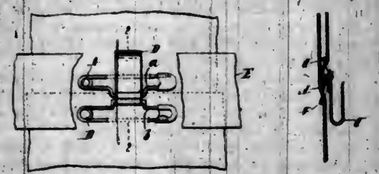
2. In a washing-machine, the combination with a box or tub, of a rubber frame having an arm provided with a slot, a pin passing through the slot, a coil-spring encircling the arm and interposed between the frame and the receptacle, a rubber journaled in the frame, and a spring-operating arm through which the arm of the frame loosely passes.

587,448. DRIP-PAN FOR GASOLENE-STOVES. WILLIAM H. LOOP, Cohoes, N. Y., and WILLIAM J. MEIKLEHAM, Denver, Colo. Filed Feb. 11, 1897. Serial No. 622,897. (No model.)



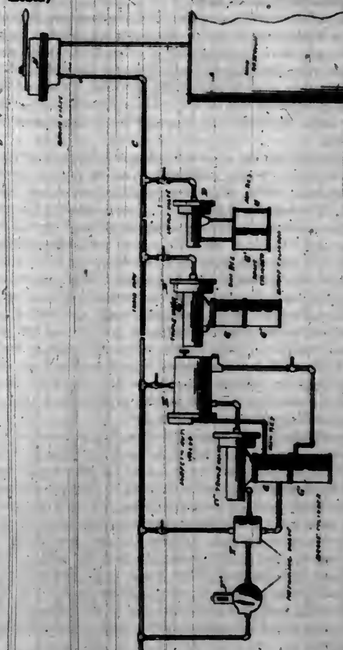
Claim.—In a gasolene-stove, the combination with the burner, of a drip-pan supported beneath the burner, a concaved top for the pan having an inlet-aperture in its lower portion; a finely-meshed metallic screen covering the inlet-aperture; trap mechanism for the inlet-aperture; a valve-case surrounding a vent-aperture in the top of the pan; and a check-valve for closing the vent-aperture, substantially as described.

587,449. FASTENING DEVICE FOR SKIRTS, BELTS, AND WAISTS. IDA L. OLDHAM, Wichita, Kans. Filed Apr. 21, 1897. Serial No. 633,076. (No model.)



Claim.—A fastening device consisting of two separate parts as A, and B, said parts being of the form of ordinary safety-pins, one side of each part being provided with a loop or bend, and one of said loops or bends being provided with a hook as D, said hook being provided with a catch as F, which is secured to the back thereof, substantially as shown and described.

587,450. FLUID-PRESSURE RAILWAY-BRAKE. JOHN GLOSS, Two Harbors, Minn. Filed Apr. 27, 1894. Serial No. 508,810. (No model.)



Claim.—1. A fluid-pressure brake mechanism, comprising an automatic system including the main reservoir, the engineer's brake-valve, the train-pipe, a slow triple valve for the engine, a quicker one on the tender, a still quicker one for the cars, suitable brake-cylinders and auxiliary reservoirs for each triple valve, a retaining-valve connected to the exhaust-port of the triple valve on the cars and a second retaining-valve adjacent to the other retaining-valve to prevent exhaust in recharging the auxiliary cylinder, substantially as set forth.

2. In an air-brake system, an engineer's brake-valve provided with an excess-pressure valve connected by suitable ports to the train-pipe ports, the main reservoir, and to the signal or warning valve; in combination with said signal-valve, which consists of a diaphragm fixed in a suitable concavity in the main valve, with a small valve-stem 22, therein and adapted to be operated by the pressure of the air on the diaphragm, substantially as set forth.

3. In an air-brake system, a triple valve provided with a piston, a graduating spring stop or stem, an inlet-port through a projection on the side of the valve from the train-pipe, a port or passage leading along the cylinder-stem and also to the front of the piston-head, a port through the bushing of the head leading back of the same, inlet and outlet ports from the emergency-valve and main-valve chamber to the auxiliary reservoir and brake-cylinder and a check-valve arranged at the inner end of the port leading from the brake-cylinder, ports underneath the check-valve through the bushing in the cylinder-stem, and an exhaust-port substantially as set forth.

4. In an air-brake system, a triple valve provided with a main piston, a supplemental valve, the piston of which operates at substantially a right angle to the main piston, and which comprises a hemispherical casing with an inlet-port from the train-pipe, a check-valve supported in the top of said casing with ports on each side thereof, a second chamber with the piston therein, the stem of the piston resting on the small valve-seat, the second check-valve adjacent to the auxiliary-valve chamber and having a port leading to the brake-cylinder, a port through the casing of the valve-cylinder, a port leading to the main cylinder-head, inlet and outlet ports to the auxiliary reservoir and brake-cylinder, a check-valve arranged in one of the outlet-ports of the brake-cylinder, and an exhaust-port, substantially as set forth.

5. In an air-brake system, a retaining-valve comprising a cylinder or casing inclosing a double-headed piston with a ∧-shaped spring resting on the stem of the piston and the bow thereof against the inner portion of the cylinder, a weighted valve at the top connected with the valve-casing and communicating with a port therein, two

intersecting check-valves at one side having springs of different power and connecting with the train-pipe and suitable connecting and exhaust ports, substantially as set forth.

6. In an air-brake system, a retaining-valve comprising a cylinder or casing, a double-headed piston therein, a weighted valve on one side of the main valve provided with an exhaust-port, and a port leading from the valve-seat into the main cylinder, two intersecting check-valves at right angles to each other and with springs of different power at the opposite side of the cylinder, a passage along the walls of the cylinder, and a lock for keeping the valve open, substantially as set forth.

7. In an air-brake system, a valve for changing the pressure from automatic to direct, comprising a cylinder or casing with an inside bushing, said cylinder having an internal, annular groove near each end in the body of the same and a series of ports or openings through the bushing into said annular grooves, a suitable piston, a port to the train-pipe, one to the auxiliary reservoir, one to the brake-cylinder, and one to the next adjacent triple valve, substantially as set forth.

8. In an air brake system, a valve for changing the pressure from automatic to direct comprising a cylinder or casing having an inside bushing, an internal annular groove near each end in the body of the cylinder, a series of ports or openings through the bushing into said annular grooves, a suitable piston, a port to the train-pipe, a check-valve above the auxiliary-reservoir port, a port leading from said valve-seat into the main cylinder and a second port above the valve-seat leading to the train-pipe port and suitable ports to the brake-cylinder and triple valve, substantially as set forth.

9. In an air-brake system, a valve for changing the pressure from automatic to direct, comprising a cylinder or casing having an inside bushing, said cylinder having an internal annular groove near each end in the body thereof and a series of ports or openings through the bushing into said grooves, a suitable piston, a port to the train-pipe, a check-valve above the auxiliary-reservoir port, a port leading from said valve-seat into the main cylinder, a second port above the check-valve seat leading to the train-pipe port, an exhaust-port through the head of the main cylinder, a port to the triple valve, a port to the brake-cylinder, a check-valve adjacent to the latter and having ports leading from the check-valve seat to the brake-cylinder port, and from above said valve-seat into the main cylinder, substantially as set forth.

10. In an air-brake system, a valve for changing the pressure from automatic to direct, or vice versa, comprising a cylinder or casing, a double-headed piston therein, a check-valve above the auxiliary-cylinder port, ports therefrom to the main cylinder and train-pipe, a second check-valve adjacent to the brake-cylinder port having ports leading therefrom to the main-cylinder and brake-cylinder port, an exhaust-port in the main cylinder and a port to the train-pipe, substantially as set forth.

11. In an air-brake system, a valve for changing the pressure from automatic to direct or vice versa, comprising a cylinder or casing with an inside bushing, internal grooves near each end of the casing, a series of ports through the bushing into the annular grooves, a double-headed piston in the cylinder, a check-valve above the auxiliary-reservoir port, ports to the main cylinder and train-pipe, a second check-valve adjacent to the brake-cylinder port having ports leading to the main-cylinder and brake-cylinder ports, an exhaust-port in the main cylinder, a port to the train-pipe, and a screw and thumb-nut through one head of the main cylinder for locking it closed, substantially as set forth.

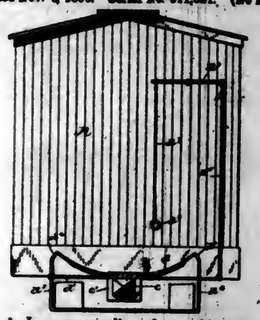
587,451. CURRYCOMB. JAMES D. O'NEILL, Hanover, Canada. Filed Aug. 26, 1896. Serial No. 603,942. (No model.)



Claim.—1. In a currycomb, the combination with a suitable handle, provided with an extension, of cross plates or frames connected with said extension, a suitable frame connected with said cross plates or frames, and a reversible comb mounted in said frame, said comb consisting of a plate or sheet of metal, having reversely-directed flanges, at its opposite ends, and transverse plates secured to both sides thereof, and said frame being provided with a slot in one end, through which one of the flanges on the comb is inserted and means for securing said comb-frame at said remaining end, substantially as shown and described.

2. In a currycomb, the combination with a suitable handle, provided with an extension, of cross plates or frames connected with said extension, a suitable frame connected with said cross plates or frames, and a reversible comb mounted in said frame, said comb consisting of a plate or sheet of metal, having reversely-directed flanges, at its opposite ends, and transverse plates secured to both sides thereof, and said frame being provided with a slot in one end, through which one of the flanges on the comb is inserted, and the transverse plate or frame adjacent to the handle being provided, with a spring-operated plate, by which the end of the comb adjacent thereto, is held in place, substantially as shown and described.

587,452. CAR-COUPLING. WILLIAM GUNNERSEN, Pardeeville, Ky. Filed Nov. 4, 1896. Serial No. 611,021. (No model.)

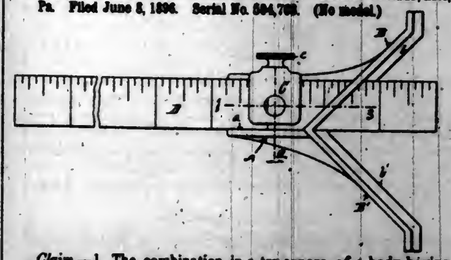


Claim.—1. In a car-coupling, the combination with a socketed draw-head having a vertical slot, of a coupling-pin adapted to be projected through said slot to engage the groove in the link, a pivoted lever carrying said pin, a bow-spring engaging said lever to force the same normally down, a supporting-yoke mounted upon the truck, and pivoted links connecting the upwardly-extending ends of said yoke and the ends of the spring, substantially as described.

2. In a car-coupling, the combination with a socketed draw-head having a vertical slot, of a coupling-pin adapted to be projected through said slot to engage the groove in the link, a pivoted lever carrying said pin, a bow-spring engaging said lever to force said pin normally down, and a supporting-frame mounted upon the truck for supporting the ends of said spring, substantially as described.

3. In a car-coupling, the combination with a socketed draw-head having a vertical slot, of a coupling-pin adapted to be projected through said slot to engage a groove in the link, a pivoted lever carrying said pin, a spring for normally holding said lever down, a pivoted operating-lever mounted upon the car, a link connecting this lever and the before-mentioned lever, and a pendent cord for actuating said operating-lever, substantially as described.

587,458. TRY AND CENTER SQUARE. GEORGE W. REED, Erie, Pa. Filed June 8, 1896. Serial No. 594,769. (No model.)
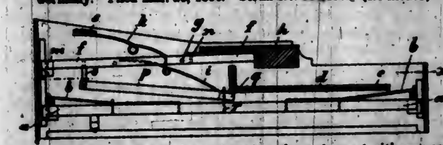


Claim.—1. The combination in a try-square, of a body having arms, the faces whereof are at right angles to each other, a movable tongue or blade extending through a slot in one of said arms, and a clamp, for securing the tongue or blade, adapted to be adjusted transversely to the plane of the faces of the arms on said body, substantially as and for the purpose set forth.

2. The combination in a try-square, of a body, arms on said body at right angles to each other, a tongue or blade adapted to be clamped in said body, and contact-ribs on the central part of the faces of said arms, substantially as and for the purpose set forth.

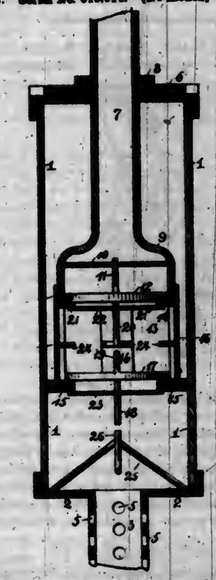
3. The combination in a try-square, of a body A, arms B B' thereon, contact-ribs *b b'* on the faces of said arms, a slot *a'* through one of said arms, a blade-bearing face *a* on the body A, a clamp C, a screw-threaded shank C' thereon, an internally-screw-threaded sleeve E in said body adapted to receive the screw-threaded clamp-shank C', and a tongue or blade D adapted to be secured in said clamp C and extend through the slot *a'*, substantially as and for the purpose set forth.

587,454. ATTACHMENT FOR CITHERNS. PETER REHE, Leipsic, Germany. Filed Mar. 20, 1896. Serial No. 584,159. (No model.)



Claim.—The apparatus for damping the strings of citherns and other similar musical instruments, which consists of a series of keys *h*, intermediate bars *p*, damper-bars *a*, and a pivoted bridge *d*, combined and operating substantially as described with reference to the accompanying drawings.

587,455. PUMP. SAMUEL C. SAWYER, Shiloh, Kans. Filed Jan. 20, 1897. Serial No. 619,911. (No model.)



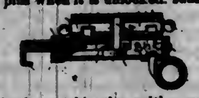
Claim.—1. In a pump, the combination with a stationary and submerged pump-cylinder, of a plunger mounted to reciprocate therein and comprising two automatic valves, a tubular pump-rod connected to said plunger, a tripod arranged in the base of the cylinder, and positive means on the valves and tripod whereby in the lowering of the plunger both of the valves may be simultaneously unseated, substantially as described.

2. In a pump, a pump-cylinder adapted to be submerged and comprising a reduced depending tubular extension forming an annular shoulder at its upper end and closed at its lower end and provided with openings for admitting water to the cylinder, in combination with a plunger reciprocating in said cylinder and connected to and in communication with a tubular pump-rod, means for reciprocating said pump-rod, independently-movable valves controlling the admission of water above the bottom of the plunger, and tripod for simultaneously unseating said valves upon the lowering of the plunger, the tripod being seated on the said annular shoulder, substantially as described.

3. In a pump, a plunger comprising upper and lower rings connected by a series of bars spaced apart to leave lateral openings in the plunger for the passage of water, valves for closing the openings in the upper and lower ends and having upwardly and downwardly extending stems adapted to cooperate, guides engaging said stems for steadying the movement of the valves, stops for limiting the upward movement of said valves, a tubular pump-rod connected to said plunger, and a tripod arranged under and adapted to contact with the stem of the lower valve, substantially as described.

587,456. LOCK. THEODORE H. SCOTT, Washington, D. C. Filed Sept. 1, 1896. Serial No. 604,503. (No model.)

Claim.—1. In a lock, the combination, with a casing provided with an inner and an outer recessed flange, of a series of radially-arranged recessed pins therein, the recesses of the pins being normally out of register with each other, and a recessed portion intermediate the flanges in position to be engaged by the unrecessed portion of the pins when the device is in its locked position and to register with the recesses of the pins when it is unlocked, substantially as set forth.



2. In a lock, the combination, with a casing provided with an outer perforated flange and an inner recessed flange, of a series of radially-arranged interchangeable recessed pins therein, a hub projecting from the casing concentrically within the inner flange, a recessed portion intermediate the flanges and adapted to be engaged by said pins, and means for securing the top of the casing to said hub, substantially as set forth.

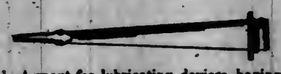
3. In a lock, the combination, with a casing provided with an outer perforated wall and an inner recessed wall, of a series of radially-arranged interchangeable recessed pins therein, a plate provided with a series of radially-arranged spring-leaves in engagement with said pins and adapted to hold them in their adjusted positions, and a recessed portion intermediate said walls, and adapted to register with the recesses in the pins, substantially as set forth.

4. In a lock, the combination, with a casing, of a locking-bolt therein, an oscillating spindle provided with an arm in engagement with the bolt, a plate over the casing provided with an annular recessed flange, a cap upon the spindle provided with an outer and an inner recessed flange, a series of interchangeable pins arranged radially within the cap and adapted to engage with the flanges, and means for securing the cap to the spindle, substantially as set forth.

5. In a lock, the combination, with a casing, of a bolt therein, of a plate provided with a recessed flange, a cap provided with a series of recessed pins, a flexible loop, one end of which is perforated and the opposite end is screw-threaded and projects into the casing, and a nut upon the inner end of the screw, substantially as set forth.

6. In a lock, the combination, with a casing, of a substantially rectangular casing, one end of which is open and the other end is provided with a perforation, a bolt within the casing projecting through the open end and provided with means for engaging with the movable portion of a bicycle, a substantially circular plate provided with diametrically opposite projections, one of which engages with a loop at the open end of the casing, and the opposite end is provided with a perforated flange and fits within the opposite end of the casing, said plate being provided with an annular recessed flange, a screw through the end of the casing into the flange, a cap upon the plate provided with radially-arranged recessed pins, a spindle secured to the shaft and projecting into the casing, the lower end of which is provided with means for engaging with the bolt, a flexible loop, one end of which is provided with a screw and projects through the other end and is secured within the casing, substantially as set forth.

587,457. OIL-CAN. BENJAMIN F. SHEPHERD, Meadon, Ill. Filed Oct. 16, 1895. Renewed Jan. 6, 1897. Serial No. 618,493. (No model.)



Claim.—1. A spout for lubricating devices, having a fixed end portion terminating in a cleaning-point, and having an outlet for the escape of the lubricant, and provided with feed-grooves extending from the said outlet along the said end portion to the extremity thereof, and a guard extending over and spanning the aforesaid outlet, substantially as and for the purpose specified.

2. A spout or nozzle for lubricating devices, having its end portion flattened to form a cleaning-point, and having an outlet in its side at the base of the flattened portion for the escape of the lubricant, feed grooves or channels extending along the flattened sides, and a guard extending over and spanning the aforesaid outlet, substantially as and for the purpose set forth.

3. A spout or nozzle for lubricating devices, having a cleaning-point and provided with an outlet a short distance from the cleaning-point, and a guard extending over and spanning the said outlet and touching the nozzle on opposite sides of and arched at a point directly opposite the said outlet, substantially as shown and for the purpose described.

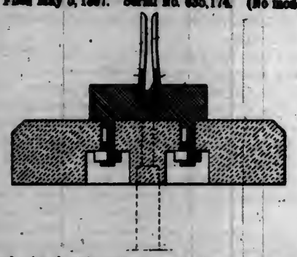
4. The combination with a spout or nozzle for lubricating devices, having a cleaning-point and an outlet a short distance from the cleaning-point, of strips secured to the end portion of the spout and having spaces between their longitudinal edges to provide feed grooves or channels for conveying the lubricant from the outlet to the point of the spout, substantially as specified.

5. The combination with a spout or nozzle having a cleaning-

point and an outlet in its side, of strips secured to the sides of the spout and spaced apart at their longitudinal edges to form feed grooves or channels, and having one or both of the strips extending over the outlet to provide a guard, substantially as described.

6. The combination with a spout or nozzle of the character specified, having a cleaning-point and a side outlet, of a casing secured upon the spout and having its end portion cut away upon opposite sides, forming strip-like portions which extend over the said outlet and form feed grooves or channels between their longitudinal edges, substantially in the manner set forth for the purpose described.

587,458. ELECTRIC SWITCH. HERBERT W. SMITH, Pittsfield, Mass., assignor to the Stanley Electric Manufacturing Company, same place. Filed May 5, 1897. Serial No. 635,174. (No model.)

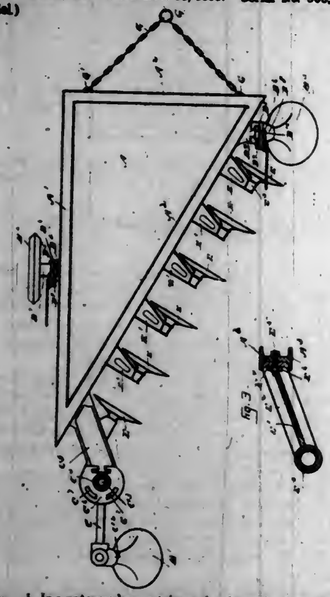


Claim.—1. An electric-switch terminal, comprising a block, an undercut recess therein, a contact-plate bent to correspond substantially with said recess, and a pin adjacent the bend and within said recess to secure the plate in place in said recess.

2. An electric-switch terminal, comprising a block, an undercut recess therein, a contact-plate bent substantially midway in its length to correspond with the recess and a pin within the bend of said plate to secure the same in place in said recess.

3. An electric-switch terminal, comprising a block, a tapering undercut recess therein, a contact-plate bent to correspond substantially with said recess, and a pin within said recess to secure said plate in place.

587,459. ROTARY PLOW. GEORGE SPALDING and JOHN S. ROBBINS, Stockton, Cal. Filed Nov. 11, 1895. Serial No. 568,599. (No model.)



Claim.—1. In a rotary plow, a triangular frame having the one side set at an angle to the line of draft to form a disk-carrying beam, and another side set parallel to the line of draft forward of the inner end of the disk-beam, in combination with rotary plowing-disks set along the said disk-beam, three wheels, two of which are mounted on the disk-beam and are adapted to track in the furrows, and the third mounted on the land-beam to track on the solid land, and suitable means for attaching the wheel at different points on the land-beam that it may be adjusted lengthwise the said land-beam without changing the height of the frame from the ground, substantially as described, whereby the depth of the furrows next the land side may be regulated.

2. In a rotary plow the combination with a disk-shaped wheel, of supplemental filling-weights adapted to fit within the hollow of the said wheel, and fastenings to hold the said weights in position, substantially as described.

3. In a rotary plow, cutting-disks mounted in brackets, in combination with a channeled disk-carrying beam set at an angle to the line of draft of the plow, and provided with different sets of perforations at equal distances apart in unequal divisions of the said beam for the adjustment of the disk-brackets, and fastening devices extended through the perforations in the said beam and in the said brackets, adapted to draw the brackets into the channel of the beam between the flanges thereof, substantially as described.

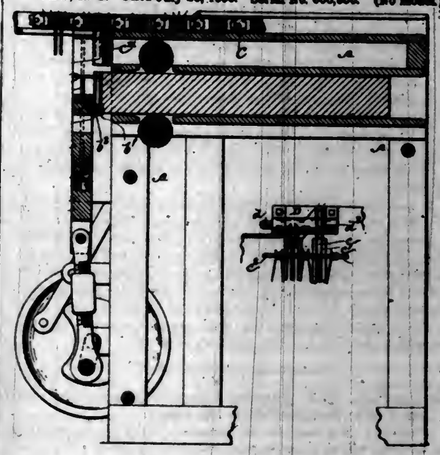
587,460. SUNSHADE. CATHARINE M. SPEER, Port Gibson, Miss. Filed Nov. 16, 1896. Serial No. 612,906. (No model.)



Claim.—1. In a bicycle-sunshade, a belt adapted to fit the waist of the wearer, supports extending outward radially therefrom and in the plane of the belt to the front and rear thereof, upwardly-bent portions upon said supports, and a canopy-top held thereon.

2. In a bicycle-sunshade, a belt adapted to fit the waist of the wearer, supports extending outward radially therefrom and in the plane of the belt to the front and rear thereof, whereby supports extending upward therefrom may be held clear of the body, upwardly-bent portions upon said supports having a forked upper end whereby the line of vision in front of the wearer is kept clear, said upright supports being extended over and diverging outward from the wearer, a pair of ribs running longitudinally of said supports and adapted to fall down by the force of gravity when said device is worn, and fabric connecting these ribs, substantially as and for the purposes described.

587,461. MATCH-MAKING MACHINE. BERNARD T. STEBER, Utica, N. Y. Filed July 23, 1896. Serial No. 600,860. (No model.)



Claim.—1. A cutter or die for a match-splint machine comprising a plurality of suitably-spaced hollow punches or cutters arranged alternately in different planes parallel with the movement of said cutters, the cutters in one set filling the spaces between those in the other set, and cutting a plurality of rows of splints at one operation, substantially as described.

2. A cutter or die for a match-splint machine comprising a plurality of suitably-spaced cutters of the type described, arranged alternately in different planes parallel with the movement of the cutters and having their cutting edges all in the same plane, the cutters in one set filling or being opposite the spaces between those in the other set, and cutting a plurality of rows of match-splints at one operation, substantially as described.

3. In a match-making machine, the combination of a plurality of suitably-spaced cutters arranged alternately in different planes parallel with the movement of said cutters, the cutters in one set filling the spaces between those in the other set, and cutting a plurality of rows of splints at one operation, and an endless carrier provided with means for holding said splints, substantially as set forth.

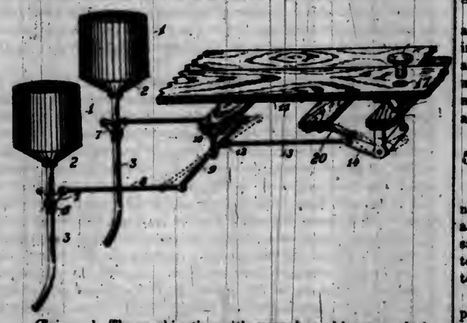
4. In a match-making machine, the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, and cut a plurality of rows of splints at one operation, an endless carrier provided with means for holding said splints composed of opposing slats and a cam provided with a plurality of flanges for simultaneously opening a plurality of slats to receive the splints and positively feeding said endless carrier, substantially as described.

5. In a match-making machine the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, an endless splint-carrier composed of sections linked together and each comprising three slats applied side by side and a cam having flanges provided with oppositely-thickened portions adapted to separate the two outer slats from the middle slat so that the splints may be forced between said slats, substantially as described.

6. In a match-making machine the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, a carrier having clamping-slats, and a womb for guiding the splints cut by the cutter and provided with two sets of guiding-grooves one set being deeper than the other whereby the splints are adapted to be guided between different slats, substantially as described.

7. In a match-making machine the combination with a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, an endless splint-carrier composed of sections linked together and each comprising three slats applied side by side, the middle one being fixed and the outer ones being movable and yielding means for holding said outer slats against the middle one whereby the splints may be placed and held between the said slats, substantially as described.

587,462. SAND-BOX. FRANK H. STUART, St. Johnsbury, Vt. Filed Nov. 23, 1896. Serial No. 613,221. (No model.)

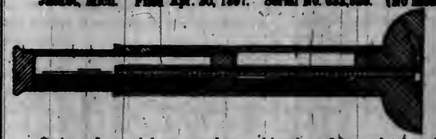


Claim.—1. The combination with spaced sand-boxes, and pipes for conducting sand therefrom to the rails, of valves for opening and closing said pipes, a lever fulcrumed intermediate its ends, connections between the ends of said lever and cranks on the valves, a presser-foot, and connection between said presser-foot and lever, substantially as described.

2. The combination with spaced sand-boxes, and pipes for conducting sand therefrom to the rails, of valves for opening and closing said pipes, having reversely-disposed operating-cranks, a lever fulcrumed intermediate its ends, connections between the ends of said lever and said cranks, a presser-foot adapted to be actuated by the foot of the operator, and connections between said presser-foot and lever, all arranged substantially as and for the purpose described.

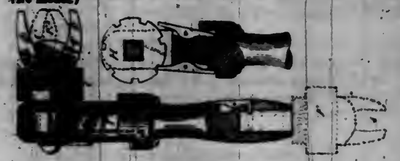
3. The combination with a car, of sand-boxes arranged within the same and provided with pipes leading through the bottom of the car to points immediately over the rails and in advance of the traction-wheels, valves for opening and closing said pipes, a lever fulcrumed intermediate its ends and operatively connected to said valves for simultaneously operating them, an elbow-lever fulcrumed beneath the car-platform, a connection between said elbow-lever and valve-operating lever, a depressible plunger connected to said elbow-lever and extending through the car-platform, and a spring bearing against said elbow-lever for returning the same to its normal position and closing the valves, all arranged for joint operation, substantially as described.

587,463. EXTENSION MINING-POST. JOHN J. SULLIVAN, Red Jacket, Mich. Filed Apr. 20, 1897. Serial No. 632,980. (No model.)



Claim.—In a mining-post, the combination of a standard having a base with a series of radial lugs thereon and a central recess, a movable section mounted in the said standard and having grooves in the opposite side of the same, a sleeve on the said movable section, a collar surrounding the upper part of the standard, said standard, collar and sleeve having inwardly-extending tongues to engage the opposite grooves of the said movable section, a screw extending upwardly through the base of the standard into the movable section, and a key having an arm and adapted to be fitted over the head of the screw and lock the same against movement, substantially as and for the purposes specified.

587,464. RATCHET-WRENCH. CLARENCE E. SWICK and JOHN M. REID, Springwater, Oreg. Filed Apr. 15, 1896. Serial No. 588,412. (No model.)



Claim.—1. In a ratchet-wrench, a head having recesses with curved walls, a jaw seated in each recess and having opposite curved surfaces rocking on said walls, springs tending to open said jaws, a collar adjustably mounted on said head, holding the base of the jaws in engagement with said head, and adapted to urge the jaws together, substantially as set forth.

2. In a ratchet-wrench, a head having recesses with curved walls, a jaw seated in each recess and having opposite curved surfaces rocking on said walls, springs tending to open said jaws, a collar adjustably mounted on said head, holding the base of the jaws in engagement with said head, and adapted to urge the jaws together, and means for operating said wrench-head to turn the nut, substantially as described.

587,465. ELECTRIC-ARC LAMP. EDWIN F. TAYLOR, West Chester, Pa. Filed Mar. 18, 1896. Serial No. 583,666. (No model.)

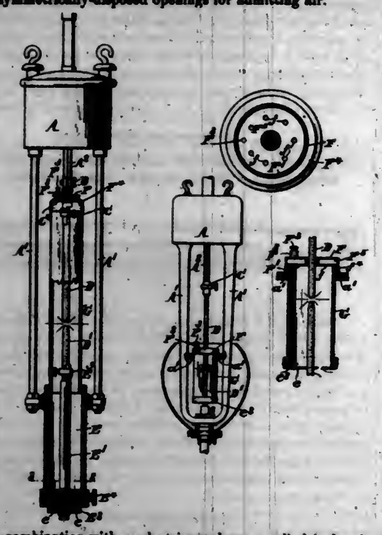
Claim.—1. A chimney for electric-arc lamps having in combination a plate as F' adapted to close its top said plate having orifices as *f* symmetrically disposed about its center, a chamber F⁶ into which said orifices open, an escape-passage F² leading from said chamber to the air, and means for closing the bottom of the chimney adapted to have only a contracted opening thereto.

2. A chimney for electric-arc lamps having in combination a plate as F' adapted to close its top said plate having orifices as *f* symmetrically disposed about its center, a chamber F⁶ into which said orifices open, an escape-passage as F² leading from said chamber to the air, a valve for regulating said passage, and means for closing the bottom of the chimney adapted to have only a contracted opening thereto.

3. A chamber for electric-arc lamps having in combination a plate as F' adapted to close its top said plate having orifices as *f* symmetrically disposed about its center, a chamber F⁶ into which said orifices open, an escape-passage as F² leading from said chamber to the air and so disposed as not to come opposite to any of orifices *f*, a valve for regulating said passage, and means for closing the bottom of the chimney adapted to have only a contracted opening thereto.

4. A chimney for electric-arc lamps having in combination a

plate as F' adapted to close its top, said plate having orifices as *f* symmetrically disposed about its center, a chamber F⁵ into which said orifices open, an escape-passage as F⁶ leading from said chamber to the air, and means for closing the bottom of the chimney having restricted symmetrically-disposed openings for admitting air.



5. In combination with an electric-arc lamp, a cylindrical casing E secured to the base of the lamp-frame, a chimney fitting in said casing E and secured to the feed-rod of the upper carbon had a restricted opening in the top of said chimney.

587,466. ANIMAL-GUARD. ISAAC B. TAYLOR, Ellensburg, Wash., assignor of one-half to S. T. Packwood, same place. Filed May 15, 1896. Serial No. 591,650. (No model.)

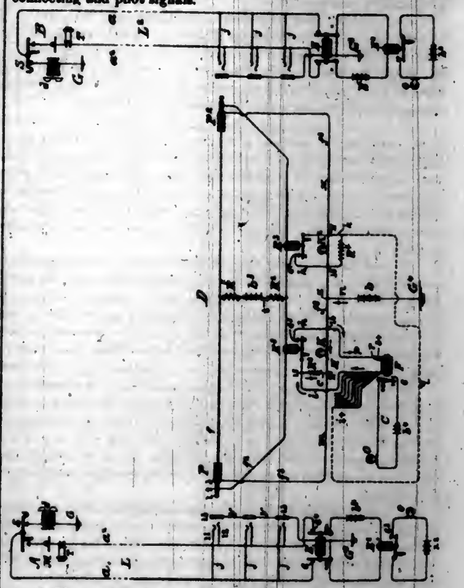


Claim.—The device described for preventing animals from passing through wire fences consisting essentially of the loop or ring 1, adapted to be secured in the animal's nose and loosely receive the lower portion of its muzzle and formed by the lower and upper sections 2, 3, provided with eyes at their ends and the links engaging the eyes and loosely connecting the said sections, the hook having an eye at its upper end and the link engaging said eye of the hook and loosely receiving the lower section 2, of the loop or ring, substantially as and for the purpose set forth.

587,467. TELEPHONE CENTRAL-STATION SIGNALING-CIRCUIT. GEORGE K. THOMPSON, Malden, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed May 25, 1897. Serial No. 638,062. (No model.)

Claim.—1. The combination in a telephone central-station apparatus, of a series or group of connecting cords or conductors, a corresponding series of disconnecting lamp-signals, a shunt-circuit round each signal, an electromagnetic switch controlling each shunt-circuit, and a common supplementary or pilot signal in an auxiliary local circuit, with a relay controlling such auxiliary local circuit and pilot-lamp, and wound with a plurality of exciting-coils, associated with the said cords and disconnecting-signals respectively, the said coils or windings being each connected in parallel with its associated lamp, and sustaining like relations with said lamp to the shunt-circuit thereof, and its controlling-switch, substantially as described.

2. In a telephone central-station switchboard apparatus, the combination substantially as hereinbefore described, of a group or series of local signal-circuits; a disconnecting lamp-signal in each; an auxiliary local signal-circuit; a supplementary or pilot signal common to the said series of circuits and lamps contained therein; a relay controlling the said auxiliary circuit and pilot-signal, and wound with a plurality of independent magnetizing-coils each associated and connected in parallel with a corresponding one of said disconnecting lamp-signals; a shunt-circuit round each of the said signals and its associated relay-coil; and a main-line relay for each of the said shunt-circuits, forming an electromagnetic switch adapted to open and close the same, and thereby control the display and withdrawal of the disconnecting and pilot signals.



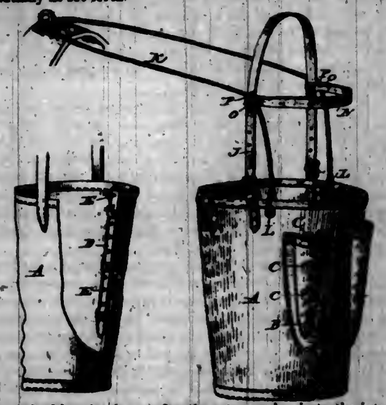
3. The combination in a telephone central-station switching apparatus, with a plurality or group of disconnecting-signal circuits; a lamp-signal in each; a low-resistance shunt-circuit about each signal; and a switch controlling said shunt; of a supplementary signal, common to and adapted to operate with each and all of the said group of disconnecting-signals and their circuits, included in an auxiliary signal-circuit; and a relay controlling such auxiliary circuit and signal, and wound with a number of exciting-coils of equal resistance, the said windings being included in a second and permanently-closed shunt-circuit of their associated disconnecting signal-lamps respectively; substantially as described.

4. The combination in a telephone central station of a series or group of plug and cord switchboard-conductors two disconnecting signal-lamps for each conductor, one associated with each terminal plug to respond to signal from a line connected therewith; and two shunt-circuits round each lamp, one being of low resistance and controlled by an electromagnetic switch, and the other permanently closed and containing a coil having a resistance relatively high to that of the said lamp; with an associated auxiliary circuit and pilot-signal; and a controlling-relay therefor, having a number of exciting-coils, each interposed in the said permanently-closed shunt-circuit of some one of the said disconnecting lamp-signals, and constituting the said coil of relatively high resistance, whereby the pilot-signal is enabled to operate on the operation of any or each of the said disconnecting-signals, and whereby the continuity of the lamp-signal circuit is maintained; substantially as set forth.

587,468. FEED-BAG. ALFRED W. TOOLEY, Bedford, England. Filed Feb. 10, 1896. Serial No. 578,777. (No model.)

Claim.—1. A feed-bag for horses capable of containing dry or liquid food, and means within said bag for conveying air to the interior thereof, substantially as set forth.

2. In combination, a feed-bag, an air-tube extending vertically and secured against the inner side of said bag, said tube being closed at its lower end, open at its upper end, and having apertures along its length, communicating only with the interior of the bag, together with a suspending-strap connected to the bag, guideways upon said strap, and a cord passing through said guideways and connected to the bag, the said cord being connected to a portion of the harness, substantially as set forth.

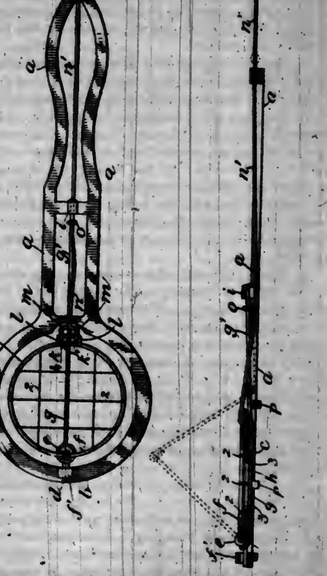


6. A feed-bag having perforations to supply air to the interior thereof, and means enabling the air to be received at a point adjacent to the top of said bag, and to be conveyed to the interior of the bag at various lower points, substantially as set forth.

587,469. INSECTICIDE. WILLIAM WALLACE, Colorado Springs, Colo. Filed Apr. 2, 1896. Serial No. 585,981. (No specimens.)

Claim.—The herein-described compound, comprising sulfur, ozrate of beeswax, stearic wax, and gum asafetida.

587,470. BROILER OR TOASTER. MARTHA H. BIBLE, New York, N. Y. Filed Apr. 20, 1896. Serial No. 588,947. (No model.)



Claim.—In a broiler the combination with the frame of the broiler, the push-rod, the hinged cover linked to said push-rod, the rod *g'* connected with the broiler and carrying said push-rod by means of the link or loop connection substantially as shown and described.

587,471. LAMP-CHIMNEY HOLDER. WARREN L. BRADCOCK, Amesbury, Mass. Filed May 25, 1896. Serial No. 592,590. (No model.)

Claim.—1. The combination with the burner-flange *b* of the hood *a* and ring b^3 pivotally connected therewith at points away from each other, the said ring b^3 being provided with chimney-holding arms and being connected with said hood whereby both may be tilted together.



2. The combination with the burner-flange *b* of the hood *a* and ring b^3 pivotally connected therewith at points away from each other, the said ring b^3 being provided with chimney-holding arms and with the tongue b^4 extending into an opening of the hood, substantially as described.

3. The combination with the burner-flange *b*, of the hood *a* and ring b^3 pivotally connected therewith, the said ring b^3 being connected with the hood whereby both may be tilted together, and the ring being provided with a fixed elastic arm or arms and a hinged arm or arms, said arms being adapted to hold a chimney.

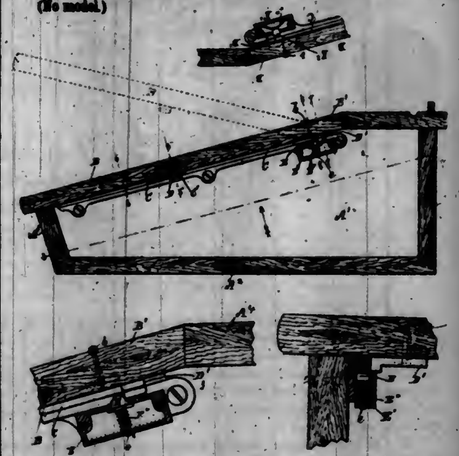
587,472. NEEDLE FOR JACQUARD LOOMS. ERWIN BOTHAM, Worcester, Mass. Filed Jan. 28, 1897. Serial No. 620,248. (No model.)

Claim.—1. A wire heddle for Jacquard looms, having an eye or loop at its upper end, a heddle-eye intermediate its ends, and a loop or eye at its lower end, and a tube thereon to secure the lower ends of the wire to the main portion or body of the heddle, substantially as shown and described.

2. The combination with a wire heddle for Jacquard looms, having an eye or loop at its upper end, of a tube on its lower end, through which the free ends of the wire extend, and are bent over the upper edge of the tube, to secure it in place on the wire heddle, and form an eye or loop at the lower end thereof for the lingo, substantially as shown and described.

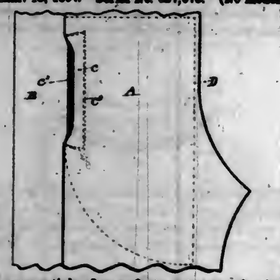
3. The combination with a wire heddle for Jacquard looms, having an eye or loop at its upper end, a heddle-eye intermediate its ends, and a loop or eye at its lower end, of a tube mounted or strung on the wire heddle just above said loop or eye, and secured thereon by bending the free ends of the wire strands over the upper edge of said tube, substantially as shown and described.

587,473. DESK. JAMES H. BUTLER, Somerville, and LEANDER B. COSS, Everett, Mass., assignors to the Chandler Adjustable Chair and Desk Company, Boston, Mass. Filed Mar. 31, 1897. Serial No. 630,071. (No model.)



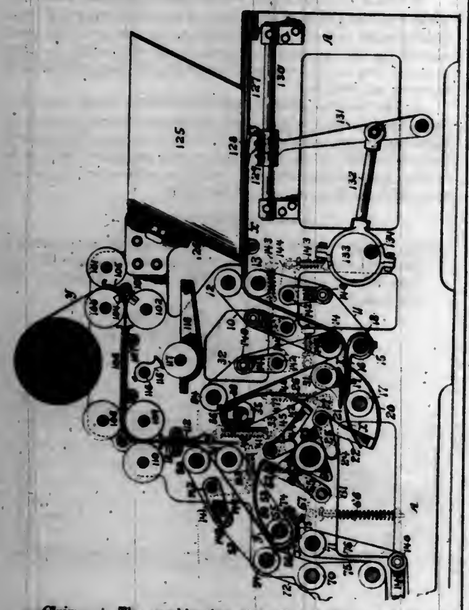
Claim.—In combination with a desk a two-part hinged and longitudinally-adjustable sliding lid, stationary guide-ribs secured to the desk-body, and having cut-away notches arranged opposite to the lower catches secured to the lid and upper catches permanently engaging said guide-ribs and an automatic yielding locking device for locking the lid to the desk-body when said lid is moved to its normal rear position substantially as and for the purpose set forth.

587,474. TROUSERS-POCKET. JAMES M. CROSLEY, Browton, Ala. Filed Mar. 15, 1897. Serial No. 627,673. (No model.)



Claim.—As a new article of manufacture, trouser having a pocket consisting of a piece of suitable material forming the body of the pocket, facings formed integrally with and projecting from the outer edges of the front and rear parts of the trousers, said body portion secured to the inner sides of said facings along the outer edge thereof, the facing of said front part folded inwardly along its junction with the main body of the front part and there sewed to said body, and the facing of said rear part of the trousers unfolded and unstitched at its junction with the main body of said rear part, substantially as and for the purpose described.

587,475. FOLDING AND WRAPPING MACHINE. LUTHER G. CROWELL, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed July 17, 1896. Serial No. 599,504. (No model.)



Claim.—1. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the paper, pressing devices, and a reciprocating folding-blade actuated to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, substantially as described.

2. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper, pressing devices, and a reciprocating folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, substantially as described.

3. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and an abutment coacting with the folding-blade and operating to draw the wrapper tightly about the paper, substantially as described.

4. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and a moving abutment coacting with the folding-blade and operating to draw the wrapper tightly about the paper, substantially as described.

5. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll, means for turning the paper around said roll, pressing devices, and a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, substantially as described.

6. The combination with feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll, a deflecting-guide for turning the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

7. The combination with feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll, a deflecting-guide for turning the paper around said roll, a stop for limiting the advance of the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

8. The combination with feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll, a deflecting-guide for turning the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, a moving abutment coacting with the folding-blade and operating to draw the wrapper tightly about the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

9. The combination with feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll, a deflecting-guide for turning the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, a tape or tapes coacting with the folding-blade and operating to draw the wrapper tightly about the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

10. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll and a feeding tape or tapes coacting with said roll and tending to contact therewith, pressing devices, and a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, substantially as described.

11. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll and a feeding tape or tapes coacting with said roll and tending to contact therewith, a deflecting-guide arranged to turn the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

12. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a feeding-roll and a feeding tape or tapes coacting with said roll and tending to contact therewith, a deflecting-guide arranged to turn the paper around said roll, pressing devices, a folding-blade actuated to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, an abutment coacting with the folding-blade and operating to draw the wrapper tightly about the paper, and means for retracting the deflecting-guide for the advance of the folding-blade, substantially as described.

13. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including a sectional feeding-roll, means for turning the paper around said roll, pressing devices, and a sectional folding-blade which is advanced between the sections of said feeding-roll to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, substantially as described.

14. The combination of feeding devices advancing the paper with the wrapper overlapping the leading end of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper and including the sectional feeding-roll 55, the roll 54 and the tapes 52, means for turning the paper around the roll 55, pressing devices, the sectional curved folding-blade 60 which is advanced between the sections of the roll 55 to engage the rear end of the paper and to transfer the paper without folding from the feeding to the pressing devices and simultaneously fold the wrapper over the end of the paper, and the belts 72 passing around the roll 54, substantially as described.

15. The combination of feeding devices including a feeding-roll, a deflecting-guide for turning the paper around said roll arranged to be withdrawn concentrically about said roll for the advance of the folding-blade, pressing devices, and a folding-blade arranged to transfer the paper substantially in the line of its former movement to the pressing devices, substantially as described.

16. The combination of feeding devices including a sectional feeding-roll, a deflecting-guide for turning the paper around said roll arranged to be withdrawn concentrically about said roll for the advance of the folding-blade, pressing devices, and a reciprocating sectional folding-blade arranged to transfer the paper substantially in the line of its former movement to the pressing devices, substantially as described.

17. The combination with a sectional feeding-roll free to turn on its shaft and means for driving said roll, of a deflecting-guide carried by said shaft, a reciprocating sectional folding-blade mounted to advance between the sections of the feeding-roll, and means for rocking said shaft to carry the deflecting-guide out of the path of the folding-blade as the folding-blade is advanced, substantially as described.

18. The combination with a sectional feeding-roll, of a deflecting-guide, a reciprocating sectional folding-blade mounted to advance between the sections of the feeding-roll, and means for withdrawing the deflecting-guide concentrically about the feeding-roll as the folding-blade is advanced, substantially as described.

19. The combination of a sectional feeding-roll 55 free to turn on a shaft 58, feeding-tapes 53 passing around said roll 55, other feeding-tapes 52 under tension to contact with the tapes 53 on said roll 55, a deflecting-guide 56 carried by the shaft 58, a sectional folding-blade 60, and means for rocking the shaft 58 as the folding-blade is advanced to carry the deflecting-guide out of the path of the folding-blade, substantially as described.

20. The combination with feeding devices including a sectional feeding-roll 55, of a deflecting-guide 56 arranged to be withdrawn concentrically about said roll before the advance of the folding-blade and having its rear edge slotted, supporting-fingers 73, and a reciprocating sectional folding-blade 60, substantially as described.

21. The combination of a series of sets of pressing and feeding devices arranged to advance the paper substantially in the line of the circumference of a circle, and a series of folding-blades arranged to transfer the paper from the feeding devices to the next succeeding pressing and feeding devices, substantially as described.

22. The combination of a series of sets of pressing and feeding devices arranged to advance the paper substantially in the line of the circumference of a circle, each set including two pairs of rolls, each pair placed radially of such circle, and feeding-tapes passing around the outermost roll of both pairs, and a series of folding-blades arranged to transfer the paper from the feeding devices to the next succeeding pressing and feeding devices, substantially as described.

23. The combination of a series of sets of pressing and feeding devices arranged to advance the paper substantially in the line of the circumference of a circle, each set including two pairs of rolls, each pair placed radially of such circle, and feeding-tapes passing around the outermost roll of both pairs, and a series of curved folding-blades pivoted within said circle and arranged to transfer the paper from the feeding devices to the next succeeding pressing and feeding devices, substantially as described.

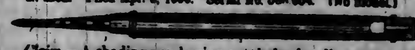
24. The combination of a series of pairs of rolls, as 14 and 34, 34 and 35, 50 and 51, 54 and 55, 70 and 71, arranged radially and substantially in the line of the circumference of a circle, tapes 32 and 33 passing around the rolls 14 and 34 and 34 and 35 respectively, and tapes 52 and 53 passing around the rolls 50 and 54 and 51 and 55 respectively, and a series of curved folding-blades arranged to transfer the paper from the rolls 34 and 35 to the rolls 50 and 51 and from the rolls 54 and 55 to the rolls 70 and 71, substantially as described.

25. The combination with a central cam-shaft, of a series of pressing devices arranged about said shaft, a series of feeding devices arranged to advance the paper from the pressing devices substantially in the line of a circumference about said shaft, and a series of folding-blades controlled by said cam-shaft and arranged to engage the paper on the fold-line and transfer it from the feeding devices to the next succeeding pressing devices, substantially as described.

26. The combination with a central cam-shaft, of a series of pressing devices arranged about said shaft and at about equal distances therefrom, a series of feeding devices arranged to advance the paper from the pressing devices substantially in the line of a circumference about said shaft and each of which includes a feeding-roll and a deflecting-guide for turning the paper around said roll, a series of folding-blades controlled by said cam-shaft and arranged to engage the paper on the fold-line and transfer it from the feeding devices substantially in the line of a circumference about said shaft to the next succeeding pressing devices, and means controlled by said cam-shaft for retracting the deflecting-guides for the advance of the folding-blades, substantially as described.

27. The combination with a central cam-shaft, of a series of pressing devices arranged about said shaft, a series of feeding devices arranged to advance the paper from the pressing devices substantially in the line of a circumference about said shaft, a series of folding-blades controlled by said cam-shaft and which folding-blades, except the last one of the series, are arranged to engage the paper on the fold-line and transfer it from the feeding devices substantially in the line of a circumference about said shaft to the next succeeding pressing devices, means for associating a wrapper with the paper so that it shall be advanced to the last folding-blade with the wrapper overlapping the leading ends of the paper and projecting behind the paper sufficiently to overlap on the layer of wrapper on the paper, and said last folding-blade being arranged to engage the rear end of the paper and to transfer the paper and wrapper to the final pressing devices, substantially as described.

587,476. SHADING-PEN. WILLIAM G. DENNIS, Albuquerque, N. Mex. Filed Apr. 8, 1896. Serial No. 586,654. (No model.)

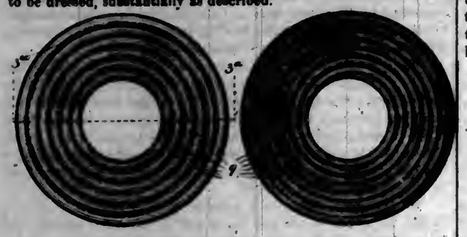


Claim.—A shading-pen having a tubular handle or reservoir, a screw-threaded extension engaging one end of the same, a revoluble cap or cover secured to said extension, said extension being provided with an opening therein, a screw-threaded plug engaging the opposite end of the said handle, and an annular shoulder formed thereon, a screw-threaded tube mounted in said plug and projecting outwardly therefrom and having a flat outer end, the side walls of said end being beveled or inclined, steel plates secured to said walls at the outer end, the inner ends of said plates being beveled and the outer end projecting beyond said tube and brought together at their extreme point, the said extreme end being narrower than said plates, a spring secured between the said plate extensions and engaging at one end of said spring one side of said tube, all of the said parts being combined substantially as described.

587,477. ART OF MACHINING CASTINGS. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed May 20, 1896. Serial No. 593,067. (No model.)

Claim.—The method of machining or dressing castings which consists in casting the face to be dressed with corrugations ribs or projections thereon, and then removing said ribs or projections by subjecting a plurality thereof to the action of a broad-edged cutting-

tool acting from the top downward in a plane parallel with the face to be dressed, substantially as described.



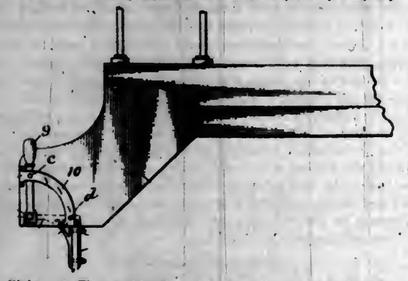
587,478. NIPPLE-HOLDER. OSBORN B. HALL, Malden, Mass. Filed Feb. 17, 1896. Serial No. 579,531. (No model.)



Claim.—1. A divided holder A, the two halves of which have a semicircular cut of unequal depth across their meeting faces provided with reverse threads, and thus formed to correspond when united with the threaded nipple ends *z*, *z*, to be held therein; and suitable means for detachably uniting said halves to form the complete holder for the purpose specified.

2. A two-part nipple-holder A, united by dowel-pins *b*, and threaded through the center with opposite right and left threads adapted to receive and hold the threaded ends *z*, *z*, of two partially-threaded close nipples, while properly presenting their opposite uncut ends *a*, *a*, to be simultaneously acted upon and threaded, substantially as specified.

587,479. FOLDING CAR-STEP. SAMUEL R. HAMILTON, Farmersville, Tex. Filed May 11, 1897. Serial No. 636,053. (No model.)

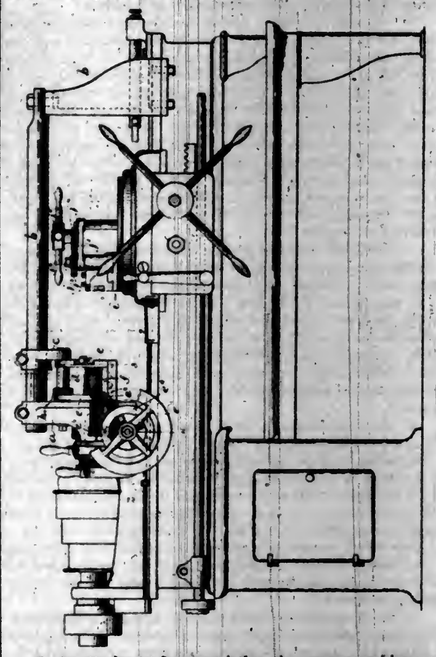


Claim.—1. The combination with the ordinary steps of a railway-car, of a shaft journaled thereto, said shaft having a square end, two of the opposite sides of which are beveled, a supplemental step fixed to said shaft, a bracket secured to one of the sides of the ordinary steps and provided with holes near its ends, a lever fitted to the square ends of said shaft and having a laterally-rocking movement, said lever being provided with a stud to engage the holes in the bracket and lock the step in desired position, and a spring secured to the bracket for rocking the lever laterally and forcing the stud into the holes, substantially as set forth.

2. The combination with the ordinary steps of a railway-car, of a shaft journaled thereto, said shaft having a square end, two of the opposite sides of which are beveled, a supplemental step fixed to said shaft, a bracket secured to one of the sides of the ordinary steps and provided with square holes near its ends, said holes having shoulders, a lever fitted to the square ends of said shaft and having a laterally-rocking movement, said lever being provided with a stud to engage the holes in the bracket, said stud being provided with an undercut to form lateral shoulders to engage the shoulders of the holes, and a spring secured to said bracket for forcing the lever laterally and the stud into the holes of the bracket, substantially as set forth.

587,480. ATTACHMENT FOR TURRET-LATHES. JAMES HARTNESS, Springfield, Vt. Filed June 11, 1896. Serial No. 595,073. (No model.)

Claim.—1. An attachment for turret-lathes, comprising standards on the lathe-bed on opposite sides of the turret and at the ends of the turret-slideways and projecting beyond the plane of the top of the turret: a stationary rod or bar supported by said standards at the outer parts thereof and extending over the turret: and tool-holders swung from said rod or bar.



2. An attachment for turret-lathes, the same comprising a supporting-frame constructed and arranged to be mounted on the lathe without forming an obstruction to the turret or its adjuncts; one or more tool-holders pivotally supported at the outer part of said frame so as to swing laterally; and means for adjusting said holders on their pivots without permanent engagement therewith but with provisions for permitting the said holders to be swung free of said adjusting means to leave an unobstructed space for the turret and its adjuncts, substantially as described.

3. An attachment for turret-lathes, comprising a frame constructed to embrace the lathe-chuck; one or more tool-holders located outwardly beyond said frame to overhang the lathe-bed and pivotally supported from said frame; and means for controlling the position of said tool-holders with provisions for permitting the same to be swung out of the way to leave an unobstructed space for the turret and its adjuncts.

4. An attachment for turret-lathes, comprising a frame constructed to embrace the lathe-chuck; one or more tool-holders located outwardly beyond said frame to overhang the lathe-bed and pivotally supported from the said frame; and means for adjusting the holders on their pivots with provisions for permitting the said holders to be swung out of the way, said means being arranged in the frame between the lathe-chuck and the lathe-bed.

5. An attachment for turret-lathes, comprising standards mounted on the lathe-bed on opposite sides of the turret and at the ends of the turret-slideways and projecting beyond the plane of the top of the turret; a fixed rod or bar supported by said standards and extending over the turret; a hanger fastened to and supported by said rod or bar: shafts supported between said hanger and one of the standards; and swinging tool-holders on said shafts.

6. An attachment for turret-lathes, the same comprising a supporting-frame constructed and arranged to be mounted on the lathe without forming an obstruction to the turret or its adjuncts: one or more tool-holders pivotally supported at the outer part of said frame so as to swing laterally toward and from the work; and one or more cams engaging the holder or holders on the outer side to advance the same toward the work, with provisions for permitting the holder or holders to be swung free to leave an unobstructed space for the turret and its adjuncts, substantially as described.

7. An attachment for lathes, the same comprising a suitable framework or support, a pair of tool-holders pivotally supported by the same, cams supported behind said tool-holders and bearing against them, and means for operating said cams with provision for simultaneously or independently moving them.

8. An attachment for lathes, the same comprising a suitable framework or support, a pair of tool-holders pivotally supported thereby, cams supported behind said tool-holders and bearing against them, worm-wheels associated with said cams, a shaft carrying a worm in engagement with one of said wheels, a sleeve or quill on said shaft and having a worm engaging the other of said wheels, and means for connecting together and disconnecting said shaft and sleeve.

9. An attachment for lathes, the same comprising a body or frame piece constructed to embrace the lathe-chuck, a rod or bar supported at one end by the said frame-piece, a support for the opposite end of said rod or bar, a hanger on said rod or bar, shafts supported between said frame-piece and said hanger, tool-holders pivotally mounted on said shafts, and means for controlling said tool-holders.

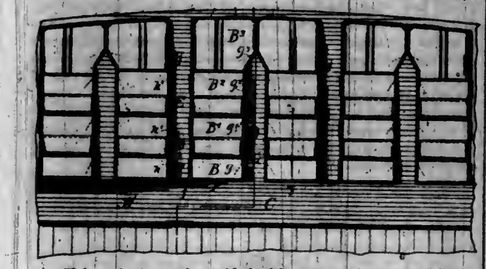
10. In a turret-lathe, the combination with the laterally-movable tool-slide, having a rack, of a spindle carrying a pinion in mesh with said rack and a larger gear-wheel, a handle pivoted over the middle of the turret and carrying a pinion, and a loose intermediate gear connecting said pinion with the large gear on the before-mentioned spindle.

587,481. FOLDING CRATE. OTTO HAUSMANN, San Antonio, Tex. Filed Sept. 14, 1896. Serial No. 605,738. (No model.)



Claim.—In a folding crate, a bottom, and strips secured thereto, side strips of different heights and of a greater height than the end strips secured to said bottom, said side strips being beveled along their inner and upper edges, sides hinged to the side strips by hinges placed on the outside, said sides being beveled along their lower edges to fit against the beveled portion of the strips when the box is folded, ends hinged to the end strips by hinges secured on the inside, hooks secured to the ends and adapted to engage staples on the sides to retain the parts in their upright position, a top, side and end flanges projecting downward from said top, tongues projecting from the ends adapted to engage openings in the top, and a partition secured in the crate by hooks and staples, substantially as described.

587,482. STATE-ROOM FOR VESSELS. ROBERT L. HAZARD, Chicago, Ill. Filed Jan. 18, 1897. Serial No. 619,670. (No model.)



Claim.—1. A vessel provided with state-rooms arranged in single transverse rows and having laterally-extending passages between the rows, of which the alternate passages form hallways leading from the central passage or cabin to the several state-rooms on either side thereof while the passages intermediate thereto are open to the air at their outer ends and afford light and ventilation to all the state-rooms.

2. A vessel provided with a central, longitudinal passage or cabin, state-rooms arranged in single transverse rows at either side thereof, and laterally-extending passages between the rows, said passages forming hallways and air-passages of which said hallways lead outwardly from the central passage or cabin and are arranged in alternation with the air-passages, and the latter are open at their outer ends and terminate at their inner ends at the side walls of the central passage or cabin, said walls having windows at the inner ends of said air-passages to light the central passage or cabin.

3. A vessel provided with state-rooms arranged in single transverse rows, having laterally-extending passages between the rows, of which the alternate passages form hallways and the intermediate ones form air-passages, said state-rooms being covered by ceilings located below the deck which extends over the state-rooms and forming an air-space which is in communication with the said air-passages.

587,483. BOOT OR SHOE. LEBBEUS HILL, Lynn, Mass. Filed Jan. 30, 1897. Serial No. 621,295. (No model.)

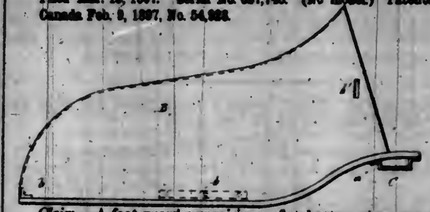


Claim.—As an article of manufacture, a high top boot or shoe having a front opening extending from the top of the shoe to a point below the instep thereof to admit the foot without necessarily stretching or expanding the sides of the shoe, means to close said open front and the shoe upon the foot for use, both sides said shoe being provided with non-expansible portions extending substantially from the top to the bottom of the shoe at the front and back thereof, and expansible portions also extending substantially from the top to the bottom of the shoe and arranged between said non-expansible portions, both sides of said shoe being horizontally divided between their front and back portions with the adjacent edges of said divided portions left free and independent for a distance between said non-expansible front and back portions for independent expansion and contraction of the same at both sides of the foot, the degree or extent of such expansion and contraction both across the instep and adjacent and above the ankle portions of the shoe and the conjoint action of the upper and lower expansible portions of the sides of said shoe being variable by the fastening means for said front opening, substantially as described.

587,484. METHOD OF MANUFACTURING ARTIFICIAL STONE FOR STREET-PAVEMENTS. JOHANN JUNGBLUTH, Cologne, Germany. Filed Sept. 16, 1896. Serial No. 606,059. (No specimens.)

Claim.—The process of forming an artificial stone, having a top layer of pulverized asphalt, consisting; first, in mixing the ingredients to form the base and slightly dampening the mixture; second, in mixing the binding medium and laying the same on the base in a slightly warmed and dampened condition; third, in laying on said binding medium the top layer of asphalt warm; fourth, in compressing the three layers together under high pressure, and, fifth, in subjecting the compressed mass to a spray of water, substantially as described.

587,485. FOOT-GUARD. HENRY KELLY, Lennoxville, Canada. Filed Mar. 15, 1897. Serial No. 627,740. (No model.) Patented in Canada Feb. 9, 1897, No. 54,926.

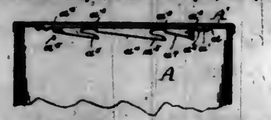


Claim.—A foot-guard comprising a flat bottom plate provided with an upwardly-curved rear portion, a loop on the under side of the said rear portion, and a concavo-convex plate secured to the said bottom plate and provided with slots at its rear end, substantially as set forth.

587,486. CAN-CLOSURE. ALBERT S. LAMBERT, Bridgeton, N. J., assignor, by mesne assignments, to the Practical Closure Company, same place. Filed Feb. 16, 1895. Serial No. 463,601. (No model.)

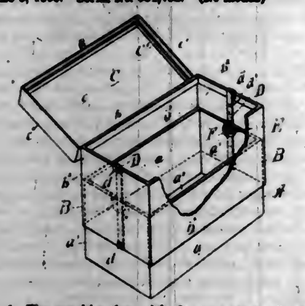
Claim.—1. A can having an opening therein, notches a^1 arranged at intervals around the edge of said opening an inclined wedge a^2 extending obliquely downward and away from each notch on one side and a corresponding wedge a^3 extending beneath each notch in the same direction in combination with a can-closure having a flange adapted to rest on the edge of the can-opening, a depressed center adapted to enter said opening and lugs extending out from said center adapted to enter the notches and engage the wedges.

2. A sheet-metal can-head having an opening, notches a^2 formed in the edge of the spring and downwardly-extending wedge-shaped flanges a^4 a^5 formed between said notches each having a portion a^6 extending below the adjacent notch at one side in combination with a can-closure having lugs adapted to enter the notches and engage the flanges a^4 a^5 substantially as and for the purpose specified.



3. A sheet-metal closure B having a flange b adapted to lie on a can-top, a depressed center b' adapted to enter an opening therein and outwardly-extending lugs b^3 formed integral with the closure by pushing out the sheet metal at the lower edge of the center b' in combination with a sheet-metal bail-plate C clamped in the walls of the depressed center.

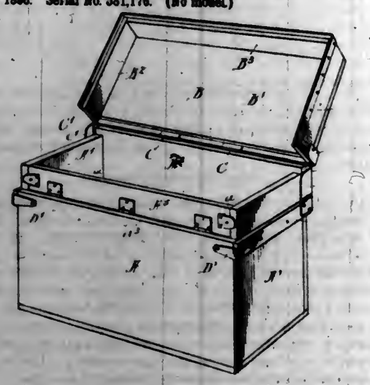
587,487. TELESCOPIC TRUNK. FRANK J. PALICA, Racine, Wis. Filed June 5, 1896. Serial No. 551,782. (No model.)



Claim.—1. The combination with the two parts of a telescopic trunk of straps secured at their upper and lower ends to the upper and lower edges of the exterior part and unattached thereto between their ends and locking devices secured to the inner part and consisting of latch-plates attached to the inner part and provided with loops to engage the straps, latch-levers pivoted to said plates and provided with bolts for engaging holes in the straps, said levers being also provided with lugs at their pivoted ends and springs acting on said lugs to hold the levers in either their closed or open position, substantially as described.

2. A combination with outer and inner telescopic parts of a trunk, of straps attached at their upper and lower ends to the upper and lower edges of the outer part, and unattached thereto between their ends, and locking devices attached to the inner part and provided with a loop which engages the strap on the outer part, said locking devices each comprising a latch-plate attached to the wall of the inner part, a latch-lever pivoted to said plate and provided with a bolt to engage holes in the strap, and also with a flat-faced projection adjacent to its pivot, and a spring secured to the plate and acting on said projection, substantially as described.

587,488. TRUNK. FRANK J. PALICA, Racine, Wis. Filed Feb. 28, 1896. Serial No. 581,176. (No model.)



Claim.—1. The combination with a trunk-body, of a lid hinged to the rear wall of the trunk-body and having end and front walls adapted to overlap and fit outside of the end and front walls of the trunk-body, said front wall of the trunk-body being in its part below the front wall of the lid, permanently attached to the end walls of the body and being provided with an outwardly-folding hinged part located above said stationary part and above the lower edge of the front wall of the lid, whereby said hinged part will be entirely covered and protected by the said front wall of the lid.

2. The combination with a trunk-body, of a lid hinged to the rear wall of the trunk-body and adapted to overlap and fit outside of the body at the end and front walls of the latter, the front wall of the body having its part within the cover-flange hinged to fold outwardly and having a ledge at the upper margins of its stationary lower portion on which ledge the lower margin of the cover-flange is adapted to rest.

3. The combination with a trunk-body provided with ledges at the outer faces of its end and front walls, of a lid hinged at the rear wall thereof and adapted to overlap and fit outside of the end and front walls with the lower margins of its flanges in contact with said ledges, said front wall being provided with an outwardly-folding hinged portion above the ledge of the front wall and within the cover-flange.

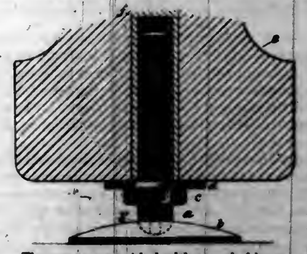
4. In a trunk, the combination with a trunk-body having external side ledges, of a lid hinged at its rear edge to the trunk-body and constructed to overlap and fit outside of the trunk-body at its front and end walls, and metal plates secured to the rear wall and outer faces of the end walls forming, with the adjacent end walls of the body, sockets to receive the rear ends of the end walls of the lid, substantially as described.

5. In a trunk, the combination with a trunk-body having a portion of its upper front wall hinged to fold outwardly, a lid arranged to fit at its rear margin within the trunk-body and to overlap and fit outside of the trunk-body at its end and front walls, strips upon the end walls of the trunk-body forming supporting-ledges for the end walls of the lid, and hinges uniting the lid and trunk-body at the upper rear corners of the latter, said hinges being each provided on its body-leaf with a flange which overlaps the end wall of the trunk and forms a socket for the reception of the rear portion of the end wall of the lid, substantially as described.

6. In a trunk, the combination with a trunk-body having a portion of its upper front wall hinged to fold outwardly, a lid arranged to fit at its rear margin within the trunk-body and to overlap and fit outside of the trunk-body at its end and front walls, strips upon the end walls of the trunk-body forming supporting-ledges for the end walls of the lid, and hinges uniting the lid and trunk-body at the upper rear corners of the latter, said hinges being each provided at its body-leaf with a flange which overlaps the end wall of the trunk and forms a socket for the reception of the rear portion of the end wall of the lid, and with a flange on its lid-leaf which overlaps the end wall of the lid and is adapted to underlap and fit within the flanges of the body-leaf when the trunk is closed, substantially as described.

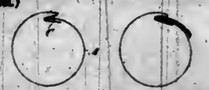
7. In a trunk, the combination of a trunk-body having a portion of its upper front wall hinged to fold outwardly, a lid arranged to fit at its rear margin within the trunk-body and to overlap and fit outside of the trunk-body at its end and front wall, and cleats upon the end walls of the trunk-body forming supporting-ledges for the end walls of the lid, and hinges uniting the lid and trunk-body at the upper rear corners of the latter, said hinges being provided with right-angled flanges at their lower leaves which overlap and are secured to the end cleats and form sockets for the reception of the end walls of the lid, substantially as described.

587,489. TABLE-LEVELING DEVICE. HARTWELL PATTEN, Hartford, Conn. Filed Dec. 10, 1896. Serial No. 615,153. (No model.)



Claim.—The screw a provided with rounded lower end and mortise a' in combination with the nut c and with the floor-plate b provided with rounded socket b', and wing b^3, all substantially as described and for the purposes set forth.

587,490. APPARATUS FOR FORMING BLIND-ROLLERS. EDWIN A. POWELL, Melbourne, Victoria. Filed Aug. 6, 1896. Serial No. 602,140. (No model.)



Claim.—1. In an apparatus for forming blind-rollers, the combination with a mandrel having a slot for the reception of the edge of the sheet-metal plate, of a bore consisting of a tubular plate formed in two sections hinged together, said plate having its edges apart, and a screw threaded into a stationary nut and bearing against one of the hinged sections of the bore.

2. In an apparatus for forming blind-rollers, the combination with the tubular bore, of a mandrel consisting of a tubular plate having its adjacent edges forming a slot, a core inserted in said mandrel and cut away so as to leave a recess S^3, substantially as set forth.

587,491. DOOR-HANGER. THEODORE C. PROUTY, Midland, Mich., assignor to The T. C. Prouty Company, same place. Filed Mar. 11, 1896. Serial No. 582,706. (No model.)



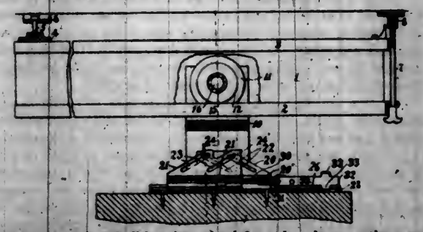
Claim.—1. In a door-hanger and track, a bracket for supporting the track comprising two pieces of metal formed in the shape of a J, one piece inverted and loosely pivoted to the other at their bent portions, whereby the abutting surfaces will move and turn upon each other thereby permitting the bracket to be adjusted to the track, substantially as and for the purpose set forth.

2. In a door-hanger and track, the combination with a track made from a sheet of metal having its edges turned over, forming two grooves, of a bracket made in two parts, the parts similar in size and shape and having a curved end, the curved ends loosely pivoted together and adapted to fit in the groove of the track formed by turning over the edges, substantially as and for the purpose set forth.

3. In a wheel for door-hangers having two series of balls, a journal having an enlarged center portion terminating in an inclined shoulder upon one side, forming the inner side of a track for one series of balls, the remaining portion of that end being straight, the opposite side of the journal having a concave cut-away portion forming a track for the outside series of balls, the end of the journal next to the bearing being larger than the track, whereby the journal is held in rigid position within the wheel, substantially as described.

4. In a wheel for door-hangers, made by securing together two opposite disks having between them two smaller disks so bent and secured to the larger disks as to form bearings for two series of balls, the tread of the wheel made of fibrous material and fitted upon an annular inner rim formed by meshing together laterally-extending lugs of the smaller disks within the wheel, substantially as and for the purpose set forth.

587,492. DOOR-HANGER. THEODORE C. PROUTY, Midland, Mich., assignor to The T. C. Prouty Company, same place. Filed Mar. 11, 1896. Serial No. 582,707. (No model.)



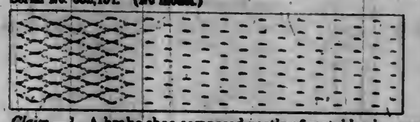
Claim.—1. In a ball-bearing wheel for a door-hanger, the combination with two disks of sheet metal placed together and having their centers pressed outward, forming a cone-shaped bearing for the balls, and the balls running in the cone-shaped bearing and in a concave groove in the wheel-journal, and the wheel-journal held in the hanger-frame, of a broad ring of fibrous material secured upon one side of the wheel thus formed, and forming with the circumference of the disk the tread of the wheel, of a larger and narrower ring of fibrous material secured to the opposite side of the wheel and forming the flange of the wheel, substantially as and for the purpose set forth.

2. In a door-hanger, the means of adjustment described comprising two adjusting-plates secured by bolts to the hanger-frame, the plates provided with oblique parallel slots, the slots in one plate extending in the opposite direction to the slots in the other, the bolts connecting the hanger-frame to the plates passing through a slot of each plate whereby as the plates are moved in opposite directions the said bolts will move up or down through the slots and thereby lower or raise the plates along the hanger-frame, substantially as specified.

3. In a door-hanger, the combination with two adjusting-plates adapted to engage and travel in grooves in a base-plate secured to the top of a door, and the base-plate, two oblique slots in each adjusting-plate, the slots in each plate parallel and extending in opposite directions to the slots in the other plate, and a bolt passing through the slots when secured to the hanger-frame, eyelets in the base of the adjusting-plates, one in each, one of the eyelets threaded, of a horizontal threaded bolt adapted to engage the eyelets in the base of the adjusting-plates and move them one upon the other as the bolt is turned, whereby the bolts connecting the adjusting-plates to the hanger-frame through the slots will move up or down the slots and thereby lower or raise the door to which the base plate is secured, substantially as described.

4. In a door-hanger, the combination with a base-plate secured to the top of a door, two adjustable plates movably secured to a hanger-frame and engaging and traveling in the base-plate, of a threaded bolt engaging a threaded eyelet secured to one of the plates and passing through and carrying an eyelet secured to another plate, whereby the plates may be moved one upon the other and in the base-plate by the turning of the threaded bolt, a key for turning the bolt secured to the outer end of the bolt, lugs on the end of the key and a slot in the base-plate for receiving the lugs when the hanger has been adjusted, thereby locking the same, substantially as described.

587,493. BRAKE-SHOE. WILLIAM D. SARGENT, Chicago, Ill., assignor to the Sargent Company, same place. Filed Apr. 14, 1897. Serial No. 632,151. (No model.)



Claim.—1. A brake-shoe composed partly of metal having superior braking qualities, such as cast metal, and partly of ductile metal possessing great longevity, the ductile metal being distributed throughout the body of the shoe in differing planes to provide a wearing-face for the shoe of a finely-divided and composite character.

2. A brake-shoe composed of two different kinds of metal disposed in differing planes and so combined as to provide a wearing-face for the shoe of a finely-divided and composite character and which is constantly changing, whereby the relative disposition of the two metals on the wearing-face constantly changes as the shoe wears.

3. A brake-shoe composed of two different kinds of metal, one of which is disposed in differing planes and constantly changes in position on the wearing-face of the shoe, said metals being so combined as to provide a wearing-face for the shoe of a finely-divided and composite character.

4. A brake-shoe composed of two different kinds of metal, one of which is disposed in differing planes and constantly changes in area on its wearing-face, said metals being so combined as to provide a wearing-face for the shoe of a finely-divided and composite character.

5. A brake-shoe composed of two different kinds of metal, one of which is disposed in differing planes and constantly changes in area and position on its wearing-face, to provide a wearing-face of a finely-divided and composite character.

6. A cast-metal brake-shoe, having an insert consisting of a foraminous ductile metal body, and constituting a part of the wearing-face of the shoe.

7. A cast-metal brake-shoe, having a foraminous ductile metal insert, constituting a part of the wearing-face of the shoe, said insert being permeated in different directions by the cast metal so as to form a solid homogeneous mass.

8. A cast-metal brake-shoe, having an insert composed of a number of foraminous sections of ductile metal.

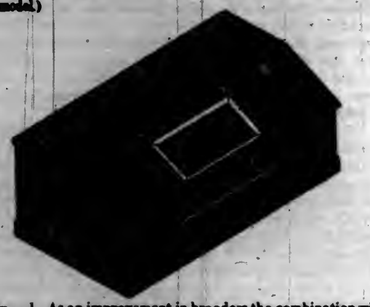
9. A cast-metal brake-shoe, having an insert composed of a laminated pile of foraminous sections of ductile metal.

10. A cast-metal brake-shoe, having an insert composed of expanded metal.

11. A cast-metal brake-shoe, having an insert composed of a laminated pile of sections of expanded metal.

12. A cast-metal brake-shoe, having an insert composed of a laminated pile of foraminous sections, said sections being arranged with relation to each other so that the holes therein will not register.

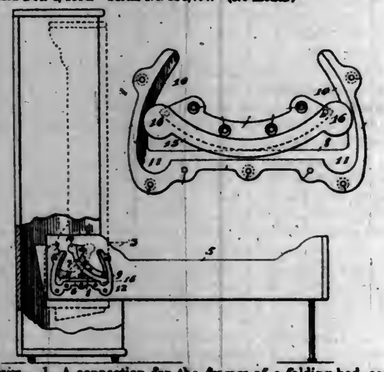
587,494. BROODER. CLINTON C. SHOEMAKER and GEORGE H. SHOEMAKER, Freeport, Ill. Filed Nov. 18, 1896. Serial No. 612,594. (No model.)



Claim.—1. As an improvement in brooders the combination with the casing provided with a heating and sub air-chamber, of a tubular boiler mounted in the heating-chamber; a removable drum adapted to fit within said boiler, and provided on its upper end with a perforated cap and a rotary damper therefor, and upon its lower end with a mutilated collar, and a flue or chimney adapted to induce a circulation of heated air through said sub air-chamber, substantially as described and for the purpose named.

2. As an improvement in brooders the combination with the casing provided with a tubular boiler mounted in the heating-chamber of said casing, of a removable drum adapted to fit within said tubular boiler, and consisting of the cylindrical body and perforated cap secured to the upper end thereof, and adapted to close the opening in said boiler, and further, provided upon its lower end with an encircling collar, the periphery of which is provided with openings and means for holding said cap and collar to the drum, and for closing the apertures provided in the cap, as and for the purpose specified.

587,495. FOLDING BEDSTEAD. WILLIAM D. SNYDER, Austin, Ill. Filed Dec. 4, 1894. Serial No. 530,797. (No model.)

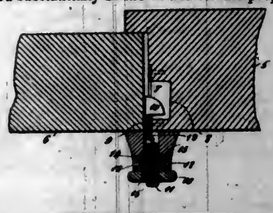


Claim.—1. A connection for the frames of a folding bed, comprising in combination a track member to be secured to the stationary frame and having a horizontal track and curved sides rising therefrom, a continuous rabbet along said track and sides and a rocker member to be secured to the folding frame having a curved rocker and a projecting flange adapted to said track and rabbet, substantially as described.

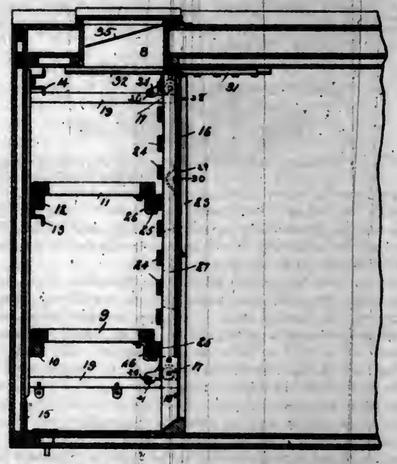
2. A connection for the frames of a folding bed, comprising in combination a member to be secured to the stationary frame and having a horizontal track and curved sides rising therefrom, a continuous rabbet along said track and sides, said rabbet being deeper at the junction of the sides and horizontal track to provide curved depressed seats or recesses and a member to be secured to the folding frame and having a curved rocker and a flange adapted to said track and rabbet and said flange having integral parti-circular lugs at its extremities adapted to said curved or depressed seats, substantially as described.

587,496. DOOR-SECURER. CHARLES R. STONE, Amesbury, Mass. Filed Feb. 13, 1897. Serial No. 623,070. (No model.)

Claim.—A door-securer comprising a metal plate 9 having a head 10 and a screw-threaded extension 11, a clamping-jaw 13, provided with a slot 17 and a chamber 14 adapted to receive a screw-threaded nut 15 which is provided with a milled flange 16, and an annular groove 18, adapted to engage pins passing through said jaw, all combined substantially as shown and for the purpose set forth.



587,497. REFRIGERATOR-CAR. FRANK THOMPSON, Chicago, Ill., assignor to himself, Thomas A. Fraser, and Otto W. Meyenburg, same place. Filed Apr. 14, 1897. Serial No. 633,136. (No model.)



Claim.—1. In combination with a car, an ice-tank, one wall of which is adapted to be moved against the wall of the car without turning said movable wall, substantially as specified.

2. In a car, the combination of an ice-tank, one wall of which is adapted to be moved against the wall of the car without being turned, and an ice-grating supported between the wall of the car and said movable wall and adapted to be moved to allow said movable wall to be pushed against the wall of the car, substantially as specified.

3. In a car, the combination of an ice-tank, one wall of which is less in height than the interior of the car, and arranged to leave a space between it and the car-roof and a space between it and the car-floor, a movable ice-grating supported by said wall and the wall of the car, and means for moving said first-named wall, without turning, against the wall of the car, substantially as specified.

4. In a car, the combination of an ice-tank, one wall of which is adapted to be moved against the wall of the car without turning, an ice-grating supported between the wall of the car and said movable wall, and means for locking said grating in position from the interior of the car so that entrance to the interior of the car from the ice-tank will be prevented, substantially as specified.

5. In a car, the combination of an ice-tank, one wall of which is movable, tracks at opposite sides of the car, and rollers connected to said wall and resting on said tracks, substantially as specified.

6. In a car, the combination of an ice-tank, one wall of which is movable, tracks at opposite sides of the car, rollers connected to said wall and resting on said tracks, and guide-rollers also connected to said wall and bearing against said tracks, substantially as specified.

7. In a car, having an ice-hole in its roof, the combination with an ice-tank located beneath said ice-hole and having one of its walls movable, of a grating connected to said movable wall and adapted to be moved under the ice-hole as the door is moved toward the wall of the car, substantially as and for the purpose specified.

8. In a car having an ice-hole in its roof, the combination with an ice-tank located beneath said ice-hole and having one of its walls movable, of a grating connected to said movable wall and adapted to be moved under the ice-hole as the door is moved toward the wall of the car, and guides in which said grating moves, substantially as described.

9. In a car having an ice-hole in its roof, the combination with a cover for said ice-hole, of a shield secured to the under part of said cover to deflect cinders, &c., into the car toward the nearest end thereof, substantially as specified.

587,498. VELOCIMETER. KNUT TORNBERG, Stockholm, Sweden. Filed Nov. 18, 1896. Serial No. 612,575. (No model.)



Claim.—1. A velocimeter consisting of a stationary case or holder having an opening, a rotatable member mounted therein and extended out through said opening to contact directly with the body whose speed is to be indicated, said member containing a governor mechanism, a scale, and means between said governor mechanism and said scale to move the scale for a greater or less distance according to the extent of movement of the said governing mechanism due to the speed of rotation of said rotatable member, substantially as described.

2. A velocimeter comprising a case having a sight-opening, a rotatable member in said case and having a portion of its periphery exposed, a governor mechanism carried by said member and comprising separable levers, a scale adapted to be exposed at the sight-opening, a controlling-lever for and to move the scale, and a device intermediate said separable levers and the controlling-lever, to regulate the throw of the latter, substantially as described.

3. The case or holder provided with a sight-opening, a rotatable member located in said case or holder, a governor mechanism carried by said member and presenting levers provided with pins, a scale adapted to be exposed at said sight-opening, a lever adapted to be acted upon by the pins of said governor, and a segment, and teeth between said lever and said scale to move the same, substantially as described.

4. The case or holder provided with a sight-opening, a rotatable wheel located in said case or holder, a governor mechanism carried by said wheel and presenting levers provided with pins, a scale adapted to be exposed at said sight-opening, a lever adapted to be acted upon by the pins of said governor, a segment, teeth between said lever and said scale to move the same, a sliding point carried by said scale, and a stop against which the said point may strike, substantially as described.

5. The case or holder provided with a sight-opening, a rotatable wheel located in said case or holder, a governor mechanism carried by said wheel and presenting levers provided with pins, segments connected to said levers, a double segment connecting said segments, a scale adapted to be exposed at said sight-opening, a lever adapted to be acted upon by the pins of said governor, and a segment, and teeth between said lever and said scale to move the same, substantially as described.

587,499. SWIMMING APPARATUS. JOHN USTER, Paterson, N. J. Filed May 4, 1897. Serial No. 635,645. (No model.)



Claim.—1. In a swimming apparatus, a hand-paddle comprising a handle, a cross-arm at each end of said handle, a blade hinged to each of said cross-arms, and means for limiting the movement of said blades, substantially as and for the purposes described.

2. In a swimming apparatus, a hand-paddle comprising a handle, a cross-arm on each end of said handle, a blade hinged to each of said cross-arms, means for limiting the movement of said blades, and an elastic band connected with one of said cross-arms, substantially as and for the purposes described.

3. In a swimming apparatus, a foot attachment or paddle, comprising a square block, a pin on each end of the block, a plate carried by one of said pins, a fin hinged to said plate, a ring loosely arranged on each of said pins, and means for securing said rings to the body of a person, substantially as described.

4. In a swimming apparatus, a foot attachment or paddle, comprising a square block, a pin on each end of said block, a plate carried by one of said pins, a fin hinged to said plate, a ring loosely arranged on each of said pins, a strap connected to each of said rings, a belt, and an elastic connection between said belt and said straps, substantially as described.

587,500. HEEL OR SOLE PROTECTOR. GEORGE H. WILLIAMS, Newton, Mass., assignor to Frank W. Whitcher, Boston, Mass. Filed Oct. 31, 1896. Serial No. 610,702. (No model.)



Claim.—1. A heel or sole protector consisting of a strip bent to inclose a part of the material into which it is driven, having a wedge-shaped entering edge and thereby adapted to produce the incision into which it is driven to enable it to be driven into a heel or sole from the exterior thereof, and formed along the surface of the protector with inclined projections the upper portions of which constitute barbs or shoulders which engage with the leather when the protector is set and hold it from retraction, the protector not exceeding in its thickness at the shoulders or barbs that of the wear-resisting edge or tread substantially as set forth.

2. A heel or sole protector consisting of a strip bent to inclose a part of the material into which it is driven, having a wedge-shaped entering edge and thereby adapted to produce the incision into which it is driven, to enable it to be driven into a heel or sole from the exterior thereof, having a thickened wear-resisting edge or tread, and provided intermediate its width with a longitudinally-extending shoulder, the protector not exceeding in its thickness at the shoulder that of the said wear-resisting edge or tread, the said shoulder operating to prevent the withdrawal of the protector, substantially as set forth.

587,501. ROTARY PULVERIZING-MILL. CHARLES M. DAY, Brooklyn, N. Y. Filed Dec. 4, 1895. Serial No. 571,043. (No model.)



Claim.—1. In a pulverizing-mill, the cylindrical shell, having spiral or helically-curved ribs projecting inward therefrom, with their working faces inclined toward the inlet end of the mill, in combination with a rotary shaft, radial arms secured thereto and blades connected to said arms, with their outer edges adjacent to said ribs, and their working faces at an angle toward the working faces of the ribs which are inclined backward toward the inlet end of the mill, whereby the blades will exert a shearing action, and work against the ribs to convey the heavier and larger particles backward and repeatedly subject them to the pulverizing and shearing action, substantially as described.

2. In a pulverizing-mill the cylindrical shell having inwardly-projecting, helically-curved ribs and rings of open-work obstructions in combination with a shaft and rotary beater-blades in said shell, substantially as described.

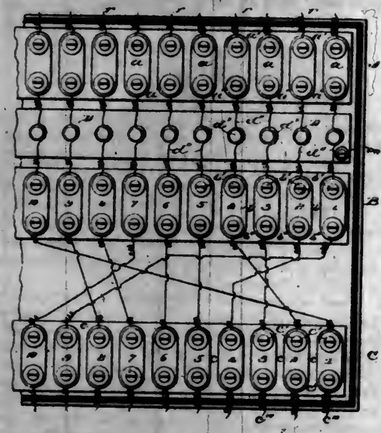
3. In a pulverizing-mill, the cylindrical shell having inwardly-projecting rings of open-work obstructions, in combination with a shaft and perforated rotary beater-blades connecting with said shaft, substantially as described.

4. The pulverizing-cylinder having at one end, adjacent to the periphery, a curved elongated discharge-opening and delivery-spout, in combination with a curved elongated sliding damper, as K, having an arm *k*, and pivoted at *w*, to the end wall, a rod connecting with said arm, and passing out through the shell, means for adjusting the rod, inward or outward for moving the damper, and a rotary shaft and connected blades, substantially as described.

587,502. CENTRAL-OFFICE SWITCHBOARD SYSTEM. WILLIAM B. HARRISON and EDWARD M. HARRISON, Chicago, Ill. Filed Mar. 30, 1895. Serial No. 543,808. (No model.)

Claim.—1. The combination with the switchboard, of a spring-jack switch, constructed with an elongated frame composed of a line-wire shoe having a front socket face-plate and of an annunciator-spring bowed upward or outward near its front end, and secured at its rear end to the rear end of said shoe, the parts being separated by insulating material, a ground lug, as *c'*, secured to the switchboard above said shoe and having an arm *c*, passing under the bowed portion of said spring and serving to support it, and a switch-plug, where-

by the plug may be inserted in the switch-jack in contact with the spring without making contact with said ground-lug.



2. In the switchboard a spring-jack switch consisting of a line-wire shoe, having an insulated opening and a front socket-plate, and of an annunciator-spring secured at its rear end to the rear end of said shoe, the parts being separated by insulating material, in combination with a ground-lug, supporting said spring near its front end, a ringing-spring projecting up through said insulated opening in the shoe, and a switch-plug having a metallic tip for making contact with said spring, substantially as described.

3. In a switchboard, a spring-jack switch, constructed of an elongated frame or shoe, having an insulated opening, and of an insulated annunciator-spring, in combination with a ringing-spring projecting through said insulated opening in the shoe, and a switch-plug having insulating material on one side and a metallic contact-tip at its other side for making contact with said ringing-spring, substantially as described.

4. The combination with the switchboard, of an annunciator having a front plate, provided at its lower end with a projecting horizontal hinge-post as M', a drop-shutter, having an outwardly-inclined knee projection *m*, at its lower edge and provided with inwardly-projecting ears *m'*, pivotally connected to said post M'; also having a field-magnet, a polarized pendulous armature pivoted thereto, a push-needle pivotally connected to and operated by said armature and bearing at its opposite end against said drop-shutter for pushing it over, substantially as described.

5. The combination with the switchboard of the spring-jack switches, a polarized annunciator, companion switch-plugs, one plug being insulated on the upper surface and the other on the under surface and applied, one for the purpose of cutting out the annunciator and the other for the purpose of bringing the annunciator into circuit, substantially as described.

6. In a switchboard, the combination with a spring-jack switch having an annunciator in circuit of a pair of switch-plugs, one plug insulated on the under surface and the other plug insulated on its upper surface and having at the outer end a ringing-tip, insulated from the plug proper, substantially as shown and described.

7. In combination with a switchboard, polarized annunciators, spring-jack switches, and companion switch-plugs, one plug being insulated on the upper surface and the other on the under surface for cutting one annunciator into circuit and the other annunciator out of circuit, substantially as described.

8. In combination with a switchboard a polarized needle-push annunciator, a spring-jack switch, having an insulated ringing spring or contact and a switch-plug having insulating material on one side and a metallic contact tip or lug at its other side and outer end for the purpose of bringing the ringing-spring into circuit with a distant bell, substantially as described.

9. A spring-jack switch having a line-shoe and an annunciator-spring secured to said shoe, in combination with a ground-lug secured to said switchboard, said spring resting at one end on said lug, a needle-push annunciator wires connecting said shoe with the annunciator, and switch-plugs connected by a conductor, one of which, when inserted into the spring-jack lifts the annunciator-spring from contact with said ground-lug, cutting off all connection with the ground-wires except through said plugs, substantially as described.

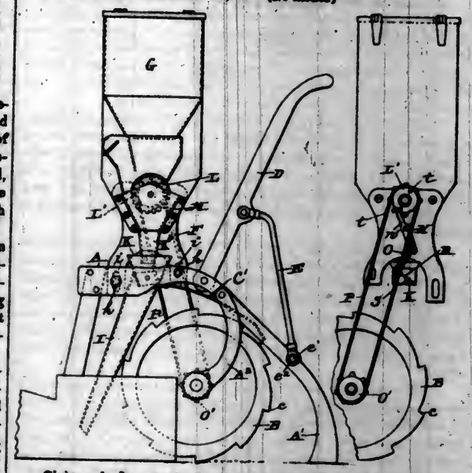
10. In a switchboard, the combination with the spring-jack switches having line-shoes, of the switch-plugs in pairs, having one side of metal and the other of insulating material, the metal part of one being on the top and the metal part of the other being on the bottom, and also having downwardly-projecting lugs of insulating material and said pairs of plugs being connected by a flexible conductor, substantially as described.

11. The combination with spring-jack switches, of switch-plugs, connected in pairs by a flexible wire conductor, each of said plugs having a detachable hollow section containing a slotted binding-pin for attaching said conductor, substantially as described.

12. A switch-plug having in its handle a detachable section, I, having a longitudinal passage, *i*, in combination with a binding-pin, *i'*, having a slotted head and a stem inserted in said passage *i*, for connecting a conducting-wire, substantially as described.

13. In a switchboard a spring-jack switch, having an elongated frame or shoe, provided near its front end with an insulated opening, in combination with a ringing-spring, projecting through said opening, and a switch-plug having a metallic tip at its front end for making contact with said spring for sending signals over the line-wire, substantially as described.

587,508. SEEDER. ISRAEL IRIGOYEN, Chihuahua, Mexico. Filed Oct. 29, 1896. Serial No. 610,492. (No model.)



Claim.—1. In a seeder in combination with the plates, A, arms secured to said plates and carrying a driving-wheel, a spring-scraper for said wheel on said plates, the hopper-frame F secured to said plates, the seed-reservoir G, attached to said frame, said frame provided with a feed-distributer, a feeder between said reservoir and feed-distributer, said reservoir provided with a separate compartment, a brush in said compartment and means for holding the said brush down against the feeder to keep the latter clean, a chute leading from the distributer through which the seed is discharged and yielding covering-blades, A', secured to said plates, A, to cover said seed, substantially as described.

2. In a seeder, the combination with the seed-reservoir and seed-distributer, of the feeder, L, between said reservoir and distributer, provided with seed-cups, V, said cups provided with pivoted bottoms, and set-screws and slots for raising, lowering and setting said bottoms to increase the size of said pockets, plate, R, in said distributer hung at one end to a lever, O, a cog-wheel mounted on a shaft above said distributer, means for connecting said cog-wheel with said lever to control the movement of the latter, a driving-wheel, and a chain connecting said drive-wheel and cog-wheel, substantially as described.

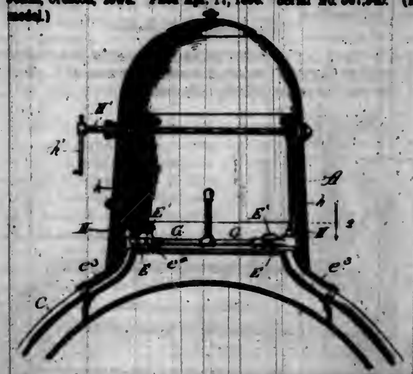
3. In combination with the bars A and covering-blades A', forming the frame, of the handle D and the brace-rod E, and the driving-wheel carried by said frame, substantially as described.

4. In combination with the frame A, A, of the discharge-chute, and the distributer K mounted on said frame, said distributer provided with the inclined plate R, the spring-support S, levers O and N, a hopper and hopper-frame above said distributer, a feeder and a seed-reservoir, a sprocket-wheel L' having on its face pins *l* mounted on the shaft of said feeder, a driving-wheel, a sprocket-wheel on the shaft of said wheel, and a sprocket-chain connecting said sprocket-wheels, whereby the said distributer is operated through said levers and driving-wheel, substantially as described.

5. In combination with the arms A and covering-blades A' A' the rod on which said blades are mounted, and a spring, nut and washer, on said rod whereby one of the said blades is permitted to yield laterally from the other, substantially as described.

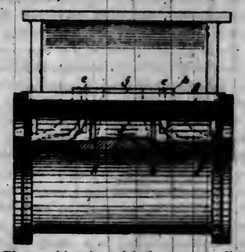
6. In a seeder the combination with the reservoir, the feeder, the sprocket-wheel mounted on the shaft of said feeder, said wheel provided with pins *l*, the hopper-frame F, the hopper K', the distributer K, and the levers O, N, connecting the said sprocket-wheel and the said distributer, and the frame for supporting said distributer, substantially as described.

587,504. SANDING ATTACHMENT FOR LOCOMOTIVES. EVAN JOHNS, Creston, Iowa. Filed Apr. 17, 1896. Serial No. 587,945. (No model.)



Claim.—In mechanisms of the class described, the combination of a sand-box, a delivery-pipe leading therefrom to a point adjacent to the driving-wheel, a valve-casing provided with a substantially right-angular passage the vertical portion connecting with the delivery-pipe and a horizontal portion opening adjacent to the bottom of the sand-box, a horizontal projecting portion on the valve-casing covering the upper portion of the inlet-opening of the horizontal passage and provided with an injecting-perforation substantially in line with the horizontal passage, a manually-operating valve closing communication between the vertical opening and the sand-box, and a pipe connecting the injecting-passage of the valve with a source of fluid-pressure—compressed air—substantially as described.

587,505. OVERPASS-VALVE FOR LOCOMOTIVE-ENGINES. CARL J. EMLEIN, Richmond, Va., assignor to the Richmond Locomotive and Machine Works, same place. Filed July 18, 1896. Serial No. 599,743. (No model.)



Claim.—1. The combination with the steam-cylinder, of the valve-case having the overpass between the steam-ports, the automatic valves in said case normally subject to pressure from the cylinder steam-chest for closing said overpass, and means for opening said valves when steam is shut off substantially as described.

2. The combination with the steam-cylinder, of the valve-case having the overpass between the steam-ports, the automatic valves in said case normally subject to pressure from the cylinder steam-chest for closing said overpass, and the atmospheric port intermediate of the valves substantially as described.

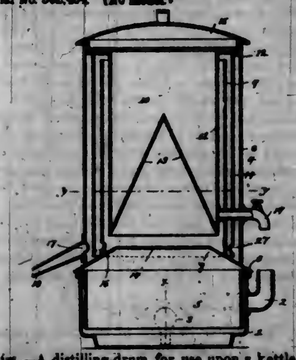
3. The combination with the steam-cylinder, of the valve-case having the overpass between the steam-ports, the automatic, independent and reversely-acting valves in said case normally subject to pressure from the cylinder steam-chest, for closing said overpass, and means for opening said valves when steam is shut off substantially as described.

4. The combination with the steam-cylinder, of the valve-case having the overpass between the steam-ports, the valves in said case normally subject to pressure from the steam-chest for closing said overpass, counterbalancing-pistons intermediate of the valves, by-pass around said pistons, and means for opening said valves when steam is shut off substantially as described.

5. The combination with the steam-cylinder, of the valve-case having the overpass between the steam-ports, the valves in said case normally subject to pressure from the steam-chest for closing said overpass, counterbalancing-pistons intermediate of the valves, by-pass around said pistons and the atmospheric port intermediate of the pistons substantially as described.

6. The combination with the steam-cylinder, of the integral valve-case having the overpass between the steam-ports the valves in said case normally subject to pressure from the cylinder steam-chest for closing said overpass, and means for opening said valves when steam is shut off substantially as described.

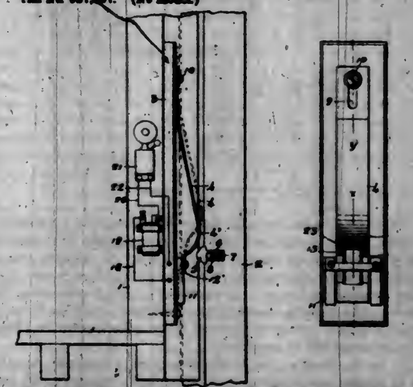
587,506. WATER-DISTILLING APPARATUS. WILLIAM O. PIERCE and BENJAMIN F. BUSHLOW, Gridley, Cal. Filed May 21, 1896. Serial No. 592,494. (No model.)



Claim.—A distilling-drum for use upon a kettle comprising essentially the inwardly and upwardly inclined, annular walls 7, the outer wall 8, connected to and rising from the wall 7, and having the discharge-aperture 17, adjacent to the wall 7, the central condenser 10, arranged above the annular wall 7, and having its upper end open and also having the cone-shaped bottom of larger diameter than the inner edge of the wall 7, the horizontal, annular wall 12, connecting the upper end of the condenser 10, and the outer wall 8, the inner partition-wall 9, surrounding the condenser 10, and connected to the wall 7, and extending up to a point adjacent to the wall 12, and having the aperture 16, adjacent to its lower end and also adjacent to the discharge-aperture 17, in wall 8, and the outer partition-wall 14, connected to the wall 12, and extending down to a point adjacent to the wall 7, and having the notch 27, in its lower end and at the point farthest from the aperture 16, in wall 9, and the discharge-aperture 17, in outer wall 8, whereby water of condensation collecting upon the annular wall 7, will prevent the passage of steam between the lower end of wall 14, and the wall 7, and compel the steam to take passage through the notch 27, all substantially as and for the purpose set forth

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587,507. ELECTRIC SIGNAL DEVICE FOR ELEVATORS. OTTO RAACKE and GUSTAV HERMES, St. Louis, Mo. Filed Mar. 11, 1897. Serial No. 627,197. (No model.)



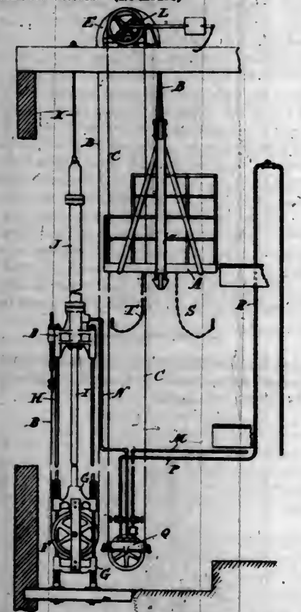
Claim.—1. In an electric signal device for elevators, a vertically-movable spring-plate having a bulging portion forming a part thereof, a plane extension forming a continuation of the bulging portion and

having a cut-away portion or opening, circuit-closing devices normally projecting through said opening, a suitable source of electrical energy, and means for shifting the movable plate and bringing the solid portion thereof in contact with the said circuit-closing devices as the elevator approaches a landing, substantially as set forth.

2. In an electric signal device for elevators, a suitable alarm, an electric circuit in connection with the same, a circuit-closing arm having one end permanently connected with one pole of the circuit, a tongue hinged or pivoted adjacent to said arm, a non-conducting disk carried by said arm and adapted to bear against the adjacent surface of the tongue, a spring-plate having an opening or cut-away portion through which said tongue may normally project, and means for shifting the plate from its normal position upon the movement of the elevator whereby the opening of the plate will pass by the pivotal line of the tongue and cause the solid portion of the plate to bear against the tongue and the adjacent circuit-closing arm, thereby closing the circuit and sounding the alarm, substantially as set forth.

3. In an electric signal device for elevators, a suitable spring-plate adapted to be movably secured to either the elevator or shaft thereof, means for guiding the plate in its movements, an opening formed at one end of the plate, a hinge pivoted to the rear of said opening and adapted to normally project therethrough, a resilient spring circuit-closing arm having one end permanently in connection with an electric circuit, located to the rear of the hinge, a non-conducting disk carried by the arm and adapted to be brought in contact with the adjacent surface of the hinge, means cooperating with the spring-plate during the travel of the elevator in one direction for shifting said plate whereby the normal relation between the opening of the plate and the hinge is disturbed and the solid portion of the plate is made to bear against the hinge and thus depress the free end of the circuit-closing arm bringing said end into connection with the opposite pole of the circuit, and thereby sounding an alarm, substantially as set forth.

587,508. ELEVATOR. George H. Reynolds, Chicago, Ill., assignor to The Crane Elevator Company, same place. Filed Mar. 27, 1896. Serial No. 584,332. (No model.)

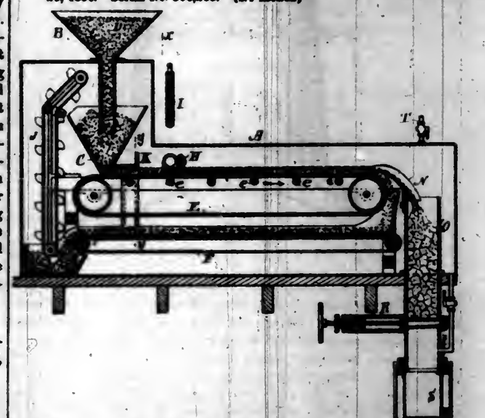


Claim.—1. In an elevator, the combination with a vertically-movable ram or plunger and an elevator-car operatively connected with said ram, said car being sufficiently heavy to raise the ram, of a vertical cylinder through the lower end of which works the ram, means for applying hydraulic pressure to the end of said ram in the cylinder, and a variable counterbalance attached to said car for counterbalancing the hydrostatic column in the cylinder and the lifting-cables, substantially as described.

2. In an elevator, the combination with a vertically-movable ram or plunger and an elevator-car operatively connected with said ram, said car being sufficiently heavy to raise the ram, of a vertical cylinder through the lower end of which works the ram, means for applying hydraulic pressure to the end of the ram in the cylinder, and a source of pressure independent of the source of hydraulic pressure applied to the end of the ram for raising the car and into which said cylinder discharges, substantially as described.

3. In an elevator, the combination with a vertically-movable ram or plunger and an elevator-car operatively connected with said ram, said car being sufficiently heavy to raise the ram, of a vertical cylinder through the lower end of which works the ram, means for applying hydraulic pressure to the end of said ram in the cylinder, and a stand-pipe through which said cylinder discharges, substantially as described.

587,509. PROCESS OF AND APPARATUS FOR MAKING METALLIC CARBIDS. Isaiah L. Rossiter, Brooklyn, N. Y. Filed June 20, 1896. Serial No. 596,363. (No model.)



Claim.—1. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc and in direct contact therewith the metallic compound and carbon to be converted, and in continuously removing the converted compound, substantially as described.

2. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, and in deflecting said arc downward, substantially as described.

3. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, and in deflecting said arc downward by means of a magnet, substantially as described.

4. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, and in deflecting said arc downward by means of an electromagnet, substantially as described.

5. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, which is maintained in contact with said arc in a non-oxidizing atmosphere, substantially as described.

6. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, in a non-oxidizing atmosphere, and in deflecting said arc downward, substantially as described.

7. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, in a non-oxidizing atmosphere, and in deflecting said arc downward by means of a magnet, substantially as described.

8. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, in a non-oxidizing atmosphere, and in deflecting said arc downward by means of an electromagnet, substantially as described.

9. The process of continuously forming metallic carbids, which consists in continuously moving in contiguity to an electric arc the metallic compound and carbon to be converted, and separating the formed carbid from the uncombined surrounding material by means of the motion of the carbid and uncombined material, substantially as described.

10. The process of continuously forming metallic carbids, which consists in moving the metallic compound and carbon in close proximity to and continuously past an electric arc, and in deflecting said arc toward the compound, substantially as described.

11. The process of continuously forming metallic carbids, which consists in moving the metallic compound and carbon in close proximity to and continuously past an electric arc, and in deflecting said arc toward the compound by means of a magnet, substantially as described.

12. The combination, in an electric furnace, of a traveling conveyer constructed and arranged to support a body of comminuted material and to move it beneath an electric arc, and electrodes in a position to produce a horizontal arc in contact with said material, whereby the mixed material is changed, substantially as described.

13. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, electrodes in a position to produce a horizontal arc, whereby the mixed material is changed, and a separator for separating the changed from the unchanged material, substantially as described.

14. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, electrodes in a position to produce a horizontal arc, whereby the mixed material is changed, a separator for separating the changed from the unchanged material, and a conveyer for returning the unchanged material to the belt, substantially as described.

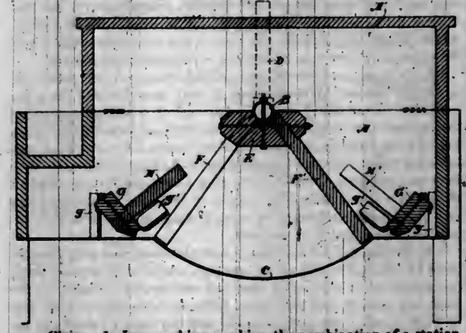
15. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, electrodes in a position to produce a horizontal arc, and an electromagnet for deflecting said electric arc, whereby the mixed material is changed, substantially as described.

16. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, electrodes in a position to produce a horizontal arc, an electromagnet for deflecting said electric arc, whereby the mixed material is changed, and a separator for separating the changed from the unchanged material, substantially as described.

17. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, electrodes in a position to produce a horizontal arc, an electromagnet for deflecting said electric arc, whereby the mixed material is changed, a separator for separating the changed from the unchanged material, and a conveyer for returning the unchanged material to the belt, substantially as described.

18. The combination in an electric furnace, of a feed for feeding mingled material upon a traveling belt, a traveling belt for moving the material toward an electric arc, a shaper for shaping the material upon the belt, mechanism for causing an electric arc to operate upon said material, and separating mechanism for separating the material changed by the electric arc from the material fed to the belt, substantially as described.

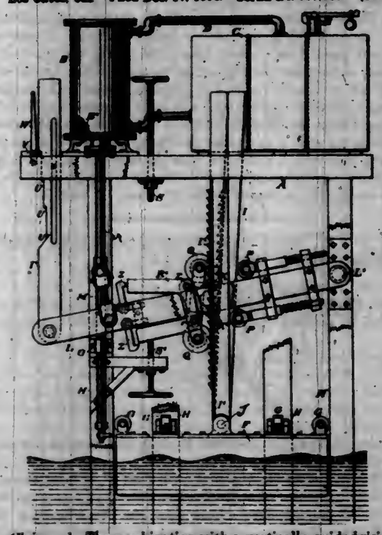
587,510. WASHING-MACHINE. Lafayette Ryder, Woodland, Cal. Filed Feb. 19, 1897. Serial No. 624,138. (No model.)



Claim.—1. In a washing-machine, the combination of a stationary tub having the central portion of its bottom concave or segmental, a shaft journaled across the tub, having a hub secured to it, two sets of arms fixed to said hub and diverging from one end outwardly so as to form an inclosed space between them, said arms of one set adapted to stand out of line with those of the other set, the removable blocks G, G' and means comprising the notched supports *g* and pieces *g'* projecting from the sides of the tub for securing said blocks in place, pressure-bars secured to said blocks and standing essentially radial from the shaft and arranged so that the bars at one side are out of line with those at the opposite side, said bars and arms being so disposed that the arms of one set will pass between the adjacent bars when moved in that direction and the other set of arms will move in line and contact with said bars, and a removable cover for said tub.

2. In a washing-machine, a stationary tub having a concave segmental bottom, transverse bars with means for removably holding them at opposite ends of the tub, and a series of bars projecting from them radially toward the center and top of the tub, said bars on one side standing in alternate planes with those upon the other side, a central tubular shaft journaled upon the top of the tub having a T, to receive a handle whereby the shaft may be oscillated, a hub fixed to the shaft within the tub having two lines of diverging arms projecting downwardly therefrom, each set of arms adapted to pass between the fixed arms adjacent to it and to contact with those upon the opposite side when oscillated in the other direction whereby articles placed between the diverging arms will be alternately moved from side to side and pressed between the arms and the opposing bars.

587,511. WAVE AND SWELL MOTOR. Henry Schoenberg, Los Gatos, Cal. Filed Dec. 17, 1896. Serial No. 616,019. (No model.)



Claim.—1. The combination with a vertically-guided rising-and-falling float, of rack-bars having their lower ends pivoted to the float so as to be movable about the pivot-points, a lever fulcrumed transversely having pawls fixed thereto so as to engage the teeth of the rack-bars alternately, spring-actuated rollers pressing against the backs of the rack-bars to hold the teeth normally in contact with the pawls but yielding to allow them to pass over the teeth as the rack-bars reciprocate, and means for automatically forcing the rack-bars out of engagement with the pawl-teeth.

2. The combination with a guided rising-and-falling float, of toothed rack-bars pivoted to the float so that the upper ends have a movement about the pivot-pins, a lever fulcrumed and extending transversely across the line of travel of the rack-bars, spring-actuated rollers carried by said lever normally pressing the toothed edges of the rack-bars forward, pawls fixed upon the lever adapted to engage the teeth of the rack-bars, bell-cranked levers fulcrumed upon the transverse lever, stops fixed at points above and below so as to engage one arm of each of the bell-crank levers alternately as the main lever reaches the end of its stroke in either direction, rollers carried by the opposite ends of the bell-crank levers and pressing against the rack-bars so as to force them out of contact with the pawls and allow the rack-bars to continue without further action upon the main lever.

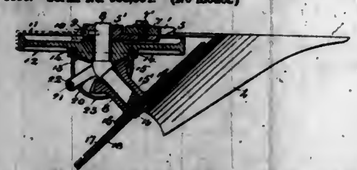
3. The combination with a guided rising-and-falling float of rack-bars pivoted thereto having teeth upon one edge adapted to alternately engage pawls as the float rises and falls, a transverse lever fulcrumed at one end extending across the line of travel of the rack-bars and having said pawls fixed thereto so that the teeth of the rack-bars move over the pawls as the float rises and falls, spring-actuated rollers mounted upon the rear part of the lever pressing against the backs of the rack-bars so as to maintain them in yielding contact with the pawls, bell-crank levers having rollers mounted at one end and traveling upon smooth surfaces of the rack-bars at each side of the teeth, adjustable screws or stops fixed at the opposite end of the travel of the main lever with which the bell-crank levers contact when the end of the stroke is reached whereby the rack bars are forced out of engagement with the pawls and allowed to continue their movement without further action upon the lever, and a

cylinder, the piston-rod of which is connected with the reciprocating lever to act as described.

4. The combination with a vertically-guided rising-and-falling float, of rack-bars having the lower ends pivoted thereto, a transverse lever with fixed pawls adapted to engage the teeth of the rack-bars so that the lever is alternately raised and lowered with the alternate movements of the rack-bars, spring-actuated rollers pressing upon the backs of the rack-bars to keep the teeth yieldingly engaged with the pawls, bell-crank levers carrying rollers which travel against smooth surfaces of the rack-bars, the opposite ends of the said levers adapted to engage adjustable stops whereby the rollers are pressed against the rack-bars so as to force them temporarily out of engagement with the pawls to allow them to continue their movement without further action upon the lever and holding dogs or devices adapted to engage the arms of the bell-crank levers whereby the rollers press continuously upon the rack-bars so as to keep them permanently out of contact with the pawls and stop the movement of the lever.

5. The combination with a vertically-guided rising-and-falling float, of pivoted swinging rack-bars attached thereto, a transverse lever, with pawls fixed thereon adapted to engage the teeth of the rack-bars as they rise and fall, spring-actuated rollers by which the teeth of the rack-bars are kept in yielding contact with the pawls, disengaging devices carried upon the lever whereby the racks are disengaged from the pawls at the limit of the stroke of the lever in each direction, and a device for shortening the stroke of the lever consisting of an arm T connected with the movable end of the lever and slidable vertically and a pawl V adapted to engage said arm and hold it so that the movement of the lever may be limited.

587,512. PLOW. SAMUEL G. SEVIER, Censville, TEX. Filed Oct. 12, 1896. Serial No. 608,891. (No model.)



Claim.—1. In a plow, a suitable frame, a plowshare carried by the same, an independent detachable bracket or plate carried by the standard of said frame and capable of vertical adjustment along the same, a bent axle secured to the bracket and adapted to support respectively the driving-wheel of the plow and the revolving moldboard, and means forming a part of said axle for supporting a suitable gear-protecting casing or cup, substantially as set forth.

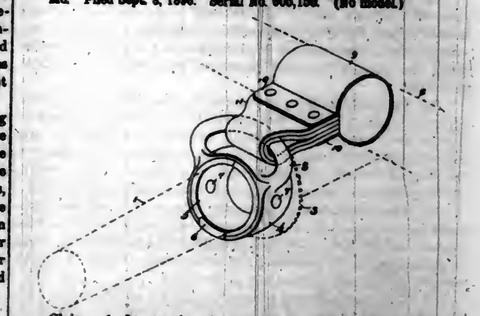
2. In a plow, a suitable frame, a plowshare secured thereto, a bracket carried by the frame and capable of adjustment along the same in a vertical plane, a bent axle secured to the bracket, a driving-wheel mounted on one of the members of the axle, and having formed integrally therewith a bevel-pinion directly embracing the member, an annular groove formed at the base of the said pinion, a second pinion mounted on the second member of the bent axle and having a tubular extension forming a part thereof and embracing the member on which said pinion is mounted, a flange formed at the extremity of said tubular extension, a moldboard secured to said flange, and a gear-protecting cup carried by the bent axle, the edge of the cup being received by the annular groove formed at the base of the pinion carried by the driving-wheels, substantially as set forth.

3. In a plow, a suitable frame, a bracket carried by the same and adjustable thereon in a vertical plane, a bent axle carried by the bracket, a driving-wheel having a pinion loosely mounted on one member of the bent axle, a revolving moldboard mounted on the second member of the bent axle, a bevel-pinion secured to the moldboard and meshing with the pinion carried by the driving-wheel, an arm projecting outwardly from the angle of the bent axle, a pin driven transversely through the outer end of the arm, a suitable gear-protecting cup composed of two parts or halves, each half having formed integral therewith a lug by which the respective halves are adapted to be secured to the transverse pin carried by the arm projecting from the angle of the bent axle, and each half having a substantially semicircular opening or cut-away portion for snugly embracing the bevel-pinion of the moldboard, and an annular groove or depression formed at the base of the pinion carried by the driving-wheel for receiving the edge of the cup, whereby all dirt carried up by the driving-wheel is deflected by the cup and the gearing between the cooperating pinions is protected, substantially as set forth.

4. In a plow, a suitable frame, an independent detachable bracket having an expanded portion, elongated openings or slots formed in the expanded portion, suitable bolts carried by the standard of the frame and adapted to enter the slots of the bracket, whereby the latter can be bodily and vertically adjusted along the frame, a rear extension or arm forming a part of the bracket, said extension being adapted to support the axle of the driving-wheel and revolving moldboard of the plow, substantially as set forth.

5. In a plow, a suitable bent axle adapted to support respectively the driving-wheel of the plow and a revolving moldboard, and means forming part of said axle for supporting a suitable gear-protecting casing or cup, substantially as set forth.

587,513. NECK-YOKE COUPLING. CHARLES SHUMAR, St. Louis, Mo. Filed Sept. 3, 1896. Serial No. 605,159. (No model.)



Claim.—1. In a neck-yoke coupling, a suitable closed pole-ring adapted to be carried by the pole, a rigid loop carried along the outside of the same, an inwardly-deflected lip formed adjacent to the outer face of the ring and projecting beyond the plane of the same, a suitable leather lining carried by the ring and bearing at one end against the lip, and suitable rivets for additionally securing the lining to the walls of the ring, substantially as set forth.

2. In a neck-yoke coupling, a suitable closed pole-ring, a leather or equivalent lining for the same, a rigid loop carried by the ring along the outside of the same and disposed at an angle to the planes of the faces of the ring, rivets for partially securing the lining to the inside of the ring, a clasp adapted to be secured to the neck-yoke bar, and a suitable yielding antirattling connection between the clasp and rigid loop, substantially as set forth.

3. As an article of manufacture, a closed pole-ring, an inwardly-deflected lip formed on, or carried by, the same adjacent to the front face thereof, a rigid loop carried along the outside of the ring and deflected substantially in the line of draft between the neck-yoke bar and the horse's breast, substantially as set forth.

4. In a neck-yoke coupling, a suitable closed pole-ring adapted to be carried by the pole of the carriage, a loop disposed along the outside of said ring and carried adjacent to the front face of said ring, said loop being deflected or disposed substantially in the line of draft between the neck-yoke bar and the horse's breast and extended rearwardly to bring the base of the loop substantially over the opposite or rear face of the ring, substantially as set forth.

5. In a neck-yoke coupling, a suitable closed ring adapted to be carried by the pole of the carriage, a rigid loop disposed along the outside of or carried by said ring and carried adjacent to the front face thereof, said loop being deflected or disposed substantially in the line of draft between the neck-yoke bar and the horse's breast and extended rearwardly to bring the base of the loop substantially over the rear peripheral surface of the ring, and being further disposed at an angle to the plane of the circle of either end of the pole-ring and an inwardly-deflected lip carried along the outer face of the pole-ring, substantially as set forth.

6. In a neck-yoke coupling, a suitable closed pole-ring adapted to be carried by the pole of the carriage, a rigid loop disposed along the outside of or secured to said ring and carried adjacent to the front face thereof, said loop being deflected substantially in the line of draft between the neck-yoke bar and the horse's breast and extended rearwardly to bring the base of the loop substantially over the rear peripheral surface of the ring, and being further disposed at an angle to the plane of the circle of either end of the ring, a suitable leather lining carried by the pole-ring, an inwardly-deflected lip formed adjacent to the outer face of the ring and projecting beyond the plane of the same, said lip serving as a bearing for the leather lining, and additional means for securing the leather lining within the pole-ring, substantially as set forth.

7. In a neck-yoke coupling, a suitable closed pole-ring, a rigid loop disposed along the outside of the same and deflected rearwardly substantially in the line of draft between the neck-yoke bar and the horse's breast, a suitable clasp adapted to be carried by the neck-yoke bar, and a flexible looped connection interposed between the clasp and the rigid loop carried by the pole-ring, substantially as set forth.

587,514. COMBINED BICYCLE PUMP AND WRENCH. JOSEPH W. TAYLOR, Chicago, Ill. Filed Dec. 30, 1896. Serial No. 617,465. (No model.)



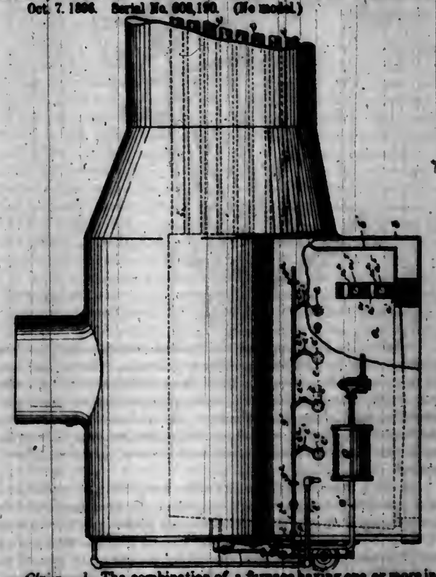
Claim.—1. A combined pump and wrench in which the barrel or cylinder of the pump has at its closed end the stationary jaw of a wrench fixed to the barrel of the pump, and in which the barrel of the pump serves as a handle for the wrench and has a movable wrench-jaw adapted to move thereon and provided with a band or sleeve surrounding said barrel, substantially as specified.

2. In a combined air-pump and wrench, the combination with a pump-cylinder provided with a feather or guide on one side thereof and a stationary wrench-jaw fixed to the closed end thereof, with an adjustable jaw provided with a band or sleeve surrounding the pump-cylinder and reciprocating thereon, substantially as specified.

3. In a combined air-pump and wrench, the combination with a pump-cylinder provided with a feather or guide on one side thereof and a stationary wrench-jaw fixed to the closed end thereof, with an adjustable jaw provided with a band or sleeve surrounding the pump-cylinder and reciprocating thereon, said feather or guide having a toothed rack, and said movable jaw being provided with a screw or worm engaging said rack, substantially as specified.

4. The combination with a pump-cylinder A of a fixed wrench-jaw D having a shank *d* secured to said pump-cylinder and provided with a rack *d'*, and an adjustable jaw F having a band or sleeve *f* embracing said cylinder and shank and provided with a screw or worm *f'* engaging said rack, and a band *d''* surrounding said shank *d* and cylinder A, substantially as specified.

587,515. FURNACE. NICHOLAS B. THIRY, Pittsburg, PA. Filed Oct. 7, 1896. Serial No. 608,190. (No model.)

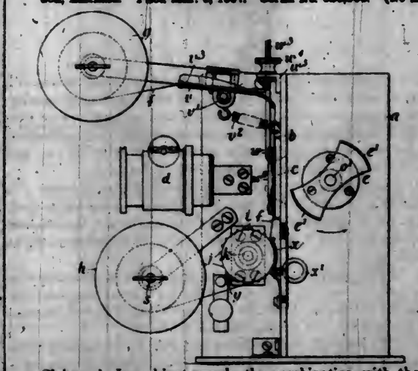


Claim.—1. The combination of a furnace having one or more inlet-ports, a sliding rod above said ports journaled in bearings on the furnace-walls, bell-cranks on said rods and pivoted to the furnace-walls, quiescent flat disks formed on the lower ends of said bell-cranks covering said ports, automatic apparatus for moving said sliding rod and a trip operated by the door controlling the same, substantially as set forth.

2. The combination with a furnace-door, the lever r pivoted to the furnace-body and carrying the trip s pivoted thereon, having its upper arm extending within the course of the furnace-door, a valve, the lower arm of said trip engaging with said lever to move the same and operate said valve for admission of air or steam to the fire-chamber, substantially as set forth.

3. The combination with a furnace-chamber, of a bridge-wall therein and a space beyond the bridge-wall, said bridge-wall being formed of checker-work and of hollow tile having openings therein on the side opposite to the grate, substantially as set forth.

587,516. KINETOGRAPHIC CAMERA. ALFRED WEBBER, London, England. Filed Mar. 8, 1897. Serial No. 626,800. (No model.)



Claim.—1. In a kinetograph, the combination with the feed-wheel, and devices for intermittently moving the same, of a locking-wheel connected with said feed-wheel, provided with a series of ratchet-teeth and a notch adjacent to each tooth, a single locking-pawl provided with a portion for engaging said ratchet-teeth and a tooth for engaging said notches, whereby said pawl will lock the feed-wheel against movement in both directions, and means for disengaging said pawl, substantially as described.

2. In a kinetograph, the combination with the feed-wheel, of a ratchet-wheel, and a locking-wheel connected therewith, said locking-wheel having a series of ratchet-teeth and a notch adjacent to each of said teeth, a driving-crank disk, a pawl operated thereby for intermittently moving said ratchet-wheel, and a single locking-pawl having a portion for engaging the teeth of said locking-wheel, and a tooth for engaging the notches thereof, for locking the feed-wheel against movement in both directions, and a projection operated by said driving-crank disk for disengaging said locking-pawl, substantially as described.

3. In a kinetograph, the combination with the feeding and winding-on rollers for the film, and film-feeding mechanism, of a pivoted plate engaging said film between the feeding-roller and the feeding mechanism, said plate being disposed at an angle to the path of the film from said plate to the feeding mechanism and a spring connected to said plate for holding the portion of the film between said plate and the feeding mechanism taut, substantially as described.

4. In a kinetograph, the combination with a screen provided with an aperture therein in line with the path of the film, of a hinged presser-plate adapted to engage said screen and provided with an aperture adapted to register with the apertere in the screen, and a spring engaging said presser-plate whereby the film is constantly pressed by said plate against said screen, substantially as described.

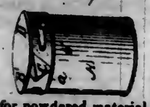
5. In a kinetograph, the combination with the screen provided with an aperture in line with the path of the film, of a hinged presser-plate, provided with an aperture adapted to register with the aperture in the screen, a spring for pressing said plate toward the screen, to hold the film in engagement therewith, and a vertical adjusting device for moving said presser-plate vertically, substantially as described.

6. In a kinetograph, the combination with the feed-wheel, of a spring-actuated plate adapted to press the film against said feed-wheel, and a locking device for holding said plate out of engagement with said feed-wheel substantially as described.

7. In a kinetograph, the combination with the screen provided with an aperture in line with the path of the film, and lateral guides at each side of the line of travel of said film, of a presser-plate hinged to said screen at one side of said aperture and provided with an aperture adapted to register with the aperture in the screen, a spring engaging said plate for constantly pressing it against the screen, an adjusting-rod secured to the said presser-plate and a screw-threaded adjusting device for moving said rod and presser-plate vertically to bring said aperture into alinement, substantially as described.

587,517. PACKAGE FOR POWDERED MATERIAL. BERNARD BAR, Baltimore, Md. Filed Feb. 2, 1897. Serial No. 621,703. (No model.)

Claim.—1. In a receptacle for powdered material, the combination of a box having a cylindrical wall and provided with a discharge-opening, a chute disposed to receive material from said opening, a cover having a discharge-opening through which material can flow to the chute, a gate having a vertical cylindrical section supported in close contact with the box, and means for rotating the gate, substantially as set forth.



2. In a receptacle for powdered material, the combination of a box having a cylindrical wall and provided with a discharge-opening, a chute disposed to receive material from said opening, a cover having a discharge-opening through which material can flow to the chute and a vertical flange supported in close contact with the box, and means for rotating the flange, substantially as set forth.

3. In a receptacle for powdered material, the combination of a box having a cylindrical wall and provided with a discharge-opening, a cover, a vertical recess between the cover and the adjacent wall of the box, and a gate disposed in the recess, substantially as set forth.

4. In a receptacle for powdered material, the combination of a box having a cylindrical walf, a cover having a depending flange fitting loosely the upper end of the box, and a gate disposed between the flange and the box, substantially as set forth.

5. In a receptacle for powdered material, the combination of a box having a cylindrical wall provided with a discharge-opening, a cover having an external depending flange also provided with a discharge-opening, and a chute attached to the flange, and means for connecting the flange with the box and permitting the flange to be rotated to serve as a gate, substantially as set forth.

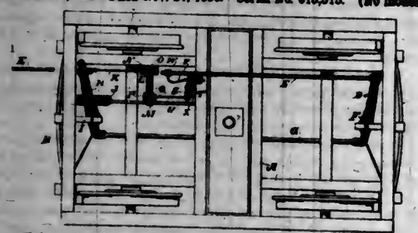
587,518. TABLE. NICHOLAS BARTELLE, North Baltimore, Ohio. Filed Nov. 21, 1896. Serial No. 612,956. (No model.)



Claim.—1. A table of the character described consisting of the legs or supports A, A, rigidly secured to the rail B', the hinged rails B, B, having the two-part top secured thereto and pivoted to said legs and rails B', B' and the cross-braces C, C, pivoted at their lower ends to the legs or supports and having their upper ends pivoted to the opposite hinged rails B, B, all constructed and arranged as set forth.

2. A table of the character described consisting of the legs A, A, rigidly secured to the rail B' and having a groove A^2 therein, the hinged rails B, B, having the two-part top secured thereto and pivoted to said legs or supports, and the cross-braces C, C^2 pivoted at their lower ends to the legs or supports and having their upper ends pivoted to the opposite hinged rails B, B, all constructed and arranged as set forth.

587,519. AIR-BRAKE SLACK-ADJUSTER. WALTER K. CONNER, Oakland, Cal. Filed Nov. 27, 1896. Serial No. 613,515. (No model.)

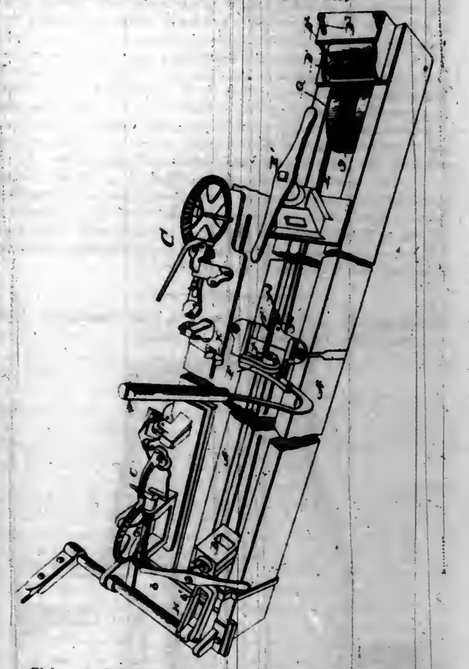


Claim.—1. The combination with a car-truck, wheels, brake beam, and shoes and brake-actuating lever, of a rotary shaft having a pulley fixed upon it, a connection between a second brake-actuating lever and the pulley, a holding ratchet-wheel fixed upon the shaft and a pawl engaging said ratchet-wheel, arms turning loosely upon the shaft having a pin connecting them, a second ratchet-wheel intermediate between the arms adapted to be engaged by the connecting-pin when the arms are caused to swing upon the shaft, an intermediate mechanism connecting the arms with the live-lever rod, whereby the arms are moved and the ratchet-shaft actuated whenever the parts become slack from wear.

2. The combination with a car-truck, bearing-wheels, brake-beam, shoes, and actuating mechanism, of an independent rotary shaft having a pulley fixed upon it, a pawl-and-ratchet mechanism whereby the shaft is intermittently rotated, an intermediate lever connected and movable in unison with the live-lever, connections between this lever and the ratchet upon the independent shaft, a turnbuckle fitted in the length of the bottom brake-lever rod, and pulleys upon the ratchet-shaft and the turnbuckle whereby the latter is turned in unison with the shaft to compensate for wear of the operative parts.

3. The combination with the brake-actuating mechanism of a car-truck, of an intermediate take-up mechanism and operating-lever, and a pawl adapted to engage a notch in said lever to lock it against further movement in case of breakage.

587,520. STRAIGHTENING AND CUTTING ATTACHMENT FOR BALE-BAND MACHINES. PETER K. DEDERICK, Loudonville, N. Y. Filed Mar. 5, 1897. Serial No. 626,124. (No model.)



Claim.—1. In an apparatus of the character described, the combination with the bed having slideways thereon, a clamp-head traveling on said slideways, and a fixed clamp through which the wires pass to the traveling head, of a driving mechanism for moving the traveling head along said slideways, and an independent straining mechanism cooperating with the traveling head when at the extreme of its movement to straighten and set the wires: substantially as described.

2. In a machine of the character described, the combination with the bed having the slideways thereon, the fixed clamp, and the traveling head and clamp mounted on said slideways with means for moving the same, of a movable cutter located between the fixed and movable clamps, whereby said cutter may be moved to present the ends of the wire to the movable clamp: substantially as described.

3. In a machine of the character described, the combination with the bed having the slideways thereon, the fixed clamp, and the movable clamp or head mounted on said slideways, of the movable cutter located between said clamps, a guide on said cutter for maintaining the wires in their relative positions, and a spring for holding the cutter advanced whereby said cutter may be moved back to present the ends of the wire to the movable head: substantially as described.

4. In a machine of the character described, the combination with the bed having the slideways thereon, the straightening-rolls at one end of said bed, and the straining mechanism at the opposite end thereof, of fixed and movable clamps intermediate the straightening-rolls and straining mechanism, and a movable cutter between the clamps: substantially as described.

5. In a machine of the character described, the combination with the winding drums or spools and the flexible connection carried by said drums, of the movable head or clamp connected with said flexible connection, a fixed head or clamp, a straining mechanism cooperating with the movable head or clamp, and a cutter interposed between the heads or clamps: substantially as described.

6. In a machine of the character described, the combination with the bed, the drums or spools journaled therein, the flexible connection wound on said drums or spools, the fixed clamp or head, and the movable clamp or head connected with said flexible connection and moved thereby, of a hook on the movable head, a transverse straining-shaft having a crank-arm thereon, and a link jointed to said crank-arm and adapted to cooperate with the hook on the movable head to move the head and strain the wire held thereby: substantially as described.

7. A cutter for wire-straining machines, consisting of the base having the slideway therein, the cutter proper mounted in said slideway, and the spring for maintaining said cutter at one end of the slideway: substantially as described.

8. In a cutter for wire-straining machines, the combination with the base having the slideway therein, of the cutter proper mounted in said slideway and having the series of guiding-apertures therethrough, and the spring for holding the cutter at one end of the slideway: substantially as described.

587,521. GANG-PLOW. GEORGE W. DE WITT, San Ardo, Cal. Filed Mar. 26, 1897. Serial No. 629,240. (No model.)



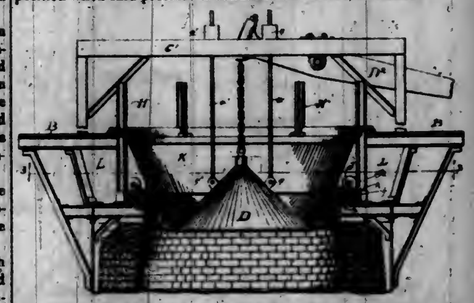
Claim.—1. In a gang-plow having a triangular supporting-frame with one of the bases thereof serving as the front of the plow, the wheels approximately at the angles of said frame, said wheels journaled in forks having vertically-extending shanks or standards, bearings in which the shanks or standards are both slidable and turnable, spaced collars on the shanks or standards and forming annular channels, levers secured between said collars at points intermediate of their ends, vertically-disposed standards to which the outer ends of the levers are adjustably connected whereby the shanks or standards are vertically moved, other levers engaging the shanks or standards and movable in lateral planes to turn the former in their bearings and thereby adjusting the angle of the wheels, and means for securing the free ends of said levers.

2. In a gang-plow of the character described, a swivel-wheel at one angle of the front of the triangular frame, adapted to travel upon the land, a second flanged furrow-wheel at the other front angle of the frame and a corresponding flanged furrow-wheel at the rear angle of said frame, forks in which the furrow-wheels are mounted, having upwardly-extending shanks or standards movable vertically and axially in bearings on the frame, levers secured between their ends, to said shanks or standards, vertically-disposed standards to which the outer ends of the levers are adjustably secured whereby the shanks or standards are movable in vertical planes, other levers fixed to the upper ends of the shanks or standards and movable in horizontal planes to turn the shanks or standards axially whereby the wheels are set at an angle with the line of travel of the plow to correct the side thrust in either direction, vertically-disposed rack-bars for the first-named levers and horizontally-disposed rack-bars for the other levers, whereby said levers are secured.

3. In a gang-plow, a frame of triangular shape having one of its bases serving as the front of the plow, a smooth swivel-wheel at one front angle of the frame adapted to run upon the unplowed land and to freely swivel, a wheel at substantially the opposite front angle and another wheel at the rear angle of the said frame, both of which latter wheels having a projecting flange adapted to enter the hard ground in the furrow to steady and hold the wheels from side thrust, means for independently turning the shanks or standards of the furrow-wheels to vary the angle of the latter, and levers pivoted at one end and engaging the shanks or standards to move them in vertical planes.

587,522. BLAST-FURNACE. FREDERICK H. FOOTE, Chicago, Ill. Filed Jan. 4, 1896. Serial No. 574,288. (No model.)

Claim.—1. In a blast-furnace, a bell and hopper, and means for raising and lowering the bell in the usual manner together with guiding apparatus for said bell and associated parts whereby the same are permitted a bodily upward movement upon the accumulation of an abnormal pressure of gas in the furnace to uncover the top of the furnace and also reseat said parts automatically in proper relative position when said pressure is reduced to a normal condition.



2. In a blast-furnace a bell and hopper and an operative's platform located relatively remote from and above the top of the furnace-stack forming an open wide and unobstructed passage below said platform, the bell and hopper being adapted for bodily upward movement upon the accumulation of an abnormal pressure of gas in the furnace to uncover the top of the furnace, together with guiding apparatus for said bell and hopper.

3. In a blast-furnace a bell and hopper and an operative's platform located relatively remote from and above the top of the furnace-stack forming an open, wide and unobstructed passage below said platform, said bell and hopper being adapted for bodily upward movement upon the accumulation of an abnormal pressure of gas in the furnace to uncover the top of the furnace and permit the escape of the gas through said passage and below said platform together with guiding apparatus for the bell and associated parts to reseat the same automatically in a proper relative position upon a reduction of gas-pressure to a normal condition.

4. In a blast-furnace, a bell and means for raising and lowering the same in the usual manner, a hopper associated with the bell and resting loosely upon the top of the furnace-stack, and guiding apparatus for said bell and hopper whereby the same are permitted a bodily upward movement upon the accumulation of an abnormal pressure of gas in the furnace and also reseated automatically in proper relative position when said pressure is reduced to a normal condition.

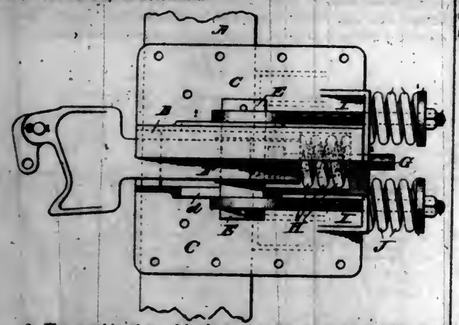
5. In a blast-furnace, a bell, a hopper, an operative's platform located relatively remote from and above the top of the hopper forming an open, wide and unobstructed passage below said platform, said hopper being mounted upon said bell and normally resting upon the top of the furnace-stack, guiding apparatus and a hopper-shield mounted upon the hopper and held and directed by the guiding apparatus, which latter directs and guides the upward and downward bodily movement of the bell, hopper and hopper-shield, upon accumulation and release of abnormal gas-pressure.

6. In a blast-furnace, a bell, a hopper mounted thereon, a hopper-shield mounted on the hopper, an operative's platform located relatively remote from and above the top of the hopper, forming an open, wide and unobstructed passage below said platform, and guiding apparatus consisting of traveler-ways and traveler-wheels for guiding and directing the bodily upward and downward movements of the bell, hopper and shield, upon accumulation and release of abnormal gas-pressure.

7. In a blast-furnace the combination of the bell, a hopper separate from the bell but mounted thereon at its lower end and resting at its upper end at the top of the furnace-stack, an operator's platform relatively remote from and above the top of the furnace-stack forming an open, wide and unobstructed passage below said platform, guiding apparatus consisting of traveler-ways and traveler-wheels for guiding and directing the bodily upward and downward movement of the bell and hopper upon accumulation and release of abnormal gas-pressure and an annular containing recess extended about the hopper at its upper portion together with suitable packing material disposed within said annular recess whereby a tight joint is effected between the said upper portion of the hopper and its seat upon the top of the furnace-stack.

587,523. DRAFT-GEARING FOR ENGINE-TENDERS. ROBERT M. GALBRAITH, Pine Bluff, Ark. Filed Apr. 20, 1897. Serial No. 634,371. (No model.)

Claim.—1. The combination with suitable sills, of a pocket secured thereto, a draw-bar arranged in said pocket, a buffer-spring behind the draw-bar, and springs arranged on each side of the draw-bar and outside of the pocket for taking the end pull on the draw-bar: substantially as described.



2. The combination with the end and intermediate sills, of a plate having a pocket formed thereon, a draw-bar shank carried in said pocket, a buffer-spring behind said shank, a cross-bar passing through the shank, rods mounted on the ends of said cross-bar, and springs surrounding said rods and seated against a fixed abutment and a follower-plate carried on the ends of the rods; substantially as described.

3. The combination with an open-ended pocket having slots in its side walls, of a draw-bar shank carrying a cross-bar which projects through said slots, a tail-bolt, a buffer-spring, rods mounted on the ends of the cross-bar, follower-plates on the ends of said rods and springs which bear against said follower-plates; substantially as described.

4. The combination with the shank of a draw-bar, of a buffer-spring behind the same, a cross-bar carried by said shank, rods carried by said cross-bar, follower-plates on the ends of said rods, springs which are seated against said follower-plates, and nuts on the ends of the rods which impinge against the follower-plates to place the springs under compression; substantially as described.

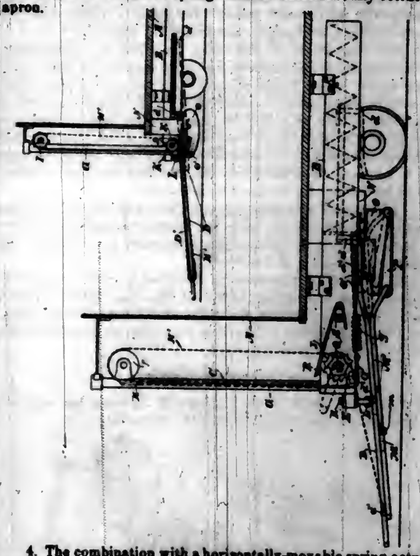
5. The combination with an open-ended pocket having slots in its side walls, of a draw-bar shank arranged therein, a tail-bolt in the end of said shank, a draft-spring between the rear end of the shank and the closed end of the pocket, a cross-bar carried on said shank in advance of the end of the tail-bolt, rods on the ends of said cross-bar, said rods passing through openings in webs which are extended laterally from the rear end of said pocket, springs surrounding said rods, follower-plates on the ends of the rods, and nuts threaded on the ends of the rods and impinging against the outer faces of the follower-plates; substantially as described.

587,524. SAFETY-GUARD AND FENDER FOR CARS. GEORGE GLENNIE and RALPH BOOTH, San Francisco, Cal. Filed Dec. 29, 1896. Serial No. 617,225. (No model.)

Claim.—1. A safety-guard or car-fender consisting of a horizontally-movable spring-actuated frame with a receiving-surface thereon, a vertically-movable apron with vertical guides by which it is directed and supported, a roller situated above the fender-frame and at its junction with the fender whereby the apron may be coiled, a connection from the outer end of the apron to the outer end of the fender-frame and means for retracting the horizontal fender-frame and the vertical apron simultaneously.

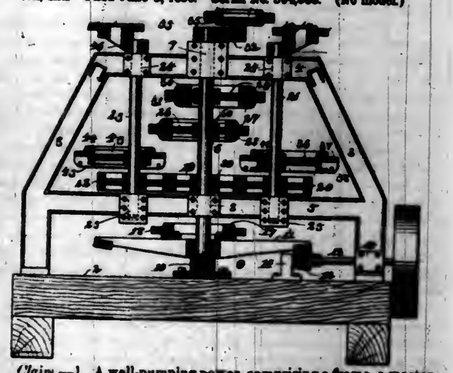
2. In a safety-guard and fender for cars, a horizontally-movable spring-actuated fender-frame adapted to be projected to the front from its normal position in line with the front of the car, a receiving-surface carried thereon, vertical guides with a vertically-moving flexible apron guided between them, a roller situated above the fender-frame and at its junction with the fender whereon the apron may be coiled, means by which the two surfaces are projected at right angles with each other by the forward movement of the fender-frame, flexible chains or cords passing over guide-pulleys, the upper ends of said chains being connected with the upper ends of the vertically-movable apron, and the lower ends with the fender-frame whereby the movement of the latter is communicated to the vertical apron.

3. In a safety-guard and fender for cars, a horizontally-movable spring-actuated fender-frame, a flexible receiving-surface supported thereby, a flexible apron having the upper end provided with a transverse rigid bar and vertical guides within which said bar is adapted to move, the lower end of said vertically-moving apron being so attached that it is moved in unison with the fender, chains connected with the transverse bar of the vertical apron passing over pulleys at the upper ends of the guides, thence downward over sprocket-wheels in the rear of the vertical guides, said chains having their lower ends attached to the horizontally-moving fender-frame, a mechanism for rotating the sprocket and apron-shaft whereby the engagement of the sprocket with the chains serves to retract the fender-frame against the action of the springs and to simultaneously retract the apron.



4. The combination with a horizontally-movable spring-actuated fender-frame of a trigger-frame slidable longitudinally beneath the main frame and normally projecting in front of the said frame, when the latter is retracted, a tilting plate having a latch upon the front end adapted to engage a catch upon the rear of the main frame, a channel formed substantially horizontal in the lower portion of the tilting plate and in which the rear bar of the trigger-frame is movable, said channel being so disposed that it serves as a stop for the trigger-frame to project the latter when the main frame is retracted and latched, and the opposite end of the channel serves as a stop for the trigger-frame when the main frame is projected so that the trigger-frame will be retracted beneath the main frame when the latter reaches its full extension.

587,525. WELL-PUMPING POWER. GEORGE W. GRIMM, Bluffton, Ind. Filed June 5, 1896. Serial No. 594,393. (No model.)

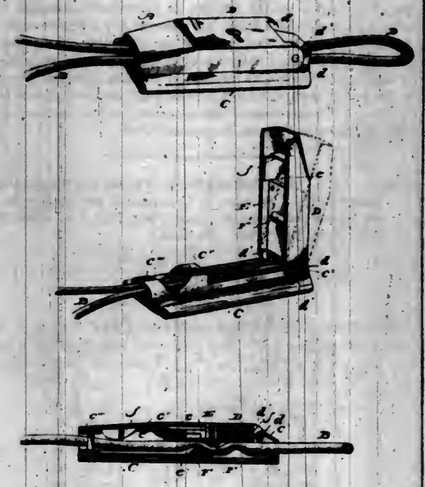


Claim.—1. A well-pumping power, comprising a frame, a master-shaft supported vertically therein, auxiliary shafts supported by said frame and having gear connection with the master-shaft, pump-rod-actuating devices on the master-shaft, pump-rod-actuating devices on the auxiliary shafts, and driving mechanism having connection with the master-shaft, substantially as specified.

2. A well-pumping power, having a frame comprising upright members and transverse members, a master-shaft extended through boxes secured to said transverse members and having a step-bearing provided with antifriction-rollers, auxiliary shafts having bearings through boxes on the upper transverse member of the frame and step-bearings in boxes on the lower transverse member of the frame, gear-wheels on said auxiliary shafts engaging with a gear-wheel on the master-shaft, crank-arms on each of said shafts above the upper transverse member of the frame, pump-rod-actuating rings or plates on said cranks, a master-gear on the lower portion of the master-shaft, and a driving-pinion engaged therewith, substantially as specified.

3. In a pumping-power for wells, the combination with a rotary shaft, of an eccentric or crank thereon consisting of two sections bolted together, the division being made transversely through the hub and transversely through the rim in a line between the hub and the center of the rim, and pump line or rod plates mounted on the eccentric or crank, each plate consisting of two sections bolted together at the ends, the joints of one plate being at right angles to the joints of the other plate, the said plates having a number of holes for line or rod fastening bolts, substantially as specified.

587,526. MAIL-BAG LOCK. GEORGE C. HOLDEN, Wayne, Pa. Filed Oct. 13, 1896. Serial No. 608,736. (No model.)



Claim.—1. A fastener for tie-cords comprising two members joined together to open and close, and provided with means for gripping a cord, one member having a guideway for a cord, and a suitable locking contrivance to hold the two members in fixed positive relation to each other, as and for the purposes described.

2. A fastener for tie-cords comprising a base member provided with a cordway and a bolt-keeper, a box-like member pivoted to said base member, a locking mechanism carried by said box-like member to engage with the bolt-keeper when the parts are closed, and coacting dogs arranged on the opposing faces of the base member and the pivoted member, as and for the purposes described.

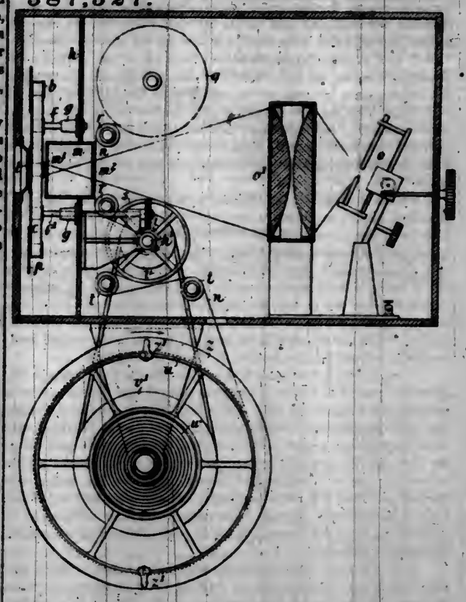
3. A fastener for tie-cords comprising a base member having a gripping-dog, a pivoted member also provided with a gripping-dog arranged in a position at one side of the first-named dog and adapted to wedge a cord between the two dogs, and a locking contrivance to hold the two members in positive fixed relation to each other, as and for the purposes described.

4. The combination with a base member having a cordway, of a foldable member pivoted to said base member and carrying a locking device, and suitable cord-gripping means, as and for the purposes described.

587,527. KINEMATOGRAPHIC LANTERN OR APPARATUS. JOHAN W. HOLST, Amsterdam, Netherlands. Filed Dec. 23, 1896. Serial No. 616,783. (No model.)

Claim.—In a kinematographic lantern, the combination with the endless carrier, a pair of rotary supporting devices therefor, the portions of said carrier between the supporting devices being maintained in a straight line, a series of lenses carried by said carrier, means for supporting a film in line with the path of said lenses, intermediate said supporting devices, an illuminating device in rear of said film and means for moving said film and carrier uniformly at the same speed and in the same direction, substantially as described.

587,527.



587,528. COOKING UTENSIL. EDWARD R. INMAN, Janesville, Wis. Filed Dec. 4, 1895. Serial No. 571,084. (No model.)



Claim.—1. In a cooking utensil, a griddle composed of two plates A and C attached together and held apart from each other by a band D, said bottom plate perforated to admit heat, and above said perforation a deflector to deflect the heat to the circumference of said griddle, in combination with a chambered cover, forming an oven, substantially as shown and described.

2. In a cooking utensil a griddle composed of an upper and a lower plate attached and held apart by a rim or band D, said lower plate having an aperture therein to receive heat, a deflector above said aperture, said band D being perforated to permit the egress of heat out of said griddle, in combination with a detachable chambered cover with a corrugated lining to permit hot air to enter said cover, substantially as shown and for the purpose specified.

3. In a cooking utensil, a base or griddle consisting of an upper and a lower plate, said lower plate having an aperture therein for the reception of flame and heat, said upper and lower plates being attached together and held apart by a band, which band is perforated, bearing upon its periphery a sliding counterpart, as a means of controlling the egress of heat from said griddle, a deflector within said griddle, as shown, in combination with a removable, chambered, ventilated cover all substantially as shown and for the purpose specified.

587,529. WRENCH. JOSEPH F. JAMISON and EDWIN R. MITSHRICK, Cleveland, Ohio. Filed Nov. 6, 1896. Serial No. 611,204. (No model.)



Claim.—1. In a wrench, the combination with a rod or bar having a stationary jaw at one end and a handle at the opposite end, of a straight flat locking-plate pivoted at one end thereto, a spring for

normally urging the free end of said locking-plate outwardly, and a movable jaw engaging said rod or bar and adapted to be engaged by said locking-plate, substantially as and for the purpose described.

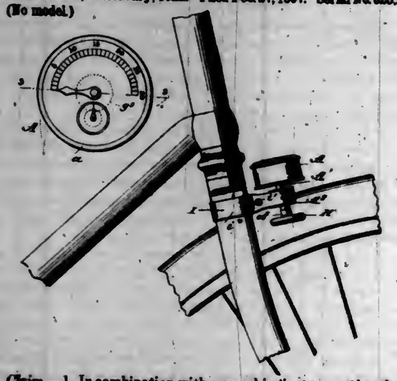
2. In a wrench, the combination with a rod or bar having a stationary jaw at one end and a handle at the opposite end, of a straight flat locking-plate pivoted at one end thereto having teeth upon its outer edge, a spring for normally urging the free end of said locking-plate outwardly, and a movable jaw embracing said rod or bar and provided with teeth upon its inner surface which are engaged by the teeth on said locking-plate, substantially as and for the purpose described.

3. In a wrench, the combination with a rod or bar having a longitudinal groove or recess in one face thereof and provided with a stationary jaw at one end and with a handle at its opposite end, of a straight flat locking-plate fitting within said groove or recess, pivoted to said bar, and provided with teeth upon its outer edge, a spring also located in said recess beneath said locking-plate for normally urging the free end of said locking-plate outwardly, and a movable jaw embracing said rod or bar and provided with teeth upon its inner surface which are adapted to be engaged by the teeth on said locking-plate, substantially as and for the purpose described.

4. In a wrench, the combination with a rod or bar having a longitudinal groove or recess in one face thereof and provided with a stationary jaw at one end and a handle at its opposite end, of a straight flat locking-plate fitting within said groove or recess provided with teeth upon its outer edge and pivoted at its lower end to said rod or bar, a spring for normally urging the free end of said locking-plate outwardly, and a movable jaw having lugs upon the under side thereof provided with alined openings through which said rod or bar fits and having teeth upon its inner surface which are adapted to be engaged by the teeth on said locking-plate, substantially as and for the purpose described.

5. In a wrench, the combination with a rod or bar having a longitudinal groove or recess in one face thereof and provided with a stationary jaw at one end and a handle at its opposite end, of a locking-plate fitting within said groove or recess provided with teeth upon its outer edge and pivoted at its lower end to said rod or bar, a spring for normally urging the free end of said locking-plate outwardly, a lug or button on said plate whereby the same may be forced inwardly against the pressure of said spring, and a movable jaw having lugs upon the under side thereof provided with alined openings through which said rod or bar fits and having teeth upon its inner surface which are adapted to be engaged by the teeth on said locking-plate, substantially as and for the purpose described.

587,580. SPEED-INDICATOR AND HOLDER THEREFOR. JAMES R. LOSHBAUGH, Waterbury, Conn. Filed Feb. 27, 1897. Serial No. 625,273. (No model.)



Claim.—1. In combination with a speed-indicator, a casing therefor having an eccentric portion, of a holder for engagement with the frame of a vehicle or bicycle, and said eccentric portion.

2. In a bicycle attachment, the combination of a casing having an eccentric portion, of a holder which engages the eccentric portion of the casing and the fork of the bicycle, the attachment being rotatable in the holder, for the purpose set forth.

3. In a bicycle attachment embodying a casing having a cam or eccentric portion, the combination with a resilient holder shaped to embrace the cam or eccentric portion of the casing, and fork of the bicycle; together with clamping means carried by the holder, substantially as shown.

4. In a speed-indicator, the combination with a shaft having a tubular portion, a movable stud positioned therein, and provided with a pin which projects beyond the tubular portion, of a rotatable sleeve with curved slot engaged by the pin; together with vertically-movable sleeve, and a rotatable spindle carrying a hand or pointer, substantially as shown.

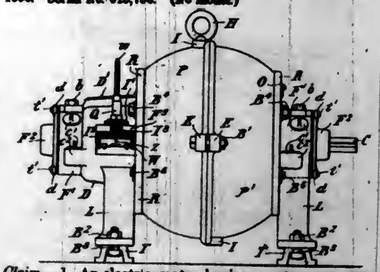
5. In a speed-indicator, the combination with the rotatable shaft, a rotatable sleeve, a vertically-movable stud, which is raised and lowered by the rotatable sleeve, a vertically-movable sleeve, one end engaged by the stud, and the other by a spring, a pointer carried by a spindle, and a governor, substantially as set forth.

6. In a governor for speed-indicators, the combination with weights rottably mounted upon arms, of springs which bear upon the peripheries of the rotatable weights, substantially as shown.

7. In a speed-indicator, the combination of the governor comprising movable arms, rotatable weights mounted thereon, springs engaging the weights and gear-wheels mounted on the studs to which the arms are attached, of a rotatable sleeve having a pinion and a curved slot, a driven shaft attached to the disk carrying the governing mechanism, a stud and a sleeve positioned in the hollow end of the shaft, and a rotatable spindle upon which the pointer or hand is attached, the parts being organized substantially as shown.

8. In a speed-indicator, the combination with governing mechanism comprising weighted arms and springs which frictionally engage the weights carried thereby, of gear-wheels connected to the arms, a sleeve having a pinion and a curved slot, a driving-shaft upon which is mounted a disk carrying the governing mechanism, said driving-shaft having a hollow portion, and a vertical slot in the wall of said hollow portion, two vertically-movable members positioned in the driving-shaft, and a spindle with hand attached which is turned by the upward movement of the upper longitudinal member substantially as shown and for the purpose set forth.

587,581. ELECTRIC MOTOR OR DYNAMO-ELECTRIC MACHINE. ROBERT LUNDELL, Brooklyn, N. Y., assignor of two-thirds to the Interior Conduit and Insulation Company, New York, N. Y. Filed Dec. 15, 1896. Serial No. 615,736. (No model.)



Claim.—1. An electric motor having a rotary armature and a field-magnet composed of duplicate or interchangeable parts with overlapping field-magnet poles surrounded by an energizing-coil inclined at an angle to the axis of the armature and permitting of removal thereof without disturbing the field-magnet, substantially as described.

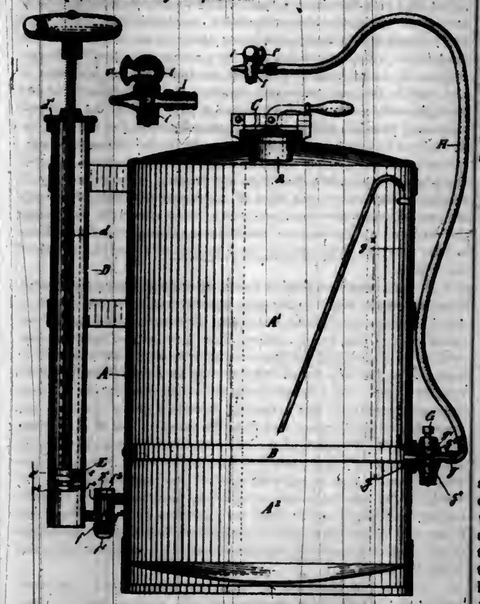
2. An electric motor having a rotary armature and a field-magnet composed of duplicate or interchangeable parts having overlapping poles surrounded by an energizing-coil inclined at an angle to the axis of the armature, in combination with detachable supports for the armature-shaft secured to the opposite ends of the field-magnet core, said supports being cast integral with legs or supports for sustaining the entire machine, substantially as described.

3. An electric motor having a rotary armature, a field-magnet coil surrounding the pole-pieces and the armature, and supports for the armature-shaft secured to the opposite ends of the field-magnet core, said supports being cast integral with legs or feet for sustaining the entire machine and the field-magnet being constructed of duplicate or interchangeable parts, substantially as described.

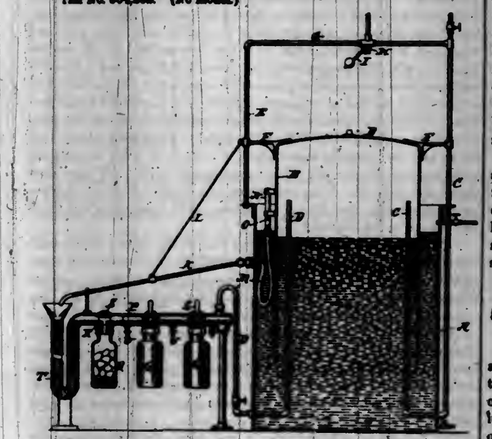
4. An electric motor having a rotary armature, a field-magnet coil surrounding the pole pieces and the armature and having its axis inclined at an angle to the armature-shaft, said armature-shaft being supported by journal-bearings sustained in turn by detachable end plates secured to the outer ends of the field-magnet and provided with integral legs or feet for sustaining the entire machine, the field-magnet being composed of duplicate or interchangeable parts, substantially as described.

587,582. APPARATUS FOR PROJECTING LIQUIDS UNDER PRESSURE. ALFRED MORGAN, Geneva, Switzerland. Filed Feb. 3, 1897. Serial No. 621,782. (No model.)

Claim.—The cock G formed of a tap having holes g^3 and g^4 and a casing g' having holes g^5 and g and pipe g^x in combination with the vessel having the compartments A' and A^2 so that the compressed air contained in one compartment passes through the liquid contained in the other compartment at the moment when said liquid is allowed to escape, substantially as specified.



587,588. ACETYLENE-GAS-GENERATING APPARATUS. JOHN J. MORGAN, Long Island City, N. Y. Filed Aug. 20, 1896. Serial No. 603,262. (No model.)



Claim.—1. In an apparatus for generating acetylene gas, and in combination with the water-tank and gasometer therein, a carbid-chamber or gas-generator, and mechanism communicating between the said chamber and the tank whereby water is supplied from the tank to the chamber, and means for regulating the flow of water by the rise and fall of the gasometer.

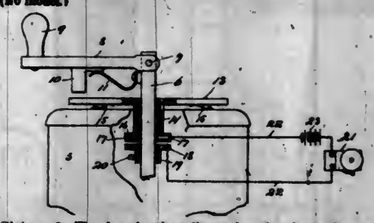
2. In an apparatus for generating acetylene gas, the combination of a water-tank and floating gasometer therein, a carbid-chamber or gas-generator, and mechanism communicating between the said chamber and the tank and carried by the gasometer, whereby water from the tank is supplied to the generating-chamber and regulated by the rise and fall of the gasometer.

3. In combination with the water-tank and gasometer therein, a carbid-chamber or generator, a drip-pipe extending from said tank to said generator, and a flexible pipe M attached to the gasometer, whereby by the rise and fall of the gasometer the water is delivered from the tank to the generator.

4. In combination with the water-tank and gasometer therein, a carbid-chamber or gas-generator, the drip-pipe K pivotally attached to said tank and acting to conduct water from the gasometer-tank to the generator, and a connection between said pipe and the gasometer, whereby the flow of water from the tank is regulated by the rise and fall of the gasometer.

5. In combination with the water-tank and gasometer therein, a carbid-chamber or gas-generator, a pipe (such as drip-pipe K) connected with the walls of the tank and for conducting water from the tank to the generator, and means (such as pipe M) attached to said pipe and to the gasometer and operating to control the flow of water from the tank to the generator in accordance with the rise and fall of the latter.

587,584. ELECTRICAL ALARM FOR CARS. ALEXANDER MATHAN, New York, N. Y. Filed June 3, 1897. Serial No. 639,330. (No model.)



Claim.—1. The herein-described electric alarm for cars, said alarm consisting of a vertical shaft spring-supported lever pivotally connected with the upper end thereof, and provided with a downwardly-directed arm, a vertically-movable disk or plate mounted on said shaft below said lever, a disk or plate mounted below said vertically-movable disk or plate, and connected and vertically movable therewith, a disk or plate rigidly secured to said shaft below said last-named disk or plate, and an alarm-bell in electrical connection with said last-named disks or plates, substantially as shown and described.

2. An electric alarm for electric cars, consisting of a lever pivotally connected with the upper end of the shaft by which the motor of the car is operated, said lever being spring-supported, and provided with a downwardly-directed arm, a spring-supported plate mounted on said shaft below said lever and insulated from said shaft by a sleeve, a disk or plate connected with said sleeve and vertically movable therewith, and with said spring-supported disk or plate, a disk or plate mounted on said shaft, and secured thereto, and insulated therefrom below said last-named disk or plate, and an electric bell in circuit with said last-named disks or plates, substantially as shown and described.

3. An electric alarm for cars, consisting of a vertical shaft, a spring-supported disk or plate mounted thereon, and insulated therefrom by means of a sleeve, a disk or plate connected with the lower end of said sleeve, another disk or plate mounted on said shaft below said last-named disk or plate and insulated from said shaft, and an electric bell in circuit with said last-named disks or plates, substantially as shown and described.

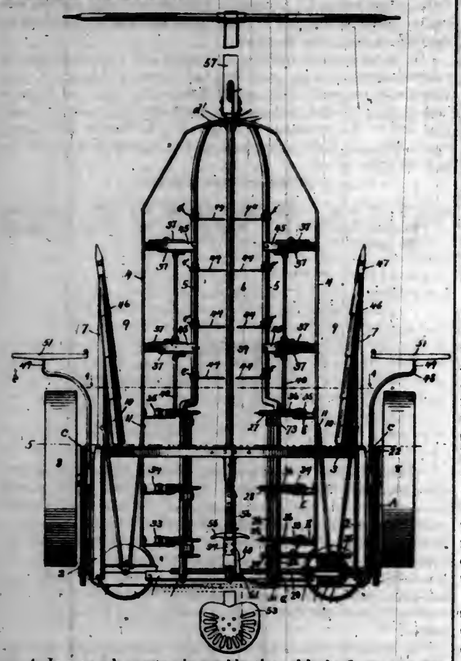
587,585. CORN-HARVESTER. DARIUS T. PHILLIPS, Chicago, Ill. Filed Dec. 30, 1895. Serial No. 572,839. (No model.)

Claim.—1. In a corn-harvester, the combination with the frame and traction-wheels, of a binder located between the paths of the traction-wheels, cutters between the traction-wheels at opposite sides of and in rear of the binder, cornstalk-engaging means for prostrating the stalks forward, elevating them and discharging them from opposite sides into the binder, and draft connections for horses in front of the wheels respectively, whereby the machine may be operated to cut and bind two adjacent rows of corn, the horses walking outside of both rows, and the bundle being formed between them, substantially as described.

2. In a corn-harvester, the combination with the frame and traction-wheels, of two independent cutters located inward from the paths of the wheels, respectively, a binder located between the paths of the cutters and forward of their transverse plane, and suitable means for prostrating the stalks forwardly from the cutters respectively, and for carrying them laterally from both sides toward the middle to the binder, whereby the bundle is accumulated and bound between the rows of stalks operated upon, substantially as described.

3. In a corn-harvester, in combination with the frame, two supporting-wheels for the same; draft connections for the horses in front of the wheels respectively; two independent cutters located inward from the paths of the wheels respectively, and a binder located between the paths of the cutters and forward of their transverse plane; and suitable means for prostrating the stalks forwardly from the cut-

ters respectively and for carrying them laterally from both sides toward the middle to the binder; whereby the bundle may be accumulated between the horses.



4. In a corn-harvester, in combination with the frame, two supporting-wheels: draft connections for horses in front of such wheels respectively; stalk-gathering arms inside the paths of the wheels respectively; a stalk-divider frame located between the stalk-gathering arms forming stalk-guideways between said gathering-arms respectively and said divider; a barrier extending across said stalk-guideways at the rear part thereof; and cutters located rearward of the vertical plane of said barrier in the line of said stalk-guideways; and elevating mechanisms located inward from said paths respectively and adapted to deliver the stalks midway between them, whereby the stalks are gathered and leaned forward before being cut, and are carried from both sides toward the middle.

5. In a corn-harvester, in combination with the two supporting-wheels: gathering-arms located inward from and adjacent to the paths of said wheels respectively; a divider-frame between the gathering-arms; elevating mechanisms in said divider-frame, and a cradle or stalk-receptacle between said elevating mechanisms, and suitable means for prostrating the stalks forwardly and for severing the same.

6. In a corn-harvester, in combination with the frame and the supporting-wheels, gathering-arms extending forwardly and inclined inwardly at their rear, whereby they are adapted to lean the stalks inwardly and to gather the same; a divider-frame located between the gathering-arms and having its guards inclined inwardly forming guideways for the stalks between the gathering-arms respectively and the divider-frame; elevating devices mounted on said divider-frame and operating upward in said guideways respectively; and a cradle or stalk-receptacle located between said elevating devices and into which they are adapted to discharge.

7. In a corn-harvester, in combination with the frame, two cutters in position to encounter and cut adjacent rows of corn; stalk-guideways in advance of said cutters respectively; suitable means for prostrating the stalks forward from the cutters in the guideways; a receptacle forward of the vertical plane of the cutters and midway between their paths, and conveying mechanisms adapted to carry the stalks from the stalk-guideways respectively laterally into said receptacle from both sides, and a binder adapted to bind them therein.

8. In a corn-harvester, a frame comprising lateral rigid structures having the wheel-bearings respectively; a transverse rigid structure which connects said lateral structures rigidly at the rear, and an elevated arch or span which connects them forwardly of said rear connection; a central bone or frame-bar secured to the elevated span or arch and to the rear transverse structure and projecting forwardly from the arch, and a frame supported at the rear by the said rear transverse structure and extending forwardly under the arch and suspended at the forward end from the forward end of the central bone; whereby the space above said suspended frame and below the arch and bone is transversely free from obstruction.

9. In a corn-harvester, a frame comprising lateral rigid structures having the wheel-bearings respectively; a transverse rigid structure which connects said lateral structures rigidly at the rear, and an elevated arch or span which connects them forwardly of said rear connection; a central bone or frame-bar secured to the elevated span or arch and to the rear transverse structure and projecting forwardly from the arch, and a frame supported at the rear by the said rear transverse structure and extending forwardly under the arch and suspended at the forward end from the forward end of the central bone; whereby the space above said suspended frame and below the arch and bone is transversely free from obstruction; in combination with cutters located at opposite sides of said suspended frame forwardly of the rear transverse structure, and suitable means for prostrating the stalks forwardly from the cutters on opposite sides of said frame and for carrying them laterally from both sides toward the middle of the frame.

10. In a corn-harvester, a frame comprising lateral rigid structures having the wheel-bearings respectively: a transverse structure which connects said lateral structures rigidly at the rear, and an elevated arch or span which connects them forwardly of said rear connection: a central bone or frame-bar secured to the elevated span or arch and to the rear transverse structure and projecting forwardly from the arch: and a frame supported at the rear by the said rear transverse structure, and extending forwardly under the arch and suspended at the forward end from the forward end of the central bone, whereby the space above said suspended frame and below the arch and bone is transversely free from obstruction; in combination with cutters located at opposite sides of said suspended frame forwardly of the rear transverse structure, and suitable means for prostrating the stalks forwardly from the cutters on opposite sides of said frame, and for carrying them laterally from both sides to the middle of the frame; and a binder mounted over said suspended frame and under the bone.

11. In a corn-harvester, a frame comprising lateral rigid structures having the wheel-bearings respectively: a transverse rigid structure which connects said lateral structures rigidly at the rear and an elevated arch or span which connects them forwardly of said rear connection, a central bone or frame-bar secured to the elevated span or arch and to the rear transverse structure and projecting forwardly from the arch; and a frame supported at the rear by the said rear transverse structure, and extending forwardly under the arch and suspended at the forward end from the forward end of the central bone, whereby the space above said suspended frame and below the arch and bone is transversely free from obstruction; in combination with cutters located at opposite sides of said suspended frame forwardly of the rear transverse structure, and suitable means for prostrating the stalks forwardly from the cutters on opposite sides of said frame and for carrying them laterally from both sides toward the middle of the frame: and a binder mounted above said suspended frame and under the arch, said frame being open at the bottom beneath the binder, and having a yielding stalk-supporting cradle at the bottom at the forward part.

12. In a corn-harvester, a frame comprising lateral rigid structures having the wheel-bearings respectively; a transverse rigid structure which connects said lateral structures rigidly at the rear, and an elevated arch or span which connects them forwardly of said rear connection; a central bone or frame-bar secured to the elevated span or arch and to the rear transverse structure and projecting forwardly from the arch; and a frame supported at the rear by the said rear transverse structure and extending forwardly under the arch and suspended at the forward end from the forward end of the central bone; whereby the space above said suspended frame and below the arch and bone is transversely free from obstruction; in combination with cutters located at opposite sides of said suspended frame forwardly of the rear transverse structure, and suitable means for prostrating the stalks forwardly from the cutters on opposite sides of said frame and for carrying them laterally from both sides toward the middle of the frame; said frame comprising a stalk-receptacle at the middle part of its width extending throughout its length, being open at the bottom at the rear part: and a binder mounted above said rear part and comprising a gate extending across said bottom which is opened to permit the discharge downward of the butts of the bundle.

13. In a corn-harvester, in combination with two cutters in position to encounter and cut adjacent rows of corn, means for prostrating the corn so cut substantially in the direction of travel: a binder located between the paths of travel of the cutters having its trunk at the rear and its shaft-bearing arms projecting forwardly from such trunk with a downward inclination; and suitable means for carrying the prostrate stalks laterally from both sides into the binder.

14. In a corn-harvester, in combination with the cutter: a gathering-arm comprising at its upper edge an inclined roller consisting of

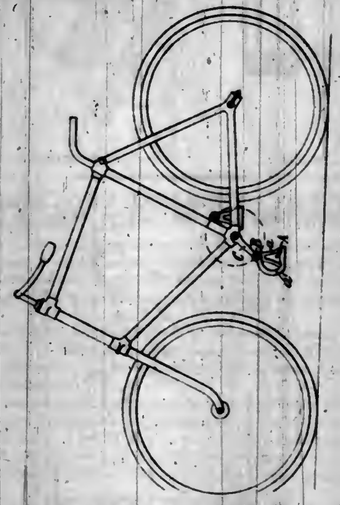
successive conical coaxial elements, all set base rearward: substantially as and for the purpose set forth.

15. In a corn harvester, in combination with two elevators and a binder between them; the needle or binding arm and the discharge-arms being adapted to be forced yieldingly inward toward the binder-space when the said needle and discharge arms retreat.

16. In a corn-harvester, the combination with the frame having the longitudinally-extending parts 5 and 7, of guides pivotally connected at one end thereto and extending backward and convergently from their points of connection, cutters toward the rear end of the frame over which said guides pass, slots in the frame in which said guides rest at their rear ends, adjusting-springs for the guides, and cutter-guards on the guides comprising downward and backwardly extending pieces, substantially as and for the purpose set forth.

17. In a corn-harvester, in combination with the frame and guides 10, sheet-iron plates 64, hinged at their top to rod K and attached to guide 10 in such a manner as to allow them to move in and out with the guides, substantially as described and set forth.

587,536. PEDAL FOR VELOCIPEDES. PIERRE TERVER, Paris, France. Filed Oct. 26, 1896. Serial No. 610,394. (No model.) Patented in France Apr. 13, 1896. No. 255,808.



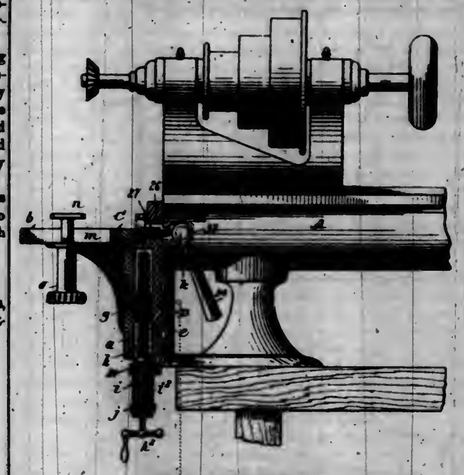
Claim.—A cycle-pedal the tread of which is hung beneath the crank-pin by means of stirrup-plates *a a'*, the outer plate *a'* being curved to leave space for entering the toe of the foot laterally into the pedal, substantially as set forth.

587,537. COMBINED LATHE AND MILLING-MACHINE. CHAS. E. VAN NORMAN, Springfield, Mass. Filed Nov. 13, 1893. Serial No. 490,776. (No model.)

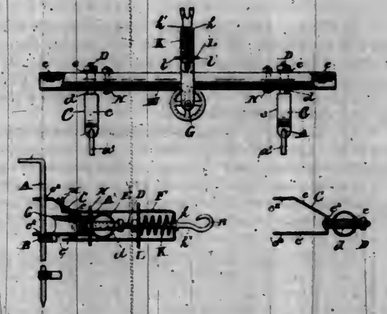
Claim.—A lathe-bed, a tail-stock applied thereto, and a bracket applied to the outer end of the bed, and carrying a work-holding table, combined with a reversible head-stock that is applied to the end of the lathe-bed, and which is adapted to be reversed upon the bed, and used in connection with the tail-stock, or said bracket, applied to the outer end of the bed and carrying a rotary cutting-tool, substantially as shown.

2. The combination with the lathe-bed having in its vertical end the transverse groove, the longitudinal socket and the transverse hole intersecting said socket, of the block, or plate, having the transverse rib, and the hole through its thickness, the headed pin with the transverse hole in its shank, the key, or shaft, having support-bearings in said transverse hole of the lathe-bed and passed through the said hole in the pin, the bracket, having a vertically-sliding engagement with said plate and a screw rotatably supported by the plate and having a screw-thread engagement with a member of the bracket, substantially as described.

3. The combination with the lathe-bed having in its vertical end the transverse groove, the longitudinal socket, and the transverse hole intersecting said socket, of the block, or plate, having the transverse rib, and the countersunk hole through its thickness, the headed pin with the transverse hole in its shank, the shaft, or key, having support-bearings in said transverse hole of the lathe-bed, and having the eccentric portion to lie within the hole in the said pin, the bracket having a vertically-sliding engagement with said plate and an adjusting-screw therefor, substantially as described.



587,538. ANCHOR FOR CHECK-ROW WIRES. WILLIAM R. WAGGONER, Ayr, Ind. Filed Feb. 24, 1897. Serial No. 624,814. (No model.)



Claim.—1. In an anchor for check-row wires, the combination with a rod and means thereon to engage the check-row wire, of adjustable supports for said rod, and a series of holes or sockets for said supports at each end of said rod, whereby the distance between the supports may be changed, substantially as described.

2. In an anchor for check-row wires, in combination with supporting-stakes, stays on said stakes, a track-rod, a longitudinal series of apertures in said rod near each end, pivots connecting said stays and track-rod and passing through corresponding apertures in the respective ends of said rod, substantially as described.

3. In combination with a track-rod, supporting-stakes, stays pivotally connecting said stakes and rod for the purpose described, a pulley on said rod, and a stop secured to said rod at each end thereof to limit the movement of said pulley, whereby contact of the pulley with the stays and supports when the same are pivotally adjusted, is prevented, substantially as described.

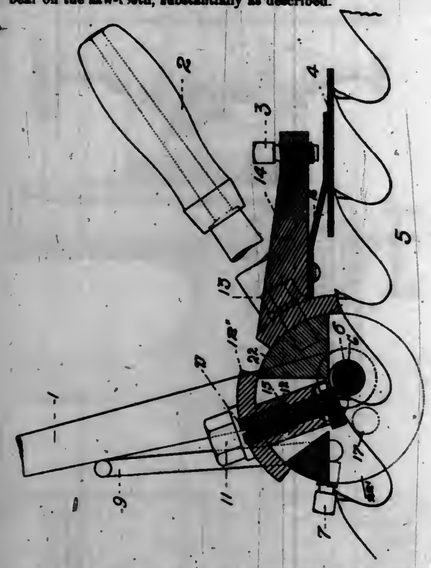
4. In combination with a check-row wire and its fastening means, supporting-stakes, stays, each provided with a lower horizontal arm and an upper slanting arm, said arms secured at their ends to a stake, and a track-rod supported by said stays at the junction of said arms, substantially as and for the purpose described.

587,539. SAW-SWAGE. ALBERT E. WHITE, Eau Claire, Wis. Filed Oct. 22, 1896. Serial No. 609,716. (No model.)

Claim.—1. In a saw-swaging device the combination of the circular slotted head, an anvil-supporting sleeve adjustable circumferentially with respect to the head, and a die supported in the head and adjustable with respect to the head and anvil, substantially as described.

2. In a saw-swaging device the combination of the circular slot-

ted head, an anvil-supporting sleeve adjustable circumferentially with respect to the head, and a die supported in the head and adjustable with respect to the head and anvil, a bracket fixed to said head and made circumferentially adjustable therein and adapted mediately to bear on the saw-teeth, substantially as described.



3. In a saw-swaging device the combination of a head provided with an anvil and the die provided with eccentric die-surfaces at two points each equidistant from an end of the die, said die being lengthwise reversible to place the said surfaces adjacent either end into operative position at will and constructed to receive a handle at either end, substantially as described.

4. In a saw-swaging device the combination of the head provided with an anvil and a die provided with opposite die-surfaces on each side of its center, said die being reversible endwise to successively place said lengthwise separated surfaces into operative position, the die being also rotatable and endwise adjustable, and provided with grooves adjacent each end, and a stop 20 adapted to engage any one of said grooves, substantially as described.

5. In a saw-swaging device a lengthwise-reversible die adapted at each end to receive an operating-lever and provided toward each end with a plurality of grooves 6^{IV}, a lock for either of said grooves, said die having a plurality of die-surfaces suitably situated with reference to its ends, whereby the die can be reversed and whereby in either position it can be adjusted endwise to bring different surfaces into operative position, substantially as described.

6. The combination in a saw-swaging device, of a head 22, a cap 12″ fitting said head and provided with slots 12′, a sleeve fixed to said cap, an anvil supported in said sleeve and a die with eccentric die-surfaces adjustably supported in said head, substantially as described.

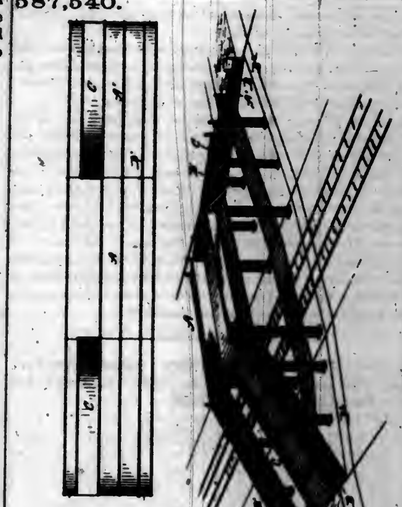
7. In a saw-swaging device the combination of a rotatable swage-head, a bracket, a guide-plate, a spring fixed to the bracket and plate to hold the latter on the saw-teeth, and a stop movably held in the bracket to limit the rotation of the head, said stop being adjustable without varying the relative situation of the bracket or varying the tension of the spring, substantially as described.

587,540. BRIDGE. LEBBEUS H. WILBUR, Owego, N. Y. Filed Mar. 20, 1897. Serial No. 628,482. (No model.)

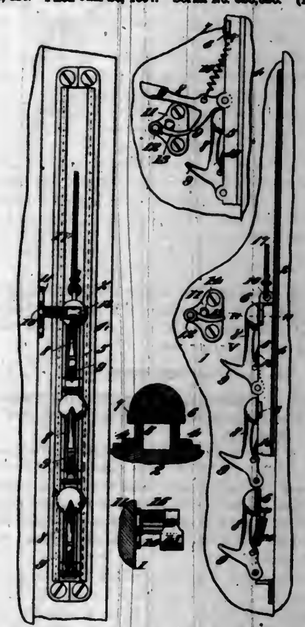
Claim.—1. A highway-bridge spanning a street having a railway laid therein, said bridge having each of its approaches divided longitudinally into an upper and under driveway, leaving the top surface of the bridge between the approaches full width, to be utilized as a turnout or for other purposes, substantially as described.

2. A highway-bridge spanning a street having a railway-track laid therein, said bridge having a pathway for foot-passengers across either side and each of its inclined approaches divided longitudinally into an upper and under driveway, the two openings leading to the under driveway being opposite each other, thereby leaving the surface of the bridge between the openings free to be used as a turnout, substantially as described.

587,540.



587,541. BURGLAR-ALARM. SEWALL A. WITHERSPOON, St. Louis, Mo. Filed Jan. 26, 1897. Serial No. 620,230. (No model.)



Claim.—1. In a burglar-alarm, the combination of a guide, a slide located in said guide, a series of spring-actuated hammers pivoted to said slide, a cap-receiving bed for each of said hammers and a trip located in the line of said hammers so as to engage them successively, substantially as set forth.

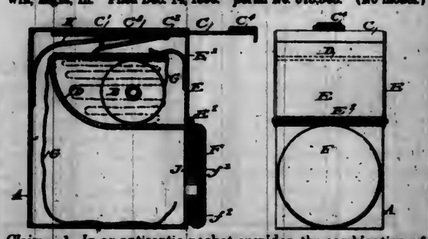
2. In a burglar-alarm, the combination of a guide, a slide located in said guide, a series of spring-actuated hammers pivoted to said slide, a cap-receiving bed for each of said hammers, and a spring-actuated trip arranged to operate said hammers, as set forth.

3. In a burglar-alarm the combination of a guide, a slide located in said guide, a series of spring-actuated hammers pivoted to said slide, a cap-receiving bed for each of said hammers on said support, spring cap-holding clips on said cap-receiving beds, and a spring-actuated trip arranged to operate said hammers, substantially as set forth.

4. In a burglar-alarm, the combination of a guide, a slide located in said guide, a series of spring-actuated hammers pivoted to said slide, an integral trigger carried by each of said hammers, a cap-receiving bed for each hammer on said slide, and a spring-actuated trip arranged to operate said hammers through means of said triggers, substantially as set forth.

5. In a burglar-alarm, the combination of a guide, a slide arranged to operate in said guide, a series of spring-actuated hammers pivoted to said slide, a cap-receiving bed for each of said hammers on said slide, a spring-actuated trip arranged to operate said hammers, and a cord attached to said slide and arranged to move said slide in its guide to bring said hammers into contact with said trip, substantially as set forth.

587,542. ANTISEPTIC POCKET-CUSPIDOR. MELVIN R. BALDWIN, Elgin, Ill. Filed Dec. 14, 1896. Serial No. 615,565. (No model.)



Claim.—1. In an antiseptic pocket-cuspidor, the combination of the box A diaphragm D and antiseptic medicated web G with the sliding cover C and hinged traversing pawl C^3 substantially as described and for the purpose specified.

2. In an antiseptic pocket-cuspidor, the combination of the box A diaphragm D sliding cover C, hinged traversing pawl C^3 and antiseptic medicated web G with the hinged cover E and its attached tension-spring E^2 substantially as described and for the purpose specified.

3. In an antiseptic pocket-cuspidor the combination of the box A diaphragm D sliding cover C and hinged cover E with the outlet J and its screw-cover F and india-rubber jointing substantially as set forth and described.

4. In an antiseptic pocket-cuspidor the combination of the box A diaphragm D sliding cover C hinged cover E outlet J screw-cover F spool B and web-guides H with an antiseptic medicated web of cloth, felt, or other suitable material upon which the sputum is expectorated substantially as shown and for the purpose specified.

587,548. UPRIGHT-PIANOFORTE ACTION. FRANCIS L. BOOKER, New York, N. Y. Filed Jan. 30, 1897. Serial No. 621,297. (No model.)



Claim.—1. In an upright-pianoforte action, the combination with a hammer-butt pivoted on the action-frame, a hammer carried thereby, a jack, means for operating said jack from the key-lever, and escapement mechanism for said jack, of a shoulder located on said hammer-butt at a distance from the pivotal point of the jack greater than the distance between the hammer-butt pivotal point and said pivotal point of the jack with which said jack contacts to impart its stroke to said hammer-butt and hammer, substantially as set forth.

2. In an upright-pianoforte action, the combination of a hammer-butt pivoted on the action-frame, a hammer carried thereby, a jack, means for operating said jack from the key-lever, a jack-spring for normally pressing said jack against the hammer-butt, escapement mechanism for said jack, and a shoulder located on said hammer-butt at a distance from the pivotal point of the jack greater than the distance between the hammer-butt pivotal point and said pivotal point of the jack with which said jack is adapted to contact, the latter operating to impart the stroke to said hammer through said shoulder and to remain out of contact therewith while the key is depressed, but, when my key is partially released, to move the hammer forward again toward the string through the medium of the jack-spring alone pressing said jack against the hammer-butt, thus permitting the end of said jack to reëngage with the shoulder on the hammer-butt in position for a repetition stroke, substantially as set forth.

3. In an upright-pianoforte action, the combination with a hammer-butt pivoted on the action-frame, a hammer carried thereby, a counter-check also carried thereby, a back-check, a jack adapted to normally engage with said hammer-butt, means for operating said back-check and jack from the key-lever, and escapement mechanism for said jack, of a projection carried by said counter-check and adapted to contact with said jack as the key is released to force said jack beneath the hammer-butt shoulder by the weight of the hammer and hammer-butt alone, substantially as set forth.

4. In an upright-pianoforte action, the combination with a hammer-butt pivoted on the action-frame, a hammer carried thereby, a jack, means for operating said jack from the key-lever, a jack-spring for normally pressing said jack against the hammer-butt, and escapement mechanism for said jack, of a shoulder located on said hammer-butt with which said jack is adapted to contact to impart its stroke to said hammer-butt and hammer, and a cushion attached to said hammer-butt beneath said shoulder and depending below the bottom of said hammer butt against which the jack is adapted to contact when impelled by its spring beneath the shoulder on the hammer-butt and which thereby operates to check the movement of the hammer toward the string, substantially as set forth.

5. In an upright-pianoforte action, the combination with a hammer-butt pivoted on the action-frame, a hammer carried thereby, a counter-check also carried thereby, a back-check, a jack adapted to normally engage with said hammer-butt, means for operating said back-check and jack from the key-lever, and escapement mechanism for said jack, of a projection carried by said counter-check and adapted to contact with said jack to limit the movement of the hammer in its rebound from the string after its stroke, substantially as set forth.

6. In an upright-pianoforte action, the combination with a hammer-butt pivoted on the action-frame, a hammer carried thereby, a counter-check also carried thereby, a back-check, a jack adapted to normally engage with said hammer-butt, means for operating said back-check and jack from the key-lever, and escapement mechanism for said jack, of a projection carried by said counter-check and adapted to contact with said jack to limit the movement of the hammer in its rebound from the string after its stroke, and a tongue carried by said jack and adapted to engage with said projection to clamp the counter-check against the back-check as the hammer rebounds from the string and to return said hammer to its initial position through said counter-check as the jack descends upon the release of the key-lever, substantially as set forth.

7. In an upright-pianoforte action, the combination of a hammer-butt pivoted on the action-frame, a hammer carried thereby, a counter-check also carried thereby, a back-check, a jack adapted to normally engage with the hammer-butt, means for operating said back-check and jack from the key-lever, escapement mechanism for said jack, a projection carried by said counter-check and adapted to contact with said jack when the action is in its initial position and when the key-lever is depressed, and a tongue carried by said jack and adapted to contact with said projection when the counter-check is against the back-check and as the jack descends to its initial position, the whole operating to impart the stroke to the hammer, to clamp said hammer against movement in either direction while the key is completely depressed, and to return the various parts to their initial positions when the key is released, substantially as set forth.

8. In an upright-pianoforte action, the combination of a hammer-butt pivoted on the action-frame, a hammer carried thereby, a counter-check also carried thereby, a back-check, a jack, means for operating said back-check and jack from the key-lever, a spring for normally pressing said jack against the hammer-butt, escapement mechanism for said jack, a shoulder located on said hammer-butt with which said jack is adapted to contact to impart its stroke to said hammer-butt and hammer, a projection carried by said counter-

check and adapted to contact with said jack when the action is in its initial position and when the key-lever is depressed, and a tongue carried by said jack and adapted to contact with said projection when the counter-check is against the back-check and as the jack descends to its initial position, the whole operating to impart the stroke to the hammer, to clamp said hammer against movement in either direction while the key is completely depressed, and to return the various parts to their initial positions when the key is released, substantially as set forth.

587,544. ELASTIC TIRE. BERNARD H. CHARBOT, Le Vesinet, France. Filed June 8, 1897. Serial No. 639,815. (No model.)



Claim.—1. An elastic tire comprising in combination a felly, an annular band of elastic material mounted upon the felly, a metal hoop placed upon the said band and presenting lateral projections, metallic tread-segments covering the band and bearing thereon on both sides of the said hoop, the said segments presenting inwardly-projecting edges which engage freely with those of the hoop and leaving between their heads and the periphery of the hoop an empty space which permits the segments to yield to external pressures and to transmit integrally these pressures to the elastic band, substantially as herein described.

2. An elastic tire comprising in combination a felly, an annular band of elastic material mounted upon said felly, a metal hoop in segments fixed upon the said band and presenting lateral projections, and metal tread-segments covering the band and bearing thereon on opposite sides of the said hoop, the tread-segments presenting lateral projections which engage freely under those of the hoop and leave between their heads and the surface of the hoop an empty space which permits the tread-segments to yield to external pressures and to transmit integrally those pressures to the elastic band, substantially as herein described.

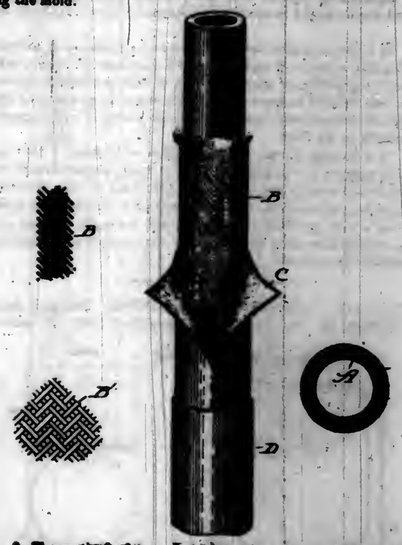
3. An elastic tire comprising in combination a felly, an annular band of elastic material mounted upon said felly, a metal hoop lodged in the peripherical groove in the said band and retained therein by bolts and presenting lateral projections, and metal tread-segments covering the band and bearing thereon on opposite sides of the said hoop, said segments presenting lateral projections which engage freely under those of the hoop and leaving between their heads and the surface of the hoop an empty space which permits said segments to yield to external pressures and to transmit integrally the said pressures to the elastic band, substantially as herein described.

4. An elastic tire comprising in combination a felly, an annular band of elastic material mounted upon said felly, a metal hoop consisting of segments lodged in a peripherical groove in the said band and retained therein by bolts and presenting lateral projections, and metal tread-segments covering the band and bearing thereon on opposite sides of the said hoop, the tread-segments presenting lateral projections which engage freely under those of the hoop-segments and leaving between their heads and the surface of the hoop an empty space which permits said segments to yield to external pressures and to transmit integrally those pressures to the india-rubber band, substantially as herein described.

5. An elastic tire comprising in combination a felly, an annular band of elastic material mounted upon said felly, a metal hoop fixed upon said band and presenting lateral projections, metal tread-segments covering said band and bearing thereon on opposite sides of the said hoop, the said segments presenting lateral projections which engage freely under those of the hoop and leaving between their heads and the periphery of the hoop an empty space which permits the segments to yield to external pressures and to transmit integrally those pressures to the india-rubber band, and transverse metal bands interposed between the adjacent segments, substantially as herein described.

587,545. RUBBER HOSE. HENRY B. COES, Wilmington, Del., assignor to the Chicago Electric Wire Company of Delaware, of Delaware. Filed Feb. 24, 1896. Renewed Dec. 28, 1896. Serial No. 617,282. (No model.)

Claim.—1. The method of manufacturing rubber hose, which consists in forming about a tube of alternate layers of rubber and fabric an inelastic mold and maintaining inside the tubing a counter-pressure of expansible fluid during the molding operation, then subjecting the mold-covered product to heat and finally removing the mold.



2. The method of manufacturing rubber hose, which consists in molding about a tube of alternate layers of rubber and fabric a covering of lead and maintaining inside the tubing a counter-pressure of expansible fluid during the molding operation, then subjecting the lead-covered product to vulcanization and finally removing the lead covering.

3. The method of manufacturing rubber hose, which consists in forming about a tube of alternate layers of rubber and fabric an inelastic mold and maintaining inside the tubing a counter-pressure of expansible fluid during the molding operation, then subjecting the mold-covered product to heat and finally removing the mold.

4. The method of manufacturing rubber hose, which consists in molding about a tube of alternate layers of rubber and fabric a covering of lead and maintaining inside the tubing a counter-pressure of expansible fluid during the molding operation, then subjecting the lead-covered product to heat and finally removing the lead covering.

5. The method of manufacturing rubber hose, which consists in making rubber tubing by forcing rubber, prepared for vulcanization, through tube-forming dies, forming about said tubing an open-work covering, then incasing said covered tubing in unvulcanized rubber, forming about the whole an inelastic mold, and maintaining inside the tubing, during the molding operation, a counter-pressure of expansible fluid, then subjecting the mold-covered product to vulcanization and finally removing the mold, substantially as described

6. The method of manufacturing rubber hose, which consists in making rubber tubing by forcing rubber, prepared for vulcanization, through tube-forming dies, forming about said tubing an open-work covering and covering it with sheet-rubber, then molding about the whole a covering of lead, and maintaining inside the tubing, during the molding operation, a counter-pressure of expansible fluid subjecting the lead-covered product to vulcanization and finally removing the lead covering, substantially as described.

7. The method of manufacturing rubber hose, which consists in forming about unvulcanized rubber tubing an open-work covering, then incasing said covered tubing in unvulcanized rubber, molding about the whole a covering of lead and maintaining inside the tubing a counter-pressure of expansible fluid during the molding operation, then subjecting the lead-covered product to vulcanization and finally removing the lead covering, substantially as described.

8. In the manufacture of rubber hose composed of alternate layers of rubber and fabric, the method of forming a tubular layer of the rubber, which consists in passing sheet-rubber through a former and uniting the edges of the rubber sheet by heat, while so forming it into tubing.

9. A step in the art of manufacturing rubber hose which consists in forming about a tube of alternate layers of rubber and fabric an inelastic mold, and maintaining during the molding operation a counter-pressure of expansible fluid.

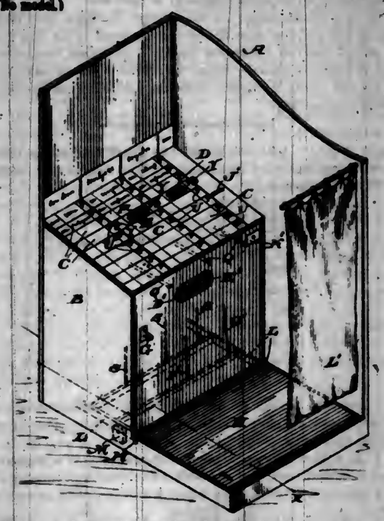
587,546. COUPLING. MATHIAS DELLENBAUGH, Chicago, Ill. Filed Apr. 3, 1897. Serial No. 630,544. (No model.)

Claim.—1. A coupling comprising a hollow cone provided with a shank adapted to be inserted into an opening, a rubber sleeve adapted to fit said opening and to receive said hollow cone, a flange on said sleeve, a pipe-section provided with a flange adapted to engage said flange on said sleeve, a sleeve adapted to fit within the other end of said pipe-section and provided with a flange adapted to engage the outer end of said pipe-section and with a concentric sleeve supported by a diametric rib adapted to receive said shank of said cone, a nut adapted to engage the outer projecting end of said shank and said outermost sleeve, whereby said cone and said pipe section are caused to compress said rubber sleeve to form water-tight joints, and a union for coupling said pipe-section to a flush-pipe, substantially as described.



2. In a coupling, the combination with the inlet end of a closet-bowl having an opening, a hollow cone adapted to be inserted in said opening, a shank on said cone, a pipe-section, and a sleeve adapted to fit within and engage the outer end of said pipe-section and to receive the outer end of said shank and be engaged by a nut thereon, of a rubber sleeve adapted to fit within said opening and to receive said cone and be compressed between the same and the inner wall of said opening, and provided with a flange adapted to be compressed between the inner end of said pipe-section and the outer wall of said bowl around said opening, substantially as described.

587,547. VOTING-BOOTH AND REGISTERING DEVICE. CLARENCE A. EVANS, Upland, Pa. Filed Apr. 15, 1896. Serial No. 587,602. (No model.)



Claim.—1. In a voting-booth and registering device, a frame with a shoulder thereon, a tilting platform supported on said shoulder, weighted levers jointed to said platform, springs for raising the weighted ends of said levers, a stand with a rock-shaft mounted therein, links and rods connecting said levers and rock-shafts, a plate with openings therein on said stand, registering-disks at said openings, and push-rods connected with said rock-shaft, and actuating said disks.

2. In a voting-booth and vote-registering device, a lever, a rock-shaft having mechanism connecting it with said lever, a registering device with an operating push-rod, and a double pawl connected with said rock-shaft forming stops for said push-rod at the ends of its opposite movements.

3. In a voting-booth and vote-registering device, a tilting platform having a support at one end, levers pivotally connected with the opposite end of said platform, means for normally balancing said levers, a rock-shaft connected with and oscillated by the movement of said levers, a series of registering-disks, separate push-rods connected with said rock-shaft and having connecting mechanism for actuating said registering-disks and a single push-rod with mechanism for connecting all of said first-mentioned push-rods.

4. In a voting-booth and vote-registering device, a lever, a platform pivotally connected therewith, a rock-shaft connected with and operated by the movement of said lever, a series of registering devices with operating push-rods, a double pawl carried by said rock-shaft for locking said push-rods, springs adapted to engage said push-rods, a swinging plate engaging said springs, and a push-rod for operating said plate.

5. A registering device, barrels having swinging arms on the axis thereof, a push-rod with slotted lugs on the side thereof, pins connecting said arms and lugs, a ratchet-wheel on the side of said barrel, operating-pawls connected with said swinging arms, and an oscillating spring-pawl engaging the lower end of said push-rod.

6. In a voting-booth and vote-registering device, a tilting platform, a lever pivotally connected with said platform, a rock-shaft having the double pawl with limbs T, T' as described, a registering device and a push-rod for said registering device having notches on opposite sides, the walls of which are engaged by said limbs.

7. A voting-booth and registering device, having a frame with a stand thereon, a platform having one end supported on a shoulder on said frame, a series of tablets on the upper face of said stand, a plate on a stand beneath said tablets having openings therein, registering-disks below said openings, levers jointed to one end of said platform, rock-shafts mounted in said stand, links and rods connecting said shafts and levers, elastic double-limbed dogs attached to said rock-shafts, push-rods with recesses on opposite sides alternately engaged by noses on said limbs, and pawls connected with said push-rods for operating said registering-disks.

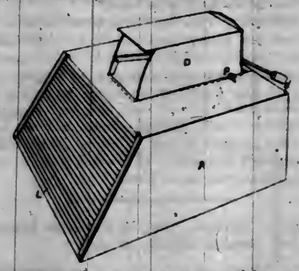
8. In a device substantially as described, a rock-shaft with spring-pressed limbs for unlocking and locking the push-rods of the device, by means operated by a tilting or moving platform in a voting-booth.

9. The tilting platform H and the lever I, pivotally connected therewith, in combination with the adjusting-weight P on said lever, and the retaining-spring N connected in with the latter, substantially as described.

10. A voting-booth and registering device having a platform, a stand, a shaft journaled therein, mechanism for rocking said shaft, a plate with openings on said stand, registering-disks at said openings, push-rods connected with said rock-shaft, and operating said disks, springs secured to said stand, a swinging plate engaging said spring and a supplemental push-rod engaging and operating said swinging plate.

11. A voting-booth and registering device having a platform, a stand, a rocking shaft journaled therein mechanism for operating said shaft when said platform is occupied, registering-disks, a double spring-pawl secured to said shaft, a push-rod engaged by said pawl and a dog connected with said push-rod for operating said disks.

587,548. ANIMAL-TRAP. ANGE FRET, Wauseon, Ohio. Filed Nov. 23, 1896. Serial No. 613,140. (No model.)

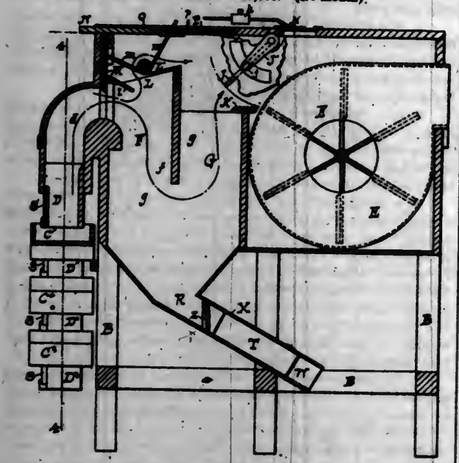


Claim.—1. In a rat or mouse trap, a receiving-receptacle provided with an orifice in its top, a dumping-receptacle of a size to fit and swing within the orifice pivotally secured to the receiving-receptacle at its rear side, a lock to normally hold the front side in a raised position comprising a pivoted lever, one end swinging in the arc of a circle over the top of the receiving-receptacle, the opposite end being of a weight to normally hold the forward end over the top of the receiving-receptacle, and a platform pivotally secured within the dumping-receptacle, one side being in a position to be depressed by an animal within the receptacle, the opposite side being in alinement with the weighted end of the locking-lever to raise the same when the platform is rocked to disengage the locking mechanism and allow the dumping-receptacle to fall.

2. In a rat or mouse trap, a receiving-receptacle provided with an orifice in its top, a dumping-receptacle of a size to fit and swing within the orifice, said dumping-receptacle being pivotally secured

near its rear side to the receiving-receptacle, the top and bottom of the dumping-receptacle being of a length to engage with the top of the receiving-receptacle to limit the movement of the dumping-receptacle, a locking mechanism to hold the dumping-receptacle in a raised position, and a tripping mechanism to release the same.

587,549. SEPARATOR FOR GRAIN, &c. CHARLES P. FULLMER, Benton, Pa., assignor of one-half to William H. Magill, same place. Filed June 17, 1896. Serial No. 595,833. (No model.)



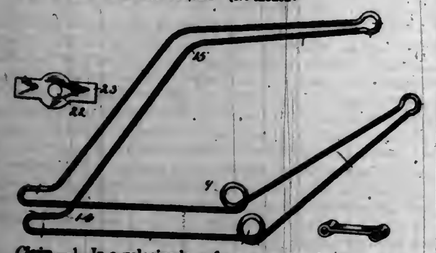
Claim.—1. In a separator, the combination with a main or common chamber, and means for exhausting the air therefrom, of a plurality of flues or grain-tubes leading upwardly into said chamber said flues enlarging abruptly toward their upper ends thus producing whirls or eddies within said enlarged portions whereby any of the heavier particles that may have been carried up through the lower portions of the flues may be separated and returned down and out of the flues against the upflowing blast, means for separately regulating the draft in each of said flues, means for delivering the grain and other material which is not carried through the first flue into the second flue and so on in succession, and a separate hopper or receiving-chute for each flue opening from the main chamber, the whole operating to simultaneously clean and grade the grain, substantially as set forth.

2. In combination in the flue of a separator, a gate or valve for closing the said flue, and another gate or valve for regulating the draft, and connections, for simultaneously operating the two said gates or valves, substantially as set forth.

3. In combination in the flue of a separator, a gate or valve for closing the said flue, another gate or valve for regulating the draft, connections for simultaneously operating the two said gates or valves, and an independently-adjustable gate or valve cooperating with the said gate or valve for regulating the draft, substantially as set forth.

4. In combination with the main chamber or casing, the plurality of grain-flues leading thereto, separate gates or valves in the said flues, and a plurality of gates or valves in said main-chamber casing cooperatively connected with the said gates or valves in the several flues, substantially as set forth.

587,550. BICYCLE. HENRY W. HENNEBERG, Chicago, Ill. Filed Apr. 7, 1896. Serial No. 586,524. (No model.)



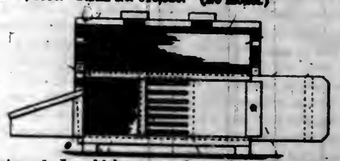
Claim.—1. In a velocipede, a frame composed of wire bent to form loops at its forward ends to receive the pivot of the fork, and spiral loops at its lower middle portion to receive the bearing for the crank-shaft.

2. In a velocipede, a frame composed of wire bent to form upwardly-extending spiral loops at its lower middle portion to receive the bearing for the crank-shaft.

3. In a velocipede, a frame composed of wire bent to form upwardly-extending spiral loops at its lower middle portion to receive the bearing for the crank-shaft, and means for holding said loops against lateral movement consisting of a T-coupling mounted between the same against the ends of which said loops abut, and a clip adjacent said T-coupling adapted to hold said loops in contact with said T-coupling.

4. In a velocipede, a frame composed of a single piece of wire bent to form guide-slots at its rear end in which the shaft of the rear wheel is adapted to be adjustably secured, bent at its lower middle portion to form loops in which the bearing for the crank-shaft is adapted to be secured, and means for holding said loops against lateral movement consisting of a sleeve mounted between the same against the ends of which said loops abut, and a clip for holding said loops in contact with said ends of said sleeve mounted adjacent the same.

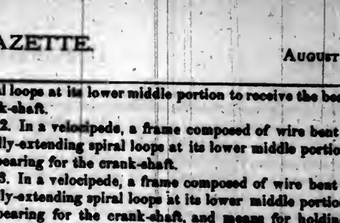
587,551. CHICKEN-COOP. WILLIAM B. HOFF, Elder, Md. Filed Dec. 31, 1896. Serial No. 616,589. (No model.)



Claim.—1. In a chicken-coop, the combination of the coop proper with a removable feed-chamber applied to the outside of the said coop the two apartments being in communication by means of holes, two feed-hoppers in the said chamber, one of which is inaccessible to the hen in the coop, substantially as specified.

2. In a chicken-coop, the coop proper having a main entrance-opening and a sliding door therefor, one portion of the said door being slotted and the remaining portion imperforate, combined with stops on the door whereby either the slotted or the imperforate portion may be made to register with the said entrance-opening, substantially as specified.

587,552. MEASURING APPARATUS FOR COAL, &c. CHARLES W. HUNT, West New Brighton, N. Y. Filed Aug. 10, 1894. Serial No. 519,922. (No model.)



Claim.—1. In a measuring apparatus the combination of a measure and a valve, so arranged that the measure operates in unison with the movement of the valve.

2. In a measuring apparatus the combination of a measure having an extended back that operates as an obstacle-remover and gate, and a valve operating the said measure in unison with its own movement.

587,553. CORSET-ADVERTISING FORM. DANIEL KOPS, New York, N. Y. Filed Apr. 12, 1897. Serial No. 631,990. (No model.)

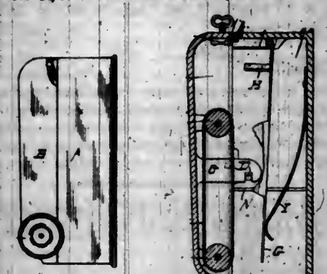


Claim.—1. As a new article of manufacture a corset-advertising form with an extension above the shoulders having an approximately flat surface toward the front of the corset adapted to receive advertising matter, substantially as set forth.

2. As a new article of manufacture, a corset-advertising form having an extension rising above the shoulders as a neck portion *b* and broadened out above the same to form a dummy head *c*, the same having an approximately flat surface *c'* toward the front of the corset-form and a frame connected thereto for receiving advertising matter, substantially as specified.

3. As a new article of manufacture, a corset-advertising form having an extension rising above the shoulders as a neck portion *b* and broadened out above the same to form a dummy head *c* having an approximately flat surface *c'* and a frame connected thereto, rollers placed through said head, a band of material wound upon said rollers and passing through mortises in said head and across said surface substantially as and for the purposes set forth.

587,554. TOILET-PAPER CABINET. JOHN H. MOEHN, Milwaukee, Wis., assignor of one-half to Lucas D. Dorschell, Chilton, Wis. Filed Oct. 14, 1896. Serial No. 608,864. (No model.)



Claim.—1. A toilet-paper cabinet comprising a shell having a cover-retaining flange and supporting-shoulders on three sides thereof, a cover having flanges adapted to fit over the cover-retaining flanges of the shell and bear upon said shoulders, hooks rigidly attached to the shell and adapted to slidably engage with lugs projecting from the interior surface of the shell, and a lock-bolt attached to the cover and adapted to engage against the inner surface of the rear end of the shell when the hooks are in engagement with said lugs, together with a spring-actuated pressure-plate removably located in the interior of the shell, and a friction-belt attached to the cover and adapted to discharge the paper through a slot in the front end of the cabinet, substantially as described.

2. A toilet-paper cabinet, comprising a shell having a cover-retaining flange and supporting-shoulders on three sides thereof, a cover having flanges adapted to fit over the cover-retaining flanges of the shell and bear upon said shoulders, hooks rigidly attached to the shell and adapted to slidably engage with lugs projecting from the interior surface of the shell, and a lock-bolt attached to the cover and adapted to engage against the inner surface of the rear end of the shell, when the hooks are in engagement with said lugs, together with a spring-actuated pressure-plate removably located in the interior of the shell and provided with a knife-shaped paper-supporting pin, and a friction-belt attached to the cover and adapted to discharge the paper through a slot in the front end of the cabinet, substantially as described.

587,555. FEED-GRINDING MILL. THOMAS L. PHILLIPS, Aurora, Ill., assignor to the Challenge Wind Mill and Feed Mill Company, Batavia, Ill. Filed May 5, 1896. Serial No. 590,275. (No model.)



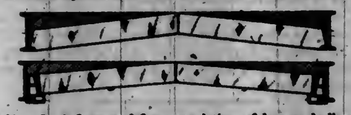
Claim.—1. In a grinding-mill, the combination of the base, a grinding-ring, a support fixedly holding the same, attached to the base, a second grinding-ring, and gearing for revolving the latter, comprising in part a toothed ring, which rests on said base, the support for the fixed grinding-ring extending over said toothed ring, substantially as and for the purpose specified.

2. In a grinding-mill, the combination of the base, a grinding-ring, several brackets to which the latter is attached, a second grinding-ring, gear-wheels to impart movement thereto, mounted on said base, and an internally-toothed ring for actuating said wheels, also resting on said base, said brackets resting on said wheels and toothed ring, substantially as and for the purpose set forth.

3. In a grinding-mill, the combination of the base, the shaft, supported by the same carrying a grinding-ring, a gear on said shaft, above the base, a series of gears, mounted each on a bolt or stud on the base, meshing with the shaft-gear, means for driving said series of gears, brackets above the latter secured to their pivot-bolts, and a grinding-ring attached to said brackets, substantially as and for the purpose shown.

4. In a grinding-mill, the combination of the grinding-rings having downwardly and inwardly inclined grinding-faces, a shaft for revolving the upper one of said rings, relatively to which it may move in an axial direction, and a screw passing through a suitable support and abutting against a part of said ring, to restrain its upward movement, substantially as and for the purpose set forth.

587,556. FIREPROOF FLOOR. GUSTAVE RAPER, New York, N. Y. Filed Apr. 17, 1897. Serial No. 632,869. (No model.)



Claim.—1. A fireproof floor consisting of beams, hollow blocks supported on the base of said beams and abutting at their inner ends, wedges interposed between the outer ends of the blocks and the beams, the blocks at one side of the center line between the beams being made to alternate with the blocks at the other side of the same, substantially as set forth.

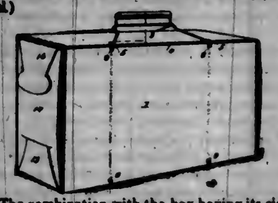
2. A fireproof floor consisting of beams, skewbacks supported on said beams, inclined hollow blocks resting on said skewbacks and abutting at their inner ends, and wedges interposed between the outer ends of the blocks, and the skewbacks, substantially as set forth.

587,557. NUT-LOCK. MATTHEW REARDON, Moravia, N. Y. Filed Nov. 21, 1896. Serial No. 613,000. (No model.)



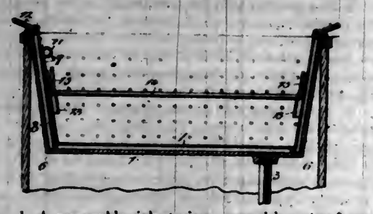
Claim.—A nut-lock comprising a plate mortised to fit over a nut upon a bolt inserted through a fish-plate in combination with a spring-clip engaging with the interior surface of the fish-plate and provided with a stud engaging with a recess in the outer surface of the said nut-locking plate.

587,558. FOLDING PACKAGE-CARRIER. VAN A. REED and JAMES W. REED, Elizabeth, Pa. Filed Nov. 18, 1896. Serial No. 612,581. (No model.)



Claim.—The combination with the box having its sides provided with openings 8, near the upper and lower ends, and with interlocking end folds, one of such sides having an extension 6, the other an extension 3, of greater width than the extension 6, said extension 3 having notches 5, of the carrier wire or cord having a loop member 10, and having its ends passed from the outside through the openings 8 at the top of one of the sides, thence from the inside through the openings 8 at the bottom of such side, thence under the box, thence from the outside through the opening 8 at the bottom of the opposite side member, thence from the inside through the notches 5 in the member 3 thence under the loop 10 and terminating in a handle portion, all being arranged substantially as shown and for the purposes described.

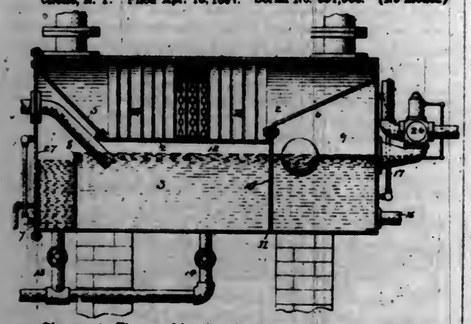
587,559. REMOVABLE SINK-STRAINER. JAMES RILEY, New York, N. Y. Filed Feb. 25, 1897. Serial No. 625,089. (No model.)



Claim.—1. A removable sink-strainer, comprising a perforated lining or casing, having a clearing-opening of large area, the lower edge of which is flush with the bottom of the strainer; in combination with means for lifting the strainer, and a slide which normally closes the clearing-opening, but is adapted for use as a scraper, whereby the sink may be quickly emptied of water through said opening when clogged and whereby the clogging material may be scraped from the interior of the lining and expelled through said opening.

2. A removable sink-strainer, comprising a perforated lining or casing, provided with handles, and having a discharge-opening, the lower edge of which is flush with the bottom of the strainer, in combination with a slide for closing said discharge-opening, said slide also serving as a scraper or scoop, whereby when necessary the contents of the strainer may be expelled through said opening; and a removable drip board or shelf supported within the strainer above the bottom thereof.

587,560. STEAM-SEPARATOR. GEORGE I. ROBERTS, New Rochelle, N. Y. Filed Apr. 13, 1897. Serial No. 631,963. (No model.)



Claim.—1. The combination, in a steam-separator, of an upper compartment having inlet and exit ports, a lower compartment having an inlet and outlet, a partition between said compartments having perforations therein, and a partition in the lower compartment forming a surface overflow.

2. The combination, in a steam-separator, of an upper and lower compartment having a perforated division-wall, a transversely-disposed baffle device in the upper compartment, inlet and outlet ports for the same, and an inlet and exit port or ports for the lower compartment.

3. The combination, in a steam-separator, of an upper compartment and a lower compartment having a common division-wall, a baffle device and inlet and outlet ports in the upper compartment, an inlet-port for the lower compartment, an overflow-exit therefor and a second exit-opening below the water-level thereof.

4. The combination, in a steam-separator, of an upper and lower compartment having a communication between the same, a baffle device for the upper compartment, an overflow-exit for the lower compartment, a secondary compartment communicating with said overflow, and suitable ports for said compartments.

5. The combination, in a steam-separator, of an upper and lower compartment having communication between the same, a baffle device for the upper compartment, an overflow-exit, and a second exit below the water-level of said compartment, a secondary compartment in communication with the exit below the water-level and suitable ports for said compartments.

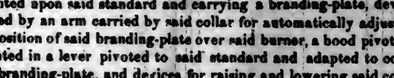
6. The combination, in a steam-separator, of an upper and lower compartment, having a perforated division-wall between the same, an overflow-exit for the lower compartment, a secondary compartment communicating with said overflow, another secondary compartment, communicating means between said lower compartment and the latter below the water-level, and suitable ports for said compartments.

7. The combination of a steam-separator, with a baffle device comprising a curved upper and a straight lower frame having a series of separate chains or ropes independently suspended therein.

8. The combination of a steam-separator having a series of baffle-plate frames located therein, said frames having a series of separate independently-suspended ropes or chains suspended therefrom.

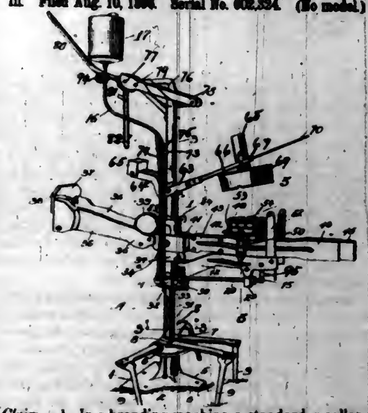
9. The combination, in a steam-separator, of an upper and a lower compartment having a perforated division-wall, baffle devices in the upper compartment, a secondary chamber connected with the lower compartment by an overflow-exit, a discharge-pipe for said secondary compartment, an inlet-pipe for the lower compartment, another secondary compartment connected with said lower compartment below the water-level, a discharge-pipe from the latter compartment, and ports for the upper compartment.

587,561. MUSICAL INSTRUMENT. GEORGE W. SHERMAN, Lynbrook, N. Y. Filed May 7, 1897. Serial No. 635,494. (No model.)



Claim.—In a musical instrument, the combination of a handle or yoke, two strips of metal of loop form having their ends drawn together and fastened one to each end of the handle or yoke, and bells held loosely within the said loops by pins passing through the bells and through the sides of the loops, substantially as herein described.

587,562. BRANDING-MACHINE. AUGUST STOLLSTORFF, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,324. (No model.)



Claim.—1. In a branding-machine, a standard, a collar mounted thereon and carrying a hydrocarbon-burner, a lever pivotally and movably mounted upon said standard and carrying a branding-plate, devices carried by an arm carried by said collar for automatically adjusting the position of said branding-plate over said burner, and devices for raising and lowering said collar on said standard.

2. In a branding-machine, a standard, a collar mounted thereon and carrying a hydrocarbon-burner, a lever pivotally and movably mounted upon said standard and carrying a branding-plate, devices carried by an arm carried by said collar for automatically adjusting the position of said branding-plate over said burner, a hood pivotally mounted in a lever pivoted to said standard and adapted to cover said branding-plate, and devices for raising and lowering said collar on said standard.

3. In a branding-machine, a standard, a collar mounted thereon and carrying a hydrocarbon-burner, a lever pivotally and movably mounted upon said standard and carrying a branding-plate, devices carried by an arm carried by said collar for automatically adjusting the position of said branding-plate over said burner, a hood pivotally mounted in a lever pivoted to said standard and adapted to cover said branding-plate, and devices for raising and lowering said collar on said standard consisting of a lever pivoted at the upper end of said standard and connected with said collar by means of cords or cables.

4. In a branding-machine, a standard, a collar mounted thereon and carrying a hydrocarbon-burner, a lever pivotally and movably mounted upon said standard and carrying a branding-plate, devices carried by an arm carried by said collar for automatically adjusting the position of said branding-plate over said burner, a hood pivotally mounted in a lever pivoted to said standard and adapted to cover said branding-plate, a counterweight on said lever, and devices for raising and lowering said collar on said standard.

5. In a branding-machine, a standard, a collar mounted thereon and vertically and revolubly movable with relation thereto, a lever pivotally mounted upon said collar, a shifting weight automatically movable on said lever, an arm pivoted to said lever and longitudinally rigid therewith, a branding-plate mounted upon said arm, and devices carried by said standard and carrying heating devices adapted to receive the said arm and branding-plate in an inverted position.

6. In a branding-machine, a standard, a collar mounted thereon and vertically and revolubly movable with relation thereto, a lever pivotally mounted upon said collar, a shifting weight automatically movable on said lever, an arm pivoted to said lever and longitudinally rigid therewith, a branding-plate mounted upon said arm, means for raising and lowering said collar on said standard, and devices carried by said standard and carrying heating devices adapted to receive the said arm and branding-plate in an inverted position.

7. In a branding-machine, a standard, a collar on said standard, a lever pivotally mounted at one end upon said collar, an arm pivotally mounted upon said lever, and a branding-plate mounted upon said arm, said parts being adapted to so operate as to permit said branding-plate to be inverted, substantially as described.

8. In a branding-machine, a standard, a collar on said standard, a lever pivotally mounted at one end upon said collar, an arm pivotally mounted upon said lever, and a branding-plate pivotally mounted upon said arm, said parts being adapted to so operate as to permit said branding-plate to be inverted, substantially as described.

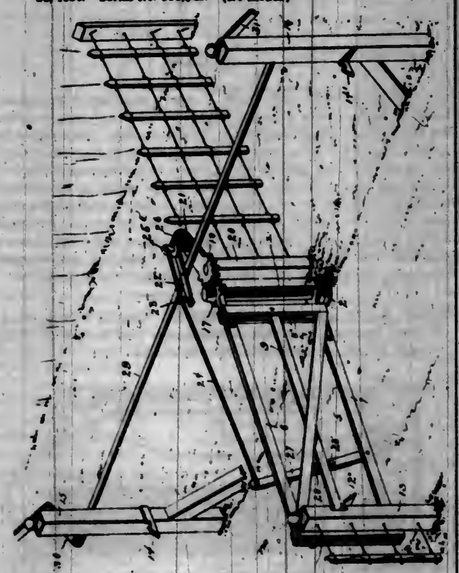
9. In a branding-machine, a lever pivotally mounted upon the standard, an arm pivotally secured to said lever and longitudinally rigid therewith, and a branding-plate pivotally mounted in the ends of links pivotally secured at their other ends to said arm.

10. In a branding-machine, a branding-plate provided upon one face with the raised devices to be branded, and upon its other face and in the center thereof with a hollow cone whose base abuts against said face of said branding-plate and is provided with openings adjacent said plate and which is adapted to protect said center of said plate from becoming overheated.

11. In a branding-machine, a branding-plate provided upon one face with the raised devices to be branded, and upon its other face and in the center thereof with a hollow cone having recesses around its base which abuts against said face of said branding-plate and which is adapted to protect said center thereof from becoming overheated.

12. In a branding-machine, a lever pivotally mounted upon a collar on the standard, an arm pivotally secured to said lever and longitudinally rigid therewith, a branding-plate mounted upon said arm and adapted to be turned therewith, heating devices carried by devices on said standard and adapted to receive said branding-plate in an inverted position, and devices carried by said heating devices for automatically centering said plate over said heating devices.

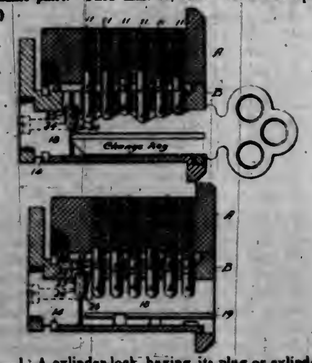
587,563. GATE. CHARLES W. TREPESINE, Utah, Ill. Filed Oct. 29, 1896. Serial No. 610,343. (No model.)



Claim.—1. The gate 5 pivoted to the post 1 and provided with the inclined lever 27, having guides 28 28' secured thereto above and below the pivoted latch-rail, and having the mutilated-gear wheel 17, in combination with the similar gear-wheel 18, provided with the arm 21, the short lever 22, the flexible cord passing through the guide-eye 25 on the free end of said lever and connected to the arm 21 and the diagonal lever 27, the connecting-rod 29 centrally pivoted to said lever 22 and having its ends connected to the bell-crank levers 31 31', mounted on the posts 32 32', substantially as and for the purpose set forth.

2. The combination with the gate proper, constructed substantially as described, and provided with the gear 17 and latch-rail-operating lever 27, of the flexible cord connected to said lever 27, passing through a guide-eye 25 on the short lever 22 and connected to the arm 21, the gear-wheel 18 meshing with the gear 17 and having its arm 21 connected to the short lever 22, fulcrumed on the connecting-rod 29, the outer ends of which are pivoted to the bell-crank levers 31 31', substantially as and for the purpose set forth.

587,564. MASTER-KEY PIN-LOCK. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Mar. 26, 1897. Serial No. 629,175. (No model.)



Claim.—1. A cylinder-lock having its plug or cylinder divided transversely but connected for rotating together, the part bearing the plug-tumblers being adapted to move longitudinally for operating in one of its positions with the change-keys and in its other position with the master-key substantially as described.

2. A cylinder-lock having a plug provided with circumferential grooves a little to one side of part of its tumbler-sockets, the case, the plug and case tumblers, and means for moving said plug longitudinally to bring the ends of the plug-tumblers into position for operating either on the line of the main periphery of the plug or at the bottom of said grooves as desired.

3. A cylinder-lock having its plug divided transversely with one part arranged to move longitudinally, the special tumbler arranged to wedge between said two parts and hold the plug against longitudinal movement, and also to be removed therefrom by a key when it is desired to move the plug longitudinally substantially as described.

4. The combination of the case, plug, case and plug tumblers, the said plug being divided transversely with its two parts connected to rotate together while the tumbler-bearing portion may move longitudinally, and means substantially as described for locking the longitudinally-moving part of said plug against longitudinal movement when the change-key is used and for unlocking to permit a longitudinal movement thereof when the master-key is inserted substantially as described.

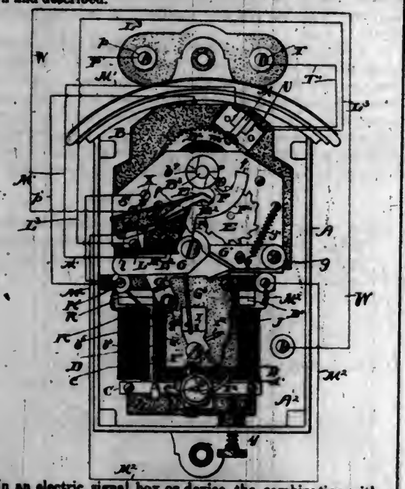
5. The combination of the case having a longitudinal groove in the line of the inner ends of its tumbler-sockets the width of said groove substantially corresponding to the diameter of the tumblers, the longitudinally moving and rotating plug, and tumblers for said case and plug substantially as described.

6. The combination of the case having tumblers, the two-part plug within said case the front part thereof having tumblers and the rear part of said plug having an annular groove, a wing or plate 14 on said case extended into said groove, and means to necessitate the simultaneous rotation of the said two parts of the plug and yet permit the outer part to move longitudinally at times, substantially as described.

587,565. ELECTRIC SIGNAL-BOX. ALBERT T. WHITTLESEY and FREDERICK B. DENGE, Cleveland, Ohio. Filed June 18, 1896. Serial No. 596,011. (No model.)

Claim.—1. In an electrical signal-box or signaling device of the

character herein described, the combination with a series of electromagnets, of a magnetic yoke extending along the entire series of magnets and constituting a single permanent magnet, magnet-cores having an enlarged surface at one end, reduced body portions, and further-reduced end portions rigidly secured within said permanent magnet, and an armature provided with a trip or lock mechanism rigidly secured to said armature and actuated thereby, substantially as shown and described.



2. In an electric signal box or device, the combination with a series of spools of suitable magnet-wire, the cores of said spools having a reduced body portion, and said cores being secured at their further-reduced end portions rigidly to and within a permanent magnet, the other end of each core being greater in cross-section than the body portion thereof, of an armature having rigidly secured thereto means to permit the locking and freeing of the same, and a trip or lock device detachably secured to the armature and actuated thereby, substantially as described.

3. An electric signal box or device, comprising an electromagnet having that end of its core which is contiguous to the armature of greater cross-section than the body portion, and the other end portion of its core being of less diameter than the said body portion, a permanent magnet within which the reduced end of the electromagnet-core is firmly secured, a locking and releasing device, an armature, means secured to said armature for cooperating with said locking and releasing device, and means carried by the armature for operating the trip or lock for releasing or locking the box mechanism, substantially as shown and described.

4. In an electric signal box or device, the combination with an electromagnet and an armature, said armature being provided with means for operating a trip or lock for releasing or locking the box mechanism, of a weighted locking-lever provided with a locking and releasing arm depending therefrom and operating in connection with means also secured to the armature to push and lock the armature away from the electromagnets when the signal is ended or complete, substantially as and for the purpose shown and described.

5. In an electric signal box or device provided with an electromagnetic controlling device substantially as set forth the combination with an armature operated by said electromagnet to lock or release the signal mechanism, of a locking-lever provided with an arm for cutting out the electromagnets from the circuit when the said armature is attracted to the electromagnets and locking the said armature to the electromagnets at the same time, substantially as and for the purpose shown and described.

6. In an electrical signal device embodying in its construction electromagnets for controlling the locking or releasing of the signal mechanism, the combination with the locking or releasing mechanism operated by the armature of said electromagnets, of an armature, a locking lever or device provided with downwardly-extended arms, one of said arms being adapted to lock the armature and the other for releasing or forcing the armature away from the magnets, said locking-lever being controlled in its action by a pivoted lever which is in turn operated by the signal mechanism, substantially as and for the purpose shown and described.

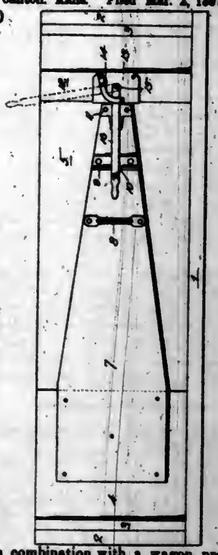
7. An electrical signal device or box comprising, in its construction, a signaling mechanism composed of suitable clockwork and make-and-break devices operated thereby, and means, such as a key or lever for setting or manipulating the same, electromagnets substantially such as described, a weighted vibratory locking-lever, an armature for releasing or locking the said mechanism by controlling the escapement according to the direction of the current passing through the main line of the circuit, and means carried by the locking-lever for cutting out the electromagnets when the armature is attracted to the magnets, substantially as shown and described.

8. In an electric signal device or box, the locking-lever comprising in its construction an arm for locking the armature of the controlling-electromagnets away from said magnets, an arm for locking the said armature to said electromagnets, and a cut-out arm for cutting out the electromagnets from the main circuit while the signal is being sent, all operating substantially as and for the purpose shown and described.

9. An electric signal device, comprising a mechanical movement-releasing device consisting of a lever engaging the movement when in its normal position, the said lever being pivoted to and carried by another pivoted lever whereby the movement-engaging lever is released to send in special signals, by the operation of the lever to which the said movement-lever is pivoted, substantially as described.

10. In an electric signal device, the combination with the pivoted movement-controlling lever, of a contact-spring secured to and operated by said lever whereby the box is cut out from the main circuit, and a pivoted lever adapted to carry and support said movement-controlling lever, substantially as shown and described.

587,566. WAGON END-GATE. JOHN WIEDLER, Jr., and LOUIS WIEDLER, Canton, Kans. Filed Mar. 2, 1897. Serial No. 625,792. (No model.)



Claim.—In combination with a wagon, provided with vertical cleats at its inner sides, a break-joist end-board or tail-gate comprising two sections hinged together at their inner sides, and adapted to project into the grooves between said cleats at their ends, a rigid arm projecting from the rear side of one of said sections and adapted to fit snugly against the rear side of the other, a handle, and a notched latch-plate secured to said arm, a cleat or bar secured to the rear face of the other section, a wear-plate secured thereto and provided with a pivot-pin and a segmental loop or keeper, and a spring-lever mounted upon said pin and projecting through said loop, and adapted to engage the notch of said latch-plate, substantially as described.

587,567. AUTOGRAPHIC REGISTER. WILLIAM H BREAKSPEAR, OTTO SPANHAUS, and CHARLES WEINBECKER, New York, N. Y. Filed Apr. 24, 1896. Serial No. 588,932. (No model.)



Claim.—1. In an autographic register, a casing consisting of a base provided with slots, side plates provided with lugs received in said slots and having opposite screw-threaded openings, a transverse screw-bolt having right and left screw-threads respectively at its ends, said ends being received in the correspondingly-threaded openings of the side plates, and the end plates, substantially as set forth.

2. In an autographic register, the combination of a casing provided with a top plate, over which the sales-checks are led, a cutter, a winding-up roller for a tally-strip, mechanism actuated by the cutter for rotating said roller intermittently, a dog adapted to prevent retrograde movement of the winding-up roller, a shoulder at the interior of the casing, and a throw-off adapted to engage said dog to release the same from the shoulder, substantially as set forth.

3. In an autographic register, the combination with a casing provided with a slotted top plate over which the sales-checks are led, and spring-fingers secured to and extending substantially parallel with the under side of the top plate adjacent to and projecting with their free ends toward said slot, of a manifolding-strip having a reinforced edge held in said spring-fingers, said strip passing up through the slot onto the top plate, substantially as set forth.

587,568. ELECTROLYTIC HEATING APPARATUS. GEORGE D. BURTON, Boston, Mass. Filed Feb. 24, 1897. Serial No. 624,250. (No model.)



Claim.—1. An improved soldering apparatus, consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode, adjacent to said tank, an adjustable rest adjacent to said second electrode, substantially as described.

2. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode, adjacent to said tank, a rest adjacent to said second electrode and a solder-holder, substantially as described.

3. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a vertically-adjustable rest adjacent to said second electrode and a solder-holder, substantially as described.

4. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a horizontally-adjustable rest adjacent to said second electrode, substantially as described.

5. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a horizontally and vertically adjustable rest adjacent to said second electrode, substantially as described.

6. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a rest adjacent to said second electrode and a shelf for supporting the articles or article to be soldered substantially as described.

7. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a rest adjacent to said second electrode and a shelf for supporting the article or articles to be soldered, located at the rear of the tank, substantially as described.

8. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a rest adjacent to said second electrode and a shelf carrying a movable apron, for supporting the article or articles to be soldered, substantially as described.

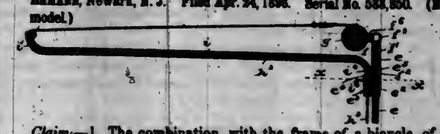
9. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a rest adjacent to said second electrode and a shelf carrying an endless movable apron for supporting the article or articles to be soldered, substantially as described.

10. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, an adjustable rest adjacent to said second electrode and a support for the solder which support is adapted to hold the solder over the tank and in position to permit the tank to catch dripping of solder from the copper, substantially as described.

11. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, a rest adjacent to said second electrode and a shelf carrying a movable apron, for supporting the article or articles to be soldered, and means for holding and releasing the apron to stop its movement and to permit it to move at will, substantially as described.

12. An improved soldering apparatus consisting of a tank provided with an electrode adapted to contact with the contents of the tank; in combination with a second electrode adjacent to said tank, an adjustable rest adjacent to said second electrode and a solder-holder provided with means for clamping the solder, substantially as described.

587,569. CANOPY ATTACHMENT FOR BICYCLES. FREDERICK EHMANN, Newark, N. J. Filed Apr. 24, 1896. Serial No. 588,850. (No model.)



Claim.—1. The combination, with the frame of a bicycle, of a clamp secured to said frame, having a receiving-socket, an awning or canopy support in said socket, comprising therein, a post *e*, a roller-carrying frame *f* on said post, a spring-roller in said frame, a tubular supporting-bar *i*, an awning or canopy on said roller, and a rope connected with said awning or canopy and passing over a grooved wheel on said bar *i*, and through said bar, substantially as and for the purposes set forth.

2. The combination, with the frame of a bicycle, of a clamp secured to said frame, having a receiving-socket, an awning or canopy support in said socket, comprising therein, a post *e*, a sleeve e^4 on said post, having a socket e^3, a roller-carrying frame on said post *e*, a spring-roller in said frame, a tubular supporting-bar *i* in said socket e^3, a grooved wheel in the end of said bar *i*, an awning or canopy on said roller, a rope connected with said awning or canopy, passing over said grooved wheel and into and through said tubular bar *i*, and means for attaching the free end of said rope to said post *e*, substantially as and for the purposes set forth.

587,570. POCKET CIGARETTE-MAKING DEVICE. WILLIAM T. FITZGERALD, Washington, D. C. Filed Oct. 7, 1896. Serial No. 608,133. (No model.)



Claim.—1. In a device for making cigarettes the combination with a suitable casing, a tubular mandrel adapted to be rotated and longitudinally withdrawn from said casing and having means for engaging the edge of a cigarette-paper so that said paper may be wound around said mandrel when the same is rotated and means adapted to be inserted through the side of the mandrel designed to retain the tobacco core formed in the mandrel, in place, while the mandrel is being withdrawn from the paper casing, substantially as specified and for the purpose set forth.

2. In a cigarette-making device the combination with a case, tubular mandrel, and means for filling the mandrel with tobacco, of a paper-wrapper-forming mechanism adapted to surround the mandrel with a paper tube, and stripping mechanism adapted to strip the tobacco and paper simultaneously from the mandrel, substantially as specified and for the purpose set forth.

3. In a cigarette-making device the combination with a case, a longitudinally-movable rotatable tubular mandrel provided with a longitudinal slit, and means for filling the mandrel with tobacco, the case and mandrel being provided respectively with slots adapted to be alined, of a disk adapted to enter the mandrel through the slots and to be withdrawn therefrom, and a rod for actuating the disk adapted to work in the longitudinal slit in the mandrel when the mandrel is withdrawn from the case, substantially as specified and for the purpose set forth.

4. In a cigarette-making device, the combination with a tubular case and paper-tube shaper adapted to be longitudinally moved in the case, of paper-tube-retaining mechanism in the end of the case located in the path of, and adapted to be operated by the movement of the shaper, substantially as specified and for the purpose set forth.

5. In a cigarette-making device, the combination with a tubular

case and paper-tube shaper, of resilient arms in the end of the case adapted to retain a paper tube within the case, and beveled faces upon the arms adapted to coöperate with the shaper substantially in the manner and for the purpose specified.

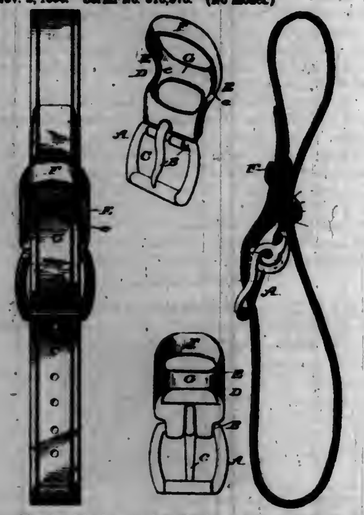
6. In a cigarette-making device, the combination with a case, a paper-tube shaper, means for introducing paper to the shaper through the case and an outer case adapted to hold a continuous roll of paper for supplying the shaper and provided with a groove, of a sharply-defined edge upon one side of the groove, affording means for severing the roll of paper as required, substantially as specified and for the purpose set forth.

7. In a cigarette-making device, the combination with a tubular case and paper-tube shaper adapted to form the tube in said case, of paper-tube-retaining mechanism in the end of the case adapted to engage the end of a paper tube formed by the shaper, substantially as specified and for the purpose set forth.

8. As an article of manufacture, the herein-described substantially tubular mandrel adapted to be filled with tobacco and having upon its surface a paper-engaging device, substantially as specified and for the purpose set forth.

9. As an article of manufacture, the herein-described substantially tubular mandrel adapted to be filled with tobacco and having a longitudinally-disposed lip upon the surface thereof, substantially as specified and for the purpose set forth.

587,571. BUCKLE. CHARLES F. FRANCISCO, San Diego, Cal. Filed Nov. 2, 1896. Serial No. 610,570. (No model.)

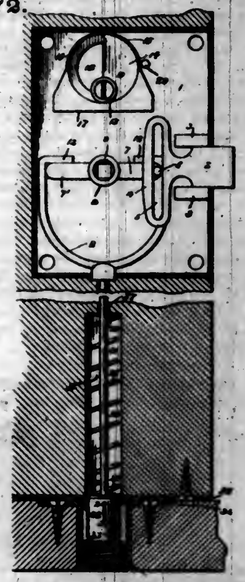


Claim.—The buckle herein described consisting of the buckle-frame having a tongue-bar, the keeper hinged to said tongue-bar and the tongue having a shoulder projecting from its base and engaged with the keeper, such keeper being provided with an end cross-bar and with an intermediate fulcrum-bar arranged between the tongue-bar and the end cross-bar and depressed below the same and arranged and adapted to serve as a fulcrum in rocking the keeper to lift the point of the tongue all substantially as shown and described.

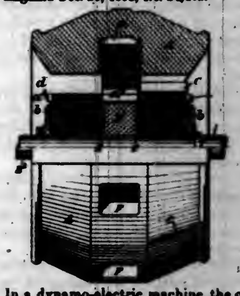
587,572. LATCH. HERBERT H. FREEMAN, Pierre, S. D. Filed May 6, 1897. Serial No. 636,335. (No model.)

Claim.—A combined door latch or lock and stop comprising a suitable case, provided with the parallel guides 3 3 and fixed stud 20, the latch-bolt 2 having a horizontal movement in said guides, and provided with the cross-head 4 having the vertical slot, the knob-spindle 10, the horizontal lever 8 mounted on said spindle and having its arms 7 7', the former being provided with the lateral pin 6 engaging said slot 5, in the cross-head, in combination with the yoke 11 formed with the horizontal lugs 12 in operative engagement with the lever 8, the rod 21 connected at its upper end to said yoke and extending through the recess 28 in the door, the washer 22 fixed to the lower end of said rod, the spring 26 and the socket 23 encompassing the lower end of said rod, the rubber plunger fixed in said socket, and the sleeve 13 journaled in said case and provided with the eccentrically-mounted disk 14 and the strap 16, and follower 17 encompassing said disk and adapted to be projected into the path of the yoke to lock the same in position, substantially as shown and described.

587,572.



587,573. DYNAMO-ELECTRIC MACHINE. VALDEMAR A. FYEN, Erith, England. Filed Aug. 3, 1896. Serial No. 601,489. (No model.) Patented in England Dec. 20, 1895, No. 24,472.



Claim.—1. In a dynamo-electric machine, the combination with an armature, of a field-magnet having its poles arranged alternately in different planes, each pole embracing a section or portion only of the armature lengthwise of its axis, one portion or section of the armature being acted upon by south poles only, and the other by north poles only, so that the magnetic flux through each section of the armature varies its intensity without reversing its direction therein, substantially as described.

2. In a dynamo-electric machine, the combination of an armature composed of two laminated rings or sections, and a field-magnet having its two sets of poles arranged alternately in different planes transversely of the shaft, the poles of the same polarity acting upon the same armature ring or section, substantially as described.

3. In a dynamo-electric machine, the combination of an armature composed of two laminated rings or sections arranged side by side and separated by a collar, and a field-magnet having its two sets of poles arranged alternately in different planes transversely of the shaft, the north poles being in the plane of one of said rings or sections, and the south poles in the plane of the other ring or section, substantially as described.

4. In a dynamo-electric machine, the combination of an armature composed of two rings or sections arranged side by side, a field-magnet having its two sets of poles arranged alternately in different planes, the north poles being in the plane of one of said rings or sections, and the south poles in the plane of the other ring or section, and a single exciting-coil arranged between the two planes, substantially as described.

5. In a dynamo-electric machine the combination with an armature composed of two rings or sections and a winding whose coils each embraces both rings or sections, of a field-magnet having its two sets of poles arranged alternately in different planes transversely

of the shaft, the poles of like polarity acting upon the same armature ring or section.

6. A dynamo-electric machine having the field pole-pieces arranged in different planes, and provided with a gap or gaps, such as formed by plates of gun-metal or brass, interposed in a portion or portions of the field or the armature where no leakage can take place, and forming an additional resistance in the magnetic circuit, substantially as hereinbefore described.

587,574. REPEATING WATCH. WILLIAM A. GARNISH, Elgin, Ill., assignor to the Elgin National Watch Company, Chicago, Ill. Filed Jan. 26, 1892. Serial No. 419,262. (No model.)



Claim.—1. A repeating mechanism for watches having an independent frame adapted to support such mechanism and to circumferentially inclose or embrace the time-train, substantially as and for the purpose specified.

2. A repeating mechanism for watches having an independent motor and a frame for its support and attachment to the watch adapted to circumferentially inclose the movement and to support said mechanism in part at and in rear of the latter, substantially as and for the purpose set forth.

3. A repeating mechanism for watches having an independent frame adapted to circumferentially inclose the time-movement and to support said mechanism in part at and in rear of the latter, substantially as and for the purpose set forth.

4. A repeating mechanism for watches having an independent actuating-spring and a frame adapted to circumferentially inclose the movement and to support said mechanism in part at and in rear of the latter, said spring being carried by the movement-inclosing portion of the frame substantially as and for the purpose described.

5. A repeating mechanism for watches having an independent frame composed of two rings which are adapted to inclose the watch-movement and to support said mechanism, substantially as and for the purpose shown.

6. A repeating mechanism for watches having a frame which is composed of two rings that are adapted to inclose the watch-movement, one of which rings has a recess for containing the motor-spring and the other carrying the sounding mechanism, in combination with means for transmitting the power of the motor-spring to the latter, substantially as and for the purpose set forth.

7. In combination with a watch, a sounding mechanism arranged at one side thereof, an operating-ring at the opposite side thereof and a spring to move said ring, substantially as and for the purpose specified.

8. In combination with a watch-movement a sounding mechanism arranged at the back thereof, and a spring-actuated ring encircling the movement at the face side of the same, to operate the sounding mechanism, substantially as and for the purpose shown.

9. In combination with a watch-movement, a sounding mechanism, a spring-actuated ring to operate said mechanism and a frame for such parts that circumferentially incloses or surrounds the movement, substantially as and for the purpose shown and described.

10. In a repeating mechanism for watches in combination with suitable bells and hammers, two hammer-actuating rings, supports or journals for each ring that engage it only at separated points, a spring-actuated ring or part, and means to transmit the power of the latter to the former, substantially as and for the purpose specified.

11. In a repeating mechanism for watches, in combination with suitable bells and hammers, two hammer-actuating rings, a spring-actuated ring or part, a partial ring or segment, and means to transmit the power of the latter to the former, substantially as and for the purpose shown.

12. In a repeating mechanism for watches in combination with suitable bells and hammers, means for engaging and actuating the latter, a spring-actuated ring, a partial ring or segment and connections between the latter and the hammer-actuating means, substantially as and for the purpose set forth.

13. In a repeating mechanism for watches, in combination with suitable bells and hammers, the reciprocating rings for engaging and actuating the latter, supports or journals for the rings, and means for moving said rings, substantially as and for the purpose shown and described.

14. In a repeating mechanism for watches, in combination with suitable bells and hammers, two reciprocating hammer-operating devices, a pawl connected to and moving with one of the latter, means for connecting and disconnecting the pawl and the other one of said devices, whereby one device may move the other, and means for moving the actuating device, substantially as and for the purpose specified.

15. In a repeating mechanism for watches, in combination with suitable sounding devices, two actuating rings or parts therefor, a suitably-mounted pawl connected with one of said rings or parts, and means to operate said pawl to place it in and out of engagement with the other one of said rings or parts, substantially as and for the purpose shown.

16. In a repeating mechanism for watches, in combination with suitable bells and hammers, two hammer-actuating rings arranged in different, but concentric planes and adapted to be connected with and disconnected from each other, a partial ring or segment moving in a path concentric with said hammer-rings and adapted to be connected with and disconnected from one of the same and a spring-actuated concentrically-arranged ring that is adapted to be engaged with, and to move the partial ring, substantially as and for the purpose set forth.

17. In a repeating mechanism for watches, in combination with a suitable bell and hammer, a hammer-actuating ring, a lever connected to the latter and pivoted at its axis and made movable to and from a snail driven by the time-train of a watch, substantially as and for the purpose shown and described.

18. In a repeating mechanism for watches, in combination with a suitable bell and hammer, a hammer-actuating ring, a lever pivoted at the axis of the latter and engaging the same to move and be moved thereby, and spring-actuated means to move said lever to and from a snail driven by the time-train of a watch, substantially as and for the purpose specified.

19. In a repeating mechanism for watches in combination, a hammer-actuating ring or part, a pivoted lever to move and be moved by the same, independent means for moving said ring and lever in opposite directions whereby the lever is moved toward and from a snail, and devices to stop their movements in one direction and to release them from the means for moving them in the other direction, substantially as and for the purpose shown.

20. In a repeating mechanism for watches in combination with a hammer-actuating ring or piece and a device to move the same in one direction to which it is connected, a pivoted lever connected thereto, a releasing-lever carried by the pivoted lever, and a stop to engage the releasing-lever, to separate said ring and its motor, substantially as and for the purpose set forth.

21. In a repeating mechanism for watches, in combination with a hammer-actuating ring or piece, and a ring or piece, adjacent thereto, in a parallel plane, and having a notch in its edge, a pivoted lever engaging the hammer-actuating ring, a dog or pawl carried by said lever to engage said notch and a releasing-lever carried by the other ring engaging said dog or pawl, and adapted when engaged by a stop to release the same from its notch, substantially as and for the purpose shown and described.

22. In a repeating mechanism for watches, in combination with suitable bells and hammers, two concentric hammer-actuating devices having limits of motion fixed by the time to be sounded, a toothed partial ring or part, adapted to actuate said hammer devices, a toothed spring-actuated ring, and gearing between the latter and the partial ring, substantially as and for the purpose specified.

23. In a repeating mechanism for watches in combination with suitable bells, two pivoted, vibratory hammers, two concentric, hammer-actuating rings having toothed peripheries to engage and actuate the hammers, means for automatically connecting and disconnecting said rings, a partial ring or part, made movable in a path concentric with the hammer-actuating rings and adapted for connection with and disconnection from one of the latter and a spring for moving said partial ring, substantially as and for the purpose shown.

24. In a repeating watch in combination with a time-train, the three snails driven thereby to mark three divisions of time to be sounded upon the bells, two vibratory, bell-hammers, two concentric hammer-actuating rings provided with toothed peripheries to engage and actuate the hammers, and having movements that are fixed by said snails, a lever pivoted at the axis of said rings and permanently connected with one ring and having means for temporary connection with the other ring, whereby said rings are connected, a second lever having a pivot concentric with the other lever and permanently connected with the other ring, and spring-operated devices adapted for temporary connection with said lever and said ring, substantially as and for the purpose set forth.

25. In a repeating mechanism for watches, in combination with a time-train, three snails driven thereby to mark three divisions of time to be sounded, one of which snails is located at the center arbor of the train, two hammer-actuating devices made movable in paths concentric with said center arbor, and two levers pivoted both at such center of motion and connected permanently, one to one hammer-actuating device and one to the other, said levers being movable to and from an appropriate snail and carrying a part to impinge against the same, and means for automatic connection in the one case with the other hammer-actuating device, and in the other case with a part moved by a motor-spring, substantially as and for the purpose specified.

26. In combination with the three snails adapted to determine, respectively, hours, minutes and fractions of an hour greater than minutes, the two hammer-actuating devices, the two pivoted levers connected one to one of the latter and one to the other thereof, and carrying each a part to impinge, respectively, against the hour and minute snails, a third pivoted lever adapted to impinge against the third snail and to be moved to cause such impingement by a part carried by said hour-snail-engaging lever when moved away from its snail and suitable means to move said third lever from said third snail, substantially as and for the purpose shown.

27. In combination with the three snails adapted to determine, respectively, hours, minutes, and tens of minutes, the two hammer-actuating rings, the two pivoted levers connected one to one ring and the other to the other ring, the spring for moving one lever toward the hour-snail to cause a part carried thereby to impinge against said snail, means for moving said lever away from such snail to cause its ring to strike the hours, a third lever to impinge against the tens-of-minutes snail adapted to be engaged and moved by the hour-snail lever on its retrograde movement to permit the tens of minutes to be sounded, means to move the second ring and its lever toward the minute-snail to sound the minutes, and a spring engaging said lever to move it away from its snail and to carry it or a part carried by it into contact with the tens-of-minutes lever to release it from the tens-of-minutes snail, substantially as and for the purpose set forth.

28. In a repeating mechanism in combination with two hammers, two hammer-actuating rings one of which is provided with a series of twelve teeth, to actuate one hammer, and two series of five teeth each that are adapted to alternately actuate both hammers, and the second ring being provided with a series of nine teeth which are adapted to actuate one of said hammers, substantially as and for the purpose set forth.

29. In a repeating mechanism, in combination with two hammers, two hammer-actuating rings, one of which is provided with a series of twelve teeth that are adapted to actuate one hammer and two series of five teeth each which are adapted to alternately actuate both hammers and the second ring is provided with a series of nine teeth that are adapted to actuate one of said hammers, and three snails having, respectively, twelve, six and ten steps which operate to determine the number of strokes to be given by the hammers, substantially as and for the purpose shown and described.

30. In combination with a watch having a rotatable stem-arbor, a repeating mechanism having a motor-spring independent of that of the watch, a toothed movable part engaging said spring, a pinion on said arbor meshing with the teeth of such part and means whereby the pinion may be connected with and disconnected from the stem-arbor, substantially as and for the purpose specified.

31. In a repeating mechanism, in combination with a rotatable ring, a spring which is adapted to be placed under tension by the movement of such ring in one direction, a rotatable arbor, and the devices to be actuated by the return movement of the ring under stress of said spring, substantially as and for the purpose set forth.

32. In combination with the stem-arbor of a watch, a pinion thereon, a toothed ring in mesh with such pinion, and a repeater-actuating spring which is adapted to be placed under tension by a movement of said ring, substantially as and for the purpose shown and described.

33. In combination with a rotatable ring or part, a spring which is adapted to be placed under tension by a movement of such ring, and a rotatable arbor that is connected to said ring and adapted to move the same and is automatically disconnected when the requisite movement has been given the ring, substantially as and for the purpose specified.

34. In combination with a rotatable ring or piece, a spring which is adapted to be placed under tension by a movement thereof, a rotatable arbor, a pinion thereon and in mesh with teeth that are provided on the ring and suitable means for disconnecting the pinion from the arbor when the requisite movement has been given to said ring, substantially as and for the purpose shown.

35. In combination with a rotatable ring or piece, a spring which is adapted to be placed under tension by the movement of such ring, a rotatable arbor, a pinion movable thereon and adapted for engagement with and disengagement from a clutch on such arbor, and a part carried by said ring and arranged to shift said pinion from engagement with said clutch, substantially as and for the purpose set forth.

36. In combination with a rotatable, toothed ring, or piece, a spring which is adapted to be placed under tension by the movement of such ring, a rotatable arbor, a pinion that is adapted to be clutched thereto, a spring-actuated lever arranged to normally hold said pinion in such engagement, a pinion meshing with the teeth of the ring and the part on the ring to shift said lever and through it the pinion from engagement with said arbor, substantially as and for the purpose shown and described.

37. In combination with a rotatable toothed ring or piece, a spring adapted to be placed under tension by the same when moved in one direction and when allowed to move such spring in a reverse direction, a rotatable arbor, a pinion which is adapted to be clutched thereto, a spring-actuated lever to normally hold said pinion so clutched, a part on the rotatable ring to shift said pinion from engagement with said arbor and a locking device to hold the pinion in this position during a reverse movement of the ring under stress of the spring, substantially as and for the purpose specified.

38. In combination with a toothed ring, a helical spring adapted to be compressed by the same, an arbor for rotating said ring, hammer-actuating devices and a gearing located between the latter and said toothed ring, to transmit the movement of said ring under stress of said spring to the hammer-actuating devices, substantially as and for the purpose shown.

39. In a repeating mechanism for watches, the combination of a rotatable snail, a hammer-actuating rack, a pawl engaging the rack to prevent it moving in one direction, a motor-spring, the ring or rotary part for placing the latter under tension, and a projection on said part adapted to disengage the pawl from the rack, substantially as and for the purpose set forth.

40. In a repeating mechanism for watches, in combination with two snails which are adapted to determine the sounding of two divisions of time, a single reciprocating hammer-actuating ring or rack that is adapted to sound both divisions and is provided with an elongated peripheral notch, and a pawl which is arranged to engage with such notch to hold the ring against movement in one direction, substantially as and for the purpose specified.

41. In a repeating mechanism for watches, the combination of a snail, a hammer-actuating device carrying a part which tends normally toward the snail, a locking device which holds said part away from the snail, a motor-spring and a rotary ring for placing the latter under tension that is adapted to release the locking device, substantially as and for the purpose shown.

42. In a repeating mechanism for watches, in combination with a snail, a hammer-actuating ring connected to a lever that is movable toward and from the snail, a second ring which is adapted to move such lever away from said snail and is adapted to be connected with the other ring through the engagement of said lever with said snail, and a locking device that is arranged to hold said lever against movement toward said snail when the two rings are disconnected, substantially as and for the purpose specified.

587,575. ROCK-DRILL ENGINE. JOSEPH GRANDMAISON, Lynn, Mass., assignor of one-half to Frederick D. Mayo, same place. Filed June 4, 1896. Serial No. 594,309. (No model.)



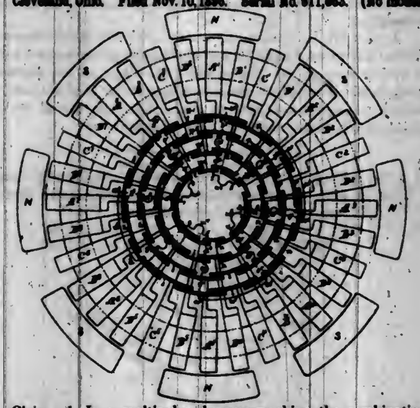
Claim.—1. In a rock-drill engine the combination of a cylinder, a piston working therein, an internal exhaust-chamber formed on the piston, a steam-chest, suitable steam-passages connecting the steam-chest with the cylinder and internal exhaust-chamber, a valve working in the steam-chest comprising a stem carrying pistons located substantially at its center and at its opposite ends and forming two steam-chambers on the valve and annular steam-grooves formed in the pistons at opposite ends of the valve, arranged to take live steam at all positions of the valve, and communicating with opposite ends of the valve-chest, substantially as described.

2. In a rock-drill engine, the combination of a cylinder, a piston working therein, an internal exhaust-chamber formed on the piston, a steam-chest, suitable steam-passages connecting the steam-chest with the cylinder and internal exhaust-chamber, a valve working in the steam-chest, packing-rings on the piston adjacent to opposite ends of the internal exhaust-chamber, and packing-rings on the piston adjacent to its opposite ends, said rings being positioned upon said piston with reference to said steam-passages to allow steam passing

the outer rings to enter said passages to assist in the operation of the valve when the exhaust takes place at either end, substantially as described.

3. In a rock-drill engine the combination of a cylinder, a piston working therein, an internal exhaust-chamber formed on the piston, a steam-chest, a main exhaust, steam-passages connecting the internal exhaust-chamber with the steam-chest, and an exhaust-passage connecting the internal exhaust-chamber with the main exhaust and arranged to discharge into the main exhaust in substantially the direction of the flow of steam through the main exhaust, substantially as described.

587,576. DYNAMO-ELECTRIC MACHINE. CHARLES M. GREEN, Cleveland, Ohio. Filed Nov. 10, 1896. Serial No. 611,663. (No model.)



Claim.—1. In a multipolar dynamo-machine, the combination with a series of commutator-rings, of armature-coils connected with commutator-segments at the same side of the armature at which the coils are located, and several sets of commutator-brushes to engage said commutator-rings.

2. In a multipolar dynamo-machine, the combination with an armature comprising several sets of coils, of a commutator consisting of several segmental rings, and several sets of commutator-brushes, the brushes of each set being located on the same side of the commutator and arranged alternately positive and negative, substantially as set forth.

3. In a multipolar dynamo-machine, the combination with an armature and a commutator comprising several segmental commutator-rings and several sets of commutator-brushes, the brushes of each set being alternately positive and negative and the intermediate positive and negative brushes of each set being electrically connected together, substantially as set forth.

4. In a multipolar dynamo-machine, the combination with an open-coil armature comprising several sets of coils, of several segmental commutator-rings, several sets of commutator-brushes and external circuits between each two sets of brushes.

5. In a multipolar dynamo-machine, the combination with segmental commutator-rings, of armature-coils, each coil having its respective ends connected with segments of two rings, said segments being in line with each other and with the coil connected to them.

6. The combination with an armature having several sets of coils, of a series of commutator-rings, each ring comprising two series of segments, the segments of one series alternating with those of the other series, the segments one ring being in line with the segments of another ring and several sets of commutator-brushes, the brushes of each set corresponding in number to the number of commutator-rings and each brush adapted to engage both series of segments of the respective rings, the several sets of brushes being connected in series with each other, substantially as set forth.

7. In a multipolar dynamo-machine the combination with an open-coil armature comprising several sets of bobbins, of a commutator comprising several segmental rings, several sets of brushes to bear on said rings, said bobbins, commutator rings and brushes being so arranged that one bobbin of each set will be connected in series, two bobbins of each set in parallel and the remaining bobbin of each set cut out, the several sets of brushes being connected in series and translating devices between the sets of brushes, substantially as set forth.

8. In a dynamo-electric machine, the combination with a multiplicity of field-magnet poles, of an armature having several times as many bobbins as there are field-magnet poles, a series of segmental commutator-rings equal to the total number of bobbins divided by the number of field-magnet poles, sets of brushes corresponding in number to the field-magnet poles, the brushes of each set corresponding to the number of commutator-rings and the various sets of brushes being connected together in series, substantially as set forth.

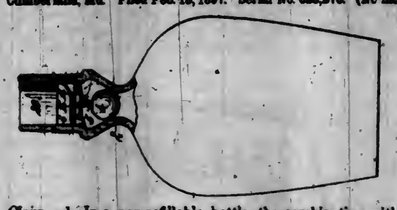
9. In a dynamo-electric machine, the combination with a series of field-magnet poles and several segmental commutator-rings, of an armature having several sets of bobbins, both ends of the various bobbins being connected to commutator-segments in line with them, on the same side of the commutator, and several sets of brushes bearing against said commutator-rings, substantially as set forth.

10. In a multipolar machine, the combination with a commutator consisting of a series of rings, each ring being composed of two sets of segments arranged side by side, the segments of one set alternating with the segments of the other set, and armature-bobbins, the opposite terminals of which are connected to commutator-segments on the same side of the commutator, of a set of brushes engaging all of the commutator-rings, part of the brushes of said set being positive and the others being negative, substantially as set forth.

11. The combination with a multipolar machine having two or more commutator-rings, a corresponding number of sets of commutator-brushes and armature-bobbins, each of which has its opposite terminals connected to the same side of the commutator, of circuits interposed between the brushes of two sets and translating devices included in said circuits, substantially as set forth.

12. The combination with a multipolar machine having several commutator-rings, a corresponding number of sets of commutator-brushes, and armature-bobbins having their opposite terminals connected to the same side of the commutator, of several circuits, each of which is interposed between the commutator-rings, substantially as set forth.

587,577. NON-REFILLABLE BOTTLE. WILLIAM J. HAURA, Cumberland, Md. Filed Feb. 13, 1897. Serial No. 623,278. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the neck having a contracted valve-seat in its lower portion and a spherical valve seated thereon, of a clasp secured over the edge of the bottle-neck and provided with a guard projecting over the spherical valve, substantially as described.

2. In a non-refillable bottle, the combination with the neck having a contracted valve-seat in its lower portion and a spherical valve seated thereon, of a clasp secured over the edge of the bottle-neck and resting in a vertical groove formed in the interior of the neck, said clasp having a guard projecting over the spherical valve, substantially as described.

3. In a non-refillable bottle the combination with the neck having a contracted valve-seat in its lower portion and a spherical valve seated thereon, of a clasp secured over the edge of the bottle-neck and cemented in a vertical groove formed in the interior of the neck, said clasp having a guard projecting over the spherical valve, substantially as described.

4. In a non-refillable bottle, the combination with the neck having an internal vertical groove and external annular grooves and having a contracted valve-seat formed in its lower portion, of a spherical valve seated on said neck, a clasp arranged over the edge of the bottle-neck and provided near the lower end of its outer member with a corrugation or indentation lying in one of said annular grooves and provided with a guard depending in the neck and projecting over the spherical valve, and wires arranged in said annular grooves and fastened over the outer member of said clasp, substantially as described.

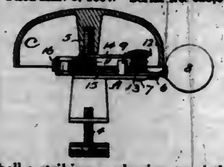
5. In a non-refillable bottle, the combination with the neck having a contracted valve-seat formed in its lower portion, an enlarged chamber formed above said valve-seat and a cylindrical portion above said chamber provided with an internal vertical groove and external annular grooves, a spherical valve seated on said valve-seat, a clasp arranged over the edge of the cylindrical portion of the neck and having an outer member fixed to the neck by wires disposed in said annular grooves and fastened about said member and having its inner member arranged in said vertical groove and projecting over the spherical valve, substantially as described.

6. In a non-refillable bottle, the combination with the neck having a contracted valve-seat in its lower portion, and a spherical valve seated thereon, of a clasp secured over the edge of the bottle-neck

and provided with two parallel disks disposed over said valve, one of said disks being serrated or scalloped upon its periphery and the other of said disks being centrally perforated, substantially as described.

7. In a non-refillable bottle, the combination with the neck having a contracted valve-seat in its lower portion, and a spherical valve seated thereon, of a clasp secured over the edge of the bottle-neck and provided with two parallel disks disposed over said valve, one of said disks being centrally perforated and the other disk provided with peripheral tongues bent up at right angles toward the perforated disk, substantially as described.

587,578. BICYCLE-BELL. WILLIAM R. HANNOND, Meriden, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Mar. 3, 1897. Serial No. 625,948. (No model.)



Claim.—In a bell a striking mechanism consisting of a suitable base, a central post mounted thereon, the lever pivoted on said base and having a handle, stop-shoulder, and lug, the spring mounted on the pivotal stud of said lever and having one arm secured to the base and the other arm extending along by the lug on the lever and terminating in a hammer, substantially as described.

587,579. TUBULAR LANTERN. ROBERT HERMANCE, Fort Ann, N. Y., assignor of two-thirds to Harvey G. Ellis and Daniel V. Brown, Glens Falls, N. Y. Filed Mar. 10, 1897. Serial No. 626,731. (No model.)



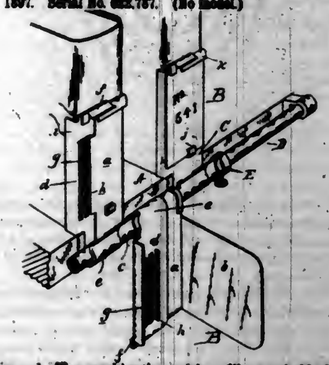
Claim.—1. In a tubular lantern, an oil-reservoir having a wick-tube extended therein toward the bottom of the reservoir and a filling-tube extended beneath the reservoir-top and having a bottom inclined toward the wick-tube and communicating therewith at the lower end of said inclined bottom, the other end of the filling-tube being provided with a stoppered filling-orifice above the higher part of the inclined tube-bottom, substantially as and for the purposes described.

2. In a tubular lantern, the combination with the tubular frame, the globe, the globe-support, and the dome supported by a vertical tube depending rigidly from the upper horizontal tube of said frame, of a brace secured transversely to the upper portions of the side tubes and provided with guide-openings, a spring-clamp engaging the upper end of the globe and provided with a finger-piece and with spring-arms passed through said guide-openings, a stirrup hinged to the upper horizontal tube of the lantern-frame and having a cross-bar engaged by eyes on the ends of said spring clamp-arms, a thumb-piece on said stirrup, the said stirrup and connected clamp-arms being adapted to exert a tilting action on the upper portion of the globe to raise one side of its lower edge from the globe-support, and spring-arms connected by a cross-bar adapted to engage said stirrup and hold the globe in its tilted position, substantially as described.

3. In a tubular lantern, the combination with the lantern-frame, the globe and the globe-support, of a spring-clamp adapted to be engaged around the upper portion of the globe and provided with spring-arms, a stirrup hinged to the top of the frame and engaged with said spring clamp-arms to tilt the upper portion of the globe and raise one side of its lower edge from the globe-support, and a cross-bar carried by said spring-arms and adapted to be engaged with said stirrup to hold the globe in its tilted position, substantially as described.

4. In a tubular lantern, the combination with the frame and its vertical side tubes, the globe, and the hinged globe-support having an eye or loop on the side opposite the hinge, of the depending spring-catch attached to one of the side tubes of the frame and adapted to engage said loop or eye and thereby fasten the said globe-support, substantially as shown and described.

587,580. BOOKCASE ATTACHMENT. FLORENCE M. HOPKINS, Detroit, Mich., and GEORGE C. BOWLES, Niagara Falls, N. Y. Filed Feb. 10, 1897. Serial No. 622,767. (No model.)



Claim.—1. The combination with a library-shelf of a series of individual book-holders secured to said shelf and adapted to be adjusted laterally thereon, individually, or in series.

2. The combination with a library-shelf of a series of individual book-holders laterally-adjustably and independently-detachably secured to said shelf.

3. The combination with a library-shelf of a series of individual book-holders laterally-adjustably and independently-detachably hinged to said shelf.

4. The combination with a library-shelf having a rod extending in proximity to the front edge thereof, of a series of individual book-holders independently-detachably hinged to said rod and laterally adjustable thereon.

5. The combination with a library-shelf having a rod extending in proximity to the front edge thereof, of a series of individual book-holders slidingly hinged upon said rod and independently attachable and detachable, a fixed stop at one end of said rod and an adjustable stop, said stops together holding said holders normally in fixed positions.

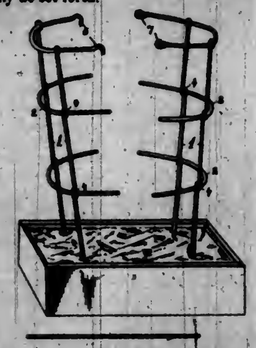
6. The combination with a library-shelf having a rod extending in proximity to the front edge thereof, of a book-holder comprising an angle bracket forming a side support and back for the book, an arm projecting downwardly or outwardly from said bracket forming an open eye adapted to be sprung over said rod.

7. A book-holder comprising the angle-bracket forming a side support and back for the book, an adjustable lateral extension for said back, and telescoping open spring-eyes formed at the lower end of said back and extension, for the purpose described.

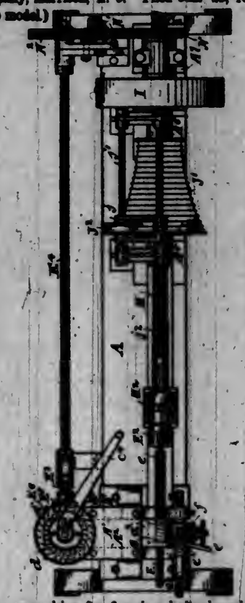
8. A book-holder comprising an angle-bracket having the back *a*, the side *b* and the open eye *c* at the lower end of the back, struck up from a single piece of sheet metal, a lateral extension-piece *d* for the back having the eye *e* telescoping with the eye *c* and the flange *f* adapted to be sprung over the upper end of the book, and a lock for said extension comprising a lug or tongue on one member and adapted to engage with a series of notches in the other member.

587,581. FLOWER-SUPPORT. JAMES HORAN, Bridgeport, Conn. Filed Apr. 20, 1897. Serial No. 634,413. (No model.)

Claim.—A plant-support, consisting of vertical spring-wires provided with cooperating holders, and means for connecting the upper holders together to draw and retain the remaining holders about the plant, substantially as set forth.



587,582. APPARATUS FOR MAKING HELICAL SPRING-ROLLERS. JOHN W. HYATT, Newark, N. J., assignor to the Hyatt Roller bearing Company, Harrison, N. J. Filed Jan. 25, 1897. Serial No. 620,543. (No model.)



Claim.—1. In a machine for forming helical spring-rollers, the combination, as herein set forth, of a mandrel; means for rotating the said mandrel upon its longitudinal axis, and means for feeding it endwise; a plurality of rolls on opposite sides of said mandrel and adapted to rotate in bearings axially parallel, or approximately parallel, with the longitudinal axis of said mandrel, and so mounted as to leave the space between the rolls and said mandrel unobstructed at both ends: means for holding upon said mandrel one end of a ribbon of steel, whereby said ribbon when fed at a prescribed angle into the space between one side of said mandrel and the roll adjacent thereto, is wound spirally around said mandrel as upon a core, and while being thus wound is subjected simultaneously to the cross-rolling action of the rolls and to the drawing action resulting from the endwise progression of the work through the space between the rolls.

2. In a machine for forming helical spring-rollers, a mandrel; means for rotating said mandrel upon its longitudinal axis and for simultaneously imparting to it a prescribed speed of endwise motion, in combination with a plurality of rolls adapted to rotate in bearings axially parallel or approximately parallel with the longitudinal axis of said mandrel, and means for simultaneously moving each of said rolls to a like extent toward or from the center of said mandrel for the purpose of accurately preserving the centralization of the work with relation to said rolls while a steel ribbon is in process of being wound spirally around said mandrel.

3. In a machine for forming helical spring-rollers, a tapering mandrel; means for rotating said mandrel upon its longitudinal axis and for simultaneously imparting to it a prescribed speed of endwise motion; means for holding upon said mandrel one end of a steel ribbon; rolls on opposite sides of said mandrel for cross-rolling a ribbon of steel in process of being wound around said mandel, and means for automatically varying the distance between the said rolls to an extent corresponding to the variations in the diameter of the work during the progressive winding of the steel ribbon spirally around the tapering mandrel.

4. In a machine for progressively winding a ribbon of steel spirally around a tapering mandrel rotating upon its longitudinal axis and having an endwise-feeding movement, and employing rolls for cross-rolling the steel ribbon in process of being wound; bearings for said rolls arranged in the free ends of arms adapted to rock on parallel horizontal axes and provided at their ends opposite those carrying the rolls with suitable nuts; a vertical feed screw-bolt having a right-hand thread engaging the nut in one of said arms and a left-hand thread engaging the nut in the other of said arms; gearing for transmitting from the main shaft of the machine motion to rotate said feed screw-bolt at such prescribed rate of speed as may be required to gradually vary the distance between said rolls in conformity with the variations in the diameter of the work, during the progressive winding of said steel ribbon spirally around said tapering mandrel.

5. In a machine for forming helical spring-rollers, an endwise moving and rotating mandrel; a chuck for holding one end of a steel ribbon upon said mandrel; rolls for bearing on opposite sides of the steel ribbon in process of being wound spirally around said mandrel, in combination with an adjustable rest for presenting a rigid bearing for the outer side of the work, substantially as set forth.

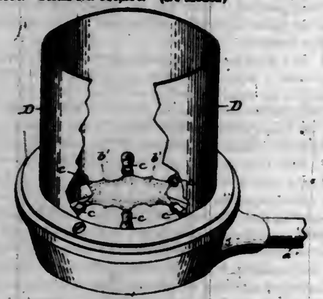
6. In a machine for forming helical spring-rollers, an endwise moving and rotating tapering mandrel; a chuck for holding one end of a steel ribbon upon said mandrel; rolls for bearing on opposite sides of the steel ribbon in process of being wound spirally around said mandrel; means for gradually varying the distance between said rolls in conformity with the progressive variation in the diameter of the work; a yielding rest adapted to bear with an elastic pressure upon one side of the work; a rest for bearing rigidly upon the opposite side of the work, and means for gradually varying the distance from the center of the mandrel of said rigidly-bearing rest in appropriate conformity with the variations in the diameter of the part of the mandrel between the rolls during the endwise movement of the mandrel and the progressive winding of said steel ribbon spirally around said mandrel.

7. In a machine for forming helical spring-rollers, a rotating, endwise-moving mandrel; a chuck for holding one end of a steel ribbon upon said mandrel; rolls upon opposite sides of said mandrel for bearing upon the steel ribbon in process of being wound spirally around said mandrel; arms rocking on parallel horizontal axes carrying said rolls in their free ends, and provided at their opposite ends with suitable nuts; a vertical feed screw-bolt provided with a right-hand screw-thread for engaging the nut in one of said arms, and a left-hand screw-thread for engaging the nut in the other of said arms; in combination with a fixed horizontal dial provided with a central aperture for admitting the upper end of said feed screw-bolt, and provided with a system of spirally-arranged holes; a crank-arm affixed to the upper end of the said vertical feed screw-bolt adapted to swing over the face of said dial and a removable stop-pin for insertion in either of said spirally-arranged holes for the purpose of definitely limiting the range of such swinging movement of said crank-arm, substantially as set forth.

8. In a machine for forming helical spring-rollers, the combination, as herein set forth, of an endwise-moving rotating mandrel; means for holding one end of a ribbon of steel upon said mandrel; a plurality of rolls for cross-rolling a ribbon of steel in the act of being wound spirally around said mandrel; means for varying the speed of endwise movement of said mandrel and the work thereon, the same consisting of a horizontal feed screw-bolt in axial alinement with said mandrel, and to the end of which said mandrel is affixed a driving-pulley loosely splined to said horizontal feed screw-bolt, and a cone-pulley having secured to its hub a nut meshing with the screw-thread upon said horizontal feed screw-bolt, the hub of said cone-pulley with the nut inserted therein filling the space between two adjacent turns, affording bearings for said horizontal feed screw-bolt; a counter-shaft provided with a pulley engaging the belt for giving motion to the said driving-pulley; an elongated pulley upon said counter-shaft, in vertical alinement with said cone-pulley; a band, or cord, for transmitting motion from said elongated pulley to said cone-pulley; a weighted idler-roller suspended in a bight of said cord or band; a guide-pulley between said cone-pulley and said elongated pulley for facilitating the formation of said bight; a manually-adjustable horizontally-sliding frame carrying said guide-pulley for shifting said cord, or band, from one convolution of said cone-pulley to another convolution thereof, and thereby varying the speed of rotation of said cone-

pulley relatively to the speed of rotation of said horizontal feed screw-bolt, and this varying the speed of endwise movement of said mandrel and of the work thereon.

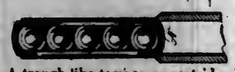
587,583. GAS-STOVE. JONATHAN JOHNSON, Lowell, Mass. Filed Dec. 19, 1896. Serial No. 616,236. (No model.)



Claim.—1. In a gas-stove, the combination with a series of burners having converging orifices and adapted to produce flames that are horizontal and spread laterally without lengthening in the same proportion, said burners being disposed opposite to each other so that the issuing flames project toward each other, of a shield or air-shaft surrounding said burners and allowing a current of air to pass transversely through the sheet of flame formed as specified, substantially as described.

2. In a gas-stove, the combination with a circular series of burners having converging orifices and adapted to produce flames that are horizontal and that spread laterally without lengthening in the same proportion, said burners occupying radial positions opposite each other and extending their flames toward each other, of a shield or air-shaft surrounding said burners and allowing a current of air to pass transversely through the sheet of flame, substantially as described.

587,584. TEMPORARY CARTRIDGE-HOLDING CLIP. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 28, 1896. Serial No. 607,139. (No model.)

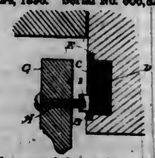


Claim.—1. A trough-like temporary cartridge-holding clip, longitudinally bowed, open at both ends and comprising a body portion and two flanges extending inwardly toward each other over the inner face thereof, the ends of the said body portion being extended beyond the ends of the said flanges for engagement with a box-magazine firearm so as to hold the clip in position while the cartridges are being manually forced out of it into the magazine thereof.

2. A trough-like temporary cartridge-holding clip, longitudinally bowed and open at both ends, comprising a body portion, two corresponding longitudinally-arranged flanges extending inwardly toward each other over the inner face of the said body portion, two projecting locating-fingers located at its respective ends, and extending beyond the ends of the said flanges, and one or more cartridge-retaining fingers located at each of its ends.

3. A trough-like temporary cartridge-holding clip, longitudinally bowed, furnished at its ends with projecting locating-fingers, and also furnished at each end with a pair of cartridge-retaining fingers of which the members of each pair are respectively located on opposite sides of the longitudinal center of the clip.

587,585. ADJUSTABLE WINDOW-STOP FASTENER. WILLIAM F. JOHNSTON, Philadelphia, Pa., assignor to Hobart B. Ives, New Haven, Conn. Filed Sept. 24, 1896. Serial No. 606,526. (No model.)



Claim.—In a window-retaining strip, screws passed through said strip, nuts run upon the inner ends of said screws, escutcheon-plates secured to the window-frame, each of said plates having a slot cut therein of less width than the nut, said slots having enlargements formed at one end of a greater width than the nut, ribs formed along the edges of the larger slots on the lower side of said plates, said ribs forming a channel in which the nut is adapted to fit, the ribs being such a distance apart as to engage the corners of the nut and prevent its turning, substantially as described.

587,586. PERMUTATION-LOCK. CHARLES W. JUDSON, Terryville, Conn., assignor to the Eagle Lock Company, same place. Filed Feb. 15, 1897. Serial No. 623,493. (No model.)



Claim.—1. In a permutation-lock, the combination with lock mechanism having means for producing an audible click, of a longitudinally-movable operating button and stem, and means for locking the said stem against rotation in either direction at one end of its thrust or movement for the establishment of a starting-point for counting the clicks.

2. In a permutation-lock, the combination with the lock mechanism, including means for producing an audible click, of a longitudinally-movable operating-button, an escutcheon in which the said button is mounted, and in which it has longitudinal movement, and provided with a fixed pin, and a coupling-collar connected with the button and engaged with the said pin when the button is moved in one direction, for locking the button against rotation and disengaged from the pin, when the button is moved in the opposite direction, for freeing the same and permitting it to be turned.

3. In a permutation-lock, the combination with an escutcheon having its central portion struck outwardly, and furnished with an inwardly-projecting pin, of a longitudinally-movable operating-button mounted for such movement in the escutcheon, and furnished with a notched coupling-collar engaged with the said pin through its notch when the button is moved outwardly, and disengaged from the pin when the button is moved inwardly, a stem connected with the button, and lock mechanism engaged by the said stem and including means for producing an audible click when the button and stem are rotated.

4. In a permutation-lock, the combination with an escutcheon having a central boss, the interior of which forms a shallow chamber, and furnished with a pin extending into the said chamber, of an operating-button longitudinally mounted in the said boss and provided with an inwardly-extending stem, a coupling-collar mounted upon the said operating-button, located within the chambered boss of the escutcheon, and coacting with the pin to lock the button against rotation when the same is pulled outward, a plate secured to the inner face of the escutcheon and for covering the said collar, and a lock mechanism engaged by the said stem and including means for producing an audible click when the button, and hence the stem, are turned in one direction or the other.

587,587. TYPE-WRITER SCALE. GEORGE M. KITCHILLER and HARRY A. GILLIS, Roanoke, Va. Filed Mar. 23, 1897. Serial No. 628,793. (No model.)

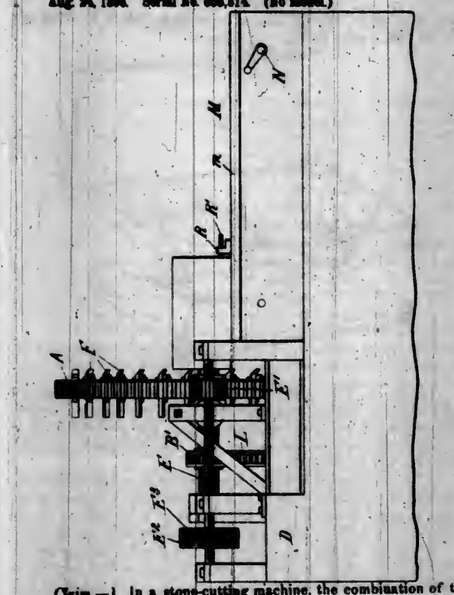


Claim.—1. In a type-writing machine, the combination with the pointer and spacing mechanism, of a scale having two sets of divisions thereon reading in reverse directions, said divisions being formed by graduating-lines and the linear distances between the graduating-lines of one set of divisions being twice the corresponding distances between the graduating-lines of the other set of divisions, whereby in the operation of the spacing mechanism to correspond to the number of letters and spaces in a given heading the pointer will indicate on one set of divisions the point to set said pointer on the other set of divisions in order to locate said heading centrally of the page, substantially as described.

2. In a type-writing machine, the combination with the pointer and spacing mechanism, of a scale having two sets of divisions arranged one above the other and reading in reverse directions, the lower set constituting the ordinary scale, the said divisions being formed by graduating-lines, and the linear distances between the graduating-lines of the upper set of divisions being twice the corresponding distances between the graduating-lines of the lower set of divisions, whereby in the operation of the spacing mechanism to correspond to the number of letters and spaces in a given heading, the pointer will indicate on the upper scale the number of the division to start from on the lower scale in order to locate said heading centrally of the page, substantially as described.

3. In a type-writing machine, the combination with the pointer and spacing mechanism, of a double scale having two sets of divisions reading in reverse directions, the said divisions being formed by graduating-lines and the linear distances between the graduating-lines of one set of divisions being twice the corresponding distances between the graduating-lines of the other set, and provided with a strip of suitable material arranged on the scale at right angles to the graduating-lines and adapted to receive erasable entries thereon, substantially as and for the purpose set forth.

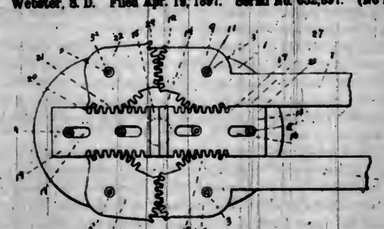
587,588. STONE-JOINTER. ANDREW LARSON, Chicago, Ill. Filed Aug. 24, 1896. Serial No. 603,314. (No model.)



Claim.—1. In a stone-cutting machine, the combination of the bed or table provided with apertures which are constructed with an enlarged portion, and a portion of less width extending to one side thereof; and the posts or braces R which are provided with shoulders r and r^3 forming an enlarged end portion adapted for insertion through the enlarged portions of the apertures, and with the shoulder r' which serves to maintain the post or brace in position after it has been moved from the enlarged portion into the narrow portion of the aperture, substantially as described.

2. In a stone-cutting machine, the combination with a cutting-tool in the tool-carrier, of the bearing-piece G' arranged to one side thereof, the block or slide G arranged between the bearing-piece G' and the tool, and the tapering screw H which is adapted to screw into a threaded bore formed in part in the bearing-piece G' and in part in the block or slide G, as set forth.

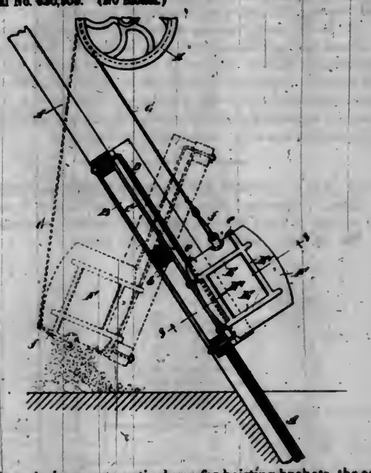
587,589. DEHORNING IMPLEMENT. CHARLES J. LINDQUIST, Webster, S. D. Filed Apr. 19, 1897. Serial No. 632,897. (No model.)



Claim.—1. In a dehorner, the combination with the operating-levers having heads provided with teeth on their adjacent edges and on their ends, of cutters the sides of which are provided with teeth, quadrantal gears each provided with two sets of teeth, the teeth on the sides of one cutter meshing with the teeth on the adjacent sides of the lever-head, and the teeth on the sides of the other cutter meshing with one set of teeth of the quadrantal gears, while the other set of teeth of the quadrantal gears mesh with the teeth at the ends of the lever-heads, substantially as shown and described.

2. A dehorner comprising the parallel plates 1 and 2, provided with the central alined orifices a a, a series of guide-bolts and pivot-bolts having encompassing sleeves 6, and adapted to secure said plates together, in combination with the longitudinally-reciprocating cutters 14 and 18, having alined guide-slots engaging the sleeves on the guide-bolts, and having their opposite parallel edges formed with a series of rack-teeth 17 20, a pair of lever-handles 7 and 8, the integral heads 9 and 10 which are fulcrumed on the sleeves encompassing the pivot-bolts 3 3' respectively, their contiguous edges being provided with a series of teeth 13 meshing with the rack-teeth on the cutter 14, and having their outer curved ends formed with a series of teeth 12 arranged at a greater distance from the fulcrum-point than the teeth 13, and the mutilated quadrantal gears 22 23, fulcrumed on the sleeves on the pivot-bolts 3° 3' respectively, and provided with a series of teeth 21 meshing with the teeth 20 on the opposite parallel edges of the cutter 18, and a second series of teeth 24 arranged at an approximate right angle to, and at a greater distance from, the fulcrum-point than the first-mentioned teeth 21 and in mesh with the corresponding teeth 12 on the contiguous outer edges of the levers 7 and 8, substantially as shown and described.

587,590. AUTOMATIC DUMP FOR HOISTING-BUCKETS. MATTHEW LISTON and LUTHER WILSON, Ward, Colo. Filed Jan. 27, 1897. Serial No. 620,959. (No model.)



Claim.—1. In an automatic dump for hoisting-buckets, the combination of a pivoted frame placed in the path of the rising buckets, with a cage mounted to slide on the frame and adapted to receive a bucket within it, and means for automatically securing the bucket to said cage, substantially as described.

2. In an automatic dump for hoisting-buckets, the combination of an inclined frame placed in the path of the rising buckets and provided with a cross-pivot near its middle, with a cage sliding on the frame and adapted to engage and secure the buckets thereto, substantially as described.

3. In an automatic dump for hoisting-buckets, the combination of a pivoted frame, a cage sliding on the frame, and adapted to receive the bucket, and provided upon its upper end with inwardly-projecting hooks or stops which engage the bucket to hold the same, substantially as described.

4. In an automatic dump for hoisting buckets, the combination of a frame having a lateral pivot near its middle, with a cage sliding longitudinally on the frame and adapted to receive the buckets, and provided with inwardly-extending hooks upon its upper end, and slide-bars extending longitudinally of the frame inside the cage and adapted to support the buckets and prevent their engaging the cage while entering the same, substantially as described.

5. In an automatic dump for hoisting-buckets, the combination of a frame having a lateral pivot near its middle, with a cage sliding longitudinally on the frame and adapted to receive the bucket, and provided with inwardly-extending hooks upon its upper end, and means for supporting the buckets to prevent their engaging the cage while entering the same, substantially as described.

6. In an automatic dump for hoisting-buckets, the combination

of a frame pivoted near its middle, with a cage mounted to slide upon said pivoted frame and having inwardly-projecting hooks upon its upper end, and open longitudinally upon the side away from the frame, substantially as described.

7. In an automatic dump for hoisting-buckets, the combination of a pivoted frame placed in the path of the rising buckets, with a cage mounted to slide on the frame and adapted to receive a bucket within itself, said cage being open longitudinally on the side away from the pivoted frame, and means for automatically securing the bucket to said cage, substantially as described.

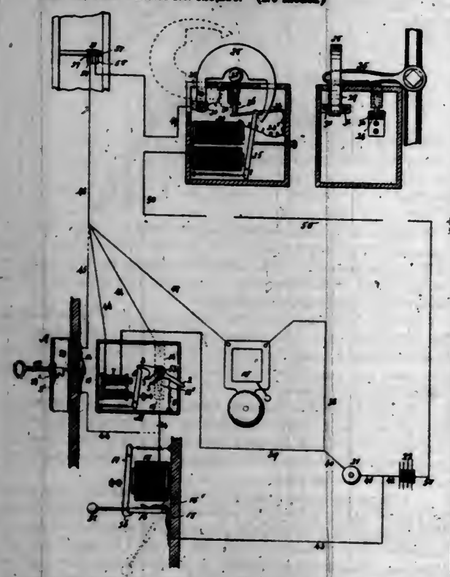
8. In an automatic dump for hoisting-buckets, the combination of an inclined frame placed in the path of the rising buckets and provided with a cross-pivot near its middle, with a cage sliding on the frame, and adapted to engage and secure the buckets thereto, said cage being open longitudinally on the side away from the pivoted frame, substantially as described.

9. In an automatic dump for hoisting-buckets, the combination of a pivoted frame, a cage sliding thereon and adapted to receive the bucket, and provided upon its upper end with inwardly-projecting hooks or stops which engage the bucket to hold the same, and also being open longitudinally upon the side opposite the pivoted frame, substantially as described.

10. In an automatic dump for hoisting-buckets, the combination of a frame having a lateral pivot near its middle, with a cage sliding longitudinally thereon, adapted to receive the bucket and provided with inwardly-extending hooks upon its upper end, and also being open longitudinally upon the side opposite the pivoted frame, and slide-bars extending longitudinally of the frame inside the cage and adapted to support the buckets and prevent their engaging the cage while entering the same, substantially as described.

11. In an automatic dump for hoisting-buckets, the combination of a frame having a lateral pivot near its middle, with a cage sliding longitudinally thereon, adapted to receive the bucket and provided with inwardly-extending hooks upon its upper end, and also being open longitudinally upon the side opposite the pivoted frame, and means for supporting the buckets to prevent their engaging the cage while entering the same, substantially as described.

587,591. DEVICE FOR INSURING CLOSING OF WINDOWS, &c. HENRY I. LORYE and MEYER H. LEWIS, New York, N. Y., assignors of one-half to Simon Schwarz and Joseph Schwarz, same place. Filed Mar. 25, 1897. Serial No. 630,256. (No model.)

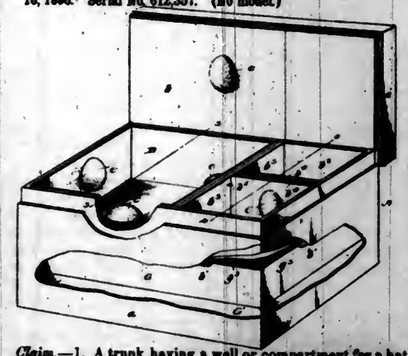


Claim.—1. A key-receiving cabinet provided with a key-holder, and electromagnet and circuit for freeing the holder, and a closer for said circuit, said closer comprising a hasp having a circuit-closing tail or part, a circuit-closing spring-slide, and an electromagnet in said circuit, said magnet having an armature adapted to engage or lock the hasp substantially as described.

2. A key-receiving cabinet provided with a key-holder, a lock or detent armature for the holder, an electromagnet and circuit, and window-contacts for closing the circuit, said window-contacts comprising spring-tongues at one of the meeting-rails, and projections or studs on the other meeting-rail made to touch the tongues on the closing of the window substantially as described.

3. A key-receiving cabinet provided with a keyhole, a sliding stem opposite said keyhole and in the path of a key entering by said hole, a key-holding lever having a hollow hub or fulcrum journaled in the eye part of the keyhole and adapted to receive a key-stem, said lever having an arm or tine made to extend from said fulcrum part to swing across the keyhole as the lever is tilted, a lock or detent armature for holding the lever in tilted position, an electromagnet for withdrawing the armature, a circuit for said magnet, and contacts for closing said circuit, said contacts being closed by the key-actuated stem, substantially as described.

587,592. TRUNK. MARY LYONS, New York, N. Y. Filed Nov. 16, 1896. Serial No. 612,357. (No model.)



Claim.—1. A trunk having a well or compartment for a hat, and rigid holders extending from opposite walls of said well, said holders being adjustable vertically and horizontally so that they will conform to hats of various sizes and contact with opposite points on the exterior thereof, as set forth.

2. A trunk having a well or compartment for a hat, holders rigidly secured to opposite walls of said well, said holders having curved plates designed to contact with the exterior of a hat, and means for adjusting said holders both vertically and horizontally, as set forth.

3. A trunk having a tray provided with a well or compartment, a hat-rest extending upwardly in said well, and holders secured to opposite walls of said tray capable of being moved up and down and having curved plates at their free ends designed to engage the exterior of a hat on said rest, substantially as set forth.

4. A trunk having a well or compartment for a hat, a rest in said well tapered throughout its length to accommodate hats of different sizes, and holders extending from opposite walls of said well designed to engage the exterior of a hat on said rest, and means for adjusting said holders vertically and horizontally whereby they will engage and conform to hats of different sizes, as set forth.

5. A trunk having a well or compartment for a hat, a rest in said well tapered throughout its length to accommodate hats of different sizes, said rest being made hollow, rigid holders extending from opposite walls of said well having curved plates designed to contact with the exterior of a hat on such rest, and means for raising and lowering said holders and moving them toward and away from said rest, whereby they will conform to hats of different sizes, substantially as set forth.

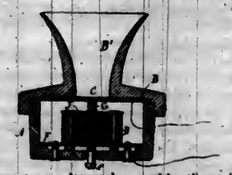
6. A trunk having a tray provided with a well or compartment and opposite grooved plates, and holders comprising adjustable arms having curved plates at their free ends and sliding plates fitting in said grooved plates, substantially as set forth.

7. A trunk having a tray provided with a well or compartment and grooved plates on opposite walls thereof and holders comprising angular arms, curved plates on the free ends thereof, slotted tubes in which said arms are adjustably held, and plates to which said arms are secured, said plates being adjustable in said grooved plates, substantially as set forth.

8. In a trunk-tray having opposite upright guideways in its side walls, rods extending across said tray having plates attached to their ends, said plates being capable of being moved up and down in said guideways, and a board located beneath said rods and having handholds on its upper surface, said board conforming, substantially, to the interior contour of said tray, substantially as set forth.

587,593. TELEPHONE-TRANSMITTER. OWEN MORAN, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,567. (No model.)

Claim.—1. In a telephone-transmitter the combination with the casing, the cap fitted thereon having a suitable mouthpiece and with the diaphragm between said casing and cap, of the carbon block within the casing having a central hole extending therethrough for the reception of granules of carbon or other conducting material in a loose state, a set-screw extending through the bottom of the casing upwardly into said hole of the carbon block to form a support and adjusting medium for the loose granules and a carbon pencil extending downwardly from the diaphragm into said hole of the carbon block to contact with granules, substantially as shown and described.



2. In a telephone-transmitter the combination with the casing, the cap fitted thereon, having a suitable mouthpiece and the diaphragm between said casing and cap, of the carbon block within the casing, a central hole extending therethrough for the reception of granules of carbon or other conducting material in a loose state, a metallic plate secured to the interior of the bottom of the casing to act as a support for the carbon block and form one of the electrodes of the instrument, a set-screw extending through the bottom of the casing and through said metallic plate upwardly into said hole of the carbon block to form a support and adjusting medium for the loose granules therein, and a carbon pencil extending downwardly from the diaphragm into said hole of the carbon block to contact with said granules, substantially as shown and described.

3. In a telephone-transmitter the combination of the following instrumentalities, a casing, a cap fitted thereon with a suitable mouthpiece, a diaphragm between said casing and cap, a carbon block within the casing having a central hole extending therethrough for the reception of granules of carbon or other conducting material in a loose state, a metallic plate secured to the interior of the bottom of the casing to act as a support for the carbon block and form one of the electrodes of the transmitter, a set-screw extending through the bottom of the casing and through said metallic plate upwardly into said hole of the carbon block to form a support and adjusting medium for the loose granules, a carbon pencil extending downwardly from the diaphragm into said hole of the carbon block to contact with said granules and a ring of mica or other insulating material arranged on the upper part of the carbon block to fit snugly around said carbon pencil for preventing the escape of the granules at that point, substantially as shown and described.

587,594. ELECTRIC CONTACT. ARTHUR J. MORHAN, Lorain, Ohio, assignor to the Johnson Company, same place. Filed Jan. 28, 1897. Serial No. 621,085. (No model.)



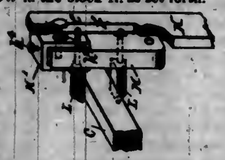
Claim.—1. In an electric contact-box, a metallic cover-plate having a perforation and upward projections on each side thereof, in combination with the contact secured in said perforation but insulated from said projections.

2. In an electric contact-box cover, in combination, magnetizable side members, a non-magnetizable member securing said sides together and having upward projections, and a contact portion between, but insulated from, said upward projections.

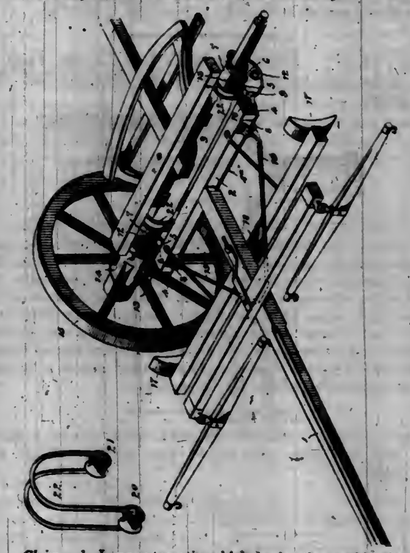
587,595. STEAM-ENGINE. PAUL MUNDT, Lincoln, Ill. Filed Dec. 24, 1896. Serial No. 616,929. (No model.)

Claim.—1. The herein-described improved link-block for engines, consisting of a block slidably connected with a standard, a lower guide-block pivotally connected with said first-named block and a pivoted upper guide-block vertically adjustable relative to said lower guide-block, as set forth.

2. In a link-block for steam-engines, the combination of a block H having transverse holes A and a transverse slot A', a cap H' fitting on said block H and having a slot A^3 and a hole A^4, a screw A^4 adapted to vertically adjust the cap H', a bolt K' passing through the slot A^3 and screwing into the upper hole A in the block H and adapted to slidably connect said block with a slotted standard, a link fitting in the lower hole A in said block H and adapted to operate the valve-rod of an engine, a lower guide-block L having a stem l turning in the central hole A in the block H and an upper guide-block L having a stem l turning in the hole A in the block H, and an upper guide-block L having a stem l turning in the hole A^3 in the cap H' and passing through the slot A' in the block H, as set forth.



587,596. VEHICLE-BRAKE. JOHN F. MURPHY, Adrian, Mich., assignor of two-thirds to Otis A. Clapp and James Murphy, same place. Filed May 11, 1897. Serial No. 636,074. (No model.)



Claim.—1. In an automatic vehicle-brake, the combination with a front axle, and front wheels, of a longitudinally-movable pole carrying brake-shoes arranged to engage the said wheels, springs for holding the pole normally extended forward, and means for automatically relieving the pole of the pressure of the springs when the brake is applied, substantially as described

2. In an automatic vehicle-brake, the combination with a front axle, and wheels, of a longitudinally-movable pole carrying brake-shoes for engaging said wheels, a toggle connection between the pole and the axle consisting of a pair of links pivotally connected together, a trip-lever mounted on the toggle connection and engaging the same, a spring for holding the toggle connection elevated, and teeth carried by the adjacent wheel and adapted to engage the trip-lever and force the same downward, substantially as and for the purpose described.

3. In an automatic vehicle-brake, the combination with a front axle, and a wheel, of a longitudinally-movable pole, a toggle connection between the pole and the axle consisting of a pair of links pivoted together and having a limited longitudinal movement on each other, a trip-lever fulcrumed on the pivot of the links and engaging the front link, a spring connected with the trip-lever and holding the same and the toggle connection in position, and means for throwing the rear arm of the trip-lever downward, substantially as and for the purpose described.

4. In an automatic vehicle-brake, the combination with a front axle, and wheels, of, a pole provided with a transverse bar, a brake-beam mounted on the pole and provided with brake-shoes for engaging said wheels, toggle connections consisting of front and rear links connected at their outer terminals to the transverse bar and to the axle, the rear links being provided at their front terminals with slots, and the front links having pivots arranged in said slots, trip-levers fulcrumed on said pivots and having their front arms engaging under the front links, springs connected with the trip-levers and supporting

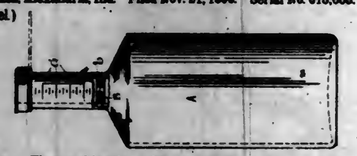
the toggle connections, and ratchet-teeth mounted on the hubs of the wheels and arranged to engage the trip-levers, substantially as described.

5. In an automatic vehicle brake, the combination with a front axle, of a longitudinally-movable pole, a spring-actuated toggle connection, and a supporting-arm extending rearward from the pole and connected with the said axle and having its rear portion bent upward at an inclination, whereby the pole is given a tilting movement when it is reciprocated, substantially as described.

6. In an automatic vehicle-brake, the combination with a front axle, and a pole, of a yoke arching the axle and composed of two sides, the front of the yoke or support being extended downward, rollers mounted on the yoke or support at the front and back thereof, and an arm extending rearward from the pole, supported upon the front roller and engaging under the rear roller, said arm being inclined upward at its rear end, substantially as described.

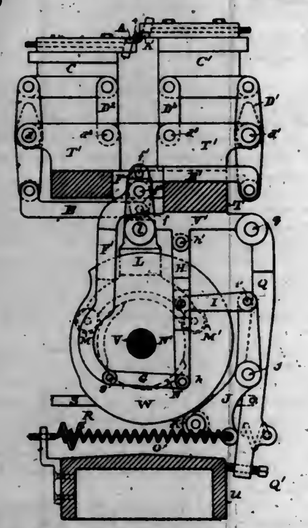
7. In an automatic vehicle-brake, the combination with a front axle, and a pole, of a support, rollers mounted on the support, and an arm connected with the pole and having its rear end bent upward at an inclination, said arm being supported by one of the rollers and engaging under the other, substantially as described.

587,597. DEVICE FOR MEASURING LIQUIDS. FRANK P. HOUSER, Alexandria, Ind. Filed Nov. 21, 1896. Serial No. 613,008. (No model.)



Claim.—The combination with a bottle having a notched or perforated plug seated within its neck portion at a predetermined distance from the orifice, of a device adapted to close temporarily the said orifice independently of the usual cork or stopper, said device consisting of a piece of flexible material having a narrow slitted portion which is spread and sprung over and around said neck portion, a disk or cap portion adapted to be turned down over the said orifice, and a narrow portion which connects the slitted portion to the said cap or disk portion, substantially as specified.

587,598. CUTTING-OFF MECHANISM. EDWARD P. HOYES, Winchester, Mass. Filed Apr. 30, 1896. Serial No. 589,755. (No model.)



Claim.—1. In a cutting-off mechanism the combination of two movable cutting-off tools, mechanism operating during the first part of the cut to advance both tools toward the center of the stock, and connected mechanism operating automatically during the last part of the cut to advance one tool and retire the other whereby the final cut is made with a single tool, substantially as described.

2. In a cutting-off mechanism the combination of two movable cutting-off tools, and connected mechanism for advancing both tools toward the center of the stock having provision for a slight lateral play of the tools, with reference to the axial line of the stock, to insure the operation of both tools in making the cut, substantially as described.

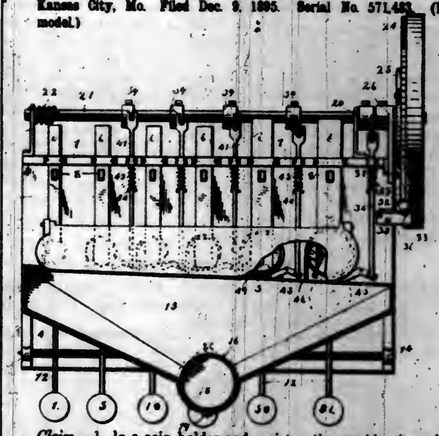
3. In a cutting-off mechanism the combination of two movable cutting-off tools adapted to operate upon opposite sides of the stock, mechanism operating during the first part of the cut to move both tools substantially simultaneously in opposite directions and connected mechanism operating during the last part of the cut to move both tools substantially simultaneously in the same direction, whereby the first part of the cut is made with both tools and the final cut with a single tool, substantially as described.

4. In a cutting-off mechanism, the combination of two movable cutting-off tools, connected mechanism for advancing both tools toward the center of the stock having provision for a slight lateral play of the tools with reference to the axial line of the stock, a stop mechanism and connections between each of said tools and the stop mechanism, whereby when the advancement of either tool is impeded the stop mechanism is operated to stop the advance of both tools, substantially as described.

5. In a cutting-off mechanism the combination of two movable cutting-off tools, a lever for actuating the cutting-off tools fulcrumed on a movable support, mechanism for actuating the lever, and connected mechanism for actuating its movable support, substantially as described.

6. In a cutting-off mechanism the combination of two movable cutting-off tools, pivoted levers for actuating the tools fulcrumed on a fixed support, a pivoted lever for actuating the tool-actuating levers fulcrumed on a movable support, mechanism for actuating the last-named lever, and connected mechanism for actuating its movable support, substantially as described.

587,599. COIN HOLDER AND REGISTER. TERENCE O'DONNELL, Kansas City, Mo. Filed Dec. 9, 1895. Serial No. 571,482. (No model.)



Claim.—1. In a coin holder and register, the combination with a coin-receptacle, of means for ejecting the coin from the receptacle, a rock-shaft, a registering-wheel revoluble thereon, a spring for retracting the registering-wheel, means connected with the rock-shaft for operating the registering-wheel, and means operated by the ejected coin for operating the rock-shaft, substantially as described.

2. In a coin holder and register, the combination with a coin-receptacle, of means for ejecting the coin from the receptacle, a rock-shaft, a registering-wheel revoluble thereon, means for revolving the registering-wheel when the rock-shaft is rocked in the proper direction, and means operated by the ejected coin for operating the rock-shaft, substantially as described.

3. In a coin holder and register, the combination with a coin-receptacle, of means for ejecting the coin from the receptacle, a rock-shaft, a revoluble registering-wheel, means for retracting the rock-shaft and the registering-wheel, means for operating the registering-wheel when the rock-shaft is rocked, and means operated by the ejected coin for operating the rock-shaft, substantially as described.

4. In a coin holder and register, the combination with a coin-receptacle, of means for ejecting the coin from the receptacle, a rock-shaft a spring-retracted registering-wheel revoluble upon the rock-shaft and operated thereby, and means operated by the ejected coin for rocking the rock-shaft, substantially as described.

5. In a coin holder and register, the combination with a coin-receptacle, of means for ejecting the coin from the receptacle, a rock-

shaft provided with a crank-arm, a bell-crank lever operated by the ejected coin, a spring-retracted rod connected to the bell-crank lever, and adapted to engage the crank-arm of the rock-shaft, and a registering device operated by the rock-shaft, substantially as described.

587,600. CIGAR SHAPER. JAMES H. OSDEN, Philadelphia, Pa., assignor, by direct and mesne assignments, to the Perfect Cigar Shaper Company, same place. Filed Mar. 25, 1896. Serial No. 584,766. (No model.)

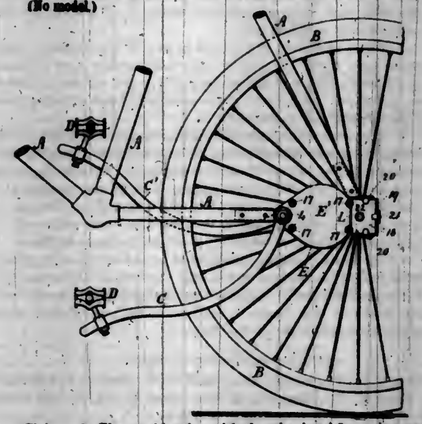


Claim.—1. A cigar-shaper consisting of a tubular body, a tubular cap, and an intermediate tubular section, the latter being adapted to have said body and cap connected therewith, and to be removed therefrom, thus providing for adjustability in the length of the shaper, the inner surface of said section forming a continuity of the inner surfaces of said body and cap.

2. A cigar-shaper consisting of a tubular body, a tubular cap, and an intermediate tubular section, said body having rims whereby they may be fitted together and held connected, the inner surface of said section forming a continuity of the inner surfaces of said body and cap, substantially as described.

3. A cigar-shaper consisting of a tubular body and a tubular cap, said body and cap each having a beveled rim, one rim being adapted to engage with the other, the inner contour of the body and of the cap being continuities of each other.

587,601. DRIVING MECHANISM FOR CYCLES. JOHANNES T. PEDERSEN, Woodside, N. Y. Filed Sept. 14, 1896. Serial No. 605,691. (No model.)



Claim.—1. The combination with the wheel and frame in a cycle, of a pinion upon the hub of the wheel, a gear directly engaging such pinion and a crank-pin upon the gear, a short arm pivoted upon the axle of the wheel and having a straight slot therein receiving the crank-pin upon the gear, a pivotal support and a foot-lever thereon and extending forward of such support, and a connecting device between the back end of the foot-lever and the short slotted arm, substantially as set forth.

2. The combination with the wheel and frame in a cycle, of a pinion upon the hub of the wheel, a gear directly engaging such pinion and a crank-pin upon the gear, a short arm pivoted upon the axle of the wheel and having a straight slot therein receiving the crank-pin upon the gear, a case inclosing the gears, slotted arm and crank-pin, a pivotal support and a foot-lever thereon and extending forward of such support, and a connecting device between the back end of the foot-lever and the short slotted arm, substantially as set forth.

3. The combination with the wheel and frame in a cycle, of a pinion upon the hub of the wheel, a gear directly engaging such pinion and a crank-pin upon the gear, a short arm pivoted at one end and having a straight slot therein receiving the crank-pin upon the gear, a case inclosing the gear, pinion and slotted arm, a pivotal support and a foot-lever thereon and extending forward of such support, and a connecting device between the back end of the foot-lever and the short slotted arm, substantially as set forth.

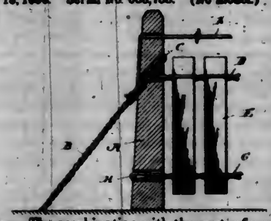
4. The combination with a wheel and frame in a cycle, of a pinion connected with the hub of the wheel, a gear engaging such pinion, a crank-pin for the gear, a slotted arm pivoted at one end, a sector upon the slotted arm, a foot-lever and sector upon its rear end engaging the sector upon the slotted arm for giving motion to the same, and to the crank-pin, gearing and cycle-wheel, substantially as set forth.

5. The combination in a driving mechanism for cycles, of a pinion upon the hub of the cycle-wheel, a gear-wheel engaging such pinion, a box for inclosing the gearing and ball-bearings for the hub of the cycle and for the arbor of the gear-wheel, a crank-pin and roller upon the gear-wheel, a slotted arm and a pivot at one end and receiving the roller and crank-pin into its slot, a sector connected with the slotted arm, a foot-lever pivoted at its rear end outside the box and a sector within the box connected to the foot-lever and engaging the sector on the slotted arm for giving motion to the respective parts in propelling the cycle, substantially as set forth.

6. The combination with the cycle-wheel, having a tubular hub, of a pinion connected to such hub, a box receiving the pinion and supported by the frame of the cycle, the rear end of the box being open for the reception of the hub of the wheel, a cross-axle passing through the tubular hub of the cycle-wheel and ball-bearings between the pinion and the cross-axle, an auxiliary cap receiving through it the end of the cross-axle, an end piece and cross-bolt by which the end piece is rigidly connected to the box for the gearing, and a screw acting to adjust the auxiliary cap, the cross-axle, the ball-bearings and the pinion in relation to the box and gearing for driving the pinion, substantially as set forth.

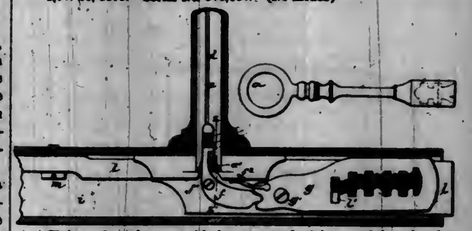
7. Bicycle-propelling devices comprising a pinion on the axle of the driving-wheel, a gear directly in mesh therewith, a swinging actuator and a crank-pin on the gear, and having a sliding connection with the actuator, a foot-lever independent of the actuator and extending forward of its pivotal support and a rearward connection therefrom to the actuator, substantially as specified.

587,602. FENCE. JOHN H. PERRIN, Lawrenceville, Ill. Filed Oct. 13, 1896. Serial No. 608,753. (No model.)



Claim.—The combination with the post, of a wire passed through a hole therein and a rod passed through a bight in the said wire and connected with the post, and a longitudinal wire extending into a hole in the post and having its bight embracing the first-mentioned wire, substantially as described.

587,603. LOCK. GIUSEPPE PICCIONI, Montefiore, Italy. Filed Nov. 26, 1896. Serial No. 570,187. (No model.)



Claim.—1. A key provided at one end with an axial socket having in its interior a continuous circumferential rigid wall provided with a shoulder located at a different distance from the center of the socket to that portion of the wall which is in the same transverse plane with the said shoulder, whereby said shoulder may act as a bit when the key is turned about its longitudinal axis, substantially as described.

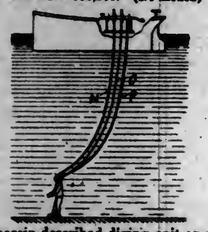
2. A lock, comprising a guide located approximately centrally in the keyhole to fit axially into the socket at the end of a hollow key, a movable ward having one end extending into the keyhole in the rear of said guide, a tumbler actuated by the ward and a bolt whose movement is controlled by the tumbler, substantially as described.

3. A lock, comprising a guide located approximately centrally in the keyhole to fit axially into the socket at the end of a hollow key, a movable ward having one end extending to the rear of said guide, a slotted casing inclosing said ward and connected to said

guide, a tumbler actuated by the ward and a bolt whose movement is controlled by the tumbler, substantially as described.

4. A lock comprising a movable ward having one end extending axially into the keyhole, a central pin or guide located in the keyhole in advance of the end of the ward, and adapted to fit axially into the socket at the end of a hollow key, a tumbler actuated by the ward, and a bolt whose movement is controlled by the tumbler, substantially as described.

587,604. DIVING OUTFIT. JAMES B. POLLARD, Roanoke, Va. Filed Oct. 8, 1896. Serial No. 608,283. (No model.)

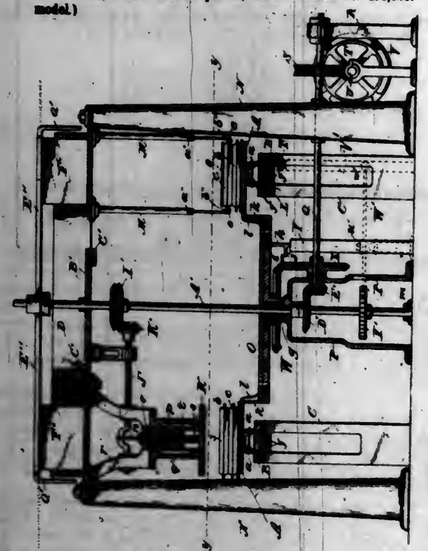


Claim.—1. The herein-described diving suit or armor, comprising a divided metallic head-section, a flexible waterproof shoulder-section divided at the back, a metallic, undivided trunk-section, and flexible waterproof limb portion, said waterproof sections being close fitting, and joined to the metallic sections in a waterproof manner, substantially as specified.

2. The herein-described diving suit or armor, consisting of the divided metallic helmet, the flexible shoulder-section removably joined to the neck portion of the helmet in a water-tight manner, and arranged to open at the back, means whereby the edges of the said section are united in a water-tight manner, the undivided metallic trunk-section removably joined to the shoulder-section, the flexible limb portion removably joined to the trunk-section, the weighted shoes, and the ankle and wrist clasps, substantially as specified.

3. In a diving outfit, the reel-shaft having the several sections and partially hollow, the couplings thereon, the speaking-tube attachment at one end of the said shaft, the suction connection at the opposite end, the valved air induct and educt pipes connected to the said couplings, the flexible air-pipes N and O connected to the said induct and educt pipes through the said couplings, the pipe N being also connected with the suction attachment through the hollow shaft, and the flexible speaking-tube connected to the speaking-tube attachment through one of said couplings and a hollow portion of the shaft, substantially as specified.

587,605. SAND-MOLDING MACHINE. WILLIAM PORTBOOM, Elmwood Place, Ohio. Filed Apr. 23, 1892. Serial No. 430,375. (No model.)



Claim.—1. In a sand molding machine, the combination of an endless horizontal table, flask-carrying trucks guided and simultaneously movable thereon intermittingly, automatic means for moving said trucks, a vertically-movable section in said table under the path of travel of said trucks, and pivoted clamping-bolts over said movable section to support the flasks substantially as described.

2. In a sand-molding machine, the combination of an endless horizontal table for the trucks and flasks, said table having vertically-movable sections, a shifter, and suitable means to connect the said shifter to the trucks both in their normal and lowered positions.

3. In a sand-molding machine, the combination of a horizontal circular sand-trough with openings in its bottom, sand dropping and ramming mechanism beneath said trough, sand-sweeps for said trough, a horizontal circular table beneath said trough, trucks carrying flasks on said table, a horizontal shifter for intermittingly moving said trucks, and operating mechanism for the sweeps and sand dropping and ramming mechanisms, substantially as described.

4. In a sand-molding machine having a sand-delivering trough, the combination of a dropping-box on the under side of the trough, said box having a hinged bottom, a sand-sweep in the trough, a tripping-arm on said sweep, a latch for the hinged bottom, and a closing-weight for the hinged bottom, substantially as described.

5. In a sand-molding machine, the combination of a horizontal table, flask-carrying trucks upon said table, mechanism for automatically and intermittingly moving said trucks and flasks, said table having a vertically-movable section under the path of travel of said trucks, and pivoted clamping-bolts over said movable sections to support said flasks, substantially as described.

6. The combination of the shifter O, gear W fast thereto, mutilated gear X meshing with gear W, and driving-shaft Q, substantially as described.

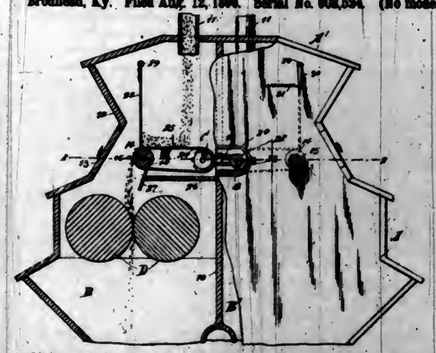
7. The combination of the shaft, Q, gear E' fast thereon, vertical shaft A', gear D' fast on shaft A' and meshing with gear E', trough D provided with sand-passages and sweeps F', F'', carried by shaft A', substantially as described.

8. The combination of the shaft Q, gear E' fast thereon, vertical shaft A', gear D' fast on shaft A' and meshing with gear E', trough D provided with sand-passages, sand sifting and ramming mechanisms, and gear I' for operating said sand sifting and ramming mechanisms, substantially as described.

9. In a sand-molding machine, the combination with the driving-shaft Q, the pinion E' fast on said shaft, and the vertical shaft A' provided with gear-wheel D' meshing with pinion E', whereby motion is imparted to shaft A' from the driving-shaft Q, of a ratchet-wheel Y' carried by said shaft A', posts V' by which the flasks are supported, and a rapping-arm W' arranged to vibrate between said posts and actuated by said ratchet-wheel Y', substantially as described.

10. In a sand-molding machine, the combination with the supporting-table B and trucks A mounted thereon, of the shifter-plate O having vertical ribs on its periphery to engage the grooves on the under edges of said trucks A, and means for moving said shifter and trucks, substantially as described.

587,606. ROLLER-MILL BELT-FEED. EVELYN B. PROTHEROE, Brodhead, Ky. Filed Aug. 12, 1896. Serial No. 602,594. (No model.)



Claim.—1. In a belt-feed for roller-mills and the like, the combination, with a supporting-roller for the conveyer-belt, having sockets in its ends, of a casing in which the roller is contained, boxes secured to the casing, and adjustable bearings passed through said boxes, each bearing consisting of a screw provided with nuts arranged for engagement with the inner and the outer faces of the boxes and terminating at their inner ends in eccentric tips, which tips enter the sockets in the roller, as and for the purpose set forth.

2. In a feed for roller-mills and the like, a belt-supporting roller having a screw body and sockets at its ends, and adjustable supports for the said roller, consisting of screws having locking-nuts and inner ends eccentric to the body of the screws and adapted to enter the sockets in the ends of the roller, substantially as described.

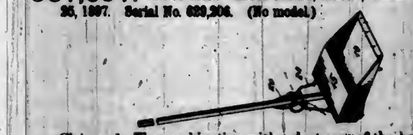
3. In a belt-feed for roller-mills and the like, the combination with an endless belt, of rollers supporting said belt, one of which rollers has its body portion shaped as a screw, forming a conveyer, and a platform located beneath the belt, receiving material from the conveyer-roller, which material is that escaping over the edges of the belt, as set forth.

4. In a belt-feed for roller-mills and the like, the combination, with an endless belt, rollers supporting said belt, one of which rollers has its body portion shaped as a screw, forming a conveyer, of a platform located beneath the belt, receiving material from the roller conveyer, which material is that escaping over the edges of the belt, and a tension-controlled gate pivoted above the belt, the free end of the gate being located over the delivery end of the belt in close proximity thereto, as and for the purpose specified.

5. In a belt-feed for roller-mills and the like, the combination, with a belt, of a roller supporting one end of the belt, comprising a screw body and slats attached to the outer face of the screw, extending longitudinally thereof, a bearing for the said roller, and means for adjusting the said bearing, substantially as shown and described.

6. In a roller-mill or the like, a belt-supporting roller, comprising a feed-screw and slats extending longitudinally of the said screw, screw-bearings removably engaging the ends of the roller, boxes in which the bearings are located, locking devices carried by the bearings, and an adjusting device arranged to move the bearings laterally in their boxes, as and for the purpose specified.

587,607. DUST-PAN. LLOYD P. RAY, Seattle, Wash. Filed Mar. 25, 1897. Serial No. 629,206. (No model.)



Claim.—1. The combination with a dust-pan of the handle connected therewith, and provided with lateral extensions, a spring-arm connected with said extensions, links connecting said spring-arm with the pan, and means by which said spring-arm is brought under tension to fasten the handle to the pan, as set forth.

2. The combination, with a dust-pan or a like receptacle and a handle connected therewith, of a fastening device for the handle, consisting of a spring-arm having coils intermediate of its ends, extensions from the handle passed through the said coils, the extremities of the arm being carried rearward and upward, and a link connection between the extremities of the arm and the pan, as and for the purpose set forth.

3. The combination, with a dust-pan or a vessel of like character, a handle connected with the pan at its lower end, projections from the sides of the handle, and washers mounted on said projections, of a fastening device consisting of a loop straddling the handle, provided with coils carried around the extensions of the handles between the washers, the terminals of the loops being carried rearward and upward, and links connecting the extremities of the loop and the pan at each side of the handle, as and for the purpose specified.

4. The combination, with a pan having a socket formed at its rear, a handle removably fitted in the said socket, extensions from the handle at opposite sides, and washers loosely mounted on the extensions, of a fastening device for the handle, consisting of a loop of spring-wire straddling the handle, coiled around the extensions from the handle between the washers, the members of the loop being carried rearward and upward within the body of the loop, and links connecting the terminals of the members of the loop with the pan at each side of the handle, as and for the purpose set forth.

5. The combination with the dust-pan, and the handle connected therewith, of the spring-arm attached to said handle, links connecting the pan with one end of said arm, and an extension from the other end of said arm arranged to snap against said handle, whereby the spring-arm is brought into tension with said links and the handle is fastened to the pan, substantially as set forth.

6. The combination with the dust-pan having a body, a tip of material harder than that of which said body is constructed and a socket formed at its rear, of a handle removably fitted in said socket and provided with lateral pins, an arm formed of spring-wire bent to form a loop, coils between said loop and its ends and received upon said pins, and eyes in its ends, and links attached to said pan and formed with eyes in engagement with the eyes of said spring-arm, the said loop being arranged to snap against said handle above said pins and bring said arm into tension with said links to fasten the handle in the socket, as and for the purpose set forth.

587,608. LADDER. JAMES H. RICHEY, Carmichael's, Pa. Filed Mar. 2, 1897. Serial No. 625,798. (No model.)



Claim.—1. A ladder comprising three sections adapted to be secured together to form an extension-ladder, two of the sections being adapted to be secured together in opposite inclined position to form a step-ladder, the third section adapted to be arranged in transverse position adjacent the base of one of the inclined sections to form a foot, and devices carried by said third section for securing it in said transverse position, substantially as shown and described.

2. A ladder including two sections adapted to be secured together in oppositely-inclined position to form a step-ladder, a third section adapted to be arranged transversely at the base of one of the inclined sections to constitute a foot, cleats on said transverse section adapted to fit between the rails of the inclined section, the loop extended from the transverse section, and the wedge adapted to pass therethrough for tying said section to the rungs of the inclined section, substantially as shown and described.

587,609. PADLOCK. HENRY ROLAND, Hazleton, Pa. Filed Jan. 27, 1897. Serial No. 620,893. (No model.)



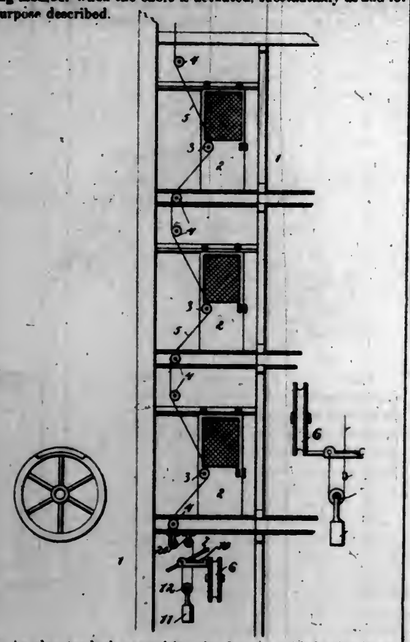
Claim.—In a padlock, the combination with the case comprising the rim and heads formed with an opening to receive a hasp or staple, the ring secured to said case concentric with the rim and formed with a web provided with a slot at one side and with recesses at the inner end and the pivot or stud, of the circular bolt located between said rim and ring, having an opening for the passage of the hasp or staple, a web opposite said opening formed with a curved recess, and intermediate of said web and opening formed with two slots, the spring-actuated tumbler pivoted on said stud, the dog pivoted to said tumbler, the free end of which is adapted to engage with the slots in the bolt, substantially as described.

587,610. SAFETY DEVICE FOR ELEVATORS. CHARLES RUSSELL, Sharon Hill, and ALBERT C. WELCHANS, Lancaster, Pa.; said Russell assignor to said Welchans. Filed Jan. 13, 1897. Serial No. 619,061. (No model.)

Claim.—1. In an elevator-lock, the combination of the shaft, the doors, a controlling member for the hoisting mechanism, a lever engaging directly said controlling member and adapted to lock and release it, a cable attached to the upper end of the shaft and extending throughout its length, a connection between the doors and said cable whereby a movement of the doors deflects the cable and moves its lower end vertically, and a stop carried by said cable engaging directly said locking member or lever, substantially as described.

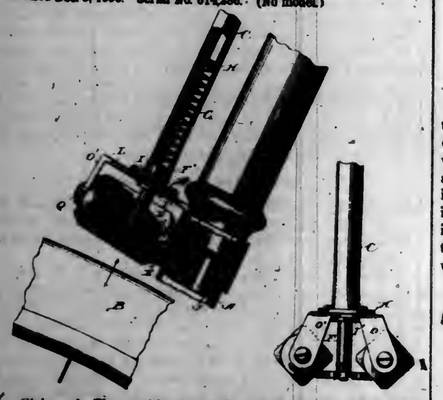
2. In a lock for elevators, the combination of the shaft, the doors therefor, a controlling member for the hoisting mechanism, a locking member for said controlling member, a cable attached at its upper end at the upper end of the shaft and extending throughout its length, connections between the doors and said cable whereby the movement of a door moves the lower end of the cable vertically, the cable passing by and below said locking member, and a stop carried by the cable at a point below the locking member for engaging said

locking member when the cable is actuated, substantially as and for the purpose described.



3. An elevator-lock comprising the doors, a cable having its upper end connected at the upper end of the shaft, the doors having guides around or through which the cable passes, guides between the doors to hold the cable against lateral deflection at that point, the lower end of the cable being connected at a point below the locking-lever, a weight suspended by the cable at a point below the locking-lever and holding the cable taut, and a stop carried by the cable adapted to engage the locking-lever when the cable is deflected by the several doors and lift it out of engagement with the controlling member, and when one of the doors is opened to release the cable, the weight tightening it and carrying the stop out of engagement with the locking-lever, substantially as described.

587,611. BICYCLE-BRAKE. JASPER L. SACKETT, Chicopee, Mass., assignor to the Lamb Manufacturing Company, Chicopee Falls, Mass. Filed Dec. 3, 1896. Serial No. 614,286. (No model.)

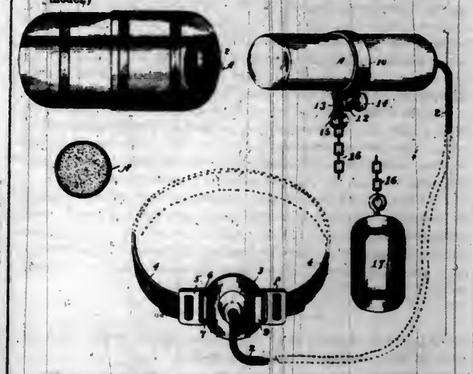


Claim.—1. The combination with a tubular brake-rod, of a suitable brake-shoe secured to the lower end of said rod, a rod-guiding post extending from below into the lower end of said rod, and a rigid arm secured to the lower projecting portion of said post and adapted to be attached rigidly to the frame of a bicycle.

2. The combination with a tubular brake-rod, of a two-part brake-shoe adapted to press the tire upon each side of its medial line, of an arm lying between the two parts of the shoe and adapted for rigid attachment to the front fork, and a post fixed to the end of said arm and extending into the tubular rod, for the purpose set forth.

3. The combination with the tubular brake-rod, of the coiled spring within the same, the spring-supporting post projecting from the end of the rod, the post-supporting arm secured to the post, the forked plate fixed to the lower end of the brake-rod, and the rotatable rubber blocks carried by the plate and lying upon opposite sides of said post.

587,612. APPARATUS FOR PRODUCING THERMAL RESULTS. HERCULES SANDER, Detroit, Mich., assignor to the Animarium Company, New York, N. Y. Filed May 20, 1890. Serial No. 353,614. (No model.)

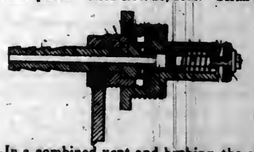


Claim.—1. An apparatus of the type set forth, consisting of a metallic cylinder, or shell, a wire cable connected at one end to said shell, and a contact-plate connected to the other end of said cable and provided with a suitable strap, substantially as described.

2. The combination with the metallic cylinder or shell filled with a material, as set forth, of a wire cable attached to one end of said cylinder and a contact-plate attached to the other end of said cable and provided with a strap, substantially as described.

3. The combination with a metallic shell having a detachable clamp and a chain and weight connected to said clamp, of a wire cable connected to one end of said cylinder and a contact-plate attached to the other end of the cable, substantially as described.

587,613. COMBINED BARREL VENT AND BUSHING. FRANK W. SCHLAGER, New Haven, Conn., assignor of one-half to Daniel J. Hurley, same place. Filed Nov. 25, 1896. Serial No. 613,259. (No model.)



Claim.—In a combined vent and bushing, the combination with the bushing supporting a cylinder, a valve adapted to close the lower end of said cylinder, a spring-operated spindle connected with said valve and extending upward through said cylinder into the bushing, a pipe formed with an annular flange and with a cylindrical stem at its lower end, transverse openings into said stem, and a valve for closing said openings, a coupling member surrounding said pipe and bearing upon said flange, and adapted to be turned into the upper end of the bushing, whereby said stem is forced to press the spindle downward, substantially as described.

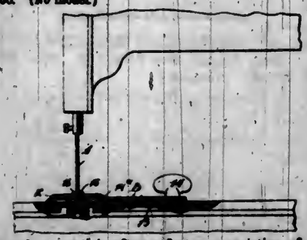
587,614. ELECTRIC-WIRE HOLDER. CHARLIE J. STRAH, Waterman, Ill. Filed May 27, 1897. Serial No. 638,464. (No model.)



Claim.—1. A holder of the character set forth, consisting of a piece of rubber or analogous material provided with an opening therein, and a support for said holder having embracing tongues and a supporting-lip, substantially as described.

2. An electric-wire holder, consisting of a support having securing-tongues projecting therefrom and a lower retaining-lip, a yielding holder secured to said guard-tongues and supported by said lip and having an opening therein, and a slot in the side leading to said opening, substantially as described.

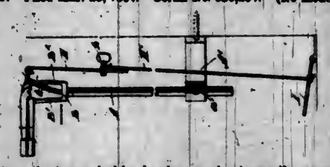
587,615. RIPPING ATTACHMENT FOR SEWING-MACHINES. CHARLES H. STUART, Newark, N. Y. Filed May 13, 1897. Serial No. 636,360. (No model.)



Claim.—1. An article of manufacture, consisting of a plate having a raised or offset portion at one end, a hole therethrough adapted to act as a knife-guard, parallel raised ridges on the upper surface thereof on each side of the hole, and means for securing said plate to a sewing-machine bed with the hole therein beneath the needle-bar, substantially as described.

2. A ripping or cutting attachment for sewing-machines comprising a plate adapted to be secured to the machine-bed beneath the needle-bar and to cover the feed mechanism, said plate having a hole shaped to correspond with the section of the cutter and acting as a guide therefor and a cutter consisting of a bar having a knife-section adapted to enter the hole in the plate and a shank-section adapted to enter the needle-socket in the needle-bar, said plate having parallel ridges one upon each side of the cutter-guide, substantially as described.

587,616. COAT-HOLDER. ROBERT J. STUART, New Hamburg, N. Y. Filed Mar. 26, 1897. Serial No. 630,257. (No model.)



Claim.—1. A coat-holder having two horizontally-extending bars pivoted one upon the other, one of said bars having curved pivot-bearings open on one side and extending about journals on the other, two pairs of cooperating arms or fingers attached to the ends of each bar and extending forwardly, a rearwardly-extending arm upon the inner one of said bars, and a spring acting on said bar to close the fingers and to hold the pivots of the bars in engagement, substantially as described.

2. A coat-holder, comprising two horizontally-extending bars having forwardly-projecting fingers on each end, one of said bars lying within and pivoting upon curved bearings or hooks projecting from the other, and a spring acting upon the inner of said bars to hold the same in its bearings and to clamp the fingers together, substantially as described.

3. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having a curved bearing-strip extending partially around the other, a rearwardly-extending arm attached to the inner bar, a spring acting thereon to clamp the fingers together, a standard or support connected to the outer bar, consisting of a base having one front standard and two separated rear standards connected at their upper ends with the body of the bar, whereby the inner bar may be inserted and removed at will, substantially as described.

4. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having curved bearing-strips extending partially around the other, a spring acting upon said bars to clamp the fingers together, a standard or support connected to the outer bar, consisting of a base having one front and two separated rear standards connected at their upper ends with the body of the bar, whereby the inner bar may be inserted and removed at will, substantially as described.

5. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having curved bearing-strips extending partially around the other, a rearwardly-extending arm attached to the inner bar, a standard or support connected to the outer bar, consisting of a base having one front standard, two separated rear standards connected at their upper ends with the body of the bar, and a compressed spiral spring bearing against the under side of the rearwardly-extending arm and the base of the standard, substantially as described.

6. A coat-holder having two horizontally-extending bars pivoted upon one another, one of the said bars having curved pivot-bearings open on one side and extending about journals on the other, two pairs of cooperating arms or fingers attached to the ends of each bar and extending forwardly, a rearwardly-extending arm upon the inner one of the said bars, a compressed spiral spring engaging the under surface of the rearwardly-extending arm and the base of the arm-supports, and a retaining-pin passed therethrough, substantially as described.

7. A coat-holder, comprising two horizontally-extending bars having forwardly-projecting fingers on each end, one of said bars lying within and pivoting upon curved bearing hooks or strips projecting from the other, a spring acting upon the inner of said bars to hold the same in its journals and to clamp the fingers together, and a foot-lever and connections to said bars to open the clamping-fingers, substantially as described.

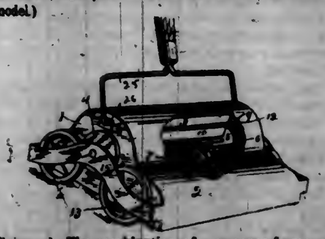
8. A coat-holder, comprising two horizontally-extending bars having forwardly-projecting fingers on each end, one of said bars lying within and pivoting upon curved bearing hooks or strips projecting from the other, a spring acting upon the inner of said bars to hold the same in its journals and to clamp the fingers together, a foot-lever and connections to said bars to open the clamping-fingers, and means for adjusting the height of said fingers, substantially as described.

9. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having a curved bearing-strip extending partially around the other, a rearwardly-extending arm attached to the inner bar, a spring acting thereon to clamp the fingers together, a standard or support connected to the outer bar consisting of a base having one front standard, two separated rear standards connected at their upper ends with the body of the bar, whereby the inner bar may be inserted and removed at will, and means for adjusting the height of the said fingers, substantially as described.

10. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having a curved bearing-strip extending partially around the other, a rearwardly-extending arm attached to the inner bar, a spring acting thereon to clamp the fingers together, a standard or support connected to the outer bar consisting of a base having one front standard, two separated rear standards connected at their upper ends with the body of the bar whereby the inner bar may be inserted and removed at will, a foot-lever and connections to said bars to open the clamping-fingers, substantially as described.

11. A coat-holder, comprising two horizontally-extending bars having forwardly-extending clamping-fingers at each end, one of said bars having curved bearing-strips extending partially around the other, a rearwardly-extending arm attached to the inner bar, a standard or support connected to the outer bar consisting of a base having one front standard, two separated rear standards connected at their upper ends with the body of the bar, a compressed spiral spring bearing against the under side of the rearwardly-extending arm and the base of the standard, a foot-lever, connections to said bars to open the clamping-fingers, and means for adjusting the height of the said fingers, substantially as described.

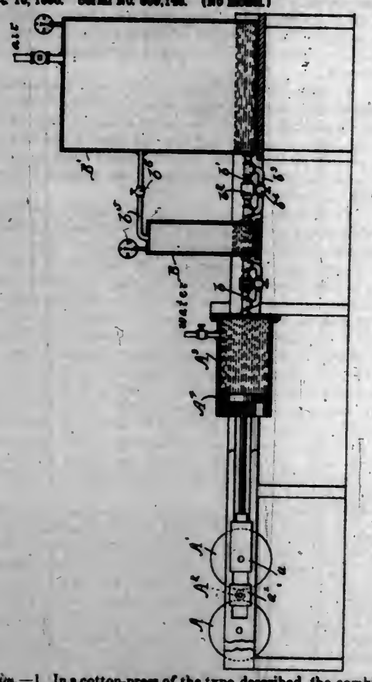
587,617. CARPET-SWEEPER. IRA E. STUMP, Canton, Ohio, assignor of three-fourths to Jacob M. Schneider, Fred W. Bond, and James A. Jeffers, same place. Filed June 9, 1896. Serial No. 594,574. (No model.)



Claim.—1. The combination of a sweeper-frame, a brush-cylinder journaled therein, means for rotating the brush-cylinder, shafts provided with fan-blades journaled on or near the periphery of the brush-cylinder, and means for imparting an axial motion to said shafts upon the rotation of the brush-cylinder, substantially as described.

2. The combination of a sweeper-frame, fixed disks located upon the inner faces of the frame, a brush-cylinder journaled within the frame and concentrically to the disks, shafts provided with fan-blades journaled on or near the periphery of the brush-cylinder, said shafts being provided with friction-wheels adapted to contact with the fixed disks, whereby the shafts are axially rotated upon the rotation of the brush-cylinder, substantially as described.

587,618. COTTON-PRESS. MAGNUS SWENSON, Chicago, Ill. Filed Oct. 16, 1896. Serial No. 609,146. (No model.)



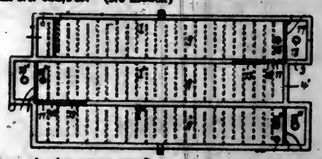
Claim.—1. In a cotton-press of the type described, the combination with a hydraulic-pressure cylinder and a piston fitted thereto, of air-chambers connected with said cylinder, one of which is relatively small as compared with the volume displaced by the piston in the formation of a bale, and contains air under a compression corresponding to a desired initial pressure on the bale and another of which contains air under a compression greater than said initial pressure, and means to control the passages between the high-pressure chamber and the pressure-cylinder, substantially as set forth.

2. In a cotton-press of the type described, the combination with a hydraulic-pressure cylinder and a piston fitted thereto, of closed air-chambers connected with said cylinder, one of which is relatively small as compared with the volume displaced by the piston in the formation of a bale, and contains air under a compression corresponding to a desired initial pressure on the bale and another of which contains air under a compression corresponding to the desired final pressure on the bale, the aggregate volume of said air-chambers being relatively large as compared with the volume displaced by the piston in forming a bale and means to control the passages between the high-pressure chamber or chambers and the pressure-cylinder, substantially as described.

3. In a cotton-press of the type described, the combination with a hydraulic-pressure cylinder and a piston fitted thereto, of closed air-chambers connected with said cylinder, one of which is relatively small as compared with the volume displaced by the piston in the formation of a bale, and contains air under a compression corresponding to the desired initial pressure on the bale and the other of which is relatively large, as compared with the volume displaced by the piston in forming a bale and contains air under a compression corresponding to the desired final pressure on the bale and means to open and close the passage between said large air-chamber and the pressure-cylinder, substantially as described.

4. In a cotton-press of the type described, the combination with a hydraulic cylinder and a piston fitted thereto, of closed air-chambers connected with said cylinder, one of which is relatively small as compared with the volume displaced by the piston in forming a bale and contains air under a compression corresponding to the desired initial pressure on the bale and the other of which is relatively large, as compared with the volume displaced by the piston in forming a bale and contains air under a compression corresponding to the desired final pressure on the bale and a check-valve in the passage between the large air-chamber and the cylinder, which opens, automatically, whenever the pressure in the cylinder exceeds the pressure in said air-chamber and closes, automatically, whenever the pressure in said chamber exceeds the pressure in the cylinder, substantially as described.

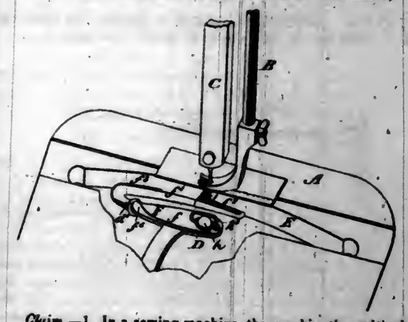
587,619. APPARATUS FOR SEPARATING AND ASSORTING YEAST. HENRY TAUSSKY, New York, N. Y. Filed Feb. 10, 1897. Serial No. 622,843. (No model.)



Claim.—1. An apparatus for separating and assorting yeast, comprising a series of troughs, and valves or slides for separating the troughs, said troughs having a channel for circulating a cooling medium in contact with the bottoms of the troughs, and having outlet or discharge openings, overflows at said outlets, and a receiver at said overflow and provided with an outflow substantially as described.

2. An apparatus for separating and assorting yeast comprising a series of troughs provided with double bottoms and alternating partitions in the space between the bottoms to enable a cooling medium to be circulated through such space, said troughs having interposed common valved partitions and overflows, and being provided with outlets and receivers at said overflows substantially as described.

587,620. SEWING-MACHINE. EDWIN J. TOOF, New Haven, Conn. Filed Feb. 6, 1890. Serial No. 339,050. (No model.)

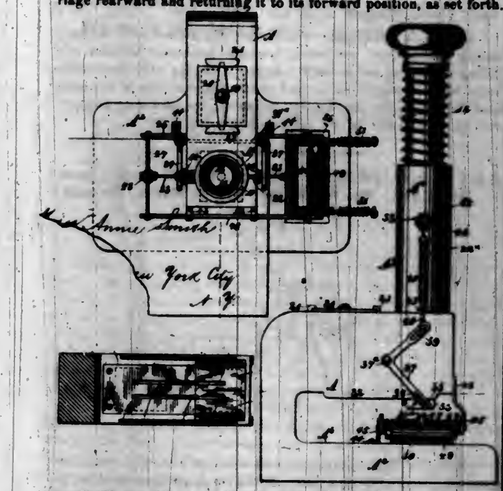


Claim.—1. In a sewing-machine, the combination with the wall of the raceway provided with a transversely-arranged depression therein at one side of, and adjacent to, the path of the needle, of a reciprocating looper provided with a thread-engaging hook, and with a projecting flange located forward of the hook having a thread-engaging edge located adjacent to the point of the latter and to the wall of the race, whereby the engaging side of the loop will be located in said depression in the raceway and from the path of said hook, substantially as described and for the purpose set forth.

2. In a sewing-machine, the combination with the wall of the raceway provided with a transversely-arranged depression therein at one side of, and adjacent to, the path of the needle, of a reciprocating looper provided with a loop-engaging hook, a flange located forward of said hook, projecting laterally beyond the point of the same and behind the face-wall of the raceway, whereby the inner side of an engaged loop will be located in said depression in the raceway, and with means for engaging with an encircling loop to prevent undue slack of the same on the looper-arm during the forward movement of the hook to enter the next loop thrown out by the needle, substantially as described and for the purpose set forth.

587,621. STAMP-AFFIXING MACHINE. SINCLAIR TOUSEY and ELLA DE LOSE, New York, N. Y. Filed May 15, 1896. Serial No. 591,623. (No model.)

Claim.—1. In a stamp-affixing machine, or a machine of like character, a base adapted to receive an envelop, having inclined planes placed at predetermined distances apart, their inclinations being in opposite directions, a carriage adapted to travel over the base and provided with a moistening-roller, levers fulcrumed upon the said carriage and provided with surfaces adapted to travel on the base, and surfaces adapted for engagement with the aforesaid inclined planes, the arrangement of the inclined planes being such that when the levers strike the forward inclined planes the moistening-roller will be dropped to an engagement with the base, and when such levers engage with a rear inclined plane the roller will be lifted from the base, and means, substantially as described, for drawing the carriage rearward and returning it to its forward position, as set forth.



2. The combination with a body portion having a stamp-receptacle, of a plunger, a follower operated thereby and independently movable thereof, a gripper-carriage movable between the plunger and the stamp-receptacle, a bell-crank lever fulcrumed on the body portion and having loose connection with the gripper carriage, and a connection between the bell-crank lever and the plunger, substantially as described.

3. The combination with a body portion having a stamp-receptacle, of a plunger movable in the body portion, a rod independently movable of and actuated by the plunger, a follower carried by the rod, a gripper-carriage movable between the stamp receptacle and the follower, a bell-crank lever fulcrumed on the body portion and having slotted connection with the gripper-carriage, and a flexible connection between the plunger and the bell-crank lever, substantially as described.

4. The combination with a body portion having a slideway, of a carriage movable on the slideway, a gripping-plate pivotally mounted in the carriage, a rod fixed to the gripping-plate, and a bell-crank lever having one arm slotted to receive the rod, the bell-crank lever being capable of movement to in unison rock the gripping-plate and to slide the carriage and means for actuating the bell-crank lever, substantially as described.

5. The combination with a body portion having a slideway, of two hangers forming a carriage, the hangers being connected with each other to move in unison and having transversely-aimed arc-shaped slots, a gripping-plate pivoted between the hangers, a rod fixed to the gripping-plate and projected and movable through the slots in the hangers, a bell crank lever, one arm of which is slotted to receive the rod, the bell-crank lever being capable of movement to in unison rock the gripping-plate and to slide the carriage and means for actuating the bell-crank lever, substantially as described.

6. In a stamp-fixing machine, the combination with a body portion, of a follower, a plunger operating the follower, a sliding gripper-carriage movable toward and from the follower, a pivoted gripping-plate supported by the carriage, a bell-crank lever fulcrumed on the body portion and having pivotal and sliding connection with the gripping-plate whereby the carriage may be reciprocated and the gripping-plate rocked to engage the stamps, and a connection between the plunger and the bell-crank, substantially as described.

7. In a stamp-fixing machine, the combination with a body portion, of a plunger, a follower, the plunger operating the follower, two hangers forming a gripper-carriage and slidable in unison on the body portion, each hanger having an arc-shaped slot, a gripping-plate pivotally mounted between the hangers, a rod fixed to the gripping-plate and movable through the slots of the hangers, a bell-crank lever slotted to receive the rod, and a connection between the bell-crank lever and the plunger, substantially as described.

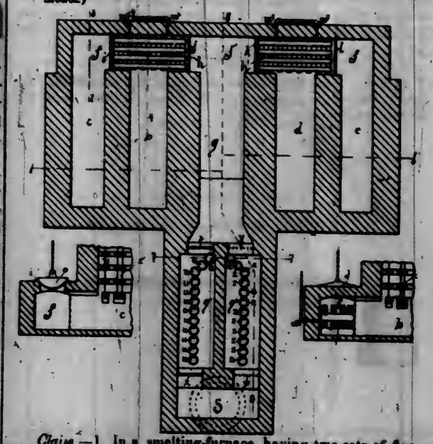
8. In a stamp-fixing machine, the combination with a body portion having two side bars, of a frame movable longitudinally in the side bars and capable also of slight vertical movement, a roller carried by the frame, an arm having limited pivotal movement on the frame, a roller carried by the arm and running on the body portion, and a detent rigid with the body portions and in the path of the arm, substantially as described.

9. In a stamp-fixing machine, the combination with a body portion having two slotted side bars, of a frame capable of longitudinal and vertical movement within the slots of the side bars, a roller carried by the frame and capable of engaging a part of the body portion, an arm having limited pivotal movement on the frame, and a detent-plate carried by the body portion, substantially as described.

10. In a stamp-affixing machine, the combination with a body portion having a detent, of a frame having sliding and vibratory movement on the body portion, and an arm carried by the frame and having limited movement thereon, the arm running on the body portion and supporting the frame raised above the body portion when the arm is in one position and the arm being tripped by the detent to lower the frame into engagement with the body portion, substantially as described.

11. In a stamp-affixing machine, the combination with a body portion having two detents, of a frame reciprocal past the detents, means for reciprocating the frame, and an arm carried by the frame and having limited movement thereon, the position of the arm being changed upon engagement with each detent and the arm in one position supporting the frame raised from engagement with the body portion and in the second position permitting the frame to be lowered into engagement with the body portion, substantially as described.

587,622. SMELTING AND REFINING FURNACE. MATILDA I. TRAPP, Tacoma, Wash., assignor to the Hydro Smelting and Refining Company, same place. Filed Aug. 20, 1896. Serial No. 603,269. (No model.)



Claim.—1. In a smelting-furnace, having two sets of flues, and superheating-chambers above the same filled with lattice-work of refractory material and in communication with the furnace-hearth, and adapted to be used in alternation as specified, the combination therewith of the flue *f* connecting each set of said flues and in communication with the smoke-stack, said connecting-flue being provided with lattice-work of refractory material opposite to the fuel-gas flue and below the refractory-material chamber, gates and valves for reversing the air-supply, and reversing-gear with pipe connections to supply steam and oil alternately to one or the other side of the furnace as described, said steam connections opening into the connecting-flue containing the refractory lattice-work to superheat the steam before combining with the oil, and said oil connections opening into the superheating-chamber containing the refractory lattice-work to vaporize the oil preparatory to the superheated steam combining therewith, substantially as and for the purposes described.

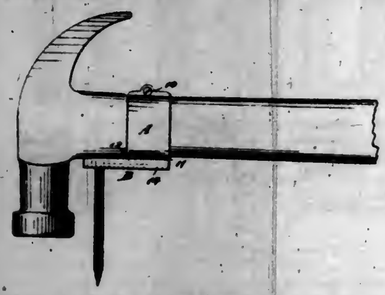
2. In a smelting-furnace having two sets of flues and superheating-chambers in communication with the furnace-hearth, arranged in alternation to permit one set to be used for the passage of air and fuel-gas to the hearth and the other set for the passage of the waste products of combustion from the hearth to the smoke-stack, and oil-pipe connections opening into one set of the superheating-chambers to enable the oil to be vaporized therein before superheated steam is combined therewith; the combination therewith of flues containing lattice-work of refractory material and in communication with the

chambers wherein the oil is vaporized, steam-pipe connections opening into said flues to permit the steam to be superheated before entering the superheating-chamber in which the oil is vaporized, valves and gates for reversing the draft and the air-supply, and reversing mechanism for supplying steam and oil in alternation to the steam-superheating flues and the chambers wherein the oil is vaporized, substantially as and for the purposes described.

3. In a smelting-furnace having two sets of flues and superheating-chambers in communication with the furnace-hearth, arranged in alternation to permit one set to be used for the passage of air and fuel-gas to the hearth and the other set for the passage of the waste products of combustion from the hearth to the smoke-stack, and a smoke-flue leading to the smoke-stack, the combination therewith of a plurality of refining-flues interposed between said smoke-flue and smoke-stack provided with gates to cut off the waste products of combustion from one of the refining-flues while permitting it to pass through the other, refining-crucibles in each of the refining-flues to receive the melted bullion drawn from the hearth, said crucibles being thereby heated by the waste products of combustion in their passage to the smoke-stack and said products being utilized for separating and refining the precious metals of the bullion, substantially as and for the purposes described.

4. In a smelting-furnace having two sets of flues and superheating-chambers in communication with the furnace-hearth, arranged in alternation to permit one set to be used for the passage of air and fuel-gas to the hearth and the other set for the passage of the waste products of combustion from the hearth to the smoke-stack, and a smoke-flue leading to the smoke-stack, the combination therewith of a plurality of refining-flues interposed between said smoke-flue and smoke-stack provided with gates to cut off the waste products of combustion from one of the refining-flues while permitting it to pass through the other, refining-crucibles in each of the refining-flues discharging one into the other and receiving the melted bullion drawn from the hearth, said crucibles being thereby heated by the waste products of combustion in the passage to the smoke-stack and said products being utilized for separating and refining the precious metals of the bullion, substantially as and for the purposes described.

587,623. NAIL-HOLDING ATTACHMENT FOR HAMMERS. ALBERT R. TREAT, Los Angeles, Cal. Filed Nov. 20, 1896. Serial No. 612,865. (No model.)



Claim.—1. A nail-holding attachment for hammers, consisting of a clamp, a body-casing secured to the said clamp and provided with a slot in one of its ends to receive a nail, and jaws pivoted in the said casing and extending over the slot therein, the jaws being spring-controlled at their inner ends, as and for the purpose specified.

2. A nail-holding attachment for hammers, consisting of a clamp, a casing attached to the said clamp and extending at right angles therefrom, the said casing having a longitudinal slot in its outer end, and spring-controlled jaws pivoted within the casing, the free ends of the said jaws extending longitudinally over the slot in the casing, as and for the purpose specified.

3. A nail-holding attachment for hammers, consisting of a clamp, a casing attached to the rear end of the said clamp and extending beyond its forward end, the casing being at a right angle to the clamp, the said casing being provided with a slot in its forward end, spring-controlled jaws pivoted within the casing and extending over the slot therein, and a stop-flange projected from the forward edge of the clamp over the said jaws, as and for the purpose specified.

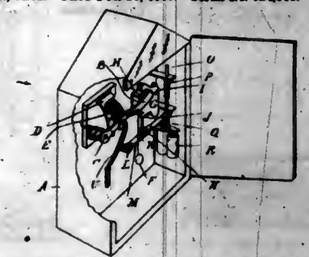
4. The combination, with a hammer and its handle, of a clamp secured to the said hammer-handle, a casing attached to the clamp at its forward end, which casing extends beneath the head of the hammer along the front edge of the shank of the hammer, the casing being provided with a slot in its forward end, and spring-controlled jaws pivoted within the casing, whereby a nail may be held by the jaws parallel with and below the head portion of the hammer, and the head of the nail be brought between the jaws and the shank of the hammer, as and for the purpose specified.

587,624. WRENCH. IRA B. TRIPP, Aurora, Ill. Filed Apr. 16, 1897. Serial No. 632,447. (No model.)



Claim.—In a sliding-jaw wrench, the combination with the body having the fixed jaw, and having one edge toothed or serrated, of a sliding jaw having similar teeth adapted to engage with those in the body, and a locking-lever carried on the opposite side of the body from the sliding jaw, having legs straddling the said body and pivoted to the said sliding jaw, substantially as set forth.

587,625. AUTOMATIC SWITCH MECHANISM. JAMES R. TRYON, Detroit, Mich. Filed Feb. 23, 1897. Serial No. 624,569. (No model.)

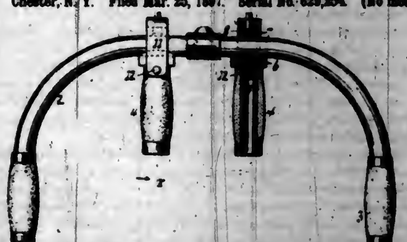


Claim.—1. The combination with a switch-lever and means for operating it manually, of a power-driven crank arranged to rotate in the path of the switch-lever for operating the same, an escapement controlling said power-driven crank, stop for said escapement, and an electrically-controlled tripping device for said stop, substantially as described.

2. The combination with the actuating switch-lever, of an alarm-box provided with a retracted spring, of the clock mechanism G provided with the winding-crank and arranged to revolve in the path of said switch-lever, the escapement provided with the arm K, the trip-lever M provided with the detent N, the rod O carrying said switch-lever and provided with a spring P, the electromagnet R provided with the tilting armature Q and the spring U, the parts being arranged and combined to operate as shown and described.

3. The combination with a switch-lever and its contacts, and means for manually operating said switch-lever, of a clock mechanism provided with a winding-crank arranged to be rotated by the clock mechanism against the switch-lever to operate the same, an escapement controlling the clock mechanism, an electrically-controlled trip device for said escapement, and a stop to prevent the return movement of the switch-lever, substantially as described.

587,626. ADJUSTABLE BICYCLE-HANDLE. FRED VOLLMER, Chester, N. Y. Filed Mar. 25, 1897. Serial No. 629,254. (No model.)

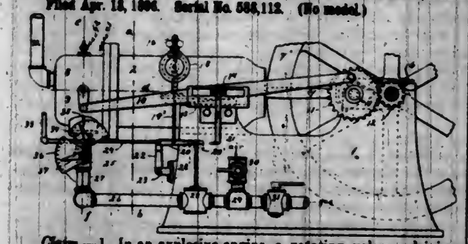


Claim.—1. A handle-bar and a handle having blocks between which the bar can sit, combined with a screw-stem for moving one of the blocks toward and from the other block, and a swinging bow or yoke for the reception of the screw-stem substantially as described.

2. A hollow handle combined with a stem in said handle, a gripping-block supported by said stem, a yoke jointed to the handle, a shouldered screw-stem made to extend or project through the yoke, a second gripping-block tapped for the engagement of the screw-stem, and a filling-block seated on the stem-shoulder and through which said stem rotatively extends, said filling-block being interposed between the tapped block and the yoke substantially as described.

3. A hollow handle combined with a stem in said handle, a pin or pivot extended through said handle and stem to lock the two together, a gripping-block carried by said stem, a swinging yoke on said pivot, a screw-stem rotatively extended through said yoke, and a second gripping-block actuated by said screw-stem substantially as described.

587,627. GAS-ENGINE. ADOLPH A. WILLIAMS, Duluth, Minn. Filed Apr. 15, 1896. Serial No. 588,112. (No model.)



Claim.—1. In an explosive-engine, a rotating valve, a driving-shaft, a valve-operating connecting-rod driven from said shaft, supported at its center on cross-heads sliding on ways, a governor operated by the driving-shaft, a pivoted arm capable of being deflected by the action of the governor, a connection between said arm and the supply-valve, and a depending finger movable with the cross-heads and adapted either to strike or miss the extremity of the arm at each stroke of the cross-head, substantially as set forth.

2. In an explosive-engine, a driving-shaft, a pinion on the driving-shaft, a second pinion engaging therewith and rotating at half the speed of the first pinion, a rotating valve, a connecting-rod between the valve and the said second pinion, supported at its center on cross-heads sliding on ways, a governor operated by the driving-shaft, a pivoted arm capable of being deflected by the action of the governor, a connection with the oil-supply valve, a depending finger secured to the point of support of the connecting-rod and adapted to either strike or miss the extremity of the arm at each stroke of the piston, substantially as set forth.

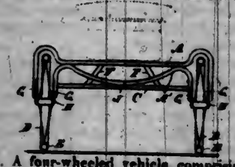
3. In an explosive-engine, the combination of the positively-driven pinion 11, the rotating valve 49, the crank 9 for rotating the same, the rod 10 connecting the crank 9 and pinion 11, and supported adjacent to its center by a cross-head 14, sliding in ways 15, the pivoted arm 20, the oil-valve 45, connections between said pivoted arm and said oil-valve, the governor 16 for adjusting the position of the pivoted arm, and the finger 21 movable with said cross-head for engaging with said pivoted arm, substantially as set forth.

4. In an explosive-engine, an igniting device consisting of a fixed spring-contact, movable contact, carried with the cylinder-valve, and an elastic auxiliary support for the fixed contact, substantially as set forth.

5. In an explosive-engine, an igniting device consisting of a fixed spring-contact, a movable contact carried with the cylinder-valve, an auxiliary support for the fixed contact and extending at right angles thereto through the cylinder-walls, and a spring for said auxiliary support outside of the cylinder-walls, substantially as set forth.

6. In a combined gas and oil engine, the combination with a cylinder, of a valve-chest, a valve therein for regulating the supply and exhaust to the cylinder, a governing-valve for regulating the supply of gas, an oil-valve for regulating the supply of oil, a governor, and connections between said governor and said regulating-valve and oil valve, substantially as set forth.

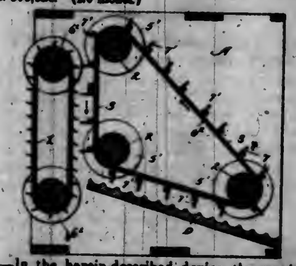
587,628. FOUR-WHEELED VEHICLE. JOHN W. WINDLE, Orangetown, Canada. Filed Oct. 26, 1896. Serial No. 610,088. (No model.)



Claim.—1. A four-wheeled vehicle, comprising front and rear wheels, truss-bars for the pairs of wheels, the said truss-bars being carved upward and then downward and having bearings for the wheel-axles, and a body supported on the truss-bars, the bottom of said body being below the top plane of the wheels, substantially as specified.

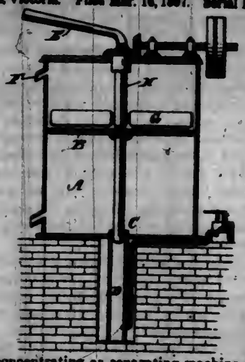
2. A four-wheeled vehicle, comprising bolster-bars having ends turned upward and then downward, truss-bars connecting downwardly-turned portions, wheels having axle-bearings in the downwardly-turned portions, and a body having its bottom below the plane of the upwardly-turned portions of the bolsters, substantially as specified.

587,629. FEEDING ATTACHMENT FOR CARDING-MACHINES. STEPHEN W. WOODBURY, Winchester, N. H. Filed July 20, 1896. Serial No. 599,986. (No model.)



Claim.—In the herein-described device, the combination of a series of rollers arranged as shown, said rollers having trunnions working in bearings situated in frame, A, frame A adapted for holding the operating mechanism, cylindrical caps situated on each side of said rollers and having raised perforations on the outer surface thereof to prevent the apron 3 from slipping, the apron 3, working over the rollers 2, set-screws for rigidly securing the said caps to the said rollers, disks rigidly secured to the outer ends of the said caps, substantially as set forth and described.

587,630. CONCENTRATING OR SEPARATING MACHINE FOR TREATMENT OF PYRITES. WALTER P. WYNNE and THOMAS TREWARTHA, Ballarat, Victoria. Filed Mar. 16, 1897. Serial No. 627,872. (No model.)



Claim.—A concentrating or separating machine composed of a pan or vat having a discharge-outlet at the top and provided with an imperforate vertically-movable false bottom, a hydraulic cylinder provided with a piston to carry the said false bottom, rotatable stirrers mounted in the vat above the said false bottom, and a chute for feeding material into the vat, the false bottom being capable of lowering automatically with accumulations of material thereon, substantially as described.

587,631. METALLIC GRATING. RAYMOND D. YORK, Portsmouth, Ohio, assignor to the Portsmouth Structural Steel and Iron Company, same place. Filed Apr. 1, 1897. Serial No. 630,909. (No model.)

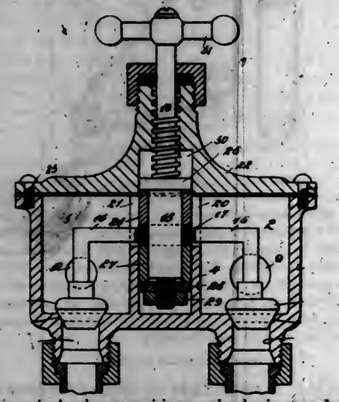


Claim.—1. In combination with a series of grating-bars having suitable mortises or openings, a key-bar having opposite outer members provided with notches opposite each grating, and a central member interposed between the outer members, and adapted to lock the whole grating together.

2. A composite key-bar comprising a plurality of interlocking members, each member consisting of a bar of combined iron and steel layers, the layers of one member, when interlocked, overlapping the layers of the other, whereby the insertion of a tool at the joint is prevented.

3. A composite key-bar comprising a central key-bar member and oppositely-disposed outer members, all of which interlock, each member consisting of combined iron and steel layers, said layers when interlocked overlapping the layers of the other members, whereby the insertion of a tool at the joints is prevented.

587,632. VALVE. MATHEW ADY, New York, N. Y. Filed Mar. 2, 1897. Serial No. 625,737. (No model.)

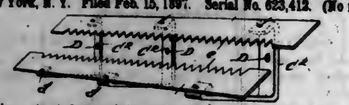


Claim.—1. A valve, comprising a casing having two chambers, a tubular extension separating said chambers and having opposite slot-openings, a valve-stem, a ring surrounding said valve-stem, arms extended from said ring, and valves carried by the arms and adapted for engagement with the valve-seats of inlet and outlet openings, the lower portion of the valve-stem serving as a valve or closure for the slot-openings through the tubular extension, substantially as specified.

2. A valve, comprising a casing having two chambers, a tubular extension within the casing separating said chambers, a bonnet on the casing, a screw-threaded valve-stem extended through the valve and having an enlarged portion extended into the tubular extension, a ring on said enlarged portion, arms extended from the ring through slot-openings in the tubular extension, inlet and outlet controlled valves carried by said arms, and sleeves on the enlarged portion of the valve-stem, forming closures for the slot-openings in the tubular extension, substantially as specified.

3. A valve, comprising a casing having two chambers, a tubular extension within the casing separating the chambers, a valve-stem having an enlarged portion extended into the tubular extension, a ring on said enlarged portion, arms extended from the ring through slot-openings in opposite sides of the tubular extension, inlet and outlet controlled valves carried by said arms, a sleeve on the enlarged portion of the valve-stem and the ring, a sleeve on the enlarged portion of the valve-stem below said ring, and a nut for holding said parts on the enlarged portion of the valve-stem, substantially as specified.

587,633. FASTENER FOR STAIR-CARPETS. HARRY C. ADAMS, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,412. (No model.)



Claim.—1. A fastener for stair-carpets, comprising a bar having a serrated or toothed edge, and means for securing the same near the inner angle between the riser and tread, so that the toothed edge thereof projects across said angle, substantially as described.

2. A fastener for stair-carpets, comprising brackets or bars secured at intervals between the concave angle between the tread and riser, and toothed bars or plates secured thereto, with their toothed edges raised from the tread and riser and extending toward the apex of the angle between the two, substantially as described.

3. A fastener for stair-carpets, comprising two toothed bars or plates, and means connecting the same, whereby their toothed edges project toward each other, the whole being adapted to be secured in the inner angle between the riser and tread, and to secure the carpet by having a fold of the same inserted between the toothed edges, substantially as described.

587,634. HAND-GRIP. ELLEN G. ARCHBOLD, New York, N. Y. Filed Nov. 16, 1896. Serial No. 612,313. (No model.)

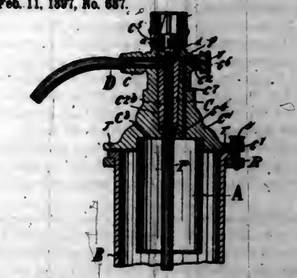


Claim.—1. As a hand-grip and parcel-carrier, the combination of a bow of spring metal having hooks extended from its adjacent ends, and a compound hook clamped between the said ends, substantially as shown and described.

2. As a parcel-carrier and hand-grip, the combination of a bow composed of spring metal and having grooves in its two adjacent ends and hooks extended from said ends; with a compound hook pivotally secured between the said ends, substantially as shown and described.

3. A hand-grip, comprising a bow or loop having folding hooks attached thereto and projected hooks extended therefrom, said hooks adapted for engagement with variable articles, substantially as shown and described.

587,635. APPARATUS FOR DISPENSING LIQUIDS BY PRESSURE OF GAS. PHILIPP BACH, Berlin, Germany, assignor to the Mer-Siphon-Aktien-Gesellschaft, Cassel, Germany. Filed June 9, 1897. Serial No. 640,061. (No model.) Patented in Germany Feb. 20, 1896, No. 83,287; in France Feb. 28, 1896, No. 254,240; in Luxemburg Apr. 19, 1896, No. 2,492; in England Apr. 20, 1896, No. 8,280; in Belgium Apr. 30, 1896, No. 120,949; in Hungary Sept. 24, 1896, No. 9,545; in Italy Sept. 30, 1896, XXXII, 42,656, and LXXXIII, 369; in Austria Oct. 28, 1896, No. 46/4,335; in Turkey Jan. 26, 1897, No. 562, and in Finland Feb. 11, 1897, No. 687.



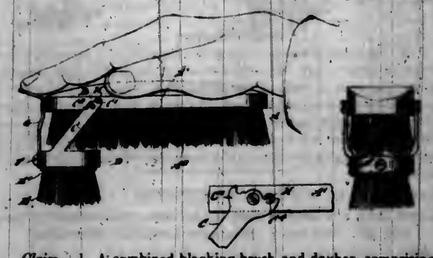
Claim.—1. The combination with a vessel for storing liquids, of a siphon-pipe extending into said vessel, a valve-casing provided with a discharge-pipe, a plug-valve seated and revoluble in said casing, and provided with a passage for liquid adapted to communicate with said siphon and discharge pipes, a reservoir for gas, gas-passages leading respectively from said reservoir and from the vessel into the seat for the plug-valve at points diametrically opposite each other, and a transverse gas-passage in said plug-valve adapted to be placed in communication with the aforementioned gas-passages, said transverse plug-passage merging into external plug-channels of a definite length in the same plane as but at right angles to and extending in opposite directions from said transverse passage, said channels decreasing in width and depth from the transverse passage to their outer end, for the purpose set forth.

2. The combination with a vessel for storing liquids, of a siphon-pipe extending into said vessel, a valve-casing provided with a discharge-pipe, a plug-valve seated and having a limited rotation in both directions in said casing, and provided with a passage for liquid adapted to communicate with said siphon and discharge pipes, a reservoir for gas, gas-passages leading respectively from said reservoir and from the vessel into the seat for the plug-valve at points diametrically opposite each other, and a transverse gas-passage in said plug-valve adapted to be placed in communication with the aforementioned gas-passages, said transverse plug-passage merging into external plug-channels of definite length in the same plane as, but at right angles to and extending in opposite directions from said transverse passage, said channels decreasing in width and depth from the transverse passage to their outer end, for the purpose set forth.

3. The combination with a vessel for storing liquids, of a siphon-pipe projecting into said vessel, a valve-casing provided with an outlet for liquid, a reservoir for gas secured thereto and through which the siphon-pipe passes, gas-passages in said casing leading from said reservoir and vessel respectively to a valve-seat in the casing at points diametrically opposite each other, a plug-valve revoluble in said valve-seat and provided with a passage for liquid adapted to communicate with the aforesaid siphon-pipe, and outlet for the liquid, and a cross-passage in said plug adapted to communicate with the outlet and inlet of the gas-passages in the valve-casing, said cross-passage in the plug merging at opposite ends into external channels of definite length in the plane of, but at right angles to, and extending in opposite directions from the terminals of said cross-passage, said channels of decreasing depth and width from said terminals to the end of such channels, substantially as and for the purpose set forth.

4. The combination with a vessel for storing liquids, of a dispensing-cock adapted to be secured to the open end of such vessel and comprising a valve-casing provided with an axial valve-seat and with an outlet for liquid, a reservoir for gas secured to the under side of said casing, a siphon-pipe in the inlet of the valve-seat and passing through said reservoir, means for supplying gas to the reservoir, two gas-passages leading from the reservoir and vessel respectively into the valve-seat in the valve-casing above the outlet for liquid thereof at points diametrically opposite each other, a plug-valve having limited rotation in both directions in said seat and provided with a passage for liquid in perpetual communication with the siphon-pipe and adapted to be placed in communication with the outlet for liquid in the casing, and a transverse gas-passage in said plug adapted to be placed in communication with the outlet and inlet of the aforementioned gas-passages in the casing, said transverse passage merging at each end into an external channel in the plane of but at right angles to and extending in opposite directions from the terminals of said transverse passage, said channels of predetermined length and of a decreasing depth and width from the terminals of the transverse passage to the opposite end of said channels, substantially as and for the purpose set forth.

587,636. BLACKING-BRUSH AND DAUBER. LOUIS BARNERIK, Brooklyn, N. Y. Filed Jan. 15, 1897. Serial No. 619,319. (No model.)

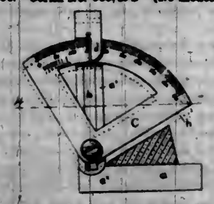


Claim.—1. A combined blacking-brush and dauber, comprising a blacking-brush, a socket provided with arms pivotally secured to the sides of the back of the said brush and being capable of swinging above the back or below the bristles of the said brush, said arms being of such a length as to enable the socket to clear the brush in its movement, a dauber-brush received in said socket, means for limiting the upward and downward movement of the said arms, and a finger-piece on said socket for holding the same in its uppermost and lowermost position, as set forth.

2. The combination with the blacking-brush, of the socket formed with arms pivotally connected with the sides of the back of said brush and of such length as to permit the said socket to be swung above the said back or below the bristles of the brush, a dauber-brush received in said socket, stops for limiting the movement of said arms in either direction, and a finger-piece carried by said socket and by which it may be held in its upper or lower position, as set forth.

3. The combination with the blacking-brush, of the socket adapted to receive the dauber-brush and provided with arms pivotally connected with the back of the brush and formed with notches on both sides of their pivots, the said socket being arranged to be swung above the back of said brush or below its bristles, pins on the back of said brush and with which said arms contact to limit their movement, a finger-piece carried by said socket and by which it is held in its uppermost and lowermost positions, and a catch on said brush and arranged to engage with said finger-piece when the socket is in the lowermost position, as set forth.

587,637. PRISM-GAGE. EDWARD RAUSCH, Rochester, N. Y., assignor to the Bausch & Lomb Optical Company, same place. Filed Aug. 21, 1896. Serial No. 603,494. (No model.)



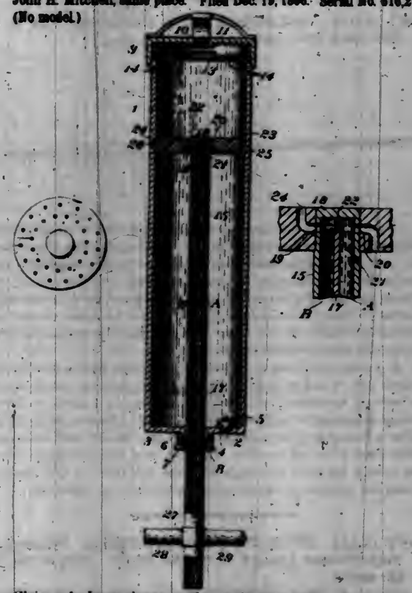
Claim.—1. The combination with the frame consisting of the straight edge and the rigid upright extending at an angle from one end thereof and forming a stop for the article measured, of the plate guided and movable upon the upright toward and from the straight edge, the arm pivoted at one end to the lower portion of the plate and extending over the straight edge in one direction only from the pivot, whereby the pivot of the plate is movable toward and from the straight edge, and indicia for indicating the relative angle of the arm and straight edge, substantially as described.

2. The combination with the frame having the straight edge, and the upright thereon, of the plate sliding on the upright, the arm pivoted on the sliding plate and extending over the straight edge from the pivot in one direction only, thereby enabling the pivot to be brought in close proximity to the straight edge, indicia for indicating the relative angle of the arm and straight edge, and the spring for moving the sliding plate away from the straight edge, substantially as described.

3. The combination with the frame having the arms *a*, *a'*, of the sliding plate B, the sector C pivoted to the lower end of the plate B having the indications thereon, an index cooperating therewith, and the spring for moving the plate on the frame and away from the arm *a*, substantially as described.

4. The combination with the frame having the arms *a* and *a'* and the recess *a*×, of the plate B sliding on the arm *a'* having the index *d*, the sector C pivoted on the plate B having the indications thereon, and the spring F for moving the plate B, substantially as described.

587,638. AIR-PUMP. HORATIO S. BILLS, Ionia, Mich., assignor to John H. Mitchell, same place. Filed Dec. 19, 1896. Serial No. 616,278. (No model.)



Claim.—1. In an air-pump, the combination of a cylinder having inlet-valves, said cylinder provided with suitable heads, one head having a piston-rod aperture, a hollow piston-rod divided longitudinally into independent compartments, said piston-rod having one end closed, said piston-rod having orifices opening into said compartments, a piston having ducts leading to its opposite faces, said piston being

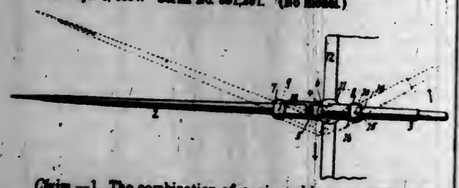
secured to said piston-rod and the inner mouths of said ducts arranged to register with said orifices, and valves for simultaneously opening and closing said compartments alternately into said cylinder upon opposite sides of the piston by way of said ducts, substantially as described.

2. In an air-pump, the combination of a cylinder having inlet-valves, said cylinder provided with suitable heads, one head having a piston-rod aperture, a hollow piston-rod divided longitudinally into independent compartments, said piston-rod having one end closed, said piston-rod having orifices opening into said compartments, a piston having ducts leading to its opposite faces, said piston being secured to said piston-rod and the inner mouths of said ducts arranged to register with said orifices, valves for simultaneously opening and closing said compartments alternately into said cylinder upon opposite sides of the piston by way of said ducts, and a handle fixed to said piston-rod, substantially as described.

3. In an air-pump, the combination of a cylinder having inlet-valves, said cylinder provided with suitable heads, one head having a piston-rod aperture, a hollow piston-rod divided longitudinally into independent compartments by a partition, said partition having an orifice, said piston-rod having one end closed, said piston-rod having orifices opening into said compartments, a spool-shaped valve having its stem movably engaging the orifice in said partition, said spool-shaped valve adapted, when actuated, to alternately close the orifices in said piston-rod, a piston having ducts leading to its opposite faces, said piston being secured to said piston-rod and the inner mouths of said ducts arranged to register with the orifices in said piston-rod, substantially as described.

4. In an air-pump, the combination of a cylinder having one head provided with an inlet-valve and a piston-rod aperture, the remaining end of said cylinder being exteriorly threaded and closed by a screw-cap 9, said screw-cap having an orifice 10 and flange 11, a spider 12 secured upon the outside of said screw-cap, a perforated valve disk 13, a hollow piston-rod divided longitudinally into independent compartments by a partition, said partition having an orifice, said piston-rod having one end closed, said piston-rod having orifices opening into said compartments, a spool-shaped valve having its stem movably engaging the orifice in said partition, said spool-shaped valve adapted, when actuated, to alternately close the orifices in said piston-rod, a piston having ducts leading to its opposite faces, said piston being secured to said piston-rod and the inner mouths of said ducts arranged to register with the orifices in said piston-rod, and a handle secured to said piston-rod, substantially as described.

587,639. ROWING-GEAR. ALOIS BORDERS, New York, N. Y. Filed Apr. 6, 1897. Serial No. 631,201. (No model.)



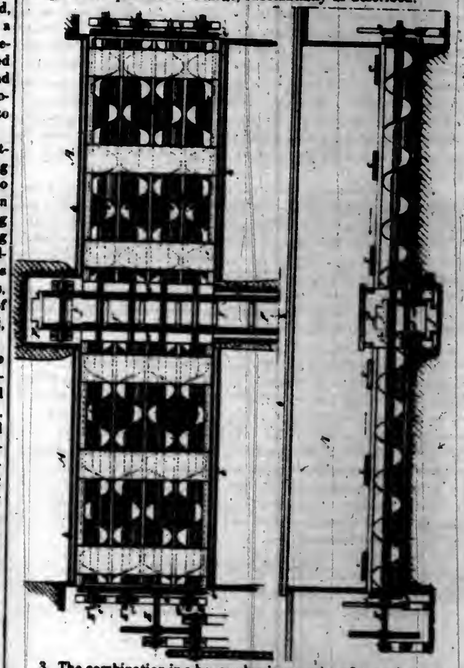
Claim.—1. The combination of a pivoted base or support provided with swiveled bearings, one of the bearings having stop-shoulders, and an oar composed of two sections jointed together, and mounted and turning axially in said swiveled bearings, one of the oar-sections having a projecting stop-pin cooperating with the stop-shoulder to limit the axial turning motion and the other oar-section slidable lengthwise in the other swiveled bearing, substantially as and for the purposes described.

2. An oar comprising sections, a pivot-joint for connecting the sections and swivel-bearings in which said sections are rotatively or featheringly mounted, one of said sections having a collar or sleeve forming a bearing for a joint-pivot and also a shoulder made to sit against a face of a swivel-bearing, the opposite face of said last-named swivel-bearing having stops or shoulders, and said section having a stud or stop made to cooperate with the shoulders of said bearing to limit the rotation of the sections substantially as described.

587,640. HOPPER FOR GRANULAR MATERIAL. FREDERICK A. VON BOTTENBURG, Avalon, N. J. Filed Feb. 26, 1897. Serial No. 626,170. (No model.)

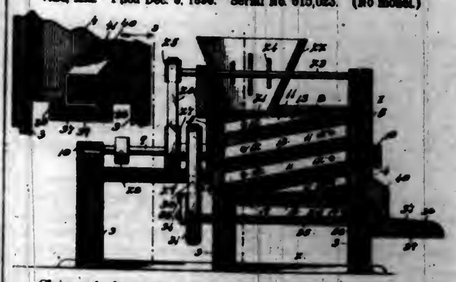
Claim.—1. The combination in a hopper of the series of longitudinal troughs in the bottom thereof, a screw conveyer in each trough, one of the said screw conveyers being the driving element, a clutch on each of the other shafts for coupling the said shafts to the driving-shaft, with a transverse discharge-trough into which the material is fed from the hopper, substantially as described.

2. The combination in a hopper for sand or equivalent material having a series of longitudinal troughs therein, with concaved bottoms, of a central transverse trough below the bottom of the longitudinal trough having a flat bottom, a conveyer-shaft in each of the longitudinal troughs, right and left handed screw-conveyer blades on the shafts, with an endless chain having conveyer-flights adapted to the horizontal transverse trough so as to convey material from said trough to the point of discharge, substantially as described.



3. The combination in a hopper having a series of troughs, a central transverse trough below the bottom of the longitudinal troughs, a conveyer-shaft in each of the longitudinal troughs, right and left handed screw-conveyer blades on the shafts, with an endless-chain conveyer having flights adapted to the transverse trough so as to convey material from said trough to the point of discharge, with inclined shields overhanging the chain of the transverse conveyer, substantially as described.

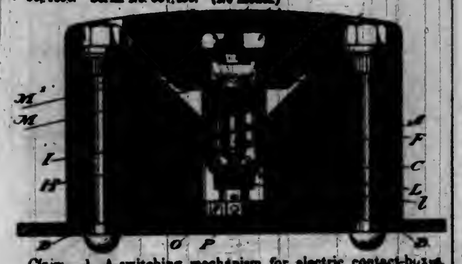
587,641. COTTON-SEED MILL. WILLIAM A. BROWN, De Soto-ville, Ala. Filed Dec. 9, 1896. Serial No. 615,023. (No model.)



Claim.—1. In a cotton-seed mill, the casing provided at one end with a top feed-opening and at its opposite end with a bottom discharge-opening, a pair of concave blocks fitted respectively in opposite bottom corners of the casing and having smooth concaved surfaces forming a rounded bottom for the casing, a vertically-adjustable central bottom ledger-blade fitted between the two concave blocks, a separate side ledger-blade adjustably fitted in a longitudinal opening formed in one side of the casing and projecting into the latter, a rotatable knife cylinder or drum mounted longitudinally within the casing, and a series of parallel knife-blades fitted to the periphery of the cylinder or drum and extending obliquely from end to end thereof, said blades being undercut at one edge, substantially as set forth.

2. In a cotton-seed mill, a casing provided in one end with a discharge-opening at one side, a laterally-declining discharge-spout extending from said discharge-opening toward the middle of the machine, cutting mechanism mounted within the casing, a horizontally-oscillating shaker-bar suspended by a pivot-bolt below the casing, a perforate laterally-oscillating sieve-pan rigidly fitted to one end of the shaker-bar and disposed under the outer end of said discharge-spout, and a suitably-operated crank-wheel having a pitman connection with the end of the shaker-bar opposite the sieve pan, substantially as set forth.

587,642. ELECTRIC CONTACT-BOX. WILLIAM M. BROWN, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Sept. 30, 1896. Serial No. 607,459. (No model.)



Claim.—1. A switching mechanism for electric contact-boxes, comprising the combination with a fixed contact and a contact-carrying armature, of a spring encircling and secured to said armature and to a fixed portion of the mechanism.

2. A switching mechanism for electric contact-boxes comprising the combination, with a fixed contact and a contact-carrying armature, of a spring encircling and secured to said armature and to a fixed portion of the mechanism in circuit with the source of supply.

3. In a switching mechanism for electric contact-boxes, the combination with a movable armature having a threaded neck, of a threaded collar having taper-flanges adapted to engage and secure a tapered contact.

4. A switching mechanism for electric contact-boxes comprising, in combination, a vertically-movable armature, a spring adapted to force the armature downward, a vertical guide for said armature, a movable contact M and a fixed contact M', all substantially as, and for the purpose set forth.

5. In a contact-box of the class described, in combination, the vessel I of insulating material, the metallic cover R, the standard L, the spring H, the armature F, the contacts M M', all substantially as, and for the purpose set forth.

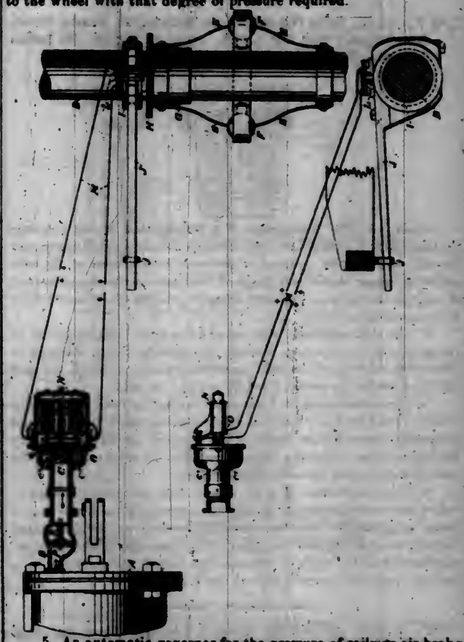
587,643. AUTOMATIC GOVERNOR FOR AIR-BRAKE-CYLINDER PRESSURE. ANDREW J. CLARK, Oakland, Cal. Filed Nov. 19, 1896. Serial No. 612,662. (No model.)

Claim.—1. An automatic governor for the pressure of railway air-brake cylinders, consisting of a governor mechanism, dependent for its operation upon the rotation of the rotating parts of the car-truck, a relief-valve in connection with the air-brake cylinder and an electric circuit by which the governor mechanism operates the relief-valve, to regulate the pressure in the brake-cylinder, whereby the brakes are set up to the wheels with that degree of pressure required.

2. An automatic governor for the pressure of railway air-brake cylinders, consisting of a governor mechanism dependent for its operation upon the rotation of the rotating parts of the car-truck, an electric circuit adapted to be made and broken by the governor mechanism, and a relief-valve for the air-brake cylinder adapted to be operated by the electric circuit, to regulate the pressure in the brake-cylinder, whereby the brakes are set up to the wheels with that degree of pressure required.

3. An automatic governor for the pressure of railway air-brake cylinders consisting of a governor mechanism dependent for its operation upon the rotation of the rotating parts of the car-truck, an electric circuit having poles normally in electrical connection whereby the circuit is complete, but adapted to be thrown out of such connection, and the circuit broken by the movement of the governor mechanism, a relief-valve in connection with the air-brake cylinder and electrical devices in connection with said valve and in the electric circuit whereby the valve is controlled to regulate the pressure in the brake-cylinder whereby the brakes are set up to the wheels with that degree of pressure required.

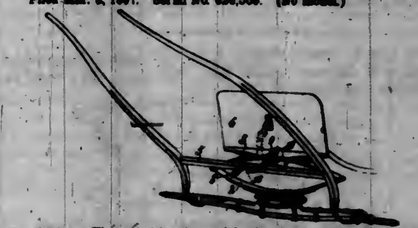
4. An automatic governor for the pressure of railway air-brake cylinders, consisting of a centrifugal governor mechanism carried and operated by the axle and having a circuit-closer, an electric circuit having normally-separated poles adapted to be electrically connected by the circuit-closer when the governor mechanism is operated by the rotation of the axle, a relief-valve in connection with the air-brake cylinder and electrical devices in connection with said valve and in the electric circuit whereby the valve is controlled to regulate the pressure in the brake-cylinder whereby the brakes are set up to the wheel with that degree of pressure required.



5. An automatic governor for the pressure of railway air-brake cylinders, consisting of a centrifugal governor mechanism carried and operated by the axle and having a circuit-closer, an electric circuit having normally-separated poles adapted to be electrically connected by the circuit-closer when the governor mechanism is operated by the rotation of the axle, a relief-valve in connection with the air-brake cylinder and electrical devices in connection with said valve and in the electric circuit whereby the valve is controlled to regulate the pressure in the brake-cylinder whereby the brakes are set up to the wheel with that degree of pressure required, said electrical devices consisting of the electromagnet and the armature on the spring-controlled stem of the relief valve.

6. An automatic governor for the pressure of railway air-brake cylinders, consisting of a governor mechanism dependent for its operation upon the rotation of the rotating parts of the car-truck, a relief-valve in connection with the air-brake cylinder, and means by which the relief-valve is electrically operated by the governor mechanism, to regulate the pressure in the air-brake cylinder, and a spring-controlled valve interposed between the relief-valve and the air-brake cylinder whereby a desired pressure is retained in brake-cylinder.

587,644. THILL-SUPPORT. JOHN C. COFFEE, Decatur, Ind. Filed Mar. 8, 1897. Serial No. 626,509. (No model.)



Claim.—The combination with the dashboard of a vehicle, of two plates secured to the outer face of the dashboard, a swinging

ring pivotally confined in position between the plates, a thill-supporting strap having at one end a loop encircling the bolster or spring bar of the vehicle, provided at the other end with a snap-hook and intermediate its ends with perforations, and a lug or pin extending from the under side of the cross-bar which connects the thills, said perforations of the strap being designed to engage the lug or pin on the cross-bar of the thills and said snap-hook being designed to engage the pivoted ring on the dashboard, substantially as and for the purposes described.

587,645. TOOL FOR SCREWING TRENAILS. ALBERT COLLET, Paris, France. Filed Apr. 1, 1897. Serial No. 630,215. (No model.) Patented in France Aug. 5, 1896, No. 249,408.



Claim.—1. The combination of a helical band having openings run through it in a transverse line, and a cross-head extending through the said opening, the openings of the inner convolutions of the helices being longer than the openings of the outer convolution whereby to enlarge and contract the band according to the direction in which the cross-head is turned.

2. The combination of a flat band having the form of a helix or volute and having openings therein, the openings being arranged in transverse registry, and an arm passed through the openings, the band having a portion projected laterally beyond the arms.

3. The combination of a flat band having the form of a helix or volute, a head located within the band, arms carried by the head and projecting outward from the band and engaged therewith, the band having a portion projecting beyond the arms and a rod carried by the head and extending downward therefrom.

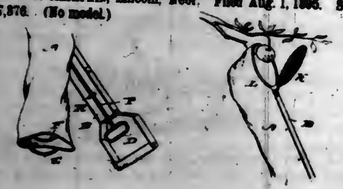
4. The combination of a flat band having the form of a helix or volute and having openings therein, the opening in the outer convolution being smaller than the remaining openings, and an arm passed through the openings and enlarging and contracting the band by engagement with the walls of the openings therein the band having a portion projected laterally beyond the arms.

587,646. INCUBATOR. HARRY R. CORRIDAN, Hirton, Md. Filed Sept. 12, 1896. Serial No. 605,572. (No model.)



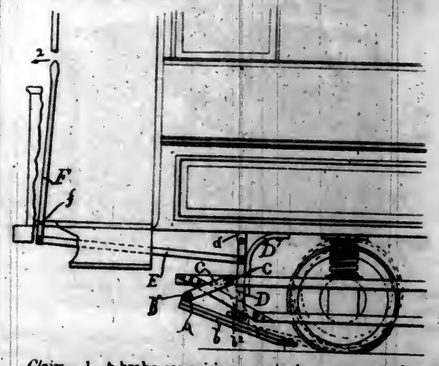
Claim.—In a device of the character described, a casing, upright partitions secured therein, a packing of heat-insulating material between the partitions and casing, a perforated tray removably secured between the partitions, a transparent head on the tray, a closed tank containing water above the tray, a tube leading from the tank through the top of the casing, a cap on the end of the tube, a door formed in the top of the casing, a horizontal partition having a removable section located above the tank, plugs fitting in openings of the horizontal partition, a lamp-chamber, a non-combustible lining therein, a lamp in the chamber, a heater above the lamp connected to the tank, a chimney on the lamp-chamber, a cover therefor, and a door formed in the lamp-chamber, as and for the purpose described.

587,647. FRUIT-PICKING MACHINE. JAMES H. CRAMPHIN and ALLEN W. CRAMPHIN, Lincoln, Nebr. Filed Aug. 1, 1896. Serial No. 601,876. (No model.)



Claim.—In a fruit-picker, the combination with the pole having a loop L provided with arms that project downward on the opposite sides of the pole and thence upwardly and are formed with eyes, said arms being secured to said pole, of a loop K provided with a flexible covering and having arms that project through the aforesaid eyes and are formed into an eye M, a rod running parallel with the pole and connected to the eye M, springs H having one end connected to a loop G of the rod and their other ends connected to the pole, and a flexible cylinder connected to the loop L, and having attached to its lower end at opposite sides thereof large and small loops E and F respectively, substantially as shown and described.

587,648. COMBINED BRAKE-SHOE AND WHEEL-GUARD. MAURICE F. CROTTY, Poughkeepsie, N. Y. Filed Oct. 9, 1896. Serial No. 608,394. (No model.)



Claim.—1. A brake comprising a swinging cross-plate having two rearwardly-extending shoes provided on their under surfaces near their inner edges with flanges adapted when in use to grip the inner surface of the rail, bearings on swinging cross-plate, provided with eyes, dependent links pivotally secured to the car-truck frame, and means for connecting the said links to the swinging cross-plate, consisting of a rod passing through the links and through the eyes in the bearings on the swinging plate, and means for holding the brake-shoes from the track comprising a loop on the swinging cross-plate, adapted to be engaged by a hook pivotally secured to the car-body.

2. A brake comprising a swinging cross-plate having two rearwardly-extending shoes provided on their under surfaces near their inner edges with flanges adapted when in use to grip the inner surface of the rail, bearings on said swinging cross-plate, provided with eyes, dependent links pivotally secured to the car-truck frame, and means for connecting the said links to the swinging cross-plate consisting of a rod passing through the links and through the eyes in the bearings on the swinging plate, and means for holding the brake-shoes from the track comprising a loop on the swinging cross-plate, adapted to be engaged by a hook pivotally secured to the car-body, and retained in position by a spring secured to the car.

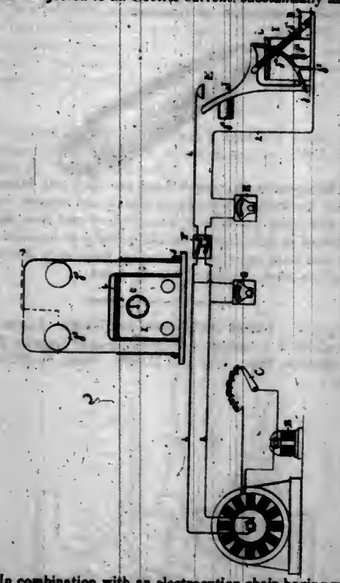
3. A brake comprising a swinging cross-plate having two rearwardly-extending shoes provided on their under surfaces near their inner edges with flanges adapted when in use to grip the inner surface of the rail, bearings on said swinging cross-plate, provided with eyes, dependent links pivotally secured to the car-truck frame, and means for connecting the said links to the swinging cross-plate consisting of a rod passing through the links and through the eyes in the bearings on the swinging plate, and means for holding the brake-shoes from the track comprising a loop on the swinging cross-plate, adapted to be engaged by a hook pivotally secured to the car-body, and retained in position by a spring secured to the car, and means for releasing the hook and throwing the brake-shoes against the track comprising a rod secured at one end to the said depending hook and at the other end to a lever fulcrumed in the car-platform.

587,649. ELECTROCUTION-CHAIR. EDWIN F. DAVIS, West Caton, N. Y., assignor of one-half to Quincy W. Wellington, Corning, N. Y. Filed Jan. 6, 1897. Serial No. 618,116. (No model.)

Claim.—1. A chair having in combination with means for passing an electric current through a person seated therein, a foot-rest, a seat registering the weight of an individual, and an adjustable back, substantially as set forth.

2. A chair, having means for registering the changes in physical condition of the body of one sitting in the chair and under the influence of an electric current, substantially as set forth.

3. An electrocution-chair, having means for weighing, means for recording the extension of the body, and means for registering the expansion or contraction of various muscles of one placed in such chair and subjected to an electric current, substantially as set forth.



4. In combination with an electrocution-chair having means for the registering of the changes in physical condition of the person seated therein, of an electromotive device and a rheostat for varying the voltage of electrical current produced by such machine, and means for putting a person seated in said chair in circuit with said machine, substantially as set forth.

5. In combination with an electrocution-chair having means for the registering of the physical condition of the person seated therein, of an electromotive device and a rheostat for varying the voltage of electrical current produced by such machine, a switch for making a breaking-circuit of the said machine, and means for putting a person seated in said chair in circuit with said machine, substantially as set forth.

6. In combination with an electrocution-chair, means for passing an alternating current through a person seated therein, said current having the alternations in one direction of greater intensity than the alternations in the other, substantially as set forth.

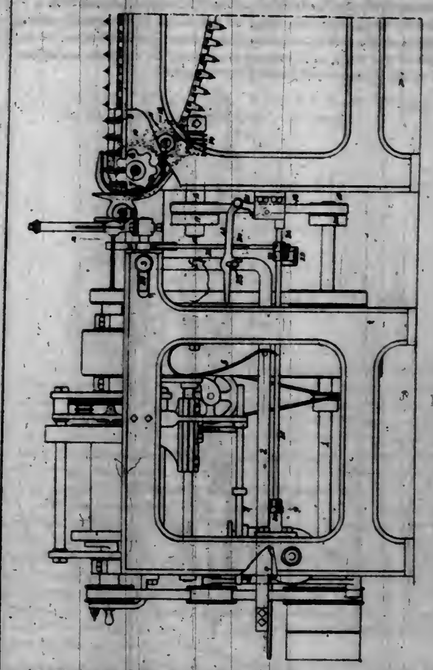
587,650. SPINNING OR TWISTING AND DRAWING MACHINE. ROBERT DAWES, Philadelphia, Pa., assignor of two-thirds to Edmund Dawes, same place, and Edward H. Haskell, Boston, Mass. Filed Oct. 27, 1896. Serial No. 610,213. (No model.)

Claim.—1. The combination of a spinning or twisting machine, a gill-frame operating in conjunction therewith, independent starting and stopping devices for said spinning or twisting machine and gill-frame, and means for connecting said stopping and starting devices so as to cause them to operate simultaneously, substantially as specified.

2. The combination of a spinning or twisting machine, a gill-frame operating in conjunction therewith, a driving-shaft common to both machines, a starting and stopping bar whereby said spinning or twisting machine is thrown into or out of operation, and means whereby the movement of said starting and stopping bar is caused to connect or disconnect the driving devices of the gill-frame simultaneously with the throwing of the spinning machine into or out of operation, substantially as specified.

3. The combination of a spinning or twisting machine, a gill-frame operating in conjunction therewith, starting and stopping devices for each machine, connections between said starting and stopping devices whereby they are simultaneously operated, provision for retaining said starting and stopping devices normally in position to cause the driving of both machines, and means under control of the strand which is being fed to the spinning or twisting machine whereby said starting and stopping devices are released from the control of said retainer on the breaking of said strand, substantially as specified.

4. The combination of a spinning or twisting machine, a gill-frame operating in conjunction therewith, starting and stopping devices for each machine, a bar serving to connect the starting and stopping devices of the two machines, an arm having a portion adapted to hold the said bar out of operative position, and provision whereby the strand passing to the spinning or twisting machine is caused to retain the arm, substantially as specified.



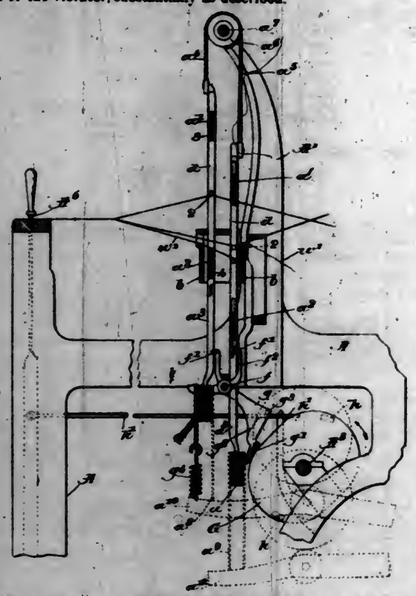
5. The combination of a spinning or twisting machine having a longitudinally-movable shipper-bar, a catch for retaining the same in the retracted position, a rock-shaft having a cam for lifting the bar out of engagement with said catch, an arm on said rock-shaft, and a lever having one arm adapted to bear against the strand which is being fed to the spinning or twisting machine, and another arm in engagement with the arm on the rock-shaft, substantially as specified.

6. The combination of a spinning or twisting machine, a gill-frame operating in conjunction therewith, starting and stopping devices for each machine, a shipper-bar forming an element of the starting and stopping devices of the spinning-machine and having a projecting pin, a catch-bar forming an element of the starting and stopping devices of the gill-frame, and notched to engage with said pin, a catch for retaining the shipper-bar of the spinning-machine in position to cause the driving of the same, a rock-shaft having a cam for lifting the shipper-bar out of engagement with said catch, an arm on said rock-shaft having a finger for holding the catch-bar free from engagement with the pin of the shipper-bar, and provision whereby the strand which is being fed to the spinning-machine restrains the movement of said arm, the parts being so disposed that when the arm is permitted to move on the breaking of the strand, its finger will be withdrawn from beneath the catch-bar preparatory to the release of the shipper-bar by the cam on the rock-shaft, substantially as specified.

7. The combination of a spinning or twisting machine having a driving-shaft with pulleys side by side thereon, a gill-frame operating in conjunction with said spinning or twisting machine and having a power-receiving shaft with pulleys in line with those of the driving-shaft of the spinning or twisting machine, a belt connecting said pulleys, a belt-shipper, a starting and stopping bar on the spinning or twisting machine, provision for connecting said bar to said belt-shipper, means for retaining said stopping and starting bar normally in position for causing the driving of the machines, and releasing devices for said bar normally prevented from acting by engagement with the strand which is being fed to the spinning-machine, substantially as specified.

587,651. WARP STOP-MOTION FOR LOOMS. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Jan. 6, 1897. Serial No. 618,134. (No model.)

Claim.—1. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors maintained in inoperative position by the warp-threads when intact, and means to prevent movement of the detectors in the direction of the warp-threads, each detector having one of its ends reduced in width and with its inner longitudinal edge in substantially the central line of the detector, combined with a vibrator to engage the inner edge of a detector in abnormal position, means to move said vibrator back and forth in the direction of the length of the warp, and stopping mechanism for the loom under control of the vibrator, substantially as described.



2. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors maintained in inoperative position by the warp-threads when intact, said detectors having each a longitudinally-extended foot narrower than the width of the detector, a rocking vibrator to engage the inner longitudinal edge of a detector in abnormal position and be thereby held from movement, means to prevent edgewise movement of a detector engaged by the vibrator, and stopping mechanism for the loom, operative upon stoppage of the vibrator, substantially as described.

3. In a loom, a frame provided with a cross-bar and a series of vertically-movable warp-stop-motion-actuating detectors longitudinally slotted near their lower ends to receive said cross-bar, each detector having its end below the slot decreased in width, combined with a vibrator to engage the inner edge of the narrowed end of a detector in abnormal position, means to normally move the vibrator toward and from the detectors, and stopping mechanism for the loom under the control of the vibrator, the cross-bar and vibrator acting upon a detector and preventing it from twisting, substantially as described.

4. A warp-stop-motion-actuating detector for looms, composed of a flat strip of sheet metal having a warp-eye and a longitudinally-extended foot reduced in width, to serve as an operating-surface, substantially as described.

5. In a loom, a frame supported at top and bottom and provided with a series of vertically-movable warp-stop-motion-actuating detectors, and means to reciprocate the frame by or through its supports, combined with a vibrator independent of said frame to engage the edge of a detector in abnormal position, means to normally move the vibrator toward and from the detectors, the frame-supports taking up the lateral thrust of the vibrator engaging a detector, stopping mechanism for the loom, and connections between it and the vibrator, substantially as described.

587,652. LOOM. WILLIAM F. DRAPER, Hopedale, Mass., assignor to the Northrup Loom Company, same place and Saco, Me. Filed Jan. 4, 1897. Serial No. 617,869. (No model.)

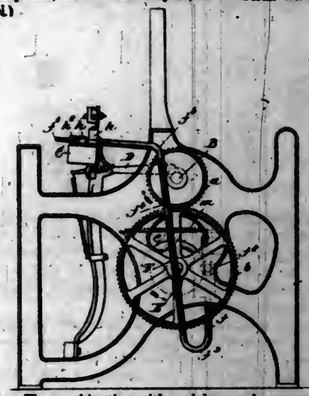
Claim.—1. In an automatic loom, a filling-carrier feeder provided with radial guides to engage the filling-carriers to prevent their rotation in the feeder and to aid in directing them in their removal from said feeder, substantially as described.

2. A filling-feeder having notches to receive the head of a filling-carrier and provided with a series of guides placed in said notches to restrain the rotation of the said carriers in said notches, combined with a pusher to act on said filling-carriers and push them from said feeder radially, substantially as described.



3. A filling-carrier having its head provided with flattened opposite sides, the flattened sides being slotted, and metallic rings surrounding said head beyond the inner ends of said slots, said rings being flattened so as to present parallel portions at opposite sides of the head, said flattened or parallel portions lying upon the flattened portions of the head, substantially as described.

587,653. PICKER MECHANISM FOR LOOMS. DANIEL DERBIN, Woonsocket, R. I., assignor to the Northrup Loom Company, Saco, Me., and Hopedale, Mass. Filed July 27, 1896. Serial No. 600,601. (No model.)



Claim.—The combination with a picker, and a cam-shaft having a cam, of a bent rod having at or near one end a roll acted upon by said cam, the opposite end of the rod being extended through one side of the shuttle-box and into the picker to operate the same to throw the shuttle, substantially as described.

587,654. TELEPHONE-TRANSMITTER. OMAR A. EICHOLZ, New York, N. Y., assignor of one-half to Frederick W. Lehr, same place. Filed Nov. 17, 1896. Serial No. 612,415. (No model.)



Claim.—1. In a telephone-transmitter, the combination of two electrodes, and a composition of an adhesive elastic substance intermixed with conducting material, interposed between the same, substantially as described.

2. In a telephone-transmitter, the combination of a diaphragm, an electrode secured to the same, a second electrode supported independently and separated from the diaphragm electrode by a composition of an adhesive elastic substance intermixed with conducting material, substantially as described.

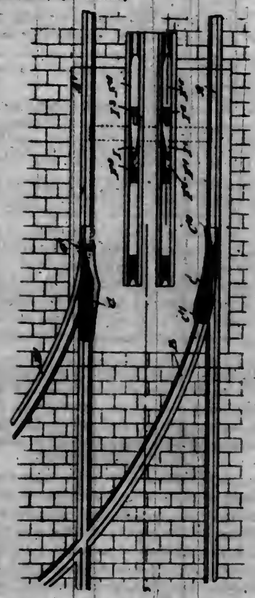
3. In a telephone-transmitter, the combination of two or more electrodes in contact with a button composed of finely-divided metal, carbon, and an integral adhesive elastic substance into which the metal and carbon are intimately mixed, substantially as described.

4. In a telephone-transmitter, the combination with the electrodes of a button interposed therebetween composed of a conducting material and an elastic gum, substantially as described.

5. In a telephone-transmitter, the combination of two or more electrodes, and a button interposed therebetween composed of finely-divided conducting material and an integral adhesive elastic substance into which the conducting material is intimately mixed, substantially as described.

6. In a telephone-transmitter, the means for producing undulatory or vibratory electric currents, consisting of the combination with a rigidly-mounted electrode, of a vibratory electrode, and a button composed of finely-divided conducting material and elastic rubber interposed between said electrodes, substantially as described.

587,655. SWITCH. MICHAEL F. FINNERTY, Brooklyn, N. Y., assignor of one-half to C. Otto Stumpf, same place. Filed Jan. 21, 1897. Serial No. 620,111. (No model.)



Claim.—1. A switch, comprising a pivoted switch-point, a bar connected with the free end of the said switch-point and adapted to be shifted transversely, a lever loosely connected with the said bar, and cam-levers between which the end of the said lever projects, said cam-levers being adapted to be actuated from the approaching car and controlling the said levers, to shift the bar transversely and impart a swinging motion to the switch-point, to move the latter into an open or closed position, substantially as shown and described.

2. A switch, comprising two pivoted switch-points, one of which is for opening and closing the outer side-track rail and the other switch-point is for opening the inner side-track rail to the main-track rail, a transverse bar connected with the said switch-points, a lever loosely engaging the said bar, and cam-levers between which the end of the said lever projects for imparting a swinging motion to the said levers, said cam-levers being adapted to be actuated from the approaching car, substantially as shown and described.

3. A switch, comprising two pivoted switch-points, one of which is for opening and closing the outer side-track rail and the other switch-point is for opening the inner side-track rail to the main-track rail, a transverse bar connected with the said switch-points, a lever engaging the said bar, and cam-levers for imparting a swinging motion to the said levers and adapted to be actuated from the approaching car, each cam-lever being arranged to return automatically to a normal position when the car passes the switch, substantially as shown and described.

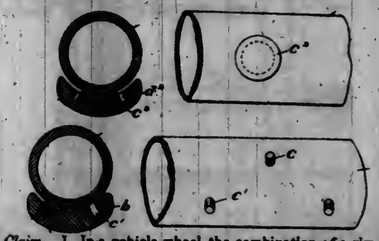
4. In a switch, the combination with switch-points, of a transversely-sliding bar having its ends connected with the switch-points, cam-levers arranged to return automatically to their normal position and provided with upwardly-projecting arms, and a lever having one end loosely connected with the said sliding bar and its other end projecting between the cam-levers, substantially as described.

5. In a switch, the combination with switch-points, of a transverse sliding bar having its ends connected with the switch points and provided with an opening at its center, loosely-mounted cam-levers provided with upwardly-projecting arms and with weights for holding them in their normal positions, and a lever having one end projecting into the opening of the sliding bar and its other end extending between the cam-levers, substantially as herein shown and described.

6. A switch provided with a switch-point having its upper bearing-face beveled downwardly and forwardly, substantially as described.

7. The combination with a track-rail having a recess under its head, of a switch-point having its upper bearing-face beveled downwardly and forwardly to enter the recess of the track-rail, substantially as described.

587,656. BICYCLE-TIRE. WILLIAM B. MANN, Baltimore, Md. Filed Jan. 7, 1897. Serial No. 618,201. (No model.)



Claim.—1. In a vehicle-wheel, the combination of a rim having in its concaved outer face a longitudinal series of bottomed sockets; and an elastic tire adapted to seat against the concaved outer face of the rim and having a series of elastic protuberances corresponding in location with the series of sockets and adapted to engage the same, the said protuberances being of reduced diameter as compared with the sockets and of greater length than the depth of the latter, substantially as and for the purpose described.

2. In a vehicle-wheel, the combination of a rim having in its concaved outer face a longitudinal series of bottomed sockets with sides oblique to the radial plane of the wheel; and an elastic tire adapted to seat against the concaved outer face of the rim and having a series of elastic protuberances corresponding in location with the series of sockets and adapted to engage the same, the said protuberances being of reduced diameter as compared with the sockets and of greater length than the depth of the latter, substantially as and for the purpose described.

3. In a vehicle-wheel, the combination of a rim having in its concaved outer face a longitudinal series of bottomed sockets with sides oblique to the radial plane of the wheel; and an elastic tire adapted to seat against the concaved outer face of the rim and having a series of elastic protuberances corresponding in location and obliquity of sides with the series of sockets and adapted to engage the same, the said protuberances being of reduced diameter as compared with the sockets and of greater length than the depth of the latter, substantially as and for the purpose described.

4. In a vehicle-wheel, the combination of an elastic tire having a longitudinal series of flaring elastic protuberances on the inner side; and a rim having a longitudinal series of undercut sockets to receive said protuberances, the latter being of reduced diameter as compared with the sockets and of greater length than the depth of said sockets, substantially as and for the purpose described.

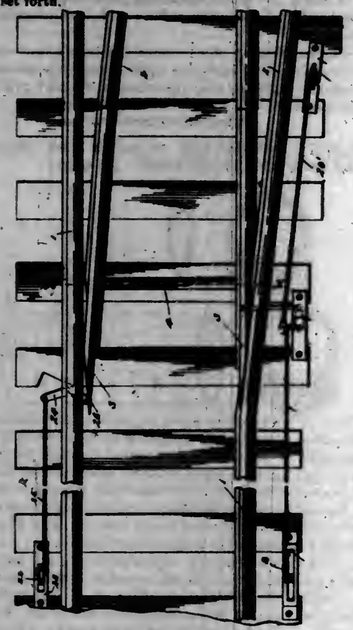
587,657. RAILROAD-SWITCH. CHARLES V. REILEY, Washington, D. C., assignor of one-half to Leonard C. Bailey, same place. Filed June 11, 1897. Serial No. 640,381. (No model.)

Claim.—1. In a railroad-switch, the combination with the main track, of switch-tongues connected together and mounted upon anti-friction-bearings, switch-stands, a trip-arm pivoted in the stand secured to the ties and provided with a pin adapted to engage the spring-catch, a bell-crank lever, a rod connecting one limb of the bell-crank lever to the trip, a link connecting one of the switch-tongues to the other end of the bell-crank lever, a pivoted arm that is arranged nearer the track than the trip aforesaid and is shorter than the same, a link connecting the arm to one of the limbs of the said bell-crank lever, a second bell-crank lever arranged on the opposite side of the track, and provided with a pin adapted to engage one of the switch-tongues and actuate the same, a trip-arm, and a link connecting the trip arm with said bell-crank lever, substantially as set forth.

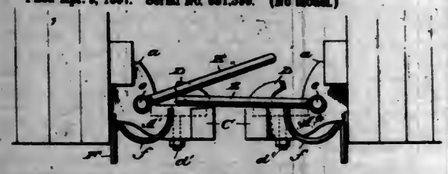
2. The combination with a locomotive, of a bracket secured thereto and provided with a bottomless box, an arm pivoted in said box, and a cord attached to said arm, passing through an aperture in said box and leading to the cab of the locomotive, substantially as set forth.

3. The combination with a locomotive, of a bracket secured thereto and provided with a bottomless box, an arm pivoted in said

box, and means connected with said arm, and within convenient reach of the locomotive engineer, for actuating said arm, substantially as set forth.



587,658. CAR-COUPLING. WILLIAM C. ROBINSON and WILLIAM S. PALMER, Big Stone Gap, Va., assignors to themselves, William S. Mathews, William T. Goodloe, and William S. Beverley, same place. Filed Apr. 9, 1897. Serial No. 631,390. (No model.)

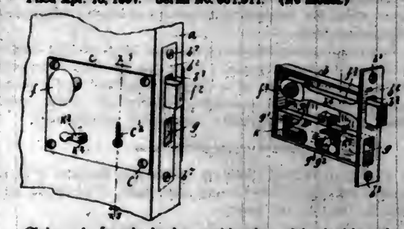


Claim.—1. In a car-coupling, the combination with a draw-head having a hook and bail, of bail-lifters consisting of a rod journaled adjacent to the draw-head and provided with forwardly and upwardly projecting members which frictionally engage the sides beneath the bail substantially as shown.

2. In a car-coupling a draw-head and draw-bar made of a single piece and provided with a projecting portion which extends above the upper face of the draw head and bar, the draw-head having in the upper face thereof a recess with vertical side walls, the longitudinal side walls of said recess diverging from the forward end of the draw-head to the base of the projecting portion, the draw-head also having a vertical aperture which extends from the base of the recess, in combination with a hooked member having a base portion the sides of which taper longitudinally, and a bolt carried by said hooked portion, substantially as shown and for the purpose set forth.

3. In a car-coupling, a combined draw-head and bar made of a single piece, the draw-head being below the major portion of the draw-bar and provided with laterally-projecting portions C, C, at its forward end, the rear portion of the draw-head having an upwardly-projecting portion *a* with an upwardly and rearwardly inclined face which is concave transversely, a recess in the draw-head having rearwardly-diverging side walls, an aperture extending from said recess through the draw-head and a transverse aperture through the draw-head on a line with the upper face thereof; together with a bail bolted or pivotally secured to the draw-head, a hook having a base portion adapted to fit snugly within the recess in the draw-head, the forward portion of the hook projecting beyond that portion which lies within the recess, a depending pin integral with the hook portion, and a nut for securing the parts in positive engagement, the parts being combined and organized substantially as shown and for the purpose set forth.

587,659. DOOR-LOCK. JAMES F. RUTLEDGE, Minneapolis, Minn. Filed Apr. 10, 1897. Serial No. 631,511. (No model.)



Claim.—1. In a lock, the combination with a locking plunger or bolt, of a pair of operating-tumblers, arranged for similar actions in reverse order, each serving in turn to move said locking plunger into one of its extreme positions, and the other to lock the same where so set, substantially as described.

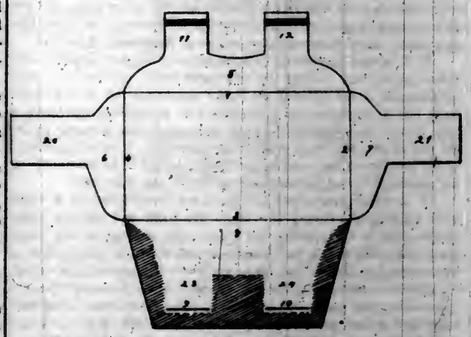
2. In a lock, the combination with a locking plunger or bolt, of a pair of tumblers operating one to move said plunger or bolt into its locking position, and the other to move the same into its unlocking position, a pair of finger-pieces, one on each side of said lock, for operating the former of said tumblers, a single finger-piece on the inner side of said lock, for operating the latter of said tumblers, which latter of said tumblers may be operated from the outer side of the lock only by means of a key, substantially as described.

3. In a lock, the combination with the plunger or bolt *g* provided with the tumbler-seats g^1 and g^2 and fingers g^3 g^4, of the tumbler *k* working in the seat g^1 and provided with the pair of operating-cranks k^3, the tumbler *k'* working in said seat g^2 and provided with the single operating-crank k^4, and a key for operating said tumbler *k'* from the outer side of the lock, said parts operating substantially as described.

4. In a lock, the combination with the locking plunger or bolt *g* provided with the tumbler-seat g^5, of the tumbler *k'* working in said seat g^2, provided with the seat k^5 and operated by a finger-piece projecting from the inner side of the lock, and the keyway involving the keyhole c^2, the flange c^3 and notched portion c^4, substantially as described.

5. In a lock, the combination with a locking plunger or bolt, of a pair of operating-plungers, arranged for similar actions in reverse order, each serving, in turn, to move said locking-plunger into one of its extreme positions and the other to lock the same where set, a gong or bell secured to the lock-case or parts securable therewith, and a gong-sounding hammer mounted for movement with one of said tumblers to indicate when the unlocking movement of said locking-plunger takes place, substantially as described.

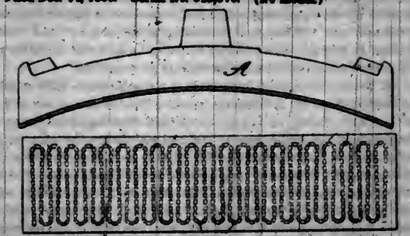
587,660. ENVELOP. CHARLES R. SAGUITZ, Fall River, Mass. Filed Feb. 12, 1897. Serial No. 623,073. (No model.)



Claim.—1. In an envelop, the combination of a cross-bar arranged within the body of the envelop by elongating, gumming and overlapping any of its flaps, and a barb arranged beneath the sealing-flap of said envelop, so as to automatically lock itself over the said cross-bar in the act of sealing, substantially as described and shown.

2. In an envelop, the combination of a slot arranged in the body of the envelop, a cross-bar arranged behind it and forming therewith a pocket to which the slot gives entrance, a tongue arranged upon the sealing-flap registering with said slot, and a barb arranged beneath the tongue to lock over said cross-bar for the purpose set forth and substantially as described and shown.

587,661. BRAKE-SHOE. WILLIAM D. SARGENT, Chicago, Ill. Filed Dec. 14, 1896. Serial No. 615,570. (No model.)



Claim.—1. A cast-metal brake-shoe having a foraminous sinuous reinforcement embedded therein, substantially as and for the purpose described.

2. A brake-shoe, having a sinuous reinforcement embedded therein, said reinforcement being provided with a series of rows of perforations arranged at an angle to the plane of the wearing-face of the shoe, substantially as described.

3. A cast-metal brake-shoe having a foraminous sinuous reinforcement composed of a fibrous metal located therein, substantially as described.

4. A cast-iron brake-shoe having a foraminous sinuous fibrous metal reinforcement located angularly therein, substantially as described.

5. A brake-shoe comprising a granular metal shoe proper and a reinforcement embedded therein and consisting of a strip of fibrous metal bent into a sinuous form and provided with holes or perforations, said reinforcement being arranged so that one edge thereof will form a part of the wearing-face of the brake-shoe.

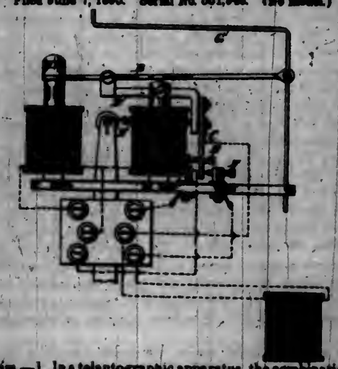
587,662. APPARATUS FOR SPRAYING LIQUIDS. HENRY J. SCHULTE, Los Angeles, Cal. Filed Aug. 25, 1896. Serial No. 603,851. (No model.)



Claim.—1. In apparatus for spraying liquids wherein a screw-propeller is used, the conical lower end of the propeller-tube which passes into the nozzle from which the water escapes and the adjusting-nuts in connection therewith for regulating the depth of projection of the conical part into the escaping hole of the nozzle whereby the quantity of water issuing from the spraying apparatus is regulated, substantially as set forth.

2. As an improved apparatus for spraying liquids the combination of the nozzle, the bridge, the central stem, the screw-propeller, the conical lower end of the propeller-tube, the adjustable annular space whereinto the conical end of the propeller-tube passes, the nuts for adjusting the position of the propeller, all operating together in the manner and for the purposes substantially as set forth.

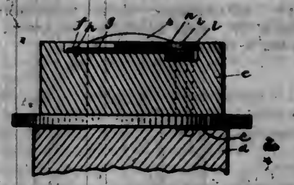
587,663. TELAUTOGRAPH. GEORGE S. TIFFANY, Highland Park, Ill., assignor to the Gray National Telautograph Company, Richmond, Va. Filed June 7, 1895. Serial No. 551,948. (No model.)



Claim.—1. In a telautographic apparatus, the combination of two magnets one for raising and one for lowering the receiving-pen, a circuit maker and breaker controlled by said magnets when operated simultaneously, and a paper-feeding mechanism controlled by the said make and break, substantially as described.

2. In a telautographic apparatus, the combination of two magnets one for raising and one for lowering the transmitting-pen, an armature-lever provided with armatures for said magnets and carrying the pen-lifter, said armature-lever being pivoted upon and supported by a second lever carrying a make and break, and a paper-shifting magnet of which the circuit is controlled by said make and break, substantially as set forth.

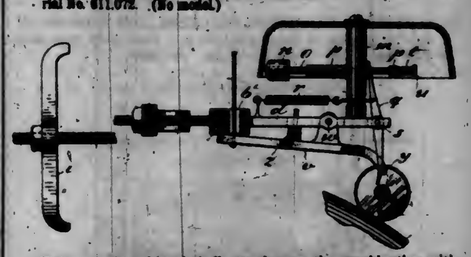
587,664. NUT-LOCK. WILLIAM H. WHITE, Harrold, S. D., assignor of one-fourth to James A. French, Pleasant, S. D. Filed Aug. 27, 1896. Serial No. 604,110. (No model.)



Claim.—1. The combination with a threaded body provided with perforations of a nut having a pin adapted to enter said perforations, a spring in engagement with the pin, and an eccentric lever arranged to engage the spring to raise the pin and to subsequently engage and depress the spring to lower the pin.

2. The combination with a threaded body provided with perforations of a nut having a pin arranged to engage said perforations, a spring in engagement with the pin, a pivoted lever having a laterally-projecting cam lying beneath the spring and adapted to engage and raise it to lift the pin, when in one position said lever being formed to engage and depress the spring when in an opposite position.

587,665. BICYCLE-BELL. ANDS A. WOLCOTT, New York, N. Y., assignor to Edward Simmons, Keyport, N. J. Filed Nov. 4, 1896. Serial No. 611,072. (No model.)



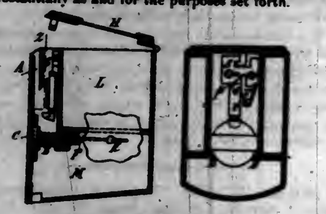
Claim.—1. In a bicycle-bell attachment, the combination with the hind upright fork of the bicycle-frame, of the bell-supporting bar, and the clamp for attaching said bar, said clamp consisting of the T-head of the bar, jaws pivoted in the ends of the T-head, and the clamping-yoke screw, and nut substantially as described.

2. In a bicycle-bell attachment, the combination with the hind upright fork of the bicycle-frame, of the bell-supporting bar clamped to said fork, the bell supported on the bar by the post, reciprocating hammer carried in a slideway on the post, bell-hammer-retracting lever pivoted on the supporting-bar and connected at the upper end with the hammer-staff with its lower end subject to the action of the roller, lever-hammer-actuating spring connected with said lever, recoil-spring on the hammer-staff, hammer-lever-actuating roller, and the roller-carrying lever, said lever suspended pivotally under the supporting-bar, and provided with the actuating cord and spring all substantially as described.

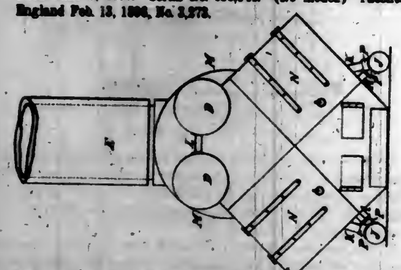
587,666. COIN-FREED MECHANISM FOR RELEASING BOX-LIDS. MICHEL DE ZUR-MUHLEN and ADOLPHE WETTERS, Brussels, Belgium. Filed Oct. 27, 1896. Serial No. 610,212. (No model.) Patented in Belgium Jan. 15, 1896, No. 113,649, and Jan. 30, 1896, No. 113,861, and in France Sept. 14, 1896, No. 260,261.

Claim.—A box having the lid adapted to be released by the insertion of a coin, the said box being provided with a slot, a spring-actuated yoke into which the coin falls, a pull and a lid provided with a hook, in combination with a sliding spring-bolt S engaging with the said hook and provided with an inclined surface, and a sliding latch provided with two inclined surfaces, one to engage with the inclined

surface on the said bolt, and the other adapted to be acted upon by the coin, substantially as and for the purposes set forth.

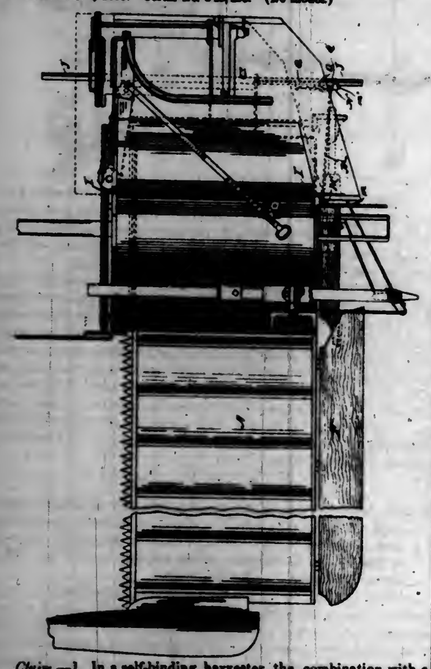


587,667. **STEAM-BOILER.** STEPHEN ALLEY, Glasgow, Scotland. Filed June 5, 1897. Serial No. 638,541. (No model.) Patented in England Feb. 13, 1896, No. 3,273.



Claim.—A steam-boiler comprising two or more sets of rectangular sections or elements, each set of sections being constructed with water-tubes all parallel to each other, and arranged, each with one diagonal vertical, and the sets of sections presenting between them upper and lower angular spaces, respectively for the fire-gases and furnace or furnaces, and being connected to upper and lower drums, substantially as and for the purposes herein set forth.

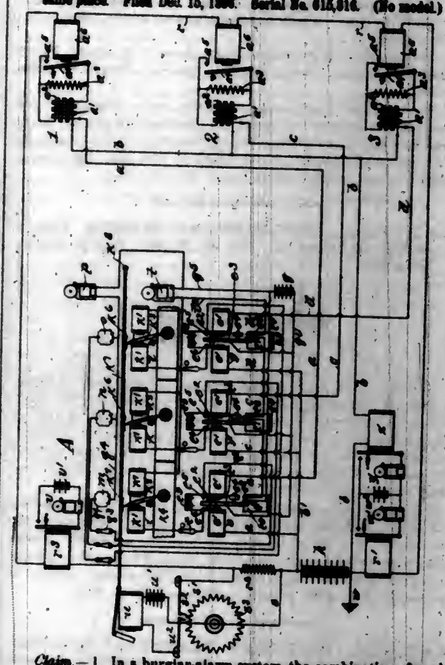
587,668. **SELF-BINDING HARVESTER.** JOHN F. APPLEBY, Chicago, Ill., assignor, by mesne assignments, to David Kelly, same place. Filed Mar. 4, 1895. Serial No. 540,436. (No model.)



Claim.—1. In a self-binding harvester, the combination with a sliding grain-deck having the binding mechanism moving therewith, of means for moving said deck and binding mechanism comprising a cranked operating-rod, a pivoted stop-arm adapted to be rocked on its pivot by the operating-rod, a rod connected to the binding mechanism and with the stop-arm eccentrically to its pivot and a series of stops to engage the stop-arm whereby to lock the shiftable parts in their adjusted positions, substantially as described.

2. In a self-binding harvester, the combination with a sliding grain-deck, binding mechanism moving therewith, means for supporting and sliding said grain-deck and binding mechanism, said means consisting of a support arranged parallel to the outer edge of the grain-deck, brackets connected with the main frame and to which said support is secured, a rack-plate secured to said support, a stop-arm pivotally connected thereto and having a stud provided with a lug thereon, a sleeve having a groove through which said stud may pass, a connecting-rod secured with the sleeve and to the binding mechanism and an operating-rod having cranked ends, one of which is secured to the stop-arm and the other of which projects to the vicinity of the driver's station, substantially as described.

587,669. **BURGLAR-ALARM SYSTEM.** WILLIAM T. ARNOLD, Chicago, Ill., assignor to the Chicago Electric Protective Company, same place. Filed Dec. 15, 1896. Serial No. 615,816. (No model.)



Claim.—1. In a burglar-alarm system, the combination of a subscriber's station having protecting conductors or apparatus connected with the central office, with a resistance at the subscriber's station in circuit with said conductors or apparatus, a relay at the subscriber's station for removing said resistance, a source of electricity and a resistance at the central office in circuit with said relay, automatic means at the central office for removing said resistance periodically, and suitable indicating apparatus at the central office adapted to respond to a change in the circuit condition at the subscriber's station, substantially as described.

2. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, with a resistance at each subscriber's station in circuit with said conductor or apparatus, a relay at each subscriber's station for removing said resistance, a round circuit extending from the central office to the subscribers' stations in which said relays are included, means at the central office connected with said round circuit for operating said relays, and suitable indicating apparatus at the central office adapted to respond to a change in the circuit conditions at the subscribers' stations, substantially as described.

3. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, with a resistance at each subscriber's station in circuit with said conductors or apparatus, a relay at each subscriber's station for removing said resistance from circuit with said conductors or apparatus, a round circuit extending from the central office to the subscribers' stations and including said relays, a resistance and a source of electricity included in said round circuit, means at the central office for removing the latter resistance from the round circuit, and suitable indicating apparatus at the central office adapted to respond upon a change in the circuit conditions at the subscribers' stations, substantially as described.

4. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, with a resistance at each subscriber's station, in circuit with said conductors or apparatus, a relay at each subscriber's station for removing said resistance from circuit with said conductors or apparatus, a round circuit extending from the central office to the subscribers' stations and including said relays, automatic means connected with said round circuit adapted to periodically remove the latter resistances at the subscriber's station from circuit with said conductors or apparatus, and suitable indicating apparatus adapted to respond to a change in the circuit condition at the subscriber's station, substantially as described.

5. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, with a resistance at each subscriber's station in circuit with said conductors or apparatus, a relay at each subscriber's station for removing said resistance from circuit with said conductors or apparatus, a round circuit extending from the central office to the subscribers' stations and including said relays, a resistance and a source of electricity at the central office included in said round circuit, automatic means for periodically removing the latter resistance, and suitable indicating apparatus adapted to respond to a change in the circuit condition at the subscriber's station, substantially as described.

6. In a burglar-alarm system, the combination of a plurality of subscribers' stations with protecting conductors or apparatus at each subscriber's station connected with the central office, governor-relays at the central office, one corresponding to each subscriber, adapted to respond upon a change in the condition of the circuit at the subscribers' stations, means for simultaneously changing the circuit condition at the subscribers' stations whereby said governor-relays are simultaneously operated, an audible signal adapted to be operated by one of said relays, and means jointly controlled by said governor-relays for preventing the operation of said audible signal, substantially as described.

7. In a burglar-alarm system, the combination of a plurality of subscribers' stations, with protecting conductors or apparatus at each subscriber's station connected with the central office, governor-relays at the central office, one corresponding to each subscriber adapted to respond upon a change in the condition of the circuit at the subscribers' stations, means for simultaneously changing the circuit condition at the subscribers' stations whereby said governor-relays are simultaneously operated, and a signal jointly controlled by said relays, substantially as described.

8. In a burglar-alarm system, the combination of a plurality of subscribers' stations with protecting conductors or apparatus at each subscriber's station connected with the central office, governor-relays at the central office, one corresponding to each subscriber adapted to respond upon a change in the condition of the circuits at the subscribers' stations, means for simultaneously changing the circuit conditions at the subscribers' stations whereby said governor-relays are simultaneously operated, an audible signal adapted to be operated by one of said relays, means jointly controlled by said governor-relays for preventing the operation of said signal, and visual signals, one associated with and controlled by each governor relay, substantially as described.

9. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus, governor-relays, one connected with each subscriber's station, adapted to be operated upon a change in the circuit condition at the subscribers' stations, an audible signal adapted to be operated by one of said governor-relays, said governor-relays being jointly adapted when simultaneously actuated to prevent the operation of said audible signal, means for simultaneously changing the condition at the subscribers' stations, and visual signals operated by said governor-relays, one visual signal being associated with and controlled by each governor-relay, substantially as described.

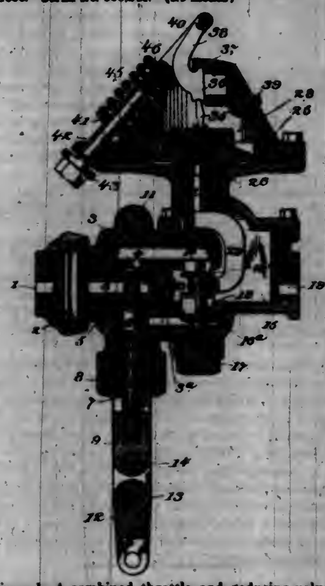
10. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, governor-relays, one in circuit with the apparatus at each subscriber's station, an audible signal adapted to be operated by one of said governor-relays, said governor-relays when actuated simultaneously being adapted to prevent the operation of said audible signal, visual signals, one controlled by each governor-relay, a resistance at each subscriber's station in circuit with said protecting conductors or apparatus, a relay at each subscriber's station for removing said resistance, a round circuit including said relays and extending to the central office, and automatic means at the central office connected with said round circuit adapted to periodically and simultaneously operate the relays at the subscribers' stations, substantially as described.

11. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, governor-relays, one in circuit with the apparatus at each subscriber's station, an audible signal adapted to be operated by one of said governor-relays, said governor-relays when actuated simultaneously being adapted to prevent the operation of said audible signal, visual signals, one controlled by each governor-relay, a resistance at each subscriber's station in circuit with said protecting conductors or apparatus, a relay at each subscriber's station for removing said resistance, a round circuit including said relay and extending to the central office, a resistance and a source of electricity included in said round circuit, and automatic means for periodically removing said resistance from said round circuit, substantially as described.

12. In a burglar-alarm system, the combination of a plurality of subscribers' stations each having protecting conductors or apparatus connected with the central office, signals as *i*, *k* adapted to be actuated upon a change in the circuit condition at the subscribers' stations, each of said signals having a movable element as k^6 which presents the signal, a rod k^7 having springs or detents k^8 supported thereon, said detents being adapted to engage said movable elements, an electromagnet *u* adapted to operate said rod k^7 to permit of the restoration of said signals, means for simultaneously changing the circuit condition at the subscribers' stations, and means for operating said electromagnet, substantially as described.

13. In a test system for burglar-alarm apparatus, the combination with a plurality of subscribers' stations, each having protecting apparatus, means for simultaneously changing the circuit conditions of the protecting apparatus at all of the subscribers' stations, and a signal device at the central office jointly controlled by the protecting apparatus at all of the subscribers' stations and adapted, upon the failure of said means to change the circuit condition of the apparatus at any subscriber's station, to give a signal through the agency of the protecting apparatus at the remaining stations whose conditions are changed, substantially as described.

587,670. **COMBINED HIGH-PRESSURE THROTTLE AND REDUCING VALVE.** ARTHUR W. CASE, Worcester, Mass. Filed June 20, 1896. Serial No. 596,241. (No model.)



Claim.—1. A combined throttle and reducing valve, having a central inlet-chamber with ports on opposite sides thereof and a throttle puppet-valve cooperating with said ports, a central outlet-chamber, with ports on opposite sides thereof and communicating with the aforesaid ports, and a reducing puppet-valve cooperating with

both of the ports of the outlet-valve space, whereby the fluid is first directed outwardly from the inlet-chamber and then inwardly to the outlet-chamber.

2. A combined throttle and reducing valve having inlet and outlet chambers located centrally and in line with each other, ports leading outwardly from both sides of the inlet-chamber and ports communicating with aforesaid ports and leading inwardly to both sides of the outlet-chamber, and throttle and reducing puppet-valves for coöperating respectively with the two inlet ports and the two outlet-ports.

3. In a combined throttle and reducing valve, the combination of the centrally-located inlet and outlet chambers, ports extending outwardly from opposite sides of both of said spaces, passages connecting each of the inlet-ports with one of the outlet-ports, and two valves coöperating respectively with the two inlet-ports and with the two outlet-ports.

4. A combined throttle and reducing valve comprising centrally-located inlet and outlet chambers, passages on each side of and overlapping the same, ports connecting said chambers and passages and throttle and reducing valves coöperating with said ports.

5. A valve-casing having high-pressure inlet 1, low-pressure outlet 19, and divided communicating ports or passages 3, 3ª, throttle-valve seats, and reducing-valve seats in said ports or passages, the puppet throttle-valve 6, 6ª and the puppet reducing-valve having differential valve-clappers 18, 18ª, substantially as set forth.

6. The combination in a reducing-valve of a low-pressure chamber, a high-pressure chamber overlapping said low-pressure chamber and communicating therewith by a port, a puppet-valve coöperating with said port, a diaphragm in communication with the low-pressure chamber and a bent yoke connected to the diaphragm and the puppet-valve and extending around the overlapping portions of the high-pressure chamber.

7. The combination in a reducing-valve, of a low-pressure chamber, high-pressure passages outside of and overlapping the same, and communicating therewith by ports, a puppet-valve coöperating with said ports, a controlling diaphragm in communication with the low-pressure chamber and a bent yoke connecting said diaphragm and puppet valve and extending around the overlapping portion of the high-pressure chamber.

8. A reducing-valve comprising a valve-casing having two high-pressure ports and a low-pressure chamber between said ports and communicating therewith, a puppet reducing-valve having differential valve-clappers controlling the high-pressure ports, a yoke-arm supported in the low-pressure chamber and having a bifurcated end engaging the puppet-valve stem between the clappers, a diaphragm in communication with the low-pressure chamber, a bar extending from the yoke-arm and connecting it with the diaphragm and a spring tending to hold the diaphragm in normal position, as set forth.

9. The combination with the diaphragm of a reducing-valve of toggle-levers engaging respectively at their outer ends with the said diaphragm and with a fixed support the points of engagement being substantially in the line of motion of the diaphragm and a spring connected to one of the toggle-levers and controlling its movement.

10. The combination with the diaphragm of a reducing-valve of toggle-levers bearing respectively, at their outer ends, against said diaphragm and against a fixed support substantially in the line of motion of the bearing-point on the diaphragm and a spring connected to one of said levers and controlling the movement of the toggle and diaphragm.

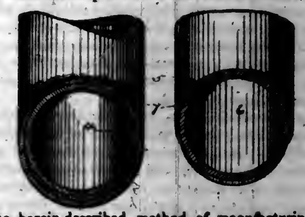
11. The combination with the diaphragm of a reducing-valve, of the toggle-levers engaging with said diaphragm and with a fixed support, the points of engagement being substantially in the line of motion of the diaphragm and the toggle working outward from a nearly-locked position to position of increasing leverage and a spring connected to one of said levers and pressing the toggle toward the locked position.

12. The combination with the diaphragm of a reducing-valve of the toggle-levers engaging therewith and with a fixed support and working outward from a nearly-locked position to position of increasing leverage, a spring connected to one of said levers and pressing the toggle toward the locked position and a stop engaging with the toggle and preventing it from reaching the locked position.

13. In a reducing-valve, the combination of the valve the diaphragm connected therewith, the compensating toggle-levers engaging the diaphragm and one of the levers being formed with a bent arm or crank-arm, a link or yoke engaging said arm, a bolt, and a pressure-spring confined on the bolt between the yoke and a nut on the bolt, as set forth.

587,671. RAWHIDE TIRE AND PROCESS OF MAKING SAME. OTTO A. HERMEL, Pittsburg, Pa. Filed July 20, 1896. Serial No. 599,964. (No model.)

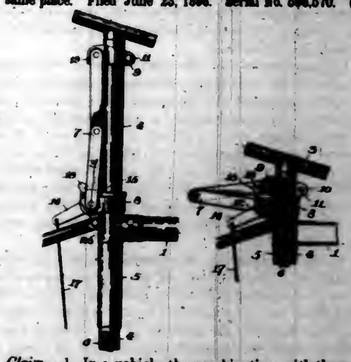
Claim.—1. A new article of manufacture, consisting of a rawhide strip, having thin tapering, tanned edges, bent in the form of a semicircle in cross-section, and provided with tapering ends, whereby a portion of one end may overlap the other, without increasing the thickness when the strip is bent in the form of a circle, as described.



2. The herein-described method of manufacturing shields or armors for pneumatic tires, consisting of beveling a strip of rawhide, tanning a portion of each edge thereof and rolling the same in the form of a semicircle in cross-section, by means of heated rolls, then polishing by means of a wax coating and again passing the strip through the rolls, substantially as described.

3. In combination with a pneumatic tire for bicycles and other tires, a rawhide strip tanned at each edge arranged over the tread of the said tire, and attached thereto by means of rubber strips joining the tanned edges of the strip with the rubber sides of the tire, substantially as described.

587,672. SADDLE-SUPPORT FOR BICYCLES. HENRY R. HEYL, Philadelphia, Pa., assignor to the Drop Seat Cycle Company, Limited, same place. Filed June 23, 1896. Serial No. 596,570. (No model.)



Claim.—1. In a vehicle, the combination, with the saddle, a support therefor, and means for normally elevating said saddle, of a toggle operatively connected with said saddle and adapted to sustain the same in the elevated position, substantially as described.

2. In a vehicle, the combination, with the saddle, a support therefor, and means for normally elevating said saddle, of a toggle operatively connected with said saddle, and adapted to sustain the same in the elevated position, and means for tripping said toggle, substantially as described.

3. In a vehicle, the combination, with the saddle, a support therefor, and means for normally elevating the saddle, of a toggle operatively connected with said saddle, and adapted to sustain the same in the elevated position, and means for locking said toggle in its down or folded position against the action of the spring, substantially as described.

4. In a vehicle, the combination, with the saddle, a support therefor, and means for normally elevating the saddle, of a toggle operatively connected with said saddle, and adapted to sustain the same in the elevated position, means for tripping said toggle, and means for locking it in the down or folded position against the action of the spring, substantially as described.

5. In a vehicle, a saddle, the post whereof is fitted to the tubular frame of the vehicle, and an elevating-spring confined within said frame tending to lift the saddle to its highest limit, in combination with a supporting-toggle, one limb of which is connected with said frame and the other limb with the saddle-post whereby the said toggle sustains the saddle in the elevated position, substantially as described.

6. In a vehicle, a saddle, the post whereof is fitted to the tubular frame of the vehicle, and an elevating spring confined within said frame tending to lift the saddle to its highest limit, in combination with a supporting-toggle, one limb of which is connected with said frame and the other limb with the saddle-post, and means for acting upon the lower limb of the toggle to trip the same, substantially as described.

7. In a vehicle, a saddle, the post whereof is fitted to the tubular frame of the vehicle, and an elevating-spring confined within said frame tending to lift the saddle to its highest limit, in combination with a supporting-toggle, one limb of which is connected with said frame, and the other limb with the saddle-post, and a latch device adapted, when the saddle is depressed, to engage the saddle-post and lock the same against the action of the spring, substantially as described.

8. In a vehicle, a saddle, the post whereof is fitted to the tubular frame of the vehicle, and an elevating-spring confined within said frame tending to lift the saddle to its highest limit, in combination with a supporting-toggle, one limb of which is connected with said frame and the other limb with the saddle-post, means for acting upon the lower limb of the toggle to trip the same, and a latch device adapted, when the saddle is depressed, to engage the saddle-post and lock the same against the action of the spring, substantially as described.

9. The combination, with the supporting-frame, of a saddle the post whereof is fitted to the tubular frame of the vehicle, a spring tending to lift the saddle to its highest limit, an adjustable bearing-bracket on said post, a bearing-bracket on the said frame, and a toggle operatively connected with said brackets, substantially as described.

10. A vehicle-saddle mounted upon a tubular post fitted to slide within a tubular frame, and an elevating-spring confined within the two tubes tending to lift the saddle to its highest limit, in combination with a locking device to hold the saddle at either point of its extreme motion until released by the voluntary act of the rider, substantially as described.

11. A vehicle-saddle mounted upon a tubular post fitted to slide within a tubular frame, and an elevating-spring confined within the two tubes tending to lift the saddle to its highest limit, in combination with a toggle attached at one end to the saddle-post and at its other end to the tubular frame of the vehicle to sustain the saddle when raised to its highest limit against depression by the weight of the rider, and a hand-lever with connections to trip the toggle and thereby allow the saddle to descend, substantially as described.

12. A vehicle-saddle mounted to slide freely up and down within limits, a toggle to support said saddle at its highest limit, one end of which toggle is attached to the movable saddle-support and the other end attached to the vehicle-frame, in combination with a catch-lever which engages with the depressed saddle to hold it down, and a hand-lever with connections to operate the catch-lever to release the saddle at the will of the rider, substantially as described.

13. A vehicle-saddle mounted to slide freely up and down within limits, a toggle to support said saddle at its highest limit, one end of which toggle is attached to the movable saddle-support and the other end attached to the vehicle-frame, in combination with a spring operating to hold the toggle with its center joint resting against the sliding saddle-post, substantially as described.

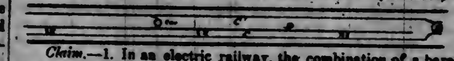
14. A vehicle-saddle mounted to slide freely up and down within limits, a toggle to support said saddle at its highest limit, one end of which toggle is attached to the movable saddle-support and the other end attached to the vehicle-frame, a lever fulcrumed on said frame and provided with a trip-stud and catch-hook, a projection on the said support for the engagement of the catch-hook when the saddle is depressed, a hand-lever, and connections between the hand-lever and the lever first named, substantially as described.

587,673. GLASS-MAKING FURNACE. JOHN H. HIGGINS, Baltimore, Md., assignor of two-thirds to Leopold Braun and Reuben A. McConkey, same place. Filed Sept. 12, 1896. Serial No. 605,605. (No model.)



Claim.—In a glass-making tank-furnace, the combination with the glass-melting chamber, of a gas-heating chamber, the two chambers being connected interiorly by a system of ducts, a series of boxes within the gas-heating chamber, a manifold situated exteriorly of the gas-heating chamber with a pipe leading to a source of supply of hydrocarbon, a hydrocarbon-supply pipe leading from the said manifold to the bottom of each box, the said pipe having therein a controlling cock or valve, a second pipe leading from the top of each box through the outer wall of the gas-heating chamber, and down to a point below the said box, and a burner on the end of the said pipe, arranged to deliver vapor generated in the box to the gas-heating chamber, substantially as specified.

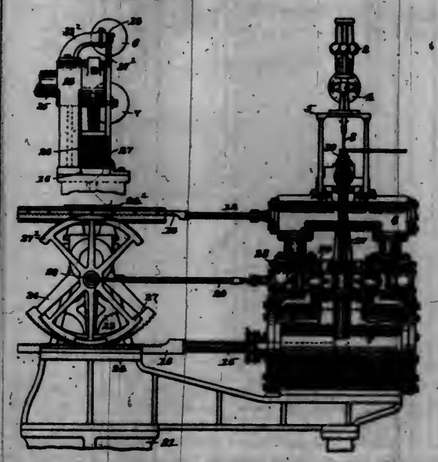
587,674. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the General Electric Company, of New York. Original application filed July 14, 1895, Serial No. 171,093. Divided and this application filed Oct. 1, 1891. Serial No. 407,286. (No model.)



Claim.—1. In an electric railway, the combination of a bared working conductor extending along the railway and divided into two or more sections insulated from each other, an insulated supply-conductor buried or arranged below the level of the track and connected at intervals with the sections of working conductor, a return-circuit, and a source of electric energy for supplying current to the insulated supply-conductor and return-circuit.

2. In an electric railway, the combination of a bared working conductor extending along the railway and divided into two or more sections insulated from each other, an insulated supply-conductor buried or arranged below the level of the track and connected at intervals with the sections of working conductor, a continuous return-circuit, a source of electric energy for supplying current to the insulated supply-conductor and return-circuit, and two or more electrically-propelled cars receiving current from the working and return conductors and having independent means to control their motors.

587,675. ATTACHMENT FOR SPEED-GOVERNORS. NATHANIEL LOMBARD, Boston, Mass., assignor to the Lombard Water Wheel Governor Company, Portland, Me. Filed Dec. 15, 1896. Serial No. 615,794. (No model.)



Claim.—1. A governor comprising centrifugal weights, a secondary gate-controller operated directly by the weights, a primary gate-controller united to the gate, and an intermediary gate-controller operated by the secondary gate-controller, to impart travel to the primary controller, substantially as specified.

2. In regulators, centrifugal weights, a secondary gate-controller operated directly by said weights, an intermediary gate-controller, and a main gate-controller, combined with mechanism which interconnects the three controllers, in such manner that activity of the intermediary controller is mutually governed by the primary and secondary controllers, as described.

3. In water-wheel governors, the combination with one or more centrifugal weights, of a secondary piston controlled by the weights, a primary piston and a piston-valve therefor, combined with mechanism which interconnects said pistons to compel opposite movements of the same, and a rod to unite the piston-valve with the mechanism which interconnects said pistons, substantially as stated.

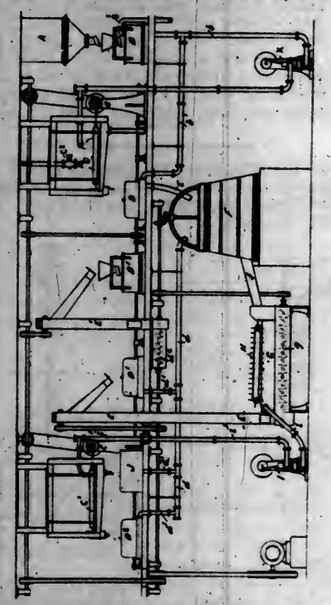
4. In centrifugal governors, one or more revolving weights, a gate-shaft, a fixed standard, movable toothed racks therein, and an oscillating toothed wheel to interconnect said racks, combined with primary and secondary gate-controllers, united with the racks, and an intermediary controller, attached to the wheel center, substantially as set forth.

5. In speed-governors, one or more rotary weights, a fixed standard, movable toothed racks in parallelism thereon, a gate-shaft, a toothed sector on said shaft to engage one of the racks, and an oscillating toothed wheel to engage said racks, the points of oscillation being on the racks combined with a secondary gate-controller connected directly with the weights, a primary gate-controller united to

the gate-shaft, and an intermediate gate-controller, interconnected with the center of the toothed wheel, substantially as explained.

6. In a speed-governor, revolvible weights, a rack-actuating secondary gate-controller, a governor-rod, and a valve operated thereby, combined with a rack-actuating primary gate-controller, a toothed gear to interconnect the primary and secondary gate-controllers, an intermediate gate-controller united to the center of the toothed wheel, and mechanism which interconnects the governor-rod with the secondary controller, whereby rotation is imparted to the rod, substantially as described.

587,676. PROCESS OF DEGERMING MAIZE OR OTHER CEREALS. WILLIAM M. MACKEAN, JAMES A. D. MACKEAN, and HORMAN M. MACKEAN, Paisley, Scotland. Filed Dec. 8, 1896. Serial No. 614,956. (No specimens.) Patented in England Dec. 31, 1896, No. 24,960.

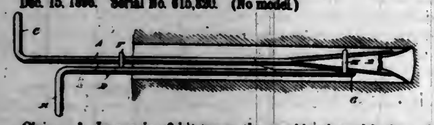


Claim.—1. A process of degerming maize or other cereals consisting in first steeping the maize, then disintegrating the grain without destroying the structure of the germs, then washing away the starch particles disengaged in the process of disintegration, then depriving the grist of surplus moisture, then mixing it with water, the specific gravity of which has been increased to a suitable density by the addition of salt or other soluble ingredient, and agitating this mixture to separate the germs, substantially as set forth.

2. A process of degerming maize or other cereals consisting in steeping and disintegrating the grain, then washing away the starch particles disengaged during the process of disintegration, then depriving the grist of surplus moisture, then mixing the grist with water, the density of which has been increased by the addition of salt or other soluble ingredient, substantially as set forth.

3. A process of degerming maize or other cereals, consisting in disintegrating the grain and then washing away the starch particles disengaged during the process of disintegration, and mixing the disintegrated grain, free from said starch particles, with water, the density of which has been increased by the addition of salt or other soluble ingredient, substantially as set forth.

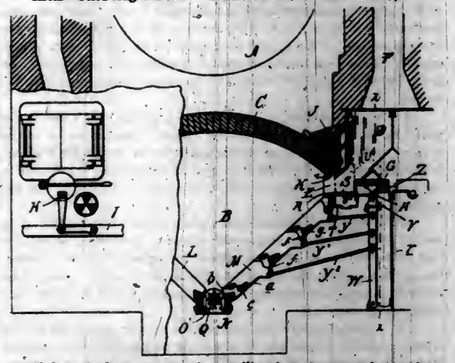
587,677. BIT-TONGS. JAMES MARTIN, Deming, N. Mex. Filed Dec. 15, 1896. Serial No. 615,820. (No model.)



Claim.—1. In a pair of bit-tongs, the combination with the rod or bar bifurcated at the forward end, and the guide rod or bar having rings adjacent to the forward and rear ends, the forward ring being adapted to engage the bifurcated end of the main rod or bar, substantially as shown and described.

2. In a pair of bit-tongs, the combination with the rod or bar bifurcated at the forward end and provided with a ring knob or handle at the rear end, of the guide rod or bar provided with a compression-ring at the forward end, a guide-ring near the rear end, and a handle knob or ring at the rear end, substantially as and for the purpose described.

587,678. SELF-FEEDING FURNACE. THOMAS MURPHY, Detroit, Mich. Filed Aug. 24, 1896. Serial No. 603,771. (No model.)



Claim.—1. In a furnace, the combination of a grate-bearer having a central longitudinal slot, a clinker-bar supported in said slot and removable bearing-blocks secured in said slot from the under side of said grate-bearer to support the clinker-bar.

2. In a furnace, the combination of a grate-bearer composed of two longitudinal bars united at intervals by yokes, a clinker-bar and removable bearing-blocks bolted in from below said yokes and forming in connection with the yokes bearings to hold the clinker-bar in position.

3. In a furnace the combination of a grate bearer formed with two parallel sides, and with a central, longitudinal opening between the same, a clinker-bar freely supported in said opening between the sides, and a V-shaped grate formed of inclined grate-bars, having their lower ends supported upon the opposite sides of said grate-bearer and provided with inwardly-inclined lower ends extending over the opening in the grate-bar whereby a contracting throat is formed between said inner ends which enlarges into the opening of the grate-bearer.

4. In a self-feeding furnace, a bank of inclined grate-bars composed of inclined fixed grate-bars extending the whole length of the bank and inclined movable bars of shorter length, arranged in two or more independently-movable tiers, each tier extending through a portion of the length of the fixed bars, with the bars of each tier alternating with the fixed bars.

5. The combination in a self-feeding furnace of a bank of inclined grate-bars composed of fixed inclined bars extending the whole length of the bank and inclined bars of shorter length, movably supported between the fixed bars and arranged in two or more tiers, one below the other, each tier extending through a portion of the length of the fixed bars, and with the bars of each tier alternating with the fixed bars, and means for imparting motion to each tier, differentially with every other tier whereby each lower tier moves faster than the one above it.

6. In combination in a self-feeding furnace of a bank of inclined grate-bars composed of inclined fixed bars extending the whole length of the bank, and inclined bars of shorter length movably supported between the fixed bar and arranged in two or more tiers, each tier extending through a portion of the length of the fixed bars and with the bars of each tier alternating with the fixed bars, and means for imparting motion to each tier of movable bars differentially with each other tier, and differentially also to the bars (or group of bars) in each tier whereby each tier moves faster than the one above it and also the bars of each tier (or groups thereof) move at relatively different speed.

7. In a self-feeding furnace, a V-shaped grate formed of two oppositely-inclined banks of grate-bars, each composed of inclined fixed bars and inclined movable bars arranged alternately with the fixed bars in two or more independent movable tiers, collectively extending the length of the fixed bars, means for reciprocatingly actuating each tier of movable bars, to impart differential motion to the bars of each tier (or groups thereof) and a feed-hopper, one for each bank of grate-bars, for supplying fuel thereto, said feed-hopper having differential fuel-feeding devices to correspondingly feed the fuel faster to the faster-moving bars of the grate.

8. In a self-feeding furnace, the combination of the fuel-magazine located in the sides of the furnace, and provided with differential fuel-feeding devices, adapted to feed the fuel relatively faster in rear than in front of the furnace, and a V-shaped self-feeding grate having differential feeding devices for feeding the fuel faster in rear than in front of the furnace correspondingly with the fuel-feeding devices of the magazine.

9. In a self-feeding furnace, the combination of a V-shaped grate composed of alternating fixed and movable grate-bars and with the movable grate bars arranged in separate tiers, each composed of one or more independently-movable groups, fuel-magazines located in the sides of the furnaces and communicating with the grates, fuel-pushers in each magazine corresponding with the groups of movable grate-bars and actuating devices whereby the fuel-pushers and groups of movable grate-bars are differentially actuated to feed the fuel.

10. In a self-feeding furnace, the combination of an inclined series of fixed grate bars, one or more series of shorter movable grate-bars arranged in tiers one above the other between said fixed bars and alternating therewith, a rock-shaft and separate actuating connections between said rock-shaft and the movable grate-bars in each tier, said actuating connections imparting a differential feed.

11. In a self-feeding furnace, an inclined grate composed of alternate fixed and movable grate-bars, the movable grate-bars being arranged in separate tiers, one above the other and each comprising one or more independently-movable groups, a fuel-magazine having separate fuel-pushers corresponding to the groups of movable grate-bars, a rock-shaft, separate actuating connections between the rock-shaft and each of the fuel-pushers, and separate actuating connections between said rock-shaft and the groups of movable grate-bars, said actuating connections imparting a differential motion.

12. In a self-feeding furnace, the combination of the fixed grate-bars, the movable grate-bars provided with rearwardly-extending hooks, the swing-bars engaging with the hooks of the movable bars and connecting them in separate groups, the fuel-magazine provided with fuel-pushers corresponding to the groups of movable grate-bars, the rock-shaft having differential actuating connection therewith, and separate connections from said rock-shaft with each group of movable grate-bars, for imparting a differential movement to said groups.

13. In a self-feeding furnace, the combination of the fuel-magazines supported on bed-plates in the side walls of the furnace, the rock-shafts supported in bearings in said bed-plate, reciprocating coal-pushers provided with actuating differential gear connections with the rock-shaft, the grate composed of fixed grate-bars and movable bars arranged in tiers, the vibrating levers below the bed-plates having differential gear connections with the rock-shafts and connecting-rods for said levers with the tiers of movable grate-bars arranged to impart a differential reciprocating motion to said movable bars.

14. In a self-feeding furnace, the combination with the fuel-magazines in the side walls, and the coal-pushers for feeding the fuel, of the coking-plates constructed in independent sections and forming the top of an air-flue extending back of the fuel-magazine and into the air-feeding devices of the furnace.

15. In a self-feeding furnace, the combination of a fuel-magazine located in one side of the furnace, and provided with a plurality of independently-reciprocating coal-pushers for feeding the fuel into the furnace, a grate composed of alternating fixed and movable inclined grate-bars and actuating devices for said coal-pushers and movable grate-bars, said actuating devices being arranged to impart a differential motion to said coal-pushers and grate-bars, for feeding the fuel faster in rear than in front of the furnace.

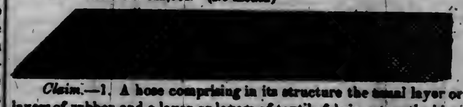
16. In a self-feeding furnace-grate composed of an inclined row of alternating fixed and movable grate-bars, the combination of the movable grate-bars formed with rearwardly-projecting hooks and with a sliding foot or base at the lower end, antifriction-rollers mounted between the stationary grate-bars and supporting the foot of the movable grate-bars, one or more swinging bars suspended from the stationary grate-bars and with which the hook of the movable bar engages, and actuating connections for reciprocating the swinging bar or bars.

17. In a self-feeding furnace inclosed in brick walls and having side-feeding fuel-magazines and a V-shaped grate between the same, of fuel-magazines supported longitudinally in the sides of the furnace free and clear of the brickwork to form an open space beneath the magazines for the access of the air and for the removal of the coking-plate, the latter being constructed in removable sections.

18. In a self-feeding furnace, the combination with the stationary inclined grate-bars supported at the lower end by a grate-bearer, of the compensating plate R forming a vertically self-adjusting abutment for the support of the upper end of said grate-bars.

19. In a self-feeding furnace, the combination with a V-shaped grate composed of alternating fixed and movable grate-bars and the grate-bearer supporting the lower ends of the fixed grate-bars, of fuel-magazines supported in the sides of the furnace and provided with coking-plates extending into the furnace and the compensating plates interposed between the coking-plates and the upper end of the grate-bars and having a lip projecting over the upper edges of the grate.

587,679. HOSE. JOHN MURPHY, Brooklyn, N. Y. Filed Feb. 11, 1897. Serial No. 622,910. (No model.)



Claim.—1. A hose comprising in its structure the usual layer or layers of rubber and a layer or layers of textile fabric cut on the bias, the said layer or layers of textile fabric succeeding each other, section after section, in the length of the hose, and having the warp-threads of one section running at an angle to the warp-threads in the adjacent section so as to obviate a twisting tendency in the hose.

2. A hose comprising in its structure the usual layer or layers of rubber and a layer or layers of textile fabric cut on the bias, the said layer or layers of textile fabric succeeding and united to each other section after section in succession in the length of the hose and having the warp-threads of one section running at an angle to the warp-threads in the adjacent section so as to obviate a twisting tendency in the hose.

587,680. AUTOMATIC GRAIN-WEIGHER. ANGUS MCLEOD and JOHN H. MCLEOD, Marietta, Kans. Filed Aug. 1, 1896. Serial No. 601,268. (No model.)



Claim.—1. In a grain-meter, the combination with a pivoted and weighted bucket-frame, of a grain-bucket pivoted to the frame, a gate for said bucket, a toggle-lever having one of its members connected to the gate and its other member pivoted to the bucket, a flexible connection between the pivoted member and the bucket-frame, and a bracket for breaking the knee of the toggle-lever when the bucket descends.

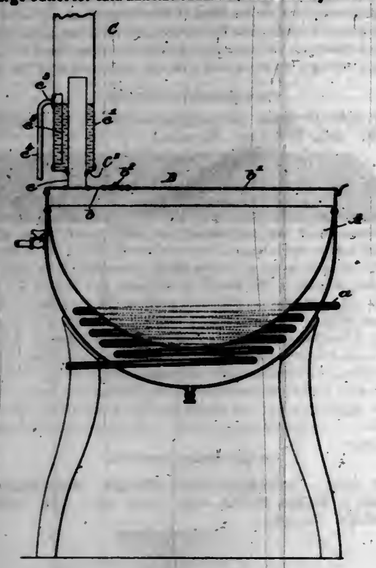
2. In a grain-meter, the combination with a pivoted bucket-frame, of a grain-bucket connected thereto, a weight for the frame, bars provided with guide-slots, a spring having one end fixed, and a lifting-bracket which is slidable in the slots and to which the other ends of the springs are connected, said lifting-bracket engaging with the frame and being adapted to assist the same in rising when the bucket descends to discharge its grain.

3. In a grain-meter, the combination with a pivoted bucket-frame, of adjustable weights therefor, rollers movable in the frame and adapted to shift their positions when the same is raised or lowered, a grain-bucket pivoted to the frame, cut-off mechanism, a gate for said bucket, a toggle-lever having one member connected to the gate and the other member pivoted to the bucket, a connection between the pivoted member of the toggle-lever and the bucket-frame, and means for breaking the knee of the toggle-lever.

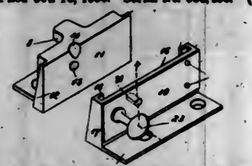
587,681. VENT-TRAP. SILAS J. RAND, Boston, Mass., assignor of one-half to George D. Burgess, same place. Filed Aug. 2, 1894. Serial No. 519,942. (No model.)

Claim.—The combination with a cooking vessel having a cover, of a short vent-tube rising therefrom, an outlet-pipe, larger in diameter than said vent-tube and through and above the closed lower end of which said vent-tube rises leaving an annular chamber between said vent-tube and outlet-pipe to receive the condensation flowing downwardly within and on the walls of said outlet-pipe, the larger diameter of said outlet-pipe extending throughout the vertical portion thereof which rises directly from said vent-tube to thereby prevent condensation on the inner walls thereof dropping into said vent-

tube to contaminate the latter and the contents of the vessel, and a discharge-outlet for said annular chamber, substantially as described.



587,682. SASH-FASTENER. GEORGE VAN DUYN CORNELL, Bound Brook, N. J. Filed Oct. 10, 1896. Serial No. 608,466. (No model.)



Claim.—A sash-lock comprising a plate which is adapted to be secured to the upper sash; and which is provided with a vertical and longitudinal extension at the ends of which are upright wedge-shaped projections, and a similar plate which is adapted to be secured to the lower sash, and which is provided with an upwardly-directed longitudinal extension at the ends of which are outwardly-directed triangular or wedge-shaped end pieces on which are formed inwardly-directed flanges, said last-named plate being provided with a spring to which is secured a pin or bolt which is adapted to enter a hole in the upwardly-directed extension of the first-named plate, a knob on said spring-plate, substantially as shown and described.

587,683. STEAM-GENERATOR. VICTOR H. ERNST, Jersey City, N. J. Filed Mar. 27, 1896. Serial No. 585,111. (No model.)

Claim.—1. A steam-generator provided with fire-tubes, a bottom tube-sheet with annular steps highest at the center and forming the top of the combustion-chamber, in combination with a water-feed spreader adapted to spray the water over the said tube-sheet and the ends of the tubes, all substantially as described.

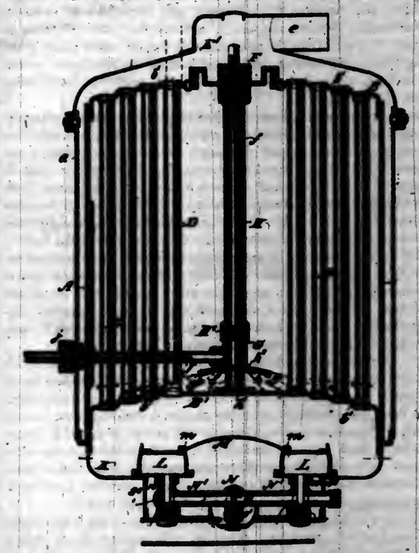
2. A steam-generator provided with fire-tubes, a bottom tube-sheet with annular steps, highest at the center and forming the top of the combustion-chamber, substantially as described.

3. A steam-generator provided with fire-tubes, and tube-sheets at opposite ends with annular steps, the lower tube-sheet thus formed constituting the top of the combustion-chamber substantially as described.

4. A steam-generator having a holding member extending from the upper tube-sheet with a flanged spreader at its lower end, an adjustable stem provided with a cooperating flange, and means for supplying water to the spreader, substantially as described.

5. A steam-generator, having a holding member extending from the upper tube-sheet with a threaded and flanged spreader at its lower end, a threaded stem passing through the spreader and provided with a cooperating flange, means for supplying water to the spreader and a guide-stop for the stem on the lower tube-sheet, substantially as described.

6. A steam-generator having a water-supply pipe and a spreader with a flange having radial grooves, and an adjustable stem provided with a cooperating flange, substantially as described.



587,684. BRACKET FOR USE WITH CURTAIN-FIXTURES, &c. EDWARD W. FARNHAM, Chicago, Ill., assignor of one-half to C. M. Higginson, same place. Filed Nov. 13, 1896. Serial No. 611,890. (No model.)



Claim.—1. A bracket substantially as described, provided with a plate having an opening for a screw and with another plate by which to hold said screw substantially as shown and described.

2. A bracket or main plate provided with an opening and a nicked screw in said opening, and with a plate fitting edgewise in the nick of said screw substantially as shown and described.

3. A bracket having base and flange plates, the former having a screw-opening, the screw passed through said opening and having a nick, and the plate fitting in said nick and held to the bracket substantially as shown and described.

4. The herein-described bracket having base and flange wings, such wings having slots and the base-wing having a screw-opening, the screw in said opening and having a nick and the plate fitting edgewise in the screw-nick and having at its ends lugs entering and held in the slots of the main and flange plates all substantially as shown and described.

587,685. GUARD-GATE FOR SWING-BRIDGES. WILFRID FILIATRAULT, Chicago, Ill., assignor of one-half to Henry M. Meehan, same place. Filed May 24, 1897. Serial No. 637,991. (No model.)

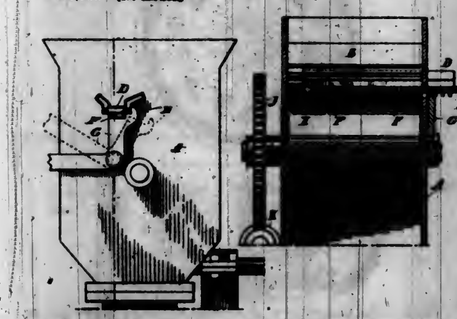


Claim.—1. In a guard-gate for swing-bridges, the combination with the companion casings, of a rack-bar, provided with teeth on opposite sides and adapted to have a vertical movement, a shaft, a^3, journaled in said casings, a pinion, a^4, mounted on said shaft and engaging one side of said rack-bar, the gate-bars, mounted on said shaft, a bar E, having a vertical movement, the companion sheaves, b' b', the operating-cables, having their inner ends secured to bar E, and their opposite ends connected with the lower ends of the rack-bars, the companion levers F F, pivotally mounted at their outer ends, the inner ends being adjustably attached to bar E, and the bracket-arm secured to the end of the bridge and adapted to have contact with said levers and force the same downwardly with bar E and raise the gates to their open position when the bridge closes, substantially as described.

2. In a guard-gate for swing-bridges, the combination with the companion casings, of the rack-bars, provided with a cross-bar and adapted to have a vertical movement therein, the springs inserted between said cross-bar and the bottom of the casings, the shafts, journaled in said casings, the pinions, mounted on said shafts, and the gates, connected with said shafts, whereby the gates are lowered to a closed position when the bridge is opened, substantially as described.

3. In a guard-gate for swing-bridges, the combination with the bracket-arm, secured to the end of the bridge, of the bar E, the companion levers F F, the cable b', the cable A, connected thereto, and a bumper, having a pivotal movement on the bridge-approach, and with which the cable A has a simultaneous movement with that of the bridge-gates, substantially as described.

587,686. FEED-SUPPLY REGULATOR FOR PULVERIZERS, &c. GIDEON FREMES, Philadelphia, Pa. Filed May 29, 1896. Serial No. 593,547. (No model.)



Claim.—1. In a feed-supply hopper a revoluble feed-roll, inclined planes above said roll, the lower edges of said planes being recessed, an adjustable cut-off sliding lengthwise with respect to said planes, and moving in said recesses, a toothed rack on the lower side of said cut-off, and a locking-lever engaging with said rack, said lever being pivotally connected to the hopper-casing to one side of and below said rack.

2. In a feed-supply hopper a revoluble feed-roll, inclined planes above said roll, the lower edges of said planes being recessed, an adjustable cut-off sliding lengthwise with respect to said planes and moving in said recesses, a toothed rack on the lower side of said cut-off, and a locking-lever engaging with a rack, said lever being pivotally connected to the hopper-casing to one side of and below said rack, and a stop H carrried by said lever to check the swing of said lever, substantially as described.

587,687. STORM-MASK. ULRICH HARDER, St. Louis, Mo. Filed Sept. 26, 1896. Serial No. 607,038. (No model.)



Claim.—A face-mask consisting of a main section conformed to the head of the wearer and having its lower portion projecting forwardly in wedge form, and a jaw-section pivotally mounted on said main section and arranged to fit the chin and mere therewith, the lower edge of the main section being arranged to overlap the jaw-section, all substantially as and for the purpose set forth.

REISSUES.

11,624. COATING METALS BY ELECTROLYSIS. HANS ALEXANDER, Berlin, Germany, assignor to Louis Potthoff, Long Island City, N. Y. Filed June 18, 1897. Serial No. 641,260. Original No. 568,723, dated July 14, 1896.

Claim.—1. An electrolytic bath for coating metals, composed of a solution of from five to eight parts of commercial chlorid of aluminium containing free acid in one hundred parts of water and of so much of reguline coating metal, as will dissolve therein, while the bath is heated to the boiling point, and from two-tenths to three-tenths of a part of chlorid of the coating metal.

2. The process of preparing an electrolytic bath for coating of metals, consisting of following steps: first, dissolving a quantity of five to eight parts of chlorid of aluminium in one hundred parts of water; second, heating the solution to boiling, and while kept boiling, adding to it of such quantity of reguline coating metal, as will dissolve therein; third, adding to the solution of about two-tenths to three-tenths of a part of chlorid of the coating metal and keeping the bath boiling for about thirty minutes longer and then allowing it to cool down.

3. The process of galvanically coating metals, subjected to rapid oxidation, with metallic alloys, containing a small percentage aluminium, consisting in subjecting the metals to the action of an electric current in an electrolytic bath, composed of a solution of five to eight parts of commercial chlorid of aluminium, dissolved in one hundred parts of water and of so much of regulus metal as will dissolve therein, with some organic acid added to the bath, and using an anode, made of the metal, forming the principal component of the coating alloy.

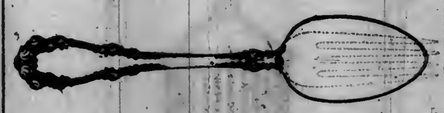
DESIGNS.

27,451. BADGE. DURAND A. REESE, Philadelphia, Pa. Filed Apr. 10, 1897. Serial No. 631,631. Term of patent 14 years.



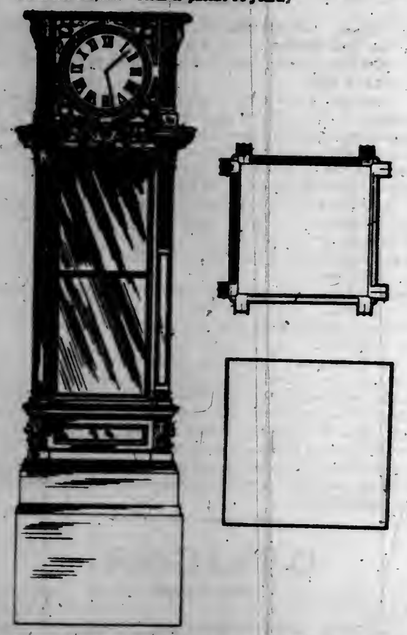
Claim.—The design for a badge, as herein shown and described.

27,452. HANDLE FOR SPOONS, &c. CHRIS SILBER, Meriden, Conn., assignor to the Meriden Britannia Company, same place. Filed June 28, 1897. Serial No. 642,757. Term of patent 3½ years.



Claim.—The design for the handle for spoons, forks &c., as herein shown and described.

27,453. CLOCK CASE OR COLUMN. JAMES WELLS, New Rochelle, N. Y., assignor to John Whalen, New York, N. Y. Filed June 23, 1897. Serial No. 641,909. Term of patent 14 years.



Claim.—The design for a column, pedestal, or the like, substantially as herein shown and described

27,454. RECEPTACLE FOR COMMUNION-CUPS. HUBERT G. HUSTED, Oberlin, Ohio. Filed June 30, 1897. Serial No. 643,087. Term of patent 7 years.



Claim.—The design for a receptacle as herein shown and described.

27,455. INDIVIDUAL COMMUNION-CUP. HUBERT G. HUSTED, Oberlin, Ohio. Filed June 30, 1897. Serial No. 643,088. Term of patent 7 years.

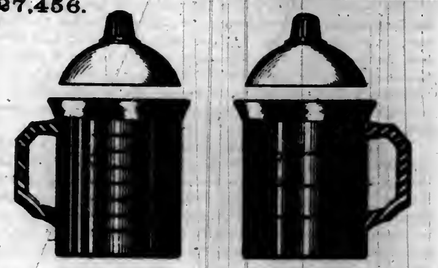


Claim.—The design for an individual cup for communion-service, as herein shown and described.

27,456. GLASS VESSEL. GEORGE R. WEST, Pittsburg, Pa. Filed Mar. 5, 1896. Serial No. 582,006. Term of patent 14 years.

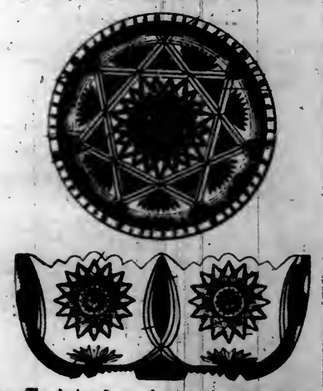


27,456.



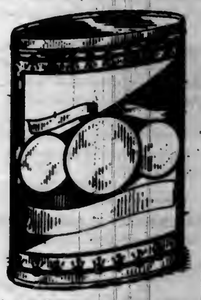
Claim.—The design for glass vessels, substantially as shown and described.

27,457. GLASS VESSEL. JAMES D. BERGEN, Meriden, Conn., assignor to the J. D. Bergen Company, same place. Filed June 21, 1897. Serial No. 641,716. Term of patent 3½ years.



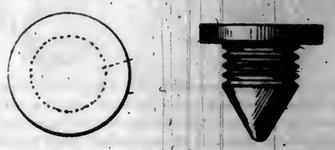
Claim.—The design for a glass vessel as herein shown and described.

27,458. BOX OR CAN. ALEXANDER GARRISON, Jr., Richmond, Va. Filed June 26, 1897. Serial No. 642,544. Term of patent 7 years.



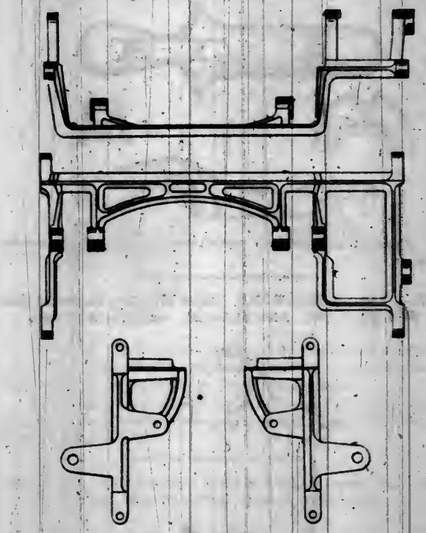
Claim.—The design for the ornamentation of a box or can, substantially as herein shown and described.

27,459. TOP. ALFRED APEL, St. Louis, Mo. Filed May 24, 1897. Serial No. 637,963. Term of patent 7 years.



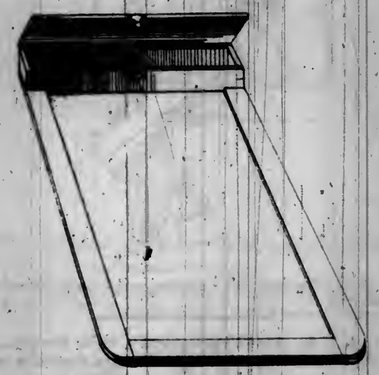
Claim.—The design for a top, substantially as herein shown and described.

27,460. LEG-BRACE, &c. MAYER SLOTKIN, New York, N. Y. Filed May 11, 1897. Serial No. 636,106. Term of patent 14 years.



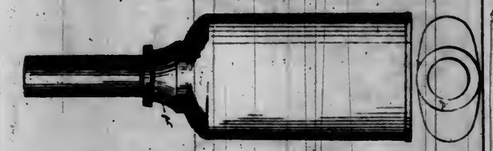
Claim.—The design for a machine leg-brace and shaft-support substantially as herein shown and described.

27,461. SLATE. BELLE MCCONNELLOGUE, New York, N. Y. Filed May 11, 1897. Serial No. 636,106. Term of patent 7 years.



Claim.—The design for a slate, substantially as shown and described.

27,462. OIL-CAN. ADRIAN F. WOLFF, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Feb. 18, 1895. Serial No. 538,878. Term of patent 7 years.



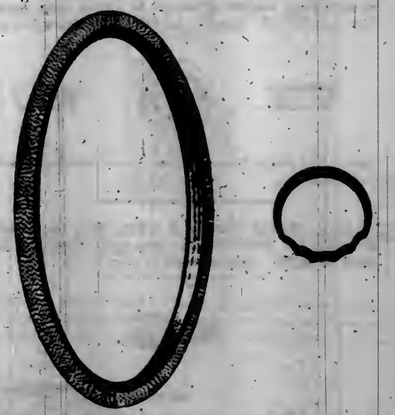
Claim.—The design herein shown and described for an oil-can consisting of a flat band or fillet interposed between convex shoulders located at the upper end of the body of the can, and a tapering neck A which has the appearance of being superimposed upon the body of the can.

27,463. PEDAL-HUB. THOMAS CORLEY, Waltham, Mass. Filed June 4, 1897. Serial No. 639,470. Term of patent 14 years.



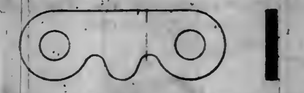
Claim.—The design for a pedal-hub as herein shown and described.

27,464. TIRE. FRANK B. HOPEWELL, Cambridge, Mass. Filed May 22, 1897. Serial No. 637,782. Term of patent 14 years.



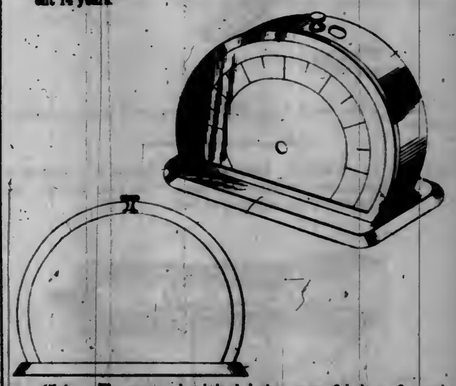
Claim.—The design for pneumatic tires, substantially as herein shown and described.

27,465. SIDE PLATE FOR BICYCLE-CHAINS. EDWARD C. FLETCHER, Indianapolis, Ind., assignor to the Indianapolis Chain and Stamping Company, same place. Filed Jan. 7, 1897. Serial No. 618,415. Term of patent 14 years.



Claim.—The design for a side plate for pitch-chains substantially as herein shown and described.

27,466. CASING FOR WEIGHING-SCALES. WILLIAM H. PELOUZE, Chicago, Ill. Filed June 30, 1897. Serial No. 643,081. Term of patent 14 years.



Claim.—The new and original design or useful shape for casing for weighing-scales, substantially as herein shown and described.

27,467. SOCKET FOR WINDOW-FASTENERS. JOSEPH P. SMITH, Hartford, Conn., assignor of one-half to John C. Long, same place. Filed June 22, 1897. Serial No. 641,830. Term of patent 14 years.



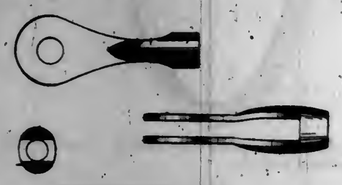
Claim.—The design for a socket for window-bead fasteners herein shown and described.

27,468. SOCKET FOR WINDOW-FASTENERS. JOSEPH P. SMITH, Hartford, Conn., assignor of one-half to John C. Long, same place. Filed June 22, 1897. Serial No. 641,840. Term of patent 14 years.



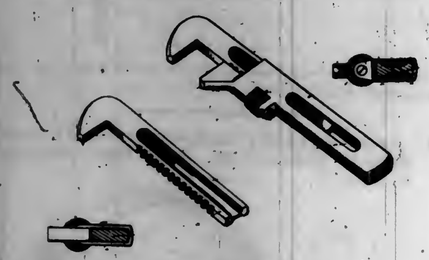
Claim.—The design for a socket for window-bead fasteners herein shown and described.

27,469. CLEVIS. CHARLES M. JARVIS, Berlin, Conn., assignor to the Berlin Iron Bridge Company, same place. Filed June 22, 1897. Serial No. 641,837. Term of patent 14 years.



Claim.—The design for a clevis as herein shown and described

27,470. WRENCH. FREDERIC L. COES, Worcester, Mass., assignor to the Coes Wrench Company, same place. Filed Aug. 27, 1894. Serial No. 521,462. Term of patent 14 years.



Claim.—The design for a wrench substantially as shown and described.

27,471. WRENCH. SAMUEL T. FREAS, Trenton, N. J., assignor to the American Saw Company, same place. Filed June 24, 1897. Serial No. 642,197. Term of patent 14 years.



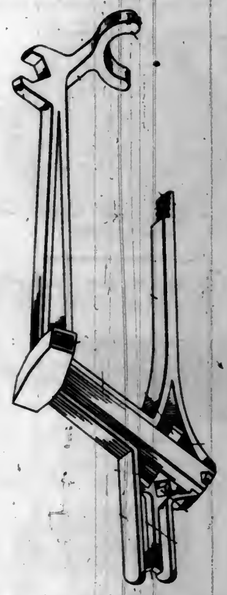
Claim.—The design for a wrench, substantially as shown and described.

27,472. ROPE-TIGHTENER. LEWIS EDWIN COALE, Lansing, Ill. Filed June 26, 1897. Serial No. 642,753. Term of patent 14 years.



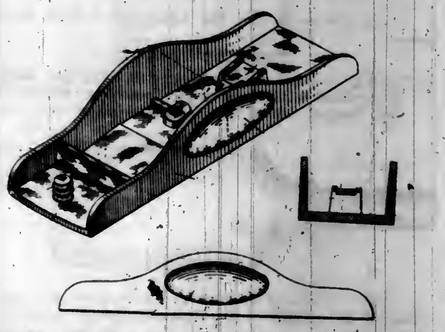
Claim.—The design for a rope-tightener as herein shown and described.

27,473. CARRIAGE-JACK. PHILIP LAFOUNTE, Hauppauge, Conn. Filed May 11, 1897. Serial No. 636,105. Term of patent 7 years.



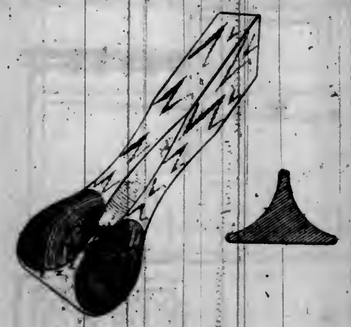
Claim.—The design for a carriage-jack, as herein shown and described.

27,474. PLANE-BODY. JOSEPH A. TRAUT, New Britain, Conn. Filed June 30, 1897. Serial No. 643,094. Term of patent 14 years.



Claim.—The design for a plane-body, substantially as shown and described.

27,475. REAMER-DRILL. PATRICK FINNEY, Wallace Mills, Pa. Filed June 9, 1897. Serial No. 640,073. Term of patent 14 years.

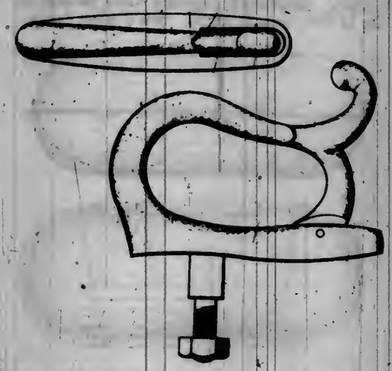


Claim.—1. The design of reamer as herein shown and described.

2. The design for a reamer, having a bit approximately resembling a triangle, substantially as shown and described.

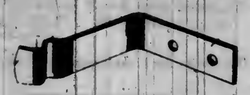
3. The design for a reamer, having a bit formed with two concave sides, the points of the bit projecting beyond the shank; substantially as shown and described.

27,476. CHECK-HOOK. HENRY H. WHITNEY, Dearing, Me. Filed Apr. 16, 1897. Serial No. 632,514. Term of patent 14 years.



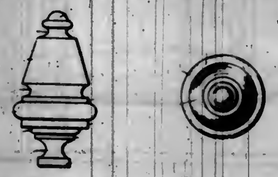
Claim.—The design for a check-hook herein shown and described.

27,477. DOOR-FASTENER. JERRY D. DOEHLER, Fort Collins, Colo. Filed June 21, 1897. Serial No. 641,716. Term of patent 7 years.



Claim.—The design for a door-fastener as herein shown and described.

27,478. METAL MOUNT FOR BEDSTEADS. FREDERICK W. CHESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Apr. 21, 1897. Serial No. 633,192. Term of patent 7 years.



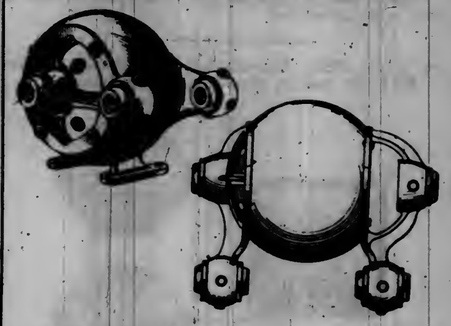
Claim.—The design for a metal mount for furniture, &c., as shown and described.

27,479. FRAME FOR ORE-STAMP BATTERIES. WILLIS S. DODD San Francisco, Cal. Filed Sept. 22, 1896. Serial No. 606,794. Term of patent 14 years.



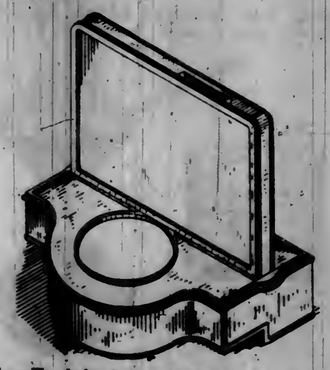
Claim.—The design for the frame of an ore-stamp battery, substantially as shown and described.

27,480. MOTOR-FRAME. EDGAR G. RICHARDS, Madison, Wis., assignor to the Northern Electrical Manufacturing Company, same place. Filed June 30, 1897. Serial No. 643,099. Term of patent 14 years.



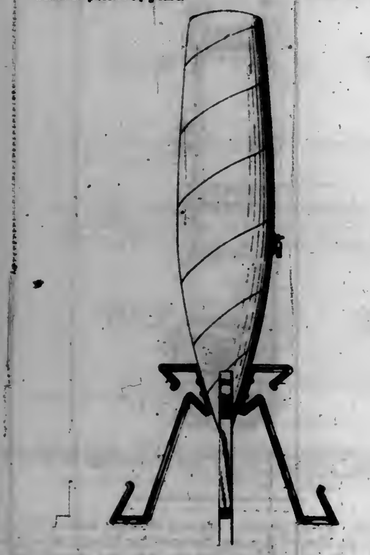
Claim.—The design for a motor-frame as herein shown and described.

27,481. CASING FOR COIN-ACTUATED WHEELS. JAMES C. CARTER, Decatur, Ill. Filed Apr. 30, 1897. Serial No. 634,472. Term of patent 7 years.



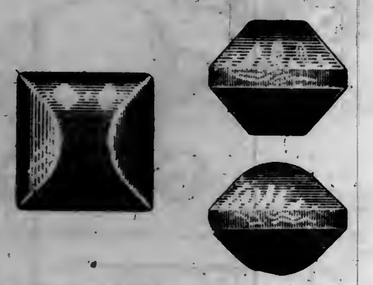
Claim.—The design for a casing for coin-actuated wheels, substantially as herein shown and described.

27,482. CASING FOR COIN-ACTUATED MACHINES. Frank T. Parritt, Bloomington, Ill. Filed Apr. 13, 1897. Serial No. 631,857. Term of patent 3½ years.



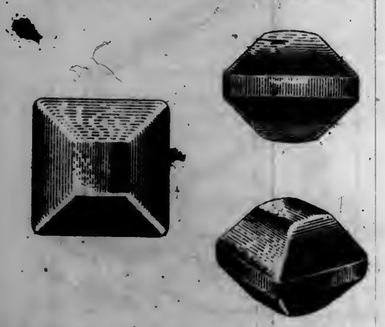
Claim.—The design for a casing for coin-actuated machines, as herein shown and described.

27,483. FUEL. Ellsworth B. A. Zwoyer, Reading, Pa. Filed May 7, 1897. Serial No. 635,980. Term of patent 14 years.



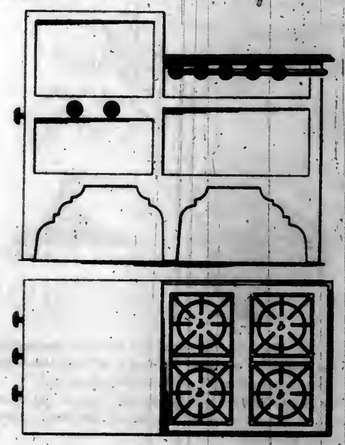
Claim.—The design for a lump of fuel as herein set forth.

27,484. FUEL. Ellsworth B. A. Zwoyer, Reading, Pa. Filed May 5, 1897. Serial No. 635,262. Term of patent 14 years.



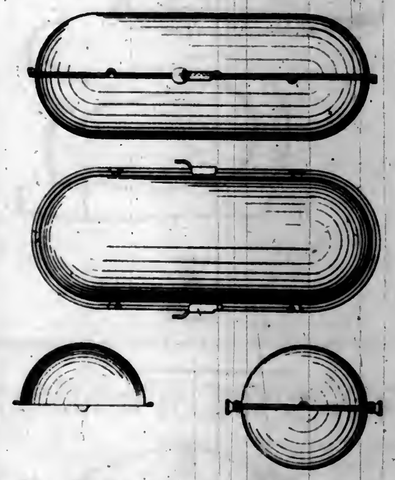
Claim.—The design for a lump of fuel as herein set forth

27,485. GAS-RANGE. Mary J. Willis, Kansas City, Mo. Filed Aug. 25, 1896. Serial No. 603,807. Term of patent 7 years.



Claim.—The design for a gas-range, as herein shown and described.

27,486. BAKING-PAN. George W. Knapp, Baltimore, Md. Filed Apr. 14, 1897. Serial No. 632,151. Term of patent 7 years.



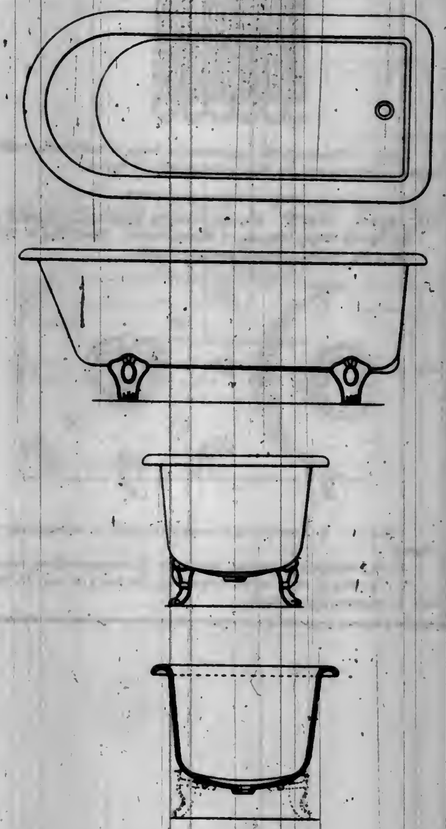
Claim.—The design for a baking-pan, as herein shown and described.

27,487. BATH-TUB RIM. David D. Buick, Detroit, Mich. Filed Apr. 21, 1897. Serial No. 633,187. Term of patent 14 years.



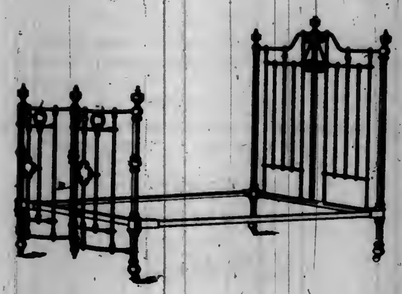
Claim.—The design for a bath-tub rim, substantially as herein described and shown.

27,488. BATH-TUB. William P. Sherry, Allegheny, Pa., assignor to the Standard Manufacturing Company, same place. Filed Mar. 13, 1897. Serial No. 627,488. Term of patent 14 years.



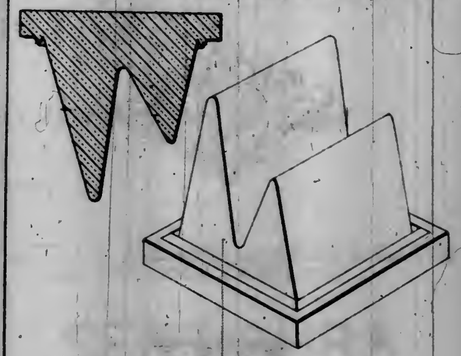
Claim.—The design for a bath-tub as herein shown and described.

27,489. BEDSTEAD. Miller Hall, Chicago, Ill. Filed June 23, 1897. Serial No. 641,907. Term of patent 7 years.



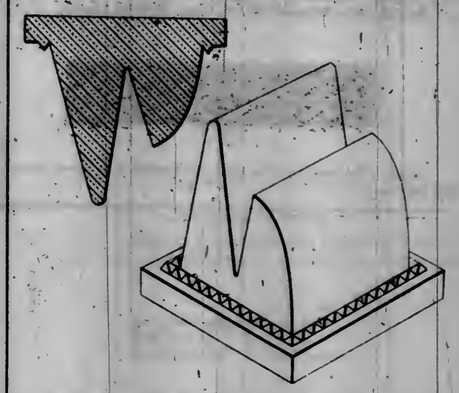
Claim.—The design for a bedstead, substantially as herein shown and described.

27,490. LENS FOR GRATINGS. Jacob Jacobs, Brooklyn, N. Y. Filed May 4, 1897. Serial No. 635,749. Term of patent 14 years.



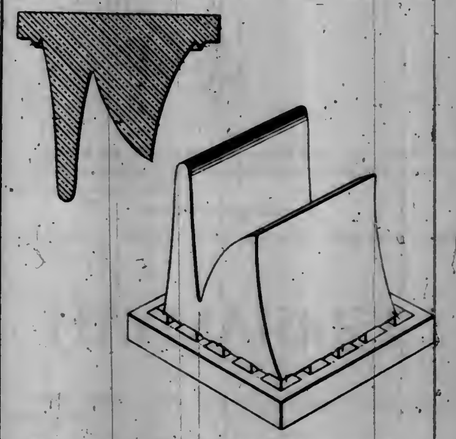
Claim.—The design for a lens, substantially as set forth.

27,491. LENS FOR GRATINGS. Jacob Jacobs, Brooklyn, N. Y. Filed May 5, 1897. Serial No. 635,760. Term of patent 14 years.



Claim.—The design for a lens, substantially as set forth.

27,492. LENS FOR GRATINGS. Jacob Jacobs, Brooklyn, N. Y. Filed May 5, 1897. Serial No. 635,761. Term of patent 14 years.



Claim.—The design for a lens, substantially as set forth.

27,493. LENS FOR GRATINGS. JACOB JACOBS, Brooklyn, N. Y. Filed May 6, 1897. Serial No. 635,733. Term of patent 14 years.



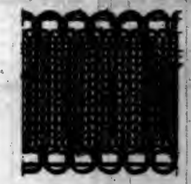
Claim.—The design for a lens, substantially as set forth.

27,494. DRESS-STAY. ALFRED W. LUBLIN, Boston, Mass. Filed June 26, 1897. Serial No. 642,751. Term of patent 14 years.



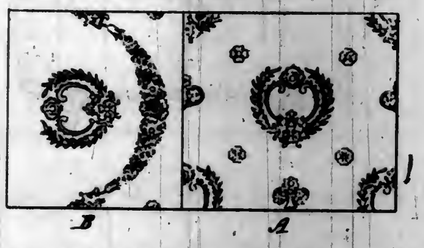
Claim.—The design for the body of a dress-stay, as herein shown and described.

27,495. TRIMMING. SIMON FRIEDMANN, Philadelphia, Pa. Filed Feb. 5, 1897. Serial No. 622,590. Term of patent 7 years.



Claim.—The design for trimmings for fronts of undervests, undershirts, overshirts and the like, substantially as shown.

27,496. CARPET. WALTER B. BROWN, Newark, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed June 22, 1897. Serial No. 641,901. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for a carpet comprising the body A and the border B, substantially as shown.

TRADE-MARKS

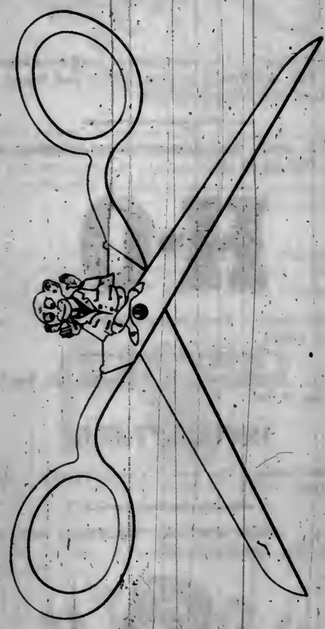
REGISTERED AUGUST 3, 1897.

30,452. BOOTS AND SHOES. C. M. HAYDOCK SHOE COMPANY, Boston, Pa. Filed June 19, 1897.

MESSENGER

Essential feature.—The word "MESSENGER." Used since July 10, 1896.

30,453. MEN'S WEARING-APPAREL. W. C. LOFTUS & Co., New York, N. Y. Filed Nov. 9, 1896.



Essential feature.—A picture of a pair of open shears with a conventional representation of a tailor sitting on the hinge thereof. Used since August 1, 1895.

30,454. REMEDIES FOR GOUT AND RHEUMATISM. EMANUEL J. ISENBURG, Newark, N. J. Filed June 24, 1897.

HERMANN'S REMEDY FOR RHEUMATISM

Essential feature.—The words "HERMANN'S REMEDY FOR RHEUMATISM." Used since March, 1889.

30,455. LINIMENT FOR INTERNAL AND EXTERNAL USE. JAMES A. LEE, New Iberia, La. Filed June 15, 1897.

SEPTICURA

Essential feature.—The word "SEPTICURA." Used since March 1, 1896.

30,456. SALVES. SAMUEL D. HARKINS, Boston, Mass. Filed July 7, 1897.

CHARM SALVE

Essential feature.—The words "CHARM SALVE." Used since March 15, 1897.

30,457. CHEMICAL SUBSTANCES FOR SANITARY PURPOSES. THE GAS LIGHT AND COKE COMPANY, London, England. Filed Sept. 23, 1895.

BECTOL

Essential feature.—The word "BECTOL." Used since January, 1894.

30,458. TOILET SOAPS, PERFUMES, WATERS, POWDERS, AND COSMETICS. THE COURT PERFUMERY COMPANY, New York, N. Y. Filed July 2, 1897.



Essential feature.—A monogram of the letters and abbreviation "C P Co," an inclosing ornamental shield, and a crest above the same. Used since June 20, 1897.

30,459. WHISKY. W. H. JOHNS & Co., Boston, Mass. Filed July 6, 1897.

HAYMARKET.

Essential feature.—The word "HAYMARKET." Used since October 1, 1894.

30,460. CONFECTION USED AS A BREATH PERFUME. THE WELD CO., Brockport, N. Y. Filed Apr. 12, 1897.



Essential feature.—The words "ROSE BUDS" and a representation of two rosebuds. Used since March 1, 1896.

30,461. DIETETIC COMPOUND OF HIGHLY NUTRITIVE SUBSTANCE. FREDERICK W. R. ROSEHAIN, Yonkers, N. Y. Filed June 28, 1897.

Hemaboloids

Essential feature.—The word "HEMABOLOIDS." Used since January 8, 1897.

30,462. CEREALS, DRIED FRUIT, CORN-STARCH, SPICES, AND BAKING-POWDER. MITCHELL, FLETCHER & Co., Philadelphia, Pa. Filed Apr. 23, 1897.

BONAIR

Essential feature.—The word "BONAIR." Used since November 1, 1896.

30,463. EARTHENWARE. SAMUEL A. WELLER, Zanesville, Ohio. Filed June 26, 1897.

DICKENS WARE

Essential feature.—The words "DICKENS WARE." Used since August 1, 1896.

30,464. WEIGHING-SCALES. THE COMPUTING SCALE COMPANY, Dayton, Ohio. Filed Apr. 14, 1897.

MONEY WEIGHT

Essential feature.—The words "MONEY WEIGHT." Used since April 15, 1895.

30,465. RUBBER PACKING. WILLIAM J. GORHAM, San Francisco, Cal. Filed Mar. 18, 1897.

AMAZON SPIRAL PACKING.

Essential feature.—The words "AMAZON SPIRAL PACKING." Used since October, 1895.

30,466. DYES. THE MAYPOLE COMPANY, Limited, London, England. Filed Feb. 16, 1897.



Essential feature.—A representation of two human hands in juxtaposition, with the thumbs pointing upward and fingers parallel thereto. Used since January 18, 1896.

30,467. SOAP. THE H-O (HORSEY'S OATMEAL) COMPANY, New York, N. Y. Filed Jan. 26, 1897.

H-O

Essential feature.—The hyphenated letters "H-O." Used since January 18, 1897.

30,468. LAUNDRY STARCH. E. R. DURKEE & Co., New York, N. Y. Filed Apr. 19, 1897.

IMPERCEPTIBLE

Essential feature.—The word "IMPERCEPTIBLE." Used since April 10, 1897.

30,469. COFFEE COMPOUND. THE JAVARYE COFFEE CO., Portsmouth, Ohio. Filed Mar. 12, 1897.



Essential feature.—A representation of an old gray-haired lady wearing spectacles and having one hand raised and holding a cup, while her other hand points to an inscription saying "COFFEE LIKE MOTHER MADE YEARS AGO." Used since November 25, 1896.

30,470. COFFEE SUBSTITUTE. EMMA C. ELDS, Portland, Oreg. Filed May 22, 1897.

HEALTH KOFFY

Essential feature.—The words "HEALTH KOFFY." Used since May, 1896.

30,471. ROLLED OATS AND OATMEAL. MUSCATINE OAT MEAL COMPANY, Muscatine, Iowa. Filed July 6, 1897.



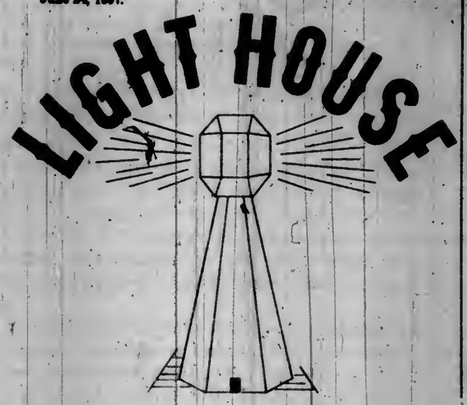
Essential feature.—A representation of a portion of a human arm and hand holding an uplifted battle-ax and the words "BATTLE AX" and a representation of a human figure attired in the garb of a king and representing the king of cereals and beneath the figure the words "KING OF CEREALS." Used since September 12, 1895.

30,472. CATSUP, VINEGAR, PRESERVES, JELLIES, TABLE-SAUCES, PICKLES, CHOW-CHOW, PEPPER-SAUCE, OLIVES, AND EXTRACTS. THE FLAGGUS & ELLIOTT COMPANY, Wheeling, W. Va. Filed May 18, 1897.



Essential feature.—A representation of a stag's head and antlers and the name "FLACCUS." Used since January 1, 1897.

30,473. BUTTER. ELGIN CREAMERY COMPANY, Chicago, Ill. Filed June 24, 1897.



Essential feature.—The word "LIGHTHOUSE" and a representation of a lighthouse. Used since May 1, 1897.

30,474. MAILING-CASES. IMPROVED MAILING CASE COMPANY, New York, N. Y. Filed Mar. 27, 1897.



Essential feature.—A representation of a lined metal mailing-case partly broken away and showing the interior thereof, together with its cap or cover raised slightly above it and one or more hands or indices pointing toward the case. Used since December, 1894.

30,475. CYCLE-LANTERNS. HERMANN RIEHAHN, Chemnitz, Germany. Filed Mar. 16, 1897.

Germania-Laterne

Essential feature.—The words "GERMANIA LATERNE." Used since January 1, 1893.

30,476. BICYCLES. PENN MANUFACTURING COMPANY, Erie, Pa. Filed Apr. 1, 1897.



Essential feature.—The word "QUAKER." Used since October, 1895.

30,477. EMBLEMS, BADGES, AND JEWELS, AND BOXES OR PACKAGES CONTAINING THE SAME. DURAND A. REESE, Philadelphia, Pa. Filed July 6, 1897.



Essential feature.—A monogram made from the letters and word "D OF L." Used since June 15, 1897.

30,478. CORSETS, DRESS-SHIELDS, AND WAISTS. HENRIETTA J. LYON, Newark, N. J. Filed June 11, 1897.



Essential feature.—A representation of a shield with a figure of a deer and the words "SEMPER EADEM" and "ROYAL GRAND" below. Used since the year 1894.

30,479. HIGH-CUT MEN'S OR WOMEN'S SHOES. PORTSMOUTH SHOE COMPANY, Portsmouth, N. H. Filed Mar. 17, 1897.



Essential feature.—A representation of a pair of shoes showing gore constructions on the backs thereof and arranged with one of the shoes showing the full back and the toe resting on the toe of the other shoe, which is placed to show its side, and said representation accompanied by the words "PERFECT BACK SHOE." Used since September, 1896.

30,480. INSECTICIDE FOR POULTRY, STOCK, AND VEGETATION. IRVING J. BALL, Brock, Nebr. Filed July 10, 1897.

LICE KATCH.



Essential feature.—The words "LICE KATCH" and a picture of a crowing cock or rooster. Used since March 1, 1896.

30,481. BUTTER. MCCANNA & FRASER COMPANY, Burlington, Wis., and Philadelphia, Pa. Filed June 12, 1897.

GOLD MEDAL

Essential feature.—The words "GOLD MEDAL," separated by a circular disk bearing a representation of a male head in side view, surrounded by the words "WORLD'S FAIR CHICAGO," and the figures "1893." Used since December 30, 1894.

30,482. INCUBATORS. RELIABLE INCUBATOR AND BROODER COMPANY, Quincy, Ill. Filed July 10, 1897.

RELIABLE BANTLING

Essential feature.—The words "RELIABLE BANTLING." Used since May 3, 1897.

30,483. HORSESHOES. SHOEMAKER STEEL COMPANY, Pittsburg, Pa. Filed Mar. 23, 1897.

BRONCO

Essential feature.—The word "BRONCO." Used since March 11, 1897.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

WHITTALL *v.* LOWELL MANUFACTURING COMPANY.

Decided March 31, 1897.

1. NEIL—DESIGN FOR CARPET—INFRINGED.
   Design Letters Patent No. 24,021, granted February 12, 1895, to John B. Neil, for a carpet-body, construed and *Held* infringed.
2. DESIGN PATENTS—INTERPRETATION OF CLAIM—DRAWINGS AND DESCRIPTION.
   A claim reading "In a design for a carpet, the body, A, substantially as shown" refers to the description as well as the drawing.
3. SAME—INTERPRETATION OF DRAWINGS—SHADES.
   Black and white drawings illustrating the designs in a design patent are to be considered as forms, into which may be filled a great variety of arrangements or effects of color or shades without affecting the patented design.
4. SAME—DRAWINGS OF DESIGNS.
   The essentials of a design are what cannot be changed without destroying its characteristic appearance, and where shading shown in the drawings may be reversed or removed without such effect it must be considered as but one of many permissible ways of treating the design, and therefore as an unnecessary addition to the conventional black and white outline drawing, which neither restricts nor enlarges the scope of the design.
5. SAME—INFRINGEMENT.
   A design which imitates the figures of a patented design in their characteristic and important features and produces the same general appearance infringes, though the imitative figures are much smaller than those of the patent.

STATEMENT OF THE CASE.

This was a suit in equity by Matthew J. Whittall against the Lowell Manufacturing Company for alleged infringement of a patent for a design for carpets.

Mr. Louis W. Southgate for the complainant.
Messrs. Witter & Kenyon for the defendant.

BROWN, *J.*:

This suit in equity is for infringement of Design Patent No. 24,021, to John B. Neil, dated February 12, 1895, for a design for carpets. It involves only the first claim, for a carpet-body, and prays for an injunction and accounting and other relief incident to patent cases. The defense is non-infringement.

It is apparent from the evidence as to the origin of defendant's design, as well as from the exhibits and testimony relative thereto, that the designer of the defendant corporation, having before him a sample of carpet embodying substantially the complainant's patented design, undertook to produce a design closely resembling the complainant's, and that the defendant has produced and sold carpets substantially similar in appearance to those manufactured by complainant under the Neil patent. The defendant's witnesses admit imitation in respect to color and arrangement of shades, which is otherwise well proven; but the defendant claims that it has confined its imitation within lawful limits and has adopted a configuration essentially different in detail and in general appearance from the Neil design, and that its carpets display not the complainant's design, but a design made under the protection of Design Patent No. 24,780, dated October 1, 1895, granted to E. G. Sauer subsequent to the date of the Neil patent. The complainant contends that the Neil design primarily embodies a carpet of three shades: first, a plain background or groundwork of one shade; second, sharp division-lines outlining the connected scrolls and ornamental work; third, a different shade forming the body or filling of the connected scrolls and ornamental work, and that it is—

broadly new to design a carpet with a series of sharply-outlined connected scrolls having sharply-outlined ornamental work surrounding the same, said outlined scrolls and ornamental work having a third shade in the body thereof, and being arranged on a plain ground.

It is difficult to avoid the conclusion that the argument that infringement is indicated by the adoption of three shades in defendant's carpets is based rather upon the special features of the manufactured carpets of the complainant and defendant than upon the design patent. The claim in suit is:

In a design for a carpet, the body, A, substantially as shown.

A claim in this form refers to the description as well as to the drawing. (*Dobson v. Carpet Co.*, 31 O. G., 787; 114 U. S., 439, 446; 5 Sup. Ct., 945.)

The description is:

The body, A, is decorated with a series of connected scrolls, surrounded by floral and ornamental work.

The omission from the description of any reference to shades requires us to find in the drawing alone the three shades which complainant insists upon as a primary feature of his design. Upon examination of the drawing I find no sufficient warrant for complainant's claim that it displays, as a characteristic or necessary feature of the design, scrollwork of a shade distinct from the background and from the lines which outline the scroll. A portion of the scrollwork is in solid black without sharp division-lines, though having a sharply-de-

fined outline; a portion is represented by the unprinted paper, which represents the background; a portion only displays a shade intermediate between the white background and the black scrollwork and black dividing-lines. If complainant may, without departing from the design shown in the drawing, use a single shade throughout the scrollwork, as he has done in the manufactured carpets, he may equally well use either one of the three shades of the filling of the scrolls shown in the drawing, either the solid black of a portion of the scrollwork or the white of another portion, when the design will appear in two shades, or he may use the intermediate shade throughout, in which case only will three shades appear in the design. If shades are material and essential parts of the design, they must be the shades shown in the drawing; and both complainant's and defendant's carpets differ from the drawing in displaying scrollwork of one shade of filling instead of three, as shown in the drawing; but I think this departure immaterial, and also that adopting for the filling of the scrolls either the white of the background or the black of the outline would leave the design substantially unaffected, and therefore that three shades are accidental features of the drawing and not primary features of the design. In order to sustain his contention that three shades are essential features, complainant is obliged to accept the consequences of this claim and to hold that a black and white outline drawing, like the drawing of the Sauer patent—

illustrates a design embodying two shades simply, to wit, a background which is left plain or blank, and a tracery which outlines scroll and ornamental work of the same shade as the background.

This seems a novel and extraordinary interpretation to put upon a drawing in black and white. Such drawings as illustrative of designs have acquired a conventional meaning entirely opposed to such view. It is implied in the Sauer drawing, as well as in other black and white drawings, that what is there displayed may be presented in a great variety of colors or shades. I think it very clear that, had all shades been omitted from the scrollwork of the Neil patent and had the drawing been made in black lines on white, as in the Sauer design, the drawing would be properly interpreted as displaying a design which would be unaffected by shading either the background or the scrollwork. A black and white drawing for a design is, so to speak, a blank form, into which may be filled a great variety of arrangements or effects of color or shades without affecting the patented design. It is true that the complainant's drawing displays shading on a part of the scrollwork. What does this shading signify? Without it the design would imply or allow not only the treatment shown in the drawing, but also its reverse—*i. e.*, shading the background instead of the scroll, or the addition of any number of shades, or any other treatment which did not change the configuration as shown. By adding one shade and thus making the drawing show three shades does complainant make that an essential part of his design? The complainant concedes that the exact shading shown in the drawing is not material, and claims that it may be reversed, so that the filling of the scrolls shall be white while the background is shaded. According to this interpretation the drawing requires merely a difference in shade between scroll and background, not the precise difference shown. I am of the opinion that a still wider interpretation is permissible, and that not only the variation suggested by complainant, but also a variation by the entire omission of shading, is contemplated, since the latter variation, as well as that produced by reversing the shading, leaves the configuration unchanged.

The essentials of the design are what cannot be changed without destroying the characteristic appearance of the design, and as the shading may be reversed or removed without such effect we must conclude that the shading shown in the scrollwork is but one of many permissible ways of treating the design, and therefore not an essential feature, but an accidental treatment by the draftsman, and that the shading is mere surplusage, an unnecessary addition to the conventional black and white outline drawing, which neither restricts nor enlarges the scope of the design. To hold differently would be perilous to complainant's claim of infringement, since the arrangement of shades set forth in the drawing has been adopted by neither complainant nor defendant.

Complainant's expert defines the shading of a design as the contrasts between the several parts thereof, or the contrasts presented to the eye between the high lights thereof and the shadow-work, and says that colors may or may not be used to produce this effect, and that shading is to be distinguished from color, and that shading is often the most essential part of a design, and is so of this design. As no pictorial representation is without shading, using the term in this sense, and as such differences are the basis of all occular appearances, we may safely assume that no design can exist without contrasts of some perceptible degree. The questions in this case are, however, whether it is useful or practicable to attempt a count of shades, and whether a design—the design covered by the patent—is completed by the black and white outline drawing, irrespective of the filling of the scroll and irrespective of what is termed the "third shade." An attempt to count the contrasts between high lights and shadows involves many difficulties. A contrast between the filling of the scroll and the background is created by the black lines outlining the scroll. The proximity of these lines produces this difference without the intermediate marks of shading, which serve merely to accent it. Eliminate from the Neil drawing the intermediate marks constituting the filling and the scrollwork is still to a perceptible extent shaded. Place side by side at arm's length the Sauer drawing of clear black lines on white and the Neil drawing and substantially the same effect of scrolls with shaded filling appears in each.

The difficulties of an attempt to institute a comparison between designs by a count of shades employed in each and of an argument based upon a

supposed discovery of the same number of shades in two black and white design drawings is further illustrated when we consider the matter of color. It is generally conceded that colors of any character may be employed to render the design without affecting its essential character. If changes of shade can be effected through change of color, then a design which is understood to permit of rendering in various colors is equally well understood to permit of rendering in many shades, since colors vary greatly in their absorption of light, and changes of color therefore produce differences in shading. If shade is material, then upon complainant's theory a given shade shown in a drawing should exclude the use in that part of the design of any color not possessing the same shade or having a similar power of absorption of light. I think complainant's contention on this point of three shades entirely unsound; that his drawing shows not a design of three shades, but a design that can be rendered in two, three, or more shades, and that the attempt to discover in the Neil patent drawing features corresponding in this respect to features of the manufactured carpets has served to obscure the real issues in the case, and that in the present case comparisons should not be sought within the broad field of resemblance in shades, but should be restricted to such features as are plainly and undoubtedly disclosed by the drawing and description of the Neil patent. I think that no more can fairly be said upon this point, made by the complainant the prominent feature of his brief, than that the configuration shown, though admitting of treatment in two or more shades, is one apparently well adapted for treatment in three shades of the same color, and that the general intent of the defendant to imitate complainant's carpet, as distinguished from his design, is apparent from the selection of the same treatment in respect to shades of color. The question of infringement, therefore, must be determined irrespective of resemblance in number of shades and upon a comparison of configuration and of general effect to determine whether the obvious and proven similarity in appearance is due in any degree to imitation of features covered by the patent.

We find in the patent drawing and in defendant's carpet alike a series of scrolls, projecting from or surrounding which are extending branches or ornamental work, the scrolls and ornamental work having sharp outlines. A prominent feature of the Neil design is a number of large grotesque scrolls with what have been not inaptly termed "spider-leg formations." These large scrolls are so disposed as to give to the design as a prominent feature large diagonal squares. The detail of the intermediate ornamental or scroll work is comparatively inconspicuous, and therefore tends to make prominent the larger scrolls, which in their diagonal arrangement form an important feature of the design. In the defendant's carpets we find also the larger scrolls with projecting arms or branches, which simulate the projecting ends of the spider-leg formation to a sufficient degree to give the defendant's large scrolls an appearance similar to the complainant's. Though not so conspicuous as in complainant's design, they yet appear as a characteristic and important feature of defendant's carpets and are so arranged as to afford the appearance of large diagonal squares, which is a characteristic feature of the Neil design. I think the testimony of complainant's carpet-designer (Brown) that, although the arrangement of the large scrolls is slightly different, it yet gives substantially the same effect, is substantiated by the exhibits. The defendant's carpets resemble, therefore, complainant's carpets in important points shown in the drawing of the complainant, and these are points to which the characteristic general effect of complainant's carpet is largely due.

The defendant lays much stress upon the fact that the figure, repetitions of which compose its carpet, is much smaller than the complete figure of complainant's pattern, and contends that the figure or pattern of complainant's carpet is about twice the height and three times the breadth of defendant's figure; that its entire size is about six times that of defendant's figure, and that it contains four large scrolls with a large confused mass of small spirals and ornamental work, whereas the defendant's figure is composed of one large scroll and three smaller scrolls running out of it. Admitting this, the question then arises does this smaller figure when repeated in the carpet a given number of times give the general appearance resulting from fewer repetitions of complainant's figure? This question must be answered in the affirmative. In the carpet of defendant, as in the drawing of complainant, the large spirals recur in substantially the same arrangement as in complainant's drawing, and the defendant's smaller annexed scrolls perform the function of the intermediate scroll and ornamental work of complainant.

Upon the evidence of witnesses and examination of exhibits I am led to the conclusion that defendant's designer, having before him a sample of carpet embodying complainant's design, and also having before him the scrollwork of the Bracebridge Hall book-cover exhibit, with a general purpose of producing a carpet closely resembling that of complainant through an adaptation of the Bracebridge Hall scroll, took from complainant's carpet the diagonal arrangement of the scrolls, which is not suggested by the Bracebridge Hall design, and modified the size and appearance of certain of the Bracebridge Hall scrolls to secure the feature of prominent large scrolls, and to accent this feature by surrounding the large scrolls with ornamental work of comparatively inconspicuous detail. In my opinion, therefore, the defendant has not restricted its imitation of complainant's carpets to the adoption of the same colors, the same shades of color disposed in the same relations, the same general proportions of background and scrollwork, and approximately the same size of scrollwork, but has gone further and has imitated the complainant's carpet in essential features covered by the design patent; and I am satisfied from the testimony that the complainant has fully estab-

lished a case of infringement within the doctrine of *Gorham Co.* v. *White*, (14 Wall., 511.) I am further of the opinion that the subsequent Sauer patent affords the defendant no protection.

A decree will therefore be entered for an injunction and accounting, with costs.

U. S. Circuit Court—Northern District of New York.

RICHARDSON *v.* D. M. OSBORNE & COMPANY.

Decided July 7, 1897.

1. FOWLER—GRAIN-BUNDLING MACHINE—SUIT FOR INFRINGEMENT DISMISSED—GROSS LACHES.

An action for infringement of Letters Patent No. 181,664, issued August 29, 1876, to Thaddeus Fowler, for an improvement in grain-bundling machines, dismissed on the ground of gross laches in bringing suit.

2. INFRINGEMENT—LACHES—DISAGREEMENT BETWEEN OWNERS OF PATENT.

After fourteen years of quiet and unmolested enjoyment of a patented device it is too late to ask a user to turn over his entire profits upon the theory that it was impossible to proceed sooner because of disagreements between the owners of which the user had no notice. Besides, the excuse cannot be maintained as matter of law. The complainant could have proceeded without the coöperation of the other owners. If they refused to be complainants, he could have made them defendants. (*Onderdonk* v. *Fanning*, 4 Fed. Rep., 149.)

FINAL hearing in equity.

Mr. William H. Chapman and *Mr. Thaddeus B. Wakeman* for the complainant.

Mr. Frederick P. Fish, *Mr. James J. Storrow*, and *Mr. A. D. Salinger* for the defendant.

COXE, *J.*:

This is an equity action for the infringement of Letters Patent No. 181,664, granted to Thaddeus Fowler August 29, 1876, for an improvement in grain-bundling machines. One of the defenses is laches. The patent expired August 29, 1893. This action was commenced June 10, 1893, about two months and a half before the patent expired. As no injunction can issue, the only relief which can in any event be granted is an accounting. The patent has never been operated. Only one experimental machine was made. It collapsed on its first trial and disappeared from view. No machine for actual use in the field was ever built, no license was ever granted, no royalty was ever paid. The patent was never of any practical use. It was infringed almost from its issue.

The complainant concedes that it was infringed for thirteen or fourteen years, and the proof indicates a considerably longer period. This infringement was general, open, and notorious. The complainant testifies that—

> practically all the binders and harvesters made in the United States during the last twelve or fourteen years contain the invention of the Fowler patent.

And yet, knowing, as he must have known, that hundreds of farmers all over the land were using his invention, he calmly folded his hands and permitted them to plunder his patent without a word of protest. He says that he notified the defendants in the latter part of 1883 that they were infringing, and he also says that he commenced an action at law in 1891 against a Minnesota corporation, which suit was compromised. This was the only suit ever brought, and this, it will be observed, was when the patent had only two years more of life. No excuse which the law can recognize is offered for this unprecedented supineness and neglect. Financial ability to pursue infringers is admitted. The only excuse offered is that the complainant's brothers, who prior to 1890 owned the patent jointly with him, had no faith in its validity and declined to spend their money in an enterprise which they thought must only lead to disaster. *Cui bono?* Can it be possible that the public loses its right to use the machine, which otherwise would be indefeasible, because of secret disputes among the owners of the patent? To the world at large, to the farmers and dealers, the conduct of the complainant and his brothers was a plain notice that the patent was not worth defending and might be infringed with impunity. The public acted upon this tacit permission. After fourteen years of quiet and unmolested enjoyment it is too late to ask a user to turn over his entire profits upon the theory that it was impossible to proceed sooner because of disagreements between the owners of which the user had no notice. Besides, the excuse cannot be maintained as matter of law. The complainant could have proceeded without the coöperation of the other owners. If they refused to be complainants, he could have made them defendants. (*Onderdonk* v. *Fanning*, 4 Fed. Rep., 149.)

If the opposition of his brothers was the sole cause of his inaction, it may be pertinent to inquire why he did not proceed promptly when in October, 1890, he acquired the entire interest. With the exception of the unique and nebulous litigation in the northwest he remained passive for three years more.

So far as the defendant is concerned the complainant gave no intimation that at last he was ready for the conflict. His lethargic slumber was apparently unbroken by even a dream of prospective profits. In 1883 the notice was given. In 1893 the suit was commenced. The defendant was therefore permitted to infringe without a word of protest for at least ten years; but the defendant was justified, when it received the notice in 1883, in taking into consideration the fact that even at that time the owners of the patent had acquiesced for years in its infringement.

There is of course no force in the suggestion that the complainant is not responsible for laches occurring before he became the sole owner. If this were otherwise, a party could revive a dead cause of action by assignment. Equity will not permit the mere act of transfer to convert a stale claim into a fresh one.

The reason advanced for neglecting to operate under the patent is unfounded in fact and inadequate in law. It is said that Deering & Company, to whom the experimental machine was sent in 1876, was under obligation to exploit it and introduce it to the public. Assuming that such an agreement is proved, and it is not, the complainant had no right to rely upon it after it became apparent that Deering & Company recognized no such obligation and were doing nothing to push the patent. It might have been an excuse for a few months, but not for sixteen years.

It is unnecessary to pursue the subject further. Suffice it to say that the record presents one of the most flagrant cases of laches with which the court is familiar. If this action can be maintained, a patentee has simply to pocket his patent, wait until the field is full of infringers, and begin his suit two months before the patent expires. When charged with laches, he has simply to assert that until he commenced his suit he thought the chances of success dubious, and therefore did not call the infringers to account. It is plain that public rights cannot depend upon considerations so shadowy, unilateral, and inequitable.

Unless the court is prepared to say the defense of laches will no longer be enforced in a patent suit it must find for the defendant on this issue.

The law of laches is so well understood that it is unnecessary to restate it. It is thought that no case can be found excusing such delay as this record discloses. (See *McLean* v. *Fleming*, 13 O. G., 913; 96 U. S., 245; *Galliher* v. *Cadwell*, 145 U. S., 368; *Menendez* v. *Holt*, 46 O. G., 971; 128 U. S., 514; *Hart* v. *Heidweyer*, 152 U. S., 547; *Hammond* v. *Hopkins*, 143 U. S., 224; *Lane & Bodley Co.* v. *Locke*, 150 U. S., 193; *Abraham* v. *Ordway*, 158 U. S., 416; *Piatt* v. *Vattier*, 9 Peters, 405; *Woodmanse, etc., Co.* v. *William*, 68 Fed. Rep., 489; *Owen* v. *Ladd*, 76 Fed. Rep., 992; *Weyeth* v. *Stone*, 1 Story, 273; *Fosdick* v. *Lowell Machine Shop*, 58 Fed. Rep., 817; *Keller* v. *Stolzenbach*, 27 O. G., 709; 28 Fed. Rep., 81; *Prince's Metallic Paint Co.* v. *Prince Mfg. Co.*, 57 Fed. Rep., 938; *New York Grape Sugar Co.* v. *Buffalo Grape Sugar Co.*, 32 O. G., 1856; 24 Fed. Rep., 604; *McLaughlin* v. *Peoples Railway*, 29 O. G., 277; 21 Fed. Rep., 574.)

It follows that the bill must be dismissed.

U. S. Circuit Court of Appeals—Second Circuit.

NATIONAL FOLDING BOX AND PAPER COMPANY *v.* STECHER LITHOGRAPHIC COMPANY *et al.*

Decided May 26, 1897.

MUNSON—MANUFACTURE OF PAPER BOXES—INVALID—MECHANICAL SKILL.

Letters Patent No. 259,416, granted June 13, 1882, to Edward B. Munson and Harvey S. Munson, for an improvement in the manufacture of paper boxes, construed and *Held* to be invalid, as the changes over the prior art were of that order of mechanical detail which is far removed from inventive skill.

STATEMENT OF THE CASE.

This appeal is from a decree of the Circuit Court for the Northern District of New York, which dismissed the appellant's bill in equity for an alleged infringement of Letters Patent No. 259,416, dated June 13, 1882, and issued to Edward B. Munson and Harvey S. Munson, for an improvement in the manufacture of paper boxes.

Mr. Walter D. Edmunds for the complainant.

Mr. Frederick F. Church for the defendants.

SHIPMAN, *J.*:

The record in this case is a voluminous one, but the important points in issue are contained in a narrow compass. The flat sheets or "blanks" of paper or cardboard from which paper boxes are made are cut by dies upon the lines which form the boundary edges and lapping parts and are indented or creased by dies upon the other lines upon which the folding or bending of the sides of the box are to be made. The difficulty which was practically experienced was the tendency of the creasing-dies to be inaccurate and not to crease or even bend or to weaken the material upon the folding-lines.

The improvement is described in the specification as follows.

> The lines of ultimate foldings are made by upsetting or embossing the material in such a manner as to avoid weakening the stock, while rendering it capable of bending without unduly straining or breaking in its body or upon its finished surface either in defining the lines or in folding the parts, and, further, avoids any disfigurement of the face surface of the finished article.
>
> The said apparatus consists of a single die composed of such lengths and shapes of cutting-rule 2 as are necessary to produce the form and direction of cuts desired, or to make the shape of blank required, with which are associated such lengths and shapes of embossing or blunt-edged rules 3 as are required to produce the necessary lines of ultimate foldings. These cutting-rules 2 may be made of a height slightly in excess of that of the embossing-rules, and this is preferable. These rules, of various shapes and lengths, are all set up in a form corresponding to that of the blank to be produced, with proper separating and supporting blocks 4, and the whole are locked in a frame or chase, 10, by wedges, as 11, in a manner similar to that in which printers' forms are made up. Such form or die is then fixed in a suitable press, as a printing-machine, and the platen, coöperating with the bed or die-carrier to make the impression, is furnished with a counter-die, Fig. 4, composed of a packing-sheet, 12, of paper or similar firm material that is fixed upon the face of the platen in such relation to the embossing-rules of the die as will provide recesses 5 for the same to register with. This counter-die may be made up directly upon the platen, but is preferably constructed upon a metal plate or sheet, 13, that is capable of introduction and removal from the platen, while only such narrow pieces of the packing-sheet 12 as are necessary to form the sides or borders of the recesses 5 heed be provided, in which case the cutting-rules will cut directly upon the platen or plate 13. It is preferable that the whole surface of the platen shall be covered by the packing-sheet 12, in which the recesses 5 are formed, either by cutting out a suitable channel or indenting it by repeated contact with the die, so that while said recesses perform their functions the cutting-rules will also pass through the packing 12 and have direct contact with the platen or plate 13 in accomplishing the cutting operation.

By this combination of blunt-edged embossing-rules with a female counter-die cut or indented by repeated contact with the embossing-die in a sheet of paper or similar firm material upon the face of the platen the patentees claimed that the tendency of the creasing-dies to cause an inaccurate or injurious result at the point where the folding-lines were to be made was overcome. The specification said that—

> in this manipulation the stock along the lines of folding will be upset or embossed by being stretched and forced into the recesses by the pressure of the embossing-rules, thus defining lines upon which the blank may be readily bent to form a box without rupturing or disfiguring the outer or face surface of the material, which embossed lines are stretched and upset in the direction which the paper necessarily takes in being folded, and to exactly the extent required to fold the same at an angle, by reason of the fact that the body of the blank bears upon the face of the packing 12, which supports the material along the border edges of the recesses, while the portions of the blank or material that are embossed are forcibly stretched or pressed into the recesses 5 by the embossing-rules 3, while the cutting-rules cut the lines of severance by passing through the body of the blank.

The patent contained five claims, the first two of which were devoted to a supposed improvement, which consisted in cutting-rules and embossing-rules which simultaneously cut and creased the blank; but it is admitted that this type of apparatus was old at the date of the Munson invention. The other three claims are as follows:

> 3. A counter-die for forming box-blanks, consisting of a metal or other hard base and creasing or embossing channels the

edges of which are raised above the plane of the hard base, substantially as described.

4. In the manufacture of paper-box blanks, a counter-die adapted to be removed from and adjusted upon the platen of a press, constructed of a sheet of metal or similar material affording a suitably-hard cutting-base, to the face of which is secured a covering or packing of paper or equivalent material to receive the embossing-rules of the coacting die, substantially as described.

5. In the manufacture of box-blanks, the combination, with a die consisting essentially of cutting and creasing rules, of a counter-die having a hard cutting-base and embossing channels above said base, whereby the material is simultaneously cut upon some lines and upset or creased upon other lines, which latter are stretched or conformed so as to readily bend in the folding operation, all substantially as described.

In the testimony and upon the trial in the circuit court great stress was laid by the complainant upon the alleged fact that the improvement was a marked advance upon the previous art, because it "stretched" and did not crush the fibers of the blank. It is therefore necessary to look at the state of the art of paper-box making immediately prior to the date of the invention and ascertain the precise extent of the change described in the patent.

The firm of Cornell & Shelton, consisting of Thomas L. Cornell and Edward De F. Shelton, were paper-box manufacturers at Birmingham, Conn., from 1875 to about 1885 or 1886, and then became incorporated under the name of the Cornell & Shelton Company, and continued in the same business until August, 1891. Mr. Cornell is now the vice-president of the complainant. Charles E. Hauxhurst was in charge of Cornell & Shelton's box-making department from December, 1875, to 1884 and is now in the employment of the complainant. Each of these gentlemen was examined as a witness for the complainant and both were interested for the protection of its property. From 1877 to 1883 Cornell & Shelton made paper boxes by means of a die consisting of cutting-rules and creasing-rules which were associated in a printers' chase and locked therein by means of printers' blocks and furniture. The platen of the press had three, four, or five sheets of Manila paper spread over its surface and fastened by the bails of the press. Upon this bed the box-blank was placed, and the creases were made by the pressure of the creasing-die as it came down upon and indented the blanks. This packing was too soft. The pressure upon it made a rounding recess or caused it to spread out and break, and consequently the creasing would also be poor, or perhaps would be torn, and fifteen per cent. of the manufactured boxes were imperfect. The operation of the packing is thus stated by Mr. Hauxhurst:

> On account of the packing being soft, lying loose, you might say, on the platen—what I meant by that is, not being glued to the platen—it would back up, give way by the pressure upon the box-blanks against the platen, would not hold to form a crease sufficient to crease a blank enough to hold or form a box.

That this platen was—

> provided with a semisoft or compressible material, so that the rules will indent or press into such material—

appears both from a rejected application of Mr. Shelton, assignor to Cornell & Shelton, for a patent dated May 20, 1875, which came into the record upon the cross-examination of Mr. Cornell, and from Mr. Shelton's patent, No. 183,423, dated October 17, 1876, which was for forming the creased lines and printing on the same lines simultaneously.

In the summer of 1883 these witnesses were shown by a former employee the Munson method of manufacture. The difference consisted in covering the platen with heavy paper, gluing it to the platen, and cutting a groove in the paper, so that a channel was made for the creasing-lines, and, when adopted, produced a more successful and less uncertain result. It substituted a firm piece of packing for the semisoft packing, cut a channel through it, and securely fastened it; but, inasmuch as the Munson patent makes its channel by cutting or by the old method of indentation and fixes its packing-sheet upon the face of the platen in any way whatever, the only change from the Cornell & Shelton method which is specified in the Munson patent is that the packing-sheet is of paper or similar firm material. Was the change made by substituting a firm piece of paper for semisoft sheets of paper packing a patentable one? The trial judge was of opinion that the Shelton patent was an anticipation, or, if not, that it left nothing which the Munsons could properly designate as an invention.

We have compared the Shelton apparatus as described by witnesses who are upon the complainant's official staff and cannot discover that any patentable improvement was described in the Munson patent over the preëxisting Shelton apparatus, and would be of the same opinion if the Munson patent had instructed the public that the sheet of paper was to be glued or riveted to the platen. The changes were of that order of mechanical detail which is far removed from inventive skill.

After the decision of the circuit court had been announced a new solicitor for the complainant was substituted, who thought that his client was entitled to the benefit of a disclaimer, and applied to the circuit court for a rehearing after it should have been filed. This motion was denied. The proposed disclaimer, which has not been filed, is contained in the record and disclaims—

> the first and second claims, and, in the remaining three claims, any counter-dies in which there are not channels recessed out of "firm" material, so as to "support the blank along their border edges" (thus assisting stretching), whose channels are not at least three in number and rectangular, or angular, to each or some of each other (thus insuring pinning down and holding flat of the blank), and whose hard base does not operate both as a stopping and cutting base for the cutting-rules (thus preventing crushing on fold-line.)

The proposed disclaimer is not properly in the case, for, as the allowance of the motion for a rehearing on condition that the disclaimer should be filed was a matter of discretion, its rejection is not a subject of appeal. (*Roemer* v. *Bernheim*, 132 U. S., 103.) An examination of the proposed disclaimer will, we think, disclose that a strong argument could be made in favor of the proposition that, with the exception of the requirement that the channel should be recessed out of "firm" paper or other material, the limitations or the requirements of the disclaimer point to an invention which would require an amended specification or a supplemental description. (*Hailes* v. *Albany Stove Co.*, 24 O. G., 391; 123 U. S., 582.)

The decree of the circuit court is affirmed, with costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 6. TUESDAY, AUGUST 10, 1897. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 5, 1897.

SIR: The Secretary of the Interior has ordered that Jared Van Vleet, of Flint, Mich., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 6, 1897.

SIR: The Secretary of the Interior has ordered that Jacob E. Leonard, of St. Peter, Minn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

WM. H. DE LACY,
Acting Chief Clerk.

The Commissioner of Patents.

Amendment to the Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

Rule 17 of the Rules of Practice, approved June 18, 1897, is amended to read as follows:

17. An applicant or an assignee of the entire interest may prosecute his own case; but he is advised, unless familiar with such matters, to employ a competent attorney, as the value of patents depends largely upon the skilful preparation of the specification and claims. The Office cannot aid in the selection of an attorney.

A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of the following persons will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged in the active prosecution as attorney or agent of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney at law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of the clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney at law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections who shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognise any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognised by the Commissioner to prosecute as attorney or agent a certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

BENJ. BUTTERWORTH,
Commissioner.

Approved:

THOS. RYAN,
Acting Secretary of the Interior.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 3. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Patents to Assignees.

RULE 201. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

Issue of August 10, 1897.

Patents	432	No. 587,688 to No. 588,120, inclusive.
Designs	22	No. 27,497 to No. 27,518, inclusive.
Trade-Marks	13	No. 30,484 to No. 30,496, inclusive.
Labels	None.	
Prints	None.	
Reissues	1	No. 11,625.
Total issue	469	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	26	.....
Arkansas	1	.....	New Mexico Territ'y	1	.....
California	9	1	New York	71	3
Colorado	6	.....	North Carolina	3	.....
Connecticut	26	.....	North Dakota	.....	.....
Delaware	.....	.....	Ohio	35	.....
District of Columbia	11	.....	Oklahoma Territory	.....	.....
Florida	1	.....	Oregon	1	.....
Georgia	1	.....	Pennsylvania	42	1
Idaho	.....	.....	Rhode Island	4	.....
Illinois	32	1	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	4	.....
Indiana	10	.....	Tennessee	2	.....
Iowa	8	.....	Texas	4	.....
Kansas	7	.....	Utah	.....	.....
Kentucky	3	1	Vermont	1	.....
Louisiana	3	.....	Virginia	2	1
Maine	.....	.....	Washington	3	.....
Maryland	6	.....	West Virginia	1	.....
Massachusetts	33	2	Wisconsin	8	.....
Michigan	13	.....	Wyoming	.....	.....
Minnesota	5	.....	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	11	1	Total to citizens of the United States	405	11
Montana	.....	.....			
Nebraska	2	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	1	.....
Austria-Hungary	.....	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	1	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Portugal	.....	.....
Canada	5	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile, Republic of	.....	.....	Russia	.....	.....
China	.....	.....	Scotland	1	.....
Colombia	.....	.....	South African Republic	.....	.....
Cuba	.....	.....	South Australia	.....	.....
Denmark	.....	1	Straits Settlements	.....	.....
Egypt	.....	.....	Sweden	.....	.....
England	19	.....	Switzerland	2	.....
Finland	.....	.....	Victoria	.....	.....
France	8	.....	West Australia	.....	.....
Germany	13	1	Total to citizens of foreign countries	50	2
Hawaii	.....	.....			
Italy	.....	.....			
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 3, 1897.

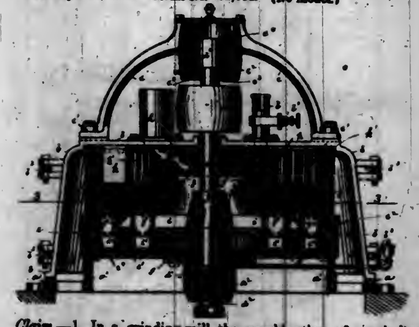
Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc.	July 3	July 16	267
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 6	July 15	172
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	July 3	July 8	143
	Between one and two months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	June 9	July 24	264
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 21	July 20	204
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 12	July 15	232
98	XXI. Textiles, etc	June 8	July 13	206
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 14	July 12	270
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 29	July 10	123
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 16	July 10	242
95	XXX. Lamps, Gas-Fittings, Lithotyping, Type-Writing Machines, and Optics.	June 19	July 9	223
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	June 21	July 6	273
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 21	July 2	168
215	XVII. Paper Manufactures and Printing.	June 9	July 1	209
255	XII. Mechanical Engineering, Store-Service, etc.	June 12	June 30	251
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 4	June 28	424
250	VIII. Furniture, Beds, Store Furniture, etc.	June 18	June 22	494
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 22	279
30	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 4	June 16	416
	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	May 4	July 24	260
102	XIX. Stoves and Furnaces	May 8	July 17	257
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 20	July 15	194
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	May 21	July 14	173
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 1	July 2	241
246	I. Tillage and Fences	May 28	June 17	209
240	VII. Velocipedes	May 11	June 9	1212
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 1	June 5	226
253	X. Carriages and Wagons	May 15	June 1	370
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 22	May 15	160
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	600
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	June 14	806
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 26	June 7	498
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 1	June 1	371
	Total number of applications awaiting action			10,841
	Under one month in arrears.			
	Designs	July 6	July 10	226
	Trade-Marks	July 8	July 16	126

PATENTS

GRANTED AUGUST 10, 1897.

587,688. GRINDING-MILL. MAX F. AMES, Brooklyn, N. Y.

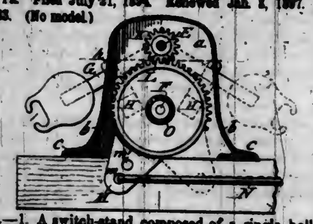
Filed Apr. 17, 1897. Serial No. 632,631. (No model.)



Claim.—1. In a grinding-mill the combination of a grinding-plate having concentric annular concaves with a central shaft, a receiver secured thereto and having a set of radial arms and beaters secured to said arms, the receiver being provided with an inclined flange g^4, within the outermost set of beaters, substantially as specified.

2. In a grinding-mill the combination of a grinding-plate having concentric annular concaves, with a shaft, a receiver having upright flange g^3, and inclined flange g^4, a set of radial arms i, projecting beyond the flange g^4, and two sets of beaters secured to the radial arms within and beyond the flange g^4, respectively, substantially as specified.

587,689. SWITCH-STAND. HARRY M. ARMSTRONG, Beaver Falls, Pa. Filed July 21, 1894. Renewed Jan. 8, 1897. Serial No. 618,483. (No model.)



Claim.—1. A switch-stand composed of a single hollow piece, the interior of the stand forming a single unobstructed chamber adapted to receive a portion of the operating mechanism and having a broad, thickened flat base, two integral lugs on the outside of one side of said stand so arranged as to permit a two-thirds throw of the stand-lever and serving as stops for the latter, and an integral extension on the other side of the stand forming a chamber to receive and support the lower end of a signal-standard, substantially as shown and described.

2. In a hollow switch-stand composed of a single piece, the combination with the stand proper, of the upper and lower shafts, journaled therein, integral lugs on the exterior serving as stops, the upper and lower gears, and the operating-lever connected with the upper shaft outside of the stand, said lever being capable of a two-thirds revolution, substantially as shown and described.

3. In a hollow switch-stand composed of a single piece without bolt or rivet, the combination with the stand proper, of the upper and lower shafts journaled therein, the upper and lower gears, integral lugs on the exterior serving as stops, the signal-standard and gear connections between the same and the lower shaft, and the operating-lever connected with the upper shaft outside of the stand, said lever being capable of a two-thirds revolution, substantially as shown and described.

4. In a switch-stand formed of a single piece and without bolt or rivet, the combination of the broad base and integral stops, the upper and lower shafts journaled within the switch-stand, the upper and lower gears, the signal-standard having a gear at its lower end, a gear on the lower shaft meshing therewith, the switch-rod and operating-lever, the latter being capable of a two-thirds revolution, substantially as set forth.

5. A switch-stand formed of a single piece, having a broad flat base, integral stops, upper and lower shafts journaled within the stand, the lower gear having a depending projection, the signal-standard having a gear at its lower end, a gear on the lower shaft meshing therewith, a switch-rod and operating-lever, the latter being capable of a two-thirds revolution for throwing the switch-rod, substantially as shown and described.

6. In a switch-stand, the combination with the stand proper having a broad base and integral stops, the upper and lower shafts journaled therein, the upper and lower gears, said lower gears having a depending projection, the signal-standard having a gear at its lower end, a gear on the lower shaft meshing therewith, the switch-rod and operating-lever, said operating-lever being capable of a two thirds revolution, substantially as shown and described.

587,690. BRAKE SYSTEM. FRANK M. ASHLEY, Hawthorne, N. J. Filed June 18, 1895. Serial No. 553,208. (No model.)



Claim.—1. In a brake system, the combination with the brake cylinder and piston, of a chamber in open communication with one end of said cylinder, whereby when the piston is driven in the direction of said chamber the fluid therein is compressed and exerts a counter-pressure upon said piston, and means for creating a vacuum, or substantially so, on the opposite side of said piston to release the brakes, substantially as described.

2. In a brake system, the combination with the brake cylinder and piston, of a chamber in open communication with one end of said cylinder, whereby when the piston is driven in the direction of said chamber the fluid therein is compressed and exerts a counter-pressure upon said piston, and a pump communicating with said cylinder and adapted to withdraw pressure from the opposite side of said piston, to release the brakes, substantially as described.

3. In a brake system, the combination of a reservoir containing fluid under pressure, a brake-cylinder communicating therewith, means for closing said communication, a pump adapted to withdraw said fluid-pressure from said brake-cylinder to release the brakes, means for preventing said withdrawal, and a chamber in open communication with the opposite end of said brake-cylinder, whereby when the piston of said cylinder is driven in the direction of said chamber the fluid therein is compressed and exerts a counter-pressure upon said piston, substantially as described.

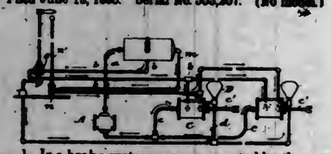
4. In a brake system, the combination of a reservoir containing fluid under pressure, a brake-cylinder communicating therewith, a pump connected with said brake-cylinder and discharging into said reservoir, means for closing communication between the pump and brake-cylinder, and a chamber in open communication with the opposite end of said brake-cylinder whereby when the piston of said

cylinder is driven in the direction of said chamber the fluid therein is compressed and exerts a counter-pressure upon said piston, substantially as described.

5. In a brake system, the combination of a pump, brake-cylinder and reservoir, a system of circulation under pressure adapted to flow through pipes leading respectively from the pump to the reservoir, the reservoir to the pump, the reservoir to the cylinder and the cylinder to the pump, and means for closing communication between said reservoir and pump, reservoir and cylinder and cylinder and pump, said means being so arranged that when communication is closed between the reservoir and cylinder, communication between the cylinder and pump and reservoir and pump will be open, and vice versa, substantially as described.

6. In a brake system, the combination of the pump, brake-cylinder and reservoir, a pipe connecting said reservoir with the outlet of said pump, a second pipe connecting said reservoir with the inlet of said pump, a third pipe connecting said reservoir with one end of said brake-cylinder and a fourth pipe connecting the same end of the brake-cylinder with the inlet of the pump, and a valve or valves in said pipes whereby when communication from the reservoir to the brake-cylinder is open, communication from the brake-cylinder to the pump and from the reservoir to the pump will be closed, substantially as described.

587,691. BRAKE SYSTEM. FRANK M. ASHLEY, Hawthorne, N. J. Filed June 18, 1895. Serial No. 553,207. (No model.)



Claim.—1. In a brake system, means operated by the momentum of the car and adapted to create pressure on one side of the piston in the brake-cylinder, and to withdraw said pressure; in combination with means to create pressure on the opposite side of the piston, substantially as described.

2. In a brake system, means operated by the momentum of the car and adapted to create pressure on one side of the piston in the brake-cylinder and to withdraw said pressure; in combination with means for creating a pressure of the outside atmosphere upon the opposite side of the piston to apply the brakes, substantially as described.

3. In a brake system, the combination with a reservoir of devices for withdrawing pressure from one side of the brake-cylinder, devices for introducing normal atmospheric pressure into the opposite side, and devices for supplementing the atmospheric pressure with pressure from the reservoir, for the purpose set forth.

4. In a brake system, the combination with an air or fluid pump, an independent reservoir, and an independent brake-cylinder, of a system of circulation passing successively through or in open communication with said pump, reservoir and brake-cylinder, means for causing said pump to withdraw the circulation from the brake-cylinder and force it into the reservoir, and means for creating a pressure in the opposite end of the brake-cylinder, substantially as described.

5. In a brake system, the combination with the pump, brake-cylinder and reservoir, of a system of piping between the brake-cylinder and pump, pump and reservoir, and the reservoir and each end of the brake-cylinder, and a valve or valves in said piping whereby when communication is open between the reservoir and pressure end of the brake-cylinder, communication between the reservoir and opposite end of the brake-cylinder, and between the pressure end of the brake-cylinder and the atmosphere, will be closed, substantially as described.

587,692. POCKET-KNIFE. JOHN BALL, Jeanesville, Pa. Filed May 6, 1897. Serial No. 635,341. (No model.)

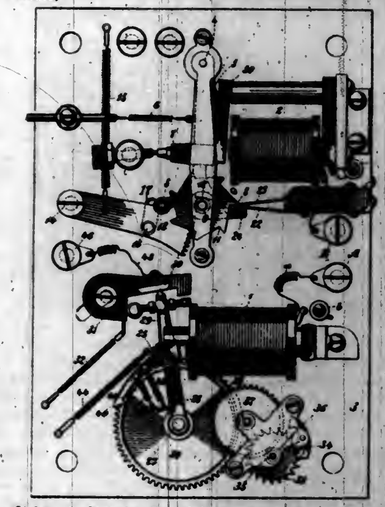


Claim.—1. In a knife, a suitable handle, and a blade pivotally connected thereto, in combination with a cover pivotally connected to the handle, a bolt carried by said handle, a suitable eye on the handle with which said bolt may engage, a disk having a notch to engage said bolt, and means for rotating said disk, substantially as described.

2. In a knife, the combination with a suitable handle, of a pivoted blade, a pivoted cover adapted to engage said blade for swinging the latter inward or outward, a bolt on the cover adapted to engage an eye on the handle for holding the cover locked, a disk arranged within the cover and having a notch for engaging said bolt, and a milled head arranged outside of the cover and connected fixedly to said disk for rotating it, substantially as described.

3. In a knife, the combination with a suitable handle, of a pivoted blade, a pivoted cover for actuating said blade, a bolt mounted in said cover for engagement with an eye on the handle, an escutcheon or name plate for reciprocating said bolt, a notched disk for engaging and locking said bolt, and a milled head arranged outside of the cover for turning said disk, said head being provided with a pointer or indicator adapted to be registered with one or more marks or graduations on the cover, substantially as and for the purpose described.

587,693. SIGNAL-RECEIVING APPARATUS. WALTER F. BANKS, Milford, Conn., assignor to the National Electrical Manufacturing Company, same place. Filed Oct. 1, 1896. Serial No. 607,543. (No model.)



Claim.—1. In a signal-receiving apparatus, the combination of a signal-receiving magnet short-circuited when the apparatus is at rest, a magnet for controlling the short circuit of the said receiving-magnet, and a retarding device for governing the action of the last-named magnet on the contact, whereby certain signals only will be allowed to manifest themselves in the receiving-magnet.

2. A signal-receiving device comprising the following instrumentalities in operative combination, to wit: a normally short-circuited receiving-magnet, an armature for controlling the said short circuit, a magnet for controlling the armature and a retarding device for governing the movement of the armature

3. A signal-receiving device comprising the following instrumentalities in operative combination, to wit: a receiving-magnet short-circuited when the apparatus is at rest, an armature for controlling the said short circuit, a magnet for controlling the armature, and a mechanical retarding device for governing the movement of the armature.

4. A signal-receiving device comprising the following instrumentalities in operative combination, to wit: a normally short-circuited receiving-magnet, an armature for controlling the said short circuit, a magnet for controlling the armature, and a train of gears for retarding the movement of the armature.

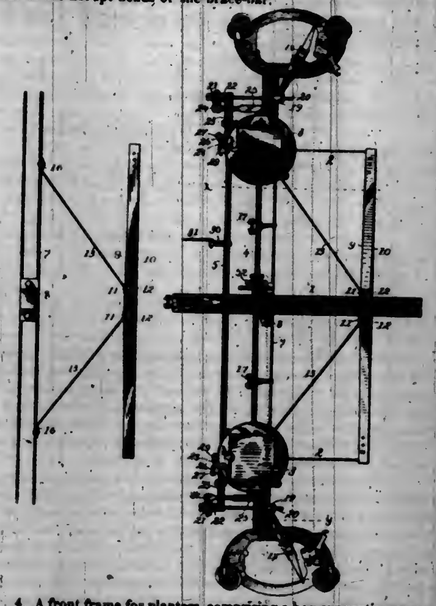
5 A signal-receiving device comprising a magnet short-circuited when the apparatus is at rest, a plurality of contacts controlling the said short circuit, an armature controlling the contacts, a magnet controlling the armature, and a retarding device with which the armature is engaged upon its forward movement and disengaged upon its backward movement, substantially as set forth.

587,694. CORN-PLANTER. WILLIAM L. BEALL, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed Apr. 5, 1897. Serial No. 630,746. (No model.)

Claim.—1. A front frame for planters, in which the front bar is truss-formed and a brace-bar forms the strut member of the truss.

2. A front frame for planters, in which the front bar is truss-formed, a brace-bar forms the strut member of the truss and bolts bind the members of the truss-bar onto the brace-bar.

3. A front frame for planters, in which the front bar comprises two members joined together at their ends and separated intermediately, a brace-bar extended for a short distance between the members of the front bar at the center thereof and parallel therewith, such brace-bar having abrupt bends at the terminations of such parallel portions, and bolts extending through the members of the front bar in the abrupt bends of the brace-bar.



4. A front frame for planters, comprising a box-supporting cross-bar, a trussed front bar, a brace-bar forming the strut member of the trussed bar and connecting at its ends with the box-supporting cross-bar, and a tongue connected with both the cross-bars, substantially as set forth.

5. In a planter, a drop-actuating ratchet-wheel having undercut or hooked teeth, and a pawl adapted to engage the recesses of the teeth with its operative end and to bear intermediately against a salient portion of the wheel at the termination of an operative throw.

6. In a planter, a drop-actuating ratchet-wheel having undercut, or hooked, teeth and plane surfaces between teeth, and a pawl adapted to engage the recesses of the teeth with its operative end and to bear intermediately against a salient portion of the wheel at the termination of an operative throw, whereby the pawl locks the wheel at the end of its throw and rides back to its normal position without disarrangement of parts.

7. In a planter, the combination of a drop-actuating ratchet-wheel having undercut, or hooked, teeth, a rock-arm, a pawl on the rock-arm adapted to engage the recesses of the teeth of the ratchet-wheel with its operative end and to bear intermediately against a salient portion of the wheel at the termination of an operative throw, and a lever for actuating the rock-shaft.

8. In a planter, the combination of a shank, a rock-arm pivoted in the rear of the shank and having a laterally-extending stud, and a final-drop valve pivoted in the shank between its ends and having its upper end hooked around the stud of the arm.

9. In a planter, the combination of shanks, a rock-shaft journaled in the rear of the shanks, arms connected with the shaft and extended upward therefrom, laterally-extending studs on the arms, and final-drop valves pivoted in the shanks, extended past the shaft and hooked around the studs of the arms.

10. In a planter, the combination of shanks, final-drop valves pivoted in the shanks, between the ends thereof, and having their upper ends extended outward and hooked, plates fastened in the shanks above the pivots of the final-drop valves, a rock-shaft journaled in bearings extending rearward from the plates, arms extending upward from the shaft, and lateral studs on the arms engaging the hooks of the valves.

11. In a planter, the combination of shanks, seedboxes on the shanks having seed-dropping mechanism therein, rocking intermediate valves journaled in front of the grain-passages of the shanks and having backward-closing swing, and means for actuating such intermediate valves, substantially as set forth.

12. In a planter, the combination of shanks, seedboxes on the shanks having dropping mechanism therein, rocking intermediate valves journaled in front of the grain-passages of the shanks and having backward-closing swing, downward-extending arms connected with the intermediate valves outside the shanks, rock-arms journaled in the rear of the shanks, and links connecting the rock-arms with the arms of the intermediate valves.

13. In a planter, the combination of a backwardly-closing intermediate valve, a backwardly-opening final-drop valve, and adjustable connections between the valves whereby each may act to hold the other open, substantially as and for the purpose set forth.

14. In a planter, the combination of shanks, seedboxes on the shanks having dropping mechanism, rocking intermediate valves journaled in front of the grain-passages of the shanks and having backward-closing swing, arms journaled in the rear of the shanks, final-drop valves connected with the rock-arms, and links between the intermediate valves and the rock-arms having different points of connection, whereby the valves may be operatively or inoperatively connected, substantially as set forth.

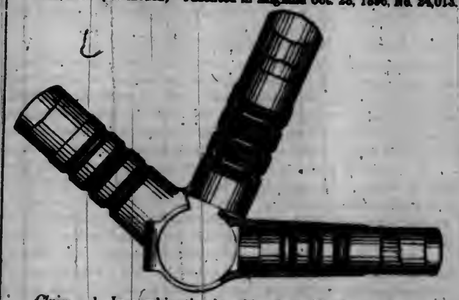
15. In a planter, the combination of rock-arms, rocking intermediate valves, final-drop valves connected with the rock-arms and links connecting the intermediate valves with the rock-arms and having end eyes and intermediate hooks, substantially as set forth.

16. In a planter, the combination of shanks, seedboxes on the shanks having dropping mechanism, rocking intermediate valves journaled in the shanks and having rearward-closing throw, final-drop valves pivoted in the shanks and having their upper ends extended outward and hooked, a rock-shaft journaled in the rear of the shanks, arms on the shaft having lateral studs engaging the hooks of the final-drop valves and also having other lateral studs, and links connecting the intermediate valves with such other studs, substantially as set forth.

17. In a planter, and in combination with first-drop mechanism, intermediate-drop mechanism and final-drop mechanism; a rock-shaft, and an integral bracket, or casting, adapted to be fastened to the rock-shaft and having an actuating-arm for each of the drop mechanisms, substantially as set forth.

18. In a planter, and in combination with first-drop mechanism, intermediate-drop mechanism and final-drop mechanism; a rock-shaft, and an integral bracket, or casting, saddled to embrace a side of the rock-shaft and having an actuating-arm for each of the drop mechanisms, substantially as set forth.

587,695. FRAME-JOINT. FREDERICK BILLING and WILLIAM E. PARTRIDGE, Birmingham, England. Filed Dec. 11, 1896. Serial No. 615,398. (No model.) Patented in England Oct. 28, 1896. No. 24,013.



Claim.—1. In combination in a bicycle or like frame, the frame-bar, the socket-piece and the connection between them comprising the anvil-piece having indentations with parts of the socket-piece and bar pressed into the same.

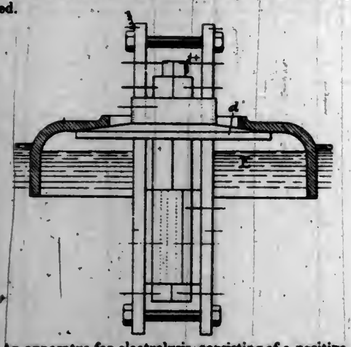
2. In combination in a bicycle or like frame, the tubular frame parts and the connection between them comprising the anvil having indentations with the material of the frame parts pressed into the same, substantially as described.

3. In combination in a bicycle or like frame, the socket, the frame-bar, the anvil having indentations and arranged within the frame-bar and the socket receiving the end of the frame-bar, the wall of the socket and frame-bar being pressed into the indentations of the anvil, substantially as described.

587,696. APPARATUS FOR ELECTROLYSIS. ADRIENNE E. W. BOUCHER, Prilly, Switzerland. Filed Aug. 13, 1896. Serial No. 602,618. (No model.)

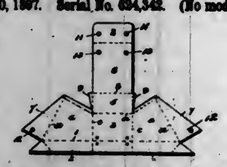
Claim.—1. An apparatus for electrolysis, consisting of a positive plate or electrode, one portion of which is non-oxidizable and adapted

to be immersed in an electrolyte or liquid, and the other portion of oxidizable material constituting the positive terminal of the electrode, an insulating material surrounding the oxidizable portion of the positive plate and insulating the same from the electrolyte or liquid, a negative electrode consisting of two plates and together forming a box open at the top and bottom and adapted to be immersed in said electrolyte and to completely surround the non-oxidizable portion of the positive plate and suitably insulated therefrom, and a bar or bars adapted to support the negative electrode and constituting the negative terminal of the electrode, substantially as and for the purposes described.



2. An apparatus for electrolysis, consisting of a positive plate of non-oxidizable material, two bars of oxidizable material supporting said plate, material adapted to insulate said bars from the electrolyte, two negative plates inclosing the non-oxidizable plate and insulated therefrom, each of said negative plates being perforated to permit of the passage of the electrolyte, and a hood adapted to inclose the said plates to collect the gases arising therefrom, substantially as and for the purposes described.

587,697. ELEVATOR-BUCKET. ALBERT W. BRAEM, Newark, N. J. Filed Feb. 20, 1897. Serial No. 624,342. (No model.)



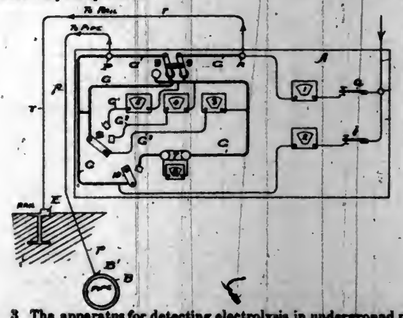
Claim.—1. An elevator-bucket substantially rectangular in shape, made from a single sheet of metal or blank presenting the parts 3 and 4 4 contiguous with the straight section 2 at the outer edge thereof, including the parts 5, 6, and 8, on a line with the part 3, side flaps 7 7, and extensions or flaps 9 9 at the sides of the part 5 which forms the bottom of the bucket, as and for the purpose specified.

2. A bucket made up of a single sheet or blank of metal, one edge of which is bent upon itself to provide the reinforcing-strip 2; said blank having extensions 7 7 and 8, and contiguous extensions at the adjoining edges of the bottom and sides which are crimped upon each other when the blank is shaped to form a bucket, and present reinforcing-pieces at the lower rear corners thereof, the flaps 7 being bent against the back of the bucket and the flap 8 turned over to embrace the flaps 7, the said flaps and back having bolt-holes which register, substantially as shown and for the purpose set forth.

587,698. APPARATUS FOR DETECTING ELECTROLYSIS OF UNDERGROUND PIPES AND LOCATING TRANSMISSION LOSSES. HAROLD P. BROWN, New York, N. Y. Filed Jan. 27, 1896. Serial No. 576,962. (No model.)

Claim.—1. The apparatus for detecting electrolysis in underground pipes and of locating electrical transmission losses, consisting in the combination with the trolley-wire, the rail and the underground pipe of a portable switchboard furnished with three or more voltmeters and switches and connections whereby one of said voltmeters may be put in circuit between the trolley-wire and the rail, a second between the trolley-wire and the underground pipe and a third between the rail and pipe, the third voltmeter being arranged so that it can be kept in circuit while either or both the other voltmeters are in circuit, substantially as specified.

2. The apparatus for detecting electrolysis in underground pipes and of locating electrical transmission losses, consisting in the combination with the trolley-wire, the rail and the underground pipe of a portable switchboard furnished with three or more voltmeters and an ammeter, and keys, switches and connections whereby one of said voltmeters may be put in circuit between the trolley-wire and the rail, a second between the trolley-wire and the pipe and a third between the rail and pipe, the third voltmeter being arranged so that it can be kept in circuit while either one or both of the other voltmeters are in circuit, said switchboard being also provided with a shunt to the third voltmeter in which said ammeter is included, substantially as specified.



3. The apparatus for detecting electrolysis in underground pipes and of locating electrical transmission losses, consisting in the combination with the trolley-wire, the rail and the underground pipe of two high-reading voltmeters, each having one terminal connected to the trolley-wire, with their other terminals connected respectively to the rail and to the pipe, and a low-reading voltmeter connected across the latter terminals, substantially as specified.

4. The apparatus for detecting electrolysis in underground pipes and of locating electrical transmission losses, consisting in the combination with the trolley-wire, the rail and the underground pipe of two high-reading voltmeters, each having one terminal connected to the trolley or outgoing wire, with their other terminals connected respectively to the rail and to the pipe, and a low-reading voltmeter connected across the latter terminals, each voltmeter being provided with a key for opening and closing its circuit, substantially as specified.

5. The apparatus for detecting electrolysis in underground pipes and of locating electrical transmission losses, consisting in the combination with the trolley-wire, the rail and the underground pipe of two high-reading voltmeters as the *a* and *b* sides of a Wheatstone bridge, a low-reading voltmeter as the galvanometer and rail and pipe conductors or their equivalents as the third and fourth sides of said bridge, substantially as specified.

587,699. PRESERVING AND SHIPPING VESSEL. AMOS BURSON, Negley, Ohio. Filed June 23, 1896. Serial No. 596,577. (No model.)



Claim.—1. The combination of the jar and inclosing case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, and spring-arms depending from said bails and adapted to engage with the case, substantially as described.

2. The combination of the jar and inclosing case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, and spring-arms depending from said bails and adapted to engage with the bottom of the case, substantially as described.

3. The combination of the jar and inclosing case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, and spring-arms depending from said bails and adapted to engage with the sides of the case, substantially as described.

4. The combination of the jar and inclosing case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, and spring-arms depending from said bails and adapted to engage with the case, and a ring on said frame adapted to engage with the sides of the case, substantially as described.

5. The combination of the jar and case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and adapted to engage with the case, and a ring on said frame adapted to engage with the sides of the case, substantially as described.

6. The combination of the jar and inclosing case, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and adapted to engage with the case, a ring on said frame adapted to engage with the sides of the case, and a ring on said frame adapted to engage with the exterior surface of the jar, substantially as described.

7. The combination of the jar and an inclosing case having a lid or cover thereon, a spring-metal frame located between the jar and the case, said frame having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and adapted to engage with the case, a ring on said frame adapted to engage with the sides of the case, a ring on said frame adapted to engage with the exterior surface of the jar, and spring-arms on said frame adapted to engage with the bottom of said lid or cover, substantially as described.

8. The combination of the jar having a lid or cover thereon and an inclosing case having a lid or cover thereon, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and adapted to engage with the case, a ring on said frame adapted to engage with the sides of the case, a ring on said frame adapted to engage with the exterior surface of the jar, spring-arms on said frame adapted to engage with the bottom of the lid or cover on the case, and spring-arms on said frame adapted to engage with the lid or cover on the jar, substantially as described.

9. The combination of the jar having a lid or cover thereon and an inclosing case having a lid or cover thereon, a spring-metal frame located between the jar and case, said frame having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and adapted to engage with the case, a ring on said frame adapted to engage with the sides of the case, a ring on said frame adapted to engage with the exterior surface of the jar, spring-arms on said frame adapted to engage with the lid or cover on the case, spring arms on said frame adapted to engage with the lid or cover on the jar, and supporting-arms on said frame adapted to engage with the lid or cover on the jar, substantially as described.

10. The combination with the jar having a lid or cover thereon and an inclosing case having a lid or cover thereon, a spring-metal frame located between the jar and case having bails thereon crossing under the jar and connected together, spring-arms depending from said bails and engaging with the case, a ring on said frame engaging with the sides of the case, a ring on said frame engaging with the jar, spring-arms on said frame engaging with the bottom of the lid or cover on the case, spring-arms on said frame engaging with the lid or cover on the jar, supporting-arms on said frame engaging with the lid on the jar, and loops on said frame adapted to engage with a spring-bar on and above the lid on the jar, substantially as described.

11. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, and spring-arms depending from said bails, substantially as described.

12. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, and spring-arms depending from said bails having inwardly-bent ends, substantially as described.

13. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, spring-arms depending from said bails having inwardly-bent ends, and spring-arms above said bails and rings, substantially as described.

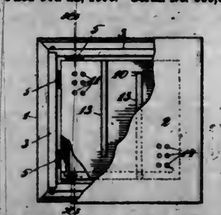
14. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, spring-arms depending from said bails having inwardly-bent ends, spring-arms above said bails and rings, and guide-arms above said rings, substantially as described.

15. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, spring-arms depending from said bails having inwardly-bent ends, spring-arms above said bails and rings, guide-arms above said rings, and supports above said rings, substantially as described.

16. A spring-metal frame composed of two concentric rings connected together, bails secured to said rings, crossing each other and connected together, spring-arms depending from said bails having inwardly-bent ends, spring-arms above said rings and bails, guide-arms above said rings, supports above said rings, and loops forming bearings above said rings, substantially as described.

17. A spring-metal frame composed of two concentric rings connected together one above the other, the upper ring being of less diameter than the lower, a series of bails secured to the lower ring, crossing at their lower end and connected together, a series of spring-arms having inwardly-bent ends depending from said bails, spring-arms above said bails, guide-arms adjacent to said upper spring-arms and secured to the upper ring, supports at right angles to the guide-arms and secured to the upper ring, and bearings adjacent to said supports having loops therein, substantially as described.

587,700. TELEPHONE-BOOTH. EUGENE B. CADWELL, Jamestown, N. Y. Filed Oct. 22, 1896. Serial No. 609,693. (No model.)



Claim.—1. A telephone-booth having sides with double walls distanced by wooden blocks 5 and interposed sound-deadening material 6, between the blocks and the walls, substantially as and for the purpose set forth.

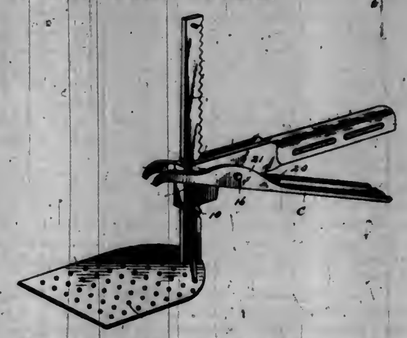
2. A telephone-booth having sides with double walls distanced by wooden blocks 5 and interposed sound-deadening material 6, between the blocks and the walls, the respective inner and outer walls of the side being secured independently to the said blocks, the screws or other securing means extending into but not through the blocks, substantially as and for the purposes set forth.

3. A telephone-booth having sides formed each of an outer wall 3 and an inner wall 3^a, with an air-space and distancing-blocks between them, the inner walls 3^a having interlocking tongues and grooves at their meeting edges, and one of the outer walls 3 having a gain to receive the edge of the other, and means for securing one side to the other, substantially as set forth.

4. A telephone-booth having an air-space in its cover divided by a partition or partitions so as to form an elongated air-passage, said air-passage being open at one end to the interior of the booth and at the other end to the atmosphere, and said partitions having rubber interposed between their upper and lower edges and the respective ceiling and roof-plate, substantially as and for the purpose set forth.

5. A knockdown telephone-booth comprising a recessed base, four sides, and a cover or top 2, said top being recessed to receive the sides and composed of a roof-plate with an air-aperture 14, a ceiling 10, with an air-aperture 11, the two being separated to leave an air-space 12, a partition, or partitions, 13, partially dividing said space 12 between the apertures 11 and 14, and sound-deadening material 15 between the said partition and the respective roof-plate and ceiling, substantially as set forth.

587,701. PAN OR PLATE LIFTER. FRANK CARLSON, Duluth, Minn., assignor of one-half to Joseph C. Mishler, same place. Filed June 30, 1896. Serial No. 597,626. (No model.)



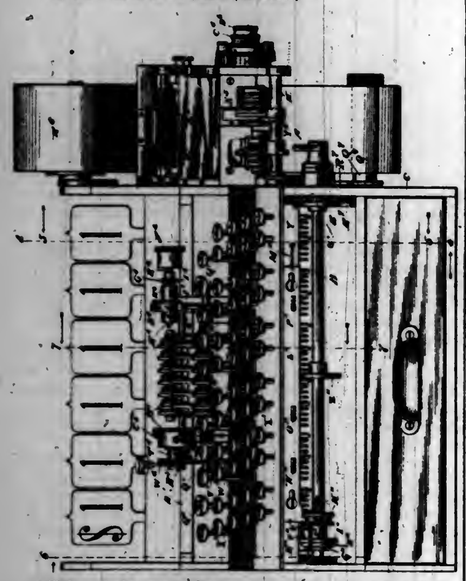
Claim.—1. In a pan or plate lifter, the combination with a rest and a rack-bar connected thereto, of a hand-lever slidable on the rack-

bar, a dog normally in engagement with the rack-bar, and a gripping-lever pivoted to the hand-lever, substantially as described.

2. In a pan or plate lifter, the combination with a rest and a rack-bar connected thereto, of a hand-lever slidable on the rack-bar, a dog normally in engagement with the rack-bar, and a spring-pressed gripping-lever pivoted to the hand-lever and provided with curved fingers, substantially as described.

3. In a pan or plate lifter, the combination with a rest, and a rack-bar connected thereto, of a hand-lever slidable on the rack-bar, a pivoted spring-pressed dog normally in engagement with the rack-bar, and a pivoted spring-pressed gripping-lever provided with curved fingers, substantially as described.

587,702. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Sept. 21, 1896. Serial No. 606,536. (No model.)



Claim.—1. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers adapted to have various amounts added upon them by the driving mechanism at different operations of the machine, and means for turning said frame to different positions to bring the several registers into cooperative relation with the driving mechanism.

2. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, and means actuated by the driving mechanism for turning said frame to different positions to bring the several registers into cooperative relation with the driving mechanism.

3. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, means for turning said frame to different positions to bring the several registers into cooperative relation with the driving mechanism, and a series of keys corresponding to the several registers and cooperating with the means for turning the register-frame, the operation of one or another of which keys determines which register shall be brought into cooperative relation with the driving mechanism.

4. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, means actuated by the driving mechanism for turning said frame to different positions to bring the several registers into cooperative relation with the driving mechanism, and a series of special keys corresponding to the several registers and also cooperating with the driving mechanism to determine the degree of movement which the latter shall impart to the rotary register-frame and consequently the register which shall be brought to position to cooperate with the driving mechanism.

5. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, and a plurality of cams corresponding to the several registers and actuated by the driving mechanism and cooperating with the rotary register-frame to move the latter different degrees to bring the different registers into position to cooperate with the driving mechanism.

6. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, a plurality of cams corresponding to the several registers and actuated by the driving mechanism, and means for shifting said cams to bring one or another of them into cooperative relation with the rotary register-frame to cause them to turn said frame different degrees and bring the several registers into positions to cooperate with the driving mechanism.

7. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, a plurality of cams corresponding to the several registers and actuated by the driving mechanism and cooperating with the rotary register-frame to turn the latter different degrees to bring the different registers into cooperative relation with the driving mechanism, and a series of keys corresponding to the several registers and cooperating with the cams to determine which cam shall cooperate with the register-frame and consequently which register shall be brought to position to cooperate with the driving mechanism.

8. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, a plurality of rotary cams corresponding to the several registers and actuated by the driving mechanism, a lever geared at one end to the rotary frame and cooperating at its other with the rotary cams, and means for shifting the cams to bring one or another of them into cooperative relation with said lever and consequently determine the extent of movement which shall be imparted to the rotary frame and the particular register which shall be brought into position to cooperate with the driving mechanism.

9. In a registering-machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, a plurality of cams mounted upon a rotary shaft so as to turn therewith and slide longitudinally thereof, a lever geared at one end to the rotary frame and adapted to cooperate at its opposite end with the rotary cams, a shifter cooperating with the cams to move them to position for one or another of them to cooperate with the lever, and a plurality of keys corresponding to the several registers and cooperating with the shifter to determine which cam shall cooperate with the lever and which particular register shall be brought to position to cooperate with the driving mechanism.

10. In a registering-machine, the combination of a series of keys for actuating the registering mechanism, a driving mechanism operated independently of said keys, means for connecting the keys at will with such driving mechanism, to cause the latter to actuate the keys, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the keys, and means for moving said frame to different positions to bring the several registers into cooperative relation with the keys.

11. In a registering-machine, the combination of a series of key-levers for actuating the registering mechanism, a movable bar or frame common thereto, means for attaching the respective levers to said bar, means operated independently of the key-levers to give said bar a definite movement at each operation of the machine to cause it to actuate the key-levers attached to it, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the key-levers, and means for moving said frame to different positions to bring one or another of the registers into position to be actuated by said levers.

12. In a registering-machine, the combination of a series of key-levers for actuating the registering mechanism, a movable bar or frame common thereto, means for attaching the levers to said bar upon slightly depressing their front ends, a rotary handle and connections for giving said bar a definite reciprocating movement at each operation of the machine, to actuate the key-levers attached to it, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the key-levers, and means for moving said frame to different positions to bring the several registers into position to be actuated by said levers.

13. In a registering-machine, the combination of a series of keys for actuating the registering mechanism, a driving mechanism operated independently of said keys, means for connecting the keys at will with such driving mechanism, to cause the latter to actuate the keys, a series of reciprocating segments actuated by said keys, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the segments, and means for moving said frame to different positions to bring the several registers into cooperative relation with the segments.

14. In a registering-machine, the combination of a series of key-levers for actuating the registering mechanism, a movable bar or frame common thereto, means for attaching the respective levers to said bar, means operated independently of the key-levers to give said bar a definite movement at each operation of the machine, to cause it to actuate the levers attached to it, a series of reciprocating segments actuated by the key-levers, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the key-levers, and means for moving said frame to different positions to bring the several registers into position to be actuated by said segments.

15. In a registering-machine, the combination of a series of key-levers for actuating the registering mechanism, a movable bar or frame common thereto, means for attaching the key-levers to said bar upon slightly depressing their front ends, a rotary handle and connections for giving said bar a definite reciprocating movement at each operation of the machine, to actuate the key-levers attached to it, a series of reciprocating segments actuated by the key-levers, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the segments, and means for moving said frame to different positions to bring the several registers in cooperative relation with the segments.

16. In a registering-machine, the combination, with the reciprocating segments, of the rotary register-frame mounted in a movable support and carrying a plurality of registers, and means for turning said frame upon its axis to bring one or another of its registers to registering position and for moving said frame toward and from the segments to gear such register with and ungear it from the segments.

17. In a registering-machine, the combination, with the reciprocating segments, of the rotary register-frame mounted upon a movable support and carrying a plurality of registers adapted to be independently actuated by the segments, a plurality of cams corresponding to the several registers and cooperating with said frame to turn the latter to bring one or another of its registers to registering position, and a cam cooperating with the movable support of said frame to move the latter toward and from the segments, to gear its registers with and ungear them from the segments.

18. In a registering-machine, the combination, with the reciprocating segments, of the rotary register-frame mounted in a rocking frame and carrying a plurality of registers adapted to be independently actuated by the segments, and means for turning the register-frame upon its axis, to bring one or another of its registers to registering position, and for rocking its supporting-frame to gear such register with and ungear it from the segments.

19. In a registering-machine, the combination, with the reciprocating segments, of the rotary register-frame mounted in a rocking supporting-frame and carrying a plurality of registers adapted to be independently actuated by the segments, a plurality of rotary cams cooperating with the rotary register-frame to turn the latter upon its axis and bring one or another of its registers to registering position, and a rotary cam cooperating with the rocking supporting-frame to throw such register into and out of gear with the segments.

20. In a registering-machine, the combination, with the reciprocating segments, of the rotary register-frame mounted in a rocking supporting-frame and carrying a plurality of registers adapted to be independently actuated by the segments, a plurality of rotary cams corresponding to the several registers, a lever geared at one end to the rotary frame and adapted to cooperate at its opposite end with the rotary cams, means for shifting said cams to bring one or another of them into position to cooperate with said lever, and another rotary cam cooperating with the rocking supporting-frame to throw the set register into and out of gear with the segments.

21. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, of the rotary shaft B, the cams G″ H″ I″ mounted to turn with and slide upon said shaft, the lever E″ geared at one end to the rotary frame and cooperating at its other with the rotary cams, the shifter-plate L″ for shifting the cams, the plurality of special keys, and the levers intermediate the same and the shifter-plate L″.

22. In a registering-machine, the combination, with the reciprocating segments F′, of the rotary register-frame carrying a plurality of registers and journaled in the side arms or levers O′ P′ of a rocking frame, means for turning the rotary frame to bring one or another of its registers to registering position, and a rotary cam cooperating with the rocking frame to throw such register into gear with the segments F′.

23. In a registering-machine, the combination, with the reciprocating segments F′, of the rotary register-frame mounted in a rocking supporting-frame and carrying a plurality of registers, the rotary cams G″ H″ I″, the lever E″ geared at one end to the rotary frame and cooperating at its opposite end with said cams, means for shifting said cams to bring one or another of them into position to cooperate with the lever, and the rotary cam J′ cooperating with the rocking frame.

24. In a registering-machine, the combination of the key-levers T, the rocking frames E′ carrying the segments F′, the graduated lifters C′ intermediate the levers T and frames E′, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the segments F′, and means for moving said frame to different positions to bring its different registers into position to be actuated by said segments.

25. In a registering-machine, the combination of the key-levers T, the rocking frames E′ carrying the segments F′, the graduated lifters intermediate the levers T and frames E′, a rotary register-frame mounted in a movable support and carrying a plurality of registers adapted to be independently actuated by the segments F′, and means for turning said frame to bring one or another of its registers to registering position and for moving its support to throw such register into and out of gear with the segments.

26. In a registering-machine, the combination of the key-levers T, the rocking frames E′ carrying the segments F′, the graduated lifters C′ intermediate the levers T and frames E′, the movable bar or frame L, means for attaching the levers T to said bar at will and for giving said bar a definite reciprocating movement at each operation of the machine, a movable register-frame carrying a plurality of registers adapted to be independently actuated by the segments F′, and means for moving said frame to different positions to bring one or another of its registers into position to be actuated by said segments.

27. In a registering-machine, the combination of the key-levers T, the rocking frames E′ carrying the segments F′, the graduated lifters C′ intermediate the levers T and frames E′, the movable bar or frame L, means for attaching the levers T to said bar at will, a rotary handle and connections for giving said bar a definite reciprocating movement at each operation of the machine, a rotary register-frame mounted in a movable support and carrying a plurality of registers adapted to be independently actuated by the segments F′, and means for turning said frame to bring one or another of its registers to registering position and for moving its support to throw such register into and out of gear with the segments.

28. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers each consisting of a plurality of registering-wheels mounted on a shaft, and means for turning it to different positions, to bring one or another of its registers into registering position, of an automatic stop cooperating with said frame to arrest it at the end of its forward or setting movement.

29. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers each consisting of a plurality of registering-wheels mounted on a shaft, and means for turning it to different positions, to bring one or another of its registers to registering position, of an automatic stop cooperating with said frame to arrest it at the end of its forward or setting movement, and means for positively holding the frame in set position while the register is being actuated.

30. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers, and means actuated by the driving mechanism for turning it to different positions to bring one or another of its registers to registering position, of an automatic stop actuated by the driving mechanism to arrest the frame at the end of its forward or setting movement, and means controlled by the driving mechanism for holding said frame in set position while its register is being actuated and releasing it when the registration is completed.

31. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, and means for turning it to different positions to bring one or another of its registers to registering position, of a movable stop, and a cam operated by the driving mechanism to throw said stop into the path of the rotary frame and arrest it at the end of its forward or setting movement.

32. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, and means for turning it to different positions to bring one or another of its registers to registering position, of a shouldered disk or ratchet turning with said frame, a holding-pawl cooperating with said disk to hold the frame in set position while its register is being actuated, and a rotary cam actuated by the driving mechanism to disengage said pawl from the disk and release the rotary frame after the registration is completed.

33. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, and means actuated by the driving mechanism for turning it to different positions to bring one or another of its registers to registering position, of a movable stop, a rotary cam cooperating therewith to throw the stop into the path of the frame to arrest the latter at the end of its forward or setting movement, a shouldered disk or ratchet turning with the frame, a holding-pawl cooperating with said disk to hold the frame in set position while the register is being actuated, a rotary cam cooperative with said pawl to disengage it from the disk after the registration is completed, and a resetting-spring for returning the rotary register-frame to normal position.

34. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, and means for turning it to different positions, to bring one or another of its registers into registering position, of the rocking stop-frame A^3 provided with

the arm C^9, and the rotary cam Z" coöperating with said arm to throw the frame A^3 into the path of the rotary frame to arrest the latter at the end of its forward or setting movement.

35. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, the rotary cams G" H" I", and means intermediate said cams and frame for causing the different cams to turn the frame to different positions, to bring one or another of its registers into registering position, of the rocking stop-frame A^3 provided with the arm C^9, and the rotary cam Z" coöperating with said arm to throw the stop-frame A^3 into the path of the rotary register-frame, to arrest the latter at the end of its forward or setting movement imparted by one of the cams G" H" I".

36. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, of the shouldered disk or ratchet H^3 turning with said frame, the pawl-lever I^3 coöperating with the disk H^3 to hold the rotary frame in its different registering positions, and the rotary cam J^3 coöperating with the lever I^3 to release the rotary frame.

37. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, and means for turning it to different positions to bring its different registers into registering position, of the rocking stop-frame A^3 provided with the arm C^9, the rotary cam Z" coöperating with the arm C^9 to throw the frame A^3 into the path of the rotary frame, to arrest the latter at the end of its forward or setting movement, the shouldered disk or ratchet H^3 turning with the rotary frame, the pawl-lever I^3 coöperating with the disk H^3 to hold the rotary frame in its different registering positions, and the rotary cam J^3 coöperating with the lever I^3 to disengage it from the disk H^3.

38. The combination of a rotary disk, as G^3, provided with a recess or cut-away space, and an arm or lever, as I^3, carrying a spring-pressed pin, as L^3, adapted to coöperate with the disk G^3 and its recess in the manner described.

39. The combination of a rotary member, as the disk H^3, a rotary disk G^3 turning with the member H^3 beside the same and provided with a recess or cut-away space, a movable member, as the lever I^3, adapted to engage the disk H^3 and provided with a spring-pressed pin adapted to coöperate with the disk G^3 and its recess, and means for disengaging the end of the lever I^3 from the disk H^3 and permitting the pin L^3 to be moved across the periphery of the disk G^3, substantially as described.

40. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, of the shouldered disk or ratchet H^3 and the disk G^3 turning with the frame, the disk G^3 being provided with the recess or cut-away space, the pawl-lever I^3 coöperating with the disk H^3 to hold the rotary frame in its different registering positions and provided with the spring-pressed pin L^3 coöperating with the disk G^3, and the rotary cam J^3 coöperating with the lever I^3 to disengage the latter from the disk H^3.

41. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers, each provided with transfer devices intermediate its several wheels, and means for turning the rotary frame to bring one or another of its registers to registering position, of a plurality of rotary cams located in fixed position relatively to the movement of said rotary frame and adapted to coöperate with the transfer devices of the register which is brought to registering position by the turning of the frame.

42. In a transfer mechanism, the combination, with a primary and a secondary registering-wheel, the primary or lower wheel being provided with a projection and the secondary or higher wheel being provided with a ratchet, of an intermediate lever R^3 provided with the spring-pressed pin T^3 and with the latch V^3 coöperating with said pin and with the projection of the lower wheel, means coöperating with the pin I^3 when the latter is projected from the lever R^3, to rock said lever, and a transfer-pawl actuated by the lever and coöperating with the ratchet of the higher wheel.

43. In a transfer mechanism, the combination, with a primary and a secondary register-wheel, the primary or lower wheel being provided with a projection, and the secondary or higher wheel being provided with a ratchet, of an intermediate lever R^3 carrying at one end the pawl S^3 coöperating with the ratchet of the higher wheel, and carrying at its opposite end the spring-pressed pin T^3 and the latch V^3 coöperating with said pin and with the projection of the lower register-wheel, and means, as a rotary cam, coöperating with the pin T^3 when the latter is projected from the lever R^3, to rock the latter and cause the pawl S^3 to turn the higher register-wheel.

44. In a transfer mechanism, the combination, with a primary and a secondary register-wheel, the former provided with a tooth or projection and the latter with a ratchet, of a lever R^3 intermediate said wheels, a spring-pressed sliding pin T^3 fitted in a transverse housing in one end of said lever, a latch V^3 coöperating with said pin to normally hold it within its housing and also coöperating with the tooth or projection of the primary registering-wheel to release the pin and permit the spring to project it from its housing when said wheel completes a revolution, a rotary cam A^4 adapted to strike the pin T^3 when projected from its housing, to rock the lever R^3, and provided with a beveled or cam surface adapted to force the pin back into its housing after the cam has rocked the lever, and a transfer-pawl actuated by the lever and coöperating with the ratchet of the secondary wheel.

45. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, transfer devices between the wheels of each register, each set for action by the revolution of the next lower wheel in the series, means for turning the rotary frame to bring one or another of its registers to registering position, the rotary shaft Z^3, and the cams A^4 turning therewith and adapted to coöperate with the transfer devices set for action in the register brought to registering position, whereby when the rotary frame is turned to bring one or another of its registers to registering position the wheels of such register are actuated by the driving mechanism and the transfer devices by the rotary cams while the register remains in such position.

46. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, transfer devices intermediate the wheels of each register, embodying the pawl-levers R^3 having the spring-pressed pins T^3 operated in the manner described, and means for turning the rotary frame to bring one or another of its registers to registering position, of the rotary shaft Z^3 mounted in fixed position, and the cams A^4 carried by said shaft and coöperating with the pins T^3 to rock the levers R^3 and to restore the pins T^3 to normal position, as set forth.

47. In a registering-machine, the combination, with the fixed or main frame of the machine, of a movable frame carrying a plurality of registers, and resetting devices mounted upon the fixed frame and adapted to coöperate with the several registers when the latter are brought into position for that purpose by movement of their frame.

48. In a registering-machine, the combination, with the fixed or main frame of the machine, of a rotary register-frame carrying a plurality of registers, and resetting devices mounted upon the fixed frame and adapted to coöperate with the several registers when the latter are brought to position for that purpose by turning the rotary frame.

49. In a registering-machine, the combination, with the fixed or main frame of the machine, of a rotary register-frame carrying a plurality of registers, resetting devices mounted upon the fixed frame, a handle for turning the rotary frame to connect therewith so that successive strokes of the handle will bring the several registers successively into position to be reset by the resetting devices, and means for holding the register-frame in position for the resetting devices to coöperate with its registers.

50. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers each mounted upon a rotary shaft and having interposed between it and the shaft suitable means for causing the shaft to pick up the registering-wheels and carry them with it when turned in one direction, of the longitudinally-movable rotary resetting-shaft E^4 mounted in fixed position relatively to rotation of the register-frame and adapted to coöperate with the shafts of the respective registers when the latter are successively brought into line with the shaft E^4, to reset the respective registers to initial position.

51. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers each mounted upon a rotary shaft and having interposed between it and the shaft suitable means for causing the shaft to pick up the registering-wheels and carry them with it when turned in one direction, of the longitudinally-movable rotary resetting-shaft E^4 adapted to coöperate with the shafts of the respective registers to reset the latter, a spring pressing the shaft E^4 longitudinally in one direction and yieldingly holding it in normal position, and means for maintaining the shaft in operative engagement with the shaft of the register which is being reset after the resetting-shaft has been engaged with such registering-shaft and turned from normal position.

52. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers each mounted upon a rotary shaft and having interposed between it and the shaft suitable means for causing the shaft to pick up the registering-wheels and carry them with it when turned in one direction, of the longitudinally-movable rotary resetting-shaft E^4 mounted in a bearing D^4 and provided with a lug J^4 coöperating in the manner described with the bearing D^4, and with a spring I^4 tending to hold the shaft E^4 in normal position, the shaft E^4 coöperating with the shafts of the respective registers in the manner described to reset the registers.

53. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, each mounted upon a rotary shaft and having interposed between it and the shaft suitable means whereby the shaft is caused to pick up the register-wheels and carry them with it when turned in one direction, and each register being provided with transfer devices embodying the levers R^3 having the spring-pressed pins T^3, of the longitudinally-movable rotary resetting-shaft E^4 coöperating in the manner described with the register-shafts, to reset the registers, the rotary cam O^4, the clutch between said cam and the resetting-shaft E^4 by which when the shaft E^4 is engaged with a register-shaft and turned it will carry the cam O^4 with it, the rock-shaft K^4 carrying the arms R^4 adapted to coöperate with the pins T^3 of the transfer devices, and means intermediate the cam O^4 and rock-shaft K^4 for causing the rotation of the cam to rock the shaft, for the purpose described.

54. In a registering-machine, the combination of the rotary register-frame carrying a plurality of registers, the hand-lever W^4, the toothed wheel V^4 turning with the rotary register-frame, the pawl T^4 carried by the lever W^4 and coöperating with said wheel, means for holding the register-frame in the different positions to which it is turned by operations of the lever W^4, and resetting devices for the respective registers mounted in fixed position and adapted to coöperate with the registers when the rotary frame is turned by the operations of the lever W^4 to bring its registers into resetting position.

55. In a registering-machine, the combination of the rotary register-frame carrying a plurality of registers, the hand-lever W^4, the toothed wheel V^4 turning with the rotary register-frame, the pawl T^4 carried by the lever W^4 and coöperating with the wheel V^4 and with the disengaging-stop A^3, and resetting devices mounted in fixed position and coöperating with the respective registers when the latter are brought to resetting position by operations of the lever W^4.

56. In a registering-machine, the combination of the rotary register-frame carrying a plurality of registers and mounted in a movable support, the wheel V^4 mounted to turn upon a fixed support and geared to the rotary register-frame, the hand-lever W^4 fulcrumed upon the axis of the wheel V^4 and carrying the pawl T^4 coöperating with the wheel V^4, and resetting devices for the registers mounted in fixed position and adapted to coöperate with the respective registers when the latter are brought to resetting position by operation of the lever W^4.

57. In a registering-machine, the combination of the rotary register-frame carrying a plurality of registers and mounted upon the shaft Q' journaled in the rocking frame, the pinion W^8 fast upon the shaft Q' and meshing with the gear W' mounted to turn upon or with a fixed shaft or sleeve, and means coöperating with the gear W' to turn the latter and the rotary register-frame, and permit said frame to move with the rocking frame.

58. In a registering-machine, the combination of the rotary register-frame carrying a plurality of registers and mounted upon the rotary shaft Q' journaled in the rocking frame, the rotary member X" mounted to turn in fixed position, the pinion V^8 turning with the shaft Q' and meshing with the gear W' turning with the member X", the lever E" geared at one end to the member X", the rotary cams G" H" I" coöperating with the opposite end of the lever, means for shifting the positions of said cams to cause one or another of them to coöperate with the lever, and a rotary cam U" coöperating with the rocking support of the rotary register-frame.

59. In a registering-machine, the combination, with a rotary register-frame carrying a plurality of registers, of an indicator geared to said rotary frame and operating to indicate the positions of the several registers carried by the latter.

60. In a registering-machine, the combination, with the rotary register-frame carrying a plurality of registers, of the rotary indicator-wheel C^4 geared to said frame and bearing a series of signs corresponding to the respective registers and adapted to be moved into position opposite the respective registers as the latter are brought to resetting position.

61. In a registering and printing machine, the combination of a rotary register-frame carrying a plurality of registers, a type-carrier bearing a series of type-characters corresponding to the several registers, means for turning the register-frame to bring one or another of its registers to registering position and for moving the type-carrier to bring to printing position its character corresponding to the register brought to registering position, and a platen coöperating with the type-carrier to print such character upon a paper strip or ticket.

62. In a registering and printing machine, the combination of a rotary register-frame carrying a plurality of registers, a type-carrier geared to said frame and bearing a series of type characters corresponding to the several registers, means for turning the register-frame to bring one or another of its registers to registering position and to thereby move the type-carrier to bring to printing position the type-character corresponding to the register brought to registering position, and a platen coöperating with the type-carrier.

63. In a registering and printing machine, the combination, with the driving mechanism, of a rotary register-frame carrying a plurality of registers, means for turning said frame to bring one or another of its registers into position to be actuated by the driving mechanism, a series of type-carriers actuated by the driving mechanism to present at the printing-line type-numbers representing the amount being registered, a special type-carrier bearing type-characters corresponding to the several registers and operated by the means for turning the rotary frame, so that when said frame is turned to bring one or another of its registers to registering position said type-carrier will be moved to bring to the printing-line its character corresponding to such register, and a platen coöperating with the type-carriers.

64. In a registering and printing machine, the combination, with the reciprocating segments and the cash type wheels or carriers geared thereto, of a rotary register-frame carrying a plurality of registers, means for turning said frame to bring one or another of its registers into position to be actuated by the segments, a special type wheel or carrier bearing a series of type-characters corresponding to the several registers and operated by the means for turning the rotary register-frame, so as to bring to the printing-line its character corresponding to the register which is brought to registering position, and a platen coöperating with the type-carriers.

65. In a registering and printing machine, the combination, with the reciprocating segments and the cash type wheels or carriers geared thereto, of a rotary register-frame carrying a plurality of registers, means for turning said frame to bring one or another of its registers to position to be actuated by the segments, a special type-carrier geared to said rotary frame so as to be turned by the movement of the latter to bring to the printing-line its type-character corresponding to the register which is brought to registering position, and a platen coöperating with the type-carriers.

66. In a registering and printing machine, the combination, with the reciprocating segments and the cash type wheels or carriers geared thereto, of a rotary register-frame carrying a plurality of registers, a series of rotary cams, a lever geared at one end to the rotary frame and coöperating at its opposite end with said cams, means for shifting said cams to cause one or another of them to actuate the lever, a special type-carrier geared to said lever and bearing type-characters corresponding to the several registers, and a platen coöperating with the type-carriers.

67. In a registering and printing machine, the combination, with the reciprocating segments and the cash type wheels or carriers geared thereto, of a rotary register-frame carrying a plurality of registers, a series of rotary cams, a lever geared at one end to the rotary frame and coöperating at its opposite end with said cams, a plurality of special keys corresponding to the several registers, means intermediate said keys and the rotary cams for shifting the latter by the operations of said keys, to cause one or another of the cams to actuate the lever, a special type-carrier geared to said lever, and a platen coöperating with the type-carriers.

68. The combination of the reciprocating segments F', the rotary register-frame carrying a plurality of registers, the shaft O^4 geared to said frame, the type-wheel P^4 carried by the shaft O^4, the concentric sleeves Q^4 surrounding the shaft O^4 and geared to the segments F', the type-wheels R^4 fast upon the respective sleeves, and a platen coöperating with the type-wheels P^4 and R^4.

69. The combination of the reciprocating segments F', the rotary register-frame carrying a plurality of registers, the lever E" geared to said frame, the rotary cams G" H" I" coöperating with the lever E", the rotary shaft O^4 geared to said lever and carrying the type-wheel P^4, the concentric sleeves Q^4 surrounding the shaft O^4 and geared at one end to the segments F' and carrying at their other the type-wheels R^4, and a platen coöperating with the type-wheels.

70. The combination of the reciprocating segments F', the rotary register-frame carrying a plurality of registers, the lever E" geared at one end to said frame, the rotary cams G" H" I" coöperating with the other end of said lever, the shifter-plate L" for shifting the cams, the special keys and levers intermediate the same and shifter-plate L", the rotary shaft O^4 geared to the lever E" and carrying the type-wheel P^4, the concentric sleeves Q^4 surrounding the shaft O^4 and geared at one end to the segments F' and carrying at the other the type-wheels R^4, and a platen coöperating with the type-wheels.

71. The combination of the lever E", a rotary member geared to one end of said lever, the rotary cams G" H" I" coöperating with the other end of said lever, and means for shifting said cams to bring one or another of them into position to actuate the lever.

72. The combination of the lever E", the type-wheel P^4 geared to one end of said lever, the rotary cams G" H" I" coöperating with the other end of said lever, means for shifting said cams to bring one or another of them into position to actuate the lever, and a platen coöperating with the type-wheel.

73. The combination of the lever E", the rotary cams G" H" I' coöperating therewith, the shifter-plate L" for shifting the cams, and the special keys and the levers intermediate the same and the plate L".

74. The combination of the gear-wheel F, the mutilated gear E coöperating therewith, the toothed wheel F^9 turning with the gear F, the cam G^9 turning with the gear E, and the locking-lever E^9 inter-

mediate the wheel F^6 and cam G^9 for locking the gear F when not in mesh with the gear E.

75. In a cash-register and check-printer, the combination, with the type-wheels, the platen, and the feeding mechanism for advancing the check-strip, of means for throwing the platen and feeding mechanism out of operation at will when it is desired to discontinue the printing of checks.

76. In a cash-register and check-printer, the combination, with the type-wheels, and the platen and its actuating devices, of means for connecting the platen with and disconnecting it from its actuating devices at will, for the purpose described.

77. In a cash-register and check-printer, the combination, with the type-wheels, the feed-rollers for advancing the check-strip, and the driving mechanism geared to said rollers, of means for throwing said rollers and the driving mechanism out of gear with each other at will when it is desired to discontinue the issuing of checks.

78. In a cash-register and check-printer, the combination, with the type-wheels, the feed-rollers for advancing the check-strip, and the driving mechanism for said rollers, of a clutch intermediate one of said rollers and the driving mechanism, and means for operating said clutch to throw such roller into and out of gear with the driving mechanism, for the purpose described.

79. The combination, with the type-wheels, the platen and its actuating devices, the feed-rollers for advancing the check-strip, and the driving mechanism geared to said rollers, of means for disconnecting the platen from its actuating devices and throwing the feed-rollers out of gear with the driving mechanism by the operation of a single handle or device.

80. The combination of the type wheels, the two platens cooperating with opposite sides thereof, the levers C^7 and A^7 moving with the respective platens, the cam F^7 for actuating the lever A^7, and the latch for connecting and disconnecting the levers C^7 and A^7 at will.

81. The combination of the type-wheels, the two platens cooperating with opposite sides thereof, the levers C^7 and A^7 moving with the respective platens, the cam F^7 for actuating the lever A^7, the latch for connecting and disconnecting the levers C^7 and A^7 at will, and the thumb-piece G^9 and connections for controlling said latch.

82. The combination of the type-wheels, the platens, the levers A^7 C^7, the rotary cam cooperating with one of said levers, the latch N^9 carried by one lever and cooperating with the pin T^9 on the other, the gliding plates L^9 M^9, and means for moving the plate L^9.

83. The combination of the type-wheels, the feed-rollers I^6 J^6 geared to the driving mechanism, the clutch intermediate one of said rollers and the driving mechanism, the platens, the levers A^7 C^7, the rotary cam cooperating with one of said levers, the latch for connecting and disconnecting said levers, a shifter for the clutch and a trip or disengaging plate for the latch, and means for simultaneously operating the shifter and trip to throw the feed-rollers and one platen out of operation.

84. The combination of the frame-plate S^9, the removable block K^9 fitting in an opening therein, the spindle J^9 mounted at one end in the block K^9 and the roller J^6 mounted upon the spindle J^9 and adapted to be removed through the opening in which fits the block K^9.

85. The combination of the frame-plate S^9, the removable block K^9 fitting in an opening therein and held in place by the screw-rod M^9 and thumb-piece N^9, the spindle J^9 mounted at one end in the block K^9, and the removable roller J^6 mounted upon the spindle J^9 and provided with the threaded hole T^9 adapted to receive the threaded end of the rod M^9, for the purpose described.

86. The combination of the frame-plate S^9, the removable block K^9 fitting in an opening therein, the spindle J^9 mounted at one end in said block, and the removable roller J^6 mounted upon said spindle and provided with the detachable driving-pinion P^9.

87. The combination, with the type-wheels and platen, of the combined feeding and printing rollers I^6 J^6 for advancing the check-strip and printing upon that side of it next the type-wheels, and the combined printing and feed rollers G^6 H^6 for printing upon the opposite side of said strip, whereby checks may be issued bearing upon one side the matter printed by the rollers I^6 J^6, together with the amount of the transaction printed by the type-wheels, and upon their opposite sides the matter printed by the rollers G^6 H^6, substantially as described.

587,708. PERMUTATION-PADLOCK. CORNWELL P. CHASE, Minneapolis, Minn. Filed Mar. 9, 1897. Serial No. 626,569. (No model.)

Claim.—1. A lock constructed in two parts, adapted to be locked together, and when unlocked, to be separated for application to the device to be locked and provided with a series of detents, mounted on one of said parts and engageable with the other, certain of which detents normally stand in locking positions, but are moved into releasing positions, when pressed, and others of which detents normally stand in releasing positions, but are moved into locking positions, when pressed, substantially as described.

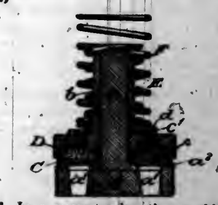
2. A lock constructed in two parts, adapted to be locked together, and when unlocked, to be separated for application to the device to be locked and provided with a series of detents, mounted on one of said parts and engageable with the other, certain of which detents normally stand in locking positions, but are moved into releasing positions, when pressed, and others of which detents normally stand in releasing positions but are moved into locking positions, when pressed, and a corresponding series of finger-operated plunger-keys, for pressing said detents, substantially as described.



3. In a lock, the combination with the lock-case, of the series of leaf-spring detents, certain of which normally stand in locking positions and others of which normally stand in releasing positions, of a corresponding series of plunger-keys for pressing said spring-detents out of their normal positions, and a removable lock section or block provided with a lock-flange portion, and adapted to be separated from said lock-case and which, when inserted into the lock-case, is locked in position by certain of said spring-detents, substantially as described.

4. In a lock, the combination with a suitable lock-case, of the series of leaf-spring detents f f^3 mounted therein, the plunger-keys 1, 2, 3, 4, 5 for pressing said detents, the removable lock section or block g g with lock-shoulders g^3, and the chain k or other shackle, connecting said lock-block g g with the lock-case, with freedom for limited movements, substantially as described.

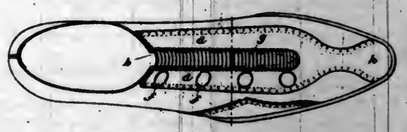
587,704. VALVE FOR AIR OR GAS COMPRESSORS, &c. JAS. CLAYTON, Brooklyn, N. Y. Filed Mar. 18, 1897. Serial No. 628,183. (No model.)



Claim.—1. In a puppet-valve the combination with a valve-head and an attached guiding-stem, of a facing-disk fitted to the valve-head and provided with a plurality of stems passing through holes in the said head outside of its guiding-stem, an elastic cushion-disk between said head and facing-disk and means for securing said plurality of stems loosely to the valve-head, substantially as herein described.

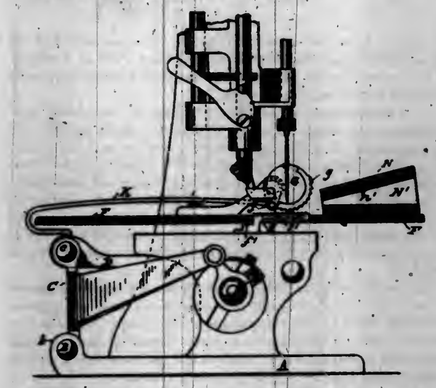
2. The combination with a puppet-valve, of a metal facing-disk provided with stems which pass loosely through the openings in the head of said valve, a cushion-ring interposed between the valve-head and facing-disk, a closing-spring applied to the valve-head, and another closing-spring applied to press upon the stems of the facing-disk, substantially as herein described.

587,705. SHOE. DAVID R. CLOSSON, Boston, Mass., assignor to the Rice & Hutchins, Incorporated, same place. Filed Oct. 1, 1896. Serial No. 607,603. (No model.)



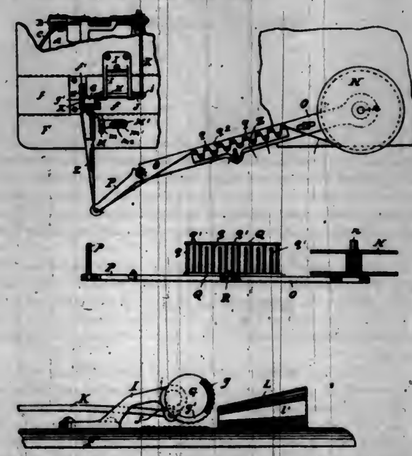
Claim.—As an improved article of manufacture, a bicycle or athletic shoe having a well-defined central longitudinal front opening b extending at its lower end over the ball of the foot; the edges of the opening being straight and spaced apart, a fly permanently secured along one longitudinal edge of the opening and at the lower end thereof, said fly having a parallel-edged longitudinal opening registering with the shoe-opening and provided with an elastic filling piece or gore overlying the shoe-opening and fastening devices for securing the free edge of the fly to the underlying portion of the shoe, substantially as described.

587,706. FEEDING DEVICE FOR SEWING-MACHINES. FRED W. COAN and WALTER S. EATON, Manchester, N. H. Filed Apr. 29, 1896. Serial No. 589,566. (No model.)



Claim.—A top feed for sewing-machines comprising a rotative segment of a cylinder externally serrated and having a slot through which the needle works, a shaft projecting eccentrically from said feed, a crank upon said shaft, a rod connecting the shaft with the regular feed-operating mechanism of a sewing-machine, and means for varying the rotative movement of the top feed with relation to the under feed.

587,707. TENSION DEVICE FOR SEWING-MACHINE BINDERS. FRED W. COAN and WALTER S. EATON, Manchester, N. H. Filed Aug. 8, 1896. Serial No. 602,125. (No model.)

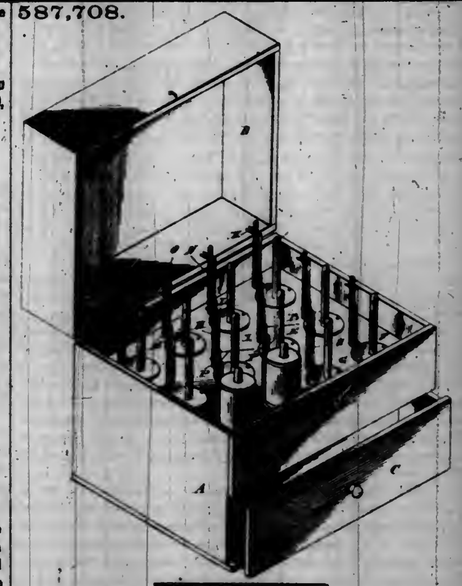


Claim.—The combination of the sewing-machine, a band-holding spindle or roller, a tension device, and a band-guide consisting of a hinged arm situated between the said tension device and the stitching mechanism, whereby the direction of the band can be changed and the tension varied without disturbing the main tension device, substantially as described.

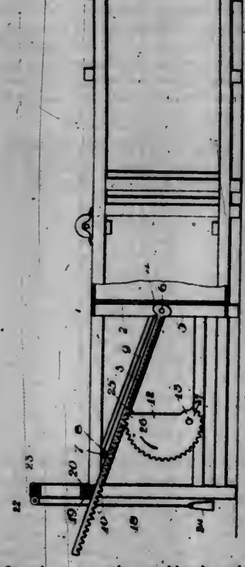
587,708. LADY'S WORK-BOX. ANNIE R. COMEY, Greendale, Pa. Filed Feb. 15, 1897. Serial No. 623,534. (No model.)

Claim.—In a work-box a series of rows of spool-holders, each having a central spindle, an arm in the rear of and parallel with said spindle, a guide or perforation near the middle of the arm through which the thread passes rearwardly from the spool, and a perforation or guide at the upper end of the arm through which the thread may be drawn forward over the spool, substantially as and for the purpose set forth.

587,708.



587,709. HAY-PRESS. JOHN C. COUCH, Brownwood, Tex. Filed Aug. 5, 1896. Serial No. 601,728. (No model.)



Claim.—In a hay-press, the combination with a follower, of a rack-bar pivoted thereto and provided with an elongated tooth 25 at its inner end, a transverse brace and guide-rod projecting laterally from said rack-bar and traveling in inclined ways or slots in the press, and an eccentrically-mounted and continuously-rotating sector-gear to engage said rack-bar to force it forward and then release it at the end of the stroke of the bar, and a weight for automatically returning said bar to its point of starting when released by the sector-gear, whereby the gear may reengage said bar and its teeth and force it forward again.

587,710. CHAIN ADJUSTMENT FOR BICYCLES. WILLIAM L. DUCKER, Worcester, Mass., assignor to John A. Mead, Rutland, Vt. Filed Sept. 3, 1895. Serial No. 561,263. (No model.)

Claim.—1. The combination with the frame of a velocipede of a pair of eccentrics journaled in said frame and provided with notches in their edges to receive a wheel-axle, a wheel-axle held in said notches, said frame having openings communicating with said eccentric-bearings, a latch pivoted at one end to said frame on one side of said opening and means for attaching the opposite end of said latch to the frame on the opposite side of said opening, whereby said opening is closed, substantially as described.

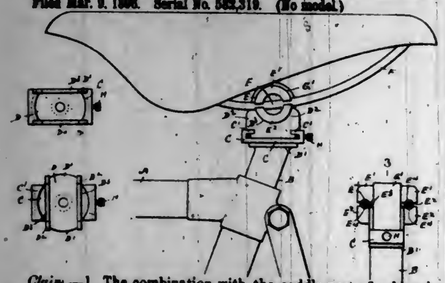


2. The combination with the framework of a velocipede of a pair of eccentrics journaled in said framework, notches in the edges of said eccentrics to receive a wheel-axle, a wheel-axle held in said notches, said eccentrics having a hole B^7 and being cut apart at B^8, between said hole B^7 and the notch in which the wheel-axle is held, said frame having an opening communicating with the eccentric-bearing, and means for compressing said frame on said eccentric, thereby compressing said eccentric and pinching the wheel-axle held therein.

3. The combination with the frame of a velocipede of a pair of eccentrics journaled in said framework and provided with flanges overlapping said frame, and provided with teeth on their edges, said eccentrics having notches in their edges to receive a wheel-axle, a wheel-axle held in said notches, said frame having an opening communicating with the eccentric-bearing, a latch pivoted at one end to said frame, and means for detachably connecting the opposite end of said latch with said frame, whereby said opening is closed, said latch having teeth adapted to engage the toothed flange of the eccentric, and hold the same from rotation, substantially as described.

4. The combination with the framework of a velocipede, or cycle, of a pair of eccentrics provided with notches in their edges to receive a wheel-axle, a wheel-axle held in said notches, means for retaining said axle in said notches, said framework having an opening communicating with said eccentric-bearing, whereby said axle is removed and means for closing said opening, substantially as described.

587,711. SADDLE-SUPPORT FOR BICYCLES. William L. Decker, Worcester, Mass., assignor to John A. Mead, Rutland, Vt. Filed Mar. 9, 1896. Serial No. 582,319. (No model.)



Claim.—1. The combination with the saddle-post of a bicycle, of a plate attached to said post and provided with lips and a central hole, a saddle-support adapted to clamp the frame of the saddle and having a bearing fitting the hole in said plate, whereby said support is capable of being rotated, said saddle-support having a plate with its ends arranged to be brought beneath said lips and means for locking the plate attached to said saddle-support against rotation, substantially as described.

2. In a saddle-support the combination of a plate D, having lugs D^2 D^2 provided with curved recesses D^2 D^2 a rocking bar held in said recesses and formed of the clamping-bars E' E^2 an eyebolt inclosing said clamping-bars, and means for drawing said eyebolt toward said lugs D^2 D^2, whereby said bars E' E^2 are drawn together and at the same time held from rotation, substantially as described.

3. In a saddle-support the combination of a plate D having lugs D^2 D^2 provided with curved recesses D^2 D^2, a rocking bar held in said recesses, and consisting of the clamping-bars E' E^2, a cross-bar as I connecting said lugs and provided with a hole to receive an eyebolt inclosing said clamping-bars E' E^2 and a nut held upon said eyebolt by which said clamping-bars are drawn into said recesses, substantially as described.

587,712. SWITCH-MATE. John Delahe, Jr., and John F. Blue, Terre Haute, Ind. Filed Feb. 5, 1897. Serial No. 622,206. (No model.)



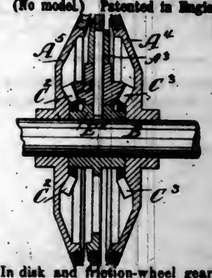
Claim.—1. In a switch-mate for railways the combination of the main-track rails, the side or switch rail bent or curved as described and the grooves for the passage of the flange of a wheel cut in said switch-rail for the purpose set forth.

2. A switch-mate for railways comprising the main-track rails, the switch or side track rail, a groove in said switch-rail parallel with said main-track rail, a groove in said switch-rail at an angle to said main-track rail and parallel with said switch-rail and a guide formed in said switch-rail by means of the groove as shown and described.

3. A switch-mate comprising the main rail, the switch-rail, grooves in said switch-rail, one parallel with the main rail, the other parallel with the switch-rail, a guard formed in said switch-rail by means of the grooves, and a block or wedge between the main and switch rails as set forth.

4. A switch-mate comprising the main rail, the switch-rail curved or bent and cut away to snugly bear against the main rail, grooves cut in said switch-rail for the passage of the flanges of a wheel on either the main or switch rails, a guard formed by means of said grooves and a block or wedge between said main and switch rails all bolted securely together for the purpose set forth.

587,713. APPARATUS FOR TRANSMITTING ROTARY MOTION. Edward K. Dutton, Harrogate, England. Filed Dec. 11, 1896. Serial No. 615,384. (No model.) Patented in England May 16, 1896, No. 10,523.



Claim.—1. In disk and friction-wheel gearing: three friction-wheels having a common axis, the central wheel of the three being fixed upon a shaft, an intermediate bevel-gear carried thereby, gears upon the two outer wheels meshing with said intermediate gear, the said outer wheels being loose upon the said shaft and a disk, all three friction-wheels being in working contact with said disk, substantially as set forth.

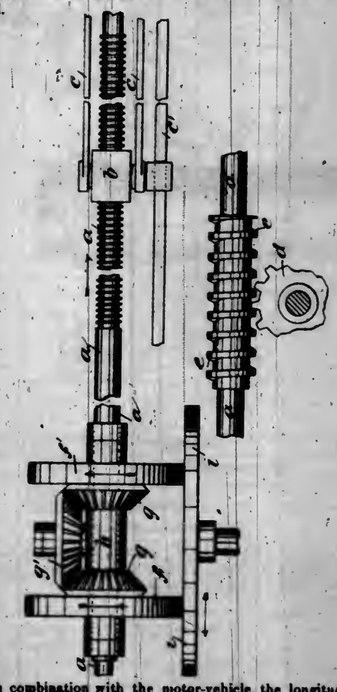
2. In disk and friction-wheel gearing: the combination of the wheels A^4, A^5, mounted loosely upon a shaft, gears C^3, C^3, an intermediate gear D', the latter mounted on a radial axis in a third wheel A^3, fixed to the shaft and a disk J, the tires or peripheries of the three wheels being in working contact with said disk J, substantially as set forth.

3. In disk and friction-wheel gearing: the combination of four friction-wheels having a common axis, arranged in two sets each comprising two wheels, bevel-gears connecting the same, an intermediate gear in each set connected with the intermediate gear in the other set, a third set of bevel-gears forming the connection, the intermediate gear in such third set revolving upon an axis carried by a part fixed upon the shaft upon which the entire combination is mounted, substantially as set forth.

4. In disk and friction-wheel gearing: the combination of six friction-wheels, having a common axis, arranged in two sets, each comprising three wheels, a bevel-gear carried by the central wheel in each set, gears on the two outer wheels in such set meshing with the bevel-gears, the two center wheels, a set of bevel balance-gears connecting the two center wheels in the two sets, the intermediate gear in such balance-gears, revolving upon an axis radial from the common axis of all the six friction-wheels, such radial axis being carried by a part fixed upon the shaft upon which the entire combination is mounted, substantially as set forth.

587,714. ROAD-LOCOMOTIVE. Edward K. Dutton, Harrogate, England. Filed Jan. 6, 1897. Serial No. 618,193. (No model.) Patented in England June 6, 1896, No. 12,378.

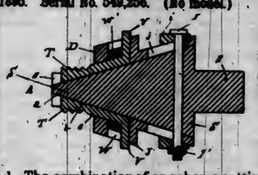
Claim.—1. In combination in a motor-vehicle, the longitudinally-movable shaft *a*, means for setting said shaft in its positions longitudinally, an adjustable driving-gear arranged to be set by the longitudinal movement of said shaft, said gearing being connected to the shaft to rotate the same and connections from the said shaft to the part of the vehicle to be operated by the gearing, substantially as described.



2. In combination with the motor-vehicle, the longitudinally-movable shaft, the driving-gearing therefor arranged to be set by the longitudinal movement of the shaft, means for moving the shaft back to normal position as it is rotated by the gearing whereby said gearing and shaft are rendered inactive, and a connection between the shaft and the part of the vehicle to be operated, substantially as described.

3. In combination the shaft *a* movable longitudinally the gearing for rotating the same arranged to be set by the longitudinal movement of said shaft, the nut engaging the screw-threads of the shaft for returning the same with the gearing to normal position as it is rotated, and means for moving the nut, substantially as described.

587,715. AUTOMATIC EXTENSIBLE AND COLLAPSIBLE ADJUSTABLE TAP. Franklin A. Errington, Edgewater, N. Y. Filed May 14, 1895. Serial No. 549,256. (No model.)



Claim.—1. The combination of an arbor, a cutting-jaw connected to rotate therewith, retaining means to preserve the connection of said jaw with said arbor, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, and said jaw being longitudinally movable independently both of said arbor and of said retaining means for such a distance as will enable said jaw to expand to or collapse from the cutting position, substantially as described.

2. The combination of an arbor, a cutting-jaw connected to rotate therewith, a clamp connected with said arbor to retain said jaw thereon, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, and said jaw being longitudinally movable independently both of said arbor and of said clamp for such a distance as will enable said jaw to expand to or collapse from the cutting position, substantially as described.

3. The combination of an arbor, a cutting-jaw connected to rotate therewith, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, and a clamp connected with said arbor to retain said jaw thereon, said jaw and one of said other parts having respectively the one a slot and the other a projection meshing with said slot, the longitudinal dimension of said slot being sufficiently greater than the corresponding dimension of said projection to permit said jaw to move longitudinally independently of both said arbor and said clamp for such a distance as will enable said jaw to expand to or collapse from the cutting position, substantially as described.

4. The combination of an arbor, a cutting-jaw connected to rotate with said arbor, corresponding variations in the diameter of said arbor under said jaw and in the depth of said jaw, a clamp adjustable longitudinally on said arbor, and means to fasten said clamp rigidly to said arbor at certain intervals in the length of the latter to vary the position of said jaw thereupon, said jaw being movable longitudinally independently both of said arbor and of said clamp for such a distance as will enable said jaw to expand to or collapse from the cutting position, substantially as described.

5. The combination of an arbor, a longitudinally-movable cutting-jaw connected to rotate therewith, said jaw having teeth extending at an angle to the axis of said arbor, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, retaining means to hold said jaw in connection with said arbor, and a stop-piece to coact with said parts to cause said jaw to move longitudinally along said arbor during operation to collapse automatically, substantially as described.

6. The combination of an arbor, a longitudinally-movable cutting-jaw connected to rotate therewith, said jaw having teeth extending at an angle to the axis of said arbor, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, a clamp to retain said jaw in connection with said arbor, and a stop-piece connected with said arbor and projecting beyond said jaw to cause said jaw to move longitudinally along said arbor during operation to collapse automatically, substantially as described.

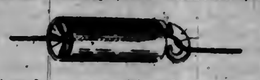
7. The combination of an arbor, a cutting-jaw connected to rotate therewith, one of said parts being movable longitudinally independently of the other, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, retaining means to hold said jaw in connection with said arbor, and a spring to coact with said parts to cause said jaw to rebound automatically from the collapsed position, substantially as described.

8. The combination of an arbor, a cutting-jaw connected to rotate therewith, one of said parts being movable longitudinally independently of the other, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, a clamp to retain said jaw in connection with said arbor, and a spring located between said parts to cause said jaw to rebound automatically from the collapsed position, substantially as described.

9. The combination of an arbor, a cutting-jaw connected to rotate therewith, one of said parts being movable longitudinally independently of the other, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, a clamp to hold said jaw in connection with said arbor, one of said parts having a slot and another of said parts having a projection or lug meshing therewith, the longitudinal dimension of said slot being greater than the corresponding dimension of said lug, and a spring located between said parts to cause said jaw to rebound automatically from the collapsed position, substantially as described.

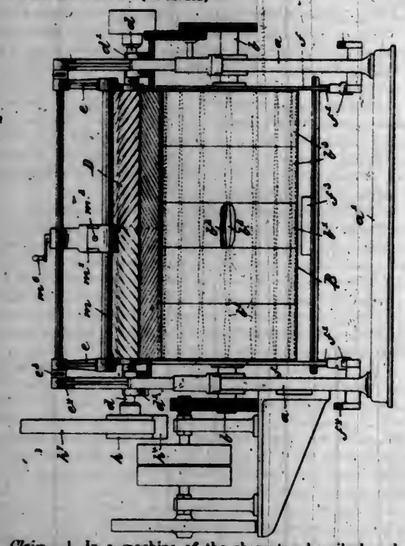
10. The combination of an arbor, a longitudinally-movable cutting-jaw connected to rotate therewith, said arbor having variations in its diameter under said jaw to coact with similar variations in the depth of said jaw, a clamp having a slot W, passing through it, said jaw having a lug V, passing through said slot W, in said clamp and extending beyond the surface of said clamp, said slot W, being of greater length than the corresponding dimension of said lug V, substantially as described.

587,716. CORD OR TWINE CUTTER. Hattie E. Evans, Kincardine, Canada. Filed July 3, 1896. Serial No. 597,943. (No model.)



Claim.—A cord-cutter comprising a hooked cutting-blade having a notch for holding the cord and preventing it from slipping, an open body through which the cord passes, and inwardly-projecting prongs which are inclined toward the cutting blade and are adapted to engage with the cord and prevent the cord from slipping.

587,717. MACHINE FOR TREATING HIDES, SKINS, OR LEATHER. WILLIAM EVANS, Philadelphia, Pa. Filed Nov. 20, 1896. Serial No. 612,912. (No model.)



Claim.—1. In a machine of the character described, a drum upon which the hide, skin or leather is adapted to be supported and consisting of a cylindrical core or barrel provided with grooves or recesses, a covering of elastic or yielding material of equal thickness throughout applied thereto but the central portion of said applied covering being of a less elastic nature than the end portions thereof, substantially as and for the purposes described.

2. In a machine of the character described, a sectional drum provided with double tapered grooves or recesses, a yielding material or substance applied thereto, and one of said sections being of greater firmness or rigidity than the other sections of said drum, substantially as and for the purposes described.

3. In a machine of the character described, a working roll or cylinder, brackets supporting said cylinder, counterpoising-levers from which said brackets are suspended, cross-rods connecting said brackets and a grinding mechanism supported on and adapted to slide over said rods and maintained in fixed relationship with respect to said cylinder, substantially as and for the purposes described.

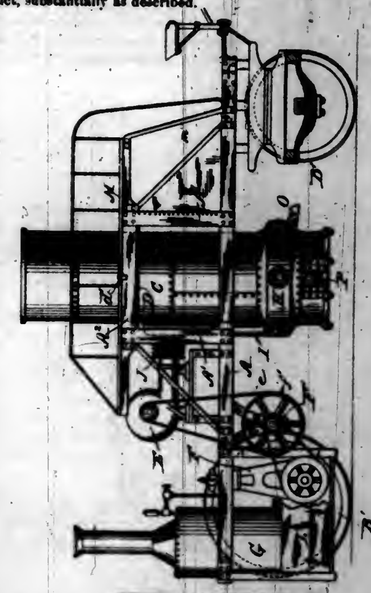
4. In a machine of the character described, two counterweighted arms, a bracket suspended from each arm, a cylinder having its bearings in said brackets, cross-rods connecting said brackets, a carriage supported on and adapted to slide over said cross-rods, a slide vertically movable with respect to the carriage, a grinding-block carried by said slide and means for moving said slide and block in the carriage toward or away from the periphery of said cylinder, substantially as and for the purposes described.

587,718. PORTABLE MELTING-FURNACE. HERMAN W. FALK, Milwaukee, Wis., assignor to the Falk Manufacturing Company, of Wisconsin. Filed Apr. 22, 1896. Serial No. 546,642. (No model.)

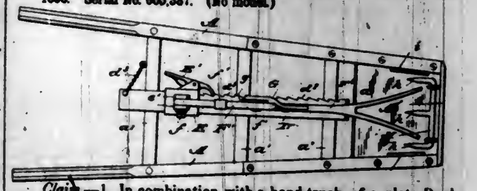
Claim.—1. A portable apparatus for melting metal comprising a suitable truck, a melting furnace or cupola, having a universally-flexible suspension upon said truck, an air-blast appliance, and an extensible and universally-flexible connection between said air-blast appliance and the air-passage of said furnace or cupola, substantially as described.

2. A portable apparatus for melting metal comprising a suitable truck, a melting furnace or cupola having a universally-flexible connection with said truck, a vertical air-duct extending from a point adjacent to said connection between the truck and the cupola, and arranged at its lower end to communicate with the twyers of the cupola, an air-blast appliance and an extensible and universally-flexible connection between the discharge pipe of said air-blast and the upper end of said air-duct, substantially as described.

3. A portable apparatus for melting metal comprising a suitable truck, a melting furnace or cupola having a universally-flexible suspension thereon, and provided in its lower part with twyers, an air box or duct communicating with said twyers, a vertically-disposed air-duct communicating therewith and leading upward to a point near the level of the connection between said cupola and the truck, an air-blast appliance and an extensible and flexible connection between said air-blast appliance and the upper end of said vertical air-duct, substantially as described.



587,719. HAND-TRUCK. JAMES C. W. FERRAR, Johnsonburg, Pa., assignor of one-half to John A. Craig, same place. Filed Sept. 10, 1896. Serial No. 605,387. (No model.)



Claim.—1. In combination with a hand-truck, of a plate D adjustable longitudinally upon the frame of the truck, a bracket or support held in sliding engagement with the plate, and an extensible bar pivoted to said bracket or support, substantially as shown and for the purpose set forth.

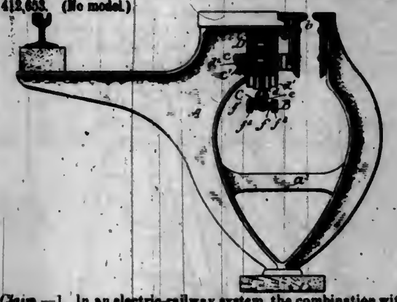
2. In combination with a hand-truck having transverse brace-bars, a plate D mounted thereon and provided with a channel in its under side, bolts with heads which engage said channel, a longitudinal plate D', bearing against the under side of the cross-bars and provided with apertures through which the bolts pass, and nuts for clamping the parts together: together with a bracket or support held in sliding engagement with the plate D, and an extensible grappling-bar pivoted to said bracket or support, substantially as shown and for the purpose set forth.

3. In combination with a hand-truck, of a plate D adjustable longitudinally thereon and provided with ratchet-teeth at one edge, a bracket or support E held in sliding engagement with the plate by means of depending side members which are bent around the edges of said plate, and a pawl pivoted to the bracket to engage the ratchet-teeth of the plate: together with an extensible grappling-bar pivoted to said bracket or support, substantially as shown and for the purpose set forth.

4. The combination with a hand-truck, of an extensible grappling-bar consisting of an inner section pivoted to the truck, a bail pivoted to the outer end of said section, and an outer section held in sliding engagement with the other section and provided with notches in its upper edge which are engaged by the bail, substantially as shown and for the purpose set forth.

5. The combination with a hand-truck having the usual toe-piece at the end thereof, a rock-bar mounted upon the truck adjoining the inner side of said toe-piece and provided with three prongs adapted to be projected beyond said toe-piece; together with a set of additional prongs pivoted to the inner side of the side pieces of the truck, substantially as shown and for the purpose set forth.

587,720. ELECTRIC-RAILWAY SYSTEM. STEPHEN D. FIELD, Stockbridge, Mass., assignor, by mesne assignments, to the General Electric Company, of New York. Filed Nov. 21, 1891. Serial No. 412,653. (No model.)



Claim.—1. In an electric-railway system, the combination with a slotted conduit embodying metal frames, of insulators flexibly mounted on arms projecting from said frames, and a working conductor composed of magnetic metal flexibly suspended from said insulators, substantially as described.

2. In an electric-railway system, the combination with a conduit having a trolley-slot, of a working conductor composed of magnetic metal located in and near one side of said conduit remote from the slot, and a well-insulated supply-conductor supported by the working conductor, and electrically connected thereto at intervals, substantially as described.

3. In an electric-railway system, a slotted conduit, a working conductor composed of magnetic metal and affording parallel trolley-rails: a magnetic trolley having wheels adapted to roll on said rails with magnetic adhesion, and a trolley-arm flexibly connected to the trolley, and adapted to occupy the conduit-slot, and carried in a pendent position by a motor-car, substantially as described.

4. In an electric-railway system, the combination with a slotted conduit, of a working conductor, composed of magnetic metal, formed into bars or plates, plain at the back side, and each having at the opposite side projecting edges, the backs being in contact, and the plates firmly united, substantially as described, said bars being readily inserted separately into the conduit by way of the slot, and then readily assembled and united, one pair of the projecting edges serving as trolley-rails and both pairs as stiffeners or braces in the conductor.

5. In an electric-railway system, the combination substantially as hereinbefore described, of a suitable working conductor composed of magnetic metal, and a magnetic trolley provided with conducting-wheels, mainly of magnetic metal but having flanges composed of non-magnetic metal, whereby each wheel has a magnetic tread-surface adapted to roll in magnetic adhesion along the working conductor, and also a flange serving as a reliable electric conducting-contact, and at times serving as the tread of the wheel for separating the magnetic tread surface of the wheel from the conductor, as at branches or turnouts.

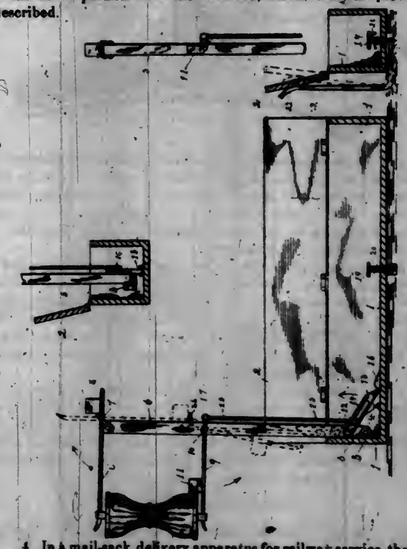
6. In a magnetic trolley a pair of wheels adapted to roll in magnetic adhesion with a working conductor composed of magnetic metal, a frame in which said wheels are mounted, and a stationary exciting coil carried on said frame, between the wheels and concentric with their axle, substantially as described.

587,721. MAIL-SACK-DELIVERING APPARATUS. LAWRENCE A. FISHER, Derry Station, Pa. Filed Oct. 2, 1896. Serial No. 607,674. (No model.)

Claim.—1. A mail-sack-delivery apparatus comprising an upright post provided with outwardly-extending arms, the outer ends of which are adapted to engage with and retain the mail-sack, means for automatically operating each of said arms, and mechanism connected to one of the said arms whereby the removal of the mail-sack will cause the said post to fall down parallel with the road-bed, substantially as described.

2. In a mail-sack-delivering apparatus for railway service, the combination of a supporting-post pivotally secured at its base and provided with outwardly-extended arms for engaging with and holding the mail-sack, of a mechanism connected to one of the said arms and the supporting-post whereby the removal of the mail-sack will cause the said arm to fold against the supporting-post and release the said supporting mechanism and cause the said post and its mechanism to fall down parallel with the road-bed, substantially as shown and described.

3. In a mail-sack-delivering apparatus for railway service, the combination of a supporting-post slightly inclined in the direction of its fall and provided with outwardly-extended arms for engaging with and holding the mail-sack, a mechanism connected to one of the said arms and the supporting-post whereby the removal of the mail-sack will cause the said arm to fall, release the supporting mechanism, fold it up parallel with the supporting-post and cause the said post to fall down parallel with the road-bed, substantially as shown and described.



4. In a mail-sack delivery apparatus for railway service, the combination of a slightly-inclined post provided with outwardly-extending arms to engage with and retain the mail-sack, and a supporting mechanism connected to one of the said arms whereby the dropping of the said arm will release the supporting mechanism and cause the said supporting-post and its mechanism to fall, of a box or receptacle adapted to remain stationary upon or parallel with the ground and having the supporting-rod suitably attached thereto, and adapted to receive the said mail-delivery apparatus when thrown down, substantially as described.

5. In a mail-sack-delivery apparatus for railway service the combination with the supporting-post having outwardly-extended arms to engage with and retain the mail-sack until removed, and a mechanism supporting the said delivery apparatus, a box or receptacle, having the supporting-post suitably attached thereto, a lid or cover for the same and mechanism attached to the said box or receptacle whereby the fall of the said delivery apparatus into the box or receptacle will cause the said mechanism to automatically close down the said lid when the said delivery apparatus has entered the box, substantially as shown and described.

587,722. SOFT-TREAD HORSESHOE. FELIX GALLEY, Nashville, Tenn., assignor of one-fourth to Albert Tavel, same place. Filed Jan. 14, 1897. Serial No. 619,212. (No model.)



Claim.—A horseshoe comprising a body provided with a continuous dovetailed groove or channel, a toe calk provided with a shank arranged within the groove or channel and conforming to the configuration thereof, and an elastic tread composed of two sections or strips arranged within the groove or channel, located at opposite sides of the toe-calk, and retaining the same in position, substantially as described.

587,723. TIRE-SECURING DEVICE. PERRY G. GARDNER, Bound Brook, N. J., assignor of seven-sixteenths to Horatio V. S. Negus, same place. Filed May 4, 1896. Serial No. 590,111. (No model.)

Claim.—1. The combination with a wheel-rim, of a tape independent of the rim and tire provided upon opposite sides with a viscous adhesive material, and seated in the concavity of said rim with one face secured to the rim, and the opposite face adapted to receive and secure in position a tire, substantially as described.

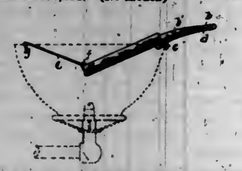


2. The combination with a wheel-rim, of a tape independent of the rim and tire and extending around the periphery of the rim and seated in the concavity thereof, and having viscous adhesive material upon opposite sides, and a tire arranged about said rim, and secured in position by the viscous material upon the outer face of said tape, substantially as described.

3. The combination with a wheel-rim, of a tape independent of the rim and tire and extending around the periphery of the rim and seated in the concavity thereof, and having viscous adhesive material upon opposite sides, and a tire arranged about said rim, and secured in position by the viscous material upon the outer face of said tape, said tape being of less width than the transverse surface of the rim, substantially as described.

4. The combination with a bicycle-wheel rim, a tire, and an interposed strip of tape provided with a viscous adhesive substance upon both sides, said tape being placed within the rim and the tire placed upon said tape whereby the tire is secured to the rim solely by said tape without the interposition of any cement, substantially as and for the purpose described.

587,724. HOLDER. JACOB F. GATES, Pittsburg, Pa. Filed Apr. 16, 1897. Serial No. 632,411. (No model.)



Claim.—1. In a holder of the class described, consisting of a tube, a clamp or holder, said tube and clamp or holder formed of a single piece of metal or other suitable material, a pivoted hanger secured to the tube, and adapted to engage the chimney or globe diametrically opposite to the clamp or holder, whereby said holder may be applied to chimneys or globes of different sizes, substantially as shown and described.

2. In a holder of the type described, a tube and shield, a clamp or holder for supporting the tube and shield at the rear, and a hanger of greater length for supporting the tube at its forward end, substantially as shown and described.

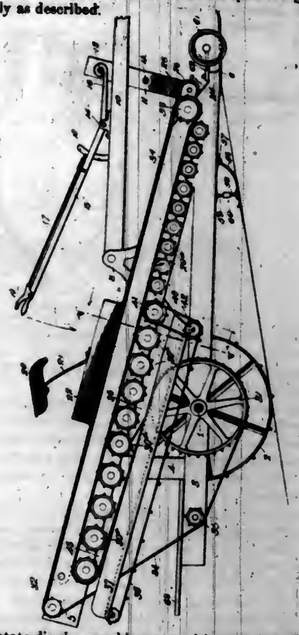
3. In a holder of the type described, a tube having a closed and an open end, a shield formed integral with said tube, a holder formed integral with said shield, and a hanger attached at or near the forward end of the tube to support the same, substantially as shown and described.

4. A holder of the type described, consisting of a tube, a shield and a holder formed of a single piece of metal or other suitable material, and a hanger attached to the tube for supporting the one end of the same, substantially as shown and described.

587,725. POTATO-DIGGING MACHINE. ALFRED R. GIBSON, Shelbina, Mo. Filed Sept. 23, 1896. Serial No. 606,639. (No model.)

Claim.—1. In a potato-digging machine, the combination of a wheel-supported framework, having a plow or scoop, and a potato-supporting surface, consisting of rollers properly spaced apart, with an endless conveyer, arranged entirely above the rollers, and a pivoted frame, carrying the front end of the conveyer and holding it yieldingly depressed, for the purpose set forth.

2. A potato-digging machine, comprising a suitable framework mounted upon wheels and adjustably supported at its front end, a V-shaped plow or scoop arranged forward of said support, soil-cutters arranged at opposite sides of said plow or scoop, a series of rollers journaled in the framework, a pair of guide-rollers arranged at opposite ends of said series of rollers, and in a higher plane, a frame pivoted at its rear end within said framework and carrying the front guide-roller of said pair, and an endless conveyer superposed with relation to said series of rollers, and mounted upon said guide-rollers, substantially as described.



3. A potato-digging machine, comprising a suitable framework mounted upon wheels and adjustably supported at its front end, a V-shaped plow or scoop arranged forward of said support, soil-cutters arranged at opposite sides of said plow or scoop, a series of rollers journaled in the framework, a pair of guide-rollers arranged at opposite ends of said series of rollers, and in a higher plane, a frame pivoted at its rear end within said framework and carrying the front guide-roller of said pair, an endless conveyer superposed with relation to said series of rollers, and mounted upon said guide-rollers, a master sprocket wheel rotating with the axle of the machine, sprocket-wheels upon the spindles of said rollers, and an endless chain connecting said master sprocket-wheel and the sprocket-wheels of said pair of rollers, and also engaging sprocket-wheels of said series of rollers, substantially as described.

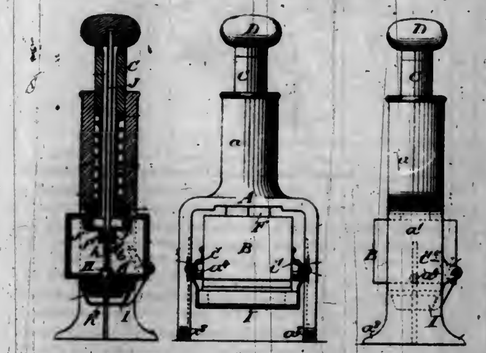
4. A potato-digging machine, comprising a wheel-supported framework, having a plow or scoop at its front end, an adjustable support for the front end of said framework in rear of said plow or scoop, a series of rollers arranged closely together and journaled in said framework, a second series of rollers arranged to the rear of the first series, but disposed at greater distances apart, an endless conveyer above said rollers and working in conjunction therewith, one or more hoppers arranged below the second series of rollers adapted to receive the potatoes as they pass downward between said rollers, and means to rotate said rollers and operate said conveyer, substantially as described.

5. A potato-digging machine, comprising a wheel-supported framework, having a plow or scoop at its front end, an adjustable support for the front end of said framework in rear of said plow or scoop, a series of rollers arranged closely together and journaled in said framework, a second series of rollers arranged at the rear of the first series, but disposed at greater distances apart, an endless conveyer above said rollers and working in conjunction therewith, one or more hoppers arranged below the second series of rollers and adapted to receive the potatoes as they pass downward between said rollers, an inclined elevator casing or spout connected with each hopper at one side of the machine, and a conveyer traveling upwardly in each spout and adapted to discharge the potatoes at the upper ends thereof, substantially as described.

6. In a potato-digging machine, the combination of a wheel-supported framework having a plow or scoop, a potato supporting and grading and earth-sifting surface, and means to convey the potatoes rearwardly upon such surface, with a series of scraping-plates, and means to throw them into or out of contact with said surfaces, for the purpose set forth.

7. A potato-digging machine, comprising a wheeled framework, having a plow or scoop at its front end, and an adjustable runner in rear of said plow or scoop, an endless conveyer, a series of rollers arranged below and acting in conjunction with said conveyer, crank-shafts journaled in the framework below said rollers, provided with scraping-plates for said rollers, a foot-lever mounted on the framework, a link pivotally connecting the same and said crank-shafts, and a retractile spring connected to said lever and holding said scraping-plates out of engagement with said rollers, substantially as described.

587,726. MUCILAGE-STAMP. WILLIAM E. GIBBS, Westfield, Mass. Filed Mar. 11, 1897. Serial No. 626,927. (No model.)



Claim.—1. A mucilage-stamp comprising a suitable support, a reciprocating plunger mounted therein, the said plunger comprising a reservoir-head, a shank connected therewith, a mucilage-distributing pad carried by the head, a mucilage-discharge outlet for feeding the mucilage to the said pad and a valve under the control of the movement of the plunger for opening and closing the said mucilage-discharge outlet, substantially as set forth.

2. A mucilage-stamp comprising a suitable support, a reciprocating plunger mounted to slide therein, the head of the said plunger forming a mucilage-reservoir, a mucilage-distributing pad carried by the plunger-head, a mucilage-discharge outlet in the head through which the mucilage is fed to the pad, a valve in position to normally close the said outlet and a downwardly-extending stem carried by the valve in position to be engaged by the surface to be mucilaged as the plunger is depressed for raising the said valve away from its seat thereby permitting a portion of the mucilage to pass through the discharge-outlet into the pad, substantially as set forth.

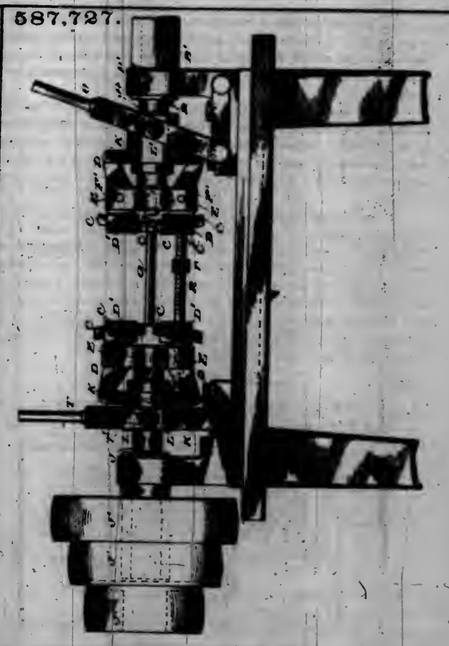
3. A mucilage-stamp comprising a suitable support, a reciprocating plunger mounted to slide therein, the said plunger comprising a tubular shank and a hollow head communicating with the interior of the shank, an air-vent tube extending from the reservoir-head upwardly through the shank and a mucilage-distributing pad carried by said head in position to receive a supply of mucilage from the interior of the same substantially as set forth.

4. A mucilage-stamp comprising a suitable support, a reciprocating plunger fitted to slide therein, the head of the said plunger forming a reservoir for the mucilage, a mucilage-distributing pad carried by the head in position to receive mucilage therefrom, and a swinging protecting-pan mounted upon the support having a connection with the head of the plunger whereby the reciprocating movement of the plunger is caused to swing the pan into position to cover the pad when the plunger is slid in one direction and away from the said pad when the plunger is slid in the opposite direction, substantially as set forth.

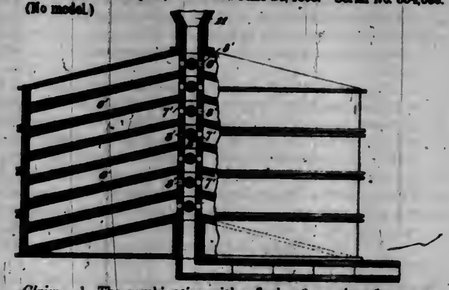
587,727. SCREW-CUTTING MACHINE. ARA GREEN, Glasgow, Scotland, assignor to Ritchie, Green & Co., same place. Filed July 13, 1896. Serial No. 599,021. (No model.) Patented in England Mar. 6, 1894, No. 4,633.

Claim.—A machine for cutting screw-threads comprising a rotating die-head having levers provided with holders for cutting-tools, a shaft having a collar loosely mounted thereon, links whereby the levers are connected with the loose collar, a lever for moving the collar on the shaft, the sliding die-head having levers provided with holders for cutting-tools, a sliding shaft, a collar on the sliding shaft, links connecting the levers of the sliding die-head with the collar on the sliding shaft, and a lever moving the sliding shaft; substantially as described.

587,727.



587,728. METAL-MOLD. JACOB K. GRIFFITH, Latrobe, and JOHN SLATTERY, Philadelphia, Pa. Filed June 26, 1895. Serial No. 554,089. (No model.)



Claim.—1. The combination with a flask, of a series of separate metal-molds fitting therein, said molds being superposed one above the other, and a separate vertical runner of refractory material, having branch gates leading into the matrix-cavities of the metal-molds; substantially as described.

2. The combination with a flask having arms radiating from a common center, of separate metal-molds superposed upon each other in each arm of the flask, and a central vertical runner of refractory material, having branch gates leading to the mold-cavities: substantially as described.

3. The combination with a flask composed of several horizontally-divided sections, of a series of separate metal-molds fitting therein, said molds being superposed one above the other, and a separate vertical runner of refractory material having branch gates leading into the matrix-cavities of the metal-molds; substantially as described.

4. The combination with a flask, of a series of separate metal-molds fitting therein, said molds being superposed one above the other, a separate vertical runner of refractory material, having branch gates leading into the matrix-cavities of the metal-molds, and a bottom runner leading to the vertical runner; substantially as described.

5. The combination with a flask, of a series of separate metal-molds arranged in an inclined position therein, and a gate of refractory material having branches leading into the upper ends of the mold-cavities; substantially as described.

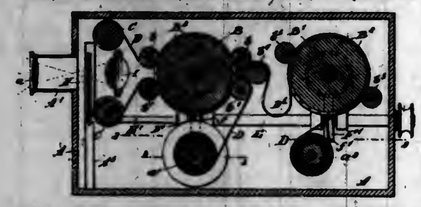
6. The combination with a flask, of a series of separate metal-molds arranged in an inclined position therein, and a bottom-pour runner arranged to feed the metal into the upper ends of the mold-cavities; substantially as described.

7. The combination with a flask, of a series of molds arranged in an inclined position therein, and a central gate having branches leading to the molds, each mold having the under side of its upper end provided with a layer of refractory material, substantially as described.

8. The combination with a separate bottom support having an inclined upper face, of a series of separate metal-molds placed thereon in an upwardly-inclined position and superimposed upon each other, and a bottom-pour gate of refractory material passing through said support and having branches leading to the upper end of each mold-cavity.

9. In casting apparatus, the combination with an upwardly-extending main gate or runner, of upwardly-inclined molds having their upper ends connected to the main runner by branch gates, said molds being arranged at successively higher levels, and a bottom runner leading to the lower portion of the main runner, whereby the metal flows downwardly over the side or sides of the lowest mold and then upwardly through the main gate, past the branch gate of such mold to a mold at a higher level, at the same time feeding the shrinkage in the first-filled mold.

587,729. KINETOGRAPHIC CAMERA. LEO GRUBMAN, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,575. (No model.)



Claim.—1. In a series photographic device, an intermittently-operated feed-wheel, and means for engaging the film therewith both before and after exposure, subtantially as described.

2. In a series photographic camera, the combination of a feed-wheel and mechanism for giving it intermittent rotation, with guide-pulleys whereby the film is engaged with one side of the feed-wheel before exposure and the other side after exposure, substantially as described.

3. In a series photographic camera, the combination of a feed-wheel and mechanism for giving it an intermittent motion, with guiding means for removing the film from the surface of the feed-wheel at one point and for returning the same to the wheel after exposure to the light-image, substantially as described.

4. In a series photographic camera, the combination of a feed-wheel adapted to engage the film to advance it, with a pair of adjacent guide-rollers holding the film to the feed-wheel, and two separated rollers adapted to receive the film from one of the guide-rollers, to present it before the lens and to deliver it to the other guide-roller, substantially as described.

5. In a series photographic device, the combination of a feed-wheel receiving a film from a supply-roll, means for rotating the feed-wheel, and a second feed-wheel having intermittent rotating means, with a pair of guide-rollers holding the film in contact with a segment of the intermittent feed-wheel, a pair of exposing-rollers receiving the film from the intermittent feed-wheel, and a second pair of guide-rollers receiving the film from the exposing-rollers and holding it in contact with a different segment of the intermittent feed-wheel, substantially as described.

6. In a series photographic device, the combination of a feed-wheel adapted to engage the film to feed it, and means for rotating the wheel, with means for engaging the film with opposite sides of the wheel before and after exposure, substantially as described.

7. In a series photographic device, a feed-wheel adapted to engage the film to give it intermittent motion, a toothed wheel attached to the shaft of the feed-wheel and composed of two toothed plates adjustable by an angular motion one upon the other, and a rotating wheel having a cam-flange engaging therewith, substantially as described.

8. In a series photographic device, the combination of a feed-wheel adapted to engage and move the film, means coacting with the feed-wheel to present the film for exposure, and a rotating shaft connected to and operating said feed-wheel, with a shutter fixed upon said shaft and revolving between the film and the lens, substantially as described.

9. In a series photographic device, the combination of a feed-wheel adapted to engage and move the film, means coacting with the feed-wheel to present the film for exposure, and a toothed wheel attached to the feed-wheel and composed of two toothed plates adjustable angularly upon each other, with a shaft, a wheel on the shaft having a cam-flange engaging the toothed wheel to move it intermittently, and a shutter attached to the shaft and revolving between the lens and film, substantially as described.

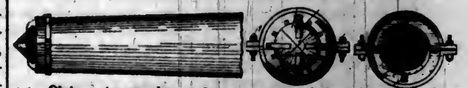
10. In a series photographic device, the combination of a feed-wheel adapted to engage the film to feed it, guide-rollers engaging the film to hold it in contact with the feed-wheel, and separated exposing-rollers receiving the film from one of the guide-rollers and returning it to the other, with a mirror located back of and between the exposing-rollers, substantially as described.

587,730. LIFTING-JACK. JOHN C. HACKETT, St. Louis, Mo. Filed May 3, 1897. Serial No. 634,851. (No model.)



Claim.—A lifting-jack consisting of the vertical leg 5, the inclined notched leg 6 and the lever 7; the vertical leg 5 consisting of a straight stick of timber having its upper forward corner rounded to produce the segmental face 8; the inclined notched leg 6 consisting of a suitable stick of timber having the lower face 9 substantially straight from a point near the upper end of the leg to a point near the lower end of the leg, having notches in its edge opposite the face 9 and having the body 14 projecting backwardly and downwardly from the line of the face 9 and at the upper end of the leg, the face 15 of said body being substantially vertical and the face 16 of said body being in the form of a compound curve uniting the face 15 with the face 9; the hand-lever 7 consisting of the wooden handle 19 and the casting 20; the casting 20 consisting of the box 21 in which one end of the handle 19 is inserted and the arms 22 projecting rearwardly from the sides of the box, the portions 23 of said arms projecting downwardly in parallel positions from the rear edges of the side pieces of the box and the portions 24 of said arms projecting backwardly from the lower ends of the portions 23; the bolt 25 inserted through the lower ends of the portions 23 and through the upper end of the leg 5, and the bolt 26 inserted through the portions 24 and through the body 14 of the leg 6, said portions 24 projecting some distance backwardly from the bolt 26 and engaging closely against the side pieces of the body 14, and the bolts 25 and 26 being such a distance apart that the upper end of the leg 5 will engage the face 15 upon the leg 6 when the handle is elevated and the segmental face 8 of the leg 5 operating close to the face 16 of the leg 6, substantially as specified.

587,731. MUZZLE ATTACHMENT FOR CANNONS. JOHN H. HAMMER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,630. (No model.)



Claim.—An attachment for cannons, consisting of a cap provided with flanges adapted to engage the muzzle of the cannon said cap provided with an opening registering with the bore, doors hinged near the edge of said opening, springs secured to the cap and engaging said doors, and means for securing said cap to the cannon, substantially as shown and described.

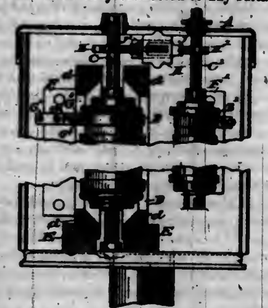
587,732. CONTROLLING-LEVER AND GRIP. GERRIT HARNELINK, Newkirk, Iowa. Filed Nov. 23, 1896. Serial No. 613,196. (No model.)



Claim.—The combination with a controlling-lever having an open spade-handle provided with the usual cross-piece, of a grip located in the opening of the handle and which grip is substantially U-shaped in cross-section, the same loosely embracing the cross-piece of the handle so as to be adapted to slide thereon and provided with notched ends which loosely receive the said pieces of the handle.

587,733. ELECTRIC CONTROLLER. SAMUEL HARRIS, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Jan. 7, 1897. Serial No. 618,227. (No model.)

Claim.—1. In an electric controller, in combination, a rotatable drum carrying a plurality of contacts, and a coil surrounding a part of said drum and electrically connected to any suitable part of the circuit.



2. In an electric controller, in combination, a rotatable drum, a plurality of fixed fingers contiguous thereto, and a coil electrically connected to any suitable part of the circuit and surrounding said plurality of fingers at their contact ends.

3. In an electric controller, in combination, a rotatable drum, a plurality of fixed fingers contiguous thereto, and a coil electrically connected to any suitable part of the circuit, the periphery of said drum being free to rotate within said coil.

4. In an electric controller, in combination, the operating-drum of the controller carrying a plurality of contacts, a series of fixed fingers contiguous thereto, a coil electrically connected to any suitable part of the circuit and surrounding a portion of said drum.

5. In an electric controller, in combination, the operating-drum of the controller constructed in part of magnetizable material, and energizing-coils, for directly magnetizing said drum.

6. In an electric controller, an electromagnetic arc-interrupter comprising the operating-drum of said controller and suitable energizing-coils surrounding a part of said drum.

7. An electromagnetic arc-interrupter for electric controllers comprising the operating-drum of said controller and coils for directly magnetizing said drum.

8. In an electric controller, a member constituting the core of an electromagnetic arc-interrupter and the operating-switch of the controller.

9. In an electric controller, in combination, a rotatable drum composed in part of magnetic material, a plurality of fixed fingers contiguous thereto, and coils for directly magnetizing said drum, one of the magnetic poles of the magnetized drum being at or near the contact portions of said plurality of fingers.

10. In an electromagnetic arc-interrupter for electric controllers, a combined operating-drum and magnet-core, one of the poles of the magnet being substantially at the contact-breaking portions of said drum.

11. In an electric controller, in combination, a rotating shaft, a drum rotatable with said shaft, field-coils contiguous to, parallel with and adapted to energize said drum, and fixed fingers adapted to make contact with said drum.

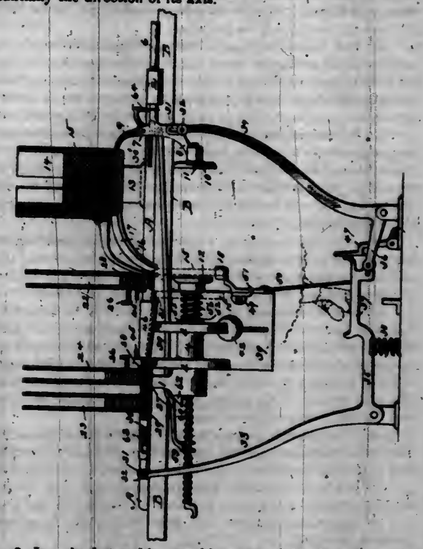
12. In an electric controller, in combination, a support K rigidly secured between two rotatable disks, two stops sliding within said support, means for pressing the stops toward said disks and means for limiting the range of movement of said stops.

13. An interlocking or stop-by-step device comprising, in combination, two rotatable disks, a rigid support between said disks, stops adapted to engage the peripheries of said disks, one of said stops being carried by the rigid support, the other of said stops being carried within the first-mentioned stop, a spring in a cavity within said stops adapted to press them in opposite directions toward said disks.

587,734. BASKET-MAKING MACHINE. ERNEST HORTON, Dundee, N. Y., assignor to the Horton Basket Machine Company, Washington, D. C. Filed June 8, 1895. Serial No. 552,137. (No model.)

Claim.—1. In a basket-machine, the combination with a revoluble form, of a bottom-holder disposed to hold the bottoms in a pile extending at right angles to the axis of the form, and devices for transferring the bottoms singly from the hopper into coincidence with the form, bottom-clamping mechanism, a band-holder extending approximately at right angles to the axis of the form, and mechanism for separating and advancing the bands, to the form, substantially as described.

2. In a basket-machine, a revoluble form, in combination with downwardly-extending band-holders and a band-feeding device arranged and adapted to separate the bands singly from the lower end or mouth of the hopper and feed them sidewise to the form in substantially the direction of its axis.



3. In a basket-making machine, a revoluble form, in combination with downwardly-extending band-holders arranged at the opposite ends of the form, band-feeders cooperating with the hoppers and arranged and adapted to separate and feed the bands singly in a sidewise direction to the form and in position to be nailed to the basket sides, a bottom feeding and clamping device, and mechanism for operating said devices, substantially as described.

4. In a basket-making machine a revoluble form, in combination with band-feeding devices located at the opposite ends and above the axis of the form, a bottom feeding and clamping device, and treadle mechanism for actuating all of said devices.

5. In a basket-making machine, the combination with a revoluble form, of a bottom-holder extending at right angles to the axis of the form, and mechanism for transferring the bottoms from a horizontal position in the hopper to a vertical position before the form, and a clamping device, substantially as described.

6. In a basket-machine, a form having a substantially horizontal axis, in combination with vertically-disposed band holders or hoppers arranged and adapted to hold the bands in a vertical pile, and mechanism for separating and feeding the bands to the form and in position to be nailed to the side pieces of the basket.

7. In a basket-making machine, the combination with a form of a bottom-holder, and a band-holder, and a reciprocating arm provided with devices arranged and adapted to cut out and feed a bottom and band to the form in one movement, substantially as described.

8. In a basket-making machine, the combination with a form, of band holders or hoppers, and differential band-feeding plungers arranged and adapted to move one in advance of the other to separate and feed the bands to the side of the form and in position to be nailed.

9. In a basket-making machine, the combination with a form, of bottom and band feeding levers or arms arranged to move toward the sides of the form, hoppers for holding the bands and bottoms, and treadle mechanism for operating the levers.

10. The combination in a basket-making machine, of a form having substantially a horizontal axis, band holders or hoppers disposed at the opposite ends thereof, a bottom-holder, a bottom feeding and clamping device, a band-feeding mechanism and treadle mechanism below the form to operate said parts, substantially as described.

11. In a basket-making machine, the combination with a form, of band holders or hoppers, and differential band-feeding plungers arranged and adapted to move one in advance of the other to separate and feed the bands to the side of the form, and in position to be nailed.

12. In a basket-making machine, a form having substantially a horizontal axis, in combination with a hopper for holding the side pieces, a follower in the hopper, a table at the discharge end thereof, and mechanism for feeding the bottom sides and bands to the form in the manner and for the purpose set forth.

13. In a basket-making machine, the combination with a form having substantially a horizontal axis, of a pair of band-holders ar-

ranged alongside of the form, and mechanism for cutting out of said holders a pair of bands and placing them in position before the form to be nailed to the edges of the side pieces to bind the top edges of the basket, substantially as described.

14. In a basket-machine, a form, in combination with a blank-feeding device having its mouth located in juxtaposition to the side of the form, and a table intervening between the mouth and the form, whereby the blanks can be removed from the mouth of the holder directly on the table and thence to the form, substantially as described.

15. In combination with a form, and means for assembling the blanks about the form, of a blank-holder extending upwardly in angular relation to the axis of the form with its discharge end at the top and in juxtaposition to the form, and a follower which urges the blanks upwardly as fast as they are removed from the top, substantially as described.

16. In a basket-machine, a revoluble form in combination with band-holders located above and feeding downwardly toward the axis of the form, and devices for cutting the bands out of the holders and transferring them to the form, substantially as described.

17. In a basket-making machine, a revoluble form in combination with downwardly-extending band-holders arranged at the opposite ends of the form, band-feeders cooperating with the hoppers and arranged and adapted to separate and feed the bands singly in a sidewise direction to the form and in position to be nailed to the inside and outside of the basket sides, and mechanism for operating said devices, substantially as described.

18. In a basket-machine, a form, in combination with one or more band-receptacles, and devices operated by man-power for transferring the bands therefrom to the form, substantially as described.

19. In a basket-machine, a form in combination with one or more band-receptacles, and devices operated by man-power for transferring an internal and external band therefrom to the form, substantially as described.

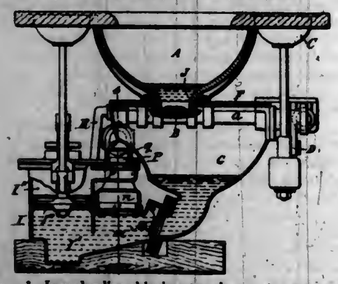
20. In a basket-making machine, a form in combination with one or more band-receptacles, and devices operated by man-power for transferring an internal and external band together, laterally therefrom to the form, substantially as described.

21. In a basket-making machine, a form, in combination with band-receptacles at the opposite ends of the form and man-operated band-feeding devices for transferring the bands therefrom to the form, substantially as described.

22. In a basket-making machine, a form and a band-receptacle at one end of the form, in combination with a band receptacle at the opposite end, and man-operated devices for transferring a pair of bands from one receptacle to one end of the form, and a single band from the other receptacle at the opposite end of the form, substantially as described.

23. In a basket-making machine, a form, in combination with a band-feeding and bottom-feeding mechanism, and manually-operated devices for operating said mechanisms, substantially as described.

587,735. SHIP'S WATER-CLOSET. HENRY IVES, London, England, assignor to the Blundell's London Copper and Brass Works, Limited, same place. Filed July 27, 1896. Serial No. 600,589. (No model.) Patented in England Apr. 30, 1894, No. 8,546.



Claim.—1. In under-line ships' water-closets, the combination of an upper pan to first receive the soil, a flushing apparatus connected therewith, a lower receptacle of a capacity to hold at one time a plurality of discharges from said upper pan, a valve between said upper pan and said lower receptacle delivering the contents of said upper pan to said lower receptacle, a pump connected with said lower pan for pumping the contents of same overboard from time to time, and means for operating said valve independently of said pump, substantially as and for the purpose set forth.

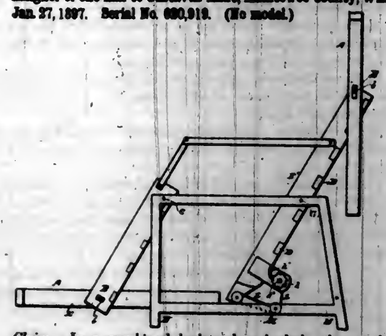
2. In under-line ships' water-closets, the combination with an upper pan A for first receiving the soil, of the lower receptacle G, the pump I for pumping the contents of said receptacle overboard, said receptacle having a capacity to hold at one time a plurality of discharges from said upper pan A, a flushing apparatus connected with said upper pan, a valve B between said upper pan and said lower receptacle and delivering the contents of said pan to said lower receptacle, and operating independently of said pump, a cover F to said receptacle, and a vent-pipe H fitted to said cover and leading overboard, substantially as and for the purpose described.

3. In ships' water-closets, the combination with a bowl and bowl-valve, of a soil-storage receptacle below the bowl and of a capacity sufficient to receive and hold several discharges therefrom through said valve, means for emptying said receptacle, means for operating said valve, and means for flushing said bowl operated with the operation of said valve, whereby the closet can be used and flushed several times without emptying said receptacle.

4. In ships' closets and the like, the combination with a bowl, of a soil-storage receptacle below the bowl receiving the discharge therefrom, and of a capacity to hold at one time a plurality of discharges from said bowl, of means for emptying said receptacle, means for discharging the soil from the bowl into the receptacle, and means for flushing the bowl operating independently of the emptying of said receptacle.

5. In ships' water-closets and the like, the combination with a bowl, of a soil-storage receptacle below the bowl receiving the discharge therefrom, and of a capacity sufficient to hold at one time a plurality of discharges from the bowl, means for discharging soil from the bowl into said receptacle, means for flushing the bowl, an air-vent from said receptacle, a pump for emptying the latter having a soil-chamber communicating with the bottom thereof, a valve between said chamber and receptacle, a discharge-pipe from said chamber between said valve and pump, and means for operating said pump independent of the means for flushing the closet.

587,786. INVALID-BED. PETER JERMAIN, School Hill, Wis., assignor of one-half to Gustavus Hake, Manitowoc County, Wis. Filed Jan. 27, 1897. Serial No. 620,919. (No model.)



Claim.—In a combined bedstead and chair, the combination with the pivoted pieces A A, the pivoted end sections and fixed middle section of bed bottom and the supporting-frame H, of the shafts J M, the pulleys on bed bottom and frame and the cords L L having one end fast to each of said shafts and passing over said pulleys as shown and described.

587,787. LOCK-NUT FOR SPINDLES. ADOLF JOSEPHS, Scranton, Pa., assignor of two fifty-fifths to Max Rosenbluth, Wilkes-Barré, Pa. Filed Jan. 23, 1897. Serial No. 620,457. (No model.)

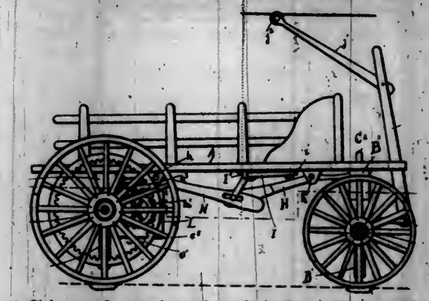


Claim.—1. The combination with the spindle of a vehicle provided with an angular extension 7, and a supplemental cylindrical extension 9, the extension 7, being provided with a transverse bore, of a nut, consisting of a body portion, and cap, said nut being provided in its outer surface with a cylindrical chamber, in the opposite sides of the bottom of which are formed radial slots which communicate with transverse bores formed in the body portion of the nut, locking-bolts mounted in said bores and provided with outwardly-directed pins, which pass through said slots, and a cap which is provided with a central circular opening, circular or segmental slots in the inner side thereof, and diametrically opposite holes or openings which pass therethrough, and means for operating said cap, substantially as shown and described.

2. The combination with a spindle, provided with an angular extension, and with a supplemental cylindrical extension formed thereon, said angular extension being provided with a transverse bore, of a nut, consisting of a body portion and a cap, said body portion being provided centrally with an angular opening and in the outer side thereof with a circular chamber in the back wall of which are formed two opposite radial slots which communicate with radial bores formed in the nut, said radial bores being provided with locking-bolts, each of which is provided with an outwardly-directed pin which passes through said slots, and said cap being provided centrally of its inner side with a circular opening, and with two circular or segmental grooves at the opposite sides thereof, and with two diametrically opposite holes or openings which pass therethrough, said body portion being also provided with springs having knobs which are adapted to enter said holes or openings, and the pins on the locking-bolts being adapted to enter said circular or segmental grooves, substantially as shown and described.

3. The combination with a spindle, provided with an angular extension, and with a supplemental cylindrical extension formed thereon, said angular extension being provided with a transverse bore, of a nut, consisting of a body portion and a cap, said body portion being provided centrally with an angular opening and in the outer side thereof, with a circular chamber, in the back wall of which are formed two opposite radial slots which communicate with radial bores formed in the nut, said radial bores being provided with locking-bolts, each of which is provided with an outwardly-directed pin which passes through said slots and said cap being provided centrally of its inner side with a circular opening, and with two circular or segmental grooves at the opposite sides thereof, and with two diametrically opposite holes or openings which pass therethrough, said body portion being also provided with springs having knobs, which are adapted to enter said holes or openings, and the pins on the locking-bolts being adapted to enter said circular or segmental grooves, and a key for turning the knob and operating said springs, substantially as shown and described.

587,788. TROLLEY-TRUCK. THOMAS M. KEENA, New Haven, Conn. Filed May 16, 1896. Serial No. 591,809. (No model.)



Claim.—1. In a truck or other vehicle, the combination with the wheels thereof, of hollow arms depending from the axles of said wheels; vertical plungers adapted to have a limited vertical play in said arms; plates secured to the lower ends of said plungers to form flanges for the wheels when desired; and mechanism for operating said plungers, substantially as described.

2. In a truck or other vehicle, the combination with the wheels thereof; of the axle of said wheels; hollow arms depending from said axle; plungers adapted to have a limited play in said arms; plates secured to the lower ends of said plungers to form flanges for said wheels when desired; transverse levers pivoted to said axle to swing in a vertical plane, and having their outer ends connected with said plungers; a vertical rod, the lower end of which is pivotally connected to the inner ends of said transverse levers; and mechanism for operating the same, substantially as described.

3. In a truck or other vehicle, the combination with the wheels thereof; of the fore and rear axles of said wheels; hollow arms depending from said axles; plungers adapted to have a limited play in said arms; plates secured to the lower ends of said plungers to form flanges for said wheels when desired; transverse levers pivoted to said axles to swing in a vertical plane, and having their outer ends connected with said plungers; vertical rods, the lower ends of which are pivotally connected to the inner ends of said transverse levers; longitudinal levers, the outer ends of which are attached to said vertical rods; an operating-lever pivoted to the bed of said truck having one end attached to the inner ends of said longitudinal levers, substantially as described.

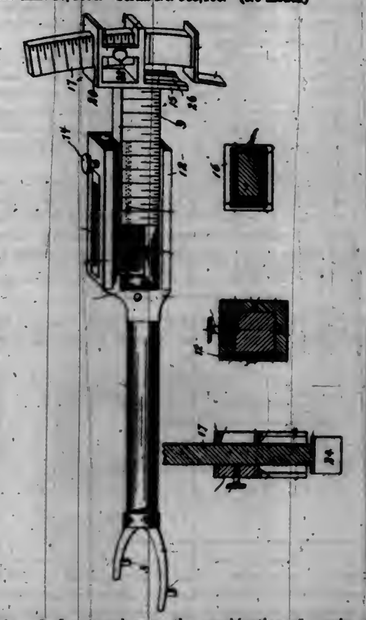
4. In a truck or other vehicle the combination with a recessed pole; of an arm having a trolley-wheel at one end thereof and being pivotally connected at the other end to the end of said pole, and adapted to fold into said recessed part when not in use, substantially as described.

5. In a truck or other vehicle the combination with the bed thereof; the fore standard of said truck; an axle attached to said standard; and a pin adapted to pass through perforations in said standard and into said axle to hold said axle rigid when desired, substantially as described.

6. In a truck or other vehicle, the combination with the wheels thereof; of two driving-shafts in a line with each other and capable of being drawn toward each other and forced apart, and adapted when so forced apart to be connected to said wheels to operate the same; an electric motor for operating said shafts; and mechanism for drawing said shafts toward each other and forcing them apart as desired, substantially as described.

7. In a truck or other vehicle the combination with the wheels thereof; of adjustable plates adapted to form flanges for the wheels; gears on the wheels; transverse shafts capable of a rotary and a limited longitudinal movement, and having gears on their outer ends adapted to mesh with the gears on the wheels; an electric motor; means for rotating said shafts from said motor; and mechanism for operating said adjustable plates and giving said shafts their longitudinal motion simultaneously, substantially as described.

587,789. TRACK-GAGE. ORLANDO S. KEPLER, Patterson, Pa. Filed Mar. 27, 1896. Serial No. 585,100. (No model.)



Claim.—1. In a track-gage the combination of a yoke at one end of the same having pins 3 with vertical inner and outer faces for engaging either side of a rail or other object, a longitudinal slide having at its outer end a guide, and a curved elevation-bar fitting said guide and having the flanges 24 and 25, the said flange 25 having its bottom face flush with the bottom of said guide when the parts are in their normal or closed position.

2. A track-gage having at one end means for engaging a rail, a longitudinal guiding-recess and undercut flanges at the edges of the same, a sliding graduated bar fitting said recess and carrying means for engaging the top and side of a rail, and a plate covering the recess and sliding within said flanges.

3. A track-gage having a longitudinal recess open at one side and a groove within the recess, a slide fitting the recess and having a projection entering the groove, a removable plate covering the recess, and an elevation-bar carried by the slide.

4. A track-gage having a longitudinal slide, vertical and horizontal flanges carried by the latter, a second horizontal flange, an elevation-bar guided in said horizontal flanges, and horizontal and vertical flanges or projections carried by said bar.

5. A track-gage having a longitudinal slide, vertical and hori-

zontal recessed flanges carried by the latter, an elevation-bar guided in said horizontal flange, and vertical and horizontal flanges or projections carried by the elevation-bar and fitting flush within said recesses.

587,740. TROLLEY-WIRE HANGER AND SPLICER. CHARLES K. KIPP, Mansfield, Ohio. Filed Apr. 13, 1897. Serial No. 632,082. (No model.)



Claim.—1. The combination with a hanger or splicer for suspended trolley-wires, whereby the contacting surface of the wire is continuously exposed, of means adapted to pass through the splicer or hanger and wire for securing the same together in efficient electric connection, as and for the purpose set forth.

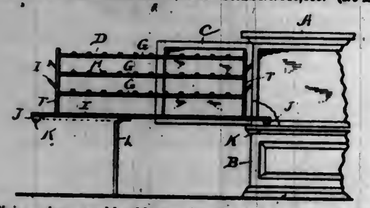
2. The combination with a hanger or splicer for suspended trolley-wires wherein the contacting surface of the trolley-wire is continuously exposed, of rivets arranged to be passed transversely through the hanger or splicer, and the wire for securing the same together in efficient electrical connection, as and for the purpose set forth.

3. The combination with a hanger or splicer having flanges forming a longitudinal groove on the under side thereof, and a suspended trolley-wire adapted to be seated in said groove, whereby the contacting surface of said wire is continuously exposed, of securing devices arranged to be passed transversely through said flanges and wire for securing the same together in efficient electrical connection, as and for the purpose set forth.

4. A splicer for joining the abutting ends of conductors and having a longitudinal seat or groove formed in the under side thereof, the cross-sectional area of which conforms to the shape or configuration of the upper sides of the conductor ends whereby said splicer may be slipped endwise upon the ends of the conductor-sections leaving the contacting surfaces of the conductor-sections continuously exposed, as and for the purpose set forth.

5. The combination with a conductor having a longitudinal bead formed on the upper side thereof, of a splicer made in a single piece, and having a groove or recess formed longitudinally in the under surface thereof, and adapted to receive said bead endwise, whereby the contacting surface of the conductor is continuously exposed, as and for the purpose set forth.

587,741. COMBINED HAT-RACK AND CASE. LEWIS J. KING, Monmouth, Kans. Filed Dec. 17, 1896. Serial No. 616,065. (No model.)

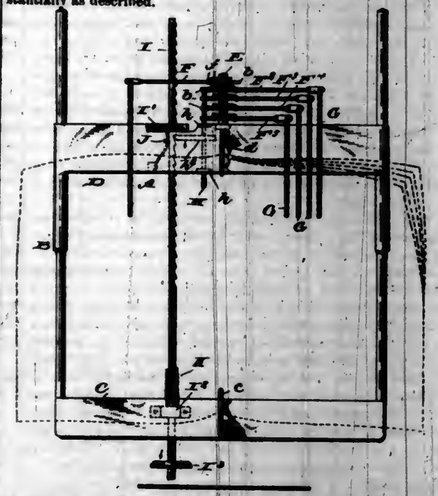


Claim.—In a combined hat-rack and case, the combination with the case A, of the supporting-counter B, and the rack D consisting of the base-board E provided with friction-roller K adapted to roll upon the counter B, the posts F detachably secured to the upper side of the board E, connecting-strips G provided with transverse strips H secured thereon, and the post L hinged to the under side of the base-board E, substantially as described.

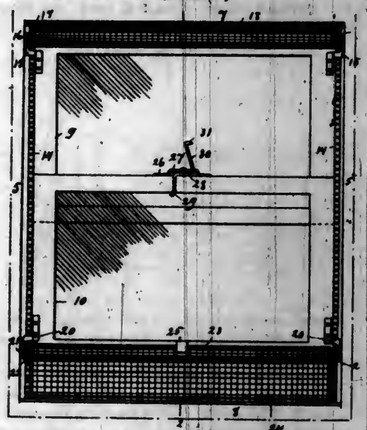
587,742. MUSIC-LEAF TURNER. JOHN P. KNOUT and HERMAN A. COOK, Dolgeville, N. Y.; said Cook assignor to Charles Doige, same place. Filed June 18, 1897. Serial No. 641,333. (No model.)

Claim.—1. In a music-leaf turner, the combination with the leaf-turning levers each provided with an actuating-spring, a vertically-movable stop rod or wire for holding the levers in position against the tension of the springs, the vertically-movable notched rod I, the spring for normally holding said rod at the extreme limit of its upward throw, and an arm A^3 carried by the rod H and adapted to engage the notches upon the rod I, substantially as described and for the purpose specified.

2. The combination with the main frame provided with spring-clips for holding the music-sheets, the spring-actuated leaf-turning arms carrying at their free ends wires to engage the leaves to be turned and at their opposite ends provided with extensions projecting beyond the pivotal points of the arms, the vertically-movable wire or rod H adapted to engage the said extensions of the levers, the vertically-movable notched rod I, spring-actuated as described and carrying at its lower end an operating-key, of an arm A^3 carried by the rod H and adapted to engage the notches upon the rod I, substantially as described.



587,748. WINDOW-SCREEN. ALONZO LAMBERT, Brooklyn, N. Y., assignor of one-third to Isaac F. Denzi, Corona, N. Y. Filed Feb. 3, 1897. Serial No. 621,859. (No model.)

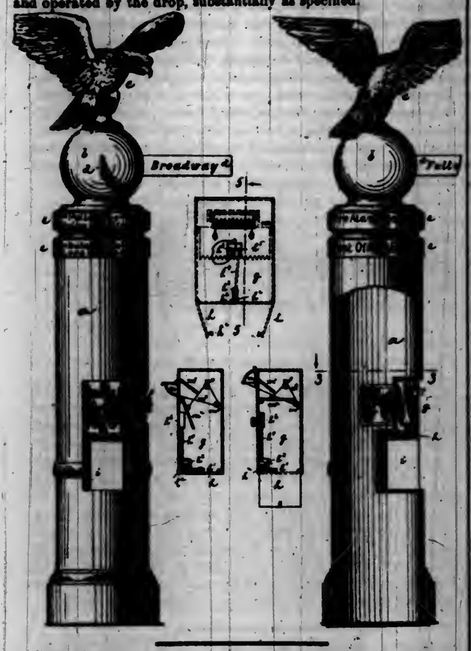


Claim.—The herein-described window-screen, comprising the combination with the frame and sash of a window of rack-bars 14, the upper sash being provided with arms 15; a roller 16 mounted therein; ratchet-wheels 17 secured to said roller; a screen 18 wound on said roller; the lower sash being provided with similar arms carrying a roller provided with ratchet-wheels adapted to engage the rack-bars 14, and provided with a screen 23 secured to the frame at 24; said upper sash being provided with a pin 32; and a plate 35 having an opening 36, and the lower sash being provided with an arm 25, a plate 26 having a raised portion 27; a circular plate 28 provided with an arm 29 and an arm 30 having a lug 31, substantially as and for the purpose set forth.

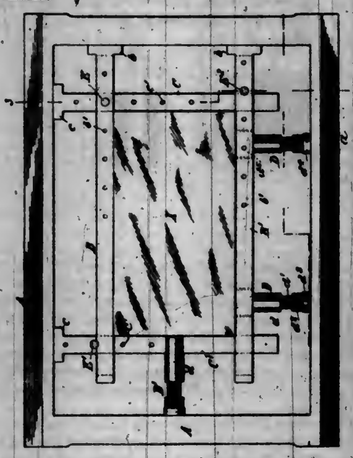
587,744. GUIDE-POST. OSWALD LEUSCHNER, Brooklyn, N. Y. Filed Nov. 12, 1896. Serial No. 611,393. (No model.)

Claim.—1. The combination of a guide-post having a mortise *i*, with a letter-box *g*, having drop-bottom *h*, bolt *h'*, engaging the same, bell-crank A^2, draw-bar A^4, and pivoted link A^5, adapted to be engaged by the key, substantially as specified.

2. The combination of a guide-post having a mortise *i*, with a letter-box having a hinged bottom *h*, a drop *m*, an upper fixed guard-plate *m'*, and a lower pivoted guard-plate m^2, which is connected to and operated by the drop, substantially as specified.



587,745. PRINTERS' ADJUSTABLE FURNITURE. GEORGE B. LINCOLN, Brooklyn, N. Y., assignor to Cuthbert J. Orchard and J. Clyde Oswald, same place. Filed Sept. 23, 1896. Serial No. 606,753. (No model.)



Claim.—1. In printers' adjustable furniture, the combination with a chase of usual construction, of a pair of longitudinal bars provided with transverse holes and slotted longitudinally, a pair of transverse bars provided with transverse holes, a pin jointing together one of the longitudinal and one of the transverse bars, pins adapted to fit the holes in said bars to furnish abutments for one of the longitudinal bars and one of the transverse bars, and devices cooperating with one of the longitudinal and one of the transverse bars to exert pressure thereon, substantially as set forth.

2. The combination with a chase, of a pair of longitudinal bars provided with longitudinal slots and transverse holes and having enlargements at one of their ends, a pair of transverse bars provided with transverse holes and having enlargements at one of their ends, a pin jointing together one of the longitudinal bars and one of the transverse bars, abutment-pins for one of the longitudinal and one of the transverse bars, a pair of screw-adjusting devices provided at their inner ends with heads adapted to enter the slots of one of said longitudinal bars, and a screw-adjusting device cooperating with one of said transverse bars, substantially as set forth.

3. The combination with a pair of longitudinal bars slotted longitudinally and having rows of transverse holes equal distances apart, the row of holes of one bar beginning farther from the end of the bar than the row of holes of the other bar, a pair of transverse bars similarly provided with rows of transverse holes and adapted to be adjusted within the slots of said longitudinal bars, a pin detachably jointing one bar of each set of bars together, an abutment-pin for one of the longitudinal bars, an abutment-pin for one of the transverse bars, and screw-adjusting devices for one of the longitudinal and one of the transverse bars, substantially as set forth.

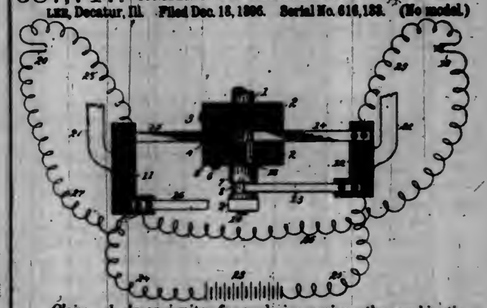
4. The combination with a chase A, and a form X, of longitudinal bars B, B' slotted as shown and provided with transverse holes, transverse bars C, C' likewise provided with transverse holes, pin E detachably jointing together bars B and C, abutment-pins E', E² and screw-adjusting devices adapted to exert pressure on longitudinal bar B' and transverse bar C' to lock the form X in place, substantially as set forth.

587,746. SWITCH-BOX. JAMES C. MOOR, Wilkinsburg, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed June 10, 1896. Serial No. 594,954. (No model.)



Claim.—In a switch-box, the combination of a movable cam adapted to be operated by the movable rails of a switch, a lever arranged to be shifted by said cam in one direction, a spring acting on the lever in opposition to the cam, and contact-springs adapted to form parts of a track-circuit to be moved into and out of contact with each other by the lever, substantially as set forth.

587,747. IGNITER FOR EXPLOSIVE-ENGINES. PHILIP MOELLER, Decatur, Ill. Filed Dec. 18, 1896. Serial No. 616,133. (No model.)



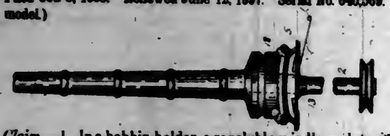
Claim.—1. In an igniter for explosive-engines, the combination of a rotatable shaft insulated from the engine and communicating with a source of electrical energy, a segment of contact-surface rotatable with the shaft and electrically connected therewith, a plurality of brushes contiguous to the path of the segment and connected each with a pole-piece of a sparker, connections between the source of electrical energy and the opposite pole-pieces of the sparkers, radial arms on the shaft corresponding in number with the brushes contiguous to the segment, a brush in the path of the arms and in communication with the source of electrical energy, substantially as set forth.

2. In an igniter for explosive-engines, the combination of the non-conductor cylinder 2, the shaft 7 having the disk-flange 5 connected with the cylinder in a manner permitting rotary adjustment, the contact-surface 17 fastened to the cylinder and having a lateral extension touching the disk-flange, brushes 14 and 15 on opposite sides of the path of the contact-surface 17 and communicating each with a pole-piece of a sparker, conductors between the opposite pole-pieces of the sparkers and the source of electrical energy, brush 13 bearing against shaft 7 and communicating with the source of electrical energy, cross-bar 9 on shaft 7, brush 16 in the path of the arms of the cross-bar, and an electrical connection between the source of electrical energy and the brush 16, substantially as set forth.

3. An igniter for explosive-engines having the following essential peculiarities, namely, a plurality of brushes communicating each with sparkers, a movable electrode adapted to contact with the brushes successively, a short circuit for the current passing from the electrode to the brushes, or the reverse, and means for maintaining the short circuit while the electrode is out of contact with a brush and for breaking it when contact is made, substantially as and for the purpose set forth.

4. In an igniter for explosive-engines, the combination of a rotatable shaft insulated from the engine and communicating with a source of electrical energy, a segment of circular contact-surface made up of alternate sections of conductor and non-conductor, such segment being rotatable with the shaft and in electric communication therewith, a plurality of stationary contact-surfaces at regular intervals around and contiguous to the path of the segment, a wire leading from each stationary contact-surface to a pole-piece of a sparker, and other wires leading from the opposite pole-pieces of the sparker back to the source of electrical energy, substantially as set forth.

587,748. **BOBBIN AND THREAD HOLDER.** THOMAS J. MURDOCK, Woonsocket, R. I., assignor of one-half to John Roney, same place. Filed Oct. 3, 1895. Renewed June 12, 1897. Serial No. 640,569. (No model.)



Claim.—1. In a bobbin-holder, a revoluble spindle, a plate affixed to said spindle, a plurality of upright segmental holders circumferentially about the bobbin-head, one or more lugs at the lower ends of the holders to engage said plate, and spring mechanism to press the upper free ends of said holders toward the bobbin-head, substantially as described.

2. In combination with a revoluble spindle, a fixed disk thereupon, a bobbin-holder comprising two or more segmental spring-actuated plates pivoted to and projecting above the disk, a group of thread-holders projecting beneath said disk and united with the bobbin-holders for simultaneous rocking movement, substantially as stated.

3. In combination with a revoluble spindle, a disk affixed thereto, a plurality of spring-actuated curved rocking plates or bobbin-holders supported on the upper side of said disk, fingers or thread-holders pendent from said plates beneath the disk, and a bobbin which serves, when placed upon or removed from the spindle, to actuate the bobbin-holders and thread-holders simultaneously, substantially as explained.

4. The combination with a spindle, a disk fast thereupon having a series of apertures and a series of notches, of a plurality of rocking plates or bobbin-holders secured to the upper side of said disk, a plurality of thread-holders united with the bobbin-holders, and a bobbin which prevents the free ends of the thread-holders from contact with the disk, when said bobbin is clasped by the bobbin-holders, substantially as specified.

5. The combination with a rotary spindle, a transverse disk fast to said spindle and with surface openings, a group of spring-actuated curved plates to serve as a bobbin-holder and to oscillate upon the upper side of said disk, a plurality of fingers or thread-holders beneath said disk and interconnected with the curved plates through the openings, and a bobbin removably held on the spindle, the free ends of the thread-holders to rest against the disk when the bobbin is doffed, substantially as set forth and stated.

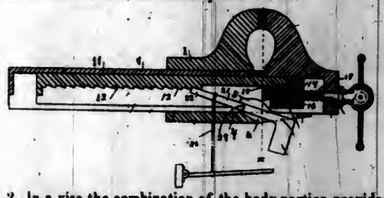
6. In combination with a spindle, and a transverse disk thereupon provided with apertures, a bobbin, and a thread-holder pivoted to said disk and extending through the aperture, said holder comprising two or more segmental plates supported above the disk, and two or more fingers extending beneath the disk, said holder being positioned to rock radially of the spindle and operating as set forth.

7. The combination with a rotating spindle, a transverse disk affixed thereto, a plurality of spring-actuated curved plates, lugs forming part of said plates at their base to interlock with the disk to provide for rocking movement of the plates, and a cylindrical guard or cover for the plates, substantially as specified.

8. In a bobbin-holder, the combination, of a revoluble spindle, a disk fixed thereupon, a plurality of bobbin-holding plates, supported by said disk and provided with means to engage the thread and hold it against said disk, substantially as described.

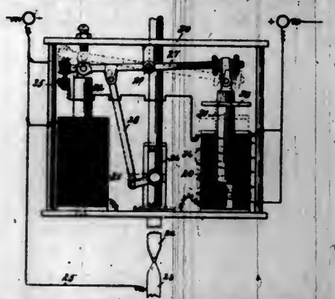
587,749. **VISE.** GEORGE A. MCKENZIE, West Bay City, Mich., assignor to S. I. Garland, Bay City, Mich. Filed Feb. 19, 1897. Serial No. 624,203. (No model.)

Claim. 1. In a vise the combination of the body portion having a stationary jaw and provided with a horizontal opening extending through the body from front to rear, and provided on its bottom side with upwardly-projecting supports, a pawl-piece provided with laterally-projecting shoulders for engaging with the inner sides of said supports, a ratchet-piece having teeth for engaging with the inner end of said pawl, and provided on its outer end with a threaded nut, a hollow supporting-arm passed over said ratchet-piece and through said opening and provided on its outer end with a jaw for opposing said stationary jaw, and a clamping-screw having its inner threaded end passed through the outer end of said hollow arm and into said nut on the ratchet-bar, substantially as set forth.



2. In a vise the combination of the body portion provided with a stationary jaw, and having an opening extending from front to rear through the body and provided on the bottom side of said opening with upwardly-projecting supports, and with a slot between said supports, a pawl-piece having a reduced outer portion passed through said slot and provided on the lateral sides of its middle portion with shoulders resting against the inner edges of said supports, a hollow arm passed through said opening and carrying on its outer end a movable jaw for opposing said stationary jaw, with a ratchet-bar within said hollow arm and provided on its inner portion with ratchet-teeth for engagement with said pawl, and having on its outer end a nut, and a clamping-screw passed through the outer portion of said hollow arm and into said nut on the ratchet-bar, substantially as set forth.

587,750. **ELECTRIC-ARC LAMP.** JAMES MCLAUGHLIN, Chicago, Ill. Filed Aug. 26, 1895. Serial No. 560,558. (No model.)



Claim.—1. In an arc-lamp the combination with the main magnet or solenoid, of a shunt magnet or solenoid, an intermediate centrally-pivoted connecting-lever between the cores of the said magnets, a carbon-rod, a clutch and a clutch-lever extended from said clutch and connected to the intermediate lever, the main magnet or solenoid being adapted to move independently of the intermediate mechanism along its core into a suspended position whereby it constitutes a weight against the resisting influence of which the shunt-magnet acts in the feeding of the carbon.

2. In an arc-lamp, the combination with the main magnet or solenoid of a shunt magnet or solenoid, an intermediate pivoted lever to which the cores of the main and shunt magnets are pivoted, the said main magnet being mounted to move vertically upon its core and resting in a stationary position upon a fixed portion of the lamp when the current is cut off and means for raising said main magnet or solenoid into a suspended position whereby it constitutes a weight, against the resisting influence of which the shunt-magnet acts in the feeding of the carbons.

3. In an arc-lamp, carbon separating and releasing mechanism, an arc-establishing magnet or solenoid, in a derived circuit about the arc, adapted for independent movement, a circuit-breaker for said derived circuit operated in the movement of the arc-establishing magnet, and means for suspending the said arc-establishing magnet whereby it constitutes a mechanical resistance against which the shunt magnet or solenoid acts.

4. In an arc-lamp, an arc-establishing magnet or solenoid in a derived circuit about the arc, a shunt magnet or solenoid, intermediate mechanism between said magnets or solenoids, carbon separating and releasing mechanism and a circuit-breaker for the derived circuit aforesaid operated by the said arc-establishing magnet or solenoid.

5. In an arc-lamp, an arc-establishing magnet or solenoid, in a derived circuit about the arc, adapted for independent movement, a shunt magnet or solenoid, intermediate mechanism between said magnets or solenoids, carbon separating and releasing mechanism, a circuit-breaker for the derived circuit operated by the arc-establishing magnet or solenoid and means for suspending the said arc-establishing magnet whereby it constitutes a mechanical resistance against which the shunt magnet or solenoid acts.

6. In an arc-lamp, an arc-establishing magnet, in a derived circuit about the arc, which is capable of a movement bodily upon its core when energized, a circuit-breaker for said derived circuit operated by the initial movement of said arc-establishing magnet, a shunt magnet or solenoid and an intermediate lever connected with the arc-establishing magnet or solenoid and the shunt magnet or solenoid together with carbon separating and releasing mechanism operated by the intermediate lever.

7. In an arc-lamp, an arc-establishing magnet or solenoid, in a derived circuit about the arc, which is capable of a movement bodily upon its core when energized, a circuit-breaker for said derived circuit operated by the initial movement of said arc-establishing magnet, a shunt magnet or solenoid and an intermediate lever connected with the arc-establishing magnet and the shunt-magnet, the former in its initial bodily movement assuming a position whereby to constitute a mechanical resistance against which the shunt-magnet acts and also breaking the derived circuit.

8. In an arc-lamp the combination of an arc-establishing magnet or solenoid in a derived circuit about the arc, which magnet is movable and adapted to close the cut-out circuit and in so doing include its coils in said cut-out circuit and a shunt magnet or solenoid connected mechanically with the arc-establishing magnet, the former raising the latter to close the cut-out circuit whereby the coils of the arc-establishing magnet provide a resistance in the cut-out circuit.

9. In an arc-lamp, a governor magnet or solenoid in a derived circuit around the arc, a shunt magnet or solenoid, carbon separating and releasing devices, connecting mechanism between said magnets or solenoids operating said carbon separating and releasing devices, a cut-out circuit and means whereby the governor-magnet, when the arc is established, is mechanically suspended, constituting a weight acting in opposition to the shunt magnet or solenoid, said governor magnet or solenoid being held magnetically suspended when the lamp is in an abnormal condition to maintain the cut-out closed and constituting a resistance in the cut-out circuit.

10. In an arc-lamp a movable arc establishing magnet or solenoid, a shunt magnet or solenoid, intermediate mechanism between the two magnets, carbon separating and releasing mechanism connected with the intermediate mechanism, a cut-out circuit and cut-out contacts carried by the arc-establishing magnet, said magnet being raised bodily by the shunt-magnet under abnormal conditions to establish the cut-out contacts whereby the arc-establishing magnet is energized and magnetically held suspended to maintain the cut-out contacts closed while abnormal conditions prevail.

11. In an arc-lamp, an arc-establishing magnet or solenoid, included in a derived circuit about the arc, capable of independent movement, a shunt magnet or solenoid, intermediate mechanism between said magnets, carbon separating and releasing mechanism normally holding the carbons apart, and a cut-out-contact maker carried by the arc-establishing magnet, said arc-establishing magnet being raised bodily by the shunt-magnet, under abnormal conditions, thereby causing the cut-out-contact maker to establish the cut-out circuit through the arc-establishing magnet and energizing the same causing it to be held magnetically suspended to maintain the cut-out contact closed during prevalence of abnormal conditions and at the same time releasing the hold of the carbon separating and releasing mechanism upon the carbon whereby the same is free to move.

12. In an arc-lamp, the combination with the arc-establishing magnet or solenoid of a cut-out circuit, a demagnetizing-coil about the arc-establishing magnet or solenoid in the cut out circuit and a shunt-magnet which in closing the cut-out circuit causes the current to pass through the demagnetizing-coils thus demagnetizing the arc-establishing magnet or solenoid and thereby preventing the opening of the cut-out circuit by the arc-establishing magnet or solenoid when the lamp is in an abnormal condition.

587,751. **COMBINED CORK AND EXTRACTOR THEREFOR.** JOHN MCMURTRIE, Montreal, Canada. Filed Mar. 1, 1897. Serial No. 625,426. (No model.)

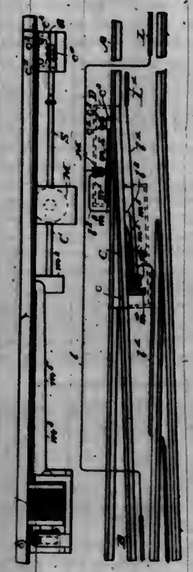
Claim.—1. A device of the class described, comprising a cork, an extracting-strip carried thereby, and a locking pin or strip passing through the cork and located therein in such relation to the extracting-strip as to prevent the latter from breaking through the cork, substantially as described.



2. A device of the class described, comprising a cork, an extracting-strip carried by said cork and having its sides disposed within the cork to prevent corrosion, the ends of the sides of said strip being connected to form a finger-loop, and a locking pin or strip passing through the cork at right angles to the extracting-strip and in such relation thereto as to prevent said extracting-strip from breaking through the cork, substantially as described.

3. A device of the class described, comprising a cork, an extracting-strip having its central portion arranged within the cork, the sides of said strip being disposed within the cork and extending longitudinally thereof, whereby corrosion of said strip is prevented, the ends of the sides of the extracting-strip being connected to form a finger-loop at the exterior of said cork, said finger-loop being folded down upon the outer end of the cork, whereby the same is adapted for instant use when occasion demands, and a locking pin or strip extending through the cork at right angles to the central portion of the extracting-strip, said locking pin or strip being interposed between the central portion of the extracting-strip and the outer end of the cork, whereby said extracting-strip is prevented from breaking through said cork, substantially as described.

587,752. **ELECTRIC-RAILWAY SWITCH.** MATTHEW J. M. O'HARA, Wilmington, Mass. Filed Mar. 27, 1897. Serial No. 630,476. (No model.)



Claim.—1. The combination of a railway main line, a branch line, a switch-tongue, a horizontal pivot, on which said tongue is movable vertically, and horizontal bolts, normally supporting said tongue and adapted to slide out from under said tongue.

2. The combination of a railway main line, a branch line, a switch-tongue, a horizontal pivot, on which said tongue is movable vertically, horizontal bolts, normally supporting said tongue, an electromagnet and its armature, movable with said bolts, and a normally open electric circuit, in which said magnet is arranged and by the closing of which said armature is attracted to draw said bolts from under said tongue.

3. The combination of a railway main line, a branch line, a switch-tongue, a horizontal pivot, on which said tongue is movable vertically, to connect and disconnect said main line and said branch line, a normally open electric circuit, an electromagnet, a lever, provided with an armature adapted to be attracted by said magnet when said circuit is closed, to raise said tongue.

4. The combination of the main line and branch line of a railway, a switch-tongue, a horizontal pivot on which said tongue is movable vertically, an electromagnet, its armature, bolts connected to said

armature, a spring, to draw said armature away from said magnet and to throw said bolts under said tongue, when said tongue is raised, to connect said main line and said branch line, an open electric circuit including said magnet, a car for said railway, having a trolley, an electric conductor for said trolley, and an electric-circuit closer carried by said car and electrically connected with said trolley and adapted to connect said conductor with said open circuit to energize said magnet and draw said bolts from under said magnet.

5. The combination of the main line and branch line of a railway, a switch-tongue, a horizontal pivot on which said tongue is movable vertically, an electromagnet, its armature, bolts connected to said armature, a spring, to draw said armature away from said magnet and to throw said bolts under said tongue, when said tongue is raised, to connect said main line and said branch line, an open electric circuit including said magnet, a car for said railway, having a trolley, an electric conductor for said trolley, an electric-circuit closer carried by said car and electrically connected with said trolley and adapted to connect said conductor with said open circuit to energize said magnet and draw said bolts from under said magnet, another magnet, having an armature arranged to raise said switch-tongue, another open electric circuit including said last-named magnet and adapted to be electrically connected with said trolley by said circuit-closer to connect said branch line with said main line.

587,758. CLAMP FOR TENTERING-MACHINES. ISAAC E. PALMER, Middletown, Conn. Filed Oct. 21, 1896. Serial No. 609,501. (No model.)



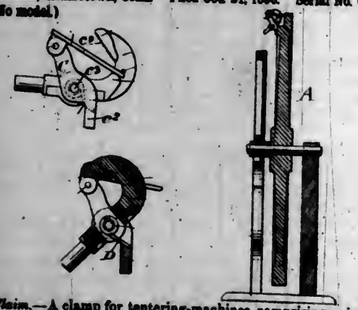
Claim.—1. A clamp for tentering-machines comprising a rigid jaw and a swinging jaw arranged to coact therewith, the one being provided with an adjustable seat and the other with an adjustable gripping-plate, substantially as set forth.

2. A clamp for tentering-machines, comprising a rigid jaw, an adjustable seat pivoted thereon, a spring-actuated swinging jaw pivoted to the fixed jaw and an adjustable gripping-plate pivoted to the swinging jaw in position to grip the material between it and the adjustable seat when the clamp is closed, substantially as set forth.

3. A clamp for tentering-machines, comprising a rigid jaw, an adjustable seat pivoted at one end to the fixed jaw and having rearwardly-extended branches, a swinging jaw pivoted to the fixed jaw and adapted to reciprocate between the said branches of the adjustable seat, abutments on the swinging jaw for guiding the movement of the adjustable seat and a gripping-plate carried by the swinging jaw, substantially as set forth.

4. A clamp for tentering-machines, comprising a rigid jaw, an adjustable seat concaved laterally pivoted to the fixed jaw, a swinging jaw pivoted to the fixed jaw and a gripping-plate convexed laterally secured to the swinging jaw, substantially as set forth.

587,754. CLAMP FOR TENTERING-MACHINES. ISAAC E. PALMER, Middletown, Conn. Filed Oct. 21, 1896. Serial No. 609,502. (No model.)



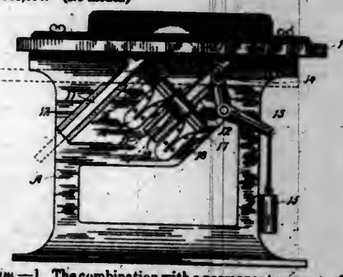
Claim.—A clamp for tentering-machines, comprising a rigid jaw, an adjustable seat pivoted to the said jaw, and a swinging jaw pivoted to the rigid jaw, the head of the swinging jaw being provided with a gripping-face for engaging the adjustable seat when the clamp is closed, substantially as set forth.

587,755. BABY-CARRIAGE. JULIUS PAULSEN, Neuenkirchen, Germany. Filed July 27, 1896. Serial No. 600,260. (No model.) Patented in Germany Oct. 4, 1894, No. 82,277; in Switzerland May 22, 1896, No. 10,987, and in England May 30, 1896, No. 10,732.

Claim.—A baby's carriage having on the side of the basket or body of the carriage balls A A pivoted and adapted to turn when grasped, substantially as set forth.



587,756. WOODWORKING-MACHINE. HERMAN T. REDSKER and RICHARD C. ABELT, Milwaukee, Wis. Filed Mar. 29, 1897. Serial No. 629,637. (No model.)



Claim.—1. The combination with a permanent support, of a yielding material-holding table provided with a saw-aperture, a circular saw mounted on the permanent support, the saw being so disposed as to cut at an oblique angle to the table and the table being adapted to yield or move toward and from the saw in an oblique direction to the face of the table.

2. The combination with a permanent support and a circular saw mounted rotatively thereon and so disposed as to cut at an oblique angle to a material-holding table, of a material-holding table, mounted movably on the permanent support and so as to move toward and from the saw in the direction of its cutting but at an oblique angle to the supporting-surface of the table, and means adapted automatically to hold the table away from the saw but to permit it to be moved to the saw.

3. The combination with a permanent support and a circular saw mounted rotatively thereon and so disposed as to cut at an oblique angle to a material-holding table, of a material-holding table provided with obliquely-disposed legs movable endwise in correspondingly-disposed ways on the permanent support and so as to permit the table to move toward and from the saw at an oblique angle to the surface of the table, and means automatically supporting the table yieldingly.

4. The combination with a permanent support, of a yielding material-holding table provided with a saw-and-cutter aperture, a circular saw and cutters abutting thereto on an arbor mounted on the permanent support, the saw and the cutters being so disposed as to cut at oblique angles to the surface of the table and the table being adapted to yield or move toward and from the saw and cutters in an oblique direction to the face of the table.

5. The combination with a frame and a plurality of circular parallel-cutting saws mounted thereon, of a single circular saw mounted on the frame, and so disposed as to cut at an oblique angle to a material-holding table and an independent yielding table provided with a saw-aperture mounted on the frame and movable toward and from the single saw at an oblique angle to the surface of the table.

587,757. NAPHTHYLENEDIAMIN-SULFO-ACID AND PROCESS OF MAKING IT. IGNAZ ROSENBERG and FRIEDRICH KRÜGER, Biebrich, Germany, assignors to Kalle & Co., same place. Filed July 20, 1896. Serial No. 600,978. (Specimens.) Patented in England May 7, 1895, No. 9,103, and in France May 22, 1895, No. 247,636.

Claim.—1. The process of manufacturing the new naphthylenediamin

$$C_{10}H_6\begin{cases}NH_2\,(1)\\NH_2\,(3)\end{cases}$$

consisting in heating monosulfo-acids of alpha-naphthol, which contain the two substituting groups in the meta or 1.3 position, with an excess of ammonia in autoclaves at temperatures from 160° to 190° centigrade substantially as described.

2. The process of manufacturing 1.3 naphthylenediamin-sulfo-acids by heating in autoclaves with an excess of ammonia at temperatures between 160° and 190° centigrade such alpha-naphthol-sulfo-acids, which contain one sulfo group in meta or 3 position to the hydroxyl or amido group and the second sulfo group or the second and third sulfo groups in 5.6.7. or 8 position substantially as described.

3. The process of manufacturing the new naphthylenediamin-monosulfo-acid

$$C_{10}H_5\begin{cases}NH_2\,(1)\\NH_2\,(3)\\SO_3H\,(6)\end{cases}$$

consisting in heating the 1.3.6 naphthol-disulfo-acid in an autoclave with an excess of ammonia at temperatures between 160° and 190° centigrade for about twenty hours substantially as described.

4. A naphthylenediamin compound characterized by containing two amido groups in meta or 1.3 position adapted to form valuable azo dyestuffs by combining with diazotized amins and of which the following naphthylenediamin-monosulfo-acid is an example,

$$C_{10}H_5\begin{cases}NH_2\,(1)\\NH_2\,(3)\\(SO_3H)(6)\end{cases}$$

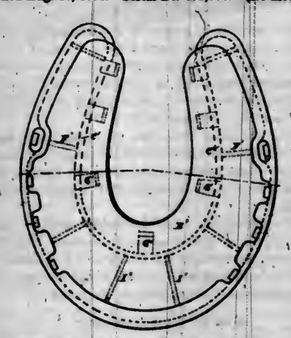
forming fine white needles when crystallized from hot aqueous solutions, being difficultly soluble in cold water, moderately soluble in hot water, forming easily-soluble alkali salts from the aqueous solution of which the free acid is precipitated by addition of dilute mineral acids and even by acetic acid giving a yellow diazo solution when acted upon by nitrous acid.

5. The new naphthylenediamin-monosulfo-acid having the formula:

$$C_{10}H_5\begin{cases}NH_2\,(1)\\NH_2\,(3)\\(SO_3H)(6)\end{cases}$$

which is producible by heating 1.3.6 naphthol or naphthylamin-disulfo-acid with an excess of ammonia in an autoclave at temperatures of 160° to 190° centigrade, forming fine white needles when crystallized from hot aqueous solutions being difficultly soluble in cold water, moderately soluble in hot water, forming easily-soluble alkali salts from the aqueous solution of which the free acid is precipitated by addition of dilute mineral acids and even by acetic acid giving a yellow diazo solution when acted upon by nitrous acid.

587,758. ELASTIC HORSESHOE. JOHN F. SHINKLING, Akron, Ohio. Filed Aug. 17, 1896. Serial No. 602,964. (No model.)



Claim.—1. As an improved article of manufacture, a skeleton horseshoe having flanges depending in the same direction from its outer and inner edges, and a series of hooks attached to said shoe and projecting into the inner loop of the shoe substantially as shown and described and for the purpose stated.

2. As an improved article of manufacture, a skeleton horseshoe having flanges depending in the same direction from its outer and inner edges, with a series of oppositely-disposed holes in said flanges to receive transverse rivets, and a series of hooks attached to said shoe and projecting into the inner loop thereof, substantially as shown and described and for the purpose specified.

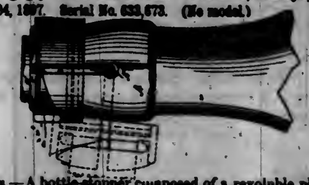
3. The combination with the skeleton shoe and its flanges, and the elastic pad adapted to fit between said flanges and extend within the shoe, of the hooks rigidly attached to said shoe and extending within the loop of said shoe and embedded in said pad, substantially as shown and described.

4. The combination with the skeleton shoe having edge flanges and the rubber pad adapted to fit between said flanges, of the transverse rods extended through said portion of said pad and flanges at intervals, and the hooks attached to said shoe and embedded in said rubber, substantially as shown and described.

5. An improved elastic horseshoe, consisting of a metallic shoe adapted to be attached to the hoof, and having a channel in its under face; and a rubber pad having its upper face conformed to fit said shoe and the hoof within the shoe and about the frog, and adapted to cover and extend below the inner flange of the shoe; and means substantially as shown for retaining said rubber pad in the channel of said shoe, substantially as shown and described.

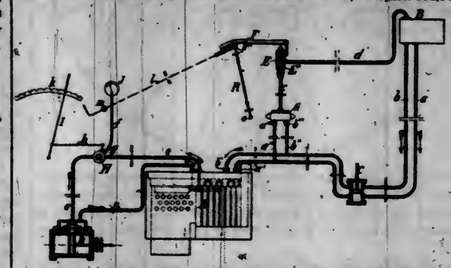
6. As an improved article of manufacture, a rubber pad having its upper face conformed to fit and extend below a channeled shoe, and to project within the shoe and about the frog to constitute an elastic pad for the hoof and shoe, substantially as shown and described.

587,759. BOTTLE-STOPPER. OTTO SELA, Brooklyn, N. Y. Filed Apr. 24, 1897. Serial No. 633,573. (No model.)



Claim.—A bottle-stopper composed of a revolvable plug having a central bore, a surrounding concentric groove and an outer cam-flange integral with the plug, combined with a packing secured to the lower end of the plug and with a bail having a ring adapted to be received by the groove and a pair of arms adapted to be engaged by the cam-flange and to connect the stopper to the bottle, substantially as specified.

587,760. STEAM-ENGINE. LEON SERPOLLET, Paris, France, assignor to La Société des Générateurs à Vaporisation Instantanée, (Système Leon Serpollet,) same place. Filed June 4, 1896. Serial No. 594,322. (No model.) Patented in France Nov. 8, 1895, No. 251,540.



Claim.—1. In combination in a steam-engine with a boiler of the instantaneous-vaporization type, a tank for supplying the water, the pipe leading therefrom to the boiler, the return-tube to the tank for the escape of the surplus water from those parts of the boiler where the instantaneous vaporization takes place, and the valve inserted in the said return-pipe for instantaneously controlling the pressure in the boiler and the return to the tank of the water not vaporized, substantially as described.

2. In combination in a steam-engine with a boiler of the instantaneous-vaporization type, a tank for supplying the water, a pipe leading therefrom to the boiler, the return-pipe to the tank for the escape of the surplus water from those parts of the boiler where the instantaneous vaporization takes place, the valve inserted in said return-pipe for instantaneously controlling the pressure in the boiler and the return to the tank of the not vaporized water, means for placing a variable tension on said valve and connections extending from said means to the hand of the operator whereby the steam-pressure may be regulated, together with the surplus water, substantially as described.

3. In combination in a steam-engine, the boiler having a plurality of nests of tubes, the feed-water tank connected to said tubes in the boiler, the return-pipe *c d* the return branches *a''* *b''* and the chamber G connected with the return-pipes *a''* *b''* and *c d* and having valves controlling the pipes *a''* and *b''*, said valves and chamber G serving to equalize the pressure in the tube-nests, substantially as described.

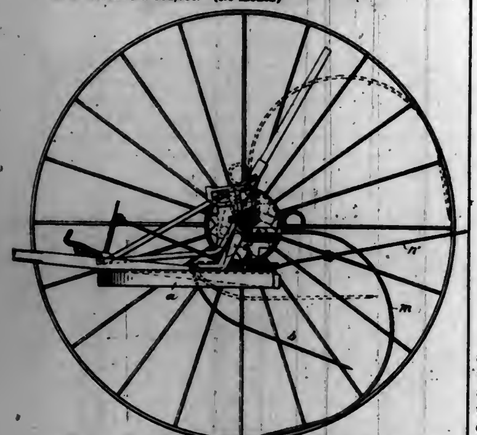
4. In combination in a steam-engine, the boiler the cylinder and the distributer-valve H having a casing with passages N and S and the rotary spindle controlling the valve, substantially as described.

5. In combination in a steam-engine, the boiler, the cylinder, the oscillating valve, the casing having the passages N and S, and means for operating the valve consisting of the lever I, the segment K, the link *h* and the arm *g*, substantially as described.

6. In a steam-engine, the combination of a boiler of the instantaneous-vaporization type, a feed-water tank connected therewith, a pump for forcing the water from the feed-water tank to the boiler, a return-pipe connection *c*, *d*, between the boiler and the feed-water tank, a valve E' in said pipe, and a device for regulating the tension on said valve to control the return of the water to the feed-water tank, substantially as described.

7. In combination in a steam-engine, the boiler having a plurality of nests of tubes adapted for instantaneous vaporization, the feed-water tank connected to said tubes in the boiler, the return-pipe *c*, *d*, the return branches *a''* *b''*, and the chamber G connected with the return-pipes *a''* *b''* and *c*, *d*, and having valves controlling the pipes *a''* *b''*, said valves and chamber G serving to equalize the pressure in the tube-nests, substantially as described.

587,761. **HORSE-RAKE.** CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed May 16, 1896. Serial No. 591,788. (No model.)



Claim.—1. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth for the accumulating hay, which project rearwardly into the hay-receiving space of said rake-teeth, and terminate in front of said teeth, substantially as described.

2. In a rake, rake-teeth, means for lifting them, and stripper bars or fingers, combined with check-teeth for the accumulating hay, which project rearwardly into the hay-receiving space of the rake-teeth obliquely to the ground, and terminate in front of said teeth, presenting points upon which the hay is thrust, substantially as described.

3. In a rake, rake-teeth, means for lifting them and stripper bars or fingers combined with independently-movable check-teeth for the accumulating hay, which project rearwardly into the hay-receiving recess of the rake-teeth, and terminate in front of said teeth, substantially as described.

4. In a rake, rake-teeth, means for lifting them, and stripper bars or fingers, combined with check-teeth for the accumulating hay, which project rearwardly into the hay-receiving space of the rake-teeth, and terminate in front of said rake-teeth, each loosely supported at its forward end and movable independently from a position oblique to the ground to a position substantially parallel therewith, substantially as described.

5. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth for the accumulating hay, which project rearwardly into the hay-receiving space of said rake-teeth, and terminate in front of said teeth, and means for adjusting said check-teeth with their points at different elevations above the ground, substantially as described.

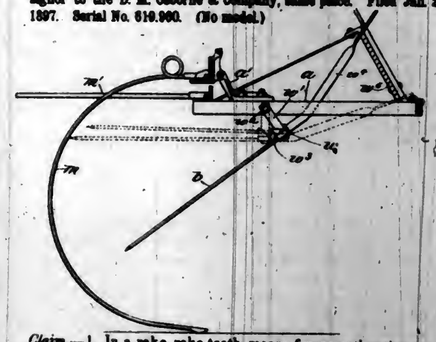
6. In a rake, rake-teeth, means for lifting them and stripper bars or fingers combined with independently-movable check-teeth for the accumulating hay, which project rearwardly into the hay-receiving recess of the rake-teeth, and terminate in front of said teeth, and independent means for adjusting each check-tooth with its point at a different elevation above the ground, substantially as described.

7. In a horse-rake, a draft-frame having brackets erected thereon, formed to present supports for a rolling rake-head, transverse recesses formed in said brackets, and check-teeth *b* for the accumulating hay having pivot portions contained in said recesses, substantially as described.

8. In a horse-rake, a draft-frame having brackets erected thereon, formed to present supports for a rolling rake-head, transverse recesses formed in said brackets, and working spaces 2 adjacent thereto and shoulders 3, and check-teeth *b* for the accumulating hay having pivot portions *b'* contained in said transverse recesses, and also having projections *b³* working in said spaces 2 and adapted to bear against the shoulders 3 so as to limit the movement of said check-teeth in one direction, substantially as described.

9. In a horse-rake, the check-teeth *b* for the accumulating hay, and supports by which they are loosely held, each consisting of a block formed with a transverse recess for the pivot portion of the tooth, and an adjustable plate located adjacent to and projecting beyond one end of said recess against which a projecting end portion of the tooth bears to limit the movement of said tooth in one direction, substantially as described.

587,762. **HORSE-RAKE.** CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Jan. 20, 1897. Serial No. 619,960. (No model.)



Claim.—1. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth projecting into the hay-receiving space, a frame to which they are connected, and an adjusting device for said frame whereby the check-teeth may be simultaneously adjusted and held at different elevations, substantially as described.

2. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth projecting into the hay-receiving space, a frame to which they are loosely connected to rise and fall independently, and an adjusting device for said frame, whereby the check-teeth may be simultaneously adjusted and held at different elevations, substantially as described.

3. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth projecting into the hay-receiving space, a frame bearing them, and an adjusting device for said frame having as a coöperative part of it a foot-lever, substantially as described.

4. In a rake, rake-teeth, means for operating them, and stripper bars or fingers, combined with check-teeth, a cross-bar to which they are connected, supports for said bar whereby it is movable bodily in the arc of a circle, and means for moving it and holding it in its different adjusted positions, substantially as described.

587,768. **HORSE-TAIL CONTROLLER.** FRANCIS M. SHARP, Fulton, Ky. Filed July 10, 1896. Serial No. 598,737. (No model.)



Claim.—1. In a horse-tail controller, the combination with the crupper-strap, of a wrapper consisting of a single broad piece of material having overlapping ends and adapted when said ends overlap to form a tube to receive the tail of a horse, fastening devices to secure the overlapping ends of the wrapper together, straps on the sides of said wrapper connected with said crupper-straps, a loop upon said wrapper, and a strap passing freely through said loop and having its ends connected with the harness.

587,764. **WIRE FOR ARMATURE-WINDINGS.** SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 19, 1896. Serial No. 583,963. (No model.)

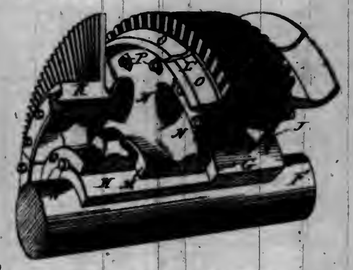


Claim.—1. A conductor for use in winding armatures and similar appliances comprising a plurality of wires the adjacent contact-surfaces of which conform in cross-section to the interstices between such wires and thereby fill such interstices; substantially as and for the purpose set forth.

2. A conductor for use in winding armatures and the like composed of more than two wires twisted together and having plane surfaces in contact at every point; substantially as and for the purpose set forth.

3. A conductor for use in winding armatures and the like, composed of a plurality of strands twisted together, having plane surfaces in contact, and each strand composed of more than two wires twisted together and having plane surfaces in contact at every point; substantially as and for the purpose set forth.

587,765. **ARMATURE FOR DYNAMO-ELECTRIC MACHINES.** SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 29, 1897. Serial No. 629,780. (No model.)



Claim.—1. A plate or lamination for armature-cores, having the ends thereof beveled to lines radial to the armature center, the outer edge curved to the circumference of a circle struck from the center of the armature, and the inner edge straight, as and for the purpose set forth.

2. A plate or lamination for armature-cores having the ends thereof beveled to lines radial to the armature center, the outer edge curved to the circumference of a circle struck from the center of the armature, and having teeth and slots formed therein, said plates having their inner edge straight and provided with perforations, as and for the purpose set forth.

3. The method of manufacturing standard plates or laminations for armatures, which consists in reducing the ends of suitable plates to bevels corresponding to lines radial to the center of the armature, reducing the outer edge of such plates to the circumference of a circle struck from the geometric center of the armature, and forming in such outer edge teeth and slots, and forming in such plates holes or perforations near the inner edge thereof, as and for the purpose set forth.

4. In an armature, a hub having integral spokes and flange portions, the individual spokes and flange portions being separated from each other, as and for the purpose set forth.

5. In an armature, a built-up or laminated core, the inner edges of said laminations being straight, adjacent layers of such laminations being lap-jointed, as and for the purpose set forth.

6. In an armature, a hub or spider having integral radial spokes and flange portions, the individual spokes and flange portions being separated from each other, a coöperating hub or spider having similar separated spokes and flange portions, bolts arranged to pass through perforations in said spokes, and a series of laminations or plates perforated to receive said bolts therethrough, said plates being interposed between said hubs, as and for the purpose set forth.

7. In an armature, a hub or spider having the outer circumference of a portion of the end thereof reduced, a second hub or spider mounted on said reduced portion, said hubs provided with separated and corresponding spokes and flanges, a series of toothed and slotted plates interposed between said hubs, and bolts arranged to support said plates and to clamp the same together and between said hubs, as and for the purpose set forth.

8. In an armature, a hub or spider having the outer circumference of a portion of the end thereof reduced, a second hub or spider mounted on said reduced portion, laminations interposed between said hubs, bolts for supporting the same and clamping said hubs together, as and for the purpose set forth.

9. In an armature, a hub or spider having the outer circumference of a portion of the end thereof reduced, a second hub mounted on said reduced portion, laminations interposed between said hubs and adapted to support the inductor-sections, bolts arranged to support said laminations and adapted to clamp the same between said hubs, and a commutator-hub also mounted on said reduced portion, and means for keying said several hubs together, as and for the purpose set forth.

587,766. **HOOD FOR STOVES.** CHARLES A. SIEGWALD, Baltimore, Md. Filed May 7, 1897. Serial No. 635,530. (No model.)



Claim.—The herein-described hood for stoves formed with its top, sides and back closed and its front wall open, the under side of the device being open at its forward end and being provided with a bottom at its rear end, and said bottom being formed with a contracted opening adapted when the hood is arranged upon the stove to afford communication between the interior of the hood and the stove-hole, whereby a draft will be formed to carry the vapors from the hood into the stove without entirely opening the stove-hole, substantially as set forth.

587,767. **COMBINED WATER-PILLOW AND DOUCHE.** ALBERT A. STOLL, Louisville, Ky. Filed June 22, 1896. Serial No. 596,330. (No model.)



Claim.—1. In a device of the character described, an apertured or annular inflatable pillow or cushion, and a discharge-tube, from said pillow or cushion, the discharge end of said tube reaching into said aperture and being attached to a spraying device provided with a base for supporting the same so as to stand in said aperture and discharge upwardly therethrough, substantially as described.

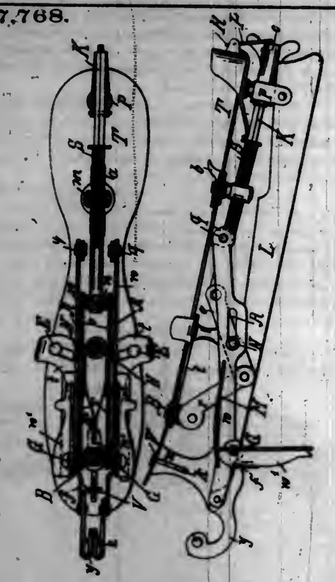
2. In a device of the character described, an apertured or annular inflatable pillow or cushion, and a discharge-tube extending from the periphery of said pillow or cushion into said aperture and being there provided with a base for supporting the same so as to stand in said aperture and discharge upwardly therethrough, said pillow having a groove on its under side of sufficient size to receive said tube and permit the liquid to flow freely therethrough when said pillow or cushion is pressed upon its support, as when in use, substantially as described.

587,768. **SKATE.** HERMANN THIELSCHER and PAUL THIELSCHER, Brieg, Germany. Filed Mar. 10, 1896. Serial No. 582,572. (No model.)

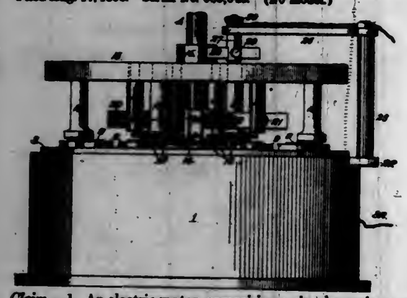
Claim.—1. The combination in a skate-fastening, of a knee-lever *o*, *r*, a lever *w* for operating the said knee-lever, and supports *w'* pivoted on said lever *w*, and a spring-lock adapted to hold the supports *w'* both in its upper and lower positions, substantially as described.

2. The combination in a skate-fastening, of a knee-lever *o r*, a lever *w* for operating said knee-lever, a screw S for pushing the knee-lever, sole-clamps *f*, a pivot for said sole-clamps *f* adapted to move longitudinally on the skate and operatively connected with said knee-lever, and heel-clamps operatively connected with said screw, substantially as described.

587,768.



587,769. ELECTRIC MOTOR. JULIUS I. THOMA, Kansas City, Mo. Filed Aug. 17, 1896. Serial No. 602,048. (No model.)

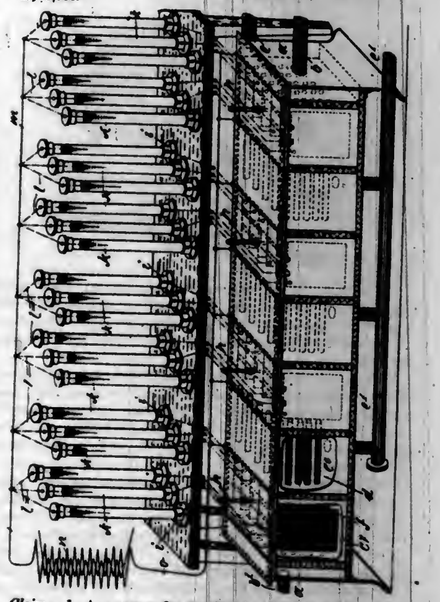


Claim.—1. An electric motor, comprising a circular casing, a top plate closing the upper end of the same and provided with a series of insulated holes or openings, a shaft journaled in the bottom of the casing and in said top plate, a circular series of field-coils suspended from the top plate within the casing and having their upper ends extending through said insulated holes or openings, a commutator mounted upon said top plate and surrounding said shaft and provided with a series of pins which are connected to said ends of the field-coils, a conducting-annulus in the bottom of the casing electrically connected to the opposite ends of said field-coils, a conductor from the source of supply connected to said annulus and extending through the casing, an armature mounted rigidly upon said shaft within the casing and below the field-coils, an armature mounted upon said shaft above the commutator and provided with depending pins having their lower ends contiguous to the upper ends of the field-coils, studs depending also from said armatures, brushes carried thereby and engaging the commutator, a collector at the upper side of said armature, and a collecting-brush engaging the same and electrically connected to the source of electrical supply, substantially as described.

2. An electric motor, comprising a circular casing, a top plate closing the upper end of the same and provided with a series of insulated holes or openings, a shaft journaled in the bottom of the casing and in said top plate, a circular series of field-coils suspended from the top plate within the casing and having their upper ends extending through said insulated holes or openings, a commutator mounted upon said top plate and surrounding said shaft and provided with a series of pins which are connected to said ends of the field-coils, a conducting-annulus in the bottom of the casing electrically connected to the opposite ends of said field-coils, a conductor from the source of electric supply connected to said annulus and extending through the casing, an armature mounted rigidly upon said shaft within the casing and below the field-coils, an armature mounted upon said shaft above the commutator and provided with depending pins having their lower ends contiguous to the upper ends of the field-coils, studs depending also from said armatures, brushes carried thereby and engaging the commutator, a collector at the upper side of said armature, a bracket secured externally to the casing, standards carried thereby, an inwardly-extending arm carried by said standards, a post carried by said arm, an adjustable brush carried by said post and engaging the collector, and a conductor connecting said post with the source of electric supply, substantially as described.

3. In an electric motor, the combination of a circular casing, a shaft journaled therein, a circular series of field-magnets surrounding the shaft, an armature mounted rigidly upon said shaft, of skeleton form and provided with depending arms relatively arranged so that when two of them are directly over the poles of two of the field coils or magnets two others will be vertically over the space between two other field coils or magnets, a commutator upon the shaft below said armature, and above the top plate of the casing, and arms projecting rigidly from said commutator, and connected to said field coils or magnets, substantially as described.

587,770. APPARATUS FOR CAUSING CHEMICAL CHANGES IN GASES. NICOLAAS VAN DER SLEEN and AUGUST SCHUHLER, Alten-Oudshoorn, Netherlands, assignors to Henry Tindal, Amsterdam, Netherlands. Filed Jan. 18, 1895. Serial No. 535,404. (No model.) Patented in Germany Nov. 30, 1894, No. 83,206; in England Dec. 1, 1894, No. 23,297; in Belgium Dec. 29, 1894, No. 113,333; in Italy Dec. 29, 1894, No. 421; in Switzerland Dec. 29, 1894, No. 9,745; in Luxemburg Dec. 29, 1894, No. 2,209; in Sweden Dec. 29, 1894, No. 6,699; in Norway Dec. 29, 1894, No. 4,133; in France Dec. 29, 1894, No. 243,980; in Spain Mar. 30, 1895, No. 16,792, and in Austria Sept. 30, 1895, No. 45/3,518.



Claim.—1. As a means for causing chemical changes of gases, or mixtures of gases, by dark or silent electrical discharges, the combination with two or more electrical discharging apparatuses containing each a number of separated electrodes of the same polarity connected each to a separate specific resistance, and electrodes of the other polarity, of cooling devices arranged so as to alternate with said electrical discharging apparatuses, for the purpose as described.

2. As a means for causing chemical changes of gases or mixtures of gases by dark or silent electric discharges, the combination with two or more electrical discharging apparatuses containing each a number of separated electrodes of the same polarity connected each to a separate specific resistance, of cooling devices arranged so as to alternate with said electrical discharging apparatuses; the electrode or electrodes of the other polarity being arranged opposite to the edges of said former electrodes, for the purpose as described.

3. As a means for causing chemical changes of gases or mixtures of gases by dark or silent electric discharges, the combination of two or more electrical discharging apparatuses containing each a number of separated electrodes of the same polarity connected each to a separate specific resistance formed by liquor, of cooling devices arranged so as to alternate with said electrical discharging apparatuses; the electrode or electrodes of the other polarity being arranged opposite to the edges of said former electrodes, for the purpose as described.

4. As a means for causing chemical changes of gases, or mixtures of gases by dark or silent electric discharges, the combination with two or more electrical discharging apparatuses, of cooling devices, arranged so as to alternate with said electrical discharging apparatuses, and containing each a number of pipes adapted to lead the gas from one of the said apparatus to the next following one; the electrodes of one polarity of each of the said electrical discharging apparatus being each connected to a separate specific resistance formed by a liquor, the electrodes of the other polarity having no such resistances connected to them, for the purpose as described.

5. As a means for causing chemical changes or gases or mixtures of gases by dark or silent electric discharges, the combination with two or more electrical discharging apparatuses, containing each a number of separated electrodes of the same polarity connected each to a separate specific resistance formed by liquor, of cooling devices containing each a number of pipes adapted to lead the gas from one of said electrical discharging apparatuses to the next following one; the electrode or electrodes of the other polarity of the said apparatuses being arranged opposite to the edges of said former electrodes, for the purpose as described.

6. In an apparatus for causing chemical changes of gases, or mixtures of gases by dark or silent electric discharges, the combination with two or more electrical discharging-chambers containing each a number of parallel separated electrodes of the same polarity connected each to a separate specific resistance formed by liquor, of cooling-chambers arranged so as to alternate with said electrical discharging-chambers, and containing each a number of pipes adapted to lead the gas from one of the said discharging-chambers to the next following one, the electrode or electrodes of the other polarity of the discharging-chambers forming the partition-walls between said latter chambers and said cooling-chambers, and supporting the pipes passing the latter, substantially and for the purpose as described.

587,771. YEAST. FRANK VREDENBURG, Sterling, Colo., assignor of one-third to George Hallman, same place. Filed Jan. 16, 1897. Serial No. 619,498. (No specimens.)

Claim.—1. The herein-described yeast or ferment, containing yeast and a suitable vehicle, and an extract made from the Rocky Mountain wild sage, as set forth.

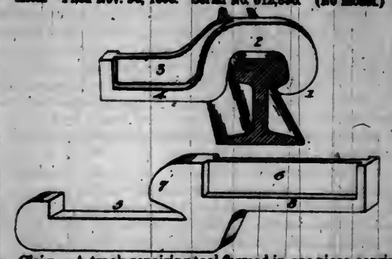
2. As an improved article of manufacture, a ferment or yeast, with which is incorporated in lieu of hops, an extract made from the Rocky Mountain wild-sage plant (*Artemisia tridentata*) for the purpose set forth.

3. The ferment or yeast consisting of flour, sugar, yeast, and an extract of the plant, known botanically as *Artemisia tridentata*, substantially as set forth.

4. As an improved article of manufacture, a ferment or yeast consisting of an extract of the Rocky Mountain wild-sage plant, meal, flour, sugar, salt, and yeast, substantially as set forth.

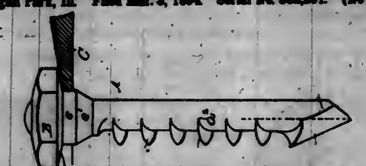
5. As an improved article of manufacture, a ferment or yeast consisting of a decoction or extract of the Rocky Mountain wild-sage plant, wheat-flour, salt, ginger, sugar, yeast, and cornmeal, substantially as set forth.

587,772. TRACK-CLUTCH. CHARLES R. WATSON, Stanwood, Mich. Filed Nov. 20, 1896. Serial No. 612,890. (No model.)



Claim.—A track-repairing tool formed in one piece consisting of a clutch portion adapted to clamp, one the head and the other the foot of rail, and having a laterally-extending shelf or arm provided with a ledge adapted to support a track-jack or lining-bars substantially as shown and described.

587,773. FASTENING DEVICE. BENJAMIN WOLHAUPTER, Morgan Park, Ill. Filed Mar. 3, 1894. Serial No. 502,201. (No model.)



Claim.—1. A fastening device consisting of a single piece having a body portion provided with a head, said body portion also provided with a series of projections or threads on one side and said body portion also provided with a bayonet-shaped point, having at least three faces, two faces of which are longer than the third, and terminating in a shoulder in line with the projections on the body, substantially as described.

2. A fastening device consisting of a single piece having a body portion provided with a head, the axis of which is eccentric to that of the body, said body also provided on one side with a series of projections or threads, the opposite end of said body being provided with a bayonet-shaped point, having at least three faces, two faces of which are longer than the third, the two long faces terminating in a shoulder in line with the projections or threads, substantially as described.

587,774. MUSIC-LEAF HOLDER. JOSEPH WOOD and WALTER WILKINSON, Philadelphia, Pa., assignors of one-third to Samuel Bateman, same place. Filed Apr. 30, 1896. Serial No. 547,966. (No model.)



Claim.—1. In a leaf-holder, the combination of a bar and means for securing the same to a music-rack, slides comprising sleeves or barrels mounted to slide upon said bar and having depending ears, friction-springs arranged in the sleeves or barrels and having shouldered extremities to prevent longitudinal displacement and bowed intermediate portions to bear upon the surface of the bar, and weighted arms pivotally mounted upon said depending ears below the plane of the bar and adapted to swing laterally in a vertical plane, the upper extremities of said arms projecting above the plane of the bar in the path of the leaves of a book or sheet, substantially as specified.

2. In a music-leaf holder, the combination of a clip adapted to engage the ledge or rest of a music-stand and having upper and lower jaws to bear, respectively, against the upper and lower surfaces of said ledge or rest, a pivotal weighted arm adapted to swing laterally in a vertical plane and carrying a pivotal bearing-finger arranged above the plane of the clip and mounted upon the arm at a point below the upper extremity of the latter to swing toward and from said upper extremity, whereby the portion of the arm above the pivotal point of the bearing-finger forms a stop to limit the outward or forward movement of the finger, and connections between said clip and the pivotal weighted arm whereby the latter is supported with its pivot-point below the plane of the clip, substantially as specified.

587,775. CLAMP. FRANK J. YOCHUM, Allegheny, Pa. Filed Feb. 12, 1897. Serial No. 623,061. (No model.)



Claim.—1. In a clamp, a base, clamps pivotally secured in said base, springs secured in said base, the upper ends of said springs engaging the lower ends of the clamps, said clamps and the engaging face of the base being provided with a suitable covering, substantially as shown and described.

2. A clamp consisting of a base, clamps provided in said base, springs engaging the lower ends of said clamps, said springs supported by a cross-bar secured in the base, said clamps and the engaging

portion of the base provided with a suitable covering, and means for securing the base to any desired object, substantially as shown and described.

587,776. BOTTLE. CHARLES F. YOUNG, Hartford, Conn. Filed Dec. 26, 1896. Serial No. 617,068. (No model.)



Claim.—1. An article of manufacture, a hollow vessel having a reduced neck of substantially an oval shape in cross-section and the oval cross-section of the mouth of the neck being substantially larger than the oval cross-section adjoining the body of the vessel, substantially as described.

2. A bottle consisting of a hollow body and a contracted neck the area of the oval cross-section at the mouth of the neck being larger than the area of the oval cross-section adjoining the body, substantially as described.

3. As an article of manufacture, a bottle made of glass having a body and a reduced neck, the inner wall of the neck being formed of two half-frustums and the truncated wedge, substantially as described.

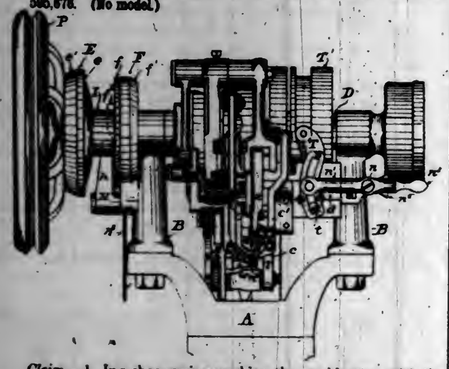
4. As an article of manufacture, a bottle made of glass having a body and reduced neck, the inner wall of the neck being formed of two half-frustums and the truncated wedge the apexes of the two half-frustums passing through the intersecting line of the two planes of the wedge, substantially as described.

5. As an article of manufacture, a bottle having a body and a reduced neck, the inner walls of the neck being formed of two half-frustums of different bases, and the free space between being formed by tangential planes substantially as described.

587,777. PROCESS OF OBTAINING OXALIC ACID. GEORG F. ZACHER, Hamburg, Germany. Filed Feb. 23, 1897. Serial No. 624,713. (No specimens.)

Claim.—A process for reducing oxalic acid from raw material containing cellulose, consisting in digesting them in an alkaline lye *in vacuo* and in a low temperature, the said raw material having been, preferably, previously desiccated and deprived of the air accompanying it.

587,778. SHOE-SEWING MACHINE. FREDERICK L. ALLEY and ERASTUS R. WINKLEY, Lynn, Mass. Filed June 15, 1896. Serial No. 595,676. (No model.)

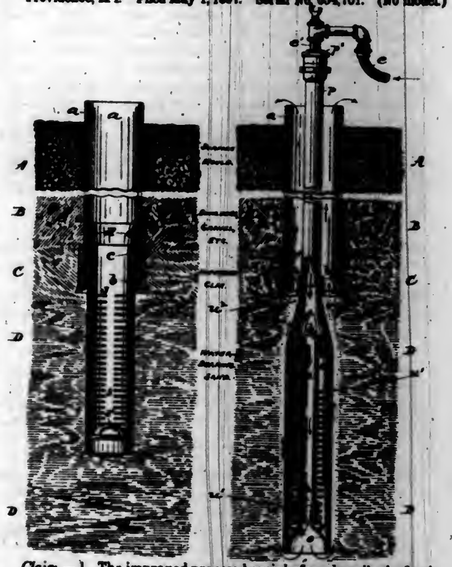


Claim.—1. In a shoe-sewing machine, the combination, with the stitch-forming devices comprising a needle, of mechanism for controlling the rotation of the driving-shaft to produce a stitch-by-stitch operation of the machine, a work-feeding device comprising a channel-guide movable to and from the plane in which the needle moves, and mechanism for locking the channel-guide in its position of closest approximation to the needle during such stitch-by-stitch operation, substantially as described.

2. In a shoe-sewing machine the combination with the stitch-forming mechanism, of work-feeding mechanism, power-driven mechanism for actuating the stitch-forming and work-feeding mechanisms, means controlled by the operator to cause said stitch-forming mechanism to have a continuous operation, and a stitch-by-stitch operation, in sewing the same seam, and means to stop the operation of the feed mechanism during the stitch-by-stitch operation, substantially as described.

3. In a shoe-sewing machine the combination with stitch-forming mechanism and work-feeding mechanism comprising a movable channel-guide, of power-driven mechanism for actuating the stitch-forming mechanism, means controlled by the operator to cause said stitch-forming mechanism to have a continuous operation and a stitch-by-stitch operation in sewing the same seam, and means for locking the channel-guide in a fixed position, substantially as described.

587,779. ARTESIAN OR TUBE WELL. DELBERT L. BARKER, Providence, R. I. Filed May 1, 1897. Serial No. 634,701. (No model.)

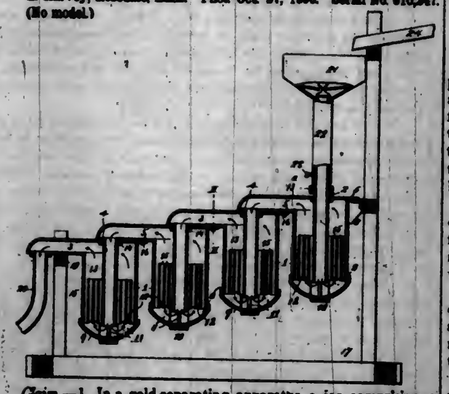


Claim.—1. The improved process hereinbefore described of substituting a bed of gravel or other suitable coarse material for a bed of sand or fine material around the bottom of a tube-well located in a water-bearing stratum, which consists in lowering a tubular section or screen to the bottom of the well; then forcing wash-water or other suitable medium under high pressure downward through a smaller pipe secured to said section, thereby washing away sand from the bottom of the section and establishing an upward or return passage around it and between the adjacent walls of the well-tube and the wash-water pipe, through which passage the waste water and the thus-loosened sand flows upwardly to the surface of the ground, the section meanwhile being gradually sunk into the sand until the desired depth is attained; then introducing quantities of gravel or other suitable coarse filtering material into the mouth of the well, from which it (the gravel) falls by gravity to the bottom of the well through the upwardly-flowing current of sand and waste water and around the exterior of the said tubular or screen section, and continuing the last-named step until the desired volume of gravel has been deposited at the base of the well to form an artificial filter-bed; then raising the said movable or screen section until its upper portion is well within the lower end of the main or stationary tube, and sealing it against the entrance of water between the said tube and section, thereby securing the latter in place and insuring that all water flowing into the well must first pass through the lowest or screen section; uncoupling the pipe *p* and cone *f* from the screen *s*, and, finally, in the case of a non-flowing well connecting the pumping apparatus to the well.

2. The improvement, substantially as hereinbefore described, in the method of increasing the efficiency or yield of water from Artesian or tube wells having their bottom ends open and embedded in water-bearing sand, the same consisting, first, in inserting a smaller or wash-water pipe, *p*, downward into the well to the desired point of distance; next, discharging wash-water or other suitable medium under high pressure from the lower portion of said pipe *p*, thereby loosening the sand, which mingling with the said discharged or waste water flows unobstructedly upward through the annular space between the well-tube and pipe *p* to the surface of the ground and runs off to waste; then gradually introducing the desired volume of gravel or other suitable filtering material, having a greater specific gravity than the water, into the mouth of the well which in falling through the said ascending column of waste water and sand to the bottom thereof fills the space previously occupied by the discharged sand, thereby artificially producing a filter-bed at the base of the well, and finally if desired withdrawing the pipe *p* from the well.

3. In a tube-well of the class described, the combination with the main or fixed tube *a* and a base or screen section, as *s*, adapted to be removably secured thereto, of a wash-water pipe *p* extending into the well, a tube, as *n*, mounted within the said screen-section having a flexible packing at its lower end arranged to bear against the adjacent surfaces of the screen member, and a cone-shaped hollow cap, as *f*, interposed between and secured to the adjacent ends of the screen and pipe members, *s*, *p*, substantially as described.

587,780. HYDRAULIC GOLD-SEPARATOR. JOHN H. BARR and JAMES F. JOHNSON, Kansas City, Kans., assignors of one-third to William E. Harvey, Rosedale, Kans. Filed Oct. 27, 1896. Serial No. 610,947. (No model.)



Claim.—1. In a gold-separating apparatus, a jar comprising a body portion having a discharge-opening near its upper end and an inlet-opening, a removable bottom supporting one or more amalgam plates which project up into the body of the jar, and an inlet-pipe extending through said inlet-opening and surrounded by said amalgam plates, substantially as described.

2. In a gold-separating apparatus, a jar comprising a body portion having an inlet-opening and a discharge-opening near its upper end, a removable hollow or segmental bottom for said jar, containing mercury, amalgam plates carried thereby and projecting up into the body of the jar, and an inlet-pipe extending through the inlet-opening and having its end arranged to discharge into the mercury in said hollow bottom.

3. In a gold-separating apparatus, a jar consisting of a body portion having an inlet-opening and a discharge-opening, a removable hollow bottom adapted to contain mercury and provided internally with ribs, amalgam plates supported upon said ribs and projecting upwardly into the body portion of the jar, and an inlet-pipe for said jar, having its lower end surrounded by said amalgam plates and adapted to discharge the gold-bearing material into the mass of mercury in the removable bottom, substantially as described.

4. In a gold-separating apparatus, the combination in a jar, of a body portion having at its top an inlet-opening, and a hollow communicating extension provided with an opening at its under side, a pipe depending from the inlet-opening, a removable hollow bottom containing mercury and provided with ribs, and an amalgam plate resting on said ribs and projecting up into the body portion, substantially as described.

587,781. COMBINED MATCH-SAFE AND CIGAR-CUTTER. JOHN BOND, La Grange, Cal. Filed Aug. 21, 1896. Serial No. 603,554. (No model.)

Claim.—1. In a match-safe, the combination with a spindle, of match-holding wheels connected thereto, disks on the spindle which are adapted to prevent longitudinal displacement of the matches, a spring for rotating the spindle, and mechanism for taking a match from the wheels.

2. In a match-safe, the combination with a spindle, of match-holding wheels connected thereto, a fixed disk on the spindle, an adjustable disk on the spindle, a spring for rotating said spindle, and mechanism for taking a match from the wheels and delivering it.

3. In a match-safe, the combination with a spindle, of plates having circular openings placed concentrically in relation to the spindle, match-holding wheels connected to the spindle and provided with pockets to hold the matches, said wheels being located in the openings of the plates, a fixed disk on the spindle, an adjustable disk on the spindle, the matches being prevented from longitudinal displacement by said disks, a spring for rotating said spindle, and stop mechanism for limiting the rotation of the spindle.



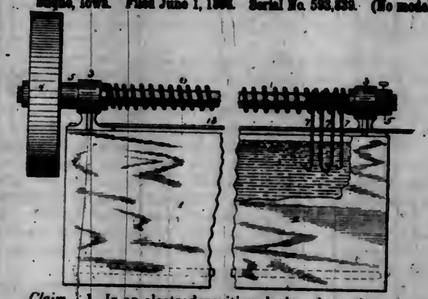
4. In a match-safe, the combination with a match-holder, of a pivoted arm provided with a finger, a gripping-lever pivoted to the arm and also provided with a finger adapted to cooperate with the first-named finger, said gripping-lever and arm being so related that the fingers are normally separated, and a movable member connected to the gripping-lever whereby the movement of said member causes the fingers of the arm and lever to grasp a match and afterward move both arm and lever and deliver the match.

5. In a match-safe, the combination with a match-holder, of pivoted jaws mounted to turn together and adapted to grasp a match from the holder, mechanism for operating said jaws, and a pivoted match-catch moved by the pivoted arms and provided with rests which receive the match.

6. In a match-safe, the combination with a match-holder, of pivoted delivering-jaws mounted to turn together, mechanism for operating said jaws, and a pivoted match-catch provided with rests which receive the match, and having a catch adapted for engagement with the pivoted jaws.

7. In a combined match-safe and cigar-cutter, the combination with a pivoted arm having a finger, of a gripping-lever also having a finger and pivoted to the arm; a slidable cutting-knife connected to the gripping-lever and means for moving said knife, said parts being so disposed and related that a match can be grasped and delivered simultaneously with the cutting of a cigar.

587,782. ELECTRODEPOSITING DEVICE. JOHN BOSSARD, Dubuque, Iowa. Filed June 1, 1896. Serial No. 593,839. (No model.)

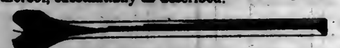


Claim.—1. In an electrodepositing device, the tank, and a supporting device mounted above it, combined with suspension hooks or devices hung upon or supported by the supporting devices, and means secured to the supporting device for advancing the articles through the bath, and suitable anode and cathode connections.

2. In an electrodepositing device, means for advancing the articles to be deposited upon in the bath, consisting of a shaft, a coil around said shaft, hooks to which the articles to be deposited upon are attached, said hooks engaging with said shaft between the meshes of the coil and means for revolving said shaft, whereby the articles are advanced through the bath while suspended from said bar, substantially as described and shown.

587,783. KNIFE FOR SPLITTING LEATHER. FRIEND J. BRIDGMAN, Chicago, Ill. Filed Apr. 23, 1896. Renewed Feb. 12, 1897. Serial No. 623,199. (No model.)

Claim.—1. A knife for slitting leather, comprising a blade having a double point and cutting edges diverging from said points on each side thereof, substantially as described.



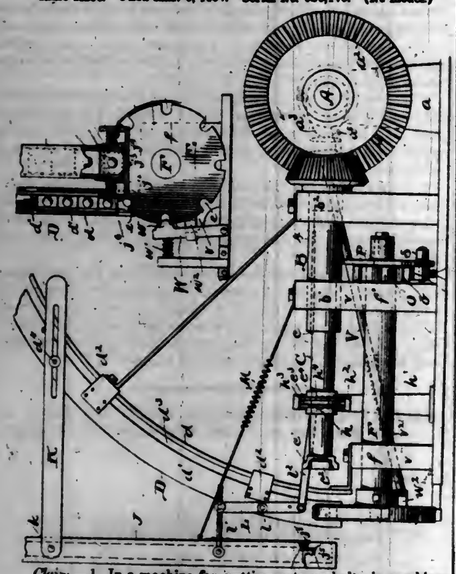
2. A knife for slitting leather comprising a blade having a double point and cutting-edges diverging from said points, the concavity between the points being rounded, substantially as described.

587,784. KNIFE FOR SPLITTING LEATHER. FRIEND J. BRINGHAM, Chicago, Ill. Filed Apr. 23, 1896. Renewed Feb. 12, 1897. Serial No. 623,200. (No model.)



Claim.—A knife for splitting leather to form tubular cavities or pockets, the same consisting of lateral sloping cutting edges, and a central blunt guiding-point projecting beyond the converging line of the cutting edges, substantially as described.

587,785. MACHINE FOR PUTTING NUTS ON BOLTS. JOHN S. BROUGHTON, Cleveland, Ohio, assignor of one-half to Paul Hitchcock, same place. Filed Mar. 6, 1897. Serial No. 626,179. (No model.)



Claim.—1. In a machine for putting nuts on bolts, in combination, a revolving shaft adapted to be reciprocated, a movable nut-chute depending in front of said shaft and having a side opening toward said shaft and in the axial line thereof, means for transferring a bolt into said axial line between said shaft and nut-chute, and means for causing said shaft and chute to simultaneously approach the interposed bolt and to simultaneously recede therefrom, substantially as specified.

2. In a machine for putting nuts on bolts, in combination, a revolving shaft adapted to be reciprocated, a movable nut-chute depending in front of said shaft and having a side opening toward said shaft and in the axial line thereof, means for transferring a bolt into said axial line between said shaft and nut-chute, a pivoted lever connected with said chute and with some part which reciprocates when the shaft reciprocates, whereby said shaft and chute are compelled to move in opposite directions, and means for reciprocating said shaft, substantially as specified.

3. In a machine for putting nuts on bolts, in combination, a revolving shaft adapted to be reciprocated, a movable nut-chute depending in front of said shaft and having a side opening toward said shaft and in the axial line thereof, means for transferring a bolt into said axial line between said shaft and nut-chute, a pivoted shipper-lever adapted to reciprocate said shaft and means connecting said shipper-lever and chute, whereby said shaft and chute are compelled to move in opposite directions, and means for operating said shipper-lever, substantially as specified.

4. In a machine for putting nuts on bolts, in combination, a shaft, means for suitably holding a nut in the axial line thereof, means for bringing a bolt into said axial line between the shaft and nut, a continuously-revolving shaft, and a spline and groove connecting said two shafts, whereby said first-mentioned shaft is continuously revolved but may be moved longitudinally, a spring tending to simultaneously force both said shaft and nut toward the bolt and a revolving cam opposing the action of said spring, substantially as specified.

5. In a machine for putting nuts on bolts, in combination, a device for loosely supporting a nut so that it may revolve, a pair of yielding spring-arms adapted to engage with opposite sides of the nut and normally prevent its rotation but capable of yielding under abnormal force and allowing rotation of the nut, a rotating wrench-shaft in axial line with the nut held between said spring-arms, mechanism for periodically moving a bolt into axial line with said wrench-shaft and nut, and means for relatively moving the wrench-shaft toward the nut-supporting device, whereby the bolt is rotated and turned into the nut if the threads on the nut and bolt properly mesh but whereby both the bolt and nut rotate idly if the nut fits too tightly, substantially as and for the purpose specified.

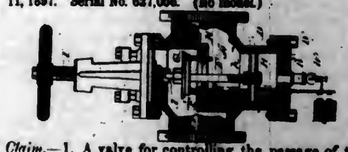
6. In a machine for putting nuts on bolts, in combination, a nut-chute having a bottom plate, an open front, and two yielding spring-arms at its sides, with means for supporting and rotating a bolt in line with a nut resting upon the said bottom plate, and mechanism for relatively moving the bolt and nut-chute toward each other, substantially as specified.

7. In a machine for putting nuts on bolts, in combination, a pivoted nut-chute having at its lower end means for supporting the lowest nut therein, said chute having an opening in its front side for the withdrawal of said lowest nut, a longitudinally-movable rotating wrench-shaft, and means for simultaneously moving said chute and wrench-shaft toward and from each other, with a bolt-chute, a disk having notches in its edge into which the bolts fall, and means for intermittently turning said disk to bring the bolt therein into line with the lowest nut in the nut-chute, substantially as specified.

8. In a machine for putting nuts on bolts, in combination, a swinging nut-chute having in its lower end means for supporting and preventing the rotation of the lowest nut in the chute, a longitudinally-movable rotating wrench-shaft, and means for holding a bolt in line with said wrench-shaft and lowest nut, with a fork-lever for moving the wrench-shaft, a spring actuating said fork-lever in the direction which moves the wrench-shaft toward the nut-chute, and a cam for moving said lever in the reverse direction, substantially as specified.

9. In a machine for putting nuts on bolts, in combination, a swinging nut-chute having in its lower end means for supporting and preventing the rotation of the lowest nut in the chute, a longitudinally-movable rotating wrench-shaft, and means for holding a bolt in line with said wrench-shaft and lowest nut, with a fork-lever for moving the wrench-shaft, a spring actuating said fork-lever in the direction which moves the wrench-shaft toward the nut-chute, a cam for moving said lever in the reverse direction, mechanism connecting the nut-chute and fork-lever, whereby the nut-chute is moved simultaneously with but in the reverse direction to the wrench-shaft, substantially as specified.

587,786. VALVE. CHARLES E. BROWN, Rome, N. Y. Filed Mar. 11, 1897. Serial No. 627,056. (No model.)



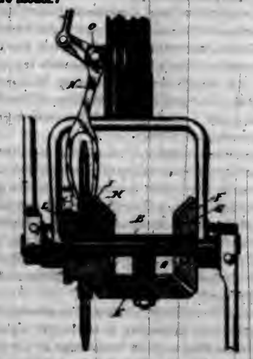
Claim.—1. A valve for controlling the passage of the medium from the source of supply seated against the pressure, a piston of greater area connected to the valve, an opening or by-pass around or through said piston, and a vent pipe or valve the area of which exceeds the area of the by-pass, said valve being held open by pressure while the vent is closed or automatically closed when the vent is opened, substantially as described.

2. The combination in a valve, a valve seated against the pressure, a piston of greater area connected thereto, a by-pass around or through said piston and a vent in combination with means disconnected from the valve for regulating or cutting off the flow substantially as described, whereby while permitting the valve to be automatically opened and closed by pressure to be fully or partially cut off by hand for the purpose set forth.

3. In a stop or shut-off valve a valve-disk, a piston of greater area connected thereto, a by-pass around or through said piston, a vent pipe or valve, and means for engaging the valve but disconnected therefrom for fully or partially closing the valve by hand, substantially as set forth.

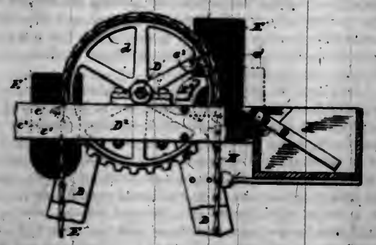
4. In a stop or shut-off valve a casing provided with the valve-seat, a valve-stem having a valve near one end and a piston at the other, a hole or by-pass in said piston, a cylindrical portion in which said piston moves closed at its outer end, a stop-cock connecting with the cylindrical portion, a screw-threaded stem to engage the end of the valve-stem but disconnected therefrom, and a hand-wheel, substantially as described.

587,787. ADJUSTABLE SPEED-GEARING FOR BICYCLES. LOUIS T. BOURLIER, Philadelphia, Pa. Filed May 23, 1896. Serial No. 592,633. (No model.)



Claim.—In combination with a bicycle, a fork depending from the frame thereof, a shaft journaled in the fork, cranks secured to the ends of the shaft, an offset in the shaft, a gear journaled thereon, a gear rigidly secured to one member of the fork with which the first-named gear meshes, a third gear loosely journaled on the shaft also meshing with the first-named gear, a hub formed with the third gear, ribs formed on the periphery of the hub, a circular clutch of the same diameter as the hub, ribs formed on the periphery of the clutch the clutch being arranged on the shaft close to the hub, a sprocket-wheel having a central opening to travel on the hub and clutch and having slots to be engaged by the ribs, a shifting-lever having a bifurcated end embracing the periphery of the sprocket and extending down to and lying on each side of the hub, said lever being pivoted to a collar on the frame, substantially as described.

587,788. WATER-ELEVATOR. MORTON G. BURDELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Original application filed June 30, 1896, Serial No. 596,695. Divided and this application filed Aug. 22, 1896. Serial No. 603,091. (No model.)

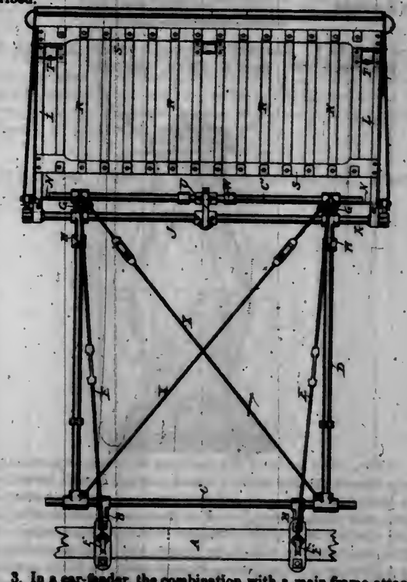


Claim.—In a water-elevator, the combination of the lifting-chains, self-righting buckets pivoted thereto above their centers of gravity so as to be held in upright position as they ascend and descend, studs projecting from the ends of the buckets below and within the pivotal points of the buckets, and the curved or rounded cams mounted at the head of the elevator with their upper ends terminating at points practically intersected by vertical lines passing centrally between the studs and the pivotal points of the buckets when the latter are in a vertical position on the descending side, substantially as described.

587,789. CAR-FENDER. HENRY BURDEN, Troy, N. Y. Filed Feb. 16, 1897. Serial No. 623,232. (No model.)

Claim.—1. In a car-fender a main frame provided with transverse bars, side bars adjustable laterally on said transverse bars, and diagonally-arranged brace-rods and connecting turnbuckles, substantially as shown and described.

2. In a car-fender the combination with a main frame having laterally-adjustable side bars, of sliding carriages mounted on said side bars and adjustably secured to a transverse bar, and a cradle supported on said transverse bars, substantially as shown and described.



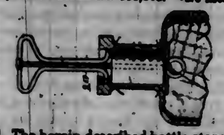
3. In a car-fender, the combination with a main frame attached to the truck of a car, of sliding carriages mounted on the side bars of said main frame, a cradle hinged to said carriages, locking-levers mounted on said cradle, adjustable bearing-blocks, a sliding trip-bar, and rods connecting said trip-bar and locking-levers, substantially as shown and described.

4. In a car-fender, the combination with a main frame, of sliding carriages mounted on the side bars of said main frame, a cradle hinged to said sliding carriages, and locking-levers pivoted to said cradle and provided with offset ends adapted to bear against said carriages and support the cradle, substantially as shown and described.

5. In a car-fender the combination with a main frame of sliding carriages mounted on the side bars of said frame, a cradle hinged to said carriages, and locking-levers pivoted to said cradle having their lower ends and the carriages adjustable relatively to each other so as to vary the height of the front end of the cradle, substantially as shown and described.

6. In a car-fender the combination with a main frame, of sliding carriages mounted on the side bars of said main frame, a cradle hinged to said sliding carriages, and locking-levers having offset ends adapted to bear against said carriages and pivoted to said cradle outside of the horizontal plane of the point of contact between said offset ends and carriages, substantially as shown and described.

587,790. BOTTLE-STOPPER. JOSEPH B. BURROW, St. John, Wash. Filed Oct. 7, 1896. Serial No. 608,075. (No model.)



Claim.—1. The herein-described bottle-stopper made up of a cork having a wire shank extending therethrough, spring-arms upon the lower end of said shank projecting outwardly beyond the edge of said cork, and spring-arms on the upper end of said shank having flanges upon their lower ends which are adapted to engage the shoulder beneath the neck of the bottle, when the said stopper is forced inwardly.

2. The combination with a bottle having a contracted neck forming a shoulder between the main body part of said bottle and said neck, of a stopper therefor consisting of a cork adapted to fit the opening in said neck, a wire shank extending centrally through said cork, having a loop upon its lower end and a cross-arm upon its upper end, a spring secured in said loop having arms thereon which project outwardly beyond the edge of said cork and outwardly-spring-

pressed arms secured to said cross-arm, extending downwardly therefrom and lying substantially parallel to the shank and flanges upon the lower end of said spring-arms, substantially as and for the purpose described.

587,791. LANTERN. WILLIAM J. BYCRAFT, Ashtabula, Ohio. Filed Sept. 1, 1896. Serial No. 604,531. (No model.)



Claim.—In a device of the character described, a cylindrical casing, a base removably secured to said casing, a bottom formed with the base, shade-holders of different diameters arranged within the casing, said holders being formed of sheet metal bent to form an annular groove with the outer rim bent in have a spring action, cylindrical shades adapted to fit in the holders, wire yokes depending from the holders, said yokes passing through openings in the bottom of the base and latches secured on the inside of the base to engage the yokes, spring-arms bent in irregular shape and placed between the shades, as and for the purpose described.

587,792. ELECTRIC RAILWAY. ROBERT L. CALDWELL, Cleveland, Ohio, assignor to the Walker Company, same place. Filed Jan. 21, 1897. Serial No. 620,160. (No model.)



Claim.—1. The combination of the main overhead conductor and a branch conductor in substantially the same approximately horizontal plane, except that said branch conductor is curved downward below said plane near to their point of convergence, with a trailing trolley-arm, a contact device carried thereby, said contact device having end flanges and a groove between said flanges, and having its surface between said flanges and groove constructed substantially as described whereby, as it is drawn along in contact with a conductor, it will be caused to move endwise until its groove engages with said conductor, substantially as and for the purpose specified.

2. The combination of the main overhead conductor and a branch conductor, both being in substantially the same approximately horizontal plane except that the branch conductor is depressed below said plane from a point which is removed from the main conductor less than half the length of the trolley contact device, to a point which is removed from the main conductor a distance approximately equal to the distance between the end flanges on said contact device, with a trolley contact device having end flanges and a channel between said flanges, substantially as and for the purpose specified.

3. The combination of a main overhead conductor, and a branch conductor, both arranged in substantially the same approximately horizontal plane except in these particulars, viz., first, that the branch conductor is curved below said plane from a point which is distant from the main conductor less than half the length of the trolley contact device, to a point which is distant from the main conductor a distance nearly equal to the distance between the end flanges of said contact device; and, second, that the main conductor is also curved below said plane from a point which is distant from the branch conductor less than the distance between the end flanges of the trolley device, to a point which is distant from the branch conductor more than the distance between said end flanges, with a trailing trolley-arm, and a contact device in its upper end having end flanges, and a channel between said flanges, substantially as and for the purpose specified.

4. The combination of the main conductor-wire and a branch conductor-wire in substantially the same approximately horizontal plane, with a connecting member having a main leg which is secured to the main wire with its lower edge in substantially the plane of the conductor-wires, and a diverging branch leg which is secured to the branch conductor and has its lower edge inclined from both ends down below said plane, said legs being connected rigidly, substantially as and for the purpose specified.

5. In an electric railway, a connecting member for a main and a branch conductor-wire consisting of a straight leg adapted to be connected to the main wire with its lower edge in the plane of the lower surface of the main wire, a diverging branch leg adapted to be connected with the branch wire, and having its lower edge inclined downward from both ends below the plane of the lower edge of the main leg, and rigid connections between said legs, substantially as and for the purpose specified.

6. In an electric railway, a connecting member for a main and a branch connecting-wire consisting of a straight leg adapted to be connected to the main wire with its lower edge in the plane of the lower surface of the main wire, a diverging branch leg adapted to be connected with the branch wire, and having its lower edge inclined downward from both ends below the plane of the lower edge of the main leg, and a depending wing on the lower edge of the main leg near the open end of said connecting member, substantially as and for the purpose specified.

7. In an electric railway, a connecting member for a main and a branch conductor-wire consisting of a straight leg adapted to be connected to the main wire with its lower edge in the plane of the lower surface of the main wire, a diverging branch leg adapted to be connected with the branch wire, and having its lower edge inclined downward from both ends below the plane of the lower edge of the main leg, and a flange projecting inward from the inner face of the branch leg, substantially as and for the purpose specified.

587,793. BICYCLE-LOCK. PIERRE A. CHEVALIER, Unionville, N. Y. Filed Jan. 13, 1897. Serial No. 619,095. (No model.)



Claim.—1. A lock for bicycles and similar vehicles which is adapted to be passed through a ring or keeper secured to the rim of one of the wheels of the vehicle, said lock consisting of two telescopic parts, the outer part being tubular in form, and being provided at one end with a reduced tubular extension, and with an opening at the opposite end, and the inner part being spring-operated, and adapted to be projected through said opening, the reduced end of the outer part and the projected end of the inner part being adapted to engage with the sides of the fork in which said wheel is mounted, and means for locking the inner part in a projected position, substantially as shown and described.

2. A lock for bicycles and similar vehicles which is adapted to be passed through one of the wheels, and to be connected with the fork in which said wheel is mounted, said lock consisting of a main central tube which is provided at one end with a tubular extension, and at the other with an opening, said tube being also provided centrally with a concentric casing which is secured thereto, and at each end with a tubular sleeve, in which said central tube is adapted to move, one of said sleeves being provided with an opening through which said tubular extension passes, and the other with an opening which corresponds with that formed in the adjacent end of the central tube, said inner tube being also provided with a movable piston or plunger, and a shaft which passes through one end of the central tube, and through the end of the corresponding sleeve mounted thereon, and on which a spring is mounted, which is adapted to force said piston or plunger and said shaft inwardly, and means for operating said piston or plunger and said shaft and for locking the latter and the central tube in the projected position, substantially as shown and described.

3. A lock for bicycles and similar vehicles, which is adapted to be passed through one of the wheels, and to be connected with the fork in which said wheel is mounted, said lock consisting of a main central tube which is provided at one end with a tubular extension, and at the other with an opening, said tube being also provided centrally with a concentric casing which is secured thereto, and at each end with a tubular sleeve, in which said central tube is adapted to move, one of said sleeves being provided with an opening through which said tubular extension passes, and the other with an opening which corresponds with that formed in the adjacent end of the central tube, said inner tube being also provided with a movable piston or plunger, and a shaft which passes through one end of the central tube, and through the end of the corresponding sleeve mounted thereon, and on which a spring is mounted, which is adapted to force said piston or plunger and said shaft inwardly, and means for operating said piston or plunger and said shaft, consisting of a plurality of disks mounted in the end of said central tube, adjacent to the tubular extension thereof, said disks being provided in their perimeters with notches or recesses, and said tube with corresponding ribs, and means for manipulating said disks, substantially as shown and described.

4. A lock for bicycles and similar vehicles, which is adapted to be passed through one of the wheels, and to be connected with the fork in which said wheel is mounted, said lock consisting of a main central tube which is provided at one end with a tubular extension, and at the other with an opening, said tube being also provided centrally with a concentric casing which is secured thereto, and at each end with a tubular sleeve, in which said central tube is adapted to move, one of said sleeves being provided with an opening through which said tubular extension passes, and the other with an opening which corresponds with that formed in the adjacent end of the central tube, said inner tube being also provided with a movable piston or plunger, and a shaft which passes through one end of the central tube, and through the end of the corresponding sleeve mounted thereon, and on which a spring is mounted, which is adapted to force said piston or plunger and said shaft inwardly, and means for operating said piston or plunger and said shaft, consisting of a plurality of disks mounted in the end of said central tube, adjacent to the tubular extension thereof, said disks being provided in their perimeters with notches or recesses, and said tube with corresponding ribs, and means for manipulating said disks, substantially as shown and described.

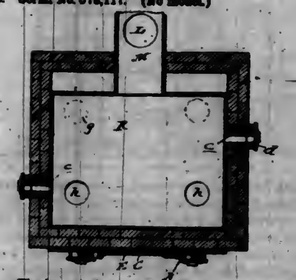
5. A lock for bicycles and similar vehicles, which is adapted to be passed through one of the wheels and to be connected with the fork in which said wheel is mounted, said lock consisting of a main central tube which is provided at one end with a tubular extension, and at the other with an opening, said tube being also provided centrally with a concentric casing which is secured thereto, and at each end with a tubular sleeve, in which said central tube is adapted to move, one of said sleeves being provided with an opening through which said tubular extension passes, and the other with an opening which corresponds with that formed in the adjacent end of the central tube, said inner tube being also provided with a movable piston or plunger, and a shaft which passes through one end of the central tube, and through the end of the corresponding sleeve mounted thereon, and on which a spring is mounted, which is adapted to force said piston or plunger and said shaft inwardly, and means for operating said piston or plunger and said shaft, consisting of a plurality of disks mounted in the end of said central tube, adjacent to the tubular extension thereof, said disks being provided in their perimeters with notches or recesses, and said tube with corresponding ribs, and means for manipulating said disks, consisting of a key, the shaft of which is provided with a number of letters or with characters which correspond with said disks, and a ring secured to said yoke of the frame of the vehicle, on which are formed the letters of the alphabet, a disk mounted in said ring, which is also provided with the letters of the alphabet arranged in the reverse order, said parts being constructed, combined and arranged, substantially as shown and described.

587,795. TRICK TOY. LEWIS D. CROSBY and JOHN P. HEALY, Windsor, Conn. Filed Nov. 7, 1896. Serial No. 611,342. (No model.)



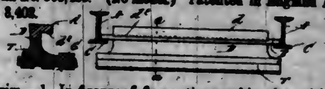
Claim.—An imitation whistle, consisting of the hollow casing *a*, having chamber *b*, mouth-plug *c* provided with conduit *d* leading diagonally downward and opening into the said chamber *b* at the rear, air-vent *f*, at the upper rear portion of chamber *b*, and removable stopper *e*, all substantially as specified.

587,796. FURNACE. JOHN CRUSE, Knoxville, Tenn. Filed Feb. 5, 1896. Serial No. 578,117. (No model.)



Claim.—The hot-air furnace described comprising the casing, the combustion-chamber arranged within the casing at the lower portion thereof, the transverse drum H, arranged in rear of the combustion-chamber and supported by the side walls of the casing a pipe connecting the combustion-chamber adjacent to the upper end and the drum H, the longitudinal drums N, connected at their rear ends to the drum H, and extending forwardly therefrom and arranged at opposite sides of the combustion-chamber and supported at their forward ends in the front wall of the casing, the pipe M, extending through the rear wall of the casing and adapted to be connected with an uptake, the pipe I, connected to the transverse drum H, at a point opposite the pipe leading from the combustion-chamber and extending through the rear wall of the casing, the damper arranged in said pipe I, and having the crank-arm and the hand-rod connected thereto and extending through the front wall of the casing, the pipe L, connecting the pipes I and M, and connected to said pipe I, between the damper therein and the outer end of said pipe, and a plurality of drums connected together and also connected with the drums N, adjacent to the forward ends thereof and with the pipe M, all substantially as and for the purpose set forth.

587,797. TILE FOR PERMANENT CENTERING TO FIREPROOF FLOORS. GEORGE B. DAWNAY, London, England. Filed June 13, 1896. Serial No. 595,493. (No model.) Patented in England Apr. 20, 1895, No. 8,402.



Claim.—1. In fireproof floors the combination with I beams or girders having upper and lower flanges, cross-bar joists engaging said flanges, tiles of an oblong form and extending from one to another of said joists or beams, upwardly-directed flanges or plates secured to the said tiles, longitudinally-extending projections secured thereto, depending ribs or fillets secured to the outer ends of the said projections and adapted to hold the said tile in position, said tiles being constructed so as to balance perfectly, the bottoms of said tiles being provided with sinkings, and being provided with longitudinal ribs on the upper surface of said tiles, all of the said parts being combined substantially as and for the purpose set forth and described.

2. A fireproof flooring consisting of the combination of a girder B', joists A, resting at its ends upon the lower flanges of two opposite girders; cross-bars, hangers, or supports B, resting upon and against the lower flanges of two opposite joists, tiles, oblong in form and of such length as to extend from joist to joist, hanging from the hangers or supports B, said tiles being provided with a perpendicular flange D, having longitudinal lips or flanges *d*, which are provided on their outside and under edge with a thickening or fillet d^2, said tiles being provided with a roughening or keying surface on its bottom, for plaster, cement or the like, substantially as described.

3. A fireproof flooring consisting of the combination of a girder B', joists A, resting at its ends upon the lower flanges of two opposite girders, cross-bars, hangers or supports B, resting upon and

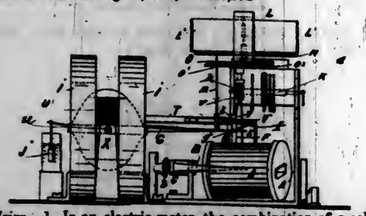
587,794. SPRING-TIRE FOR WHEELS. FREDERICK CLEEVE and THOMAS S. KING, Chesterfield, England. Filed Jan. 22, 1897. Serial No. 620,260. (No model.)



Claim.—A tire for a vehicle comprising convolutions of channeled material, the flanges of said channeled material interlocking laterally and leaving a free space between their edges and the bottom of the troughs in which they lie so that the said convolutions will be free to have resilience laterally of the axial line of said convolutions and independent of each other, substantially as described.

against the lower flanges of two opposite joists, tiles, oblong in form and of such length as to extend from joist to joist, hanging from the hangers or supports B, said tiles being provided with a perpendicular flange D, having longitudinal lips or flanges *d*, which are provided on their outside and under edge with a thickening or fillet d^1, said tiles being provided with a smooth, finished, glazed, embossed and ornamental surface on its bottom, substantially as described.

587,798. ELECTRIC METER. JEAN F. DE RAUW, Brussels, Belgium. Filed Apr. 26, 1897. Serial No. 633,969. (No model.) Patented in Belgium Aug. 29, 1896, No. 123,264.



Claim.—1. In an electric meter, the combination of a solenoid or bobbin which has a hollow core and through which passes a shunt-current from the main current, a current-interrupter for rendering this current intermittent, a soft-iron armature one end of which enters the hollow center of the bobbin, a flexible rod suitably supported and attached to the other end of the armature, and a spring-pawl fixed to the said flexible rod, a ratchet-wheel engaged by said pawl, a shaft carrying the ratchet-wheel, a spring controlling said shaft, the entire arrangement being such that the passage of the current in the bobbin produces a to-and-fro movement of the armature and of the flexible rod, whose pawl, each time the armature is attracted by the bobbin, causes the ratchet-wheel to partly rotate, thereby producing a proportionate tension in the spring coiled round the said shaft.

2. In combination in an electric meter, an ammeter having a pointer which will be depressed proportionately to the strength of the current passing in the same, one or more recording-dials, actuating-gearing therefor, a shaft, a worm free to rotate about the same, a spring controlling said shaft, a circular disk fixed on the shaft, a plate cut out in the form of a right-angle triangle and having the long side of its right angle curved to a circle and fixed to the said disk, a stop having an inclined surface projecting from the side of the pointer of the ammeter and touching the cylindrical surface of the triangular curved plate, means for stopping the rotation of the vertical shaft and of the triangle when the passage of the current through the ammeter is interrupted, a current-interrupter, means for stopping the rotation of the worm on the said vertical shaft when the pointer is not in contact with the surface of the triangle, means for rotating the vertical shaft, and the triangle as soon as current passes into the ammeter, and means for rotating with these latter the worm that operates the registering device when the stop on the side of the pointer of the ammeter comes into contact with the surface of the triangle, substantially as described.

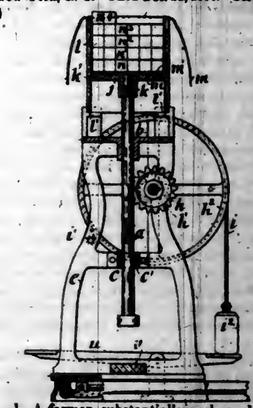
3. In combination in an electric meter, an ammeter having a pointer which may be depressed proportionately to the strength of the current passing in the same, one or more recording-dials, actuating-gearing therefor, a shaft, a worm free to rotate about the same, a spring controlling said shaft, a circular disk fixed on the shaft, a plate cut out in the form of a right-angle triangle and having the long side of its right angle curved to a circle and fixed to the said disk, a stop having an inclined surface projecting from the side of the pointer of the ammeter and touching the cylindrical surface of the triangular curved plate, means for stopping the rotation of the vertical shaft and of the triangle when the passage of the current through the ammeter is interrupted, a current-interrupter, means for stopping the rotation of the worm on the said vertical shaft when the pointer is not in contact with the surface of the triangle, means for rotating the vertical shaft and the triangle as soon as current passes into the ammeter, and means for rotating with these latter the worm that operates the registering-disks when the stop on the side of the pointer of the ammeter comes into contact with the surface of the triangle, the said triangle having its surface divided into a series of angular grooves parallel to the arc described by the free end of the pointer of the ammeter under the influence of the passage of a current, substantially as described.

587,799. COMPOSITION OF MATTER AND METHOD OF APPLYING SAME. JAMES O. DIXON, San Francisco, Cal. Filed Aug. 29, 1896. Renewed June 21, 1897. Serial No. 642,010. (No specimens.)

Claim.—1. A composition of matter for the purpose set forth, consisting of the following ingredients in about the designated proportions, namely: solution of silicate of soda, solution of silicate of potassa, silicate of iron, and glass, broken into small fragments or reduced to a powder, substantially as specified.

2. The method of applying the herein-described composition of matter, or its equivalent, to the surfaces of suitable articles, which method consists in applying the composition moist, permitting it nearly to dry, applying a little more of the same material, pressing it firmly into that first applied, while rotating the article to get an equal thickness of the application around it and smoothing or leveling the surface thereof, then permitting the whole to dry perfectly so that the article is ready for use, substantially as specified.

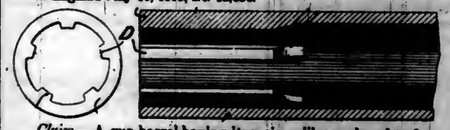
587,800. MACHINE FOR PACKING CUBE-SUGAR. JOHN O. DOSHER, Ramsay, N. J., assignor to the American Sugar Refining Company, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,062. (No model.)



Claim.—1. A former, substantially such as described; a platen for traversing the interior of said former; an endwise-reciprocable rack for supporting said platen; a pinion engaging the teeth of said rack and affixed to a horizontal shaft mounted in bearings upon the frame of the machine; a brake-wheel affixed to said shaft; a brake-strap for holding said brake-wheel stationary and thereby maintaining said platen at appropriate elevations, and means for disengaging said brake-strap from said brake-wheel and thereby releasing said rack, platen and the load thereon to the influence of gravity, as and for the purposes set forth.

2. A former, substantially such as described; a platen for traversing the interior of said former: an endwise-reciprocable rack for supporting said platen; a pinion for actuating said rack, said pinion affixed to a horizontal shaft mounted in suitable bearings upon the frame of the machine; a brake-wheel affixed to said shaft: a brake-strap affixed at one end to the frame of the machine and having its free end provided with a weight, and a foot-lever for raising said weight and thereby, when desired, freeing said brake-wheel from the grip of said brake-strap.

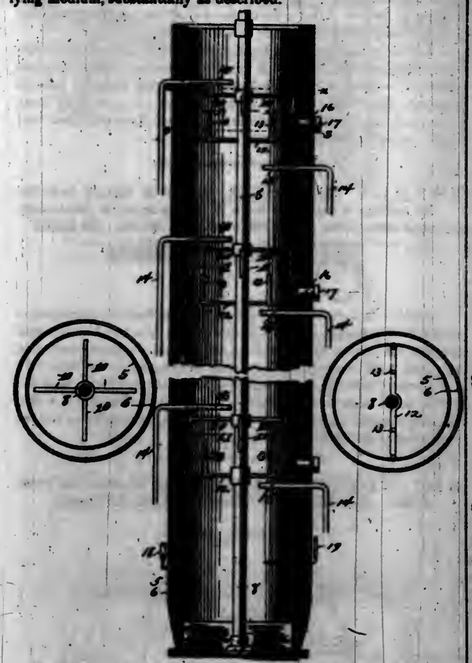
587,801. GUN-BARREL. CHARLES D. DUNSFORD, London, England. Filed Nov. 23, 1895. Serial No. 570,496. (No model.) Patented in England July 10, 1895, No. 12,858.



Claim.—A gun-barrel having its main caliber reduced to form a choked portion at its end by a series of longitudinal lands extending parallel with the axis of the gun, said lands projecting inwardly from the main inner wall of the barrel to enter the ball and to enter between the shot, substantially as described.

587,802. APPARATUS FOR TREATING OLEAGINOUS SEEDS. ALEXANDER EUSTON, St. Louis, Mo. Filed Nov. 14, 1896. Serial No. 568,882. (No model.)

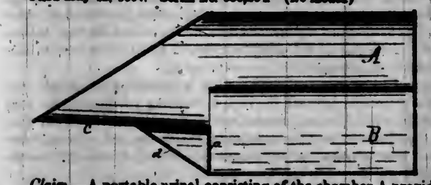
Claim.—1. An apparatus to be used in the treatment of oleaginous seeds, comprising in combination a vertically-arranged steam-jacketed cylinder whose height exceeds its transverse diameter, a centrally-mounted rotating shaft extending through the working space of the cylinder, a series of rakes or agitators mounted upon and turning with said shaft and a series of pipes projecting into the working space at suitable intervals for introducing a tempering or modifying medium, substantially as described.



2. In an apparatus to be used in treating oleaginous seeds the combination with a vertically-arranged steam-jacketed cylinder having a feed-opening in its upper portion and a discharge-opening in its lower portion, said cylinder having a vertical height greatly in excess of its diameter, a centrally-mounted rotating shaft extending through the working space of the cylinder, a series of rakes or agitators mounted upon and turning with said shaft and whereby a stream of material is caused to move continuously through said chamber from the inlet to the discharge opening and means for introducing into the working spaces of the cylinder a tempering or modifying medium at suitable elevations, substantially as described.

3. In an apparatus of the class described, the combination with a steam-jacketed cylinder having a vertical height greatly in excess of its transverse diameter, agitators, pipes for delivering a tempering or modifying medium to the working space at different heights and test-tubes piercing the walls of the jacketed cylinder for testing the condition of the mass at different altitudes, substantially as described.

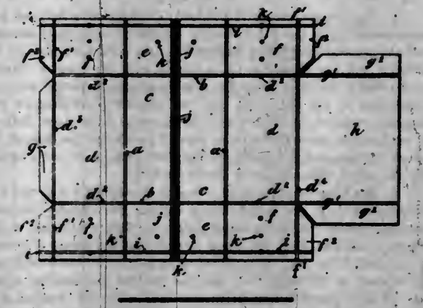
587,803. PORTABLE URINAL. SPENCER EWER, Brockport, N. Y. Filed May 12, 1897. Serial No. 636,264. (No model.)



Claim.—A portable urinal consisting of the chamber A provided with a curved mouth *b* and the flat bottom *c*, the supplementary chamber B joined thereto and formed with the square abrupt shoulder *a*, and the inclined plate *d* the whole arranged to operate in the manner and for the purpose specified.

587,804. FOLDING BOX. REGINALD H. FILMER, London, England. Filed Dec. 28, 1896. Serial No. 617,360. (No model.) Patented in England Oct. 29, 1896, No. 24,126.

Claim.—The herein-described folding box, comprising the undivided bottom *c* and integral inner end flaps *e*, continuously scored transversely at *j*, the sides *d*, *d'* each having integral outer end flaps *f* scored at *i*, the said bottom, sides and end flaps being scored so as to permit them to be set up in box form and permit of the folding of the box, when set up, along the lines of the scorings *j* and *i*, the scorings *i*, when the box is set up or folded being alined with the scoring *j* in the end flaps, substantially as set forth.



587,805. TROLLEY-HANGER. THEODORE FLETCHER, St. Louis, Mo. Filed Oct. 10, 1896. Serial No. 608,424. (No model.)



Claim.—1. The combination of a conductor or trolley-wire, a flexible strand or wire, means for connecting it to the trolley-wire at each end and a suspending device, the flexible strand having a loose connection with said suspending device whereby the strand may move freely upon the suspending device at the point of connection in response to the vibrations of the trolley-wire, substantially as described.

2. A hanger for trolley-wires, consisting of ears soldered or otherwise attached a short distance apart to the trolley-wire, and having sockets or wire-attaching devices at the inner ends thereof, and a flexible wire attached to said eyes, said wire being slightly longer than the length of the trolley-wire between said ears, substantially as described.

3. The combination of a conductor or trolley-wire, ears attached to the conductor a short distance apart, a strand or wire connecting these ears, and a flexible suspending device, the strand having a loose connection with the suspending device whereby the said flexible strand or wire may move freely upon the suspending device at the point of connection in response to the vibrations of the trolley-wire, substantially as described.

4. A hanger for trolley-wires, consisting of two ears attached to the trolley-wire and placed a short distance apart, a socket on the inner end of each ear adapted for attachment of a wire, a flexible wire having its ends fixed to said sockets and having a slight slack, and a pulley supporting said wire and carried by the suspension device, substantially as described.

5. A hanger for trolley-wires, comprising an ear adapted to be secured to the wire by soldering or otherwise, said ear having a conical eye or socket, the smaller end of the socket extending toward the suspending-point, and a suspending wire having its end passed into the smaller end of the socket and then doubled upon itself and entered in the large end of said socket, substantially as described.

6. A suspension device for trolley-wires, consisting of an insulating body having embedded therein a shank carrying a wire-supporting device, said body having a recessed neck, and protecting half-collars surrounding said neck and adapted to receive the suspension-wires, substantially as described.

7. A hanger for trolley-wires, comprising a longitudinal flexible strand, ears or brackets carried by said strand at its ends and adapted to be secured to a trolley-wire, and means for suspending the hanger by the flexible strand, substantially as described.

587,806. POWER-DRIVER FOR BICYCLES. JOHN H. FOX, New York, N. Y. Filed Mar. 13, 1893. Serial No. 563,081. (No model.)

Claim.—1. The bicycle cord-driving wheel B, formed with the hub *h* threaded internally to screw upon the ball-bearing sleeve of a bicycle-wheel and provided with annular rivet-flange *g*, the sheet-metal rings formed respectively with flat flanges *f* and *f'*, and with flaring corrugated flanges *f''* and *i*, the flanges *f*, *f'*, being attached to the flange *g* by rivets *j*, and the ridges *n* and hollows *n'* upon the

corrugated flanges being arranged alternately to form a corrugated cord-channel, as and for the purpose set forth.



2. The bicycle cord-driving wheel D, formed of a hub and two sheet-metal rings, the hub *h* having annular rivet-flange *g* thereon, one sheet-metal ring being formed with the disk *f* attached to the flange *g*, and the other ring being formed with the flange *f'* riveted to the disk *f*, the rings being flared to form a cord-channel and provided each at the edge with the true annular guard-flange *k*, and stamped within the periphery with the alternate ridges *n* and hollows *n'*, such ridges and hollows being pressed partly into the channel between the flanges *k*, and partly outside of such flanges, to avoid straining the metal, substantially as herein set forth.

3. The bicycle cord-driving wheel D, formed of a hub and two sheet-metal rings, the hub *h* having annular rivet-flange *g* thereon, one sheet-metal ring being formed with the disk *f* attached to the flange *g*, and the other ring being formed with the flange *f'* riveted to the disk *f*, the rings being flared to form a cord-channel and provided each at the edge with the true annular guard-flange *k*, and one of said guard-flanges being provided with the integral outwardly-projecting cylindrical brake-seat *k'*, the rings being stamped within the periphery to form the corrugated cord-channel, with the alternate ridges *n* and hollows *n'* pressed partly into the channel between the flanges *k* and partly outside of such flanges, as and for the purpose set forth.

587,807. NECK-YOKE CENTER. GEORGE W. FURBY, Lockwood, Mo. Filed Jan. 9, 1897. Serial No. 618,556. (No model.)



Claim.—In a neck-yoke, the combination with a yoke-bar, of a neck-yoke center consisting of a piece of leather doubled or folded upon itself to form a central loop for the reception of the yoke-bar, the end portions of said piece being stitched at their marginal edges and provided with registering openings, and a tapering leather socket-piece closed at its contracted end and having the edges of its larger end inserted between the thicknesses of the neck-yoke center and stitched or otherwise secured, said socket-piece being adapted to be removably fitted over the end of a vehicle-tongue and to prevent said tongue from protruding therethrough, substantially as described.

587,808. METHOD OF MAKING OXYSALTS OF LEAD FROM LEAD SULFATE AND LEAD CHLORID. SOLOMON GÄNSLEN, Philadelphia, Pa. Filed Aug. 26, 1895. Renewed May 4, 1897. Serial No. 635,078. (No specimens.)

Claim.—1. The herein-described method of making the definite chemical compounds $PbO.PbSO_4$ and $PbO.PbCl_2$ from normal lead sulfate and lead chlorid which consists in mixing the insoluble solid normal lead salt with any proportion of insoluble solid magnesium oxid or hydroxid in the presence of water, substantially as described.

2. The herein-described method of making oxysalts of lead from lead sulfate which consists in treating lead sulfate in the presence of water and an oxid of a metal more basic than lead with a salt of which the acid radical forms insoluble salts with lead.

3. The herein-described method of forming lead oxysalts of more than one acid radical from lead sulfate which consists in treating lead sulfate in the presence of water and an oxid of a metal more basic than lead with salts having the desired acid radicals which form insoluble salts with lead.

4. The herein-described method of converting all the lead present in an uncombined mixture of lead oxid and lead sulfate into oxychlorid of lead by means of sodium chlorid and water, which consists in mixing said ingredients in sufficient quantities for effecting the following reactions: first, the conversion of the lead oxid into oxychlorid and the consequent formation of hydroxid of sodium and second the conversion of the lead sulfate by means of said sodium hydroxid and the free sodium chlorid present into oxychlorid of lead, substantially as described.

587,809. MANUFACTURE OF OBJECTS OF IMITATION STONE. LOUIS A. GARCHEY, Paris, France. Filed June 23, 1896. Serial No. 596,630. (No specimens.) Patented in France Jan. 16, 1896, No. 253,256.

Claim.—1. The process of making blocks or other articles of glass, which consists in placing pulverized or broken glass in a mold, heating it until it forms a devitrified paste then molding it under pressure, and then annealing or tempering it.

2. The process of making building-blocks or other articles of imitation stone, marble, &c., which consists in heating glass to the point where it becomes a devitrified paste, scattering pieces of colored glass over the surface thereof, fusing the mass to incorporate these pieces, molding it under pressure to the desired shape and finish, and finally annealing or tempering it.

587,810. FENCING DEVICE. CHARLES M. GRAHAM, Jonesville, Va., assignor of one-half to James W. Orr and George W. Blankenship, same place. Filed June 2, 1897. Serial No. 638,069. (No model.)



Claim.—In a device of the character described, the combination with a handle portion provided with a ferrule, of a metal strip passed through the ferrule and secured to the handle portion by bolts and nuts, and bent rearwardly from such connection to the form of a half-circle to provide a fulcrum-piece, and bent forwardly from the ferrule at an angle to the handle portion, and terminating in a slotted and rounded end to provide a claw, all substantially as and for the purposes set forth.

587,811. BICYCLE-SUPPORT. ERNST W. GRAH, Las Vegas, N. Mex. Filed July 16, 1896. Serial No. 599,619. (No model.)



Claim.—In a bicycle-support, the combination with legs pivoted to the bicycle and located on opposite sides thereof, and wheels journaled to the ends of said legs, of a rack, a pivoted lever adapted for engagement with the rack, brackets, a pull-rod slidable in said brackets and connected to the frame and the lever, and a coil-spring encircling the pull-rod, being connected thereto and abutting on one of the brackets, said spring being adapted to retract the supporting-legs so as to keep the wheels out of engagement with the ground.

587,812. PAPER-CLIP. JOHN H. GRAFF, Short Hills, N. J. Filed Apr. 8, 1897. Serial No. 631,205. (No model.)



Claim.—1. A paper-clip comprising a base portion having upright lugs and a pivoted clamping portion having slots through which the lugs extend and against the face of which slots the lugs bear to limit the opening of the clamp and form a guide for the sheets, substantially as described.

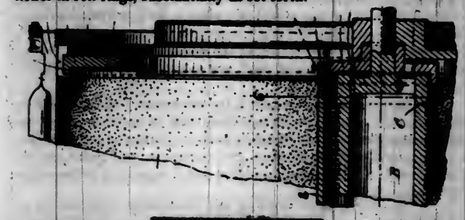
2. A paper-clip comprising a base portion having upright lugs and a projection beneath the lugs, a clamping portion having slots through which the lugs extend and against the face of which slots the lugs bear to limit the opening of the clamp, and a spring interposed between the base and clamping portions, substantially as described.

587,813. CARDING-ENGINE. RICHARD GRIFFIN, Holyoke, Mass. Filed Sept. 26, 1896. Serial No. 607,132. (No model.)

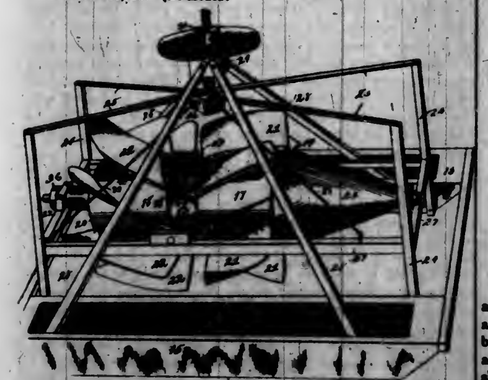
Claim.—1. A licker-in roll for carding-engines having rings on each end thereof, as described, combined with the bonnet for said roll having strips, as 12, secured to the inner surface thereof, above and in close proximity to said rings, substantially as set forth.

2. In a carding-engine, in combination, a licker-in roll having a ring on each end thereof between the teeth thereon and the end of the roll, said rings having a circumferential surface substantially in

plane with the extremities of said teeth thereon, and the main cylinder of said engine having clothing thereon whose borders, adjoining the ends of the said cylinder, extend over the surfaces of said licker-in-roll rings, substantially as set forth.



587,814. CURRENT WATER-MOTOR. FREDERICK G. HARFORD, Palouse City, Wash. Filed May 8, 1896. Renewed June 1, 1897. Serial No. 638,009. (No model.)



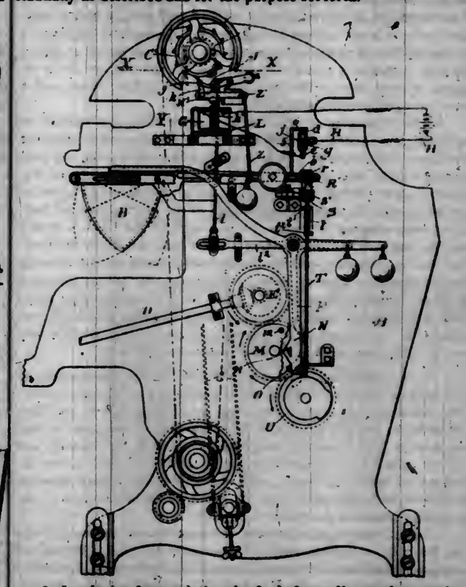
Claim.—1. A current-motor for use in a running stream, comprising floats secured together, supports rising from the floats and converging at their upper ends, and connected by a block, and a screw extending through an opening in said block, in combination with a frame suspended from said block, between the floats and comprising vertical and horizontal bars connected together, and a central block secured to the converging ends of bars secured at their opposite ends to the vertical bars of the frame, and suspended from the first-mentioned block, oppositely-rotating shafts provided with blades, and counter-shafts, said oppositely-rotating shafts and counter-shafts being geared together to concentrate the power of the oppositely-rotating shafts, substantially as shown and described.

2. In a current-motor, the combination with the floats secured together, and provided with converging supports and a central block and adjusting-screw, of a frame suspended from said block and comprising vertical and horizontal bars, converging bars secured at their outer ends to the vertical bars and at their inner ends to a block braced to the frame, pivoted connecting-bars between the frame and the floats, oppositely-rotating blade-wheels, counter-shafts arranged at right angles to the axes of the rotating wheels, gearing between said shafts for combining the power of the wheels into a single rotary movement, and a longitudinally-disposed cone in front of the wheels to divert and increase the velocity of the water-current, substantially as described.

587,815. MECHANISM FOR FEEDING CARDING-ENGINES. JOHN HEARD, Hudson, N. Y. Filed Feb. 23, 1897. Serial No. 624,508. (No model.)

Claim.—1. In a carding-engine, an automatic feeding device consisting of a feeding-apron suitably mounted, scales provided with scale-beams, a dog, a ratchet on the pulley carrying said feeding-apron, a plunger suitably mounted carrying a contact pin or plate, a solenoid, a metallic strip or casing, a battery or generator having one of its poles connected with said metallic strip or casing, a device for holding said dog away from said ratchet, so arranged that when the solenoid becomes charged the dog will be released and come in contact with the ratchet, substantially as described and for the purpose set forth.

2. In an automatic device for stopping the feeding mechanism of a carding-engine, a dog, a ratchet on the pulley carrying the feeding-apron, a feeding-apron, a device for holding the dog away from said ratchet, a solenoid, said device adapted to release said dog when the solenoid becomes charged, a means for charging the solenoid by the operation of one of the scale-beams, when the scale is balanced, substantially as described and for the purpose set forth.



3. In a device for regulating the feed of a carding-engine, a scale, a means for operating the same, a feeding-apron suitably mounted, a steadying device consisting of a latch, a scale-operating arm or beam, a pivoted plate connected with said latch, a projection thereon, a rod connected with said projection, a spring on said rod, a cam-shaped projection on a gear, said rod resting on said cam-shaped projection, so arranged that the latch is in connection with the scale-beam at the time the scale is being closed and until the scale has become quiet and then released therefrom, substantially as described and for the purpose set forth.

587,816. TYPOGRAPHIC MACHINE. THOMAS T. HEATH, Loveland, Ohio. Filed Jan. 6, 1897. Serial No. 618,126. (No model.)



Claim.—1. In a typographic machine, the combination, substantially as set forth, of a horizontally-sliding type-tray, a sliding blade engaging the same, a ratchet-toothed segment connected with said blade and mounted on a pivot, a lever mounted on said pivot, a pawl carried by said lever and adapted to engage said ratchet-teeth, a series of pins normally out of but adapted to be selectively moved into the path of said pawl, a cam arranged to actuate said lever, and finger-keys connected with said pins.

2. In a typographic machine, the combination, substantially as set forth, of a horizontally-sliding type-tray, a pair of sliding blades engaging the same, a pair of ratchet-toothed segments connected with said blades and having their ratchet-teeth facing in opposite directions, levers mounted on pivots with said segments, a pawl carried by each lever and adapted to engage the ratchet-teeth of its appropriate segment, a series of pins at each pawl and arranged to be normally out of but to be pushed into the paths of the pawls, cams arranged to rock said levers simultaneously in opposite directions, and finger-keys connected with said pins.

3. In a typographic machine, the combination, substantially as set forth, of a horizontally-sliding type-tray, a sliding blade engaging the same and provided with lock-teeth, a ratchet-toothed segment connected with said blade, a lever mounted on a pivot with said segment, a pawl carried by said lever, a series of pins normally out of but adapted to be pushed into the path of said pawl, a sliding lock-bar having a tooth adapted to engage the lock-teeth of said blade, a spring holding said lock-bar to inactive position, a connection from said lock-bar adapted to be engaged by said lever at the end of its stroke, and a cam arranged to move said lever.

4. In a typographic machine, the combination, substantially as set forth, of a horizontally-sliding type-tray, a sliding blade engaging

the same and provided with lock-teeth, a ratchet-toothed segment connected with said blade, a lever mounted on a pivot with said segment, a pawl carried by said lever, a series of pins normally out of but adapted to be moved into the path of said pawl, a sliding lock-bar having a tooth adapted to engage the lock-teeth of the blade, a spring holding the lock-bar normally out of locking action, a sliding segment engaging a shoulder on said lock bar and adapted to be engaged by said lever as the lever completes its active stroke, and a cam arranged to move said lever.

5. In a typographic machine, the combination, substantially as set forth, of a horizontally-sliding type-tray, a sliding blade engaging the same and provided with lock-teeth, a ratchet-toothed segment connected with said blade, a lever mounted on a pivot with said segment, a pawl carried by the lever, a series of pins normally out of but adapted to be moved into the path of the pawl, a lock-bar having a tooth adapted to engage the lock-teeth of the blade, a spring holding the lock-bar out of action, a block upon the face of the lock-bar, screws engaging said block and lock-bar and having tapering bodies engaging tapering holes in the block and having threaded portions engaging threaded holes in the bar a greater distance apart than said tapering holes, a sliding segment engaging said block and adapted to be engaged by said lever as the lever completes its active stroke, and a cam arranged to give motion to said lever.

6. In a typographic machine, the combination, substantially as set forth, of a ratchet-toothed segment mounted on a pivot, connection therefrom to a part to be moved a variable distance and then returned to normal position, a lever mounted on the pivot of said segment, a pawl carried by said lever, a series of pins normally out of but adapted to be moved into the path of said pawl, a cam arranged to move said lever, and a spring-plunger disposed between said lever and segment to form the connection between them on the returning stroke of the lever.

7. In a typographic machine, the combination, substantially as set forth, of a vertically-sliding type-case carrier, a ratchet-toothed segment connected therewith and mounted on a pivot, a lever mounted on said pivot, a pawl carried thereby, a series of pins normally out of but adapted to be moved into the path of said pawl, and a cam arranged to move said lever.

8. In a typographic machine, the combination, substantially as set forth, of a vertically-sliding type-case carrier, a pair of ratchet-toothed segments connected therewith, a lever mounted on a pivot with each segment, a pawl carried by each lever, a series of pins at each pawl and normally out of but adapted to be moved into the path of the pawl, and cams arranged to move said levers in the same direction simultaneously.

9. In a typographic machine, the combination, substantially as set forth, of a vertically-sliding type-case carrier provided with lock-teeth, a bolt sliding transverse to the movement of said carrier and having lock-teeth, a spring holding said bolt normally out of action, a ratchet-toothed segment connected with said carrier, a lever mounted on a pivot with said segment, a pawl carried thereby, a series of pins normally out of but adapted to be moved into the path of said pawl, and a cam arranged to move said lever and throw said pawl to locking position at the termination of the active stroke of the lever.

10. In a typographic machine, the combination, substantially as set forth, of a vertically-moving type-case carrier, a spring-plunger supporting the same, a pair of ratchet-teeth segments connected with the carrier, a lever mounted on a pivot with each of said segments, a pawl carried by each lever, a series of pins at each pawl and normally out of but adapted to be moved into the path of the pawl, and cams arranged to give movement to the levers.

11. In a typographic machine, the combination, substantially as set forth, of a vertically-moving type-case carrier, a pair of connected tray-shifting blades arranged to slide transverse to the movement of said carrier, a pair of ratchet-toothed segments connected with said carrier, a pair of ratchet-toothed segments connected with said blades, a lever mounted on a pivot with each segment, a pawl carried by each lever, a series of pins at each pawl and normally out of but adapted to be moved into the path of the pawl, and cams arranged to give movement to the levers.

12. In a typographic machine, the combination, substantially as set forth, of a face-plate, a type-case carrier mounted for vertical movement in fixed guides on said face-plate, tray-shifting blades mounted for horizontal movement in fixed guides on the face-plate, mechanism mounted on the face-plate for giving motion to said carrier and blades, and a main shaft disposed parallel with said face-plate and having cams engaging said mechanism.

13. In a typographic machine, the combination, substantially as set forth, of a main framing, a removable face-plate disposed vertically therein, a type-case carrier mounted for vertical motion in fixed guides on the face-plate, tray-shifting blades mounted for horizontal motion in fixed guides on the face-plate, levers mounted on the face-plate for giving motion to said carrier and blades, a main shaft mounted in said framing parallel with said face-plate, and cams on said shaft and engaging said levers.

14. In a typographic machine, the combination, substantially as set forth, of a face-plate, a series of measuring-pins mounted to slide at right angles to the face of said face-plate, a shaft journaled in bearings on the front of the face-plate, arms thereon connected with said pins and adapted by the turning of the shaft to move the pins to normal position, a cam near said shaft, and a cam-arm on said shaft and engaged by said cam.

15. In a typographic machine, the combination, substantially as set forth, of a normally stationary main shaft, cams thereon, connections from said cams to reciprocating parts, a cylinder, a piston therein, a cam on said shaft arranged to give motion to said piston, an inwardly-opening valve to said cylinder, and a regulating outlet-valve from said cylinder.

16. In a typographic machine, the combination, substantially as set forth, of a normally stationary main shaft, a stop-clutch thereon and adapted to be unlocked therefrom by the arrest of an arm carried by the stop-clutch, a stop-pin adapted to arrest said arm, a spring tending to move said stop-pin to position of non-arrest, a lever to serve in moving the stop-pin to arresting position, a disk on the main shaft adapted to move the lever and stop-pin to arresting position and having a recess to permit the stop-pin to move to non-arresting position, a trigger engaging the lever and holding the stop-pin to arresting position, an arm connected with said trigger, a disk on the main shaft adapted to move and hold said arm to position to correspond with the active position of the trigger and having a notch to permit the arm to move the trigger to inactive position, and finger-key connections with said arm to serve in releasing said trigger.

17. In a typographic machine, the combination, substantially as set forth, of a normally stationary main shaft, a stop-clutch thereon and adapted to be unlocked therefrom by the arrest of an arm carried by the stop-clutch, a stop-pin adapted to arrest said arm, a spring tending to move said stop-pin to position of non-arrest, a lever to serve in moving the stop-pin to arresting position, a disk on the main shaft adapted to move the lever and stop-pin to arresting position and having a recess to permit the stop-pin to move to non-arresting position, a trigger engaging the lever and holding the stop-pin to arresting position, an arm connected with said trigger, a disk on the main shaft adapted to move and hold said arm to position corresponding with the active position of the trigger and having a notch to permit the arm to move the trigger to inactive position, a shaft at the axis of said arm, a bail-rod carried by arms on said shaft, and finger-key connections with said bail-rod.

18. In a typographic machine, the combination, substantially as set forth, of a ratchet-wheel, a pawl-carrying arm, a pawl carried thereby and adapted for positively engaging and advancing said ratchet-wheel, a series of pins normally out of but adapted to be moved into the path of said pawl and thereby force the pawl into engagement with said ratchet-wheel, a lever engaging said pins and adapted to move them to normal position, and cams connected with said arm and said lever.

19. In a typographic machine, the combination, substantially as set forth, of a ratchet-wheel, a pawl-carrying arm, a pawl carried thereby to positively advance said ratchet-wheel, a series of pins normally out of but adapted to be moved into the path of said pawl, and a series of spacing-keys equal in number to said pins and individually connected therewith.

20. In a typographic machine, the combination, substantially as set forth, of a sliding carriage, a series of racks thereon, a shaft disposed at right angles to the path of movement of said carriage, pawl-and-ratchet mechanism for turning said shaft, a series of differently-sized gears loose on said shaft and engaging said racks, and a sliding clutch adapted to lock said gears alternatively to said shaft.

21. In a typographic machine, the combination, substantially as set forth, of a ratchet-wheel, pawl-and-ratchet mechanism for turning the same, a stop-pin carried by the ratchet-wheel, a scroll-thread carried by the ratchet-wheel, and a pivoted stop engaged by said scroll-thread and adapted to be turned into and out of the path of said stop-pin by the turning of the ratchet-wheel.

22. In a typographic machine, the combination, substantially as set forth, of a main framing, actuating mechanism mounted therein, sliding pins for varying the effect of the actuating mechanism, a series of parallel removable bars supported at the front of said main framing and forming a skeleton keyboard, a row of finger-keys pivoted on each of said bars, and connections from said finger-keys to said pins.

23. In a typographic machine, the combination, substantially as set forth, of a row of pivoted finger-keys, an endwise-movable bar disposed parallel with said rows of keys, pins projecting from said bar and engaged by said keys so that the depression of any key will move said bar endwise, an endwise-moving pin to admeasure the effect of the actuating mechanism of the machine, and connections from said bar to said pin.

24. In a typographic machine, the combination, substantially as set forth, of a series of parallel rows of finger-keys, a bar parallel with each row of keys and having pins engaged by the keys, pivoted links supporting the bars, a main shaft, a stop-clutch thereon, a rock-shaft having an arm to effect the locking of the stop-clutch to the main shaft, and a bail-rod carried by arms on said rock-shaft and engaged by lugs on all said bars.

25. In a typographic machine, the combination, substantially as set forth, of a series of parallel rows of finger-keys, a bar parallel with each row of keys and having pins engaged by keys, pivoted links, supporting the bars, a series of sliding pins to admeasure the effect of the actuating mechanism of the machine, a rock-shaft for each of said pins, links connecting each rock-shaft with its pin, and links connecting each rock-shaft with one of said bars.

26. In a typographic machine, the combination, substantially as set forth, of two groups of type-keys each group being formed of parallel rows of keys, a bar parallel with each row of keys, pivoted links to support the bars, a series of rock-shafts disposed below one group of keys and equal in number to the rows of keys in that group, a series of rock-shafts disposed below the other group of type-keys and equal in number to the rows of keys therein, connections from each rock-shaft to one of said bars, two series of sliding pins to admeasure the effect of the actuating mechanism of the machine, and a link connecting each pin with one of said rock-shafts.

27. In a typographic machine, the combination, substantially as set forth, of a row of piroted type-keys, rock-shafts disposed below the keys and each carrying a bail engaged by a key, a series of pins to admeasure the effect of the actuating mechanism of the machine, and a link connection from each of said rock-shafts to one of said pins.

28. In a typographic machine, the combination, substantially as set forth, of a group of piroted type-keys arranged in rows and ranks, rock-shafts disposed below the keys and each carrying a bail engaged by the keys of an appropriate rank, sliding pins to admeasure the effect of the actuating mechanism of the machine, and link connections from each of said rock-shafts to one of said pins.

29. In a typographic machine, the combination, substantially as set forth, of a sliding carriage, a ratchet-wheel geared thereto, a pawl-carrying arm, a pawl carried thereby, a series of pins normally out of but adapted to be moved into the path of said pawl, a group of finger-keys, a series of rock-shafts disposed below said group of keys and equal in number to said pins, connections from each of said shafts to one of said pins, and connections between the finger-keys and shafts.

30. In a typographic machine, the combination, substantially as set forth, of a vertically-sliding type-box, a series of superposed type-trays therein, a carrier for supporting said type-box and moving it vertically, an anvil to the rear of said type-box and at the level of the middle tray thereof, a plunger at the front of the type-box in line with said anvil, shifting-blades for sliding said trays and disposed at the level of the middle tray in the type-box, and mechanism for moving said carrier and blades and plunger.

31. In a typographic machine, the combination, substantially as set forth, of a main frame consisting of a pair of horizontal top beams united at their ends and having a slot between them, an anvil mounted in the rear one of said beams, a plunger mounted in the front beam in line with said anvil, a face-plate removably disposed vertically in said slot between said plunger and anvil and having a guiding-eye in line with the plunger and anvil, a type case and carrier mounted on the front of said face-plate, a main shaft journaled in the frame of the machine, transmitting mechanism connecting said shaft with said carrier and plunger, admeasuring devices to determine the effect of said transmitting devices upon said carrier, a group of keys mounted in a keyboard supported at the front of said frame, and connections between said keys and said admeasuring devices.

32. In a typographic machine, the combination, substantially as set forth, of a front top beam and rear top beam arranged in a common horizontal plane with a slot between them, a beam disposed below said front beam, frame ends uniting the ends of said three beams, a main shaft disposed below said front top beam, a keyboard forward of said top beam, an anvil mounted in said rear top beam, a plunger mounted in said front top beam in line with said anvil, a carriage arranged to slide in said rear top beam, and a type-case arranged to slide vertically between said two top beams.

587,817. CROSSCUT-SAW. SAMUEL HERBERT, near Allendale, Ill. Filed Dec. 23, 1896. Serial No. 616,726. (No model.)

Claim.—The combination with a saw-blade having its rear end rounded to form the arc of a circle and provided with an opening at a point constituting the center from which the said arc of a circle is struck, and a series of openings in the saw-blade equidistant from its edge, arranged along the back edge of the saw and in the butt-end near the front edge thereof, of a handle pivoted on a pin passing through the central opening, said handle adapted to swing around the rounded end of the saw, devices to clamp said handle rigidly in the desired position, and a supplemental handle adapted to be attached to the saw-blade by a pin passing through one of said series of openings, and means to clamp said supplemental handle to the saw-blade at any desired angle thereto, substantially as described.



587,818. LIGHTNING-ARRESTER. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 16, 1897. Serial No. 627,234. (No model.)



Claim.—1. In a lightning-arrester, the combination of arcing electrodes, a non-inductive resistance in circuit with one of the electrodes, and a blow-out magnet having the ends of its coil or coils connected to the non-inductive resistance at points between which there is a difference in potential due to the dynamo-current following a lightning discharge.

2. In a lightning-arrester, the combination of an inclosing box, a cover formed with an extension on its under side, binding-posts secured to the extension, arcing electrodes mounted in the binding-posts, and an opening or chute through which the vapor formed at the time a lightning discharge takes place can pass to the outside of the box.

3. In a lightning-arrester, the combination of an inclosing box, an extension formed on the under side of the cover, binding-posts secured to the extension, arcing electrodes mounted in the binding-posts, a chute formed in the cover and its extension communicating with the external air, and a blow-out magnet arranged to blow the arc formed at the electrodes outward through the chute.

4. In a lightning-arrester, the combination of an inclosing box of insulating material, a cover therefor, provided with an extension on its under surface, binding-posts secured to the extension, arcing electrodes separated by an air-space mounted in the binding-posts, spring contact-arms forming a part of the binding-posts, ground and line terminals making electrical connection with the spring contact-arms, and means for securing the cover to the box.

5. In a lightning-arrester, the combination of an inclosing box, a cover therefor provided with an extension on its under side, binding-posts secured to the extension, contacts on the binding-posts engaging with fixed contacts on the box, arcing electrodes, a non-inductive resistance, an opening in the box communicating with the outside, and a spring-clip engaging with a fixed part of the box to hold the cover in place.

6. As an article of manufacture, a cover for a lightning-arrester, provided with an extension on its under side in which is formed a chute, projections on the extension, and sockets in which the binding-posts are mounted.

587,819. ICE CHEST OR BOX. JOHN A. HILCKEN, Brooklyn, N. Y. Filed Apr. 23, 1897. Serial No. 633,468. (No model.)



Claim.—1. An ice box or chest of the usual form, provided with partition plates or boards, which are supported therein, and which are

downwardly inclined from one end to the other, said plates or boards being provided with longitudinal grooves in the upper surface thereof, and being separated by a longitudinal space, which is provided with a covering-plate, and ice trays or supports placed over said plates or boards and said covering-plate, and a transverse groove or trough at one end of said plates or boards with which said longitudinal grooves in said plates or boards communicate, and a pipe which communicates with said transverse groove or trough, substantially as shown and described.

2. An ice box or chest, of the usual form, provided with partition plates or boards which are supported therein, and which are downwardly inclined from one end to the other, said plates or boards being provided with longitudinal grooves in the upper surface thereof, and being separated by a longitudinal space, which is provided with a covering-plate, and ice trays or supports placed over said plates or boards and said covering-plate, and a transverse groove or trough at one end of said plates or boards with which said longitudinal grooves in said plates or boards communicate, and a pipe which communicates with said transverse groove or trough, said partition plates or boards being provided with a metal covering which conforms to said longitudinal grooves formed in the upper surface thereof, and which also conforms to said transverse groove or trough, substantially as shown and described.

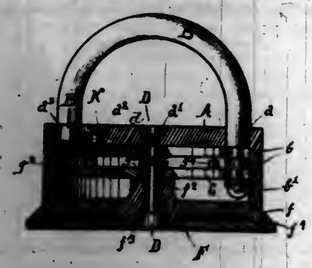
3. An ice box or chest of the usual form, provided with partition plates or boards which are supported therein, and which are downwardly inclined from one end to the other, said plates or boards being provided with longitudinal grooves in the upper surface thereof, and being separated by a longitudinal space which is provided with a covering-plate, and ice trays or supports placed over said plates or boards and said covering-plate, and a transverse groove or trough at one end of said plates or boards with which said longitudinal grooves in said plates or boards communicate, and a pipe which communicates with said transverse groove or trough, said partition plates or boards being provided with a metal covering which conforms to said longitudinal grooves formed in the upper surface thereof, and which also conforms to the bottom of said transverse groove or trough and the sides of which are carried upwardly adjacent to the inner walls of the box or chest, substantially as shown and described.

587,820. CHECK-TILL. GEORGE H. HIRUM, Cambridge, England. Filed Nov. 20, 1896. Serial No. 613,853. (No model.) Patented in England June 3, 1896, No. 12,067.



Claim.—In an improved check-till for business-houses, the combination with a rectangular casing, having glass panels as R, T, V, and V^2, a fixed partition G, and a lock-up drawer H, a sliding partition J, normally closed by a spring or springs as K, a lock-up door S leading to the compartment formed by the partitions G, and J, a fixed partition L, and a sloping shelf as M, above the sliding partition J together with a coin-receptacle P, surrounding a slot N, leading to the shelf M, said parts being constructed, combined and arranged substantially as shown and described.

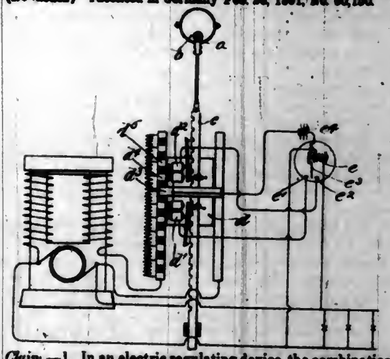
587,821. PERMUTATION-PADLOCK. EDWARD S. HODGSON, Jr., Springfield, Ill. Filed June 2, 1896. Serial No. 594,039. (No model.)



Claim.—1. In a permutation-lock the means for changing the combination, consisting of a notched screw fitting in a hole in the shell of the lock, a rotatable tumbler having an annular series of holes and a screw-pin fitting in the holes in said tumbler; in combination with a shell within which said tumbler turns and a shackle entering said shell and fitting in the notch in said screw, the annular series of the holes in said tumbler registering with the holes in said shell in which said screw fits, as set forth.

2. In a permutation-lock, the combination of a cylindrical shell having in its top holes, a, a', a^2 and a^3 adapted to receive the body of a shackle B, a central rivet D, a screw K and the free end B' of the shackle B respectively, a circular dial-plate having an annular ledge on which said shell fits, a central shouldered rivet connecting said dial-plate rotatably with said shell, a notched lower tumbler provided with an upwardly-projecting pin and secured to, and turning with said dial-plate, a notched upper tumbler rotatable on said central rivet, and having a circular series of holes registering with the hole a^3 in the top of the shell, a screw-pin fitting in any hole of the said circular series of holes in the top tumbler and adapted to engage with the pin on the lower tumbler, a spring between said tumblers, a shackle B fitting in the hole a in the top of the shell, and having circumferential channels in which the perimeters of the notched tumblers move, the free end B' of said shackle fitting in the hole a^3 in the top of the shell, and a screw K fitting in the hole a^2 in the top of the shell, and having a notch conforming to the perimeter of said shackle, as set forth.

587,822. AUTOMATIC ELECTRICAL REGULATING DEVICE. ERNST W. C. C. HOFFMANN, Charlottenburg, and JOHANNES H. P. GLOSER, Berlin, Germany, assignors to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Apr. 17, 1896. Serial No. 587,951. (No model.) Patented in Germany Feb. 26, 1891, No. 60,180.



Claim.—1. In an electric regulating device, the combination with an element having a reciprocating movement, of a regulating arm or lever, an electromagnetic clutch adapted to connect the reciprocating element and the regulating-arm, whereby motion is imparted thereto and the desired regulation is accomplished, and means for actuating the said clutch at either extreme of the stroke of said reciprocating element; substantially as described.

2. In an electric regulating device, the combination with an element having a reciprocating movement, of a regulating arm or lever, an electromagnetic clutch adapted to connect the reciprocating element and the regulating-arm, whereby motion is imparted thereto and the desired regulation accomplished, a relay in connection with the apparatus to be regulated controlling the electromagnetic clutch, and means for directing current through the said relay and clutch at either extreme of the stroke of said reciprocating element: substantially as described.

3. In a relay, the combination with the actuating-magnet, of a contact-arm disposed before said magnet, contacts provided in said relay with which the contact-arm is adapted to engage, a damping-magnet, and a disk provided upon the contact-arm near the point of its engagement with the contacts, the said disk being maintained in the field of the damping-magnet, whereby the contact-arm is shielded from vibratory tendencies imparted from without the relay, substantially as described.

4. In a relay, the combination with an actuating-magnet, of a contact-arm l mounted before said magnet, contacts n n' with which the lower end of said contact-arm is adapted to engage and close the controlled circuits, a damping-electromagnet provided with extended pole-pieces p p', and a disk q mounted upon the contact-arm near the point of its electrical engagement with the contacts n n', said disk being maintained in the field of the damping-electromagnet, whereby the contact-arm is prevented from altering the controlled circuits by reason of external vibration imparted to the device, substantially as described.

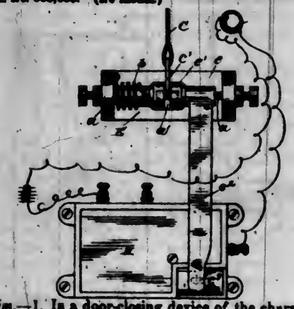
5. In an electric regulating device, the combination with an electromagnetic clutch having a reciprocating movement, of a regulating-arm adapted to be actuated by the said clutch, a relay for controlling the said clutch, and means for closing the circuit through the relay and the said clutch when the latter is at either extreme of its reciprocating stroke; substantially as described.

6. In an electric regulating device, the combination with an electromagnetic clutch having a reciprocating movement, of a regulating arm or lever adapted to be actuated by the said clutch, a relay for controlling the said clutch, auxiliary coils wound respectively to oppose and assist the magnetic influence of the relay-magnet upon the relay contact-arm, and means for closing the circuit through the magnetic clutch, the relay-contact and the respective auxiliary relay-coil when the said clutch is at either extreme of its reciprocating stroke: substantially as described.

7. In an electric regulating device, the combination with an element having a reciprocating movement, of an electromagnetic clutch adapted to be moved thereby, a rack-bar controlling a regulating arm or lever adapted to be engaged and moved in one direction or the other by the said clutch, a relay controlling the said clutch, and means for operating the said clutch when it is at either extreme of its reciprocating stroke; substantially as described.

8. In an electric automatic regulating device, the combination with the continuously-revolving shaft a, of an eccentric b mounted thereon, an electromagnetic clutch d' to which is imparted a reciprocating movement by the eccentric b, a rack-bar f controlling the regulating arm or lever adapted to be engaged by the said clutch and moved step by step in one direction or the other, a relay provided with double contact-points, the relay contact-arm normally remaining midway between the said points, either of which forms a terminal of the circuit through the electromagnet of the clutch, contact-rings g g' and h h' adapted to respectively close the circuit through the corresponding relay contact-points and the electromagnet of the clutch when the latter is at the upper or lower point of its stroke; substantially as described.

587,823. APPLIANCE FOR CLOSING DOORS. EDWARD F. HOLBROOK and EDGAR H. GOODWILLIE, Chicago, Ill. Filed Aug. 22, 1896. Serial No. 603,895. (No model.)

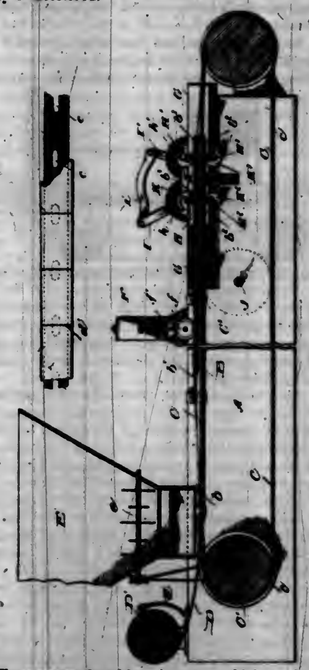


Claim.—1. In a door-closing device of the character described and in combination, a cable supported over the space traversed by the door and having a weight attached to one end, a holder for securing the opposite part of the cable to keep the weight under suspension, a lock having an automatically-acting bolt for retaining the holder in its connection with the cable, means for causing the operation of the lock by the action of heat for releasing its connection with the holder, an arm connected with the door and adapted to move alongside the cable, and a knob on the cable set outside the space traversed by the arm and adapted to traverse said space in the path of the arm with the descent of the weight as specified.

2. The cable-holder comprising a revoluble piece provided with an open side slot extending past its axis, an open bottom slot extended across the side slot parallel with and toward the axis and an arm adapted to engage an electric lock, a torsional spring applied to the revolubl piece and an engaging piece connected with the cable and adapted to work in the slots of the revoluble piece as specified.

587,824. PROCESS OF MAKING CIGARETTES AND APPARATUS THEREFOR. WILLIAM A. HUNTER, Washington, D. C. Filed Jan. 10, 1896. Renewed Dec. 22, 1896. Serial No. 616,694. (No model.)

Claim.—1. The process of making cigarettes, which consists in folding a continuous paper wrapper perforated transversely at intervals, around a tobacco filler, then tearing the paper apart on a line of perforations and then tucking the ends of the severed cigarette, substantially as described.



2. The process of making cigarettes which consists in folding a continuous paper wrapper, perforated transversely at intervals, around a tobacco filler, then pasting the wrapper, then tearing the paper apart on a line of perforations, and then tucking the ends of the severed cigarette, substantially as described.

3. The process of continuously making cigarettes which consists in wrapping a continuous paper wrapper, perforated transversely at intervals, around a tobacco filler to form a continuous stem, then continuously separating said continuous stem into individual cigarettes by breaking the wrapper apart along a line of perforations, substantially as described.

4. In a cigarette-machine the combination with the forming-tube, of the perforated belt for carrying the tobacco and wrapper through said tube, and the devices for tucking the ends of the cigarettes having parts adapted to extend through the perforations of said belt, substantially as described.

5. In a cigarette-machine the stem forming and carrying belt, provided with perforations located at intervals, for the purpose set forth, the centers of adjacent perforations being a distance apart equal to the length of a cigarette before tucking, substantially as described.

6. In a cigarette-machine the combination with devices for forming a continuous tobacco filler, devices for feeding a continuous paper wrapper and folding it around said filler, and the tucking devices, of a perforating mechanism located in the path of the continuous paper wrapper substantially as described.

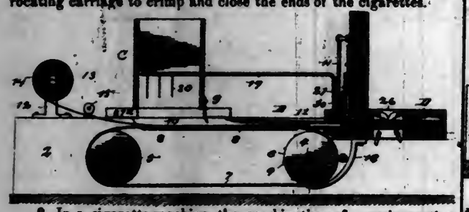
7. The process of continuously making cigarettes which consists in wrapping a continuous paper wrapper, weakened transversely at intervals, around a tobacco filler, to form a continuous stem, then continuously separating said continuous stem into individual cigarettes by breaking the wrapper apart along one of said weakened portions, substantially as described.

8. The process of continuously making cigarettes which consists in weakening the continuous paper wrapper transversely at intervals, forming a tobacco filler and wrapping the paper wrapper around the same, then continuously separating said continuous stem into individual cigarettes by breaking the wrapper apart along one of said weakened portions, substantially as described

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587,825. CIGARETTE-MACHINE. WILLIAM A. HUNTER, Washington, D. C., assignor, by direct and mesne assignments, to The Lorents Cigarette Machine Company, of New York. Filed June 11, 1895. Renewed Dec. 24, 1896. Serial No. 616,947. (No model.)

Claim.—1. The combination with the forming-tube and endless belt arranged as specified, of a reciprocating carriage formed with a longitudinal passage in alinement with the forming-tube and arranged to telescope therewith, a knife on the reciprocating carriage to sever a formed cigarette, and operatively-connected tucking-fingers arranged in the path of the longitudinal passage in the reciprocating carriage to crimp and close the ends of the cigarettes.



2. In a cigarette-machine, the combination of a reciprocating carriage, having a passage therethrough for a continuous cigarette, means to sever the continuous cigarette into determined lengths, and operatively-connected intereugaging tucking-fingers to engage the severed and abutting ends of the adjacent cigarettes, substantially as and for the purpose set forth.

3. In a cigarette-machine the combination of the cutter for severing the continuous cigarette, the reciprocating carriage provided with a longitudinal passage therethrough to receive a continuous cigarette, means for reciprocating the carriage, and tucking-fingers journaled across the said passage arranged to grasp the end of a severed cigarette and the adjacent end of the continuous cigarette and close the paper over the contents thereof, substantially as specified.

4. In a cigarette-machine the combination of the longitudinally-reciprocating carriage provided with a longitudinal passage therethrough to receive a continuous cigarette, a vertically-reciprocating and revoluble knife on the carriage for severing the continuous cigarette, means for reciprocating the carriage, means for reciprocating and rotating the knife, tucking mechanism carried by said carriage and means for feeding the continuous cigarette to said carriage, knife and tucking mechanisms, substantially as described.

5. In a cigarette-machine, the combination with a forming-tube, mechanism to carry a continuous cigarette therethrough, a reciprocating frame, a cutting mechanism to sever the continuous cigarette, comprising a vertical standard formed with a central vertical groove, a sliding bar in the groove, a rotatable knife on the bar, gearing on the bar to rotate the knife, a rack-bar on the standard to rotate the gearing, and means to reciprocate the sliding bar, substantially as and for the purpose specified.

6. The combination with a reciprocating carriage, formed with a longitudinal passage, of a slotted tube in the passage, and oppositely-rotating reciprocating tucking-fingers journaled in the carriage, adapted to enter the slot of the tube and grasp and tuck the adjacent ends of cigarettes in the tube, as described.

7. The combination of the endless carrying-belt, the reciprocating carriage, and a brake secured to the carriage arranged to engage the carrying-belt, and temporarily stop its movement.

8. The combination with the hopper, and the reciprocating carriage, of a stirrer in the hopper, the handle whereof is secured to the reciprocating carriage, substantially as described.

9. In a cigarette-machine, the combination with the forming-tube, and a reciprocating carriage, of a vertically-reciprocating and rotating knife to sever the continuous cigarette, and tucking-fingers in the carriage to grasp the ends of the cigarettes and tuck the paper thereon during the passage through the carriage.

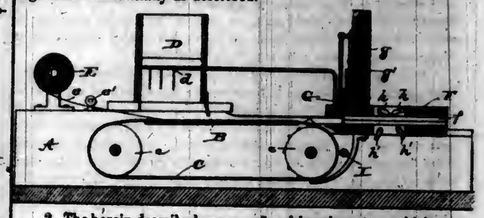
10. The combination with mechanism for forming a continuous rod or stem of tobacco and wrapping it with paper, of a cutter for severing the said wrapped rod into separate cigarettes and operatively-connected mechanism for crimping the paper at the ends of the cigarettes, substantially as specified.

11. The combination with mechanism for forming a continuous rod or stem of tobacco and wrapping it with paper, of a cutter for severing said wrapped rod or stem into separate cigarettes, and operatively-connected mechanism for crimping the paper wrapper at each side of each cut, substantially as described.

12. The combination of mechanism for forming a rod or stem of tobacco and wrapping it with paper, of a cutter for severing said wrapped rod or stem into separate cigarettes, two sets of crimping-fingers operating reversely of each other and placed to crimp the paper on both sides of each cut by the said cutter, and operatively connected with the forming mechanism, substantially as described.

587,826. PROCESS OF MAKING CIGARETTES. WILLIAM A. HUDSON, Washington, D. C. Filed Apr. 30, 1896. Renewed Dec. 22, 1896. Serial No. 616,685. (No model.)

Claim.—1. The herein-described process of making cigarettes which consists in wrapping a continuous wrapper around a continuous tobacco filler forming a continuous stem, then forming separate cigarettes from said stem with the paper crimped at each end of the cigarette, substantially as described.



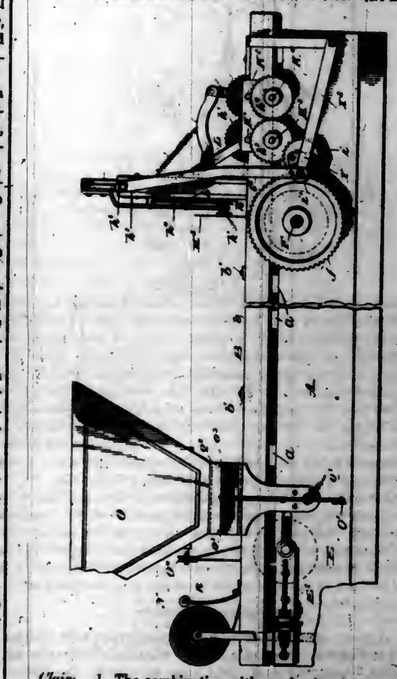
2. The herein-described process of making cigarettes, which consists in forming a continuous wrapped stem then severing and crimping to form cigarettes with the paper crimped at both ends, substantially as described.

587,827. CIGARETTE. WILLIAM A. HUDSON, Washington, D. C. Filed Apr. 30, 1896. Renewed Dec. 22, 1896. Serial No. 616,686. (No model.)

Claim.—1. A continuous cigarette composed of a rod of tobacco wrapped with a paper perforated at intervals, the portions of said paper between adjacent perforations being of the length of a single cigarette, whereby the wrapper and rod can be separated at the perforations into separate cigarettes, substantially as described.

2. A continuous cigarette composed of a rod of tobacco wrapped with a paper weakened transversely at intervals, the portions of said paper between adjacent weakened portions being of the length of a single cigarette, whereby the wrapper and rod can be separated at the weakened portions of said paper into separate cigarettes, substantially as described.

587,828. CONTINUOUS-CIGARETTE MACHINE. WILLIAM A. HUDSON and JOSEPH F. HARTIGAN, Washington, D. C. Filed Jan. 10, 1896. Renewed Dec. 22, 1896. Serial No. 616,683. (No model.)



Claim.—1. The combination with mechanism for forming a continuous tobacco rod and folding a wrapper about the same, of a cutter for severing said wrapped rod into individual cigarettes and tucking devices operatively connected with the continuous-cigarette-forming devices for crimping the wrapper at each end of a severed cigarette after it is severed, and operating means, substantially as described.

2. The combination with mechanism for forming a continuous tobacco rod and folding a wrapper about the same, of a cutter for severing said wrapped rod into individual cigarettes, tucking devices operatively connected with the continuous-cigarette-forming devices adapted to engage the wrapper at opposite ends of the severed cigarette and means for moving the wrapper-engaging portions of said tuckers toward each other to crimp the paper at both ends of the severed cigarette simultaneously, substantially as described.

3. The combination with devices for forming a tobacco rod, and folding a wrapper about the same including the longitudinally-reciprocating forming-tube, the traveling belt having a portion extending through said tube, the cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, substantially as described.

4. The combination with the longitudinally-reciprocating forming-tube, and tobacco-carrying belt having a part extending through said tube, means for moving said belt continuously in one direction, a cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, substantially as described.

5. The combination with the longitudinally-reciprocating forming-tube, and the tobacco-carrying belt having a part passing through said tube, the cutter and the tucking devices, of means for moving said belt continuously and devices for reciprocating said tube, cutter and tucking devices simultaneously, substantially as described.

6. The combination with the main frame and the tobacco-feeding belt supported therein, of the longitudinally-movable carriage, a forming-tube carried thereby and engaging a portion of said belt, a cutter mounted on said carriage, tucking devices also mounted on said carriage, means for moving said belt continuously and means for reciprocating the said carriage and operating said knife and tucking devices, substantially as described.

7. The combination with means for forming a continuous cigarette including the forming-tube, of a perforated belt having a part passing longitudinally therethrough, a cutter and tucking devices operatively connected with the continuous-cigarette-forming devices and having parts adapted to pass through the perforations of said belt, substantially as described.

8. The combination with the forming-tube, of a forming-belt provided with perforations located at intervals throughout its length and having a part passing through said tube, of a cutter and the tucking devices, the latter having parts adapted to engage said perforations, substantially as described.

9. The combination with the longitudinally-reciprocating forming-tube, of the belt provided with perforations located at intervals throughout the length thereof, the cutter, tucking devices for tucking the ends of severed cigarettes, said tucking devices having parts adapted to pass through the said perforations of said belt, means for moving said belt continuously and means for reciprocating said tube, substantially as described.

10. The combination with means for forming a tobacco rod and folding a wrapper about the same, of a pasting mechanism for pasting the wrapper, a cutter for severing said wrapped and pasted rod into individual cigarettes and tucking devices operatively connected with the continuous-cigarette-forming devices for crimping the wrapper at each end of a severed cigarette after it has been severed, substantially as described.

11. The combination with means for forming a tobacco rod and folding a wrapper about the same, of a paste-receptacle, a paste-supplying wheel closing the delivery-mouth of said receptacle, a pasting-wheel engaging said supplying-wheel having its axis of rotation perpendicular to the axis of said supplying-wheel, a cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, substantially as described.

12. The combination with the main frame, of the longitudinally-reciprocating carriage thereon, the tobacco-carrying belt, the forming-tube carried by said carriage and engaging a portion of said belt, the cutter carried by said carriage, the tucker-tube movable longitudinally in said carriage, the tucking devices adapted to crimp the ends of a cigarette in said tucking-tube, devices for reciprocating said carriage and devices for moving said tucking-tube independently of said carriage, substantially as described.

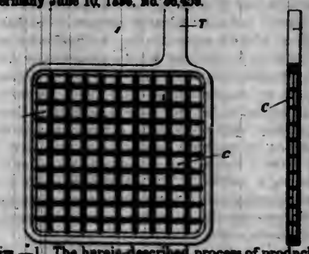
13. The combination with the mechanism for forming a tobacco rod and folding a wrapper about the same, the cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, of a tobacco-hopper and devices for feeding determinate quantities at intervals to said forming-devices, substantially as described.

14. The combination with mechanism for forming a continuous cigarette including the forming-tube and belt, the cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, of the tobacco-hopper, the opposing pivoted, semicylindrical cups and devices for oscillating said cups simultaneously, to feed a determined quantity of tobacco to said belt, substantially as described.

15. The combination with mechanism for forming a continuous cigarette including the longitudinally-reciprocating forming-tube, the belt, the cutter and tucking devices operatively connected with said continuous-cigarette-forming devices, of a tobacco-hopper, the opposing semicylindrical pivoted cups, and devices connected operatively with said forming-tube for oscillating said cups simultaneously to feed a determined quantity of tobacco to said belt, substantially as described.

16. The combination with mechanism for forming a continuous cigarette including the forming-tube and belt, the cutter and tucking devices operatively connected with the continuous-cigarette-forming devices, of the tobacco-hopper having the tobacco-cutting knife, the pivoted semicylindrical opposing cups below said knife and means for oscillating said cups simultaneously, substantially as described.

587,829. PROCESS OF TREATING ALLOYS FOR MANUFACTURING ELECTRODES. LÉON P. HULIN, Medane, France. Filed Dec. 21, 1894. Serial No. 532,000. (No specimens.) Patented in France May 7, 1894, No. 238,336; in Belgium May 7, 1894, No. 109,907, and in Germany June 10, 1896, No. 86,459.

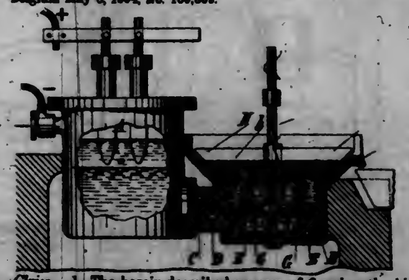


Claim.—1. The herein-described process of producing electrodes of spongy metal which consists in alloying a heavy metal such as lead with barium, and thereupon treating the alloy with a liquid to eliminate the barium and thereby produce a spongy-metal electrode.

2. The herein-described process for the manufacture of electrodes of porous metal, which consists in alloying a heavy metal to be rendered porous, and a metal easily oxidized by water, thereupon casting the said alloy upon a metallic grid, whereby the said alloy will remove the oxid which may be on the grid and fuse thereto, and thereupon treating the cast mass with a liquid which will oxidize the oxidizable metal, leaving the other metal porous and firmly adherent to the grid.

3. The herein-described process for the manufacture of electrodes which consists in alloying a heavy metal and an easily-oxidizable metal, in thereupon casting the said alloy upon a support which is less fusible than the said alloy and to which the said alloy will adhere, and thereupon treating the cast mass with a liquid which will oxidize the oxidizable metal, leaving the other metal porous and firmly adherent to the support.

587,880. PROCESS OF AND APPARATUS FOR MANUFACTURING METALLIC PEROXIDS AND CAUSTIC ALKALIES. LÉON P. HULIN, Medane, France. Filed Dec. 26, 1894. Serial No. 532,908. (No model.) Patented in France May 8, 1894, No. 238,574, and in Belgium May 8, 1894, No. 109,269.



Claim.—1. The herein-described process of forming the higher peroxids of heavy metals such as lead, antimony, bismuth, chromium and manganese, which are incapable of being separately peroxidized to the maximum by calcination in air, which process consists in alloying said metals with an alkali metal or alkali-earth metal and sub-

jecting the alloy thus constituted to the action of heat and of atmospheric air to form the peroxid desired in combination with the anhydrous alkaline oxid formed conjointly therewith, and decomposing the salt of the metallic acid thus formed in order to separate the peroxid.

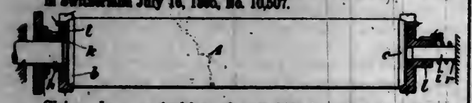
2. The herein-described process of forming the higher peroxids of heavy metals such as lead, antimony, bismuth, chromium and manganese, which are incapable of being separately peroxidized to the maximum by calcination in air, which process consists in alloying said metals with an alkali metal or alkali-earth metal and subjecting the said alloy thus constituted to the action of heat and of atmospheric air to form the peroxid desired in combination with the anhydrous alkaline oxid formed conjointly therewith and continuously withdrawing the said peroxid and alkaline oxid from the presence of the alloy under treatment in order to prevent the sodium remaining in the alloy from reducing the peroxid formed which would occur if the peroxid were allowed to remain in company with the alloy.

3. The herein-described process of producing the higher peroxids of heavy metals such as lead, antimony, bismuth, chromium and manganese, which consists in alloying the heavy metal to be peroxidized with an alkali metal or alkali-earth metal, heating the alloy to about a dull-red heat in contact with oxygen, whereby the alloy becomes oxidized, producing a combination of peroxid of the heavy metal and a protoxid of the alkali metal, substantially as described.

4. The combination of an oxidizing vessel provided with a stirrer, circulating-channels and a discharging scraper or scrapers for the oxidized product, with an apparatus for the continuous production of the alloy required for carrying out the process described.

5. The herein-described process of producing the higher peroxids of heavy metals, and an alkaline protoxid which consists in subjecting an alloy composed of the heavy metal to be peroxidized and an alkali metal or alkali-earth metal to the action of an electric current of such volume as to produce a fused bath of said alloy, exposing the said alloy while in such molten condition to the action of oxygen, thereby producing a peroxid of the heavy metal and a protoxid of the alkali metal or alkali-earth metal, producing a circulation of the fused bath and removing the peroxid and protoxid formed from the presence of the molten alloy.

587,831. **MUSICAL BOX.** PAUL C. JACCARD, St. Croix, Switzerland. Filed May 13, 1896. Serial No. 592,040. (No model.) Patented in Switzerland July 16, 1895, No. 10,507.



Claim.—In a musical box, the combination of an interchangeable cylinder having conical edges, supporting-brackets having conical edges or seats in which the said cylinder ends rest, one bracket being fixed to the driving-shaft while the other is loosely mounted on a fixed shaft and capable of axial displacement, recesses formed in the said brackets in which the cylinder-driving pins engage, a spring on the fixed shaft normally compressing the cylinder firmly between the supporting-brackets, and a lever connected to the displaceable bracket and by means of which it may be axially displaced to permit of the changing of the cylinder, substantially as described and for the purpose set forth.

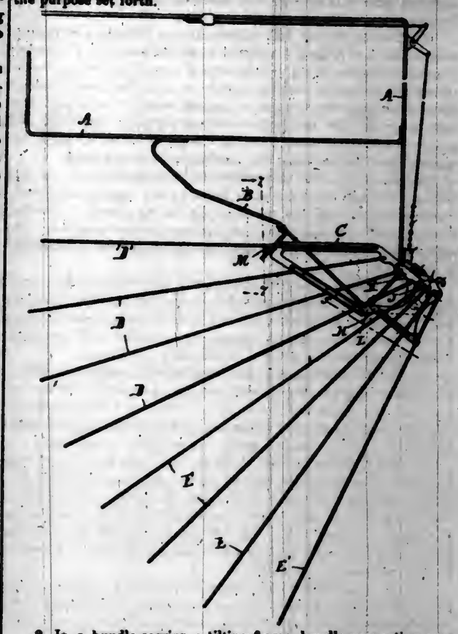
587,832. **GARMENT-SUPPORTING LOOP.** ERASTUS W. JEWETT, Swanton, Vt. Filed Nov. 5, 1896. Serial No. 611,144. (No model.)



Claim.—A garment-supporting loop comprising a triangular-shaped upper portion, having its base uppermost, and an acorn-shaped lower portion, its apex being inverted and forming sharp angles with lateral projecting arms *d*, *d'*, the whole being formed out of rigid material, substantially as described and set forth.

587,833. **BUNDLE-CARRIER FOR HARVESTING-MACHINES.** MAURICE KANE, Austin, Ill. Filed Dec. 9, 1895. Serial No. 571,535. (No model.)

Claim.—1. In a bundle-carrier, a supporting-frame, a carrier-frame mounted on said supporting-frame, a series of bundle-supporting arms mounted on said carrier-frame in rigid relation with respect to each other, a swinging bracket pivotally mounted upon said carrier-frame and a second series of bundle-supporting arms mounted in said bracket in rigid relation with respect to each other, as and for the purpose set forth.



2. In a bundle-carrier, a tilting frame, bundle-supporting arms carried thereby, said arms arranged in sets, the members of each set rigidly held relatively to each other, and means whereby one of said sets is moved relative to the other, and independently of the tilting motion; as and for the purpose set forth.

3. In a bundle-carrier, a supporting-frame, a carrier-frame mounted on said supporting-frame, a series of bundle-supporting arms mounted on said carrier-frame in rigid relation with respect to each other, a swinging bracket pivotally mounted on said carrier-frame, a second series of bundle-supporting arms mounted upon said bracket in rigid relation with respect to each other, and means for rocking said bracket about its pivot, as and for the purpose set forth.

4. In a bundle-carrier, a tilting frame, a series of bundle-supporting arms mounted thereon in rigid relation with respect to each other, a bracket pivotally mounted on said frame, a series of bundle supporting arms mounted upon said bracket, in rigid relation with respect to each other, and means for swinging said bracket and for tilting said frame; as and for the purpose set forth.

5. In a bundle-carrier, a frame, a series of bundle-supporting arms mounted thereon, pintles or pivots upon which said frame is mounted to tilt, loose seats for said pintles whereby said frame may be tilted and swung in intersecting planes upon said pintles or pivots; as and for the purpose set forth.

6. In a bundle-carrier, a tilting frame, a series of bundle-supporting arms mounted therein in rigid relation with respect to each other, the extreme inner arm of said series being arranged in a higher plane than the other members of said series, a bracket pivotally mounted on said frame, a second series of bundle-supporting arms mounted in said bracket in rigid relation with respect to each other the extreme outer arm of said second series of arms being arranged in a higher plane than the other members of said series, and means for swinging said bracket on its pivot, as and for the purpose set forth.

7. In a bundle-carrier, a tilting frame, bundle-supporting arms mounted thereon and arranged in sets, the members of each set being held rigid with respect to each other, one of said sets being pivotally mounted in a higher plane than the other of said sets, and means for swinging said higher set about its pivot and relative to the other of said sets, as and for the purpose set forth.

8. In a bundle-carrier, bundle-supporting arms arranged in sets, the members of each set being rigidly mounted relative to each other, one of said sets being movably mounted in a higher plane than the other of said sets, a bracket rigidly connecting the members of said movable set, said bracket provided with a rounded or beveled extension, and means for moving said movable set relative to the other set; as and for the purpose set forth.

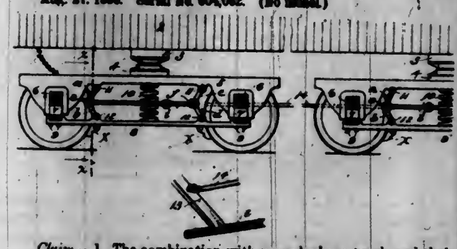
9. In a bundle-carrier, a tilting frame, a series of bundle-supporting arms mounted thereon in rigid relation with respect to each other, a bracket pivotally mounted on said frame, a series of bundle-supporting arms mounted on said bracket in rigid relation with respect to each other, a flexible device connected to said bracket, a guide upon said frame, and means for actuating said device, whereby said bracket is swung upon said frame: as and for the purpose set forth.

10. In a bundle-carrier, a frame, a series of bundle supporting arms carried thereby, a bracket pivotally mounted on said frame, a series of bundle-supporting arms carried by said bracket, means for swinging said bracket about its pivot, and means for locking said bracket to said frame when rocked or swung into position to receive the bundle, whereby the pivot of said bracket is relieved of strains due to the weight of the bundles; as and for the purpose set forth.

11. In a bundle-carrier, a supporting-frame, a carrier-frame mounted thereon, a series of bundle-supporting arms mounted on said carrier-frame in rigid relation with respect to each other, a swinging bracket pivotally mounted on said carrier-frame, and a second series of bundle-supporting arms mounted in said bracket; as and for the purpose set forth.

12. In a bundle-carrier, a tilting frame, bundle supporting arms carried thereby, said arms arranged in sets, one of said sets mounted to swing upon said tilting frame and in overlapping relation relative to the other set and independent of the tilting movement, and means for swinging said set, as and for the purpose set forth.

587,834. **EQUALIZER FOR CARS.** THOMAS C. KENNEDY, Dayton, Ohio, assignor of one-half to Adolph Neweult, same place. Filed Aug. 27, 1896. Serial No. 604,062. (No model.)



Claim.—1. The combination with a car-body, a truck and their springs, of an equalizer consisting of toggle-bars applied thereto, and a connecting-rod interconnecting each pair of toggle-bars and movable longitudinally to itself by the movement of either pair of said toggle-bars, so that when one pair is folded or opened, more or less, said rod so moves and draws equally on the other pair.

2. The combination with a car, a truck and their springs, of an equalizer consisting of toggle-bars applied thereto in sets near each side, each set consisting of the forward and rear pairs of bars, and a connecting-rod from pair to pair of the same set and movable longitudinally to itself by the movement of either pair of toggle-bars, so that when one pair is folded or opened, more or less, said rod so moves and draws equally on the other pair.

3. The combination with a car, its trucks and their springs, of an equalizer consisting of a pair of toggle-bars pivoted to parts connected by springs so that when said parts change their relative position the bars will change the relative position of their three pivots, and an interconnecting rod from one pair to the other of said toggle-bars, movable longitudinally to itself so as to cause said pairs to open or fold equally.

4. The combination with a car-body, its trucks and their springs, of an equalizer consisting of toggle-bars applied thereto and a supplemental rod connecting the toggle-bars of one truck with those of the other.

5. The combination with the car-body and its trucks and their springs, of an equalizer consisting of a set of toggle-bars pivoted to spring-connected parts in each truck, the sets of truck being interconnected by a rod, and a supplemental rod connecting the sets of both trucks so that the movements of the toggles of one truck are transferred to the toggles of the other truck.

587,835. **CORK.** LEOPOLD LANDAU, Paris, France. Filed Apr. 22, 1897. Serial No. 633,223. (No model.)



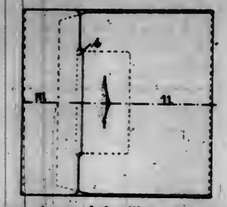
Claim.—1. In a bottle provided with a valve-seat in its neck, the passage above the valve-seat being widened through a portion of its length, the combination of a ball-valve located in the passage and a reciprocating piece provided with a passage for the liquid opening laterally through said piece, said piece being located above the ball-valve whereby it will rest in its lower position upon the ball to close the passage and when in its upper position will release the ball and expose its lateral passage in the widened portion of the neck of the bottle, substantially as described.

2. In a safety-stopper for bottles and similar vessels, the combination with a cylindrical tube provided with ribs on its lower part and having a widened zone at its upper part, a ball-valve guided to and from its seat at the lower end of the tube by said ribs, a movable piece in said tube located above the ball and provided with conduits opening laterally, said movable piece adapted when in its lower position to rest upon the ball and hold it to its seat and when in its upper position to bring the lateral conduits into the widened zone of the tube to permit of the passage of liquid, substantially as described.

3. In a safety-stopper for bottles and similar vessels, a cylindrical tube in combination with a ball-valve adapted to close an opening at its lower end, and a movable piece located above the said ball-valve and provided with conduits opening laterally against the sides of the cylindrical tube, said movable piece being adapted to rest upon the ball when in its lower position and to uncover its lateral ports when in its upper position, for the purpose set forth.

4. In a safety-stopper for bottles and similar vessels, the combination of a cylindrical tube and ball-valve therein adapted to close an opening at its lower end, a reciprocating piece in the tube located above the ball-valve, a washer limiting the outward movement of said piece and covering the upper surface of the piece and the cap covering the washer and secured to the outer edge of the tube, the said reciprocating piece being provided with conduits opening laterally against the sides of the tube, which conduits are uncovered when the piece is in its upper position against the washer and covered when in its lower position against the ball, the center portion of the cap being removable to permit the outflow of the liquid.

587,836. **CARTON-ENVELOP OR PAPER BOX.** KARL LAHR, Augsburg, Germany. Filed July 31, 1896. Serial No. 601,290. (No model.)



Claim.—A paper box and the like and means for securing the parts together comprising a tongue, an adjacent part having a slit to receive the tongue, a slit in the tongue, and a tongue formed in said adjacent part adapted to engage the slit in the tongue of the first part, both of the said tongues being carried through to the inside of the box, the part so securing a firm hold by being pushed through the main slit to bring its slit beneath the supplemental tongue, substantially as described.

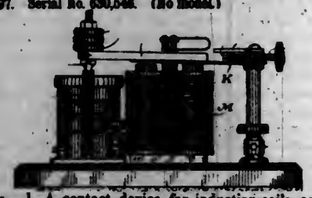
587,837. **VELOCIPEDE.** FRANK LATHER, Huntley, Ill. Filed Aug. 14, 1896. Serial No. 602,607. (No model.)



Claim.—In a bicycle of the class described, the combination of a frame portion provided with a front steering-wheel and a rear driving-wheel, a sprocket-shaft in the frame portion, a pair of sprocket-wheels independently and rotatably mounted thereon, a circular ratchet on each sprocket, a right-angular vibrating lever mounted on the hub of each sprocket-wheel, the outer end of each having a pedal portion and the inner angular member carrying a pawl engaging the ratchet, antifriction-bearings interposed between the lever and sprocket-wheel hubs, a cable or similar mechanism connecting

the pedal-levers together so that the downward movement of one assists the opposite movement of the other, and helical springs surrounding the cable to limit its movement and restore the parts to a normal position, substantially as described.

587,838. CIRCUIT-BREAKER. HERMANN LEMP, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Apr. 3, 1897. Serial No. 630,546. (No model.)



Claim.—1. A contact device for induction-coils, comprising a pair of fixed terminals, a bridge normally held in contact with the fixed terminals by a spring, and a rheotome-hammer for opening the contacts.

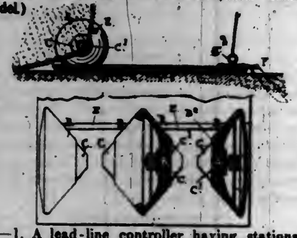
2. In a contact device for induction-coils, the combination of a pair of fixed terminals with a bridge consisting of a rotatable disk normally closing the circuit.

3. In a contact device for induction-coils, the combination of a pair of fixed terminals, with a rod carrying a loosely-mounted disk forming a bridge, a spring normally closing the contacts, and a rheotome-hammer acting upon the rod to momentarily open them.

4. In a contact device for induction-coils, the combination of a number of contacts with a coöperating bridge forming a plurality of circuit-breaks in series, a spring normally holding the contacts together, and a rheotome-hammer separating them.

5. In a contact device for induction-coils, the combination of a pair of rods forming circuit-terminals extending within a vessel containing insulating fluid, with a third rod exposed between the other two carrying a loosely-mounted disk forming a bridging-contact for the terminals, with a spring for holding the disk normally in contact so as to close the circuit, and a rheotome-hammer momentarily opening the circuit, so that the time of closure is normally much longer than the time of opening.

587,839. LEAD-LINE CONTROLLER FOR FISHING-NETS. THOMAS LINDSAY, Capitola, Cal. Filed Dec. 7, 1896. Serial No. 614,766. (No model.)



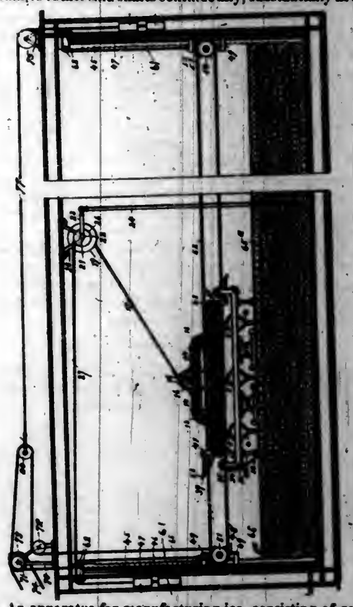
Claim.—1. A lead-line controller having stationary conical-shaped guides arranged in pairs upon and transversely across the top of a weighted drag, conical rollers in the ends of said guides mounted for rotation upon spindles that are adjustable longitudinally in the guides, a fixed guide-bar above the said rollers and between the conical guides, and a fluke on the tail of the drag, constructed for operation as set forth.

2. In a lead-line controller for fishing-nets, the combination of a drag, conical guides fixed upon the drag with the smaller ends of the cones composing each pair set toward each other, a conical roller recessed in the smaller end of each guide, a horizontally-adjustable spindle mounted in each guide and carrying the roller on the outer end, and a guide-bar between the cones of each pair of rollers and above the line of the opening between the rollers, substantially as set forth.

587,840. APPARATUS FOR MANUFACTURING ICE. JOHN H. MARTIN, Kansas City, Mo., assignor of nine-twentieths to John W. McDaniels, Bonner Springs, Kans. Filed Aug. 31, 1895. Serial No. 561,170. (No model.)

Claim.—1. In an apparatus for manufacturing ice in a solid mass, a water-distributer, an endless chain for reciprocating the same, and means to automatically and alternately elevate the ends of said chain, and thereby elevate the distributer first at one end of its travel or movement and then at the other, substantially as described.

2. An apparatus for manufacturing ice in a solid mass, comprising a water-distributer, vertically-adjustable carriers therefor, shafts carried thereby, sprocket-wheels upon said shafts, a chain connecting said sprocket-wheels and detachably connected to the distributer, and means to rotate said shafts continuously, substantially as set forth.



3. An apparatus for manufacturing ice, consisting of reciprocatory water-distributers, vertically-adjustable carriers, shafts carried thereby, sprocket-wheels upon said shaft, an endless chain connecting said sprocket-wheels and detachably connected to said distributers, means to rotate continuously the said shafts, and means to automatically and alternately adjust said carriers, substantially as set forth.

4. An apparatus for manufacturing ice consisting of a reciprocatory distributer, vertical rack-bars, vertically-adjustable carriers, shafts journaled therein, sprocket-wheels upon said shafts, a chain connecting said sprocket-wheels and detachably connected to said distributer, spring-actuated pawls pivoted to said carriers, and engaging said rack-bars, and means to trip said pawls from said engagement, means to elevate said carriers when said tripping operation takes place, substantially as set forth.

5. An apparatus for manufacturing ice, comprising a suitable ice-house, guide-standards therein, rack-bars forming a part of said standards, carriers embracing said guide-standards, shafts rotatably carried thereby, sprocket-wheels upon said shafts, a chain connecting said sprocket-wheels and provided with a lug, a reciprocatory distributer adapted to travel back and forth upon the ice as formed, a spring actuated dog upon said distributer and engaging said lug, means to rotate one of the shafts, and means to trip said dog from engagement with said lug, substantially as, and for the purpose set forth.

6. An apparatus for manufacturing ice, comprising a suitable ice-house, vertical guide-standards therein, carriers adjustably embracing said guides, rack-bars secured to said guides, spring-actuated pawls, pivotally carried by said carriers and engaging said rack-bars, cables suitably guided and attached at their opposite ends to said carriers and to weights, shafts journaled in said carriers, sprocket-wheels mounted thereon, a chain connecting said sprocket-wheels, a distributer detachably connected to said chain, means to rotate continuously one of said shafts, and a lug projecting from said chain to alternately come into contact with said pawls to trip the same, and permit the weights to raise their respective carriers, substantially as set forth.

7. An apparatus for manufacturing ice, comprising a suitable ice-house, a reciprocatory water-distributer, a flexible connection between said water-distributer and a fixed source of supply, and means to alternately pay out and take up said flexible connection as the distributer reciprocates, substantially as set forth.

8. An apparatus for manufacturing ice, comprising a suitable ice-house, a reciprocatory distributer therein, a reel journaled in said ice-house and provided with a hollow shaft, a stand-pipe having a swiveled connection with said hollow shaft, a flexible connection or hose wound upon said reel and connected at its opposite ends to said distributer and to said hollow shaft, and means to wind said flexible connection or hose upon the reel as the distributer approaches the same, substantially as set forth.

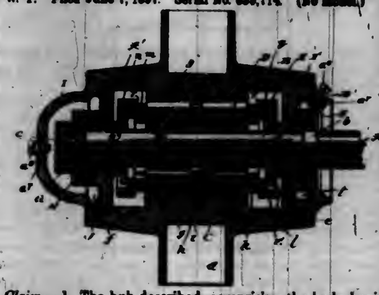
9. An apparatus for manufacturing ice, comprising a suitable ice-house, a reciprocatory distributer therein, a reel journaled in said ice-house and provided with a hollow shaft, a stand-pipe having a swiveled connection with said hollow shaft, a drum mounted rigidly upon said hollow shaft, guide-pulleys, a weight suitably guided, and a cable extending over said guide-pulleys and connecting said weight and said drum, substantially as, and for the purpose set forth.

10. In an apparatus for manufacturing ice, a distributer consisting of a body portion, valve-controlled pipes depending therefrom, distributing-cylinders connected to said pipes, and provided with comparatively long and narrow discharge-spouts, bars secured to said cylinders and runners supporting said bars, substantially as set forth.

11. In an apparatus for manufacturing ice, a reciprocatory water-distributer comprising a body portion, supply-pipes, communicating therewith, valve-controlled pipes depending therefrom, distributing-cylinders connected to said pipes, and provided with comparatively long and narrow discharge-spouts, bars secured to said cylinders, and runners supporting said bars, substantially as set forth.

12. In an apparatus for manufacturing ice, a water-distributer comprising a suitable body portion, a water-supply pipe, valve-controlled pipes connected to the body portion, water-distributing cylinders connected to said pipes and provided with comparatively long and narrow spouts, a sled-frame, supporting the distributer, paper-rolls mounted at opposite ends of the same and guide-pulleys, carried by brackets depending from said frame, substantially as set forth.

587,841. WAGON-WHEEL HUB. JAMES D. MATTISON, New York, N. Y. Filed June 7, 1897. Serial No. 638,714. (No model.)



Claim.—1. The hub described, comprising the body having the interior threads at its opposite ends and the interior bearing-surface at an intermediate point of its length, the annular, threaded oil-receptacle arranged in the inner end of the body and having the annular oil-chamber and also having the inwardly-directed annular flange, the hard-metal washer arranged in the oil-chamber of the oil-receptacle, the threaded ring arranged in the outer end of the body and having the inwardly-directed annular flange, the ring arranged in a groove in the interior bearing-surface of the body, main bearing-rollers having peripheral grooves receiving said ring and also having the reduced portions adjacent to their ends and the bosses at their ends, rollers arranged intermediate of the main bearing-rollers and having the reduced intermediate portions and the enlarged portions adjacent to their ends, the latter engaging the reduced portions adjacent to the ends of the main bearing-rollers, and also having end portions bearing on the inwardly-directed flanges of the oil-receptacle and the ring, movable rings surrounding and engaging the intermediate rollers and also surrounding the bosses of the main bearing-rollers, and the threaded cap arranged in the outer end of the body and having the interior recess or channel for the reception of oil, substantially as specified.

2. The hub described, comprising the body having the interior threads at its inner end, the annular threaded oil-receptacle arranged in the inner end of the body and having the annular oil-chamber, the hard-metal washer arranged in the oil-chamber of the oil-receptacle, and antifriction-rollers carried by the body and adapted to bear on an axle-spindle, substantially as specified.

3. The combination of an axle-spindle having a collar at its inner end and threads at its outer end, and a hub comprising a body having the interior threads at its ends, the annular, threaded oil-receptacle arranged in the inner end of the body and receiving the collar of the spindle and having the annular oil-chamber and the inwardly-directed annular flange, the threaded ring arranged in the outer end of the body and having the inwardly-directed annular flange, main bearing-rollers interposed between the body and the axle-spindle, intermediate rollers interposed between the main bearing-rollers and bearing on the flanges of the oil-receptacle and ring, the threaded cap arranged in the outer end of the body and having the oil-receiving channel, the nut arranged within said cap and mounted on the threaded end of the spindle, the hard-metal washer interposed between the collar on the axle-spindle and the inner wall of the oil-receptacle, and the hard-metal washer interposed between the nut and the threaded ring, substantially as specified.

587,842. VAPOR-CONDENSER. SAMUEL G. MERRICK, Philadelphia, Pa., assignor to the United Smoke and Vapor Condensing Company, Camden, N. J. Filed Oct. 9, 1895. Serial No. 565,174. (No model.)



Claim.—1. In a condenser for gases and the like, the receiving-chamber, the condensing-chamber, and a coiled pipe having its inlet in the receiving-chamber and its outlet in the condensing-chamber, means for rotating said coil, a liquid-supply in the chambers, and means for controlling the relative height of the liquid in said chambers, all combined substantially as described.

2. In a vapor-condenser of the character described, the receiving-chamber, the condensing-chamber, the coiled pipe having one end in each chamber and means for rotating the coil, and a pump communicating with the liquid-supply in each chamber and means for driving said pump, all combined substantially as described.

3. In a vapor-condenser of the character described, the casing having receiving and condensing chambers separated by a partition, the rotating coiled pipe having one end in each chamber and passing with an approximately closed joint through said partition, and passages through the partition controlled by suitable valves, all combined substantially as described.

4. The condenser having receiving and condensing chambers and the rotating coiled tube having one end in each chamber, and passing through the dividing-partition with an approximately closed joint, the valve-controlled passage through said partition, and the pump communicating with the two chambers, all combined substantially as described.

5. In a vapor-condenser, the combination of the receiving and condensing chambers having a liquid therein, the rotating coiled pipe having one end in each chamber, and the fan in the receiving-chamber operatively connected to the rotating coil, all combined substantially as described.

6. In a vapor-condenser, the combination of the receiving and condensing chambers, the rotating coiled pipe communicating with each, the liquid-supply in said chambers, and a circulating-pump in one chamber and driven by the coil-driving mechanism, all combined substantially as described.

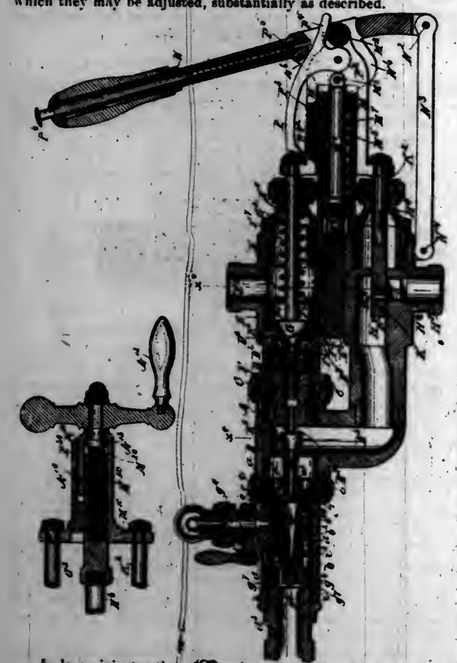
587,843. INJECTOR. WILLIAM T. MEMBERY, Boston, Mass. Filed May 8, 1896. Serial No. 473,347. (Model.)

Claim.—1. In an injector a steam-chamber, a water-chamber, and steam-nozzle leading from the former to the latter; a delivery-nozzle leading from said water-chamber, and steam-passage around the same, an overflow-chamber and discharge-chamber in advance of said delivery-nozzle from the water-chamber, and a movable combining and discharging tube having its mouth or inlet end in said overflow-chamber and its delivery end in said discharge-chamber and being adapted when operated by the pressure in the discharge-chamber to seat in and form a continuation of the steam-passage around the delivery-pipe from the water-chamber, and to thereby shut off communication between its mouth and the overflow-chamber, substantially as and for the purpose described.

2. In an injector, the combination with the shell or body of the injector and a guide connected therewith of a yoke guided thereby and steam and water valves connected with said yoke and operating simultaneously in the movement thereof, substantially as and for the purpose described.

3. In an injector the combination with the main body of the injector of a steam-valve and water-valve and valve-stems therefor arranged parallel with one another, a yoke connecting said stems, and means for moving said yoke to simultaneously adjust said valves, substantially as described.

4. In an injector the combination with the main body of the injector of a steam-valve and water-valve and valve-stems therefor arranged parallel with one another, a yoke connecting said stems, and means for moving said yoke to simultaneously adjust said valves, and means for locking the said yoke to hold the valves in any position to which they may be adjusted, substantially as described.



5. In an injector the combination with the working parts of the injector proper of a steam-valve controlling admission of steam to operate the injector and the water-valve controlling the flow of water through the injector and an operating-lever and connections between the same and the stems of the said valves whereby the valves may be simultaneously operated, substantially as described.

6. In an injector the combination with the working parts of the injector proper of a steam-valve controlling admission of steam to operate the injector and the water-valve controlling the flow of water to the injector and operating-lever and connections between the same and the stems of the said valves, whereby the valves may be simultaneously operated, and means for locking the said lever to hold the valves in different positions, as set forth.

7. The combination with an injector of an overflow-chamber open to the atmosphere and a discharge-chamber inclosed within and surrounded by the said overflow-chamber and provided with an outlet-passage as d^2 and with an opening as b^3 communicating with said overflow-chamber, and a discharge tube and valve working in said discharge chamber and cooperating with the opening connecting the discharge and overflow chambers, substantially as described.

8. The combination with an injector of a shell surrounding the end of the combining-tube of said injector, and an inner chamber within said shell having an outlet-passage and an opening connecting it with the interior of said shell which contains a passage by the side of but disconnected from the said inner chamber and a removable end piece as g, that forms a portion of said inner chamber and a discharge-tube in said inner chamber provided with a valve as i^3 controlling the opening between said inner chamber and outer shell, substantially as and for the purpose described.

9. The combination with an injector, of a shell around the end of the combining-tube of said injector and an inner chamber within said shell having a lateral outlet-passage and arranged to provide a passage between it and the said shell; an end piece as g which when attached to the shell closes the lower end of the inner chamber and affords an outlet-passage from the shell around said inner chamber to the air, a guide as g^2 supported on said end piece, and a discharge tube and valve working in said guide, substantially as and for the purpose described.

10. The combination with the working parts of an injector of a water-inlet and the sliding valve K controlling the flow of water therethrough to the injector and provided with an opening K^3 affording a minimum inlet for the water when said valve is otherwise closed, substantially as described.

11. In an injector the combination with the working parts of the injector proper, of a steam-valve controlling admission of steam to operate the injector and water-valve controlling the flow of water to the injector; the operating-handle and connection between the same and the said steam and water valves; the pawl and locking-bar for governing the position of said handle, and the pawl-lifting rod extending through and accessible at the end of said handle, substantially as described.

12. An injector having a steam-chamber, a water-chamber, and nozzle leading from the former to the latter, a delivery-nozzle from said water-chamber and combining-tube having its mouth or inlet-opening around the said delivery-nozzle combined with the main valve controlling admission of steam to the first nozzle, a secondary valve governing admission of steam through passages around the first nozzle to the mouth of the combining-tube, and engaged and operated by the said main valve, as described, and a spring acting on said secondary valve with a tendency to close the same, substantially as and for the purpose set forth.

13. In an injector the combination of the main and secondary steam-valves controlling admission of steam to the injector, and a water-chamber and water-inlet, and valve K, controlling the passage of water therethrough to the injector, said valve being provided with an opening K^3, affording passage for the water when the main steam-valve is open, substantially as described.

14. In an injector the combination with the working parts of the injector proper of a steam-valve controlling admission of steam to operate the injector, the water-inlet having a rectangular port-opening and the slide-valve working on said port-opening and connections between said slide-valve and the steam-valve of the injector, whereby said valves may be operated simultaneously, substantially as described.

587,844. APPARATUS FOR DRAWING BEER. HERMANN METZGER, Chicago, Ill. Filed July 10, 1896. Serial No. 598,675. (No model.)



Claim.—In apparatus for drawing beer direct from kegs, &c., a metal bushing provided with a threaded portion of a length less than the thickness of the material of the keg in which it is inserted, a shouldered outer portion for limiting the insertion of the bushing, a diametrically smaller inner portion adapted to hold a cork, a curved shoulder portion intermediate the thread and cork-holding portion, and a shouldered cylindrical axial recess with its larger opening outward, in combination with a receptacle having a bush-opening of corresponding shape as the outer contour of the bushing and adapted to be tightly and entirely fitted by such bushing, substantially as described.

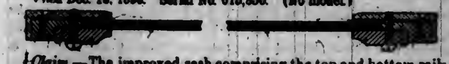
587,845. COMBINATION CHAIR OR STOOL. JOHN MITCHELL, Alston, England. Filed Sept. 30, 1896. Serial No. 607,633. (No model.)



Claim.—In a combination chair and swing comprising a seat, a back consisting of upright rods secured thereto, said seat being provided on the under side thereof with a wide groove having inwardly-directed sides and provided near the front end with a notch, a spring placed therein having a downwardly-bent outer end forming a hook thereby, a plate or board adapted to slide in said groove, legs secured to said plate or board, arms on said chair-seat and chains or ropes

engaging the arms and seat all of said parts being combined substantially as described.

587,846. SASH FOR WINDOWS. GEORGE MOORE, Boston, Mass. Filed Dec. 16, 1896. Serial No. 615,850. (No model.)



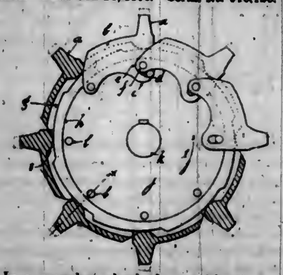
Claim.—The improved sash comprising the top and bottom rails, one or both thereof being rabbeted and having the removable securing-strip provided with means to retain it in place, and the stiles consisting each of the L-shaped metal exterior piece, the rabbeted strip S against which the edge of the pane of glass abuts, and the removable retaining-strip located in the rabbet of the said rabbeted strip, overlying the said pane, and provided with means to secure it in place, substantially as described.

587,847. GATE-OPERATOR. CHARLES E. MORRIS, Rector, Ark. Filed June 23, 1896. Serial No. 596,633. (No model.)



Claim.—In a device of the class described, the combination of a hinge-post, a swinging gate mounted thereon and capable of a limited vertical movement, a roller mounted on the gate and arranged adjacent to the hinge-post, a concave tilting plate receiving the roller of the gate in its center when the latter is closed, a vertically-disposed oscillating lever connected with the plate, a latch mounted on the gate and connected with the oscillating lever, and operating mechanism extending from opposite sides of the gate and adapted to swing the said lever, substantially as and for the purpose described.

587,848. CHAIN-DRIVING WHEEL. HARRY MORRISON, London, England. Filed Oct. 26, 1896. Serial No. 610,120. (No model.)

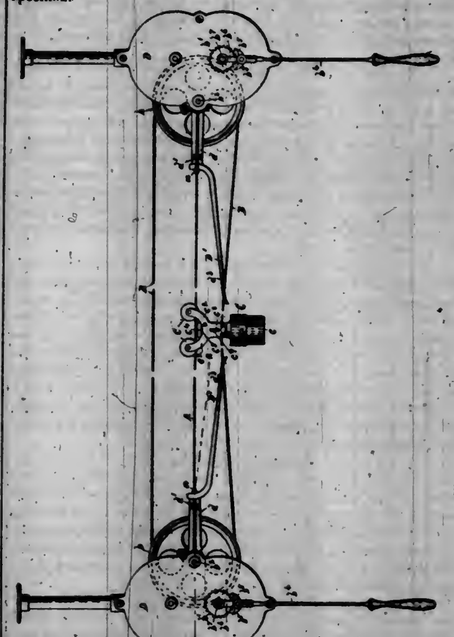


Claim.—In a sprocket-wheel, the combination of the central web, an annular rim having a series of inclines, mounted on said web, a series of teeth separately pivoted to said web, said teeth being adapted to engage said inclines, whereby said teeth are adjusted radially, and means to limit said adjustment, substantially as described.

587,849. CARRIER. WILLIAM F. MORSE, Rochester, N. Y., assignor to Thomas J. Thurber, same place. Filed May 26, 1896. Serial No. 593,125. (No model.)

Claim.—1. In a carrier, the combination of a support or track, a carriage depending from the support or track and movable along the same, an endless traveling cable or belt arranged above and below the support or track, and movable in opposite directions independently of the carriage, and means provided upon the carriage for detachably engaging the lower part of the cable or belt, substantially as described.

2. In a carrier, the combination of a carriage, a traveling cable or belt for the carriage, a wheel for driving the cable or belt, a second wheel connected to the former wheel for revolving the same, and an actuating-lever arranged to be engaged with and disengaged from the second wheel for operating said second wheel, substantially as specified.



3. In a carrier, the combination of a support or track, a carriage depending from the support or track and movable along the same, an endless traveling cable or belt arranged above and below the support or track, and movable in opposite directions independently of the carriage, means provided upon the carriage for detachably engaging the cable or belt, wheels for driving the cable or belt, additional wheels connected to the former wheels for revolving the same, and actuating-levers arranged to be engaged with and disengaged from the additional wheels for moving the same, substantially as and for the purpose set forth.

4. In a carrier, the combination of a carriage, a traveling cable or belt for the carriage, a wheel for driving the cable or belt, a second wheel connected to the former wheel for revolving the same, a link movable on an axis substantially coincident with that of the second wheel, and a lever pivoted to the link and provided with means for engaging the second wheel, substantially as and for the purpose specified.

5. In a carrier, the combination of a carriage, a traveling cable or belt for the carriage, a wheel for driving the cable or belt, a second wheel connected to the former wheel for revolving the same, a link movable on an axis substantially coincident with that of the second wheel, a lever pivoted to the link, and oppositely-arranged dogs fixed to the lever for reversely moving the second wheel, substantially as described.

6. In a carrier, the combination of a carriage, a traveling cable or belt for the carriage, a wheel for driving the cable or belt, a second wheel connected to the former wheel for revolving the same, a link having its upper end mounted on the axle or spindle of the second wheel and its lower end extending beneath said second wheel, a lever pivoted to the lower end of the link and provided with means for engaging the second wheel, substantially as specified.

7. In a carrier, the combination of a carriage, a traveling cable or belt for the carriage, a wheel for driving the cable or belt, a second wheel connected to the former wheel for revolving the same, a link having its upper end mounted on the shaft or spindle of the second wheel and its lower end extending beneath said second wheel, a lever pivoted to the lower end of the link, and oppositely-arranged dogs fixed to the lever for engaging the second wheel, substantially as specified.

8. In a carrier, the combination of a support or track, inclosing frames at the opposite extremities of the support or track, a traveling cable or belt arranged adjacent to the support or track, a carriage movable along the support or track and provided with means for engaging the cable or belt, wheels for driving the cable or belt ar-

ranged at the outside of the inclosing frames and supported by corresponding sides thereof, additional wheels arranged at the outside of the inclosing frames and supported by the opposite walls thereof, gearing arranged within the frames for connecting said wheels, and actuating-levers for operating the additional wheels, substantially as set forth.

9. In a carrier, the combination of a support or track, a carriage depending from the support or track and movable along the same, said carriage being provided with an engaging face, a traveling cable or belt arranged adjacent to the support or track and engaged with said face, a reciprocating clamping-piece provided with a laterally-projecting shoulder and supported by the carriage for forcing the cable or belt against the engaging face, a spring for normally actuating the clamping-piece, and an arm having an inclined top face for engaging said shoulder and moving the clamping-piece from operative position against the operation of the spring, substantially as and for the purpose set forth.

10. In a carrier, the combination of a support or track, a carriage depending from the support or track and movable along the same, said carriage being provided with an engaging face, a traveling cable or belt arranged adjacent to the support or track and engaged with said face, a movable clamping-piece supported by the carriage for forcing the cable or belt against the engaging face, said clamping-piece having oppositely-arranged shoulders, a spring for normally actuating the clamping-piece, and an arm formed with a lengthwise slot for receiving the adjacent portion of the carriage, and having separated upwardly-inclined faces for engaging said shoulders, substantially as and for the purpose described.

11. In a carrier, the combination of a support or track, a carriage movable along the support or track, a reciprocating rod provided with a laterally-projecting shoulder and a brake-piece arranged beneath the support or track for engaging the same and preventing movement of the carriage, a spring for forcing the brake-piece to its inoperative position, and an arm having an inclined face for engaging said shoulder and moving the brake-piece against the action of the spring, substantially as and for the purpose specified.

12. In a carrier, the combination of a support or track, a carriage movable along the support or track and provided with rollers engaged therewith and arranged one in advance of the other, a brake-piece arranged beneath the support or track for engaging the portion thereof interposed between the rollers and thereby preventing movement of the carriage, a spring for forcing the brake-piece to its inoperative position, and means for moving the brake-piece against the action of the spring, substantially as and for the purpose described.

13. In a carrier, the combination of a support or track, a traveling cable or belt, a carriage having a face for engaging the cable or belt, and arms projecting upwardly above the face and formed with lengthwise slots, a reciprocating rod provided at its lower end with a clamping-piece for forcing the cable or belt against said face, said clamping-piece having oppositely-arranged shoulders projecting through the slots of the arms, a brake-piece at the upper end of the reciprocating rod for engaging the support or track, wheels arranged on opposite sides of the brake-piece, a spring for forcing the clamping-piece to operative position, and means for engaging said shoulders and moving the clamping-piece in the opposite direction and thereby engaging the brake-piece with the support or track, substantially as set forth.

14. In a carrier, the combination of separated frames provided with projecting arms, a support or track interposed between said arms, a carriage movable along the support or track, a traveling cable or belt, a reciprocating rod supported by the carriage and having its lower end provided with an engaging shoulder and with a clamping-piece for engaging the cable or belt, and having its upper end provided with a brake-piece for engaging the support or track, means for normally forcing the rod downwardly and thereby engaging the clamping-piece with the cable or belt and separating the brake-piece from the support or track, and arms secured to the frames for engaging said shoulder and moving the rod upwardly and thereby engaging the brake-piece with the support or track and separating the clamping-piece from the cable or belt, substantially as set forth.

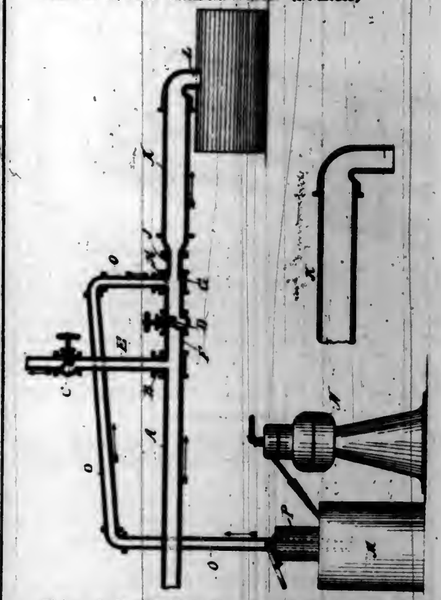
587,850. COLLAR-FASTENER. PATRICK MULLANE, Moline, Ill. Filed Apr. 22, 1896. Serial No. 588,668. (No model.)



Claim.—1. In a horse-collar fastener, the combination of similarly-formed members having transverse slots adjacent to their coupling ends extending inward from opposite edges for about half the width of the members, and having lips in advance of the said slots to overlap and bear against the outer side of the members opposite those of which they form a part, and side extensions or guards projecting outward from the said lips to receive between the strap by means of which the hames are connected, whereby the parts of the fastener are prevented from lateral displacement, substantially as set forth.

2. In a horse-collar fastener, the combination of similarly-formed members having transverse slots adjacent to their coupling ends extending inward from opposite edges for about half the width of the members, and having lips in advance of the said slots to overlap and bear against the outer side of the members opposite those of which they form a part, and ribs projecting outwardly from the said lips and adapted to come together, and having their outer edges correspondingly notched to form side extensions or guards, substantially as set forth.

587,851. LIQUID-STERILIZER. JENS C. NIELSEN, Viborg, S. D. Filed Oct. 19, 1896. Serial No. 609,342. (No model.)



Claim.—1. In a liquid-sterilizer, a sterilizing-chamber formed by an enlargement of the steam-pipe for the reception and retardation of the liquid to be heated by the action of steam in combination with a steam-pipe and a liquid-supply pipe connected with the steam-pipe, as and for the purposes set forth.

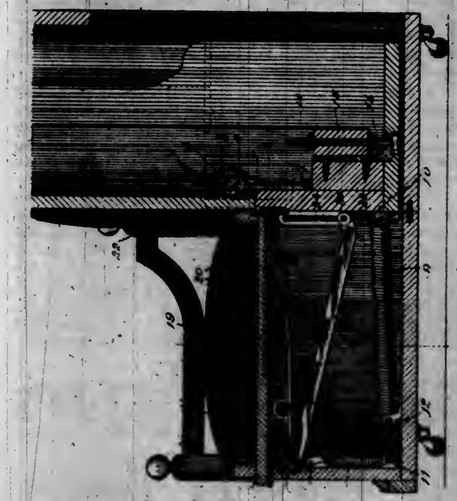
2. In a liquid-sterilizer, a sterilizing-chamber formed by an enlargement of the steam-pipe for the reception and retardation of the liquid to be heated by the action of steam in combination with a steam-pipe, a valve in the steam-pipe to control the admission of steam into the sterilizing-chamber and a liquid-supply pipe connected with the steam-pipe as and for the purposes set forth.

587,852. PROCESS OF MAKING PRINTING-INK. DAVID J. OEILVY, Cincinnati, Ohio. Filed Jan. 2, 1894. Serial No. 495,383. (No specimens.)

Claim.—1. The process of producing printers' ink which consists in placing in a proper still a black pigment, together with a suitable oil or oils and resinous substances in the proportions substantially as described, subjecting the mass to the action of injected superheated steam and at the same time conducting off and condensing the volatile products therefrom, substantially as and for the purposes specified.

2. The process of making printing-ink which consists in placing in a suitable vessel a mixture of black pigment and suitable oil or oils, and injecting superheated steam into the mixture until the mixture is brought to a fine state of division and of the proper consistency, and condensing the more volatile products in the usual manner.

587,853. FOLDING BED. ERNEST A. OHLSON, Hartford, Conn., assignor of three-fourths to Samuel J. Hussey and Frank H. Whipple, same place, and Thomas M. Smith, West Hartford, Conn. Filed Feb. 11, 1897. Serial No. 622,946. (No model.)



Claim.—1. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, mechanism for counterbalancing the weight of the bed-frame, a seat-frame hinged at one edge to the case, and levers connected with the bed-frame and the free edge of the seat-frame whereby the oscillation of the bed-frame on its pivot reverses the seat-frame on its hinges, the seat-frame when turned down forming a support for the bed-frame and when turned up forming a seat, substantially as specified.

2. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, yielding connections between the bed-frame and the case for counterbalancing the weight of the bed-frame, a seat-frame hinged at one edge to the case, and yielding connections between the bed-frame and the seat-frame whereby the oscillation of the bed-frame on its pivot reverses the seat-frame on its hinges, the seat-frame when turned down forming a support for the bed-frame and when turned up forming a seat, substantially as specified.

3. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, spiral springs mounted upon the pivot and connected with the bed-frame and springs connecting the bed-frame with the case, for counterbalancing its weight, a seat-frame hinged at one edge to the case, an oscillating lever connected with the free edge of the seat-frame, and a link connecting the bed-frame with the lever whereby the oscillation of the bed-frame on its pivot reverses the seat-frame on its hinges, the seat-frame when turned down forming a support for the bed-frame and when turned up forming a seat, substantially as specified.

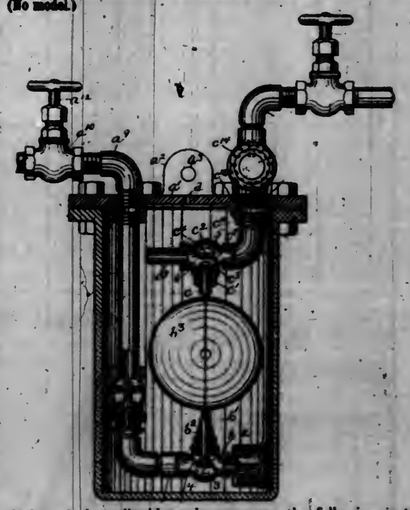
4. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, mechanism for counterbalancing the weight of the bed-frame, a seat-frame hinged at one edge to the case, a spring-lever pivotally supported by the case and loosely connected with the seat-frame, and a link connecting the bed-frame with the lever, substantially as specified.

5. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, mechanism for counterbalancing the weight of the bed-frame, a seat-frame hinged at one edge to the case, a lever pivotally supported by the case with one end loosely connected with the free edge of the seat-frame, a link connecting the bed-frame with the end of the lever that is not connected with the seat-frame, and a spring connecting the case with the lever that is connected with the seat-frame, substantially as specified.

6. In a bed of the within-described class, in combination, a case, a bed-frame mounted upon a pivot supported by the case, spiral springs mounted upon the pivot and connected with the bed-frame and springs connecting the bed-frame with the case, for counterbalancing its weight, a seat-frame hinged to the case at one edge, an oscillating lever supported by the case, a rod attached to the seat-frame and loosely connected with one arm of the lever, a link yieldingly connected at one end with the bed-frame and loosely connected at the opposite end with the other arm of the lever, and a spring connected with the lever adjacent to the point of attachment of the link, substantially as specified.

7. In a bed of the within-described class, in combination, a case, a bed having side, head and foot boards, mounted upon a pivot supported by the case, shield-boards with their ends loosely held connected with the side boards of the bed and having a movement bodily edgewise toward and from the top edges of the side boards in order to widen or narrow the sides of the bed, and mechanisms for counterbalancing the weight of the bed, substantially as specified.

587,854. APPARATUS FOR SUPPLYING OIL TO BOILERS. WILLIAM R. PARK, Taunton, Mass., assignor to the Hancock Inspirator Company, Boston, Mass. Filed Apr. 16, 1895. Serial No. 545,868. (No model.)



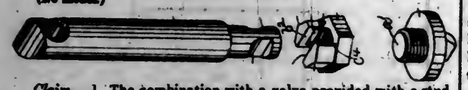
Claim.—1. In a liquid-supply apparatus, the following instrumentalities, viz: a casing provided with a cover having means by which said cover may be rendered fixed or stationary and provided with a liquid-inlet for the casing, means to detachably secure the casing to its cover, an outlet-pipe for the casing extended down through the said cover into the said casing and provided with a substantially horizontal extension located below the desired level of the liquid and provided with a valve, and means within the casing responsive to the variation in the level of the liquid in the casing and operatively connected to said valve to open the same when the volume of liquid in the casing reaches a predetermined amount and to close the same when the volume of liquid diminishes to a predetermined amount, and a check-valve in said outlet intermediate of said valve and cover, the casing being detachable from its cover without disturbing the pipe connections attached to the cover, for the purpose specified.

2. In a liquid-supply apparatus, the following instrumentalities, viz: a casing to contain the liquid, a cover for said casing having means by which said cover may be rendered stationary, means to detachably secure said casing to its cover, an inlet-pipe for the casing extended through the said cover and supported thereby, an outlet-pipe for said casing extended through said cover and supported thereby, a valve in the inlet-pipe within the casing, a valve in said outlet-pipe within the casing, a float within the casing responsive to variation in the level of the liquid and operatively connected to said valves to close the valve in the outlet-pipe and open the valve in the inlet-pipe, when the volume of liquid in the casing diminishes to a predetermined amount, the said casing being removable from its cover without disturbing the operative parts and pipe connections, substantially as and for the purpose specified.

3. In a liquid-supply apparatus, the following instrumentalities, viz: a casing to contain the liquid, a cover for said casing having means by which said cover may be rendered stationary, means to detachably secure said casing to its cover, an inlet-pipe for the casing extended through the said cover and supported thereby, an outlet-pipe for said casing extended through said cover and supported thereby, a valve in the inlet-pipe within the casing, a valve in said outlet-pipe within the casing, a float within the casing responsive to variation in the level of the liquid and operatively connected to said valves to close the valve in the outlet-pipe and open the valve in the inlet-pipe, when the volume of liquid in the casing diminishes to a predeter-

mixed amount, a check-valve in said outlet-pipe intermediate of the outlet-valve therein and the said cover, the said casing being removable from its cover without disturbing the operative parts and pipe connections, substantially as and for the purpose specified.

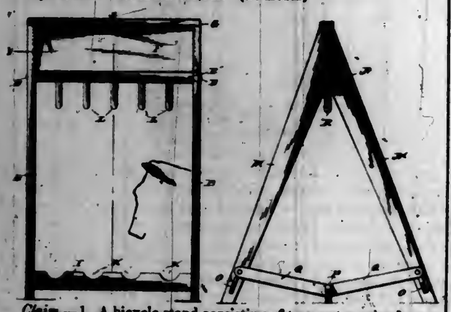
587,855. VALVE. WILLIAM R. PARK, Taunton, and BELVIN T. WILLISTON, Somerville, Mass., assignors to the Hancock Inspirator Company, Boston, Mass. Filed July 22, 1896. Serial No. 600,510. (No model.)



Claim.—1. The combination with a valve provided with a stud, a valve-stem provided with a web having lateral projections, and a nut having separated arms provided with fingers forming a passage into which the said web is introduced laterally, and passage-ways for the reception of the lateral projections on the stem, and means to confine said projections in their passage-ways, substantially as described.

2. The combination of a valve having a threaded stud, a nut to engage said stud, arms on said nut located substantially opposite and provided with flanges extended toward each other to form a passage, and provided on their under sides with recesses having end walls, a valve-stem provided with a web adapted to pass between the said flanges, and lateral projections on said web adapted to enter the said recesses and be retained therein against longitudinal movement by the said stud, and against lateral movement by the said end walls, substantially as described.

587,856. CYCLE-STAND. THOMAS W. PATTON, Bristol, Pa. Filed Sept. 5, 1896. Serial No. 605,045. (No model.)



Claim.—1. A bicycle-stand consisting of two rectangular frames, said frames having their ends beveled at the top, a board, a top and bottom rail provided on said board, the frames being pivoted to the bottom rail so that the beveled portion of the ends fit together, pegs depending from the bottom rail, a cross-bar extending midway between the frames, links pivoted to the cross-bar and to the ends of the frames, said cross-bar having notches formed therein equal to the number of spaces formed by the pegs, the lower cross-bar of the frames being also notched to correspond to the notches of the first-named cross-bar, substantially as described.

2. A bicycle-stand, consisting of two frames, a board having a top and bottom rail, said frames being pivoted to the last-named rail, means for limiting the outward movement of said frames, pegs projecting downward from the lower rail, cross-bars having notches formed therein which correspond to the spaces between the pegs, links Q pivoted to the frames, and a cross-bar P to which said links are pivoted, substantially as and for the purpose set forth.

587,857. SUBCALIBER AMMUNITION. FRANCIS J. RABBETH, Boston, Mass. Filed Mar. 15, 1897. Serial No. 627,064. (No model.)



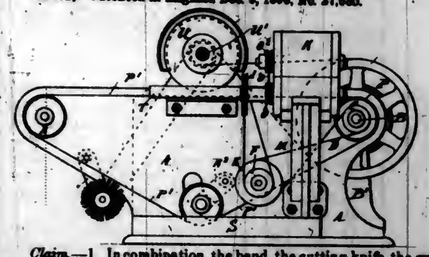
Claim.—1. A jacket for adapting a bullet of small diameter to a gun of larger caliber, composed of a piece of wood shaped externally to correspond in diameter with a projectile of proper size for the caliber of the gun and having at its forward end an integral button connected with the body portion by a reduced neck, whereby when the body portion is split longitudinally into sections the latter are temporarily held together to facilitate the loading of the projectile, substantially as described.

2. A jacket for a subcaliber projectile adapted to be shot from the gun with the projectile, said jacket being composed of longitudinal separable sections, and of proper size at the rear portion to fit the cartridge-shell, said sectional jacket having a recess concentric with its axis to receive within it the bullet and having an enlarged portion adjacent to said rear portion to cooperate with the grooves of the rifling, and prevent the said jacket from being accidentally forced into the shell beyond its normal position, substantially as described.

3. A jacket for a subcaliber projectile composed of longitudinal separable sections, of proper size to fit the bore of the gun, and having a recess concentric with its axis to receive the bullet, said recess being open at its forward end, the forward end of said jacket being tapered or rounded externally and extending forward as far as the end of the bullet, substantially as and for the purpose described.

4. Subcaliber ammunition comprising a cartridge-shell containing as a charge a mixture of chemically-prepared explosive and mechanically-prepared explosive, a wad adapted to confine the said charge, a bullet of relatively small caliber provided with a jacket adapted to fit the cartridge-shell and conform to the bore of the gun, and made of separable sections of relatively light material, the said jacketed bullet being separated from the said wad by an air-space and the jacket thereof extending forward as far as the end of the bullet and being tapered externally, substantially as described.

587,858. MACHINE FOR RIFFING CIGARETTES. ERNEST RANKIN, London, England. Filed Feb. 8, 1897. Serial No. 622,808. (No model.) Patented in England Dec. 6, 1896, No. 27,695.



Claim.—1. In combination, the band, the cutting-knife, the guide for curling the band up about the cigarette for the cutting action and means for moistening the band whereby after the paper is slit and leaves the cutter it will stick to the band and be carried away from the tobacco which is free to be discharged from the band, substantially as described.

2. In combination, the cutter, the guide, arranged adjacent to the edge of the cutter, the band passing through the guide, the tank for moistening the band, and the brush for removing the papers which have stuck to the band after being slit, said brush being arranged adjacent to the band substantially as described.

3. In combination, the hopper, the band passing along the side thereof, the feed-cylinder between the hopper and the band, the guide-plate for directing the cigarettes from the cylinder to the band, the cutter and the guide adjacent thereto for the band, substantially as described.

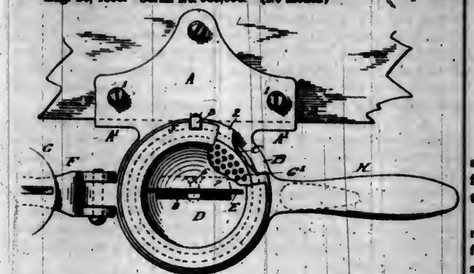
587,859. BICYCLE-BALANCER. DENNIS J. REARDON, Newport, R. I. Filed Sept. 21, 1896. Serial No. 606,459. (No model.)



Claim.—1. The herein-described combination of the arms A, forks B formed with the lower ends thereof, trundle-wheels C journaled within said forks, extension-rods D upon which the arms A are adjustably secured, clamps G, offsets F formed with said clamps, said offsets having internal threads for the reception of the upper ends of the extension-rods D, a right and left threaded rod J for holding the clamps G in place, set-screws L for binding the clamps to the back-stays of a bicycle-frame, cross-braces M composed of the clamps N and B, extension-rods Q interposed between said clamps and to which the last-named clamps are pivoted, substantially as and for the purpose set forth.

2. In combination with a bicycle-balancer of the character described, cross-braces M consisting of the clamps N, means for securing said clamps to the backstays of a bicycle-frame, tubes P, extension-rods Q fitting within said tubes and held in any adjustment by the bolts R, clamps T pivoted to the extension-rods, and means for securing said clamps to the arms of the supporter, substantially as and for the purpose set forth.

587,860. LEMON-SQUEEZER. FREDERICK A. REDNOR, San Francisco, Cal., assignor of one-half to William Renwick Sandberg. Filed Aug. 26, 1896. Serial No. 603,906. (No model.)



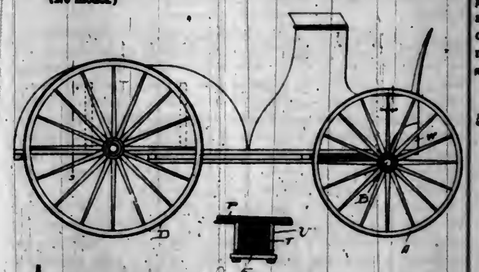
Claim.—1. As a new article of manufacture, a fruit cutter and squeezer, comprising, a ring adapted to be secured to a suitable support, and having a hand-grip projecting from it; an external cup having a flanged upper edge, removably supported by the ring, and having a downwardly-projecting funnel-mouth; an internal cup, having a flanged upper edge and removably supported thereby; a stud on the ring for engaging with notches in said cups, whereby they are held from turning; a presser-lever, pivoted to the ring and having a squeezing-bulb; and a knife supported between said bulb and the internal cup, whereby the fruit is cut during the squeezing stroke, substantially as described.

2. In combination with a cup and lever, a knife-blade, having a cutting edge of substantial V shape, the outer ends of the two arms forming perforating-points, substantially as described.

587,861. METHOD OF HARDENING COPPER. JAKOB REUTER, Fullerton, Kans. Filed May 14, 1897. Serial No. 636,554. (No specimens.)

Claim.—The herein-described method of hardening copper consisting of inclosing a piece of copper within a covering of clay saturated with vinegar, subjecting the clay containing the copper to a high degree of heat, and finally submerging the heated clay carrying the copper in water, substantially as and for the purposes specified.

587,862. WAGON BODY AND GEAR. WALTER S. REYNOLDS, De Kalb, Ill., assignor to Madison D. Shipman, Charles E. Bradt, and Samuel E. Bradt, same place. Filed June 4, 1895. Serial No. 551,603. (No model.)



Claim.—1. The combination with the spring F, of a cross-bar T made of angle-iron, substantially as specified.

2. The combination with a wagon body and axle, of a cross-bar T made of angle-iron and secured to the body, and a spring F clipped to the cross-bar and attached at its ends to the axle, substantially as specified.

3. The combination with the angle-iron T secured to the body, of the spring F clipped in the angle of the cross-bar by clips U, substantially as specified.

4. The combination in a wagon of a low-down body having its front corners rounded, a downwardly-bent front axle swiveled upon a king-bolt located in rear of the axle, and springs mounted on said axle, said axle being also located under the body and back of the rounded corners thereof, substantially as specified.

5. The reachless wagon having a low-down body made in one section and with rounded front corners, a downwardly-bent front axle swiveled upon a king-bolt located in its rear, and a spring upon the axle and supporting the body, said axle being also arranged under the body and back of the rounded corners, substantially as specified.

587,868. CHALKING DEVICE. CHRISTIAN A. RITTMAN, Sandusky, Ohio. Filed June 24, 1896. Serial No. 596,993. (No model.)



Claim.—1. In a line-chalking device, the combination of a fixed surface, a rotatable surface, one of said surfaces being a chalk-surface, said surfaces forming an annular line-opening and means adapted to vary the width of said opening, substantially as set forth.

2. In a line-chalking device, the combination of a fixed and a rotatable surface, one of which is a chalk-surface, said rotatable surface mounted upon a spindle, means adapted to confine said rotatable surface on said spindle, said surfaces forming an annular line-opening, means adapted to retract said confining means, whereby said surfaces are permitted to retract, substantially as set forth.
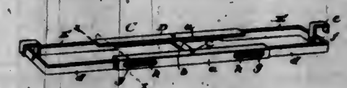
3. In a line-chalking device, the combination of a handle, a fixed surface at the end of said handle, a rotatable surface, said surfaces forming an annular line-opening, said rotatable surface mounted upon a spindle, means adapted to cause said surfaces to approach each other, and means adapted to retract said spindle whereby said surfaces are permitted to retract, one of said surfaces being a chalk-surface, substantially as set forth.

4. In a line-chalking device, the combination of a handle, a non-chalking surface at the end of said handle, a chalk-surface contiguous to said non-chalking surface, said surfaces forming an annular line-opening, a spring adapted to cause said surfaces to approach each other, one of said surfaces being rotatable and mounted upon a spindle provided with means for confining said surface thereon, and means adapted to release said confining means, whereby said surfaces are permitted to retract, substantially as set forth.

5. In a line-chalking device, the combination of a piece of chalk mounted upon a spool, said spool mounted upon a retractable spindle, a washer having binding engagement with said chalk and said spool, whereby the said chalk is rotatively fixed relatively to said spool; an opposing surface, said chalk and surface adapted to yieldingly impinge upon and rotate relatively to each other, substantially as set forth.

6. In a line-chalking device, the combination of a cylindrical piece of chalk, mounted upon a spool, a handle formed with a longitudinal bore and a recess adapted to receive said spool, and an axial slot traversing the handle, and further formed with a flat surface concentric with the recess; a spindle formed with a handle at right angles, the said spindle traversing the longitudinal bore of the handle and journaling the spool and chalk; a spring located in the longitudinal bore and adapted to hold the chalk against the surface, and means for preventing the dislodgment of the spool from the spindle, substantially as set forth.

587,864. BED-SLAT. JAMES R. RYAN and EDWIN R. WEBER, New York, N. Y., assignors to the New York Woven Wire Mattress Company, same place. Filed Apr. 20, 1897. Serial No. 633,088. (No model.)

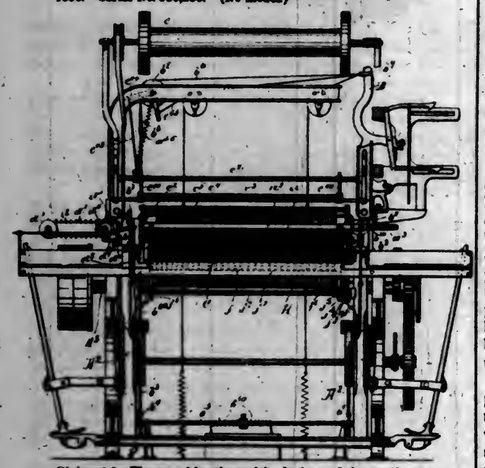


Claim.—1. The adjustable metallic slat or bed-bottom support comprising a body-section having a vertically-disposed portion and a horizontally-disposed portion, an extensible section, formed by a vertically-disposed, sheet-metal strap, arranged at the side of the vertically-disposed portion of the body-section and below the horizontally-disposed portion of the same, hangers connected with the said sections and adapted to engage the side rails of a bedstead, and a transverse rivet or bolt connecting the end section and the vertically-disposed portion of the body-section; the said rivet or bolt having its shank arranged in a longitudinal slot formed in one section, substantially as specified.

2. In the metallic slat or bed-bottom support described, the combination of the body comprising the parallel angle-irons having vertically and horizontally disposed portions and longitudinal slots in their vertically-disposed portions adjacent to their ends, and the cross-bar connecting said angle-irons, the end sections comprising the U-shaped portions formed of vertically-disposed metal straps and hangers connected to the middle of the U-shaped portions; the said U-shaped portions having their end branches arranged at the side of and closely adjacent to the vertically-disposed portions of the angle-

irons and below the horizontally-disposed portions thereof, and transverse rivets or bolts connecting the angle-irons of the body and the branches of the U-shaped portions of the end sections; said rivets or bolts having their shanks arranged in the slots of the angle-irons, substantially as specified.

587,865. LAPPET-LOOM. Ripa H. Ryon, Waltham, Mass., assignor of one-half to Alfred M. Goodale, same place. Filed Apr. 27, 1896. Serial No. 589,233. (No model.)



Claim.—1. The combination with the lay, of the needle-bar, vertically-movable yokes therefor, guides for said yokes secured to said lay near the ends thereof, the needles secured to said bar, the harness-frames, levers for operating the same to open and close the shed, and means for connecting said movable yokes with said levers to produce an up-and-down movement of the needles, substantially as described.

2. The combination with the lay, of the needle-bars and needles supported and vertically movable thereon, the harness-frame-actuating levers, means for connecting said needle-bars with said levers, and a device whereby the said connecting means are shifted from one harness-operating lever to another as they pass each other in intermediate position, substantially as described.

3. In a dobby-loom, the combination with the lay, of the needle-bar and needles mounted thereon, a pair of adjacent dobby-blades and a flexible strap or connecting member extending therefrom to the said needle-bar, and a double hook at the end of said flexible connecting member in the path of said dobby-blades whereby the connection is shifted from one to the other as they pass each other, substantially as and for the purpose described.

4. The combination of the lay and needle-bar guides fixed thereon near the ends of the shuttle-race, with the needle-bar capable of longitudinal and vertical movement in said guides, a pattern-bearing pulley supported in bearings fixed on the lay adjacent to the end of the needle-bar, a pattern-chain on said pulley, a follower arranged in the needle-bar guides and having a longitudinal movement only and adapted to be acted upon by the pattern-chain for controlling the position of the needle-bar longitudinally, and means for producing a vertical movement of said needle-bar independently of said pattern, and for intermittingly rotating said pulley, substantially as described.

5. The combination of the needle-bars mounted and capable of vertical and longitudinal movement on the lay, with the lifting-rod for said needle-bars and means for actuating the same, the pattern-bearing pulley fixedly mounted on the lay adjacent to the needle-bars, a pattern thereon for controlling the position of the needle-bars longitudinally, and a device for advancing or shifting said pattern connected to and operated by said lifting-rod whereby the said pattern is shifted in the vertical movement of the needle-bars, substantially as described.

6. The combination with the needle-bars and guides therefor supported on the lay of a loom, of means for reciprocating said needle-bars vertically in said guides, and a pattern-bearing pulley fixedly mounted on said lay in proximity to said needle-bars and a pattern thereon adapted by its movement to produce a longitudinal movement of said needle-bars, the extent of said movement being also determined by said pattern, and a device for actuating said pattern connected to and operated by said needle-bar-reciprocating means, substantially as described.

7. The combination with the needle-bars mounted on the lay and capable of vertical and longitudinal movement with relation thereto, of the harness-operating devices, the lifting-rod for said needles connected with the said harness-operating devices, the pattern device comprising a series of pins mounted on an endless chain, said pins co-operating with the needle-bars to determine the position thereof longitudinally with relation to the lay, a ratchet adapted by its movement to drive said chain, and a pawl connected with said lifting-rod and cooperating with said ratchet, substantially as described.

8. In a lappet-loom, the combination of the lay and needle-bar guides fixed thereon near the ends of the shuttle-race, with a needle-bar capable of longitudinal and vertical movement in said guides, means for vertically moving said bar, a follower for said needle-bar arranged in said needle-bar guides, and having a vertical guide-surface engaging the end of the needle-bar, and a pattern supported in bearings fixed on the lay having projections cooperating with said follower to move it only longitudinally, substantially as and for the purpose described.

9. The combination of the lay and needle-bar guides fixed thereon near the end of the shuttle-race, with the needle-bar capable of longitndinal and vertical movement in said guides, means for vertically moving said bar, a pattern-chain-bearing pulley supported in bearings fixed on the lay with its axis at right angles to the length of the needle-bar, and means for intermittingly rotating the same, a pattern-chain having its links provided with pins or projections carried by said pulley, and a cam-surface cooperating therewith interposed between said pins and the needle-bar, whereby said pins cause longitudinal movement of the needle-bar as they are successively brought forward by the intermittent rotation of the pulley, substantially as described.

10. The combination with the needle-bars, of guides therefor supported on the lay, the harness-operating levers, a device for connecting said needle-bars with said levers to produce a reciprocating vertical movement of said bars in said guides, and a take-up for the needle-threads also operated by said levers through said connecting devices, substantially as described.

11. In a lappet-loom the combination with the lay, of the guide-pins and guide-pin bar supported and guided in a vertical longitudinal slot in said lay, a spring-actuated rock-shaft mounted on said lay and provided with an arm or projection connected to said pin-bar and a cam secured to the frame of the loom and adapted to engage a cam projection on said rock-shaft during the movement of the lay, to produce an oscillation thereof, substantially as described.

12. In a lappet-loom, the combination with the harness-operating-levers, of a rock-shaft mounted near the base of the loom, a transverse arm on said rock-shaft, one end of which is connected with one or more of said levers, a needle-bar, and a lifting-rod therefor connected with the opposite end of said arm, substantially as described.

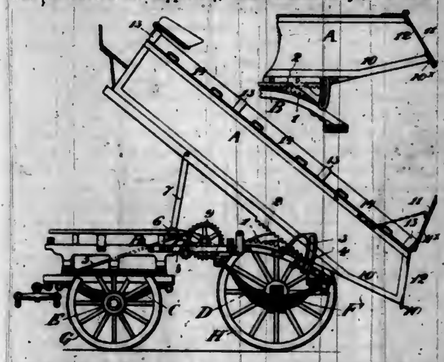
13. In a lappet-loom, the combination with the harness-operating levers, of a rock-shaft mounted near the base of the loom, means for connecting said rock-shaft with said levers to produce an oscillation of said shaft, the lay provided with guides, a needle-bar vertically and longitudinally movable in said guides, a needle-bar-lifting rod connected with an arm or projection from said rock-shaft, a pattern device cooperating with the end of the needle-bar to produce a longitudinal movement thereof and determine the extent of such movement, and an actuator for said pattern device connected with said lifting-rod, substantially as described.

14. In a lappet-loom, the combination with the lay, of a needle-bar supported thereon and vertically and longitudinally movable with relation thereto, a pattern device comprising a series of pins mounted on an endless chain, sprockets or pulleys for said chain mounted on the lay, a follower interposed between the said pattern device and the end of the needle-bar, the needle-bar-lifting rod, and a pawl connected therewith and adapted to cooperate with a ratchet-wheel connected with one of said sprockets, substantially as described.

587,866. DUMPING-WAGON. William O. Shadbolt, Brooklyn, N. Y. Filed Sept. 24, 1896. Serial No. 606,810. (No model.)

Claim.—1. A dumping-wagon comprising two parts, a tilting body and a supporting-frame, the latter being curved downward at its rear end to form a rolling fulcrum for the body in dumping, a lifting device for elevating the front end of the body, and a device for steadying the body in dumping and for limiting its movement, said device comprising a guide with a curved slot situated at the rear end of the rolling fulcrum, and a stud engaging said curved slot, one of said parts being secured rigidly to the body and the other to the frame, the curve of the guide-slot conforming to the path of the stud during the dumping movement, substantially as set forth.

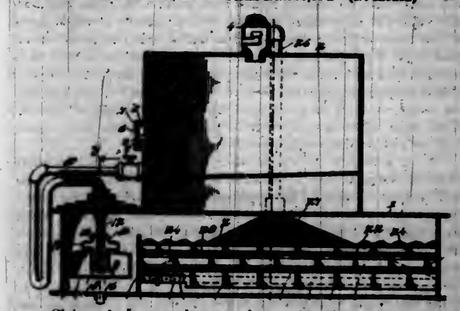
2. A dumping-wagon comprising two parts, a tilting body and a supporting-frame, the latter being curved downward at its rear end to form a rolling fulcrum for the body in dumping, and the former straight, intermeshing racks on the respective parts, a lifting device for elevating the front end of the body and devices for steadying the body in dumping, each of said devices comprising a guide with a curved slot situated at the rear end of the rolling fulcrum, and a stud engaging said slot, one part of said device being fixed to the body and the other to the supporting-frame, substantially as set forth.



3. A dumping-wagon comprising two parts, a tilting body and a supporting-frame, said body and frame being provided with a rack at its hinder or rear end, the racks intermeshing and one of them being curved, a lifting mechanism for elevating the front end of the body in dumping, and steadying devices for the body in dumping, each of said devices consisting of a curved guide on the one part of the wagon at the rear end of said racks and a stud on the other part of the wagon and engaging said guide, substantially as set forth.

4. A dumping-wagon, comprising a tilting body, a supporting-frame provided at its hinder end with downwardly-curved racks to form a rolling fulcrum for the body, said body having racks which rest on and gear with the respective racks on the supporting-frame, and said body being so supported on said frame during tilting, that its center of gravity shall always be forward of the fulcrum, whereby the inclination of the body may be limited or adjusted as desired for varying conditions, a lifting device engaging said body forward of its center of gravity for elevating the front end of said body, and the upright, slotted guides 3, on the frame at the rear ends of the respective curved racks, and the studs 4 on the body, and engaging the curved slots in the respective guides, substantially as described.

587,867. CARBURETER. Frederick H. Shaver, Cedar Rapids, Iowa. Filed June 20, 1896. Serial No. 596,234. (No model.)



Claim.—1. In a carbureter, the combination of a float, a cup carried by the float and containing a sealing fluid, and having a portion between its ends enlarged to provide a closed expansion-chamber, and having openings in its sides above the expansion-chamber, and a nozzle of smaller diameter than the cup extending therein and closed by the sealing fluid and operating through an opening provided in the upper end of the cup, substantially as set forth.

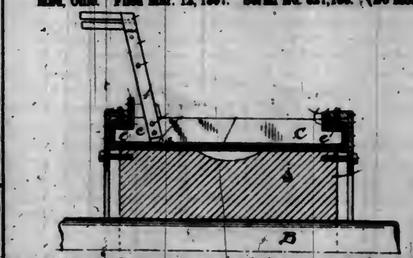
2. In a gas-machine, the combination of a case, a series of carbureting-plates oppositely inclining and having passages at their higher ends, and longitudinal and transverse strips interposed between the plates and corresponding to the space formed between them, the longitudinal strips touching adjacent plates at their upper and lower edges, and the transverse strips having spaces at intervals along their top and bottom edges, substantially as and for the purpose set forth.

3. In a gas-machine, the combination of a case, a series of superposed carbureting-plates located within the case and oppositely inclining and having spaces at their higher ends and longitudinally fluted or corrugated, and transverse strips placed between the plates and touching the crests or ridges of the flutes thereof and providing spaces intermediate of the engaging points, substantially as and for the purpose set forth.

4. In a gas-machine, the combination of a case, a series of carbureting-plates fluted or corrugated, transverse strips located at one end and intermediate the ends of the plates, and longitudinal strips disposed in parallel relation upon opposite sides of the intermediate transverse strips, the strips upon one side of the intermediate transverse strips coming opposite the spaces between the other longitudinal strips, substantially as and for the purpose set forth.

5. In a gas-machine, the combination of a case, a series of carbureting-plates located therein, a flaring nozzle at one end of the case for distributing the air in fine jets throughout the extent of the carbureting-plates, and a flaring gathering-nozzle at the opposite end of the case for collecting the carbonized air, substantially as set forth.

587,868. COMMUTATOR AND LEAD. Sidney H. Short, Cleveland, Ohio. Filed Mar. 12, 1897. Serial No. 627,160. (No model.)



Claim.—1. In a commutator, a hub, commutator-bars and alternate insulating-plates arranged around the same, said bars and plates having a rabbeted surface at one end, in combination with an insulating-ring which is fitted to said rabbeted surface and has at its inner edge an outwardly-turned flange and at its outer edge an inwardly-turned flange, the outwardly-turned flange covering the end of the commutator-bars, and a clamp engaging said ring and holding it and the commutator-bars in the position described, substantially as and for the purpose specified.

2. A lead for connecting an armature-inductor with its commutator-bar, consisting of a plurality of metallic ribbons riveted together and adapted to be connected at one end to a commutator-bar and at the other end to an armature-inductor, substantially as and for the purpose specified.

3. A lead for connecting an armature-inductor with its commutator-bar consisting of a plurality of metallic ribbons riveted together, and having a fork at one end adapted to receive between its furcations an armature-inductor, in combination with a commutator-bar having a transverse groove adapted to receive the other end of the lead, substantially as and for the purpose specified.

4. An insulating-ring for covering the ends of commutator-bars consisting of a substantially cylindrical portion and two annular flanges projecting in opposite directions from opposite edges of said cylindrical portion, substantially as and for the purpose specified.

5. In a commutator, in combination, a hub, commutator-bars surrounding the same and having leads projecting therefrom near the end, an insulating-ring at the lead end of the commutator covering the end of the commutator-bars, a clamp bearing against said ring and holding the commutator-bars in place, said insulating-ring projecting annularly beyond the clamp and beyond the end of the commutator-bars, whereby contact between the clamp and bars, directly or by means of dirt lodging between the leads is prevented, substantially as and for the purpose specified.

6. In a commutator, in combination, a hub, commutator-bars surrounding the same and having leads projecting therefrom near the end, insulating-plates placed between the commutator-bars and having integral wings projecting from them between the leads, an insulating-ring at the lead end of the commutator covering the end of the commutator-bars, a clamp bearing against said ring and holding the commutator-bars in place, said insulating-ring projecting annularly beyond the clamp and substantially contacting with said wings, whereby contact between the clamp and bars, directly or by means of dirt lodging between the leads, is prevented, substantially as and for the purpose specified.

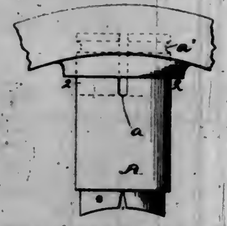
7. The combination of a cylindrical commutator-hub with its cylindrical face embraced by an insulating-sleeve formed of segmental mica plates, arranged in two or more layers, breaking joints, and com-

mutator-bars with their inner surface resting on said mica insulation, and insulating-rings embracing the ends of the commutator-bars and formed of mica segments arranged in two or more layers breaking joints, and insulating-plates between the commutator-bars whereby the commutator-bars are inclosed in insulation except upon the surface where the brushes are in contact, substantially as and for the purpose specified.

8. The combination with the commutator-bars, of an insulating-ring embracing the ends of said bars, a split spring-ring embracing the insulating-ring, and means carried by the commutator-hub for holding said split ring in close contact with the insulating-ring and thereby holding the commutator-bars in place, substantially as and for the purpose specified.

9. The combination with the commutator-bars, of an insulating-ring embracing the ends of said bars, a split spring-ring embracing the insulating-ring, a solid ring around the spring-ring, and adjustable set-screws whereby the commutator-bars are clamped to the face of a cylindrical commutator-hub, substantially as and for the purpose specified.

587,869. FIELD-MAGNET FOR DYNAMO-ELECTRIC MACHINES. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 12, 1897. Serial No. 627,102. (No model.)



Claim.—1. The process of making field-magnets for dynamo-electric machinery consisting of taking magnet-cores with slots extending from one end, damming said slots with mud or other yielding substance, placing the cores in a mold with the slotted ends projecting into a space provided for the yoke, and casting the yoke in such space whereby the yoke embraces the magnet-cores, and in cooling compresses the cores toward their slots, thus preventing abnormal strains, substantially as described.

2. The process of making field-magnets for dynamo-electric machinery, consisting of taking magnet-cores with intersecting slots extending from one end, placing a dam against the flow of molten metal at an intermediate point in said slots, placing the cores in a mold with the slotted ends beyond the above-mentioned dam projecting into a space provided for the yoke, and casting the yoke in such space whereby the yoke embraces the magnet-cores around the outside and in the slots therein, and in cooling compresses the cores toward their slots, and thus prevents abnormal strains, substantially as specified.

3. The process of making field-magnets for dynamo-electric machinery, consisting of taking magnet-cores having one end furcated, placing a dam against the flow of molten metal at an intermediate point in the slots formed between the furcations, securing the opposite ends of the cores to a jig, placing the same in a mold with the said furcations beyond the above-mentioned dam projecting into a space provided for the yoke, and casting the yoke in such space whereby the yoke embraces the magnet-cores around the outside and in the slots therein, and in cooling compresses the cores toward their slots, and thus prevents abnormal strains, substantially as specified.

4. Field-magnets for dynamo-electric machinery composed of a plurality of solid magnet-cores, each having one end furcated by intersecting slots, combined with a yoke cast about said furcated ends of the magnet-cores, substantially as specified.

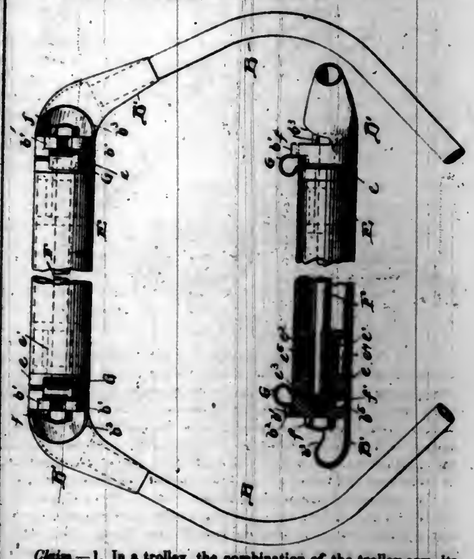
5. Field-magnets for dynamo-electric machinery composed of a cast-iron yoke, combined with cast-steel magnet-cores extending into the yoke, said cores being each formed of a solid piece of metal and having furcated ends whereby the contact with the yoke is increased beyond that provided by the outside of the magnet-core, substantially as specified.

6. Field-magnets for dynamo-electric machinery composed of a plurality of magnet-cores each having a furcated end, the furcations being adapted to be pressed together and thereby cause the end to occupy less space, in combination with a yoke surrounding the said furcations and pressing the same toward each other, substantially as specified.

7. In field-magnets for dynamo-electric machinery, the combination of a cast-iron yoke, solid cast-steel magnet-cores having furcated ends which are embedded in the yoke, and pole-shoes fitted to the pole-face ends of said cores, substantially as specified.

8. In a field-magnet, a pole-core having one end furcated by intersecting slots, substantially as specified.

587,870. TROLLEY. SIDNEY H. SHORT, Cleveland, Ohio. Filed Feb. 16, 1897. Serial No. 623,758. (No model.)



Claim.—1. In a trolley, the combination of the trolley-arm, its forks which converge at their upper ends, and the curved and tapering fork ends which are secured to and form parts of the forks, said fork ends having at their upper ends the vertical plates *b b*, which plates at their top and front edges are cylindrical in form, and are continuations of the corresponding surfaces of the fork ends, with a shaft secured to said plates *b b*, and a flangeless roller rotatably mounted upon the shaft and being at its ends of the same radius as the cylindrical parts of said plates *b b*, substantially as and for the purpose specified.

2. In a trolley, the combination of the trolley-arm, its forks which converge at their upper ends, and the curved and tapering fork ends which are secured to and form parts of the forks, said fork ends having at their upper ends the vertical plates *b b*, which plates at their top and front edges are cylindrical in form and are continuations of the corresponding surfaces of the fork ends, which fork ends are each recessed in their rear sides just outside of the plates *b b*, with a shaft passing through and secured to said plates *b b*, and a flangeless roller rotatably mounted upon the shaft and being, at its ends, of the same radius as the cylindrical parts of said plates *b b*, substantially as and for the purpose specified.

3. In a trolley, the combination of the trolley-arm, its forks which converge at their upper ends, and the curved tapered tubular fork ends which embrace the upper ends of said forks and have their upper ends closed by centrally-perforated vertical plates *b b* which are cylindrical in form at their top and front edges, which edges are continuations of the corresponding surfaces of the fork ends, said fork ends having holes through their rear walls just outside of said plates, with a shaft with threaded ends which passes through and is secured to the said plates by nuts which screw thereon, and a flangeless contact-roller rotatably mounted upon said shaft, said roller being at its ends of the same radius as the cylindrical parts of the plates *b b*, substantially as and for the purpose specified.

4. In a trolley, the combination of the trolley-arm, its forks which converge at their upper ends, and the curved and tapering fork ends having at their upper ends the vertical plates *b b*, which plates at their top and front edges are cylindrical in form, and are continuations of the corresponding surfaces of the fork ends, with a shaft secured to said plates *b b*, and a flangeless roller rotatably mounted upon the shaft and being at its ends of the same radius as the cylindrical parts of said plates *b b*, and bent contact-springs which are secured to said fork ends and extend between them and the ends of the said roller, being in contact with the latter, substantially as and for the purpose specified.

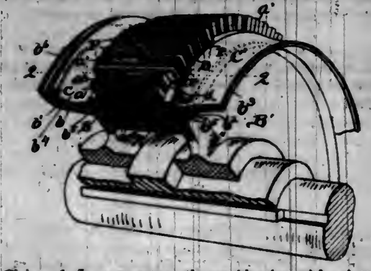
5. In a trolley, the combination of the trolley-arm, its forks

which converge at their upper ends, and the curved and tapering fork ends which are secured to and form parts of the forks, said fork ends having at their upper ends the vertical plates *b b*, which at their top and front edges are cylindrical in form, and are continuations of the corresponding surfaces of the fork ends, and the rearwardly-projecting grooved lugs on said fork ends, with a shaft secured centrally to said plates *b b*, a flangeless roller rotatably mounted upon said shaft, which roller at its ends has the same radius as the cylindrical parts of said plate, and bent springs which are secured to said grooved lugs and extend between the fork ends and ends of the roller, substantially as and for the purpose specified.

6. In a trolley, the combination of the trolley-arm, its forks which converge at their upper ends, and the curved tapered fork ends which are secured upon and form parts of the forks, and have at their upper ends centrally-perforated plates *b b*, which plates are cylindrical in form at their front and top edges, which edges are continuations of the corresponding surfaces of the fork ends, the said plates being recessed on their inner faces and provided with lugs b^4, the fork ends being recessed in their rear sides outside of said plates, with a shaft having threaded ends, which ends pass through said plates *b b*, nuts *f' f'* on said shaft inside the said plates and in contact with said lugs, nuts on the outer ends of said shaft, and a flangeless contact-roller rotatably mounted on said shaft and having ends of the same radius as the cylindrical parts of said plate, substantially as and for the purpose specified.

7. In a trolley, the combination of the trolley-arm, its forks, and fork ends, and a shaft which extends between and is secured to said fork ends, with a tubular roller surrounding said shaft, bearing-pieces fitted and secured in the ends thereof, which bearing-pieces are circumferentially grooved, an oil-duct through each bearing-piece to said groove, and an oil-duct through said grooved part to the shaft, and bent springs secured to the fork ends and extended between the same and the roller, substantially as and for the purpose specified.

587,871. ARMATURE. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 13, 1897. Serial No. 627,418. (No model.)



Claim.—1. In an armature, the combination, with a slotted core, of an end ring at each end of the core having peripheries adapted to support the armature-inductors beyond the core, insulating-covering surrounding said peripheries and protecting the inductors from them, and troughs of insulating material in the core-slot, said troughs projecting beyond the core, for the purpose specified.

2. In an armature, the combination of a core having slots extending across its surface, an end ring having a peripheral recess adapted to support the inductors beyond the core, an insulating-covering surrounding said periphery, inductors in the core-slots, and extending onto said insulating-covering, means for binding said inductors onto said covering, a protecting-shield bound at one edge at or near to the outer edge of the armature and at the other edge around the armature-core whereby the same binding serves to hold the inductors in the core and the shield in place, for the purpose specified.

3. In an armature, the slotted core A and the end rings B and B', each of said end rings having the cylindrical portion b^3 and a recessed surface extending beyond said portion, insulating material covering said cylindrical portion and recessed surface, the top of the insulating material around the cylindrical portion being substantially on a line with the bottom of the core-slots whereby a bend of the inductors at the edge of the core is prevented, for the purpose specified.

4. In an armature, the slotted core A and the end rings B and B', each of said end rings having the cylindrical portion b^3 and the surface b^4 extending beyond said portion, insulating material covering said cylindrical portion and surface b^4, the top of the insulating material around the cylindrical portion being substantially on a line with the bottom of the core-slot, insulating material in the core-slots projecting beyond the core and thus overlapping the covering on the said cylindrical portions of the end rings, for the purpose specified.

5. In an armature, the combination of a core, and an end ring having a flange of insulating material extending to the commutator-leads, a covering of insulating material surrounding the periphery of the end ring, armature-inductors crossing the core and held on said insulating material by a binding insulated from them, and a shield bound around the inductors inside of the end of the commutator-leads whereby the inductors are protected from dust from the outside, and spaces are left between the ends of the commutator-leads for the escape of dirt from the inside of the armature, for the purpose specified.

6. In an armature, the combination of the laminated core having the slots a^2, the end rings B B' having the cylindrical parts b^3 next to the core, and the concave annular surfaces b^4 outside of said cylindrical parts, insulating-coverings for said surfaces and parts, and the troughs of insulating material lying in said slots and extending beyond the same, the projecting ends being supported upon said cylindrical parts, substantially as specified.

7. In an armature, the combination of the laminated core having the slots a^2, an end plate B', and an annular flange b^5 of insulating material secured to said end ring and projecting laterally therefrom, with the armature-inductors, and the commutator-leads, which contact with the edge of said flange b^5 and are secured to the inductors, substantially as specified.

8. In an armature, the combination of the laminated core having the slots a^2, and two end plates, one having an annular flange *b* which is curved outwardly, its diameter being substantially the same as the diameter of the laminations, substantially as specified.

9. In an armature, the combination of the laminated core having the slots a^2, and two end plates, one having an annular flange *b* which is curved outwardly, its diameter being substantially the same as the diameter of the laminations, the outer periphery of this flange having an annular groove b^6, substantially as specified.

10. In an armature, the combination of a laminated armature having grooves a^2, and end plates, with troughs of insulating material in said grooves and extended beyond the ends thereof, and plugs placed between the projecting ends of said troughs, substantially as specified.

587,872. STEERING-GEAR FOR VELOCIPEDES. THOMAS H. SUTCLIFFE, London, England. Filed Aug. 26, 1896. Serial No. 604,168. (No model.)



Claim.—In steering-gear for bicycles in combination, two cords secured to the handle-bar, one on each side of the axis of same, by means of clips, a regulating-spring carried in a cylinder or casing, a piston or rod in said cylinder or casing acted upon by the said spring and connected to said cords, a pivot or swivel-joint for attaching said casing to the frame of the machine.

587,873. SCRAPER. FRANK SIBLEY, Wallenamock, N. Y. Filed Apr. 24, 1897. Serial No. 633,627. (No model.)

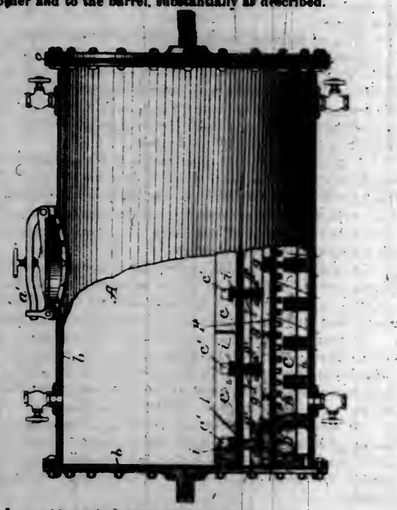


Claim.—In a scraper of the class described, the combination of a blade formed with a lower horizontal cutting edge, a broad curved rear edge, an inwardly-inclined front edge forming with the said lower horizontal edge a pointed extremity, said front and rear edges curving inwardly and upwardly and forming a reduced tapered attaching extremity, and a handle provided with a socket having a bifurcated or slotted extremity disposed at an angle thereto and forming jaws to receive the attaching extremity of the blade, a shoulder at the intersection of the socket and said extremity to abut against the upper front edge of the scraper and limit the downward movement of the handle, and a pivot pin or bolt passed through the said jaws and blade and securing the same together, substantially as described.

587,874. BARREL-FILLER. EDWARD D. EAGAR, Guelph, Ont., assignor of one-half to Edwin H. Hawkins, same place. Filed Nov. 7, 1896. Serial No. 611,345. (No model.)

Claim.—1. In a barrel-filler, the combination with a suitable barrel or cylinder, of a flat perforated floor, a sheeted filtering me-

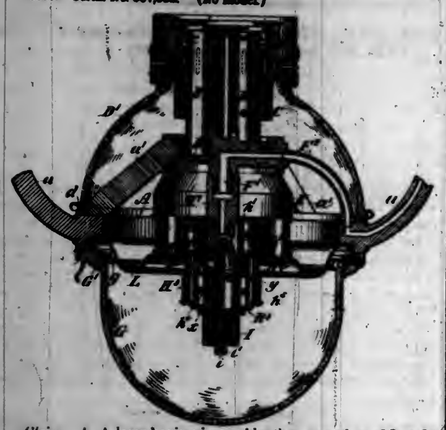
dium flatly laid thereon, a wooden framing for said floor, composed of lateral and longitudinal parts spaced and united by appropriate mortising, a grating overlying the filtering medium, a series of lateral tie-bars on said grating, abutments at the sides of the interior of the barrel overlying the ends of the tie-bars, and wedges which are tightly interposed between said abutments and tie-bars and firmly lock all of the parts of the filter and its framing in position with relation to each other and to the barrel, substantially as described.



2. In combination with a suitable barrel or cylinder, a flat perforated lead floor, a framing beneath said floor affording a firm support as well as suitable space below for the passage of filtered liquid, a suitable sheeted filtering medium flatly laid on said floor and beyond its sides and ends, and a grating adapted to be firmly clamped for confining the filtering medium upon the floor, and binding its edges against the interior sides of the barrel, and lateral wedge-bars, which are actuated by the pressure of the grating and bind the ends of said filtering medium against the interior ends of the barrel, substantially as described.

3. In a barrel-filter, the combination with a suitable bed or support and a perforated lead floor, of a filtering medium composed of lead in sheeted form, open to the filtering passage of liquid, substantially as described.

587,875. LAMP. WALTER J. SHARY, South Orange, N. J., assignor of one-half to Wm. D. Mitchell, Bayonne, N. J. Filed Apr. 17, 1896. Serial No. 587,962. (No model.)



Claim.—1. A lamp having, in combination, a number of flues for the outflow of the products of combustion, a shell surrounding the same and forming a passage, or passages, for the flow of air, a part having upwardly-extending passages for the outflow of products of combustion, and radial inwardly-extending passages for the inflow of air to the flame, a combustion-chamber, a hood, a reflector separating the space included in said combustion-chamber from the space inclosed by said hood, an annular burner-body arranged below said part and provided with downwardly-extending burner-openings whereby the gas may be given an initial downward direction, and an air-distributer extending below said annular burner-body, and provided with perforations in its sides and in its bottom surface for delivering air to the flame and also to the combustion-chamber of the lamp, substantially as specified.

2. A lamp having, in combination, a number of flues for the outflow of products of combustion, a shell surrounding the same and forming a passage, or passages, for the flow of air, a ring or annulus, lamp-supporting arms extending therefrom, leg-like supports extending inwardly from the ring or annulus, a part having upwardly-extending passages for the outflow of products of combustion, and radial inwardly-extending passages for the inflow of air to the flame, a combustion-chamber, a hood, a reflector attached at its outer edge to said ring or annulus and at its inner edge to said part, an annular burner-body arranged below said part and provided with downwardly-extending burner-openings whereby the gas may be given an initial downward direction, and an air-distributer extending below said annular burner-body, and provided with perforations in its sides and in its bottom surface for delivering air to the flame and also to the combustion-chamber of the lamp, substantially as specified.

3. A lamp having, in combination, a ring or annulus, a part having upwardly-extending passages for the outflow of products of combustion, and radial inwardly-extending passages for the inflow of air to the flame, a reflector attached at its outer edge to said ring or annulus and at its inner edge to said part, an annular burner-body arranged below said part and provided with downwardly-extending burner-openings whereby the gas may be given an initial downward direction, a connecting-piece joining said burner-body to said part and comprising an inner perforated ring and an outer ring, a shell projecting downwardly from this outer ring and terminating adjacent to the burner-openings whereby air is delivered to the outer or upper side of the flame, and an air-distributer extending below said annular burner-body, and provided with perforations in its sides and in its bottom surface for delivering air to the flame and also to the combustion-chamber of the lamp, substantially as specified.

587,876. PACKING AND STORING VESSEL. WILLIAM C. SNOW, Penn Yan, N. Y. Filed Sept. 22, 1896. Serial No. 606,667. (No model.)



Claim.—1. The combination with a jar and a rigid closed cover therefor, said cover provided with a chamber, of a flexible diaphragm sealed at the edges between the jar and cover, said cover having a bearing-surface extending below the top of the jar by which the diaphragm is pressed down upon the liquid, substantially as described.

2. The combination with a jar of an elastic imperforate flexible diaphragm extending across the mouth thereof and resting on the top of the jar, a rigid cap or cover having its rim resting on said diaphragm and sealing the same to the jar, said cover having a chamber above the central portion of said diaphragm, and means for securing said cover in position, whereby cover and diaphragm are retained, all substantially as described.

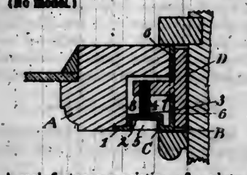
3. The combination with the jar of an elastic flexible imperforate diaphragm extending across and resting on the top thereof, the cover having its edge resting on said diaphragm and sealing the same to the jar, means for securing the cover to the jar and thereby sealing the parts together, the cover having a chamber above the central portion of the diaphragm, and elastic means for compressing the diaphragm below the chamber in the cover, all combined substantially as described.

587,877. BELT-TIGHTENER. ANDREW F. SNYDER, Chicago, Ill. Filed Dec. 29, 1896. Serial No. 617,308. (No model.)



Claim.—The combination in a belt clamp and tightener, of the lugs C, C, with the taper opening and polished face c, c, with center-bearing polished ends d^2, d^1, of cross-bars D, D, substantially as shown and described and for the purpose set forth.

587,878. SASH-FASTENER. GEORGE F. STAMBURY, Woodsport, and BERA W. SMITH, Albany, N. Y. Filed Dec. 4, 1896. Serial No. 614,438. (No model.)



Claim.—A sash-fastener consisting of a plate, C, bent longitudinally to form members, 1 and 6; each of said members having a slotted opening formed in it, a bearing-plate, D, of a wedge-like form and having a lug, 8, formed to project from its inner face and fitted to move in a slotted opening, 7, in the member 6, and a screw, 4, which engages in said lug and is fitted to move in a slot, 3, formed in the member 1, as specified.

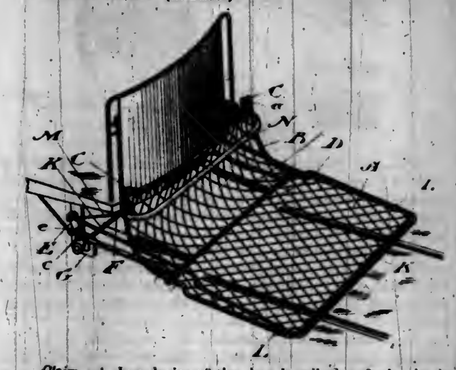
587,879. GARMENT-BINDING. GEORGE H. STEDWELL, Hackensack, N. J. Filed July 24, 1896. Serial No. 600,394. (No model.)



Claim.—1. A protector for the edges of garments comprising a folded strip of waterproof material, a welt sewed primarily to one part of the folded strip of material and turned back upon itself to conceal the seam, the fold at the edge of said welt being located in proximity to the rounded bight of the folded strip of material and a facing sewed to the two parts of the folded strip of material and to the welt by a line of stitching located above the line of stitching which primarily secures the welt to one part of the folded strip of material, whereby the said facing when turned back to conceal the seam will present its lower edge above the lower edge of the welt, substantially as set forth.

2. A protector for the edge of a garment, comprising a folded strip of waterproof material, a welt sewed to one part of the folded strip and folded back upon itself to conceal the stitching, the said material which is folded back upon itself to form the welt being continued over the edges of the folded strip of waterproof material and sewed to the two parts of the folded strip of waterproof material and to the welt at a point above where the welt was first sewed to one part of the folded strip of waterproof material, substantially as set forth.

587,880. FENDER FOR STREET-CARS. JAMES STEELE, Guelph, Canada, assignor to George Sleeman, same place. Filed Apr. 13, 1897. Serial No. 631,995. (No model.)



Claim.—1. In a device of the class described, a fender having one of its ends pivotally connected with the front of a car, in combination with a toggle-joint connection arranged to occupy two positions and having one end connected with the car and its other end to the fender, the three pivots of the said toggle-joint being arranged substantially in line when in one of said positions to support the fender raised, and means operated by an obstacle for throwing the toggle to its other position, thus allowing the fender to fall, substantially as described.

2. In a device of the class described, a fender having one of its ends pivotally connected with the front of a car, in combination with a toggle-joint connection arranged to occupy two positions, a stop coacting with said toggle-joint connection when in one position to support the fender raised, and means adapted to be operated by contact with an obstacle and arranged when operated to move said toggle-joint connection to its other position, thus allowing said fender to drop until it strikes the ground or rails, substantially as described.

3. In a device of the class described, a fender having a pivotal connection with a car, a toggle-joint connection arranged when in one position to support said fender with its front end raised and when in another position to allow said front end to drop, and a slidingly-supported trigger-frame adapted to be operated by contact with an obstacle and arranged when operated to move said toggle-joint connection, thus allowing the front end of said fender to drop, substantially as described.

4. In a device of the class described, a fender pivoted at its rear end to the front of a car, in combination with a lever pivoted below the end of the car; a link pivoted at one end to the said lever and at the other to the fender below its pivot-point upon the car: and a stop so connected as to engage with the link when the pivot-point of the latter on the said lever is below the line joining its pivot-point on the fender with the pivot-point of the lever, and thus retain the fender in its normal raised position, substantially as and for the purpose specified.

5. In a device of the class described, a fender pivoted at its rear end to the front of a car, in combination with a lever pivoted below the end of the car; a link pivoted at one end to the said lever and at the other to the fender below its pivot-point upon the car; a stop so connected as to engage with the link when the pivot-point of the latter on the said lever is below the line joining its pivot-point on the fender with the pivot-point of the lever and thus retain the fender in its normal raised position, and a trigger-frame slidingly supported by the fender with its front end projecting beyond the front of the same, and its rear end pivoted to the said lever above the pivot-point of the link, substantially as and for the purpose specified.

6. In a device of the class described, a fender pivoted at its rear end to the front of a car, in combination with a lever pivoted below the end of the car; a link pivoted at one end to the said lever and at the other to the fender below its pivot-point upon the car; a stop so connected as to engage with the link when the pivot-point of the latter on the said lever is below the line joining its pivot-point on the fender with the pivot-point of the lever and thus retain the fender in its normal raised position, a trigger-frame slidingly supported by the fender with its front end projecting beyond the front of the same, and its rear end pivoted to the said lever above the pivot-point of the link, and a spring connected directly or indirectly with the car and to the fender so as to tend to draw the latter down to its operative position.

7. In a device of the class described, a fender pivoted at its rear end to the front of a car, in combination with a lever pivoted below the end of the car; a link pivoted at one end of the said lever and at the other to the fender below its pivot-point upon the car; a stop so connected as to engage with the link when the pivot-point of the latter on the said lever is below the line joining its pivot-point on the fender with the pivot-point of the lever and thus retain the fender in its normal position, and a spring connected directly or indirectly with the car and to the fender, so as to tend to draw the latter down to its operative position, substantially as and for the purpose specified.

8. In a device of the class described, the fender A, having its rear end turned upwardly and pivotally connected to the front end of a car, in combination with the bent levers E, connected by the bar F, journaled in the brackets G; the links I, pivoted at *d*, to the fender A, and at *c*, to the bent levers E; the pin or stop *e*, and the trigger-frame K, slidingly supported on the fender and pivoted at its rear end to the bent levers E, substantially as and for the purpose specified.

9. In a device of the class described, the fender A, having its rear end turned upwardly and pivotally connected to the front end of a car, in combination with the bent levers E, connected by the bar F, journaled in the bracket G; the links I, pivoted at *d*, to the fender A, and at *c*, to the bent levers E; the pin or stop *e*; the trigger-frame K, slidingly supported on the fender and pivoted at its rear end to the bent levers E; and the cord M, connected to the trigger-frame K, at such a point as to serve both to trip and set the fender, substantially as and for the purpose specified.

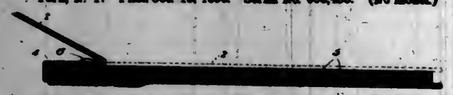
10. In a device of the class described, the fender A, having its rear end turned upwardly and pivotally and removably connected to the front end of a car, in combination with the bent levers E, connected by the bar F, removably journaled in the brackets G; the links I, pivoted at *d*, to the fender A, and at *c* to the bent levers E; the pin or stop *e*; and the trigger-frame K, slidingly supported on the fender and pivoted at its rear end to the bent levers E, substantially as and for the purpose specified.

11. In a device of the class described, the fender A, having its

rear end turned upwardly and pivotally and removably connected to the front end of a car, the combination with the bent levers E, connected by the bar F, removably journaled in the brackets G; the links I, pivoted at *d*, to the fender A, and at *e*, to the bent levers E; the pin or stop *c*; the trigger-frame K, slidingly supported on the fender and pivoted at its rear end to the bent levers E, and a rubber-covered guard extending from side to side of the fender in front of the car end, substantially as and for the purpose specified.

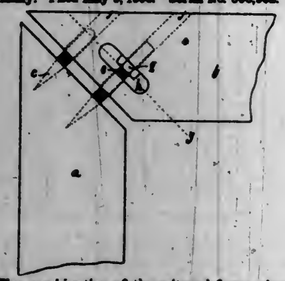
12. In a device of the class described, the fender A, having its rear end turned upwardly and pivotally connected to the front end of a car, in combination with the bent levers E, connected by the bar F, journaled in the brackets G; the links I, pivoted at *d*, to the fender A, and at *e*, to the bent levers E; the pin or stop *c*, the trigger-frame K slidingly supported on the fender and pivoted at its rear end to the bent levers E; and a tension spring or springs connecting the bar F, with the fender, substantially as and for the purpose specified.

587,881. CLOTH-SAMPLE BINDER. MARTIN STRISTAL, New York, N. Y. Filed Oct. 10, 1896. Serial No. 608,455. (No model.)



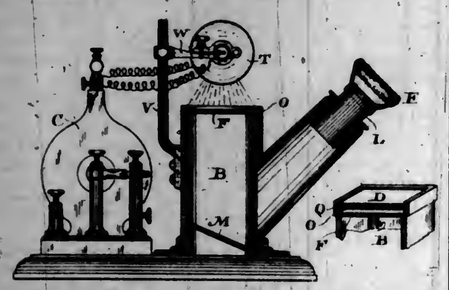
Claim.—In a binder, the combination of a back, fasteners extending through said back for binding the samples thereto, a free flap located upon the exterior of the back for covering and concealing the ends of the fasteners projecting through the back, and means for holding the flap in closed position, substantially as and for the purpose set forth.

587,882. CANVAS-STRETCHER. HELMUTH G. TARNEK, Hamburg, Germany. Filed May 9, 1896. Serial No. 590,962. (No model.)



Claim.—The combination of the mitered frame-pieces having a fixed dowel and threaded bolt on one corner, borings directly opposite the same for the reception of said dowel and bolt, and an adjusting-nut upon the bolt within a recess formed near the corner of the frame for the purpose substantially as described.

587,883. DEVICE FOR EXAMINING JEWELS BY ROENTGEN RAYS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Sept. 4, 1896. Serial No. 604,849. (No model.)



Claim.—1. The apparatus described for facilitating the examination of jewels by Roentgen rays, consisting of means for producing the rays, a support for the jewel opaque to light but transparent to the Roentgen rays, a fluorescent screen for converting the Roentgen rays into light after the passage through the jewel, a mirror for reflecting the rays, and eyepieces for examining the reflected image.

2. In an apparatus for examining jewels, the combination of a source of Roentgen or X rays, a support for the jewel, a fluorescent screen beneath the support, a mirror at an angle beneath the screen, and adjustable eyepieces for observing the reflected image in the mirror.

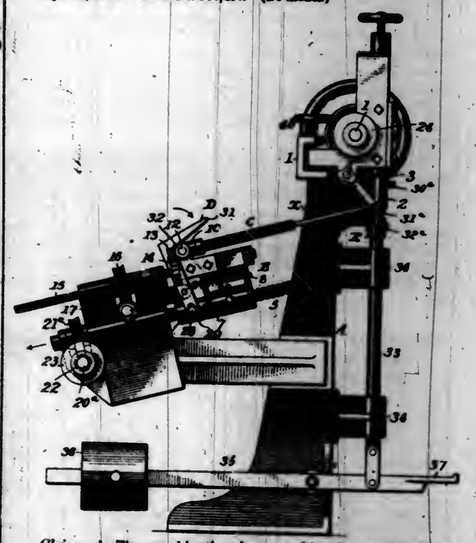
3. In an apparatus for examining jewels, the combination of a source of Roentgen or X rays, an inclosing box having a fluorescent screen in one side thereof, a support for the object to be examined, the support being opaque to light but transparent to the X-rays, a plate-holder between the object and the fluorescent screen, an inclined mirror in the box; and eyepieces for examining the reflected image in the mirror.

587,884. BRIDGE FOR MUSICAL INSTRUMENTS. HENRY E. TOWNSEND, Gettysburg, S. D. Filed Oct. 21, 1896. Serial No. 609,576. (No model.)



Claim.—A hollow bridge comprising end pieces having broadened lower extremities forming feet, a top strip connecting the upper extremities of the end pieces and lying flush therewith, and side pieces secured to the end pieces and top strip said side pieces being cut away intermediate the feet and having openings leading into the hollow of the bridge.

587,885. FILE-CUTTING MACHINE. JAMES TURNER, Paterson, N. J., assignor to the Kearney & Foot Company, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,407. (No model.)



Claim.—1. The combination in a machine for cutting files or rasps, of a reciprocating cutter, a carriage, a screw for moving the carriage forward, and means whereby the screw is permitted to move backward with a diminishing action at the beginning of operations, substantially as described.

2. The combination in a machine for cutting files or rasps, of a reciprocating cutter, a carriage, devices for feeding the carriage forward, and means whereby the said devices are permitted to have an independent backward movement at the beginning of operations, substantially as shown and for the purpose described.

3. The combination in a machine for cutting files, &c., of a reciprocating cutter, an inclined screw and means for rotating the same, a carriage engaging said screw, a lever pivoted to a stationary part of the frame and having bearings upon the screw, and with an inclined end bearing upon the carriage, substantially as set forth.

4. The combination with the reciprocating cutter and carriage, of pivoted supports 10, holders C turning in said supports, and means for turning the holders in the supports, substantially as set forth.

5. The combination with the carriage B, pivoted supports 10, holders C turning therein, shaft 15 and means for rotating the same, and gears between the shaft 15 and the holders C, substantially as set forth.

6. The combination in a machine for cutting files, &c., of a reciprocating cutter-holder 3, a cutter consisting of a blade 2, a bearing *w* for the upper edge of the cutter, and means for securing the cutter frictionally in the holder, substantially as set forth.

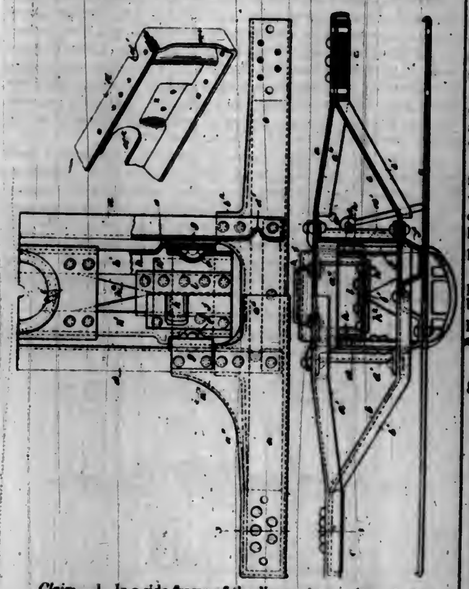
7. The combination in a machine for cutting files, &c., of supports for two parallel file-blanks, and means for feeding the same, a reciprocating cutter-holder, and a cutter secured in said holder and having a single bearing-point *w*, substantially as and for the purpose set forth.

8. The combination in a machine for cutting files, &c., of a reciprocating holder and cutter, and an anvil consisting of a blade 31, and a slotted holder therefor having a single bearing-point for the said anvil upon which the same may rock in the slot, substantially as and for the purpose set forth.

9. The combination of the anvil-holder F, the anvil 31 having a single bearing-point so as to rock in said holder and a counterweighted support for the holder, substantially as set forth.

10. The combination in a machine for cutting files, of a reciprocating cutter, an anvil, having a single bearing-point, an anvil-holder, and means for depressing the same, a carriage and a file-blank holder pivoted to said carriage, substantially as and for the purpose set forth.

587,886. TRUCK-FRAME FOR RAILWAY-CARS. AXEL S. VOGT, Altoona, Pa. Filed Apr. 1, 1897. Serial No. 630,941. (No model.)



Claim.—1. In a side frame of the diamond type of truck, the upper and lower arch-bars, made as channels of gradually-increasing width from their ends toward the transom, having their flanges projecting downwardly, and their ends nested and riveted together, substantially as described.

2. In a side frame of the diamond type of truck, upper and lower arch-bars made as channels, with their flanges projecting downwardly, and their ends nested and riveted together, substantially as described.

3. In a side frame of the diamond type of truck, the pressed-steel upper and lower arch-bars, increasing in width from their ends toward their centers, their ends riveted together, and having intermediate lateral projections to which the transom is secured, substantially as described.

4. In a side frame of the diamond type of truck, the pressed-steel upper and lower arch-bars, having downwardly-extending vertical flanges, ends riveted together, and intermediate lateral projections, combined with a channel transom, the flanges of which are riveted to the said arch-bars, substantially as described.

5. In a side frame of the diamond type of truck, the separately-formed arch-bars, increasing in width from their ends toward their centers, cut away at their centers to receive the bolster, and having their ends riveted together combined with a transom riveted to the said arch-bars, substantially as described.

6. In a pressed-steel side frame for a truck of the diamond type, the upper and lower arch-bars, made as channels, and having their ends riveted together and thus rigidly united wholly independently of other parts of the side frame, substantially as described.

7. In a side frame of the diamond type of truck, the upper and lower arch-bars, made as channels, having their ends nested together, and rigidly united, and a filling-piece also rigidly secured in said ends, substantially as described.

8. In a pressed-steel side frame for a truck of the diamond type, the top and bottom arch-bars made as independent channels and rigidly united at their ends by riveting such ends together, combined with a transom riveted to the said arch-bars, substantially as described.

9. The combination with the arch-bars, of a pair of channel bars or beams, constituting the transom, and with which the arch-bars are united, having vertical embossments *d'* between the arch-bars, substantially as and for the purpose described.

10. A bolster, formed of a pair of channel-beams, the lower portions of which decrease in depth toward their ends, and whose flanges converge toward their ends, combined with inner and outer tie-plates riveted to the said bottom flanges, the inner tie-plate extending over the bend of the flanges, substantially as and for the purpose described.

11. A side frame of the diamond type, composed of flanged arch-bars having their ends rigidly united, a box-stay, and a filling-piece uniting the box-stay with the lower arch-bar, and all formed of pressed steel, substantially as described.

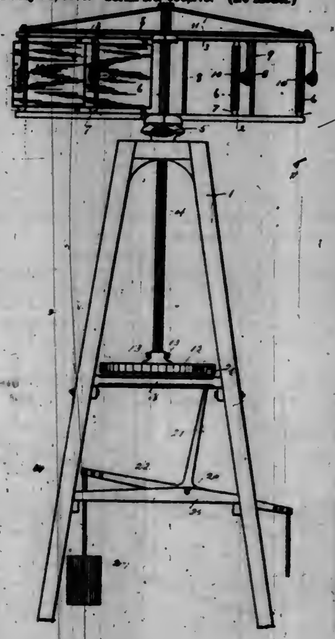
12. A truck-frame, composed of upper and lower arch-bars, formed as channels and having their ends nested and riveted together and thereby rigidly united, a transom composed of channels, and riveted to the arch-bars, a box-stay and a filling-piece interposed between it and the lower arch-bar, and all constructed of pressed steel, substantially as described.

13. A pressed-steel bolster, having its lower portion bellied, its ends of diminished cross-sectional area, its bottom flanges convergent at the ends, and said ends reinforced internally and externally by tie-plates, substantially as described.

14. A truck-frame, composed of upper and lower arch-bars, formed as channels, and having their ends rigidly united, and provided with lateral projections next the transom, a transom composed of channels and riveted to the arch-bars, a box-stay and a filling-piece interposed between it and the lower arch-bar, and all constructed of pressed steel, substantially as described.

15. A transom, composed of channel-beams or channels having portions of their vertical webs removed, in order to increase the flexibility of the transom and give to the truck structure the greatest possible chance to adapt itself to variations in the track-surface, substantially as described.

587,887. WINDMILL. THOMAS V. P. VERSLAND, Wichita, Kans. Filed July 23, 1896. Serial No. 600,275. (No model.)



Claim.—The combination of a horizontal wind-wheel secured to a perpendicular shaft, an elliptical cam, having a grooved elliptical track, said elliptical cam secured at its center to the lower end of said shaft, a three-armed lever, one of said arms having a small wheel adapted to run in said elliptical track, said elliptical cam adapted to give two complete strokes to said lever to one revolution of said elliptical cam.

587,888. GRAVE-PLATFORM. BENJAMIN P. WALKER, Thomasville, Ga. Filed July 8, 1896. Serial No. 598,434. (No model.)



Claim.—1. A coffin-support having an open frame through which a coffin is adapted to be lowered, and a platform fitted upon and horizontally supported by the frame to form a continuous horizontally-removable support adapted to be traversed by pall-bearers in placing a coffin thereon, substantially as specified.

2. A coffin-support having an open frame, and a sectional platform fitted upon and horizontally supported by the frame to form a continuous support adapted to be traversed by pall-bearers, the sections of the platform being divided upon a transverse line for endwise horizontal removal at opposite extremities of the frame, substantially as specified.

3. A coffin-support having an open frame, coffin-lowering devices mounted upon the frame, and a platform fitted upon and horizontally supported by the frame to form a continuous longitudinally-removable support adapted to be traversed by pall-bearers, the coffin-lowering devices being adapted to support a coffin above and out of contact with the platform during the removal of the latter preparatory to lowering the coffin through the opening of the frame, substantially as specified.

4. A coffin-support having an open frame, coffin-lowering devices including straps mounted in guides at the opposite sides of the frame and extending transversely across the opening, and a horizontally longitudinally removable platform fitted upon the frame to form a continuous support adapted to be traversed by pall-bearers, said lowering devices being adapted to sustain the weight of a coffin during the removal of the platform preparatory to lowering the coffin through the frame, substantially as specified.

5. A coffin-support having an open frame provided with side guides, and a sectional platform fitted at its side edges in said guides, the platform-sections being adapted to be removed at opposite ends of the frame, substantially as specified.

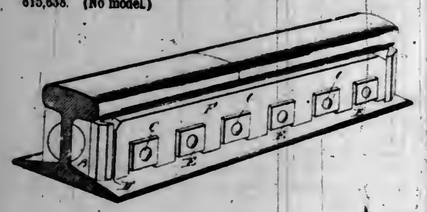
6. A coffin-support having an open frame, and a sectional platform fitted in guides on the frame, each section of the platform being of flexible slatted construction, substantially as specified.

7. A coffin-support having an open frame, and flexible platform-sections fitted in guides on said frame and each consisting of slats and a flexible connection, or cable, looped at the outer end of the section to form a handle or grip, substantially as specified.

8. The combination with an open frame and a removable coffin-supporting platform arranged therein, of coffin-lowering devices including guide-blocks hinged at their outer extremities to the frame and provided with keepers through which the coffin-lowering straps extend, substantially as specified.

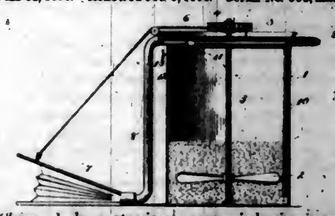
9. The combination with a supporting-frame and a removable platform fitted therein, of coffin-lowering devices including vertically-movable guide-blocks having keepers for the reception of the coffin-lowering straps, and adapted to yield upwardly when said straps are strained to remove the weight of a coffin from the platform, substantially as specified.

587,889. NUT-LOCK. JOSEPH WALKER, Clark's Green, Pa., assignor to B. C. Greene, Scranton, Pa. Filed Dec 14, 1896. Serial No. 615,638. (No model.)



Claim.—In a nut-lock, the combination with the rails and fish-plates, the bolts passing therethrough, the nuts on the bolts, the washer-plates formed with the upturned overhanging ends, the lock-plate having the beveled ends, adapted to be received under the overhanging ends of the washer-plate, said lock-plate also having its upper corners removed, whereby the upper portion of the upturned ends of the washer-plate may be turned down upon the lock-plate to prevent its upward movement: substantially as described.

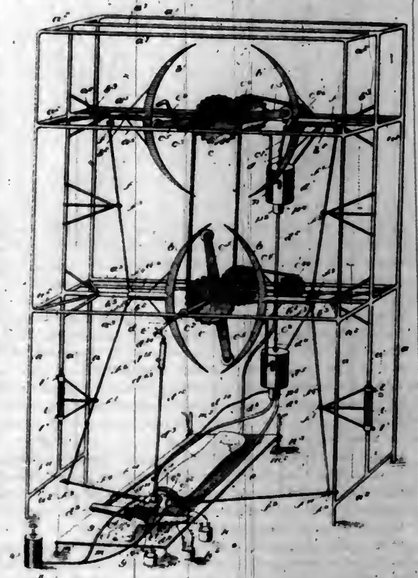
587,890. ATOMIZER. HARRY B. WEAVER, Macungie, Pa. Filed Jan. 11, 1896. Renewed Oct. 9, 1896. Serial No. 608,422. (No model.)



Claim.—1. In an atomizer, a reservoir having journaled therein a shaft, an agitator secured to said shaft and adapted to revolve therewith, means for revolving said shaft, the tube 8, extending across the upper portion of the reservoir, the tube 10, leading from the bottom of the reservoir and terminating within the tube 8, axially therewith, an air-inlet leading from the tube 8 into the reservoir, a valve for controlling said inlet and a bellows adapted to supply air to the tube 8 under pressure, whereby the liquid in the reservoir is elevated through the tube 10, and commingled with the air issuing from the nozzle, substantially as and for the purposes set forth.

2. In a device of the character described, a reservoir, a shaft journaled within the reservoir, an agitator on the shaft, a drum secured on the end of the shaft, a coil-spring connecting the drum to the top of the reservoir, a tube leading upward from the lower part of the interior of the reservoir to the top, a pipe inclosing the end of the tube, an outlet from said pipe leading into the reservoir and means for supplying the pipe with air under pressure and for revolving the drum against the action of the coil-spring, as and for the purpose described.

587,891. RESUSCITATING APPARATUS. JAMES C. WALKER, Waco, Tex. Filed Nov. 18, 1896. Serial No. 569,331. (No model.)



Claim.—1. In an apparatus for the purposes stated, a supporting-table having fixed supports at one end and adjustable supports at the other end, and having an opening near the fixed supported end to receive the mouth and nose of the patient, kneading devices to engage the sides and back of the body, said devices having means for drawing the sides or back outward as they are pulled outward, and a single operating mechanism for the sides and back kneading devices, arranged to operate the said side and the back kneading devices, alternately in opposite directions as specified.

2. In a resuscitating device, the combination with the main frame, the kneading devices for applying pressure to the sides, said devices having rods f^9, of the pivotal rods f^8 and means for oscillating such rods f^8 substantially as shown and described.

3. The combination of the kneading-cups f^{10}, having rods f^9, the main frame, the adjustable bearing l, the rods f^8 and means for oscillating such rods as specified.

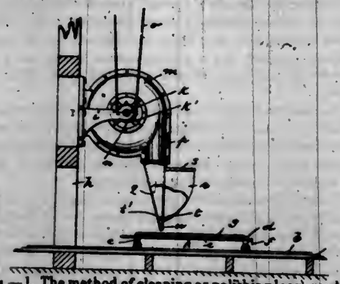
4. The combination with the main frame, the cups f^{10} f^{10} having rods f^9 and the cup d^{11} having rod d^{12}, an operating-shaft having cam mechanism, pivoted rods f^8 connecting such mechanism with the rods f^9, said shaft having a crank member connected with the rod d^{12} as specified.

5. The combination with the main frame, the kneading-cups and levers, the arm and leg boxes and the pumps connected therewith, of a drive-shaft, the sprockets and chains and the sliding devices and levers connected therewith, crank members operated by the sprockets connected with the pumps, the sliding devices and levers being connected with the kneading-cups and levers and a rotating means on the drive-shafts for spreading and contracting the slide devices all being arranged substantially as shown and for the purposes described.

6. The combination with the kneading-cups and levers for operating the same, the air-tight leg and arm boxes or casings, and the pumps for producing alternate compression and exhaustion of air therein, of the operating-shafts, the ellipsoidal slide-guides, the revolving arms carried by the shafts, the arms of one shaft operating alternately to the other, the sprocket-and-chain connections joining such shafts, a crank-shaft connected to each pump and geared with the operating-shafts and oscillating lever-arms connected at one end to the slide-guides and at the other to the kneading-cup levers as set forth.

7. In an apparatus for the purposes stated, the leg-boxes having flexible extensions c^{25}, pneumatic tubes c^{4} attached to the ends thereof and the internal and external flexible flaps c^{5} c^{6} secured to such tube c^{6} all being arranged substantially as shown and for the purposes described.

587,892. PROCESS OF AND APPARATUS FOR CLEANING AND POLISHING LOOM-REEDS. MATHIAS WALTER, Paterson, N. J. Filed June 17, 1896. Serial No. 595,882. (No model.)



Claim.—1. The method of cleaning or polishing loom-reeds which consists in oiling the surface of the reeds, and in subjecting the oiled surface to the action of an impinging stream of commingled air and polishing material.

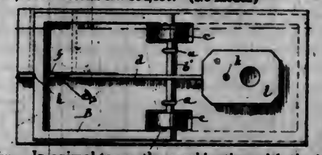
2. An apparatus for cleaning and polishing loom-reeds, consisting of a reciprocating adjustable carriage, a blower, a tapering nozzle communicating with the blower and arranged at substantially right angles to the reciprocating carriage, and a receptacle communicating with said nozzle, all said parts, substantially as described.

587,893. WEATHER-STRIP. HENRY W. WARD, Chicago, Ill. Filed Dec. 26, 1895. Serial No. 573,363. (No model.)



Claim.—A weather-strip comprising a fixed member or molding provided in its lower edge with a seat, a movable member or leaf provided at its inner edge with a bead to fit in said seat and also provided at intervals in said inner edge with parallel-sided cavities, hinges each comprising a molding member having a base-plate let into the rear surface of the molding, and a forwardly-projecting lug or ear terminating in a hinge-eye within the contiguous cavity of the leaf, and a leaf member having a securing-plate, let into the inner edge of the leaf and spanning said cavity above the plane of the ear or lug of the molding member, and a forwardly-projecting lug terminating in a hinge-pin engaging said hinge-eye, whereby said securing-plate is adapted to contact with the lug or ear of the molding member to limit the elevation of the free edge of the leaf, and also whereby the lugs or ears fit side by side within the cavity in the leaf to prevent accidental disengagement of the hinge pin and eye, a spring for yieldingly holding the free edges of the leaf in its elevated position, and means for positively depressing the free edge of the leaf into contact with a door-sill, substantially as specified.

587,894. ANIMAL-TRAP. JAMES W. WEST, De Long, Ill. Filed May 3, 1897. Serial No. 634,589. (No model.)



Claim.—In animal-traps, the combination with the base, of the recoil-spring striker-loop mounted thereon, the trigger-lever extended lengthwise within the loop, fulcrumed near the outer or set position of the striker and having a projecting tip beyond the trigger-fulcrum, and the pivoted dog furnished at its upper part with a detent and at its lower with a heel extended over the trigger-tip; the relation of the several parts being such that on shift of the striker-loop to set position said loop contacts with the dog to bring the detent thereon into the return-path of the loop and coactively depresses the trigger-tip so as to cock the free end of said trigger, substantially as described.

587,895. BOTTLE. CASSIANACA B. WHITE, Goldfield, Colo. Filed Oct. 31, 1896. Serial No. 610,685. (No model.)



Claim.—As an improved article of manufacture, a bottle having a bottom filler and a breakable neck the same being constructed to present a base having a raised bottom with a centrally-depending portion with a tapered opening which is intersected by an annular groove *b*, opposite to which the wall of the depending portion is of increased thickness, a plug or cork D, and metallic disk C, which is sprung into the annular groove so as to be permanently retained thereby over the larger end of the plug—the upper end of the bottle having a neck the internal diameter of which is less than the diameter of the filling-orifice, said neck having a bead *c* connected by a thin wall forming a thin annular groove *c'* above which extends the opening in the neck and a solid bulb integral with the upper end of the neck, substantially as shown and for the purpose set forth.

587,896. FOLDING PEDESTAL. JAMES H. WHITE, Brooklyn, N. Y., assignor to the Manhattan Brass Company, New York, N. Y. Filed May 17, 1897. Serial No. 636,896. (No model.)



Claim.—1. The combination in a folding pedestal with the legs and feet, of cross-bars for connecting said legs in pairs, a pivot for connecting one set of cross-bars and a clamping device for connect-

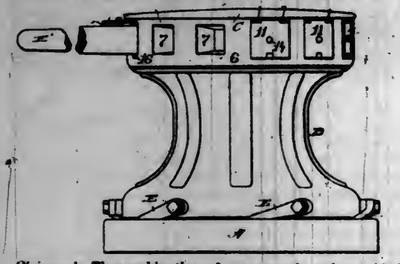
ing the other set of cross-bars so as to secure the same fully or partially open or closed as desired, substantially as set forth.

2. In a folding pedestal, the combination with the legs and feet, of sets of cross-bars connecting the legs in pairs, said cross-bars being provided with central circular and integral plates and being staggered in their relation to one another with the plates of approximately half the thickness of the cross-bars, so that said cross-bars occupy substantially the same horizontal plane, a pivot for connecting the set of cross-bars at the lower part of the pedestal and a clamping device for connecting the other set of cross-bars, so that an open or shut or intermediate position of the parts of the pedestal in their relation to one another may be maintained, substantially as set forth.

3. In a folding pedestal, the combination with the legs and feet, of the lower staggered cross-bars A *i* and their integral central circular plates *h' i'*, the same being of approximately half the thickness of the cross-bars, so that said bars occupy substantially the same horizontal plane, and a pivot 2 at the center of said plates, the upper staggered cross-bars *e f* and their integral central circular plates *e' f'*, the under surface of the plate *f'* and the upper surface of the plate *e'* having radial facial serrations engaging one another, and a central device for clamping the plates *e'* and *f'* and interlocking the serrations to maintain the legs and cross-bars in an open, folded or intermediate position as desired, substantially as set forth.

4. In a folding pedestal, the combination with the legs and feet, of the lower staggered cross-bars A *i* and their integral central circular plates *h' i'*, the same being of approximately half the thickness of the cross-bars, so that said bars occupy substantially the same horizontal plane, and a pivot 2 at the center of said plates, the upper staggered cross-bars *e f* and their integral central circular plates *e' f'*, the under surface of the plate *f'* and the upper surface of the plate *e'* having radial facial serrations engaging one another, and a screw-bolt *k* having a nut *k'* and ring-handle k^2 passing centrally through said plates *e' f'* and interlocking the serrations to maintain the legs and cross-bars in an open, folded or intermediate position as desired, substantially as set forth.

587,897. CAPSTAN. EDWIN H. WHITNEY, East Providence, R. I., assignor to the American Ship Windlass Company, Providence, R. I. Filed Mar. 8, 1894. Serial No. 502,844. (No model.)



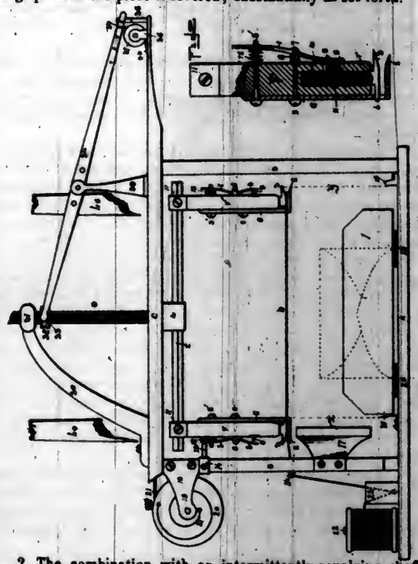
Claim.—1. The combination of a capstan-barrel provided with a bar-socket and with threaded holes above said socket, attaching-bolts screwed in said threaded holes and provided with exposed slotted heads, a cover recessed to fit snugly to the bolt-heads, and pivotal screws or bolts detachably fastened to the cover and fitted in the slotted bolt-heads to pivotally and slidably connect the cover to the bolts, as and for the purposes described.

2. The combination of a capstan-barrel having a bar-socket and threaded holes above said socket, the attaching-bolts 10 screwed in the threaded holes and having the vertically-elongated heads formed with segmental edges and with vertical slots, a flanged cover recessed to fit snugly to the segmental faces of the bolt-heads and to lie closely to the face of the capstan-barrel, the pivotal screws fastened to the cover and fitted in the slots of the bolt-head, a keeper to engage the free edge of the cover, and means in the path of the cover to limit the upward and outward swinging movement of the cover and prevent it from assuming an inverted vertical position above the capstan, as and for the purposes described.

3. The combination with a capstan having a bar-socket, of cover-attaching bolts fastened to said capstan substantially on the plane of the upper edge of the socket where it opens through said capstan, a cover, and bolts or pins which pivotally, and detachably, connect said cover to the attaching-bolts, as and for the purposes described.

587,898. ATTACHMENT FOR ENVELOP-MACHINES. EDWARD M. WILCOX, Denver, Colo., assignor to the Perfect Letter Opener Company, Los Angeles, Cal. Filed Feb. 3, 1897. Serial No. 621,863. (No model.)

Claim.—1. A strand-feeder for envelop-machines comprising means for supporting envelops, a guide for the strand, a shaft having intermittent rotary and longitudinal movements, a pair of grips which are moved by the shaft's rotation across the line of feed of the strand, and means for severing the strand at a point between the grips and adjacent to that grip which is nearest the guide for the strand, so that the end of the strand is always retained by one of the grips after the piece is severed; substantially as set forth.



2. The combination with an intermittently-revolving shaft of carriers adjustably secured to said shaft, and gripper-jaws secured to said carriers adapted to open and close in releasing and engaging a strand.

3. The combination with a suitable support of plunging gripper-jaws, said jaws being normally closed to carry a strand, mechanism to revolve said grippers in a plane at right angles to the plunger-path of said grippers, and a gripper-opener positioned within the plunger-path of said jaws to open one of said jaws at a predetermined point.

4. The combination with two grippers revolving about a common center, said grippers being normally closed to carry a strand, of an operating mechanism adapted to open one of said grippers at a predetermined point, and a closing mechanism positioned within the path of said jaws to close said opened gripper.

5. The combination of two grippers positioned opposite one another, and revolving about a common center, both of said grippers being normally closed to carry an opening-strand, means for opening one of said grippers at a predetermined point so as to release said strand, and a cutter positioned between said grippers to cut said strand into predetermined lengths, the supply end of said strand being continuously engaged by one of said grippers.

6. The combination with two grippers revolving about a common center, adapted to receive a strand, a striker positioned at a predetermined point in the path of said revolving grippers, a cutter positioned approximately opposite said striker and between said grippers, and means to bring said cutter and striker adjacent to said grippers to cut a strand-section of a length less than the distance between said grippers and simultaneously open one of said grippers to release said severed strand-section.

7. A strand-gripper working in a circular path, mechanism to reciprocate said gripper in a lineal path at right angles to said circular path, means for closing said gripper at a predetermined point in its circular path, and means for opening said gripper at a predetermined point in its lineal path, so that said gripper travels alternately in an open and closed condition.

8. The combination with a plunger-shaft, of grippers secured to said shaft adapted to work in a circular path, said grippers being closed in their upper position, and a striker to open one of said grippers when said plunger-shaft carries said grippers into its lower position.

9. The combination with a shaft of a plunger mechanism to lower and raise said shaft, a clutch-gear upon said shaft to revolve the same in one direction, a rack meshing with said clutch-gear, and means connecting said rack to said plunger mechanism.

10. The combination with a shaft, a plunger mechanism to lower and raise said shaft, mechanism to rotate said shaft after it has been lowered and raised, strand-grippers secured to said shaft, means to open one of said grippers while said shaft is in its depressed position and mechanism to close said open gripper.

11. The combination with a shaft, strand-grippers secured to and revolving with said shaft, means to plunge said shaft downward, both of said grippers being closed while being carried downward, a striker to open one of said grippers in its downward movement, mechanism to carry said shaft upward and mechanism to rotate said shaft at the conclusion of its upward movement.

12. The combination with a shaft, strand-grippers secured to and revolving with said shaft, means to plunge said shaft downward, both of said grippers being closed while being carried downward, a striker to open one of said grippers in its downward movement, mechanism to carry said shaft upward, means to rotate said shaft at the conclusion of its upward movement and a second striker to close said open gripper.

13. The combination with a plunger-shaft, of a clutch-gear surrounding said shaft, a rocker-bar secured to said shaft, a rack meshing with said clutch-gear and connected to said rocker-bar, and a spring to normally draw said rack in one direction.

14. The combination with a plunger-shaft, of a clutch-gear surrounding said shaft, to revolve said shaft in one direction, a rocker-bar actuated by said plunger-shaft, a rack meshing with said clutch-gear and connected to said rocker-bar, a stop to prevent said shaft from revolving after having passed a predetermined point and a spring to normally force said rack in one direction.

15. The combination with a plunger-shaft, of mechanism to reciprocate said shaft, a rocker-bar secured to said shaft, a clutch-gear secured to said shaft to actuate said shaft in one direction, a rack meshing with said gear and connected to said rocker-bar, a spring to hold said rack under tension, a carrier secured to said plunger-shaft and a guide to prevent the rotation of said carrier while reciprocating in its plunger movement for a predetermined distance, said carrier after leaving said guide being permitted a rotary movement.

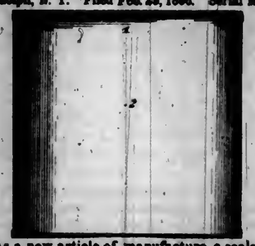
16. The combination with a plunger-shaft, a rocker-bar secured to said shaft, a clutch-gear secured to said shaft, a rack meshing with said gear and connected to said rocker-bar, a spring to hold said rack under tension, and grippers secured to said shaft adapted to contain a carrying-strand.

17. The combination with a plunger-shaft, of a rocker-bar secured to said shaft, a clutch-gear secured to said shaft, a rack meshing with said gear and connected to said rocker-bar, a spring to hold said rack under tension, grippers secured to said shaft to contain a carrying-strand and a knife positioned in the path of one of the grippers.

18. The combination with a plunger-shaft, of a rocker-bar secured to said shaft, a clutch-gear secured to said shaft, a rack meshing with said gear and connected to said rocker-bar, a spring to hold said rack under tension, grippers secured to said shaft adapted to contain a carrying-strand, a knife positioned in the path of one of said grippers and a striker to open the remaining gripper.

19. The combination with a hollow stock having a projection, of a spring-actuated jaw working within said stock, said jaw being adapted to work against said projection, a slot within said stock, a pin extending from said jaw through said slot, and a spring to engage said pin to hold the same, substantially as and for the purpose set forth.

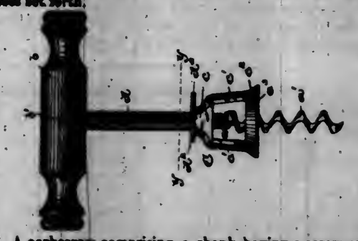
587,899. RECEPTACLE FOR MERCHANDISE. ARTHUR E. WILLIAMS, Randolph, N. Y. Filed Feb. 29, 1896. Serial No. 581,304. (No model.)



Claim.—As a new article of manufacture, a sealed receptacle or package having an opaque lid or cap, and an identifying-tag arranged in contact with the inner surface of the lid or cap and detachably secured thereto by solder engaging the edge thereof, substantially as specified.

587,900. CORKSCREW. WILLIAM A. WILLIAMSON, Newark, N. J. Filed Dec. 3, 1896. Serial No. 614,916. (No model.)

Claim.—1. A corkscrew comprising, a handle, a shank having a screw end and a shoulder immediately above said screw end, a yoke loosely and rotatively arranged on said shoulder, and an independent tube on said shank, immovably arranged between the upper portion of said yoke and the handle by having its upper end fixed in said handle, and a washer on said shank, between the upper surface of said yoke and the lower end of said tube, substantially as and for the purposes set forth.



2. A corkscrew comprising, a shank having a screw end and a shoulder, a yoke rotatively arranged on said shoulder, an independent tube on said shank, and a washer on said shank between said yoke and the one end of said tube, substantially as and for the purposes set forth.

3. A corkscrew comprising, a shank having a screw end and a shoulder, a yoke U on said shoulder, consisting, essentially, of a hub or collar *c*, arms *c'*, and an annular rim or support c^2, having a flat under surface c^3, an independent tube on said shank, and a washer on said shank between the hub or collar of said yoke and the one end of said tube, substantially as and for the purposes set forth.

4. A corkscrew comprising, a shank having a screw end and a shoulder, a yoke rotatively arranged on said shoulder, a tube on said shank, a washer on said shank, and a cutter on said washer, substantially as and for the purposes set forth.

587,901. CONVEYER. WILLIAM W. WILSON, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Sept. 5, 1890. Serial No. 363,969. (No model.)



Claim.—1. In a carrier or conveyer, the combination of a sprocket-link having a projection extending from one face, a flight formed in two sections, one of which is secured directly to the said projection on the link, and means, independent of the connection between the said flight-section and the link, for holding the other flight-section in position on the opposite side of the link from that aforesaid and connecting said flight-sections securely together, substantially as set forth.

2. In a carrier or conveyer, the combination of a sprocket-link having on each side bar a lug or projection, a flight-section secured to said lugs, a second flight-section arranged on the opposite side of the link from the first said flight-section, and devices, independent of the link and the flight-fastening devices thereon, for connecting the two flight-sections together and supporting the second said flight-section, substantially as set forth.

3. In a carrier or conveyer, the combination of a chain-link having two oppositely-extending lugs or projections arranged in different transverse planes, a flight-section arranged in a plane between said lugs or projections and connected to one of the said lugs or projections, and another flight-section arranged on the opposite side of the link in line with the first said flight-section and secured to the other lug or projection, substantially as set forth.

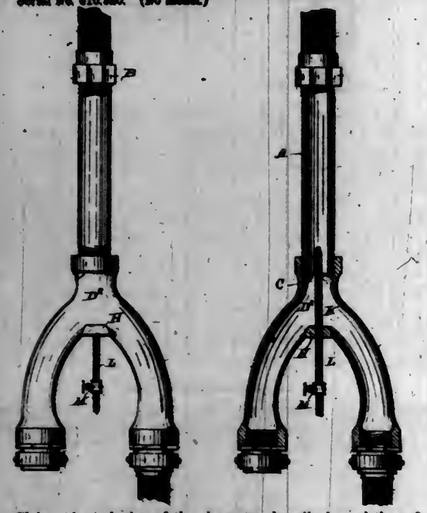
4. In a carrier, the combination of a chain-link having a lug or projection extending from each side bar in one direction, and a projection extending in the opposite direction from one of its end bars, and out of line with the projections on the side bars, a flight-section arranged on one side of the chain-link and secured to the projections on the side bars, thereof, another flight-section arranged on the opposite side of the link and connected with the projection on the end bar, and means, independent of the link, for connecting said flight-sections together, substantially as set forth.

5. In a carrier, the combination of a chain-link having a lug or projection extending from each side bar, and lying within the side lines of the link, and a projection extending from an end bar, between the side bars, in a direction opposite to that of the aforesaid projections, a flight-section connected to the lugs on the side bars,

and another flight-section connected to the lug or projection on the end bar, substantially as set forth.

6. The combination of a chain-link having a projection extending from one side thereof, the flight formed of two sections united by a tongue-and-groove joint on a line in the plane of the link and each section having formed in its inner edge recesses for the side bars of the link, means for fastening one of the sections of the flight to the aforesaid projection on the link, and means, independent of the link for fastening the parts of the flight together, and holding the second said flight-section in position, substantially as set forth.

587,902. DEVICE FOR DRAINING, DRYING, AND PRESERVING HOSE-PIPES. WILLIAM P. WILSON, Trenton, N. J. Filed Nov. 3, 1896. Serial No. 610,980. (No model.)

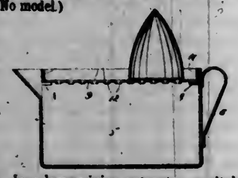


Claim.—1. A device of the character described consisting of a main pipe, a heading coupled therewith, diverging branch pipes leading from the heading, an injector located centrally in the heading and projecting forward in line with the center of the main pipe, a steam-supply pipe for the injector, and detachable couplings at the ends of the pipe, substantially as described.

2. A device of the character described consisting of a main pipe, a branch pipe leading thereto, an injector projecting into the main pipe beyond the mouth of the branch pipe, a valve steam-supply pipe for the injector, and hose-couplings for the main and branch pipes, substantially as described.

3. In a device for drying hose or pipes, the combination with a hollow member having an injector leading thereinto, of a hose-coupling on the hollow member in advance of the injector.

587,903. LEMON-JUICE EXTRACTOR AND GRATER. HARRIET H. WINES, Westhampton Beach, N. Y. Filed May 7, 1897. Serial No. 635,487. (No model.)



Claim.—1. In a lemon-juice extractor, a pitcher or other vessel provided with inwardly-directed supports near the top thereof, a perforated plate which is adapted to rest on said supports, and a cone secured to said plate, adjacent to one end thereof, the sides of which are provided with radial ribs or projections, substantially as shown and described.

2. In a lemon-juice extractor, a pitcher or other vessel provided with inwardly-directed supports near the top thereof, a perforated plate which is adapted to rest on said supports, and a cone secured to said plate, the sides of which are provided with radial ribs or projections, the bottom of said plate being adapted to serve as a grater, substantially as shown and described.

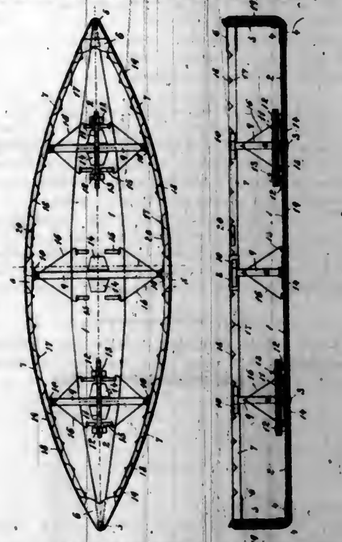
3. In a lemon-juice extractor, a pitcher or other vessel provided with inwardly-directed supports near the top thereof, a perforated plate which is adapted to rest on said supports, and a cone secured to said plate, the sides of which are provided with radial ribs or projections, the bottom of said plate being adapted to serve as a grater, and said pitcher or vessel being provided at one side with a handle and at the opposite side with a discharge-spout, substantially as shown and described.

587,904. ROTARY ENGINE. NELSON WITTE, Alma City, Minn. Filed Jan. 13, 1897. Serial No. 619,075. (No model.)



Claim.—A rotary engine comprised of two head-plates, H, H', the head H being constructed with a hub portion having segmental spokes and a segmental stepped portion whose inner faces are arcs of a circle having for center a shaft-opening formed in said hub, a ledge formed on the lower edge of the head, the head H' bolted to said ledge and segmental stepped portion forming a fluid-space beneath the stepped portion, a cam and a shaft-bearing formed in said head, a shaft revoluble in said bearings, a piston-disk on the shaft between said heads, pistons movable in said disk, arms on the pistons carrying antifriction-rollers working in the cam-groove whereby said pistons are projected into the fluid-chamber on entering and withdrawn upon leaving the chamber, substantially as and for the purpose specified.

587,905. FOLDING BOAT. HARRY R. YOUNG, New Orleans, La. Filed Nov. 21, 1896. Serial No. 612,934. (No model.)



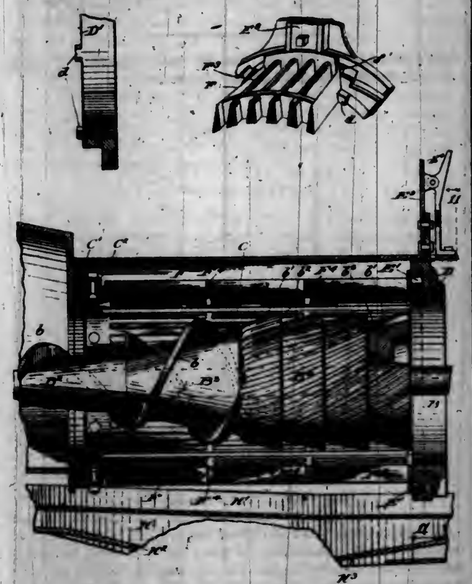
Claim.—1. A folding boat consisting of a bottom in sections connected on transverse hinge-lines, angle-irons on opposite sides of said hinge-lines, catches outside said angle-irons, substantially U-shaped ribs whose bases extend along the hinge-lines and fit removably between the angle-irons, braces resting upon the bases of the ribs with their extremities engaging the catches, uprights rising from the bottom, top rails attached to said uprights, and a cover attached to the rails, substantially as described and for the purpose set forth.

2. In a folding boat, the combination with a bottom composed of hinged sections, angle-irons secured thereto, substantially U-shaped ribs whose bases stand between said angle-irons, catches secured to the bottom, and braces engaging said catches and resting upon the upper faces of the rib-bases; of shoes at the ends of the bottom, uprights rising therefrom, sectional top rails secured to the uprights and to the arms of the ribs, and a flexible covering connected to the rails, substantially as described and for the purpose set forth.

3. A folding boat consisting of a hinged sectional bottom, means for holding it distended, substantially U-shaped ribs, eyes secured to the bottom at each side of the hinge-line, hooks in pairs attached to the arms of the ribs for engaging said eyes, sectional top rails attached to the ribs, and a cover attached to the rails, substantially as described.

4. A folding boat consisting of a bottom in sections connected on transverse hinge-lines, angle-irons and catches both secured to the bottom on opposite sides of said hinge-lines, substantially U-shaped ribs whose bases extend along the hinge-lines and fit removably between the angle-irons, braces resting upon the rib-bases and engaging the catches, eyes in the bottom at each side of the hinge-line, hooks attached to the rib-arms and engaging said eyes, uprights rising from the bottom, top rails attached to the uprights, and a cover attached to the rails, substantially as and for purpose set forth.

587,906. CORN-SHELLER. JOHN Q. ADAMS, Marseilles, Ill. Filed Oct. 19, 1896. Serial No. 609,302. (No model.)



Claim.—1. In a corn-shelling machine, the combination of the shelling-cone, with the cooperating cylinder, means for expanding uniformly one end of said cylinder so as to vary the diameter of that end, and connections for holding said cylinder unyieldingly in any desired position of expansion.

2. In a corn-shelling machine, the combination of the shelling-cone, with the cooperating cylinder composed of staves arranged substantially parallel to the axis of said cone, and means of simultaneously moving said staves at one end radially to the cone and retaining them unyieldingly in the position to which they have been moved.

3. In a corn-shelling machine, the combination of the corrugated shelling-cone, with the cooperating cylinder composed of skeleton staves arranged substantially parallel to the axis of said cone, means for simultaneously moving said staves at one end radially to the cone, and connections for retaining them unyieldingly in the position to which they have been adjusted.

4. In a corn-sheller, a shelling-cone; a shelling-cylinder within which the said cone revolves, comprising a series of skeleton staves forming a complete cylinder; means for holding the staves approximately fixed at one end; and a single mechanism adapted to adjust simultaneously all the said staves at their other end radially to and from the center of the cylinder.

5. In a corn-sheller shelling-cylinder, the ring E rotatably mounted at one end of the shelling-cylinder; the staves F each provided at one end with devices adapted to engage with the said ring E; means for holding approximately fixed the opposite ends of the said staves; and mechanism adapted to rotate the ring E.

6. In a corn-sheller, the ring C; the staves F loosely secured at one end thereof, and provided at their opposite ends with the lugs f'; the ring E rotatably mounted at the opposite end of the shelling-cylinder, and provided with the grooves E' adapted to receive the lugs f'; and means for rotating the ring E.

7. In a corn-sheller, the ring C; the skeleton staves F comprising the ribs F^6; means for securing the said staves loosely at one end to the ring C; the lugs f' and f^3 mounted upon the opposite free end of the said staves; the base-ring B provided with the flange D' and the lug d'; the adjusting-ring E, provided with the grooves E' adapted to receive the lugs f' and f^3; and means for rotating the said adjusting-ring, and for holding it in such rotated position, substantially as described.

8. In a corn-sheller, a riddle or sieve H; means attached to one end thereof adapted to reciprocate the said riddle; a spring-hanger pivotally connected to the framework of the machine supporting the free end of the riddle; and supplemental springs interposed on each side of the said hanger midway thereof between the hanger and the framework of the machine.

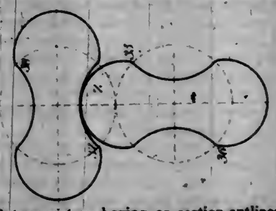
9. As a spring-mounting for a shaking-sieve or other similar device, a hanger L connected with the said sieve and pivotally connected with the framework of the machine; and supplemental springs interposed between the said hanger midway thereof and the framework of the machine on each side of the said hanger.

10. As a spring-mounting for shaking-sieves, &c., the spring-hanger L pivotally connected with the framework of the machine; and the coiled expansion-springs L' and L^3.

11. As a spring-mounting for shaking-sieves, &c., the spring-hanger H pivotally mounted in the framework of the machine; the spring L interposed between the said hanger and the framework of the machine; the pivoted plate H; the spring L^3 interposed between the hanger and the said pivotal plate; and means for adjusting the free end of the said pivoted plate to and from the framework of the machine to alter the tension of the springs L' and L^3.

587,907. PISTON FOR ROTARY PUMPS, BLOWERS, &c. WILLIAM L. ARMS and THOMAS GRAY, Terre Haute, Ind. Filed July 8, 1893. Serial No. 479,976. (No model.)

Brief.—The piston outline is formed by a point on any closed curve, not a circle, having a periphery equal to one-fourth the pitch-line, when said curve is rolled alternately on the inside and outside the pitch-line.



Claim.—Rotary pistons having as section-outlines odontoidal curves generated by rolling outside and inside the pitch-circle a closed curve having unequal diameters and having a periphery equal to one-fourth that of the pitch-circle, substantially as described.

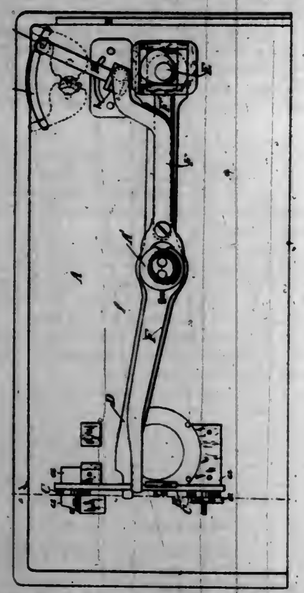
587,908. SEWING-MACHINE. WILLIAM M. ANNEHAN and EDWIN J. TOOF, New Haven, Conn., assignors to said Toof. Filed Oct. 24, 1890. Serial No. 369,245. (No model.)

Claim.—1. In a sewing-machine, the combination with the feeding device and its operating-lever, of a stitch-regulating mechanism, comprising an adjusting-lever having a groove therein to receive and guide a pin located on said feed-operating lever, and provided with two pins or projections arranged in a line parallel with the said groove therein, a stationary plate having two guideways in which the pins on said lever extend to pivotally support the latter, means for holding said lever with the groove therein in a stationary adjusted position, and means for giving vertical movement to the feed, substantially as described and for the purpose set forth.

2. In a sewing-machine, the combination with the feeding device and its operating-lever, of a stitch-controlling lever having a guideway therein to receive a pin or projection on said operating-lever, and a pair of pivoted disk-levers operatively connected whereby the arm with which each is provided may be moved simultaneously to and from a given point, whereby the throw of the stitch-controlling lever is restricted at the will of the operator, and means for giving vertical movement to the feed device, substantially as set forth.

3. In a sewing-machine, the combination with the feed-bar, and means for giving the same its vertical movement, of a centrally-pivoted vibrating lever engaging at one end with said feed-bar, a pivoted adjusting-lever provided with a groove therein to receive and guide

a pin or projection on said vibrating lever, means for holding said grooved adjusting-lever in a stationary adjusted position, and a pair of pivoted adjustable stops arranged to move simultaneously for regulating the movement of said adjusting-lever, substantially as set forth.



4. The combination in a sewing-machine, with the driving-shaft, feed-bar, two crank-disks supporting said bar and united by a connecting-rod, and means operating said crank-disks to give a vertical movement to the connected feed-bar, of a centrally-pivoted vibrating lever connecting at one end with said feed-bar, and at or near its opposite end provided with a pin or projection thereon, a pivoted lever provided with a groove arranged to receive said pin or projection, means for holding said grooved lever in a stationary adjusted position, and a driving-rod connecting with said vibrating lever and operated by a cam or eccentric located on the driving-shaft, substantially as and for the purpose set forth.

5. In a sewing-machine, the combination with the driving-shaft, and feed-bar, of two crank-disks supporting said feed-bar and united by a pivotally-connected rod, two centrally-pivoted driving-levers connecting with said feed-bar and connecting-rod respectively, and means for operating said levers from the driving-shaft, substantially as described and for the purpose set forth.

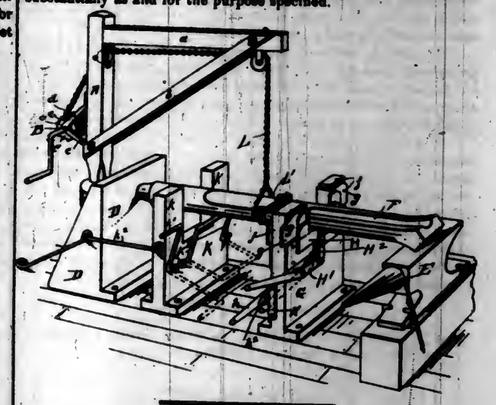
6. In a sewing-machine, the combination with the feed-bar, means for giving rise and fall to the same, and a vibrating lever connecting at one end with said feed-bar, of a feed-adjusting lever having two pins or projections extending within guideways in the bed-plate to move and pivot therein, and provided with a transverse groove or guideway to receive a pin or projection on said vibrating lever, and with a guiding-pin which extends and operates within a groove in the bed-plate, and means for adjusting said feed-adjusting lever, substantially as and for the purpose set forth.

587,909. APPARATUS FOR SHARPENING AND DRESSING DRILL-BITS. BENJAMIN F. ANDERSON, Belmore, Ohio. Filed Dec. 24, 1896. Serial No. 616,955. (No model.)

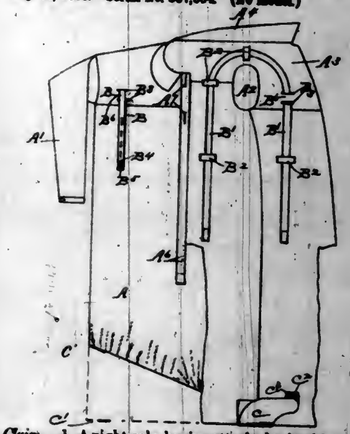
Claim.—1. An apparatus for sharpening and dressing drill-bits, comprising a crane provided with an elevating chain or cord, a buffer or stop-block, the clamping-head G, provided with jaws *g*, L-shaped levers pivoted to the jaws, an operating-lever connected intermediately to the L-shaped levers, and means for holding the jaws in fixed adjustment, substantially as and for the purpose specified.

2. An apparatus for sharpening and dressing drill-bits, comprising a clamping-head provided with jaws, and means for operating the jaws, the lifting-head H, and means for operating the lifting-head, the block K, provided with the guide-posts *k*, and the crank-bar K', and a buffer, all arranged substantially as and for the purpose specified.

3. An apparatus for sharpening and dressing drill-bits comprising a buffer or stop-block, a clamping-head provided with clamping-jaws, and means for operating the jaws, a crank-bar, and a lifting-crane provided with an elevating chain or cord, and the clamp L', substantially as and for the purpose specified.



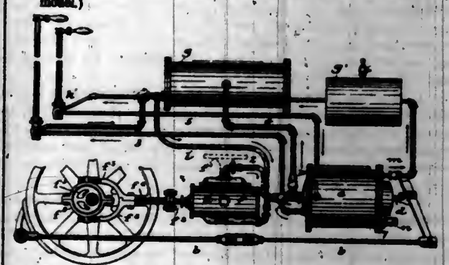
587,910. NIGHT-ROBE. COLLINS ARNOLD, Albany, N. Y. Filed July 24, 1896. Serial No. 599,604. (No model.)



Claim.—1. A night-robe having attached to its skirt a foot-pocket with an open upper end and a closed toe end, said pocket being secured at its upper open end to the lower end of the skirt, and means for detachably securing the closed lower end of the pocket, when the latter is not in use, to the body of the skirt in a folded position to permit when desired the use of the garment without obstruction to the wearer by said pocket, substantially as described.

2. A night-robe having attached to its skirt a foot-pocket with an open upper end and a closed toe end, said pocket being secured at its upper open end to the lower end of the skirt, and means for elevating the skirt and pocket and securing them in a raised position, substantially as described.

587,911. BRAKE SYSTEM. FRANK M. ASHLEY, Hawthorne, N. J. Filed June 18, 1895. Renewed July 8, 1897. Serial No. 643,864. (No model.)



Claim.—1. In a brake system, the combination with a main reservoir, a brake-cylinder and a pump, located apart from but connected with each other, of a gas or fluid normally circulating continuously in open communication with said reservoir, pump and brake-cylinder in the order named, and means to prevent the outflow of said gas or fluid from the brake-cylinder, for the purpose set forth.

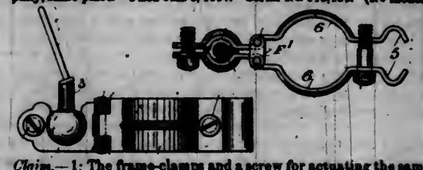
2. In a brake system, the combination with a main reservoir, a brake-cylinder and a pump, located apart from but connected with each other, of a gas or fluid circulating continuously through said reservoir, pump and brake-cylinder in the order named, and a valve located in said system at some point other than intermediate said pump and brake-cylinder, whereby the closing of said valve will effect the putting on of the brakes, substantially as described.

3. In a brake system, the combination with a main reservoir, a brake-cylinder and a pump located apart from, but connected with each other, said pump being operated by the movement of the vehicle, of a gas or fluid circulating continuously through said reservoir, pump and brake-cylinder, in the order named, and a valve located in said system at some point other than intermediate said pump and brake-cylinder, whereby the closing of said valve will effect the putting on of the brakes substantially as described.

4. In a brake system, the combination with a main reservoir, a brake-cylinder and a pump, located apart from but connected with each other, of a gas or fluid normally circulating continuously in open communication with said reservoir, pump and brake-cylinder in the order named, and means to prevent the outflow of said gas or fluid from the brake-cylinder, said means being provided with means to allow said gas or fluid to pass from the brake-cylinder when the pressure reaches a predetermined point, as and for the purpose set forth.

5. The combination of a vehicle, a bracket pivoted vertically thereto, and capable of reciprocatory motion with regard to the same, and a pump horizontally pivoted to said bracket and having its piston-rod vertically pivoted to a strap embracing a cam on the axle of the vehicle, substantially as described.

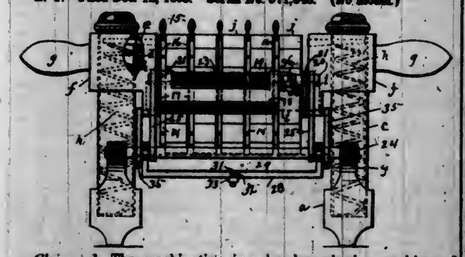
587,912. BICYCLE-LAMP SUPPORT. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Jan. 6, 1897. Serial No. 618,126. (No model.)



Claim.—1. The frame-clamps and a screw for actuating the same, and pivotal connections at one end of the clamps, in combination with a lamp-post having a ball at one end and a bend near the middle portion, and socket-plates recessed to receive the ball and pivotal connections at one end to the frame-clamps and a clamp-screw at the other end, substantially as specified.

2. The combination with the lamp-post, of a frame-clamp and a post-clamp and their screws, a hinge uniting the frame-clamp and post-clamp at one side, and the top and bottom connections F' for uniting the hinge to the other side of the clamp, substantially as specified.

587,913. NUMBERING-MACHINE. EDWIN G. BATES, New York, N. Y. Filed Dec. 12, 1895. Serial No. 571,946. (No model.)



Claim.—1. The combination, in a hand numbering-machine, of tubular end standards, springs therein, handle-blocks adapted to slide on the standards and normally retracted by said springs, a non-rotary axis between said blocks, type-wheels on the axis, and means for moving them consisting of a stepped pawl-plate at a distance to one side of the axis but supported by arms pivoted on it, and operated by moving the handle-blocks on the standards against the tension of their springs, substantially as described.

2. The combination, in a hand numbering-machine, of tubular end standards, springs therein, handle-blocks adapted to slide on the standards and normally retracted by said springs, a non-rotary axis between said blocks, type-wheels having felt number-type around their periphery on the axis, and means for moving them consisting of a stepped pawl-plate at a distance to one side of the axis but held by arms pivoted on it, and operated by moving the handle-blocks on the standards against the tension of their springs, substantially as described.

3. In a numbering-machine, the combination, of two bases having sockets in their upper sides, and having brackets, tubes carrying springs in said sockets, two handle-blocks, one on each tube with handles projecting therefrom, a shaft between the handle-blocks, numbering-wheels thereon, means for turning the wheels consisting of a stepped pawl-plate, and operating-links and a pivot-rod for the links connecting the brackets of the bases and connected to the stepped pawl to move it when the handle-blocks are depressed.

4. In a numbering-machine, the combination of two bases and two slotted tubes, springs in the tubes, handle-blocks on the tubes, pins carried by the handle-blocks and extending through the slots above the springs, whereby the blocks are normally raised on the tubes, a shaft between the handle-blocks, wheels rotatable thereon, a stepped pawl-plate having bearings on said shaft, and means for operating said pawl-plate by movement of the handle-blocks.

5. In a numbering-machine, the combination of two bases with brackets, slotted tubes carried by said bases, springs in the tubes, handle-blocks on the tubes, pins carried by the handle-blocks and extending through the slots above the springs, a shaft between the handle-blocks, wheels rotatable thereon, a stepped pawl cooperating with the wheels to move them, and slotted links carried by the said brackets, the stepped pawl-plate having parts extending into the slots of the links, whereby the stepped pawl is moved by movement of the handle-blocks.

6. In a numbering-machine, the combination of two bases with projecting brackets, slotted tubes carried by said bases, springs in the tubes, handle-blocks on the tubes, pins carried by the handle-blocks and extending through the slots above the springs, a shaft between the handle-blocks, wheels rotatable thereon, a stepped pawl-plate cooperating with the wheels to move them, and slotted links carried by the said brackets, the stepped pawl-plate having parts extending into the slots of the links, an inking-pad holder also pivoted to said projecting arms of the bases and links between the holder and handle-blocks.

7. The combination in a numbering-machine, of end slotted tubes, springs therein, handle-blocks on the tubes normally raised by said springs, a shaft between the handle-blocks, wheels rotatable thereon, a stepped pawl-plate for turning all of said wheels in regular order, and separate pawls for moving the wheels separately in any desired order.

8. The combination in a numbering-machine, of end slotted tubes, springs therein, handle-blocks on the tubes normally raised by said springs, a shaft between the handle-blocks, wheels rotatable thereon, a stepped pawl-plate for turning all of said wheels in regular order, and separate pawls for moving the wheels separately in any desired order, said separate pawls being centered on the same shaft as the wheels.

9. The combination with a type-wheel, of a drop-cipher having a radially-movable block, a lever carried by said block and having an arm adapted to rest on the axis, said axis having a groove into which said arm can move when the lever is tilted on its pivot, thus allowing the cipher and the block carrying it to drop out of the printing-plane.

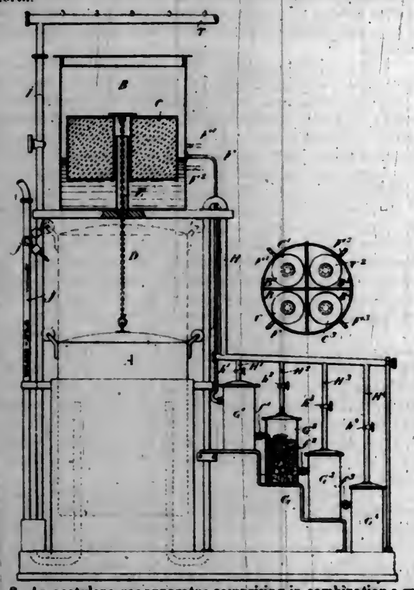
10. The combination with a type-wheel, of a drop-cipher having a radially-movable block, a lever carried by said block and having an arm adapted to rest on the axis, said axis having a groove into which said arm can move when the lever is tilted on its pivot, thus allowing the cipher and the block carrying it to drop out of the printing-plane, and a pin 6 extending where it can be reached from the outside of the machine, for tilting the lever.

11. The combination with a type-wheel, of a drop-cipher having a radially-movable block supporting said cipher, a groove in said block, a lever pivoted in said groove, a spring tilting the lever in one direction, means for tilting the lever in the opposite direction, an axis for the type-wheel, said axis being grooved, and a hooked arm carried by the lever and adapted to move into said groove and to engage one of the sides thereof.

587,914. APPARATUS FOR PRODUCING ACETYLENE GAS. CHARLES F. J. B. BERNERIN, Paris, France, assignor to the Compagnie du Gaz Nouveau, same place. Filed Oct. 31, 1896. Serial No. 610,674. (No model.)

Claim.—1. An acetylene-gas apparatus comprising in combination a gas-generator, an extensible gas-receiver, a water-reservoir, a pipe leading from said reservoir to said generator, and a float contained in the said reservoir and attached to the movable part of the gas-

receiver in such manner that when the float descends with the said movable part it will cause the rise of the level of the water in the said reservoir to the orifice of the said pipe, substantially as herein set forth.



2. An acetylene-gas apparatus comprising in combination a gas-generator composed of several carbid-receivers arranged in steps and connected by siphon-pipes having detachable couplings, an extensible gas-receiver, a water-reservoir, a pipe between the said reservoir and the first carbid-receiver, and a float contained in said reservoir and connected with the movable part of the gas-receiver in such manner that when said float descends with said movable part it causes the level of the water in the reservoir to rise to the orifice of the said pipe, substantially as herein set forth.

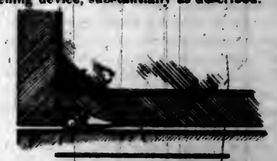
3. An acetylene-gas apparatus comprising in combination a gas-generator composed of several carbid-receivers, an extensible gas-receiver, a water-reservoir and pipes connecting the several carbid-receivers with the said water-reservoir at different levels, and a float contained in the said reservoir and attached to the movable part of the gas-receiver in such manner that when the float descends with the said movable part it causes the rise of the water in the reservoir up to the orifices of one after another of the said pipes in succession and so conducts the water successively into the corresponding carbid-receivers, substantially as herein set forth.

4. An acetylene-gas apparatus comprising in combination a gas-generator composed of several carbid-receivers, an extensible gas-receiver, water-reservoirs in number equal to the carbid-receivers, pipes connecting the said receivers with the said reservoirs at different levels, and a float in each water-reservoir, all the floats being connected with the movable part of the gas-receiver in such manner as to be successively depressed during the descent of the latter to produce the rise of the levels of the water in the several reservoirs successively up to the openings of the pipes which conduct it to the corresponding carbid-receivers, substantially as herein set forth.

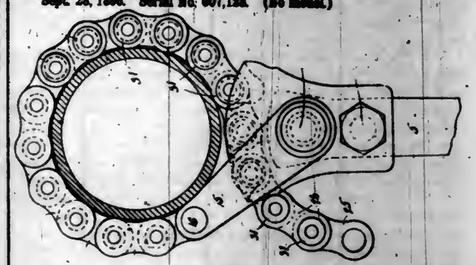
5. An acetylene-gas apparatus comprising in combination a gas-generator simple or multiple, an extensible gas-receiver, one or more water-reservoirs, one or more pipes between the said reservoir or reservoirs and the said gas-generator, means for preventing the level of the water from descending below a certain limit in said reservoir or reservoirs, and a float in each reservoir attached to the movable part of the gas-receiver in such manner that when the float descends with the said movable part it produces the rise of the level of the water in one reservoir up to the orifice of its respective pipe, substantially as herein set forth.

587,915. SASH-HOLDER. GEORGE W. BECK, Hamilton, Tex. Filed Oct. 16, 1896. Serial No. 609,075. (No model.)

Claim.—A sash-holder consisting of a leaf-spring adapted to be secured at one end to the sash and having journals in its free end, a roller mounted to revolve in said journals, said roller being substantially square in cross-section and provided with a projecting tooth at each of its four corners, and a flat strip of metal adapted to be secured to the window frame to be engaged by the flat portions of the roller, said strip having a longitudinal series of perforations into which the teeth on the roller enter, whereby the sash may be held in its adjusted position without the use of a bolt or other similar positive fastening device, substantially as described.



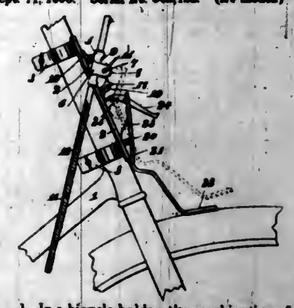
587,916. PIPE-WRENCH. JOSEPH BELL, Troutdale, Oreg. Filed Sept. 28, 1896. Serial No. 607,122. (No model.)



Claim.—1. The herein-described wrench, comprising a handle, provided with a head having side jaws which project at the end thereof, and in line with the handle, said side jaws being circular or segmental in form at their outer ends and provided at their inner sides adjacent to said outer ends with sprockets or teeth, and a chain, provided at one end with a yoke, between the sides of which the head of the handle is pivoted, the free end of said chain being adapted to be passed through said yoke and between the jaws of the head, and the links of the chain being provided with lugs or projections which are also adapted to pass through said yoke, and with which said sprockets or teeth on the jaws of the head of the handle are adapted to engage, substantially as shown and described.

2. A wrench, comprising a handle, provided at one end with a head, having side jaws which project therefrom, and which are provided with sprockets or teeth on their inner sides which are arranged in the form of a segment, and a chain provided at one end with a yoke, to the cross-head of which said chain is connected, and between the sides of which the head of the handle is pivoted, the free end of the chain being adapted to be passed through said yoke, and between the jaws of the head of the handle, and the links of the chain being provided with lugs or projections in connection with which said sprockets or teeth are adapted to engage, substantially as shown and described.

587,917. BICYCLE-HOLDER. JOHN F. DEPEERY, Brooklyn, N. Y. Filed Sept. 11, 1895. Serial No. 562,122. (No model.)



Claim.—1. In a bicycle-holder, the combination of a clamp to be secured to the frame of the bicycle, a tubular bearing thereon, a set-screw in said bearing, sleeves having lugs engaging the said bearing and provided with overlapped and circumferentially-grooved ends engaged by said set-screw, rods slidable in said sleeves and means for adjustably securing said rods in said sleeves, substantially as set forth.

2. In a bicycle-holder, the combination of a clamp to be secured to the frame of the bicycle, a tubular transverse bearing thereon, sleeves having lugs turning in said bearing, said lugs being connected and arranged to turn together, rods slidable in the sleeves, and means for securing said rods adjustably in the sleeves, said rods being adapted, when the sleeves are swung pivotally, to fold along the frame of the bicycle, substantially as set forth.

3. In a bicycle-holder, the combination of a clamp to be secured to the frame of the bicycle, sleeves pivoted at opposite sides thereof and connected and arranged to swing together, a shaft arranged to turn on the frame and provided with a crank and having gears at opposite ends, and rods arranged to play through the sleeves and provided with longitudinal rack-faces engaged by said gears on the ends of the shaft, substantially as set forth.

587,918. PAPER-MAKING MACHINE. GEORGE L. BIDWELL, Warren Papermills, N. J., and SAMUEL G. REYNOLDS, Comstocks Bridge, Conn. Filed Aug. 4, 1896. Serial No. 601,563. (No model.)



Claim.—1. A cylinder paper-making machine, provided with an endless deckle adapted to contact with part of the periphery of the cylinder-mold, the contacting portion of the said deckle being made of soft, spongy rubber, and the reverse side of harder and smoother rubber, substantially as shown and described.

2. A cylinder paper-making machine, provided with deckle-shifters each formed with a segmental recess next to the peripheral surface of the cylinder-mold, and a deckle having its inner run mounted in the said recess, substantially as shown and described.

3. A cylinder paper-making machine, provided with deckle-shifters each formed with a segmental recess next to the peripheral surface of the cylinder-mold, and a deckle having its inner run mounted in said recess, the outer run of the deckle returning on the outside of the deckle-shifter, as set forth.

4. A cylinder paper-making machine, provided with a deckle-shifter having a segmental inner recess, pulleys and idlers journaled on the outside of the deckle-shifter, and an endless deckle adapted to pass with its inner run through the said recess, and with its outer return-run over the said pulleys and idlers, substantially as shown and described.

5. A cylinder paper-making machine, provided with right-hand and left-hand threaded screw-rods adapted to turn simultaneously, deckle-shifters formed with nuts engaging the said screw-rods, and an endless deckle for each deckle-shifter, the inner run of each deckle passing through a segmental recess in the deckle-shifter, while the outer run passes over pulleys and idlers carried by the said deckle-shifter, substantially as shown and described.

6. A cylinder paper-making machine provided with a deckle-shifter having a series of telescoping bands, one of said bands in each set comprising the series being provided with a segmental recess, and an endless deckle adapted to pass with its inner run through said segmental recess, substantially as described.

7. A cylinder paper-making machine provided with a recessed segmental deckle shifter having segmental telescoping bands secured thereto, an endless deckle in the recess of the shifter and engaging the cylinder-mold with its inner run, right and left hand screw-rods upon which the shifter is mounted, sprocket-wheels on the rods, and chains on the sprocket-wheels, substantially as described.

8. A cylinder paper-making machine provided with a recessed segmental deckle-shifter, right and left hand screw-rods upon which the shifter is mounted, means for simultaneously operating the said rods, an endless deckle adapted to pass with its inner run in the recess of the shifter and segmental telescoping bands secured to the shifter, said bands being provided with segmental packing-rings adapted to roll between adjacent bands, substantially as described.

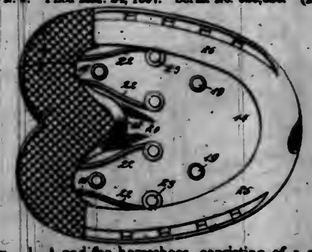
9. In a cylinder paper-making machine, the combination with a vat, a cylinder-mold mounted therein, and endless deckles, of segmental deckle-shifters recessed to receive the deckles, an extensible connection between the shifters and the vat, and means for simultaneously moving the deckle-shifters toward and from each other, substantially as described.

10. In a cylinder paper-making machine, the combination with a vat, a cylinder-mold mounted therein, and endless deckles, of segmental deckle-shifters recessed to receive the deckles, segmental telescopic bands secured to each shifter and to the vat, right and left screw-threaded rods upon which the deckle-shifters are mounted and with which the telescoping bands are loosely connected, and means for simultaneously operating the said rods, substantially as described.

11. In a cylinder paper-making machine, a deckle-shifter, comprising a bar adapted to carry the deckle, and a plurality of telescoping sections one of which is secured to the said bar, substantially as described.

12. In a cylinder paper-making machine, a deckle-shifter, comprising a segmental bar recessed to receive the deckle, and a plurality of segmental bands one of which is secured to the said bar, the said bands being provided with collars on their adjacent faces and having segmental packing-rings between the shoulders thereof, substantially as herein shown and described.

587,919. HORSESHOE-PAD. HORACE W. BILLINGTON, Jersey City, N. J. Filed Mar. 24, 1897. Serial No. 630,080. (No model.)



Claim.—1. A pad for horseshoes, consisting of a sole, a cushioned bearing-block at the heel of the sole, a protection-plate secured to the under face of said sole and extending over a portion of the cushioned block, and ties, substantially as described, arranged for connecting the cushioned bearing-block, protection-plate and sole, and for holding said parts in position, as set forth.

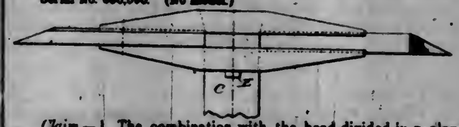
2. A pad for horseshoes, consisting of a sole, a cushion-block located at the heel portion of the sole, a protection-plate attached to the sole and engaging with the cushion-block, and tie devices secured to the sole and to the protection-plate, being carried through the cushion-block, as and for the purpose specified.

3. A pad for horseshoes, consisting of a sole, a cushion-block located at the heel portion of the sole, which cushion-block has an extension from its front edge, the body of the block being of greater thickness than the extension, a protection-plate attached to the sole and to the cushion-block and extending over the extension from the block, and means for securing the cushion-block to the sole, as and for the purpose specified.

4. A pad for horseshoes, consisting of a sole, a cushion-block located at the heel portion of the sole, which cushion-block has an extension from its front edge, the body of said block being of greater thickness than the extension, a protection-plate attached to the sole and to the cushion-block and extending over the extension from the block, and tie-rods secured to the sole and to the protection-plate, the said tie-rods being carried through the body portion of the cushion-block, as and for the purpose set forth.

5. A pad for horseshoes, consisting of a sole, a cushion-plate located at the heel portion of the sole, a protection-plate secured to the sole and being in engagement with the front portion of the cushion-block, the said protection-plate having fins which extend into the cushion-block, and tie devices substantially as described for holding the cushion-block firmly in position on the sole, as and for the purpose specified.

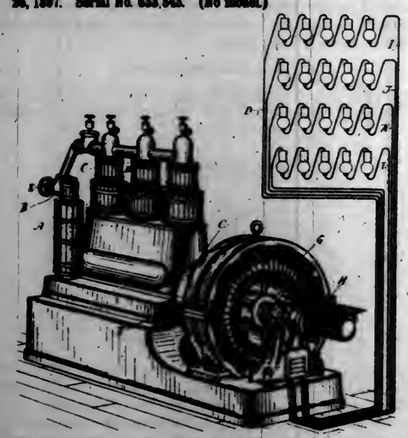
587,920. PICK. PETER RENOR, Fulda, Ohio. Filed Apr. 3, 1897. Serial No. 630,590. (No model.)



Claim.—1. The combination with the head divided in a plane perpendicular to the handle and having in the opposing faces of the parts narrow registering grooves of uniform section extending from end to end, of a handle passing centrally through both parts and fixed to one of them only, a wedge passing through the handle in position to force the loose part toward the other, and a flat-bar bit wider than the head, clamped between the plane faces of the parts, and provided with a rib fitting in the groove to hold the bit in line.

2. The combination with the longitudinally-divided head centrally perforated perpendicularly to the plane of division, and having its parts normally at a short distance from each other and longitudinally grooved as set forth, of a handle fixed in the perforation of one part and sliding loosely in that of the other, a flat bit wider than the head lying between the parts, having a thickness equal to their normal distance from each other and provided upon one face with a rib fitting one of the grooves, and a wedge passing through the handle and contiguous to the head.

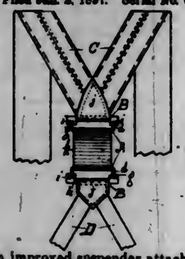
587,921. APPARATUS FOR GENERATING CONSTANT ELECTRIC CURRENTS. CHARLES H. BLACK, New Haven, Conn. Filed Apr. 26, 1897. Serial No. 633,843. (No model.)



Claim.—1. In an apparatus for generating a constant electric current, the combination with a steam-engine having a fixed point of cut off; of a constant-current dynamo connected up on the multicircuit plan, that is to say, with its working or distributing circuits connected in series with and between its independent armature-circuits, translating devices located in the said working or distributing circuits and arranged in series, and an automatic steam cut-off constructed and arranged to cut the steam off from the engine when the same exceeds its rated speed.

2. In an apparatus for generating a constant electric current, the combination with a steam-engine having a fixed point of cut off, of a constant-current dynamo connected up on the multicircuit plan, that is, with its working or distributing circuits connected in series with and between its independent armature-circuits, and an automatic cut-off constructed and arranged to cut the steam off from the engine when the same exceeds its rated speed, and consisting in a valve located in a passage which conveys steam to the engine, a trip-lever, and a spring-controlled ball-regulator driven by the engine, and connected with the trip which it actuates to move and release the valve, and allows the same to close when the engine exceeds its rated speed.

587,922. SUSPENDER ATTACHMENT. JOHN B. BLANKENSHIP, Houston, Mo. Filed Jan. 2, 1897. Serial No. 617,733. (No model.)



Claim.—1. An improved suspender attachment, consisting of a wire rod A, bent first upward and then outward, and having a flattened head *e*, slightly beveled on the under side; a bar B, having depending ends *g*, provided with horizontal slots *h*, also slightly beveled to correspond with the bevel on the head *e*, and having a circular enlargement *i*, at the outer end, to receive the head *e*, of the rod A, substantially as set forth.

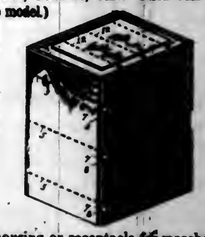
2. An improved suspender attachment, consisting of a rod A, adapted to support an elastic band, and having a flattened head at each end thereof turned at right angles to the body, and adapted to rest in slots *h*, of a bar B, said slots having an enlarged opening at their outer ends to admit the heads *e*, said bar B, adapted to be attached to a suspender-end or shoulder-strap, substantially as set forth.

3. The suspender attachment consisting of a rod A, having upturned ends *d*, the extreme ends flattened into heads *e*, and bent outward in the same direction; the bar B, having depending slotted ends *g*, one end of said slots being enlarged to admit the heads *e*, of the rod A, and the circular elastic band *k*, substantially as shown and described.

4. In combination with the shoulder-straps and ends of suspenders, the rod A, having the bent-up portions *d*, and the heads *e*, beveled on the under sides; the bar B, having the depending portion *g*, provided with the slots *h*, also beveled to correspond with the bevel *n*, on the heads *e*; circular openings *i*, and the elastic band *k*, substantially as set forth.

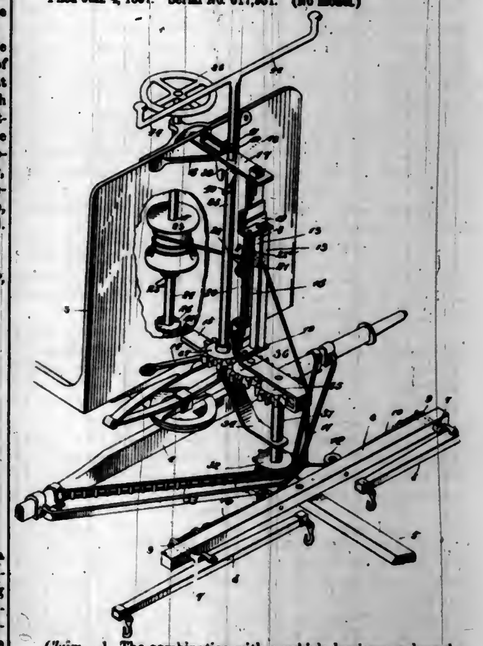
5. The combination in a suspender attachment, of the rod A, having the upturned portions *d*, and the flattened heads *e*, with the bar B, having depending ends *g*, provided with slots *h*, and the elastic bands *k*, substantially as set forth.

587,923. RECEPTACLE FOR MERCHANDISE IN TRANSIT. HENRY D. BOKOP, Defiance, Ohio. Filed Jan. 25, 1897. Serial No. 620,517. (No model.)



Claim.—A housing or receptacle for merchandise formed of vertical strips and horizontal binding-strips, and continuous metallic binding-strips secured under the horizontal strips and passing entirely around the receptacle, the ends being secured together and sealed.

587,924. HORSE-DETACHER. JOSEPH L. BOUHA, Wessel, S. D. Filed Jan. 4, 1897. Serial No. 617,931. (No model.)



Claim.—1. The combination with a vehicle having a pole and a doubletree carried thereon, of a singletree, a bar attached to the singletree and movable in an opening in the doubletree, a spring-pressed pin carried by the doubletree and normally holding the bar, a flexible connection attached to the spring-pressed pin, a standard held rigidly on the vehicle, two parallel guide-bars mounted vertically on the standard and between which the flexible connection passes, a horizontal roller over which the flexible connection is passed, a plate carrying the roller and adjustable vertically on the standard, and a drum carried by the vehicle and around which the flexible connection is wound, substantially as described.

2. The combination of a whiffletree, a spring-pressed pin holding the whiffletree, a flexible connection attached to the spring-pressed pin, two parallel guide-bars between which the flexible connection is passed, a roller mounted transversely to the guide-bars and over which the flexible connection is passed, means for holding and adjusting the roller longitudinally with the guide-bars, and a drum around which the flexible connection is wound, substantially as described.

3. The combination of a whiffletree, a spring-pressed pin holding the whiffletree, a flexible connection attached to the pin, a standard, two guide-bars held parallel with the standard and between which the flexible connection is passed, a plate adjustable vertically on the standard, a roller held by the plate and transversely with reference to the guide-bars, a shaft, and a drum fixed to the shaft and around which the flexible connection is wound, substantially as described.

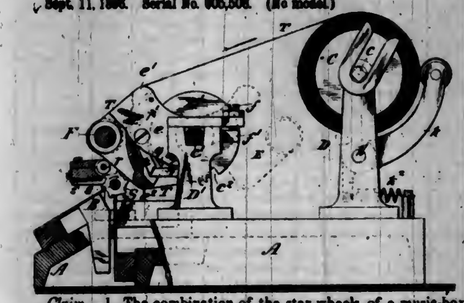
4. The combination with a vehicle-body and a front axle pivoted thereon, of a rotary shaft, a sprocket-wheel fixed to the shaft, a sprocket-chain connected to the axle and coacting with the sprocket-wheel, a revoluble and vertically-extending shaft, gearing connecting the two shafts, and a spring-pressed pin capable of holding the shaft in two longitudinal positions, the shaft being slidable to engage and disengage the gearing, substantially as described.

5. The combination with a vehicle having a body portion and a pivoted axle, of a rotary shaft, a sprocket-wheel fixed on the shaft, a sprocket-chain connected to the axle and to the sprocket-wheel, a second rotary shaft, and gearing connecting the two shafts, substantially as described.

6. The combination of a gear-wheel, a revoluble and slidable shaft provided with an annular groove and with an opening, a gear-wheel fixed to the shaft and meshing with the first-named gear-wheel, and a spring-pressed pin capable of bearing on the annular groove or of engaging the opening of the shaft, substantially as described.

7. The combination of a rotary and slidable shaft, gearing in connection with the shaft, a pin projecting from the shaft, a notched plate with which the pin may engage when the shaft slides, and a spring-pressed pin engaging the shaft, the shaft having an annular groove and an opening and the pin being capable of extending into the groove and into the opening to hold the shaft in either of two positions, substantially as described.

587,925. MUSICAL BOX. GUSTAVE BOURQUIN, Merchantville, N. J., assignor of one-half to Joseph Bornand, New York, N. Y. Filed Sept. 11, 1896. Serial No. 605,506. (No model.)



Claim.—1. The combination of the star-wheels of a music-box with a traveling tune-sheet, delivery and winding rolls therefor and a tension-frame between the said two rolls to tension the traveling tune-sheet said frame having two bearing edges to maintain said sheet in proper relation to the star-wheels, notwithstanding the variations in diameter of the winding and delivery rolls, substantially as described.

2. The combination of the star-wheels of a music-box with a traveling tune-sheet, delivery and winding rolls therefor and a swinging tension-frame having two bearing edges to maintain the traveling tune-sheet in proper relation to the star-wheels, substantially as described.

3. The combination of the star-wheels of a music-box with a traveling tune-sheet, delivery and winding rolls therefor and a swinging tension-frame, having two bearing edges and adapted to turn about the axis of the winding-roll, as and for the purpose described.

4. The combination of the star-wheels of a music-box with a traveling tune-sheet, delivery and winding rolls therefor and a swinging tension-frame having three bearing edges for the tune-sheet, substantially as described.

5. The combination of the traveling tune-sheet of a musical instrument with delivery and winding rolls therefor, a swinging tension-frame and a connection between said swinging frame and the winding-roll to turn the latter as the frame is being swung into operative position as and for the purpose described.

6. The combination of the traveling tune-sheet of a musical instrument with delivery and winding rolls therefor, a swinging tension-frame, a pawl-and-ratchet connection between the delivery-roll and said frame and a stop to disengage the pawl as the frame is turned into position, substantially as described.

7. The combination of the star-wheels of a music-box with a traveling tune-sheet, delivery and winding rolls therefor, a swinging tension-frame for the tune-sheet, and means for accurately adjusting its operative position, substantially as described.

8. The combination of a tune-sheet of a music-box with star-wheels and springs bearing on the star-wheels in a direction to tend to rotate them, whereby the teeth thereof may be projected into the perforations of the tune-sheet, as the latter travels along, substantially as described.

587,926. DRAWBRIDGE. WILLIAM H. BREITHAUPT, New York, N. Y. Filed July 3, 1896. Serial No. 597,980. (No model.)



Claim.—1. In an arch-drawbridge, the combination with a two-part hinged arch of a two-part floor suspended from said arch, the two parts of said floor being unconnected at their meeting ends.

2. In an arch-drawbridge, the combination with a two-part hinged arch, of a two-part hinged floor adapted to fold against said arch.

3. In a drawbridge, the combination with a two-part hinged arch, of a two-part floor hinged to said arch.

4. In a drawbridge, the combination of a two-part hinged arch; a two-part floor hinged to said arch; and suspenders between said floor and said arch.

5. In a drawbridge, the combination with a two-part hinged arch, of a floor suspended from said arch by hinged suspenders adapted to permit the folding of the floor against the arch.

6. In a drawbridge, the combination of a two-part hinged arch; a floor hinged to said arch; and hinged suspenders between said floor and said arch.

7. In a drawbridge, the combination with a two-part hinged arch, provided with a guide-joint at its center, of a two-part floor suspended from said arch.

8. In a drawbridge, the combination with a two-part hinged arch, provided with a guide-joint at its center, of a two-part floor hinged to said arch.

9. In a drawbridge, the combination with a two-part hinged arch, provided with a guide-joint at its center, of a two-part floor suspended from said arch by hinged suspenders.

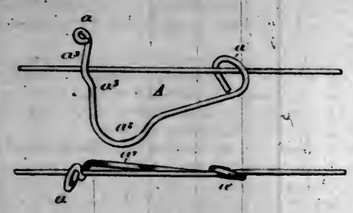
10. In a drawbridge, the combination of a two-part hinged arch, provided with a guide-joint at its center; a two-part floor hinged to said arch; and hinged suspenders between said floor and said arch.

11. In a drawbridge, an arch composed of two parts, one of said parts having one end convex and provided with a ridge-guide, and the other of said parts having one end concave and grooved, and provided with guide-arms, whereby, when said ends are in contact, a central joint is formed, for the purposes set forth.

587,927. CLOTHES-PIN. LOUIS J. BROWN, Muskegon, Mich., assignor to Joseph H. Brown, same place. Filed Mar. 16, 1895. Renewed Apr. 5, 1897. Serial No. 630,893. (No model.)

Claim.—A clothes-pin formed of a spring-wire with the end loops a a' and the reversed catches a^2 a^3, the loop a and catches a^2 a^3 being arranged in a plane at right angles to that in which lies the remainder of the pin; whereby it may be strung on the line, slid or turned in either direction, and sprung into position to clamp the garment on the line, in the manner described.

587,927.



587,928. PAPER-BAG FASTENER. OLIVER M. CHENEY, Topeka, Kans., assignor to The Mansfield Manufacturing Company, Arapahoe County, Colo. Filed Mar. 2, 1897. Serial No. 625,742. (No model.)

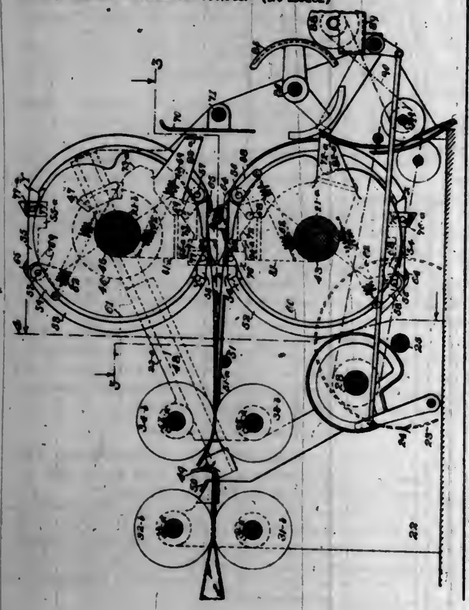


Claim.—1. As an article of manufacture, a fastener for the purposes stated, comprising a strip of pliable material of a length sufficiently greater than the width of the bag to which it is to be attached to admit of its ends being folded, first upward at right angles, then such folded end bent inward over the edges of the bag, and then the upper end of the angle extensions down over the top of the bag, substantially as and for the purposes shown and described.

2. The combination with the bag, of a pliable strip held therein near the upper end at one side said strip having its ends bent upon itself over the edges of the bag, and then upward and over the top of the bag to form fastener-clips, as specified.

3. The combination of the bag having its upper end gathered in horizontal folds, a strip of pliable material held in such folds, said strip having its ends projected beyond the side edges of the bag, bent upon themselves over the edges of the bag, then upward at right angles, with their extremities again bent down over the top of the bag as specified.

587,929. PAPER-BAG MACHINE. EDWARD R. CLAUSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Sept. 19, 1896. Serial No. 606,348. (No model.)



Claim.—1. In a paper-bag machine the combination of two oppositely-disposed continuously-rotating cylinders, each cylinder having a supplemental carrier pivoted thereto, operating means to simultaneously impart a vibratory motion to each member of the carriers to bring them in substantially the same plane during the forward movement of the cylinders and devices cooperating with the carriers, to hold and define the corners of the bag, all combined and operating to convert the tucked-paper tube into the diamond form, substantially as described.

2. In a paper-bag machine the combination of two cylinders supported for continuous rotation, and in substantially parallelism with one another, each cylinder having a supplemental carrier pivoted thereto, and also in substantial parallelism with the shafts of the cylinders, operating means to simultaneously impart a vibratory motion to each member of the carriers to bring them in substantially the same plane during the forward movement of the cylinders, devices cooperating with the carriers to hold and define the corners of the bag, all combined and operating to convert the tucked-paper tube into the diamond form, substantially as described.

3. The combination of two cylinders supported for continuous rotation, and in substantial parallelism with one another, each cylinder having a supplemental carrier pivoted thereto, mechanisms that cause to oscillate the carriers upon their pivots and devices cooperating with the carriers, to unfold a paper tube during their oscillation, and during the forward movement of the cylinders.

4. In a paper-bag machine the combination of two cylinders supported for continuous rotation, and in substantial parallelism with one another, each cylinder having a supplemental carrier pivoted thereto, and forming flat folding-surfaces on the cylinders, mechanisms to oscillate the carriers upon their pivots, means upon the carriers to hold and define the corners of the blank, while the carriers are oscillated outward, and the cylinders rotated forward substantially as described.

5. In a paper-bag machine the combination of two cylinders supported for continuous rotation, and in substantial parallelism with one another, each cylinder having a flat supplemental carrier pivoted thereto, mechanisms to simultaneously oscillate the carriers on their pivots to bring them outward into the same plane while the cylinders are moving forward, the oppositely-disposed bevel-edge side clips and the front clips with means for imparting an oscillatory motion thereto at predetermined intervals to hold and clasp the blank, while the cylinders move forward and the carriers oscillate, and the edge of the carriers form the primary transverse folding-line across the blank substantially as described.

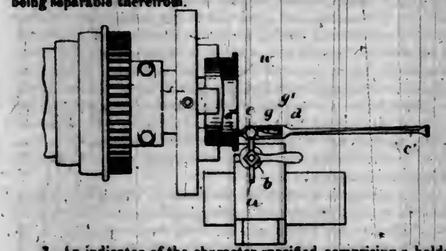
6. In a paper-bag machine the combination of two cylinders supported for continuous rotation and in substantial parallelism with one another, each cylinder having a flat supplemental carrier pivoted thereto, mechanisms to simultaneously oscillate the carriers on their pivots to bring them outward into the same plane while the cylinders are moving forward, the oppositely-disposed bevel-edge side clips, and the front clips with means for imparting an oscillatory motion thereto at predetermined intervals to hold and clasp the blank, while the cylinders move forward and the carriers oscillate, and the edge of the carriers form the primary transverse folding-line across the blank, the whole operating to convert the tucked-paper tube into the diamond form and press to flatten the same against the folder-plate substantially as described.

7. In a paper-bag machine the combination of two cylinders supported for rotation and in substantial parallelism with one another and provided with mutilations, supplemental carriers covering said mutilations when in their normal positions and forming flat folding-surfaces on the cylinders, means to simultaneously oscillate the carriers from the normal position into the position that the flat surfaces of the carriers form substantially one plane during the forward movement of the cylinders, the bevel-edged side clips pivotally mounted to the carriers and adapted to be oscillated into the tucks of the blank, and the front clips to hold the plies of the tube to the carriers, all combined and operating to unfold the tucked-paper tube into the diamond form, while the end of the carriers define the primary transverse folding-line across the bag-blank substantially as described.

587,930. INDICATOR FOR LATHES OR PLANERS. FRANK COFFIN, Cambridge, Mass. Filed Nov. 20, 1896. Serial No. 612,574. (No model.)

Claim.—1. An indicator of the character specified, comprising a holder, a lever pivotally connected with said holder and having an arm formed to engage a piece of work to be tested, another arm formed as an indicating finger or pointer, and a spring-extended telescopic dog secured at one end to the holder and bearing yieldingly at its other end on the lever.

2. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer; a spring-extended telescopic dog and a pivotal connection between one end of the dog and the holder, the other end of the dog bearing yieldingly on the lever and being separable therefrom.



3. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer, said lever having a plurality of recesses; and a lever-biasing device comprising a spring-pressed dog adjustably connected to the holder and adapted to engage either of the recesses of the lever.

4. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer, said lever having a central notch or recess on its median line, and two side recesses at opposite sides of said line; and a spring-pressed dog pivotally connected with the holder and adapted to engage either of the side recesses to bias the lever, and to engage the central recess to deprive the lever of bias.

5. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having its shorter arm formed as an indicating finger or pointer; and a work-engaging terminal on the shorter arm of the lever, said arm and terminal having provisions for an oscillating movement of the terminal in a plane at right angles to the oscillating movement of the lever on the holder.

6. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having its shorter arm formed as an indicating finger or pointer; a work-engaging terminal pivotally connected with the shorter arm of the lever, and provided with a central spur, and with a bearing bead or shoulder; and means for locking said terminal to the lever.

7. An indicator of the character specified, comprising a base or shank adapted to be engaged with a support, such as the tool-post of a lathe; a holder secured to said shank and provided with an extension terminating in a scale-plate, and with a pivoted dog-holder having a spring-pressed dog, a lever pivotally connected with said holder and having an elongated orifice surrounding said dog-holder and dog, the corners of said orifice at one end thereof forming dog-engaging recesses, between which is a central dog-engaging recess, one arm of the lever being formed as an indicating-finger cooperating with the scale-plate, while the other arm is provided with a terminal having a bearing-shoulder formed to engage the periphery of a piece of work, and a spur formed to engage an indentation in the face of a piece of work, said terminal being pivotally connected with the lever, and provided with means for locking it to the lever.

587,931. BURGLAR-ALARM. CLYDE COLEMAN, Chicago, Ill., assignor of two-thirds to Albert L. Deane and James W. Donnell, same place. Filed Jan. 11, 1897. Serial No. 618,776. (No model.)

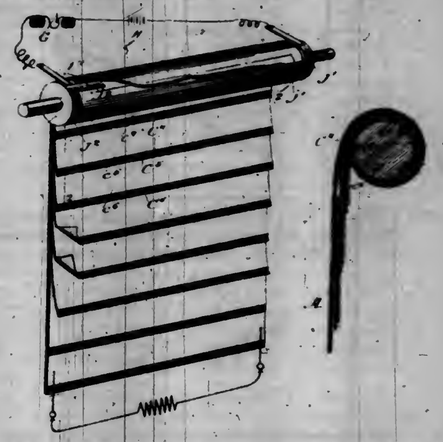
Claim.—1. In an electrical barrier, the combination with a plurality of parallel insulating-strips, of a plurality of parallel conducting-strips secured to the insulating-strips and arranged so as to overlap, substantially as set forth.

2. In an electrical barrier, the combination with a plurality of parallel insulating-strips arranged to overlap, of a plurality of parallel conducting-strips secured to the insulating-strips, substantially as set forth.

3. In an electrical barrier, the combination with a plurality of parallel insulating-strips arranged to overlap, of a plurality of parallel conducting-strips secured to the insulating-strips and arranged to overlap, substantially as set forth.

4. In an electrical barrier, the combination with a suitable backing, of a plurality of parallel insulating-strips each secured at one of its edges to said backing, said insulating-strips being arranged to overlap, and a plurality of parallel conducting-strips secured to the insulating-strips, substantially as set forth.

5. In an electrical barrier, the combination with a suitable backing, of a plurality of parallel insulating-strips each secured at one of its edges to said backing, and a plurality of parallel conducting-strips secured to the insulating-strips, said strips being arranged to overlap, shingle fashion, substantially as set forth.



6. In an electrical barrier, the combination with a backing, of a plurality of parallel insulating-strips secured thereto, a plurality of superposed parallel conducting-strips, insulated from each other by the insulating-strips, and means for maintaining a difference of potential in the parallel superposed conducting-strips, substantially as set forth.

7. In an electrical barrier, the combination of a flexible backing, a plurality of parallel insulating-strips secured to the backing so as to be free at their edges, and a plurality of parallel conducting-strips secured to the insulating-strips, substantially as set forth.

8. In an electrical barrier, the combination of a flexible backing, a plurality of flexible parallel insulating-strips secured thereto, a plurality of parallel superposed conducting-strips insulated from each other by the insulating-strips, and means for maintaining a difference of potential in the parallel superposed conducting-strips, substantially as set forth.

9. In an electrical barrier, the combination of a flexible backing, a roller upon which it is mounted, a plurality of flexible insulating-strips secured to the backing and disposed with their edges parallel with the roller, and a plurality of conducting-strips secured to the insulating-strips, substantially as set forth.

10. In an electrical barrier, the combination with a flexible backing and a roller upon which it is mounted, of a plurality of insulating-strips disposed parallel with the roller and secured to the backing upon lines that are parallel with their edges, and a plurality of conducting-strips secured to the insulating-strips, substantially as set forth.

11. In an electrical barrier, the combination with a flexible backing and a roller upon which it is mounted, of a plurality of insulating-strips disposed parallel with the roller and each having its edge adjacent to the roller secured to the backing, and a plurality of conducting-strips secured to the insulating-strips, substantially as set forth.

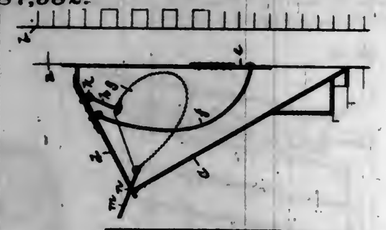
12. In an electrical barrier, the combination with a flexible backing and a roller upon which it is mounted, of a plurality of insulating-strips disposed parallel with the roller and having their edges adjacent to the roller secured to the backing, said insulating-strips being arranged to overlap, and a plurality of conducting-strips secured to the insulating-strips and arranged to overlap, substantially as set forth.

13. In an electrical barrier, the combination with a flexible backing and a roller upon which it is mounted, of a plurality of insulating-strips disposed parallel with the roller and having their edges which are adjacent to the roller secured to the backing, said insulating-strips being arranged to overlap shingle fashion, a plurality of superposed conducting-strips secured to and insulated from each other by the insulating-strips, and means for maintaining a difference of potential in the superposed conducting-strips, substantially as set forth.

587,932. SIFTING ATTACHMENT FOR ASH-CHUTES. THOMAS CONNOR, Holyoke, Mass. Filed Apr. 10, 1894. Renewed Jan. 16, 1897. Serial No. 619,497. (No model.)

Claim.—The combination with the ash-chute conductor *c* having the swinging cover *d* provided with the notch *a* and eye *b*, of the sifting-receptacle *g* provided with the hook *h* and rod or handle *m*, substantially as set forth.

587,932.

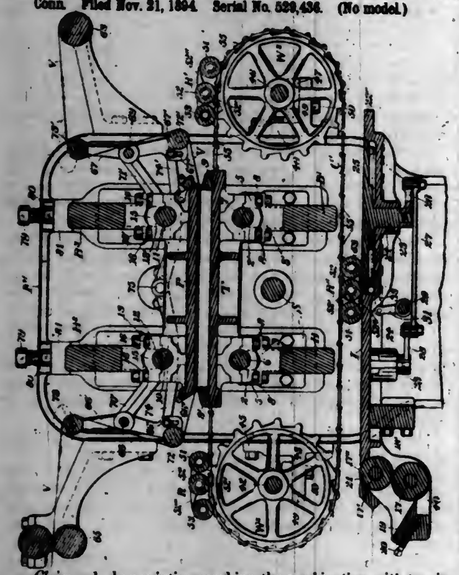


587,933. REAR-FORK END FOR BICYCLES. ROBERT G. CORSFORTH, Seymour, Conn., assignor of one-half to Frank H. Beecher, same place. Filed Mar. 9, 1897. Serial No. 626,646. (No model.)



Claim.—A rear-fork end for bicycles formed from a blank of sheet metal and having an adjusting-screw socket formed by making transverse cuts in the blank and pressing the strip of metal between the cuts in one direction and the strips outside of the cuts in the opposite direction to form loops which comprise the socket, substantially as shown and described.

587,934. PRINTING-MACHINE. WALTER E. CRANE, Hartford, Conn. Filed Nov. 21, 1894. Serial No. 529,436. (No model.)



Claim.—1. In a printing-machine, the combination, with two impression members and with means for actuating the same, of feeding means operative for continuously feeding a web of paper into and away from the machine at the same rate of speed; and speed-modifying mechanism controlled in its operation by an impression member and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of said web while said impression portion is continuously advancing between said impression members.

2. In a printing-machine, the combination, with two impression members, of means for operating said members into and out of engagement with each other in opposite circuits, synchronously; feeding means operative for continuously feeding a web of paper into and away from the machine at the same rate of speed; and speed-modifying mechanism connected with, and controlled in its operation by, an impression member and having equal synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of said web while said impression portion is continuously advancing between said impression members.

3. In a printing-machine, the combination, with two impression members, of means for carrying said members into and out of engagement with each other in opposite circuits, synchronously; feeding means for continuously feeding a web of paper into and away from the machine at the same rate of speed; and speed-modifying mechanism controlled in its movements by an impression member and adapted for reducing the advancing movement of the impression portion of said web to a minimum at the impression moment and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of said web while said impression portion is continuously advancing between said impression members.

4. In a printing-machine, the combination, with platen mechanism and printing mechanism, of feeding means operative for continuously feeding a web of paper into and away from the machine at the same rate of speed: and speed-modifying mechanism connected directly with, and controlled in its operation by, the platen mechanism and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of said web while said impression portion is continuously advancing between said platen mechanism and printing mechanism.

5. In a printing-machine, the combination, with two impression members and with means for actuating the same, of feeding means operative for continuously feeding a web of paper into and away from the machine at the same rate of speed; and speed-modifying mechanism connected directly with, and controlled in its operation by, an impression member and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of said web while said impression portion is continuously advancing between said impression members.

6. In a printing-machine, the combination with two impression members, one of which is movable into and out of engagement with the other; of variable-speed driving means for continuously and progressively actuating an inking member in a circuit, and carrying the same at one rate of speed over the face of one of said impression members while the impression members are in their separated positions, and carrying said inking member at another rate of speed while the impression members are in their closed positions, substantially as specified.

7. In a printing-machine, the combination with two impression members continuously movable toward, and from, each other in opposite circuits; of a plurality of inking-rollers adapted to be carried in a circuit around, and over the face of, one of said impression members; and variable-speed driving means for carrying said rollers at one rate of movement while the impression members are in their closed positions, and for carrying said rollers at a different rate of movement while the impression members are in their separated positions, substantially as specified.

8. In a printing-machine, the combination with two impression members continuously movable toward, and from, each other in opposite circuits; of a plurality of inking means disposed at relatively greater distances from one another than the lengths of the impression members, and adapted to be carried in a circuit around, and over the face of, one of said impression members; and means for continuously and progressively advancing said inking means through said circuit at alternately-varying speeds, and for carrying said inking means between the impression members at the maximum speed, while the impression members are in their separated positions, substantially as specified.

9. In a printing-machine the combinatinon with two impression members; of means for carrying said members into, and out of, engagement with each other in opposite circuits synchronously; feeding means operative for feeding a web of paper into, and away, from the machine at the same rate of speed; speed-modifying mechanism adapted for reducing the advancing movement of the impression portion of the web to a minimum at the impression moment, and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web while said impression portion is continuously advancing between said impression members; and means for carrying an inking member over the face of one of said impression members while the impression members are in their separated positions and during the period of maximum feed of the impression portion of the web, substantially as specified.

10. In a printing-machine, the combination with two impression members; of means for carrying said members into, and out of, engagement with each other in opposite circuits synchronously; feeding means operative for feeding a web of paper into, and away from, the machine at the same rate of speed; speed-modifying mechanism adapted for reducing the advancing movement of the impression portion of the web to a minimum at the impression moment, and having

equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web while said impression portion is continuously advancing between said impression members; a plurality of inking-rollers adapted to be carried in a circuit around one of said impression members; and means for continuously advancing said rollers through said circuit at alternately-varying speeds, and for carrying them successively over the face of said impression member at the maximum speed while the impression members are in their separated positions, and having said maximum speed of the inking-roller synchronous with the maximum speed of the impression portion of the web, substantially as specified.

11. In a printing-machine, the combination with a pair of impression-member mechanisms; of means for continuously and synchronously actuating said impression-member mechanisms orbitally toward, and from, and in parallelism with, each other; feeding means operative for feeding a web of paper into, and away from, the machine at the same rate of speed, and speed-reducing mechanism controlled by the movement of one of the impression members, and operative for bringing the impression portion of the web to rest relatively to the impression members during the impression period and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web while said impression portion is continuously advancing between the impression members, and having said movements in opposite directions alternately, substantially as specified.

12. In a printing-machine, the combination with the main frame, of a platen mechanism, means for carrying said platen mechanism in an orbit and in parallelism with a printing-form carried by the machine, means for feeding a web of paper over the face of the platen at a predetermined rate of movement; and a regulating or take-up apparatus carried by the platen mechanism and comprising oppositely-movable levers having pivotal connections with the frame of the machine, actuating means carried by the platen mechanism and pivoted to said levers, and remotely-disposed guide-rolls in operative relation with said levers and the platen mechanism and adapted to carry the traveling web of paper, whereby said respective guide-rolls at opposite sides of the platen are adapted to have orbital movements toward and from one another to vary the speed of movement of that portion of the web adjacent to the platen in accordance with the movements of the platen mechanism, substantially as described.

13. In a printing-machine, the combination with the main frame, of a platen mechanism, means for carrying said platen mechanism in an orbit and in parallelism with a printing-form carried by the machine, means for feeding a web of paper over the face of the platen at a predetermined rate of movement; and a regulating take-up apparatus carried by the platen mechanism and comprising oppositely-movable levers having adjustable pivotal connections with the frame of the machine, actuating means carried by the platen mechanism and pivoted to said levers, and remotely-disposed guide-rolls in operative relation with said levers, and the platen mechanism and adapted to carry the traveling web of paper, whereby said respective guide-rolls at opposite sides of the platen are adapted to have orbital movements toward and from one another to vary the speed of movement of that portion of the web adjacent to the platen in accordance with the movements of the platen mechanism, substantially as described.

14. In a printing-machine, the combination with two impression members continuously movable toward, and from, each other in parallel planes and in opposite circuits; of two sets of sprocket-wheels journaled adjacent to the opposite ends of the impression members, and having the wheels of one set equidistant from those of the other set; sprocket-chains carried by said wheels; a plurality of inking means carried by said sprocket-chains, and disposed at relatively greater distances from one another than the lengths of the impression members, and each of said inking means comprising one or more inking-rollers journaled at opposite ends on said chains, and having said inking means located substantially equidistant from one another, and adapted to travel successively between said impression members and over the face of one of said members; and continuously-operative means for rotating said sprocket-wheels at a high rate of speed during the passage of each of said inking means between the impression members, and for rotating said sprocket-wheels at a lower rate of speed, while the impression members are in their closed positions, substantially as described.

15. In a printing-machine, the combination with two impression members continuously movable toward, and from, each other in parallel planes and in opposite circuits; of two sets of sprocket-wheels journaled at opposite ends of the impression members, and having the wheels of one set equidistant from those of the other set; sprocket-chains carried by said wheels; a plurality of inking means carried by said sprocket-chains, and disposed at relatively greater distances from one another than the lengths of the impression members, and each of said inking means comprising one or more inking-rollers journaled at opposite ends on said chains, and having said inking means located substantially equidistant from one another, and adapted to travel successively between said impression members, and over the face of one of said members; means in operative relation with the other of said impression members for positively engaging the inking means, and maintaining the same in engagement with said first-mentioned impression member during the travel of the inking means between the impression members; and continuously-operative means for rotating said sprocket-wheels at a high rate of speed during the passage of each of said inking means between the impression members, and for rotating said sprocket-wheels at a lower rate of speed, while the impression members are in their closed positions, substantially as described.

16. In a printing-machine, the combination with two impression members movable toward and from each other in parallel planes and in opposite circuits; of inking means adapted to be carried between the said impression members and over the face of one of said members, said inking means comprising a plurality of inking-rollers arranged parallel with one another and mounted for revolution upon a carrier, laterally-extending arms carried by one of said rolls and adapted to bear upon the other rolls, means in operative relation with the second impression member and adapted to engage the roll which carries said arms and force said roll into engagement with the face of said first-named impression member, substantially as described.

17. In a printing-machine, the combination with two impression members movable toward and from each other in parallel planes and in opposite circuits; of inking means movable between the impression members and over the face of one of said members, said inking means comprising a plurality of parallel inking-rollers mounted for rotation upon a carrier, rollers carried at opposite ends of one of said inking-rollers, and laterally-extending arms carried by one of said inking-rollers and adapted to bear upon the other inking-rollers; and presser-bars adapted to engage said rollers, during the passage of the inking means over the face of the first-mentioned impression member, to force the inking-rollers into engagement with said first-mentioned impression member, substantially as described.

18. In a printing-machine, the combination with two impression members movable toward and from each other in parallel planes and in opposite circuits; of inking means movable between the impression members and over the face of one of said members, said inking means comprising a plurality of parallel inking-rollers mounted for rotation upon a carrier, rollers carried at opposite ends of one of said inking-rollers, and laterally-extending arms carried by one of said inking-rollers and adapted to bear upon the other inking-rollers; and presser-bars having convex faces adapted to engage said rollers, during the passage of the inking means over the face of the first-mentioned impression member, to force the inking-rollers into engagement with said first-mentioned impression member, substantially as described.

19. In a printing-machine, the combination with two impression members continuously movable in opposite circuits; of driving-shafts adjacent to the ends of said impression members, and connected for rotation in unison; endless carriers parallel with the sides of said impression members, and connected with said shafts for movement in unison therewith; a plurality of inking means carried by said endless carriers, and disposed at relatively greater distances from one another than the lengths of the impression members, and having said inking means located substantially equidistant from one another, and adapted to travel between said impression members and over the face of one of said members; continuously-operative means for rotating one of said driving-shafts at a high rate of speed during the passage of each of said inking means between the impression members, and for rotating said driving-shaft at a lower rate of speed, while the impression members are in their closed positions, and while the inking means are successively passing over the inking-table; and an inking-table in operative relation with said inking means, and disposed adjacent to the runs of the carriers located relatively remote from the working faces of the impression members, whereby the ink is evenly distributed on said inking means during the passage of the same over the inking-table, substantially as described.

20. In a printing-machine, the combination with a printing mechanism and with inking-rolls and a carrier for said rolls adapted to pass the same over the type-form of the printing mechanism and over the inking apparatus; of an inking apparatus comprising an inking-table and three ink-distributing disks located adjacent to each other, substantially as described, and having means for revolving two of said disks and for imparting a rotary reciprocating movement to the other disk, as set forth.

21. In a printing-machine, the combination with a driving-shaft, of an ink-table, a pair of inking-disks adapted for movement in the plane of said ink-table, a crown-wheel carried by one of said inking-disks, a pawl engaging the teeth of said crown-wheel and adapted to impart a rotary movement to said disk, means connected with said shaft for imparting a reciprocatory movement to said pawl, and

means controlled by the rotation of said inking-disk for imparting an oscillating movement to the second inking-disk, substantially as described.

22. In a printing-machine, the combination with a driving-shaft, of an ink-fountain, an ink-table, a pair of inking-disks adapted for movement in the plane of said ink-table, a crown-wheel carried by one of said inking-disks, a pawl engaging the teeth of said crown-wheel and adapted to impart a rotary movement to said disk, means connected with said shaft for imparting a reciprocating movement to said pawl, means controlled by the rotation of said ink-disk for imparting an oscillating movement to the second ink-disk, a roll mounted for rotation in said ink-fountain, a ratchet-wheel carried by the shaft of said roll, a pawl in position and adapted for actuating said ratchet-wheel and the roll, and means also connected with the driving-shaft for actuating said pawl, substantially as described.

23. In a printing-machine, the combination with an orbitally-movable printing member, of an endless carrier movable around and over the face of said member, ink-rolls mounted upon said carrier for revoluble movement, and a guide having one end thereof in alinement with and suitably secured to the printing member and the other end thereof pivotally secured to a suitable portion of the machine said guide being mounted adjacent to said endless carrier and adapted to be maintained in said position during the orbital movements of the printing member and to carry the ink-rolls prior to their passage over the face of said printing member and to impart movement of rotation to said rolls, substantially as described.

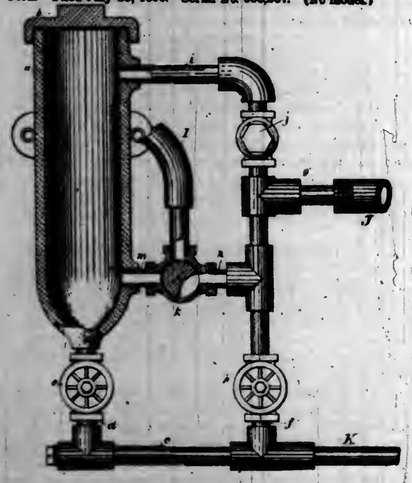
587,935. CARPET-FASTENER. CARL H. CRAWFORD, Chicago, Ill. Filed June 1, 1896. Serial No. 593,716. (No model.)



Claim.—1. The combination, in a carpet-fastener, of a double-pointed tack adapted to enter a floor and to receive a carpet upon its upper end, of a molding adapted to fit against a mop-board and being vertically slotted for adjustable attachment thereto, and being adapted to bear upon the carpet to prevent its disengagement from the tack.

2. The combination in a carpet-fastener of a straight tack pointed at both ends and adapted to enter a floor and to receive a carpet upon its upper end, of a concave molding having an upwardly-projecting vertically-slotted plate, a pin adapted to be set permanently in a mop-board and to project outwardly through the slot in the plate and having its outer end screw-threaded, and a screw-cap adapted to the pin and to bind against the plate.

587,936. FLUSHING APPARATUS. CHARLES I. DAGGETT, New York, N. Y., assignor to the Beer Flushing Machine Company, of New York. Filed July 23, 1896. Serial No. 600,207. (No model.)

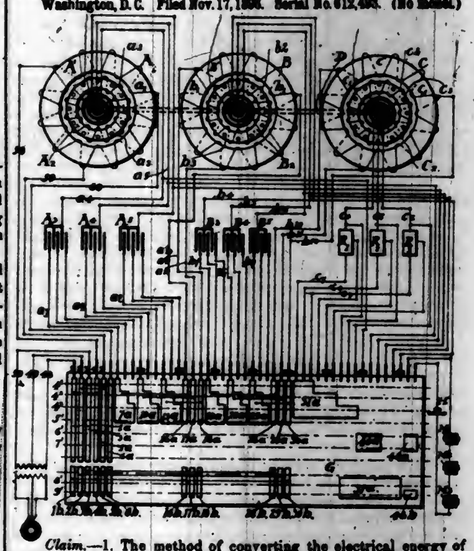


Claim.—1. In a flushing and cleansing apparatus, the combination with the holder, *a*, for the cleansing liquid, of a nipple, *g*, for the attachment of the pipe to be cleansed, a water-supply pipe, *c*, having a branch *d*, leading to one end of the holder *a*, and another branch, *f*, leading to the nipple *g*, each of said branches being supplied with a controlling-valve, a pipe *i*, connecting the other end of the holder *a* with the nozzle *g*, and having in it a check-valve *j*, and an air-pipe adapted to supply air under pressure to said nozzle.

2. In a flushing apparatus, the combination with the holder, *a*, for the cleansing liquid, a nipple, *g*, for the attachment of the pipe to be cleansed, a water-supply pipe, *c*, having valve-controlled branches, one leading to the holder *a* and the other to the nozzle *g*, and a pipe *i*, connecting the holder *a* with the nipple and having in it a check-valve, of the supply-pipe, I, for compressed air, said pipe having two branches, one communicating with the holder *a* and the other with the nipple *g*, and the two-way cock adapted to control the flow of air through said branches.

3. The combination with a source of water under pressure, as a service-pipe, and a source of air under pressure, as a storage-tank, of a flushing and cleansing apparatus for beer-pipes and the like comprising a holder for the cleansing liquid, a pipe *c* connecting with the water-service pipe and by two valve-controlled branches with the said holder and the nozzle leading to the pipe to be cleansed, the said nozzle, a valve-controlled outlet-pipe leading from said holder to the nozzle, and a valve-controlled pipe connecting the air-storage tank with the said nozzle, whereby either air, water or cleansing fluid may be forced through the pipe to be cleansed, substantially as set forth.

587,937. REGULATING ELECTRIC MOTORS. ALBERT G. DAVIS, Washington, D. C. Filed Nov. 17, 1896. Serial No. 612,493. (No model.)



Claim.—1. The method of converting the electrical energy of alternating current into mechanical motion which consists in setting up thereby in the primary member of a motor a field of force, inducing thereby in a secondary member a secondary current of lower frequency than the original current, neutralizing by a phase-advancing device part or all of the lag of the secondary current, and transmitting said current to a motor whose rotor is mechanically connected to the rotor of the first motor, substantially as described.

2. The method of increasing the torque of a tandem-motor system which consists in neutralizing by a phase-advancing device part or all of the lag of the intermediate circuit or circuits, substantially as described.

3. The method of increasing the torque of a tandem-motor system which consists in setting up, in one of the motors, a leading electromotive force, by acting upon the primary member of said motor by an overexcited field-magnet, substantially as described.

4. The method of reducing the spark on opening the secondary circuit of a translating device which consists in closing a tertiary circuit of low resistance in inductive relation to the secondary, and subsequently opening the secondary, substantially as described.

5. The method of regulating mechanism driven by a plurality of induction-motors which consists in coupling the motors in tandem, then connecting them in multiple, and finally reducing the resistance

of the induced members by closing an additional winding on said members, substantially as described.

6. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, neutralizing the self-induction of the intermediate circuit or circuits, and connecting the motors in multiple, substantially as described.

7. The method of regulating mechanism driven by a plurality of induction motors which consists in connecting the motors in tandem, adjusting the intermediate circuits to a condition of resonance at a series of different speeds, and finally connecting the motors in multiple, substantially as described.

8. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, reducing the resistance of the secondary of the last motor, open-circuiting said secondary, connecting the motors in multiple, and finally reducing the resistance of all of the motors by closing an additional winding on the secondary members, substantially as described.

9. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adjusting the field strength of one of the motors to neutralize the self-induction, and then connecting the motors in multiple, substantially as described.

10. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, with a primary winding on one motor fed from a secondary winding on the other motor, closing an additional winding on one of the motors, and then connecting the motors in multiple, substantially as described.

11. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adjusting the intermediate circuit or circuits to a condition at which the self-induction is neutralized, closing a heavy winding on the secondary of the first motor, and then connecting the motors in multiple, substantially as described.

12. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adapting them by adjustment of the resistance and reactance to run at a series of different speeds, connecting the motors in multiple, and varying the resistance of the induced member, substantially as described.

13. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adapting them by adjustment of the reactance and resistance to run at a series of different speeds, short-circuiting a heavy winding on the induced member of the first motor, and connecting the motors in multiple, substantially as described.

14. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adjusting them to run at a series of different speeds, connecting the motors in multiple, and finally exciting a direct current-winding on one of the motors, substantially as described.

15. The method of regulating mechanism driven by a plurality of induction-motors which consists in connecting the motors in tandem, adjusting them to run at a series of different speeds, closing a heavy winding on the first motor, connecting the motors in multiple, and finally exciting by direct current a winding on one of the motors, substantially as described.

16. The method of returning energy to the line from a series of motors which consists in driving the motors by the movement of the load, generating in one of the motors by the action of a direct-current field-magnet an alternating current, exciting thereby the field-magnet of the second motor, generating thereby an alternating current, and feeding into the line the energy due to said second alternating current, substantially as described.

17. The combination with an alternating-current motor of an inducing member, and an induced member having an induced winding, a switch for opening and closing said induced winding, and a magnet for operating said switch, the switch and magnet being connected to and part of the induced member, substantially as described.

18. The combination of an alternating motor, a second motor connected so as to rotate therewith, a coil on the induced member of the first motor connected to a primary winding on the second motor, and an overexcited direct-current field-magnet on the second motor, substantially as described.

19. The combination of an alternating motor having two windings on its secondary member, a second motor connected so as to rotate therewith, a connection from one winding on the induced member of the first motor to a primary winding on the second motor, a direct-current winding on the second motor, a source of current therefor, and an adjustable resistance in circuit with said source and said direct-current winding, substantially as described.

20. The combination of an alternating motor having two windings on its secondary, with a second alternating motor connected in tandem with one of the windings on the secondary of the first motor, substantially as described.

21. In a tandem system, a plurality of electric motors one or more of which are furnished with two secondary windings, one of said windings being of high resistance and acting as the generating winding for the next motor, and one of low resistance, with means for opening and closing the low-resistance winding, substantially as described.

22. In an alternating-current motor, a secondary member furnished with a magnetic short-circuiting device attached thereto and revolving therewith, and means for supplying current suitable for actuating the magnet, substantially as described.

23. A secondary for an induction-motor wound with an interconnected two-phase winding, in combination with means for varying the impedance of the common return, substantially as described.

24. A secondary for an induction-motor wound with an interconnected two-phase winding with a resistance in the common return, in combination with a magnetically-actuated switch so constructed and arranged as to cut said resistance into or out of circuit at will, substantially as described

25. The combination with a plurality of alternating motors of a switch so constructed and arranged as to connect the motors first in tandem, then in multiple with their secondaries short-circuited, and finally to short-circuit an additional winding on the induced members of the motors, substantially as described.

26. In a tandem multiple system, the combination of a plurality of motors, means for advancing the phase of the current in the intermediate circuits, and a switch for regulating the action of said means according to the speed required, substantially as described.

27. The combination of a plurality of alternating motors with a switch so constructed and arranged as to first connect the motors in tandem, then in multiple, and to reduce the resistance of the induced windings in the multiple position below what it was when the motors were connected in tandem, substantially as described.

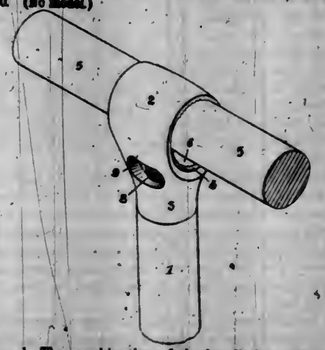
28. In a tandem multiple system, two motors, one of which is provided with a member adapted to act as a generating member and also adapted to act as a short-circuited secondary, in combination with means for reducing the resistance of said member while acting as a short-circuited secondary below what it was while the member was acting as a generating member, substantially as described.

29. In a tandem system, a plurality of multiphase motors connected in tandem, the last of the series being provided with a single-phase secondary winding, substantially as described.

30. A combined motor and phase-regulator consisting of an inducing member adapted to be excited by alternating currents, in combination with an induced member wound with a short-circuited winding and with an overexcited direct-current winding, substantially as described.

31. In a combined motor and phase-regulator the combination of an inducing member adapted to be excited by alternating currents, with an induced member wound with a short-circuited winding and with an overexcited direct-current winding, with means for varying the excitation of the direct-current winding, substantially as described.

587,938. FASTENING FOR HANDLE-BARS OF BICYCLES. ROBERT DAVIS, Philadelphia, Pa. Filed Aug. 29, 1896. Serial No. 604,200. (No model.)

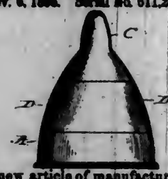


Claim.—1. The combination of the handle-bar with a steering-post head having a vertically-elongated opening therein and having in one side a slot communicating with said opening, and an internal set-screw adapted to a threaded opening in the head below said slot and serving to confine the handle-bar to the head, said set-screw being accessible through the slot in the steering-post head, substantially as specified.

2. The combination of the handle-bar, with the steering-post head having a vertically-elongated opening therein, and a side slot communicating with said opening, a shoe adapted to slide on the under side of the handle-bar, and an internal set-screw bearing upon said shoe and accessible through the slot in the side of the steering-post head, said set-screw being adapted to a threaded opening in the head below the slot therein, substantially as specified.

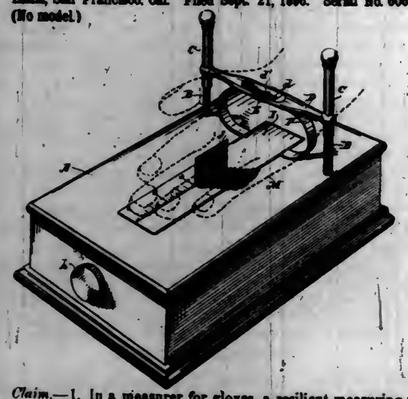
3. The combination of the handle-bar, with the steering-post head having a vertically-elongated opening therein, and a side slot communicating with said opening, a shoe adapted to bear on the under side of the handle-bar and having a recess in its under side, and an internal set-screw accessible through the slot in the steering-post head and having an upper end adapted to said recess in the shoe, said set-screw being adapted to a threaded opening in the head below the slot therein, substantially as specified.

587,939. NURSING-NIPPLE. WILLIAM M. DECKER, Kingston, N. Y. Filed Nov. 6, 1896. Serial No. 611,240. (No model.)

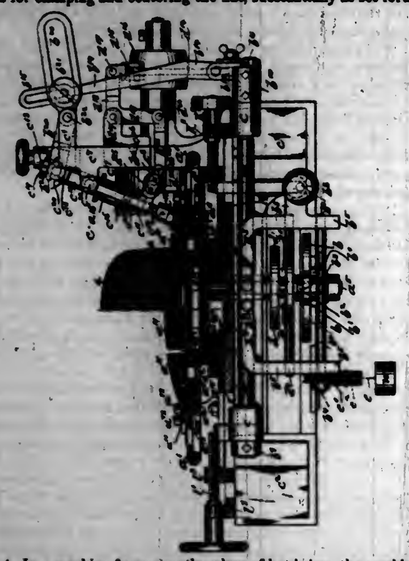


Claim.—As a new article of manufacture an elastic breast A and nipple C for nursing-cells, having a reinforced zone D, substantially as and for the purposes set forth.

587,940. HAND-MEASURER FOR GLOVES. THOMAS C. DE LEER, San Francisco, Cal. Filed Sept. 21, 1896. Serial No. 606,525. (No model.)


A
A
A

3. In a machine for paring the edges of hat-brims, the combination of a rotary cutter, means whereby longitudinally-shifting motion is imparted to the cutter, a rotating hat-bed moving in unison with said cutter, and adjustable curl-supporting fingers having knurled faces for clamping and centering the hat, substantially as set forth.

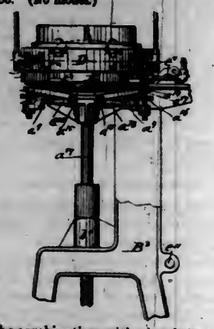


4. In a machine for paring the edges of hat-brims, the combination of a rotating hat-bed, curl-clamping fingers supported on said bed, a rotary cutter, means for longitudinally shifting the spindle thereof, and means for imparting a radial movement to said cutter independently of its longitudinally-shifting and rotary movements, whereby the cutter may be moved away from or toward the edge of the hat-brim, substantially as set forth.

5. In a hat-brim-paring machine, the combination of a rotary cutter, a rotating hat-bed, a cam moving in unison with the hat-bed, mechanism for imparting a radial movement to the cutter from said cam, and a crank and eccentric whereby said cutter is moved to and locked in either the outward position or the cutting position, substantially as set forth.

6. In a machine for paring the edges of hat-brims, the combination of a rotary cutter, a rotating hat-bed, cams moving in unison therewith, and cam-levers, said cam-levers being kept in contact with their respective cams by means of guide-pulleys and a weighted cord until disengaged from said cams, substantially as set forth.

587,944. MACHINE FOR SETTING CURLED EDGES OF HAT-BRIMS. CARL EICKEMEYER, Yonkers, N. Y. Filed Dec. 21, 1896. Serial No. 616,453. (No model.)



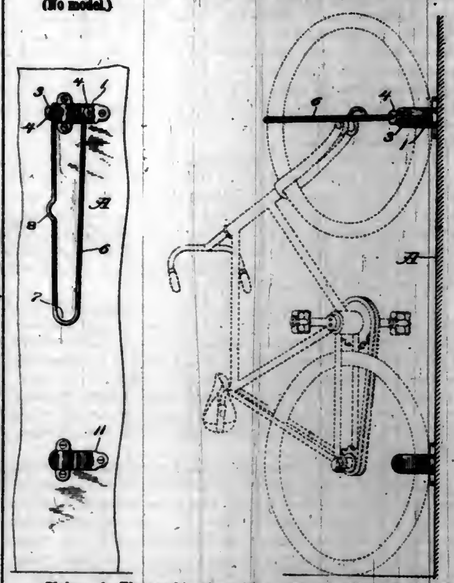
Claim.—1. The combination, with a hat-brim bed-plate and means for reciprocating the same, of a hat-brim-heating iron above said bed-plate, a cooling-ring, and means for moving said cooling-ring in a position below the heating-iron or in outward position so that the curled edge of the hat-brim can be first placed in contact with the heating-iron and then in contact with the cooling-ring, substantially as set forth

2. The combination, with a reciprocating hat-brim bed-plate, a heating-iron above the same, a cooling-ring below the heating-iron, guides for said cooling-ring, and means whereby the cooling-ring can be placed in position below the heating-iron or outside of same without interfering with the bed-plate, substantially as set forth.

3. The combination, with a vertically-movable hat-brim bed-plate, of a heating-iron above the same, a horizontally-movable cooling-ring provided with a top layer of insulating material, and means for moving said cooling-ring into position below the heating-iron or outside of the same, said insulating layer protecting the cooling-ring against the heat of the heating-iron when in position below the same, substantially as set forth.

4. The combination with a vertically movable hat-brim bed-plate, provided with a spring-plate on which the hat rests, of means for adjusting the edge or curl of the hat-brim to any size of curl through the medium of said spring-plate, said means consisting of pivoted supports arranged under and in contact with the outer portion of said spring-plate, and devices for operating said supports, substantially as set forth.

587,945. HOLDER FOR BICYCLES. STERLING ELLIOTT, Newton, Mass., assignor, by direct and mesne assignments, to George H. Williams, same place, Frank W. Whitcher, Boston, Mass., and Howard C. Noble, New Britain, Conn. Filed Nov. 20, 1896. Serial No. 612,797. (No model.)



Claim.—1. The combination with a wall, or the like, of a plurality of bicycle-holders located side by side thereon, and supporting a plurality of bicycles side by side with one wheel of each bicycle held upraised above the other wheel thereof, the said holders being constructed to maintain the bicycles in laterally-inclined positions overlapping one another laterally and thereby enabling a series of bicycles to be placed closely together side by side without permitting projecting portions of the handle-bars, &c., of proximate bicycles to come in contact with one another, substantially as described.

2. The combination with a wall, or the like, of a plurality of bicycle-holders located side by side thereon and supporting a plurality of bicycles side by side with one wheel of each bicycle held upraised above the other wheel thereof, the holder for each elevated wheel having a U-shaped recess to receive the said elevated wheel, each of such recesses being formed with a lateral obliquity whereby to hold the corresponding bicycle in a laterally-inclined position and thereby enable the series of bicycles to be placed closely together, overlapping one another laterally without permitting projecting portions of the handle-bars, &c., of proximate bicycles to come in contact with one another, substantially as described.

3. In combination, wall-supporting devices to support a plurality of bicycles side by side, such devices having for each bicycle holders formed with U-shaped recesses to receive the rims of the respective wheels thereof, the holder which receives the elevated wheel of the bicycle having in connection therewith a retaining device to engage the periphery of the wheel opposite such holder to keep the wheel in the latter, the said recesses being formed with a lateral obliquity,

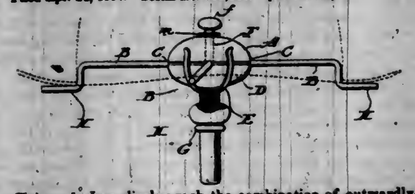
whereby to enable the series of bicycles to be placed closely together without permitting projecting portions of proximate bicycles to come in contact with one another, substantially as described.

4. The combination with the wall and ceiling of a car, or the like, of a plurality of holders located side by side on the said wall and constructed to support a plurality of bicycles side by side with one wheel of each bicycle held upraised thereby above the other wheel thereof, and a plurality of hangers applied to the said ceiling in positions alternating with the portions of the said holders which are applied to the said wall, the said hangers being constructed to suspend a plurality of bicycles in inverted position, and also to hold one wheel of each of the said bicycles located between two of the elevated wheels of the bicycles first mentioned, whereby a double series of bicycles is supported at the side and top of a car while the central space of the latter is left unoccupied, substantially as described.

5. In combination, wall-supporting devices to support a plurality of bicycles side by side, each bicycle being held with one wheel thereof elevated above the other, such devices comprising for each of the bicycles two recessed blocks or holders, one above the other, to receive the rims of the respective wheels of such bicycle, a retainer to engage with the periphery of the elevated wheel opposite the upper holder to keep it in such holder, and ceiling-hooks whereby to sustain other bicycles in inverted position each with one wheel thereof intermediate two of the elevated wheels of the bicycles first-mentioned, substantially as described.

6. The combination with the wall and ceiling of a car, or the like, of a plurality of holders located side by side on the said wall and constructed to support a plurality of bicycles side by side with one wheel of each bicycle held upraised thereby above the other wheel thereof, and a plurality of holders applied to the said ceiling in positions alternating with the positions of the said holders which are applied to the said wall, the said hangers being constructed to suspend a plurality of bicycles in inverted position, and also hold one wheel of each of the said bicycles between two of the elevated wheels of the bicycles first mentioned, the said holders and the hangers being constructed and arranged to hold the bicycles in laterally-inclined positions, whereby a double series of bicycles is supported at the side and top of a car while the central space of the latter is left unoccupied, and whereby also the bicycles are enabled to be placed closely together side by side without permitting projecting portions of the handle-bars, &c., of proximate bicycles to come in contact with one another, substantially as described.

587,946. DISPLAY-RACK. JOHN W. ERBE, Pocomoke City, Md. Filed Apr. 21, 1897. Serial No. 633,109. (No model.)



Claim.—1. In a display-rack the combination of outwardly-extending arms from a common center with means for supporting said arms, each arm having the upper surfaces of its extremities straight and in planes approximately parallel with each other and the upper surface of the outer extremity in a plane lower than the upper surface of the inner portion, the arms adjustable in their supporting means both with respect to their outward extension and the elevation of their outward extremities.

2. In a display-rack the combination of outwardly-extending arms from a common center with means for supporting said arms, each arm having the upper surfaces of its extremities straight and in planes approximately parallel with each other and an intermediate outer surface approximately at right angles therewith and the upper surface of the outer extremity in a plane lower than the upper surface of the inner portion, the arms adjustable in their supporting means both with respect to their outward extension and the elevation of their outward extremities.

3. In a display-rack the combination of outwardly-extending arms with the clamping means for holding the same at any desired adjustment, each arm having the upper surfaces of its extremities straight and in planes approximately parallel with each other and an intermediate outer surface approximately at right angles therewith and the upper surface of the outer extremity in a plane lower than the upper surface of the inner portion and means for holding said clamping means to a suitable support, substantially as described.

4. In a display-rack the combination of outwardly-extending arms with the clamping means for holding the arms at any desired adjustment, the arms having the upper surfaces of their outer extremities in planes lower than and approximately parallel with the planes of the upper surfaces of their main portions and adapted to turn in the clamping device to elevate or lower their outer extremities and means for holding said clamping means to a suitable support, substantially as described.

5. In a display-rack the combination of outwardly-extending arms with the clamping means for holding the arms at any desired adjustment, the arms having the upper surfaces of their outer extremities in planes lower than and approximately parallel with the planes of the upper surfaces of their main portions, the said arms adapted to turn in the clamping device to elevate or lower their outward extremities, and adjustable means for holding said clamping means to a suitable support, substantially as described.

6. In a display-rack the combination of outwardly-extending arms with the two blocks with corresponding grooves upon their contiguous surfaces adapted to receive said arms, the set-screw as means for clamping the said two blocks together, the arms adjustable in said clamping means and having the upper surfaces of their outer extremities in planes lower than and approximately parallel with the planes of the upper surfaces of their main portions, substantially as described.

587,947. TOBACCO-PIPE. HENRY D. FANDERS, Leadville, Colo. Filed Apr. 30, 1897. Serial No. 634,537. (No model.)



Claim.—As an improved article of manufacture a tobacco-pipe, consisting of a bowl A, provided with a screw-threaded cover B, having an annular flange E; a receptacle F, which is in communication with the bottom of said bowl by the passage G, there being a vertical passage H, formed in the opposite side of the bowl and having an extension K, said bowl being provided with a socket M, a stem L, inserted therein beneath passage G the bore of which communicates with the said extension K, substantially as and for the purpose set forth.

587,948. CAR-TRUCK. GEORGE G. FLOYD, Sedalia, Mo. Filed Jan. 12, 1897. Serial No. 618,985. (No model.)



Claim.—1. The combination in a car-truck having pedestals, of side frames comprising arches, a transom connecting the said side frames, journal-boxes, springs upon the same and yokes straddling each spring and bolted to the upper surface of the bars of the side frames for sustaining the truck upon the springs, substantially as described.

2. In a car-truck the combination of a transom, side frames secured thereto, pedestals in said frames, journal-boxes having spring-supporting seats thereon, springs upon said seats, caps upon said springs provided with downwardly-extended projections or studs adapted to limit the depression of the said springs, yokes resting upon said springs and pedestal-bolts passing through the pedestals, side frames and yokes for securing the parts in place and holding them together, substantially as described.

3. In a car-truck the combination of side frames formed of arch-bars, a cross-frame or transom, pedestals in said side frames, journal-boxes working in said pedestals, spring-seats formed upon the upper sides of said journal-boxes and extending above the arch-bars, springs resting upon said seats, and means for resting the weight of the truck upon said springs, substantially as described.

4. The combination in a car-truck having pedestals, of side frames comprising arch-bars, a transom connecting said side frames and gusset-plates interposed between said transom and the side frames and connecting the I-beams together for strengthening the same and holding the said truck in true, a center plate secured to said transom, a diagonally-arranged brace-plate for strengthening the tran-

som in the center and a corrugated plate connecting the webs of the I-beams near the bottoms thereof for preventing the spreading of the same, substantially as described.

5. The combination in a car-truck having pedestals of side frames comprising arch-bars, a transom composed of I-beams, gusset-plates interposed between said transom and side frames, and connecting the top of the I-beams and braces secured to the webs of the said I-beams extending diagonally to the upper and lower arch-bars and secured thereto for strengthening the same, substantially as described.

6. In a car-truck, the combination with a transom of side frames comprising arch-bars, pedestals secured to said side frames, journal-boxes, spring-seats formed upon said journal-boxes, and forming with the top of said boxes, recesses to receive the ends of said arch-bars and springs upon said seats for supporting the side frames, substantially as described.

7. In a car-truck the combination with a transom of side frames, pedestals secured thereto, journal-boxes working in said pedestals, spring-seats above said journal-boxes and connected to the same by supporting-walls forming recesses through which the ends of the side frames extend and in which they may move vertically and springs upon said seats for bearing the weight of the truck-frame, substantially as described.

8. In a car-truck the combination with a transom and side frames, of pedestals secured to said side frames, journal-boxes working in said pedestals, spring-seats upon the tops of said journal-boxes extending above the side frames, springs supported by said seats, and yokes secured upon the top of said side frames, and passing over the upper ends of the springs, whereby the truck-frame is adapted to be supported upon said springs, substantially as described.

9. In a car-truck the combination with a transom and side frames, of pedestals secured to said side frames, journal-boxes working in said pedestals, spring-seats upon the tops of the journal-boxes extending above the side frames, springs supported by said seats, cap-pieces upon the tops of said springs, and yokes resting upon said caps and secured to said side frames, whereby the weight of the truck-frame is supported by the springs, substantially as described

10. In a car-truck the combination of a transom, side frames secured thereto, pedestals in said frames, journal-boxes, having spring-supporting seats thereon, springs upon the said seats, yokes resting upon said springs and pedestal-bolts, passing through the pedestals, side frames and yokes for securing the parts in place and holding them together, substantially as described.

11. In a car-truck, the combination of a transom, side frames comprising arch-bars, vertical guide-bars mounted in the ends of said frames, forming pedestals for the journal-boxes, journal-boxes movably held in said pedestals and extending above the side frames, springs resting upon said boxes, and means secured to the top of the side frames for suspending the weight of the truck-frame upon said springs, substantially as described.

12. In a car-truck the combination of a transom, side frames comprising arch-bars, guide-bars and bolts passing through the same for securing them in place in the side frames for forming pedestals, journal-boxes adapted to move vertically in said pedestals and extending above the side frames, springs upon said journal-boxes, and means on the upper side of the side frames for suspending the truck-frame upon said springs, substantially as described.

13. In a car-truck the combination of a transom, side frames comprising arch-bars, and a tie-bar, vertical guides removably secured between the arch-bars and the tie-bar to form pedestals, journal-boxes movably held in said pedestals and extending above the arch-bars and springs for supporting the truck-frame upon the said journal-boxes, substantially as described.

14. In a car-truck the combination of a transom, side frames comprising arch-bars, vertical guides forming pedestals, bolts passing through said pedestals for holding them in place, and a tie-bar provided with slots in ends, whereby the outer bolts with their guides may be taken from the frames without pulling the bolts out of the guides, substantially as described.

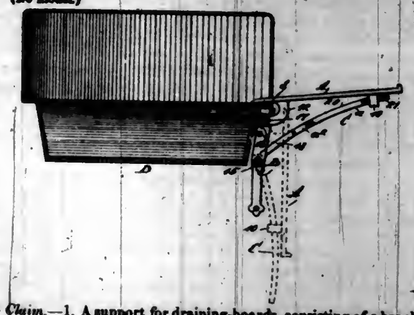
15. In a car-truck the combination of a transom, side frames comprising arch-bars, vertical guides forming pedestals, bolts passing through said pedestals for holding them in place, and a tie-bar provided with slots in its ends and having its ends bent up to hold the lower end of the outer guides securely in place, substantially as described.

16. The combination in a car-truck of side frames formed of arch-bars, a transom formed of I-beams and secured at their ends to said arch-bars, tie-plates covering the ends of said I-beams, and bent over the top of the upper arch-bar and under the bottom of the lower arch-bar and secured thereto for tying said arch-bars together, substantially as described.

17. The combination in a car-truck of side frames formed of arch-bars, a transom formed of I-beams and secured at their ends to said arch-bars, tie-plates covering the ends of said transom and having bent end portions secured at the top and bottom to the arch-bars and extending over the top and bottom flanges of the I-beams toward the center of the truck for holding the same in true, substantially as described.

18. The combination in a car-truck of side frames formed of arch-bars, a transom composed of I-beams secured thereto, tie-plates covering the ends of said transom and having bent end portions secured at the top and bottom to the arch-bars and extending over the top and bottom flanges of the I-beams toward the center of the truck for strengthening the same, the vertical edges of said tie-plates being bent inwardly and secured to the webs of the said I-beams, substantially as described.

587,949. SINK DRAINING-BOARD AND SUPPORT. JOHN FORAN, Flemington, N. J., assignor to the Foran & Abendroth Manufacturing Co., same place. Filed Feb. 16, 1897. Serial No. 623,606. (No model.)



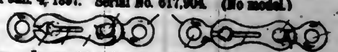
Claim.—1. A support for draining-boards, consisting of a bracket arranged to receive the draining-board in a pivotal manner, an adjusting-arm pivotally attached to the bracket, provided with spring members having exterior teeth, and a socket upon the board adapted to receive the said arm, which socket is provided with teeth for engagement with the surfaces between the exterior teeth of the adjusting-arm, constituting a locking device for said arm, the arm being further provided with a plain surface adjacent to its toothed surface, the plain surface being likewise adapted to pass through said socket, as and for the purpose specified.

2. A support for sink draining-boards, consisting of a bracket having sockets for pivotal connection with the draining-board, an adjusting-arm pivotally attached to the bracket, the adjusting-arm being provided with sprig members capable of being carried in direction of each other, the spring members being provided with exterior teeth, and a nut adapted for attachment to the draining-board, having interior teeth for engagement with the teeth of the spring members of the adjusting-arm, as and for the purpose set forth.

3. The combination, with a bracket, a sink-board pivotally attached to the bracket, and a nut attached to the under face of the sink-board, provided with a tooth at opposite sides, of an adjusting-arm pivotally connected with the bracket beneath the sink-board, the outer portion whereof is of spring material and bifurcated, the spring members being provided with exterior teeth for engagement with the teeth in the said nut through which the bifurcated portion of the adjusting-arm is adapted to pass, as and for the purpose specified.

4. The combination, with the draining-board of a sink, provided with forwardly-extending pivot-arms secured to its under face near its inner end, and a nut secured to the central portion of the under face of the draining-board near its outer end, the said nut being provided with an interior tooth on opposite faces, of a bracket provided with sockets, a pivot-rod passed through the pivot-arms of the draining-board and through the said sockets, the sockets being located near the upper portion of the horizontal section of the bracket, the bracket being further provided with two lower and more-closely grouped sockets, a pivot-pin passed through the lower sockets, and an adjusting-arm consisting of a bifurcated head held to turn upon the lower pivot-pin, an open ring secured to the head, and spring-arms attached to the ends of the open ring, each spring-arm being provided at its outer end with exteriorly-formed teeth, the spring-arms being adapted to enter said nut, as set forth.

587,950. DRIVE-CHAIN. FRANK A. FOSTER, Norwich, Conn. Filed Jan. 4, 1897. Serial No. 617,904. (No model.)



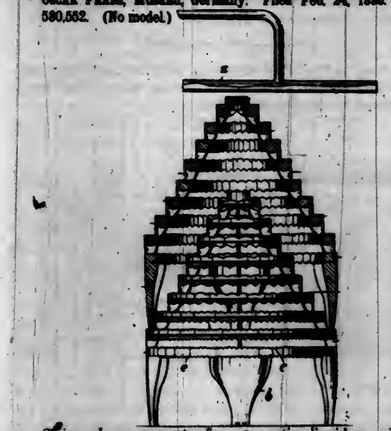
Claim.—In combination, in a drive-chain, side and center links as set forth, studs connecting the same having a head at one end and a circumferential groove at the other end and a locking device of spring material bifurcated at its opposite ends to engage said grooves, the walls of said bifurcations being parallel and one of the bifurcations being longer than the other and each wall of said longer bifurcation being provided intermediate its ends with enlargements to allow said locking-plate to be sprung over the pin end and engage therewith, substantially as specified.

587,951. FOOT-POWER ATTACHMENT FOR JOB-PRINTING PRESSES. CHARLES E. FRALICK and ORMOND C. FOSTER, Grand Island, Nebr.; said Fralick assignor to Pennington P. Foster, same place. Filed Oct. 13, 1896. Serial No. 608,773. (No model.)



Claim.—In a foot-power, the combination of movable supports, a double-crank shaft mounted in said supports, a sprocket-wheel on the end of said shaft, brace-rods adapted to connect said supports with the frame of the driven machine, said rods being slotted at their outer ends and said supports having slotted bases whereby said supports may be adjusted toward or from the driven machine, substantially as described.

587,952. APPARATUS FOR MIXING LIQUIDS WITH GASES. OSCAR FRANK, Munkan, Germany. Filed Feb. 24, 1896. Serial No. 580,552. (No model.)



Claim.—In an apparatus for evaporating liquids or mixing them with gases the combination of a tower or casing, with several drop-ring groups composed of separate drop-rings arranged terrace-like in such a way that the rings of each group having the same dimensions lie perpendicular over one another, each ring being provided with scalloped walls and divided by radial cross-pieces into small divisions and also provided with a drop-nose attached to the lower side of the ring and below each small division; as and for the purpose set forth.

587,953. PRINTING-ROLL. JOHN W. PRIEB, Salem, N. C. Filed June 27, 1896. Serial No. 597,145. (No model.)



Claim.—1. A printing-roll comprising a core or body; a raised figure or design applied to the surface thereof; and a covering sheet or layer of textile material placed over the design and secured between the raised portions of the design.

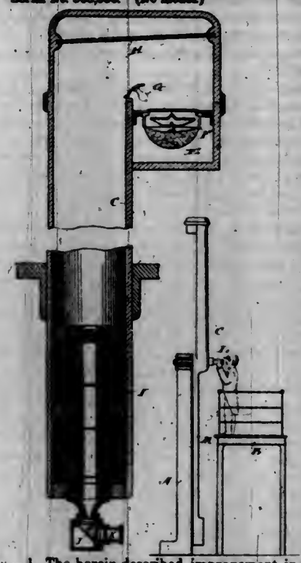
2. A printing-roll comprising a core or body; a raised figure or design formed of a comparatively soft substance applied thereto; and a covering sheet or layer of textile material placed over the design and secured between the raised portions thereof.

3. A printing-roll comprising a core or body; a raised figure or design formed of paraffin applied thereto; a covering sheet or layer of textile material placed over the design and secured between the raised portions thereof.

4. A printing-roll comprising a core or body, treated with a coat of waterproof varnish; a raised figure or design formed of paraffin applied thereto; and a covering sheet or layer placed over the design and secured between the raised portions thereof, the surface being finished off with a coating of waterproof varnish.

5. A printing-roll comprising a core or body, treated with a coat of waterproof varnish; a raised figure or design formed of paraffin applied thereto; and a textile covering sheet or layer placed over the design and secured between the raised portions thereof, the surface being finished off with a coating of waterproof varnish.

587,954. SHIP'S COMPASS. LOUIS GATEHAIRE, Chicago, Ill., assignor to George Whitman McMullen, Picton, Canada. Filed Mar. 17, 1896. Serial No. 583,598. (No model.)



Claim.—1. The herein-described improvement in the mounting of ships' compasses, which comprises, in combination, a tube movable about a fixed point, a compass carried by said tube and means for forming the image of the compass at the fixed point.

2. The herein-described improvement in the mounting of ships' compasses, which comprises, in combination, a tube pivotally mounted upon a rigid support, a compass mounted out of the line of sight of said tube, means for reflecting the image of the compass along said line of sight, an eyepiece connected to said tube at its pivotal point, and means for deflecting the image from the line of sight of the tube through the eyepiece.

3. The herein-described improvement in mounting ships' compasses, comprising in combination a tube having a telescope located in the lower portion thereof, a lateral offset portion at its upper end forming a chamber, a compass mounted in said chamber and a reflector extending above the compass and the upper end of the tube, substantially as described.

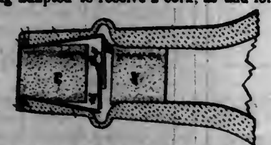
4. The herein-described improvement in mounting ships' compasses, comprising in combination a tube having a telescope located in the lower portion thereof, a lateral offset portion at its upper end forming a chamber, a compass mounted in said chamber, a reflector extending above the compass and the upper end of the tube, and a light adjacent to the compass, substantially as described.

5. The herein-described improvement in mounting ships' compasses, comprising, in combination, a tube having a lateral offset portion forming a chamber, a compass mounted therein, a lamp arranged to light the compass, a reflector over the chamber and the end of the tube, and a shade between the lamp and said reflector.

587,955. BOTTLE AND STOPPER THEREFOR. CHARLES B. GIBSON, Woodsville, N. H. Filed Dec. 7, 1896. Serial No. 614,758. (No model.)

Claim.—1. A bottle-stopper consisting of a yoke shaped to form an upper cap, and side members projected downward from the cap, each side member terminating in a foot, one foot carrying a pawl and

the opposing foot ratchet-teeth for engagement with the pawl, the said yoke being adapted to receive a cork, as and for the purpose specified.



2. A bottle-stopper consisting of a yoke made of a spring material, comprising an upper cap, arms projected from opposite sides of the cap, the said arms being returned inwardly upon themselves beneath the cap, side members extending downward from the return portion of the arms, each side member being provided with an inwardly-extending foot-section, a pawl carried by the foot-section of one side member, and ratchet-teeth having an inward inclination, carried by the foot-section of the opposing side member of the yoke, and a cork held in engagement with the under portion of the cap and with the upper portion of the side members of the yoke, as and for the purpose set forth.

3. A locking device for bottle-corks, consisting of a yoke, the said yoke comprising a cap, arms extended from opposite edges of the cap, being returned inwardly upon themselves, side members extended downward from the return-section of each arm, an inwardly-extending foot located at the lower end of each side member, a pawl carried by one of the said feet, and ratchet-teeth located upon the opposing foot, the said ratchet-teeth being given an inward and an upward inclination, as and for the purpose set forth.

4. The combination, with the neck of a bottle provided with a frangible section, the neck of the bottle above the frangible section being upwardly and inwardly inclined and provided with an upper and an inner recess, of a stopper consisting of a locking-yoke of spring material, comprising a cap, arms projected from opposite ends of the cap, and returned inwardly upon themselves beneath the cap, side members projected one from the return portion of each arm, foot-sections inwardly carried from the lower terminal of each side member, one foot-section being provided with a pawl and the other with ratchet-teeth for the reception of the pawl, a cork secured in the said locking-yoke adjacent to its head, and a second cork adapted to be placed in the neck of the said bottle, below the frangible section thereof, substantially as shown and described.

5. A securing device for bottle-stoppers, the securing device having a resilient band the free portions of which are capable of expanding within the neck of the bottle and one of said free portions having ratchet-teeth while the second of said free portions has a pawl or dog capable of engaging with the ratchet-teeth to prevent the contraction of the securing device within the neck, substantially as described.

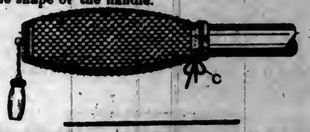
6. A securing device for bottles, the bore of the neck of which tapers upwardly and the end of the neck of which is provided with two oppositely-located recesses, the securing device consisting in a circular plate with oppositely-located side members joined to the plate by arms capable of respectively fitting within the recesses in the neck, the side members being capable of expanding within the neck of the bottle and one side member having a series of ratchet-teeth capable of engagement with a pawl on the second side member whereby to hold the side members against contraction within the neck of the bottle, substantially as described.

7. A securing device for bottle-stoppers, the securing device consisting in a section of resilient material the ends of which have spring tendency away from each other and are capable of automatically and adjustably locking with each other so as to prevent movement of the ends toward each other whereby said ends may expand within the neck of the bottle and lock with each other when the ends engage opposite walls of the neck to prevent the inward movement of the ends, substantially as described.

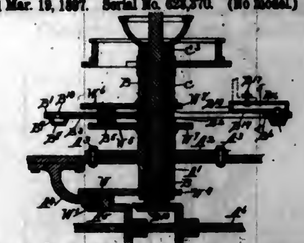
8. A securing device for bottle-stoppers, the securing device consisting in a section of resilient material the free ends of which have spring tendency to move away from each other and said free ends being provided with means by which they may be automatically and adjustably connected to prevent movement of the said ends toward each other whereby the free ends of the said section may expand against the inner walls of the neck of the bottle and the connecting means serving to prevent the said end portions from moving inward, out of such expanded position, substantially as described.

587,956. HANDLE-PROTECTOR FOR VELOCIPEDES. MARK GOODMAN, JOHN J. RAWLINGS, and WILLIAM B. RAWLINGS, London, England. Filed Sept. 30, 1896. Serial No. 607,434. (No model.) Patented in England June 17, 1896, No. 13,307.

Claim.—A sleeve or protector for the handles of bicycles and similar vehicles composed of a netted or braided fabric in the form of a tube permanently closed at one end and having its other end open, the natural elasticity of the fabric being availed of to adapt the sleeve to the shape of the handle.



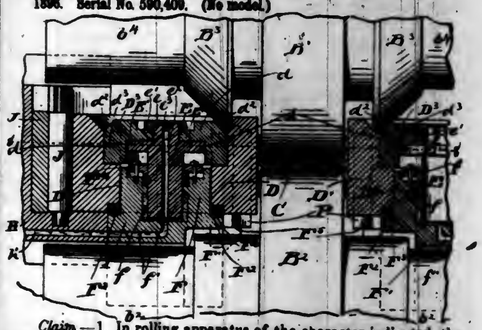
587,957. KNITTING-MACHINE. ROBERT W. GORELY, Troy, N. Y. Filed Mar. 19, 1897. Serial No. 628,370. (No model.)



Claim.—1. In a knitting-machine, the combination with a rotary needle-cylinder, and means for rotating the cylinder in one direction, of a rotary support for the feeding and controlling mechanisms, and means for rotating the support in the opposite direction.

2. In a knitting-machine, the combination with the feed-circle and stand, of an adjustable stand-bracket provided with separate lapping clamp-slideways, bracket-clamping mechanism movable in one of the lapping slideways for adjustably securing the bracket to the circle at differing distances from its center, and stand-clamping mechanism movable in the other of the lapping slideways past the bracket-clamping mechanism for adjustably securing the stand to the bracket, substantially as described.

587,958. APPARATUS FOR ROLLING METALLIC BEAMS, COLUMNS, GIRDERS, &c. HENRY GREY, Duluth, Minn. Filed May 6, 1896. Serial No. 590,409. (No model.)



Claim.—1. In rolling apparatus of the character indicated, the combination of the positively-driven top and bottom rolls, the friction-disks operatively connected with one of said rolls, the two vertical or upright side rolls arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the axes of said last-mentioned rolls, the sliding friction-disks operatively connected with the upright side rolls, and means acting continuously during the operation of the machine upon said last-mentioned disks and maintaining them in frictional engagement with the first-mentioned disks.

2. In rolling apparatus of the character indicated, the combination of the positively-driven top and bottom rolls, the friction-disks operatively connected with the top roll, the two vertical or upright side rolls arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the axes of said last-mentioned rolls, the friction-disks operatively connected with the upright side rolls, and means bearing upwardly upon said last-mentioned disks and retaining them in frictional engagement with the first-mentioned friction-disks, substantially as and for the purpose set forth.

3. In rolling apparatus of the character indicated, the combination of the positively-driven top and bottom rolls, the upright side rolls arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the axes of said last mentioned rolls, the two driving vertical friction-disks B^2 B^3 operatively connected with the different trunnions, respectively, of the top roll, and arranged with their diametrically larger ends vis-a-vis, the driven horisontally-arranged beveled or conical friction-disks operatively connected with the different upright rolls, respectively, and arranged below the different vertical friction-disks, respectively, and with their diametrically smaller ends uppermost, and means bearing upwardly upon the horizontal friction-disks and retaining their beveled or conical surfaces in frictional engagement with the beveled or conical surfaces of the vertical disks, substantially as and for the purpose set forth.

4. In rolling apparatus of the character indicated, the combination of the two positively-driven horizontal top and bottom rolls, the two upright side rolls arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the axes of said last-mentioned rolls, a horizontal friction-disk transmitting motion to each upright roll, interlocking lugs formed upon said last-mentioned roll and the friction-disk instrumental in transmitting motion to said roll, vertical friction-disks frictionally engaging the horizontal friction-disks and operatively connected with one of the aforesaid horizontal rolls, means acting to lift the horizontal friction-disks and retain them in frictional engagement with the vertical friction-disks, and the parts being so arranged that all of said rolls shall participate in the feeding of the work.

5. In rolling apparatus of the character indicated, the combination of the lower horizontal roll B^3; the upper horizontal roll B^2 adjustable vertically; mechanism for positively driving said rolls in opposite directions, respectively; two suitably-supported vertical or upright side rolls arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the axes of said last-mentioned rolls, and each of said upright rolls having a centrally-located bore and the surrounding wall of said bore being provided with vertical lugs; a suitably-supported horizontally-arranged friction-disk within said bore and provided with vertical lugs interlocking with the lugs formed upon the surrounding wall of the bore; another friction-disk having frictional contact with said horizontal friction-disk and operatively connected with the top roll, and means acting to retain the aforesaid horizontal friction-disk in frictional contact with the engaging friction-disk, substantially as and for the purpose set forth.

6. In rolling apparatus of the character indicated, the combination of the two positively-driven top and bottom rolls, the two upright side rolls adjustable apart and arranged at opposite ends, respectively, of the top and bottom rolls and centrally between the latter's axes, driving friction-disks operatively connected with or formed upon the trunnions of the top roll, other friction-disks operatively connected with the upright side rolls and frictionally engaging and driven by the friction-disks upon the aforesaid trunnions, pistons supporting said driven friction-disks and passage-ways for condecting fluid under pressure to the lower ends of said pistons, and the arrangement of parts being such that all of said rolls shall participate in the feeding of the work, substantially as and for the purpose set forth.

7. In rolling apparatus of the character indicated, the combination of the two suitably-driven top and bottom rolls and arranged one above the other in the same vertical plane; the two vertical or upright side rolls adjustable apart and arranged at opposite ends, respectively, of the horizontal rolls, and centrally between the latter's axes; friction-disks operatively connected with or formed upon the trunnions of the top roll; horizontally-arranged friction-disks operatively connected with the upright rolls and frictionally engaging the friction-disks upon the aforesaid trunnions; pistons supporting the horizontal friction-disks; chambers formed around the lower ends of said pistons; passage-ways for conducting fluid under pressure to said chambers, and the arrangement of parts being such that all of said rolls shall participate in the feeding of the work, substantially as and for the purpose set forth.

8. In rolling apparatus of the character indicated, the combination of the two suitably-driven top and bottom rolls arranged one above the other in the same vertical plane; two vertical or upright side rolls arranged at opposite ends, respectively, of the first-mentioned rolls and centrally between the latter's axes; friction-disks operatively connected with or formed upon the top roll; horizontally-arranged friction-disks operatively connected with the upright rolls and frictionally engaging the first-mentioned friction-disks; hollow upright cylinders arranged centrally within the upright rolls; pistons supporting the horizontal friction-disks and extending into the said cylinders; the stuffing boxes at the upper ends of the cylinders; passage-ways for conducting fluid under pressure to the cylinders' chambers, and the arrangement of parts being such that all of said rolls shall participate in the feeding of the work, substantially as and for the purpose set forth.

9. In rolling apparatus of the character indicated, the combination of the two suitably-driven top and bottom rolls arranged one above the other in the same vertical plane; two vertical or upright side rolls arranged at opposite ends, respectively, of the first-mentioned rolls and centrally between the latter's axes; friction-disks operatively connected with or formed upon the trunnions of the top roll; horizontally-arranged friction-disks operatively connected with the upright rolls and frictionally engaging the friction-disks upon the aforesaid trunnions; upright hollow cylinders affording bearing for the upright rolls and each cylinder having an external annular shoulder formed upon its lower end, and antifriction-balls interposed between the opposing surfaces of said shoulder and the roll supported upon said shoulder; pistons extending into the chambers of the cylinders and bearing the horizontal friction-disks; passage-ways for conducting fluid under pressure to said cylinder-chambers, and the arrangement of parts being such that all of said rolls shall participate in the feeding of the work, substantially as and for the purpose set forth.

10. In rolling apparatus of the character indicated, the combination of the two suitably-driven top and bottom rolls arranged one above the other in the same vertical plane; two suitably-supported vertical or upright side rolls adjustable apart and arranged at opposite ends, respectively, of the first-mentioned rolls and centrally between the latter's axes; friction-disks operatively connected with or formed upon the trunnions of the top roll; horizontally-arranged friction-disks operatively connected with the upright rolls and frictionally engaging the friction-disks upon the aforesaid trunnions; pistons supporting the horizontal friction-disks; chambers formed around the lower ends of said pistons; passage-ways for conducting fluid under pressure to said chambers; ports extending upwardly through the pistons from and in open relation with said chambers and terminating, at their upper ends, in nozzles or nipples arranged to discharge upwardly, and the arrangement of parts being such that all of said rolls shall participate in the feeding of the work, substantially as and for the purpose set forth.

11. In rolling apparatus of the character indicated, the combination of the two suitably-driven horizontal and parallel rolls arranged one above the other in the same vertical plane; two positively-driven vertical or upright side rolls arranged at opposite ends, respectively, of the horizontal rolls and centrally between the latter's axes; the suitably-supported upright segmental thrust-plates for said upright rolls, and said plates being arranged on edge and opposite to the place of rolling, and any suitable number of suitably-supported upright antifriction-rollers interposed between said plates and the rolls, substantially as and for the purpose set forth.

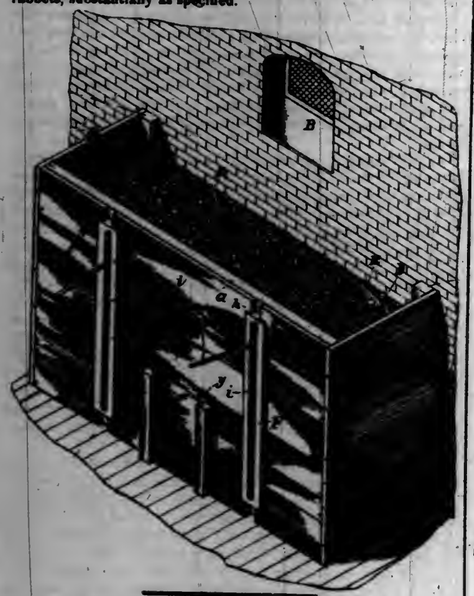
12. In rolling apparatus of the character indicated, the combination of the two suitably-driven horizontal and parallel rolls arranged one above the other in the same vertical plane; upright housings at opposite ends, respectively, of said rolls and supporting the lower roll; two positively-driven vertical or upright side rolls arranged at opposite ends, respectively, of the horizontal rolls and centrally between the latter's axes; two blocks bearing the different side rolls, respectively, and supported from the different housings, respectively, and means for adjusting the upper horizontal roll vertically; two slides secured to the different roll-bearing blocks, respectively, and supported from the different housings, respectively, and means for adjusting said slides toward and from each other, substantially as set forth.

13. In rolling apparatus of the character indicated, the combination of the two suitably-driven horizontal and parallel rolls arranged one above the other in the same vertical plane; upright housings at opposite ends, respectively, of said rolls and supporting the lower roll; two positively-driven vertical or upright side rolls arranged at opposite ends, respectively, of the horizontal rolls and centrally between the latter's axes; two blocks bearing the different side rolls, respectively, and supported from the different housings, respectively, and means for adjusting the upper horizontal roll vertically; two slides secured to the different roller-bearing blocks, respectively, and supported from the different housings, respectively, means for adjusting said slides toward and from each other, a pair of guide-bars arranged at opposite sides of the work's path leading to the rolls; another pair of guide-bars arranged at opposite sides, respectively, of the work's path leading from the rolls, and the members of each pair of guide-bars being rigidly secured to the adjacent roll-bearing block and the slide connected with said block, and shoulders or seats formed upon the said blocks for the guide-bars, substantially as and for the purpose set forth.

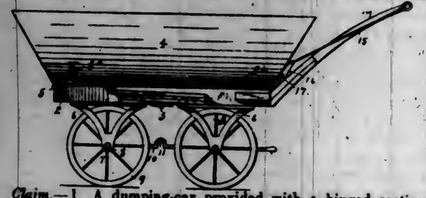
14. In rolling apparatus of the character indicated, the combination of the positively-driven horizontal rolls arranged to operate upon the inside of the flanges and both sides of the web; positively-driven vertical or upright rolls arranged to work on the outside of flanges; positively-driven horizontal rolls arranged to operate upon the edges of the flanges, and mechanism or apparatus for working all of said rolls in unison in a like direction at a like speed, and said rolls having furthermore such relative arrangement that all of them simultaneously operate upon the piece of work under manipulation during every pass of said work.

587,959. COAL-BIN. ANTHONY B. HARBURGER, Baltimore, Md. Filed Jan. 15, 1897. Serial No. 619,348. (No model.)

Claim.—In a coal-bin for the purpose described, the front thereof constructed of rabbeted slotted plates secured at top and bottom to the frame of the bin, and boards with their ends seated in the said rabbets, substantially as specified.



587,960. AUTOMATIC DUMPING-TRUCK. JOHN H. HANNER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,637. (No model.)



Claim.—1. A dumping-car provided with a hinged sectional frame, automatic dumping mechanism, secured to the said sections, a rod provided with a recess, said rod operating to lock the wheels into frictional engagement, and means carried by the handle, to release the body, substantially as shown and described.

2. A dumping-car provided with a frame hinged intermediate the ends, wheels carried by said frame, a spring-catch secured to the front section, engaging a lug secured to the body, means for releasing the spring-catch, and means for locking the wheels into engagement, substantially as shown and described.

3. In a dumping-car, a sectional frame, a body hinged to said frame, means secured to the sections to automatically dump the body, and means for locking wheels into frictional contact, substantially as shown and described.

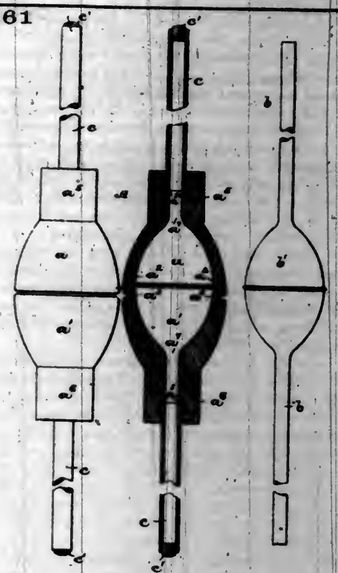
587,961. MOLD FOR VULCANIZING ATOMIZER OR SYRINGE BULBS, &c. JOHN C. HARDMAN, Belleville, N. J. Filed Oct. 1, 1895. Renewed June 14, 1897. Serial No. 640,758. (No model.)

Claim.—1. A mold for vulcanizing atomizer or syringe bulbs and tubing in one continuous and seamless piece, consisting of two separable half-molds, an opening in one or both of said half-molds, and a metallic tube in said opening or openings, substantially as and for the purposes set forth.

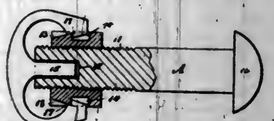
2. A mold for vulcanizing atomizer or syringe bulbs and tubing in one continuous and seamless piece, consisting of two separable half-molds, an opening in one or both of said half-molds, a metal tube in said opening or openings, and a plug in the end of said tube, substantially as and for the purposes set forth.

3. A mold for vulcanizing atomizer or syringe bulbs and tubing in one continuous and seamless piece, consisting of two half-molds a and a', a neck a^3 on the half-mold a, a neck a^4 on the half-mold a', a hole in each neck, and a tube c in each hole in said necks, substantially as and for the purposes set forth.

587,961

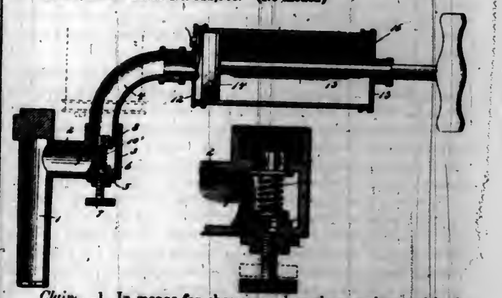


587,962. NUT-LOCK. JOHN H. HARTMAN, Germantown, N. Y., assignor to Frank Fisher, same place. Filed July 22, 1896. Serial No. 600,138. (No model.)



Claim.—In a nut-lock, a bolt, the threaded end of which is provided with a recess having angular walls, a nut screwing on the threaded end of the bolt and having a recess in one side, the nut also having a guideway leading upwardly and inwardly from the recess, and a yoke having two arms one of which is angular and fitted within the recess in the bolt and the second of which is provided with an inclined face terminating at its upper end in a shoulder, the yoke being adapted to be moved downward so that the arm with the inclined face will ride along the guideway and spring into the recess of the nut and so that the shoulder will bind against the upper wall of the recess in the nut, substantially as described.

587,963. BEER-PUMP. ALBERT L. HEIDEMAN, Elgin, Ill. Filed Feb. 8, 1897. Serial No. 622,565. (No model.)



Claim.—1. In means for charging a barrel or package with air under pressure, a vent to be secured to a barrel or package provided with oppositely-disposed openings, an inwardly-opening check-valve for controlling one of the said openings, means for closing the other opening, a regulator applied to the closure for limiting the movement of the check-valve and holding it against its seat, and a pump fitted to the opening having the check-valve for charging the barrel, &c., with air, substantially as and for the purpose set forth.

2. The herein-described means for charging a barrel, package &c., containing a liquid with air under pressure, the same consisting of a hollow plug having a lateral branch terminating in a sleeve, and having the branch formed with openings in its sides at diametrically opposite points, a pump adapted to be fitted to the said sleeve, an inwardly-opening check-valve located within the branch and closing the opening opposite the sleeve and having a stem, a plug fitted in the other opening and having a bore which is enlarged at its inner end to receive the stem of the check-valve, a spring mounted upon the stem of the check-valve and confined between the said plug and check-valve, and a screw operating in the outer threaded portion of the bore in the plug to engage with the stem of the check-valve and hold the latter seated, substantially as and for the purpose specified.

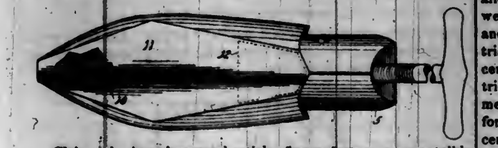
587,964. BRUSH. HARRY R. HENRY, Pittsburg, Pa. Filed May 13, 1897. Serial No. 636,144. (No model.)



Claim.—1. In a brush, a block secured to the back thereof, said block provided with a longitudinal groove, guides arranged in said groove, a bar operating through said guides, a scraper on the outer end of said bar, a spring arranged on the bar to operate the same, and a locking-bar arranged transversely of the block to hold the scraper in close proximity thereto and permit the spring-arranged bar to force the scraper outwardly from the brush, substantially as shown and described.

2. In a brush the combination of a block secured to the back of the brush, a bar operating in said block, a scraper provided with a hook on the outer end of said bar, a spring arranged on the bar for operating same, and a locking-bar arranged transversely of the block to hold the scraper in close proximity to the block and permit the same to be forced outwardly in position for use, substantially as shown and described.

587,965. EXPANSIBLE COVER FOR SHOE-STRETCHERS. JULIUS HERZER, Milwaukee, Wis. Filed Mar. 17, 1897. Serial No. 628,051. (No model.)



Claim.—1. As an improved article of manufacture, an expansible covering for shoe-stretchers.

2. The combination with a shoe-stretcher consisting of separable or adjustable sections, of an expansible covering for the stretcher, adapted to bridge over the openings formed by the stretcher, when the parts thereof are separated.

3. As an improved article of manufacture, a covering for a shoe-stretcher, composed of suitable material and shaped to fit the stretcher, and having its edges free and overlapping.

4. As an improved article of manufacture, a covering for a shoe-stretcher, composed of suitable material, and shaped to fit the stretcher, and having its free edges formed with registering slits to provide an opening.

5. As an improved article of manufacture, a covering for a shoe-stretcher composed of suitable material, and shaped to fit the stretcher, and provided with a longitudinal slit.

6. As an improved article of manufacture, a covering for a shoe-stretcher composed of suitable material, and shaped to fit the stretcher, and provided with a longitudinal slit, and a lip or tongue secured to the covering and bridging over the longitudinal slit.

7. As an improved article of manufacture, a covering for a shoe-stretcher composed of suitable material, and shaped to fit the stretcher, and having its free edges on its under side overlapping, and provided with a longitudinal opening in its top, and a tongue or lip secured to the covering and bridging over the longitudinal opening in the top.

587,966. BELT-COUPLING. JOSEPH C. HOBSON, Brockport, N. Y. Filed Jan. 17, 1896. Serial No. 575,813. (No model.)

Claim.—1. A belt-coupling consisting of two flat metallic links set on edge each adapted to be passed through a slit in the belt, connected by an interposed flat metallic pivoted link, likewise set on edge and a rigid fastening pin or rod adapted to pass through a hole in each link on the upper side of the belt.



2. The combination of the two links, the intermediate connecting-links pivoted as shown, and the two rigid binding-rods, said links being set on edge and adapted to operate substantially as specified.

587,967. BLANK FOR CARTONS. WARREN B. HOWE, HOMER W. HOWE, and FRANK B. DAVIDSON, Chicago, Ill. Filed Dec. 3, 1896. Serial No. 614,334. (No model.)



Claim.—1. A blank for cartons, having longitudinal and transverse parallel, weakened lines forming four rectangular panels, and oblique weakened lines forming with the longitudinal lines four lateral panels and with the side margins of the blank three intermediate, marginal, triangular panels one end of the blank having oblique edges adjacent to its side margins, which oblique edges are embraced by adjacent triangular panels to constitute triangular flaps which overlap the meeting edges of the blank when the latter is folded.

2. A blank for cartons, having longitudinal and transverse, parallel, weakened lines forming four rectangular panels, and oblique weakened lines forming with the longitudinal lines four lateral triangular panels and with the side margins of the blank three intermediate, marginal triangular panels, one of said marginal panels being provided with a locking-slit into which the triangular flap of the folded blank may be inserted.

3. A blank for cartons having longitudinal and transverse, parallel weakened lines forming four rectangular panels and oblique weakened lines forming with the longitudinal lines, four lateral panels and with the side margins of the blank three intermediate, marginal, triangular panels; one end of the blank having oblique edges adjacent to its side margins, which oblique edges are embraced by adjacent triangular panels to constitute triangular flaps which overlap the meeting edges of the blank when the latter is folded and the lines forming the outer margins of the two adjacent lateral panels at the central part of the blank being shifted outwardly to provide for the additional thickness of paper at the lines at which the triangular outer flaps are folded down against the overlapping panels beneath them.

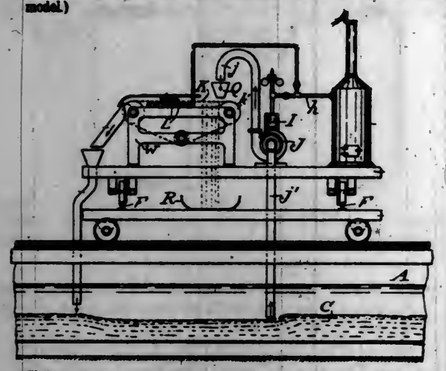
4. A blank for cartons having longitudinal and transverse, parallel, weakened lines, forming four rectangular panels, and oblique weakened lines forming with the longitudinal lines, four lateral, triangular panels and with the side margins of the blank, three intermediate, marginal, triangular panels, one of said marginal panels being provided with a locking-slit into which the triangular flap of the folded blank may be inserted; the lines forming the outer margins of the two adjacent lateral panels at the central part of the blank being shifted outwardly to provide for the additional thickness of paper at the lines at which the triangular outer flaps are folded down against the overlapping panels beneath them.

587,968. SCISSORS. JOHN W. JAEB, Pittsburg, Pa. Filed Sept. 26, 1896. Serial No. 607,097. (No model.)



Claim.—In a device of the character described, scissors provided with shanks having receptacles formed therein, recesses formed in the handles at one side of the receptacles and in combination therewith pins fitting in the ends of the receptacles, half-flanges formed on the pins and adapted to enter the recesses of the handles, substantially as described.

587,969. APPARATUS FOR CLEANING FILTERS. IRA H. JEWELL, Chicago, Ill. Filed Nov. 7, 1892. Serial No. 451,163. (No model.)



Claim.—1. An apparatus for continuously cleansing filter-beds of large area, comprising a pump for continuously lifting successive portions of the filter-bed and of the supernatant water and impurities, a screen for separating the water and impurities from the filtering material, a conduit for carrying off the water and impurities, and a conduit for receiving the cleansed filtering material from the screen and for delivering such material upon the filter-bed, substantially as described.

2. An apparatus for continuously cleansing filter-beds of large area, comprising a pump for continuously lifting successive portions of the filter-bed and of the supernatant water and impurities, a traveling screen for separating the water and impurities from the filtering material, a conduit for carrying off the water and impurities from the screen, perforated steam-pipes located beneath the screen, and a conduit for receiving the cleansed filtering material and for delivering said material upon the filter-bed, substantially as set forth.

3. An apparatus for continuously cleansing filter-beds of large area, comprising a wheeled platform, a wheeled truck mounted upon said platform and movable transversely to the direction of movement of the platform, a pump mounted upon the truck and serving to continuously lift portions of the filtering-bed and of the supernatant water and impurities, a screen also mounted upon the truck and receiving the discharge from the pump, a conduit for carrying off the water and impurities from the screen, and a conduit for receiving the cleansed filtering material from the screen and delivering such material upon the filter-bed; both conduits being mounted upon the truck, all substantially as set forth.

4. An apparatus for continuously cleansing the beds of gravity-filters of large area, comprising a movable platform, a truck movably mounted thereon and adapted to travel transversely to the direction of movement of said platform, a lifting apparatus mounted on the truck for continuously lifting portions of the upper stratum of the filter-bed, mechanism, also located on the truck, for continuously separating the supernatant water and impurities from the material lifted and means for redepositing the cleansed material upon the filter-bed, substantially as described.

5. An apparatus for continuously cleansing filter-beds of large area, comprising a traveling platform, a truck mounted thereon and adapted to traverse said platform, an elevating apparatus mounted on said truck, adapted to raise successive portions of the filter-bed, an endless traveling screen adapted to receive said elevated material and separate the liquid from sludge and impurities, and a system of sterilizing-pipes located upon said truck adjacent to said screen and adapted to convey steam or other sterilizing agent, whereby the filtering material carried over said screen is sterilized, and means for redepositing the cleansed and sterilized material, substantially as described.

6. An apparatus for continuously cleansing the beds of gravity-filters of large area comprising a movable platform, a lifting device mounted thereon for continuously raising portions of the upper or superficial stratum of the filtering material, mechanism substantially as described for simultaneously cleansing said raised portions of the filtering material while separated from the filter-bed, and a conduit whereby the cleansed material may be redeposited upon the filter-bed, substantially as described.

587,970. TEMPORARY CARTRIDGE-CLIP. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 28, 1896. Serial No. 607,137. (No model.)

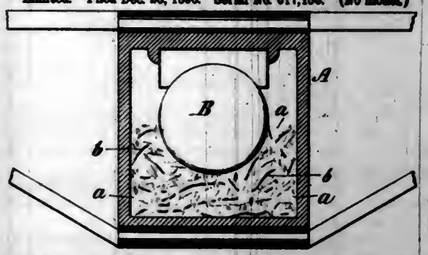
Claim.—1. A temporary cartridge-clip, adapted in depth to hold the cartridges loosely, having a long flat back or body portion and two corresponding side flanges having their edges turned inward to engage the rims of the cartridges which are held thereby while their body portions are exposed for being grasped by the fingers of the hand, and the said clip being also open at its ends, which are furnished with yielding cartridge-retaining fingers, and being provided upon the outer face of its back or body portion with a small, centrally-arranged ripping-off projection, substantially as set forth.



2. A temporary cartridge-clip, adapted in depth to hold the cartridges loosely, having a long flat back or body portion and two corresponding side flanges having their edges turned inward to engage the rims of the cartridges which are loosely held thereby while their body portions are exposed for being grasped by the fingers of the hand, and the said clip being also open at its ends which are furnished with yielding cartridge-retaining fingers located on opposite sides of its longitudinal center, and being provided upon the outer face of its back or body portion with a small, centrally-arranged ripping-off projection, substantially as set forth.

3. A temporary cartridge-clip, adapted in depth to hold the cartridges loosely, having a long flat back or body portion, and two corresponding side flanges having their edges turned inward to engage the rims of the cartridges which are loosely held thereby while their body portions are exposed for being grasped by the fingers of the hand, and the said clip being also open at its ends which are furnished with non-elastic cartridge-retaining fingers formed integral with its side flanges, and projecting beyond its ends, and located on opposite sides of the longitudinal center of the clip and adapted to be folded inwardly in the plane of the body portion of the clip for closing the ends thereof, and the said clip being also provided upon the outer face of its back or body portion with a small, centrally-arranged, ripping-off projection, substantially as described.

587,971. PACKING FOR JOURNAL-BOXES. EDWARD R. JOHNSTON, Franklin, Pa., assignor to the Franklin Manufacturing Company, Limited. Filed Dec. 28, 1896. Serial No. 617,166. (No model.)



Claim.—1. A packing for journal-boxes, comprising a conductor for the lubricating-oil, non-absorbent and non-combustible in character, having intermingled therewith an elastic, fibrous material, said packing being retained in a fluffy and non-compressed state, for the purpose set forth.

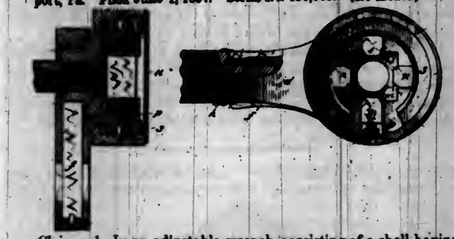
2. A packing for journal-boxes, comprising a conductor for the lubricating-oil, non-absorbent and non-combustible in character, having intermingled therewith an elastic, fibrous, non-absorbent material, said packing being retained in a fluffy and non-compressed state, for the purpose set forth.

3. A packing for journal-boxes, comprising a conductor for the lubricating-oil, fibrous, non-absorbent and non-combustible in character, having intermingled therewith an elastic, fibrous, non-absorbent material, said packing being retained in a fluffy and non-compressed state for the purpose set forth.

4. A packing for journal-boxes, comprising elastic fiber and asbestos fiber, both said fibers being intermingled and retained in a fluffy and non-compressed state, for the purpose set forth.

5. A packing for journal-boxes, comprising bamboo fiber and asbestos fiber, both said fibers being intermingled and retained in a fluffy and non-compressed state.

587,972. ADJUSTABLE WRENCH. WILLIAM J. JOHNS, McKeesport, Pa. Filed June 1, 1897. Serial No. 639,085. (No model.)



Claim.—1. In an adjustable wrench, consisting of a shell having a ratchet formed integral therewith, a handle engaging over the ratchet secured to said shell, ratchet-levers arranged in the handle to operate the ratchet, a die secured in said shell, adjustable jaws operating in said die, and means for adjusting said jaws radially within the die, substantially as shown and described.

2. A ratchet-wrench consisting of a die, jaws arranged in said die, and means for adjusting said jaws, a shell surrounding the die and jaws, a ratchet formed with said shell, a handle secured thereto, and ratchet-levers operating in said handle to engage the ratchet.

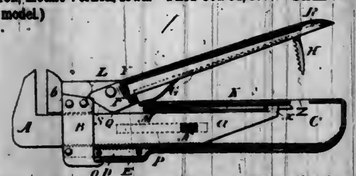
3. A ratchet-wrench consisting of a shell, and a die secured therein, a ratchet formed on said shell, jaws operating in said die, means for adjusting said jaws, and means within the handle for operating the ratchet, substantially as shown and described.

587,973. ROD-POLISHING ACCESSORY. LAZARD KAHN and MARTIN LONGFELLOW, Hamilton, Ohio, assignors to F. & L. Kahn & Bros., same place. Filed Oct. 28, 1896. Serial No. 610,263. (No model.)



Claim.—In a rod-polishing accessory, the combination, substantially as set forth, of a portable standard adapted to have its lower end rest upon the floor and its upper portion supported by hand, and a pair of bearings carried side by side by an intermediate portion of said standard and adapted to receive and obliquely support the rod to be polished.

587,974. LOCK-JAW WRENCH. ELMER L. KEITH and JAMES R. COLTON, Mount Vernon, Iowa. Filed Oct. 31, 1896. Serial No. 610,772. (No model.)



Claim.—1. In a wrench the combination of the hollow handle C C, having slots P adapted to button N, the slots M adapted to the catch K, the shoulder Y adapted to receive the front end of the cover of lever F, and opening Z adapted to receive hook H of the lever F, with the oscillating jaw B, the head A, and bar *a* sliding within the hollow handle, the cam-lever F having a spring to raise said lever, spring E, the sliding catch K having lugs projecting through slots M and the push-button N attached to bar *a* and sliding in slots P, substantially as described.

2. In a wrench the combination of the sliding catch K sliding in the upper edge of the handle, having a lug projecting at right angles from each side on its front end through slots M of the plates C C, having one side recessed or cut away to conform to the shape and movements of the projection *x* of bar *a* and having its rear end adapted to catch and hold the hook H with the hollow handle having the slots M through which the catch is operated by its projecting lugs, and opening Z admitting hook H to engage with said catch, the lever F having notched hook H adapted to engage with said catch and the bar *a* having projection *x* adapted to prevent bar *a* from interfering with said catch, substantially as described.

3. In a wrench the combination of the head A and its bar *a* having push-button N, adapted to operate the said bar through slots P, and projection *x* adapted to engage with the top of the handle to hold the bar in line, with the oscillating jaw B having projection *b*, the hollow handle receiving said bar, and the lever F, substantially as described.

4. In a wrench the combination of the lever F having the pointed head flattened at S and adapted to force jaw B forward and bar *a* downward, having the hooked end H adapted to enter the hollow handle and engage with the catch K, having the cover adapted to make a handpiece and give strength to the lever and to strike against the shoulder Y, and having spring G, substantially as described.

5. In a wrench the combination of the hollow handle C C having slots P slots M shoulder Y and opening Z, the oscillating jaw B having projection *b*, the bar *a* having button N and projection *x*, the lever F having the pointed head flattened at S, and having notched hook H and spring G, the sliding catch K having lugs through M and rear end adapted to hook H, with the spring E and piece D, substantially as described.

587,975. PLANTER ATTACHMENT. CHARLES I. KELSO and JOHN C. JOHANUS, Rock Rapids, Iowa. Filed Jan. 18, 1897. Serial No. 619,604. (No model.)



Claim.—1. In a seed-dropping mechanism, the combination of a case having guideways, an ejector-wheel located within the case and directed in its vertical movements by the said guideways, a forked frame straddling the ejector-wheel and having the lower ends of the side members notched to receive the ends of the axle upon which the ejector-wheel is mounted, and a spring exerting a downward pressure upon the forked frame, substantially as and for the purpose set forth.

2. In a seed-dropping mechanism, the combination of a case having guideways, an axle having its end portions entering the said guideways, an ejector-wheel mounted upon the axle, a forked frame straddling the ejector-wheel and having the lower ends of its side members notched to receive the end portions of the aforesaid axle, and having studs or lateral extensions operating in the said guideways, and a spring for exerting a downward pressure upon the forked frame, substantially as set forth for the purpose described.

3. In a seed-dropping mechanism, the combination of a case having guideways, a cap removably fitted to the case and held thereto by positive means, an ejector-wheel, a forked frame mounted upon the axle of the ejector-wheel and having lateral projections operating in the aforesaid guideways, and provided with a stem working through an opening in the cap, a spring mounted upon the said stem, a plate located within the case and having an opening for the stem of the forked frame to operate loosely through, and engaging with the upper end of the said spring, and tension-screws mounted in the cap and bearing against the said plate, substantially as and for the purpose set forth.

4. The herein-described ejector attachment for planters, comprising a case having guideways and lateral extensions, a cap for closing the case having apertured spring-ears to engage with the lateral extensions, an ejector-wheel, a forked frame mounted upon the axle of the ejector-wheel and having a stem and lateral extensions, a spring, a plate supported by the spring and having the said stem operating therethrough, and tension-screws carried by the cap and engaging with the said plate, substantially as and for the purpose set forth.

587,976. PULLEY-LOCKING DEVICE. WILLIAM H. KIRKHAM, Berkeley, Cal., assignor to H. B. Poehlman, San Francisco, Cal. Filed Nov. 30, 1896. Serial No. 613,905. (No model.)



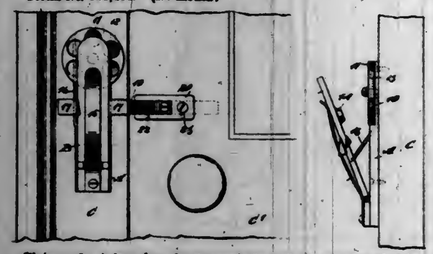
Claim.—1. The combination, with a grooved pulley having spiral locking-channels, of a shaft slidable through the pulley, bearings for said shaft, a hoisting cord or line, a yoke connected with the shaft having an opening through which the hoisting cord or rope passes

from the pulley, a spring whereby the yoke is normally moved to one side with the opening out of line with the pulley-groove, said spring yielding to allow the rope to move, so that the rope is brought into line with the pulley-groove when power is applied.

2. A pulley-locking device consisting of a yoke connected with the ends of the pulley-shaft, said yoke having a central opening adapted to be brought into line with the groove of the pulley or moved to one side thereof, a pulley loosely journaled upon the shaft, bearings between which the pulley is mounted and within which the shaft is slidable longitudinally, a holding cord or rope and a means whereby the yoke is normally drawn to one side so as to bring the cord or rope which passes over it and through the yoke-opening, into position to be locked against the pulley-frame when released.

3. The combination, with a grooved pulley having spiral locking-channels, and a hoisting cord or line, of a yoke or guide engaging said cord or line and suspended from the axis of the pulley, and capable of sliding transversely thereon to carry the cord or line into or out of line with the pulley-groove.

587,977. BURGLAR-ALARM. CLAYTON I. KNAPP, New York, N. Y., assignor to Coralie J. Knapp, same place. Filed Jan. 23, 1897. Serial No. 620,401. (No model.)



Claim.—1. A burglar-alarm consisting of a base-plate having a pocket to receive an explosive, a hammer carried by the base-plate, said hammer being spring-controlled and capable of movement to and from the said pocket, and an arm projected from the said hammer, having its outer face beveled, and a trip-bar having its under surface beveled, the said trip-bar being adapted to engage with the arm and carry the hammer outward against the resistance of its spring, and the beveled surface of the trip-bar being adapted for engagement with the beveled surface of said arm when the trip-bar is to be carried again to an operative engagement with the arm of the hammer, as and for the purpose specified.

2. A burglar-alarm consisting of a base-plate having a pocket for the reception of an explosive, a hammer carried by the base-plate, said hammer being spring-controlled, an arm projected from the said hammer, having its under surface straight and its outer surface beveled, a pivoted trip-bar arranged for engagement with the said arm, the said trip-bar having its outer face straight and its under face at its free end beveled, and a supporting device for the said trip-arm, as and for the purpose specified.

3. In a burglar-alarm, a base-plate, a disk provided with pockets to receive explosives and held to turn on the base-plate, the said disk being provided also with ratchet-teeth, a spring-controlled hammer carried by the body, having a firing-pin adapted to enter the pockets in the disk, a shifting device for the disk, controlled by the movement of the hammer, an arm projected from the disk, and a pivoted trip-bar adapted for engagement with the said arm, as and for the purpose set forth.

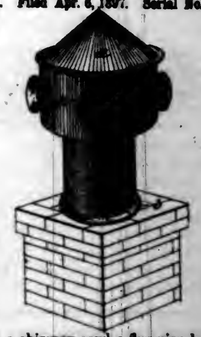
4. In a burglar-alarm, a base-plate, a disk provided with pockets to receive explosives and held to turn on the base-plate, the said disk being provided also with ratchet-teeth, a spring-controlled hammer carried by the plate, having a firing-pin adapted to enter the pockets in the disk, a shifting device for the disk, controlled by the movement of the hammer, an arm projected from the hammer, having a flat under face and a beveled outer face, a pivoted trip-bar and a support for the said bar, the free end of the bar having its outer face straight and its inner or under face beveled, the free end of the trip-bar being adapted for engagement with the arm of the hammer, as and for the purpose set forth.

5. The combination with a base-plate, of a movable cartridge-carrier lying flat against the base-plate, a hammer pivoted to the base-plate and movable toward and from the cartridge-carrier, a spring carried on the base-plate and pressing the hammer toward the cartridge-carrier, and a connection between the hammer and the cartridge-carrier to operate the cartridge-carrier from the hammer.

6. The combination of a base-plate capable of carrying a cartridge, a hammer pivoted to the base-plate and swinging toward and from the same to explode the cartridge, an arm running transversely to the hammer and attached thereto whereby to transmit movement to the hammer, and a leaf-spring secured flat against a portion of the base-plate and bearing flat against the outer face of the hammer whereby to press the arm inward against the base-plate.

7. The combination with a base-plate, of a movable cartridge-carrier on the base-plate, a hammer pivoted to the base-plate and swinging toward and from the face of the cartridge-carrier, means actuating the hammer, and a connection between the hammer and the cartridge-carrier whereby the cartridge-carrier is revolved.

587,978. CHIMNEY-TOP. CARLE KUHNHOLD and WILLIAM STRUP, Allegheny, Pa. Filed Apr. 6, 1897. Serial No. 630,977. (No model.)

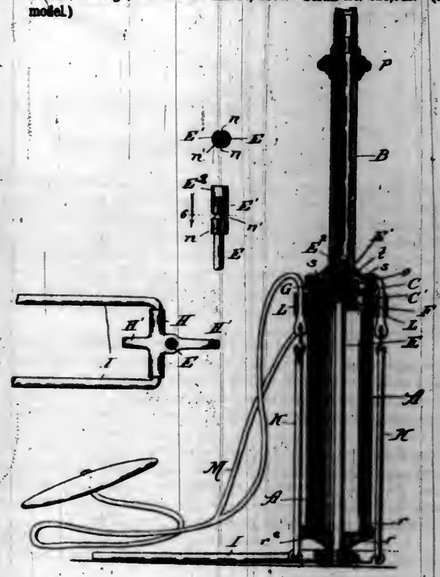


Claim.—1. In a chimney-cowl, a flue-pipe having a flared upper end, provided with openings, a deflecting-frustum within the said flared portion, a conical cap on the upper end of said flue, a band surrounding the flared portion of the flue said band being provided with openings, and flap-valve for covering said openings and preventing the passage of the wind to the openings in the flue-pipes, substantially as shown and described.

2. In a chimney-cowl the combination of the flue-pipe having a flared upper end provided with openings, a band surrounding said flared portion which is also provided with openings opposite the openings in the flared portion, flap-valves for covering the openings in the band and a deflecting-frustum within the flared portion, substantially as shown and described.

3. In a chimney-cowl the combination of the flue-pipe provided with openings, a band surrounding the upper portion of said flue-pipe, said band being provided with openings and flap-valves and a deflecting-frustum within the flue, substantially as shown and described.

587,979. PUMP FOR PNEUMATIC TIRES, &c. HERMAN LEINWEBER, Chicago, Ill. Filed Jan. 27, 1897. Serial No. 620,913. (No model.)



Claim.—1. A pump for pneumatic tires and the like, comprising a barrel and a piston, said piston comprising two telescoping members adapted to be interlocked at need, one of said members constituting a tube for the passage of air compressed in the pump to the nipple, substantially as described.

2. A pump for pneumatic tires and the like, comprising a barrel and means for lifting the same, a piston and a pedal extension for holding the same in fixed position while the barrel is being lifted, and a tube having a fixed connection with the piston and leading from the barrel, substantially as described.

3. A pump for pneumatic tires and the like, comprising in combination a barrel and means for operating the same with relation to the contained piston, a piston within the barrel and a tube leading from said piston, a pedal extension, a rod leading from the pedal extension to the piston, and means for locking the rod and piston together at need, substantially as described.

4. A pump for pneumatic tires adapted to be held to the ground and operated by hand and adapted to be collapsed when not in use into a small compass, and to this end comprising a barrel, a piston, a piston-tube, a piston-rod, means for interlocking said tube and rod at will and their ready unlocking, and a pedal extension, all said parts being constructed substantially as described.

5. A pump for pneumatic tires comprising a barrel A, piston C, tube B, rod E and a locking mechanism for the rod and tube, whereby they may be held together at will or unlocked and collapsed one upon the other, and a pedal extension connected with the rod E, substantially as described.

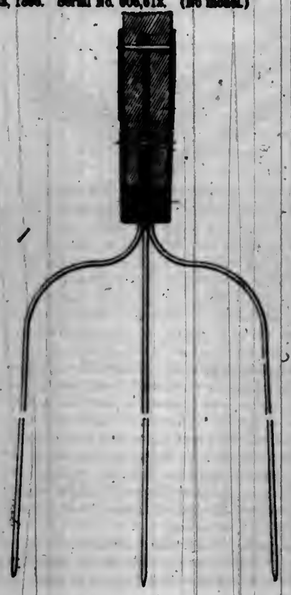
6. In a pump for pneumatic tires, of the nature described, the combination with the barrel A and piston C, of a tube B having the annular recess D and the rod E having the head E' provided with the annular recess e' and the ring G, substantially as and for the purpose described.

7. In a pump of the character described, the combination with the pump barrel A and the piston therein and with the piston-tube B and rod E and means for interlocking the same at will, of the packing F' in the tube B, as and for the purpose described.

8. The combination with a pump and its piston, of a pedal extension, whereby the pump may be held to the ground, a handle and a flexible connection between the handle and the movable member of the pump, whereby the pump when not in use may be confined within a space permitting its inclosure in the tool-bag of a bicycle, as set forth.

9. The combination with the barrel A, the piston therein and means for holding the piston in fixed relation with the ground and with a cord or the like for lifting the barrel to compress air therein, of the springs K for returning the barrel to its normal position, substantially as described.

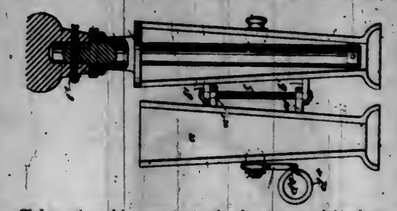
587,980. PITCHFORK. EMILE LIED, Kansas City, Mo. Filed Sept. 22, 1896. Serial No. 606,612. (No model.)



Claim.—1. A pitchfork, comprising a middle tine having near its upper end an aperture, and some distance below the same a laterally-projecting pin, side tines provided with parallel extensions which fit against opposite sides of the middle tine for a suitable distance and have holes or apertures engaging said laterally-projecting pin, and having a threaded shank below said pin, a sleeve or sheath internally threaded at its lower end and engaging said threaded shank, and a handle fitting in and detachably secured to said sleeve or sheath, substantially as described.

2. A pitchfork, comprising a middle tine, having an upward extension provided near its upper end with an aperture, at its lower end with screw-threads at its edges, and between said threaded portions and said aperture with a laterally-projecting pin, side tines having parallel portions which fit squarely against opposite sides of the extension of the middle tine, and are provided with holes which engage said laterally-projecting pin, and with threaded surfaces which register with the threaded portion of the middle-tine extension, so as to produce a threaded shank, a sleeve or sheath internally threaded at its lower end and engaging said threaded shank and provided with holes at its upper end which register with the hole or aperture in the upper end of the middle-tine extension, a handle fitting snugly in said sleeve or sheath and upon the cylindrical shank and upward extension of the middle tine, and provided with passages which register with the hole in the upper end of said extension and with the holes in the sleeve or sheath, and a removable pin engaging said registering holes or apertures, substantially as described.

587,981. CORKING APPARATUS. CHARLES VON DER LINDEN, Rhinebeck, N. Y., assignor to himself and William R. C. Clark, same place. Filed Feb. 15, 1897. Serial No. 623,430. (No model.)



Claim.—A corking apparatus having two semicircular sections, the sections being hinged to each other and the lower end of each section having an outwardly-flaring flange forming a mouth capable of receiving the mouth of the vessel being corked, the sections each having a semicircular tapering bore, a fastening device for holding the sections in closed position, a circular head secured to the upper end of one of the sections and overhanging the corresponding end of the other section, the circular head having a boss rising centrally therefrom and surrounding an opening therein, a plunger sliding through the boss and movable centrally within the space between the two sections, a head removably secured to the upper end of the plunger and a washer placed on the plunger to limit the downward movement thereof.

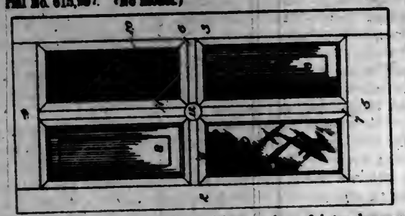
587,982. COMPOUND FOR CLOSING PUNCTURES IN PNEUMATIC TIRES. WILLIAM L. LYMAN, Eagle Pass, Tex. Filed Oct. 11, 1896. Serial No. 608,384. (No specimens.)



Claim.—1. A compound consisting of the following ingredients and proportions: five grains of boracic acid, one-quarter ounce caramel, sixteen ounces water, and ten ounces of a gummy substance, such, for instance, as dextrine, gelatin, gum-arabic and gum-mesquit.

2. A compound composed of boracic acid, dextrine, gelatin, gum-arabic, gum-mesquit, caramel and suitable water, approximately in the proportions specified.

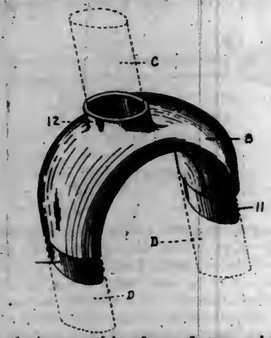
587,983. PANEL-DOOR. JAMES MARTIN, Elkhart, Ind., assignor of one-half to Charles J. Dellah, same place. Filed Dec. 17, 1896. Serial No. 615,997. (No model.)



Claim.—1. A door provided with a series of interchangeable panels, in combination with a turn-button having projecting wings disposed angularly to the axis of the button, said turn-button being placed at the crossing of the rail and munnion and said flanges operating in grooves in said rail and munnion and also in the contiguous corners of the panels, for removably securing said panels in said door, as and for the purpose set forth.

2. A door, comprising the side, top and bottom rails and the intersecting munnion and lock-rail, in combination with the thumb-button 12, having a shank 13, provided with a series of inclined flanges or wings 14, and the interchangeable panels provided with the engaging studs 11, substantially as shown and described.

587,984. FORK-CROWN FOR BICYCLES. AMBROSE T. MATTHEWS, Worcester, Mass. Filed Oct. 5, 1896. Serial No. 607,856. (No model.)



Claim.—1. As an article of manufacture, a hollow, rounding, arch-shaped crown-piece for connecting the fork-tubes of a bicycle, comprising an inner, hollow, sheet-metal shell A and an outer sheet-metal covering B, the joints of the inner shell and outer covering being out of line with each other, and the ends of one of the parts being extended below the ends of the other part to form sections adapted to engage the fork-tubes of a bicycle, substantially as described.

2. A fork-crown for bicycles comprising an inner shell formed from two sheet-metal blanks bent and brazed together at their edges, said blanks having integral, turned-in collars, which abut to form a socket for receiving the steering-tube of a bicycle, and an outer covering or envelop formed from a single sheet-metal blank bent around so that its edges are brought into engagement underneath the inner shell, substantially as described.

587,985. WHEELBARROW. GUSTAV H. MEYER, Davenport, Iowa. Filed Dec. 26, 1896. Serial No. 617,053. (No model.)



Claim.—1. As a new article of manufacture, a wheelbarrow constructed of a single blank or piece of sheet material which is cut to provide a body, legs, back, arms, and braces for the legs and back, said blank being subsequently bent into the form substantially as herein shown and described.

2. In a wheelbarrow, a body and legs formed from a single piece of sheet material, the legs having their outer edge portions bent and having slits extending inward a short distance from their extremities, and having the portions bordering upon the slits bent and overlapping, substantially as set forth.

3. In a wheelbarrow, a body, legs and braces formed of a single blank, the legs having their outer edge portions bent, and the rear braces for the legs being formed by longitudinal cuts along the edges of the body, and having the edge portions of the body bent and the parts formed by the longitudinal cuts folded upon the bent edge portions and secured at their free ends to the lower ends of the legs, substantially in the manner set forth.

4. In a wheelbarrow, a body and legs formed of a single piece, and having ears formed at the juncture of the legs with the body formed by cutting portions from the blank on three sides and bending the ears on a line corresponding with the fourth side, and having edge portions of the body and legs bent with their adjacent terminal ends overlapping and coming opposite to the said ears, and arms passing through the spaces provided by forming the ears and secured to the latter and to the overlapping terminals of the bent edge portions of the body and legs, substantially as set forth.

5. In a wheelbarrow, a back, rear braces and arms formed of a single blank, the lower ends of the rear braces being widened to provide ears, and having their edge portions bent and the said ears folded, overlapped and secured to the arms, substantially as set forth.

6. In a wheelbarrow, a back, rear braces and arms constructed of a single piece, the arms having their edge portions bent and formed with points, and axle or wheel bearings secured to the arms and having the pointed extremities thereof bent over the said bearings, substantially as and for the purpose specified.

7. In a wheelbarrow, the combination with the arms and rear braces, of axle or wheel bearings secured to the arms and having rear extensions overlapping the lower ends of the rear braces, substantially as specified.

8. A side piece for a wheelbarrow constructed of a single blank having an integral projection at its lower edge and formed with flutes or corrugations to stiffen and strengthen it, substantially as set forth.

587,986. TEMPORARY BINDER. HENRY C. MILLER and JULIUS BAUER, Milwaukee, Wis. Filed Apr. 26, 1897. Serial No. 633,845. (No model.)

Claim.—1. In a temporary binder, the combination, of upper and lower side pieces, revolubly telescoping parts extending respectively from the upper and lower side pieces, and adapted to move one within the other, as the side pieces are brought closer together or farther apart, and leaves having openings near their rear edges, with narrower slots extending from said openings to the rear edges, the telescoping parts adapted to be locked against withdrawal out of the openings of the leaves, when said telescoping parts are turned in one direction, and to be capable of withdrawal from the narrower slots of the leaves, when turned in the opposite direction.

2. In a temporary binder, the combination, of upper and lower side pieces, telescoping parts extending respectively from the upper and lower side pieces, and adapted to move one within the other, and to be given a partial revolution in either direction, and leaves having openings near their rear edges, with narrower slots extending from said openings to the rear edges, the telescoping parts adapted to be locked against withdrawal from the openings of the leaves, when said telescoping parts are turned in one direction, and to be capable of withdrawal through the narrow slots of the leaves, when turned in the opposite direction.

3. In a temporary binder, the combination, of upper and lower side pieces, one of said pieces provided near its rear edge with a vertical opening intersecting a horizontal recess, a tubular post provided at or near one end with an annular recess, a longitudinal strip fitting in the horizontal recess of one of the side pieces and provided with an opening registering with the opening of said side piece, the bordering edge of said opening of the strip fitting in the annular recess of the post, a vertical bar fitting in a vertical recess of the other side piece of the cover, the other end of said bar adapted to telescope into the tubular post, a longitudinal strip fitting in a horizontal recess with which the vertical recess communicates, said strip provided with an opening registering with said vertical recess, the bordering edge of the opening of the strip fitting the annular recess of the bar, and leaves provided near their rear edges with openings, and with narrower slots leading from the openings to the rear edges of the leaves, said openings adapted to register with the telescoping tubular post and bar, said telescoping parts adapted to be locked against withdrawal from the openings of the leaves, when said telescoping parts are turned in one direction, and to be capable of withdrawal from the narrower slots of the leaves, when turned in the opposite direction.

4. In a temporary binder, the combination, of upper and lower side pieces one of said side pieces provided at its rear edge with a vertical opening, intersecting a horizontal recess, a tubular post provided at or near one end with flanges forming a recess therebetween, a longitudinal strip fitting in the horizontal recess and provided with an opening registering with the opening of the side piece, the bordering edge of said opening of the strip fitting in the recess formed between the flanges of the tubular post, a vertical bar rectangular in cross-section, and fitting at one end in a vertical recess in the other side piece of the cover, and provided with flanges having a space therebetween to form a recess, and said bar having its opposite end telescoping into the tubular post, a longitudinal strip fitting in the horizontal recess with which the vertical recess communicates, said strip provided with an opening registering with said vertical recess, the bordering edge of said opening fitting the recess formed between the flanges of the bar, a lug projecting from one of the longitudinal strips, and adapted to act against shoulders formed upon one of the flanges of a post or bar, when said post and bar are turned together in either direction, and leaves each provided near its rear edge with an opening and with a narrower slot extending from said opening to the rear edge of the leaf, said opening adapted to register with the telescoping bar and tube; said telescoping parts adapted to be locked against withdrawal from the openings of the leaves, when said telescoping parts are turned in one direction, and to be capable of withdrawal from the narrow slots of the leaves, when turned in the opposite direction.

5. The combination, of parallel longitudinal strips provided with a registering opening or openings, a tubular post or posts extending into the opening or openings of one of the strips, and provided on each side of said strip with flanges, and a bar or bars extending into the opening or openings of the other longitudinal strip, and provided on opposite sides of said strip with flanges, said bar or bars telescoping into the tube or tubes, and the two parts adapted to be revolved together.

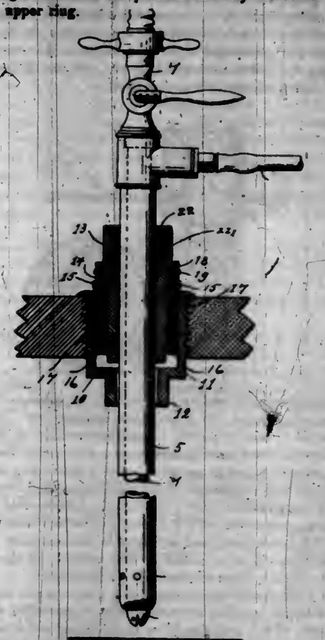
6. The combination, of parallel longitudinal strips, a tubular post or posts, and a bar or bars telescoping into the post or posts, said telescoping parts being revoluble in the parallel longitudinal strips.

7. In a temporary binder, the combination, of side pieces constituting the cover of the binder, a plate extending from one of the side pieces and provided with a toothed edge, a bar having teeth at one end, and at its upper edge provided with a projecting lug and a pivoted dog also provided with a projecting lug adapted to engage on either side of the lug of the bar to normally prevent longitudinal movement of the bar, said dog adapted to be raised by a key, or analogous device, so as to raise the lug of the dog out of engagement with the lug of the bar, whereby said bar may be moved in either direction, its movement in one direction causing its teeth to engage the teeth of the plate, and its movement in the opposite direction causing its teeth to be disengaged from the teeth of the plate, the final withdrawal of the key permitting the dog to resume its normal position.

587,987. MEANS FOR AERATING AND REFRIGERATING LIQUIDS. GEORGE MILLS, Bay, Mich. Filed Jan. 23, 1897. Serial No. 620,308. (No model.)

Claim.—1. In a device of the class described, a coupling-body, a ring screwed thereon, a loose ring movable thereon, a packing-ring arranged between the rings, a lever pivotally secured to the body, having a cam projection upon its lower end, whereby the loose ring is moved longitudinally of the coupling-body.

2. In a device of the class described, a keg, an air and a draw-off pipe leading into the keg to a point near the bottom thereof, a bushing secured into the keg, a coupling arranged in the bushing, comprising a body, a ring screwed thereon, a packing surrounding the body, and a ring bearing upon the upper edge of the packing, a lever having cam-faced ends pivoted centrally thereof to the body above the upper ring.



587,988. SASH-FASTENER. REUBEN D. MORGAN, Cleveland, Ohio. Filed Apr. 6, 1897. Serial No. 630,712. (No model.)



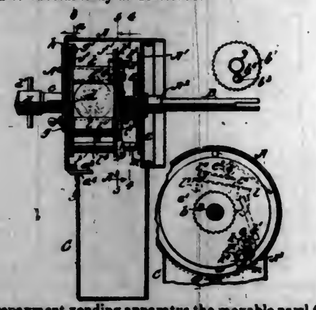
Claim.—1. A sash-lock consisting of a plate C designed to be secured to the lower rail of the upper sash; a shaft E connected at one end with said plate, capable of tilting forwardly and rearwardly in a vertical plane, and capable, also, of oscillating, and provided at its forward end with a lever E^1 and the recess *e* at the inner end of said lever, and another plate D designed to be secured to the upper rail of the lower sash and having an upright member or standard arranged to afford bearing for the outer end of said shaft and having its upper edge arranged to be engaged by the aforesaid recess, and inclined forwardly and upwardly in the direction in which the shaft is oscillated in rendering the latter operative, substantially as and for the purpose set forth.

2. A sash-lock consisting of a plate designed to be secured to the lower rail of the upper sash; a shaft connected, at one end, with said plate and capable of tilting forwardly and rearwardly in a vertical plane, and capable, also, of oscillating, and provided, at its forward end, with a lever and the recess *e* at the inner end of said lever, and another plate designed to be secured to the upper rail of the lower sash and having an upright member or standard arranged to afford bearing for the outer end of said shaft, and having its upper edge arranged to be engaged by the aforesaid recess and inclined forwardly and upwardly in the direction in which the shaft is oscillated in rendering the latter operative, and provided with a stop for limiting the oscillation of said shaft in said direction, substantially as set forth.

587,989. PREPAYMENT VENDING APPARATUS. FRANK E. MORGAN, West Haven, and RUSSELL C. BLAKESLEE, Torrington, Conn. Filed Dec. 16, 1896. Serial No. 615,849. (No model.)

Claim.—1. In a prepayment vending apparatus, the combination with a supply-controlling shaft, a coin-carrier and a movable coin-holder in said coin-carrier, of a pivoted pawl connected to be oscillated by said coin-holder substantially as and for the purposes described.

2. In a prepayment vending apparatus, the combination with a supply-controlling shaft, of a coin-carrier, a movable coin-holder in said coin-carrier, a stud for discharging the coin from the coin-holder and a pivoted pawl connected to the coin-holder so that discharge of the coin from the coin-holder will limit the rotation of the supply-controlling shaft: substantially as described.



3. In a prepayment vending apparatus the movable pawl formed with a projection or stud l^3 in combination with the pawl D arranged to be operated by said projection or stud substantially as described.

4. In a prepayment vending apparatus, a coin-carrier comprising two plates secured together one attached to a protruding shaft slotted to coincide with a coin-slot in the main casing and formed with a locking notch or detent and a pair of coin-holders held between said plates, in combination with a pivoted and laterally-sliding apron formed with a locking-stud and arranged to slide laterally over the external coin-slot and to be locked in that position by the locking-stud and one of said plates substantially as described.

5. In a prepayment vending apparatus, a coin-carrier comprising two plates secured together one attached to a protruding shaft slotted to coincide with a coin-slot in the main casing and formed with a locking notch or detent and a pair of coin-holders held between said plates, in combination with a pivoted and laterally-sliding apron formed with a locking-stud above its pivot and with a cam for pushing a coin below its pivot, and arranged to slide laterally over the external coin-slot and to be locked in that position by the locking-stud and one of said plates substantially as described.

6. In a prepayment vending apparatus, a coin-carrier comprising two plates secured together one attached to a protruding shaft and slotted to coincide with an external coin-slot, the other slotted to receive a projection or stud on the end of a movable coin-holder, in combination with said movable coin-holder and a pivoted pawl arranged to be operated by said projection or stud substantially as described.

7. In a prepayment vending apparatus the plate f' recessed as at k^4 in combination with the plate f and the rotating coin-holder k formed with a crank k^3 and stud k^2 substantially as described.

8. In a prepayment vending apparatus the plates f, f' secured together in combination with an interposed movable plate l^2 provided with a coin-holder l and sustained by a spring substantially as described.

9. In a prepayment vending apparatus, the plates f, f' in combination with an interposed plate p or guard beneath the coin-holders substantially as and for the purposes set forth.

10. In a prepayment vending apparatus, the combination with the main casing A of a removable cap A^4, the short shaft d journaled in said cap, and a coin-carrier secured to the inner end of said short shaft substantially as described.

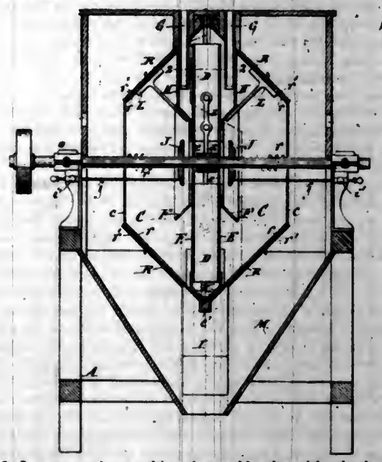
11. In a prepayment vending apparatus, the combination with the main casing A of a cap A^4, a bayonet-lock for securing the cap A^4 to the end of the casing, a projection a^3 secured to said cap and a hinged cash-receptacle C formed with a recess to embrace the said projection a^3 substantially as and for the purposes set forth.

12. In a prepayment vending apparatus, the combination with the main casing of a rotatable cap connected to said main casing, a detent on said cap and a hinged coin-receptacle adapted when closed to engage with said detent so that the closing of the coin-receptacle will lock the said cap upon the main casing substantially as and for the purposes described.

13. In a prepayment vending apparatus, a controller-shaft B provided inside of the main casing with a ratchet-wheel adapted to have a slight independent movement on the said shaft in combination with a pawl controlled by the insertion of the coin and arranged to engage with said ratchet substantially as and for the purposes described.

587,990. SEPARATING-MACHINE. ORVILLE M. MORSE, Jackson, Mich. Filed Mar. 22, 1897. Serial No. 628,567. (No model.)

Claim.—1. In a separating-machine, the combination with a horizontally-arranged tapering separating-chamber having an outlet for the fine material at the small end and an outlet for the heavy material at the large end, of a fan-wheel arranged in the large portion of the separating-chamber and provided with an eye which communicates with the central portion of the chamber and with a blast-discharge extending around said wheel, and a valve whereby said eye can be opened or closed, substantially as set forth.



2. In a separating-machine, the combination with a horizontally-arranged separating-chamber having an outlet for the fine material at the small end and an outlet for the heavy material at the large end, of a central shaft, a fan-wheel mounted on said shaft in the large portion of the separating-chamber and provided with an eye which communicates with the central portion of the chamber, a valve-disk mounted to slide on said shaft, and means whereby said disk can be adjusted toward and from the fan-wheel, substantially as set forth.

3. The combination with the tapering separating-chamber, of a fan-wheel arranged in the large portion of said chamber, an annular feed-receiving chamber arranged on the side of the fan-wheel, and a feed-spout whereby the material is delivered to said receiving-chamber, substantially as set forth.

4. The combination with the tapering separating-chamber, of a fan-wheel arranged in the large portion of the separating-chamber and having an eye which communicates with the central portion of the separating-chamber, an annular feed-receiving chamber arranged on the side of the fan-wheel around said eye, a feed-spout whereby the material is delivered to said receiving-chamber, and a valve-disk made adjustable toward and from said eye, substantially as set forth.

5. The combination with the tapering separating-chamber, of a fan-wheel arranged in the large portion of said chamber, an annular feed-receiving chamber arranged on the side of the fan-wheel, and a depending feed-spout having an oblique lower end, substantially as set forth.

6. The combination with the tapering separating-chamber, of a fan-wheel arranged in the large portion of said chamber, an annular feed-receiving chamber arranged on the side of the fan-wheel, a depending feed-spout delivering the material into said receiving-chamber, a discharge-spout connected with the large end of the separating-chamber, and a shield arranged between the discharge-spout and the feed-spout, substantially as set forth.

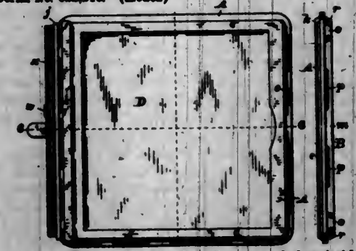
7. The combination with a separating-chamber which tapers from its middle toward both ends and which is provided with discharge-openings for the fine material at both ends, of a fan-wheel arranged in the large middle portion of said chamber, means whereby the material is fed into said chamber, a discharge-spout for the heavy material connected with the large middle portion of said chamber, and a receptacle which receives the fine material from the small ends of said chamber, substantially as set forth.

8. The combination with a separating-chamber tapering from the middle toward both ends and provided with discharge-openings for the fine material at both ends, of a fan-wheel arranged in the large middle portion of said chamber and provided with annular feed-receiving chambers on its sides, feed-spouts whereby the material is delivered into said chambers, a discharge-spout for the heavy material connected with the large middle portion of said chamber, and a case inclosing the small ends of said separating-chamber and receiving the light material therefrom, substantially as set forth.

9. The combination with the tapering separating-chamber provided with an outlet for the heavy material at its large end and a series of discharge-openings for the light material arranged at different distances from its small end, of a cover whereby said openings can be opened or closed, and a fan-wheel arranged in the large portion of the separating-chamber, substantially as set forth.

10. The combination with the separating-chamber tapering from its middle toward both ends and provided with an outlet for the heavy material at its large middle portion and with outlets for the light material at its ends, of a fan-wheel arranged in the large middle portion of said chamber and provided at its periphery with a V-shaped sweep, substantially as set forth.

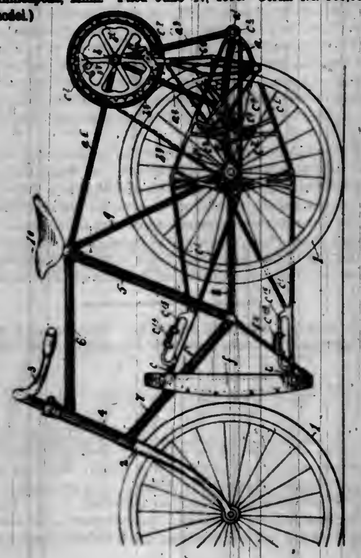
587,991. PHOTOGRAPHIC-PLATE HOLDER. ALBERT MUTHER-LEE and JOHN A. ROBERTSON, Rochester, N. Y. Filed Feb. 5, 1897. Serial No. 622,816. (Model.)



Claim.—1. The combination in a sheet-metal plate-holder, of the sheet-metal front provided with the exposing-aperture and having projecting shoulders e around three sides forming a slide-recess behind the front and the rib k along the other side, the back section having the plate-recess stamped therein with outwardly-projecting rounded corners, the partition q extending across the recess, the exposing-slide and the light-excluding shutter located between the partition and the side of the recess, substantially as described.

2. The combination in a sheet-metal plate-holder of the sheet-metal front provided with the exposing-aperture and having projecting shoulders e around three sides forming a slide-recess behind the front and the rib k along the other side, the back section having the plate-recess stamped therein with outwardly-projecting rounded corners, the flanged partition q attached to the back across the recess, the lug f secured to the back in a depression at the side opposite the partition, the spring h under the flange of the partition, the light-excluding shutter l pivoted to the back, the spring t and the exposing-slide D, substantially as described.

587,992. BICYCLE. THOMAS D. MCCALL and ARTHUR S. MCCALL, Minneapolis, Minn. Filed June 17, 1896. Serial No. 596,062. (No model.)



Claim.—1. In a bicycle, the combination with treadle-levers and connections therefrom, for driving the machine, of guides for the forward ends of said treadle-levers, and a flexible connection running over guide-sheaves and connecting both the upper and under portions of said levers, thereby positively causing reverse movements of said levers in common time, substantially as described.

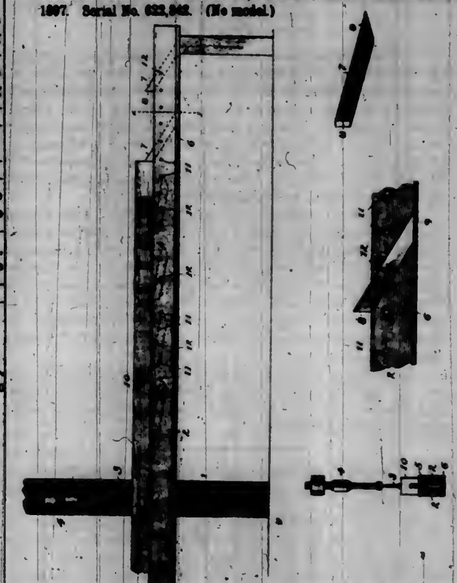
2. In a bicycle, the combination with treadle-levers and connections therefrom, for driving the machine, of a flexible connection running over guide-sheaves and provided with swivel-boxes embracing the forward arms of the treadle-levers, substantially as described.

3. The combination with the forward arms of the treadle-levers, of the cable g^{10} having the yokes g^2, g^3, the swivel-boxes g in said yokes, and the yieldingly-mounted rollers g^4 in said swivel-boxes and embracing the forward arms of the treadle-levers, substantially as described.

4. In a bicycle, the combination with the treadle-levers and connections therefrom, for driving the machine, of guides for the forward ends of said treadle-levers, and head-blocks on said levers provided with spring-coated rollers working in said guides, substantially as described.

5. The combination with a pitman, crank, crank-disk and crank-pin, of an angular head on said pitman, a cross-head working in said head as a guide, and connected to the crank-pin, springs in said head tending to center said cross-head, and a pin on the crank-disk, in the path of said pitman-head, when moved in respect to the cross-head, for starting the disk when the pin is on the dead-center, substantially as described.

587,993. COMBINED GAGE AND STOP FOR BORING-MACHINES. HARRY W. MCCORMICK, Centralia, Wash. Filed Feb. 10, 1897. Serial No. 622,842. (No model.)



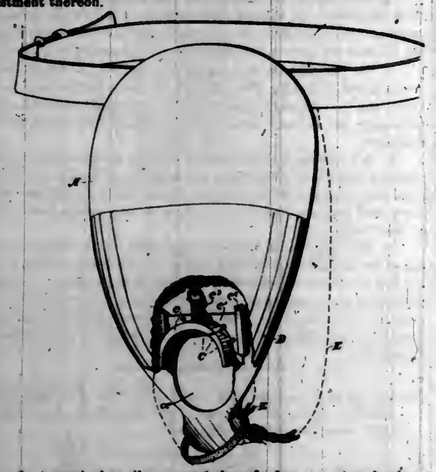
Claim.—1. In an improved stop and gage mechanism for boring-machines the combination, with the boring mechanism, of a feed-table having a longitudinal slot and a fixed abutment at the bottom thereof, of a series of gravity-stops pivotally held in the said slot with their lower end normally engaging the abutment, and their upper end projected above the table as specified.

2. The combination with the auger and the operating mechanism therefor, and the table, said table having a central longitudinal slot in line with the auger, and a fixed abutment at the bottom thereof, of the stops 7 adjustably and pivotally held in the said slot to swing normally to an inclined position by gravity, said stops having their lower end provided with an obtuse-angle portion 8 and the upper end with an acute-angle portion 9, said portion 8 engaging the abutment and the portion 9 forming a vertical back-stop substantially as shown and for the purposes described.

587,994. SURGICAL APPLIANCE. MICHAEL MCGORRICK, San Francisco, Cal. Filed Nov. 27, 1896. Serial No. 613,435. (No model.)

Claim.—1. A surgical appliance consisting of a suitable frame

or plate adapted to be fitted and secured to the body, said frame having an aperture through which the organ or member is to be passed, and having a lip extending downwardly from said aperture, a plate mounted in guides on the frame and having means by which its position may be adjusted in a vertical plane, and pricking-points carried by the slidable plate and each capable of independent adjustment thereon.

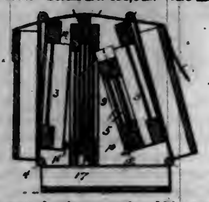


2. A surgical appliance consisting of a frame or plate having an aperture through which the organ or member is to be passed, and vertical guides, said frame having a downwardly-extending flanged lip below the aperture, a strap or band secured to the lip and adapted to hold the organ or member, a plate slidably fitted within said guides having a screw by which its position on the frame is adjusted, and pricking-points carried by the slidable plate and each capable of independent adjustment, said points adapted to sensibly contact with the organ or member as the latter expands.

3. A surgical appliance consisting of a suitable plate or frame adapted to be fitted and secured to the body and having an aperture in its lower portion through which the proper member is to be passed, a vertically-adjustable series of pricking-points having threaded stems independently mounted on said plate or frame above its aperture, and with which said member will come in contact as it expands, and means on the plate or frame below for holding said member down normally out of contact with said series of pricking-points.

4. A surgical appliance consisting of the plate having the aperture and the lip with its fastening below said aperture, the adjustable series of pricking-points above said aperture, and the shield-plate protecting said points.

587,995. SHIPPING-CRATE. SIMON B. MCDOUGAL, Page, W. Va. Filed Mar. 31, 1897. Serial No. 630,145. (No model.)



Claim.—1. A crate having a sectional bottom of which the members are connected to fold outwardly, side walls hinged to the side edges of the bottom and adapted to fold outwardly to occupy positions contiguous to the plane of the outer surface of the bottom, end walls terminally hinged to one of the side walls to fold into planes contiguous thereto, and a sectional top hinged to the other side wall and having its members arranged to fold in parallel planes contiguous to the inner surface of said side wall, whereby when folded the side and end walls and the top of the crate are folded between the planes of the bottom sections, substantially as specified.

2. A crate having a sectional bottom comprising intermediate and side sections hinged together to fold outwardly, side walls hinged to the outer edges of the side bottom sections to fold outwardly, a sectional top having intermediate and side sections adapted to fold in parallel planes contiguous to one of the side walls, and end walls carried by the opposite side wall and adapted to fold contiguous to the inner surface thereof, whereby when the crate is folded the top, side and end walls are arranged between the planes of the side bottom sections, substantially as specified.

3. A crate having a sectional bottom comprising intermediate and side sections adapted to fold outwardly, side walls hinged to the outer edges of the side bottom sections to fold outwardly, end walls terminally hinged to one of the side walls to fold parallel therewith and terminally provided with eyes to engage studs on the opposite side wall, a sectional top comprising intermediate and side sections connected to fold in parallel planes, one of the side top sections being hinged to the contiguous side wall to fold inwardly to occupy a position parallel with said side wall, and catches for engaging the top at points near its free edge, to secure the same to the walls of the crate, substantially as specified.

4. A crate having a sectional bottom including hinged sections adapted to fold to occupy approximately parallel planes, said walls hinged respectively to said hinged bottom sections to fold contiguous to those surfaces of the bottom sections which are innermost when the bottom is folded, end walls hinged to one of the side walls to fold parallel therewith, and a sectional top hinged to the opposite side wall and adapted to fold in a plane parallel therewith, whereby when folded, the top, side and end walls are arranged between the planes of said hinged bottom sections, substantially as specified.

5. A crate having a door of which the side frame-bars are terminally slotted to engage transverse hinge and latch rods, and are capable of longitudinal and transverse sliding motion thereon, an actuating-spring for normally holding the door in its closed position, and a fixed stud for engagement with a socket in the contiguous side bar of the door, when the door is moved laterally toward the same, substantially as specified.

587,996. BICYCLE-TIRE. ISAAC S. MCCLEAN, New York, N. Y. Filed Apr. 14, 1897. Serial No. 632,121. (No model.)



Claim.—1. In a bicycle-tire, a flexible and non-puncturable armor adapted to be inserted at the tread side of said tire and composed of two laminated series of substantially parallel plates, plates of one of said series constituting connections between the opposing non-contiguous edges of adjoining plates in the other of said series, substantially as described.

2. In a bicycle-tire, a flexible armor adapted to be inserted at the tread side of a bicycle-tire and composed of a strip of pigskin or other non-puncturable material, so folded as to form laminated series of substantially parallel plates, plates of one of said series constituting connections between the opposing non-contiguous edges of adjoining plates of the other of said series, substantially as described.

3. In a bicycle-tire, a flexible armor adapted to be inserted at the tread side of a bicycle-tire and composed of a strip of pigskin or other non-puncturable material, so folded as to form laminated series of substantially parallel plates, plates of one of said series constituting connections between the opposing non-contiguous edges of adjoining plates of the other of said series, said armor being so shaped as to conform to the contour of the tread of the tire, substantially as described.

4. A tubular bicycle-tire composed of the inner and outer layers *a* and *d*, a flexible armor inserted between said layers and composed of a strip of non-puncturable material, so folded as to form laminated series of substantially parallel plates, plates of one of said series constituting connections between the opposing non-contiguous edges of adjoining plates of the other of said series, and a covering or backing *c* for said armor, said armor being so shaped as to conform to the contour of the tread of the tire, substantially as described.

587,997. ARMORED PNEUMATIC TIRE. ISAAC S. MCCLEAN, New York, N. Y. Filed May 3, 1897. Serial No. 634,860. (No model.)



Claim.—1. An armor for pneumatic tires composed of a transversely-concave strip of rawhide or a similar substance having its concave surface longitudinally crimped so as to maintain the concavity of said strip, substantially as described.

2. An armor for pneumatic tires composed of a transversely-concave strip of rawhide or similar substance and consisting of a flattened helix forming laminated series of angular laps *m* and *n*, the laps of one of said series being crimped to maintain the concavity in said strip, substantially as set forth.
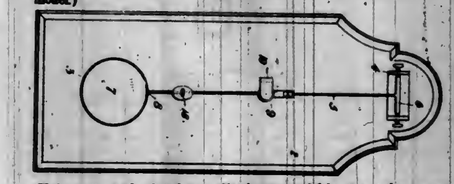
3. An armor adapted to be inserted at the tread side of pneumatic tires composed of a strip of rawhide or similar substance consisting of a flattened helix forming laminated series of angular laps, the laps of one of said series being transversely crimped and the laps of the other of said series being transversely stretched when the strip is formed, so as to produce and maintain a transverse concavity in said strip, substantially as described.

4. A bicycle-tire composed of the inner and outer layers *a* and *d* and an intermediate non-puncturable strip arranged at the tread side of said tire and composed of rawhide, said strip consisting of a flattened helix comprising laminated series of laps *m* and *n*, the inner and outer layers of said tire being integrally connected between the laps of one of said series and through each lap of the other of said series, substantially as described.

5. An armor for pneumatic tires composed of rawhide or a similar substance and adapted to be inserted at the tread side of the tire and consisting of a flattened helix, forming laminated series of laps and provided with perforations which extend through the strip where the interstices between adjoining laps of one of said series traverse the corresponding laps of the other of said series, said perforations being adapted to permit of integrally connecting the inner and outer coverings of the tire, substantially as described.

6. A pneumatic tire for bicycles consisting of an inner and an outer covering and an armor formed of a flexible strip composed of rawhide or a similar substance, said strip being arranged on the tread side of said tire and being provided with a series of longitudinally-arranged holes through which the inner and outer coverings of the tire are integrally united so as to limit and equalize the longitudinal stretch of the said armor to and with that of the coverings, substantially as described.

587,998. ELECTROPNEUMATIC ALARM. GEORGE W. MACKENZIE, Beaver, Pa. Filed Apr. 15, 1897. Serial No. 633,357. (No model.)

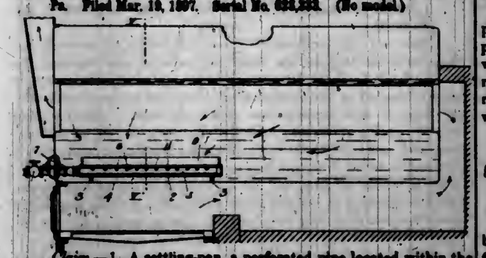


Claim.—1. A draft-tube, a diaphragm within the tube, a supporting-rod, electromagnets in proximity to the rod for attracting the rod magnetically when the magnets are energized by a current established by contact with the rod, and an alarm device in circuit with the magnets, substantially as set forth.

2. In combination with a pivoted rod supporting a diaphragm within a draft-tube provided with contact-terminals secured to the rod: an open circuit adapted to be closed by one of the rod-terminals and an electromagnet in series with the circuit adapted to be energized and to magnetically attract the rod when the circuit is closed, substantially as set forth.

3. In combination with a pivoted rod supporting a diaphragm within a draft-tube, provided with contact-terminals secured to the rod: an open circuit adapted to be closed by one of the rod-terminals, an electromagnet for attracting the rod magnetically when the magnet is energized by a current established by contact with the rod through the terminal, and an alarm device in series with the circuit, substantially as set forth.

587,999. BOILER-CLEANER. JOHN M. MCMICHAEL, McDonald, Pa. Filed Mar. 10, 1897. Serial No. 628,233. (No model.)



Claim.—1. A settling-pan, a perforated pipe located within the settling-pan provided with an extension leading outside the boiler, supporting-brackets secured within the settling-pan, and a scale-pan resting within the settling-pan upon the brackets and provided with a perforated bottom, imperforate sides and an open top, substantially as set forth.

2. In combination with a boiler, a settling-pan resting upon the boiler-shell provided with an imperforate bottom, a perforated exhaust-pipe located within the settling-pan and leading outside the boiler, supporting-brackets secured within the settling-pan, a scale-pan resting within the settling-pan upon the brackets, and provided with a perforated bottom, imperforate sides and an open top, substantially as set forth.

588,000. METHOD OF COLORING LEATHER. WILLIAM M. NORRIS, Princeton, N. J. Filed Oct. 19, 1896. Serial No. 609,359. (No specimens.)

Claim.—1. The within-described process of coloring chrome-tanned leather, which consists in subjecting it to the action of a solution of permanganate of potash, substantially as specified.

2. The within described process of coloring chrome-tanned leather, which consists in subjecting it to the action of a solution of permanganate of potash, and then to the action of a solution of anilin or other coloring-matter, substantially as specified.

3. The within-described process of treating chrome-tanned leather, which consists in subjecting it to the action of a solution of ferrocyanid of potassium and then to the action of a solution of permanganate of potash, substantially as and for the purpose specified.

4. The within-described process of treating chrome-tanned leather, which consists in subjecting it to the action of a solution of ferrocyanid of potassium, then to the action of a solution of permanganate of potash, and then to the action of a solution of anilin or other coloring-matter, substantially as and for the purpose specified.

588,001. CHILD'S CRIB. FREMONT D. PALMER, Norwich, Conn., assignor of one-half to Reuben T. Palmer, Jr., New London, Conn. Filed Jan. 30, 1897. Serial No. 620,908. (No model.)



Claim.—1. In a crib, the combination, with a framework provided with posts, the upper ends of which are each formed into an eye, a frame hinged within the respective eyes at each end of the crib, a bed-bottom within the framework, and means for supporting said bottom from the frames at the end of the crib, substantially as set forth.

2. In a crib, the combination, with a framework, of a frame pivotally secured at each end thereof, a bed-bottom within the framework, a side rail secured to each side of the bottom, portions of each rail engaging with the frames at the ends of the crib and being supported in an elevated position thereby, substantially as set forth.

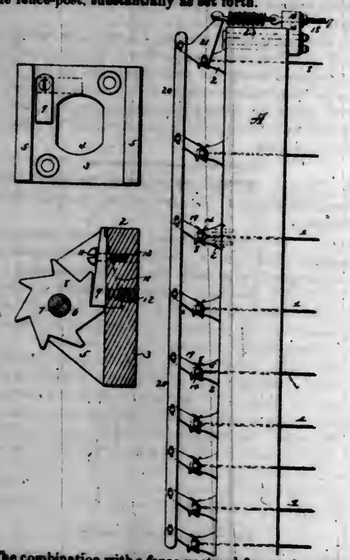
3. In a crib, the combination, with a framework, of a frame pivotally secured at each end thereof, a bed-bottom within the framework, each side of which is provided with a side rail above the same, each end of the elevated portion of the rails being provided with a curved portion to engage with the frame and lock the same when in its elevated position, substantially as set forth.

4. In a crib, the combination, with a framework, of a frame pivotally secured at each end thereof, the top of the frame being provided with a bent portion on each side of the crib, a bed-bottom within the framework, each side of which is provided with a side rail above the same, each end of the elevated portion of the side rails engaging with the bent portion of the frame, when in an elevated position, substantially as set forth.

588,002. WIRE-STRETCHER. JAMES M. PARKER, Hibbert, Ind. Filed Mar. 17, 1896. Renewed May 3, 1897. Serial No. 634,968. (No model.)

Claim.—1. The combination with fence-posts and fence-wires, of brackets secured to the posts, ratchet devices mounted on said brackets for tightening the fence-wires, arms projecting from said ratchet devices, a bar to which said arms are pivoted, a pivoted lever having

a pivotal connection with said bar, and a spring connected at one end to said pivoted lever and having a connection at the other end with the fence-post, substantially as set forth.



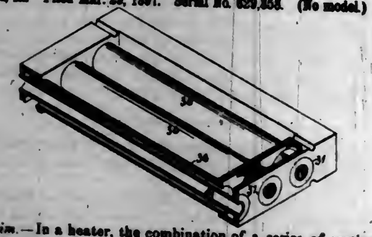
2. The combination with a fence-post and fence-wires, of brackets secured to the fence-post, shafts mounted in said brackets and adapted to receive the fence-wires, a ratchet-wheel on each shaft, a dog to engage each ratchet-wheel, said dogs being adapted to be moved out of the path of said ratchet-wheels, arms projecting from said shafts, a bar to which said arms are pivotally connected, a pivoted lever having a pivotal connection with said bar, and a spring attached at one end to said pivoted lever and at the other end connected with the fence-post, substantially as set forth.

3. The combination with a fence-post and fence-wires, of brackets secured to the post, each bracket having a recess and a screw-threaded socket in its base-plate, a ratchet-wheel on each shaft, a dog for each ratchet-wheel, said dogs being adapted to enter the recesses in the base-plates of the brackets, screws for holding said dogs in position, said screws entering said screw-threaded sockets in the base-plate, a spring under each dog, and devices connected with said shafts for subjecting the fence-wires to a uniform tension, substantially as set forth.

4. The combination with a fence-post and fence-wires, of shafts supported by the post and adapted for the reception of the fence-wires, arms projecting from said shafts, a bar to which said arms are pivoted, a pivoted triangular lever having a pivotal connection with said bar, an arm projecting upwardly from the post and a spring connected at one end to the triangular lever and adjustably connected at the other end with said arm on the post, substantially as set forth.

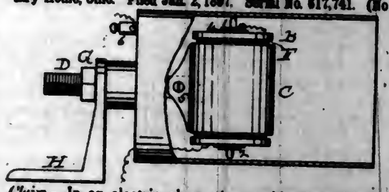
5. The combination with a fence-post and fence-wires, of shafts supported by the post an dadapted for the reception of the fence-wires, a bar to which said arms are pivotally connected, a pivoted triangular lever having a pivotal connection with said bar, an arm projecting upwardly from the post an eyebolt having a screw-threaded end, passing through said last-mentioned arm, a nut on said eyebolt and a spring connected at one end with said eyebolt and at the other end with said triangular lever, substantially as set forth.

588,008. HOT-WATER HEATER. SHERMAN H. PAXTON, Rockford, Ill. Filed Mar. 29, 1897. Serial No. 629,058. (No model.)



Claim.—In a heater, the combination of a series of sections of rectangular form, the walls of each of the intermediate sections forming water-spaces, the sections having a water communication with each other, an outer flue connecting two opposite walls and communicating with the water spaces, an inner flue connecting the outer walls, the outer walls having openings within which are secured rings supporting the ends of the inner flue.

588,004. ELECTRIC ALARM. RICHARD PENNEY, National Military Home, Ohio. Filed Jan. 2, 1897. Serial No. 617,741. (No model.)



Claim.—In an electric alarm the combination with a suitable standard, the hollow resonator, the helix rigidly held on an arm centrally within said resonator, the iron vibratory points held centrally within said helix and normally in contact with the inner surface of said resonator by the action of an intermediate spiral spring, and an electric circuit through the device, substantially as set forth.

588,005. HAND CHEMICAL FIRE-EXTINGUISHER. WILLIAM C. POMFERT and THOMAS B. KEATING, Utica, N. Y., assignors to the Utica Extinguisher Company. Filed Jan. 16, 1896. Serial No. 575,701. (No model.)

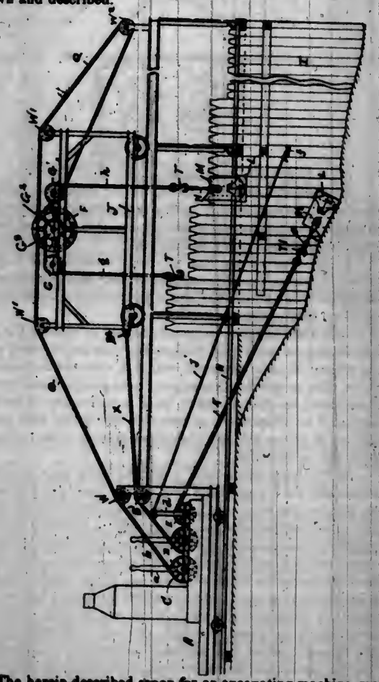


Claim.—The combination in a hand chemical fire-extinguisher of an invertible tank having an opening in its upper or head end, a screw-cap 2 closing the opening, a suspended bottle-holder 5, rigidly secured to the head at the side of the opening and depending into the tank in line with the opening and having a shield-like neck 5ª and a cut-away portion as shown, the cylindrical acid-bottle 6 adapted to be placed in and removed from the holder through the opening, the weighted bottle-stopper 7 having a projecting head 7ª extending within the opening closed by the stopper 2, and the discharge-nozzle 4 at the top of the tank opposite the neck-shield of the bottle-hanger, substantially as set forth.

588,006. EXCAVATING AND CONVEYING MACHINE. JOSEPH L. POTTER, Indianapolis, Ind. Filed Nov. 14, 1896. Serial No. 612,104. (No model.)

Claim.—1. In combination the movable trestle, the movable carriage mounted thereon, the shafts journaled on said carriage, the main and supplemental drums carried by said shafts, the cables or ropes connected to said supplemental drums, the scoop connected by said ropes to said supplemental drums, the ropes or cables leading from the engine-drums and passing over pulleys carried by said carriage and connected to the main drum, the winding of said rope on said engine-drums being adapted to either raise or lower said scoop, or advance said carriage, the cable attached to one of said engine-drums to advance or pull said scoop on the surface of the trench, the hand-rope operating said drum and the rope or cable to pull the carriage toward the engine, substantially as shown and described.

2. The herein-described scoop for excavating materials having a cylindrical body, the mouth of the scoop flared upward, the bottom doors pivoted to said cylindrical body and made into halves and moving in opposite directions, the bottom of said doors of the scoop made concave and held together by means of a spring-latch, substantially as shown and described.



3. The herein-described scoop for an excavating-machine, made cylindrical in form and having operating-doors at the bottom thereof, and pivoted to said scoop, said doors having slanting bottoms and held together by means of a spring-latch, substantially as shown and described.

588,007. BUNCHING-MACHINE. BATTISE POULSON, Fort Wayne, Ind., assignor to the Fort Wayne Novelty Company. Filed June 24, 1896. Serial No. 596,737. (No model.)



Claim.—1. In a bunching-machine the combination of a case to hold the mechanism; a cam; a staple-die as 44; a staple-former for the die; a knife attached to the staple-former adapted to cut the staple when formed from the wire; a lever adapted to operate said staple-former; a staple compressing lever as 41; a needle provided with an eye over which the twine passes and fulcrumed so that its other end forms an extension to operate it like a lever: a connecting-arm at the end of said extension; its lower part forming a sliding bar; a pin at the end of said sliding bar adapted to enter a spiral slot in the cam; a twine-disk provided with a series of U-shaped slots for operation and for the reception of the twine: a pawl-pin held in place by a spring attached to the cam and adapted to engage said slots and rotate the disk a given distance by the oscillation of the cam; a twine-hook holder provided with a hook attached to the case, and adjusted so that the hook part coincides with one of the slots of the disk, when the machine is in its normal position, and so adjusted that when the twine-disk carries the twine forward between the disk and the lever, the twine shall be firmly held between them: and a twine-knife attached to the case and adapted to sever both strands of the twine when the disk carries them against it; substantially as described.

2. In a bunching-machine a needle provided with an eye through which a twine for tying the bunch or parcel passes, the needle being pivoted so that its other end forms an extension, whereby it is operated like a lever, to throw the needle in and out of position: a connecting-arm pivoted to the end of said extension of the needle its lower part forming a sliding bar: a pin at the end of said sliding bar adapted to enter a slot in the cam: a cam attached to the case and provided with a spiral slot adapted to move said bar inward and outward by its oscillation: and means to operate the cam.

3. In a bunching-machine a twine-disk provided with a series of U-shaped slots for operation and for reception of the twine: a pawl-pin held in place by a spring attached to the cam, and adapted to engage said slots and rotate the disk a given distance by the oscillation of the cam: a twine-hook holder provided with a hook attached to the case and adjusted so that the hook part coincides with one of the slots of the disk when the machine is in normal position, and also so adjusted that when the twine-disk carries the twine forward between the disk and the holder, the parts shall be so related as to hold the twine firmly between them.

4. In a bunching-machine a twine-disk provided with a series of U-shaped slots for operation and for reception of the twine: a pawl-pin held in place by a spring attached to the cam and adapted to engage said slots and rotate the disk a given distance by the oscillation of the cam; a twine-hook holder provided with a hook attached to the case and adjusted so that the hook part coincides with one of the slots of the disk when the machine is in normal position, and also so adjusted that when the twine-disk carries the twine forward between the disk and the holder, the parts shall be so related as to hold the twine firmly between them: a twine-knife attached to the case and adapted to sever both strands of twine by the rotation of the disk carrying the two strands of twine against it.

5. In a bunching-machine a die for forming a wire staple, a staple-former attached to the wire-staple lever fulcrumed on a stud attached to the frame: a knife-edge attached to said former adapted to cut the wire from the staple when formed: a staple-compressing lever adapted to compress the staple firmly upon two strands of twine placed in the staple: a twine-disk provided with a series of slots on its perimeter for the purpose of operating and to form guides for the twine: a twine-knife attached to the case and arranged to cut the twine when the twine is carried against it by said disk: and a cam adapted to operate all of said mechanism consecutively, so as to tie the package or parcel.

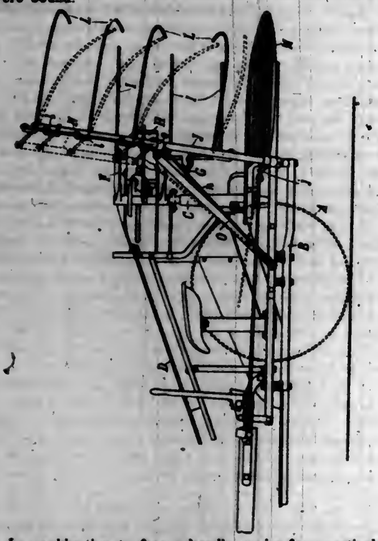
588,008. BUNDLE-CARRIER FOR CORN-HARVESTERS. JOHN W. PRIDMORE, Chicago, Ill., assignor to the McCormick Harvesting Machine Company. Filed Mar 5, 1897. Serial No. 626,097. (No model.)

Claim.—1. In combination in a self-binding harvester with a binder positioned on end, an upright post positioned to the frame of the harvester, connections from this post extending convenient to the driver for revolving the post on its pivot, curved fingers pivoted in the post and means for revolving these fingers on their pivots when the post is actuated to discharge a load of bundles.

2. In combination in a corn-harvesting machine with devices to gather, cut, bind and discharge bundles while retaining the corn in an upright position, a bundle-carrier positioned upon the machine to receive the bundles as they are discharged, the carrier consisting of an upright post pivoted at its lower end to the frame of the machine, and its upper end supported from the machine by braces, a crank on the post, a connecting-rod upon the crank extending convenient to the driver, curved fingers pivoted in the post, having cranked extensions, a bar connecting these extensions and a connecting-rod extending from the bar to a fixed portion of the machine, substantially as and for the purpose specified.

3. In combination to form a bundle-carrier for a vertical self-binding corn-harvester, an upright post pivoted to the harvester, means for revolving this post on its pivot, a cradle formed by fingers attached to the post, guides for conducting the bundles into the cradle formed by the fingers, and a bottom to support the bundles in

the cradle, positioned in a lower plane than that upon which the bundles were bound.



4. In combination to form a bundle-carrier for a vertical self-binding harvester, an upright post pivoted at its lower end to the frame of the harvester, braces to support its upper end, a crank fixed on the post and connections therewith to revolve the post on its pivot, a cradle formed of curved fingers, pivoted in the upper end of the post and fixed in the lower end, a bar connecting the crank extensions of the upper fingers, a connecting-rod uniting this bar and a fixed part of the machine, at a point beneath and inwardly toward the machine from the normal position of the bar when the carrier is in position to receive bundles, guides to conduct the bundles as discharged by the binder into the cradle formed by the fingers, a fixed platform to support the bundles in the carrier, formed by extending the table upon which the bundles are bound outwardly and bending it downwardly, all substantially as and for the purpose specified.

588,009. BOTTLE-STOPPER. CHARLES DE GUILLFIELDT, Amityville, N. Y. Filed Feb. 19, 1897. Serial No. 624,060. (No model.)



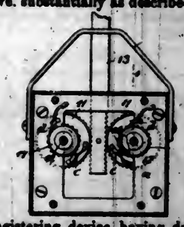
Claim.—1. The combination, with the stopper, having a straight transverse opening, of a locking-bail having a transverse portion passing through said opening, and provided with a downwardly-bent portion, said transverse portion having at each side of the downwardly-bent portion raised shoulder portions separated from the straight bottom of the transverse opening so as to clear the same at each side of the downwardly-bent portion, and means for applying said bail to the neck of a bottle.

2. The combination of a stopper, having a straight transverse opening in the head of the same, of a bail, the transverse portion of which is provided with a downwardly-bent central portion and also with raised shoulder portions at each side of the downwardly-bent portion, said shoulder portions being separated from the straight bottom of the transverse openings so as to clear the same, and means for attaching said bail to the neck of the bottle, the height and width of the slotted opening in the head of the stopper being slightly greater than the height and thickness of the downwardly-bent central portion of the bail, substantially as set forth.

588,010. VALVE-REGISTERING DEVICE. CHARLES L. QUIMBY, Philadelphia, Pa. Filed Sept. 14, 1896. Serial No. 605,748. (No model.)

Claim.—1. A valve-registering device having independent indicating devices operated respectively by the opening and closing of the valve, substantially as described.

2. A valve having indicating devices each having movement in a single direction, and operative respectively by the opening and closing of the valve, substantially as described.



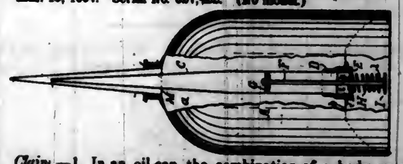
3. A valve-registering device, having duplicate indicating devices, operated respectively by the opening and closing of the valve, and means for holding one indicating device dormant while the other is operating, substantially as described.

4. The combination, with a valve, and its stem, of indicating devices, and means for actuating said devices from the valve-stem, the means including a rack-bar, and a pair of spur-wheels engaging the rack-bar, substantially as described.

5. A valve-registering device adapted to indicate the position of a slidable-gate valve in its shell, comprising an inclosing case, gearing within the case, connected with and actuated by the stem of the valve, dials on spindles that support said gearing, an apertured face-plate above the dials, exposing but one graduation of each dial at a time, and an index-finger actuated by the device that operates the gearing in unison with the slidable movement of the valve-gate, substantially as described.

6. The combination with a shell or valve-body, a slidable gate within said shell, a threaded stem on the gate, and a hand-wheel or the like on said stem, of a registering device to record the opening and closure of the valve-gate, comprising an inclosing case, rotatable spindles in the case, spur-gears loosely engaging the spindles, ratchet-wheels secured on the spindles and having oppositely-treading teeth, pawls engaging the ratchet-wheels, one of the pawls of each pair for a spindle serving as a detent to prevent retrograde movement of said spindle, a graduated dial on the outer end of each spindle, an apertured face-plate above the dials, exposing one graduation on each dial through one of said apertures, and means to oppositely rotate the spur-gears from the valve-stem, substantially as described.

588,011. OIL-CAN. EDWARD ROGARDS, Stillsville, Ind. Filed Mar. 13, 1897. Serial No. 627,422. (No model.)

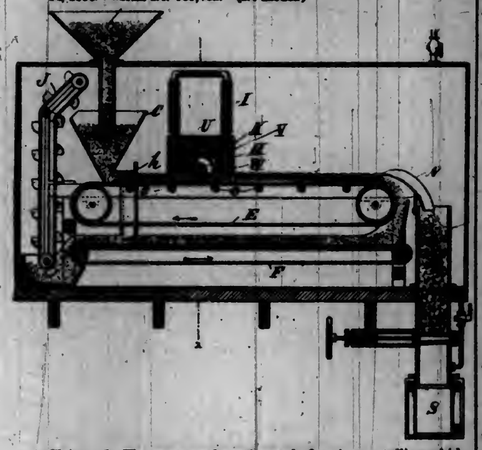


Claim.—1. In an oil-can, the combination of a body provided with a tapering spout, an air-tube having a parallel cylindrical lower portion and a tapering upper portion and secured at its lower end to the bottom of said body, extending therethrough centrally and into said spout, a plunger having a packed head working in said air-tube, means for guiding said plunger centrally in said air-tube, and means by which said plunger is held normally at its downward limit of travel, substantially as shown and described.

2. In an oiler, the combination of a body having an upwardly-dished bottom and a tapering spout at the top thereof, a cylindrical air-tube extending through an aperture in said bottom and into said spout but not filling its interior, said tube being tightly secured at its lower end to said bottom, internal screw-threads in said tube at the bottom thereof, a cap having a central aperture and provided with exterior screw-threads fitting into said tube, a plunger working through the aperture in said cap, a push-button on the lower end of said plunger, a spiral spring interposed between said button and said cap to press the button downward, and a packed head secured to the upper end of said plunger and working in said tube, substantially as shown and described.

3. In an oiler, the combination with a body having an upwardly-dished bottom and a tapering spout centrally at the top, of the air-tube extending from the bottom through the body and into the spout thereof and secured at the lower end to said bottom, a centrally-perforated cap removably attached to the lower end of said air-tube, a plunger in said air-tube and working in the perforation in said cap, a push-button on the lower end of said plunger, a spring arranged to press said button away from the bottom of said tube, and a packed head on the upper end of said plunger and working in said tube as an air-piston, substantially as shown and described.

588,012. PROCESS OF AND APPARATUS FOR MAKING METALLIC CARBIDS. ISAIAH L. ROBERTS, Brooklyn, N. Y. Filed Sept. 14, 1896. Serial No. 605,702. (No model.)



Claim.—1. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, and in reflecting the heat of said arc downward, substantially as described.

2. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, in deflecting said arc downward by means of a magnet, and in reflecting the heat of said arc downward, substantially as described.

3. The process of continuously forming metallic carbids, which consists in moving beneath a horizontal electric arc the metallic compound and carbon to be converted, and in reflecting the heat of said arc downward, the process being carried out in a non-oxidizing atmosphere, substantially as described.

4. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc and suitably-arranged carbons for forming a horizontal electric arc, whereby the mixed material is changed, substantially as described.

5. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc, suitably-arranged carbons for forming a horizontal electric arc, whereby the mixed material is changed, and a separator for separating the changed from the unchanged material, substantially as described.

6. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc, suitably-arranged carbons for forming a horizontal electric arc, whereby the mixed material is changed, a separator for separating the changed from the unchanged material, and a conveyer for returning the unchanged material to the belt, substantially as described.

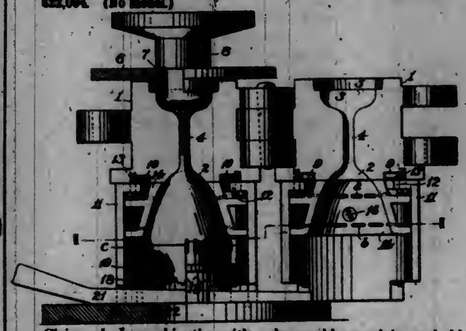
7. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc, suitably-arranged carbons for forming a horizontal electric arc, and an electromagnet for deflecting said electric arc, whereby the mixed material is changed, substantially as described.

8. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc, suitably-arranged carbons for forming a horizontal electric arc, an electromagnet for deflecting said electric arc, whereby the mixed material is changed, and a separator for separating the changed from the unchanged material, substantially as described.

9. The combination in an electric furnace, of a traveling conveyer for moving a body of the material to be converted beneath an electric arc, a reflecting-dome above said arc, suitably-arranged carbons for forming a horizontal electric arc, an electromagnet for deflecting said electric arc, whereby the mixed material is changed, a separator for separating the changed from the unchanged material, and a conveyer for returning the unchanged material to the belt, substantially as described.

10. The combination in an electric furnace, of a feed for feeding mingled material upon a traveling belt, a traveling belt for moving the material toward an electric arc, a reflecting-dome above said arc, mechanism for producing an electric arc in proximity to said material, and separating mechanism for separating the material changed by the electric arc from the material fed to the belt, substantially as described.

588,013. APPARATUS FOR MANUFACTURING GLASSWARE. EDWIN ROBINSON, Zanesville, Ohio. Filed Feb. 5, 1897. Serial No. 622,094. (No model.)



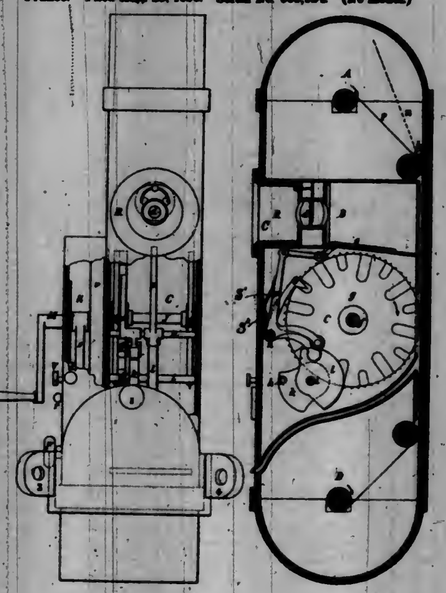
Claim.—1. In combination with a glass-mold a receiving or holding cup, a lifting-ring, and means for raising and positively or unyieldingly supporting the ring and receiving-cup in their raised position, substantially as set forth.

2. In combination with a glass-mold a supporting-frame, a receiving or holding cup, detachably secured in said frame, a lifting-ring, and means for raising and positively or unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth.

3. In combination with a glass-mold a supporting-frame, a receiving or holding cup, detachably secured in said frame, a lifting-ring supported below said receiving-cup, and a longitudinally-movable tapered bar for raising and positively or unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth.

4. In combination with a glass-mold, a supporting-frame, a receiving or holding cup detachably secured in said frame, a lifting-ring supported below said receiving or holding cup, and a longitudinally-movable, slotted, taper bar for raising and positively or unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth.

588,014. KINETOGRAPHIC CAMERA. JOSEPH ROUX, Paris, France. Filed Aug. 25, 1896. Serial No. 603,894. (No model.)



Claim.—1. In a chronophotographic apparatus, the combination of wheels adapted to draw along a continuous film, a shaft on which the wheels are mounted, a notched wheel on the same shaft, and an elbow-lever adapted to engage with the notched wheel, with a rotary spindle provided with a cam to actuate the said elbow-lever and a projection to engage the notched wheel, whereby the rotary motion of the said spindle imparts an intermittent motion of the said wheel, substantially as set forth.

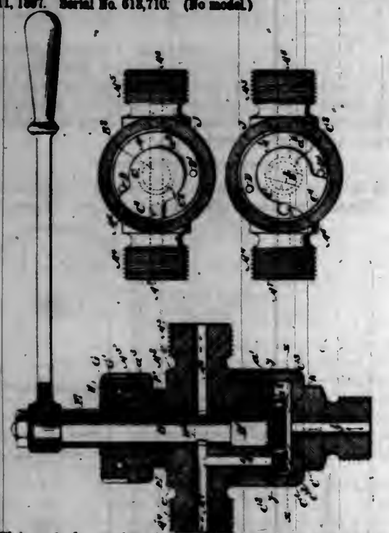
2. In a chronophotographic apparatus, the combination of wheels adapted to draw along a continuous film, a shaft on which the wheels are mounted, a notched wheel on the said shaft and an elbow-lever adapted to engage with the notched wheel, with a spindle, a crank, and gearing between the crank and spindle, the said spindle being provided with a cam to actuate the elbow-lever and a projection to engage the notched wheel, substantially as and for the purpose set forth.

3. In a chronophotographic apparatus, the combination of wheels to draw along a continuous film, a shutter, and levers connected thereto, with a rotary spindle provided with two cams, one to intermittently move the said wheels, and the other to act on the said levers to open and close the shutters, substantially as and for the purpose set forth.

4. In a chronophotographic apparatus, the combination of wheels adapted to draw along a continuous film, a shaft on which the wheels are mounted, a notched wheel on the same shaft, a shutter and levers connected thereto and an elbow-lever adapted to engage with the said notched wheel, with a rotary shaft provided with a cam to actuate the shutter-levers and shutter, and a cam to act on the elbow-lever and a projection to engage with the notched wheel whereby an intermittent motion of the film and the synchronous operation of the shutter are obtained.

5. In a chronophotographic apparatus, the combination of the motor-wheel, an oscillating arm mounted freely on the shaft of the motor-wheel and provided with a stud and an adjustable spring with a disengaging-lever and a spring-key, all substantially as and for the purposes set forth.

588,015. VALVE. HENRY H. RIEGH, Altoona, Pa. Filed Jan. 11, 1897. Serial No. 618,710. (No model.)



Claim.—1. In a valve the combination of the body portion A having a cylindrical passage A^2 formed through it, delivery and exhaust ports as A^7 A^8 formed transversely to passage A^2 and opening into the same and a receiving-port as A^9 leading to the delivery-port and opening on the end of the body portion, with a spindle B situated in the passage A^2 and having a port B^3 formed through it in position to register with and connect the ports A^7 A^8 when said spindle is turned to one position, a disk-valve C C secured to the end of the spindle adapted to bear on the end of the body portion and adapted to close and open the port A^9 as described.

2. In a valve the combination of the body portion A having a cylindrical passage A^2 formed through it, delivery and exhaust ports as A^7 A^8 formed transversely to passage A^2 and opening into the same and a receiving-port as A^9 leading to the delivery-port and opening on the end of the body portion, with a spindle B situated in the passage A^2 and having a port B^3 formed through it in position to register with and connect the ports A^7 A^8 when said spindle is turned to one position, a disk-valve C C secured to the end of the spindle adapted to bear on the end of the body portion and adapted to close and open the port A^9 as described said valve having a chamber C^3 on its inner face and one or more passages C^3 leading thereto through the body of the valve.

3. In a valve the combination of the body portion A having a cylindrical passage A^2 formed through it, delivery and exhaust ports as A^7 A^8 formed transversely to passage A^2 and opening into the same and a receiving-port as A^9 leading to the delivery-port and opening on the end of the body portion, with a spindle B situated on the passage A^2, a removable bushing E surrounding said spindle said spindle and bushing having a port as B^3 *e e* formed through them in position to register with and connect ports A^7 A^8 in one position of said spindle and a disk-valve C C formed integral with the spindle and adapted to close and open port A^9 as specified.

588,016. WATER-HEATING BOILER. JOHN P. B. SADTLER, Baltimore, Md. Filed Feb. 16, 1897. Serial No. 623,719. (No model.)



Claim.—1. The combination with a boiler having the usual induction and discharge hot-water pipes, and a cold-water-induction pipe, of a supplemental hot-water-discharge pipe from the boiler and connected to the said usual hot-water-discharge pipe upon the outside of the boiler, as set forth.

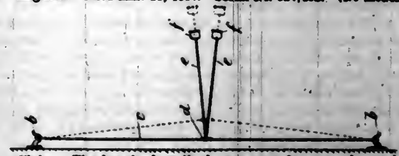
2. The combination with a boiler having the usual water-circulating pipes, of a supplemental hot-water discharge-pipe extending from the inside of the boiler and connected to the usual hot-water-discharge pipe upon the outside of the boiler, as set forth.

3. The combination with a boiler having the usual water-circulating pipes, of a supplemental hot-water-discharge pipe extending through and from the boiler in communication with the latter, and connected to the said usual hot-water-discharge pipe upon the outside of the boiler, as set forth.

4. The combination with a boiler having the usual water-circulating pipes, of a supplemental discharge-pipe extending from the boiler and connected to the said usual hot-water-discharge pipe upon the outside of the boiler, and a hood opening into the boiler and connected to the said supplemental pipe, as set forth.

5. The combination with a boiler having the usual hot and cold water pipes, of a supplemental discharge-pipe connected to the hot-water-discharge pipe and extending into the boiler, an open hood in the boiler, and a vertical pipe connecting the hood with the said supplemental pipe, as set forth.

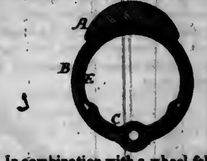
588,017. EXERCISING-MACHINE. EUGEN SANDOW, London, England. Filed Mar. 13, 1897. Serial No. 627,408. (No model.)



Claim.—The herein-described apparatus for muscular and physical development, consisting of a plurality of handles, elastic cords connected thereto, a central device to which said cords are connected,

and counteracting-springs connected to and supporting said central device, the said springs being fastened at their outer ends to fixtures, substantially as described.

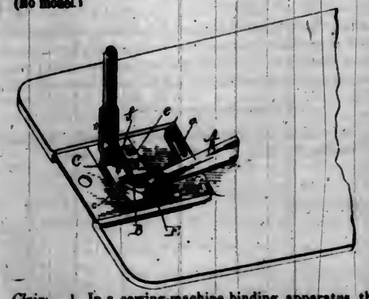
588,018. PNEUMATIC TIRE. JOHN G. SCHILLER, Washington, D. C. Filed July 17, 1896. Serial No. 599,547. (No model.)



Claim.—1. In combination with a wheel-felly, a rubber-tube tire, and within said tire adjacent to its bearing portion an annular tire-support C having its sides curved approximately parallel with the walls of the tire and its outer periphery grooved centrally, and an endless elastic cushion partly within the groove of the tire-support, substantially as described.

2. The combination of a rubber-tube tire and within it adjacent to its bearing portion an annular tire-support C having its outer periphery grooved centrally, an endless cushion partly within the outer groove of the tire-support, and a supplemental annular air-chamber E within the tire between its walls and the tire-support C, the latter having its periphery grooved, substantially as described.

588,019. BINDING ATTACHMENT FOR SEWING-MACHINES. PAUL SCHOEN, Glens Falls, N. Y. Filed Aug. 3, 1896. Serial No. 601,902. (No model.)



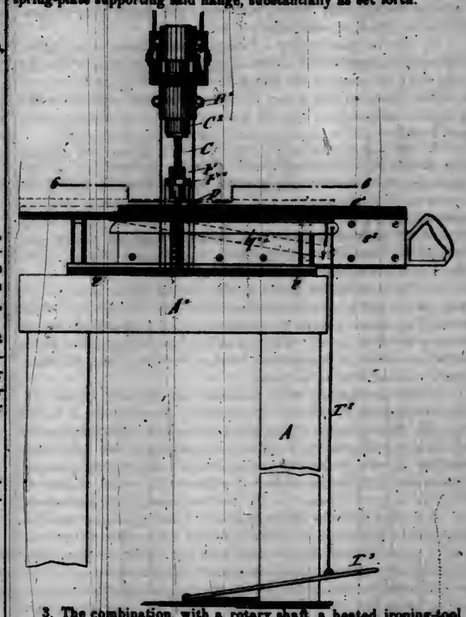
Claim.—1. In a sewing-machine binding apparatus, the combination with a throat-plate having a recess, of an open binding-guide arranged adjacent to the needle and having a U-shaped guiding-surface extending approximately in the line of the feed of the work, said guide being arranged in said recess with the upper surface of its lower limb flush with the upper surface of said throat-plate, or approximately so, a presser-foot having also an upwardly-inclined toe portion extending forward of said guide, a binding-holder arranged at an angle to the said binding-guide, and serving to fold the binding before it passes to the latter, a feed-dog extended forward of said binding-guide and binding-holder beneath said toe portion of said presser-foot, and an open binding-guard interposed between the delivery end of the said binding-holder and the said binding-guide and slightly elevated above the work-plate.

2. In a sewing-machine binding apparatus, the combination with a binding-guide, of a presser-foot having a notch or recess at one side in which said binding-guide is arranged and having also an upwardly-inclined toe portion extending forward of and directly in front of said guide, of a double feed-dog having two parts both of which extend forward of said binding-guide beneath the said toe portion of said presser-foot and on opposite sides of the line of the needle; whereby, owing to the combined operation of the said binding-guide and extended presser-foot and double feed-dog, two parts of a garment, one or both of which may be very full, and a binding to cover the raw edges of the work, may all be simultaneously presented to the needle, substantially as described.

588,020. MACHINE FOR CURLING HAT-BRIMS. GUSTAV SCHNEIDER, Yonkers, N. Y. Filed June 2, 1897. Serial No. 639,149. (No model.)

Claim.—1. The combination, with a heated ironing-tool, of a tilting table and a reciprocating curling-tool provided with a grooved flange at its upper end overlapping the ironing-tool, said curling-tool being arranged along one edge of the table, substantially as set forth.

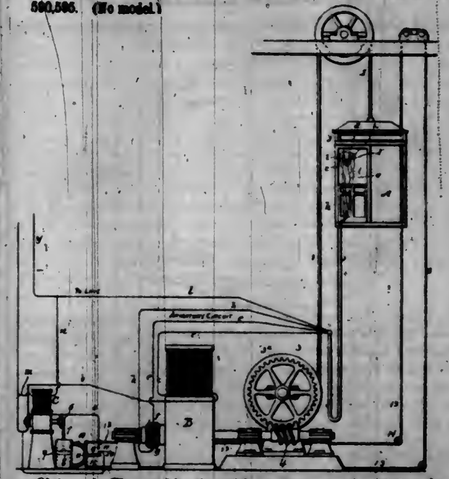
2. The combination, with a heated ironing-tool, of a tilting table below the tool, a reciprocating curling-tool having a concave curling-flange at its upper end overlapping the ironing-tool, and a yielding spring-plate supporting said flange, substantially as set forth.



3. The combination, with a rotary shaft, a heated ironing-tool at the end of said shaft, a tilting table for supporting the hat to be curled, means for tilting the table, and a straight reciprocating curling-tool arranged at one edge of the table provided with a spring-plate, a grooved curling-flange overlapping the ironing-tool, and means for guiding the said curling-tool, substantially as set forth

4. The combination, with a rotary ironing-tool, means for imparting rotary motion to the same, a sleeve surrounding the shaft of the ironing-tool, an angular arm supporting said sleeve, and means for heating said arm so as to transmit the heat to the sleeve, and from the sleeve to the ironing-tool, substantially as set forth.

588,021. MEANS FOR CONTROLLING ELECTRIC MOTORS. SIDNEY H. SHORT, Cleveland, Ohio. Filed May 17, 1898. Serial No. 680,585. (No model.)



Claim.—1. The combination with an elevator and a driving electric motor, of a controlling electric motor constructed and adapted to generate counter electromotive force in the circuit of the driving-motor, a brake for controlling the rotation of the armature of the controlling-motor and vary the counter electromotive force generated

therein for effecting the starting and stopping of the driving-motor, a switch for cutting the controlling-motor out of circuit, and connections between the brake and switch and the elevator, whereby the operator can manually operate said brake and switch from its position in the elevator, substantially as set forth.

2. The combination with a driving electric motor, of a controlling electric motor in the circuit of the driving-motor, a brake for controlling the speed of the armature of the controlling-motor, and a switch connected with a part of the brake so that when the brake is applied sufficiently to stop the armature of the controlling-motor, said armature will be short-circuited, substantially as set forth.

3. The combination with a driving electric motor, of a controlling electric motor constructed and adapted to generate counter electromotive force in the circuit of the driving-motor, a fluid-brake connected with the armature of the controlling-motor, a valve for controlling said fluid-brake whereby to vary the load on the armature of the controlling-motor and manually-operated devices connected with the said valve, whereby to control it and effect the starting of the driving-motor, substantially as set forth.

4. The combination with a driving electric motor, of a controlling electric motor, a fluid-brake connected with the armature of the controlling-motor, a valve for controlling said fluid-brake whereby to vary the load on the armature of the controlling-motor, and a switch connected with said valve for short-circuiting the controlling-motor, substantially as set forth.

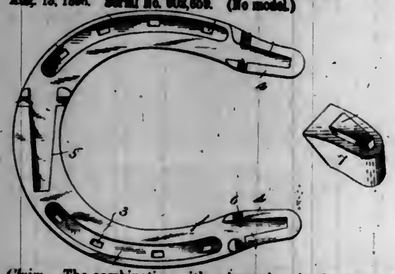
5. The combination with an elevator and a driving electric motor for operating the same, of a controlling electric motor in circuit with the driving-motor, a fluid-brake connected with the armature of the controlling-motor, a valve for controlling said fluid-brake whereby to vary the load on the armature of the controlling-motor, and an operating device connected with said valve and adapted to be actuated by the operator on the elevator, substantially as set forth.

6. In apparatus for controlling electric motors, the combination with a driving-motor, of a controlling-motor having its armature connected in series with the driving-motor and having a separately-excited field-magnet, a pump connected with the armature of the controlling-motor, means for varying the resistance to the operation of the pump, and means for short-circuiting the controlling-motor when the maximum resistance to the operation of the pump is attained, substantially as set forth.

7. In apparatus for controlling electric motors, the combination with a driving-motor, of a controlling-motor having its armature connected in series, with the driving-motor and having a separately-excited field, a pump connected with the armature of the controlling motor, a by-pass connected at its ends with the pump-cylinder at opposite sides of the plunger, a valve between the ends of said by-pass, a manually-operated device connected with said valve, an electric circuit around the armature of the controlling-motor and normally open when the valve is open and a contact-arm connected with the manually-operated device for closing said open circuit when the valve is closed whereby to short-circuit the controlling-motor, substantially as set forth.

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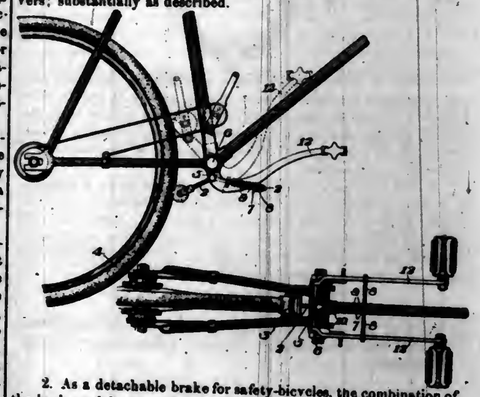
*588,022. HORSESHOE. GEORGE SINGLETON, Dover, N. J. Filed Aug. 13, 1896. Serial No. 602,659. (No model.)



Claim.—The combination with a horseshoe having lugs on the under side provided with dovetailed grooves forming tapering flanges connected together at the contracted end forming a solid portion, and said flanges disconnected at the expanded or large ends forming a passage-way for the ribs of the calks, and the flanges near said open end provided with opposite slots, of the calks having dovetailed ribs on their upper or inner sides engaging with said grooves and one end abutting against the solid connected ends of said flanges, and the keys driven through said slots and bearing against the opposite ends of said ribs, substantially as described.

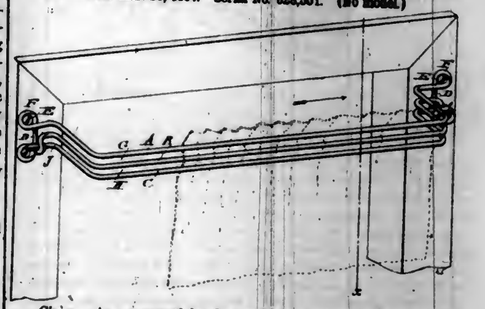
588,023. BICYCLE-BRAKE. WILLIAM D. SMITH, Denver, Colo. Filed Nov. 19, 1896. Serial No. 612,670. (No model.)

Claim.—1. The combination with the driving-wheel of a safety-bicycle having independently-acting brake-levers, of a brake mechanism capable of being pivotally attached to the brake-frame and consisting of a brake-rod carrying at its lower end a grooved brake-wheel and at its upper end a cross-piece pivotally attached thereto, said cross-piece extending at right angles to the rod, extending beyond the vertical plane of motion of the driving-levers, and connected with a spring operating to restore it to its normal position after each operation of the brake, so as to permit the brake-levers alternately to pass above the arms of the cross-piece and thus engage them and apply the brake by the simultaneous depression of both driving-levers; substantially as described.



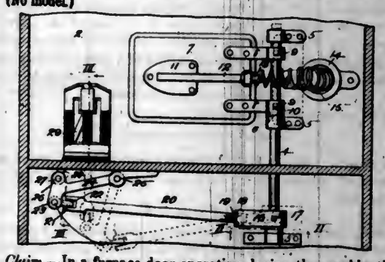
2. As a detachable brake for safety-bicycles, the combination of the brake-rod 2, grooved roller 3 at the lower end of the brake-rod, and oscillatory cross-piece 8 at the upper end, and the spring 9, constructed and arranged substantially as and for the purpose described.

588,024. CURTAIN-FIXTURE. ANNA SOUTHWELL, Milwaukee, Wis. Filed Mar. 20, 1897. Serial No. 628,551. (No model.)



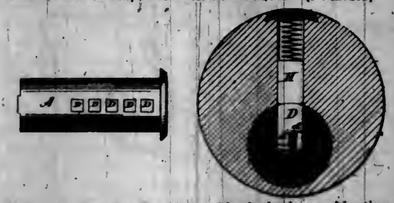
Claim.—As a new article of manufacture, a curtain-fixture comprising three or more parallel bars, offset between their respective ends, and having the ends of the two outer bars provided with loops or openings for the attachment-screws, said bars being formed integrally and in a fixed relation to each other, substantially as described.

588,025. FURNACE-DOOR-OPERATING DEVICE. HIRAM B SPRAGUE, Leavenworth, Kans. Filed Feb. 19, 1897. Serial No. 624,101. (No model.)



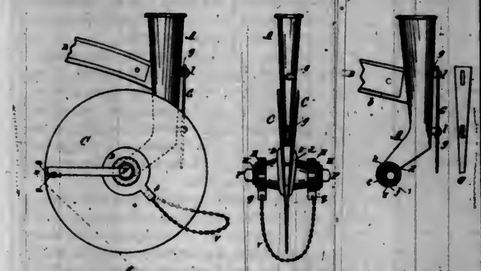
Claim.—In a furnace-door-operating device, the combination of a vertical hinge-rod suitably supported adjacent to the door-opening, a door mounted thereon, a curved arm projecting from said door and terminating in an enlargement or shoulder and a pin, a ring or annulus secured to the furnace, a spiral spring seated at one end in said ring or annulus and embracing at its opposite end the pin of the door-arm, an arm mounted rigidly on said rod below the floor of the cab, a link-rod, a pair of short links connecting said rod with said lever and with said arm, a foot-plate hinged to the upper side of the floor, a link-rod, and a pair of short links connecting said rod with the foot-plate and the lever below the floor of the cab, substantially as described.

588,026. MASTER-KEY PIN-LOCK. HENRY B. STADTMULLER, Whitneyville, Conn., assignor to the Sargent & Company, New Haven, Conn. Filed Mar. 19, 1894. Serial No. 504,208. (No model.)



Claim.—In a master-key pin-tumbler lock, the combination with a case constructed with a longitudinal cylindrical chamber, and with a single series of cross-sectionally square radially-arranged bolt-pockets intersecting the said chamber; of a series of cross-sectionally square bolts located in the said bolt-pockets, springs located in the outer ends of the said bolt-pockets, and engaging with the said bolts for operating the same, means for holding the springs and bolts in place; a cylinder located in the said chamber, and constructed with a single longitudinal series of cross-sectionally square radially-arranged tumbler-pockets corresponding in position to the bolt-pockets of the case, and with a single longitudinal key way or slot centrally intersecting the bottom walls of the said tumbler-pockets; and a series of solid cross-sectionally square tumblers, each consisting of a short section of cross-sectionally square wire, and therefore uniformly square in cross-section throughout the length of their body portions, and formed at their lower ends with two independent operating-faces of oblong rectangular form, and arranged with their length parallel with the keyway for independent engagement by the day and master keys respectively, substantially as described.

588,027. SEED-DRILL DISK-SHOE. WILLIAM STEPHENSON, Morris, Canada. Filed Aug. 17, 1896. Serial No. 603,022. (No model.)



Claim.—1. In a seed-drill, in combination with a supporting tapering grain-spout provided with tapering axles, of two thin spring-disks formed straight on their inner surface in their normal position, and sprung close together in front to form a long cutting edge of at least seven inches, instead of a point, when pressure is brought to bear on them for their operating position, substantially as described.

2. In a seed-drill the caps E formed with a central annular projection *i*, and recesses *o*, to engage with the lugs *k k*, to prevent the caps from turning with the side scrapers, substantially as specified.

3. In combination with the caps E, E, of the projection *q* on the lower part of each provided with a hole in which to fasten the ends of a covering-chain, and the projection or pin *p*, on the outer side to support the side scrapers respectively, substantially as specified.

4. In a seed-drill the combination of the grain-spout A having the oil-chamber *c*, and forward tapering axles, spring-disks C, C, secured to threaded axles by set-screws F, F recessed caps E, E, projections *k*, *k*, on the ends of the axles, side scrapers H, H, secured by the said cap-screws to the axles of the grain-spout, all constructed substantially as and for the purpose specified.

588,028. CORSET-STIFFENER. WILLARD G. STEWARD, Washington, D. C., assignor to Charles M. Campbell, same place. Filed May 8, 1895. Serial No. 548,602. (No model.)



Claim.—1. A stay comprising a resilient part, a reinforce secured thereto and means for abruptly changing the flexibility of the stay and the reinforce at a given position of curvature, substantially as set forth.

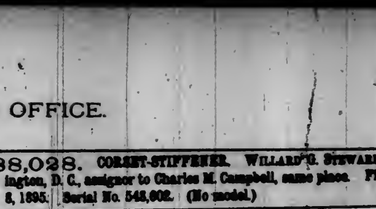
2. A stay comprising a resilient part, a reinforce secured thereto at its ends and longitudinally movable thereupon for a limited distance, and means for abruptly changing the flexibility of the stay and the reinforce at a given position of curvature, substantially as set forth.

3. A stay comprising a resilient part, a reinforce rigidly secured thereto at one end and movably secured thereto at the other, and a stop at the movable end for engaging therewith and abruptly stopping the longitudinal movement of the parts upon each other, whereby the flexibility of the stay and reinforce is abruptly changed at a given position of curvature, substantially as set forth.

4. A stay comprising a resilient part, a reinforce rigidly secured thereto at one end and having its opposite end slotted longitudinally, a stop through the slot, said stop being so arranged in relation to the ends of the slot as to engage therewith and stop the movement of the reinforce upon the stay, and thereby abruptly change the flexibility of the stay and the reinforce at a given position of curvature, substantially as set forth.

5. A stay comprising a curved resilient portion, a reinforce secured at its ends to the curved portions thereof, and a cushion or filling between the portions arranged to stop the movement of the reinforce upon the stay, whereby the flexibility of the stay and the reinforce is changed at a given position of curvature, substantially as set forth.

588,029. TREE-PROTECTOR. JOSEPH A. STRICKLER, Salem, Va. Filed June 20, 1894. Renewed June 11, 1897. Serial No. 640,209. (No model.)



Claim.—A tree-protector consisting of a receptacle capable of adjustment to suit the diameter of a tree and adapted to contain an insect-killing compound, and comprising a cylindrical band of sheet metal arranged substantially parallel with the trunk of a tree and having its ends overlapping, a horizontal plastic ring connecting the lower edges of the band with the tree, whereby the band forms the outer wall of the receptacle and the tree the inner wall of the same, a vertical bar secured to the outer face of one end of the band, a vertical elastic strip arranged on the inner face of the same and interposed between the terminals of the band, rectangular clips encircling the outer bar and the elastic strip, the inner vertical bar located on the inner face of the other end of the band and interposed between the same and the tree and operating to space the band from the latter, and fastening devices detachably connecting the vertical bars, substantially as described.

588,080. BROOM-HOLDER. HENRY A. SWAN, Glens Falls, N. Y. Filed Sept. 16, 1896. Serial No. 606,246. (No model.)



Claim.—1. In a broom-holder, a base-block having a central recess for the recess of the broom-handle, and a horizontal groove produced in the forward face of the said base-block, and the spring-actuated clamping-blocks having tongues sliding in the said groove, substantially as shown and described.

2. In a broom-support, the combination with the base-block having a central recess, and the horizontal groove of the sliding clamp-

ing-blocks having tongues adapted to slide in the said groove and means for holding the said blocks to the front face of the base-block, substantially as shown and described.

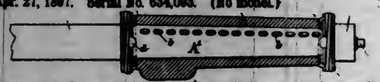
3. In a broom-holder, the combination with the base-block, having a central recess in the horizontal groove, said groove having partitions located therein, of the sliding clamping-blocks, having tongues adapted to fit in the said groove, the spring contained within the groove between the said partitions and the inner tongues, and means for securing the said clamping-blocks to the said front face of the base-block, substantially as shown and described.

4. In a broom-holder, the combination with the base-block having a central semicircular recess, a horizontal groove, of the partitions located in the said groove, the sliding plates having inwardly-projecting tongues one upon each side of each partition, said clamping-plates having grooves in their upper and lower edges, the securing-plates fastened to the upper and lower faces of the base-block, the said plates having flanged outer ends adapted to engage the grooves, and the clamping-blocks and the springs arranged in the grooves of the base-block and between the partitions and the inner tongues, substantially as and for the purposes described.

588,081. WASH FOR TREES, &c. CHRISTOPHER TAYOR, Pierce, Nebr. Filed Apr. 3, 1897. Serial No. 630,621. (No specimens.)

Claim.—A wash for trees, plants and flowers containing white-oak-bark extract, dog-fennel extract, castor-oil, beeswax, and turpentine, substantially in the proportions specified.

588,082. ANTIFRICTION-AXLE FOR VEHICLES. SAMUEL W. TAYLOR, Baltimore, Md., assignor of one-half to George Taylor, Henry Tayler, Jr., James A. Taylor, and John T. McIntyre, same place. Filed Apr. 27, 1897. Serial No. 634,093. (No model.)



Claim.—1. The combination of an axle-box; an axle-arm having a screw-threaded end and where it adjoins the axle provided with a permanent collar; rollers mounted on said collar and serving as a bearing for one end of the said axle-box; a nut on the said screw-threaded end having on its inner side a central cavity which takes more or less over the extremity or smooth part of the axle-arm; and rollers on the inner face of said nut, said rollers serving as a bearing for the outer end of the axle-box, as set forth.

2. The combination of an axle-box; an axle-arm having a screw-threaded end and where it adjoins the axle provided with a permanent collar having radial bores or sockets the ends of which open on the circumferential rim and the sides of which open on the inner face; a roller occupying each bore or socket and of larger diameter than the side openings of said bores or sockets; a nut on the said screw-threaded end and provided with radial bores or sockets having openings; and rollers in the openings like those on the permanent collar, as set forth.

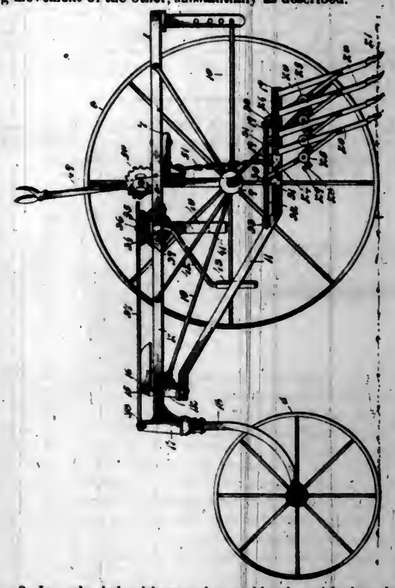
3. The combination of an axle box, an axle-arm having a screw-threaded end and where it adjoins the axle provided with a permanent collar having radial bores or sockets the ends of which open on the circumferential rim and the sides of which open on the inner face and a channel around the circumferential rim; a roller occupying each bore or socket and of larger diameter than the side openings of said bores or sockets; a ring surrounding the collar and occupying the said channel and confining the rollers in the sockets; a nut on the said screw-threaded end and provided with radial bores or sockets having openings; and rollers in the openings and a surrounding ring like those on the permanent collar, as set forth.

4. The combination of an axle-box, an axle-arm having a screw-threaded end which is split and a central tap into the said split end a nut fitted on the said screw-threaded end; and a tapered screw entered into the tap on said end and serving to expand the split end, as and for the purpose set forth.

588,083. WHEELED CULTIVATOR. HERSCHEL G. THOMPSON, Union City, Ohio, assignor of one-half to Charles W. Pierce and Clarence S. Pierce, same place. Filed Sept. 12, 1896. Serial No. 605,647. (No model.)

Claim.—1. In a wheeled cultivator, a frame or yoke comprising rearwardly-diverging arms or bars, in combination with a trailing wheel having a swiveled connection with the rear end thereof, swing-beams fulcrumed at their rear ends on said frame, laterally-movable shovels carried by the free ends of said beams, and connections between the beams and trailing wheels whereby the movement of one causes the movement of the other, substantially as described.

2. In a wheeled cultivator, the combination with the cultivator-frame and its carrying-wheels, of a trailing wheel, a laterally-swinging beam fulcrumed on said frame, one or more shovels carried by the free end of said beam, and connections between said beam and trailing wheel, whereby the movement of one effects a corresponding movement of the other, substantially as described.



3. In a wheeled cultivator, the combination with the cultivator-frame and its carrying-wheels, of a gang of shovels located near the forward end of said frame and made laterally movable, a trailing wheel having a swiveled connection with said frame, and connections between said shovels and trailing wheel whereby the lateral movement of the shovels and the swinging of the trailing wheel are simultaneously effected, substantially as described.

4. In a riding implement, the combination with the wheel-frame, and a horizontally-swinging beam bearing the cultivating devices, of an approximately horizontally-disposed segment mounted on the wheel-frame, a vertically-disposed crank-arm attached to the segment and adapted to engage with the said beam, and an operating-lever having a segment intermeshing with the horizontally-disposed segment, substantially as and for the purpose set forth.

5. In a riding implement, the combination with the wheel-frame, and a horizontally-swinging beam bearing cultivator-shovels, of a segment pivoted to the wheel-frame and normally occupying a horizontal position, a vertically-disposed crank-arm rigidly connected with the horizontal segment and in engagement with the said beam, a pendent foot-lever fulcrumed to the wheel-frame, and a segment formed with the foot lever and meshing with the horizontal segment, substantially as and for the purpose set forth.

6. In a wheel implement, the combination with the wheel-frame, a horizontally-swinging beam bearing cultivating devices, and a trailing wheel, of a horizontally-disposed arm, a crank-arm connecting the horizontal arm with the said beam, connections between the trailing wheel and the horizontal arm, and means for actuating the said horizontal arm, whereby the beam and trailing wheel are simultaneously moved, substantially as and for the purpose set forth.

7. In a wheel implement, the combination with the wheel-frame, a trailing wheel, and a horizontally-swinging beam bearing cultivating devices, of a horizontal arm, a crank-arm connecting the beam with the horizontal arm, a rod operatively connected at one end with the trailing wheel, and means for detachably and automatically connecting the opposite end of the said rod with the aforesaid horizontal arm, whereby the latter may have a limited independent movement without affecting the position of the trailing wheel and will automatically engage with the rod at a predetermined stage of movement so as to cause the trailing wheel and beam to move together, substantially as set forth.

8. In a wheel implement, the combination with the wheel-frame, a trailing wheel, and a horizontally-swinging beam bearing cultivating devices, of a horizontal arm, a crank-arm connecting the horizontal arm with the beam, a rod having connection at one end with the trailing wheel, a latch carried by the horizontal arm to connect it with the said rod, and means for operating the horizontal arm whereby the beam and the trailing wheel are moved simultaneously, substantially as set forth.

9. In a wheel implement, the combination with the wheel-frame, a trailing wheel, and a horizontally-swinging beam bearing cultivating devices, of a horizontally-disposed arm, means for actuating the said arm, a crank-arm between the beam and horizontal arm, a rod operatively connected with the trailing wheel and having a longitudinal slot formed with an offset, a wrist-pin provided on the horizontal arm and operating in the slot of the said rod, and a hand-operated latch mounted upon the said horizontal arm and adapted to engage with the slotted portion of the rod, substantially as and for the purpose set forth.

10. In a wheeled cultivator, the combination with the cultivator-frame, and a beam connected thereto, of a shovel having its shank or standard connected pivotally to said beam, a jointed brace interposed between said shovel and beam, abutting ears or shoulders located adjacent to the joint in said brace, and a set-screw passing through one of said ears and bearing against the opposing ear, substantially as and for the purpose described.

11. In combination, a wheel-frame, a conical shell or bearing-sleeve secured thereto and closed at its upper end, a swing-beam bearing one or more shovels, means for swinging the said beam, a pivoting-cone attached to the said beam and having upper and lower bearing-flanges snugly fitting within the conical shell, and having a space between the said flanges, a threaded stem projecting from the upper end of the bearing-cone and passing through the closed end of the conical shell, and an adjusting-nut for connecting the cone and shell and taking up wear, substantially as set forth.

12. In a wheeled cultivator, the combination with the cultivator-frame, of a laterally-swinging beam carrying one or more shovels, an operating-segment provided with a crank for moving said beam and also having a laterally-projecting arm, a trailing wheel having a swiveled connection with the cultivator-frame, a crank-arm on the stem or fork of said wheel, and a link or rod interposed between the said arm of the trailing wheel and the arm of the operating-segment, substantially as described.

13. In a wheeled cultivator, the combination with the cultivator-frame, of a laterally-swinging beam carrying one or more shovels, an operating-segment provided with a crank for moving said beam and also having a laterally-projecting arm, a trailing wheel having a swiveled connection with the cultivator-frame, a crank-arm on the stem or fork of said wheel, a rod or link interposed between said arm on the trailing wheel and the arm of the operating-segment and having its advance end longitudinally slotted to embrace the wrist-pin of said last-named arm, a spring-latch on said arm for engaging and holding said rod or link stationary, and means for withdrawing said latch-rod from engagement, substantially as and for the purpose described.

14. In combination, a beam, a standard pivotally connected to the beam, a jointed brace having pivotal connection with the beam and standard, and a set-screw carried by one section of the jointed brace and adapted to engage directly with the other section of the jointed brace, substantially as and for the purpose set forth.

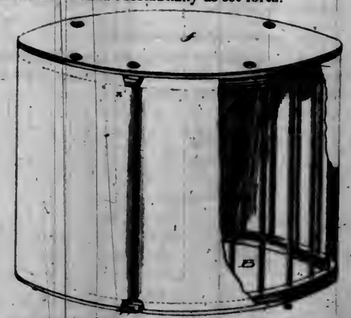
15. In combination, a beam, a standard bearing a shovel and having pivotal connection with the beam, a jointed brace having pivotal connection with the standard and beam, a rod having pivotal connection with a section of the jointed brace and operating through a guide attached to the beam, and a tension-spring mounted upon the said rod and confined between a stop thereon and the guide through which the rod operates, substantially as and for the purpose set forth.

16. In combination, a beam, a standard bearing a shovel and having pivotal connection with the beam, a jointed brace having pivotal connection with the standard and beam, a bracket carried by the beam, a rod slidingly mounted in the bracket and having pivotal connection with a section of the jointed brace, an adjusting-nut mounted upon the rod, and a tension-spring placed upon the rod and confined between the bracket and tension-nut, substantially as set forth.

17. In combination, a beam, a standard bearing a shovel and having pivotal connection with the beam, a jointed brace having pivotal connection with the standard and beam and provided with offstanding portions adjacent to the pivotal joint between them, a set-screw carried by one offstanding portion and adapted to engage with the other offstanding portion, a bracket attached to the beam, a rod slidingly mounted in the bracket and having pivotal connection with the upper section of the jointed brace, an adjusting-nut placed upon the rod, and a tension-spring mounted upon the said rod and confined between the bracket and tension-nut, substantially as set forth.

588,084. SCREEN FOR EOPHONES OR SOUND-RECEIVING INSTRUMENTS. LEVI E. THORNE, Brooklyn, N. Y., assignor to the Eophone Company, New York, N. Y. Filed May 26, 1897. Serial No. 638,257. (No model.)

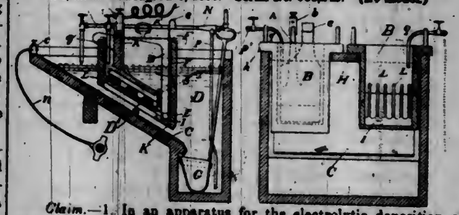
Claim.—1. A screen for eophones or sound-receiving instruments, adapted to be placed around and surround the instrument, closed at top and bottom and having an open-work periphery around which is stretched a covering of silk or other like material to prevent the wind from striking the instrument, without interfering with the free transmission of sound substantially as set forth.



2. A screen for eophones or sound-receiving instruments adapted to be placed around and surround the instrument, closed at the top and bottom and having an open-work periphery around which is placed a covering of silk or like material to prevent the wind from striking the instrument without interfering with the free transmission of sound, and provided with means for stretching the silk both lengthwise and crosswise upon and around it, substantially as hereinbefore set forth.

3. In a screen for eophones or sound-receiving instruments a cage adapted to be placed around and surround the instrument, closed at top and having an open-work periphery around which is stretched a covering of silk or other like material to prevent the wind from striking the instrument without interfering with the free transmission of sound, in combination with a supporting-combing closed at the bottom, on which combing the cage rests and to which it is detachably connected so as to permit it to be removed bodily from over and around the instrument whenever desired, substantially as hereinbefore set forth.

588,085. ELECTROLYTIC APPARATUS. WILLIAM THUM, Newark, N. J. Filed Oct. 6, 1896. Serial No. 608,245. (No model.)



Claim.—1. In an apparatus for the electrolytic deposition of metals, the combination of a tank with a plane, inclined bottom; a cathode-sheet secured upon the inclined bottom and adapted to receive and guide the deposited metal; one or more horizontally-adjustable anode-cells removably supported within the tank and provided with plane, inclined perforate bottoms parallel to the inclined cathode-sheet and adapted to receive the pieces of metal to be treated; filtering material covering said bottom; and electric connections, substantially as described.

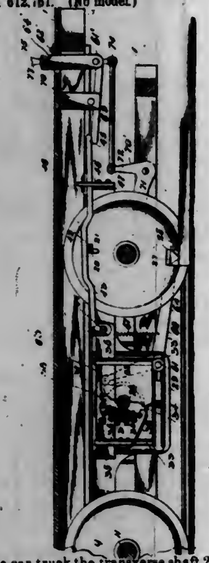
2. In an electrolytic apparatus, the combination of a tank with an inclined bottom; a cathode-sheet secured upon the inclined bottom; one or more anode-cells adjustably supported within the tank and provided with an inclined perforate bottom parallel to the inclined cathode-sheet; filtering material covering said bottom; and electric connections, substantially as and for the purpose specified.

3. In an electrolytic apparatus, the combination of a tank with an inclined bottom; a cathode-sheet secured upon the inclined bottom; one or more anode-cells adjustably supported within the tank and provided with an inclined perforate bottom and with a collecting-channel; filtering material covering the inside of the anode-cells; a collecting non-conducting removable trough fitting the collecting-channel of the anode-cell; a non-conducting removable collecting-trough beneath the lower end of the cathode; and electrical connections, substantially as and for the purpose specified.

4. In an apparatus for the electrolytic deposition of metals, the combination of a tank with a plane, inclined bottom; a cathode-sheet secured upon the inclined bottom and adapted to receive and guide the deposited metal; one or more horizontally-adjustable an-

ode-cells removably supported within the tank and provided with inclined perforate bottoms parallel to the inclined cathode-sheet; filtering material covering said bottom; electric connections; and means such as described for establishing circulation of the electrolyte, and distributing the same to the anode and cathode cells, substantially as and for the purpose specified.

588,036. AUTOMATIC SWITCHING DEVICE FOR STREET-RAILWAY CARS. BENJAMIN J. TITUS, Detroit, Mich. Filed Nov. 19, 1896. Serial No. 612,781. (No model.)



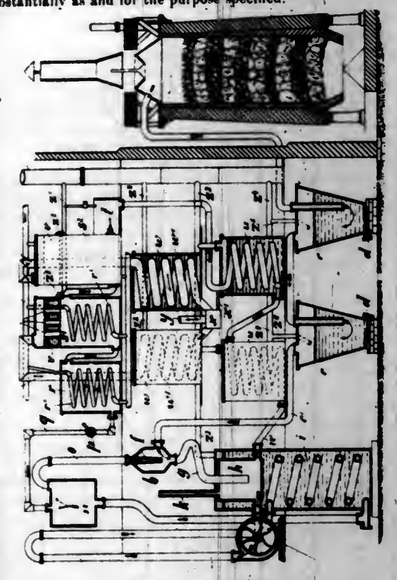
Claim.—1. In a car-truck the transverse shaft 28, a toothed wheel 30 fixed therein, a slide-bar 35 provided with a pawl 37 adapted to engage said teeth on the wheel 30, a lever 43 pivoted to said bar 35, and provided with an integral detent 49, the car-wheel 10 formed with the slots 21 26, the sliding frame 17 secured to said wheel and provided with the stud 19 and arm 25 27, the disk 57 provided with the lugs 59 fixed on the end of the shaft 28, and the bell-crank lever 60, its shorter vertical arm 62 in operative contact with the periphery of said disk 57, and its longer horizontal arm 64 provided with a guide-wheel 65 extending forward of the axle of the car-wheel 10 and parallel with the track, in combination with the rails 50 50 and 52 52, and the fixed longitudinal track-bar 54, substantially as and for the purpose set forth.

2. In a car-truck the bell-crank lever 60 having its horizontal arm 64 provided with a guide-wheel 65, the bell-crank lever 70 in operative contact with the said arm 64, the rod 73, and the vertical hand-lever 75, in combination with a car track substantially as shown and described.

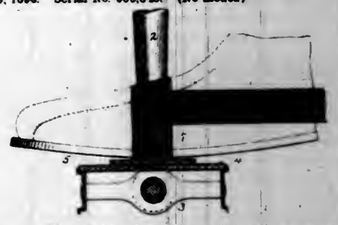
3. In a car-truck the car-wheels 9 and 10, the latter of which is provided with a sliding frame 17 formed with a stud 19 adapted to be automatically operated by a track-bar 54, in combination with the lever 43 having detent 49 located in the path of the stud 19 on the wheel 10, the slide-bar 35, pivoted to said lever 43 and provided with a pawl 37, a toothed wheel 30 fixed on a shaft 28 and in the path of said pawl 37, the disks 57 and 58 fixed on said shaft 28, the bell-crank levers 60 60, the shorter arms of which are in operative contact with said disks and their longer arms extending parallel with the rails, and provided with guide-wheels 65 65, the lever 69 having its free end in operative contact with the free end of the lever 43 and its opposite end pivoted to a vertical bar 61, the upper end of which projects above the car-platform, substantially as and for the purpose set forth.

588,037. APPARATUS FOR PRODUCING CARBONIC ACID. GUSTAV TRESENREUTER, Berlin, Germany. Filed Apr. 19, 1895. Serial No. 546,360. (No model.)

Claim.—In an apparatus for obtaining pure carbonic acid or other gases by the absorption of such gas or gases by means of a liquid which when cold absorbs the same and when heated gives it off again, but allows foreign gases to escape uncombined, the combination of an injector discharging the liquid for the absorption of the gas and producing the vacuum for drawing up the gas to be absorbed, with a chamber receiving the liquid charged with the gas drawn up by the injector and provided with an exit for the escape of the foreign gases from the said liquid, a pump leading the liquid charged with pure gas to a reservoir, means for conducting one part of the liquid charged with pure gas to the said injector and means for leading the other part to a heater for removing the gas from the other part, a vat receiving the liquid freed from gas by the said heater, means for cooling the liquid, and a pipe leading the cooled liquid freed from gas to the said chamber for the escape of the foreign gases, substantially as and for the purpose specified.



588,038. BICYCLE-PEDAL. HENRY TUDOR, Boston, Mass. Filed Oct. 9, 1896. Serial No. 608,343. (No model.)



Claim.—1. The combination with a pedal, and a permanent magnet thereon, of a metallic plate to rest upon said magnet and affixed to the shoe of a rider.

2. The combination with a pedal, and a permanent magnet thereupon, of a permanent magnet attached to the shoe of a rider.

3. In combination with a crank, a pedal at the free extremity thereof, a magnetic plate secured to said pedal, a transverse lip upon the upper side of said magnet, and a metallic plate secured to the shoe of a rider and to be held magnetically to the plate.

588,039. SADDLE FOR BICYCLES OR VELOCIPEDES. JAMES W. UPSON and GEORGE D. UPSON, Cleveland, Ohio; said James W. Upson assignor to said George D. Upson and said George D. Upson assignor of one-half of the entire right to Wilbur S. Upson, Mansfield, Ohio. Filed Sept. 15, 1896. Serial No. 605,900. (No model.)



Claim.—1. A bicycle-saddle supported to oscillate on a central pivot in a horizontal plane and in a backward and forward direction.

2. In combination with a saddle having a horizontal bearing plate or surface upon its under side, a support having a horizontal bearing plate or surface on its upper side, and means for rotatably uniting the two bearing-plates together, whereby the saddle may be turned in a horizontal plane.

3. A saddle for a bicycle or velocipede, comprising a table capable of oscillation and arranged horizontally, or approximately so, and having two arms projecting laterally in opposite directions, respectively; a plate or bearing affording support for said table; means for limiting the oscillation of the table; means acting to retain the table in its normal position, and two seats supported from the different arms, respectively, substantially as set forth.

4. A saddle for a bicycle or velocipede, comprising a table capable of oscillation and arranged horizontally, or approximately so, and two seats arranged side by side and supported from said table, and said seats being capable of tilting forwardly independently of each other and having the centers of the tilting motions arranged forward of the seats' centers of gravity, substantially as set forth.

5. A saddle for a bicycle or velocipede, comprising a table capable of oscillation and arranged horizontally, or approximately so, and having two arms projecting laterally in opposite directions, respectively; a plate or bearing affording support for said table; means for limiting the oscillation of the table; means acting to retain the table in its normal position; two seats supported from the different arms, respectively, and capable of tilting forwardly independently of each other and having the centers of the tilting motions forward of the seats' centers of gravity, substantially as set forth.

6. A saddle for a bicycle or velocipede, comprising a table capable of oscillation and arranged horizontally, or approximately so, and two seats supported from said table and arranged side by side, and horizontally hinged or pivoted to their support, and means for limiting the forward tilting of the seats, substantially as set forth.

7. A saddle for a bicycle or velocipede, comprising two seats arranged side by side and capable of tilting forwardly, and capable, also, of oscillation in a horizontal plane or in their inclined position, and means acting to retain them in their normal position, substantially as and for the purpose set forth.

8. A saddle for a bicycle or velocipede, comprising two suitably-supported tables arranged side by side and capable of oscillation, and two forwardly tiltable seats supported from the different tables, respectively, and movable independently of each other, substantially as and for the purpose set forth.

9. A saddle for a bicycle or velocipede, comprising two suitably-supported tables arranged side by side, and capable of oscillation; means acting to retain said tables in their normal position; means for limiting the oscillation of the tables, and two seats horizontally hinged or pivoted to the different tables, respectively, forward of the seats' centers of gravity, substantially as and for the purpose set forth.

10. A saddle for a bicycle or velocipede comprising an oscillating table A; a pair of oscillating tables G G arranged side by side and supported from the first-mentioned table, and the two forwardly and independently tiltable seats supported from the different tables G G, respectively, substantially as and for the purpose set forth.

11. A saddle for a bicycle or velocipede, comprising two suitably-supported tables arranged side by side, and capable of oscillation; means acting to retain said tables in their normal position; means for limiting the oscillation of the tables, and the two seat-forming cushioned saucer-shaped plates horizontally hinged or pivoted to the different tables, respectively, substantially as set forth.

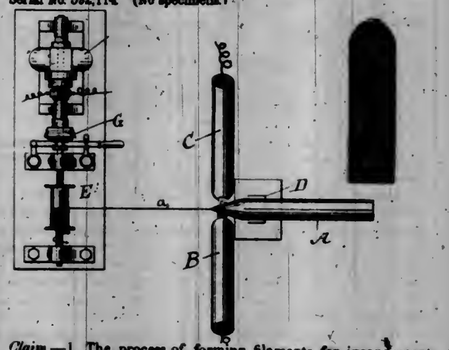
12. A saddle for a bicycle or velocipede, comprising an oscillating table A; a pair of oscillating tables G G arranged side by side and supported from the first-mentioned table, and the two forwardly and independently-tiltable seat-forming cushioned saucer-shaped plates supported from the different tables G G, respectively, substantially as and for the purpose set forth.

13. A seat for a bicycle or velocipede, comprising a plate B arranged horizontally, or approximately so, and provided, upon its under side, with a clip or device for attaching it to a member of the machine; a table supported from said plate, and capable of oscillation, and having two arms extending laterally in opposite directions, respectively; means for retaining said table in its normal position; means for limiting the oscillation of said table; two other tables supported from the different table-arms, respectively, and capable of oscillation independently of each other; means acting to retain said last-mentioned tables in their normal position; means for limiting the oscillation of said last-mentioned tables, and the two seats supported from the different last-mentioned tables, respectively, and capable of tilting forwardly independently of each other, substantially as and for the purpose set forth.

14. A saddle for a bicycle or velocipede, comprising a circular plate B arranged horizontally, or approximately so, and provided, upon its edge, with the two outwardly-projecting members B^3 B^4, the table A capable of oscillation and mounted upon said plate and provided with the arms A^3 A^4 extending laterally in opposite directions, respectively, and the depending members A^7 A^8, and the two seats supported from the different table-arms, respectively, and capable of tilting forwardly independently of each other, all arranged and operating substantially as shown, for the purpose specified.

15. A saddle for a bicycle or velocipede, having two suitably-supported tables at its opposite sides, respectively, and said tables being capable of oscillation independently of each other; means acting to retain said tables in their normal position; the two seats horizontally hinged or pivoted to the different tables, respectively, and the pintles or pins of the hinged or pivotal connection between the seats and tables extending beyond their bearings, and the members, that support the tables, having upwardly-projecting pins or members arranged to form, in connection with the ends of the aforesaid pintles or pins, stops for limiting the oscillation of the tables, substantially as set forth.

588,040. PROCESS OF MAKING FILAMENTS FOR INCANDESCING MANTLES. WILLIAM L. VOELKER, Elizabeth, N. J., assignor to the Voelker Light Company, of New Jersey. Filed May 19, 1896. Serial No. 592,114. (No specimens.)



Claim.—1. The process of forming filaments for incandescent gas-lights hereinbefore described, consisting in subjecting a mass of incandescible material to heat to near the point of fusion, and then drawing out the softened mass into a filament.

2. The process of forming filaments for incandescing gas-lights hereinbefore described, consisting in subjecting a mass of incandescible material to heat to near the point of fusion, then drawing out the softened mass to threads of extreme fineness, and then spinning several of such threads together into the filament.

3. A material for mantles of incandescing gas-lights consisting of a filament drawn out of the softened end of a mass of incandescible material and hardened, substantially as described.

588,041. CUTTER-HEAD AND KNIFE. JAMES B. VUNCANNON, Asheborough, N. C. Filed Mar. 17, 1897. Serial No. 628,011. (No model.)

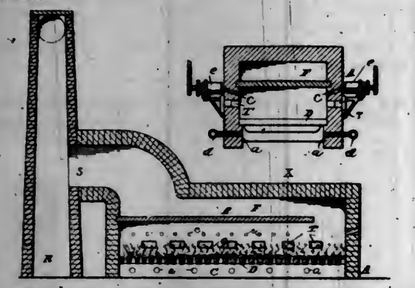


Claim.—1. The combination, with a four-sided cutter-head stock, of knives having transverse slots, the clamping bolts and plates therefor, having rabbets of the same depth as the thickness of said knives, and provided with two transverse rows of alined screw-threaded holes, which are formed in the under side of the rabbeted portions as shown, and the screws *g* passing through said slots in the knives and countersunk in the same, and adapted to enter any of such holes, whereby the knives are adapted for individual adjustment and also for adjustment together with the screws, as specified.

2. The combination, with the four-sided cutter-head stock, of slotted removable knife-clamping plates, having a rabbet in the under side and screw-holes in such rabbeted portion, slotted removable knives, and screw-bolts passing through the knives, for holding them adjustably, and the fitting-strips extending longitudinally parallel to and arranged between the backs of said knives and the shoulders of the rabbets, and having lateral bends that fit together and in a corresponding recess of said shoulders for preventing longitudinal displacement, as specified.

588,042. PROCESS OF AND APPARATUS FOR MANUFACTURING WHITE-LEAD PIGMENTS. ALFRED B. WALKER, Cincinnati, Ohio, assignor to Ivan M. Walker, Indianapolis, Ind. Filed Dec. 5, 1895. Serial No. 571,190. (Specimens.)

Claim.—1. The herein-described process of manufacturing white-lead pigment, which consists in placing in the lower portion of a combustion-chamber a layer of fuel, maintaining said fuel in an incandescent condition by introducing air beneath and causing it to pass up in a diffused condition through said layer, injecting air and finely-divided galena above said fuel-bed, the amount of air introduced being in excess of that necessary to fully oxidize the volatilized products, conducting the resulting fumes through an extended oxidizing-zone, and finally condensing and screening them, the process being carried out under such conditions that substantially all the galena introduced is converted into a white pigment, substantially as described.



2. The herein-described process of manufacturing white-lead pigment which consists in placing in the lower portion of a combustion-chamber a layer of fuel, maintaining said fuel in an incandescent condition by introducing air beneath and causing it to pass up in a diffused condition through said fuel-bed, injecting above said fuel-bed air and finally-divided galena, the amount of air introduced being in excess of that required to fully oxidize the volatilized products, holding the volatilized products in contact with the heated air a sufficient time to convert substantially all the galena introduced into a white-lead pigment, and finally condensing and screening the same, substantially as described.

3. In a furnace the combination of a grate for supporting the fuel, an air-diffusing chamber under the grate supplied by an air-blast, a reverberatory plate dividing the furnace into a volatilizing and an oxidizing chamber, means for introducing air and ore into said volatilizing-chamber above the fuel, and an uptake-flue connected with the exit of the oxidizing-chamber, substantially as specified.

4. In a furnace in combination with a grate for supporting the fuel, an air-diffusing chamber under the grate supplied by an air-blast, a reverberatory plate dividing the furnace above the grate into a volatilizing and an oxidizing chamber, means for introducing air and ore into the combustion-chamber above the grate, and a vertical uptake-flue having a downward extension for the reception of the unconsumed products of combustion separated in the upper portion of said uptake, substantially as specified.

5. In combination with a reverberatory furnace, having a grate and an air-supplying chamber underneath the same, a combustion-chamber above the grate having a reverberatory plate, a passage at one end of said plate connecting the combustion-chamber with the chamber F formed above said plate, a flue S at the other end of said plate leading to an offtake, one or more air and ore supplying pipes tapping said combustion-chamber above the fuel-bed, means for positively feeding air and ore into said pipes, substantially as specified.
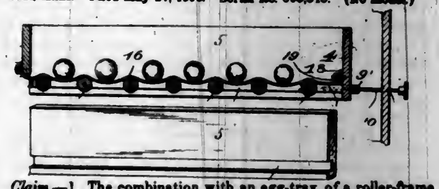
6. The combination with a reverberatory furnace provided with a grate for supporting a bed of incandescent fuel, and means for supplying air through the grate to the fuel, of a reverberatory plate elevated above the combustion-chamber, means for introducing air and ore into the upper portion of the combustion-chamber, a supplemental oxidizing-chamber located above the combustion-chamber, and communicating therewith by a passage located at the extremity of the reverberatory plate, and a flue S leading from said supplemental chamber substantially as described.

588,043. HOT-WATER BAG. ZENJIRO YAMADE, San Francisco, Cal. Filed Jan. 26, 1897. Serial No. 620,763. (No model.)

Claim.—The apparatus for the purpose described comprising a stand, a closed receptacle for water arranged in said stand, a device for heating the said receptacle, a water-bag of rubber or other suitable material, a valve-casing arranged adjacent to the water-bag and having two pairs of nipples arranged diametrically opposite each other, tubes connecting one pair of nipples and the water-bag, flexible tubes connecting the other pair of nipples and the interior of the water-receptacle and the valve or valve-plug arranged in said casing and having two diametrical ports or passages for connecting the opposite nipples, whereby the water may be caused to circulate in a closed cycle and the circulation may be started, regulated, and stopped by the patient to whom the bag is applied, substantially as specified.



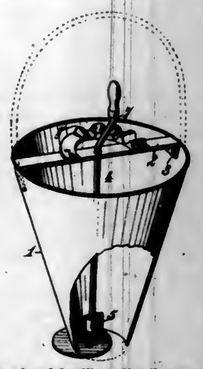
588,044. EGG-TRAY FOR INCUBATORS. JOHN H. YOUNG, Rantoul, Kans. Filed May 27, 1896. Serial No. 593,313. (No model.)



Claim.—1. The combination with an egg-tray, of a roller-frame forming the bottom of said tray and having a sliding engagement therewith, and a flexible belt or fabric secured to said tray and supported upon said rollers with portions thereof sagging between said rollers to form egg-pockets, substantially as set forth.

2. The combination with an egg-tray having grooves in the inner faces of its sides, of a roller-frame forming the bottom of said tray and having its sides seated in said grooves, the length of the outside of the roller-frame being less than the length of the inside of the tray, means for moving the roller-frame, a flexible belt or fabric supported on the rollers of the roller-frame and being of a greater length than the roller-frame so that portions of said belt or fabric will sag between said rollers and form egg-pockets, cleats secured to the ends of the tray, and cords connecting the ends of the belt or fabric to the cleats, substantially as set forth.

588,045. HAND FERTILIZER-DISTRIBUTER. EDWARD F. ANDERSON, Gloster, Miss. Filed May 8, 1897. Serial No. 635,662. (No model.)

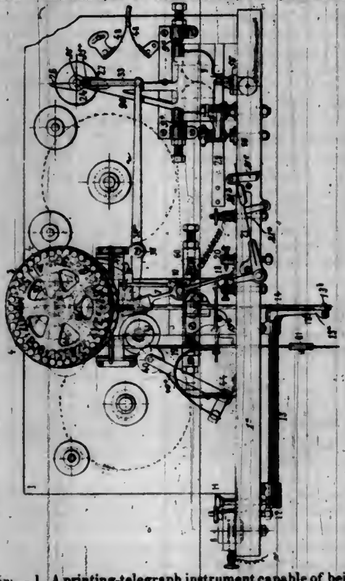


Claim.—1. In a hand fertilizer-distributer, the combination with a conical vessel for containing the fertilizer, of an eccentrically-pivoted disk valve arranged beneath the small discharge end of the vessel, and means for oscillating said valve to open and close said discharge, substantially as described.

2. In a hand fertilizer-distributer, the combination, with a conical vessel 1 for containing the fertilizer and provided at its upper end with a transverse strap 2, of a rod 4 journaled in said strap and in a bearing fixed in one side of the discharge end of the vessel, a handle 7 on the upper end of the rod, and a disk valve 6 eccentrically fixed on the lower end of the rod and closing the discharge end of the vessel, substantially as described.

3. In a hand fertilizer-distributer, the combination with a conical vessel 1 for containing the fertilizer and provided at its upper end with a transverse strap 2, of a rod 4 journaled in said strap and in a bearing fixed in one side of the discharge end of the vessel, a crank 7 on the upper end of the rod, a disk valve 6 eccentrically fixed on the lower end of the rod and closing the discharge end of the vessel, and a segmental rack fixed on the said strap and arranged for engagement with the crank, substantially as described.

588,046. PRINTING-TELEGRAPH. EMILE M. D. ANDRÉ, Méru, France. Filed Oct. 1, 1896. Serial No. 607,588. (No model.)



Claim.—1. A printing-telegraph instrument capable of being used either as a transmitter or as a receiver, said instrument comprising a type-disk, a series of keys carried by a disk which rotates in unison with the type-disk, a driven train of gears to revolve said disks, electrically-controlled means for releasing said train of gears, and a switch, and stop-lever operated by a projected key upon the disk carrying keys, substantially as described.

2. A printing-telegraph instrument, comprising a key-disk and type-disk, both revolving in unison, a switch and stop-lever of conducting material, pivoted on a bracket lying beneath the key-disk and movable on its pivot in a horizontal, transverse line, a spring-driven train of gears, and electrically-controlled means for releasing said gears, substantially as described.

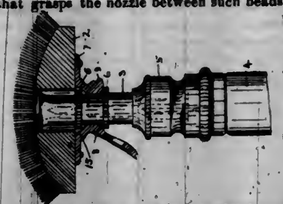
3. In a printing-telegraph instrument, the combination with a type-disk, of an inclined key-disk having a series of keys, a spring-driven train of gears revolving both of said disks in unison, a switch and stop-lever of conducting metal fulcrumed upon a spindle projecting, a bracket beneath said key-disk, a lever adapted to draw said switch and stop-lever rearward and release it from engagement with a projected key upon the key-disk, a printing-lever over which a paper tape is fed, a spring-driven train of gears to drive said type-disk and key-disk, and electrically-controlled means for releasing said train, substantially as described.

4. A printing-telegraph instrument having a key-disk and type-disk, a synchronizing-pendulum, a spring-driven train of gears to operate said pendulum, a separate train of spring-driven gears to revolve the type-disk and key-disk in unison, a switch and stop-lever of conducting metal, pivoted beneath the key-disk, its end engaging any projected key, electrically-controlled means for releasing the gearing, and circuits to connect said instrument with a second and similar instrument, substantially as described.

588,047. FOUNTAIN-BRUSH. MATTHEW ARBUCKLE, Indianapolis, Ind. Filed Oct. 9, 1896. Serial No. 585,116. (No model.)

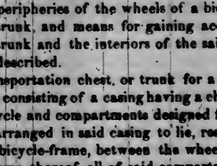
Claim.—1. The combination with a hose-nozzle wherein one part turns to regulate the flow of water, of a brush whose head is centrally apertured to receive the one part of the nozzle, means for securing the hose and nozzle together, and a thumb-piece connected up with the brush whereby it and the part of the nozzle to which it is secured may be held or rotated.

2. The combination with a hose or tube provided with a nozzle having a pair of beads on it, of a brush whose head is centrally apertured to receive the nozzle through it, and a clamp secured to the brush-head that grasps the nozzle between such beads and holds it securely.



3. The combination with an ordinary garden-hose having beads 6, of a brush whose head is apertured to receive the end of the nozzle, a collar consisting of one part secured to the brush-head and the other part hinged at one end, to the stationary part, both grasping the nozzle between the beads, and a catch for securing the free end of the hinged part of the collar to the stationary part.

588,048. INSULATOR FOR WIRES. GEORGE ASHBY, Hamilton, Canada. Filed Dec. 24, 1896. Serial No. 616,873. (No model.)



Claim.—1. An insulator consisting of a stem provided with an arm 4 having a lug 6, a bolt 15 connected with said stem, and a cylindrical piece 5 mounted upon said bolt, substantially as described.

2. In an insulator, the insulator 5 consisting of a cylindrical piece provided with an exterior groove, end recesses, and a central opening, and disks 10 situated on either side of said insulator 5 and provided with bosses 11 situated within said recesses, and tubes situated within said opening, substantially as described.

588,049. WRENCH. CHARLES H. AVERY, Binghamton, N. Y. Filed Aug. 31, 1896. Serial No. 604,423. (No model.)



Claim.—1. A wrench consisting of a stem having a stationary jaw, a movable jaw mounted upon said stationary jaw and provided with a seat or recess, a clutch member situated between said stem and movable jaw and having an extension situated within said seat or recess, and a spring between said clutch member and movable jaw for pressing the former toward the stem.

2. A wrench consisting of a stem having a stationary jaw, a movable jaw upon said stem and provided with a seat or recess, a clutch member between said stem and movable jaw and having a rear extension situated within said seat or recess, lateral ears upon said clutch member, and a spring situate between said clutch member and said movable jaw.

588,050. TRANSPORTATION CHEST OR TRUNK FOR BICYCLES, &c. CHARLES E. BENTON, New Bedford, Mass. Filed Apr. 14, 1897. Serial No. 632,131. (No model.)

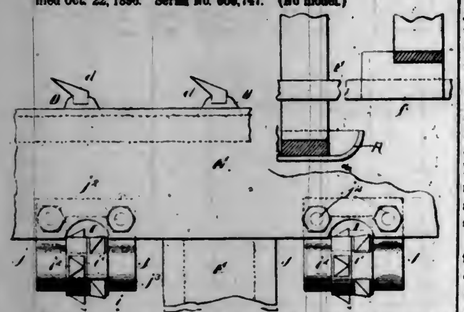
Claim.—1. A transportation chest or trunk for a bicycle, clothing and other articles, consisting of a casing constructed with a series of independent and separated internal compartments designed for clothing and other articles and arranged to bear against opposing parts of the peripheries of the wheels of a bicycle introduced into the chest or trunk, and means for gaining access to the interior of the chest or trunk and the interiors of the said compartments, substantially as described.

2. A transportation chest, or trunk for a bicycle, clothing and other articles, consisting of a casing having a chamber constructed to receive a bicycle and compartments designed for clothing and other articles and arranged in said casing to lie, respectively, at opposite ends of the bicycle-frame, between the wheels of the bicycle and within the frame thereof, all of said compartments having suitable doors by which they may be opened or closed, substantially as described.

3. A transportation chest or trunk for a bicycle, clothing and other articles, provided with independent, internal compartments constructed with concavities to accommodate and bear against portions of the peripheries of the wheels of a bicycle introduced into the casing, one of said compartments having concavities at its opposite ends and lying between the wheels of the bicycle, substantially as described.



588,051. MINING-MACHINE. HENRY H. BLISS, Washington, D. C. Original application filed Apr. 28, 1894, Serial No. 508,419. Renewed Oct. 14, 1896, Serial No. 608,889. Divided and this application filed Oct. 22, 1896. Serial No. 609,747. (No model.)



Claim.—1. In a machine of the class described, the combination with a suitable carriage, of devices arranged, upon the carriage, to cut a kerf into which the carriage may advance, means for forcing the carriage into the kerf so cut, and a wheel revolubly mounted upon the carriage and arranged to bite into one, only, of the kerf's broader walls as the carriage is forced forward.

2. In a mining-machine adapted to form a kerf or cut, the combination with a carriage adapted to advance into the kerf and suitable cutting mechanism for forming the kerf in advance of the carriage, of a toothed wheel mounted on the carriage and free to rotate in a plane approximately perpendicular to the carriage and approximately parallel to the line of motion thereof, the teeth of the wheel being adapted to embed themselves successively in one of the walls of the kerf as the wheel is rotated by its contact with said wall and the forward motion of the carriage.

3. In a mining-machine adapted to form a kerf or cut, the combination with a carriage adapted to advance into the kerf, and suitable cutting mechanism for forming the kerf in advance of the carriage, of a series of toothed wheels mounted on the carriage and free to rotate in a plane approximately perpendicular to the carriage and approximately parallel to the line of motion thereof, the teeth of the wheels being adapted to embed themselves successively in one of the walls of the kerf as the wheels are rotated by their contact with said wall and the forward motion of the carriage.

4. In a mining-machine of the class described, the combination with the head, E, and the cutting-chain, D, adapted to form a kerf in advance of said cutting-head, of a series of guiding-wheels, I, journaled in said head, the teeth of said wheels being adapted to embed themselves successively in one of the faces of the kerf as they are rotated by their contact with said wall and the forward motion of the head, E.

5. In a mining-machine, the combination of a bed-frame, a carriage fitted in guides on the bed and having a central longitudinal push-bar, a chain, carrying a series of cutters, supported on said carriage, means for moving the carriage longitudinally of the bed, and two revoluble toothed wheels or rollers journaled in bearings on the carriage on opposite sides of the said central push-bar, the points of each of said wheels being adapted to engage with one of the horizontal walls of the kerf formed by the cutters on the chain, substantially as set forth.

6. In a mining-machine, the combination with the bed, the sliding carriage thereon, the cutter-carrying chain on the carriage, and means for moving the carriage longitudinally of the bed, of a revoluble holder or steadying device journaled in bearings on the carriage and consisting of two or more disks or washers having radially-projecting teeth, and a pin or key connecting said washers together, the teeth on said holder being adapted to engage with a horizontal wall of the kerf formed by the cutters on the carriage as the carriage is moved longitudinally of the bed, substantially as set forth.

588,052. COMBINED CAR AND BRAKE-PIPE COUPLING. JOHN W. BRYAN, Quincy, N. C., assignor of one-half to Wayne B. Venters, Richlands, N. C. Filed May 11, 1897. Serial No. 636,115. (No model.)



Claim.—1. A coupling comprising the draw-heads having mortises, a tube end extending into each mortise, connections between said tubes and the fluid-pipes, a draw-bar formed of a block tapering from its middle toward each end and arranged to fit into the mortises of the draw-heads, said draw-bar having a longitudinal channel joining at its ends with the said tube ends, and notches along its upper side, the draw-heads having thickened portions, and pin-bars arranged to be held in the thickened portions of the draw-heads and engaged by said notches, substantially as described.

2. A coupling, comprising the draw-heads having tapered mortises and provided with pipe connections extended at their ends into said mortises, the draw-bar formed of a block thickest at the middle and tapering thence toward its opposite ends and arranged at such ends to fit in the tapered mortises of the draw-head, such draw-bar having a longitudinal channel joining at its ends with the pipe connections and establishing communication between the pipes of the adjacent cars, and means for securing the draw-bar in the draw-head, substantially as described.

3. A coupling comprising the mortised draw-head, the draw-bar formed of a block tapering from its middle toward its ends, said draw-bar being fitted to the draw-head and notched in its upper side, the pin-bar sliding through the draw-head and engaging the notch of the draw-bar, said pin-bar being slotted longitudinally, a pin held to the draw-head and operating in the pin-bar slot and means for operating the pin-bar, substantially as described.

4. The improved coupling herein described, consisting of the draw-head having a tapered mortise, having the upper wall of said mortise thickened at *g* and provided with an opening through said thickened portion, the pin-bar operating in said opening and provided with a slot, a cross-pin passing through the thickened portion of the draw-head, and through said slot in the pin-bar, the crank-shaft for operating the pin-bar, the pipe connection or tube end extending into the draw-head from the rear end thereof, the tube end at or near the rear end of the draw-head, the brake-pipe connected with said tube end and the draw-bar made thickest at its middle, tapered thence toward its opposite ends and fitted to the tapered mortise of the draw-head, and provided with a longitudinal channel by which to establish communication between the tube ends of the meeting draw-heads, said draw-bar being notched in its upper side forming seats for the pin-bar, substantially as described.

588,053. OVERHEAD-TROLLEY SYSTEM FOR ELECTRIC RAILWAYS. SOLOMON H. CAUFFIEL, Johnstown, Pa. Filed July 24, 1896. Serial No. 600,366. (No model.)

Claim.—1. In a system of electric conductors, a structure for cross-lines of wire, consisting of intersecting arms having crossing spans, and pivoted self-sustained bars forming part of two of said arms, the said bars lying at right angles and having their free ends lying close to the point of intersection, substantially as described.



2. In a system of electric propulsion, the combination with intersecting or crossing conductors, of a structure consisting of intersecting arms having crossing spans carried above the crossing, pivotally-mounted bars at right angles, each bar forming part of one of said arms, its free end lying normally close to the crossing, its pivoted end having a sustaining-lug, and an upper-touch trolley having a pole adapted to engage and lift the pivoted bar, substantially as described.

3. In a system of electrical propulsion, the combination with a crossing structure having four arms provided with rails which meet at a common point, of two pivoted bars forming part of two of said rails, their free ends lying at the common point and at an angle to each other, overhead spans crossing said point to carry the wires, and an overrunning or upper-touch trolley adapted to move on one of the rails and pivoted bars, and to raise the other pivoted bar to permit its passage, substantially as described.

4. In a crossing structure for electric wires and trolleys, a plurality of rigidly-connected arms intersecting at a common point, said arms having rails running alongside and parallel with them, conducting-wires mounted on said rails and leaving the latter at the feet of spans which cross each other above the rails, and which carry the wires over the point of intersection, a bar pivotally attached at one end to the end of one of the rails on one side of the common point and having its free end sustained close to the common point, said bar forming part of a line of support for a trolley, and a trolley-pole having wings in front rising as high as the top of the trolley to raise an intersecting bar to permit the passage of the trolley, substantially as described.

5. In a crossing structure for electric wires and trolleys, a plurality of rigidly-connected arms intersecting at a common point, said arms having rails running alongside and parallel with them, conducting-wires mounted on said rails and leaving the latter at the feet of spans which cross each other above the rails, and which carry the wires over the point of intersection, a bar pivotally attached at one end to the end of one of the rails on one side of the common point and having its free end sustained close to the common point, said bar forming part of a line of support for a trolley, and a trolley-pole having wings in front rising as high as the top of the trolley to engage a friction roll extending along the lower face of said bar and raise the latter, substantially as described.

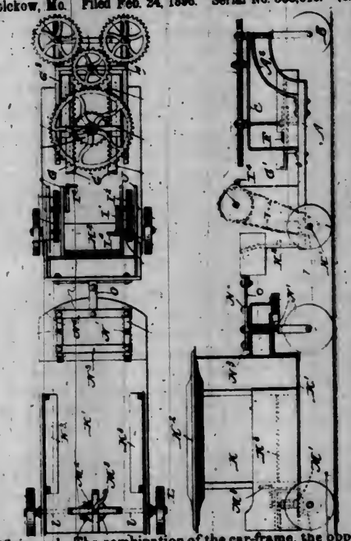
6. A crossing structure for conducting-wires and trolleys, comprising intersecting arms having rails, part of the rails having pivoted, self-sustained bars, one of which forms part of the support for a trolley, while another is raised by the inclined pole of said trolley, substantially as described.

7. A base for a trolley-pole, having independent, concave-convex shells one of which is pivoted by a shaft at its bottom within the other, and the latter pivoted in the same vertical plane to a pulley arranged horizontally, the trolley-pole being mounted upon and partly within the upper shell, substantially as described.

8. In an electric street-railway system, a switch structure consisting of a rigid horizontal bar, a main rail carried by said bar, a rail edge curved upward at a point near one end of the horizontal bar to carry the main wire and rising to a suitable height above said bar, and a laterally-diverging continuation of said horizontal bar from a point at or near that where the upwardly-curved rail begins, said continuation being curved horizontally and laterally beneath the upwardly-curved rail and into the line of a side branch, or switch-track, and a side rail and conductor on said laterally-divergent continuation, the side rail and main rail being each provided with a notch crossing the same at an angle, substantially as described.

9. In a switch or other union of a main and a diverging line of electrical conductors, the combination with a horizontal bar of a rail edge rising from it near one end and extending to a suitable height above the other end of the horizontal bar which is curved, a main wire supported on the said rail edge, a diverging wire on a rail carried by the bar, said wires being removed from and carried past notches in the rail and rail edge, and a double or two-wheeled trolley having a central guide hanging from a point between the trolley-wheels to guide either to its engagement with the wire, substantially as described.

588,054. SELF-PROPELLED VEHICLE. FERDINAND DANOUR. Bolckow, Mo. Filed Feb. 24, 1896. Serial No. 580,616. (No model.)

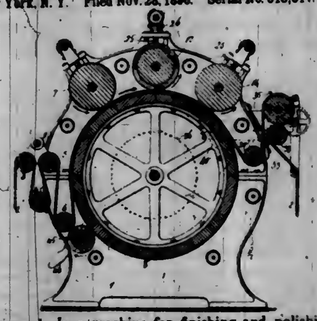


Claim.—1. The combination of the car-frame, the opposite steering-wheels journaled vertically thereto, the gear-wheels fixed to the brackets of said steering-wheels, the counter-pinion meshing with both said gear-wheels, a shaft having a gear-wheel meshed with said counter-gear and also provided with a gear-pinion and the rack-bars meshed with said gear-pinion and movable longitudinally, substantially as shown and described.

2. The combination with the car-frame, of the front steering-wheels having their brackets provided with vertically-journaled shafts, the gear-wheels secured to said shafts, the counter gear-wheel meshed with both said wheels, the shaft having a gear meshed with said counter-wheel, a pinion on said shaft, the rack-bars arranged on opposite sides of and meshed with said pinion, the independent axles arranged in rear of said rack-bar, the independent crank-axles and connections whereby they operate their respective axles, and a seat whereon the operator may be supported in position to work the crank-handles by hand and the steering rack-bars by his feet, substantially as shown and described.

3. The combination in the rear or trailing car, of the frame thereof, the steering-wheels having upright shafts journaled to said frame, bars secured at their middles to said shafts and extending in front and rear thereof, a cross-bar connecting the front ends of said bars, and the draft-coupling secured to said front bar substantially as shown and described.

588,055. MACHINE FOR BUFFING OR FINISHING FELT. CARL E. T. DEDICKE, Dolgeville, N. Y., assignor to Alfred Dolge & Son, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,817. (No model.)



Claim.—1. In a machine for finishing and polishing cloth, the combination with a feed-drum and means for variably rotating said drum, of a sand or friction roller, a brush-roller and a buffing-roller arranged about the feed-drum and operating to successively nap, brush and polish the cloth as the latter is carried around by the drum in contact with said rollers, and a cleaning-roller arranged to clean the cloth, substantially as described

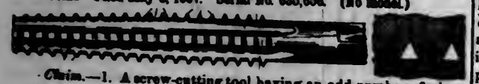
2. In a machine for finishing and polishing cloth, the combination of a feed-drum, a worm-wheel on the shaft of said drum, a worm engaging said wheel, a friction driving-disk on the worm-shaft, an actuating friction-disk in engagement with the driving-disk, means for adjusting the actuating-disk toward and from the center of the driving-disk, a sand or friction roller, a brush-roller and a buffing-roller arranged around the periphery of the feed-drum and operating to successively nap, brush and polish the cloth, and a cleaning-roller, substantially as described.

3. In a machine for finishing and polishing cloth, a feed-drum, and means for driving said drum, in combination with a sand or friction roller, a brush-roller, a buffing-roller and a cleaning-roller arranged around the periphery of the feed-drum and operating to successively clean, nap, brush and polish the cloth as it is fed by the drum to said rollers, a belt or driving connection between the friction and cleaning roller, and means for adjusting said cleaning-roller toward and from the drum, substantially as described.

4. In a machine for finishing and polishing cloth, a feed-drum and a variable feed for the drum, in combination with a sand or friction roller, a brush-roller and a buffing-roller arranged around the periphery of the feed-drum and operating to successively nap, brush and polish the cloth as it is fed by the drum under said rollers, means for adjusting the rollers toward and from the drum, stops for securing the roller when adjusted, said stops comprising a stop-screw for holding a roller away from the drum and a binding screw or stem clasping said stop-screw, and a cleaning-roller, substantially as described.

5. In a machine for finishing and polishing cloth, a feed-drum and a variable feed for the drum, in combination with a sand or friction roller, a brush-roller and a buffing-roller arranged about the periphery of the feed-drum and operating to successively nap, brush and polish the cloth as it is fed by the drum under said rollers, tension-rollers journaled in a swinging frame in front of the feed-drum, a tension-roller journaled in fixed bearings in proximity to the feed-drum, means for breaking said tension-roller, a cleaning-roller arranged to rotate in contact with the cloth and feed drum, a guide-roller at the rear of the drum and discharge-rollers for drawing off the cloth, substantially as described.

588,056. **SCREW-CUTTING TOOL.** FRANK G. ESMOND, Hartford, Conn. Filed May 3, 1897. Serial No. 635,656. (No model.)



Claim.—1. A screw-cutting tool having an odd number of wings each equipped with teeth having no side relief and interdental spaces located in a single spiral and alternating from end to end of the working portion of the tool, said interdental spaces being at all points of the full depth of the teeth and having flat bottom walls in line with the roots of said teeth.

2. A screw-cutting tap having an odd number of wings formed with teeth each of full width from the front to the rear edge thereof, and interdental spaces located in a single spiral and alternating from end to end of the working portion of the tool, said teeth having no side relief, and said interdental spaces being at all points of the full depth of the teeth and having flat bottom walls, substantially as and for the purpose specified.

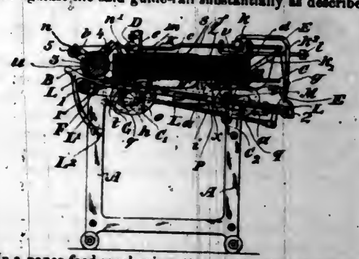
588,057. **TROUGH FOR MEAT-BLOCKS.** JACOB L. FOLTZ, Moville, Iowa. Filed Apr. 27, 1896. Serial No. 589,259. (No model.)



Claim.—A trough for butchers' chopping-blocks consisting of an integral annulus of elastic and non-absorbing material, the outer upwardly-extending flange of which is semicircular in vertical cross-section and reinforced, and the inner flange substantially vertical and more elastic or yielding than the outer flange, substantially as and for the purpose specified.

588,058. **PAPER-FEEDING DEVICE.** CARL F. FÖRSTE, Leipsic, Germany. Filed Sept. 16, 1895. Serial No. 562,733. (No model.) Patented in Germany Dec. 22, 1891, No. 69,443.

Claim.—1. In a paper-feed mechanism, the combination of reciprocating rolls to remove the sheets successively from the paper pile, and means for automatically adjusting the height of the said paper pile, paper-transport bands arranged underneath the paper-carrying table, a guide-plate B to receive the sheets removed from the pile and turn the same downward, an adjustable lateral guide-rail L at one side of the transport-bands arranged under the paper-carrying table, said rail having rolls 6 and 7 and band *p* to keep the sheet edge down and means for actuating the sheet of paper under transport against the said guide-rail substantially as described.



2. In a paper-feed mechanism, the combination of reciprocating rolls to remove the sheets successively from the paper pile, and means for automatically adjusting the height of said paper pile, paper-transport bands arranged underneath the paper-carrying table, a guide-plate B to receive the sheets removed from the pile and turn the same downward, an adjustable lateral guide-rail L at one side of the transport-bands arranged under the paper-carrying table, said rail having rolls 6 and 7 and band *p* to keep the sheet edge down and means for actuating the sheet of paper under transport against the said guide-rail consisting of a slantingly-arranged guide-roll for the transport-bands at one end substantially as described.

3. The combination of a vertically-movable paper-slab, coupled cams C' fast on shafts M and G, to support the same, a ratchet-wheel *u'* mounted fast on the shaft G, a rocking pawl *u* to engage said ratchet-wheel, a lever *s* to rock said pawl-lever, an intermediate spring-retained lever *z* pivoted to the machine-frame and pivotally attached to said lever *s* at its upper end, a forked extension to said lever *s* and a positively-rotated eccentric to engage said fork, a reciprocating lever with rolls to push forward the top sheet of paper, and means to reciprocate same, said lever being pivotally mounted in the machine-frame and adapted to turn on its pivot as the paper pile varies its position in the vertical plane and means for transmitting the motion of said lever around its pivot to operate mechanism to engage and arrest the lower end of the lever *z* in the manner and for the purpose substantially as described.

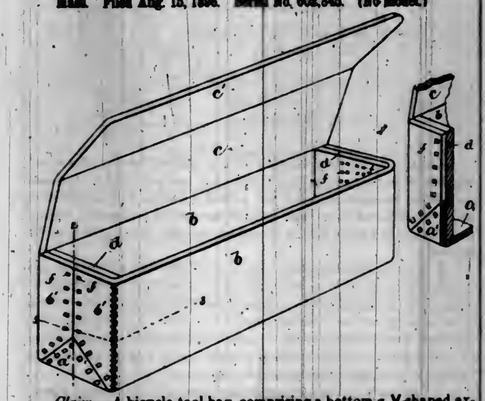
4. The combination of a vertically-movable paper-slab, coupled cams C' fast on shafts M and G to support same as specified, reciprocating rolls to successively remove the top sheets of paper and means for actuating same, a ratchet-wheel *u'* fast on the shaft G and a rocking pawl to operate same, a mechanism for interrupting the operation of said pawl when the paper pile has been raised too high, consisting of a rocking lever *s* having open forked end to engage a rotating eccentric *r* and having its farther end pivoted to a lever *z* mounted to swing on the machine-frame, a pivotally-mounted arresting-lever *x* to engage the lower end of said lever *z*, a pivoted balanced lever *k* having one end extending over the paper pile and an intermediate lever *k'* to transmit the motion of said balanced lever to the lever *x* and arrest the motion of the pawl-rocking lever substantially as described.

5. The combination of a vertically-adjustable paper-slab, guide-rolls at the end of same, a guide-plate B to turn the sheet of paper, a transport-band below said slab having lateral guide-rail L, reciprocating rolls D D to actuate the said sheet, a lever-arm *f* to carry said rolls D, a weighted guide-lever *k* fast on the pivot-spindle k^3 of the machine-frame, said lever *f* being adapted to slide in the end of said guide-lever, a pivoted hinged lever E attached to said arm *f*, an eccentric A loose on the shaft G and eccentric-rod from said eccentric to the lever E, means for driving said eccentric independently of the said shaft G and means for varying the speed of said eccentric substantially as described.

6. The combination of a vertically-adjustable paper-slab, guide-rolls at the end of same and a guide-plate to turn the sheet of paper, a transport-band below said slab having lateral guide-rail L, reciprocating rolls to actuate the said sheet, a lever-arm *f* carrying said rolls, a weighted guide-lever *k* fast on a pivot-spindle k^3 of the machine-frame, said lever *f* being adapted to slide in the end of said guide-lever, a pivoted hinged lever E attached to said arm *f* and an eccentric A loose on the shaft G, a conical pulley J also loose on said shaft and fast to the eccentric A, and a conical driving-pulley H and driving-belt substantially as described.

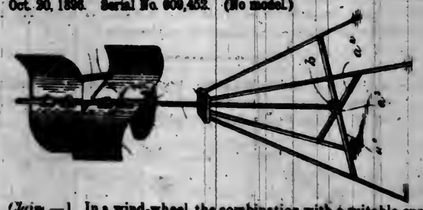
7. The combination of a vertically-movable paper-slab, and means for automatically raising the same gradually, guide-rolls at the end of same and a guide-plate B to turn the paper sheet, a transport-band arranged underneath the said slab having lateral guide-rail L, reciprocating rolls to push the top paper sheet between the said guide-rolls, a lifting device for said rolls at the end of their forward movement, consisting of a lever *n* pivotally attached to the machine-frame and having a downwardly-slanting finger *m* to contact with the top of the paper pile, and adapted to engage under the end of the spindle of the said reciprocating rolls, an eccentric *o* loose on the shaft G and fast on a continuously-rotating driving mechanism, adapted to actuate the end of said lever *n* at each stroke of the reciprocating rolls in the manner and for the purpose substantially as described and shown.

588,059. **BICYCLE TOOL-BAG.** DANIEL D. FROTHINGHAM, Salem, Mass. Filed Aug. 15, 1896. Serial No. 602,845. (No model.)



Claim.—A bicycle tool-bag, comprising a bottom *a*, V-shaped extensions *a' a'* at the ends of the bottom, sides *b b*, extensions *b' b'* at the ends of said sides, a cover *c* forming an extension of one of said sides, all being made in one single integral piece, and separate end pieces or heads *d d* having edges bearing on the inner surfaces of the bottom and sides, and sides bearing on the inner surfaces of the extensions *a'* and *b'*, the said extensions being bent over the side and bottom supporting edges of the end pieces to form seamless or jointless corners, and riveted to the end pieces or heads along their edges, said edges being formed to abut against each other and form smooth-surfaced outer heads or ends which are free from projecting angles or shoulders, the entire external surface of the body of the receptacle being free from overlapping edges.

588,060. **WINDMILL.** JOHN P. FRUIT, Russellville, Ky. Filed Oct. 30, 1896. Serial No. 609,452. (No model.)

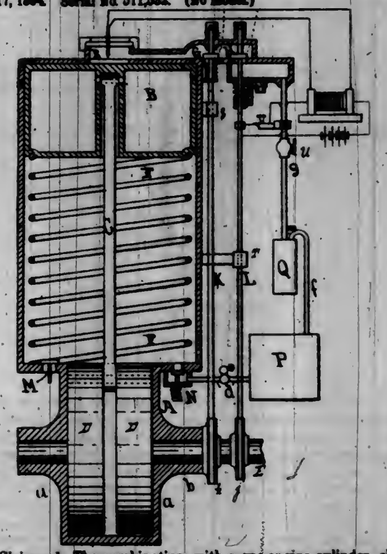


Claim.—1. In a wind-wheel, the combination with a suitable supporting-frame, of a vertical shaft journaled therein, vanes mounted upon said shaft, one above the other, and each comprising a rigid vane and a hinged vane, means connecting the hinged vanes so that they move together and an adjusting-wheel loosely mounted upon said shaft and connected to one of said hinged vanes, substantially as described.

2. In a wind-wheel, the combination with a suitable supporting-frame, of a vertical shaft journaled therein, cyma-shaped vanes mounted upon said shaft one above the other, and each consisting of a rigid vane and a hinged vane, links connecting the hinged vanes so that they move together, an adjusting-wheel mounted upon said shaft and connected to the hinged blades, and means for adjusting said wheel in connection with the shaft whereby said hinged vanes may be opened or closed at will to start or stop the wheel, substantially as described.

3. In a wind-wheel, the combination with a suitable supporting-frame, of a vertical shaft journaled therein, cyma-shaped vanes mounted upon said shaft one above the other, and each consisting of a rigid vane and a hinged vane, means for connecting said hinged vanes whereby they are moved together, an adjusting-wheel loosely mounted upon the shaft and connected to the hinged vanes, a notched wheel rigidly mounted upon said shaft below the adjusting-wheel, a spring-pressed pawl mounted upon the adjusting-wheel and engaging the notched wheel so as to hold said adjusting-wheel in any desired position in relation to the vertical shaft, substantially as described.

588,061. **GAS-ENGINE.** HENRY C. HART, Detroit, Mich., assignor to the Henry C. Hart Manufacturing Company, same place. Filed May 17, 1894. Serial No. 511,532. (No model.)



Claim.—1. The combination, with a gas-engine cylinder, closed at both ends, and having an air-inlet and an air-outlet at one end, a piston working in the cylinder, a compressed-air reservoir, and means for converting air withdrawn from the reservoir into explosive mixture, of a passage-way leading from the said air-outlet of the cylinder to the compressed-air reservoir and having an adjustable valve for varying the quantity of air which flows therethrough from the cylinder to the compressed-air reservoir, substantially as and for the purposes described.

2. The combination, with a gas-engine cylinder, closed at both ends, and having an air-inlet and an air-outlet at one end, a piston working in the cylinder, a compressed-air reservoir, and means for converting air withdrawn from the reservoir into explosive mixture, of a controllable passage-way for varying the quantity of air flowing from the cylinder to the reservoir, substantially as and for the purposes described.

588,062. **GAS-ENGINE.** HENRY C. HART, Detroit, Mich., assignor to the Henry C. Hart Manufacturing Company, same place. Filed Dec. 28, 1896. Serial No. 617,265. (No model.)

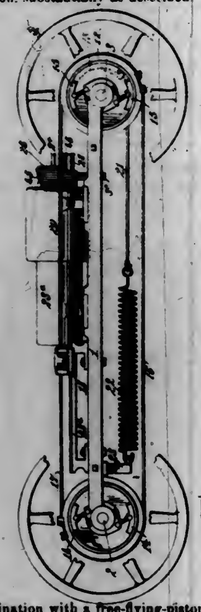
Claim.—1. The combination with a cylinder, and a free-flying piston, of separated pulleys or wheels positively connected to turn in unison and operatively connected with the free-flying piston, substantially as described.

2. The combination with a cylinder, and a free-flying piston, of separated pulleys or wheels connected by flexible connections to move synchronously, and operatively connected with the free-flying piston, substantially as described.

3. The combination with a cylinder, and a free-flying piston, of shafts provided with pulleys or wheels, clutches which permit the pulleys or wheels to turn independently of the shafts in one direction, a connection between the pulleys or wheels for causing them to move synchronously, and connections between the free-flying piston and the pulleys or wheels, substantially as described.

4. The combination with a cylinder, a free-flying piston, and means for introducing explosive mixture into the cylinder and exploding the same to move the piston, of separated pulleys or wheels, a flexible connection between the pulleys or wheels for causing them to move

synchronously, connections between the free-flying piston and the pulleys or wheels, and a spring placed under tension by the working stroke of the piston, substantially as described.



5. The combination with a free-flying-piston engine, of pulleys having shafts and connected at the top and bottom by flexible connections, a connection between the piston and a part of said flexible connections, whereby the pulleys are oscillated when the piston reciprocates, a spring placed under tension by the flight of the piston, and a clutch by which one of the shafts is rotated in one direction by the oscillatory motion of the pulleys, substantially as described.

6. The combination with a free-flying-piston engine, of two shafts provided with pulleys, clutches arranged, respectively, in operative connection with said pulleys and acting in the same direction upon the shafts of the pulleys, flexible connections between the top and bottom portions of the pulleys, and a connection between the free-flying piston and a part of the said flexible connections, substantially as described.

7. The combination with a free-flying-piston engine, having inlet and exhaust valves, of separated pulleys, flexible connections between the top and bottom portions of said pulleys, a connection between the free-flying piston and a part of said flexible connections, and devices operated by the piston to actuate the inlet and exhaust valves, substantially as described.

8. The combination with a free-flying-piston engine, of an oscillatory inlet-valve for governing the passage of explosive mixture to the engine-cylinder, separated pulleys connected at their top and bottom portions by flexible connections, a connection between the free-flying piston and a part of said flexible connections, and a device carried by the piston for oscillating the inlet-valve, substantially as described.

9. The combination with a cylinder, and a piston, of an oscillatory inlet-valve disk or plate having ports and a spindle, a disk or plate secured to the spindle and having radial contact-faces, and a reciprocating rod having a stud adapted to strike against either of said radial contact-faces to oscillate said valve disk or plate, the radial contact-faces being arranged a sufficient distance apart so that the stud is susceptible of some motion between said contact-faces, substantially as described.

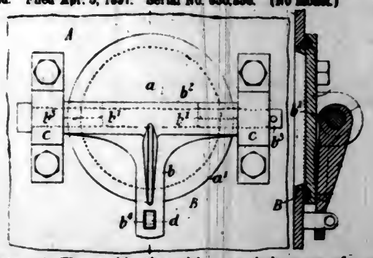
10. The combination with a cylinder, and a piston, of an inlet-valve for controlling the passage of explosive mixture into the cylinder, an exhaust-valve, a spring which acts to unseat the exhaust-valve, and a device carried by the piston for seating the exhaust-valve, substantially as described.

11. The combination with a cylinder, and a piston, of means for controlling the passage of explosive mixture into the cylinder, an exhaust-valve, a spring acting to unseat the exhaust-valve, and a spring-yielding rod carried by the piston and acting to seat the exhaust-valve, substantially as described.

12. The combination with a cylinder, and a piston, of an oscillatory inlet-valve composed of a disk or plate having ports, a spindle and a disk or plate constructed with radial contact-faces, and a rod connected with the piston and having a stud to act against either of said radial contact-faces, substantially as described.

13. The combination with a cylinder, and a free-flying piston, of pulleys or wheels positively connected to turn in unison and operatively connected with the free-flying piston, and a spring having operative connection with the pulleys or wheels, substantially as and for the purpose described.

588,063. MANHOLE-CLOSURE. ALFRED HEWERS, London, England. Filed Apr. 5, 1897. Serial No. 630,836. (No model.)



Claim.—1. The combination with a manhole-cover, of a securing device therefor, including a T-shaped bar provided with a cam projection, bearings for said bar, a stud provided with an aperture and a pin adapted to engage said aperture in the stud and to engage said T-shaped bar to hold it in locked position, substantially as described.

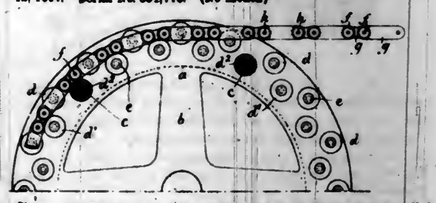
2. The combination with a plate provided with a manhole, and a manhole-cover, of a securing device for said cover including a T-shaped bar provided with cam projections to engage portions of said plate, bearings for said bar secured to said cover, a perforated locking-lug for the handle portion of said bar, and a locking-pin adapted to be inserted in the perforation of said lug, to engage said handle portion of said bar, substantially as described.

3. The combination with a plate provided with the manhole-cover, of a T-shaped securing-bar provided with cam projections, bearings for said bar, a pair of perforated locking-lugs adapted to receive the handle portion of said bar between them, said handle portion being provided with a sealing-recess and a locking-pin adapted to pass through said lugs and the sealing-recess, substantially as described.

4. The combination with a plate provided with a manhole, having a cover-engaging recess and lateral bearings on the inner side of said plate, of a manhole-cover, a T-shaped securing-bar adapted to lie within said recess having portions engaging said bearings, and an eccentric portion for engaging said manhole-cover, whereby said cover and securing-bar do not project beyond the outer surface of the plate, substantially as described.

5. The combination with a manhole-cover, of a securing device therefor, including a pair of T-shaped bars provided with cam projections, bearings for each of said bars, a single perforated locking-stud for the handle portions of both of said bars and a locking-pin for engaging the perforation of said stud, and adapted to engage both of said handle portions, substantially as described.

588,064. CHAIN-GEARING. THOMAS HEWITT, London, England, assignor of one-half to Thomas Harrison Bellis, same place. Filed Apr. 12, 1897. Serial No. 631,778. (No model.)
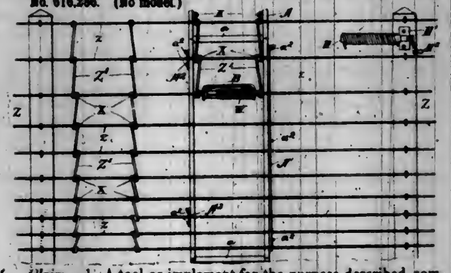


Claim.—1. The combination with a wheel having two parallel rims and two sets of rolls journaled on the inner adjacent faces of said rims, one set of said rolls being arranged in a circle near the periphery of the rims and the other set of rolls being arranged in a smaller circle concentric with the first-named circle, and a chain carrying antifriction-rolls arranged to enter between the outermost rolls of the wheel and having a rolling support on the innermost of said rolls, substantially as described.

2. The combination with a wheel having two parallel rims *a* and *b* and two sets of rolls *d* and *d'* journaled on rivets *e* fixed in said

rims, one set of said rolls *d* being arranged in a circle near the periphery of the rims and the other set of rolls *d'* being arranged in a smaller circle concentric with the first-named circle, and a chain consisting of alternate double and single links *g* pivoted together at their ends and carrying twin sets of rolls *h* arranged to enter between the rolls *d* and having a rolling support on the rolls *d'*, substantially as described.

3. The combination with a wheel having two parallel rims and two sets of rolls journaled on the inner adjacent faces of said rims, one set of said rolls being arranged in a circle near the periphery of the rims and the other set of rolls being arranged in a smaller circle concentric with the first-named circle, a chain carrying antifriction-rolls arranged to enter between the outermost rolls of the wheel and having a rolling support on the innermost of said rolls, and means for adjusting the rolls on the wheel-rims to compensate for wear, substantially as described.

588,065. DEVICE FOR APPLYING STAY-WIRES TO WIRE FENCES. CHARLES W. HOLM, Troy, Ohio. Filed Dec. 19, 1896. Serial No. 616,286. (No model.)



Claim.—1. A tool or implement for the purpose described, comprising essentially a bar having downwardly-bent end portions offset laterally with respect to each other adapted to rest and rotate upon a wire fence, and a pair of parallel elongated wire-holding arms arranged side by side, one of which extends longitudinally from each of said end portions toward but not to the opposite end portion, substantially as specified.

2. A tool or implement for the purpose described, comprising a bar B having the forked and downwardly-bent end portions B' offset laterally with respect to each other, each of which has an opening E, and a wire-holding arm C extending from each of said end portions toward but terminating short of the opposite end portion, the two arms being arranged side by side, substantially as specified.

3. A tool or implement for the purpose described, comprising a bar B having downwardly-bent end portions, each of which is formed with a bearing portion adapted to rest and rotate on a fence-wire, and two elongated parallel wire-holding arms located upon opposite sides with respect to said bearing portions and with respect to the fence-wire, one of said arms extending longitudinally from each of said end portions, and means for imparting tension to the wire, substantially as specified.

4. In a device for applying stays to wire fences, the combination with a frame adapted to hold the fence-wires from sagging, of a twisting tool or implement adapted to work within said frame, and comprising a bar adapted to rest and rotate upon the fence-wires, and carrying two parallel wire-holding arms, said arms being arranged side by side and upon opposite sides with respect to the fence-wire, together with guides and tension devices for the wire, substantially as specified.

5. A tool or implement for the purpose described, comprising a bar B having the forked and downwardly-bent end portions B' offset laterally with respect to each other, each of which has an opening E, and a wire-holding arm C extending from each of said end portions toward but terminating short of the opposite end portion and to one side thereof, together with tension devices adapted to bear on the wires as they pass through said openings, substantially as specified.

6. A tool or implement for the purpose described, comprising a bar having downwardly-bent and forked ends, each of which has an opening therein, the oppositely-extending wire-holding arms, the perforated tension-screws, means for actuating the same, and means for holding the same, substantially as specified.

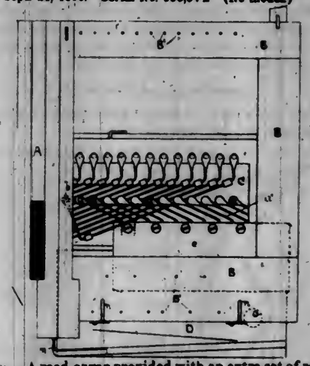
588,066. CABINET OR PAPER-CASE. JAMES T. HOTT, New York, N. Y. Filed Sept. 17, 1896. Serial No. 606,199. (No model.)

Claim.—1. A case or holder having a closed top, bottom, sides and back, and guides extended along inside the top, bottom and back, combined with a flexible front having a discharge slit or opening intermediate its ends, movable along said guides and of a length sufficient to completely close the box irrespective of the position of the discharge slit or opening, a discharge-roller carried by and moving with said front, a support within the case, and a holder located within the boundaries of the guides, substantially as described.



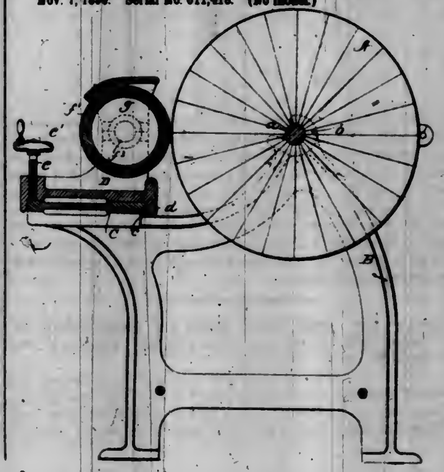
2. A case or holder having a closed top, bottom, sides and back, combined with a flexible, movable front having a discharge-opening intermediate its ends and extending toward the back inside the top and bottom, a discharge-roller carried by and moving with said front, and a support and holder arranged in the case clear of its bottom and back to allow the front to travel past such support and holder, substantially as described.

588,067. REED-ORGAN. SAMUEL JENKINSON, London, England. Filed Sept. 21, 1896. Serial No. 606,574. (No model.)



Claim.—A reed-organ provided with an extra set of reeds, in tone one octave higher than the highest octave represented on the key-board, placed between the front of the reed-board and the ordinary plunger-rods; a support *c* hinged at *d* and overlapping the ordinary coupler; a plurality of cranked levers *a'* carried by said support; pins *h* carried on the lower side of the keys to engage the ends of said levers; plunger-rods *f* for the additional reeds adapted to be engaged by the other ends of said levers, and to open the pallets of the extra set of reeds when so engaged by the levers, the mutes *l* and levers *i* and *k* for actuating said mutes and connected to the stops of the regular reed-board, substantially as described.

588,068. PROCESS OF AND APPARATUS FOR MANUFACTURING POLISHING-WHEELS. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Nov. 7, 1896. Serial No. 611,418. (No model.)



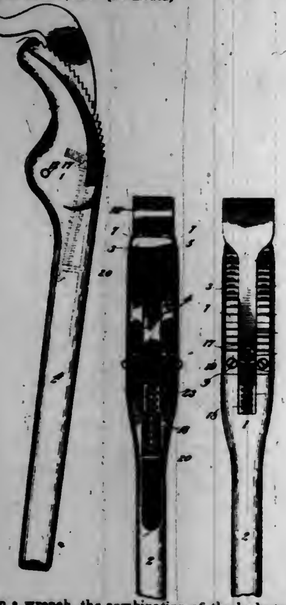
Claim.—1. The herein-described process of applying to the surface of a wheel a coating of polishing material which will soften by heat, said process consisting in preparing a mixture, such as beeswax and emery, rotating the wheel, applying said mixture to the wheel while rotating, and softening and spreading the mixture upon the surface of the wheel as the former is applied to the latter, by the pressure of a rotating heated body, substantially as described.

2. In an apparatus for applying polishing material consisting of a mixture of abrading and binding material that will soften by heat to a polishing-wheel, the combination of a frame in which the polishing-wheel is mounted, and a heated roller mounted in a separate frame, said frames being adjustably connected, so that the polishing-wheel and roller can be brought into contact during the application of the polishing material, and removed from contact when the apparatus is not in operation, substantially as described.

3. Apparatus for applying a polishing material—such as a mixture of beeswax and emery—to the surface of a wheel in a compact and uniform manner, consisting of a rigidly-mounted roller adapted to be pressed against the wheel, bearings in which said wheel is rigidly mounted, means for heating the surface of the roller, means for adjusting the presser-roller and wheel relatively to each other, and driving means for rotating the wheel, substantially as described.

4. In apparatus for applying polishing material to the surface of a wheel, a roller mounted in a suitable frame, bearings for rigidly holding the wheel, means for rotating the wheel, and means—such as a screw—for tilting the frame to adjust the roller with reference to the polishing-surface, substantially as described.

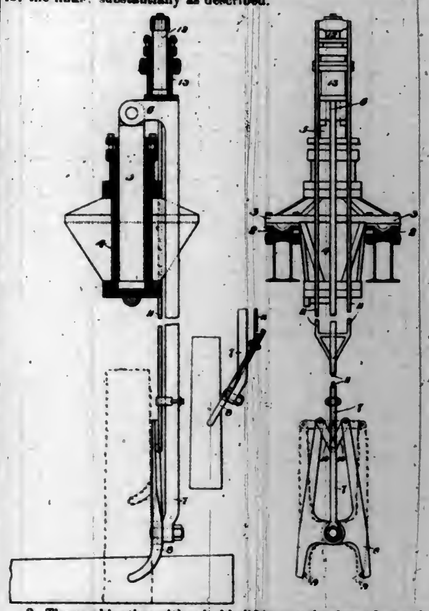
588,069. WRENCH. ALBERT KATSKI, Erie, Pa. Filed Nov. 11, 1896. Serial No. 611,723. (No model.)



Claim.—In a wrench, the combination of the body terminating at one end in a fixed jaw and at the other end in a handle, and provided with a cavity or recess which extends through the fixed jaw from the front to the rear, and in its lower portion is situated in the front side of the handle, a movable jaw pivotally supported in the recessed part of the wrench-body, a guide-rod secured to the movable jaw, and mounted entirely within that part of the recess in the front of the handle, a spring for operating the movable jaw, and a stop-piece against which the spring bears, situated in the said recess, substantially as set forth.

588,070. INGOT-TONGS. HENRY R. A. KEMER, Braddock, Pa., assignor to the Carnegie Steel Company, Limited. Filed Apr. 28, 1893. Serial No. 473,189. (No model.)

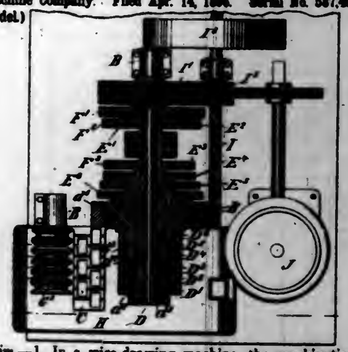
Claim.—1. The combination with suitable lifting mechanism of a vertical lifting and supporting bar attached at its upper end thereto, tongs pivoted to the bar and having jaws provided with conical teeth arranged to engage the ingot outside its center of gravity and allow its swinging thereon, links pivoted to the jaws, and an operating-rod for the links: substantially as described.



2. The combination with suitable lifting mechanism of a vertical lifting and supporting bar attached at its upper end thereto, tongs pivoted to the bar and having jaws extending at an angle to the general plane of the vertical bar and provided with conical teeth arranged to engage the ingot outside its center of gravity and allow its swinging thereon, links pivoted to the jaws, and an operating-rod for the links; substantially as described.

3. The combination with a movable carriage, of two motive cylinders carried thereon, a rigid supporting-bar carried by one cylinder, tongs pivoted to the bar, and an operating-bar for the tongs arranged to be operated by the other cylinder; substantially as described.

588,071. WIRE-DRAWING MACHINE. GEORGE B. LAMB, Waterbury, Conn., assignor, by mesne assignments, to the Waterbury Machine Company. Filed Apr. 14, 1896. Serial No. 587,462. (No model.)



Claim.—1. In a wire-drawing machine, the combination of a number of drawing-rollers of the same diameter arranged side by side, and surrounding a common shaft, but supported so as to be capable of simultaneous and independent rotation, and gearing for rotating these drawing-rollers at different speeds, substantially as specified.

2. In a wire-drawing machine, the combination of a number of drawing-rollers arranged side by side and surrounding a common shaft, but supported so as to be capable of independent rotation, and gearing connected to drive said drawing-rollers and consisting of two sets of differently-proportioned gear-wheels, substantially as specified.

3. In a wire-drawing machine, the combination of a number of drawing-rollers arranged side by side, and surrounding a common shaft, but supported so as to be capable of independent rotation, and gearing consisting of two sets of differently-proportioned gear-wheels, the individual gears of one set being connected by a shaft and sleeves with the independent drawing-rollers, substantially as specified.

4. In a wire-drawing machine, the combination of a series of drawing-rollers arranged side by side, and provided with elongated bearing-sleeves supported one within the other, a common shaft for said several sleeves, and gearing for simultaneously rotating said sleeves and their drawing-rollers at different rates of speed, substantially as described.

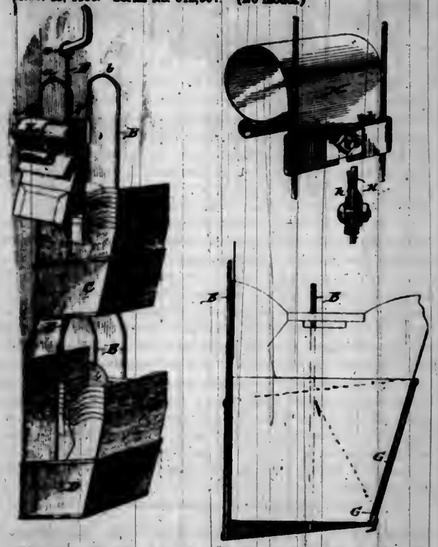
588,072. AX. JAMES B. LATHEM, Broome's Island, Md. Filed May 11, 1897. Serial No. 636,016. (No model.)



Claim.—1. An ax-head provided with an eye and with a bit-shank recess, the said head being split between the eye and the recess, and a removable blade inserted in said recess, and a screw for securing the blade in position, substantially as set forth.

2. The combination with an ax-head provided with an eye formed with corrugations and with a bit-shank recess, the said head being split between the eye and the recess, of a removable bit or blade inserted in said recess, an ax-helve inserted in said eye, and a screw for simultaneously clamping the helve and bit in position, substantially as set forth.

588,073. BAG-HOLDER. JOHN LITTLEJOHN, Aurora, Ill. Filed Nov. 12, 1896. Serial No. 612,097. (No model.)



Claim.—1. In a device substantially as described, a pail-holder provided with a pail-receiver having a downwardly-facing hook for engagement by the bail of the pail, substantially as described.

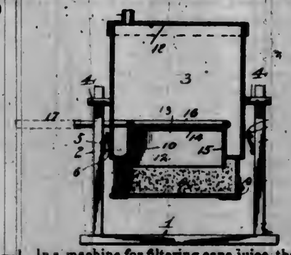
2. A device substantially as described, comprising the frame having side sections the pail-receivers secured to said side sections and the bag-clamp held to and adjustable along one of said side sections, substantially as described.

3. The device herein described, consisting of the frame having side sections, the upper and lower pail-receivers held to said side sections and made in different sizes, the side sections being deflected below the upper pail-receiver, substantially as described.

4. The device herein described, consisting of the upper and lower pail-receivers the frame comprising side sections secured to said receivers and deflected laterally below the upper receiver, the back rod secured to said receivers and extended upwardly between the side sections, the brace connecting said rod with the side sections and the bag-clamp held to the frame substantially as described.

5. The device herein described, consisting of the framing having side sections provided with deflected portions, the upper pail-receiver secured to said side sections above said deflected portions, the lower pail-receiver secured to said side sections below the deflected portions the hooks secured in said receivers in position for engagement by the bails of the pails and the bag-clamp secured adjustably to one of the side sections, substantially as described.

588,074. MACHINE FOR FILTERING CANE-JUICE. JOSEPH A. LOMBAS, Lockport, La., assignor of one-half to Ernest Amédée Boudreaux, Cypre Mort Landing, La. Filed Apr. 12, 1897. Serial No. 631,808. (No model.)



Claim.—1. In a machine for filtering cane-juice, the combination with the base and standards and the receptacle eccentrically journaled to said standards, of a hinged perforated bottom, and the false bottom with a space therebetween to receive filtering material, of the perforated cap located above and secured to said false bottom and the perforated steam-pipe at the upper end thereof, extending outside the receptacle, substantially as described.

2. In a machine for filtering cane-juice, the combination with the liquid-receptacle, the hermetically-closed cover provided with a pipe, the perforated hinged bottom and the false bottom with a space therebetween, of the perforated filtering-cap and the perforated steam-pipe at the upper end thereof, extending outside the receptacle, substantially as described.

588,075. RETAILING-CASE. EDWARD MAYER, New Orleans, La. Filed Jan. 8, 1897. Serial No. 618,491. (No model.)



Claim.—1. In an apparatus for holding and for delivering singly, articles of a similar size and shape; the combination with a hollow upright tube of a size adapted to hold the articles only in a superposed position, provided with openings to receive and deliver said articles, having at or near the lower portion thereof a relatively short portion set at a slight angle to the body of said tube, and having openings in opposite sides of said angular portion, the one at or near the upper end, and the other at or near the lower end of said angular portion; of a pair of cut-offs adapted to work in said openings; means for normally holding the lower cut-off projected into the tube, and the upper cut-off withdrawn therefrom; and means for simultaneously withdrawing said lower cut-off and projecting said upper cut-off, substantially as described.

2. In an apparatus for holding and for delivering singly, articles of a similar size and shape: the combination with a hollow upright cylinder of a size and shape adapted to hold the articles only in a superposed position, provided with openings to receive and deliver said articles, having at or near the lower end thereof a relatively short portion set at a slight angle to the body of said cylinder, and having openings in opposite sides of said angular portion, the one at or near the upper end, and the other at or near the lower end of said angular portion; of a rod mounted in a sleeve rigidly mounted upon said cylinder, and adapted to move longitudinally therein; a pair of arms rigidly mounted upon said rod at opposite ends thereof; a cut-off mounted upon each of said arms and adapted to enter one of said openings in said angular portion; means for holding said rod normally at the extreme end of its movement in one direction; and means for sliding said rod to the extreme end of its movement in the opposite direction, substantially as described.

3. In an apparatus for holding and for delivering singly, articles of a similar size and shape; the combination with a hollow upright tube of the size and shape adapted to hold the articles only in a superposed position, provided with openings to receive and deliver said articles; having at or near its lower end a relatively short portion set at a slight angle to the body of said tube, and having openings in opposite sides of said angular portion, the one at or near the

upper end, and the other at or near the lower end thereof: of a pair of cut-offs adapted to work in said openings; a spring normally holding the lower cut-off projected into the tube, and the upper cut-off withdrawn therefrom; and a lever for simultaneously withdrawing said lower cut-off and projecting said upper cut-off, substantially as described.

4. In an apparatus for holding and for delivering singly, articles of a similar size and shape; the combination with a hollow upright cylinder of a size and shape adapted to hold the articles only in a superposed position, provided with openings to receive and deliver said articles; having at or near the lower end thereof a relatively short portion set at a slight angle to the body of said cylinder, and having openings in opposite sides of said angular portion, the one at or near the upper end, and the other at or near the lower end of said angular portion; of a rod mounted in a sleeve rigidly mounted upon said cylinder, and adapted to move longitudinally therein; a pair of arms rigidly mounted upon said rod at opposite ends thereof; a cut-off mounted upon each of said arms and adapted to enter one of said openings in said angular portion; a coil-spring holding said rod normally at the extreme end of its movement in one direction; and an angle-lever pivoted upon a standard and having an arm adapted to engage said rod and to slide the same to the extreme end of its movement in the opposite direction, against the action of said spring, substantially as described.

5. In a case for holding and for delivering singly, spools of cotton, thread and the like, the combination with a suitable inclosing box or case; of a hollow tube adapted to hold the spools only in a superposed position, mounted in an upright position within said case; said tube being open at both ends; and having at or near the lower end a relatively short portion set at a slight angle to the body of said tube, provided with a pair of horizontal slots in opposite sides thereof, the one at or near the upper end, and the other at or near the lower end of said portion; a pair of oppositely-disposed cut-offs mounted upon said tubes and adapted to work in said openings; means for normally holding the lower cut-off closed, and the upper cut-off open; means for simultaneously withdrawing said lower cut-off and projecting said upper cut-off; and a chute leading from the lower end of said tube to the outside of said case, substantially as described.

6. In a case for holding and for delivering singly, spools of cotton, thread and the like, the combination with a suitable inclosing box or case, of a hollow tube of a size and shape adapted to hold the articles only in a superposed position, mounted in an upright position within said case; said tube being open at both ends, and having at or near the lower end a relatively short portion set at a slight angle to the body of said tube, provided with a pair of horizontal slots in opposite sides thereof, the one at or near the upper end, and the other at or near the lower end of said angular portion; a rod mounted in a sleeve rigidly mounted upon said cylinder, and adapted to move longitudinally therein; a pair of arms rigidly mounted upon said rod at opposite ends thereof; a short flat plate or cut-off mounted upon each of said arms and adapted to enter one of said horizontal slots; a coil-spring surrounding said rod and holding the lower cut-off normally closed and the upper cut-off normally open; and a pivoted lever adapted to engage said rod and simultaneously open the lower cut-off and close the upper cut-off, substantially as described.

588,076. PROCESS OF TREATING SULFID ORE. BERNARD MOUR, London, England. Filed June 14, 1897. Serial No. 640,768. (No specimens.)

Claim.— The herein-described process for treating sulfid ore by acting on the pulverized ore with acid sodium or potassium sulfate so as to obtain a solution of sulfate of zinc depositing the zinc by electrolysis and thus recovering the acid alkali sulfate, and treating the insoluble residue obtained by the lixiviation for recovery of the other metals.

588,077. GAS-INCANDESCENT. ROBERT MOSCHELES, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Original application filed July 3, 1896, Serial No. 598,002. Divided and this application filed Nov. 17, 1896. Serial No. 612,496. (No specimens.)

Claim.—1. An incandescent containing oxid of indium.

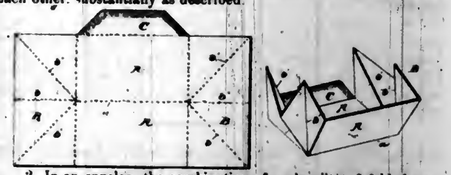
2. An incandescent consisting of a mixture of the oxids of gallium and indium.

3. A filament, fabric or textile frame of combustible material impregnated with the salts of refractory earths and of indium.

4. An incandescent composed of a mixture of oxids, in which the oxids of gallium and indium are contained.

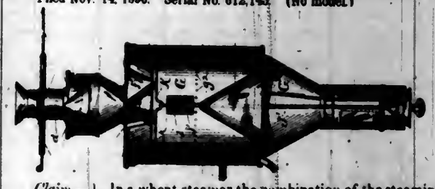
588,078. ENVELOP. ALEXANDER M. MOYLAN, Muscogee, Fla. Filed Nov. 25, 1896. Serial No. 613,373. (No model.)

Claim.—1. In an envelop, the combination with a plurality of folded portions adapted to be written upon and one of which is provided with flap-securing slits, of closing-flaps adapted to guard the contents against inspection and each comprising a central outward fold, intermediate diagonal inward folds, securing-flaps adapted to enter the securing-slits when the envelop is folded, and a securing-flap for attaching the writing portions together when doubled upon each other, substantially as described.



2. In an envelop, the combination of a plurality of folded portions adapted to be written upon, of end closing-flaps adapted to guard the contents of said writing portions against inspection, and each comprising a central outward fold, and intermediate diagonal inward folds, and a securing-flap for connecting the writing portions when folded together, substantially as described.

588,079. WHEAT-STEAMER. JOHN D. HAGEL, Bushnell, Ill. Filed Nov. 14, 1896. Serial No. 612,143. (No model.)



Claim.—1. In a wheat-steamer the combination of the steaming-chamber, having an inlet at top and outlet at bottom for the grain, a fixed spreader below the inlet-opening, an inverted conoidal flange surrounding said spreader, and a spring-upheld valve in the outlet of the steaming-chamber independent of the spreader, with a small chamber above the inlet-opening, a spreader therein, the grain-supply pipe, and a slide-valve therein above the spreaders having openings, all substantially as and for the purpose set forth.

2. In a wheat-steamer, the combination of the steaming-chamber having double walls, perforations for admitting steam into the chamber, and inlet and outlet openings at top and bottom of said steaming-chamber respectively, a pipe for supplying steam to the space between said walls, a small spreader fixed below the inlet-opening and above the steam-jet openings, a large spreader fixed below the steam-jet openings; and an inverted conoidal flange surrounding the upper spreader and above the jet-openings; with a small chamber over the inlet of the steaming-chamber having a detachable cover provided with steam-escape openings, a fixed spreader in said small chamber, a feed-pipe, a regulating slide-valve athwart said pipe, the hopper above the pipe and a spring-controlled valve hung in the outlet of the steam-chamber, so arranged that said valve is alone acted upon by the pressure of the wheat thereon, all constructed and arranged to operate substantially as and for the purpose set forth.

588,080. RAILWAY-TRACK STRUCTURE. JOHN PENNIR, Albany, N. Y. Filed Apr. 26, 1897. Serial No. 634,011. (No model.)



Claim.—1. A railway-track structure, consisting of a series of upright pipe-sections, contained within corresponding recesses or cavities of the road-bed, said pipe-sections having at their lower ends a filling of earth or the like, and at their upper ends removable plugs, in combination with track-rails resting upon the plugs and secured thereto by screw-bolts passing through the plugs and through the rail-bases and provided with retaining-nuts; substantially as described.

2. A railway-track structure, consisting of a series of upright pipe-sections, contained within corresponding recesses or cavities of the road-bed, said pipe-sections having at their lower ends a filling of earth or the like, and at their upper ends removable plugs, in combination with track-rails resting upon the plugs and secured thereto by suitable fastenings, the pipe-sections being provided with lips against which the edges of the rail-flanges abut; substantially as described.

3. A railway-track structure, consisting of a series of upright pipe-sections, contained within corresponding recesses or cavities of the road-bed, said pipe-sections having at their lower ends a filling of earth or the like, and, at their upper ends, removable plugs, in combination with track-rails resting upon the plugs and secured thereto by suitable fastenings, and cross-bars connecting the track-rails; substantially as described.

4. A railway-track structure, consisting of a series of upright pipe-sections, contained within corresponding recesses or cavities of the road-bed, said pipe-sections having at their lower ends a filling of earth or the like, and, at their upper ends, removable plugs, in combination with track-rails resting upon the plugs and secured thereto by suitable fastenings, and cross-bars connecting the track-rails, said cross-bars being provided at their ends with upright projections fitting within corresponding apertures of the rails.

5. A railway-track structure, consisting of a series of upright pipe-sections embedded within the road-bed said pipe-sections having at their lower ends a filling of earth or other more or less elastic material and having at their upper ends removable plugs resting upon the lower filling and capable of a limited vertical movement thereon, in combination with track-rails resting upon the plugs and secured thereto; substantially as described.

588,081. CARRIAGE-WHEEL. WILLIAM A. PENTECOST, Worcester, Mass. Filed Nov. 21, 1896. Serial No. 612,973. (No model.)



Claim.—1. In a carriage-wheel, the combination with a hollow hub and a perforated diaphragm located therein at one end, of a screw-threaded cap fitted into the other end of the hub, an axle-box held in position between the diaphragm and the cap, and an axle-spindle journaled in said box.

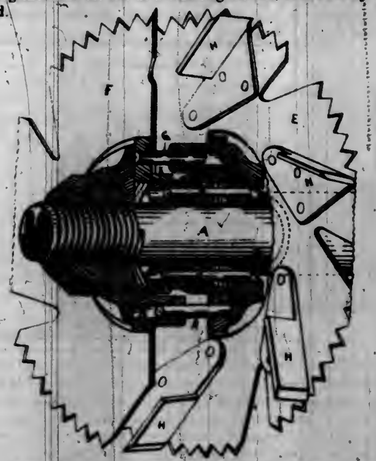
2. In a carriage-wheel, the combination with a hollow hub having a perforated diaphragm therein and a threaded portion, of a threaded collar adapted to fit said threaded portion and having a beveled face, and a removable axle-box provided with beveled ends adapted to bear against the bevel portions of the diaphragm and collar and held in position by said diaphragm and collar.

3. In a carriage-wheel, the combination with a hollow hub having at one end an inner diaphragm provided with a beveled opening, of a threaded collar adapted to screw into the hub at its outer end and provided with a beveled face, a removable axle-box provided at one end with a beveled portion and at the other end with an expanded recessed beveled portion, said portions being adapted to bear against the beveled portions of the diaphragm and collar, an axle-spindle received in the axle-box and having a collar adapted to fit within the recess of the expanded portion of the same, and means for holding said spindle in the box.

588,082. DADO-CUTTER AND TENONING-MACHINE. WILLIS J. PERKINS, Grand Rapids, Mich. Filed Aug. 2, 1895. Serial No. 558,022. (No model.)

Claim.—1. The combination of two outer saws, two saw-supporting nuts, one for each saw, means for loosely connecting said nuts, two threaded nuts or sleeves on the arbor, one for each saw-supporting nut, a pin parallel with the axis and lying partly in and made fast to one of the saw-supporting nuts and having a sliding engagement with a socket in the other saw-supporting nut for attaching said saw-supporting nuts loosely and enabling them to be adjusted toward and from each other without changing their peripheral relations, and means for connecting said saws and arbor-nuts, substantially as described.

2. The combination of two saws or analogous cutting implements and intermediate overlapping cutting devices, a screw-threaded collar attached to each of said saws, means for adjusting said saws to and from each other upon a threaded sleeve, said saws adapted to be placed in reverse position so that the cutting-knives extend outwardly from each other, leaving a space between the saws, thereby adapting the same for use as a tenoning device, substantially as described.



3. In combination with two saws provided with threaded collars and a series of cutting-knives extending inwardly from their adjacent faces, an intermediate saw placed between said outer saws, having cutting-knives extending outwardly from its face, a loose connection between the said three collars, and a threaded sleeve with which the collars on the outer saws engage whereby the said outer saws may be adjusted to and from the inner or center saw, substantially as described.

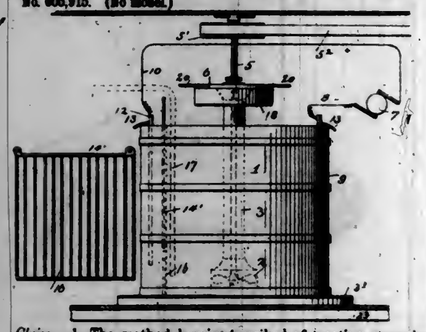
588,083. SHOE-FASTENING. EDMUND PÖHN, Berlin, Germany. Filed Feb. 23, 1897. Serial No. 624,710. (No model.)



Claim.—1. A closure for articles of clothing consisting of a series of pins arranged along each side of the edges to be fastened together, a series of pairs of levers pivoted together at their centers, slots in each end of each lever of each pair to engage the said pins and means for fastening together the uppermost ends of the uppermost pair of levers substantially as described.

2. The combination of a series of lever pairs pivoted together as specified, a series of pins on either side of the closure, a slot in each end of said lever to engage said pin, a pair of lower levers having their adjoining ends pivoted to the adjoining edges of the closure, a notch in the under side of the two uppermost lever-arms and a ring to engage said notches in the manner and for the purpose substantially as described.

588,084. PROCESS OF AND APPARATUS FOR ELECTROCHEMICAL TREATMENT OF STRAW OR OTHER FIBROUS MATERIALS. GOLDSBURY H. POND, Ashburnham, Mass. Filed Sept. 15, 1896. Serial No. 605,915. (No model.)



Claim.—1. The method herein described of treating straw by the electrochemical decomposition of a solution of chlorid of sodium, which consists in packing or banking the straw in a tank containing a solution of chlorid of sodium in such manner that an open cell or space is formed between the anode and the mass of straw, and then causing the solution to be circulated in the vat and subjected to the action of an electric current.

2. In the electrochemical treatment of straw or other fibrous material by the decomposition of a solution of chlorid of sodium, the process herein described which consists in causing the solution undergoing decomposition to be circulated quickly throughout the mass of straw at the beginning of the operation and then decreasing the speed of the circulation, substantially as specified.

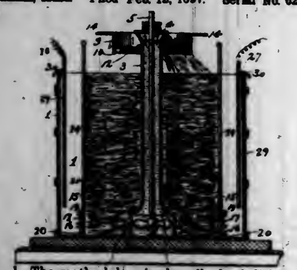
3. The process herein described of treating straw by electrolysis which consists in packing the straw in a suitable tank and forming an open anode-cell at the side thereof, then placing in said tank a solution of chlorid of sodium and maintaining a circulation of the same throughout the mass of straw, while passing a current of electricity through the solution, substantially as specified.

4. The combination with a tank for the treatment of straw by the electrochemical decomposition of a solution of chlorid of sodium, of the solid partition located in said tank and resting on the bottom thereof and the removable grating seated on said partition, substantially as described.

5. The combination with the tank and the electrodes, of the pipe located in the tank, the perforated receptacle at the upper end thereof, the perforated rotatable regulator and means for forcing a fluid contained in said tank up through said pipe and regulator and thus maintain a constant or variable circulation, substantially as described.

6. The combination with the tank, the electrodes, the vertical partition and grating at one side of the tank forming a cell in which the positive electrodes are located, of the perforated casing, the perforated receptacle, the adjustable perforated regulator, the rotatable shaft and the screw at the lower end thereof, substantially as described.

588,085. METHOD OF AND APPARATUS FOR ELECTROCHEMICAL TREATMENT OF FIBROUS MATERIAL. GOLDSBURY H. POND, Ashburnham, Mass. Filed Feb. 12, 1897. Serial No. 623,207. (No model.)



Claim.—1. The method herein described of disintegrating and bleaching straw by the electrochemical decomposition of a solution of chlorid of sodium, which consists in packing or banking the straw in a tank containing a solution of chlorid of sodium in such manner that an open cell is formed between the mass of straw and the cathode and between the straw and the anode, then causing the solution to be circulated throughout the straw from the cathode-cell to disintegrate the straw and then circulating the solution from the anode-cell through the disintegrated straw to bleach the same, while passing a current of electricity through the solution.

2. The method herein described of disintegrating and bleaching straw, which consists in packing the straw in a suitable tank in such manner as to form an open cathode and an open anode cell at opposite sides of the tank, then placing a solution of chlorid of sodium in said tank, and causing a circulation of the same throughout the mass of straw, first from the cathode-cell and then from the anode-cell, while passing a current of electricity through the solution.

3. The method herein described of disintegrating and bleaching straw, or other fibrous material, which consists in decomposing the chlorid-of-sodium solution in separate cells formed on each side of the material being treated and drawing the resultant parts of the decomposition of the salt from either cell in the proportions desired and circulating the same through the material substantially as described.

4. In an apparatus for the electrochemical treatment of fibrous material, the combination with the tank, having ribs formed on the bottom at opposite sides of the tank, of the stationary partitions located at the lower part of the tank at opposite sides, formed with openings in the lower edge, the ways secured to said partitions, the slidable gates formed with openings in the lower edges, working between said ways and ribs, and the rods secured to said gates and projecting through the tank for operating the gates, the removable gratings resting on said partitions, and the anode and the cathode at opposite sides of the tank, substantially as described.

588,086. GRAVE-VAULT. FRANK C. REEDBOTTOM, Union City, Mich. Filed Dec. 14, 1894. Renewed Jan. 12, 1897. Serial No. 619,014. (No model.)

Claim.—The herein-described grave-vault consisting of a series of transverse bottom slabs, the upper portions of the meeting edges of which are cut away and the troughs formed thereby filled with cement; side walls consisting of inner vertical slabs spaced from each other, and outer slabs covering the spaces and overlapping the inner slabs, and cement fillings in said spaces; end walls consisting each of one inner slab and two outer slabs which overlap the inner slab, and cement fillings between the edges of the inner slab and the slabs of the side wall; and a top also of slabs supported on the side walls, the said bottom slabs being of such length that their end portions project laterally beyond the side walls, all of said slabs being of imperishable material, substantially as specified.

588,087. MACHINE FOR JUSTIFYING TYPOGRAPHIC IMPRESSIONS. ISAAC RIDLEY, New York, N. Y., assignor, by mesne assignments, to Joseph H. Borton, trustee, Atlantic City, N. J. Filed June 6, 1889. Serial No. 313,286. (No model.)

Claim.—1. A machine for typographic purposes provided with means for producing preliminary representation, in combination with means for recording the units thereof, to govern the production of the final justified representation.

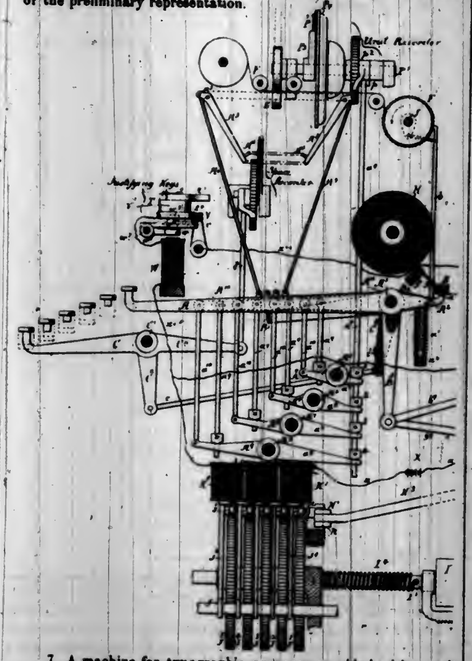
2. A machine for typographic purposes provided with means for producing preliminary representation, in combination with means for recording the units thereof, and a word-space record, to govern the production of the final justified representation.

3. A machine for typographic purposes, provided with means for producing a preliminary representation and means for recording the unit widths of the characters and of the normal word-spaces in a represented line, with means for indicating the number of units the represented line is short of its standard length.

4. A machine for typographic purposes provided with means for producing a preliminary representation and means for recording the unit widths of the characters and of the normal word-spaces in a represented line, with means for indicating the number of units the represented line is in excess of its standard length.

5. A machine for typographic purposes provided with means for producing a preliminary representation, in combination with means for making a readable impression, and devices for recording the units and word-spaces of said representation.

6. A machine for typographic purposes provided with means for producing a preliminary representation and devices for recording the units and word-spaces of said representation in combination with a series of differential devices to control the spaces in the final representation with reference to the excess or shortage in unit measurement of the preliminary representation.



7. A machine for typographic purposes provided with a unit record and a word-space record and means to justify the line.

8. A machine for typographic purposes provided with unit and word-space recording devices, and means adapted to be set by the operator from the recorded indications to justify the line.

9. A machine for typographic purposes provided with means for producing a preliminary representation, in combination with means for recording the number of word-spaces represented, and means to justify the line.

10. A machine for typographic purposes, provided with means for producing a preliminary representation both of the characters and the word-spaces, with means to justify the lines.

11. A machine for typographic purposes having keys and a preliminary-representation device with represented word-spaces in combination with feeding devices for the final representation and means controlled by the represented word-spaces for connecting justifying-keys with the feeding devices to justify the word-spaces.

12. A machine for typographic purposes having a preliminary-representation device, in combination with unit and word-space recording devices, and means adapted to be set by the operator from the recorded indications to justify the line.

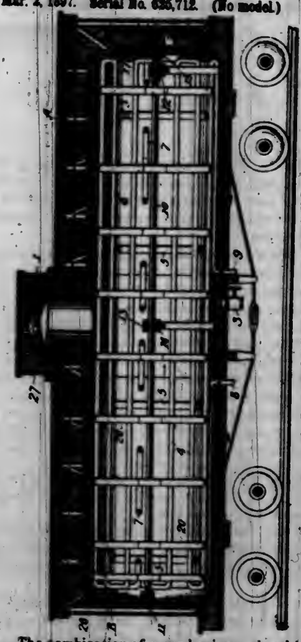
588,088. BICYCLE-BRAKE. EDWARD D. ROCKWELL, Bristol, Conn. Filed Nov. 7, 1896. Serial No. 611,331. (No model.)



Claim.—1. In bicycle-brake mechanism, the combination with a frame, shaft, and pedal-bar secured thereto, of a sprocket-wheel loosely mounted upon the shaft between the pedal-bar and the frame, a friction-plate secured to the frame, wedging mechanism operatively located between the pedal-bar and the sprocket-wheel, and a spring connecting the pedal-bar and sprocket-wheel, substantially as set forth.

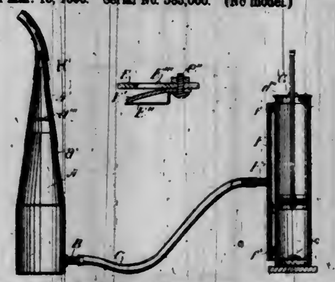
2. In a bicycle-brake mechanism, the combination with a frame and shaft, of a sprocket-wheel loosely mounted on the shaft and free to slide thereon to a limited extent, provided with a friction-surface, a friction-plate on the frame, a pedal-bar, wedging connections between the pedal-bar and the sprocket-wheel, a spring 18 which tends to separate the said friction members, and a strong spring, 19, connecting the pedal-bar and the sprocket-wheel and tending to hold them in driving engagement, substantially as set forth.

588,089. REFRIGERATOR-TANK CAR. CHARLES I. ROGERS, Milton, Pa., assignor to Murray, Dougal & Co., Limited, same place. Filed Mar. 2, 1897. Serial No. 625,712. (No model.)



Claim.—The combination of a car having a closed box or body, a tank within said box, coils within and adjacent to the wall of the tank, additional coils arranged transversely in the middle of the tank, a shaft mounted in bearings within the tank and extending through a stuffing-box in the end of the tank, paddles upon the shaft within the tank and suitable means connected to the projecting end of the shaft for turning the same, substantially as described.

588,090. FUMIGATOR. OBEDIAH SALLADY, Los Angeles, Cal. Filed Mar. 13, 1896. Serial No. 583,060. (No model.)

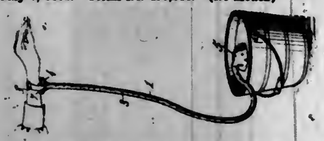


Claim.—1. The fumigator set forth, comprising the smoke-chamber having its top closed and having its lower portion tapered; a nozzle tapered to fit upon the tapering lower portion of the chamber and hinged to such chamber; an air-pump secured to a base; such base, projecting upon both sides of the pump-cylinder and adapted to receive the feet of the operator; and the flexible hose connecting the air-pump with the top of the smoke-chamber.

2. The fumigator set forth, comprising the smoke-chamber provided near its top with a nipple and having its lower end tapered; a nozzle, tapered to fit the lower part of the chamber and hinged to the body of the smoke-chamber; an air-pump comprising a vertical cylinder secured to a base and provided at its bottom with a series of air-inlets; a partition arranged above the air-inlets; a valved inlet

and outlet at both top and bottom, the outlets communicating with a discharge-chamber; the nipple secured to the discharge-chamber; and a flexible hose connecting the nipple of the discharge-chamber with the nipple of the smoke-chamber.

588,091. THERAPEUTIC APPARATUS. HERCULES SANCHE, Detroit, Mich., assignor to the Antmarium Company, New York, N. Y. Filed July 7, 1892. Serial No. 439,269. (No model.)



Claim.—1. A therapeutic apparatus consisting of a connecting filament of porous, or bibulous material, a flexible inclosing tube having cups at its ends, and packings, of bibulous, or absorbent material, placed in said cups and forming terminals to the filament, substantially as described.

2. A therapeutic apparatus consisting of a connecting filament of porous, or bibulous material, an inclosing tube of flexible material having perforations and provided at its ends with enlargements, or cups, absorbent packings in said cups forming terminals for the filament, and means for attaching one terminal to the body under treatment, substantially as described.

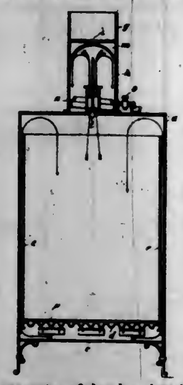
3. A therapeutic apparatus consisting of a filament of bibulous material, a flexible tube inclosing the same, having enlargements, or cups, at its ends, formed of the material of the tube and having ribs, or marginal beads, absorbent packings, or fillings, placed in said cups and forming contact-terminals to the filament, and a strap, or straps, applied to one cup to enable it to be attached to the body under treatment, substantially as described.

4. The combination with absorbent terminals of capillary means for sustaining a fluid-column forming a connection between said terminals, substantially as described.

5. The combination with suitable contact-terminals of a bibulous or absorbent filament connecting said contact-terminals and capable of being charged with moisture, or fluid, substantially as described.

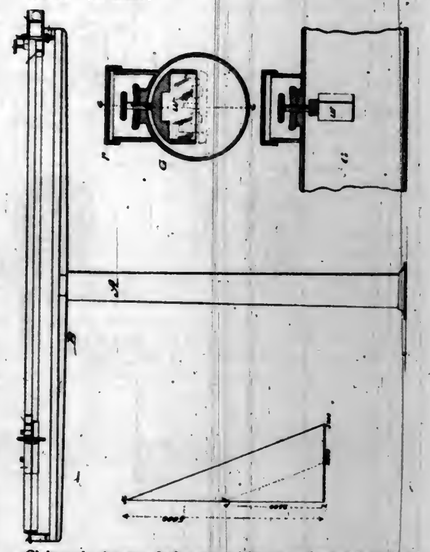
6. The combination with two contact-terminals of a bibulous, or absorbent filament connecting the same and capable of being charged with a body of fluid and means for attaching of said terminals to a body under treatment, substantially as described.

588,092. DEPURATOR. KARL L. SANDROWSKI, Berlin, Germany. Filed June 23, 1894. Serial No. 515,420. (No model.) Patented in Germany May 31, 1894, No. 81,179; in Switzerland June 2, 1894, No. 8,719, and in England June 7, 1894, No. 11,054.



Claim.—In an apparatus of the class described, the combination with the inclosing casing having an inner and an outer wall forming an air-space between them and provided with a corrugated bottom, a removable bottom of non-heat-conducting material upon said corrugated bottom, a heating-chamber below said bottoms communicating with the air-space said air-space communicating with the interior of the casing at a point removed from said heating-chamber, and a condenser communicating with said casing having a liquid-retaining portion, a draw-off cock for said liquid-retaining portion, substantially as described.

588,093. RANGE-FINDER. GEORGE M. SEABLE and GEORGE N. SAEGMULLER, Washington, D. C. Filed Apr. 12, 1897. Serial No. 631,755. (No model.)



Claim.—1. A range-finder comprising a graduated base-line bar having a fixed right-angular-reflecting surface, and also a movable one with a pointer traveling on the graduated scale of the base-line, said two reflecting-surfaces being in different planes to throw their images on different portions of the object-glass of a telescope, and a telescope constructed to bring these two images into coincidence substantially as shown and described.

2. A range-finder comprising a graduated base-line bar bearing a fixed right angular-reflecting surface, an adjustable right-angular-reflecting surface movable along the base-line bar, said reflecting-surfaces being arranged to receive the incident rays and send out the emergent rays in different parallel planes into a telescope, a telescope adapted to receive on its object-glass the two sets of rays, and a refracting-plate arranged within said telescope to receive the one set of rays from one of said reflecting-surfaces and deflect their image into coincidence with that of the other set of rays from the other reflecting-surface substantially as and for the purpose described.

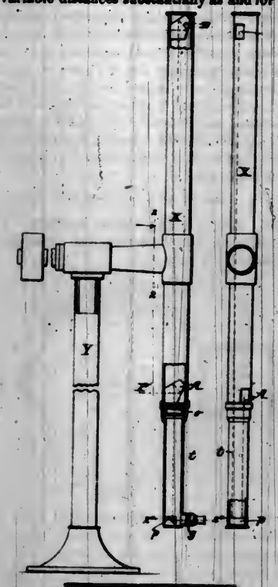
3. A range-finder comprising a telescope constructed to bring two images into coincidence, a graduated base-line bar mounted upon axes at right angles to each other, and carrying at one end a fixed right-angularly-reflecting prism, a movable carriage sliding on the base-line bar and bearing a right-angularly-reflecting surface arranged in a different plane from the first-named right-angular-reflecting surface, an endless chain connected to said carriage, and distending wheels and adjusting-handle for operating said chain and adjusting the carriage with movable reflecting-surface along the base-line bar, substantially as and for the purpose described.

4. A range-finder comprising a graduated base-line bar having at one end a fixed right-angular-reflecting surface, an adjustable right-angular-reflecting surface movable along the base-line bar, said surfaces being arranged in different planes to send their respective emergent rays to a different portion of the object-glass of a telescope, a telescope mounted near the stationary reflecting-surface of the base-line bar, and having a refracting-plate as described, and an additional reflecting-surface for bringing the line of sight at right angles to the base-line bar substantially as and for the purpose described.

588,094. RANGE-FINDER. GEORGE M. SEABLE and GEORGE N. SAEGMULLER, Washington, D. C. Filed Apr. 12, 1897. Serial No. 631,756. (No model.)

Claim.—A range-finder comprising a telescope, two reflecting-prisms separated, in fixed relation, a distance apart representing a base-line and arranged in different planes so that each sends its own rays upon a different portion of the object-glass of the telescope, an axially-adjustable refracting-plate for receiving the rays from one of the reflecting-prisms and bringing them into coincidence with the other rays of the other prism, a pointer fixed upon the adjustable refracting-plate, and a cotangent scale of equal parts for marking equal

spaces for variable distances substantially as and for the purpose described.



588,095. WHEELBARROW. JACOB J. SNYDER, East Florence, Ala. Filed Feb. 12, 1897. Serial No. 623,144. (No model.)



Claim.—1. In a wheelbarrow, the combination with the frame, the legs carried thereby, the lateral braces, resting against the lower ends of said legs in a V manner, a band or link slipped over the apex of each V-joint, beyond the angle of the same, and a cross-piece adapted to be inserted in the triangle formed by the band or link and the V-joint, whereby the band or link is caused to bind the leg and leg-brace on each side of the wheelbarrow, in a rigid but knockdown joint.

2. In a wheelbarrow, the combination with the frame, the legs carried thereby, the leg-braces, adjustably secured to the said frame, and resting against the lower ends of the legs, to form a V, a band or link slipped over the apex of the V-joint thus formed, and beyond the angle of the same, and a cross-piece adapted to be inserted in the triangle, formed by the band or link and the V-joint, whereby the band or link may be caused to bind the leg and leg-brace, on each side of the wheelbarrow, in a rigid but knockdown joint, by the adjustment of the leg-braces.

3. In a wheelbarrow, the combination with a frame, legs carried thereby, leg-braces resting against the lower ends or sides of the legs, to form a V, a band or link slipped over the apex of the V-joint, thus formed, and beyond the angle of the same, a cross-piece adapted to be inserted in each triangle formed by the band or link and the V-joint, whereby the band or link may be caused to bind the leg and leg-brace, in a rigid but knockdown joint, and slots in the frame and leg-braces where they cross each other, with clamping-bolts passed therethrough to adjustably secure the leg-braces to the frame of the wheelbarrow.

4. In a wheelbarrow, the combination with a frame, and legs provided with recesses 4, of braces 5, having their ends seated therein, a cross-brace 7, resting in the angle between the legs and braces 5, and provided with spacing-shoulders 7ª and grooves 8, in pairs, and the coupling-links 6, seated in the grooves and embracing and binding the legs, and leg-braces to form a rigid joint at such point, substantially as described.

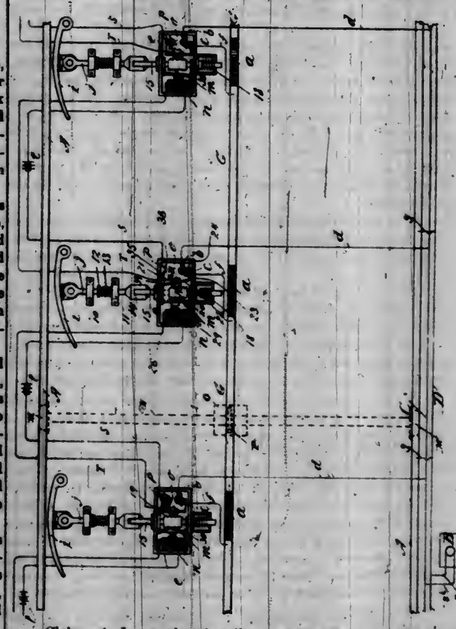
588,096. SPARK-ARRESTER. JOHN H. SWARTZBAUGH, Tiffin, Ohio. Filed Jan. 14, 1897. Serial No. 619,288. (No model.)



Claim.—1. In a spark-arrester, the combination of a smoke-stack a hopper mounted therein and provided with a spark-pipe depending therefrom, a tube 10 depending from a portion of the stack above the hopper and open at both ends and fitting within said upper portion of the stack, and means for adjusting said tube from the exterior of the stack, said means consisting essentially of a pair of bars attached to the upper end of the tube and extending upward therefrom to near the upper end of the stack, and clamp-screws passing through the stack and engaging the bars, substantially as described.

2. In a spark-arrester, the combination of a smoke-stack annularly enlarged at a point between its ends, a funnel-shaped hopper provided with a dependent spark-pipe, a tube 10 open at its ends and fitted in the portion of the stack above the enlargement and depending into the mouth of the hopper, and means for adjusting this tube vertically, said means consisting of a pair of vertically-slotted bars attached to the upper end of the tube and extending upward to near the upper end of the stack and there provided with lateral ears, and a clamp-screw for each of said bars, each clamp-screw passing through the stack from the exterior and engaging the slotted bars.

588,097. ELECTRIC-RAILWAY SYSTEM. LOUIS R. WALKINS, Springfield, Mass., assignor of one-half to Francis W. Dickinson, same place. Filed Apr. 15, 1897. Serial No. 633,257. (No model.)



Claim.—1. In an electric-railway system in combination, the usual track-rail and third-rail section separated at intervals by insu-

lating material, a generator or source of electrical energy and a line-wire, contact *b c* provided to correspond to each third-rail section and a switch to unite them, a wire *d* running from the feed-wire to the one contact, and a wire *f* running from the contact *c* to the adjacent third-rail section; a second set of contacts *o p*, and a switch for uniting them, an electromagnet in proximity to the two pairs of contacts for each section and an armature therefor, electric wires running from the contacts *o p* to the electromagnet adjacent the group of contacts for the section next in advance, comprising in their course a battery or the like, a movable device provided at each third-rail section actuated by the wheel of a passing car, and in turn operating to set the switches against the contacts *b c* and *o p*, the armature for the adjacent electromagnet having a locking engagement with said switch-actuating movable part to hold the switches closed until released by the circuit through the electromagnet as the car passes on to an advanced third-rail section, substantially as described.

2. In an electric-railway system in combination, the usual car-track rails, and separate third-rail sections, a generator or source of electrical energy, a line-wire, and a return-wire connecting the line back to the generator, contacts *b c* provided to correspond to each third-rail section and a switch to unite them, wires *d* running from the feed-wire to one contact and a wire *f* running from the contact *c* to the adjacent third-rail section; a second set of contacts *o p*, and a switch for uniting them, an electromagnet in proximity to the two pairs of contacts for each section and an armature therefor, electric wires running from the contacts *o p* to the electromagnet adjacent the group of contacts for the section next in advance, comprising in their course a battery or the like, and return-conductors connecting the car-track rails with said first-named return-wire, a movable device provided at each third-rail section actuated by the wheel of a passing car, and in turn operating to set the switches against the contacts *b c* and *o p*, the armature for the adjacent electromagnet having a locking engagement with said switch-actuating movable part to hold the switches closed until released by the circuit through the electromagnet as the car passes onto an advanced third-rail section, substantially as described.

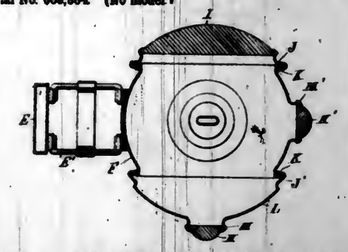
3. In an electric-railway system in combination, the usual car-track rails, and a series of third-rail sections, separated by a length of insulating material, a generator or source of electrical energy, and a line-wire, contacts *b c* provided to correspond to each third-rail section and a switch to unite them, wires *d* running from the feed-wire to the one said contact and a wire *f* running from the other said contact to the adjacent third-rail section; an adjacent second set of contacts *o p*, for each section and a switch for uniting them, an electromagnet in proximity to the two pairs of contacts for each section, and an armature therefor, electric wires running from the contacts *o p* to the electromagnet adjacent the group of contacts for the section next in advance, comprising in their course a battery or the like, a movable device provided at each section opposite said length of insulating material actuated by the wheel of a passing car, and in turn operating to set the switches against the contacts *b c* and *o p*, the armature for the adjacent electromagnet having a locking engagement with said switch-actuating movable part to hold the switches closed until released by the circuit through the electromagnet as the car passes onto an advanced third-rail section, and all whereby said switches may be operated and released at times when the car-motor is in connection with said length of insulating material, for the purpose set forth.

4. In an electric-switch mechanism, in combination, a part movably mounted and adapted to be operated by a passing object as a wheel of a car, two pairs of electric terminals or contacts for different circuits, and two switches movable to connect and disconnect the contacts of both pairs, a switch-operating part receiving movement from said wheel-operated part, and connections between it and both said switches, actuated by said switch-operating part, whereby both switches are simultaneously operated, an armature arranged to normally engage said switch-operating part, and an electromagnet adjacent the armature, substantially as described.

5. In an electric switch in combination, a part movably mounted and adapted to be operated by a passing object as a wheel of a car having a retracting-spring therefor, two pairs of electric terminals or contacts for different circuits, and two switches movable to connect and disconnect the contacts of both pairs each having a crank-arm, a part movably mounted and having a movement in one direction by said wheel-operated part and having rack-teeth, a pinion engaged by said rack-teeth, arms carried by said pinion, and connections between said arms and the switch-arm whereby both switches are simultaneously operated, an armature adapted to engage said rack-provided part, an electromagnet adjacent thereto and a retracting-spring for said rack-provided part, substantially as described.

6. In a switch mechanism in combination, the lever *i* pivotally mounted adjacent a track and adapted to be moved by a passing car, the thrust-rod *j* connected to said lever having a retracting-spring, a second thrust-rod having an engagement with the first rod whereby it is moved thereby in one direction but whereby said first thrust-rod may have its return movement without moving the second rod, said second rod having the series of rack-teeth and the series of ratchet-teeth and the retracting-spring, the two pairs of contacts or terminals for two circuits, switches applied thereto and movable to connect and disconnect said contacts, a pinion meshing said rack-teeth and connections between said pinion and said switches whereby the latter are simultaneously operated, the armature having a catch engagement with said ratchet-teeth and an electromagnet adjacent the armature, substantially as described.

588,098. BICYCLE-LAMP WITH BRACKET. ALFRED G. WILLIAMS and AUGUST H. MEYER, Newark, N. J. Filed Oct. 24, 1896. Serial No. 609,884. (No model.)



Claim.—1. A bicycle-lamp body provided upon the front and rear with similar seats having interchangeable holders fitted thereto, and carrying respectively a lens and a reflector with signal-window, and the body having upon one side a socket for supporting the lamp upon the bicycle-frame, as and for the purpose set forth.

2. A bicycle-lamp having symmetrical body F with similar collars G, G' upon the front and rear, the holders J, J' fitted interchangeably to such collars and provided with means for securing them thereon, and the holders being provided respectively with the lens I and with the reflector L, as and for the purpose set forth.

3. A bicycle-lamp body provided upon the front and rear with interchangeable holders carrying respectively a lenz and a reflector with signal-window, and having upon one side a socket for supporting it upon the bicycle-frame, and upon the opposite side a signal-window, as N', as and for the purpose set forth.

4. A bicycle-lamp having symmetrical body F with the similar collars G, G' upon the front and rear, the holders J, J' fitted interchangeably to such collars and provided with means for securing them thereon, and the holders being provided respectively with the lens I and with the reflector L having signal-window N, as and for the purpose set forth.

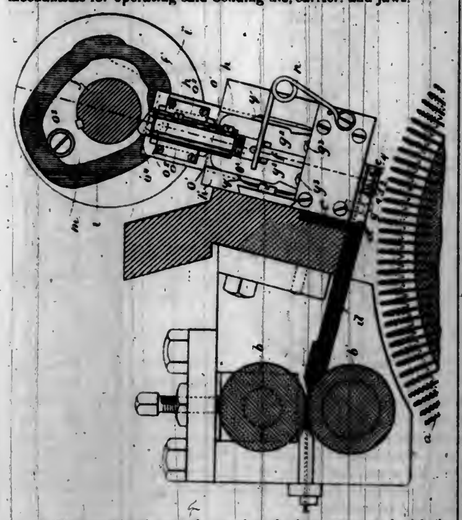
5. In a bicycle-lamp having similar seats upon the front and rear of the body with the lens and reflector fitted interchangeably thereto, the reflector L formed in one piece of sheet metal with the bezel M having the jewel N secured therein, and having means for securing it interchangeably upon the seats of the lamp-body, as and for the purpose set forth.

588,099. MACHINE FOR MAKING SMOCKING. JOHN G. BLOUNT, Everett, and FRED P. ROBINSON, Boston, Mass., assignors, by mesne assignments, to the Pinkham Manufacturing Company, Boston, Mass. Filed Dec. 10, 1894. Renewed July 12, 1897. Serial No. 644,344. (No model.)

Claim.—1. In a machine of the character described, the combination of a two pronged anvil, a bending-die, hook-forming jaws, mechanism for operating said die and jaws successively to form a double-hooked clasp upon the anvil, mechanism for displacing the anvil after the formation of said hooks, and means for additionally operating the jaws after the displacement of the anvil to compress the hooks.

2. In a machine of the character described, the combination of a two-pronged anvil, a fixed guiding or supporting frame, a carrier movable in said frame, jaws pivotally connected to the carrier, a bending-die independently movable on the carrier between the jaws and formed to enter the space between the prongs of the anvil, mechanism for operating the bending-die, independent mechanism for operating the carrier and jaws, said independent mechanism being organized to give the jaws first a longitudinal movement to form hooks upon the anvil and then lateral movements to compress said hooks, and means for displacing the anvil after the longitudinal movement of the jaws.

3. In a machine of the character described, the combination of wire-feed rolls one of which is formed to corrugate or roughen the wire, a wire guide or throat terminating in a fixed shear-blade, a pair of jaws one of which is formed as a movable shear-blade, a carrier for said jaws, a bending-die between the jaws, and independent mechanisms for operating said bending-die, carrier, and jaws.



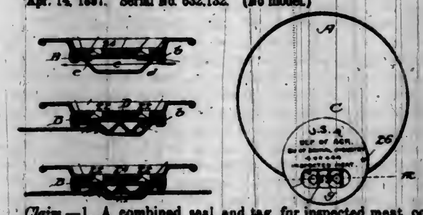
4. The combination of the carrier, the jaws connected with the carrier, the bending-die between the jaws, mechanism for operating said die and jaws, an arm swinging on a horizontal axis and provided with an anvil at its swinging end, and means for swinging said arm to and from its operative position.

5. The combination with the carrier, jaws, and bending-die, of the anvil composed of removable fingers and a swinging arm pivoted to the carrier and provided with a clamp adapted to adjustably hold said fingers.

6. In a machine of the character described, the combination with wire-bending and clamp-carrying devices, of an anvil adapted to cooperate with said devices in forming the clasp, and means for giving the anvil a downward movement as it recedes, whereby displacement of the clasp on the carrying devices by the anvil is prevented.

7. In a machine of the character specified, the improved anvil composed of an arm provided with clamping devices and horns or prongs made in independent pieces adjustably secured to the arm by said clamping devices.

588,100. SEAL AND TAG. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Apr. 14, 1897. Serial No. 632,132. (No model.)

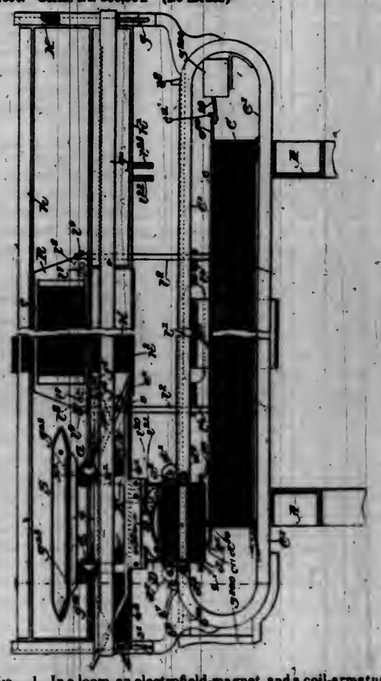


Claim.—1. A combined seal and tag, for inspected meat, comprising a flexible shackle having a sharp point and an anchoring enlargement at its respective ends, a seal part having a threading-tunnel within which the shackle end last named is preliminarily fastened and adapted to receive and mask said sharp point, and provided with eyelet-admitting holes, and a sheet-metal tag having rolled edges, a sealing-panel, and seal-part-attaching eyelets integral with said panel, all of which project rearwardly with reference to the face of the tag, substantially as hereinbefore specified.

2. A combined seal and tag composed of a flexible shackle, a seal part of sheet metal within which the ends of said shackle are fastened, and provided with eyelet-admitting holes, a sheet-metal tag having eyelets integral therewith by which said seal part is fixedly attached thereto, and a guard-plate within said seal part to mask the openings of said eyelets, substantially as hereinbefore specified.

3. The combination, with a flexible shackle-wire having a sharp point at one end and a zigzag anchoring enlargement at its other end, of a sheet-metal seal part having a raised threading-tunnel with large and small holes at its respective ends, within which tunnel said anchoring enlargement is preliminarily fastened and said sharp point is inclosed and masked, and adapted to be crimped as a whole transversely of both shackle ends to permanently fasten the seal, substantially as hereinbefore specified.

588,101. ELECTRICALLY-OPERATED LOOM. EDWIN D. CHAPLIN, Cambridge, and HENRY G. HALLORAN, Boston, Mass. Filed July 16, 1896. Serial No. 599,384. (No model.)



Claim.—1. In a loom, an electrofield-magnet, and a coil-armature wholly exterior to the coils of said magnet, one of which is reciprocable relatively to the other, a shuttle-carrier connected to the reciprocating member, a shuttle mounted on the carrier, means to produce a current in the armature, and a device for reversing the direction of the current at each stroke, whereby the shuttle is reciprocated, substantially as described.

2. In a loom, an electrofield-magnet, an armature reciprocable exterior to the coils thereof but intersecting the lines of force of the magnetic field, a shuttle-carrier connected with the armature, to move therewith, a shuttle mounted on the carrier, means to produce a current in the field-magnet and armature, and means to reverse the current of one of them at each stroke of the armature, substantially as described.

3. In a loom, an electrofield-magnet, an armature reciprocable exterior to the coils thereof but intersecting the lines of force of the magnetic field, a sliding carriage to support the armature, a shuttle-carrier on the carriage, a shuttle mounted on the carrier, means to produce a current in the field-magnet and armature, and means controlled by the carriage, to reverse the current of one at each stroke, substantially as described.

4. In a loom, an electrofield-magnet, including an elongated coil, a fixed directrix above said magnet, a carriage adapted to slide upon said directrix, an armature on the carriage reciprocable exterior to and in the direction of the length of the coil and in the magnetic field thereof, to thereby actuate the carriage, a shuttle, connections between it and the carriage, means to produce a current in the field and armature, and means controlled by reciprocation of the armature to change the direction of current therein as the armature is reciprocated, substantially as described.

5. In a loom, the shuttle, its carriage, means to reciprocate the carriage, heddles for the warps, and actuating means therefor to form the shed, a reed to beat up the filling, means to actuate it, including a field-magnet and a coil-armature, one of which is reciprocable relatively to the other, and means to change the direction of current in

one of them, controlled by reciprocation of the shuttle-carrier, to thereby operate the reed, after each shot of the shuttle, substantially as described.

6. In a loom, a shuttle and its carriage, a coil-armature connected to the latter, a field-magnet having an extended pole to form a directrix for said armature, means to produce a current in the coil-armature, and means controlled by the shuttle-carriage to reverse the direction of current in the armature and thereby change its direction of movement, substantially as described.

7. In a loom, a shuttle, its carriage, a coil-armature movable therewith, an electrofield-magnet in the field of which the armature moves, means to change the direction of current in the armature or magnet at each stroke of the armature, to thereby cause the latter to reciprocate, a reed, a field-magnet and its coil-armature, to operate the reed, take-up mechanism, including an electrofield-magnet and its coil-armature, and means controlled by reciprocation of the shuttle-carriage, to operate the reed and take-up mechanism, substantially as described.

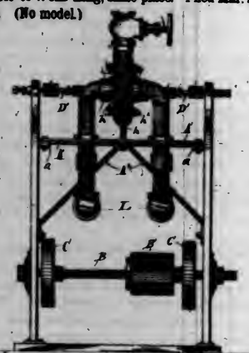
8. A plurality of looms each having a shuttle, its carriage, a coil-armature movable therewith, and an electrofield-magnet for, and in the field of which, each armature reciprocates, said fields and armatures being electrically connected, and means to positively reciprocate one of said armatures in its field, to control the direction of current and thereby the direction of movement of the other armatures in their respective fields, the field-magnet current being constant in direction, substantially as described.

9. A plurality of field-magnets and their armatures, electrically connected, each field-magnet and its armature being relatively reciprocable, a shuttle-carriage connected with each movable member, and a shuttle mounted on each carriage, cooperating shed-forming mechanisms, means to produce a current in said fields and armatures, and means to reverse the current in accordance with the relative reciprocation of the field-magnets and armatures, whereby the series of shuttles are reciprocated across their respective sheds, substantially as described.

10. In a loom, the shuttle, a carriage therefor with which it is positively connected, means to reciprocate the shuttle-carriage, a reed independent thereof, and means controlled by the reciprocation of the shuttle-carriage to move the reed toward and from the fell, to beat up the filling, substantially as described.

11. In a loom, an electrofield-magnet and a coil-armature, one of which is reciprocable relatively to the other, means to establish a current in the armature, a shuttle adapted to be moved by the reciprocating member, and means to reverse the direction of current at each stroke of the reciprocating member, substantially as described.

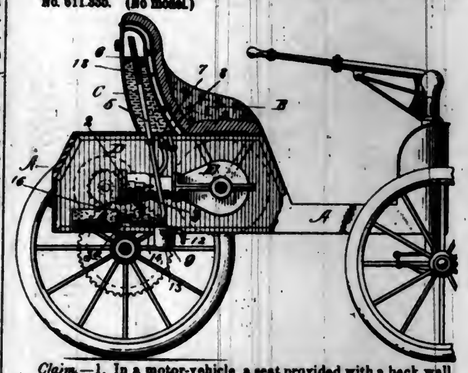
588,102. WATER-MOTOR. MORRIS I. CORTRIGHT, Port Byron, N. Y., assignor to Wells King, same place. Filed Mar. 25, 1896. Serial No. 584,800. (No model.)



Claim.—1. In a water-motor, the combination with the supporting-frame, the shaft and pulleys thereon, and the water-wheel shaft and its pulley, of the water-wheel, the inclosing case, the inlet-pipe with valve, the yoke and the draft-tubes connected therewith, and a cross-bar connecting the side bars of the frame and to which the yoke and draft-tubes are adjustably, detachably connected, substantially as described.

2. In a water-motor, the combination with the supporting-frame, the shaft and pulleys thereon, and the water-wheel shaft and its pulley, of the water-wheel, the inclosing case, the inlet-pipe with valve, the yoke and the draft-tubes connected therewith, and a cross-bar connecting the side bars of the frame and to which the yoke and draft-tubes are adjustably, detachably connected, and the inclined brace-rods connecting the side bars and cross-bar of the frame, substantially as described.

588,103. MOTOR-VEHICLE. CHARLES E. DURYEA, Peoria, Ill., and JAMES F. DURYEA, Springfield, Mass., assignors to the Duryea Motor Wagon Company, Springfield, Mass. Filed Nov. 7, 1896. Serial No. 611,355. (No model.)



Claim.—1. In a motor-vehicle, a seat provided with a back wall, a water-tank fixed in proximity to said back wall thereby providing a clear air-space between said wall and tank, pipes, as 7 and 8, connecting said tank with the water-jackets of a motor for said vehicle, and a vapor-escape pipe, as 5, one extremity of which communicates with the upper part of said tank-chamber, and having its opposite end extending downwardly through the bottom of said tank, substantially as described.

2. In a motor-vehicle, a motor, a muffling device connected to the exhaust-port of said motor, a trapped drip-cup, a water-tank having a chamber in the upper part thereof, a pipe connection from said chamber to said drip-cup and from said cup to the inlet of said muffling device, and pipe connections between the bottom of said tank and the cylinder of said motor, substantially as described.

3. In a motor-vehicle, in combination, a motor, a muffling device connected to the exhaust-port of said motor, a water-tank for supplying water to said motor, and suitable pipe connections between said muffling device and said tank for conveying vapor from a chamber in said tank to said muffler, substantially as described.

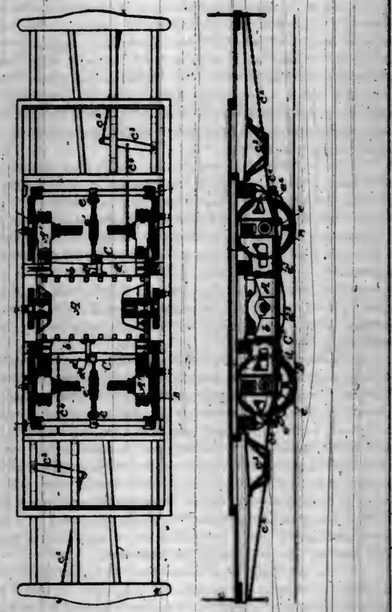
4. In a motor-vehicle, in combination, a muffling device consisting of several cylinders of varying diameters having closed ends, said several cylinders being contained one within another, several hollow cones having cone-shaped perforations therethrough secured to the interior of the innermost of said cylinders and in axial alinement therewith, and a series of cone-shaped perforations through the sides of said cylinders alternately disposed as regards the ends thereof whereby the gases passing through said muffling device are caused to follow a zigzag course, substantially as described.

588,104. ELECTRIC LOCOMOTIVE. RUDOLF EICKEMEYER, Yonkers, N. Y.; Rudolf Eickemeyer, Jr., executor of said Rudolf Eickemeyer, deceased. Filed May 9, 1892. Serial No. 432,325. (No model.)

Claim.—1. In an electric-locomotive organization, the combination substantially as hereinbefore described, of a wheeled truck; a lever-frame, having two parallel sides, hinged at their ends to two end pieces, and forming a substantially rectangular parallelogram which is located centrally with reference to the wheels and their axles; suitable brake-shoes, with brake-beams for the two pairs of wheels; flexibly-jointed links coupling the sides of said frame to the brake-beams; and means (as chains and hand brake-levers) connected with the sides of said frame at opposite points, for enabling a car-driver to change the form of said lever-frame, and to thereby force the brake-beams with the shoes into braking contact with the tread-faces of the wheels, said braking mechanism affording central space beneath a car and between the axles, available for the reception of apparatus essential to the locomotive.

2. In an electrically-operated car or locomotive the combination substantially as hereinbefore set forth, of an electric motor carried centrally between two axles, a substantially rectangular flexibly-jointed lever-frame adjacent to the motor, brake-beams and shoes for the wheels of both axles; links connecting said beams with the sides of said frame, and hand brake-levers, at the ends of the car which are coupled to the sides of said frame near diagonally opposite corners, whereby manipulation of either hand brake-lever, will change the form of the lever-frame, and cause the brake to be operated simultaneously upon both pairs of wheels.

3. In an electric car or locomotive, the combination with a car-driver's rotative switch-lever, of a stop or abutment substantially as described, which normally restricts the movement of the lever to a given number of turns forwardly, and backwardly, but which by special manipulation, will enable it to be further rotated backwardly for effecting changes in the electric connections appropriate to the reversal of the motor.



4. In an electric locomotive, the combination with a rotative controlling device, of a stop, actuated by, and moving toward and from said device in accordance with the rotation of said device.

5. In an electric locomotive, the combination with a rotative controlling device, of an adjustable stop, actuated by said device and moving in accordance with the rotation of said controlling device.

6. In an electric car or locomotive, the combination of a motor-switch, a controlling-shaft geared to said switch, and operated as by a hand-wheel or crank-lever, of mechanism for restricting the rotation of said lever, consisting of a non-rotative stop-nut mounted upon a screw revolving with said shaft, and an arm which is carried by said shaft and rotative therewith, and is adapted to abut against said stop-nut at the termination of that extent of rotation by said shaft which is requisite for fully operating the switch, and to again abut against said stop-nut, at the end of its return rotative movement, substantially as described.

7. In an electric car or locomotive, the combination of a motor-switch, a controlling-shaft provided with a hand-crank adapted to tilt thereon; a non-rotative stop-nut upon a screw revolving with said shaft, and an abutting arm, carried by the hand-crank, which is normally adapted to abut against said stop-nut at the termination of rotations appropriate to starting, driving, and stopping the car, but which may be made to avoid abutting with the stop-nut by tilting said hand-crank, for operating the switch so that the car may be driven backwardly.

8. In an electric-locomotive organization an electric motor having field-coils divided into sets or sections, in combination with shunt-resistances, each separately connected with the terminals of appropriate field-coil sections, substantially as described.

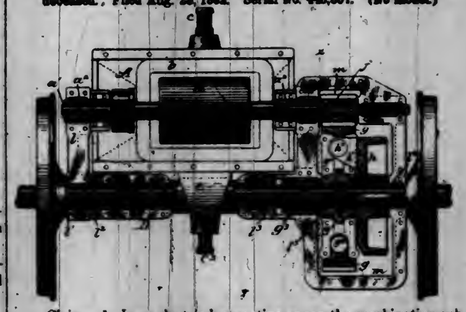
9. In an electric-locomotive organization, the combination substantially as hereinbefore described, of an electric motor having a casing or frame, which in part longitudinally surrounds the armature of the motor; field-coils which also similarly surround the armature, and are within said casing, and are divided into separate sections or divisions, and one or more resistances in shunt-circuit with one or more of said field-coil sections.

10. In an electric-locomotive organization, the combination substantially as hereinbefore described, of an electric motor; separate sets of resistances; appropriate electric connections and a switching device, which initially couples the resistances in series, as for starting the locomotive, then cuts the resistances out entirely, then couples them in multiple arc, and finally cuts them out as for half and full speed.

11. In an electric-locomotive organization, the combination with a motor having field-coils in separate divisions or sections, of resistances in separate sections, appropriate electric connections, and a switching device adapted as described, to first couple the several resistance-sections in series with each other, and in series with the armature and field-coils, then cut a part of said resistances out, and to then couple the resistances in multiple arc but kept in series with the motor-armature and field, and to then cut out said resistances, leaving the field-coil divisions in series with the armature and each other, then couple the field-coils in multiple arc and in series with the armature.

12. In an electric-locomotive organization, the combination substantially as hereinbefore described, of the electric motor having field-coils in separate sections, separate resistances in shunt connection with the terminals of the field-coil sections; other separate resistances in the motor-circuit; appropriate electric connections and switching mechanism as described, which controls the supply of current to the motor, by first exciting the field-coil sections in series with each other, and in series with the several separate resistances in the motor-circuit; then changes the coupling of the said resistances from series to multiple arc, and then cuts out said resistances and couples the field-coil sections in multiple arc, the said several changes being reversely repeated during the operation of the switching device as for stopping the motor, during which operations the said shunt-resistances guard against the adverse effects of extra currents in the field-coils.

588,105. ELECTRIC LOCOMOTIVE. RUDOLF EICKEMEYER, Yonkers, N. Y.; Rudolf Eickemeyer, Jr., executor of said Rudolf Eickemeyer, deceased. Filed Aug. 23, 1892. Serial No. 443,857. (No model.)



Claim.—1. In an electric locomotive or car, the combination substantially as described, of an electric motor pivotally suspended from the car-floor; a pinion on the motor-shaft; a driven axle; a gear-frame flexibly supported, at one end upon said axle, and at the other end upon the motor-shaft, an axle-gear loosely mounted on the axle and meshing with the pinion; a disk keyed to said axle alongside of said gear; spring-seats on said gear and on said disk, in one plane; and springs annularly arranged and interposed between each two adjacent seats, affording a rotative yielding connection between the axle-gear and the driven axle.

2. In an electric locomotive or car, the combination substantially as hereinbefore described, of an electric motor suspended from the floor-frame of the car, a pinion on the armature or motor shaft, an axle-gear meshing with the pinion, and rotatively coupled to the axle, and a gear-frame carried on said axle, and hinged to the motor in line with its armature-shaft.

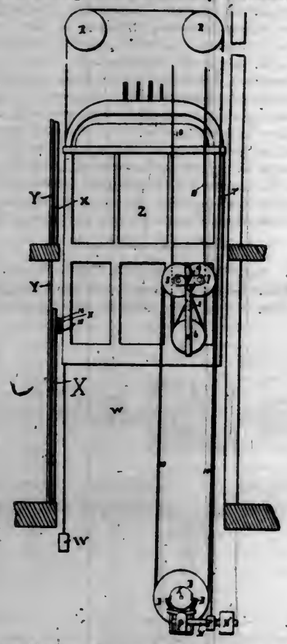
3. In an electric locomotive or car, the combination substantially as described, of the car floor-frame, an electric motor having two pivotal supporting-studs projecting centrally at right angles to the motor, in opposite directions and lengthwise of the car; and pendent links flexibly connecting the supporting-studs of the motor with the car floor-frame, whereby the car floor-frame and the motor, may separately tilt or be tilted, and sway or vibrate from side to side within prescribed limits independently of each other.

4. In an electric locomotive, an axle, a motor separate therefrom, gearing between the motor and the axle, a link hinged or articulated with both the axle and the motor constituting a housing for the gearing, and another arm extending from the axle to the motor.

588,106. ELEVATOR-CONTROLLER LOCK. WILLIAM C. FAHY, Philadelphia, Pa. Filed Apr. 4, 1896. Serial No. 586,179. (No model.)

Claim.—1. In an elevator, the combination of a sliding door a lever hung in front of said door, mechanism yieldingly actuating said lever in one direction, said lever having its free end curved in the direction opposite that toward which it is impelled by said mechanism, a guide for said lever, a part connected with the starting mechanism, locking device engaging with said part and connections between said locking device and said lever substantially as described.

2. The combination of means for locking the starting and stopping mechanism of an elevator capable of locking engagement with said mechanism only at positions of the same when the elevator-car is substantially stationary, a lever and connections between said lever and locking means, said lever being adapted to operate said locking means, means for yieldingly moving said lever in one direction, a series of landing-doors, a series of levers adjacent said landing-doors, and adapted to be oscillated on the opening and closing of said doors, and a connection between all of said levers and said lever adapted to operate the locking means, substantially as described.



3. The combination of means for locking the starting and-stopping mechanism of an elevator, a lever and connections between said lever and locking means, said lever being weighted at one end and adapted to operate said locking means, a series of landing-doors, a series of levers adjacent said landing-doors and adapted to be oscillated on the opening and closing of said doors, and connections between all of said levers and the said weighted lever, substantially as described.

4. In an elevator, the combination of a rotating device positively connected with the starting and stopping mechanism, a pair of pawls suitably pivoted and having the free ends of each movable in and out of position to engage positively with said rotating device, said rotating device being provided with means for engaging with said pawls only when the elevator is stationary, yieldingly-acting devices for urging said pawls into contact with said rotating device, a landing-door and means whereby the said pawls are moved out of engagement with the said rotating device when the said door is opened substantially as described.

5. In an elevator, the combination of a pair of pawls suitably pivoted and having at the free end of each, a tooth set substantially opposite the tooth of the other, a rotating device positively connected with the starting and stopping mechanism, and provided with means for positively engaging said pawls only at such points on said device as are opposite the teeth of the pawls when the elevator-car is motionless, yielding devices for urging said pawls into contact with said rotating device, a landing-door, a lever adjacent to said door and connections between said lever and said pawls substantially as described.

6. The combination of the disk attached to and moving with the shaft of the starting and stopping mechanism, the pawls secured to a suitable framework and having their teeth on their free ends lying on either side of the disk, teeth on said disk at the points only thereon that will lie opposite the teeth of the pawls when the disk is in the position it will occupy when the starting and stopping mechanism is in position to hold the car substantially motionless and having the rest of the periphery of the disk upon which the pawls may impinge without means for engaging with the same, yieldingly-acting means for drawing said pawls toward each other and toward said disk and means operated by landing-doors acting in opposition to said yielding means for causing the separation of said pawls, substantially as described.

7. In an elevator, the combination with a car, a rotating device positively connected to the starting and stopping mechanism, pawls set in a framework and adapted to positively engage with said rotating device only when said car is substantially stationary, a lever mounted in said framework, and provided with means for engaging with said pawls, a yieldingly-acting device for yieldingly impelling said pawls in one direction, a landing-door and means operated by the opening and closing of said landing-door for oscillating said lever, substantially as described.

8. In an elevator the combination with a part rotating positively with the starting and stopping mechanism, pawls engaging with the same, a yieldingly-acting device impelling said pawls toward the part with which they engage, a positively-acting device having provisions for engaging with the faces of said pawls, the said faces being raised where said provisions will rest when the pawls are separated and depressed where said provisions will rest when the pawls are drawn toward the said part rotating with the starting and stopping mechanism, a landing-door, a lever adjacent to said landing-door, and connections between said lever and said positively-acting device, substantially as described.

9. In an elevator, the combination of a car, a rotating part positively connected with the starting and stopping mechanism and provided with means for engaging with pawls coacting therewith only at such points as lie opposite said pawls when the car is substantially stationary, pawls, a yieldingly-acting device for yieldingly impelling said pawls toward said rotating part, a rocking lever pivoted between said pawls and having provisions for engaging with the face of said pawls, a yieldingly-acting device acting upon said lever, to cause it to separate said pawls from said rotating part, a landing-door, and mechanism operated by said landing-door for causing the movement to said lever in a direction to separate the pawls from said rotating part substantially as described.

10. The combination of an elevator-car, a locking device for the starting and stopping mechanism and adapted to lock only when said car is substantially stationary, a series of landing-doors, a series of levers opposite said landing-doors and depressed positively by the opening of said doors, a sheave placed above said doors, a flexible connection secured to said levers and extending upward over said sheave and downward from sheave free from engagement with said levers, means for moving said locking device yieldingly actuated in one direction by a yieldingly-acting device and actuated positively in the other by said connection, and means for counterbalancing the weight of said levers, all substantially as described.

11. The combination of a car means for locking the starting and stopping mechanism of an elevator locking only when said car is substantially stationary a lever and connections between said lever and locking means, said lever being adapted to operate said locking means, means for yieldingly moving said lever in one direction, a series of landing doors, a series of levers adjacent said landing-doors and adapted to be oscillated on the opening and closing of said doors and a flexible connection secured to each of said levers and to said lever adapted to actuate said locking means, substantially as described.

12. The combination of means for locking the starting and stopping mechanism of an elevator, a lever having connections between itself and said locking means, an adjustable weight upon said lever, a series of landing-doors, a series of levers placed opposite said doors, a flexible connection connected to said levers, and to said lever having connections between itself and the locking device, all substantially as described.

13. The combination of a car, means for locking the starting and stopping mechanism of an elevator, locking only when the car is substantially stationary a lever, rollers secured to said lever and engaging with said locking device, means for yieldingly moving said lever in one direction, a series of landing-doors, a series of levers adjacent to said landing-doors, and adapted to be oscillated on the opening and closing of said doors, and a flexible connection secured to each of said levers, and extending between them and the lever adapted to actuate said locking means, substantially as described.

14. In an elevator, the combination with a car, a rotating part positively connected with the starting and stopping mechanism, of a locking device, adapted to be moved into and out of positive connection with said part only when the car is substantially stationary, yieldingly-acting means for bringing said locking device into engagement with said rotating part, a positively-acting device operating to move said locking device out of engagement with said rotating part, a series of landing-doors, a series of levers opposite said doors and a flexible connection connecting all of said levers to said positively-acting mechanism, substantially as described.

15. The combination of an elevator-car means for locking the starting and stopping mechanism of an elevator, locking only when said car is substantially stationary yieldingly-actuated means for bringing the locking means into locking engagement with the said stopping and starting mechanism, a lever adapted to operate said locking means, a roller connection between said lever and locking means, means for yieldingly moving said lever in one direction, a series of landing-doors, a series of levers placed opposite said doors, a roller and guide placed upon each of said doors and engaging with said levers and a flexible connection secured to each of said levers opposite said doors and to the levers adapted to operate said locking means all substantially as described.

16. The combination of a toothed disk toothed on a portion only of its circumference a pair of pawls placed on either side of said disk, engaging with the teeth thereof, a spring secured to the said pawls, and tending to bring them into contact with the disk, a lever turning on bearings set between said pawls and having means for engaging with said pawls, yieldingly-acting means for causing the movement of said lever in one direction and means actuated by the opening and closing of the elevator-doors for causing the movement of the said lever in the other direction, substantially as described.

17. In an elevator, the combination with a rotating toothed disk moving positively with the starting and stopping mechanism, of a framework, a pair of pawls set in said framework, and having a portion of their faces cut away, a rocking lever pivoted between said pawls and provided with rollers engaging with said pawls and lying in said cut-away parts thereof when said pawls are in engagement with said toothed disk, landing-doors and mechanism actuated by said landing-doors operating to move said lever in one direction when any of the doors are open and into another position when all of the doors are closed, substantially as described.

18. In an elevator, the combination of a revolving disk moving positively with the starting and stopping mechanism, and having a small portion only of its periphery provided with teeth, pawls engaging with said disk, a framework in which said pawls are set, a weighted lever having bearings between said pawls set in said framework, a landing-door, a lever set opposite said landing-door, and a flexible connection extending between said lever opposite said door and said weighted lever, all substantially as described.

19. The combination in an elevator with a car and a rotating part in positive connection with the stopping and starting mechanism, of a locking device adapted to engage with said part only when said car is substantially stationary, a series of landing-doors, a series of levers opposite said doors, rollers and guides upon said doors engaging with said levers, a lever for operating said locking device, and a flexible connection to each of said levers adjacent to said doors and to the lever operating said locking device, substantially as described.

20. The combination of an elevator-car series of landing-doors, a series of oscillating levers operated positively in one direction by the opening of said doors, means for yieldingly operating said levers in the opposite direction, a locking device for the starting and stopping devices of the elevator, adapted to lock only when the car is substantially stationary a lever adapted to operate said locking device, and a single flexible connection connected to each of said levers opposite the doors, and said lever operating said locking device, substantially as described.

21. The combination in an elevator, with a disk positively connected to the starting and stopping mechanism, said disk being provided at different portions of its circumference with teeth set in opposite directions each set extending over only an arc of said circumference of a pair of pawls, a framework in which said pawls are set, a weighted lever pivoted on said framework, having rollers secured thereto engaging with the faces of said pawls, a spring secured between said pawls, landing-doors and mechanism operated by the opening and closing of the said landing-doors actuating said lever in one direction, when all of the doors are open and allowing it to move into another when all of the doors are closed substantially as described.

22. In an elevator, the combination with a rotating part positively connected to the starting and stopping mechanism, of a pair of pawls adapted to engage with said rotating part, a spring secured between said pawls to one of which one end of said spring is secured, said spring having a screw-stem, a set-screw turning on said stem and bearing against one of said pawls, a lever pivoted between said pawls and having provisions for moving said pawls in the opposite direction to that in which they are moved by the said spring, a landing-door, and mechanism operated by the opening and closing of said landing-door by which said lever is moved in one direction when the door is open and in the other direction when the door is closed, substantially as described.

23. In an elevator, the combination with a disk positively connected with the starting and stopping mechanism of a pair of pawls adapted to engage with said disk only when said car is substantially stationary, a spring secured between said pawls, and acting to bring the pawls into engagement with said disk, a lever pivoted between said pawls, and provided with rollers engaging with said pawls, yieldingly-actuated mechanism operated to move said lever in one direction, a landing-door and positively-actuated mechanism operated by the opening of said landing-door, to move said lever in the opposite direction to that in which it is moved by said yieldingly-actuated mechanism substantially as described.

24. In an elevator the combination of an elevator-car, a rotating part positively connected with the starting and stopping mechanism, of a locking device adapted to be moved into and out of engagement with said part only when said car is substantially stationary, a series of landing-doors, a series of levers adjacent to said landing-doors, pivoted at one end and engaging with the said door and a flexible connection attached to said levers between pivot and the part engaging with said door, and extending between said levers and said locking device, substantially as described.

25. In an elevator, the combination with a car a revolving part positively secured to the starting and stopping mechanism of a pair of pawls adapted to be moved into and out of engagement with said part only when said car is substantially stationary, a spring yieldingly urging said pawls into engagement with said disk, a lever pivoted between said pawls and provided with rollers engaging with the faces of said pawls, a bed-plate in which said pawls are mounted, a standard rising from said bed-plate to which said levers are pivoted, a guide-piece for said pawls, secured to said standard, landing-doors and means operated by the opening and closing of the landing-doors for controlling the movement of said lever substantially as described.

26. In an elevator, the combination with a part positively connected with the starting and stopping mechanism, a locking device adapted to be moved into and out of positive connection with said part, a yieldingly-acting device for moving said locking device into such positive engagement only when the elevator is substantially stationary, a landing-door, a lever adapted to be operated by said door and connections between said lever and said locking device for causing the locking device to disengage itself from said part when said door is closed, substantially as described.

27. In an elevator, the combination of a rotating part positively connected with the starting and stopping mechanism, a locking device adapted to engage said rotating part positively, and only when the elevator is stationary, a yieldingly-acting device operating to move said locking device into such engagement, a landing-door, and mechanical connections between said door and locking device for causing the locking device to disengage itself from said rotating part when the door is closed, substantially as described.

28. In an elevator, the combination of a locking device, a toothed disk positively connected, with the starting and stopping mechanism, and having teeth set to engage said locking device only at points on the periphery of same that will be opposite the said locking device when the elevator is stopped, yieldingly-acting mechanism for bringing the locking device into engagement with said toothed disk, a landing-door, a lever oscillated by the movements of said landing-door, and connections between said locking device and lever whereby the said locking device is disengaged from said toothed disk when said door is closed, substantially as described.

588,107. HARMONICA. WALTER B. FAIRFIELD, Douglass, Mass. Filed July 11, 1896. Renewed Mar. 24, 1897. Serial No. 629,092. (No model.)



Claim.—1. In a harmonica, the combination, with a body having two series of air-holes, of a series of single reeds arranged opposite one series of air-holes, said single reeds being tuned to produce the notes of a scale, and a series of double reeds opposite the other series of air-holes, each pair of said double reeds being tuned to produce notes forming a chord with the single note produced by the corresponding opposite single reed, substantially as described.

2. In a harmonica, the combination, with a body having two series of air-holes, of a series of single reeds arranged opposite one series of air-holes, said single reeds being tuned to produce the notes of a scale, a series of double reeds opposite the other series of air-holes, each pair of said double reeds being tuned to produce notes forming a chord with the single note produced by the corresponding opposite single reed, and means for stopping the playing of the double reeds when desired, substantially as described.

3. In a harmonica, the combination, with a series of melody-reeds, of a series of chord-reeds, and a slide arranged to cut off the air from the chord-reeds, when desired, substantially as described.

4. In a harmonica, the combination, with a body having two series of air-holes, and a longitudinal slot, of a series of melody-reeds opposite one series of air-holes, a series of chord-reeds opposite the other series of air-holes, and a slide movable in the longitudinal slot and arranged to close that series of air-holes next to the chord-reeds, substantially as described.

5. In a harmonica, the combination, with a body having two series of air-holes, and a longitudinal slot, of a series of melody-reeds opposite one series of air-holes, a series of chord-reeds opposite the other series of air-holes, a slide movable in the longitudinal slot and arranged to close that series of air-holes next to the chord-reeds, means for forcing the slide out to open the said air-holes, and a spring for closing the slide, substantially as described.

588,108. COMBINED RECLINING AND FOLDING CHAIR. Geo. I. HASWELL, Fort Wayne, Ind., assignor to the Haswell Chair and Manufacturing Company, same place. Filed Mar. 23, 1896. Renewed Jan. 22, 1897. Serial No. 620,284. (No model.)



Claim.—1. In a combined reclining and folding chair, the combination of the folding supporting-standards 1 1 and 2 2; the side pieces 6 6 mounted thereon; the tilting seat having a pivotal support; the pivotally-mounted pendants 5 5 having the panel 32, the suspended adjustable foot-board 15 and the upwardly and outwardly curved supports for the arms 12 12; the arms pivoted to the said supports and having removable connections with the brackets 20 20; the standards 24 24 pivotally connected to the blocks 28 and supporting the head-rest 25 and brackets 20 20; the back 30 pivotally supported at its upper end between and to the standards 24 24 and hinged to the rear end of the tilting seat; the swinging arms 26 26 pivoted to the standards 24 24, the lap-board 27 removably mounted upon the said arms; and suitable hand-levers 39 39 pivoted to the depending ends of the standards 24 and connected by the rod 40, the said rod being adapted to engage the notches 38 in the standards 2 2, substantially as shown and described.

2. In a combined reclining and folding chair, in combination with the folding supporting standards or legs 1 1 and 2 2, of the pivotally-mounted tilting seat 31 having a hinged connection with the back 30; the back 30 depending from a pivotal support between the standards 24 24; the head-rest 25 mounted between the said standards; the standards 24 24 pivotally attached to the blocks 28 and having depending extensions and the slotted brackets 20 20; the hand-levers 39 39 pivotally connected to the extensions of the said standards and having a connecting cross-rod 40, the said rod being adapted to engage the notches 38 in the legs 2 2; the swinging arms 26 26; the lap-board 27 removably mounted upon the said arms; the pendants 5 5 depending from pivotal supports, and having the suspended adjustable foot-rest 15 and the upwardly and outwardly extending supports for the arms; the arms 12 12 pivotally mounted upon the said supports, and having a removable connection with the brackets 20 20, substantially as shown and described.

588,109. BICYCLE. HERMAN W. HOEFT, La Crosse, Wis. Filed Nov. 26, 1895. Serial No. 570,204. (No model.)



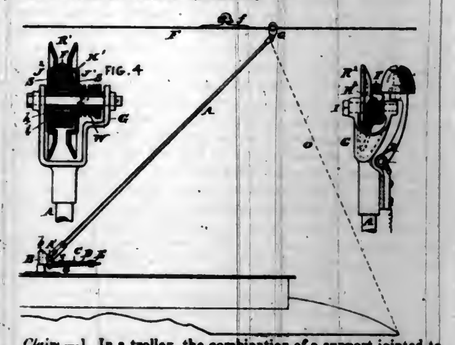
Claim.—In a bicycle, a frame comprising the forward portion, E, formed by the steering-head, c, and the parallel members, c' c', connected at their rear by the bow, b^3, and the triangular portion, D, composed of two parallel sections, d, connected to the parallel section, d^4, by means of the connection, d^3, the sections, c^2, forming the back bone of the said triangle, the lower end of the said section, c^2, being attached to the springs, the other ends of said springs being attached to the plates, d^5, a spring, H, for supporting the forward end of the said triangular frame, D, the forward end of said spring being attached to the lower member of the said rectangular frame, E, and a frame, G, forming the rear support for the rectangular frame, substantially as set forth and described.

588,110. WRENCH. HERMAN W. HOEFT, La Crosse, Wis. Filed Oct. 2, 1896. Serial No. 607,687. (No model.)



Claim.—A wrench, comprising the casing formed with the diverging guideways, the oppositely-disposed jaws 7 7 formed with the transverse arms 15, and having their integral shanks 6 6 sliding in said diverging guideways, the links 10 connecting the converging end of said shanks with the cross-head 11, the threaded rod 13 fixed in said cross-head, and its projecting end provided with a thumb-nut 14, in combination with the spiral spring 19 encompassing said rod between the cross-head and the inner end of the case through which said rod passes, substantially as shown and described.

588,111. CURRENT-COLLECTING DEVICE FOR ELECTRIC RAILWAYS. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Feb. 4, 1897. Serial No. 621,933. (No model.)



Claim.—1. In a trolley, the combination of a support jointed to the car at the bottom, and having a guide at the top adapted to travel along the under side of the suspended conductor, combined with a current-collecting roller journaled upon an upright axis and arranged close to the side of the guide and electrically insulated from it, whereby the contact is made with the conductor immediately in the vicinity of the guide.

2. In a trolley, the combination of a support jointed to the car at the bottom, and having a rotating guide at the top formed with a tapering or conical surface adapted to travel along the under side of the suspended conductor, combined with a current-collecting roller journaled upon an upright axis and arranged close to the side of the rotating guide and electrically insulated from it whereby the contact is made with the conductor immediately in the vicinity of the rotating guide and pressed against the conductor by the action of the inclined face of the rotary guide upon said conductor.

3. In a trolley, the combination of a support jointed to the car at the bottom, and having a roller-guide at the top having its diameter at one side greater than on the other and adapted to travel along the under side of the suspended conductor, combined with a current-collecting roller journaled upon an upright axis and arranged close to the smaller-diameter side of the rotating guide and electrically insulated from it, whereby the contact is made with the conductor immediately in the vicinity of the guide.

4. In an electric railway, the combination of a suspended conductor, an upwardly-extending support jointed to the car and forced upwardly under an elastic pressure, a head secured to the top of the support, and two rollers carried by the head one, a horizontal roller being journaled thereto on a tranverse axis and the other a vertical roller on an upright axis, said rollers being relatively insulated one from the other and having their adjacent faces, namely the top of the horizontal roller and side of the vertical roller, arranged relatively to each other so as to form substantially a V-groove between them having its lowest part or apex in a point adjacent to the upper surface of the horizontal roller and in a vertical line with the vertical face of the vertical roller, whereby the upward action of the support causes the two rollers to remain in rolling contact with the suspended conductor.

5. In an electric railway, the combination of a suspended conductor, an upwardly-extending support jointed to the car and forced upwardly under an elastic pressure, a head-piece secured to the top of the support, a guide-roller having its diameter on one side greater than on the other supported in the head-piece on a transverse axis and making an underrunning connection with the conductor, and a side-contact roller journaled upon an upright axis in the same transverse plane with the guide-roller but upon the side thereof of smallest diameter and presenting a contact-surface at a higher elevation than the guide-surface of the guide-roller.

6. In an electric railway, the combination of a suspended conductor, an upwardly-extending support jointed to the car and forced upwardly under an elastic pressure, a head-piece secured to the top of the support and provided with one or more upwardly-extending flanges or forks for directing the conductor to the rollers, a conical or tapering guide-roller having its smallest diameter at one end supported in the head-piece on a transverse axis and making an underrunning connection with the conductor, and a side-contact roller journaled upon an upright axis in the same transverse plane with the guide-roller but presenting a contact-surface at a higher elevation than the guide-surface of the guide-roller at its smallest diameter.

7. In an electric railway, the combination of a suspended conductor, an upwardly-extending support jointed to the car and forced upwardly under an elastic pressure, a head-piece secured to the top of the support, a guide-roller supported in head-piece and making an underrunning connection with the conductor, and a side-contact roller journaled upon an upright axis in the same transverse plane with the guide-roller but presenting a contact-surface at a higher elevation than the guide-surface of the guide-roller, and an adjustable joint between the support and head-piece whereby the latter with its rollers may be adjusted relatively to the support.

8. In a trolley, the combination of a support jointed to the car at the bottom, and having a roller-guide at the top having its diameter at one side greater than on the other and adapted to travel along the under side of the suspended conductor, combined with a current-collecting roller journaled upon an upright axis and arranged close to the smaller-diameter side of the rotating guide and electrically insulated from it, whereby the contact is made with the conductor immediately in the vicinity of the guide and an adjustable connection between the support and rollers whereby the latter may be adjusted in position relatively to the support.

9. In a trolley, the combination of a support jointed to the car at the bottom, and having a guide at the top adapted to travel along the under side of the suspended conductor, combined with a current-collecting roller journaled upon an upright axis and arranged close to the side of the guide and electrically insulated from it, whereby the contact is made with the conductor immediately in the vicinity of the guide and an adjustable connection between the support and rollers whereby the latter may be adjusted in position relatively to the support.

10. In an electric railway, the combination of the suspended conductor, an upwardly and rearwardly extending support jointed to the car and spring-pressed upward, a head-piece secured at the top, a side-contact roller journaled upon an upright axis and arranged at one side of the head, and means carried by the head insulated from the side-contact roller for forcing the suspended conductor and side-contact roller into electrical contact.

11. In an electric railway, the combination of the suspended conductor, an upwardly and rearwardly extending support jointed to the car and spring-pressed upward, a head-piece secured at the top, having upwardly-extending and flaring flanges, a side-contact roller journaled upon an upright axis supported by and arranged at one side of the head, and means carried by the head insulated from the side-contact roller acting upon the bottom and side of the conductor most distant from the side-contact roller for forcing the suspended conductor and side-contact roller into electrical contact.

12. In an electric railway, the combination of the suspended conductor, an upwardly and rearwardly extending support jointed to the car and spring-pressed upward, a head-piece secured at the top, a side-contact roller journaled upon an upright axis and arranged at one side of the head, means carried by the head insulated from the side-contact roller for forcing the suspended conductor and side-contact roller into electrical contact, and an adjustable connection between the head and support whereby the side-contact roller may be adjusted relatively to the support.

13. In an electric railway, the combination of the suspended conductor, an upwardly and rearwardly extending support jointed to the car and spring-pressed upward, a head-piece secured at the top, a side-contact roller journaled upon an upright axis and arranged at one side of the head, and means carried by the head insulated from the side-contact roller consisting of an inclined guide-surface acting upon the under side of the conductor for forcing the suspended conductor and side-contact roller into electrical contact.

14. A current-collecting device for a trolley consisting of the combination of a head-piece open at the top, an insulated under running or moving guide carried thereby, and a rotary side contact also carried by said head and arranged immediately to one side of the guide for collecting the current from the conductor.

15. A current-collecting device for a trolley consisting of the combination of a head-piece open at the top, an insulated under running or moving rotating guide-roller carried thereby, and a rotary side contact also carried by said head and arranged immediately to one side of the guide for collecting the current from the conductor whose position relatively to the side contact is secured by the action of the rotating guide.

16. In a contact device for a trolley, the combination of a support connected to the car, with two contact parts secured to the end of the support and arranged at an angle to and insulated from each other, one of said parts being adapted to move in contact with the under side of the conductor and the other of said parts being vertical or upright and electrically connected with a circuit to supply current to the car.

17. In a contact device for a trolley, the combination of a support connected to the car, with two contact parts secured to the end of the support and arranged at an angle to and insulated from each other, one of said parts being adapted to move in contact with the under side of the conductor and the other of said parts being vertical or upright and electrically connected with a circuit to supply current to the car, and a forked guide or frame arranged above the surfaces for guiding the suspended conductor to them.

18. In a contact device for a trolley, the combination of a support connected to the car, with a roller side contact journaled upon the support at its free end on an upright axis, means insulated from the roller side contact carried by the support and close to the roller-contact for forcing the suspended conductor against the vertical or upright face of the side roller-contact, and an electric circuit for conveying the current from the roller-contact to the car.

19. The combination of an electric car, a suspended conductor, an upwardly-extending support carried by the car and having an insulated guide at its top pressing against the under side of the conductor, a rolling side contact rotating upon an upright axis carried also at the top of said support and held against vertical movement independent of the guide, and a conductor leading from the rolling side-contact roller to supply current to the motor on the car.

20. The combination of an electric car, a suspended conductor, an upwardly-extending support carried by the car and having an insulated guide at its top pressing against the under side of the conductor and having means to limit the lateral movement of the suspended conductor over the guide, a rolling side contact rotating upon an upright axis carried also at the top of said support and limiting the movement of the suspended conductor over the guide in the other direction and held against vertical movement independent of the guide, and a conductor leading from the rolling side-contact roller to supply current to the motor on the car.

21. The combination of an electric car, a suspended conductor, an upwardly-extending support carried by the car and having an insulated rolling guide movable upon a transverse axis at its top pressing against the under side of the conductor, a rolling side contact rotating upon an upright axis carried also at the top of said support and held against vertical movement independent of the guide, upwardly-forked guides extending above the rolling guide and side contact to direct the suspended conductor to them, and a conductor leading from the rolling side-contact roller to supply current to the motor on the car.

22. In a current-collecting device for an electric car, the combination of a base, an upwardly-extending support jointed to the base and pressed upward by an elastic pressure, horizontal and vertical rollers at the top insulated from each other and forming a notch between them to receive the suspended conductor in which the horizontal roller makes a side contact and collects from the conductor and the vertical roller is insulated and moves against the under side of the conductor to guide the horizontal roller, means upon the top of the support for holding said rollers in relative position whereby the vertical movement of the horizontal roller is controlled wholly by the vertical or guide roller and conductor, and electrical conductor leading from the horizontal roller to the base of the support.

23. In a current-collecting device, a support having at its free end two rollers journaled at an angle to each other and approximately in the same transverse plane and forming an angular recess or space between them for the reception of the conductor and in which one of said rollers is insulated from the other, and a conductor for conveying the current from one of said rollers.

24. In a current-collecting device for a car, a support carried by the car having at its free end two rollers journaled at an angle to

each other and approximately in the same transverse plane and forming an angular recess or space between them for the reception of the conductor and in which one of said rollers is insulated from the other, means to force one of the rollers against the conductor, and a conductor for conveying the current from the other of said rollers to the car.

25. In a current-collecting device, a support having at its free end two rollers journaled at an angle to each other and approximately in the same transverse plane and forming an angular recess or space between them for the reception of the conductor and in which one of said rollers is insulated from the other, means for adjusting the position of said rollers upon the end of said support in the plane of one of said rollers, and a conductor for conveying the current from one of said rollers.

26. In a current-collecting device, the combination of a support having a jointed base for attachment to the car and means to hold the support in an elevated position, with a head secured to the upper end of the support, an insulated conical roller journaled in the head on a transverse axis, a side-contact roller also carried by the head and journaled upon a vertical axis to and adjacent to the conical roller, and an electric circuit leading from said side-contact roller.

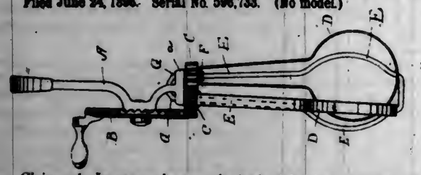
27. In a current-collecting device, the combination of a support having a jointed base for attachment to the car and means to hold the support in an elevated position, with a head secured to the upper end of the support having a forked opening at top for the suspended conductor, an insulated conical roller journaled in the head on a transverse axis, a side-contact roller also carried by the head and journaled upon a vertical axis close to and adjacent to the conical roller, means to adjust the head upon the end of the support, and an electric circuit leading from said side-contact roller.

28. In a current-collecting device, the combination of a base for attachment to the car, a long support jointed to the base and pressed upward at its free end with an elastic pressure, a head carried upon the free end of the support, a guide-roller journaled in the head on a transverse axis and insulated from the side-pressure contact device and a side-pressure contact device also carried by the support and head above and to one side of the guide-roller for making an electrical contact with the conductor for supplying current to the car.

29. In a current-collecting device, a support jointed to the car and spring-pressed upward having at its free end a forked head, combined with a guide-surface and a contact-surface arranged at an angle to each other below the fork of the head to form a recess or space between them for the reception of the suspended conductor and in which the guide-surface is insulated from the contact-surface and is presented transversely under the conductor and the contact-surface is arranged vertically or upright and electrically connected with the motor-circuit, and means for holding the guiding and contact surfaces in proper relative position.

30. In a current-collecting device, a support jointed to the car and pressed upward, combined with a guide-surface and a contact-surface arranged at an angle to each other below the fork of the head to form a recess or space between them for the reception of the suspended conductor and in which the guide-surface is insulated from the contact-surface and is presented transversely under the conductor and the contact-surface is arranged vertically or upright and electrically connected with the motor-circuit, and means for holding the guiding and contact surfaces in proper relative position.

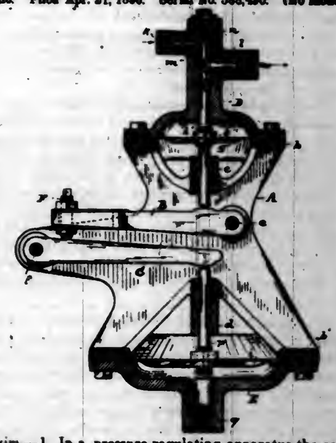
588,112. EGG-BEATER. WILLIAM J. JOHNSON, Newton, Mass., assignor to the National Manufacturing Company, Worcester, Mass. Filed June 24, 1896. Serial No. 596,733. (No model.)



Claim.—1. In an egg-beater, the body A having a cross-head *a*, the wire yoke E fixed on said head, and the pinions C revolving about the prongs of the yoke, in combination with the beater-blades D held in place against the face of said pinions, and each, at foot, pivoted upon one member of the yoke, and with the hollow screws F passing through the inward-turned ends of said blades and threaded into said pinions, to secure the blades firmly thereto, the prongs of the yoke forming journals and said screws forming hollow bushings for said pinions, substantially as set forth.

2. In an egg-beater, the shank or body A provided at its lower end with a cross-head *a* perforated vertically to receive the prongs of a beater-supporting yoke, and formed with a transverse slot through its stem, immediately over the cross-head, in combination with the wire yoke E passing through said vertical perforations and provided with shoulders or stops *e*, *e*, to abut against the under surface of the cross-head, and having its upper ends bent inwardly toward each other, over the cross-head and into said transverse slot, substantially as set forth.

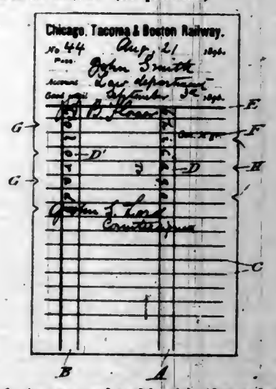
588,113. PRESSURE-REGULATOR. AUGUST KRAUTH, Cleveland, Ohio. Filed Apr. 21, 1896. Serial No. 588,490. (No model.)



Claim.—1. In a pressure-regulating apparatus the combination with the valve D and needle-stem *h* of the flexible disk *g*, bonnet E with yielding cover *i*, frame A supporting said valve and bonnet, one opposite the other, and levers B, C, placed between the sides of said frame in contact with needle-stem *h* and yielding cover *i* and the free end of lever B having adjustable connection upon lever C near the pivot thereof, all constructed and arranged as and for the purpose set forth.

2. In a pressure-regulating apparatus the combination of the frame A comprising the sides *a a*, flanges *b b* and bearings *c d*, the bonnet E with pressure-yielding cover *i* secured to one of said flanges, the valve D with needle-stem *h* and flexible disk *g* attached to the other flange, the lever B pivoted at *c* in contact with the stem *h* and provided with a longitudinally-adjustable set-screw F, and the lever C pivoted at *f* bearing against screw F and resting upon said cover all constructed substantially as and for the purpose described.

588,114. RAILWAY TICKET OR PASS. GEORGE H. MESQUIER, Chicago, Ill., assignor of one-half to Lee Van Tuckn., Amasa Morse, Louisa M. Morse, and H. S. Greene, Cook County, Ill. Filed Sept. 14, 1896. Serial No. 605,720. (No specimens.)



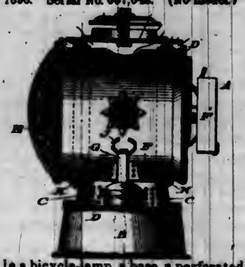
Claim.—1. As a new and useful article of manufacture a railway ticket or pass having the name of the station indicated lengthwise of the edge thereof and said edge being notched opposite all letters of a predetermined class in said name, substantially as set forth.

2. As a new and useful article of manufacture a railway ticket or pass provided with two vertical substantially parallel columns and a number of transverse lines crossing said columns and forming checks therewith, the letters of the name of the starting-station being disposed in the checks of one of said columns respectively and each letter of the name of the destination being located in one of the checks of the other column, substantially as set forth.

3. As a new and useful article of manufacture a railway ticket or pass having the name of the starting-station indicated thereon, a vertical column, a number of transverse lines crossing said column and forming checks therewith, the letters of the name of the destination being disposed separately in said checks and the edge of the ticket or pass opposite all letters of a predetermined class in said destination being clipped or mutilated, substantially as set forth.

4. As a new and useful article of manufacture a railway ticket or pass having a number of vertical columns, a number of horizontal lines crossing said columns and forming the checks D D', the title of the officer issuing the ticket indicated immediately below the upper one of said horizontal lines, the word "to" being indicated between said vertical columns, the name of the starting-station indicated in one of said vertical columns, the letters of the name of the destination being disposed separately in the checks D' of the other column and the first letter thereof being placed above the uppermost one of said horizontal lines or in the uppermost one of said checks D', and the edge of said pass or ticket opposite each letter of a predetermined class in said destination being clipped or mutilated and the name of the countersigner being placed on the one of the said horizontal lines which forms the lower side of the check D' containing the last letter of said destination, substantially as set forth.

588,115. BICYCLE-LAMP. ISRAEL M. ROSE, Philadelphia, Pa. Filed Oct. 2, 1896. Serial No. 607,642. (No model.)



Claim.—1. In a bicycle-lamp, a base, a perforated shell supported thereon, a wick-tube having an enlarged portion or cage J at its upper end with openings in its under face, and an annular shell surrounding said wick-tube below said enlarged portion.

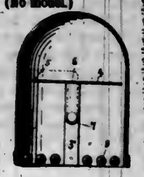
2. In a bicycle-lamp, a base, a perforated shell supported on said base, a wick-tube having an enlarged portion with openings in its under face, a perforated shell forming a chamber surrounding said wick-tube, below said enlarged portion, and passages leading from the interior of said lower shell outside of said upper shell.

3. A bicycle lamp having a base, a perforated shell supported thereupon, the barrel or body of the lamp supported upon said shell, a lateral annular chamber opening into the chamber inclosed by said shell, and upright passages extending from said chamber inwardly around the barrel of the lamp and thence to the atmosphere.

4. In a bicycle-lamp, a base, a perforated shell supported thereupon, a barrel supported upon said shell, a wick-tube, an annular shell surrounding said wick-tube, and a laterally-extending annular chamber intermediate the barrel of said lamp and its base, a hood supported upon said barrel and opening to the atmosphere, and an upright passage leading from said lateral annular chamber to a chamber above the barrel of the lamp and thence to the atmosphere.

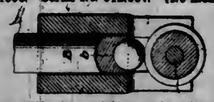
5. In a bicycle-lamp, a base B having a perforated shell C supported thereupon, the barrel or body of said lamp being supported upon said shell, an annular passage K located between said barrel and shell, a perforated ring inclosing the wick-tube of the lamp, upright passages leading from said annular chamber to a space between the hood and barrel of the lamp, and a deflector supported above said hood.

588,116. PUZZLE. JOHN C. SCHWEINFURTH, Birmingham, Ala., assignor of one-half to Henry T. Dean, same place. Filed May 17, 1897. Serial No. 636,934. (No model.)



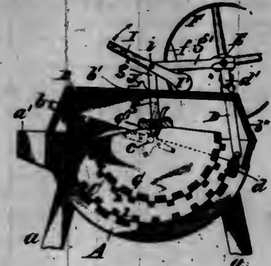
Claim.—An amusement device consisting of a base having a transparent receptacle attached thereto, two vertical uprights attached to the base and extending upward therefrom, a platform attached to the heads of the uprights, the platform having a gap formed in the edge thereof, an opening or aperture being formed in the center of the platform, a concave shelf attached to the uprights between the base and the platform, and a series of balls inclosed in the receptacle, substantially as and for the purpose described.

588,117. STEP-BEARING. THOMAS H. SPRINGER, Philadelphia, Pa., assignor to The Springer Separator Company, of Pennsylvania. Filed Nov. 19, 1896. Serial No. 612,667. (No model.)



Claim.—The combination, with a socket having a transversely slotted or bifurcated lower end provided on the arms of the fork thus formed with transverse apertures, of a shaft mounted removably in said apertures, a vertical disk turning on said shaft within said bifurcation and removable laterally or downwardly therethrough upon the removal of said axle, a ball resting on the upper edge of the disk, and a spindle resting on the ball, substantially as described.

588,118. WASHING-MACHINE. CHARLES DIETZ and HENRY DIETZMAN, Cincinnati, Ohio, and EDWARD GRAPT, Lawrenceburg, Ind. Filed May 3, 1897. Serial No. 634,899. (No model.)

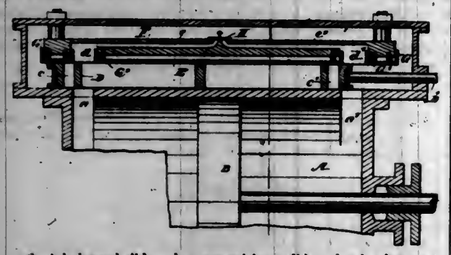


Claim.—1. In a washing-machine, the combination of a tub or tank A; a clothes-receptacle C having pivots or trunnions and thereby adapted to rock within said tank; a crank-shaft E; a rubber G having lateral pins H and suspended within the receptacle by means of pivotally-connected arms *g* and *g'* from the crank-shaft E, said arm *g'* projecting freely from said crank-shaft and the latter being duly mounted on a suitable, hinged lid or cover B; a pair of upright forks *h*, *h*, mounted on the receptacle and engaged by said lateral pins H on the rubber; and a hand-lever I pivotally connected to the arms *g*, *g'*, for raising the rubber up into the lid when the latter is to be manipulated; the whole being constructed, arranged, and adapted to operate whereby a double or compound motion is effected by means of the rubber and receptacle, substantially as herein set forth.

2. In a washing-machine, the combination of a tub or tank A; a clothes-receptacle C pivotally mounted on the tub to rock therein; a suitable lid or cover hinged to the tank; a crank-shaft journaled on the lid and connected by means of a pitman with the clothes-receptacle; a hand-wheel having a counterbalance-weight *f* and mounted on said crank-shaft; a rubber G having lateral pins thereon, open standards or flaring-mouthed forks *h* on the clothes-receptacle, freely engaged by said lateral pins on the rubber G for producing combined, double action in opposite directions for the rubbing or washing operation; and a hand-lever I on the arms *g*, *g'*, for raising and lowering said rubber within the lid to and from cooperative or coupled engagement with said receptacle; said counterbalance in the hand-wheel causing the proper perpendicular lining or center balancing of the receptacle C so that the lateral pins on the rubber shall always positively drop into engagement with the upright forks when the rubber is to be lowered into said clothes-receptacle and the hand-lever serving, also, to prevent the undue wabbling or swinging back and forth of the rubber within the lid when the latter is either raised or lowered on its hinges; the whole being constructed, arranged, and adapted to operate, substantially as herein set forth.

588,119. BALANCED SLIDE-VALVE. ISAAC C. GRIFFITH, Vicksburg, Miss., assignor to himself and Frederic Speed, same place. Filed Mar. 4, 1896. Serial No. 581,896. (No model.)

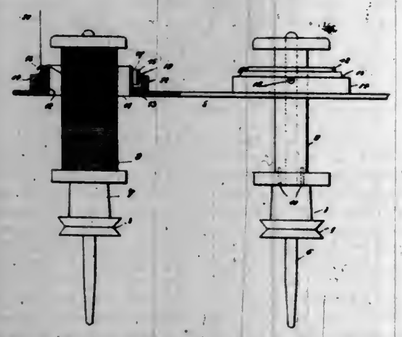
Claim.—1. A balanced slide-valve, provided with a balance-plate having a face-plate, and a packing interposed between the under surface of the said balance-plate and the upper surface of face-plate, substantially as shown and described.



2. A balanced slide-valve, comprising a slide-valve having ports adapted to register with the cylinder-ports, a face-plate held on top of the said slide-valve and provided with relief-ports adapted to register with the said valve-ports and the cylinder-ports, and a balance-plate on which fits the said face-plate and provided with channels connected with the relief-ports in the said face-plate, substantially as shown and described.

3. A balanced slide-valve, comprising a slide-valve having ports adapted to register with the cylinder-ports, a face-plate held on top of the said slide-valve and provided with ports adapted to register with the said valve relief-ports, a balance plate on which fits the said face-plate and provided with channels connected with the relief-ports in the said face-plate, the inner ends of the said channels opening into the steam-chest, and a button or valve adapted to close the said inner ends of the channels, substantially as shown and described.

588,120. RING FOR RING-TWISTING FRAMES. WALTER RIGBY, New York, N. Y. Filed Nov. 5, 1896. Serial No. 611,143. (No model.)

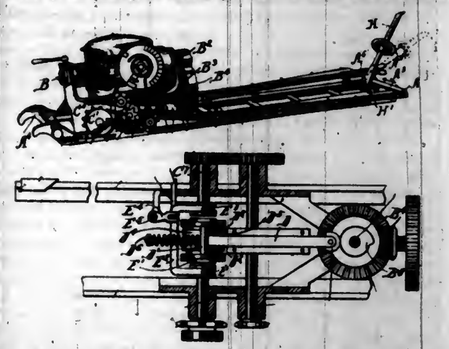


Claim.—The combination in a machine of the character described, of a ring-rail provided with a circular opening, a circular band resting upon the rail and fitting in the opening, and which is provided with a deep annular groove a traveler-ring secured to the outer wall of said groove by screws, and provided with an oil-hole extending through said band and ring, said band and said ring leaving a narrow annular space 17 between them, said ring being provided on its inside with annular shoulders or projections, one projecting upward and the other downward, and a traveler provided with hooks adapted to embrace the upper and lower edges of the said ring and travel in the said annular space, substantially as and for the purpose set forth.

REISSUES.

11,625. MINING-MACHINE. CHARLES R. DAVIS, Chicago, Ill., assignor to the Independent Electric Company, same place. Filed June 30, 1897. Serial No. 643,016. Original No. 563,406, dated May 26, 1897.

Claim.—1. A feeding mechanism for mining-machines comprising a continuously-rotating motor, a revoluble cam, a bar provided at one end with a roller which bears against said cam, the other end of said bar bearing against an arm carrying a pawl that engages a ratchet-wheel, means for holding said arm and bar in engagement, and two shafts adapted to be alternately connected to the ratchet-wheel and provided with sprocket-wheels that engage a single stationary rack whereby the mining-machine may be moved forward or backward.



2. A mining-machine comprising a motor, a cam, means of communicating the motion of the motor to the cam, connections between the cam and a feeding ratchet-wheel, two shafts carrying sprocket-wheels that engage a stationary chain, a clutch associated with one of said shafts adapted to engage the shaft of the feeding ratchet-wheel and feed the machine in one direction, and a second clutch associated with an auxiliary shaft connected to the second sprocket-wheel shaft and adapted to engage the shaft of the feeding ratchet-wheel and move the machine in an opposite direction at a different speed, substantially as described.

3. A feed mechanism for mining-machines or the like, comprising a revoluble cam, connections between the said cam and a feeding ratchet-wheel, two shafts, each provided with a sprocket-wheel which engages a stationary chain, clutches associated with said shafts and adapted to engage the shaft of the feeding ratchet-wheel, and a controlling-handle connected with both of said clutches, whereby, when the said machine is in operation a movement of said handle in one direction causes the mining-machine to be fed forward, and a movement in the other direction causes said machine to be moved backward, substantially as described.

4. A feeding mechanism for mining-machines comprising a stationary, flexible chain elastically attached to the guides or frame along which the machine moves, a motor and connections between said motor and the flexible chain.

5. A feeding device for mining-machines comprising a revoluble cam, means by which the motion of the cam is communicated to a ratchet-wheel, and a flexible chain elastically attached to some part of the frame of the machine, and connections between said ratchet-wheel and chain, whereby the step-by-step feed due to the cam is converted into a steady continuous feed.

6. In a mining-machine the combination of a cutter-carrier with a motor for driving the same, mechanism for feeding said cutter-carrier bodily against the coal to be cut by a step-by-step motion, an elastic power-transmitting spring connected with the machine so as to be interposed between the cutter-carrier and the step-by-step feeding device.

7. A mining-machine comprising two frames movable with relation to each other, a cutting device connected with one of said frames, a motor also mounted upon one of said frames and adapted to drive said cutter, a rack attached to the other frame by an elastic connection and a connecting mechanism between said rack and motor, whereby the cutter is elastically fed against the coal.

8. In a mining-machine, the combination of a continuously-rotating motor, a cutter-carrying frame with guides along which it moves, and a single flexible chain on the guides, a portion of which is elastic and sprocket-wheels on the moving frame in engagement with the chain, and driving mechanism for said sprockets whereby they are adapted to be alternately operatively rotated in opposite directions, one of said sprockets adapted to travel upon the rack more rapidly than the other, so as to feed the frame forward slowly and withdraw it rapidly.

9. In a mining-machine of the breast-machine type, the combination of a movable frame carrying the cutter-chain, a stationary frame along which said movable frame travels, said stationary frame provided at its forward end with an arm, said arm connected with said frame in such a manner as to project therefrom at a fixed oblique angle in one plane and a variable angle in a second plane at an angle with said first-mentioned plane, the free end of said arm adapted to be brought into contact with some stationary object, substantially as described.

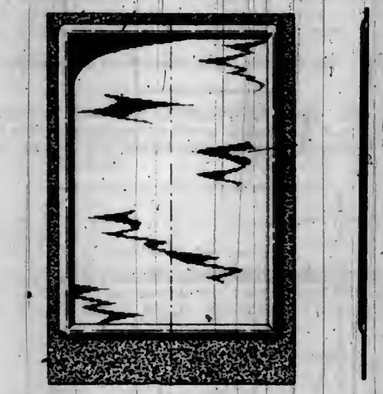
DESIGNS.

27,497. CARD-MOUNT. JOHN P. OBERLY, Philadelphia, Pa., assignor to the A. M. Collins Manufacturing Company, same place. Filed May 6, 1897. Serial No. 635,743. Term of patent 7 years.



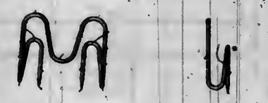
Claim.—The design for a card-mount, substantially as described, and as shown in the accompanying drawing.

27,498. PHOTOGRAPHIC CARD-MOUNT. DELANO D. DUNKLEE, Greenfield, Mass. Filed May 12, 1897. Serial No. 636,244. Term of patent 7 years.



Claim.—The design for a card-mount, substantially as shown and described.

27,499. NECKTIE-HOLDER. CHARLES EVERETTE SMITH, New York, N. Y. Filed July 3, 1897. Serial No. 643,462. Term of patent 7 years.



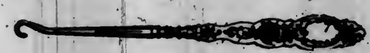
Claim.—The design for a necktie-holder herein shown and described.

27,500. GLOVE-BUTTONER. ALLISON N. CLARK, Plainville, Conn. Filed Mar. 15, 1897. Serial No. 627,009. Term of patent 7 years.



Claim.—The design for a glove-buttoner as shown and described.

27,501. HANDLE FOR BUTTON-HOOKS, &c. PHILIP H. LOSE, Newark, N. J. Filed July 3, 1897. Serial No. 643,466. Term of patent 7 years.



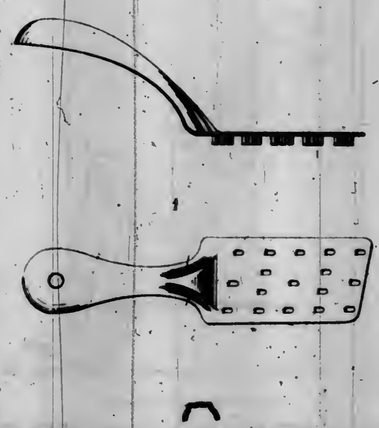
Claim.—The design for a handle for button-hooks, manicure articles, &c., substantially as shown and described.

27,502. LENS FOR TILES. JOHN W. MARK, New York, N. Y. Filed June 23, 1897. Serial No. 641,963. Term of patent 14 years.



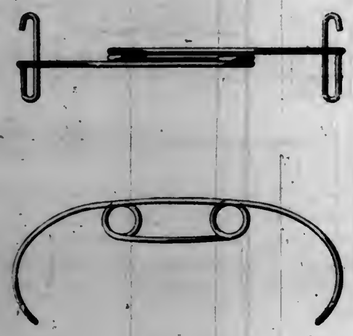
Claim.—The design for a glass or lens, substantially as set forth.

27,503. FISH-SCALER. HENRY L. SCHWARZENBERG, Cleveland, Ohio. Filed June 26, 1897. Serial No. 642,549. Term of patent 3½ years.



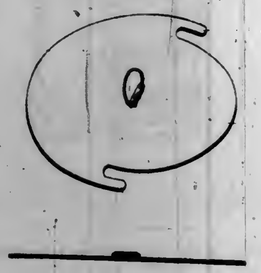
Claim.—The design for a fish-scaler, substantially as herein shown and described.

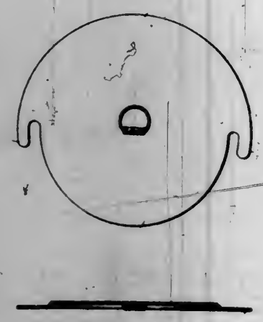
27,504. FRAME FOR SHOE-POLISHERS. HENRY H. TITUS, Plainfield, N. J. Filed June 9, 1897. Serial No. 640,079. Term of patent 3½ years.



Claim.—The design for the frame of a shoe-polisher, as herein shown and described.

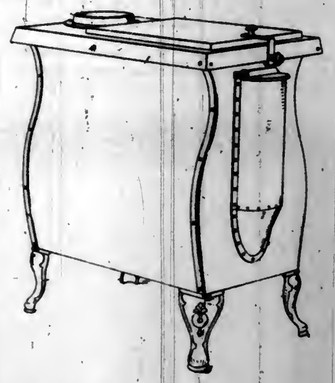
27,505. KETTLE-COVER. FREDERICK HEWELL MARTINDALE, Watertown, N. Y. Filed Apr. 5, 1897. Serial No. 631,322. Term of patent 14 years.





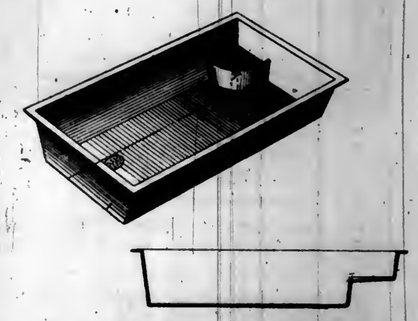
Claim.—The design for a kettle-cover, herein shown and described.

27,506. SHEET-METAL STOVE. WILLIAM W. BALDWIN, Cleveland, Ohio, assignor to the Cleveland Co-Operative Stove and Hollow Ware Foundry Company, same place. Filed June 4, 1897. Serial No. 639,479. Term of patent 7 years.



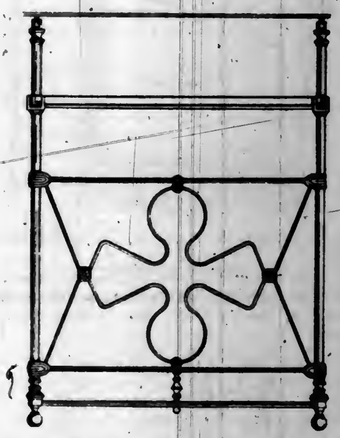
Claim.—The design for a stove, substantially as shown and described.

27,507. SINK. ROBERT M. JOHNSON, Hainesport, N. J. Filed July 2, 1897. Serial No. 643,396. Term of patent 14 years.



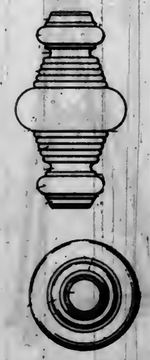
Claim.—The design for a sink, herein shown and described.

27,508. END FRAME FOR METAL BEDSTEADS. DAVID FRANK, Brooklyn, N. Y., assignor of one-half to John Trounstine, New York, N. Y. Filed July 3, 1897. Serial No. 643,457. Term of patent 7 years.



Claim.—The design for the end frame of a metal bedstead, substantially as shown and described.

27,509. METAL MOUNT FOR BEDSTEADS. FREDERICK W. CRESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 28, 1896. Serial No. 617,112. Term of patent 7 years.



Claim.—The design for a metal mount substantially as shown and described.

27,510. METAL MOUNT. FREDERICK W. CRESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 28, 1896. Serial No. 617,113. Term of patent 7 years.



Claim.—The design for a metal mount, substantially as shown and described.

27,511. METAL MOUNT. FREDERICK W. CRESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 28, 1896. Serial No. 617,114. Term of patent 7 years.



Claim.—The design for a metal mount, substantially as shown and described.

27,512. METAL MOUNT. FREDERICK W. CRESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 28, 1896. Serial No. 617,115. Term of patent 7 years.



Claim.—The design for a metal mount, substantially as shown and described.

27,513. METAL MOUNT. FREDERICK W. CRESSON, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 28, 1896. Serial No. 617,117. Term of patent 7 years.



Claim.—The design for a metal mount, substantially as shown and described.

27,514. CLIP OR FASTENER. WILLIAM R. MACINTOSH, Buffalo, N. Y., assignor to Malcolm A. Young, same place. Filed June 24, 1897. Serial No. 642,195. Term of patent 14 years.



Claim.—The design for a fastening device, substantially as herein shown and described.

27,515. ROOF-FENDER. SUMNER A. GILMAN, Boston, Mass. Filed July 3, 1897. Serial No. 643,459. Term of patent 14 years.



Claim.—The design for roof-fender, substantially as herein shown and described.

27,516. POLE FOR ELECTRIC WIRES, &c. John H. Brownell, Detroit, Mich. Filed Mar. 5, 1897. Serial No. 626,146. Term of patent 7 years.



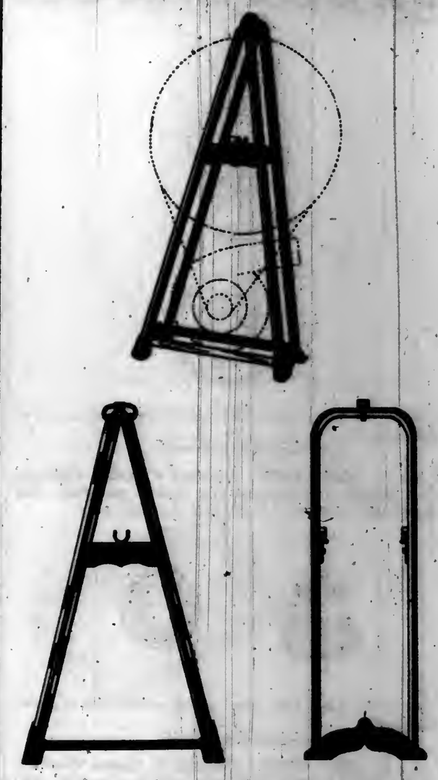
Claim.—The design for a pole, substantially as herein shown and described.

27,517. SWING-SUPPORT. Nils Olof Swanson, Brooklyn, N. Y. Filed Apr. 1, 1897. Serial No. 630,311. Term of patent 14 years.



Claim.—The design for a swing-support substantially as herein shown and described.

27,518. BLOWER-FRAME. William R. Gaskey, Chicago Heights, Ill. Filed Jan. 18, 1897. Serial No. 619,602. Term of patent 7 years.



Claim.—The design for blower-frame and support, as shown.

TRADE-MARKS

REGISTERED AUGUST 10, 1897.

30,484. CORSETS. Bon Souvenirs, New York, N. Y. Filed May 1, 1897.



Essential feature.—A representation of a bunch of violets. Used since February 24, 1896.

30,485. WOMEN'S AND CHILDREN'S SHOES. John Hundel & Co., Philadelphia, Pa. Filed July 13, 1897.

BUILT LIKE A SHIP

Essential feature.—The words "Built Like a Ship." Used since May 1, 1897.

30,486. FINISHED LEATHER AND BOOTS AND SHOES. Marshall C. Dunn & Co., Weymouth, Mass. Filed July 8, 1897.

METALLIC

Essential feature.—The word "Metallic." Used since June 1, 1897.

30,487. GOODS OF ART, HOUSEHOLD WARES, AND LUXURY WARES. Royal Copenhagen Porcelain Manufactory, Copenhagen, Denmark. Filed July 2, 1897.



Essential feature.—A representation of three wave-lines. Used since 1779.

30,488. CERTAIN NAMED MINERAL WATER. Absher & Vest, Clarksville, Va. Filed Nov. 28, 1896.



Essential feature.—The words "Old Dominion Lithia Water" and a representation of a woman standing at a spring. Used since January 1, 1896.

30,489. DISTILLED WATER. The Ice and Cold Storage Company of Los Angeles, Los Angeles, Cal., and Carbondale, Pa. Filed Mar. 3, 1897.



Essential feature.—A representation of an elemental distilling apparatus or retort and receiving vessel. Used since January, 1897.

30,490. BISCUIT, CRACKERS, AND PILOT-BREAD. The New York Biscuit Company, Chicago, Ill., and Newburyport, Mass. Filed Apr. 19, 1897.

SEVEN X.

Essential feature.—The word and letter "Seven X." Used since October, 1882.

30,491. CERTAIN NAMED BREWERS' GRAINS AND MALT-SPROUTS. India Wharf Brewing Company, Brooklyn, N. Y. Filed June 24, 1897.

GLOBE BRAND

Essential feature.—A representation of a globe and the words "Globe Brand" in close proximity thereto. Used since March 1, 1896.

30,492. VINEGAR. R. M. Rogers & Co., Louisville, Ky. Filed Apr. 22, 1897.

MONOGRAM

Essential feature.—The word "Monogram." Used since March 24, 1884.

80,493. BORAX. WILLIAM H. FRIEDRICHS, St. Louis, Mo. Filed June 26, 1897.

CAMEL



Essential feature.—The word "CAMEL" and a pictorial representation of a camel. Used since February 1, 1897.

80,494. DYESTUFF. RAINISCHE ANILIN AND SODA FABRIK, Ludwigshafen, Germany. Filed July 9, 1897.

SORBINE

Essential feature.—The word "SORBINE." Used since February 1, 1897.

80,495. LAMP-CHIMNEYS. H. G. McFADDEN & Co., New York, N. Y. Filed June 2, 1897.



CRISTAL

Essential feature.—A representation of a crown, and the word "CRISTAL." Used since January 1, 1884.

80,496. BICYCLES. IVER JOHNSON SPORTING GOODS COMPANY, Fitchburg and Worcester, Mass. Filed July 12, 1897.

ROLLSTONE

Essential feature.—The word "ROLLSTONE." Used since February 1, 1896.

PHOTO-LITH. WASHINGTON, D.C.
THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ATWATER.

Decided July 31, 1897.

REHEARINGS—PETITIONS FOR, CONDEMNED.

While there are undoubtedly cases in which, from their great importance or the novel or doubtful character of the questions involved, rehearing may well be had and may properly be sought, yet it should be understood that the court always seeks in the first instance to bring the best judgment which it possesses, aided by all the lights which counsel give it in their briefs and arguments, to bear upon the causes submitted to it for its determination. If in such determination it commits error, the mistake is one of judgment, to which all human action is liable; but it is expedient in the interests of justice that the determination when made should have the element of stability. (Quoting *Hien* v. *Pungs*, 78 O. G., 484.)

PETITION for rehearing.

PHOTOGRAPHIC CAMERAS.

Application of John L. Atwater filed March 16, 1896, No. 583,391.

Messrs. Munday, Evarts & Adcock for the applicant.

BUTTERWORTH, *Commissioner:*

This is a petition for a rehearing of the decision of the Commissioner rendered June 26, 1897.

The alleged ground for this petition is that the decision was based upon an error of fact in that it admits that there is nowhere shown in the prior art the material used by appellant in the making of the changing-sleeve, yet the decision declares that what appellant has done was merely to select an old material and use it for his purpose.

Such a strained and unreasonable construction is not warranted by the decision. The decision plainly states that the patent to Pearce discloses that it is not new to coat fabric on both sides with rubber. This being so, to use such fabric for a changing-cloth of a camera in place of other material is not invention.

Appellant now argues that because he—

actually made the invention before he knew the material was in existence, and, further, that before he could get the material it had to be made specially for him—

he is entitled to a patent. As to this it is only necessary to quote the following from appellant's brief on appeal, filed June 22, 1897, where it is stated that—

it is however immaterial to inquire whether it be an old fabric or not; because the only proper inquiry here is whether the changing-sleeve made of such a fabric is or is not a mere selection, substitution or double use of the fabric.

Tested by this I was of the opinion when making the decision complained of, and am still of the opinion, that appellant had not made an invention. Whether or not appellant knew that the material was old before he had the idea of using it for his particular purpose or whether or not he had to have the material made expressly for him is of no moment in deciding the question of patentability. Pearce disclosed enough to show that the cloth was old or that there would be no invention in making such cloth. The patents to Aldrich, No. 283,057, dated August 14, 1883, and Allerton, No. 52,124, dated January 23, 1866, are now called to appellant's attention to show that fabric coated on both sides with rubber was known and patented years before appellant thought of using it. Furthermore, on inquiring at a rubber-store near this Office I have been informed that thin flexible fabric coated on both sides with rubber is a stock article and can be readily obtained.

Appellant seems to have fallen into the error that every change is subject for a patent. The statute, however, requires that there must be the exercise of the inventive faculty before a patent may issue.

To grant to a single party a monopoly of every slight advance made, except where the exercise of invention somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences. (*Atlantic Works* v. *Brady*, C. D., 1883, 214; 107 U. S., 192, 199.)

It is not sufficient that the patentee may have produced a better and more merchantable article, but there must have been something novel in the means which were employed in its production. What constitutes patentability in this class of cases is clearly expressed by the Supreme Court in the recent case of *Knapp* v. *Morss*, (C. D., 1893, 651; 65 O. G., 1503; 150 U. S., 221; 14 Sup. Ct., 81.) On page 657, C. D., 1893; 228, 150 U. S., and 81, 14 Sup. Ct., the Court says: "Tested by these authorities the validity of the patent in question must be ascertained, not from a consideration of the purposes sought to be accomplished, but of the means pointed out for the attainment thereof, and if such means, adapted to effect the desired results, do not involve invention, they can derive no aid or support from the end which was sought to be secured. All that Hall did was to adapt the application of old devices to a new use, and this involved hardly more than mechanical skill, as was ruled in *Aron* v. *Railway Co.*, (C. D., 1890, 650; 49 O. G., 1365; 133 U. S., 85; 10 Sup. Ct., 24,) where it was said: 'The same device employed by him (the patentee) existed in earlier patents. All that he did was to adapt them to the special purpose to which he contemplated their application, by making modifications which did not require invention, but only the exercise of ordinary mechanical skill, and his rights to a patent must rest upon the novelty of the means he contrived to carry his idea into practical application.' (*Andrews et al.* v. *Thum et al.*, 72 O. G., 899.)"

It is not every improvement produced by the adaptation or substitution of one well-known material for another in manufactures that will entitle the party making the improvement to a patent. There must be an invention or discovery of that which is new and useful within the meaning of the patent law to entitle a party to a patent. Mere improvement is not all that is necessary. (*Cheneau* v. *Commissioner of Patents*, 70 O. G., 994.)

Appellant's alleged improvement involves—

only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the facility of manipulation which results from its habitual and intelligent practice, and is in no sense the creative work of that inventive faculty which it is the purpose of the Constitution and the patent laws to encourage and reward. (*Hollister* v. *Benedict Mfg.*

Co., 113 U. S., 59, 73; *Thompson* v. *Boisselier*, 31 O. G., 377; 114 U. S., 1, 13; *Burt* v. *Emory*, 50 O. G., 1274; 133 U. S., 349, 358.)

By these authorities and by all the authorities it is conceded that not every change or improvement is patentable invention and that the merit of the exercise of the inventive faculty must be refused to such things as are plainly within the scope of mechanical ingenuity.

In denying this petition for a rehearing it may be well to repeat what the court said in the case of *Hien* v. *Pungs*, (78 O. G., 484,) which applies to petitions for rehearing in this Office:

> Counsel in this court seem frequently to regard it as their duty to file motions for a rehearing, which the present motion virtually is, just as they file motions for a new trial in a *nisi prius* court. Counsel should not regard themselves under obligation to file such motions. While there are undoubtedly cases in which, from their great importance or the novel or doubtful character of the questions involved, rehearing may well be had and may properly be sought, yet it should be understood that the court always seeks in the first instance to bring the best judgment which it possesses, aided by all the lights which counsel give it in their briefs and arguments, to bear upon the causes submitted to it for its determination. If in such determination it commits error, the mistake is one of judgment, to which all human action is liable; but it is expedient in the interests of justice that the determination when made should have the element of stability.

The petition for rehearing is denied.

CASLER *et al. v.* EDISON.

Decided July 31, 1897.

PUBLIC USE—DATE OF CLAIM—NEW MATTER—APPEAL TO THE EXAMINERS-IN-CHIEF.

The question as to whether a claim for a device different from that originally claimed may be introduced into a case more than two years after the device covered by the later claim has been in public use is a question of new matter which goes to the merits and is appealable in the first instance to the Examiners-in-Chief.

PETITION TO INSTITUTE PUBLIC-USE PROCEEDINGS.

IN the matter of the petition of H. N. Marvin to institute public-use proceedings for the purpose of preventing the issue of a patent to Thomas A. Edison on an application, Serial No. 403,534, filed August 24, 1891, for an improvement in kinetoscopes.

Messrs. E. M. Marble & Sons for Casler *et al.*

Messrs. Dyer & Driscoll and *Mr. Frank L. Dyer* for Edison.

BUTTERWORTH, *Commissioner:*

This is a petition by H. N. Marvin, second vice-president of the Mutoscope Company, assignee of the invention set forth in an application of Herman Casler, filed February 26, 1896, Serial No. 580,811, praying that the Commissioner of Patents make an order authorizing the petitioner to take depositions of witnesses to prove that the apparatus described and claimed in the application of Thomas A. Edison, filed August 24, 1891, Serial No. 403,534, was in public use for more than two years prior to the date of making any claim for said apparatus in this application.

The object of the public-use proceeding prayed for is to show that Edison has no right to make any claim based upon the apparatus described in said application by reason of public use of said apparatus for more than two years prior to the amendment embodying claims for the apparatus in this application.

On August 24, 1891, Edison filed in the Patent Office three applications relating to the subject of taking and exhibiting photographs. One of these applications, Serial No. 403,536, for a method and apparatus for reproducing pictures, became a patent. Another, Serial No. 403,535, for apparatus for taking photographs, became abandoned some time in 1894 by failure to prosecute the same more than two years after the last official action in 1892. The third case, and the one under consideration, Serial No. 403,534, was prosecuted to allowance, and on March 2, 1897, was put in interference with the application of Casler above referred to. The claims included in this interference are for an apparatus, and were entered in the case by amendment of December 28, 1896, the case having been amended April 18, 1896, by substitute specification describing and claiming the apparatus, prior to this date the case having been confined to a method. This interference was on March 26, 1897, decided in favor of Edison by reason of Casler's failure to overcome the *prima facie* case made against him by the date of filing of Edison's application. On April 15, 1897, Casler moved to dissolve the interference, and on May 21, 1897, the Primary Examiner granted the motion. The decision of March 26, 1897, was then vacated and set aside and the interference dissolved. On June 24, 1897, the petition under consideration was filed.

It is admitted on behalf of Edison that the apparatus shown, described, and now claimed in this application had been in public use for more than two years prior to making claim in this application for said apparatus, and the petition of Marvin might therefore be dismissed without further comment were it not for the fact that the petition has raised the question whether the claims now pending in this application of Edison's are not for an entirely different invention from that originally made in this application, and, as there has been more than two years' public use prior to the making of said claims, Edison has no right to a patent on said claims in this application. Several decisions have been cited by Marvin to support this contention, which decisions it is unnecessary to review here. Granting that Marvin's contention is correct and that the decisions bear him out in his contention, yet the question involved is one of new matter relating to the merits of the invention, which should be passed upon in the first instance by the Primary Examiner and the Examiners-in-Chief and should not be taken up by the Commissioner until it comes regularly before him on appeal from the Examiners-in-Chief.

Furthermore, the interference between Edison and Casler has been dissolved on motion of Casler and Edison's case is now *ex parte*, and so far as the question as to whether or not Edison changed the invention after filing his application, whether or not the present claims constitute a departure from his original invention, or whether or not Edison has a right to make the claims is under the well-settled practice of the Office an *ex parte* question on which Edison alone has the right to be heard.

The petition presented by Marvin is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

THOMSON-HOUSTON ELECTRIC COMPANY *v.* HOOSICK RAILWAY COMPANY.

Decided July 21, 1897.

1. VAN DEPOELE—TRAVELING CONTACT FOR ELECTRIC RAILWAYS—VOID—CLAIMED IN PRIOR PATENT TO SAME INVENTOR.

Claims 6, 7, 8, 12, and 16 of Letters Patent No. 495,443, granted April 11, 1893, to the administrators of Charles J. Van Depoele, for a traveling contact for electric railways, construed and *Held* to be void because the invention covered thereby had been previously claimed by the same inventor in Letters Patent No. 424,695, dated April 1, 1890.

2. TWO PATENTS FOR SAME INVENTION—SCOPE OF CLAIMS—SECOND PATENT VOID.

Where two patents are intended to and do secure to the patentee the same general inventions, differing only in the scope of the claims, the second patent is inseparably involved in the matter embraced in the first patent and is void. (Citing *Miller* v. *Mfg. Co.*, 151 U. S., 198; 66 O. G., 845.)

Mr. Frederick H. Betts for the appellant.

Mr. Charles E. Mitchell for the appellee.

WALLACE, *J.:*

This is an appeal from an order granting a preliminary injunction restraining the defendant from making, using, or vending the apparatus specified in claims 6, 7, 8, 12, and 16 of Letters Patent No. 495,443, granted April 11, 1893, to the administrators of Charles J. Van Depoele, assignors to the complainant, for a "traveling contact for electric railways." The application for the injunction was resisted upon the ground that the patent as to these claims was void because the inventions covered thereby had been previously patented to the same inventor by Letters Patent No. 424,695, granted April 1, 1890, for a "suspended switch and traveling contact for electric railways." The validity of the claims, notwithstanding a similar defense, had been adjudicated at final hearing in the case of this complainant against the Winchester Avenue Railway Company by the Circuit Court for the District of Connecticut. (71 Fed. Rep., 192.) In granting the present injunction the court below followed that adjudication without attempting an independent consideration of the validity of the defense.

The preliminary question arises whether upon this appeal the court should undertake to examine and in a sense to review collaterally the decision in the Connecticut cause or should confine itself to the inquiry whether from the standpoint of the court below the order was properly granted. We had occasion to consider this question in *American Paper Pail & Box Company* v. *National Folding Box & Paper Company*, (1 U. S. App., 283,) and adhere to the views which were then expressed. We said:

> While the circuit court upon a motion for an injunction might deem itself constrained, contrary to its own judgment, to adopt the rulings of another circuit court upon questions of law made at final hearing, this court is at liberty to reëxamine such rulings, dispose of the questions of law conformably to its own convictions, and accord to the former adjudication such weight as in its own judgment it was entitled to upon the motion.

The former adjudication was entitled to great weight upon the application for the preliminary injunction and justified, although it did not necessarily control, the decision. If it had been founded upon evidence not before the court upon the application for the injunction, or not so fully before it, it could not have been intelligently considered by that court and there would have been no record here upon which it could be reëxamined; but the question whether two patents are for the same invention is a question which is to be determined by a comparison of the documents themselves. There may be cases in which it is necessary to resort to extrinsic evidence to ascertain the meaning and the true construction of the documents. The present was not such a case. The patents are unambiguous, and even the file-wrappers, which are in the record, are of little value as extrinsic evidence.

Both patents originated in the application of Van Depoele filed in the Patent Office March 12, 1887, and relate to the apparatus of that class of electric railways in which a suspended conductor conveys the working current and a contact device carried by the car is employed for taking off the current, and more particularly to an improved traveling contact and an improved arrangement and construction of the switches by which the traveling contact is directed to the proper conductor and to various details of construction and arrangement of the traveling contact and switches. The application was divided, and while one of the divisional applications was involved in an interference proceeding which delayed the issuance of a patent the other divisional application culminated in the patent granted April 1, 1891. In the earlier patent the patentee, after stating that his invention—

> relates to electric railways of the class in which a suspended conductor is used to convey the working current, a traveling contact carried by the car for taking off the current for use in operating the motor by which the car is propelled, and the return-circuit completed through the rails—

states that it consists in certain devices and their relative arrangement by means of which a contact device carried by a rod or pole extending from the car and pressed upwardly into contact with the conductor is switched from one line to another correspondingly with the vehicle. He further states that while to illustrate his invention he has shown it applied to a contact device which forms the subject-matter of an earlier application for a patent, (the later patent,) and while he does not intend to claim generally a contact device of this construction, he does make claims to certain details thereof which are of especial value in connection with his improved switching devices, but which are not essential features of the contact device itself considered without reference to the switch.

In the later patent the patentee states that his invention consists more particularly in an improved traveling contact and in improved arrangement and construction of the switches by which the said traveling contact is directed into the proper conductor, but that he does not propose to claim the switching devices, although the description and illustration of them are retained, because these de-

vices have been already claimed in his Patent No. 424,695, (the earlier patent.) The later patent also states that in a still earlier application for a patent the patentee had shown and described a contact device consisting of a grooved roller mounted upon a spring and sustained thereby a short distance above the roof of the car; but this was in practice found deficient in capacity to follow the sinuosities and deflections of the overhead conductor as ordinarily put up, and he then proceeds to point out the advantages of the use of such a device as is particularly described in the later patent, and he further states that many modifications and minor changes in the invention described will readily suggest themselves to persons skilled in the art, and he does not propose to limit himself to the precise details of construction or arrangement shown.

The claims of the earlier patent are thirty-five in number and are addressed more particularly to combinations between the conductor-switches and the traveling contact, while the claims of the later patent, which are sixteen in number, are addressed more particularly to combinations between the traveling contact and the suspended conductor.

The earlier patent contains a number of claims in which the switching devices are not an element, and the later a number in which they are an element. As these devices are not an element of the combination in either of the five claims of the patent in suit which have been adjudicated, any extended consideration of them will be unnecessary, and the comparison between the two patents will be mainly confined to the descriptive parts and claims of each which relate to the combinations between the contact device and the suspended conductor and to the structural features of the contact device. These parts are illustrated in each patent by the same drawing, Fig. 1.

The specification of each patent describes a car and a suspended conductor which are identical. Each describes a contact device or trolley belonging to the order of "underrunning" contacts, and which consists of a swinging arm carrying a grooved wheel at one extremity and a tension device for regulating its movements. The arm is mounted upon a post on top of the car and is pivoted and swiveled so as to be capable of swinging both vertically and horizontally through considerable arcs. The tension device is attached to the short end of the arm and regulates the movements of the arm by pulling the short end down and holding it in its normal position while the grooved wheel at the long end is pressed upward into engagement with the under side of the suspended conductor. These parts, as described in both specifications, with the exception of the tension device, are identical in all their essential features. The description of the tension device is the same in each patent, except that the words in italics appear in the specification of the earlier patent and are omitted in the specification of the later patent. It is as follows:

To the lower end of the arm F is attached a spring G, to the lower extremity of which is secured a cord which passes downward through suitable grooves or over suitable rollers, and is provided with a weight H, which serves to hold the spring down and keep the contact-wheel E always pressed up against the under side of the conductor D. At the same time the spring will instantly yield to allow the wheel to pass under the switch or any obstruction, *and while the arm F is movable laterally with respect to the vehicle the spring and weight will constantly tend to restore the arm to its normal central position and assist in causing the contact-arm to partake of the lateral movement of the vehicle.* Being held in position by the weight, *the wheel has a much greater range of action, and, moreover*, the motorman can at any time lower the contact-wheel by raising the same, rendering the arrangement very convenient for many purposes.

* * * * * * *

The arm F is of a length that will place the contact-wheel E about over the rear pair of wheels of the car, and the position of the post *f* and the length of the arm F itself will therefore vary with the length of the body of the car, the particular proportions shown being only by way of illustration. The arm F is hinged and should in most instances be also pivoted to the top of its post *f*, although a reasonable amount of looseness in the hinged joint will answer the purpose of the pivot and prevent binding or straining at that point due to the swaying of the vehicle or deflection of the conductor.

* * * * * * *

The contact-carrying arm described in the present application possesses substantial practical advantages over any other means yet proposed for establishing moving contact between a vehicle and a stationary supply-conductor, in that by the use of a hinged flexibly-mounted arm much greater freedom of movement is compatible with the maintenance of a positive mechanical connection and electrical contact between the vehicle and supply-conductors.

Among the claims of the earlier patent are these:

15. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, a contact-carrying arm pivotally supported on top of the car and provided at its outer end with a contact-roller engaging the under side of the suspended conductor, and a weighted spring at or near the inner end of the arm for maintaining said upward contact, substantially as described.

31. In an electric railway, the combination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of a trailing arm having a grooved contact-wheel at its outer end and moving laterally relatively to the vehicle, but provided with a spring tending to retain it in its normal central position.

32. In an electric railway, the combination, with an overhead conductor and a vehicle, of a trailing contact-arm guided at its outer end by the overhead conductor, and movable laterally relatively to the vehicle, but having a normal centralizing tendency by means of a spring or weight.

33. In an electric railway, the combination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of an upwardly-pressed trailing arm having a grooved contact-wheel at its outer end by which it is guided by the conductor, the said arm being free to swing laterally relatively to the vehicle, but tending to remain in its normal central position by means of a spring or weight.

34. The combination, with a vehicle and an overhead conductor, of a trailing contact-arm guided normally by the conductor, but having a spring connection with the vehicle tending constantly to maintain it in a definite position, while at the same time it is free to swing laterally with respect to the vehicle against the pressure of the said spring.

35. In an electric railway, the combination, with an overhead conductor and a vehicle, of an intermediate contact device consisting of a rearwardly-extending arm guided at its outer extremity by engagement with the conductor and movable laterally relatively to the vehicle, but having a spring or weight tending to restore it to its normal central position.

The five claims in controversy of the patent in suit are as follows:

6. In an electric railway, the combination with a suitable track and a supply-conductor suspended above the track, of a car provided with a swinging arm carrying a contact device in its outer extremity and means for imparting upward pressure to the outer portion of the arm and contact, to hold the latter in continuous working relation with the under side of the supply-conductor, substantially as described.

7. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, a swinging arm supported on top of the car, a contact device carried by one extremity of the arm and held thereby in contact with the under side of the electric conductor, and a tension device at or near the other end of the swinging arm for maintaining said upward contact, substantially as described.

8. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, an arm pivotally supported on top of the car and provided at its outer end with a contact engaging the under side of the suspended conductor, and a tension-spring at or near the inner end of the arm for maintaining said upward-pressure contact, substantially as described.

12. In an electric railway, the combination with a car, of a post extending upward therefrom and carrying a suitable bearing, an arm or lever carrying at its outer end a suitable contact-roller and pivotally supported in said bearing, and provided at its inner end with a tension-spring for pressing the outer end of the lever carrying the contact-wheel upward against a suitable suspended conductor, substantially as described.

16. In an electric railway, the combination of a car, a conductor suspended above the line of travel of the car, an arm pivotally supported on top of the car and provided at its outer end with a grooved contact-wheel engaging the under side of the suspended

conductor, and a tension-spring for maintaining an upward-pressure contact with the conductor, substantially as described.

In considering the question whether both patents covered the same invention Judge Townsend in the Connecticut cause, speaking of the earlier patent, said:

The original application, filed March 12, 1887, claimed a spring and tension device so arranged as to impart upward pressure. The improved device showed a spring and weight so arranged as to permit lateral motion by the arm and to "constantly tend to restore the arm to its normal central position and assist it to partake of the lateral movement of the car," to give it a greater range of action and make it more convenient in operation. This patent for this specific combination adapted and claimed only for this specific purpose, applied for October 22, 1888, after the original application had been allowed, but before the patent thereon had been granted, was earlier in the date of issue. The original application was delayed by interference proceedings in the Patent Office. Whatever may be the rule as to cases where the application for the general patent was filed subsequent to the application for the specific patent, I do not think the patentee should be deprived of his broad patent where the application for such patent was made first and was delayed in the Patent Office through no fault of the inventor.

With these conclusions we are unable to agree. We should concur if we could regard the later patent as the generic one and the earlier, so far as it relates to the contact device, as limited to the structural improvements upon that device; but we are of the opinion that, although the earlier patent contains matter of disclaimer inserted for the purpose of making the later patent ostensibly the generic one so far as it relates to the contact device, such matter is antagonized by and is wholly inconsistent with some of the claims. Those claims in which the switching devices are not an element have no place in the patent and would be in effect obliterated unless they cover combinations between the suspended conductor and such a contact device as is described in the specification. In case of conflict the claims, which are the final and definite expression of the patentee's intention, must control.

The operative parts of the contact device are described in identical language in each patent, and the language of the claims aptly describes these parts. While the function of the tension device is stated with more particularity in the earlier patent, the description does not contain a word or hint by which its characteristics can be differentiated from those of the tension device of the later patent. The additional matter is in effect a fuller statement of the advantages of the device. In the later patent, as well as in the earlier, the tension device is a spring and weight so arranged as to "permit lateral motion by the arm," lateral motion being afforded because, as the specification of each patent states—

the arm F is hinged and should in most instances be also pivoted to the top of its post *f*, although a reasonable amount of looseness in the hinged joint will answer the purpose of the pivot.

In the earlier as well as in the later patent the spring and weight—

are so arranged as to constantly tend to restore the arm to its normal central position—

and thus—

assist it to partake of the lateral movement of the car,

because this is the necessary action of the spring and weight at the short end of the arm. As described in each specification, the tension device is a spring which is held in its proper place by the weight. The spring alone, if fastened to the top of the car, would perform the function of restoring the arm to its normal central position; so would the weight—

secured by a cord which passes downward through suitable grooves—

(or through the roof of the car, as shown in the drawings.) The weight and spring together reinforce one another and allow greater freedom of movement to the arm when arranged as described and shown in both patents. The device of necessity exerts a centralizing tendency upon the arm and serves to maintain upward contact between the grooved wheel and the suspended conductor. Of course if the claims of the earlier patent do not specify such a tension device as is described and claimed in the later, but specify one which embodies only a subordinate improvement upon it, the patents are not for the same invention. As was said by this court in *Thomson-Houston Electric Co.* v. *Elmira Co.*, (74 O. G., 144; 71 Fed. Rep., 404:)

An inventor, by describing an invention in a patent granted to him, does not necessarily preclude himself from patenting it subsequently. His omission to claim what he describes may operate as a disclaimer or an abandonment of the matter not claimed; but it has no such effect when it appears that the matter thus described but not claimed was the subject of a pending application in the Patent Office by him for another patent. * * * The invention secured by a patent is that which is secured to the patentee by the claim. * * * The claim however is to be read in the light of the description contained in the specification, and its literal terms may be enlarged or narrowed accordingly, but not to an extent inconsistent with their meaning. Identity of language in the claims of two patents does not necessarily import that the invention patented by each is identical, nor does a difference in phraseology necessarily import that they are for different inventions. The test of identity is whether both, when properly construed in the light of the description, define essentially the same thing. When the claims of both cover and control essentially the same subject-matter both are for the same invention and the later patent is void.

In determining what kind of a tension device is specified in the claims of the earlier patent it will be observed that in claim 31 it is defined as a "spring tending to retain" the trolley-arm in its normal central position, in claim 32 it is defined as a "spring or weight" exerting a normal centralizing tendency upon the arm, in claim 33 it is defined similarly as in 32, and in claim 34 it is defined as a "spring connection" tending constantly to maintain the arm in a definite position.

The tension device specified in the claims of the later patent is defined in claim 6 as "means for imparting upward pressure to the outer portion of the arm," in claim 7 as "a tension device for maintaining said upward contact," in claim 8 as a "tension-spring for maintaining upward-pressure contact," in claim 12 as a "tension-spring for pressing * * * upward," and in claim 16 as a "tension-spring for maintaining an upward pressure." Inasmuch as the only tension device or means for imparting upward pressure to a trolley-arm described in the specification of the later patent is that which consists of the weight and spring as it is described in the earlier patent, the verbal differences in defining its functions in the several claims are of no significance. The thing itself is the same in the claims of both patents. The spring which tends to retain the arm in its normal position is exactly the same spring and no other than that which maintains upward contact or pressure be-

tween the contact device and the suspended conductor. If any importance is to be attached to these verbal differences, the earlier patent claims a tension device the chief function of which is to exert a normal centralizing tendency upon the arm, but which of necessity must maintain the upward pressure, while the later patent claims one the chief function of which is to maintain upward pressure, but must of necessity also exert the normal centralizing tendency. If there had been in the description anything by which it could be ascertained which of the structural features exercises one function and which the other, a different case would be presented.

The matter sought to be covered by the second patent is inseparably involved in the matter embraced in the former patent, and this, under the authorities, renders the second patent void. (*Miller* v. *Mfg. Co.*, 66 O. G., 845; 151 U. S., 198.)

It is manifest that both patents are intended to and do secure to the patentee the same general inventions as are comprised in the combination of suspended conductor and contact devices and the combination of suspended-conductor contact device and switching devices, although the earlier patent also covers improvements in the switches and subordinate combinations between these devices and the elements of the principal combination.

Claim 13 of the patent in suit, for the combination between the suspended conductor, the contact device, and the switching devices, is identical in its phraseology with claim 6 of the earlier patent. That claim reads as follows:

13. In an electric railway, the combination of an electrically-propelled car, a supply-conductor suspended over the line of travel of the car, a swinging arm mounted upon the car, and carrying a contact device at its free end, said contact arranged to bear against said conductor, suitable switching devices upon the track traversed by the wheels of the car and corresponding switches on the suspended conductor located above those on the track and arranged to engage the contact devices, substantially as described.

The later patent describes the switching devices of the earlier patent in all their essential features, except as to the subordinate improvements thereon, and claim 13 must be construed as specifying the identical invention specified in claim 6 of the earlier patent. On the other hand, claim 15 of the earlier patent, for the combination between the suspended conductor and the contact device, is identical in phraseology with claim 9 of the patent in suit. The switching devices having been fully described, the matter of disclaimer inserted in the later patent is of no more value in determining its scope and interpretation as to the claims in which the switches are an element than is the matter of disclaimer inserted in the earlier patent as to the claims in which the contact device is an element.

We are of the opinion that claim 15 of the earlier patent describes and embraces everything of substance which is covered by claim 7 of the patent in suit. Claim 15 specifies a combination the elements of which are the car, (implied necessarily and needlessly mentioned,) the suspended conductor, and the contact device. The element termed—

a contact-carrying arm pivotally supported on the top of the car and provided at its outer end with a contact-roller engaging the under side of the suspended conductor—

exactly defines all the essential features of the contact device described in each specification, except the tension device. It must be hinged as well as pivoted; otherwise the tension device will be inoperative to maintain upward pressure. The element termed "a weighted spring" is the complete tension device described in both specifications, and which as described necessarily exercises the two-fold function of maintaining upward contact between the contact device and the suspended conductor and of maintaining the pivoted arm in its central or normal position. The "tension device" of claim 7 is the whole device described in that patent, as the "weighted spring" of claim 15 is the whole device described in the earlier patent.

Claim 15, however, does not specify the combinations of claims 8, 12, and 16 of the patent in suit. The "tension-spring" of those claims is not necessarily the "weighted spring" of claim 15.

We are also of opinion that claim 33 of the earlier patent specifies essentially the same combinations embraced in claims 8, 12, and 16 of the patent in suit and that the "spring or weight" of claim 33 is the same thing as the "tension-spring" of claims 8, 12, and 16, the "weight" being only an alternative element. It would be a waste of time to dwell upon the verbal differences in these claims. The changes in phraseology import nothing of substance into their respective combinations. They describe the same things in different language, and the draftsman seems to have expended great ingenuity in cataloguing a group of synonyms.

The order granting the preliminary injunction is reversed, with costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 7. TUESDAY, AUGUST 17, 1897. PRICE—$5 per year.

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Applications by Employees of the Patent Office.

(ORDER No. 1,144.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision of even date herewith in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

BENJ. BUTTERWORTH,
Commissioner.

Amendment to the Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

Rule 17 of the Rules of Practice, approved June 18, 1897, is amended to read as follows:

17. An applicant or an assignee of the entire interest may prosecute his own case; but he is advised, unless familiar with such matters, to employ a competent attorney, as the value of patents depends largely upon the skilful preparation of the specification and claims. The Office cannot aid in the selection of an attorney.

A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

BENJ. BUTTERWORTH,
Commissioner.

Approved:
THOS. RYAN,
Acting Secretary of the Interior.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 9, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that the order of July 9, 1894, disbarring William M. Kerr, of Salineville, Ohio, from practice before the Department and its Bureaus, has this day been revoked.

Very respectfully,

WM. H. DE LACY,
Acting Chief Clerk.

The Commissioner of Patents.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Labels.

6,552.—Title: "RUNNYMEDE CLUB WHISKEY." *Mellwood Distillery Company*, Louisville, Ky. Application filed July 12, 1897.

6,553.—Title: "RUNNYMEDE CLUB PURE RYE." *Mellwood Distillery Company*, Louisville, Ky. Application filed July 12, 1897.

6,554.—Title: "RUNNYMEDE CLUB BOURBON." *Mellwood Distillery Company*. Louisville, Ky. Application filed July 12, 1897.

6,555.—Title: "MELLWOOD WHISKEY." *Mellwood Distillery Company*, Louisville, Ky. Application filed July 12, 1897.

Issue of August 17, 1897.

Patents	426	No. 588,121 to No. 588,546, inclusive.
Designs	37	No. 27,519 to No. 27,555, inclusive.
Trade-Marks	8	No. 30,497 to No. 30,504, inclusive.
Labels	4	No. 6,552 to No. 6,555, inclusive.
Prints	None.	
Reissues	1	No. 11,626.
Total issue	476	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama			New Hampshire	2	
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Arkansas	1		New Mexico Territory		
California	8		New York	50	4
Colorado	2		North Carolina	4	
Connecticut	18		North Dakota		1
Delaware	1		Ohio	33	
District of Columbia	6		Oklahoma Territory		
Florida	2		Oregon	1	
Georgia	2		Pennsylvania	50	
Idaho	1		Rhode Island	3	
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Iowa	5		Texas	6	
Kansas	7		Utah		
Kentucky	2	4	Vermont	1	
Louisiana	1		Virginia	3	
Maine	4	1	Washington	1	
Maryland	7		West Virginia	4	
Massachusetts	41		Wisconsin	9	
Michigan	16		Wyoming		
Minnesota	9		U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	14				
Montana	1		Total to citizens of the United States	409	12
Nebraska	5	1			
Nevada					

To citizens of foreign countries: Patents and Designs—54; Trade-Marks and Labels—None.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 10, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 12	July 29	95
106	II. Farm Stock, Products, etc.	July 10	July 23	266
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 12	July 16	191
	Between one and two months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	July 11	July 26	209
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 14	July 23	207
93	XXI. Textiles, etc	June 11	July 23	196
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 21	July 20	253
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 23	July 16	228
255	XII. Mechanical Engineering, Store-Service, etc.	June 12	July 16	220
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 18	July 15	280
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243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	June 30	July 14	269
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	July 3	July 10	161
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 9	172
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 21	July 8	133
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 12	July 2	387
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 11	July 2	244
250	VIII. Furniture, Beds, Store Furniture, etc.	June 21	July 1	508
215	XVII. Paper Manufactures and Printing.	June 14	July 1	179
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	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	May 10	Aug. 2	381
108	XIX. Stoves and Furnaces	May 17	July 29	309
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 1	July 14	183
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 4	July 9	416
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 20	284
240	VII. Velocipedes	May 15	June 15	1242
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 1	June 10	233
258	X. Carriages and Wagons	May 21	June 1	379
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 22	May 25	169
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	622
	Between three and four months.			
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 26	June 30	476
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 7	June 19	351
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	June 14	901
	Total number of applications awaiting action			10,675
	Under one month in arrears.			
	Designs	July 7	July 12	271
	Trade-Marks	July 10	July 16	139

PATENTS

GRANTED AUGUST 17, 1897.

588,121. VARNISH-CAN. WILLIAM H. BARBER, Abilene, Kans. Filed Oct. 28, 1896. Serial No. 610,300. (No model.)



Claim.—1. The combination of a can for holding varnish, &c., and a cup slidingly connected at its open end to the nozzle end of the can to permit transverse movement of the two parts relatively to each other, the nozzle of the can projecting into the cup, and the connected ends of the cup and can being so formed that the open end of the cup may be wholly covered by the end of the can, or partially uncovered when one end is moved transversely of the other, as and for the purpose described.

2. The combination with a can for holding varnish, &c., the same being provided with loops as described, of a cup slidingly connected to said can and having the nozzle of the can projecting therein, said cup being also provided with loops, and a locking-slide engaging the loops on the can and cup for connecting said parts, substantially as described.

3. The combination with a can for holding varnish, &c., of a cup slidingly connected to the can and having the nozzle of the can projecting therein, flanges on the cup for engaging the can, loops on the can and cup, and a locking-slide removably fitted in said loops and connecting the can and cup, substantially as described.

4. The combination with a can for containing varnish or other liquid, of a cup detachably connected thereto, flanges on one of said parts embracing the other part, loops on both the can and cup at the opposite sides thereof, and a locking-slide having spaced parallel portions entering said loops, and a connecting portion therefor whereby said locking-slide may be removed and replaced, substantially as described.

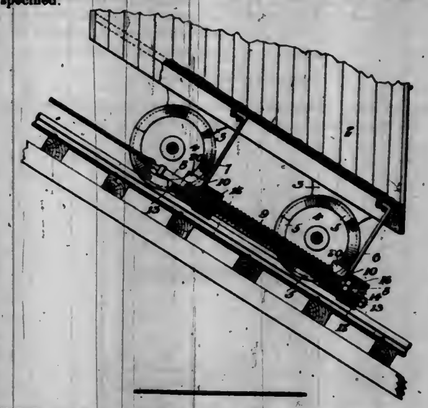
5. The combination with a can for holding varnish or other liquids, of a cup slidingly connected thereto and having the nozzle of the can projecting therein, loops on the can and cup at opposite sides, a locking-slide comprising spaced parallel portions for engaging said loops and a connecting portion, and a finger-hold mounted on said connecting portion of the locking-slide, substantially as described.

588,122. CAR-BRAKE FOR INCLINED RAILWAYS. GOTTLIEB G. BITTNER, Allegheny, Pa. Filed Mar. 3, 1897. Serial No. 624,406. (No model.)

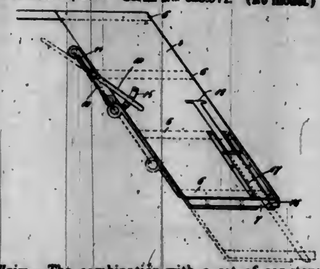
Claim.—1. A brake for cars for inclined railways, consisting of hinged brake-shoes adapted to rest on the rail, in combination with a locking-bolt, and a device on the wheel adapted to shoot the locking-bolt; substantially as and for the purpose specified.

2. In a railway-brake for inclined railways, the combination of a pivoted brake-shoe, a shaft on which the shoe is journaled, a cam keyed to the shaft, an eccentric collar and bolt arranged to be operated by the cam, arms keyed to the shaft, and projections on the face of the car-wheel adapted to engage with the arms; substantially as and for the purpose specified.

3. In a railway-brake for inclined railways, the combination of a hinged brake-shoe having a locking-bolt, devices adapted to shoot the locking-bolt, and a spring draw-bar adapted to hold the brake-shoe in an elevated position; substantially as and for the purpose specified.



588,123. CAR-STEP. FRANK G. BRUBAKER, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,571. (No model.)

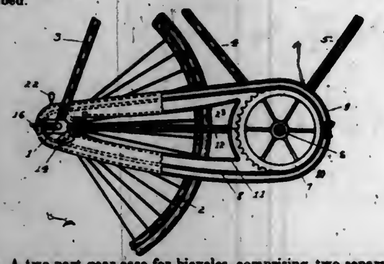


Claim.—The combination with a set of car-steps of a supplemental step connected with the bottom therof, and adapted to be lowered and raised, said supplemental step being provided at the back thereof with arms or bars which extend upwardly through the keepers connected with the main steps, and which are provided at their upper ends with chains, the other ends of which are connected with cranks formed on or secured to a horizontal rod, said horizontal rod being mounted in bearings on the rear side of the main steps and provided at one end with a spring-operated crank which is provided with a lock-bar or locking-plate secured to the said steps, and said supplemental step being also provided at each end with rods or bars which extend upwardly through keepers connected with the sides of the main car-steps, substantially as and for the purpose described.

588,124. GEAR-CASE FOR BICYCLES. HARRY J. BUELL, Fort Wayne, Ind., assignor to Louis A. Centlivre, same place. Filed Jan. 18, 1897. Serial No. 619,518. (No model.)

Claim.—1. In a gear-case for bicycles, the combination of two separable interlocking sections, each formed of a single piece of sheet metal; an interlocking closer formed of a single piece of metal folded upon itself, as described, and having its interlocking edges corrugated for the purpose specified; and means for detachably securing said

case-sections together and to the bicycle-frame, all substantially as described.



2. A two-part gear-case for bicycles, comprising two separable interlocking sections 9 and 10, each section being stamped from a single piece of sheet metal, having means for rigidly securing the ends of said sections, and a closer 11 folded and corrugated as described, and adapted to admit the brace-rod 12 and to close the inner and open faces of the said case-sections by an interlocking engagement with the sides thereof, all substantially as described.

588,125. **PRESSING DEVICE.** ISAAC H. BUNDREN, New Cambria, Mo. Filed Mar. 31, 1897. Serial No. 630,163. (No model.)



Claim.—1. In a device of the character described, the combination of a frame, a platform arranged on the frame and adapted to receive an article to be pressed, a compressing device mounted on the frame and located above the platform, and means for moving the parts relatively to each other to cause the platform to pass under the compressing device automatically when an article is placed upon the said platform, substantially as described.

2. In a device of the character described, the combination of a frame, a platform on the frame whereon the article to be pressed is adapted to be supported, a compressing device mounted on the frame and located above the platform, and means for moving the parts relatively to each other to cause the platform to pass beneath the compressing device, said means being controlled by the article carried on the platform, substantially as set forth.

3. In a device of the character described, the combination of a frame, a platform on the frame whereon the article to be pressed is adapted to be supported, a compressing device carried on the frame over the platform, actuating devices for moving the parts relatively to each other to cause the platform to pass beneath the compressing device, and controlling mechanism for said actuating devices, said controlling mechanism being carried by the platform and being controlled by the article supported thereon, substantially as set forth.

4. In a device of the character described, the combination of a frame, a platform on the frame whereon the article to be pressed is adapted to be supported, a compressing device carried on the frame over the platform, actuating devices for moving said parts relatively to each other to cause the platform to pass in one direction under the compressing device, means for retracting the parts, and controlling mechanism for said actuating devices, said controlling mechanism being carried on the platform and controlled by the article supported thereon, substantially as set forth.

5. In a device of the character described, the combination of a frame, a platform movable along the same, a pressing device on the frame over the platform, actuating devices to move the platform to cause the article carried thereon to pass under the pressing device, and controlling mechanism for said actuating devices, said mechanism being controlled by the article on the platform, substantially as set forth.

6. In a device of the character described, the combination of a frame, a platform movable along the same, a pressing device on the frame, actuating devices to move the platform to cause the article carried thereon to pass under the pressing device, said devices comprising engaging parts carried respectively by the frame and platform and normally held out of engagement, and means actuated by the article supported on the platform to move said parts into engagement, substantially as set forth.

7. In a device of the character described, the combination of a frame, a platform movable along the same, a pressing device on the frame, gearing to move the platform to cause the article on the platform to pass under the pressing device, said gearing comprising gears carried respectively on the platform and frame and normally held out of engagement, and means actuated by the article on the platform to throw the gears into engagement, substantially as set forth.

8. In a device of the character described, the combination of a frame, a platform movable along the frame, a pressing device on the frame, rack and pinion gearing for moving the platform to cause the article to be pressed to pass under the pressing device, one element of said gearing being mounted on the frame and the other element being mounted on the platform, said gearing being normally out of engagement, and means for throwing the gearing into engagement, substantially as set forth.

9. In a device of the character described, the combination of a frame, a platform movable along the frame, a pressing device on the frame, actuating devices to move the platform to cause the article thereon to pass under the pressing device, and a movable part on said platform to be moved by the article placed on the platform, said movable part being arranged to control said actuating devices, substantially as set forth.

10. In a device of the character described, the combination of a frame, a platform movable along the frame, a pressing device on the frame, actuating devices to move the platform to cause the article thereon to pass under the pressing device, and a spring-supported part on said platform adapted to be depressed by the article thereon, and arranged to control said actuating devices, substantially as set forth.

11. In a device of the character described, the combination of a frame, a platform movable along the frame, a pressing device on the frame, and actuating devices to move the platform in one direction to cause the article on the platform to pass under the pressing device, said actuating devices being held in operative position by the weight of the article on the platform, substantially as set forth.

12. In a device of the character described, the combination of a frame, a platform movable thereon, a pressing device on the frame, actuating devices to move the platform in one direction to cause the article thereon to pass under the pressing device, said actuating devices being held in operative position by the weight of the article on the platform, and means to move the platform in the opposite direction when the article is removed therefrom, substantially as set forth.

13. In a device of the character described, the combination of a frame, a platform movable thereon, a pressing device on the frame, actuating devices to move the platform in one direction to cause the article thereon to pass under the pressing device, said actuating devices being held in operative position by the article placed on the platform, and a weight connected with the platform to retract the same when the article is removed therefrom, substantially as set forth.

14. In a device of the character described, the combination of a frame, a platform movable thereon, a pressing device on the frame, a rotative shaft on the frame and provided with a pinion, a rack-bar movable on the platform and arranged when moved in one direction to engage said pinion to move the platform to cause the article thereon to pass under the pressing device, and a spring-actuated part on the platform to be moved by the article on the platform, said part being connected to the rack-bar and adapted to move the same into and out of engagement with the pinion, substantially as set forth.

15. In a device of the character described, the combination of a frame, tracks extending on the same, a platform having wheels engaging the tracks, actuating devices controlled by the article placed on the platform to move the platform along the tracks, and a pressing device supported on the frame over the tracks, beneath which pressing device the article on the platform is arranged to pass, substantially as set forth.

16. In a device of the character described, the combination of a frame, a pressing device thereon, a platform movable on the frame, and adapted to carry an article to be pressed, a rotative shaft on the frame, a pinion on the shaft, a rack movable into and out of engagement with the piniod, a movable part on the platform, to be moved by the article placed thereon, stems connecting the said part with the rack-bar, and springs for holding said part and the rack-bar normally out of operative position, substantially as set forth.

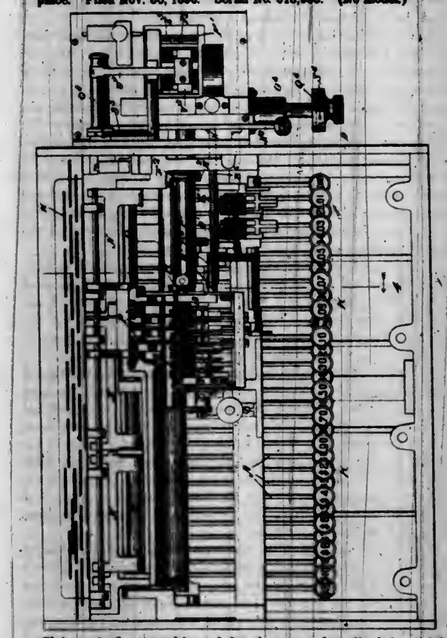
17. In a device of the character described, the combination of a frame, a platform movable on the same and adapted to carry an article to be pressed, a shaft rotatively mounted over the path of the platform and adjustable toward the same, a compressing-roller on the shaft, a bearing-stud also adjustable in the same direction as the said shaft, means to move the platform, an endless driving-belt connecting the said shaft and bearing-stud, and a driving device engaging the intermediate part of said belt to drive the same, substantially as set forth.

588,126. **HOOK FOR SINGLETREES.** ISAAC BURDETT, Middleburg, Nebr. Filed May 27, 1897. Serial No. 638,397. (No model.)



Claim.—A device of the character set forth, consisting of a shank having a slotted head with a shoulder at the upper portion thereof, a spring extending outwardly into the slot, and an arm pivotally mounted in said slot and having a reduced lower end and an enlarged upper end with an outer beveled surface and an inner cut-away part to engage the shoulder at the upper part of the slot in the head, said arm normally extending beyond the head on opposite sides thereof and movable inwardly at the lower end in attaching or detaching the trace, substantially as and for the purpose specified.

588,127. **CASH REGISTER AND RECORDER.** THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov. 30, 1896. Serial No. 613,963. (No model.)



Claim.—1. In a machine of the character described, in which a type-carrier is moved to different printing positions by the operations of different keys, the combination, with said keys and type-carrier, and suitable means intermediate the same for causing the operations of different keys to move the type-carrier to different printing positions, of means for holding the type-carrier in printing position while permitting the operated key to return to or toward normal position, for the purpose specified.

2. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the type-carrier to different printing positions, of means for causing said carrier to remain in printing position while the operated key is returned to or toward normal position, and means for thereafter causing said carrier to automatically return to its normal position, for the purpose set forth.

3. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of means for holding the carrier in printing position while permitting the operated key to return to or toward normal position, and means for thereafter automatically releasing the carrier, for the purpose set forth.

4. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch for holding the carrier in printing position while the operated key returns to or toward normal position, a resetting-spring for the carrier, and a trip for the latch.

5. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch for holding the carrier in printing position while the operated key returns to or toward normal position, a resetting-spring for the carrier, and a trip for the latch operating to automatically release the carrier as the operated key approaches normal position.

6. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch, means for throwing said latch into and out of cooperation with the type-carrier, to hold the latter in printing position while the operated key returns toward normal position, and thereafter release it, and a resetting-spring for the type-carrier.

7. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch, a rotary cam cooperating with the latch to throw it into and out of cooperation with the type-carrier, for the purpose specified, and means for resetting the type-carrier when the latch is disconnected from it by the cam.

8. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch, a rotary cam and a spring cooperating with said latch, one for throwing the latch into cooperation with the type-carrier for the purpose specified, and the other for throwing it out of cooperation therewith, and means for resetting the type-carrier when the latch is disconnected from it.

9. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch, a rotary cam acting to throw the latch into cooperation with the type-carrier when the latter has been set to printing position by the operated key, and operating to hold the latch in cooperation with the type-carrier during a substantial part of the return movement of the operated key to normal position, for the purpose set forth.

10. In a machine of the character described, the combination, with a series of keys and a type-carrier, and means intermediate the same for causing the operations of different keys to move the carrier to different printing positions, of a latch, a spring for yieldingly holding the latch out of cooperation with the type-carrier, a rotary cam acting to throw the latch into cooperation with the type-carrier when the latter has been moved to printing position by the operated key, and operating to hold the latch in such cooperation with the type-carrier during a substantial part of the return of the operated key to normal position, and a resetting-spring for the type-carrier.

11. The combination of a series of keys, a movable member common thereto and moved different degrees by the operations of different keys, a type-carrier cooperating with said movable member and moving therewith to different printing positions at the operations of different keys, and means for disconnecting said movable member and type-carrier after the latter has been moved to printing position by the operation of a key, to permit it to remain in such position while the key and movable member return toward normal position.

12. The combination of a series of keys, a movable member com-

mon thereto and moved different degrees by the operations of different keys, a type-carrier cooperating therewith and moved to different positions at the operations of different keys, means for disconnecting the movable member and type-carrier after the latter has been moved to printing position by the operation of a key, means for holding it in printing position while the key returns toward normal position, and means for thereafter returning the type-carrier to its normal position, for the purpose set forth.

13. The combination of a series of keys, a movable member common thereto and moved different degrees by the operations of different keys, a type-carrier cooperating therewith and moving to different printing positions at the operations of different keys, means for disconnecting said movable member and type-carrier when the latter has been set to printing position by the operation of a key, a latch, and means for throwing the latch into and out of cooperation with the type-carrier, to hold it in printing position while the operated key and movable member return toward normal position, and for thereafter releasing it to permit it to return to normal position.

14. The combination of a series of keys, a movable member common thereto and moved different degrees by the operations of different keys, a type-carrier cooperating therewith and moving to different printing positions at the operations of different keys, means for disconnecting said movable member and type-carrier when the latter has been set to printing position by the operation of a key, a latch for holding the type-carrier in printing position while the operated key and movable member return toward normal position, a trip for the latch, and a resetting-spring for the type-carrier.

15. The combination of a plurality of sets or series of keys, a plurality of movable members, one common to each set of keys and moved different degrees by the operations of different keys in such set, a plurality of type-carriers, one cooperating with each movable member and moving therewith to different printing positions at the operations of different keys, and means for disconnecting said movable members and type-carriers when the latter have been moved to printing position by the operations of the keys, to permit the type-carriers to remain in printing position while the operated keys and movable members return toward normal position.

16. The combination of a plurality of sets or series of keys, a plurality of movable members, one common to each set of keys and moved different degrees by the operations of different keys in such set, a plurality of type-carriers, one cooperating with each movable member and moving therewith to different printing positions at the operations of different keys, means for disconnecting said movable members and type-carriers when the latter have been moved to printing position by the operations of the keys, means for holding the type-carriers in such position while the operated keys and movable members return toward normal position, and for thereafter returning the type-carriers to their normal position.

17. The combination of a plurality of sets or series of keys, a plurality of movable members, one common to each set of keys and moved different degrees by the operations of different keys in such set, a plurality of type-carriers, one cooperating with each movable member, and moving therewith to different printing positions at the operations of different keys, means for disconnecting said movable members and type-carriers when the latter have been moved to printing position by the operations of the keys, latches cooperating with the type carriers to hold them in such position while the operated keys and movable members return toward normal position, and springs for returning the type-carriers to normal position when released by the latches.

18. The combination of a plurality of sets or series of keys, a plurality of movable members, one common to each set of keys and moved different degrees by the operations of different keys in such set, a plurality of type-carriers, one cooperating with each movable member, and moving therewith to different printing positions at the operations of different keys, means for disconnecting said movable members and type-carriers when the latter have been moved to printing position by operations of the keys, latches cooperating with the type-carriers to hold them in such position while the operated keys and movable members return toward normal position, resetting-springs for the type-carriers, and a trip for the latches operating to automatically release the type-carriers as the operated keys approach normal position.

19. In a machine of the character described, employing a series of keys representing different amounts adapted to be printed upon a paper strip or ticket, the combination of an oscillatory gear or segment which is moved in one direction to different positions at different operations of the machine, proportionate to the different amounts represented by the several keys, a type-carrier geared to said segment during its movement in such direction, and means for ungearing said segments and type-carrier at the end of such movement of the segment at any given operation of the machine, to permit the segment to return toward normal position while the type-carrier remains in printing position, whereby after the type-carrier has been set to printing position by the segment it may remain at rest while the printing is being effected.

20. In a machine of the character described, the combination of an oscillatory segment which is moved in one direction to different positions at different operations of the machine, proportionate to the different amounts represented by the several keys, a type-carrier geared to said segment, and a rotary cam operating to ungear them at the end of the movement of the segment in such direction, to permit the type-carrier to remain in printing position while the segment returns toward its normal position.

21. In a machine of the character described, the combination of an oscillatory segment which is moved in one direction to different positions at different operations of the machine, proportionate to the different amounts represented by the several keys, a type-carrier geared to said segment, during its movement in such direction, means for ungearing it from the segment at the end of such movement of the latter, means for holding the type-carrier in the position to which it has been moved by the segment, while the latter returns toward normal position, and means for thereafter returning the type-carrier to its normal position.

22. In a machine of the character described, the combination of an oscillatory segment which is moved in one direction to different positions at different operations of the machine, proportionate to the different amounts represented by the several keys, a type-carrier geared to said segment during its movement in such direction, means for ungearing it from the segment at the end of such movement of the latter, a latch for holding the type-carrier in the position to which it has been moved by the segment, a resetting-spring for the type-carrier, and a trip for the latch.

23. The combination of a plurality of oscillatory segments movable in one direction to different positions, a plurality of type-carriers geared to said segments during the movements of the latter in such direction, and means for ungearing the type-carriers and segments at the end of such movements of the latter, for the purpose of permitting the type-carriers to remain in the positions to which they have been moved by the segments, while the latter return toward normal position.

24. The combination of a plurality of oscillatory segments movable in one direction to different positions, a plurality of type-carriers geared to said segments during the movements of the latter in such direction, means for ungearing the type-carriers and segments at the end of such movements of the latter, means for holding the type-carriers in their moved positions while the segments return toward normal position, and for thereafter releasing them, and means for then returning them to their normal position.

25. The combination of a plurality of oscillatory segments movable in one direction to different positions, a plurality of type-carriers geared to said segments during the movements of the latter in such direction, means for ungearing the type-carriers and segments at the end of such movements of the latter, latches for holding the type-carriers in the positions to which they have been moved by the segments, resetting-springs for the carriers, and trips for the latches.

26. The combination of the oscillatory segments P, the shaft H' mounted in a movable support at one end, the sleeves P' mounted upon said shaft, the pinions Q' fast upon the sleeves I' at one end and the type wheels or carriers fast upon or moving with said sleeves at their opposite ends, and means for moving the shaft H' to throw the pinions Q' into and out of gear with the segments P.

27. The combination of the oscillatory segments P', the shaft H' mounted at one end of the rocking frame I', the sleeves P' mounted upon said shaft, the pinions Q' fast upon said sleeves at one end and the type-carriers fast upon them at their opposite ends m and the rotary cam O' cooperating with the frame I' to throw the pinions Q' into and out of gear with the segments P.

28. The combination of the oscillatory segments P, the shaft H' mounted at one end in a movable support, as I', the sleeves P' mounted upon said shaft, the pinions Q' fast upon said sleeves at one end and the type-carriers turning with said sleeves at their opposite ends, means, as the rotary cam O', for rocking the support I' to throw the pinions Q' into and out of gear with the segments P, means for holding the sleeves P' and type-carriers in the positions to which they are turned by the segments P, while the latter return toward normal position, and means for thereafter returning said sleeves and type-carriers to their normal positions.

29. The combination of the oscillatory segments P, the shaft H' mounted at one end in a movable support, as I', the sleeves P' mounted upon said shaft, the pinions Q' fast upon said sleeves at one end and the type-carriers turning with said sleeves at their opposite ends, means, as the rotary cam O', for rocking the support I' to throw the pinions Q' into and out of gear with the segments P, springs cooperating with the sleeves and type-carriers to yieldingly hold them in and return them to normal position, latches for holding them in the positions to which they are turned by the segments P, while the latter return toward normal position, and a trip for the latches.

30. In a machine of the character described, the combination, with a series of keys and an oscillatory segment, and means intermediate the same for causing the operations of different keys to move the segment different degrees, of a type-carrier geared to said segment, and means for ungearing the type-carrier and segment when the latter has been given its movement by the operation of any key, to permit the type-carrier to remain in moved position while the segment and operated key return toward normal position.

31. In a machine of the character described, the combination, with a series of keys and an oscillatory segment, and means intermediate the same for causing the segment to be moved different degrees by the operations of different keys, of a type-carrier geared to said segment, means for ungearing the type-carrier and segment when the latter has been given its movement by the operation of any key, means for holding the type-carrier in its moved position while the segment and operated key return toward normal position, and means for thereafter returning the type-carrier to its normal position.

32. In a machine of the character described, the combination, with a series of keys and an oscillatory segment, and means intermediate the same for causing the segment to be moved different degrees by the operations of different keys, of a type-carrier geared to said segment, means for ungearing the type-carrier and segment when the latter has been given its movement by the operation of any key, a latch for holding the type-carrier in its moved position while the segment and operated key return toward normal position, a resetting-spring for the type-carrier, and a trip for the latch.

33. The combination of a plurality of sets or series of keys, a plurality of oscillatory segments, one for each set of keys, with means intermediate the same and the keys for causing the operations of different keys in the set to move the segment different degrees, a plurality of type-carriers corresponding to the several segments and carried by or moving with a plurality of concentric sleeves adapted to be thrown into and out of gear with the respective segments, and means for throwing said sleeves out of gear with the segments after the latter have been given their movements by the operated keys, to permit the type-carriers to remain at rest while the segments and operated keys return toward normal position.

34. The combination of a plurality of sets or series of keys, a plurality of oscillatory segments, one for each set of keys, with means intermediate the same and the keys for causing the operations of different keys in the set to move the segments different degrees, a plurality of type-carriers corresponding to the several segments and carried by or moving with a plurality of concentric sleeves mounted upon a shaft movably supported at one end, pinions upon the respective sleeves adjacent the several segments, and means for moving the end of the aforesaid shaft to throw the pinions into and out of gear with the segments, for the purpose set forth.

35. The combination of a plurality of sets or series of keys, a plurality of oscillatory segments, one for each set of keys, with means intermediate the same and the keys for causing the operations of different keys in the set to move the segments different degrees, a plurality of type-carriers corresponding to the several segments and carried by or moving with a plurality of concentric sleeves mounted upon a shaft supported at one end in a movable frame, and a rotary cam for moving said frame to throw the pinions into and out of gear with the segments, for the purpose described.

36. The combination of a plurality of sets or series of keys, a plurality of oscillatory segments one for each set of keys, with means intermediate the same and the keys for causing the operations of different keys in the set to move the segments different degrees, a shaft mounted at one end in a movable support, a plurality of concentric sleeves mounted upon said shaft a plurality of pinions carried by said sleeves adjacent the segments and a plurality of type-carriers carried by or turning with the opposite ends of said sleeves, means for moving the end of said shaft to throw the pinions into and out of gear with the segments, means for holding the sleeves and type-carriers in the positions to which they are moved by the segments, while the latter return toward normal position, and means for thereafter returning the type carriers and sleeves to their normal positions.

37. The combination of a plurality of sets or series of keys, a plurality of oscillatory segments one for each set of keys, with means intermediate the same and the keys for causing the operations of different keys in the set to move the segments different degrees, a shaft mounted at one end in a movable support, a plurality of concentric sleeves mounted upon said shaft, a plurality of pinions carried by said sleeves adjacent the segments and a plurality of type-carriers carried by or turning with the opposite ends of said sleeves, means for moving the end of said shaft to throw the pinions into and out of gear with the segments, latches for holding the sleeves and type-carriers in the positions to which they are moved by the segments, springs for returning the type-carriers and sleeves to normal position, and trips for the latches.

38. The combination of a plurality of sets or series of key-levers A, a plurality of segments P, one for each set of keys, and each carried by or moving with a rocking frame N, a plurality of sets of graduated lifters L intermediate the several sets of key-levers A and the several rocking frames N, the shaft H' mounted at one end in a movable support I', the concentric sleeves P' mounted upon said shaft, the pinions Q' fast upon said sleeves adjacent the segments P and the type-wheels fast upon the opposite ends of said sleeves, and the rotary cam O' for rocking the support I', to throw the pinions Q' into and out of gear with the segments P, for the purpose set forth.

39. The combination of a plurality of sets or series of key-levers A, a plurality of segments P, one for each set of keys and each carried by or moving with a rocking frame N, a plurality of sets of graduated lifters L intermediate the several sets of key-levers A and the several rocking frames N, the shaft H' mounted at one end in a movable support I', the concentric sleeves P' mounted upon said shaft, the pinions Q' fast upon said sleeves adjacent the segments P and the type-wheels fast upon the opposite ends of said sleeves, the rotary cam O' for rocking the support I', to throw the pinions Q' into and out of gear with the segments P, the latch-lever X' carrying the latches or fingers W' cooperating with the ratchets V' of the type-wheels, the rotary cam Z' cooperating with the lever X', and the springs for resetting the type-wheels and sleeves.

40. In a machine for registering the amounts of certain classes of transactions, such as cash sales, and for printing upon a paper strip or ticket the amounts of transactions of other classes, the combination, with the registering mechanism and the printing mechanism, of means for throwing the registering mechanism out of operation when it is desired to print the amount of a transaction which is not to be registered upon the registering mechanism.

41. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for printing upon a paper strip or ticket the amounts of other special transactions, the combination, with the registering and printing mechanisms, of a special type-carrier for printing characters indicating the special classes of transactions, and means for setting said type-carrier and throwing or maintaining the registering mechanism out of operation, whereby when said type-carrier is set to print a character representing a special transaction, and the machine is then operated, the amount of such transaction may be printed by the printing mechanism but not added upon the registering mechanism.

42. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for recording the amounts of other transactions as well as cash sales, the combination with the registering mechanism and the printing mechanism, of a special type-carrier for printing characters representing the special classes of transactions, and means for setting said character for that purpose and simultaneously or by the same operation throwing or maintaining the registering mechanism out of operation, for the purpose described.

43. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for recording the amounts of other transactions as well as cash sales, the combination with the registering mechanism and the printing mechanism, of a special type-carrier for printing characters representing the special classes of transactions, setting devices for moving said special type-carrier to position to print a character representing one or another of the special classes of transactions, and means actuated by or cooperating with such setting devices to prevent operation of the registering mechanism at the succeeding operation of the machine, for the purpose described.

44. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for recording the amounts of such transactions and also the amounts of other special classes of transactions, the combination, with the operating mechanism or actuating devices of the machine, of a register normally actuated thereby to register the amount of each transaction, printing devices also actuated thereby to print the amounts of all transactions of all classes, and means for throwing or maintaining the registering mechanism out of operation at will, whenever a transaction is to be recorded but not added upon the registering mechanism.

45. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for recording the amounts of such transactions and also the amounts of other special classes of transactions, the combination, with the operating mechanism or actuating devices of the machine, of a register normally actuated thereby to register the amount of each transaction, printing devices also actuated thereby to print the amounts of all transactions of all classes, a separate type-carrier for printing characters representing different classes of transactions, setting devices for moving said type-carrier to position to print a character representing one or another of the special transactions not to be added upon the registering mechanism, and means cooperating with said setting devices to prevent operation of the registering mechanism at the operation of the machine suc-

ceeding such setting of the special type-carrier, for the purpose described.

46. In a machine for registering the amounts of transactions of a given class, such as cash sales, and for recording the amounts of such transactions and also the amounts of other special classes of transactions, of a special type-carrier bearing two sets of type-characters, the one representing different clerks, or departments, of a store, and adapted to print a character in connection with the printing of the amount of each transaction added upon the registering mechanism to show by whom or in what department such transaction was made, and the other set of type-characters representing the different classes of transactions which are not to be added upon the registering mechanism, setting devices for said type-carrier, for moving it to position to print any one of its characters in either set, and means coöperating with said setting devices to prevent operation of the registering mechanism whenever such setting devices are operated to move the special type-carrier to position to print a character representing one of the special classes of transactions not to be added upon the registering mechanism.

47. In a machine of the character described, for recording the amounts of transactions of various classes, but registering the amounts of only one class, the combination, with the driving or operating mechanism of the machine, of a register mounted in a movable frame, and means for moving or maintaining said register out of connection with the driving mechanism at will, when the machine is operated to record a transaction which is not to be added upon the register.

48. In a machine of the character described, for recording the amounts of transactions of various classes, but registering the amounts of only one class, the combination, with the driving or operating mechanism of the machine, of a register mounted in a movable frame adapted to be moved back and forth at each operation of the machine to connect the register with and disconnect it from the driving mechanism, and means for preventing such movement of the frame at any given operation of the machine, when it is desired to record a transaction which is not to be added upon the register.

49. In a machine of the character described, for recording the amounts of transactions of various classes, but registering the amounts of only one class, the combination, with the driving or operating mechanism of the machine, of a register mounted in a movable frame adapted to be moved back and forth at each operation of the machine to connect the register with and disconnect it from the driving mechanism, a rotary cam coöperating with said frame to give it such movements at each operation of the machine, and means for disconnecting the cam and frame at will to prevent the frame being moved by the cam when it is desired that the register shall not be actuated at any given operation.

50. In a machine of the character described, for recording the amounts of transactions of various classes, but registering the amounts of only one class, the combination, with the driving or operating mechanism of the machine, of a register mounted in a movable frame adapted to be moved back and forth at each operation of the machine to connect the register with and disconnect it from the driving mechanism, a rotary cam, a lever actuated thereby and coöperating with a projection on the movable frame to rock the latter and throw the register into gear with the driving mechanism, and means for moving such projection out of the path of the lever at will, to prevent the frame being moved by the cam when it is desired that the register shall not be actuated at any given operation.

51. The combination of the oscillatory segments P, the rocking register-frame S carrying the registering-wheels Q adapted to be thrown into and out of gear with the segments P, the rotary cam W, the lever Z actuated thereby, and the movable member B′ carried by the frame S and movable into and out of the path of the lever Z, for the purpose described.

52. The combination of the oscillatory segments P, the rocking register-frame S carrying the registering-wheels Q adapted to be thrown into and out of gear with the segments P, the rotary cam W, the lever Z actuated thereby and coöperating with a movable member B′ carried by the frame S, the type-wheels actuated by the segments P, the special type-wheel J^4, and means for setting said special type-wheel and moving the member B′ out of the path of the lever Z, for the purpose described.

53. The combination of the oscillatory segments P, the rocking register-frame S carrying the registering-wheels Q adapted to be thrown into and out of gear with the segments P, the rotary cam W, the lever Z actuated thereby and coöperating with a movable member B′ carried by the frame S, the type-wheels actuated by the segments P, the special type-wheel J^4, setting devices for said type-wheel, and means intermediate said devices and the movable member B′ of the frame S for moving the member B′ out of the path of the lever Z by or in connection with the operation of setting the special type-wheel, for the purpose described.

54. The combination of the oscillatory segments P, the rocking register-frame S carrying the registering-wheels Q adapted to be thrown into and out of gear with the segments P, the rotary cam W, the lever Z actuated thereby and coöperating with a movable member B′ carried by the frame S, the type-wheels actuated by the segments P, the special type-wheel J^4, the setting-shaft N^4 geared to the wheel J^4, a projection upon said shaft, and a rod B^6 intermediate said projection and the movable member B′ of the frame S, whereby when the shaft N^4 is turned to set the type-wheel J^4 the rod B^6 is moved by its projection to carry the member B′ out of the path of the lever Z, for the purpose described.

55. The combination of the oscillatory segments P, the rocking register-frame S carrying the registering-wheels Q adapted to be throw into and out of gear with the segments P, the rotary cam W, the lever Z carried by the frame S, the type-wheels actuated by the segments P, the special type-wheel J^4, the setting-shaft N^4 geared to the wheel J^4, the spring-pressed plate D^5 mounted upon the shaft N^4, and the rod B^6 coöperating in the manner described with the plate D^5 and with the movable member B′ of the frame S, for the purpose set forth.

56. The combination of the type-wheels provided with duplicate series of type-numbers, the two platens coöperating therewith at the opposite printing-points, operating devices coöperating directly with one platen, a connection between the two platens for causing the movements of the directly-actuated one to be transmitted to the other, and the lever N^5 controlling such connection between the platens, whereby one of the platens may be thrown into or out of operation at will by manipulating said lever.

57. The combination of the type-wheels provided with the duplicate series of type-numbers, the platens carried by the arms U^3 U^3 and coöperating with the type-wheels at the opposite printing-points, the springs acting upon the two platen-arms, the arm or lever H^2 moving with the platen-arm U^3 and the arm or lever L^3 moving with the arm U^3, the swinging piece J^3 carried by the arm H^2 and provided with the pin K^2 coöperating with the arm L^2, the lever N^2 coöperating with the swinging piece J^3 to control the engagement of its pin K^2 with the arm L^3, and the rotary cam F^2 coöperating with the arm or lever L^3, for the purpose described.

58. The combination of the arms or levers H^2 and L^2, the swinging piece J^3 carried by the arm H^2 and provided with the cam-slot P^2 and with the pin K^2 coöperating with the arm L^2, and the lever N^2 provided with the pin O^2 coöperating with the slot P^2 in the swinging piece J^3.

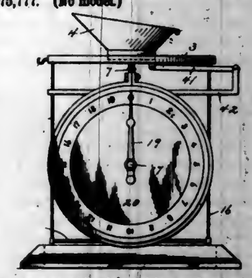
59. The combination of the arms or levers H^2 and L^2, the swinging piece J^3 carried by the arm H^2 and provided with the cam-slot P^2 and with the pin K^2 coöperating with the arm L^2, the lever N^2 provided with the pin O^2 coöperating with the slot P^2 in the swinging piece J^3, the rotary disk C^4 provided with the notch or recess D^4, and the spring-pressed pin F^4 carried by the lever N^2 and coöperating with the disk C^4 and its notch D^4 in the manner described.

60. The combination of a rotary disk, as C^4, provided with a notch or recess D^4, and a reciprocating member, as N^3, carrying a spring-pressed pin F^4 coöperating with the disk C^4 and its notch D^4 in the manner described.

61. The combination of a rotary disk, as C^4, having a notch D^4 provided with a beveled wall or edge, a reciprocating member, as N^3, having a housing E^4 containing a spring G^4 and a projected pin F^4 pressed upon by the spring and coöperating with the disk C^4 and its notch D^4 in the manner described.

62. The combination of a ratchet, as T^4, a disk X^4 turning therewith and provided with a notch in its periphery, and a latch or holding-pawl U^4 coöperating with the ratchet and provided with a projection W^4 coöperating with the disk X^4 and its notch in the manner described.

588,128. READY CALCULATOR. CALVIN F. CHRISTOPHER and COLONEL K. CHRISTOPHER, Spartanburg, S. C. Filed Jan. 16, 1896. Serial No. 575,777. (No model.)



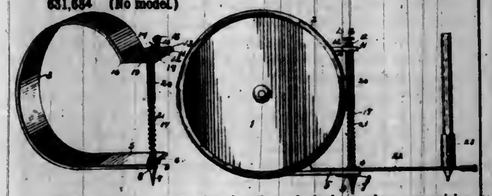
Claim.—1. In a combined weighing and calculating mechanism, the combination of a casing having a slot and provided with a line of figures adjacent to the slot, a dial at one end of the casing, a shaft bearing a pointer to coöperate with the dial, a frame reciprocally mounted in the casing adjacent to the dial and guided in its vertical movements, and having the shaft passing therethrough, a weighing base or platform, side rods connecting the weighing-base with the reciprocal frame, a spring interposed between the casing and frame to hold the latter and the weighing-base in a normal position, a roller operated from the aforesaid shaft and bearing a series of columns of figures to be read in connection with the figures bordering upon the slot of the casing, and flexible connections secured at their outer ends to opposite portions of the reciprocating frame and having their inner ends connected with and reversely wound upon the aforesaid shaft, substantially as shown and for the purpose described.

2. In a combined weighing and calculating mechanism, the combination of a casing having a longitudinal slot and a line of figures adjacent to the said slot, a weighing-base, means for yieldingly supporting the base, an indicating mechanism actuated by means of the weighing-base, a longitudinal bar pivoted at one end to the casing and having pivotal connection with the weighing-base, a second bar arranged approximately at right angles to the longitudinal bar and having pivotal connection with the casing and with the weighing-base, and a calculating mechanism coöperating with the line of figures bordering upon the said slot of the casing and controlled by the weighing-base, substantially as set forth for the purpose described.

3. In a combined weighing and calculating mechanism, the combination of a casing having a longitudinal slot and a line of figures bordering upon the said slot, a weighing-base, longitudinal and transverse bars pivotally supported at their outer ends and having pivotal connection with the weighing-base to steady the latter in its vertical movements, a reciprocating frame supporting the weighing-base, a spring for holding the reciprocating frame in a normal position, a dial, a shaft passing through the reciprocating frame and bearing a pointer to coöperate with the dial, flexible connections secured at their outer extremities to the ends of the reciprocating frame and having their inner terminals secured to and reversely wound upon the said shaft, and a roller mounted upon the said shaft and bearing a series of columns of figures to be read in connection with the figures bordering upon the slot of the casing, substantially as set forth.

4. In combination, a calculating mechanism, a shaft in gear with the calculating mechanism and bearing a pointer to coöperate with a suitably-graduated dial, a reciprocating frame having a pendent extension, a spring for returning and maintaining the reciprocating frame at a normal position, a base, a cross and side rods connecting the base with the said pendent extension of the frame, cords or tapes connecting the reciprocating frame with the shaft to positively rotate it in each direction, and a bar having pivotal connection with the base and with a support so as to steady the movements of the said base, substantially in the manner and for the purpose set forth.

588,129. COMBINATION TAPE-RULE AND CIRCLE-MARKER. JOSEPH R. CLOUGH, Rockland, Del. Filed Apr. 12, 1897. Serial No. 631,684. (No model.)



Claim.—1. A combined tape-rule and circle-marker, comprising a casing to receive the tape 22, the tape having markings as shown, and a pencil-holder 23, upon its outer end, a band 3, adapted to surround said casing, one end thereof forming the bottom plate 5, having a hinged point 7, secured to the bottom thereof, the other end upturned to form the horizontal plate 11, said plate provided with the ears 12, upon the upper side, and the tube 20, upon the lower side; a bifurcated lever 14, pivoted between said ears 12, a rod 17, pivoted between the bifurcated ends of the lever 14, and passing through the tube 20, and having an indicator 6, upon its lower end, and a coil-spring 21, surrounding said rod between said tube and indicator, all substantially as shown and described.

2. In a combined tape-rule and circle-marker, the combination with the tape-rule and case thereof, of a band 3, having upper and lower horizontal ends 5, and 11, the lower end 5, having a folding pivot-point 7, secured to the lower face thereof, the upper face being smooth for the tape 22, to slide upon; the upper end 11, having a suitably-pivoted lever-arm 14, pivoted to the rod 17, by which said rod may be raised and lowered, a tube 20, secured to said end 11, to serve as a guide for the rod 17, a spring 21, surrounding said rod, having its bearings against the indicator 6, at the lower end of said rod, and against the lower end of the tube 20, and adapted to hold said indicator normally against the upper face of the lower end 5, as set forth.

3. In combination in a combined tape-rule and circle-marker, the case 1, having the rims 2, and adapted to contain the tape 22; the spring-actuated tape 22, having the double row of graduations, and carrying the pencil-holder or thimble 23, upon its outer end; the band 3, having the lower plate 5, carrying the point 7, between ears 8, and held by the spring 9, upon its lower face, and the horizontal upper plate 11, provided with the ears 12, on its upper face, and the tube or rod guide 20, upon its lower face; a bifurcated lever 14, pivotally mounted between the ears 12, and having the upturned end 15, provided with a button 16, and the rod 17, pivotally secured to the lever 14, at its upper end, passing through the tube 20, carrying the spring 21, and provided with the indicator 6, at its lower end, all substantially as shown and described.

588,130. FRUIT-PICKING LADDER. ALEXANDER COLE, Bridgeton, N. J., assignor of one-half to Lewis A. Shaw, Millville, N. J. Filed Mar. 26, 1897. Serial No. 629,230. (No model.)



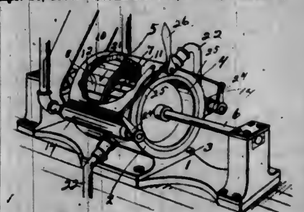
Claim.—1. A ladder having tubular legs or sides, internally lined with a soft material and having openings in such legs to receive fruit as picked from a tree, and a lower opening in such legs for discharging the fruit, substantially as set forth.

2. In combination with the square, tubular, ladder-legs, the metal tube-holders having end bands around the legs adapted to be slipped on and off the ends of the legs, and rounds removably applied to the face of the legs, all substantially as set forth.

3. In combination with a fruit-picking ladder having tubular legs provided with openings therein for receiving and discharging the gathered fruit, removable rounds held in supports on the outside of such legs and of a length to project beyond such legs, thus enabling two persons though standing on the same round, to gather fruit at the same time.

4. In combination, the tubular legs, the removable tube-holders, the removable rounds, and a removable back support hung on one of the removable rounds, and whereby the whole structure may be readily taken apart and put together at will.

588,131. ROTARY STEAM-ENGINE. JOSEPH DAVENPORT, Massillon, Ohio, assignor of one-fourth to George D. Saxton, Canton, Ohio. Filed Apr. 16, 1897. Serial No. 632,457. (No model.)



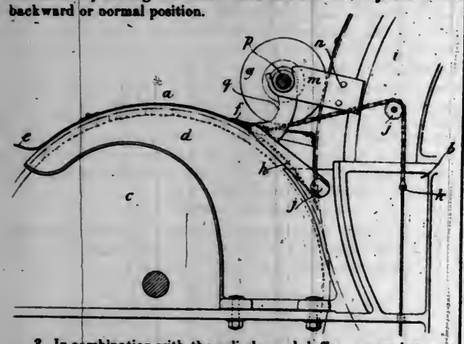
Claim.—1. The combination of the cylinder 2, having located therein the piston-wheels 4, and 5, said piston-wheels having buckets of opposite pitch, the ribs of said buckets fitting closely against the inner periphery of the cylinder, chambers located between the inlet-ports and the exhaust-ports pipes 15, provided with the inlet-ports 16, and 17, and the pipes 18, provided with the ports 19, and 20, substantially as and for the purpose specified.

2. The combination of the cylinder 2, provided with a tapered or conical opening, a piston wheel or wheels tapered to correspond with the tapered opening formed in the cylinder buckets provided with ribs fitted closely against the inner periphery of the tapered opening in the cylinder, chambers 21, having ports leading into the cylinder, pipes 15, provided with inlet-ports 16, and 17, the pipes 18, provided with the inlet-ports 19, and 20, substantially as and for the purpose specified.

588,132. COVER FOR CARDING-ENGINES. BENJAMIN A. DOBSON and WILLIAM I. BROOKLEY, Bolton, England, assignors to Dobson & Barlow, Limited, same place. Filed Apr. 26, 1897. Serial No. 633,957. (No model.) Patented in England Jan. 1, 1897, No. 39.

Claim.—1. In combination, the cylinder, the doffer, a cover between the cylinder and doffer, a door carried by said cover and means for automatically closing said door, substantially as described.

2. In combination with the cylinder and doffer, a movable cover between the cylinder and doffer adapted to be drawn forward from its normal position, a door connected to said cover and means for automatically closing said door when the cover is adjusted to its backward or normal position.



3. In combination with the cylinder and doffer, a cover between the same, a door *f* hinged to the cover and a weighted lever engaging the door to close the same, substantially as described.

4. In combination, the cylinder and doffer, the cover, the door thereon, means for closing the door automatically and the grinding-roller with means for holding the door open when the grinding-roller is in normal position.

5. In combination the cylinder, the doffer, the cover, the door thereon, means for closing the door automatically, the grinding-roller and the finger carried by the axle thereof for holding the door open, substantially as described.

6. In combination the cylinder, the doffer, the movable cover adapted to be drawn forward from its normal position, a door carried by the cover, and adapted to be moved forward therewith, and means for automatically closing the door when the cover with the door is in its rearward or normal position, the said door when drawn forward by the cover being out of operative engagement with its closing means, substantially as described.

588,133. SPARROW-GUARD. GEORGE R. DURFEE, Fall River, Mass. Filed May 3, 1897. Serial No. 634,816. (No model.)



Claim.—1. A sparrow-guard made V shape in cross-section, the apex of the V presenting a downwardly-inclined acute-angled edge, the lower end of the guard being notched to receive and cover a blind-fastening, substantially as described.

2. The combination with a blind-fastening device, of a sparrow-guard made V-shaped in cross-section, the apex of the V presenting a downwardly-inclined acute-angled edge, the guard being notched or cut away at its lower edge directly below the said acute-angled edge, to operate, substantially as described.

3. The combination with a blind-fastening device, of a sparrow-guard made V shape in cross-section and having triangular sides, said sides intersecting to form a downwardly-inclined, acute-angled edge, to operate, substantially as described.

588,134. VENTILATOR FOR REFRIGERATOR-CARS. EDWIN T. EARL, Oakland, Cal. Filed Apr. 22, 1896. Serial No. 588,631. (No model.)

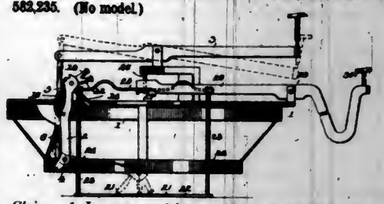


Claim.—1. In combination with a car-body having an opening with a lid hinged adjacent thereto, and having lateral recesses or pockets on the sides of the opening, open toward each other laterally, wings slidable in said lateral recesses, and adapted to be raised, when drawn to the mouths of the pockets, so as to engage the lid, and hold the same in inclined position.

2. In combination with the car, having the opening with the lid hinged adjacent thereto, so as to be raised to incline position, a vertical pocket formed in the end wall of the car, and a screen slidable in said vertical pocket, and adapted, when raised, to hold the lid in inclined position, said pocket being adjacent to the free end of the lid whereby the screen can be moved to and from operative position by moving the same vertically.

3. In combination, the car having the opening in its top, the lid hinged adjacent thereto, the two wings and the screen carried by the car-body independently of the lid and the series of pockets about the opening in the car adapted to receive the wings and the screen when not in use said wings and screens being slidable in said pockets and adapted to be set up at the several openings leading to the pockets, each pocket being thus located in relation to the lid where the wing or screen is to be used, substantially as described.

588,135. KEY-ACTION FOR TYPE-WRITING MACHINES. CRAWFORD ELLIOTT, New York, N. Y. Filed Mar. 7, 1896. Serial No. 582,235. (No model.)

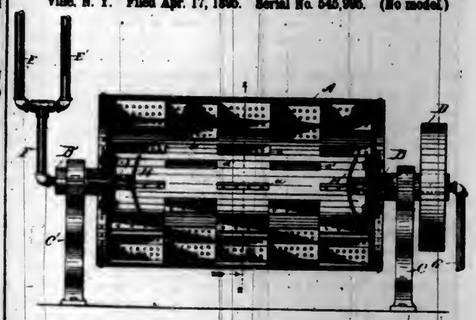


Claim.—1. In a type-writing machine the combination of a swinging type-bar, a type-plate pivoted on the outer end of the bar on a transverse axis and provided with two types, an arm connected rigidly to said type-plate and extending inward toward the axis of the bar and terminating in advance of said axis, a stop-ring situated inward of the pivotal points of the type-bars and normally out of the path of the said arm and means for moving said ring into the path of the arm to shift the type-plate on the type-bar, substantially as described.

2. The combination with the type-bar comprising two plates connected together with a space between same, a type-plate pivoted between said plates, of two types representing a small and a capital letter fixed to said type-plate, a stop on the type-bearing plate, two stops on the edge of the type bar adapted to be encountered alternately by the stop on the type-bearing plate, a spring connected respectively to the bar and the type-bearing plate and tending constantly to hold one of the letters in an operative position and the other inoperative and means for controlling the movement of the latter.

3. The combination with the frame, of the series of type-bars grouped around a central printing-point and arranged to strike downward thereat, plates carried by said bars and movable with relation to the same, a plurality of types fixed to said plates, a stop-ring movable in the path or free of said plates, vertical rods connected to said ring and mounted in guides on the frame, a horizontal bar connecting the upper ends of said rods, and a key-lever pivoted on the frame and connected to said bar.

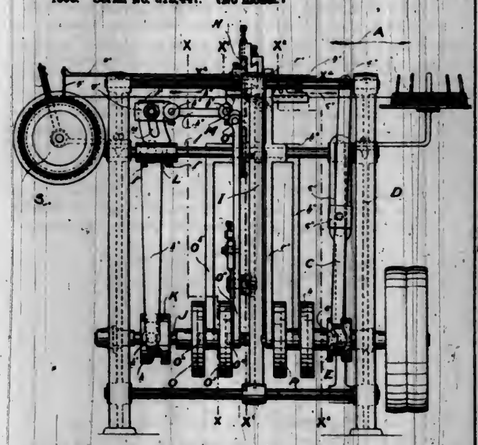
588,136. CARBONIZING-MACHINE. ARTHUR H. BYLES, Pelhamville, N. Y. Filed Apr. 17, 1895. Serial No. 545,905. (No model.)



Claim.—1. In a carbonizing-machine, the combination of a barrel A, a series of perforated cleats *a*, arranged in rows upon the inside of the circular wall of the said barrel, a series of perforated cleats *a'* also arranged in rows upon the inside of the circular wall of the barrel, the cleats in adjoining rows being displaced or staggered with respect to each other so as to produce a flow of the mass to be carbonized through around and between the cleats so as to effect a very thorough carbonization, and means for uniformly distributing the gas to the mass in the barrel substantially as described.

2. The combination of a barrel, cleats arranged within said barrel and staggered with respect to each other, gas inlet and outlet ports and gas-distributing apparatus consisting of bells H H' covering the said inlet and outlet ports and effecting the even diffusion of the gas through the apparatus, the said bell H having its convex portion toward the inlet and the said bell H' having its concave portion toward the outlet, substantially as described.

588,187. MACHINE FOR MAKING CONTINUOUS LENGTHS OF WIRE NAILS. ISAIE PRÉGENTE, Montreal, Canada. Filed Nov. 18, 1896. Serial No. 612,447. (No model.)



Claim.—1. In a wire-nail machine, the combination, with stationary guides, of a cross-head *f* slidable therein and provided at its front end with a groove for the wire, a head *f'* pivoted at its lower part to the said cross-head and provided with a clamping-plate depending within the said groove, and a longitudinally-slidable rod pivoted to the upper part of the said head, and operating to clamp and unclamp the wire automatically and to feed it forward, substantially as set forth.

2. In a wire-nail machine, the combination, with a cross-head provided with clamping devices, and an operating-rod pivoted to the said cross-head; of a support provided with a vertical slot, a block slidable in the said slot and provided with means for clamping it to the said support, a lever C slidable in a socket which is pivoted to the said block, said lever having its upper end pivoted to the said rod, and a cam for operating the lower end portion of the said lever and thereby sliding the said cross-head back and forth, substantially as set forth.

3. In a wire-nail machine, the combination, with a stationary clamping-block H provided with a groove in one side of it for the wire, of a pivoted arm provided with a thin clamping-plate at its free end slidable in the said groove, a pivoted operating-lever, a screw engaging with the upper end portion of the said lever and bearing against the said arm, a spring coupling the upper end portions of the said lever and arm, and a cam for operating the lower end portion of the said lever, substantially as set forth.

4. In a wire-nail machine, the combination, with a stationary jaw, a block provided with a channel for the wire and a beveled portion corresponding with the point to be cut, and screws holding the said block vertically and horizontally in the said jaw; of a cross-slide *n*, a cutter N provided with a beveled portion *n'* on its front side for pressing the wire into the said channel, screws holding the said cutter vertically and horizontally in the said cross-slide; and means for sliding the cross-slide back and forth transversely of the wire, substantially as set forth.

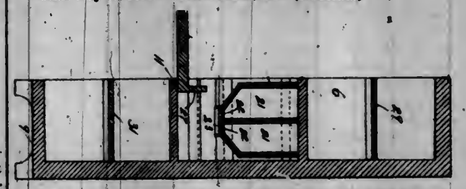
5. In a wire-nail machine, the combination, with a frame, a block *f'* pivoted horizontally in the frame, and clamp-holders Q pivoted at their lower ends to the said block and provided with opposed clamping-pieces at their upper ends for engaging with the wire; of means for moving the said clamp-holders crosswise of the machine in opposite directions to clamp and to release the wire, an arm arranged longitudinally of the machine and pivotally connected with the upper portions of the said clamp-holders, and means for reciprocating the said arm longitudinally, substantially as set forth.

6. In a wire-nail machine, the combination, with a frame, a block *f'* pivoted horizontally in the frame, and clamp-holders Q pivoted at their lower ends to the said block and provided with opposed clamping-pieces at their upper ends for engaging with the wire; of two levers pivoted to the frame, screws engaging with the upper end portions of the said levers and bearing against the clamp-holders, springs coupling the upper end portions of the said levers and clamp-holders, cam mechanism for reciprocating the lower end portions of the said levers, an arm arranged longitudinally of the machine and pivotally connected with the upper portions of the said clamp-holders, and means for reciprocating the said arm longitudinally, substantially as set forth.

7. In a wire-nail machine, the combination, with two separate clamping devices, of a cutter for forming the points, said cutter being formed in two parts and arranged between the two said clamping devices, and means for sliding one of the said clamping devices longitudinally of the wire, the said slidable clamping device and the said parts forming the cutter having also the function of dies and operating to form a head on the wire when closed upon it and moved one toward the other, substantially as set forth.

8. The combination with a wire nail machine provided with longitudinally-movable die mechanism for forming heads on the wire, and a cutter for forming the points; of a reel B for holding the wire and journaled at one end of the machine, a reel S for holding the continuous nails journaled at the other end of the machine, a longitudinally-slidable pusher connected to the said die mechanism and operating to revolve the reel S so as to coil the nails on it, and a check-pawl preventing the reel S from turning backward, substantially as set forth.

588,188. CUPBOARD. FRANCIS C. GEIGER, Parkersburg, W. Va. Filed July 31, 1896. Serial No. 601,204. (No model.)



Claim.—The herein-described cupboard having a flour-bin compartment provided with a door, parallel guides arranged at opposite sides of said compartment, a bin mounted to slide in the guides toward and from the front of the compartment and having its top open, said top being closed when the flour-bin is pushed into the compartment by the top wall of said compartment, and a kneading-board arranged in the compartment beneath said bin, substantially as set forth.

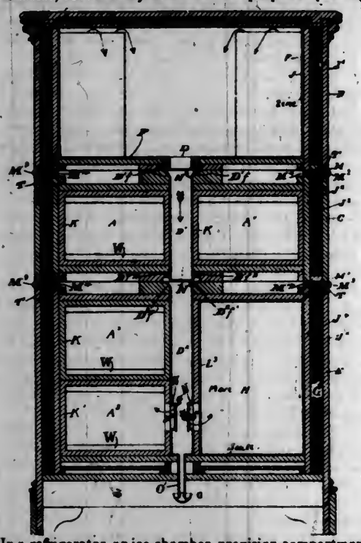
588,189. REFRIGERATOR. EDWARD H. GIBBS, Wyoming, Ohio, assignor to Alfred M. Stearns, same place, and Henry H. Olcey, Lancaster, Ohio. Filed July 20, 1893. Serial No. 481,602. (No model.)

Claim.—1. In a refrigerator, provision-compartments, a central air-duct for carrying the cold air down to the lower portion of the refrigerator, passages from said air-duct, and passage-ways in front and rear of the open ends of the provision-compartments for the conveyance of the said air as it rises past the said compartments to the ice-chamber above, substantially as and for the purposes specified.

2. In a refrigerator, an ice-chamber above, provision-compartments below, a central duct connected to the ice-chamber and extending down through the refrigerator, for the downward passage of cold air from said chamber, air-ducts D^3 and D^4 respectively leading into the lower compartments of the refrigerator, and upward air-passages leading past the ends of the provision-compartments, the air-ducts D^3, D^4, being extended into the duct D^2 and provided with annular gutters N, substantially as and for the purposes specified.

3. In a refrigerator, an ice-chamber in one horizontal division above and compartment in a second horizontal division below, and a vertical duct, the upper portion of the duct in the second division and adjacent to the division above, being flared away, and wider than the lower end of the opening in the said upper division, thus enlarging the opening and forming an upwardly-extending deflector for compelling the water descending the duct to pass the meeting edges of said duct, at the junction of the horizontal divisions, the

lower end of the upper duct entering down within the flaring mouth of the deflector, substantially as and for the purposes specified.



4. In a refrigerator, an ice-chamber, provision-compartments below, and central duct for the descent of the cold air, and return ducts or passages in conjunction with the provision-compartments, the refrigerator being horizontally divided into divisions, the upper portion of the central duct contained in a given division, and adjacent to the division next above being flared away, thus enlarging the opening and forming an inwardly-extending deflector, the lower part of the duct in the division next above being slightly enlarged so as insure the water descending on the central duct falling on the adjacent flare below of the duct, and compelling it to run down the said ducts, the lower end of the upper duct entering down within the flaring mouth of the deflector, substantially as and for the purposes specified.

5. In a refrigerator composed of three horizontal divisions, one above the other, a central duct extending downward from the upper division, and side ducts as D^3 and D^4 communicating with the lower chambers on each side of the said duct, substantially as and for the purposes specified.

6. In a refrigerator composed of divisions one over the other, a central duct provided with the side ducts D^3, D^4, respectively extending into the central duct and communicating with the adjacent chambers, and provided with the annular groove N, the ducts D, D', D^2 being respectively lined with metal sheeting, the sheeting forming the extension D^4, N, and provision-compartments in which said side ducts enter, substantially as and for the purposes specified.

7. In a refrigerator, the stoneware crock shaped substantially as shown and open at front and rear, and provided with the ledge at the rear end of the floor, and air-passages at front and rear of the said crock, substantially as and for the purposes specified.

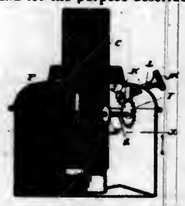
8. In a refrigerator, the stoneware crock shaped substantially as shown and open at the front and rear, and provided with the ledge at the rear end of the floor, and a ledge at the rear end of the roof, in conjunction with the air-passages at front and rear of the said crocks, substantially as and for the purposes specified.

9. In a refrigerator, the stoneware crock, open at the front and rear, and provided with the ledge at the rear end of the floor, and the side opening D^2, and a down air-passage connected to the latter, and up air-passages at front and rear, substantially as and for the purposes specified.

10. In a refrigerator, the stoneware crock, open at the front and rear, and provided with the ledge at the rear end of the floor, and a ledge at the rear end of the roof, and the side opening D^2, and a down air-passage connected to the latter, and up air-passages at front and rear of the crock, substantially as and for the purposes specified.

588,140. RAISING MECHANISM FOR CENTER-DRAFT-LAMP WICKS. WILLIAM H. GUNDER, Trenton, N. J., assignor to the American Lamp and Brass Company, same place. Filed Oct. 15, 1896. Serial No. 608,934. (No model.)

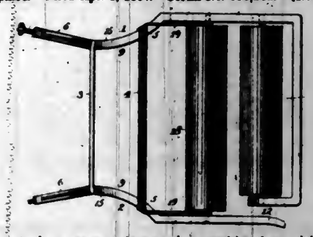
Claim.—1. In combination with the wick-tube of a center-draft lamp, shafts journaled in the reservoir on opposite sides of the tube and at an angle to each other, two star-wheels mounted on each shaft, gear-wheels also mounted on the shaft and meshing with each other, a pinion meshing with one of the gears, a shaft upon which the pinion is mounted, said shaft extending to the outside of the reservoir, as and for the purpose described.





2. The herein-described combination of the brackets secured to the casing of the reservoir, two oblique shafts journaled within said brackets, two star-wheels carried by each of said shafts and arranged to revolve in proximity to the wick-tube and in engagement with a wick when upon said tube, a gear-wheel secured upon each of the shafts and meshing together so as to cause the shafts to revolve in unison, a pinion meshing with one of the gear-wheels whereby motion is imparted to the latter, a shaft upon which said pinion is secured, a tube projecting through the casing of the reservoir and in which the last-named shaft is journaled, and a button secured upon the outer end of said shaft, substantially as and for the purpose set forth.

588,141. MOP-WRINGER. WILLIAM H. GRIGG, Woburn, Ill., assignor of two-thirds to Samuel S. Diamond and Franklin E. Diamond, same place. Filed Apr. 1, 1897. Serial No. 630,262. (No model.)



Claim.—1. In a mop-wringer, the combination with a frame adapted to be secured to a pail or tub, of parallel rollers journaled in the frame, one of said rollers being shorter than the other, and supported in bearings to leave a space between the end of the short roller and the opposing side of the frame for the passage of the shank of a mop, substantially as described.

2. In a mop-wringer, a frame adapted to be secured to a tub or pail and having two parallel arms, one of which is bent at a right angle and extended transversely across the front of the frame to within a short distance of the other arm, and then again bent to form a short bearing-arm extending parallel to said arms, combined with two rollers one of which is longer than the other, the longer one being journaled in the said parallel arms and the shorter one in the short bearing-arm and one of said parallel arms, substantially as described.

3. In a mop-wringer, a frame made of two sections detachably connected together by transverse braces, each section comprising a hook adapted to fit over the edge of a tub or pail, and a horizontal arm extending from the lower end of the inner arm of the hook and integral therewith, said horizontal arm being bent laterally and then forwardly at its junction with the hook to bring it outside of the vertical plane of the hook, said horizontal arms being parallel when the frame is in position and the space between them being wider than between the hooks, combined with rollers journaled in the said parallel arms, substantially as described.

4. In a mop-wringer, a frame made of two sections detachably connected together by transverse braces, each section comprising a hook and a horizontal arm extending from the lower end of the inner arm of the hook, and a diagonal brace connecting the hook and horizontal arm, said horizontal arms being parallel to each other when the sections are secured together in position, and one of said arms being bent at a right angle and extending transversely across the front of the frame to within a short distance of the other arm, and then again bent to form a short bearing-arm extending parallel to said horizontal arms, said horizontal arms each having an elongated opening, combined with two rollers of different length, the spindles of the longer roller being journaled in the said elongated openings and the spindles of the shorter roller in openings in the short bearing-arm and one of the said horizontal arms, and springs secured at one end to the frame and their other ends connected to the spindles of the longest roller, substantially as described.

588,142. WITHDRAWN.

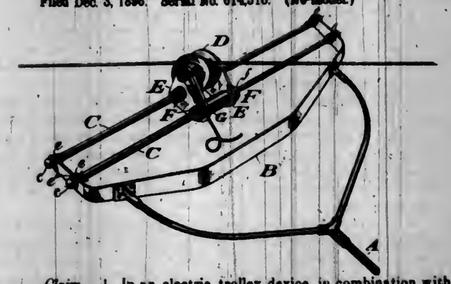
588,143. WINDMILL. PETER C. HALL, Battle Creek, Mich., assignor of one-half to Rush Wirt, same place. Filed Aug. 31, 1896. Serial No. 604,493. (No model.)



Claim.—1. In a wind-engine, the combination with supporting-arms, and feathering sails, of cooperating springs attached to the sails and their supporting-arms to throw the sails out of the wind and prevent them from turning too far, substantially in the manner set forth.

2. In a wind-engine, the combination with supporting-arms, and feathering sails, of springs secured to the said arms and sails and having their engaging ends bent substantially as shown and cooperating in the manner set forth to throw the sails out of the wind and prevent them from turning too far.

588,144. ELECTRIC TROLLEY DEVICE. SAMUEL HARRIS, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Dec. 3, 1896. Serial No. 614,310. (No model.)



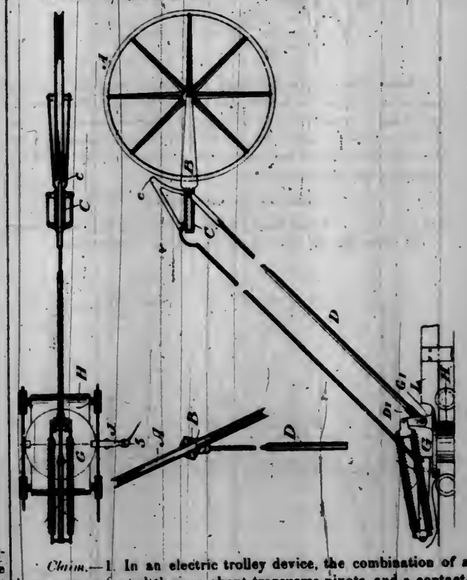
Claim.—1. In an electric trolley device, in combination with a contact-maker movable along a transverse shaft which engages the conductor when the contact-maker looses engagement therewith, insulating members between the said shaft and the electrical apparatus upon the car.

2. In an electric trolley device, a transversely-sliding contact-carriage comprising a contact-maker carried between members E E made of insulating material, said members being mounted about upwardly-pressed shafts insulated from the electrical apparatus upon the railway-car.

3. In an electric trolley device, in combination, an upwardly-pressed arm and a transverse shaft carried at its free end but insulated therefrom, a carriage adapted to slide upon said shaft and carrying a contact-wheel also insulated from said shaft or shafts.

4. A slidable carriage for electric trolley devices comprising the combination of a contact-maker, plates between which said contact-maker is mounted, tubular connections between said plates, and suitable bearings within said connections.

588,145. ELECTRIC TROLLEY DEVICE AND CONDUCTOR CONSTRUCTION THEREFOR. SAMUEL HARRIS, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Jan. 30, 1897. Serial No. 619,978. (No model.)



Claim.—1. In an electric trolley device, the combination of a base, arms mounted thereon about transverse pivots, and a contact-wheel carried by said arms and adapted to follow lateral variations of the conductor by its own movement about a horizontal axis.

2. In an electric trolley device, the combination of a rotatable base and means for normally preventing it from rotation, arms pivoted to said base, and a contact-wheel carried by the arm and adapted to follow the lateral variations of the conductor by its own movement about a horizontal axis.

3. In an electric trolley device, in combination, a base, parallel arms pivotally secured to said base, means for imparting upward pressure to the outer end of one of said arms, a member pivotally secured to the outer ends of each of said arms, a yoke horizontally swiveled in said member, and a contact-wheel carried by said yoke.

4. In a trolley device for electric vehicles, in combination, a longitudinal track carried by the vehicle, a truck movable along said track and carried thereby, a turn-table carried by said truck, and connections from said truck to the contact portions of the devices.

5. In a trolley device for electric vehicles, in combination, a longitudinal track upon the vehicle, a truck carried thereby, and movable therealong, a table revoluble upon said truck, and means for simultaneously locking the movement of the table and the truck.

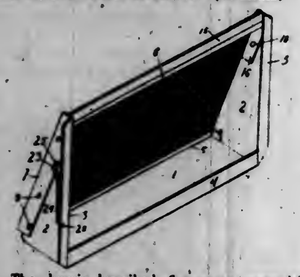
6. An electric trolley device comprising, in combination, a pair of arms pivotally secured on a revoluble base, means for imparting upward pressure to the outer end of one of the said arms, a member pivotally secured to said arms in a horizontal position, and a yoke swiveled in said member, and carrying a contact.

7. A conductor connection of substantially hook-shaped sections having inclined end portions and a central horizontal portion, substantially as specified.

8. A conductor connection adapted for use at bridges &c. with trolley devices employing large wheels adapted to make contact with a suspended conductor, having a horizontal portion adapted to be placed under the bridge and inclined portions at each end thereof, connected to the conductor and adapted to turn the contact-wheel to a nearly horizontal position, substantially as set forth.

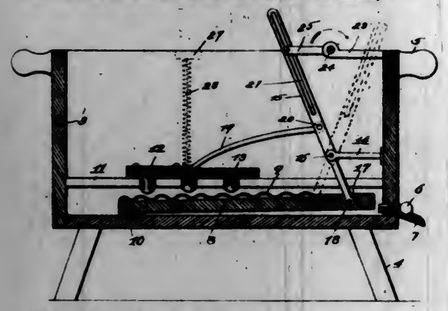
9. In an electric railway, the combination of a trolley device having a horizontally-swiveled contact-wheel and a horn, as c, with a conductor connection adapted to turn the contact-wheel and make contact with the horn.

588,146. FIRE-SCREEN. JOHN H. HAVRONTTE, Navasota, Tex. Filed June 16, 1896. Serial No. 595,990. (No model.)



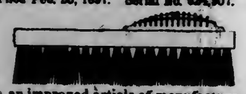
Claim.—The herein-described fire-screen comprising a base adapted to rest on the hearth and having an upwardly-extending guard-flange located directly adjacent the fire and adapted to prevent the entrance of coals onto the base, end pieces arising from said base, and a front of wire-netting which is connected to the front edge of the base and to the end pieces.

588,147. WASHING-MACHINE. WILLIAM H. HENDRON, Omega, Ill. Filed Mar. 22, 1897. Serial No. 628,752. (No model.)



Claim.—In a washing-machine, a suitable box-shaped receptacle, the lower rubbing-board 8 placed loosely within the receptacle, the projections 10 extending downwardly from one end of the rubbing-board and resting upon the bottom, the cleats 11 mounted in horizontal positions above the rubbing-board and attached to the inner faces of the sides of the receptacle, the upper rubbing-board 12 slidingly mounted upon said cleats 11, the wooden pins 13 projecting from the lower face of said rubbing-board 12, the arm 14 projecting inwardly from one end of the receptacle, the lever 15 pivotally connected to the free end of the arm 14 and to the lower rubbing-board 8, the arm 19 attached to the upper rubbing-board 12 and to the lever 15, the bearing 22 mounted upon the receptacle, the arm 23 projecting inwardly from one end of the receptacle and having a bearing in its inner end in alinement with said bearing 22, the crank-shaft 24 mounted in said bearings 22 and 23, the crank 25 extending from the inner end of said crank-shaft and operating in the slot 21 formed in the lever 15, and means of operating said crank-shaft, substantially as specified.

588,148. CLOTHES-BRUSH. RICHARD T. HEWLETT, London, England. Filed Feb. 26, 1897. Serial No. 624,957. (No model.)



Claim.—As an improved article of manufacture, a clothes-brush, the same being provided with a block 6 which is secured thereto by screws, said block being provided with a longitudinal chamber 8, and wires 9 and 10, substantially as shown and described and for the purpose set forth.

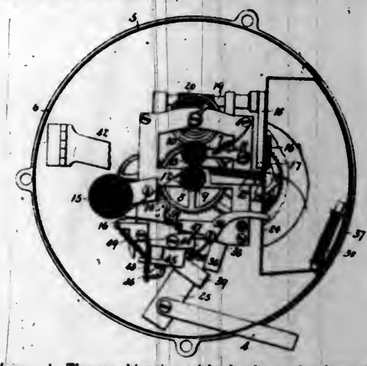
588,149. DOOR-INDICATOR. HOWARD HINCKLEY, Trenton, N. J., assignor to the Trenton Indicator Bolt and Lock Company, same place. Filed Mar. 7, 1895. Renewed Jan. 15, 1897. Serial No. 619,367. (No model.)

Claim.—1. A combined door bolt and indicator, the same consisting of a bolt-barrel adapted to be mortised into a door, and a roll-holder parallel with and integrally connected to the barrel by a laterally-projecting web or fin, a sliding bolt in the barrel, an indicator-roller journaled in the holder, and a pin on the bolt projecting into a spiral or inclined groove or slot in the roller; substantially as described.



2. A combined door-bolt and indicator, the same consisting of a bolt-barrel adapted to be mortised into a door, a roller-holder parallel with and integrally connected to the barrel by a laterally-projecting web or fin so as to project beyond and outside the door, a sliding bolt in the barrel, an indicator-roller journaled in the holder, and a pin on the bolt projecting into a spiral or inclined groove or slot in the roller; substantially as described.

588,150. REGISTERING DEVICE. THOMAS J. HOUCK, Baltimore, Md., assignor of one-half to W. W. Dudley and L. T. Michener, Washington, D. C., and H. J. Truesdell, New York, N. Y. Filed Nov. 27, 1896. Serial No. 613,473. (No model.)



Claim.—1. The combination with the door of a letter-box, or other mail-matter receptacle, of an indicator having noted thereon the stated times for the collection of the mail, means for opening said door, means adapted to be actuated by the latter and for actuating said indicator, a recording device, means controlled by the movement of said door for actuating said recording device and an automatically-operated tape-feeding device, substantially as set forth.

2. The combination with the door of a letter-box or other mail-matter receptacle, of means controlled by the movement of the door for operating a recording device, and an automatically-operated tape-feeding device, substantially as described.

3. The combination, with the door of a letter-box, or other mail-matter receptacle, of a recording device, means controlled by the movement of said door for actuating said recording device, a tape-feeding device and a clock mechanism for actuating said tape-feeding device, substantially as specified.

4. The combination, with the door of a letter-box, or other mail-matter receptacle, of a recording device, means controlled by the movement of said door for actuating said recording device, a tape-feeding device, a clock mechanism for actuating said tape-feeding device and a means for winding said clock mechanism adapted to be simultaneously operated with the actuation of said door, substantially as set forth.

5. In a recording device for letter-boxes or other mail-matter receptacles, the combination with the letter-box or other receptacle door, of a tape-marking device operated by the movement of the door, and a clock mechanism having feed-rollers for moving the tape to the marking device.

6. In a recording device for letter-boxes or other mail-matter receptacles, the combination with the door of said box or receptacle, of a tape-marking device operated by the movement of the door, a clock mechanism having feed-rollers for moving the tape to the marking device, and means for winding the clock mechanism operated by the movement of the door.

7. The combination in winding mechanism for clockwork-mainsprings, of a mutilated ratchet-wheel rigid with the mainspring-spindle, a flange concentric with said ratchet-wheel and having an opening adjacent to the mutilation; and a winding-pawl carrying a pin, said pin cooperating with the flange in the manner and for the purpose set forth.

8. The combination in winding mechanism for clockwork-mainsprings of a ratchet wheel rigid on the mainspring-spindle having on its periphery a cam, a flange concentric with the wheel and having an opening adjacent to said cam, one end of the flange being unattached and resilient, and a winding-pawl having a pin adapted to cooperate with the flange in the manner and for the purpose set forth.

9. The combination with the mainspring, the mutilated ratchet-wheel, and the flange having the opening, of the winding-pawl; and a device on the pawl adapted to cooperate with the opening of the flange at each complete revolution of the ratchet-wheel in the manner and for the purpose set forth.

10. The combination with the mainspring of a clock mechanism, of a winding-lever having pawl and ratchet-wheel connection with the mainspring-spindle, and means for preventing overwinding of the mainspring consisting of a cam on the ratchet-wheel, a flange concentric with said wheel and having an opening opposite said cam, and a pin on the pawl cooperating with such flange in the manner substantially as described.

11. In a recording device for letter-boxes and the like, the combination of a clock mechanism tape-feeding device, a tape-marking device, means controlled by the movement of the letter-box door for actuating said marking device, and a knife arranged and adapted to cut the tape after marking substantially as described.

12. In a registering device the combination with a clock mechanism adapted to continuously feed a time-tape, a device for impressing said tape, means for winding the clock mechanism, and a lever 25 adapted to simultaneously operate said impressing device and winding means, substantially as described.

13. In a registering device for letter-boxes or mail-matter receptacles, the combination with a lever 25 provided at one end with a cam, and adapted to be moved by the manipulation of the door of the box or receptacle, a device for impressing said time-tape carried by an arm adapted to be actuated by the said cam, a clock mechanism for moving said tape, and a pawl and ratchet-wheel connection between the mainspring and the said lever whereby the movement of the said lever winds said mainspring.

14. In a letter-box register, an indicator for denoting the times for collection, a clock mechanism for feeding a time-tape, and a tape-marking device, and means for controlling said indicator, for winding said clock mechanism and for operating said impressing device, substantially as described.

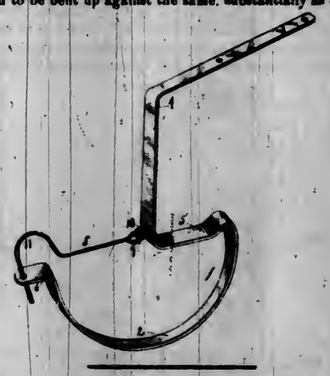
15. A letter-box register adapted for attachment to the exterior of the letter-box, comprising a tape-feeding mechanism, and a tape-impressing device, and a connection between said device and the door of the letter-box operating to actuate said device upon the movement of the door, substantially as described.

16. A letter-box or other mail-matter receptacle indicator comprising in combination a week-day dial and a Sunday or holiday dial, a ratchet-wheel connected with the week-day dial and a mutilated ratchet-wheel connected with the Sunday dial, stop-pawls for said ratchet-wheels, an arm adapted to be moved by the opening of the receptacle-door carrying a pawl and means for bringing said pawl into engagement with either ratchet-wheel, substantially as described.

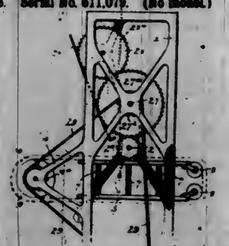
17. A letter-box or other mail-matter receptacle indicator comprising in combination a week-day dial and a Sunday or holiday dial, a ratchet-wheel connected with the week-day dial and having a stop-pawl, a ratchet-wheel connected with the other dial and having on a portion of its periphery teeth corresponding in number to the times of collection on the said Sunday dial, and having a number of teeth on its under side concentrically disposed, an arm adapted to be moved by the manipulation of the receptacle-door carrying a pawl, and means for bringing said pawl into engagement with either ratchet-wheel consisting of a pivoted arm in the path of the pawl and provided at its inner end with a stop-pawl for engagement with the teeth on the under side of the ratchet-wheel, said arm, when moved, operating in the manner and for the purpose substantially as described.

588,151. EAVES-TROUGH HANGER. DELBERT P. ISHAM, Brockville, Ohio. Filed Apr. 28, 1897. Serial No. 634,291. (No model.)

Claim.—The combination of a hanger comprising a lower curved portion adapted to receive an eaves-trough, and provided at its outer end with a horizontal lip having a perforation and located beneath the bead of an eaves-trough, and a supporting-bar provided at its lower end with a horizontal arm extending to the inner end of the lower curved portion, an eye arranged at the lower end of the supporting-bar, and a locking-wire provided at its inner end with an eye linked into the said eye and hinging the locking-wire to the hanger, said locking-wire being provided at its outer portion with a hook-shaped bend arranged to receive and engage the bead of a trough, and having its terminal passed through the perforation of the lip and adapted to be bent up against the same, substantially as described.



588,152. MACHINE FOR CANCELING STAMPS AND AFFIXING POSTMARKS TO LETTERS. JOHN T. KILLEEN, Lancaster, Pa. Filed Nov. 4, 1896. Serial No. 611,079. (No model.)



Claim.—1. In a stamp-canceling and marking machine, the combination with the printing-roll, of a conveyer mounted beneath the roll to deliver the mail-matter thereto, consisting of overlapping sections and means for varying the width of the conveyer, substantially as shown and described.

2. In a stamp-canceling and marking machine, the combination with the printing-roll, of a conveyer mounted beneath the roll and composed of two longitudinal overlapping sections, and means for moving said sections toward and away from each other, substantially as shown and described.

3. In a stamp-canceling and marking machine, the combination with a printing-roll, of an endless conveyer consisting of two flexible belts mounted on rollers, a series of plates secured to each belt, and means for moving said belts toward each other and the plates of one series endwise over the other series to vary the width of the conveyer, substantially as shown and described.

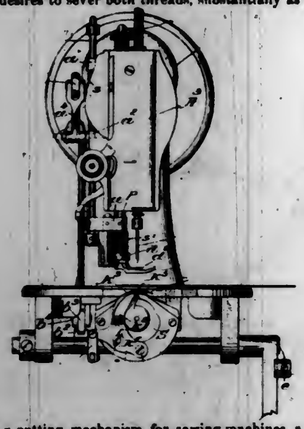
4. In a stamp-canceling and marking machine, the combination with the printing-roll, of a conveyer-frame located beneath the roll and consisting of the board and the spring-actuated table connected thereto, a drive-roller journaled in the main frame of the machine, and rollers journaled at one of the ends of the board and table, and an endless conveyer consisting of overlapping adjustable sections traveling around said rollers and in contact with the printing-roll, substantially as shown and described.

588,153. THREAD-CUTTING MECHANISM FOR SEWING-MACHINES. ARTHUR H. KINDER, Boston, Mass. Filed Sept. 20, 1895. Serial No. 563,060. (No model.)

Claim.—1. In a thread-cutting mechanism for sewing-machines, a work-support, an eye-pointed needle to penetrate the material, a presser-foot, a cutting-blade pivoted to move about the shank of said foot, and at substantially right angles to and across the path of the thread, said foot having a rest to sustain the thread when severed, a pull-off to engage the needle-thread between the point of the needle and the cutting-blade to draw off a sufficient portion from the source of supply before the said blade is moved to cut said threads, and means to actuate the pull-off and cutting-blade, substantially as described.

2. The combination with stitch-forming mechanism comprising an eye-pointed needle and shuttle, a work-support, and a presser bar and foot, of a laterally-movable cutting-blade mounted to swing parallel to the work-support across the presser-foot and in contact therewith to sever the needle-thread held against said foot, a fixed guide

beneath the work-support at one side of the under thread, a cooperating cutting-blade and means to move it parallel to the work-support to sever the said under thread; a common actuator controlled by the operator, and connections between said actuator and the cutting-blades, to positively move said blades simultaneously when the operator desires to sever both threads, substantially as described.

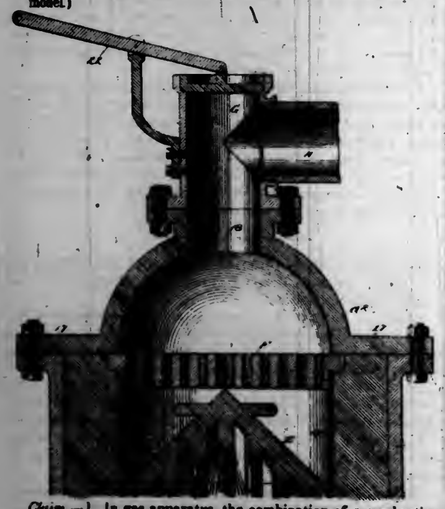


3. In a cutting mechanism for sewing-machines, a presser-bar and its attached presser foot, a cutting-blade mounted on said bar to swing across the presser-foot and sever the thread, a stand secured to the presser-bar, a cam on said stand, connections between said cam and the cutting-blade, to swing the latter back and forth, a slide-bar longitudinally movable in the stand, a stud thereon to enter the groove of the cam and partially rotate the latter, and means controlled by the operator to move the slide-bar, substantially as described.

4. In a cutting mechanism for sewing-machines, a presser-bar and its attached presser-foot, a cutting-blade mounted on said bar to swing across the presser-foot and sever the thread, a stand secured to the presser-bar, a cam on said stand, connections between said cam and the cutting-blade, to swing the latter back and forth, a hooked arm or pull-off adapted to be swung across the path of the thread, to draw the same through the needle-eye prior to its being severed, and means to partially rotate the cam, to operate the said pull-off and thereafter move the cutting-blade to sever the thread, substantially as described

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588,154. GAS APPARATUS. JULIUS LEEDS, Minneapolis, Minn. Filed Sept. 27, 1895. Renewed Jan. 22, 1897. Serial No. 620,285. (No model.)



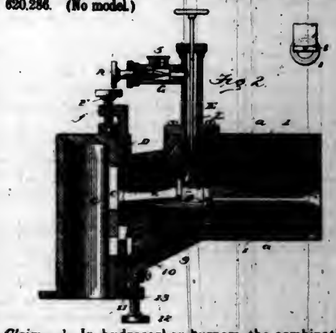
Claim.—1. In gas apparatus, the combination of a combustion-chamber, a decomposing-chamber above the combustion-chamber, an oil-injector and means for collecting and withdrawing the precipitated residuum, substantially as described.

2. The combination of a combustion-chamber arranged to discharge the products of combustion upwardly provided with axial and annular passages, an oil-injector and means for trapping and collecting precipitated residuum.

3. In gas apparatus having decomposing and combustion chambers arranged one above the other and so that the flame and products of combustion ascend, the combination of said chambers, channels or gutters in the bottom thereof, an oil-injector and pipes or conduits for automatically discharging precipitated residuum, substantially as described.

4. The combination of a vertically-arranged combustion-chamber, an oil-feed leading axially through the bottom of said chamber, an air-feed leading through the bottom and sides of said chamber and a channel or depression for collecting precipitated residuum, substantially as described.

588,155. HYDROCARBON-BURNER. JULIUS LEEDS, Minneapolis, Minn. Filed Dec. 7, 1895. Renewed Jan. 22, 1897. Serial No. 620,286. (No model.)



Claim.—1. In hydrocarbon-burners, the combination of a combustion-chamber, an air-chamber in the rear of said chamber, a vertically-adjustable air-conduit leading from the air-chamber and an oil-conduit arranged in front of the air-conduit to serve as a cut-off to regulate the flow of the air as the air-conduit is adjusted.

2. In hydrocarbon-burners, the combination of a combustion-chamber, an air-chamber in the rear of said chamber, a vertically-adjustable plate provided with an opening or passage between said chambers and a nozzle carried by the plate for directing air axially through the combustion-chamber, substantially as described.

3. In hydrocarbon-burners, the combination of a combustion-chamber having a perforated inner wall and an annular space around said wall, an air-chamber communicating with the combustion-chamber through one end of said chamber and through the annular space and a regulating-gate or cut-off between the air-chamber and the annular space, substantially as described.

4. In hydrocarbon-burners, the combination of a combustion-chamber having a perforated interior wall and an annular space around said wall, an oil-passage leading to one end of said chamber, an air-chamber communicating with the combustion-chamber through one end and past the oil-passage and through the annular chamber, an adjustable nozzle for regulating the volume of air to the end of the combustion-chamber and a gate or cut-off between the air-chamber and the annular chamber, substantially as described.

588,156. SHOE-HORN. WILLIAM H. LEWIS, Princeton, Ind. Filed Oct. 31, 1896. Serial No. 610,743. (No model.)



Claim.—1. The combination with a shoe-horn, of a loop connected therewith and adapted to receive and embrace the rear portion of a shoe and engage with the inner end of the heel to hold the horn in place and provide for drawing the shoe upon the foot, substantially as set forth.

2. The combination with a shoe-horn, of a connected pulling-strap and loop attached thereto, the loop being adapted to engage with the heel portion of the shoe, substantially as and for the purpose set forth.

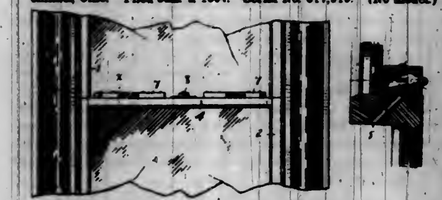
3. In combination, a shoe-horn, and a combined loop and pulling-strap having a loose connection with the shoe-horn so as to admit of the loop being disconnected from the heel of the shoe after the latter is in position upon the foot, substantially as set forth.

4. In combination, a shoe-horn having a longitudinal slot at its upper or smaller end, a combined pulling-strap and loop, and a fastening slidably connecting the loop with the horn and operating in the slot thereof, substantially as set forth.

5. In combination, a shoe-horn having a longitudinal slot at its upper or smaller end, a combined pulling-strap and loop, and a fastening slidably connecting the loop with the horn and having an oblong or shouldered portion working in the slot thereof to hold the parts in alinement, substantially as set forth.

6. In combination, a shoe-horn, a combined pulling-strap and loop connected with the shoe-horn, and means for varying the size of the loop to adapt the device for different-sized shoes, substantially as set forth.

588,157. WINDOW-VENTILATOR. MICHAEL A. W. LOUIS, Cincinnati, Ohio. Filed Jan. 4, 1897. Serial No. 617,919. (No model.)

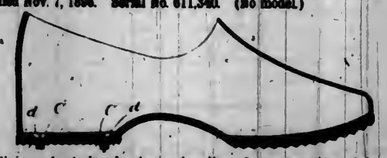


Claim.—1. In a window-ventilator, the combination with the meeting sash-rails apertured to permit the passage therethrough of air, of a box-like structure located over said apertures to receive the air and having openings in its vertical wall adjacent to the upper window-pane, and means for controlling the passage of air through said openings, substantially as set forth.

2. In a window-ventilator, the combination with the meeting sash-rails apertured to permit the passage therethrough of air, of an open-bottomed box located on said rails over said openings and having a series of openings in its vertical wall adjacent to the upper window-pane, and a slide for adjustably controlling the passage of air through said openings, substantially as set forth.

3. In a window-ventilator, the combination with the meeting sash-rails having one or more apertures to permit the passage therethrough of air, of a box-like structure located over said apertures to receive the air and having a series of openings in its vertical wall adjacent to the upper window-pane, a slide in said structure having openings corresponding with the openings in the vertical wall of said structure, a spring for normally retaining said slide in such position that said openings will be out of register, and means for moving or retaining said slide against the tension of said spring to cause said openings to register, substantially as set forth.

588,158. OVERSHOE. ANDREW F. MARSH, North Plainfield, N. J., assignor of one-half to Samuel Peters Marsh, East Stroudsburg, Pa. Filed Nov. 7, 1896. Serial No. 611,340. (No model.)

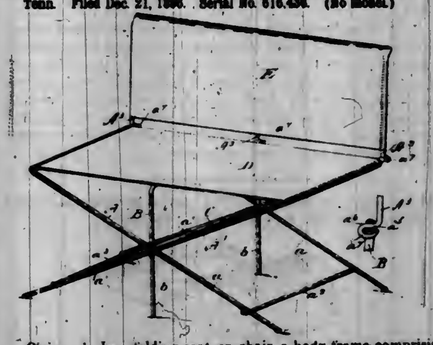


Claim.—1. A shoe having a plurality of screws projected through the sole thereof, said screws having their heads countersunk into the inner surface of said sole and having nuts engaging with their projected outer ends, said outer ends having plane surfaces, substantially as shown and described.

2. A rubber or other flexible overshoe having countersunk apertures leading through the heel portion thereof, in combination with a plurality of screws with flat ends engaging the said apertures and projecting below the heel, said screws being secured therein by means of nuts which are countersunk into recesses depressed into the outer surface of the heel, substantially as shown and described.

3. The combination of a rubber shoe having a plurality of countersunk apertures leading through the heel and sole thereof; with a plurality of metallic headed screws threaded and flattened projections engaging with and leading through said apertures, and means for fastening the projections to the sole, substantially as shown and described.

588,159. FOLDING CHAIR. THOMAS A. MATTHEWS, Nashville, Tenn. Filed Dec. 21, 1896. Serial No. 616,436. (No model.)



Claim.—1. In a folding seat or chair, a body-frame comprising three crossed members the side bars of which are pivoted together at their point of crossing with their top bars extending horizontally to support a flexible seat; the shorter middle member being vertical with its lower ends extending to the floor-line and the two longer members being inclined, substantially as set forth.

2. In a folding seat or chair, a body-frame comprising three crossed members, the side bars of which are pivoted together at their point of crossing with their top bars extending horizontally to support a flexible seat; the shorter middle member being vertical and the two longer members being inclined, and folding back bars, pivotally connected with the upper rear corners of said three members, substantially as set forth.

3. A folding seat or chair, comprising the three crossed members, the side bars of which are pivoted together at their point of crossing with the shorter middle member extending vertically with its lower ends extending to the floor-line and the two longer members extending at an incline, and the flexible seat secured at its ends to the horizontal top bars of the longer members and supported at its middle by the top bar of the middle members, substantially as set forth.

4. A folding seat or chair comprising the three crossed members having their side bars pivoted together at the point of crossing, with the shorter middle member extending vertically and the two longer members extending at an incline, the back bars hinged to the upper rear corners of said three members to fold down thereon or alongside thereof, a flexible seat secured at its ends to the horizontal top bars of said longer members and supported at its middle by the horizontal top bar of said middle member, and the flexible back secured to the said three back bars, substantially as set forth.

5. The herein-described frame for a folding chair, comprising the three crossed pivoted members; the side bars of which are pivoted together at their point of crossing with the shorter middle member extending vertically and the two longer members extending at an incline, and the top bars of the three sections being adapted to support a flexible seat, and the three back-supporting bars bent at right angles at their lower ends to form pivots a^9 passing through apertures in the upper rear corners of said members and then bent around the rear sides of said side bars as at a^7 to form stops to hold the said bars in their upright positions but allow them to fold forwardly and downwardly, substantially as set forth.

588,160. CAR-FENDER. LEO MERCIER, Brooklyn, N. Y. Filed Nov. 13, 1896. Serial No. 612,002. (No model.)



Claim.—1. In a car-fender, the combination with the hinged fender, of a bracket secured to the car, a push-pin having a collar, a coil-spring encircling the rod and located between the collar and the

bracket, a locking pin or bolt, a connecting-bar secured to the push-pin and the locking-bolt, whereby the two are adapted to move simultaneously, and a chain connected to the fender and provided with a ring adapted to fit over the upper end of the locking-bolt and hold the fender raised, but which is detached when the push-pin is depressed.

2. In a car-fender, the combination with the hinged pick-up having an eye, and a hinged wheel-guard, of a spring-actuated locking-bolt carried by the car, a chain connected to the wheel guard and having a ring adapted to engage with the locking-bolt and hold the said guard normally raised, and a hook connected to the chain and adapted to engage with the eye of the fender and hold the latter normally raised, the depression of said locking-bolt by the motorman releasing both the pick-up and wheel-guard.

588,161. METALLIC SHINGLE. LEVI H. MONTROSS, Camden, N. J. Filed Jan. 30, 1896. Serial No. 577,366. (No model.)

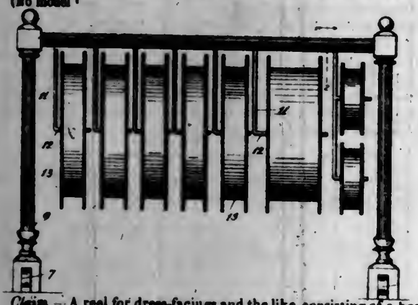


Claim.—1. The herein-described article of manufacture consisting of an ogee shingle of metal having a semicylindrical and outwardly-curved portion provided with a locking-groove upon its side near the free edge and considerably above the lowest part thereof and formed integral with a flattened portion extending from its other side and terminating in an upwardly-curved locking edge, and in which the forward edge of said portions is provided with a flange, and the rear edge with one or more transverse ribs extending upwardly on the upwardly-curved edge to carry said ribs considerably above the lowest part of the shingle.

2. An ogee metallic shingle consisting of a sheet of metal bent into an ogee shape constituting the parts A and B, and in which the part A is provided with the locking-groove F at a distance above its lower edge, and the part B provided with its free edge D curved upward, and in which further the forward edge of the shingle is provided with the flange G, and the rear edge with one or more transverse ribs H extending up the curved edge D to a considerable distance above the bottom or lowest part of the shingle.

3. An ogee shingle consisting of a sheet of metal having one lateral part bent upward to form a semicylindrical part provided with a foot or edge for attachment to the roof and a locking-groove at a considerable distance above the foot, and having the other lateral edge curved upward to a distance corresponding to the distance between the foot and groove and terminating in a free edge to extend into and lock with the groove on an adjacent shingle, and a transverse rib near its upper edge extending along the lowest portion of the body and upwardly upon both lateral edges.

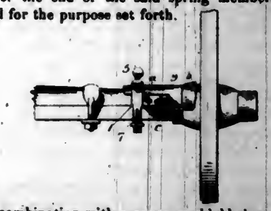
588,162. REEL FOR DRESS-FACINGS, RIBBONS, &c. HOMER R. MOORE, Chillicothe, Mo. Filed Mar. 25, 1897. Serial No. 629,278. (No model.)



Claim.—A reel for dress-facings and the like, consisting of a horizontal bar, arms pivotally attached to said bar and depending downwardly in parallel planes, stops upon said bar to prevent said arms swinging forwardly and leaving the arms free to swing backwardly, and spindles projecting horizontally from said arms in lines at right angles to the path of travel of said arms, substantially as specified.

588,168. HUB-SHIELD. ALEXANDER P. MORENOUSE, Cedar Bluffs, Nebr., assignor of one-half to John Stevers, Jr., Ames, Nebr. Filed Feb. 26, 1897. Serial No. 624,953. (No model.)

Claim.—1. In combination with a cover or shield shaped to lie over the inner end of the hub of a vehicle, of a clamp or holder for holding the said shield in place comprising spring members 1 1 connected by a bar 2, the lower end of the spring members having ratchet-teeth, and a link of sufficient length to engage the ratchet-teeth when placed over the end of the said spring members, substantially as shown and for the purpose set forth.



2. In combination with a cover or shield shaped to lie over the inner end of the hub of a vehicle, of a clamp or holder for holding the shield in place consisting of the spring members 1 1 connected by bar 2 and diverging therefrom, ratchet-teeth formed on the outer edges of the members, a loop extending over one series of ratchet-teeth, and a link held in engagement with said loop and adapted to be put over the ends of the members to engage the ratchet-teeth, substantially as shown and for the purpose set forth.

3. In combination with a cover or shield shaped to lie over the inner end of the hub of a vehicle, said shield having a reduced end, of a clamp or holder for holding the shield in place consisting of spring members 1 1 connected by bar 2 having a transverse opening 3, said screw in the upper end of the bar extending into said opening, ratchet-teeth on the lower end of the spring members, and a link of sufficient length to engage the ratchet-teeth, substantially as shown and for the purpose set forth.

588,164. GUARD-RAIL CLAMP. HENRY MORRIS, Walkerville, Canada. Filed Dec. 24, 1896. Serial No. 616,964. (No model.)



Claim.—1. In a clamp to secure guard-rails in position with respect to the main line-rail of a railway, a base provided with the engaging arm A; the arm *b* shorter in length than the base and provided with two branches, one of which is adapted to engage over the foot of the line-rail, and the other over the foot of the guard-rail; the clamp E provided with a tongue adapted to engage in a groove in the base, and itself adapted to engage over the inner foot of the guard-rail, substantially as described.

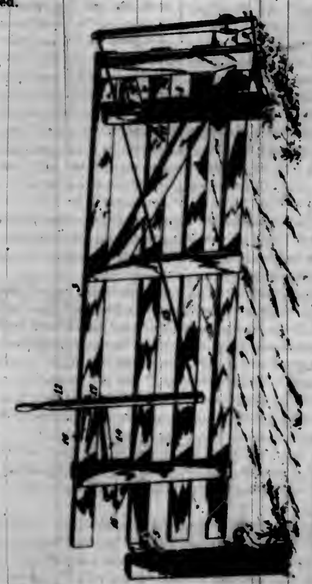
2. In combination with a base provided with branches adapted to engage over three of the flanges of two adjacent-lying rails, a clamp adapted to engage said base and be held thereto, and to itself engage over the fourth foot of the two engaging rails, substantially as described.

3. In combination with a base provided with branches adapted to engage over three of the flanges of two adjacent-lying rails; a clamp adapted to engage said base and be held thereto, and to itself engage over the fourth foot of the two engaging rails, and a bolt adapted to secure the clamp in place, substantially as described.

588,165. GATE. JOHN F. MURPHY, Adrian, Mich., assignor of three-fourths to Otis A. Clapp and James Murphy, same place. Filed May 11, 1897. Serial No. 636,075. (No model.)

Claim.—1. A gate provided at an intermediate point with a suspending-link mounted for horizontal and vertical swinging movement, an operating-lever fulcrumed at an intermediate point upon one end of the gate below the plane of the lower end of said suspending-link, and having its lower arm flexibly connected with a fixed object contiguous to the axis of the gate, and means mounted upon the gate upon the opposite side of the suspending-link from said operating-lever, and connected with the upper arm of the lever, for swinging the latter toward the axis of the gate, whereby the gate is elevated at both ends, substantially as specified.

2. A gate having a suspending-link mounted at its upper end for horizontal and vertical swinging movement in the plane of the axis of the gate, and pivotally connected at its lower end with the gate to allow independent vertical swinging movement of the latter, said link inclining downwardly and forwardly from the axis of the gate, gate-locking devices from which the gate is adapted to be disengaged by upward-swinging movement, an operating-lever fulcrumed upon the gate in rear of said suspending-link and having its lower arm flexibly connected with a fixed object contiguous to the plane of the axis of the gate, and means mounted upon the gate adjacent to its front end, and flexibly connected with the upper end of the operating-lever, for swinging the latter forwardly, whereby the rear and front ends of the gate are successively elevated, substantially as specified.



3. A gate having a suspending-link pivotally connected therewith for swinging movement in a vertical plane, inclining upwardly and rearwardly, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in rear of its axis and flexibly connected at its lower extremity to a fixed object approximately in the plane of the axis of the gate, and a hand-lever fulcrumed upon the gate in advance of said suspending-link and flexibly connected with the upper extremity of the operating-lever for imparting forward-swinging movement to the latter, substantially as specified.

4. A gate having a suspending-link pivotally mounted, for swinging movement in a vertical plane, upon the gate in advance of its axis, inclining upwardly and rearwardly from said point of connection, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in the rear of its axis and having its lower arm flexibly connected with a fixed object approximately in the plane of the axis of the gate, stationary catches for engagement with the gate contiguous to its free end, a retaining-latch for securing the free end of the gate normally against upward movement, and a hand-lever fulcrumed upon the gate in advance of said suspending-link, flexibly connected with the upper arm of the operating-lever for imparting forward-swinging movement to the latter, and operatively connected with said retaining-latch, substantially as specified.

5. A gate having a suspending-link pivotally mounted, for swinging movement in a vertical plane, upon the gate in advance of its axis, inclining upwardly and rearwardly from said point of connection, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in rear of its axis and having its lower arm flexibly connected with a fixed object approximately in the plane of the axis of the gate, stationary catches for engagement with the gate contiguous to its free end, a retaining-latch for securing the free end of the gate normally against upward movement, a hand-lever fulcrumed upon the gate in advance of said suspending-link, flexibly connected with the upper arm of the operating-lever for imparting forward-swinging movement to the latter, and operatively connected with said retaining-latch, and stop and holding devices arranged in the path of the hand-lever and adapted, respectively, to limit the operative movement of the hand-lever and secure the same against accidental movement in the opposite direction, substantially as specified.

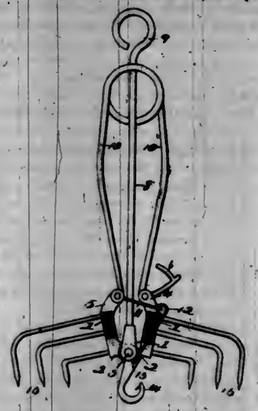
6. The combination with spaced hinge-posts having upper and lower cross-bars, and a latch-post provided with fixed notched catches for engagement with gate-bars, of a gate arranged at its hinged end between said hinge-posts, and adapted to normally rest upon the cross bars which extend between the gate-bars, an upwardly and rearwardly inclined suspending-link pivotally connected at its lower end to the gate and at its upper end to the upper cross-bar, an operating-lever fulcrumed upon the gate in rear of the hinge-posts, a flexible connection between the lower arm of the operating-lever and the lower cross-bar, a hand-lever fulcrumed upon the gate in advance of said link, and a flexible connection between the lower arm of the hand-lever and the upper arm of the operating-lever, substantially as specified.

588,166. VELOCIPEDE HANDLE-BAR. ROBERT F. McCOY, Chicago, Ill. Filed May 25, 1896. Serial No. 593,031. (No model.)



Claim.—A velocipede handle-bar, comprising a main bar of any desired form, and an auxiliary bar mounted upon said main bar and extending above the same, the ends of said auxiliary bar being secured to said main bar on each side of the stem and equidistant therefrom substantially as described.

588,167. ANIMAL-TRAP. WILLIAM H. McWHIRTER, Algoma, Miss. Filed Feb. 12, 1897. Serial No. 623,141. (No model.)

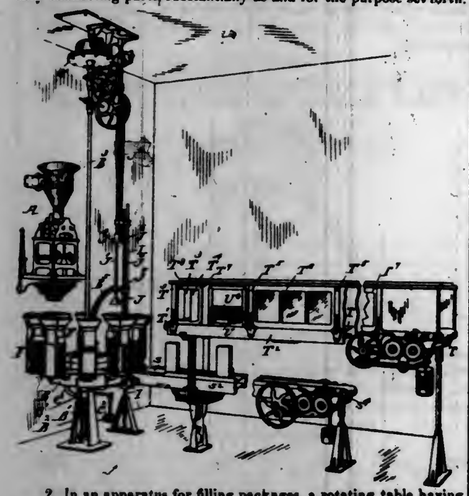


Claim.—1. The combination of the circular jaws 1, having the hinge extensions 2, and lever extensions 4, 5, and teeth 15, said jaws pivoted together by a rod 3; rod 8, pivoted to the rod 3; spring 10, pivoted to the lever extensions 4, 5; hook 6, pivoted to lever extension 4; lug 7, set in lever extension 5; link 11, pivoted to extension 5; trigger 12, hinged to link 11; bait-hook 14, pivoted to the rod 3, and having a slot 13, adapted to hold the free end of the trigger 12, substantially as shown and described and for the purposes set forth.

2. The combination of the circular jaws 1, having the hinge extensions 2, and lever extensions 4, 5, and teeth 15, said jaws pivoted together by a rod 3; rod 8, pivoted to the rod 3; spring 10, pivoted to the lever extensions 4, 5; link 11, pivoted to extension 5; trigger 12, hinged to link 11; bait-hook 14, pivoted to the rod 3, and having a slot 13, adapted to hold the free end of the trigger 12, substantially as shown and described and for the purposes set forth.

588,168. APPARATUS FOR FILLING PACKAGES. WILLIAM R. NICKERSON, Cambridge, Mass., assignor to the New England Weighing Machine Company, Boston, Mass. Filed Feb. 11, 1897. Serial No. 622,994. (No model.)

Claim.—1. In an apparatus for filling packages, a rotating table having balanced arms, said arms being provided with cages adapted to hold packages to be filled, and said table having a latch device operated by said balanced arms as described and said latch being adapted to prevent the rotation of said table until released by a discharge of material into a package held by one of the said cages, and means for causing the rotation of said table when the said latch is released; in combination with a compressing device adapted to operate in unison with the movements of the said table, a door actuated in unison with said compressor and adapted to close each cage in due order and support the packages for compression and necessary connecting parts, substantially as and for the purpose set forth.



2. In an apparatus for filling packages, a rotating table having balanced arms, said arms being provided with cages adapted to hold packages to be filled, and said table having a latch device operated by said balanced arms as described and said latch being adapted to prevent the rotation of said table until released by a discharge of material into a package held by one of the said cages, and means for causing the rotation of said table when the said latch is released; in combination with a series of expelling devices one for each cage, adapted to expel filled packages from said cages and necessary connecting parts, substantially as and for the purpose set forth.

3. In an apparatus for filling packages, a rotating table having balanced arms and a latch device cooperating with said arms substantially as described and means for rotating the said table upon the releasing of said latch; in combination with a compressing-plunger and means for operating the same in unison with the movements of said table, a secondary table-latch adapted to be released by a movement of the said compressing-plunger and necessary connecting parts, substantially as and for the purpose set forth.

4. In an apparatus for filling packages, a rotating table adapted to present packages to be filled and mechanism for controlling the movements of said table, the projections Q^3 Q^4 and the disk Q', said disk rotating with the said table; in combination with the clutch-latch P^3, said latch being adapted to be thrown in and out of engagement by said projections substantially as described, the shaft O and suitable mechanism for connecting said latch with said shaft, the continuously-rotating clutch-wheel P, the compressor-crank J^3, the compressing-plunger J and necessary connecting mechanism, substantially as and for the purpose set forth.

5. In an apparatus for filling packages, a clutch mechanism adapted to operate a compressing-plunger and consisting of the following parts; the latch P^3, the continuously-rotating clutch-wheel P, the spring P^6, the links P^7 P^7, necessary connecting mechanism and means for forcing the latch P^3 in and out of engagement as required, substantially as and for the purpose set forth.

6. In an apparatus for filling packages, a clutch mechanism adapted to operate a compressing-plunger and consisting of the following parts; the latch P^3, the continuously-rotating clutch-wheel P, the shaft O, the latch-holding arm P', loosely mounted on the said shaft, the bifurcated arm P^4, rigidly attached to the said shaft and embracing an end of the arm P' and the rubber concussion-pieces P^5 P^5, necessary connecting mechanism and means for forcing the said latch P^3, in and out of engagement as required, substantially as and for the purpose set forth.

7. In an apparatus for filling packages, in combination, the compressor-crank J^3, the stop-pieces R R', the spring R^7, a suitable supporting-frame and necessary connecting mechanism, whereby the said crank J^3 is exactly located and held in position after each of its movements, substantially as and for the purpose set forth.

8. In an apparatus for filling packages, in combination, a rotating table with suitable regulating mechanism, the vertical driving-shaft B^2, the continuously-rotating friction-plate Q, the friction-plate Q', rigidly attached to the said shaft B^2, and having the projections Q^3 Q^4, the latch P^3, adapted to engage with the said projections and be thrown in and out of engagement thereby and having a spring adapted to hold it in or out of engagement as placed, the arm P' adapted to support the latch P^3, the shaft O, upon which the arm P' is loosely mounted, the bifurcated arm P^4 having rubber concussion-pieces adapted to embrace the arm P' and being rigidly attached to the shaft O, the continuously-rotating clutch-wheel P, loosely mounted upon the said shaft O, the compressor-crank J^3, the connecting-rod J^2, the plunger-rod J', the plunger J, and necessary connecting mechanism, all operating together substantially as described and for the purpose set forth.

9. In an apparatus for filling packages, the rotating table B and suitable driving and controlling mechanism and the balanced arms E E; in combination with the stop-piece B^4 having a notch B^6 as described and also having the arm B^5 connected with some external stationary part for preventing the stop-piece B^4 from turning with the table, the vertical driving-shaft B^2 upon which the stop-piece B^4 is loosely mounted and necessary connecting mechanism, substantially as and for the purpose set forth.

10. In an apparatus for filling packages, in the cage F, the combination of the fixed sides F^2 and F^3 and the funnel F^4 mounted upon the said fixed sides; with the movable hinged side F^5 and necessary connecting parts, substantially as and for the purpose set forth.

11. In an apparatus for filling packages, the cage F having the fixed sides F^2 and F^3, the hinged side F^5 and the funnel F^4; in combination with the expelling-door M and mechanism adapted to operate the said door M, substantially as and for the purpose set forth.

12. In an apparatus for filling packages, the cage F; in combination with the expelling-door M, the arm N, the shaft N', the arm N^2, the pin N^3, the contour-piece N^4, the spring M^2 and necessary supporting and connecting mechanisms, substantially as and for the purpose set forth.

13. In an apparatus for filling packages, the cage F having the fixed sides F^2 and F^3, and the hinged side F^5; in combination with the door K having the embracing arms K^2 K^2 and adapted to close the open side of said cage and shut the said hinged side F^5, and necessary supporting and operating mechanisms, substantially as and for the purpose set forth.

14. In an apparatus for filling packages, in combination, the cage F having one open side, the pivoted door K adapted to close the open side of said cage, the links K' K', the rod J^5, collar J^6, guiding-bar J^4, plunger-rod J' and necessary supporting and actuating mechanisms, substantially as and for the purpose set forth.

15. In an apparatus for filling packages, a rotating table with suitable driving and regulating mechanism; in combination with the compressing-plunger J, the plunger-rod J', the rod J^4, the secondary latch I, adapted to be released by a stroke of said plunger and necessary actuating and connecting parts, substantially as and for the purpose set forth.

16. In an apparatus for filling packages, a rotating table having balanced arms adapted to support packages, said table having suitable actuating and regulating mechanism; in combination with a compressor-platen adapted to support said arms while material in the packages is being compressed, a suitably-actuated compressing-plunger adapted to operate in unison with the movements of said table and necessary connecting and supporting mechanisms, substantially as and for the purpose set forth.

17. In an apparatus for filling packages, a latch device consisting of; first, the loosely-mounted cylindrical stop-pin D, free to be gradually turned by the jar due to its ordinary operation and its socket: and second, the rotatable latch-roller C^4 adapted to make a contact upon its flat end with the cylindrical stop-pin D, and necessary supporting and connecting mechanism, substantially as and for the purpose set forth.

18. In an apparatus for filling packages, the apron S, the roller S' and the roller S^4, said rollers being adapted only to extend and support said belt and to be turned freely by it; in combination with the suitably-mounted tightening-roller S^5, and the driving mechanism comprising the driven rollers S^2, S^4, S^7 and S^8, said apron passing around said driven and tightening rollers substantially as shown, the said rollers S^2, S^5, S^7 and S^8 being so connected together that each rotates in the appropriate direction with the same speed and assists the others in driving the apron, and necessary supporting and connecting mechanisms, whereby the apron is driven with great power, even tension maintained therein and the end of the apron which is supported by the roller S^4, by being unencumbered by driving mechanism, is adapted to closely approach an apron moving at right angles across it, substantially as and for the purpose set forth.

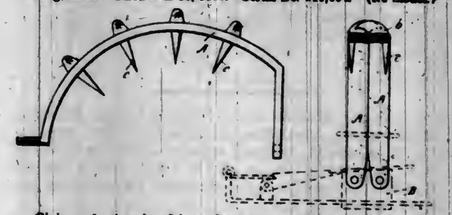
19. In an apparatus for filling packages, in combination, the removing-apron T inclosed within a casing, the turnstile U^3, the register U^4, the doorway T^2, the centrally-hung door T^4, the partition T^3 and necessary connecting and supporting mechanisms, substantially as and for the purpose set forth.

20. In an apparatus for filling packages, in combination, the removing-apron T inclosed within a casing, the turnstile U^3, the register U^4, the doorway T^2, the locking device embracing the dependent arm U^5, the arm U^6, and the disk U^7 having the projections U^{10}, and all necessary connection and supporting mechanisms, substantially as and for the purpose set forth.

21. In an apparatus for filling packages, the removing-apron T having suitable supporting and driving rollers; in combination with an inclosed casing consisting of the frames T^2 T^2, the vertical grooved standards T^3 T^3, the frames T^4 T^4, the frames T^1 T^1 having doorways and adapted to support registering devices, said frames T^4 T^4 and T^1 T^1 being adapted to slide in the grooves of the standards T^3 T^3 as shown, a suitable top for the whole casing, and necessary connecting and supporting mechanisms, substantially as and for the purpose set forth.

22. In an apparatus for filling packages, in combination, a rotating table having suitable actuating and regulating mechanism and adapted to receive, transmit and deliver packages, a moving receiving-apron adapted to receive packages from said table and deliver them to labelers, a removing-apron, said removing-apron being inclosed in a casing having doorways through which completed packages may be placed upon said removing-apron, and said casing having also registering devices suitably arranged with reference to said doorways, and all necessary supporting and connecting mechanism, whereby filled packages may be automatically placed before the labelers and after being labeled may be automatically removed and their number recorded, substantially as and for the purpose set forth.

588,169. JAW FOR STEEL TRAPS. JAMES A. NESBIT, Hamburg, Mich. Filed Jan. 18, 1897. Serial No. 619,694. (No model.)



Claim.—1. A pair of jaws for a trap, each jaw being provided with a series of hooked teeth on its upper side and a series of straight and sharp prongs on its under side, substantially as described and shown.

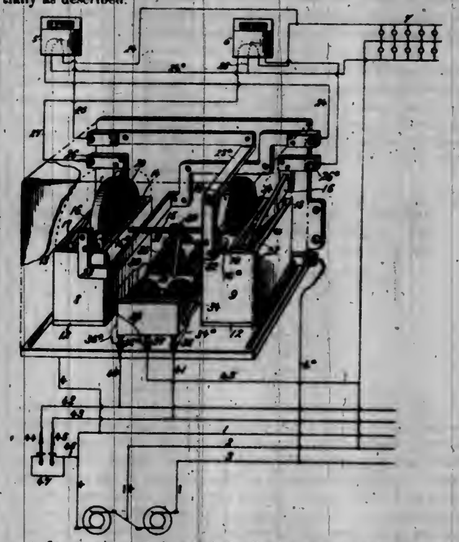
2. A pair of jaws for a trap, each jaw being provided with a series of hooked teeth on its upper side and a series of straight and sharp prongs on its under side, the said teeth and prongs being formed integral with the jaws, substantially as described and shown.

588,170. METHOD OF AND APPARATUS FOR MULTIPLE RATE-METERING FOR ELECTRIC CURRENTS. EUSTACE OXLEY, Washington, D. C. Filed June 19, 1897. Serial No. 641,503. (No model.)

Claim.—1. In a system of electrical-current distribution, the method described of separately metering the consumption of currents during different periods, which consists in connecting with each of a series of consumers' circuits a plurality or series of metering mechanisms, electrically controlling from a single point the operative selection of one series, and simultaneously effecting from said point the connection of all the meters of that series and the disconnection of the other series, substantially as described.

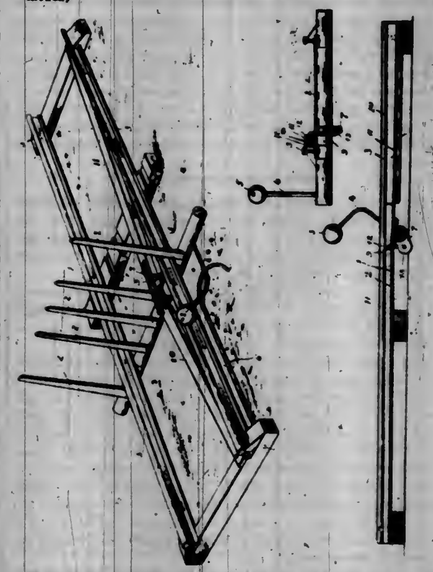
2. In a system of electrical-current generation and distribution, the combination with a series of consumers' circuits, of a corresponding series of electric metering mechanisms arranged upon the premises of a number of consumers to separately register the consumption of current by each of said consumers during a given period, a separate series of metering mechanisms to register separately the consumption of current during a different period and at a different rate, and means for electrically controlling, from a single point, the operative selection of either of the said two series of metering mechanisms, substantially as described.

3. In a system of electric distribution, the combination with two series of independent registering mechanisms of a single controlling-circuit including one of the operative parts of each metering mechanism, a connection from the mains of the system to the wires of said controlling-circuit, and means located at a single point for opening and closing the controlling-circuit from either of said mains substantially as described.



4. In a system of electrical distribution, the combination with two series of independent registering mechanisms, one of each series being arranged upon the premises of each consumer, of controlling-circuits including wires from two different mains of the system, connections from said wires to the armature-circuits of the several meters, and means located at a single point, such as a central station, whereby the controlling-circuits including said wires may be opened and closed alternately, substantially as described.

588,171. RAILWAY CATTLE-GUARD. BENJAMIN F. PARKER, North Yakima, Wash. Filed May 20, 1897. Serial No. 637,383. (No model.)

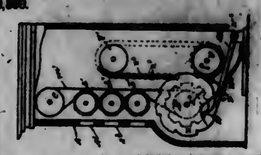


Claim.—1. In a railway cattle-guard, the combination of a tilting or pivoted gate extending transversely of a track and journaled in suitable bearings, an arm extending from one side of the bottom bar of the gate, a pair of depressible gate-operating bars disposed longitudinally of the track and pivoted at their outer ends, one of

the bars being bifurcated at its inner end and the other bar being reduced and fitting in the bifurcation, a link-rod extending from the depressible bars to the said arm and having its ends bent at right angles to form pivots, one of the pivots passing through the arm and the other pivot connecting the adjacent ends of the depressible bars, and a weight for holding the gate closed, substantially as described.

2. In a railway cattle-guard, the combination of a gate arranged transversely of a track and journaled in suitable bearings, a weighted upwardly-extending arm connected with the gate and located outside of the track, a resilient support consisting of a rod disposed longitudinally of the track and having one end free and extended beneath the weighted arm, and means for operating the gate, substantially as described.

588,172. MACHINE FOR EXHIBITING MOVABLE ADVERTISEMENTS. HENRY L. PERRIN, Surbiton, England. Filed Aug. 10, 1896. Serial No. 602,943. (No model.) Patented in England Aug. 24, 1895. No. 19,660.



Claim.—1. An apparatus for exhibiting signs or advertisements, consisting of a casing which is provided with a series of transverse slots and within which casing is removably mounted a plurality of drums carrying strips upon which is secured the advertisement or notice to be displayed, and a cylinder mounted within said casing above said drum, another cylinder mounted in the lower part of the casing below the drums, belt connection between said cylinders and the drums the lower drum being provided with a detent-wheel and a driving-wheel and a lower gear-wheel and an upper pulley-wheel mounted on said casing in the rear of said drums and said last-mentioned wheel being connected by a sprocket-chain carrying a pin adapted to engage the shoulders upon the drive-wheel to rotate the same and means for actuating the lower gear-wheel, substantially as described.

2. An apparatus for exhibiting signs or advertisements, consisting of a casing which is provided with a series of transverse slots and within which casing is revolubly mounted a plurality of drums carrying panels upon which is secured the advertisement or notice to be displayed, and a cylinder mounted within said casing above said drum, another cylinder mounted in the lower part of the casing below the drum, belt connection between said cylinders and said drums, the lower cylinder being provided with a detent-wheel and a drive-wheel a lower sprocket-wheel and an upper wheel mounted in said casing in the rear of said drums and said last-mentioned wheels being connected by a sprocket-chain carrying a pin adapted to engage the shoulders upon the drive-wheel to rotate the same and means for actuating the lower gear-wheel and a spring-actuated detent in the bottom of the casing below said wheels, said detent being adapted to engage the detent-wheel carried by the lower cylinder, substantially as described.

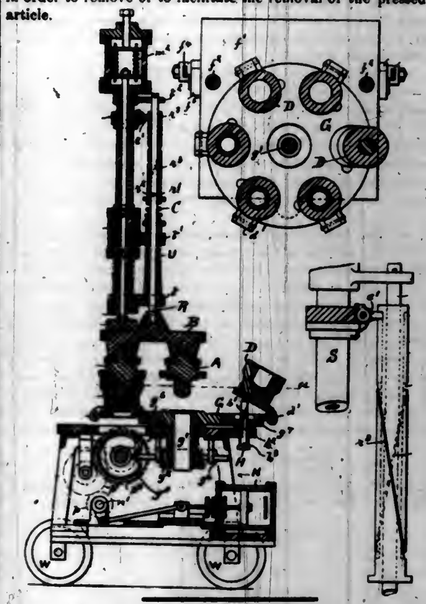
588,173. APPARATUS FOR MANUFACTURING PRESSED-GLASS ARTICLES. HENRY H. PITT, Low Fell, England. Filed Feb. 3, 1896. Serial No. 577,899. (No model.) Patented in England Mar. 8, 1892, No. 4,545; in Germany July 22, 1892, Nos. 71,671 and 75,507, and in Belgium Nov. 27, 1894, No. 112,868.

Claim.—1. A horizontal table capable of being intermittently revolved carrying molds in combination with a horizontal plunger-plate arranged above the same capable of being intermittently revolved and carrying plungers substantially as described.

2. In a glass-press, the combination of a mold, a horizontal rotatory reciprocating plunger-plate, having a series of plungers, a spindle for carrying the plunger-plate, a sleeve fixed thereto, said sleeve having two grooves or slots which are partly spiral and partly vertical in form, a pin hinged to the machine with one end engaged in one of the slots, a spring to maintain the pin in a horizontal position, substantially as described, the slots and pin cooperating to rotate the intermittently-reciprocating plunger plate to bring a fresh plunger in position for pressing at each stroke of the plunger, the vertical slots allowing the plunger to be worked vertically in and out of the mold and the spiral slots with hinged pin rotating the plunger-plate intermittently.

3. In a glass-press, the combination of a mold-table, having molds hinged thereto, a horizontal rotatory reciprocating plunger-plate having a series of plungers, a pressing-rod, with piston or springs, said rod operating immediately over the operating-plunger, and mold receiving same, substantially as described.

4. In a glass-press, the combination of an intermittently-revoluble mold-table, having molds hinged thereto, a wheel fixed to under side of said table, said wheel having a series of cogs arranged at intervals on its circumference, a pinion meshing with said wheel, a spindle passing through said pinion and having a spirally-formed groove, a pin fitted in boss of said pinion and having its end bearing in said groove, substantially as described, the groove and pin cooperating to raise up the spindle so as to cause it to pass through a hole in the table and tilt or turn over a mold at each stroke of machine in order to remove or to facilitate the removal of the pressed-glass article.



588,174. FOLDING KNIFE, FORK, OR SPOON. FERDINAND PRAUNBOCKER, Graz, Austria-Hungary. Filed Nov. 17, 1896. Serial No. 612,482. (No model.) Patented in Germany June 15, 1894, No. 81,905; in Hungary July 2, 1894, No. 710; in Austria July 3, 1894, No. 44/2,903; in France Nov. 7, 1894, No. 242,692, and in England Apr. 1, 1895, No. 6,677.



Claim.—1. In a handled implement, the combination with the implement provided with a substantially semicylindrical tang, a guide and locking-abutment on the handle of the implement on which abutment said tang has perpetual bearing, a longitudinal slot in one of the elements of the implement and a pin traversing said slot secured to the other element whereby the implement is locked in an open or closed position by said abutment through the displacement of the pin in its slot, for the purpose set forth.

2. In a handled implement, the combination with the implement provided with a substantially semicylindrical tang, a handle, and a slot-and-pin connection between said tang and handle, said slot in the longitudinal plane of one of said parts and a resilient or springy guide and locking-abutment on which said tang has perpetual bearing, for the purpose set forth.

3. In a handled implement, the combination with the implement provided with a substantially semicylindrical tang, a handle, and a slot-and-pin connection between said tang and handle, said slot in the longitudinal plane of one of said parts, and a guide and locking-abutment on which said tang has perpetual bearing, and a friction-plate interposed between the tang and its handle at the pivotal connection between the two, for the purpose set forth.

4. In a handled implement, the combination with the implement provided with a substantially semicircular tang, a handle, and a slot-and-pin connection between the two, said slot having substantially semicylindrical terminals and lying in the longitudinal plane of one of the parts of the implement, of a guide and locking-abutment on one of said parts, on which the tang has perpetual bearing, for the purpose set forth.

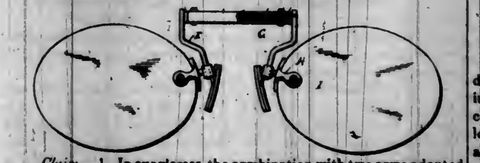
5. In a handled implement, the combination with the implement provided with a substantially semicircular tang, a handle, and a slot-and-pin connection between the two, said slot having substantially semicircular terminals drawn from centers above but in the plane of the center for the rounded end of the tang of the implement; of a resilient or springy guide and locking-abutment on one of the parts of the implement, on which abutment the aforesaid tang has perpetual bearing, for the purpose set forth.

6. The combination with a knife, its handle, into which said knife is adapted to fold or close; of a fork and spoon, a pivotal connection between the tangs thereof, means for locking the fork and spoon against displacement when folded or unfolded, and means for connecting the said fork and spoon when folded with the knife-handle, for the purpose set forth.

7. The combination with a foldable knife the handle of which is provided with buttonhole-slots a' a^2; of a fork and spoon, a headed pivot-pin pivotally connecting the tangs of said fork and spoon, the headed portion of the pin projecting therefrom, means for preventing accidental displacement of the fork and spoon when open or folded, and a headed stud f projecting from the fork, said headed stud and headed pivot-pin adapted to engage the buttonhole-slots in the knife-handle when the fork and spoon are folded upon each other, for the purpose set forth.

8. The combination with a foldable knife the handle of which is provided with buttonhole-slots a' a^2, of a fork and spoon, said fork provided with a headed stud f and a nick or groove g', said spoon provided with a stud or wart g adapted to enter the aforesaid groove when the fork and spoon are folded, a headed pivot-pin b, pivotally connecting the tangs of said fork and spoon, said pin b and stud f adapted to engage the buttonhole-slots a^2 a' respectively when the fork and spoon are closed, and means for preventing accidental displacement of said parts when unfolded, substantially as set forth.

588,175. EYEGLASSES. DE WITT C. PRUDDEN and EDWARD F. JENSEN, Kansas City, Mo.; said Prudden assignor to said Jensen. Filed Feb. 26, 1896. Serial No. 580,807. (No model.)



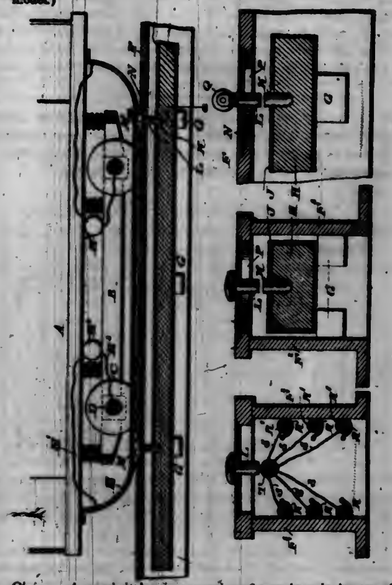
Claim.—1. In eyeglasses, the combination with two arms adapted to be secured to the lens-mountings, of a pair of inwardly-extending rods secured to each arm, the inner end of one of the rods of each pair being provided with an abutment, a tube provided with external guides in which the other two rods are movable lengthwise, a cap for each end of the tube, the said caps being provided each with an opening in which is fitted movably one of the rods having the abutment thereon, and a coil-spring encircling each of the rods located within the tube between the abutment thereon and the cap, substantially as described.

2. In eyeglasses, the combination with two arms adapted to be secured to the lens-mountings, of a pair of inwardly-extending rods secured to each arm, a longitudinally-adjustable abutment upon one rod of each pair, a tube provided with external guides in which the other two rods are lengthwise movable, a detachable cap fitted to each end of said tube and provided each with an opening in which is movably fitted one of the rods having the adjustable abutment, and a coil-spring encircling each of the rods having said abutment between the cap and the abutment, substantially as described.

3. In eyeglasses, the combination with a tube provided at each end with a detachable cap having a central opening, of two arms adapted to be secured to the lens mountings, a pair of inwardly-extending rods secured to each arm, one of each of said pairs being screw-threaded at its inner end, the said screw-threaded rods being longitudinally movable in the cap-openings, and the other two rods being fitted to and movable lengthwise in external guides provided on the said tube, a nut mounted upon the screw-threaded end of each of the rods located within the tube, and a coil-spring encircling each screw-threaded rod between the nut and cap, substantially as described.

4. In eyeglasses, the combination with two arms adapted to be secured to the lens-mountings, of a pair of rods inwardly extending from each of said arms, a tube provided with external projections having guide-openings in which are fitted respectively one of each of said pairs of rods, a cap for each end of the tube having an opening in which is fitted one of the other rods, an abutment upon the inner end of each of the rods which are located within the tube, a coil-spring encircling each of said rods between the abutment and the cap, and a screw fitted in a screw-threaded opening near each end of the said tube, and adapted to engage the adjacent cap to prevent its displacement, substantially as described.

588,176. ELECTRICAL RAILWAY SYSTEM. WILLIAM B. PURVIS, Philadelphia, Pa. Filed June 29, 1896. Serial No. 597,333. (No model.)



Claim.—A conduit having a series of openings in its top, flexible diaphragms covering said openings, an insulated conductor supported in said conduit, a contact-point secured to and projecting from said conductor, a pin passing through said diaphragms and having its lower end adapted when depressed, to contact with said point, and a movable flexible strip connected with an electric motor and adapted to depress said pin.

588,177. APPLICATION OF SOLAR HEAT TO THERMO-BATTERIES. HARRY C. REAGAN, Jr., Philadelphia, Pa. Filed May 15, 1896. Serial No. 591,734. (No model.)



Claim.—1. In an apparatus for the purpose set forth, a plurality of standards suitably supported, a frame mounted thereon and having a mirror or mirrors secured thereto, in combination with thermo-couples, suitably supported, and having one set of junctions adapted to be heated by the focusing of the sun's rays from said mirrors, and a cooling device at the other set of said junctions.

2. In an apparatus for the purpose set forth, standards, a frame mounted thereon with mirrors on its upper face, thermo-couples having one set of junctions, adapted to be heated by the focusing of the sun's rays from said mirrors, and a cooling device at the other set of said junctions.

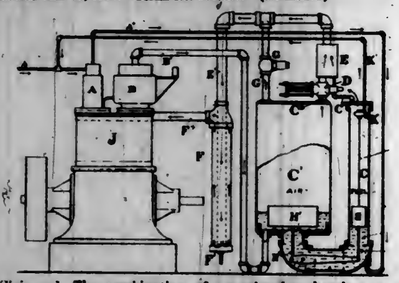
3. In an apparatus for the purpose set forth, standards, a partly-cylindrical frame journaled in said standards, mirrors on said frame, a cooling device above said frame having journal-bearings therein, thermo-couples having one set of junctions adapted to be heated by the focusing of the sun's rays from said mirrors, and the other set of junctions adjacent to said cooling-tank and mechanism connected with said frame and standards for adjusting the former.

4. In a thermo-battery, a tank of copper or other suitable con-

ducting material, adapted to be filled with a heat-retaining liquid, a series of thermo-couples supported adjacent to said tank, a cooling device located adjacent to said couples, a mirror adapted to focus the sun's rays upon said tank, means for actuating said mirror, and means for supporting said tank and said cooling device.

5. In an apparatus for the purpose set forth, a frame provided with mirrors on its upper face and suitably supported, and means for oscillating said frame, in combination with thermo-couples, having one set of junctions adapted to be heated by the focusing of the sun's rays from said mirrors, a tank or trough at the other set of said junctions and a windmill adapted to pump a cooling fluid into said trough.

588,178. APPARATUS FOR UTILIZING LIQUID OR GASEOUS FUEL FOR POWER. SIDNEY A. REEVE, Boston, Mass., assignor to Charles F. Brown, trustee, Reading, Mass. Filed Dec. 15, 1894. Renewed Jan. 16, 1897. Serial No. 619,496. (No model.)



Claim.—1. The combination of a combustion-chamber, an air-reservoir and a fuel-reservoir both connected with said chamber, a liquid sealed connection between said reservoirs, and pressure-releasing devices cooperating with the liquid seal whereby an excess of pressure in one of the reservoirs may be released.

2. The combination of a combustion-chamber, an air-reservoir and a fuel-reservoir both connected with said chamber, a supplemental outlet or by-pass connected with one of the reservoirs, a liquid-sealed connection between said reservoirs, a valve controlling said by-pass, and connections between the valve and the liquid seal whereby the valve is opened by a displacement of the seal caused by an excess of pressure in one of the reservoirs.

3. The combination of a pump or compressor adapted to supply a constant quantity of fuel, a fuel-reservoir connected with said pump and provided with a primary or normal outlet, a supplemental outlet or by-pass connecting said reservoir with the source of fuel-supply, a valve in said by-pass, and automatic valve-operating means through which an excess of pressure in the reservoir acts to open the valve and reduce the pressure.

4. The combination of a fuel pump or compressor; an air-compressor, reservoirs connected with said compressor, each reservoir having a primary or normal outlet; a supplemental outlet or by-pass connecting the fuel-reservoir with the source of fuel-supply, a liquid-sealed connection between said reservoirs, a valve controlling said by-pass, and connections between the valve and the liquid seal whereby the valve is opened by displacement of the liquid seal caused by an excess of pressure in the fuel-reservoir.

5. The combination of a combustion-chamber, a conduit leading therefrom for the products of combustion, an air-reservoir and a fuel reservoir connected with the combustion-chamber, a supplemental outlet or by-pass connecting the air-reservoir with said conduit and provided with a yielding valve adapted to release into said conduit any excess of air-pressure over the pressure of the products of combustion in the conduit, a supplemental outlet or by-pass connecting the fuel-reservoir with the source of fuel-supply, a liquid-sealed connection between the two reservoirs, a valve controlling the by-pass or supplemental outlet of the fuel-reservoir, and connections between the valve and the liquid seal whereby the valve is opened by an excess of pressure in the fuel-reservoir.

6. The combination of a combustion-chamber, an air-reservoir and a fuel-reservoir both connected with said chamber, means for supplying gaseous fuel and air to said reservoirs under pressure and for proportioning the pressure in said two reservoirs, an engine, and a cooling-chamber having its interior connected with the combustion-chamber and with the engine, and containing a body of water.

7. The combination of a combustion-chamber, an air-reservoir and a fuel-reservoir both connected with said chamber, means for supplying gaseous fuel and air to said reservoirs under pressure, an engine, and a cooling-chamber having its interior connected with the combustion-chamber and with the engine, and containing a body of water.

588,179. COP-SKEWER FOR LOOM-SHUTTLES. CHARLES F. ROPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Feb. 26, 1897. Serial No. 625,067. (No model.)



Claim.—1. A filling-carrier provided at its head with a split shell, and having annular ribs surrounding said split shell, substantially as described.

2. A filling-carrier having a metallic head, a non-metallic split shell surrounding said head, and annular ribs supported by said split shell, substantially as described.

3. A filling-carrier having a split shell surrounding its head, and annular metallic ribs seated in grooves at the periphery of said split shell, substantially as described.

4. A filling-carrier having an annularly-grooved metallic head to leave flanges, a non-metallic split shell located in said annular groove and surrounding the said metallic head between said flanges, and split rings seated in grooves at the periphery of the split shell, said rings being compressible, substantially as described.

588,180. BLUISH-SCARLET DYE. ISMAR ROSENBERG, Biebrich, Germany, assignor to Kalle & Co., same place. Filed July 29, 1896. Serial No. 600,979. (Specimens.) Patented in England May 7, 1895, No. 9,103, and in France May 22, 1895, No. 247,626.

Claim.—1. The process of producing new azo dyestuffs consisting in the combination of molecular proportions of diazotized monamins with 1.3 naphthylenediamin-sulfo-acids.

2. The process of producing the specific dyestuff having the formula:

$$C_{14}H_{12}SN(SO_3Na)-N=N-C_{16}H_4\begin{cases}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{cases}$$

by combining molecular proportions of diazotized dehydrothio paratoluidin monosulfo-acid with 1.3.6 naphthylenediamin-monosulfo-acid substantially as described.

3. A dyestuff derivable from a 1.3 naphthylenediamin sulfo compound, which will crystallize in fine needles or leaflets of yellow bronze, forming after drying and grinding brownish-red bronzy powders, easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with violet coloration, giving an alkaline reduction with zinc-dust, yellow solutions, which quickly turn brown under the influence of the air, dyeing on unmordanted cotton a bright bluish scarlet, which shade is fast against the action of soap and light, substantially as described.

4. The new dyestuff with the formula:

$$C_{14}H_{12}NS(SO_3Na)-N=N-C_{16}H\begin{cases}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{cases}$$

which dyestuff is producible by combining molecular proportions of diazotized dehydrothio paratoluidin sulfo-acid with 1.3.6 naphthylenediamin-monosulfo-acid; and which crystallizes in fine needles or leaflets of yellowish bronze forming after drying and grinding a brownish-red bronzy powder, easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with violet coloration, giving on alkaline reduction with zinc-dust a yellow solution which quickly turns brown under the influence of the air; dyeing on unmordanted cotton a bright bluish scarlet which shade is fast against the action of soap and light; and having the qualities substantially as described.

588,181. REDDISH-VIOLET DYE. ISMAR ROSENBERG, Biebrich, Germany, assignor to Kalle & Co., same place. Filed July 29, 1896. Serial No. 600,980. (Specimens.) Patented in England May 7, 1895, No. 9,103, and in France May 22, 1895, No. 247,626.

Claim.—1. The process of producing new tetrazo dyestuffs consisting in combining molecular proportions of tetrazotized diamins, employed in the manufacture of tetrazo dyestuffs, with bimolecular proportions of 1.3 naphthylenediamin-sulfo-acids, substantially as described.

2. The process of producing the specific tetrazo dyestuff having the formula:

$$\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}\Big\rangle C_{16}H_4-N=N-C_{16}H_{10}O_2-N=N-C_{16}H_4\Big\langle\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}$$

by combining one molecular proportion of tetrazotized diamidin with two molecular proportions of 1.3.6 naphthylenediamin-monosulfo-acid substantially as described.

3. A new dye derived from the herein-described 1.3 naphthylenediamin mono or di sulfo-acids, which, after drying and powdering, form black bronzy powders, easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with blue coloration, giving, on alkaline reduction with zinc-dust colorless solutions, which turn brown under the influence of air, dyeing unmordanted cotton, bright-reddish violet, which on treatment with nitrous acid in combination with metatoluylenediamin in weakly-acid solution is changed into a deeper brownish-violet shade, substantially as described.

4. The new substantive dyestuff with the formula:

$$\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}\Big\rangle C_{16}H_4-N=N-C_{14}H_{10}O_2-N=N-C_{16}H_4\Big\langle\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}$$

which dyestuff is producible by combining molecular proportions of tetrazotized diamisidin with bimolecular proportions of 1.3.6 naphthylenediamin-monosulfo-acid, which color after drying and pulverizing forms a black bronzy powder, easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with blue coloration, giving, on alkaline reduction with zinc-dust a colorless solution, which turns brown under the influence of the air; dyeing unmordanted cotton a bright-reddish violet, which on treatment with nitrous acid and combination with metatoluylenediamin in weakly-acid solution is changed into a deeper brownish-violet shade and having all the qualities substantially as described.

588,182. MIXED SUBSTANTIVE DYE. ISMAR ROSENBERG, Biebrich, Germany, assignor to Kalle & Co., same place. Filed July 29, 1896. Serial No. 600,981. (Specimens.) Patented in England May 7, 1895, No. 9,103, and in France May 22, 1895, No. 247,626.

Claim.—1. The process of producing new mixed substantive dyestuffs by combining equimolecular proportions of a tetrazo body with 1.3 naphthylenediamin-sulfo-acids and an amin, substantially as described.

2. The process of producing new mixed substantive dyestuffs by combining equimolecular proportions of a tetrazo body with 1.3 naphthylenediamin-sulfo-acids and a monoazo dyestuff capable of combining with a diazo body substantially as described.

3. The process of producing the specific mixed substantive dyestuffs having the formula:

$$NO_2-C_6H_3-N=N-C_{16}H_5\begin{cases}NH_2 & (1)\\ OH & (8)\\ N=N-C_{16}H_4-N=N-C_{16}H_4\Big\langle\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}\\ (SO_3Na)_2\ (4.6)\end{cases}$$

by combining equimolecular proportions of tetrazotized benzidin of the azo dyestuff formed from paranitro-diazo-benzene and 1.8.4.6 amidonaphthol-disulfo-acid (K) in acid solution, and of 1.3.6 naphthylenediamin-monosulfo-acid substantially as described.

4. A new mixed substantive dyestuff derivable from 1.3 naphthylenediamin mono or di sulfo-acids, which after drying and grinding represent red powders, easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with violet coloration, and giving on alkaline reduction with zinc-dust colorless solutions which turn brown under the influence of the air, dyeing yellowish-red on unmordanted cotton, and which give when rediazotized and combined with metaphenylene or metatoluylene diamin brown cotton colors of great intensity and fastness, substantially as described.

5. The new substantive dyestuff having the formula:

$$NO_2-C_6H_3-N=N-C_{16}H_5\begin{cases}NH_2 & (1)\\ OH & (8)\\ N=N-C_{16}H_4-N=N-C_{16}H_4\Big\langle\begin{matrix}NH_2 & (1)\\ NH_2 & (3)\\ SO_3Na & (6)\end{matrix}\\ (SO_3Na)_2\ (4.6)\end{cases}$$

which dyestuff is producible by combining equimolecular proportions of tetrazotized benzidin, of the monoazo color formed by combining paranitro-diazo-benzene with 1.8.4.6 amidonaphthol-disulfo-acid (K) in acid solution and of 1.3.6 naphthylenediamin-monosulfo-acid, and which after drying and grinding forms a black bronze powder easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with blue coloration, giving on alkaline reduction with zinc-dust a slightly yellow solution, which turns brown when exposed to the air, dyeing unmordanted cotton a deep greenish black, which on treatment with nitrous acid and combination in alkaline solution with beta-naphthol changes into a still deeper shade, and having the qualities, substantially as described.

588,183. BROWN SUBSTANTIVE DYE. ISMAR ROSENBERG, Biebrich, Germany, assignor to Kalle & Co., same place. Filed July 29, 1896. Serial No. 600,982. (Specimens.) Patented in England May 7, 1895, No. 9,103, and in France May 22, 1895, No. 247,626.

Claim.—1. The process of producing new substantive dyestuffs consisting in combining the rediazotized primary or mixed tetrazo dyestuffs characterized by containing a 1.3 naphthylenediamin sulfo-acid as component part with an amin substantially as described.

2. The process of producing the specific substantive dyestuff having the formula:

$$(1)\ CO_2Na\quad (2)\ OH\quad C_6H_3-N=N-C_{16}H_5-N=N-C_6H_3\Big\langle\begin{matrix}N=N-C_6H_3(NH_2)_2\\ NH_2\\ SO_3Na\end{matrix}$$

by combining rediazotized salicylic acid azo diphenyl azo 1.3 6 naphthylenediamin-monosulfo-acid with a molecule of metatoluylenediamin in weakly-acid solution substantially as described.

3. A new substantive dyestuff derived from 1 3 naphthylenediamin mono or di sulfo-acids, of which the specific dyestuff with the formula:

$$(1)\ CO_2Na\quad (2)\ OH\quad C_6H_3-N=N-C_6H_3-N=N-C_6H_3\Big\langle\begin{matrix}N=N-C_6H_3(NH_2)\\ NH_2\\ SO_3Na\end{matrix}$$

is an example, which are after drying and grinding dark-brown powder of greenish bronze easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with reddish-violet coloration, giving on alkaline reduction with zinc-dust colorless solutions quickly turning brown when exposed to the air and dyeing a deep fast brown on unmordanted cotton substantially as described.

4. The specific brown substantive dyestuff with the formula:

$$(1)\ CO_2Na\quad (2)\ OH\quad C_6H_3-N=N-C_6H_3-N=N-C_6H_3\Big\langle\begin{matrix}N=N-C_6H_3(NH_2)\\ NH_2\\ SO_3Na\end{matrix}$$

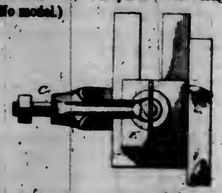
which dyestuff is producible by combining rediazotized salicylic acid azo diphenyl azo 1.3.6. naphthylenediamin-monosulfo-acid with metatoluylene-diamin in weakly-acid solution, and which represents after drying and grinding a dark-brown powder of greenish bronze easily soluble in hot water, insoluble in alcohol, soluble in concentrated sulfuric acid with reddish-violet coloration, giving on alkaline reduction with zinc-dust a colorless solution quickly turning brown when exposed to the air and dyeing a deep fast brown on unmordanted cotton and having all the qualities substantially as described.

588,184. SEPARATING AND HUSKING ROLLER. AUGUST ROSENTHAL, Milwaukee, Wis. Filed Jan. 21, 1897. Serial No. 620,109. (No model.)



Claim.—The combination, with rollers arranged parallel to each other and at a slight distance apart, said rollers provided at their receiving ends for a desired distance with means for separating ears of corn from their stalks, and for the balance of their lengths with means for husking the ears of corn, and one of said rollers provided longitudinally of its separating portion with a groove or recess, of a nipper secured to and extending longitudinally of the separating portion of the other roller, said nipper adapted to enter the groove of the companion roller, as the rollers rotate toward each other, whereby cornstalks are adapted to be pulled into the groove and severed from the ears by the action of the nipper, said stalks passing between the rollers, and the ears being deposited on the surfaces of the rollers to be acted upon by the husking portions of said rollers.

588,185. DEVICE FOR FACILITATING MAKING AND SHARPENING MOLDING-BITS. WILLIAM ROSS, Willard, Tex., assignor of one-half to J. W. Hobbs, same place. Filed Aug. 17, 1896. Serial No. 603,051. (No model.)



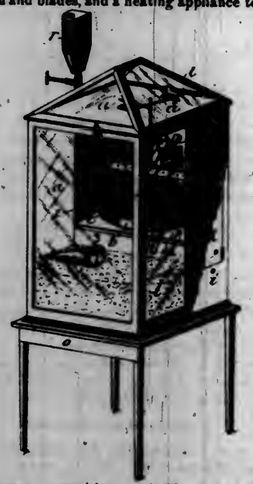
Claim.—In a device for marking and sharpening molding-bits, the combination with a templet having a laterally-extended side, of a clamp consisting of an upper and lower parallel arm adapted to clamp said templet between them and the lower arm adapted to bear against the straight side of the bit.

588,186. POPCORN-POPPER. NICHOLAS ROSS, Emporia, Kans. Filed Jan. 2, 1897. Serial No. 617,854. (No model.)

Claim.—1. In a corn-popper, the combination of a suitable casing, a horizontally-rotative pan in the casing, a wire screen in the pan, a cross-piece over the pan, stirring-fingers in the cross-piece and reaching into the pan, and means to rotate the pan.

2. In a corn-popper, the combination of a suitable casing, a horizontally-rotative pan in the casing, a wire screen in the pan, a cross-piece over the pan, stirring-fingers in the cross-piece and reaching into the pan, chains depending from the cross-piece into the pan, and means to rotate the pan.

3. In a corn-popper, the combination of a suitable casing, a horizontally-rotative pan in the casing, a wire screen in the pan, a cross-piece above the pan, stirrers depending from the cross-piece into the pan, rotating blades to throw the popped corn from the pan, and an incline under the pan to carry the popped corn into the casing, means to rotate the pan and blades, and a heating appliance to heat the pan.



4. A corn-popper comprising a suitable casing, a horizontally-rotative pan in the casing, a wire screen in the pan, a hopper having a spout opening into the pan, a cross-piece over the pan, stirring-fingers depending from the cross-piece into the pan, rotating blades to throw the popped corn from the pan, an incline under the pan, and means to rotate the pan, and the said blades.

588,187. BOLT OR WIRE CUTTER. REUBEN ROWE, Dover, N. J. Filed Apr. 21, 1897. Serial No. 633,181. (No model.)



Claim.—1. The herein-described improved bolt-cutter, comprising a frame, cutting members mounted therein and levers having opposite cams on their ends interposed between and adapted to engage opposite portions of said cutting members and reciprocate the same simultaneously in opposite directions, as set forth.

2. The herein-described improved bolt-cutter, comprising a frame, cutting members having opposite cut-outs, and levers pivoted in said frame and having opposite cams adapted to fit in and engage said cut-outs, whereby said members may be simultaneously reciprocated back and forth, substantially as set forth.

3. The herein-described improved bolt cutter, comprising a frame, a reciprocating cutting member mounted therein having a central slot, a second reciprocating cutting member working in said slot and adapted to be guided thereby, and levers having their ends interposed between adjacent portions of said cutting members and adapted to engage the same, whereby they will be simultaneously reciprocated in opposite directions, substantially as set forth.

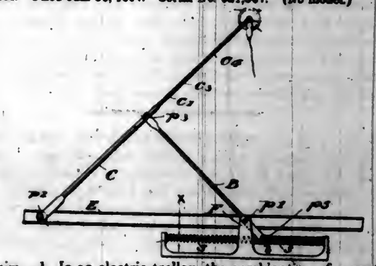
4. The herein-described improved bolt-cutter, comprising a frame, a cutting member mounted therein having a central slot, a second cutting member working in said slot, and levers pivoted to said frame and having their ends provided with opposite cams adapted to engage both of said cutting members, whereby the latter will be reciprocated simultaneously in opposite directions, substantially as set forth.

5. The herein-described improved bolt-cutter, comprising a supporting frame, a cutting member mounted therein having a central slot and rear flaring ends, a second cutting member working in said slot and having an enlarged portion, and levers having cam ends adapted to engage the flared ends and the enlarged portion respectively of said cutting members, whereby the latter may be simultaneously reciprocated in opposite directions, substantially as set forth.

6. The herein-described improved bolt-cutter, comprising a supporting-frame, a cutting member mounted therein having a central slot and rear flaring ends provided with cut-outs, a second cutting member working in said slot and also having cut-outs, removable knives secured to said cutting members, and levers pivoted in said frame having their ends provided with opposite cams adapted to engage said cut-outs of both cutting members, substantially as and for the purpose set forth.

7. The herein-described improved bolt-cutter, comprising a frame, cutting members mounted therein, having opposite cut-outs, levers pivoted in said frame and having cam ends adapted to fit in and engage the cut-outs of said cutting members, and roller-bearings for said cutting members and cam ends, substantially as set forth.

588,188. ELECTRIC CONTACT DEVICE. DAVID S. SHALLENBERGER, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Jan. 30, 1897. Serial No. 621,367. (No model.)



Claim.—1. In an electric trolley, the combination of a contact-carrying arm longitudinally movable at its lower end in a fixed horizontal plane, with an upwardly-spring-pressed arm pivotally secured to the contact-carrying arm and adapted to transmit the upward pressure to the outer end thereof.

2. In an electric trolley, in combination, a member movable in a vertical plane, means for imparting upward pressure to the outer end of said member, a contact-carrying arm pivotally secured to said outer end and means for retaining the lower end of said arm in a fixed horizontal plane.

3. In an electric trolley, in combination, a member movable in a vertical plane, means for imparting upward pressure to the outer end of said member, a contact-carrying arm pivotally secured at about its longitudinal center to the outer end of said member, said arm being substantially twice the length of said member, and means for retaining the lower end of said contact-carrying member in a fixed horizontal plane.

4. In an electric trolley, in combination, an upwardly-pressed member, a contact-carrying arm, a pivoted connection between the outer end of said member and the longitudinal center of said arm, and a longitudinal track along which the lower end of said arm is adapted to move and by which said end is retained in a fixed horizontal plane.

5. In an electric trolley, in combination, a contact-carrying arm provided with rollers at its lower end, a track along which said rollers are adapted to roll, and an upwardly-pressed member pivotally secured near its outer end to the longitudinal center of said arm.

6. In an electric trolley, in combination, a longitudinal track, a contact-carrying arm provided with rollers adapted to engage said track, a member movable about a transverse axis and pivotally secured to the longitudinal center of said arm, and spring connections to said member at a point below said axis.

7. In an electric trolley, in combination, a base, a member pivotally secured thereto and movable in a vertical plane, a contact-carrying arm pivotally secured to the outer end of said member a transverse shaft upon one end of said arm and a contact-maker movable along said shaft, and means for retaining the lower end of said arm in a fixed horizontal plane.

8. In an electric trolley, in combination, a longitudinal I-beam, a contact-carrying arm carrying rollers at its lower end adapted to engage the sides of said I-beam, a member pivotally secured at its outer end to said arm, and means for imparting upward pressure to the outer end of said member.

588,189. ACCUMULATOR-BATTERY. JOHN V. SHERRIN and HENRIETTA H. SHERRIN, London, England. Filed Mar. 22, 1897. Serial No. 628,742. (No model.)

Claim.—1. In a secondary-battery element the combination of a conductor, a strip of springy non-conducting material wound helically thereon, and interstitial active material which is held in close contact with the conductor by the said strip during and after expansion and during and after contraction substantially as set forth.



2. In a secondary-battery element the combination of a core, conductors helically wound thereon, a strip of springy non-conducting material helically wound on the conductors in the opposite direction, and interstitial active material, substantially as set forth.

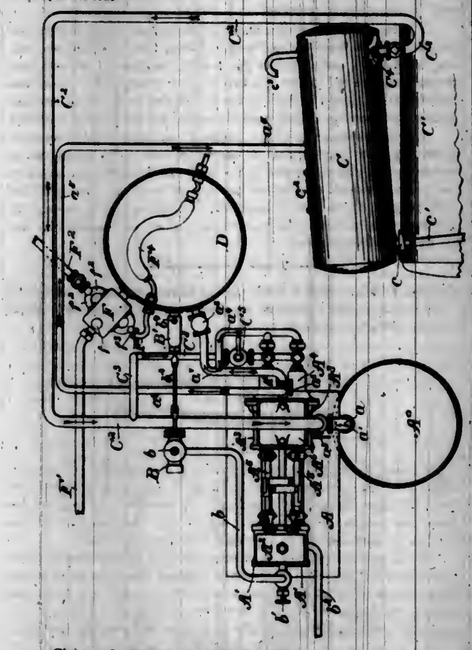
588,190. FORK-CROWN COVER-PLATE FOR BICYCLES. CHAS. S. SMITH, Milwaukee, Wis. Filed Aug. 6, 1896. Serial No. 601,861. (No model.)



Claim.—1. A fork-crown cover-plate for bicycles, formed of sheet metal to the contour of the crown with an opening for the stem and with prongs on the outer edges adapted to be clenched over the edges of the crown-top and to hold it firmly in place thereon while it is brazed thereto, substantially as and for the purposes set forth.

2. A fork-crown cover-plate for bicycles, formed of sheet metal to the contour of the crown-top with a central opening fitting around the fork-stem, and with marginal downwardly-bent prongs adapted to be clenched over the edges of the crown-top and to hold said cover-plate firmly in place thereon while it is brazed thereto, substantially as and for the purposes set forth.

588,191. APPARATUS FOR BURNING NAPHTHA, &c. WLADIMIR SOLOMIN, Odessa, Russia. Filed Dec. 27, 1896. Serial No. 573,509. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a reservoir, of a pump-motor having two cylinders, operated by fluid-pressure, two large pumping-cylinders and two smaller pumping-cylinders, and means for connecting the large pumping-cylinders, the smaller pumping-cylinders, or all the pumping-cylinders with said reservoir to deliver fluid thereto, substantially as described.

2. In an apparatus of the character described, the combination with a reservoir, of a pump-motor having two cylinders operated by fluid-pressure, two large pumping-cylinders and two smaller pumping-cylinders, means for connecting the large pumping-cylinders, the smaller pumping-cylinders, or all of the pumping-cylinders with said reservoir to deliver fluid thereto, and a valve controlled by the pressure in said reservoir for regulating the fluid-pressure applied to said pump, substantially as described.

3. In an apparatus of the character described, the combination with a reservoir, of a pump-motor operated by fluid-pressure, a large pumping-cylinder, and a small pumping-cylinder operated by said pump-motor, and means for connecting the large pumping-cylinder, the small pumping-cylinder or both with the said reservoir, to deliver fluid thereto, substantially as described.

4. In an apparatus of the character described, the combination with a reservoir, of a pump-motor operated by fluid-pressure, a large pumping-cylinder and a small pumping-cylinder, means for connecting the large pumping-cylinder, the small pumping-cylinder, or both with the said reservoir, to deliver fluid thereto, and a valve controlled by the pressure in the said reservoir for controlling the fluid-pressure applied to the pump, substantially as described.

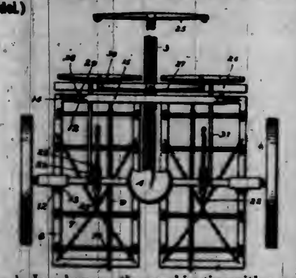
5. In an apparatus of the character described, the combination with a reservoir, a pump operated by fluid-pressure for delivering fluid to the said reservoir, and a valve controlled by the pressure in the said reservoir for controlling the fluid-pressure applied to the said pump, of a superheating-chamber to receive the fluid from the said reservoir and conduct it to the distribution-pipe, and means for heating the fluid in the said chamber, substantially as described.

6. In an apparatus of the character described, the combination with a reservoir, a pump operated by fluid-pressure for delivering fluid to the said reservoir, means for heating the fluid in the reservoir and a valve controlled by the pressure in the said reservoir for regulating the fluid-pressure applied to the said pump, of a chamber to receive the fluid from the said reservoir and conduct it to the distribution-pipe, and a steam-pipe passing through the said chamber for superheating the fluid therein, substantially as described.

7. In an apparatus of the character described, the combination with the two reservoirs, of a pump having two operating-cylinders operated by fluid-pressure, two large pumping-cylinders, and two small pumping-cylinders, and means for connecting the large pumping-cylinders, the small pumping-cylinders, or all the pumping-cylinders with the said reservoirs to deliver fluid thereto, and a valve controlled by the pressure in one of the said reservoirs, for controlling the fluid-pressure applied to the said pumping-cylinders substantially as described.

8. In an apparatus of the character described, the combination with a reservoir, a chamber to receive fluid from the said reservoir and conduct it into the distributing-pipes and means for forcing fluid into the said reservoir and keeping the same at a uniform pressure, of a steam-pipe F^3 having branches f^3 passing through the said chamber to superheat the fluid therein, a pipe F^4 to conduct the steam from the two branches f^3 into the reservoir, a large pipe in the said reservoir to receive the steam to heat the contents of the said reservoir and a valve f^4 for the escape of the steam, substantially as described.

588,192. RIDING-HARROW. JAMES L. STURGIS and JAMES T. TAYLOR, Monroe City, Mo. Filed Feb. 18, 1897. Serial No. 624,063. (No model.)



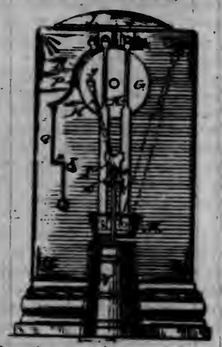
Claim.—1. In a harrow, the combination with a main frame, of a harrow-frame, a plurality of guiding-castings mounted on the main frame, a plurality of standards mounted on the harrow-frame and adapted to slide in said castings whereby the harrow-frame is guided vertically, and an adjusting-lever mounted on the main frame and connected to the harrow-frame for raising and lowering the same, substantially as described.

2. In a harrow, the combination with an arched axle carrying a wheel at each end, of a plurality of harrow frames carrying harrow-teeth, sliding standards mounted on said frames, slotted castings

mounted on the axle to receive a portion of said standards, a draft-tongue secured to said axle, a cross-bar mounted on said draft-tongue, slotted castings secured to said cross-bar and adapted to receive the remainder of said sliding standards, and means for raising and lowering the harrow-frames at will, substantially as described.

3. The combination with a plurality of harrow-frames, of an arched axle provided with a wheel at each end, sliding standards connecting said axle and said frames, a tongue connected to said axle, a cross-bar mounted on said tongue, guiding-castings mounted on said cross-bar, sliding standards mounted in said castings and connected to the harrow-frames, another cross-bar connected to said castings, rods connecting said latter cross-bar to the axle, and a doubletree mounted on this latter cross-bar, substantially as described.

588,193. CHURN-MOTOR. ASA R. TALBOTT, Craigmoor, W. Va., assignor of one-half to Wirt Stout, Mount Clare, W. Va. Filed Mar. 29, 1897. Serial No. 629,689. (No model.)



Claim.—1. In a churn-motor, the combination, with the frame or casing, the operating-shaft having a wheel or disk on its outer end, and means for rotating said shaft, of the cross-head, a pitman or rod connecting the cross-head with the wheel or disk and the parallel bars forming a guide for the cross-head, one of said rods being pivotally secured at one end to permit it to be swung laterally, and means for detachably securing the opposite or free end of said rod.

2. In a churn-motor, the combination, of a frame or casing, the operating-shaft, a wheel or disk on the outer end of said shaft, having a crank-pin, a pitman connected with said pin, parallel-spaced bars forming a vertical guide with one of said bars being pivotally secured at one end so that it may be swung laterally, means for detachably securing the free end of said bar and fixing said bar in position, a cross-head connected with the pitman and operating in the guide formed by the bars, and having grooved sides to engage said bars, and means for connecting the cross-head with the stem of a churn-dasher.

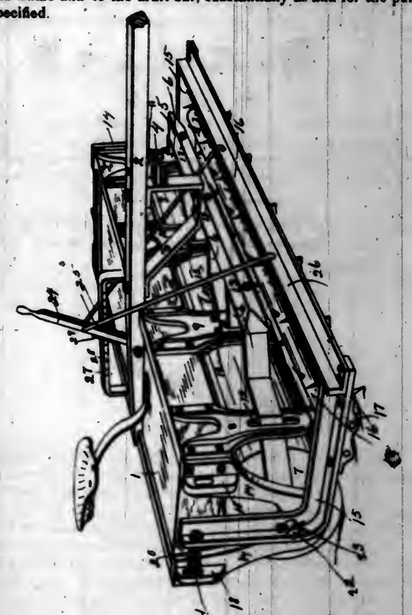
3. In a churn-motor and in combination with a reciprocating cross-head, and means for operating the same, and a vertical guide in which the cross-head travels, the means for catching the surplus lubricant or drip and keeping it out of contact with the churn, consisting of a drip-cup below the parts receiving the lubricant and into which the surplus oil or drip is directed.

4. In churn-motors having a vertical guide and a reciprocating cross-head and means for operating it, a drip-cup placed below the guide and cross-head for the purpose of receiving the surplus lubricant or drip, said cup having spring-arms engaging a fixed lug on the frame of the motor whereby it is detachably secured in position.

5. A churn-motor comprising a frame with lugs on its exterior, a spring-motor contained within the frame and including a driven shaft having a wheel or disk on one end, exterior of the frame, parallel-spaced bars having opposite ends secured to said lugs and their intermediate portions bent outward, one of said bars being pivotally secured at one end so that it may be swung laterally, a cross-head adapted to reciprocate in the guide formed by said bars, a pitman connecting the cross head with the wheel or disk, a drip-cup below the bars and cross-head, a brake for the wheel or disk and a pivoted link on the cross-head having a socket in which the stem of the dasher may be secured.

588,194. LAND-ROLLER. HIRAM TAYLOR, Salem, Ohio. Filed Mar. 15, 1897. Serial No. 627,508. (No model.)

Claim.—1. The combination of a frame, a roller or rollers located below the frame and journaled to yokes, a draft-bar 5, arms extended below the frame and provided with slots, and a tongue connected to the frame and to the draft-bar, substantially as and for the purpose specified.
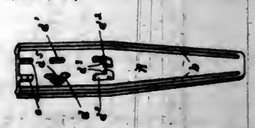


2. The combination of a frame having connected thereto a tongue, a bracket secured to the tongue and carrying a draft-bar, yokes pivotally connected to the draft-bar, rollers journaled to the yokes, downward-extending arms secured to the frame and provided with slots through which the members of the yokes pass, substantially as and for the purpose specified.

3. The combination of a frame, a tongue connected thereto and to a draft-bar a draft-bar and yokes having journaled thereto rollers, brackets 14, connected to the ends of the frame, L-shaped bars pivotally connected to the brackets 14, pulverizing-rollers journaled to the bars 15, means for holding the pulverizing-rollers in an elevated position, and springs 21, substantially as and for the purpose specified.

4. The combination of the frame 1, provided with downward-extending arms having slots, a tongue secured to the frame and to the draft-bar, yokes pivoted to the draft-bar 5, rollers journaled to the yokes, brackets secured to the ends of the frame, and provided with flanges 18, the bars 15, carrying pulverizing-rollers, springs 21, and means for elevating the pulverizing-rollers, substantially as and for the purpose specified.

588,195. FENCE-POST. HIRAM TAYLOR, Salem, Ohio, assignor of one-half to John F. Teacher, same place. Filed Mar. 10, 1897. Serial No. 626,636. (No model.)



Claim.—1. As an improved article of manufacture a base provided with ribs *b*, located upon the faces of the base a short distance from its edges, flanges d^3, provided with shoulders to support the fence-post proper, the flanges *c*, *d*, and *d'*, the clamping-bolt d^4, and the post *a*, substantially as and for the purpose specified.

2. As an improved article of manufacture a base formed of metal galvanized and provided with ribs *b*, located upon the faces of the base, flanges d^3, provided with shoulders to support the fence-post proper, the flanges *c*, *d*, and *d'*, the clamping-bolt d^4, and the post *a*, clamped to the base, substantially as and for the purpose specified.

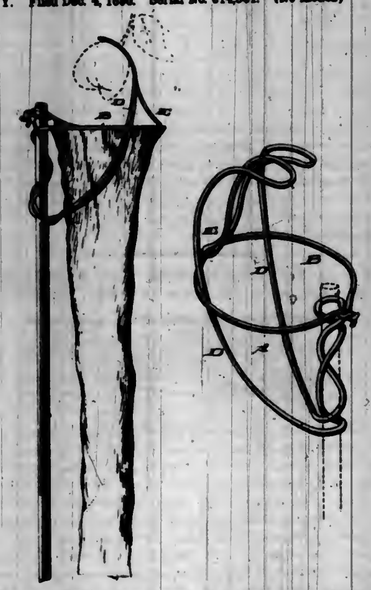
588,196. CYLINDER-LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Dec. 7, 1896. Serial No. 571,622. (No model.)

Claim.—1. The combination of a cylinder or casing, the plug located in said casing, tumblers carried by said plug, a dog for said tumblers and an auxiliary tumbler also carried by said plug and formed in two parts, one of said parts being adapted to normally close or obstruct the entrance to the keyway, and which when moved so as to open the keyway telescopes with the other and locks the plug to the cylinder, substantially as described.



2. The combination of a cylinder or casing, a plug in said casing carrying the tumblers and a dog, an auxiliary tumbler carried by the plug normally obstructing the keyway, said tumbler consisting of a shell which is adapted to be moved into engagement with the casing, and spring-pressed pins working in a groove in the casing and adapted to keep the shell normally out of engagement with the casing, substantially as shown and described.

588,197. FRUIT-GATHERER. WILL J. THOMAS, Gloversville, N. Y. Filed Dec. 4, 1896. Serial No. 614,501. (No model.)



Claim.—A fruit-gatherer made of a single piece of wire which is bent to form a hook or band adapted to support a webbing, the said wire thence being coiled to form a socket to receive a pole, thence upwardly and ovally curved, bent upon itself forming an arm, thence bent upon itself forwardly forming a shoulder on which the outer rim of the said band is supported, the wire thence continued upwardly and forwardly into a second curved arm thence downwardly extended and coiled about the socket portion and having its end secured to the end of the said band, substantially as shown and described.

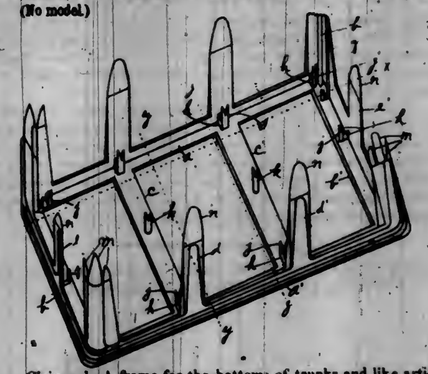
588,198. DRIVING MECHANISM FOR CYCLES. WILLIAM H. TRENGROVE, Christchurch, New Zealand, assignor to the Trengrove Lever Motion Company, Limited, same place. Filed Oct. 10, 1896. Serial No. 608,511. (No model.)



Claim.—1. In a bicycle the combination with the driven axle having a crank-arm thereon, of the main crank-axle, the crank *a* thereon, the curved arm carried by said crank, and the chain having one end connected at the angle between the crank and curved arm and a connection from its other end to the arm on the driven axle, substantially as described.

2. In a bicycle, the combination with the driven axle having a crank arm thereon, of the main crank-axle, the crank *a* thereon, the curved arm carried by said crank, at an angle thereto, the chain having one end connected at the angle between the crank and curved arm and a connection from its other end to the arm on the driven axle, and means for varying the inclination of the curved arm in regard to the crank, substantially as described.

588,199. FRAME FOR TRUNKS, VALISES, &c. EPHRAIM M. TURNER, Fort Worth, Tex. Filed Sept. 19, 1896. Serial No. 606,356. (No model.)



Claim.—1. A frame for the bottoms of trunks and like articles consisting of end and side pieces having vertical and interior horizontal flanges coming together and forming angles, brads and lugs formed on said horizontal flanges, all of said parts being formed of one piece of metal.

2. A frame for the bottom of trunks or like articles consisting of end and side pieces having interior angles and having their exterior sides curved, brads and lugs formed on the top of the said horizontal flanges, all of said parts being formed of one piece of metal.

3. A frame for trunks and like articles consisting of a bottom part extending on the four or more sides of the article and bands extending around the sides and bottom, said bottom part having an interior angle, and said bands having exterior ribs formed on the exterior thereof, all formed of one piece of metal.

4. A frame for trunks and like articles consisting of a single piece of metal having a bottom rim angular in cross-section, corner-uprights, and uprights intermediate the corners, all of said uprights having brads integral with the top parts, said brads being adapted to be bent and clenched over the sides, ends and corners of the trunk or other article.

5. A frame for trunks or like articles consisting of a bottom rim having vertical and horizontal flanges, said flanges coming together and forming an interior angle, corner-uprights, and bands intermediate the ends of the frame, lugs formed on said horizontal flanges and integral therewith and with said vertical flanges to hold the side pieces of the trunk or other article in place, all of said parts being formed of one piece of metal.

6. A frame for trunks and like articles consisting of a bottom rim having vertical and horizontal flanges, said flanges coming together and forming an interior angle, corner-uprights and bands intermediate the ends of the frame, brads integral with said horizontal flanges and bands adapted to hold the bottom of the trunk or article in place, all of said parts being formed of one piece of metal.

7. A frame for trunks and like articles consisting of a bottom rim having vertical and horizontal flanges, said flanges coming together and forming an interior angle, corner-uprights and bands intermediate the ends of the frame, lugs formed on said horizontal flanges and integral therewith and with said vertical flanges adapted to hold the side pieces of the trunk, and brads integral with said bands and horizontal flanges adapted to hold the bottom of the trunk in place, all of said parts being formed of one piece of metal.

8. A frame for trunks and like articles consisting of a bottom rim, corner-uprights and bands integral with said rim, lugs integral with said rim, and brads integral with said rim and uprights and bands, said bands and lugs being adapted to hold the bottom, sides and ends of the trunk or other article in place, all of said parts being formed of one piece of metal.

9. A frame for trunks or like articles consisting of a bottom rim having horizontal and vertical flanges, said flanges forming an interior

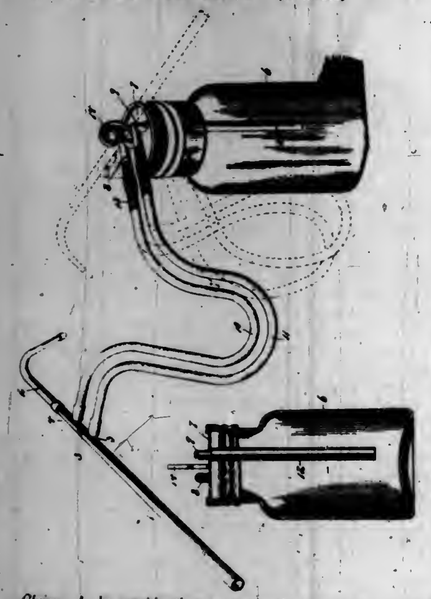
angle, and corner uprights integral with said rim, said uprights being curved on the exterior and having an interior angle, a flange dividing said angle, said flange being adapted to hold the side and end pieces of trunks or other articles in place, all of said parts being formed of one piece of metal.

10. A frame for trunks or like articles consisting of a rim having horizontal and vertical flanges, said flanges forming an interior angle and corner-uprights integral with said rim, said uprights having flanges forming interior angles, ribs on the interior of said flanges adapted to lock the side and end pieces of a trunk or other article in place, flanges dividing the interior angles of said uprights, all of said parts being formed of one piece of metal.

11. A frame for trunks and like articles consisting of an angular rim, corner-uprights integral with said rim, said uprights being curved on the exterior and having flanges forming interior angles, ribs on the interior of said flanges, each of said uprights having a flange dividing its angle, said ribs and flanges being adapted to lock the side and end pieces of a trunk or other article in place, all of said parts being formed of one piece of metal.

12. Corners for trunks and like articles consisting of pieces of metal, each adapted to secure the three converging edges of a trunk or other article, each having angular extensions for securing the two bottom edges and an upright extending the entire length of the upright edge, said upright having two flanges forming an interior angle, ribs on the interior of said angles, a flange dividing said angle, and brads integral with said upright for clenching the top edges.

588,200. BLOWPIPE. JOHN C. VAN SLYKE, Cumberland, Iowa. Filed Dec. 31, 1896. Serial No. 617,637. (No model.)

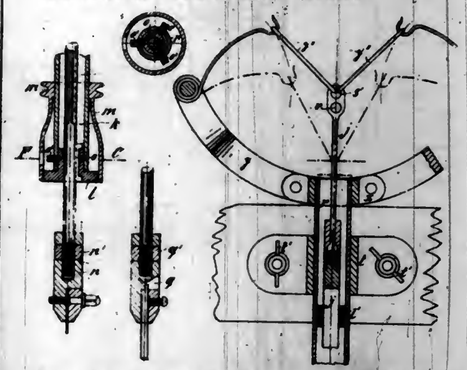


Claim.—1. In combination, a receptacle containing a volatile hydrocarbon, a pipe extending into the receptacle for delivering the air into the body of the hydrocarbon, a blowpipe independent of the receptacle and having a partition, a flexible tube connecting the blowpipe on one side of the partition with the pipe in the receptacle, and a second flexible tube connecting the upper portion of the receptacle with the blowpipe on the opposite side of the partition, substantially as and for the purpose set forth.

2. In combination, a receptacle containing a volatile hydrocarbon, couplings applied thereto, a pipe extending from one of the couplings to within a short distance of the bottom of the receptacle, a spring-holder located opposite the couplings to act jointly therewith to secure the blowpipe, a partitioned blowpipe adapted when not in use to be engaged with the said holder, and flexible tubes connecting the blowpipe upon opposite sides of the partition with the aforesaid couplings, substantially as set forth.

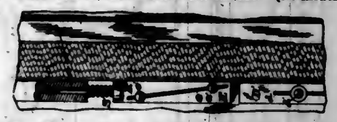
3. In combination, a receptacle, couplings applied thereto, a pipe connected with one of the couplings and extending into the receptacle to within a short distance of its bottom, a blowpipe having a partition and nipples upon opposite sides of the partition, and flexible tubes making connection at their ends with the said nipples and couplings, substantially as shown for the purpose described.

588,201. SWEEP OR SHAPING SAW-MACHINE. ALOISE WAECHTER, Strasburg, Germany, assignor to Charles VORE, same place. Filed Mar. 25, 1897. Serial No. 629,243. (No model.)



Claim.—In combination the tube *r*, the two-part spindle adapted to have vertical and rotary movement therein, the lower portion of said spindle being adapted to carry either a saw or drill, the bracket *x*, the depressing-rod guided in said bracket, the springs connected with the upper portion of the spindle, and the pin passing through the depressing-rod and engaging the upper portion of the spindle, substantially as described.

588,202. SASH-FASTENER. JAMES WEATHERS, Indianapolis, Ind. Filed Feb. 15, 1897. Serial No. 623,355. (No model.)



Claim.—The combination, with the sash and frame of a window, of a parting-strip cut away as described and the lower section of the strip being secured whereby it can be longitudinally adjusted, and a wedge-clamp secured in the space where the parting-strip has been cut away, said wedge-clamp being considerably longer than wide and being approximately the same shape and size in cross-section as the parting-strip and said clamp having a diagonal slot as shown, and screws working through the slot in the clamp and fastening the clamp to the window-frame, all substantially as described and for the purposes specified.

588,203. PROCESS OF DEVELOPING AZO COLORS. ARTHUR WEINBERG, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed Apr. 27, 1897. Serial No. 634,137. (No specimens.)

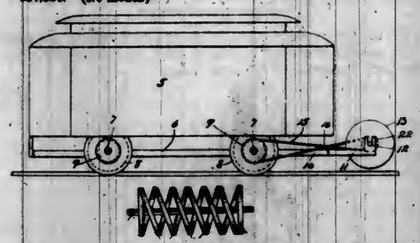
Claim.—The process of developing dyeings produced by means of those direct-dyeing cotton dyestuffs which contain free primary amido groups by treating the goods in a bath containing diazo compounds substantially as described.

588,204. METHOD OF SEPARATING PRECIOUS METALS FROM THEIR ORES. GUSTAF M. WESTMAN, New York, N. Y. Filed June 25, 1895. Serial No. 554,042. (Specimens.)

Claim.—1. The herein-described method of separating precious metals from their ores, consisting in first melting the ores to form a molten mass or slag, and then subjecting this mass to the action of jets of fluid to form mineral wool, to divide the precious metal into minute particles which collect on and adhere to the mineral wool, and then subjecting the mineral wool to a leaching process, to separate the precious metal and the wool, substantially as shown and described.

2. The herein-described process of separating precious metals from their ores, consisting in first reducing the ore with a flux in a furnace to form a molten mass, then subjecting the flowing molten mass to the action of jets of fluid, to form mineral wool and cause the precious metals to collect or adhere in a finely-divided state or minute particles on the said wool, and finally separating the wool and the precious metals, substantially as shown and described.

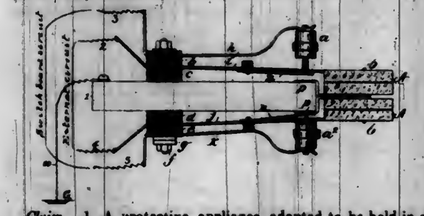
588,205. FENDER OR GUARD FOR TRAMWAY-CARS. EDWARD S. WILKINS, Brooklyn, N. Y. Filed May 21, 1897. Serial No. 637,523. (No model.)



Claim.—1. The herein-described fender or guard for tramway-cars, comprising an arm 10 having hinged extensions 11, a shaft 12 mounted in the end of said extensions, rollers 13, and a grooved wheel 14 mounted on said shaft, and a driving-belt 15 mounted on the said grooved wheel and on the axle of the car, said rollers consisting of end bands or rings 17 connected with the said shaft 12 by spokes 18, said rings being connected by spiral-spring bands 19, and a packing 20 placed on said bands, and a flexible covering inclosing the same, substantially as and for the purpose described.

2. In a fender or guard for tramway-cars, rollers mounted in suitable bearings in front of said car, and provided with means to revolve the same in a direction opposite to the direction in which the truck-wheels are revolved, said rollers consisting of end bands, mounted upon a suitable axle, said bands being connected by spiral-spring bands, a packing placed on said bands, and a flexible covering inclosing the same, substantially as and for the purpose set forth.

588,206. PROTECTIVE APPLIANCE FOR ELECTRICAL APPARATUS. ARTHUR S. WILLIAMS, Newton, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed May 7, 1897. Serial No. 635,542. (No model.)



Claim.—1. A protective appliance adapted to be held in supports under spring-pressure and normally forming an electric connection between the said supports but adapted to dissever the same, consisting of a metal thimble provided with a heating-coil at one end, an insulated pin extending from the opposite end through the said coil, and a metal tube concentric with said pin and soldered to the bobbin of the coil, as and for the purpose set forth.

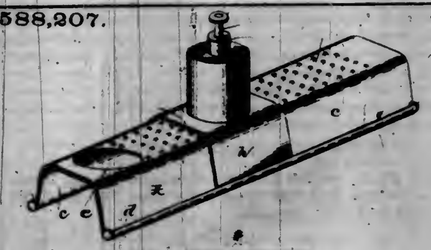
2. A protective appliance adapted to be held in supports under spring-pressure, and normally forming an electric connection between the said supports but adapted to dissever the same; consisting of a metal thimble provided with an insulated heating-coil wound over a metal spool at one end, an insulating-button in the opposite end supporting a metal pin which projects through the axis of said coil, and a metal tube concentric with said pin soldered to the bobbin of the coil, as and for the purpose set forth.

3. A protective appliance composed of two line-conductor terminal springs; a ground-plate; and a device between said springs normally forming an electric connection between the same but adapted to dissever said connection and connect one of the springs to ground; the said device comprising a thimble provided with a heating-coil at one end, an insulated pin extending from the opposite end through the said coil, and a tube concentric with said pin and soldered to the bobbin of the coil, as set forth.

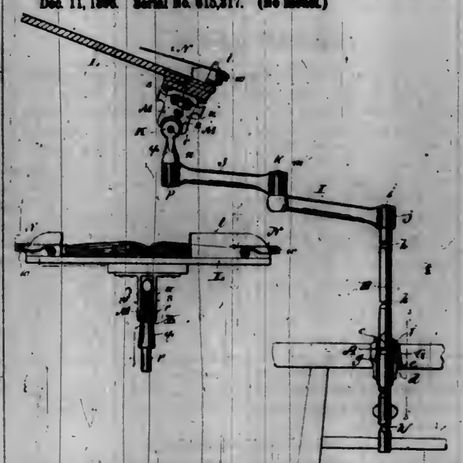
588,207. NUTMEG-GRATER. ROBERT J. WILLIAMS, Vincennes, Ind. Filed Feb. 12, 1897. Serial No. 623,047. (No model.)

Claim.—A nutmeg-grater having a grating-face and two side flanges formed integrally therewith, said flanges having their edges coiled inwardly to form guideways, stop-pieces closing said guideways at the ends thereof, and a nutmeg-holder provided with slides movable in said guideways and adapted to abut against the stop-pieces to prevent disconnection of the holder from the grater.

588,207.



588,208. FURNITURE. FRANK A. WOODS, Racine, Wis. Filed Dec. 11, 1896. Serial No. 615,317. (No model.)

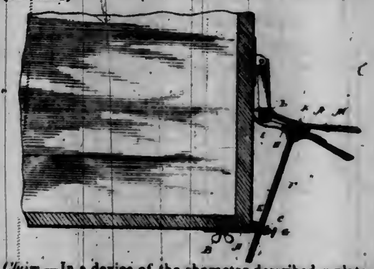


Claim.—1. The ratchet-head, a rest for books or writing material provided with a bracket having ears thereof in pivotal connection with the ratchet-head, a pivot connecting the bracket-ears, a pair of head-engaging detents hung on the pivot, a spring interposed between the detents above the pivot, and suitable means for the support of said ratchet-head.

2. The rest L provided with the guard-flange *t*, and the spring-wires N made fast to said flange to extend outward parallel thereto, these wires being bent to form coils *w* clear of the flange ends and continued on curves of inward bend to lap the front or back of said rest as may be found convenient.

3. The vertical sleeve attachable to a convenient support, a rod adjustable in the sleeve, an arm in connection with the upper end of the rod, a ratchet having a shank engageable with the arm, a rest for books or writing material provided with a bracket having ears thereof in pivotal connection with the ratchet-head, a pivot connecting the bracket-ears, a pair of head-engaging detents hung on the pivot, and a spring interposed between the detents above the pivot.

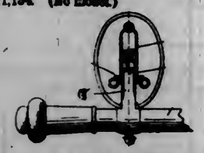
588,209. HOLDER AND ADJUSTER FOR CASKET-HANDLES. ELBERT A. YOCUM, Mendon, Ohio. Filed Sept. 14, 1896. Serial No. 605,737. (No model.)



Claim.—In a device of the character described, a plate adapted to fit against the bottom of a casket, a thumb-screw swiveled in said plate, a lug extending upward at right angles from the outer edge

of the plate adapted to fit against the edge of a casket, ears projecting outward from the lug, a block pivoted between said ears, a rod run vertically through said block and extending upward from the plate, a thumb-screw threaded in the block for adjusting the rod, the upper end of said rod being threaded, a clamp, the lower member of said clamp having a threaded socket in which the rod is adapted to fit substantially as described.

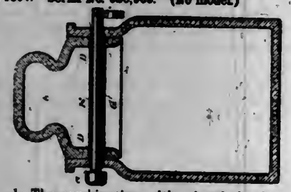
588,210. CASKET-HANDLE. OSCAR ZAUCHE, Elgin, Ill., assignor to the Elgin Silver Plate Company, same place. Filed Nov. 5, 1896. Serial No. 611,134. (No model.)



Claim.—1. As an article of manufacture a supporting-handle for caskets and the like comprising a cush-shaped plate having holes therethrough for fastening-screws or the like, said holes surrounded by inwardly-projecting strengthening portions, a slot or opening in said plate, a handle-bar having a connecting-bar which projects through said slot or opening, said connecting-bar provided with projections which rest upon the strengthening portions surrounding the holes for the fastening devices when the handle is in use so that part of the load on the handle rests upon said strengthening portions.

2. As an article of manufacture, a handle for caskets and the like comprising a dish-shaped plate having holes therethrough for fastening-screws or the like, said holes surrounded with inwardly-projecting strengthening portions, a slot or opening in said plate, a handle-bar having a connecting-bar which loosely projects through said slot or opening, said connecting-bar provided with projections connected so that it has to become a part thereof and which rest upon the strengthening portions surrounding the holes for the fastening devices, and a holding device attached to the inner surface of said plate and provided with engaging parts which engage the projections on said connecting-bar so as to hold the connecting-bar and plate together.

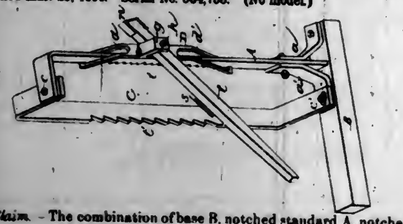
588,211. BOTTLE-STOPPER LOCK. GEORGE L. ABBOTT, Corning, N. Y., assignor of one-half to Charles F. Houghton, same place. Filed Jan. 27, 1897. Serial No. 620,969. (No model.)



Claim.—1. The combination with a bottle having its neck provided with openings, of a stopper provided with a main chamber and with a secondary chamber extending through the main chamber and registering with the openings in the neck of the bottle and a locking-pin extending through the opening in the neck and through the secondary chamber in the stopper.

2. The combination with the bottle having its neck formed with openings, of a stopper provided with a main chamber and with openings, a tube having its ends seated and secured in the openings in the stopper and a locking-bolt extending through the openings in the neck of the bottle and through the tube.

588,212. LIFTING-JACK. RICHARD BAKER, Terre Haute, Ind. Filed Mar. 26, 1896. Serial No. 584,755. (No model.)



Claim.—The combination of base B, notched standard A, notched guard C pivoted to said base and standard, bolt c, bolt c', and collar b, adjustable hanger D, and lever *l*, all substantially as described and for the purpose set forth.

588,218. WIRE-TIGHTENER. ISRAEL B. BEELY, Greenville, Ohio, assignor of one-half to John F. Flory, same place. Filed Sept 26, 1896. Serial No. 607,049. (No model.)



Claim.—The herein-described wire-tightener, comprising a spool 2 provided with a longitudinal slot or kerf 3 for engaging a fence-runner, a flat circular disk 4 secured to the opposite end of the spool and having a continuous series of peripheral openings, said disk being provided also with diametrically opposite segmental slots 5 concentric with the disk, a straight operating lever or handle provided at an intermediate point with a clutch arranged in contact with the outer surface of the disk and provided with opposite lugs or ears 7 engaging said segmental slots, and a terminally-hooked link, engaging either of the peripheral openings and the contiguous portion of the wire at either side of the spool, to lock the spool against backward rotation, substantially as specified.

588,214. BAR FOR BOLSTER-SPRINGS. JOHN F. BICKEL, Racine, Wis., assignor to Cora M. Bickel, same place. Filed Oct. 25, 1895. Serial No. 567,048. (No model.)



Claim.—1. The combination with a bolster-bar, of removable bushings at its ends, constructed with channels and removable from the bar by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.

2. The combination with a bolster-bar, of an end piece having a wedge-shaped opening therein, and a bushing fitting into such opening and removable therefrom by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.

3. The combination with a bar, of a bushing connected with the end thereof, having a recess to receive the wagon-stake and endwise movable from said bar in a direction substantially at right angles to the longitudinal axis of the bar, and means for locking the bushing in operative connection with the bar, substantially as described.

4. The combination with a bar, as 9, of an end piece, a wedge-shaped opening therein, a bushing fitted into such opening, and a lug adapted to be bent over to lock said bushing in place, substantially as described.

5. The combination with a bar, as 9, of an end piece, an opening in said end piece, wedge-shaped slots, a bushing adapted to fit into said opening and removable from said bar by endwise movement substantially at right angles to the longitudinal axis of the bar, and tongues adapted to fit into said slots to hold the bushing in place, substantially as described.

6. The combination with a bar, as 9, of an end piece, an opening in said end piece, a back plate 19, a bushing adapted to fit into said opening, a lug 18 carried by said bushing, and a lug 17 adapted to be bent over to hold said bushing in place, substantially as described.

7. The combination with a bar, as 9, of an end piece 11, having a back plate 19, an opening 13 in said end piece, said opening being wedge-shaped, wedge shaped grooves in the sides of said opening, a bushing adapted to fit into said opening, a lug carried by said bushing and adapted to be bent over to hold said bushing in place, and tongues carried by said bushing and adapted to fit into said grooves, substantially as described.

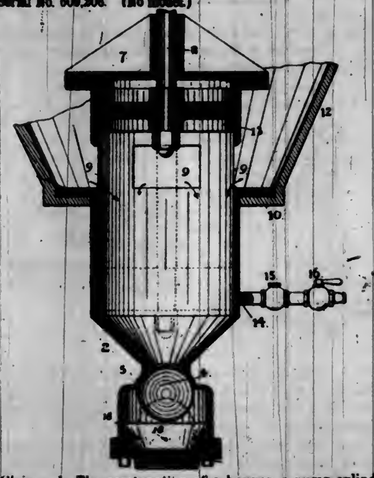
8. The combination with a bar having a wedge-shaped opening at the end thereof, of a bushing fitted into said opening and removable by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.

9. The combination with a bar having a groove, of a bushing adapted to fit into said groove, a lug 18, and a lug 17 adapted to be bent over to hold said bushing in place, substantially as described.

10. The combination with a bar having a groove, of a bushing adapted to fit into said groove, a lug 18, tongues and grooves and a lug 17 for holding said bushing in place, substantially as described.

11. The combination with a bar having a groove, of a bushing adapted to be inserted into said groove by an endwise movement, and a lug adapted to be bent over to hold said bushing in place, substantially as described.

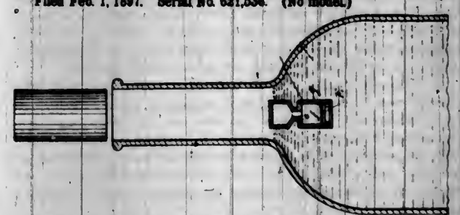
588,215. APPARATUS FOR HANDLING PULP IN WINE-MAKING. LOUIS J. BORIE, San Francisco, Cal. Filed Oct. 17, 1896. Serial No. 609,206. (No model.)



Claim.—1. The combination of a hopper, a pump-cylinder situated within the hopper having inlet-apertures on a level with the hopper-bottom and an outlet in the bottom having a coupling for a hose, a valve-chamber in the pump-body above said outlet, an upwardly-acting check-valve in said chamber, a reciprocating piston and piston-rod, and an air-inlet in the side of the cylinder located above the level of the seat of the cylinder check-valve and provided with a check-valve and a stop-cock, as described for operation as set forth.

2. The combination, with a pump-cylinder having a reciprocating piston and provided with inlet-apertures at or near the top, an outlet-aperture in the bottom and an upwardly-acting check-valve controlling said outlet; of an air-inlet aperture located in the lower part of the cylinder above the seat of the cylinder check-valve and a check-valve and stop-cock for controlling said air-inlet, for operation as set forth.

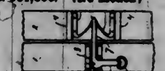
588,216. BOTTLE. ALPHEUS BOURKE, Valparaiso, Ind., assignor of two-thirds to August J. Seifert and Frederick J. Wilken, same place. Filed Feb. 1, 1897. Serial No. 621,536. (No model.)



Claim.—1. The combination, with a bottle, of a hollow float which at atmospheric pressure will swim at the surface of the liquid in the bottle, and a cork for closing the bottle, said float being provided with an opening and a piston closing the opening and preventing liquid from entering its air-space and permanently confining the air in it at a pressure above that of the atmosphere, thereby keeping the float at the bottom of the bottle until the bottle is opened and the pressure of the air in it is reduced to that of the atmosphere, substantially as set forth.

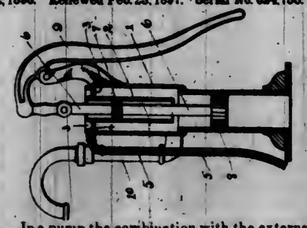
2. The combination, with a bottle provided with means for confining its contents under a prearranged pressure, of a float comprising a hollow vessel open at its bottom and provided with a cylinder at its lower part, and a piston slidable in the said cylinder and preventing liquid from entering the air-space of the float, substantially as set forth.

588,217. CORSET-FASTENER. FRANK CARLSON, Duluth, Minn., assignor of one-half to Carl M. Johanson, same place. Filed Mar. 4, 1896. Serial No. 581,866. (No model.)



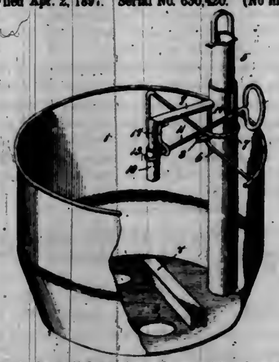
Claim.—A corset-fastener consisting of two attaching-plates, each provided with a housing, one of said plates being provided with a horizontally-arranged angular rotatable bolt comprising an outer end which is pointed and provided upon two opposite sides with locking-shoulders and upon the other two opposite sides with smooth surfaces tapering slightly toward the point; and an inner end forming an arm for rotating it, and the other plate being provided with two opposing angular plates, each provided with an integral spring-arm, secured in the housing thereof, the free ends of said spring-arms meeting and forming a V-shaped opening adapted to receive the end of the rotatable bolt; the construction being such that upon bringing the edges of the garment together the bolt is adapted to pass between said springs, the ends of which will engage the said shoulders and automatically lock the bolt therein by a snap action, while upon a rotation of said bolt, the smooth surfaces thereof will be brought into engagement with the ends of the spring whereby the bolt may be withdrawn, substantially as described.

588,218. PUMP. SHERWOOD M. CHASE, Columbus, Ohio. Filed Apr. 22, 1896. Renewed Feb. 23, 1897. Serial No. 624,730. (No model.)



Claim.—In a pump the combination with the external cylinder 1, a discharge-spout leading therefrom, an inwardly-extending annular cup formed with the upper portion of said external cylinder and an outlet-pipe leading from said cup, of the internal cylinder 2 supported centrally from said cup, a plunger-carrying rod passing through said inner cylinder and means for operating said plunger-rod, substantially as and for the purpose specified.

588,219. DISH-CLEANER. REUBEN M. DANIELS, Appleton City, Mo. Filed Apr. 2, 1897. Serial No. 630,420. (No model.)



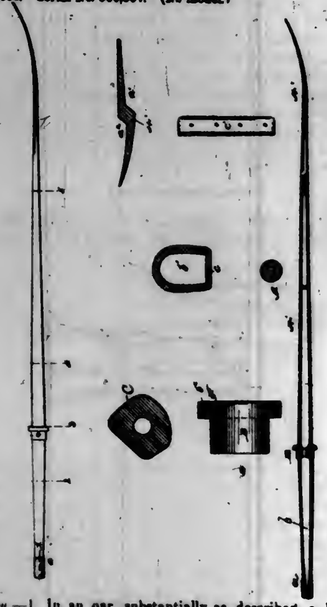
Claim.—1. In a dish-washer, the combination of a receptacle, a wire secured at its ends to the sides of the receptacle and having a

coil intermediate of its ends, and a pump fitted within the said coil and having a laterally-extending pin or projection coming between the portions of the wire at their point of crossing, whereby the pump is held against vertical displacement, substantially as set forth.

2. In a dish-washer, the combination of a receptacle, a pump located in the receptacle and having guides at its side and applied to the spout, a flexible nozzle fitted to the spout, and a rod slidably and rotatably mounted in the guides and having an eye at its inner end to receive the flexible nozzle, and a handle at its outer end, substantially as shown for the purpose set forth.

3. A dish-washer comprising a receptacle having its lower portion contracted to fit into a dish-pan or like vessel, and having its bottom formed with openings and provided with cleats, a pump having its lower portion projecting through an opening in the bottom of the receptacle, a wire secured at its ends to the sides of the receptacle and having a coil to receive and steady the pump, a pin or lateral projection at a side of the pump extending between the portions of the wire coil at their point of crossing to hold the pump against vertical displacement, a flexible nozzle fitted to the spout of the pump, and a rod rotatably and slidably mounted in guides provided on the pump and spout, and having engagement with the flexible nozzle, substantially as shown for the purpose specified.

588,220. OAR. MICHAEL F. DAVIS, Portland, Me. Filed July 30, 1890. Serial No. 360,357. (No model.)



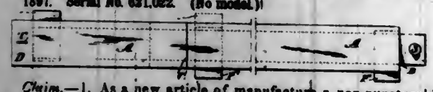
Claim.—1. In an oar, substantially as described, a blade cut away on its under side at a, and on its upper side at a^2, substantially as and for the purpose set forth.

2. An oar, having its inboard or outboard loom or both channeled, grooved or hollowed and provided in the rowlock-section with a stiffening-block, substantially as set forth.

3. An oar, having its inboard or outboard loom or both channeled, grooved or hollowed and provided in the rowlock-section with a stiffening-block integral therewith, substantially as specified.

4. As an improved article, an oar, having its inboard or outboard loom or both channeled, grooved or hollowed and provided in the rowlock-section with a stiffening-block integral therewith and the button of rigid material adapted to bear against a rowlock, substantially as described.

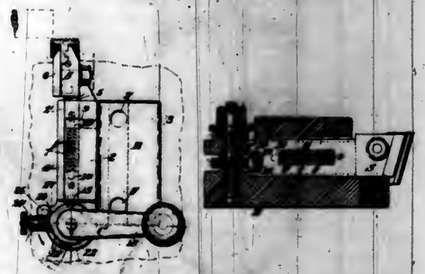
588,221. GUARD FOR BICYCLE-TIRES. JOHN S. DOUGHTY, Haddonfield, and EDWARD Z. COLLINS, Laurel Springs, N. J. Filed Jan. 28, 1897. Serial No. 621,022. (No model.)



Claim.—1. As a new article of manufacture a non-puncturable guard for a bicycle-tire consisting of two superimposed continuous strips of soft pliable leather of uniform thickness such as goatskin each of a length corresponding to the circumference of the tire and fastened together the outer of which strips is considerably wider than the inner strip whereby it overlaps the side edges of the latter when in operative position, in combination with short transversely-arranged retaining fabric-attaching portions secured to the leather strips and part of which extend laterally to one side and part to the other side beyond the lateral edges of the leather strips for cementing to the inner surface of the outer tube or shoe of the tire, whereby the guard is attached at intervals only throughout the circumference of the tire.

2. As a new article of manufacture a non-puncturable guard for a bicycle tire consisting of the combination of two long continuous strips of goatskin of substantially uniform thickness throughout and each formed of two or more pieces of skin united end to end by skived joints, with textile-fabric pieces of short length secured intermediate of said strips at intervals in their length and having portions projecting beyond the lateral edges of the strip which comes adjacent to the inner surface of the outer tube or shoe of the tire whereby the guard is connected with the said tire only at intervals throughout its circumference.

588,222. TOOL-HOLDER. FRANK G. SCHOLA, Hartford, Conn., assignor to The Pratt & Whitney Company, same place. Filed Jan. 25, 1897. Serial No. 620,589. (No model.)



Claim.—1. A tool-holder comprising a reactionary tool-carrying slide; means including a cam, for shifting said slide; and an adjustable stop device in connection with, and effective for controlling the range of each successive movement of, the cam.

2. A tool-holder comprising a shiftably-supported tool-carrier; hand-operable means including a cam for advancing said carrier; an adjustable stop device for controlling the range of successive movements of the cam; and a retracting device in connection with, and effective for retracting, said carrier.

3. A tool-holder comprising a tool-carrying slide; a cam for advancing said slide; hand-operable means for actuating the cam intermittently to bring different portions thereof in position to advance the carrier successive predetermined distances, respectively; indexing mechanism for indicating the different positions of the cam, and embodying instrumentalities for limiting the successive intermittent movements thereof; and means for retracting the slide.

4. A tool-holder comprising a tool-carrying slide; a cam in operative relation with said slide; a cam-actuator; and an indexing device in connection with, and adapted for indicating, the range of each movement of the cam-actuator.

5. The combination of a reactionary tool-carrying slide; a cam in operative relation with said slide; a cam-actuator; and an indexing device in connection with, and adapted for indicating the range of movement of, the slide-advancing cam.

6. The combination, with a shiftable tool-carrier, of a cam in operative relation with the tool-carrier and having a working face one portion of which is non-inclined with relation to its line of movement; means for actuating the cam; means for retaining the slide in engagement with the working face of said cam; and an adjustable stop device for limiting the range of movement of the cam.

7. The combination, with a reactionary tool-carrying slide, of a rotatable cam having an eccentric working-face portion for imparting an advancing movement to the slide and also having a concentric working-face portion for limiting the range of movement of said slide; actuating means in connection with said cam; and an adjustable stop device in connection with the cam-actuating means and effective for indicating and limiting the range of movement of said cam.

8. The combination, with a shiftable tool-carrier, of a cam in operative relation with the tool-carrier and having a working face one portion of which is non-inclined with relation to the line of its movement; means for actuating the cam; means for retaining the slide in engagement with the working face of said cam; and an indexing device in connection with, and effective for regulating the advancing movements of, said cam.

9. The combination, with a base having a horizontal slideway, of a tool-carrying slide supported in said slideway; a cam in operative relation with the inner end of the slide and having a working face for advancing said slide; a retracting device for retaining the slide in bearing engagement with the cam; actuating means in connection with said cam; and a shiftable stop device for indicating and limiting the effective movements of said cam.

10. The combination, with a tool rest or base having a horizontal slideway, of a reactionary slide supported in said slideway; a tool carried at the outer end of said slide; a bearing-roll rotatably supported at the inner end of said slide; a cam-supported stud journaled in the tool rest or base; a cam fixed to said stud and having a working face in engagement with the bearing-roll; a hand-lever fixed to the cam-carrying stud and adapted for imparting rotative movements to said cam, to advance the slide; and an indexing device, one part of which is carried by the cam-carrying stud, and which indexing device is adapted for indicating and limiting successive movements of the slide-actuating cam.

11. A tool-holder embodying a slide-actuating cam having successive working-face portions of successively-increased radii, and each working-face portion being, for a part of its length, eccentric to the axis of the cam and, for another part of its length, concentric to such axis, and each face portion also having a depression which extends inward beyond the working face of that portion of the cam having the least radius.

12. The combination, with a tool-carrying slide and its support, of a cam-carrying stud journaled in said support; a cam fixed to said stud and having a working face in operative relation with the slide and adapted for advancing said slide; a hand-lever fixed to the cam-carrying stud; an indexing-wheel fixed to said stud; an index-pin carrier shifted about said stud and having an index-pin adapted for engaging the index-wheel; a stop-abutment located in the path of movement of the index-pin carrier; and retracting means in connection with the slide.

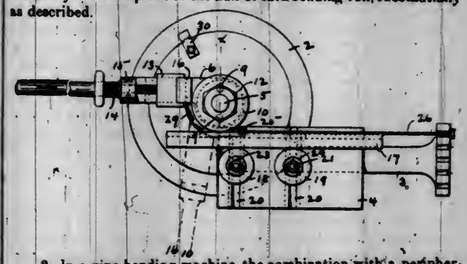
13. The combination, with a tool-carrying slide and its support, of a cam one portion of the working face of which is inclined with respect to the line of movement of said cam and another portion of the working face of which is parallel or non-inclined with relation to the line of movement of said cam, and which cam also has a depression that extends below the working face of said cam between the inclined and non-inclined portions thereof; means for retaining the slide in working engagement with the working face of the cam; means for actuating said cam; and an adjustable stop device for indicating and limiting the range of movement of said cam.

14. The combination, with a tool-carrying slide, of a rotatable cam having eccentric and concentric working-face portions and having a depression formed in that end of the eccentric portion that has the least radius; means for retaining the slide in operative engagement with the cam; means for rotating said cam; an index-wheel fixed to rotate with the cam and having index-pin notches in the periphery thereof; a shiftably-supported index-pin carrier having an index-pin adapted for engaging notches in the index-wheel and for indicating the movements of the cam; and a stop-abutment located in the path, and adapted for limiting the movement of, the index-pin carrier.

15. The combination, with a reactionary tool-carrying slide and its support and with a cam-carrying stud journaled in said support; a cam in operative engagement with said slide and having that portion of its working face that is of greatest height formed concentric to the axis of movement of said cam and also having a depression adjacent to said concentric portion for facilitating a retractive movement of the slide; a hand-lever fixed to the cam-carrying stud; a peripherally-notched index-wheel fixed to the stud and having one portion of its perimeter non-toothed concentric to its axis to correspond to the concentric portion of the cam; and an index-pin carrier supported for movement about the cam-carrying stud and having a reactionary index-pin in normal engagement with a notch of the index-wheel and adapted to engage in successive index-notches to determine the effective movement of the cam.

588,228. PIPE-BENDING MACHINE. ADELIA N. FOWLER, Naugatuck, Conn., administratrix of Herbert E. Fowler, deceased. Filed Nov. 3, 1896. Serial No. 610,936. (No model.)

Claim.—1. In a pipe-bending machine, the combination with a revolubly-supported bending-roll having its periphery grooved as described, of a lever connected to said roll for operating the same, a grooved clamping-jaw adjustably supported upon said lever and adapted to form, with the grooved periphery of said roll, a round socket to receive the pipe to be bent, a table located adjacent to said roll, a head mounted upon said table tangentially to said bending-roll and having in the side thereof a groove corresponding to the groove in said roll, and means for adjusting said head upon said table toward and away from the plane of the axis of said bending-roll, substantially as described.



2. In a pipe-bending machine, the combination with a peripherally-grooved bending-roll, of a lever rigidly connected to said roll for operating the same, an adjustable, grooved clamping-jaw on said lever for clamping a pipe in the peripheral groove in said roll, a traveling head movable in a plane tangential to said roll and having in its adjacent side a longitudinal groove corresponding to those in said roll and jaw, and means for holding said head in contact with the periphery of said roll, whereby the revolving movement of the latter will cause a rectilinear movement of the former, substantially as described.

3. In a pipe-bending machine, the combination with a peripherally-grooved bending-roll revoluble about a stationary pivot, of a lever rigidly connected to said roll and carrying an adjustable clamping-jaw the face of which is grooved to correspond with the periphery of said roll, a similarly-grooved traveling head movable in a rectilinear plane which is tangential to the periphery of said roll, and means for transmitting movement from said roll to said head, substantially as set forth.

4. In a pipe-bending machine, the combination with a grooved bending-roll, of a lever for turning the same about its axis, a clamping-jaw carried by said lever, a traveling head movable in a plane tangential to said roll, a mandrel located adjacent to the point of contact between said roll and said traveling head, and means for holding said mandrel against movement, substantially as set forth.

5. In a pipe-bending machine, the combination with a circular table, of a lever pivotally connected at one end to said table at the center of the latter, a peripherally-grooved bending-roll detachably secured to said lever and having its axis coincident with the pivot thereof, a grooved clamping-jaw detachably connected to said lever and adapted for movement toward and away from the periphery of said roll, a grooved traveling head movable in a rectilinear plane, guide-rolls for holding said head in contact with the periphery of said bending-roll, and means for adjusting said guide-rolls to vary their distance from the axis of said roll, substantially as set forth.

6. In a pipe-bending machine, the combination with a table, of a grooved bending-roll centrally mounted thereon, a lever connected to said roll for turning it about its axis, a clamping-jaw carried by said lever, a traveling head actuated by said roll in a plane tangential to the latter, a mandrel, a rod detachably connected at one end to said mandrel, and means for engaging the opposite end of said rod to prevent longitudinal movement thereof, substantially as described.

7. In a pipe-bending machine, the combination with a peripherally-grooved bending-roll and means for turning the same about its axis and for clamping the end of a pipe within the groove thereof, of a traveling head movable in a rectilinear plane and having in the side thereof adjacent to said bending-roll a longitudinal groove corresponding to the groove in said roll, and means for holding said head in contact with said bending-roll to cause the latter to impart movement to the former, substantially as described.

8. The combination with the grooved bending-roll 10, of lever 7 rigidly connected therewith, sliding block 13 mounted upon said lever, screw 14 bearing against the outer end of said block, and grooved jaw 16 detachably connected to the opposite end of said block, substantially as described.

9. The combination with bending-roll 10, lever 7, and clamping-jaw 16, of the traveling head 17, guide-rolls 18, 19, and means for adjusting said guide-rolls to vary their distance from the axis of said bending-roll, substantially as described.

10. The combination with table 2 having the extension 3 provided with the open slots 27, of the bending-roll 10, lever 7, clamping-jaw 16, traveling head 17, mandrel 25, and rod 26 detachably connected at one end to said mandrel, said rod having its opposite end adapted to rest in one of the slots of said table extension and being provided at said end with the head 28, substantially as and for the purpose described.

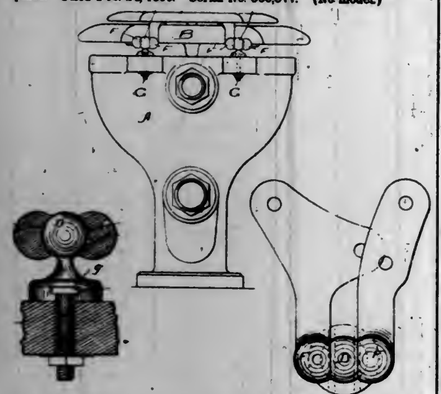
11. The combination with table 2, of the lever 7 having the head

6 which is centrally pivoted upon said table, said head being provided with the upwardly-projecting pins 9, of the bending-roll 10 provided with holes to receive the pins on said lever, means, as the stud 5 and nut 12 for holding said roll downwardly upon said lever, grooved clamping-jaw 16 movably mounted upon said lever, and screw 14 also mounted upon said lever, for holding said jaw in engagement with the periphery of said roll, substantially as described.

12. The combination with table 2, bending-roll 10, lever 7, and its clamping-jaw 16, of the bed-plate 4 provided with the parallel T-slots 20, T-bolts 21 movable within said slots and carrying the guide-rolls 18, 19, and the grooved traveling head 17 resting upon said bed-plate and engaging, at its grooved side, the periphery of said bending-roll and being engaged at its opposite side by said guide-rolls, substantially as described.

13. In a pipe-bending machine, the combination with a peripherally-grooved bending-roll and a lever rigidly connected thereto for operating the same, said lever carrying an adjustable, grooved clamping-jaw, of a grooved traveling head movable in a plane tangential to said roll and engaging the periphery of said roll, a mandrel located within the groove in said head and projecting to a point at or beyond the rear end of the groove in said clamping-jaw, when said lever stands in its normal position, and means for holding said mandrel from movement longitudinally, arranged and operating substantially as described.

588,224. WATER-CLOSET. JOHN H. GAVIN and JOHN MCGUIRE, Chicago, Ill., assignors to the L. Wolff Manufacturing Company, same place. Filed Feb. 24, 1896. Serial No. 580,577. (No model.)



Claim. 1. The combination with an earthenware closet-bowl of a seat and a cover therefor, two ball-and-socket hinges connecting said seat directly with the bowl and two ball-and-socket hinges connecting said cover directly to the bowl, the members of said ball-and-socket hinges attached to the seat and cover embracing the members on the bowl on opposite sides, substantially as specified.

2. The combination with an earthenware closet-bowl of a seat or cover therefor, two ball-and-socket hinges connecting said seat or cover directly to said bowl, and means for adjusting the position of one or more of said hinges on the bowl, substantially as specified.

3. The combination with a closet-bowl and its seat or cover, of a ball-and-socket hinge having an adjustable member attached to the bowl and adjustable in respect thereto, substantially as specified.

4. The combination with a closet-bowl and its seat or cover, of a ball-and-socket hinge, the member of said hinge secured to the bowl having a slot in its base and a bolt having a head fitting in said slot to permit adjustment of position on the bowl, substantially as specified.

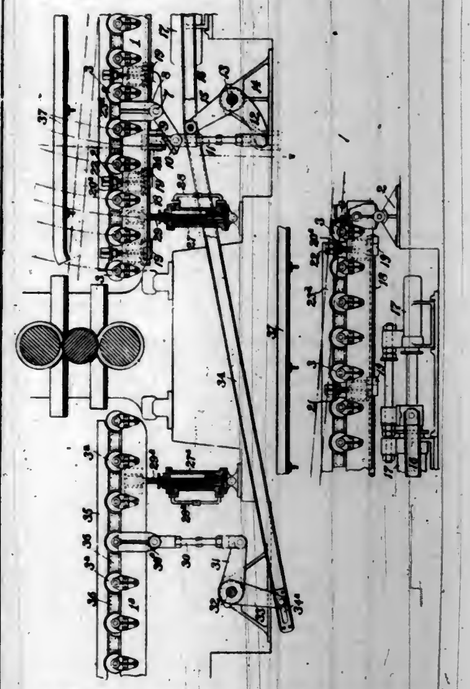
5. The combination with a closet-bowl and its seat or cover, of a ball-and-socket hinge, the member of said hinge secured to the bowl having a slot in its base and a bolt having a head fitting in said slot to permit adjustment of position on the bowl, said slotted base of said hinge member being adapted to turn radially to permit adjustment in different directions as required, substantially as specified.

6. The combination with two ball members of a hinge secured to one part, of two socket-hinge members secured to another part, the hinge members secured to the one part embracing on opposite sides the hinge members secured to the other part, substantially as specified.

7. The combination with two ball-hinge members secured to one part of two socket-hinge members secured to another part, one or more of said hinge members being provided with means for adjustment of position, substantially as specified.

8. The combination with two ball-hinge members secured to one part of two socket-hinge members secured to another part, one or more of said hinge members being provided with a slotted base and bolt for adjusting its position, substantially as specified.

588,225. FEED-TABLE FOR ROLLING-MILLS. SIGMUND V. HUBER, Youngstown, Ohio. Filed Dec. 28, 1896. Serial No. 617,176. (No model.)



Claim.—1. The combination of a vertically-movable frame, positively-driven feed-rollers mounted in said frame, transfer mechanism for shifting an article laterally on said rollers, and a laterally-movable receiving-trough in line with the last pass of the reducing-rolls, substantially as set forth.

2. The combination of a vertically-movable frame, positively-driven feed-rollers mounted in said frame, transfer mechanism for shifting an article laterally on said rollers, and a pivotally-mounted receiving-trough arranged in line with the last pass of the reducing-rolls, substantially as set forth.

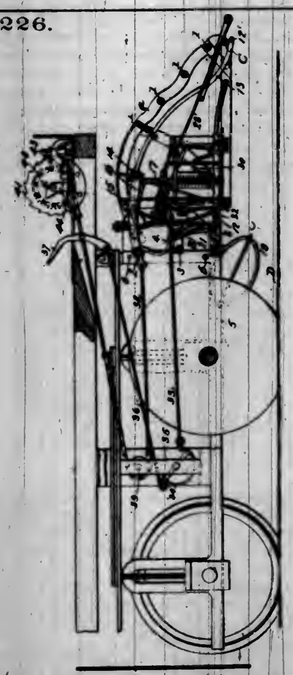
3. The combination of reducing-rolls, frames pivotally mounted on opposite sides of said rolls, positively-driven feed-rollers mounted in said frames, a transfer mechanism for shifting an article laterally on the rollers of one frame and mechanism for raising and lowering the frames simultaneously and for shifting the transfer mechanism, substantially as set forth.

588,226. CAR-FENDER. THOMAS R. H. JOHNSON, Washington, Pa. Filed Sept. 28, 1896. Serial No. 607,280. (No model.)

Claim.—1. A fender, a buffer movable within the fender and adapted to be raised into normal position and automatically projected into operative position, means for holding said buffer in normal position, wheel-guards secured to the buffer and operative therewith, and mechanism connected to the car-platform for releasing the buffer from said holding means, whereby the buffer and wheel-guards may be simultaneously projected into close proximity to the track, substantially as described.

2. A fender, a buffer movable within the fender, said buffer being provided with a rearwardly-extending arm, a spring-catch adapted to engage with a notch in said arm to hold the buffer in a raised or normal position, wheel-guards secured to said arm and movable with the buffer, and means connected with the car-platform for releasing the buffer from the catch, whereby the buffer and wheel-guards may be projected downward into close proximity to the track, substantially as described.

588,226.

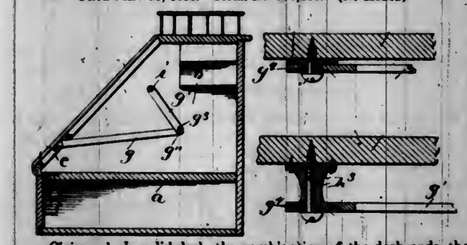


588,227. REGULATING CONTRIVANCE FOR GAS HEATING-BURNERS. HEINRICH KIKOW, Berlin, Germany. Filed Aug. 15, 1896. Serial No. 602,915. (No model.)



Claim.—In a gas-burner the combination of a gas-supply pipe, of a mixing-tube in substantial alinement therewith, said gas-supply pipe having a slot in one side thereof adapted to discharge gas into said mixer at an angle to the axis thereof, and being provided with a sliding collar, controlling the flow of gas through said slot, substantially as described.

588,228. DESK-LID SUPPORT. BURTON E. KIPP, Philadelphia, Pa. Filed June 30, 1896. Serial No. 597,607. (No model.)



Claim.—1. In a lid-desk, the combination of the desk ends, the shelf, the vertically-swinging lid hinged to the shelf, a long straight link at its lower end pivotally joined to the lid and arranged to extend upwardly therefrom and at its upper end having the headed pivot extending from its side away from the desk end, the short straight upper link at its lower end lapping the upper end of the long link and having an inclined slot in which said pivot is confined, a washer resting against the inner face of the desk and having the reduced journal at its outer end of greater length than the thickness of the upper link and on which the upper end of said link turns, and a screw passing through said washer into the desk end with its head clamping against the outer end of the washer and projecting beyond the same to confine the link, substantially as described.

2. In a lid-desk, the combination of the desk ends, the desk-shelf, the vertically-swinging lid hinged to the shelf, washers at their inner ends resting against the inner faces of the desk ends a distance above the shelf, each washer having the central hole completely therethrough and at its outer end the circumferentially-reduced journal, and a headed securing-screw passing through said hole into the desk end with the head of the screw bearing against the outer end of the washer, and the two pairs of jointed-link lid-supports, each pair at the outer end pivotally joined to the lid and at the upper inner end having a bearing on said journal of the washer and loosely confined thereon by the head of the securing-screw, substantially as described.

3. In a lid-desk, the combination of the desk ends, the desk-shelf, the vertically-swinging lid, the hinges uniting the lid and shelf, each hinge comprising the elongated flat metal plate horizontally secured on the desk-shelf and the elongated flat metal plate secured on edge at an end of the lid with its upper edge in about the same horizontal plane (when the lid is lowered) with the flat upper face of the shelf-plate, the lid-plate at the upper corner of its inner end pivoted to the front end of the shelf-plate, a washer at the inner face of a desk end having the reduced bearing at its outer end, the securing-screw passing through the washer into the desk end with its head bearing against the outer end of the washer, and the jointed-link support at its outer end pivotally joined to the lid-plate of a hinge and at its upper end loosely confined on said journal by the screw-head, substantially as described.

4. In a lid-desk, the combination of the desk ends, the desk-shelf, the vertically-swinging desk-lid, hinges uniting the lid and shelf, the lid having a vertical groove a distance in from its edge, each hinge composed of a flat plate secured horizontally on, with its under flat face against the shelf, and the flat plate arranged at right angles to said first-mentioned plate and vertically on edge in said groove with its upper edge flush with the surface of the lid and having the eye projecting up from an intermediate portion of its upper edge, securing-screws extending from the outer edge of the lid through the lid to and through said vertical plate, the meeting ends of said plates pivoted together, and a jointed desk-lid support confined to the desk and at its outer end pivoted to said eye, substantially as described.

5. In a lid-desk, the combination of desk ends, the desk-shelf, the vertically-swinging lid, hinges uniting the lid and shelf, each hinge composed of the two plates arranged at right angles to each other, one elongated flat metal plate having its front end centrally notched with the eyes on both sides of the notch, said plate secured by vertical screws horizontally on, with its under flat side against, the desk-shelf and its upper flat side approximately flush with the surface of said shelf, and the corresponding elongated flat metal plate having a projecting eye at the upper corner of its inner end in said notch and pivoted to the eyes of the other plate, said plate arranged vertically on edge and secured to the lid by horizontal screws with its upper narrow edge flush with the surface of the lid, and a jointed lid-support confined to the desk and at its outer end directly pivoted to said lid-hinge plate, substantially as described.

6. In a lid-desk, the combination of the desk ends, the desk-shelf, the vertically-swinging lid, hinges uniting the lid and shelf, each hinge composed of two plates arranged at right angles to each other, one flat metal plate secured horizontally on, with its under flat face against, the shelf and having its outer end notched with eyes on both sides of the notch, the end of the plate between the eyes and at the notch formed to constitute a stop-shoulder, and the flat metal plate secured vertically on edge to the lid and having the projecting eye at its upper inner corner in said notch and pivoted to said eyes of the shelf-plate, the outer edge of said projecting eye formed to constitute a shoulder coacting with said shoulder of the shelf-plate, and a lid-support confined to the desk, and at its outer end pivoted to said lid-hinge plate, substantially as described.

7. In a lid-desk, the combination of a shelf, a lid, and hinges uniting the shelf and lid, each hinge composed of a flat plate arranged on edge and secured to the lid and having the inwardly-projecting single eye at the upper corner of its inner end, the inner edge of the eye formed to constitute a stop, such as e^3, and the flat metal plate secured horizontally on, with its flat face against, the shelf and having its front edge centrally notched inwardly to receive said eye of the lid-plate and formed with the two eyes on opposite sides of the notch to which the lid-plate eye is pivoted, said shelf-plate between the eyes formed with the straight portion constituting a stop, such as f^3, cooperating with the said stop of the lid member, substantially as described.

588,229. COMBINATION-LOCK. CRAWFORD D. LOGAN, Coal Hill, Ark., assignor of one-half to D. K. Sams, same place. Filed Apr. 9, 1897. Serial No. 631,428. (No model.)

Claim.—1. In a lock of the class described, the combination with a pivotal shackle, of a receptacle or socket for the shackle, a sliding bolt mounted in said receptacle or socket and adapted to engage a bolt-opening in the shackle, a finger-hold on the bolt being exposed through a slot in the shackle when the latter is in place in the receptacle or socket, and tumblers mounted upon said bolt and having

their outer sides exposed through the slot in the shackle, substantially as specified.



2. In a lock of the class described, the combination of a pivotal shackle, a receptacle or socket for the shackle, a sliding bolt mounted in the receptacle or socket for engaging a bolt-opening in the shackle and having a finger-hold exposed through a slot in the shackle, a series of tumblers mounted upon and concentric with the bolt and having an interlocking connection therewith to secure the bolt in its extended position, and spacing blocks interposed between contiguous tumblers, said shackle having a slot through which are exposed the outer sides of the tumblers, and said slot having undercut walls to engage shoulders on said spacing-blocks, substantially as specified.

3. The herein-described combination-lock for trunks, chests, and similar receptacles, the same having a base-plate provided with an upstanding flange forming a shackle-socket and adapted to be secured to the side of a receptacle, a pivotal shackle adapted to fit within said socket and provided with a securing-plate for attachment to the receptacle lid or cover, said shackle having a longitudinal slot and a communicating bolt-opening, a bolt mounted to slide in guides arranged in fixed positions in the shackle-socket and adapted to engage said bolt-opening when the shackle is fitted in the socket, and tumblers mounted upon the bolt between the guides thereof and having an interlocking connection with the bolt, said tumblers being exposed through the slot in the shackle, whereby they may be manipulated to engage and release the bolt, substantially as specified.

4. In a combination-lock, the combination with a shackle, and a bolt for engaging the shackle, of a series of tumblers having an interlocking connection with the bolt, each tumbler comprising an annulus or shell having a shouldered interior surface, a removable annular core fitted in said annulus or shell and resting upon the shoulder therein, said core having a central opening through which the bolt extends, and being provided with the means for engaging the same, and a fixed rib on the inner surface of said annulus or shell for engaging either of a plurality of notches in the exterior surface of the core, whereby the latter may be secured in any desired position with relation to the annulus or shell, substantially as specified.

588,230. PROCESS OF GENERATING GAS FROM CARBIDS. ELMER P. MACKUSICK, New York, N. Y., assignor to the Electro Gas Company, of West Virginia. Filed June 17, 1897. Serial No. 641,181. (No specimens.)

Claim.—1. The process of generating gas from metallic carbids, which consists in treating said carbids with a mixture or compound of water and a substance which is non-volatile, non-inflammable and recoverable, and which does not react upon the metallic carbids, exposing the whole mass of carbid to the action of the liquid, which is properly compounded according to the desired current of gas, substantially as described.

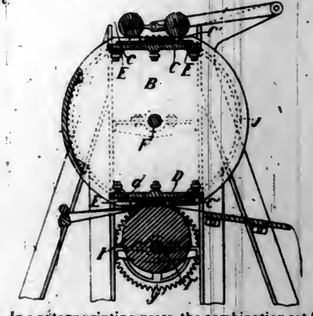
2. The process of generating gas from metallic carbids, which consists in treating said carbids with a mixture of water and a non-volatile, non-inflammable and recoverable body, such as glycerin, exposing the whole mass of carbid to the action of the liquid, which is properly compounded by mixing water with glycerin in accordance with the desired strength of the current of gas, substantially as described.

588,231. FLAT-FORM ROTARY PRINTING-PRESS. HARRY S. MERRILL, Los Angeles, Cal. Filed Aug. 3, 1896. Serial No. 601,503. (No model.)

Claim.—1. In a printing-press, the combination set forth of a rotary carrier provided with a type-bed; a form on said bed; an ink-distributing surface arranged upon said carrier, suitable inking-rollers; a rotating cylindrical impression-roller mounted eccentrically upon a shaft; suitable means for feeding a web between the impression-cylinder and the form; and suitable means for rotating the carrier and the impression-cylinder.

2. A printing-press comprising a rotating frame carrying a flat form and an ink-distributing surface; rollers adapted to ink the form; a rotating cylindrical impression-roller mounted eccentrically upon a shaft, and adapted to carry the web against the form; suitable means for intermittently feeding a web between the impression-cylinder and the form; and means for rotating the frame and the impression-cylinder in reverse directions so that the opposing faces of the form and the impression-cylinder will travel in the same direction and at the same rate of speed.

3. In a printing-press, a rotary carrier provided on one side with a type-bed, and on another side with an ink-distributing surface; an impression-cylinder mounted eccentrically upon a supporting-shaft; gears connecting such shaft with the carrier; ink-rollers adapted to ink a form secured upon the type-bed, and to be inked by the ink-distributing surface; such form, mounted upon the type-bed; a roll of paper mounted upon a vertically-movable shaft and supported by fingers; and a rotating feed-roller adapted during a portion of its rotation to engage with the roll, to lift it from the fingers and rotate it.



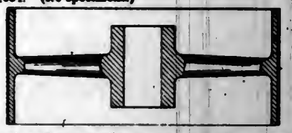
4. In a rotary printing-press, the combination set forth of a frame provided with substantially vertical slots; a paper-roll mounted on a shaft having its ends arranged to slide in such slots; means arranged to support the roll; and means adapted to intermittently lift the roll from its support and to partially rotate it while thus lifted.

5. In an intermittent feed for rotary presses, the combination of a paper-roll; suitable supports for supporting such roll; and suitable means adapted to intermittently engage the roll, lift it from the supports and partially rotate it while lifted.

6. In an intermittent feed for rotary presses, the combination of a paper-roll; suitable means for supporting such roll; and a feed-roller having adjustable bearing-faces adapted to intermittently engage the roll, lift it from its support and partially rotate it.

7. In combination, two paper-rolls, each mounted upon an independent shaft; suitable supports arranged to support each roll; and a feed-shaft, provided with adjustable bearing-faces adapted to engage both rolls, lift them from their supports and partially rotate them while so lifted.

588,232. PULLEY-COVERING. BURTON C. MORSE, Chicago, Ill., assignor to the Morse Supply Company. Filed May 15, 1896. Serial No. 591,651. (No specimens.)



Claim.—A pulley-covering comprising glue, pumice-stone, and acid thoroughly mixed and combined, substantially as set forth.

588,233. CARBON-HOLDER FOR ELECTRIC LIGHTS. OSCAR S. MOSS, Syracuse, N. Y. Filed Nov. 2, 1896. Serial No. 610,814. (No model.)



Claim.—1. A carbon-holder comprising a base having a concavity in its lower face, and provided with lateral ears, means of securing it to the lamp-rod, side pieces having eyes in their upper ends, their inner faces adapted to grip the carbon and means for holding them in engagement with the carbon.

2. A carbon-holder comprising a base, having a concavity in its lower face, means for securing it to the lamp-rod or light-wire, lateral ears, in combination with side pieces having eyes at their upper ends adapted to engage with the aforesaid ears and the inner face concaved and adapted to grip the carbon, lugs near their lower ends and a clamp for holding the side pieces in engagement with the carbon as set forth.

588,234. TRUNK ATTACHMENT. JACOB NEWMAN and LOUIS WEINBERG, Petersburg, Va. Filed Sept. 9, 1896. Serial No. 605,275. (No model.)

Claim.—1. The combination with a trunk having a lid or cover hinged thereto and ledges or supports at each end thereof, of movable tray-supports located at each end of the trunk, a pair of links of equal lengths pivoted to each of said supports and to the adjacent ledge on said trunk, and a link connecting each of said supports with said lid or cover having an elongated slot therein, through which its securing bolt or screw passes, substantially as and for the purpose described.



2. The combination with a trunk having a lid or cover hinged thereto and ledges or supports at each end thereof, of movable tray-supports located at each end of the trunk, having flanges or stops at their outer ends, a pair of links of equal lengths pivoted to each of said supports and to the adjacent ledge on said trunk, and a link connecting each of said supports with said lid or cover having an elongated slot therein through which its securing bolt or screw passes, and a tray adapted to fit upon said supports and to lie between said flanges or stops, substantially as and for the purpose described.

588,235. SPINDLE-DRIVING MECHANISM. WILLIAM T. NOAH, Durham, N. C. Filed May 16, 1896. Serial No. 591,836. (No model.)



Claim.—1. The combination of a bolster having means for attachment to the bolster-rail, an eccentric bore in its upper portion, and a cut-away portion in one side at a point intermediate its ends, an eccentrically-arranged step removably fitted in the bolster, and the spindle having its whirl working in the cut-away portion of the bolster and removable through the bottom of the latter, substantially as set forth.

2. The combination with the bolster having provision for attachment to the bolster-rail, of the spindle and its whirl, the step arranged eccentrically within the bolster, and the crescent-shaped key interposed between the step and the inner surface of the bolster and removable for permitting the spindle and whirl to be removed through the bottom of the bolster, substantially as described.

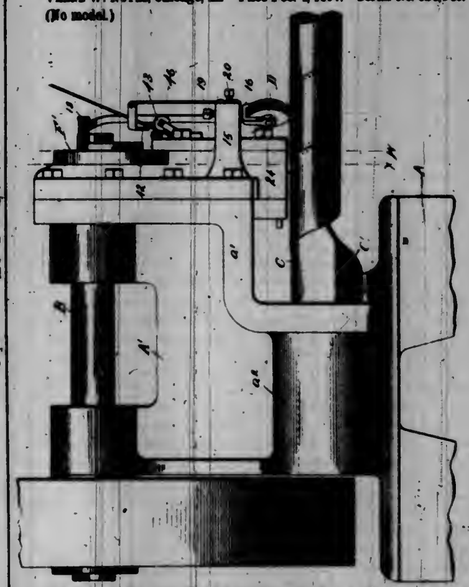
3. The combination with the bolster cut away at one side as described, of the step removably fitted therein, the lateral pin or stud on the step for preventing longitudinal movement thereof, and a key preventing lateral movement of the step, whereby the step is held in place but made removable, substantially as described.

4. The combination with the bolster having its upper portion threaded and extended through the bolster-rail and secured as described, of the spindle working in said bolster, the adjustable bearing-block seated upon the upper end of the bolster, and the set-screw for adjusting and holding said bearing-block, substantially as described.

5. The combination with the ring-rail, and the spindle-driving shaft, of a ring-rail lift made in the form of an open rectangular frame which straddles the spindle-driving shaft and the bolster and bottom rails and slides up and down relatively thereto, the ring-rail being rigidly attached to and adapted to be raised and lowered by said lift, substantially as described.

6. The combination with the spindle-whirl, of a friction driving-disk provided at its periphery with a laterally-projecting flange or rim 24, having a facial annular groove 25, forming a seat, said disk being provided in the base of said groove with a series of air cavities, and an annular cushion secured in the seat formed by the groove 25 and projecting beyond the plane of one side of the disk, said cushion being formed with cavities or openings communicating with the air-cavities formed in the body of the disk, substantially as set forth.

588,286. MACHINE FOR MAKING SPIRAL RIVETED PIPE. LA VERNE W. NOYES, Chicago, Ill. Filed Feb. 4, 1897. Serial No. 621,940. (No model.)



Claim.—1. In a machine for making spiral riveted pipe, the combination with the mandrel or like riveting-abutment, of feeding means for causing an intermittent progression on the part of the blank so as to wind the same into tubular form; a driver adapted for forcing unheaded rivet-blanks through the spiral seam thus formed; means for simultaneously upsetting both ends of the rivet-blank; and mechanism for operating the feeding means, and also for actuating the driver and the upsetting means during the intervals of rest on the part of the blank, as set forth.

2. In a riveting-machine, the combination of an abutment adapted to have a plurality of sheet metal blanks superposed upon it; a driver adapted to force a rivet-blank into such sheet-metal blanks when the latter are in a superposed condition; a movable rivet-blank holder arranged to receive the rivet-blanks and place them successively in position for insertion into the sheet-metal blanks and adapted to serve as a guide for such rivet-blanks so as to counteract their tendency to bend, spring or buckle during insertion; and mechanism for operating the driver, as set forth.

3. In a riveting-machine, the combination of an abutment adapted to have a plurality of sheet-metal blanks superposed upon it; a reciprocating driver adapted to force rivet-blanks into such sheet-metal blanks when the latter are in a superposed condition; a reciprocating rivet-blank holder which is provided with an aperture adapted to receive a rivet-blank and adapted also to serve as a guide both for the blank and the driver, and which is arranged to place such blanks successively in position for insertion by the driver; and mechanism for reciprocating the driver and the rivet-blank holder in alternation, as set forth.

4. In a riveting-machine, the combination of an abutment adapted to have superposed upon it a plurality of sheet-metal blanks; a driver adapted to force rivet-blanks successively into such sheet-metal blanks

when the latter are in a superposed condition; a holder for receiving the rivet-blanks and for placing the same successively in position for insertion into the sheet-metal blanks; means for upsetting the rivet-blank ends which project after insertion from the farther side of the sheet-metal blanks; mechanism for operating the driver and the upsetting means so as to cause the substantially simultaneous insertion of a rivet-blank and upsetting of the projecting end of the next preceding blank; and power-transmitting connection for operating the holder so as to place the rivet-blanks successively in position for insertion into the sheet-metal blanks, as set forth.

5. In a riveting-machine, the combination of an abutment adapted to have superposed upon it a plurality of sheet-metal blanks; a driver adapted to force unheaded rivet-blanks successively into the sheet-metal blanks when the latter are in a superposed condition; a holder for receiving such rivet-blanks and for placing the same successively in position for insertion into the sheet-metal blanks; means for simultaneously upsetting both projecting ends of the rivet-blanks thus inserted; means for causing an intermittent progression on the part of the sheet-metal blanks so as to carry the inserted rivets to the upsetting means; mechanism for operating the driver and the upsetting means so as to cause the substantially simultaneous insertion of one rivet-blank, and upsetting of the ends of the next preceding blank during the intervals of rest on the part of the sheet-metal blanks; and power-transmitting connection for actuating the feeding means and the holder during the intervals intervening between the successive insertion of the rivet-blanks, as set forth.

6. In a riveting-machine, the combination of an abutment adapted to have a plurality of sheet-metal blanks superposed upon it; means for intermittently feeding to the machine wire suitable for rivet-blanks; a cutting device for cutting the wire thus fed into lengths suitable for rivet-blanks; a driver adapted to force such rivet-blanks successively into the sheet-metal blanks when the latter are in a superposed condition; a holder for receiving the rivet-blanks and for placing the same successively in position for insertion into the sheet-metal blanks; means for simultaneously upsetting both projecting ends of the rivet-blanks thus inserted; mechanism for operating the driver and the upsetting means so as to cause the substantially simultaneous insertion of a rivet-blank and upsetting of the projecting ends of the next preceding rivet-blank; and power-transmitting connection for actuating the wire-feeding means, the cutting device, and the rivet-blank holder during the intervals intervening between the successive insertions of rivet-blanks, as set forth.

7. In a riveting-machine, the combination of an abutment adapted to have a plurality of sheet-metal blanks superposed upon it; means for causing an intermittent progression on the part of such blanks; a cutting device for cutting the wire thus fed into lengths suitable for rivet-blanks; a driver adapted to force such rivet-blanks successively into the sheet-metal blanks when in a superposed condition; a holder for receiving the rivet-blanks and for placing the same successively into position for insertion; means for simultaneously upsetting both ends of the rivet-blanks which project after insertion; means for causing an intermittent progression of the sheet-metal blanks so as to carry the inserted rivets to the upsetting means; mechanism for operating the driver and the upsetting means so as to cause the substantially simultaneous insertion of a rivet-blank and upsetting of the ends of the next preceding blank; and power-transmitting connection for actuating the sheet-metal blank-feeding means, the wire feeding means, the cutting device, and the rivet-blank holder during the intervals intervening between the successive insertions of the rivet-blanks, as set forth.

8. In a riveting-machine, the combination of an abutment adapted to have a plurality of sheet-metal blanks superposed upon it; a couple of reciprocating heads situated on the same side of the abutment and arranged for substantially synchronous reciprocation toward and away from the same, one of said heads being provided with a driver adapted to force the rivet-blanks successively into the sheet-metal blanks when the latter are in a superposed condition, and the other being arranged to upset the projecting ends of the rivet-blanks thus inserted; means for causing an intermittent progression on the part of the sheet-metal blanks so as to carry the inserted rivets to the upsetting-head; mechanism for operating the reciprocating heads; and power-transmitting connection for actuating the feeding means during the intervals intervening between the successive insertions of rivet-blanks, as set forth.

9. In a machine for making spiral riveted pipe, the combination of a mandrel about which the blank can be spirally wound into tubular form; means for causing an intermittent progression on the part of the blank so as to wind the same into such tubular form; means for feeding wire suitable for rivets to the machine; a cutting device for cutting such wire into lengths suitable for rivet-blanks; a holder for successively placing and holding the rivet-blanks in position for insertion into the spiral seam; a driver adapted to force such blanks out of the holder and into the spiral seam; means for simultaneously upsetting the rivet-blank ends projecting from the opposite sides of the spiral seam so as to form heads thereof; mechanism for operating the driver; and power-transmitting connection for operating the other instrumentalities during the periods intervening between the successive insertions of rivet-blanks, as set forth.

10. In a riveting-machine, the combination with an abutment, of a couple of reciprocating heads arranged for substantially synchronous reciprocation toward and away from said abutment, one of said heads being provided with a driver adapted to force rivet-blanks through metal placed upon the abutment, and the other being adapted to upset the ends of the rivet-blank previously inserted; and mechanism for cutting wire into rivet-blanks and placing the blanks thus cut into position to receive the driver, said mechanism being carried by the former reciprocating head, and arranged for operation by the latter one, as set forth.

11. In a riveting-machine, the combination, with an abutment, of the forming and driving heads arranged for substantially synchronous reciprocation through unequal distances toward and away from the abutment, the forming-head being adapted to upset the projecting ends of rivet-blanks, and being provided with a suitably-arranged cutting-slide and also with a lever for operating the same, and the driving-head being provided with a driver arranged to work in and out of an aperture in the cutting-slide, and being adapted to actuate the cutting-slide lever, as set forth.

12. In a riveting-machine, the forming and driving reciprocating heads fitted together so that one works in a guideway provided by the other, the former being adapted for upsetting purposes, and the latter being provided with a driver; eccentrics having unequal throws for operating the same; a cutting-abutment situated near the bottom of the forming-head and having a couple of apertures whereof one is adapted to receive the feed-wire for the rivet-blanks, and the other is adapted to serve as a guide for the driver and is situated in alinement with the aperture for the outlet of the rivet-blanks with which the sole of said head is provided; an apertured cutting-slide confined between said cutting-abutment and arranged for sliding movement so as to allow its aperture to register with one or the other of the apertures of the cutting-abutment; and a pivotally-supported lever adapted to engage said cutting-slide and arranged to be operated by the driving-head so as to bring the aperture of the cutting-slide into register with the feed-aperture of the cutting-abutment at a time when the heads are at the top of their strokes, and into register with the driver-aperture of the same when the heads are approaching the bottom of their strokes, substantially as described.

13. In a riveting-machine, the combination of an abutment adapted to receive a plurality of metal blanks preparatory to riveting and provided with a cutting edge adapted to form a rivet-hole cut in the lowermost blank; and a driver arranged opposite such cutting edge and adapted for forcing rivet-blanks into the sheet-metal blanks when the latter are arranged upon the abutment and above its cutting edge, as set forth.

14. In a riveting-machine having a driver adapted to force the rivet-blanks through the sheet metal, an abutment and means for clamping the sheet metal upon the same, said abutment and clamping means being provided with oppositely-arranged cutting edges adapted to facilitate the insertion of the rivet-blank, as set forth.

15. In a machine for making spiral riveted pipe, the combination of the mandrel having a curved tube-bending seat whose rear portion is lower than its forward portion; and a reciprocating tube-bending member arranged opposite the mandrel and provided with a correspondingly-curved and rearwardly-depressed face situated opposite said seat, as set forth.

16. In a machine for making spiral riveted pipe, the mandrel adapted to shape the tubing, the feed-wheel arranged over the mandrel so as to bear upon a completed portion of the tube and means for intermittently operating the feed-wheel, as set forth.

17. In a machine for making spiral riveted pipe, the mandrel provided with an end piece having a rotary wheel, the mandrel and end piece being constructed with correspondingly-curved meeting faces and being fitted adjustably together by means of a headed bolt which extends through said end piece and fits adjustably in suitable circular slots with which the end of the mandrel is provided, as set forth.

18. In a riveting-machine, the combination of the forming-head, an eccentric for operating the same, and a yoke engaging the eccentric, said yoke being provided with a curved wearing-surface consisting of an arc of a circle having as its radius, a radius of the outer periphery of the eccentric which it engages, as set forth.

19. In a riveting-machine, an abutment adapted to support metal sheets or the like and having an aperture adapted to receive the rivet-blanks; means for inserting the latter through the metal sheets; and a spring adapted to lift such sheets when the same are released, as set forth.

20. A spiral-pipe machine comprising a suitable mandrel; means for effecting an intermittent progression of the blank so as to wind the same about the mandrel; a forming-head adapted to bend the blank about the mandrel, to clamp the spiral seam against the same, and to upset rivets inserted through such seam; mechanism carried by said forming-head and adapted to cut wire into rivet-blanks and to place the same in position for insertion into the spiral seam; means for feeding the wire to said cutting mechanism; a driving-head adapted to operate said cutting and placing mechanism and provided with a driver adapted to force the rivet-blanks through the spiral seam; and mechanism for operating the feeding means and for reciprocating said heads so as to cause their movement toward the mandrel at a time when the tubing-blank is at rest, as set forth.

21. In a machine for making spiral riveted pipe, the combination of the mandrel provided with a concave socket adapted to form a rivet-head, means for causing an intermittent progression on the part of the blank so as to wind the same about the mandrel; a reciprocating head having a corresponding socket for a rivet-head and arranged to upset both ends of the rivet-blank simultaneously by compressing the same between itself and the mandrel; and mechanism for operating the feeding means, and for reciprocating said head so as to cause the compression of the rivet-blank at a time when the tubing-blank is at rest, as set forth.

22. In a machine for making spiral riveted pipe, the combination of the mandrel adapted to form the tubing; means for causing an intermittent progression on the part of the blank so as to wind the same about the mandrel; means for placing rivet-blanks in suitable position for insertion into the spiral seam; means for upsetting the rivet-blank ends which are forced through the spiral seam and project from its inner side; a driver adapted to force such blanks through the seam; and mechanism for operating the driver, and the feeding, placing and upsetting means between the strokes of the driver, as set forth.

23. In a machine for making spiral riveted pipe, the combination of the mandrel, means for causing an intermittent progression on the part of the blank so as to wind the same about the mandrel; a suitably-mounted cutting-slide adapted to cut wire into rivet-blanks and place the same into position for insertion in the spiral seam; means for feeding the wire to said slide; a driver arranged to force such rivet-blanks through the spiral seam; means for upsetting the rivet-blank ends which project from the opposite sides of such seam; mechanism for operating the driver; and power-transmitting connection for operating said instrumentalities between the strokes of the driver, as set forth.

24. In a machine for making spiral riveted pipe, the combination of the mandrel having a transverse aperture, and provided with a cutting edge which forms the upper end of said aperture; means for causing an intermittent progression on the part of the blank so as to wind the same about the mandrel; a driver arranged to force rivet-blanks through the spiral seam at a point above the mandrel-aperture; mechanism for operating the driver; and power-transmitting connections for operating the other instrumentalities between the strokes of the driver, as set forth.

25. In a machine for making spiral riveted pipe, the mandrel provided with a removable die having a curved seating portion and provided also with an aperture and a concave socket, substantially as described.

26. The combination of an abutment adapted to have a plurality of blanks superposed thereupon and provided with an edge adapted to engage the lowermost blank against sliding movement; and an oppositely-arranged clamping member adapted to hold the blanks upon the abutment, and provided also with an edge adapted to hold the uppermost blank against sliding movement in a reverse direction, as set forth.
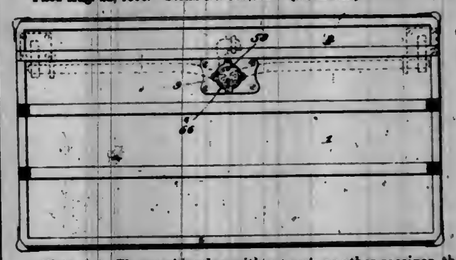
27. In a machine for making spiral riveted pipe, the combination of the mandrel provided with a seating portion for the blank, and provided also with a diagonal edge adapted to engage the rear edge of a portion of the blank forming the completed tube; and the clamping-head provided with a curved portion adapted to bend the blank over the seating portion of the mandrel and provided also with an edge adapted to engage the forward edge of the unattached portion of the blank, substantially as described.

28. In a riveting-machine, the combination of an abutment adapted to receive a plurality of sheet-metal blanks preparatory to riveting and provided with a cutter adapted to form a rivet-hole cut in the lowermost blank and having a downwardly-divergent face below its cutting edge; and a driver arranged opposite such cutting edge and adapted for forcing rivet-blanks into the sheet-metal blanks when the latter are arranged upon the abutment and above its cutting edge, as set forth.

29. In a riveting-machine, the combination of an abutment adapted to receive a plurality of sheet-metal blanks preparatory to riveting and provided with a cutter adapted to form a rivet-hole cut in the lowermost blank and having a downwardly-divergent face below its cutting edge; reciprocating means adapted for holding the sheet-metal blanks upon the abutment and provided with a corresponding and oppositely-arranged cutter having an upwardly-divervent face above its cutting edge; a reciprocating driver arranged to work within the upper cutting edge and adapted to force rivet-blanks into the sheet-metal blanks; and mechanism for reciprocating the holding means and the driver substantially in unison, as set forth.

30. The combination with the rotary shaft B having the similarly-arranged eccentrics B' and B^3, the latter having a greater throw than the former; of the reciprocating head E operated by the eccentric B' and provided with the cutting-abutment H arranged transversely near its lower end and having apertures h and h' whereof the latter is situated in alinement with an aperture formed in the bottom of the head; the reciprocating cutting-slide G working between the cutting abutment H and the bottom of the head E, and having an aperture g; the pivotally-supported swinging lever K carried by the head E and engaging the cutting-slide G so as to place the aperture g of the latter alternately into register with the apertures h and h' of the cutting-abutment H; the reciprocating head F operated by the eccentric B^3 and provided with rollers or wheels 33 and 34 whereof the former is arranged to engage the upper end of the lever K so as to swing such lever forward to an extent to place the aperture g of the slide G into register with the aperture h of the abutment H during the latter portion of the rise of the two reciprocating heads E and F, and the latter is arranged to engage the lower end of the lever K so as to swing such lever backward to an extent to place the aperture g of the slide G into register with the aperture h' of the abutment H during the early portion of the descent of the two reciprocating heads E and F, and also to engage a substantial portion formed upon said lever K so as to hold the same and thereby the slide G in such position during the latter portion of the descent of such heads; and a driver F^3 attached to the lower end of the head F and adapted and arranged to work in the aperture h' of the abutment H and the aperture g of the slide G at a time when such apertures are in register with one another, substantially as described.

588,237. TRUNK-LOCK. CHARLES E. PARKER, Duluth, Minn. Filed Aug. 22, 1896. Serial No. 603,603. (No model.)



Claim.—1. The combination with a trunk or other receiver, the cover of which is provided with opposite end keepers, of a rotary lock mounted on the trunk, means for engaging the bolt of the same with the wall of its support, and locking-bars eccentrically connected in a pivotal manner with the lock and adapted to be thrown into and out of engagement with the said keepers by the rotations of the lock, substantially as specified.

2. The combination with a trunk or other receiver, of a rotary lock, a support for the same with the wall of which the bolt of the lock is adapted to engage, opposite keepers arranged on the lid of the receptacle at the opposite sides of the lock, a keeper above the lock on said lid, a hook-shaped rock-arm carried by the lock and adapted to engage the central keeper, and opposite locking-bars eccentrically pivoted to the lock and adapted to be thrown into and out of engagement with the keepers by the movements of the lock, substantially as specified.

3. The combination with a trunk or other receptacle, the lid of which is provided with a keeper, of a support below the lid, a rotatable lock mounted in the support, the bolt of the lock being adapted to engage with said support, and a hook-shaped rock-arm carried by the lock and adapted to be thrown into and out of engagement with the keeper by the movements of the lock, substantially as specified.

4. The combination with a trunk or other receptacle, of a rotary lock, a support for the same with the wall of which the bolt of the lock is adapted to engage, a keeper carried by the lid of the trunk or receptacle, and a locking-bar pivotally connected with the lock and adapted to be thrown into and withdrawn from engagement with the same by the rotations of the lock, substantially as specified.

5. The combination with a trunk or other receptacle having a recess or opening, of an escutcheon-plate secured to the face of the same and provided with a central recess seated in the opening, a ro-

tary lock mounted in the recess of the escutcheon-plate, the bolt of said lock being adapted to engage in the wall of the recess of said plate, keepers carried by the lid of the receptacle, and locking-bars eccentrically pivoted to the lock and adapted to be thrown into engagement with the keepers or be withdrawn therefrom by the movements of the lock, substantially as specified.

6. The combination with a trunk or other receptacle having an opening, a bushing seated in the opening and provided at one side with a hole or keeper and at the opposite side with a trip, of a rotary spring-lock mounted in the bushing and having a bolt-releasing device adapted to be projected in the path of the trip, a keeper carried by the trunk or receptacle lid, and a locking-bar eccentrically pivoted to the lock and adapted to be thrown into and withdrawn from engagement with said keeper by the movements of the lock, substantially as specified.

7. The combination with a trunk or other receptacle having an opening below its lid, of a rotary spring-lock mounted in the opening and provided with a bolt-releasing arm, a tripping device arranged in the path of the releasing-arm whereby the bolt is liberated to engage a recess formed in the wall of the opening, openings formed in the lock-plate and adapted to receive a spanner-wrench, a keeper carried by the lid and a locking-bar eccentrically pivoted to the lock and adapted to be thrown into engagement with the keeper or withdrawn therefrom by the movements of the lock, substantially as specified.

8. The combination with a trunk or other receptacle, the lid of which is provided with keepers, of a lock rotatably mounted in a support, the bolt of which is adapted to be withdrawn from engagement with the support by means of a key, locking devices for engaging the keepers carried by the lock and operated thereby and means for automatically shooting the bolt of the lock when the lock has been rotated to such a position as to cause the locking devices to engage with the keepers, substantially as specified.

9. The combination with a trunk or other receptacle, the lid of which is provided with keepers and the wall of the receptacle portion of which is provided with an opening, of an escutcheon-plate surrounding the opening and provided with a bushing seated in the opening, said bushing having at one side a bolt-hole, at its opposite side a spring-trip and above the same provided with a stop-lug, a cylindrical lock mounted for rotation in the bushing and having a segmental lock for the reception of the stop-lug, said lock having a spring-actuated bolt for engaging the hole in the bushing, and a bolt-liberating arm extending in the path of the trip, and locking devices carried by the lock and adapted to be operated by the movements thereof so as to engage with or be disengaged from the keepers of the lid, substantially as specified.

10. The combination with a trunk or other receptacle, the lid of which is provided with keepers and the receptacle portion of which is provided with a bushed opening having at one side a bolt-hole, of a cylindrical lock having a bolt-engaging hole and mounted in the said bushing, said lock being provided at its rear side with a rectangular gudgeon and beyond the same with a threaded stud, opposite locking-bars eccentrically pivoted on the lock and adapted to engage the keepers, a hook-shaped rock-arm having an angular opening carried by the gudgeon and adapted to engage one of the keepers, and a nut arranged on the stud, substantially as specified.

11. The combination with a receptacle, of a rotary lock-case supported therein, a slotted bolt arranged in the lock-case and moving over and receiving an angular stud, tumblers pivoted on the stud carried by the bolt and having recesses for receiving the stud upon which the bolt is mounted and adapted to engage therewith when the bolt is either retracted or shot, a key for retracting the bolt and raising the tumbler that holds the same in its shot position, a spring for throwing the bolt and means for raising that tumbler that locks the bolt in its retracted position, such means being so located as to operate only when the case is revolved toward the same, and locking devices for engaging the keepers, said devices being operated by the rotations of the case, substantially as specified.

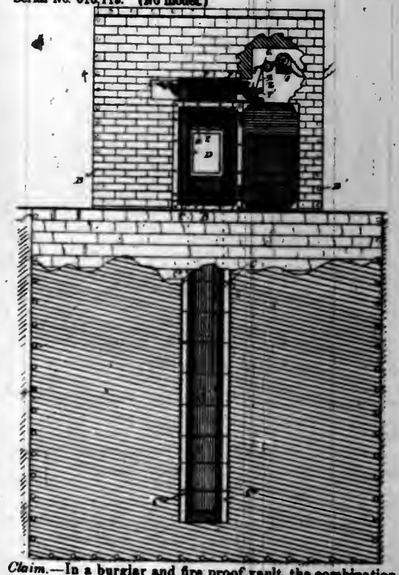
12. The combination with a trunk or other receptacle, the lid of which is provided with keepers and the receptacle portion of which is provided with a cylindrical bush opening having a hole at one side and a trip at the other, of a rotatable lock-case mounted in the bushing, locking devices operated by the lock-case for engaging with the keepers, a stud projecting from the lock-case, a bolt mounted on the stud and slotted to receive the same and adapted to engage the opening in the bushing, a spring for throwing the bolt, a key-engaging shoulder formed on the lower edge of the bolt, a key-guiding stud below the same, a tumbler pivoted on the bolt and provided at one end with an arm extending into the path of the trip, said tumbler having a longitudinal slot provided at its front end with an offset for engaging the guide-stud of the bolt when the latter is retracted, a second tumbler pivoted on the bolt and having a longitudinal slot provided at its rear end with an offset for engaging said guide-stud, springs for depressing the tumblers, and a lock-plate arranged on the lock-case and having a keyhole-opening registering with the key-guiding stud and diametrically opposite the same provided with a second opening whereby a spanner-wrench may be employed for rotating the lock, substantially as specified.

13. The combination with a trunk or other receptacle provided with a bushed opening having a bolt-hole at one side and a trip at the opposite, of a rotatable lock-case seated in the bushing, means for retaining the case in position, locking devices carried by the case and operated by its movements so as to engage or disengage with the keepers, an angular stud, 26, extending from the case, a reciprocating bolt, 27, having a slot, 28, mounted on the stud and provided with the upper end studs, 31 and 33, and the lower stud, 32, and at its lower edge with a shoulder, 30, the diaphragm arranged over the bolt and having the keyhole-opening, 41, and the stud-receiving openings, 35, 37 and 38, the tumblers, 46 and 47, pivoted on the stud, 32, the tumbler 46 having the trip-arm, 54, extending through a slot in the case and into the path of the trip of the bushing when the bolt is retracted, and provided with the longitudinal slot, 48, having the offset, 49, at its front end for engaging the stud, 26, the latter tumbler having the longitudinal slot, 51, having the offset, 47, at its rear end for engaging the stud, 26, the springs, 53, coiled on the stud, 33, and having their terminals interposed between the stud, 31, and the tumblers, 46 and 47, the spring, 44, for throwing the bolt and the lock-plate 55, having the keyhole-opening, 58, and the diametrically opposite opening, 59, substantially as specified.

14. The herein-described key, the same consisting of the shank having a web at one end for operating the bolt and at its opposite end provided with a pair of spaced-apart lugs adapted to serve as a spanner-wrench, in combination with a rotatable lock having diametrically opposite openings for receiving the lugs, substantially as specified.

15. The combination with a trunk and lid, of a keeper mounted in the latter, a cylindrical case swiveled in the trunk below the keeper, and adapted to be operated by a wrench, and a hook-shaped rock-arm carried by the case and adapted to be thrown into engagement with the keeper, substantially as specified.

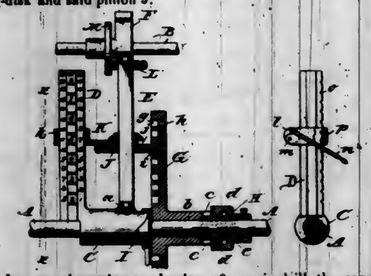
588,238. SAFE. JOHN W. PECK, Canton, Ill. Filed Dec. 18, 1896. Serial No. 616,119. (No model.)



Claim.—In a burglar and fire proof vault, the combination with the solid masonry built above and below the surface of the ground, a hollow vertical shaft built therein substantially as described, a series of metal casings within said shaft, placed one upon the other, and provided with hollow guides, a safe located within said casing and adapted to raise and lower therein, lugs on the sides of the safe, to run within the said guides, cables attached to the said lugs, hidden means for mobilizing the safe perpendicularly, and hidden explosives contained in the walls of masonry substantially as and for the purposes described.

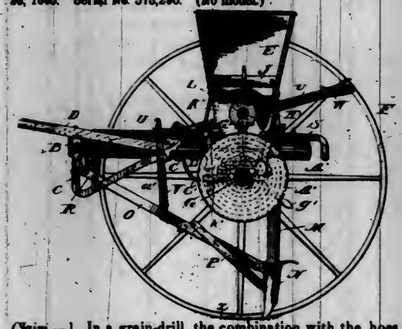
588,239. GEARING FOR GRAIN-DRILLS. CHARLES H. PELTON, Springfield, Ohio. Filed Feb. 1, 1895. Serial No. 536,959. (No model.)

Claim.—1. In a speed-varying mechanism of a grain-drill, the combination of the shaft A, the driving-disk G revoluble with said shaft but free to slide thereon, the sleeve C fixed to said shaft, the indicator-post D carried by said sleeve, the yoke-carrier K, a clamp for adjustably securing said yoke-carrier to said post, the shaft E provided with the adjustable pinion J engaged by said yoke-carrier and normally meshing with the said driving-disk G, said shaft having also the fixed pinion L, the feed-shaft B having the gear M meshing with said pinion L, and means for engaging and disengaging said driving-disk and said pinion J.



2. In a speed-varying mechanism of a grain-drill, the combination of the shaft A, the driving-disk G revoluble with said shaft but free to slide thereon, the spring *e* for normally holding said disk G in operating position, the sleeve C fixed to said shaft, the indicator-post D carried by said sleeve, the yoke-carrier K, a clamp for adjustably securing said yoke-carrier to said post, the shaft E provided with the adjustable pinion J engaged by said yoke-carrier and normally meshing with the said driving-disk G, said shaft having also the fixed pinion L, the feed-shaft B having the gear M meshing with said pinion L, and the cam I interposed between said sleeve C and disk G and serving to disengage the latter from said pinion J.

588,240. GRAIN-DRILL. CHARLES H. PELTON, Springfield, Ohio, assignor to the Ettis Manufacturing Company, Milton, Ind. Filed Dec. 26, 1895. Serial No. 573,290. (No model.)



Claim.—1. In a grain-drill, the combination with the hoes and their drag-bars, of a rocking bar hung to swing through the arc of a circle, arms projecting therefrom for the alternate sets of drag-bars to which the latter are pivoted, connections for the intermediate drag-bars to the rocking bar direct, and means for rocking said bar to shift the hoes from a straight to a zigzag line, or vice versa, substantially as described.

2. The combination with the rocking bar, Q, to which the drag-bars are connected and arranged to be swung through the arc of a circle, of the pinion, *f*, for rocking said bar, the segment-lever *g* engaging the latter and the push-and-pull bar, S, for the lever with means for holding it locked in its adjusted positions, substantially as described.

3. In a grain-drill, the combination with the rock-shaft, T, coupled to the drag-bars, the lever, W, fast thereon, the slotted segment-plate, *p*, for said lever, and the bell-crank-operated locking-dog, engaging said slotted plate, substantially as and for the purpose described.

4. In the feed-changing gear of a grain-drill, the combination of the driving-disk, A', the shiftable pinion, F', therefor geared to the feed-shaft and carried by a sleeve on an indicator-post, and an adjustable pointer for said sleeve, substantially as described.

5. In a grain-drill, the combination with boxes on the side rails provided with trunnions, hanger-sleeves, swiveled to said trunnions and the main axle journaled through said hanger-sleeves, substantially as described.

588,241. SUNSHADE-HAT. RICHARD RAY, Starke, Fla. Filed Apr. 3, 1897. Serial No. 630,458. (No model.)



Claim.—1. A folding sunshade-hat comprising the combination with a suitable body portion, of bent distending-ribs which are arranged to cross each other and which are hinged or pivoted at their ends to the rim of the hat so that they may be brought into operative position to distend the hat-body, or may be folded down into a common level, or approximately so, when the hat is to be collapsed or flattened out, said ribs extending continuously across the hat-body.

2. A sunshade-hat comprising a suitable body portion provided with a circular rim-ring by which the same is held distended circularly, combined with a head cord or band and a series of cords or connecting devices joining said head-cord with the rim of the hat, and bent distending-ribs crossing each other and extending continuously from one edge to the other of the hat-body and pivoted at their ends to the rim of said body so as to be adapted to be folded down into the same plane when the hat is to be collapsed or flattened out.

3. A sunshade-hat comprising a suitable body portion provided with a circular rim-ring by which the same is held distended, combined with an adjustable head cord or band and a series of cords or connecting devices joining said head-cord with the rim of the hat, a series of stay-cords connected at their ends to the rim of the hat and crossing each other above the said head-cord, and crossing distending-ribs pivoted at their outer ends to the rim of the hat.

4. A folding sunshade-hat comprising the combination with a suitable body portion, of bent distending-ribs crossing each other and hinged or pivoted at their ends to the rim of the hat, so that they may be brought into operative position to distend the hat-body, or may be folded down into a common level, or approximately so, when the hat is to be flattened out, and a head cord or band suitably connected with the rim of the hat.

5. A folding sunshade-hat comprising the combination with a suitable body portion, of bent distending-ribs crossing each other and hinged or pivoted at their ends to the rim of the hat so that they may be brought into operative position to distend the hat-body, or may be folded down into a common level, or approximately so, when the hat is to be flattened out, said ribs extending continuously across the hat-body, a head cord or band suitably connected with the rim of the hat, and a series of stay-cords connected at their ends to the rim of the hat and crossing each other above said head-cord.

6. A folding sunshade-hat comprising the combination with a suitable body portion, of a series of bent distending-ribs crossing each other and extending continuously across the body of the hat, and a series of sockets pivoted or hinged to the rim of the hat and into which sockets the ends of the said distending-ribs are inserted.

7. A folding sunshade-hat comprising the combination with a suitable body portion, of bent distending-ribs which are hinged or pivoted at their ends to the rim of the hat so that they may be placed either in operative or folding positions, and a stiffening or bracing device in the crown or central portion of the hat which is to receive the pressure of said distending-ribs.

8. A folding sunshade-hat comprising the combination with a suitable body portion, of bent distending-ribs which are hinged or connected at their ends to the rim of the hat so that they may be placed either in operative or folding positions, and which are arranged to cross each other at the apex or crown of the hat when they are in their operative positions, a stiffening or bracing device in the crown or central portion of the hat which is to receive the pressure of said distending-ribs, and a fastening device or hook by which the said crossing distending-ribs may all be held in their operative positions when the hat is distended for use.

9. A sunshade-hat consisting of a textile collapsible body portion provided with folding ribs crossing each other and by which the hat, when in operative shape, is suitably distended, said hat having at its apex or central crown portion a lining of cotton or similar light non-conducting material *g* to serve as a non-conductor to prevent the passage of the heat of the sun.

10. A sunshade-hat consisting of a textile body portion provided at its apex or central crown portion with a stiff crown-piece above which is a lining or stuffing of cotton or similar light non-conducting material *g* to serve as a non-conductor to prevent the passage of the heat-rays of the sun, combined with curved spring-ribs *g'* braced against said stiff crown-piece and serving to distend the crown or central portion of the hat.

588,242. ADJUSTABLE BICYCLE HANDLE-BAR. JOHN J. REYNOTH, Chicago, Ill., assignor to himself and Levi M. Shaw, same place. Filed Feb. 19, 1897. Serial No. 624,140. (No model.)

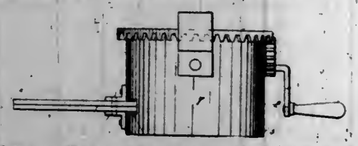


Claim.—1. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments, boxes or bearings for such gears or segments having the bearing on the periphery of the gears or segments, a housing or box for the gears or segments, serrated engaging faces between the gears or segments and the box or housing, clamping-bolts, and an eccentric for operating the clamping-bolts and locking and unlocking the handle-bars for adjusting purposes, substantially as specified.

2. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments each having a serrated engaging face, boxes or bearings for the periphery of the gears or segments, a housing for the gears or segments having serrated engaging faces coacting with the serrated faces of the gear, clamping-bolts for the segments or gears, an eccentric coacting with the clamping-bolts, a lever for the eccentric and a bearing-plate engaging the eccentric for locking and unlocking the segments or gears, subetantially as and for the purposes specified.

3. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments each having a serrated locking end face, boxes or bearings for the periphery of the segments or gears, a housing for the segments or gears, a stem for the housing, clamping-bolts for the segments or gears, an eccentric connected with the clamping-bolts, a lever for the eccentric and a bearing-plate for the eccentric for locking and releasing the gears, substantially as and for the purposes specified.

588,243. CAN-OPENER. EDWARD E. ROBBINS, Coldwater, Kans. Filed Jan. 8, 1897. Serial No. 618,501. (No model.)



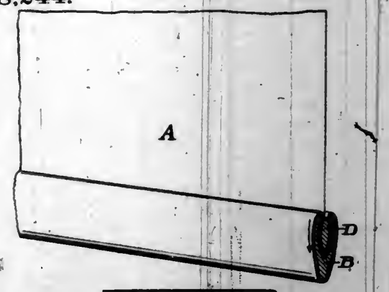
Claim.—1. The herein-described can-opener, comprising a cylindrical casing, a cross plate or bar mounted thereover, and secured thereto, a wheel connected with said plate or bar by a bolt or pin, which passes through the hub thereof, and through said plate or bar, said wheel being greater in diameter than said casing, and being provided at its perimeter with downwardly-directed gear-teeth, a pinion mounted at the side of the casing, and adapted to operate in connection with said gear-teeth, means for operating said pinion, and a clamp mounted in one side of the casing and provided with jaws which project thereinto, and are adapted to grasp and hold a can, and said wheel being provided with a downwardly-directed blade or cutter, substantially as shown and described.

2. The herein-described can-opener, comprising a cylindrical casing, a cross plate or bar mounted thereover, and secured thereto, a wheel connected with said plate or bar by a bolt or pin, which passes through the hub thereof, and through said plate or bar, said wheel being greater in diameter than said casing, and being provided at its perimeter with downwardly-directed gear-teeth, a pinion mounted at the side of the casing, and adapted to operate in connection with said gear-teeth, means for operating said pinion, and a clamp mounted in one side of the casing and provided with jaws which project thereinto, and are adapted to grasp and hold a can, and said wheel being provided with a downwardly-directed blade or cutter, and the jaws of the clamp being provided with outwardly-directed arms or handles, substantially as shown and described.

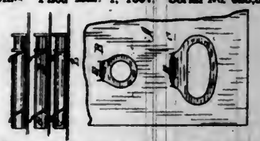
588,244. CURTAIN-FIXTURE. EDWARD A. ROBERTS, Cleveland, Ohio. Filed Aug. 21, 1896. Serial No. 603,550. (No model.)

Claim.—The combination with the shade A of the strip B having the oval groove C, and the oval strip D, said oval strip D adapted to be inserted by pressure in the side of the groove by the springing of the sides of said strip B and securing the fabric in the binding-strip, substantially as described.

588,244.

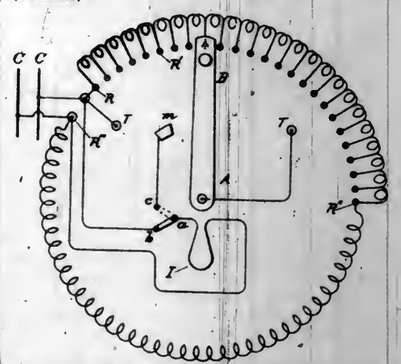


588,245. PACKING AND DISPLAY CARD. EDWARD SACHS, Dayton, Ohio. Filed Mar. 1, 1897. Serial No. 626,596. (No model.)



Claim.—The combination with bottles having annular ridges formed on their necks, of a packing, shipping and display card having a series of oval flaps or rings stamped therein near the outer longitudinal edges of said card, bent at right angles to the body thereof and adapted to inclose the bodies of said bottles, a series of circular flaps or rings stamped therein near the longitudinal center of said card, the said circular flaps or rings being essentially smaller than the oval flaps or rings and adapted to inclose the necks of said bottles below the annular ridges thereon, and forming the only supports for said bottles against any longitudinal movement, the said flaps or rings in addition to providing means for supporting the bottles on said card, also providing means for protecting said bottles during shipment, substantially as herein shown and described.

588,246. COMBINATION VOLT-GRADUATOR. WILLIAM J. SHIELDS, New Wilmington, Pa. Filed Mar. 24, 1897. Serial No. 629,079. (No model.)

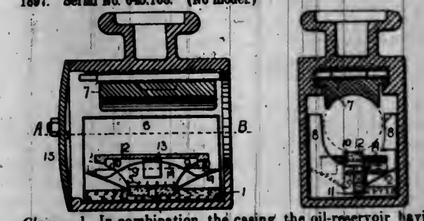


Claim.—1. In an instrument for adapting the current from a commercial circuit to medical purposes, the combination first of a conductor of high resistance placed across the terminals of a constant-potential supply-circuit, a portion of which, R R′ R″, is connected at intervals to contact-points, with second a lever-arm A B pivoted at A so that it may make a sliding contact with said contact-points, covering two or more points at a time; third the remaining part of the conductor, R″ R‴, being so proportioned with reference to the resistance of the first part of the conductor, R R′ R″, and the electromotive force of the supply-circuit as to secure safety to the patient and protect the instrument in case of a short circuit between the electrode-terminals T T, while fourth the resistance of the whole conductor R R′ R″ R‴ is small compared with the resistance of the human body, all substantially as set forth.

2. In an instrument for adapting the current from a commercial circuit to medical purposes, the combination of first a conductor R R′ R″ R‴ of high resistance placed across the terminals of a constant-

potential supply-circuit, of which the portion R R′ R″ is connected at intervals to contact-points, and the portion R R′ possesses lower resistance and greater carrying capacity than the remaining portion of the conductor, with second a lever-arm A B pivoted at A and third a conducting-strip *m* (with which the lever-arm makes sliding contact when it passes over the contact-points connected to R R′) and fourth an incandescent lamp or other conductor of lower resistance than R′ R″ R‴, which is connected through A B and *m* in series with R R′ or that part of R R′ which lies between R and the contact-points touching the lever-arm, all substantially as set forth.

588,247. RAILWAY-AXLE LUBRICATOR. WILLIAM SILVER, Tamworth, New South Wales. Filed Mar. 3, 1896. Renewed July 19, 1897. Serial No. 645,168. (No model.)



Claim.—1. In combination, the casing, the oil-reservoir having the dished top with the central opening and with the upwardly-extending guides 4, the swab-carrier having the swab therein and having the lateral extensions lying over the dished top and the springs between the dished top and the lateral extensions, substantially as described.

2. In combination, the main casing, the reservoir having the dished top with the central opening and the guide-plates 4, the swab extending through the central opening of the reservoir, and means for carrying the same, said guide-plates 4 being perforated for the return of the oil to the reservoir, substantially as described.

588,248. SPEED-RECORDER. WILLIAM J. SMITH, Victoria, Canada. Filed Feb. 15, 1895. Serial No. 538,572. (No model.)



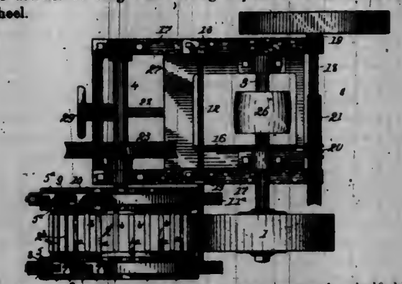
Claim.—1. In a speed-recorder for vessels, the combination with the motor-wheel and the power-gearing driven thereby, of register-gearing driven by the power-gearing through the intermediacy of a worm having an adjustable thread and an indicator for the register whereby an adjustment of the thread may be made to establish the correct rate of transmission between the power-gearing and register-gearing and thus standardize or calibrate the register; substantially as described.

2. A speed-recorder for vessels, comprising a register, power-transmitting gearing therefor, and a motor-wheel for actuating said gearing, the motor-wheel being mounted upon a shaft extending fore and aft of the ship and having blades revolving partly within a dead-water chamber or pocket formed in the ship's bottom; substantially as described.

588,249. AUTOMATIC GRINDING-MACHINE. CHARLES F. SPERY, Decatur, Ill. Filed Feb. 1, 1897. Serial No. 621,456. (No model.)

Claim.—1. In a machine for grinding articles having convex surfaces, the combination of a vertically-rotating wheel for grinding, or the like, a vertically-rotating work-holding wheel having an external circumference corresponding in convexity with the articles to be treated, and a set of swinging clamps pivotally connected with the periphery of the work-holding wheel.

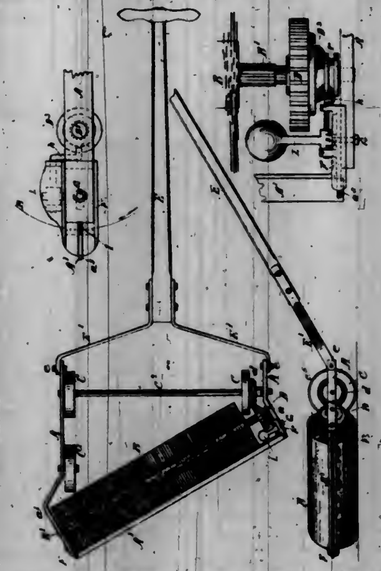
2. In a machine for grinding, or otherwise treating, articles having convex surfaces, the combination of a vertically-rotating wheel for grinding, or the like, a vertically-rotating work-holding wheel having an external circumference corresponding in convexity with the articles to be treated, a set of swinging clamps pivotally connected with the periphery of the work-holding wheel, and an arc-formed, stationary guideway for holding the clamps closed against the articles to be ground during a portion of the rotation of the wheel.



3. In a machine for grinding, or otherwise treating, knife-blades, a rotating work-holder wheel having two sets of clamps arranged staggered fashion on opposite sides of its periphery.

4. In a machine for grinding, or otherwise treating, knife-blades, the combination of a wheel for grinding, or the like, a rotating work-holder wheel having a set of transverse recesses in the central part of its periphery and two sets of clamps arranged staggered fashion on opposite sides of the central portion, rollers journaled in the swinging ends of the clamps, arc-formed, stationary guideways for engaging the rollers and holding the clamps closed against the knife-handles, and spring-sustained plates forming part of the bearing-surfaces of the guideways and normally extending beyond the same, substantially as set forth.

588,250. SWEEPING-MACHINE. GEORGE W. TAFT, Kennett Square, Pa. Filed Feb. 2, 1897. Serial No. 621,661. (No model.)



Claim.—1. A sweeping-machine comprising a diagonally-disposed rotatable brush, and an invertible supporting-frame therefor mounted on carrying-wheels, said parts being arranged for use with either side uppermost, and adapted for reversal in the direction of operation by inversion or overturn of the machine, substantially as set forth.

2. The sweeping-machine comprising in combination the invertible supporting-frame mounted on wheels and provided with the pivotally-attached handle, the diagonally-disposed rotatable brush, connecting-gears for driving said brush, the reversing-ratchet clutch for the brush-shaft and means for automatically shifting said clutch to reverse the ratchet action when the machine is inverted, substantially as set forth.

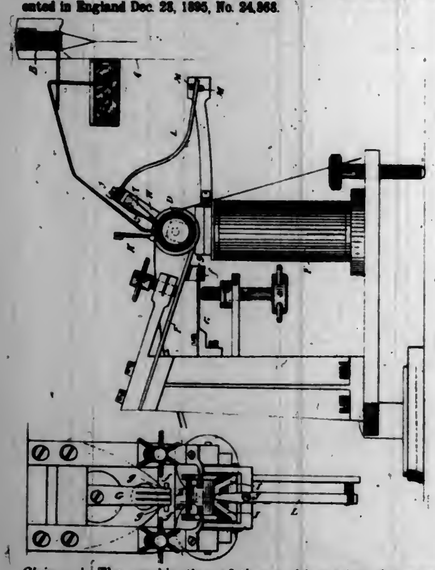
3. The combination with the invertible sweeper-frame, and the rotatable brush diagonally mounted therein, of the guard-bar A' arranged across the front, the brush adjacent to the face thereof, and having its ends adjustably connected with the side bars of the frame, for the purposes set forth.

4. The combination, with the invertible frame, of the brush axle, or shaft, having a transverse mortise therethrough, the swinging pawl-bar pivoted in said mortise with its ends projecting at either side of the shaft, the drive-gear wheel and its hub arranged to slide on said shaft and having an internal chamber inclosing said pawl-bar, and provided with oppositely-directed ratchet-detents at the respective ends of said chamber, the gravity-lever pivoted on the frame and provided with an arm engaging the groove in the drive-gear hub and adapted for shifting said gear endwise on said shaft to automatically bring the respective ratchets alternately into engagement, for the purpose set forth.

5. In an invertible sweeping-machine frame, the combination, with the drive-gear, the brush-shaft, and the ratchet-clutch devices; of a gravity-lever for shifting the ratchet-clutch, said lever provided with stops or lugs *a* and *a'* that contact with the frame for limiting movement of said lever.

6. In a sweeping-machine the combination, substantially as described, of the frame composed of horizontal side bars with laterally-inclined fore ends joined by a front guard-bar, the handle pivoted to their rear ends, two carrying-wheels on an axial shaft journaled in the central part of said frame, a front carrying-wheel supporting the longer side bar, the diagonally-disposed rotary brush, the gearing for operating said brush, the dual ratchet-clutch mechanism for engaging said gear and its shaft, and the gravity-lever fulcrumed on the frame and connected for shifting the ratchet automatically when the machine is inverted, substantially as set forth.

588,251. RECORDING INSTRUMENT. William Thomson, Largs, Scotland. Filed Oct. 2, 1896. Serial No. 607,730. (No model.) Patented in England Dec. 28, 1895, No. 24,868.

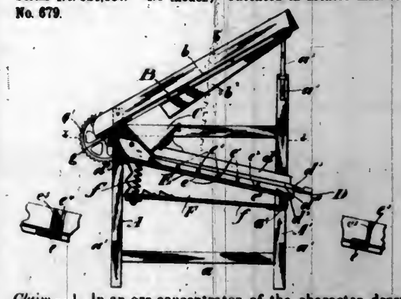


Claim.—1. The combination of the marking-point, the paper and platen having means in connection therewith for oscillating it to and from the marking-point, and suitable means for feeding the paper forward as the platen is oscillated, substantially as shown and described.

2. The combination with the marking-point, the paper and platen, said platen forming an armature, said armature being mounted so as to oscillate and provided with a make and break, suitable means in connection with the armature-platen for rotating it as it is oscillated so as to feed the paper forward, substantially as shown and described.

3. The combination with the marking-point, the paper and platen, said platen being mounted to oscillate to and from the marking-point, and means in connection with the platen for feeding the paper forward as the platen is oscillated, consisting of a friction-arm bearing on the paper and carried by a pivoted framework and a bent spring fixed at one end and having its other end secured to the framework, substantially as shown and described.

588,252. ORE-CONCENTRATOR. Lute M. Ware, Tucson, Ariz., assignor of seven-tenths to Amos G. Woolley, same place, and Warren Garrett and Richard Woolley, San Antonio, Tex. Filed Aug. 23, 1895. Serial No. 521,067. (No model.) Patented in Mexico Mar. 23, 1895, No. 679.

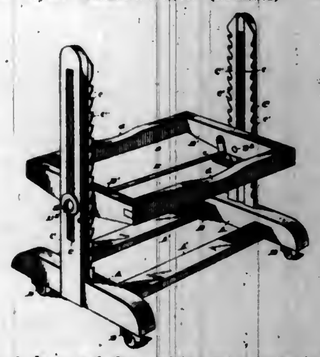


Claim.—1. In an ore-concentrator of the character described, the combination of the inclined riffle-supporting frame, D, the riffle-frame removably secured thereon and forming the top of the bellows, the textile fabric covering the riffle-frame, the transverse strips, *e*, to support the fabric on the under side the riffles, *e'*, narrower than the under supporting-strips and secured above the fabric, forming dead-air spaces, *e²*, hair rope *e³*, secured upon top of the riffles, the bellows, F, having its bottom, *f*, forming the air-chamber underneath the riffle-frame and hinged to the cross-bar, *a'*, of the frame, the crank-shaft the pitman connecting the crank-shaft and the bottom of the bellows, the driving-shaft journaled in the frame of the machine, the pinion secured upon said shaft, and pinions secured upon the crank-shaft meshing with said pinion, for the purpose of operating the bellows, and the hopper, C, to feed the gangue to the riffle-frame, substantially as shown and described.

2. In a riffle-frame for dry ore-concentrators, the combination of the surrounding frame, transverse strips secured near the bottom edge thereof, an air-chamber secured underneath said frame, riffle-bars, narrower than the lower transverse strips, secured over the same, leaving a dead-air space above the lower strips for the collection of the ore, fibrous cords or ropes secured on top of the riffle-bars, the textile material secured to the ends of the frames and supported by transverse strips and riffle-bars, said material consisting of a lower layer of woven wire, an intermediate layer of burlap and a top layer of coarse muslin, substantially as shown and described.

3. In a dry ore-separator, the combination of the riffle-frame covered with textile fabric, transverse strips underneath the fabric supporting the same, and removable magnetized riffle-bars secured on top of the fabric for the purpose of attracting and retaining the iron ore contained in the gangue passing over the riffle-board, substantially as shown and described.

588,253. BARREL-TRUCK. Lee A. Wagner, Marshall, Mo. Filed Oct. 16, 1896. Serial No. 609,096. (No model.)



Claim.—1. In a truck for receiving and carrying barrels and other articles, a base-frame mounted on rollers, a post extending vertically from each end of the frame, and ratchet-teeth on opposite faces of each post, combined with the supporting-frame adapted to move between the posts, and parallel rods pivotally connected to the supporting-frame and extending longitudinally below it and beyond its ends to engage the said ratchet-teeth, substantially as described.

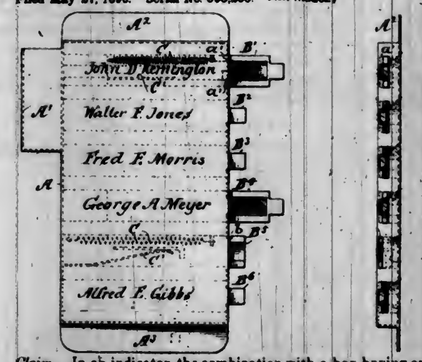
2. In a truck for receiving and carrying barrels and other articles, a base-frame mounted on rollers, a post extending vertically from each end of the frame and provided with a longitudinal slot, and ratchet-teeth on opposite faces of each post, combined with the supporting-frame adapted to move between the posts, trunnions projecting from the frame into the said slots, and parallel rods pivotally connected to the supporting-frame and extending longitudinally below it and beyond its ends to engage the said ratchet-teeth, substantially as described.

3. In a truck for receiving and carrying barrels and other articles, a base-frame mounted on rollers, a post extending vertically from each end of said frame, and ratchet-teeth on opposite faces of each post, combined with a suitable frame adapted to move between the posts, parallel rods pivotally connected to the supporting-frame and extending longitudinally below it and beyond its ends to engage the said ratchet-teeth, and springs connecting the parallel rods to normally draw them toward each other, substantially as described.

4. In a barrel-truck, the base thereof mounted on rollers or casters, the upwardly-extending, slotted posts secured thereto, the laterally-projecting ratchet-teeth thereon, the barrel-holding frame supported between said posts, the catch-rods E, the pivoted arms or links in which said catch-rods are mounted, the springs for actuating the catch-rods and forcing them into engagement with the ratchet-teeth on the upright posts, and the trunnions or pins on the barrel-holding frame adapted to travel up and down within the slots in the upright posts, as and for the purpose described.

5. In a barrel-truck, the base thereof having two upright, slotted posts between which the barrel-holding frame is mounted, the ratchet-teeth projecting laterally from said posts, the barrel-holding frame interposed between said posts, the catch-rods mounted in bearing plates or links pivoted to the barrel-holding frame, and the springs connecting the catch-rods and forcing them into engagement with the ratchet-teeth on the upright posts, substantially as described.

588,254. INDICATOR. Albert H. Walker, Brooklyn, N. Y. Filed May 27, 1896. Serial No. 593,235. (No model.)



Claim.—In an indicator, the combination with a box having one or more openings and detents at one side of shouldered slides protruding through said openings, and adapted to move longitudinally and laterally therein, and springs for projecting the slides, substantially as described.

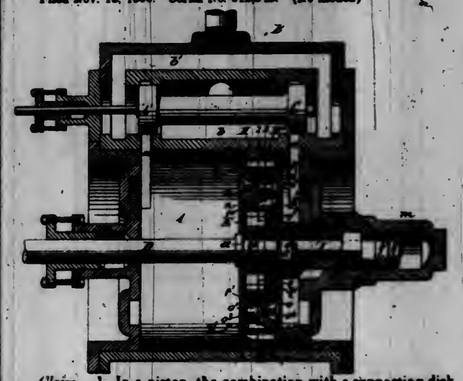
588,255. COMBINED BRAKE AND FENDER. Albert H. Wheeler, Warwick, R. I., assignor of one-half to Edward Pike, same place. Filed Feb. 12, 1897. Serial No. 623,117. (No model.)



Claim.—1. In a car, the combination of a car-wheel, a sliding bar adapted to be hung in equipoise upon a pin-support but movable thereon when unbalanced, a brake-shoe connected and movable with said slide, a longitudinally-movable latch-rod arranged to move said slide, a latch-holding device for said rod, a presser-bar mounted in and through the platform of the car and provided with cam-surfaces, one of which is capable of disengaging the latch-rod from the latch-holder and the other of which is capable of imparting longitudinal movement to said rod, and a spring adapted to give return movement to said rod, substantially as set forth.

2. In a car, the combination of a car-wheel, a sliding bar adapted to be hung in equipoise upon a pin-support but movable thereon when unbalanced, a brake-shoe connected and movable with said slide, a longitudinally-movable latch-rod arranged to move said slide, a latch-holding device for said rod, a pivotally-hung fender, a buffer-rod movable by the fender, a lever movable by the buffer-rod and adapted to disengage the latch-rod from the latch-holder, a presser-bar mounted in and through the platform of the car and provided with cam-surfaces, one of which is capable of disengaging the latch-rod from the latch-holder and the other of which is capable of imparting longitudinal movement to the latch-rod, and a spring adapted to give return movement to said latch-rod, substantially as specified.

588,256. PISTON. Benjamin F. Wilson, North Tonawanda, N. Y. Filed Nov. 18, 1896. Serial No. 612,543. (No model.)



Claim.—1. In a piston, the combination with a supporting-disk, of radially-movable piston-sections mounted on said disk and provided with spirally-threaded portions, and an adjusting-sleeve provided with a spiral thread engaging with said threaded portions, substantially as set forth.

2. In a piston, the combination with the supporting-disks, of two annular sets of piston-sections arranged between said disks and capable of radial adjustment, the divisions or spaces between the sections of one set being out of line with the divisions or spaces between the other set of sections, and cover-plates arranged between said disks and extending across said divisions or spaces, substantially as set forth.

3. In a piston, the combination with the supporting-disks, of two annular sets of piston-sections arranged between said disks and capable of radial adjustment, the divisions or spaces between the sections of one set being out of line with the divisions or spaces between the other set of sections, cover-plates arranged between said disks and extending across said divisions or spaces, and ledges or seats formed on the opposing portions of said sections and adapted to engage with the ends of the cover-plates, substantially as set forth.

4. In a piston, the combination with the supporting-disks, of two annular sets of piston-sections arranged between said disks and capable of radial adjustment and a split packing-ring arranged between the two sets of piston-sections, substantially as set forth.

5. In a piston, the combination with the supporting-disks, of two annular sets of piston-sections capable of radial movement between said disks, said sections being provided with spirally-threaded portions, and a rotary adjusting-sleeve provided with a spiral thread engaging with the spirally-threaded portions of said sections, substantially as set forth.

6. The combination with a piston provided with a relief-passage having an inwardly-facing valve-seat at one end and an outwardly-facing valve-seat at the other end, of two connected valves adapted to bear respectively against said valve-seats, substantially as set forth.

7. The combination with a piston provided with a relief-passage having two valve-seats arranged at opposite ends thereof, of a valve adapted to bear against one of said seats and provided with an internally-screw-threaded tubular stem and a valve bearing against the other valve-seat and provided with an externally-screw-threaded stem engaging with said tubular stem, substantially as set forth.

588,257. SCYTHE HEEL AND FASTENER. Elmer E. Wilson, Cynthiana, Ind. Filed Sept. 17, 1896. Serial No. 606,126. (No model.)

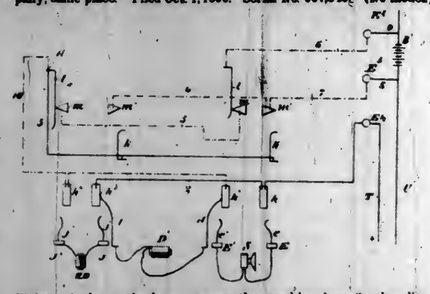
Claim.—1. The combination with a handle having a plate provided with an opening 10, an eyebolt situated within the opening, and a thumb-screw on said bolt, there being a slot 7 in said plate, and a loop situated within said slot having a bolt and thumb-screw, of a blade having a bent end and finger situated within said slot and eyebolt respectively, substantially as described.

2. The combination with a handle, having a plate provided with an opening 10, and a slot 7, said plate being roughened or serrated

around said opening 10, an eyebolt within said opening 10 provided with a thumb-screw, a loop within said slot having a projection provided with a thumb-screw, of a blade provided with a bent end situated within said loop, and a finger situated within said eyebolt, and having a roughened or serrated face, substantially as described.



588,258. SWITCHBOARD APPARATUS. WALTER F. BANER, Milford, Conn., assignor to the National Electrical Manufacturing Company, same place. Filed Oct. 1, 1896. Serial No. 607,549. (No model.)



Claim.—1. In a telephone system, the combination of a plurality of contact-strips, a plurality of contact-springs *c c'* connected thereto, a series of contact-strips *d* of greater length than the contact-springs *c c'* and insulated from each other and from the contact-strips *c c'*, a plug, contact-plates *h h'* mounted thereon, contact-springs *k l* and contact-pieces *m m'* cooperating with *k l*.

2. In a telephone system, the combination of a plurality of subscribers' lines each connected to a plurality of pairs of switchboard contact-pieces, the said pairs being arranged in sets, calling-annunciators connected across each subscriber's contacts from a contact on one pair to a contact on the other pair, a central-office telephone set adapted for cooperation with one of the pairs, and a universal connection such as the contact-strips J and J' with their contact-springs to which the second pair of contact-points of each subscriber's line is adapted to be connected, substantially as described and for the purposes set forth.

3. In a switchboard apparatus, the combination of a telephone-line and a signal-line having a battery, the said signal-line when the telephone-line is in use, forming a common return for the telephone-line so that the signal-line and telephone-line constitute a metallic circuit, a central station having a contact for each telephone-line, a plurality of outgoing terminals at central, one terminal being connected ahead of the battery at the central station and the other terminal being connected behind the battery at the central station and contact devices in circuit with the said plurality of outgoing terminals, and a switching device at the central station for switching the connection of the telephone-line from one side of the battery to the other.

4. In a telephone-switchboard apparatus, the combination of a telephone-line running to a central station and a signaling-line also running to the central station and having a battery at central, the said signaling-line forming a common return for the telephone-line, a contact for each telephone-line at the central, a plurality of outgoing terminals at the central, one terminal being connected to the signaling-line ahead of the battery and the other terminal being connected to the signaling-line behind the battery and contact devices at the central station adapted to cooperate with the said outgoing terminals, a switching device at the said central station for switching the telephone-contact into connection with the signaling-line ahead of the battery or behind the battery by connecting the said contact with one or the other of the outgoing terminals.

5. In a switchboard apparatus, the combination of a telephone-line and a calling-line having a battery and forming a common return for the telephone-line when the said telephone-line is in use for transmitting speech as distinguished from calling, so that the calling-line and the telephone-line are included in the same talking-circuit, a plurality of outgoing terminals at the central, one terminal being connected to the calling-line at the central station ahead of the battery in the said calling-line and the other terminal being connected to the calling-line at the central station behind the battery in the said calling-line and a switching device or plug for connecting the telephone-line with one or the other of the outgoing terminals, whereby a call may be received at the central station over the telephone and calling line and by manipulating the plug or switch the telephone line may be thereupon connected to the calling line so as to cut the battery out of the telephone talking-circuit.

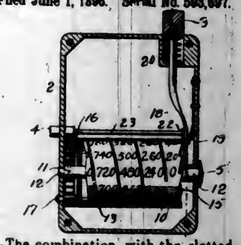
588,259. TOBACCO CONTAINER AND PIPE. CHARLES W. BETTS, Wallace, Idaho. Filed Mar. 24, 1897. Serial No. 629,050. (No model.)



Claim.—1. The combination with a tobacco container or cartridge having a disk bottom, of a holder or rest having an attached stem and provided with means for engaging said disk bottom of the cartridge, and a removable section supported by the holder or rest for surrounding the contained cartridge and having a bore of larger diameter than the exterior of the cartridge, substantially as specified.

2 The combination with a tobacco container or cartridge and having a disk bottom provided with a socket, of a holder or rest adapted to support the cartridge and having an attached stem and a projection to engage said socket, and a perforated section of a depth equal with the cartridge detachably secured to the holder or rest and adapted to combine therewith to form a bowl, the bore of said detachable section being of larger diameter than the cartridge to form an intervening air-space between the contiguous surfaces thereof, substantially as specified.

588,260. ADDING-MACHINE. CHARLES H. BICKLOW, Litchfield, Minn. Filed June 1, 1896. Serial No. 593,697. (No model.)



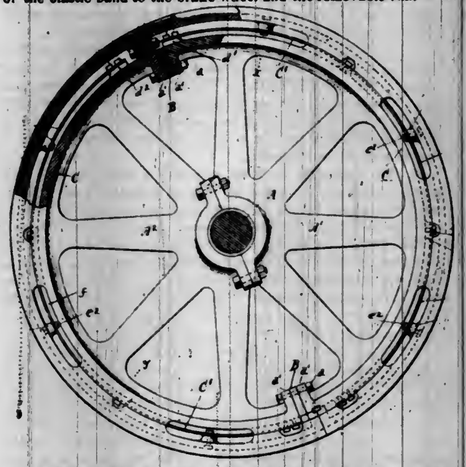
Claim.—The combination, with the slotted casing and the spirally-grooved and numbered roll arranged therein, of the sliding indicator connected to said roll, the ratchet upon said roll, the spindle extending into said casing and provided with the spring end 18 that engages said ratchet, the spring-pawl 21 engaging said ratchet and provided with the extension 22 engaging said spindle, the transverse spindle 23 engaging said pawl 21 and the spring 16 connected to said roll, for the purpose set forth.

588,261. BRAKE-WHEEL FOR HOISTING-ENGINES. GEORGE S. BINCKLEY, San Francisco, Cal., assignor to the Union Iron Works, same place. Filed Jan. 2, 1897. Serial No. 617,834. (No model.)

Claim.—1. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the wheel or drum, and of an elastic metallic band interposed between the braking-rim and the rim of the brake-wheel or drum.

2. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the said wheel or drum, and of an elastic metallic band interposed between the removable rim and the brake-wheel or drum, said elastic band being secured alternately to the rim of the brake-wheel or drum and to the removable braking-rim.

3. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the said wheel or drum, an annular passage-way formed between the inner face of the removable rim and the face of the brake-wheel or drum, an elastic metallic band located within said annular passage-way and secured alternately to the brake-wheel or drum and the removable rim, and of a series of side pockets intercepting the annular passage-way at points of union of the elastic band to the brake-wheel and the removable rim.



4. The combination with a brake-wheel or drum provided with a series of projecting lugs or bosses, of a removable braking-rim secured around the brake-wheel or drum, a series of lugs or bosses depending from said rim, and of an elastic metallic band interposed between the removable rim and the brake-wheel, said elastic band being connected to the projecting and depending studs or lugs.

588,262. OVERHEAD SHOWER. WILLIAM BOEKEL and JULIUS BOEKEL, Philadelphia, Pa. Filed June 18, 1896. Serial No. 596,012. (No model.)



Claim.—1. A rose-nozzle having an outlet in its bottom, in combination with a casing surrounding the outlet within the said nozzle and having side openings on a level with the bottom plate, a valve within the said casing arranged to receive the pressure of the water and operating to close the said openings when depressed, and a spring arranged to lift the said valve and uncover the said openings when the pressure ceases, the said valve and casing being wholly within the body of the rose-nozzle and operating to drain the interior thereof down to the bottom plate substantially as set forth.

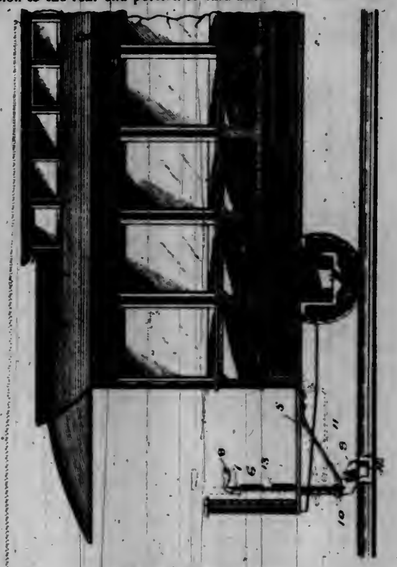
2. A rose-nozzle having an outlet in its bottom, in combination with an automatic air-inlet valve, a valve for the said outlet, a casing surrounding the said outlet and having side openings on a level with the bottom plate and a spring arranged to lift the said valve and uncover the said openings when the pressure of the water ceases substantially as set forth.

588,263. SWITCH-IRON. JOHN H. BOYER, Philadelphia, Pa., assignor of one-half to James E. Williams, same place. Filed Feb. 6, 1897. Serial No. 622,271. (No model.)

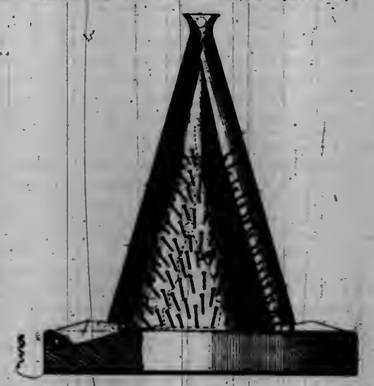
Claim.—1. The combination with a car, of an upright longitudinally movable shaft, and a plow tapered at its front edge and pivoted at said front edge by means of an upright pivot at the lower end of said shaft, substantially as described.

2. The combination with a car, of an upright longitudinally-movable shaft, a rearwardly-extending arm at the lower end of said shaft, and a plow pivoted to the rear end portion of said arm, said plow being tapered at its front edge and being pivoted to said arm at its forward end portion.

3. The combination with a car provided with an upright guide having a guide-groove, of a shaft situated within said guide and provided with a lug to pass through and beyond the ends of said guide-groove, a rearwardly-extending arm at the lower end of said shaft, and a plow having a tapered front edge pivoted at its forward end portion to the rear end portion of said arm.



588,264. GAME APPARATUS. JOHN R. BRENNAN, Philadelphia, Pa. Filed Nov. 14, 1896. Serial No. 612,052. (No model.)

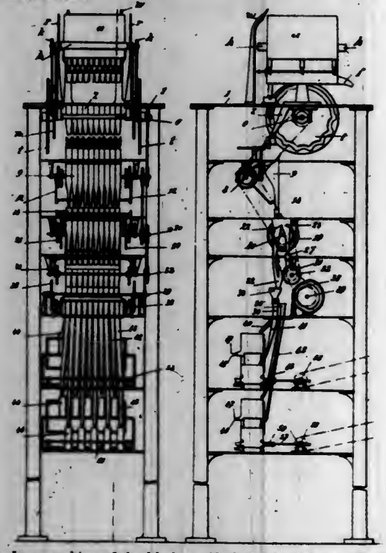


Claim.—A stationary field with radial partitions on its upper face forming pockets; a stationary body rising from the center of said field, pins projecting from the side of said body, and a stationary hood covering said body above the partitions of the field, and engaging on its inner face with the heads of said pins, and a hopper on the upper part of said hood above the apex of the body, said parts being combined forming an improved game apparatus.

588,265. APPARATUS FOR AUTOMATICALLY FILLING BOXES WITH MATCHES. VICTOR CANAMALE, Paris, France. Filed Feb. 24, 1896. Serial No. 580,404. (No model.) Patented in France July 27, 1895, No. 249,230.

Claim.—1. In a machine of the kind specified, apparatus for parceling out matches into given quantities, comprising perforated vibratory containers each compartment of which is adapted to receive matches in numbers substantially equal to the charges to be boxed, means for releasing said charges from the containers at predetermined periods, weighing mechanism and means for conveying the parceled charges from the containers to the weighing mechanism, substantially as described.

2. In a machine of the kind specified, weighing or checking apparatus each comprising a balance, suitably-actuated supports adapted to engage opposite ends of the scale-beam, a spout for receiving the charges from the scale-pan, a deflector adapted to be projected across the path of the spout and means for projecting said deflector across the spout when the support at the end of the scale-beam opposite the scale-pan is operated to discharge the contents thereof, substantially as described.



3. In a machine of the kind specified, the sorting-cups for separating in each charge the matches whose heads are in the one direction from those whose heads are in the other direction, by imparting a vibratory motion to said cups which are provided with a bottom having perforations of such diameter as to allow only the stems of the matches to pass through and retain the heads, each of said cups discharging the matches by means of a double reversing movement into two separate spouts uniting at their lower ends, and one of said spouts being intercepted by a cup which by a single reversing movement arranges the matches it receives in the same direction as the remainder as hereinbefore described.

4. In an apparatus for automatically filling match-boxes, the combination of weighing apparatus, mechanism for automatically delivering charges of matches thereto, sorting-cups for receiving matches from said weighing apparatus and rectifying the relative positions thereof and means for delivering the sorted matches to the boxes to be filled.

5. In an apparatus for automatically filling match-boxes, the combination of weighing apparatus, mechanism for automatically delivering charges of matches of a given quantity thereto, means for automatically shifting the weighing mechanism to discharge light charges therefrom, sorting-cups for receiving complete charges of matches from said weighing apparatus and rectifying the relative positions thereof and means for delivering the sorted matches to the boxes to be filled.

6. A machine for sorting matches and filling all kinds of boxes therewith in exactly-determined quantities, said machine combining in operative combination an oscillating container *a* divided into compartments, tubes *b*, box-spouts *d*, and channels *f*, the matches being caused to fall by the action of gravity and a shaking motion from container *a* into the tubes *b* whence they pass separately or in limited number through small holes into the spouts *d*, said matches which are contained in separate compartments of the container *a* being discharged by the oscillation of said container into the channels *f* whence they drop onto a scale 2, 3, the oscillations of the scale-beams being regulated by lifter-rods 4, 5, whereby full charges may freely fall into spouts 9, but short charges are thrown out by a deflector, vibrating sorters 14 to receive the full charges from the spouts 9 and separate the matches into two lots according as they fall heads upward or downward, and delivered into separate spouts 22, 23, united at bottom, the spouts 23 having each a reversing-cup 27 corresponding thereto, by means of which the matches are placed with their heads all the same way and delivered to an oscillating box-filling device 44 having jaws 47, 48, to receive the boxes to be filled and pushers 62, 63, for discharging the filled boxes.

7. In a machine of the kind specified, the combination of tubes *b* of a diameter less than the length of a match so as to prevent their assuming a crosswise position and provided with holes of a size to admit only one or a limited number of matches at a time and spouts *d* connecting with said tubes *b* and being shorter than the matches in order that the ends of the matches received therein may remain in the holes and so prevent the entrance of other matches.

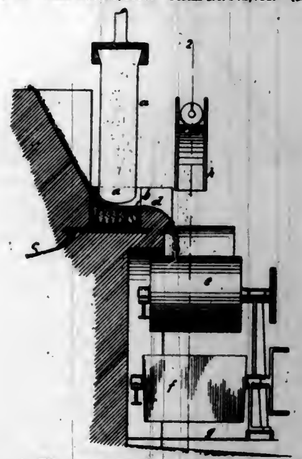
8. In a machine of the kind specified, the combination of an oscillating container *a* having tubes *b* and spouts *d*, said container adapted to be tipped to discharge the matches therefrom into channels *f* without being followed by those contained in *b* owing to the horizontal position occupied at this moment by said spouts, notwithstanding the shaking motion, in order that the desired number of matches shall not be exceeded.

9. In a machine of the kind specified, the combination of sorting and reversing cups 14 and 27 made of a diameter less than the length of a match and the first-mentioned cups having their bottoms perforated with small holes of a diameter greater than the stem but less than that of the heads of the matches, means to impart a double tipping movement to the sorting-cups 14 for inverting the matches which rest head downward on the bottoms of said cups and for discharging the matches retained in the holes by their heads and which are again reversed by the cups 27 and arranged with their heads in the same direction as the remainder.

10. In a machine of the kind specified, a box-filling device comprising an inclined plane 45, means for imparting a to-and-fro movement thereto and jaws 47, 48, for holding the boxes disposed either horizontally or in the plane of the incline 45 the said jaws being capable of adapting themselves to the form of the boxes and the said jaws or the extension 54 of incline 45 being also arranged so as to be capable of covering a portion of the mouth of the box so as to leave only a small aperture for the entrance of the matches, corresponding to the outlet from the fillers, arranged either at the side or end of the box, so as to prevent the matches being thrown out and enabling the boxes to be inclined so as to present their greatest depth to receive the matches.

11. In a machine of the kind specified, a frame 66 provided with channels for receiving and allowing of the longitudinal movement of the empty boxes therein and a longitudinal slot extending throughout the extent of one of the walls of each of said channels for the passage of the lid.

588,266. TREATMENT OF PHOSPHATES. GUILLAUME DE CHALMOT, Leaksville, N. C., assignor to the Wilson Laboratory Company, New York, N. Y. Filed Dec. 20, 1895. Serial No. 572,733. (No specimens.)



Claim.—1. The treatment of natural phosphate-rock containing silica, alumina, or iron oxid by simple fusion in an electric furnace, whereby the proportion of soluble phosphoric acid is increased, and immediately removing the molten phosphate from the furnace, whereby its reduction is prevented.

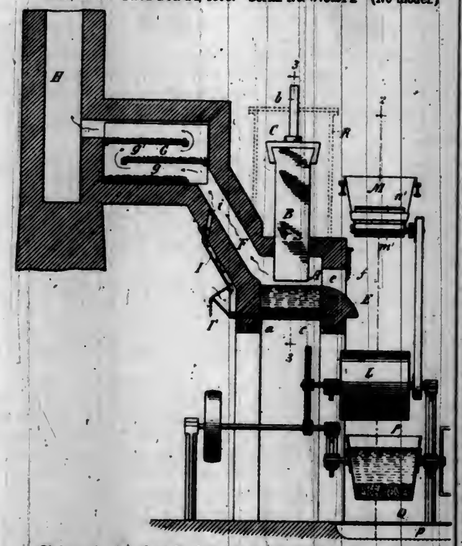
2. The treatment of natural phosphate-rock containing silica, alumina, or iron oxid, by fusion in an electric furnace, whereby the proportion of soluble phosphoric acid is increased, removing the molten phosphate from the furnace, and bringing it into contact with silica, whereby the phosphoric acid is rendered still more soluble.

3. The treatment of natural phosphate-rock containing silica, alumina, or iron oxid, by simple fusion in an electric furnace, without the addition of a reducing agent, and causing the molten phosphate to overflow at the top, whereby the reduction of the phosphate which is thus discharged is prevented, the reduced phosphate which is confined to the bottom of the molten mass being retained in the furnace.

4. The treatment of phosphate by fusing it in an electric furnace, and causing the molten phosphate to overflow from the top of the furnace, dropping it onto silica, and sprinkling silica over it.

5. The treatment of phosphate by fusing it in an electric furnace, removing the molten phosphate from the furnace and bringing it into contact with silica, and then while still hot dropping it into water.

588,267. ELECTRIC FURNACE. GUILLAUME DE CHALMOT, Leaksville, N. C., assignor to the Wilson Laboratory Company, New York, N. Y. Filed Dec. 24, 1895. Serial No. 573,214. (No model.)



Claim.—1. An electric furnace constructed with an overflow-opening, combined with a revolving part arranged beneath it to receive the overflowing material, and means for sprinkling a layer of subdivided material upon said part in advance of the falling upon it of the material overflowing from the furnace.

2. An electric furnace having an overflow-opening, combined with a revolving part arranged beneath said overflow-opening, means for sprinkling sand or comminuted material on said part in advance of its receiving said overflow, and means for sprinkling a comminuted material upon the same subsequent to its receiving said overflow.

3. The combination of an electric furnace having an overflow-opening, a cylinder L arranged beneath said opening to receive the overflowing material, a sand-hopper M having a delivery-roller, and means for revolving said cylinder and roller, whereby to sprinkle sand upon the cylinder.

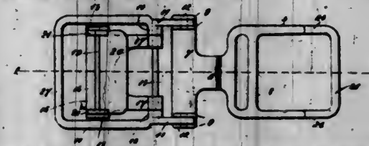
4. An electric furnace constructed with an overflow-opening, combined with a revolving cylinder beneath said opening, and a sand-hopper M above the cylinder constructed with two discharge-spouts arranged to discharge streams of sand onto the cylinder on opposite sides of the stream of material flowing from the furnace.

5. An electric furnace constructed with a hollow hearth or chamber closed on all sides, having a carbon bottom, said chamber formed with an opening through its roof, and with an overflow-opening at a level considerably above said carbon bottom, a carbon pencil adjustable vertically through said opening in the roof, a slide movable to more or less close said overflow-opening, a flue leading from said chamber, and a chimney or suction device for drawing the fumes from the furnace chamber through said flue.

6. The described method of renewing the overflow-wall of an electric furnace consisting in increasing the heat in the furnace so as to partially fuse down said wall, then supplying like fused material in the furnace and reducing the heat sufficiently to cause such material to congeal against the wall and thereby build up the latter, substantially in the manner specified.

7. The described method of controlling the discharge of molten material from an electric furnace having an overflow-wall of the same material, which consists in increasing the heat within the furnace sufficiently to partly fuse down said wall and thereby lower its level, so that the fused material runs out down to such reduced level, and then reducing the heat and supplying additional material which becomes molten until by the congealing of such molten material against and upon said wall the latter is restored and the level of the fused material in the furnace is raised, substantially as specified.

588,268. FASTENING AND TIGHTENING DEVICE FOR TRUNK-STRAPS. WILLIAM J. DAVIS, New York, N. Y., assignor to Cosmo Farquhar and George M. Dorrance, Jr., same place. Filed Oct. 14, 1896. Serial No. 608,832. (No model.)



Claim.—1. In a fastening and tightening device for trunk-straps, the combination with a main link, one end of which is provided with a cross-head which is formed thereon or secured thereto, and which projects therefrom, of a supplemental link which is wider than the main link, and provided at one end with projecting arms which are pivoted to said cross-head, said supplemental link being also provided with a clamp which is pivoted to the cross-bar thereof, adjacent to said projecting arms and which is adapted to turn in said supplemental link, and through which one end of the strap is adapted to be passed, said supplemental link being adapted to be folded over the main link, and to be secured in position by the free end of the strap, and said main link being provided with a cross-bar to which the other end of the strap is secured, substantially as shown and described.

2. In a device for fastening and tightening the straps of trunks and other articles, the combination with a main link provided with a cross-bar, and with a cross-head which is secured to or formed on one end thereof, adjacent to said cross-bar, and which projects therefrom, of a supplemental link which is wider than the main link and which is provided with projecting arms which are pivoted to said cross-head, said supplemental link being provided with a clamp, which comprises a cross-head, having projecting arms which are connected with and adapted to swing on the cross-rod of the supplemental link adjacent to said arms of the supplemental link, said cross-head of the clamp being provided with upwardly-directed shoulders to which is pivoted a clamping plate or lever, the free edge of which is adapted to rest on the arms of the cross-head of the clamp, and which is provided on its under side with a downwardly-directed flange, between which and the cross-head of the clamp the free end of the strap is passed, and the ends of the sides of the main link opposite the cross-head which is formed thereon or secured thereto being provided with notches or recesses in their upper sides adapted to receive the outer cross-rod of the supplemental link, and the end of the main link adjacent to said notches or recesses being above the plane of the body thereof, substantially as shown and described.

3. In a fastening device for the straps of trunks and other articles, the combination with a main link as 5, provided with a downwardly and outwardly extending shank as 6, and a cross-head as 7, formed thereon, said main link being also provided with a cross-bar 8, adjacent to said shank, and with notches or recesses as 24, in the sides thereof, and with a raised end or cross-rod as 26, of a supplemental link as 10, which is provided at one end with arms as 11, which are bent downwardly and pivotally connected with shoulders formed on the cross-head 7, said supplemental link being also provided with a clamp 15, which is pivoted to the inner cross-rod 13, of the supplemental link, said clamp consisting of a cross-head, and with a pivoted clamping plate or lever as 20; and said supplemental link being adapted to be folded over the main link and to be secured in position, substantially as shown and described.

588,269. SEAL FOR BOTTLES. CHARLES W. DAVISON, Minneapolis, Minn., assignor, by mesne assignments, to the Davison Bottle Seal Company, of Minnesota. Filed Dec. 29, 1896. Serial No. 617,330. (No model.)

Claim.—1. The combination with a bottle-neck of a cork provided therein, a hollow internally-shouldered frangible seal, provided in the neck over said cork and means arranged in connection with the cork and the shoulder of the seal to secure said seal in place, substantially as described.

2. The combination with the neck of the bottle of an internally-shouldered hollow seal or cap, having a thin, easily-breakable top, and a locking device arranged within the seal and in the cork, engaging the shoulder of said seal, substantially as described.

3. The combination of the bottle bearing a suitable mark or design of a cork provided in the neck of said bottle, an internally-shouldered cap or seal, also, arranged in the neck of the bottle, over the

cork, means in connection with the cork for securing said seal, and said seal having a thin or paneled top, bearing a suitable trade-mark or design, known as an accompaniment to that upon the bottle, said cork being removable from the bottle only when or after the top of said seal is broken or shattered to destroy the mark thereon, substantially as described.



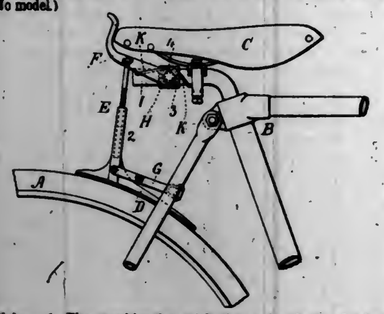
4. The combination with the bottle neck of the cork therein, an internally shouldered or recessed hollow cap or seal, and a corkscrew and lock on the cork to secure said seal, substantially as described.

5. The combination with the bottle of a cork provided in the neck thereof, a hollow and easily-breakable cap or seal, and a corkscrew in said cork and having an upwardly projecting and integral part to secure said cap or seal, substantially as described.

6. As an article of manufacture, the bottle cap or seal having a thin or paneled top and an internal shoulder and made of frangible material substantially as and for the purpose described.

7. As an article of manufacture, the lock for bottle-seals comprising the corkscrew, having a shank with a turned or bent upper end, substantially as described.

588,270. BRAKE FOR BICYCLES OR VEHICLES. FREDERIC ECAUBERT, Brooklyn, N. Y. Filed Feb. 3, 1896. Serial No. 577,859. (No model.)

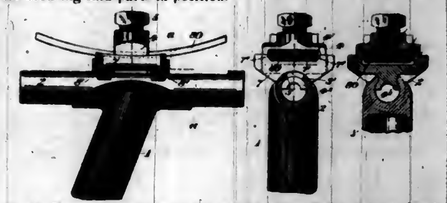


Claim.—1. The combination with the cycle-wheel, of a brake-shoe above the wheel, a swinging connection from the brake-shoe to the frame for holding the brake-shoe in position, a nearly vertical rod extending from the brake-shoe, a lever pivoted to the vertical rod and to the saddle-support and rising and projecting to the rear of the saddle so that the weight of the rider can be applied directly upon the projecting end of the lever, substantially as set forth.

2. The combination with the cycle-wheel, of a brake-shoe above the wheel, a swinging connection from the brake-shoe to the frame for holding the brake-shoe in position, a nearly vertical adjustable rod extending from the brake-shoe, a lever pivoted to the upper end of the vertical rod and a pivotal connection between the end of the lever and the saddle-bar, the rear portion of the lever extending to the rear and adapted to receive the rider whereby the weight of the rider is applied directly to the brake, substantially as set forth.

588,271. ATTACHMENT FOR SECURING SADDLES OF VELOCIPEDES TO THEIR SUPPORTS. CLARENCE L. GOODRICH, Hartford Conn., assignor to William W. Tucker, same place. Filed Aug. 22, 1896. Serial No. 603,606. (No model.)

Claim.—1. The combination, with a slotted support, of a removable hollow frame provided with a lug or bar in engagement with the inner wall of said support; a removable clip fitting over said frame and also in engagement with said support; and a suitable clamp for securing said parts in position.



2. The combination, with a saddle-post and its slotted tubular cross-piece, of a clamp embodying a hollow frame having a lug or bar fitting within the bore of said cross-piece; a device fitting over said clamp and resting against the outer walls of said cross-piece, and suitable means for securing said parts in the desired position of adjustment.

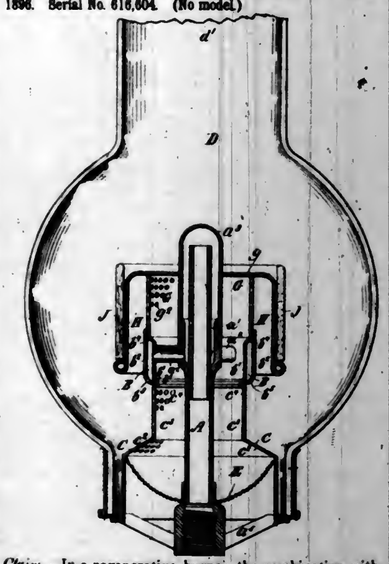
3. The combination, with a saddle-post, of a tubular cross-piece projecting equally from each side thereof, said cross-piece being slotted on its upper side: a clamp comprising a hollow frame provided with a lug or bar in engagement with the inner wall of said cross-piece for securing the saddle in position, said clamp being adjustable along substantially the entire length of said cross-piece: and a clip fitting over said clamp.

4. In combination, with a saddle-post and tubular slotted cross-piece thereof, a hollow rectangular frame having a projection fitting within the slot of said cross-piece: a removable clip fitting over said frame; and a device carried by the frame, for securing the saddle bar or spring of the saddle in position, and for likewise securing the frame in position on said cross-piece.

5. A device for securing bicycle-saddles, comprising a hollow frame provided with a lug or bar adapted to engage with the inner wall of a slotted support; a removable clip fitting over said frame and also adapted to engage with said support: and a suitable clamp carried by said frame, substantially as and for the purpose specified.

6. A device for securing bicycle-saddles, comprising a hollow frame having an opening to receive a saddle bar or spring: a screw carried by said frame; a hollow clip fitted over the frame and having concaved end bars: and a lug or bar mounted on the under side of the frame, said lug or bar being shaped to engage with the inner walls of a support, substantially as and for the purpose specified.

588,272. REGENERATIVE BURNER. THOMAS GORDON, Philadelphia, Pa., and WILLIAM R. SWIFT, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,604. (No model.)



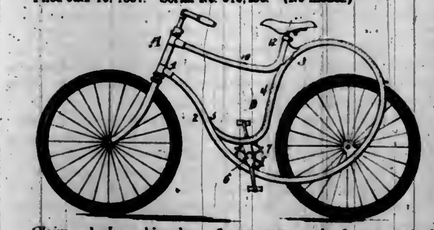
Claim.—In a regenerative burner, the combination with a nipple for connecting with a gas-fixture, a gas-supply pipe extending upwardly therefrom to a point above the air-heating chamber, a shell surrounding said gas-supply pipe at its upper portion and forming therewith a return-conduit whose upper part is directly exposed to the heat of the waste products, a vertically-extended gas-burner chamber provided with a circular row of gas-outlet openings at its base, so that the supply of gas will be above the flame, a series of radial tubes communicating between the lower part of the return-conduit and the upper portion of the gas-burner chamber, a centrally-arranged air-heating chamber located above the annular gas-burner chamber, and having openings for the escape of air, a deflector supported by the air-heating chamber and extending downwardly so as to surround the annular gas-burner chamber, a globe-support below the burner and concentric with and sustained by the gas-supply pipe, a globe supported by the globe-support, and a shell surrounding the gas-supply pipe and extending from the globe-support to the base portion of the annular burner-chamber inward of its row of gas-outlets, so as to form with the inner wall of the gas-burner chamber, part of a conduit to the air-heating chamber, said shell having perforations for supplying air to the base of the burner, and also to the lower portion of the globe, substantially as specified.

588,273. LEVER-SCREW FOR SPINNING-FRAMES. STEPHEN M. HAMBLIN, Taunton, Mass., assignor to the Mason Machine Works, same place. Filed Dec. 4, 1896. Serial No. 614,800. (No model.)



Claim.—The combination in a lever-screw, of loop, D, and screw, C, with stand B and supporting-screw A, the supporting-screw A being attached to stand B, so as to form a swivel, the stand B provided with holes 3, 3, for the purpose of retaining screw C, the screw C being for the purpose of imparting a lateral adjustment to loop, D, substantially as shown and described.

588,274. BICYCLE. CHARLES B. HARRIS, Williamsport, Pa. Filed Jan. 16, 1897. Serial No. 619,450. (No model.)



Claim.—1. In a bicycle, a frame composed of two semicylindrical tubes having their flat faces secured together at one end and spread apart laterally at other points, these tubes bent around in a continuous curve or sweep and finally down again where they terminate, and are joined together at or near the point where the tubes first spread laterally.

2. In a bicycle, a frame composed of two semicylindrical tubes having their flat faces secured together at one end and from this point spread apart laterally, these tubes bent around in a continuous curve or sweep and finally down again where they terminate by merging into the tubes at or near the point where the tubes first spread apart, a bar extending forward from the upper portion of the curve and a steering-post connected with the forward ends of the tubes and the bar.

3. The combination with a steering-head, and wheels, of a frame extending rearward and downward from the steering-head, thence upwardly in a continuous and gradual curve or sweep, then downward and forward and terminating in a juncture or union with the frame, a bar extending rearward from the steering-head and joined to the frame and terminating in an upwardly-bent end which is hollow and forms a socket for a seat-post.

4. The combination with a frame bent in a gradual and continuous curve and one end joined to the frame some distance rearward from the other end, of a bracket secured in the space formed between and immediately rearward of these joined portions, a crank-shaft revolubly supported in this bracket, and a mud-guard secured in the frame above this crank-shaft.

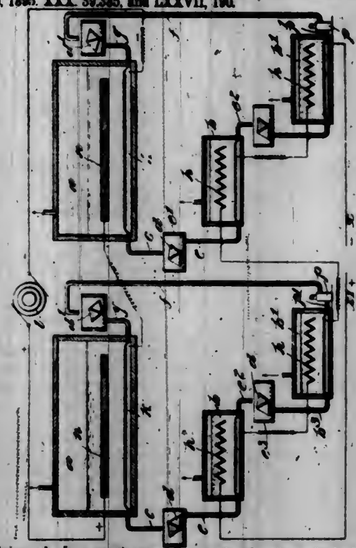
588,275. CLUTCH FOR SEWING-MACHINES. JOSEPH HIGHAM, Wigan, England. Filed Apr. 20, 1897. Serial No. 632,865. (No model.)



Claim.—1. In a sewing-machine, a balance wheel or pulley mounted loosely on the actuating-shaft, a ratchet-wheel keyed to the said shaft and a link or pawl I, pivoted to the balance wheel or pulley, in combination with a disk mounted loosely on the shaft, links pivoted thereto and to the link I, in such a manner that the pawl will only engage the ratchet-wheel and drive the shaft one way substantially as set forth.

2. In a sewing-machine, a balance-wheel mounted loosely on the actuating-shaft, a ratchet-wheel keyed to the said shaft and ratchet-links I, J K having pin P, in combination with a cam E with suitable handle capable when turned of pushing pin P aside and holding the ratchet-link I, out of gear with the ratchet-wheel until such time as the cam is reversed substantially as and for the purposes described.

588,276. ELECTROLYTIC PROCESS AND APPARATUS THEREFOR. CARL KELLNER, Vienna, Austria-Hungary. Filed Feb. 24, 1896. Serial No. 580,570. (No model.) Patented in Belgium Apr. 11, 1896, No. 115,029; in France Apr. 11, 1896, No. 246,574; in England Apr. 11, 1895, No. 7,458; in Norway July 16, 1896, No. 4,451, and in Italy Sept. 30, 1896, XXX, 39,335, and LXXVII, 190.



Claim.—1. In a continuous process for the electrolytical decomposition of compounds the electropositive constituents of which amalgamate with mercury, passing an electric current through a solution of such compound to a body of mercury included in the electric circuit and moving continuously out of and back into the field of action of the electric currents to successive points where the amalgam formed by such electric action acts as an anode, decomposing the amalgam successively at such points by means of a suitable decomposing agent in presence of a suitable cathode, connecting the successive electrodes in series, whereby an independent current of electricity is generated whose potential is higher than that of the electrolyzing-current, and utilizing such current, for the purpose set forth.

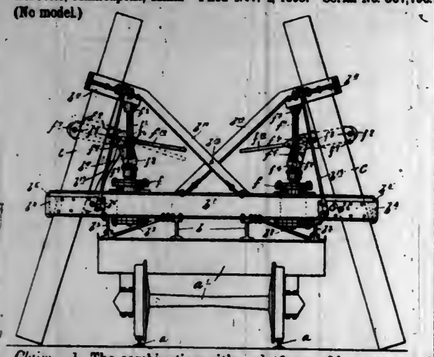
2. In electrolytic apparatus, a number of decomposing-cells having mercury cathodes and suitable anodes, said cells connected in series, in combination with a plurality of oxidizing-cells connected in series, and means for transferring the amalgam formed in the decomposing-cells to the oxidizing-cells in the presence of a suitable cathode and solution, means for utilizing the current set up in the oxidizing-cells, and means for returning the mercury from the oxidizing-cells to the primary or decomposing cells.

3. In an electrolytic apparatus, a series of decomposing-cells each containing a fixed anode and a liquid cathode, as mercury, said cells connected in series, in combination with a group of oxidizing-cells for each decomposing-cell, a fixed cathode in each of the oxidizing-cells, means for moving the liquid cathode from a decomposing-cell successively through the oxidizing-cells of a group and back to such decomposing-cell, an electrical supply for the cells, and means for preventing electrical connection through the liquid cathode between a decomposing-cell and the first and last oxidizing-cells of a group of such, for the purpose set forth.

4. In electrolytic apparatus, a plurality of decomposing-cells having mercury cathodes, said cells connected in series, in combination with a plurality of oxidizing cells connected in series and means for dropping the amalgam formed in the decomposing-cell into the oxidizing-cells in succession, means for breaking the electrical connection between the cells, means for returning the mercury to the decomposing-cells and means for utilizing the current set up in the oxidizing-cells, substantially as and for the purpose set forth.

5. In an electrolytic apparatus, a series of decomposing cells each containing a fixed anode and a liquid cathode, as mercury, said cells connected in series, in combination with a group of oxidizing-cells for each decomposing-cell, a fixed cathode in each of the oxidizing-cells, means for moving the liquid cathode from a decomposing-cell successively through the oxidizing-cells of a group and back to such decomposing-cell, suitable electrical connections connecting all of the oxidizing-cells in series, and means for preventing electrical connection between a decomposing-cell and the first and last oxidizing-cells of a group of such through the liquid cathode, for the purpose set forth.

588,277. LOADING OR UNLOADING MACHINE. FREDERICK O. KILGORE, Minneapolis, Minn. Filed Nov. 4, 1895. Serial No. 567,790. (No model.)



Claim.—1. The combination with a platform, of legs connected thereto, with freedom for vertical adjustment of either of said parts on the other, and sliding grips carried by said platform and constructed with parts which by extreme movements in either direction, engage said legs and positively force the same in either of two opposite directions, at will, substantially as described.

2. The combination with a platform, of legs connected thereto, with freedom for the vertical adjustment of either of said parts on the other, as a base of resistance, motors carried by one of said parts, and sliding grips carried by the other of said parts and subject to said motors, for effecting said relative adjustments, substantially as described.

3. A loading-machine, involving the combination with a platform adapted to rest upon and overreach a car, of hoisting mechanism mounted thereon, legs connected with the platform through guides which permit the vertical movement of said platform on said legs, or vice versa, sliding grips carried by the platform and operative on said legs, and locking devices for securing said platform and legs together in any set position, substantially as described.

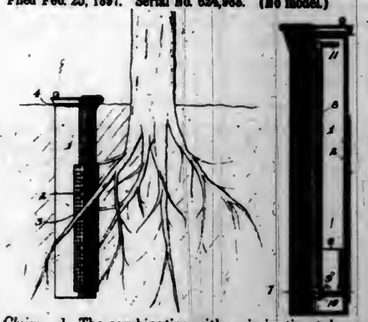
4. A loading-machine involving the combination with a platform adapted to rest upon and overreach a car, legs connected with said platform through guides which permit the vertical movement of said platform on said legs, or vice versa, and sliding grips carried by said platform and operative on said legs, involving each a pivoted lever f^7 provided with a pair of pivoted friction-shoes f^8 working one on each side of the cooperating leg, substantially as described.

5. The combination, for handling logs and other objects, comprising a swinging crane, a pulley or cable guide at the outer end of the boom, a windlass on the crane or crane-support, a cable subject to said windlass, over said pulley or guide, and provided with a pair of hook-ended strands, at its outer end, and manipulating-poles pivoted to said hooks, all for cooperation, substantially as described.

6. The combination with a car-platform, of supporting-legs movable through seats formed in said platform, said legs being set on downwardly-flaring angles and so related to the side margins of said platform that when lowered, their lower ends will project laterally outward from said platform, but when raised, will be drawn within the side margins thereof, substantially as described.

7. The combination with a platform, of legs connected thereto, with freedom for vertical adjustment of either of said parts on the other, as a base of resistance, independent motors, one for each of said legs, and connections from each of said motors to the cooperating leg, constructed to positively force the same in either of two opposite directions, at will, substantially as described.

588,278. TREE-IRRIGATOR. HERMAN KLIEG, Larned, Kans. Filed Feb. 25, 1897. Serial No. 624,968. (No model.)



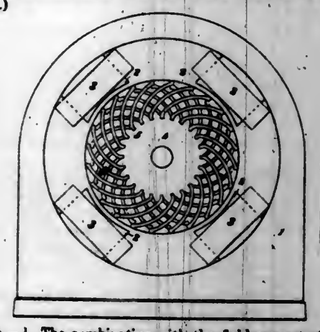
Claim.—1. The combination with an irrigating-tube provided in its bottom with outlet-perforations, of a perforated receptacle normally located in the tube near and out of contact with its bottom, and adapted to be withdrawn to remove accumulations of dirt gaining access to the interior of the tube, substantially as specified.

2. The combination with an irrigating-tube having outlet-perforations, of a receptacle normally arranged in the tube near its bottom and provided with side and bottom perforations, and a stem or rod attached to the receptacle and extending to a point contiguous to the top of the tube, substantially as specified.

3. An irrigating device comprising a tube provided with outlet-perforations and having, near the plane of its bottom, a support, and a receptacle normally arranged upon said support with its bottom out of contact with that of the tube and provided with perforations to allow the contents of the tube to pass therethrough, and means, as a rod or stem, whereby the receptacle may be withdrawn from the tube, substantially as specified.

4. An irrigating device comprising a tube provided with outlet-perforations and having, at its upper end, a shoulder or enlargement to facilitate withdrawal thereof from the soil, a hinged lid or cover for normally closing the upper end of the tube, and a receptacle or bucket removably fitted in the tube and provided with a rod or stem terminating near the plane of the top or cover, substantially as specified.

588,279. DIRECT-CURRENT GENERATOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed May 8, 1896. Serial No. 590,665. (No model.)

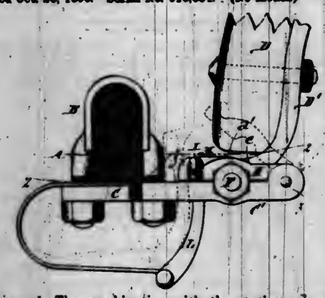


Claim.—1. The combination with the field-magnet of a direct-current electrical machine, of a commutator and a slotted armature-core provided with a winding comprising a set of coils each of which embraces a space which is less than the distance between the centers of adjacent field-magnet pole-pieces and has its terminals connected to segments of the commutator-cylinder which are spanned by brushes of the same sign, whereby the desired counter electromotive force in the short-circuited coils may be readily secured.

2. In a direct-current electrical machine, a multipolar field-magnet in combination with a commutator and a drum-armature provided with a set of coils the distance between the sides of each of which is either greater or less than the distance between the corresponding edges of adjacent pole-faces, and each of which is connected at its ends to segments of the commutator-cylinder which are spanned by brushes of the same sign, whereby the desired counter electromotive force in the short-circuited coils may be readily secured.

3. A direct-current electrical machine having an armature-core provided with slots and a winding comprising two sets of coils located in said slots, the sides of the several coils which are short-circuited at the brushes being in separate slots with reference to each other, whereby the self-induction in such coils is reduced.

588,280. THILL-COUPLING. CHARLES C. LAPHAM, Lapham, N. Y. Filed Oct. 26, 1896. Serial No. 610,051. (No model.)



Claim.—1. The combination with the stationary and movable jaws between which the coupling-bolt of the thill-iron is clamped, of a cross-bar bearing against the movable jaw and carrying a lip or tongue which bears against the eye of the thill-iron, and means for forcing said cross-bar against the movable jaw, substantially as set forth.

2. The combination with a stationary jaw or bracket and a bifurcated movable jaw adapted to receive the eye of a thill-iron between its members, of a cross-bar bridging the members of said bifurcated jaw and carrying a lip or tongue which bears against the eye of the thill-iron, and means for forcing said cross-bar against said movable jaw, substantially as set forth.

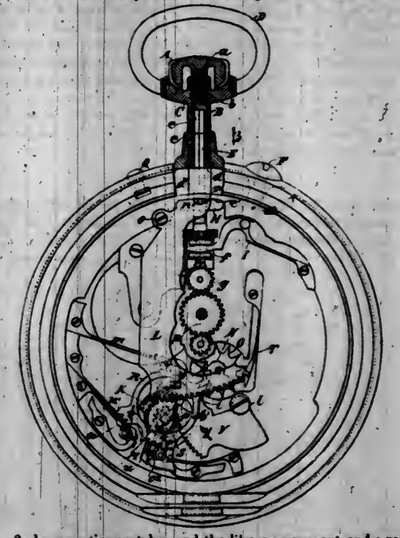
3. The combination with the lower stationary jaw and an upper bifurcated jaw pivoted to the stationary jaw and adapted to straddle the eye of the thill-iron, of a cross-bar bridging the free ends of said bifurcated jaw and provided with an arm extending downwardly between the members of said bifurcated jaw and through the stationary jaw, and a tension-spring secured to said lower jaw and connected at its free end to the depending arm of said cross-bar, substantially as set forth.

4. The combination with a lower stationary jaw and an upper jaw pivoted thereto, of a coupling-bolt confined between said jaws, a thill-iron having an eye surrounding said bolt, a cross-bar bearing upon said pivoted jaw and having a tongue which bears against the eye of the thill-iron, means for forcing said cross-bar against the movable jaw and a stop or shoulder arranged on the thill-iron and overhanging said tongue in the normal elevated position of the thills, substantially as set forth.

5. The combination with a lower stationary jaw and an upper bifurcated jaw pivoted thereto, of a thill-iron having an eye arranged between the members of said bifurcated jaw, a cross-bar bridging the members of said bifurcated jaw and having a forwardly-extending tongue which bears upon the eye of the thill-iron, and a thill secured to said thill-iron and having its rear end arranged to overhang said tongue in the normal elevated position of the thills, substantially as set forth.

588,281. REPEATING MECHANISM FOR WATCHES. BENJAMIN LE COULTRE, Sentier, Switzerland. Filed May 23, 1895. Serial No. 550,911. (No model.)

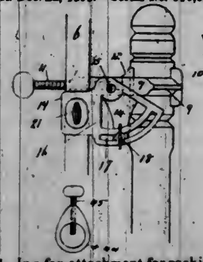
Claim.—1. In repeating mechanism for watches and the like, a rotative and axially-movable part of the winding-stem, and a repeating mechanism, in combination with means throwing the repeating mechanism into operation and actuated by the axial movement of the said part of the winding-stem, the said means comprising a member having a curved face r', and a sliding piece in the path of axial movement of the said part of the winding-stem and having a projection n engaging the said face r' and thereby transmitting the movement of the said part of the winding-stem to the said member.



2. In repeating watches and the like, a movement, and a repeating mechanism, in combination with a rotative and axially-movable part of the winding-stem, a sliding piece H within said movement, and a member L having gear-teeth actuating said repeating mechanism in one direction and actuated thereby in reverse direction, the said member L being engaged and moved by said piece H during the inward axial movement of the said part of the winding-stem, substantially as and for the purpose set forth.

3. In repeating mechanism for watches and the like, a motor for the repeating mechanism, a pinion S fixed to and driven by said motor, a passive gear meshing with said pinion, driven thereby, and determining the operation of said mechanism, a pinion M connected to said motor and said pinion S, a lever L having gear-teeth meshing with said pinion M and driving the latter in one direction and driven thereby in the reverse direction, a sliding piece H engaging with the said lever L, and a winding-stem having a rotative and axially-movable part B moving said piece H and said lever L when moved inwardly.

588,282. FAN ATTACHMENT. CLARENCE E. MAYO, New Haven, Conn. Filed Dec. 22, 1896. Serial No. 616,562. (No model.)

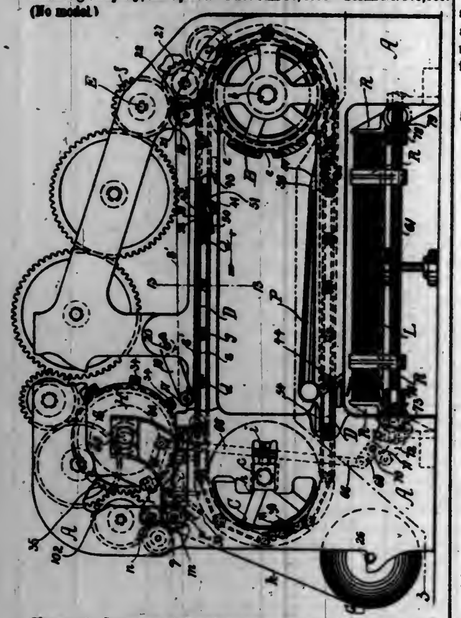


Claim.—1. In a fan attachment for rocking-chairs the same comprising the combination with the back of a chair or the side thereof of a suitable support which is secured thereto by a clamp consisting of a cross-head which is provided with arms at the opposite ends thereof, one of said arms being provided with a segmental head, the other arm being provided with a screw-threaded bolt which passes therethrough, said bolt being provided with a segmental head adapted to operate in connection with the segmental head of the first arm, said bolt being provided at the free end with a knob or handle, said cross-head being also provided with a depending arm and a triangular plate pivotally connected to said cross-head having a segmental slot in the lower side thereof, a screw-threaded opening in said depending arm and a set-screw secured therein and adapted to engage the said segmental slot, said triangular plate being also provided with a vertical head having a vertical bore therein adapted to receive

the fan-supporting rod, and a set-screw to engage the same, substantially as and for the purpose set forth.

2. In a fan attachment for rocking-chairs, the combination with a suitable support of a rod 28 provided with side arms 29 having eyes 30 adapted to engage said support and turn thereon, said rod 28 being provided with two arms 31, connected by a short tube 32 having a vertical slot 33; a clamp consisting of two spring-operated jaws 34 pivotally connected at 35, and each being provided with a projecting frame 36, each of which consists of two arms 37 connected by curved rods 38, one of said jaws being provided with an arm 39, having a cylindrical head 40 provided with a pin 41, and rim 42, substantially as shown and described and for the purpose set forth.

588,283. **MACHINE FOR CUTTING PAPER INTO SHEETS.** Frances Merrill, Boston, Mass., assignor to the Kidder Press Manufacturing Company, same place. Filed Jan. 17, 1896. Serial No. 575,863. (No model.)



Claim.—1. In a sheet-delivering apparatus, the combination with the feed-rolls, of the adjustable cutter-blade *q*, the rotary cylinder H inclined at an angle and provided with lags 34 and having a cutter-blade *r* cooperating with the cutter-blade *q*, the endless traveling chain D mounted upon sprocket wheels or cylinders, said chain having a speed greater than that of the web as it is fed in by the feed-rolls, a traveling support as tapes connected with the chain by which the paper is carried forward after passing between the cutters, a series of sets of grippers K mounted on the carrier-chain D and adapted to seize the sheet immediately before or after it is severed from the web, whereby it is carried around by the chain into a position beneath the same, and cams for operating said grippers to seize the sheet and release it beneath the chain, all operating substantially as described.

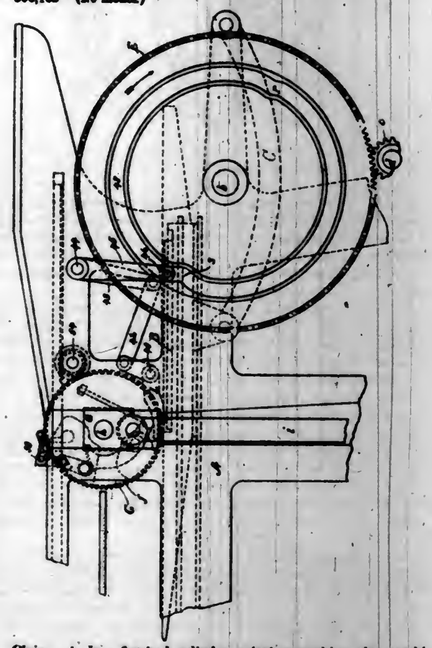
2. In a sheet-delivering apparatus, the combination with the feed-rolls, of the adjustable cutter-blade *q*, the rotary cylinder H inclined at an angle and provided with lags 34, and having a cutter-blade *r* cooperating with the cutter-blade *q*, the endless traveling chain D mounted upon sprocket wheels or cylinders and provided with anti-friction-rolls supported on guideways 25, said chain having a speed greater than that of the web as it is fed in by the feed-rolls, a traveling support connected with the chain by which the paper is carried forward after passing between the cutters, a series of sets of grippers K mounted on the carrier-chain D and adapted to seize the sheet immediately before or after it is severed from the web, whereby it is carried around by the chain into a position beneath the same, and swinging fingers mounted on the gripper-frame and cams for operating said grippers and fingers to seize and release the sheet and push the same down onto the pile beneath the chain, all operating substantially as described.

3. In a sheet-delivering machine, the combination with the endless traveling carrier-chain, of the gripper-frame M, secured between two opposite links of said chain and having a gripper edge 36, the grippers K, mounted on a rock-shaft having its bearings in the frame M, and carrying a pinion 38, a toothed sector meshing with said pinion and provided with upper and lower antifriction-rolls, and the stationary cams 43, 44 for actuating said sector to close and open the grippers, substantially as set forth.

4. In a sheet-delivering machine, the combination with the endless traveling carrier-chain and its grippers and the table L, arranged beneath said chain, of the perforated air-blast pipe P, extending longitudinally over the center of said table L, and provided at its outer end with branches 57, having perforations on their under sides, and open ends, whereby the air discharged from said perforations and ends is caused to act on the advancing sheet to retard the same, substantially as set forth.

5. In a paper-cutting and sheet-delivering machine, the combination with the feed-rolls, the cutters, and the endless traveling carrier-chain provided with a series of sets of grippers operating as described, of the sheet-receiving table L, arranged beneath said chain and provided on its sides with sheet-jogging fingers R, mounted on rock-shafts connected by bevel-gears, and cam-and-lever mechanism for simultaneously actuating said fingers, substantially as described.

588,284. **PRINTING-MACHINE.** Frances Merrill, Boston, and Herbert L. Chapin, Chelsea, Mass., assignors to the Kidder Press Manufacturing Company, Boston, Mass. Filed June 19, 1896. Serial No. 596,183. (No model.)

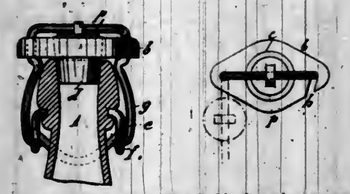


Claim.—1. In a flat-bed cylinder printing-machine, the combination with the impression-cylinder, of a shaft and grippers secured thereto, said shaft sliding in slots in the cylinder, whereby the grippers are made movable in the direction of their length away from and toward the gripper edge, a shaft provided with cranks or eccentrics connected with arms fast to the gripper-shaft, and mechanism for oscillating the crank-shaft, whereby the gripper-shaft is moved away from and toward the gripper edge and rocked to open and close the grippers and carry them below the level of the gripper edge as they are withdrawn therefrom, substantially as described.

2. In a flat-bed cylinder printing-machine, the combination with the impression-cylinder, of a gripper-shaft and grippers secured thereto, said shaft being supported in boxes sliding in slots in the cylinder, whereby the grippers are made movable in the direction of their length away from and toward the gripper edge, a shaft provided with cranks or eccentrics connected with arms fast to the gripper-shaft, and mechanism for oscillating the crank-shaft, a lifting-lever with which said mechanism is brought into contact as the cylinder is rotated, and means for actuating the lifting-lever after the crank shaft-actuating mechanism has been brought into contact therewith by the rotation of the cylinder, substantially as set forth.

3. In a flat-bed cylinder printing-machine, the combination with the impression-cylinder, of a gripper-shaft and grippers secured thereto, said shaft being supported in boxes sliding in slots in the cylinder, whereby the grippers are made movable in the direction of their length away from and toward the gripper edge, a shaft provided with cranks or eccentrics connected with arms fast to the gripper-shaft, and provided at its outer end with a pinion, a toothed sector-lever meshing with said pinion and provided with a spring for actuating it in one direction, a lifting-lever, fulcrumed on a stationary support, with which said sector-lever is brought into contact as the cylinder is rotated, and cam-and-lever connections for actuating the lifting-lever when the sector-lever is in contact therewith, substantially as described.

588,285. **BOTTLE-STOPPER.** Carl Meyer, Rhens-on-the-Rhine, Germany. Filed Dec. 26, 1896. Serial No. 617,054. (No model.) Patented in Germany May 1, 1896, No. 12,841, and in England Nov. 10, 1896, No. 25,164.

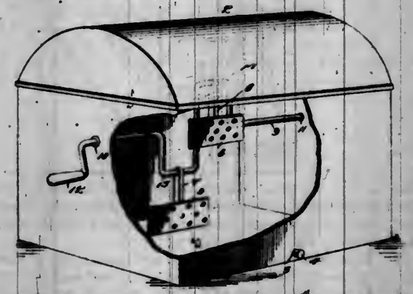


Claim.—1. In combination with suitable fastening means, the stopper-holder *b* provided with the central hole *c* for the cork *d*, and the side passages or holes for the said fastening means, adapted for use as described.

2. In combination with suitable fastening means the stopper-holder *b* provided with the central hole *c* for the cork *d* and the side passages or holes for the said fastening means the one of which forming a closed hole, the other one forming a curved slot, the center of which lies in the first hole adapted for use as described.

3. In combination with suitable fastening means the stopper-holder *b* provided with the central hole *c* for the cork *d* and the side passages or holes for the said fastening means adapted to fit and slide up and down the said fastening means substantially as described.

588,286. **CHURN.** Nicholas Oyer, Dale, Ind. Filed Mar. 18, 1897. Serial No. 628,075. (No model.)

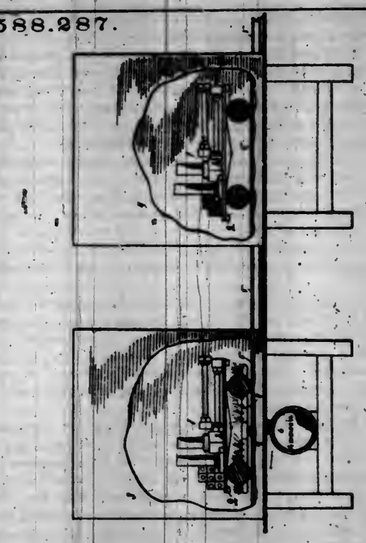


Claim.—In a churn, the combination of a churn-casing, a crank-shaft journaled in the walls of said casing and provided at the center thereof with oppositely-projecting right-angled offsets or crank-attaching portions, a pair of perforated dashers within said casing, and connecting-rods attached to the dashers and pivotally connected with the said crank portions of the crank-shaft, the said connecting rods being substantially of the same length as the crank-offsets and the dashers being free to have both reciprocatory and rotary movement substantially as described.
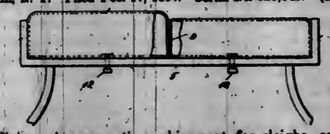
588,287. **PROCESS OF TREATING GYPSUM-ROCK TO IMITATE MARBLE.** George W. Parker, Grand Rapids, Mich. Filed Oct. 18, 1895. Renewed July 10, 1897. Serial No. 644,122. (No specimens.)

Claim.—The process of treating native gypsum-rock, which process consists in eliminating the moisture from the rock by the action of hot air, then removing the then hot calcium sulfate into a closed compartment, charged with the fumes of ammonia, and then immediately immersing the cool rock in a warm solution of aluminium sulfate until the pores are filled, substantially as set forth.

588,287.



588,288. **PNEUMATIC SEAT-CUSHION.** Lewis L. Pettit, Cold-hill, N. Y. Filed Feb. 17, 1897. Serial No. 623,845. (No model.)



Claim.—A pneumatic cushion-seat for sleighs, carriages, and other vehicles, said cushion being provided with a transverse central partition, and each part thereof being provided with means by which it may be inflated, and one part of the cushion being higher than the other, substantially as shown and described.

588,289. **METHOD OF SMELTING GALENA.** Carl V. Petrakis, Joplin, Mo., assignor to Oliver H. Picher, same place. Filed Apr. 7, 1896. Serial No. 586,587. (No specimens.)

Claim.—The method of smelting galena which consists in first treating the ore in an open-hearth blast-furnace and collecting the lead fume containing a large percentage of lead sulfid driven off therefrom, treating the metal-bearing slag of the open-hearth furnace and clustered fume in a stack-furnace in which the temperature at the top of the furnace is maintained at so low a point as to prevent the oxidation of the lead-sulfid fume generated in the furnace, collecting the fume containing a large percentage of lead sulfid drawn off from the stack-furnace, agglomerating the fume from both furnaces by cintering and smelting it in the stack-furnace aforesaid together with the slag from the open-hearth furnace.

588,290. **COMPOSITE COLUMN OR OTHER STRUCTURAL SUPPORT.** William M. Poindexter, Washington, D. C. Filed Oct. 15, 1896. Serial No. 608,969. (No model.)



Claim.—1. A composite column, or other structural support comprising a pair of outer members having flat inner faces, a pair of spacing and strengthening members interposed at right angles to the flat faces of the outer members and within the outer edges of the latter, and an axial series of bolts passed through the outer members and between and not intersecting the interposed members, and drawing or binding the outer members tightly upon the interposed members and thereby holding them in place and making a rigid structure of the whole, substantially as herein explained.

2. A composite column or other structural support comprising a pair of outer members having flat inner faces, a pair of spacing and bracing members interposed at right angles to said flat faces, an axial series of bolts passing through the outer members and between the interposed members without intersecting the latter and spacing them apart, and drawing the outer members tightly upon the interposed members to impose sufficient pressure to hold the latter in place and make a rigid structure of the whole, as herein explained.

3. A composite column or other structural support comprising a pair of outer members having flat inner faces, a pair of spacing and bracing members interposed at right angles to the said flat faces and having flanges to increase their bearing thereon, and an axial series of bolts passing through the outer members and parallel to but not intersecting the interposed members and drawing the former tightly upon the latter to form a rigid braced structure of the whole, as explained.

4. In a composite column, or other structural support, the combination of the flanged outer members, and the flanged interposed spacing and bracing members, an axial series of through-bolts which draw the outer members firmly together upon the interposed members, the interposed members being symmetrically arranged on opposite sides of, and spaced apart by the said bolts, substantially as and for the purposes herein set forth.

5. A composite column, or other structural support comprising the pair of outer members, and the pair of interposed spacing and bracing members, through-bolts which draw the outer members together upon the interposed members; said interposed members being formed of channel-irons, and being arranged with their flat faces opposed and resting against the securing-bolts and spaced apart thereby and with their flanges abutting the outer members and increasing the bearings between the parts to maintain the parallelism of the said outer members and brace the whole structure, substantially as herein explained.

6. A composite column or other structural support, comprising the outer members and the interposed spacing and bracing members, the whole being secured together by through-bolts drawing the outer members together upon the interposed members, and the filling pieces or blocks inserted between the interposed members, and secured by bolts passing through them, as explained.

7. A composite column, or other structural support, comprising the pair of outer members, the pair of interposed members, the through-bolts drawing the outer members together upon and thus securing the interposed members, and the filling-blocks inserted between the interposed members and secured by the short bolts passing through the blocks and said members; the interposed members being made to abut against the through-bolts, and being spaced apart thereby, as explained.

8. A composite column, or other structural support, comprising the pair of outer members and the pair of interposed spacing and bracing members, an axial series of through-bolts which draw the outer members together upon the interposed members to secure them in place and make the structure solid; and the interposed members abutting against the through-bolts and spaced apart thereby, and the said interposed members being additionally spaced and braced by the inserted blocks of thickness equal to the diameter of the through-bolts, which blocks have their edges fitting up closely to the through-bolts, and short transverse bolts passing through the blocks and the said interposed members, which when in place firmly bind the whole structure together, substantially as herein explained.

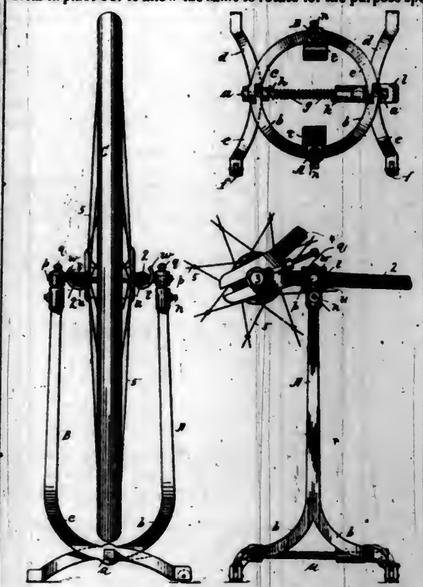
588,291. BICYCLE-STAND. HENRY K. PORTER, Chelsea, Mass. Filed Dec. 30, 1895. Serial No. 573,740. (No model.)

Claim.—4. A bicycle-stand having standards A and B formed at their top to receive and support the bicycle, and at the bottom extended to form the feet or bases *b*, *b*, and *c*, *c*, a pivot-rod *a* inserted in said parts *b*, *b*, and *c*, *c*, and a coiled spring *h* mounted on said rod and at one end anchored at *g* in part *b* and at its opposite end anchored to part *k* secured to part *c*, so that the action of said spring tends to react to bring parts A, B, nearer together at top when released, for the purpose specified.

2. A bicycle-stand formed with standards A and B provided at top with means for supporting the bicycle, and at bottom formed respectively with feet *d*, *e*, with a pivot-rod *a* inserted in said feet, a coiled spring *g* mounted on said rod and anchored to said standards to swing the same toward each other, and a treadle *l* formed upon one of said standards by which to open the same, substantially as specified.

3. In a bicycle-stand, the combination of standards A, and B, a puppet *m* rotatably adjusted in the top of said standards and locked by a set-screw *r* a crescent-like slot *t* formed with a stem *p* arranged in the upper part of said puppet, and a screw *q* seated in the top and loosely entering a recess in said stem *p* to hold the same in place, but to allow it requisite rotation in its seat for the purpose described.

4. In a bicycle-stand, the crescent-like support formed with a stem *p* to extend through and be supported by the upright, a holding-screw *q* seated in the top of the upright and a seat formed in said stem *p* to loosely receive the lower end of said screw to retain said stem in place but to allow the same to rotate for the purpose specified.



588,292. WATER-CLOSET. JOHN P. PUTNAM, Boston, Mass. Filed July 19, 1897. Serial No. 644,758. (No model.)



Claim.—1. A water-closet provided with an S-trap and two flushing-inlets, one entering the basin of the closet at the upper edge, and the other entering the upcast limb of the trap in close proximity to the level of the dip and opening toward the outlet or overflow, substantially as described.

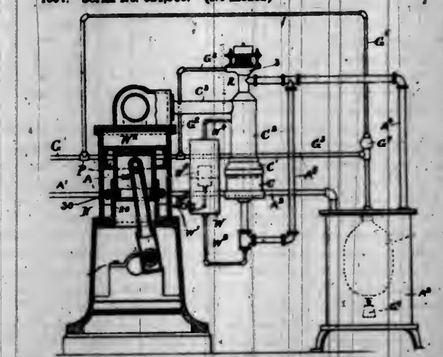
2. In a water-closet having upper and lower flushing communications, a basin having a flat bottom and a deep neck opening abruptly therefrom and near the rear of the basin, and an S-shaped trap, the overflow of which is slightly above the flat bottom, while its dip is well down toward the lower end of said deep neck, the angle formed by the deep neck and the flat bottom of the basin being a sharp and abrupt angle, whereby the flushing-water is caused to leave the surface of the basin at the angle of junction with the neck and jump upon the top of the discharging waste matters, substantially as described.

3. The combination with the basin in a water-closet of an S-shaped trap, the upcast limb of which has a bulge or enlargement at one side of the said limb the wall of said enlargement containing a hole in close proximity to the level of the dip of said trap and a supply-pipe for flushing entering said hole, substantially as described.

4. The combination with the basin and S-shaped trap of the bent pipe H, the said trap having a bulge or enlargement in its upcast limb, and the said bent pipe entering said upcast limb through a hole in the wall thereof within said bulge, substantially as described.

5. In a trap jet closet having an upper and lower flushing-supply, the combination of the water-closet bowl A, S-trap C D in the rear of the bowl, retarding-chamber E built entirely in the rear of the bowl and above the trap C D to form side supports or brackets, box-shaped; a flushing-supply pipe entering the trap below the water level, one branch of which connects with the retarding-chamber; and a water-closet seat-frame supported entirely by said chamber E; together with means for securing said frame to the chamber; substantially as described.

588,293. HEAT-ENGINE. SIDNEY A. REEVE, Worcester, Mass., assignor to Charles F. Brown, trustee, Reading, Mass. Filed Feb. 1, 1897. Serial No. 621,369. (No model.)



Claim.—1. The combination of a combustion-chamber, a conduit leading therefrom for the products of combustion, an air-reservoir and a fuel-reservoir connected with the combustion-chamber through a suitable pressure-regulator, a by-pass connecting the air-reservoir with the said conduit, and a liquid seal between said by-pass and conduit.

2. The combination of a combustion-chamber, a cooling-chamber communicating therewith, a conduit for the products of combustion leading from the cooling-chamber, an air-reservoir and a fuel-reservoir connected with the combustion-chamber through a suitable pressure-regulator, a by-pass connecting the air-reservoir with the cooling-chamber, and a body of water contained in said cooling-chamber and arranged to receive the gases from the combustion-chamber and serve as a water seal for the by-pass.

3. The combination of a combustion-chamber, a cooling-chamber having a body of water arranged to receive gases from the combustion-chamber to reduce the temperature of said gases to a stable point, and a conduit from the cooling-chamber arranged to surround the combustion-chamber and cause the superheating of the steam and gases from the cooling-chamber by surface conduction.

4. The combination of a combustion-chamber, a cooling-chamber arranged to receive the combustion-chamber or an extension thereof, said chamber having a body of water into which the gases are discharged from the combustion-chamber, the said cooling-chamber being contracted above the water-space, and a conduit connected with the contracted portion of the cooling-chamber and arranged to conduct steam and gases from the cooling-chamber along the heated external surface of the combustion-chamber.

5. The combination of a combustion-chamber, separate conduits for supplying said chamber with air and gas, means for separately forcing air and gas under pressure through said conduits to the combustion-chamber, a regulating device comprising two connected valve members, one controlling the air-conduit and the other controlling the gas-conduit, and pressure-controlled means acting on said device for simultaneously varying the flow of air and gas, one of said valve members having provisions for entirely shutting off the flow of gas.

6. The combination of a combustion-chamber, means for forcing air and gas under pressure to said chamber, said means including a series of gas-ports and a series of air-ports, a plunger movable between the two series of ports and formed to simultaneously regulate the flow of gas and air through said ports, a valve connected with said plunger and adapted to shut off the flow of gas, and pressure-controlled means for operating said plunger and valve.

7. The combination of a combustion-chamber, means for admitting air and gas to said chamber under pressure, said means including an annular series of air-ports, and an annular series of gas-ports, the two series being separated by an annular space, an annular plunger movable in said space and provided with a series of outlet-ports arranged to coincide simultaneously with the gas and air ports and to cover and uncover the same, a gas shut-off valve connected with said plunger, and a pressure-actuated diaphragm connected with said valve and plunger.

8. An apparatus of the character specified, comprising means for supplying air and fuel under pressure, a pressure-equalizing apparatus comprising an air-reservoir and a flexible expansible fuel-reservoir arranged to be acted on by the contents of the air-reservoir, and a combustion-chamber connected with said air and fuel reservoirs.

9. In an apparatus of the character specified, a pressure-equalizing apparatus comprising an air-reservoir, an expansible fuel-reservoir, contained in the air-reservoir, means for forcing fuel into the expansible reservoir under pressure, and a relief-valve for the fuel-reservoir operated by movements of the latter.

10. In an apparatus of the character specified, a pressure-equalizing apparatus comprising an air-reservoir, an expansible fuel-reservoir contained in the air-reservoir, means for forcing fuel into the expansible reservoir under pressure, a relief-valve for the fuel-reservoir operated by movements of the latter, and a return-pipe between the relief-valve and the source of fuel-supply.

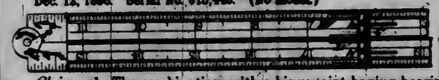
11. The combination of a continuously-operative isolated combustion-chamber, means for forcing gas and air under pressure to the combustion-chamber, and a valve controlled by the air-pressure for releasing a portion of the compressed gas back to the original supply.

12. The combination of a continuously-operative isolated combustion-chamber, means for forcing gas and air under pressure to the combustion-chamber, and a regulator-valve controlled by the air-pressure adapted to release a portion of the compressed gas back to the original supply.

13. The combination of a combustion-chamber, apparatus for forcing gas and air under pressure to the combustion-chamber, and a regulator-valve having pressure-controlled means for reducing the pressure of the gas-supply approaching said apparatus.

14. The combination of a combustion-chamber, means for forcing air and gas under pressure to said chamber, and a regulating-valve having pressure-controlled means for simultaneously varying the flow of air and gas, and for dividing the air-supply, a partial supply being mixed with the gas within the valve, and an additional supply within the combustion-chamber.

588,294. RULE-JOINT. CHARLES E. RIECKER, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Dec. 12, 1896. Serial No. 615,446. (No model.)



Claim.—1. The combination, with a hinge-joint having bearing-cheeks, of a transversely-split resilient cylindrical roll or washer having normally spiral bearing-faces adapted to form, when the roll is compressed, parallel flat faces; and holding means for compressing said roll between said cheeks to bring the spiral bearing-faces thereof into parallel planes and into engagement with said cheeks to fill the space between the latter and form a closed joint.

2. The combination, with a rule-joint having the usual bearing-cheeks, of a circular transversely-split resilient washer located between said bearing-cheeks having its sides brought into parallel planes and completely closing the joint, the construction being such that said washer keeps the joint tight and takes up all wear caused by the movement of one part upon the other, substantially as and for the purpose specified.

3. A rule-joint provided with the usual pintle and bearing-cheeks, and with an expansion washer having its sides brought into parallel planes, and completely closing the part, said washer being diagonally split to form points for engaging opposing bearing-cheeks, the construction being such that when the pintle is headed up the washer is compressed and by its tendency to expand keeps the joint tight and takes up wear, substantially as and for the purpose specified.

588,295. NON-REFILLABLE BOTTLE. WILLIAM L. ROTH, Washington, D. C., and VICTOR R. ROTH, Philadelphia, Pa. Filed Nov. 9, 1896. Serial No. 611,551. (No model.)



Claim.—A non-refillable bottle having a neck with a groove therein of elongated form and having inclined walls diverging toward the mouth of the neck, a truncated conical valve-casing situated in said groove and formed with a circuitous passage therethrough intermediate of which is a horizontally-disposed shoulder located under the upper exit-opening of the said valve-casing, the said valve-casing having a lower opening controlled by an outwardly-opening valve, a

protecting-plate situated above the valve casing and having an opening therein alining with the outlet-opening of said valve, the said neck also having a vent-opening therein below the valve-casing, a covering for said vent located on the inner side of the neck, a pin attached to said covering and to an outer spring, and a removable cork fitted in the neck above the protecting-plate, substantially as and for the purpose specified.

588,296. AIR-COMPRESSOR. IRA H. SPENCER, Hartford, Conn., assignor to the Spencer Motor Company, same place. Filed Oct. 21, 1896. Serial No. 609,514. (No model.)



Claim.—1. The combination with a water-cylinder and a piston working therein, of a valve-casing having inlet and exhaust openings and also having a water-compartment in communication with the water-cylinder; a valve supported for rotary and reciprocatory movements in relatively transverse directions; and means actuated by the piston, for imparting a rotative movement to the valve at a predetermined point in the stroke of said piston.

2. The combination, with a piston-cylinder and a piston, of a water-distributing apparatus located in substantially concentric relation with said cylinder and embodying a valve supported for relatively transverse rotary and reciprocatory movements; and means controlled by the inward stroke of the piston for actuating the valve.

3. The combination with two axially-alined cylinders and with two reciprocatory pistons located one in each cylinder and connected for unitary movement, of a water-distributing apparatus located between and connecting the two adjacent ends of the cylinders and embodying a valve-chamber having inlet and outlet ports adapted for communication with the two cylinders, alternately; a valve supported in said valve-chamber for independent and rotatory reciprocatory movements in relatively transverse directions; and means controlled by the instroke of the pistons, for imparting alternately opposite rotative movements to said valve.

4. In an air-compressor, the combination with one or more cylinders and one or more pistons therein, and with a valve-actuating member controlled by the movements of each piston; of a water-distributing apparatus embodying two concentric chambers located one within the other and the outer chamber of which has an inlet and an exhaust opening and also has a water compartment or compartments in communication with the cylinder or cylinders, and the inner chamber of which has ports leading to the outer chamber; a rotary reciprocatory valve supported in the inner chamber; and a valve-actuating member or members in operative connection with said valve and positioned to be actuated by the complementary actuating member or members controlled by the stroke of the piston or pistons.

5. The combination with a piston-cylinder and a piston working in said cylinder, of a valve-chamber supported in axial alinement with said cylinder and having ports leading to said cylinder; a valve supported in said cylinder for independent reciprocatory and rotary movements; and a piston-controlled valve-actuating device operable in the cylinder and controlled by the strokes of the piston, for imparting rotative movements to said valve.

6. The combination with a piston-cylinder and with a piston working in said cylinder, of a valve-chamber supported in axial alinement with and extending into, and having ports adapted for communication with, said cylinder; a water-supply chamber adapted for communicating with the valve-chamber and having an outlet-opening; a rotary reciprocatory valve supported in said valve-chamber and operable for establishing communication between the water-supply chamber and the piston-cylinder; and two complementary valve-actuating members, one of which is carried by the piston, and the other of which is carried by the valve in position to be actuated by the members carried by said piston, whereby a rotative movement will be imparted to the valve at each inward stroke of the piston.

7. In an air-compressor, the combination with a piston-cylinder, a piston, and with a valve-actuating member carried by said piston; of a water-distributing apparatus comprising two annular chambers located one within the other, the outer chamber of which is divided radially and transversely to form three water-compartments, one of which constitutes an exhaust-compartment and communicates with the interior of the valve-chamber, another of which communicates with the cylinder and with the interior of the valve-chamber, and the other of which communicates with the interior of the valve-chamber and has a supply-inlet, and which outer chamber also has two independent waterways controlled by the movements of a valve for effecting communication between the middle portion and opposite end portions, alternately, of the valve-chamber; a rotary reciprocatory valve having ports in positions for alternately establishing communication between the water-supply compartments of the outer cylinder and the opposite ends of the valve-chamber and also having a flange for cutting off and establishing, alternately, communication between the piston-cylinder and water-supply compartment; and means controlled by the strokes of the piston, for effecting alternately opposite rotative movements of the valve.

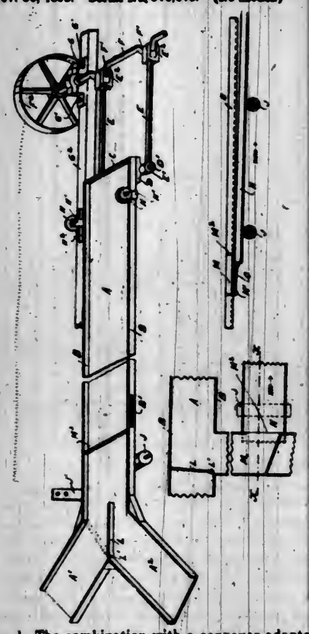
8. The combination with two cylinders set end for end in concentric relation and with pistons working in said cylinders, and a valve-chamber located between and communicating with the adjacent ends of said cylinders; a water-supply chamber surrounding said valve-chamber and having waterways communicating with the two cylinders and having closable ports in communication with said valve-chamber; a rotary reciprocatory valve contained in the valve-chamber in axial alinement with the piston and embodying means for opening and closing the ports of the surrounding chamber; valve-actuating stems carried at opposite ends of the valve and having laterally-projecting arms and cams carried by the pistons in position to engage and actuate the valve-chambers to rotate the valve in opposite directions, alternately.

9. In an air-compressor, the combination of two cylinders having air inlets and outlets and water inlets and outlets at opposite ends; pistons in said cylinders; a valve-chamber located between the adjacent ends of said cylinders and having ports for effecting communication between the interior of the valve-chamber and the two cylinders, alternately; a rotary reciprocatory valve located in said valve-chamber; and valve-closable ports leading from the middle portion of said valve-chamber at opposite sides thereof and two valve-actuators located at opposite ends of the valve and controlled by the instrokes of the pistons, for imparting alternately opposite rotative movements to said valve to thereby establish communication between the middle portion of the valve-chamber and the opposite ends alternately of said valve-chamber to effect longitudinal movements of said valve, alternately, in opposite directions, and thereby open communication between the interior of the valve-chamber and the two cylinders, alternately.

10. In an air-compressor, the combination, with a cylinder, of a piston having a flexible diaphragm or head fixed at its periphery to the interior of the cylinder and dividing said cylinder into an air and a water compartment; a water-distributing apparatus located in concentric relation with said cylinder and embodying a valve supported to have independent reciprocatory and rotary movements in relatively transverse directions; ports connecting the water-supply apparatus and cylinder; and a valve-actuator controlled by the strokes of the piston for imparting alternately opposite rotative movements to said valve.

11. The combination, with a piston-cylinder having an air-inlet and an air-outlet and with a piston working therein, of a valve-chest having an inlet and an exhaust opening; a valve supported in said chest for independent movements in relatively transverse directions; means controlled by the piston, on opposite strokes thereof, for imparting to the valve rotary movements in alternately reverse directions; means controlled by the valve, on alternate movements thereof, for effecting alternately reverse longitudinally-reciprocatory movements of said valve; and means controlled by the longitudinally-reciprocatory movements of the valve for conducting fluid alternately to and away from the piston-cylinder.

588,297. CONVEYER. CHARLES THOMPSON, Grantham, England. Filed Nov. 30, 1896. Serial No. 570,673. (No model.)



Claim.—1. The combination with a conveyer adapted to be reciprocated in a straight line, of a crank-shaft arranged transversely of the conveyer and rotatably mounted in suitable bearings, a rod pivotally connected at one end to the conveyer and at the other end to the crank of the crank-shaft, supporting-pieces arranged longitudinally of the conveyer, rollers carried by the sides of the conveyer and traveling upon the supporting-pieces, the latter being arranged at an inclination whereby the conveyer will be at an incline from its receiving end to its discharge end.

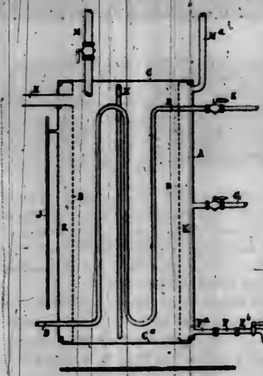
2. The combination with a conveyer adapted to be reciprocated in a straight line, of a crank-shaft arranged transversely of the conveyer and rotatably mounted in suitable bearings, a rod pivotally connected at one end to the conveyer and at the other end to the crank of the crank-shaft, supporting-pieces arranged longitudinally of the conveyer, guide-rails carried by said pieces, rollers carried by the sides of the conveyer and traveling upon the guide-rails, the said supporting-pieces being arranged at an inclination whereby the conveyer will be at an incline from its receiving end to its discharge end, and rollers K carried by the conveyer and moving in contact with the sides of the guide-rails.

3. The combination with a conveyer adapted to be reciprocated in a straight line, of a crank-shaft arranged transversely of the conveyer and rotatably mounted in suitable bearings, a rod pivotally connected at one end to the conveyer and at the other end to the crank of the crank-shaft, supporting-pieces arranged longitudinally of the conveyer, rollers carried by the sides of the conveyer and traveling upon the supporting-pieces, the latter being arranged at an inclination whereby the conveyer will be at an incline from its receiving end to its discharge end, a branch section communicating with the main trunk or portion of the conveyer, and a gate pivotally connected to the conveyer and adapted to direct the material into the branch section.

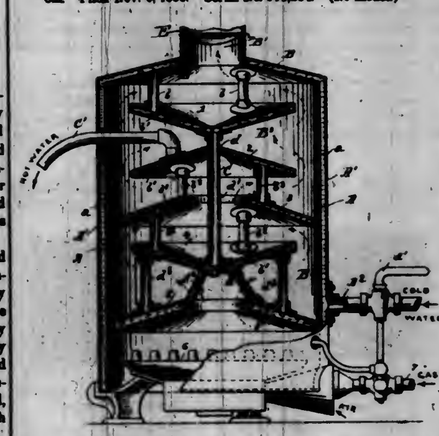
588,298. WITHDRAWN.

588,299. APPARATUS FOR EXTRACTING OIL. PIERRE VAGNERY and JULES G. D. DE MICHAELIS, Marseilles, France. Filed Oct. 19, 1896. Serial No. 609,371. (No model.) Patented in France Apr. 20, 1896, No. 255,671.

Claim.—In an extracting apparatus of the character described, the combination with an outer casing or receiver A, of a second, perforated receiver B arranged therein and of less diameter to leave an intermediate space between the two, said second receiver making a tight joint with the outer receiver at top and bottom, detachable covers closing the upper and lower ends of the receiver B, an inlet-pipe for solvent leading into the receiver B, a second inlet-pipe for solvent leading into the receiver A, a steam-pipe leading into the receiver A, a heating-pipe leading into and through the receiver B, an outlet-pipe leading from the receiver B, and an outlet-pipe for extracted matter leading from the lower end of receiver A, said pipe having a transparent section, all arranged as and for the purpose specified.



588,300. WATER-HEATER. ERNEST J. VERRUE, San Francisco, Cal. Filed Nov. 6, 1896. Serial No. 611,234. (No model.)



Claim.—In a water-heater, the combination with a water-jacketed casing having a conical top provided with a central out opening, of a water-inlet pipe discharging into the lower portion of the water-jacket, a concavo-convex reservoir suspended within the upper portion of the heating-chamber by means of short pipes which connect the said reservoir with the upper portion of the water-jacket, a second concavo-convex reservoir located within the lower portion of the heating-chamber supported by and communicating with the upper reservoir by means of a central water-pipe, a plurality of conical reservoirs located between the upper and the lower concavo-convex reservoirs, said reservoirs being connected to each other and to the lower concavo-convex reservoir by means of short water-pipes, the concavo-convex reservoirs and one of the conical reservoirs being considerably less in diameter than the heating-chamber and the other conical reservoir being approximately of the same diameter as the heating-chamber, and provided with a central heat-escape opening, and of a conical dead-water reservoir provided with a central opening located below the lower concavo-convex reservoir, said reservoir being connected at approximately its highest point and approximately at its lowest point to the concavo-convex reservoir at approximately its lowest and approximately its highest point respectively.

588,301. WOVEN STIFFENING FABRIC. EDWARD K. WARREN, Three Oaks, Mich. Filed Jan. 15, 1895. Serial No. 534,966. (Specimens.)



Claim.—1. A stiffening fabric, composed of warp and weft threads, one, at least, of which shall contain resilient strands formed of a continuous longitudinal flexible thread, with splints or fiber of the quill portion of feathers distributed along the same and having overlapping meeting ends, and a wrapping-thread, binding said splints or fibers to the longitudinal thread, as specified.

2. A resilient strand, consisting of a continuous longitudinal flexible thread, splints or fibers of the quill portion of feathers distributed along the same and having overlapping meeting ends, and a wrapping-thread binding said splints or fibers to the longitudinal thread, as specified.

3. A stiffening fabric, composed of warp and weft threads, one at least of which shall contain resilient strands formed of a continuous longitudinal thread with fibers or splints of stiff resilient material distributed along the same and having overlapping meeting ends, and a wrapping-thread binding said fibers or splints to the longitudinal thread, as specified.

4. A resilient strand, consisting of a continuous longitudinal flexible thread, splints or fibers of stiff resilient material distributed along the same and having overlapping meeting ends, and a wrapping-thread binding said splints or fibers to the longitudinal thread, as specified.

588,302. WOVEN STIFFENING FABRIC. EDWARD K. WARREN, Three Oaks, Mich. Filed Feb. 8, 1897. Serial No. 622,402. (Specimens.)



Claim.—1. A woven stiffening fabric composed of warp and weft threads, one at least of which shall contain resilient strands formed of a continuous longitudinal thread with hairs distributed along the same and having overlapping meeting ends, and a wrapping-thread binding said hairs to the longitudinal thread, as specified.

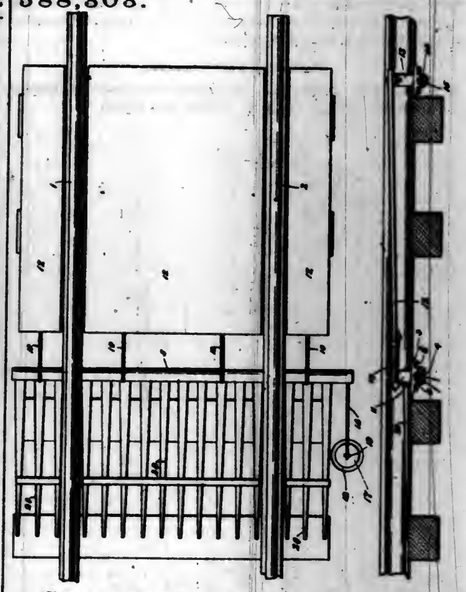
2. A woven stiffening fabric having a warp and weft one of which at least shall contain strands made up of stiff resilient fibers having overlapping ends, retained together by a closely-wrapping thread wound thereon, as specified.

3. A woven stiffening fabric having a warp and weft one of which at least shall contain strands made up of waxed hairs having overlapping ends retained together by a closely-wrapping thread wound thereon, as specified.

4. A strand made up of suitably-waxed hairs banded together and having overlapping ends and joined together by a thread wrapped spirally around the same.

588,308. RAILWAY CATTLE-GATE. JOSEPH M. WESTHORELAND and BENJAMIN STRAUSE, Ada, Tex. Filed Apr. 24, 1897. Serial No. 633,786. (No model.)

588,303.



Claim.—An automatic cattle-gate for railways, comprising the bearing-block 3 3, adjustably secured to the bottom flanges of the rails, the cam-faced shaft 5, provided with the cylindrical journals 4 4 mounted in said blocks, the gate-panels 20 20 and the radial arm 16 fixed to said shaft, and the weight 17 secured to said arm by the chain 19, in combination with the platforms 12 pivoted at one end to the fixed shaft 14, and the chains 10 connecting said shaft 5 and the free ends of said platforms, substantially as shown and described.

588,304. ATTACHMENT FOR CHAMBER VESSELS. WALTER H. WESTON and GRACE M. G. WESTON, Winthrop, Mass., assignors to said Grace M. G. Weston. Filed Feb. 2, 1897. Serial No. 621,625. (No model.)

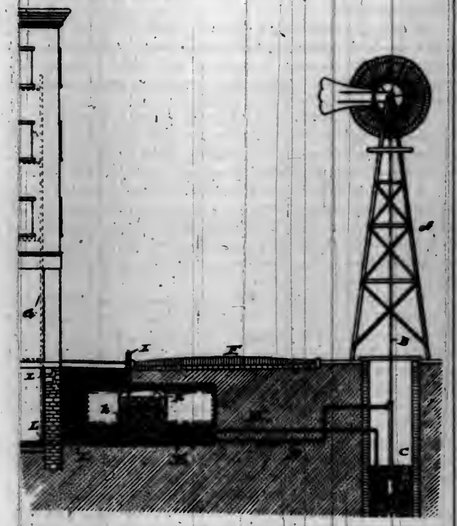


Claim.—In a chamber-vessel attachment, the base B provided with the downwardly-extending flange B′; the back consisting of the portions D D′ hinged to the sides of the base, and the upright portion E extending from the central portion of the part D to the base and provided at its lower end with the hook F F″; the catch or hook H extending from the base under the flange of the vessel; and the air-cushion C adhesively secured to the upper surface of the base, substantially as described.

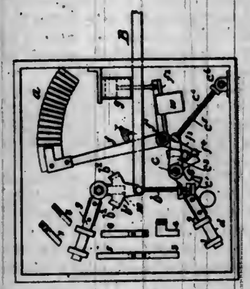
588,305. WATER-DISTRIBUTION SYSTEM. JOHN L. WHITE, Leonore, Ill. Filed Mar. 9, 1897. Serial No. 626,630. (No model.)

Claim.—1. In a water-supply system, the combination, with a water-supply, of a pump for raising the water, an engine for operating the pump, a storage tank or reservoir into which the water is pumped, connections whereby the pump may be used for delivering both air and water into the tank, and means for automatically controlling the relative proportions of air and water delivered into the tank, substantially as described.

2. In a water-supply system the combination with a water-supply of a pump for raising the water, an engine for operating the pump, a storage tank or reservoir into which the water is pumped, connections whereby the pump may be used for delivering both air and water into the tank, a valve controlling the air-inlet and a float connected with the valve and operated by changes of the water-level, substantially as described.



588,306. AUTOMATIC RHEOSTAT-CONTROLLER. ROBERT WILSON, Louisville, Ky., assignor to the Sulzer-Vogt Machine Company, of Kentucky. Filed May 29, 1897. Serial No. 638,798. (No model.)



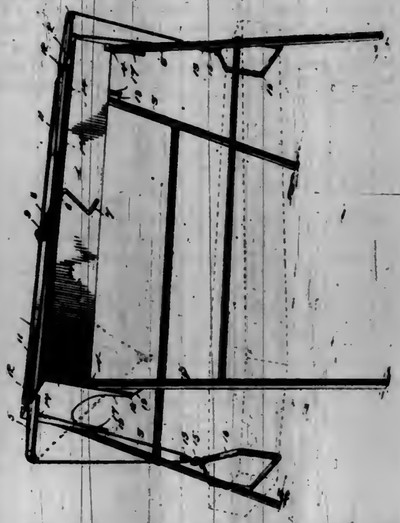
Claim.—1. In an automatic rheostat, the combination of an actuating-lever, a cam moved thereby, a rheostat-lever controlled by the cam, and means whereby the actuating-lever is permitted to move a short distance independently of the cam for the purpose set forth.

2. In an automatic rheostat, the combination of a switch-lever, a rheostat-lever and an actuating-lever carrying a cam engaging with and controlling the rheostat-lever, the actuating-lever having a movement independent of the switch-lever and the cam adapted to hold the rheostat-lever stationary while the switch-arm is moved and to move or permit to move, the rheostat-lever when the switch is stationary, substantially as described.

3. In an automatic rheostat, the combination of a switch-lever, a rheostat-lever, a cam controlling the latter and an actuating-lever, the actuating-lever moving the switch-lever and cam but having movements independent of both of them whereby the switch and rheostat are caused to be operated in succession.

4. In an automatic rheostat the combination of a reversing-switch lever, a main-switch arm, an operating-lever, as B, connections from the operating-lever to the reversing-switch lever and to the main-switch arm whereby the reversing-switch may be closed before the main switch, the arrangement being such that the main switch will be closed regardless of the direction of movement of the reversing-switch lever, a rheostat-lever, a cam controlling it and an actuating-lever, the motion of the operating-lever B being transmitted to the main-switch lever through the actuating-lever and the actuating-lever having a movement independent of both the main-switch lever and the cam whereby the switch and rheostat are caused to operate in succession.

588,307. DEVICE FOR RAISING OR LOWERING COFFINS. JACOB H. ZOOK, Gunn City, Mo. Filed May 3, 1897. Serial No. 634,923. (No model.)



Claim.—The combination with the supporting-frame of an apparatus for raising and lowering burial-caskets, of the longitudinally-arranged bar 5 supported on said frame and overhanging its ends and provided in its ends with grooved pulleys and intermediate said ends with pendent hooks 14 for engaging and permitting the adjustment of the ends of the windlass-cords, and the windlass for operating said cords arranged to cross said bar at or near the center of its length, substantially as described.

588,308. PEN-EXTRACTOR. JAMES R. ADAMS, Bevier, Mo. Filed Jan. 12, 1897. Serial No. 618,943. (No model.)



Claim.—As a new article of manufacture, a pen-extractor, consisting of two disks or plates 5 and 6, pivotally connected together at 7, by a pin or the like, said pin being longer than the combined thickness of the disks and provided at its upper and lower ends with heads, the lower disk being provided with two radial grooves extending from or near the center to the outer edge thereof and the upper disk being provided with ribs adapted to fill said grooves, said disks being combined substantially as described.

588,309. PULLEY-BLOCK. GEORGE AGOSTAN, New York, N. Y. Filed Nov. 3, 1896. Serial No. 610,939. (No model.)

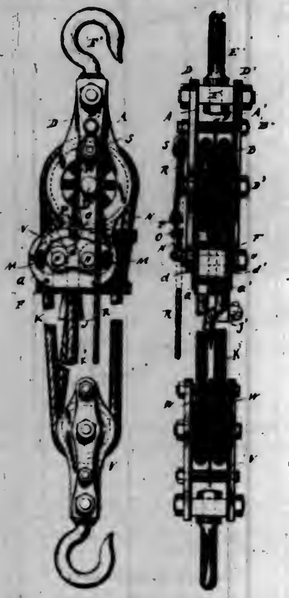
Claim.—1. In a pulley, the combination with a block and a sheave therein, of two eccentrically-mounted clamping-disks in the block, which disks have their rims grooved and shaped to fit snugly against and engage the twists of a single run of a rope and clamp the same between them, and means for swinging and holding said disks apart, substantially as herein shown and described.

2. In a pulley, the combination with a block and a sheave therein, of two eccentrically-mounted clamping-disks in said block, which disks have portions of their rims grooved and shaped to fit and engage the twists of the rope and have teeth on their rims, the teeth on the rims engaging each other to compel the two disks to move together, links connected with said disks, a cord attached to said links, and a pulley on the block, over which pulley said cord passes, substantially as herein shown and described.

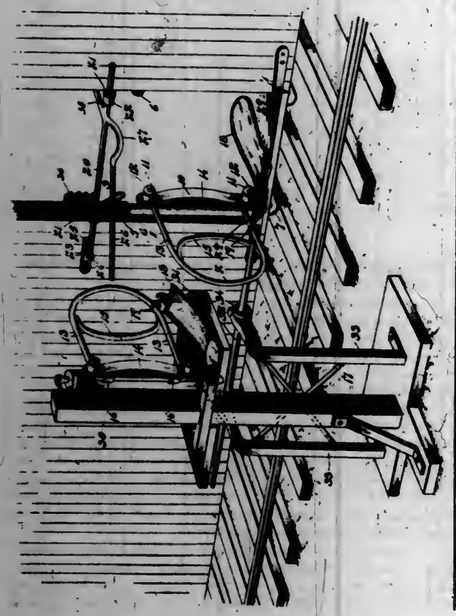
3. In a pulley, the combination with a block and a sheave therein, of two eccentrically-mounted clamping-disks therein, a clip against which said disks rest and in which the supporting-pins for the disks are mounted, and an arm projecting downward from said clip below

the bottom of the block, for attaching a supporting-rope, substantially as herein shown and described.

4. In a pulley, the combination with two plates having enlargements at their lower ends, and bars placed on the outer sides of said plates, of means for holding the bars and plates together to form a casing, sheaves mounted in said casing, clamping-disks mounted between the enlargements at the lower ends of said plates, and means for swinging said disks from each other and holding them apart, substantially as herein shown and described.



588,310. MAIL CATCHING AND DELIVERING APPARATUS. WILLIAM L. G. APPLEBY, Germantown, Md., assignor of one-fourth to Horace W. Bennett, same place. Filed Feb. 4, 1897. Serial No. 622,040. (No model.)



Claim.—1. In a mail catching and delivering apparatus, a hollow crane, and means for admitting a heating agent, as steam, thereinto to prevent the accumulation of ice and snow thereon, substantially as specified.

2. In a mail catching and delivering device, a crane having a hollow standard, a stationary hollow trunnion upon which the lower extremity of the standard is fitted and with which is connected a steam-supply pipe, and mail-holding devices detachably secured to the standard, substantially as specified.

3. In a mail catching and delivering apparatus, a rotary crane, a mail-receiving bow consisting of an open continuous frame to which a plurality of mail-bags may be attached, and a clamp on the crane for frictionally engaging the bow at one end, substantially as specified.

4. In a mail catching and delivering apparatus, a crane, a clamping-plate arranged parallel with and contiguous to the crane, and adjusting devices connecting the clamping-plate to the crane and adapted to vary the interval therebetween, in combination with a mail-carrying bow adapted to be engaged between said clamping-plate and the crane, substantially as specified.

5. In a mail catching and delivering apparatus, the combination of a crane, a clamping-plate arranged contiguous to the standard of the crane, adjusting-bolts engaging the clamping-plate near its extremities, and resilient cushions interposed between said plate and shoulders on the bolts, with a mail-carrying bow engaged between the clamping-plate and the standard, substantially as specified.

6. In a mail catching and delivering apparatus, a crane mounted for rotary movement, and a resilient or yielding clamping-plate arranged in operative relation with the standard of the crane, in combination with a mail-carrying bow engaged between the clamping-plate and said standard, substantially as specified.

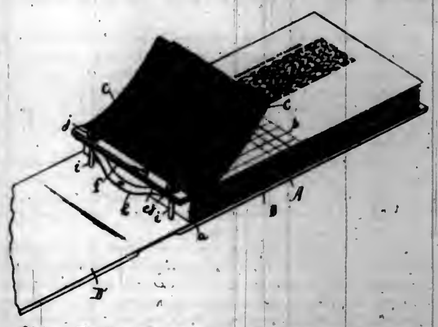
7. In a mail catching and delivering apparatus, the combination of a fixed lower trunnion, a fixed eye above the plane of said trunnion, a crane-standard provided with terminal sockets of which the lower one is engaged with said trunnion, a removable pin fitted in said eye and engaging the socket in the upper end of the standard, and a mail-carrying device detachably mounted upon the crane-standard, substantially as specified.

8. In a mail catching and delivering apparatus, the combination with a crane having a frictional clamping device, of a mail-carrying bow having parallel side arms connected at their inner ends by a cross-bar, said side arms being frictionally engaged by the clamping device of the crane, substantially as specified.

9. In a mail catching and delivering apparatus, the combination with a crane having a clamping device, of a mail-carrying bow having side arms connected at their inner ends by a cross-bar provided with enlargements for engagement with said clamp to prevent accidental disarrangement, substantially as specified.

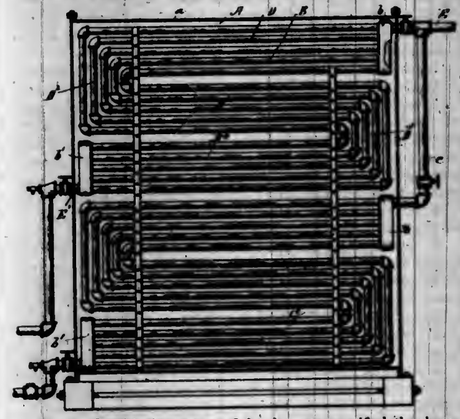
10. In a mail catching and delivering apparatus, the combination of a rotary crane-standard provided with an angular enlargement or boss, a spring arranged in operative relation with said enlargement or boss to hold the standard normally in a predetermined position, a mail-carrying bow, and means on said crane-standard for temporarily engaging the bow, substantially as specified.

588,311. MANIFOLD-COPYING DEVICE. FRANK E. BACON, Portland, Me. Filed Nov. 18, 1895. Serial No. 569,312. (No model.)



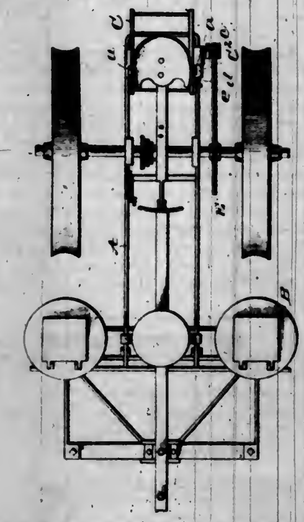
Claim.—The herein-described manifold-copying device consisting of a plurality of sheets bound together to form a pad or block, a base to which said block is secured, a carbon-sheet and a holder therefor consisting of two superposed clamping-bars between which the carbon is held, the said bars having a hole in each end, screw-bolts passing through said holes and secured by one end to said base, the opposite ends of said bolts being provided with nuts for forcing said bars toward said base and a spring for forcing said bars away from said base.

588,312. RADIATOR. WILLIAM M. BARBER, Somerville, Mass., assignor of one-half to the Smith & Anthony Company, Boston, Mass. Filed Oct. 19, 1895. Serial No. 566,163. (No model.)



Claim.—In a heating system of the character specified, the chamber A through which air is forced or drawn, and the pipe system contained in said chamber comprising the steam-receiving header *b*, and the groups of horizontal pipes D, D′ and D², the exhaust-header *b*′ and the vertical sections D³, D⁴, all the pipes of the said apparatus being of the same size, as and for the purposes described.

588,313. CHECK-ROW PLANTER. WILLIAM L. SEALL, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed May 19, 1897. Serial No. 637,269. (No model.)



Claim.—1. In a check-row planter the combination with a reel, of a grooved pulley secured to the shaft of the same, a sprocket-wheel, and a sprocket-chain engaging said sprocket-wheel and grooved pulley, whereby provision is made for slip between the reel and its driving mechanism, substantially as described.

2. In a check-row planter the combination with a reel, of a grooved pulley secured to the shaft of the same, a sprocket-wheel and a sprocket-chain engaging the sprocket-wheel and grooved pulley, a friction device engaging said pulley to retard the movement of the same, substantially as described.

3. In a check-row planter, the combination with a reel having one end of its shaft mounted in a movable bearing, a spring engaging said bearing, and means for increasing or decreasing the pressure of the spring upon said bearing, a pulley on the reel-shaft provided with a flange and a fixed projection extending into close proximity to said flange, substantially as described.

4. In a check-row planter, the combination with a reel having one end of its shaft mounted in a movable bearing, a spring engaging said bearing and means for increasing and decreasing the pressure of the spring on the said bearing, a pulley on the reel-shaft provided with a friction-flange, a support for the movable shaft-bearing having a projection extending into close proximity to said flange, substantially as described.

5. In a planter, a seedbox having a rotary disk for delivering seed therefrom, said box being provided with a movable plate, controlling means for discharging seed from said box, substantially as described.

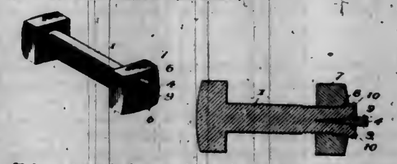
6. In a planter, a seedbox having a rotary disk for delivering seed therefrom, said seedbox having an aperture leading from said box, and a movable plate for closing said opening, substantially as described.

7. In a planter, the combination with the reel, of a yielding bearing for one end of the reel-shaft, a grooved pulley mounted on said reel-shaft, a sprocket-wheel and a chain engaging the sprocket-wheel and pulley, substantially as described.

8. A reel composed of the two spiders or ends, the curved bars engaging the arms and the securing-rods in close proximity to the concave side of said bars, substantially as described.

9. A reel composed of the two ends or spiders, the arms of which being provided with curved shoulders, curved bars engaging said shoulders and the securing-rods in close proximity to the concave side of said bars, substantially as described.

588,314. NUT-LOCK. DARIUS C. BENJAMIN, Jackson, Minn., assignor of one-half to Joseph E. Benjamin, Hubbel, Nebr. Filed Feb. 13, 1897. Serial No. 623,239. (No model.)



Claim.—A nut-lock comprising the nut 7, in combination with the bolt 1 provided with the slot 2, and the wedge 4 having its edges 6 6 converging longitudinally from the butt to the point, substantially as shown and described.

588,315. LEVER-LOCKING MECHANISM FOR LEVER-GUNS. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Oct. 26, 1896. Serial No. 610,084. (No model.)

Claim.—1. In a lever-gun, an operating or finger lever having a pivotal bow-piece forming a portion of the bow of the lever and comprising a lever-hook constructed and arranged to automatically engage with a part connected with the frame of the gun for positively locking the lever in its closed position.

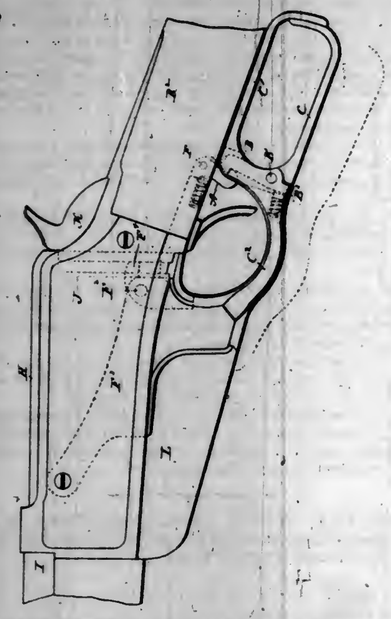
2. In a lever-gun, the combination with an operating or finger lever having a pivoted bow-piece forming a portion of the bow of the lever and comprising a lever-hook; of a frame-hook depending from the frame of the gun in position to be automatically engaged by the said lever-hook for positively locking the lever in its closed position, one of the said hooks being yielding.

3. In a lever-gun, the combination with an operating or finger lever having a pivotal bow-piece forming a portion of its bow and comprising a lever-hook: of a yielding frame-hook with which the lever-hook is automatically engaged for locking the lever in its closed position.

4. A lever-gun having an operating or finger lever the outer portion of the bow whereof is formed by a pivotal bow-piece constructed at its forward end with a lever hook located in a vertical slot formed in the base of the bow and constructed to automatically engage with a part connected with the frame of the gun for automatically locking the lever in its closed position.

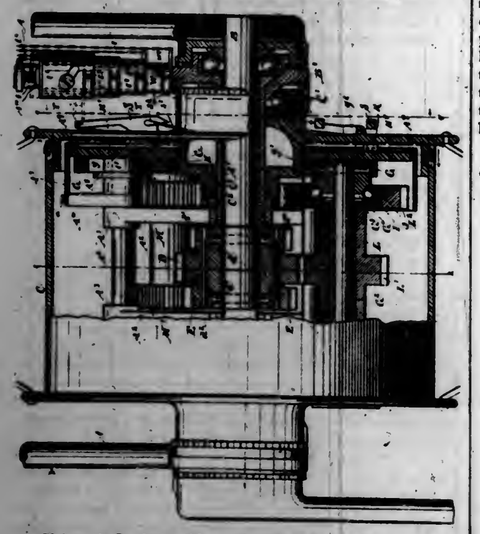
5. In a lever-gun, the combination with the frame thereof, of an operating or finger lever the outer portion of the bow whereof consists of a pivotal piece terminating at its forward end in a lever-hook; of a link connected at its forward end with the lever and at its rear end with the frame of the gun at a point adjacent to the forward portion or base of the bow of the lever when the same is in its closed position, and a frame-hook depending from the pin employed to connect

the rear end of the link with the frame of the gun, and arranged to be automatically engaged by the lever-hook when the lever is brought into its closed position.



6. A lever-gun having an operating or finger lever the outer portion of the bow whereof consists of a pivotal bow-piece terminating at its forward end in a lever-hook which is located in a vertical slot formed in the forward end or base of the said bow and adapted to be automatically engaged with a part connected with the gun-frame for locking the lever in its closed position, and the said bow-piece extending rearward in position to be engaged by a downward movement of the back of the hand of the user of the gun and connected at its extreme rear end with the rigid inner portion of the bow of the lever.

588,316. CHANGEABLE GEARING. LUTHER G. BILLINGS, Clifton, N. Y. Filed Sept. 1, 1896. Serial No. 604,505. (No model.)



Claim.—1. In changeable gearing, the drive-shaft, a plurality of pinions of differing diameters fixed on the shaft, a drum or wheel mounted concentrically with said shaft and carrying an inwardly-projecting sleeve having a pinion thereon, in combination with the fixed sleeves inclosing said shaft, spider-frames carried by said fixed sleeves, retaining-rings secured to the spider-frames, the disks mounted on the said drum-sleeves and guided at their peripheries by the said rings, eccentrics carried by the disks, a cage gyrated by the eccentrics and carrying a plurality of counter-shafts equipped with pinions of differing diameters adapted to mesh with the said drive-shaft pinions, and gears adapted to mesh with the said drum-pinions, all substantially as herein specified.

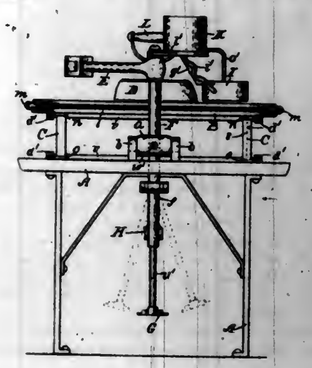
2. The fixed sleeves A', spider-frames A^2 and retaining-rings A^3, carried thereby, the studs A^4, rollers A^7 and flanges A^6 on the latter, in combination with a disk H' guided in one of said retaining-rings and carrying an eccentric H, a cage gyrated by the latter and carrying a plurality of counter-shafts equipped with pinions of differing diameters as L', M' and N' and gears L^2, M^2 and N^2, a drive-shaft B having pinions D, E and F of differing diameters matching said counter-pinions, and an inclosing drum C having inwardly-projecting sleeves C^2 and pinions C^3 carried on the latter and adapted to be engaged by said gears L^2, M^2 and N^2, all substantially as herein specified.

3. In changeable gearing, a drive-shaft, a plurality of pinions of differing diameters fixed thereon, a drum or wheel mounted concentrically with said shaft and carrying inwardly-projecting sleeves having pinions thereon, a plurality of counter-shafts each carrying an intermediate pinion of differing diameter adapted to mesh with said shaft-pinions, and mounted in a cage adapted to be shifted to effect the engagement of either intermediate pinion with its shaft-pinion, a disk H' and eccentric H thereon for shifting said cage, the lugs R on said disk, the dogs S carried by the drum and adapted to engage each its respective lug and thereby partially rotate the disk to engage the corresponding train of gearing and means for depressing either of said dogs at will, all substantially as herein specified.

4. In changeable gearing, a drive-shaft, a plurality of pinions of differing diameters fixed thereon, a drum or wheel mounted concentrically with said shaft and carrying inwardly-projecting sleeves having pinions thereon, a plurality of counter-shafts each carrying an intermediate pinion of differing diameter adapted to mesh with said shaft-pinions, and mounted in a cage adapted to be shifted to effect the engagement of either intermediate pinion with its shaft-pinion, a disk H' and eccentric H thereon for shifting said cage, the lugs R on said disk, and dogs S carried by the drum and adapted to engage each its respective lug and thereby partially rotate the disk to engage the corresponding train of gearing, and the sleeves T and arms t^6 and rollers t^5 thereon and means as the oblique slots and screws t' therein for engaging said dogs with their respective lugs by an endwise movement of said sleeves, all substantially as herein specified.

5. In changeable gearing, a drive-shaft, a plurality of pinions of differing diameters fixed thereon, a drum or wheel mounted concentrically with said shaft and carrying inwardly-projecting sleeves having pinions thereon, a plurality of counter-shafts each carrying an intermediate pinion of differing diameter adapted to mesh with said shaft pinions, and mounted in a cage adapted to be shifted to effect the engagement of either intermediate pinion with its shaft-pinion, a disk H' and eccentric H thereon for shifting the cage, the lugs U on said disk and the dog V carried on the drum and adapted to engage either of said lugs and thereby partially rotate the disk to disengage either of the trains of gearing and allow the said drum to revolve independently of said drive-shaft, all substantially as herein specified.

588,317. TAILOR'S PRESSING-MACHINE. ABRAHAM H. BRESEE, Rochester, N. Y. Filed Mar. 15, 1897. Serial No. 627,595. (No model.)



Claim.—1. A tailor's pressing-machine consisting of a table, in combination with an ironing-board and supports for holding the ironing-board over the table, each support consisting of notched posts and a base-bar resting on the table, and toothed carriers adapted to engage the notched posts, and a cap-bar over the carriers, with means to draw the ironing-board and the table toward each other, substantially as shown and described.

2. A tailor's pressing-machine consisting of a table, in combination with an ironing-board and supports for holding the ironing-board above the table, each support consisting of notched posts and a base-bar resting on the table, and toothed carriers adapted to engage the notched posts, and a cap-bar over the carriers, with means to draw the ironing-board and the table toward each other, one of said toothed carriers being detachable from the cap-bar, substantially as and for the purpose specified.

3. A machine of the kind described, having a table, and an ironing-board supported thereon, and a goose supported over the ironing-board, in combination with a holder for a sponge, and a follower to press the sponge in the holder, and springs for controlling the follower, substantially as shown and described.

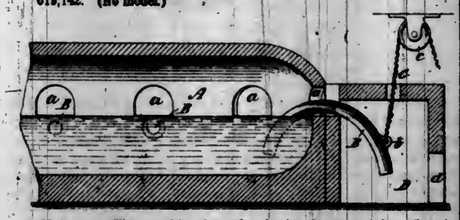
4. A tailor's pressing-machine consisting of a table, an ironing-board above the table, a goose over the ironing-board, an arm for supporting the goose, and a shaft holding the arm held in bearings secured to the table and adapted to turn in a vertical plane, in combination with a pedal-lever held by the table in position to engage the shaft, and a pedal connected with the pedal-lever and adapted to swing laterally thereon, substantially as shown and described.

5. A tailor's pressing-machine having a table, an ironing-board over the table, and a goose over the ironing-board, in combination with a sponge-holder in front of the goose provided with inwardly-projecting lugs, a follower in the sponge-holder beneath the lugs, a rod for supporting the follower, and springs within the sponge-holder for controlling the follower, substantially as shown and described.

6. A tailor's pressing-machine having a table, an ironing-board over the table, and a goose over the ironing-board, in combination with a sponge-holder in front of the goose, a rod carrying the sponge-holder, a follower within the sponge-holder, and a swivel-screw joining the follower and said rod carrying the sponge-holder, substantially as and for the purpose specified.

7. A tailor's pressing-machine having a table, an ironing-board over the table, and a goose over the ironing-board, in combination with a sponge-holder in front of the goose, a bar secured to the handle of the goose for stopping the sponge-holder when moved downward, and means to tilt the sponge-holder, said bar being forked at its forward end to receive the sponge-holder, substantially as specified.

588,318. APPARATUS FOR MANUFACTURING ARTICLES OF GLASS. HOMER BROOKE, Jersey City, N. J., assignor of three-eighths to John C. Grout, Brooklyn, N. Y. Filed Jan. 14, 1897. Serial No. 619,142. (No model.)



Claim.—1. The combination of a device for containing glass in a molten state, an outlet thereto in the form of a projecting conduit, a connection of glass between the conduit and the containing device and means for maintaining the glass connection plastic, substantially as specified.

2. A device for containing glass in a molten state, an outlet thereto in the form of a projecting conduit, said outlet being free from any internal obstruction and provided with means for adjusting its outer end, and means for maintaining said conduit hot to permit the flow of molten glass therethrough, substantially as specified.

3. A device for containing glass in a molten state, an outlet thereto in the form of a projecting conduit, said outlet being free from any internal obstruction and provided with means for adjusting its outer end, a connection of glass between said conduit and containing device, and means for maintaining the glass connection plastic, substantially as specified.

4. A device for containing glass in a molten state, an outlet in the form of a projecting conduit, said outlet being free from any internal obstruction and provided with means for adjusting its outer end, and flanges on said device engaging the projecting conduit, substantially as specified.

5. A device for containing glass in a molten state having an outlet in the form of a conduit made in two sections, the inner one having its end above the bottom of the device and the outer one being adjustable, said outlet being free from any internal obstruction and provided with means for adjusting its outer end, and means for maintaining said conduit hot to permit the flow of glass therethrough, substantially as specified.

6. The combination with a device for containing glass in a molten state, of an outlet in the form of a conduit, said conduit being free from any internal obstruction, means for adjusting the outer end of said conduit, and a heating-chamber for the projecting portion of said conduit, substantially as specified.

588,319. MOLDING GLASS. HOMER BROOKE, Jersey City, N. J., assignor of three-eighths to John C. Grout, Brooklyn, N. Y. Filed Jan. 14, 1897. Serial No. 619,143. (No model.)



Claim.—1. The process of giving formation to a mass of plastic glass which consists in supporting said mass and thereby molding and giving final shape to a portion of the surface of said mass, and subsequently molding the remaining portion of the surface thereof by subjecting the mass to a rotary motion, substantially as specified.

2. The process of giving formation to a mass of plastic glass, which consists in supporting a mass of plastic glass until final formation is given thereto, the supporting of said mass acting also to mold and give final shape to a portion of the surface thereof, and then completing the formation of the mass by molding the remaining portion of the surface by subjecting the mass to a rotary motion, substantially as specified.

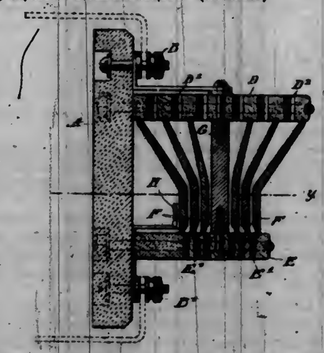
3. The combination of a portable hand-rod and a mold-form attached thereto for supporting a mass of plastic glass, substantially as specified.

4. The combination of a portable hand-rod an inner-mold form attached thereto for supporting a mass of plastic glass, and a receiver for molten glass into which the inner-mold form is projected, substantially as specified.

5. The combination of a portable hand-rod, an inner-mold form attached thereto for supporting a mass of plastic glass, a receiver for molten glass into which the inner-mold form is projected, and a detachable connection between said receiver and inner-mold form, substantially as specified.

6. The combination of a portable hand-rod, an inner-mold form attached thereto for supporting a mass of plastic glass, a receiver for molten glass into which the inner-mold form is projected, and a frame or support for gaging the position of the inner form relatively to the receiver, substantially as specified.

588,320. LIGHTNING-ARRESTER. CUMMINGS C. CHESNEY, Pittsfield, Mass., assignor of one-half to John F. Kelly, same place. Filed May 14, 1897. Serial No. 636,536. (No model.)



Claim.—1. In a lightning-arrester, a series of concentric cylinders having flaring sides, said cylinders being spaced apart throughout

their length, suitable insulated supporting means and circuit-terminals, therefor.

2. In a lightning-arrester, a series of concentric cylinders having flaring sides, insulated retaining-pieces at opposite ends of said cylinders, said pieces having openings therein, circuit-terminals for the inside and outside cylinders.

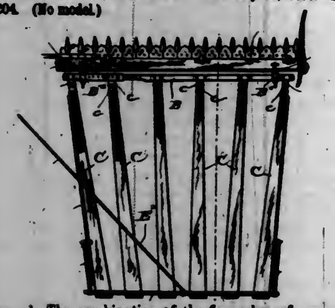
3. In a lightning-arrester, a series of concentric cylinders having flaring sides, which successively increase in the angle of the apex, insulated supporting and retaining pieces at opposite ends of said cylinders, said pieces being perforated, circuit-terminals for the inside and outside cylinders.

4. In a lightning-arrester, a series of concentric parts, spaced apart throughout, said parts being substantially parallel toward their lower ends, and flaring outwardly toward their upper ends, circuit-terminals therefor.

5. In a lightning-arrester, a series of concentric parts nested together, but separated from each other throughout their entire length, the lower ends of said parts being parallel, while the upper ends flare outwardly, the flaring ends increasing successively in the angle of the apex, and circuit-terminals therefor.

6. In a lightning-arrester, a nest of concentric cylinders having flaring sides, said parts being separated from each other, a line-terminal and a ground-terminal, the latter being connected to the outer cylinder, substantially as, and for the purpose specified.

588,321. BUNCHING ATTACHMENT FOR MOWING-MACHINES. James M. Doddridge, Milton, Ind. Filed May 12, 1896. Serial No. 591,204. (No model.)



Claim.—1. The combination of the finger-bar of a mowing-machine, a bunching attachment for mowing-machines, and a device for connecting said finger-bar and said bunching attachment, said device being hinged or pivoted to the finger-bar and adapted to hook onto the front bar of the bunching attachment and composed of two parts one adjustable upon the other, said bunching attachment being thus easily attached and detached, or adjusted, and at the same time permitted a free vertical movement, substantially as set forth.

2. The combination, with a mowing-machine, of a bunching attachment, and a device for connecting the finger-bar of the mowing-machine and said bunching attachment, consisting of the eyebolt A′ pivoted to said finger-bar, and the hook B′ having a perforation which passes over said eyebolt, said hook being adapted to embrace the front bar of the bunching attachment, and a nut *a′* upon the end of said eyebolt whereby said hook may be adjusted nearer to or farther from the pivotal point where it is attached to the finger-bar, all substantially as shown and described.

3. The combination of the finger-bar of a mowing-machine, a bunching attachment for mowing-machines, and a device for connecting said finger-bar and said bunching attachment, said device being hinged or pivoted to the finger-bar and adapted to hook onto the front bar of the bunching attachment, and provided with an adjusting-nut, said bunching attachment being thus easily attached and detached or adjusted and at the same time permitted a free vertical movement, substantially as shown and described.

4. A bunching attachment for mowing-machines, consisting essentially of a slatted platform, the slats being tapered and increasing in width as they approach the rear end, substantially as shown and described.

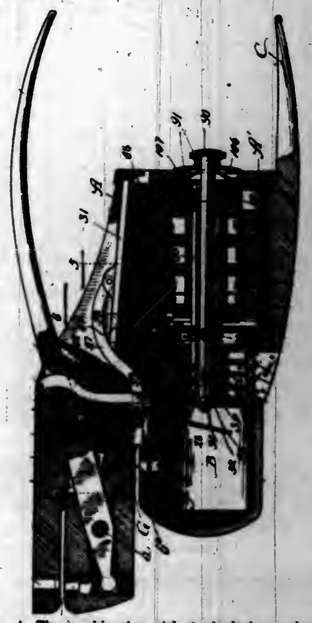
5. A bunching attachment for mowing-machines consisting essentially of a slatted platform, the slats being independent of each other, and each hinged at two points, whereby they are able to yield independently of each other in passing over inequalities, substantially as set forth.

6. The combination, in a bunching attachment for mowing-machines, of a longitudinally-adjustable front bar, hinged slats extending rearwardly from said bar and converging toward each other, side-boards attached to the outer slats, a tail-gate provided with arms pivoted to said side-boards, and a rope running from said tail-gate to a point adjacent to the operator, substantially as shown and described.

7. The combination, with a mowing-machine, of a bunching attachment therefor, consisting of a longitudinally-adjustable front bar, adjustable connections between said front bar and the finger-bar of the mowing-machine, tapered slats provided with hinges and independently connected to said front bar, the rear ends whereof are wider than the front ends, and which said slats converge toward each other, side-boards on the outer slats, a tail-gate mounted on arms pivoted to said side-boards, and means for raising said tail-gate, said several parts being arranged and operating substantially as set forth.

8. A bunching attachment for mowing-machines consisting essentially of a slatted platform the slats whereof increase in width from their forward to their rear ends, the spaces between the slats being thus reduced as the rear end of the platform is approached, substantially as shown and described.

588,322. TICKET-PUNCH AND NUMBERING AND DATING DEVICE. William C. Downing, Chicago, Ill. Filed May 25, 1896. Serial No. 592,975. (No model.)



Claim.—1. The combination with the inclosing casing, provided with a head part, of an operating handle-lever, pivoted in the head part, a curved horizontal lever fulcrumed in the inclosing case, an impression-plate, pivoted to one end of the horizontal lever, a spring, for retaining the handle-lever and horizontal lever in their proper relative position, and the printing mechanism, substantially as described.

2. The combination with the handle-lever, of the punch-dies, secured to and actuated thereby, a horizontal lever, having an upwardly-curved part, the handle-lever being adapted to come in contact with the curved part on its downward movement, an impression-plate, pivoted to the horizontal lever and adapted to have contact with an object when compressed, a spring, connecting the handle-lever and curved horizontal lever and automatically returning these parts to their normal position when the pressure on the handle-lever is relaxed, and the printing mechanism, substantially as described.

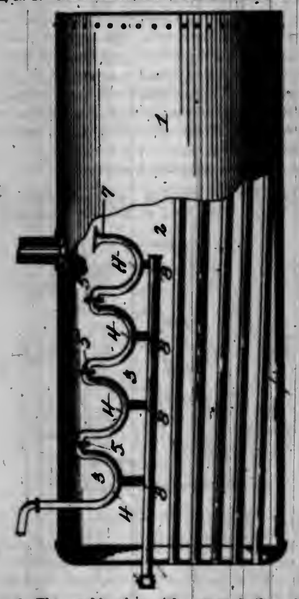
3. The combination with the inclosing casing, of a removable cap end provided with an integral sleeve extending inwardly therefrom, the printing-wheels, loosely mounted on said sleeve, the means described, for imparting a rotary movement to said wheels in their order of succession, and the mechanism for locking said removable cap end and printing mechanism in place, substantially as described.

4. The combination with the axial sleeve, inserted longitudinally in the casing, of the units-disk, comprising in its structure an escapement-wheel recessed in one side thereof, a yoke, having an up-and-down movement on said sleeve and provided with a pin engaging with said escapement and transmitting an intermittent rotary movement to said units-wheel, the circular plate, rigidly mounted upon said sleeve adjacent to the yoke, and having a slot therein through which guide-lugs on the yoke project, a disk-wheel, loosely mounted on said sleeve, the wire spring, connected at one end to said yoke-ing and the other to said sleeve, the link, having an elongated slot in one end and pivoted to said yoke, a pin, projecting from said disk-wheel and extending across the cut-away edge of said circular plate and engaging with the slotted end of said link, the impression-plate and the handle-lever, whereby a rotary movement of said disk-wheel will move said link into a vertical position when the impression-plate, coming in contact therewith, will force the same downward together with the yoke, and the spring for returning these parts to their normal position, substantially as described.

5. The combination with the casing, of an inking-roller, journaled therein, the disk-wheel, having teeth formed on a part of its periphery, the pinion, mounted on said inking-roller and engaging with said teeth, the circular plate, loosely mounted upon the axial sleeve adjacent to the removal cap end, a bar connecting said disk-wheel and said plate, and the inking-ribbon, having one end secured to said roller and the other end to said bar, whereby a ticket inserted will have contact with said bar and force the same over to its opposite position, unwinding the ribbon and rotating the said disk-wheel, and the spring, returning the parts to their normal position when the ticket is withdrawn, substantially as described.

6. In a device of the class described, the combination with the impression-plate, of a disk-wheel, provided with a raised flat surface, a disk-plate, provided with a corresponding flat surface, adapted to receive the contact of the respective ends of said impression-plate and prevent it from having contact with the printing-characters when there is no ticket inserted, the bar, connecting said disk-wheel and disk-plate, the printing-wheels, and the inking mechanism therefor, substantially as described.

588,323. FEED-WATER PURIFIER. Alexander M. Duffy, Cortland, N. Y. Filed Jan. 30, 1897. Serial No. 621,382. (No model.)



Claim.—1. The combination, with a steam-boiler, of a feed-water purifier, situated in a vertical plane within the steam-space of said boiler, comprising a serpentine or sinuous tube having an overflow-opening at its inner end and a communicating mud-drum below, substantially as specified.

2. The combination, with a steam-boiler, of a feed-water purifier situated within the steam-space of said boiler, said purifier comprising a serpentine or sinuous tube composed of a series of U-shaped sections connected together and having its inner end section provided with an overflow-opening, and a mud-drum communicating with each U-shaped section, substantially as specified.

588,324. PARAFFIN VESSEL. Mary A Emerson, Waltham, Mass. Filed Nov. 7, 1896. Serial No. 611,309. (No model.)

Claim.—1. The self-sealing hollow article herein described composed of a vessel having a cover fitted to it, both parts of which are composed of paraffin and fibrous material, thereby presenting a self-sealing joint at their points of contact and a piece of tape or equivalent interposed between said self-sealing surfaces.



2. A hollow article having a cover fitted to it, both parts of which are composed of paraffin, thereby presenting a self-sealing joint at their points of contact, and a piece of tape or equivalent interposed between said self-sealing surfaces, substantially as described.

3. A hollow article having a cover fitted to it, both parts of which present self-sealing surfaces at their points of contact, with a piece of tape or equivalent interposed between said self-sealing surfaces, substantially as described.

4. A hollow article having a cover fitted to it both parts of which are composed of paraffin or its equivalent, thereby presenting self-sealing surfaces at their points of contact, with a piece of tape or equivalent interposed between said self-sealing surfaces having projecting ends, substantially as described.

5. A hollow article having a cover fitted to it both parts of which are composed of paraffin or its equivalent thereby presenting self-sealing surfaces at their points of contact, with a piece of tape or equivalent interposed between said self-sealing surfaces and adapted to be sealed in and used as a means of separating the sealed cover from the article, substantially as described.

588,325. MINE-CAR RUNNING-GEAR. Luther R. Faught, Philadelphia, Pa. Filed Sept. 8, 1896. Serial No. 605,085. (No model.)



Claim.—1. The combination, substantially as set forth, of a car-wheel having an oil-reservoir in its hub, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub and projecting thereinto, a journal-bearing block fitting in the axle-box and projecting into the hub, a collar on the axle inclosing the opposite end of the hub, an annular chamber in the hub for the reception of packing closing the joint between the axle-box and journal-bearing block and the hub, and an annular chamber in the collar for the reception of packing closing the joint between the collar and the hub.

2. The combination, substantially as set forth, of a car-wheel having an oil-reservoir in its hub, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub and projecting thereinto, a journal-bearing block fitting in the axle-box and projecting into the hub, a lower axle-bearing formed in the axle-box adjacent to its projection into the hub and an annular chamber in the hub for the reception of fibrous packing closing the joint between the axle-box and journal-bearing block and the hub.

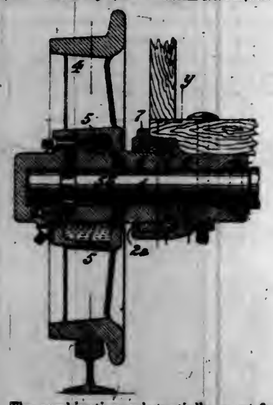
3. The combination, substantially as set forth, of a car-wheel having an oil-reservoir in its hub, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub and projecting thereinto, a journal-bearing block fitting in the axle-box and projecting into the hub, a lower axle-bearing formed in the axle-box adjacent to its projection into the hub, a pedestal having side legs between which the axle-box is fitted, and a trans-

verse connecting-bolt passing through said legs and through vertically-elongated openings in the lower bearing of the axle-box.

4. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub and projecting thereinto, a journal-bearing block fitting in the axle-box and projecting into the wheel-hub, an oil-reservoir in the wheel-hub, an annular packing-chamber in the wheel-hub inclosing the adjacent portions of the axle-box and journal-bearing block and closed by a lip or flange at its outer end, and a series of radial arms or braces interposed between the packing-chamber and oil-reservoir, said arms serving to retain the packing in position and to take up and distribute oil from the reservoir.

5. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub and projecting thereinto, an oil-chamber in the axle-box, a journal-bearing block fitting in the axle-box and projecting into the wheel-hub, an oil-reservoir in the wheel-hub, an annular chamber in the wheel-hub, closed by a lip or flange at its outer end, for the reception of fibrous packing closing the joint between the axle-box and journal-bearing block and the wheel-hub, and a U-shaped felt feeder fitting in the oil-chamber of the axle-box and bearing against the wall thereof and the periphery of the axle.

588,326. MINE-CAR RUNNING-GEAR. LUTHER P. FAUST, Philadelphia, Pa. Filed July 1, 1897. Serial No. 643,047. (No model.)



Claim.—1. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub, the wheel-hub and axle-box having their adjacent end portions fitting one within the other, an oil-reservoir in the wheel-hub, an annular chamber in the axle-box for the reception of fibrous packing, said chamber inclosing the adjacent portion of the wheel-hub and being closed by a lip or flange at its outer end, and an annular chamber for the reception of fibrous packing, adjacent to the opposite end of the axle-box.

2. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub, the wheel-hub and axle-box having their adjacent end portions fitting one within the other, an oil-reservoir in the wheel-hub, an annular chamber in the axle-box for the reception of fibrous packing, said chamber inclosing the adjacent portion of the wheel-hub and being closed by a lip or flange at its outer end, and a longitudinal packing-recess communicating with said chamber and open to the axle.

588,327. PROCESS OF OBTAINING XANTHIN DERIVATIVES. EMIL FISCHER, Berlin, Germany, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Filed June 16, 1896. Serial No. 595,792. (No specimens.)

Claim.—1. The process which consists in treating a tetraalkyl-uric acid with a halogen compound of phosphorus for the purpose of converting the same into a halogen derivative of alkylized xanthin.

2. The process which consists in treating a tetraalkyl-uric acid with a phosphorus oxyhalogen compound, for the purpose of converting the same into a halogen derivative of alkylized xanthin.

3. The process which consists in heating tetramethyl-uric acid with phosphorus oxychlorid in the proportions and to the temperature, substantially as set forth.

4. The process which consists in heating tetramethyl-uric acid with five times its weight of phosphorus oxychlorid in a closed vessel to from 160° to 165° centigrade, and maintaining this temperature for ten hours, substantially as set forth.

5. The process which consists in acting on a tetraalkyl-uric acid with a halogen phosphorus compound, and then purifying the crude product by subjecting the same to the action of fuming hydrochloric acid, evaporating the resulting solution to dryness and treating the residue with soda-lye, substantially as set forth.

6. The process which consists in acting on tetramethyl-uric acid with phosphorus oxychlorid in the proportions and at the temperature and for the time, substantially as set forth, then separating the crude product and acting on the same with fuming hydrochloric acid in the proportions and at the temperature and for the time, substantially as set forth, then evaporating the resulting solution to dryness and extracting the residue with soda-lye, substantially as set forth.

7. The process which consists in acting upon a tetraalkyl-uric acid with a phosphorus halogen compound, then separating out the resulting halogen derivative of alkylized xanthin, and finally acting upon the latter by reducing agents whereby the halogen derivative is converted into the corresponding alkyl derivative of xanthin.

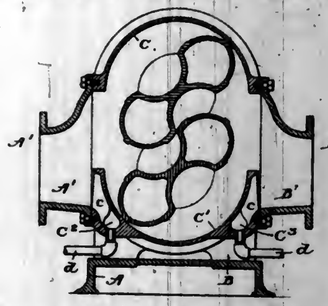
8. The process which consists in acting upon tetramethyl-uric acid with a phosphorus chlorin compound, and then separating out the resulting chlorocaffein and, finally, acting upon the latter with reducing agents to obtain caffein.

588,328. WHIFFLETREE-HOOK. GEORGE A. GRAFFOTTE, Watertown, N. Y. Filed May 28, 1897. Serial No. 638,658. (No model.)



Claim.—A whiffletree-hook, comprising a sleeve portion formed with a spring-chamber, a longitudinal slot communicating therewith, a headed stud having a bore communicating with said chamber, a pivoted bail having laterally-curved portions, and provided with a bolt-aperture, a spring seated in said chamber, a bolt adapted to the bore of the headed stud and provided with an enlarged head against which the spring presses, and a thumb-stud projecting through the longitudinal slot of the sleeve and engaging the head of the bolt, substantially as set forth.

588,329. ROTARY BLOWER. THOMAS W. GREEN, Philadelphia, Pa. Filed Dec. 28, 1896. Serial No. 617,167. (No model.)



Claim.—1. A rotary blower having a tar trap or reservoir in the inlet thereof, said trap or reservoir being located outside of the casing surrounding the blower-impellers and below the intake or opening in the said surrounding casing, substantially as shown.

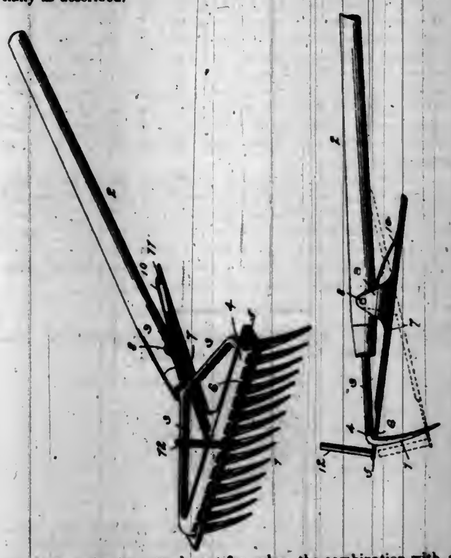
2. In a rotary blower the combination of the outer casing C and C', surrounding the impellers, with the inlet-pipe A', having therein the tar-trap C^3, located below the inlet-pipe and below the intake in the outer casing C and C', of the blower, substantially as shown.

3. In a rotary blower or pump a tar trap or reservoir located in the main outlet-pipe below the bottom thereof and also below and to the outside of the discharge-opening of the blower, as set forth.

4. In a rotary blower or pump a trap or reservoir located in the inlet-pipe between the source of supply and the intake of the pump and below the level of said intake, for the purpose of receiving and holding the tarry precipitates and prevent them passing into the blower, as set forth.

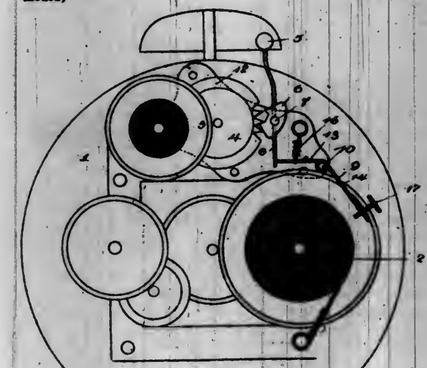
588,330. RAKE-CLEANER. WILLIAM H. GREEN, Streator, Ill. Filed June 27, 1896. Serial No. 597,169. (No model.)

Claim.—1. In a clearing attachment for rakes, the combination with a suitable handle, rake-head and arc-shaped teeth, of a clearing-plate, a lever for actuating the plate, said lever being provided with lugs fulcrumed on the handle, and a spring interposed between the handle and the lever to hold the latter away from the handle, substantially as described.



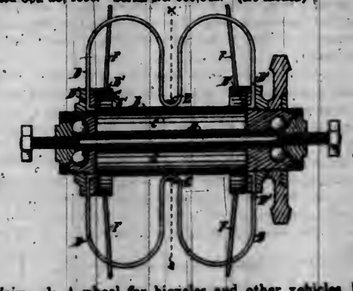
2. In a clearing attachment for rakes, the combination with a suitable handle, rake-head and arc-shaped teeth, of a clearing-plate having transversely-elongated perforations, a lever on the under side of the handle for actuating the said plate, said lever being concaved to conform with the exterior of the handle and having lugs bent upward from its opposite sides to embrace the handle, said lugs being fulcrumed to the opposite sides of the latter, and a spring having one end attached to the end of the lever and the other end adapted to bear against the handle to hold the lever in its normal position, substantially as described.

588,331. WINDING-INDICATOR FOR TIMEPIECES. FRANK GURLEY, High Point, N. C. Filed Dec. 5, 1896. Serial No. 614,569. (No model.)



Claim.—An audible winding-signal for clocks, comprising the frame 12, the alarm mechanism mounted therein, and provided with an arm 8, in combination with the lever 9, having its end 13 located in the path of the arm 8, and its opposite end provided with an adjusting-screw 17 projecting into the path of the motive power of said clock, substantially as and for the purpose set forth.

588,332. BICYCLE-WHEEL. GEORGE HAYES, New York, N. Y. Filed Oct. 23, 1896. Serial No. 609,842. (No model.)



Claim.—1. A wheel for bicycles and other vehicles, having a central axle-hub within the hollow of a spoke-nave, the two connected resiliently by a set of externally-arranged arc-springs, having their ends secured to the axle-hub and extending parallel to the longitudinal axis of the hub, secured at a point midway of their length to the external peripheral face of the spoke-nave, essentially as set forth.

2. In a wheel for bicycles and other vehicles, an axle-hub suspended within a hollow spoke-nave by a system of arc-shaped suspensory-springs, externally arranged and extending parallel to the longitudinal axis of the hub with ends secured between annular plates secured upon the hub, and midway between the springs secured to the spoke-nave, essentially as set forth.

3. A wheel for bicycles and other vehicles, comprising a rim, tension-spokes tangentially secured to a hollow cylindrical nave, and within said nave an axle-hub connected therewith by a system of externally-located arc-springs, which arching and extending longitudinally parallel to the longitudinal axis of the hub, and secured to both, provide for resilient action, essentially as set forth.

588,333. POCKET-BOOK OR BAG FRAME. CHRISTIAN HEINIGE, Clinton, N. J., assignor to the J. R. Mergott Company, Irvington, N. J. Filed Dec. 21, 1896. Serial No. 616,282. (No model.)



Claim.—1. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections, of a catch pivotally connected with one of said sections, said catch having perforated ears or lugs extending through an opening in said frame-section, and a spring arranged across said opening and in said perforated ears, substantially as and for the purposes set forth.

2. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections, of a catch pivotally connected with one of said sections, consisting, essentially, of a plate c, having a downwardly-extending edge c', clamping-fingers c^2 thereon, a clamping edge c^3, having a catch-piece c^4, ears or lugs c^5, a plate c held by said fingers c^2 and said edge c^3 against the plate c, said plate c having openings, and a holding-lug c^6, the said ears or lugs c^5 extending through an opening in said frame-section, and a spring held by said lug c^6 and having two portions extending across said opening in the frame-section and into said perforated ears, substantially as and for the purposes set forth.

3. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections a and a', said section a having an opening a^2 and the parts a^4, a^5 and a^6, of a catch, having a plate provided with ears c^5 extending into and through said opening a^2, and a spring arranged across said opening and in said perforated ears, said spring having its one free end in contact with said part a^6, and the other end of said spring being hook-shaped, and in contact with the parts a^5 and a^6 of the frame-section a, substantially as and for the purposes set forth.

4. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections a and a', said section a having an opening a^2 and a stop a^3, of a catch, having a plate c provided with ears c^5 extending into and through said opening a^2, and a spring arranged across said opening and in said perforated ears, and its free ends in contact with the under surface of said frame-section a, to cause said plate c to be normally forced down against said stop a^3, substantially as and for the purposes set forth.

5. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections a and a', said section a having an opening a^2 and guide-pieces a^4 and a^5, of a catch, having a plate provided

with perforated ears c^6 extending into and through said opening a^3 and a spring arranged across said opening and in said perforated ears, said spring being arranged between said guide-pieces a^4 and a^5 and operatively held therebetween, substantially as and for the purposes set forth.

6. In a bag or pocket-book frame, the combination, with a pair of pivoted frame-sections a and a', said section a having an opening a^2 and guide-pieces a^4 and a^5, and the parts a^6, a^7 and a^8, of a catch, having a plate provided with perforated ears c^5 extending into and through said opening a^2, and a spring arranged across said opening and in said perforated ears, said spring being arranged between said guide-pieces a^4 and a^5 and operatively held therebetween, said spring having its one free end in contact with said part a^6, and the other end of said spring being hook-shaped, and in contact with the parts a^7 and a^8 of the frame-section a, substantially as and for the purposes set forth.

588,334. BAG OR PURSE FRAME. CHRISTIAN HIERING and ALBERT FULLER, Irvington, N. J., assignors to the J. R. Mergott Company, of New Jersey. Filed Feb. 26, 1897. Serial No. 625,105. (No model.)



Claim.—1. In a bag or purse frame, the combination, with a pair of frame-sections pivoted together, at their ends, of a A-shaped ornamental edge strip on the edge of one of said frame-pieces, having lugs on its under side passing through perforations in one of said frame-sections, the ends of said ornamental strip being held or secured by means of the pivots by which the frame-sections are pivotally connected, said ornamental edge strip having a downwardly and outwardly extending stop-piece b^3 formed integral with said edge strip, and a holding or locking catch normally retained in position by said stop-piece and held thereby in alinement with the upper ornamental surface of said edge strip, substantially as and for the purposes set forth.

2. In a bag or purse frame, the combination, with a pair of frame-sections pivoted together at their ends, of a pair of A-shaped ornamental edge strips on the edge of one of said frame-pieces, having lugs on their under sides passing through perforations in one of said frame-sections, and each edge strip having a tongue b^4 formed integral therewith, said tongues being adapted to be arranged in the perforated ears of the frame-sections and turned over to form a hinge-joint, said ornamental strips having downwardly and outwardly extending stop-pieces b^3 formed integral with said edge strips, and a holding or locking catch normally retained in position by said stop-pieces, and held thereby in alinement with the upper ornamental surfaces of said edge strips, substantially as and for the purposes set forth.

3. In a bag or purse frame, the combination, with a pair of frame-sections pivotally connected at their free ends, of a pair of ornamental edge strips b and b', having angular end or box portions and stop-pieces b^3 formed integral with the ends of said portions, extending downwardly and outwardly from the ends of said box portions and a holding or locking catch pivotally connected with said end portions and engaging with said stop-pieces to normally retain said holding or locking catch in position and in alinement with the upper ornamental surfaces of the box portions of said edge strips, substantially as and for the purposes set forth.

4. In a bag or purse frame, the combination, with a pair of frame-sections having perforated ears at their free ends, of a pair of edge or ornamental frame-pieces b and b' each having a tongue b^4 formed integral therewith, said tongues being adapted to be arranged in said perforated ears and turned over to form a hinge-joint, said frame-pieces having angular end portions b^5 and stop-pieces b^3 formed integral with the ends of the portions b^5, extending downwardly and outwardly from the ends of said box portions and a holding or locking catch pivotally connected with said end portions and engaging with said stop-pieces to normally retain said holding or locking catch in position and in alinement with the upper ornamental surfaces of the box portions of said edge strips, substantially as and for the purposes set forth.

5. In a bag or purse frame, the combination, with a pair of hinged frame-sections, of a catch pivotally connected with one of said frame-sections, consisting, essentially, of a plate c having holding portions, a plate e secured between said holding portions, and a spring d between said plates, having projecting ends d^2 and the portions d^3 bent at right angles, or approximately so, substantially as and for the purposes set forth.

6. In a bag or purse frame, the combination, with a pair of hinged frame-sections, having ornamental edge strips b and b' provided with stop-pieces b^3, of a catch pivotally connected with said strips b and b', consisting, essentially, of a plate c having holding portions, a plate e secured between said holding portions, said plate having slits e^3 and backwardly-bent stop portions e^4, and a spring d between said plates having projecting ends, substantially as and for the purposes set forth.

7. In a bag or purse frame, the combination, with a pair of hinged frame-sections, having ornamental edge strips b and b' provided with stop-pieces b^3, of a catch pivotally connected with said strips b and b', consisting, essentially, of a plate c having holding portions, a plate e secured between said holding portions, said plate having slits e^3 and backwardly-bent stop portions e^4, and a spring d between said plates having projecting ends, and the portions d^3 bent at right angles, or approximately so, and said spring having a U-shaped portion d', also arranged between said plates c and e, substantially as and for the purposes set forth.

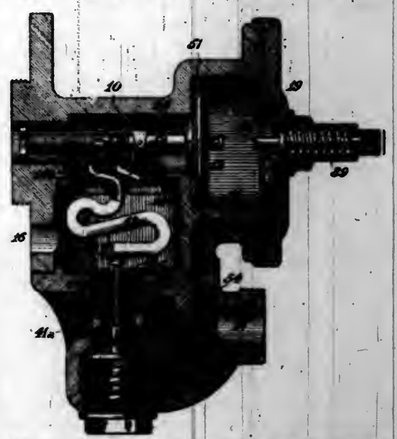
8. The herein-described catch, comprising, a plate c, having holding portions c^3, c^4 and c^5, a plate e arranged and secured between said holding portions, said plate having backwardly-bent stop portions e^4, and a spring between said plates having projecting ends, d^2, formed with portions d^3 bent at right angles, or approximately so, and said spring having a U-shaped portion d' also arranged between said plates c and e, substantially as and for the purposes set forth.

588,335. ASH-SIEVE. MARY W. HILL, Philadelphia, Pa. Filed Aug. 20, 1896. Serial No. 603,290. (No model.)



Claim.—In combination with a cylinder having a housing on one side inclosing a slot in the side of said cylinder and ways formed opposite to the housing on either side of a slot, a bar having one end riding on the cylinder and protruding in the housing, a handle secured on the opposite end of the bar, a shutter inclosing the slot on the handle end of the bar and sliding in the ways aforesaid, a screen secured to the bar and inclosed by a ring, a stationary pin on which the ring rests on one side of the casing and a bolt protruding through the cylinder and normally supporting one side of the screen, a casing secured to the cylinder through which the bolt operates and a spring for holding the bolt in position, substantially as described.

588,336. QUICK-ACTION TRIPLE VALVE. JOHN A. HOFF, St. Louis, Mo., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed May 11, 1897. Serial No. 636,044. (No model.)



Claim.—1. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency or train-pipe release-valve, an expansible differential air-delivery device, constituting a portion of the passage-way for air from an auxiliary reservoir connection to a brake-cylinder connection, and controlled, as to the reception of air through a smaller or a larger opening, by the main valve of the triple valve, and intermediate connections through which opening movement is imparted to the emergency-valve by the differential air-delivery device when expanded by the reception of air through the larger opening.

2. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency or train-pipe release-valve, an expansible differential air-delivery device, constituting a portion of the passage-way for air from an auxiliary-reservoir connection to a brake-cylinder connection, and controlled, as to the reception of air through a smaller or larger opening, by the main valve of the triple valve, intermediate connections through which opening movement is imparted to the emergency-valve by the differential air-delivery device when expanded by the reception of air through the larger opening, and a closing-spring acting upon the emergency-valve in opposite direction to the differential air-delivery device.

3. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a chamber in the casing thereof, having a brake-cylinder connection, an elastic bent tube inclosed in said chamber, and having an open end which is fixed and a closed end which is free therein, its fixed end communicating with the supply-port through which air passes from the auxiliary-reservoir connection to the brake cylinder connection, a port in the closed end of said tube which is of greater transverse area than the graduating-port of the main valve of the triple valve, and of less transverse area than the supply port controlled by said main valve, an emergency-valve controlling communication between the train-pipe connection of the casing and the atmosphere, and a stem through which opening movement may be imparted to the emergency-valve from the elastic bent tube.

4. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a chamber in the casing thereof having a brake-cylinder connection, a removable partition containing the ports controlled by the main valve of the triple valve, and interposed between the chamber thereof and the chamber having the brake-cylinder connection, an expansible differential air-delivery device connected to the supply-port of said partition, and having a delivery-port of greater transverse area than the graduating-port of the main valve, and of less transverse area than the supply-port controlled by said main valve, an emergency-valve controlling communication between the train-pipe connection of the casing and the atmosphere, and a stem through which opening movement may be imparted to the emergency-valve from the differential air-delivery device.

5. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a chamber in the casing thereof having a brake-cylinder connection, an elastic bent tube inclosed in said chamber, and having an open end which is fixed and a closed end which is free therein, its fixed end communicating with the supply-port through which air passes from the auxiliary-reservoir connection to the brake-cylinder connection, a port in the closed end of said tube which is of greater transverse area than the graduating-port of the main valve of the triple valve, and of less transverse area than the supply-port controlled by said main valve, an emergency-valve controlling communication between the train-pipe connection of the casing and the atmosphere, a stem through which opening movement may be imparted to the emergency-valve from the elastic bent tube, and a closing-spring acting upon the emergency-valve in opposite direction to said stem.

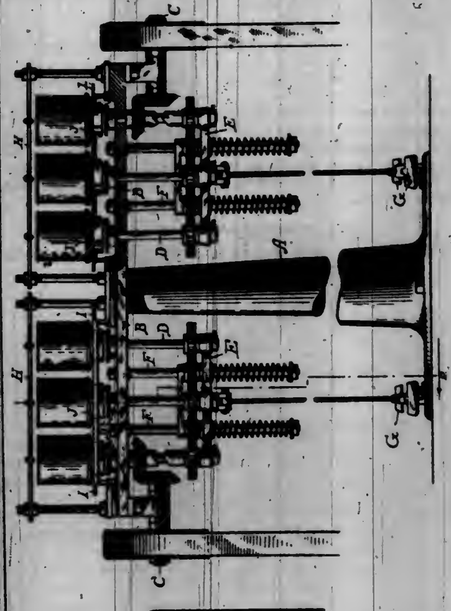
588,337. CAN-CAPPING MACHINE. MICHAEL H. HOWARD, Indianapolis, Ind. Filed July 2, 1897. Serial No. 643,301. (No model.)

Claim.—1. The combination, in a can-capping machine, of a suitable tray or frame, can-receiving cups mounted in said tray or frame and having lugs at the lower side, driving-spindles positioned below said cups and provided with heads having upwardly-extending projections adapted to engage with the lugs on the cups, whereby, when the spindles are raised, said cups are positively engaged and driven, substantially as set forth.

2. The combination, in a can-capping machine, with the standard, the table, the driving-shaft, the can-rotating spindles and the can-holding bars; of trays I having orifices therein, can-receiving cups mounted in said orifices, and heads on said spindles adapted when said spindles are raised to come in contact with, raise and revolve said cups, substantially as shown and described.

3. The combination, in a can-capping machine, of the framework, the driving mechanism, the tray I having orifices, can-carrying cups mounted in said orifices and extending through to below the same, plus j' whereby said cups are prevented from being entirely removed from said orifices, and spindles D having heads D' which are adapted to come in contact with and raise and revolve said cups without removing them from the orifices in the tray, substantially as shown and described.

4. The combination, in a can-capping machine, of a tray or frame I having orifices to receive the vertical portions of the can-carrying cups, said cups having several annular seats of different diameters to receive different-sized cans, with a free opening through the center to the bottom, a lug within said opening, a driving-spindle, a head on said spindle adapted to come in contact with the under side of the cup and provided with a projection adapted to engage with the lug in the opening therein, all substantially as shown and described.



588,338. NUT-LOCK. JOHN W. KA VEAR and CHARLES R. GIBBS, North Decatur, Ga. Filed July 8, 1896. Serial No. 598,454. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt, of a nut thereon having a rectangular shoulder or extension thereon, and a locking-plate having a diagonally-arranged slot therein adapted to be passed around the rectangular extension on said nut.

2. In a nut-lock, the combination with a bolt, of a nut thereon having a rectangular shoulder or extension upon one side thereof, and a locking-plate having a diagonally-arranged slot therein with parallel sides and an open lower end adapted to be passed around the extension on said nut, substantially as and for the purpose described.

3. The combination with a rail and a fish-plate, of a plurality of bolts for securing the fish plate to said rail, nuts upon said bolts having rectangular shoulders or extensions upon their inner surfaces, and a locking-plate having a series of diagonally-arranged slots therein, having parallel sides and open at their lower ends, the said plate adapted to be inserted between the inner surface of the main part of said nut and the outer surface of said fish-plate, with the slots therein embracing the rectangular extensions on said nuts and the upper edges of said plate engaging the under side of the head of the rail, substantially as and for the purpose described.

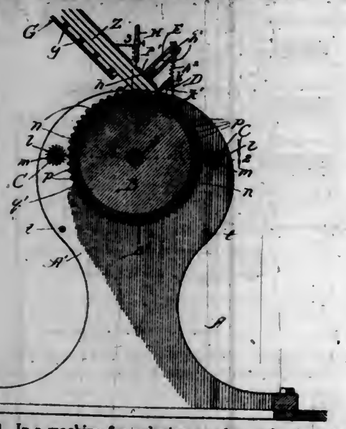
4. The combination with a rail and a fish-plate, of a plurality of bolts for securing the fish-plate to said rail, nuts upon said bolts having rectangular shoulders or extensions upon their inner surfaces, and a locking-plate having a series of diagonally-arranged slots therein, having parallel sides and open at their lower ends, the said plate adapted to be inserted between the inner surface of the main part of said nut and the outer surface of said fish-plate, with the slots therein embracing the rectangular extensions on said nuts and the upper edges of said plate engaging the under side of the head of the rail, the said extensions being thicker than said locking-plate, substantially as and for the purpose described.

588,339. MINER'S PICK. WILLIAM H. KELSO, Butte, Mont. Filed Feb. 13, 1897. Serial No. 624,254. (No model.)



Claim.—A miner's pick comprising the eye 1, the integral arm 2 formed with the socket 3 having orifices 7, in combination with the detachable point 9 having the integral shank 10 provided with the longitudinally-curved orifice 17 and the pin 18, whereby when the shank 10 is inserted in said socket and its inner end abutting against the end wall thereof and the pin driven through the orifices 7 and 17, a portion of the said pin will be bent or knocked out of alinement with the orifices 7, substantially as set forth.

588,340. PULP-GRATING MACHINE. JOHN C. KEMP, Tipton, Ind. Filed July 27, 1896. Serial No. 600,614. (No model.)



Claim.—1. In a machine for reducing wood to pulp, the combination with the supporting-frame, of a rotary grater comprising a wheel having a circumferentially-recessed rim portion, a plate secured upon the wheel about the said rim portion and formed with a series of hollow projecting burs, and a series of discharge-openings, all communicating with said recess, mechanism for feeding the wood and holding it against the said plate, stripper mechanism engaging and moving against the said plate, and a water-discharge pipe for wetting the grater, substantially as and for the purpose set forth.

2. In a machine for reducing wood to pulp, the combination of a grater comprising a wheel surrounded by a plate having a working face formed with hollow projecting burs, and means for feeding the wood and holding it against the plate, comprising a chute, a presser-foot between said wheel and chute, and spring mechanism for said presser-foot, substantially as and for the purpose set forth.

3. In a machine for reducing wood to pulp, the combination of a grater, comprising a wheel surrounded by a plate having a working face formed with hollow projecting burs, and means for feeding the wood and holding it against the plate, comprising a chute, a stop D close to the wheel, a presser-foot between the said stop and chute, spring mechanism for said presser-foot, and means for changing the angle of the chute and presser-foot, substantially as and for the purpose set forth.

588,341. CHECKREIN-HOOK. ALEXANDER W. LAUGHLIN, Odessa, Mo. Filed May 6, 1897. Serial No. 635,330. (No model.)



Claim.—1. In a checkrein-hook, the combination with a post of a hook, the shank of which is swiveled to the post, and is provided with a transverse loop which is adapted to be attached to the crupper-strap of the harness, substantially as set forth.

2. The combination with a post provided with a head, of a checkrein-hook, the shank of which is swiveled in the head, and provided with a transverse loop, the point of the hook when closed being in a plane below that of the transverse loop, substantially as set forth.

588,342. CUSHION-TIRE. THOMAS J. LOVETT, Chicago, Ill., assignor, by direct and mesne assignments, to the Budd Doble Combination Rubber Tire Company, of New York. Filed Mar. 1, 1897. Serial No. 625,544. (No model.)



Claim.—1. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separable crosswise-extending segments of cushioning material, and interposed crosswise-extending sections of a harder material held suspended by the cushioning material and having extended tread portions overlapping the cushioning-segments, the cushioning and cushioned parts being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

2. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separable crosswise-extending segments of rubber, and interposed crosswise-extending sections of metal held suspended by the rubber and having extended tread portions overlapping the rubber sections, the rubber and metal parts being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

3. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separate crosswise-extending segments of cushioning material, and interposed crosswise-extending sections of a harder material, suspended by the cushioning material, and having extended tread portions overlapping the cushioning-segments, the cushioning and cushioned parts having mutually-interlocking surfaces, and being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

4. In combination, a channeled rim provided with a central slot flanked by inward-projecting shoulders presenting sockets on opposite sides of the slot, and a cushion-tire comprising, in combination, separate crosswise-extending segments of cushioning material, approximately filling out the channel at the base thereof, in the direction transversely of the circumference, and crosswise-extending sections of a harder material, held suspended by the cushioning material and having extended tread portions overlapping the cushioning-segments, to form an approximately continuous tread, and extending at opposite sides under the shoulders of the rim, and cushioned by the cushioning material, the parts being held in place under the longitudinal resilience of the cushioning material, substantially as and for the purpose set forth.

5. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, transverse flatwise-abutting alternate cushioning and cushioned sections, tread-sections carried by cushioned sections and overlapping the cushioning-sections, and a flexible retaining-ring for the sections extending longitudinally through the tire, substantially as and for the purpose set forth.

6. In combination, a cushion-tire, comprising transverse flatwise-abutting alternate cushioning and cushioned sections presenting annular engaging shoulders on opposite sides, and tread-sections carried by cushioned sections and overlapping the cushioning-layers, and a rim having an annular channel, for the reception of the tire, and retaining-shoulders for engaging the said shoulders on the tire, substantially as and for the purpose set forth.

7. A cushion-tire for wheels formed with sections D^3 of cushioning material provided with projecting base portions g', and sections D' of metal, between the sections D^3, carrying tread-sections and resting against the said base portions, the sections being fastened together under pressure, substantially as and for the purpose set forth.

8. A cushion-tire for wheels having sections D' of metal carrying metal tread-sections r, sections D^3 of hard material between the sections D', and sections D^3 of cushioning material intervening between the sections D' D^4 and provided with base portions g' against which the harder sections rest, the sections being fastened together under pressure, substantially as and for the purpose set forth.

9. A cushion-tire for wheels having sections D' of metal carrying metal tread-sections r, sections D^3 of hard material between the sections D', and sections D^3 of cushioning material intervening between the sections D' D^3 and provided with base portions g' against which the harder sections rest, the sections being provided with interlocking faces and fastened together under pressure, substantially as and for the purpose set forth.

588,343. TIRE. THOMAS J. LOVETT, Chicago, Ill., assignor, by direct and mesne assignments, to the Budd Doble Combination Rubber Tire Company, of New York. Filed Mar. 1, 1897. Serial No. 625,545. (No model.)



Claim.—1. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separate crosswise-extending segments of cushioning material, and interposed crosswise-extending sections of a harder material, held suspended by the cushioning material and forming tread portions, the cushioning and cushioned parts being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

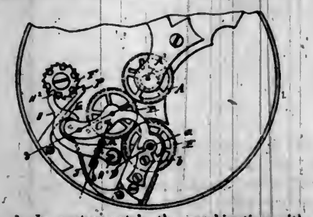
2. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separate crosswise-extending segments of rubber, and interposed crosswise-extending sections of metal held in cushioned suspension by the rubber and forming tread portions, the cushioning and cushioned parts being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

3. As a new article of manufacture, a cushion-tire for wheels, comprising, in combination, separate crosswise-extending segments of cushioning material, and interposed crosswise-extending sections of a harder material, held suspended by the cushioning material and forming tread portions, the cushioning and cushioned parts having mutually interlocking surfaces and being held under longitudinal pressure in crosswise-abutting relation, substantially as and for the purpose set forth.

4. In combination, a channeled rim provided with a central slot flanked by inward-projecting shoulders presenting sockets on opposite sides of the slot, and a cushion-tire comprising, in combination, separate crosswise-extending segments of cushioning material, approximately filling out the channel at the base thereof in the direction transversely of the circumference, and crosswise-extending sections of a harder material interposed in the tread portion of the tire and extending at opposite sides under the shoulders of the rim and cushioned by the cushioning material, the parts being held in place under the longitudinal resilience of the cushioning material, substantially as and for the purpose set forth.

5. A cushion-tire for wheels, comprising, in combination, sections D^3 of cushioning material provided with projecting base portions r, and protecting-pieces D' provided on opposite faces with engaging shoulders, the sections D' being between sections D^3 and resting against the base portion r, and all the sections being fastened in place under pressure, whereby the said shoulders interlock with the material of the cushioning-sections, substantially as and for the purpose set forth.

588,344. STOP-WATCH. HENRY A. LOCKIE, Brooklyn, N. Y., assignor to Albert Wittnauer, New York, N. Y. Filed Mar. 11, 1896. Serial No. 582,731. (No model.) Patented in Switzerland Nov. 4, 1896, No. 5,631.



Claim.—1. In a stop-watch, the combination with a central toothed wheel, of a toothed wheel on the fourth-wheel arbor, a pivoted lever having its pivotal point concentric with the fourth-wheel arbor, a toothed wheel mounted on said pivoted lever and constantly engaged with the toothed wheel on the fourth-wheel arbor, and adapted to be engaged with the central toothed wheel, a ratchet-wheel, a pivoted spring-pressed intermediate lever, having its free end engaged with the teeth of the ratchet-wheel and which lever is also engaged with the free end of the lever carrying the toothed wheel and an adjustable stop for adjusting the throw of the intermediate lever, substantially as herein shown and described.

2. In a stop-watch, the combination with a central toothed wheel, of a toothed wheel on the fourth-wheel arbor, a pivoted lever having its pivotal point concentric with the fourth-wheel arbor, a toothed wheel mounted on said pivoted lever and constantly engaged with the toothed wheel on the fourth-wheel arbor, and adapted to be engaged with the central toothed wheel, a ratchet-wheel, a pivoted spring-pressed intermediate lever, having its free end engaged with teeth of the ratchet-wheel and which lever is also engaged with the free end of the lever carrying the toothed wheel, a lug on the under side of said intermediate lever, a set-screw in said lug, and a stop on the plate of the movement against which stop the end of said screw can rest, substantially as herein shown and described.

588,345. SCAFFOLDING-JACK. ALVORD O. MANNING, Orange, Mass. Filed May 7, 1897. Serial No. 635,484. (No model.)



Claim.—1. In a device of the class described, the combination of the connected arms A and B, the hook-pieces 10 and 11 extending from the arm A, and a single locking-section 12 arranged between the hooks 10 and 11, and pivotally connected to the arm A to lock said hooks into engagement with the round of a ladder, substantially as described.

2. In a device of the class described, the combination of a horizontal arm A, a downwardly-extending, inclined arm or prop B, and means for adjustably connecting said arms, comprising a notched piece or rack 14, a retaining piece or strip 16 arranged below said rack, pieces 17 extending up from the arm B on opposite sides of the retaining-piece 16, and a cross pin or bolt 18 carried by said pieces for engaging the notched rack 14, substantially as described.

3. In a device of the class described, the combination of a horizontal arm A, hooks 10 and 11 extending from opposite sides of said arm, a single locking-piece 12 arranged between said hooks and pivotally connected to the arm A to lock said hooks into engagement with a ladder-round, an inclined, downwardly-extending arm or prop B, and means for adjustably connecting the arms A and B, comprising the notched rack 14, the retaining-strip 16 carried by the arm A, pieces 17 extending up from the arm B on opposite sides of the retaining-strip 16, and a cross-pin 18 secured in said pieces, substantially as described.

588,346. NUT-LOCK. ARTHUR MIREAULT, Fort William, Canada. Filed Dec. 1, 1896. Serial No. 614,059. (No model.)



Claim.—In a nut-lock, the combination of two devices to be connected, a threaded bolt extending through said devices and having a longitudinal groove, the annulus arranged on the bolt and having an inwardly-extending projection entering the groove of the bolt and also having the marginal flange provided at opposite points with notches f, a coiled spring surrounding the bolt and arranged within the flange of the annulus, the washer F arranged on the bolt against the spring and having radially-extending projections arranged in the notches of the annulus and an inwardly-extending projection arranged in the groove of the bolt and also having a beveled pawl on its outer side and the nut arranged on the bolt and having the ratchet-teeth at its inner side adapted to be engaged by the pawl of the washer, said teeth being provided with beveled faces and square ends all substantially as and for the purpose described.

588,347. SAFETY TRACE-EYE. OLE L. MYAER, Star Prairie, Wis. Filed Dec. 4, 1896. Serial No. 614,408. (No model.)

Claim.—1. In a trace-eye, the combination of the loop i, of a

width equal to the length of the slide-block D, and having the thickened portion *m*, at the top, the slide-block D, adapted to slide within the loop *i*, and having semicircular depressions *k*, in its edges and a central opening *o*, the rod E, threaded at the lower end, and surrounded with a coil-spring F, with the body portion C, having the projecting portions *h*, adapted to carry a screw-bolt, substantially as set forth.

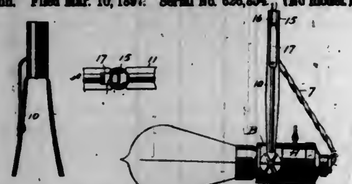


2. The combination in a trace-eye of the body portion C, having a central threaded opening, the loop *i*, of a width equal to the length of the slide-block D, and having a thickened portion at its opposite end, the rod E, threaded to enter the threaded central opening in the body portion C, and the coil-spring F, with the slide-block D, having semicircular depressions *k*, in its edges, a central opening *o*, and a projecting portion *p*, on its lower end surrounding the opening *o*, substantially as shown and described.

3. The combination with a trace-eye having a loop of the same width as the length of the slide-block D and a thickened portion *m*, at the top, of the adjustable rod E, carrying the coil-spring F, and the slide D, having the semicircular depressions *k*, in its edges, the central opening *o*, to receive the rod E, and the projecting portion *p*, surrounding said opening to form a greater bearing-surface within said opening, substantially as set forth.

4. A trace-eye consisting of a body portion, having a central threaded opening, to receive a like threaded rod, a loop forming the eye, said loop being of the same width as the length of a slide-block adapted to slide inside of said loop, and having a thickened portion at its rounded end, a rod threaded at one end to enter the threaded opening in the body portion and surrounded by a coil spring, a slide-block having semicircular depressions in its edges to form guides, and having a central opening, which said rod is adapted to enter, substantially as shown and described.

588,848. HOLDER FOR INCANDESCENT LAMPS. CHARLES H. OTIS, Orange, Conn., assignor of one-half to C. H. McKirdy, New Britain, Conn. Filed Mar. 10, 1897. Serial No. 626,854. (No model.)



Claim.—1. A holder for incandescent lamps, consisting of the clasp or collar adapted to embrace the neck of the lamp, and to be detachably secured thereon, the bracket-arms pivoted to said clasp at one of their ends, and a wire-receiving socket at the other end of said arms by which to attach them to the wires or cords, substantially as described and for the purpose specified.

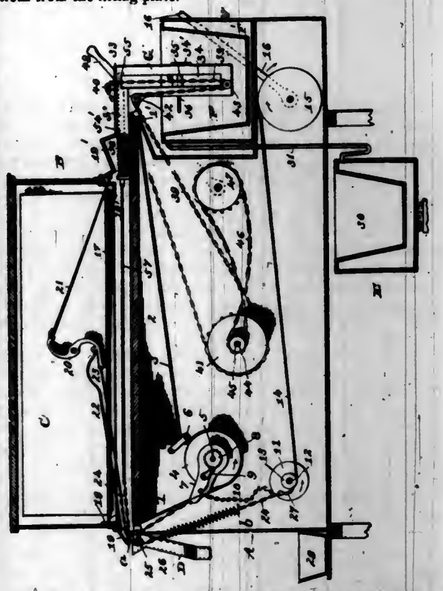
2. A holder for incandescent lamps adapted to be detachably secured thereto, said holder having the bracket-arms for suspending the lamps, said arms having sockets 15 and 16 slotted upon one side, and adapted to be slipped endwise, one within the other, substantially as described and for the purpose specified.

3. In a holder for incandescent lamps, the combination of the suspension-bracket arms, with the clasp or collar pivotally riveted to the lower ends of said arms, and shallow recesses and projections in and on said arms and collar, the same being adapted to be forced out of engagement to permit the lamp to be changed in position on its rivets by force and to spring into engagement for holding the lamp in position after being thus changed substantially as described.

588,849. MACHINE FOR DIPPING CHOCOLATE DROPS. PANAGIOTIS PAPOULIAS, New York, N. Y. Filed Nov. 18, 1896. Serial No. 612,606. (No model.)

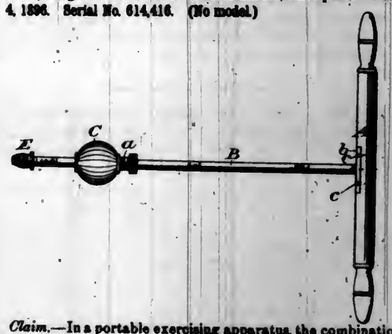
Claim.—1. In a chocolate-drop-dipping machine, the combination of suitable frames, a lifting-plate in the frames formed with fingers to carry the confections, a shifting board carried by the lifting-plate, frames in the shifting board to push the confections from the fingers, a rock-shaft having arms to hold the confections on the said fingers, means to raise and lower the said plate and board, and means to shift the board back and forth.

2. In a chocolate-drop-dipping machine, the combination of a chocolate-containing vessel, frames in the vessel formed with vertical ways therein, a lifting-plate arranged in the said ways and provided with a series of fingers to receive and carry confections, a supporting frame bar under the fingers, means to raise and lower the said plate, a shifting board on the said plate having frames 51 projecting therefrom, means to move the shifting board on a horizontal plane, a rock-shaft journaled on the shifting board, arms in the rock-shaft to hold the confections on the said fingers, and a table to receive the confections from the lifting-plate.



3. In a chocolate-drop-dipping machine, the frames G, G', the lifting-plate 35 having fingers 36 and frame 37; the shifting board H having frames 51, the rock-shaft 52, the arms 53, on the rock-shaft, the table 2, and the endless apron 3, all arranged and combined to operate substantially as described.

588,850. EXERCISING DEVICE. FRANK P. PERKINS, Brooklyn, N. Y., assignor of one-half to William Larder, same place. Filed Dec. 4, 1896. Serial No. 614,416. (No model.)

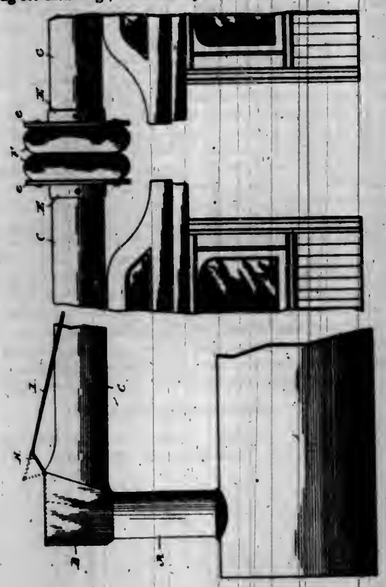


Claim.—In a portable exercising apparatus, the combination of a hand-bar, a rod secured to said bar to project laterally therefrom, an internally-screw-threaded weight fitted to slide upon said rod and an externally-threaded clamping-nut fitted to slide on said rod and screwing into the internal screw-thread of the weight, substantially as herein described.

588,851. SMOKE-STACK. GEORGE M. PIERCE, Madison, Wis. Filed Oct. 13, 1896. Serial No. 608,738. (No model.)

Claim.—1. The combination with two sections of a pipe, of rings secured to the adjacent ends thereof and provided each with an annular flange, and pneumatic tubes in the form of rings secured to said flanges outside the peripheries of said pipes, said pneumatic rings arranged with their adjacent faces in contact, substantially as described.

2. The combination with two sections of a pipe, of rings secured to the adjacent ends thereof and provided each with an annular flange, and pneumatic tubes in the form of rings secured to said flanges outside the peripheries of said pipes, said pneumatic rings arranged with their adjacent faces in contact, and a non-combustible covering for said rings, substantially as described.



588,852. CURRYCOMB. LOUIS POWELL, Beaver Crossing, Nebr. Filed Aug. 7, 1896. Serial No. 602,055. (No model.)

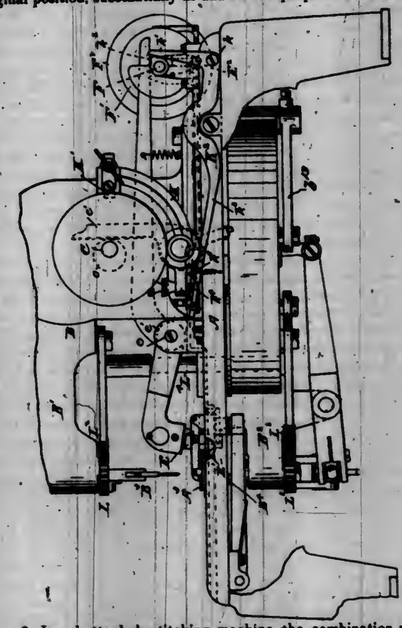


Claim.—In a currycomb, the combination with a back, of a handle connected thereto, rows of teeth connected to the back, a cleaning-plate having openings through which the said teeth can pass, uprights connected to said cleaning-plate and provided with reduced portions which work through openings in the back, the shoulders thus formed serving as abutments for the back to limit the movement of the same toward the cleaning-plate, pins passing through the reduced portions on the opposite side of the back from the shoulders aforesaid, and coil-springs encircling the uprights and located between the back and the cleaning-plate, the said parts being so disposed and related that the springs are adapted to keep the teeth normally housed in the openings of the cleaning-plate and the movement of the back toward the cleaning-plate to project the teeth through the latter.

588,853. BUTTONHOLE-SEWING MACHINE. FREEMAN P. RAYMOND, 2d, Newton, Mass. Filed July 18, 1892. Serial No. 440,390. (No model.)

Claim.—1. In a buttonhole-stitching machine, the combination with the stationary bed of the machine provided with two slideways, of a traveling frame movable back and forth on one of said slideways, a buttonhole-stitching mechanism carried by said traveling frame, means for causing said frame to travel back and forth to carry the said stitching mechanism about a buttonhole-slit, a clamping work-holding device movable in the other of said slideways, a buttonhole-cutting mechanism which is stationary relative to the said traveling frame, means for moving the said clamping work-holding device to the cutter of the said buttonhole-cutting mechanism when a buttonhole is to be cut and for returning said clamping work-holding device to its normal position, where it will remain stationary until the next buttonhole is to be cut, and connecting mechanism, whereby when the machine is started the clamping work-holding device will first be moved to the buttonhole-cutter and then instantly returned to its initial position and remain stationary while the buttonhole-stitching mechanism will be caused to travel about a buttonhole-slit to stitch the buttonhole, substantially as set forth.

2. The combination in a buttonhole-stitching machine of the bed-plate of the machine, a frame carrying the stitching devices at its forward end or ends, movable upon such bed, a cam-disk having a step-by-step rotation imparted to it, cams in said disk connected with said frame and constructed to move the same only the length of the buttonhole to be stitched, and to carry the stitching mechanism about the eye of the buttonhole, means for rotating the stitching devices a half-revolution during the stitching of the eye, and for holding them against rotation during the stitching of the sides of the buttonhole, including the cam L^4 in the cam-disk, constructed to permit the immediate movement of the mechanism for rotating the stitching devices at the end of the stitching of the last side of the buttonhole, and a spring connected with said mechanism to actuate it at the end of the stitching operation to turn back the stitching devices to their original position, substantially as and for the purposes described.



3. In a buttonhole-stitching machine, the combination with a stationary bed, of work-clamps supported by said bed, a traveling frame mounted on said bed, stitch-forming devices carried by said traveling frame, the traveling-frame-actuating cams also carried by said traveling frame, the disk B^3 provided with the cam-groove L^4 connected with said stitch-forming devices and having the rests *l* and l^2, the operative section l' and the release-section l^3, and means for returning said stitch-forming devices to their initial positions, substantially as described.

4. In a buttonhole-stitching machine, the combination with the stationary bed of the machine, the traveling frame mounted thereon, the stitch-forming devices carried by said frame and movable therewith, the shaft C provided with means for actuating the said stitch-forming devices, the eccentric e on said shaft, the cam-disk having cams connected with said frame and constructed, as specified, to move it only the length of the buttonhole to be stitched, a cam constructed, as specified, to rotate the stitch-forming devices in one direction only, means for returning said stitch-forming devices to their initial position, a clutch to engage the said cam-disk, and an intermediate clutch-actuating lever operated by said eccentric, and members of a clutch upon the said shaft C, all constructed and arranged, as specified; whereby upon the engagement of these members of the clutch the said shaft is actuated and the stitch-forming devices and the cam-disk, or frame-moving mechanism, simultaneously started, as and for the purposes described.

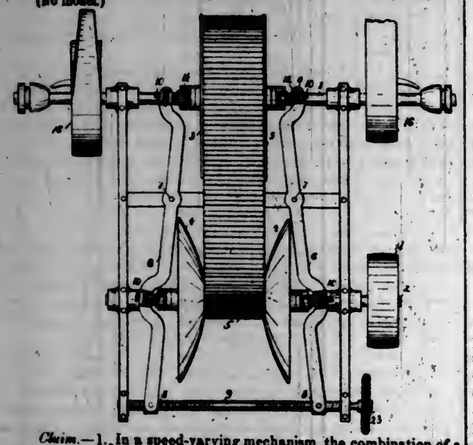
5. In a buttonhole-stitching machine, the combination with the stationary bed of the machine provided with two slideways, of a traveling frame movable back and forth on one of said slideways, a buttonhole-stitching mechanism carried by said traveling frame, means for causing said frame to travel back and forth to carry the said stitching mechanism about a buttonhole-slit, a clamping work-holding device movable in the other of said slideways, a buttonhole-cutting device mounted on said stationary bed of the machine, start and stop motion mechanism for said shaft and devices on said shaft,

connected with the clamping work-holding device and buttonhole-cutting mechanism and serving to move the said work-holding device to the cutting mechanism and to actuate the said cutting mechanism to form a slit in the material held by the clamp and to separate the members of the clamps, and means for returning the said clamping work-holding device to stitching position after a buttonhole has been cut.

6. In a buttonhole-stitching machine, the combination with the stationary bed of the machine provided with two slideways, of a traveling frame movable back and forth on one of said slideways, buttonhole-stitch-forming devices carried by said traveling frame, the shaft C mounted in said traveling frame and provided with means for operating said stitch-forming devices, start and stop motion mechanism for said shaft, means for causing said frame to travel back and forth to carry the said stitch-forming devices about a buttonhole-slit, a normally stationary work-holding device movable in the other of said slideways, buttonhole-cutting devices fixedly mounted upon said stationary bed, the shaft F also mounted upon said stationary bed, start and stop motion mechanism for the said shaft F, and means, carried by the said shaft F, for moving the said work-holding device to the buttonhole-cutter and for operating said cutter, and means for returning the said work-holding device to its initial or stitching position; whereby when the machine is started the work-holding device will be moved to the buttonhole-cutter, a buttonhole-slit cut, said work-holding device be instantly returned to stitching position, the said stitch-forming devices then be set in operation and caused to travel about the stationary buttonhole-slit for the purpose of working a buttonhole and the machine then be automatically stopped, substantially as described.

7. In a buttonhole-stitching machine, the combination with the stationary bed of the machine provided with two slideways, of a traveling frame movable back and forth on one of said slideways, a buttonhole-stitching mechanism carried by said traveling frame, means for causing the said frame to travel back and forth to carry the said stitching mechanism about a buttonhole-slit, a clamping work-holding device movable in the other of said slideways, a buttonhole-cutting mechanism which is stationary relative to the said traveling frame, means for moving the said clamping work-holding device to the cutter of said cutting mechanism when a buttonhole is to be cut and for returning said clamping work-holding device to its initial position, the said buttonhole-stitching mechanism and the said buttonhole-cutting mechanism being independent of each other, and the latter being stationary relative to the former, and means for successively operating the said mechanisms so that when the said cutting mechanism is in operation the said stitching mechanism will be at rest, and vice versa; whereby when the machine is set in operation the work will be quickly moved to the buttonhole-cutter, the buttonhole cut, the work instantly returned to its normal stationary position and the said stitch-forming mechanism then be set in operation and be caused to travel about the buttonhole-slit to work the buttonhole.

588,354. VARIABLE-SPEED COUNTER-SHAFT. MILTON O. REEVES and ERNEST K. HOOD, Columbus, Ind., assignors to the Reeves Pulley Company, same place. Filed Mar. 25, 1897. Serial No. 629,160. (No model.)
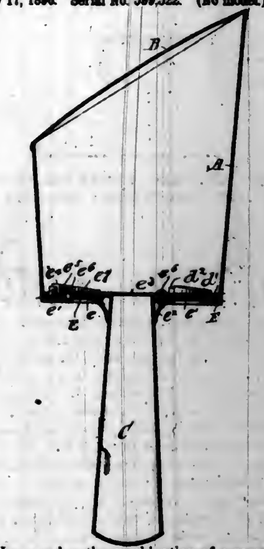


Claim.—1. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements splined to each shaft, a belt connecting the pairs, levers pivoted between the shafts and adjacent to the corresponding driving elements of each pair, and a transversely-adjustable connection between one or more of the levers and its corresponding driving element, substantially as and for the purpose set forth.

2. In a variable-speed counter-shaft, the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements, splined to each shaft, a belt connecting the pairs, levers pivoted between the shafts, and adjacent to the corresponding driving elements of each pair, threaded studs carried by the lever and engaging with thrust-collars contacting with the hubs of the driving elements, and means for adjusting the studs transversely relatively to the lever, substantially as and for the purpose set forth.

3. In a variable-speed counter-shaft, the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements splined to each shaft, a belt connecting the pairs, levers pivoted between the shafts and adjacent to the corresponding driving elements of each pair, threaded studs carried by the levers, and engaging with thrust-collars contacting with the hubs of the driving elements and lock-nuts, mounted on the studs and adapted to jam against the levers, substantially as and for the purpose set forth.

4. In a variable-speed counter-shaft the combination of a frame, two parallel shafts mounted therein, a pair of cone-shaped driving elements, splined to each shaft, a belt connecting the pairs, levers pivoted between the shafts, and adapted to actuate the driving elements, a direct and reverse clutch carried by one of the shafts, a shifter adapted to actuate either clutch and a pulley secured to the other shaft and adapted to carry a belt connecting with a machine to be operated, substantially as and for the purpose set forth.

588,355. SANDER. TERENCE F. REILLEY, New York, N. Y. Filed July 17, 1896. Serial No. 599,522. (No model.)

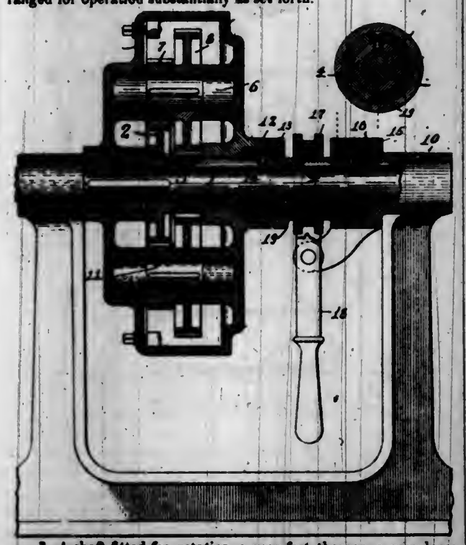


Claim.—In a sander, the combination of a receptacle having a rim rigidly secured thereto and provided with a sunk cone-shaped portion having inclined segmental projections, and a cover provided with a sunk cone-shaped portion adapted to be seated upon said cone-shaped portion, and having secured thereto a handle and a disk, the latter having inclined segmental projections adapted to interlock with those of the rim, substantially as described.

588,356. PLANETARY GEARING. WINFIELD S. ROGERS, Cincinnati, Ohio. Filed Mar. 8, 1897. Serial No. 626,460. (No model.)

Claim.—1. A shaft fitted for rotation, a main wheel mounted upon and arranged for free rotation with reference to said shaft, a planet-axle carried directly by said main wheel parallel with said shaft, a pair of united planet-wheels on said planet-axle, a gear fixed on said shaft and gearing with one of said planet-gears, a gear loose on said shaft and loose relative to said main wheel and engaging the other of said planet-gears, and two clutches adapted alternatively to lock said loose gear to said main wheel and to lock said loose gear against rotation, combined and arranged for operation substantially as set forth.

2. A shaft fitted for rotation, a main wheel mounted upon and arranged for free rotation with reference to said shaft, a planet-axle carried directly by said main wheel parallel with said shaft, a pair of united planet-wheels on said planet-axle, a gear fixed on said shaft and gearing with one of said planet-gears, a gear loose on said shaft and loose relative to said main wheel and engaging the other of said planet-gears, a clutch having fixed connection with said loose gear and adapted to be engaged with said main wheel, a second clutch having fixed relation with said loose gear and adapted to be engaged with a clutch element fixed against rotation, and devices for producing the alternative engagement of said clutches, combined and arranged for operation substantially as set forth.



3. A shaft fitted for rotation, a gear fast thereon, a gear loose thereon and having an extended hub, a friction-clutch carried by said extended hub, a clutch element fixed against rotation and adapted to be frictionally engaged by said friction-clutch, a main wheel mounted for rotation on said hub independent of said loose gear, planet-gears carried directly by said main wheel and engaging the before-mentioned gears, a second friction-clutch carried by said extended hub and adapted for frictional engagement with a clutch element carried by said main wheel, and devices for alternatively engaging said clutches to lock said loose gear to the main wheel or to said fixed clutch element.

588,357. FAUCET. REUBEN ROWE, Dover, N. J. Filed Apr. 30, 1897. Serial No. 633,008. (No model.)



Claim.—1. The herein-described improved faucet, comprising a casing having an inlet and an outlet, a stem working in said casing having an enlarged tapered valve end adapted to automatically close said inlet, said end being hollowed, and an annular flange formed on said stem against which water is designed to strike, substantially as set forth.

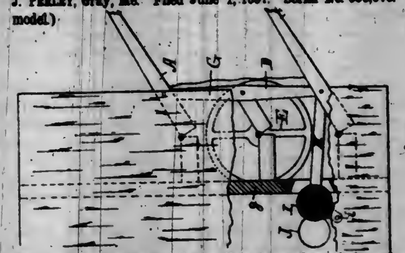
2. The herein-described improved faucet, comprising a casing having an inlet and an outlet, a stem working in said casing having an enlarged tapered valve end adapted to automatically close said inlet, and an annular flange formed on said stem against which water is designed to strike, said stem being cut away intermediate of said flange and said valve end, substantially as set forth.

3. The herein-described improved faucet, comprising a casing having inlet and outlet openings, said inlet-opening being tapered, and a stem working in said casing having an enlarged tapered end adapted to fit in said tapered inlet-opening and close the same, said end being hollowed, and an annular flange formed on said stem, the latter being provided with cut-away portions intermediate of said flange and said enlarged portion, substantially as set forth.

4. The herein-described improved faucet, comprising a casing having an inlet and an outlet, plates or partitions secured in said casing between said inlet and said outlet, said plates or partitions having cut-away portions, and a stem projected through said plates or partitions and having an enlarged tapered end adapted to automatically close said inlet, said stem having cut-away portions adjacent said enlarged end, substantially as set forth.

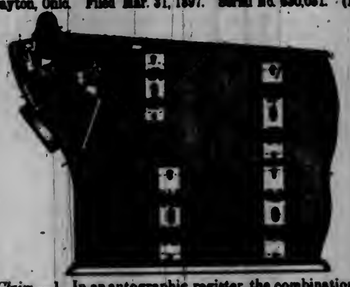
5. The herein-described improved faucet, comprising a casing having an inlet and an outlet, a stem working in said casing having an enlarged tapering end adapted to automatically close said inlet, said stem having teeth near its forward end, and a spring secured to the exterior of said casing and having an angular end adapted to engage said teeth, substantially as set forth.

588,358. RAILROAD-SIGNAL. PARKER W. SAWYER and CYRUS J. PERLEY, Gray, Me. Filed June 1, 1897. Serial No. 638,970. (No model.)



Claim.—The herein-described railroad-signal consisting of a casing divided by a vertical partition into a front or flag chamber and a rear or light chamber, a pair of arms pivoted one above the other in said flag-chamber for holding the signal-flag, a cross-bar pivoted to said arms for preserving their parallelism, means for raising and lowering said arms, said rear chamber being provided with one or more openings for the display of a signal-light, a shutter for each of said openings and a link connecting said shutters with one of said arms.

588,359. AUTOGRAPHIC REGISTER. THEODOR F. SOMERER, Dayton, Ohio. Filed Mar. 31, 1897. Serial No. 630,081. (No model.)



Claim.—1. In an autographic register, the combination, substantially as set forth, of a casing, a lid thereto, an end door to the casing, a lock secured upon the end door and having a single bolt adapted to shoot sidewise into engagement with the casing-wall at one edge of the door, and having a tail projecting out of the lock-case from said bolt, a second independent bolt mounted on the door and adapted to shoot into engagement with the casing-wall at the opposite edge of the door, and a connection between said lock-bolt and independent bolt whereby they move outwardly and inwardly in unison.

2. In an autographic register, the combination, substantially as set forth, of a casing, a lid hinged thereto and having latch-hooks at its free end within the casing, an end door to the casing in position to cover said latch-hooks, and a spring-latching device located entirely within the casing and adapted to be at all times automatically engaged by the latch-hooks of the lid when the lid is being closed, regardless of whether said end door be locked or unlocked.

3. In an autographic register, the combination, substantially as set forth, of a casing, an end door hinged thereto, a lid hinged to the casing and having latch-hooks at its free end, a rock-shaft journaled in said casing independent of said lid and door below said latch-hooks and having a finger-piece covered by said lid and door, hooked arms fast on said rock-shaft and adapted to engage said latch-hooks, and a spring acting on said rock-shaft and urging said arms to engaging position.

4. In an autographic register, the combination, substantially as set forth, of a casing, a holder for the supply of transfer-paper mounted at one side of the top of the casing, and a pivoted spring-finger mounted on a pivot upon the opposite side of the casing to one side of the

path of the transfer-paper and projecting its finger portion into said path.

5. In an autographic register, the combination, substantially as set forth, of a casing, a holder for the supply of transfer-paper mounted upon one side of the top of the casing, a pivoted spring-finger mounted upon the opposite edge of the top of the casing on a pivot to one side of the path of the transfer-paper and projecting its finger portion into said path, a lid hinged to the casing, and a curtain pivoted to the lid and depending therefrom over the gripping end of said spring-finger.

6. In an autographic register, the combination, substantially as set forth, of a casing, a lower main feed-roll mounted in rigid bearings therein, an upper main feed-roll mounted therein and provided with springs to press it downwardly, plates engaging the journals of the upper feed-roll and having slotted engagement with the journal of the lower feed-roll, a rock-shaft mounted in the casing below said feed-rolls and provided with a finger-piece, and arms on said rock-shaft engaging the lower ends of said plates and serving, as the rock-shaft is rocked, to elevate said plates.

7. In an autographic register, the combination substantially as set forth, of a pair of feed-rolls having one of its rolls spring-pressed, star-wheels on the other one of said rolls, a rock-shaft parallel with said rolls and provided with a finger-piece, and toggles connecting said rock-shaft with said spring-pressed roll and serving to move said spring-pressed roll away from its fellow roll, said toggles being in position to be engaged by the teeth of said star-wheels when the toggle is in active position.

8. In an autographic register, the combination, substantially as set forth, of a casing, paper-holding and paper-moving mechanism inclosed thereby, a hinged door, a lock thereto, a counting-register, inclosed by said casing and door and connections between said lock and counting-register whereby the counting-register is operated by the key of said lock from the exterior of the casing.

9. In an autographic register, the combination, substantially as set forth, of a casing, feed-rolls mounted therein, a crank for turning said feed-rolls, a toothed gear connected with said feed-rolls, a stop-pawl to prevent the backward turning of said feed-rolls, and a finger-lever carrying a pawl adapted to engage said toothed gear and preventing the forward turning of said feed-rolls.

10. In an autographic register, the combination, substantially as set forth, of a casing, a spindle supported removably in openings in the walls thereof, a non-rotary disk-surface at the inner wall of said casing around said spindle, and engaged directly by a roll of paper on the spindle and a spring-blade having both its ends engaging the opposite wall of said casing and having a central perforation around said spindle.

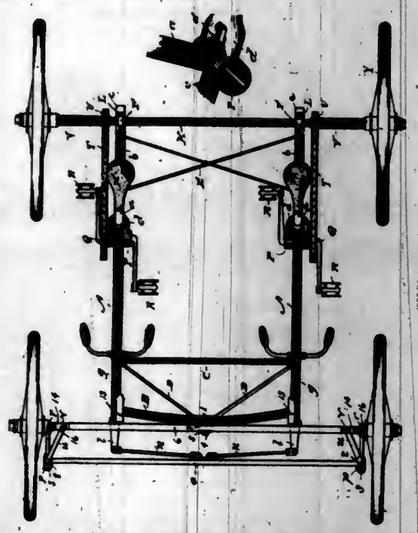
588,360. RAIL-CHAIR. JAMES H. SHOPE, Dunbar, Pa. Filed Apr. 12, 1897. Serial No. 631,785. (No model.)



Claim.—A chair for railway-rails, comprising in combination, arms adapted to be spiked to the ties, and provided with an upwardly-extending web-embracing head having outwardly-projecting pins and an outwardly-projecting base adapted to support the rails, said base being provided with an opening and with a bolt-hole, and upon its upper side with a cross-head having an apertured boss, a clamping-plate having holes to receive the pins aforesaid, and an inclined arm provided with a bolt-hole and a bolt passed through the boss and the said arm, and provided with a nut for clamping the parts, substantially as set forth.

588,361. CYCLE. BENJAMIN F. SHUEY, Marion, Ohio, assignor of one-third to Edward Huber, same place. Filed Jan. 11, 1897. Serial No. 618,721. (No model.)

Claim.—1. In a cycle of the character shown and described, two frame branches A, A, a front axle horizontally pivoted to a cross-bar of the frame, wheels swiveled to the ends of said axle, a guiding-handle carried by each branch of the frame, tillers, pitmen, a cross-bar and arms connecting said handles with the spindles of said wheels, and pivoted links carried by the axle and slidingly engaging with said arms to limit the deflection of the wheels, clips on the rear of each branch, means to adjust the clips rearward, a rear axle mounted in said clips, a pedal-shaft in each branch carrying a sprocket-wheel, a chain on each sprocket-wheel, a wheel on each end of the rear axle with a pinion on the inner end of the hub of each of said wheels, said pinions carrying said chains, the slack of which is taken up by the rearward adjustability of said clips, cross-braces between said branches at the front and rear, said sprocket wheels, pinions and chains being on the outside of the branches to clear said braces, and both of said axles with their wheels extending beyond the branches about one-fourth their length to permit the forward wheels to swivel enough to turn short and the rear wheels to give space between them and the chains for the operators.

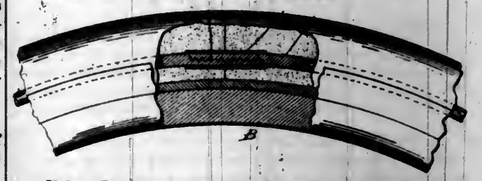


2. In a cycle, the combination with a frame composed of two branches having a cross-bar, of a front axle connected thereto, wheels swiveled to the axle, actuating handles carried by each branch of the frame, connections between said handles and said wheels, including arms secured to the head of the wheel-spindles, and a limiting device which determines the extent the wheels may be deflected by the handles, said device consisting of said arms and of links slidingly connected to said arms and pivoted to the axle.

3. In a cycle, the combination with a frame composed of two branches having a cross-bar, of a front axle pivoted thereto, wheels swiveled to the axle, a guiding-handle carried by each branch of the frame, tillers, pitmen, a cross-bar and arms connecting said handles with the spindles of said wheels, and pivoted links carried by the axle and slidingly engaging with said arms to limit the deflection of the wheels.

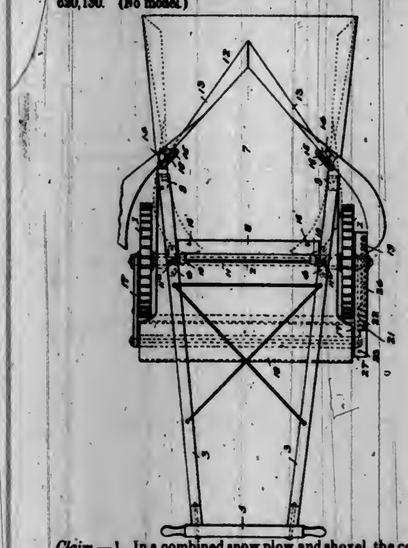
4. In a cycle, the combination with the front axle, wheels swiveled thereto whose spindles have slotted arms, a cross-bar and links pivoted to the axle and with the cross-bar connected to said arms through pins in said slots, a frame having guiding-handles and means connecting said handles with the cross-bar.

588,362. CUSHION-TIRE. GEORGE A. SMITH, Chicago, Ill. Filed Mar. 27, 1897. Serial No. 629,486. (No model.)



Claim.—The combination of a solid cushion-tire provided with one or more longitudinally-extending bores and seated in the peripherally-arranged channel of a wheel-rim; a fastening-wire extending through each bore of the tire and having lapping, interlocking end portions provided with corresponding offsets formed with toothed faces and arranged to meet and form a band having its diameter along the joint corresponding with its diameter back of the joint; and a sleeve confined within the tire and arranged over the joint in the wire band to prevent lateral displacement of the lapping end portions of the wire and having its bore corresponding with the diameter of the wire band both along the joint and back of the same, substantially as described.

588,363. COMBINED SNOW PLOW, SHOVEL, AND SWEEPER. JESSE A. STAUFFER, McKeesport, Pa. Filed Jan. 21, 1897. Serial No. 620,130. (No model.)



Claim.—1. In a combined snow plow and shovel, the combination with the bottom of the shovel, of a plow the moldboards of which are connected to the bottom of the shovel and capable of being spread apart to form sides for the shovel, substantially as set forth.

2. In a combined snow plow and shovel, the combination with the supporting-wheels and their axle, of handles pivoted to the said axle, the shovel pivoted to the front ends of the handle, and a plow having moldboards pivoted to said shovel and capable of being swung out to form sides for the shovel, and means for locking the moldboards to the shovel in their position as a plow, or in their position as the sides of the shovel, substantially as set forth.

3. In a combined snow plow and shovel, the combination with the supporting-wheels and axle, the handle-bars hung on said wheels, a shovel-bottom having its rear end curved upward, spring-hooks projecting upward from said curved portion, a cross-rod connected to the handles and adapted to be engaged by the spring-hooks, a hinged connection between the front ends of the handle-bars and the bottom of the shovel, and moldboards pivoted to the shovel-bottom to serve either as a plow or as sides for the bottom, substantially as set forth.

4. In combination, the supporting-wheels, an axle, handle-bars hung on said axle, a shovel connected to said handle-bars in advance of the supporting-wheels, a rotary brush arranged at the rear of the supporting-wheels and having a geared connection with the axle of the same, and a receptacle hung from the axle immediately in advance of the brush, and provided with a curved shield at the rear of the brush, substantially as set forth.

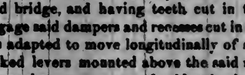
5. In a combined snow plow and shovel, the combination with the bottom of the shovel, the rear end of which is curved upward and forwardly, of moldboards pivoted to the shovel and adapted to have their rear ends swung inwardly under the upwardly and forwardly curved end of the shovel, and means for clamping the rear ends of the moldboards in that position, substantially as set forth.

6. In combination, the supporting-wheels and their axle, the handle-bars, the combined plow and shovel hinged to the forward end of the handle-bars, hanger-arms journaled on the axle and carrying at their rear ends a rotary brush, a receptacle hung from the axle and arranged immediately in advance of the brush, and a hook and eye for supporting the brush and the receptacle from the handle-bars when not in use, substantially as set forth.

588,364. BICYCLE-VALVE. JOHN A. STEURER, New York, N. Y. Filed May 14, 1897. Serial No. 636,531. (No model.)

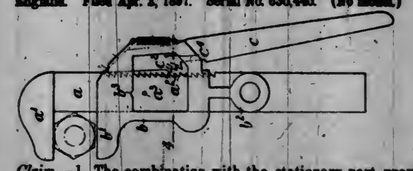
Claim.—1. In an apparatus for sealing hollow valve-stems, the combination of a cap for engaging the said stem provided with an internal ledge and an aperture, of a valve located in the said cap above the ledge and provided with a stem extending through the aperture, the said valve being freely movable in the said cap and being wholly unsupported therein save by the ledge aforesaid, substantially as described.

2. In an apparatus for sealing valve-stems, the combination of a cap provided with means for engaging the stem, and provided with a ledge and aperture, of a valve located in the cap and provided with a stem extending through the aperture, the said valve being freely rotatable and vibratable in the said head and sufficiently small to pass through the head at the place where the ledge is located and being wholly unsupported in the said cap save by impingement upon the said ledge.



3. In a means for sealing valve-stems, the combination of a cap provided with screw-threads for engaging the valve-stems and with a recess above the screw-threads of greater diameter than the internal bore of the cap where it is screw-threaded, and a valve freely movable in the said head and wholly unsupported therein except when it impinges against the screw-threads.

588,365. ADJUSTABLE SPANNER. RUDOLF STOCKER, London, England. Filed Apr. 2, 1897. Serial No. 630,440. (No model.)



Claim.—1. The combination with the stationary part provided with a series of notches and a rigid jaw, of a movable part surrounding said stationary part, provided with a jaw, and having a recessed portion adjacent to said notches on the stationary part, and an inclined cam-surface, a lever loosely engaging the recess in said movable part, having a projection adapted to engage the notched portion of the stationary part and having a part for engaging said inclined cam-surface, and a spring connecting said lever and said movable part, substantially as described.

2. The combination with the stationary part provided with a series of notches and having a rigid jaw, of a movable part surrounding the stationary part, provided with a jaw, and a thumb-piece lying adjacent to the stationary part for moving the movable part and having a recessed portion adjacent to said notches, and an inclined cam-surface, a lever loosely engaging said recess, provided with a projection for engaging the said notches and a part for engaging said cam-surface, and a spring connecting said lever and said movable part, substantially as described.

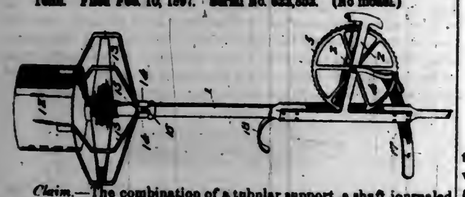
588,366. AUTOHARP. JAMES A. TAYLOR and WILLIAM ROCHMANN, London, England. Filed Sept. 21, 1896. Serial No. 606,563. (No model.)



Claim.—1. In an autoharp, the combination with a stationary bridge, of a plurality of dampers extending transversely across the said bridge and between the strings of the instrument, a spring provided for each damper, a plurality of strips extending longitudinally across the said bridge, and having teeth cut in their lower edges adapted to engage said dampers and recesses cut in their upper edges, the said strips adapted to move longitudinally of said bridge, a plurality of cranked levers mounted above the said strips, one arm of each lever adapted to engage one of said strips in the aforesaid recesses, and a plurality of buttons engaging the other ends of said levers whereby when one or more of said buttons are depressed, the said strips may be moved horizontally and damp the strings of said instrument, substantially as described.

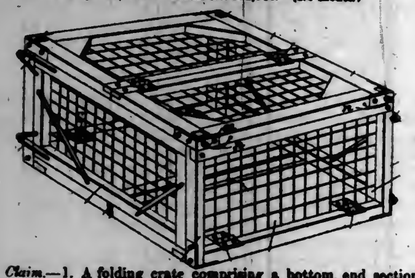
2 In an autoharp, the combination with a stationary bridge, of a plurality of dampers *a* extending transversely across the bridge and between the strings of the instrument, a spring *c* provided for each damper; strips *e* mounted above said dampers, extending longitudinally across said bridge and capable of longitudinal motion, and having teeth cut in their lower edges adapted to engage said dampers and recesses in their upper edges, cranked levers *h* mounted above said strips with one arm adapted to engage the said strips in the said recesses and the buttons *k* pivoted to the other arm of said crank-levers whereby when any of the said buttons are depressed, one of the said strips may be moved horizontally and thereby damp one of the strings of the said instrument, substantially as described.

588,867. SEED-DISTRIBUTER. WILLIAM TAYLOR, Union City, Tenn. Filed Feb. 10, 1897. Serial No. 622,852. (No model.)



Claim.—The combination of a tubular support, a shaft journaled therein, and having at one end a worm, and at its upper end a distributer having an inlet in its top, and having contracted outlets, a pan secured in said distributer, a feed-hopper adjustably supported above said distributer and having a spout which projects through the inlet of said distributer into close proximity to the pan therein; brackets secured to the lower end of the tubular support, a worm-wheel journaled in said brackets and meshing with the worm, a crank for turning the worm-wheel, and means for attaching the device to the operator.

588,868. FOLDING COOP OR CRATE. OWEN TERRY, Tuscola, Ill. Filed Apr. 15, 1897. Serial No. 632,316. (No model.)



Claim.—1. A folding crate comprising a bottom, end sections hinged to opposite sides of the bottom and adapted to fold inward thereon, side sections one hinged to one end section and the other to the other end section by vertical hinges and adapted to fold outward and around against the outer sides of the end sections, a detachable top having at its corners vertical openings, vertical projections on the end sections adapted to enter the said vertical openings of the top, and transverse securing-pins passing through the top and the said projections, substantially as described.

2. A folding crate comprising a two-part bottom, end sections hinged at the outer sides respectively of the bottom sections and adapted to fold thereupon, side sections hinged to swing outward and extending transverse and across the meeting edges of the bottom sections, the side sections having headed projections extending downward therefrom at the meeting edges of the bottom sections, the head of said projection engaging both bottom sections at their meeting edges, and a top holding the side and end sections in position, substantially as described.

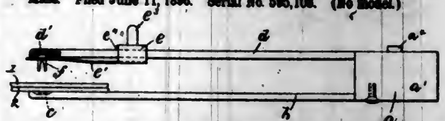
3. A folding crate comprising a two-part bottom section, end sections hinged at the outer sides respectively of the bottom sections and adapted to fold thereupon, side sections united respectively to the end sections by vertical hinges and adapted to swing outward and around against the outer side of the end sections, the side sections extending across the bottom sections and provided with a downwardly-extending headed projection, the bottom sections being cut away at their meeting edges to form the openings *s* for the reception of the headed projections, and a top uniting and holding the end and side sections in position, substantially as described.

588,869. SETTING-TOOL FOR HARNESS-WORK. JUDSON L. THOMSON, Waltham, Mass. Filed June 11, 1896. Serial No. 595,103. (No model.)



Claim.—A combined spreader and anvil for setting rivets in channeled work comprising a body having a narrow upper portion with two vertical walls parallel with each other, the upper surface or edge of said portion being formed as the anvil, whereby the said vertical walls serve as a spreader to hold apart the sides of the channel in the work being operated upon and also to guide the work over the anvil formed on the upper edge of the tool.

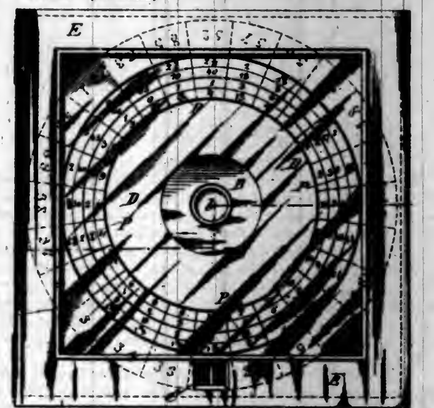
588,870. HAND RIVETING-TOOL. JUDSON L. THOMSON, Waltham, Mass. Filed June 11, 1896. Serial No. 595,103. (No model.)



Claim.—1. A hand riveting-tool comprising in its construction two arms rigidly connected, one of said arms being resilient and provided with an anvil at its end, and the other arm being provided with a device for temporarily holding a rivet opposite said anvil, said device being located between the two arms.

2. The combination with the block *a*, of the arms *b* and *d*, the former being provided with an anvil *c* at its end, and the latter having a concavity opposite said anvil, and the slide *e* fitted to the arm *d* and provided with the spring *e'* under the arm *d* and having the bifurcated end *e*^{3}.

588,871. APPARATUS FOR TEACHING ARITHMETIC, &c. GEORGE G. ALTMAN, New York, N. Y. Filed Oct. 6, 1896. Serial No. 608,012. (No model.)



Claim.—1. The combination with a casing, of a rotary index-sheet, a result-sheet separate therefrom and concentric therewith, and a cover provided with an opening for exposing the matter on the result-sheet and another opening exposing the matter on the index-sheet, substantially as set forth.

2. The combination with a casing, of a rotary index-sheet, a result-sheet, a cover provided with an opening through which the result-sheet is exposed, and with another opening for exposing the figures or characters on the index-sheet, and a proving device provided with a push-pin arranged in operative connection with the result-sheet and adapted to indicate when the correct answer is obtained, substantially as set forth.

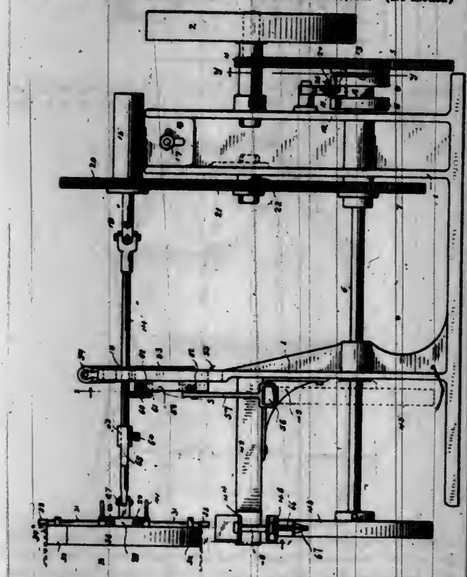
3. The combination with a casing, of a rotary index-sheet, a result-sheet, a cover provided with an opening through which the result-sheet is exposed, and with another opening for exposing the figures or characters on the index-sheet, and means for proving the result obtained, consisting of a push-pin arranged under the index-sheet, a bell, and a striker adapted to be actuated when the result-sheet is pressed against said push-pin, substantially as set forth.

4. The combination with a casing, of a rotary index-sheet supported in the same, said index-sheet being provided with numbers or characters along the circumference, a stationary result-sheet provided with figures or names arranged inside of and concentric to the numbers or characters on the index-sheet, a cover provided with a large opening for exposing the figures or characters on the result-sheet, and a smaller opening for exposing the numbers or characters on the index-sheet, a proving device and means for actuating the proving device when the correct result is obtained, substantially as set forth.

5. The combination with a casing, of an index-sheet provided with a circular series of numbers or characters, means for rotating the index-sheet on its axis, a stationary result-sheet provided with figures or names arranged inside of and concentric to the numbers on the index-sheet, a cover provided with a large opening for exposing the numbers or characters on the result-sheet and a smaller opening for the numbers or characters on the index-sheet, a sounding device, means for rotating the latter with the index-sheet and means for actuating said sounding device when the correct result is obtained, substantially as set forth.

6. In an apparatus for teaching arithmetic, objects, &c., the combination, with a casing, of a rotary index-sheet provided with a circumferential row of numbers or characters, a stationary result-sheet provided with figures or characters arranged inside of and concentric with the numbers on the index-sheet, a cover provided with a large opening for exposing the figures or names on the result-sheet and with a smaller opening for exposing the numbers or objects on the index-sheet, a stationary panel arranged alongside of the smaller opening in the cover and provided with inscriptions relative to the numbers or characters on the index-sheet, and a hinged panel provided with inscriptions corresponding with the inscriptions on the stationary panel, substantially as set forth.

588,872. MACHINE FOR STIFFENING HAT-BRIMS. ELMER S. ALVORD, Danbury, Conn., assignor of one-half to William H. Barnum, same place. Filed Feb. 18, 1897. Serial No. 623,952. (No model.)



Claim.—1. A machine for stiffening hat-brims comprising in its construction a shaft provided with a universal joint and having at its outer end a hat-carrier, a tank for stiffening material, a shaft carrying a regulating-cam and connections intermediate the regulating-cam and the hat-carrier whereby a hat upon the carrier is caused to rise and fall in the tank as it rotates to regulate the depth to which the brim is stiffened at the sides and ends.

2. A machine for stiffening hat-brims comprising in its construction a shaft provided with a universal joint, a hat-carrier hinged to the outer end of said shaft, said hinge being rigid when the long diameter of the carrier is vertical and operative when horizontal, a tank for stiffening material, a shaft carrying the regulating-cam and intermediate connections whereby the brim of a hat upon the carrier is caused to rise and fall in the tank, substantially as described, for the purpose set forth.

3. A machine for stiffening hat-brims comprising in its construction a shaft provided with a universal joint, a hat-carrier hinged to the outer end of said shaft, a sleeve on said shaft adapted to lock the hinge rigidly in stiffening soft hats, a tank for stiffening material, a shaft carrying a regulating-cam and intermediate connections whereby the brim of a hat upon the carrier is caused to rise and fall in the tank substantially as described for the purpose set forth.

4. A machine for stiffening hat-brims comprising in its construction a shaft provided with a universal joint, a hat-carrier hinged to the outer end of said shaft, a tank for stiffening material, a shaft carrying a regulating-cam, a vertically-movable platform in the tank upon which the brim of a stiff hat rests and which itself rests upon the regulating-cam so that the hat-brim is caused to rise and fall in the tank to regulate the depth to which the brim is stiffened.

5. A machine for stiffening hat-brims comprising in its construction a shaft provided with a universal joint and having at its outer end a hat-carrier, a tank for stiffening material, a platform made from a strip of metal and hinged to said tank, a portion of said platform lying on the under side of the tank and a portion passing upward over the ends of said tank out of contact therewith and downward into the tank forming the operative position of said platform upon which the brim of a stiff hat rests, a regulating-cam which engages the under side of the platform causing the operative portion thereof to rise and fall in the tank and regulate the depth to which the brim is stiffened.

6. In combination a vertically-movable shaft, a hat-carrier at the outer end thereof, a tank, a regulating-cam and a vertically-movable platform which is engaged by said cam and a portion of which is immersed in the tank, substantially as described for the purpose set forth.

7. The combination with a vertically-movable shaft, a hat-carrier at the end thereof, a tank and a regulating-cam, of a vertically-movable platform which is engaged by said cam and a portion of which is immersed in the tank, and wipers lying above the platform and having oblique vertical faces for the purpose set forth, whereby surplus stiffening material is removed from the surface of the hat-brims.

8. In a machine of the character described, the combination with a vertically-movable shaft and a hat-carrier, of a tank, a platform in said tank upon which the brim of a stiff hat rests and a regulating-cam which causes the platform to rise and fall so that the depth to which the brim is immersed in the tank varies as the carrier rotates.

9. An expanding carrier for hats comprising in its construction a guide 37, rods 31 and 35 passing freely through said guide and carrying at their outer ends sections of an expanding band, angle-pieces carried by rods 31 and having slots 39, said rods 35 being provided with heads which engage said slots so that when rods 31 are moved in or out rods 35 are moved in the same direction and the band is expanded or contracted.

10. An expanding carrier for hats comprising in its construction a guide 37, rods 31 and 35 passing freely through said guide and carrying at their outer ends sections of an expanding band, a rotating hub having sockets which receive the inner ends of rods 31, springs lying in said sockets and acting to force said rods outward, angle-pieces carried by rods 31 and having slots 39, said rods 35 being provided with heads which engage said slots as and for the purpose set forth.

11. An expanding carrier for hats comprising in its construction a guide 37 and rods 31 and 35 passing freely through said guide and carrying at their outer ends sections of an expanding band, said rods 31 also carrying blocks 33, and pins 41 for the purpose set forth, a rotating hub having sockets which receive the inner ends of rods 31, springs lying in said sockets and acting to force the rods outward, angle-pieces carried by rods 31 and having slots 39, said rods 35 being provided with heads which engage said slots as and for the purpose set forth.

12. In a machine of the character described the combination with a tank for stiffening material and a vertically-movable platform hinged to said tank, a portion of said platform lying on the under side of the tank and a portion passing upward over the ends of said tank out of contact therewith and downward into the tank forming the operative portion of said platform, and a regulating-cam which raises and lowers the platform as and for the purpose set forth.

13. In a machine of the character described the combination with a tank having guides 49 extending upward from the bottom thereof which support the edge of a hat-brim, a vertically-movable platform hinged to said tank, and extending above and below said tank, the regulating-cam which raises and lowers the platform and oblique-faced wipers which remove surplus stiffening material from the sides of the hat.

14. The combination with the tank, movable platform and regulating-cam, of shaft 14 and a hat-carrier hinged thereto as and for the purpose set forth.

15. The combination with the tank, movable platform and regulating-cam, of shaft 14 having a universal joint 19 and at its outer end a hat-carrier and a vertically-movable block in which said shaft is journaled as and for the purpose set forth.

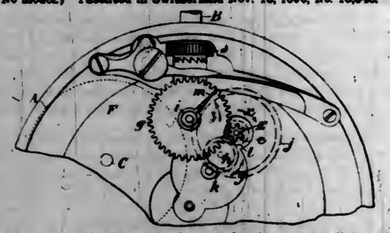
16. The combination with the tank, movable platform and regulating-cam, of shaft 14 having a universal joint and at its outer end a hat-carrier, a vertically-movable block in which said shaft is journaled and means, substantially as described and shown for raising said block and shaft and retaining the hat-carrier out of operative position as and for the purpose set forth.

17. The combination with the tank, movable platform and shaft 6 carrying the regulating-cam, of shaft 14 carrying a hat-carrier, driving mechanism, mechanism for communicating motion from one shaft to the other, and clutch mechanism which connects said shafts with the driving mechanism and which automatically disconnects said shafts from the driving mechanism at the completion of a revolution.

18. The combination with a vertically-movable shaft having a hat-carrier at its outer end and a tank, of a regulating-cam, a vertically-movable platform a portion of which is immersed in the tank

and a portion under the tank in position to be engaged by the regulating-cam and a screw 66 extending from the tank and passing through the portion of the platform under the tank and carrying a nut which may limit the downward movement of the platform when the long diameter of the regulating-cam is horizontal substantially as described for the purpose set forth.
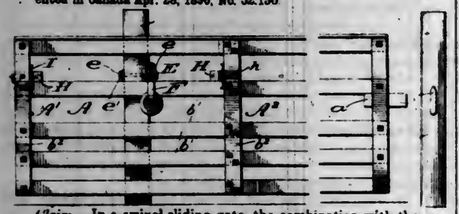
588,373. WINDING-INDICATOR FOR WATCHES. ERNEST ANTOINE, Besançon, France. Filed May 17, 1897. Serial No. 636,849. (No model.) Patented in Switzerland Nov. 18, 1896, No. 13,340.



Claim.—1. A timepiece having graduations on its dial, a hand *m* to traverse said dial and indicate the extent to which the mainspring of the watch is run down, and gearing between the spring-barrel and said hand, said gearing comprising the barrel-wheel J, the wheel *j*, in gear therewith and loose on the arbor E, the said arbor, gearing between said arbor and the hand *m*, the said hand, the ratchet-wheel *a*, on the spring-arbor, the said spring-arbor, C, the spring-pawl *r*, the intermediate wheel b^2, gearing with the ratchet-wheel and a loosely-mounted wheel *b'*, the said wheel *b'*, the wheel *b*, loosely mounted on the arbor E, the pinion b^2, integral with the wheel *b'* and gearing with the wheel *b*, the pinion *d*, integral with the wheel *b*, the arbor *h*, rotatively mounted in the wheel *j* and carrying, fixed on its ends, the wheels *f* and *k*, the wheel *f* being in gear with the pinion *d*, and the pinion *l*, fixed on the arbor E and in gear with the wheel *k*, whereby the wheels *f* and *k* have a rotary movement about their axes, and a movement of translation about the arbor E, substantially as set forth.

2. A timepiece having graduations on its dial, a hand *m* to traverse said dial and indicate the extent to which the mainspring of the watch is run down, and gearing between the spring-barrel and said hand, said gearing comprising the barrel-wheel J, the wheel *j*, in gear therewith and loose on the arbor E, the said arbor, gearing between said arbor and the hand *m*, the said hand, the ratchet-wheel *a*, on the spring-arbor, the said spring-arbor, C, the spring-pawl *r*, the intermediate wheel b^2, gearing with the ratchet-wheel and a loosely-mounted wheel *b'*, the said wheel *b'*, the wheel *b*, loosely mounted on the arbor E, the pinion b^2, integral with the wheel *b'* and gearing with the wheel *b*, the pinion *d*, integral with the wheel *b*, the arbor *h*, rotatively mounted in the wheel *j* and carrying, fixed on its ends, the wheels *f* and *k*, the wheel *f* being in gear with the pinion *d*, the pinion *l*, fixed on the arbor E and in gear with the wheel *k*, the hand *n*, on the same axis with the hand *n*, adapted to traverse graduations on the dial, and mechanism between said hand *n* and the gearing-driving hand *m*, whereby the hand *m* marks the time, substantially as set forth.

588,374. HINGE-ROLLER GATE. JOHN ASKEW, Leamington, Canada. Filed Aug. 24, 1896. Serial No. 603,708. (No model.) Patented in Canada Apr. 28, 1896, No. 52,130.



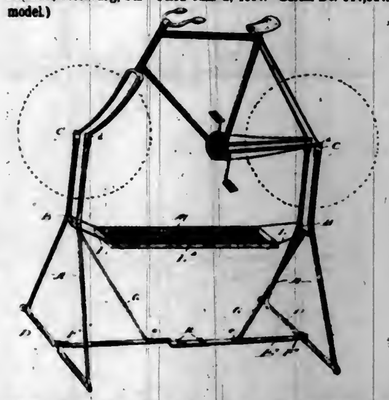
Claim.—In a swivel sliding gate, the combination with the supporting-posts and gate-panel, of a hinge-holder secured to the supporting-post to project therefrom and spring-actuated percussion-blocks supported upon the gate-panel to relieve the gate and hinge-holder of shock, substantially as described.

588,375. SHUTTER-FASTENER. ERNST AXTHELM, Pittsburg, Pa. Filed May 26, 1897. Serial No. 638,282. (No model.)

Claim.—A fastener for shutters and the like consisting of a base-plate having a depression, a portion of the walls of said depression being cut away, a slot below said depression, a plate provided with a longitudinal opening secured to the back of said depressed portion, a projection formed on the upper end of said plate and projecting through said cut-away portion and forming a finger-catch, a shank operating in a keeper, said shank having formed integral therewith a catch or hook and protruding through said slot in the base-plate, said catch or hook having an inclined face, and means whereby said fastener is secured to the shutters, substantially as shown and described.



588,376. BICYCLE-STAND. ARTHUR L. BANKER and GEORGE A. BANKER, Pittsburg, Pa. Filed Jan. 2, 1897. Serial No. 617,817. (No model.)



Claim.—1. In a bicycle-stand, consisting of standards, yokes connecting the standards intermediate their length, means for fastening the ends of the standard and the adjusting-bar, and braces detachably secured to the yoke and adjusting-bar, swinging brackets supporting an automatic adjustable display-board, substantially as shown and described.

2. In a bicycle-stand, standards having parallel arms, said arms having plates on their upper ends and securely held in place by a U-shaped yoke, a detachable adjusting-rod, braces detachably secured to said yoke and adjusting-rod, an automatic adjustable display-board secured to said standards, and supporting-casters for said stand substantially as shown and described.

588,377. LOCOMOTIVE FEED-WATER HEATER. JOSHUA B. BARNES, Springfield, Ill. Filed Feb. 11, 1897. Serial No. 622,990. (No model.)

Claim.—1. In a feed-water heater for locomotives, the combination of a tender provided with a water-holding chamber, a horizontal pipe arranged therein adjacent to the bottom portion, a series of vertical stand-pipes having nozzles at or near their upper portion to assist in relieving back pressure, and a pipe connecting the horizontal pipe with a source of exhaust-steam, substantially as described.

2. In a feed-water heater for locomotives, the combination of a tender provided with a water-chamber, a horizontal pipe arranged in such chamber at or near the bottom portion of the same, a series of vertical stand-pipes arranged thereon having return-bends at their upper portions, nozzles on such return-bends, and a pipe connecting the horizontal pipe with a source of exhaust-steam supply, substantially as described.

3. In a feed-water heater for locomotives, the combination of a tender provided with a water-chamber, a horizontal heating-pipe arranged therein adjacent to the bottom portion, a series of vertical stand-pipes arranged on the horizontal pipe and provided with return-bend upper portions having reduced nozzles extending downwardly to permit the exhaust of vapor and relieve back pressure, and a pipe connecting the horizontal pipe with a source of exhaust-steam supply, substantially as described.

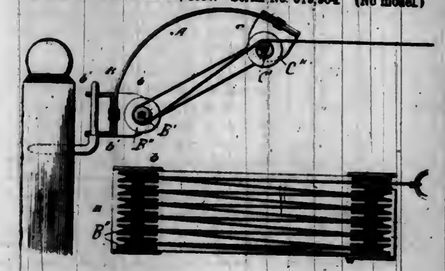
4. In a feed-water heater for locomotives, the combination of a tender provided with a water-chamber, a horizontal heating-pipe arranged on the chamber and adjacent to the bottom portion thereof, a series of vertical stand-pipes arranged thereon and provided with return-bend upper portions having nozzles of a reduced diameter—the last of the series being provided with a nozzle of a larger opening than the rest, and a pipe of smaller diameter than the horizontal pipe connecting it with a source of exhaust-steam supply, substantially as described.



5. In a feed-water heater for locomotives, the combination of a tender provided with a water-chamber, a horizontal heater-pipe arranged therein adjacent to the bottom portion, a series of vertical stand-pipes having return-bend upper portions and nozzles of a reduced diameter, a pipe connecting the horizontal pipe with the exhaust-opening of the steam-pump, a three-way valve interposed on such exhaust-steam-supply pipe, and a pipe connecting one of the exhaust-openings of the three-way valve with the stack of the locomotive, whereby steam may be shut off from the heater in the tender and forced out through the ordinary passage in the stack or vice versa, substantially as described.

6. In a feed-water heater for locomotives, the combination of a tender provided with a water-chamber, a horizontal heater-pipe arranged therein and adjacent to the bottom portion thereof, a series of vertical stand-pipes on such horizontal pipe provided with return-bend upper portions having nozzles of reduced diameter, a pipe connecting the horizontal heater with a source of exhaust-steam supply, and an oil-separator on such exhaust-supply pipe, substantially as described.

588,378. LINE-HOLDER. JOSEPH A. BEAN and WILLIAM L. COOK, Mahwah, N. J., assignors of one-third to John S. Garison, Ramsey's, N. J. Filed Jan. 30, 1897. Serial No. 619,904. (No model.)



Claim.—1. A line-holder, consisting of rolls connected to the ends of a strut-spring, and means for connecting the line-holder to a support.

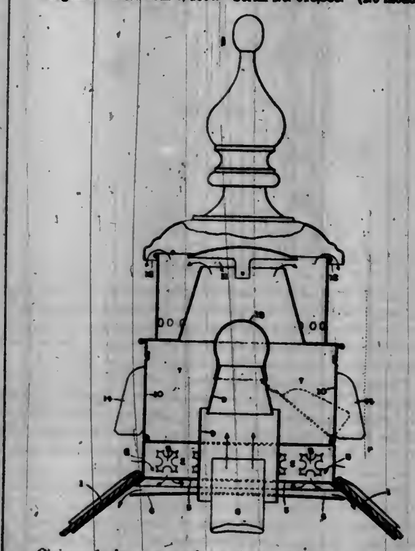
2. In a line-holder, the combination of a strut-spring, rolls carried by the ends thereof, and a line which passes over the rolls.

3. In a line-holder, the combination of a strut-spring, plates attached to the ends of the spring, and rolls carried by the plates.

4. The combination with a strut-spring, of plates attached to the ends thereof, said plates having ears or lugs, shafts carried by the ears or lugs and a series of rolls mounted on each shaft; together with a line which engages with the rolls.

5. The combination with a strut-spring, of plates carried by the ends thereof, each of said plates supporting rolls, one of the plates having projecting portions with apertures for engagement with supporting means, the opposite plate being cut away or recessed to provide a passage for the line; together with a line one end of which is secured to one of the plates, the other end having a ring or loop, substantially as shown and for the purpose set forth.

588,379. STREET GAS-LAMP. CHARLES R. BELLAMY, Liverpool, England. Filed Jan. 7, 1897. Serial No. 618,285. (No model.)



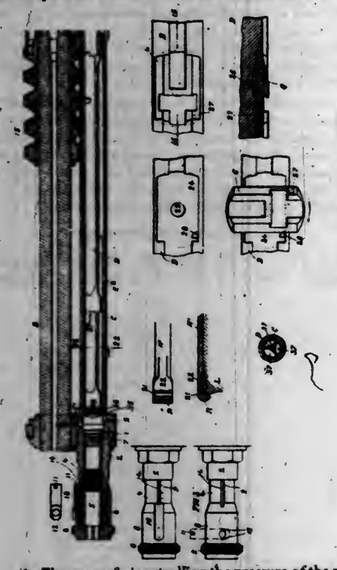
Claim.—1. In a street-lamp, in combination; a lower glazed chamber forming the lamp proper: an upper chamber forming a lighting-box; a partition separating the upper from the lower chamber and a burner carried in the lower chamber and provided with a chimney, which chimney or a prolongation thereof is carried up through the partition into the lighting-box, which box has a door or opening allowing access into the box above the partition entirely independent of the glazed chamber: substantially as described and illustrated.

2. In a street-lamp, in combination; a lower glazed chamber; the two burners, each provided with chimneys; a lighting-box provided with two metal chimneys forming prolongations of the lamp-chimneys and each having a deflecting-hood adapted to deflect and unite the two streams of gas issuing from the chimneys, and a hinged door or doors adapted to be opened by and to guide the lighting-torch into the lighting-box between the said hoods; substantially as described and illustrated.

3. In combination with the lower glazed chamber, the upper lighting-chamber, the interposed air-inlet chamber separated from the lighting-chamber and from the glazed chamber by horizontal partitions, said air-chamber having air-inlet openings and having outlet-openings through the horizontal partition, and the deflector below the horizontal partition to direct the air against the walls of the glazed chamber, substantially as described.

4. In combination with the lower chamber, the burner having the chimney extending upward, the upper lighting-chamber to receive the chimney, and the inwardly-opening spring-door of the lighting-chamber adapted to guide the torch into the lighting-chamber, said upper lighting-chamber having a lighting door or opening by which access may be had thereto independent of the glazed or air-inlet chambers, substantially as described.

588,380. GAS-OPERATED GUN. LAURENCE V. BENET and HENRI A. MIMART, Paris, France, assignors to the Hotchkiss Ordnance Company, Limited, London, England. Filed Feb. 16, 1897. Serial No. 623,632. (No model.) Patented in England Dec. 18, 1896, No. 29,118; in Belgium Jan. 21, 1897, No. 125,916; in Spain Feb. 23, 1897, No. 20,285; in Austria Apr. 4, 1897, No. 47/1,177, and in France Apr. 19, 1897.



Claim.—1. The means for controlling the pressure of the powder-gas upon the motor-piston in automatic guns of the character described, which consists in providing a speed-regulating expansion-chamber of adjustable cubical contents connected with the bore of the barrel and with the cylinder of the motor-piston, substantially as described.

2. The means for controlling the pressure of the powder-gas upon the motor-piston in automatic guns of the character described, which consists in providing a speed-regulating expansion-chamber of adjustable cubical contents connected with the bore of the barrel and with the cylinder of the motor-piston, with means for adjusting said chamber to any desired capacity, substantially as described.

3. The means for controlling the pressure of the powder-gas upon the motor-piston in automatic guns of the character described, which consists in providing an expansion-chamber of adjustable cubical contents connected with the bore of the barrel and with the cylinder of the motor-piston, with means for adjusting said chamber to any desired capacity, and means for locking said chamber at the desired adjustment, substantially as described.

4. In a breech-loading gun, the combination, with the barrel B, cylinder C, motor-piston D and canal C' connecting the barrel to the cylinder, of a chambered head 2, a tubular portion 4, an adjustable rod 5 having an obturated ring 7 and means for operating the said adjustable rod, substantially as and for the purpose set forth.

5. In a breech-loading gun, the combination, with a barrel B, cylinder C, motor-piston D and canal C' connecting the barrel to the cylinder, of a chambered head 2, a tubular portion 4, an adjustable rod 5, having an obturating-ring 7, means for operating the adjustable rods 5, and means for ascertaining and determining at will the capacity of the variable chamber 3, substantially as and for the purpose set forth.

6. In a breech-loading gun, the combination, with a barrel B, cylinder C, motor-piston D and canal C' connecting the barrel to the cylinder, of a chambered head 2, a tubular portion 4, an adjustable rod 5, having an obturating-ring 7, means for operating the adjustable rod 5, means for ascertaining and determining at will the capacity of the variable chamber 3, and means for locking the adjustable rod 5 when once the capacity of the chamber 3 has been adjusted, substantially as and for the purpose set forth.

7. In a breech-loading gun, the combination, with the barrel B, cylinder C, motor-piston D and canal C' connecting the barrel to the cylinder, of a chambered head 2, a tubular portion 4, an adjustable rod 5, having an obturating-ring 7, means for operating the adjustable rod 5, means for ascertaining and determining at will the capacity of the variable chamber 3, and a spring-latch 10, provided with nose 11 engaging a slot in the said tubular portion 4 and locking the rod 5 in the desired position, substantially as described.

8. In an automatic-machine gun, the combination with a speed-regulating expansion-chamber of adjustable cubical contents connected with the bore of the barrel, of a motor-piston provided with a head projecting into said chamber, and a cylinder inclosing the piston-head and the parts contiguous thereto, a gas-check ring loosely fitting on said piston and snugly fitting in said cylinder in the rear of said head, the head lapping over the inner circumference of said gas-check ring, whereby the gas-check and piston-head form a tight packing for the said piston without affecting the axial alinement of the piston, substantially as and for the purposes described.

9. In a breech-loading gun, the combination with a motor-piston D, provided with a tang D^4, of a lever 16, pivoted in the casing of the gun and having a toe 18 engaging said tank, substantially as and for the purposes described.

10. In a breech-loading gun, the combination, with a motor-piston D, of a lever 16, pivoted on an axis 17, in the guard A^4, a toe 18, a tank D^4 on the piston, and means for locking the lever 17 in position when not in use, substantially as and for the purpose set forth.

11. In a gun of the character decribed, the combination with a motor-piston, of auxiliary means for moving the same, comprising a pivoted toe adapted to engage the motor-piston but normally out of engagement therewith and a lever operating said toe, substantially as described.

12. In a gun of the character described, the combination with the motor-piston provided with recess 25, chamber 24, notch 28, and dovetail arc-shaped overhanging lips surrounding opposite ends of said chamber 24, and concentric with said recess 25, of the trigger-stop G provided with central dowel 26, dovetailed edges concentric with said dowel adapted to engage under said lips, and stud 27, adapted to engage in said notch 28, substantially as and for the purpose described.

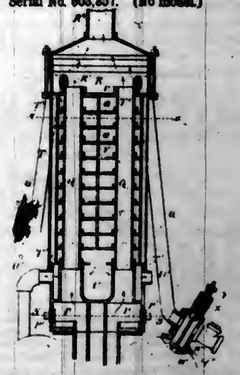
13. In a breech-loading gun, the combination, with the motor-piston D, of a trigger-stop G having a dowel 26 around which it can rotate in a recess 25 in the motor-piston D, the said trigger-stop being dovetailed on its sides to engage corresponding undercut sides, in a cavity 24 in the motor-piston D, and a stud 28 for stopping the sear in proper position, substantially as and for the purpose set forth.

14. In a breech-loading gun, the combination with the motor-piston D, provided with ribs 41, of the breech-block L having grooves 40 engaging said ribs and having a slot 38 which is widened at 39 for the introduction and free passage of the ribs 41, substantially as and for the purpose set forth.

15. In a gun of the character described, the combination with the breech-cover and a T-shaped slot therein, of a shoulder-piece provided with a T-shaped projection adapted to fit in said slot, and a pin transversely mounted in said breech-cover and cut away at one side and adapted to allow the said T-shaped projection to pass into its slot when the flat side of said pin is presented thereto, but to lock said T-shaped projection when the curved side of said pin is turned into engagement therewith, substantially as described.

16. In a breech-loading gun, the combination with a motor-piston provided with ribs adapted to engage corresponding grooves of the breech-block, of a breech-block having grooves engaging said ribs and having a widened slot in front of said ribs for the free passage thereof, of the firing-pin traveling in said breech-block and having a projection near its heel adapted to engage between two tangs on the breech-block, substantially as and for the purposes described.

588,381. CARBURETER. DANIEL BEST, San Leandro, Cal. Filed Aug. 25, 1896. Serial No. 603,857. (No model.)



Claim.—1. A device for producing an explosive gas from hydrocarbon liquid, consisting of a series of superposed shallow pans, pipes extending upwardly through openings in said pans and connecting with an engine cylinder or cylinders, passages through which the hydrocarbon liquid is supplied from above to each of the pans and through which air also passes from above downwardly, said passages consisting of openings made in the pans at one side of the center thereof said openings being alternately upon opposite sides of adjacent pans and having upwardly-projecting rims whereby a body of oil is retained in each of the pans, and a means for supplying air from above to be drawn through said openings, and connections at the bottom with the engine-cylinders.

2. A device for producing an explosive gas or vapor from hydrocarbon liquid, consisting of a series of shallow superposed pans each having an opening at one side of the center of the pan, with said openings alternately at opposite sides of adjacent pans, said openings having upwardly-projecting rims whereby a body of hydrocarbon liquid is retained in each of the pans, pipes extending upwardly through openings in said pans, transverse partitions extending partially across the space in each pan, forming a tight joint therewith at the bottom and extending close up to the top, an outer jacket or casing surrounding the pans and forming an annular chamber around them, air-inlets at the bottom of the casing through which air is admitted thereinto, other passages through the uppermost of the oil-containing pans through which the air is admitted to the interior of the pans, passages connecting the lowermost of the pans with an engine cylinder or cylinders so that the forward motion of the piston will draw a charge of air through the open passages in the pans, said air being charged with the vapor so as to form an explosive compound which is admitted through the inlet-valves into the cylinders with the strokes of the piston, and exhaust-passages connecting with the pipes which extend upwardly through the pans so as to heat and vaporize the contents to be mixed with the air.

3. In a carbureter for gas-engines, the combination of a series of superposed pans having flanged openings made alternately at opposite sides of the pans, intermediate partitions extending across the pans from nearly one side to the other, forming close joint at the bottom with the pan and extending close up to the top thereof, whereby the air passing through the openings is distributed over the surface of the liquid in the pans, a surrounding casing with air-inlets delivering air into the uppermost of the pans, connections between the lowermost pan and the engine-cylinders whereby the explosive gas or vapor is drawn into the cylinders by the strokes of the piston, exhaust-passages upon each cylinder with pipes extending upwardly through the pans whereby the contents are heated and vaporized when the engine is in operation, supplemental fireplaces situated below the pans and adapted to receive the fuel so that the apparatus may be heated before starting the engines.

588,382. ELECTRICAL CONDUCTOR. JAMES D. BISHOP, New York, N. Y. Filed May 6, 1897. Serial No. 635,380. (No model.)



Claim.—1. An electric conductor composed of a plurality of wire ribbons wound side by side longitudinally of the conductor and having intervening air-spaces.

2. An electric conductor composed of a plurality of metallic ribbons wound spirally, successive lays having reversed directions of winding and being in metallic contact with one another.

3. An electric conductor containing layers of copper ribbon wound spirally with intervening air-spaces, one such layer or group of layers constituting the outgoing conductor, the other the return-conductor, and a layer of insulating material between the two.

4. An electric conductor containing a central core and a plurality of metallic ribbons wound side by side spirally about said core, adjacent ribbons having intervening air-spaces.

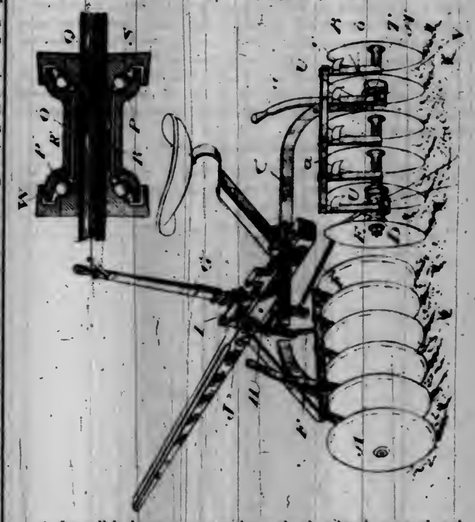
5. An electric conductor containing a plurality of wire ribbons superposed upon one another in successive reversely-wound layers in metallic contact with one another, an insulating-covering, and a protective outside armor.

588,383. DISK HARROW. TORRANCE R. BISSELL, Prescott, Canada, and GEORGE R. THOMSON, Gouverneur, N. Y. Filed Feb. 5, 1897. Serial No. 622,151. (No model.) Patented in Canada June 4, 1896, No. 49,095.

Claim.—1. In a disk harrow, the disk gangs A, A', pivoted to the cross-beam C, in combination with the hand-lever G, one or more links I, supplemental lever H, and the connecting-rods F, substantially as and for the purpose specified.

2. In a disk harrow, disk gangs A, A', pivoted to the cross-beam C, in combination with the lever G, one or more links I, supplemental lever H, quadrant casting J, and connecting-rods F, substantially as and for the purpose specified.

3. In a disk harrow, a cross-beam having the extremity of its downward ends rounded and a flattened head forged on or connected therewith at an angle to the breadth of the end of the cross-beam, in combination with a disk gang having a journal-box on the axel thereof, the said journal-box having an oblong hole formed in a lug thereon, substantially as and for the purpose specified.



4. In a disk harrow, a cross-beam having its downward end loosely connected with the journal-box of the disk-gang axle, in combination with a rounded projection formed on or connected to the downward end of the cross-beam and resting on the top of the journal-box, substantially as and for the purpose specified.

5. In a disk harrow, a journal-box having chilled ball-chambers at each end thereof, in combination with a divided journal incasing the axle and provided with suitably-grooved shoulders at each end, balls between said journal-box and journal, the said divided journal substantially filling the space, longitudinally, between said shoulders and having its inner edges abutting, whereby all parts of the bearing may be tightened without danger of binding of the parts, substantially as described.

6. In a disk harrow, an axle having harrow-disks thereon and a journal-box having chilled ball-chambers at each end thereof, in combination with a divided journal incasing the said axle and provided with suitably-grooved shoulders at each end, balls between said journal-box and journal, the said divided journal substantially filling the space, longitudinally, between said shoulders and having its inner edges abutting, and means for clamping together the disks and divided journal, substantially as and for the purpose specified.

7. In a disk harrow, scraper-standards pivoted to the journal-boxes of a gang and pivotally connected by a scraper-beam, in combination with scraper-knives connected to the said standards, substantially as and for the purpose specified.

8. In a disk harrow, scraper-standards pivoted to the journal-boxes of a gang and pivotally connected by a scraper-beam, in combination with scraper-knives connected to said standards and a series of clod-cleaners rigidly connected to the said beam between the disks, substantially as and for the purpose specified.

9. In a disk harrow, scraper-standards pivoted to the journal-boxes of a gang and pivotally connected by a scraper-beam, in combination with scraper-knives connected to said standards: a series of clod-cleaners rigidly connected to the said beam between the disks, and a series of scraper-knives connected to the said clod-cleaners, substantially as and for the purpose specified.

10. In a disk harrow, scraper-standards pivoted to the journal-boxes of a gang and pivotally connected by a scraper-beam in combination with clod-cleaners connected to the said beam and a hand-lever rigidly connected to one of the scraper-standards, substantially as and for the purpose specified.

11. In a disk harrow, scraper-standards pivoted in oblong slots formed at the back of the journal-boxes of a gang and pivotally connected by a scraper-beam in combination with clod-cleaners connected to the said beam and a hand-lever rigidly connected to one of the scraper-standards, substantially as and for the purpose specified.

12. In a disk harrow, a cross-beam having the extremities of its downward ends rounded and a flattened head forged on or connected

therewith at an angle to the cross-beam in combination with disk gangs having the outer journal-boxes thereof provided with lugs with oblong holes therein; and inner bearing-boxes, to which are attached suitable connecting-rods adjustably connected to the tongue of the harrow, substantially as and for the purpose specified.

13. In a disk harrow, the disk gangs A, A', pivoted to the cross-beam C, in combination with the hand-lever G, one or more links I, supplemental lever H, and the connecting-rods F, both levers being provided with a series of holes to receive the end of the connecting-rods, substantially as and for the purpose specified.

14. In a disk harrow the combination of the journal-box O, chilled ball-chambers P; divided journal R; washer R'; grooved shoulders S; and two sets of friction-balls Q, substantially as and for the purpose specified.

588,884. PACKER FOR DEEP WELLS. DAVID W. BLACK, Butler, Pa., assignor to Benjamin Maseeth, same place. Filed Mar. 2, 1897. Serial No. 625,703. (No model.)



Claim.—1. In deep-well packers, the combination with the pipe, carrying an expansible packer, of an anchor adapted to engage the sides of the hole and to hold the pipe to afford resistance to the packer, a locking device for holding said anchor, and a guide arranged to be operated by vertical motion of the pipe and to move the locking device into disengaged position.

2. In deep-well packers, the combination with the pipe carrying an expansible packer, of an anchor adapted to engage the sides of the hole and to hold the pipe to afford resistance to the packer, a locking device for holding said anchor, and means whereby by vertical motion of the pipe the locking device is disengaged and the anchor permitted to operate, said means consisting of a laterally-acting guide, whereby when the pipe is moved vertically the anchor is shifted laterally into locked or unlocked condition.

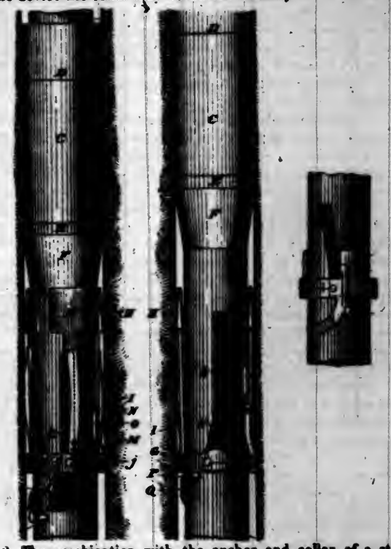
3. The combination with a stem adapted to be let into a well, of an anchor mounted on the stem, a guideway and a pivoted guide-stud on the anchor and stem respectively, and means for turning the stud at the end of the guideway in order to switch the guide-stud into or out of said way.

4. The combination with a stem adapted to be let into a well, of an anchor mounted on the stem, a guideway consisting of two branches K, K' formed on said stem, shoulders at the base thereof, and a pivoted guide-stud adapted to be moved by said shoulders and to operate as a switch.

5. The combination with a stem adapted to be let into a well, of an anchor mounted thereon, a locking device for holding the anchor, and a guide arranged to be operated by vertical motion of the stem and to move the locking device into disengaged position.

588,885. DEEP-WELL PACKER. DAVID W. BLACK, Butler, Pa., assignor to Benjamin Maseeth, same place. Original application filed Mar. 2, 1897, Serial No. 625,703. Divided and this application filed Mar. 17, 1897. Serial No. 627,003. (No model.)

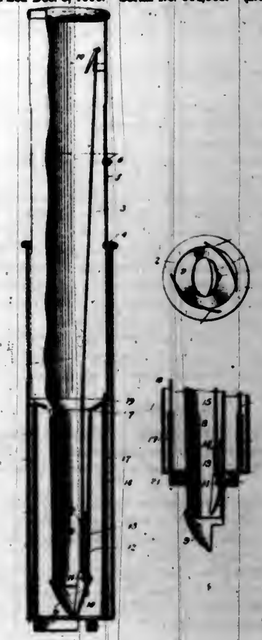
Claim.—1. The combination with the anchor and collar, of a locking device comprising an oblique guide-arm on the collar, and a stud or projection against which it bears, whereby on vertical motion of the device the collar may be shifted laterally.



2. The combination with the anchor and collar, of a stop, a locking device comprising an oblique guide-arm on the collar, and a stud or projection against which it bears, whereby on vertical motion of the device the collar may be shifted laterally and brought into and out of locking engagement with said stop.

3. The combination with the anchor and collar, of a locking device comprising an oblique guide-arm on the collar, a stud or projection against which it bears, whereby on vertical motion of the device the collar may be shifted laterally in one direction, and an inclined guide-surface by which it may be shifted in the other direction.

588,886. PLANTING IMPLEMENT. WILLIAM S. BLANDELL, Victoria, Fla. Filed Dec. 8, 1896. Serial No. 614,903. (No model.)



Claim.—1. A planting implement consisting of an outer and an inner tube secured together and movable longitudinally with relation to each other, a rigid and a movable shovel upon the lower end of said inner tube and which serve to close the said inner tube when in contact with each other, devices for moving said movable shovel with relation to said rigid shovel to open the lower end of said inner tube, and devices for moving said tubes relatively.

2. A planting implement consisting of an outer and an inner tube secured together and movable longitudinally with relation to each other, adjusting devices to limit the relative movement of said tubes, a rigid and movable shovel upon the lower end of said inner tube and which serves to close the said inner tube when in contact with each other, devices for moving said movable shovel with relation to said rigid shovel to open the lower end of said inner tube, and devices for moving said tubes relatively.

3. A planting implement consisting of an outer and an inner tube secured together and movable longitudinally with relation to each other, a longitudinal slot in said inner tube, an adjustable block situated within said slot, projections upon said outer tube that extend into said slot, a movable and a rigid shovel upon the lower end of said inner tube and which serve to close the said inner tube when in contact with each other, devices for moving said movable shovel with relation to said rigid shovel to open the lower end of said inner tube, and devices for moving said tubes relatively.

4. A planting implement consisting of an outer and an inner tube secured together and movable longitudinally with relation to each other, said inner tube having a contracted lower end, a rigid and a longitudinally-movable shovel upon the lower contracted end of said inner tube and which serve to close the said inner tube when said movable shovel is at the lower limit of its movement, a spring for depressing said movable shovel, a connecting-piece connected with said shovel and with an operating finger-piece near the upper end of said inner tube, and devices for moving said tubes relatively.

5. A planting implement consisting of an outer tube, a relatively-sliding inner tube provided at one end with a handle and with a sliding finger-piece, a stationary shovel at the other end of said tube, a sliding shovel adapted to come in contact with said stationary shovel, a spring for moving said sliding shovel outwardly, a connection between said sliding shovel and said finger-piece, and springs for moving said outer and inner tubes relatively, said springs being situated between rods secured to said outer tube and extending through a shoulder upon said inner tube.

6. In a planting implement, the relatively-movable outer and inner tubes, the shovels and means for operating the same, and an inwardly-projecting flange upon the lower end of said outer tube.

7. In a planting implement, the relatively-movable outer and inner tubes, the shovels and means for operating the same, and downwardly-projecting blades at the lower end of said outer tube.

8. In a planting implement, the relatively-movable outer and inner tubes, the shovels and means for operating the same, and blades projecting downwardly from the lower end of said outer tube and situated at an angle to said shovels.

9. In a planting implement, the relatively-movable outer and inner tubes, the shovels and means for operating the same, an inwardly-projecting flange upon the lower end of said outer tube, and downwardly-projecting blades upon said inwardly-projecting flange.

588,887. PROCESS OF DYEING. VICTOR G. BLOEDE, Catonsville, Md. Filed Jan. 22, 1894. Serial No. 497,895. (No specimens.)

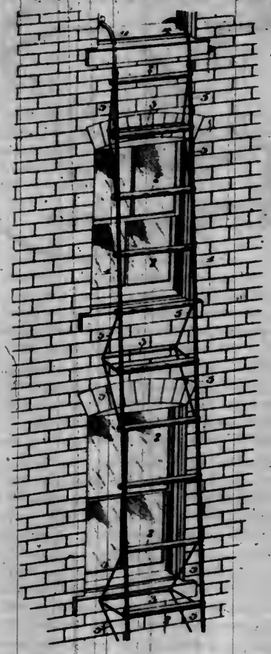
Claim.—The process herein described for the production of colors upon fibers and fabrics consisting in first treating the fibers or fabrics with a composition of anilin, its homologues or analogues, then subjecting the fibers or fabrics so treated to the action of an oxidizer in gaseous form, until the desired coloring compound is produced.

588,888. PROCESS OF DYEING ANILIN-BLACK. VICTOR G. BLOEDE, Catonsville, Md. Filed Jan. 22, 1894. Serial No. 497,894. (No specimens.)

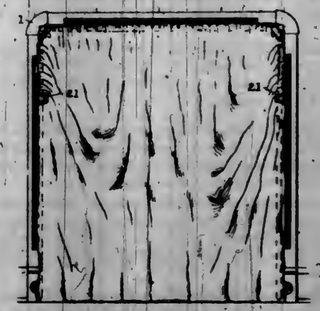
Claim.—The process herein described for coloring fibers and fabrics consisting in impregnating the fibers or fabrics with anilin, its homologues or analogues or a salt of these combined with a suitable oxidizer; then subjecting the so-prepared fibers or fabrics to the fumes or vapors of a mineral acid capable of liberating the oxidizer, until the desired coloration has been effected.

588,889. FIRE-ESCAPE. ARTHUR BORNEMEL, Baltimore, Md. Filed May 11, 1896. Serial No. 591,094. (No model.)

Claim.—In a fire-escape ladder, the combination with flexible cables and the rounds connected thereto, of the series of spacing-frames which gradually increase in length from the top to the bottom of the ladder and are each loosely attached to the terminals of one of the ladder-rounds, and a pair of holding-cords for each frame, said holding-cords being connected loosely to the outer cross-bar of the spacing-frame and having their respective terminals fastened to the ladder-rounds above and below the round on which the spacing-frame is mounted, for the purpose described, substantially as set forth.



588,890. ADJUSTABLE CURTAIN. GEORGE G. F. BOSWELL, Indianapolis, Ind., assignor to Valentia E. Fithian, same place. Filed Mar. 26, 1897. Serial No. 629,424. (No model.)

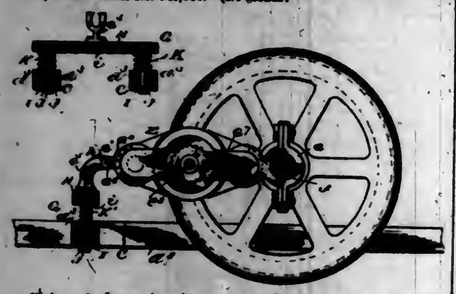


Claim.—1. An adjustable curtain comprising an upper horizontal pole, consisting of telescoping tubes with a wire coiled about them of a diameter as great as the outside tube, a vertical telescoping pole secured to each end of the upper pole, and sufficient curtain material secured to said poles to permit enlargement or diminution of the curtain.

2. The combination with the casing of an opening or object to be covered, of an adjustable curtain comprising an upper horizontal telescoping pole, a vertical telescoping pole hinged to each end of the upper pole and sufficient curtain material secured to said poles to permit appropriate adjustment of size, and means for detachably securing said poles to the casing.

3. The combination with a casing of an opening or object to be covered, of an adjustable curtain comprising a tubular telescoping horizontal pole, a vertical pole hinged at each end of the horizontal pole, a bracket secured to the casing at each end of the horizontal pole and having a lug extending horizontally inward to receive the horizontal pole and another lug extending downward to receive the ends of the vertical pole, and suitable curtain material secured to such poles, substantially as set forth.

588,391. ELECTRIC-MOTOR-CAR TRUCK. GEORGE M. BRILL and JOHN A. BRILL, Philadelphia, Pa. Original application filed June 25, 1896, Serial No. 597,169. Divided and this application filed Mar. 30, 1896. Serial No. 585,199. (No model.)



Claim.—1. In an electric-motor car, the combination of an electric-motor frame journaled at one end upon a car-axle, with a cross-bar elastically connected at each end with the truck-frame, and a mechanical connection between the other end of the motor-frame and the middle of the cross-bar, substantially as described.

2. In combination with a propelling-motor having a support on a car axle by journal-bearings, and a truck-frame, of a motor-holder comprising a cross-bar having a yielding connection with the motor-frame in the middle, and an elastic connection also with the truck-frame at each end of said cross-bar, substantially as described.

3. In combination with a propelling-motor having a support on a car-axle by journal-bearings, and a truck-frame, of a motor-holder comprising a cross-bar having a pivotal connection with the motor-frame in the middle, and springs or buffers between the ends of the cross-bar and the truck-frame, substantially as described.

4. In combination, with a propelling-motor having a support on a car-axle by journal-bearings, and a truck-frame, of a motor-holder comprising a cross-bar with slot-and-pin connection between itself and the motor-frame in the middle and a spring or buffer at each end between the cross-bar and the truck-frame, substantially as described.

5. The combination, with a car, of a motor-frame comprising the yokes tied together and provided with projections, said frame being hung on a car-axle by journal-bearings in said projections, the armature, the field-magnets, the pinion on the armature-shaft, the gear on the car-axle engaged by said pinion, and the holder for the motor-frame, comprising a cross-bar supported on the truck-frame by springs and pivotally connected with said motor-frame, substantially as described.

6. In a motor-truck, its axles and boxes, of the frame supported by said boxes, a cross-bar, springs for supporting the bar on said frame, and a motor sleeved at one end on one of the axles, its free end supported by said cross-bar.

7. In a motor-truck, its axles and boxes, the combination with a frame supported by said boxes, a cross-bar spring-supported on said frame, a motor partly supported on one of the axles and by the cross-bar, and guides for the cross-bar on said frame.

8. In a motor-truck, its axles and boxes, the combination with the axle-box frame, of a cross-bar, posts extending between the cross-bar and side bars of said frame, springs about the posts on which the cross-bar rests, and a motor partly supported on one of the axles and by said cross-bar.

9. In a motor-truck, its axles and boxes, the combination with the axle-box frame, of a cross-bar, posts extending between the cross-bar and the side bars of said frame, springs about the posts on which the cross-bar rests, a motor partly supported on one of the axles, and a movable connection between the free end of the motor and the cross-bar.

10. In a car-truck, the side bars of the axle-box frame composed of juxtaposed and parallel bars with turned-up edges, spacing-blocks or thimbles between the latter bars, the cross bar or bars intermediate of the side bar or bars, and means for connecting the side bars with the axle-boxes.

11. In a motor-truck, its axles and boxes, the combination with the frame supported by said boxes, said frame comprising the parallel bars d^2, d^3, and apertured thimbles J, of posts I passing through the thimbles, springs K about the posts and supported on said bars, a cross-bar secured to the posts and resting on the springs, and a motor partly supported by one of the axles, and partly by said cross-bar.

12. In a motor-truck, its axles and boxes, the combination with the frame supported by said boxes, said frame comprising parallel bars d^2, d^3, and apertured thimbles J, of posts I passing through the thimbles, springs K suitably supported, the cross-bar secured to said posts and supported by said springs, and a motor partly supported by one of the axles and partly by said cross-bar.

13. In a motor-truck, its axles and boxes, the combination with the frame supported by said boxes, posts I passing through the side bars of said frame, springs K about the posts and resting on the side bars, the cross-bar resting on the springs and secured to the posts, the upwardly-extending bracket on the cross-bar, and a motor partly supported on one of the axles and connected with said bracket.

14. In a motor-truck and its axles, the combination of the truck-frame having side bars, the cross-bar extending between the side bars, a spring or springs on the side bars for supporting the ends of the cross-bar, and a motor partly supported by one of the axles and partly by said cross-bar.

15. In combination with the truck of a car and the axles thereof, a motor supported between the side walls of a frame, said frame being pivoted at one end to the axle of the truck and at the other to a cross-bar cushioned on the side frame of the truck, substantially as described.

16. In combination, a motor, a frame supporting said motor between its side walls at one end, said frame having a rear extension pivoted to the axle of the car, driving connections between the motor and the car-axle carried by the frame, a cross-bar connecting the longitudinal bars of the truck beneath the motor, and a cushion between said cross-bar and the truck-frame, substantially as described.

17. In combination with a propelling-motor having a support on a car-axle by journal-bearings, and a truck-frame, a motor-holder comprising a cross-bar forming part of the truck-frame, with a spring or buffer between each end of the cross-bar and the truck-frame, substantially as described.

18. The combination with a motor and its upholding cross-bar, of the springs, the motor pivotally connected with the cross-bars and one or more retaining-bolts for the cross-bar connected to the side frames of the truck, substantially as described.

19. In combination with a propelling-motor of an electric car, a cross-bar constituting a holder for said motor and resting on the truck-bars with springs or buffers interposed, substantially as described.

20. In a car-truck, the side bars of the axle-box frame composed of juxtaposed and parallel side bars with turned-up edges, spacing-blocks or thimbles between the latter bars, a cross-bar extending between the side bars, posts secured to the cross-bar and guided by the thimbles, and springs resting on the side bars supporting said posts.

21. In combination with a propelling-motor of an electric car, a cross-bar constituting a holder for said motor and resting on the truck-bars with springs or buffers interposed, and guides in the truck-bars for said cross-bar, substantially as described.

22. In combination with the truck side bars, of a cross-bar, springs supporting the cross-bar on the side bar, and guide-posts in the side bars secured to the cross-bar.

23. In an electric-motor car, the combination of an electric-motor frame journaled at one end upon a car-axle, with a cross-bar extending between the side bars of the truck-frame, said bar having flanged ends, springs or buffers separating said ends and side bars and lying within said ends, a bolt or bolts connecting the ends and side bars, and a connection between the cross-bar and the other end of the motor-frame, substantially as described.

24. The combination of an electric-car motor journaled at one end to a car-axle, with a cross-bar extending between the side bars of the truck-frame and elastically mounted on said frame, and a mechanical connection between the free end of the motor and the middle of the cross-bar, substantially as described.

25. The combination with the two axles of a truck, and a truck-framing joining the same, of an intermediate motor having one end journaled on one axle, a frame for the motor and its associated parts, a cross-bar, a mechanical connection for the free end of the motor and said cross-bar, and a spring-support upholding the cross-bar on said frame.

26. The combination with the opposite axles of a truck, of an intermediate motor secured at one end to one of the axles, a frame joining the axles, a cross-bar secured to the free end of the motor, a spring-support for the cross-bar on the frame, and a car-body having a spring-support on the axles independently of said frame.

27. The combination of the axles of a railway-truck, and a framing mounted thereon, with an electric motor having at one end a bearing upon an axle independent of said framing, a cross-bar to which the motor free end is secured, a spring-support for the cross-bar on said framing, whereby the free end of the motor is upheld, and a car-body having a spring-support independent of said framing.

28. The combination of the side bars of the truck-frame bearing on the axles of the truck, and an electric motor having at one end a bearing upon one axle at a point between the frame-bars, with a mechanical connection between the motor and frame-bars consisting of a spring-supported cross-bar upholding the free end of the motor, and a car-body having a spring-support independent of the said frame.

29. The combination of the truck-frame side bars bearing on the axles outside of the wheels, and a transverse bar spring-supported on the side bars between the wheels, with a motor having a bearing at one end upon the axle between the wheels and a connection to the transverse bar upholding the free end of the motor.

30. The combination of the truck-frame joining the axles, with a motor having a bearing at one end upon the axle, and a connection to the frame, through a spring-supported cross-bar located at a point intermediate between the axles, upholding the free end of the motor, and a car-body having a spring system independent of said frame.

31. The combination of the axles of a railway-truck and a frame joining the same, with a propelling electric motor having an armature-shaft parallel to the axles, one end being journaled on the axle, and the free end having a yielding suspension from the said truck-frame comprising a cross-bar secured to said free end and spring-supported on said frame.

32. The combination in an electrically-propelled vehicle, of the side bars joining the journal-boxes outside of the wheels and holding them in position, a motor centered upon an axle of the vehicle and provided with a framing independent of the side bars and holding the associated parts of the motor, with a connection between said framing and the side bars upholding the free end of the motor, said connection comprising a cross-bar secured to said free end, and springs for supporting said cross-bar on the side bars.

33. The combination in an electrically-propelled vehicle of a motor centered on an axle thereof, a framing including the bars of having a bearing on the axle between the wheels and carrying the associated parts of the motor, with a connection from the free end of the motor to the outside journal-boxes comprising a cross-bar, and springs supporting the cross-bar on the truck-framing, by which the said free end is upheld independently of the car-body.

34. The combination in an electrically-propelled vehicle, of a motor centered on an axle thereof, a journal-bearing between the wheels supporting one end of the motor, a framing attached to boxes outside the wheels, a vehicle-body spring-supported on said boxes, and a connection between the framing and the free end of the motor comprising a cross-bar spring-supported on said framing, by which the free end of said motor is supported.

35. The combination with the driven axle of a railway-truck, of an electric motor having one end journaled directly upon one axle independently of the truck-frame, a yielding suspension comprising a cross-bar spring-supported on the truck-frame and secured to said free end and upholding said end, and power-transmitting connections between the motor and said axle.

36. The combination of the electric motor having a bearing at one end upon one axle of the truck, with the truck-frame having a transverse bar, as at H, a motor-frame supporting the associated parts of the motor, and a resilient connection of said transverse bar to the truck-frame, said bar upholding the free end of the motor.

37. The combination of an electric motor having a bearing at one end upon an axle of a railway-truck, and a yielding suspension upholding the free end at a point between the car-axles, said suspension comprising a cross-bar resiliently supported upon the truck-frame, and power-transmitting gearing between the motor and said axle.

38. The combination of a driven axle of a vehicle, and a propelling electrical motor having one end bearing upon the axle and a connection between the motor and said vehicle at an intermediate point between the axles, comprising a resiliently-supported cross-bar secured to the motor and upholding its free end.

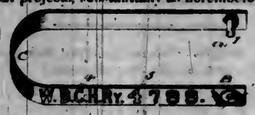
39. The combination of a frame joining the axles of a motor-truck, with an electric motor having one end journaled upon one axle independent of the frame, and a mechanical connection between the motor and the frame comprising a resiliently-supported cross-bar upholding the free end of the motor.

40. The combination of a driven axle of a vehicle, with a propelling electric motor having an extension from its frame forming a bearing upon the axle, a yielding suspension for the free end of the motor on the truck comprising a resiliently-supported cross-bar, and power-transmitting connections between the motor and said axle, substantially as described.

41. The combination with a driven axle of an electrically-propelled vehicle, of a motor having one end journaled upon said axle, and a framing extending horizontally from said axle, an armature and counter-shaft journaled in said frame, the frame rigidly holding the armature and counter-shaft in alinement with the axle and each other, and supported as a whole by a resiliently-supported cross-bar, said cross-bar having a bearing on an independent frame supported by the axles of the vehicle.

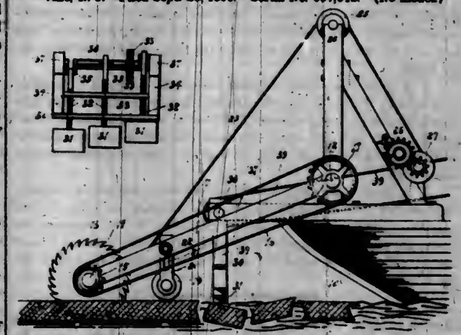
588,392. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Apr. 16, 1897. Serial No. 632,501. (No model.)

Claim.—1. A press-fastened seal, in the form of a flexible shackle of sheet metal, in one piece, provided at or near one end with a hollow teat integral with said end and having a closed disk-forming extremity, the other end of the seal being provided with a hole through which said teat projects, substantially as hereinbefore specified.



2. In a press-fastened seal, in the form of a flexible shackle of sheet metal, in one piece, having a disk-forming teat and a hole to interlock with said teat at its respective ends, a guard-ring raised on the shackle end last named concentric with said hole and surrounding the single disk formed by said teat, substantially as hereinbefore specified.

588,393. ICE-CUTTING APPARATUS. EDWIN F. BROWN, Somerville, N. J. Filed Sept. 26, 1896. Serial No. 607,012. (No model.)

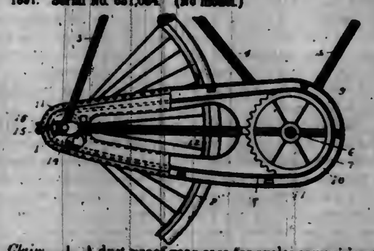


Claim.—1. The combination with the vessel and the forwardly-projecting supports thereon, of the independent mandrels carried by the supports, independently-driven saws journaled on the mandrels, and a vertically-arranged battery of plungers supported behind the saws, the plungers being arranged to strike successively on the ice, substantially as described.

2. The combination with the vessel, of the vertically-swinging supports on the bow thereof, the saws journaled on the said supports, means for driving the saws, the vertically-adjustable guide-rollers secured to the supports, a rigid frame held behind the saws and in advance of the vessel's bow, and a battery of positively-driven plungers held on the rigid frame and arranged to strike successively on the ice, substantially as described.

3. The combination with the vessel, of the swinging supports or frames projecting forward from the vessel, the vertically-adjustable guide-rollers secured to the frames, the independently journaled and driven saws on the supporting-frames, and vertically-reciprocating plungers arranged behind the saws and in advance of the vessel, substantially as described.

588,394. GEAR-CASE FOR BICYCLES. HARRY J. BUELL, Fort Wayne, Ind., assignor to Louis A. Centlivre, same place. Filed Apr. 7, 1897. Serial No. 631,084. (No model.)

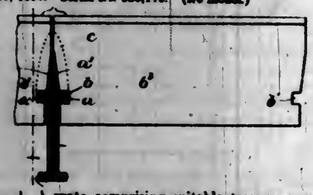


Claim. 1. A dust-proof gear-case for cycles comprising two separable interlocking sections, each section formed of a single piece of sheet metal as shown, an interlocking peripheral closer formed of a single piece of sheet metal folded upon itself, and adapted to form an interlocking union with the outer edges of said sections and to firmly clamp said sections together, as described; and means for detachably securing said case-sections to the cycle-frame.

2. In a dust-proof gear-case for cycles the combination of the

separable interlocking sections 9 and 10, constructed as described; a peripheral closer 11 folded upon itself, adapted to close the outer and open faces of the said case-sections by an interlocking engagement with the sides thereof, and to rigidly clamp the said sections together, substantially as described.

588,395. GRATE. William L. Church, New York, N. Y. Filed Mar. 26, 1897. Serial No. 630,179. (No model.)

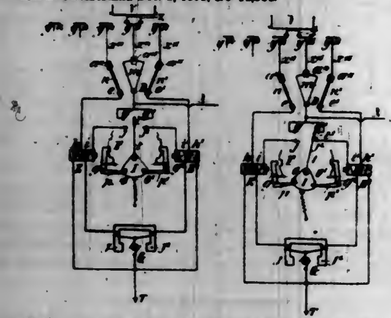


Claim.—1. A grate comprising suitable transverse supports, a plurality of relatively thin and wide flexible bars mounted edgewise on said supports, and means for independently flexing portions of said bars at a plurality of points to shake the fuel supported by their upper edges.

2. A grate comprising suitable transverse supports, a plurality of relatively thin and wide flexible bars mounted edgewise on said supports, each bar being composed of a series of independent sections placed end to end, and means for independently flexing portions of said bars at a plurality of points to shake the fuel supported by their upper edges.

3. A grate comprising suitable transverse supports, a plurality of relatively thin and wide flexible bars mounted edgewise on said supports, spacing-washers removably mounted on the supports between the bars, and means for independently flexing portions of said bars at a plurality of points to shake the fuel supported by their upper edges.

588,396. ELECTRIC-RAILWAY SYSTEM. Jean Clarey and Olivier Vuillemier, Paris, France. Filed Aug. 4, 1896. Serial No. 601,673. (No model.) Patented in France June 8, 1895, No. 243,015, and in Switzerland Dec. 2, 1895, No. 11,508.



Claim.—1. A distributer for an electric railway having a series of keys to be connected to the spaced contacts of the railway, contact-arms to move over and touch said keys, an electric motor to move the said arms, a locking-wheel moving with the motor, armature-levers to lock the wheel, electromagnets to act on said armature-levers, and an escapement I acted on by said armature-levers to supply current to cause the motor to turn in one direction or the other, according to the direction in which the vehicle travels, substantially as described.

2. A distributer for an electric railway having a series of keys to be connected to the spaced contacts of the railway, three contact-arms to move over and touch said keys, an electric motor to move said arms, a locking-wheel moving with said motor, armature-levers to lock said wheel, electromagnets to act on said armature-levers, each of the electromagnets having a coil connected to one of said contact-arms, and another coil connected to a contact-piece j (j') and the motor-coils, an escapement I acted on by the armature-levers to connect one or other of the contact-pieces j j' to the current-supply to cause the motor to turn in one direction or the other, according to the direction in which the vehicle travels, substantially as described.

3. The combination of the spaced contacts of an electric-railway system, divided into sections, with a series of distributers, each controlling a section and each having posts c^3, c^4 and c^5 electrically connected one with a key a^{30} to a^{35}, another with the end-spaced contact fed with current by the adjacent distributar on the left, and the third to the end-spaced contact fed with current by the adjacent distributer on the right, and means for automatically putting post c^3 into electrical connection with c^4 or c^5, as the vehicle passes from one section of the way to the next in one direction or the other, substantially as described.

4. The combination of the spaced contacts of an electric-railway system, divided into sections, with a series of distributers each controlling a section and each having a series of keys severally connected to the spaced contacts of its section, contact-arms moving over and touching said keys and posts c^3, c^4, and c^5, electrically connected, one with a key a^{30} to a^{35}, another with the end-spaced contact (such a y^{10} to y^6) fed with current by the adjacent distributer on the left, and the third to the end-spaced contact (such as y^{30} to y') fed with current by the adjacent distributer on the right, and a plate, such as L', moving with the above-mentioned contact-arms to close connection between c^3 and c^4 or between c^3 and c^5, as the vehicle passes from one section of the way to the next, in one direction or the other substantially as described.

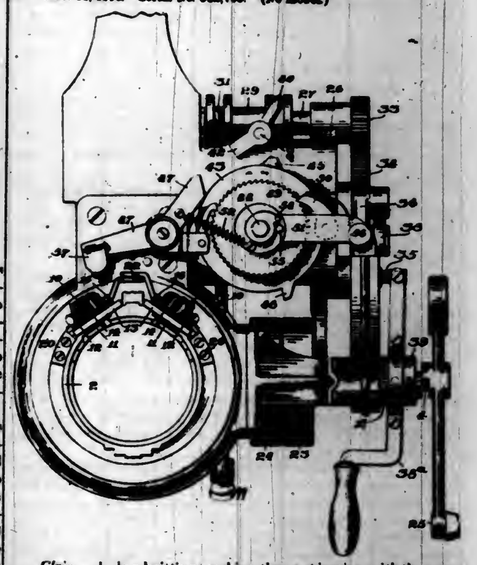
5. A distributer for an electric railway having a series of keys to be connected to the spaced contacts of the railway, contact-arms to move over and touch said keys, an electric motor to move said arms, a locking-wheel secured on the shaft of the moving part of the motor with elastic connections, armature-levers to lock the wheel and electromagnets to act on the armature-levers, substantially as described.

588,397. GRAY DYE. Albert Cobenn, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 635,622. (Specimens.)

Claim.—1. The process herein described of producing a gray dyestuff, which consists in condensing alkylsafranin with formaldehyde in a strong mineral-acid solution; substantially as set forth.

2. As a new product the gray dyestuff, being a safranin derivative obtained by the condensation of alkylsafranin with formaldehyde in a strong mineral-acid solution, and being a black powder, easily soluble in water, difficultly soluble in alcohol, insoluble in ether, benzene, ligroin, &c., and soluble in concentrated sulfuric acid with a green color, substantially as set forth.

588,398. KNITTING-MACHINE. Stephen S. Cook, Philadelphia, Pa., assignor to the Branson Machine Company, same place. Filed Mar. 11, 1896. Serial No. 582,705. (No model.)



Claim.—1. In a knitting-machine, the combination, with the cam-cylinder and its knitting-cams, of rotatable supports at or adjacent to the respective ends of said cams, independently-movable needle-controlling cams on said supports, means to maintain said supports normally in one position, means to lock them temporarily in another position, and automatic trip mechanism for said locking means, substantially as described.

2. In a knitting-machine, the combination, with the cam-cylinder and its knitting-cams, of rotatable supports at or adjacent to the respective ends of said cams, independently-movable needle-controlling cams on said supports, springs to maintain said supports normally in one position, means to lock them temporarily in another position in opposition to the springs, and automatic trip mechanism for said locking means, substantially as described.

3. In a knitting-machine, the combination, with the cam-cylinder and its knitting-cams, of rotatable supports at or adjacent to the respective ends of said cams, independently-movable needle-controlling cams on said supports, springs to maintain said supports normally in one position, latch-arms, and provisions whereby said arms lock the supports in opposition to the springs, and automatic trip mechanism for said latch-arms, substantially as described.

4. In a knitting-machine, the combination, with the cam-cylinder, its knitting-cams, needle lifting and depressing devices, means tending to maintain said devices normally in one position, and means to lock them temporarily in another position, of an intermittently-rotatable disk, means for operating the same, and means actuated by said disk to trip the locking means, substantially as described.

5. In a knitting-machine, the combination, with the cam-cylinder and its knitting-cams, of rotatable supports at or adjacent to the respective ends of said cams, independently-movable needle-controlling cams on said supports, means to maintain said supports normally in one position, latch-arms constructed to lock them temporarily in another position, and a trip-lever to engage said arms and effect the release of the supports, substantially as described.

6. In a knitting-machine, the combination, with the cam-cylinder, its knitting-cams, needle lifting and depressing devices, means to maintain said devices normally in one position, and means to lock them temporarily in another position, of a trip device to release said lock-ing means, a pattern-wheel provided with ratchet-teeth and adapted to actuate said trip device, a pawl-bearing arm coacting with said teeth, and means for actuating said pawl, substantially as described.

7. In a knitting-machine, the combination, with the cam-cylinder, its knitting-cams, needle lifting and depressing devices, means to maintain said devices normally in one position, and means to lock them temporarily in another position, of mechanism for imparting rotary reciprocating movement to the cylinder, means to throw said mechanism into and out of operation, a pattern-wheel having provisions to effect the inaction of said mechanism, means whereby said pattern-wheel is actuated by the said mechanism, and means actuated by said wheel to trip the locking means for the lifting and depressing devices, substantially as described.

8. In a knitting-machine, the combination, of the cam-cylinder, its knitting-cams, the driving-shaft geared with said cylinder, a second shaft, a driving-wheel loosely mounted thereon, mechanism intermediate said shafts for imparting rotary reciprocating movement to the first named shaft, means for fixing said pulley to, and releasing it from, its shaft, a pattern-wheel, having provision to operate said last-named means, and means whereby said pattern-wheel is actuated by said mechanism, substantially as described.

588,399. ELECTRIC FIRE-ENGINE. George W. Cox, Stuart, Iowa. Filed Dec. 30, 1895. Serial No. 573,853. (No model.)



Claim.—1. In an electric fire-engine, a water-tank and a rotary pump mounted on a carriage, an induction-pipe C^2 connected with the pump and provided with a T-joint D^2 one branch of which is connected with the tank and the other branch provided with a branch C^3 leading to the tank and a valve in the branch for closing communication between the pump and tank and also provided with a branch C^4 and a valve in said branch, and a hose attached to said branch for distributing water, all arranged and combined to operate in the manner set forth for the purposes stated.

2. In an electric fire-engine, an electric motor, a pump, a water-supply tank, a pipe communicating with the pump and tank and provided with an intervening valve and also provided with a branch for connecting a hose leading to a water-supply and a valve in said branch and a second pipe communicating with the pump and tank and provided with a valve between the pump and the tank and a branch having a distributing-hose attached thereto and a valve for closing communication with said hose, arranged and combined to operate in the manner set forth for the purposes stated.

3. The combination in an electric fire-engine upon a suitable carriage, a pump, a water-supply tank, a pipe leading from the pump to the tank and a valve for closing communication between the pump and tank and a branch extending from said pipe having a hose attached thereto for filling the tank and a valve for closing communication with said hose, a storage battery, an electric motor, means for electrically connecting the motor and battery, a second pipe leading from the pump to the tank and provided with a valve for closing communication with the tank and a branch for attaching hose thereto to distribute water and a valve in the branch for closing communication with the hose, means for connecting the storage battery with an extraneous electric conductor and means for transmitting power from the motor to the traction-wheels of the carriage for the purposes stated.

4. In an electrical fire-engine, the combination of an electric motor and a rotary pump on the same shaft, a suitable water-tank supported between the wheels of the carriage, a storage battery mounted on the tank, wires for connecting the storage battery and motor and the pipes leading from the tank to the pump, a hose connected with one of said pipes to draw water from a suitable source of water-supply to the pump and tank and a hose connected with the other pipe to distribute water from the tank and pump, as and for the purposes stated.

5. In an electrical fire-engine, the combination of an electric motor and a rotary pump on the same shaft, a suitable water-tank supported between the wheels of the carriage, a storage battery mounted on the tank, wires for connecting the storage battery and motor, a T-pipe connected with the pump and one branch thereof communicating with the tank and the other branch provided with a hose for drawing water and a second T-pipe connected with the pump and the tank and provided with a hose for distributing water and suitable gearing for connecting the motor and pump-shaft with the driving-axle, substantially as and for the purposes stated.

6. An electric fire-engine comprising a suitable carriage, an electric motor, a pump, a water-supply tank, a pipe leading from the tank and a valve for closing said pipe, a pipe leading to an extraneous water-supply and a valve for closing said pipe, a pipe leading from the pump to the tank and provided with a valve for closing said pipe, a hose for distributing water from said pipe and a valve in the pipe for closing communication with said hose, a storage battery, means for detachably connecting said battery with the motor, means for detachably connecting the motor with an extraneous electric conductor and means for detachably connecting the motor with the traction-wheels of the carriage, all arranged and combined to operate in the manner set forth.

7. In an electric fire-engine, the combination with a carriage of a tank for storing water, a storage battery located on top of the tank, an electric motor, means for connecting the motor and storage battery, a pump, a pipe communicating with the pump and tank and provided with an intervening valve and also provided with a branch for connecting a hose leading to a water-supply and a valve in said branch and a second pipe communicating with the pump and tank and provided with a valve between the pump and the tank and a branch having a distributing-hose attached thereto and a valve for closing communication with said hose, means for connecting the storage battery with an electric conductor that is extraneous to the engine, and means for transmitting power from the motor to the traction-wheels of the carriage to propel the engine for the purposes stated.

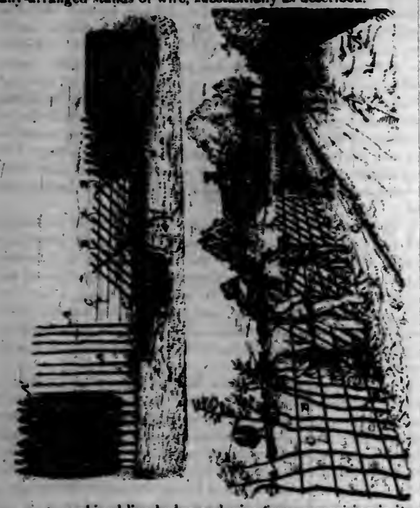
588,400. COMBINED HEDGE AND WIRE FENCE. David W. Crider, York, Pa., and Samuel C. Herr, Catonsville, and Thomas Cookins, Towson, Md., assignors, by direct and mesne assignments, to the National Hedge and Wire Fence Company, York, Pa. Filed Dec. 10, 1896. Serial No. 615,177. (No model.)

Claim.—1. A combined hedge and wire fence comprising in its construction plants placed at suitable distances apart having their branch roots removed leaving the life or tap roots, the plants being secured in position on longitudinal wires at angles of approximately forty-five degrees, means for bracing and holding the plants in one or both directions, and means for securing the plants to the longitudinal wires, substantially as described.

2. A combined live hedge and wire fence comprising in its construction plants having their branch roots removed, leaving the life or tap roots, and secured in position at angles of approximately forty-five degrees, longitudinally-arranged wires, and dwarfed bracing-plants placed at suitable distances apart and bent reversely to the other plants at approximately the same angles, and means for securing all the plants including the dwarfed bracing-plants in position upon the longitudinal wires, substantially as described.

3. A combined live hedge and wire fence comprising in its construction plants having their branch roots removed, leaving the life or tap roots, one-half of the plants being bent in one direction at angles of approximately forty-five degrees, and the other plants bent

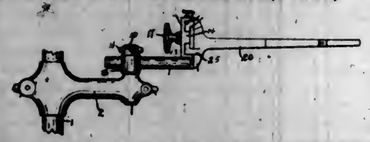
in a reverse direction at approximately the same angles, longitudinally-arranged stands of wire, substantially as described.



5. A combined live hedge and wire fence comprising in its construction plants having their branch roots removed, leaving the life or tap roots, and placed in a zigzag manner, one-half of the plants being bent in one direction at angles of approximately forty-five degrees, and the other plants being bent in a reversed direction at approximately the same angles, longitudinally-arranged strands of wire, and means for securing the plants in position on the wires, substantially as described.

5. A live fence comprising in its construction plants placed at suitable distances apart and secured in position at angles of approximately forty-five degrees, longitudinally-arranged strands of wire, staples or other suitable means for securing the plants to the strands of wire, a live end or corner post, and bracing means consisting of live plants bent over and secured to the live post, substantially as described.

588,401. CLAMP-BRACKET. MELVIN E. CROWELL, Indianapolis, Ind. Filed Oct. 7, 1896. Serial No. 608,168. (No model.)



Claim.—1. A bracket comprising a frame provided with a pair of parallel guideways, a rack movable in each of such guideways, bracket-arms secured to such racks at their opposite ends, and a pinion mounted in the bracket-frame in engagement with such racks.

2. A bracket comprising a suitable frame, racks slidably mounted in opposite portions of such frame, a pinion mounted in the frame that engages the rack on either side, and a bracket-arm secured to one end of one rack and another at the opposite end of the other rack, such bracket-arms having bracing extensions at their bases that engage the opposite sides of the frame.

3. A bracket comprising a suitable frame, racks slidably mounted in opposite portions of such frame, a pinion mounted in the frame between the racks so as to engage them on either side, arms secured to such racks at their opposite ends, and a set-screw mounted in the frame that engages one of said racks whereby the racks and pinion may be locked.

588,402. MANHOLE AND COVER. JOHN T. CULLEN, Clinton, Iowa. Filed Nov. 3, 1896. Serial No. 610,911. (No model.)

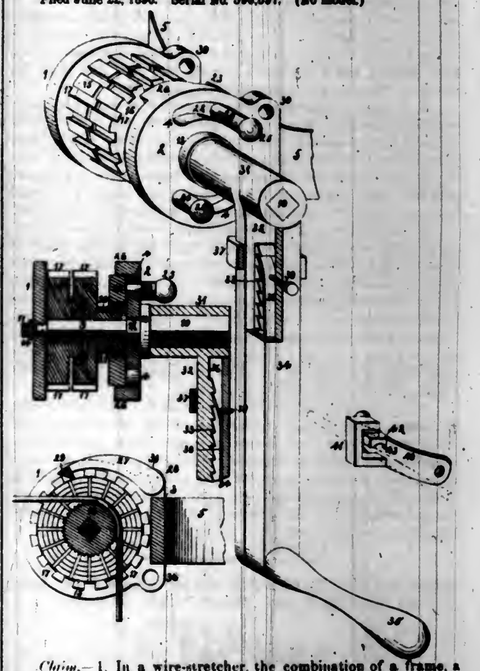


Claim.—1. The combination with a boiler provided with a manhole and having an annular recess on its inner face a short distance from the edge of the manhole, of a cover provided with an annular ridge on its outer face a short distance from its margin to enter the said recess, whereby the cover will have bearing on each side of the recess, substantially as described.

2. The combination with a boiler provided with a manhole and having the material of which it is formed bent outward a short distance from the manhole to form an external annular bead and an internal annular recess around the manhole, of a cover provided with an annular projection on its outer face a short distance from its margin to enter the said recess, substantially as described.

3. The combination with a boiler provided with an external annular bead around its manhole, said bead forming an annular internal recess around the manhole, of a cover having an annular ridge to enter the said recess, bolts secured to the cover, and yokes in which the bolts work, said yokes having their ends resting upon the bead of the boiler, substantially as described.

588,403. WIRE-STRETCHER. ALBERT DAVISON, Belvidere, Ill. Filed June 22, 1896. Serial No. 596,397. (No model.)



Claim.—1. In a wire-stretcher, the combination of a frame, a rotary shaft supported thereby, and two serrated-faced plates supported by the shaft and rotated in unison thereby, one made yielding.

2. In a wire-stretcher, the combination of a frame, a rotatable shaft supported thereby, two serrated-faced plates supported by the shaft and rotated in unison thereby, one movable in the lengthwise direction of the shaft and a spring holding the movable plate against the other plate.

3. In a wire-stretcher, the combination of a frame, a rotatable shaft supported thereby, two serrated-faced plates supported by the shaft and rotated in unison thereby, one made yielding and a friction-brake supported by the frame and adapted to force the plates together.

4. In a wire-stretcher, the combination of a frame, a rotatable shaft supported thereby, two serrated-faced plates supported by the shaft and rotated in unison thereby, one made yielding and a crank for rotating the shaft having an extensible section.

5. A support for a fence-wire consisting of a band, a hook extending therefrom, a projection located within the hook having a grooved under face.

6. In a wire-stretcher, the combination of a frame, a rotary shaft supported thereby, two serrated-faced plates supported by the shaft and rotated in unison thereby, means for rotating the shaft, each plate having its periphery notched and a dog capable of engaging the notches preventing the rotation of the plates.

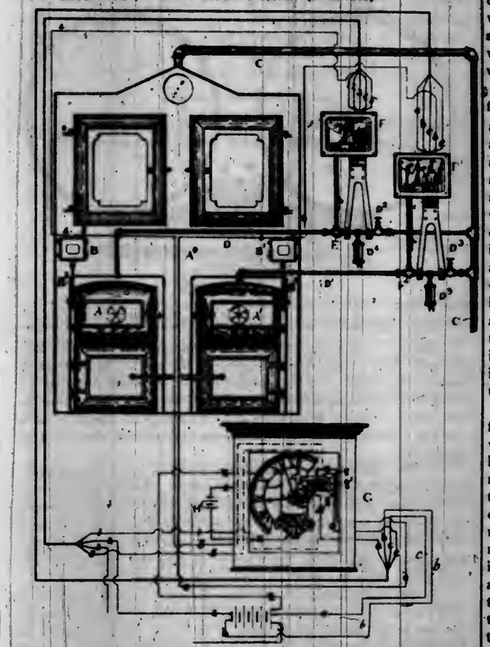
7. In a wire-stretcher, the combination of a frame, a rotary shaft supported thereby, two serrated-faced plates supported by the shaft and rotated thereby, and a crank for rotating the shaft provided with a toothed rack, an extensible section having a slidable connection with the crank supporting a spring adapted to engage the teeth of the rack.

588,404. DEVICE FOR SUPPORTING BATH-TUBS WHEN APPLYING ENAMEL. WILLIAM C. DEHLMAN, Allegheny, Pa., assignor to the Victor Manufacturing Company, Pittsburg, Pa. Filed Mar. 12, 1897. Serial No. 627,130. (No model.)



Claim.—In devices for supporting bath-tubs when applying the enamel, the combination of a suitable frame, a tilting table supported thereby, said tilting table having a seat adapted to engage a lug on the bottom of the bath-tub, and means for securing said lug within said seat, substantially as set forth.

588,405. SMOKE-CONSUMING DEVICE. WILLIAM L. DENIO, Rochester, N. Y., assignor to the Denio Smoke Consumer Company. Filed Jan. 13, 1896. Serial No. 575,402. (No model.)



Claim.—1. The combination with a furnace, of an injection-pipe into the fire-space thereof, a valve in said pipe, a valve-operating mechanism for opening and closing said valve including an electric motor therefor and provided with means for stopping said motor after a predetermined interval, a time mechanism independent of the valve-operating mechanism, means connected with said time mechanism for closing an electric circuit, a source of electrical energy in said circuit, a second circuit from said source of energy to said motor and means for breaking said second circuit after the valve is opened until said first circuit is closed, and an electric device connected with the furnace-door for starting said motor.

2. The combination with a furnace, of an injection-pipe into the fire space thereof, a valve in said pipe, a valve-operating mechanism, an electric motor for actuating said valve-operating mechanism for opening and closing said valve, means for stopping said motor after a predetermined interval by disconnecting it from its source of energy, a source of electrical energy, a mechanism connected with the furnace-door for connecting said source of energy with said motor, a time mechanism for reconnecting said source of energy with said motor after a predetermined interval, whereby the valve is opened by the valve-operating mechanism and is held open during said predetermined interval and is then closed.

3. The combination with a furnace, of an injection-pipe into the fire-space thereof, a valve in said pipe, a valve-operating mechanism, an electric motor for actuating said valve-operating mechanism provided with means for varying its rate of motion and with means for disconnecting it from its source of energy after a predetermined interval, a source of electrical energy, an electrical mechanism connected with the furnace-door for connecting said source of energy with said motor, a time mechanism for reconnecting the source of energy and the motor after a predetermined interval, means for varying said interval, whereby the valve is opened and closed by the valve-operating mechanism at a predetermined rate of movement and is held open during a predetermined interval and means for starting said valve-operating mechanism when the valve is closed by disconnecting said motor from said source of energy.

4. The combination with a furnace, of an injection-pipe into the fire-space thereof, a valve in said pipe, a source of electrical energy, an electrical motor, mechanical connections therewith for opening and closing said valve, an electromagnet having a movable armature and provided with means for connecting said motor and said source of energy when said armature is actuated, an electrical mechanism connected with the furnace-door for energizing said electromagnet, whereby the motor is started, a time mechanism having a circuit-closer movable thereby and in circuit with said motor and said source of energy, means for closing said circuit-closer after said valve is open for a predetermined interval, whereby said motor is stopped when said valve is open and during a predetermined interval and is started again at the end of said predetermined interval to close the valve, and means for automatically stopping said motor when the valve is closed.

5. The combination with a furnace, of an injection-pipe into the fire-space thereof, a valve in said pipe, a source of electrical energy, an electrical motor, mechanical connections therewith for opening and closing said valve and for stopping the motor after it has operated during a predetermined interval, an electromagnet having a movable armature provided with means for connecting said motor and said source of energy when said armature is actuated, an electrical mechanism connected with the furnace-door for energizing said electromagnet, whereby the motor is started, a time mechanism having a circuit-closer movable thereby and in circuit with said motor and said source of energy, means for closing said circuit-closer after said valve is open for a predetermined interval, whereby said motor is stopped when said valve is open and during a predetermined interval and is started again at the end of said predetermined interval to close the valve, means for automatically stopping said motor when the valve is closed, means for varying the rate of movement of said motor, and independent means for varying the interval between the stopping of the motor and the closing of said circuit through said circuit-closer.

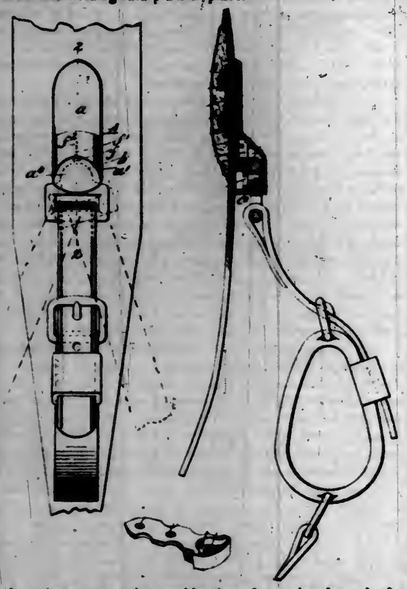
6. The combination with a furnace, of an injection-pipe into the fire-space thereof, a valve in said pipe, a lever connected with said valve for opening and closing the same, a lever I for moving the lever f^2 to move the valve in one direction, a disk I^2 provided with means for engaging the lever f^2 and for moving it in the other direction and provided with means for actuating said lever I, a motor for operating said disk in one direction, a source of electrical energy, a mechanism for connecting said source of electrical energy with said motor, a time mechanism having a revolving shaft G', an arm z moved in one direction by friction with said shaft, a contact-point for said arm, an electromagnet provided with means for actuating said arm in the other direction to break contact between said arm and said contact-point, means for energizing said electromagnet at or after the time when the furnace-door is open, means actuated by the furnace-door for connecting said motor with said source of electrical energy, connections with said arm z and said contact-point through said source of electrical energy and said motor, whereby the motor is stopped until said arm renews contact with said contact-point, and means for stopping the motor after the valve is closed.

588,406. HARNESS-TUG SUPPORT. ALANSON F. DIXIE, Altamont, N. Y. Filed Mar. 26, 1897. Serial No. 629,433. (No model.)

Claim.—1. In a harness-tug, the combination of a casing having a socket formed therein, a pintle projecting from said casing into said socket, a strap-plate pivoted on said pintle, and a means for holding said plate and casing together.

2. In a harness-tug, the combination of a casing having a socket

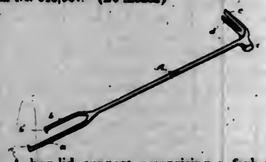
formed therein, a pintle projecting from said casing into said socket, a strap-plate pivoted on said pintle, and a retaining-plate covering said socket and holding said plate in place.



3. In a harness-tug, the combination of a casing formed of a plate and cap, said plate and cap having recesses formed therein, a pintle projecting from the top of said cap into the recess formed in the said cap, a strap-plate having a rounded portion adapted to fit in the recess formed in said cap and pivoted on said pintle, and a retaining-plate adapted to cover the said recesses and to hold said strap-plate in place.

4. In a harness-tug, the combination of a casing formed of a plate and cap, said plate and cap having recesses formed therein, a pintle projecting from the top of said cap into the recess formed in the said cap, a strap-plate having a rounded portion adapted to fit in the recess formed in the cap and pivoted on said pintle, and a retaining-plate adapted to cover said recesses and having a boss adapted to register with the recess formed in said cap and having an aperture therein adapted to engage with said pintle.

588,407. COVER-SUPPORT, BOX-OPENER, HAMMER, AND STAMP-ERASER. ROBERT L. DOBSON, Detroit, Mich. Filed Nov. 30, 1896. Serial No. 613,907. (No model.)



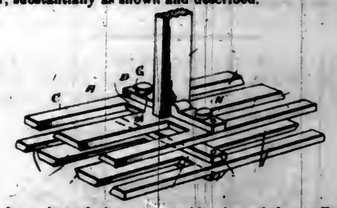
Claim.—1. A box-lid support, comprising a fork with tines of unequal length, each tine terminating with an inturned point adapted to engage the box, a second fork adapted to engage the cover, and a bar uniting the two forks, substantially as described.

2. The combination of a uniting-bar, a forked claw at one end thereof adapted to engage the lid of a box, and also to engage a nail-head for the purpose of drawing the nail, and a forked claw on the opposite end provided with tines of unequal length having inwardly-turned points adapted to engage the end of a box, substantially as described.

3. In combination with the bar *A*, the fork *c*, *d*, and the fork *a*, *b*, the planes of said forks being at substantially right angles, the tines of the fork *a b* being rigidly connected to the bar *A*, of unequal length, and provided with inwardly-turned points, substantially as described.

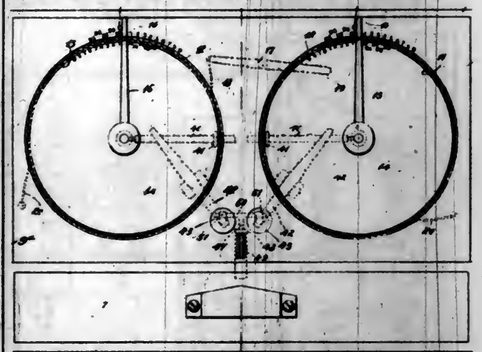
588,408. CHURN-DASHER. WILLIAM DULIN, Chanute, Kans. Filed Mar. 23, 1897. Serial No. 628,847. (No model.)

Claim.—1. In a churn-dasher, the combination of a staff, an upper breaking device, and a lower breaking device, the upper breaker fixed to the staff, the lower breaker loosely secured centrally between its ends to, and adapted to move vertically with respect to the upper breaker, the loose central mounting of the lower breaker permitting it to oscillate as well as to move vertically with respect to the upper breaker, substantially as shown and described.



2. In a churn-dasher, the combination of the staff, the upper double-ended comb-shaped breaker secured centrally to the staff and formed with vertical apertures in a line with the staff extending transverse the breaker, the lower double-ended comb-shaped breaker, and headed pins smaller in diameter than the diameter of the upper-breaker apertures and extended therethrough and uniting with the lower breaker in a line extending transverse and centrally across the same, whereby the lower breaker is movable vertically with relation to the upper breaker and also adapted to oscillate with respect thereto, substantially as shown and described.

588,409. ADDING-MACHINE. WILLIAM J. ELLSWORTH, Erie, Pa., assignor of one-fourth to John W. Galbraith, same place. Filed Mar. 23, 1897. Serial No. 628,847. (No model.)



Claim.—1. The combination of a registering-disk, a spindle axially coincident thereto and independent thereof, an operating-arm loose on the spindle, a spring connecting the operating-arm with the spindle, the operating-arm being capable of engaging the registering-disk, and the spindle being slidable to disengage the operating-arm and the registering-disk, and means for transmitting movement to the spindle.

2. The combination of a revolubly-mounted registering member, an operating-arm, a spindle axially coincident to the registering member and having the operating-arm loose thereon, a spring connecting the operating-arm and spindle, the operating-arm being capable of engagement with the registering member, a bar engaging the spindle, and a lever engaging the bar whereby to slide the spindle and disengage the operating-arm and registering member.

3. The combination of a revoluble member, an arm mounted to swing on an axis coincident to the axis of said revoluble member, the arm being capable of engaging with the revoluble member to impart rotary movement thereto, and being slidable axially toward and from the revoluble member to engage and disengage the same, and means actuating the arm to return the arm to normal position when disengaged from said revoluble member.

4. The combination of a revoluble member, an arm swinging on an axis coincident to the axis of said revoluble member and capable of engaging the revoluble member to impart rotary movement thereto, the arm being slidable axially to engage and disengage the revoluble member, means actuating the arm to return the same to normal position when the arm is disengaged from the revoluble member, and means for sliding the arm toward and from the revoluble member.

5. The combination of a revoluble disk having a toothed periphery, an arm swinging in parallelism with the disk, and on an axis coincident to the axis of the disk, the arm having a lateral offset capable of engaging with the teeth of the disk, and the arm being slidable axially to engage and disengage the said projection with the teeth, and means actuating the arm whereby to return the arm to a normal position when the arm is disengaged from the teeth of the disk.

6. The combination with a casing, of a revoluble member mounted therein, a spindle in the casing and axially coincident to the said revoluble member, the spindle being slidable longitudinally, a swinging arm carried on the spindle and capable of engaging with the revoluble member to impart rotary movement thereto, the arm being slidable with the spindle to engage and disengage the revoluble member, and a second arm in connection with the spindle and located at a portion of the casing opposite to the portion having the first-named arm, the second arm following the movements of the spindle and indicating the operation of the said first arm.

7. The combination of a revoluble member, a swinging arm adjacent to the said revoluble member, the arm being movable longitudinally of its axis whereby to engage and disengage the said movable member, and means for returning the arm to its normal position when the arm is disengaged from the said movable member.

588,410. RAILWAY-SWITCH. GEORGE M. ERVIN, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed May 6, 1897. Serial No. 635,432. (No model.)



Claim.—In a railway-switch, the combination with a base structure having a floor portion through which is an opening consisting of a narrow portion and a wide portion, a shelf beneath said opening, a bolt having a head adapted to be dropped through said wide portion of the opening, a movable switch member having a passage for the bolt and a seat for a nut, and a nut engaging said bolt.

588,411. PIPE-COUPLING. ALEXANDER W. FINLAYSON, Detroit, Mich. Filed Aug. 17, 1896. Serial No. 602,977. (No model.)



Claim.—In a pipe-coupling, the combination of the coupling parts A and B having the opposed ends one of which is externally threaded, the part A having the lateral flange with a recess in the face thereof, the part B having a raised shoulder provided with an annular recess therein, the internally-threaded collar screwed from the part B onto the part A uniting said parts and having at each end a flange which enters said recesses in said parts.

588,412. TRIMETHYLBENZYL-URIC ACID AND PROCESS OF MAKING SAME. EMIL FISCHER, Berlin, Germany, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Filed Apr. 17, 1897. Serial No. 632,679. (No specimens.)

Claim.—1. The process which consists in acting upon a trialkyl-uric acid, together with an alkali, with a haloid ether.

2. The process which consists in acting upon a trialkyl-uric acid, together with an alkali, with a benzyl halogen compound.

3. The process which consists in treating trimethyl-uric acid together with an alkali and water, with benzyl chlorid.

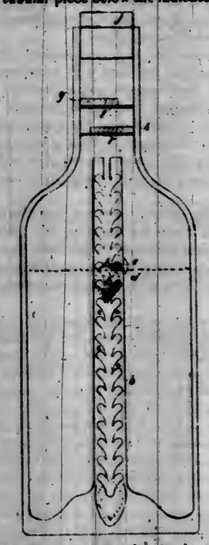
4. The process which consists in dissolving trimethyl-uric acid in potash-lye and water, then heating the same with benzyl chlorid.

5. As a new chemical compound, trimethylbenzyl-uric acid having the formula above given, which melts at about from 171° to 173° centigrade, and crystallizes from alcohol in large coarse crystals insoluble in alkalies.

588,413. BOTTLE. GERALD T. FITZGERALD, Springfield, Mass., assignor of two-thirds to Dennis F. Sweeney and L. A. Marks, same place. Filed Oct. 8, 1896. Serial No. 608,236. (No model.)

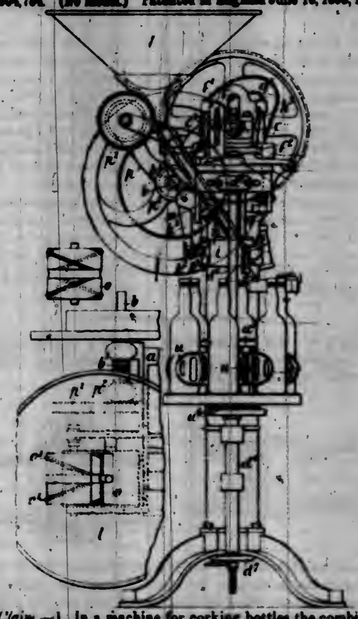
Claim.—1. The combination with a bottle of a slotted vertically-arranged tubular piece arranged therein, an indicating rod or piece arranged laterally in the slots of the tubular piece, and a float in the tubular piece and below the indicating-piece substantially as shown.

2. The combination with a bottle of a vertically-arranged tubular piece therein, having longitudinal slots in its side walls, the edges of said slots being provided with teeth or projections, an indicating-piece arranged in said slots, and a float tapering at its top portion arranged in the tubular piece below the indicator-piece, substantially as shown.



3. The combination with a bottle of a slotted tubular piece having teeth in the edges of the slots, an indicator-rod arranged in said slots and provided at the ends with enlargements arranged outside the tube, and a float arranged inside the tube below the rod, substantially as shown.

588,414. CORKING-MACHINE. JOHN W. FLOWER and ROBERT J. COSSEN, Shaftesbury, England. Filed Sept. 3, 1896. Serial No. 604,784. (No model.) Patented in England June 16, 1896, No. 11,886.



Claim.—1. In a machine for corking bottles the combination of a chamber in which the corks are compressed, means for giving a double compression to the corks and a scraper attached to one of the compressors and designed to remove any dirt from the bottom of the cork and to discharge it outside the compression-chamber, substantially as described.

2. In a corking-machine, the combination with a support for a bottle, of a corking device provided with a cork-chamber, means for

feeding a cork to the said chamber, a laterally-movable compressor for said chamber provided with a scraper, adapted to engage the lower end of the cork, the main compressor movable in a line perpendicular to the line of movement of said lateral compressor and the plunger, substantially as described.

3. In a corking-machine the combination with a support for a bottle, of a cork-chamber provided with a corking-aperture at one end, in line with the bottle-mouth, and a recess in its bottom, of the lateral compressor adapted to compress the cork between it and a wall of said chamber, provided with the scraper adapted to engage said recess, the main compressor located in said chamber and movable perpendicularly to the line of movement of said lateral chamber and the plunger in line with said corking-aperture, substantially as described.

4. In a corking-machine the combination with the cork-inserting mechanism including a part for engaging the bottle-mouth having an aperture therein and a plunger above said aperture, of a guide for the bottle-mouth consisting of laterally-yielding sections surrounding said aperture provided with inclined inner faces, substantially as described.

5. In a corking-machine the combination with the cork-inserting mechanism, including a part for engaging the bottle-mouth having an aperture therein and a plunger above said aperture, of a guide for the bottle-mouth consisting of pivoted sections provided with inclined inner faces surrounding said aperture, connected together for joint movement and a spring for holding said sections normally together whereby said sections will yield simultaneously to permit the insertion of the bottle-mouth, substantially as described.

6. In a corking-machine the combination with the cork-inserting mechanism, of a revoluble table provided with means for supporting the bases of a series of bottles, clamping devices for the bottles, means for automatically throwing said clamping devices into and out of engagement with the bottles, means for rotating said table, and means for elevating the said table to bring the mouths of the bottles successively into engagement with the corking mechanism, said table forming the support for the bottles while the corks are inserted, substantially as described.

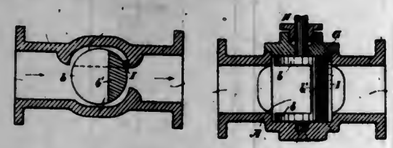
7. In a corking-machine the combination with the cork-inserting mechanism, of a supporting revoluble table adapted to support a series of bottles, a series of pairs of clamping-wings pivotally connected with said table, an operating-arm for opening and closing each pair of wings, and a stationary cam operatively engaging all of the operating-arms, and means for revolving said table, substantially as described.

8. In a corking-machine, the combination with cork-inserting mechanism, of the feeding-hopper, connected therewith and a feeding-roller having a central annular groove and spiral webs on either side converging toward said groove, substantially as described.

9. In a machine for corking bottles the combination with a cork-conducting chute made of wires, of a cut-off device projecting between the wires and connected to one of them in such a manner that as the cut-off device is operated the wire connected thereto is also moved substantially as described for the purpose specified.

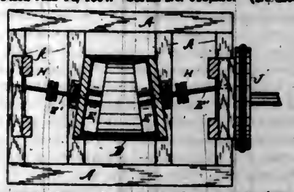
10. In a machine for corking bottles, the combination with an intermittently-rotating table on which the bottles to be corked are placed, of a flexible pad or ring against which the bottles are pressed and a spring-divided guide for insuring the mouths of the bottles being properly positioned relatively with the corking-nozzle and the said pad or packing-ring, substantially as described.

588,415. GOVERNOR-VALVE. GEORGE R. FOSTER, Placerville, Cal., assignor of one-half to George W. Kimble, same place. Filed Feb. 19, 1897. Serial No. 624,144. (No model.)



Claim.—A cock or valve extending transversely across a water pipe or way and turnable in its chamber, said valve having a cut-away segment which when standing in line with the water-passage allows the water to flow on the side and when standing transversely substantially cuts it off, a retaining-bar formed within the valve-chamber and standing parallel with the axis of the valve, and a casing having its inner wall separated from the outer wall of the valve to provide a circumscribing space whereby the valve is surrounded with water in both its open and closed positions, and is partially balanced.

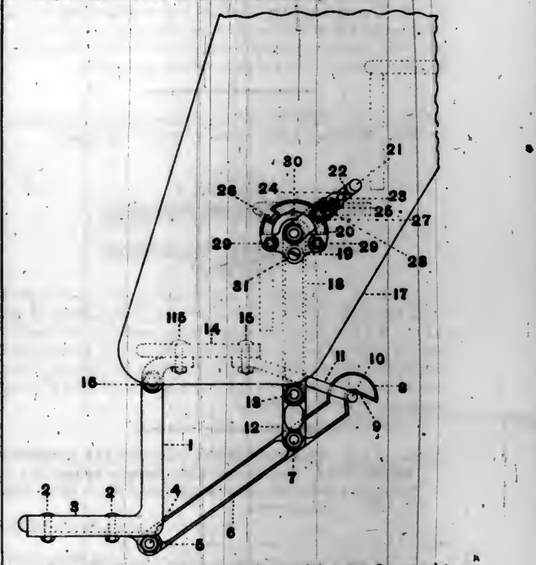
588,416. BLOWER FOR PNEUMATIC STRAW-STACKERS. STEPHEN H. GARST, DUDLEY GARST, and PERCY A. GARST, Greenville, Ohio. Filed Jan. 14, 1897. Serial No. 619,229. (No model.)



Claim.—1. A blower for pneumatic straw-stackers, comprising a casing; two rotary fans independently mounted in said casing face to face at angles substantially as set forth, and with an unobstructed space between them into which the straw is fed, and out of which said straw is forced by a concentrated current of air generated by said fans, whereby the said straw is prevented from coming in contact with the revolving fans, substantially as set forth.

2. In a blower for pneumatic straw-stackers, the combination with a casing having its sides inclining inwardly to the rear, of two rotating fans mounted oppositely in said casing at angles conforming to the angles of the sides of the casing, there being a substantial space between said fans, said space being essentially unobstructed, and into which the current of air generated by the rotating fans is concentrated to force straw outwardly through said casing, substantially as described.

588,417. REVOLVING EXTENSION PASSENGER-CAR STEP. WILLIAM GARSTANG and MASON RICKERT, Indianapolis, Ind. Filed May 29, 1897. Serial No. 638,754. (No model.)



Claim.—1. The combination of the revolving step 3 secured to the hanging support 1 by the bolts 2 and secured to the fixed step by the hanger 16 and the bolt 115, having secured thereto the hanger 5, pivoted thereto the locking-lever 6, the connecting-link 12, the shifting link 18, the rod 30, the lever 21, the slide 22, the quadrant 20, and the bearing-plate 19, whereby when the lever 21 is turned the step 3 will revolve beneath the fixed step of a passenger-coach, substantially as specified.

2. The combination of the revolving step 3 having secured thereto the hanger 5, pivoted thereto the locking-lever 6, with the hook-shaped end 8 and the V-shaped opening 9 therein, substantially as shown and described.

3. The combination of the extra step 3 the hanger 5 the locking-lever 6 and the stirrup 11 having the round portion 10 adapted to fit in the V-shaped opening of the locking-lever 6, substantially as shown and described.

4. The combination of the connecting-link 12 pivoted to the locking-lever 6 at one end and pivoted to the shifting lever 18 at the other end and so arranged that the connecting-link 12 will lock and hold

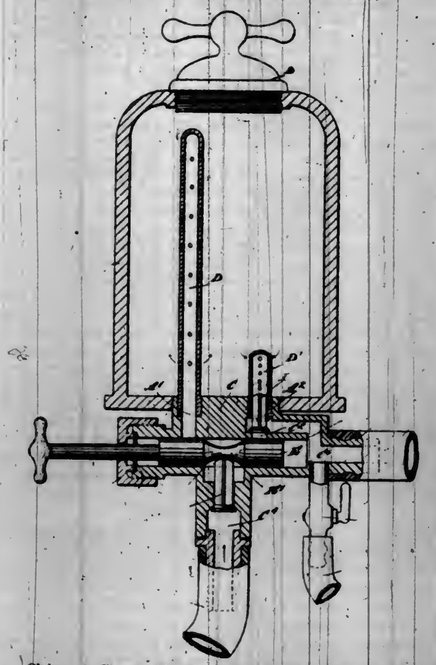
the V-shaped opening in the lever 6 into the round part 10 of the stirrup 11, substantially as shown and described.

5. The combination of the connecting-link 12 and the shifting link 18 rigidly secured to the rod 30 so the revolving of the lever 21 will cause the shifting link 18 to describe a circle and thus unlock the locking-lever 6, substantially as described.

6. The combination of the locking-lever 6 and the connecting-link 12 the shifting link 18 and the stirrup 11 so arranged that the hooked portion 9 of the locking-lever 6 is held down and locked on the stirrup 11 at the point 10 when the lever 21 is shifted to the notch 27 in the quadrant 20, substantially as shown and described.

7. The combination in a rotating extension passenger-car step, of the extra step 3, the locking-lever 6, the connecting-link 12, the shifting link 18, the rod 30, the lever 21, the slide 22, the quadrant 20, the bearing-plate 19, substantially as shown and described.

588,418. BEER-PIPE CLEANER. PETER F. GAYNOR, Greenbush, N. Y. Filed Apr. 5, 1897. Serial No. 630,757. (No model.)



Claim.—1. The combination of the receptacle having an inlet and an outlet, the valve-casing having a liquid-inlet and a bore communicating with the inlet of the receptacle, a cut-off valve controlling the connection of the liquid-inlet with the receptacle, the apparatus having a liquid-outlet having a connection to the outlet of the receptacle and also a direct connection to the bore of the valve-casing, and an outwardly-opening check-valve controlling the connection of the liquid-outlet with the outlet of the receptacle, substantially as described.

2. The combination of the valve-casing having inlet and outlet ports, the piston-valve movable in said casing and provided with a reduced central portion inclined relatively to the axis of the piston-valve, and the inlet-valve engaging the inclined surface of the piston-valve, substantially as described.

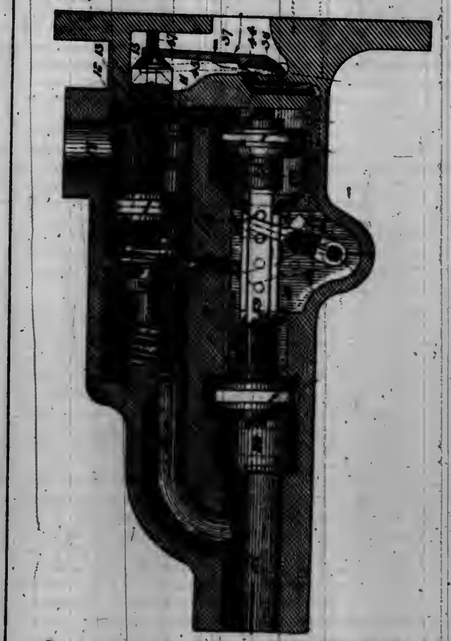
3. The combination of the valve-casing having inlet and outlet ports, the piston-valve movable in said casing and provided with a reduced central portion flaring toward the ends, and the inlet-valve arranged to move transversely of the piston-valve and to engage the reduced portion thereof, substantially as described.

4. The combination of the receptacle, the valve-casing having an inlet, the inlet-valve, the piston-valve arranged in the casing and engaging the inlet-valve to operate the same, the casing having a channel or connection forming an inlet to the receptacle, and another connection leading to the outlet of the apparatus, the receptacle having likewise a connection to said outlet and a check-valve adapted to close the channel or connection from the receptacle to the outlet when the direct connection from the casing to the outlet is open, substantially as described.

5. A beer-pipe cleaner, or other apparatus, having a liquid-inlet and a liquid-outlet, a receptacle connected to the liquid-inlet and to the liquid-outlet, a cut-off valve controlling the connection of the receptacle with the liquid-inlet, the apparatus having a by-pass, likewise controlled by the cut-off valve, through which the liquid may pass directly from the inlet to the outlet without entering the receptacle and a check-valve between the by-pass and the outlet of the receptacle, substantially as described.

6. The combination of the valve-casing having inlet and outlet ports, the manually-controlled main valve movable in said casing, and the separate inlet-valve movable transversely of the main valve and operated by the movement thereof, substantially as described.

588,419. QUICK-ACTION TRIPLE-VALVE DEVICE. HORACE R. GRANT, Pittsburg, Pa. Filed Jan. 21, 1897. Serial No. 620,011. (No model.)



Claim.—1. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a main piston connected to and arranged to operate said valve, a chamber located between the train-pipe and the main-piston chamber and having a port leading to the main-piston cylinder in the rear of the piston, a valve device arranged to be operated by variation in the train-pipe pressure, and to cut off the auxiliary reservoir and train-pipe from the said chamber and confine air therein, and a valve arranged to exhaust the air from the said chamber and main-piston cylinder and open the main valve.

2. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a main piston connected to and arranged to operate said valve, a chamber located between the train-pipe and the main-piston chamber and having a port leading to the main-piston cylinder in the rear of the piston, a valve device arranged to be operated by variation in the train-pipe pressure, and to cut off the auxiliary reservoir and train-pipe from the said chamber and confine air therein, and a valve arranged to exhaust the air from the said chamber and the main-piston cylinder into the brake-cylinder and open the main valve.

3. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a main piston connected to and arranged to operate said valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, a valve device arranged to be operated by variation in the train-pipe pressure, and to confine air in the said chamber, a valve arranged to exhaust the air from the said chamber and main-piston cylinder and open the main valve, and a valve

arranged to allow air to reënter said chamber and piston-cylinder from the auxiliary reservoir and close the main valve.

4. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons arranged to operate a valve controlling the exhaust-port.

5. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons, the connected pistons having a resistance-block arranged to retard their movements.

6. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons arranged to operate a valve controlling the exhaust-port, one of said cylinders having a port leading into the main-piston cylinder in front of the piston.

7. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons arranged to operate a valve controlling the exhaust-port, one of said cylinders having a port leading into the main-piston cylinder in front of the piston, said cylinder having also a longitudinal feed-port connecting with the port leading to the main-piston cylinder.

8. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons arranged to operate a valve controlling the exhaust-port, one of said cylinders having a port leading into the main-piston cylinder in front of the piston, the other cylinder also having a longitudinal feed-port extending a portion of its length.

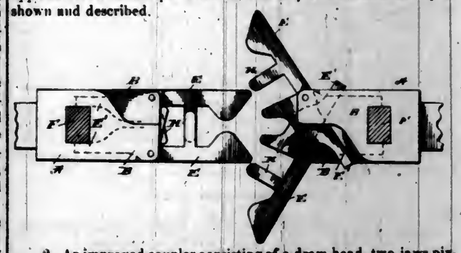
9. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a cylinder containing a main piston connected to and operating the main valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, an exhaust-port leading from the chamber, and two cylinders containing connected pistons arranged to operate a valve controlling the exhaust-port, said valve having also a port leading to the open air, said port being connected to the exhaust-port when the brakes are released and being closed in all other positions.

10. In a triple-valve device, the combination with a main valve, controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a main piston connected to and arranged to operate said valve, a check-valve controlling a passage from the train-pipe into the cylinder in the rear of the main piston, means upon the main piston for opening the check-valve, a chamber having a port leading to the main-piston cylinder in the rear of the piston, a valve device arranged to be operated by variation of the train-pipe pressure and to confine air in said chamber, and a valve arranged to exhaust the air from the said chamber and main-piston cylinder and open the main valve.

11. In a triple-valve device, the combination with a main valve controlling a port leading from the auxiliary reservoir to the brake-cylinder, of a main piston connected to and arranged to operate said valve, a check-valve controlling a passage from the train-pipe into the cylinder in the rear of the main piston, a chamber having a port leading to the main-piston cylinder in the rear of the piston, a valve device arranged to be operated by variation in the train-pipe pressure and to confine air in said chamber, a valve arranged to exhaust the air from the said chamber and main-piston cylinder and open the main valve, a back-pressure check-valve arranged to prevent the return of air from the brake-cylinder to the train-pipe, and means upon the main piston for operating said check-valves.

588,420. AUTOMATIC CAR-COUPLING. ROBERT D. GREEN, Simpson, Pa. Filed Feb. 23, 1897. Serial No. 624,605. (No model.)

Claim.—1. An improved coupling, comprising a draw-head, two jaws pivoted in the draw-head to swing horizontally in opposite directions when opening and also when closing, and a vertically-movable locking-pin in the draw-head and arranged centrally between the jaws and to the rear of their pivotal points, the jaws engaging opposite sides of the pin when in locked position, substantially as shown and described.



2. An improved coupler consisting of a draw-head, two jaws pivoted between their ends therein and adapted to open by swinging horizontally in opposite directions, and a vertically-moving locking-pin formed with oppositely-inclined transverse recesses through which the rear ends of the jaws are adapted to pass in moving to a locked position, substantially as shown and described.

3. An improved coupler consisting of a draw-head recessed inward from opposite sides, one recess being above the other, oppositely-opening jaws pivoted between their ends in the recesses with their tailpieces working therein, and a locking device adapted to be operated by the jaws when closing or interlocking with an adjacent coupler, substantially as shown and described.

4. The combination of a draw-head consisting of the rear part A and recessed projecting parts B, the draw-head being formed with a vertical passage partly in portion A and partly in portions B, the oppositely-swinging jaws pivoted between their ends in the recesses of parts B with their tailpieces working across the line of the vertical passage, and the pin adjustable vertically in said passage and formed with oppositely-inclined passages on its front face in line with the recesses of parts B, whereby the pin is automatically operated by the tailpieces of the jaws, substantially as shown and described.

5. An improved coupling, comprising a draw-head, two jaws pivoted therein in different horizontal planes and adapted to swing horizontally in opposite directions when opening and also when closing, the pivotal points of the jaws being between their ends, and a vertically-movable locking device arranged centrally between the jaws and to the rear of the pivots thereof and adapted to be set by the movement of the rear ends of the jaws, either singly or in unison, substantially as shown and described.

588,421. BRAIDING-MACHINE. ANDREW V. GROUPE, Philadelphia, Pa. Filed Dec. 14, 1896. Serial No. 615,684. (No model.)

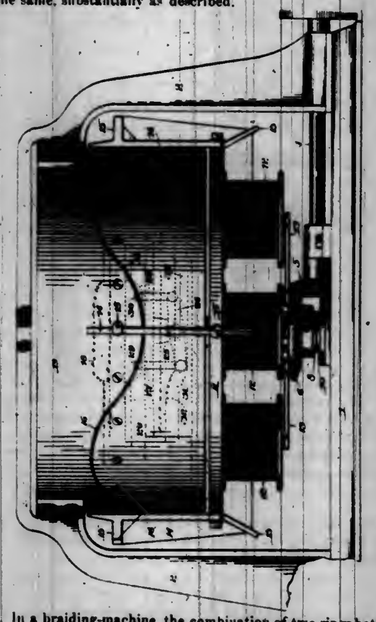
Claim.—1. In a braiding-machine, the combination, with a stationary sectional trackway provided with treadways between the adjacent sections, carriers on said trackway, bobbins on said carriers, and means for actuating said carriers, of a second set of bobbins, supporting and actuating means therefor, and means whereby the threads from the last-named bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

2. In a braiding-machine, the combination of a sectional trackway provided with threadways between adjacent sections, carriers on said trackway, bobbins on said carriers, means for actuating said carriers, a second set of bobbins, actuating means therefor, and means for supporting the trackway on each side of the path traversed by the threads delivered from the second set of bobbins, whereby said threads may be directed between, under and over sections of the trackway in prescribed order, substantially as described.

3. In a braiding-machine, the combination of two stationary rings between which is formed a sinuous course, a sectional trackway, a set of bobbin-carriers on said trackway, means for rotating said carriers, a second set of bobbins, and means for supporting and rotating the same, whereby the threads from the last-named bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

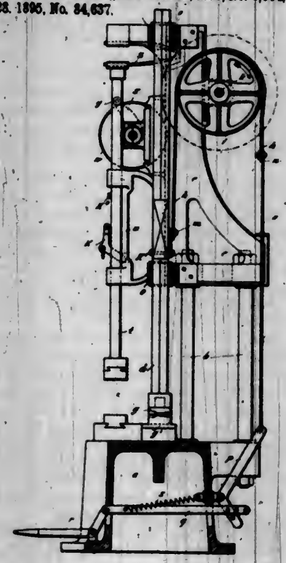
4. In a braiding-machine, the combination, with a stationary sectional trackway provided with threadways between the adjacent sections, bobbin-carriers on said trackway, and carrier-actuating mechanism provided with devices for alternately engaging and disengaging each of the carriers at two different points, of a second set of bobbins, supporting and actuating means therefor, and means whereby the threads from the last-named bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

5. In a braiding-machine, the combination of two stationary rings between which is formed a sinuous course, a sectional trackway, a set of bobbin-carriers thereon, a fixed camway, rocking levers engaged therewith and provided with means for engaging and disengaging said carriers at predetermined intervals, means for supporting and actuating said levers, lower thread-supplying devices, and means for rotating the same, substantially as described.



6. In a braiding-machine, the combination of two rings between which is formed a sinuous course, an annular trackway intermediate the highest and lowest planes of, and intersected by, the course, thread-supplying devices on said trackway, lower thread-supplying devices, and mechanism for rotating said upper and lower thread-supplying devices in opposite directions to each other, substantially as described.

588,422. MECHANICAL OR DROP HAMMER. CARL GRÜBER, Schwerte, Germany. Filed May 11, 1895. Serial No. 548,922. (No model.) Patented in England Mar. 22, 1895, No. 6,014, and in Germany Dec. 23, 1895, No. 84,637.



Claim.—1. A mechanical hammer comprising a frame, a hammer-rod *t*, movable vertically in bearings in said frame and having a sleeve at its upper end, the double spring *z*, having one of its arms connected to the frame above the rod *t*, and its other arm extending loosely through the sleeve on said rod, the antifriction-roller carried by the rod *t*, the shaft *v*, and the tappet on said shaft for engaging the antifriction-roller, substantially as specified.

2. A mechanical hammer comprising a frame having the recess K', the hammer-rod *t*, movable vertically in bearings in said frame and having a sleeve at its upper end and the hook K^2, at an intermediate point of its length, the double spring *z*, having one of its arms connected to the frame above the rod *t*, and its other arm extending loosely through the sleeve on said rod, the antifriction-roller carried by the rod *t*, the shaft *v*, the tappet on said shaft, for engaging the antifriction-roller, and the hook K, loosely connected to the hammer-rod *t*, said hook being adapted to enter the recess K', in the frame and thereby hold the rod *t*, against vertical movement and being provided with a ring for engagement with the hook K^2, when the hammer is in operation, substantially as specified.

3. In a mechanical hammer, the combination of the frame, the continuously-rotating drum mounted on a shaft journaled in said frame, a vertically-movable hammer-rod arranged in bearings in said frame, a flexible strap connected to the upper end of the hammer-rod and extending over the drum, the bell-crank, pedal-lever *r*, fulcrumed on the frame at the base thereof, the bell-crank lever *p*, also fulcrumed on the frame, and having one of its arms connected with the flexible strap, the link connecting the other arm of the lever *p*, and one arm of the pedal-lever *r*, and the spring connected at one end to said link and at the other end to the frame, substantially as specified.

588,423. PAPER BOX. JOHN M. GUILBERT, Philadelphia, Pa. Filed Nov. 14, 1895. Serial No. 568,918. (No model.)



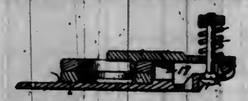
Claim.—1. A hollow partition for boxes, formed of a blank having the double scoring F, G, and the single outer scoring E, H, on its under face and provided with tabs between the scorings E, F, and G, H, respectively.

2. A hollow partition formed of a single piece of material having folds, the outer surfaces of which are unbroken, a top portion, and tabs attached to said partition, capable of being bent, in combination with a paper box, against suitable portions of which, said tabs are adapted to contact, the outer cover of said box being lapped over, and secured to said tabs, adjacent the points, where the same contact with the walls of said box, and at the points opposite the top of the said partition, the said outer cover is turned in between said top and the wall of said box.

3. The combination of a box with a hollow partition formed of a single piece of material having folds, the outer surfaces of which are unbroken, said partition being provided with upright sides and a top portion, laterally-deflected feet K attached to said partition and adapted to rest on the bottom of said box, and tabs D extending at an angle to the upright sides and adapted to abut against the ends of said box.

4. A hollow partition formed of a single piece of material having folds, the outer surfaces of which are unbroken, a top portion, upright sides and tabs attached to said partition capable of being bent, in combination with a box against suitable portions of which said tabs are adapted to contact, the outer portion of said box being lapped over and secured to said tabs near the points where the same contact with the walls of said box, the extremities of said tabs abutting.

588,424. TENSION DEVICE. EDWIN A. HADLEY, Scotia, Nebr. Filed Jan. 22, 1897. Serial No. 620,254. (No model.)



Claim.—1. In a tension device, the combination with the plate formed with two segmental flanges, and the tension-ring engaging

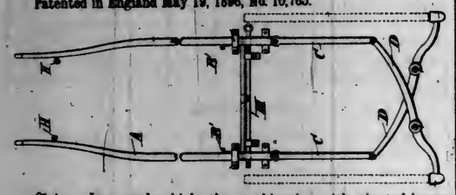
therewith, of the spring-actuated arm having a circular head, and the tension-ring engaging therewith; substantially as described.

2. In a tension device, the combination with the plate formed with segmental flanges and with a circular flange, and the tension-ring located between said flanges, of the spring-actuated arm having a circular head, and the tension-ring engaging therewith; substantially as described.

3. In a tension device, the combination with the plate formed with segmental flanges and with a circular flange, the tension-ring located between said flanges, and the guide-lugs, of the spring-actuated arm having a circular head and lateral lugs, and the tension-ring engaging with said head; substantially as described.

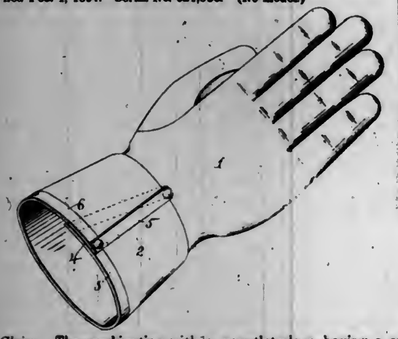
4. In a tension device, the combination with the plate formed with lugs at the upper end, the angular rock-shaft, the segmental flanges and inner circular flange, the tension-ring located between said flanges and the guide-lugs, of the spring-actuated arm bearing upon said rock-shaft, having a circular head and lateral lugs at the lower end, the tension-ring engaging with said head, the headed screw-bolt passing through said plate and arm, the coiled spring and the nut; substantially as described.

588,425. AUTOMATIC VEHICLE-BRAKE. JOHN S. HAINSWORTH, London, England. Filed Mar. 8, 1897. Serial No. 626,514. (No model.) Patented in England May 19, 1896, No. 10,765.



Claim.—In a road-vehicle, the combination with pivoted levers having brake-shoes, and a longitudinally-sliding pole, or thill connected with the brake-levers and operated by back pressure of the draft animal, or animals to apply the brakes, of a transversely-movable locking-rod constructed to engage the pole, or thill and lock the same against back-sliding motion, substantially as and for the purposes described.

588,426. GAUNTLET. WILLIAM R. HARLOE, High View, W. Va. Filed Feb. 1, 1897. Serial No. 621,386. (No model.)

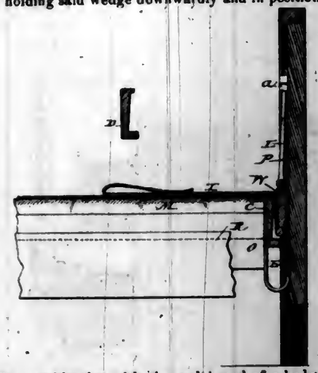


Claim.—The combination with a gauntlet-glove having a cuff formed with a placket, of independent stiffening-strips applied along the edges of said placket and hinged together at their forward ends, and a contracting-spring secured about the rear edge of said cuff and having its respective ends secured to the free ends of the strips which extend along the placket edges so that the cuff will be held rigidly against any longitudinal pressure but at the same time be contracted firmly about the sleeve of the wearer, substantially as described.

588,427. BEDCLOTHING-RETAINER. CHANCY F. HEATH, Thompsonville, Mich. Filed Feb. 6, 1896. Serial No. 578,286. (No model.)

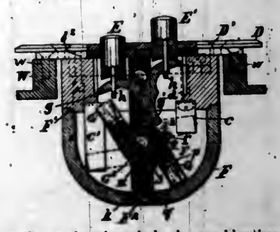
Claim.—1. The combination with the end board of a bedstead, of a plurality of spring-arms fastened thereto and extending forwardly and upwardly, a clamping-bar rigidly secured to the upper ends of said spring-arms, a wedge situated between said clamping-bar and said end board, and means for holding said wedge downwardly and in position.

2. The combination with the end board of a bedstead, of a plurality of spring-arms fastened thereto and extending forwardly and upwardly, a clamping-bar rigidly secured to the upper ends of said spring-arms, an upwardly-facing ledge on the inner side of said clamping-bar and at the lower edge thereof, the face of said clamping-bar between said ledge and the upper edge thereof being inclined, a wedge situated between said clamping-bar and end board, and devices for holding said wedge downwardly and in position.



3. The combination with the end board of a bedstead having toothed racks thereon, of a plurality of spring-arms fastened thereto, a clamping-bar secured to said spring-arms, a wedge situated between said clamping-bar and end board and provided with pivoted rods arranged to engage the two racks of said end board.

588,428. FLUSH SWITCH. LOUIS HECK, Newark, N. J., assignor to William J. Newton, New York, N. Y. Filed Apr. 19, 1897. Serial No. 632,784. (No model.)



Claim.—1. In an electric switch, the combination, with stationary contacts and a movable contact-lever, of a dog pivoted with the lever and provided with the fulcrum-bar having stops at opposite ends, the spring S hinged upon a stationary pin and having an eye fitted movably to the fulcrum-bar, means as the stud and shoulders to move the contact-lever with the dog, and a manual lever detachably connected with the dog to oscillate the same through a portion of its movement, the remainder of the movement being effected by the tension of the spring upon the fulcrum-bar, substantially as herein set forth.

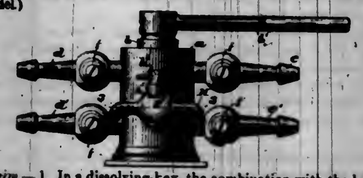
2. In an electric switch, the combination, with the contact-lever and its pivot H, of the manual lever having a fulcrum *f* at one side of such pivot, the hinge-pin *k* at the opposite side of such pivot, the spring-dog mounted upon the contact-lever pivot, to oscillate thereon, and provided with a notch to admit the end of the manual lever, and with lugs J′ carrying the fulcrum-bar J, means, as a stud and shoulders, to move the contact-lever with the dog, and the spring S jointed to the hinge-pin *k*, and having loop fitted movably to the fulcrum-bar, substantially as herein set forth.

3. In an electric switch, the combination, with stationary contacts, of the contact-lever and its pivot, the manual lever having a fulcrum at one side of such pivot, and the spring having a hinge-pin at the opposite side of such pivot, the spring-dog mounted upon the contact-lever pivot and the contact-lever having means, as a stud *o′* and shoulders o^3, to move the same with the dog, the dog having a notch adjacent to the manual lever and lugs carrying the fulcrum-bar, the manual lever having a leg fitted loosely to the notch in the dog, and having lateral arms with push-pins linked thereto, and the spring being jointed to the hinge-pin and having the loop fitted movably to the fulcrum-bar, substantially as herein set forth.

4. In an electric switch, the combination, with suitable stationary contacts, of a contact-lever oscillated upon a pivot, a spring-dog movable independently upon the same pivot with means for manually oscillating the same through the first part of its movement in either direction, with means, as a stud *o′* and shoulders o^3 upon the contact-lever and the dog to move the lever with the dog, a spring-stud at one side of the pivot, and lugs upon the dog at the opposite side of the pivot supporting the fulcrum-bar, and the spring hinged upon the spring-pin and having a loop fitted movably upon the fulcrum-bar, and operating when the dog is oscillated through a portion of its movement in either direction to slide upon the fulcrum-bar and complete such movement, and thereby shift the contact-lever, substantially as herein set forth

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588,429. DISSOLVING-KEY FOR STEREOPTICONS. OSCAR A. HILLARD, Boston, Mass. Filed Feb. 17, 1897. Serial No. 623,776. (No model.)

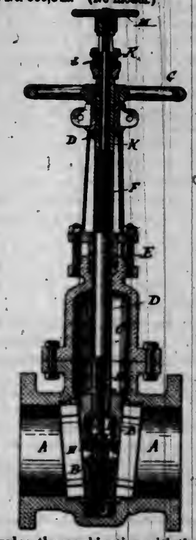


Claim.—1. In a dissolving-key, the combination with the hydrogen-supply pipe, the several hydrogen-outlet pipes therefor and a main cock, of a by-pass connecting said outlet-pipes with said inlet-pipe independently of said main cock, and means to simultaneously regulate the flow of hydrogen from said by-pass to said outlet-pipes, substantially as described.

2. In a dissolving-key, the combination with the hydrogen-supply pipe, the several hydrogen-outlet pipes therefor and a main cock, of a by-pass for an auxiliary supply of hydrogen connecting said outlet-pipes with said inlet-pipe independently of said main cock, and a controlling-valve in said by-pass, controlling said auxiliary supply to two outlet-pipes, substantially as described

3. In a key, having an inlet and an outlet for oxygen, and an inlet and outlet for hydrogen, a plug provided with a race for controlling the oxygen, a race for controlling the hydrogen, and an annular race independent of said other races, and a passage from said hydrogen-inlet communicating with said annular race and a passage thence communicating with said hydrogen-outlet, substantially as described.

588,430. VALVE. LOUIS J. HIRT, Brooklyn, Mass. Filed May 1, 1896. Serial No. 589,842. (No model.)



Claim.—In a valve, the combination with the valve B, valve-stem D, and wheel G, of the secondary valve H, valve-stem K, passing through the stem D, and wheel M, substantially as described.

588,431. WATER-HEATER. JACOB A. HOLLENBECK, Rockford, Ill. Filed Jan. 11, 1897. Serial No. 618,905. (No model.)

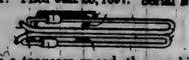
Claim.—1. In a water-heater, the combination of a series of sections each formed with a vertical waterway extending along one side and communicating with each other and of waterways extending in a diagonally-upward direction, the sections joined together only at that portion having the vertical waterways.



2. In a water-heater, the combination of a series of sections suitably joined together, each section having a front vertical waterway communicating with the sections above and below, the top and intermediate sections provided with a tube at their rear walls, and waterways communicating with the tube and with the waterways of the sections above and below it.

3. In a water-heater, the combination of a series of sections suitably joined together, the top and intermediate sections provided with waterways extending from the front lower end to the rear and returning to the front upper end and an opening at the rear end for cleaning the ways.

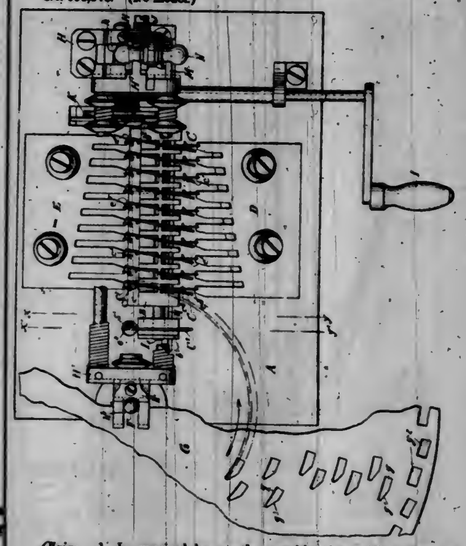
588,432. GUARD FOR TROUSERS. MILTON B. HOLMES, Montour Falls, N. Y. Filed Jan. 25, 1897. Serial No. 620,649. (No model.)



Claim.—1. In a trousers-guard, the combination with a spring-clasp provided with a spring end and with spurs, of a clip adjustably carried by the clasp and held in frictional contact with the spring end thereof, substantially as specified.

2. In a trousers-guard, the combination with a clasp and means for securing the same, of a wire clip adjustably carried by the clasp and composed of substantially parallel side pieces connected at one extremity and having their opposite extremities bent back to constitute a spring-clip, substantially as specified.

588,433. MUSICAL BOX. LOUIS HÖSELY, Ste. Croix, Switzerland, assignor to Hermann Thorens, same place. Filed May 27, 1897. Serial No. 638,378. (No model.)



Claim.—1. In musical boxes, the combination with a bearing having a series of slots provided with a central contraction, of a series of rocking levers in the said slots, and on a suitable axis, the said levers having teeth entering the holes of a perforated sheet and for acting upon the teeth of the comb or combs, and springs for

setting the said rocking levers into an inclined position and a perforated sheet the holes of which have each inclined edges to laterally displace the rocking levers, substantially as and for the purpose specified.

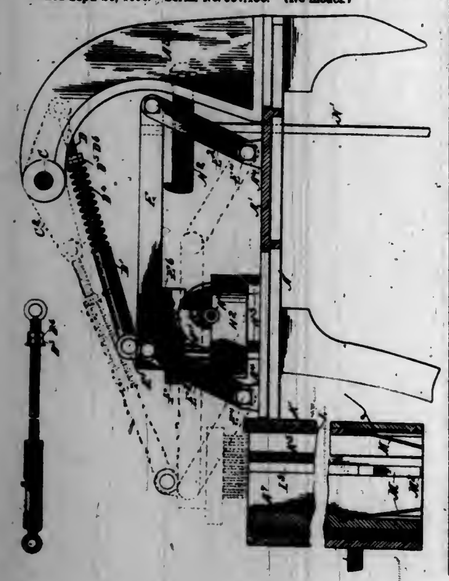
2. In musical boxes, the combination with a bearing having a series of slots provided with a central contraction, of a series of rocking levers in the said slots and on a suitable axis, the said levers having teeth entering the holes of a perforated sheet and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position and a perforated sheet the holes of which have each an inclined edge to laterally displace the rocking levers, dampers that normally bear against the teeth of the combs, and lateral projections on the rocking levers for withdrawing the dampers, substantially as and for the purpose specified.

3. In musical boxes, the combination with a bearing B having a series of slots provided with central contractions, of a series of rocking levers C in the said slots and on a suitable axis L, the said levers having teeth c^3 for entering the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position, and a perforated sheet G, the holes g of which have each a tapered or inclined edge g' to laterally displace the rocking levers C, a rocking lever C' and lever for ringing a bell, substantially as shown and described.

4. In musical boxes, the combination with a bearing B having a series of slots and central contractions, of an axis L and a series of rocking levers C within the said slots, and having suitable teeth c^3 for engaging the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position, and a perforated sheet G, the holes of which have each inclined edges g' to laterally displace the rocking levers C, the rocking lever C', the bell T and suitable levers for ringing the same, a stopping-rod M to act on the several levers C so as to put their teeth c^3 out of reach of the perforated sheet G, substantially as and for the purpose specified.

5. In musical boxes, the combination with a bearing B having a series of slots provided with central contractions, of a series of rocking levers C within the said slots and a suitable axis L therefor, the said levers having suitable teeth c^3 for engaging the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs arranged for setting the said rocking levers into inclined positions and a perforated sheet G, the holes g of which have each an inclined edge to laterally displace the rocking levers C, the rocking lever C' for ringing a bell T, a driving-wheel K formed of two superposed star-wheels k' and k^2 and of an intermediate disk k^3 and a frame H' having a notch in combination with a spring J having a tooth j to engage the said notch h^4, substantially as and for the purpose specified.

588,484. **PASTING-MACHINE.** WARREN B. HOWE, Chicago, Ill. Filed Sept. 28, 1896. Serial No. 607,150. (No model.)



Claim.—1. A box-pasting machine comprising a blank-holder, means within the holder acting on the edges of the blanks for retarding the passage of the blanks therethrough, and a reciprocating paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through the said holder.

2. A box-pasting machine comprising a blank-holder provided with spring-detents for retarding the passage of the blanks therethrough, and a reciprocating paste-carrier acting on the blanks to force them through the holder.

3. A box-pasting machine comprising a tubular blank-holder, means within the holder acting on the edge of the blanks for retarding the passage of blanks therethrough, a reciprocating paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder, an oscillatory frame supporting said paste-carrier and means for giving reciprocatory motion to said frame.

4. A box-pasting machine comprising a tubular blank-holder, means within the holder acting on the edges of the blanks for retarding the passage of the blanks therethrough, a reciprocatory paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder, a swinging frame which supports the same and pivoted arms movably supporting said frame.

5. A box-pasting machine comprising a tubular blank-holder, means within the holder acting on the edges of the blanks for retarding the passage of blanks therethrough, a reciprocating paste-carrier, a receptacle for adhesive material and a swinging frame supporting the paste-carrier and shifting it from the said receptacle into contact with the blanks, said carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through the holder.

6. A box-pasting machine comprising a tubular blank-holder, means within the holder acting on the edges of the blanks for retarding the passage of blanks therethrough, a receptacle for adhesive material, a paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through the holder, a swinging horizontally-arranged frame for supporting said carrier, two pairs of swinging arms supporting said frame and means for actuating said paste-carrier.

7. A box-pasting machine comprising a holder for the blanks embracing a plurality of adjustable guide-strips, means acting on the edges of the blanks for retarding the passage of the blanks through said holder and a paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder.

8. A box-pasting machine comprising a tubular blank-holder provided with spring-detents which act on the edges of the blanks to retard the movement of the blanks through the holder, and a paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder.

9. A box-pasting machine comprising a tubular holder for the blanks provided with adjustable guide-strips and provided also with spring-detents which act on the edges of the blanks for retarding the movement of the blanks therethrough and a paste-carrier acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder.

10. A box-pasting machine comprising a blank-holder, means within the holder for retarding the passage of blanks therethrough, a receptacle for adhesive material, a reciprocating paste-carrier carried by oscillating arms from the receptacle to the blank-holder and acting on the blanks within the holder both to apply paste to said blanks and to force them through said holder and means for actuating the paste-carrier embracing a crank-shaft and a connecting-rod uniting the crank with the paste-carrier.

11. A box-pasting machine comprising a blank-holder embracing guide-strips and spring-arms attached to said strips and acting on the edges of the blanks for retarding the movement of the blanks through the holder and a paste-carrier acting on the blanks within the holder to apply paste to said blanks to force them through said holder.

12. A box-pasting machine comprising a blank-holder, embracing adjustable guide-strips adapted to engage the edges of the blanks and spring-detents attached to said guide-strips and acting on the edges of the blanks to retard their passage through the holder and a paste-carrier acting on the blanks both to apply paste to said blanks and to force them through said holder

13. A pasting-machine comprising a tubular blank-holder, means therein for retarding the passage of blanks therethrough, a receptacle for adhesive material, a reciprocating paste-applying device movable from the receptacle to the blank-holder, the same being arranged to enter the receptacle vertically and to act vertically on the blanks in the holder, a paste-reservoir into which the paste-receptacle overflows, and means for constantly elevating the paste from the reservoir into the receptacle.

14. A pasting-machine comprising a tubular blank-holder, means therein for retarding the passage of the blanks therethrough, a paste-receptacle, a reciprocating paste-carrier moving between the receptacle and the blank-holder and acting on the blanks to force them through the holder, and means for actuating the said paste-carrier connected with the same by an elastic or yielding connection

15. A pasting-machine comprising a tubular blank-holder, a paste-receptacle, means therein for retarding the passage of blanks therethrough, a reciprocating paste-carrier moving both horizontally and vertically between the receptacle and the blank-holder, and acting on the blanks to force them through the blank-holder, means for actuating the said paste-carrier connected with the same by an elastic or yielding connection, and a stop which can be interposed when desired to limit the movement of the paste-carrier.

16. A pasting-machine comprising a blank-holder, means therein for retarding the passage of blanks therethrough, a receptacle for adhesive material, a paste-carrier having both a horizontal and vertical reciprocatory motion from the receptacle to the blank-holder, and acting on the blanks to force them through the blank-holder, a reservoir located beneath the receptacle, a rotating disk for carrying the adhesive material from the reservoir to the receptacle and power connections for giving reciprocating motion to said paste-carrier and for turning said disk.

17. A pasting-machine comprising a blank-holder, means within the blank-holder for retarding the passage of blanks therethrough, a receptacle for adhesive material, a reciprocating paste-carrier carried by oscillating arms which swing in vertical planes and move the paste-carrier both vertically and horizontally, said paste carrier acting on the blanks to force them through the holder, and means for actuating the paste-carrier embracing a crank-shaft and a connecting-rod uniting the crank with the paste-carrier, said connecting-rod embracing two sliding parts, and a spring applied to hold them extended.

588,485. **RAIL-BOND FOR ELECTRIC RAILROADS.** VICTOR R. HUFFER, Cleburne, Tex., assignor of one-half to Jacob D. Olger, same place. Filed June 24, 1897. Serial No. 642,156. (No model.)



Claim.—1. A bond for railroad-rails consisting of the combination with a railroad-rail, of a split-headed axially and angularly bored coupling-bolt, a connecting-wire extending through the perforation and bent or coiled once around the bolt, and means for clamping or compressing the bend or coil of the wire firmly against the side of the rail, substantially as described.

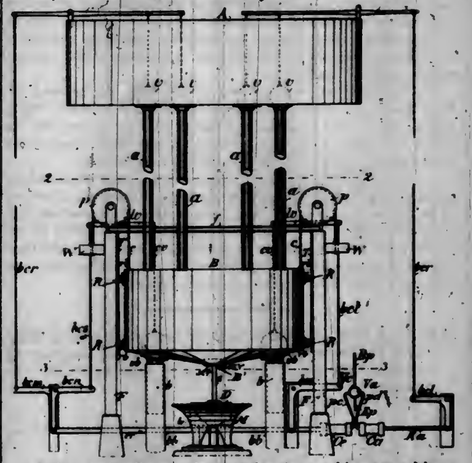
2. The combination of a rail, an axially and angularly perforated bolt, a coupling-wire extending through the perforation and bent around the bolt adjacent to a side of the rail, a gasket to inclose and protect the bend or coil of wire, and means for setting up and holding the gasket in position, substantially as described.

3. The combination of a rail, a coupling-bolt having a tapering head and axial and angular perforation, a split-ring bushing of soft copper of uniform outside diameter and provided with a tapering bore or socket, a coupling-wire extending through the perforations and bent once around the bolt, a washer for impinging against and compressing the bend of the wire against the side of the rail, a gasket for inclosing the washer and the coil, and means to draw up the bolt and press the gasket against the side of the rail, substantially as described.

4. The combination of a rail, a coupling-bolt having a split axially and angularly bored tapering head, a copper-wire connector extended through the perforation and bent around the bolt, a washer adjacent to the bent wire, a gasket inclosing the washer and the end of the wire, plugs of soft material in the splits in the head of the bolt, and means for setting up the bolt and pressing the gasket, substantially as described.

588,486. **SHEET-METAL-WORKING MACHINE.** NAPOLEON JAMES and FRANK RUST, Allegheny, Pa. Filed Feb. 27, 1896. Serial No. 581,002. (No model.)

Claim.—1. The hydraulic apparatus for operating a stamping and shearing machine, comprising a stationary storage-tank for water, a sliding tank, having a conical bottom, suspended underneath the storage-tank, a base-plate secured to the center of this conical bottom, a flanged truss-rod secured to the base-plate, and adapted to carry the pressing-die on its lower end; outlet-tubes, set in the bottom of the stationary storage-tank, valves closing the inlets of these tubes; outlet-tubes set in the bottom of the sliding tank and sliding in stationary outlet-tubes, valves closing the outlets of the telescopic tubes in the bottom of the sliding tank, levers fulcrumed in standards, secured to the walls of the storage-tank, and connected by chains to the valves; connecting-rods and bell-crank levers, operating the levers, and connecting-rods operating the bell-crank levers by the motion of the piston of the engine.

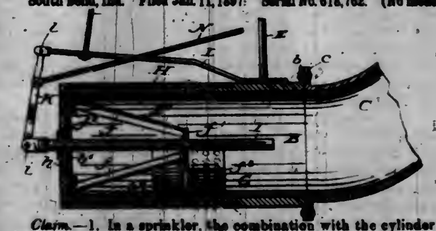


2. In a hydraulic stamping and shearing machine, comprising a stationary storage-tank, and a sliding tank movably suspended underneath, outlet-tubes set in the bottom of the storage-tank; outlet-tubes, set in the bottom of the sliding tank, valves closing the outlet-tubes; the combination with levers and connecting-rods for operating the valves, of a steam-engine comprising two combined working cylinders, one of them operating the outlet-valves of the stationary storage-tank, and the other, the outlet-valves of the sliding tank, both cylinders being connected to a common steam-inlet and to a common exhaust-pipe, having a two-way cock set in the cross connection of the pipes, and adapted to connect alternately and successively either of the two cylinders with the inlet and with the exhaust pipe, for the purpose of operating alternately and in successive order the valves of the tanks and thereby lifting and lowering the sliding tank, operating the die.

3. In a shearing and stamping machine, the combination with the upper die, of cutters sliding in the grooves provided in the upper die parallel with its edges and in conformity with the shape of the sheet to be cut, and of levers fulcrumed in standards, attached to the die, and of push-rods, connected to the levers, and operating the knives by pushing the levers upward, when the upper die descends on the mold and their motion is arrested by the rim of the mold.

4. In a shearing and stamping machine, the combination with the mold of cutters, shaped in conformity with the shape of the rim of the product and adapted to slide on the surface of the mold; and of shafts, pillowed in the mold, of cams set on the shafts and entering into recesses provided in the knives, of levers secured to the ends of the shafts, wipers, secured to the connecting-rod of the engine and adapted to engage the levers secured on the ends of the shafts, and by moving them, turn the shafts and thereby to operate the cutters, trimming the edges of the rim of the product pressed in shape by the action of the die.

588,487. **STREET-SPRINKLER MACHINE.** ALBERT JOHNSON, South Bend, Ind. Filed Jan. 11, 1897. Serial No. 618,702. (No model.)



Claim.—1. In a sprinkler, the combination with the cylinder of a sprinkler-head, having a spray-opening therein, of a bearing-bracket secured thereto, a covering-sleeve fitted upon the said cylinder, a guide-rod secured to the sleeve supported upon said bracket and adapted to hold said cylinder thereon, substantially as described.

2. In a sprinkler, the combination with the sprinkler-head cylinder having a spray-opening, a bracket secured thereto and projecting therein, a segmental shield secured to said bracket fixedly within said cylinder and an outer sleeve, substantially as described.

3. In a sprinkler, the combination with the sprinkler-head cylinder having a spray-opening therein, a bearing-bracket secured to said cylinder, a segmental shield fixedly supported upon said bracket, an outer sleeve fitted upon the cylinder and a guide-rod secured to the sleeve and supported at its inner end in bearings of said bracket, substantially as described.

4. In a sprinkler, the combination with the sprinkler-head cylinder having an issue-opening provided with a rear lateral recess therein and a sleeve to fit said cylinder to close and to regulate the size of said opening and also to expose the rear lateral recess of the issue-opening in the cylinder, substantially as described.
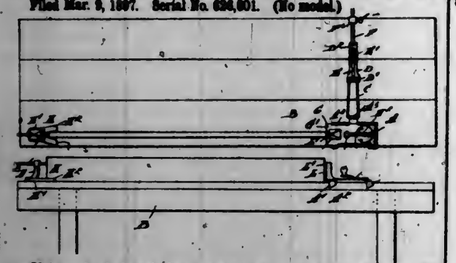
5. In a sprinkler, the combination with the wagon-frame of the sprinkler-head cylinder suspended therefrom, a bracket-rod secured at its forward end to the cylinder and provided at its rear end with a cross-bar and a pivot-bearing, suspension-rods connecting the respective end of said cross-bar to the frame, a lever suspended from said pivot-bearing and a rod reciprocating within said cylinder and operated by the lever, substantially as described.

588,438. WRENCH. JAMES W. JOHNSON and RICHARD WHITAKER, New Brunswick, N. J., assignors to the Heverin Manufacturing Company, same place. Filed Apr. 7, 1897. Serial No. 631,123. (No model.)



Claim.—A wrench having a head A and handle B integral therewith, said head having a tapering slot, the small end of which is toward the handle, one side of said slot having serrations, and the other side a segmental cavity lengthwise thereof substantially as described.

588,439. WORK-HOLDER. OLOF R. JOHNSON, Escanaba, Mich. Filed Mar. 9, 1897. Serial No. 626,601. (No model.)



Claim.—1. A bench-dog, comprising a plate having one end toothed and a hole in the body thereof giving access to a forwardly-extending recess, a standard having a lip adapted to enter said hole and engaging the under side of the plate and having a pointed dog or center, and a longitudinally-adjustable bent plate forming a yoke to engage the rear edge of the standard-base to hold it down, substantially as specified.

2. A bench-dog, comprising a plate having one end toothed, a hole in the body thereof communicating with a forwardly-extending recess and a longitudinal recess opening to its rear end, a standard having a longitudinally-extending point or center, a base provided with a forwardly-extending lip adapted to enter said hole and engaging the under side of the plate, and a bar lying longitudinally in the rear recess beneath the plate and having its outer or rear ends bent upward and forward to engage the rear edge of the standard-base, substantially as described.

3. A bench-dog, comprising a plate having one end toothed, a hole in the body thereof communicating with a forwardly-extending recess and a longitudinal recess opening at its rear end, a standard having a longitudinally-extending point or center, a base provided with a forwardly-extending lip adapted to enter said hole and engaging the under side of the plate, a bar lying longitudinally in the rear recess beneath the plate and having its outer or rear ends bent upward and forward to engage the rear edge of the standard-base, said base and plate having registering projections and recesses preventing sliding therebetween, substantially as described.

4. A bench-dog, comprising a plate having the end portions of the outer side edge bent forward and provided with inwardly-extending points and having the remainder of the same edge and portions of the opposite edge bent upward and inward forming a guideway, a dog-plate sliding therein, an adjustable lever connecting said two plates, and clamping means of adjustable length connected to the inner side of the bottom plate and engaging the opposite side of the bench or board, substantially as described.

5. A device of the class described, provided with a fixed dog, a longitudinally-movable dog, and two removable dogs held on the said fixed and the said movable dog, substantially as shown and described.

6. A device of the class described, provided with a fixed dog, a longitudinally-movable dog, and two removable dogs held on the said fixed and the said movable dog, the said removable dogs being provided with alined points, substantially as shown and described.

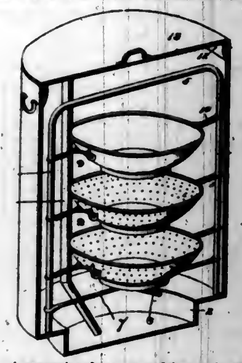
7. A device of the class described, provided with a fixed dog, and a dog held removably thereon, formed with a standard, and a screw-rod mounted to turn in the said standard, substantially as shown and described.

8. A bench-dog, comprising a plate having the end portions of the outer side edge bent downward and provided with inwardly-extending points and having the remainder of the same edge and portions of the opposite edge bent upward and inward forming a guideway, a dog-plate sliding therein having a circular hole, a circular plate fitting said hole and having a spiral cam-groove therein, a pin or roller attached to the lower plate and entering said spiral cam or groove, an operating-lever connected to said circular plate, and clamping means of adjustable length connected to the inner edge of the bottom plate and engaging the opposite side of a bench or board, substantially as described.

9. A bench-dog, comprising a plate which is forked at one end and has these ends notched, a standard removably secured to said plate and provided with a center which is above and in line with the center of the notch in said plate, substantially as described.

10. A bench-dog, comprising a plate which is forked and has the ends of said forks notched, a removable standard secured to said plate, and a screw-threaded bar supported in said standard above and in line with the notch in said plate and having its end pointed to act as a center, substantially as described.

588,440. CULINARY UTENSIL. CLARENCE R. JOHNS, Alton Bay, N. H. Filed Feb. 3, 1897. Serial No. 621,735. (No model.)



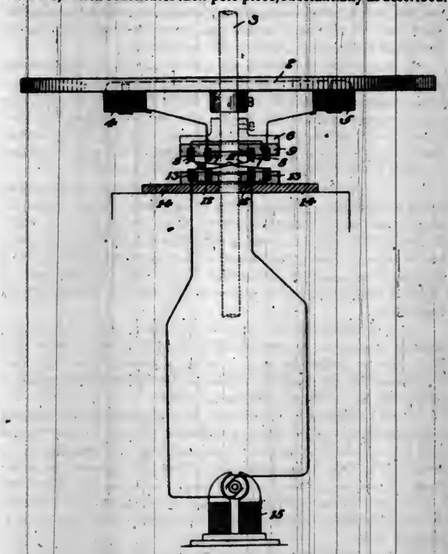
Claim.—1. A steam-cooker comprising a kettle having a rack provided with a series of supports for dishes, said supports consisting of wires adapted to engage the said rack, their free ends being spread apart and bent, substantially as described.

2. A steam-cooker comprising a kettle, a rack formed of an arched piece of wire, and a series of dish-holding devices attached to the vertical arms of said rack, said dish-holding devices consisting of wires whose intermediate portions wrap around the vertical portions of the said arched piece, thence twisted one upon another, and their outer portions being spread apart and bent upwardly, substantially as described.

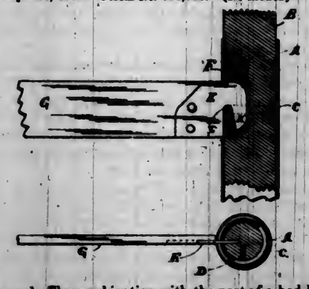
588,441. APPLYING ABRASIVE MATERIALS. WILLIAM L. KANE, Allegheny, Pa. Filed Sept. 30, 1895. Serial No. 564,075. (No model.)

Claim.—1. In a grinding and polishing apparatus, the combination of a movable table or disk, to the upper face of which is applied a metallic abrasive, and magnets arranged to hold the abrasive in place thereon.

2. In grinding and polishing apparatus, the combination with a rotary table or disk arranged to receive a metallic abrasive, and to which the article is applied, of magnets secured to and rotatory with the table, which constitutes their pole-piece, substantially as described.



588,442. BEDSTEAD. MILTON S. KEELER, Middleville, Mich. Filed Apr. 26, 1897. Serial No. 633,968. (No model.)



Claim.—1. The combination with the post of a bed having a circumferential groove and a longitudinal slot intersecting said groove, of a ring seated in said groove, and a side rail provided with a bed-iron constructed to enter said slot and engage said ring to secure the side rail to the post, substantially as described.

2. In combination with the outer case as A, an inner filling of wood as B, provided with a slot as F, a ring as C adapted to surround the wooden filling, and a side rail G provided with a bed-iron E adapted to engage with said ring and secure the said side rail to the post, substantially as and for the purpose described.

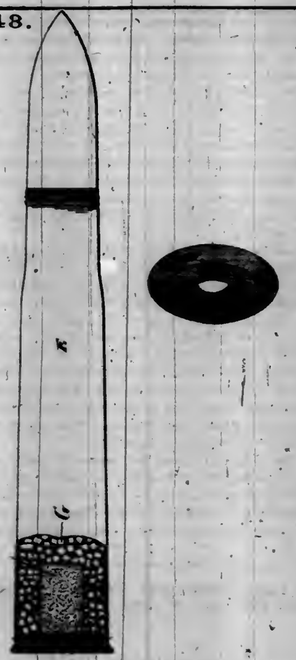
588,443. CARTRIDGE. JOHN B. KENDALL, Washington, D. C. Filed Apr. 5, 1897. Serial No. 630,759. (No model.)

Claim.—1. An igniter support or holder for cartridges made of pulp formed to shape, and having an opening to closely fit a projection on the cartridge-case head, around the primer, substantially as and for the purpose specified.

2. In a cartridge, the combination of the case, the charge therein, a primer, an igniter adjacent to the latter, and within the charge, and an igniter-support, composed of a suitably-shaped body of pulp, over an opening in which, adjacent to the primer, the igniter is placed and to which it is secured, said opening having such size as to closely fit a projection on the cartridge-case head, substantially as and for the purpose set forth.

3. In a cartridge, the combination of the case, the charge, a primer, an igniter adjacent to the latter, and a disk of pulp, closely fitting the case, and having an opening, over which the igniter is placed, which opening closely fits a projection on the cartridge-case head, substantially as and for the purpose set forth.

588,448.

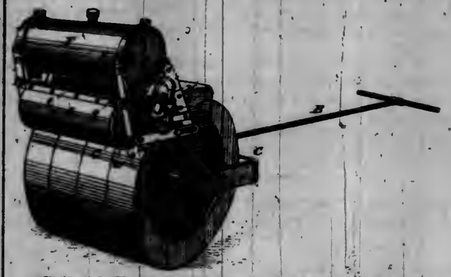


588,444. DENTAL-ENGINE ATTACHMENT. FRANK W. KETNER, Hudson, N. Y. Filed Jan. 16, 1897. Serial No. 619,456. (No model.)



Claim.—An attachment for dental engines consisting of a collar constructed to be secured to the engine, and an arm connected therewith and extensible in two directions at right angles to each other and provided at its outer end with a spring-clasp adapted to hold a sponge for wiping and moistening the emery-wheel of the engine.

588,445. AUTOMATIC OILING DEVICE FOR ROAD-ROLLERS. WALTER G. KIRK, Buffalo, N. Y., assignor to the Barber Asphalt Paving Company, Washington, D. C., and New York, N. Y. Filed Nov. 9, 1896. Serial No. 611,518. (No model.)



Claim.—1. The combination of a road-roller, a main frame thereon extending above the roller, a supplemental frame pivotally suspended from said main frame at one side of a vertical central line and above the roller, an oiling-roller mounted in the lower portion of said supplemental frame, an oil-reservoir also carried by said latter frame, and connections between the reservoir and oiling-roller for supplying the latter with oil, substantially as described.

2. The combination of the road-roller, the operating-handle thereof, the main frame extending above said roller, a supplemental frame suspended from the upper part of the main frame, a reservoir

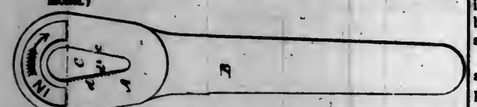
2. In a sprinkler, the combination with the sprinkler-head cylinder having a spray-opening, a bracket secured thereto and projecting therein, a segmental shield secured to said bracket fixedly within said cylinder and an outer sleeve, substantially as described.

3. In a sprinkler, the combination with the sprinkler-head cylinder having a spray-opening therein, a bearing-bracket secured to said cylinder, a segmental shield fixedly supported upon said bracket, an outer sleeve fitted upon the cylinder and a guide-rod secured to the sleeve and supported at its inner end in bearings of said bracket, substantially as described.

4. In a sprinkler, the combination with the sprinkler-head cylinder having an issue-opening provided with a rear lateral recess therein and a sleeve to fit said cylinder to close and to regulate the size of said opening and also to expose the rear lateral recess of the issue-opening in the cylinder, substantially as described.

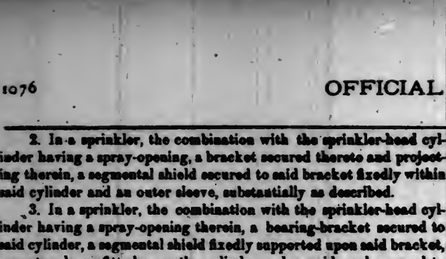
5. In a sprinkler, the combination with the wagon-frame of the sprinkler-head cylinder suspended therefrom, a bracket-rod secured at its forward end to the cylinder and provided at its rear end with a cross-bar and a pivot-bearing, suspension-rods connecting the respective end of said cross-bar to the frame, a lever suspended from said pivot-bearing and a rod reciprocating within said cylinder and operated by the lever, substantially as described.

588,438. WRENCH. JAMES W. JOHNSON and RICHARD WHITAKER, New Brunswick, N. J., assignors to the Novelty Manufacturing Company, same place. Filed Apr. 7, 1897. Serial No. 631,133. (No model.)



Claim.—A wrench having a head A and handle B integral therewith, said head having a tapering slot, the small end of which is toward the handle, one side of said slot having serrations, and the other side a segmental cavity lengthwise thereof substantially as described.

588,439. WORK-HOLDER. OLOF R. JOHNSON, Escanaba, Mich. Filed Mar. 9, 1897. Serial No. 626,601. (No model.)



Claim.—1. A bench-dog, comprising a plate having one end toothed and a hole in the body thereof giving access to a forwardly-extending recess, a standard having a lip adapted to enter said hole and engaging the under side of the plate and having a pointed dog or center, and a longitudinally-adjustable bent plate forming a yoke to engage the rear edge of the standard-base to hold it down, substantially as specified.

2. A bench-dog, comprising a plate having one end toothed, a hole in the body thereof communicating with a forwardly-extending recess and a longitudinal recess opening to its rear end, a standard having a longitudinally-extending point or center, a base provided with a forwardly-extending lip adapted to enter said hole and engaging the under side of the plate, and a bar lying longitudinally in the rear recess beneath the plate and having its outer or rear ends bent upward and forward to engage the rear edge of the standard-base, substantially as described.

3. A bench-dog, comprising a plate having one end toothed, a hole in the body thereof communicating with a forwardly-extending recess and a longitudinal recess opening at its rear end, a standard having a longitudinally-extending point or center, a base provided with a forwardly-extending lip adapted to enter said hole and engaging the under side of the plate, a bar lying longitudinally in the rear recess beneath the plate and having its outer or rear ends bent upward and forward to engage the rear edge of the standard-base, said base and plate having registering projections and recesses preventing sliding therebetween, substantially as described.

4. A bench-dog, comprising a plate having the end portions of the outer side edge bent forward and provided with inwardly-extending points and having the remainder of the same edge and portions of the opposite edge bent upward and inward forming a guideway, a dog-plate sliding therein, an adjustable lever connecting said two plates, and clamping means of adjustable length connected to the inner side of the bottom plate and engaging the opposite side of the bench or board, substantially as described.

5. A device of the class described, provided with a fixed dog, a longitudinally-movable dog, and two removable dogs held on the said fixed and the said movable dog, substantially as shown and described.

6. A device of the class described, provided with a fixed dog, a longitudinally-movable dog, and two removable dogs held on the said fixed and the said movable dog, the said removable dogs being provided with alined points, substantially as shown and described.

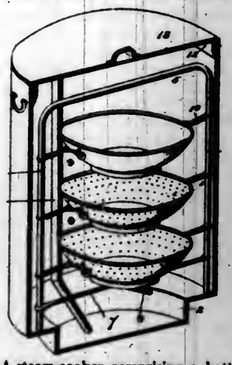
7. A device of the class described, provided with a fixed dog, and a dog held removably thereon, formed with a standard, and a screw-rod mounted to turn in the said standard, substantially as shown and described.

8. A bench-dog, comprising a plate having the end portions of the outer side edge bent downward and provided with inwardly-extending points and having the remainder of the same edge and portions of the opposite edge bent upward and inward forming a guideway, a dog-plate sliding therein having a circular hole, a circular plate fitting said hole and having a spiral cam-groove therein, a pin or roller attached to the lower plate and entering said spiral cam or groove, an operating-lever connected to said circular plate, and clamping means of adjustable length connected to the inner edge of the bottom plate and engaging the opposite side of a bench or board, substantially as described.

9. A bench-dog, comprising a plate which is forked at one end and has these ends notched, a standard removably secured to said plate and provided with a center which is above and in line with the center of the notch in said plate, substantially as described.

10. A bench-dog, comprising a plate which is forked and has the ends of said forks notched, a removable standard secured to said plate, and a screw-threaded bar supported in said standard above and in line with the notch in said plate and having its end pointed to act as a center, substantially as described.

588,440. CULINARY UTENSIL. CLARENCE R. JOHNS, Alton Bay, N. H. Filed Feb. 3, 1897. Serial No. 621,755. (No model.)



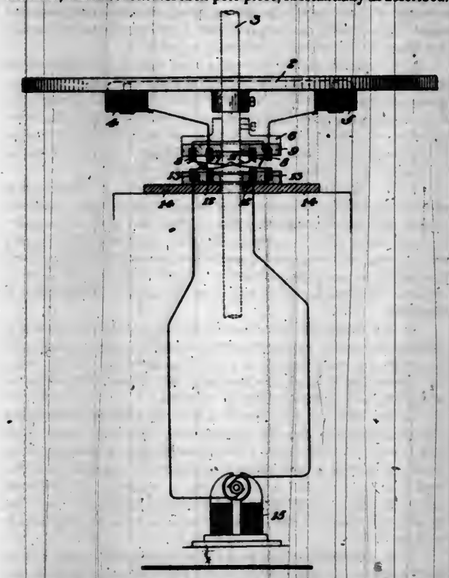
Claim.—1. A steam-cooker comprising a kettle having a rack provided with a series of supports for dishes, said supports consisting of wires adapted to engage the said rack, their free ends being spread apart and bent, substantially as described.

2. A steam-cooker comprising a kettle, a rack formed of an arched piece of wire, and a series of dish-holding devices attached to the vertical arms of said rack, said dish-holding devices consisting of wires whose intermediate portions wrap around the vertical portions of the said arched piece, thence twisted one upon another, and their outer portions being spread apart and bent upwardly, substantially as described.

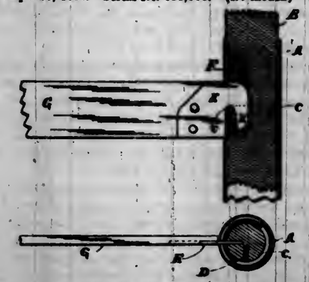
588,441. APPLYING ABRASIVE MATERIALS. WILLIAM L. KANE, Allegheny, Pa. Filed Sept. 20, 1895. Serial No. 564,075. (No model.)

Claim.—1. In a grinding and polishing apparatus, the combination of a movable table or disk, to the upper face of which is applied a metallic abrasive, and magnets arranged to hold the abrasive in place thereon.

2. In grinding and polishing apparatus, the combination with a rotary table or disk arranged to receive a metallic abrasive, and to which the article is applied, of magnets secured to and rotatory with the table, which constitutes their pole-piece, substantially as described.



588,442. BEDSTEAD. MILTON S. KEELER, Middleville, Mich. Filed Apr. 26, 1897. Serial No. 633,968. (No model.)



Claim.—1. The combination with the post of a bed having a circumferential groove and a longitudinal slot intersecting said groove, of a ring seated in said groove, and a side rail provided with a bed-iron constructed to enter said slot and engage said ring to secure the side rail to the post, substantially as described.

2. In combination with the outer case as A, an inner filling of wood as B, provided with a slot as F, a ring as C adapted to surround the wooden filling, and a side rail G provided with a bed-iron E adapted to engage with said ring and secure the said side rail to the post, substantially as and for the purpose described.

588,448. CARTRIDGE. JOHN B. KENDALL, Washington, D. C. Filed Apr. 5, 1897. Serial No. 630,759. (No model.)

Claim.—1. An igniter support or holder for cartridges made of pulp formed to shape, and having an opening to closely fit a projection on the cartridge-case head, around the primer, substantially as and for the purpose specified.

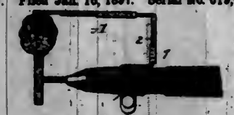
2. In a cartridge, the combination of the case, the charge therein, a primer, an igniter adjacent to the latter, and within the charge, and an igniter-support, composed of a suitably-shaped body of pulp, over an opening in which, adjacent to the primer, the igniter is placed and to which it is secured, said opening having such size as to closely fit a projection on the cartridge-case head, substantially as and for the purpose set forth.

3. In a cartridge, the combination of the case, the charge, a primer, an igniter adjacent to the latter, and a disk of pulp, closely fitting the case, and having an opening, over which the igniter is placed, which opening closely fits a projection on the cartridge-case head, substantially as and for the purpose set forth.

588,448.



588,444. DENTAL-ENGINE ATTACHMENT. FRANK W. KETNER, Hudson, N. Y. Filed Jan. 16, 1897. Serial No. 619,456. (No model.)



Claim.—An attachment for dental engines consisting of a collar constructed to be secured to the engine, and an arm connected therewith and extensible in two directions at right angles to each other and provided at its outer end with a spring-clasp adapted to hold a sponge for wiping and moistening the emery-wheel of the engine.

588,445. AUTOMATIC OILING DEVICE FOR ROAD-ROLLERS. WALTER G. KIRK, Buffalo, N. Y., assignor to the Barber Asphalt Paving Company, Washington, D. C., and New York, N. Y. Filed Nov. 9, 1896. Serial No. 611,518. (No model.)



Claim.—1. The combination of a road-roller, a main frame thereon extending above the roller, a supplemental frame pivotally suspended from said main frame at one side of a vertical central line and above the roller, an oiling-roller mounted in the lower portion of said supplemental frame, an oil-reservoir also carried by said latter frame, and connections between the reservoir and oiling-roller for supplying the latter with oil, substantially as described.

2. The combination of the road-roller, the operating-handle thereof, the main frame extending above said roller, a supplemental frame suspended from the upper part of the main frame, a reservoir

supported by said supplemental frame, an oiling-roller journaled in the latter below the reservoir, connections between the reservoir and oiling-roller for supplying oil thereto, and adjusting devices for said supplemental frame, substantially as described.

3. The combination of a road-roller, an oil-reservoir, an oiling-roller having a tubular perforated axle, a supply-pipe leading from the reservoir to said axle and terminating in a perforated section arranged concentrically within the axle, and stuffing-boxes between said axle and perforated section, substantially as described.

4. The combination of the road-roller, an oil-reservoir, an oiling-roller, connections between the latter and reservoir, and a combined dust-guard and drip-tray partly inclosing the oiling-roller, substantially as described.

5. The combination of the road-roller, a swinging frame supported thereon and comprising end pieces and a cross-bar connecting them, an oiling-roller journaled in the end pieces, a semicylindrical dust-guard and drip-tray carried by said cross-bar and partly inclosing the oiling-roller, end flanges on said guard and tray, and means for feeding oil to said oiling-roller, substantially as described.

6. The combination of the road-roller, the frame D, the supplemental frame E pivoted thereto and comprising V-shaped end pieces, the reservoir supported by the arms of said end pieces, the roller G journaled in the lower part of the end pieces, the pipe H, and the links *y* pivoted to the frame E and having a sliding connection with the frame D, substantially as described.

7. The combination with the road-roller and oil-reservoir, of an oiling-roller composed of a tubular perforated axle, absorbent disks and spacing-pieces alternately arranged thereon, end washers, and clamping-bolts extending through said disks, spacing-pieces and washers, and connections between said reservoir and axle, substantially as described.

588,446. WIRE-CLAMP. JOHN M. KLEIN, Chicago, Ill. Filed June 7, 1897. Serial No. 639,636. (No model.)

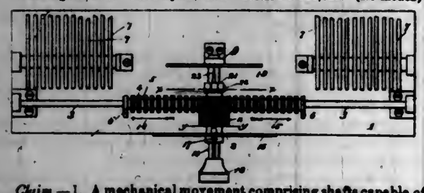


Claim.—1. A wire clamp or stretcher comprising two jaws, a bar pivotally connecting said jaws and having an extended end, a toggle-link pivoted to the extended end of said bar, and another toggle-link pivotally connected at one end to one of the jaws and at its opposite end pivotally connected to said first-mentioned toggle-link, substantially as described.

2. A wire clamp or stretcher comprising two jaws, a link and a bar pivotally connected to said jaws, a toggle-link connected to said bar, another toggle-link connected to one of the jaws and a draft-loop connected to the opposite ends of said toggle-links, substantially as described.

3. A wire clamp or stretcher comprising jaws A and B, the jaw A being provided with an angular extension *a*, said jaws being pivotally linked together, a bar C pivoted to said jaws and toggle-links connected at one end to a draft-hook and connected at their opposite ends respectively to the angular extension of the jaw A and to the bar C, substantially as described.

588,447. MECHANICAL MOVEMENT. WILLIAM H. H. KNIGHT, Washington, D. C. Filed Apr. 3, 1896. Serial No. 586,123. (No model.)



Claim.—1. A mechanical movement comprising shafts capable of reciprocating and rotating movement, and mechanism therebetween whereby each may impart either a reciprocating or a rotating movement to the other, substantially as described.

2. A mechanical movement comprising shafts capable of reciprocating and rotating movement, and gear connections between said shafts whereby each may impart either a reciprocating or a rotating movement to the other, substantially as described.

3. In a mechanical movement, a shaft capable of reciprocating and rotating movement, a device connected to said shaft to move a device separate therefrom, and said latter device, in combination with an operating-shaft also capable of a reciprocating and a rotating movement, and mechanism between said latter and former named shafts whereby each may impart either a reciprocating or a rotating movement to the other, substantially as described.

4. In a mechanical movement a shaft capable of reciprocating and rotating motion, a gear-section on said shaft, a finger connected to said shaft to move separate rods or arms, and said rods or arms, in combination with an operating-shaft also capable of reciprocating and rotating movement, and a gear-section upon said operating-shaft in engagement with the gear-section of said former-named shaft, to impart a reciprocating or a rotary motion thereto, substantially as described.

5. In a mechanical movement shafts capable of reciprocating or rotating movement, connections between said shafts whereby each may impart a reciprocating or a rotating movement to the other, and mechanism to positively determine the extent of movement of said shafts, as and for the purpose set forth.

6. In a mechanical movement a shaft 3, capable of reciprocating and rotating movement, and a gear-section thereon, in combination with a shaft 10, also capable of reciprocating and rotating movement and having a gear-section engaging the gear-section of the shaft 3, to impart uniform reciprocating or rotating movement from one to the other of said shafts, and means substantially as described to positively limit and determine such movement, as and for the purpose set forth.

7. In a mechanical movement an operating-shaft capable of reciprocating or rotating movement and provided with a gear-section, an operating-button, and an indicating-arm, in combination with a shaft to be operated in rectilineal or rotary direction and provided with a gear-section engaging the gear-section of the operating-shaft, and a disk having indices to determine the movement of the shafts, substantially as described.

8. In a mechanical movement shafts capable of reciprocating and rotating movement, connections between said shafts whereby each may receive a reciprocating or a rotating movement from the other, connections to positively determine the movement of the operating-shaft, and means substantially as described to maintain said operating-shaft at any desired adjustment while the device is being operated, as and for the purpose set forth.

9. The combination with shafts capable of rectilineal and rotary movement, said shafts arranged at angles to each other and provided with gear-sections connected to impart such rectilineal or rotary movement from one to the other thereof, of a non-movable disk provided with indices, and a non-movable disk provided with apertures said disks operating, respectively in connection with an indicating-arm, and an arm having a detaining-stud, each of which arms is connected to one of said shafts, substantially as described.

10. In a mechanical movement the combination of a gear-section comprising contacting pinions having teeth staggered as shown to be engaged and operated in a rectilineal or a rotary direction by a gear-section with said latter-named gear-section, substantially as described.

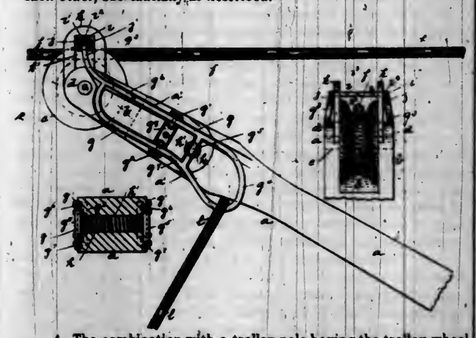
11. In a mechanical movement a shaft having a gear-section comprising contacting pinions having teeth staggered as shown, in combination with a shaft having a gear-section comprising pinions having teeth in alinement with each other, to engage and move said staggered gear-section in rectilineal or rotary direction, and with means to move and to determine the movement of said shafts, substantially as described.

588,448. TROLLEY. FRANK KRABAL, Pittsburg, Pa. Filed Aug. 22, 1896. Serial No. 603,563. (No model.)

Claim.—1. The combination with the trolley-pole having the trolley-wheel journaled therein, of standards or guides on said trolley-pole, spring-operated levers on said trolley-pole, and pivoted spring-arms or guards on said levers within the standards or guides extending across the trolley-wheel and movable laterally and toward each other, substantially as described.

2. The combination of the trolley-pole having the trolley-wheel journaled therein, standards or guides on said trolley-pole, spring-operated levers on said trolley-pole, and pivoted arms or guards on said levers between the standards or guides extending across the trolley-wheel and adapted to move laterally, substantially as described.

3. The combination with a trolley-pole having the trolley-wheel journaled therein, of standards or guides on said trolley-pole, spring-operated levers pivoted to the sides of the trolley-pole, and pivoted spring-arms or guards on said levers within the standards or guides extending across the trolley-wheel and movable laterally and toward each other, substantially as described.



4. The combination with a trolley-pole having the trolley-wheel journaled therein, of standards or guides on said trolley-pole, spring-operated levers pivoted to the sides of the trolley-pole having the trolley-rope connected thereto, and pivoted spring-arms or guards on said levers within the standards or guides extending across the trolley-wheel and movable laterally and toward each other, substantially as described.

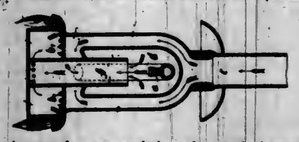
5. A trolley having a trolley-wheel therein, spring-operated levers pivoted to the sides of the trolley having the trolley-rope connected thereto, movable cross-arms or guards on said levers above the wheel to hold the wire upon the wheel, and springs connecting the cross-arms or guards and levers, substantially as shown and described.

6. A trolley having a trolley-wheel therein, spring-operated levers pivoted to the sides of the trolley having the trolley-rope connected thereto, movable cross-arms or guards on said levers above the wheel to hold the wire in contact with the wheel, springs connecting the cross-arms or guards and levers, and standards or guides on said trolley extending over and above the cross-arms or guards and springs, substantially as shown and described.

7. A trolley having a trolley-wheel therein, seats within the sides of said trolley, spring-operated levers pivoted within said seats having the trolley-rope connected thereto, movable cross-arms or guards pivoted on said levers above the wheel to hold the wire in contact with the wheel, springs connecting the cross-arms or guards and levers, and standards or guides on said trolley extending over and above the cross-arms or guards and springs, substantially as shown and described.

8. A trolley *a* having the forked arm *b* thereon, the trolley-wheel *c* fitting within the bearings *d* on the shaft *e* in the forked arm *b*, levers *g* fitting within the seats *a'* in the sides of the trolley *a*, the said levers *g* being pivoted by pivots *g'* g^3 in the bearings g^2 and provided with the upwardly-projecting ends g^3 thereon, loops g^4 formed on said levers *g* having the trolley-rope attached thereto, a spiral spring *h* fitting with a seat *h'* in the trolley *a* and extending across the same, cross-arms or guards *i* pivoted to the ends g^3 of the lever *g*, springs *j j'* connecting the levers *g* and cross-arms or guards *i*, and standards or guides *k* having openings *k'* therein secured on the trolley *a* and extending over and above the cross-arms or guards *i* and springs *j j'*, substantially as described.

588,449. PETROLEUM-BURNER. HUGO KRETSCHMANN, Berlin, Germany. Filed Oct. 3, 1896. Serial No. 607,795. (No model.)



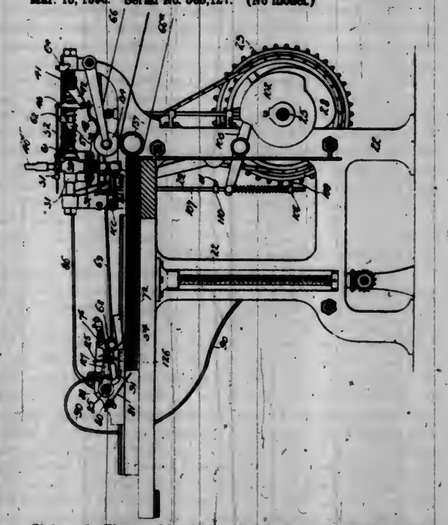
Claim.—A vapor-burner consisting of a vertical supply-pipe divided into two branches at its upper end, a volatilizing-chamber and a mixing and superheating chamber arranged on the upper ends of said branches one directly above the other, the said branches communicating with the volatilizing-chamber, a downwardly-extending central tube provided at its upper end with perforations leading into the mixing and superheating chamber, a tube opening at its upper end into the volatilizing-chamber and its lower end communicating with a central jet-pipe discharging upward into the lower open end of the said central tube, a plurality of discharge-jets formed in the lower portion of the mixing and superheating chamber, and an upwardly-flaring cap arranged around the base of the mixing and superheating chamber and operating to deflect the flames upward around said mixing and superheating chamber, substantially as described.

588,450. FEEDING MECHANISM. EDWARD M. LAMB and EBNER BALES, Clayton, Mich. Filed Aug. 10, 1896. Serial No. 602,245. (No model.)



Claim.—In a feeding mechanism, the combination with the rotary hollow shaft, the sleeve embracing said shaft having an internal thread at one end, the opposed brackets mounted on the end of said shaft having the opposed slotted ways therein, the spindles supported at opposite ends in the slotted ways in said brackets, the gear-wheels having the feed-rollers formed integral therewith mounted loosely upon said spindles so that said rollers stand opposed to each other, said gears meshing with the internal thread of said sleeve, the ends of said spindles passing through the slotted ways in said brackets, and the looped springs engaging at their free ends the opposed ends of said spindles.

588,451. PNEUMATIC SHEET SEPARATING AND FEEDING MACHINE. GEORGE F. LEIGER, Chicago, Ill., assignor, by direct and mesne assignments, to himself and Lewis Benedict, same place. Filed Mar. 13, 1896. Serial No. 583,127. (No model.)



Claim.—1. The combination with a carriage, mechanism for reciprocating said carriage, a telescopic pneumatic picker carried by said carriage, a valve controlling said pneumatic picker, and mechanism adapted to automatically open and close said valve as said carriage is reciprocated, of guides bearing upon said pneumatic picker and automatically operated by the reciprocation of said carriage to positively raise said telescopic picker as said carriage reciprocates, substantially as described.

2. The combination with a carriage, mechanism for reciprocating said carriage, a telescopic pneumatic picker carried by said carriage, a valve controlling said pneumatic picker, and mechanism adapted to automatically open and close said valve as said carriage is reciprocated, of oscillating guides bearing upon said picker, and mechanism adapted to automatically oscillate said guides as said carriage reciprocates and positively raise said picker as said carriage moves forward, and permit it to drop as it reaches the backward limit of its motion, substantially as described.

3. The combination with a frame, a carriage carried on said frame, mechanism for reciprocating said carriage, a pneumatic tele-

scopic picker carried by said carriage, a valve controlling said pneumatic picker, and mechanism adapted to automatically open and close said valve as said carriage is reciprocated, of guides 41 pivotally mounted upon said frame and bearing upon said telescopic picker, a spring bearing upon said guides and adapted normally to oscillate the same upward and positively raise said picker, and mechanism connected with said guides and adapted to automatically oscillate said guides downward as said carriage nears the backward limit of its reciprocating movement, permitting the telescopic portion of said picker to drop, substantially as described.

4. The combination with a frame, a carriage carried on said frame, and mechanism for reciprocating said carriage, of a telescopic picker carried by said carriage and having a valve-chamber, a gate-valve located in said valve-chamber and provided with a forwardly-projecting stem, a beveled block 57 adjustably carried by said stem, a spring 59 bearing on said block and adapted normally to open said valve, a cross-bar adapted to close said valve as said carriage moves forward, a rod 60 pivotally mounted on said picker, a spring 61 bearing upon said rod 60 and operating normally to hold said rod down, a beveled block 62 adjustably mounted on said rod 60 and adapted to engage with said beveled block 57 and hold said valve closed during the backward movement of said carriage, and a beveled block 64 adjustably mounted upon the forward end of said rod 60 and adapted to bear against said cross-bar and raise said rod 60 as said carriage reaches the backward limit of its movement, substantially as described.

5. The combination with pneumatic pickers for engaging the front end of a sheet of paper and moving it forward, and a coacting, rotating, reciprocating pneumatic tube, provided with a series of openings and adapted to engage and raise the rear end of a sheet, of a rock-shaft having an arm, an oscillatory pin mounted in said arm, a pin connected with the oscillatory pin and provided with a head for holding the rear end of a sheet, an arm connected with the oscillatory pin, and a spring connected with the lever, substantially as and for the purposes described.

6. The combination with pneumatic pickers for engaging the front end of a sheet of paper for moving it forward, and a coacting, rotating, reciprocating pneumatic tube, provided with a series of openings and adapted to engage and raise the rear end of a sheet, of automatically-operated, spring-adjustable holders for holding down the rear end of a pile of sheets after the rear end of the top sheet has been lifted and moved forward by said pneumatic tube, mechanism for automatically forcing said holders down upon the pile of sheets after the pneumatic tube has engaged with the rear end of the top sheet and moved it forward, and raising said holders from the pile of sheets after the top sheet has been freed from the pneumatic tube, and blowers mounted independent of said spring-adjusted holders at a point in rear of the same for blowing a current of air beneath the top sheet as the rear end is lifted by the pneumatic tube, substantially as and for the purposes described.

7. The combination with pneumatic pickers adapted to engage the front end of the top sheet of a pile of sheets and move it forward, a coacting, rotating, reciprocating pneumatic tube, provided with a series of openings, and adapted to engage and raise the rear end of a sheet, mechanism for rotating and reciprocating said tube, and mechanism adapted to alternately raise the rear end of said pile of sheets against said rotating and reciprocating tube as said tube reaches the backward limit of its motion, and to allow the same to drop back to its normal position after the rear end of said top sheet is engaged with said tube, of automatically-operated spring-adjusted holders adapted to hold down the rear end of a pile of sheets after the rear end of the top sheet has been lifted and moved forward by said tube, mechanism adapted automatically to force said holders down upon said pile of sheets after said tube has engaged with the rear end of the top sheet and moved it forward, and to raise said holders from said pile of sheets after the top sheet has been freed from said tube, blowers mounted independent of the said spring-adjusted holders, for blowing a current of air beneath said top sheet as the rear end is lifted by said rotating reciprocating tube, and mechanism adapted to intermittently blow a blast of air through said blowers as said pneumatic tube engages and raises the rear end of said top sheet, substantially as described.

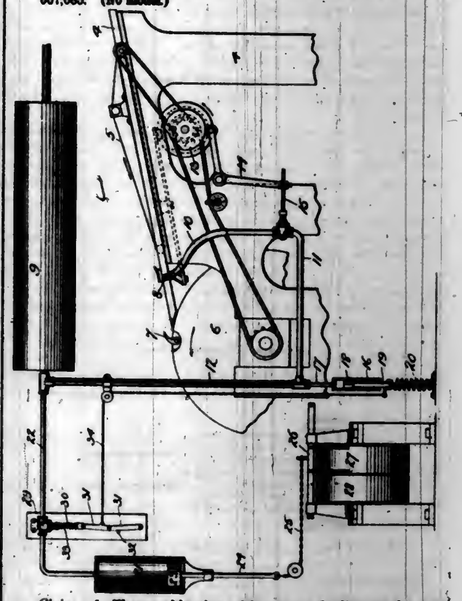
8. The combination with pneumatic pickers adapted to engage the forward end of the top sheet of a pile of sheets and carry it forward, and mechanism for operating the same, of a coacting rotating reciprocating pneumatic tube adapted to engage the rear end of a sheet of paper and lift the same from the pile, said tube being provided with a series of openings, mechanism for rotating and reciprocating said tube, automatically-operated holders adapted to alternately press upon and hold the front end of the pile of sheets down while said rotating and reciprocating tube engages the rear end of the top sheet, and to rise from said pile of sheets as said pickers engage the forward end, and mechanism for operating said holders, substantially as described.

9. The combination with pneumatic pickers adapted to engage the forward end of the top sheet of a pile of sheets and carry it forward, and mechanism for operating the same, of a coacting rotating reciprocating pneumatic tube adapted to engage the rear end of a sheet of paper and lift the same from the pile, said tube being provided with a series of openings, mechanism for rotating and reciprocating said tube, automatically-operated holders adapted to alternately bear upon and press down the front end of a pile of sheets while said rotating and reciprocating tube engages the rear end of the top sheet, and to rise from said pile of sheets as said pickers engage the forward end, mechanism for operating said holders, automatically-operated holders adapted to alternately bear upon and press down the rear end of a pile of sheets after the rear end of the top sheet has been engaged and lifted by said rotating reciprocating tube and while the forward end of said top sheet is engaged with and carried forward by said pickers, and to be lifted from said pile of sheets as said rotating reciprocating tube reaches the backward limit of its movement, and mechanism for alternately raising and lowering said last-mentioned holders, substantially as described.

10. The combination with mechanism adapted to engage the front end of a sheet of a pile of sheets and move it forward, a coacting rotating reciprocating pneumatic tube provided with a series of openings and adapted to engage the rear end of the top sheet of said pile a short distance in front of its rear edge, and mechanism for rotating and reciprocatiog said tube, of inclined guides adapted to bear upon said rotating reciprocating tube from below and cause the same to rise as it moves forward, and a wire stretched transversely over the pile of sheets and supported above the pneumatic tube to engage the free rear end of said upper sheet as said rotating reciprocating tube moves forward and strip said sheet from said tube, substantially as described.

11. In a pneumatic sheet separating and feeding machine, the combination with a rock-shaft, and mechanism for rocking said shaft, of an arm 113 keyed to said rock-shaft, a pin 115 pivotally carried in the outer end of said arm, an upright pin 117 adjustably mounted on said pin 115, holders 119 carried upon the lower end of said pin 117, a lever 120 secured to said pin 115, and a spring mounted upon said arm 113 and bearing upon said lever 120, and adapted normally to raise said lever 120, substantially as described.

588,452. AUTOMATIC STOPPING DEVICE FOR PAPER-FEEDING MACHINES. GEORGE F. LEIGER, Chicago, Ill., assignor to himself and Lewis Benedict, same place. Filed Sept. 26, 1896. Serial No. 607,085. (No model.)

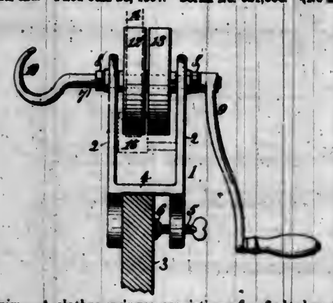


Claim.—1. The combination with a paper-feeding machine employing an apertured pneumatic paper-holding pipe, of a cylinder connected with said pipe, a piston within said cylinder, means for creating a vacuum within said cylinder, a second cylinder and a piston therein, belt-shifting devices connected with said last-named piston, and means for moving said last-named piston when the vacuum in said first-named cylinder is destroyed, substantially as specified.

2. The combination with a paper-feeding machine employing an apertured pneumatic paper-holding pipe, of a cylinder connected with said pipe, a piston within said cylinder, means for creating a vacuum within said cylinder, a second cylinder and piston therein, a pipe connected with said means for creating a vacuum, a valve arranged in said pipe and operated by the motion of the first-mentioned piston, and a belt-shifting device connected with said second-named piston, substantially as and for the purpose specified.

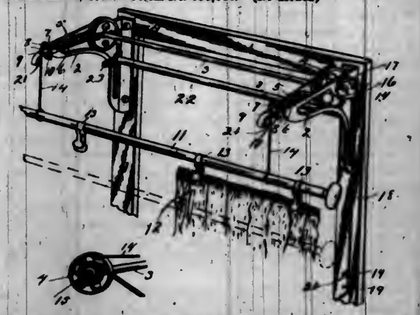
3. The combination with a paper-feeding machine employing an apertured pneumatic paper-holding pipe, of a cylinder connected with said pipe, a piston within said cylinder, means for creating a vacuum within said cylinder, a second cylinder and piston therein, a pipe connected with said means for creating a vacuum, a valve in said pipe, a pair of toggle-levers connected with said valve, means for operating said toggle-levers by the movement of the piston in the first-named cylinder, and a belt-shifting device connected with said second-named piston, substantially as and for the purpose specified.

588,453. CLOTHES-WRINGER. WILLIAM A. LITTLER, Cumberland, Md. Filed Jan. 28, 1897. Serial No. 621,066. (No model.)



Claim.—A clothes-wringer consisting of a forked or bifurcated base constructed to straddle the edge of a tub or sink, a set-screw for clamping said base in position, two parallel arms projecting vertically from the upper side of the base, a wringer-shaft journaled in the upper ends of said arms and curved at one end to form a hook, a crank-arm fixed on the opposite end of the wringer-shaft and a fast and loose pulley mounted on the said shaft between said upright arms, substantially as shown and described and for the purpose specified.

588,454. CURTAIN-FIXTURE. THOMAS H. LLOYD, Canton, Ohio. Filed June 1, 1897. Serial No. 639,047. (No model.)

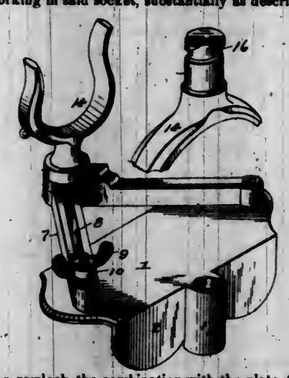


Claim.—1. The combination of brackets 2, provided with the arms 5, carrying rollers, the shaft 3, having secured thereto the grooved pulleys 4, a spring 15, connected to the shaft, cords wrapped around the pulleys 4, and connected to the pole 11, the pole 11, carrying a curtain or curtains, substantially as and for the purpose specified.

2. The combination of brackets having journaled thereto a shaft provided with grooved pulleys, a spring to actuate the shaft, adjustable arms carrying cords connected to the grooved pulleys and to the pole 11, a notched disk secured to the shaft, and a detent to hold the shaft against rotation, substantially as and for the purpose specified.

588,455. OAR-LOCK. JOHN S. LOVERNS and ANSON MCINTOSH, La Prairie, Minn. Filed Dec. 9, 1896. Serial No. 614,990. (No model.)

Claim.—1. In a rowlock, the combination with the plate formed with depending flanges and the thumb-screw and clamping-plate, of the arm pivoted to one end of said plate provided at the outer end with a socket, the arm pivoted to said socket, having a slot therein, the screw passing through the other end of said plate and through said slot, and provided with a thumb-nut, and the fork provided with a stem working in said socket, substantially as described.



2. In a rowlock, the combination with the plate, the outwardly-extending adjustable arms, and the socket formed with a rib on its inner side, of the fork, and the stem formed therewith provided with a spiral groove with which said rib engages, substantially as described.

3. In a rowlock, the combination with the plate formed with a socket, the depending flanges, the thumb-screw and clamping-plate, of the adjustable arms one of which is pivoted to said plate while the other is formed with a slot, the screw passing through said slot, the thumb-nut engaging therewith, the apertured lugs at the outer ends of said arms, the socket formed with an interior rib, the fork, and the stem formed with a spiral groove with which said rib engages, substantially as described.

588,456. SPRING FOR PUMP-VALVES. JEREMIAH R. MATHEWSON, Sheffield, England, assignor to Benjamin C. Tilghman and Richard A. Tilghman, Philadelphia, Pa. Filed Apr. 23, 1896. Serial No. 589,361. (No model.) Patented in England Feb. 19, 1895, No. 3,532.



Claim.—1. In combination with a seat as A having ports *a* formed therein and a valve as B adapted to close said ports, a spring-plate having a plurality of symmetrically-disposed arms as C C C extending from a common center and curving outwardly both radially and downwardly and means for holding said spring-plate in position above the valve.

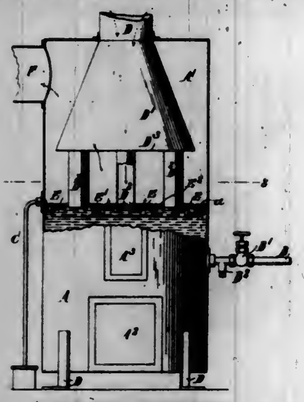
2. In combination with a seat as A having ports *a* formed therein and a valve as B adapted to close said ports, a spring-plate having a plurality of outwardly and downwardly curving arms C C C all turned in the same direction and a bolt D and nuts as *d* whereby the spring-plate is held to the seat A and in position upon the valve B.

588,457. APPARATUS FOR SEPARATING DUST FROM AIR. JEREMIAH R. MATHEWSON, Sheffield, England, assignor to Benjamin C. Tilghman and Richard A. Tilghman, Philadelphia, Pa. Filed Dec. 14, 1896. Serial No. 615,661. (No model.)

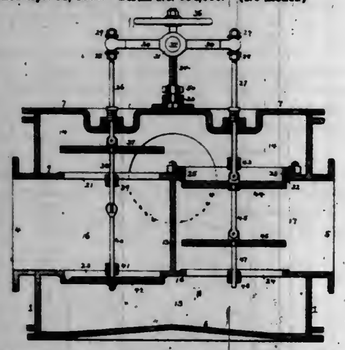
Claim.—1. In an apparatus for separating dust from air the combination with a water-tank A of a dust-flue as D^2 extending below the water-level in said tank, a perforated plate E surrounding the mouth of the flue D^2 and lying below the water-level but not occupying the entire cross-sectional area of the tank and a downwardly-extending rim E' surrounding said plate but not extending to the bottom of the tank.

2. In an apparatus for separating dust from air the combination with a water-tank A of a dust-flue D, a series of flues D^2 extending

from flue D below the water-level of tank A, a series of perforated plates E, one surrounding the mouth of each flue D^2 and lying below the water-level, said plates being of such dimensions that they will not occupy the entire sectional area of the tank and prevent circulation of water therein, and a downwardly-extending rim as E' secured to the edge of each plate but not extending to the bottom of the tank.



588,458. FOUR-WAY REVERSE-VALVE. FREDERICK V. MATTON, Camden, N. J., assignor to the Camden Iron Works, same place. Filed Apr. 30, 1897. Serial No. 634,603. (No model.)



Claim.—1. A four-way reversing-valve, comprising a casing or chest with side and end branches and longitudinal and transverse partitions dividing said chest into intermediate chambers communicating respectively with the end branches of the chest, and upper and lower chambers communicating respectively with the side branches of the chest, each intermediate chamber having means of communication with both the upper and lower chambers, and two pairs of valves, one pair governing the communications of one intermediate chamber and the other pair governing the communications of the other intermediate chamber, each pair of valves being connected to a reciprocating valve-stem so that one valve of the pair closes as the other opens, the controlling-valves of one intermediate chamber being contained within the same and those of the other intermediate chamber being contained respectively in the upper and lower chambers of the valve-casing, substantially as specified.

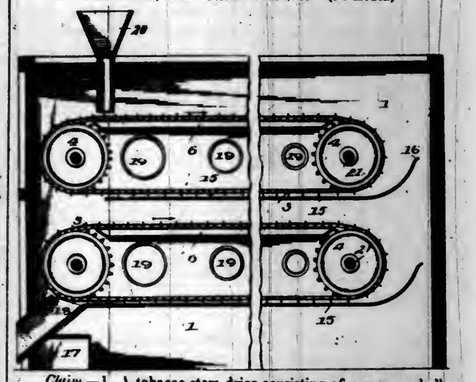
2. A four-way reversing-valve comprising a casing or chest with side and end branches and longitudinal and transverse partitions dividing said chest into intermediate chambers communicating respectively with the end branches of the chest, and upper and lower chambers communicating respectively with the side branches of the chest, each intermediate chamber having means of communication with both the upper and lower chambers, and two pairs of valves, one pair governing the communications of one intermediate chamber and the other pair governing the communications of the other intermediate chamber, each pair of valves being connected to a reciprocating valve-stem, and said valve-stems engaging the opposite arms of a lever pivoted to a nut which engages with an operating screw-stem mounted upon the valve-casing, substantially as specified.

3. The combination of a valve-casing having openings therein adapted to be opened and closed by the movement of oppositely-facing valves actuated by a single stem, said valves being pivotally connected to each other and to the operating-stem, substantially as specified.

4. The combination of a valve-chest having openings to be closed by the movement of oppositely-facing valves actuated by the same stem, one of said openings being of greater diameter than the valve and having a detachable valve-seat of less diameter than the valve in order to provide for the passage of both of the valves through the opening in adjusting them to their proper position, substantially as specified.

5. The combination of a four-way reversing-valve, an operating-stem therefor, a spur-wheel geared to said stem, an index-plate having thereon two pairs of converging arrows, one pair curving to the right and the other pair curving to the left, and a shield with alternating blanks and spaces whereby movement of the spur-wheel is caused to uncover one arrow of each pair and simultaneously cover the other arrow of each pair, substantially as specified.

588,459. TOBACCO-STEM DRIER. DAVID C. MAYO, Richmond, Va. Filed Oct. 19, 1896. Serial No. 609,348. (No model.)



Claim.—1. A tobacco-stem drier consisting of a case or shell, a series of conveyers therein, each conveyer composed of a series of pans arranged to form an endless belt, the adjacent edges of the pans lying close together to prevent the stems from dropping between the pans and each pan provided at its rear with a flange of greater rigidity than the base of the pan, a floor or platform beneath each conveyer and arranged so that the stems will be discharged therefrom onto the conveyer next below, and adapted to have the stems drawn over it by the rear flanges to the pans, and means for introducing hot air into the space inclosed by each conveyer, substantially as and for the purposes described.

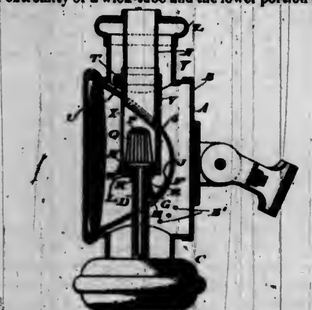
2. In a tobacco-stem drier, the combination with a case or shell, of a conveyer composed of a series of pans arranged to form an endless belt, each pan being formed in two parts, the rear part being of angular form with an upwardly-extending rear flange of heavier material than the other part, the front part lapping upon and being secured to the horisontal portion of the rear part, and a platform lying beneath the conveyer and having one end extended beyond the conveyer to receive the stems as discharged from the pan, and adapted to have the stems drawn over it by the rear flanges to the pans, substantially as and for the purposes described.

3. In a tobacco-stem drier, the combination with a case or shell, of a conveyer composed of a series of pans arranged to form an endless belt, each pan being provided with fingers extending under the next adjoining pan, substantially as and for the purposes described.

4. A tobacco-stem drier consisting of the case or shell, a series of conveyers therein, each conveyer composed of a series of pans arranged to form an endless belt, each pan provided at its rear with an upwardly-extending flange and formed with fingers projecting under the next adjoining pan, a floor or platform beneath each conveyer extended at one end to receive the stems discharged from the top of the conveyer and arranged to deliver the stems onto the conveyer next below, and means for admitting hot air into the space inclosed by each conveyer, substantially as and for the purposes described.

588,460. BICYCLE-LAMP. WILLIAM S. MILLER and CLINTON H. MILLER, Philadelphia, Pa. Filed Apr. 26, 1897. Serial No. 633,905. (No model.)

Claim.—1. A lantern provided with a frame, means for supporting the same within the lantern, and a ring attached to the body portion of said frame, said ring being adapted to retain in position the upper extremity of a wick-tube and the lower portion of a mantle.



2. In a bicycle-lamp, a reflector having secured thereto the flange J, the body portion H attached to said flange and a channeled ring K attached to said body portion, the inner portion of said ring being adapted to guide and retain the upper portion of a wick-tube, while the outer portion of said ring is adapted to support the lower portion of a mantle.

3. In a bicycle-lamp, a mantle suitably supported, a flue leading therefrom to the exterior of the lamp, a chimney of transparent material in engagement with said flue and inclosing said mantle, a clamp surrounding said flue and chimney, an arm depending from said clamp and a ring attached to said arm and engaging the lower portion of said chimney.

4. In a lantern, a frame on the interior thereof, means for supporting the same, and a ring on said frame adapted to retain in position a wick-tube and supporting a mantle.

5. In a lantern, a frame on the interior thereof, means for supporting the same, a mantle, a wick-tube, and a ring on said frame adapted to retain in position said wick-tube and said mantle and having a channel therethrough.

6. In a lantern, a frame, means for supporting the same within said lantern, a ring attached to said frame and adapted to retain in position said wick-tube and said mantle, and having a channel therethrough and guides attached to or forming part of the said ring.

588,461. BALL-FLOAT. GEORGE B. MOORE, Springfield, Mass. Filed Sept. 29, 1896. Serial No. 607,353. (No model.)

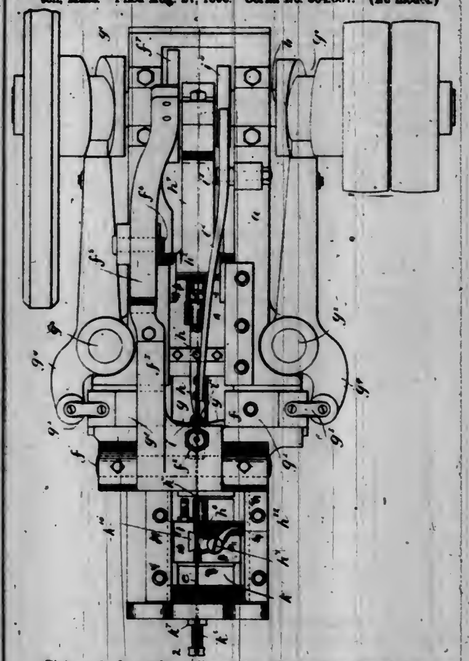


Claim.—1. The combination with a ball-float, of the lever provided with a series of rods or arms of spring metal projecting from the lever in different radial directions, and downwardly curved, and extended to embrace and confine, with a constrictive pressure, somewhat more than half of the ball, the outer depending ends of said spring-rods being free and disconnected, substantially as described.

2. The combination with the ball, of the holder therefor comprising a casting with the radially-arranged screw-tapped sockets, and the spring-arms having threaded end portions screwing into said socket, and having outwardly and downwardly curved extensions from their places of screw connection whereby they encircle somewhat more than half the bulk of the ball, the outer extremities of the arms being free and disconnected and arranged in a circle of less diameter than the ball, substantially as described.

3. The combination with the ball of the holder therefor consisting of an inverted cup-shaped casting having the upwardly-extended transversely-apertured hub and having the edgewise-arranged bosses which are provided with the screw-sockets opening downwardly and outwardly and the spring-arms *f* having their upper extremities threaded and screwing into said sockets, said arms being downwardly and outwardly curved to engage and embrace more than half the bulk of the ball, and the lever-arm passed through said apertured end of the holder and a screw for confining it, substantially as described and shown.

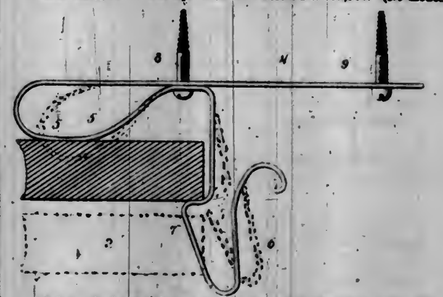
588,462. WIRE-NAIL MACHINE. EPHRAIM S. MORTON, Brockton, Mass. Filed Aug. 27, 1896. Serial No. 604,067. (No model.)



Claim.—1. In a wire-nail machine, the combination of a stationarily-supported base-die, a plurality of loose dies independently movable and forming with the base-die a series of dies having gripping formations in their confronting faces, guides common to the loose dies, and means applied to the outermost die for pressing all the dies together, substantially as described.

2. In a wire-nail machine, the combination of wire-grasping devices and means for operating the same, a sliding carriage equipped with a header at or near one end and having a pair of abutments near the opposite end, one of which abutments is longitudinally adjustable, a feed-slide movable on the frame and provided with wire-grasping devices, said feed-slide having an abutment projecting between the abutments on the carriage, and means for reciprocating the carriage.

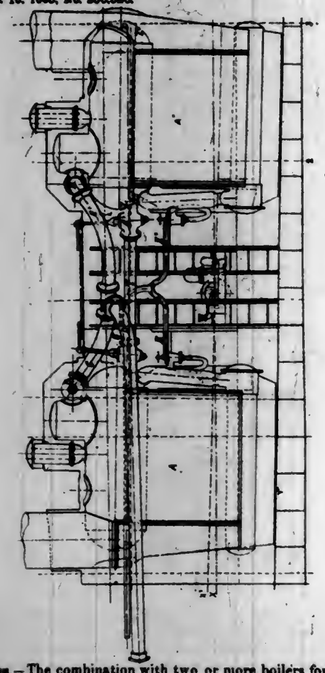
588,463. WINDOW-SHUTTER FASTENER. CHARLES F. MOYER, Millersburg, Pa. Filed Apr. 17, 1897. Serial No. 632,567. (No model.)



Claim.—A shutter-fastener formed of a single piece of resilient material which has a straight portion constituting a base and is bent into a closed loop and has its end portion extended outwardly substantially at right angles to its base and formed into a free spring-catch, a fastening device securing a portion of said loop to the base, and said spring-catch and loop being adapted to hold the shutter between them and the loop being compressed when the shutter is thus

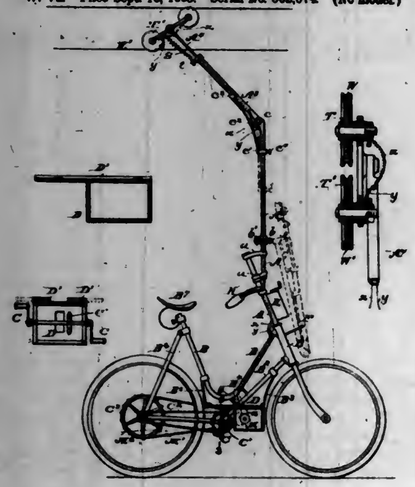
positioned and adapted to automatically eject said shutter when the catch is detached therefrom.

588,464. STEAM-GENERATOR. JACQUES A. NORMAND, FRANÇOISE R. NORMAND, and MARIE R. NORMAND, Havre, France. Filed Apr. 3, 1897. Serial No. 630,650. (No model.) Patented in France Sept. 16, 1895, No. 250,330.



Claim.—The combination with two or more boilers for furnishing steam to a single engine, of the connected feed-water pipes E E', a pipe F connecting the boilers at or near the lowest water-level consistent with a satisfactory working of the boilers, cocks G G' at the ends of said connecting-pipe, the pipe connections C C' between the steam-spaces of the boilers, and a collecting-pipe D from said pipes C C', to the engine, substantially as described.

588,465. TROLLEY-BICYCLE. ROBERT T. OWEY, Charleston, W. Va. Filed Sept. 10, 1895. Serial No. 562,074. (No model.)



Claim.—1. A trolley-driven carriage arranged to run upon ordinary roads and having an electric motor geared to one of its wheels, in combination with a trolley-pole connected to its main frame and carrying a double-wheeled trolley, two conductor-wires arranged on opposite sides of the trolley and holding it between them, and branch wires leading from the two trolley-wheels to the two poles of the motor substantially as and for the purpose described.

2. A trolley-driven carriage having a trolley-pole made in jointed sections bearing a trolley at its upper end, and a support upon said carriage adapted to receive and carry said trolley-pole when folded down about its joints substantially as and for the purpose described.

3. A trolley-driven carriage having an electric motor geared to one of its wheels, a trolley-pole having two wires leading from the opposite poles of said motor, a two-wheeled trolley arranged upon the end of said pole and connected respectively to the two wires, two conducting-wires both arranged overhead and connecting respectively with the trolley-wheels on opposite sides thereof and retaining the trolley between them, and a pair of pedals and operating-gear connecting with one of the wheels of the carriage substantially as shown and described.

4. The combination with a trolley-driven carriage and its motor; of a pedal driving-gear, and movable wings or guards for cutting off or permitting access to the pedals substantially as shown and described.

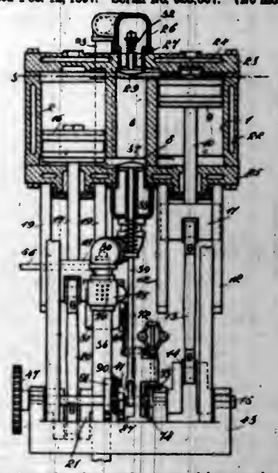
5. The combination with the trolley-driven carriage containing a motor; of a motor-case inclosing the motor, hinged leaves or wings attached to the same, and a pedal-gear arranged beneath such hinged leaves or wings substantially as and for the purpose described.

6. The combination with a trolley-driven carriage having swiveling vertical guide-shaft A; of the trolley-pole attached thereto and made in hinged sections $A' A^2 A^3$ with joints at b and c, a locking device for the joint b, and an adjustable spring overlapping the joint c substantially as and for the purpose described.

7. A trolley consisting of a lever, two insulating conducting-wheels located upon opposite sides of the fulcrum, a supporting stem or pole connected to said fulcrum, and a spring connected to the lever-frame and arranged to pull upon one side of the fulcrum of the said lever-frame substantially as shown and described.

8. A trolley consisting of a lever, two insulated conducting-wheels located upon opposite sides of the fulcrum, a supporting stem or pole connected to said fulcrum, a telescopic tube receiving the said stem, and a spring connected to the lever-frame at one side of its fulcrum substantially as and for the purpose described.

588,466. COMBUSTION-ENGINE. AUGUSTUS G. PAGE, New York, N. Y. Filed Feb. 12, 1897. Serial No. 623,067. (No model.)



Claim.—1. A combustion-engine, comprising a casing having two cylinders, pistons operating in the said cylinders, combustion-chambers in the casing having port communications at the top and bottom with the cylinders, whereby the pressure of exploded gas will be exerted on the top of one piston and on the bottom of the other piston, means for igniting the gas in the combustion-chambers, valves for controlling the admission of gas, and valves for controlling the exhaust, substantially as specified.

2. A combustion-engine, comprising a casing having two cylinders, pistons operating in the cylinders, combustion-chambers in the casing having port communications at the top and bottom with the cylinders, whereby the pressure of exploded gas will be exerted on the top of one piston and on the bottom of the other, means for igniting the gas in the combustion-chambers, gas-admission valves operated by the suction of the pistons, and exhaust-valves operated by a rotary part of the engine, substantially as specified.

3. A combustion-engine, comprising a casing having two cylinders, pistons operated in said cylinders, combustion-chambers in the casing, means for igniting gas in the combustion-chambers, a carbureter having communication with the combustion-chambers, valves for controlling said communication, valves for controlling the exhaust from the chambers, and means for automatically controlling the admission of air to the carbureter, substantially as specified.

4. A combustion-engine, comprising a casing having two cylinders and two combustion-chambers, pistons operating in the cylinders, a carbureter having communication with the combustion-chambers, automatically-regulated valves for controlling said communications, automatically-operated valves for controlling the exhaust, an auxiliary chamber in the carbureter, the upper end of the wall of which forms a valve-seat, a valve for said seat, an oil-inlet, a valve for said oil-inlet having connection with the valve of the auxiliary chamber, and means for controlling and regulating the admission of air to the carbureter through the auxiliary chamber, substantially as specified.

5. A combustion-engine, comprising a casing having two cylinders and two combustion-chambers, pistons operating in the cylinders, a carbureter having communication with the combustion-chambers, valves for controlling said communications, an exhaust-pipe, a jacket surrounding said exhaust-pipe and having perforations, a pipe connection between said jacket and the carbureter, an oil-supply having connection with the carbureter, a valve for controlling the admission of oil, a valve for controlling the admission of atmospheric air and operating coincidently with the oil-controlling valve, and means for regulating the admission of air, substantially as specified.

6. A combustion-engine, comprising a casing having two cylinders and two combustion-chambers, means for igniting gas in the combustion-chambers, pistons operating in the cylinders, a housing on the casing having port communications with the combustion-chambers, valves for controlling said communications and operated by the suctions of the pistons, a carbureter having communication with the housing, an exhaust-pipe, valves for controlling the exhaust, a jacket surrounding the exhaust-pipe and having a series of perforations, a pipe connection between said jacket and the carbureter, an auxiliary chamber in the carbureter, the upper end of the wall of said auxiliary chamber forming a valve-seat, a puppet-valve for engaging the said seat, an oil-inlet, a valve for controlling said oil-inlet and having connection with the puppet-valve, an inlet-pipe for the auxiliary chamber, a valve in said inlet-pipe, a governor operated by the engine, and a connection between said governor and the valve in the inlet-pipe, substantially as specified.

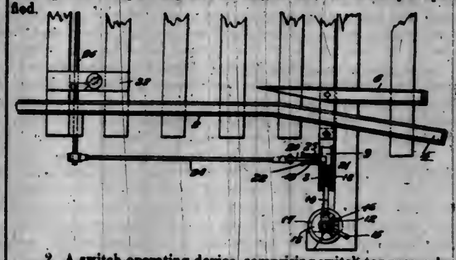
7. A combustion-engine, comprising a casing having two cylinders and two combustion-chambers, pistons operating in said cylinders, a carbureter having communication with the combustion-chambers, valves for controlling said communications, an air-inlet for the carbureter, two perforated disks in said inlet, one of said disks being adapted to be turned manually, and means for automatically turning the other disk, substantially as specified.

8. A combustion-engine, comprising a casing having cylinders and combustion-chambers, pistons operating in the cylinders, a carbureter having communication with the combustion-chambers, valves for controlling said communications, an exhaust-pipe, valves for controlling the exhaust, a jacket surrounding the exhaust-pipe, the said jacket having perforations through its wall and also having communication with the carbureter, an air-inlet pipe for the carbureter, disks mounted to rotate in said inlet and having openings, the said openings having a greater area than the combined area of the perforations in the jacket, and means for operating said disks, substantially as specified.

9. A combustion-engine, comprising a casing having a cylinder and a combustion-chamber, a piston operating in the cylinder, a gas-supply for the engine, a fixed sparking-point in the combustion-chamber, a rotary sparking-point in the combustion-chamber, a source of electricity with which said sparking-points are engaged, a gear-wheel of insulating material operated by the engine, a metal block on said gear-wheel, a pinion engaging with the gear-wheel and comprised in the electric circuit, a metal ring on the gear-wheel, and a brush engaging the said ring and with one of the wires of the electric circuit, substantially as specified.

588,467. RAILWAY-SWITCH-OPERATING DEVICE. GEORGE M. PATTERSON, Providence, R. I. Filed Oct. 8, 1896. Serial No. 608,351. (No model.)

Claim.—1. A switch-operating device, comprising switch-tongues, a bar having pivotal connection with the switch-tongues, a vertical shaft, a connection between said bar and shaft, comprising a boxing, a block in said boxing, and a spring between the end of the boxing and block, a locking device engaging the block and holding said boxing and block from movement, one relatively to the other, a releasing device for operating the locking device, and means operated by a moving train for operating the releasing device, substantially as specified.



2. A switch-operating device, comprising switch-tongues, a boxing pivotally connected with the tongues and having a tubular projection, a spring-actuated block in the boxing, an operating-shaft with which the boxing is connected, a spring-actuated plunger in the tubular projection and engaging the said block, a releasing device for releasing the plunger from the block, and means for operating the releasing device from a moving train, substantially as described.

3. A switch-operating device, comprising switch-tongues, a bar having pivotal connection with the switch-tongues, a vertical shaft, a boxing having pivotal connection with the bar, a block provided with a notch and movable in the boxing and having pivotal connection with an arm extended from the vertical shaft, a spring engaging at one end with said block and at the other end with the end wall of the boxing, a tube extended outward from the boxing, a plunger movable in said tube and adapted to engage in the notch formed in the block, a rod extended from said plunger, a shaft extended transversely of the track and having a crank-arm engagement with said rod, a push-pin mounted to move vertically in a block, and having connection with an arm extended from said transverse shaft, and means carried by a locomotive for depressing said pin, substantially as specified.

4. A switch-operating device, comprising switch-tongues, a bar having pivotal connection with the switch-tongues, a vertical shaft, a boxing having pivotal connection with the bar, a block provided with a notch and movable in the boxing and having pivotal connection with an arm extended from the vertical shaft, a spring engaging at one end with said block and at the other end with the end wall of the boxing, a tube extended outward from the boxing, a plunger movable in said tube and adapted to engage in the notch formed in the block, a rod extended from said plunger, a shaft extended transversely of the track and having a crank-arm engagement with said rod, a push-pin mounted to move vertically in a block, and having connection with an arm extended from said transverse shaft, a crank on the opposite end of said transverse shaft, a rod extended from said crank-arm to a crank-arm on another transverse shaft, a push-pin having an engagement with said other transverse shaft, and means carried by a locomotive for engaging said pin and depressing the same, substantially as specified.

5. The combination, with switch releasing and operating mechanism substantially such as described, of rollers, a shaft upon which said rollers are mounted, swinging link connections between said shaft and the frame of a cow-catcher on a locomotive, rods extended upward from said shaft, through the platform of a locomotive, springs on the rods between shoulders thereof and the platform, a shaft having crank-arms engaging with the upper ends of said rods, an arm extended upward from said shaft, and a pull-rod extended from said upwardly-extended arm to the cab of the locomotive, substantially as specified.

588,468. CUT-OFF CONVEYER FOR FLOUR-SIFTING MACHINES. THEODORE C. PEASE, Cherokee, Kans. Filed Apr. 27, 1897. Serial No. 634,123. (No model.)

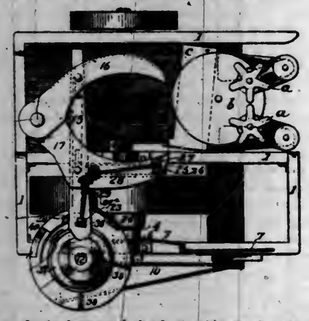


Claim.—1. In a machine for dressing flour, the combination with a casing adapted to be moved in opposite directions on a horizontal plane, and a series of sieves within the casing, of a conveyer arranged within the casing below the bottom sieve, said conveyer having a central longitudinal partition to divide it into two compartments, and having a discharge-opening at one end common to both compartments, and a separate discharge-opening for one compartment at its other end, a series of inclined, non-reversible, hinged valves or gates in one compartment, a series of reversible, inclined, hinged gates or valves in the other compartment, pins projecting from the sides of the conveyer to engage the lower ends of said valves to limit their movement when closing, and a removable door in the casing to afford access to the reversible valves, substantially as described.

2. In a machine for dressing flour, the combination with a casing adapted to be moved in opposite directions on a horizontal plane, and a series of sieves within the casing, of a conveyer arranged within the casing below the bottom sieve, said conveyer having a central longitudinal partition to divide it into two compartments, and having a discharge-opening at one end common to both compartments, and a separate discharge-opening for one compartment at its other end, a series of reversible inclined, hinged valves in the compartment having the separate discharge-opening, springs to engage said valves to prevent their accidental reversal, a series of non-reversible inclined, hinged valves in the other compartment, and a removable door in the casing to afford access to the reversible valves, substantially as described.

3. In a machine for dressing flour, the combination with a casing adapted to be moved in opposite directions on a horizontal plane, and a series of sieves within the casing, of a conveyer arranged within the casing below the bottom sieve, said conveyer having a central longitudinal partition to divide it into two compartments, and having a discharge-opening at one end common to both compartments, and a separate discharge-opening for one compartment at its other end, a series of hinged gravity gates or valves in each compartment, said valves being inclined and those in one compartment being reversible and those in the other non-reversible, and the reversible valves being arranged closer together than the non-reversible ones, pins projecting from the sides of the conveyer to engage the valves to limit their movement when closing, springs to engage the reversible valves to prevent their accidental reversal, and a removable door in the casing to afford access to the reversible valves, substantially as described.

588,469. SHOCK BINDING AND EJECTING MECHANISM FOR CORN-HARVESTERS. WILLIAM M. PLATT, West Liberty, Ohio. Filed May 31, 1895. Serial No. 551,180. (No model.)



Claim.—1. An improved shock-ejecting mechanism comprising the cam-stand, the shock-carrying arm and its actuating-shaft, the fingers pivotally mounted upon said shock-carrying arm, said fingers pivoted together at their rear ends and one of them mounted to slide on said arm, the rod pivotally connected to the outer finger and carrying a wheel or roller at its inner end and a track upon the cam-stand guiding the movement of said roller, substantially as and for the purpose set forth.

2. An improved shock-ejecting mechanism comprising the cam-stand, the carrying-arm and its actuating-shaft, the fingers pivotally mounted upon said arm, said fingers pivoted together at their rear ends and one of said fingers mounted to slide on said arm, the rod pivotally connected to said slidingly-mounted finger and provided at its inner end with a wheel or roller and the guide-track upon the cam-stand embodying the return-track and the pivoted switch substantially as and for the purpose set forth.

3. An improved shock-ejecting mechanism comprising the cam-stand mounted upon an upright or frame, the carrying-arm having its actuating-shaft journaled in the cam-stand or upright frame and provided at its lower end with a crank-arm, means connected with said crank-arm for operating the shaft, the fingers pivotally mounted upon said carrying-arm, said fingers pivoted together at their rear ends, one of them mounted to slide on the carrying-arm, the rod pivotally connected to said slidingly-mounted finger and provided at its inner end with a wheel or roller, and a guide-track upon the cam-stand for controlling the operation of said rod, substantially as and for the purpose set forth.

4. A shock-ejecting mechanism comprising the cam-stand, the shock carrying arm and its actuating-shaft, the rock-shaft mounted upon said arm and provided with the projecting end finger and having a crank provided with a wheel or roller at its inner end and a segmental track upon the cam-stand for controlling the operation of the rock-shaft, substantially as and for the purpose set forth.

5. A shock-ejecting mechanism comprising the cam-stand, the shock-carrying arm and its actuating-shaft, the fingers mounted upon said arm, said fingers hinged together at their rear ends, the inner finger pivotally mounted and the outer finger slidingly mounted upon said arm, the rod pivotally connected to the outer one of said fingers and provided at its inner end with a wheel or roller, a track upon the cam-stand controlling the operation of said rod, the rock-shaft mounted upon the carrying-arm and provided with the projecting end finger, and at its cranked inner end with a wheel or roller, and a segmental track upon the cam-stand controlling the operation of said shaft, substantially as set forth.

6. A shock-ejecting mechanism comprising the cam-stand, the shock-carrying arm having its actuating-shaft provided at its bottom end with a crank-arm by which the shaft is operated, the fingers mounted upon said arm, said fingers hinged at their rear ends—the inner finger pivotally mounted and the outer finger slidingly mounted upon said arm, the rod pivotally connected to the outer finger and provided at its inner end with a wheel or roller, the track upon the cam-stand controlling the operation of the said rod and embodying the return-track and the pivoted switch, the rock-shaft mounted upon the shock-carrying arm and having the projecting end finger and the angular inner end carrying a friction wheel or roller, and the segmental track upon the cam-stand for controlling the operation of the rock-shaft substantially as and for the purpose set forth.

7. An improved shock-ejecting mechanism comprising the cam-stand mounted adjacent to the drive-wheel, the shock-carrying arm having the actuating-shaft provided with the crank-arm at its lower end, the fingers mounted upon said arm, said fingers hinged at their rear ends, the inner finger pivotally mounted and the outer finger slidingly mounted upon said arm, the rod pivotally connected to the outer one of said fingers, guide devices upon the cam-stand for controlling the operation of said rod, a clutch-hub loosely mounted upon the shaft of the drive-wheel and carrying the pawl or dog and a crank-arm, the drive-wheel having a projecting pin or stud adapted to be engaged by said pawl, means for retaining the pawl from engaging with said projecting pin and a pitman connection from the crank of the clutch-hub to the crank of the actuating-shaft of the shock-carrying arm substantially as and for the purpose set forth.

8. A shock-ejecting mechanism comprising the cam-stand mounted adjacent to the drive-wheel, the shock-carrying arm having the actuating-shaft provided at its lower end with the crank-arm, the fingers mounted upon the shock-carrying arm, said fingers hinged together at their rear ends, the inner finger pivotally mounted and the outer finger slidingly mounted upon said arm, the rod pivotally connected to the outer finger and provided at its inner end with a wheel or roller, a guide-track upon the cam-stand for controlling the operation of said rod, the clutch-hub loosely mounted upon the shaft of the drive-wheel and provided with a pawl or dog and with a crank on its end, the drive-wheel having the projecting pin or stud adapted to be engaged by said pawl, a trip-lever bearing upon the pawl and adapted to retain the same from engagement with the projecting stud or pin and a pitman connection from the crank end of the clutch-hub to the crank end of the actuating-shaft of the shock-carrying arm substantially as and for the purpose set forth.

9. An improved shock-ejecting mechanism comprising a cam-stand, the shock-carrying arm having its actuating-shaft provided with a crank at one end, the fingers mounted upon said arm, said fingers hinged together at their rear ends, the inner finger pivotally mounted and the outer finger slidingly mounted upon said arm, the rod pivotally connected to the outer one of said fingers, guide devices upon the cam-stand engaging said rod and controlling its operation, the drive-wheel and intermediate mechanism for transmitting the motion of the drive-wheel to the crank of the actuating-shaft of the shock-carrying arm substantially as and for the purpose set forth.

10. In a shock-ejecting mechanism of the class described comprising the cam-stand the shock-carrying arm the fingers pivotally mounted upon said arm and means for operating said fingers, the knotter mechanism mounted upon the inner finger and embodying a shaft meshing with a shaft carried upon the shock-carrying arm and devices upon the cam-stand for operating the latter shaft during the movement of the shock-carrying arm substantially as and for the purpose set forth.

11. In a shock-ejecting mechanism of the class described comprising the cam-stand, the shock-carrying arm, the fingers pivotally mounted upon said arm and means for operating said fingers the knotter mechanism mounted upon the inner finger and embodying a shaft meshing with a shaft carried by the shock-carrying arm, the pinion or gear upon the latter shaft, and a segmental gear mounted upon the cam-stand and engaging said pinion during the movement of the shock-carrying arm, substantially as and for the purpose set forth.

12. An improved mechanism of the class described comprising the cam-stand, the shock-carrying arm and its actuating-shaft, the fingers pivotally mounted upon said arm—said fingers pivoted together at their rear ends, the rod pivotally connected to the outer one of said fingers and provided at its inner end with a wheel or roller a track upon the cam-stand for guiding the operation of said rod—said rod made to slide endwise with said finger sliding on said arm, the knotter mechanism mounted upon the inner finger and embodying a shaft meshing with a shaft carried by the shock-carrying arm, a pinion or gear upon the latter shaft and a segmental gear carried by the cam-stand and meshing with said pinion during the operation of the shock-carrying arm—substantially as set forth.

13. An improved mechanism of the class described comprising the cam-stand the shock-carrying arm and its actuating-shaft, the fingers pivotally mounted upon said arm, the outer finger made to slide on said arm, the rod pivotally connected to said finger, guide means upon the cam-stand engaging said rod and controlling its operation, the rock-shaft mounted upon said arm and provided with the end finger, devices upon the cam-stand engaging said rock-shaft and controlling its operation, the knotter mechanism mounted upon the inner finger and engaging actuating mechanism carried by the shock-carrying arm, and devices upon the cam-stand for operating said mechanism carried by the shock-carrying arm—substantially as set forth.

14. An improved mechanism of the class described comprising the cam-stand, the shock-carrying arm provided with the actuating-shaft, the fingers pivotally mounted upon said arm—said fingers pivoted together at their rear ends—the outer finger made to slide on said arm the rod pivotally connected to said outer finger and provided at its inner end with a wheel or roller, the guide-track upon the cam-stand for controlling the operation of said rod, the rock-shaft mounted upon the shock-carrying arm and having the projecting finger and cranked inner end, the segmental track upon the cam-stand engaging the inner end of the rock-shaft and controlling the operation of the latter, the knotter mechanism mounted upon the inner finger and embodying a shaft meshing with a shaft upon the shock-carrying arm, a gear or pinion upon the latter shaft and a segmental gear carried by the cam-stand and adapted to engage said pinion during the movement of the shock-carrying arm—substantially as and for the purpose set forth.

15. In a mechanism of the class embodying a swinging shock-carrying arm, having the pivoted fingers, the knotter mechanism carried upon one of said fingers and connected with operating mechanism upon said shock-carrying arm, and means for actuating said mechanism upon the said shock-carrying arm during the lateral movement of said arm substantially as set forth.

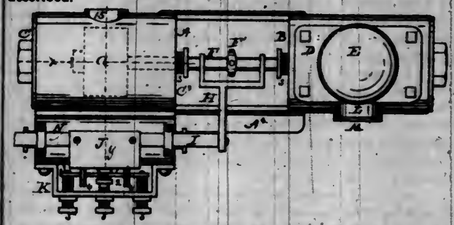
588,470. WATER-MOTOR. BARTON PICKERING, Dayton, Ohio. Filed Feb. 10, 1892. Serial No. 420,941. (No model.)

Claim.—1. The combination of the valve P provided with lateral ports and exhaust-cavity, the cylinder A having corresponding ports, the supplementary valve P^6 held on the stem of said principal valve and provided with issue-port 34 and exhaust-cavity 12, the cylinder N, with its piston O, and connecting mechanisms, by which the valve-arms are connected respectively with the pistons of the two cylinders, substantially as set forth

2. The combination of the cylinder A with its piston G, the principal valve P provided with the operating-arm 2, and with issue-ports 9, 9, and exhaust-cavity 14, the cylinder N with its piston O, the supplementary valve P^6 provided with operating-arm 6 and with issue-port 34 and exhaust-cavity 12; the latter held on the stem by the former valve, substantially as set forth.

3. The bush or valve-seat P^4 provided with lateral openings 36 36 and exhaust-opening 17 for the principal valve; the inlet-ports 35, 35 and exhaust-openings 22 for the auxiliary valve, in combination with the principal and auxiliary valves, the two parallel cylinders with pistons and rods, said valves arranged transversely to said cylinders, and with mechanism to effect their operation, substantially as described.

4. The combination of the compound valve, each part provided with distinct operating-arms, the principal valve having two issue-ports and an exhaust-cavity, the principal cylinder with corresponding ports, the piston and rod of said principal cylinder, the auxiliary valve having an issue-port and exhaust-cavity, and adapted to oscillate on the stem of the former valve, the auxiliary cylinder arranged parallel with the principal cylinder, the piston and rod of said auxiliary cylinder, and with suitable mechanism to give the initial movement to said principal valve, and to complete the motion of said principal valve by the agency of the auxiliary piston, substantially as described.



5. In a water-motor, the combination of two cylinders arranged parallel to each other, the larger of said cylinders containing the main piston and piston-rod, and the smaller the supplementary piston and its rod, the latter adapted to shift the main and supplementary valves, the bushing or valve-seat located in a bore of the cylinder-casting transverse to the axial line of the cylinders said bushing having suitable passages and ports for pressure and exhaust of the actuating fluid, the main and supplementary valves located within said bushing, each having suitable issue-ports and exhaust-cavities as described, and the supplementary valve being arranged to inclose and operate on the main valve, the arm of said supplementary valve, the reciprocating bar adapted to engage the ends of the piston-rod of the supplementary piston, said bar having two stops connected therewith, the pivoted lever having one of its ends located between the stops and the other end connected with the arm of the supplementary valve, whereby the latter is operated, an arm having one end rigidly connected with the main valve and its other end extending between the aforesaid stops on the bar, and suitable connections between the main motor piston-rod and the reciprocating bar, all substantially as set forth.

588,471. MOROCCO-LEATHER-DRESSING MACHINE. HOSEA A. QUIGLEY, Milford, N. H. Filed Oct. 1, 1896. Serial No. 607,575. (No model.)



Claim.—1. A leather-dressing machine, comprising in its construction, a roll, and a coacting brush, both arranged to extend entirely across the hide, in combination with means for feeding the

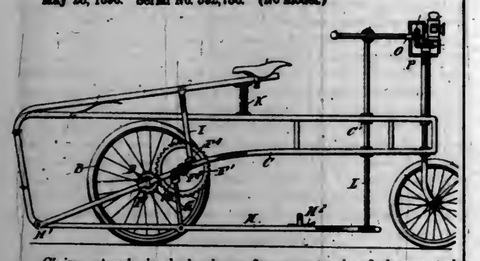
liquid material thereto and means for rotating the roll and brush at different axial speeds respectively, said roll and brush being each formed with varying cross diameters to stretch the hide laterally, for the purpose set forth.

2. A leather-dressing machine, comprising in its construction, a roll, and a coacting brush between which the skin and hide is passed, said brush rotating with an axial speed greater than the axial speed of the roll, and one of the parts being tapering from its ends to the center and the other being tapering from the center to the ends, for the purpose set forth.

3. A leather-dressing machine, comprising in its construction, a brush, and a coacting roll rotating at different axial speeds, said brush rotating faster than the roll, one tapering from the ends to the center and the other tapering from the center to the ends in combination with a receptacle for the fluid material, means for feeding said material from the receptacle to the brush, and means for preventing the wastage of the said material.

4. A leather-dressing machine, comprising in its construction, a roll tapering from the center to the ends, and a coacting brush, the bristles of which are of different lengths, whereby the said brush tapers from the ends to the center, and means for rotating said brush and roll at different relative speeds, for the purpose set forth.

588,472. BICYCLE. JOHN C. RAYMOND, Brooklyn, N. Y. Filed May 23, 1896. Serial No. 592,736. (No model.)



Claim.—A velocipede having a frame, a steering-fork mounted in the front extremity of the frame, a wheel carried therein, an arm having pivotal connection with the steering-fork, two treadles respectively fulcrumed at the rear of the frame and extending forwardly adjacent to the steering-fork, a vertically-movable rod held in the frame and pivotally connected to the front extremities of the treadles and to the arm, a drive-wheel mounted in the frame, a pinion-wheel fixed to each end of the axle of the drive-wheel, two double-crank shafts transversely journaled in the frame, a spur-wheel on each crank shaft, the spur-wheel respectively meshing with the pinions, a link pivoted to each treadle and respectively pivoted to one crank of the crank-shafts, a lever fulcrumed at the rear of the frame and extending forwardly beyond the driving-wheel, the lever being centrally located on the frame, a seat carried by the lever, a spring pressing the lever upward, and two additional links carried by the lever and respectively connected to the remaining links of the crank-shafts, substantially as described.

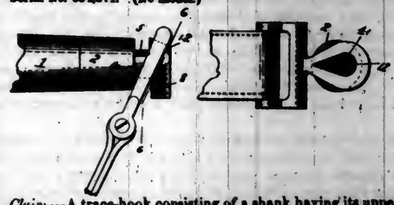
588,473. SASH-LOCK. CHARLES T. REDFIELD, Glen Haven, N. Y. Filed Feb. 15, 1897. Serial No. 623,238. (No model.)



Claim.—1. A sash-lock comprising a slotted link, a securing-stud on which said link may be held and along which the same may be slid longitudinally and upon which the link may be swung laterally, an abutment-stud over which the link may be applied and removed by down-and-up movements and a screw threaded in the link and bearing against the abutment-stud, substantially as shown and described.

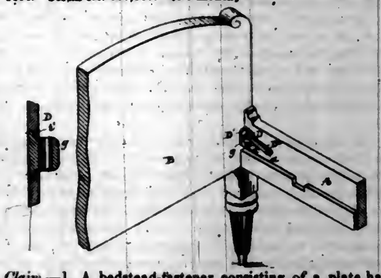
2. A sash-lock comprising the base-plates, the studs passed through said plates and adapted to enter the sash-rails and the connecting-link engaging said studs above the said base-plates substantially as shown and described.

588,474. WHIFFLETREE-HOOK. NATHAN P. REED, Centerville, Vt., assignor of one-half to M. B. Heyt, Stowe, Vt. Filed Apr. 26, 1897. Serial No. 634,271. (No model.)



Claim.—A trace-hook consisting of a shank having its upper and lower sides converging to a front edge 7, a forward-projecting horn 8 connected to the end of said shank and having its upper and lower sides converging inward to an edge 11, this edge joining and being approximately in the same plane with said edge 7, and a rearward extension or knob projecting from the shank in line with the horn, the rear side being beveled off outward and forward and its inner face being abrupt, substantially as and for the purposes set forth.

588,475. BED-FASTENING. COLLINS D. REGESTER, Lansdowne, Pa., administrator of Samuel B. Regester, deceased. Filed Sept. 24, 1896. Serial No. 606,880. (No model.)



Claim.—1. A bedstead-fastener consisting of a plate having a lateral flange at one end with opening in said flange, a bolt having a head with eye therein, said head adapted to pass through the opening in the flange of the plate and a latch pivoted to the plate and adapted to engage with the projecting portion of the bolt, substantially as specified.

2. A bedstead-fastener consisting of a plate having a laterally-projecting flange with lateral opening therein in communication with a longitudinal opening in the body of the plate, said body having recesses in its rear face above and below the opening, a bolt having a head with opening therein, and top and bottom flanges at each edge adapted to engage with the recesses in the body of the plate when the bolt-head is inserted into the opening in said body, and a retainer adapted to engage with the bolt-head when the same is thus inserted, substantially as specified.

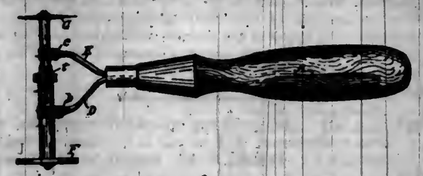
588,476. PROCESS OF SEPARATING GOLD AND SILVER OR OTHER PRECIOUS METALS FROM THEIR ORES. HARRY A. REDDIN, Denver, Colo. Filed Feb. 1, 1897. Serial No. 621,473. (No specimens.)

Claim.—1. In chemical processes for the separation of gold or other precious metals from their ores, slimes or compounds, the method of preparing the ores by adding thereto a self-hardening binding material and forming a porous and rigid mass of the compound whereby the precious metals contained therein are freely acted upon by the solvent, substantially as described.

2. In chemical processes for the separation of gold or other precious metals from their ores, slimes or compounds, the method of preparing the ores, slimes or compounds, in such a manner that the precious metals contained therein, are freely acted upon by the solvent, by inclosing or incorporating finely-divided ores, slimes or compounds, in a practically insoluble, permeable, porous matrix, having a multicellular construction formed, preferably, of calcined gypsum, (also known as "calcium sulfate," "plaster-of-paris" or "stucco") and water, in such proportions as to form with the inclosed ores, slimes or compounds, a mass having the rigid and porous properties of plaster casts, and capable of being broken into portions suitable for treatment by chemical process, substantially as described.

588,477. CUTTER FOR CIGAR-WRAPPERS. EDWARD ROSARDS, Stilesville, Ind. Filed Mar. 26, 1897. Serial No. 629,353. (No model.)

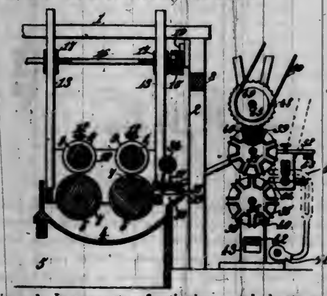
Claim.—1. A cutter of the character described comprising a handle and frame secured thereto, an extensible axle adjustable in said frame, a gage on said axle, a guide-wheel journaled on one end of said axle, a cutting wheel or disk journaled on the opposite end of said axle, and means whereby said axle may be secured at any desired point of adjustment, substantially as shown and described.



2. In a device of the character described, the combination of the handle, the frame having the clamping ends, the axle composed of the hollow member and the adjustable member therein having the gage on the outer surface thereof, the clamping-nut by which said two parts are secured together, and the wheels on said axle, substantially as shown and described.

3. In a cutter for cigar-wrappers and other articles, the combination of the axle composed of the tubular member having a guide-wheel journaled at its outer end and a clamping-nut at its inner end and the adjustable member fitting into said tubular member and having the cutting-wheel journaled at its outer end and the gage on the body thereof, the frame adjustably attached to said axle, and the handle on said frame, substantially as shown and described.

588,478. APPARATUS FOR COATING SHEET-METAL PLATES. CHARLES C. ROBERTS and LEWIS H. STODDARD, Ansonia, Conn. Filed Oct. 10, 1896. Serial No. 608,515. (No model.)



Claim.—1. In apparatus for tinning metal sheets or plates, the combination of a pot for molten metal, a roll mounted to rotate in said pot and provided with a number of pockets or recesses to receive the molten metal and permit it to flow over the periphery or face of the roll, a pressure-roll to hold down the metal plate or sheet onto said pocketed roll, gearing for rotating said rolls to carry the sheet or plate forward, and means for removing surplus coating metal and finishing the coated metal plate or sheet, substantially as described.

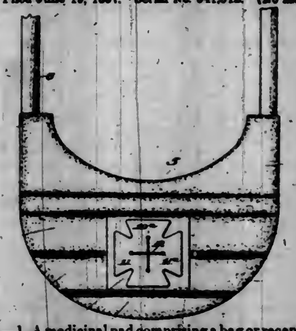
2. In apparatus for tinning metal sheets or plates, the combination of a series of furnace-heated pots for molten metal, rolls mounted to rotate in said pots and each provided with a number of pockets or recesses adapted to take up the molten metal and permit it to flow over the faces of the several rolls, a series of pressure-rolls to assist in feeding the metal plate or sheet forward and to hold it down onto the pocketed rolls, a series of reciprocating wipers for acting on the under side of the metal sheet or plate to remove surplus coating metal and permit its return to the last pot of the series, and rotary wiping-brushes for finishing off the coated metal plate or sheet, substantially as described.

3. In apparatus for tinning metal sheets or plates, the combination with a pot for molten metal, of a roll or rolls mounted to rotate in said pot and provided with a number of recesses or pockets to receive the molten metal, the sides of said recesses or pockets being inclined in such direction that at a certain point in the rotation of the roll or rolls the molten metal will flow out from said pockets or recesses and spread over the roll or rolls, one or more pressure-rolls to hold the plate or sheet of metal onto the pocketed roll or rolls, and means for removing surplus metal from the under side of the metal sheet or plate, substantially as described.

4. In apparatus for tinning metal sheets or plates, the combination with mechanism for applying coating metal to a plate or sheet, of rotary wiping-brushes mounted and arranged one above the other to operate on both the upper and lower sides of said sheet or plate, the shafts of the said upper and lower brushes being geared together, the shafts 45 and 46 mounted adjacent to one of said brushes in line with each other and arranged to be revolved in opposite directions, gearing to connect said shafts with a brush-shaft, and means for shifting said gearing to reverse the direction of rotation in the brushes, substantially as described.

5. In apparatus for tinning metal sheets or plates, the combination of recessed rolls for applying a metal coating to the sheet or plate, a series of pots for containing molten metal and in which said rolls are arranged, horizontally-reciprocating wipers for removing surplus coating from the under side of a metal sheet, rotary wiping-brushes, between which the metal plate or sheet is passed, and means for reversing the rotation of said brushes to cause the metal sheets to be finished cleanly to their ends, substantially as described.

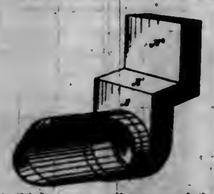
588,479. ELECTRIC HERB PAD. AUGUSTE RONDEL, New York, N. Y. Filed June 19, 1897. Serial No. 641,512. (No model.)



Claim.—1. A medicinal pad comprising a bag or receptacle formed of fabric, a filling of medicinal herbs contained therein, and metal plates on the inner side of the pad adapted to set up an electric current by galvanic action when the pad is applied to the part to be treated, substantially as described.

2. A medicinal pad comprising a bag or receptacle formed of inner and outer layers of fabric connected at the edges thereof and provided with a series of pockets, a filling of pulverized herbs or other suitable medicinal material contained in said pockets, a strip or layer of flannel on the interior side of the pad, metal plates arranged on the interior and exterior sides of the said strip of flannel and suitably connected, said plates being adapted to set up an electric current by galvanic action when the pad is applied to the part to be treated, and means for suspending the pad about the person of the wearer, substantially as described.

588,480. SHIP'S-PORT VENTILATOR. DIDRIER R. ROSE, San Francisco, Cal. Filed May 17, 1897. Serial No. 636,888. (No model.)



Claim.—1. A ship's-port ventilator consisting of a tubular tortuous passage adapted to project upwardly within the apartment into which the port opens, and a tubular flange projecting therefrom adapted to fit and form a tight joint within the port-opening.

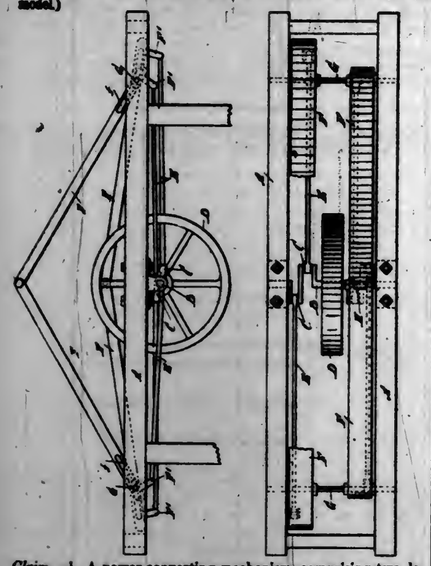
2. A ship's-port ventilator consisting of a tortuous tubular passage having a flange and packing whereby the flange forms a tight joint with the port-opening, and a supplemental extension fitting the tubular flange, projecting exteriorly so as to direct the current of air into the device.

3. A ship's-port ventilator consisting of a tortuous passage formed by the union of two vertical passages by a diagonal one connecting them out of line with each other, a tubular flange with packing adapted to fit and form a tight joint in the port-opening and a supplemental removable tube fitting the upper portion of the main tube with means for suspending it therein, and diagonally-disposed diaphragms projecting alternately from opposite sides.

4. A ship's-port ventilator consisting of a tortuous passage formed by the union of a plurality of vertical tubes and a diagonal connect-

ing-tube, a tubular flange projecting outwardly from the lowermost section adapted to form a tight joint with the port-opening, and a glazed light-opening formed in the opposite side of the vertical tube in line with the tubular flange.

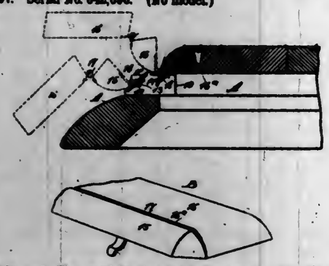
588,481. POWER-CONVERTING MECHANISM. BENEDICT J. ROSS, Louisville, Ky. Filed May 7, 1897. Serial No. 635,495. (No model.)



Claim.—1. A power-converting mechanism, comprising two levers pivoted to each other at one end, forming toggle-levers, a frame having guides for the outer ends of said levers, side extending arms attached to said outer ends, a shaft mounted in said frame and having double and opposite cranks, and links or connecting-rods connecting said cranks with the outer ends of the side extending arms, substantially as described.

2. A power mechanism, comprising a shaft having two pairs of double cranks all arranged in the same plane, two sets of bars pivoted to each other to form toggle-levers, guides for the outer ends of the said bars, arms extending at right angles to said bars at their outer ends, and away from the apex formed by said bars, and connecting-rods connecting the outer ends of the said arms with the cranks, substantially as described.

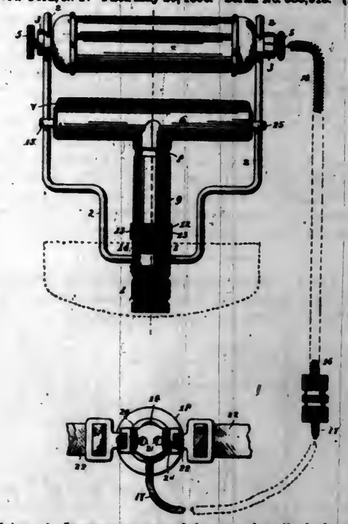
588,482. BURIAL-CASKET. CHARLES A. RUEBSAM, Owosso, Mich., assignor to Lyman R. Woodard, same place. Filed June 26, 1897. Serial No. 642,696. (No model.)



Claim.—1. The combination, with the molding of a burial-casket, and keepers placed in said molding, arranged in pairs, the keepers of each pair being at angles to one another, of lids or covers provided with hook projections, arranged to enter either keeper of a pair, whereby the said covers may have their position changed relatively to the opening surrounded by the molding, and whereby each cover or lid may be entirely removed from engagement with the said molding, as specified.

2. In a burial-casket, the combination, with the molding or cove thereof, and keepers arranged in pairs on said molding, one keeper of each pair being at the top of the molding and the other at the outer surface thereof and at an angle to the upper keeper, each keeper being provided with an inwardly-extending lip at the outer edge of its opening, of a lid or a cover constructed in sections having a hinged connection, the outer section being provided with a hook projection from its under surface, comprising a curved body and a tip at an angle to the body, the outer or upper face of said hook projection being concaved and its under surface convexed, the hook projections being adapted to enter the openings in either of the said keepers, as and for the purpose specified.

588,488. APPARATUS FOR TREATMENT OF DISEASES. HERCULES SARGENT, Detroit, Mich., assignor to the Animarium Company, New York, N. Y. Filed May 29, 1890. Serial No. 353,613. (No model.)



Claim.—1. In an apparatus of the type described, the combination with a shell containing a thermal pile, or series of closely-packed metallic rods, of a heating device, a conducting-cable connected to the pile, and a contact-plate connected to the cable, and provided with means whereby it may be attached, or applied, to some part of the body, substantially as described.

2. In an apparatus of the type set forth, the combination with a cylindrical shell containing a thermal pile, a series of closely-packed metallic rods, of a heating device consisting of a cylinder adjustable toward and from the shell upon a frame supporting the latter, a tube having communication with the adjustable cylinder and having an insulating-tip, adapted for attachment to a gas-burner, and a movable collar having air-openings which may be adjusted with reference to openings in the tube, to open, close, or partly close the air-inlets, substantially as described.

3. In an apparatus of the type described, the combination with a shell containing a thermal pile of metallic rods, of means substantially as described for imparting heat to said pile, a cable connected to one end of the shell by an elastic wire coil and contact-plate having a head upon its back and a seat therein to receive the stripped or denuded terminal of the cable, and a plate screwed down, upon the denuded terminal and binding it upon the contact-plate, substantially as described.

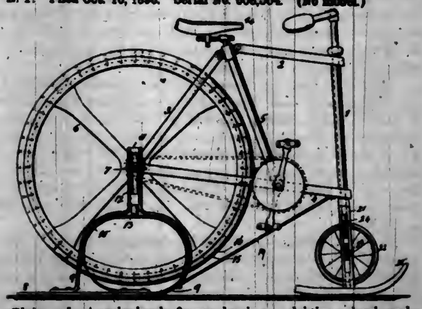
4. In an apparatus of the type set forth, the combination with a frame of a shell mounted between the parallel arms of said frame and containing a thermal pile, a shell adjustable on said parallel arms, and provided with a slot in the wall adjacent to the shell containing the thermal pile, a tube entering the opposite side of said shell, a gas-burner in said tube and a tip adapted to be attached to a gas-fixture, substantially as described.

588,484. PIPE-WRENCH. HUGO H. SAUER, New York, N. Y. Filed Jan. 27, 1897. Serial No. 620,965. (No model.)

Claim.—In a wrench, the combination with a head provided with a recess, of a shank provided with a curved extremity within said recess and a spring intermediate the shank and jaw, a wrist-pin pivotally connecting the said shank and jaw and secured by a screw screwed into one extremity, a traveling jaw provided with apertured bearing-lugs and with a recess at one extremity, and an adjustment-nut carried by threads upon the shank and provided with an annular flange engaging the recess of the traveling jaw, substantially as specified.



588,485. ICE-VELOCIPEDE. ADOLPH SCHERRER, New York, N. Y. Filed Oct. 10, 1896. Serial No. 608,504. (No model.)



Claim.—1. A velocipede-frame having a driving-wheel and a runner provided with a frame or supporting portion, a flat spring at the interior of the frame, a slotted guide or sleeve carried by the frame, and a stem movable in said guide and supported by the spring, said driving-wheel having its axle extended through the slot of the guide and supported by the stem substantially as described.

2. A velocipede-frame having a driving-wheel and a runner having a flat spring made to support the axle of the wheel, said driving-wheel having a compressible tire and points or prongs extended through and normally flush with the outer edge of the tire substantially as described.

3. A velocipede-frame having a driving-wheel, runners at the back and front of the velocipede, a spring carried by the rear runner and made to support the driving-wheel, and a front wheel made adjustable for raising the front runner off the ground substantially as described.

588,486. PLANTER. JAMES D. SCHOFIELD, Dallas, Tex. Filed Aug. 27, 1896. Serial No. 604,115. (No model.)



Claim.—1. In a planter, the combination with a frame and a hopper carrying a feed mechanism, of two independent, horizontally-swinging, non-rotatable axles pivoted at their disconnected inner ends, and adjustably supported at their outer ends, covering-disks having elongated hubs rotating on said axles and each provided at the inner end with a gear-wheel and gearing connecting said hub-gears with the feed mechanism, substantially as specified.

2. In a planter, the horizontally-divided gear-box having elongated shaft-openings in its ends, curved guideways at its ends, apertured plates sliding in said ways, and shaft-openings in the top, substantially as specified.

3. In a planter, the combination with a frame and a superimposed hopper carrying the feed mechanism, of a rotary drive-shaft for transmitting motion to said mechanism, a gear on the lower end of the shaft, opposite adjustable axles, supports for the same, covering-disks rotatably arranged on the axles and provided with hubs each having a gear-wheel at its inner end, a train of gearing for transmitting motion from the hub-gears to the gear of the operating-shaft, and a gear-box for covering all of said gearing, substantially as specified.

4. In a planter, the combination with a frame, a superimposed hopper and a feed mechanism carried thereby, of a drive-shaft for the same, short shafts or axles arranged vertically at opposite sides of the drive-shaft, horizontal intermeshing gears carried by the short shafts, one of which gears carries a spur-gear, an intermeshing spur-gear carried by the drive-shaft, a pair of laterally-adjustable axles, rotatable gears at the inner ends of the same engaging the intermeshing gears on said vertical shafts, and a pair of covering-disks carried by and turning on the axles and carrying said rotatable gears, substantially as specified.

5. In a planter, the combination with a frame, a hopper carrying a feed mechanism, and a rotary drive-shaft for operating the same, of a pair of independent adjustable axles pivoted at their inner ends at opposite sides of the drive-shaft to swing horizontally, covering-disks arranged loosely on the axles, and means for conveying motion from the hubs of the covering-disks to the operating-shaft, substantially as specified.

6. In a planter, the combination with a frame, a hopper carrying feed mechanism, and a drive-shaft for the same, of opposite independent horizontally-swinging axles pivoted at their inner ends, and means for adjustably supporting their outer ends, covering-disks turning on the axles between their pivots and adjusting means, and means for conveying motion from the hubs of the covering-disks to the operating-shaft, substantially as specified.

7. In a planter, the combination with a frame, a superimposed hopper carrying a feed mechanism, and a drive-shaft for the same, a spur-gear carried by the shaft, short shafts arranged at opposite sides of the operating-shaft, beveled gears carried by the latter, one of which is provided with a spur gear intermeshing with that of the opposite shaft, of opposite axles pivoted on the short shafts, adjustable bearing-plates receiving the outer ends of the axles and connected to the frame, and covering-disks carried by the axles and having the inner ends of their hubs extended and provided with beveled gears engaging those of the short shaft, substantially as specified.

8. In a planter, the combination with the curved transverse frame, the gear-box secured to the center thereof and having opposite slotted ends, the short shafts journaled in the gear-box, beveled gears loosely mounted on the short shafts and a spur-gear mounted rigidly on one of the beveled gears, a superimposed hopper carrying a feed mechanism, a drive-shaft for operating the same journaled in the hopper and gear-box, a spur-gear arranged on the drive-shaft and intermeshing with that of the short shaft, and curved guard-plates arranged for sliding on the ends of the box and adapted to cover the slots therein, of opposite axles loosely connected at their inner ends to the short shaft, adjustable supports for the outer ends of the axles, and covering-disks arranged loosely on the axles and having their hubs at their inner ends projected through the guard-plates or shields and provided at their inner ends with beveled gears intermeshing with those of the short shafts, substantially as specified.

9. In a planter, the combination with a transverse frame, a gear-box secured thereto and having opposite parallel overhanging flanges provided with grooves, and between the same having elliptical slots, a superimposed hopper having a rotary feed mechanism, a drive-shaft connected thereto and journaled centrally in the box, and at its lower end provided with a gear-wheel, short shafts arranged at opposite sides of the drive-shaft, intermeshing combined beveled and spur gears loosely arranged on the short shafts, one of said beveled gears having fixedly mounted thereon a gear-wheel intermeshing with that of the drive-shaft, and curved shields or guard-plates mounted for movement in the overhanging grooved flanges and covering the slots in the ends of the gear-box, opposite independent short axles pivoted at their inner ends to the short shafts, means for adjustably supporting the outer ends of the axles and covering-disks loosely mounted on the axles and having their hubs inwardly extended through openings in the shields or guard-plates and provided with beveled gears engaging those of the short shafts, substantially as specified.

10. In a planter, the combination with the curved yoke-frame, the superimposed hopper and the vertical drive-shaft loosely journaled in the center of the frame, of a pair of horizontally-swinging axles loosely pivoted at their inner ends to the frame, a pair of axle-supporting plates receiving the outer ends of the axles and provided with slots, adjusting-bolts passed through the ends of the frame and the slots of the plates, covering-disks arranged to revolve upon the axles and means for conveying motion from the covering-disks to the drive-shaft, substantially as specified.

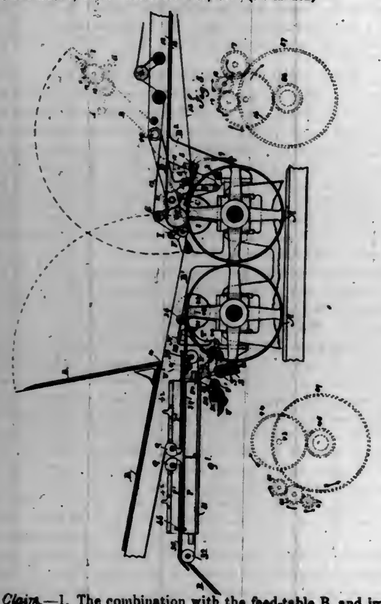
11. In a planter, the combination with the curved yoke-frame, the superimposed hopper and the rotary drive-shaft journaled in the center of the frame, of opposite metal blocks applied to the ends of the frame and having transverse guide-ribs, plates arranged under

the ribe and having elongated slots, adjusting-bolts passed through the slots and corresponding openings in the blocks and ends of the frame, opposite independent horizontally-swinging axles supported at their outer ends by the plates and at their inner ends pivotally connected to the frame at opposite sides of the drive-shaft, covering-disks arranged to rotate on the axles and means for conveying motion from said disks to the drive-shaft, substantially as specified.

12. In a planter, the combination with a frame, a superimposed hopper, a feed-disk rotatably mounted therein and having a central hub provided with an annular series of teeth, a drive-shaft journaled in the frame and feed-disk, means for giving motion to the shaft, and a toothed sleeve or collar adapted to rotate with and slide upon the shaft, of an expansion-spring interposed between the collar and a stop on the shaft and adapted to normally engage the teeth on the collar with those of the disk, an operating-rod and a device operated by the rod for depressing the collar against the spring and disengage the teeth of the collar and disk, substantially as specified.

13. In a planter, the combination with the curved yoke-frame, the superimposed hopper, the feed-disk adapted to rotate therein and having a central annularly-toothed hub, of a drive-shaft loosely journaled in the plate and frame, means for giving motion to the shaft, a flanged and toothed collar mounted for rotation with the shaft and adapted to slide thereupon, a spring for supporting the collar in operative engagement with the hub, a transverse rock-shaft journaled in the frame of the planter and having a central loop portion loosely embracing the collar and bearing on the flange, and at one side of its bearing having a crank-arm, and an operating-rod connected to the crank-arm and loosely supported by the handle-bar of the machine, substantially as specified.

588,487. PRINTING-PRESS. WALTER SCOTT, Plainfield, N. J. Filed Mar. 6, 1890. Serial No. 342,902. (No model.)



Claim.—1. The combination with the feed-table B, and impression-cylinder A', of the sets of feeding tapes or belts 12 and 13, the roll E, above the impression-cylinder and adapted to be brought into contact with the same and around which the tapes or belts 13 pass, the roll F, adjacent to the roll E and around which the tapes or belts 12 pass, the frames D, joined at 10, and supporting the rolls E and F, and adapted to be swung back from above the cylinder A', substantially as set forth.

2. The combination with the impression-cylinder A' of the frames D hinged at 10 and adapted to be swung back, the rolls E and F carried by such frames, the sets of feeding belts or tapes 12 and 13 passing around the respective rolls the gage C and the feeding-table B and adapted to be swung up out of the way or swung down above the cylinder A' for the purposes and substantially as set forth.

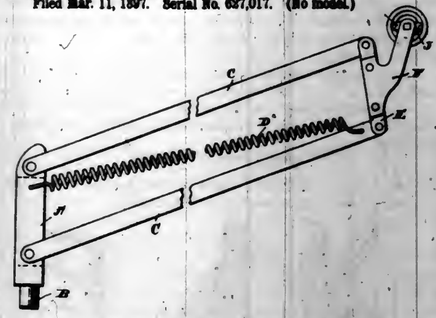
3. The combination with the impression-cylinder A' of a feeding-table B standing at an inclination from the impression-cylinder in one direction and sets of feeding-belts coming in the other direction rolls for such feeding-belts, a frame for supporting the rolls of the feeding-belts and hinges upon which such frame can be swung back when not in use and the guide-fingers I acting to direct the sheet supplied by the feeding-belts so that it may pass in beneath the roller E and in the same direction as the sheets that are fed by hand from the table B, substantially as set forth.

4. The combination with the impression-cylinders A A' and their grippers, of means for supplying the sheets to the cylinder A' the bridge-bars N adapted to receive the sheets as delivered from the cylinder A the set of tapes or belts 31 and the rollers 30, 32, for the same the longitudinal folding-blades P' and longitudinal folding-rolls P, the transverse folding-rolls Q and transverse folding-blades Q' and the movable gage or fence 35 and sheet-receiving device R substantially as specified whereby the sheets as delivered from the cylinder A can be folded longitudinally or transversely or delivered without being folded, substantially as set forth.

5. The combination with the second impression-cylinder A and the bridge-bars N and sheet-delivery mechanism, of the oil-trough U beneath such delivery mechanism the rolls S S' the levers T for carrying the same the ductor-roll and its levers and the cam for giving motion to the ductor-rolls and the rolls S S' whereby the oiling-rolls are brought into action against the surface of the cylinder A as the sheet is delivered above them and swung out of action as the sheet passes around to receive the second impression, substantially as specified.

6. The combination with the impression-cylinders A A' and their grippers, of means for supplying the sheets to the cylinder A' the rollers and set of tapes or belts 31 for receiving the sheets as delivered from the cylinder A the longitudinal folding blades and rolls, and the transverse folding blades and rolls adapted to fold the sheet either longitudinally or transversely as it is moved along by the tapes or belts, or to be thrown out of action to allow the sheets to be delivered in an unfolded condition substantially as set forth.

588,488. TROLLEY. GEORGE W. SELL, Jr., Johnstown, Pa. Filed Mar. 11, 1897. Serial No. 627,017. (No model.)



Claim.—1. An improved wheel-mounting, consisting of a globular bearing, a wheel, and cups carried by the wheel and adapted to embrace the bearing, substantially as shown and described.

2. An improved wheel-mounting, consisting of a globular bearing, a wheel, and cups removably secured to the wheel and adapted to embrace the bearing, substantially as shown and described.

3. An improved wheel-mounting, consisting of a globular bearing, a wheel, and oppositely-arranged cups carried by the wheel and adapted to embrace opposite surfaces of the bearing, substantially as shown and described.

4. An improved trolley, comprising a circular bearing, a wheel, and cups carried by the wheel and rotatably mounted on the bearing, substantially as shown and described.

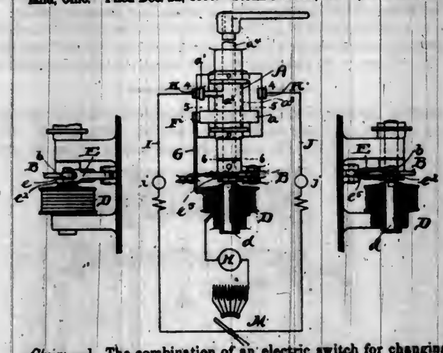
5. The combination of the fixed globular bearing, the wheel formed with the internal flange, and the inwardly-extending cups adapted to embrace opposite surfaces of the bearing and slotted at their outer ends to embrace the wheel-flange to which they are secured, substantially as shown and described.

6. An improved trolley-support, comprising a revoluble upright, two arms pivotally secured thereto—one above the other—and adapted to swing vertically, a spring connecting one of the arms and the support and serving to hold the arms normally in outwardly-extended position, and a trolley at the outer ends of the arms, substantially as shown and described.

7. An improved trolley-support, comprising a revoluble upright, a trolley, a pivoted vertically-swinging connection uniting the trolley and support, and a contractible spring secured at one end to the connection and at its opposite end to the support above the pivotal point of the connection, whereby said connection is held normally raised

in laterally-extended position with the trolley in proper adjustment for engaging a conductor, substantially as shown and described.

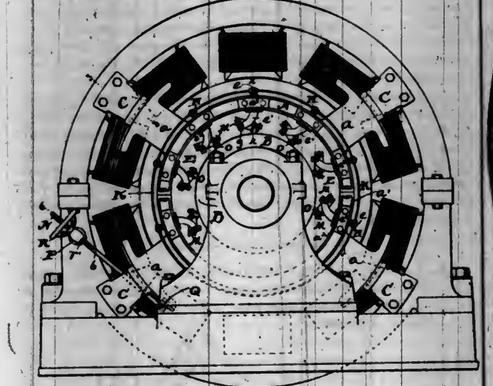
588,489. MAGNETIC-SWITCH LOCK. SIDNEY H. SHORT, Cleveland, Ohio. Filed Dec. 22, 1896. Serial No. 616,040. (No model.)



Claim.—1. The combination of an electric switch for changing the path of the current, a mechanical latch therefor adapted to lock the switch in at least two positions, and an electromagnet connected in the main circuit and exerting its magnetic force to prevent the unlatching movement of said latch, and susceptible to the ordinary current flowing through the same, substantially as and for the purpose specified.

2. The combination of an electric switch for changing the path of the current, a mechanical latch adapted to lock the same against movement causing any change of the path of the current, an electromagnet exerting its magnet force to prevent the unlatching movement of said latch, and electric conductors connecting said magnet with a source of supply and with said switch, said conductors and magnet forming a constant part of the circuit which the switch changes, whereby the switch is locked against any change of the path of the current when the current is passing, substantially as described.

588,490. BRUSH-HOLDER SUPPORT FOR ELECTRIC GENERATORS OR MOTORS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Jan. 2, 1897. Serial No. 617,803. (No model.)



Claim.—1. In an electric generator or motor, the combination of an adjustable rocker mounted concentrically with the commutator, and a plurality of radially-adjustable brush-holder hangers, substantially as and for the purpose specified.

2. In an electric generator or motor, the combination of the commutator, a plurality of fixed arms the ends of which are arranged in an annular concentric row around the commutator and in a transverse plane about midway between its ends, and a rocker-ring mounted in grooves in said arms near their ends whereby said rocker-ring is in a vertical plane between the ends of the commutator, with brush-holder hangers secured to said rocker-ring and extended therefom directly inward toward the commutator.

3. In an electric generator or motor, the combination of the commutator, fixed arms projecting from their support in a concentric row around the commutator, and a rocker mounted in the ends of said arms, with a plurality of insulating-sleeves secured to said rocker, and brush-holder hangers having shanks which are secured in said sleeves, substantially as and for the purpose specified.

4. In an electric generator or motor, the combination of the commutator, and a rocker-ring mounted concentrically with the commutator and in a plane between its ends, with a plurality of radial insulating-sleeves, clamps for adjustably securing them to the rocker, brush-holder hangers, each having a shank which is secured in and passes through one of the sleeves, and clamps for the cross connection-bars adjustably secured to the outer ends of said shanks, substantially as and for the purpose specified.

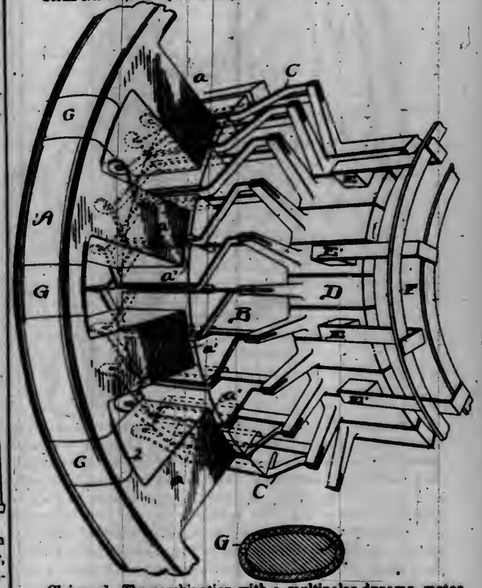
5. In an electric generator or motor, the combination of the commutator, a concentric adjustable rocker, radially-adjustable hangers secured to said rocker, brushes and brush-holders secured to the hangers, the brush-holders and brushes being arranged substantially as described, whereby the radial plane in which the hangers are adjustable passes approximately through the middle of the surfaces of the corresponding brushes in contact with the commutator, substantially as and for the purpose specified.

6. In an electric generator or motor, the combination of a brush-holder hanger having two fork-arms which are grooved upon their proximate faces, a tube having tongues on its ends, and a retaining-rod passing through said tube and securing it to the fork-arms, substantially as and for the purpose specified.

7. In an electric generator or motor, in combination, a commutator, brush-holder hangers arranged in lines radial with reference to the axis of rotation of the commutator, and means for adjusting said hangers toward and from the commutator, substantially as and for the purpose set forth.

8. In an electric generator or motor, in combination, a commutator, a ring mounted concentric therewith, and in a plane transverse with respect thereto and intermediate the ends thereof, brush-holder hangers mounted radially therein, and means for adjusting said hangers, substantially as and for the purpose set forth.

588,491. MULTIPOLAR DYNAMO, MOTOR, OR ROTARY TRANSFORMER. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 12, 1897. Serial No. 627,171. (No model.)



Claim.—1. The combination with a multipolar dynamo, motor, or rotary transformer having a plurality of magnets, and a low-reluctance magnetic circuit, of closed-circuit metallic bands or conductors of low electric resistance inclosing the section of the magnetic circuit at some point in its length outside the armature, for the purpose set forth.

2. In a multipolar dynamo, motor, or rotary transformer, a yoke having magnetic cores extending therefrom close to an armature whereby a magnetic circuit of low reluctance is provided, in combination with closed-circuit metallic bands or conductors of low electric resistance surrounding the yoke between the magnet-cores, for the purpose set forth.

588,492. CHIMNEY-COWL. FREEMAN W. SIMMONS, Cleveland, Ohio. Filed Jan. 7, 1897. Serial No. 618,272. (No model.)



Claim.—1. In chimneys, a triangular top and a triangular upward projection surmounting each side of the top, substantially as described.

2. A chimney-top triangular in cross-section on its outside and a triangular projection on each side of the top forming a continuation of the sides thereof, substantially as described.

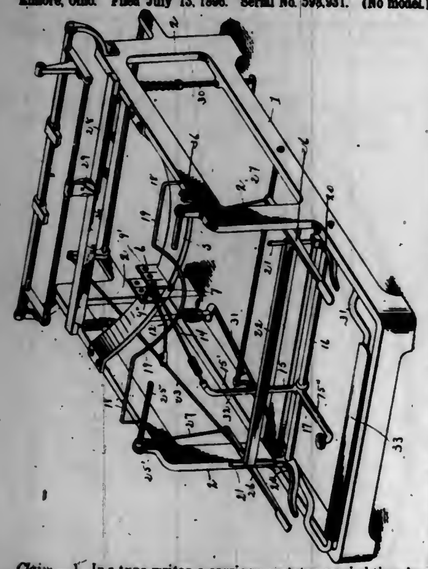
3. A three-sided chimney-top and a flat triangular upward projection on each of the sides of the top and on a plane substantially with the outside thereof, substantially as described.

4. A three-sided chimney-top, three several triangular vanes surmounting said top and a triangular hood over the top and vanes, substantially as described.

5. A triangular chimney-top having a plurality of self-adjusting triangular vanes, in combination with a triangular hood, substantially as described.

6. A triangular chimney-top having a plurality of self-adjusting vanes arranged to leave an open space between them when closed, in combination with a triangular hood having downward flanges, substantially as described.

588,493. TYPE-WRITING MACHINE. JEREMIAH C. SINCLAIR, Elmore, Ohio. Filed July 13, 1896. Serial No. 598,931. (No model.)



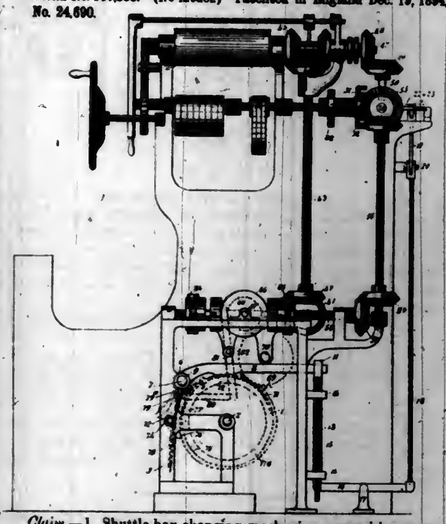
Claim.—1. In a type-writer, a carriage, a platen carried thereby, a bed-frame, a downwardly-curved flat plate arranged transversely and secured to the bed-frame, a plurality of hangers secured to the plate, each hanger comprising a base, having downwardly-projecting ears upon each side which, when the base is flush with the plate, embrace both sides of the plate, orifices in the ears and transversely through the plate screws passing through the ears and the plate, key-levers pivotally secured in the frame, type-bars pivotally secured in the hangers and rods connecting the key-levers and type-bars, whereby the type-levers move in an arc of a circle to contact with the platen.

2. In a type-writer, a bed-frame, a transverse plate, secured thereto, a plurality of type-bars pivotally arranged with reference to the plate to normally rest in the arc of a circle, type and characters fixed thereon, key-levers for operating the type-bars, mechanism for inking the type and characters, simultaneously with the operation of spacing when the type-levers are idle, a spacing mechanism operated simultaneously with the type-levers and also with the inking mechanism.

3. In a type-writer, a carriage, a platen carried thereby, type-bars having type secured thereon in upper and lower case relation, and journaled to move in the arc of a circle to normally present one of the case of type to the platen, and means for tilting the platen, comprising a vertical movable transverse bar, upon which the forward part of the carriage is supported, rods secured in the frame upon which the bar rests, and a shifting-lever pivotally secured to the frame in alinement with the rods, and springs upon the rods to normally hold the rods, and consequently the platen, in a lowered position.

4. In a type-writer, a frame, a bearing integral therewith, a shaft journaled in the bearing, a rotary brush secured upon the shaft through the medium of an interposed spring by which the brush is revolved.

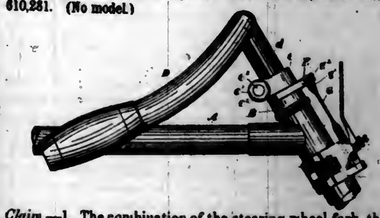
588,494. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. BENJAMIN SMITH, Paisley, Scotland. Filed Oct. 31, 1896. Serial No. 567,533. (No model.) Patented in England Dec. 19, 1894, No. 24,690.



Claim.—1. Shuttle-box-changing mechanism, comprising a pattern-barrel, having spirally-arranged holes for the pegs, a chain and a chain-wheel and shaft therefor, in combination with a system of levers actuated by the pattern-barrel, a rotating shaft and double-clutch mechanism adapted to connect the rotating shaft and chain-wheel shaft to turn the latter first in one direction and then in the other, the said clutch mechanism being actuated by the said levers, substantially as set forth.

2. Shuttle-box-changing mechanism comprising a pattern-barrel, a chain and a chain-wheel and shaft therefor, in combination with a system of levers actuated by the pattern-barrel, a rotating shaft, clutch mechanism actuated by the said levers to connect the rotating shaft and chain-wheel shaft, reversible driving-gear for the pattern-barrel and means for automatically reversing the pattern-barrel when the end of the barrel or the end of the pegging has been reached, substantially as set forth.

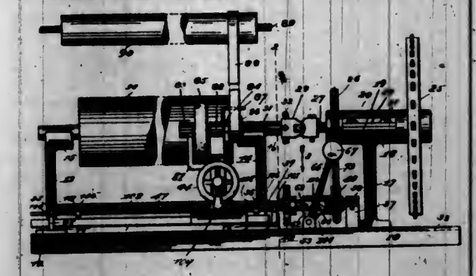
588,495. BICYCLE GUIDE AND LANTERN-BRACKET. FREDERICK G. SMITH, Cincinnati, Ohio, assignor of five-eighths to Bernard Stock and Edward Keating, same place. Filed Oct. 28, 1896. Serial No. 610,281. (No model.)



Claim.—1. The combination of the steering-wheel fork, the cam fixed to turn therewith, the front frame-bar, a box secured thereto having a forwardly-projecting perforated bracket to receive a spring-shaft and an upwardly-projecting arm to form a lamp-bracket, the spring-shaft fixed in said bracket and a wheel journaled upon the free end of said shaft to bear upon the cam, substantially as shown and described.

2. The hereinbefore-described guide and lantern-bracket for bicycles comprising the cam, the clamping-ring adapted to be secured to the shaft of the steering-wheel, the separable box to clamp upon the front frame-bar and having forward extensions to receive one end of the spring-shaft and having a lantern-bracket projecting up from one of said extensions, the spring-shaft held in one of said extensions, the friction-wheel journaled upon the end of said spring-shaft to bear upon the cam, an adjusting-screw to regulate the pressure of the wheel upon the cam, and bolts to secure the separable box and cam to the front frame-bar and steering-wheel fork.

588,496. MACHINE FOR SHARPENING WHEAT-GRINDING ROLLS. THOMAS W. SMITH, East St. Louis, Ill. Filed Aug. 10, 1896. Serial No. 602,353. (No model.)



Claim.—1. In a roll-grinder, the combination with a base, said base consisting of the inverted channel-bars 10 and 11 framed together by the cross-bars 12, of the posts 13 and 14 mounted upon the cross-bars 12 and having the open-bearings 15 and 16, respectively, in their upper ends and in horizontal alinement with each other, the post 17 mounted upon the channel-bars 10 and 11 and having the bearing 19 at its upper end and in horizontal alinement with the bearings 15 and 16, the collar 23, having the square opening 24 extending from end to end, rotatably mounted in said bearing 19, the sprocket-wheel 25 fixed to one end of said collar, the sprocket-wheel 26 fixed to the opposite end of said collar, the shaft 27 having one of its ends slidingly mounted in the opening 24 in said collar 23, the knuckle-joint 29 carried by the end of said shaft 27 opposite the end which is inserted in the collar 23, the shaft 31 mounted in the open bearings 15 and 16 and connected to the knuckle-joint 29, and means of driving the sprocket-wheel 25, substantially as specified.

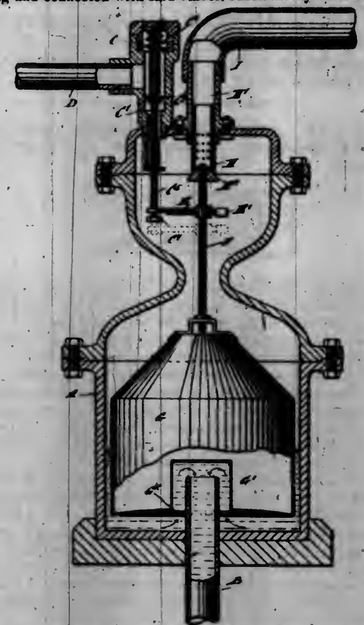
2. In a roll-grinder, a track-bar 77 mounted in position parallel with the axis of the roll, the base 78 slidingly mounted upon said track-bar, the post 79 pivotally connected to the base 78 by means of the pin 80, the elbow-shaped arm 81 attached to the post 79, the bearing 82 in the upper end of the post 79, the bearing 83 in the upper end of the arm 81 and in horizontal alinement with said bearing 82 and in a position parallel to the axis of the roll, the shaft 84 mounted in said bearings 82 and 83 and carrying an emery-wheel, the pulley 86 fixed upon said shaft, means of driving said pulley, and means of reciprocating said stand: which means consists of an arm attached to the base of said stand, a screw operating in the screw-threaded opening through said arm, and means of operating said screw, substantially as specified.

3. In a roll-grinder, a stand mounted for reciprocation, a grinding-wheel carried by said stand, means of adjusting said stand in a line crosswise of the line of reciprocation: which means consists of a pivotal connection between the base of said stand and the frame supporting the grinding-wheel, the post 91 projecting upwardly from said base, the block 92 pivotally mounted in the upper end of said post, the screw 93 operating in the screw-threaded aperture through the block 92, the hand-wheel 94 for operating said screw, and a ball-and-socket connection between the end of said screw and the frame supporting said grinding-wheel, means of reciprocating said stand, and means of rotating said wheel, substantially as specified.

588,497. CONDENSER FOR STEAM-ENGINES. WILLIAM T. SNELL, Calumet, Mich. Filed Mar. 12, 1897. Serial No. 627,151. (No model.)

Claim.—1. A condenser for steam-engines, provided with a casing, a float rising and falling with the water in the said casing, and a double valve adapted to be actuated by the said float, to shut the exhaust-steam off from the condenser-casing and to permit the exhaust-steam to pass to the atmosphere, substantially as shown and described.

2. In a condenser for steam-engines, the combination with the condensing-casing, of a valve-casing connected with the condensing-casing and with which the exhaust-steam pipe is connected, two valves in said casing, one for controlling the admission of exhaust-steam to the condensing-casing and the other for allowing the exhaust-steam to escape to the atmosphere, and a float in the condensing-casing and connected with said valves, substantially as described.



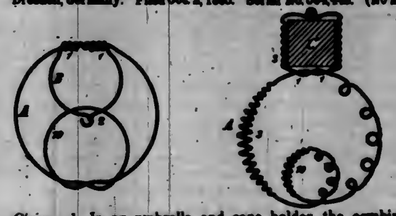
3. A condenser for steam-engines, comprising a casing, a float adapted to rise and fall with the water in the said casing, and a spraying-nozzle formed with a valve and fitted to slide in a pipe attached to the casing, the said pipe being formed at its lower end with a valve-seat, and arranged for connection with the water-supply pipe, substantially as shown and described.

4. A condenser for steam-engines, comprising a condenser-casing, a valve-casing connected with the said condenser-casing and connected with the exhaust-steam pipe, the said valve-casing being provided with two valve-seats, a spring-pressed valve-stem carrying two valves for the said seats, an arm adapted to engage a collar on the said valve-stem, and a float adapted to rise and fall with the water in the said casing and provided with a stem carrying the said arm, substantially as shown and described.

5. In a condenser for steam-engines, the combination with the condensing-casing, of a valve for controlling the admission of water to the said casing, and a valve for controlling the admission of exhaust-steam into said casing, and a float in the casing and connected with said valves, substantially as described.

6. In a condenser for steam-engines, the combination with a condensing-casing, and a water-pipe entering the same, of a spraying-nozzle sliding in the water-pipe and formed with a valve at its lower end, a valve-casing having two valve-seats, one opening into the condenser-casing and the other into the atmosphere, two valves in said casing, and a float in the condenser-casing and connected with the said valves, substantially as herein shown and described.

588,498. STICK OR UMBRELLA HOLDER. HERNANDO DE SOTO, Dresden, Germany. Filed Oct. 2, 1895. Serial No. 564,462. (No model.)



Claim.—1. In an umbrella and cane holder, the combination with the main supporting-ring, the supplemental ring, the clip for

holding the device to its support, and the spring between the main holding-ring and support; substantially as described.

2. In an umbrella and cane holder, the combination with the main supporting-ring, the clip for holding the device to its support, and the coiled spring between the main holding-ring and clip; substantially as described.

3. In an umbrella and cane holder the combination with the extensible, main supporting-ring, the extensible supplemental ring and the clip for holding the device to its support, and the spring between the main holding-ring and clip; substantially as described.

588,499. BOTTLE AND STOPPER THEREFOR. JAMES H. SPRINGFIELD, Platteville, Colo. Filed July 16, 1896. Serial No. 599,359. (No model.)



Claim.—1. The combination with a bottle having an exterior recess or groove formed in its neck, constituting a keeper, of a frangible cap fitting over the neck of the bottle and provided with an inwardly-extending tongue adapted to engage the said keeper, and an internal spring engaging the said tongue and retaining it in position in the said groove or recess, substantially as described.

2. The combination with a bottle provided with external L-shaped grooves in its neck, of a fragile cap fitting upon the bottle-neck and provided with lugs on its inner face engaging said grooves, and a spring engaging the lugs of the cap to hold them in the horizontal portions of the grooves, substantially as described.

3. The combination with a bottle provided with external L-shaped grooves in its neck, the horizontal portions of said grooves extending in opposite directions, of a cap fitting upon the bottle-neck and provided with lugs on its inner surface engaging said grooves, and a spring-yoke carried by the bottle-neck and having its terminal members extending downward in the vertical members of the said grooves and adapted to engage the lugs of the cap to hold them in the horizontal portions of the said grooves, substantially as described.

4. The combination with a bottle having its neck provided with exterior slots, the said slots forming keepers, of a cap made of frangible material and provided with inwardly-extending lugs adapted to engage the said slots, a spring-yoke extending across the top of the bottle-neck and having its terminal members extending into the said slots and adapted to engage the lugs of the cap to hold them in the said slots, and a spring arranged between the top of the yoke and the said cap, substantially as described.

5. A bottle-mouth provided with exterior slots therein, the said slots forming keepers, a spring-yoke entering the said slots, and a cap fitted over the mouth and the yoke and carrying latches operating to hold the yoke in place, as and for the purpose set forth.

6. The combination, with the mouth of a bottle, or an opening into which the fluid is to be introduced, the said mouth having diametrically opposing L-shaped slots, of a spring-yoke crossing the mouth or opening, the members whereof enter the vertical members of the aforesaid slots, and a cap having projections arranged for engagement with the free members of the yoke as the cap is being placed over the mouth, the said projections of the cap being adapted to enter the horizontal portions of the said slots in the mouth of the bottle, said yoke thereby preventing the removal of the cap, as and for the purpose specified.

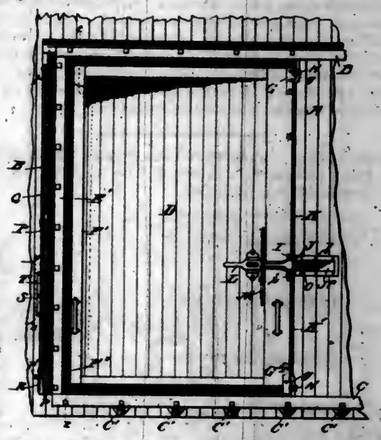
588,500. CAR-DOOR. ANDREW G. STEINBRENNER, St. Louis, Mo., assignor of one-fifth to Enrique S. Barreiros, same place. Filed Nov. 23, 1896. Serial No. 613,068. (No model.)

Claim.—1. The combination with the post E, of crank-arms mounted therein, a rod connecting said crank-arms, cams on the inner ends of the crank-arm shafts, and a door with which said cams cooperate, substantially as described.

2. The combination with the post E, of crank-arms mounted therein, a rod connected to said crank-arms for operating them in unison, means for locking said rod in certain of its positions, cams on the inner ends of the shafts of the crank-arms, and a door having a shouldered front edge with which shoulders the cams cooperate, substantially as described.

3. The combination with a car-door, of cams cooperating therewith to force the door tightly home, said cams being in line with the movement of the door and so arranged that they are within the line of the outer face of the door, substantially as described.

4. The combination with a car, of a door, a series of connected crank-arms mounted on the side wall of the car, and having cams on their inner ends for cooperating with the front edge of the door, and means arranged upon one of said crank-arms for affording a leverage to operate all of the crank-arms and cams simultaneously, substantially as described.



5. The combination with a car, of a door, cams mounted on the side wall of the car, for engaging the front edge of the door and forcing the same into its jambs, crank-arms for partially rotating said arms, said crank-arms extending out from the cams, a rod for operating said crank-arms and cams, and means arranged upon one of said crank-arms for affording a leverage to operate the same, substantially as described.

6. The combination with a car, of a door, cams mounted on the side wall of the car, for engaging the front edge of the door and forcing the same into its jambs, crank-arms for partially rotating said cams, said crank-arms extending out from the cams, a rod for operating said crank-arms and cams, means for locking said rod in certain of its positions, and a wrench arranged upon one of said crank-arms for partially revolving the same, substantially as described.

7. The combination with a car, of a door, cams mounted on the side wall of the car, for engaging the front edge of the door and forcing the same into its jambs, crank-arms for partially rotating said cams, said crank-arms extending out from the cams, a rod for operating said crank-arms and cams, a pawl on said rod, and a rack arranged in juxtaposition to said pawl, and with which said pawl engages to lock the rod in certain of its positions, and means arranged upon one of said crank-arms for affording a leverage to operate the same, substantially as described.

8. The combination with a car-door, of cams cooperating with the edge thereof, a squared shank extending from one of said cams, a stud projecting from said squared shank, a wrench slidingly mounted upon said stud for cooperating with the squared shank, and means connecting all of said cams together, substantially as described.

9. The combination with a car-door and its tracks, of vertically-reciprocating rods arranged on the door, said rods having cam-faces for cooperating with the door-tracks, and means for reciprocating the rods to throw their carried cams into or out of engagement with the tracks, substantially as described.

10. The combination with a car-door and its tracks, of rods mounted on the door, said rods having cams on their ends for engaging the tracks, and means for simultaneously operating said rods to wedge the cams behind the tracks, or withdraw said cams from engagement with the tracks, substantially as described.

11. The combination with a car-door, of rods arranged upon its edge, said rods having cam-faces for cooperating with the door-tracks, a rotary member to which said rods are connected, and a handle, in the form of a hasp, pivoted to said rotary member, substantially as described.

12. The combination with a car-door, of rods which are adapted to engage the door-tracks, a rotary device to which said rods are connected, a handle pivoted to one side of the pivotal point of said rotary device, a nose on the inner end of the handle, and a loop-fulcrum with which said nose is adapted to cooperate, substantially as described.

13. The combination with a car-door, of a disk mounted on its edge, a handle pivoted to one side of said disk, rods mounted in the disk and cooperating with the door-tracks, and a lug or projection i, with which the handle cooperates when in a closed position, substantially as described.

14. The combination with a car-door, of a rotary disk mounted on the edge of the door, a handle pivoted to one side of the pivot-point of said disk, a nose on the inner end of the handle, and a loop-fulcrum mounted in a countersunk frame so as to fold back out of the path of the sliding door, said nose cooperating with said loop-fulcrum when the handle is in a horizontal position, substantially as described.

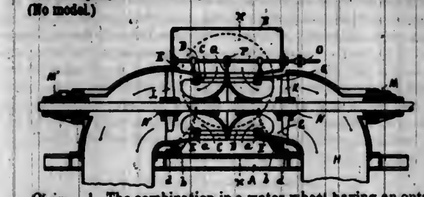
15. In a car-door, the combination with a rotary disk, of a handle attached to said disk, means engaged by the handle for forcing the door inwardly when the handle is closed, rods connected to the disk for engaging the door-tracks to force the door inwardly, and projections on said disk to force the door outwardly when the handle disengages the several devices which lock the door in place, substantially as described.

16. The combination with a car, of a door, tracks for said door, rods arranged on the edge of the door for cooperating with the track, to force the door into its jambs, a rotary disk to which said rods are connected, a pivoted handle in the form of a hasp, for operating said disk, and radial enlargements on said disk for cooperating with the side wall of the car to force the door outwardly when the disk is rotated to disengage the rods from the tracks, substantially as described.

17. The combination with a car-door, and its tracks, of vertically-reciprocating rods mounted on the door, said rods having cams on their ends for engaging the tracks, adjustable guides for said rods, and means for reciprocating the rods to throw their carried cams into or out of engagement with the tracks, substantially as described.

18. The combination with a car, of a door, tracks for said door, rollers mounted in suitable castings secured to the lower edge of the door, for cooperating with the lower track, fins projecting from the door to behind the tracks, cams mounted on the side wall of the car, and cooperating with the front edge of the door for forcing the front end of the door into its jambs, and cam-rods mounted on the rear edge of the door and cooperating with the track for forcing the rear end of the door into its jambs, substantially as described.

588,501. DUPLEX-WATER-WHEEL REGISTER-GATE. EDWIN R. STILWELL, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, of New Jersey. Filed Nov. 5, 1896. Serial No. 611,159. (No model.)

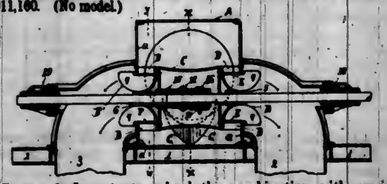


Claim.—1. The combination in a water-wheel having an outside scroll-casing, of a duplex chute-case C, annular plates E rigidly connected to the duplex chute-case, end flanges *b* formed on the plates E and constituting a bridge for the scrollway, and a support for the water-wheel and casing, substantially as described.

2. A duplex-water-wheel case composed of duplex chute-cases, a central hub connected at one end thereof, cylindrical plates E connected to the opposite ends of the chute-cases and constituting the inner wall of a scrollway, end flanges *b* rigidly connected to the plates E and forming the side walls of the scrollway, and the scroll-plate B rigidly connected to said flanges *b*, substantially as described.

3. The combination of a duplex chute-case with the scroll-casing formed of the plates E, flanges *b* and scroll-plate B, connected together, said flanges *b* being inclined toward each other near the terminal of the scrollway, substantially as described.

588,502. DUPLEX-WATER-WHEEL CYLINDER-GATE. EDWIN R. STILWELL, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, of New Jersey. Filed Nov. 5, 1896. Serial No. 611,160. (No model.)

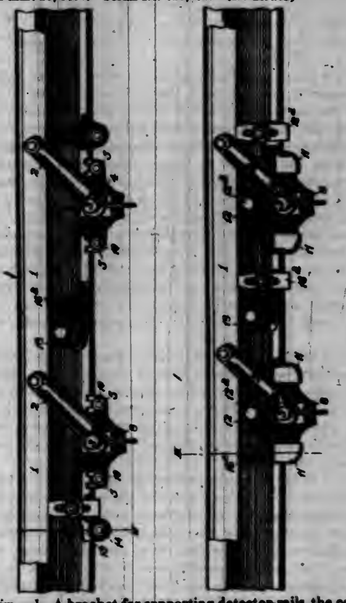


Claim.—1. In a water-wheel, the combination with an inner barrel-casing disposed at one side of the center of said outer casing, deflecting-plates spanning the smaller passage between the barrel and outer casing and forming the terminals of the scrollway, a chute-case attached to each end of said barrel, annular openings within said chute-cases and ring-gates fitting in said annular openings and adapted to move outward into the chute-cases, and inwardly into the barrel-casing, substantially as specified.

2. In a water-wheel casing, the combination of two chute-cases, a barrel-casing connected to the adjacent ends of said chute-cases, a scroll-casing surrounding the chute-casing and barrel-casing and having annular flanges *a* connected to the outer ends of the chute-cases and forming an arch-support for the water-wheels and casing, and deflecting-plates separating the smaller passage between the barrel-casing and outer casing, substantially as described.

3. The combination with the outer casing and the inside barrel-casing C, of ring-gates E, E, movably fitted in the opposite ends of the barrel-casing, shafts passing transversely through the casing, oppositely-movable racks attached to said gates and guided over collar-bearings arranged on said transverse shafts, and pinions fixed on the said shafts and engaging said racks to open and close the gates, substantially as described.

588,503. DETECTOR-RAIL. SIMON H. STUPAKOFF, Pittsburg, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Mar. 29, 1897. Serial No. 629,736. (No model.)



Claim.—1. A bracket for supporting detector-rails, the combination of semitubular lips and lugs arranged alternately and respectively adapted to pass below and above the rail-flange, with bearings for the pin or shaft supporting the rail-carrying arms, substantially as set forth.

2. The combination of a bracket constructed to engage the edge of a rail-flange and provided with bearings for the pin or shaft supporting the rail-carrying arms, in combination with a clamp adapted to be secured to the web of the rail and to engage projections on the supporting-bracket, substantially as set forth.

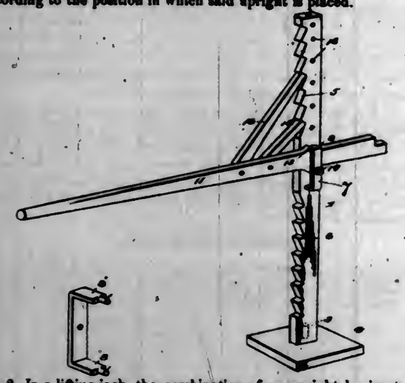
3. The combination of a bracket provided with alternating lips and lugs arranged to pass respectively below and above the rail-flange, a clamp provided with flanges adapted to overlap the lips on the bracket, and to be secured to the web of the rail, and a detector bar or rail movably mounted on the bracket, substantially as set forth.

4. The combination of a bracket adapted to be secured to the flange of a rail, a detector-bar pivotally mounted on the bracket, a stop independent of the detector-bar support, and having a plain unconfined or unbounded bearing-surface for the detector-rail and means for clamping the stop to the rail, substantially as set forth.

5. The combination of a bracket adapted to be secured to the flange of a rail, a detector-bar pivotally mounted on the bracket, a clamp and a stop adjustably mounted on the clamp, substantially as set forth.

588,504. WAGON-JACK. HERBERT SUTHERLAND, Fair Grove, Mo. Filed Mar. 24, 1897. Serial No. 629,004. (No model.)

Claim.—1. In a lifting-jack, the combination of a reversible upright having oppositely-disposed notches or teeth along one edge thereof on opposite sides of the center, an operating-lever fulcrumed to said upright at a point intermediate of its ends and pawls pivoted to said lever and adapted to engage either set of said notches or teeth according to the position in which said upright is placed.



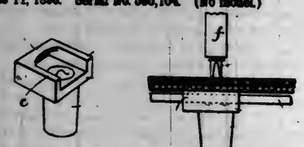
2. In a lifting-jack, the combination of an upright having two sets of oppositely-disposed teeth along one edge thereof on opposite sides of the center, an adjustable fulcrum-piece secured to one side of said upright and separated a short distance therefrom, an operating-lever fitting within said fulcrum-piece, and pawls or dogs pivoted to said lever and adapted to engage either set of said notches or teeth according to the position in which said upright is placed.

3. In a lifting-jack, the combination of an upright having notches or teeth along one edge thereof and laterally-extending openings therein, an adjustable fulcrum-piece having inwardly-extending arms at each end thereof with pins or projections on said arms adapted to fit within said openings, a securing-bolt extending through said fulcrum-piece and said upright, an operating-lever fitting within said fulcrum-piece and adapted to engage said bolt, and dogs or pawls pivoted to said lever and adapted to engage the notches or teeth thereon.

4. In a lifting-jack, the combination of a reversible upright having oppositely-disposed notches or teeth along one edge thereof on opposite sides of the center, a fulcrum-piece on one side of said upright, an operating-lever having oppositely-disposed laterally-extending lugs or projections thereon and dogs or pawls pivoted to said lever and adapted to engage said notches or teeth, substantially as and for the purpose described.

5. In a lifting jack, the combination with a base-piece having an upwardly-extending pin or projection thereon, of a reversible upright or standard having longitudinally-extending openings in the ends thereof in which said pin is adapted to fit and two sets of oppositely-disposed notches or teeth along one edge thereof on opposite sides of the center, a metallic fulcrum-piece secured to one side of said upright and slightly separated therefrom, an operating-lever having oppositely-disposed laterally-extending lugs or projections thereon fitting within said fulcrum-piece, and dogs or pawls pivoted to said lever and adapted to engage one or the other set of said notches or teeth according to the position in which said upright is placed.

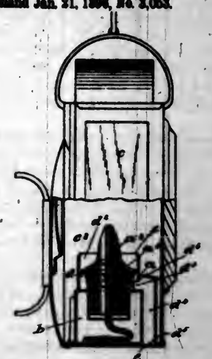
588,505. GUIDE-ANVIL. JUDSON L. THOMSON, Waltham, Mass. Filed June 11, 1896. Serial No. 595,104. (No model.)



Claim.—1. As a means for holding a strip of leather while being riveted to another piece or pieces, the anvil *a* having its upper end provided with a horizontal rectangular flange *b*, two of the edges of said flange having vertical parallel ribs *c c*, substantially as and for the purpose set forth.

2. As a means for holding a strip of leather while being riveted to another piece or pieces, an anvil provided with guiding-ribs at each side of the upper end thereof, and a bridge-piece connecting the said ribs above the plane of the top of the anvil and at one side of the path of movement of a hammer or plunger.

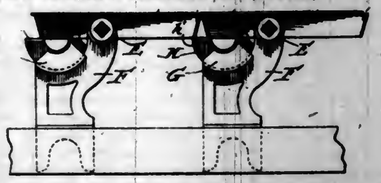
588,506. LAMP OR LANTERN. WILLIAM THORNLEY, Marrickville, New South Wales, assignor to Henry Jutson Fisher, Birmingham, England. Filed Nov. 14, 1896. Serial No. 612,136. (No model.) Patented in New South Wales Oct. 20, 1896, No. 4,667; in Victoria Nov. 6, 1896, No. 10,944; in New Zealand Jan. 13, 1894, No. 6,563; in England May 8, 1895, No. 9,152; in South Australia Nov. 11, 1895, No. 3,310, and in Queensland Jan. 21, 1896, No. 3,053.



Claim.—1. In a lamp, the combination with the oil-container *b* and the burner proper a^2, of an annular air-chamber *d* arranged on the oil-container and surrounding the burner, said chamber being open at its top and terminating at a point beneath the burner and provided at its lower end and at one side with an air-inlet d^1, a vertical supply-tube d^2 arranged on one side of the oil-container and connected at its upper end with the inlet d^3 and at its lower end with an inlet *e* formed in the base of the lamp, and a depending baffle-plate d^6 above the inlet d^3 and between the upper end of the tube d^4 and the interior of the air-chamber, substantially as described.

2. In a lamp, the combination with the oil-chamber *b* and the burner proper a^2, of an annular air-chamber *d* arranged on the oil-container and surrounding the burner, said chamber being open at its top and terminating at its upper end in an inwardly-turned flange *f* below the burner, said chamber being provided at its lower end and at one side with an air-inlet d^1, a vertical supply-tube d^2 arranged on one side of the oil-container and connected at its upper end with the inlet d^3 and at its lower end with an inlet *e* formed in the base of the lamp, and a depending baffle-plate d^6 above the inlet d^3 and between the upper end of the tube d^4 and the interior of the air-chamber, substantially as described.

588,507. MALT-KILN. PETER G. TORPPER, Milwaukee, Wis. Filed Jan. 18, 1897. Serial No. 619,534. (No model.)



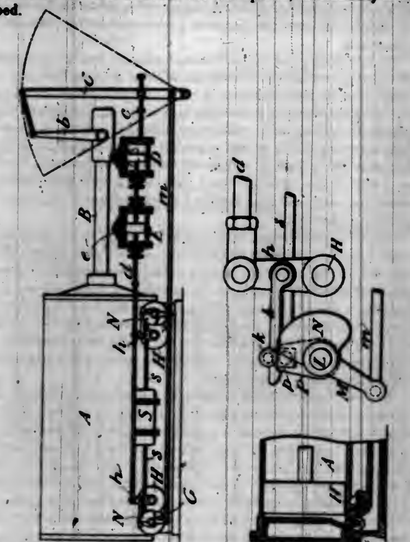
Claim.—1. The combination in a kiln of a dumping-tray having hubbed castings that form part of the frame, supporting-brackets and flanged rockers carried by said brackets and connections on the hubs of the trays for operating said rockers to cause them to release said trays, substantially as described.

2. A tray for malt-kilns having a floor that projects beyond the tray-frame on one side and does not reach the frame on the other side, substantially as described.

3. The combination in a malt-kiln of a series of trays the floor of each tray projecting over the edge of the tray-frame on one side and falling short on the other in combination with connections operated by each tray to lock its neighbor to it, substantially as described.

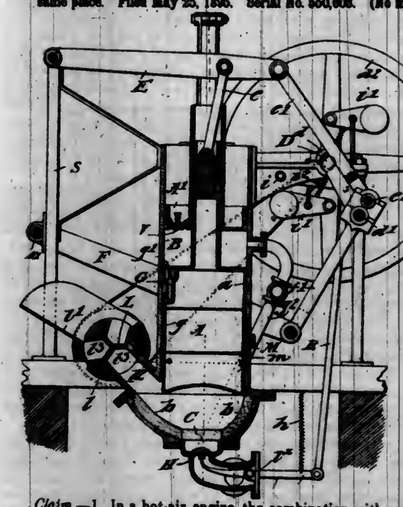
588,508. VALVE-GEAR FOR PUMPING-ENGINES. JAMES A. TOWLER, Leeds, England. Filed May 12, 1897. Serial No. 636,260. (No model.)

Claim.—1. In valve-gear for a pumping-engine the combination of a lever linked to the main piston and connected through tappets to the distribution-valve of a subsidiary cylinder, the piston-rod of which is connected to arms fixed on the exhaust-valve spindles, these arms having trip-catches adapted to engage pins on the arms of the supply-valve spindles and carrying rollers over reciprocating cams connected to the lever linked to the main piston, substantially as described.



2. In the valve-gear of a pumping-engine the combination of an arm fixed on the exhaust-valve spindle connected to the subsidiary piston and carrying a pivoted trip-catch and roller, a cam loose on the supply-valve spindle and connected to the lever which is linked to the main piston, a lever or arm fixed on the supply-valve spindle having a pin adapted to be engaged by the trip-catch, and connected to a spring or piston subject to fluid-pressure adapted to close the valve, substantially as described.

588,509. HOT-AIR MOTOR. WILLIAM TREWHELLA, Trentham, Victoria, assignor to the Trentham Engineering Company, Limited, same place. Filed May 25, 1895. Serial No. 550,608. (No model.)



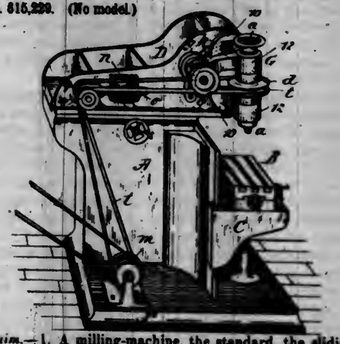
Claim.—1. In a hot-air engine the combination with a vertical power-cylinder, two pistons working therein and the crank-shaft, of levers fulcrumed at one end to fixed supports, parallel with and lying respectively above and below the plane of said shaft, rods connecting the free ends of the levers with the pin on the crank of the shaft and rods connecting the upper and lower levers respectively with the lower and upper pistons, for the purpose set forth.

2. In a hot-air engine the combination with a vertical power-cylinder, two pistons working therein, a crank-shaft on one side and two fixed supports on the opposite side of said cylinder, said fixed supports arranged respectively above and below the plane of said shaft and parallel therewith, of levers fulcrumed at one end to said supports, rods connecting the opposite ends of said levers with the pin on the crank of the shaft, and rods connecting the upper and lower levers respectively, with the lower and upper pistons for the purpose set forth.

3. In a hot-air engine, the combination with a vertical power-cylinder, having a combustion-chamber in the lower part thereof, two pistons working in said cylinder, an exhaust-duct leading from the combustion-chamber, a valve for said duct, a regenerator interposed between said valve and the combustion-chamber and a cold-air pipe leading from the space between said regenerator and the exhaust-valve, to about the center of the power-cylinder, of a governor controlling said exhaust-valve and means for imparting to the pistons relative movements such as described, for the purpose set forth.

4. In a hot-air engine the combination with the crank-shaft, a vertical power-cylinder, provided with an air-heating chamber in its lower end, an exhaust-duct leading from said chamber, a valve for said duct controlled by a movable element of the engine, a pipe leading from about the longitudinal center of the cylinder to said air-heating chamber, a power-piston provided with a valved air-inlet passage, a distributing-piston below the same having a lower portion of less diameter than the cylinder, a valved air-passage in the upper larger portion of said piston leading to the space around the smaller portion, of mechanism for imparting to the two pistons relative movements such as described, for the purpose set forth.

588,510. MILLING-MACHINE. CHARLES B. VAN NORMAN, Springfield, Mass. Filed Aug. 13, 1894. Renewed Dec. 10, 1896. Serial No. 615,220. (No model.)



Claim.—1. A milling-machine, the standard, the sliding frame placed on the top thereof, and provided with a slotted side wall; and the bed for the work, combined with a flat plate pivoted upon the side wall and provided with means for securing it in any desired position: the head extending outwardly from the plate, and carrying the spindle provided with a pulley, two guiding-pulleys journaled upon the arms which project from the head; the driving-belt, adjustable tightening-pulleys, and a driving-pulley for the belt, substantially as described.

2. The combination with the bed and the frame having a part which projects over the bed, provided with an arc-formed slot, of the head, in which the pulley-provided tool-carrying spindle is journaled, pivotally supported by the said framing at a point concentrically of the said arc-slot, and having a member comprising the threaded stud *j*, which projects through said arc-slot and receives the confining-nut *e*, to bear against the face of the framing adjacent said slot, and having the arm carrying the pair of guiding-sheaves *g, g*, the peripheries of which are coincident with the plane of rotation of the pulley which is provided on the spindle, the driving-pulley, *m*, the bar, *o*, adjustably supported on the frame and carrying the paired take-up sheaves and the belt running around the driving-pulley and spindle-pulley, having a take-up engagement with the said idlers, and having a guiding engagement with the said sheaves, *g, g*, substantially as described.

3. In a milling-machine, the work-holding bed, combined with a frame having a vertical wall on a plane at right angles to the longitudinal movement of said bed, a flat plate pivoted upon said wall, a spindle supported in suitable bearings on said plate, a pulley on said spindle, a driving-belt therefor, an arm with guide-pulleys journaled thereon, adapted to be moved in a plane parallel with said plate, means for moving said belt, and means for securing said flat plate to said vertical wall in any desired position, substantially as described.

588,511. TRANSMITTER. ANTHONY VAN WAGENEN, Sioux City, Iowa. Filed Apr. 30, 1896. Serial No. 589,738. (No model.)



Claim.—1. In a transmitter, the combination with circuit making and breaking mechanism movable in a prescribed path, forward, and having no return or backward movement, and an indicator adapted to be set in one or more positions in the same or a corresponding path in advance of said circuit making and breaking mechanism and to arrest the operation of said mechanism at a position corresponding to that occupied by said indicator, of power mechanism for operating said circuit making and breaking mechanism, adapted to cause said mechanism to travel over its entire path at each actuation thereof, substantially as described.

2. In a transmitter, the combination with circuit making and breaking mechanism movable in a prescribed path, forward, and having no return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures in advance of said circuit making and breaking mechanism and arrest the operation of said mechanism, of power mechanism for operating said circuit making and breaking mechanism, adapted to cause said mechanism to travel over its entire path at each actuation thereof, substantially as described.

3. In a transmitter, the combination with revoluble circuit making and breaking mechanism movable in a prescribed path forward and having no return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures in advance of said circuit making and breaking mechanism, and arrest the operation of said mechanism, of power mechanism for operating said circuit making and breaking mechanism, adapted to cause said mechanism to travel over its entire path at each actuation thereof, substantially as described.

4. In a transmitter, the combination with revoluble circuit making and breaking mechanism movable in a prescribed path forward and having no-return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures in advance of said circuit making and breaking mechanism, and arrest the movement of said mechanism, of a case, a spring attached to said case and connected with said circuit making and breaking mechanism, and means for imparting tension to said spring, substantially as described.

5. In a transmitter, the combination with a revoluble circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures in advance of said circuit making and breaking mechanism and arrest the movement of said wheel, of power mechanism for rotating said wheel, substantially as described.

6 In a transmitter, the combination with a revoluble circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures and arrest the movement of said wheel, of a case, a spring attached to said case and to said circuit making and breaking mechanism, and means for imparting tension to said spring, substantially as described.

7. In a transmitter, the combination with a case, circuit making and breaking mechanism therein, movable in a prescribed path, forward, and having no return or backward movement, and an indicator adapted to be set in one or more positions in the same or a corresponding path in advance of said circuit making and breaking mechanism, and to arrest the operation of said mechanism at a position corresponding to that occupied by said indicator, of power mechanism for operating said circuit making and breaking mechanism, a hand-operated device outside of said case, and mechanism operated thereby for actuating said power mechanism, substantially as described.

8. In a transmitter, the combination with a case, circuit making and breaking mechanism therein, movable in a prescribed path, forward, and having no return or backward movement, and an indicator adapted to be set in one or more positions in the same or a corresponding path in advance of said circuit making and breaking mechanism, and to arrest the operation of said mechanism at a position corresponding to that occupied by said indicator, of power mechanism for operating said circuit making and breaking mechanism, a push-button outside of said case, and mechanism operated by said push-button for actuating said power mechanism, substantially as described.

9. In a transmitter, the combination with a case, circuit making and breaking mechanism therein, movable in a prescribed path, and an indicator adapted to be set in one or more positions in the same or a corresponding path in advance of said circuit making and breaking mechanism, and to arrest the operation of said mechanism at a position corresponding to that occupied by said indicator, of power mechanism for operating said circuit making and breaking mechanism, a push-button outside of said case, and a rack-and-pinion connection between said push-button and said power mechanism, substantially as described.

10. In a transmitter, the combination with a case, a revoluble circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial having a number of apertures therein, and plugs adapted to be inserted in said apertures in advance of said circuit making and breaking wheel and to arrest the operation thereof, of power mechanism for operating the circuit making and breaking wheel, a push-button outside of said case, and mechanism operated thereby for actuating said power mechanism, substantially as described.

11. In a transmitter, the combination with a case, a central shaft, a circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial having a number of apertures therein, and plugs adapted to be inserted in said apertures and arrest the movement of said wheel, of a pinion on said shaft, said pinion and said circuit making and breaking wheel being independently movable, connection between said pinion and said circuit making and breaking wheel, operated when said pinion is moved in one direction, a spring attached to said pinion and to said case, and means for storing power in said spring, substantially as described.

12. In a transmitter, the combination with a case, a central shaft, a circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial having a number of apertures therein, and plugs adapted to be inserted in said apertures and arrest the movement of said wheel, of a pinion on said shaft, said pinion and said circuit making and breaking wheel being independently movable, connection between said pinion and said circuit making and breaking wheel, a spring attached to said pinion and to said case, a push-button outside said case, and a rack-bar integral therewith engaging said pinion, substantially as described.

13. In a transmitter, the combination with circuit making and breaking mechanism movable in a prescribed path, forward, and having no return or backward movement, and an indicator adapted to be set in one or more positions in the same or a corresponding path in advance of said circuit making and breaking mechanism, and to arrest the operation of said mechanism at a position corresponding to that occupied by said indicator, of power mechanism for operating said circuit making and breaking mechanism, adapted to cause said mechanism to travel over its entire path at each actuation thereof, and means for preventing backward movement of said circuit making and breaking mechanism, substantially as described.

14. In a transmitter, the combination with a toothed circuit making and breaking wheel movable in a prescribed path forward and having no return or backward movement, a dial-plate having a series of apertures therein, and plugs adapted to be inserted in said apertures in advance of said wheel, of power mechanism for operating said wheel, and a pawl engaging with the periphery of the same for preventing backward movement thereof, substantially as described.

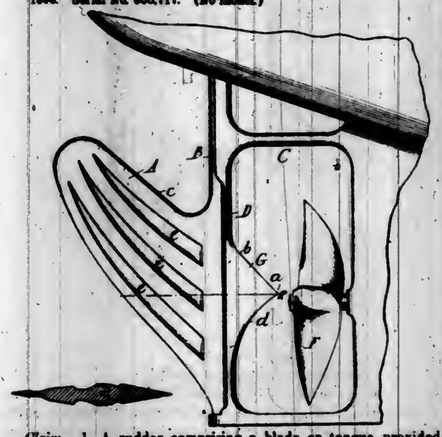
15. In a transmitter, the combination with circuit making and breaking mechanism, a dial having a number of apertures therein, and indicator-plugs adapted to be inserted therein, of a guard-plate having apertures therein adapted to register with the apertures in the dial, means for normally holding said plate so that said apertures do not register, and means for moving said plate to place the apertures in registering position, substantially as described.

16. In a transmitter, the combination with circuit making and breaking mechanism, a dial having a number of apertures therein, and indicator-plugs adapted to be inserted therein, of a guard-plate having apertures therein adapted to register with the apertures on the dial, means for normally holding said plate so that such apertures do not register, and means for moving said plate to place the apertures in registering position, and also operating said circuit making and breaking mechanism, substantially as described.

17. In a transmitter, the combination with a revoluble circuit making and breaking wheel, a dial having a number of apertures, plugs adapted to be inserted in said apertures, and arrest the operation of said wheel, and power mechanism for operating said circuit making and breaking wheel, of a guard-plate having a series of apertures therein adapted to register with the apertures in said dial, means for normally holding said plate so that said apertures do not register, and means for moving said plate so as to place the apertures in registering position, and also actuating said power mechanism, substantially as described.

18. In a transmitter, the combination with circuit making and breaking mechanism movable in a prescribed path forward and having no return or backward movement, of power mechanism for operating the same, means of storing power in said power mechanism, and locking mechanism normally engaging said circuit making and breaking mechanism and preventing movement thereof, but adapted to be thrown out of engagement therewith by the operation of said power-storing mechanism.

588,512. RUDDER. ALBERT VIERE, Chicago, Ill. Filed July 27, 1896. Serial No. 600,717. (No model.)



Claim.—1. A rudder comprising a blade or tongue, provided with longitudinal grooves or recesses, mounted upon a shaft and extending rearwardly therefrom at an upward incline, substantially as described.

2. The combination with a rudder-frame provided with a concave rearward upright having a forwardly-extending triangular projection, of a rudder mounted in said frame and comprising a blade or tongue mounted upon a shaft and extending rearwardly therefrom at an upward incline, the upper edge of said blade being in alinement with the upper edge of said projection, substantially as described.

3. The combination with a rudder-frame provided with a concave rearward upright having a forwardly-extending triangular projection, of a rudder mounted in said frame and comprising a blade or tongue provided with longitudinal grooves or recesses mounted upon a shaft and extending rearwardly therefrom at an upward incline, the upper edge of said blade being in alinement with the upper edge of said projection, substantially as described.

588,513. BLOWER OR EXHAUSTER. DAVID R. WARD, Newark, N. J., assignor of one-half to Charles F. Burroughs, same place. Filed Apr. 9, 1896. Renewed Jan. 2, 1897. Serial No. 618,484. (No model.)

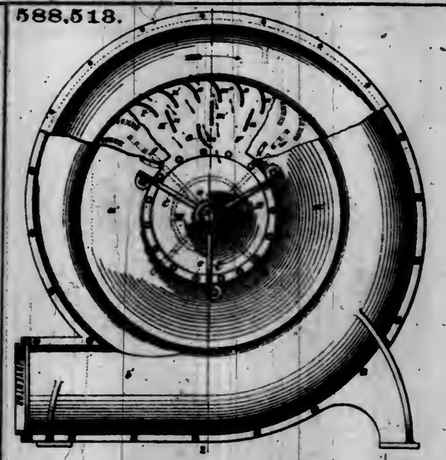
Claim.—1. In a blast-wheel, a blade divided transversely into two or more parts said parts being secured rigidly in a fixed relation to each other and the adjacent ends thereof formed by said division being offset, substantially as described.

2. A blast-wheel having a number of blades arranged therein rigidly in a fixed relation to each other said blades being divided transversely into two or more parts and said parts being offset so that a line across the opening bounded by the ends formed by a division of said blades is approximately at right angles to the radial direction of said parts at their point of offset.

3. In a blast-wheel, a blade divided transversely into two or more parts, said parts being offset and secured rigidly in a fixed relation to each other so that the ends formed by said division are approximately equidistant from the axis of said blast-wheel.

4. In a blast-wheel, the combination of an outer series of curved parts I, an inner series of reversely-curved parts G and a middle series of straight parts H, the inner ends of the parts in the inner and outer series being offset with relation to the ends of the parts in the middle series, substantially as described.

588,518.



588,514. BALE-TIE. CHRISTOPHER C. WARREN, Hookston, Miss., assignor of one-half to Joseph Baum, Meridian, Miss. Filed Feb. 1, 1897. Serial No. 621,566. (No model.)



Claim.—An improved bale-tie formed of a single blank of heavy wire, the same consisting of the elongated U-shaped loop closed at one end and adapted to extend transverse the bale-band and in the plane of the same with the band, extremities looped around the parallel sides of the said U-shaped loop, extremities B and C of said loop being bent at right angles to each other and to the longitudinal extent of the loop, extremity B being disposed upward from the body of the tie to hold one extremity of the band from slipping from the tie, the other extremity lying in the plane of the tie and extending toward the base of extremity B and nearly closing the open end of the loop thereby effectually preventing accidental disengagement of both band extremities, substantially as shown and described.

588,515. NEEDLE FOR WEAVING CANE FABRICS. EDWARD G. WATKINS, Gardner, Mass., assignor, by mesne assignments, to the Heywood Brothers & Wakefield Company, same place. Filed Oct. 7, 1896. Serial No. 608,135. (No model.)



Claim.—1. A device of the character described, comprising a single shaft and a non-detachable tip rotatively connected only at their meeting ends.

2. A device of the character described comprising a solid flattened shaft, and a tip, rotatively and non-detachably connected to the end of said shaft.

3. A device of the character described, comprising a shaft, a non-detachable tip, and a ball-and-socket connection between said tip and one end of said shaft whereby said tip is free to rotate on the end of said shaft.

4. A device of the character described, comprising a shaft, a tip, the end of one of said parts being formed with an enlargement, and one end of the other of said parts being formed with an inclosing complemental socket, whereby the shaft and tip are made non-detachable and the tip is free to rotate on the end of the shaft.

588,516. MACHINE FOR SPLITTING CANE. GARDNER A. WATKINS, Gardner, Mass., assignor, by mesne assignments, to the Heywood Brothers & Wakefield Company, same place. Filed July 25, 1896. Serial No. 600,462. (No model.)

Claim.—1. A machine for splitting cane comprising in its construction a stationary blade, means for feeding the cane longitudinally to the blade, a rest for the cane having a cylindrical supporting-bar adjustably mounted on the frame of the machine and having a stop,

a spring-held rest journaled on said bar and adapted to engage said stop, and lying normally between the rest and the feeding means, and a cam for displacing said shield.

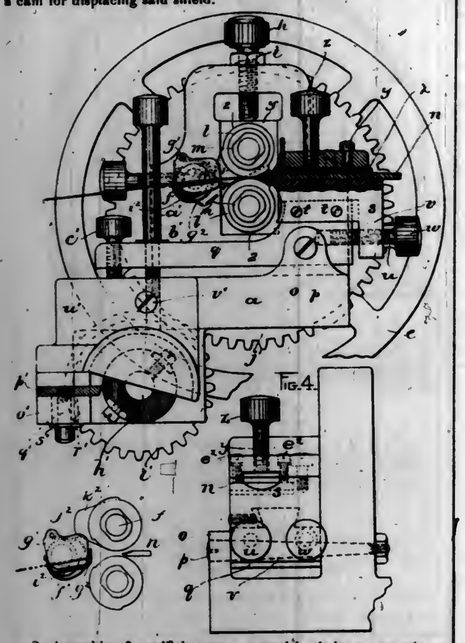


FIG. 4.

2. A machine for splitting canes comprising in its construction, a stationary blade, rolls coacting to feed the cane longitudinally to the blade, a rest for the canes, a shield interposed between the rest and the rolls, and journaled upon the rest, and a cam on one of the roll-shafts for intermittently displacing the shield.

3. A machine for splitting cane, comprising in its construction a frame, feeding-rolls for the cane, a blade for splitting the cane, a sliding carrier on which the knife is mounted, means for adjusting the knife-carrier, a pivoted knife-support for said carrier, and means for adjusting the said support about its pivot to move the knife bodily relatively to the rolls.

4. A machine for splitting cane comprising a frame, feeding-rolls for the cane, a splitting-blade for the cane, a support for the knife, a rocking plate between the blade and the support, and having ears d^4 d^5, and screws for bearing upon the ears and rocking said plate.

588,517. CEMENTING DEVICE. GARDNER A. WATKINS, Gardner, Mass., assignor, by mesne assignments, to the Heywood Brothers & Wakefield Company, same place. Filed Nov. 16, 1896. Serial No. 612,314. (No model.)

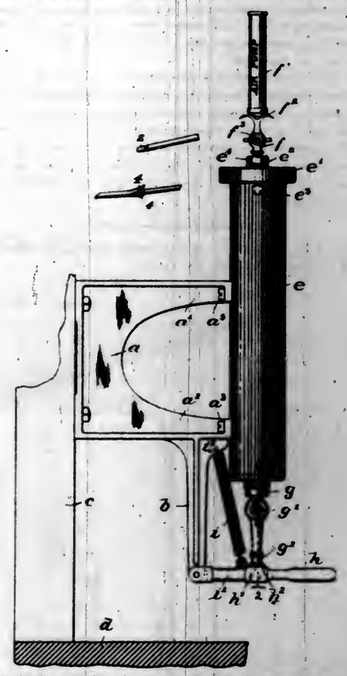
Claim.—1. A device of the character described, comprising a receptacle to contain the liquid glue, means for delivering the glue from the same in minute quantities, a depressible device for cutting off the delivery of the glue and means for regulating the flow of glue to the delivering means.

2. A device of the character described, comprising a receptacle to contain the liquid glue, means for delivering the glue from the same in minute quantities, and a spring-held wiper for cutting off the delivery of the glue, said delivering means and said wiper being constructed and arranged to coat with glue both sides of an article inserted between them.

3. A device of the character described, comprising a stationarily-supported receptacle to contain the liquid glue, a nozzle leading from the same and having a delivery-tip, means for regulating the flow of glue through said nozzle and yielding means for closing said tip, said yielding means consisting of a pivoted spring-held bar.

4. A device of the character described, comprising a receptacle to contain the liquid glue, a nozzle leading from the same and having a delivery-tip, means for regulating the flow of glue through said nozzle and a depressible handle having a washer for closing said delivery-tip.

5. A device of the character described, comprising a stationarily-mounted receptacle to contain the liquid glue, a nozzle having a delivery-tip, a cut-off valve in said nozzle, a yielding flat wiper arranged below the tip to receive between it and the nozzle the end of a cane and means for moving the wiper away from the said tip.



6. A device of the character described, comprising a stationarily-mounted receptacle, adapted to contain a quantity of glue, a reduced delivery-nozzle projecting downward from said receptacle and having a flat tip, means for varying the flow of glue through said nozzle, a flat wiper held yieldingly against the flat tip so as to be constantly coated with glue, and a pivoted handle for depressing said wiper.

7. A device of the character described comprising a closed casing to contain glue, a delivery-nozzle leading from said receptacle, means for regulating the flow of glue through said nozzle, yielding means for closing said nozzle, and means for maintaining a pressure upon the body of glue.

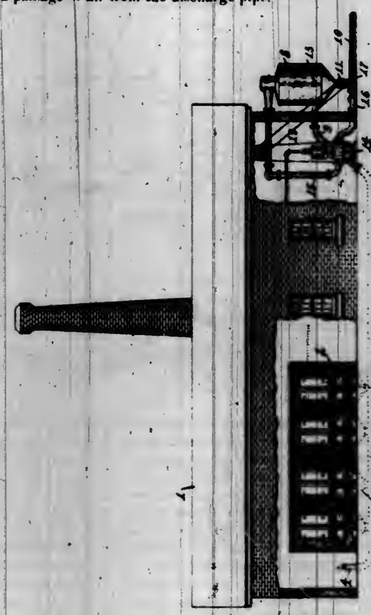
8. A device of the character described comprising a closed casing to contain glue, a delivery-nozzle leading from said receptacle, yielding means for closing said nozzle, and an air-pump attached to the cylinder for maintaining the body of glue under a continuous pressure.

9. A device of the character described, comprising an air-tight receptacle to contain the glue, an air-pump for maintaining a pressure of air upon the glue, a delivery-nozzle having a flat tip with minute perforations, means for regulating the flow of glue through said nozzle, and a yielding wiper normally pressed against the tip to close the perforations.

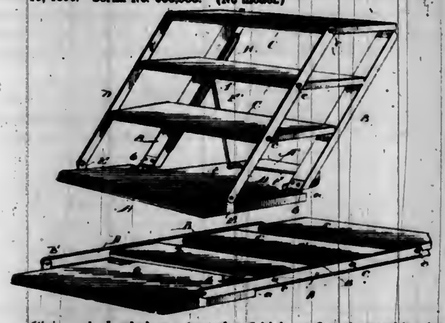
588,518. ASH-CONVEYING APPARATUS. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed May 5, 1897. Serial No. 635,260. (No model.)

Claim.—1. In an ash-conveying apparatus, the combination, substantially as set forth, of a hopper in the floor near a furnace, a vacuum-chamber, a pipe leading from the base of said hopper to the lower portion of said vacuum-chamber, a pump, a pipe from the upper portion of said vacuum-chamber to the inlet side of said pump, a pipe leading from the discharge side of said pump to the point of deposit for the ashes, a pipe connection from the base of the vacuum-chamber to the last-mentioned pipe between said pump and said point of deposit, and a rotary feeder disposed in the last-mentioned pipe connection and serving to permit the downward movement of ashes from the vacuum-chamber but to prevent the upward passage of air from the discharge-pipe.

2. In an ash-conveying apparatus, the combination, substantially as set forth, of a series of hoppers disposed in the floor in front of a rank of furnaces, a trap-door for each hopper, a grating at each hopper, a vacuum-chamber, a pipe leading from the bases of all the hoppers to the lower portion of the vacuum-chamber, a pump, a pipe from the upper portion of said vacuum-chamber to the inlet side of said pump, a pipe leading from the discharge side of said pump to the point of deposit for the ashes, a pipe connection from the base of the vacuum chamber to the last-mentioned pipe between said pump and said point of deposit, and a rotary feeder disposed in the last-mentioned pipe connection and serving to permit the downward movement of ashes from the vacuum-chamber but to prevent the upward passage of air from the discharge-pipe.



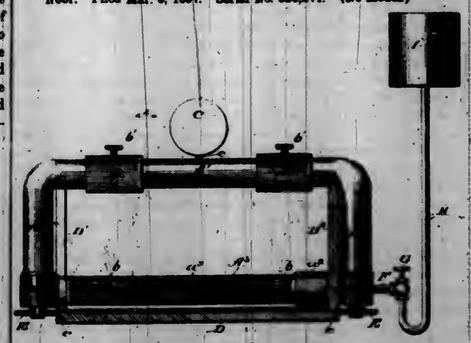
588,519. SHELF. GEORGE M. WELKER, Bryan, Ohio. Filed Sept. 19, 1896. Serial No. 606,335. (No model.)



Claim.—1. In shelves adapted to fold down flat, the combination with the extended base having the central rearward extension forming a support to prevent the rearward tilting of the shelves when in inclined position, of the supporting-bars for the rear edges of the shelves pivotally connected to the base forward of and adapted to swing down parallel with the extension, the supporting-bars for the front edges of the shelves, upwardly-extending lugs on the front portion of the base, with pivotal connections between said lugs and the lower ends of the front bars, the shelves pivotally connected to all the supporting-bars and the locking-braces for holding the shelves in their adjusted position: substantially as described.

2. In shelves, the combination with the base and the pairs of rear and front supporting-bars pivotally connected at one end to said base, of the shelves pivotally supported between said pairs of bars, the locking-brace pivotally connected to the base and the guideways on the inner faces of the rear bars in which the ends of the brace work having apertures with which said ends cooperate to hold the shelves in their adjusted position: substantially as described.

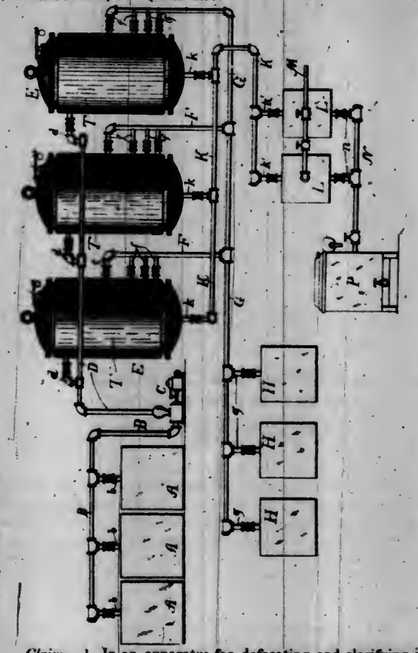
588,520. DRY-OIL-GAS BURNER. CHARLES H. WEST, Kearney, Nebr. Filed Mar. 6, 1897. Serial No. 626,271. (No model.)



Claim.—1. In an oil-gas burner the combination with the overhanging vaporizing-pipe, and the subjacent burner-pipe: of an adjustable deflector, or flame-spreader, consisting of a broad flat base, a smaller parallel top, and inwardly-inclined sides connecting the top and bottom and having entirely open ends to receive the vaporizing-pipe, and a set-screw in the top for adjustably fixing the position of the deflector on the vaporizing-pipe substantially as and for the purpose described.

2. A dry-oil-gas burner consisting of the pipes A A' A^2 bent as described and having a subjacent communicating pipe-section A^3 with outlet-holes; a flanged or dish-shaped base D having end standards D' D^2 supporting the top pipe-section A', and also locking-notches *e e*, and turn-buttons E E arranged on the lower ends of the pipe-sections A and A^2 to lock in notches *e*, substantially as and for the purpose described.

588,521. APPARATUS FOR DEFECATING SACCHARINE JUICES. JOSEPH B. WILKINSON, New Orleans, La. Filed Feb. 28, 1896. Serial No. 581,173. (No model.)



Claim.—1. In an apparatus for defecating and clarifying cane-juice, a closed vessel adapted to withstand internal pressure, a pump and pipes for supplying juice to said vessel, a steam-coil, mounted in said vessel near the base thereof and adapted to heat said juice from contact with the exterior of said steam-coil, pipes for drawing off the clearer portion of the juice after it has been settled, and a separate pipe for drawing off the sediment from the base of said vessel.

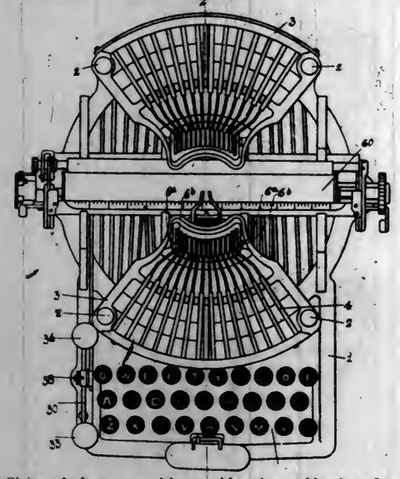
and a jacket inclosing the sides of said vessel, with means for injecting fluid into said jacket for cooling the contents of said vessel, substantially as described.

2. In an apparatus for defecating and clarifying cane-juice, a closed vessel adapted to withstand internal pressure, a pump and pipes for supplying juice to said vessel, a steam-coil mounted in said vessel near the base thereof and adapted to heat said juice from contact with the exterior of said steam-coil, pipes opening into the said vessel near the base thereof for drawing off the clearer portion of the juice after it has settled, and a separate pipe opening into the base of said vessel for drawing off the sediment, and a jacket inclosing the sides of said vessel, with means for injecting fluid into said jacket for cooling the contents of said vessel, substantially as described.

3. In an apparatus for defecating and clarifying cane-juice, a closed vessel provided with a steam-tight top entirely removable, and a safety-valve, a pump and pipes for supplying juice to said vessel and for drawing off the juice therefrom when desired, and a steam-coil mounted in the said vessel near the base thereof and an opening through the sides of said vessel, and adapted to heat the juice by contact with the exterior of said coil, and a jacket inclosing the sides of said vessel, with means for injecting fluid into said jacket for cooling the contents of said vessel, substantially as described.

4. In an apparatus for defecating and clarifying cane-juice, a closed vessel with a steam-tight top wholly removable, and a curved bottom, a pump and pipes for supplying juice to said vessel, a steam-coil mounted in said vessel near the base thereof and adapted to heat the juice from contact with the exterior of said coil, pipes mounted in the sides of said vessel near the base thereof for drawing off the clearer portion of the juice after it has settled, and a separate pipe connected to the lower portion of the curved bottom and adapted to draw off the sediment from the said vessel, and a jacket inclosing the sides of said vessel, with means for injecting fluid into the said jacket for cooling the contents of said vessel, substantially as described.

588,522. TYPE-WRITING MACHINE. JOHN N. WILLIAMS, Derby, Conn. Filed Jan. 11, 1896. Serial No. 575,065. (No model.) Patented in England Sept. 29, 1891, No. 16,488; in Belgium Aug. 18, 1892, No. 100,992; in France Aug. 18, 1892, No. 223,751, and in Germany Aug. 28, 1892, No. 82,342.

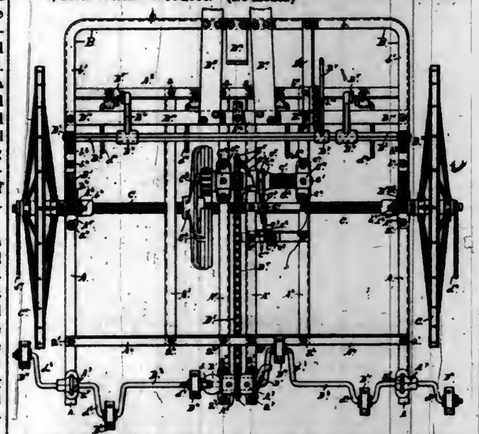


Claim.—1. In a type-writing machine, the combination of a carriage adapted to be shifted into three positions, spring mechanism for returning and holding the carriage normally in central position, a longitudinally-movable shifting-bar connected with the carriage, a double shifting-lever formed with an arm which engages directly with and is adapted to operate the shifting-bar, and stops with which said lever engages for limiting its movement in both directions, as set forth.

2. In a type-writing machine, the combination of a shiftable carriage-track mounted upon suitable supports, a traveling carriage mounted thereon, a centering-lug on the shiftable track, a spring 45 having legs 46 and 47 engaging opposite sides of the centering-lug, and a second lug on a stationary part of the machine-frame also engaging the legs of the spring, substantially as set forth.

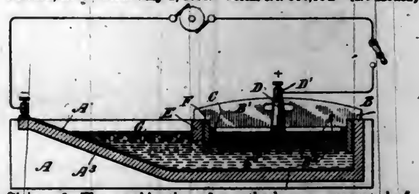
3. In a type-writing machine, the combination of the frame, rock-arms journaled therein, the shiftable track mounted on the rock-arms, posts 7 extending up from the frame, a lug 8 on one of the posts, flanges 9 on the track adapted to engage the lug on said post, a centering-spring for the track, a carriage mounted on the track, and means for shifting the track back and forth, substantially as set forth.

588,523. DIRECT CENTRAL DRAFT OR DRIVE HAY-TEDDER. HARRY E. YOUTS and HARVEY Z. YOUTS, Mountville, Pa. Filed June 5, 1896. Serial No. 594,396. (No model.)



Claim.—The combination in a hay-tedder having a framework such as described, an axle underneath and journaled in bearings secured to the side bars thereof supporting said framework, wheels secured to the extremities thereof rotating said axle, an internal gear-wheel between said bearings and also secured to said axle, an intermeshing pinion with said gear-wheel and secured to one end of a shaft journaled in bearings secured to the top of said framework, with a central-drive sprocket-wheel having a fixed clutch member and rotatably mounted on said shaft, and a loose clutch member movable back and forth thereon with mechanism provided to move the same and hold it in and out of engagement therewith, of a side-recessed sprocket-wheel centrally secured to a tubular kicker-bar shaft journaled in bearings secured on top to the rearward ends of the central bars of said framework and having oppositely or angularly disposed crank-arms at the extremities thereof with the adjacent ends of said bearings within said side recesses, and an endless chain mounted on said sprocket-wheels whereby the rotary motion of the former will centrally drive the latter, all substantially as and for the purpose hereinbefore set forth.

588,524. ELECTROLYTIC APPARATUS. EDWARD BALLAGH, Jr., Newark, N. J. Filed July 2, 1896. Serial No. 597,864. (No model.)



Claim.—1. The combination of a cathode-case, composed of a trough having its bottom divided into two portions, one of which is horizontal and the other of which is inclined, so as to slope down to and connect with the horizontal portion, throughout its length, and provided with a cathode-plate; and an anode suspended therein, arranged to cover the horizontal portion of the bottom only.

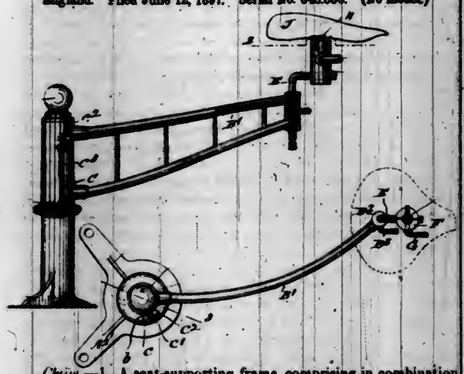
2. The combination of a cathode-case, composed of a trough having its bottom divided into two portions, one of which is horizontal and the other of which is inclined, so as to slope down to and connect with the horizontal portion throughout its length, and lined throughout with a suitable material whereby the whole inner surface thereof serves as a cathode; and an anode suspended therein, arranged to cover the horizontal portion of the bottom only.

3. The combination of a cathode-case composed of a trough having its bottom divided into two portions, one of which is horizontal and the other of which is inclined, so as to slope down to and connect with the horizontal portion throughout its length; and provided with a cathode-plate; and an anode-case composed of an exterior frame having a grated bottom and provided with an inner frame with a filter-cloth bottom, fitting into the exterior case, arranged to cover the horizontal portion of the cathode-case, only.

4. The combination of a cathode-case composed of a trough having its bottom divided into two portions, one of which is horizontal, and the other of which is inclined, so as to slope down to and connect with the horizontal portion throughout its length; a cathode upon said bottom; and a series of removable anode-cases arranged transversely side by side, to cover the horizontal portion of the cathode-case, only.

5. The combination of a cathode-case composed of a trough having its bottom divided into two portions, one of which is horizontal, and the other of which is inclined, so as to slope down to and connect with the horizontal portion throughout its length; a cathode upon said bottom; and a series of removable anode-cases arranged transversely side by side each composed of an exterior frame having a grated bottom and provided with an inner frame with a filter-cloth bottom fitting into the exterior case, arranged to cover the horizontal portion of the cathode-case only.

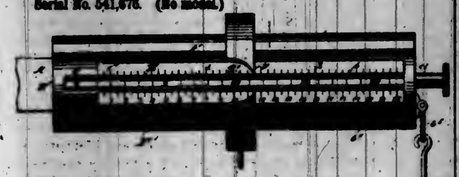
588,525. OPERATOR'S SEAT. FRANK BELL, Tunbridge Wells, England. Filed June 12, 1897. Serial No. 640,536. (No model.)



Claim.—1. A seat-supporting frame comprising in combination a vertical stationary pillar, a socket rotarily movable thereon, a frame extended laterally from said socket, a vertical socket in the outer end of said frame, a rod having a horizontal arm and a vertical arm the former engaging in said last-mentioned socket, a seat, a vertical pivot thereunder, and a clamp adapted to engage said pivot and also the horizontal arm of the rod aforesaid, the whole substantially as set forth.

2. A seat-supporting frame comprising in combination a vertical pillar, a base-plate thereto, a flange on said pillar having recesses in its upper face, a sleeve rotarily mounted on the upper part of said pillar above said flange, a pawl on said sleeve adapted to engage the recesses in said flange, a hand-lever for disengaging said pawl, a frame extending laterally from said sleeve, a vertical socket in the outer end of said frame, a rod having a horizontal arm and a vertical arm the latter engaging in said socket, a seat, a vertical pivot thereunder, a pair of blocks having counterpart recesses for said horizontal arm and pivot respectively and a screw passing through one of said blocks and engaging the other block for the purpose set forth.

588,526. COMPUTING-SCALE. WILLIAM R. DUNN, Alton, Ind., assignor to himself, John T. Hollcroft, Temple H. Dunn, Lycurgus Harrison, and Abraham N. Peckinpaugh, same place. Filed Mar. 14, 1896. Serial No. 583,676. (No model.)



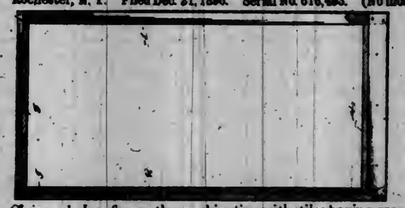
Claim.—1. In a weighing-scale, the combination of a beam having a stud projecting from its end, a tubular casing secured on the end of said beam concentric with and surrounding said stud, and provided with a longitudinal slot and a series of graduations adjacent thereto, a weight slidable along said casing, a tubular price-indicating beam rotatively mounted on said stud inside the said casing and provided with a series of graduations arranged to appear at the slot in the casing, said price-indicating beam having a guide formed longitudinally along it, a counterpoise engaging said guide and slidable therealong, and a handle secured to said counterpoise, substantially as set forth.

2. In a computing-scale, having independent supports for articles to be weighed, the combination of a hollow weighing-beam having a longitudinal opening formed in it and provided at the side of said opening with two series of graduations marked on it and adapted for use, respectively, with the respective independent supports, a price-indicating beam arranged to turn in the hollow of the weighing-beam and provided with a plurality of price-indicating graduations adapted when the beam is turned to appear at the opening in the weighing-beam, and a weight arranged to slide along the weighing-beam and provided with indexes to traverse the respective scales on the weighing-beam and the scale on the price-indicating-beam at the opening in the weighing-beam, substantially as set forth.

3. In a computing-scale, the combination of a hollow working-beam, having a longitudinal slot and graduations along the same and having bearings at its opposite ends, a price-indicating beam mounted to turn in the hollow of the weighing-beam on said bearings, and having a plurality of price-indicating graduations adapted when the price-indicating beam is turned, to appear at the slot in the weighing-beam, a handle mounted to move longitudinally of the price-indicating beam but arranged to turn with the same whereby the said beam may be rotated, said handle projecting from the said beam and being adapted when moved longitudinally to vary the adjustment of the scale, and a weight arranged to slide along the weighing-beam and having indexes to traverse the scales on the same and on the price-indicating beam at the opening in the weighing-beam, substantially as set forth.

4. In a weighing-scale, the combination of a hollow rotatively-mounted beam having a longitudinal internal guide, a counterpoise slidingly mounted in said beam engaging said guide and held against turning in said beam thereby, and a handle fixed to said counterpoise and adapted when turned to turn the beam and when moved longitudinally, to slide said counterpoise in the hollow of the beam and vary the adjustment of the scale, substantially as set forth.

588,527. DOOR OR WINDOW-SASH. SOLOMON J. HORCHELER, Rochester, N. Y. Filed Dec. 31, 1896. Serial No. 616,493. (No model.)



Claim.—1. In a frame, the combination with stiles having grooves or recesses, of rails grooved from end to end, and locking-strips located in the grooves of the rails and having projecting ends which are received in the grooves of the stiles.

2. In a frame, the combination with stiles having grooves, of rails having tenons adapted for reception in the grooves of the stile, and also provided with additional grooves, and locking-strips received in the grooves of the rails and provided with projecting ends also received in the grooves of the stiles.

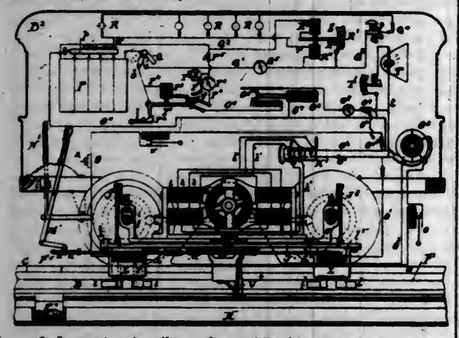
3. In a door, the combination with stiles having grooves, of rails having tenons fitted in said grooves, and said rails being provided with grooves, a muntin having grooves, and locking-strips located in the grooves of the muntin and having projecting ends received in the grooves of the rails.

4. In a door, the combination with stiles having grooves, of rails having tenons fitted in the grooves of the stiles, and also provided with upper and lower longitudinal grooves, locking-strips received in the grooves of the rails and having projecting ends fitted in the grooves of the stiles, a muntin having vertically-extending grooves, locking-strips fitted in said grooves of the muntin and provided with projecting ends received in the grooves in the rails, and panels fitting in the grooves in the stiles, the rails and the muntin.

588,528. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to The Electric Car Company of America, same place. Original application filed July 19, 1886, Serial No. 208,416. Divided and this application filed July 30, 1895. Serial No. 556,562. (No model.)

Claim.—1. The combination of a car having a body supported on the axles by springs, field-magnets having connected therewith

journals sleeved upon the axle and supported independently of the car-body, an armature and shaft mechanically connected with the axle so as to rotate with a speed commensurate with that of the axle, a secondary battery carried upon the car-body, electric circuits connecting the field-magnets and armature with the batteries, a lighting-circuit on the car-body, switches for connecting the lighting-circuit with the electric circuits leading to the armature and field-magnets or with the secondary battery, and means for varying the electromotive force of the battery.



2. In an electric railway, the combination of a stationary source of electric energy, line working conducto.s extending along the line of railway, a car, an electric motor to propel the car, suitable current-collecting devices moving with the car for making electrical contact with the working conductors, a secondary battery on the car, switch devices connecting the battery that it shall operate in series or multiple with the motor relatively to the current flowing through the current-collecting devices, and a speed-regulator for the motor to control the current flowing therein independently of the current flowing from the line through the battery when said battery and motor are connected in parallel.

3. In an electric railway, the combination of a stationary source of electric energy, line working conductors extending along the line of railway, a car, an electric motor to propel the car, suitable current-collecting devices moving with the car for making electrical contact with the working conductors, a secondary battery on the car, switch devices connecting the battery that it shall operate in series or multiple with the motor relatively to the current flowing through the current-collecting devices, means for varying the potential of the secondary battery, and a speed-regulator for the motor to control the current flowing therein independently of the current flowing from the line through the battery when said battery and motor are connected in parallel.

4. In an electric railway, the combination of a stationary source of electric energy, line working conductors extending along the line of railway, a car, an electric motor to propel the car, suitable current-collecting devices moving with the car for making electrical contact with the working conductors, a secondary battery on the car, switch devices connecting the battery that it shall operate in series or multiple with the motor relatively to the current flowing through the current-collecting devices, means for coupling the cells of the secondary battery in series or parallel, and a speed-regulator for the motor to control the current flowing therein independently of the current flowing from the line through the battery when said battery and motor are connected in parallel and in series with the battery when said battery and motor are connected in series.

5. In an electric railway, line conductors extending along the path of the railway for supplying current of constant potential to a traveling car, in combination with a car, an electric motor to propel the car, secondary batteries moving with the car, potential-varying devices for the secondary battery, circuits for coupling the motor and battery in parallel connection with the line conductors, and a speed-regulator to control the speed of the motor interposed between the motor and the connection of the battery with the line.

6. In an electric railway, an electrically-propelled vehicle, a stationary source of electric supply, a line conductor along the railway, a motor carried by the vehicle to propel it and receiving current from the conductors, a regulator to control the speed of the motor and thereby the travel of the vehicle, an electric-light circuit shunted around the motor receiving electricity from the same source, an electric lamp in said shunt-circuit, an automatic regulator to vary the current flowing over said shunt-circuit, a secondary battery, circuits and switches to couple up the battery with the line conductors or said light-circuit.

7. In an electric railway, the combination of a stationary source of electric energy, working conductors extending along the track and receiving current from the stationary source, an electrically-propelled vehicle, an electric motor to propel the vehicle, a secondary battery upon the vehicle, circuits connecting the secondary battery and motor with the working conductors, a regulator for controlling the current passing through the motor independent of the battery, and switches for coupling the battery with the electric motor and cutting out the electrical connection with the working conductors outside of the motor-regulator.

8. In an electric railway, the combination of a stationary source of electric energy, working conductors extending along the track and receiving current from the stationary source, an electrically-propelled vehicle, an electric motor to propel the vehicle, a secondary battery upon the vehicle, circuits connecting the secondary battery and motor with the working conductors, a regulator for controlling the current passing through the motor independent of the battery, switches for coupling the battery with the electric motor and cutting out the electrical connection with the working conductors outside of the motor-regulator, an electric-light circuit on the vehicle, and a switch to control the current flowing from the secondary battery to the lighting-circuit.

9. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, an electric-light circuit including said secondary battery, a switch to break said electric-light circuit, a regulator for the motor to control its speed independent of the strength of the battery, and a switch to break the electric connection between the battery and working conductors.

10. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle in parallel with the motor by a circuit connecting it with said conductors, and an automatic circuit-breaker to cut the secondary battery out of the line or working-conductor circuit when fully charged without disturbing the connection of the motor with the line-circuits.

11. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, and an automatic circuit-breaker controlled by the counter electromotive force of the secondary battery to cut the secondary battery out of the line or working-conductor circuit when sufficiently charged without affecting the connection of the line with the motor.

12. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, an automatic circuit-breaker controlled by the counter electromotive force of the secondary battery to cut the secondary battery out of the line or working-conductor circuit when sufficiently charged without affecting the connection of the line with the motor, and a lock to keep said secondary battery cut out.

13. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, an automatic circuit-breaker to cut the secondary battery out of the line or working-conductor circuit, and an alarm to indicate when said secondary battery is cut out.

14. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, and an electrically-actuated resistance-changer to vary the resistance to the current in the circuit between the working conductors and secondary battery.

15. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, switches to cut the motor out of the line-circuit with the working conductors without interfering with the connection of the working conductors with the secondary battery, and a switch to reverse the current in the armature.

16. The combination of a stationary line working conductor extending along a railway, a vehicle, a motor to propel the vehicle, a secondary battery on the vehicle, a collector structure carried by the vehicle and laterally movable thereon and making a traveling contact with the conductor, circuits between the collector motor and battery, switches for coupling the collector with the motor or battery separately and independently, and a regulator for controlling and varying the current passing through the motor.

17. In an electric railway, the combination of a stationary source of electric supply, working conductors arranged along the track and receiving electricity from said source, an electrically-propelled vehicle receiving electric current from said conductors, a secondary battery on said vehicle, a circuit connecting it with said conductors, a regulator for varying the current passing through the motor, and switch devices independent of the regulator to couple up said secondary battery in series or multiple-arc connection with the motor.

18. The combination of a car having a body supported on the axles by springs, field-magnets having connected therewith journals sleeved upon the axle and supported independently of the car-body, an armature and shaft mechanically connected with the axle so as to rotate with a speed commensurate with that of the axle, a secondary battery carried upon the car-body, electric circuits connecting the field-magnets and armature with the batteries, a lighting-circuit on the car-body, switches for connecting the lighting-circuit with the electric circuits leading to the armature and field-magnets or with the secondary battery, means for varying the electromotive force of the battery, and an automatic switch for cutting the battery out of circuit when fully charged.

19. In an electric railway, the combination of line working conductors, with a traveling car having an electric motor receiving electricity therefrom, a secondary battery or accumulator carried by said car, and connecting-circuits for coupling up the motor and secondary battery in multiple with respect to the working conductors, and a resistance-changer common to both the secondary-battery circuit and line-circuit.

20. The herein-described method of propelling and lighting cars from a fixed source of electrical energy, which consists in supplying electricity to the motor on a traveling vehicle from fixed working conductors with which the motor is in connection, storing the excess of current in a secondary battery or accumulator carried by the vehicle and supplying electricity to the electric lamps carried by the car from said secondary battery, and reducing the lighting-circuit resistance as the power of the secondary battery becomes reduced.

21. The combination of a generator giving a normal current, a number of main translating devices in multiple arc from said generator, a regulating-magnet in multiple arc with said devices, and additional compensating translating devices controlled by said magnet and adapted to be connected with the main line, so as to offer greater or less resistance according as more or less of the main translating devices are in circuit.

22. The combination of a car having a body supported on springs, field-magnets and armature having their weight carried by the axles independent of the car-body, secondary batteries carried on the car-body, a lighting-circuit on the car, and switches for connecting the lighting-circuit with the battery or armature.

23. The combination of line conductors leading from a stationary source of electrical energy, with an electric motor connected to said conductors and receiving current therefrom, a regulator for generating a variable counter electromotive force independent of the motor adapted to oppose the line-current adjacent to the motor to vary the current flowing through the motor and thereby its speed, means to control the current in the field and armature relatively to each other and means to reverse the current in the armature of the motor relatively to its field.

24. The combination of line conductors leading from a stationary source of electrical energy, with a motor receiving current therefrom having its field-magnet in shunt relation to its armature, a counter-electromotive-force regulator independent of the motor for controlling the speed of the motor arranged in circuit with the line and in parallel relation to the field-magnets of the motor and a resistance-changer in the armature-circuit to control the current in the armature independently of the field.

25. The combination of line conductors leading from a stationary source of electrical energy, with a motor receiving current therefrom having its field-magnet in shunt relation to its armature, a counter-electromotive-force regulator independent of the motor for controlling the speed of the motor arranged in circuit with the line and in parallel relation to the field-magnets of the motor, and means to vary the strength of the field-magnets of the motor independently of the current flowing through the armature.

26. The combination of a car having a body supported on springs, field-magnets and armature having their weight carried by the axles independent of the car-body, secondary batteries carried on the car-body, a lighting-circuit on the car, switches for connecting the lighting-circuit with the battery or armature, and means for varying the field strength of the field-magnets.

27. The combination of a car, an electric motor to propel the car, a storage battery on the car comprising a number of cells, a motor-circuit including the storage battery and motor, means for coupling up the cells of the battery in series or multiple, and a variable resistance interposed in series with battery and motor.

28. The combination of a car, an electric motor to propel the car, having independent coils upon its field-magnets, a storage battery on the car comprising a number of cells, a motor-circuit including the storage battery and motor, means for coupling up the cells of the battery in series or multiple, and means for connecting the coils of the field-magnets of the motor in series or parallel.

29. The combination of a car, an electric motor to propel the car, having independent coils upon its field-magnets, a storage battery on the car comprising a number of cells, a motor-circuit including the storage battery and motor, means for coupling up the cells of the battery in series or multiple, means for connecting the coils of the field-magnets of the motor in series or parallel, and a reversing-switch for reversing the current in the armature.

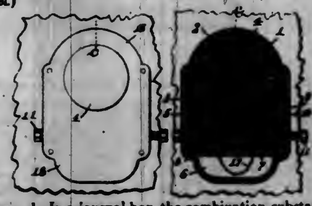
30. In an electric railway, the combination of working conductors extending along the railway leading from a stationary source of electric energy, a car, a motor to propel the car, a secondary battery on the car, circuits on the car connecting the working conductors motor and secondary battery, and a suitable controller interposed between the motor on the one part and both the secondary battery and working conductors on the other part.

31. In an electric railway, the combination of working conductors extending along the railway leading from a stationary source of electric energy, a car, a motor to propel the car, a secondary battery on the car, circuits on the car connecting the working conductors motor and secondary battery, switch devices for varying the electromotive force of the battery, and a suitable controller independent of the switch devices interposed between the motor on the one part and both the secondary battery and working conductors on the other part.

32. In an electric railway, the combination of working conductors extending along the railway leading from a stationary source of electric energy, a car, a motor to propel the car, a secondary battery on the car, circuits on the car connecting the working conductors motor and secondary battery, switch devices for varying the electromotive force of the battery, a suitable controller independent of the switch devices interposed between the motor on the one part and both the secondary batteries and working conductors on the other part, and a reversing-switch independent of the controller and switch devices for reversing the motor.

33. The herein-described method of operating an electric railway which consists in maintaining a current of constant potential in line-circuits extending along the railway, supplying current therefrom to an electric motor and secondary batteries on the car, changing the counter electromotive force of the secondary batteries to a higher potential approximately equal to that of the line-circuit, and regulating the speed of the motor by controlling the current delivered to the motor while maintaining the said higher potential of the batteries.

588,529. JOURNAL-BOX. EDGAR D. JOHNSTON and WILLIAM W. WAINWRIGHT, Connersville, Ind., assignors to the P. H. & F. M. Roots Company, same place. Filed Jan. 2, 1897. Serial No. 617,757. (No model.)



Claim. 1. In a journal-box, the combination, substantially as set forth, of a box-like structure having in its roof an upper half-bearing and having a rectangular chamber below, a lower half-bearing disposed within said chamber and having a width less than that of said chamber in said box-like structure and having its lower surface beveled, a wedge disposed below said half-bearing and having a width less than that of said chamber, a soft-metal lining disposed between the walls of said box-like structure and the sides of said lower half-bearing and between said wedge and the floor of said chamber, and set-screws through the walls of said chamber and through said lining and engaging the edges of said wedge.

2. In a journal-box, the combination, substantially as set forth, of a box-like structure containing an upper half-bearing circumfer-

ostially grooved upon its interior and having a rectangular chamber formed below and having an oil-chamber formed below the floor of said first-mentioned chamber, said floor being slotted in the vertical plane of said groove, a lower half-bearing fitting the side walls of said first-mentioned chamber and having side notches in the vertical plane of said groove, a wedge disposed between said half-bearing and the floor of said first-mentioned chamber and having side notches in the vertical plane of said groove, screws for adjusting said wedge, a journal engaging said half-bearings, and an endless chain engaging said journal within said grooves and passing through said notches into said oil-chamber.

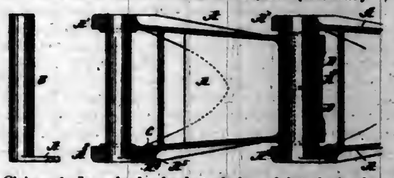
3. In a journal-box, the combination, substantially as set forth, of a box-like structure containing an upper half-bearing and having a rectangular chamber formed below and open at one end of the journal-box and having an oil-chamber formed below said first-mentioned chamber, a half-bearing fitting sidewise within said first-mentioned chamber and provided with side notches, a wedge disposed below said half-bearing and provided with side notches, screws for adjusting the wedge transversely in the chamber, a plate removably secured against the open end of said chamber, a lining disposed in said upper half-bearing and extending from the outer end thereof inwardly to the vertical plane of said notches, a journal engaging said half-bearing, and an endless chain engaging said journal at the inner end of said lining and passing through said notches into said oil-chamber.

588,530. APPARATUS FOR ORDERING TOBACCO. JOHAN K. PEDERSEN, Philadelphia, Pa., assignor to the Philadelphia Textile Machinery Company, same place. Filed Dec. 16, 1895. Serial No. 572,223. (No model.)



Claim.—In an apparatus for ordering tobacco, the combination with a structure wherein tobacco is adapted to be placed and wherein air under pressure is adapted to be maintained, of a humidizing appliance B, located without the structure, consisting of an oblong chamber b, with internal dash or baffle plates b', dividing the same into chambers b^2, in each of which is a rotatable fan b^3, and in the bottom of which appliance a body of water B', is established by means of the pipes b^7 and b^8, the former being provided with a stop or regulating cock b^9, and in the roof of which appliance is provided an inlet or opening B^2, through which external air is drawn into said appliance, a steam-coil b^{10}, located in said body of water B', said coil being provided with a cock b^{11}, a water and steam union b^{12}, leading downward and terminating in a rose, sprayer, or atomizer, to one side of each of said fans for permitting of the churning by said fans of water along with air heated and fogged by said steam-coil and agitated and churned against said baffle or dash plates, a suction-blower D, for forcing the uniformly-tempered atmosphere to said structure, which latter is provided along the roof on the inside with longitudinal and transverse perforated pipes and with exit-openings in the bottom, the construction being such that matter to be treated in said structure is subjected to the action of a substantially non-circulatory or inert volume or mass of conditioned air from said appliance, substantially as and for the purposes described.

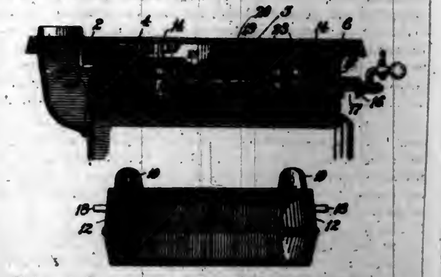
588,531. CHAIN BUCKET. ARTHUR W. ROBINSON, Milwaukee, Wis. Filed Feb. 16, 1897. Serial No. 623,736. (No model.)



Claim.—1. In a dredge-bucket chain, a joint pin having a lug formed on one end thereof and extending laterally therefrom, a bucket bottom or frame having a recess which extends away from the direction of strain, adapted to receive the lug, so that it will be substantially flush with the side of the frame, and a screw passing through the lug and entering the bucket-frame whereby the pin is prevented from endwise movement, for the purposes set forth.

2. In a dredge-bucket chain, a bucket bottom or frame having a single eye at one end through which the joint-pin passes, a half-bushing located in a corresponding recess in the eye, a joint-pin provided with a lug at one end which extends laterally therefrom, a recess which extends away from the direction of strain, adapted to receive and protect the said lug, whereby the pin is prevented from turning, and a screw-bolt passing through the lug and entering the said frame, for the purposes set forth.

588,532. GAS-STOVE. JOHN A. ROE, Scottdale, Pa., assignor to De Haven & Co., Limited, Allegheny, Pa. Filed Apr. 4, 1896. Serial No. 586,109. (No model.)



Claim.—1. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and arranged in such relation to the other parts of the stove as to provide an air-space below it, burners so arranged in the space below the burner-plate as to direct the flames and products of combustion through said openings, and partitions extending from the burner-plate to the top-plate and arranged to isolate each burner and provide an independent flue or passage for each burner to a common flue, substantially as set forth.

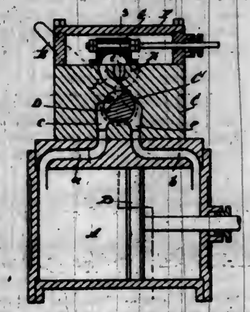
2. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and arranged in such relation to the other portions of the stove as to form an air-space below it, the space below the burner-plate being connected to a discharge-flue, a circular partition surrounding the opening adjacent to the discharge-flue, burners arranged in the space below the burner-plate so as to direct the flames and the products of combustion through said openings, and passages surrounding the circular partition and extending to the discharge-flue for the escape of products of combustion from the burner distant from the discharge-flue, substantially as set forth.

3. In a gas-stove, the combination of a top-plate, a burner-plate having four or more openings therethrough and located in such relation to the other parts of the stove as to provide an air-space below it, the space below the burner-plate being connected to a discharge-flue, circular partitions surrounding the openings adjacent to the discharge-flue or uptake, a straight partition between the openings distant from the common flue and extending toward the same, and burners arranged in the space below the burner-plate to direct the flames and products of combustion through the openings therein, substantially as set forth.

4. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and located in such relation to the other parts of the stove as to provide an air-space below it, burners

arranged in the space below the burner-plate in line with the openings therein, and lugs attached to the burners and adapted to be detachably connected to the burner-plate for supporting the burner in position and permit of the independent removal of any one of the burners from position, substantially as set forth.

588,533. REVERSING-VALVE FOR ENGINES. DAVID W. ROY, Tucson, Ariz. Filed Apr. 16, 1897. Serial No. 632,800. (No model.)



Claim.—1. A reversing-gear for engines, comprising a slide-valve operating over two inlet-ports and an exhaust-port, and a plug-valve having three ports one of said ports being formed on the face of said valve and adapted to connect one of the said inlet-ports with either of the cylinder-ports, the other two ports being arranged opposite each other on the face of the valve and adapted to connect the other inlet-port with either of the cylinder-ports, substantially as described.

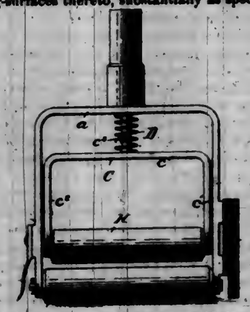
2. A reversing-gear for engines, comprising a reversing-valve chest provided with a set of ports arranged opposite each other and connected with the respective cylinder-ports, the said valve-chest being provided with a second set of ports also connected with the cylinder-ports and arranged opposite each other but in a different vertical plane relative to the first set of ports, the valve-chest being further provided with two inlet-ports connected with the steam chest, a plug-valve adapted to be turned in the said valve-chest and formed with a port on its face adapted to connect one of said inlet-ports with either of the first set of ports in the reversing-valve chest, the said plug-valve being also formed with two ports arranged opposite each other on the face of the valve and adapted to connect the other inlet-port with either of the second set of ports in the valve-chest, whereby the steam can pass from either of said inlet-ports to either end of the cylinder, substantially as shown and described.

3. A reversing-gear for engines, comprising a reversing-valve chest provided with a set of ports arranged opposite each other and connected with the respective cylinder-ports, the said valve-chest being provided with a second set of ports, also connected with the cylinder-ports and arranged opposite each other but in a different vertical plane relative to the first set of ports, the reversing-valve chest being further provided with two inlet-ports connected with the steam-chest, a plug-valve adapted to be turned in the said valve-chest and formed with a port on its face adapted to connect one of said inlet-ports with either of the first set of ports in the reversing-valve chest, the said plug-valve being also formed with two ports arranged opposite each other on the face of the valve and adapted to connect the other inlet-port with either of the second set of ports in the reversing-valve chest, whereby the steam can pass from either of said inlet-ports to either end of the cylinder, and a slide-valve over the said inlet-ports and over the exhaust-port to allow the steam to pass from the cylinder to the outside, substantially as shown and described.

4. A reversing-gear for engines, comprising a reversing-valve chest provided with two sets of ports connected with the cylinder-ports and two inlet-ports connected with the steam-chest, a plug-valve mounted to be turned in the said valve-chest and having three ports, one of said ports being formed on the face of said valve and adapted to connect one of the said inlet-ports with either of the cylinder-ports and the other two valves being arranged opposite each other on the face of the valve and adapted to connect the other inlet-port with either of the cylinder-ports, means for turning the said plug, and means for limiting the turning movement of the plug, substantially as shown and described.

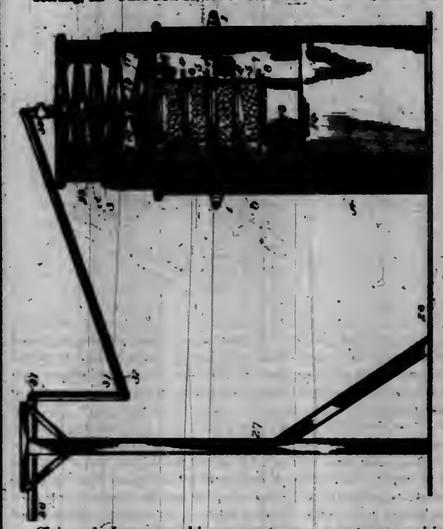
588,534. MOP HOLDER AND WRINGER. GEORGE G. SIMMONS, Washington, D. C. Filed Mar. 5, 1896. Serial No. 581,982. (No model.)

Claim.—1. In a mop holder and wringer, the combination with the inner and outer frames, and the upper and lower rollers, constructed and arranged substantially as described, of the axial rods upon which said rollers turn and the bearing-blocks in which said rods are journaled; said blocks having plate portions for attachment to the corresponding frames and hemispherical bosses that fit into corresponding recesses in the adjacent ends of the rollers and give large bearing-surfaces thereto, substantially as specified.



2. A mop-holder comprising the outer U-shaped frame having the top central tube or socket and vertical guides in its leg portions, a mop-holder jaw or member secured to the lower ends of the frame, a U-shaped frame entirely within the outer frame, a stem rigid therewith and in said socket, a spring pressing the inner frame down, the lower ends of the inner frame having projections movable in said guides, and rounded bearings, a clamping-roller having end depressions receiving said bearings, all substantially as and for the purposes set forth.

588,535. ACETYLENE-GAS GENERATOR. FLAVEL SIMMONS, Sterling, Ill. Filed Feb. 11, 1897. Serial No. 622,906. (No model.)



Claim.—1. In a gas-making apparatus, a generator comprising a plurality of sections arranged to partially telescope one within the other, each of said sections being adapted to contain a quantity of calcium carbid or other suitable chemical and having suitable inlets for water or other liquid and outlets for the gas generated in the section below.

2. In a gas-making apparatus, the combination, with the gas-holder, of a generator comprising a plurality of independent sections arranged one upon another, the lower section being provided with one or more hooks, and spring-arms secured to the gas-holder and adapted to engage the hooks on the section, whereby the generator is locked in the gas-holder.

3. In a gas-making apparatus, a generator comprising a plurality of sections, arranged one upon another, each of said sections consisting of a plate [illegible] upper and a lower ring secured thereto, the upper ring being adapted to contain a quantity of calcium carbid or other like chemical and having inlets for water or other liquid, said lower ring being provided with outlets for the gas generated in the section below.

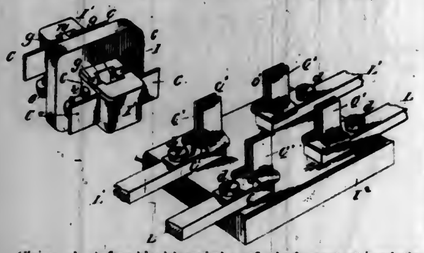
4. In a gas-making apparatus, a generator consisting of a plurality of sections, each comprising a horizontal plate, a carbid-ring rising from the plate, and a lower ring depending from the plate, the sections being assembled by partially telescoping the carbid-ring on one section in the lower ring on the section next above, the carbid-ring having inlets for water or other liquid and the lower ring being provided with outlets for the gas.

5. In a gas-making apparatus, the combination, with a tank for containing water or other suitable liquid, of a gas-holder and a generator combined into one receptacle adapted for vertical movement in the tank, the generator comprising a plurality of independent sections arranged to partially telescope one within the other, said receptacle being provided with suitably-arranged air-chambers for buoyantly compensating for its weight in the liquid, the air-chambers also serving as guides for the receptacle during its vertical movement in the tank.

6. In a gas-making apparatus, the combination with the generator and gas-holder, of a purifier secured to the gas-holder, said purifier comprising a casing and a series of metallic plates therein, said plates being arranged in pairs, the upper plate of each pair being of the same diameter as the casing and provided with a central opening, the lower plate being of slightly less diameter than the casing and solid, the lower plate of each pair being secured to and held in position by one or more studs depending from the upper plate of each pair, substantially as and for the purposes stated.

7. In a gas-making apparatus, the combination, with a tank for containing water or other suitable liquid, of a gas-holder and a generator combined into one receptacle adapted for vertical movement in the tank, and a plurality of air-chambers secured at equidistant points to the outer surface of the receptacle and adapted to bear against the inner surface of the tank, whereby the weight of the receptacle in the tank is buoyantly compensated for, and the receptacle maintained in an upright position during its vertical movement in the tank.

588,536. FUSE-BLOCK. HENRY A. SINCLAIR, Brooklyn, N. Y., assignor to the Tucker Electrical Construction Company, New York, N. Y. Filed Mar. 9, 1897. Serial No. 626,574. (No model.)



Claim.—1. A fuse-block consisting of a body part of insulating material provided with lateral extensions having vertically-arranged grooves in their opposite faces and angular contact-pieces provided with means for securing them in said grooves, in combination with fuses joining said contact-pieces together in pairs, substantially as described.

2. A fuse-block consisting of a body part of insulating material provided with lateral extensions having vertically-arranged grooves in the opposite faces thereof and contact-pieces provided with means for securing them in said grooves in pairs and in alinement with each other, in combination with fuses secured to said contact-pieces below the bottom sides of the lateral extensions, substantially as described.

3. A fuse-block consisting of a body part of insulating material provided with lateral extensions having vertically-arranged grooves in their opposite faces, in combination with angular contact-pieces and means for securing said contact-pieces in the grooves in pairs, together with fuses detachably secured to said pairs of contacts, the body part of said fuse-block being adapted to act as a handle and of sufficient area to insulate the fuses from each other, substantially as described.

4. A fuse-block consisting of a body part of insulating material having lateral integral extensions provided with grooves in their opposite faces, angular contact-pieces provided with means for securing them in said grooves and in alinement with each other in pairs, and fuses joining said pairs of contact-pieces, in combination with yielding contact-springs secured to the ends of current mains or leads in pairs and adapted to receive the before-mentioned pairs of angular contact-pieces, the body part of the fuse-block being of sufficient area to insulate the fuses and of proper conformation to act as a handle therefor, substantially as described.

5. A fuse-block consisting of a body part C of insulating material provided with lateral integral extensions I' I' having grooves *g g*, in combination with angular contact-pieces C C C C and fuses F F' joining said contact-pieces together in pairs, together with means for securing said angular contact-pieces in said grooves, the body part of said switch-block being of sufficient area to effectually insulate the pairs of contacts from each other, substantially as described and shown.

6. A fuse-block consisting of a body part I of insulating material provided with lateral extensions I' I' having grooves *f f f f*, and lateral grooves *g g g g* and angular contact-pieces C C C C provided with overturned ends adapted to be secured to the lateral extensions by screws *s s s s*, in combination with fuses joining said angular contact-pieces, substantially as described.

588,537. OWNERSHIP-INDICATING DEVICE. CHARLES F. STEEL, Philadelphia, Pa., assignor of one-half to David Joseph Sandham, same place. Filed Nov. 7, 1896. Serial No. 611,344. (No model.)



Claim.—1. An ownership-indicating device, consisting of a detachable plate, a base-plate adapted to support said detachable plate, and suitable clamping devices for removably connecting said plates, the surface of said base-plate being prepared for a distance approaching said detachable plate to afford a visible contrast therewith, said base being prepared beneath said detachable plate to afford a visible contrast both with said plate and with said prepared neighboring surface, substantially as described.

2. An ownership-indicating device for bicycles, consisting of a detachable plate, a bicycle-frame having a surface adapted to support said plate, and suitable clamping devices for removably connecting said plate and frame, the surface of said frame being prepared for a distance surrounding said plate to afford a visible contrast therewith, said surface being prepared beneath said plate to afford a visible contrast both with said plate and with said prepared surrounding surface, substantially as described.

3. An ownership-indicating device for bicycles, consisting of a detachable plate, a bicycle-frame adapted to support said plate, and suitable clamping devices for removably connecting said plate and frame, the portion of said frame lying beneath said plate being indelibly prepared to contrast with the exterior surface of said plate and frame, substantially as described.

4. An ownership-indicating device for bicycles, consisting of a detachable plate, a bicycle-frame having a tube adapted to support said plate, and a suitable clamp attached to said plate and constructed to removably connect said plate and tube, the said tube being indelibly prepared for a distance surrounding said plate to afford a visible contrast therewith, the said tube being prepared beneath said plate to contrast both with said plate and with said prepared surrounding surface, substantially as described.

5. An ownership-indicating device for bicycles, consisting of a bicycle-frame, a tube of said bicycle-frame being provided with an aperture, an intermediary plate covering said aperture and secured to said tube, a detachable plate, and suitable devices adapted to removably fix said detachable plate upon said intermediary plate, substantially as described.

6. An ownership-indicating device for bicycles, consisting of a bicycle-frame, a detachable plate formed of material affording a visible contrast with the normal finish of said frame, the portion of said frame lying beneath said plate being prepared to contrast visibly with said plate and normal finish of said frame, and suitable clamping devices constructed and arranged to removably fix said plate upon said frame, substantially as described.

7. An ownership-indicating device for bicycles, consisting of a bicycle-frame, an intermediary plate fixed to said frame, a detachable plate, suitable clamping devices constructed and arranged to fix said detachable plate upon said intermediary plate, said intermediary plate being prepared to afford a visible contrast with the normal finish of said frame, said detachable plate being formed of material affording a visible contrast with said intermediary plate and the normal finish of said frame, substantially as described.

588,538. BICYCLE-BRAKE. CHARLEY F. STEELE and ANDREW J. WEIR, Sandy Lake, Pa. Filed Mar. 5, 1897. Serial No. 626,090. (No model.)

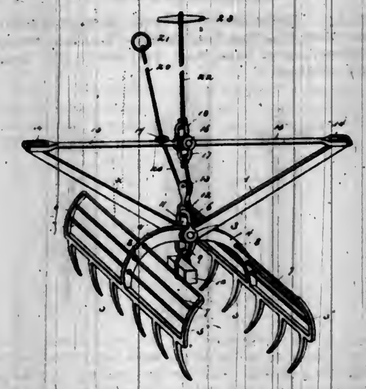
Claim.—1. A bicycle-brake comprising a brake-lever having means to pivot it adjacent to one side of the wheel, said lever being adapted to extend across the wheel-tire and being provided with a brake-shoe adjustable longitudinally along it, and having means for securing it in position on said lever, substantially as set forth.



2. A bicycle-brake comprising a brake-lever having means to pivot it adjacent to one side of the wheel, said lever being adapted to extend across the tire of the wheel and being provided with a longitudinal slot, and a brake-shoe to engage the wheel-tire provided with a shank to play along said slot, and having means to lock it in position on the brake-lever, substantially as set forth.

3. In a bicycle-brake, a brake-lever having means to pivot it adjacent to one side of the wheel, said lever being adapted to extend across the wheel-tire, and a brake-shoe adjustable longitudinally along it and provided with means for securing it in an adjusted position, and said lever having its end portions bent to extend down along the forks, thence outwardly in opposite directions, substantially as specified.

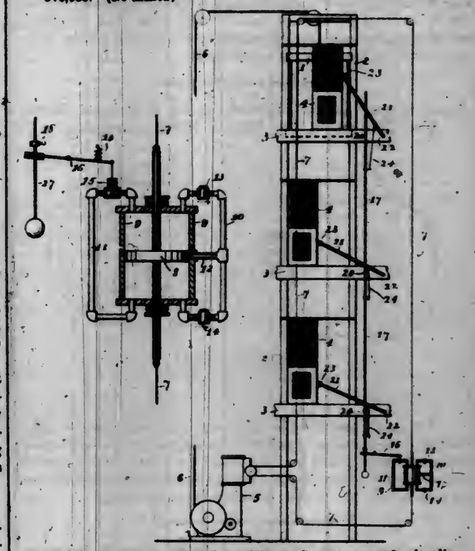
588,539. AUTOMATIC OYSTER OR CLAM TONGS. JOHN W. STEEVES and GEORGE A. STEWART, Elliott, Md. Filed Mar. 31, 1897. Serial No. 630,086. (No model.)



Claim.—1. In an automatic oyster and clam tongs, the combination of members pivoted to each other having racks on their lower ends, levers movably connected to the upper portions of the said members and extended inwardly and movably united at the center, links attached to the pivotal point of said members and located above and below the same, a link depending from the pivotal point of said members, a weight carried by the said link, a cord or cable passing through the eye on one of said levers and the block, and attached to the lower link located at the pivotal point of said levers, and another cord or cable attached to the link above the pivotal point of said levers, substantially as and for the purposes specified.

2. In an automatic oyster and clam tongs, the combination of members pivoted to each other and having rakes on their lower ends, a link loosely depending from the pivotal connection of said members having a weight movably carried thereby, an upper link movably attached to said pivotal connection of the members, a block loosely secured to the said upper link, a pair of levers attached to the upper ends of the members and extending inwardly and united at their central portions by a pivotal connection, links extending above and below the pivotal connection of said levers, an eye carried by one of the said levers to one side of its pivotal point, a cord or cable passing through the said eye and the block, and having its free end attached to the lower link depending from the pivotal connection of the levers, and another cord or cable attached to the upper link held by the pivotal connection of the levers, substantially as and for the purposes specified.

588,540. MEANS FOR LOCKING ELEVATOR-CONTROLLERS. THOMAS G. TURNER, New York, N. Y. Filed Nov. 30, 1895. Serial No. 570,635. (No model.)



Claim.—1. The combination with an elevator-car, of a landing-door, stopping and starting mechanism, a fluid-check and means, substantially as described, whereby said fluid-check operates to lock the stopping and starting mechanism when said door is open and the car is at a standstill, substantially as shown and described.

2. The combination with an elevator-car, of a landing-door, stopping and starting mechanism, a hand-rope, a check, for controlling the movement of the hand-rope consisting of a substantially incompressible fluid and a suitable chamber containing said fluid, and means, actuated by the movement or position of the landing-door, for controlling the circulation in said chamber, substantially as shown and described.

3. In an elevator attachment the combination of a landing-door, a chamber adapted to be filled with fluid, a piston therein connected with the hand-rope, and mechanism operated by the movement or position of said landing-door for controlling communication between portions of said chamber on different sides of the piston, substantially as shown and described.

4. In an elevator attachment the combination of a landing-door, a chamber adapted to be filled with fluid, a piston therein connected with the hand-rope, mechanism actuated by the movement or position of said landing-door for controlling communication between portions of said chamber on different sides of the piston, and mechanism for equalizing the quantity of fluid on each side of the piston to prevent the piston being locked while the car is in motion, substantially as shown and described.

588,541. CURRENT-CONDUCTING RAIL FOR ELECTRIC RAILWAYS. LOUIS R. WALKER, Springfield, Mass., assignor of three-fourths to Francke W. Dickinson, same place, and George M. Jewett, Glenville, Md. Filed May 21, 1897. Serial No. 637,530. (No model.)

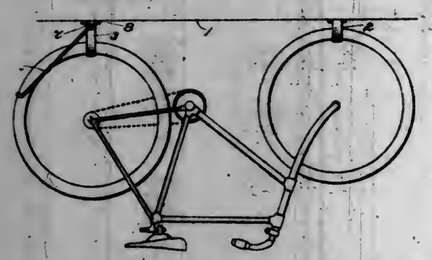


Claim.—1. A current-conducting rail for electric-railway systems having a body of iron or steel, and having its tread side covered with a layer of copper, welded thereto.

2. A current-conducting rail having the body thereof composed of iron or steel and provided with longitudinal grooves in the sides of its tread portion and a layer of copper covering the top of the tread portion and provided with projections engaged in said longitudinal grooves, substantially as described.
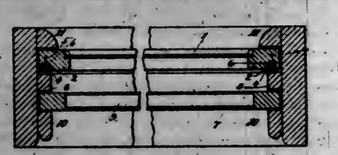
3. A current-conducting rail having the body thereof composed of iron or steel provided with the longitudinal grooves in opposite sides of its tread portion and having a layer of copper covering the top of the tread portion and provided with projections engaged in said longitudinal grooves, said copper layer being also welded to the iron or steel body of the rail as described.

588,542. BICYCLE-SUPPORT. GEORGE H. WILLIAMS, Newton, Mass. Filed Apr. 29, 1897. Serial No. 634,362. (No model.)



Claim.—The combination with a pair of ceiling-hooks, of a swinging bail or retainer applied in connection with one of the said ceiling-hooks and fitting over the tire of the wheel which is applied to the said ceiling-hook, the said retainer operating to prevent swinging movement of the bicycle, substantially as described.

588,543. RAILWAY-CAR WINDOW. SILAS S. BRADSHAW, Brooklyn, N. Y., assignor of one-half to Charles Lyons, Jr., New York, N. Y. Filed Jan. 16, 1897. Serial No. 619,443. (No model.)



Claim.—1. The combination with a window-sash having grooves in the faces of the stiles and in the lower edge of the bottom rail, of spring-actuated rods or bars movably located in said grooves, substantially as shown and described.

2. In a car-window, a sash having grooves in the faces of the stiles, in combination with spring-actuated rods or bars movably mounted in said grooves, substantially as shown and described.

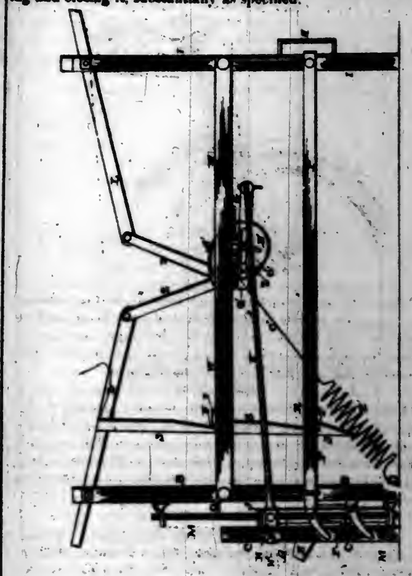
588,544. GATE. EDWARD A. BRANDENBURG, Tipton, Iowa. Filed Jan. 18, 1897. Serial No. 619,516. (No model.)

Claim.—1. The gate, a latch-rod extending through it and provided with a latch at one end and a crank at the other; a pivoted rod or bar provided with projections for operating the latch-rod, the operating-levers, and a lifting-rod connected to one of the levers, for operating the bar or rod provided with projections, combined with means for opening and closing the gate, substantially as shown.

2. The gate, a latch-rod provided with a latch at one end and a crank at the other, and the pivoted rod P having a loop formed thereon, and with projections at its free end for operating the crank on the latch-rod, combined with the lifting-rod S provided with a shoulder to engage with the loop on the pivoted rod and having a notch in one edge, a supporting-bar W, the projection V, secured thereto, and the operating-lever to which the lifting-rod is attached, substantially as described.

3. The gate, having its top bar extended beyond its inner end, a connecting-rod attached to this extended end, a crank-shaft connected to the outer end of the connecting-rod and a ratchet secured in the opposite end of the crank-shaft, combined with the operating-levers, plates or rods extending from their inner ends, a wire, cord, or chain connected to the lower ends of the rods and passing around the ratchet-pulley, and a spring connected to the lower end of the wire, cord, or chain, substantially as set forth.

4. The operating-levers, connected at their inner ends by means of rods or plates, the spring-actuated wire, cord, or chain connected to these rods or plates at one end, and a pulley around which the cord, wire or chain passes, combined with a shaft provided with a ratchet at one end inside of the pulley and at its opposite end with a crank, and means for connecting the crank with the gate for opening and closing it, substantially as specified.



588,545. RECEPTACLE FOR PLASTIC OR OTHER MATERIALS. ROBERT COWEN, Cambridge, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed Sept. 30, 1896. Serial No. 607,494. (No model.)

Claim.—1. The combination with an outside non-compressible case, of a laterally-compressible sack contained within said case independent thereof, a plate or cover for said sack, having a flange for detachably securing said case, and a nozzle-outlet for said sack, substantially as described.

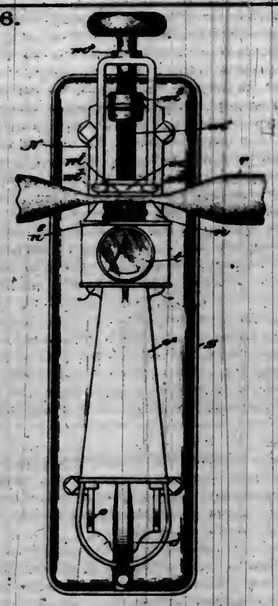
2. The combination with an outside non-compressible case, of a laterally-compressible sack contained within said case independent thereof, a plate or cover removably secured to said sack, having a flange for detachably securing said case, and a nozzle-outlet for said sack, substantially as described.

3. A compressible sack having a threaded end, a rigid plate or cover having a perforated boss to engage said end, said plate having also a surrounding flange, a perforated, pointed discharging-nozzle on the outer side of the plate, a detachable nipple therefor, and a case to detachably engage said surrounding flange on the plate, to surround and shield the sack, substantially as described.

588,546. APPARATUS FOR REPAIRING PNEUMATIC TIRES. JOHN O. DE WOLF, Cambridge, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed June 10, 1896. Serial No. 594,906. (No model.)

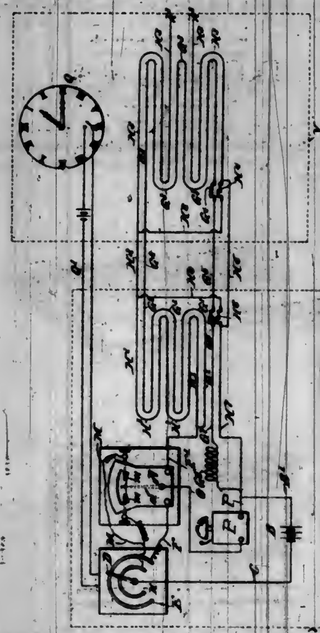
Claim.—In an apparatus for repairing pneumatic tires, the opposing clamping members, one of which is provided with a fire-seat having a valve-tube-receiving recess, and a clamping-surface on said clamping member surrounding said recess and opposed to the clamping-surface of the other clamping member, combined with a burner-support and a burner arranged thereon, and a conducting-hood leading from said burner to said clamping members to heat the latter, substantially as described.

588,546.



REISSUES.

11,626. ELECTRIC BURGLAR-ALARM. CLYDE COLEMAN, Chicago, Ill., assignor of two-thirds to Albert L. Deane and James W. Donnell, same place. Filed Jan. 18, 1897. Serial No. 619,695. Original No. 570,906, dated Nov. 10, 1896.



Claim.—1. In a burglar-alarm the combination of a local alarm-circuit, a main circuit extending from the alarm-station to the guarded structure, a meter electrically connected with the main circuit and adapted to complete the alarm-circuit upon a variation in the condition of the main circuit, and a switch for electrically throwing in first the main circuit and then the alarm-circuit and electrically throwing out first the alarm-circuit and then the main circuit, substantially as set forth.

2. The combination of a local alarm-circuit, a main circuit extending from the alarm-station to the guarded structure, a meter electrically connected with the main circuit and adapted to complete the alarm-circuit upon a variation in the condition of the main circuit, a switch common to both of said circuits so arranged that it throws in first the main circuit and then the alarm-circuit and throws out first the alarm-circuit and then the main circuit, and suitable time mechanism for operating said switch, substantially as set forth.

3. The combination of a local alarm-circuit, a main circuit extending from the alarm-station to the guarded structure, a meter electrically connected with the main circuit and adapted to complete the alarm-circuit, a revolvable switch common to both of said circuits, a contact-plate located in the path of the switch and included in the alarm-circuit, and a longer contact-plate located in the path of the switch and included in the main circuit said contact being so arranged that the switch reaches first the longer one and then the shorter one and leaves first the shorter one and then the longer one, substantially as set forth.

4. The combination of a local alarm-circuit located at the alarm-station, a main circuit extending from the alarm-station to the guarded structure, a meter electrically connected with the main circuit and adapted to complete the alarm-circuit upon a variation in the condition of the main circuit, a switch located at the alarm-station, electrically-operated mechanism for operating said switch, a circuit including said mechanism and extending to the guarded structure, and means located at the guarded structure for controlling said circuit, substantially as set forth.

5. The combination of a local alarm-circuit, located at the alarm-station, a main circuit extending from the alarm-station to the guarded structure, a meter electrically connected with the main circuit and adapted to complete the alarm-circuit upon a variation in the condition of the main circuit, a switch located at the alarm-station, electrically-operated mechanism for operating said switch, a circuit including said mechanism and extending to the guarded structure, and time mechanism located within the guarded structure and having a part arranged in said last-named circuit for controlling it, substantially as set forth.

6. The combination with a structure to be guarded and a housing of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, substantially as set forth.

7. The combination with a structure to be guarded, of a closed main circuit including closed contacts arranged at the guarded structure, an open main circuit including in multiple open contacts arranged at the guarded structure, a meter electrically connected with both of said circuits, and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, substantially as set forth.

8. The combination with a structure to be guarded and an alarm-station, of a closed main circuit including closed contacts arranged at the guarded structure and at the alarm-station, an open main circuit including in multiple open contacts arranged at the guarded structure and at the alarm-station, a meter electrically connected with both of said circuits, and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, substantially as set forth.

9. The combination with a structure to be guarded and an alarm-station, of a closed main circuit including closed contacts arranged at the guarded structure an open main circuit including open contacts arranged at the guarded structure, the wires of said circuits between the alarm-station and guarded structure being insulated from each other and braided together, a meter electrically connected with both of said circuits, and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, substantially as set forth.

10. The combination with a structure to be guarded and a housing located at the alarm-station, of a closed main circuit including closed contacts arranged at the guarded structure, an open main circuit including in multiple open contacts arranged at the guarded structure and housing, the wires of said circuits between the alarm-station and guarded structure being insulated from each other and braided together, a meter electrically connected with both of the main circuits, and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, the alarm mechanism at the alarm-station being closed by the guarded housing, substantially as set forth.

11. The combination with a structure to be guarded, and an alarm-station, of a closed main circuit including closed contacts arranged at the guarded structure, an open main circuit including open contacts arranged at the guarded structure, a resistance arranged in one of said circuits, a meter electrically connected with both of said circuits, and a local alarm-circuit adapted to be closed by the meter upon a variation of the condition of either of the main circuits, substantially as set forth.

12. The combination with a structure to be guarded and a housing located at the alarm-station, of a closed main circuit including closed contacts arranged at the guarded structure and housing, and a resistance located at the alarm-station, an open main circuit including in multiple, open contacts arranged at the guarded structure and housing, a meter electrically connected with both of the main circuits and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, substantially as set forth.

13. The combination with a structure to be guarded and a housing located at the alarm-station, of a closed main circuit including a portion of a barrier arranged at the guarded structure and a portion of a barrier arranged at the housing, an open main circuit including a portion of the barrier arranged at the guarded structure and a portion of the barrier arranged at the housing, a meter electrically connected with both of said main circuits and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition of either of the main circuits, the vital parts located at the alarm-station being all inclosed by the housing, substantially as set forth.

14. The combination with a structure to be guarded and a housing located at the alarm-station, of a closed main circuit including closed contacts located at the guarded structure and housing and portions of barriers located at the guarded structure and housing, an open main circuit, including in multiple, open contacts arranged at the guarded structure and housing and portions of the barriers aforesaid, a meter electrically connected with both of said circuits, and a local alarm-circuit including the meter and adapted to be closed thereby upon a variation in the condition in either of the main circuits, the parts at the alarm-station being included in the guarded housing, substantially as set forth.

15. The combination with a guarded structure and an alarm-station, of a protective circuit extending between the same, a responsive device, an alarm at the alarm-station controlled thereby, a switch at the alarm-station for cutting in the alarm device for a set period of time, and means for controlling said switch from the guarded-structure end of the system, substantially as described.

16. The combination with a guarded structure and an alarm-station, of a protective circuit extending between the same, a responsive device, an alarm at the alarm-station controlled thereby, a switch at the alarm-station for cutting in the alarm device for a set period of time, and time mechanism located within the guarded structure for controlling said switch, substantially as described.

17. The combination with a structure or district inclosed and surrounded by electrical conductors, of an electric protective circuit or circuits including said conductors, an alarm device controlled thereby and at a distance from the protected structure, and a controlling-switch within the electrical barrier at the protected structure for controlling the alarm to permit access to the guarded structure or district, substantially as described.

18. The combination with a structure or district inclosed and surrounded by electrical conductors, of an electric protective circuit or circuits including said conductors, an alarm device controlled thereby and at a distance from the protected structure and time mechanism inclosed within the electrical barrier at the protected district for throwing off the alarm to permit access to the guarded structure, substantially as described.

19. The combination with a structure to be guarded and a housing of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing, and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, and a controlling-switch within the guarded structure for controlling the alarm to permit access to the guarded parts, substantially as described.

20. The combination with a structure to be guarded and a housing, of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing, and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, and time mechanism inclosed within the guarded structure for throwing off the alarm to permit access to the guarded structure, substantially as described.

21. The combination with a structure to be guarded and a housing, of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing, and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, and a braided cable extending between said guarded structure and the housing and containing the protective circuit-conductors, substantially as described.

22. The combination with a structure to be guarded and a housing, of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing, and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, a switch within the guarded structure, switch-wires connected therewith and extending from the protected structure to the housing for controlling the alarm, and a braided cable extending between the guarded structure and the housing and containing the switch-wires and the protective circuit-wires, substantially as described.

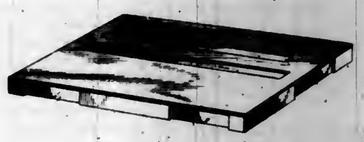
23. The combination with a guarded structure, of a guarded housing constructed to permit the escape of sounds produced therein, an alarm within said housing, and a protective circuit or circuits protecting both said guarded structure and said guarded housing against entrance, substantially as described.

24. The combination with a guarded structure of a guarded housing having openings to permit the escape of sounds produced therein, an alarm within said housing, and a protective circuit or circuits protecting both said guarded structure and said guarded housing against entrance, substantially as described.

25. The combination with a structure to be guarded and a housing, of an electrical alarm system having its parts so disposed as to protect both the structure to be guarded and the housing and cause an alarm to be sounded if either of them is entered, the alarm proper being arranged within the protected housing, and all other parts of the system that may be manipulated or injured so as to cripple the system being arranged within either the structure to be guarded or the protected housing, switch mechanism for controlling the alarm and located within the said housing and means located exterior to the guarded housing for controlling said switch, substantially as described.

DESIGNS.

27,519. CALENDAR AND PAPER-WEIGHT. GEORGE G. GRAMBLE, Seymour, Ind. Filed Feb. 4, 1897. Serial No. 622,045. Term of patent 7 years.





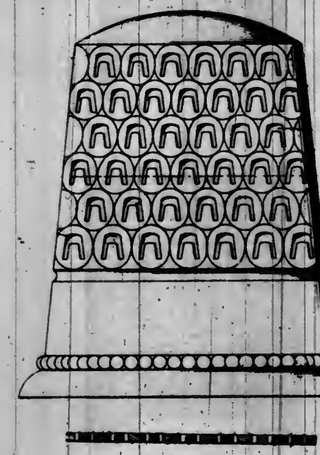
Claim.—The design for a combined calendar and paper-weight herein shown and described.

27,520. MOUNTING FOR BOOK-COVERS, &c. WILLIAM A. HOLMAN, Philadelphia, Pa. Filed May 13, 1897. Serial No. 636,390. Term of patent 7 years.



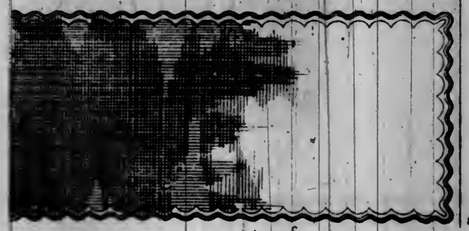
Claim.—A design for a mounting for a book or album cover, substantially as herein shown and described.

27,521. SHOW OR DISPLAY CARD. JOHN F. SIMONS, Philadelphia, Pa., assignor to himself and Thomas Maddock, same place, Frederic M. Simons, Swarthmore, Pa., and Edward S. Simons, Orange, N. J. Filed Apr. 24, 1897. Serial No. 633,801. Term of patent 14 years.



Claim.—The design for a show or display card substantially as described and shown.

27,522. CURTAIN. JOHN W. DORAN, Wilkes-Barré, Pa., assignor to the Wilkes-Barré Manufacturing Company, same place. Filed June 24, 1897. Serial No. 642,199. Term of patent 14 years.

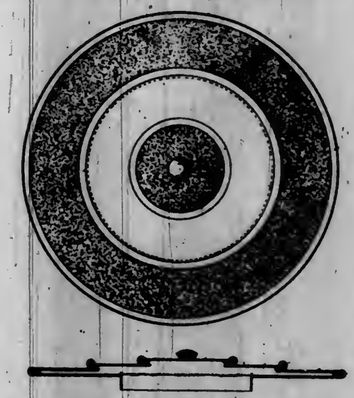


27,522.



Claim.—The design for a curtain, substantially as shown.

27,523. HAT OR CAP. ABRAHAM HELKEN, Cleveland, Ohio. Filed June 1, 1897. Serial No. 639,055. Term of patent 3½ years.



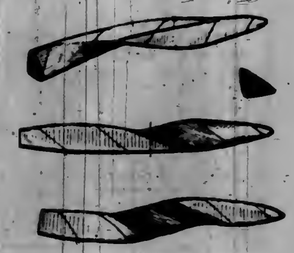
Claim.—The design for a hat or cap, substantially as herein shown and described.

27,524. RING OR SIMILAR ARTICLE. GEORGE R. BURNS, Central Falls, R. I. Filed June 2, 1897. Serial No. 639,173. Term of patent 3½ years.



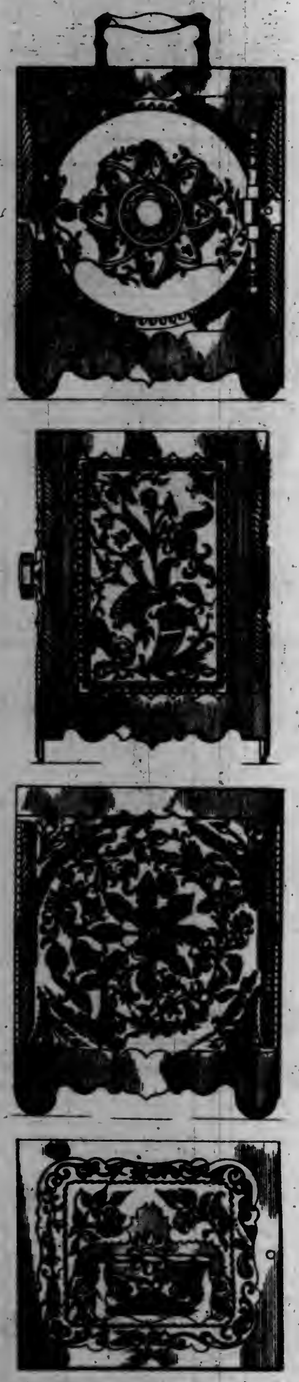
Claim.—The design for a ring or similar article herein shown and described.

27,525. CIGAR. WILLIAM T. GRESSETT, Richmond, Va. Filed Mar. 27, 1897. Serial No. 630,618. Term of patent 14 years.



Claim.—The design for a cigar substantially as herein shown and described.

27,526. TOY SAFE. CHARLES A. BAILEY, Cromwell, Conn. Filed May 14, 1897. Serial No. 636,570. Term of patent 7 years.



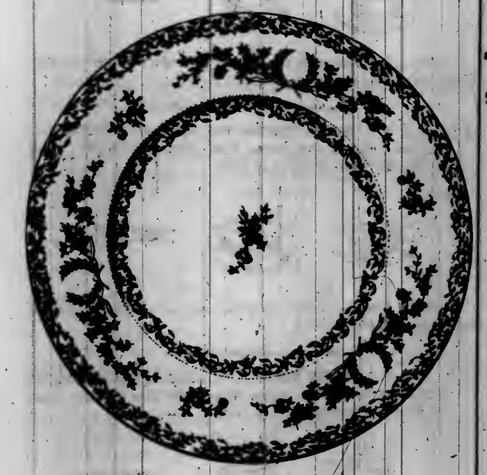
Claim.—The design for a toy safe substantially as herein shown and described.

27,527. TOY SAFE. CHARLES A. BAILEY, Cromwell, Conn. Filed May 14, 1897. Serial No. 636,571. Term of patent 7 years.



Claim.—The design for a toy safe substantially as herein shown and described.

27,528. PLATE OR DISH. EMILE GÉRARD, Limoges, France, assignor to Gérard, Dubrulesmix & Abbot, New York, N. Y. Filed Jan. 6, 1897. Serial No. 618,209. Term of patent 14 years.



Claim.—The design for a plate or dish, substantially as shown and described.

27,529. POCKET-BOOK CARRIER. SOPHIE STIEBEL, Philadelphia, Pa. Filed June 16, 1897. Serial No. 641,072. Term of patent 7 years.



Claim.—The design for a pocket-book carrier as herein shown and described.

27,530. LAMP-BURNER. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed June 15, 1897. Serial No. 641,065. Term of patent 7 years.

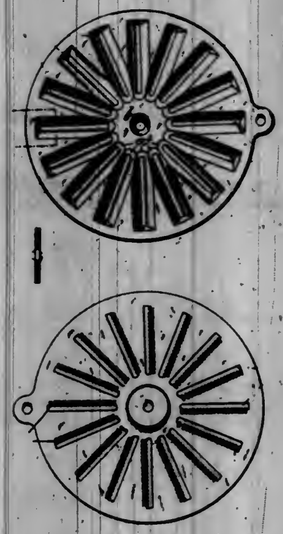


27,530.



Claim.—The design for a lamp-burner, substantially as described and shown.

27,531. GRATER-DISK. AMOS B. HOSTETTER, Lancaster, Pa., assignor to the Specialty Novelty Company, same place. Filed June 21, 1897. Serial No. 641,712. Term of patent 14 years.



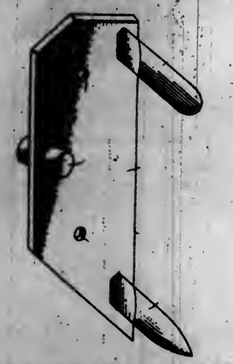
Claim.—The design for a grater-disk, comprising the front and rear faces of the disk, substantially as shown and described.

27,532. CAN-OPENER. GEORGE MOLDEN, Independence, Kans. Filed June 24, 1897. Serial No. 642,206. Term of patent 7 years.



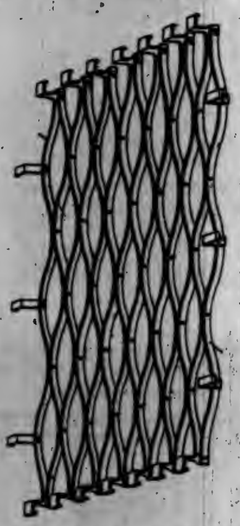
Claim.—The design for a can-opener, substantially as herein shown and described.

27,533. BED-RAIL FASTENER. EDWARD GOLDSEN, Crawfordville, Ga. Filed June 24, 1897. Serial No. 642,196. Term of patent 14 years.



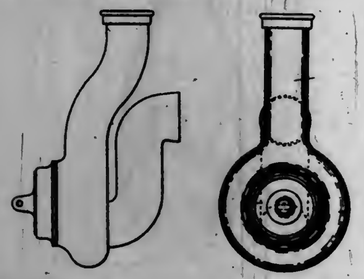
Claim.—The design for a bed-rail fastener, substantially as herein shown and described.

27,534. BED-BOTTOM. DENNIS J. KANE, Boston, Mass. Filed Apr. 23, 1897. Serial No. 633,537. Term of patent 7 years.



Claim.—The design for a bed-bottom, as herein shown and described.

27,535. TRAP. TIMOTHY J. MCHUGH, Cambridge, Mass., assignor of one-half to William H. Gallison, Boston, Mass. Filed June 24, 1897. Serial No. 642,194. Term of patent 14 years.



Claim.—The design for a trap substantially as shown and described.

27,536. SOCKET MEMBER FOR SEPARABLE FASTENERS. WILLIAM S. RICHARDSON, Boston, Mass. Filed June 23, 1897. Serial No. 641,998. Term of patent 14 years.



Claim.—The design for a socket member of a separable fastener herein shown and described.

27,537. SOCKET MEMBER FOR SEPARABLE FASTENERS. WILLIAM S. RICHARDSON, Boston, Mass. Filed June 23, 1897. Serial No. 641,999. Term of patent 14 years.



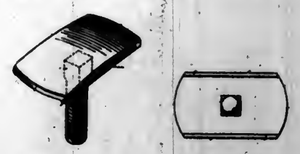
Claim.—The design for a socket member of a separable fastener herein shown and described.

27,538. SOCKET MEMBER FOR DETACHABLE FASTENERS. WILLIAM S. RICHARDSON, Boston, Mass. Filed June 23, 1897. Serial No. 642,000. Term of patent 14 years.



Claim.—The design for a socket member of a separable fastener herein shown and described.

27,539. PROTECTOR FOR SHUTTLE-BINDERS. JOSEPH D. ALLEN, Fall River, Mass. Filed June 23, 1897. Serial No. 641,992. Term of patent 14 years.



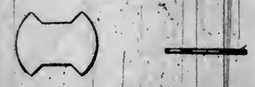
Claim.—The design for a protector for shuttle-binders, substantially as herein shown and described.

27,540. MOVABLE JAW FOR WRENCHES. JOHN H. VIETOR, Boston, Mass., assignor to the Trimont Manufacturing Company, Portland, Me. Filed Sept. 19, 1896. Serial No. 606,446. Term of patent 14 years.



Claim.—The design for a movable jaw for wrenches, substantially as shown and described.

27,541. LOCK-PLATE FOR BOTTLE-STOPPERS. ROBERT S. GRAHAM, St. Louis, Mo., assignor of one-half to Robert J. Lucas, same place. Filed Jan. 30, 1897. Serial No. 621,262. Term of patent 14 years.



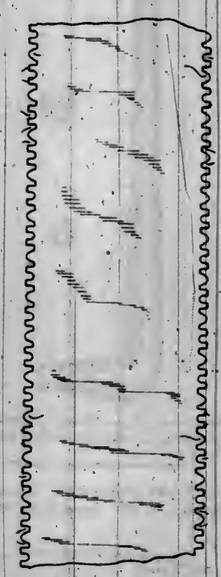
Claim.—The design for a lock-plate for bottle-stoppers, substantially as shown and described.

27,542. HORSESHOE-CALK. RICHARD WHITAKER, New Brunswick, N. J., assignor to the Neverslip Manufacturing Company, same place. Filed Apr. 7, 1897. Serial No. 631,173. Term of patent 14 years.



Claim.—The design for a horseshoe-calk substantially as herein shown and described.

27,543. SHEET-METAL TUBE-BLANK. FRANK A. WILSON, Bridgeport, Conn. Filed May 11, 1897. Serial No. 636,110. Term of patent 14 years.



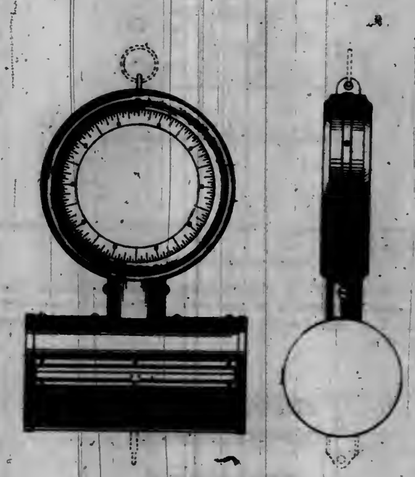
Claim.—The design for sheet-metal tube-blank substantially as herein shown and described.

27,544. CYCLOMETER-CASE. GEORGE R. RAMSEY, Buffalo, N. Y. Filed June 26, 1897. Serial No. 642,702. Term of patent 14 years.



Claim.—The design for a cyclometer-case substantially as shown and described.

27,545. CASE FOR SPRING-BALANCES. JAMES ALFRED SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed June 11, 1897. Serial No. 640,283. Term of patent 14 years.



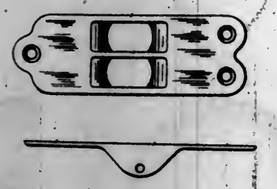
Claim.—The design for a spring-balance case substantially as herein shown and described.

27,546. FRAME FOR PAPER-CUTTERS. FRANK A. BURNHAM, Cleveland, Ohio, assignor to the Chandler & Price Company, same place. Filed Mar. 6, 1897. Serial No. 626,520. Term of patent 7 years.



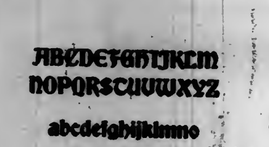
Claim.—The design for the framework of a paper-cutting machine, substantially as described and illustrated in the accompanying drawings.

27,547. TRUNK-ROLLER FRAME. GEORGE CROUM, New York, N. Y. Filed Apr. 6, 1897. Serial No. 631,052. Term of patent 7 years.



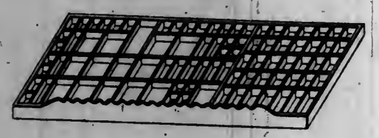
Claim.—The design for the trunk-roller frame, as herein shown and described.

27,548. FONT OF PRINTING-TYPE. HERMAN IHLENBURG, Philadelphia, Pa., assignor to the American Type Founders Company, Newark, N. J. Filed June 23, 1897. Serial No. 641,904. Term of patent 7 years.



Claim.—The design for a font of printing-type as herein described and as shown in the accompanying typographical impression.

27,549. PRINTER'S JOB-CASE. THOMAS NELSON, Pendleton, Oreg. Filed Dec. 19, 1896. Serial No. 616,341. Term of patent 14 years.



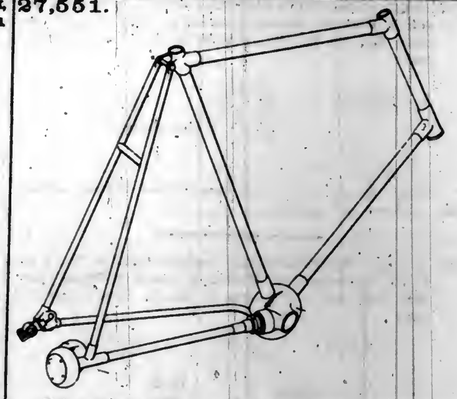
Claim.—The design for a printer's job-case, substantially as herein shown and described.

27,550. CAM FOR PRINTING-PRESS FRAMES. JAMES L. LEE, Chicago, Ill. Filed Aug. 31, 1894. Serial No. 521,574. Term of patent 7 years.



Claim.—The new and original design or useful shape for a cam for printing-press frames, substantially as herein shown and described.

27,551. FRAME FOR BICYCLES. FRANCIS A. KERSHAW, Kenosha, Wis. Filed May 24, 1897. Serial No. 637,962. Term of patent 14 years.



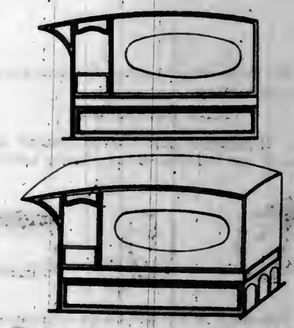
Claim.—A design for a frame for safety-bicycles as herein shown and described.

27,552. VELOCIPEDE-CRANK. EDWARD L. MCDIVITT and WILLIS S. BROWN, Belvidere, Ill., assignors to the National Sewing Machine Company, same place. Filed May 22, 1897. Serial No. 637,790. Term of patent 14 years.



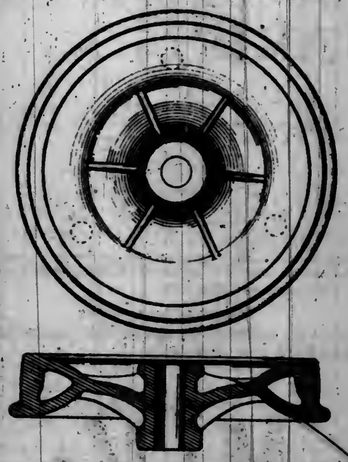
Claim.—The new and original design or useful shape for a velocipede-crank substantially as herein shown and described.

27,553. DELIVERY-WAGON BODY. JOHN WANAMAKER, Philadelphia, Pa. Filed June 16, 1897. Serial No. 641,066. Term of patent 3½ years.



Claim.—The design for a delivery-wagon body, substantially as shown and described.

27,554. CAR-WHEEL. JAMES S. WHITNEY, Wallingford, Pa. Filed Dec. 1, 1896. Serial No. 614,134. Term of patent 14 years.



Claim.—The design for a car-wheel substantially as described and as shown in the accompanying drawings.

27,555. CARPET. ARTHUR M. ROSE, Yonkers, N. Y., assignor to the Lowell Manufacturing Company, of Massachusetts. Filed Feb. 4, 1897. Serial No. 623,053. Term of patent 3½ years.



Claim.—1. In the design for a carpet, the body A, substantially as shown.

2. In the design for a carpet, the border B, substantially as shown.

3. The design for a carpet consisting of the body A and the border B, substantially as shown.

TRADE-MARKS

REGISTERED AUGUST 17, 1897.

30,497. CERTAIN NAMED ARTICLES OF APPAREL AND DRY GOODS. Strauss, Sachs & Co., New York, N. Y. Filed June 16, 1897.



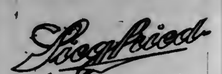
Essential feature.—A representation of a diagonally-divided shield surmounted by a crown and having an anchor in one field and stars in the other field. Used since September, 1890.

30,498. BOTTLED LAGER-BEER. Adolph G. Hüppe, New York, N. Y. Filed July 17,



Essential feature.—The word "Walkürenritt." Used since January 1, 1897.

30,499. BOTTLED LAGER-BEER. Adolph G. Hüppe, New York, N. Y. Filed July 17, 1897.



Essential feature.—The word "Siegfried." Used since January 1, 1897.

30,500. GINGER-ALE. Pine Spring Water Company, Brunswick, Me. Filed July 7, 1897.



Essential feature.—The words "Pine Spring" and a monogram composed of the letters "P," "S," "G," and "A." Used since January, 1896.

30,501. TEA. Grand Forks Mercantile Company, Grand Forks, N. D. Filed June 26, 1897.

BUDS & FLOWERS

Essential feature.—The words and character "Buds & Flowers." Used since August 1, 1893.

30,502. SUBSTITUTES FOR COFFEE. John F. Baehr & Co., Mount Morris, N. Y. Filed July 14, 1897.

Mo-Ko

Essential feature.—The compound word "Mo-Ko." Used since March 20, 1897.

30,503. BAKING-POWDER. William W. Cole, Omaha, Nebr. Filed July 13, 1897.



Essential feature.—The letters "C. P." Used since August, 1896.

30,504. BUTTER. Blair Creamery Company, Chicago, Ill. Filed July 16, 1897.



Essential feature.—The word "Kangaroo" and a representation of a kangaroo. Used since June 15, 1897.

THE HORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE McELROY.

Decided August 6, 1897.

1. APPLICATION BY AN EMPLOYEE OF THE PATENT OFFICE—CONSTRUCTION OF SECTION 480, REVISED STATUTES.

The obvious purpose and intent of Congress, as expressed by section 480, Revised Statutes, was and is to prevent persons employed in the Patent Office from improperly utilizing their knowledge of the inventions of others, acquired as a result of their official connection with the Patent Office, and from utilizing the opportunities they have, as a result of their employment, to become rivals or competitors of inventors whose applications they have before them for examination, or in any wise to take undue advantage of the knowledge they have acquired of pending applications in their capacity of Examiners or officials.

2. SAME—SAME.

The reason of the statute which prohibits an officer or an employee of the Patent Office from acquiring either directly or indirectly *any interest* in a patent issued would seem by fair intendment to prohibit him from filing an application for the interest he is not permitted to acquire. The application is the evidence of an inchoate right to a patent, and the ownership becomes complete when the patent is issued.

3. SAME—SAME.

To construe the statute to allow an employee of the Patent Office to file an application would obviously permit, if in fact it did not encourage, the very mischief the statute was clearly intended to prevent, as Examiners might make some slight improvement or modification in inventions covered by applications pending before them for examination and file an application, change or modify it from time to time, negotiate the sale of the whole or a part interest in the invention or application or the patent to be predicated thereon, and resign and prosecute the case and take a patent whenever such course seemed to offer greater pecuniary advantages than to remain in the Office, and thus the Office might become freighted with applications filed by Examiners or other employees in contravention of the spirit if not the strict letter of the statute, and thus become a prolific source of scandal.

4. SAME—SAME—STRIKING APPLICATION FROM THE FILES—RETURNING FEE.

An application filed by an employee of the Patent Office ordered to be stricken from the files and the fee returned, as under section 480, Revised Statutes, it is not competent for an inventor to file an application for a patent while he is such an employee. He may file his application, however, after he has severed his connection with the Office.

REFERENCE for instructions by Examiner.

VOTING-MACHINES.

Application of John Howard McElroy, No. 594,187, filed without fee February 15, 1895. Fee paid June 3, 1896.

BUTTERWORTH, *Commissioner:*

This case comes before me by reference of the Examiner for instructions, who reports the following facts:

The applicant, John H. McElroy, while an Assistant Examiner in this Office examining in the class of voting-machines, filed this application complete in all its parts on February 15, 1895. On June 2, 1896, he resigned his position and on the day following paid the Government fee of fifteen dollars to secure the examination of his application, which application presents an invention claimed to be an improvement on a voting-machine for which other joint applicants had filed an application which was before Mr. McElroy for examination and action while he had charge of that class in this Office. This earlier application is still pending.

Acting under instructions the Examiner states that on August 5, 1896, and on December 23, 1896, he rejected the claims on reference to the pending applications of other applicants and also in view of the provisions of section 480 of the Revised Statutes, which is as follows:

All officers and employees of the Patent Office shall be incapable, during the period for which they hold their appointments, to acquire or take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by the Office.

A case on all fours with this was before me on February 5, 1884, (26 O. G., 337,) in which I held that in view of the statute above quoted it was not competent for an employee of the Office to file an application for a patent while he was employed in the Patent Office.

The reason for not permitting this to be done has special force in the case of an Examiner who seeks to file an application covering an improvement on an invention disclosed in some pending application of which he, as such Examiner, has charge or may have charge, and the objection derives additional force from the fact that his application, if filed, would or might be referred to the division in which he is employed as an Examiner.

In the case mentioned I directed that the application then under consideration be stricken from the files and returned to the applicant and that the fee be returned to him.

Notwithstanding this decision it seems that it is not wholly exceptional in the Office for Examiners to file applications which are properly referable for examination to the division in which they are employed.

But whether an application so filed is properly referable to the division where the applicant is employed as an Examiner makes no difference in the conclusion I reach.

Whether the former decision was right depends

upon the proper construction of section 480 of the Revised Statutes hereinbefore quoted.

The question is whether the spirit and intent of the statute is intended to reach and embrace *only* an interest in a patent that has actually been issued.

I do not so construe the statute. To so construe it would be to defeat in a large measure, if not wholly, the obvious purpose and intention of Congress, which was and is to prevent persons employed in the Patent Office from improperly utilizing their knowledge of the inventions of others, acquired as a result of their official connection with the Patent Office, and from utilizing the opportunities they have, as a result of their employment, to become rivals or competitors of inventors whose applications they have before them for examination, or in any wise to take undue advantage of the knowledge they have acquired of pending applications in their capacity of Examiners or officials.

The statute provides what steps shall be taken in order to entitle an applicant to a patent. In a nut-shell, the application must disclose what the invention is and the mode of its operation; that the applicant believes himself to be the first inventor; that the invention has not to the best of his knowledge been in public use during a certain period, and he must clearly point out what he claims as new and patentable, etc., and if the allegations of the application are found to be true and the invention is deemed to be sufficiently useful a patent shall issue to the applicant.

The application when so filed may be said to have established for the applicant an inchoate right to a patent for the invention, and the applicant from the date of filing said application certainly has an interest in any patent that may be predicated on said application. The issuance of the patent is but the assertion or confirming of that right by formal Letters Patent.

The reason of the statute which prohibits an officer or an employee of the Patent Office from acquiring either directly or indirectly *any interest* in a patent issued would seem by fair intendment to prohibit him from filing an application for the interest he is not permitted to acquire. The application is the evidence of an inchoate right to a patent, and the ownership becomes complete when the patent is issued.

Any other construction would obviously permit, if in fact it did not encourage, the very mischief the statute was clearly intended to prevent, as Examiners might make some slight improvement or modification in inventions covered by applications pending before them for examination and file an application, change or modify it from time to time, negotiate the sale of the whole or a part interest in the invention or application or the patent to be predicated thereon, and resign and prosecute the case and take a patent whenever such course seemed to offer greater pecuniary advantages than to remain in the Office, and thus the Office might become freighted with applications filed by Examiners or other employees in contravention of the spirit if not the strict letter of the statute, and thus become a prolific source of scandal.

In my judgment the construction I give to the statute is necessary in order to give force and effect to the obvious intent and purpose of the law and to avoid scandals which would be injurious if not ruinous to the integrity of the Office. Nor does this construction do violence to the letter while enforcing the spirit of the statute.

I adhere to the former ruling and direct that the application under consideration be stricken from the files and the fee returned to the applicant. He may of course file his application now that he has severed his connection with the Office, but it was originally filed in violation of the statute and cannot be recognized in pursuance of such filing as a pending application.

PAINTER *v.* HALL.

Decided August 6, 1897.

1. INTERFERENCE—MOTION TO DISSOLVE—EX PARTE AND INTER PARTES QUESTION.

Rule 122 provides for motions to dissolve an interference on the ground of non-patentability, although this question had been favorably decided in an *ex parte* proceeding by the Examiner or one of the appellate tribunals. On a motion to dissolve the question is considered and decided *de novo inter partes*.

2. SAME—SAME—WEIGHT TO BE GIVEN TO DECISION OF EXAMINERS-IN-CHIEF.

In an *inter partes* case the Examiner is not precluded by the decision of the Examiners-in-Chief in an *ex parte* case, although said decision should be very persuasive, though not conclusive. To hold otherwise would be to deprive a party of his rights and benefits under Rule 122.

3. SAME—SAME—SAME.

The Primary Examiner may not, as a matter of course, ignore the decision of the higher tribunals simply because the question is before him in a proceeding *inter partes*, whereas it was before the appellate tribunal in a proceeding *ex parte*. It is not to be presumed nor would it be tolerable for a Primary Examiner to disregard the decision of the appellate tribunal where the decision of the higher tribunal is binding under the settled rules of decision.

4. SAME—SAME—SAME—SCOPE OF EXAMINER'S DECISION.

The Primary Examiner in his decision in an *inter partes* proceeding should state the reasons why in his opinion the decision of the higher tribunal in the *ex parte* case should not be followed in the *inter partes* proceeding.

5. SAME—SAME—QUESTION OF PATENTABILITY—RES ADJUDICATA.

The question of patentability decided *ex parte* cannot be said to be *res adjudicata* when raised *inter partes*. To make the matter *res adjudicata*, there must be concurrence of four conditions—identity in the thing sued for, of a cause of action, of the parties to the action, and of the quality in the persons. In the matter under consideration the identity of parties is lacking.

ON motion.

BOTTLE-STOPPERS.

Reissue application of William Painter filed December 26, 1895, No. 573,419. Patent granted Robert A. Hall June 18, 1895, No. 541,203.

Mr. Ellis Spear for Painter.

Messrs. Dodge & Sons for Hall.

BUTTERWORTH, *Commissioner:*

This is a motion by Painter to set aside the decision of the Primary Examiner, rendered May 17, 1897, dissolving the above-entitled interference.

The grounds for the motion are stated as follows:

First. "That said decision (of the Primary Examiner on the motion for dissolution) is in plain violation of law, as clearly apparent on the face of the decision, as manifest in" a quotation given therefrom.

Second. "That an appeal to the Board of Examiners-in-Chief until June 7, 1897, as provided in the said decision of the Primary Examiner upon the above-recited matter, is precluded to Painter by the judgment of the Examiner, inasmuch as that the Examiner has held in substance that he is not bound or controlled by the decisions of the Examiners-in-Chief 'to the contrary.'"

Third. "The specific ground of the Examiner's decision as above recited was *res adjudicata*, made so by the previous decisions of the Examiners-in-Chief and as admitted as a matter of fact by the Examiner, and such previous judgment of said Examiners-in-Chief was controlling as a matter of law upon the Examiner as well as upon the parties to this interference."

Fourth. "The action of the Primary Examiner as above set forth was an abuse of discretion as provided against by Rule 65."

From the record of the case it appears that on October 12, 1895, Painter filed an application, the claims of which were rejected on the same references that are now brought forward by Hall to support his motion for dissolution. Certain claims of this application were allowed by the Examiners-in-Chief on appeal, and a patent issued on May 28, 1895. Prior to this date Hall filed an application which became a patent June 18, 1895. A reissue patent was applied for by Painter on December 26, 1895, containing the claims of his original patent, together with certain other claims. The Examiner rejected the new claims as covering new matter and as being anticipated by the old references. The old claims were also rejected on the references over which they had been allowed in the original patent by the Examiners-in-Chief. The rejected claims were appealed and allowed by the Examiners-in-Chief October 26, 1896. Thereupon this interference was declared November 5, 1896.

On January 2, 1897, Hall made a motion to dissolve this interference, for the reasons that—

"First. There has been such irregularity in declaring the interference as to preclude a proper determination of the question of priority.

"Second. The issue is not patentable to Painter.

"Third. Painter has no right to make the claim in issue."

The Examiner refused to dissolve the interference on the first ground, but dissolved it on the second and third grounds of Hall's motion.

The grounds on which the interference was dissolved clearly involved the merits of the invention, which, under the rules and practice of the Office, are appealable only to the Examiners-in-Chief in the first instance, and the motion may be dismissed for that reason.

Before dismissing the motion, however, it may be well to pass upon the points raised by the motion. After a careful review of the case it is thought that the Examiner has not violated the law, nor was his action in dissolving the interference an abuse of discretion provided against by Rule 65. It is true that the references on which the Examiner based his decision dissolving the interference were before him and the Examiners-in-Chief in the *ex parte* treatment of Painter's case; but in an *inter partes* case the Examiner is not precluded by the decision of the Examiners-in-Chief, although said decision should be very persuasive, though not conclusive. To hold otherwise would be to deprive a party of his rights and benefits under Rule 47 (old Rule 122)—in effect, to annul said rule. This rule provides for motions to dissolve an interference on the ground of non-patentability, although this question had been favorably decided in an *ex parte* proceeding either by the Examiner or by one of the appellate tribunals. On a motion to dissolve the question is considered and decided *de novo inter partes*. If the decision of the Primary Examiner is adverse to patentability, Rule 67 provides for an appeal *inter partes*. While the question of patentability may be decided favorably when it is considered *ex parte*, yet on an *inter partes* hearing it may be shown to the satisfaction of the tribunal that the decision was erroneous, and it would be reversed.

The question of patentability decided *ex parte* cannot, therefore, be said to be *res adjudicata* when raised *inter partes*. To make the matter *res adjudicata*, there must be concurrence of four conditions—identity in the thing sued for, of a cause of action, of the parties to the action, and of the quality in the persons. In the matter under consideration the identity of parties is lacking.

The motion is dismissed.

NOTE.—It is not intended by this decision to hold that the Primary Examiner may, as a matter of course, ignore the decision of the higher tribunals simply because the question is before him in a proceeding *inter partes*, whereas it was before the appellate tribunal in a proceeding *ex parte*. It is not to be presumed nor would it be tolerable for a Primary Examiner to disregard the decision of the appellate tribunal where the decision of the higher tribunal is binding under the settled rules of decision; but the case at bar is not such a case, and it is repeated that because in one case the question was presented *ex parte* and in the other *inter partes* the Examiner would be authorized to exercise his best judgment and decide accordingly; but in making his decision he should state the reasons why in his opinion the decision of the higher tribunal in the *ex parte* case should not be followed in the *inter partes* proceeding. Any abuse of the right to rehear the case which obviously degenerated into an offensive disregard of the decision of the higher tribunal would be met, not by denying the right, but by preventing the abuse.

EX PARTE GRIFFITH.

Decided July 27, 1897.

FINAL FEES—CERTIFICATE OF DEPOSIT, TIME OF FORWARDING TO PATENT OFFICE.

Rule 207 of Rules of Practice, approved June 18, 1897, which requires that a certificate of deposit shall, in case of payment of a final fee, be deposited in the mail for transmission to the Patent Office within six months from the allowance of the application, should not be held to apply to certificates of deposit issued prior to the approval of the rule, provided they are forwarded to the Patent Office within a reasonable time after the publishing of said rule. Certificates forwarded more than thirty days after the date of this decision will not be received.

ON petition.

BALANCED SLIDE-VALVE.

Application of Isaac C. Griffith filed March 4, 1896, No. 581,836.

Messrs. Munn & Co. for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition asking that a certificate of deposit be received as payment of the final fee in the above-entitled application.

This application was allowed on April 30, 1896, and on the last day of the six months allowed by statute for the payment of the final fee the applicant paid such fee to the Assistant Treasurer of the United States and received from him a certificate of deposit. This, under sections 4934 and 4935 of the Revised Statutes, was a proper payment of the fee within the time and at a place designated by law. The certificate of deposit was returned by the Office, however, and not received as payment of the final fee for the reason that it was not forwarded promptly after being received by the applicant.

The certificate bears upon its face the words:

This will be forwarded by the first mail by the depositor to the Commissioner of Patents.

It was not so forwarded, however, but was retained in the possession of the applicant until July 16, 1897, when it was paid into this Office.

The Rules of Practice in force up to February 9, 1897, required that when fees were paid to any of the officers designated in section 4935, Revised Statutes, and a certificate of deposit given by any such officer the certificate should be transmitted to the Patent Office, but failed to set any limit upon the time within which it should be transmitted.

The Rules of Practice in force from February 9, 1897, to June 18, 1897, were not more specific as to this matter. Under those rules it has for many years been the practice in the Patent Office to receive these certificates at any time, however long after the expiration of the six months prescribed by statute within which the patent shall issue after the application is allowed. See the decision of the Secretary of the Interior in *ex parte Wiegand*, (56 O. G., 808.)

The present rules do not permit this practice, but it is required in Rule 207 that the certificate of deposit be deposited in the mail for transmission to the Patent Office within six months from the allowance of the application. This rule does not interfere with the right given an applicant by the statute of paying patent fees to the officers designated in section 4935 at any time within the period fixed by law, but prevents the abuse of this privilege by requiring that the certificate of deposit shall be promptly forwarded to the Patent Office.

The Rules of Practice containing the above-noted rule were approved on June 18, 1897, but were not published in full until July 8, 1897. The rule under consideration should not be held to apply to certificates of deposit issued prior to the approval of the rule, provided they are forwarded to the Patent Office within a reasonable time after the publishing of these rules. No certificates of deposit made under the former rules will be received as filed within a reasonable time if filed more than thirty days after the date of this decision.

In the present case the certificate of deposit was received by the Patent Office within ten days after the rules were published.

I have therefore given directions that this certificate be received.

The petition is granted.

EX PARTE HAGGARD.

Decided July 9, 1897.

DESIGN—TWO DISTINCT ARTICLES—DIVISION.

Where applicant presents two distinct articles of manufacture—a cradle-supporting frame and a cradle-body—and claims them as such, *Held* that the application should be restricted to one or the other of these two designs. (*Ex parte Patitz*, C. D., 1883, 101, and *ex parte Brower*, C. D., 1878, 151, followed.)

ON rehearing.

DESIGN FOR CRADLE-SUPPORTING FRAME AND CRADLE-BODY.

Application of Ries W. Haggard for design filed January 29, 1897, No. 621,243.

Messrs. C. A. Snow & Co. for the applicant.

GREELEY, *Acting Commissioner:*

This application presents two distinct articles of manufacture—a cradle-supporting frame and a cradle-body. They are, as shown, movably connected together, the cradle-body swinging in the frame. Distinct claims are presented for the design for the cradle-supporting frame and for the design for the cradle-body. The Examiner has required that the application be restricted to one or the other of these two designs.

While claims for a design and for a distinctive segregable portion of the design have been permitted to be made in one application, I am not aware that two separate designs have ever been permitted in one application. The requirement of the Examiner is clearly right under the practice as laid down in *ex parte Patitz*, (25 O. G., 980; C. D., 1883, 101,) which followed *ex parte Brower*, (C. D., 1878, 151.)

The decision of the former Assistant Commissioner granting this petition is set aside and the petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

DUNBAR *et al. v.* EASTERN ELEVATING COMPANY *et al.*

Decided May 26, 1897.

1. DUNBAR—PORTABLE ELEVATOR—INVALID.

Reissued Letters Patent No. 10,521, granted September 16, 1884, to Robert Dunbar, for a portable elevator adapted for use, in connection with an ordinary grain-elevator, for unloading grain from vessels, *Held* to be void for want of novelty, the improvement being within the range of ordinary mechanical skill. (76 O. G., 788, reversed.)

2. INVENTION—CONGREGATION OF DEVICES—NEW LOCATION—DOUBLE USE.

The circumstance that the same congregation of devices has never been assembled in a new location is not controlling and is often of little value in determining the question of patentable novelty. Their assemblage may be nothing but another instance of a double use, and when they require special adaptation to the new arrangement and occasion it still remains to inquire whether this has required invention.

APPEAL from the Circuit Court of the United States for the Northern District of New York.

Before WALLACE, LACOMBE, and SHIPMAN, Judges.

Mr. George L. Lewis and *Mr. Edmund Wetmore* for the appellants.

Messrs. Rogers, Locke & Milburn for the appellees.

WALLACE, *J.:*

This appeal presents the question of the patentable novelty of the apparatus described and claimed in reissued Letters Patent No. 10,521, dated September 16, 1884, to Robert Dunbar. The subject of the patent is a portable elevator adapted for use, in connection with an ordinary grain-elevator, for unloading grain from vessels. The ordinary grain-elevator is a warehouse having a tower equipped with a leg carrying an endless chain and buckets, an engine, and other connections for raising the grain from the hold of the vessel or other receptacle to the upper part of the warehouse. The leg is constructed to swing out at the bottom at a greater or less angle and to be lowered so that the buckets as they are carried around the endless chain dip into the grain and carry it up to any desired height. As the buckets turn over at the top they empty the grain into any desired hopper or receptacle, from which it is distributed by troughs or other devices into the various parts of the storehouse. When thus constructed, it was necessary to bring the hatch of the vessel to be discharged to the leg, and when the grain was discharged from one hatch it was necessary to move the vessel to bring the other hatch to the leg. Dunbar conceived the idea of making an accessory elevator which could be moved so as to reach the different hatches of the vessel and discharge the grain into the warehouse. By using such a contrivance it would be unnecessary to move the vessel and both hatches could be discharged, if desirable, at the same time.

The patent describes the ordinary grain elevator or tower, with apparatus for transferring the grain to the warehouse, "constructed and arranged in the ordinary way." The portable elevator-tower, as described, is the ordinary elevator placed upon wheels and a track and equipped with devices for moving it along the front of the warehouse in order to place it in the desired position opposite the hatch of the vessel and with devices for fastening it to the building. The devices for moving the tower over the track consist of a chain or cable anchored at both ends and connected with the drum of a windlass rotated by worm-gear, so that upon turning the windlass one part of the chain is wound upon the drum and the other part is paid out. Those for fastening it to the building consist of two cables or guy-ropes extending from the upper part of the warehouse to one of the upper floors of the tower and passing downward over pulleys to the drum of a windlass on one of the lower floors of the tower. The windlass by which the guy-ropes are paid out or tightened is described as being similar to that which is used for moving the tower. The building is provided with a trough, extending horizontally along its front, to receive the grain from the portable elevator at any desired point.

At the time of the alleged invention portable elevators were old and were of many varieties. One form of such elevators is shown in the patent to Walsh of August 20, 1878, arranged for taking the grain from the hold of a canal-boat or vessel and elevating it into a loft in a store-room or transferring it into the hold of another vessel. They were old when supported on flanged wheels and moved upon a track. The patent to Sykes of October 12, 1869, describes one for transferring grain arranged upon truck-wheels, so that it may be moved on a track of a railroad and the grain elevated from one receptacle and transferred to another. Another form is described in the patent to Mennell of January 11, 1881, for transferring coal from holds of vessels and discharging the same into cars, barges, or other receptacles, the frame of which is provided with wheels and adapted to run on a track. The mechanism for moving large structures was old and had been employed in analogous structures. The English patent to Curtiss of January 21, 1853, shows a portable structure for elevating earth in the same way that grain is elevated, the structure being supported on wheels moving on rails and being moved backward and forward by apparatus substantially the same as that described in the patent in suit—the ordinary windlass engaging with a cable anchored at each end. Dunbar contemplated making his portable elevator a high one, capable of emptying its contents into one of the stories of the many-storied grain-elevators of Buffalo, but the patent is not limited to such an elevator. The descriptive parts and some of the claims, though more directly addressed to such an elevator, are applicable to one of any height or size. When the elevator is not a high one, the devices for securing it to the main building could be dispensed with,

and if any at all should be needed those of the simplest kind could be used to tie the two structures together.

In the claims of the patent the portable elevator is named as an "elevator-tower," but the structure is termed in the description "an elevator or elevator-tower," and both terms mean the same thing. The claims are as follows:

1. In an elevator-tower, the combination of the mechanism, substantially as described, for moving it horizontally back and forth, with the gearing N, drums N', and cables O, for securing it at any point to which it may be moved.
2. A movable and adjustable elevator-tower arranged upon wheels, and provided with the cables O, gearing and drums or pulleys N N', and a grain-spout, R, in combination with a main stationary elevator-building, R', having a long horizontally-arranged trough, S, to receive the grain from any point to which the elevator-tower may be adjusted.
3. The combination of the main stationary elevator, and the movable elevator-tower A, having wheels adapted to tracks in front of the main building, substantially as specified, whereby two elevators may be operated at the same time, so that a stationary elevator may be used in one hatch, while the movable elevator may be adjusted to operate in another hatch, substantially as specified.
4. The combination of a movable elevator-tower having wheels adapted to tracks, with a rope or chain, G G', anchored at both ends, and passing around a drum or pulley, and with gearing through the medium of which the said drum may be rotated, substantially as set forth.
5. The combination of the stationary elevator R', a movable elevator-tower, ropes or cables connecting the two, and mechanism as shown, whereby said ropes may be tightened and loosened, all substantially as described.

Concededly Dunbar is entitled to the credit of originating the conception of using a second elevator as an adjunct of the ordinary grain-elevator, which could be moved so as to reach the different hatches of the vessel and discharge into the main elevator; but his right to a patent cannot rest upon this conception alone. It must rest upon the novelty of the means which he contrived to embody the conception and to carry it into practical application. He effected a new organization of a portable elevator; but if this did not involve invention, but was that which could have been done by the skilled mechanic by selecting known devices, applying them to their appropriate uses, and introducing such modifications of detail to fit them for the new environment as would be dictated by experience and good judgment, the patent cannot be sustained.

It is manifest from what has been said of the prior state of the art that what Dunbar did was to adapt well-known devices to the special purpose to which he contemplated their application. The elevator, with all its equipment for reaching, raising, and transferring grain, was at hand. Various forms of portable elevators carried by wheels and moved upon tracks were at hand. To adapt his elevator to the new occasion, it was necessary that a track should be located in such relation to the warehouse that the elevator could be moved upon it back and forth to reach vessels lying at the dock and discharge their contents into the warehouse. The devices known to builders and in common use for moving similar structures were at hand, and it was only necessary for him to select them with reference to the particular structure to be moved. It was necessary to select a more powerful windlass and a stronger cable if he proposed to move an elevator of large size and weight than would be required to move one of smaller size and weight. It was necessary that appropriate fastening devices should be selected to secure the elevator to the warehouse when doing its work of discharging from the vessel, and these were at hand in great variety of forms. It was also necessary that a receptacle for the grain at the warehouse should be provided which could be reached by the discharging-spout of the elevator.

We are unable to doubt that all these things were within the range of ordinary mechanical skill, and that they could have been suggested and constructed by any competent builder, and that what Dunbar did was merely to exercise the common skill of the calling in locating his track and selecting his moving and fastening devices and in arranging the proportions and subsidiary features of his portable elevator to correspond with those of the warehouse. The fastening devices which he employed have no special novelty, if, indeed, they are of any utility except when the movable elevator is a tall one. Hooks would have answered as well, and upon the tall elevator of the defendants hooks are used. Any intelligent man would have known that if a tall elevator were to be used it would be expedient to attach the structures together at the upper part. The trough which he placed along the front of the warehouse was the receptacle most obviously convenient and in common use in the grain-elevators for distributing the grain to different parts of a building. It certainly did not involve inventive skill to place it on the outside of the building, within reach of the spout of the portable elevator.

We are not unmindful of the advantages which have resulted from the new organization of the elevator described in the patent, but we are unable to doubt that the improvements of Dunbar were but the work of an intelligent builder. When in the evolution of grain-elevator construction their desirability became manifest, it did not require genius or inventive faculty to create them. As was said in *Atlantic Works* v. *Brady*, (23 O. G., 1330; 107 U. S., 192; 2 Sup. Ct., 225,) the process of development—

> creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development.

The learned judge who decided the cause in the court below said:

> Unquestionably, the methods adopted by the inventor to carry out his conception, considered separately, were old, but the combinations were new. Wheels, tracks, spouts, windlasses, troughs, and guy-ropes were undoubtedly well known, but no one had ever assembled them in congeries producing a movable elevator-tower.

The circumstance that the same congregation of devices has never been assembled in a new location is not controlling and is often of little value in determining the question of patentable novelty. Their assemblage may be nothing but another instance of a double use, and when they require special adaptation to the new arrangement and occasion it still remains to inquire whether this has required invention.

> It rarely happens that old instrumentalities are so perfectly adapted for a use for which they were not originally intended as not to require any alteration or modification. If these changes involve only the exercise of ordinary mechanical skill, they do not sanction the patent, and in most of the adjudged cases where it has been held that the application of old devices to a new use was not patentable there were changes of form, proportion, or organization of this character which were necessary to accommodate them to the new occasion. (*Aron* v. *Railway Co.*, 49 O. G., 1365; 132 U. S., 90; 10 Sup. Ct., 24.)

We conclude that the patent is void for want of novelty and that the decree should be reversed, with costs, and with directions to dismiss the bill.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 8. TUESDAY, AUGUST 24, 1897. PRICE—$5 per year.

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Applications by Employees of the Patent Office.

(ORDER No. 1,144.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision of even date herewith in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

BENJ. BUTTERWORTH,
Commissioner.

Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Order in Relation to Drawings and Blue-Prints.

(ORDER No. 1,135.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 12, 1897.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

BENJ. BUTTERWORTH,
Commissioner.

Patents to Assignees.

RULE 201. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of August 24, 1897.

Patents	391—	No. 588,547 to No. 588,937, inclusive.
Designs	26—	No. 27,556 to No. 27,581, inclusive.
Trade-Marks	22—	No. 30,505 to No. 30,526, inclusive.
Labels	None.	
Prints	None.	
Reissues	1—	No. 11,627.
Total issue	440	

CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	.....	New Hampshire	1	1
Arizona Territory	.....	.....	New Jersey	15	.....
Arkansas	1	.....	New Mexico Territ'y	.....	.....
California	11	.....	New York	57	8
Colorado	3	.....	North Carolina	.....	.....
Connecticut	19	.....	North Dakota	1	.....
Delaware	1	.....	Ohio	23	.....
District of Columbia	4	.....	Oklahoma Territory	.....	.....
Florida	2	.....	Oregon	2	.....
Georgia	3	.....	Pennsylvania	47	5
Idaho	1	.....	Rhode Island	5	.....
Illinois	38	1	South Carolina	.....	.....
Indian Territory	1	.....	South Dakota	1	.....
Indiana	7	1	Tennessee	2	.....
Iowa	2	.....	Texas	11	.....
Kansas	5	.....	Utah	.....	.....
Kentucky	7	.....	Vermont	2	.....
Louisiana	2	.....	Virginia	4	.....
Maine	.....	2	Washington	2	.....
Maryland	7	.....	West Virginia	1	.....
Massachusetts	39	1	Wisconsin	5	.....
Michigan	14	.....	Wyoming	.....	.....
Minnesota	7	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	16	1			
Montana	2	.....	Total to citizens of the United States	375	20
Nebraska	1	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	1	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	1	.....
Belgium	1	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Portugal	.....	.....
Canada	7	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	1	.....
Chile, Republic of	.....	.....	Russia	.....	.....
China	.....	.....	Scotland	.....	.....
Colombia	.....	.....	South African Republic	.....	.....
Cuba	.....	.....	South Australia	.....	.....
Denmark	.....	.....	Straits Settlements	.....	.....
Egypt	.....	.....	Sweden	1	.....
England	16	1	Switzerland	.....	.....
Finland	.....	.....	Victoria	.....	.....
France	4	.....	West Australia	.....	.....
Germany	7	1			
Hawaii	.....	.....			
Ireland	1	.....	Total to citizens of foreign countries	42	2
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

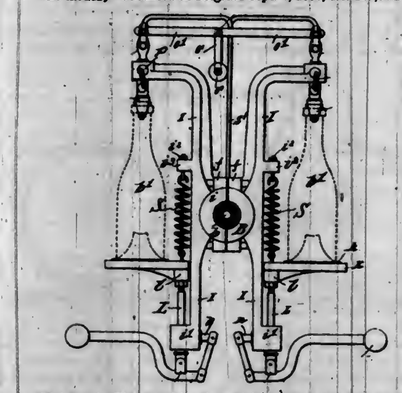
Condition at Close of Business August 17, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 19	July 29	99
106	II. Farm Stock, Products, etc.	July 17	July 28	268
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	July 17	July 19	145
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 14	July 31	207
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 21	July 31	220
255	XII. Mechanical Engineering, Store-Service, etc.	June 21	July 28	211
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 28	July 26	207
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	June 19	July 26	263
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 28	July 23	201
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	July 7	July 21	242
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	June 28	July 20	250
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123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 17	July 17	163
250	VIII. Furniture, Beds, Store Furniture, etc.	June 28	July 10	474
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 9	208
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105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	June 14	950
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	Under one month in arrears.			
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	Between one and two months.			
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PATENTS

GRANTED AUGUST 24, 1897.

588,547. GARNYING APPARATUS FOR WIRES. CAMILLE ARETS, Yeghem, Belgium. Filed Mar. 6, 1897. Serial No. 626,177. (No model.) Patented in Belgium Sept. 7, 1896, No. 123,374.



Claim.—1. The combination with a revoluble shaft having an axial gas passage, bottle-carriers detachably connected with and arranged in pairs on opposite sides of said shaft, said carriers bent outwardly and provided with a cross-head at one end, stoppers fitted to said cross-heads, and gas-passages leading from the cross-heads through the respective stoppers; of a detachable valved pipe for each cross-head, in communication with the gas-passage therein and with the like passage in the shaft, for the purpose set forth.

2. The combination with a revoluble shaft having an axial gas-passage, bottle-carriers detachably connected with and arranged in pairs on opposite sides of said shaft, said carriers bent outwardly and provided with a cross-head at one end, stoppers fitted to said cross-heads, and gas-passages leading from the cross-heads through the respective stoppers; of a detachable valved pipe for each cross-head, in communication with the gas-passage therein and with the like passage in the shaft, and means for operating the valves of said pipes simultaneously for the purpose set forth.

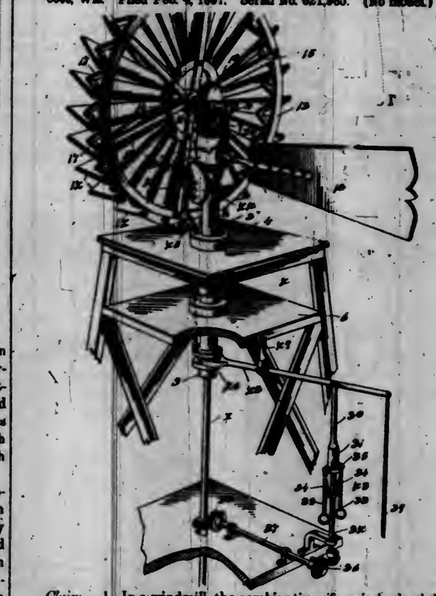
3. A bottle-carrier for the purpose set forth comprising a frame adapted to be secured to a revoluble shaft, a cross-head at its upper end provided with a pair of stoppers and a gas-duct and connections between said duct and the stoppers, spring-held supports for holding the bottles against their stoppers, and levers for lowering the supports, substantially as described.

4. The combination of a revoluble shaft provided with an internal gas-passage connectible with a source of gas-supply, with two bottle-carriers secured in pairs on said shaft, each carrier provided with two bottle-supports, with a cross-head above said supports having an internal gas-passage, two cork-holders provided with a gas-outlet in communication with said gas-passage, and a pipe connection between the last-named passage and the passage in the shaft, said carrier and pipe connections detachable from said shaft, for the purpose set forth.

5. The combination with a revoluble shaft, of a bottle-carrier I composed of two frames provided about their longitudinal center with semicircular bearings for said shaft and with suitable bolt-flanges for securing said frames to the shaft, substantially as described.

6. The combination of a revoluble shaft provided with an internal gas passage connectible with a source of gas-supply, bottle-carriers mounted on said shaft provided with gas-ducts, pipe connections between the said ducts and hollow shaft, valves for said pipe connections adapted to be operated simultaneously by link connections with a common shaf, and a valved pipe on the revoluble shaft for the collection and expulsion of the air driven from the bottles during charging, substantially as described.

588,548. WINDMILL-REGULATOR. HENRY BARTHELS, Michicott, Wis. Filed Feb. 4, 1897. Serial No. 621,985. (No model.)



Claim.—1. In a windmill, the combination of a wind-wheel shaft, a wind-wheel, a vane provided with a gear and hinged by the same, a governor, a vertical gear meshing with the said gear, and gearing connecting the governor with the wind-wheel and with the vertical gear, whereby the vane will be automatically turned to regulate the speed of the wind-wheel, substantially as described.

2. In a windmill, the combination of a tower, a wind-wheel, a gear-wheel mounted on the wind-wheel shaft, a vertical main shaft provided at its upper end with a pinion meshing with the said gear-wheel, a hinged vane provided with a gear, a sliding sleeve capable of movement vertically of the main shaft, a gear-wheel connected with the sliding sleeve and meshing with the gear of the vane, and a governor having outwardly-swinging arms, connected with the sliding sleeve and adapted to raise and lower the same to swing the vane, said governor being rotated by the main shaft, substantially as described.

3. In a windmill, the combination of a tower, a bearing-tube mounted on the tower, a wind-wheel carried by the bearing-tube, a vertical shaft arranged within the bearing-tube, gearing connecting the wind-wheel shaft and the vertical shaft, a vane provided with a toothed sleeve arranged on the tube, a gear-wheel journaled on the tube and meshing with the sleeve, a sliding sleeve mounted on the lower end of the tube, a connecting-rod extending from the sliding sleeve to the said gear-wheel, and a centrifugal governor rotated by the main shaft and connected with the sliding sleeve, substantially as and for the purpose described.

4. In a windmill, the combination of a wind-wheel shaft, a hinged vane provided with a gear, a main shaft connected with and rotated

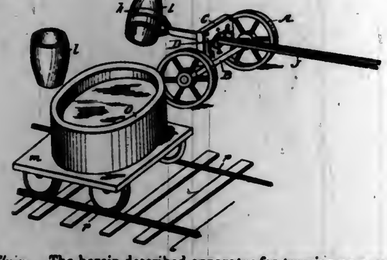
by the wind-wheel shaft, a gear-wheel meshing with the gear of the vane, a shifting-lever connected with and adapted to operate the gear-wheel, a vertical shaft 32, gearing connecting the vertical shaft with the main shaft, a rod extending from the shifting-lever to the shaft 32 and slidingly connected with the latter, and a governor having arms fulcrumed on the shaft 32, connected with the rod and adapted to raise and lower the shifting-lever, substantially as described.

5. In a windmill, the combination of a wind-wheel shaft, a hinged vane provided with a gear, a vertical shaft connected with and rotated by the wind-wheel shaft, a vertical gear-wheel meshing with the gear of the vane, a shifting-lever connected with and adapted to swing the vane, and rotary centrifugal governor connected with the shifting-lever, and gearing connecting the rotary governor with the main shaft, substantially as described.

6. In a windmill, the combination of a vertical bearing-tube, a wind-wheel shaft, a vane provided with a horizontal gear mounted on the vertical tube and hinging the vane to the same, a vertical gear-wheel meshing with the gear of the vane, a vertically-reciprocating rod connected with the vertical gear, a governor connected with and operating the said rod, and gearing connecting the governor and the wind-wheel shaft, substantially as described.

7. In a windmill, the combination of a wind-wheel shaft, a hinged vane, a vertical main shaft connected with and rotated by the wind-wheel shaft, a shifting-lever connected with the vane, the rod 30 connected at its upper end to the shifting-lever and provided at its lower end with a tubular portion, the vertical shaft 32 having its upper end arranged within the tubular portion of the rod 30, links connected with the shaft 32, governor arms fulcrumed on the links and connected with the lower end of the rod 30, and a gear connecting the shaft 32 with the main shaft, substantially as described.

588,549. APPARATUS FOR POURING MOLTEN IRON OR STEEL. GEORGE W. BIERER, Allegheny, Pa., assignor of one-half to John R. Bowers, Pittsburg, Pa. Filed Dec. 2, 1896. Serial No. 614,240. (No model.)



Claim.—The herein-described apparatus for teeming or pouring out the molten contents of crucibles, consisting of an axle mounted upon wheels, a box-shaped frame attached to the axle, a rotary disk or bearing within said frame, friction-rollers carrying said disk, and suitably-constructed tongs, pivoted in said disk whereby the same may be moved in any desired direction, all arranged and combined for service as hereinbefore specified and set forth.

588,550. ALARM-CLOCK. JOHN W. BREWSTER, Union Cross-Roads, Tenn. Filed Jan. 9, 1897. Serial No. 618,587. (No model.)



Claim.—1. An attachment for clocks, comprising a suitable base or frame, a bell mounted thereon, a rock-shaft, an arm extending therefrom and carrying the bell-hammer, a second arm connected to said rock-shaft for operating it, a spring for giving the bell-hammer a normal tendency, and a spring-actuated lever fulcrumed intermediate its ends and provided at one end with a catch-lip engaging the operating-arm of the bell-hammer, the opposite end of said lever being adapted for engagement with the clock mechanism, substantially as described.

2. An attachment for clocks comprising a suitable base or frame, a bell mounted thereon, a rock-shaft, an arm projecting therefrom and carrying a bell-hammer, a second arm for operating said rock-shaft, a second rock-shaft, a lever secured intermediate its ends thereto and provided at one end with a lip for engaging the operating-arm of the bell-hammer and having its opposite end extended to be engaged by the clock mechanism, and a spring engaging said second rock-shaft for returning the lever to its normal position, substantially as described.

588,551. BICYCLE ATTACHMENT. WILLIAM P. BRODBECK, Gallatin, Mo. Filed Sept. 23, 1896. Serial No. 606,730. (No model.)



Claim.—1. The combination with the frame of a bicycle, of an attachment consisting of an upright post removably secured to the frame of the bicycle, a lateral arm 4 secured to said post and provided at its free end with a wheel, and brace-rods 5 and 6 secured at their outer ends to the outer end portions of said arm and removably secured at their inner ends to the frame of the bicycle, substantially as described.

2. A flanged wheel-tire consisting of a circular body portion having an interior curved seat to fit upon a curved tire or rim, outwardly-extending exterior flanges at the side edges of said body portion, a smooth and even tread between said flanges, and lacing devices secured to the interior of said tire adjacent to the seat thereof.

588,552. TRIPOD. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, of New York. Filed Apr. 5, 1897. Serial No. 630,604. (No model.)



Claim.—1. In a tripod-head, the combination with the base-plate, of the instrument-supporting plate rotatable thereon, the bolt extending through the two plates, movable longitudinally independently thereof, and positively connected to the supporting-plate to rotate therewith, said bolt having the threaded upper end and the head beneath the base-plate, substantially as described.

2. In a tripod-head, the combination with the base-plate having the central aperture and the downwardly-extending ears, of the supporting-plate having the irregular aperture, the bolt fitting said aperture and having the threaded upper end and the laterally-extended lower end engaging the under side of the base-plate, substantially as described.

3. In a tripod-head, the combination with the base-plate, having the aperture and the ears, the rotatable supporting-disk having the flange at the periphery and the irregular central aperture, the bolt having the threaded upper end, the irregular shank and the peforation at its lower end, and the pin extending through and fitting the aperture in the bolt and engaging the base-plate, substantially as described.

4. In a tripod-head, the combination with the stationary base-plate, and a rotatable instrument-supporting plate mounted upon the former, of a screw adapted to engage an instrument on the supporting-plate and frictionally engaging with the under side of the base-plate, said screw being movable longitudinally independently of the supporting-plate and positively connected to the latter to rotate therewith, substantially as described.

5. In a tripod-head, the combination with the base-plate, having the aperture, and a rotatable supporting-plate thereon, having the

irregular aperture, of the securing-bolt having the threaded upper end, the irregular shank fitting the aperture in the supporting-plate, and the laterally-extended lower head adapted to engage the base-plate, substantially as described.

588,553. SLEEVE-TABLET. FRANK A. CARLSON, Gainesville, Tex. Filed Apr. 30, 1896. Serial No. 589,719. (No model.)



Claim.—The herein-described sleeve-tablet consisting of a transversely-curved writing-plate provided with terminal integral split cylindrical sheaths capable of transverse expansion and contraction, means attached to the plate for securing the same to a sleeve, rotary drums removably fitted in said sheaths and each comprising a longitudinally-split centrally-expansible stem to the extremities of which are permanently attached heads of which one is of corresponding diameter with the bore of the sheath to adapt it to pass therethrough to facilitate introduction and removal, and the other head being of larger diameter and projecting beyond the extremity of the sheath to form a handhold, and means for engaging a circumferential groove in one of the heads of each drum to prevent accidental longitudinal displacement thereof, substantially as specified.

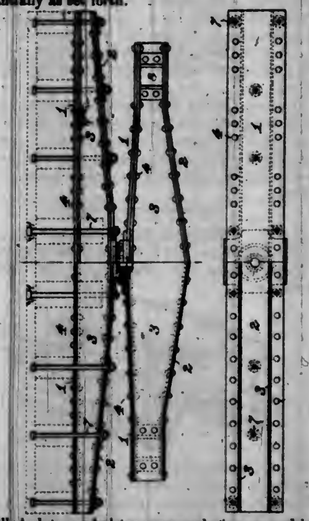
588,554. GRAVEL-COLTER ATTACHMENT FOR ROAD-GRADERS. WILLIAM L. CAVERLEY, Haw Creek, Mo. Filed June 10, 1896. Serial No. 595,041. (No model.)



Claim.—In a road-scraper, the combination of a beam, means for adjustably connecting the beam with the operating mechanism of the road-machine, a series of similarly-formed cutting-tools braced against the front side of the beam, and having their lower ends bent forward and their body portions of uniform dimensions throughout their length, and made thin and wide and wedge-shaped in cross-section, with their wider edges placed against the aforesaid beam, and clips having their side members diverging to conform to the inclined sides of the cutting-tools to grip them by a wedging action and admit of each having an independent vertical adjustment, substantially in the manner set forth for the purpose specified.

588,555. CAR-BOLSTER. JOHN W. CLOUD, Chicago, Ill. Filed Apr. 20, 1897. Serial No. 632,905. (No model.)

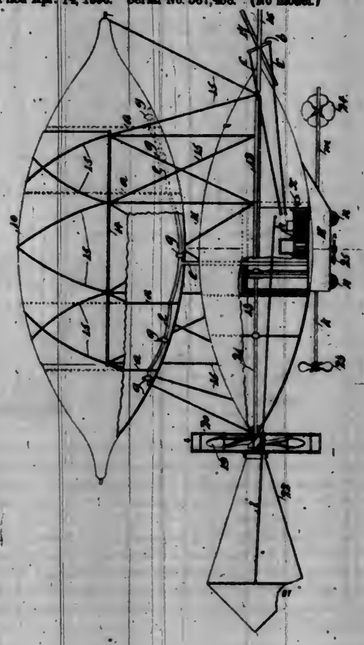
Claim.—1. A rolled-plate car-bolster composed of upper and lower plate members, and two interposed side members, forming a structure of box or tubular section from end to end, the side members being inclined from their middle portions toward their ends and provided with flanges connected by rivets to the upper and lower members, substantially as set forth.



2. A rolled-plate car-bolster composed of upper and lower plate members, and two interposed side members, which are substantially the same length as the upper and lower members and are inclined from their middle portions toward their ends and provided with flanges connected by rivets to the upper and lower members and openings in their webs on each side of their middle vertical plane for the passage of draft-timbers, substantially as set forth.

3. A rolled-plate car-bolster composed of upper and lower plate members having widened or laterally-extended central portions, and two interposed side members which are inclined from their middle portions toward their ends, and provided with flanges connected by rivets to the upper and lower members, and openings in their webs on each side of their middle vertical plane for the passage of draft-timbers, substantially as set forth.

588,556. AIR-SHIP. THOMAS M. CREPAR, Grand Rapids, Minn. Filed Apr. 14, 1896. Serial No. 587,436. (No model.)



Claim.—1. An air-ship having a gas-shell, an aeroplane running around the sides of the gas-shell, a cabin projecting upwardly from the bottom of the gas-shell and into the interior thereof, the cabin opening at the sides of the gas-shell and having a power-room beneath it, and propelling and controlling devices running from the cabin and power-room to the exterior parts of the shell, substantially as described.

2. An air-ship having a gas-shell, an aeroplane running around the sides of the gas-shell, a frame held at the front of the gas-shell and in horizontal alinement with the aeroplane, a rocking aeroplane mounted within the frame and coacting with the first-named aeroplane, and means for controlling the rocking aeroplane, substantially as described.

588,557. PNEUMATIC TIRE. WILLIAM I. DREIBACH, Williamsport, Pa., assignor to Jabin B. Baldwin, Doles S. Mahaffey, and Sarah K. Dreibach, same place. Filed July 11, 1896. Serial No. 598,862. (No model.)



Claim.—1. In a pneumatic tire, an outer case provided at one of its edges with a series of parallel longitudinal ribs arranged on the outer surface thereof, and a series of parallel longitudinal ribs at the opposite edge of said case arranged upon the inner surface thereof, the ribs upon the opposite edges being adapted to interlock, combined with a tape extending circumferentially around one of said edges for binding the same upon the rim, the said tape being capable of yielding sufficiently to permit the free edge of the outer case to be removably inserted between the bound edge and the rim and to be interlocked with said bound edge under the tape, substantially as described.

2. In a pneumatic tire, the combination with a wheel-rim and inner inflatable tube, of an outer case surrounding the inner tube and provided as to its opposite edges with a series of parallel longitudinal interlocking ribs or corrugations, and an adhesive band or tape extending circumferentially around the rim and serving to bind one of the edges of the outer case on the rim, the ends of said band or tape being overlapped upon each other, the said band being capable of yielding sufficiently to permit the free edge of the outer case to be removably inserted between the bound edge and the rim and to be interlocked with said bound edge under the tape, substantially as described.

3. In a pneumatic tire, the combination with a rim, and an inflatable inner tube, of an outer case provided as to its edges with a series of parallel longitudinal interlocking ribs or corrugations, and an adhesive band or tape made in two sections the adjacent ends of which are applied to one edge of the outer case at each side of the valve-opening, the band-sections extending thence around the rim and overlapped at their meeting ends, whereby one edge of the outer case is bound around the rim, the said band being capable of yielding sufficiently to permit the free edge of the outer case to be removably inserted and be interlocked with said bound edge under the tape, substantially as described.

588,558. ART OF ENGRAVING. WILLIAM S. EATON, Sag Harbor, N. Y. Filed Nov. 9, 1896. Serial No. 611,525. (No specimens.)

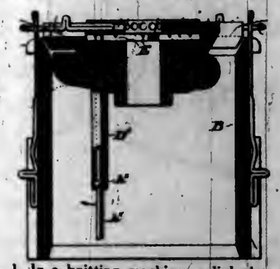


Claim.—1. An improvement in the art of engraving consisting in taking a form or pattern-sheet, placing over the same a transparent plate containing guiding-lines and transferring by means of an engraving device from the lined plate to the work to be engraved, substantially as described.

2. An improvement in the art of engraving, consisting in sketching portions of the design on one or more sheets, transferring said portions in succession by an engraving device through a transparent lined plate placed over said sheets and completing the design from an engraved plate containing the full outline of the design, substantially as described.

588,559. NEEDLE-DIAL FOR KNITTING-MACHINES. HENRY EDDINAW, GEORGE E. KNOWLES, and JOHN E. EDDINAW, Philadelphia, Pa. Filed Aug. 21, 1895. Serial No. 559,991. (No model.)

Brief.—The cut-away portions of the dial allow web-holders to be used, and those dial-needles which are mounted in the holder H can be thrown out of and into action by lowering and raising said holder.



Claim.—1. In a knitting machine, a dial plate provided with needle supports, the substance of the plate being cut away as to its rim between said supports,—substantially as set forth.

2. In a knitting machine, a dial plate provided with radial grooves for dial needles, the substance of the plate being cut away as to its rim between said grooves,—substantially as set forth

3. In a knitting machine, a needle cylinder, a dial plate provided with radial arms which extend out to the vicinity of the top of the needle cylinder, and which arms contain grooves for the reception of dial needles,—substantially as set forth.

4. In a knitting machine, a dial formed in two parts, a plate and a holder, one of said parts being movable with respect to the other,—substantially as set forth.

5. In a knitting machine, a dial plate provided with a series of radial grooves, a holder mounted upon said plate and provided with a seat for a dial needle arranged in axial alinement with a groove of the radial series mentioned, said holder being movable with respect to said dial plate,—substantially as set forth.

6. In a knitting machine, a dial plate provided with a series of radial grooves and embodying a recess, a holder mounted in said recess and provided with a series of seats or holders for dial needles arranged in axial alinement with grooves of the radial series mentioned, said holder being movable with respect to said dial plate, means for normally supporting said holder in position with the bases of its seats or holders above the level of the floors of the said grooves and means for depressing said holder,—substantially as set forth.

7. In a knitting machine, a dial plate provided with a series of radial grooves and embodying a recess, a holder mounted in said recess and provided with a series of seats for dial needles arranged in axial alinement with the grooves of the radial series mentioned, said holder being vertically movable with respect to said dial plate, springs for normally supporting said holder in position with the bases of its seats or holders above the level of the floors of the grooves, and a stem extending from said holder down through a sleeve formed in the plate, and provided with a projection adapted to be carried into engagement with the lower end of the said sleeve,—substantially as set forth.

8. In a knitting machine, a dial plate provided with a series of radial grooves and embodying a recess, a holder mounted in said recess and provided with a series of seats for dial needles arranged in axial alinement with grooves of the radial series mentioned, said holder being vertically movable with respect to said dial plate, springs for normally supporting said holder in position with the bases of its seats or holders above the level of the floors of needle grooves, and a stem extending from said holder down through a sleeve formed in the dial plate, and provided with a projection adapted to be carried into engagement with the lower end of the said sleeve, said dial plate having peripheral spaces removed between its dial needle grooves to allow space for sinkers,—substantially as set forth.

9. In a knitting machine, a dial plate, and a holder mounted upon said dial plate, equipped with radial seats for dial needles and formed in sections, said sections being independently movable with respect to each other and to the dial plate, means for normally supporting said sections in operative position, and means for retaining them independently out of operative position,—substantially as set forth.

588,560. CLASP. ARAD W. EVANS, Washington, D. C. Filed Apr. 27, 1897. Serial No. 634,140. (No model.)

Claim.—1. A clasp comprising a body portion lying in one plane and jaws at right angles thereto, the body portion provided with means for holding the jaws normally closed, and said jaws being independently resilient.

2. A clasp made of a single length of spring-wire, and consisting of a resilient body portion lying in one plane, and the jaws disposed at right angles thereto, said jaws being curved or bent outward from each other centrally, and said jaws being independently resilient.

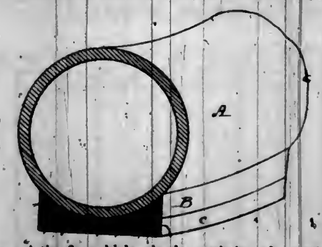


588,561. LOCK. ALFRED FAIRHURST, Lexington, Ky. Filed Jan. 13, 1896. Serial No. 575,800. (No model.)



Claim.—A lock constructed substantially as specified, the same comprising a case inclosed on three sides and having a centrally-disposed keyhole, and formed on its inner side with a circular depression and a circular recess concentric with each other and with the keyhole, the circular recess being of less depth than the said depression, and the latter adapted to receive a portion of the web or bit of the key, a rectangular bolt slidingly and snugly fitted within the case and adapted to operate through the open side thereof, and held in place by the part to which the lock is attached, and having an elliptical opening at right angles to the line of movement of the bolt and to one side of a central line, and a key-operated circular disk snugly fitting within the circular recess and having a keyhole to register with the keyhole of the case, and having a circular boss eccentrically disposed on its rear side to operate in the elliptical opening of the bolt, the keyhole extending into the boss and adapted to receive the other portion of the web or bit of the key, substantially in the manner set forth for the purpose specified.

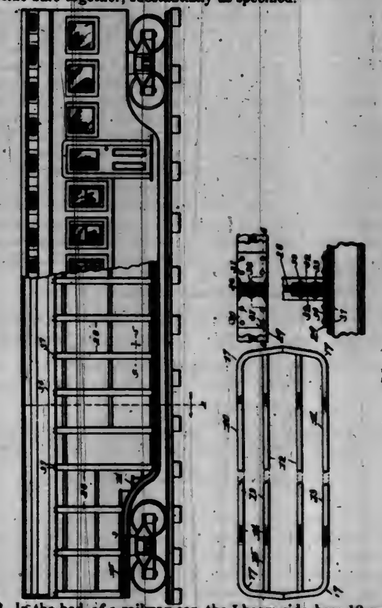
588,562. TIRE FOR VEHICLE-WHEELS. JULIUS M. FARNER, Milwaukee, Wis., assignor, by direct and mesne assignments, to Gustav Podoll, Henry W. Theis, Charles J. Fox, and Delbert H. May, same place. Filed Mar. 10, 1897. Serial No. 626,713. (No model.)



Claim.—A tire for vehicle-wheels, consisting of a continuous hollow tube, with a continuous tread wholly exterior to said hollow tube, and composed of strips of thin cloth coated upon one surface with ground emery mixed with rubber solution, a strip of fabric arranged around the side and outer parts of the described composite strips, with the side edges of said fabric brought over the inner layer of the coated cloth strips, and an outer sheet of thin rubber similarly surrounding the said fabric, with the side edges of the said thin rubber sheet brought over the corresponding side edges of the said fabric, completing the said continuous tread, and solid continuous independent strips of rubber on each side of the hollow tube interposed between the same and the side edges of the tread, and all vulcanized together, substantially as set forth.

588,563. RAILWAY-CAR. JEFFERSON L. FIELEY, Denison, Tex., assignor of two-thirds to William R. Kuhlhoff, Fort Worth, Tex., and Daniel W. McCallum, St. Louis, Mo. Filed Nov. 16, 1896. Serial No. 612,249. (No model.)

Claim.—1. In the bed of a railway-car, the I-beam side bars 10 and 11 extending the entire length of the bed and across the ends and meeting at the centers of said ends; each of said side bars consisting of the central portion 13, which is substantially straight and extends in a horizontal plane from a point directly in front of the rear truck to a point directly behind the front truck and occupy planes below the axles of the car-trucks outside of and near to the rails of the track, the portions 14, which portions are bent upwardly from the ends of the portion 13 to points above the wheels of the track, the portions 15 which extend from the upper ends of the portions 14 in horizontal planes above the car-trucks to the ends of the bed of the car, and the portions 16, which portions are bent inwardly from the outer ends of the portions 15 and extend substantially to the center of the bed of the car; and means of securing the ends of said side bars together, substantially as specified.



2. In the bed of a railway-car, the I-beam side bars 10 and 11 extending the entire length of the bed and across the ends and meeting at the centers of said ends; each of said side bars consisting of the central portion 13, which is substantially straight and extends in a horizontal plane from a point directly in front of the rear truck to a point directly behind the front truck and occupy planes below the axles of the car-trucks outside of and near to the rails of the track, the portions 14, which portions are bent upwardly from the ends of the portion 13 to points above the wheels of the truck, the portions 15 which extend from the upper ends of the portions 14 in horizontal planes above the car-trucks to the ends of the bed of the car, and the portions 16, which portions are bent inwardly from the outer ends of the portions 15 and extend substantially to the center of the bed of the car; means of securing the ends of said side bars together, the intermediate I-beam bars 12 mounted between said side bars 10 and 11 and in planes parallel with said side bars 10 and 11, and means of connecting the ends of said intermediate bars to the portions 16 of said side bars, substantially as specified.

3. In the bed of a railway-car, the I-beam side bars 10 and 11 extending the entire length of the bed and across the ends and meeting at the centers of said ends; each of said side bars consisting of the central portion 13, which is substantially straight and extends in a horizontal plane from a point directly in front of the rear truck to a point directly behind the front truck and occupy planes below the axles of the car-trucks outside of and near to the rails of the track, the portions 14, which portions are bent upwardly from the ends of the portion 13 to points above the wheels of the truck, the portions 15 which extend from the upper ends of the portions 14 in horizontal plane above the car-trucks to the ends of the bed of the car, and the portions 16, which portions are bent inwardly from the outer ends of the portions 15 and extend substantially to the center of the bed of the car; means of securing the ends of said side bars together, the I-beams 28 mounted in vertical positions with their lower ends resting upon said side bars 10 and 11, and means of securing said vertical I-beams to said side bars, substantially as specified.

588,564. RAZOR-GUARD. HOWELL T. FISHER, Pottsville, Pa. Filed Nov. 28, 1896. Serial No. 613,733. (No model.)

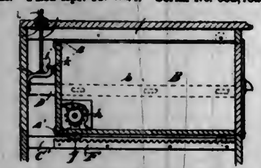


Claim.—1. The combination with a razor-blade, of a guard consisting of a guard-bar engaging one side of said blade and formed with a slotted arm extended upwardly therefrom above the said blade, a clamping device engaging said arm above the blade and the opposite side of said blade, and a clamping-screw bearing against said arm and having its shank inserted through the slot therein and screwing in said clamping device, whereby the lower edge of said bar may be adjusted vertically and transversely in relation to its distance from the cutting edge of the razor-blade, as set forth.

2. A razor-guard comprising a guard-bar arranged to engage one side of the blade and provided with a slotted vertical arm extending above the blade, a forked clamping device bearing against that side of said vertical arm above the razor-blade which is opposite the side adjacent said blade and having downwardly-extending members curved around said vertical arm to engagement with the opposite side of said blade, and a clamping-screw in said clamping device, and having adjustable bearing in said vertical arm, as set forth.

3. A razor-guard, comprising a guard-bar formed with transverse lugs by which it engages one side of the blade, the bar being also provided with a vertical arm formed with a slot, a forked clamping device engaging that side of said vertical arm which is opposite the side adjacent the razor-blade and having its fork members curved around said vertical arm and engaging the other side of the razor-blade, and a clamping-screw having its shank inserted through the slot in the vertical arm and screwing in the said clamping device, whereby the guard-bar may be adjusted vertically and transversely, as set forth.

588,565. ANTIFRICTION-DRAWER. BERNARD C. FRIBERG, Inman, Kans. Filed Apr. 19, 1897. Serial No. 632,752. (No model.)



Claim.—1. In an antifriction-drawer of the class described, comprising a drawer mounted upon rollers, a longitudinally-arranged rack located upon one of the bottom tracks meshing with a pinion upon the rear end of the drawer, in combination with spring mechanism carried upon the drawer and operated by said pinion to automatically carry the drawer into open position, substantially as set forth.

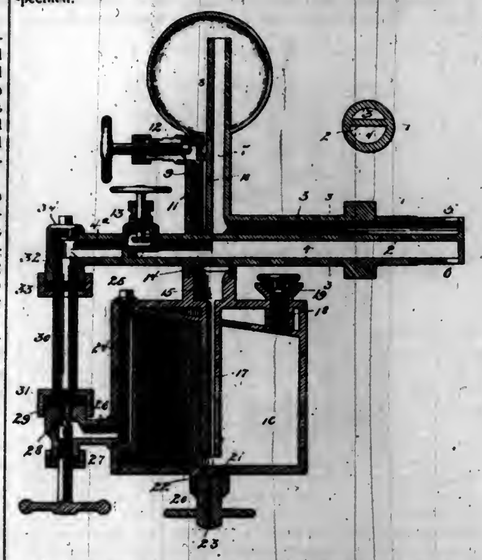
2. In an antifriction-drawer of the class described, comprising the drawer mounted upon rollers, a longitudinal rack mounted on the bottom track, in combination with a pinion carried by the drawer, and a shaft journaled in the drawer carrying an operating-spring and a gear meshing with said pinion, whereby the drawer is projected into open position, substantially as and for the purpose set forth.

3. In an antifriction-drawer of the class described, the combination, with the drawer mounted upon rollers, and spring mechanism carried by the drawer and adapted to force the same into open position, of a bowed spring secured to the back of the casing adapted to engage an eye or loop upon the drawer and a vertical operating-rod adapted to bear upon and depress said spring, substantially as and for the purpose set forth.

4. An improved antifriction-drawer, comprising the top and bottom tracks, having friction-rollers, lateral tracks having friction-rollers, the rack and pinion, the spring mechanism embodying a gear meshing with said pinion, the bowed spring-catch adapted to engage an eye or staple upon the drawer and a vertical rod bearing upon the said spring, substantially as and for the purpose set forth.

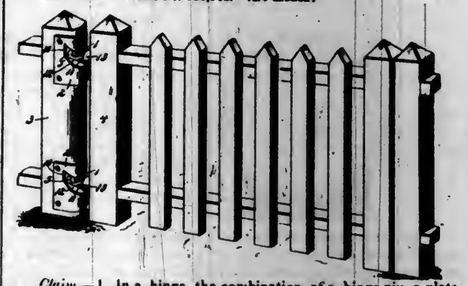
588,566. LUBRICATOR. HENRY GLAHE, Louisville, Ky. Filed Mar. 16, 1897. Serial No. 627,230. (No model.)

Claim.—1. In a lubricator, the combination of a main supporting pipe or stem, having separate steam and oil passages and independent contiguous inlet and outlet openings, a branch steam-passage, in communication with a condensation-chamber, an oil-chamber having its top inclined upwardly, in a common plane, to a point near one side of the chamber and having an inlet-tube in communication with the condensation-chamber, a discharge-tube communicating at one end with the oil-chamber contiguous to said uppermost point of its top, and in alinement with a removably-plugged opening in the top of the chamber, a passage, including a sight-tube, connecting the other end of the discharge-tube with the said oil-passage, and a regulating-valve arranged in said connecting-passage, substantially as specified.



2. A lubricator having a main supporting pipe or stem 1 having separate steam and oil passages 3 and 4, a condensation-chamber, a branch pipe having separate steam and water passages 7 and 11, of which the former is in communication with the steam-passage of the main pipe or stem, the oil-passage of the main pipe or stem being extended, as at 4ª, beyond the point of intersection of said branch pipe, and a water-passage being divided and carried around the extension of the oil-passage to communicate with a sleeve 14, an oil-chamber having a thimble 15 fitted in said sleeve and being provided with inlet and outlet tubes 17 and 24, filling and cleaning plugs 18 and 25, and a top which is inclined upwardly from the filling-plug to the cleaning-plug, the latter being in alinement with the outlet-tube, and a valved connection between the outlet-tube and said oil-passage, substantially as specified.

588,567. HINGE. THOMAS J. GOODWIN, Lampasas, Tex. Filed Jan. 7, 1897. Serial No. 618,302. (No model.)

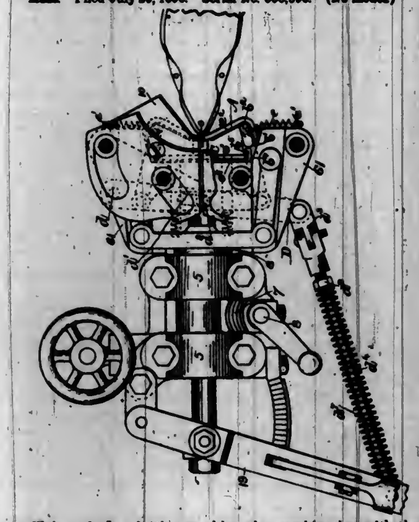


Claim.—1. In a hinge, the combination of a hinge-pin, a plate carrying hinge-pin seats and having a slotted face portion concentric with the hinge-pin, said plate also having a double-inclined track or guide which is followed by the slot, a hinge-eye mounted for rotary and sliding movement upon the hinge-pin, and a roller mounted upon the shank of the hinge-eye for traversing said track or guide and arranged with its inner side in contact with the concentric face of the plate, whereby the roller is held from inward displacement by said plate, substantially as specified.

2. In a hinge, the combination of a hinge-pin, a slotted casing supporting the hinge-pin and carrying a double-inclined track or guide which declines cross-sectionally toward its outer edge or from the hinge-pin, the slotted face of the casing being concentric with the hinge-pin, a hinge-eye fitted for rotary and sliding movement upon said hinge-pin, and a roller loosely mounted upon the shank of the hinge-eye to traverse said track or guide and having a beveled periphery whereby gravity causes a normal tendency of the roller outwardly or from the hinge-pin, said roller bearing at one side against the concentric face of the casing substantially as specified.

3. In a hinge, the combination of a casing adapted to be secured to a jamb or post and provided with interior alined upper and lower conical seats, a hinge-pin removably fitted in said seats and provided with a head to fit in the upper seat and prevent downward displacement, said casing having its front wall concentric with the hinge-pin and being provided with a double-inclined slot of which the lowermost point is at its center, a track or guide arranged at and following the line of the lower edge of the slot in the front wall of the casing, a hinge-eye fitted for rotary and sliding movement upon the hinge-pin between said seats, and having a shank extended outwardly through the slot in the casing, said shank being constructed for engagement with a gate, and a roller journaled upon the shank to traverse said track or guide, substantially as specified.

588,568. LASTING-MACHINE. EDWARD F. GRANDY, Everett, Mass. Filed July 29, 1896. Serial No. 600,890. (No model.)



Claim.—1. In a lasting-machine the combination with the lasting plates or wipers, of a last band or clamp, and connected mechanisms for actuating the lasting plates or wipers and for closing the last band or clamp around the upper on the last, substantially as described.

2. In a lasting-machine the combination of lasting plates or wipers, a last band or clamp, mechanism for actuating the lasting plates or wipers, mechanism for closing the band or clamp, and a yielding connection between said actuating mechanisms, substantially as described.

3. In a lasting-machine the combination with a last band or clamp, of a spring-actuated follower arranged to advance the central portion of said band or clamp, substantially as described.

4. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, and an independent yielding support for the central portion of the band or clamp around the upper on the last, substantially as described.

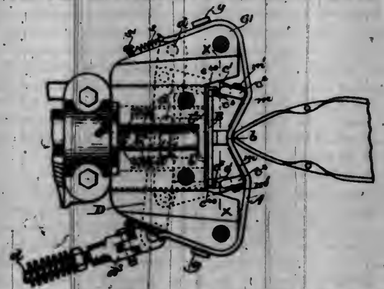
5. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, an independently-movable support for the central portion of said band or clamp and means for advancing and retracting said central support, substantially as described.

6. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, and springs secured to said supports and projecting along said band or clamp, substantially as described.

7. In a lasting-machine the combination of suitable lasting plates or wipers, a last band or clamp, connected mechanisms for actuating the plates or wipers, and to close the band or clamp around the upper on the last, and means to adjust the actuating mechanisms to adjust the relative movements of the lasting plates or wipers and the last band or clamp, substantially as described.

8. In a lasting-machine the combination with a last band or clamp, of spring-controlled supports for the ends thereof, and a yielding support for its central portion, substantially as described.

588,569. LASTING-MACHINE. EDWARD F. GRANDY, Everett, Mass. Filed July 29, 1896. Serial No. 600,891. (No model.)



Claim.—1. In a lasting-machine a last band or clamp supported at or near its center, in combination with movable abutments arranged to bear upon and slide along the band or clamp upon opposite sides of its point of support, substantially as described.

2. In a lasting-machine the combination with a flexible last band or clamp supported at or near its center and opposite ends, and movable abutments arranged to bear on the band or clamp between its points of support, substantially as described.

3. In a lasting-machine the combination with a last band or clamp of extensible supports for the ends thereof, and movable abutments arranged to bear upon the band or clamp between its points of support, substantially as described.

4. In a lasting-machine, the combination with a head carrying lasting devices, of a last band or clamp, and spring connected directly to the ends of the band or clamp and to said head, substantially as described.

5. In a lasting-machine the combination with a last band or clamp, of elastic pressing devices arranged to bear against and move along the band or clamp, substantially as described.

588,570. SHADE-HOLDER. MORRIS D. GREENGARD, St. Louis, Mo. Filed Nov. 12, 1896. Serial No. 611,679. (No model.)



Claim.—1. In a shade-holder, a suitable shade-ring, a series of webs carried thereby, a band-section forming a continuation of each web, the free end of each section extending to within a suitable distance from the next succeeding web, a lever pivoted to each web, the free end of one arm thereof being connected to the free end of the band-section adjacent thereto, and means for retaining the lever in any of its tilted positions, substantially as set forth.

2. In a shade-holder, a suitable shade-ring, a series of webs carried thereby and formed integrally therewith, a band-section forming an integral continuation of each web, the free end of each section extending to within a suitable distance from the next succeeding web, a lever pivoted to each web the free end of one arm thereof being connected to the free end of the band-section, and means for retaining the lever in any of its tilted positions, substantially as set forth.

3. In a shade-holder, a suitable shade-ring having a series of cut-away portions or slits, tongues having their free ends normally projecting through the slits and beyond the periphery of the shade-ring and disposed in the general plane of the perimeter of said ring, and suitable wings pivoted along the periphery of the ring and adapted upon the rocking or tilting of the same to either force the tongues inwardly or permit the same to expand and resume their normal position, substantially as set forth.

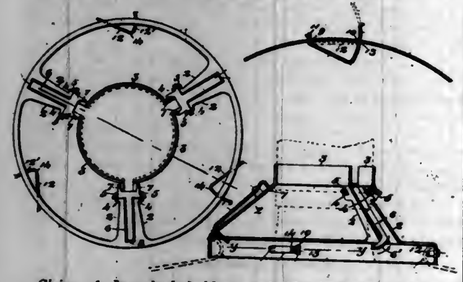
4. In a shade-holder, a suitable shade-ring having a series of cut-away portions or slits, tongues resulting from the cutting of the slits having their free ends normally projecting through the slits and beyond the periphery of the shade-ring, suitable pivoted actuating-wings for said tongues, and means for retaining the wings in any tilted position, substantially as set forth.

5. In a shade-holder, a suitable shade-ring having a series of cut-away portions or slits, tongues resulting from the cutting of the slits

having their free ends normally projecting through the slits and beyond the periphery of the ring, and operating in the general plane of the perimeter of the ring, gripping-arms formed at the free ends of the tongues, suitable serrations formed along the outer surfaces of the projecting ends of the tongues, suitable wings pivoted along the periphery or perimeter of the ring for actuating the tongues, the engaging member of each wing cooperating with the serrations on the tongue, and a suitable arm carried by each wing for limiting the tilting of the same in one direction, said limiting-arm being adapted to bear against one of the limiting-walls of the slit cut in the ring, substantially as set forth.

6. In a shade-holder, a suitable shade-ring having a series of cut-away portions or slits, tongues formed as a result of said slits and tending normally to project through the slits and beyond the periphery of the ring, suitable lugs cut from the ring and deflected outwardly, a wing pivoted between each pair of lugs, the said wing being adapted upon the tilting or rocking of the same to actuate the tongue opposite thereto inwardly, or permit its expansion outwardly, substantially as set forth.

588,571. SHADE-HOLDER. MORRIS D. GREENGARD, St. Louis, Mo. Filed Nov. 23, 1896. Serial No. 613,196. (No model.)



Claim.—1. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting respectively the one member of one pair of webs with the nearest member of the next succeeding pair, a controlling-lever in pivotal connection with each pair of webs and swinging normally in a plane at right angles to the plane of the circle of the shade-ring, said lever being adapted to vary the distance between the free or yielding ends of the webs, substantially as set forth.

2. In a shade-holder, a shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting the free yielding end of one member of each pair to the similar end of the nearest member of the next succeeding pair, a controlling-lever pivoted to the webs and swinging within the space formed between the members of each pair of said webs, and in a plane substantially at right angles to the plane of the circle of the shade-ring, substantially as set forth.

3. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting the yielding end of one member of each pair of webs to the corresponding end of the nearest member of the next succeeding pair, a controlling-lever pivoted in connection with each pair of webs and swinging in the space formed between the members of each pair, and in a plane substantially at right angles to the plane of the circle of the shade-ring, and means for retaining the lever in any of its adjusted positions, substantially as set forth.

4. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting respectively the yielding end of one member of each pair of webs with the corresponding end of the nearest member of the next succeeding pair, a controlling-lever pivoted between the members of each pair of webs and swinging in the space between the members of each pair of webs and in a plane both perpendicular to the plane of the circle of the shade-ring, and disposed in the radial line of the circle of said shade-ring, said lever being adapted to control the relative distance of the yielding ends of the webs and thus control the size of the clamping-band, the parts operating substantially as and for the purpose set forth.

5. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting respectively the yielding end of one member of each pair of webs with the corresponding end of the nearest member of the next succeeding pair, a controlling-lever pivoted between the members of each pair of webs and swinging in the space between the members of each pair of webs and in a plane disposed both perpendicularly to the plane of the circle of the shade-ring and on a radial line of the circle of the ring, said lever being adapted to control the relative distance between the yielding ends of the webs, and means for retaining the lever in any adjusted position, substantially as set forth.

6. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting the yielding end of one member of each pair of webs with the corresponding end of the nearest member of the next succeeding pair of webs, a controlling-lever pivoted between the members of each pair and in a plane substantially perpendicular to the plane of the circle of the shade-ring, and disposed in a radial line of the circle of the ring, the short arm of the lever being forked, and the members of the fork embracing the members of each pair of webs and adapted to bring together the yielding ends of said members of the webs upon the swinging of the lever in one direction, the long arm of the lever being adapted to ride along the shade-ring at the base of the web members and frictionally engage the same to hold the lever in any adjusted position, substantially as set forth.

7. In a shade-holder, a shade-ring, a series of pairs of webs carried thereby, a series of clamping-band sections connecting the yielding end of one member of each pair of webs with the corresponding end of the nearest member of the next succeeding pair of webs, a controlling-lever pivoted between the members of each pair of webs and swinging in a plane substantially perpendicular to the plane of the circle of the shade-ring, and across the space between the web members, and substantially in a line of the radius of the circle of the shade-ring, the short arm of the lever being forked, the adjacent sides of the fork members being inclined outwardly from the base of the fork, said inclined sides embracing the sides of the web members of each pair at a point between the pivotal axis of the lever and the free yielding ends of the web members, whereby upon the tilting of the lever in one direction the clamping-band will be contracted or operated in one direction, the long arm of the lever having an extension frictionally engaging the shade-ring at the base of the web members whereby the said lever will be retained in any position to which it may have been tilted, substantially as set forth.

8. In a shade-holder, a suitable shade-ring, a series of shade-retaining arms pivoted along the ring, each arm having a resilient extension adapted to engage with the ring simultaneously with the engagement of the arm with the shade introduced in the ring, substantially as set forth.

9. In a shade-holder, a suitable shade-ring, a series of shade-retaining arms pivoted along the periphery of the ring, a yielding extension forming a part of each arm and adapted to bear against the ring, an elbow formed between the arm proper and its extension, said elbow being adapted to engage the shade simultaneously with the engagement of the extension with the shade-ring, substantially as set forth.

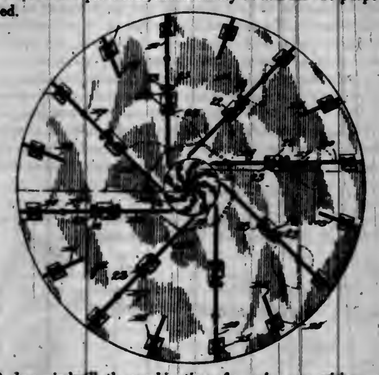
10. In a shade-holder, a suitable shade-ring, a series of shade-retaining arms pivoted along the periphery of the ring, and adapted to swing in a plane substantially parallel with the plane of the circle of the ring, a yielding extension forming a part of each arm and adapted to bear against the ring, an elbow formed between the arm proper and its extension, said elbow being adapted to engage the shade simultaneously with the engagement of the extension with the shade-ring, substantially as set forth.

11. In a shade-holder, a suitable shade-ring, means for securing the same to a lamp, a series of pairs of openings formed along the periphery of the ring, an arm having a pivotal bearing in one of the openings of each pair, the arm being directed into the shade-ring, an extension forming a part of each arm and directed outwardly and adapted to project through the second opening of the pair and be operated from the outside of the ring, the extension being adapted to frictionally engage the side of the opening for retaining the arm in any position to which it may have been swung, substantially as set forth.

12. In a shade-holder, a suitable shade-retaining arm having a terminal head about which said arm is adapted to swing as a pivot, said head being adapted to be inserted into an opening cut from the shade-ring, from the inside of the ring to bring the head on the outside of the shade-ring, said head being adapted to overlap the longitudinal sides of the opening, a resilient extension forming a continuation of the arm, said extension being bent from the main arm so as to project outwardly through the shade-ring and be operated from the outside of the ring, the said extension being adapted to frictionally engage the walls of the opening through which it passes, and thus retain the arm in any position to which it may have been swung, substantially as set forth.

588,572. WINDMILL. ROBERT R. HARDAWAY, Austin, Tex. Filed Feb. 24, 1897. Serial No. 624,790. (No model.)

Claim.—1. In a windmill, the combination of a vertical shaft, a wind-wheel mounted thereon and composed of curved blades, a casing receiving the wind-wheel and comprising an annular series of vertical partitions converging toward the wind-wheel and forming shields for the same, and the narrow peripheral partitions arranged in the spaces between the said partitions, substantially as and for the purpose described.



2. In a windmill, the combination of a casing comprising a series of vertical partitions diverging from the center of the casing and composed of sections, a series of narrow peripheral partitions constructed of sections and a series of horizontal partitions arranged at the terminals of the sections of the vertical partitions and dividing the casing into separate stories or compartments, a vertical wind-wheel shaft journaled in the casing, and a wind-wheel mounted on the shaft and composed of sections corresponding to the compartments of stories of the casement, substantially as described.

3. In a windmill, the combination of a casing comprising a series of vertical partitions diverging from the center of the casing and composed of sections, the narrow peripheral partitions composed of sections and located in the spaces between the said partitions, the circular horizontal partitions arranged at the ends of the sections of the said partitions and dividing the casing into separate stories or compartments, and the horizontal tie-bars connecting the vertical partitions and forming a circular brace, and a wind-wheel composed of sections corresponding to the stories or compartments of the casing, substantially as described.

4. In a windmill, the combination of a wind-wheel, a casing receiving the same and provided with a series of vertical partitions converging toward the wind-wheel and adapted to compress and concentrate the air, relief-doors mounted on the partitions and adapted to open automatically to relieve the pressure, and means for holding the doors normally closed, substantially as described.

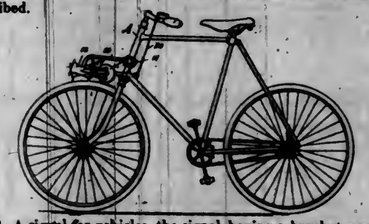
5. In a windmill, the combination of a wind-wheel, a casing receiving the same and provided with a series of vertical partitions converging toward the wind-wheel to concentrate the pressure of the air, and a series of relief-doors mounted on the partitions and adapted to open automatically to relieve the pressure, said doors being arranged to swing transversely of the spaces between the partitions to exclude air from the wind-wheel, substantially as described.

6. In a windmill, the combination of a wind-wheel, a casing receiving the same and provided with converging partitions, and the inner and outer automatically-operated relief-doors mounted on the partitions and adapted to relieve the pressure, the inner doors being arranged to swing transversely of the spaces between the partitions to exclude air from the wind-wheel, and the outer doors being adapted to be arranged to swing free to permit air to pass readily through the casing, whereby the latter is relieved of pressure, substantially as described.

7. In a windmill, the combination of a wind-wheel provided with vertical blades, a casing receiving the wind-wheel and having partitions converging toward the same, relief-doors mounted on the partitions, cords connected with the doors and provided with weights, and the vertical and horizontal guide pulleys receiving the cords, substantially as described.

588,578. BICYCLE-ALARM. RUDOLF HARTMANN, ALFRED HARTMANN, and GEORGE F. REINHARD, Jersey City, N. J. Filed July 30, 1896. Serial No. 601,090. (No model.)

Claim.—1. A signal for vehicles, the signal having a brace adapted to be secured to the vehicle and extending outwardly over a wheel thereof, a frame having a T-shaped front portion, the middle portion of the T being pivotally connected to the forward end of the bracket, a trumpet pivoted to each end of the T, the rear portion of the frame being forked, a traction-wheel, the trunnions of which are respectively mounted in the arms of the fork, a crank-arm secured to each trunnion, a rod pivoted to each crank-arm, a piston movable in each trunnion-cylinder and respectively connected to the rods, one arm of the fork being extended rearward beyond the traction-wheel, a rod connected to said extended arm and serving to push the frame downward to engage the traction-wheel with the vehicle-wheel, and a spring normally holding the traction-wheel raised, substantially as described.



2. A signal for vehicles, the signal having a bracket capable of being secured to the vehicle and of extending over the wheel thereof, a frame pivoted to the bracket and hanging beneath the same, a retractile spring connected to the frame and to the bracket and normally lifting the frame, a wheel revolubly mounted in the frame and movable with the frame toward and from the wheel of the vehicle, a cylinder pivoted to the frame, a rigidly-connected piston and rod within the cylinder, the rod having cranked connection with the wheel of the frame, a reed within the cylinder and operated by the action of the piston therein, and means connected to the free end of the frame by which it may be depressed against the tension of the spring, substantially as described.

588,574. METHOD OF MAKING PLATE-GLASS. CHARLES G. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed Sept. 3, 1896. Serial No. 604,705. (No specimens.)



Claim.—1. The method of making plate-glass, the same consisting in spreading the molten glass into plate form, cutting up, grooving, or impressing its upper surface while it is being spread, and permitting the glass to form a smooth, even surface; substantially as described.

2. The method of making plate-glass, the same consisting in spreading the molten glass into plate form, indenting, grooving, or forming an uneven upper surface while the glass is still in a molten state, and permitting the glass to form a smooth upper surface by reason of its self-contained heat; substantially as described.

3. The method of making plate-glass, the same consisting in spreading the molten glass into plate form, indenting, cutting, or otherwise forming impressions in its upper surface transversely the sheet, and permitting the glass to form its own upper surface; substantially as described.

588,575. BOTTLE-SEAL. FREDERICK H. HEATH and JOHN R. HASELL, Tacoma, Wash. Filed Sept. 18, 1896. Serial No. 606,267. (No model.)



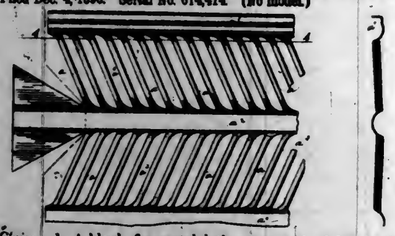
Claim.—1. A tube secured in the neck of a bottle, a seal secured to the bottom by a ferrule having inturned serrations along its lower edge, substantially as described.

2. In combination with a bottle, a tube secured in the neck thereof, a ferrule secured to the lower part of the tube, inturned serrations formed around the lower edge of the ferrule and a seal adapted to be held against the bottom of the tube by said serrations, as and for the purpose described.

3. A tube secured in the neck of a bottle, said tube having an annular groove formed around the lower part, a ferrule secured to said tube by having its upper edge inturned to fit over the shoulder of the groove, inturned serrations formed around the lower edge of the ferrule, a hemispherical seal secured to the bottom of said seal

by said serrations, said tube having a vent-hole formed in the lower edge thereof and registering with a hole in the ferrule, as and for the purpose described.

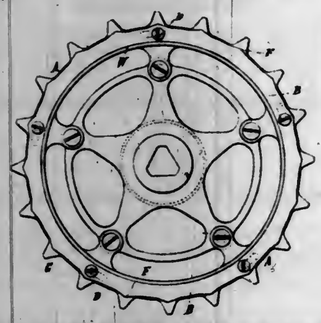
588,576. METAL LATH. DAWSON B. HILTON, Brooklyn, N. Y. Filed Dec. 4, 1896. Serial No. 614,414. (No model.)



Claim.—1. A blank for metal laths composed of longitudinal strips grooved alternately on opposite faces, and of rows of inclined ribs that connect said strips, the ribs of adjoining rows sloping in opposite directions, substantially as specified.

2. A metal lath composed of a laterally-distended body having serrated longitudinal strips grooved alternately on opposite faces, and bent ribs that connect the serrated edges of said strips, substantially as specified.

588,577. SPROCKET-AND-CHAIN GEARING. GEORGE R. HUMPHREYS, Ilion, N. Y. Filed Mar. 18, 1897. Serial No. 628,177. (No model.)

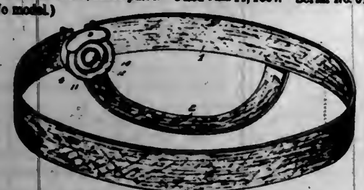


Claim.—1. A sprocket-wheel having edges upon which the chain-links rest and formed or provided with projections or cams, the said edges and teeth being concentrically adjustable with relation to each other, as set forth.

2. The combination with a sprocket-wheel of rings or annular plates forming supports for the side links of the chain, the peripheries of said plates being formed or provided with cams or projections and the plates being secured to the sprocket with the capability of concentric adjustment thereon, as set forth.

3. The combination with a sprocket-wheel having concentric shoulders W, of a ring or rings B, having cams or projections on their peripheries and forming supports for the chain-links, and the screws or bolts D passing through slots in the wheel or rings and securing the rings to the wheel with the capability of concentric adjustment, as set forth.

588,578. TRUSS. SAMUEL IDE, Medina, N. Y., assignor of one-half to Alfred Ide, same place. Filed Jan. 11, 1897. Serial No. 618,824. (No model.)



Claim.—1. As an integral truss-pad, comprising a central button, a series of concentric rings spaced apart and located in about the same plane as the button and convexed on their bearing or outer faces, and ribs in the rear of the button and rings and spanning the spaces between and connecting them, substantially as set forth.

2. As an improved article of manufacture, a truss-pad comprising a concentric series of rings spaced apart and connected together by integral ribs, and a segmental facial projection at the edge thereof, substantially as and for the purpose set forth.

3. As an improved article of manufacture, a truss-pad comprising a central button 10 and a concentric series of rings spaced apart and connected together and to the button by ribs 12, the space between the ribs being open and said ribs providing the places of support for the attachment of the usual straps, substantially as described.

4. As an improved article of manufacture, a truss-pad comprising a concentric series of rings spaced apart and connected together by ribs, and a segmental facial projection at the edge or periphery of the outer ring of the series, the rings and the projection having a convex bearing-face, substantially as and for the purpose set forth.

588,579. LIFTING-JACK. FRANK P. JOHNSON, Danville, Pa. Filed Jan. 23, 1897. Serial No. 620,426. (No model.)



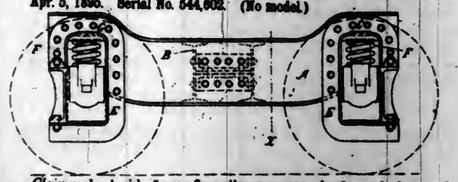
Claim.—1. A telescopic lifting-jack comprising inner and outer tubular sections and a solid rod fitting within the inner tube, each of the tubes being made in two sections detachably bolted together and separable on a line longitudinally thereof, each section of the outer tube having a laterally-extending base portion integral therewith, and strengthening-braces integral with the tube and base portions, and each base portion having laterally-projecting lugs 6 to extend across the dividing-line between the sections and engage the other base portion, and means to adjust the tubes and rods relatively to each other and to lock them in position, substantially as described.

2. A telescopic lifting-jack comprising two tubes one within the other, a solid extension-rod fitted within the inner tube, a friction-clutch mechanism pivoted to the inner tube and engaging the rod to permit free upward movement of the rod and to automatically lock it against downward movement, and means substantially as described to simultaneously move the inner tube and the extension-rod relatively to the outer tube, and to lock them in position, as and for the purpose described.

3. A telescopic lifting-jack comprising two tubes one within the other, a solid extension-rod fitted within the inner tube, and a frictional clutch mechanism interposed between the inner tube and the extension-rod, consisting of a strap embracing the rod and loosely connected at one end to the inner tube, and a link also embracing the rod and loosely connected at one end to the free end of the strap, the contacting points of the strap and link respectively with the rod being oblique to each other, substantially as described.

4. A telescopic lifting-jack comprising two tubes one within the other, a solid extension-rod fitted within the inner tube, a clutch mechanism interposed between the inner tube and the rod to permit free upward movement of the rod and automatically lock it against downward movement, an elbow-lever pivotally connected at its elbow to the lower end of the outer tube to one side of the axial center of the said tube, and a link connecting the outer end of the short arm of the lever with the lower end of the inner tube, whereby the inner tube and the extension-rod may be raised or lowered, the construction being such that the lever is automatically locked in either of its extreme positions, substantially as described.

588,580. RAILWAY-CAR-TRUCK FRAME. GEORGE R. JOCOBUS, Berkley, Va., assignor of one-half to Edward Cliff, Newark, N. J. Filed Apr. 5, 1895. Serial No. 544,602. (No model.)



Claim.—1. A side frame for railway-car trucks formed of a commercial rolled beam having the lower flange, the web, and the upper flange bent upward, and a portion of the lower flange and web cut away so as to form pedestals, substantially as described.

2. A car-truck frame composed of the parallel continuous metal side beams having the pedestals formed within their ends and which are open at their outer sides, combined with removable pieces to fill the open outer sides of said pedestals, and a metal-beam transom connecting said side beams and rigidly secured thereto, said pedestals being of sufficient height to permit the journal-boxes to have a vertical play within them: substantially as set forth.

3. In a car-truck, the parallel continuous metal-beam side frames, and a pedestal-frame at each end of each side frame, each pedestal-frame having its upper part, one side and spring-pocket applied substantially within and attached to the web of the side frame and having its outer vertical side in a movable piece connected with the web of the side frame, combined with a beam connecting said side frames; substantially as described.

4. In a car-truck the rolled flanged continuous parallel beam side frames, and a pedestal at each end of each side frame and of a height sufficient to permit the vertical movement therein of the axle-boxes, the outer vertical side of each pedestal having a movable piece, combined with the continuous rolled flanged parallel transom-beams extending transversely across the truck between said side frames and rigidly secured thereto, the axle-boxes in said pedestals, and springs yieldingly resisting the upward movement of said boxes in said pedestals; substantially as set forth.

5. The T-iron attached to the web of a commercial rolled-beam side frame and prolonged downward to form the lower portion of a pedestal, substantially as described.

6. In a car-truck, the continuous parallel metal-beam side frames, the ends of said beams having therein the pedestals provided with spring-pockets and open at their outer sides, combined with movable pieces for the outer sides of said pedestals, and a beam connecting said side frames and secured thereto; substantially as set forth.

7. In a car-truck, the parallel continuous metal-beam side frames, and a pedestal substantially within each end thereof and formed on one side by a guiding-piece attached to said web and on the other side by a movable piece, the pedestals being of sufficient height to permit vertical movement of the journal-boxes, combined with a beam connecting said sides; substantially as set forth.

8. In a car-truck the metal-beam side frames having the pedestal-spaces fashioned within the ends thereof, said pedestal-spaces being open at their outer sides and of a height to permit the vertical movement of the journal-boxes therein, combined with the rubbing-pieces along the inner vertical edges of said spaces, the outer movable rubbing-pieces closing the outer sides of said spaces and a transom connected at its ends to the webs of said side frames; substantially as set forth.

9. In a car-truck, the continuous parallel metal-beam side frames having the pedestal-spaces fashioned within the ends thereof, said pedestal-spaces being permanently closed at the bottom and open at the outer side and being of a height to permit the vertical movement of the journal-boxes therein, combined with the rubbing-pieces along the inner vertical edges of said spaces, a movable rubbing-piece closing the outer vertical side of said spaces and a beam connecting said side frames: substantially as set forth.

10. In a car-truck, the parallel continuous metal-beam side frames each having within the web at its ends the pedestal-spaces to receive and permit the vertical movement of the axle-boxes, combined with a beam connecting said side frames, and the pedestal-frames applied to close said spaces and attached to said web and one section of which is movable to permit the escape of said boxes, said pedestal-frames each having one vertical side and the lower side in a continuous integral piece, and the other vertical side in a separate piece; substantially as set forth.

11. A car-truck comprising the connected commercial rolled-beam side frames having their ends bent upward and a portion of said ends cut away to form pedestal-spaces for the axle-boxes, and pedestal-frames secured to the web of said frames for said boxes; substantially as set forth.

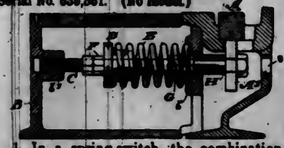
12. In a car-truck, the parallel continuous metal-beam side frames, and a pedestal at each end of each thereof and formed on one side by a guiding-piece attached to vertical web of said side frames, and on the other side by a movable piece, the pedestal being of sufficient height to permit vertical movement of the journal-boxes, combined with a beam connecting said sides: substantially as described.

13. A car-truck frame composed of the parallel continuous metal side beams, and metal-beam transoms connecting said side beams and rigidly secured thereto, in combination with a pedestal attached to the web of said side frame and having an opening at its side, a removable piece of metal to close said opening, a journal-box moving vertically within said pedestal, and coiled metal springs inserted above the journal-boxes, and within the pedestals, substantially as described.

14. In a car-truck, the parallel continuous metal-beam side frames, and a pedestal at each end of each side frame, each pedestal having its upper part, containing a spring-pocket, and one side attached to the web of the side frame, and its other side and lower part formed by a metal pedestal-frame also attached to said web, combined with a beam connecting said side frames and secured at its ends thereto and the movable piece completing the outer vertical side of said pedestal; substantially as set forth.

15. In a car-truck, the parallel continuous metal-beam side frames, and a pedestal at each end of each side frame, each pedestal having its upper part and one side attached to the web of the side frame, and its other side and lower part formed by a metal pedestal-frame also attached to said web, combined with a beam connecting said parallel side beams and secured at its ends thereto and the movable piece completing the outer vertical side of said pedestal; substantially as set forth.

588,581. RAILWAY-SWITCH. CARL F. KEHR, Jr., Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed June 3, 1897. Serial No. 639,361. (No model.)



Claim.—1. In a spring-switch, the combination of two rigid spring-seats, a spring, a rod, and means for compressing said spring between a movable spring-seat carried by the rod and either of the rigid seats.

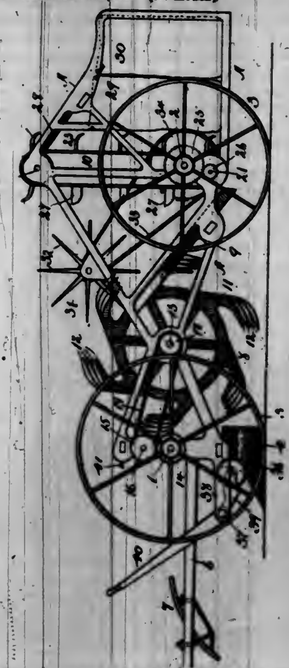
2. In a spring-switch, the combination of a spring, a rod connected with the tongue of the switch, a split collar and means for causing either end of the spring to engage the collar and act to set the tongue in the desired position.

3. In a spring-switch, the combination of the thrust-rod connected with the switch-tongue, a compression-spring, a split collar and means for securing it at desired positions upon the thrust-rod to afford a seat for the spring, and a pair of rigid spring-seats, either of which may be used in conjunction with the spring and collar.

4. In a spring-switch, the reversible split collar D substantially for the purpose set forth.

5. In a spring-switch, in combination, the tongue A, the box B, the screw-bolt C, the split collar D, the spring E, and jam-nuts F and G, cooperating substantially as, and for the purpose, set forth.

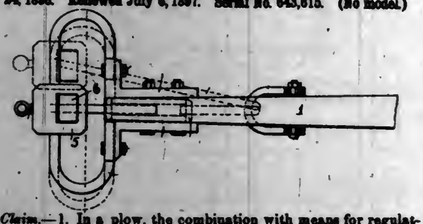
588,582. POTATO-HARVESTER. HUGO R. KUERSTEN, Chicago, Ill., assignor of one-fourth to Paul Pause, same place. Filed Jan. 27, 1896. Serial No. 576,996. (No model.)



Claim.—A potato-digger comprising a frame mounted upon wheels held rigidly in alinement with each other, a plow rigidly

mounted between the foremost pair of wheels, a supplementary pair of wheels movably mounted in a frame pivoted to said main frame between said foremost wheels and adapted to drop below the tread of said foremost wheels and hold the same and said plow above the level of the ground to turn said digger, a rotary fork adapted to gather the potatoes from the furrow cut by said plow, an inclined grate adapted to receive said potatoes from said fork, a rotary comb situated above said fork and having teeth adapted to pass between the prongs of said fork to clear the same; an elevator adapted to receive said potatoes from said inclined grate, an assorting-grate adapted to receive said potatoes from said elevator, receptacles below said assorting-grate, gearing between said foremost wheels and said rotary fork, and gearing between said rear wheels and said comb and said elevator, to cause said comb to revolve in an opposite direction from said fork and at greater speed.

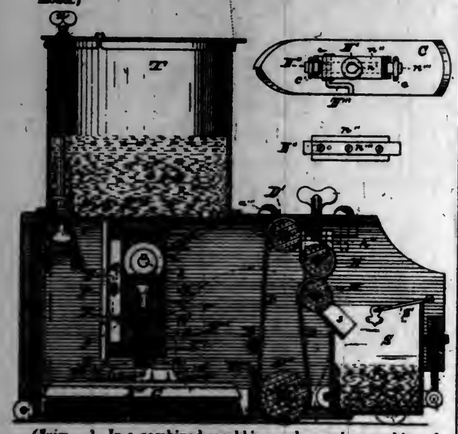
588,583. PLOW-CLEVIS. OTTO LADE, Merrill, Mich. Filed Aug. 24, 1896. Renewed July 6, 1897. Serial No. 643,615. (No model.)



Claim.—1. In a plow, the combination with means for regulating the depth of the furrow, comprising a pin carrying the draw-bar adapted to be raised up and down and held in the position adjusted, and means for regulating the width of the furrow, comprising a horizontal loop engaged by the means regulating the depth of the furrow, whereby the means for regulating the depth of the furrow may be moved laterally on the loop, of additional means for regulating the width of the furrow comprising longitudinal slots in the horizontal loop on the side adjoining the end of the plow-beam, and bolts passing through the slots and adapted when tightened to hold the loop in the position to which it may have been moved on the bolts, substantially as and for the purpose set forth.

2. In a plow, the combination with the plow-beam having secured upon the end thereof horizontal guideways, of a loop adapted to fit in said guideways and to be adjusted therein longitudinally, a yoke adapted to slide longitudinally on the loop and to be secured thereto in any position desired, a vertical pin carrying a draw-bar and passing through the arms of the yoke, and adapted to be clamped with the yoke at the desired height in the desired position on the loop, and a swiveled draw-bar supported by the vertical pin and secured to the plow-beam in the rear of the clevis, substantially as and for the purpose set forth.

588,584. SCRUBBING AND MOPPING MACHINE. JOHN LEDWOS, Buffalo, N. Y. Filed Mar. 3, 1897. Serial No. 626,486. (No model.)

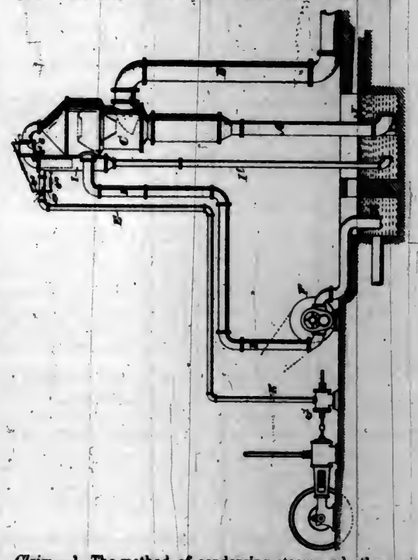


Claim.—1. In a combined scrubbing and mopping machine, the mechanism for raising and lowering the brush, consisting, essentially, of a vertical shaft, means for rotating the same, a T-shaped sleeve over said shaft, a brush removably affixed to the horizontal bar of said sleeve, a grooved collar on said sleeve, a rack operating in suitable guides, a slotted arm on said rack engaging the groove in said collar, a shaft, a pinion on said shaft, engaging said rack, an arm on the end of said shaft having a handle or knob, a pin on said arm, and a segment on the side of the machine having a series of holes as and for the object set forth.

2. In a combined scrubbing and mopping machine, the combination with the apron, of top and bottom guide-rolls for the same, a pair of wringer-rolls, mechanism for moving the apron and wringer-rolls, levers having slotted ends engaging the pivots of the lower guide-rolls at one end, a cross-bar connecting the levers at the opposite end, an adjusting-screw projecting centrally from said cross-bar, and a revolving nut located in a slot in the body of the machine as and for the purpose indicated.

3. In a floor-scrubbing machine, the mechanism for removably attaching the brush to the driving-shaft, consisting, essentially, of a T-shaped sleeve, a longitudinal groove in the lower part of the horizontal bar on said sleeve, a plate in said groove and projecting from one end of said bar, a slide at the opposite end of said groove and projecting therefrom, a brush, and two oppositely-located staples on the top of said brush adapted to engage the projecting ends of the plate and the slide, and a crank-lever for actuating the slide as and for the object set forth.

588,585. CONDENSER. CARL O. LINDROTH, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed Aug. 21, 1896. Serial No. 603,556. (No model.)



Claim.—1. The method of condensing steam and other vapors which consists in exhausting or rarefying the air in the condenser by the action of an air-pump, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, and temporarily decreasing the vacuum in the condenser when said condenser works by parallel currents and thus causing it to resume condensation by counter-currents by cutting off the free communication of the air-pump with the condenser without decreasing the action of the air-pump.

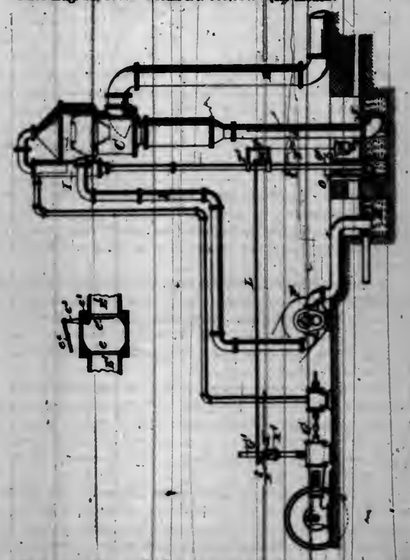
2. The method of condensing steam and other vapors which consists in exhausting or rarefying the air in the condenser by the action of an air-pump, causing the condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents, temporarily decreasing the vacuum in the condenser and increasing the vacuum in the air-pump and connected parts when said condenser works by parallel currents thus causing it to resume condensation by counter-currents by cutting off the free communication of the air-pump with the condenser without decreasing the action of the air-pump and on resumption of condensation by counter-currents rapidly lowering the vacuum in the condenser by reopening its connection with the air-pump and connected parts in which a high vacuum has been temporarily created as aforesaid.

3. In combination with a counter-current condenser having an air-exhaust pipe leading therefrom, a throttle in said air-exhaust pipe and means for closing said throttle actuated by an excessive flow of water through the air-exhaust pipe from the condenser.

4. In combination with a counter-current condenser, an air-pump and an air-exhaust pipe leading from the condenser to said pump and adapted to serve as an exhausted receiver when closed, a throttle in said air-exhaust whereby the free communication of the condenser therewith can be cut off and means for temporarily closing said throttle when the condenser ceases to work by counter-currents and opening it when the condensers resume normal operation.

5. In a counter-current condenser having an air-exhaust pipe a hinged flap as *d* situated in the air-exhaust pipe across the line of motion of fluid moving therein and means for transmitting motion actuated by said flap.

588,586. CONDENSER. CARL O. LINDROTH, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed Aug. 21, 1896. Serial No. 603,557. (No model.)



Claim.—1. The method of condensing steam and other vapors which consists in exhausting or rarefying the air in the condenser by the constant sucking action of an air-pump causing condensing water and steam to pass through the condenser in counter-currents alternating with parallel currents and temporarily decreasing the sucking or exhausting action of the air-pump when the condenser works by parallel currents in order to lower the vacuum in the condenser and cause it to resume condensing action by counter-currents, all substantially as specified.

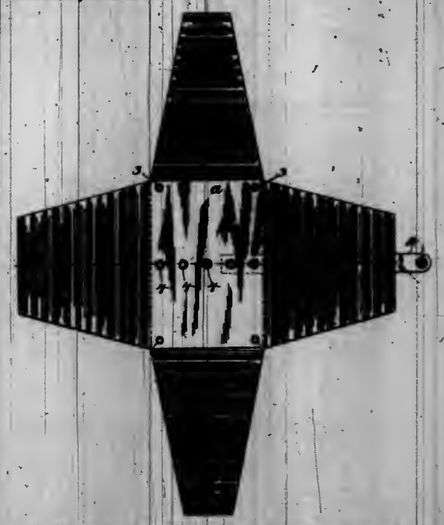
2. In combination with a counter-current condenser an air-pump and an air-exhaust pipe connecting the condenser-body and pump, a device for checking the motion of the air-pump, a device arranged as described to be moved when the condenser works by parallel currents and means for transmitting motion from said device to the device for checking the motion of the air-pump, all as specified and so as to break the action of the condenser whenever it changes from counter to parallel current condensation.

3. In combination with a counter-current condenser an air-pump and an air-exhaust pipe connecting the condenser-body and pump, a throttle-valve in the steam-pipe of the air-pump, a device arranged as described to be moved when the condenser works by parallel currents and means for transmitting motion from said device to the throttle-valve all as specified and so as to break the action of the condenser whenever it changes from counter to parallel current condensation.

588,587. PACKAGE FOR LAUNDERED OR OTHER ARTICLES. WARREN E. LOCKE, Somerville, Mass. Filed Oct. 21, 1896. Serial No. 609,496. (No model.)

Claim.—1. The package herein described consisting of a central section and several folding-in flaps, one pair of which at opposite sides of said central section are formed or provided with corresponding transverse corrugations, and means for holding the flaps folded in, substantially as described.

2. The package herein described consisting of a central section and several folding-in flaps formed or provided with regular transverse corrugations, and a strap attached at one end to said central section and provided at its other end with a stud and several sockets in the central section into any one of which said stud may be placed, substantially as described.



3. The package herein described consisting of two pieces of material laid one upon the other at right angles with relation to each other, and means for attaching them together thereby presenting a central rigid section and two pairs of folding-in flaps, means for holding said folding-in flaps in engagement with one another when folded in, and a strap attached at one end to said central section and adapted to be carried around the package and secured, to hold all the folding-in flaps in engagement, substantially as described.

4. The package herein described consisting of two pieces of material laid one upon the other at right angles with relation to each other, each formed of a flat central portion and transversely-corrugated ends, means for attaching said pieces together, thereby presenting a central rigid section and two pairs of transversely-corrugated folding-in flaps, and means for holding said flaps when they are folded in and brought into engagement with each other, substantially as described.

588,588. SAFETY-LOCK FOR ELEVATORS. GEORGE W. MACKENZIE, Beaver, Pa. Filed Oct. 21, 1896. Serial No. 609,529. (No model.)

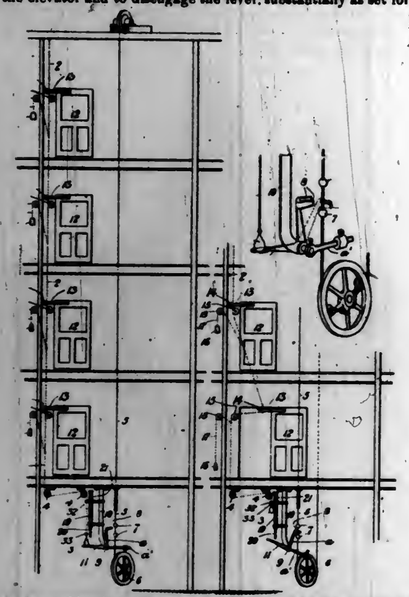
Claim.—1. In combination with a pivoted lever designed to lock the valve-operating mechanism of an elevator-car; a chain suspended at the top of the elevator-shaft, doors opening into the shaft, connections between the doors and the chain whereby the chain is raised by motion of the doors, and a weight secured to the bottom of the chain and above one arm of the lever, substantially as set forth.

2. In combination with a chain suspended at the top of the elevator-shaft, doors opening into the shaft, connections between the doors and the chain whereby the chain is raised by motion of the doors, and a weight secured to the bottom of the chain; a lever pivoted in proximity to the valve-operating cable provided with an arm projecting into the path of the suspended weight and designed to engage buttons secured to the cable, substantially as set forth.

3. In combination with a suspended chain provided with a weight at its bottom and means attached to each door for raising the chain; a forked lever pivoted in proximity to the valve-operating cable provided with an arm projecting into the path of the suspended weight, and adjacent buttons secured to the cable, designed to be engaged by the forked lever, substantially as set forth.

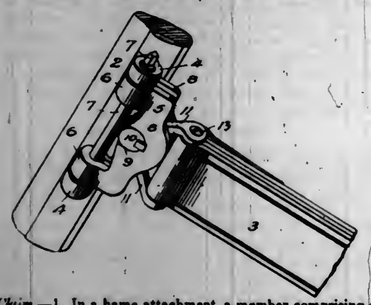
4. In combination with a suspended chain provided with a weight at its bottom and means attached to each door for raising the chain; a forked lever pivoted in proximity to the valve-operating cable provided with an arm projecting into the path of the suspended weight, and adjacent buttons secured to the cable, designed to be engaged by the forked lever, with a counterweighted arm for throwing the forked lever into engagement with the buttons upon raising the suspended weight, substantially as set forth.

5. In combination with a pivoted lever designed to lock the valve-operating mechanism of an elevator; a rod adapted to be depressed by the elevator and to disengage the lever, substantially as set forth.



6. In combination with a suspended chain, and means secured to the doors for lifting the chain; auxiliary counterweights secured to the ends of secondary chains attached to the main chain, passing over sheaves, and designed to assist in raising the main chain, substantially as set forth.

588,589. **HAME-TUG ATTACHMENT.** JOHNSTON MEALEY, Howard Lake, Minn. Filed Nov. 28, 1896. Serial No. 613,741. (No model.)



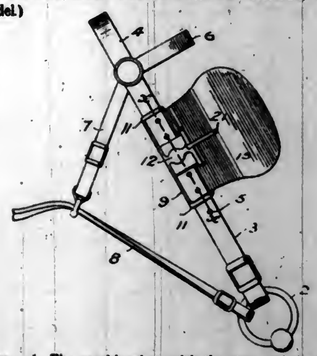
Claim.—1. In a hame attachment, a member comprising a bent frame, the loop of which is adapted to receive the pivot upon the hame, the sides of said frame having notches or recesses, in combination, with a second member having its sides embraced between the sides of the first member, and having an integral pivot seated in the notches or recesses of the first member, substantially as described.

2. In a hame attachment, a member comprising a bent frame, the loop of which is adapted to receive the pivot upon the hame, the sides of said frame having notches or recesses, in combination, with a second member having its sides embraced between the sides of the first member, and having an integral pivot seated in the notches or recesses of the first member, and said integral pivot having lugs to engage the sides of the first member to prevent the same from spreading, substantially as described.

3. The combination, in a hame-tug attachment, of a clip adapted to be pivoted upon the hame and having two side portions 8 each provided with a notch or recess, and a second clip having an integral pivot journaled in said notches and prevented from lateral movement therein by engagement with the pivot pin or bolt of the first member, substantially as described.

4. In a hame-tug attachment, the first member having the eye portions 6 and the side parts 8, each side part having a notch 9, in combination, with a second member having eyes 12 to receive a pin or screw, said second member also having the integral pivot 10 journaled in said notches 9 and having the lug to engage and prevent the spreading of the sides of the first member, substantially as described.

588,590. **BRIDLE BLINDER-BUCKLE.** JOHNSTON MEALEY, Howard Lake, Minn. Filed Nov. 28, 1896. Serial No. 613,742. (No model.)



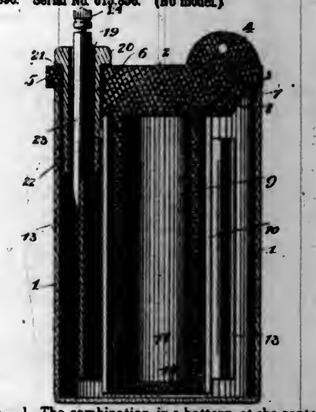
Claim.—1. The combination, with the strap, of the blinder and the buckle comprising the frame inclosing the strap and parts of the blinder, said frame having cross-bars on opposite sides, and said bars having studs engaging the strap and said blinder, substantially as described.

2. The combination, with the strap, of the blinder and the buckle comprising the frame inclosing the strap and parts of the blinder, said frame having cross-bars on opposite sides, and said bars having studs engaging the strap and said blinder, and a brace-arm extending from the frame to the outer or middle part of the blinder, substantially as described.

3. A blinder-buckle, comprising the side bars 9 and 10, the end and middle bars 11 and 12 provided with inwardly-extending studs or lugs, the cross-bars 17 on the under side of said buckle and having inwardly-extending studs or lugs, and said side bar 10 upon either side of said middle bar being offset or inwardly curved, for the purpose set forth.

4. A blinder-buckle, comprising the side bars 9 and 10, the end and middle bars 11 and 12 provided with inwardly-extending studs or lugs, the cross-bars 17 on the under side of said buckle and having inwardly-extending lugs or pins, the laterally-extending arm carried by said side bar 10, and said arm being provided with prongs or lugs upon its outer end to engage the blinder, substantially as described.

588,591. **ELECTRIC BATTERY.** WILLIAM MILLS, Elizabeth, N. J., assignor to the New York Carbon Works, New York, N. Y. Filed Nov. 30, 1896. Serial No. 613,856. (No model.)



Claim.—1. The combination, in a battery, of the containing-cell, a cover therefor, the annular zinc element, an insulating-bushing detachably secured to the edge of said element, and a conducting-rod secured to said element below the bushing and passing upwardly and outwardly through said bushing, substantially as described.

2. The combination, in a battery, of the containing-cell, a cover therefor, the annular zinc element, an insulating-bushing having a circular aperture extending therethrough and detachably secured to the edge of said element, the bushing supporting the said element on the cover, and a circular conducting-rod secured to said element below the bushing and extending upwardly through said bushing, substantially as described.

3. In a battery, the combination with the containing-cell, and a cover therefor, of the zinc or other plate having a screw-thread formed therein, an opening in said cover, an insulating-body extending through said cover and provided with a screw-thread for detachably securing said body to the zinc and supporting said zinc from the cover, substantially as described.

4. In a battery, the combination with the containing-cell, and a cover therefor, of the zinc or other plate, and a screw-thread formed therein, an opening in said cover, an insulating-body extending through said opening in the cover and provided with a screw-thread for detachably securing said body to the zinc and supporting said zinc from the cover, and an exterior connection for the zinc extending to the zinc through said body, substantially as described.

5. The combination with the containing-cell, of the cover therefor, an opening in the cover, an apertured bushing resting upon said cover, said bushing having an exterior screw-thread at its lower end, the zinc or other plate, a recess formed in the upper edge of said plate provided with an internal screw-thread, both threads engaging to support the zinc by the bushing from the cover, and a conducting-rod secured to the zinc and extending upwardly therefrom through the bushing, substantially as described.

6. In a battery, the combination with a containing-cell, a depending carbon element and a supporting-cover therefor, of the annular zinc element embracing the carbon, an insulating-bushing detachably secured to the zinc element below the latter's upper edge, and supported on said cover, and means comprising a separate conducting-rod passing loosely through the bushing and secured to said element below its upper edge, said means limiting transverse movement of said zinc element in relation to the bushing, substantially as described.

7. The combination with the element formed of a plate of zinc, a recess formed in one of its edges, the vertical walls of which recess are reinforced, a screw-thread formed in the walls of said recess, and a supporting-bushing provided with an external screw-thread for engaging the first-mentioned screw-thread, substantially as described.

8. The combination with the cell 1 and cover 2, of the annular zinc plate, and a cylindrical insulating-bushing detachably secured to said plate below its upper edge, the bushing having a projection resting on said cover, substantially as described.

9. The combination with a zinc or other electrode, of a hollow insulating-bushing detachably secured directly thereto, and a conducting-rod passing loosely through said bushing and secured to the said electrode independently of the attachment of the bushing to the said electrode, substantially as described.

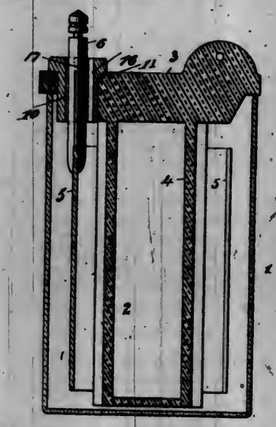
10. The combination with the zinc or other electrode having a screw-threaded recess formed in its edge, of a conducting-rod secured to said zinc at the bottom of said recess, and a hollow insulating-bushing provided with an exterior screw-thread to engage the thread on the zinc, said rod extending through said bushing, substantially as described.

11. In a battery, the combination with the containing-cell, of the integrally-formed element comprising the top or cover adapted to rest on the cell, a boss depending from and of less diameter than the top, a carbon-body depending from and of less diameter than the boss, the top and boss having an aperture formed therein outside of said body, an annular plate encircling said carbon-body, an insulating-bushing having a head resting on said cover and passing through said aperture and detachably secured to the plate below its upper edge, a binding-post exterior to the bushing, and a rod extending loosely through the bushing and between the binding-post and said plate, the boss and top forming an elongated bearing for bushing, substantially as described.

588,592. **ELECTRIC BATTERY.** WILLIAM MILLS, Elizabeth, N. J., assignor to the New York Carbon Works, New York, N. Y. Filed Nov. 30, 1896. Serial No. 613,857. (No model.)

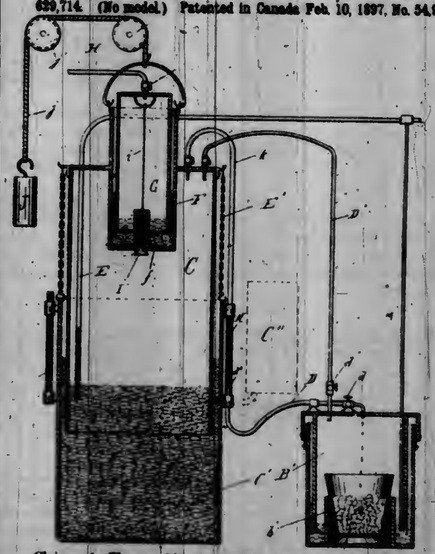
Claim.—1. The combination with the rod 6, of the apertured bushing 7, the rod being of less diameter than the aperture in the bushing, the recess 14 formed in the bushing and opening out of the top, said recess extending downwardly for a short distance and ending in a seat, a groove 16 formed in the interior of said bushing, and a stud extending outwardly and at right angles from the rod for cooperation with said recess and groove, both the recess 14 and groove 16 conforming in cross-section to the shape of the stud, as and for the purposes herein described.

2. The combination of the cell, the cover, the element depending from said cover, the plate surrounding said element, an upwardly-extending rod secured to said plate, an apertured insulating-bushing passing through said cover, a recess formed in said bushing opening into said aperture, a groove likewise formed in said bushing and passing entirely therethrough, a boss on the exterior of the bushing engaging a seated recess formed in the cover, and a stud extending from said rod for cooperation with either the recess or groove in the bushing, substantially as described.



3. The combination of the cell 1, cover 3 and bushing 7, the bushing having the head 8 and body 9, a boss 11 formed on the exterior of the body at the junction of the head and body, a hole 13 formed in said cover, and a seated recess 12 formed in the top of said cover at said hole for receiving the boss 11, substantially as and for the purposes herein set forth.

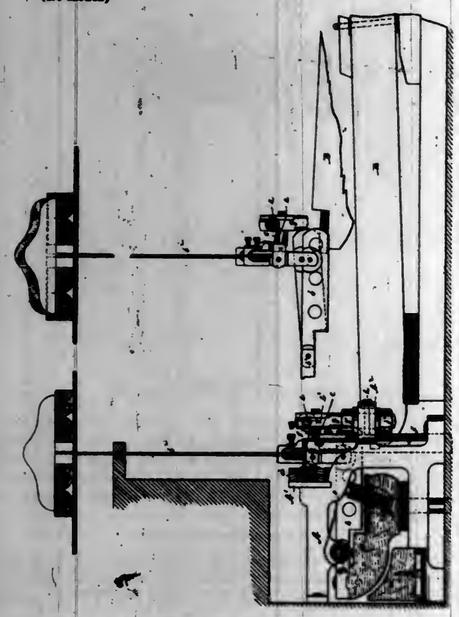
588,598. **APPARATUS FOR GENERATING ACETYLENE GAS.** DAVID C. MORENOT, Levis, Canada. Filed Mar. 29, 1897. Serial No. 629,714. (No model.) Patented in Canada Feb. 10, 1897, No. 54,962.



Claim.—1. The combination, with an outer vessel for holding liquid, of an inner vessel for holding gas open at its bottom and floating in the said liquid, a tube having its upper end connected to the gas-space of the inner vessel and its lower end connected to the water-space of the outer vessel, and a liquid-supply pipe provided with a nozzle projecting upwardly in the said tube, the flow of liquid through the said nozzle and tube being regulated automatically by the pressure of the gas in the said inner vessel, substantially as set forth.

2. The combination, with an outer vessel for holding liquid, of an inner and slidable vessel for holding gas, a tube having its lower end connected to the water-space of the outer vessel, a flexible pipe connecting the upper part of the said tube with the gas-space of the inner vessel, and a liquid-supply pipe provided with a nozzle projecting upwardly in the said tube, substantially as set forth.

588,594. DAMPER-ACTION FOR GRAND PIANOS. ADAM NICKEL, New York, N. Y. Filed May 3, 1897. Serial No. 634,828. (No model.)



Claim.—1. In a damper-action for grand pianos, the combination of damper-brackets, with vertically and horizontally adjustable bearings secured thereto, and with a sustaining-rod hung within such bearings, substantially as specified.

2. In a damper-action for grand pianos, the combination of a damper-bracket, having a forwardly-extended slotted arm, with a screw having a perforated head and adjustably supported by the arm, and with a sustaining-rod hung within the perforated screw-head, substantially as specified.

3. In a damper-action for grand pianos, the combination of a damper-bracket having a forwardly-extending slotted arm with a flattened perforated screw, a sustaining-rod hung within the perforation of the screw, and with a pair of nuts and a set-screw for causing a vertical and horizontal adjustment of the screw, substantially as specified.

588,595. COMBINED CANE AND UMBRELLA. JOHN H. NOLAN, Boston, Mass. Filed July 29, 1896. Serial No. 600,958. (No model.)



Claim.—1. In combination with the case fitted to serve as a stick and also to contain a folded umbrella, a runner having an enlarged lower end fitted to the upper end of the case and means for detachably connecting it with the end of the case and a reduced upper extension above the point of attachment of the stretchers and provided with a slot for engagement with the catch of a rod *a*, to which the ribs are pivoted, substantially as described.

2. A case adapted to receive the folded umbrella and to serve as a stick therefor when the umbrella is open, the same case having a catch and a pin in the interior of its smaller open end, a rod *a* to which the ribs of the umbrella are pivoted, said rod having a spring-catch and a reduced extension *b*, a runner which has an enlarged tubular lower end fitted to enter the upper end of the case and provided with an interior shoulder and notched beveled edge, and having also a reduced upper end extending above the point of attachment of the stretchers, said upper end being provided with a slot for the catch, all these parts being constructed and combined substantially as described.

588,596. RAIL-JOINT. EDWARD NORTON, Lumberton, Miss. Filed Feb. 4, 1897. Serial No. 621,953. (No model.)



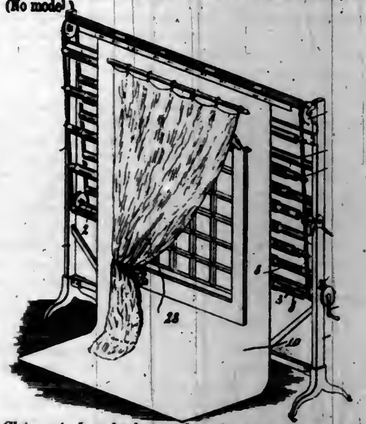
Claim.—1. The combination with one rail having a vertical apertured web, and an extended horizontal portion having a horizontal groove formed therein, of another rail also provided with a vertical apertured web and a horizontal extension having a horizontal groove formed therein; the construction being such that when the two rails are applied together the web of one enters the groove of the horizontal extension of the other, whereby securing-bolts may be passed through the web, and the horizontal portions also supported and braced in position, substantially as described.

2. The combination with rails having an extended base formed with a horizontal groove, of a vertical web mounted on said extended base, another rail having an extended tread formed with a horizontal groove, an apertured web pendent from said tread; the construction being such that the vertical web of one rail enters the horizontal groove of the adjoining rail so as to bring the apertures of the webs into coinciding positions, whereby securing-bolts may be passed through the same, substantially as described.

3. The combination with a rail having an extended base formed with a groove and a vertical apertured web having a shoulder at its upper end, of another rail having an extended tread formed with a groove and a vertical apertured web having a shoulder at its lower end; the construction being such that the vertical web of one rail enters the vertical groove of the other rail and the shoulder of one web abuts against a portion of the opposing rail, substantially as described.

4. The combination with a rail having an extended base formed with a horizontal groove and a vertical apertured web, of another rail having an extended tread and formed with a horizontal groove, and a vertical web having elongated slots and bolts adapted to be passed through said slots and the apertures of the adjoining web; the construction being such that the web of one rail enters the groove of the adjoining rail, whereby the tread and base portions are supported and braced in position, substantially as described.

588,597. PHOTOGRAPHIC-BACKGROUND CARRIER. LUCIEN C. OVERPECK, Hamilton, Ohio. Filed May 5, 1894. Serial No. 510,149. (No model.)



Claim.—1. In a background-carrier, the combination, substantially as set forth, of a framework, a movably-connected series of parallel rolls mounted therein capable of being unwound at any point and arranged to be brought selectively into position for use, a retarding agent for each roll, a winding-crank mounted on said frame, and a winding-spindle connected with said crank and adapted to be engaged selectively with said rolls.

2. In a background-carrier, the combination, substantially as set forth, of a frame, a pair of belts carried by wheels mounted on said frame, rolls journaled in said belts capable of being unwound at any point, a retarding agent for each roll, a winding-crank mounted on said frame, and a winding-spindle connected with said crank and adapted to be engaged selectively with said rolls.

3. In a background-carrier, the combination, substantially as set forth, of a framework, wheels supported thereby, a pair of belts engaging said wheels, rolls carried by said belts capable of being unwound at any point, a retarding agent for each roll, a winding-crank mounted on said frame, a winding-spindle connected with said crank and adapted to be engaged selectively by said rolls, and a shifting-crank arranged to move said chains to bring a selected roll into position for use and to bring a selected roll to the winding-spindle.

4. In a background-carrier, the combination, substantially as set forth, of a frame, a shaft and wheels mounted on the frame, a pair of belts carried by said wheels, rolls carried by said belts, a winding-crank mounted on the frame, and an endwise-movable winding-socket located on the frame connected with said crank and adapted to be engaged selectively with said rolls.

5. In a background-carrier, the combination, substantially as set forth, of the uprights of the frame, the sprocket-wheels, the shaft connecting a pair of said sprocket-wheels, the chains engaging the sprocket-wheels, the rolls carried by the chains, the endwise-movable winding agent, means for actuating the winding agent located upon the frame, and means for revolving the sprocket-wheels and rolls.

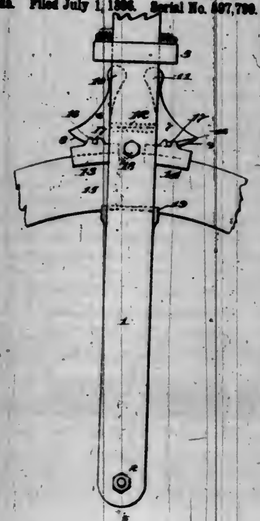
6. In a background-carrier, the combination, substantially as set forth, of a frame, wheels, belts and a series of rollers mounted thereon, a retarding agent for each roll, and a brake-pad mounted on the frame and adapted to be engaged by said rollers selectively.

7. In a background-carrier, the combination, substantially as set forth, of a frame, wheels, belts and a series of rollers mounted thereon, a retarding agent for each roll, and a brake-pad pivoted to the frame and adapted to engage a selected one of said rollers when brought to it and adapted to turn out of the path of said rollers.

8. In a background-carrier, the combination, substantially as set forth, of a roller having a journal and bearing, a non-rotary friction-hub carried by the bearing, a second friction-hub carried by the roll-journal and free for continued rotation thereon and engaging the first-mentioned friction-hub, a spring urging said friction-hubs into contact, and a pawl and ratchet in connection with the roll and second friction-hub and arranged to cause said hub to turn positively with the roll when the roll turns in the unwinding direction.

9. In a background-carrier, the combination, substantially as set forth, of a frame, sprocket-wheels carried thereby, a shaft connecting a pair of said sprocket-wheels, chain belts engaging said wheels, a series of rolls carried by said belts capable of being unwound at any point, a retarding agent for each roll, a winding apparatus mounted on the frame and adapted to be engaged by any selected one of said rolls, a hand-crank on said shaft, a toothed wheel on said shaft at said crank, and a two-way pawl mounted on the frame and adapted to engage said toothed wheel.

588,598. CONTROLLING-LEVER. ALBERT L. PARSONS, Winnipeg, Canada. Filed July 1, 1896. Serial No. 597,799. (No model.)



Claim.—1. In a controlling-lever, the combination with a lever of a friction-segment, shoes slidable on said segment, pivoted jam-dogs having eccentric feet which bind on the shoes, and said dogs being pivotally connected to said shoes, a spring for drawing the dogs toward each other, and means for releasing either dog and shoe from their binding action on the segment.

2. In a controlling-lever, the combination with a lever, of a handle pivoted to said lever, a friction-segment, a device for connecting the handle and lever positively when the former is moved, jam-dogs pivoted to the lever, friction-shoes slidable on the segment and connected to the respective dogs, said dogs and shoes being adapted to hold the handle and lever locked by frictional contact with the segment, and means for tripping said dogs when the handle is moved.

3. In a controlling-lever, the combination with a lever, of a handle pivoted to the lever, a friction-segment, a collar connected to the lever and encircling the handle, jam-dogs pivoted to the lever, a spring for keeping said dogs normally drawn together, friction-shoes connected to the respective dogs and binding on the segment, and a pin connected to the handle and adapted to trip the dogs and shoes when the handle is moved.

4. In a controlling-lever, the combination with a lever, of a handle pivoted thereto, a friction-segment, dogs pivoted to the lever and having cam ends, shoes slidable on the segment and on which the cam ends of the dog bind, a coil-spring connected to the dogs and adapted to draw them together, a collar connected to the lever, springs connecting the collar to the handle on opposite sides thereof, and a tripping pin or bolt pivoted to the handle and adapted to trip the dogs.

588,599. HARVESTER. REES A. PROW, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Jan. 6, 1896. Serial No. 574,534. (No model.)



Claim.—1. The combination in a harvesting-machine of a harvester-frame adapted to be tilted upon its supports, an adjustable reel mounted thereon, means under the control of the operator for regulating the height of said reel and means under the control of the operator for tilting said harvester-frame and connecting mechanism between said reel and said harvester-frame, whereby the reel is lowered relative to said platform when the forward edge of the platform is tilted downward, and the reel is raised when the front edge of the platform is raised, substantially as described.

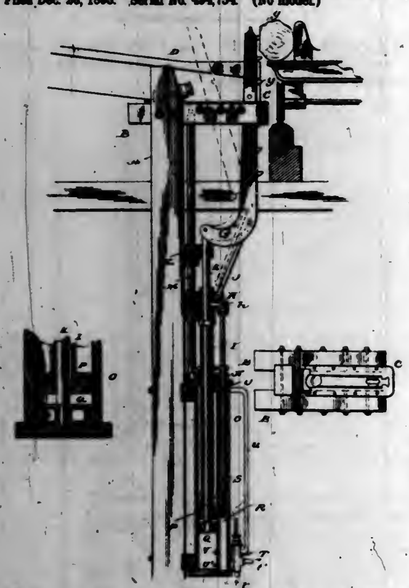
2. The combination in a harvesting-machine of a harvester-frame adapted to be tilted upon its supports, an adjustable reel mounted thereon, means under the control of the operator for tilting said harvester-frame and connecting mechanism between said reel and said

harvester-frame, whereby the reel is lowered relative to said platform when the forward edge of the platform is tilted downward, and the reel is raised when the front edge of the platform is raised, substantially as described.

3. In a thrust-cut harvester the combination of a wheel-frame having an axletree supported upon the main wheels and a thrust-tongue pivoted thereto, the said axletree having forwardly-extending arms and adapted to be rocked upon the supporting-wheels, a harvester-frame pivotally supported upon said outreaching arms, means for tilting said harvester-frame upon its pivotal support and means for rocking said axletree whereby the said harvester-frame is carried bodily to and from the ground, and a reel and reel-adjusting mechanism within reach of the operator, connecting mechanism between said reel and said harvester-frame whereby when the said frame is tilted forwardly the said reel is moved toward said frame and when said frame is tilted rearwardly the said reel is moved away from said frame, substantially as described.

4. In a harvesting-machine, a harvester-frame adapted to be tilted on its supports, an adjustable reel mounted thereon, mechanism connecting said reel to a part of the machine that does not change its position when the platform is tilted, and tilting mechanism whereby the tilting of the platform downward lowers the reel, and the tilting of the front of the platform upward raises the reel, substantially as described.

588,600. LOG-TURNER. GEORGE M. PELTON, Belmont, N. Y. Filed Dec. 26, 1893. Serial No. 494,754. (No model.)



Claim.—1. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, and a bar for operating on the log, connected with both pistons, substantially as described.

2. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, a bar for operating on the log, and connections between the pistons and operating-bar one of said pistons being connected to the bar near the lower end thereof and the other to a lateral extension of the same, whereby the pistons may move said bar laterally, substantially as described.

3. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, a toothed bar connected with both pistons, and inlet and exhaust ports arranged to admit or exhaust steam or other operating fluid at any portion of the stroke, substantially as described.

4. The combination in a log-turner, of a cylinder, two pistons of the same diameter working therein, a bar for operating on the log having a lateral extension pivotally connected with one of the pistons, and a link connecting it with the other, substantially as described.

5. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons of the same diameter working therein, a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with an extension on said bar, a passage connected with the steam-supply, and a tube working therein whose bore connects with the hollow piston-rod, substantially as described.

6. The combination in a log-turner, of a toothed bar G having extension G', a cylinder O, pistons P Q working therein, piston-rods I K connected to said pistons and the extension G' and bar G respectively, the cross-head H having a passage h communicating with the hollow piston rod K, link J connecting the toothed bar with the cross-head H, a steam-passage R in the cylinder connecting with the steam-supply, a tube S running in said passage R and connected to the cross-head H and passage h, and suitable inlet and exhaust passages, substantially as described.

7. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, each arranged and adapted to travel through the major part of the length of the cylinder, and a passage for the motive force adapted to deliver the same between the pistons at any part of the cylinder, substantially as described.

8. In a log turner, the combination of a cylinder, two pistons of the same diameter working therein, arranged and adapted to work through the major part of the length of the cylinder, a passage for the motive force adapted to deliver the same between the pistons at any part of the cylinder, and a bar for operating on the log connected with both pistons, substantially as described.

9. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, arranged and adapted to work through the major part of the length of the cylinder, a passage for the motive force adapted to deliver the same between the pistons at any part of the cylinder, a bar for operating on the log, and connections between the pistons and operating-bar, one of said pistons being connected to the bar near the lower end thereof and the other to a lateral extension of the same, whereby the pistons may move said bar laterally, substantially as described.

10. In a log-turner, the combination of a cylinder, two pistons of the same diameter working therein, a toothed bar connected with both pistons, and inlet and exhaust ports arranged to admit or exhaust steam or other operating fluid between the pistons at any portion of the cylinder, substantially as described.

11. The combination in a log-turner, of a cylinder, two pistons of the same diameter working therein, a bar for operating on the log having a lateral extension pivotally connected with one of the pistons, and a link connecting it with the other, substantially as described.

12. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons of the same diameter working therein, a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with an extension on said bar, a passage connected with the steam-supply, and a tube working therein whose bore connects with the hollow piston-rod, substantially as described.

13. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons of the same diameter working therein, a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with an extension on said bar, and a cross-head carried by one of the piston-rods, having a steam-passage through it connecting the space between the pistons with the source of power, substantially as described.

14. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons of the same diameter working therein, a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with an extension on said bar, a cross-head carried by one of the piston-rods, having a steam-passage through it connecting with the hollow piston-rod, and a pipe whose core connects with said passage and the source of power, substantially as described.

15. The combination in a log-turner, of a bar for operating on the log, a cylinder, two pistons of the same diameter working therein, a hollow piston-rod connected with said bar, a second piston-rod working in the hollow piston-rod and connected with an extension on said bar, a cross-head carried by one of the piston-rods, having a steam-passage through it connecting with the hollow piston-rod, a pipe whose bore connects with said passage, and a second passage in which said pipe works arranged parallel with the cylinder and communicating with the source of power, substantially as described.

588,601. HEATING APPARATUS. BENJAMIN PRICE, Baltimore, Md. Filed June 6, 1894. Serial No. 513,619. (No model.)



Claim.—1. In a heating apparatus for compartments, a tubular radiator located wholly within each of the compartments, provided with an inclosed heat-absorbing substance perforated longitudinally to receive a heat-supply pipe, in combination with a heat-supply pipe passing through the perforations in each of the heat-absorbing substances and connected with a source of heat-supply, and valve-controlled connections located within the compartment and joining the heat-supply pipe with the radiator, whereby the heating agent may be admitted from the heat-supply pipe direct to one or more of the heat-absorbing substances in the radiators and be cut off from the others, substantially as described.

2. In a heating apparatus for compartments, a tubular radiator, located wholly within each compartment, provided with an inclosed heat-absorbing substance, perforated longitudinally to receive a heat-supply pipe, and leave an annular space between the two, in combination with a heat-supply pipe passing through the perforation in the heat-absorbing substance and connected with a source of heat-supply, and valve-controlled connections, located outside of the radiator and joining the same with the heat-supply pipe, whereby the heat may be admitted through the annular space to the heat-absorbing substance surrounding the annular space and be cut off by the attendant in the compartment.

3. In a heating apparatus for compartments, a tubular radiator located wholly within each of the compartments, provided with an inclosed heat-absorbing substance perforated to receive a heat-supply pipe, and leave an annular space between the two, in combination with a heat-supply pipe passing through each of said perforations and connected with a source of heat-supply, and valve-controlled connections joining the heat-supply pipe with the radiator, and a valve-controlled drain-pipe for the radiator, substantially as described.

4. In a heating apparatus for compartments, a radiator composed of two sections, formed of tubular pipes, provided on their adjacent ends with a screw-thread, in combination with a double head having a screw-thread at each end adapted to join the two sections of the radiator, and provided with an aperture through the same, properly threaded to receive the end of a heat-supply pipe, and a heat-supply pipe passing through the radiator and secured into the threaded aperture, substantially as described.

5. In a heating apparatus for compartments, a radiator composed of two sections formed of tubular pipes, and a heat-supply pipe passing through the radiator, in combination with a double head joining the sections and formed in a single piece, and provided with a passage-way forming part of a heat-supply pipe, and a passage-way for drawing the water of condensation from the heater.

6. In a heating apparatus for compartments, a radiator composed of two sections formed of two pipes and a heat-supply pipe passing through them, in combination with a double head joining the sections, and formed in a single piece, and provided with a passage-way forming part of the heat-supply pipe, a passage-way for drawing the water of condensation from the heater, and a valve-controlled opening leading from the steam-supply pipe to the drain.

7. In a heating apparatus for compartments, a radiator provided with means for admitting a heating agent thereto and means for cutting it off, in combination with a cooling device consisting of a valve-controlled inlet opening into the radiator and communicating with the outer air, and a valve-controlled opening for discharging the air from the radiator, whereby a current of air is passed through the radiator when the heating agent is cut off, and means for operating the ingress and egress valves located within the compartment.

8. In a heating apparatus, for compartments, a radiator provided with means for admitting a heating agent thereto and means for cutting it off, in combination with a cooling device consisting of a valve-controlled inlet opening into the radiator and communicating with the outer air, and a valve-controlled outlet for the same provided with means for injecting a blast of cooler air through the inlet and outlet, and means for controlling the valves located within the compartment.

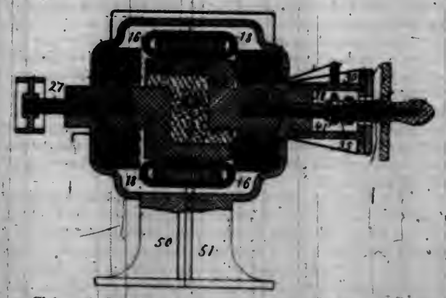
9. In a moving vehicle, a radiator provided with a cooling device, consisting of two valve-controlled openings one of said openings adapted to receive a current of outer air into the radiator induced by the movement of the vehicle, and the other adapted to discharge the air, and thereby reduce the temperature of said radiator, and means for actuating the valves located within reach of the attendant of the vehicle.

10. In a heating apparatus for compartments, the combination with a radiator located wholly within the compartment and provided with a heat-supply pipe, and valve-controlled connections between the said pipe and the radiator, of a cooling device, consisting of valve-controlled apertures in said radiator one of which is adapted to receive and the other to discharge a current of cooler air from without, whereby the temperature of the radiator is reduced and means for actuating the valves located within the compartment.

11. In a heating apparatus, the combination with a radiator provided with a valve-controlled heat-supply pipe, a drain-pipe, and connections between the heat-supply pipe and drain-pipe, of a cooling device consisting of a valve-controlled opening in said radiator and a valve-controlled outlet, and means for inducing a current of air through the radiator and drain-pipe actuated by injecting a current of the heating agent through the drain-pipe.

12. In a heating apparatus for compartments, the combination with a radiator having a heat-supply pipe passing through the same, and a drain-pipe connected therewith, of a cooling device consisting of openings in said radiator one for admitting a current of cooler air from without and the other for discharging the same and controlled by valves and means for actuating the same located within the compartment, and means for inducing a current of cooler air therethrough when the valves are opened actuated by a current of the heating agent injected through the drain-pipe.

588,602. DYNAMO-ELECTRIC MACHINE. LEWIS C. RICE, St. Louis, Mo., assignor of one-half to the William Ellison & Sons Manufacturing Company, same place. Filed Nov. 4, 1896. Serial No. 611,029. (No model.)



Claim.—1. In a dynamo-electric machine or motor, a stationary armature, a stationary field magnet or magnets, a rotating inductor-magnet having poles of opposite polarity magnetically insulated from each other, and a casing completely inclosing said armature, field magnet or magnets and inductor-magnet and forming part of the magnetic circuit.

2. In a dynamo-electric machine or motor, a stationary armature, a stationary field magnet or magnets, a rotating inductor-magnet, a sliding magnetic joint between said inductor-magnet and field magnet or magnets, and a casing completely inclosing said armature, field magnet or magnets and inductor-magnet and forming part of the magnetic circuit.

3. In a dynamo-electric machine or motor, a stationary armature, a stationary field magnet or magnets, a rotating inductor-magnet having poles of opposite polarity, said poles of opposite polarity being magnetically and electrically insulated from each other, sliding magnetic joints between said inductor-magnet and the pole-pieces of said field magnet or magnets, and an inclosing casing forming part of the magnetic circuit.

4. In a dynamo-electric machine or motor, a stationary armature, a stationary field magnet or magnets, a rotating inductor-magnet, a stationary commutator, rotating commutator-brushes receiving the current from said commutator, and stationary brushes receiving the current from said rotating brushes.

5. In a dynamo-electric machine or motor, a stationary armature, a stationary field magnet or magnets, a rotating inductor-magnet having poles of opposite polarity, said poles of opposite polarity being magnetically insulated from each other, sliding magnetic joints between said inductor-magnet and the pole-pieces of said field magnet or magnets, an inclosing casing forming part of the magnetic circuit, a stationary commutator electrically connected with said armature, revolving commutator-brushes receiving the current from said commutator, and stationary brushes receiving the current from said rotating brushes.

6. In a dynamo-electric machine or motor, a stationary armature, an inclosing casing carrying a field magnet or magnets and forming part of the magnetic circuit, and a rotating inductor-magnet in sliding magnetic contact with the pole-pieces of said field magnet or magnets and itself under the direct influence of the coils of the field magnet or magnets.

7. In a dynamo-electric machine or motor, a rotating inductor-magnet provided with pole-pieces of opposite polarity intermediate of its axial length, axial projections at each end of said inductor-magnet, magnetic carriers surrounding said axial projections and forming sliding magnetic joints therewith, stationary field-magnet coils surrounding said magnetic carriers, a stationary ring-armature surrounding said inductor-magnet, and a casing surrounding said parts and magnetically connecting the outer ends of said magnetic carriers.

8. In a dynamo-electric machine or motor, an inclosing casing forming part of the magnetic circuit of the machine, a stationary

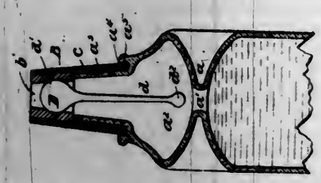
ring-armature supported within said casing, projections on the interior of said casing, stationary field-magnet coils carried by said projections, and a rotating inductor-magnet having pole-pieces of opposite polarity magnetically and electrically insulated from each other, said inductor-magnet rotating within said stationary ring-armature and receiving magnetism from said stationary field-magnet coils.

9. In a dynamo-electric machine or motor, an inclosing casing forming part of the magnetic circuit of the machine, a stationary ring-armature supported within said casing, projections on the interior of said casing, stationary field-magnet coils carried by said projections, a rotating inductor-magnet within said stationary ring-armature, said inductor-magnet having pole-pieces of opposite polarity magnetically insulated from each other, and axial projections on said inductor-magnet, said axial projections entering the said projections on the interior of the casing and forming a sliding magnetic joint therewith.

10. In a dynamo-electric machine or motor, an inclosing casing forming part of the magnetic circuit of the machine, a stationary ring-armature supported within said casing, projections on the interior of said casing, stationary field-magnet coils carried by said projections, a rotating inductor-magnet having pole-pieces of opposite polarity magnetically insulated from each other, said inductor-magnet rotating within said stationary ring-armature and receiving magnetism from said stationary field-magnet coils, a stationary commutator carried by said casing, commutator-brushes for said commutator, said commutator-brushes being carried by said inductor-magnet and revolving therewith, and stationary brushes receiving the current from said rotating brushes.

11. In a dynamo-electric machine or motor, an inclosing casing, a stationary ring-armature within said casing, stationary field-magnet coils also within said casing, a rotating inductor-magnet within said stationary ring-armature, a stationary commutator carried by the exterior of said casing, a shaft or spindle carried by said inductor magnet and rotating therewith, brushes carried by said shaft or spindle and bearing on said commutator, suitable conducting-rings carried by said shaft or spindle and electrically connected with said brushes, and stationary brushes receiving the current from said rings.

588,603. NON-REFILLABLE BOTTLE. ELISABETH RILEY, Newport, R. I. Filed Dec. 7, 1896. Serial No. 614,662. (No model.)

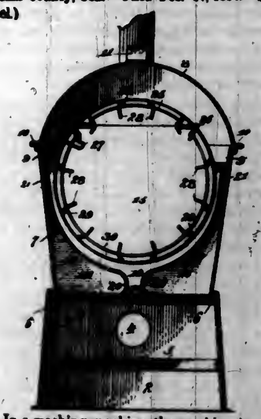


Claim.—1. An improved bottle of the class described, comprising the body having the interior neck or reduced portion above which is formed the top bowl from which rises the neck proper, a cylindrical cap permanently secured in a position surrounding the neck and projecting above the same and provided with a concave interior enlargement forming a pliable reduced conical throat above the neck portion of the bottle, in combination with a stopper-valve embodying a stem having a bulb or head normally seated within said concave pliable throat portion, substantially as and for the purpose set forth.

2. An improved bottle of the class described, comprising the body having the interior neck or reduced portion a' above which is formed the top bowl a^2 from which rises the neck proper a^3, the cylindrical cap inclosing said neck portion and projecting above the same, said cap being interiorly provided at its top with a pliable conical enlargement forming a reduced throat, said enlargement provided with interior concave walls and resting upon the top of the neck portion of the bottle, a cement filling for permanently securing the cap to the neck, and an interiorly-operating stopper embodying a stem and having a bulb or head normally seated and retained within the concave enlargement, substantially as and for the purpose set forth.

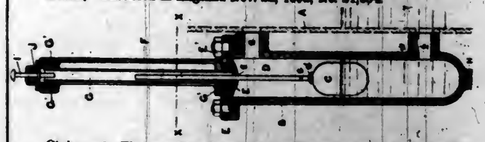
3. An improved bottle of the class described, comprising the body having the interior neck or reduced portion a' above which is formed the bowl a^2 from which projects the neck proper a^3 and provided with the annular groove a^4 formed in the circumferential shoulder a^5 at the base of the neck portion, a cylindrical cap having its lower edge seated in said groove, said cap inclosing the neck and projecting above the same and being provided with the pliable reduced throat b', a cement filling for securing said cap in connection with the neck, and a stopper provided with a stem carrying a bulb or head normally seated in the pliable neck, and a second bulb at its lower end, substantially as and for the purpose set forth.

588,604. WASHING-MACHINE. HENRY B. ROARK, Paris, Tex., assignor of one-half to George F. Hicks, Frank O. Hicks, and Johnson Hale, Lamar County, Tex. Filed Feb. 17, 1897. Serial No. 623,255. (No model.)



Claim.—In a washing-machine, the combination with a suds-box, of similar plates applied to the interior of the suds-box and extending the full length thereof, and curving in opposite directions between their top and bottom edges, and having their upper edges deflected and secured to the sides of the box a short distance from their top edges and provided with openings, and having their lower edges touching and secured to the bottom of the box a short distance from a vertical longitudinal plane passing centrally through the box, and curving oppositely and spaced apart, forming a pocket, and provided with a series of openings, substantially as set forth for the purpose described.

588,605. WATER-GAGE FOR STEAM-BOILERS. JAMES ROBINSON, Leeds, and DAVID DONALD, Penryn, England, assignors of three-fourths to Edwin G. J. De Vin, Cleveland, Ohio, and Thomas F. Craddock, London, England. Filed Aug. 12, 1896. Serial No. 602,663. (No model.) Patented in England Nov. 23, 1892, No. 21,054.



Claim.—1. The combination with a boiler or receptacle for holding liquids under pressure, of a transparent inclosing casing communicating therewith, a stem arranged within the casing, a portion of which is adapted to extend below said casing into the receptacle with which the casing communicates; said stem being further provided with a steam-passage therethrough, extending from the lower end to near the top, and having a port at its upper end through which the steam in the receptacle enters the casing, a float adapted to rest upon the liquid in the boiler, and connections between the float and stem whereby the latter may be raised or lowered as the liquid rises or falls.

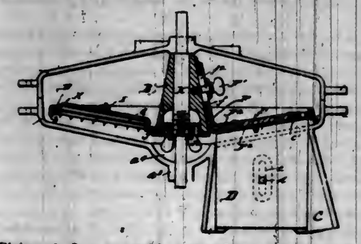
2. The combination with a boiler or receptacle for holding liquids under pressure, of a transparent inclosing casing communicating therewith, a stem arranged within the casing and extending below the same, a valve mounted upon said stem below the casing for the purpose described, a float adapted to rest upon the liquid, and connections between the stem and float whereby the former may be operated as the liquid rises or falls.

3. The combination with a boiler or receptacle for holding liquids under pressure, of a transparent inclosing casing communicating therewith, a stem arranged within the casing, a portion of which is adapted to extend below said casing into the receptacle with which the casing communicates; said stem being further provided with a steam-passage therethrough extending from the lower end to near the top, and having a port at its upper end through which the steam in the receptacle enters the casing, a valve arranged upon the stem below the casing, a float adapted to rest upon the liquid in the boiler, and connections between the float and stem whereby the latter may be raised or lowered as the liquid rises or falls.

4. In combination with a boiler or receptacle for holding liquids under pressure, of a vessel communicating with the interior thereof, a transparent inclosing casing mounted upon the vessel and having communication with the same, a stem located within the casing, a packed gland, and thrust-piece, in the top of the inclosing casing, a float arranged upon the surface of the liquid, and connections between the float and stem whereby the latter may be raised or lowered as the liquid rises or falls, substantially as described.

5. In combination with a boiler or receptacle for holding liquids under pressure, of a vessel communicating with the interior thereof, said vessel being provided with an apertured head E, a transparent inclosing casing arranged upon the vessel and having communication therewith, a stem provided with a passage g located within the casing and adapted normally to extend below the same, a collar arranged upon the stem adapted at certain times to bear against the apertured head E, a packed gland and thrust-piece therein, arranged in the top of the casing, a float adapted to rest upon the surface of the liquid, and connections between the float and stem whereby the latter may be raised or lowered as the liquid rises or falls, substantially as and for the purpose described.

588,606. VEGETABLE-CUTTER. JOHN F. ROTH, Reading, Pa. Filed June 13, 1896. Serial No. 595,379. (No model.)



Claim.—1. In a vegetable-cutter the combination with a supporting-casing of a rotary cutter-wheel having a convex or conical working face, a tapering hub, and a knife-opening, and a knife-arm guided upon and adjustably secured to the tapering surface of said hub to regulate the projection of the knife through said opening, substantially as set forth.

2. In a vegetable-cutter the combination with a supporting-casing of a rotary wheel mounted therein and formed convex on the outer face, with a circular offset at the periphery and a separately-formed dished grater-disk removably secured to said outer face by means of a flanged center piece and a nut engaging a screw-thread on the wheel-shaft, the outer edge of said grater-disk seating against said circular offset, substantially as set forth.

3. In a vegetable-cutter the combination with a supporting-casing of a rotary cutter-wheel having a radial opening b^3, a cutter-bar reversibly fitting said opening and having a series of cutter teeth projecting from one face thereof and the opposite face plain, and means for reversibly securing said cutter-bar in said opening, all substantially as set forth.

4. In a vegetable-cutter the combination with a supporting-casing of a rotary cutter-wheel having a radial opening b^3, a cutter-bar reversibly fitting said opening and having a series of cutter-teeth projecting from one face thereof, a rear cap for said cutter-bar and means as described for removably securing the bar and cap to the wheel substantially as set forth.

5. In a vegetable-cutter the combination with a supporting-casing of a rotary cutter-wheel having a rearwardly-extending hub and a knife-opening, and a knife-arm guided upon and adjustably secured to said hub to regulate the projection of the knife through said opening, the knife-attaching portion of said arm passing freely through said opening in a direction approximately at right angles to the face of the wheel, substantially as set forth.

6. In a vegetable-cutter the combination with a supporting casing, of a rotary cutter-wheel mounted therein and having a convex or conical working face, and a separately-formed grater-disk of sheet metal dished or concaved to a slightly greater extent than said outer face, and clamping mechanism for firmly seating said grater-disk against said face substantially as set forth.

7. In a vegetable-cutter the combination with a rotary cutter-wheel having a convex working face and a central recess, and with a centrally-perforated sheet-metal grater-disk fitting against said face, of a flanged center piece and a nut engaging the wheel-shaft to fasten said disk, said nut entering a recess in the center piece, and the latter entering the central recess of the wheel substantially as set forth.

8. The combination of the rotatable wheel, having cutting means permanently attached thereto, and provided with an offset around its periphery, and fastening means strung upon the shaft of said wheel, said fastening means and offset being designed to cooperate in securing a dished grater removably and rigidly in place over said cutting means, substantially as described.

9. The combination of the dished cutting-wheel, having an offset around its periphery, a sleeve having a recess in its end, a flanged center piece strung upon the shaft of said wheel and entering said recess, and a binding-nut for said center piece, the whole being designed to cooperate in securing a dished grater-disk removably in place upon said wheel.

10. The combination with a wheel having an offset around its periphery and provided with cutting devices, of a dished grater-disk having its periphery engaged with said offset, and means for clamping said disk over said cutting devices and so that it will rotate with said wheel.

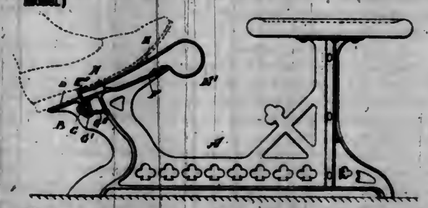
11. The combination with the cutting-wheel, having an offset around its periphery, of a sleeve, having a recess in its end, a flanged center piece strung upon the shaft of said wheel and entering said recess, a binding-nut for said center piece, and a dished grater removably held in place by said offset, center piece, &c.

12. A vegetable cutter, shredder and grater, embodying a wheel formed with radial openings, an adjustable cutter projecting through one of said openings, a cutter-bar reversibly fitting in the other opening and having a series of cutting-teeth projecting only from one face thereof, and a removable grater, having a flanged center piece and a nut for attaching it to the wheel over said cutter.

13. A vegetable cutter, shredder and grater, embodying a dished wheel, formed with radial openings and with a circular offset at its periphery, an adjustable cutter projecting through one of said openings, a cutter-bar reversibly fitting in the other opening and having a series of cutting-teeth projecting only from one face thereof, and a separately-formed dished grater-disk, removably secured to said outer face, by means of a flanged center and a nut, the outer edge of said grater-disk seating against the circular offset, as specified.

14. The combination with the dished wheel, having an offset around its periphery, of a cutter-bar, reversibly fitted to said wheel and having teeth projecting from one of its faces only, a removable grater-disk mounted upon the shaft of said wheel and having its edge seated against said offset, and means for clamping the center of said disk against the wheel, as specified.

588,607. SHOE-STOOL. CHARLES J. SAWYER and THOMAS F. HARRIS, Anniston, Ala. Filed Dec. 11, 1896. Serial No. 615,984. (No model.)



Claim.—1. A shoe-stool, provided with a fixed heel-rest, and a spring-plate for the shoe-sole to rest on, substantially as shown and described.

2. A shoe-stool, provided with a fixed heel-rest, a spring-plate for the shoe-sole to rest on, and means, substantially as described, for holding the free end of the said spring-plate elevated above the top surface of the said rest, as set forth.

3. A shoe-stool, provided with a fixed heel-rest, a spring-plate for the shoe-sole to rest on, and means for guiding the free end of the said spring-plate, as set forth.

4. A shoe-stool, comprising a stand, a seat at one end of the stand, and a rest at the other end thereof, the said rest comprising a fixed heel-rest and a spring-plate for the shoe-sole to rest on, substantially as shown and described.

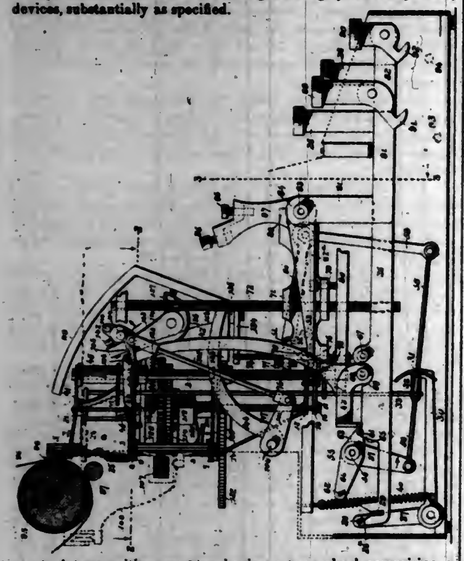
588,608. TYPE-WRITING MACHINE. WILLIAM S. SMITH, Anderson, Ind. Filed Aug. 15, 1896. Serial No. 602,870. (No model.)

Claim.—1. A type-writing machine having a type-wheel including longitudinally-movable radially-yielding type-bearing tongues, and permanent guides through which the tongues extend to slide, and operating devices, substantially as specified.

2. A type-writing machine having a type-wheel including terminal and intermediate segmental cross-heads provided with alined guides or seats, and an axially-movable cross-head carrying type-bearing tongues which extend through said guides or seats, and operating devices, substantially as specified.

3. A type-writing machine having a type-wheel including a spindle, radial arms carried by the spindle and terminating in segmental cross-heads having seats, one of said arms being axially movable, yielding type-bearing tongues secured to said movable arm and fitting to slide in the seats of the remaining arms, the seats on the arm

contiguous to the free ends of the tongues being open, and operating devices, substantially as specified.



4. A type-writing machine having a type-wheel comprising a guiding-section and a type-bearing section, the former including a spindle and arms arranged in fixed relative positions and provided with alined guiding-seats consisting of spaced pins, and the latter comprising an arm mounted to slide upon the spindle, and yielding type-bearing tongues permanently secured at one end to the movable arm by means of pins engaging perforations in the tongues and a securing-strip for holding the tongues in engagement with the pins, said tongues fitting in the seats of the arms forming the first-named section, and operating devices, substantially as specified.

5. A type-writing machine having a type-wheel comprising a guiding-section provided with alined seats arranged in fixed relative positions, and a type-bearing section being mounted for movement parallel with lines connecting said seats and having yielding type-bearing tongues fitted to slide in the seats, and operating devices, substantially as specified.

6. A type-writing machine having a type-wheel capable of swinging movement in either direction from an intermediate point of rest and having type-faces arranged in a transverse series at different distances from an intermediate point of the wheel, fixed and movable gages having relatively-inverted convergent series of steps or shoulders, a gage-bar mounted upon the type-wheel for movement parallel with the axis thereof and adapted to be arranged in the planes of different steps or shoulders of said gages to limit the lateral movement of the wheel, and operating devices for turning the movable gage, substantially as specified.

7. A type-writing machine having a type-wheel mounted for movement in either direction from an intermediate point of rest and having type-faces arranged at intervals upon opposite sides of a point which is normally arranged in the printing-plane, a fixed gage having convergent series of steps or shoulders, a movable gage mounted for movement parallel with the type-wheel and having series of steps or shoulders converging in the opposite direction to those of the fixed gage, a gage-bar mounted upon the type-wheel for movement parallel with the axis thereof and adapted to be arranged in the planes of corresponding steps or shoulders of the fixed and movable gages, means for adjusting said gage-bar, and operating devices for communicating motion in either direction to the movable gage, substantially as specified.

8. A type-writing machine having a type-wheel mounted for movement in either direction from an intermediate point of rest and having type-faces arranged at intervals upon opposite sides of a point which is normally arranged in the printing-plane, cooperating fixed and movable gages having steps or shoulders arranged in inclined series respectively converging and diverging in a common direction, the movable gage being mounted concentrically with the type-wheel, operating devices for imparting motion to the movable gage, a gage-bar mounted upon the type-wheel for movement parallel with the axis thereof and adapted to be arranged in the planes of corresponding steps or shoulders of said gages, and means for operating the gage-bar, substantially as specified.

9. A type-writing machine having a type-wheel mounted for movement in either direction from an intermediate point of rest and having type-faces arranged at intervals upon opposite sides of a point which is normally arranged in the printing-plane, fixed and movable gages having steps or shoulders arranged in inclined series respectively converging and diverging in a common direction, the movable gage being mounted concentrically with the type-wheel, operating devices including key-levers for communicating motion to the movable gage, a gage-bar mounted upon the type-wheel for movement parallel with the axis thereof and adapted to be arranged in the planes of corresponding steps or shoulders of the gages, and connections between said gage-bar and the key-levers, substantially as specified.

10. A type-writing machine having a type-wheel, fixed and movable gages having steps or shoulders arranged in series respectively converging and diverging in a common direction, a gage-bar mounted for movement parallel with the axis of the type-wheel and adapted to be arranged in the planes of corresponding steps of the gages, a rocking frame operatively connected with the gage-bar, key-levers respectively carrying cams of different pitch to engage a trip-rod on the rocking frame, and means connected with the key-levers for imparting swinging movement to the movable gage, substantially as specified.

11. A type-writing machine having a type-wheel, fixed and movable gages having steps or shoulders arranged in series respectively converging and diverging in a common direction, a gage-bar mounted for movement parallel with the axis of the type-wheel and adapted to be arranged in the planes of corresponding steps of the gages, a yielding rocking frame operatively connected with the gage-bar and having a transverse trip-rod, key-levers provided with inclined cam-faces and communicating parallel-sided seats respectively adapted to engage and receive said trip-rod, the cam-faces of different levers varying in pitch, and operating connections between the key-levers and the movable gage, substantially as specified.

12. A type-writing machine having a type-wheel, fixed and movable gages having steps or shoulders arranged in series respectively converging and diverging in a common direction, a gage-bar mounted for movement parallel with the axis of the type-wheel and adapted to be arranged in the planes of corresponding steps of the gages, a rocking frame operatively connected with the gage-bar and having a single transverse trip-rod, key-levers having their keys arranged in different transverse series and provided at their rear ends with transversely-alined cam-faces to engage said trip rod, the key-levers being fulcrumed at intermediate points and at different distances from said cam-faces whereby the lengths of the front and rear arms of all of the levers are of a given uniform ratio, and operating connections between the key-levers and the movable gage, substantially as specified.

13. A type-writing machine having a type-wheel mounted for longitudinal and lateral movement and having parallel-spaced rows or series of type-faces either of which is adapted to be arranged in the printing-plane, a rocking trip operatively connected with the type-wheel and capable of a plurality of positions, a pivotal trip-arm arranged at one end between spaced points on the trip, key-levers, and operating connections including a rocking frame between the key-levers and the trip whereby the trip is adjusted by the key-levers to correspond with the character carried by each key-lever, substantially as specified.

14. A type-writing machine having a type-wheel mounted for longitudinal and lateral movement and having parallel-spaced rows or series of type-faces either of which is adapted to be arranged in the printing-plane, a rocking trip operatively connected with the type-wheel and capable of a plurality of positions, said trip having spaced pins, a pivotal trip-arm arranged at its free end to swing between and engage said pins alternately, key-levers, and operating connections between the key-levers and said trip-arm, substantially as specified.

15. A type-writing machine having a type-wheel mounted for longitudinal and lateral movement and having parallel-spaced rows or series of type-faces either of which is adapted to be arranged in the printing-plane, a rocking trip operatively connected with the type-wheel and having spaced pins, a pivotal trip-arm arranged with its free end in operative relation with said pins and adapted to engage and move the latter alternately out of its path to occupy a position with its extremity in the path thereof and thereby lock the trip in its adjusted positions, key-levers, and operating connections between the key-levers and the trip-arm, substantially as specified.

16. A type-writing machine having a type-wheel mounted for longitudinal and lateral movement and having parallel-spaced rows or series of type-faces either of which is adapted to be arranged in the printing-plane, a rocking trip operatively connected with the type-wheel, a trip-arm arranged at its free end in operative relation with said trip, key-levers, a rocking frame provided upon opposite sides of the plane of its axis with trip-rods arranged in the paths of shoulders carried respectively by the key-levers, whereby the frame is tilted in opposite directions by the operation of different key-levers, and connections between the rocking frame and the trip-arm, substantially as specified.

17. In a type-writing machine, the combination with a type-wheel and key-levers, of a driving-lever having one arm arranged in the paths of the key levers, and a swinging arm operatively connected with the type-wheel to communicate rotary motion thereto and arranged in the path of a stud on the driving-lever, said driving-lever being extended to occupy, when at rest, a position in the path of the type-wheel to lock the latter against movement, and the movement of the driving-lever to actuate said swinging arm serving to release the type-wheel, substantially as specified.

18. In a type-writing machine, the combination with a type-wheel adapted to normally occupy an intermediate point of rest, and key-levers, of swinging arms operatively connected with the type-wheel and adapted to communicate swinging movement in opposite directions thereto, driving-levers each having an arm arranged in the paths of the key-levers, and provided with studs to engage said swinging arms to communicate motion to the type-wheel, each driving-lever being extended to occupy, when at rest, a position at one side and in the path of the type-wheel to lock the latter against swinging movement, and resilient means for returning the type-wheel to its normal position, the movement of one of the type-levers to actuate the corresponding swinging arm serving to release the type-wheel for movement in the direction in which it is actuated by the corresponding swinging arm, substantially as specified.

19. A type-writing machine having a type-wheel provided with yielding type-bearing tongues, a hammer adapted to engage a tongue in the printing-plane, a driving-lever and means for communicating swinging movement thereto, a rock-shaft having a crank-arm connected by means of a link with the crank-arm on the hammer, the pivotal points of said link being adapted to be arranged in alinement with the axis of the rock-shaft to lock the hammer against vibration in its retracted position, and a cam-faced arm on the rock-shaft arranged in the path of a lateral pin on the driving-lever, substantially as specified.

20. A type-writing machine having a type-wheel yieldingly held at an intermediate point of rest, means for communicating rotary motion to the type-wheel including arms 47 mounted concentrically with the type-wheel, fixed and movable gages having series of steps or shoulders arranged respectively to converge and diverge in a common direction, the movable gage being carried by said arms, a gage-bar mounted for movement parallel with the axis of the type-wheel and adapted to be arranged in the planes of corresponding steps or shoulders of the gages, means for adjusting the gage-bar, and operating devices including driving-levers normally arranged in engagement with the type-wheel to lock it in its position of rest, said arms being arranged in the paths of projections on the driving-levers and adapted to be turned to communicate motion to the movable gage, substantially as specified.

21. A type-writing machine having a longitudinally-movable type-wheel having type-faces arranged in spaced transverse series, a slide mounted for movement parallel with the type-wheel and operatively connected therewith, case-key levers operatively connected with the slide, and stops carried by one of the case-key levers at different distances from its fulcrum and arranged in different radial planes, one stop being normally in the path of said slide and the other being moved thereinto by the lever by which it is carried, substantially as specified.

22. A type-writing machine having a type-wheel mounted for longitudinal movement and having type-faces arranged in different transverse rows or series, a slide mounted for movement parallel with the type-wheel and operatively connected therewith, case-key levers operatively connected with the slide and adapted to move the same through different distances, one of the case-key levers being provided with an arm extending radially from its fulcrum, and adjustable stops carried by said arm in different radial planes, one stop being normally in the path of said slide and the other being moved thereinto by the operation of the lever by which it is carried, substantially as specified.

23. A type-writing machine having a type-wheel provided with different groups or sets of type-faces, each group or set comprising a plurality of transverse spaced series or rows, a slide mounted for movement parallel with the axis of the type-wheel, a rocking trip mounted upon the slide and operatively connected with the type-wheel, key-levers, operating connections between the key-levers and said trip and including means for locking the trip in either of its adjusted positions, case-key levers operatively connected with the slide, and adjustable stops carried by one of the case-key levers to limit the movement of the slide, substantially as specified.

24. A type-writing machine having a type-wheel adapted to normally occupy an intermediate position of rest, printing mechanism including means for impressing the type-faces, letter-spacing mechanism including an actuating or feed spring, and operating connections between said spring and the type-wheel whereby the latter is returned after each operation to said position of rest, substantially as specified.

25. A type-writing machine having a type-wheel, printing mechanism including means for impressing the type-faces, a spider connected to and mounted concentrically with the type-wheel, letter-spacing mechanism including an actuating or feed spring and a pivotal frame operatively connected with the spring and provided with pins arranged in operative relation with the arms of said spider, whereby after each deflection the type-wheel is returned to its normal position by the pressure of said frame, substantially as specified.

26. A type writing machine having a type-wheel and means for moving it in either direction from a point of rest, printing mechanism including means for impressing the type-faces, a spider operatively connected with the type-wheel, a pivotal frame having an arm provided with pins arranged normally in contact with opposite arms of the spider, and yielding means for holding said frame in its normal position, whereby the type-wheel is returned after each deflection in either direction to a normal position of rest, substantially as specified.

27. A type-writing machine having a type-wheel, printing mechanism including means for impressing the type-faces, a spider operatively connected with the type-wheel, letter-spacing mechanism including a feed-wheel, operating and stop pawls arranged in operative relation with said wheel, and a feed-frame carrying the operating-pawl and operatively connected with said spider, whereby the feed mechanism is controlled by the operation of the type-wheel, substantially as specified.

28. A type-writing machine having a type-wheel capable of a variable lateral movement to bring different type-faces into the printing-plane, operating mechanism including means for impressing the type-faces and a spider mounted concentrically with the type-wheel and having a uniform lateral movement, and feed mechanism including a feed-wheel exposed to a constant rotating force applied in a uniform direction, operating and stop pawls in operative relation with the feed-wheel, and a feed-frame carrying the operating-pawl and provided with pins arranged respectively in contact with the arms of said spider, substantially as specified.

29. A type-writing machine having a feed-wheel and means for communicating rotary motion in a uniform direction thereto, operating and stop pawls arranged in operative relation with the feed-wheel, the operating-pawl being adapted to move in a path parallel with the periphery of the feed-wheel and having a tail arranged in permanent contact with the stop-pawl, a swinging arm carrying the operating-pawl, operating devices for advancing said arm when the pawl is in engagement with the feed-wheel, means for disengaging the stop-pawl from the feed-wheel and thereby throwing the operating-pawl into temporary engagement therewith, and a stop arranged in the path of a trip-arm on the operating-pawl to return the parts to their normal positions, substantially as specified.

30. A type-writing machine having a type-wheel, a spider operatively connected with the type-wheel, printing mechanism for impressing the type-faces including a rock-shaft, and feed mechanism including a feed-wheel, and operating-pawls arranged in operative relation with the feed-wheel, a crank-arm on said rock-shaft adapted to engage the stop-pawl to disengage the same from the feed-wheel, the operating-pawl being provided with a tail arranged in contact with the outer side of the stop-pawl, a feed-frame having an arm provided with pins arranged in operative relation with the spider, said feed-frame carrying an operating-pawl, and a stop arranged in the path of a trip-arm on the operating-pawl, substantially as specified.

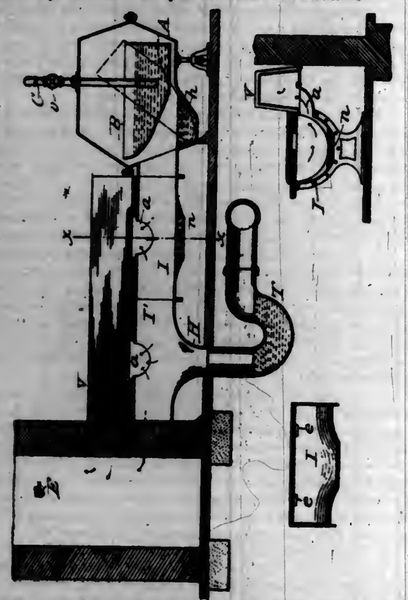
31. A type-writing machine having a type-wheel, printing mechanism for impressing the type-faces including a rock-shaft, and feed mechanism including a feed-wheel, and means for imparting rotary motion in a uniform direction thereto, a pivotal stop-pawl arranged in operative relation with the feed-wheel, a crank-arm carried by said rock-shaft for engaging an arm of the stop-pawl, a holding-spring connected with a finger on the stop-pawl and adapted to hold the latter in either its engaged or disengaged position, a feed-frame operatively connected with the type-wheel and having the other end of said holding-spring attached thereto, an operating-pawl mounted upon the feed-frame and having a tail arranged in operative relation with the stop-pawl, whereby when the latter is disengaged the former is engaged with the feed-wheel, and a trip-arm on the operative pawl adapted to engage a stop to return the stop pawl into engagement with the feed-wheel, substantially as specified.

588,609. **AUTOMATIC FLUSHING-LATRINE.** ISAAC D. SMEAD, Toledo, Ohio, assignor to the Smead Furnace and Foundry Company, same place. Filed Apr. 22, 1897. Serial No. 633,296. (No model.)

Claim.—1. An automatic flushing device for latrines, comprising an automatically-tipping tank B pivoted in a case A having an opening in its side wall for the sudden escape of the water, and a space below said opening for the retention of water to form a cushion for the pan and produce an afterwash.

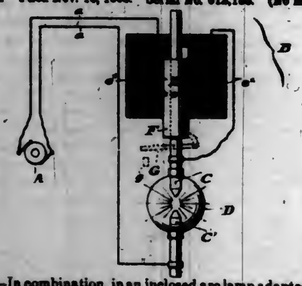
2. In combination with a latrine, the case A having an opening in its side where connected to the latrine, and a recess or reservoir

below said opening, and the automatically-tipping tank B, all arranged to operate substantially as shown and described.



3. In combination with an automatically-tipping tank B, a case inclosing said tank and having its bottom formed with a recess in its front portion, and a raised portion in rear thereof, whereby the water in the recess is forced back upon the raised portion by the tank when tipped, and then flows back from the raised portion to assist in raising the tank to its normal position, substantially as specified.

588,610. ELECTRIC-ARC LAMP. THOMAS SPENCER, Philadelphia, Pa. Filed Nov. 16, 1896. Serial No. 612,186. (No model.)

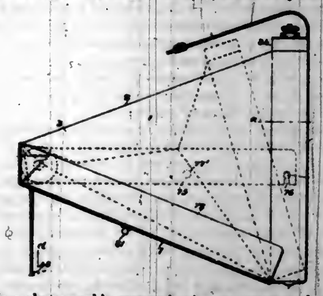


Claim.—In combination, in an inclosed arc lamp adapted to be operated by an alternating current,—opposed solid carbon electrodes,—an inclosure for the proximal ends of said electrodes,—a choking coil in electric circuit with said electrodes,—an automatically movable core for said choking coil,—and means connective of said core and one of said electrodes, whereby a reciprocatory movement of said core may be imparted to said electrode,—substantially as set forth.

588,611. ROLL-HOLDING CAMERA. PHILIP K. STERN, St. Louis, Mo., assignor to the Stern Manufacturing Company, same place. Filed Nov. 11, 1895. Serial No. 568,531. (No model.)

Claim.—1. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a lens situated at one extremity of said chamber, a receptacle for sensitized material at the opposite extremity of said chamber, a rigid wall located adjacent to said receptacle and hinged thereto, the chamber being adapted to collapse upon the angular approach of said receptacle and rigid wall hinged thereto, substantially as set forth.

2. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a lens situated at one extremity of said chamber, a rigid receptacle for sensitized material at the opposite extremity of said chamber, a rigid wall located adjacent to said receptacle and hinged thereto, the said chamber being adapted to collapse upon the angular approach of said receptacle and the rigid wall hinged thereto, substantially as set forth.



3. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a lens situated at one extremity of said chamber, a rigid receptacle for sensitized material at the opposite extremity of said chamber, spools adapted to be carried within the receptacle for mounting said sensitized material, a shutter for the lens, and a rigid wall located adjacent to the receptacle and hinged thereto, the said chamber being adapted to collapse upon the angular approach of said receptacle and the rigid wall hinged thereto, substantially as set forth.

4. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a lens situated at one extremity of said chamber, a rigid receptacle for sensitized material forming a rigid wall at the opposite extremity of the chamber, a suitable roll carried by the receptacle for said sensitized material, means for passing successive lengths of said sensitized material over the surface of the receptacle which is adjacent to the exposure-chamber, and a rigid wall located adjacent to the receptacle and hinged thereto, the said chamber being adapted to collapse upon the angular approach of said rigid receptacle and the rigid wall hinged thereto, substantially as set forth.

5. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a rigid wall having a hinge at one extremity, and a lens-plate at the opposite extremity, a lens secured to the lens-plate, a shutter for the lens, a receptacle for sensitized material located adjacent to the rigid wall and secured to the hinge thereof, the receptacle having an opening for admission of the sensitized material to said exposure-chamber, and means for securing the exposure-chamber in an open position, substantially as set forth.

6. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a lens situated at one extremity of said chamber, a receptacle for sensitized material at the opposite extremity of said chamber, a rigid wall located adjacent to the receptacle and hinged thereto, the chamber being adapted to collapse upon the angular approach of said receptacle and rigid wall, substantially as set forth.

7. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, a light-excluding envelop provided at one extremity with a lens having a shutter and at the opposite extremity with a receiver adapted to contain sensitized material, said sensitized material being adapted to be exposed to light upon the operation of said shutter, a rigid wall having an opening between the receiver and the said envelop located adjacent, and hinged to, a rigid wall of the latter at an extremity remote from the lens, the said light-excluding envelop adapted to collapse upon the inward swinging of the rigid walls about their hinged junction, substantially as set forth.

8. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, and having an opening for the chamber, a cover for the opening of the chamber, a lens situated at one extremity of the chamber, a shutter for the lens, a rigid receptacle for the sensitized material located adjacent to, and hinged to a rigid wall of the exposure-chamber, the receptacle having an opening for the admission of the sensitized material to the exposure-chamber, the latter being adapted to collapse upon the angular approach of the hinged wall and said receptacle, substantially as set forth.

9. In a photographic camera having an exposure-chamber composed of collapsible walls and hinged rigid walls, the former being adapted to fold inwardly upon the angular approach of the hinged rigid walls, a lens carried at one extremity of said chamber opposite the hinge-line between said rigid walls, a receptacle for sensitized material carried by, or forming the rigid wall opposite that extremity of the chamber occupied by the lens and located adjacent to the rigid wall hinged thereto, whereby upon the collapse of the chamber, the receptacle shall be disposed between the lens and the hinge-line between the rigid wall and the receptacle, substantially as set forth.

10. In a photographic camera having a collapsible dark chamber composed of pliable material in part, a rigid plate or frame internally situated at one extremity and adapted to support the pliable material thereat, a lens-support for the plate having a lens, a shutter for the lens, an external rigid plate or frame connected to the said internal plate or frame and adapted to support the latter, a third rigid plate or frame oppositely situated to the said internal plate or frame, and secured to the pliable material and external plate or frame, the said pliable material adapted to form a hinge at the junction of the rigid frames and pliable material, whereby upon an angular inward movement of the said third frame and the said external plate or frame, the said pliable part of the said dark chamber shall close inwardly, substantially as set forth.

11. In a photographic camera, a roll-holder having suitable supply and feed reels, an adjustable and variable friction-brake to restrain the rotation of said supply-reel, said brake comprising a fixed and a movable member, a coupling forming an integral part of the brake and constituting the movable member thereof, and suitable means for connecting the coupling with the reel, substantially as set forth.

12. In a photographic camera, a roll-holder having suitable supply and feed reels, adjustable and variable friction-brakes for the reels adapted to be regulated from without the roll-holder, each brake comprising a fixed and a movable member, a coupling forming an integral part of the brake and constituting the movable member thereof, and suitable connections between the coupling and the reel, substantially as set forth.

13. In a photographic camera, a suitable holder, receptacles in the same open at one end for the insertion of suitable reels, a frame forming simultaneously the rear of the exposure-chamber and the front of the chamber carried by said holder, the sides of said frame being slightly removed from the inner surface of the holder whereby a suitable passage is formed between the sides of the frame and the inner surface of the holder for guiding the film along the inner surface of the holder, substantially as set forth.

14. In a photographic camera, a roll-holder having suitable supply and feed reels, a film adapted to be passed from one reel to the other, adjustable and variable friction-brakes for the reels, each brake comprising a fixed and a movable member, a coupling forming an integral part of the brake and constituting the movable member thereof, means for detachably connecting the coupling with the reel, and suitable devices for varying the tension of the brake from the outside of the roll-holder, substantially as set forth.

15. In a photographic camera, having an exposure-chamber composed of collapsible walls and hinged rigid walls, a hinge between two adjacently-located rigid walls, a lens located at the free end of one of said hinged rigid walls and adjacent to the collapsible walls, the other hinged rigid wall opposite the lens being adapted to carry sensitized material, substantially as set forth.

16. In a photographic camera, a suitable receptacle, a rigid wall located adjacent to the same and hinged thereto, whereby two leaves about a common hinge are formed, a collapsible light-excluding envelop connecting said leaves, and a lens-plate carried by the free end of the rigid wall, that is at the end remote from the receptacle, substantially as set forth.

17. In a photographic camera, a suitable blank composed of a series of converging sections adapted to form the walls of the exposure-chamber, and suitable converging extensions forming a part of the sections composing the top and side walls of the chamber, a lens-plate for the exposure-chamber, said extensions adapted to be folded over and secured to the outer wall of the lens-plate, substantially as set forth.

18. In a photographic camera, a suitable blank comprising a series of converging sections adapted to form the top and sides of the exposure-chamber, said blank adapted to fold along lines separating said sections, the said walls being collapsible and the side walls adapted to fold or collapse along a series of converging lines meeting approximately at the center of the wall, and the top wall adapted to collapse along a right line transverse to the general length of the section forming the same, when the exposure-chamber is folded, substantially as set forth.

19. In a photographic camera, a shutter comprising a suitable guideway having a longitudinal slit formed along one side of the same, a wing movable in said guideway, a rib forming a part of said wing and operating in said slit, a hook at one end of said rib, a controlling tension spring-arm adapted to bear against the under surface of said hook, an extension-arm for said spring-arm, a releasing device for the spring-arm upon the operation of which the spring-arm shifts the wing in one direction, and a suitable tension spring-arm bearing normally against the outer surface of the hook and adapted to shift the wing back to its normal position, substantially as set forth.

588,612. PNEUMATIC TIRE. ALEXANDER STRAUS, New York, N. Y., assignor to Annie Straus, same place. Filed June 3, 1897. Serial No. 639,217. (No model.)



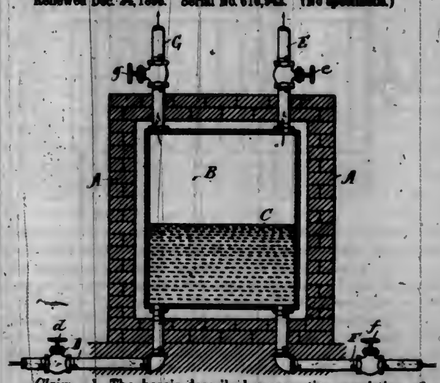
Claim.—1. The combination with a pneumatic tire of a protective cover, secured in fixed relation to the tire but normally free from attachment to or intimate contact with the tread portion of the same, and affording a surface upon which the tire bears at the point of contact with the ground, as set forth.

2. The combination with a pneumatic tire of a protective cover or sheath secured in fixed relation to the tire, but of substantially larger dimensions than the tire when fully inflated.

3. The combination with a pneumatic tire of a protective cover or sheath of substantially larger internal circumference than the tire when fully inflated and secured to the tire at its inner or seating portion only, as set forth.

4. The combination with a pneumatic tire of a protective cover applied to and secured in fixed relation therewith, but normally free from attachment to or intimate contact with the outer or tread portions of the tire, and of such dimensions relatively to the tire, when the latter is inflated, as to permit the said cover to alter its shape independently of the tire, as set forth.

588,618. COMPOUND FOR SEPARATING OXYGEN AND METHOD OF MAKING SAME. ERNEST B. STUART, Chicago, Ill., assignor to the General Gas Company, same place. Filed Nov. 23, 1895. Renewed Dec. 24, 1896. Serial No. 616,942. (No specimens.)



Claim.—1. The herein-described preparation consisting of an oxygen-absorbing substance and a sufficient quantity of free caustic soda to cause the mass to liquefy at a temperature above that at which steam forms and to be maintainable in a liquid state at that temperature, substantially as set forth.

2. The herein-described preparation consisting of a manganate and a sufficient quantity of free fusible alkali to cause the mass to liquefy at a temperature above that at which steam forms and be maintainable in a liquid state at that temperature, substantially as set forth.

3. The herein-described preparation consisting at the outset of binoxid of manganese and caustic alkali sufficiently in excess of that necessary to form a manganate in the presence of oxygen and to cause the mass to liquefy at a temperature above that at which steam forms and to be maintainable in liquid state at that temperature, substantially as set forth.

4. The herein-described preparation consisting of binoxid of manganese and caustic soda, the latter being sufficiently in excess of that necessary to form a manganate of soda and to cause the manganate to liquefy at a temperature below that which decomposes steam, substantially as set forth.

5. The herein-described preparation consisting of a manganate and an alkali in substantially equal proportions, said preparation being capable of remaining liquefied at a temperature below that which decomposes steam, substantially as set forth.

6. The herein-described process of reducing a manganate to a liquid condition, the same consisting in subjecting oxid of manganese together with an alkali in excess of the quantity necessary to form a manganate to a liquefying temperature, substantially as set forth.

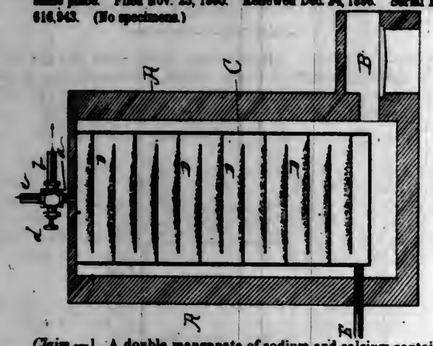
7. The herein-described process of reducing a manganate to a liquid condition, the same consisting in subjecting oxid of manganese together with caustic alkali in excess of the quantity necessary to form a manganate to a liquefying temperature, substantially as set forth.

8. The herein-described process of reducing a manganate to a liquid condition, the same consisting in subjecting oxid of manganese together with caustic soda in excess of the quantity necessary to form a manganate to a melting temperature, substantially as set forth.

9. The herein-described method of rendering a manganese preparation permanently liquid and non-volatile and susceptible to the action of steam, the same consisting in adding to a manganate an excess of alkali sufficient to maintain the manganate in liquid solution at a temperature above that at which steam forms and below the temperature which decomposes steam, and maintaining the solution between such temperatures, substantially as set forth.

10. The herein-described method of making an oxygen and nitrogen separating substance, which will be fusible at a temperature below that which decomposes steam, which consists in heating oxid of manganese and caustic soda in the presence of oxygen at a temperature between that at which a manganate forms and that which decomposes steam and adding caustic soda until the mass becomes liquid, substantially as set forth.

588,614. MANGANATE AND PROCESS OF PRODUCING SAME. ERNEST B. STUART, Chicago, Ill., assignor to the General Gas Company, same place. Filed Nov. 23, 1895. Renewed Dec. 24, 1896. Serial No. 616,943. (No specimens.)

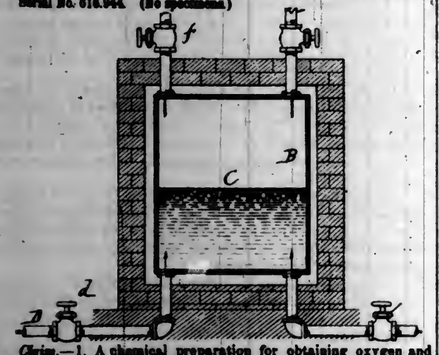


Claim.—1. A double manganate of sodium and calcium containing sodium, calcium, manganese, and oxygen, substantially as set forth.

2. A chemical preparation including a double manganate of sodium and calcium sodium, calcium, and manganese and an excess of caustic soda, substantially as set forth.

3. The herein-described method of producing a double manganate, the same consisting in subjecting sodium hydrate, calcium oxid and oxid of manganese to a temperature at which reaction takes place, substantially as set forth.

588,615. PROCESS OF AND COMPOUND FOR SEPARATING OXYGEN. ERNEST B. STUART, Chicago, Ill., assignor to the General Gas Company, same place. Filed Feb. 7, 1896. Renewed Dec. 24, 1896. Serial No. 616,944. (No specimens.)



Claim.—1. A chemical preparation for obtaining oxygen and nitrogen from air, containing the elements of a manganate and a manganate and a neutral salt capable of fusing and remaining in a permanent liquid form when so fused, substantially as described.

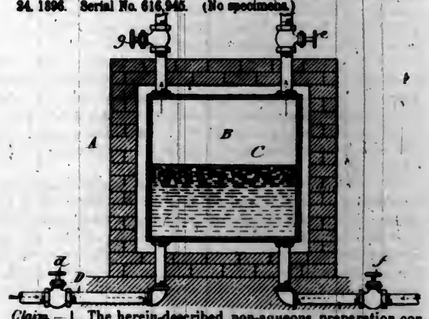
2. A chemical preparation containing the elements of a manganate and a manganate and an alkaline salt capable of fusing and remaining in a permanent liquid form when so fused, substantially as described.

3. A chemical preparation containing the elements of a manganate and a manganate together with a chlorid of an alkaline earth capable of fusing, and remaining in a permanent liquid form when so fused, substantially as described.

4. In the herein-described method of obtaining oxygen and nitrogen, the step which consists in subjecting atmospheric air to a fused mixture containing the elements of a manganate together with a neutral salt, substantially as described.

5. The herein-described method of obtaining oxygen and nitrogen, the step which consists in subjecting steam to a fused mixture containing atmospheric air to a manganate together with a salt, substantially as described.

588,616. OXYGEN-SEPARATING COMPOUND AND METHOD OF MAKING SAME. ERNEST B. STUART, Chicago, Ill., assignor to the General Gas Company, same place. Filed Apr. 17, 1896. Renewed Dec. 24, 1896. Serial No. 616,945. (No specimens.)



Claim.—1. The herein-described non-aqueous preparation consisting of an oxygen-absorbing substance, containing sufficient fusible material to cause the mass to liquefy and be capable of remaining liquefied at a temperature below that which decomposes steam, substantially as set forth.

2. The herein-described subetance consisting at the outset of a preparation containing an oxygen-absorbing material and a sufficient quantity of fusible material to cause the mass to liquefy at a temperature below that which decomposes steam and being non-volatile between the temperature at which steam forms and that which decomposes it, substantially as set forth.

3. The herein-described preparation consisting of a manganate and a sufficient quantity of some fusible dry subetance to cause the mass to liquefy and be capable of remaining liquefied at a temperature below that which decomposes steam, substantially as set forth.

4. The herein-described preparation consisting of manganate of soda and a sufficient quantity of such fusible substance as will cause the mass to liquefy at a temperature above that at which steam forms and maintainable in a liquid state at that temperature.

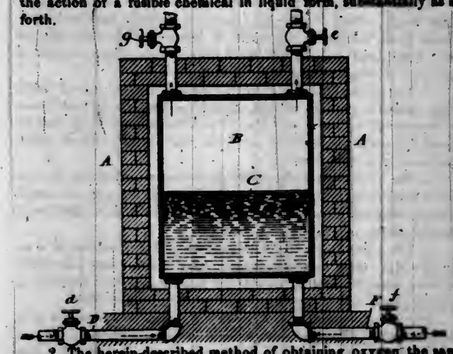
5. The herein-described method of making an oxygen and nitrogen separating substance which will be liquid at a temperature below that which decomposes steam which consists in heating oxid of manganese together with an agent capable of forming a manganate in the presence of oxygen at a temperature between that at which a manganate forms and that which decomposes steam and adding a fusible non-volatile substance until the mass becomes liquid, substantially as set forth.

6. The herein-described method of making an oxygen and nitrogen separating substance capable of fusing at a temperature below that at which steam decomposes, which consists in heating manganese, its oxid or salt and fusible material such as described in the presence of oxygen at a temperature between that at which a manganate forms and that at which steam decomposes, and adding fusible material until the mass becomes liquid, substantially as set forth.

7. The herein-described method of rendering a manganese preparation, liquid and susceptible to the action of steam, the same consisting in adding to said preparation an indifferent metal or alloy capable of maintaining the preparation in liquid form at a temperature above that at which steam forms and below the temperature which decomposes steam and maintaining the mass liquid between such temperatures, substantially as set forth.

588,617. METHOD OF OBTAINING OXYGEN AND NITROGEN FROM AIR. ERNEST B. STUART, Chicago, Ill., assignor to the General Gas Company, same place. Filed Apr. 17, 1896. Renewed Dec. 24, 1896. Serial No. 616,946. (No specimens.)

Claim.—1. The herein-described method of separating atmospheric oxygen and nitrogen, the same consisting in subjecting air to the action of a fusible chemical in liquid form, substantially as set forth.



2. The herein-described method of obtaining oxygen the same consisting in subjecting air to the action of a fusible chemical in liquid form and then subjecting said chemical to the action of steam, substantially as set forth.

3. The herein-described method of separating atmospheric oxygen and nitrogen the same consisting in subjecting air to the action of the elements of a manganate in a liquid form, substantially as set forth.

4. The herein-described method of obtaining oxygen the same consisting in subjecting air to the action of the elements of a manganate in a fused and liquid form and then subjecting the manganate so formed to the action of steam, substantially as set forth.

5. The herein-described method of separating atmospheric oxygen and nitrogen the same consisting in subjecting air to the elements of a manganate of soda in a fused and liquid form, substantially as set forth.

6. The herein-described method of obtaining oxygen, the same consisting in subjecting air to the elements of a manganate of soda in a fused and liquid form and then subjecting the manganate of soda so formed to the action of steam, substantially as set forth.

7. The herein-described method of separating atmospheric oxygen and nitrogen, which consists in fusing in the presence of air an oxygen-absorbing substance, at a temperature below the degree at which steam decomposes, and then subjecting the mass while in a fused and liquid form to the action of steam, substantially as set forth.

8. The herein-described method of separating atmospheric oxygen and nitrogen, which consists in fusing in the presence of air, an oxygen-absorbing substance, at a temperature below the degree at which steam decomposes and then subjecting the mass while in a fused and liquid form to the action of steam and afterward alternately to the action of air and steam, substantially as set forth.

9. The herein-described method of separating atmospheric oxygen and nitrogen, which consists in heating the elements of a manganate in the presence of air at a temperature between that at which a manganate forms and that at which steam decomposes and in the presence of an admixture of fusible material sufficiently in excess to cause the mass to fuse and liquefy between said degrees of temperature, and then subjecting the mass while in a fused and liquid form, alternately to the influence of steam and air, substantially as set forth.

588,618. CRUSHING-MACHINE. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Framingham, Mass. Filed Oct. 19, 1896. Serial No. 609,268. (No model.)



Claim.—1. A crusher comprising the combination with a fixed jaw, of an active rocker-jaw, a toggle-lever, and means for operating said lever, a portion of the face of the said fixed jaw being formed concave in the arc of a circle of which the fulcrum of the said toggle-lever is the center.

2. In a crushing-machine, the combination with a movable and a fixed jaw having diverging toothed or roughened upper portions to form a hopper to receive coarse material, and adjacent lower portions, the lower portion of said fixed jaw being formed concave in the arc of a circle of a given radius and the lower portion of said movable jaw being formed convex in the arc of a circle of a smaller radius than the circle to which the concave part of said fixed jaw corresponds, and operating mechanism for the said movable jaw to cause the convex portion thereof to have a rolling action relative to the concave portion of said fixed jaw.

3. In a crushing-machine, the combination with a movable and a fixed jaw, which jaws have diverging toothed or roughened upper portions to form a hopper to receive the coarse material, and adjacent lower portions, the lower portion of one jaw being formed concave and the lower portion of the other of said jaws being formed convex, and operating mechanism for the said movable jaw, said operating mechanism comprising a toggle-lever to the middle portion of which the said movable jaw is pivoted and an operating device connected with the forward or free end of said lever between the point of connection of said jaw with said lever and the working or active portion of said jaw.

4. In a crushing-machine, the combination with fixed and movable jaws, said fixed jaw having the lower portion of its face concave and said movable jaw having the lower portion of the face convex, combined with a toggle-lever for operating said movable jaw, the fulcrum of said lever being the center of a circle of which the concave surface of said fixed jaw is an arc, and the pivotal connection of said lever with said movable jaw being the center of a circle of which the convex surface of said movable jaw is an arc.

5. In a crushing-machine, the combination with a movable and a fixed jaw having diverging toothed or roughened upper portions, to form a hopper to receive coarse material, and adjacent lower portions, the lower portion of said fixed jaw being formed concave in the arc of a circle of a given radius and the lower portion of said movable jaw being formed convex in the arc of a circle of a smaller radius than the circle to which the concave part of said fixed jaw corresponds, a toggle-lever pivotally connected between its ends to an arm or rearward extension of said movable jaw, and an operating device connected with the free end of said toggle-lever to cause the convex portion of said movable jaw to have a rolling movement relative to the concave portion of said fixed jaw

6. In a crushing-machine, the combination with a fixed jaw having a portion of its crushing-surface concave, of a movable jaw having a portion of its crushing-surface convex, a toggle-lever connected with said movable jaw, a guide-link securing said movable jaw to the framework of the machine, and an operating mechanism for said toggle-lever, said lever and link forcing said movable jaw to move in a predetermined manner relative to said fixed jaw, the fixed pivotal connection of said toggle-lever being the center of the circle from which the arc of the concave surface of said fixed jaw is struck.

7. In a crushing-machine, the combination with a fixed jaw and a movable jaw, of a toggle-lever to which said movable jaw is pivoted between the fulcrum of said lever and the working face of said movable jaw, and an operating device connected to said toggle-lever between the pivotal connection of the latter with the said movable jaw and the working face of the said movable jaw

8. In a crushing-machine, the combination with a fixed jaw and a movable jaw, of a toggle-lever to which said movable jaw is pivoted between the fulcrum of said lever and the working face of said movable jaw, an operating device connected to said toggle-lever between the pivotal connection of the latter with the said movable jaw and the working face of the said movable jaw, and guide-links joining the forward part of said movable jaw with the framework of the machine and thereby serving to support and guide the forward end of said jaw.

9. In a crushing-machine, the combination with a fixed jaw and a movable jaw, of a toggle-lever to which said movable jaw is pivoted between the fulcrum of said lever and the working face of said movable jaw, an operating device connected with the free end of said toggle-lever and guide-links joining the said movable jaw with the framework of the machine, and thereby serving to support and guide said jaw.

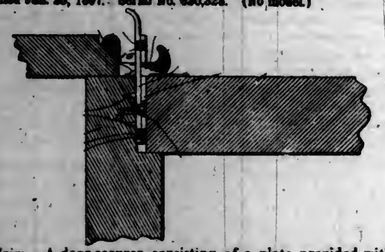
10. In a crushing-machine, the combination with the fixed jaw and a movable jaw, of a toggle-lever to the central portion of which the said movable jaw is pivotally connected, and to the free end of which the operating device for said lever is joined, and a spring for assisting in the downward or return movements of the said toggle-lever.

11. In a crushing-machine, the combination with the frame or base-plate 2, having the end portions or abutments $2'$, 2^2, of the tie-rods 3, 3, joining said end portions or abutments, the fixed jaw supported upon the end portion or abutment $2'$, the toggle-lever 10 pivoted to said end portion or abutment 2^2, the movable jaw 5 pivotally connected with the said toggle-lever between the ends of the latter, and an operating device for said toggle-lever joined to the forward or free end thereof.

12. The combination with the base-plate or frame 2 having the end portions or abutments $2'$, 2^2, the former being provided with the side plates 17, of the fixed and movable jaws between the said side plates and means for operating said movable jaw, said operating means consisting of the toggle-lever 10 to the central portion of which

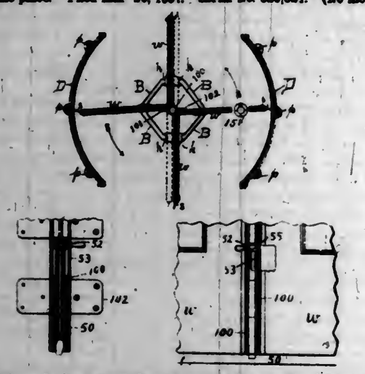
said movable jaw is jointed and an operating device for said toggle-lever joined to the forward or free end thereof.

588,619. DOOR-HOLDER. JOHN F. SULLIVAN, Florence, Colo. Filed Jan. 23, 1897. Serial No. 620,328. (No model.)



Claim.—A door-securer consisting of a plate provided with a plurality of points or pins situated on one side thereof, an opening in said plate, in combination with a bolt to enter said opening, the said bolt being provided with a handle and with a spring extending outwardly from the rear side of said bolt and in alinement with the same.

588,620. STORM-DOOR STRUCTURE. THEOPHILUS VAN KANNEL, New York, N. Y., assignor to the Van Kannel Revolving Door Company, same place. Filed Mar 26, 1897. Serial No. 629,321. (No model.)



Claim.—1. In a storm-door structure the combination of a doorway and a door therefor having a series of radial wings united at a central line, means for adjustably connecting pairs with respect to each other, a rotating suspension device for said door depending from an elevated surface or structure, said surface or structure in area equaling the area covered by the revolving door, a wheeled carriage supporting said device, a track for said carriage extending transverse the doorway, fixed stops at the limits of movement of said carriage, and a movable stop carried by the carriage to engage either fixed stop, substantially as described.

2. In a storm-door structure the combination of a doorway with a door therefor having a series of radial wings united at a central line, a projecting roof or cover for the door, a pivot located upon said roof supporting the door and permitting free rotation thereof, a slot or passage in the roof through which said pivot passes, and a hinged cover for the slot, substantially as described.

3. In a storm-door structure the combination of a doorway with a door therefor having a series of radial wings united at a central line, a projecting roof or cover for the door, a pivot from which said door is suspended, a wheeled truck supporting said pivot, a slot or passage in the roof through which said pivot passes, a hinged cover for said slot or passage and a projection from the truck in position to engage said hinged cover, substantially as described.

4. In a storm-door structure the combination of a doorway with a door having a series of radial wings united at a central line, means for adjustably connecting pairs of wings with respect to each other, a pivot from which said door is suspended, means for moving said pivot transversely upon its support, a catch for holding said pivot in position, a longitudinally-movable lower pivot connecting said door with a fixed point below it and a movable mechanical connection between said lower pivot and said catch whereby the lifting of the lower pivot releases the catch, substantially as described.

5. The combination in a revolving storm-door structure of a series of radial wings united in pairs, means for connecting the wings of each pair rigidly together, and means for adjustably connecting pairs with respect to each other, substantially as described.

6. The combination in a revolving storm-door structure of four radial wings united in pairs by a series of separate sections having flanges fixed thereto at diametrically opposite points, said sections being superposed and the flanges of alternate sections connected to each pair of wings, substantially as described.

7. The combination in a revolving storm-door structure of radial wings united in pairs by a rigid connection, and a hinge connection at the central vertical line of the pairs whereby said wings may be placed in parallel planes or at any angle with respect to each other, substantially as described.

8. The combination in a revolving storm-door structure of a series of wings united in pairs by a rigid connection, a hinge connection between separate pairs and means for locking said pairs together in parallel planes, substantially as described.

9. The combination in a revolving storm-door structure of a series of wings united in pairs by a rigid connection, a hinge connection between separate pairs and means for locking said pairs together in parallel planes and to the casing, substantially as described.

10. The combination in a revolving storm-door structure of a series of wings united in pairs, a hinge connection between pairs, a bolt for locking one pair to a fixed point in the casing, and a link fixed to a second pair in position to engage the bolt between the first pair and the fixed point in the casing, substantially as described.

11. The combination in a revolving storm-door structure of a series of wings united in pairs, a hinge connection between pairs, a bolt located on one pair of wings for locking said pair to a fixed point in the casing, a link fixed to a second pair of wings and extending into the line of movement of said bolt between said door and fixed point and means for holding the bolt in three positions; to wit completely withdrawn, in position to unite the first and second pairs of doors, in position to unite said pairs together and to the fixed point, substantially as described.

12. In a storm-door structure the combination of a door having radial wings adjustably united at a central junction-line and a brace having its opposite ends hinged to each of a pair of wings and passing through a third wing, substantially as described.

13. In a storm-door structure the combination of a door having four radial wings united in pairs, said pairs being adjustably united at a central line and braces hinged upon opposite sides of one pair, each brace passing through a wing of a second pair, substantially as described.

14. In a storm-door structure the combination of a door having four radial wings united in pairs, said pairs being adjustably united at a central junction-line, a brace hinged upon each wing of one pair and means for locking said brace in position, substantially as described.

15. In a storm-door structure the combination of a series of wings adjustably united at a central junction-line, a brace hinged to each wing of a pair and extending through one wing of a second pair, said brace-hinges being located upon projections extending at least the thickness of a wing from the wing upon which they are supported, substantially as described.

16. In a storm-door structure the combination of a series of radial wings united in pairs, said pairs being adjustably united at a central junction-line, a rotating suspended support for said door, a lower pin entering a fixed socket below it, and means for moving said pin longitudinally and holding it in either of two positions, said means consisting of a slot or channel in the pin-case in position to be covered and uncovered by the movement of one of the radial wings, substantially as described.

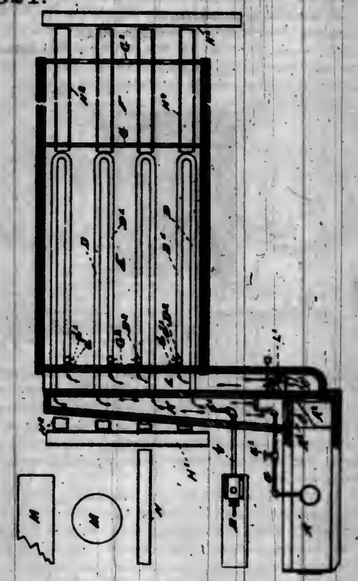
17. In a storm-door structure the combination of a doorway and a door having a series of radial wings united in pairs, means for fixing said wings together in parallel planes and a retracting device for returning the parallel wings to any predetermined angular position with respect to the doorway, substantially as described.

18. In a storm door structure the combination of a doorway, a door having a series of radial wings united in pairs, means for fixing said wings together in parallel planes, a device for limiting the movement of said wings in one direction, and a retracting device for returning the parallel wings to a predetermined angular position with respect to the doorway, substantially as described.

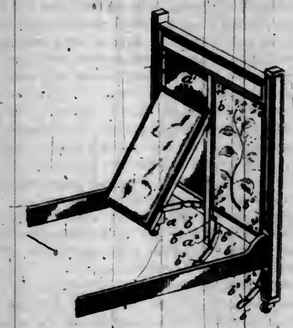
588,621. BRICK-DRIER. HIRAM H. WALSH, Passaic, N. J. Filed Aug. 13, 1896. Serial No. 602,156. (No model.)

Claim.—A drying-kiln having at one end parallel supply and exhaust headers, radiating-pipes adapted to discharge the heating medium either within the kiln or into the exhaust-header, a system of supply pipes and valves whereby either live or exhaust steam or both may be used in connection with products of combustion for heating purposes, a fan in the exhaust-header and damper-controlled passages permitting the waste heat to pass through the heating-pipes or directly up the smoke-stack.

588,621.



588,622. BED ATTACHMENT. DANIEL B. WARE, Athens, Mich. Filed Nov. 4, 1896. Serial No. 611,016. (No model.)

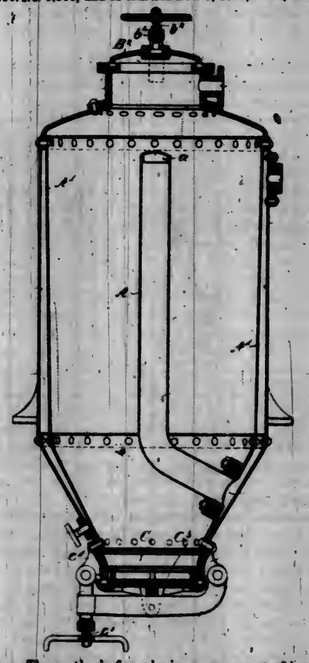


Claim.—1. The combination with the head of a bedstead of a panel movably mounted therein and provided at its lower end with segmental notched adjusting-bars, projections mounted upon said head and adapted to support said notched bars, and means for adjustably connecting the upper end of said panel with the head; the construction and operation being such that the lower portion of the panel may be pulled outward and automatically located in its adjusted position by the gravity of the segmental bars causing the projections on the head to engage other notches, substantially as described.

2. The combination with the head of a bedstead of a movable panel mounted therein, notched bars rigidly secured to said head, lateral projections on the upper end of said panel adapted to engage said notched bars, segmental notched bars pivotally connected to the lower end of said panel, and projections formed upon the head and adapted to support said segmental bars; the construction and operation being such that the notched bars automatically lock with the projections on the head by their own inherent gravity.

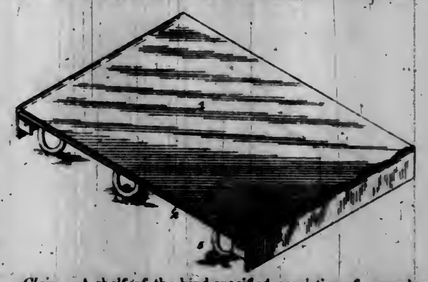
3. The combination with the head of a bedstead provided with a plurality of panel-recesses, of vertical notched bars mounted in said recesses, movable panels also mounted in said recesses, and provided with lateral projections adapted to engage said notched bars, notched segmental bars pivotally connected to the respective opposite sides of the lower ends of each panel, and projections formed on the head and adapted to support said notched bars; the construction and operation being such that the segmental bars automatically lock with said projections by their own inherent gravity when the panels are adjusted, substantially as described.

588,623. PROCESS OF MANUFACTURING BEET-ROOT SYRUP. FRIEDRICH H. WIENER, Velpke, Germany. Filed June 21, 1895. Serial No. 553,591. (No specimens.) Patented in Germany Mar. 26, 1895, No. 83,091; in Belgium June 12, 1896, No. 116,041; in Hungary Feb 13, 1896, No. 5,509, and in Austria Dec. 8, 1896, No. 4,823/46.



Claim.—The method of producing a syrup out of beet-roots, consisting in boiling the latter under atmospheric pressure by means of steam without bringing them in contact with the same, and removing during that time the vapors as they are evolved by said beet-roots; turning the latter after the boiling into a pulp, pressing said pulp, and inspissating the juice so attained, substantially as described.

588,624. OVEN. MARTHA M. WILLIAMS, La Plata, Mo. Filed Nov. 7, 1896. Serial No. 611,494. (No model.)

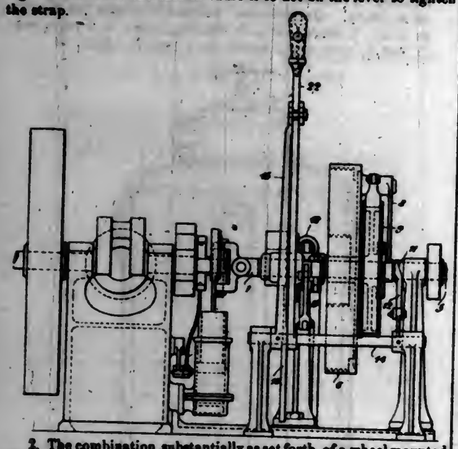


Claim.—A shelf of the kind specified, consisting of a member 1 having downwardly-projecting side flanges and guide-lugs, and a member 2 situated between said flanges and said guide-lugs and provided with legs, substantially as described.

588,625. MECHANISM FOR TRANSMITTING MOTIVE POWER. CHRISTOPHER T. WORDSWORTH, Manchester, EDMUND WIGHAM, Luton, and JOHN HOLROYD, London, England. Filed Nov. 23, 1896. Serial No. 613,178. (No model.)

Claim.—1. The mechanism substantially as herein described for starting, stopping and controlling a driven shaft while the driving-motor may run continuously, comprising a shaft to be driven, a wheel loose on said shaft, a drum on said shaft close to said wheel, a strap encircling the drum, a lever attached to the wheel and connected with the strap, a cam loose on the shaft engaging the lever, and car-

ried around thereby when the wheel revolves, and means for checking the rotation of the cam to cause it to act on the lever to tighten the strap.

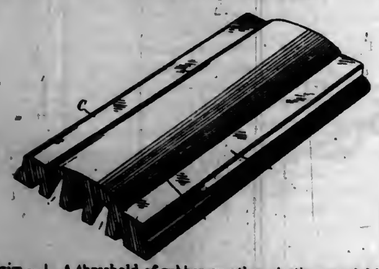


2. The combination, substantially as set forth, of a wheel mounted on the driven shaft, a drum also mounted on said shaft, a lever pivoted to the wheel, a strap encircling the drum and connected with the lever, a cam for operating the lever, means for resisting the movement of the cam, the sliding block, the shafts and pinions which the said block carries and means for shifting the block to bring one pinion or another to gear with the driven wheel.

3. The combination, substantially as set forth, of a shaft, a wheel mounted loosely on said shaft, a drum keyed to the shaft, a strap encircling the drum, a lever pivoted to the wheel, connections between the strap and the lever, a cam engaging the end of the lever and carried around thereby when the wheel rotates, the inclined block *j*, the inclined block 11, interposed between the block *j* and the cam, and means for rotating the block 11 to cause it to bear against the cam and check or retard the rotation thereof.

4. The combination, substantially as set forth, of the shaft to be driven, a wheel mounted loosely thereon, a drum keyed to the shaft, a lever pivoted to the wheel, a strap encircling the drum and having both ends connected with said lever, a cam engaging one end of the lever and carried around thereby when the wheel rotates, and means for retarding the rotation of the cam to cause it to act upon the lever to tighten the strap.

588,626. **THRESHOLD.** CHARLES BAUMANN, Oakland, Cal. Filed May 19, 1897. Serial No. 637,304. (No model.)

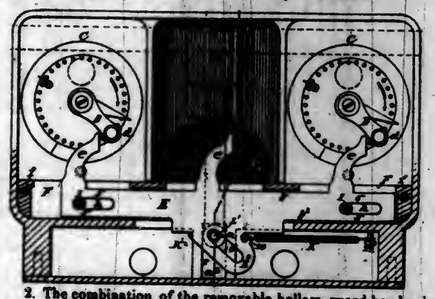


Claim.—1. A threshold of rubber or other elastic material having a practically continuous upper surface adapted to press against the lower edge of the door and extending therefrom in opposite directions down to the plane of the floor, and an under surface containing along its middle portion a series of depressions reducing the quantity of the elastic material which extends down to the floor along the middle portion of the threshold and increasing the pliability of said middle portion; substantially as described.

2. A threshold of rubber or other pliable material, having a practically continuous upper surface adapted to press against the lower edge of the door and an under surface ribbed along its middle portion to increase the pliability of the threshold; substantially as described.

588,627. **TIME-LOCK.** IRA G. BLAKE, Worcester, Mass. Filed May 4, 1897. Serial No. 634,979. (No model.)

Claim.—1. In a time-lock, in combination with the timing mechanism, the draw-bar actuated thereby for withdrawing or unlocking door fastening devices, said draw-bar being provided with longitudinal slots therein, the rotatable free-turning rollers fitting in said slots for supporting and guiding said draw-bar, and suitable bearing-supports for the roller-journals, substantially as set forth.



2. The combination, of the removable hollow guard-bar having rollers mounted transversely therein, the draw-bar having longitudinal slots supported upon said rollers within the guard-bar, chronometric mechanism adapted for moving said draw-bar, the bar-retracting spring and means operatively connecting said draw-bar with the unlocking devices.

3. In combination, with the lock-case, and a plurality of chronometer mechanisms each carrying a revoluble setting-arm or actuating member; of the removable guard-bar fitted in the front of the case, the draw-bar mounted upon rollers therein and provided with usual detents to engage said chronometer-arms, and having suitable means for effecting operation of the bolt-controlling member.

4. In a time-lock, the draw-bar having the usual detents formed thereon, and longitudinal slots cut through its body; and a plurality of rollers respectively fitting between the parallel sides within said slots and supporting the draw-bar, said detents, slots and rollers being arranged and located in such relative positions that said draw-bar can be reversed end for end, for right or left operation, in combination with the lock-case and a chronometric mechanism.

5. The combination, with the chronometric mechanism, the revolving arm carried thereby, and the devices that effect the unlocking action; of the reversible draw-bar having detents for engagement with said arm, and connections for moving the unlocking devices, said draw-bar provided with longitudinal slots therethrough, and the guide-rollers arranged through and fitting within said slots with their ends journaled in the guard-bar, and the said guard-bar detachably secured within the lock-case, substantially as set forth.

6. The combination with the lock-case having cells for the reception of chronometric mechanism, and the chronometric mechanism arranged therein; of the removable channeled plate or guard-bar extending across the cells horizontally in front of the chronometers, the endwise-movable draw-bar inclosed therein and having upwardly-projecting detents, longitudinal slots through its body, and means for connecting with or moving the unlocking devices, a plurality of rollers journaled in said guard-bar and rolling within the slots for supporting said draw-bar within the guard-bar with its edges free from sliding contact therewith, for the purpose set forth.

7. In a time-lock, the combination with the case having the upright chamber with plunger-bolt openings thereinto, a guideway-space with parallel side surfaces, and the movable dog-block within said chamber; of a lifter for said dog-block having a spindle-rod extending through said guideway, a quill or roller mounted to turn loose on said spindle, its peripheral surfaces fitting between the parallel side surfaces of the guideway, the draw-bar having therein an inclined slot that engages the end of said spindle-rod, a chronometric mechanism for moving said draw-bar, and a spring normally acting on said draw-bar in opposition to the chronometric movement, substantially as set forth.

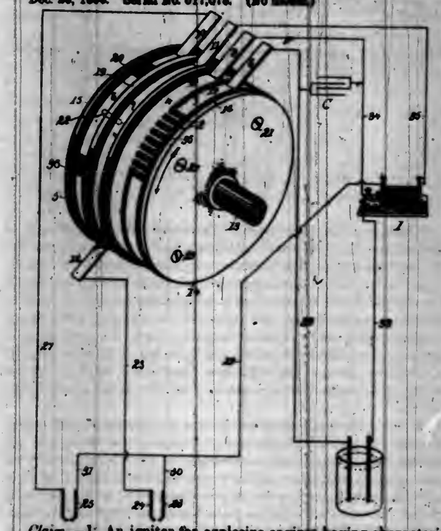
588,628. **BICYCLE.** HENRY F. BLAKE, Quincy, Ill., assignor of one-third to James T. Prigmore, Alma, Mo. Filed Jan. 19, 1897. Serial No. 619,738. (No model.)

Claim.—In a driving-gear for crank-propelled vehicles, the combination with the driving-wheel, frame, crank-shaft and cranks for rotating the same, of upwardly-extending bell-crank levers having their lower extremities or ends pivotally connected to the cranks, relatively long links pivotally connected to the bell-cranks at the angles and pivotally connected to the frame at the rear ends and pedals journaled on the upper ends of the bell-crank levers whereby the cranks may be moved across their dead-centers and the strain on the links is a longitudinal tension only; substantially as described.

588,628.



588,629. **IGNITER FOR EXPLOSIVE-ENGINES.** LEWIS BLY, Decatur, Ill., assignor of one-third to Elbert E. Johnson, same place. Filed Dec. 26, 1896. Serial No. 617,078. (No model.)



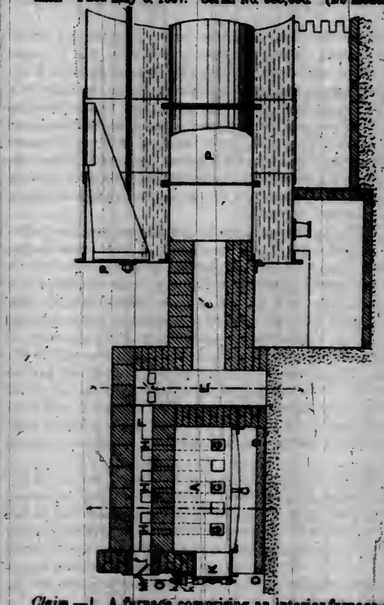
Claim.—1. An igniter for explosive-engines having characteristics as follows, namely, a group of separated contact-points, a single contact-point adapted to strike against the members of the group successively when suitable motion is given to the group or to the point, a source of electrical energy, an induction-coil and ignition-points, one terminal of the source of electrical energy being electrically connected with the group of contact-points, the other terminal of the source of energy being connected with one terminal of the primary winding of the induction-coil, the other terminal of the induction-coil being electrically connected with the contact-point, and the terminals of the secondary winding of the induction-coil being electrically connected one with each ignition-point, substantially as set forth.

2. An igniter for explosive-engines having the following characteristics, namely, a group of separated contact-points, a single contact-point adapted to strike against the members of the group successively when suitable motion is given to the group or to the point, a source of electrical energy, an induction-coil, a condenser, and ignition-points, one terminal of the source of electrical energy being electrically connected with the group of contact-points, the other terminal of the source of energy being connected with one terminal of the primary winding of the induction-coil, the other terminal of the induction-coil being electrically connected with the contact-point, the condenser being connected in parallel between the group and the point, and the terminals of the secondary winding of the induction-coil being electrically connected one with each ignition-point, substantially as set forth.

3. In an igniter for explosive-engines, a rotatable cylinder having a collecting-ring and a group of contact-points electrically connected with the collector-ring, a brush in contact with the collector-ring, another brush bearing against the cylinder in position to strike the group of contact-points, a source of electrical energy, an induction-coil, a condenser, and ignition-points, one terminal of the source of energy being connected with the brush that strikes the group, the other terminal of the source of energy being connected with one terminal of the primary winding of the induction-coil, the other terminal of the induction-coil being connected with the brush resting on the collector-ring that communicates with the group, the condenser being connected in parallel between the brush that strikes the group and the brush of the collector-ring that communicates therewith, and the terminals of the secondary winding of the induction-coil being electrically connected one with each ignition-point, substantially as set forth.

4. In an igniter for explosive engines, a rotatable cylinder having two collector-rings, a plurality of groups of contact-points connected electrically with one of the collector-rings, a contact-surface, wider than a group, connected electrically with the other collecting-ring, a brush in contact with each of the collecting-rings, a brush bearing against the cylinder in position to strike the groups of contact-points, a source of electrical energy, an induction-coil, a condenser, and a plurality of igniters, one terminal of the source of energy being connected with the brush that strikes the groups, the other terminal of the source of energy being connected with one terminal of the primary winding of the induction-coil, the other terminal of the induction-coil being connected with the brush resting on the collector-ring that communicates with the groups, the condenser being connected in parallel between the brush that strikes the groups and the brush of the collector-ring communicating therewith, one terminal of the secondary winding of the induction-coil being connected with the brush of the collector-ring that communicates with the contact-surface, the other terminal of the secondary winding of the induction-coil being connected with one terminal of each of the igniters, a number of brushes in position to strike the contact-surface, such number depending on the number of igniters, and connections between each of such brushes and a terminal of an igniter, substantially as set forth.

588,680. **FURNACE.** WILLIAM BROTHERS, Rawtenstall, England. Filed May 3, 1897. Serial No. 635,690. (No model.)



Claim.—1. A furnace comprising an interior furnace-chamber A to receive the fuel provided with outlet-openings G placed at intervals along the sides, passages H leading from the openings G to an air-chamber F and air-chamber F placed above and provided with regulated openings *f* for the admission of air into which chamber F all the products of combustion are delivered by the passages H and into which chamber F is admitted sufficient air to promote complete secondary combustion and a combustion-chamber E with exits *e* placed between the air-chamber and the structure to be heated into which chamber E all the products of combustion and the admitted air pass substantially as described.

2. In a furnace the combination with the furnace-chamber A to receive the fuel the air-chamber to receive a regulated supply of admitted air and a combustion-chamber for secondary combustion, of the outlet-openings G and passages H through which all the products of combustion are carried to the air-chamber F the inlet-open-

ing *f* through which a regulated supply of air is admitted to the air-chamber the pivoted regulator-door M connected by a chain and pulley with the furnace-door K which opens simultaneously therewith to prevent an inrush of air into the furnace substantially as described.

588,681. HOLDER FOR CALENDARS. HUGH BROWN, Ann Arbor, Mich. Filed Nov. 30, 1896. Serial No. 613,987. (No model.)



Claim.—1. A holder for calendars or for similar purposes, consisting of a casing having an opening in its back, a keeper forming a portion of one wall of the said opening, and a retaining device consisting of a spring material bent upon itself to form a lower yoke-section, the side members whereof are carried upward and returned in direction of the cross-bar of the yoke, the cross-bar of the yoke being arranged for engagement with the said keeper, and the terminals of the return members of the retaining device being fitted for locking engagement with the wall of the opening in the casing opposite that at which the keeper is placed, as and for the purpose specified.

2. In a holder for calendars and for similar purposes, the combination, with a casing having an opening in its back, and a keeper projected from one wall of the said opening, the opposite wall of the opening having recesses therein, of a retaining device consisting of a spring-bar bent upon itself to form a lower yoke-section, the side members whereof are carried upward and returned in direction of the cross-bar of the yoke-section, the terminals of the upper or return members being shaped to enter the recesses in the wall of the said opening in the casing, while the cross-bar of the yoke portion of the said retaining device is adapted to engage with the aforesaid keeper, as and for the purpose set forth.

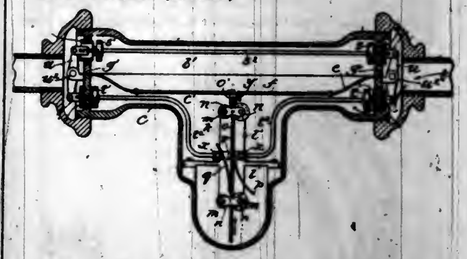
3. In a holder for calendars and for similar purposes, the combination, with a casing having an opening in its back, and a keeper projected from one wall of the said opening, the opposite wall of the opening having recesses therein, of a retaining device consisting of a spring-bar bent upon itself to form a lower yoke-section, the side members whereof are carried upward and returned in direction of the cross-bar of the yoke-section, the terminals of the upper or return members being shaped to enter the recesses in the wall of the said opening in the casing, while the cross-bar of the yoke portion of the retaining device is adapted to engage with the aforesaid keeper, and clamps located on the back of the casing, adapted to be carried over the cross-bar of the yoke of the retaining device when the said device is in position on the casing, as and for the purpose set forth.

4. In a holder for calendars and for similar purposes the combination, with a casing provided with an opening in its back and having a keeper projected from one of its walls, the opposite wall of the opening being provided with recesses therein, of a retaining device constructed of a spring material bent upon itself to form a lower yoke-section the side members whereof are carried upward and in direction of the cross-bar of the yoke, the said side members having their terminals corresponding in cross-section to the shape of the recesses in the wall of the opening of the casing, the terminals of the return members of the retaining device being likewise provided with side channels which receive the walls of the aforesaid recesses when the retaining device is placed in position on the casing, as and for the purpose specified.

5. In a holder for calendars and for similar purposes, the combination, with a casing provided with an opening in its back and having a keeper projected from one of its walls, the opposite wall of the opening being provided with recesses therein, of a retaining device constructed of a spring material bent upon itself to form a lower yoke-section, the side members whereof are carried upward and in direction of the cross-bar of the yoke, the said side members having their terminals corresponding in cross-section to the shape of the recesses in the wall of the opening of the casing, the terminals of the return members of the retaining device being likewise provided with side channels which receive the walls of the aforesaid recesses when the retaining device is placed in position on the casing, and a tongue adjustably connected with the back of the casing, and adapted to support the said casing in an inclined position, as and for the purpose specified.

6. A holder for cards, the holder having a main portion with an opening therein, one edge of the opening having a notch therein, and a retaining device approximately U-shaped in form and having one end permanently secured in the opening of the main portion of the holder and having the remaining end free and capable of extending into the notch in the edge of the opening, the said remaining end also having a groove receiving the wall of the notch, substantially as described.

588,682. GAS-METER. ROSWELL H. BUCKINGHAM, Evanston, Ill., assignor to C. H. Evans, trustee, Chicago, Ill. Filed Sept. 17, 1896. Serial No. 606,126. (No model.)



Claim.—1. The combination with a valve-rod and diaphragm of a gas-meter, of a reciprocatory locking-bar in operative connection with the diaphragm, springs thereon in operative proximity to a valve-rod having its axis at right angles to that of the locking-bar, means upon said valve-rod for alternately compressing one or the other of said springs, a shoulder on said valve-rod for engaging said locking-bar and holding said valve-rod stationary while the locking-bar is being moved in a given direction, and openings in said locking-bar to permit the passage of said shoulder when one or the other of said openings is brought into registration therewith, substantially as described.

2. In a valve-controlling mechanism for gas-meters, the combination with a movable diaphragm of a locking-bar having one end attached to said diaphragm and arranged to move longitudinally between suitable guides, a reciprocatory valve-rod arranged at right angles to said bar, valves upon said bar adapted to alternately open and close induction and eduction ports communicating with the opposite sides of the diaphragm, a shoulder or projection upon said valve-rod adapted to engage with said locking-bar, openings in said bar at points corresponding to its extreme opposite movement to permit the passage of said shoulder when said extreme movement is reached in either direction, springs attached to opposite sides of said locking-bar, and studs attached to the valve-rod upon opposite sides of said bar in position to be engaged by or disengaged from said springs as said bar is reciprocated, substantially as described.

3. In a valve-controlling mechanism for gas-meters, the combination with a movable diaphragm of a reciprocatory locking-bar arranged in guides, a reciprocatory valve-rod arranged at right angles thereto and provided with valves upon its ends adapted to control the admission of gas to induction and eduction ports communicating with the opposite sides of the diaphragm, springs attached to said bar for reversing the movement of said valve-rod, studs upon said valve-rod for alternately engaging one or the other of said springs, a shoulder or projection upon said valve-rod for engaging said locking-bar and locking said valve-rod in an extreme position pending the movement of the diaphragm, and openings or notches in said bar in alinement with said projection to permit the passage of the latter therethrough when the extreme movement of the diaphragm is reached, substantially as described.

4. In a gas-meter, the combination of a reciprocatory valve-rod having valves thereon for controlling the admission of gas to induction and eduction ports communicating with the opposite sides of the diaphragm, of a reciprocatory locking-bar arranged at right angles to the axis of said valve-rod, springs upon opposite sides of said bar for alternately reciprocating said valve-rod, means upon said valve-rod for engaging said springs, a shoulder upon said valve-rod for engaging said bar and locking said rod in an extreme position pending the movement of said diaphragm, and notches or openings in said bar having oppositely-inclined wedge-shaped faces for engaging said shoulder, supplementing the spring action, and forcing said valves firmly upon their seats pending the movement of said diaphragm, substantially as specified.

5. The combination with a valve-rod and diaphragm of a gas-meter, of a reciprocatory locking-bar in operative connection with the diaphragm, springs thereon in operative proximity to a valve-rod, a valve-rod having its axis at right angles to that of the locking-bar, means upon said valve-rod for alternately compressing one or the other of said springs, a shoulder on said valve-rod for engaging said locking-bar and holding said valve-rod stationary against the action of one of said springs while the locking-bar is completing its movement in a given direction, said shoulder being beveled upon opposite sides whereby it may be caused to wedge against said locking-bar, and openings or notches in said locking-bar to permit the passage of said shoulder, substantially as described.

6. In a gas-meter, a casing composed of two parts, a flexible or movable diaphragm interposed and clamped between the two, induction and eduction valve-ports respectively communicating with the chamber formed between the diaphragm and each of said ports, valve-rods located upon opposite sides of said diaphragm and parallel with the plane thereof, valves therein for opening and closing said ports, and means for actuating said rods simultaneously in opposite directions, substantially as described.

7. In a gas-meter, a casing composed of two parts, a movable diaphragm interposed between said parts so as to form separate independent compartments, induction and eduction valve-ports respectively located diametrically opposite to each other upon the edge of said casing adjacent to said diaphragm, communicating with each of said compartments, parallel valve-rods located upon opposite sides of said diaphragm, valves thereon for opening and closing said ports, a pivoted lever for connecting said valve-rods, and means in operative connection with the diaphragm for reciprocating said valve-rods in opposite directions with each movement of the diaphragm, substantially as described.

8. In a gas-meter, a casing provided with two compartments, separated by means of an intervening movable diaphragm, induction and eduction valve-ports communicating with each of said compartments, a valve-rod in each of said compartments having valves thereon for opening and closing said respective ports, means for connecting said rods whereby the movement of one may cause them both to be reciprocated simultaneously in opposite directions, a reciprocating locking-bar in operative connection with said diaphragm and arranged to reciprocate in guides at right angles to the axes of said valve-rods, springs attached to said locking-bar for causing the reversal of said valve-rods, means upon one of said valve-rods for alternately engaging one or the other of said springs, a shoulder upon said last-named valve-rod for engaging and locking said rod pending the movement of the diaphragm and openings or notches in said bar in alinement with said projection, the distance of said openings from each other corresponding with the length of movement of the diaphragm, substantially as described.

9. A gas-meter having a case composed of two halves, a diaphragm clamped between said halves, cylindrical extensions located diametrically opposite to each other upon the edges or periphery of said casing, partitions therein at or near the ends provided with induction and eduction ports upon opposite sides of the diaphragm, removable caps or unions for the reception of induction and eduction service-pipes, parallel valve-rods located upon opposite sides of the diaphragm and having valves therein in operative proximity to said parts respectively, means for connecting said valve-rods whereby they may be caused to move simultaneously in opposite directions when one is reciprocated, and valve-controlling mechanism in operative connection with said diaphragm and with one of said valve-rods, substantially as described.

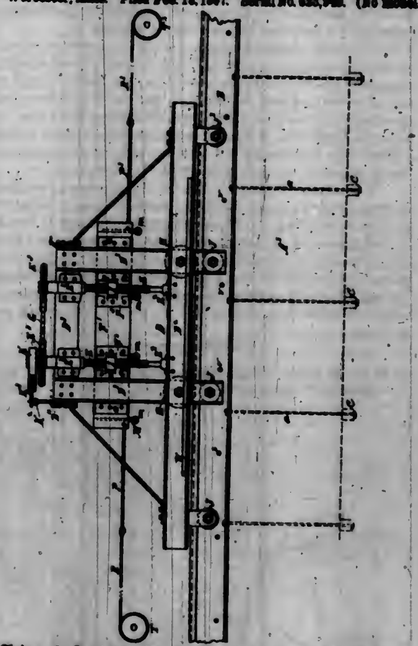
588,683. FIRE-KINDLER. LOUIS H. CLARK, Fond du Lac, Wis. Filed Dec. 3, 1896. Serial No. 614,318. (No model.)



Claim.—1. A fire-kindler, adapted to contain loose asbestos for an absorbent, consisting of two plates; a perforated peripheral wall interposed between said plates, said wall consisting of a strip with its ends overlapping; a handle passing through said peripheral wall where the ends of the strip composing the same overlap, and extending through said wall at a diametrically opposite point; and a pin passing through said plates and through the handle, substantially as set forth.

2. A fire-kindler, adapted to contain loose asbestos for an absorbent, consisting of a perforated sheet-metal strip having overlapping ends; face-plates having peripheral flanges to overlap the edges of said strip; a handle passing through the strip forming the peripheral wall of the box at the point where the ends of said strip overlap; and a pin passing through the face-plates and through said handle, substantially as set forth.

588,684. STONE-DRESSING MACHINE. DANIEL W. DARLING, Worcester, Mass. Filed Feb. 16, 1897. Serial No. 623,949. (No model.)



Claim.—1. In a stone-dressing machine the upwardly and downwardly adjustable tool-carrier or follower comprising a plurality of transversely-disposed beams F^2 having their ends rigidly connected with side beams F' forming a rectangular skeleton table, and provided with the guiding and supporting cheek-pieces arranged thereon; said transverse beams numerously perforated through their webs for the attachment and adjustment of the tool-shanks thereon, substantially as set forth.

2. In a stone-dressing machine, the reciprocating carriage composed of two side frames connected across their top only, and each provided with upright guide-standards and a plurality of vertical screws turning in bearings E' and E^2 arranged on said side frames as shown; in combination with a tool-supporting follower consisting of longitudinal side pieces F' and rigidly-attached pairs of transom-beams F^2 perforated for attaching dressing-tools thereto, said follower having upon the exterior of its side plates projecting jaws that engage the guide-standards, and cheek-plate whereby said follower is supported on said screws, for operation as set forth.

3. In a stone-dressing machine, the combination of the overbridging carriage provided with upright guide-standards, the series of feed-screws mounted in bearings E' and E^2 on said carriage, the tool-carrying follower comprising the side pieces and perforated cross-beams F^2, means for the attachment of dressing-cutters thereto, the open vertically-slotted laterally-recessed cheek-pieces fixed on said follower and the nuts threaded upon said feed-screws and engaging with said recessed cheek-pieces, and means for traveling said carriage with its tool-carrying follower in reciprocative operation over the work, all substantially as described.

4. In a stone-dressing machine, the combination as described, of the overbridging reciprocating carriage D having the upright guides D', the tool-carrying follower F composed of the transverse beams F^2 and side beams F', supported to rise and fall within said carriage, and confined therein by cheek plates or jaws that embrace the edges of said guides, and having the space Q between the lateral faces of the guides and the sides of the follower for permitting a limited transverse motion of the tool-carrying follower, as set forth.

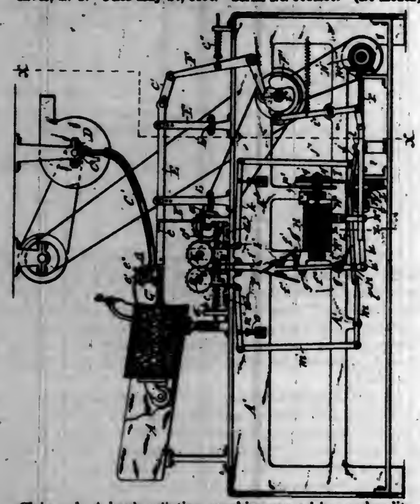
5. A stone-dressing mechanism, comprising the space or pit A with side foundations and longitudinal guideway-beams fixed thereon, said beams having upper and under track-surfaces, the overbridging carriage, its upright side frames mounted on said guideways with upper and under sets of traveling wheels that respectively roll on said track-surfaces, the tool-carrying follower consisting of the rectangular skeleton table having a series of transom-bars adapted for carrying tools, said follower arranged between guides within said carriage, the series of feed-screws sustaining said follower, means for simultaneously operating said screws, the series of surface-dressing tools or

rolling disk cutters adjustably attached to the follower transom-bars, and the draft connections, pull-ropes, and winding-drums for reciprocatively moving said carriage and follower; all constructed and organized for operation substantially as set forth.

6. In a stone-dressing machine of the character described, comprising the reciprocating carriage with a vertically-adjustable tool-supporting follower suspended therein by the series of feed-screws having sprocket-wheels thereon, and the drive-chain connecting said sprockets, the combination with said mechanism, of the feed ratchet clutch K, its arm K', the reciprocating operating-rod K^2 with spring k mounted in bearings on said carriage, and the stationary cam or stop L actuating said rod, all substantially as set forth.

7. In a stone-dressing machine of the character described, the carriage formed as an overbridging trestle with the side frames comprising the bottom beam D^3, upright guide-standards D', top beams D^5 and transverse top beams D^4 extending beyond the sides, with inwardly-inclined braces d therefrom supporting the foot or lower part of the upright side, the upper wheel H and the under wheels J J' for sustaining said carriage, in combination with the tool-carrier F supported within said carriage, and the guideway B, for the purpose set forth.

588,635. COLLATING-MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed May 27, 1896. Serial No. 593,269. (No model.)



Claim.—1. A book-collating machine comprising a plurality of signature-hoppers, means for delivering the signatures successively from said hoppers, a carrier disposed to receive the signatures from the hoppers, normally-closed calipers in the path of the signatures to said carrier and opened automatically by the thickness of the signatures in transit through said calipers, guides sustained movably to convey the signature either to or from the carrier, and mechanisms actuated by the calipers and shifting the guides in their positions as set forth.

2. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, laterally-movable rollers disposed contiguously side by side, geared to revolve and arranged to receive between them the signatures in transit from the hoppers, signature-guides under said rollers and movable to carry the signatures either to or from the gatherer, actuating mechanisms adapted to shift said guides, and tripping mechanism actuated by the lateral movement of the aforesaid rollers and controlling the said actuating mechanisms.

3. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, positively-revolving rollers disposed contiguously side by side and arranged to receive between them the delivered signatures and journaled in laterally-yielding boxes, signature-guides under said rollers and movable to convey the signatures either to or from the gathering-carrier, actuating mechanisms adapted to shift said guides, tripping mechanism throwing the actuating mechanism in and out of operative connection with the guides, and levers actuated by the lateral motion of the aforesaid journal-boxes and controlling the action of the tripping mechanism as set forth.

4. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, rollers arranged to receive in their bites the signatures in transit to the carrier and sustained yieldingly lateral from each other, guides between said rollers and gathering-carrier and movable to convey the signatures either to or from said carrier and sustained normally in one direction, actuating mechanism for shifting said guides from their normal positions, and tripping mechanism actuated by the lateral movement of the aforesaid rollers and controlling the transmission of motion from said actuating mechanism to the guides as set forth.

5. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers arranged to receive in their bites the delivered signatures, guides coupled together to move in unison for conveying the signatures either to or from the gatherer and held normally in one position, a positively-actuated pitman, a latch connected to said pitman and movable to engage and release the aforesaid guides, and levers actuated by the lateral movement of the aforesaid rollers and controlling the said latch as set forth.

6. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers arranged to receive in their bite the delivered signatures, a shaft beneath said rollers and parallel therewith, posts fixed to said shaft and having on their upper ends chutes receiving the signatures from the rollers and extending respectively toward and from the gatherer, a spring and stop holding the free ends of said posts normally from the gatherer, a positively-actuated pitman, a latch connected to said pitman and normally out of position to actuate the posts, and levers actuated by the lateral movement of the aforesaid rollers and setting the latch into position to throw the aforesaid posts out of their said normal position as set forth.

7. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers receiving in their bite the delivered signatures and having positive rotary motion to propel the signatures, guides between the rollers and gatherer and sustained normally to convey the signatures either to or from the gatherer, separate springs for resisting the lateral movement of each roller and of different tensions, a stop limiting the movement of the roller resisted by the weaker spring, separate levers actuated by the lateral movement of the respective rollers, a positively-actuated pitman, a latch connected to the pitman and movable to and from a position to shift the aforesaid guides and controlled by one of the aforesaid levers, a latch actuated by the other lever, and a tripping-bar between the two latches to be actuated thereby and transmit motion to the aforesaid signature-guides as set forth.

8. In combination with the signature-hoppers, means for delivering the signatures from said hoppers, laterally-movable journal-boxes, rollers journaled in said boxes and receiving the signatures from the hoppers, a shaft beneath said rollers and parallel therewith, posts fixed to said shaft and having chutes extending in opposite directions therefrom, an arm fastened to said shaft and a spring drawing the posts to one side, a tripping-bar pivoted to said arm, a spring supporting the aforesaid tripping-bar in its normal position, a positively-actuated pitman, a latch mounted on said pitman and facing one end of the tripping-bar and out of contact therewith when said bar is in its normal position, a latch adapted to throw the tripping-bar into position to be engaged by the latch of the pitman, and two levers actuated respectively by the lateral movements of the aforesaid journal-boxes and transmitting motion to the latches as and for the purpose shown and described.

9. In combination with the signature-hoppers, means for delivering the signatures from said hoppers, laterally-yielding rollers receiving in their bites the delivered signatures, a longitudinally-traveling gatherer, mechanism transmitting motion to said gatherer, a clutch adapted to throw said mechanism in and out of gear, signature-guides interposed between the aforesaid rollers and gatherer and movable to conduct the signatures either to or from the gatherer, levers actuated by the lateral movement of the rollers and controlling the positions of the aforesaid guides and mechanism transmitting motion from the guides to the aforesaid clutch as set forth.

588,636. ADVERTISING-CARD. CHARLES F. EGGSTROM, St. Charles, Ill. Filed Jan. 27, 1897. Serial No. 620,896. (No model.)

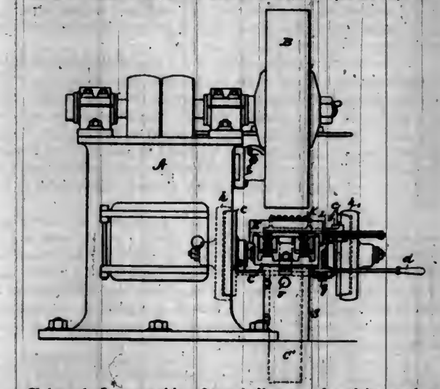
Claim.—1. A folding brace for advertising-cards and the like consisting of a portion secured to the card at a sufficient distance from the bottom to furnish a suitable rest therefor and extending downward and rearward therefrom, a second portion extending from the lower end of the first to the lower portion of the card and secured thereto, said second portion being adapted to fold upon itself, and a brace secured to the intermediate portion of the card and extending

therefrom to the angle between the first two portions, the parts being sufficiently elastic to permit of the crowding of the brace upward so as to lie parallel with the card and permit the remaining portions to be folded against the same; substantially as described.



2. A brace for advertising-cards and the like consisting of a comparatively stiff strip of material, B, having more flexible portions extending transversely across it at b, b', b^3, b^3, and b^4, said strip being secured to the card, A, at b and between b^3 and b^4 and the portion, b^3, being of proper length to reach the angle, b', when the portion between b' and b^3, is extended into one plane; substantially as described.

588,637. GRINDING-MACHINE. ADOLPHE BEPMANS, Paris, France. Filed Jan. 8, 1897. Serial No. 618,470. (No model.)



Claim.—1. In a machine for grinding metal articles, such as files, leaves of springs and other objects of ironwork, a work-holding apparatus in which are combined a trough-shaped head adjustable vertically by a screw and provided with a stem which fits in a sleeve secured to the machine-frame, removable rails arranged at the bottom of the trough, a carriage running on said rails and arranged to support a transversely-movable work-holder, and a work-holder having a rib around its upper surface and provided with a work-supporting plate or work-supporting elastic blocks, and also having a pin for shifting the work-holder mounted on an eccentric which turns in an eye in a lateral extension of said work-holder, said pin projecting into an inclined longitudinal groove for shifting said work-holder laterally during the travel of said carriage and being arranged to enter a lateral groove for withdrawing the work-holder from in front of the grinder when the carriage is at the end of its course, substantially as described.

2. In the head of a work-holding apparatus and in combination with a carriage, and a work-holder carrying work-supporting plates or retainers and movable longitudinally and transversely under the grinder as hereinabove specified, a shaft mounted in bearings on said head, a pinion fast on said shaft, friction-cones connected with each other and engaging said shaft by a spline so as to be movable longitudinally, a rack connected with said carriage and engaging said pinion, loose pulleys turning in opposite directions and having their rims extended over the said cones respectively, a cone-shifting lever, and a rod connected with said lever and provided with stops, arranged to be struck by a finger on said carriage, substantially as described.

3. In a grinding-machine, the combination with a longitudinally-movable carriage and means for imparting said longitudinal movement thereto, of a transversely-movable work-holder, means for imparting to the work-holder said transverse movement during the longitudinal reciprocation of the carriage, and means for transversely adjusting the position of the work-holder independent of its transverse reciprocating movement, substantially as described.

4. The combination with the head provided with a longitudinal and a transverse groove opening into each other, of the carriage traveling lengthwise of said head, and the tool-holder mounted on said carriage in transverse ways and provided with a pin arranged to travel in said grooves, substantially as described.

5. The combination with the head provided with a groove, of the longitudinally-moving carriage, and the tool-holder mounted on said carriage in transverse ways and provided with a pin set in an eccentrically-turning device and arranged to project into said groove, substantially as described.

6. In combination with the rotary grinder, a work-holding apparatus, consisting of a trough-shaped head adjustable vertically, and having a stem which enters a sleeve secured to the frame of the grinding-machine, a carriage traveling longitudinally of said head, a tool-holder mounted on said carriage in transverse ways, and the means for imparting lateral movement to said tool-holder, substantially as described.

7. In combination with a rotary grinder, a work-holding apparatus, consisting of a trough-shaped head adjustable vertically and having a stem which enters a sleeve secured to the frame of the grinding-machine, a carriage traveling longitudinally of said head, a tool-holder mounted on said carriage in transverse ways, the means for moving said carriage back and forth, the hand-lever for putting said means into action, and the stops arranged in the path of a finger on said carriage and connected with said lever so that the carriage is arrested on contact of either stop with said finger, substantially as described.

588,638. BOX-TOE BLANK. ISAAC H. FISH, Brockton, Mass., assignor of one-half to John A. Cook, same place. Filed Feb. 23, 1897. Serial No. 624,531. (No model.)



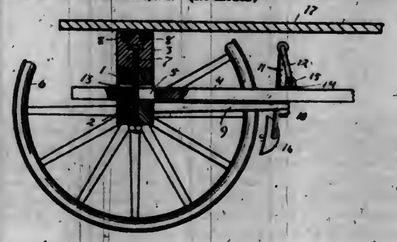
Claim.—A box-toe blank comprising a substantially flat body portion indented to form a ridge or projection along its medial line, substantially as described.

588,639. LATCH. HUGO FRÖHLICH, Bellefontaine, Ohio. Filed Jan. 25, 1896. Serial No. 576,785. (No model.)



Claim.—In a screen-door fastening the securing-plate A, the slotted bracket B, the guides E, and the pin D, mounted on the plate, the latch F, bent as shown, to form a latch at the front end, and a slotted resistance-plate at the rear, the spring G, and the pins H, and K, and spring L, as and for the purpose set forth.

588,640. WAGON-BRAKE. CHARLES GARVER, Fort Wayne, Ind., assignor of one-third to Richard H. Garver, Sheldon, Ind. Filed Feb. 20, 1897. Serial No. 624,421. (No model.)

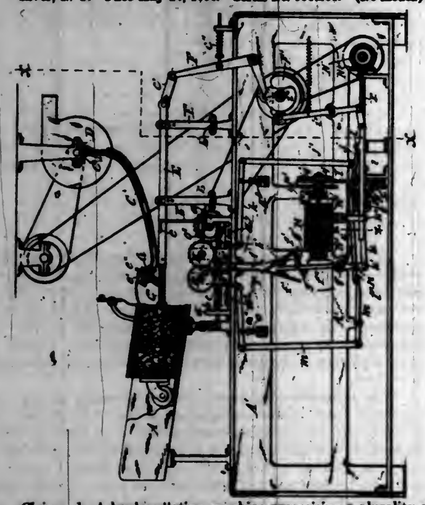


rolling disk cutters adjustably attached to the follower transom-bars, and the draft connections, pull-ropes, and winding-drums for reciprocatively moving said carriage and follower; all constructed and organized for operation substantially as set forth.

6. In a stone-dressing machine of the character described, comprising the reciprocating carriage with a vertically-adjustable tool-supporting follower suspended therein by the series of feed-screws having sprocket-wheels thereon, and the drive-chain connecting said sprockets, the combination with said mechanism, of the feed-ratchet clutch K, its arm K', the reciprocating operating-rod K^2 with spring k mounted in bearings on said carriage, and the stationary cam or stop L actuating said rod, all substantially as set forth.

7. In a stone-dressing machine of the character described, the carriage formed as an overbridging trestle with the side frames comprising the bottom beam D^3, upright guide-standards D', top beams D^2 and transverse top beams D^4 extending beyond the sides, with inwardly-inclined braces d therefrom supporting the foot or lower part of the upright side, the upper wheel H and the under wheels J J' for sustaining said carriage, in combination with the tool-carrier F supported within said carriage, and the guideway B, for the purpose set forth.

588,685. COLLATING-MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed May 27, 1896. Serial No. 593,269. (No model.)



Claim.—1. A book-collating machine comprising a plurality of signature-hoppers, means for delivering the signatures successively from said hoppers, a carrier disposed to receive the signatures from the hoppers, normally-closed calipers in the path of the signatures to said carrier and opened automatically by the thickness of the signatures in transit through said calipers, guides sustained movably to convey the signature either to or from the carrier, and mechanisms actuated by the calipers and shifting the guides in their positions as set forth.

2. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, laterally-movable rollers disposed contiguously side by side, geared to revolve and arranged to receive between them the signatures in transit from the hoppers, signature-guides under said rollers and movable to carry the signatures either to or from the gatherer, actuating mechanisms adapted to shift said guides, and tripping mechanism actuated by the lateral movement of the aforesaid rollers and controlling the said actuating mechanisms.

3. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, positively-revolving rollers disposed contiguously side by side and arranged to receive between them the delivered signatures and journaled in laterally-yielding boxes, signature-guides under said rollers and movable to convey the signatures either to or from the gathering-carrier, actuating mechanisms adapted to shift said guides, tripping mechanism throwing the actuating mechanism in and out of operative connection with the guides, and levers actuated by the lateral motion of the aforesaid journal-boxes and controlling the action of the tripping mechanism as set forth.

4. In combination with the plurality of signature-hoppers, signature-gathering carrier and means for delivering the signatures successively from the hoppers to said carrier, rollers arranged to receive in their bites the signatures in transit to the carrier and sustained yieldingly lateral from each other, guides between said rollers and gathering-carrier and movable to convey the signatures either to or from said carrier and sustained normally in one direction, actuating mechanism for shifting said guides from their normal positions, and tripping mechanism actuated by the lateral movement of the aforesaid rollers and controlling the transmission of motion from said actuating mechanism to the guides as set forth.

5. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers arranged to receive in their bites the delivered signatures, guides coupled together to move in unison for conveying the signatures either to or from the gatherer and held normally in one position, a positively-actuated pitman, a latch connected to said pitman and movable to engage and release the aforesaid guides, and levers actuated by the lateral movement of the aforesaid rollers and controlling the said latch as set forth.

6. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers arranged to receive in their bite the delivered signatures, a shaft beneath said rollers and parallel therewith, posts fixed to said shaft and having on their upper ends chutes receiving the signatures from the rollers and extending respectively toward and from the gatherer, a spring and stop holding the free ends of said posts normally from the gatherer, a positively-actuated pitman, a latch connected to said pitman and normally out of position to actuate the posts, and levers actuated by the lateral movement of the aforesaid rollers and setting the latch into position to throw the aforesaid posts out of their said normal position as set forth.

7. In combination with the plurality of signature-hoppers, signature-gatherer and means for delivering the signatures successively from said hoppers, laterally-yielding rollers receiving in their bite the delivered signatures and having positive rotary motion to propel the signatures, guides between the rollers and gatherer and sustained normally to convey the signatures either to or from the gatherer, separate springs for resisting the lateral movement of each roller and of different tensions, a stop limiting the movement of the roller resisted by the weaker spring, separate levers actuated by the lateral movement of the respective rollers, a positively-actuated pitman, a latch connected to the pitman and movable to and from a position to shift the aforesaid guides and controlled by one of the aforesaid levers, a latch actuated by the other lever, and a tripping-bar between the two latches to be actuated thereby and transmit motion to the aforesaid signature-guides as set forth.

8. In combination with the signature-hoppers, means for delivering the signatures from said hoppers, laterally-movable journal-boxes, rollers journaled in said boxes and receiving the signatures from the hoppers, a shaft beneath said rollers and parallel therewith, posts fixed to said shaft and having chutes extending in opposite directions therefrom, an arm fastened to said shaft and a spring drawing the posts to one side, a tripping-bar pivoted to said arm, a spring supporting the aforesaid tripping-bar in its normal position, a positively-actuated pitman, a latch mounted on said pitman and facing one end of the tripping-bar and out of contact therewith when said bar is in its normal position, a latch adapted to throw the tripping-bar into position to be engaged by the latch of the pitman, and two levers actuated respectively by the lateral movements of the aforesaid journal-boxes and transmitting motion to the latches as and for the purpose shown and described.

9. In combination with the signature-hoppers, means for delivering the signatures from said hoppers, laterally-yielding rollers receiving in their bites the delivered signatures, a longitudinally-traveling gatherer, mechanism transmitting motion to said gatherer, a clutch adapted to throw said mechanism in and out of gear, signature-guides interposed between the aforesaid rollers and gatherer and movable to conduct the signatures either to or from the gatherer, levers actuated by the lateral movement of the rollers and controlling the positions of the aforesaid guides and mechanism transmitting motion from the guides to the aforesaid clutch as set forth.

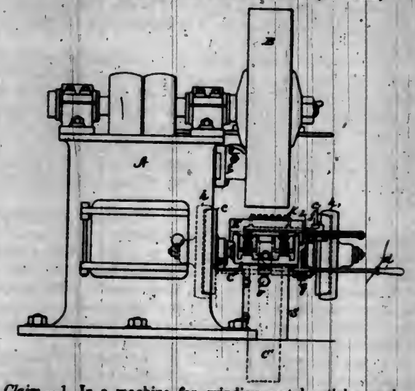
588,686. ADVERTISING-CARD. CHARLES F. EGGSTEIN, St. Charles, Ill. Filed Jan. 27, 1897. Serial No. 620,896. (No model.)

Claim.—1. A folding brace for advertising-cards and the like consisting of a portion secured to the card at a sufficient distance from the bottom to furnish a suitable rest therefor and extending downward and rearward therefrom, a second portion extending from the lower end of the first to the lower portion of the card and secured thereto, said second portion being adapted to fold upon itself, and a brace secured to the intermediate portion of the card and extending therefrom to the angle between the first two portions, the parts being sufficiently elastic to permit of the crowding of the brace upward so as to lie parallel with the card and permit the remaining portions to be folded against the same; substantially as described.



2. A brace for advertising-cards and the like consisting of a comparatively stiff strip of material, B, having more flexible portions extending transversely across it at b, b', b^2, b^3, and b^4, said strip being secured to the card, A, at b and between b^2 and b^4 and the portion, b^3, being of proper length to reach the angle, b', when the portion between b' and b^2, is extended into one plane; substantially as described.

588,687. GRINDING-MACHINE. ADOLPHE BEPMANS, Paris, France. Filed Jan. 6, 1897. Serial No. 618,476. (No model.)



Claim.—1. In a machine for grinding metal articles, such as files, leaves of springs and other objects of ironwork, a work-holding apparatus in which are combined a trough-shaped head adjustable vertically by a screw and provided with a stem which fits in a sleeve secured to the machine-frame, removable rails arranged at the bottom of the trough, a carriage running on said rails and arranged to support a transversely-movable work-holder, and a work-holder having a rib around its upper surface and provided with a work-supporting plate or work-supporting elastic blocks, and also having a pin for shifting the work-holder mounted on an eccentric which turns in an eye in a lateral extension of said work-holder, said pin projecting into an inclined longitudinal groove for shifting said work-holder laterally during the travel of said carriage and being arranged to enter a lateral groove for withdrawing the work-holder from in front of the grinder when the carriage is at the end of its course, substantially as described.

2. In the head of a work-holding apparatus and in combination with a carriage, and a work-holder carrying work-supporting plates or retainers and movable longitudinally and transversely under the grinder as hereinabove specified, a shaft mounted in bearings on said head, a pinion fast on said shaft, friction-cones connected with each other and engaging said shaft by a spline so as to be movable longitudinally, a rack connected with said carriage and engaging said pinion, loose pulleys turning in opposite directions and having their rims extended over the said cones respectively, a cone-shifting lever, and a rod connected with said lever and provided with stops, arranged to be struck by a finger on said carriage, substantially as described.

3. In a grinding-machine, the combination with a longitudinally-movable carriage and means for imparting said longitudinal movement thereto, of a transversely-movable work-holder, means for imparting to the work-holder said transverse movement during the longitudinal reciprocation of the carriage, and means for transversely adjusting the position of the work-holder independent of its transverse reciprocating movement, substantially as described.

4. The combination with the head provided with a longitudinal and a transverse groove opening into each other, of the carriage traveling lengthwise of said head, and the tool-holder mounted on said carriage in transverse ways and provided with a pin arranged to travel in said grooves, substantially as described.

5. The combination with the head provided with a groove, of the longitudinally-moving carriage, and the tool-holder mounted on said carriage in transverse ways and provided with a pin set in an eccentrically-turning device and arranged to project into said groove, substantially as described.

6. In combination with the rotary grinder, a work-holding apparatus, consisting of a trough-shaped head adjustable vertically, and having a stem which enters a sleeve secured to the frame of the grinding-machine, a carriage traveling longitudinally of said head, a tool-holder mounted on said carriage in transverse ways, and the means for imparting lateral movement to said tool-holder, substantially as described.

7. In combination with a rotary grinder, a work-holding apparatus, consisting of a trough-shaped head adjustable vertically and having a stem which enters a sleeve secured to the frame of the grinding-machine, a carriage traveling longitudinally of said head, a tool-holder mounted on said carriage in transverse ways, the means for moving said carriage back and forth, the hand-lever for putting said means into action, and the stops arranged in the path of a finger on said carriage and connected with said lever so that the carriage is arrested on contact of either stop with said finger, substantially as described.

588,688. BOX-TOE BLANK. ISAAC H. FISH, Brockton, Mass., assignor of one-half to John A. Cook, same place. Filed Feb. 23, 1897. Serial No. 624,581. (No model.)



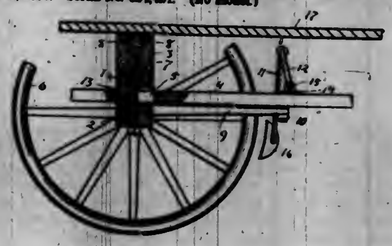
Claim.—A box-toe blank comprising a substantially flat body portion indented to form a ridge or projection along its medial line, substantially as described.

588,689. LATCH. HUGO FRÖHLICH, Bellefontaine, Ohio. Filed Jan. 25, 1896. Serial No. 576,785. (No model.)



Claim.—In a screen-door fastening the securing-plate A, the slotted bracket B, the guides E, and the pin D, mounted on the plate, the latch F, bent as shown, to form a latch at the front end, and a slotted resistance-plate at the rear, the spring G, and the pins H, and K, and spring L, as and for the purpose set forth.

588,640. WAGON-BRAKE. CHARLES GARVER, Fort Wayne, Ind., assignor of one-third to Richard H. Garver, Sheldon, Ind. Filed Feb. 20, 1897. Serial No. 624,421. (No model.)



Claim.—1. A brake for wagons consisting of the beam 12 mounted on the supporting-posts 11, and having depending ends forming mountings for the respective shoes 16, and a depending loop between said posts, the said loop passing through the swivel-eye 15 on the coupling-pole, and being adapted to be actuated by the longitudinal movements of said pole, substantially as shown and described.

2. In a brake for wagons, a swinging brake-beam mounted upon the forward truck of the wagon, and having a connection with the coupling-pole of said wagon and being adapted to be actuated by the longitudinal movement of said coupling-pole, substantially as shown and described.

588,641. WAVE-MOTOR. THOMAS HARDING, San José, Cal., assignor of one-half to James H. Henry, same place. Filed Apr. 25, 1896. Serial No. 589,060. (No model.)



Claim.—1. The combination with a wharf or pier having a central compartment and two exterior compartments, of guideways located on each side of said central compartment, a shaft adapted to slide in said guideways, floats in said exterior compartments adapted to support said shaft, and a paddle-segment located in said central compartment and adapted to rock said shaft, substantially as set forth.

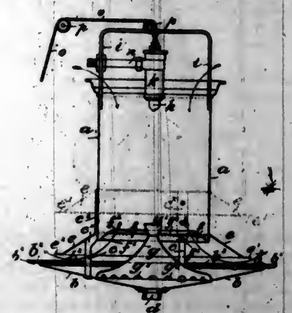
2. The combination with a wharf or pier having a central open-ended compartment and two exterior compartments provided with tapering ends, of guideways located on each side of said central compartment, a shaft adapted to slide in said guideways, floats in said exterior compartments adapted to support said shaft, and a paddle-segment located in said central compartment and adapted to rock said shaft, substantially as set forth.

588,642. HINGE. EDWARD C. HOFFMAN, Cleveland, Ohio. Filed Feb. 26, 1897. Serial No. 625,108. (No model.)



Claim.—In door-hinges, a set of hinge-sections pivotally connected, one of said sections having a spring integral therewith and the other section having a cam to bear against said spring, said cam gradually decreasing in radius from one side to a point diametrically opposite, whereby the maximum spring-pressure is exerted against the cam when the door is in closed position and is gradually diminished as the door is opened, substantially as described.

588,643. HUMIDIFYING APPARATUS. OTTO HOFFMANN, Manchester, England. Filed Apr. 4, 1896. Serial No. 586,220. (No model.) Patented in England Oct. 31, 1895, No. 20,554; in Italy Nov. 12, 1895, XXX, 40,155, and LXXVII, 439; in France Dec. 6, 1895, No. 253,232; in Austria Dec. 6, 1895, 46/3,043, No. 5,163; in Switzerland Dec. 10, 1895, No. 11,374; in Spain Dec. 11, 1895, No. 18,336; in Belgium Aug. 8, 1896, No. 122,956, and in India Feb. 12, 1897, No. 129.



Claim.—1. A movable spraying device of the character described, comprising a casing, a nozzle at the lower end of said casing, a movable strainer-cylinder in said casing having upper and lower flanges, seats for said flanges, and a pipe leading into the casing between the seats for the upper flange, normally supplying liquid to the interior of said strainer, whereby the liquid may be forced to pass below the upper flange through the cylinder from the outside to the inside thereof, or vice versa, substantially as set forth.

2. A movable spraying device of the character described, comprising a casing, a nozzle at the lower end of said casing, a movable strainer-cylinder in said casing having upper and lower flanges, seats for said flanges, a pipe leading into the casing between the seats for the upper flange, normally supplying liquid to the interior of said strainer, whereby the liquid may be forced to pass below the upper flange through the cylinder from the outside to the inside thereof, or vice versa, and means for moving the strainer, substantially as set forth.

3. In a humidifying apparatus, the combination of a casing *a*, a spraying device within said casing, brackets *c* at the lower end of said casing, the dished tray *b* carried by said brackets, a loose inclined ring *e* normally supported by said brackets at the lower end of the casing *a*, said inclined ring being provided with recesses c^3 therein for accommodating the feet c^4 of said brackets, whereby the ring *e* may be elevated above said feet and rotated slightly so as to be supported on said feet, substantially as set forth.

4. In a humidifying apparatus, the combination of a casing *a*, a spraying device within said casing, and a dished tray *b* carried at the lower end of said casing, said dished tray being provided with annular trap-ridges b', b^3, at the edge thereof, and with gaps b^3 in the inner ridge b^3, substantially as set forth.

5. In a humidifying apparatus, the combination of a casing *a*, a spraying device in said casing, said spraying device normally spraying liquid within said casing, but adapted to be cleaned substantially as described, whereby a continuous stream will flow vertically therefrom, and a removable central cone *g* supported at the lower end of the casing, and having a central opening for receiving the stream from the spraying device when the same is being cleaned, substantially as set forth.

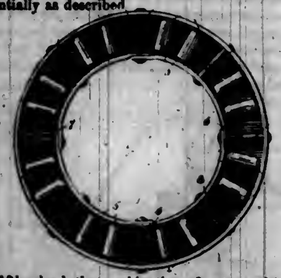
6. In a humidifying apparatus, the combination of a casing *a*, a spraying device therein of the character described, a dished tray *b* at the lower end of said casing, an outlet *d* in said dished tray, and a central cone *g* carried by said dished tray and having a funnel opening *g'* therein, for the purpose mentioned, substantially as set forth.

7. In a humidifying apparatus, the combination of a casing *a*, a spraying device therein of the character described, a dished tray *b* carried at the lower end of said casing, and having a discharge-opening *d* therein, a central cone *g* supported by said dished tray and having a funnel-opening *g'* therein, and a loose inclined ring *e* at the lower end of the casing and arranged with the lower end of said ring adjacent to the dished tray, substantially as set forth.

588,644. FIFTH-WHEEL. JOSEPH KOONTZ, Jr., Quincy, Ill. Filed Feb. 24, 1897. Serial No. 624,805. (No model.)

Claim.—1. In a fifth-wheel, the combination with independent inner and outer rings having a series of concave recesses in their opposing faces, of a series of rollers having integral end pintles with rounded extremities to engage in said recesses, the recesses being so

arranged that the rollers will project above the upper edges of the rings, substantially as described.



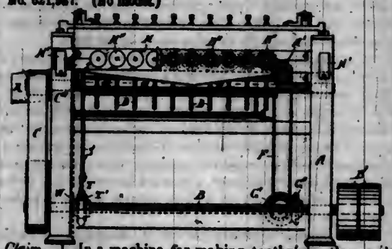
2. In a fifth-wheel, the combination of outer and inner concentric rings, the independent inner ring being made in sections, the ends of adjacent sections overlapping and being detachably connected together, and a series of rollers journaled in said rings, substantially as described.

3. In a fifth-wheel, the combination of outer and inner concentric rings, the inner ring being made in sections with the ends of adjacent sections overlapping, bolts passing through the overlapping ends and through the outer ring to detachably connect the sections together, thimbles surrounding the bolts between the rings to space said rings apart, and a series of rollers journaled in said rings to revolve between them, substantially as described.

4. In a fifth-wheel, the combination of outer and inner concentric rings, the inner ring being made in sections detachably connected together, said rings having a series of concave recesses in their opposing faces, and a series of solid rollers having end pintles with rounded extremities to engage in said recesses, substantially as and for the purpose specified.

5. In a fifth-wheel, the combination of outer and inner concentric rings, the inner ring being made in sections, the ends of adjacent sections being overlapped, bolts passing through the overlapped ends and the outer ring to detachably connect them together, and similar bolts connecting the outer rings and the sections intermediate the ends of the latter, thimbles surrounding said bolts between the rings to brace and space the rings, and a series of rollers journaled in said rings to revolve between them, substantially as described.

588,645. MACHINE FOR MAKING TOOTHPICKS. EDWARD M. LAMB and ERNOR BALES, Clayton, Mich. Filed Feb. 4, 1897. Serial No. 621,927. (No model.)



Claim.—1. In a machine for making toothpicks, the combination of the rotary feeding-head for rotating and feeding the strand through the machine, the rotary cutter in line with said head, means involving a guide for carrying the strand over said cutter in contact therewith, and for intermittently depressing the rotary strand onto the cutter to form the taper on the end of the pick.

2. In a machine for making toothpicks, the combination of the rotary head adapted to rotate and feed the strand from which the pick is formed, a rotary cutter located in the path of said strand and rotating in the plane of the longitudinal axis thereof, means for holding said strand in contact with said cutter and intermittently depressing said strand onto said cutter.

3. In a machine for making toothpicks, the combination of the rotary feeding-head adapted to rotate the strand and carry it forward through the machine, the rotary cutter located in the path of said strand standing parallel therewith and turning in the direction of the longitudinal axis thereof, means for holding said strand in contact with the rotary cutter and intermittently depressing the strand thereon to form the tapered point of the pick, and means for separating the strand at the minor axis of said taper.

4. In a machine for making toothpicks, the combination of the feeding-head adapted to rotate and feed the strand longitudinally, the rotary cutter located in the path of said strand and turning in the direction of the longitudinal axis thereof, means for holding the strand firmly in contact with said cutter, and bringing said strand and cutter nearer together at regular intervals to produce the tapered ends of the picks.

5. In a machine for making toothpicks, the combination of the rotary feeding-heads for feeding and rotating the strands, the rotary cutters located in the path of said strands, the guide-shoes embracing said strands and located over said cutters, the cross-head carrying said guide-shoes, and means for intermittently depressing said cross-head to carry downward said shoes and force the strands downward onto said cutters.

6. In a machine for making toothpicks, the combination of the feeding-heads for rotating and feeding the strands longitudinally, the rotary cutters located in the path of said strands, the series of spring-actuated guide-shoes adapted to receive said strands and hold them in contact with said cutters, the vertically-movable cross-head, adjusting-screws in said cross-head engaging the stems of the guide-shoes, and means for depressing said cross-head.

7. In a machine for making toothpicks, the combination of the feeding-heads adapted to rotate and feed the strands longitudinally, the rotary cutters located in the path of said strands and adapted to turn said strands round, means for depressing said strands onto said cutters at intervals to reduce the transverse diameter of said strands by forming meeting conical points united at their outer apexes, fixed pins in the table of the machine between which said strands pass, the horizontally-reciprocal bar having depending pins which engage said strands and separate the picks at their united points as set forth.

8. In a machine for making toothpicks, the combination of the rotary feeding-heads adapted to rotate and feed the strands from which the toothpicks are formed, th ecutters in line with said heads, a vertically-movable cross-head carrying the guide-shoes which receive said strands, the cross-shaft J, the cams on the ends of said shaft, the arms engaging said cams, and the levers pivoted to said arms and engaging said cross-head.

588,646. METER. FRANK LAMBERT, Brooklyn, N. Y., assignor of one-half to Joseph W. Kay, same place. Filed Dec. 3, 1894. Serial No. 530,639. (No model.)



Claim.—1. In a water-meter, the combination of a piston-chamber and a hollow nutating piston, said piston being made in parts removably secured together, with means to register these parts in a true, central relative position, substantially as specified.

2. In a meter, the combination with a piston-chamber and a registering mechanism of a supporting-ball, and a stud or pin for carrying the ball, the supporting-ball being independent of the stud or pin, substantially as specified.

3. In a meter, the combination with a piston-chamber, a diaphragm and a supporting-ball of a nutating piston having an internal ball-bearing a stud or pin for carrying the supporting-ball, the ball being mounted to freely turn upon the pin or stud and means for adjusting the ball, substantially as specified.

4. In a water-meter the combination of a piston-chamber, a diaphragm, a supporting-ball, a nutating piston having an internal ball-bearing, a stud or pin for carrying the supporting-ball, and which is removably secured in its bearing, and means for registering the pin in its true relative position and preventing its rotation, substantially as specified.

5. In a water-meter, the combination with a piston-chamber, of a nutating piston having an internal ball-bearing, and a supporting-ball, said piston and supporting-ball being hollow, substantially as specified.

6. In a water-meter, the combination with a piston-chamber of a piston having a motion of nutation and an internal ball-bearing and a supporting-ball which is hollow, substantially as specified.

7. In a meter, the combination with a nutating piston made in a number of parts and having internal lugs or ribs for locking the parts together, of a central spindle and an external ball for the piston, substantially as specified.

8. In a water-meter, the combination of a piston-chamber, a diaphragm, a nutating piston and an independent shoe carried by the piston, the shoe being free to swing in a plane parallel to the plane of the piston, substantially as specified.

9. In a water-meter, the combination of a piston-chamber a diaphragm, a nutating piston and an independent shoe carried by the piston, the shoe being self-adjustable about an axis perpendicular to the plane of the piston, substantially as specified.

10. In a meter, the combination with a piston-chamber, a supporting-ball, and a nutating piston having an internal ball-bearing, of a pressure-chamber provided with passage-ways leading to the ball and ball-bearing, for relieving the pressure upon said ball and ball-bearing, substantially as specified.

11. In a meter the combination with a diaphragm and registering mechanism of a nutating piston having an internal ball-bearing, an independent hemispherical or cup-shaped piece forming a bearing supplementing that of the piston proper, a stud, a supporting-ball carried by the stud and a second hemispherical or cup-shaped piece, carried by the piston and forming a bearing or bearings, substantially as specified.

12. In a water meter, the combination with a piston-chamber and a nutating piston having an internal bearing, of a supporting-ball, a stud or pin upon which the supporting-ball is carried and a piece having an external spherical bearing and a hollow stem fitting internally the stud or pin carrying the supporting-ball, the piece fitting externally a recess central to the axis of the stud or pin, substantially as specified.

13. In a meter, the combination with a nutating piston, having a central spindle of a central hub for controlling the movement of the spindle, and means for adjusting the hub and locking the same when adjusted, substantially as specified.

14. In a water-meter, the combination with a nutating piston having an internal ball-bearing, of a supporting-ball and an angle-controlling device formed between the supporting-ball and the internal bearing-surface of the piston, substantially as specified.

15. In a meter, the combination with a piston-chamber, of a nutating piston made hollow, having lugs or ribs, the thickness of the metal forming the faces of the piston tapering from the center to the outer edge of the piston, substantially as specified.

16. In a meter, the combination of a nutating piston having an internal ball-bearing, a supportieg-ball, a stud for carrying the ball loosely fitted in a central hole in the lower surface of the piston-chamber and means for locking the same in a central position with respect to the chamber, substantially as specified.

17. In a meter, the combination with a piston-chamber, of a nutating piston having an internal bearing, a supporting-ball, means for adjusting the supporting-ball, and a locking device for keeping the ball in position, the adjusting and locking means and device being independent of each other, substantially as specified.

18. In a meter, the combination with a piston-chamber, and a nutating piston having an internal ball-bearing, of a supporting-ball, the bearing-surface between the piston and the supporting-ball being cut away in one or more places with which the fluid of the chamber communicates, substantially as specified.

588,647. PLATE-GLASS SHOW-CASE. ALBERT MOORMAN, St. Paul, Minn. Filed May 15, 1896. Serial No. 540,382. (No model.)

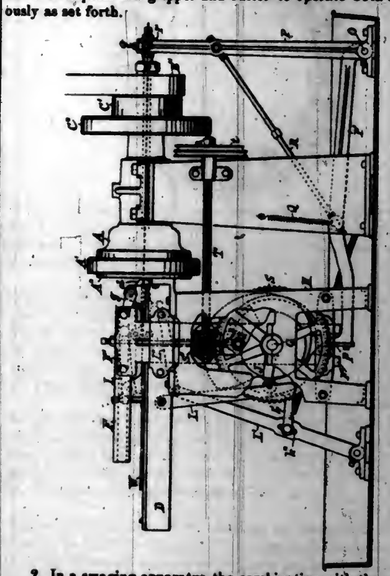


Claim.—1. As an improved article of manufacture, a show-case of the class described, made up of the base, the corner-standards, the end and rear top horizontal rails forming substantially a rectangular frame, the front glass panel secured in the front standards and supported upon said base, and the top glass panel secured in grooves in said top rails, so as to be supported by its ends and rear edge, and with its front edge overlapping and resting upon the front panel.

2. As an improved article of manufacture, a show-case, made up of the base, the corner-standards, and the rear and end horizontal top rails, said rails and standards having their edges cut away, to form right-angled grooves, the glass plate or panel arranged in the grooves in the standards and resting upon the base, and the glass plate or panel similarly arranged in the grooves in the top rails, with its front edge overlapping and resting upon the edge of the front plate, and the securing-strips for holding said panels in said grooves.

588,648. SWAGING-MACHINE. ARTHUR J. MORSE, Torrington, Conn., assignor to the Morse-Keeler Cycle Supply Company, Salisbury, Conn. Filed Mar. 27, 1896. Serial No. 585,075. (No model.)

Claim.—1. In a swaging apparatus, the combination with the stationary part, a rotary head, dies and cams rigidly fixed in the said stationary part to operate the dies, of a horizontal shaft, a guideway extending from the swaging-head parallel with the axis of the driving-shaft, a carriage in the guideway to travel along the same, a cam on the horizontal shaft to move the carriage, grippers on the carriage to grip the work, a spring to raise one of the grippers, means to depress the gripper, a cutter mounted on the said carriage, and a connection between the second cam on the cam-shaft, and the grooved bar F to depress the gripper and cutter to operate both simultaneously as set forth.



2. In a swaging apparatus, the combination with the stationary part, a rotary head, dies and cams rigidly fixed in the said stationary part to operate the dies, of a horizontal shaft, a guideway extending from the swaging-head parallel with the axis of the driving-shaft, a carriage in the guideway to travel along the same, a cam on the horizontal shaft to move the carriage, grippers on the carriage, a spring to raise one of the grippers, a cam to depress the same, an arm on the cam-shaft provided with a roller, a horizontal bar containing a groove for the roller to travel in, a lever to operate the cutter also mounted on the carriage, a roller carried on one end to travel in the said groove, and an upright plate secured to the grooved bar and engaging the second cam on the cam-shaft, as set forth.

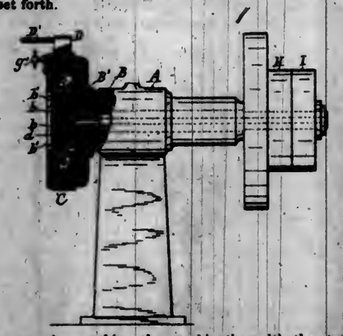
3. In a swaging apparatus, a rotary swaging-head carrying a pair of dies, a guideway secured to and extending from the said head, a carriage traveling in the guideway, a guide for the work on the carriage, a socket at one end thereof, a vertical bolt in the socket provided with a passage for the work, a spring in the socket below the bolt, a lever pivoted intermediate its length to the carriage, a set-screw passing through one end and engaging the vertical bolt, a roller on the opposite end of the lever, a grooved horizontal bar to form a guide for the roller to travel in, and suitable means to raise the grooved bar, as set forth.

4. In a swaging apparatus, a rotary swaging-head having a groove therein containing a pair of dies, a pair of followers and a pair of wedges, a tube extending longitudinally through the driving-shaft and secured at one end to the wedges, a lever fulcrumed on the base of the machine and connected to one end of the said tube by a universal joint, a lever extending from the same fulcrum horizontally, an adjustable rod extending diagonally between the two levers to change the angle between them, a shaft carrying a worm-gear and a cam, a shoe on the end of the lever engaging the cam, and a spring to raise the lever, as set forth.

588,649. SWAGING-MACHINE. ARTHUR J. MORSE, Salisbury, Conn., assignor to the Morse-Keeler Cycle Supply Company, same place. Filed Mar. 12, 1897. Serial No. 627,194. (No model.)

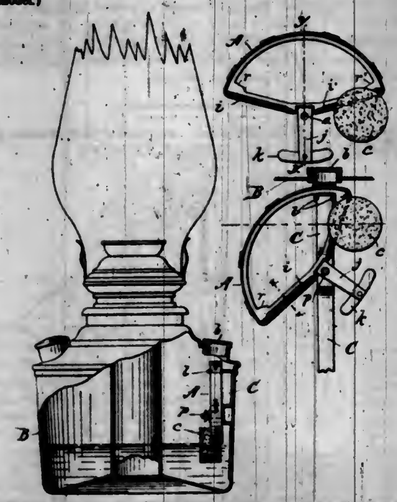
Claim.—1. In a swaging-machine, the combination with the stationary cylindrical shell, of a circular series of cams movable radially in grooves in said shell, an adjustable ring mounted on the shell and provided with a series of inclined faces to engage the cams, a stationary face-plate to retain the cams in their grooves, an adjustable face-plate provided with tangential slots, pins projecting from the cams and entering the slots, a rotary shaft carrying a head with a groove and dies and die-blocks in the groove, as set forth.

2. In a swaging-machine, the combination with the stationary cylindrical shell, of a circular series of cams movable radially in grooves in said shell, an adjustable ring mounted on the shell and provided with a series of inclined faces to engage the cams, a stationary face-plate to retain the cams in their grooves, an adjustable face-plate provided with tangential slots, pins projecting from the cams and entering the slots, a connection between the adjustable face-plate and the adjustable ring, means carried by the said ring for moving the same, a rotary shaft carrying a head with a groove and dies and die-blocks in the groove adapted to be operated by the cams, as set forth.



3. In a swaging-machine, the combination with the stationary cylindrical shell, of a circular series of cams movable radially in grooves in said shell, an adjustable ring mounted on the shell and provided with a series of inclined faces to engage the cams, a pair of stationary concentric face-plates to retain the cams, a circular adjustable face-plate between the stationary plates, said adjustable plate having tangential bearing-surfaces, pins projecting from the cams and engaging the said bearing-surfaces, a connection between the adjustable plate and the adjustable ring, means on the ring for turning the same, a rotary cylindrical shaft carrying a head provided with a groove, dies and die-blocks in the groove, rollers in the end of the die-blocks to engage the cams, and a plate covering the groove and secured to the head, as and for the purpose described.

588,650. AUTOMATIC LIQUID-INDICATOR. FREDERIC A. MORSE, Pawtucket, R. I. Filed Dec. 11, 1896. Serial No. 615,232. (No model.)

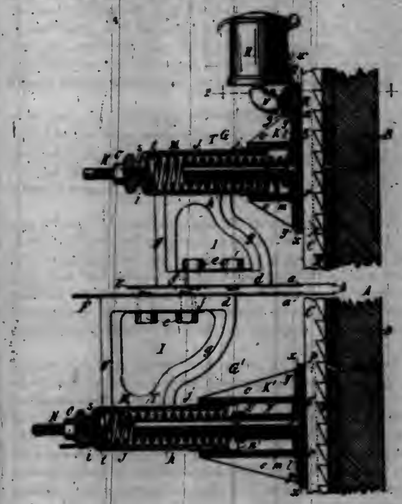


Claim.—1. An automatic liquid-indicator consisting of a portion of the rim of a wheel joined to a hub by a spoke or spokes, the convexity of said rim being marked with figures representing quantity; and provided with a float *c* and a counterweight *k*, joined to the hub by the arm *j*, substantially as described.

2. An automatic liquid-indicator consisting of a portion of the rim of a wheel joined to a hub by a spoke or spokes, the convexity of said rim being marked with characters of quantity; and provided with a float *c* and counterweight *k* fixed upon the end of an arm *j*, the whole mounted upon a support C having the stops *l* adapted to check the complete revolution of said rim in the manner described.

3. In an automatic liquid-indicator a portion of the rim of a wheel suitably mounted and provided with a float and counterweight and having its convexity marked with suitable characters, and provided with a stop or stops for preventing the complete revolution of said wheel: in combination with a containing vessel having fixed in the wall thereof, a transparent eyepiece in close proximity to the rim of said wheel, all substantially as set forth.

588,651. ELEVATOR-SLIPPER. MARTIN MCMANARA, New York, N. Y., assignor of one-half to Edward Kelly, same place. Filed Jan. 23, 1897. Serial No. 620,439. (No model.)



Claim.—1. In elevator-slippers and the like, the combination with a shoe for preventing vibration of a car, having a bearing-face for directly engaging and sliding on the guide-track of an elevator-well, and movable toward and from and immovable laterally of said track, of a bracket adjustable toward and from said track, movably carrying said shoe, means pressing said shoe toward said track, and an adjustable connection for fastening said bracket to an elevator-car.

2. In elevator-slippers and the like, the combination with a shoe for preventing vibration of a car, having a bearing-face for directly engaging and sliding on the track of an elevator-well, and movable in direction toward and from the track and immovable laterally of said direction, of a bracket adapted to be fixed to an elevator-car, having a lateral portion at right angles to such track, said lateral portion movably carrying said shoe, and a spring between said bracket and shoe holding the latter toward said track.

3. The improved elevator-slipper, comprising a bracket having a tubular arm, and adapted to be connected to an elevator-car, in combination with a shoe for retarding vibration of the car, having a hard bearing-face for engaging and sliding on the track of an elevator-well, and carried by said arm and sliding axially thereof toward and from the track, and immovable laterally of the axis of said arm, and a spring within said arm for forcing said shoe outwardly thereof toward such track.

4. For elevator-slippers, a bracket adapted to be fastened to an elevator-car and having a cylindrical arm, in combination with a shoe for retarding vibration of the car, having a hard surface for bearing against the guiding-track of an elevator-well, said shoe embracing said arm, sliding thereon toward and from the track, immovable laterally of the axis of the arm and having an oscillatory movement around such axis, and a spring reacting against said shoe and bracket, resisting movement of the former away from the track, substantially as and for the purpose set forth.

5. The improved elevator-slipper, comprising a bracket I, adapted to be fixed to a car, and having a tubular arm J, having an outer head *j* and an inner socket A, in combination with a shoe K for closely fitting and engaging the track of an elevator-well and retarding vibration of a car, having a socket a fitting over and sliding on said head *j*, and a spring M inclosed within said sockets and reacting against said shoe and bracket for forcing the shoe toward the track, said shoe held by said bracket rigidly against movement laterally of said arm.

6. For elevator-slippers, a bracket I, adapted to be fixed to a car, and having a hollow arm J, in combination with a shoe K having a

surface for directly engaging the track of an elevator-well, movably carried by said bracket, a spring M in said hollow arm and reacting against said shoe, and means for adjusting said spring, said shoe held by said bracket rigidly against movement laterally of said arm.

7. For elevator-slippers, a bracket I, adapted to be carried by a car, in combination with a shoe K for preventing vibration of the car, having a surface for forcibly engaging an elevator-track, carried by and sliding on said bracket, having a pin P projecting into the bracket, and a spring M between the shoe and bracket surrounding said pin and forcing the shoe outwardly from the bracket, said shoe held by said bracket rigidly against movement laterally of said arm.

8. For elevator-slippers and the like, a shoe K for preventing vibration of a car, closely fitting and sliding on the guiding-track of an elevator-well, said shoe movable toward and from the track in one direction and immovable angularly of such direction, having a lubricating-pocket Q in its upper part, means for movably carrying said shoe on an elevator-car, and means resisting movement of said shoe.

9. The improved elevator-slipper comprising the bracket I having plate *d*, legs *g*, slot *f*, arm J and socket *h*, in combination with a shoe K carried by said arm, having shoulders *y* and flanges *p*, a spring between said shoe and bracket, and a separable wearing-plate S carried by said shoe between said flanges and having flanges *x* engaging said shoulders.

10. The combinatian for an elevator-steadier, of a shoe for preventing vibration of an elevator-car, having a bearing-face for directly and forcibly engaging and sliding along the guiding-track of an elevator-well, movable in one direction toward and from such track and immovable laterally of such direction, a member movably carrying said shoe, means for fixing said member to an elevator-car, and a spring resisting movement of said shoe relatively to said member away from such track.

11. The combination for an elevator-steadier, of a shoe for preventing vibration of an elevator-car, having a bearing-face for directly and forcibly engaging and sliding along the guiding-track of an elevator-well, a member carrying said shoe, means for fixing said member to an elevator-car, a connection between said shoe and member permitting movement of said shoe in direction toward and from such track and preventing its movement laterally of such direction, and a spring reacting against said shoe and resisting its movement away from such track.

12. The combination for an elevator-steadier, of a shoe for preventing vibration of an elevator-car, having a bearing-face for directly and forcibly embracing, engaging and sliding along the guiding-track of an elevator-well, a member carrying said shoe, and holding it in engagement with the track, means for fixing said member to an elevator-car, and a connection between said shoe and member permitting oscillatory movement of said shoe on an axis perpendicular to the direction of said track.

588,652. LOG ROLLING AND TURNING MACHINE. GEORGE M. PELTON, Belmont, N. Y. Filed Mar. 27, 1897. Serial No. 629,516. (No model.)

Claim.—1. In a log-turning machine the combination of two cylinders in tandem, their piston-rod and pistons, a bar for operating on the log connected with the actuated part of each, whereby the bar may be elevated and rocked, substantially as described.

2. In a log-turning machine the combination of two vertical, or approximately vertical, cylinders in tandem one above the other, their piston-rod and pistons, a bar for operating on the log connected with the actuated part of each, whereby the bar may be elevated and rocked, substantially as described.

3. In a log-turner, the combination of two cylinders, a piston working in each and a toothed bar connected with both cylinders, said two cylinders being in tandem with each other on the same piston-rod, whereby the bar may be elevated and rocked, substantially as described.

4. In a log-turner, in combination with the toothed bar thereof, a fixed cylinder, a piston working therein, a second piston carried on the piston-rod of said first-mentioned piston external to said fixed cylinder, and a second cylinder adapted to slide on said piston-rod about said second piston, whereby the bar may be elevated and rocked, substantially as described.

5. In a log-rolling machine the combination of a toothed bar pivoted at one end to a vertically-guided cross-head, rigidly attached to the piston-rod of an upright main cylinder, an auxiliary cylinder on said piston-rod in tandem with the main cylinder, connected to said toothed bar and adapted to slide on said piston-rod and rock the toothed bar about its pivot on the cross-head, substantially as set forth.

6. In a log-rolling machine the combination of a toothed bar pivoted at its lower end to a vertically-guided cross-head, rigidly attached to the piston-rod of an upright main cylinder, an auxiliary cylinder on said piston-rod between the cross-head and main cylinder connected to said toothed bar and adapted to slide on said piston-rod and rock the toothed bar about its pivot on the cross-head, substantially as described.

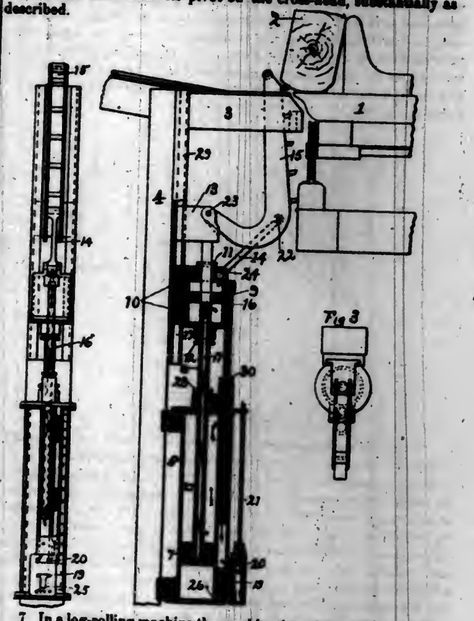
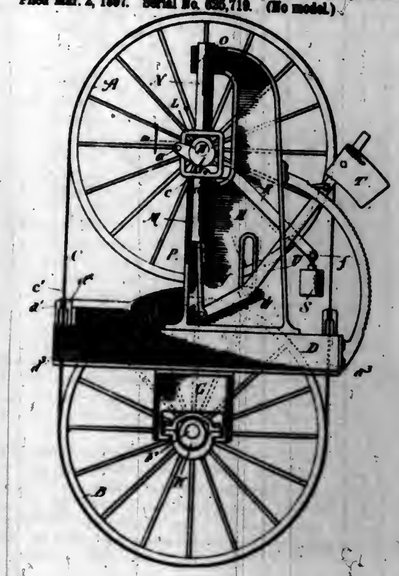


Fig 3

7. In a log-rolling machine the combination of a toothed bar pivoted at its lower end to a vertically-guided cross-head rigidly attached to the hollow piston-rod of an upright main cylinder, an auxiliary cylinder on said hollow piston-rod between said cross-head and main cylinder adapted to slide on and receive steam through said hollow piston-rod and rock the toothed bar about its pivot on the cross-head, substantially as set forth.

8. In a log-turner the combination of a fixed cylinder 5, a hollow piston-rod 8, pistons 7 and 9, auxiliary cylinder 10, external to and in tandem with said fixed cylinder 5, cross-head 13, connecting-rod 14, toothed bar 15 and steam-pipes and connections, substantially as set forth and for the purposes specified.

588,658. BAND-SAW MILL. GEORGE M. PELTON, Belmont, N. Y. Filed Mar. 2, 1897. Serial No. 625,719. (No model.)



Claim.—1. In a band sawing-machine the combination of a band-saw, a base, between the band-wheels substantially in line with the carriage, extended and supported outside the saw and slotted to receive said saw, a lower frame depending from said base carrying the lower band-wheel and its shaft, an upper main frame rising from said base, bearing an adjustable support for said upper band-wheel and its shaft, means for adjusting said support, a yoke bearing said shaft pivoted horizontally at one side of said shaft to said support, a lever, pivotally connected to said support, extending crosswise of said shaft under said yoke whereby said band-saw is adjusted, substantially as described.

2. In a band-saw mill the combination of a band-saw C, a base D, between the axles of the band-wheels substantially in line with the carriage, extended and supported in the direction of the carriage outside the saw, and slotted at d^1 to receive said saw, the lower frame G, band-wheel B and its shaft F, the upper frame H having the guides O and P rising from said base, the frame L supported by the rods M and N adapted to slide in guides O and P of frame H, the yoke I pivoted at *a* to frame L bearing saw-wheel A and its shaft E, lever R, pivoted to frame L at *d*, supporting yoke I at *c* and weight S pivotally connected to lever R at *f*, whereby said band-saw is adjusted, substantially as described.

3. In a band-saw mill the combination of the upper main frame H having the guides O and P, the frame L supported by the rods M and N adapted to slide in the guides O and P, means for causing said frame to slide in said guides, the upper band-wheel and its shaft E, the yoke I, lever R and weight S affording a yielding support to said yoke, substantially as described.

4. In a band-saw mill, the combination of the upper main frame H, having the guides O and P, the frame L supported by the rods M and N adapted to slide in the guides O and P, the lever U pivoted at W and weight T adapted, by means of rod V, to press the frame L and its attachments upward, the upper band-wheel A and its shaft E journaled in yoke I, said yoke I pivoted at *a* to frame L, lever R pivoted to frame L at *d* supporting yoke I at *c* and weight S pivotally connected to R, affording a yielding support to said band-wheel, substantially as described.

5. In a band sawing-machine the combination of an upper main frame rising from the base, bearing an adjustable support for the upper band-wheel and its shaft, means for adjusting said support, a yoke bearing said shaft, pivoted horizontally at one side of said shaft to said support, and a lever, pivotally connected to said support, extending crosswise of said shaft under said yoke, affording a yielding support to said band-wheel, substantially as described.

588,654. PADLOCK. LEWIS H. PENNEPACKER, Philadelphia, Pa. Filed Sept. 17, 1896. Serial No. 606,075. (No model.)



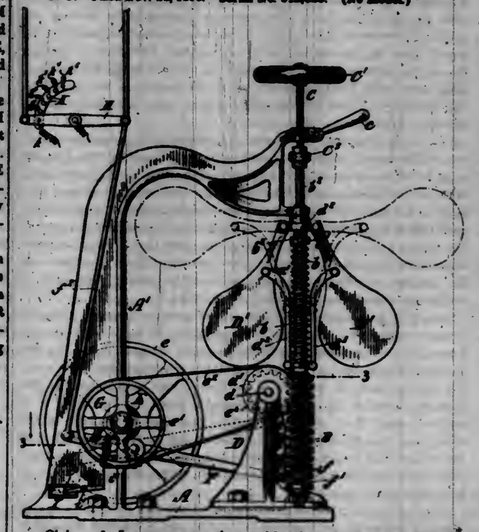
Claim.—1. A padlock, comprising a casing, a shackle-block arranged to slide therein, a shackle pivoted to said block, two bolts arranged to engage the block and shackle, dogs for operating the bolts in one direction, springs for forcing said bolts in the opposite direction, tumblers arranged to actuate the dogs, and other tumblers with which the first-named tumblers are caused to move in unison, and means for operating the tumblers, as specified.

2. In combination with a lock, a shackle-block arranged to slide within the casing, a shackle pivoted to said block, said block and shackle being notched, two bolts arranged to enter into engagement with said notches, dogs for retracting said bolts from the notches, tumblers P for operating the dogs in one direction, wards R formed with said tumblers, tumblers V so pivoted within the casing as to have a vertical sliding movement, means for connecting the last-named tumblers with the first named, wards *f* and projections *h*, the latter arranged to prevent the swinging of the tumblers V except at a predetermined time, and means for operating said tumblers, as specified.

3. The herein-described combination of a casing, a shackle-block arranged to slide therein, a shackle pivoted thereto, said shackle and block having notches formed therein, two bolts arranged to engage said notches, springs for holding said bolts in engagement with the notches, dogs for retracting bolts from the notches, tumblers P pivoted within the casing and arranged to so operate the dogs as to retract the bolts, wards R formed upon the tumblers, shoulders T also formed upon said tumblers, tumblers V so pivoted within the casing as to have a vertical movement independent of their swinging movement, springs for holding said tumblers in their normal position, lugs *d* for connecting the tumblers P and V by means of the slot *b*, wards *f* formed upon the last-named tumblers, shoulders *e* also formed upon said tumblers, projections *h* formed with the last-named tumblers adapted to engage the shoulders *i*, and a stop-post *a* for limiting the thrust of the key, substantially as specified.

4. In a padlock, a casing having a keyhole, tumblers slidably pivoted to the casing on either side of said keyhole, shoulders formed on said tumblers to engage the end of a key when forced through said keyhole and thereby cause the tumblers to slide and turn and wards on the tumblers to pass through holes in the key when the tumblers turn, as and for the purpose described.

588,655. NON-CENTRIFUGAL GOVERNOR AND SPEED-INDICATOR. JOSEPH P. RAMSEY, Flushing, N. Y., assignor, by direct and mesne assignments, to himself, and Edward H. Dickerson, New York, N. Y. Filed Nov. 20, 1896. Serial No. 612,835. (No model.)



Claim.—1. In a governor, the combination of a moving element constituting a resistance, a driving member, an intermediate element transmitting power from the driving member to the first element, variations in speed of the driving member simultaneously effecting variations in resistance to movement of the first element, and means connected to said intermediate element for controlling the motive fluid, substantially as specified.

2. In a governor, the combination of an element moving at a rate substantially corresponding to the rate of movement at which the engine governed shall run, a second element driven by and partaking of the variations in speed of the engine governed, and an intermediate element transmitting motion from the second element to the first element, said intermediate element having two movements, one coincident with the first element, and another resulting from the variations in speed of the engine governed, the movement resulting from the variations in speed of the engine governed simultaneously effecting variations in the resistance to movement of the first element, substantially as specified.

3. In a governor, the combination of an element moving for a given regulation at a predetermined rate substantially corresponding to a predetermined rate of movement of the engine governed, a second element driven by and partaking of the variations in speed of the engine governed, and an intermediate element transmitting motion from the second element to the first element, said intermediate element having two movements, one coincident with the first element, and another resulting from the variations in speed of the engine governed, the movement resulting from the variations in speed of the engine governed simultaneously effecting variations in the resistance to movement of the first element, substantially as specified.

4. In a governor, the combination of an element constantly moving for a given regulation at a predetermined rate substantially cor-

responding to a predetermined rate of movement of the engine governed, a second element driven by and partaking of the variations in speed of the engine governed, an intermediate element transmitting motion from the second element to the first element, said intermediate element having two movements, one coincident with the first element and another resulting from variations in speed of the engine governed, the movement resulting from the variations in speed of the engine governed simultaneously effecting variations in the resistance to movement of the first element, and means acting upon said intermediate element to control a predetermined rate of movement, substantially as specified.

5. A governor having a rotating member having a normal speed, means for varying the resistance to rotation offered by the rotating member at its normal speed, a second mechanism moving coincident with the variable speed of the engine, and an intermediate driving connection between the driving and the driven member transmitting power from the driving to the driven member, variations in speed of the engine governed simultaneously operating through the intermediate connection to effect variations in the resistance to rotation of the rotating member, substantially as specified.

6. A governor having a rotating member having a normal speed, means for varying the resistance to rotation offered by the rotating member at its normal speed, a second mechanism moving coincident with the variable speed of the engine, an intermediate driving connection between the driving and the driven member transmitting the power from the driving to the driven member, variations in speed of the engine governed simultaneously operating through the intermediate connection to effect variations in the resistance to rotation of the rotating member, and a spring acting upon said intermediate member, substantially as specified.

7. A governor having a rotating member having a normal speed, means for varying the resistance to rotation offered by the rotating member at its normal speed, a second mechanism moving coincident with the variable speed of the engine, an intermediate driving connection between the driving and the driven member transmitting power from the driving to the driven member, variations in speed of the engine governed simultaneously operating through the intermediate connection to effect variations in the resistance to rotation of the rotating member, and an adjustable spring acting upon said intermediate member, substantially as specified.

8. In a governor the combination of a rotary element, a second element driven by and partaking of variations in speed of the engine governed, a rotary and lengthwise-movable element driven by the second element and operating the rotary element, means for varying the resistance to rotation of the rotary and lengthwise-movable element, variations in speed of the engine governed operating to simultaneously effect variations in the resistance to rotation of the rotary and lengthwise-movable element, and means actuated from the rotary and lengthwise-movable element for controlling the motive fluid admitted to the engine or other source of power governed, substantially as specified.

9. In a governor, the combination of a rotary element, a second element driven by and partaking of variations in speed of the engine governed, a rotary and lengthwise-movable element driven by the second element and operating the rotary element, means for varying the resistance to rotation of the rotary and lengthwise-movable element, variations in speed of the engine governed operating to simultaneously effect variations in the resistance to rotation of the rotary and lengthwise-movable element, means actuated by the rotary and lengthwise-movable element for controlling the motive fluid admitted to the engine or other source of power governed, and means for rendering the rotary movement of the rotary and lengthwise-movable element substantially invariable from a predetermined rate, substantially as specified.

10. The combination of a worm-wheel, a rotary and lengthwise-movable worm, pivoted fans, means connecting said fans with the worm whereby the position of the fans is determined by the position of the worm, and means actuated by said worm for controlling the motive fluid to the engine or other source of power governed, substantially as specified.

11. The combination of a worm-wheel, a rotary and lengthwise-movable worm, a spring urging said worm in one direction, pivoted fans, means connecting said fans with the worm whereby the position of said fans is determined by the position of the worm, and means actuated by said worm for controlling the motive fluid to the engine or other source of power governed, substantially as specified.

12. The combination of a worm-wheel, a rotary and lengthwise-movable worm, a spring urging the worm in one direction, means for adjusting the tension of the spring, pivoted fans, means connecting said fans with the worm whereby the position of the fans is determined by the position of the worm, and means actuated by said worm for controlling the motive fluid to the engine or other source of power governed, substantially as specified.

13. The combination of a worm-wheel, a rotary and lengthwise-movable worm yieldingly held in position against the resistance of the worm-wheel, pivoted fans, links connecting said fans with the worm whereby the position of the fans is determined by the position of the worm, and means actuated by said worm for controlling the motive fluid to the engine or other source of power governed, substantially as specified.

14. The combination of a lengthwise-movable worm, a worm-wheel engaging therewith, means for increasing or decreasing the resistance to rotation of the worm in proportion to the increase or decrease of effort exerted by the worm-wheel, and means actuated by said worm for controlling the motive fluid to the engine or other source of power governed, substantially as specified.

15. In a governor, the combination of an element constantly rotating for a given regulation at a predetermined rate corresponding to the rate at which the engine governed shall run, a second element moving variably with the varying speed of the engine, and an intermediate element transmitting power from the second element to the rotary element and having a rotary movement coincident with the rotary element, substantially as specified.

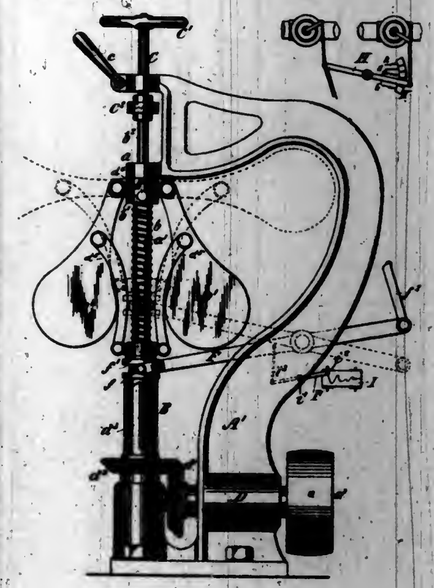
16. In a governor, the combination of an element constantly rotating for a given regulation at a predetermined rate corresponding to the rate at which the engine governed shall run, a second element moving variably with the varying speed of the engine, an intermediate element transmitting power from the second element to the rotary element and having a rotary movement coincident with the rotary element, and a traveling strip upon which may be recorded the positions assumed by the intermediate element, substantially as specified.

17. The combination of a lengthwise-movable worm and a wheel for driving the same, means for increasing the resistance to rotation offered by the worm when the latter moves lengthwise in one direction and for producing the opposite effect when the worm moves in the opposite direction, and a traveling strip upon which the positions assumed by the worm are recorded, substantially as specified.

18. The combination in a governor, of a lengthwise-movable worm whose movement serves to control the speed of the device governed, a worm-wheel for driving the same, and a safety device for disengaging the worm when the same has taken an abnormal position, substantially as specified.

19. The combination in a governor, of a lengthwise-movable worm, a worm-wheel engaging therewith and driven from the device governed, and means brought into action when the worm has assumed an abnormal position for disengaging the worm-wheel from the device governed, substantially as specified.

588,656. NON-CENTRIFUGAL GOVERNOR AND SPEED-INDICATOR. JOSEPH F. RADEMS, Flushing, N. Y., assignor to himself and Edward H. Dickerson, New York, N. Y. Filed Jan. 22, 1897. Serial No. 620,369. (No model.)



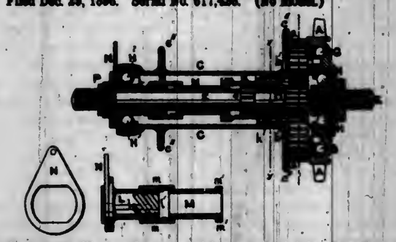
Claim.—1. The combination of a separable driving-clutch one of whose members is arranged to rotate and move lengthwise, pivoted fans, means connecting said fans with the lengthwise-movable element whereby the position of the fans is determined by the position of the element and means actuated by one member of the clutch for controlling the supply of motive fluid to the engine, substantially as specified.

2. The combination of a separable driving-clutch one of whose members is arranged to rotate and move lengthwise, a spring urging said element in one direction, pivoted fans, means connecting said fans with the element, whereby the position of said fans is determined by the position of the element and means actuated by one member of the clutch for controlling the supply of motive fluid to the engine, substantially as specified.

3. The combination of a separable driving-clutch one of whose members is arranged to rotate and move lengthwise, a spring urging the element in one direction, means for adjusting the tension of the spring, pivoted fans, means connecting said fans with the element, whereby the position of the fans is determined by the position of the element and means actuated by one member of the clutch for controlling the supply of motive fluid to the engine, substantially as specified.

4. The combination of a separable driving-clutch one of whose members is arranged to rotate and move lengthwise, and which is yieldingly held in position against the resistance of the other member, pivoted fans and links connecting said fans with the lengthwise-movable element whereby the position of the fans is determined by the position of the element and means actuated by one member of the clutch for controlling the supply of motive fluid to the engine, substantially as specified.

588,657. TWO-SPEED DRIVING-GEAR FOR BICYCLES. WILLIAM REILLY, Salford, and CHARLTON HASEK, Manchester, England. Filed Dec. 23, 1896. Serial No. 617,436. (No model.)



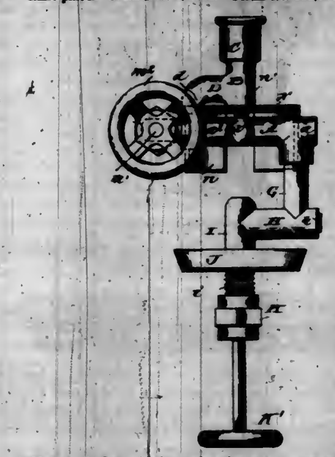
Claim.—1. The combination with epicyclic driving-gear for cycles and other vehicles of a wheel-hub provided with internally-projecting teeth, a stationary axle with a fixed pinion thereon and a sliding sleeve with both external and internal teeth which slides to and fro on the axle and alternately locks the central pinion with the fixed pinion to retard the speed and with the teeth projecting from the interior of the hub.

2. In epicyclic driving-gear for cycles and other vehicles the combination with the central pinion and with the hub provided with internal teeth of a sliding sleeve gearing therewith provided with both internal and external teeth by which the central pinion can be alternately locked with a fixed part of the cycle or with a rotating part to vary the speed substantially as described.

3. An epicyclic driving-gear for cycles and other vehicles comprising a sprocket driving-wheel A provided with internal teeth planetary pinions B rotating on studs *b* affixed to the end of the hub C and central rotating pinion D on the axle E in combination with the hub C provided with internally-projecting teeth *k'* the axle E and fixed pinion *e* and the sleeve K capable of sliding to and fro on the axle fitted internally with teeth which engage with the pinions D and *e* to lock the pinion D to the axle and fitted externally with teeth which engage with the teeth *k'* of the hub C to lock the pinion D to the hub for the purpose of varying the speed of driving substantially as described.

4. The combination of epicyclic driving-gear for the wheels of cycles and other vehicles of the hub C provided with internally-projecting teeth *k'* the stationary axle E about which the wheels rotate the pinion *e* affixed to the said axle the sleeve K placed on the axle capable of sliding to and fro thereon and provided with external teeth *k'* and internal teeth *k* the internal teeth *k'* of which gear with the pinions D and *e* and the external teeth *k* with the hub-teeth *k'* the revolving cone at the end of the shaft for shifting the sleeve K provided with quick screw-threads the intermediate connecting-sleeve M which engages with the screw of the cone at one end and with the sleeve K at the other and the lever N by which the cone is rotated substantially as described.

588,658. HYDROCARBON-BURNER. GEORGE C. ROGERS, Chicago, Ill., assignor to the Troy Laundry Machinery Company, Limited, same place. Filed Nov. 7, 1896. Serial No. 611,575. (No model.)



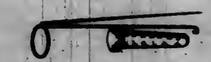
Claim.—1. In a hydrocarbon-burner, a generating-chamber, a heating-burner jet-valve directly connected therewith and in the same horizontal plane, a generating-burner connected with said chamber in a plane at an angle thereto, and a supply-pipe directly connected with said chamber and provided with a burner-supporting device, whereby the entire generator and its supply-tank may be removably connected in operative position with a cooperating combustion or burner tube, substantially as specified.

2. In a hydrocarbon-burner, a generating-chamber formed with four communicating branches with one of which is connected a supply-tube having a bracket for supporting said generating-chamber and its adjuncts and another of its branches provided or communicating with a needle-valve constituting a heating-burner, and a generating needle-valve arranged beneath said chamber and connecting with the chamber at a point opposite the heating needle-valve, substantially as specified.

3. In a hydrocarbon-burner, the combination with a generating-chamber comprising horizontal branches, of a shield having a depending flange with openings corresponding to said branches and removably supported by said chamber, substantially as specified.

4. In a hydrocarbon-burner, the combination with a generating-chamber having horizontal branches, of a shield having a depending flange with openings corresponding to said branches, a central projection and openings in the top of the shield, substantially as specified.

588,659. FLOWER-HOLDER. JOHN M. BAARIO, Brooklyn, N. Y. Filed Aug. 19, 1896. Serial No. 603,198. (No model.)

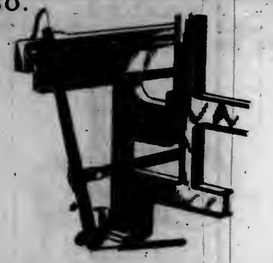


Claim.—In a flower-holder, the combination of a pin formed of two arms meeting at their upper ends, means for fastening said arms together at their lower ends, a pair of parallel loops or rings formed on said pin which lie in planes at right angles to the main part thereof, and a glass or receptacle for containing water having a flange formed upon its upper end, the same adapted to be inserted through one of said loops or rings with the flange thereof engaged by said ring, substantially as and for the purpose described.

588,660. BEARING FOR LOOM PICKER-STICKS. HARRY M. SCHAEWALD, Philadelphia, Pa. Filed Sept. 17, 1896. Serial No. 606,095. (No model.)

Claim.—In combination with a picker-stick having a semicircular bearing formed in one edge near the end, a plate having a circular opening therethrough, a right-angular flange formed on the plate, said flange running around one edge of the opening thereby forming a semicircular depression in the flange in alinement with the opening, prongs formed on the flange on either side of the opening, said plate being secured against the side of the stick, with the flange fitting against the edge thereof, the semicircular depression forming a complete bearing with the semicircular bearing in the stick, substantially as described.

588,660.



588,661. NUT-LOCK. HENRY SCHWEITZER, Freemansburg, Pa. Filed Dec. 4, 1896. Serial No. 614,492. (No model.)

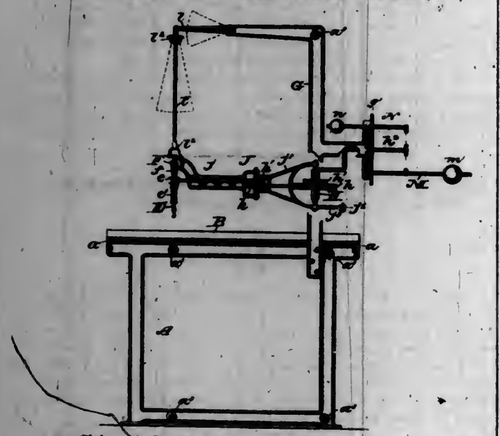


Claim.—1. In combination, with a series of nuts having beveled sides, a housing having sides correspondingly beveled, said housing being closed at one end and means for preventing the housing from slipping in the direction of the closed end when adjusted, substantially as described.

2. In combination with a series of nuts having their sides beveled, a housing of trough shape whose sides in cross-section are adapted to be beveled of said nuts, said housing having one of its ends closed, and a detent secured to said housing having a nose projecting through an opening so as to engage one of said nuts, substantially as shown and described.

3. A nut-lock consisting of a housing adapted to be slipped longitudinally on a series of nuts, said housing being closed at one end, and a detent protruding through the housing into engagement with the side of a nut opposite the closed end of the housing, and means for preventing the housing from being slipped any way but longitudinally, substantially as described.

588,662. CARVING-MACHINE. ALONZO D. SEAMAN, Milwaukee, Wis. Filed Sept. 3, 1895. Serial No. 561,285. (No model.)



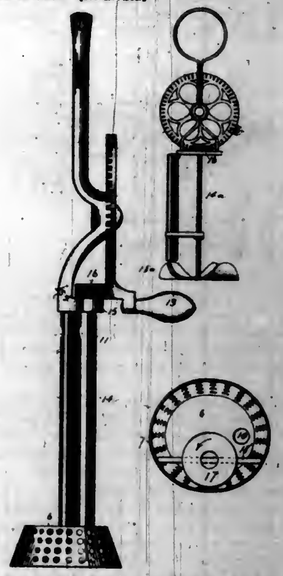
Claim.—1. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing and one or more rotary cutting-tool holders, horizontally-disposed parallel jointed arms connecting said tool-carrier with the frame, and an equaliser consisting of a rock-shaft supported in said frame above and parallel with said tool-carrier and provided with arms which are connected by rods with said carrier at or near its ends, substantially as and for the purposes set forth.

2. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing and one or more rotary cutting-tool holders, a cross rod or bar provided with depending arms or offsets to which said carrier is pivoted, horizontally-disposed parallel jointed arms connecting said cross-rod with said frame, and an equalizer consisting of a rock-shaft supported in said frame above and parallel with said cross-rod and provided with arms which are connected therewith by depending rods having universal-joint connections with said arms and cross-rods, substantially as and for the purposes set forth.

3. In a carving-machine the combination with a suitable frame provided with a work-supporting bed or table, of a tool-carrier provided with a tracing-tool and one or more rotary cutting-tool holders and spindles each provided with a pulley, a cross-rod having depending arms to which said carrier is pivoted in a line parallel with said rod and passing approximately through the center of the pulley on each cutting-tool spindle, a yoke pivoted at the ends to said frame in a line parallel with said cross-rod, horizontally-disposed parallel arms, each composed of two parts pivoted to each other and forked at the ends, which are pivoted to said carrier and yoke respectively, the front ends being upwardly bent or offset, and horizontally-disposed pulleys journaled in pairs in line with the middle and rear pivot connections of one or more of said arms, and connected with each other and with a driving-pulley and the pulley or pulleys on the cutting-tool spindles, substantially as and for the purposes set forth.

4. In a carving-machine the combination with a suitable frame of a tool-carrier provided with a tracing-tool and one or more rotary cutting-tools, a yoke or cross-frame pivoted at the ends to the main frame parallel with the carrier, horizontally-disposed parallel jointed guiding-arms connecting said carrier and yoke, and counterbalancing mechanism consisting of two weighted levers fulcrumed to the main frame and connected with an arm on said yoke, and acting in opposite directions thereon, substantially as and for the purposes set forth.

588,663. EGG-BEATER. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed Dec. 7, 1896. Serial No. 614,831. (No model.)



Claim.—1. In an egg-beater, the combination of a fixed cover-plate, with a rotary agitator underneath said plate and an upwardly-extended air-supply tube, having its effluent end opening underneath said plate and fixed relatively to the agitator-blades so that the latter are moved past the lower end of said tube, substantially as described.

2. In an egg-beater, the combination of a fixed air-supply tube with a rotary agitator, the effluent end of said tube being arranged closely to the moving blades of the agitator in relative position thereto for having said blades move past the said end, substantially as described.

3. In an egg-beater, the combination of a rotary agitator and a fixed air-tube, located closely to said agitator directly over the path described by the outer portion of the agitator-blades, substantially as described.

588,664. CLEANABLE REFRIGERATOR. GEORGE J. SMITH and STILLMAN M. ATHERTON, Burlington, Vt. Filed Oct. 17, 1896. Serial No. 609,236. (No model.)

Claim.—1. The combination with a refrigerator-casing and an ice-tank therein, of a flanged shield plate or tray fitted tightly to the bottom of said tank to form a space or chamber which is closed at all points except to the passage of cold air from the tank, a cold-air flue, and parts which establish communication through said closed space or chamber between the ice-tank and the cold-air flue, as and for the purposes described.



2. The combination with a refrigerator-casing, of an ice-tank fitted removably in said casing and provided near its lower part with cold-air-egress ports, a flanged shield plate or tray fitted tightly against the bottom of said ice-tank to form a space or chamber between itself and the tank, which space or chamber is closed all around except to the passage of air from the egress-ports of the tank, and the rear flange or wall of said tray provided with cold-air-egress ports, and a back flue-plate removably fastened to the casing, in the provision-chamber thereof, close up to the shield-plate, and forming with said casing a cold-air flue which communicates at its upper end with the cold-air-egress ports from the shield tray or plate, as and for the purposes described.

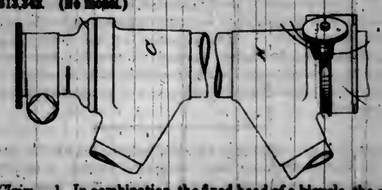
3. In a cleanable refrigerator, the combination with a casing, and an ice-tank having cold-air-egress ports in its bottom, of a drip-pan fitted closely to the bottom of said tank and provided with a perforated flange and with a baffle-plate, and a cold-air flue in the provision-chamber of said casing and connected through the perforated tray-flange with the ice-tank, as and for the purposes described.

4. In a cleanable refrigerator, the combination with a casing of an ice-tank having cold-air ports in its bottom and a short waste connection, a drip pan or tray provided with a perforated flange and with an inclined baffle-plate arranged close to the bottom of said tank to deflect drip-water and moisture into said tray without interfering with the circulation of cold air from the ice-tank through the ports of the tray-flange, and a flue-plate fitted close to the bottom of the tray and adjacent to a wall of the casing to form a cold air flue, as and for the purposes described.

5. In a cleanable refrigerator, the combination with a casing having an ice-chamber, of a pair of cleats or posts adjacent to said chamber, a flue having offstanding flanges arranged to fit between said posts and said flanges provided with slots which open through the edges thereof, and studs or pins fixed to said posts and adapted to enter the slots in the flanges to draw the flue-plate close to the posts, as and for the purposes described.

6. In a cleanable refrigerator, the combination with a casing open at its front end and having a permanent rail and a recess, an open-front tank having a recessed seat in the bottom thereof, a removable locking-rail adapted to the permanent rail and the tank-seat, a drip pan or tray, and a removable flue-plate attached within the provision-chamber and forming a cold-air flue that connects through the tray with the ice-tank chamber, as set forth.

588,665. STEERING-LOCK FOR SAFETY-BICYCLES. ROBERT W. SMITH, Astwood Bank, England. Filed Nov. 24, 1896. Serial No. 613,242. (No model.)
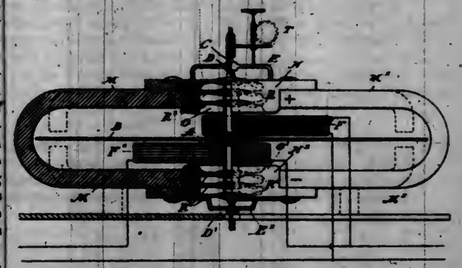


Claim.—1. In combination, the fixed head of a bicycle, the steering-pillar passing through the same to turn therein, and to have a slight longitudinal movement, said pillar having an upper and a lower boss or collar adjacent to the ends of the fixed head, the parts at one end of the fixed head having a groove between them and a wedging clamp band or ring fitted to said groove, to bear on the adjacent edges of the parts, with means for tightening the same and moving the pillar longitudinally to make its boss or collar bear on the opposite end of the fixed head, substantially as described.

2. The combination with the steering-pillar and fixed steering-head of a safety-bicycle or other front-steering velocipede, which pillar is adapted to have slight longitudinal movement in the steering-head, of a separate gripping-band which encircles and fits in a groove formed between the lower edge of the upper collar of the steering-pillar and the upper edge of the fixed steering-head, the said gripping-band having a wedging contact and an eye at one end through which the other screw-threaded end of the band passes this screw-threaded end having a nut by turning which the band can be caused to grip the collar of the steering-pillar and the steering-head thereby imparting a longitudinal thrust on the steering-pillar and locking the same in the steering-head substantially as hereinbefore described.

3. In combination, the fixed steering-head, the steering-pillar passing through the same to have a rotary and slight longitudinal movement therein, the bosses or collars on the pillar adjacent to the ends of the steering-head, a clamping-band passing around the joint between the end of the fixed head and the boss on the steering-pillar, the eye part of said band and the recess in one edge of the joint receiving the same to hold the band against circumferential displacement, substantially as described.

4. In combination, the fixed steering-head, having one end beveled, the steering-pillar having a collar with a beveled edge adjacent to the beveled edge of the fixed head and a clamping-band of substantially wedge shape in cross-section with means for tightening it, said band bearing on the beveled edges to give the steering-pillar a longitudinal thrust, substantially as described.

588,666. MEANS FOR SUPPORTING ROTATING SHAFTS. WILLIAM STANLEY and FREDERICK DARLINGTON, Pittsfield, Mass. Filed May 5, 1897. Serial No. 636,136. (No model.)



Claim.—1. The combination of a rotatable shaft of magnetic material and a magnetic system producing a magnetic flux symmetrical thereto and in supporting relation thereto, substantially as described.

2. The combination of a rotatable shaft and bearings for the same, said shaft having a capacity of limited longitudinal movement, and means for producing a magnetic flux in suspending relation to said shaft and symmetrical thereto, substantially as described.

3. The combination of a rotatable shaft having projecting rings of magnetic material concentric with its axis of revolution and a magnetic system supplying a magnetic flux symmetrical with said rings, substantially as described.

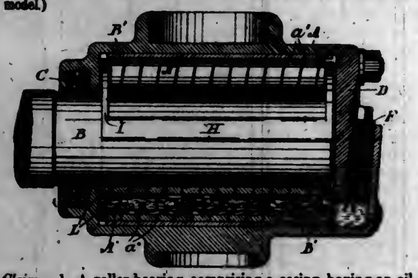
4. The combination of a rotatable shaft and bearings for the same permitting of longitudinal movement and a permanent magnet supplying a magnetic flux symmetrical with said shaft and acting upon said shaft in opposition to the force of gravity, substantially as described.

5. The combination of a magnetic shaft, journaled in cylindrical bearings and having projecting rings, of a permanent magnet having a consequent pole surrounding said shaft and its projecting rings in suspending relation thereto, substantially as described.

6. The combination of a magnetic shaft supported in suitable bearings, having two sets of projecting rings, and a magnetic system having a consequent pole, substantially in the plane of one set of rings, and a second consequent pole of opposite polarity, substantially in the plane of the other set of rings, substantially as described.

7. In an electrical measuring device, a shaft carrying a rotating disk of conducting material in combination with a supporting magnetic system, said system supplying a magnetic flux, passing through said disk near its periphery, substantially as described.

588,667. OIL RETAINER AND DISTRIBUTER FOR HOLLOW ROLLS OF ROLLER-BEARINGS. THEODORE J. TELLEPSEN and CHARLES S. LOCKWOOD, Newark, N. J., assignors to the Hyatt Roller Bearing Company, of New Jersey. Filed Oct. 24, 1896. Serial No. 609,963. (No model.)



Claim.—1. A roller-bearing comprising a casing having an oil-inlet for supplying the casing with oil, and a series of tubular rolls in said casing rotatably movable in contact with the casing to support the shaft, such rolls having smooth and hard exteriors, and the whole or part of such rolls having absorbent cores to absorb and distribute the oil as the rolls move around the shaft within the casing, substantially as herein set forth.

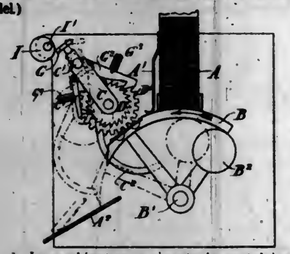
2. In a roller-bearing, a roll having a tubular bore and a core of angular cross-section fitted to the bore with longitudinal channels at its sides, as and for the purpose set forth.

3. A roller-bearing comprising a casing having an oil-inlet for supplying the casing with oil, and a series of tubular rolls in said casing for supporting the shaft, and one or more of such rolls having a core of absorbent material, as and for the purpose set forth.

4. A roller-bearing comprising a casing having an oil-inlet for supplying the casing with oil, and a series of tubular rolls in said casing for supporting the shaft, such rolls having absorbent cores, and apertures in the sides to serve as channels for absorbing and distributing the oil, substantially as herein set forth.

5. A roller-bearing comprising a casing having an oil-inlet for supplying the casing with oil, and a series of tubular rolls in said casing formed of spiral coils, and one or more of such rolls having an absorbent core, and the coils of the rolls having the spiral channels a', permitting the absorption and distribution of the oil, substantially as herein set forth.

588,668. DATE AND TIME STAMPING APPARATUS FOR TICKETS. CHRISTIAAN C. VAN DER VALK, Haarlem, Netherlands, assignor to the Syndicaat tot Exploitatie der Patenten C. C. van der Valk, Hague, Netherlands. Filed Aug. 22, 1896. Serial No. 603,568. (No model.)

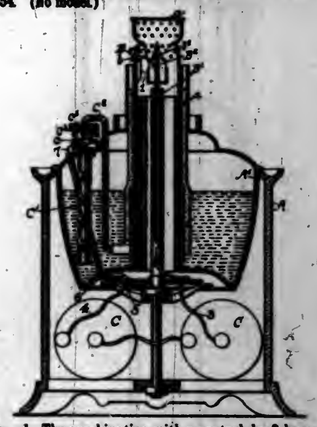


Claim.—1. In combination, a receptacle containing the tickets to be stamped, a cylinder or segment connected as shown, and provided with a recess corresponding to the tickets, a pivotally-suspended stamping-frame carrying disks upon the peripheries of which the date-marks are provided in relief, and mechanism by a clock adapted to change the disks, substantially as herein specified.

2. In combination, a receptacle A open at the bottom, for holding the tickets to be stamped, a rotary cylinder B arranged below said receptacle and provided with an opening or recess, a pivotally-suspended stamping-frame C carrying a series of disks, a curved arm C^2 fixed to said stamping-frame, and a train of mechanism controlling the adjustment of the disks, substantially as herein specified.

3. In combination, a receptacle A open at the bottom, for containing the cards to be stamped, a rotary cylinder B provided with an opening or recess, a counterweight B^2 mounted on the cylinder-shaft, a pivotally-suspended stamp C, an arm C^2 fixed to said stamp and a train of mechanism arranged to act through suitable means upon the hour-disk of the stamp, and a pivotally-suspended lever M, an arm B^3 on said cylinder-shaft for vibrating the lever M and provided with a shoulder M', and a controlling-lever 9 through which the shoulder engages the train of mechanism and prevents the change of dates when the stamp C is in use, substantially as herein specified.

588,669. ELECTRIC WICK-LIGHTING DEVICE. HENRY VAN HORNEBEEKE, New York, N. Y., assignor to the Empire Self Lighting Oil Lamp Company, of New Jersey. Filed May 5, 1896. Serial No. 590,354. (No model.)



Claim.—1. The combination with a central-draft lamp of a high-resistance conductor adjacent to the upper end of the wick-tube, an auxiliary wick or oil-absorber adjacent to such conductor, and an electrical circuit in which the conductor is located, substantially as specified.

2. The combination with a central-draft oil-lamp of a high-resistance electrical conductor, located adjacent to the upper end of the wick-tube, one end of such conductor being in electrical contact with the body of the lamp and the other end insulated from the lamp and in contact with one pole of an electric battery carried by the said lamp, an electric lead extending from the other pole of the said battery to a contact-point insulated from the body of the lamp and a wick-raising mechanism provided with a contact-point adapted to be automatically brought into contact with the last-mentioned contact-point when the wick is raised, substantially as specified.

3. The combination with a central-draft oil-lamp of an electrical conductor, located adjacent to the upper end of the wick-tube, an electric battery carried by said lamp and an electric circuit extending from the poles of said batteries to said conductor, said circuit being normally broken but adapted to be automatically closed when the wick of the said lamp is raised, substantially as specified.

4. In a self-lighting lamp a wick-raising mechanism consisting of an insulated contact-disk in electrical connection with one pole of a battery in combination with a rotary part in electrical contact with the other pole of said battery, and provided with a pivoted angle-lever c^3 and a spring c^4, so that by turning the rotary part, the angle-lever will be brought into contact with the contact-disk and the circuit closed, and at the same time the wick of the lamp will be raised, substantially as specified.

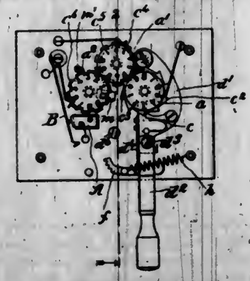
5. The combination with a central-draft lamp of an electrical heat-generator located above the upper end of the wick-tube, a source of electricity, a wick-raiser and a circuit-closer operated by the wick-raiser, substantially as specified.

6. The combination with a central-draft lamp of a resistance-coil located above the wick-tube, a source of electricity carried by the lamp and having connection with the coil, a wick-raiser having connection with said source of electricity and with the coil, the said wick-raiser being adapted to close the circuit between the source of electricity and the coil, substantially as specified.

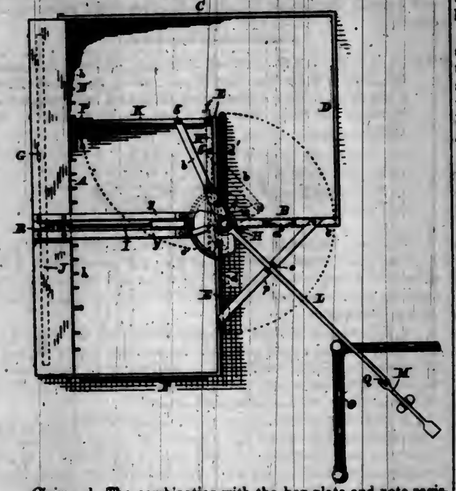
7. In a central-draft lamp, the combination with the body thereof, of a source of electricity, a contact connected with the body and source of electricity, a fount, a contact on said fount adapted to engage with the first-named contact, an electrical heat-generator above the wick-tube and having connection with the source of electricity, and a wick-raiser operating as a circuit-closer, substantially as specified.

588,670. COUNTING AND SIGNALING APPARATUS. BENJAMIN E. WARREN, Brockton, Mass., assignor of one-half to the Southern Massachusetts Telephone Company, New Bedford, Mass. Filed Feb. 8, 1897. Serial No. 622,456. (No model.)

Claim.—The counting and signaling apparatus above described made up of the disks a a^2; the jointed lever made up of arms d' d^2; spring d^4 fast to one arm of the jointed lever and passing by the joint d^3; pawl e on arm d' engaging with ratchet c^2 fast to disk a; insulated electrode A; spring-electrode B normally in contact with electrode A and finger f on arm d^2 all arranged to cause the movement of the jointed lever to first operate the counting mechanism and then to operate the signaling mechanism by the further movement of the arm d^2, substantially as described.



588,671. VOTING-MACHINE. GEORGE WILSON, Rochester, N. Y., assignor to the United States Voting-Machine Company, Jamestown, N. Y. Filed Feb. 17, 1897. Serial No. 623,863. (No model.)



Claim.—1. The combination with the key-plate and vote-registering mechanism of a voting-machine, of a booth having two compartments abutting on the key-plate, and a movable partition between the compartments, substantially as described.

2. The combination with the key-plate and vote-registering mechanism of a voting-machine, of a booth having two compartments abutting on the key-plate, a movable partition between the compartments, and means for admitting a voter to the whole booth or to one of the compartments only, substantially as described.

3. The combination with the key-plate and vote-registering mechanism of a voting-machine, of a booth having two compartments abutting on the key-plate, a movable partition between two compartments, a turnstile or door which admits the voter to the booth, and a detachable connection between the turnstile or door and the movable partition, substantially as described.

4. The combination with the vote-registering and actuating mechanisms of a voting-machine, of a booth provided with a movable partition by which the booth is divided into compartments to one only of which the voter of the special class can have access, and means for operating the said partition, substantially as described.

5. The combination with the vote-registering and actuating mechanisms of a voting-machine, arranged in horizontal rows each of which represents a political party, of a booth provided with a vertical movable partition, by which the booth is divided into compartments in one only of which the special voter has access to a limited number of the actuating mechanisms of all the political parties, and means for operating the said partition, substantially as described.

6. The combination with the booth and vote-registering and actuating mechanisms of a voting-machine, of the turnstile and its shaft, a clutch or disconnecting device thereon, a movable partition in the booth, and a suitable connection between the partition and the shaft, substantially as described.

7. The combination with the booth and vote-registering and actuating mechanisms of a voting-machine, of the turnstile and its shaft, a clutch or disconnecting device thereon, a movable partition in the booth, a suitable operating connection between the partition and the shaft, a cam on the shaft, and the movable bar by which the voting mechanism is restored to normal position, substantially as described.

8. The combination with the key-plate and vote-registering and actuating mechanisms of a voting-machine, of a booth, the jamb attached to the key-plate and the movable partition extending across the booth, substantially as described.

9. The combination with the key-plate and vote-registering and actuating mechanisms of a voting-machine, of a booth, the jamb attached to the key-plate and adjustable lengthwise thereof, and the movable partition extending across the booth, substantially as described.

10. The combination with the key-plate and vote-registering and actuating mechanisms of a voting-machine, of a booth, and the movable partition extending across the booth and adjustable therein to vary the number of voting mechanisms to which the special voter has access, substantially as described.

11. The combination with the key-plate and vote-registering and actuating mechanisms of a voting-machine, of a booth, the jamb attached to the key-plate and adjustable lengthwise thereof, and the movable partition extending across the booth and adjustable therein to vary the number of voting mechanisms to which the special voter has access, substantially as described.

12. The combination with the key-plate and vote-registering and actuating mechanisms of a voting-machine, of a booth, the jamb attached to the key-plate and adjustable lengthwise thereof, the movable partition extending across the booth and adjustable therein to vary the number of voting mechanisms to which the special voter has access, and means for operating the partition, substantially as described.

13. The combination with the key-plate and booth of a voting-machine, of the movable partition K, the turnstile B, clutch c, and connecting mechanism between the clutch and the partition, substantially as described.

14. The combination with the key-plate and booth of a voting-machine, of the movable partition K, the turnstile B, clutch c, connecting mechanism between the clutch and the partition, the lever L, and pull or treadle M, substantially as described.

15. The combination with the booth and key-plate of a voting-machine, of the movable partition K in the booth, the turnstile or door B, shaft H, crank a and adjustable connection b between the clutch and the partition, substantially as described.

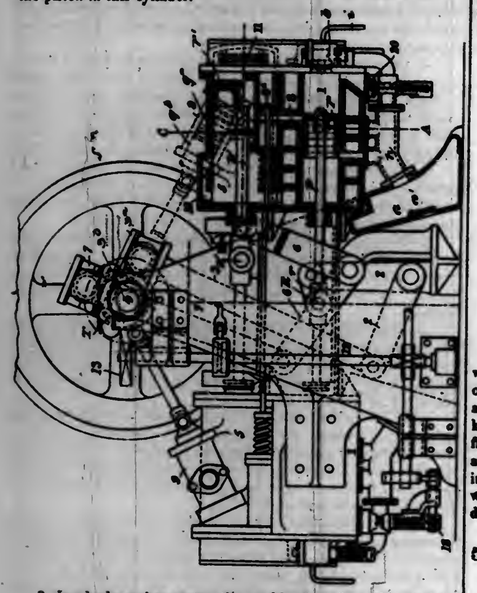
16. The combination with the key-plate and vote-registering mechanisms of a voting-machine, of a booth having two compartments abutting on the key-plate, a movable partition between the compartments, and means for securing the partition in place across the booth, substantially as described.

588,672. MOTOR WORKED BY HYDROCARBON OR OTHER GASES. CHRISTOPHER T. WORDSWORTH, Manchester, EDMUND WIRE-MAN, Luton, and JOHN HOLROYD, London, England. Filed Nov. 23, 1896. Serial No. 613,177. (No model.)

Claim.—1. A hydrocarbon-motor in which the cylinders are arranged in a group or groups of three, the groups comprising a pair of high-pressure cylinders and a low-pressure cylinder, all in close proximity, a driving-shaft provided with cranks set at different angles, connections between the cranks and the cylinders, and valve mechanism constructed, operated and arranged so that the high-pressure cylinders are successively charged and fired at alternate strokes and immediately after firing in each case a portion of the ignited charge is passed by a port in the side of the high-pressure cylinder and mingles with air previously compressed by the piston of this cylinder and is then propelled by said charge in the low-pressure cylinder.

2. In a hydrocarbon-motor the combination of a series of high-pressure cylinders and low-pressure cylinders arranged in groups of three, each group containing a pair of high-pressure cylinders and a low-pressure cylinder, all in close proximity, a shaft provided with cranks arranged at different angles to each other to which the pistons of the several cylinders are connected, valves for admission and exhaust, and means for operating the valves so that the high-pressure cylinders are successively charged and fired at alternate strokes and immediately after firing in each case a portion of the ignited charge is passed by a port in the side of the high-pressure cylinder into the

low-pressure cylinder and mingles with air previously compressed by the piston in this cylinder.

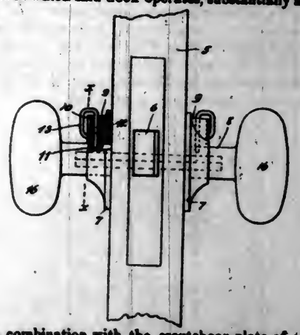


3. In a hydrocarbon-motor, the combination of a series of high-pressure cylinders and low-pressure cylinders arranged in groups of three, each group containing a pair of high-pressure cylinders and a low-pressure cylinder, a shaft provided with cranks all arranged at different angles to each other and to which the pistons of the several cylinders are connected, valve mechanism for admitting an explosive mixture to one of the high-pressure cylinders, a passage for leading the products of combustion from this high-pressure cylinder to the low-pressure cylinder, means for admitting air to said high-pressure cylinder to expel the products of combustion therefrom and to charge the high-pressure cylinder with air while the piston of the low-pressure cylinder is moving forward, means for permitting the escape of the products of combustion from the low-pressure cylinder, means for admitting air thereto to expel the products of combustion and to charge the low-pressure cylinder with air, means for confining the charge of air in the low-pressure cylinder during the back stroke of its piston, means for admitting an explosive mixture to the second high-pressure cylinder, and means for then causing said high-pressure cylinder and the low-pressure cylinder to operate in the same manner as the other high-pressure cylinder. and said low-pressure cylinder, substantially as set forth.

4. In a hydrocarbon-motor the combination of a series of high-pressure cylinders and low-pressure cylinders, arranged in groups of three, each group containing a pair of high-pressure cylinders and a low-pressure cylinder, a shaft provided with cranks arranged at different angles to each other and to which the pistons of the several cylinders are connected, means for admitting an explosive charge to one of the high-pressure cylinders for firing the same and causing the piston thereof to move forward, means for transferring the explosive mixture from said high-pressure cylinder to the low-pressure cylinder while the piston of said high-pressure cylinder is moving forward and which causes the piston of the low-pressure cylinder to move forward simultaneously with the piston of said high-pressure cylinder, means for expelling the products of combustion from the low-pressure cylinder after the piston of the high-pressure cylinder has commenced to move on its return stroke, and means for admitting an explosive mixture to the low-pressure cylinder from the second high-pressure cylinder after the piston of the low-pressure cylinder has reached, or has nearly reached, the limit of its return stroke.

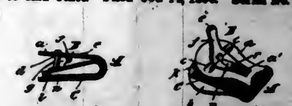
588,678. KNOB-SPINDLE FASTENER. ALBERT O. WYMAN, Turner's Falls, Mass., assignor of one-half to James A. Gunn, same place. Filed Apr. 30, 1897. Serial No. 633,042. (No model.)

Claim.—1. The combination with the escutcheon-plate of a door-lock, which is provided with a shoulder or projection on one side thereof, of a locking-pin which is passed through said shoulder or projection, and which is adapted to engage with the shaft on which the door-knobs are mounted, said locking-pin being provided at its outer or free end with a loop on which is formed an inwardly-directed hook, and said shoulder or projection being provided with a bayonet-slot in which said hook operates, substantially as shown and described.



2. The combination with the escutcheon-plate of a door-lock, which is provided with a shoulder or projection on one side thereof, of a locking-pin which is passed through said shoulder or projection, and which is adapted to engage with the shaft on which the door-knobs are mounted, said locking-pin being provided at its outer or free end with a loop on which is formed an inwardly-directed hook, and said shoulder or projection being provided with a bayonet-slot in which said hook operates, and said bayonet-slot being provided with a spring which bears on said hook, substantially as shown and described.

588,674. CLASP. CLIFFORD R. BRADLEY, GEORGE B. PILKINGTON, and IRVING G. PLATT, Waterbury, Conn.; Lewis A. Platt administrator of said Irving G. Platt, deceased; said Bradley and said Pilkington assignors to said Platt. Filed Oct. 14, 1896. Serial No. 608,872. (No model.)



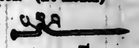
Claim.—1. In a clasp or fastener, the combination with the body A, of the spring C, fitting within said body and provided with a rib, and a lever fitting in said body and provided with the recess *r* for receiving the rib on said spring, when the lever is raised, substantially as described.

2. In a clasp or fastener, the combination with the body A, of the spring C fitting within said body and provided with a rib, and a lever fitting in said body and provided with the recess *r* and notch *p* for receiving the rib on said spring, when the lever is raised and lowered respectively, substantially as described.

3. In a clasp or fastener, the combination with the body A, provided with bearings *c* and a lug or projection *i*, located between the latter, of a lever provided with projections *d*, adapted to fit in said bearings and with an opening *h* for receiving said lug *i*, substantially as described.

4. In a clasp or fastener, the combination with the body A, provided with the opening *a'*, and projection *n*, of the spring C, provided with an opening *m* for receiving said projection, and with the rib *o*, and the lever B attached to said body and provided with a recess or groove for receiving said rib when the lever is raised and with a notch on one end thereof, for receiving said rib, when the lever is lowered, substantially as described.

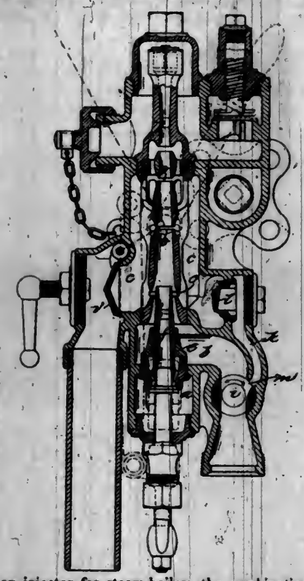
588,675. PIN. HENRY C. COHEN, Wayne, Pa. Filed Mar. 17, 1897. Serial No. 627,902. (No model.)



Claim.—A pin consisting of the head and point portions in the same plane and a deflection between said portions, said deflection having a limb extending obliquely from the top of the point portion and a limb extending in a right-lined direction from the bottom of the head portion to the upper end of said obliquely-extending limb.

588,676. INJECTOR. LOUIS FRIEDMANN, Vienna, Austria-Hungary. Filed Apr. 9, 1897. Serial No. 631,635. (Model.) Patented in Hungary May 5, 1896, No. 6,904; in Germany May 5, 1896, No. 88,751; in France May 5, 1896, No. 256,122; in Austria May 28, 1896, No. 46/3,115; in Switzerland Sept. 18, 1896, No. 13,062, and in Belgium Sept. 18, 1896, No. 123,573.

Claim.—1. In an injector for steam-boilers, the combination with the water-supply branch or chamber and the overflow-chamber, of a by-path connecting the two, and a valve therein controlled by pressure variations in said overflow-chamber, for the purpose set forth.

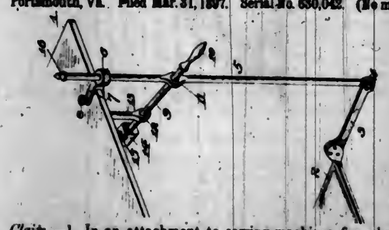


2. In an injector for steam-boilers, the combination with the water-supply branch or chamber and the overflow-chamber, of a by-path connecting the two, a valve at the outlet of said by-path adapted to open and close under pressure variations in said overflow-chamber and a cut-off valve at the inlet of said by-path, for the purpose set forth.

3. In an injector for steam-boilers, the combination with the overflow-chamber and the water-supply branch or chamber, of a by-path connecting the two, a cut-off valve adapted to close the inlet to the by-path without closing the inlet to the water-chamber, and a valve at the outlet of said by-path adapted to open or close said outlet under pressure variations in the overflow-chamber, for the purpose set forth.

4. In an injector for steam-boilers, the combination with the overflow-chamber, an outwardly-opening valve in the outlet thereof and the water-supply branch for the water-chamber, of a by-path connecting said overflow-chamber with the water-supply chamber, a valve at the junction of said by-path and branch adapted to close the inlet of said by-path without closing said branch and to close both, and an outwardly-opening valve at the outlet of the by-path adapted to open and close under pressure variations in the overflow-chamber, for the purpose set forth.

588,677. SEWING-MACHINE ATTACHMENT. JOHN H. GASKINS, Portsmouth, Va. Filed Mar. 31, 1897. Serial No. 630,042. (No model.)



Claim.—1. In an attachment to sewing-machines for adapting them to be operated by hand, the combination with a treadle extension-arm, of the counterbalanced hand-lever, the pendent support in which said lever is pivoted, an upright rod pivotally connected with said arm and lever, and a guide for the upper end of said rod adapted to be attached to the machine-table substantially as described.

2. In a sewing-machine attachment, the combination of the treadle extension-arm, the upright rod connected to said arm, the hand-lever connected to said rod for actuating it, said lever being pivoted in a pendent support, and a clip adapted to be attached to the machine-table and provided with an eye for guiding the upper end of the connecting-rod, substantially as described.

588,678. CARPET-BEATING MACHINE. JUSTUS H. ISEL, Andover, Mass., assignor of one-half to Alexis Torrey, Weymouth, Mass. Filed May 2, 1896. Serial No. 590,047. (No model.)

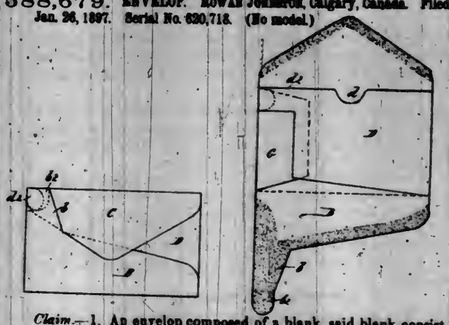


Claim.—1. The combination with the frame and the rotatable shaft having pins, of the pivoted beaters having their rear ends extended into the path of said pins, and a cross-bar arranged over the rear ends of said beaters, a pivoted lever and connection between the same and said cross-bar, a movable cross-bar and spring connections between the same and the beaters, substantially as described.

2. The combination with the frame and the rotatable shaft having pins, of the pivoted beaters having their rear ends extended into the path of said pins, and a cross-bar arranged over the rear ends of said beaters, a pivoted lever and connection between the same and said cross-bar, and springs connected with said beaters in front of their pivots and their other ends connected in line with the pivot with a movable cross-bar, substantially as described.

3. The combination with the frame and the rotatable shaft having pins, of the pivoted beaters having their rear ends extended into the path of said pins, and a cross-bar arranged over the rear ends of said beaters, a pivoted lever and connection between the same and said cross-bar, and springs connected with said beaters in front of their pivots and their other ends connected in line with the pivot with a movable cross-bar, and cam-levers acting on said cross-bar to regulate the tension of the springs, substantially as described.

588,679. ENVELOP. ROWAN JOHNSTON, Calgary, Canada. Filed Jan. 26, 1897. Serial No. 620,718. (No model.)



Claim.—1. An envelop composed of a blank, said blank consisting of a body portion, and two folding ends as D, and G, the folding end D, being provided with an extension d^1, and the upper side thereof being in the same line with the body portion of the envelop, and said body portion being provided with a folding side and a folding flap, one end of said folding side being projected in line with the end of the body portion of the envelop, and being provided with an extension on which is formed a tongue, said end portion, said flap and said folding side being gummed on their inner surfaces, substantially as shown and described.

2. An envelop composed of a blank, said blank consisting of a body portion, and two folding ends as D, and G, the folding end D, being provided with an extension d^1, and the upper side thereof, being in the same line with the body portion of the envelop, and said body portion being provided with a folding side and a folding flap, one end of said folding side being projected in line with the end of the body portion of the envelop, and being provided with an extension which is formed on the tongue, said end portion, said flap and said folding side being gummed on their inner surfaces, and the folding end D, being longer than the folding end G, substantially as shown and described.

588,680. PNEUMATIC TIRE. HIPPOLYTE J. LA FORGE, Paris, France. Filed May 17, 1897. Serial No. 636,894. (No model.) Patented in Canada Dec. 7, 1891, No. 37,890; in England Sept. 8, 1892, No. 16,095, and in France Sept. 8, 1892, No. 224,227.

Claim.—1. In a pneumatic tire, the combination with an outer or wearing part of an open tubular form, of an inner or lining part also of an open tubular form and having internal sealing-lips, the said inner or lining part being cemented or otherwise fixed to the interior of the outer or wearing part, substantially as set forth.



2. In a pneumatic tire, the combination with an outer part or cover of an open tubular form and having its edges adapted to be fixed in the wheel-rim, of an inner or lining part divided circumferentially on its inner or under side and provided with inwardly-projecting lips which are pressed into air-tight contact when the tire is inflated, the outer periphery of the said inner tube or lining being secured to the outer part or cover so that they become integral on that part forming the tread, substantially as set forth.

3. An air-tube for a pneumatic tire divided circumferentially on its inner or under side and provided with inwardly-projecting lips which are pressed into air-tight contact when the tube is inflated, substantially as and for the purpose set forth.

588,681. STEAM-PACKING. PHILIP F. LEARY, Fall River, Mass. Filed May 4, 1897. Serial No. 634,987. (No model.)



Claim.—1. A metallic packing comprising sectional rings, each ring having lune-shaped sections and adjacent sections each having an end recessed to fit the lune-shaped sections and an end cut tangent to the inner circle of the packing-ring.

2. A sectional packing-ring comprising lune-shaped sections and adjacent sections having their faces that abut against the lune-shaped sections concaved to closely fit the outer surface of the lune-shaped sections, all the sections being of equal thickness.

3. A sectional packing-ring having lune-shaped sections and adjacent sections, each adjacent section being concaved on the arc of a circle to fit the outer face of a lune-shaped section, said lune-shaped section being made of sufficient size to keep the sections adjacent to itself out of contact with each other, whereby a movement of the sections upon each other is permitted without impairing the joints between them.

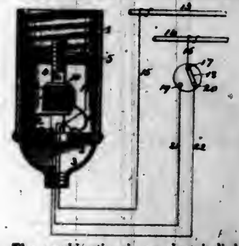
588,682. CARRIAGE-WHEEL. JOSEPH LINDSAY, Dublin, Ireland. Filed Aug. 19, 1896. Serial No. 603,237. (No model.)



Claim.—1. A wheel comprising a rim D, adapted to receive a yielding tire, a series of threaded bolts C, non-revoluble relative to the rim and projecting at the inner side of the same, in combination with the spokes A, each having a fixed cap A', provided with a threaded shank A^2, and a coupling B, screw-threaded to engage a bolt and shank and turn on both to effect the spreading of the spoke and rim while the bolt is held against rotation, substantially as set forth.

2. A wheel comprising a rim D adapted to receive a yielding tire, spokes A having each a cap A' with a screw-threaded extremity, and a coupling B correspondingly screw-threaded and having a tubular inner end B' matching upon and strongly guided upon the spoke but capable of being moved endwise thereon, in combination with the bolt C, C', engaging the outer end of the coupling by a different screw-thread, adapted to tighten the entire connection of the spokes and rim as required, substantially as herein specified.

588,683. ELECTRIC-LIGHTING SYSTEM. FREDERIC W. LORD, Boston, Mass. Filed June 19, 1897. Serial No. 641,426. (No model.)



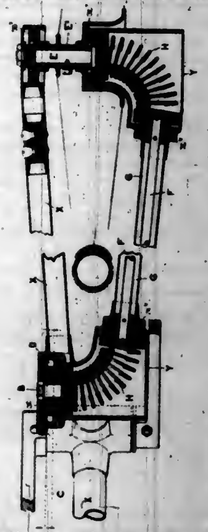
Claim.—1. The combination in an electric-lighting system of a two-way switch, and a two-way lamp-socket connected at two corresponding points to the two-way switch, and connections from the third point on the socket and on the switch to the mains of the system.

2. A two-way lamp-socket comprising means for making contact with a lamp, three contact-points connected to leading-in wires, and means for connecting one of the points to either of the other two, through the lamp-contacts.

3. In a two-way lamp-socket, the combination of an insulating-block, with a metal strip thereon, two springs bearing upon said block, and means for connecting either of the springs with the metal strip and at the same time disconnecting the other one of the two springs from the metal strip, substantially as described.

4. In a lamp-socket, the combination of two spring-contacts, a rotatable switch adapted to make contact with one only of the springs in any particular position, two lamp-terminals, and connections from one of the lamp-terminals to the rotatable switch.

588,684. DRIVING-GEAR FOR VELOCIPEDES. FRANCIS E. MACHARON and ARTHUR J. POSTANS, London, England. Filed Nov. 16, 1896. Serial No. 612,352. (No model.) Patented in England Feb. 29, 1896, No. 4,576, and in France Dec. 18, 1896, No. 262,293.



Claim.—The combination, with a bicycle-frame X, two cases Y secured to the said frame and provided with bearings x and x' on one side and bearings x^2 on the other side of the said frame, and a tube G arranged concentric with the bearings x^2 and secured to the said casings; of a shaft F passing through the tube G and journaled in the bearings x^2, a shaft B operatively connected with the crank-axle and journaled in the bearing x, a shaft E journaled in the bearing x', a bicycle-wheel secured on the shaft E, and flexible shafts connecting the respective ends of the shaft F with the shafts B and E, substantially as set forth.

588,685. INCANDESCENT-LIGHTING SUBSTANCE. WILLIAM MAHLER, New York, N. Y. Filed July 10, 1897. Serial No. 644,155. (No specimens.)

Claim.—1. A mantle or hood for incandescent lighting composed of a large percentage of thorium oxid, a small percentage of cerium oxid and a smaller percentage of lanthanum oxid, substantially as specified.

2. A mantle or hood for incandescent lighting, composed of about ninety-eight and one-half per cent. (98½%) of thorium oxid, about one per cent. (1%) of cerium oxid and about one-half of one per cent. (½ of 1%) of lanthanum oxid, substantially as specified.

588,686. ELECTRIC CUT-OUT. NORMAN MARSHALL, Boston, Mass. Filed May 20, 1896. Serial No. 593,570. (No model.)



Claim.—1. The method of interrupting electric arcs formed between two circuit-terminals normally connected by fusible material, which consists in creating a substantially large gaseous or air pressure by the heat generated by the melting of the said fusible material and consequent formation of the arc, and causing the same to pass in a smaller or restricted amount across the plane or path of the arc formed between the said terminals at a different point from that at which the pressure is created, substantially as described.

2. In an electric cut-out or circuit-controller, a base having secured to it circuit-terminals, and provided with a chamber intermediate of said terminals and having a substantially large opening and a separate and restricted discharge-outlet, and a fuse normally connecting said terminals and extended across said discharge-outlet and the substantially large opening, whereby the gas or air pressure created in the chamber at the substantially large opening is caused to pass out of the said chamber through the said restricted discharge-outlet, substantially as and for the purpose specified.

3. In an electric cut-out or circuit-controller, a base provided with a chamber intermediate of its ends having a substantially large opening, and a restricted discharge-outlet for said chamber, a cover for said base normally closing said substantially large opening and provided with a gas-outlet adapted to communicate with the restricted discharge-outlet of the said chamber, circuit-terminals on opposite sides of said chamber, and a fuse normally connecting said circuit-terminals and extended across the substantially large opening and across the discharge-outlet for the chamber between the outlet in the wall of the chamber and the outlet in the cover, substantially as and for the purpose specified.

4. In an electric cut-out or circuit-controller, a base provided with a substantially large chamber having a substantially large opening and a separate contracted or substantially small outlet or discharge opening, circuit-terminals carried by said base, and a fuse connecting said terminals and extended across both the discharge opening or outlet and the substantially large opening to effect a cutting or rupturing of the arc, which may be formed between the terminals, by the gases or air-pressure created by the melting of the fuse in the substantially large opening, forced out through the substantially small outlet-orifice, for the purpose specified.

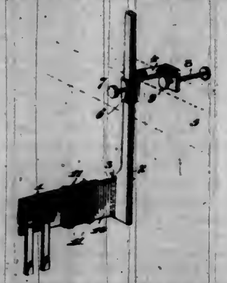
5. In an electric cut-out or circuit-controller, a base consisting of a bottom and side walls, cross partitions or walls b^3 b^4, and top walls b^5 b^6 cooperating with the bottom and side walls of the base to form a chamber B provided with outlet or discharge openings in the top walls b^5 b^6, a cover secured to said base and provided with outlets communicating with the discharge-openings for the chamber B, circuit-terminals secured to the base on opposite sides of the chamber B, and a fuse connected to said terminals and extended across the discharge-openings for the said chamber, substantially as described.

588,687. TONGUE-BAR-SUPPORTING CLAMP. JAMES H. MOYER, Temple, Tex. Filed Dec. 31, 1896. Serial No. 617,534. (No model.)

Claim.—1. A tongue-bar-supporting clamp having a guide, and means for attaching the same to a fixed part of a piano, and a shank adjustably fitted in said guide and provided with a seat for the extremity of a tongue-bar, substantially as specified.

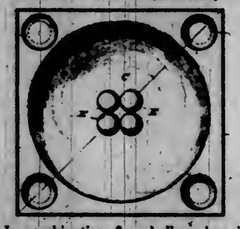
2. A tongue-bar-supporting clamp having a guide provided with means for engagement with a fixed part of a piano-frame, and a shank adjustably fitted in said guide, and provided with a seat having an open upper side for the reception of the extremity of a tongue-bar, substantially as specified.

3. A tongue-bar-supporting clamp having a guide, a clip carrying said guide and adapted to engage the upper edge of a piano-case, a shank adjustably fitted in said guide and provided with a seat for the extremity of a tongue-bar, and a locking device for securing the shank at the desired adjustment, substantially as specified.



4. The combination of a supporting-clamp having a guide and means for securing the same to a fixed part of a piano-frame, and a shank adjustably fitted in said guide and provided with a seat, with an extensible tongue-bar provided with an auxiliary member or slide adapted to fit in said seat, substantially as specified.

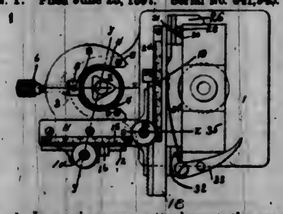
588,688. PUZZLE. LINCOLN G. WARNER, Philadelphia, Pa. Filed Sept. 16, 1896. Serial No. 606,251. (No model.)



Claim.—1. In combination, four balls, a box having a bottom with a saucer depression in the center adapted to contain all of the balls at once, circular depressions in the corners adapted to contain only one of the balls at a time, as and for the purpose described.

2. In a puzzle, a square box, a false bottom arranged therein, said bottom having a circular concavity formed in the center thereof a flat portion surrounding the concavity and smaller circular concavities formed in each of the corners of the flat portion, in combination with a box of this character four spherical bodies, as and for the purpose described.

588,689. MICROSCOPE ATTACHMENT. EDWARD BAUSCH, Rochester, N. Y. Filed June 23, 1897. Serial No. 641,945. (No model.)



Claim.—1. In a microscope attachment, the combination with the yoke or plate adapted to embrace the pillar of a microscope, having the opening narrower at the mouth than the diameter of the pillar, and the adjustable clamping-screw at the rear of the yoke-opening, of the adjustable arm, movable ways in the yoke extending in a plane substantially parallel with that of the opening in the yoke, and an object-carrier on said arm, substantially as described.

2. In a microscope attachment, the combination with the yoke or plate, clamping devices for removably securing it to the pillar of a microscope, and leveling-screws on said yoke, of an object-holder adjustable upon the yoke, substantially as described.

3. In a microscope attachment, the combination with the yoke or plate, having the opening and the two contacting points on opposite sides of the opening adapted to engage the pillar of a microscope, of the adjustable clamping-block opposite the opening in the yoke, the leveling-screws near the contacting points of the yoke, the leveling-screw passing through the adjustable clamping-block, and an object-holder adjustable on the yoke, substantially as described.

4. In a microscope attachment, the combination with the yoke or plate, clamping devices for attaching it to the pillar of a microscope, and a way formed in said yoke, of an arm or slide adjustable in and longitudinally removable from said way, rack-and-pinion connections between the yoke and arm, indicia between the arm and yoke for indicating their relative adjustment, and an object-carrier frame adjustable laterally of the last-mentioned arm, rack-and-pinion connections between the carrier-frame and arm, and indicia for indicating their relative adjustment, substantially as described.

5. In a microscope attachment, the combination with the yoke or plate 3, having the contact-points 4, 4, the block 5, adjusting-screw 6, the leveling-screws 8, and the way 9 in the yoke, of the sliding arm 11, having the rack 12, the arbor and the pinion 13 thereon, the plate 18 sliding on the arm 11, having the rack 19, the arbor 21 and the pinion thereon, indicia between the plate and arm for indicating their relative adjustment, and an object-clamp mounted on the plate 18, substantially as described.

6. In a microscope attachment, the combination with the yoke 3, having the contact-points 4, 4, the block 5, and the adjusting-screw 6, and the way 9 in the yoke extending substantially parallel with the plane of movement of the adjusting-screw, of the adjustable arm 11 having the portion fitting the way 9 and removable from the yoke, and the object-carrier adjustably mounted on the arm 11, substantially as described.

588,690. WRAPPER FOR FRUITS OR VEGETABLES. CHARLES M. BROWN, Ocala, Fla. Filed Feb. 21, 1894. Renewed July 26, 1897. Serial No. 646,039. (No model.)



Claim.—1. The herein-described flexible fruit and vegetable wrapper adapted to snugly receive therein a fruit or vegetable, and consisting of a single sheet or blank of flexible yielding material provided with a regular series of crimps or corrugations open and free to expand or contract throughout their entire length, said crimps or corrugations leading from the edge of the sheet or blank forming a corrugated convex receptacle, and being increased in depth near the edge of the sheet or blank to form a contracted and flaring neck adapted to close on the fruit or vegetable placed in the wrapper, substantially as set forth.

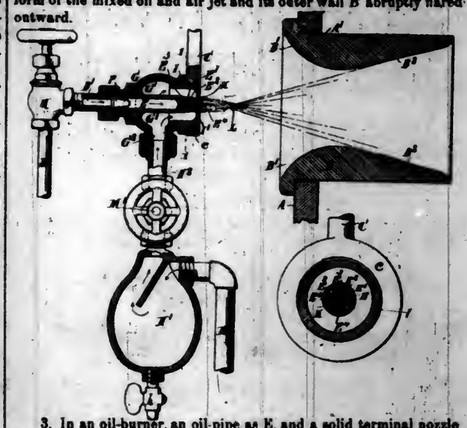
2. The herein-described flexible fruit and vegetable wrapper, consisting of a circular blank of paper provided with a regular series of crimps or corrugations open throughout their entire length, and leading from a circle concentric to the center of the blank out to the edge thereof to form an enlarged spherical body portion having a flattened base, said crimps or corrugations being increased in depth near the edge of the blank to provide a contracted and flaring neck adapted to close on the fruit or vegetable placed in the wrapper, substantially as set forth.

3. A flexible fruit and vegetable wrapper adapted to snugly receive therein a fruit or vegetable and consisting of a blank of flexible yielding material provided with a regular series of crimps or corrugations open and free to expand or contract throughout their entire length, said crimps or corrugations leading from the edge of the blank forming a corrugated convex receptacle and being increased in depth near the edge of the blank to form a contracted neck adapted to close on the fruit or vegetable placed in the wrapper, substantially as set forth.

588,691. OIL-BURNER. THOMAS R. BROWNE, Altoona, Pa. Filed May 5, 1896. Serial No. 590,371. (No model.)

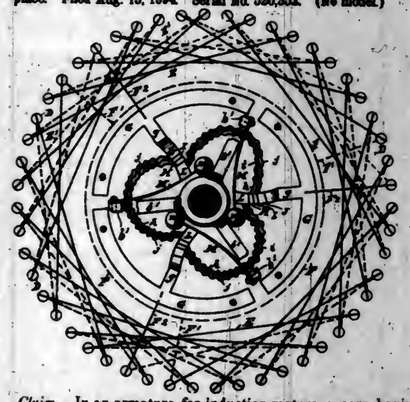
Claim.—1. In an oil-burner apparatus an oil-spraying nozzle having a central and an annular outer air-channel and oil-channels situated between said air-channels, said nozzle being adapted, as described, to throw a jet of air and oil which first converges toward and then diverges from a point in front of the nozzle in combination with a receiving-nozzle B situated in front of the spraying-nozzle and having its inner walls B^2 proportioned and flared to conform to the size and form of the mixed oil and air jet.

2. In an oil-burner apparatus an oil-spraying nozzle having a central and an annular outer air-channel and oil-channels situated between said air-channels, said nozzle being adapted, as described, to throw a jet of air and oil which first converges toward and then diverges from a point in front of the nozzle in combination with a receiving-nozzle B situated in front of the spraying-nozzle and having its inner walls B^2 proportioned and flared to conform to the size and form of the mixed oil and air jet and its outer wall B' abruptly flared outward.



3. In an oil-burner, an oil-pipe as E, and a solid terminal nozzle E', said nozzle having perforations as E^3 running from pipe E to its outer end to serve as oil-channels, a central perforation E^4 not connecting with the oil-pipe and one or more lateral perforations or channels E^5 running through the side walls of the nozzle to the central perforation or channel E^4, in combination with an outer casing adapted to serve as an air or a steam chamber and forming with the walls of the nozzle E^3 an annular air-escape channel K.

588,692. ARMATURE FOR INDUCTION-MOTORS. ABE L. CUSHMAN, Concord, N. H., assignor of one-half to Benjamin A. Kimball, same place. Filed Aug. 15, 1894. Serial No. 520,352. (No model.)



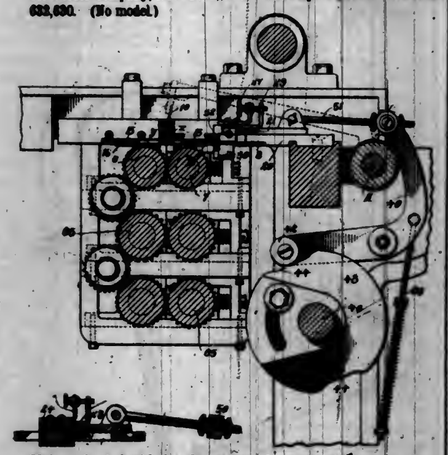
Claim.—In an armature for induction-motors, a core having a short-circuiting ring at one end and short-circuiting-ring segments at the other, and two or more interiorly-connected plates insulated from each other, a series of energizing-coils externally arranged upon said core one end of each coil connected to said plates and the opposite end closed on the short-circuiting ring, spring-actuated levers pivoted within said core and provided with plates insulated from each other and adapted for contact with those of the core, and coils provided within said core and composed of separate insulated wires of varying degrees of resistance, one end of said interior coil being attached to the plates of said core and the other to the plates of said levers, substantially for the purpose set forth.

588,693. FOOT-REST FOR REGISTERS. CALVIN M. DECHANT, Reading, Pa. Filed Dec. 21, 1896. Serial No. 616,420. (No model.)



Claim.—A foot-rest attachment for side-wall registers consisting of a bracket-plate having a hinge-bar c and securing-hooks slidable on said bar and adapted to engage the register-openings substantially as set forth.

588,694. HEADER-UP DEVICE FOR PAPER-FOLDING MACHINES. TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed Apr. 17, 1897. Serial No. 632,630. (No model.)



Claim.—1. A double header-up attachment for folding-machines comprising two relatively-adjustable registering blades or gages mounted upon a common support and adapted to independently register two signatures or sheets either separately or simultaneously prior to being folded, substantially as set forth.

2. A double header-up attachment for folding-machines comprising two relatively-adjustable registering or heading-up blades or gages mounted upon a common movable support, and means for operating said movable support, whereby two sheets or signatures can be independently registered, either separately or simultaneously, prior to being folded, substantially as set forth.

3. The combination, in a folding-machine, with folding-rolls, a folding-knife, and means for feeding two sheets or partly-folded signatures into position above the folding-rolls, of a reciprocating double header-up device having two adjustable registering or heading-up blades adapted to independently register the two sheets or signatures, and means for operating the header-up device, substantially as and for the purpose set forth.

4. The combination, in a folding-machine with the first-fold rollers, the two pairs of second-fold rollers, the third-fold rollers, the tapes for conveying two twice-folded sheets from the second-fold rollers into position above the third-fold rollers, the third-fold knife, and the header-up attachment provided with two relatively-adjustable registering-blades adapted to head up or register said signatures independently, substantially as set forth.

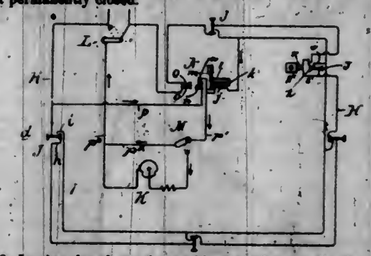
5. A header-up attachment for folding-machines comprising an intermittently-reciprocating adjustable plate carrying a sheet-registering blade, and a second plate adjustably mounted upon and moving with the first plate and carrying a second sheet-registering blade, as set forth.

6. The combination, in a folding-machine, with the folding-rollers, and the folding-knife, of the sliding header-up device, comprising a plate carrying a sheet-registering blade, a second plate adjustably mounted on the first plate and carrying a second sheet-registering blade, an operating-lever, and an adjustable connection between the operating-lever and the first sliding plate, substantially as set forth.

7. The combination, in a folding-machine, with the folding-rollers, the plate above the folding-rollers, the tapes running above and below said plate for feeding two sheets or partly-folded signatures into position in parallel planes above the folding-rollers, above and below said plate, and the folding-knife, of the header-up attachment having two adjustable registering-blades supported respectively above and below said plate for independently registering or heading up the sheets or signatures above and below the plate, substantially as set forth.

588,695. ELECTRIC BURGLAR-ALARM. HARRY M. DORAN, Detroit, Mich. Filed Aug. 24, 1896. Serial No. 603,773. (No model.)

Claim.—1. In a burglar-alarm the combination with the normally closed main circuit passing from the central office to the guarded building, a normally open shunt-circuit in the guarded building, guard-switches adapted when operated to close the main circuit through the shunt and an automatic signaling instrument in the shunt, of an automatic switch in said shunt adapted to be operated by the closing of said shunt and adapted after being so operated to maintain the shunt permanently closed.

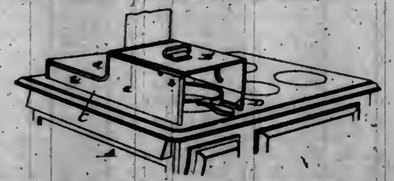


2. In a burglar-alarm, the combination of a normally closed main circuit, normally open shunt in the guarded building, a door guard-switch in the main circuit adapted to close the shunt, a branch of the main circuit around said guard-switch, and a lock or switch outside the door for opening and closing said branch, substantially as described.

3. The combination with the normally closed main circuit passing through the central office and the guarded building, and an electric signaling instrument included in said circuit in the guarded building, of shunts connecting with different points in said main circuit of progressively higher resistance from the one farthest from the central office to the one nearest thereto, an automatic signaling instrument in each of said shunts, a rheostat in the central office in shunt with the main circuit, and means for increasing the tension of the electric current for the purpose described.

4. In a burglar-alarm the combination with normally closed main circuit passing from the central office to the guarded building, a normally open shunt-circuit in the guarded building and guard-switches adapted to close the main circuit through the shunt, and an automatic signaling instrument K in the shunt, of the automatic switch N in the shunt adapted to be operated by the closing of the shunt and adapted after being so operated to maintain the shunt permanently closed and the switch M for cutting out the instrument K for the purpose described.

588,696. COOKING ATTACHMENT FOR STOVES. GEORGE R. DUNCAN, Minneapolis, Minn., assignor to Walter R. Brown, same place. Filed Mar. 30, 1897. Serial No. 630,318. (No model.)



Claim.—1. A stove-hood comprising the body having an end wall, a top wall and side walls extending beyond the top wall, and a vertically-adjustable section or top connected with the extended portions of the side walls, substantially as specified.

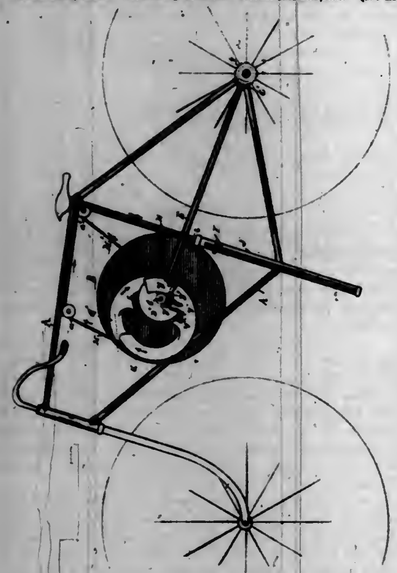
2. A stove-hood comprising the body having an end wall, a top wall and side walls extending beyond the top wall, a vertically-adjustable section or top arranged between the extended portions of the side walls of the body and having curvilinear slots in its side walls, and bolts extending through said slots and the side walls of the body, substantially as specified.

3. In a stove-hood, the combination with the body having an end wall, side walls having their rear portions reduced in height, the top wall connected at the end wall and reduced portions of the side walls, and the intermediate transverse wall terminating at its upper edge in a downwardly and upwardly bent flange; of the vertically-adjustable section or top arranged between the extended portions of the side walls and having the top wall, end wall and the side walls provided with curvilinear slots terminating at their lower ends in offsets, and connecting-bolts extending through said slots and through the side walls of the body, substantially as specified.

4. A stove-hood adapted to be placed over two openings of a stove-top and comprising the low, rear portion adapted to rest over one opening and having the flat top adapted to support a vessel, and a front portion of greater height than the rear portion adapted to

rest over the other opening and receive a vessel within it; the said front portion communicating with the rear portion and having a rear transverse wall connected to and extending upwardly from the forward end of the top wall of the low rear portion, substantially as specified.

588,697. BICYCLE OR OTHER VEHICLE. JOHN H. RICKERSHOFF, Cincinnati, Ohio. Filed July 6, 1896. Serial No. 598,228. (No model.)



Claim.—1. The combination of a shaft; driving-disks loosely mounted thereon; mechanism connecting the disks with the driven wheel; a pair of sheave-segments each consisting of a part secured to the shaft carrying the disks and another part hinged thereto; friction-shoes carried by the hinged part, adapted to engage with the disks; the sheave-segments fixed to the shaft in opposite directions and cords attached to the sheaves and to alternately-reciprocating pedals, substantially as and for the purpose set forth.

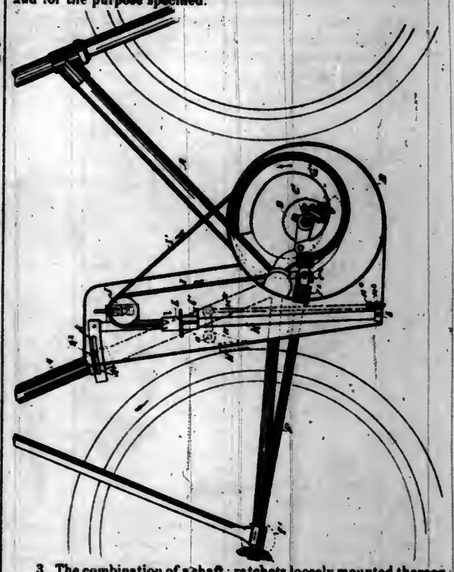
2. The combination of a shaft; driving-disks loosely mounted thereon; mechanism connecting the disks with the driven wheel; a pair of eccentrically-mounted sheave-segments, each consisting of a part, secured to the shaft carrying the disks, and another part hinged thereto; friction-shoes, carried by the hinged part, adapted to engage with the disks; the sheave-segments fixed to the shaft in opposite directions and cords attached to the sheaves and to alternately-reciprocating pedals, substantially as and for the purpose set forth.

3. The combination of a shaft; driving-disks loosely mounted thereon; mechanism connecting the disks with the driven wheel; a pair of sheave-segments each consisting of a part, secured to the shaft carrying the disks, and another part hinged thereto; friction-shoes carried by the hinging part, adapted to engage with the disks; springs, between the fixed and the hinged part, normally holding the friction-shoes out of engagement with the disks; the sheave-segments fixed to the shaft in opposite directions, and cords attached to the sheaves and to alternately-reciprocating pedals, substantially as and for the purpose set forth.

588,698. BICYCLE. JOHN H. RICKERSHOFF, Cincinnati, Ohio. Filed Dec. 26, 1896. Serial No. 617,055. (No model.)

Claim.—1. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and the shaft of the driving-wheel; sheave-segments adapted to actuate the shaft; means for actuating the segments, and pawls carried by the segments adapted to engage with the ratchets, when the speed of the segments is greater than that of the ratchets, and to be released when the speed of the ratchets is greater than that of the segments, substantially as and for the purpose specified.

2. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and the shaft of the driving-wheel; sheave-segments adapted to actuate the shaft; pawls pivotally secured to the segments, and adapted to engage with the ratchet-wheels; and arms carried by the pawls adapted to contact with the ratchet-wheels and hold the pawls out of engagement with the ratchet, when the movement of the latter is faster than that of the segments, and throw the pawls into engagement when the movement of the segments is faster than that of the ratchets, substantially as and for the purpose specified.



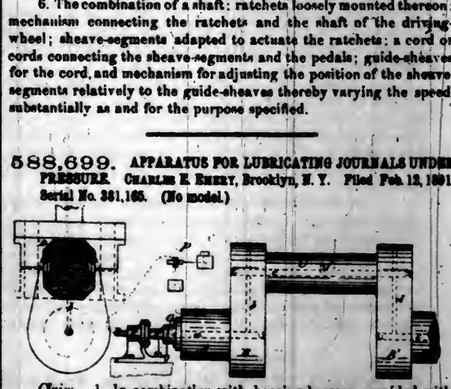
3. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and the shaft of the driving-wheel; sheave-segments adapted to actuate the ratchets and carrying brake-shoes adapted to engage with the ratchet-wheels; means for actuating the sheave-segments; and springs adapted to hold the brake-shoes out of contact with the ratchet-wheels until pressure is applied to the pedals concurrently; substantially as and for the purpose specified.

4. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and the shaft of the driving-wheels; sheave-segments adapted to actuate the ratchets; a cord, or cords, connecting the sheave-segments and the pedals; contact parts adapted to be actuated by the pedals, but out of reach of their normal travel; a brake-shoe, and mechanism connecting the contact parts and the brake-shoe whereby the brake may be applied, substantially as and for the purpose set forth.

5. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and wheel-shaft, sheave-segments carrying pawls adapted to actuate the ratchets; a cord or cords connected with the sheave-segments and the pedals; and guide-sheaves mounted in different positions, whereby the cord may be caused to actuate the sheaves through different arcs thereby varying the speed, substantially as and for the purpose specified.

6. The combination of a shaft; ratchets loosely mounted thereon; mechanism connecting the ratchets and the shaft of the driving-wheel; sheave-segments adapted to actuate the ratchets; a cord or cords connecting the sheave-segments and the pedals; guide-sheaves for the cord, and mechanism for adjusting the position of the sheave-segments relatively to the guide-sheaves thereby varying the speed, substantially as and for the purpose specified.

588,699. APPARATUS FOR LUBRICATING JOURNALS UNDER PRESSURE. CHARLES E. EMERY, Brooklyn, N. Y. Filed Feb. 12, 1891. Serial No. 381,165. (No model.)



Claim.—1. In combination with bearing-brasses provided with lubricating-cavities and in combination with plates closing the space between such brasses, a journal working in such brasses provided with an opening therein communicating through a hollow shaft with apparatus for supplying oil under pressure, such opening in the journal being so arranged in relation to the cavities in the brasses and the plates between the same that as the journal revolves oil under pressure will be supplied to the cavities in the brass under strain and cut off from such brass as the strain is relieved, substantially as and for the purposes specified.

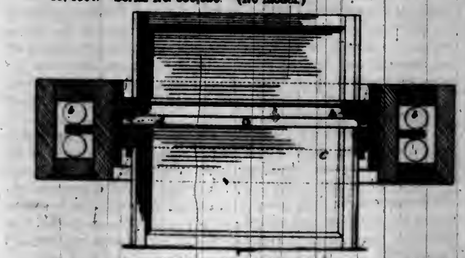
2. In an apparatus for lubricating the journals with lubricant under pressure, the combination of a device for supplying lubricant under pressure to a hollow in a shaft, bearing-brasses, provided with suitable lubricant-cavities, a journal having lubricant-passages supplying lubricant under pressure from a hollow in said journal to the lubricant-cavities in said brasses, and with plate-valves fitting the curvature of the journal and closing the lubricant-passage while passing over the joints of the brasses, substantially as set forth.

3. In combination with a device for supplying lubricant under pressure to a hollow in a shaft, a hollow journal provided with an exterior valve-seat or wearing-surface, a stationary hydraulic cylinder with suitable hydraulic connections, a hollow hydraulic ram connecting the same and fitting one end of the hydraulic cylinder, and at the other provided with a valve-seat or wearing-surface to engage with said journal and also with a suitable stop to prevent revolution, substantially as set forth.

4. In combination with a device for supplying lubricant under pressure to a hollow in a shaft and with bearing-brasses provided with lubricant-cavities extending laterally and lubricant-cavities extending longitudinally, a journal provided with a lubricant-passage for supplying lubricant under pressure to the brass under strain, plate-valves fitting the curvature of the journal and closing the lubricant-passage as it passes over the joints of the brasses, substantially as set forth.

5. In combination with an apparatus for supplying lubricant under pressure to a hollow in a shaft and with a hollow journal and with bearing-brasses provided with suitable cavities or grooves, and with lubricant-passage for supplying lubricant under pressure from the hollow in the journal to the brasses when such are under strain, a fluid-tight joint consisting of a hydraulic cylinder, a hollow hydraulic ram fitting said cylinder at one end and the end of the shaft or journal at the other end held in contact therewith by pressure, substantially as set forth.

588,700. SLIDING AND SWINGING WINDOW. FRANCIS FARRER, LEOPOLD BECK, and MICHAEL WUNDT, New York, N. Y. Filed May 15, 1897. Serial No. 636,628. (No model.)



Claim.—1. In a sliding and swinging window, the combination of sliding side battens, a window-sash pivoted thereto, and spring-pressed hinged battens carried by said sliding battens and adapted to bear against the window-sash, the tension of the springs of the hinged battens being exerted to maintain said hinged battens in contact with the window-sash.

2. In a sliding and swinging window, the combination of sliding side battens, a window-sash pivoted thereto, and spring-pressed hinged battens carried by said sliding battens and adapted to overlap the joints between the sliding battens and the sash when the sash is in line with the sliding battens, the tension of the springs of the hinged battens being exerted to maintain said hinged battens in contact with the window sash.

3. In a sliding and swinging window, the combination of sliding side battens, a window-sash pivoted thereto, a hinged batten carried by and adapted to move with said window, said hinged batten extending between the window-sash and the sliding side battens, and means for automatically securing said hinged batten against movement when the sash is in line with the sliding battens and the window is closed.

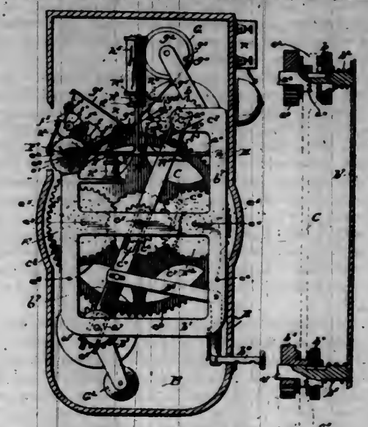
4. In a sliding and swinging window, the combination of sliding side battens, a window-sash pivoted thereto, a hinged batten carried by and adapted to move with said window, said hinged batten extending between the window-sash and the sliding side battens, and a frame having a recess therein in which the hinged batten is adapted to seat itself and be locked against movement when the window is closed.

5. The combination of an upper sliding and swinging window adapted to swing in from the bottom, a lower sliding and swinging window adapted to swing in from the top, the upper end of the lower window standing in the path of the lower end of the upper window when the windows are closed, and means for securing the lower window against movement around its axis when the windows are closed.

6. The combination of an upper sliding and swinging window adapted to swing in from the bottom, a lower sliding and swinging window adapted to swing in from the top, the upper end of the lower window standing in the path of the lower end of the upper window when the windows are closed, said lower window comprising sliding side battens, a window-sash pivoted thereto, a hinged batten carried by said window, and means for securing the hinged batten against movement.

7. The combination of an upper sliding and swinging window adapted to swing in from the bottom, a lower sliding and swinging window adapted to swing in from the top, the upper end of the lower window standing in the path of the lower end of the upper window when the windows are closed, said lower window comprising sliding side battens, a window-sash pivoted thereto, a hinged batten carried by said window, and a frame having a recess therein in which the hinged batten is adapted to seat itself and be locked against movement when the lower window is closed.

588,701. STATION-INDICATOR FOR TRAMWAY OR OTHER CARS. HENRY W. LANGSCHMIDT, Brooklyn, and RICHARD F. LE BROCQ, New York, N. Y., assignors of one-third to James P. Niemann, New York, N. Y. Filed Oct. 16, 1896. Serial No. 609,134. (No model.)



Claim.—1. In combination the casing, the main and guide rollers, the spring-operated gearing, the fly driven from said gearing, the double-armed detent having one arm in proximity to the fly and the other arm riding upon the periphery of one of the rollers and adapted to enter a recess therein to permit the other arm to engage the fly, the armature having connections for moving said detent to release the fly, the electromagnet with electrical connections thereto and means for preventing immediate return of the detent to normal position, substantially as described.

2. In combination the casing, the main and guide rollers, the spring-operated gearing for driving the rollers, the fly operated from said gearing, the detent adapted to normally engage the fly and the arm connected to the detent and adapted to bear on one of the rollers and enter a recess therein, the lever carrying an armature and adapted to disengage the detent from the fly, means for normally locking said lever against movement and for releasing it at certain intervals, and the magnet with electric connections thereto for operating the lever to release the parts, substantially as described.

3. In combination the casing, the ribbon-carrying rollers journaled therein the spring-operated gearing for driving the same, the detent for normally holding said parts against movement, a locking arm or lever for operating said detent, an electromagnet normally in closed circuit for holding said arm or lever against movement, a second magnet in a normally open circuit for operating said lever, and an electric switch for simultaneously breaking the closed circuit and completing the open circuit, substantially as described.

4. In combination, the casing, the ribbon-carrying rollers, the

spring-operated gearing for driving the same, the supplemental gearing operated from the main gearing, the fly operated by said supplemental gearing, the detent for engaging the fly to normally hold it against movement, the electromagnet with electric connections for energizing it, the armature adapted to disengage the detent from the fly, and the means for preventing the immediate reëngagement thereof, comprising the worm operated by the supplemental gearing, the spring-arm adapted to engage said worm, means whereby the movement of the armature will throw the spring-arm upon the worm and means whereby the said arm will hold the detent from reëngagement with the fly until the rotation of the worm lowers said spring-arm, substantially as described.

5. In a station-indicator constructed as herein described, an electrical switch consisting of a main disk or plate, segmental plates secured to the one side thereof, and insulated therefrom; a spring-supported and spring-operated switch-bar mounted between said segmental plates and adapted to be turned so as to contact therewith; and binding-posts secured to said disk or plate, and insulated therefrom, and provided with contact devices which bear upon the ends of the switch-bar when the latter is in its normal position, and said plate or disk being also provided with binding-posts which connect with said segmental plates, substantially as shown and described.

6. In a station-indicator for cars constructed as herein described, the combination with a suitable box or casing having side openings, of two ribbon-operating rollers mounted therein adjacent to said openings, means for driving said rollers, including a main spring-operated drive-wheel geared in connection with said rollers, a pinion operated by said drive-wheel, a suitable fly or stop geared in connection with said pinion, a lever pivotally supported and provided with an arm adapted to operate in connection with said fly or stop, two electromagnets, one above and the other below said lever, each of which is provided with an armature connected with said lever, an electric switch carried by said car outside thereof, and two electric circuits between said switch and said magnets, each of which is provided with a battery, said switch being adapted to be operated substantially as shown and described.

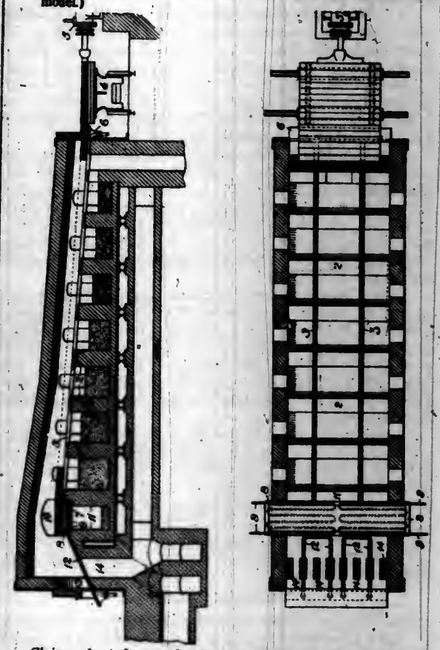
7. A station-indicator for cars, comprising a suitable box having openings therein, two spring-operated rollers mounted therein adjacent to said openings, and means for reversing the direction of the movement of said spring-rollers comprising a revoluble clutch-wheel mounted on the shaft of each, a spring-operated sliding clutch-head mounted on the shaft of each and adapted to operate in connection with said clutch-wheels, and a device for alternately connecting and disconnecting said clutch-head from said clutch-wheels, consisting of a movable bar which extends from the shaft of one of said rollers to the other, and which is provided with a yoke at each end, the sides of which pass between the clutch-wheels and the clutch-heads, said sides being wedge-shaped in form, and a lever connected with said bar and adapted to be operated substantially as shown and described.

8. A station-indicator for cars, comprising a suitable box or casing, two ribbon-operating rollers mounted therein, on which are placed a flexible ribbon provided with the names of the stations, guide-rollers mounted in said box or casing near the top and bottom thereof, and from which said flexible strip is passed, a main spring-operated drive-wheel geared in connection with said ribbon-operating rollers, a pinion operated by said drive-wheel, a suitable fly or stop geared in connection with said pinion, suitable stop devices which are adapted to operate in connection with one of said guide-rollers, and with said fly, and means for operating said parts substantially as shown and described.

9. A station-indicator for cars, comprising a suitable box or casing, two ribbon-operating rollers mounted therein, devices for reversing the direction of the movement of said rollers when desired, two suitable guide-rollers, one of which is mounted in the upper, and the other in the lower part of the box or casing, a flexible strip wound on one of the spring-rollers and adapted to be rewound on the other and passed over said guide-rollers, a mainspring-operated drive-wheel geared in connection with said ribbon-operating rollers, means connected therewith and with a frame in the box or casing for starting and stopping said ribbon-operating rollers whenever desired, and electrical devices for operating the same, said electrical devices being connected therewith and with the car, and operated by a switch or other circuit closing and breaking device carried by the car outside thereof, substantially as shown and described.

10. An electrical switch, consisting of a main disk or plate, segmental plates secured to one side thereof and insulated therefrom, a spring-supported and spring-operated switch-bar mounted between said segmental plates and insulated from said main disk or plate, said switch-bar being adapted to be turned so as to form a contact with said segmental plates, binding-posts secured to said main disk or plate, and insulated therefrom and provided with contact devices which bear upon the ends of said switch-bar when the latter is in its normal position, said main disk or plate being also provided with other binding-posts which are in connection with said segmental plates, said parts being constructed, combined and arranged substantially as shown and described.

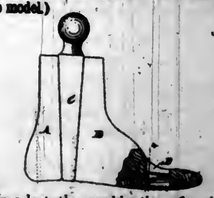
588,702. HEATING-FURNACE. ALEXANDER LAUGHLIN, Sewickley, and JOSEPH REULEAUX, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Filed Apr. 30, 1897. Serial No. 634,570. (No model.)



Claim.—1. A furnace having in combination therewith rails or supports arranged longitudinally of the furnace, hearth-supports arranged transversely of the furnace at the inner ends of the rails or supports, a hearth consisting of a plate or tray and a refractory filling material and movable on said supports into and out of the furnace, means for pushing billets along the rails and onto the hearth, and inlet and outlet flues arranged respectively at opposite ends of the furnace, substantially as set forth.

2. A furnace having feed and discharge openings at its ends in combination with rails or supports arranged longitudinally of the furnace, a removable hearth arranged at the inner ends of the rails or supports inclined bridge-pieces extending from the hearth to the discharge-opening and means for pushing the articles to be heated along the rails onto and over the hearth and inlet and outlet flues arranged respectively at opposite ends of the furnace, substantially as set forth.

588,703. APPLIANCE FOR RASING BOOTS OR SHOES. SAMUEL LEAROYD, Huddersfield, England. Filed Nov. 17, 1896. Serial No. 612,453. (No model.)



Claim.—1. In a last, the combination of a rigid rear portion, a laterally-expansible and vertically-flexible toe portion and means for causing said toe portion to spread laterally when it is bent upward, substantially as and for the purpose specified.

2. In a last, the combination of a rigid rear portion, a toe portion consisting of sections divided longitudinally, and flexibly connected to the rear portion so as to bend vertically, and means for causing said sections to separate laterally when the toe portion is bent upward substantially as and for the purpose specified.

3. In a last, the combination of a rigid rear portion, a toe portion consisting of sections divided along the median line, and a wedge secured to the rear portion and projecting in the median line between the sections forming the toe portion, substantially as and for the purpose specified.

4. In a last, the combination of a rigid rear portion, a toe portion consisting of sections pivotally attached to the said rear portion and to each other and divided along the median line, and a wedge secured to the rear portion and projecting in the median line between the sections forming the toe portion, substantially as and for the purpose specified.

5. In a last, the combination of a rigid rear portion, a toe portion consisting of sections divided in the median line, and a conical pin secured in the rear portion and projecting in the median line between the sections forming the toe portion, substantially as described.

6. In a last the combination of a rigid rear portion, a toe portion consisting of sections divided along the median line, means for causing said sections to spread laterally when the toe portion is bent upward, and springs securing the toe portion to the rear part of the last, substantially as described.

7. In a machine for use with lasts having a flexible toe portion, the combination of means for holding the rear portion of the last rigid with means for imparting an alternate up-and-down movement to the flexible toe portion of the last, for the purpose specified.

8. In a machine for use with lasts having a flexible toe portion the combination of a base, means for securing the rear portion of the last rigidly to said base, a spring-plate passing under the sole of the last and secured at one end of the base near the heel thereof, and means for moving the free end of said plate up and down, substantially as and for the purpose specified.

9. In a machine for use with lasts having a flexible toe portion, the combination of a base, means for securing the rear portion of the last rigidly to said base, a spring-plate passing under the sole of the last and secured to the base near the heel thereof a rod pivoted at one end to the free end of said spring-plate and connected at the other end to an eccentric and means for rotating the eccentric so as to give an up-and-down motion to the connecting-rod, substantially as and for the purpose specified.

588,704. COUPLING FOR DRIVE-CHAINS. EVERETT F. MORSE, Trumansburg, N. Y. Filed Feb. 6, 1896. Serial No. 577,497. (No model.)



Claim.—1. In a drive-chain coupling, the combination with a side link removable from its transverse pins or bars, of a key or clencher located at the outside of said link and engaging the ends of both of said bars for holding said link in place.

2. In a drive-chain, a coupling consisting of a side link, transverse pins secured thereto, a side link removable from said pins, and a key or clencher seated removably between said pins at the outside of the removable link for the purpose set forth.

3. In a drive-chain coupling, the combination with the transverse pins or bars provided with nicks or depressions at their free ends, of a side link removably fitted to said pins or bars, and a spring key or clencher removably fitted to said nicks or depressions to retain the removable link in place.

4. The combination with the transverse pins provided with nicks at one end and rigidly connected to a side link at the other, of a side link removably fitted to said pins, and a spring key or clencher having its ends fitted in said nicks and provided with stops for retaining it in place.

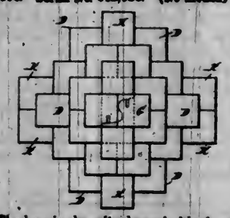
5. The combination with the side link A, and the nicked transverse pins connected thereto, of the removable side link A', provided with the depression *z*, and the key or clencher G, provided with the stops *y*, and the projection cooperating with the depression *z*, substantially as and for the purpose set forth.

6. In a drive-chain coupling, the combination with a link removable from its transverse pins or bars, of a key or clencher located at the outside of said link and engaging the ends of both of said bars for holding said link in place.

7. A chain comprising links, grooved pins, and auxiliary fastening-plates formed to engage the grooved pins and having projections engaging indentations in the main links.

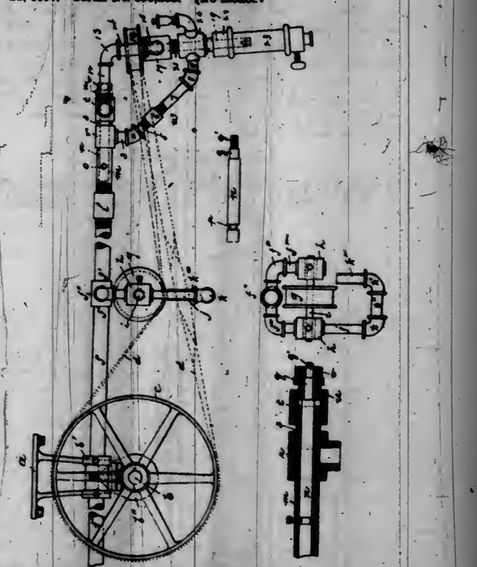
8. A chain comprising links, grooved pins, and auxiliary fastening devices, each fastening device being formed to engage adjacent grooved pins and provided with means for removably holding it in such engagement.

588,705. PUZZLE. EDWARD NELSON, Jersey City, N. J. Filed Nov. 21, 1896. Serial No. 612,990. (No model.)



Claim.—The herein-described puzzle-block, comprising one piece as A, one piece as B, fifteen pieces as D, one piece as G, one piece as H, and six pieces as K, said piece A, being provided centrally with a transverse notch or recess *a*, and with shoulders or projections a^3, and said piece B, being rectangular and oblong in form, and provided adjacent to one end with a transverse notch or recess *b*, each of said pieces D, being rectangular in form, and provided at its opposite ends with shoulders d^3, each of said pieces K being similar in form to the said pieces D, except that the body portions of said pieces K are longer than the body portions of the said pieces D, and provided with shoulders k^3, said piece G being composed of two similar parts, and divided transversely of the central portion, the division-cut thereof being irregular in form and similar to an ogee curve, and each of said parts being provided with a pin *g*, which is adapted to enter a corresponding hole formed in the other part, and each part being provided with a shoulder g^3, and said piece H, being rectangular in form all being combined substantially as shown and described.

588,706. BALANCE-ARM FOR POWER GROOMING AND CLIPPING MACHINES. CHARLES W. POTTER, Montclair, N. J. Filed Apr. 22, 1897. Serial No. 633,233. (No model.)



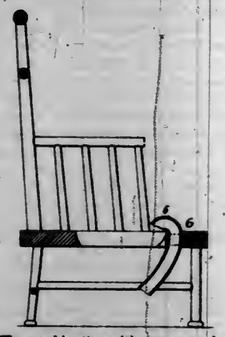
Claim.—1. In a horse-clipper, the improved balance-arm comprising a vertically oscillatory sectional arm, a fulcrumal bearing, and a driving-pulley, said arm having a depending portion at one of its ends on which is arranged a small pulley for operating the flexible shaft, and, at a point between the driving-pulley and the small pulley, having an idle-pulley arranged in a frame depending from said arm and means for guiding the belt whereby the small pulley may change its position due to the oscillation of the spindle, and oscillation of the depending end of the balance-arm without danger of the belt running out of operative relation, all said parts being combined substantially as set forth.

2. The combination with the shaft *b*, pulley *c*, fulcrumal connections balanced arm *f*, having a downwardly-turned swiveled end, a pulley 18, on said swiveled end, an idle-pulley having its bearings between the pulley *c*, and pulley 18, and a flat belt *d*, all arranged and combined, substantially as set forth.

3. The combination with the shaft *b*, pulley *c*, fulcrumal connections for the balance-arm, said balance-arm, having a swiveled depending portion with its brace *w*, a spindle-pulley arranged on said depending portion, the spindle of which is adapted to receive the flexible shaft and an idle-pulley arranged between the spindle-pulley and pulley *c*, substantially as set forth.

4. The sectional balance-arm comprising the sections *f'*, *f'*, coupling *f''*, elbows, cross connections *h*, *h*, providing bearings for the journal *b'* of the idle-pulley, one of said connections *h*, having a guide *h''*, in connection therewith a depending and braced swiveled end having a pulley 18, a pulley *c*, and idle-pulley, all arranged and combined, substantially as set forth.

588,707. NURSERY-CHAIR. ELNINA B. SLEEPER, South Orange, N. J. Filed Dec. 20, 1895. Renewed July 15, 1897. Serial No. 644,729. (No model.)



Claim.—1. The combination with a nursery-chair of a urinal-tube extending above the seat of the chair provided with a hood projecting over the opening in the chair, said tube being reversible, so as to leave said opening unobstructed, substantially as described.

2. The combination with a nursery-chair of a urinal-tube attached thereto extending above the seat of, and over the opening in the chair, provided with a hood projecting inwardly over and beyond the opposite portion of the tube.

588,708. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Sept. 17, 1896. Serial No. 606,105. (No model.)



Claim.—1. In a fountain-pen, the combination of angular ink-conduit in communication with the pen and with the open air, and a mechanical obstruction contained in the path of said conduit and leaving unobstructed openings at the corners thereof.

2. In a fountain-pen, the combination of an angular ink-conduit in communication with the pen and with the open air, and an adjustable obstruction contained in the path of said conduit and leaving unobstructed openings at the corners thereof.

3. In a fountain-pen, the combination of an angular ink-conduit in communication with the pen and with the open air, and an adjustable and removable obstruction contained in the path of said conduit and leaving unobstructed openings at the corners thereof.

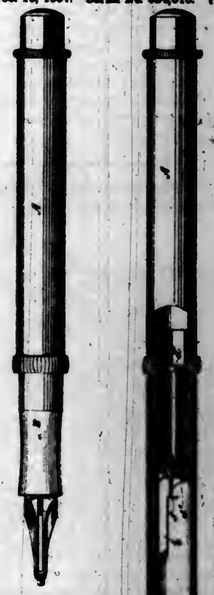
4. In a fountain-pen, the combination of an angular ink-conduit in communication with the pen and with the open air, and a ball contacting with the walls of said conduit and adjustable therein.

5. In a fountain-pen, a feeder-bar having an angular bore extending therethrough, said bore being entirely surrounded by the walls of said feeder-bar and in open communication with the reservoir and with the air, a feeder-finger extending from said feeder-bar and contacting with the pen-nib to convey ink thereto from said angular bore and means for controlling the flow of ink to said bore.

6. In a fountain-pen, a feeder-bar having a slitted feeder-finger for conveying ink to the pen-nib and a recess formed on one side only of the feeder-finger, said recess being in communication with the slit in the feeder-bar.

7. In a fountain-pen, the combination of a non-circular ink-conduit in communication with the pen-nib and with the open air and a globular mechanical obstruction contained within said conduit.

588,709. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Feb. 18, 1897. Serial No. 624,010. (No model.)



Claim.—1. In a fountain-pen, the combination of an ink conduit in communication with the pen-nib and with the open air, and a non-circular obstruction-plug contained within said conduit at or near the lower end thereof and terminating therein.

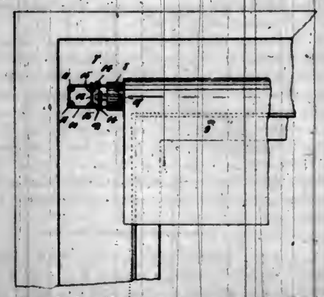
2. In a fountain-pen, the combination of an ink-conduit circular in cross-section, the said conduit being in communication with the pen-nib and with the open air and a non-circular adjustable obstruction-plug contained within said conduit at or near the lower end thereof and terminating therein.

3. In a fountain-pen, the combination of an ink-conduit circular in cross-section, said conduit being in communication with the pen-nib and with the open air and a non-circular adjustable and removable obstruction-plug contained within said conduit at or near the lower end thereof and terminating therein.

4. In a fountain-pen, the combination of an ink-conduit circular in cross-section, said conduit being in communication with the pen-nib and with the open air and a non-circular obstruction-plug contacting with the walls of said conduit at or near the lower end thereof and terminating therein.

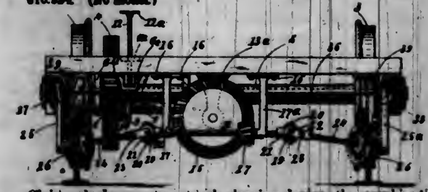
5. In a fountain-pen, a feeder-bar having a slitted feeder-finger projecting therefrom and an ink-conduit circular in cross-section, the said conduit being entirely surrounded by the walls of said feeder-bar and in communication with the reservoir and with the open air and a non-circular obstruction-plug independent of said feeder-bar contained within said conduit at or near the lower end and terminating therein.

588,710. SUPPORT FOR SHADE-ROLLERS. ANDREW F. WAHLBERG, Brooklyn, N. Y. Filed Mar. 22, 1897. Serial No. 628,686. (No model.)



Claim.—In a shade-roller support, a rectangular frame formed out of wire and provided with an eye at each corner thereof, an adjustable holder mounted thereon, said holder being triangular in form and consisting of an eye adapted to engage the roller-shaft, two coils adapted to engage respectively the sides of the frame, a pivoted arm and a hook, substantially as and for the purpose set forth.

588,711. ROTARY TRACK-CLEANING DEVICE. GEORGE W. BARBER, North Tonawanda, N. Y. Filed Nov. 3, 1896. Serial No. 610,934. (No model.)



Claim.—1. In a rotary track-clearing device, the combination with a car-axle, of a gear-wheel rigidly secured thereon, a pinion-shaft mounted in boxes on a supporting-frame on the car-truck, a pinion mounted thereon and adapted to be moved back and forth along said shaft into or out of gear with the spur-wheel, means for preventing said pinion from turning on said shaft, a pivoted shifting bar for moving the pinion into or out of gear with the spur-wheel, a shaft mounted in front of the car-truck connected by gearing with the pinion-shaft and by universal joints with a shaft at each end, said shafts having their opposite ends secured in vertically-movable boxes located at each side of the car-truck and each connected with a toggle-joint with said car-truck, a transverse operating-bar having its ends pivoted to the toggle-joints and also connected with said shifting bar for operating the toggle-joints and thereby raising or lowering the said brushes.

2. In a rotary track-clearing device, the combination with a car-axle, of a spur-wheel rigidly secured thereto, a pinion-shaft mounted in boxes opposite said spur-wheel and carrying a pinion adapted to engage with the spur-wheel, means for moving it into or out of engagement therewith, a shaft mounted in boxes at the front of the car, universal joints at each end of said shaft, two brush-shafts each carrying a rotary brush and mounted in vertically-movable bearings at their outer ends, their opposite ends being connected with said universal joints, two toggle-joints having their upper ends pivoted to the car-truck and their lower ends pivoted to said vertically-movable boxes, a transverse bar having its two ends pivoted to the operative portions of said toggle-joints, and a pivoted bolt connecting the same with the shifting bar, for simultaneously lifting the two rotary brushes up from the track and throwing them out of action at the same time, or lowering them down to the track and locking them in position, as described.

3. In a rotary track-clearing device, a rotary brush, consisting of a supporting or body portion 28, a series of transverse tapering bars 34, adapted to fit together around the periphery of the supporting portion to inclose and hold the wire brushes, rings for inclosing the bars 34, and screw-nuts for rigidly securing the whole together, substantially as described.

4. In a rotary track-clearing device, the combination of a car-axle, a gear-wheel rigidly secured thereon, a pinion-shaft mounted on the car-truck, a pinion mounted thereon and adapted to be moved back and forth along said shaft into or out of gear with the spur-wheel, means for preventing said pinion from turning on said shaft, a bar for moving the pinion into or out of gear with the spur-wheel, a shaft mounted in front of and on the car-truck and connected by gearing with the pinion-shaft and by universal joints with a shaft at each end, said shafts having their opposite ends secured in vertically-movable boxes located at each side of the car-truck, a toggle-joint connecting each of said boxes with said car-truck, a transverse operating-bar having its ends pivoted to the toggle-joints and also connected with said shifting bar for operating the toggle-joints and thereby raising or lowering the said brushes, the whole being mounted on the truck and disconnected from the car body so that the brushes and their operating mechanism are isolated from the car-body and cannot be affected by its movements, as above set forth.

588,712. DRILL-FRAME. PETER BROADBROOK, Batavia, N. Y. Filed Oct. 23, 1896. Serial No. 609,786. (No model.)



Claim.—1. In combination, a frame, a head formed therewith, said head having a cut-away portion, a spindle fitting within the head, a screw surrounding the rod and engaging with the threads formed in the upper end of the head, a collar secured to the rod and confining the screw, a hand-wheel for revolving the screw, a pinion splined upon the spindle, a bevel-gear meshing with said pinion, a cap secured to the hub of the gear, a projection having an eye and another projection having a hook secured to the head and a chain adapted to be secured to the projections, substantially as described.

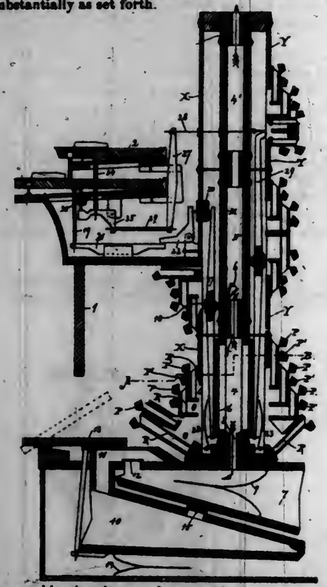
2. In combination, an upright, a frame having an eye slidable on the upright, a head formed with said frame, said head having a cut-away portion, a spindle fitting within the head, a screw surrounding the rod and engaging the threads formed in the upper end of the head a collar secured to the rod and confining the screw, a hand-wheel for revolving the screw, a pinion splined upon the spindle, a bevel-gear meshing with said pinion, a cap secured to the hub of the gear, a projection having an eye and another projection having a hook secured to the head and a chain adapted to be secured to the projections, substantially as described.

588,718. REED-ORGAN. FREEMAN D. DEXTER, Windsor, N. Y. Filed Jan. 25, 1897. Serial No. 620,510. (No model.)

Claim.—1. The combination in an organ of a divided chamber between the valve-boards and an automatic valve between the parts, substantially as set forth.

2. In a reed-organ a valve-board having valve-openings, a reed-board and reeds, intermediate valve-cells, an inwardly-opening valve located in the cell, a valve-lever parallel with the valve-board and fulcrumed thereon and means for operating the lever, substantially as set forth.

3. The combination in a reed-organ of a valve-board having valve-openings, a reed-board with reed-cells and reeds, valve-cells between the valve board and reed-board, an inwardly-opening valve and valve-lever parallel with the valve-board and both located within the valve-cell and key and connecting mechanism for operating the valves, substantially as set forth.

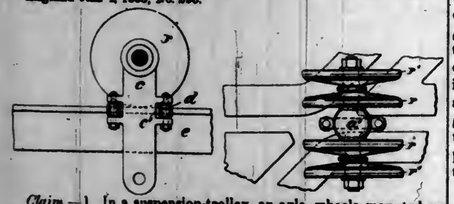


4. The combination in a reed-organ of the valve-boards M, N, having valve-openings and an intermediate exhaust-chamber, reed-boards X, Y and valve-cells between the valve-boards and their adjacent reed-boards respectively, inwardly-opening valves and valve-levers fulcrumed on the valve-boards, both located within the valve-cells and keys and connections extending to the several valve-levers, substantially as set forth.

5. In a reed-organ a subdivided reed-cell, the subdivisions having openings on the side and end of the cell respectively in combination with mutes adapted to close each set of openings independently and reeds in each subdivision.

6. A valve-lever having a pointed projection constituting a projecting fulcrum, a fixed fulcrum-pin, an opening in the lever and pointed projection to receive the pin and permit the motion of the lever, and a valve on the lever in a plane substantially with the fulcrum, combined substantially as set forth.

588,714. SUSPENSION-TROLLEY AND RAILWAY. ALEXANDER HUBER, Cologne, Germany. Filed May 5, 1896. Serial No. 590,292. (No model.) Patented in Germany Mar. 17, 1894, No. 78,459, and in England Jan. 4, 1895, No. 293.



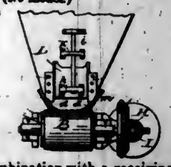
Claim.—1. In a suspension-trolley, an axle, wheels mounted on either end thereof, a boss in the center of said axle, a web connected with said boss and extending downwardly therefrom, tracks suitably supported and having a passage-way in which said web travels a counter-rail secured to said track, an abutment also secured to said track, and near said rail, an arm secured to said web having noses adapted to engage said counter-rail, said parts being combined substantially as described.

2. In a suspension-trolley an axle with wheels freely mounted thereon, a web secured to said axle rotary guiding-rollers mounted thereon, rails supported at a suitable distance apart and adapted to have passed between them said web, an arm provided with noses adjustably secured to said web, a counter-rail and abutment secured to said rail and adapted to engage said noses and an upwardly-projecting forked arm also secured above said axle, having wheels mounted thereon, all of said parts being combined substantially as described.

3. In a suspension-trolley an axle with wheels mounted on either end thereof, a boss in the middle of said axle an upwardly-projecting forked arm secured to said boss, wheels journaled on said forks, a disk suitably supported and adapted to engage on its upper surface said latter wheels, a web also secured to said boss and projecting downwardly, rails adapted to have said web pass between them, an arm mounted on said web, a nose on the end of said arm, a counter-rail secured to said rail, and an abutment also fastened to said rail and being adapted to engage said nose, all of said parts being combined substantially as described.

4. In a suspension-trolley switching device an axle with wheels suitably mounted thereon, a downwardly-projecting web secured to said axle, recesses in said web having journaled therein vertical rotating guides, rails secured in any suitable manner, said web passing between said rails, an arm having a nose adjustably mounted on said web, a counter-rail and abutment firmly secured to said rail and adapted to engage said nose, an upwardly-projecting arm also secured to said axle having forked arms, wheels journaled in said arms, a horizontal disk suitably supported and adapted to engage said wheels on its upper face, all of said parts being combined, substantially as described.

588,715. FEED-REGULATOR FOR CLAY-WORKING MACHINERY. HENRY C. INGRAHAM, Beverly, N. J., assignor to the American Clay-Working Machinery Company, Bucyrus, Ohio. Filed May 5, 1897. Serial No. 635,189. (No model.)



Claim.—1. The combination with a receiving bin or hopper having downwardly-converging sides and a bottom discharge, of a conveyer below said bottom and consisting of an endless apron or conveyer and means for operating it, a vertically-adjustable gate at one end of the hopper, for regulating the discharge, strips extending along the lower exterior edges of the hopper and the flexible packing strips or flaps carried by said exterior strips and extending along the sides of the hopper between the lower edges thereof and the conveyer to prevent leakage.

2. The combination with a receiving bin or hopper having a bottom discharge and a vertically-adjustable gate at one end, of an endless apron or conveyer below said bottom, the inclined rearwardly-converging strips along the lower exterior edges of the hopper and the flexible strips secured to the inner sides of the exterior strips and and forming a packing at the junction of the hopper discharge and apron, to prevent leakage.

3. The combination of a bin or hopper having a bottom discharge, a conveyer below the same and forming a movable bottom therefor, and consisting of an endless apron or belt and a frame having end drums and intermediate rollers, movable boxes for the shaft of one of said drums and means for adjusting the boxes and regulating the tension of the apron or belt, a gear wheel on the shaft of the other drum, a shaft parallel with the frame, having a pinion to engage said gear-wheel, and having a power-pulley, inclined strips along the lower exterior sides of the hopper, flexible strips secured to and extending along the inner lower sides of the inclined strips and forming a packing to prevent leakage at the joint between the hopper and conveyer, guides on the end of the hopper, a gate slidable in said guides and provided with a screw or threaded rod, and a nut or threaded bearing on the hopper through which the screw or rod passes, whereby the gate is adjusted to regulate the feed of the material.

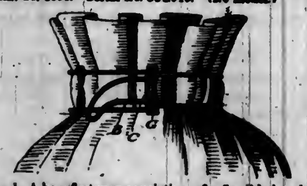
588,716. WATERING-TANK. CHARLES B. IRWIN, Peabody, Kans. Filed Feb. 23, 1897. Serial No. 624,630. (No model.)



Claim.—1. As a new article of manufacture the improved tank comprising a sheet-metal body having its upper edge slit to form lips and a rim of iron pipe bent into form with its ends connected together and surrounding the body with the lips bent outward around and inclosing said rim.

2. As a new article of manufacture, the improved tank comprising a sheet-metal body provided with lips, a rim consisting of iron pipe bent into form with its ends secured to an interior filling-piece in the pipe, said rim surrounding the sheet-metal body with the lips bent outward around and inclosing the rim.

588,717. BAG-FASTENER. JONATHAN A. LAW, Philadelphia, Pa. Filed Mar. 26, 1896. Serial No. 584,918. (No model.)



Claim.—1. A bag-fastener consisting of a flexible band of jointed links having connected cross-pieces, and a swinging tongue pivoted to one end of said band and adapted to pass under a cross-bar on the other end of the said band, said tongue having a deflected end forming a lip passing under one of the side links.

2. A bag-fastener consisting of a flexible band with cross-bars at its ends, a tongue journaled on one of said bars and adapted to be passed under the other cross-bar, and under a portion of said band, and a pin mounted on said band and adapted to engage an eye thereon, said parts being combined substantially as described.

3. A bag-fastener consisting of a flexible band, a tongue journaled on one end of said band, and adapted to be passed through a link on the other end thereof, means for locking said tongue and a pin and an interlocking eye on said band, said parts being combined substantially as described.

588,718. LAST. FRANCIS A. MILLS and JAMES MUNDELL, Philadelphia, Pa. Filed Apr. 13, 1896. Renewed July 24, 1897. Serial No. 645,862. (No model.)



Claim.—1. The combination, with a wooden last having a metallic heel face-plate, pierced with a screw-threaded hole, of a guide-pin having a screw-thread for engaging said heel-plate and passing through the heel terminates above its cone, for the purpose stated.

2. The combination, with a wooden last having a metallic heel face-plate pierced with a screw-threaded hole and a yoke-strap embracing the cone of the last, of a guide-pin having a screw-thread for engaging said heel-plate and passing through the heel and its yoke-strap terminates above its cone, provided with a shoulder for engaging said yoke-strap, whereby to clamp and firmly secure the heel-plate.

3. The combination, with a wooden last having a metallic heel face-plate pierced with a screw-threaded hole, of a guide-pin having a screw-thread for engaging said heel-plate and passing through the heel terminates above its cone and having a shoulder adapted to engage the cone of the last, and a clench-pin passing through the last and its guide-pin substantially as described.

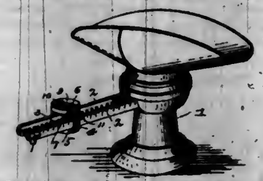
4. The combination, with a wooden last having metallic heel face-plate pierced with a screw-threaded hole, of a guide-pin having a screw-thread for engaging said heel-plate and passing through the heel terminates above its cone and means for locking said guide-pin and last together, for the purpose stated.

5. The combination with a wooden last having a metallic heel face-plate and a yoke embracing the cone of the heel, of a guide-pin for the last passing through the yoke-strap at the cone of the heel and having a shoulder for engaging said yoke-strap and having also a screw for engaging a threaded hole in said heel-plate, and a pin passing through the yoke-strap and through the guide-pin for the purpose stated.

6. The combination, with a wooden last having a metallic heel face-plate pierced with a screw-threaded hole and having spurs on its inner face for engaging the last, of a guide-pin for the last having screw-threads for engaging said heel-plate, and a pin passing through the said guide-pin for the purpose stated.

7. The combination, with wooden last having a metallic heel face-plate, a metallic guide-pin rigidly secured to said heel-plate, passing through the heel and a riveted pin locking said guide-pin to the last.

588,719. WEIGHT-INDICATING DEVICE. DAVID K. SIMONDS, Manchester, Vt. Filed Aug. 15, 1895. Serial No. 559,286. (No model.)



Claim.—The combination with two parallel scale-beams, one of which is provided on its inner side with teeth, of a poise having an opening, through which the scale-beams pass, a vertical shaft journaled in the poise, a pinion on the lower end of the shaft and engaging the teeth on the scale-beam, a disk provided with indices mounted on the upper end of the shaft, and a cap fitting upon the poise over the disk and provided with an opening in line with the indices on the disk, all as described.

588,720. HINGE FOR WATER-CLOSET SEATS AND COVERS. CHARLES F. STRENT, Avondale, Ohio. Filed Feb. 24, 1894. Serial No. 501,341. (No model.)

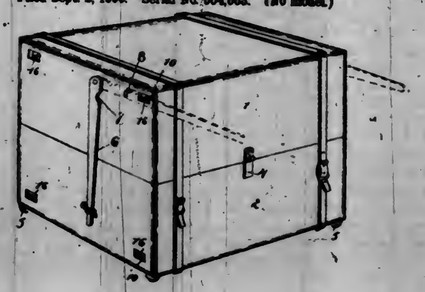


Claim.—1. The combination of the stationary part, the cover, the seat, the double hinge consisting of the ordinary hinge-leaves for uniting the stationary part of the closet with the seat, said leaves being coupled together by a pintle having extended ends upon both sides of the leaves, a collar or ornamental finish on said pintle bearing against the edges of the leaves and pintle-shafts extending beyond said collar, and an independent leaf adapted to be secured to the seat-cover and having a perforated boss to receive the extended pintle of the seat-hinge, substantially as shown and described.

2. The herein-described hinge for water-closet seats composed of leaves having interlocking bosses or bearings, a pintle uniting said leaves having extended ends, collars or flanges upon said ends, shafts extending beyond said flanges to form a finish when the hinge is to be used for the seat alone, and a pivot for the cover when the same is to be used in combination with the seat.

3. The combination hereinbefore described of the double hinge for water-closet seats and covers consisting of the ordinary hinge-leaves for uniting the stationary part of the closet with the seat, said leaves being coupled together by a pintle having extended ends on both sides of the leaves, a collar or ornamental finish on said pintle bearing against the edges of the leaves, and pintle-shafts extending beyond said collar and an independent leaf adapted to be secured to the seat-cover and having a perforated boss to receive the extended pintle of the seat-hinge, substantially as shown and described.

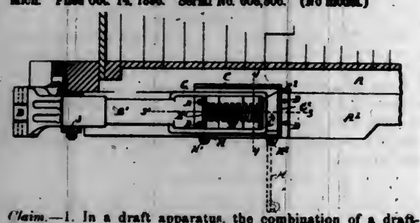
588,721. WARDROBE-TRUNK. ETTA M. THOMAS, Adair, Ill. Filed Sept. 2, 1896. Serial No. 604,663. (No model.)



Claim.—1. As a new article of manufacture, a wardrobe-trunk comprising two compartments, provided with the hinged handles, by which the trunk may be carried and adapted to form battens or braces, when not in use, substantially as shown and described.

2. As a new article of manufacture, a wardrobe trunk comprising two hinged compartments 1 and 2, the bottom corners of each of which are formed with vertical recesses 10 provided with a smaller alined recess 14, a spring 19, and cross-rod 18, in combination with the bifurcated bracket 12 carrying the roller 16 and formed with the retaining-slot 17 and guide-shank 13, substantially as and for the purpose set forth.

588,722. DRAFT APPARATUS FOR RAILWAY-CARS. WILLIAM THORBURGH, Cleveland, Ohio, assignor, by mesne assignments, to the Thornburgh Coupler Attachments Company, Limited, Detroit, Mich. Filed Oct. 14, 1896. Serial No. 608,806. (No model.)



Claim.—1. In a draft apparatus, the combination of a draft-spring housing having two side walls, a top or cover, and a rear end piece, all formed of a single integral structure, a draft-spring provided with reciprocatory follower-plates located in said housing, and a removable support or spider carrying said follower-plates, said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, substantially as described.

2. In a draft apparatus, the combination of a housing having two side walls, a top or cover, and a rear end piece all formed of a single integral structure, a draft-spring provided with reciprocatory follower-plates located in said housing, a support or spider having a jointed connection at one end with said housing, and means to fasten the opposite end of the support to the housing, said support or spider carrying said follower-plates, said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, for the purpose set forth.

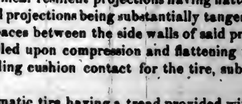
3. In a draft apparatus, the combination of draft-timbers A', A², a housing having two side walls, a top or cover, and a rear end piece all formed of a single integral structure with the side walls projecting rearward of said end piece, a draft-spring provided with reciprocatory follower-plates located in said housing, and a removable support or spider carrying said follower-plates, said housing bolted at the front and rear to said draft-timbers, the rear bolts running through both draft-timbers and the housing, and said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, for the purpose set forth.

4. In a draft apparatus, the combination of draft-timbers A', A², a housing having two side walls, a top or cover, and a rear end piece, all formed of a single integral structure, a draft-spring and follower-plates located in said housing, a support for said plates, and bolts to fasten the extremities of said support to the under side of the housing, whereby said support may be removed from the housing, said housing bolted at the front and rear to said draft-timbers, the rear bolts running through both draft-timbers and the housing, and said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, for the purpose set forth.

5. In a draft apparatus, the combination of draft-timbers A', A², a housing having two side walls, a top or cover, and a rear end piece, all formed of a single integral structure, a draft-spring and movable follower-plates located in said housing, a draw-head, means of engaging the shank of the draw-head with said plates, a support for said plates, and fastenings for said support, one of said fastenings being removable to permit the disengagement of the follower-plates, the draft-spring and the shank of the draw-head from said housing, said housing bolted at the front and rear to said draft-timbers, the rear bolts running through both draft-timbers and the housing, and said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, substantially as described.

6. In a draft apparatus, the combination of a housing having two sides, a top or cover, and a rear end piece, all formed of a single integral structure, a draft-spring and movable follower-plates located therein, a draw-head, a yoke engaging the shank of the draw-head and passing about said plates, and a removable support underneath said follower-plates, said housing bolted at the front and rear to said draft-timbers, the rear bolts running through both draft-timbers and the housing, and said side walls formed with integral inwardly-projecting ribs or stops toward their extremities, and intermediate their extremities, forming recesses F and F' to receive the lateral edges of the follower-plates and limit their reciprocation, for the purpose set forth.

588,728. EYEGLASSES. ALBERT M. WARD, Detroit, Mich., assignor to George Johnston, same place. Filed Oct. 7, 1896. Serial No. 608,134. (No model.)



Claim.—The combination with the eyeglass-frames, of nose-guards C C secured thereto provided with posts c', and flexible supplemental guards D D formed with coiled-wire arms secured upon said posts, and terminal disks D' provided with posts d engaged with the upper ends of said coiled-wire arms, substantially as described.

588,724. BICYCLE-TIRE. CHARLES J. BAILEY, Newton, Mass. Filed May 10, 1897. Serial No. 635,761. (No model.)

Claim.—1. A pneumatic tire having a tread-surface provided with a series of relatively soft, separated and distinct resilient teeth, leaving spaces between them which in the use of the tire in riding are momentarily filled by the compression and flattening of the teeth, substantially as described.

2. A pneumatic tire composed of an endless inflatable tube having an integral tread-surface provided with a series of frusto-conical resilient projections having flattened outer ends, the bases of said projections being substantially tangent to each other and staggered in the direction of the length of the tire tread-surface, whereby the spaces between the side walls of said projections will be momentarily filled upon compression and flattening thereof in use, to thus form an evenly-yielding cushion contact for the tire, substantially as described.

3. A pneumatic tire having a tread-surface provided with a series of separate and distinct flexible teeth extended from a base-line, said teeth being located close together so that pressure applied to said tread bends said teeth over one on or against the other, the said teeth returning to correct position when relieved from pressure, substantially as described.

4. A pneumatic tire having a tread-surface provided with a series of separated and distinct resilient, columnar projections, said projections being free to yield laterally when compressed and momentarily fill the spaces between them, whereby the tread-surface is substantially flattened at the point of contact and immediately resumes its normal irregular contour upon release of the compressed projections, substantially as described.

5. A pneumatic tire having a tread-surface provided with a series of frusto-conical resilient projections having flattened outer ends, the bases of said projections being substantially tangent to each other, whereby the spaces between the side walls of said projections will be momentarily filled upon compression and flattening thereof, to form an evenly-yielding cushion contact for the tire, substantially as described.

6. A pneumatic tire having a tread provided with a series of relatively soft, separated and distinct resilient teeth, the teeth being gradually compressed and flattened when in use to fill the spaces between them and present a substantially continuous tread-surface at the contact-point of the tire, and the teeth thereafter instantly contracting to open up the spaces, displacing and freeing the tire from mud or dirt, substantially as described.

588,725. ILLUMINATING AREA-SPANNING PAVEMENT. PRESTON M. BRUNER, St. Louis, Mo. Filed Mar. 16, 1896. Serial No. 583,385. (No model.)



Claim.—1. The combination with removable supports, of disconnected mold-boxes arranged thereon, said mold-boxes being formed in short lengths or sections which are independently movable, said sections being arranged end to end to make an unbroken line; substantially as described.

2. The combination with removable supports, of disconnected and independently-movable hollow mold-boxes arranged thereon, end to end, to form an unbroken line, and lenses arranged on said boxes; substantially as described.

3. The combination with removable supports, of disconnected and independently-movable hollow mold-boxes arranged thereon, end to end, to form an unbroken line, lenses arranged on said boxes, and means for holding said lenses in position on said boxes; substantially as described.

4. The combination with removable supports, of disconnected and independently-movable hollow mold-boxes arranged thereon, end to end, to form an unbroken line, said boxes being open at their bottoms and having openings formed in their tops, lenses arranged over the openings in the tops of the boxes, and means for holding said lenses in place over said openings; substantially as described.

5. The combination with removable supports, of disconnected and independently-movable hollow mold-boxes arranged thereon, end to end, to form an unbroken line, templets between said lines, to space them properly, and lenses arranged on said boxes; substantially as described.

6. The combination with suitable supports, of disconnected and independently-movable hollow mold-boxes arranged in rows on said supports, and means for spacing said rows, said means forming a part of the finished pavement; substantially as described.

7. A hollow mold-box for illuminated pavement-work, said box having an opening, or openings, in its top the edges of which openings are inclined to conduct off leaking material, to prevent said material from contacting with the lower faces of the lenses, and lenses for covering said openings; substantially as described.

8. The combination with removable supports, of independently-movable molds arranged thereon end to end, to form an unbroken line, means on the tops of said molds for locating and holding the lenses, and lenses arranged on said independently-movable molds; substantially as described.

9. The combination with a hollow mold-box, having an opening or openings in its top, the edges of which openings are inclined to conduct off leaking material, projections or recesses adjacent to the edges of said openings, and a lens formed with recesses or projections to cooperate with converse parts at the edges of the opening in the mold-box; substantially as described.

10. The combination with removable supports, of independently-movable mold-boxes arranged thereon, end to end, each of said boxes being a unit in an unbroken line, said boxes being formed with spaced openings in their tops to receive and locate lenses, and lenses; substantially as described.

588,726. CYCLOMETER. LEO J. BURDICK, Sturgis, Mich. Filed Feb. 9, 1897. Serial No. 622,712. (No model.)



Claim.—1. In a cyclometer, the combination of a suitable case B, with an arm B", to support and attach the same; a stop on the bicycle-wheel to actuate the same; a shaft F, flattened on one side and fixed to the end B", of said case and extending to near the opposite end B', thereof; a star actuating-wheel E', on a pivot E, extending through the end B', of the case; a gear G, on the inner end of said shaft or pivot E, having the space between two of its teeth partially plugged; an internal gear J, supported on the end of the shaft F, and meshing with gear G; a movable tooth K', in a slot in gear J, guided by lug K", in a radial slot in the opposite side thereof and joined to the tooth K', by a semicircular piece K; a spring L, around said wheel J, and through the tooth K', to hold it normally toward the center of the wheel; a number-wheel I, on said shaft F, with internal gear-teeth I', to be engaged and actuated by said tooth K', when forced out by the plug in gear G; a movable tooth N", in a radial slot in the number-wheel I, suitably guided by the ring N, and lug N', in a radial slot on the opposite side of said wheel; steam P, with a projecting point and a flattened or depressed portion opposite fixed on said shaft next to the back side of said number-wheel to force said tooth N", outwardly at each revolution; a higher number-wheel I, to be engaged by the said tooth N"; and disks M, with springs M', to stop and locate said number-wheels and prevent overthrow all coacting together substantially as described for the purpose specified.

2. In a cyclometer the combination of a suitable case B, with means of attaching the same; a stop on the bicycle-wheel to actuate the same; a shaft F, fixed to the end B", of said case and extending to near the opposite end B', thereof; a star actuating-wheel E', on a pivot E, extending through the end B', of the case; a gear G, on the inner end of said shaft or pivot E, having the space between two of its teeth partially plugged; an internal gear J, supported on the end of the shaft F, and meshing with gear G; a movable tooth K', in a radial slot in the opposite side thereof and joined to the tooth K', by a semicircular piece K; a spring L, around said wheel J, and engaging the tooth K' to hold it normally toward the center of the wheel; a number-wheel I, on said shaft F, with internal gear-teeth I', to be engaged and actuated by said tooth K', when forced out by the plug in gear G, coacting as specified.

3. In a cyclometer a shaft F, with a flattened side; a series of number-wheels I, thereon having internal gear-teeth; a movable tooth N", in a radial slot in each of the lower number-wheels with suitable means of guiding the same; cams P, with projecting points fixed on said shaft alternately between said number-wheels to engage the movable teeth to force them out to engage the internal gear of the next higher number-wheel and disks M, with springs M', secured to said shaft to stop said number-wheels as specified.

4. In a cyclometer a shaft F, with a flattened side; a series of number-wheels I, thereon having internal gear-teeth; a movable tooth N", in a radial slot on the opposite side of said wheel; cams P, with projecting points fixed on said shaft alternately between said number-wheels to engage the movable teeth to force them out to engage the internal gear of the next higher number-wheel as specified.

5. In a cyclometer a shaft F; a series of number-wheels I, thereon having internal gear-teeth; a movable tooth N", in a radial slot in each of the lower number-wheels with suitable means of guiding the same; cams P, with projecting points fixed on said shaft alternately between said number-wheels to engage the movable teeth to force them out to engage the internal gear of the next higher number-wheel and disks M, with springs M', secured to said shaft to stop said number-wheels as specified.

6. In a cyclometer a shaft F; a series of number-wheels I, thereon having internal gear-teeth; a movable tooth N", in a radial slot in each of the lower number-wheels with suitable means of guiding the same; cams P, with projecting points fixed on said shaft alternately between said number-wheels to engage the movable teeth to force them out to engage the internal gear of the next higher number-wheel as specified.

7. In a cyclometer the combination of a number-wheel with internal gear; a second wheel parallel therewith with an internal gear; a movable tooth in a radial slot on said second wheel suitably guided; a spring L, to retain said tooth normally toward the center of the wheel; a small external gear-wheel with deep cogs the space between two of which is partially plugged meshing with the second gear-wheel; suitable means of actuating the small external gear so that during its revolutions the plug between the cogs forces out the movable tooth to actuate the number-wheel as specified.

8. In a cyclometer the combination of a number-wheel; a second wheel adjacent thereto with suitable gear-teeth; a radially-movable tooth on said second wheel projecting through one of the cogs; a third wheel having deep cogs meshing with said second wheel the space between two of which cogs is plugged; and means for actuating the third wheel to cause the plug to push the radially-movable tooth during its revolution to actuate the number-wheel for the purpose specified.

9. In a cyclometer the combination of a number-wheel; a second wheel adjacent thereto having suitable gear-teeth; a radially-movable tooth on said second wheel; a third gear-wheel meshing with said

second wheel having a suitable plug to act on the movable tooth of the second wheel; and means for actuating the third gear-wheel for the purpose specified.

588,727. CYCLOMETER OR REGISTERING-MACHINE. LEO J. BURDICK, Sturgis, Mich. Filed Feb. 25, 1897. Serial No. 625,015. (No model.)



Claim.—1. The combination of a cylindrical case A, having a fixed head A", and removable head A'; the shaft E, riveted to the fixed head A", containing longitudinal grooves E'; corresponding to the number of teeth or steps of the movement of the wheel; number-wheels F, supported thereon, made of sheet metal having internal gear-teeth F', and a projecting hub F", from which is formed a spring F"', having an outwardly-projecting tooth I, to engage the gear-teeth F', of the next higher and an inwardly-projecting tooth I', to project into the depressions E' on the shaft E, and pass the gear-teeth F', and into depressions E", to engage the next higher wheel, an internal gear-wheel D, consisting of a ring with perforations revoluble on shaft E; an external gear-wheel C'; meshing with a hunting-tooth gear with wheel D, on shaft C, carrying said wheel C', and an actuating star-wheel B, revoluble on the shaft C, with a ratchet for engaging the same, a spring surrounding the gear D, having an outwardly-projecting tooth; a projecting tooth; a projecting tooth C", on gear C, to lift the gear-tooth up and engage the first number-wheel to actuate the same a single step all coacting substantially as described for the purpose specified.

2. In a cyclometer or register mechanism the combination of a casing; a shaft containing longitudinal grooves corresponding to the steps of the movement one of which grooves is shallow; number-wheels containing internal gear-teeth mounted revolubly on said shaft; a spring with an inwardly-projecting tooth to engage in the grooves of the shaft and an outwardly-projecting tooth to engage the next number-wheel when passing the shallow depression carried by each of the lower said number-wheels; and suitable means for actuating the lower number-wheels for the purpose specified.

3. In a cyclometer or register mechanism the combination of a shaft containing continuous longitudinal cam-grooves; gear number-wheels mounted thereon; a radially-movable tooth carried by each of the lower number-wheels and guided by the cam-grooves to engage the next higher number-wheel at intervals of its rotation to operate the same for the purpose specified.

4. In a cyclometer or register mechanism the combination of a fixed shaft E, containing longitudinal cam-grooves E', sheet-metal number-wheels having internal gears and projecting hubs F", from which a spring F"', is formed with inwardly-projecting tooth I', and outwardly-projecting tooth I, at its outer end coacting as specified.

5. In a cyclometer or register mechanism the combination of a fixed shaft containing longitudinal cam-grooves; number-wheels mounted thereon containing internal gear-teeth; a spring with an outwardly and an inwardly projecting tooth carried by each of the lower number-wheels in contact with said shaft to serve as a brake and to actuate the next higher wheel of the series for the purpose specified.

6. In a cyclometer or register mechanism the combination of a fixed shaft containing continuous longitudinal cam-grooves; gear number-wheels mounted thereon; a spring with a tooth thereon carried by each of the lower wheels to be actuated by the cam-grooves to engage at intervals of its rotation the next higher wheel at intervals of its rotation for the purpose specified.

7. In a cyclometer or register mechanism the combination of a fixed shaft with cams formed therein; gear number-wheels mounted on said shaft; a movable tooth carried by each of the lower number-wheels to be actuated by the cam of the shaft to actuate, at intervals of its rotation the next higher number-wheel.

8. In a cyclometer or register mechanism the combination of a fixed shaft; number-wheels carried by said shaft; an internal gear consisting of a perforated ring carried on said shaft; a spring embracing the same and covering one of the perforations; a tooth on said spring to engage the lowest number-wheel normally out of engagement therewith; an external gear-wheel carried on a pivot or shaft on the end of the main shaft meshing therewith having a projecting tooth to raise the spring and cause the tooth to engage the number-wheel at intervals of its rotation for the purpose specified.

9. In a cyclometer or register mechanism the combination of an internal gear; an external gear having a hunting-tooth; a tooth on a suitable spring carried by the internal gear to be actuated by the projecting tooth at intervals of its rotation to actuate the number-wheel as specified.

10. In a cyclometer or register mechanism, the combination of a series of number-wheels, having internal gear-teeth; a movable tooth carried by each of the lower number-wheels; a shaft to support said number-wheels containing cam depressions therein, of sufficient depth to allow the movable tooth on each lower wheel to pass the gear-teeth upon the next higher number-wheel, except at transferring-points, where said movable tooth is caused to engage with and actuate the number-wheel adjacent thereto; and means for retaining the said movable teeth in contact with said shaft.

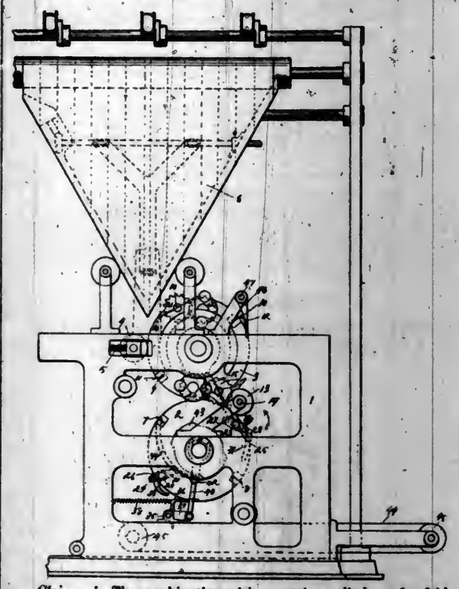
11. In a cyclometer or registering mechanism, the combination of a series of geared number-wheels; a movable tooth carried by each of the lower number-wheels; a cam-formed shaft to support said number-wheels, and guide said movable teeth past the gear-teeth of said number-wheels; except at transferring-points where said movable teeth engage with and actuate the number-wheels adjacent therewith, and means for retaining said movable teeth in contact with said cam formed shaft.

12. In a cyclometer, or register mechanism, the combination of a series of geared number-wheels; a movable tooth carried by each lower number-wheel; a cam for each lower number-wheel containing depressions to guide the movable tooth thereof past the gear-teeth of the next higher number except at transferring-points where said movable teeth engage and actuate the higher number of wheels adjacent thereto; and means for retaining the movable teeth in contact with their respective cams for the purpose specified.

13. In a cyclometer or register mechanism, the combination of a fixed shaft with cams formed therein; geared number-wheels mounted on said shaft; a movable tooth carried by each of the lower number-wheels; means for retaining each movable tooth in contact with the cams in said shaft so that each tooth shall engage at intervals of the rotation of its number-wheel the next higher number-wheel, so that the wheels can be placed on said shaft and easily removed without obstruction from the cams, for the purpose specified.

14. In a cyclometer or registering mechanism, the combination of a number-wheel, a second wheel adjacent thereto, having suitable gear-teeth, a movable tooth carried by said second wheel; a third gear-wheel meshing with said second wheel, having a suitable projection to act on the movable tooth of said second wheel, to actuate said number-wheel and means for actuating the third gear-wheel for the purpose specified.

588,728. DELIVERY DEVICE FOR PRINTING-PRESSES. SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Aug. 30, 1892. Serial No. 444,553. (No model.)



Claim.—1. The combination with a cutting-cylinder, of a folding-roller arranged in close proximity thereto and coacting therewith, means for delivering the web to the cylinder and roller, devices cooperating with the cylinder and roller for folding the web, grippers carried by one of said cylinders adapted to grip the folded edge of the web, and means for operating the grippers, substantially as described.

2. The combination with cutting-cylinders, and a folding-roller 13 arranged in close proximity thereto and coacting therewith, of means for delivering the web to the cylinders and roller, devices cooperating with the cylinders and roller for folding the web, grippers carried by one of said cylinders adapted to grip the folded edge of the said web, mechanism for causing the grippers to release the edge of the web when one of the cylinders makes a half-rotation, and strippers for stripping the web from said latter cylinder, substantially as described.

3. The combination with cutting-cylinders 2 and 3, one of them having cutting-blade 7, and the other a recess 9, of a folding-roller 13 arranged in close proximity to said cylinder 2 and coacting therewith, devices for delivering the web to the cylinders and roller, gripping-fingers carried by the blade-carrying cylinder and adapted to grip the web as it passes between the said cylinder and the folding-roller, and mechanism for operating the gripping-fingers, substantially as described.

4. The combination with cylinders 2 and 3, and a cutting-blade carried by one of said cylinders, of a folding-roller 13 arranged in close proximity to the cylinder 2 and coacting therewith, means for delivering the web to the cylinders and folding-roller, gripping-fingers carried by the cylinder 2 and operating to grip the web as it passes between the said cylinder and the folding-roller, stripping-fingers 36, shaft 35 supporting said fingers, arm 39, rod 40, roller 42, and cam 43 rotating within the cylinder 2, substantially as described.

5. The combination with the cylinder 2, and means for delivering a folded sheet thereto, of a shaft 23, mounted in said cylinder, a cross-head 25 on the shaft, rollers 27 and 28, carried by the cross-head, gripping-fingers 32, on the shaft, and cams 31 and 34, substantially as described.

6. The combination with a cylinder, and a coacting folding-roller arranged substantially in contact therewith, of a folding-blade for projecting the doubled edge of a sheet into the bite of said cylinder and roller, and grippers carried by the cylinder for gripping the doubled edge of the sheet, substantially as described.

7. The combination with a cylinder, and a coacting folding-roller arranged substantially in contact therewith, of a folding-blade for projecting the doubled edge of a sheet into the bite of said cylinder and roller, and devices adapted to retain the folded edge of the sheet upon said cylinder, substantially as described.

8. The combination with a pair of coacting cutting-cylinders, and a folding-roller arranged substantially in contact with one of said cylinders, of a folding-blade carried by the other of said cylinders and adapted to project the sheets at the line of the fold into the bite of said folding-roller and its coacting cylinder, and means carried by the latter cylinder for retaining the folded edge of the sheet thereupon, substantially as described.

588,729. ARTIFICIAL FISH-BAIT. CHARLES R. HARRIS, Chicago, Ill. Filed Jan. 14, 1897. Serial No. 619,182. (No model.)



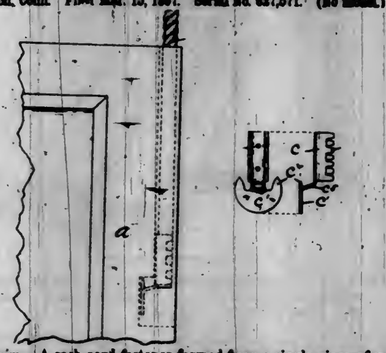
Claim.—1. As a new article of manufacture, an artificial fish-bait, constructed of cork without internal cavities in the form of a natural frog, animal or insect; said bait having a movable balance-weight attached thereto, a loop at its forward end for engagement with a fish-line, and a hook or other barbed prong secured to the body and ankles of said bait, the barbs being located distant from the body portion for the purpose set forth.

2. A fish-bait, the same consisting of a cork trunk having legs secured thereto, a belly-wire extending along the under side thereof, a loop at the forward end of said wire, and the curved portion at the rear, a fish-hook removably secured to the rear portion of said belly-wire and extending beyond the feet of said frog, said feet and legs of the frog being incapable of movement independent of the body substantially as shown and described.

3. As a new article of manufacture, a fish-bait composed of cork and made in imitation of a natural frog, consisting of the separate trunk and legs, rim-wires extending around said legs, and entering said trunk, a loop at the forward end of the trunk for engagement with a line, a belly-wire fastened to the under side of said trunk by means of the wire 7, said wire being formed into a coil, into which the eye of a balance-weight is adapted to be turned, the eyes in the frog's head also secured to said belly-wire by passing their securing-wires through the head and coiling them thereabout, the rear portion of the belly-wire carving forward from between the legs, the fish-hooks removably attached to the ankles of the legs and having their eyes passed over the curved portion of said belly-wire.

4. As a new article of manufacture, a frog consisting of a trunk formed of cork or other suitable material having a less specific gravity than water, the legs formed separate from said trunk and fastened thereto by wires 3, 3', a strengthening-cord extending along the under side of each leg and secured in said trunk, the windings 5 extending around the legs from the ankles forward and also around the trunk for a portion of its length and secured therein in any suitable manner, the paint or other waterproof-coating covering said trunk and legs, a balance-weight removably secured to the under side of said trunk, and a shank of a suitable fish-hook attached to each leg and removably attached to said belly-wire substantially as shown and described.

588,730. SASH-CORD FASTENER. BRAINERD W. PHILLIPS, Norwich, Conn. Filed Mar. 15, 1897. Serial No. 627,671. (No model.)



Claim.—A sash-cord fastener formed from a single piece of material and comprising a body, a neck, and a head, the body having its edges provided with teeth adapted to be folded around the cord and secured thereto, the neck being offset laterally, and the head being formed substantially crescent-shaped, the ends of which form spurs substantially parallel with the body and adapted to be drawn into the sash by the pull upon the cord, substantially as set forth.

588,731. SLATE-SPRINKLER. LEVI P. PULLEY, Watertown, S. D. Filed Mar. 6, 1897. Serial No. 626,290. (No model.)



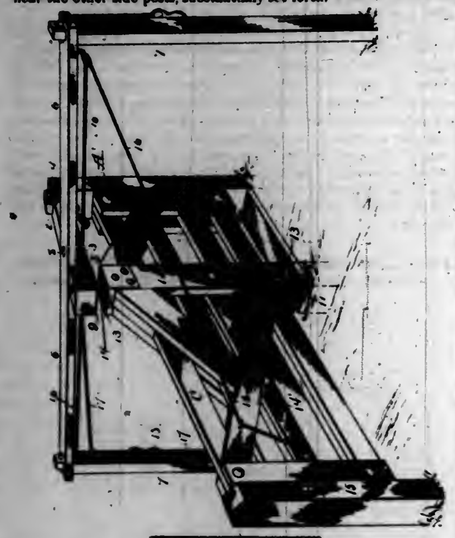
Claim.—1. A school-slate sprinkler, comprising the receptacle 1, having parallel plane sides and a screw-threaded neck, in combination with a removable screw-threaded, perforated cap, and a perforated rotating cap, adapted to open and close the perforations in said threaded cap, substantially as shown and described.

2. A school-slate sprinkler, comprising the receptacle 1, having parallel plane sides 2 2 and an externally-threaded neck 3, an internally-threaded cap 4, having its face, 5, formed with a groove 6, and a series of orifices 7, in combination with a rotating cap 8, provided with a series of orifices 9, a rib 10, and a stud 12 extending through the cap 4, and the spring encompassing the lower end of said stud, substantially as shown and described.

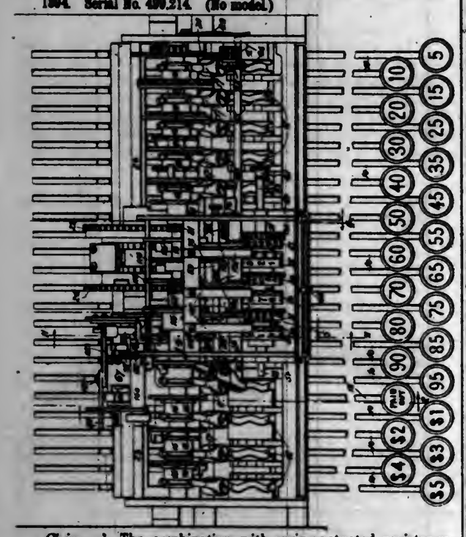
588,732. GATE. BENJAMIN P. RICE, Petersburg, Ky. Filed Mar. 31, 1897. Serial No. 630,132. (No model.)

Claim.—The combination with four posts, two of which are located at opposite ends of the gate when closed, and two of which are located on opposite sides of the gate, of a gate pivotally supported between its ends and adapted to simultaneously open and close two passages, and a pivoted latch mounted upon the gate and carried thereby, of two ropes each of which has one of its ends attached to the pivoted latch on the gate, each of said ropes leading

from said latch through pulleys mounted upon or near one of the side posts and from thence passing through pulleys mounted upon or near the other side posts, substantially set forth.



588,733. CASH-REGISTER. CHARLES J. BYRNES, Chicago, Ill., assignor to himself and John L. Jackson, same place. Filed Feb. 5, 1894. Serial No. 499,214. (No model.)



Claim.—1. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, and means for operating a plurality of said item-registers simultaneously, substantially as described.

2. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, and means for operating a plurality of said item-registers simultaneously by a single actuation of the register-keys, substantially as described.

3. The combination with escapement devices, and a plurality of item-registers adapted to be operated thereby, of means for operating a plurality of said item-registers simultaneously by a single actuation of the register-keys, substantially as described.

4. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, means for actuating the different item-registers at will, and means for reversely operating certain of said item-registers simultaneously with the forward operation of certain other of said item-registers, substantially as described.

5. The combination with spring-actuated register-operating mechanism, of a "Cash-on-hand" register, a "Cash-sale" register, and means for operating said item-registers simultaneously or separately, whereby the difference between the readings of said registers will indicate the total cash paid out, substantially as described.

6. The combination with spring-actuated register-operating mechanism, of a "Cash-on-hand" register, a "Cash-paid-out" register, and means for operating said item-registers simultaneously or separately, whereby the sum of the readings of said item-registers will indicate the total cash received, substantially as described.

7. The combination with spring-actuated register-operating mechanism, of "Cash-sale," "Cash-on-hand" and "Cash-paid-out" registers, and means for automatically operating said "Cash-on-hand" register when either of the other registers is operated, substantially as described.

8. The combination with spring-actuated register-operating mechanism, of a "Cash-on-hand" register, a "Cash-sale" register, and a "Paid-out" register, and means for simultaneously operating said "Cash-on-hand" register when either of the other registers is operated, substantially as described.

9. The combination with escapement devices, and a plurality of item-registers adapted to be operated thereby, of means for operating a plurality of said item-registers simultaneously, substantially as described.

10. The combination with escapement devices, and a plurality of item-registers adapted to be operated thereby, of means for operating a plurality of said item-registers simultaneously, and means for reversely operating certain of said item-registers, substantially as described.

11. The combination with escapement devices, and a plurality of item-registers adapted to be operated thereby, of means for operating the different item-registers at will, and means for reversely operating certain of said item-registers simultaneously with the forward operation of certain other of said item-registers, substantially as described.

12. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, a single series of register-keys for operating said registers, said registers being normally out of operative connection with said operating mechanism, and means for throwing certain of said item-registers into operative connection at will, substantially as specified.

13. The combination with spring-actuated register-operating mechanism, and a plurality of item-registers normally out of operative connection with said operating mechanism, of a shiftable shaft, pinions carried thereby and adapted to be moved by the shifting of said shaft to throw said item-registers into operative connection, and means for shifting said shaft to throw any desired item-register into operative connection at will, substantially as described.

14. The combination with spring-actuated register-operating mechanism, and a plurality of item-registers normally out of operative connection with said operating mechanism, of a shiftable shaft, pinions carried thereby and adapted to be moved by the shifting of said shaft to throw said item-registers into operative connection, and means for shifting said shaft automatically upon the actuation of the register-keys, substantially as specified.

15. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, certain of said item-registers being adapted to be operated either positively or negatively, a shiftable shaft, pinions carried thereby adapted to be moved by the shifting of said shaft to throw the different item-registers into operative engagement, and means for operating certain of said register devices either positively or negatively upon the actuation of the register-keys, substantially as described.

16. The combination with spring-actuated register-operating mechanism, and a plurality of item-registers, certain of said item-registers being adapted to be operated either positively or negatively, of a shaft shiftable into two positions to throw certain of said registering devices into position to be operated in a forward direction, or to provide for the forward rotation of certain of said registering devices simultaneously with the reverse rotation of certain other of said registering devices, and means for shifting said shaft at will, substantially as described.

17. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, pinions rotating therewith, a shiftable shaft, pinions mounted thereupon and movable into operative connection with said register-pinions by the shifting of said shaft, said pinions being so arranged that when said shaft is moved to a certain position certain of said pinions will be moved into operative connection with certain of said register-pinions so that said registers may be positively operated, and certain of said pinions carried by said shaft being movable into operative connection with certain other of said register-pinions to provide for the forward operation of certain of said registers simultaneously with the reverse operation of certain other of said registers, and means for shifting said shaft at will, substantially as described

18. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, each of said item-registers having dollar and cent registering wheels, said registering-wheels being normally out of operative connection with the register-operating mechanism, escapement devices for carrying the extra dollar from each of said cent-registering wheels to the corresponding dollar-registering wheel when the amount to be registered added to the indication of said cent-registering wheel equals or more than equals one dollar, means for throwing said register-wheels into operative connection upon the operation of said register-keys, and means for locking the different register-wheels in operative connection when the extra dollar is to be added, substantially as specified.

19. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, each of said item-registers having dollar and cent registering wheels, said registering-wheels being normally out of operative connection with the register-operating mechanism, escapement devices for carrying the extra dollar from each of said cent-registering wheels to the corresponding dollar-registering wheel when the amount to be registered added to the indication of said cent-registering wheel equals or more than equals one dollar, means for throwing said register-wheels into operative connection upon the operation of said register-keys, means for locking the different register-wheels in operative connection when the extra dollar is to be added, and means for automatically releasing said register-wheels after the dollar is added, substantially as described.

20. The combination with spring-actuated register-operating mechanism, of a plurality of item-registers, each of said item-registers having dollar and cent registering wheels, said registering-wheels being normally out of operative connection with the register-operating mechanism, certain of said register-wheels being adapted to be positively operated for purposes of addition and reversely operated for purposes of subtraction, escapement devices for carrying the extra dollar from each of said cent-registering wheels to the corresponding dollar-registering wheel when the amount to be registered added to the indication of said cent-registering wheel equals or more than equals one dollar, or subtracting the extra dollar from the dollar-registering wheel, as the case may be, means for throwing said register-wheels into operative connection upon the operation of said register-keys, and means for locking the different register-wheels in operative connection when the extra dollar is to be added or subtracted, substantially as described.

21. In a registering-machine, the combination of two spring-impelled motor-wheels, a cent-registering wheel driven by the first and a dollar-registering wheel driven by the second, a pallet adapted to be rocked by the operation of any of the register-keys, a scape-wheel cooperating with said pallet and geared to said second motor-wheel, a plurality of item-registers, means for operating the different item-registers at will upon the operation of the register-keys, means for automatically locking the dollar-registering wheels in operative connection when an extra dollar is to be added to or subtracted from the registering-wheels, and means for actuating such registering devices from said scape-wheel, substantially as described.

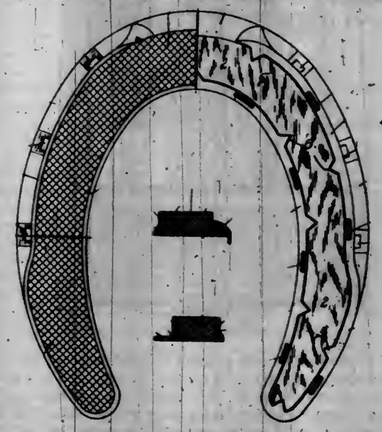
22. In a registering-machine, the combination with two spring-impelled motor-wheels, of a plurality of item-registers, each of said item-registers having a dollar-registering wheel adapted to be driven from one of said motor-wheels and a cent-registering wheel adapted to be driven from the other of said motor-wheels, means for operating said item-registers positively for the purpose of addition, and means for reversely operating certain of said registers for the purpose of subtraction, substantially as described.

23. In a registering-machine, the combination with two spring-impelled motor-wheels, of a plurality of item-registers, each of said item-registers having a dollar-registering wheel adapted to be driven from one of said motor-wheels and a cent-registering wheel adapted to be driven from the other of said motor-wheels, means for operating said item-registers positively for the purpose of addition, and means for reversely operating certain of said registers for the purpose of subtraction simultaneously with the positive operation of certain other of said registers, substantially as described.

24. In a registering-machine, the combination with two spring-impelled motor-wheels, of a plurality of item-registers, each of said item registers having a dollar-registering wheel adapted to be driven from one of said motor-wheels and a cent-registering wheel adapted to be driven from the other of said motor-wheels, means for operating said item-registers positively for the purpose of addition, means for reversely operating certain of said registers for the purpose of subtraction, and means for adding the extra dollar to said dollar-registering wheels and for subtracting the extra dollar therefrom, as the case may be, substantially as described.

25. In a registering-machine, the combination with two spring-impelled motor-wheels, of a plurality of item-registers, each of said item-registers having a dollar-registering wheel adapted to be driven from one of said motor-wheels and a cent-registering wheel adapted to be driven from the other of said motor-wheels, means for operating said item-registers positively for the purpose of addition, means for reversely operating certain of said registers for the purpose of subtraction simultaneously with the positive operation of certain other of said registers, and means for adding the extra dollar to said dollar-registering wheels and for subtracting the extra dollar therefrom, as the case may be, substantially as described.

588,784. RUBBER-TREAD HORSESHOE. HENRY SCHEID, Buffalo, N. Y. Filed Dec. 26, 1896. Serial No. 617,017. (No model.)



Claim.—1. A horseshoe provided upon its under side and along its entire length with a channel the walls of which are inclined inwardly and provided at intervals along their edges with securing-prongs, and a rubber strip of the same length as the channel, having an inclined slit in its outer and inner side walls adapted for the reception of the inwardly-inclined walls of the channel, the securing-prongs upon the edges of these walls being bent within the rubber strip in the direction of the body of the shoe.

2. A horseshoe provided upon its under side and along its entire length with a channel the walls of which are inclined inwardly and provided at intervals along their edges with securing-prongs, a rubber strip of the same length as the channel, having an inclined slit in its outer and inner side walls adapted for the reception of the inwardly-inclined walls of the channel, the securing-prongs upon the edges of these walls being bent within the rubber strip in the direction of the body of the shoe, and openings in the inclined walls of the channel, as and for the purpose stated.

588,735. BLOWER AND EXHAUSTER. WILLIAM SCHUSTER, Pittsburg, Pa. Filed Jan. 7, 1896. Serial No. 574,640. (No model.)

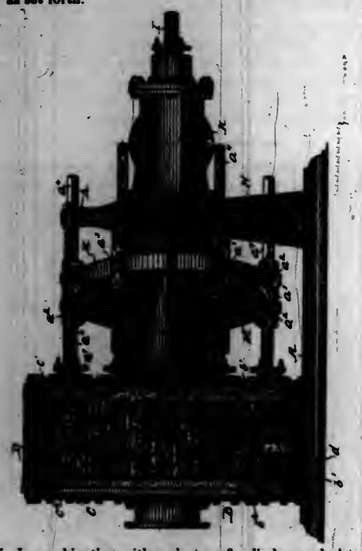
Claim.—1. In combination with a cluster of cylinders extending parallel with each other, reciprocating pistons mounted in the same, and a single rotary valve mounted centrally of the cluster of cylinders and having its axis parallel with the cylinders and controlling the ports thereof, substantially as set forth.

2. In combination with a cluster of cylinders having reciprocating pistons moving therein, a single rotary valve mounted centrally of said cluster of cylinders and having an inlet-opening at one end and an outlet-opening at the other and a diagonally-extending wall dividing it into inlet and outlet passages so as to provide communication thereby with end of each cylinder, substantially as set forth.

3. In combination with a cluster of cylinders having reciprocating pistons moving therein, a single rotary valve mounted centrally of said cluster of cylinders, having an inlet-port at one end and an outlet-port at the other and a diagonally-extending wall dividing the same into two oblique passages, and each such oblique passage having a port communicating with the cylinder-ports at one end of the cylinder and the cylinder-ports at the other end of the cylinder, and said valve-ports being connected by the diagonal passages formed by said division-wall, substantially as set forth.

4. The combination of a cluster of cylinders having reciprocating pistons therein, the rotary valve F, having diagonal division-wall f separating it into diagonal inlet and outlet passages, f^3, f^4 respectively, and having at each end ports leading respectively from each inlet and outlet passages of the valve, and having the web-faces f^5 f^6

respectively closing the ports to the respective cylinders, substantially as set forth.



5. In combination with a cluster of cylinders and pistons reciprocating therein, a rotary valve mounted centrally of the cluster of cylinders and controlling the flow thereto, and a rotary ring rigid with the driving mechanism for the valve and set obliquely thereto and engaging with the several piston-rods to operate the pistons in the cylinders, substantially as set forth.

6. In combination with a cluster of cylinders and pistons reciprocating therein, a central hollow cylinder mounted in bearings in the machine-frame and carrying a rotating valve controlling the ports of the cluster of cylinders, and an encircling ring supported by said central cylinder and set obliquely thereto and engaging with the piston-rods to impart reciprocating motion to the pistons, substantially as set forth.

7. In combination with a cluster of cylinders and pistons reciprocating therein, a central rotating hollow cylinder carrying a valve controlling the ports to and from the cluster of cylinders, the rear end of said rotary cylinder being mounted in a stationary frame carrying a head or casing with which the inlet-pipe communicates, substantially as set forth.

8. In combination with a cluster of cylinders and pistons reciprocating therein, a central rotating hollow cylinder carrying a valve controlling the ports to and from the cluster of cylinders, the rear end of said rotary cylinder being mounted in a stationary frame carrying a head or casing with which the inlet-pipe communicates, and a central driving-shaft passing through a stuffed joint at the end of said stationary casing and rigidly connected to said rotary cylinder, substantially as set forth.

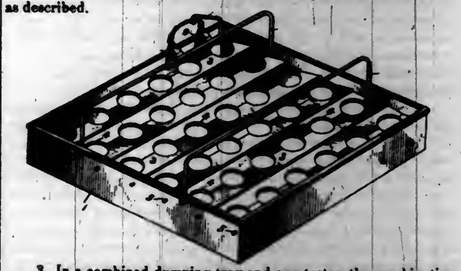
9. The combination of a cluster of cylinders formed in two sections, one resting on the bed-frame and the other section supported by and secured to said section, said two sections forming together a central bearing for the valve controlling the ports to said cylinders, substantially as set forth.

10. The combination of a cluster of cylinders formed in two sections, one resting on the bed-frame and the other end supported by and secured to the same, said two sections forming together a central bearing for the valve controlling the ports to said cylinders, and having formed in their faces a central recess c^3 to receive a projecting ring c' on said valve, substantially as set forth.

588,786. EGG-TESTER. HENRY C. TYLER, Malta, Ohio. Filed Oct. 3, 1896. Serial No. 608,271. (No model.)

Claim.—1. In a combined dumping-tray and egg-tester, the combination of a tray-frame, and a series of egg-supporting slats arranged in pairs in the tray-frame and adapted to swing downward to dump the eggs, one member or slat of each pair being provided with pintles or journals, and the other member having eyes to receive said journals and overlapping the adjacent edge of the slat or member having the journals to exclude light, and means for supporting the slats in a horizontal position and for dumping them, substantially as described.

2. In a combined dumping-tray and egg-tester, the combination of a tray-frame, a series of hinged egg-supporting slats arranged in pairs, mounted in the tray-frame and adapted to swing downward to dump eggs, a rock-shaft journaled on the tray-frame, located beneath the egg-supporting slats and provided with a rectangular bend arranged to engage the same, whereby they are swung upward and are also held in a horizontal position, and means for operating the rock-shaft and for locking the slats in a horizontal position, substantially as described.

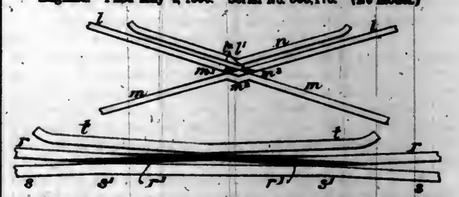


3. In a combined dumping-tray and egg-tester, the combination of a tray, a series of egg-supporting slats arranged in pairs, each pair being hinged at their adjacent edges and adapted to swing downward to dump the eggs, and cushioning-springs engaging the slats and causing them in dumping to converge downwardly at opposite sides of the eggs and yieldingly engage the same to break the fall of the eggs, substantially as and for the purpose specified.

4. In a combined dumping-tray and egg-tester, the combination of a tray-frame, egg-supporting slats disposed in pairs, each pair being hinged at their adjacent longitudinal edges in the tray-frame and arranged to swing downward to dump the eggs, springs mounted on the tray-frame, located beneath the hinges of the slats and adapted to be engaged by the latter when the eggs are dumped, said springs being arranged to support the slats in an inclined position, and a rock-shaft journaled on the tray-frame transversely of the slats, located beneath the same and provided with a rectangular bend adapted to engage them and swing them upward, substantially as described.

5. In a combined dumping-tray and egg-tester, the combination of a tray-frame, hinged egg-supporting slats adapted to swing downward to dump the eggs, a pair of rock-shafts journaled on the tray-frame, located beneath the slats and provided with rectangular bends to engage the same, said rock-shaft having upwardly-extending arms arranged at one side of the frame, a link connecting the arms, hinged to the same and arranged to swing laterally, and the support or catch arranged on the tray-frame and arranged to be engaged by the said link, substantially as and for the purpose described.

588,787. RAILWAY-CROSSING. ALFRED H. TYLER, London, England. Filed May 4, 1896. Serial No. 590,176. (No model.)



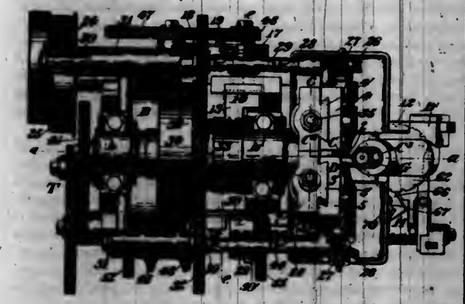
Claim.—1. A railway-crossing comprising an angular rail arranged to constitute part of the through line and part of the crossing line, and formed with two grooves one arranged parallel with the through line and the other parallel with the crossing line, substantially as set forth.

2. A railway-crossing comprising an angular rail arranged to constitute part of the through line and part of the crossing line, and formed with two grooves one arranged parallel with the through line and the other parallel with the crossing line, and another angular rail arranged to constitute part of the through and part of the crossing line, the latter rail not being grooved, substantially as set forth.

3. A railway-crossing comprising two angular rails, one having a single obtuse angle, and the other three angles whereby the angular portion is in substantially the form of a flattened W, the angular parts of the two rails being arranged opposite to each other, substantially as set forth.

4. A railway-crossing constructed of two rails only one of which has a single bend and two grooves, and the other rail three bends, and the arrangement of such rails whereby each rail forms part of the through line and also part of the crossing line.

588,788. MACHINE FOR GENERATING GEAR-TEETH. HERBERT C. WARREN, Hartford, Conn. Filed Nov. 20, 1896. Serial No. 612,894. (No model.)



Claim.—1. The combination, with a cutter-slide, of means for imparting to said slide oscillatory movements alternately concentric and eccentric relatively to a fixed axis.

2. The combination, with a carrier, of a cutter-slide mounted thereon; and means for imparting to said slide, through the medium of the carrier, oscillatory movements in paths alternately concentric and eccentric relatively to the carrier-axis.

3. The combination, with a carrier, of a cutter-slide mounted on said carrier; means for imparting oscillatory movements to said carrier; and means for advancing the slide concurrently with, and throughout the entire length of, alternate movements of the carrier.

4. In a machine for generating gear-teeth, the combination, with a cutter-carrier supported for oscillatory movements, of a cutter shiftably mounted on the carrier; and cooperatively-connected mechanisms for imparting curvilinear strokes to the carrier in alternately-opposite directions and for progressively advancing the cutter simultaneously with, and throughout the entire length of, alternating strokes of said carrier and in a plane intersecting the oscillatory path thereof, and for also imparting a quick return movement to said cutter after the same has arrived at a predetermined advanced position.

5. In a machine for generating gear-teeth, in combination, a gear-blank carrier; a cutter-carrier; means for synchronously imparting rotary reciprocatory movements to the gear-blank carrier and oscillatory movements to the cutter-carrier; and feed mechanism comprehending means for imparting a slow progressively-advancing movement to the cutter-carrier in a plane intersecting the oscillatory path thereof simultaneously with, and throughout the entire length of, alternate oscillatory movements of said carrier, whereby said cutter-carrier will have an oscillatory movement in one direction in a line or path concentric to a fixed axis and will have an oscillatory movement in an opposite direction in a line or path eccentric to said axis.

6. In a machine for generating gear-teeth, the combination, with a gear-blank carrier and a cutter-carrier and with means for simultaneously imparting to each carrier oscillatory strokes in alternately-opposite directions, of rotary feed mechanism automatically operable in synchronism with and throughout each alternating stroke of the cutter-carrier for imparting, during and throughout said stroke, a slow advancing or feed movement to said cutter-carrier, and automatically operable at a predetermined point in the advancing movement of said carrier for imparting a quick return movement thereto, which advancing and return movements are in a plane intersecting the curvilinear path of movement of said carrier.

7. In a machine for generating gear-teeth, the combination, with a gear-blank carrier, of an oscillatory carrier; a cutter-slide mounted on said carrier for movements in a plane intersecting the oscillatory path thereof; means for imparting to said carrier oscillatory strokes in alternately-opposite directions; and feed mechanism in operative connection with the carrier and cutter-slide and effective, through each alternating oscillatory stroke of the carrier, for progressively advancing the cutter-slide in a plane intersecting the oscillatory path of the carrier, and embodying reversing mechanism automatically effective at a predetermined point in the advancing movement of the cutter-slide for imparting a quick return movement thereto.

8. In a machine for generating gear-teeth the combination, with a cutter-carrier supported for curvilinear and radial movements in intersecting planes and with mechanism for imparting curvilinear movements to said carrier, of feed mechanism in operative connection with said carrier and effective for imparting relatively slow advancing and a relatively rapid retractive movement to said carrier during the curvilinear movement thereof; a rotary reciprocatory blank-carrier cooperatively connected with the cutter-carrier, for movements in synchronism therewith; and indexing mechanism controlled by the movements of the cutter-carrier, for indexing the blank carried by the blank-carrier.

9. In a machine for generating gear-teeth, the combination, with an oscillatory gear-blank carrier and an oscillatory cutter-carrier and with actuating mechanism for synchronously oscillating the gear-blank carrier and cutter-carrier, of a cutter-slide mounted on the cutter-carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; and continuously-rotating mechanism for imparting alternately slow and rapid working and return strokes, respectively, to said cutter-slide during and without interrupting the oscillatory movement of said cutter carrier and slide.

10. In a machine for generating gear-teeth, the combination, with a gear-blank carrier and a cutter-carrier, of a cutter-slide mounted on the carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; means for simultaneously imparting oscillatory strokes to the gear-blank carrier and cutter-carrier; and feed mechanism continuously driven from the aforesaid means and effective for imparting to the cutter-slide alternately slow and rapid working and return strokes, respectively, during and without interrupting the oscillatory movement of the cutter-carrier and cutter-slide.

11. In a machine for generating gear-teeth, the combination, with a gear-blank carrier and a cutter-carrier, of a cutter-slide mounted on the carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; means for simultaneously imparting oscillatory strokes to the gear-blank carrier and cutter-carrier; feed mechanism continuously driven from the aforesaid means and effective for imparting to the cutter-slide alternately slow and rapid working and return strokes, respectively, during and without interrupting the oscillatory movement of the cutter-carrier and cutter slide; and indexing mechanism in operative connection with said means and controlled by the cutter-carrier for intermittently advancing the gear-blank carrier a predetermined arc distance between the return and working strokes of the cutter-slide.

12. In a machine for generating gear-teeth, a cutter-slide carrier supported for oscillatory movements; combined with a cutter-slide supported on said carrier, for movement in a plane intersecting the oscillatory path of the carrier; a feed-wheel having its axis coincident with the axis of oscillatory movement of the cutter-slide carrier; a feed-screw in connection with the cutter-slide and having a gear in connection with the feed-wheel; means for oscillating the cutter-slide carrier; and means for rotating the feed-wheel simultaneously with the oscillatory movement of the cutter-slide carrier, to thereby impart a feed movement to said slide.

13. In a machine for generating gear-teeth the combination, with a cutter-slide carrier supported for oscillatory movement and with a cutter-slide supported on said carrier, for reciprocatory movement; of cooperative mechanisms for simultaneously actuating the cutter slide carrier and slide and embodying a feed-wheel having its axis coincident with the axis of oscillation of the slide-carrier; and an actuating-connector between the cutter-slide and feed-wheel.

14. In a machine for generating gear-teeth the combination, with a cutter-slide carrier supported for oscillatory movement and with mechanism for oscillating said carrier; of a cutter-slide mounted on said carrier, for reciprocatory movements in a plane intersecting the oscillatory path of the slide-carrier; a feed-wheel rotatively supported with its axis coincident with the axis of oscillation of the slide-carrier; a feed-screw in connection with the actuator-slide; and an intermediate wheel carried on the feed-screw and meshing with the feed-wheel and adapted upon the oscillation of said slide-carrier to have a parti-orbital movement about the axis of, and with, said feed-wheel, whereby an intermittant feed movement is imparted to the cutter-slide during the rotation of the feed-wheel and the oscillation of the slide-carrier.

15. In a machine for generating gear-teeth the combination, with a suitable frame, of a cutter-slide carrier having a sleeve journaled for oscillatory movement in said frame; mechanism for oscillating said slide-carrier; a cutter-slide mounted in ways upon the slide-carrier, for reciprocatory movement in a plane intersecting the oscillatory path of the slide-carrier; a feed-shaft journaled in the sleeve of the slide-carrier, with its axis coincident with the axis of movement of the slide-carrier; a feed-screw supported in the slide-carrier and having a screw-threaded bearing in the cutter-slide; a gear carried by the feed-screw in mesh with the feed-wheel; and means for rotating the feed-shaft, to thereby intermittently impart a feed movement to the cutter-slide during the oscillation of the slide-carrier.

16. In a machine of the class specified, the combination, with a gear-blank carrier and with mechanism for oscillating the same, of a cutter supported for differential movements; and mechanism embodying means for imparting oscillatory advancing movements to the cutter in paths alternately concentric and eccentric with relation to a fixed axis, and also embodying means for retracting the cutter by a relatively rapid movement.

17. In a machine of the class specified, the combination, with a

gear-blank carrier, of a cutter-carrier supported for oscillatory movements; a cutter mounted on said carrier; means for rotating the cutter; and mechanism connecting the gear-blank carrier and cutter-carrier and adapted for imparting oscillatory movements to the gear-blank carrier and for simultaneously imparting to the cutter, through the medium of its carrier, oscillatory advancing movements in paths that are alternately concentric and eccentric with relation to a fixed axis, and which mechanism also embodies means for imparting relatively accelerated retractive movements to said cutter.

18. The combination, with an oscillatory cutter-slide carrier and with a cutter-slide supported on said carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier, of a feed-shaft journaled in the carrier; a feed-screw rotatably supported on the carrier at one side the axis thereof and having a screw-threaded bearing in the cutter-slide; a pair of intermeshing spiral gears one of which is carried by the feed-shaft and the other of which is carried by the feed-screw; and means for rotating the feed-shaft.

19. The combination, with an oscillatory cutter-carrier and with two cutter-slides supported one at each side the axis of said carrier, for reciprocatory movements in planes intersecting the oscillatory path of said carrier, of two feed-screws supported on the carrier and each having a bearing in one of said slides; a feed-wheel supported for rotative movement between the two feed-screws, with its axis coincident with the axis of oscillatory movement of the carrier; two feed-transmitting gears carried by the feed-screws and meshing, respectively, with opposite sides of the feed-wheel; actuating mechanism for operating the carriers and for rotating the feed-wheel in concentric paths at such relative velocities as will cause the feed-wheel to have an effective feed movement when the carrier and feed-wheel are moving in opposite directions and will cause the same to have an ineffective movement when the carrier and feed-wheel are moving in the same direction; and means for reversing the normal direction of rotation of the feed-wheel, to impart a quick return movement to the cutter-slide.

20. In a machine for generating gear-teeth, the combination, with a cutter-carrier and a gear-blank carrier connected to have curvilinear movements each in alternately-opposite directions and in unison and with actuating mechanism therefor, of a cutter slide mounted on the cutter-carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; and rotary feed mechanism constantly driven by the carrier-actuating mechanism and adapted for imparting a progressively-advancing movement to the cutter-slide during and throughout alternating oscillatory movements of the cutter-carrier, and embodying automatically-operable reversing and speed-modifying means effective, at a predetermined point in the advancing movement of the cutter slide, for imparting a relatively rapid return movement to the cutter-slide.

21. In a machine for generating gear-teeth, the combination, with a cutter-carrier and a gear-blank carrier connected to have curvilinear movements each in alternately opposite directions and in unison and with actuating mechanism therefor, of a cutter-slide mounted on the cutter-carrier for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; rotary feed mechanism constantly driven by the carrier-actuating mechanism and adapted for imparting a progressively-advancing movement to the cutter-slide during and throughout alternating oscillatory movements of the cutter-carrier, and embodying automatically-operable reversing and speed-modifying means effective, at a predetermined point in the advancing movement of the cutter-slide, for imparting a relatively rapid return movement to the cutter-slide; and indexing mechanism in connection with the gear-blank carrier and the cutter-carrier feed mechanism, and controlled by said feed mechanism, at a predetermined point in the cutter-slide-retracting movement thereof, for advancing the gear-blank carrier a predetermined arc distance.

22. The combination, with an oscillatory cutter-slide carrier and with a cutter-slide supported on said carrier, for reciprocatory movements in a plane intersecting the oscillatory path of said carrier; of a feed-screw journaled in the carrier at one side the axis thereof and having a screw-threaded bearing in the cutter-slide; a feed-shaft having its axis coincident with the axis of the carrier; two intermeshing spiral wheels connecting the feed-screw and feed-shaft; oscillating mechanism for the cutter-slide carrier; and a reversing driving device in geared connection with the feed-shaft and carrier-oscillating mechanism and embodying instrumentalities for intermittently and automatically reversing the direction of rotation of the feed-shaft, to impart working and return strokes, alternately, to the cutter-slide and also embodying speed-modifying instrumentalities controlled by the reversing instrumentalities of the driving device and effective for accelerating the rotation of the feed-shaft, to thereby accelerate the return stroke of the cutter-slide.

23. In a machine for generating gear-teeth the combination, with a cutter-carrier supported for oscillatory and reciprocatory movements in relatively-intersecting planes, of actuating mechanism for continuously oscillating said cutter-carrier; rotative feed mechanism in geared connection with the cutter-carrier and actuating mechanism and comprising two oppositely-rotating gears loosely mounted upon a shaft in geared connection with the cutter-carrier; a clutch member carried on said shaft and shiftable into and out of locked engagement with one of the reversing-gears; a speed-reducing train connecting the other gear to said shaft; a clutch-shifter for alternately effecting a reversal in the direction of rotation of the shaft and for intermittently effecting a change in the velocity of said shaft; and a clutch-shifter actuator carried on said shaft and intermittently effective for shifting the clutch into and out of locked engagement with the reversing-gear.

24. In a machine of the class specified, the combination, with an oscillatory cutter-carrier and with mechanism for imparting oscillatory movements to said carrier, of a cutter-slide mounted on said carrier for reciprocatory movements in a plane intersecting the oscillatory path thereof; and continuously-rotative feed mechanism in connection with the carrier and the carrier-actuating mechanism and embodying automatically-operable reversing and speed-modifying devices effective, at a predetermined point in the advancing movement of the cutter-slide, for reversing the direction of rotation and for accelerating the velocity of the feed mechanism.

25. In a machine of the class specified, the combination, with an oscillatory cutter-carrier and with mechanism for imparting oscillatory movements to said carrier, of a cutter-slide mounted on said carrier for reciprocatory movements in a plane intersecting the oscillatory path thereof; continuously-rotative feed mechanism in connection with the carrier and the carrier-actuating mechanism and embodying automatically-operable reversing and speed-modifying devices effective, at a predetermined point in the advancing movement of the cutter-slide, for reversing the direction of rotation and for accelerating the velocity of the feed mechanism; a gear-blank carrier; and means controlled by the feed-reversing device for intermittently advancing said carrier a predetermined arc distance.

26. The combination, with a cutter-slide supported for differential movements and with an oscillatory gear-blank carrier, of means connecting the cutter-slide and gear-blank carrier and effective for imparting to said cutter-slide oscillatory movements in paths that are alternately concentric and eccentric with relation to a fixed axis and for synchronously oscillating the gear-blank carrier; and an indexing mechanism controlled by the slide-actuating means, for intermittently advancing the blank-carrier a predetermined arc distance at predetermined points in a movement of the cutter-slide.

27. In a machine of the class specified, the combination, with an oscillatory cutter-carrier and with an oscillatory gear-blank carrier and means for synchronously oscillating the cutter-carrier and gear-blank carrier, of a cutter-slide mounted on the cutter-carrier for reciprocatory movements in a plane intersecting the oscillatory path of said cutter-carrier; continuously-rotating mechanism automatically operable for intermittently imparting advancing movements to the cutter-slide; an indexing-wheel carried by the blank-carrier; and means actuated by the cutter-carrier-actuating means, for intermittently and automatically advancing the blank-carrier a predetermined arc distance.

28. In a machine of the class specified the combination, with a cutter-carrier and gear-blank carrier and with means for imparting synchronous oscillatory movements to said carriers in relatively transverse planes, of rotative feed mechanism for imparting working and return strokes, alternately, to the cutter-carrier in a plane intersecting the oscillatory path of said carrier and embodying means for accelerating the return stroke thereof; and indexing mechanism in connection with the blank-carrier and automatically controlled by the movements of the feed mechanism, for intermittently advancing said blank-carrier a predetermined arc distance.

29. In a machine of the class specified the combination, with a cutter-carrier and a gear-blank carrier and with means for synchronously actuating the two carriers in relatively transverse planes; rotative feed mechanism embodying a feed-shaft in connection with the cutter-carrier and also embodying a reversing driving device in geared connection with the feed-shaft; and carrier-oscillating mechanism intermittently and automatically effective for reversing the rotation of the feed-shaft; an index-wheel carried by the blank-carrier; and means controlled by the movements of the reversing device, for intermittently and automatically advancing the gear-blank carrier a predetermined arc distance.

30. In a machine of the class specified the combination, with a cutter-carrier and with actuating mechanism for imparting working and return strokes, alternately, to said carrier, of a gear-blank carrier; an index-wheel carried by the gear-blank carrier; an oscillatory index-pin carrier; an index-pin in normal engagement with the index-wheel; means controlled by the cutter-carrier-actuating mechanism, for intermittently releasing the index-pin from locked engagement with the index-wheel; and means for oscillating the index-pin carrier, to effect a reëngagement of said pin with said index-wheel at a different point in the perimeter of said wheel.

31. In a machine of the class specified the combination, with a gear-blank carrier and a cutter-carrier and with actuating mechanism for simultaneously oscillating said carriers in relatively transverse planes, of a peripherally-notched index-wheel fixed to the blank-carrier; an index-pin in normal locked engagement with the index-wheel; and an oscillatory pin-actuator controlled by the movements of the cutter-carrier-actuating mechanism, for intermittently unseating the pin to facilitate a reëngagement of said pin with the next adjacent peripheral notch of the index-wheel during the continued movement of the blank-carrier oscillator.

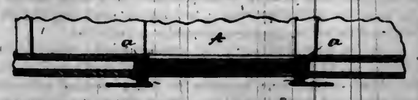
32. In a machine of the class specified the combination, with a cutter-carrier and with actuating mechanism embodying means for imparting reverse movements of relatively varying velocities to said cutter-carrier, of a gear-blank carrier; an index-wheel fixed to the gear-blank carrier; an oscillatory index-pin carrier in operative connection with the cutter-carrier-actuating mechanism and actuated thereby and having an index-pin in normal locked engagement with the index-wheel; and an index-pin actuator controlled by the movements of the cutter-carrier-actuating mechanism and adapted, at predetermined points in the movements of the cutter-carrier, for engaging and unseating the index-pin, whereby on the continued movement of the actuating mechanism said pin is reëngaged with the index-wheel at a different point in the circumference thereof.

33. In a machine of the class specified the combination, with a gear-blank carrier supported for oscillatory movements, of a peripherally-notched index-wheel fixed to said carrier; an oscillatory index-wheel actuator; a pin shiftably carried by said actuator and normally seated in one of the notches of the index-wheel, whereby it constitutes a connector between the actuator and blank-carrier; an index-pin actuator supported for movement toward and away from the index-pin and embodying a latch for unseating said index-pin; actuating mechanism for continuously oscillating the index-wheel actuator; and means controlled by the movements of said actuating mechanism, for interposing the pin-actuating latch in the path of movement of the pin, to thereby effect a retractive movement of said pin during the oscillatory movement of the index-wheel actuator and facilitate a reëngagement of said pin with the next adjacent notch of the index-wheel.

34. In a machine for generating gear-teeth, the combination, with a cutter-carrier and a gear-blank carrier, of means for synchronously oscillating said carriers; and means operable on one stroke of the cutter-carrier for automatically indexing said gear-blank carrier.

35. The combination, with a carrier, of two cutter-slides mounted on said carrier; means for imparting oscillatory strokes to said carrier; and means for advancing the slides in relatively oblique lines concurrently with and throughout oscillatory strokes of said carrier.

588,739. CINDER-SHIELD. JAMES F. ADAMS, Hubert, Ga. Filed Oct. 19, 1896. Serial No. 609,205. (No model.)

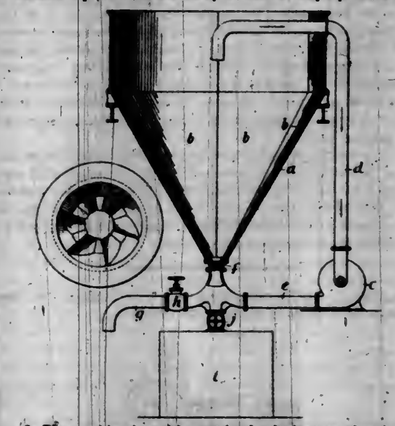


Claim.—1. A cinder-shield comprising among its members a plate provided with hinge connections adapted to be secured to a car-window casing, said plate having an integral portion on the inner side of said hinge connections extending the entire length of the plate and in the plane of said plate for engaging a portion of the window-casing disposed angularly to the car to form a dust-proof joint and to limit the outward movement of said plate, and a retracting-spring for said plate, substantially as described.

2. The combination with a car-window casing having a vertical strip at each side of the window-opening provided on its inner side with a face perpendicular to the side of the car, of vertical plates hinged to each of said strips, said plates having each an integral portion in the plane of said plate extending into position to engage the said perpendicular face to limit the outward movement of said plate and a spring secured to each plate for holding it away from the window-opening and substantially parallel with the side of the car whereby one of said plates will be operated when the car is moving in either direction, substantially as described.

588,740. APPARATUS FOR TREATING GOLD AND SILVER ORES. BRUNO BROCKER, Ruppin, Germany. Filed Feb. 5, 1897. Serial No. 622,170. (No model.)

Claim.—1. In apparatus for the treatment of gold and silver ores the combination of a vat provided with amalgamating-plates and adapted to contain cyanid of potassium, in solution and the ore to be treated, a vat containing the electrodes of an electrolytic apparatus and means for causing the circulation of the cyanid-of-potassium solution through the amalgamating-vat and for distributing it in the electrolytic vat, substantially as, and for the purposes, described.



2. The combination with a vat having its bottom of conical form, means for injecting liquid into said vat through its bottom and a distributing device in the path of the incoming liquid adapted to distribute the liquid laterally and spirally, substantially as described.

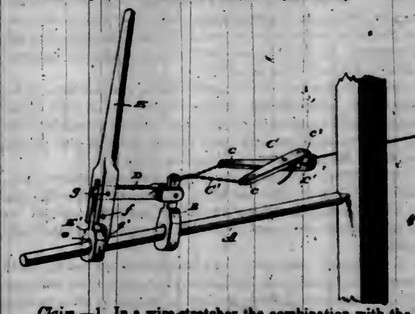
3. The combination with a vat having its bottom of conical form, means for injecting liquid into said vat through its bottom, and a stationary distributing device provided with inclined blades, located in the path of the incoming liquid, substantially as described.

4. The combination with a vat having its bottom of conical form, a liquid-forcing device connected with the upper central portion of said vat, and having an injection-passage discharging upwardly into the apex of said conical bottom, and a distributing device provided with a series of inclined blades disposed around a center located in the path of the incoming liquid, substantially as described.

5. The combination with the vat having a cone-shaped bottom portion, a liquid-forcing device communicating with the upper part of said vat and having an induction-pipe discharging upwardly through the apex of the said cone-shaped bottom, a closed receiver below said vat, and a normally open pipe in line with said apex directly connecting said vat and receiver, whereby the heavier particles of ore will gravitate into said receiver, substantially as described.

6. The combination with an amalgamating-vat, of an electrolytic vat, a communication between said vats provided with a valve, a liquid-forcing device directly connected with the upper and lower parts of said amalgamating-vat and directly connected with said electrolytic vat and cut-off valves in said connections for controlling the same, whereby the liquid in said amalgamating vat can be circulated therein or through it and said electrolytic vat, by said forcing device, substantially as described.

588,741. WIRE-STRETCHER. JOHN J. BROOKS, Athens, Ohio. Filed July 1, 1897. Serial No. 643,166. (No model.)



Claim.—1. In a wire-stretcher the combination with the bar A, of clutches mounted on said bar, a gripping device connected to one of the clutches, a lever pivotally secured to the other clutch, a connecting-bar pivoted to the clutch having the gripping device below the point of connection of the same thereto, the connecting-bar being pivoted to the lever at a point above the point of connection of the lever with the other clutch, said lever having projecting end portions for engagement with the face of the clutch adjacent to the

clutch carrying the gripping device substantially as shown and for the purpose set forth.

2. In a wire-stretcher, the combination with the bar A, of the clutches mounted thereon, a lever having a bifurcated end between which is pivoted a projecting portion of one of the clutches and one end of a bar connecting the clutches, the lever having extensions for engagement with the face of the clutch to which it is pivoted, a gripping device attached to the other clutch beyond the point of connection of the connecting-bar therewith substantially as shown and for the purpose set forth.

3. In combination with a wire-stretcher a gripping device consisting of two side pieces or members pivotally connected to each other and provided on opposite sides with projections which with the straight edge of the other member forms gripping-jaws on opposite sides, substantially as shown, whereby a wire can be gripped on either side of the gripping device.

588,742. TANK-CAR. PERRY BROWN, Wilmington, Del. Filed Nov. 7, 1896. Serial No. 611,361. (No model.)



Claim.—1. A car having a frame of channel-irons united at their crossings by fittings set in the channels of the irons and having projections extending beyond the flanges of the irons and holes through said projections, and the whole united by bolts passing through said projections, substantially as described.

2. A car having a frame of channel-iron longitudinal sills, needle-bars set at right angles thereto, fittings secured to the sides of the sills and needle-bars and having projections extending outside of the flanges of the channel-iron, and bolts passing through said fittings outside of said flanges, substantially as described.

3. A frame for a car, comprising longitudinal channel-iron sills 1, cross-sills 3, end sills 5, outer side sills 6, fittings secured to the sides of the irons, having perforated projections extending outside the flanges thereof and bolts coupling the fittings together, substantially as described.

4. A car-bolster comprising the channel-irons 14, castings as 18 set between the channel-irons, bolts passing through both of the channel-irons and castings and a bolster-plate 24 secured in place by bolts passing between the edges of the opposite flanges of channel-irons into one of said castings, substantially as described.

5. In combination with the longitudinal sills of a car, a bolster comprising the channel-irons 14, castings as 18 set between the channel-irons, a bolster-plate 24 secured by bolts passing into the castings between the channel-irons, fittings secured to the sills and channel-irons, and bolts for securing the fittings together, substantially as described.

6. The combination in a car and with the coupler thereof, of a buffing-bar secured flatwise to the under side of the longitudinal sills in front of the bolster, the draft-irons having their ends bearing against said buffing-bar, and rods running through the end sill to said buffing-bar and firmly secured to the latter, substantially as described.

7. The combination in a car, of longitudinal and end sills, a buffing-bar set beneath the same, a channel-iron cross-sill having fittings with perforated projections attached thereto, and draft-irons having their inner ends attached to the buffing-iron and connected to said cross-sill by bolts passing through the draft-irons and the fittings on the cross-sill, and rods running from the buffing-bar to the end sill, substantially as described.

8. The combination in a car and with the coupler and draft-irons therefor, of a channel-iron buffing-bar secured flatwise to the sills of the car and connected to the end sill by bolts and loops, substantially as described.

9. The combination in a car and with the coupler therefor, of a channel-iron buffing-bar secured flatwise to the sills of the car, bolt-and-loop connections between the buffing-bar and the end sill, and the draft-irons having their opposite ends secured to the buffing-bar and the end sill, substantially as described.

10. The combination of a channel-iron cross-sill 3 of a car, having fittings 4 secured to the web of said cross-sill and provided with perforated projections extending beyond the flanges of the channel-iron, with draft-irons 40 having bolt-holes therein, and bolts passing through said bolt-holes and into the perforated projections, substantially as described.

11. The combination in a tank-car, of a frame, a tank mounted thereon, and diagonal tie-rods having one end connected to a cross-sill, and the other secured near the top of the tank and rigidly securing said tank to the frame, substantially as described.

12. The combination in a tank-car, of a frame, a tank therefor, and diagonal tie-rods, each having one end connected to the upper part of the tank near one end and having its other end passing through the end sill, and rigidly holding the tank to the frame, substantially as described.

13. The combination in a tank-car and with the tank therefor, of a longitudinal channel-iron sill 1, fittings 53 secured to the web thereof having a perforated projection extending outside the flange of the sill, and a clamp 51 bolted to said fittings and bearing against the end of the tank, substantially as described.

14. The combination in a tank-car and with the tank and sills therefor, of fittings 57 secured to the web of the sills, and each having a perforated projection extending outside the flanges of the sills, the ears 56 fast on the tank, the ears 58 secured to said fittings, and bolts passing through said ears 56 and 58, substantially as described.

15. The combination in a tank-car and with the tank therefor, of a series of channel-iron cross-pieces, and a corresponding series of straps passing around the tank and having their ends passing through fittings secured to the web of said channel-iron cross-pieces and having holes for said strap ends in projections extending outside the flanges of said cross-pieces, substantially as described.

16. The combination with a longitudinal and a transverse channel-iron, of two fittings each arranged parallel with and secured to one of said channel-irons between the flanges thereof, and crossing each other, and bolts passing through said fittings to secure the channel-irons together, substantially as described.

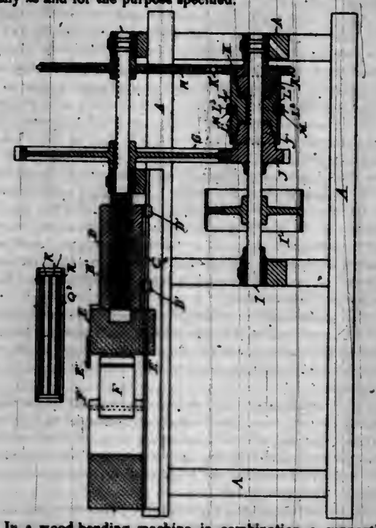
588,743. WOOD-BENDING MACHINE. HARVEY H. BURDETT and LORENZO W. BROWN, Rockford, Ill. Filed Oct. 23, 1896. Serial No. 609,861. (No model.)

Claim.—1. In a wood-bending machine, in combination, a supporting-frame, ways thereon, a forming-head on said ways, a screw-threaded shaft, a screw-threaded sleeve for said shaft mounted on the ways, a gear-wheel and a chain-wheel fixed on the shaft and means for driving the shaft through either the gear-wheel or the chain-wheel substantially as and for the purpose specified.

2. In a wood-bending machine, in combination, a supporting-frame, ways thereon, a forming-head on said ways, a gear-wheel and a chain-wheel for moving the forming-head upon the ways, a bending-frame and swinging ears pivoted to the frame for engaging the bending-frame substantially as and for the purpose specified.

3. In a wood-bending machine, in combination, a supporting-frame, ways thereon, a forming-head on said ways, a screw-threaded shaft, a screw-threaded sleeve for said shaft mounted on the ways, a gear-wheel and a chain-wheel on said shaft, a drive-shaft, a gear-wheel and a chain-wheel loosely mounted on the drive-shaft, a chain belt for the chain-wheels and means for engaging either the gear-wheel or the chain-wheel mounted on the drive-shaft with said shaft substantially as and for the purpose specified.

4. In a wood-bending machine, in combination, a supporting-frame, ways thereon, a forming-head on said ways, a screw-threaded shaft, a screw-threaded sleeve for said shaft mounted on the ways, a gear-wheel and a chain-wheel fixed on the shaft, a drive-shaft, a gear-wheel and a chain-wheel loosely mounted on the drive-shaft, and each having a projecting integral cone-shape hub, a spool coinciding with the said cones, which spool is splined on the driving-shaft and is free to be thrown into engagement with either cone substantially as and for the purpose specified.



5. In a wood-bending machine, in combination, a supporting-frame, ways thereon, a forming-head on said ways, a screw-threaded shaft for moving the forming-head, a gear-wheel and a chain-wheel on the screw-threaded shaft, a driving-shaft, a gear-wheel on the driving-shaft meshing with the gear-wheel on the screw-threaded shaft, a chain-wheel on the driving-shaft having connection with the chain-wheel on the screw-threaded shaft, and means for imparting motion from the driving-shaft to the screw-threaded shaft through either the chain connection or the gear connection with the driving-shaft, substantially as and for the purpose specified.

588,744. NAIL-PULLER. EDWARD C. FOWLER, Forestville, Conn., assignor of three-fourths to George A. Downs, same place, and William E. Simonds, Canton, Conn. Filed Dec. 14, 1896. Serial No. 615,710. (No model.)

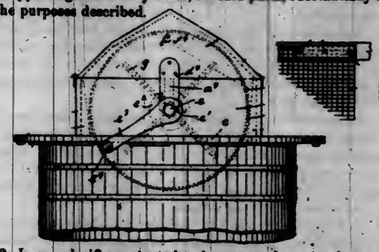


Claim.—1. The handle formed and adapted to there receive and sustain longitudinally-directed driving-blows and also having a flattened side and thereby adapted to there receive and sustain laterally-directed prying-blows, in combination with a bit containing a nail-notch located in general alinement with said flattened side of the handle and having on either side of the notch sections of the edge located in a plane substantially at right angles to the axis of the handle and converging to the notch on lines which are parts of a circle the center of which circle substantially coincides with the axis of the handle, all substantially as described and for the purposes set forth.

2. The combination of the handle with the annular bit having nail-notches formed therein and also having an opening rearward of the nail-notches adapted to afford a view through such opening of the contact of a nail-notch with a nail, in the act of nail-pulling, all substantially as described and for the purposes set forth.

588,745. ASH-SIFTER. ADOLPH HABNICHEK, Paterson, N. J., assignor of one-third to Christian Seal, Jr., same place. Filed Jan. 20, 1897. Serial No. 621,235. (No model.)

Claim.—1. In an ash-sifter, adapted to be mounted on circular receptacles of different diameters, the combination with a rotary sifter, of a supporting-plate provided with a central rectangular opening, a series of curved lugs concentrically and alternately arranged in circles of different radii and projecting downward from said supporting-plate, and a rectangular-shaped box upwardly projecting from said plate and surrounding the central opening therein and suitably supporting said rotary sifter, all said parts, substantially as and for the purposes described.

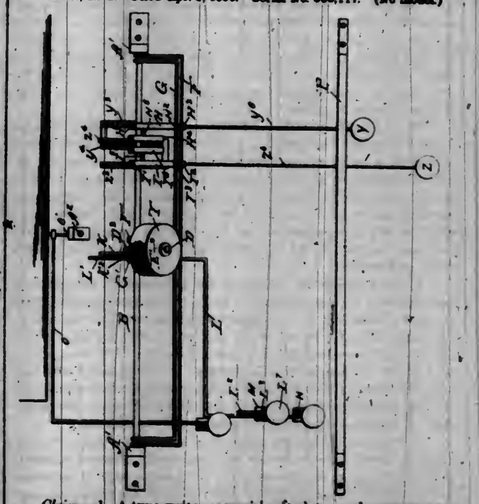


2. In an ash-sifter, adapted to be mounted on circular receptacles of different diameters, the combination with the supporting-plate provided with a central rectangular opening, a series of curved lugs concentrically and alternately arranged in circles of different radii and projecting downward from said supporting-plate, a rectangular box upwardly projecting from said supporting-plate and surrounding the central opening therein, and a rotary sifter suitably supported in said box and projecting into and through the central opening of the supporting-plate, all said parts, substantially as and for the purposes described.

3. In an ash-sifter, adapted to be mounted on circular receptacles of different diameters, the combination with the supporting-plate provided with a central rectangular opening, of a rectangular box upwardly projecting from said supporting-plate and surrounding the central opening therein, an inclined block in each corner of the rectangular box and adapted to close the openings formed between the sides of the central opening in the supporting-plate and the outer periphery of the receptacle on which said supporting-plate is placed, and a rotary sifter suitably mounted in said rectangular box and projecting into and through the central opening of the supporting-plate, substantially as and for the purposes described.

4. In an ash-sifter, adapted to be mounted on circular receptacles of different diameters, the combination with the supporting-plate provided with a central rectangular opening, of a rectangular box projecting upwardly from said supporting-plate and surrounding the central opening therein and provided at opposite sides with vertical elongated slots, a shaft removably arranged in said slots, a cylindrical sifter mounted on said shaft and projecting into and through the central opening of the supporting-plate, and an inclined block in each corner of the rectangular box and adapted to close the openings formed between the sides of the central opening in the supporting-plate and the outer periphery of the receptacle on which said supporting-plate is placed, all said parts, substantially as and for the purposes described.

588,746. TYPE-WRITING MACHINE. FRANK A. HEIM, Port Jervis, N. Y. Filed Apr. 3, 1896. Serial No. 586,117. (No model.)



Claim.—1. A type-writer comprising a platen and a rotary type-wheel having a variable rotary movement gradually decreasing in speed to bring the desired letter to the printing-point without shock

with means for rotating and arresting the said type-wheel, substantially as described.

2. In combination in a type-writer, a platen, a rotary type-wheel and means for rotating the same and arresting its rotary movement without shock, consisting of the pinion, the two racks and means for giving said racks a differential movement in the same direction, substantially as described.

3. In combination, in a type-writer, a platen, a rotary type-wheel and means for rotating and arresting the same without shock, and for swinging the type-wheel toward the platen consisting of the pinion, the two racks, one on each side of the same and means for giving said racks, at first a differential movement and finally a movement in unison, substantially as described.

4. In a type-writer, the combination of a platen, a rotary type-wheel, a swinging support therefor, a pinion connected with the type-wheel, a pair of racks, one on each side of the pinion, the swinging bails carrying the racks, the key mechanism and the tumblers operated thereby to swing the bails, said tumblers as they move forward being adapted to swing the bails in succession, on the same stroke and in the same direction, substantially as described.

5. In combination in a type-writer, the platen, a rotary type-wheel, a swinging support therefor, a pinion connected with the type-wheel to rotate the same, a pair of racks, one on each side of the pinion, the main tumblers for operating one of the racks, the helper-tumblers for operating the other rack, a key mechanism for operating the tumblers, substantially as described.

6. In combination, in a type-writer a platen, a rotary type-wheel, a swinging support therefor, the pinion connected to the type-wheel to rotate the same, a pair of racks one on each side of the pinion, a series of main tumblers for operating one rack, a series of helper-tumblers for operating the other rack and means for giving said main and helper tumblers a differential movement in relation to each other, substantially as described.

7. In combination in a type-writer, a platen, a rotary type-wheel, a swinging support therefor, a pinion and a pair of racks for rotating the type-wheel, a series of main tumblers, a series of helper-tumblers, said tumblers being arranged to operate their respective racks, and the main tumblers being arranged to operate both racks in unison after a predetermined movement of the racks has taken place.

8. In combination in a type-writer, the platen, a rotary type-wheel, the swinging support therefor, a pinion connected to the wheel, a pair of racks, a pair of bails connected to the racks, a series of main tumblers for operating one bail, the helper-tumblers for operating the bail of the other rack, means for giving the helper-tumblers a gradually-increasing movement, and means for giving the main tumblers a faster movement in relation to the helper-tumblers said main tumblers having a bearing to contact with the main bail and a second bearing to contact with the helper-bail after a predetermined movement has taken place.

9. In combination in a type-writer, a platen, a rotary type-wheel, a swinging support therefor, a rotating pinion and a pair of racks, the main and helper bails, the main tumbler arranged to contact with both the main and helper bails in succession, the helper-tumbler arranged to contact with the helper-bail, the small pinion on the main tumbler, the rack for operating the same, the pinion on the helper-tumbler having an eccentric portion and a small portion of slightly larger diameter than the pinion of the main tumbler, the rack for operating the same and the key mechanism for operating the racks, substantially as described.

10. In combination, the platen, a rotary type-wheel, a swinging support therefor, the pinion, a pair of racks, the bails connected therewith, a series of tumblers each being adapted to operate the bails in succession, means for operating the tumblers in pairs and for giving one a uniform fast movement in relation to the gradually-increasing movement of the other, each tumbler being arranged to act when its key is depressed as the main tumbler in conjunction with the other tumbler of the pair which then acts as a helper, substantially as described.

11. In combination, the platen, the type-wheel, a swinging support therefor, a pinion and pair of racks, the bails carrying the racks, a series of tumblers H, I, arranged in pairs each one being adapted to operate the bails in succession and each having a pinion H^7 I^7 to give its rack a uniform fast movement, the racks Y^3 Z^3 for actuating said pinion respectively, the helper-gear H^4 I^4 connected with their respective main tumblers H and I and means for operating each rack Y^3 and Z^3 and for communicating the said movement to the helper-gear of the companion tumbler, substantially as described.

12. In combination, the platen, the rotary type-wheel, a swinging support therefor, the pinion and racks, the bails connected therewith, a pair of tumblers each arranged to operate the bails in succession, key-levers one for each tumbler with means for connecting the same with the tumbler and a connection from the key mechanism of each tumbler to the other tumbler whereby each tumbler may be made to act as a helper for the other tumbler, substantially as described.

13. In combination, the platen, a type-wheel, the pinion and racks, a pair of tumblers each one being adapted to act as a helper, the main tumbler and key mechanism comprising the horizontal levers Y^6, the upright levers connected therewith by a pivot Y' and a pin Y^2 adapted to permit the upright lever to move independently of the horizontal lever.

14. In combination, the platen, the rotary type-wheel, the racks and pinion, the pair of main and helper tumblers and the key mechanism comprising the horizontal and vertical levers with a loose joint between them, each lever being connected to a main tumbler and being adapted to remain stationary when said main tumbler is acting as a helper-tumbler to another lever, substantially as described.

15. In combination, the swinging type-wheel and means for raising and lowering the same, consisting of a cam on the pivot of the swinging support, said cam being connected with the shaft of the wheel and means for rotating the cam, substantially as described.

16. In combination, the platen, a type-wheel and swinging support therefor, and means for raising and lowering the type-wheel, consisting of the cam having portions which are eccentric and concentric relatively to the pivot of the swinging support, said portions engaging the type-wheel shaft and means for rotating the cam and means for operating the swinging support independent of the cam, substantially as described.

17. In combination a platen, a swinging type-wheel and means for raising and lowering the same consisting of a two-part lever, a supplemental part being pivoted to the main part, stops for the supplemental and main parts and connections from the said lever to the type-wheel.

18. In combination, the platen, the type-carrier arranged to strike against the same and an underscorer arranged to be interposed between the platen and the type-carrier at a point below printing-point and adapted to be thrust against the paper by the type-carrier whereby the underscoring and printing of the letter is done simultaneously by the type-carrier.

19. In combination, the platen, the type-carrier and an underscorer comprising an arm having a spring portion and extending up in front of the platen to one side of the printing-point and means for adjusting said arm to bring its printing portion below the printing-point and in front of the type-carrier to be thrust against the paper by the same so that the letter and underscorer will be printed simultaneously through the action of the said type-carrier, substantially as described.

20. A type-carrier comprising a platen and a rotary type-wheel having a variable rotary movement gradually decreasing in speed to bring the desired letter to the printing-point without shock with means for rotating and arresting the type-wheel, said means also acting to swing the type-wheel toward and from the platen, substantially as described.

21. In combination, in a type-writer, a platen, a rotary type-wheel, a swinging support therefor, a pinion connected with the type-wheel, a pair of racks, one on each side of the pinion, the swinging bails carrying the racks, key mechanism and the tumblers interposed between said key mechanism and bails and having stops to engage and operate the bails, substantially as described.

588,747. LOCK. STEPHEN C. HOUGHTON, San Francisco, Cal. Filed May 15, 1897. Serial No. 636,774. (No model.)



Claim.—1. In a lock, a casing, a sliding bolt having a retracting-spring, and means for locking said bolt projected, in combination with a rotary or turning key adapted to fit upon the end of said bolt and to disengage said locking means; the bolt extending through opposite faces of the casing whereby it may be projected by pressure upon its exposed end.

2. In a lock, a casing, a sliding bolt having a retracting-spring, means for locking said bolt projected, in combination with a rotary or turning key adapted to fit upon the end of said bolt and to disengage said locking means; the tail of the bolt extending outside of the front of the casing when such bolt is held retracted, whereby it may be projected by pressure upon its exposed end, substantially as described.

3. In a lock and in combination, a casing, a sliding bolt having a retracting-spring, and provided with a projection or collar, a spring-actuated tumbler having a beveled key-engaging shoulder and adapted to bear upon the side of said projection when the bolt is projected and upon its edge when the bolt is retracted, and a turning key adapted to turn upon the end of said bolt and engage said beveled shoulder whereby the bolt is automatically retracted, substantially as described.

4. In a lock the combination with a casing, of a sliding spring-bolt having a bearing in the wall of the casing, a spring-actuated tumbler adapted to engage with said bolt and lock it, a guard-plate having a bearing for said bolt and secured in the casing in front of said sliding tumbler, and a key for disengaging said tumbler to permit the bolt to be automatically unlocked.

588,748. SPRING-BALANCE COMPUTING-SCALE. GEORGE B. HOYT and FRANK C. HOYT, Cleveland, Ohio. Filed Nov. 24, 1896. Serial No. 613,333. (No model.)



Claim.—1. In a spring-balance computing-scale, in combination, the scale-case, its fixed rear face-plate graduated to indicate weights, its fixed front face-plate having a sight-opening b, and rate-indicating figures along the reading edge of the said sight-opening, the transverse shaft projecting through the rear face-plate, a pointer secured to said projecting end of the shaft, and a computing-dial, secured to the shaft behind the front face-plate, and having a plurality of annular columns respectively graduated to indicate values at various rates, and mechanism for actuating said shaft, substantially as and for the purpose specified.

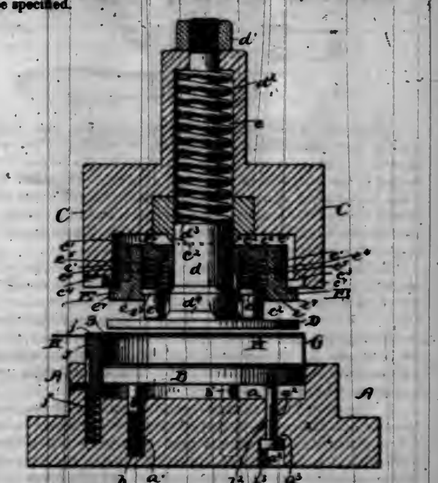
2. In a spring-balance computing-scale, in combination, the scale-case, its fixed rear face-plate graduated to indicate weights, its fixed front plate having sight-openings b, along the edge of which rate-indicating figures are placed, and the sight-opening b', the transverse shaft journaled in said face-plates and projecting through the rear face-plate, a pointer secured to said projecting end of the shaft, a computing-dial secured to the shaft behind the front face-plate, having one annular column graduated to indicate weights, and a plurality of annular columns respectively graduated to indicate values at the different rates shown by said rate-indicating figures, a spring-supported frame, and mechanism intermediate of the frame and shaft, substantially as and for the purpose specified.

3. In a spring-balance computing-scale, in combination, the scale-case, its fixed rear plate graduated to indicate weights, its fixed front plate having narrow substantially radial sight-openings b, along the edge of which rate-indicating figures are placed, and the arc-shaped sight-opening b', the transverse shaft journaled in said face-plates and projecting through the rear face-plate, a pointer secured to said projecting end of the shaft outside of said rear face-plate, a computing-dial secured to the shaft behind the front face-plate and invisible except at the said sight-openings, having one annular column graduated to indicate weights, and a plurality of annular columns respectively graduated to indicate values at the different rates shown by said rate-indicating figures, the width of the sight-openings b being such as to disclose substantially but one radial row of figures in said annular columns, a spring-supported frame, and mechanism intermediate of the frame and shaft, substantially as and for the purpose specified.

588,749. MECHANISM FOR WIRING EDGES OF COVERS OR ANALOGOUS ARTICLES. HERBERT H. HULL, Cleveland, Ohio. Filed Aug. 3, 1896. Serial No. 601,433. (No model.)

Claim.—1. In a device for wiring the edge of covers and analogous articles, the combination of a platen for supporting the cover to be wired, and a vertically-movable plunger having a recess in its lower end, a depending annular flange which surrounds said recess, and an annular curling-groove in the lower edge of said flange, with an expanding ring centrally supported within said recess, means for normally contracting it to its smallest diameter, and mechanism whereby the downward movement of the plunger moves the said expanding ring downward into the cover supported upon the platen, and mechanism for expanding said ring within said cover, whereby its edge passes beneath and supports the wire as the edge of the cover is turned inward by the further downward movement of the plunger, substantially as and for the purpose specified.

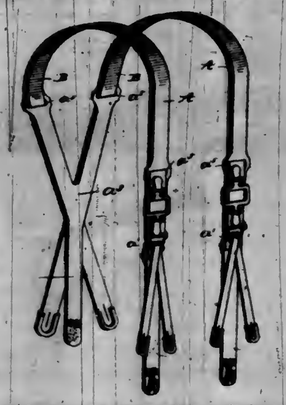
2. In a device for wiring the edge of covers and analogous articles, the combination of a plunger having a recess in its lower end, a depending annular flange surrounding said recess, and an annular curling-groove in the lower edge of said flange, with a stem, vertically movable through said plunger, having a horizontal plate upon its lower end, a spring acting to force said stem downward relative to the plunger, an expanding ring embracing said stem within the recess in the plunger, a spring for contracting said ring around said stem, and means for expanding said ring when it is moved down upon said stem by the action of the plunger, substantially as and for the purpose specified.



3. In a device for wiring the edge of covers and analogous articles, the combination of a vertically-movable plunger having a recess in its lower end, an annular flange surrounding said recess, and an annular curling-groove in the lower edge of said flange, with a stem vertically movable through said plunger, having the beveled surface d^4, a plate on the lower end thereof, a spring for moving said stem downward relative to the plunger, an expanding ring embracing said stem, a spring for contracting said ring, and a wedge-shaped flange rigid with the plunger, depending from the top of said recess and embracing said stem, and springs exerting their force to separate said plate D and expanding ring, substantially as and for the purpose specified.

4. In a device for wiring the edge of covers, cans, and analogous articles, the combination of a bed-plate A, the vertically-movable platen B, and the vertically-movable spring-pin J having a notch in its upper end, with a plunger C having in its lower edge the annular curling-groove c^4 and a notch c^6, with a plate D, its stem which is movable in suitable bearings in the plunger, a spring d^3 encircling said stem, an expanding ring E embracing said stem, spring-actuated pins carried by said ring engaging with said plate D, the wedge-shaped flange c^5 on the plunger, and a beveled surface d^4 on the stem for expanding said ring, substantially as and for the purpose specified.

588,750. DRAWERS-SUPPORT. WILLIAM H. KEPHART, Knoxville, Tenn. Filed Dec. 9, 1896. Serial No. 615,096. (No model.)



Claim.—A drawers-support comprising a single rear strap, and two shoulder-straps connected thereto, each provided with an opening in the rear and front, in the body of the material, said support being provided with devices for engaging the drawers, substantially as described.

588,751. PIPE-WRENCH. PHINEAS W. LOWERY, Huntsville, Ala. Filed Oct. 8, 1896. Serial No. 608,305. (No model.)



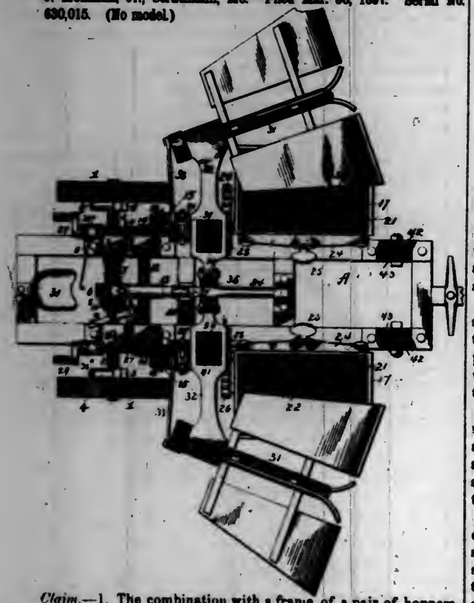
Claim.—1. In a wrench, the combination, with a main body or bar, having toothed faces on its upper end and outer side, and an aperture or slot transversely through said body, of a frame or bridle hinged to the inner side of said body, a threaded nut in said bridle and a movable jaw detachably and adjustably located in said bridle, passing through the nut, whereby provision is made for causing the movable jaw to work in conjunction with either toothed face of said body, substantially as set forth.

2. In a wrench, the combination with a frame, or bridle, having apertures in its top, bottom and sides, forming passages at right angles to each other, and a nut centrally located therein, of a main body or bar to which said frame or bridle is hinged, said body having an opening through it edgewise, and toothed faces on its upper end and outer side, the whole forming a provision whereby an adjustable jaw may work in conjunction with either of the toothed faces as may be desired, substantially as set forth.

3. In a wrench, the combination, with a bridle or frame, having centrally located therein, transverse recesses to accommodate a nut, and openings forming passages at right angles to each other through said bridle, of a sliding jaw adjustable by said nut, and so arranged thereby as to work through these passages and with either of two toothed faces respectively located on the end and side of a main body, to which said bridle is hinged, substantially as set forth.

4. In a wrench, the combination with a handle, or body having toothed faces on the upper end and outer side, a slot transversely through said body below said faces, of a frame or bridle hinged to said body at a point on the inner side equidistant from corresponding points on either of the two toothed faces, forming a provision whereby a long or hooked jaw located in said frame, may work with either of said toothed faces, and occupy a similar relative position to each; substantially as set forth.

588,752. MACHINE FOR EXTERMINATING INSECTS. GEORGE J. MOELLER, Jr., Stratmann, Mo. Filed Mar. 30, 1897. Serial No. 630,015. (No model.)



Claim.—1. The combination with a frame, of a pair of hoppers, a roller journaled in each hopper and each hopper pivotally supported on a roller.

2. The combination with a frame of a pivoted hopper, a pair of rollers, one journaled in the frame and the other in the hopper, the two lying side by side and the hopper mounted on the axle of one, a bail connected with the roller supported in the hopper, and means for adjusting this roller laterally to take up wear.

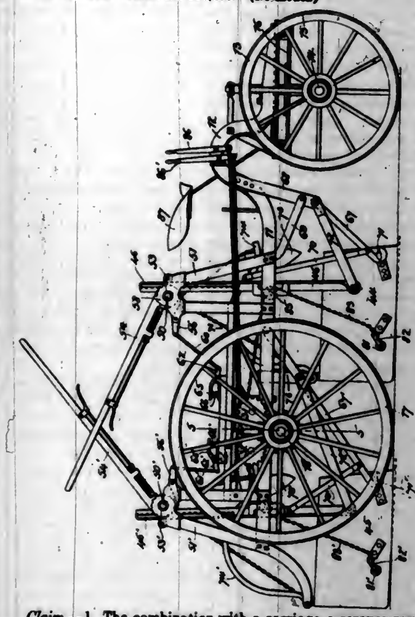
3. The combination with a frame, of a hopper pivoted thereto, said hopper having a segment thereon, a shaft having a pinion thereon which meshes with the segment, and a crank on the shaft for turning the latter and setting the inclination of the hopper.

4. The combination with a frame, of pivoted arms, sweeps or fans revolubly supported in the arms, the blades of the sweeps or fans tapering and bent laterally at one end.

5. The combination with a frame, arms pivoted thereto, and sweeps or fans revolubly supported in the arms, of a hand-lever, links connecting said lever to the arms, and a pivoted toothed bar to which the hand-lever is locked when the fans or sweeps are set in position.

6. The combination with a frame, hoppers and rollers turning in the bottom of the hoppers, of sweeps or fans, a revolubly-supported sprocket-wheel, a pitman extending therefrom to the fan or sweep, a sprocket-wheel at the roller-shaft, a chain extending around these sprocket-wheels, and means for driving the roller-shafts.

588,753. ROAD-SCRAPER. THOMAS B. MCKNIGHT, Aurora, Ill., assignor to The Western Wheeled Scraper Company, same place. Filed Jan. 10, 1895. Serial No. 534,458. (No model.)



Claim.—1. The combination with a carriage, a scraper-pan, and vertically-movable rack-bars 46 47, of braces 72, hooks 67 engaging said scraper-pan, and bars 70 connecting said hooks to said rack-bars, substantially as described.

2. In a scraper, the combination with a carriage-frame, and a scraper-pan supported therefrom, of an end gate pivotally connected to said frame, means for moving said end gate over the front of said pan when the pan is elevated, means for dumping the pan, and a device carried by said pan for moving the end gate out of the way when the pan is dumped, substantially as described.

3. In a scraper, the combination with a frame, and a scraper-pan supported thereby, of an end gate, arms connected to said end gate and pivotally supported by said frame near the rear end of the scraper-pan, and a device carried by said pan and adapted to engage said end-gate supports to move the end gate out of the way when the pan is dumped, substantially as described.

4. In a scraper, the combination with a frame, and a pan, of an end gate 73, bars 74 75 connected to said end gate and pivoted to said frame near the rear end of the scraper-pan, a device carried by said pan adapted to engage said bars to move the end gate out of the way when the pan is dumped, and means for dumping the pan, substantially as described.

5. In a scraper, the combination with a frame, and a pan, of an end gate 73, bars 74 75 connected to said end gate and pivoted to said frame near the rear end of the scraper-pan, a device carried by said pan adapted to engage said bars to move the end gate out of the way when the pan is dumped, means for dumping said pan, a shaft 50, devices operated by the rotation of said shaft to raise and lower the scraper-pan, and a flexible device connected to the end gate and to said shaft whereby by the rotation of said shaft the end gate will be raised and lowered, substantially as described.

6. In a road-scraper, the combination with a carriage-frame, a scraper-pan, and vertically-movable rack-bars 46 47 for raising and lowering said pan, of an end gate pivotally supported from the carriage-frame, a shaft 50 geared with said vertically-movable rack-bars, ratchet-lever mechanism for rotating said shaft and flexible connection from said shaft to the end gate, substantially as described.

7. In a road-scraper, the combination with a carriage-frame, a scraper-pan supported therefrom, and means for raising and lowering said pan, of a shaft mounted on the frame and provided with pulleys 35, 42, the chains 83, 84 connected to said pulleys and to opposite sides of the rear portion of the scraper-pan, pulleys 85 carried by the pan-supports and over which said chains are passed, the bell-crank lever 89 having a fork engaged with the sleeve of the pulley 35, the lever 86, and the rod 88 connecting said levers 86 and 89, substantially as described.

8. In a road-scraper, the combination with a carriage-frame, a scraper-pan supported from said frame, and means for raising and lowering the said pan, of the axle 18 having on one end the clutches 24 and 25 and on the other end a gear 22 provided with pawls 21, a ratchet-wheel 20 carried on the inner end of one of the wheel-hubs and engaged with said pawls, the shaft 27 having pulleys 35, 42 thereon and provided on one end with a gear 31 meshing with the gear 22, the said gear 31 and pulley 35 being provided with coacting clutch sections or projections, a cam-lug, as 39, to throw the pulley 35 out of engagement with the clutch-sections of said gear 31, the chains 83, 84 connected to the pulleys 35, 42 and to opposite sides of the rear portion of the scraper-pan, the bell-crank lever 89 connected with the pulley 35, the lever 86 and the connecting-rod 88, substantially as described.

9. In a road-scraper, the combination with a carriage-frame, and a scraper-pan supported therefrom and provided with means for raising and lowering, of a shaft provided with pulleys 35 and 42, chains connecting said pulleys with the scraper-pan, whereby rotation of the shaft will wind the chains and dump the pan, a gear driven by the carriage and adapted to clutch with one of said pulleys, means for moving the said pulley and clutch into engagement with each other and a cam for disengaging the said clutch and pulley, substantially as described.

10. In a road-scraper, the combination with a carriage-frame, a scraper-pan supported from said frame, and means for raising and lowering the said pan, of the axle 18 having on one end the clutches 24 and 25 and on the other end a gear 22 provided with pawls 21, a ratchet-wheel 20 carried on the inner end of one of the wheel-hubs and engaged with said pawls, the shaft 27 having a pulley 35 thereon and provided on one end with a gear 31 meshing with the gear 22, the said gear 31 and pulley 35 being provided with coacting clutch sections or projections, a cam-lug, as 39, to throw the pulley 35 out of engagement with the clutch-sections of said gear 31, a flexible connection connecting the shaft 27 and the scraper-pan, the bell-crank lever 89 connected with the pulley 35, the lever 86 and the connecting-rod 88, substantially as described.

11. The combination with a carriage, and a scraper-pan, of a pulley 35, a clutch 34, means for driving said clutch by the movement of the carriage, means whereby said pulley and clutch may be moved into engagement with each other, and a cam 39 for moving said clutch and pulley out of engagement with each other after the pan has been dumped, substantially as described.

12. In a road-scraper, the combination with a carriage, and a plurality of scraper-pans supported by said carriage, of mechanism operated by the movement of the carriage for dumping the scraper-pans independently of each other, and means by which the operator can throw such dumping mechanism into operation when desired, substantially as described.

13. In a road-scraper, the combination with a wheeled carriage, and a plurality of scraper-pans supported from said carriage, of means for raising said pans, mechanism operated by the carriage axle or wheels for dumping the scraper-pans independently of each other, and means by which the operator can throw such dumping mechanism into operation to dump either of said scraper-pans, substantially as described.

14. In a road-scraper, the combination with a wheeled carriage, and a plurality of scraper-pans supported by said carriage, of pulleys having flexible connections with the pans, a gear driven by the carriage axle or wheels and adapted to clutch with one of the said pulleys, and means for causing the movement of said carriage to dump either of the scraper-pans, substantially as described.

588,754. FLY-FAN. GWYNNE R. PAINTER, Baltimore, Md., assignor to William A. Pleasants, same place. Filed June 5, 1897. Serial No. 639,601. (No model.)

Claim.—1. In a fly-fan, the combination with a central vertical driving-shaft, of radial arms hinged to and carried by said shaft, an annular drive-plate below said arms, and fan-blades rotatively mounted on said arms, each blade having at its outer end a journal-bearing on its arm, and having at the inner end a drive-wheel in rotative engagement with the drive-plate, substantially as described.

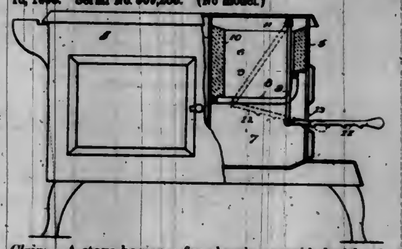


2. In a fly-fan the combination with a vertical shaft and radial arms hinged thereto, of flat fan-blades each firmly secured to its arm, and loop-shaped fan-blades outside of the flat blades and each rotatively mounted on its arm, and means for causing said loop-blade to revolve around the flat blade, during the rotation of the vertical shaft, substantially as described.

3. In a fly-fan, the combination of a vertical extensible driving-shaft having its extensible portion mounted in and supported by a vertically-adjustable tubular bearing, an annular drive-plate vertically adjustable with said shaft and its bearings, radial arms secured to the upper end of said shaft, and rotative fan-blades journaled at their outer ends upon said arms, and at their inner ends provided with drive-wheels bearing upon the drive-plate, substantially as described, whereby the fan-blades are caused to rotate on their arms while the latter are moving in a circular path due to the rotation of the driving-shaft, and enabling the fan-blades to be located at various heights, without disturbing the connection of their arms with the driving-shaft.

4. In a fly-fan, the combination with a vertical central shaft, an annular drive-plate, a lower cross-head on said shaft provided with a clamp-screw, an upper cross-head resting on a shoulder near the top of said shaft, radial fan-arms hinged to the lower cross-head and coupled to the upper cross-head by links, and fan-blades, each rotatively mounted on its arm, and provided with a drive-wheel in engagement with the drive-plate, substantially as described.

588,755. STOVE. JAMES P. POOL, Brooklyn, N. Y. Filed Nov. 18, 1896. Serial No. 569,253. (No model.)



Claim.—A stove having a fire-chamber provided with a bottom grate, a grate arranged at one side of the fire-chamber and hinged by its upper end so as to swing on a horizontal axis, said grate provided with members or projections extending into openings in said bottom grate and moving freely through said openings, and means for adjusting said swinging grate on its axis.

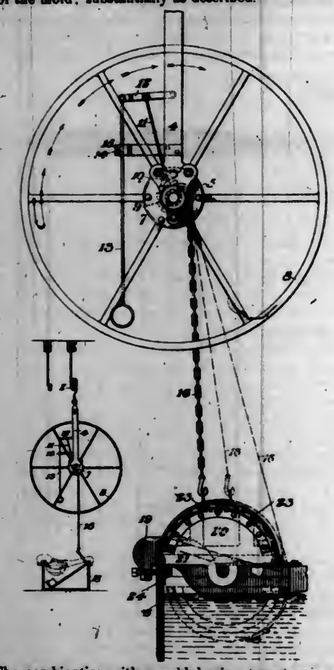
588,756. HOISTING AND TRIPPING APPARATUS. WILLIAM S. REESE, Hatboro, Pa. Filed Sept. 25, 1896. Serial No. 606,965. (No model.)

Claim.—1. The combination with an overhead trolley, of a yoke depending therefrom, a drum carried in roller-bearings in said yoke, a hand-wheel secured to the drum, a ratchet-wheel secured to the drum-shaft, a swinging pawl engaging the ratchet-wheel, a lever having a link connection with the pawl, and a link connected to said lever and having a lug arranged to rest upon a projection of the yoke and hold the pawl in inoperative position; substantially as described.

2. The combination with a swinging mold having trunnions, and having at one end a curved rim, of an upper winding-drum located at one side of the mold-trunnions and having a depending chain secured to the curved-rim portion of the mold; substantially as described.

3. The combination with a swinging mold having trunnions, and having a curved portion struck on a circle whose center is at one side of the pivotal point of the mold, of a winding-drum located above and at one side of the pivotal point of the mold, and a chain arranged

to wind on said drum and having its lower end secured to the curved portion of the mold; substantially as described.



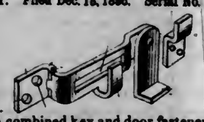
4. The combination with a mold having trunnions upon which it swings, of a segmental plate having a grooved rim at the end of the mold, the edge of said rim being struck on a circle, the center of which is at one side of the center of the trunnions, an overhead winding-drum at one side of the mold-trunnions, and a chain extending from said drum to and secured to the curved rim at a point at one side of a line drawn from the drum to the center of the mold-trunnions; substantially as described.

588,757. COMBINATION GARDEN-TOOL. ELBERT O. SIMMONS, Englevale, N. D. Filed Nov. 28, 1896. Serial No. 613,806. (No model.)



Claim.—The handle 1 provided with cylindrical socket 2, formed with the longitudinal parallel rectangular orifices 3, 7 and 8, and the set-screws 6 and 12, a series of cylindrical spring-arms provided with rectangular shanks, the free ends of said arms being turned at an approximately right angle to their rectangular shanks, in combination with a series of reversible cultivator-blades adapted to be detachably secured to the cylindrical free ends of said spring-arms, substantially as shown and described.

588,758. KEY AND DOOR FASTENER. CAROLINE E. SMITH, Brooklyn, N. Y. Filed Dec. 18, 1896. Serial No. 616,134. (No model.)



Claim.—1. A combined key and door fastener, comprising a base-plate adapted to be fastened to the door, and a swinging slotted plate adapted for engagement with the head of a key, and a swinging arm attached to the outer end of said plate and a bracket for engagement with said arm adapted to be fastened to a door-frame, substantially as shown and described.

2. In a combined key and door fastener, the combination of the base-plate secured to the door and the swinging slotted plate having a tongue projected therefrom adapted to engage with the head of a door-key, and a swinging arm pivoted to the outer end of said plate, and a bracket for engagement with the said arm, which bracket is secured to the door-frame, substantially as shown and described.

588,759. VEHICLE-AXLE SLEEVE. BENJAMAN F. WHITMORELAND and ROBERT H. RABINGTON, Franklinton, La. Filed Apr. 9, 1897. Serial No. 631,436. (No model.)

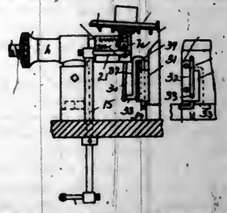


Claim.—1. The axle 1, having the cylindrical shank 2, threaded end 3, and the correspondingly-threaded collar 4, in combination with the detachable skein or thimble 5, formed with the internally-threaded polygonal sleeve 6, reinforced collar 10, and the threaded socket 8, substantially as shown and described.

2. The axle 1, having the cylindrical shank 2, threaded end 3, and correspondingly-threaded collar 4, in combination with the screw-stud 9, adjustably secured in the end of said axle, and the detachable skein or thimble 5, provided with the internally-threaded polygonal sleeve 6, reinforced collar 10, and the threaded socket 8, substantially as shown and described.

588,760. STOP-MOTION FOR CIRCULAR-KNITTING MACHINES. ALBERT WHITE and DANIEL F. SULLIVAN, Lowell, Mass., said Sullivan assignor to Mary Sullivan, same place. Filed Dec. 11, 1896. Serial No. 615,292. (No model.)

Brief.—Whenever the shipper-handle is moved by hand or otherwise, a support is brought beneath the drop-wire. A staple or trip hangs on the needle-cylinder, and when the presser is released a projection beneath is brought into the path of and turns the trip, so that it drops and in turn releases the shipping mechanism.



Claim.—1. In a circular-knitting machine a mechanism operated positively by a movement of the hand-shipper to project a support under the thread-supported drop-wire of the stop-motion.

2. In a stop-motion for circular-knitting machines a thread-supported drop-wire; movable presser-supporting mechanism; a trip on the needle-cylinder set by said mechanism; and mechanism operated by said trip for actuating the hand-shipper.

3. In a stop-motion for circular-knitting machines a thread-supported drop-wire; movable presser-supporting mechanism; a trip on the needle-cylinder set by said mechanism; mechanism operated by said trip for actuating the hand-shipper; and devices actuated by the movement of said shipper for projecting a support under said drop-wire.

4. In a stop-motion for circular-knitting machines, a presser release mechanism embodying a thread-supported drop-wire, in combination with a hand-shipper, a rock-shaft actuated by the movement thereof; and a support projected under said drop-wire by the rocking of said shaft, substantially as described.

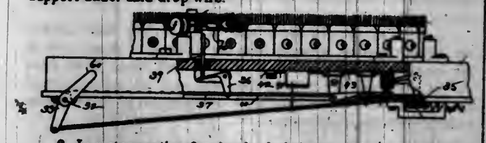
5. The trip on the needle-cylinder, the hand-shipper, and the lever actuated by said trip for releasing said shipper, in combination with the movable presser-support having a projection adapted to engage and set said trip, substantially as specified.

6. In a circular-knitting-machine stop-motion embodying a thread-supported drop-wire, a hand-shipper and mechanism operated thereby for projecting a support under said drop-wire to prevent it releasing said stop mechanism.

588,761. STOP-MOTION FOR CIRCULAR-KNITTING MACHINES. ALBERT WHITE and DANIEL F. SULLIVAN, Lowell, Mass.; said Sullivan assignor to Mary Sullivan, same place. Filed Dec. 11, 1896. Serial No. 615,293. (No model.)

Brief.—When the drop-wire falls and the presser-wheel is unlocked, its support slides horizontally, completing the circuit and releasing the shipper. When so released or when released by hand, the shipper causes a support to be projected beneath the drop-wire.

Claim.—1. In a stop-motion for circular-knitting machines embodying a horizontally-movable presser, the combination with locking mechanism therefor and releasing devices comprising a drop-wire, of an electric circuit closed by the movement of said presser; and mechanism operated by the closing of said circuit for projecting a support under said drop-wire.



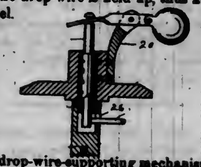
2. In a stop-motion for circular-knitting machines embodying a horizontally-movable presser-wheel, locking mechanism therefor and releasing devices embodying a drop-wire, in combination with an electric circuit closed by the movement of said presser; a spring-operated shipper released by the closing of said circuit; and mechanism operated by the movement of said shipper for projecting a support under said drop-wire.

3. The combination with the horizontally-movable presser-wheel of locking mechanism therefor; and releasing devices embodying a drop-wire, of the spring-actuated shipper; locking mechanism therefor; and an electric circuit adapted to be closed by the movement of said presser; an electromagnet in said circuit operating to release said locking mechanism; and devices actuated by the movement of the shipper for projecting a support under said drop-wire.

4. In combination with the rotary presser-wheel mounted on a horizontally-sliding support of a locking mechanism therefor; a drop-wire mechanism for releasing said presser; an electromagnet the circuit of which is closed by the movement of said presser; a vertically-movable support adapted to engage said drop-wire, a spring-actuated shipper; locking mechanism therefor released by the charging of said magnet; and mechanism actuated by the movement of the shipper for engaging said support with the drop-wire.

588,762. AUTOMATIC DROP-WIRE SUPPORT FOR KNITTING-MACHINE STOP-MOTIONS. ALBERT WHITE and DANIEL F. SULLIVAN, Lowell, Mass.; said Sullivan assignor to Mary Sullivan, same place. Filed Dec. 11, 1896. Serial No. 615,295. (No model.)

Brief.—When the machine is stopped otherwise than by a breaking of the thread, the drop-wire is held up, thus avoiding the release of the presser-wheel.



Claim.—1. A drop-wire-supporting mechanism for circular-knitting machine stop-motions comprising a centrifugally-actuated mechanism operated from a rotary wheel on said knitting-machine.

2. In a stop-motion for knitting-machines embodying a drop-wire, a support for said wire and mechanism actuated by the rotation of the machine presser-wheel to release said support from said wire.

3. In a stop-motion for circular-knitting machines, a rotary presser-wheel; locking mechanism therefor; and releasing devices comprising a drop-wire, and mechanism supporting said wire when the machine is at rest and released by the rotation of said presser when the machine is in action.

4. The combination with the drop-wire and rotary presser-wheel, of a counterbalance-lever carried on said presser, and a projection actuated thereby for supporting and releasing said drop-wire, substantially as specified.

588,768. BARREL-HEAD. JAMES F. ADAMS, Hubert, Ga. Filed Aug. 1, 1896. Serial No. 601,388. (No model.)

Claim.—1. In an expanding barrel-head, the combination with the head proper, the segmental plates and means for moving said plates toward and from the center of said head, of the supporting devices secured to said head and adapted to engage the top edge of the barrel, substantially as described.

2. In an expanding barrel-head, the combination with the head proper, of segmental plates adapted to enter the chime of the barrel, means for moving said plates toward and from the center of said head, and the supporting devices having horizontal portions extending beyond said head, and located a distance above said segmental plates, equal to the distance between the chime and the adjacent edge of the barrel, substantially as described.

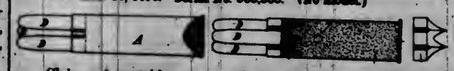
3. In an expanding barrel-head, the combination with the head proper, of the segmental plates, guides for said plates, provided with integral horizontal portions projecting beyond said head, and located above said plates a distance equal to the distance from the chime to the adjacent edge of the barrel and means for moving said plates toward and from the center of said head, substantially as described.



4. In an expanding barrel-head, the combination with the head proper, of the segmental plates, a central screw-shaft perpendicular to said head, curved spring-plates engaging said screw-shaft and having their outer ends connected to said plates, and supporting devices secured to said head having horizontal portions extending beyond said head and located a distance above said segmental plates equal to the distance between the chime and the adjacent edge of the barrel, substantially as described.

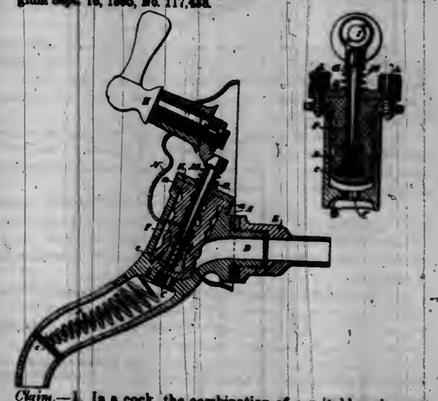
5. A barrel-head having segmental plates slidingly mounted upon the top surface thereof adjacent to its outer edges, guides secured to said head beneath which said segmental plates move, a screw-bolt mounted centrally of said head, stop-nuts on said bolt, curved spring-plates connected at their central points to said bolt, fitting between said stop-nuts and connected at their outer ends to said segmental plates and a handle on said bolt whereby the same may be turned, substantially as and for the purpose described.

588,764. CARTRIDGE. MARTIN P. BOSS, San Francisco, Cal. Filed Mar. 18, 1896. Serial No. 583,835. (No model.)



Claim.—A cartridge composed of a plurality of unitedly-seated independent projectiles, a shell having an explosive charge common to all of said projectiles, a means at the rear end of the shell for exploding said charge, and a grooved seat-plate in the forward end of the shell in which the projectiles are independently but unitedly seated, said seat-plate having peripheral grooves in which the material of the shell is crimped.

588,765. COCK WITH DRIVING PARTS ENTIRELY ISOLATED FROM LIQUIDS. EDMOND DRAULETTE, Paris, France. Filed Sept. 16, 1896. Serial No. 606,016. (No model.) Patented in France July 13, 1896, No. 248,986; in England Sept. 12, 1896, No. 17,077, and in Belgium Sept. 16, 1896, No. 117,432.



Claim.—1. In a cock, the combination of a suitable valve-seat, a valve composed of an elastic body fixed at one point, whereby it may be placed under tension, means for counteracting the movement of the valve when it is under tension, and valve-actuating mechanism, substantially as and for the purpose specified.

2. In a cock, the combination of a suitable valve-seat, a valve composed of an elastic body that is placed under tension when moved

from said seat, a spring that counteracts the tendency of the valve, when under tension, and valve-actuating mechanism, substantially as and for the purpose shown.

3. In a cock, the combination of a suitable valve-seat, a valve composed of an elastic body that is placed under tension when moved from said seat, a rod attached to said body, a spring tending to move said rod with a force that counteracts the force exerted by the valve, when under tension, an eccentric connected to said rod, and means for rotating the eccentric, substantially as and for the purpose set forth.

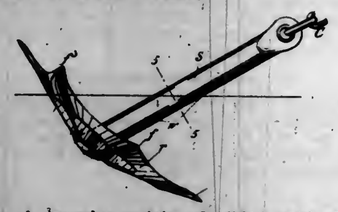
4. In a cock, the combination of a suitable valve-seat, a valve composed of an elastic body, fixed at one point, whereby it may be placed under tension, a spring that counteracts the tendency of the valve when under tension, and valve-actuating mechanism, the valve-body being interposed between the latter and the liquid-passage, so as to keep the liquid from contact with said mechanism, substantially as and for the purpose specified.

588,766. PROCESS OF MAKING PERFUMES. MARTIN EKENBERG, Stockholm, Sweden, assignor of one-half to The Firm of Lars Monten, same place. Filed Sept. 30, 1895. Serial No. 563,128. (No specimens.) Patented in Germany Aug. 9, 1894, No. 82,297, and in France Apr. 1, 1895, No. 246,283.

Claim.—1. As a new article of manufacture, a closed vessel containing a mixture of a fragrant substance or its solution and a substance, such as butane, having a boiling-point below +30° centigrade and practically inodorous, being of such a character as not to noticeably modify the odor of the perfume, whereby when subjected to the temperature of the hand or the air of a living-room, it will be readily vaporized, substantially as set forth.

2. As a new article of manufacture, a closed vessel and a liquid mixture contained therein, said liquid mixture comprising a fragrant substance and a hydrocarbon or ether such as described, said hydrocarbon or ether having a boiling-point below +30° centigrade and practically inodorous, being of such a character as not to noticeably modify the odor of the fragrant substance or perfume, whereby, when subjected to the heat of the hand or that of a living-room, it will be readily vaporized, as set forth.

588,767. ANCHOR. DANIEL HOYT, South Norwalk, Conn., assignor, by mesne assignments, to himself, and Henry D. Hobson, Brooklyn, N. Y., and William F. Oatman, East Orange, N. J. Filed Feb. 28, 1896. Serial No. 581,122. (No model.)



Claim.—1. An anchor consisting of a disk-shaped head, and a shank fixed centrally in said head, said head having a sharp scalloped edge with flukes between the scallops around the edge, and having a concavity whose radius is greater than the length of the shank, substantially as described.

2. An anchor consisting of a disk-shaped head slightly concave on its upper side, and an inclined shank fixed in the center of the head, the whole being so constructed and arranged as to sink in the mud or silt, substantially as described.

3. An anchor consisting of a disk-shaped head slightly concave on its upper side and having sharp-pointed flukes, and an inclined flattened shank fixed in the center of the head, the whole being so constructed and arranged as to sink in the mud or silt, substantially as described.

4. In an anchor, the combination with a dishing head, of a shank fixed to the crown or center of said head and having its free end portion placed at an oblique angle with the plane of the head, when the anchor is in its operative condition.

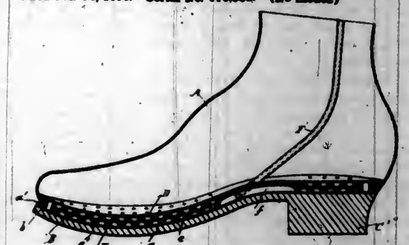
5. In an anchor, the combination with a dishing head, of a straight shank adjusted to pass obliquely through the crown or center of said head.

6. In an anchor, the combination with a dishing head comprising flukes extending outward from its crown, of a rigid shank fixed to said crown, the axis of its free end being placed at an oblique angle with the plane of the head and in a plane at right angles to the plane of the head and intersecting the periphery of the head between the two nearest flukes.

7. In an anchor, the combination with a dishing head comprising flukes extending outward, of a shank fixed to the crown of said head, the axis of its free end being placed at an oblique angle with the plane of the head and in a plane at right angles to the plane of the head and intersecting the periphery of the head in line with the most distant fluke the two flukes nearest said most distant fluke being turned upward more than aforesaid fluke.

8. In an anchor, the combination with a dishing head comprising flukes extending outward from the crown, of a shank fixed to the crown of said head, the axis of its free end being placed at an oblique angle with the plane of the head, and the surface of said shank facing the head being made in the form of a wedge extending longitudinally along said shank.

588,768. SHOE-SOLE. JOHN E. KENNEDY, Montreal, Canada. Filed Oct. 30, 1896. Serial No. 610,538. (No model.)



Claim.—1. A collapsible middle sole provided with corrugations *e* arranged alternately on opposite sides of it, holes *d* connecting the upper and lower corrugations, and a longitudinal channel E, substantially as set forth.

2. A collapsible middle sole provided with corrugations *e* across its sole and heel, a space *f* on its under side between its sole and heel, and a longitudinal channel E connecting the corrugations of the sole with the said space, said corrugations being arranged alternately on opposite sides of it and connected by small holes *d*, substantially as set forth.

3. A collapsible middle sole provided with corrugations *e* arranged across its sole and heel, a space *f* on its under side between its sole and heel, a longitudinal channel E connecting the corrugations of the sole with the space *f*, and a curved channel connecting the corrugations of the heel with the space *f*, the said corrugations being arranged alternately on opposite sides of it and connected by small holes *d*, substantially as set forth.

588,769. SHOE. JOHN E. KENNEDY, Montreal, Canada. Filed Nov. 27, 1896. Serial No. 613,563. (No model.)



Claim.—The combination, with an upper provided with a series of holes around its edges, of an insole arranged above the said edges, and an outer sole of india-rubber provided with a portion E projecting into the space between the edges of the upper and secured to the insole, and having a series of concave recesses F' and teeth F projecting from the said recesses and engaging with the said holes in the upper, substantially as set forth.

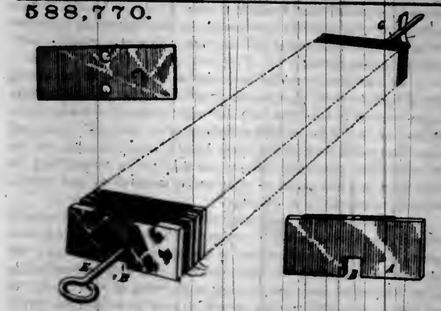
588,770. TOOL FOR DISTRIBUTING LINOTYPE. WHITNEY LYON, New York, N. Y. Filed May 20, 1897. Serial No. 636,576. (No model.)

Claim.—1. In combination notched linotype-slugs, and leads having openings registering with the notches of the slugs, as and for the purposes specified.

2. In combination linotype-slugs having an edge notched or cut away, leads for spacing said slugs whose edges project beyond the cut-away portion of the slugs, and means for engaging the projecting parts of the leads to withdraw them from the slugs.

3. In combination with a series of slotted slugs perforated leads, substantially as and for the purpose herein set forth, of a rod or similar tool device adapted to pass through the holes and thread the leads of a column of linotype or similar printing matter.

588,770.



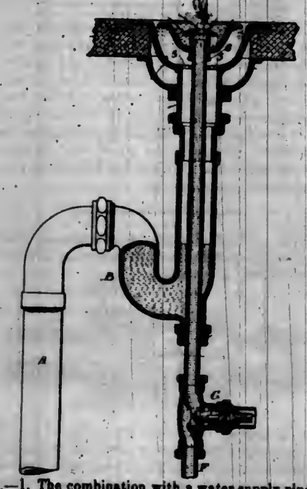
588,771. ELECTRIC CONNECTION BETWEEN RAILWAY-RAILS. FORD MARSELLIS, Peralta, Cal., assignor of one-half to William W. Slater, Oakland, Cal. Filed May 13, 1897. Serial No. 636,233. (No model.)



Claim.—1. A device for electrically connecting the ends of railway-rails, consisting of curved segmental conducting-plates adapted to span the space between the rails, and having their opposite ends bent or curved to one side to form contact with the rail-webs, and superposed fish-plates with holding-bolts whereby the conducting-plates are forced into contact with the rail-webs.

2. A device for electrically connecting the ends of abutting railway-rails, consisting of curved segmental conducting-plates, extending across the space between the rails, said plates having angular projections contacting with the rail-webs, and concavo-convex superposed fish-plates with securing-bolts whereby the conducting-plates are covered and the angles forced into intimate contact with the rails.

588,772. DRINKING-FOUNTAIN. MICHAEL MEEHAN, New York, N. Y. Filed Sept. 10, 1896. Serial No. 605,402. (No model.)



Claim.—1. The combination with a water-supply pipe, of a cup surrounding the water-pipe and permanently connected thereto, a jet-nozzle surmounting the supply-pipe and extending up into the cup with its upper end below the level of the upper edge of the cup, a basin surrounding the cup and a waste-pipe connecting with the lower part of the basin, substantially as set forth.

2. The combination with a water-supply pipe, of a cup surrounding the water-pipe and permanently connected thereto, a jet-nozzle surmounting the supply-pipe and extending up into the cup with its upper end below the level of the upper edge of the cup, a basin surrounding the cup and a waste-pipe connecting with the lower part of the basin, and a trap in the waste-pipe through which the water-supply pipe passes, substantially as set forth.

3. The combination with a waste-pipe, of a bowl at the upper end thereof, a support for the bowl and through which the waste-pipe passes, means for clamping the bowl and waste-pipe to the support, a water-supply pipe passing up through the waste-pipe and through the perforated bottom of the bowl, a cup supported by the water-pipe and a jet-nozzle at the upper end of the water-pipe and within the cup, substantially as set forth.

4. The combination in a drinking-fountain, of a water-supply pipe and a cock for regulating the discharge of water, a jet-nozzle at the upper end of the supply-pipe, a cup surrounding the water-supply pipe and means for adjusting the same vertically to regulate the relative positions of the cup and the jet-nozzle, substantially as set forth.

5. The combination in a drinking-fountain with the water-supply-pipe and a cup permanently fastened to the upper end, of a jet-tube having a small vertical opening for the discharge of the water to be drank, and small lateral openings for agitating the water in the cup and keeping the same in a sanitary condition, substantially as set forth.

6. The combination in a drinking-fountain, of a water-supply pipe and a cock for regulating the discharge of water, a jet-nozzle at the upper end of the supply-pipe, a cup surrounding the water-supply pipe and means for adjusting the same vertically to regulate the relative positions of the cup and the jet-nozzle, a basin and a waste-pipe therefrom below the cup, substantially as specified.

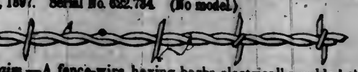
7. The combination in a drinking-fountain, of a water-supply pipe and a cock for regulating the discharge of water, a jet-nozzle at the upper end of the supply-pipe, a cup surrounding the water-supply pipe and means for adjusting the same vertically to regulate the relative positions of the cup and the jet-nozzle, a basin and a waste-pipe therefrom below the cup, and a packing around the water-pipe where it passes through the waste-pipe, substantially as specified.

588,773. UMBRELLA OR PARASOL. FRANK H. MITCHELL, Chicago, Ill. Filed Sept. 18, 1896. Serial No. 606,291. (No model.)



Claim.—In an umbrella or parasol, the combination of a frame comprising a stick or handle and ribs unprovided with knobs at their outer ends, a ferrule applied on the upper end of the stick or handle, a cover attached to the ferrule, and hollow tips terminating in knobs or balls and provided with ridges or enlargements *f* for facilitating the attachment to the outer edge of the cover and applied to the outer ends of the ribs, substantially as described.

588,774. WIRE FENCE. JOHN C. PERRY, Joliet, Ill. Filed Feb. 10, 1897. Serial No. 622,734. (No model.)



Claim.—A fence-wire having barbs electrically welded thereto, substantially as set forth.

588,775. BOTTLE-STOPPER. DARIUS T. PHILLIPS, Chicago, Ill. Filed Oct. 3, 1896. Serial No. 608,218. (No model.)



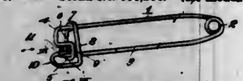
Claim.—1. In a bottle-stopper, the combination with a liquid-discharge valve and its seat, and an outlet-passage for liquid leading from the valve-seat through the stopper, of a chamber at said valve, communicating with said passage, material, expansive under absorption of liquid, confined in said chamber, and acting upon said valve when expanded to seat the same, substantially as and for the purpose set forth.

2. In a bottle-stopper a casing provided with a valve-seat, a cap on the casing having a bearing-opening, a shielded valve at said seat, a stem provided with a chamber at its inner end, and extending through and working in said bearing-opening and movable against said valve to seat the same, a small opening in the side of the stem leading to the chamber, and material, expansive under absorption of liquid, confined in said chamber and acting upon said valve, when

expanded, to seat the same, all constructed and arranged to operate substantially as and for the purpose set forth.

3. In a bottle-stopper, the combination of a casing, having a valve-seat *l* and affording a liquid-outlet passage, a shielded liquid-discharge valve D at said seat provided with a central projection *l*, a stem C having a threaded shank portion, and a socket in its end to fit over the projection *l* and afford a chamber *p*, an opening p^2 in the stem affording communication between the liquid-outlet passage and chamber *p*, material, expansive under absorption of liquid, confined in said chamber and acting upon said valve, when expanded, to seat the same, and a cap fitting the mouth of said passage and permanently fastened therein, and provided with openings for the passage of liquid and for venting, one said opening affording a bearing for the threaded shank portion of the stem, substantially as and for the purpose set forth.

588,776. **SAFETY-PIN.** JOHN L. PHILLIPS, Leavenworth, Kans. Filed Oct. 8, 1896. Serial No. 608,296. (No model.)



Claim.—1. A safety-pin, formed of spring-wire and provided with a body portion or shank, terminating at one end in a spring-hinge and pin, and at the other end in a shield, constructed by bending the wire to form, a vertical loop, a transverse loop communicating with the vertical loop at one side, and a passage connecting at one end with the opposite end of the vertical loop, and by bending the wire also to form a horizontally-arranged loop communicating with the opposite end of said passage and with said transverse loop; the free end of the wire normally projecting through the transverse loop, substantially as and for the purpose set forth.

2. A safety-pin, consisting of a spring-wire bent to form a shank or body portion provided at one end with a spring-hinge, and a spring arm or pin proper projecting from said hinge, and a vertical loop 4, a transverse loop 5 having its mouth contracted and communicating with the loop 4 at one side thereof, an arm 8 at the opposite side of said loop 4, and a spring-loop 10 at the free end of said arm, having its free end extending through said loop 5 and coiled loosely around the wire forming one side of the same, substantially as and for the purpose described.

588,777. **TRUCK-BOLSTER.** HERMAN PRIES and JOHN J. CASEY, Michigan City, Ind. Filed June 3, 1897. Serial No. 639,335. (No model.)



Claim.—1. A truck-bolster, comprising side struts or compression members composed of channel-irons, a tension member secured between said compression members, and struts interposed between said compression and tension members, substantially as described.

2. A truck-bolster comprising side struts or compression members consisting of channel-irons, a tension member consisting of a channel-iron bent at its middle portion and secured at its end portions between said side struts, and struts interposed between said tension member and the lower edges of side struts, substantially as described.

3. A truck-bolster, comprising side struts or compression members consisting of parallel channel-irons having outwardly-extending flanges, a tension member consisting of a channel-iron having upwardly-extending flanges bent at its middle portion so as to depend below said side struts and secured to the webs of said side struts by means of rivets or the like passing through the flanges of said tension member, and means for transferring the load on said compression members to said tension member, substantially as described.

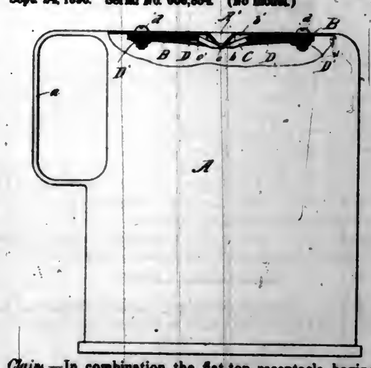
4. A truck-bolster, comprising side struts or compression members consisting of parallel channel-irons having outwardly-extending flanges, a tension member consisting of a channel-iron having upwardly-extending flanges bent at its middle portion so as to depend below said side struts and secured to the webs of said side struts by means of rivets or the like passing through the flanges of said tension member, and means for transferring the load on said compression members to said tension member, consisting of vertical struts interposed between the depending middle portion of said tension member and the lower flanges of said compression members, substantially as described.

5. In a truck-bolster, the combination with side struts having parallel vertical webs, of a tension member secured between said side struts and depending below the same at its middle portion, and means interposed between said depending middle portion of said tension member and the adjacent lower edges of said side struts for transferring the strain upon said side struts to said tension member, substantially as described.

6. In a truck-bolster, the combination with side struts having parallel upright webs, of a tension member having parallel upright flanges secured at their end portions to the webs of said side struts, and bent at its middle portion to depend below said side struts, and means interposed between the lower edges of said side struts and the web of the bent portion of said tension member for transferring the strain upon said side struts or compression members to said tension members, substantially as described.

7. A truck-bolster, comprising side struts consisting of parallel channel-irons having outwardly-extending flanges, a plate mounted upon said side struts and secured to the upper flanges thereof, a tension member consisting of a channel-iron having upwardly-extending flanges secured at their end portions to the webs of said side struts, and bent at its middle portion so as to depend below said side struts, and struts secured to the web of said tension member and bearing against the lower edges of said side struts for transferring the strain from said side struts to said tension member, substantially as described.

588,778. **FARE-BOX.** JAMES QUINN, Montreal, Canada. Filed Sept. 24, 1896. Serial No. 606,834. (No model.)



Claim.—In combination the flat-top receptacle having a slot therein with the downwardly-deflecting converging walls leading thereto, a plurality of plates B, B, fitting snugly against the under side of said top having forked ends terminating at the inclined walls, the teeth secured in the said forked ends having their free ends normally projecting across said slot, the plates D' extending transversely of the ends of said plates B, the means for securing said plates D' to the top, and the flat springs held at one of their ends between said plates B and the plates D' and having their free ends pressing against said teeth, substantially as described.

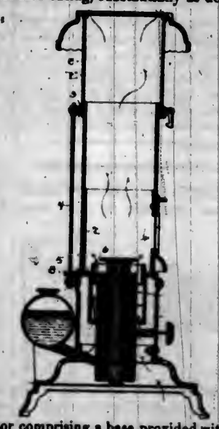
588,779. **CHECK-VALVE.** HENRY REINACH, Chicago, Ill., assignor of one-half to Charles Reinach, same place. Filed Dec. 26, 1896. Serial No. 616,998. (No model.)



Claim.—In a check-valve, the combination of two tubular portions forming the valve-casing and secured together so as to be separated longitudinally, the lower portion being provided with a centrally-raised tubular portion forming a valve-seat and an annular channel between it and the exterior casing, a cushion-valve having depending arms longitudinally movably seated on the valve-seat and provided with an upwardly-projecting rod, a guide-bar in the upper valve-casing to assist in positioning the valve and guide it in its movements, an auxiliary-valve perforation in the upwardly-projecting valve-seat located above the bottom of the annular chamber, and a screw-threaded valve extending through the valve-casing to open or close this auxiliary-valve perforation, substantially as described.

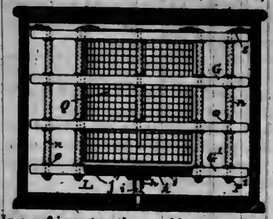
588,780. **OIL-RADIATOR.** HENRY RUPPEL, Cleveland, Ohio. Filed July 24, 1896. Serial No. 600,324. (No model.)

Claim.—1. A radiator comprising a base provided with a burner, upright rods carried by the base, and a combustion-chamber arranged above the burner and consisting of a top casing supported by the rods and an intermediate movable casing telescopically arranged in the top casing, and a burner-collar secured to the lower end of the intermediate casing and adapted to engage the rods so as to guide the lower end of said casing, substantially as described.



2. A radiator comprising a base provided with a burner, upright rods carried by the base, and a combustion-chamber arranged above the burner and consisting of a top casing supported by the rods and an intermediate movable casing telescopically arranged in the top casing, and a burner-collar secured to the lower end of the intermediate casing and provided with perforated ears adapted to engage the rods so as to guide the lower end of said casing, substantially as described.

588,781. **REFRIGERATOR.** ERNEST SACK, Gardenville, Md. Filed May 23, 1896. Serial No. 592,745. (No model.)

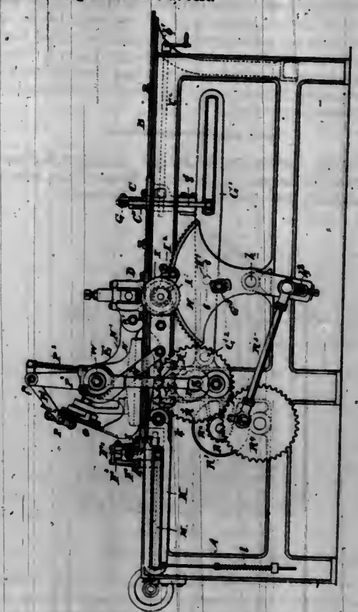


Claim.—In a refrigerator, the combination, with a circular case, provided with a door in the side and a removable top, of a frame journaled within the case, said frame comprising a bottom shelf and a series of annular shelves arranged concentrically thereabove, said bottom shelf being provided with water-passages and with a central pivot to rest upon the bottom of the case, a series of horizontally-arranged rollers upon the upper shelf, the peripheries of which project beyond the edge of the shelf and engage with the inner wall of the case, and an open ice-cage within the space formed by the annular shelves, the top of said cage being flared outwardly and resting upon the top shelf, and the bottom of the cage extending nearly to the bottom, substantially as set forth.

588,782. **PAPER-BAG MACHINE.** HOWARD SALMON, Philadelphia, Pa., assignor to the Henry L. Wilson's Sons Company, of New Jersey. Filed Mar. 25, 1897. Serial No. 629,302. (No model.)

Claim.—1. In a bag-tube forming and printing machine, the combination of a former over which the paper to form the tube is folded, a set of punching-dies for punching a curved or irregular line through the middle of the tube, a set of cutting-off cutters arranged at a distance from the punching-dies and adapted to cut the tube transversely on a line connecting the terminals of the curved or irregular punched portion, feeding devices for feeding the tube of paper between the punches and cutters, and printing devices intermediate of the punching and cutting-off devices consisting of a fixed impression-tongue over which the tube passes arranged between the type-form bed and platen, a flat type-form bed movable to and from the impression-tongue upon one side, and a movable platen movable to and from the impression-tongue upon the other side.

2. In a bag-tube forming and printing machine, the combination of a former over which the paper to form the tube is folded, a set of punching-dies for punching a curved or irregular line through the middle of the tube, a set of cutting-off cutters arranged at a distance from the punching-dies and adapted to cut the tube transversely on a line connecting the terminals of the curved or irregular punched portion, feeding devices for feeding the tube of paper between the punches and cutters, printing devices intermediate of the punching and cutting-off devices consisting of a fixed impression-tongue, a flat type-form bed movable to and from the impression-tongue upon one side, and a movable platen movable to and from the impression-tongue upon the other side, and power devices for simultaneously operating the type-form bed and platen toward the impression-tongue when the feeding devices are at rest.



3. In a combined tube making and printing machine, the combination of a tube-former, feeding-rolls adjacent to the rear end of the former and inclosing an extension thereof, an impression-tongue secured to and carried by the extension of the former, a flat type-form bed movable to and from the impression-tongue on one side, and a platen arranged upon the other side of the tongue for supporting it during the printing operation of the type-form bed.

4. In a combined tube making and printing machine, the combination of a tube-former, feeding-rolls adjacent to the rear end of the former and inclosing an extension thereof, an impression-tongue secured to and carried by the extension of the former, a flat type-form bed movable to and from the impression-tongue on one side, and a platen arranged upon the other side of the tongue for supporting it during the printing operation of the type-form bed provided with a longitudinal groove centrally located upon its surface adjacent to the impression-tongue but of less width than the tongue.

5. In a combined tube making and printing machine, the combination of a tube-former, feeding-rolls adjacent to the rear end of the former and inclosing an extension thereof, an impression-tongue secured to and carried by the extension of the former, a flat type-form bed movable to and from the impression-tongue on one side, a platen arranged upon the other side of the tongue for supporting it during the printing operation of the type-form bed, cutting-off devices arranged to the rear of the impression-tongue, and power devices for operating the cutting-off devices and printing devices alternately with the feeding-rolls whereby the cutting-off and printing operations take place when the tube is stationary.

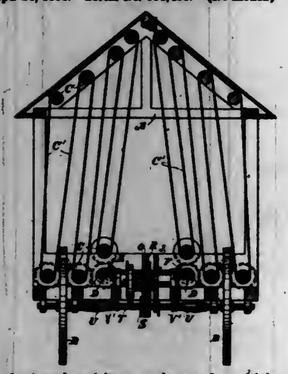
6. In a combined tube making and printing machine, the combination of a tube-former, feeding-rolls adjacent to the rear end of the former and inclosing an extension thereof, an impression-tongue secured to and carried by the extension of the former, a flat type-form bed movable to and from the impression-tongue on one side, a platen arranged upon the other side of the tongue for supporting it during the printing operation of the type-form bed, cutting-off devices arranged to the rear of the impression-tongue, power devices

for operating the cutting-off devices and printing devices alternately with the feeding-rolls whereby the cutting-off and printing operations take place when the tube is stationary, and means to adjust the cutting-off devices to or from the printing devices.

7. In a combined tube forming and printing machine, the combination of means to feed the tube, means to cut off the tube in predetermined lengths, and printing devices intermediate of the feeding and cutting-off devices consisting of an impression-tongue about which the tube is fed, a flat type-form bed movable to and from the impression-tongue, and a platen or abutment adapted to receive the thrust of the type-form bed.

8. In a combined tube forming and printing machine, the combination of means to feed the tube, means to cut off the tube in predetermined lengths, and printing devices intermediate of the feeding and cutting-off devices consisting of an impression-tongue about which the tube is fed, a flat type-form bed movable to and from the impression-tongue, an abutment adapted to receive the thrust of the type-form bed consisting of a flat platen having a longitudinal groove therein, and power devices to raise and lower the said platen to and from the impression-tongue.

588,788. ADVERTISING-VEHICLE. CHARLES S. STAFFORD, San Francisco, Cal., assignor of one-third to Thomas Leach, same place. Filed Sept. 21, 1896. Serial No. 606,460. (No model.)



Claim.—1. An advertising attachment for vehicles consisting of a structure mounted upon wheels, a series of parallel drums or rollers journaled longitudinally at the bottom thereof and a second corresponding series journaled near the top and approximately in line above the lowermost ones, an endless band or flexible surface passing around said rollers, power devices on the rollers of the lower series whereby said rollers are positively connected and driven while those of the upper series are free to move independently as the belt or surface passes over them, and a gear or mechanism driven from the shaft of one of the vehicle-wheels whereby power is transmitted to rotate the rollers and advance the belt.

2. An advertising attachment for vehicles consisting of a structure mounted upon wheels and having a series of parallel-connected and positively-driven rollers at the bottom and a series of parallel rollers near the top movable independently as the advertising belt or surface advances, an endless belt or flexible surface passing around said rollers, and provided with advertisements, mechanism by which each of the lower rollers is positively driven, in the same direction, gear-wheels mounted upon the apparatus intermediate between the wheel-axle and the rollers and an interposed mechanism whereby the rotation of the apparatus and advance of the surface are rendered intermittent.

3. In an advertising attachment for vehicles, a structure mounted upon bearing-wheels, a series of parallel rollers journaled at top and bottom, an endless band or surface containing the advertisements passed about said rollers, a gear or mechanism by which the lower rollers are connected in series to rotate in unison, a longitudinal shaft having a gear engaging one of the roller-gears to transmit motion thereto, a transverse shaft journaled horizontally upon the frame with beveled gear to transmit to the longitudinal shaft, one or more mutilated gears intermediate between the driving-shaft and the gear G, mechanism whereby the teeth of the mutilated gears are caused to engage with those of their connected pinions at each partial revolution.

4. An advertising device for vehicles consisting of a structure mounted upon wheels, longitudinally-journaled drums or rollers situated in the upper and lower part of the structure respectively, an endless flexible band or surface passing alternately up and down over the various rollers having the matter to be exposed imprinted upon its exterior surface, gears or mechanism connecting the roller-shafts so that they will rotate in unison, the longitudinally-journaled shaft with a gear engaging and driving the rollers, a transverse shaft with beveled gear intermediate between it and the longitudinal shaft, a pinion G upon said shaft through which power is transmitted from the wheel-axle, one or more mutilated gears mounted upon independently-rotating shafts intermediate between the wheel-axle and the pinion G, whereby the latter and the connected belts or surfaces are given an intermittent movement to expose new surfaces upon the belt and lugs or devices formed upon the mutilated gears with corresponding lugs or pins upon their engaging pinions or gears whereby the teeth of the mutilated gears will be caused to mesh correctly with those of the continuous ones, after a period of non-rotation when the two have been brought together.

588,784. CLOSING-PIECE FOR BOTTLES, &c. GEORGE W. STEPHENS, Boston, Mass. Filed Mar. 13, 1897. Serial No. 627,355. (No model.)



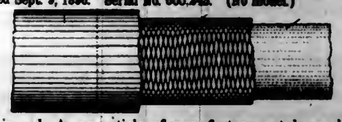
Claim.—1. A bottle-closing device comprising a hollow casing formed to serve as a conduit and having means for engagement with the interior of a bottle, a plug within said casing, and a head integral with and extending above the casing and plug and connected with the casing by an annular neck which is adapted to be severed to disconnect the head and plug from the casing, whereby said plug may be used as a stopper after severance.

2. A bottle-closing device comprising a hollow casing of absorbent and expansive material formed to serve as a conduit and having a compressed portion which is adapted after its insertion in a bottle to expand and form a shoulder or enlargement caused by absorption of liquid, a plug within said casing, and a head integral with and extending above the casing and plug and connected with the casing by an annular neck which is adapted to be severed to disconnect the head and plug from the casing, whereby said plug may be used as a stopper after severance.

3. A bottle-closing device comprising a neck-filling portion having means for engagement with the interior of a bottle-neck, and a closed outer portion or head, the said neck-filling portion having an annular slot or incision which extends from its inner end into the head and forms a hollow casing or conduit and a plug or stopper therein, the head extending above the plug and casing, the head and stopper being adapted to be severed from the casing, and used repeatedly as a stopper as set forth.

4. A bottle-closing device comprising a neck-filling portion having means for engagement with the interior of a bottle-neck, and a closed outer portion or head, the said neck-filling portion having an annular slot or incision which extends from its inner end into the head and forms a hollow casing or conduit and a plug or stopper therein, the head extending above the plug and casing, the upper portion of the casing having a peripheral groove surrounding the upper portion of the annular slot or incision, whereby the head and plug may be severed from the casing to form a stopper.

588,785. TUBE OR HOSE. HARRISON F. WATSON, Erie, Pa. Filed Sept. 9, 1896. Serial No. 605,243. (No model.)



Claim.—1. As an article of manufacture, a tube or hose, the walls of which are impervious to fluids and comprise a textile fabric of asbestos provided with a coating of unvulcanized waterproof material.

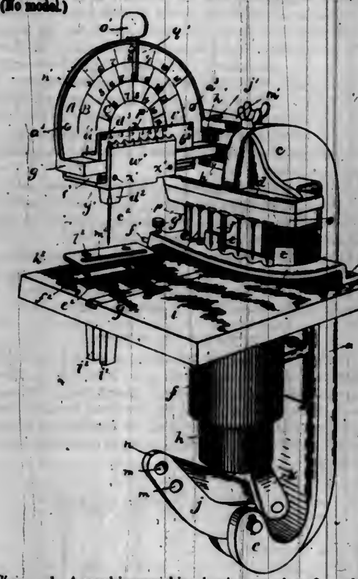
2. As an article of manufacture, a tube or hose the walls of which are formed of a layer of vulcanized rubber; a textile fabric of asbestos next said layer of rubber with one surface of the fabric exposed from the rubber layer: and a protecting-coating of unvulcanized waterproof material on said exposed surface of the fabric.

3. As an article of manufacture, a tube or hose the walls of which are formed of a layer of vulcanized rubber; a textile fabric of asbestos next said layer of rubber with one surface of the fabric exposed from the rubber layer; and a protecting-coating of unvulcanized waterproof material forming an impervious layer in itself on said exposed surface of the fabric.

4. As an article of manufacture, a tube or hose, the walls of which are formed of a layer of vulcanized rubber; an asbestos textile fabric attached to said layer by vulcanization, with one surface of the fabric exposed from the rubber layer; and a protecting-coating of unvulcanized waterproof material on said exposed surface of the fabric.

5. As an article of manufacture, a tube or hose, the walls of which are formed of a layer of vulcanized rubber; an asbestos textile fabric attached to said layer by vulcanization with one surface of the fabric exposed from the rubber layer; and a protecting-coat of unvulcanized waterproof material forming in itself an impervious layer on said exposed surface of the fabric.

588,786. MACHINE FOR MARKING SHOE-LININGS. LEWIS T. ADAMS, Whitman, Mass. Filed Aug. 29, 1896. Serial No. 604,267. (No model.)



Claim.—1. A marking-machine having a series of marking devices, a single marking device separated from and movable independently of the said series of marking devices, means for moving the said independent marking device toward and from the said series of marking devices, and a graduated scale for indicating the position of the single marking device relatively to the series of marking devices.

2. A machine of the character described comprising in its construction, a series of needles, a supplemental needle, means for moving the said supplemental needle toward and from the aforesaid needles, for the purpose described, and means for indicating the position of the said supplemental needle relatively to the series of needles.

3. A machine of the character described, comprising in its construction a series of needles, a supplemental needle, means for moving said needle toward and from the aforesaid needles to indicate the width of a part of a shoe of a certain length, means for varying the position of the said needle in accordance with different widths of the said parts of shoes of the same length and a graduated scale indicating said different widths of said parts.

4. A machine of the character described, comprising in its construction, a series of needles for indicating a certain line of stitches, a supplemental needle indicating another line of stitches, means for moving said needle to correspond with the difference in width of parts of shoes of different lengths, and means for moving the said needles to correspond with the difference in width of parts of shoes of different widths but of the same length.

5. In a machine of the character described, the combination with a series of needles to indicate a line of stitches, a supplemental needle to indicate another line of stitches, a slide on which said needle is mounted, a stationary dial-plate for indicating certain positions of the needle and a graduated plate, movable relatively to said dial-plate and relatively to which the needle is movable, for indicating certain other positions of the said needle.

6. In a machine of the character described, the combination with a bracket, a series of needles depending therefrom, a supplemental needle, a work-support, means for moving the said work-support toward and from the said needles, and means for moving the supplemental needle toward and from the series of needles.

7. In a machine of the character described, the combination with a frame, a series of needles mounted thereon, a work-support, an arm hinged to the frame, and a supplemental needle supported on the arm.

8. In a machine of the character described, the combination with a frame, a series of needles mounted thereon, a work-support, an arm hinged to the frame, a supplemental needle mounted on the arm, and means for adjusting said needle along the arm.

9. In a machine of the character described, the combination with a frame, a series of needles mounted on the frame, a work-support, an arm hinged to the frame, a supplemental needle mounted on the arm, and a supplemental work-plate arranged below the supplemental needle and connected to the arm so as to move therewith.

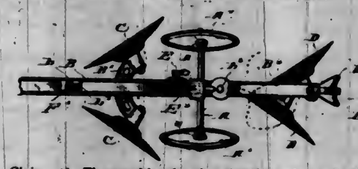
10. In a machine of the character described, the combination with a frame, a series of needles mounted on the frame, a work-support, one of the last two mentioned elements being movable relatively to the other, a guard arranged in front of said needles, and a gage mounted in the rear of the needles.

11. In a machine of the character described, the combination with a frame, a series of needles mounted on the frame, a work-support, one of the last two mentioned elements being movable relatively to the other, a guard arranged in front of said needles, and gages in the rear and at the end of the series of needles.

12. In a machine of the character described, the combination with a frame, a series of needles mounted on the frame, a work-support, one of the last two mentioned elements being movable relatively to the other, a supplemental needle, a slide on which the needle is mounted, an arm along which the slide moves, a dial mounted on the arm, and a pointer connected with the slide for indicating the position thereof on the dial.

13. In a machine of the character described, the combination with a frame, a series of needles mounted on the frame, a work-support, one of the last two mentioned elements being movable relatively to the other, an arm extending out from the frame, a graduated scale movable along on the arm, a slide movable relatively to the scale but adapted to be secured thereto to move it therewith, a supplemental needle mounted on the slide, a dial on the arm, a pointer, and means connected with the pointer for moving the slide and the scale along the arm.

588,787. BEDDING-PLOW. ELIAS C. ATKINS, Indianapolis, Ind. Filed Mar. 23, 1897. Serial No. 628,816. (No model.)



Claim.—1. The combination, in a bedding-plow, of a frame consisting substantially of a longitudinal bar, an axle centrally arranged and having carrying-wheels on its ends, a forward set of plows wider apart than said carrying-wheels and adapted to plow furrows in which said carrying-wheels will run, and a rear set of plows nearer together than said carrying-wheels, and adapted to plow the land between them after they have passed, substantially as shown and described.

2. The combination, in a bedding-plow, of a frame consisting of a longitudinal bar formed in two parts, the rear part being connected to the forward or main part by a pivot-joint, and provided with a notched disk formed thereon, the center of which is the pivot-point, an axle, upon which are carrying-wheels, secured to the main part of said frame; a pair of plows also secured to said main part; a pair of plows secured to said rear part; a latch-bolt mounted on said main part and adapted to engage with a notch on a disk on the rear part, and a lever for operating the same.

3. The combination, in a bedding-plow, of a main frame part, an axle rigidly secured thereto, carrying-wheels on said axle having wedge shaped treads, a pair of plows upon the main frame part in front of said carrying-wheels and positioned relatively thereto so that said carrying-wheels will run in the furrows formed thereby close to the side of the land between them, and a second pair of plows mounted on the frame in the rear of and between the carrying-wheels whereby the land left by the forward plows may be plowed after the carrying-wheels have passed, substantially as and for the purposes set forth.

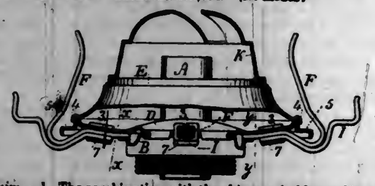
4. The combination, in a bedding-plow, of the axle A, the carrying-wheels A' thereon, the frame consisting of the parts B and B²

provided with the wings or arms B' and B², the two sets of plows C and D mounted on said wings or arms, a pivot-joint uniting said two frame portions, a latch-bolt mounted on the main frame portion and engaging with a notch on a disk in the rear frame portion, a lever E for operating the same, a suitable seat, and an adjustable caster-wheel F, the whole being arranged and operating substantially as shown and described.

5. A bedding-plow having two sets of plows and an axle and carrier-wheels interposed between them, the forward set of plows being farther apart than and outside of the carrier-wheels, and the rear set of plows being nearer together than and between said carrier-wheels, said forward plows and said carrier-wheels being arranged in relation to each other substantially as shown and described so that the carrier-wheels will run in the furrows of said forward plows and bear against the land sides of said furrows, thus guiding and steadying the plow from both sides, substantially as and for the purposed set forth.

6. In a bedding-plow, the combination, of a frame, an axle, a pair of carrier-wheels on said axle, and a pair of plows secured to said frame in front of said axle, said plows being positioned in front of said carrier-wheels and in such relation thereto that said carrier-wheels will impinge on the banks or sides of the land left between said plows and be thus adapted to support the plow against the side draft occasioned by the plowing operation.

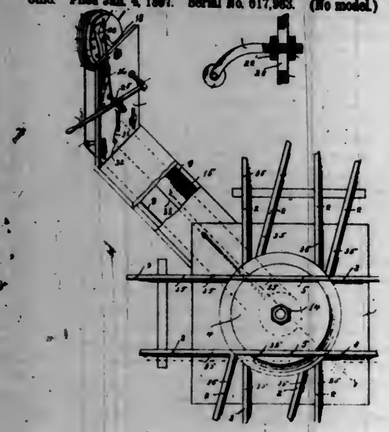
588,788. LAMP-BURNER. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed July 21, 1897. Serial No. 645,331. (No model.)



Claim.—1. The combination with the chimney-holder and burner-base and wick-tube, a ratchet-cap surrounding the wick-tube and connected at its edges with the burner-base and having arms extending out and terminating as claws passing through holes in the chimney-rest and bent down, of chimney-springs connected permanently with the arms and having their ends received between the burner-base and ratchet-cap and extending below the chimney-rest and turned upward to receive the chimney, and shade-holding arms beneath the chimney-springs and metal clips connecting the chimney-springs and shade-holding arms with the arms of the ratchet-cap, substantially as set forth.

2. The combination with the chimney-holder and air-distributer and the burner-base having arms extending to and connected with the chimney-holder, of chimney-springs beneath the arms and shade-holding arms beneath the chimney-springs and extending beyond them, and clip-pieces inclosing and connecting the shade-holding arms, chimney-springs, and burner-base arms, substantially as specified.

588,789. RAILROAD-CROSSING. CHARLES E. BAKER, Bloomdale, Ohio. Filed Jan. 4, 1897. Serial No. 617,963. (No model.)



Claim.—1. In a railroad-crossing, a solid bed-plate formed with divergent rails and a central bearing, a turn-table mounted on the bearing, having rails, a shaft journaled in the bed-plate fixedly secured to the turn-table, and having a drum, with means for operating the drum from a location remote from the bed-plate.

2. In a railroad-crossing, a bed-plate, a turn-table, revolubly journaled thereon by means of a shaft, a drum upon the shaft, a windlass, and flexible connections with the windlass and drum, and means for simultaneously locking the windlass and drum.

3. In a railroad-crossing, a bed-plate, a shaft journaled therein, having a drum and locking-face at one end, a turn-table fixedly secured upon the opposite end of the shaft, a flexible connection with the drum, means for exerting tension upon the flexible connections to revolve the drum and turn-table, and a locking-bolt to enter the locking-face.

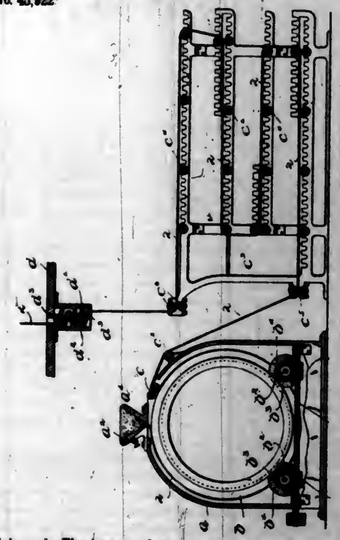
4. In a railroad-crossing, a bed-plate, a shaft journaled therein, having a drum and locking-face at one end, a turn-table fixedly secured upon the opposite end of the shaft, a windlass having a locking-face, flexible connections with the windlass and drum, locking mechanism adapted to secure the windlass, and also the drum, and means for withdrawing both locking mechanisms simultaneously.

5. In a railroad-crossing, a bed-plate formed with a central curved bearing and radiating rails, a shaft journaled centrally of the bearing, having a drum at its lower end, and a squared portion at its upper end, a turn-table formed with a lower face to fit the bearing, and a squared orifice to receive the shaft, a threaded portion and nut to assemble the parts, and means connected with the drum for revolving the turn-table.

6. In a railroad-crossing, a drum, a windlass, flexible connections with the drum and windlass, arms having idlers over which the flexible connections pass, and means for adjusting the arms to regulate the tension of the flexible connections.

7. In a railroad-crossing, a turn-table, a windlass, flexible connections with the turn-table and windlass, a lever and locking mechanism connected with the turn-table and windlass, whereby a movement of the lever will actuate both simultaneously.

588,790. METHOD OF AND APPARATUS FOR MAKING PHOTOGRAPHIC FILMS. THOMAS H. BLAIR, Northborough, Mass., and STUKELY R. WATERMAN, Pawtucket, R. I., assignors, by mesne assignments, to the American Camera Manufacturing Company, Northborough, Mass. Filed Jan. 3, 1894. Serial No. 495,494. (No model.) Patented in England Mar. 14, 1893, No. 5,504, and in Canada May 1, 1894, No. 45,922.



Claim.—1. The improved process of making photographic films which consists in feeding the composition which forms the base of the film, onto a moving surface which draws it into a thin strip, carrying the strip over suitably constructed and arranged guides while it becomes seasoned, conducting the strip into a dark room, and passing it through a sensitive emulsion.

2. The improved process of making photographic films which consists in feeding the composition which forms the base of the film, onto a moving surface which draws it into a thin strip, conducting said strip through a sensitive emulsion, carrying the strip over suitably constructed and arranged supports after leaving the emulsion, and subjecting it to a cold-air blast.

3. An apparatus for making photographic films comprising in its construction means for feeding the composition which forms the base of the film in a stream, a moving bed or support which receives the said stream and draws it out over its surface, converting it into a strip, a dark room having a zigzag entrance provided with rollers at its bends through which the strip passes, and means in said dark room for applying a coating of sensitive emulsion to the strip.

4. An apparatus for making photographic films comprising in its construction means for coating a continuous strip of film with a sensitive emulsion, a pair of reels, speed-changing gearing connecting said reels, an apron attached at its ends to said reels and adapted to wind on one while unwinding from the other and to receive the coated strip between its convolutions.

5. An apparatus for making photographic films comprising a sensitizing-trough means for drawing out a stream of dope to form the base of the film, and for conveying said strip through the sensitive emulsion in the trough, and travelers for engaging the sensitized film and exerting an influence thereon, from the middle in an outward direction, as and for the purpose described.

6. An apparatus for making photographic films comprising a sensitizing-trough means for drawing out a stream of dope to form the base of the film, and for conveying said film through the sensitive emulsion in the trough, and endless bands engaging the sensitized film and exerting an influence thereon from the middle outward, for the purpose described.

7. An apparatus for making photographic films comprising in its construction a pair of reels, an apron attached to said reels and adapted to wind thereon and receive the film between its convolutions, and means for varying the relative speed of the reels to compensate for the changing diameters caused by the winding and unwinding of the apron.

8. An apparatus for making photographic films comprising in its construction a continuously-movable bed, means for feeding plastic composition thereto to form a strip of film, means for supporting the strip throughout an extended length to form a seasoning-support for the strip, mechanism for continuously applying a sensitive emulsion to one side of the film while in motion, and means for feeding the strip from the seasoning support to and through the coating mechanism.

9. An apparatus for making photographic films comprising in its construction a continuously-movable bed, means for feeding plastic composition thereto to form a strip of film, means for supporting the strip throughout an extended length to form a seasoning-support for the strip, mechanism for continuously applying a sensitive emulsion to one side of the strip while in motion, means for feeding the strip from the seasoning-support to and through the coating mechanism, and a flexible carrier adapted to be wound in a roll with the film between its convolutions and provided with transverse strips having projections to separate the convolutions.

10. An apparatus for making photographic films comprising in its construction a continuously-movable bed, means for feeding plastic composition thereto to form a strip of film, means for supporting the strip throughout an extended length to form a seasoning-support for the strip, mechanism for continuously applying a sensitive emulsion to one side of the film while in motion, means for feeding the strip from the seasoning-support to and through the coating mechanism, and travelers for engaging the sensitized film and exerting an influence thereon from the middle in an outward direction.

588,791. ELECTRIC RAIL-BOND. WILLIAM A. CLEVELAND, Cleveland, Ohio. Filed Apr. 16, 1897. Serial No. 632,234. (No model.)



Claim.—1. An electric rail-bond, consisting of an oblong frame formed from a laterally-compressed coil of flat wire coiled to have its flat sides bearing against each other, and of terminal heads and lugs cast upon the doubled ends of said frame, substantially as set forth.

2. An electric rail-bond, consisting of an oblong frame having its side members composed of flattened wires placed with their flat sides bearing against one another, and of terminal heads and lugs cast upon the ends of said frame and having reinforces projecting between and on the outsides of the side members of the frame at their points of joining said heads, substantially as set forth.

3. An electric rail-bond, consisting of an oblong frame formed from a laterally-compressed coil of flat wire coiled to have its flat sides bearing against each other, and of terminal heads and lugs cast upon the doubled ends of said frame, and having reinforces projecting between and on the outsides of the side members of the frame at their points of joining said heads, substantially as set forth.

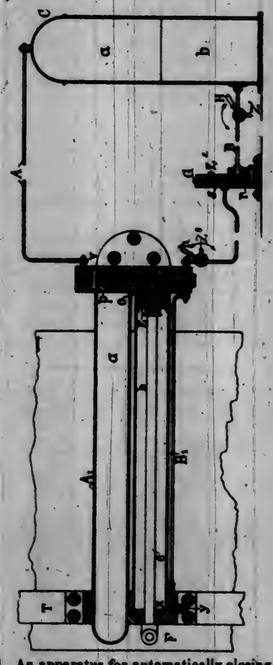
588,792. COMPOSITION FOR MASKING FINE IRON ORE AND PROCESS OF MAKING SAME. JULIUS J. OSPOLL, Lancaster, Pa., assignor of one-half to Bertram Dawson Coleman and Edward Rice Coleman, Lebanon, Pa. Filed May 19, 1897. Serial No. 637,275. (No specimens.)

Claim.—1. A compound of the character described, consisting of fine or comminuted ore, pulverized clay, and liquid glue, substantially as set forth.

2. The process of preparing fine or comminuted ore, consisting in commingling the ore with pulverized clay, moistening the compound with liquid glue, and then compacting this composition under pressure to form masses, substantially as specified.

3. The process of preparing fine or comminuted ore, consisting in commingling the ore with pulverized clay, moistening the compound with liquid glue, compacting this composition under pressure to form masses, and then baking said masses, for the purpose specified.

588,793. MEANS FOR AUTOMATICALLY OPERATING BULK-HEAD-DOORS. CARL T. DÖRR and MARTIN STÜHLER, Cologne, Germany, assignors to said DÖRR. Filed Nov. 19, 1896. Serial No. 612,682. (No model.)



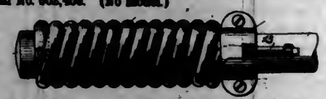
Claim.—1. An apparatus for automatically closing and opening bulkhead-doors in ships comprising a receiver C containing a liquid, and above the liquid, air under pressure, a cylinder B' and a piston E therein connected with the bulkhead-door, conduits A for the air under pressure and conduits B for the liquid under pressure between the said receiver and the said cylinder, and means for regulating the entrance of the said liquid and air into said cylinder B' for closing or opening said door, substantially as herein described.

2. An apparatus for automatically closing and opening bulk-head-doors in ships comprising a main receiver C for liquid and air under pressure, a separate air-receiver A', a cylinder and a piston therein connected with the bulkhead-door, a conduit between said separate receiver A' and the air-space of the main receiver C, a conduit between the water-space of the main receiver and one end of said cylinder B', a conduit between the said separate receiver A' and the other end of said cylinder and a differential valve D in the last-mentioned conduit for temporarily storing compressed air in the separate receiver A' and for alternately charging such compressed air to one end of the cylinder B' and liquid under pressure to the other side of said piston, substantially as herein described.

3. An apparatus for automatically closing and opening bulkhead-doors in ships comprising a main receiver for air and liquid under pressure, a cylinder and a piston therein connected to the bulkhead-door, a separate receiver for temporary storage of compressed air, a conduit between the said separate receiver and the air-space of the main receiver, a second conduit B between the water-space of the main receiver and one end of said cylinder, a third conduit a *p* between said separate receiver and the other end of said cylinder, a differential valve in said third conduit for distributing the air and liquid under pressure and valves H *h* G G' in the said second conduit for regulating the flow of the liquid for action in or for exit out of the system.

588,794. HANDLE FOR TOOLS AND BICYCLE HANDLE-BARS.

KARLE H. GRABNER, South Weymouth, Mass. Filed Aug. 11, 1896. Serial No. 602,408. (No model.)



Claim.—1. The combination with the handle of the handle-bar for a bicycle or other wheeled vehicle, or the handle of a tool, of an inflatable tube wound helically about said handle, substantially as shown and described.

2. A hand-grip for a tool-handle or the handle-bar for a bicycle or other wheeled vehicle, consisting of an inflatable tube wound around the said handle, substantially as shown and described.

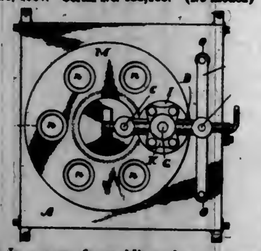
3. The combination, with the handle of the handle-bar for a bicycle or other wheeled vehicle, or the handle of a tool, of an inflatable tube wound around the said handle and provided with a valve at one of its ends, whereby the said tube may be inflated, as and for the purpose specified.

4. The combination, with the handle of the handle-bar of a bicycle or other wheeled vehicle, or the handle of a tool, of a tube attached at one end to the said handle and wound spirally thereon, the opposite end of the tube being provided with a valve, and a clamp holding the valved end of the tube to the said handle, as and for the purpose set forth.

5. The handle of a handle-bar for a bicycle, or other wheeled vehicle, or the handle of a tool, having a prepared surface near one end and a tube attached at one end to the said handle and wound spirally around the same, the opposite end of the tube terminating in a valve, and a clamp engaging with the valved end of the tube and with the handle, holding the valved end of the tube upon the said handle in a fixed position, as and for the purpose specified.

588,795. GLASS-PRESS.

RALPH G. HEMINGRAY, Muncie, Ind. Filed Apr. 21, 1897. Serial No. 633,103. (No model.)



Claim.—1. In a press for molding glassware, an annular plate encircling one of the standards and having a multiple of sockets, said plate so arranged that a portion passes underneath the plunger, in combination with a yoked upright or standard to permit the passage of the molds, substantially as and for the purpose described.

2. In a press for molding glassware, an annular plate encircling one of the standards and so arranged that a portion passes or lies underneath the plunger, said plate and the bed-plate provided with corresponding grooves to receive metal balls, in combination with a yoked upright or standard to permit the free passage of the molds, a stud for supporting and bracing the annular plate, substantially as and for the purpose described.

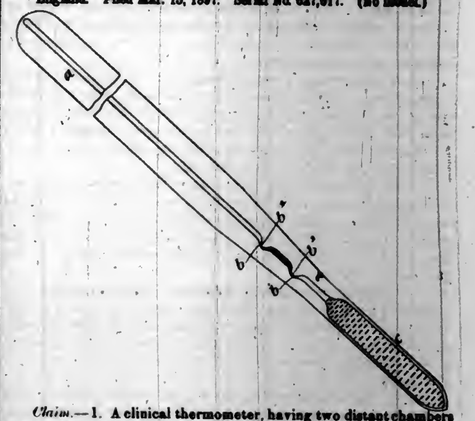
3. In a press for molding glassware, an annular plate or mold guide-ring encircling one of the standards and having a multiple of equidistant sockets, said plate being so arranged that a portion passes underneath the plunger, substantially as and for the purpose described.

4. In a press for molding glassware, an annular plate or mold guide-ring encircling one of the standards and having equidistant sockets, said plate being ball-bearing and so arranged that a portion passes underneath the plunger, in combination with a supporting-stud to brace and support said annular plate when under pressure, substantially as and for the purpose described.

5. In a press for molding glassware, the combination, of an annular plate or mold guide-ring encircling one of the standards and having ball-bearing and so arranged that a portion thereof passes underneath the plunger, with yoked standard or upright to permit the passage of the molds, and supporting-stud to support and brace said annular plate when under pressure, substantially as and for the purpose described.

588,796. CLINICAL THERMOMETER.

JAMES J. HICKS, London, England. Filed Mar. 15, 1897. Serial No. 627,017. (No model.)

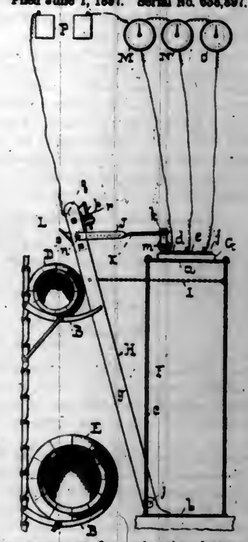


Claim.—1. A clinical thermometer, having two distant chambers formed within the bore of the tube, and a comparatively open contraction within each chamber, the bore of the tube between such contractions always retaining a portion of the mercury, substantially as and for the purpose described.

2. In clinical thermometers, the combination with a thermometer-bulb and a tube having a bore communicating with said bulb, of two distant chambers, formed within the bore of the tube, and a comparatively open contraction within each of such chambers, the bore of the tube between such contractions, and the chambers themselves always retaining a portion of the mercury, substantially as described.

588,797. ELECTRICAL KEG-REGISTER.

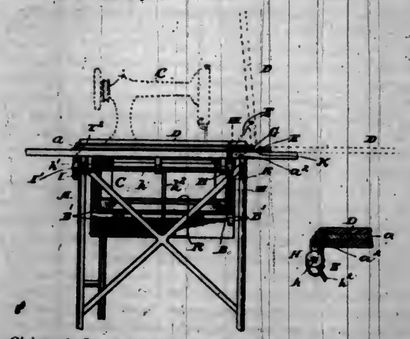
WILLIAM KRAFT, Baltimore, Md. Filed June 1, 1897. Serial No. 638,897. (No model.)



Claim.—In an apparatus for registering kegs as they are removed from the cellar by means of an elevator, the combination of a lever which is moved by the kegs as they ascend, a roller carried thereby, plates in electric circuits across which the roller is adapted to pass, electrically-operated registers in the circuit of said plates, and a finger pivoted in the lever to normally keep the circuit open and which as the kegs pass it, is deflected to close the circuit and operate the register, substantially as described.

588,798. TABLE OR CABINET FOR SEWING-MACHINES.

THEODOR KUNDTZ, Cleveland, Ohio. Filed Jan. 2, 1896. Serial No. 617,694. (No model.)



Claim.—1. In combination with the top of the table or cabinet, which top is provided with a vertical opening *a'*, the load-bearing tilting leaf B arranged to close said opening in its upwardly-tilted position, and the lifting-leaf D hinged to the left-hand portion of said top, of an oscillating shaft suitably supported below the rear portion of the top and having an arm or member overlapping the under side of the load-bearing leaf, mechanism arranged to oscillate said shaft and operatively connected with the lifting-leaf, and the arrangement of parts being such that the load-bearing leaf is lowered or elevated according as the lifting-leaf is tilted into the one or the other of its extreme positions, substantially as set forth.

2. The combination with the top of the table or cabinet, which top has a vertical opening therethrough, the suitably-supported tilting load-bearing leaf arranged to close said opening in its upwardly-tilted position, and the lifting-leaf D hinged to the left-hand portion of the top and arranged to close down over the tilting load-bearing leaf in the latter's downwardly-tilted position, of an oscillating shaft A suitably supported below the rear portion of said top and having an arm or member A^3 extending in under and arranged to lift or carry the load-bearing leaf, the sheave H, the guide-sheave G, the chain E, the sheave *h'* and the counterbalancing-spring I, all arranged and operating substantially as shown, for the purpose specified.

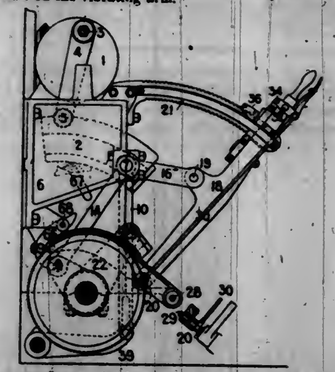
3. The combination with the top of the table or cabinet, which top has a vertical opening therethrough and has the mortises or recesses a^3, a^4 and a^5, and the suitably-supported tilting load-bearing leaf arranged to close said opening in its upwardly-tilted position, of the slides K and P arranged to be capable of movement in under opposite ends, respectively, of the aforesaid leaf, lever mechanism operatively connecting said slides with each other, the actuating-leaf D hinged to the left-hand end of the aforesaid top, the spring J' operatively engaging one of said slides and acting to retain the slides and connecting mechanism in their inoperative position, and the arrangement of parts being such that in their normal position one of said slides shall protrude outside of the top in position to be engaged and actuated by the said hinged leaf, and both of the slides shall be operated simultaneously, substantially as set forth.

588,799. SPACING MECHANISM.

WILFRED LEWIS and JOHN T. RAMSDEN, Philadelphia, Pa., assignors to the William Sellers & Company, Incorporated, same place. Filed Oct. 15, 1896. Serial No. 609,014. (No model.)

Claim.—1. In a spacing mechanism, a vibrating arm which moves a definite distance about a fixed axis, a block sliding in an arc of a circle on said arm, and a pivot secured to said block and movable therewith to coincide with the fixed axis, or to any required distance therefrom, in combination with a link, of a length equal to the radius of the arc of the circle on the vibrating arm which the axis of the pivot describes, one end of which link is attached to the pivot, while the other end is attached to a device, which operates the spacing apparatus, at a point central to the arc of the circle on the vibrating arm when this arm is at one extreme of its vibration.

2. In a spacing mechanism, a vibrating arm which moves a definite distance about a fixed axis, a block sliding in an arc of a circle on said arm, and a pivot secured to said block and movable therewith to coincide with the fixed axis, or to any required distance therefrom, in combination with a block sliding upon a fixed bar over a series of notches in said bar, to which the block may be locked at any of the said notches, a hand attachment movable after the said block over said bar and its notches, and mechanism which connects the hand attachment with the pivot which is movable to and from the fixed axis on the vibrating arm.



3. In a spacing mechanism, a hand attachment sliding over a series of notches in a fixed bar, a latch which locks this attachment at any of the notches in said bar and a spacing apparatus, in combination with mechanism attached to said latch which takes the spacing apparatus out of gear, when the latch unlocks the hand attachment.

4. In a spacing mechanism, a hand attachment sliding over a series of notches in a fixed bar, a latch which locks this attachment at any of the notches in said bar, a spacing apparatus and mechanism attached to said latch which takes the spacing apparatus out of gear, when the latch unlocks the hand attachment, in combination with a latch which holds the spacing apparatus out of gear.

5. In a spacing mechanism, a latch which holds the spacing apparatus out of gear, in combination with a tripping device on the vibrating arm which releases the said latch as the vibrating arm reaches one extremity of its movement.

6. In a spacing mechanism a crank-pin which intermittently operates a spacing-table and a brake-block which intermittently operates to retard the spacing-table, in combination with mechanism which connects the crank-pin with the brake-block and proportions the brake action to the spacing movement.

7. In a spacing mechanism, a spacing-table with two racks, the said racks having different rates of progression, and a lever each end of which is pivoted to move with one of the racks, in combination with a fulcrum-pivot adjustable along said lever and in the table between the racks.

588,800. CAN.

ANDREW W. LIVINGSTON, San José, Cal. Filed Dec. 21, 1896. Serial No. 616,508. (No model.)



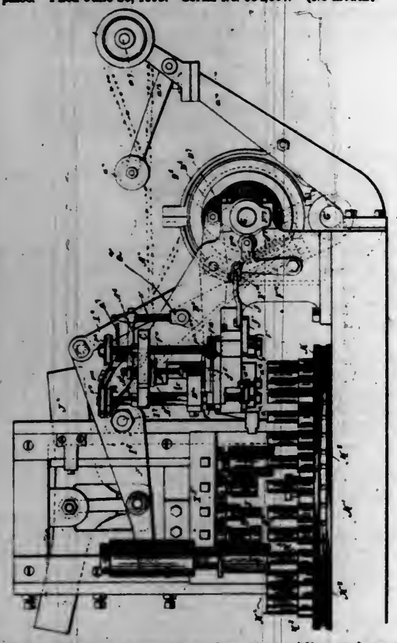
Claim.—1. A containing can or vessel having an upper edge turned over inwardly to form an inclined or beveled surface around the top integral with the body portion, and a cover having a corresponding flange facing the first-named one, said cover having a flanged upper portion adapted to overhang and extend down on the outside of the folded edge of the can or vessel whereby the cover is supported on said folded edge and the entrance to the space between the inclined or beveled flanges is closed, and having an outwardly-projecting flange around its inner portion adapted to maintain a gasket in place between the upper and lower flanged portions.

2. A containing-can having the upper integral edge swaged or turned over inwardly to form a continuous beveled inner surface around the top, in combination with a cover having a corresponding flange facing said surface and upper and lower peripheral flanges and a gasket movably fitting between the two surfaces and maintained in place between said upper and lower flanges and adapted to form a hermetically-sealed joint.

3. A containing-can having depressions made in opposite sides, a surface formed upon its upper edge, a cover having a corresponding opposing surface, upper and lower peripheral flanges, a gasket

adapted to be compressed between said surfaces to form an air-tight joint and to be maintained in place between the said upper and lower flanges, an elastic clamp adapted to press upon the cover to retain the surfaces in contact, said clamp having a concaved central portion to press upon the cover and having the opposite ends extending down upon opposite sides of the can and provided with inwardly-projecting lugs for engaging the side depressions.

588,801. AUTOMATIC MACHINE FOR WADDING AND CUPPING PAPER CARTRIDGE-SHELLS. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed June 26, 1895. Serial No. 554,067. (No model.)



Claim.—1. In an automatic machine for wadding and cupping paper-shell cartridges, the combination with a wadding mechanism, of an assembling or cupping mechanism, a single feeding mechanism arranged with relation to the said wadding and cupping mechanisms so as to present empty paper tubes to the wadding mechanism in position to receive the wads produced thereby, and then to present the wadded tubes to the assembling or cupping mechanism in position to have cups applied to their wadded ends, whereby one feeding mechanism is adapted to feed not only a wadding mechanism, but also a coupling mechanism, and operating connections for driving the said wadding, cupping and feeding mechanisms, which are timed to perform their functions in the right order.

2. In an automatic machine for wadding and cupping paper-shell cartridges, the combination with a double wadding mechanism, of a cupping mechanism, a feeding mechanism to present empty tubes to the wadding mechanism, and then to present the wadded tubes to the cupping mechanism, and operating connections whereby the feeding mechanism is operated at twice the speed of the double wadding mechanism, and whereby the cupping mechanism is operated at the same speed as the feeding mechanism, substantially as described.

3. In an automatic machine for wadding and cupping paper-shell cartridges, the combination with a wadding mechanism, of an assembling or cupping mechanism, an intermittently-actuated dial adapted to receive empty tubes and arranged with reference to the said wadding and cupping mechanisms so as to present empty tubes to the former for the introduction of wads into them, and then to carry the wadded tubes on to the cupping mechanism for the application of cups to them thereby, and means for operating the said wadding and cupping mechanisms and dial in proper concert, substantially as set forth, and whereby a single dial is made to perform the twofold office of feeding not only a wadding mechanism, but also a cupping mechanism, without any intermediate handling of the shells.

4. In an automatic machine for winding wads, the combination with a wad-winding spindle having its lower end slotted, of a pair of feed-rolls, one of which is positively moved toward and away from the other for causing them to grip and feed the paper to the spindle, and then release it to permit it to be drawn inward by the spindle; a shaft upon which one of the rolls is mounted and the lower end of which is made elastic to permit its lateral deflection for enlarging the space between the two rolls when the paper runs thicker than gage; and a bushing chambered for the reception of the elastic portion of the said shaft so as to give clearance thereto for the lateral deflection thereof.

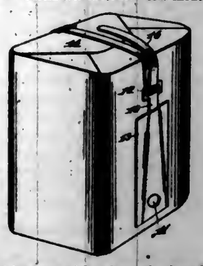
5. In a machine for winding wads, the combination with two wad-winding spindles having their lower ends slotted, of two pairs of feed-rolls of which each pair has one roll positively movable toward and away from its fellow for causing the rolls to temporarily grip the paper strips and feed them to the said spindles, and then release the paper strips to permit the same to be drawn inward by the spindles; and means for connecting the movable rolls of each pair of rolls for their operation in unison, so that the two strips will be fed at the same time to their respective spindles, one roll of each pair of rolls being yielding to provide extra space between the rolls in case the paper runs thicker than gage.

6. In an automatic machine for winding wads, the combination with two wad-winding spindles, of two pairs of feed-rolls, an eccentric bushing for one roll of each pair of rolls, and means for connecting the said eccentric bushings together so that the movable roll of each pair may simultaneously move toward and away from its fellow.

7. In a machine for winding wads, the combination with two wad-winding spindles having their lower ends slotted, of stop-cams mounted upon the said spindles, means for driving the said spindles simultaneously, a rock-shaft, two arms carried thereby and mounted for independent oscillation thereupon, two stop-fingers respectively mounted in the said arms and arranged to coact with the said stop-cams, and springs coacting with the said arms for the independent operation of the stop-fingers within the limits of the independent movement of the said arms upon the rock-shaft, whereby the stop-fingers will be simultaneously disengaged from the two stop-cams, but independently reëngaged therewith by the said spring.

8. In an automatic machine for wadding and capping paper-shell cartridges, the combination with a wadding mechanism, of an assembling or capping mechanism, and a single, feeding mechanism arranged with relation to the wadding and assembling mechanisms so as to present empty shells to the wadding mechanism in position to have wads introduced into them thereby, and then to carry the wadded shells to the capping mechanism and present them thereto in position to have cups applied to them thereby, the said capping mechanism comprising an assembling-punch, a long chute down through which the cups are fed by gravity, yielding fingers located at the lower end of the said chute for receiving cups therefrom and holding them under the punch, and a guide located below the said fingers and guiding the cups on their way from the same into the said shells.

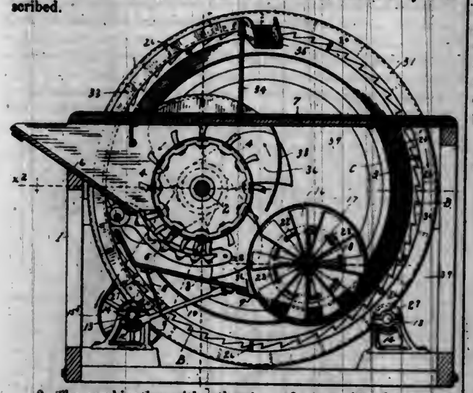
588,802. BAG-FASTENER. THEODORE J. P. MAUS, St. Louis, Mo. Filed Mar. 1, 1897. Serial No. 626,546. (No model.)



Claim.—In combination with a bag, the bag-fastener consisting of the perforated ear 12, the sheet-metal strip 10 formed integral with said perforated ear and having its lower end 11 wider than its upper end, the paper section 13 placed over said strip 10 and pasted to the bag and leaving the perforated ear 12 free, the tie 14 cut from sheet metal and having its lower end 15 wider than its upper end, said lower end 15 being placed between the overlapping edges of the paper during the process of forming the bag and pasted in position leaving the upper end of the tie free to extend over the top of the bag and engage the ear 12, substantially as specified.

588,803. COMBINED THRESHER AND SEPARATOR. FRANK H. MCNALL, Minneapolis, Minn. Filed Aug. 5, 1896. Serial No. 601,775. (No model.)

Claim.—1. The combination with a thresher and a rotary separating-drum, of a trunk or casing section between the two, and a fan and worm conveyer in said casing-section for coöperation therewith to receive the stock from the thresher, subject the same to centrifugal action and deliver the same to said drum, substantially as described.



2. The combination with a thresher, of a centrifugal separator involving a straw-discharger, a separating drum or shell, receiving from said thresher and delivering to said straw-discharger, at points out of line with each other and eccentric to the axis of said drum, means for subjecting the stock to the action of centrifugal force, within said drum, and means for producing a forced current of air through said drum, whereby the stock is subjected to centrifugal action and forced currents of air and will be thrown through a comparatively dead-air space on its passage through said drum to the discharger, substantially as described.

3. The combination with a thresher, of a centrifugal separator comprising a straw-discharger, a rotary separating-drum receiving from the thresher and delivering to the discharger, at points eccentric to the axis of said drum, and a combined fan and conveyer within said drum and eccentric to its axis, for coöperation, whereby the stock is subjected to centrifugal action and forced currents of air and will be thrown through a comparatively dead-air space on its passage through the drum to the discharger, substantially as described.

4. The combination with a thresher, of a straw-discharger, a rotary separating-drum receiving from the former and delivering to the latter, at points eccentric to the drum's axis, a blast-fan delivering to the head of said drum, a combined fan and conveyer within said drum and eccentric to the axis thereof, and spirally-arranged teeth on the inner surface of said drum, all for coöperation substantially as described.

5. A centrifugal separator comprising a rotary separating-drum made up of concentric shells spaced apart from each other, the inner member of which is provided with grain-passages, and a combined fan and rotary agitator independently mounted within said drum, for setting up a whirling motion of the stock and subjecting the same to forced currents of air, substantially as described.

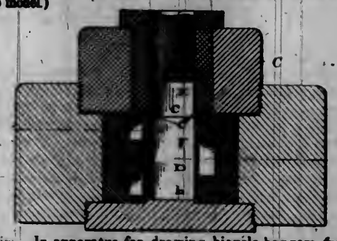
6. The combination with a thresher, of a rotary separating-drum composed of concentric shells spaced apart from each other, the inner member of which is provided with grain-passages to the space or collecting chamber between the two, and a two-fan discharger, one of which fans draws from the inner shell and the other of which draws from said collecting-chamber between the two shells, substantially as described.

7. The combination with a thresher, of a separating-drum made up of concentric shells spaced apart to form a collecting-chamber between the two and the inner member provided with grain-passages, serrated ribs or cleats on the inner surface of the outer shell, in spiral arrangement, and the two fan-dischargers one of which fans draws from the inner shell and the other from said collecting-chamber, substantially as described.

8. The rotary separating-drum made up of concentric shells, the outer member of which is imperforate and the inner member of which is composed of a series of sections, some of which are in the form of truncated cones, with grain-passages between said sections, in combination with a rotary agitator mounted inside the inner shell for setting up a whirling motion of the stock, and fans for applying forced currents of air both to the interior of the inner shell and to the collecting-chamber between the two shells, substantially as described.

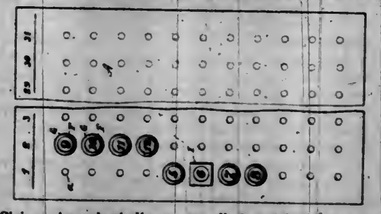
9. The combined thresher and separator, comprising a horizontal threshing-cylinder and concave delivering sidewise of the main frame, the chamber A receiving from said cylinder and concave and equipped with the blast-fan 17 and the conveyer 23, the rotary separating-drum composed of the concentric shells 24 and 25 constructed and arranged as described, to afford the collecting-chamber B between said shells, the two-fan straw-discharger mounted on the same shaft as the cylinder, rearward of the drum, with one fan drawing from the interior of the drum and the other from said collecting-chamber between the two shells, the casing-partition 39 with passage 40, the fan 36 and the conveyer 37 within the drum on the same shaft as the cylinder and the discharger and turning opposite to the motion of the drum, and the teeth 27 on the inside surface of the inner shell of the drum, all arranged and coöperating substantially as and for the purposes set forth.

588,804. MECHANISM FOR MAKING BICYCLE-CRANK HANGERS. NEFF R. PARISH, Cleveland, Ohio, assignor to the Parish & Bingham Company, same place. Filed June 29, 1896. Serial No. 597,427. (No model.)



Claim.—In apparatus for drawing bicycle-hangers from metal tubing, the combination with a separable die, of a die-holder consisting of an integral block formed with a central bore adapted to be fitted by said die, and provided with an upper and a lower cap of larger diameter than said bore, each cap having screw-threaded engagement with said holder, the one cap provided with a blank-clamping means adapted to form a gland for a hydraulic plunger, said clamping means provided around its central bore with a conical annular boss the outside diameter of whose larger base is less than the inside diameter of the die, the other cap provided with a similar boss, both said bosses adapted to enter the blank and clamp it against said die, substantially as set forth.

588,805. ORDER-INDICATOR. WILLIAM H. REYNOLDS, New Haven, Conn. Filed Mar. 1, 1897. Serial No. 626,495. (No model.)

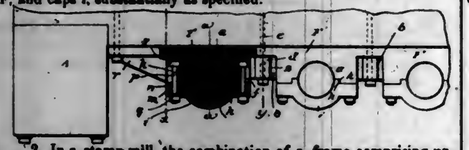


Claim.—An order-indicator or tally-board for keeping track of orders and partially-filled orders, comprising a day-board having thirty-one vertical rows of holes standing for the days of the month, a month-board having twelve vertical rows of holes standing for the months of the year, peg-like markers or tallies for insertion into the several holes of the day-board, and the several holes of the month-board, and adapted to be differentiated from each other without removing them from the said holes by the application to their outer ends of disks or tablets containing figures or characters, and other markers or tallies adapted to be inserted into the holes of the day-board and month-board, and differentiated from the markers or tallies first mentioned so as to be readily distinguished therefrom, and also adapted to have applied to them without removing them from the said holes, disks or tablets containing figures or characters indicating the state of partially-filled orders.

588,806. STAMP-MILL. GILBERT M. ROSS, San Andreas, Cal., assignor to the Globe Iron Works, Stockton, Cal. Filed Mar. 1, 1897. Serial No. 626,622. (No model.)

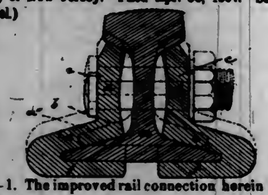
Claim.—1. In a stamp-mill, the combination of a frame comprising uprights and a guide-beam connecting the uprights, a block F, arranged on the face of the guide-beam and formed in one piece and having the semicircular recesses *a*, in its face at intervals in its length, the recesses *b*, between the recesses *b*, the horizontal slots *f*, in the side walls of the recesses *b*, the seats *g*, disposed at right angles to and communicating with the inner ends of the slots *f*, the transverse apertures communicating with the recesses *b*, the bosses *d*, surround-

ing said apertures and arranged in said recesses *b*, the flanges *c*, joining the bosses *d*, and the side walls of recesses *b*, and the longitudinal central end flanges *r*, the caps *i*, having semicircular recesses *j*, in their inner sides and also having apertured flanges *m*, at their ends, bolts having their heads arranged in the seats *g*, of block F, and their shanks arranged in the slots *f*, thereof and also having said shanks extended through the flanges *m*, of caps *i*, and provided with nuts, connecting-bolts extending through the bosses *d*, and apertures of the block F, and also through the guide-beam, and stamp-stems extending through the guides formed by the recesses *a*, *j*, of the block F, and caps *i*, substantially as specified.



2. In a stamp-mill, the combination of a frame comprising uprights and a guide-beam connecting the uprights, a block F, arranged on the face of the guide-beam and formed in one piece and having the semicircular recesses *a*, in its face at intervals in its length, the recesses *b*, between the recesses *a*, the horizontal slots *f*, in the side walls of the recesses *b*, and the slots *g*, disposed at right angles to and communicating with the inner ends of the slots *f*, a suitable means for connecting the block F, to the guide-beam, the caps *i*, having semicircular recesses *j*, in their inner sides, bolts having their heads arranged in the seats *g*, of block F, and their shanks arranged in the slots *f*, thereof and also having said shanks extended through the caps *i*, and provided with nuts, and stamp-stems extending through the guides formed by the recess *a*, *j*, of the block F, and caps *i*, substantially as specified.

588,807. RAILWAY-RAIL JOINT. ABRAHAM W. THOMPSON, Newark, N. J., assignor to the Continuous Rail Joint Company of America, of New Jersey. Filed Apr. 30, 1897. Serial No. 634,539. (No model.)



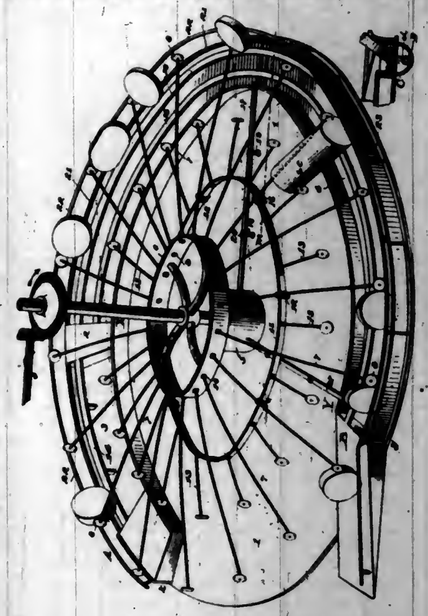
Claim.—1. The improved rail connection herein described comprising a fish-plate having a vertical portion adapted to fit between the rail-tread and rail-flange and having a doubled lateral extension adapted to fit the upper and lower sides of the rail-flange, the said fish-plate having the bottom portion of the doubled extension of varying thicknesses, providing seats of varying heights for the differently-sized rails, substantially as set forth.

2. The combination with the rails of varying heights, of fish-plates having vertical portions with offsets *g*, adapted to fit between the different rail-heads and flanges and having doubled lateral extensions adapted to lie on the upper and lower sides of the rail-flanges, the lower portions of the doubled extensions being made of varying thicknesses to suit the differences in the heights of the rails, substantially as set forth.

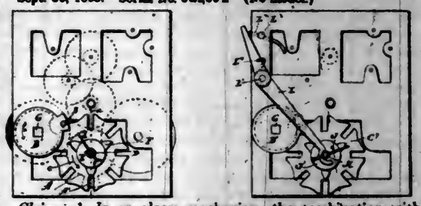
588,808. CAN-SOLDERING MACHINE. NATHANIEL M. BAIN, Portland, Oreg. Filed Jan. 2, 1896. Serial No. 574,141. (No model.)

Claim.—1. In a soldering-machine, in combination, the circular bed-plate, rigidly mounted, a circular trough upon such bed-plate, divided by a partition into the two compartments 3 and 4; a suitable heating apparatus under the compartment 4 to heat the same; the wheel 6, journaled in a suitable pillow or support; means for revolving such wheel; the arms 7, secured in slots or apertures in the rim of the wheel 6, by means permitting such arms to be laterally adjusted, and such arms being provided with antifriction-wheels 8 at their free ends; the rigidly-fixed rail 14, and the rails 15 and 16 mounted on suitable supports adapting the same to vertical adjustment; a suitable friction covering, for the purposes specified, on such rail 16; a bead 21, extending along the interior of the outer wall of the troughs or compartments, and the rail 22 for cans to lean against, all substantially as set forth.

2. In a soldering-machine in combination, the circular bed-plate rigidly mounted, a circular trough upon such bed-plate, divided by a partition into the two compartments 3 and 4; a suitable heating apparatus under the compartment 4 to heat the same; the wheel 6 journaled in a suitable pillow or support; means for revolving such wheel; the arms 7, secured in slots or apertures in the rim of the wheel 6 by means permitting such arms to be laterally adjusted, and such arms being provided with antifriction-wheels 8 at their free ends; the hoop 11 supported from the arms 7 by adjustable clips, the auxiliary arms 13 secured in slots or apertures in the rim of such hoop 11 by means permitting such arms to be laterally adjusted, and such arms 13 being likewise provided at their free ends with antifriction-wheels; the rigidly-fixed rail 14 and the rails 15 and 16 mounted on suitable supports adapting the same to vertical adjustment; a suitable friction covering, for the purpose specified, on such rail 16; a bead 21 extending along the interior of the outer wall of the troughs or compartments; and the rail 22 for cans to lean against, all substantially as set forth.



588,809. ALARM-CLOCK. ARCHIBALD BANNATYNE, Waterbury, Conn., assignor to the Waterbury Clock Company, same place. Filed Sept. 30, 1895. Serial No. 564,004. (No model.)



Claim.—1. In an alarm mechanism, the combination with an alarm-spring and an alarm-spring arbor, of an alarm-setting arbor, an indicating-pointer attached thereto in position to be registered with designations of alarms of different duration, means for driving the alarm-setting arbor from the alarm-spring arbor, the alarm-setting arbor being adapted to be turned independently of the said means, for setting the indicating-pointer, an adjustable alarm-regulating stop mounted upon the alarm-setting arbor, and adapted to be set for regulating the rotation of the alarm-spring arbor, and hence the duration of the alarm.

2. In an alarm mechanism, the combination with the alarm-spring and the alarm-spring arbor, of an alarm-setting arbor, an indicator connected therewith, a male stop secured to the alarm-spring arbor, a female stop frictionally secured to the alarm-setting arbor, and an adjustable alarm-regulating stop fixed to the alarm-setting arbor, and adapted to block the coaction of the said male stop with the said female stop, the alarm-setting arbor being rotatable independently of the female stop for setting the alarm-regulating stop in accordance with the duration of alarm desired.

3. In an alarm mechanism, the combination with the male and female members of a Geneva stop, of an adjustable alarm-regulating stop adjustable with reference to the said female stop, and having a stop-arm which is used to block the slots of the female stop to the entrance thereinto of the pin of the male stop, substantially as described.

588,810. CAR-TRUCK. JOHN C. BARBER, St. Paul, Minn. Filed Mar. 21, 1896. Serial No. 584,234. (No model.)



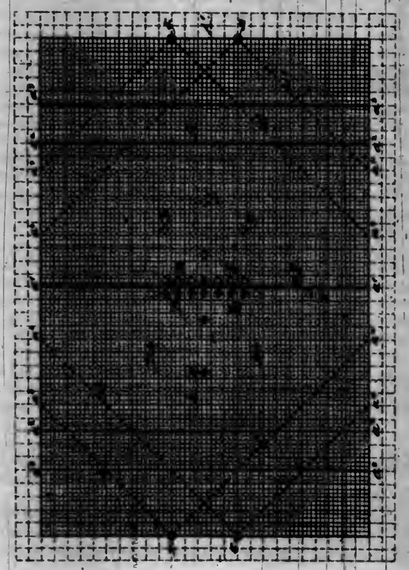
Claim.—1. The combination with a center piece secured to the cross-pieces or bolster of the truck, of a transversely-movable center plate mounted thereon, and two plain cylindrical rollers interposed between said center piece and center plate, said center piece and center plate, one or both, having separate oppositely inclined or curved bearing faces or seats to receive each of said rollers, and cause the center plate to return to its central position, substantially as specified.

2. The combination with a center piece secured to the cross-pieces or bolster of the truck, of a transversely-movable center plate mounted thereon, and plain cylindrical rollers interposed between said center piece and center plate, said center piece and center plate, one or both, having inclined or curved bearing faces or seats to receive said rollers and cause the center plate to return to its central position, and stops to limit the transverse movement of the center plate on the center piece, substantially as specified.

3. The combination with the transoms rigidly secured to the truck side frame and constituting the truck-bolster, of the tie-plate rigidly secured to said transoms below the tops of the central portions of the same, the roller bearing-plate supported by said tie plate, roller-bearings working on said bearing-plate, and a center plate mounted for lateral movement over said roller-bearings, and guided by the upper portions of said transoms, substantially as described.

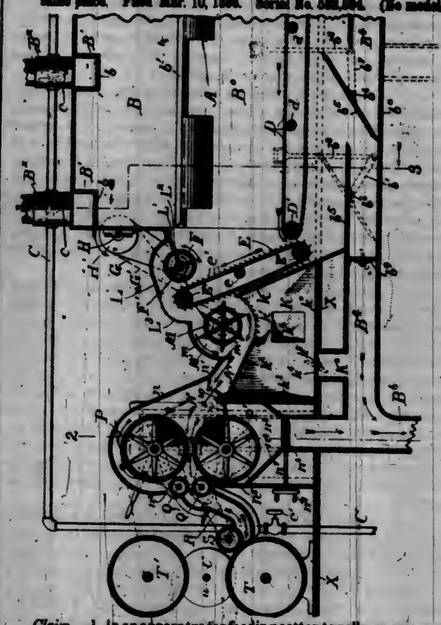
4. The combination with a rigid car-truck bolster, and a rigid car-body bolster, of a bearing-plate with concave roller-seats fixed on the bolster, a divided or two-part center plate, the upper section of which is carried by the body-bolster, and the lower section of which is provided with concave roller-seats, roller-bearings working between said concave seats, and stops formed by the upturned lateral extremities of said fixed bearing-plate, substantially as described.

588,811. PARLOR-GAME APPARATUS. WILLIAM L. BAIN, Brooklyn, N. Y. Filed Dec. 24, 1896. Serial No. 616,859. (No model.)



Claim.—A game apparatus, consisting of a rectangular field laid out with the usual lines of a foot-ball field, an additional subdivided emergency space on each side of said field, two sets of differently-colored pieces representing two foot-ball teams, and a ball adapted to be carried by any piece of either team, substantially as set forth.

588,812. GIN-FEED FOR ROLLER-COMPRESSES. CHARLES L. EMMONETTE, Waco, Tex., assignor of one-half to Charles W. White, same place. Filed Mar. 10, 1896. Serial No. 582,894. (No model.)



Claim.—1. In an apparatus for feeding cotton to roller-compresses, the combination with a chamber provided with a false bottom composed of a plurality of pivoted portions abutting against each other with an air-passage beneath the same, of an endless apron carried in said chamber immediately above said false bottom, and a plurality of gins adapted to deliver the lint-cotton into said chamber above said endless apron, substantially as described.

2. In an apparatus for feeding cotton to roller-compresses, the combination with a chamber provided with a false bottom composed of a plurality of pivoted portions abutting against each other with an air-passage beneath the same, of an endless apron carried within said chamber immediately above said false bottom, gins adapted to deliver cotton into said chamber above said apron, a condenser and means for delivering cotton from said apron to said condenser and then to the roller-compresses, substantially as described.

3. In an apparatus for feeding cotton to roller-compresses, the combination with a chamber provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions abutting against each other with an air-passage beneath the same, of an endless apron carried in said chamber above said false bottom, a plurality of gins adapted to deliver the lint-cotton into said chamber, a condenser and means for conveying the cotton from said chamber to said condenser and then to the roller-compresses, substantially as described.

4. The combination with a roller-compress and means for feeding cotton thereto, of a chamber provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions abutting against each other, with an air-passage beneath the same, lever-arms for operating the pivoted portions of said false bottom, flues for conveying cotton into said chamber, an endless apron carried within said chamber immediately above said false bottom, substantially as described.

5. In an apparatus for feeding cotton to roller-compresses, the combination with a chamber provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions abutting against each other with an air-passage beneath the same, gins, flues for conveying the cotton from the gins, connected to the said chamber, an endless belt carried within the lower portion of said chamber beneath the said flues, a condenser, means for conveying the cotton from the said chamber to said con-

denser and then to the roller-compresses, a main dust-trunk communicating with the air-passage beneath said chamber and with said condenser, substantially as described.

6. In an apparatus for feeding cotton to roller-compresses, the combination with a closed chamber connected to the gins and receiving cotton therefrom, of air-passages opening upward through the top of said chamber, steam-pipes opening into said chamber and adapted to either moisten the lint-cotton or serve as a fire-extinguisher as may be desired, and a plurality of pivoted plates or boards abutting against each other and forming a false bottom for said chamber, with an air-passage beneath the same, an endless apron carried in said chamber beneath the said gin connections, a condenser, means for conveying the cotton from said apron to the condenser and then to the compresses, substantially as described.
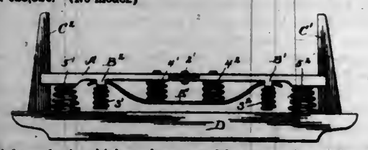
7. In an apparatus for feeding cotton from gins to roller-compresses, the combination with a closed chamber connected to the gins, and provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions with an air-passage beneath the same, of steam-pipes opening in said air-passages, of an endless apron adapted to move in said chamber beneath the gin connections, a second endless apron for taking the cotton from the first apron, means for limiting the supply of cotton delivered by said second apron, a condenser, means for delivering the cotton from said second apron to said condenser and then to the roller-compresses, substantially as described.

8. In an apparatus for feeding cotton from gins to roller-compresses, the combination with a closed chamber connected to the gins, and provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions with an air-passage beneath the same of steam-pipes opening in the said air-passages, of an endless apron adapted to move in said chamber beneath the gin connections, a second endless apron for taking the cotton from the first apron, means for limiting the supply of cotton delivered by said second apron, a condenser, a fan interposed between said second apron and said condenser for blowing cotton from said second apron to said condenser, and means for conveying the cotton from said condenser to the roller-compresses, substantially as described.

9. In an apparatus for feeding cotton from gins to roller-compresses, the combination with a closed chamber connected to the gins, and provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions with an air-passage beneath the same, of steam-pipes opening in said air-passages, of an endless apron adapted to move in said chamber beneath the gin connections, a second endless apron for taking the cotton from the first apron, means for limiting the supply of cotton delivered by said second apron, a condenser having air passages and valves controlling the supply of air in the said condenser, a fan interposed between said second apron and said condenser for blowing cotton from said second apron to said condenser, a main dust-trunk and troughs leading from said closed chamber beneath the false bottom thereof, the condenser, and from below the said fan into said main trunk and valves in the said troughs for controlling the flow of the air and dust through the same, substantially as described.

10. In an apparatus for feeding cotton from gins to roller-compresses, the combination with a closed chamber connected to the gins, and provided with air-passages through the upper portion thereof and a false bottom composed of a plurality of pivoted portions with an air-passage beneath the same, of steam-pipes opening in the said air-passages, an endless apron moving in said chamber beneath the gin connections, a second endless apron taking the cotton from the first apron, means for limiting the supply of cotton delivered by said second apron, a condenser having air-passages and valves controlling the supply of air in the said condenser, a fan interposed between said second apron and said condenser for blowing cotton from said second apron to said condenser, and a roller-compress receiving the cotton in a bat from said condenser, substantially as described.

588,813. VEHICLE-SPRING. JOSEPH BLUM and THOMAS J. ANDERSON, Freeport, Ill. Filed Apr. 25, 1896. Renewed Feb. 13, 1897. Serial No. 623,320. (No model.)

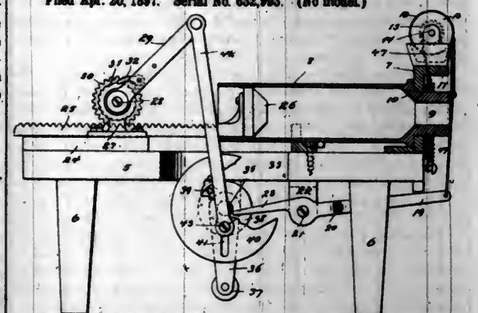


Claim.—1. A vehicle-spring comprising a metal cross-bar united in the center and made adjustable by means of bolts and slotted holes, a semielliptic spring the ends of which operate in guides on the under side of said cross-bar, two intermediate coil-springs inserted between the cross-bar and the base of the semielliptic spring, said coil-springs being rigidly fastened to the cross-bar, and adjustably attached to the semielliptic spring by bolts and slotted holes therein, whereby the coil-springs may be kept in a perpendicular position when the cross-bar is lengthened, a cone-shaped coil-spring attached to each end of the cross-bar, and made longer than the other coil-springs whereby the semielliptic spring is held out of contact with the bolster when the vehicle is unloaded, two supplementary springs attached to the bridge of the guides at the ends of the cross-bar substantially as set forth.

2. In a vehicle-spring the combination of a metal cross-bar having an adjustable connection in the center and lugs for engaging the bolster-stakes at each end, a semielliptic spring, the ends of which bear against the under side of the cross-bar, two coil-springs rigidly attached to the cross-bar and adjustably attached to the semielliptic spring near the center, the bridge-guides B' B^3 each having a coil-spring attached and the cone-shaped springs at the ends of the cross-bar substantially as shown and described.

3. In a vehicle-spring the combination of the adjustable cross-bar A, a semielliptic spring E having its reaches operating in guides B' B^3 on the under side of the cross-bar, intermediate coil-springs $4'$ 4^3 adjustably attached to the semielliptic spring, and the cone-shaped coil-springs $5'$ 5^3 rigidly attached to the cross-bar at each end, and made sufficiently long to hold the other parts of the spring out of contact with the bolster when the vehicle is unloaded substantially as shown and described.

588,814. MACHINE FOR CUTTING BUTTER. CHARLES T. COLBY, Los Angeles, Cal., assignor of one-half to Joseph L. Powell, same place. Filed Apr. 20, 1897. Serial No. 632,903. (No model.)

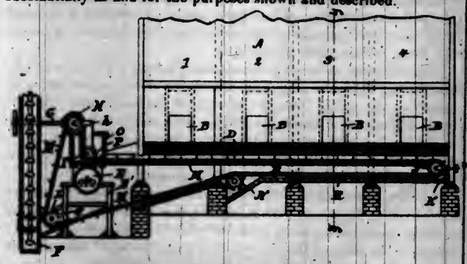


Claim.—1. A machine for cutting butter and other substances into small cakes or blocks, consisting of a base-plate or support, an oblong casing mounted over one end thereof, and provided with a reduced extension, said casing being open at both ends, a receptacle mounted above the reduced extension of said casing, a roller mounted over said receptacle, a vertically-movable blade or cutter connected with said roller, a rack-bar mounted over said plate or support and provided with a piston which works in said casing, and means for operating said rack-bar and said cutter, consisting of a yoke pivotally supported below said plate or support, the sides of which are connected with said blade or cutter, a bearing or bearings at the side of said rack-bar, a shaft mounted therein, a gear-wheel mounted on said shaft and adapted to operate said rack-bar, a ratchet-wheel mounted on said shaft adjacent to said gear-wheel, a crank connected with said shaft and provided with a pawl which operates in connection with said ratchet-wheel, a crank-rod connected with said crank, and means for operating said crank-rod and said yoke, substantially as shown and described.

2. A machine for cutting butter and other substances into small blocks or cakes, comprising a base-plate or support, an oblong casing mounted over one end thereof, and provided with a reduced extension, a receptacle mounted above said extension, a roller mounted over said receptacle, a cloth wound on said roller, a cutting-blade connected with said cloth, a drum mounted on the shaft of said roller, a cord wound on said drum, and connected with a spiral spring which is adapted to hold the blade or cutter in its raised position, and means for operating the blade or cutter and for forcing the butter or other substance through said casing, substantially as shown and described.

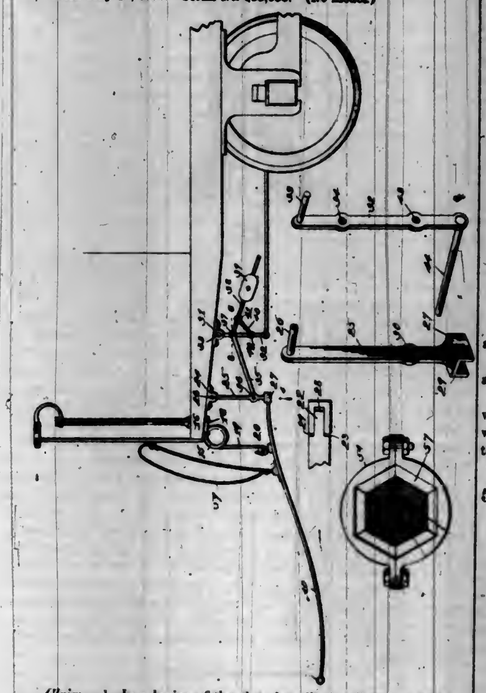
588,815. GRAIN FEEDER AND CONVEYER. BOSTON S. COSTANT, Bloomington, Ill. Filed Aug. 19, 1896. Serial No. 603,170. (No model.)

Claim.—1. The combination of the bin having the sloping floor and the open channel at the center thereof, and the central partition having the parallel sloping partitions connecting therewith and resting upon said floor, the transverse partitions dividing said bin into smaller compartments, and slidable doors arranged in each of said parallel partitions to communicate with a hallway between said parallel partitions above said channel of the frame carrying the driving sprocket-wheel suitably mounted; the sprocket-wheel mounted below said driving-wheel; the deflector mounted on said frame; the end wheel supported below said frame adjacent to the ground; the slack-adjusting sprocket-wheel supported at the rear end of said channel; the idler sprocket-wheel supported in the return-channel, and the drag or endless conveyer running over said sprocket-wheels, substantially as and for the purposes shown and described.



2. In a grain elevator and conveyer, in combination with a bin provided with sloping floors and sprocket-chain running in a channel, of the frame A, the frame O, the frame E', the sprocket-wheel H, the shaft G provided with a bevel-gear and operating said sprocket H, the sprocket-wheel *i*, the chain M operating said sprockets, the deflector P situated in front of said wheel *i*, the sprocket-wheel L and a suitable corn-sheller all arranged and operating substantially as shown and described.

588,816. CAR-FENDER. MICHAEL DETTMAR, St. Louis, Mo. Filed May 10, 1897. Serial No. 635,955. (No model.)



Claim.—1. In a device of the class described, coil-springs 15 having their upper ends attached to the under side of the platform of the car and their lower ends extending downwardly some distance from the platform and formed into hooks, a fender having eyes attached to its side bars and engaging said hooks, said side bars extending backwardly some distance from said eyes, hangers pivotally connected to the platform of the car some distance behind said coil-springs and depending downwardly and engaging the rear ends of said side bars as required to hold the forward part of the fender clear of the track and as required to allow the fender to swing back and forth, clutch mechanism mounted upon the forward axle of the car and positive connections between said clutch mechanism and the fender whereby said clutch mechanism is operated by the swinging of the fender and connections between said clutch mechanism and the brake mechanism whereby the brakes are operated by the operation of the clutch mechanism, substantially as specified.

2. In a device of the class described, spring-actuated arms extending downwardly from the platform of the car, a fender mounted with its rear end under the platform of the car and hinged to the lower ends of said spring-actuated arms as required to allow the front end of the fender to be turned upwardly, hangers pivotally connected to the platform of the car some distance behind said spring-actuated arms and extending downwardly, connections between the lower ends of said hangers and the rear end of the fender as required to hold the forward end of the fender elevated from the track and as required to allow the fender to be turned upwardly on its hinges and as required to allow the fender to swing back and forth, clutch mechanism mounted upon the front axle of the car, positive connections between said clutch mechanism and the fender whereby the clutch mechanism is operated by the swinging of the fender and connections between said clutch mechanism and the brakes whereby the brakes are operated by the operation of the clutch mechanism, substantially as described.

3. In a device of the class described, spring-actuated arms extending downwardly from the platform of the car, a fender mounted with its rear end under the platform of the car and hinged to the lower ends of said spring-actuated arms as required to allow the front end of the fender to be turned upwardly, hangers pivotally connected to the platform of the car some distance behind said spring-actuated arms and extending downwardly, connections between the lower ends of said hangers and the rear end of the fender as required to hold the forward end of the fender elevated from the track and as required to allow the fender to be turned upwardly on its hinges and as required to allow the fender to swing back and forth, clutch mechanism mounted upon the front axle of the car, positive connections between said clutch mechanism and the fender whereby the clutch mechanism is operated by the swinging of the fender, connections between said clutch mechanism and the brakes whereby the brakes are operated by the operation of the clutch mechanism and means of swinging the fender forwardly to its normal position when the obstruction is removed, thereby releasing the brakes, substantially as specified.

588,817. SPINNING-RING. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 7, 1897. Serial No. 635,526. (No model.)



Claim.—1. A ring combined with a traveler having an attached antifriction device, substantially as described.

2. A ring combined with a traveler provided with a plurality of antifriction devices, substantially as described.

3. A spinning-ring provided with an annular chamber, combined with a traveler surrounding the race of the said ring and provided with an antifriction device rolling in said annular chamber, substantially as described.

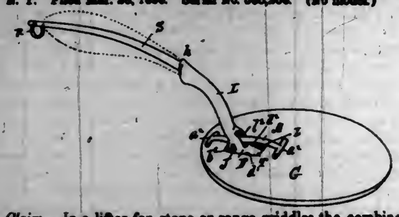
588,818. SAND-BAND. JOSEPH L. FREASIER, St. Louis, Mo. Filed Dec. 23, 1896. Serial No. 616,792. (No model.)



Claim.—A sand-band, consisting of the disk 4, the annular wall 5 formed integral with the edge of said disk 4 and the tongue 6 cut from said disk and bent at right angles to said disk, in combination with the axletree 8, the axle 9 and the enlarged cylindrical portion 10 formed integral, the skein 11 operating upon said axle, and the hub 15 fixed upon said skein, said sand-band being mounted upon the axletree before the two ends of the axletree are welded together, the disk 4 engaging the inner face of the cylindrical portion 10 and

the end of the skein, and the annular wall 5 operating outside of the skein and inside of the hub and said sand-band being held securely in position, substantially as specified.

588,819. STOVE-GRIDDLE LIFTER. JOHN H. GAFFLEY, Troy, N. Y. Filed Mar. 26, 1896. Serial No. 585,208. (No model.)



Claim.—In a lifter for stove or range griddles the combination with a handle provided with a shank and downcurved leg L having the laterally-extended foot F, provided with the slot f^2, and bearings b^3, b^3, of the clutching-lever A, having the side journals J, J, and the arms a^2, a^3, constructed and arranged to connect, and be operated substantially in the manner as and for the purposes set forth.

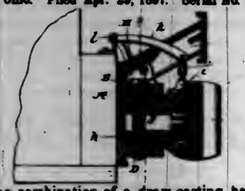
588,820. BICYCLE-BELL. WILLIAM H. GARR, Brooklyn, N. Y., assignor to the Meriden Brunze Company, Meriden, Conn. Filed Mar. 1, 1897. Serial No. 626,477. (No model.)



Claim.—1. A bell having a longitudinally-bowed, double-ended striker arranged to rotate concentrically with the gong of the bell and adapted to impinge upon a striking-lug formed upon the inner face thereof, the said striker being constructed to have longitudinal movement in opposite directions imparted to it by the impact of its ends upon the said lug, and on account of its said bowed form having rocking or tilting movement imparted to it by the action of gravity.

2. A bell having a longitudinally-bowed, double-ended striker consisting of a plate, and two hammers formed independently thereof and applied to the upper faces of its ends, the said striker being arranged to rotate concentrically with the gong of the bell for the impingement of its hammers upon a striking-lug formed upon the inner face thereof, and being constructed to have positive longitudinal movement in opposite directions imparted to it by the said impact of its hammers with the striking-lug, and on account of its bowed form having rocking or tilting movement given to it by the action of gravity.

588,821. CAR-COUPLING. JAMES A. GRAHAM and JAMES A. MCGEE, Lorain, Ohio. Filed Apr. 29, 1897. Serial No. 634,335. (No model.)



Claim.—1. The combination of a draw-casting having vertical seats of dovetail form in cross-section in its face or outer side and also having lugs provided with transverse apertures, a chafing or buffer plate having arms provided with end portions of dovetail form in cross-section placed in the seats of the draw-casting and also having other arms provided with transverse apertures, and a bolt extending through the apertures of these latter arms and the apertures in the lugs of the draw-casting, substantially as specified.

2. The combination of a draw-casting having a socket provided with pin-holes in its lower and upper walls and also having lugs above and at the opposite sides of the socket provided with transverse apertures, a draw-head having a stem arranged in the socket and having a vertical aperture, a pin extending through the apertures in the socket-walls and stem, a chafing or buffer plate having arms provided with apertures, and a transverse bolt extending through the lugs of the draw-casting and the arms of the chafing or buffer plate and resting immediately above the pin so as to prevent the same from rising, substantially as specified.

3. The combination of a draw-casting having vertical seats of dovetail form in cross-section in its face or outer side and also having the socket between said seats and the apertured lugs above said socket, a draw-head having a stem arranged in the socket, a connecting-pin extending through the walls of the socket and the draw-head stem, a chafing or buffer plate having outer arms provided with end portions of dovetail form in cross-section placed in the seats of the draw-casting and also having inner arms provided with transverse apertures, and a bolt extending through these latter arms and the apertures in the lugs of the draw-casting and resting above and in the same vertical plane as the connecting-pin to prevent the same from rising, substantially as specified.

4. The combination of a draw-casting having a socket, a draw-head having a stem arranged in the socket of the draw-casting, a connecting-pin taking through the walls of the socket and the stem of the draw-head, a chafing or buffer plate, and a bolt connecting said chafing or buffer plate and the draw-casting; said bolt being arranged above and in the same vertical plane as the connecting-pin to prevent rising of the same, substantially as specified.

5. The combination of the draw-casting having vertical seats of dovetail form in cross-section in its face or outer side, and a chafing or buffer plate having arms provided with dovetail end portions arranged in the seats of the draw-casting and other arms connected by a bolt with said draw-casting, substantially as specified.

588,822. ELECTRIC-ARC LAMP. BENJAMIN F. GREENE, Sheridan, Pa. Filed Apr. 22, 1897. Serial No. 633,296. (No model.)



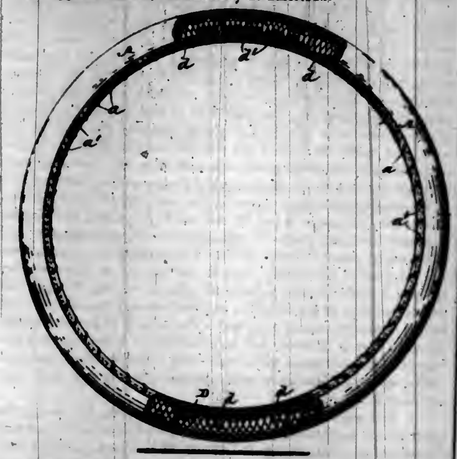
Claim.—1. In an arc-lamp the combination with a clutching-ring of a sleeve having a mitered end engaging said clutching-ring, and a swinging frame carrying an elbow-lever to engage the ring, said swinging frame connected to an armature and dash-pot to operate the clutching-ring and automatically feed the carbon as required.

2. In an arc-lamp the combination with the inner frame a rod operating in said frame and engaging the carbon, a clutching-ring and sleeve carried by said rod, an elbow-lever having one arm connected to the frame by a link, the opposite end engaging in a circumferential groove in the clutching-ring, a swinging frame pivotally connected to said elbow-lever and electrical means for automatically feeding the carbon, substantially as shown and described.

3. In an arc-lamp the combination of the inner frame, an elbow-lever pivotally attached to said frame, a swinging frame pivoted to the supporting-frame, said elbow-lever fulcrumed to said swinging frame and having a bifurcated end, a rod sliding in said inner frame, a sleeve having a mitered end operating on said rod, a clutch-ring having a circumferential groove engaging the bifurcated end of the elbow-lever and operating to retain the sleeve in position, means whereby the clutching-ring is released to automatically feed the carbon, a lamp-globe surrounding the carbon, a check-ring in the top of said lamp-globe to retain the generated gas, substantially as shown and described.

588,823. TIRE. WILLIAM R. GREGORY, Washington, D. C. Filed July 23, 1896. Serial No. 600,793. (No model.)

Claim.—In a cushion-tire, the combination of an outer protecting-casing, a hollow support within the same, comprising a tube formed of a series of flat woven metallic spring strips, or wires, compressed by machinery in the weaving operation, so that their edges are adjoined, and practically there are no interstices between the strips, or wires, a retaining-band within the tire provided with a spring; and a rim; whereby the tire is held firmly upon the rim when applied thereto, substantially as described.



588,824. EMERGENCY CAR BRAKE AND FENDER. ANDREW GRIEVES, Allegheny, Pa. Filed Apr. 24, 1897. Serial No. 633,360. (No model.)



Claim.—1. In a combination brake and fender, a shaft journaled in the truck-frame, eccentrics secured on said shaft, hangers engaging said eccentrics and adapted to be operated thereby, said hangers being formed with a wedge portion which engages brake-shoe hangers to force the brake-shoes into engagement with the wheels, and a brake-shoe carried by said hangers to engage the rail, lever connections with said shaft, and connections with said levers whereby the fender is operated simultaneously with the applying of the brakes, substantially as shown and described.

2. In a combination brake and fender, a shaft journaled in the truck-frame, eccentrics arranged on said shaft, hangers engaging said eccentrics, brake-shoes suitably supported, and adapted to be operated through the eccentrics engaging the hangers, lever connections with said shaft, and a fender having connections with the lever, whereby the same is operated when the brake is applied, substantially as shown and described.

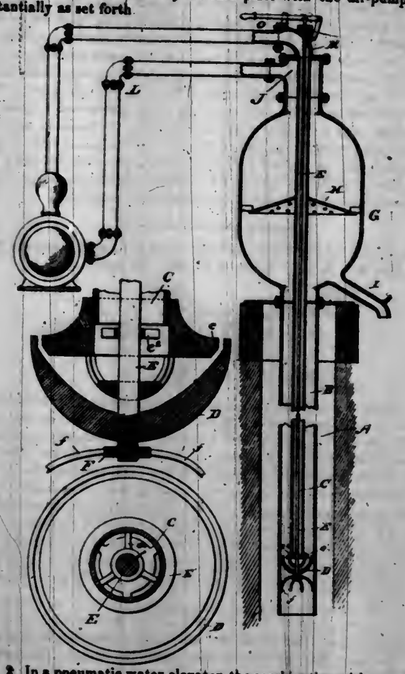
3. In a combination brake and fender, an operating-shaft, and lever connections therewith, a fender carrying a brake-shoe and having connections with the levers operating the shaft, hangers engaging eccentrics on the shaft, said hangers carrying a brake-shoe adapted to engage the rail, a casing connected to said hangers, brake-shoe hangers operating in said casing, and adapted to be forced outwardly through the downward movement of the hanger, substantially as shown and described.

4. In a combination brake and fender, a shaft journaled in the truck-frame, hangers eccentrically mounted upon said shaft, brake-shoes adapted to be forced into engagement with the wheels and the rail through the downward movement of the hangers, lever connections with the operating-shaft, a fender and brake-shoe, and connections between said fender, brake-shoe and lever connections whereby the same are simultaneously operated, substantially as shown and described.

5. In a combination brake and fender, an operating-shaft, lever connections therewith, and a fender and brake-shoe adapted to be operated through said lever connections, hangers eccentrically mounted upon the operating-shaft and adapted to apply the brake-shoes to the wheels and rails by the downward movement of the hangers, substantially as shown and described.

588,825. PNEUMATIC WATER-ELEVATOR. JOHN HAAS, Chicago, Ill. Filed May 8, 1896. Serial No. 542,633. (No model.)

Claim.—1. In a pneumatic water-elevator, the combination with a water-pipe, an air-pump, a pipe connected with said pump and having one end communicating with the interior of the water-pipe near the lower end thereof, and a valve for regulating the passage of air from the air-pipe, of a tank or receptacle communicating with the water-pipe and having an outlet or discharge-spout for the water, a perforated plate or diaphragm arranged across the interior of the tank at one side of the discharge-spout thereof, and a pipe connecting the portion of the tank beyond said plate with the air-pump, substantially as set forth.



2. In a pneumatic water-elevator, the combination with a water-pipe, an air-pump, a pipe connected with said pump and having one end communicating with the water-pipe near the lower end thereof, and a valve for regulating the passage of air from the air-pipe, of a tank or receptacle communicating with the water-pipe and surrounding the air-pipe, and a perforated plate or diaphragm extending from the air-pipe to the walls of the tank and dividing the tank into two compartments one of which is provided with a discharge-spout for water and the other is connected with the air-pump, substantially as set forth.

588,826. CONVERTIBLE POTATO-DIGGER AND PLOW. DANIEL Y. HALLOCK, Southold, N. Y. Filed Jan. 9, 1896. Serial No. 574,902. (No model.)



Claim.—1. A potato-digger comprising the standard A, the parallel-bladed shovel B attached at its inner end to the same and provided at the outer end with a tongue C having the offset foot secured detachably to the under side of the shovel with the upper surface of the tongue and shovel continuous, the tongue being curved rearwardly and upwardly as set forth, and having a considerable breadth transverse to the line of draft as herein shown and described, and projected rearwardly and upwardly in the line of draft and operated beneath the soil to lift and scatter the same, and the screen having head D provided with an arm d inclined upwardly and rearwardly and formed with bolting slot d' and with hole for bolt e for attaching it adjustably to the standard at the bottom line of the shovel, and the screen-bars D' drawn upon the ground to subject the material upon the screen to friction upon the under side, substantially as herein set forth.

2. A potato-digger, comprising the standard A, the parallel-bladed shovel B having its outer end provided with the tongue C forming a continuous extension of its surface curved rearwardly and upwardly, the screen projected backwardly from such shovel to re-

ceive the earth which passes over the same, and the skeleton moldboard E consisting of the strip extended upwardly along the front of the standard and then curved laterally and rearwardly, so that its lower end may penetrate the soil and lift and turn over the same upon the screen and tongue C, as and for the purpose set forth.

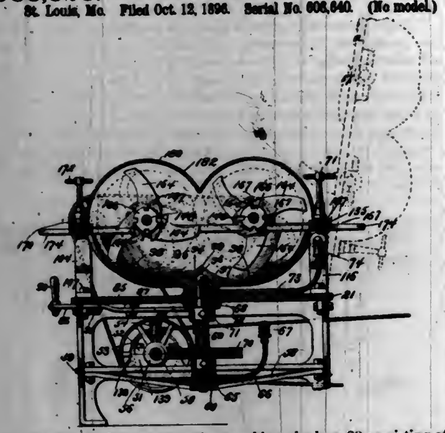
3. A convertible plow and potato-digger, comprising the standard A, with parallel-bladed shovel B attached at its inner end to the standard, the shovel B' fitted detachably thereto, the tongues C upon the outer ends of the shovel curved rearwardly and upwardly as set forth, the screens D, D' arranged to drag upon the ground behind the shovels, and having inclined arms *d* fitted to opposite sides of the standard and secured by the two bolts *a*, the moldboard E fitted to the upper edge of the shovel and detachably to the standard, and the double plow point H' adapted to fit over the contiguous ends of the shovels B, B', and secured by bolts passing down from the point H' and shovels B, B', and closing the joint between the shovels and the standard, the whole arranged and operated as set forth.

588,827. HOISTING DEVICE. JOHN H. HARNER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,640. (No model.)



Claim.—A hoisting machine comprising frames, two shafts journaled in the frames, a crank-handle and a power-wheel on one end of the one shaft, a governor and a friction-wheel secured to said last-named shaft between the frames, a drum mounted on the other of said shafts, a drive-wheel secured to the shaft carrying the drum and meshing with the said power-wheel, a lever fulcrumed in the frame, a brake-band engaging the said friction-wheel and secured to one end of the said lever, a pulley and a foot-lever secured to the lower portion of the frame, and a strap or chain attached to the opposite end of the first lever, and thence passing around the said pulley and attached to the said foot-lever, substantially as shown and described.

588,828. MEAT-CUTTING MACHINE. CHRISTIAN W. HENRICKS, St. Louis, Mo. Filed Oct. 12, 1896. Serial No. 608,640. (No model.)



Claim.—1. In a meat-cutting machine, the base 20 consisting of the rear piece 22 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said rear piece 22, the front piece 23 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said front piece, and the side pieces 24 and 25 connecting said rear and front pieces, the ends of said side pieces engaging the inner faces of said front and rear pieces and the inner faces of said side pieces engaging the ends of said webs, substantially as specified.

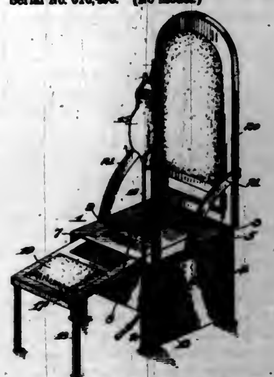
2. In a meat-cutting machine, the base 20; said base consisting of the rear piece 22 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said rear piece 22, the front piece 23 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said front piece, and the side pieces 24 and 25 connecting said rear and front pieces, the ends of said side pieces engaging the inner faces of said front and rear pieces and the inner faces of said side pieces engaging the ends of said webs; the spider 58, having the circular portion 60 at its center, mounted in a horizontal position in said base and having its arms attached to said webs 36, substantially as specified.

3. In a meat-cutting machine, the base 20; said base consisting of the rear piece 22 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said rear piece 22, the front piece 23 having a web 36 projecting inwardly in a horizontal plane, said web 36 being shorter than said front piece, and the side pieces 24 and 25 connecting said rear and front pieces, the ends of said side pieces engaging the inner faces of said front and rear pieces and the inner faces of said side pieces engaging the ends of said webs; the spider 58 having the circular portion 60 at its center, mounted in a horizontal position in said base and having its arms attached to said webs 36, the base-plate 21 mounted above said spider and resting upon the upper edges of the rear piece 22, the front piece 23 and the side pieces 24 and 25, the ears 75 projecting downwardly from said base-plate inside of said side piece 24 and secured to said side piece by means of bolts, the ears 77 projecting downwardly from said plate inside of the side piece 25 and secured to said side piece by bolts, a shaft mounted in vertically-alined bearings through said circular portion 60 of the spider and through said base-plate 21 and having a screw-threaded upper end, a chopping-bowl having a screw-threaded bore in its center and formed from its lower side in which bore the screw-threaded end of said shaft is screw-seated, said bowl resting upon said base-plate, and means of rotating said shaft, substantially as specified.

4. In a meat-cutting machine, the hinged plate 124 having the openings 131 and 134 extending transversely of the machine and near the ends of said plate, the shafts 148 and 149 mounted upon said plate transversely of said openings, balance-wheels upon said shafts and operating in said opening 131, chopping-knives mounted upon said shafts and operating in said opening 134, and means for operating said shafts, substantially as specified.

5. In a meat-cutting machine, the hinged plate 124 having the openings 131 and 134 extending transversely of the machine and near the ends of said plate, the shafts 148 and 149 mounted upon said plate transversely of said openings, balance-wheels upon said shafts and operating in said opening 131, chopping-knives mounted upon said shafts and operating in said opening 134, means of operating said shafts, the brushes 167 and 168 adjustably attached to said hinged plate and extending into said opening 134, the scrapers 175 and 178 attached to and depending downwardly from said hinged plate, and the sheet-metal cap 179 removably attached to said hinged plate and covering said opening 134, substantially as specified.

588,829. CHAIR. LENA JOHNSON, Key West, Fla. Filed Dec. 21, 1896. Serial No. 616,496. (No model.)



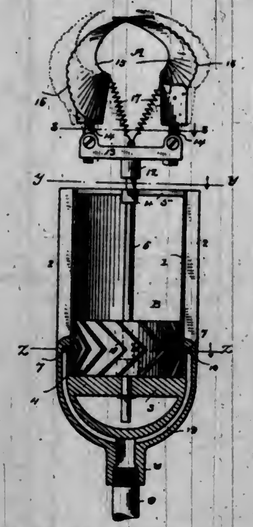
Claim.—1. In a device of the character described, the combination with a chair having an apertured seat, of a detachable seat provided with an aperture and with a series of minute apertures surrounding the same, a receptacle attached to the detachable seat and provided with a depending spout, substantially as specified.

2. In a device of the character described, the combination with a chair provided with an aperture in its seat, of a detachable seat provided with a comparatively small substantially semicircular aperture, and a series of minute apertures surrounding the same and arranged in substantially semicircular form and a semifunnel-shaped receptacle secured to the under side of the detachable seat and provided with a depending spout, substantially as specified.

3. In a device of the character described, the combination with a chair provided with a seat having an aperture therein, of a removable seat flush with the surface of the first-named seat and provided with a semicircular aperture surrounded by a series of minute apertures arranged in substantially semicircular form, a semifunnel-shaped receptacle depending below the detachable seat and provided with a spout, and a hinged side designed to facilitate the displacing or replacing of a receptacle beneath the spout, substantially as specified.

4. In a device of the character described, the combination with a chair, an apertured seat, a folding back and a folding foot-rest, of a detachable apertured seat designed to rest on the first-named seat and provided with a depending receptacle, and a spout depending from said receptacle, substantially as specified.

588,830. ROTARY FLUE-CLEANER. LEVI J. JOHNS, East Norwalk, Conn. Filed May 24, 1897. Serial No. 637,572. (No model.)



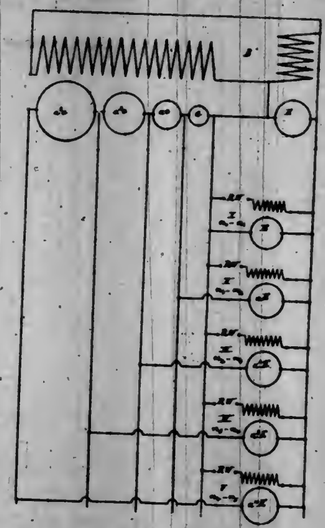
Claim.—1. In a device of the character described the combination with a cylindrical case provided with steam-ports extending longitudinally within the shell thereof, of a shaft journaled in said case and carrying within the case a turbine B having its buckets arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, said shaft having at its outer end a head carrying pivoted wings adapted to be thrown outward by centrifugal force and springs which act to return the wings to their normal position.

2. In a device of the character described the combination with a cylindrical case provided with steam-ports substantially extending longitudinally within the shell thereof, of a shaft journaled in the case and carrying a turbine provided on its outer periphery with V-shaped buckets open at the ends for the escape of steam, the said buckets being arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, whereby end thrust on the shaft is avoided.

3. In a device of the character described the combination with a cylindrical case provided with steam-ports extending longitudinally within the shell thereof, of a shaft journaled in said case and carrying within the case a turbine and at its outer end a head comprising a cross-piece having arms pivoted thereto, said arms carrying serrated spirally-curved wings and springs acting to return said arms and wings to their normal position, the buckets of the turbine being arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, whereby end thrust on the shaft is avoided.

588,831. ELECTRICAL TRANSMISSION OF POWER. EMIL LAHMEYER, Mülheusen, Germany, assignor of one-half to Gebrüder Burghardt, same place. Filed June 20, 1895. Serial No. 553,468. (No model.) Patented in Germany May 4, 1894, No. 8,941; in France Sept. 13, 1894, No. 241,375; in England Feb. 11, 1895, No. 3,005; in Russia June 10, 1895, No. 11,834; in Hungary June 16, 1895, No. 4,416, and in Austria June 27, 1895, No. 45/4,321.

Claim.—1. The herein-described system of electrical transmission of power, provided with a regulating device for the armature comprising a plurality of circuits whose potentials are to each other approximately as the terms of a geometric progression, in combination with another regulating device operatively connected to the one first named, and comprising a plurality of resistances arranged in series, said resistances controlling the intensity of the field, whereby the variation of the field intensity will be approximately the same for all differences of potentials, substantially as described.



2. An electrical regulating device, comprising a plurality of circuits connected in series and whose potentials are to each other approximately as the terms of a geometrical progression, in combination with a switch arranged to electrically connect said circuits, a series of resistances electrically connected to the said series of circuits, another switch controlling said series of resistances, and a connection between said switches whereby the resistance-controlling switch will have a continuous motion while the other switch will have a step-by-step motion, substantially as described.

3. An electrical regulating device, comprising two portions or switches, one for the variation of the electromotive force applied to the armature and the other for varying the intensity of the field, each switch comprising a series of circuits or resistances, the movable parts or levers of said switches being loosely connected in such a manner that one is compelled to move in unison with the other only at the moment the lever controlling the said electromotive force passes from one resistance to another, whereby the influence of the altered electromotive force will be neutralized by the simultaneous and contrary influence of the altered field intensity, so that the device, when employed to control the rotary speed of a motor, will not affect said speed at the moment the electromotive force is altered, substantially as described.

4. An electrical regulating device, comprising two portions or switches and means for turning or shifting the same, one switch being connected to continuously move with the operating means and the other switch being loosely connected to its companion, so that it may remain stationary relatively thereto, stops for temporarily arresting the motion of the second switch, and means for carrying the said switch over the stops by a sudden throw, substantially as described.

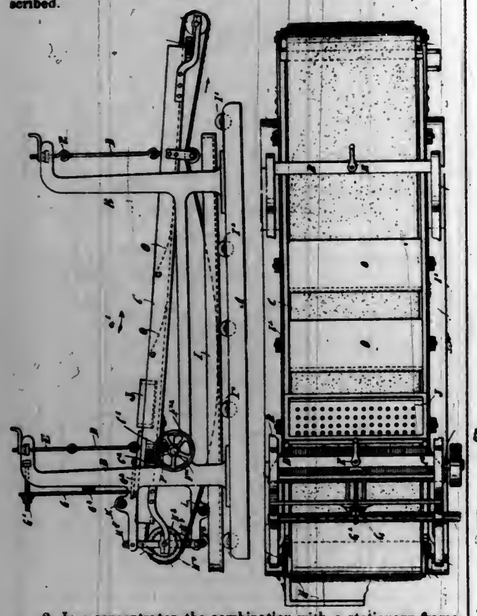
5. An electrical regulatieg device, comprising a switch, means for shifting the same, a second switch operatively connected to the first-named switch, yet capable of remaining stationary relatively thereto, stops for temporarily arresting the motion of the said second switch, and yielding projections held to move with the first-named switch and engaging the second switch to shift the same, substantially as described.

6. An electrical regulating device, comprising a switch, means for shifting the same, a second switch operatively connected to the first-named switch, yet capable of remaining stationary relatively thereto, pivoted spring-pressed levers held to turn with the first-named switch and arranged at opposite sides of the second switch to engage and shift the same, yet by their resiliency permitting the second switch to temporarily remain stationary, substantially as described.

588,832. CONCENTRATING-MACHINE. WILLIAM M. MOORE, Empire, Colo. Filed May 9, 1896. Serial No. 590,872. (No model.)

Claim.—1. In a concentrator, the combination with a stationary frame, of a swinging table carried by said frame and provided with pulleys, means for swinging the frame, a belt passing around said pul-

leys and over the table, a ratchet-wheel secured to one of the pulleys, a pawl-arm pivoted to the shaft of said pulley and having a longitudinally-sliding and pivotal connection with a pin on the stationary frame and a pawl engaging the ratchet-wheel, substantially as described.



2. In a concentrator, the combination with a stationary frame, of a swinging table carried by said frame and provided with pulleys, means for swinging the frame, a belt passing around said pulleys and over the table, a ratchet-wheel secured to one of the pulleys, two pawl-arms pivoted to the shaft of the said pulley and having a longitudinally-sliding and pivotal connection with the frame at opposite sides of the pulley, and pawls extending in opposite directions from said pawl-arms and engaging the ratchet-wheel, substantially as described.

3. In a concentrator, the combination with a swinging table, of an endless belt having a piled face, said belt having its upper run traveling over the bottom of the table, and aprons having piled surfaces and arranged over the belt with their piled surfaces toward the piled surface of the belt, substantially as described.

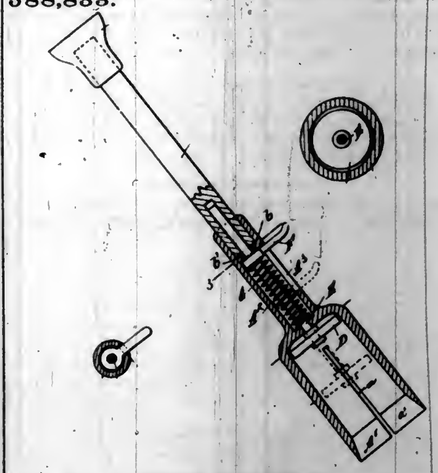
4. In a concentrator, the combination with a swinging inclined table, of an endless belt having a piled face, said belt having its upper run traveling over the bottom of the table, aprons secured to the sides of the table over the belt, said aprons having piled faces which are arranged opposite the piled surface of the belt, and means for imparting an intermittent motion to the belt, substantially as described.

5. A concentrator, comprising a swinging inclined table, an endless belt having its upper run traveling over the bottom of the table, said belt having a piled face, means for imparting an intermittent motion to the belt, aprons arranged above the belt and having piled faces, a wash-box through which the lower run of the belt passes, and a spraying device for spraying water on the belt previous to its passage through the wash-box, substantially as herein shown and described.

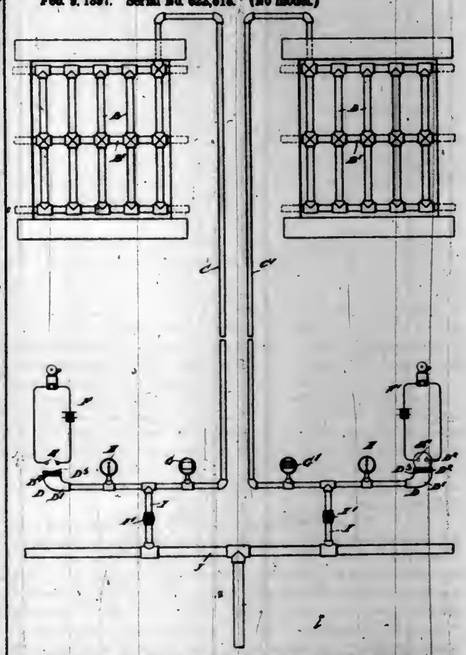
588,833. POST-HOLE DIGGER. HUGH L. T. OVERBEY, Summerville, Ga. Filed Apr. 9, 1897. Serial No. 631,405. (No model.)

Claim.—A post-hole digger, consisting of a cutting-cylinder, a tubular shank forming a portion of said cylinder, which shank is provided with apertured partitions near its upper and lower ends, a handle fitted in the upper portion of the shank, resting upon said upper partition, said handle being provided with an opening in its bottom, a plunger or push-plate located within the said cylinder, a stem attached to the said plunger, which stem extends within the tubular shank, through the upper partition thereof and into the opening in the handle, the said opening serving as an upper guide for the said stem, a foot-piece secured to the said stem below the said upper partition in the shank, the foot-piece extending outward through a longitudinal slot in the shank, and a spring having bearing against the foot piece and against the bottom of the shank, the said spring being coiled around the said stem, for the purpose described.

588,833.



588,834. PRISON-CELL, VAULT, &c. FRANK PETERMANN, Brooklyn, N. Y., and GEORGE H. ROTHMANN, Rutherford, N. J. Filed Feb. 9, 1897. Serial No. 622,618. (No model.)



Claim.—1. A prison-cell, vault, cage, &c., provided with a network of connected pipes forming the wall, grating, door, or the like, a pipe leading from the said pipes and adapted to be connected with an exhaust device, said pipe having an outlet adapted to be closed by a spring-actuated cover, and an alarm operated by said cover, substantially as described.

2. A prison-cell, vault, cage, &c., provided with a network of connected pipes forming the wall, grating, door, or the like, a pipe leading from the pipes and adapted to be connected with an exhaust device, said pipe having an outlet adapted to be closed by a spring-actuated cover, an alarm operated by said cover, and an indicator in the said pipe, substantially as described.

3. A window-grating made of a series of connected pipes, a pipe connected with the said grating and leading to a central office, means for exhausting the air from the said pipe and grating, and an alarm-valve held on the said pipe and closed by atmospheric pressure and adapted to be opened by a spring, and an alarm adapted to be sounded on the opening of the said valve, as set forth.

4. A window-grating made of a series of connected pipes, a pipe connected with the said grating and leading to a central office, means for exhausting the air from the said pipe and grating, an alarm-valve held on the said pipe and closed by atmospheric pressure, and adapted to be opened by a spring, an alarm adapted to be sounded on the opening of the said valve, and an indicator in the said pipe, substantially as shown and described.

5. A door formed of a series of connected pipes, a pintle connected with the said pipes and having an extension, and a pipe leading from the said extension to a central office, the said pipe being provided with an alarm-valve adapted to be opened by spring-pressure on breaking one of the pipes, substantially as shown and described.

6. A door formed of a series of connected pipes, one of which serves as a pintle, and provided with a hollow hasp connected with sundry of the pipes, and a pipe connected with the pipe forming the pintle and adapted to be connected with an air-exhaust device, said pipe having an outlet adapted to be closed by a cover normally held open by a spring, substantially as described.

588,835. STATION-INDICATOR. REBA POLHAMUS and WILLIAM S. MYERS, Ashland, Ky. Filed Apr. 8, 1897. Serial No. 631,326. (No model.)



Claim.—1. In a station-indicating device, the combination of the toothed cross-head, the pinions, the rack-bars engaging said pinions, a rotary card-holder, and mechanism connecting said rack-bars and card-holder, whereby the latter may be partly revolved once during each upward movement of the rods, substantially as described.

2. In a station-indicating device, the combination of the toothed cross-head, the pinions, the rack-bars engaging said pinions, a rotary card-holder, a ratchet-wheel, means carried by one of said rack-bars for rotating said ratchet-wheel, and means for imparting a downward motion to said cross-head to move said rack-bars in one direction, and springs for returning said bars to their starting position, substantially as described.

3. In a station-indicating device, the combination with a rotary card-holder, of means for imparting a partial revolution to said holder, a vertically-movable cross-bar for supporting and pocketing the cards dropped from said holder, and means connected with said cross-bar for lifting the cards in advance thereof and forcing the cards wholly within the pockets of the holder at each upward movement of the cross-bar, substantially as described.

4. In a station-indicating device, the combination with a rotary card-holder, of a vertically-movable bar for supporting the cards, when dropped from said holder, rods attached to said bars, means for vertically moving said rods, and levers fulcrumed to said bar for moving or lifting the cards to wholly restore the cards in the holder after the same have been partly inserted therein, substantially as described.

5. In a station-indicating device, the combination, with a cross-head, and means for reciprocating the same, of a rotary card-holder having pockets therein, a ratchet-wheel mounted at one end of said holder, vertically-movable rods connected at one end, mechanism connecting said rods and the cross-bar for imparting a vertical movement to the rods, dogs carried by one of said rods for engaging the teeth of the ratchet-wheel, and means for locking said ratchet-wheel after each upward movement of the rods, substantially as described.

6. In a station-indicator, comprising a rotary card-holder having pockets for the cards, a casing inclosing said holder having a card-outlet and means for imparting a partial revolution to said holder to deliver a card therefrom, of a bar connected to the operating means for supporting the cards when dropped from the holder, and a device carried by said bar and connected to the frame of the indicator for lifting or raising the cards in advance of the bar, substantially as described.

7. The combination, in a station-indicating device, with a rotary card-holder formed with radiating pockets for the cards, and means for revolving said holder, of a vertically-movable bar for supporting the cards when dropped from the holder, a spring secured to the base of the indicator-frame, levers fulcrumed to said bar, and having one end connected to said spring, and headed rods loosely connected to one end of each of said levers, whereby the cards will be raised in advance of the bar, substantially as described.

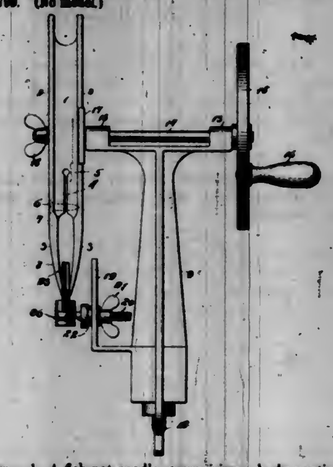
8. The combination, in a station-indicating device, of a rotary card-holder formed with pockets for the cards, a ratchet-wheel for rotating said holder, a vertically-movable rod, a dog carried by said rod for engaging the teeth of said ratchet-wheel, a pawl for engaging said wheel to arrest its motion, a trip-lever carried by the rod for operating said pawl to release the wheel, and means for imparting vertical reciprocation to said rod, substantially as described.

9. The combination, in a station-indicator, of a rotary card-holder formed with pockets for the cards, a ratchet-wheel for rotating said holder, a vertically-movable rod for operating said wheel, adjustable dogs for engaging said wheel carried by said rod, whereby the wheel may be rotated in either direction, a pawl for arresting the motion of the wheel, a trip-lever carried by said rod for disengaging said pawl from the wheel, and means for operating said lever to release the pawl, whereby it may again engage the wheel, substantially as described.

10. The combination, in a station-indicating device, with a rotary card-holder having pockets for the cards, and a ratchet-wheel, of a cylinder, a valve-chest, a valve-rod, a piston-rod for said cylinder, a toothed cross-head adapted to move said valve-rod to open the port of the cylinder, on its downward stroke, and to close said port on its return stroke, pinions engaged by said cross-head, springs for operating said pinions in one direction, and rack-bars for operating said ratchet-wheel, substantially as described.

11. The combination, in a station-indicating device, with a rotary card-holder having pockets for the cards, and a ratchet-wheel, of a cylinder, a valve-chest, a valve-rod, a piston-rod for said cylinder, a toothed cross-head adapted to move said valve-rod to open the port on its downward stroke, and to close it on its return stroke, a whistle adapted to be blown by the escape of steam or air from the valve-chest, pinions actuated by said cross-head, and rack-bars engaging said pinions and adapted to operate said ratchet-wheel, substantially as described.

588,836. NEEDLE AND NEEDLE-FILLING MACHINE. GEORGE W. RAYMOND, Warrenton, Oreg. Filed Dec. 23, 1896. Serial No. 616,709. (No model.)



Claim.—1. A fish-net needle, comprising a body portion having jaws or points at one end, and means for regulating the space between said jaws or points, substantially as specified.

2. A fish-net needle, comprising a body portion having converging jaws or points at one end, the said body portion having a slit or

kerf extended longitudinally at its jaw or point end, and a screw passing across said slit or kerf, for adjusting the space between the points, substantially as specified.

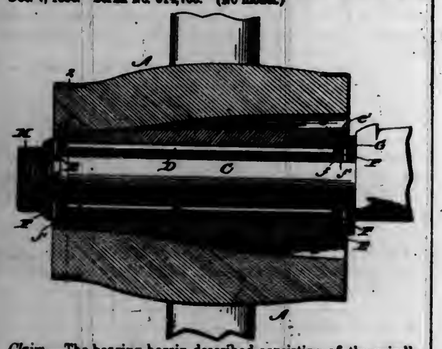
3. A fish-net needle, comprising a body portion longitudinally slitted at one end, an adjusting-screw passing across said slit, and converging jaws extended from the body portion at the slitted end, the said jaws being non-resilient for a portion of their length and resilient for the remainder of their length, substantially as specified.

4. A winding-machine for a fish-net needle, comprising a rotary shaft, means for securing a needle on said shaft, and a spreader-plate designed to spread the jaws or points of a needle, the said spreader-plate having an eye for the passage of twine, substantially as specified.

5. A needle-winding machine, comprising a post, means for clamping said post to a support, a rotary shaft having bearings on said post, a needle-clamping device on one end of said shaft, a vertical plate secured to the lower portion of said post, a shoe supported on said plate, a spreader-plate extended upwardly and forwardly from said shoe, the end of said spreader-plate connecting with the said shoe being beveled on its opposite sides, the said spreader-plate being provided with an eye for the passage of twine, and a guide-plate below the spreader-plate, substantially as specified.

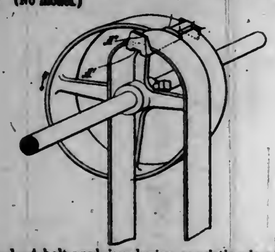
6. A needle-winding machine, comprising a post adapted to be secured to a support, a rotary shaft on said post, a clamping device on one end of said shaft for securing the needle in place, a vertically-slotted plate on the lower portion of said post, a bolt passing through said post, means for clamping the bolt as adjusted on the plate, a shoe-plate on the outer end of said bolt, a spreader-plate attached to the forward end of said shoe-plate and having a vertical eye for the passage of twine, and also being slitted from the eye outward, and a guide-plate supported on the bolt below the spreader-plate and provided with an eye for the passage of twine, substantially as specified.

588,887. ROLLER-BEARING. JOHN R. RICHARDSON, Madera, Cal., assignor of one-third to Wilbur F. Waddell, same place. Filed Dec. 7, 1896. Serial No. 614,763. (No model.)



Claim.—The bearing herein described consisting of the spindle, the box thereon, the rollers, a collar at each end of said box, and the separate plates fitted to said collars and having projections which extend between the rollers at the ends thereof, substantially as shown and described.

588,888. BELT-APPLYING DEVICE. FORDYCE A. SAVAGE and MILAN G. WADE, Dowagiac, Mich. Filed Apr. 8, 1897. Serial No. 631,318. (No model.)



Claim.—1. A belt-applying device, consisting in one section having a groove and having two lugs projecting in opposite directions, and a second section sliding in the groove and having a lug projecting in the direction of one of the lugs on the first-named section, two of the lugs serving to hold the device on the pulley and the third of the lugs serving to engage the belt and hold the same on the section which carries said third lug.

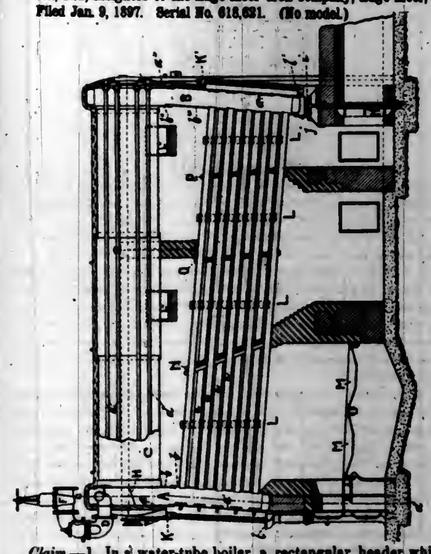
2. A belt-applying device, consisting in a member having two lugs run transversely to the member, the member being capable of lying transversely on the rim of a pulley and of having the lugs respectively engaged with the edges of the rim, a portion of the said member projecting beyond the rim to carry the belt whereby the weight of the belt will force one of the lugs against the rim of the pulley to hold the belt-applying device in position.

3. A belt-applying device, consisting in two slidably-connected sections each section having a lug thereon, the lugs being projected in like directions and the belt-applying device being capable of lying flat against the periphery of a pulley so as to engage the lugs respectively with the edges of the said periphery, and a portion of the belt-applying device being capable of projecting transversely beyond the periphery of the pulley so that the belt bearing on said projected portion will rock the belt-applying device on one edge of the periphery to bind one of the lugs against the periphery and prevent the displacement of the belt-applying device until said device is disengaged from the belt.

4. A belt-applying device, consisting in a flat structure having two lugs thereon, the lugs being projected in like directions and the said flat structure being capable of lying flat against the periphery of a pulley with a portion of the structure projected beyond the same whereby the belt bearing on said projected portion will tend to rock the said structure on one edge of the periphery and bind one of the lugs against the opposite edge of the periphery whereby to hold the belt-applying device in position until said device is disengaged from the belt.

5. A belt-applying device, consisting in a section having two lugs projected in opposite directions, and a second section slidably connected with the first section and having a lug projected in the direction of one of the lugs on the first-named section, two of the lugs serving to hold the device on the pulley and the third of the lugs serving to engage the belt and hold the same on the section which carries said third lug.

588,889. WATER-TUBE BOILER. WILLIAM SELLERS, Philadelphia, Pa., and HENRY B. BRADFORD and BENJAMIN D. COPPAGE, Wilmington, Del., assignors to the Edge Moor Iron Company, Edge Moor, Del. Filed Jan. 9, 1897. Serial No. 618,631. (No model.)



Claim.—1. In a water-tube boiler, a rectangular header which closes one end of the reservoir for water and steam, in combination with a dry-pipe across the boiler and along the upper interior of the header.

2. In a water-tube boiler, a rectangular header provided with round holes on one side which receive and secure one end of each water-tube and on the opposite side of same header, a hole flanged inward opposite each of the round holes, in combination with inside covers for the flanged holes, which are removable through the flanged holes they cover.

3. In a water-tube boiler, a trough with a closed end and parallel sides which gradually approach each other near the closed end, to form one side of a header, in combination with a parallel trough having an open end which overlaps the closed end of the first trough to form an adjoining side of the header.

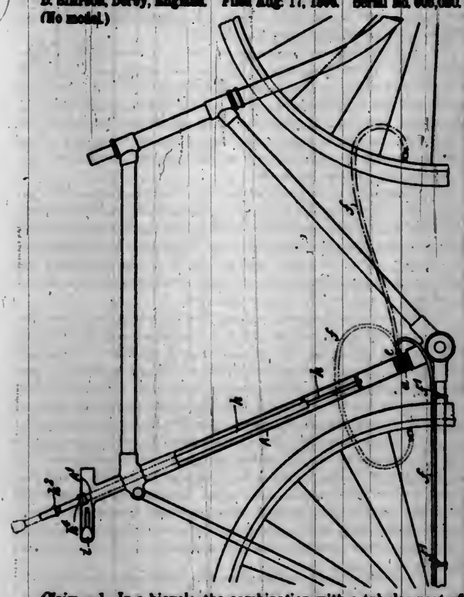
4. In a water-tube boiler, a rectangular header, provided with a spherical projection opposite the reservoir, which is surrounded by a lower flat annular surface above the surrounding surface of the header, in combination with stay-rods attached to the flat annular surface.

5. In a water-tube boiler, a series of tubes through which water circulates, and transversely thereto a deflecting-wall in sections, of a thickness that will pass the narrowest inclined row of spaces between the tubes, and of a width not less than half the horizontal distance from center to center of the tubes, in combination with a notched edge to each section, that will fit the outer surface of the tubes and determine the angle of the section thereto.

6. In a water-tube boiler, a series of tubes through which water circulates, in combination with a series of diaphragms parallel to the tubes and adjacent to each other, each of which is divided longitudinally and supported by three of the tubes.

7. In a water-tube boiler, a series of tubes through which water circulates, and the transverse deflecting-wall P, in combination with a series of diaphragms R R' substantially as described.

588,840. TIRE-INFLATER IN CYCLE-FRAMEWORK. HENRY D. SIMPSON, Derby, England. Filed Aug. 17, 1896. Serial No. 602,980. (No model.)



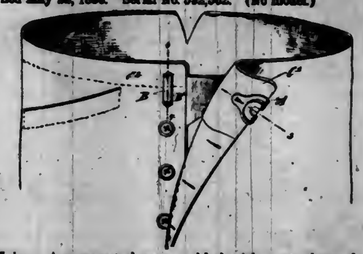
Claim.—1. In a bicycle, the combination with a tubular part of the frame, of a two-part plug fastened therein and provided with compressible packing arranged between the two parts of the plug, means for drawing said parts together to compress the packing against the interior of the tubular frame to form an air-tight joint, a valve arranged in said plug, a threaded nipple for locking the plug in the frame and adapted for connection to an inflating-tube, and a plunger arranged in the tubular frame, substantially as described and for the purpose specified.

2. In a bicycle, the combination with a tubular part of the frame, of a hollow plug arranged therein, a valve arranged in said plug and controlling the communication between the interior of the plug and the tubular frame, a threaded nipple for locking the plug in the frame and communicating at its inner end with the interior of the plug and adapted to be connected at its outer end to an inflating-tube, and a plunger arranged in the tubular frame, substantially as described.

3. In a bicycle, the combination with a tubular part of the frame, of a two-part plug arranged therein and consisting of a part *b* having a threaded hollow boss *c* and a hollow part *a* screwed over said boss, compressible packing-disks arranged between the parts *a* and *b*, a valve *g* arranged in said hollow boss, a nipple *e* passing through the tubular frame and communicating at its inner end with the interior of the hollow plug and adapted for connection at its opposite end to an inflating-tube, and a plunger arranged in the tubular frame, substantially as described.

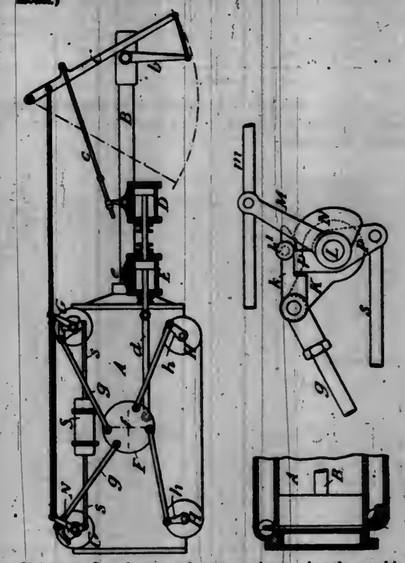
4. In a bicycle, the combination with a tubular part of the frame, of a two-part plug arranged therein and consisting of a part *b* having a threaded hollow boss *c* and a hollow part *a* screwed over said boss, compressible packing-disks arranged between the parts *a* and *b*, a valve *g* arranged in said hollow boss, an adjustable stop g^6 fitted in the end of the hollow boss, means for connecting an inflating-tube to the hollow plug, and a plunger arranged in the tubular frame, substantially as described.

588,841. GARMENT-CLASP. JOSEPH STERN, New Orleans, La. Filed May 22, 1896. Serial No. 592,562. (No model.)



Claim.—A garment-clasp, provided with a staple made from a single piece of sheet metal bent upon itself to form two members, one of which is provided at its free end with a pointed tongue adapted to engage an opening in the pointed free end of the other member, and one of the members being also provided with lugs extending inwardly to rest on the cloth to hold this member a suitable distance from the face of the cloth, substantially as shown and described.

588,842. VALVE-GEAR FOR PUMPING-ENGINES. JAMES A. TOWLER, Leeds, England. Filed Feb. 6, 1897. Serial No. 622,264. (No model.)



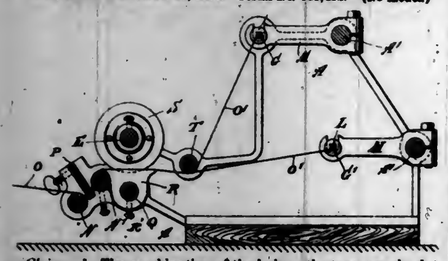
Claim.—1. In valve-gear for a pumping-engine the combination of a lever moved by the main piston and working by tappets the distribution-valve of a subsidiary cylinder, the piston-rod of which moves a wrist-plate having crank-pins linked to the arms of the exhaust-valve spindles both at the one side of the cylinder and to trip-arms which engage the arms of the supply-valve spindles both at the other side of the cylinder and are disengaged by the movement of the lever above mentioned, substantially as described.

2. In a trip valve-gear, the combination of a main cylinder and piston, a valve-spindle, an arm loose on the valve-spindle, and provided with a pivoted catch and roller, a cam also loose on the valve-spindle, a subsidiary piston, by which the loose arm is moved, a main lever worked by the main piston, and connected with said cam, and a lever or arm fixed on the valve-spindle, and having a shoulder engaged by the pivoted catch, substantially as described.

588,843. SICKLE. JAMES C. H. VAUGHT, Belgrade, Mont. Filed Oct. 15, 1895. Serial No. 565,747. (No model.)

Claim.—In a cutting apparatus, the combination of a sickle-bar, a knife having an opening formed through it, and a plate having oppositely-arranged parallel tongues, the end portions of the plate being arranged to pass through the opening in the knife to hold the plate in place and the tongues being arranged to engage the sickle-bar to hold the knife in position and to be longitudinally movable thereon, substantially as described.

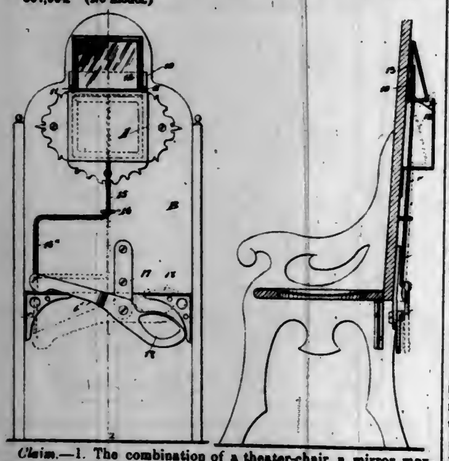
588,844. BANDAGE-CUTTING MACHINE. JOHN R. VOLS, New York, N. Y. Filed Nov. 25, 1896. Serial No. 613,402. (No model.)



Claim.—1. The combination of the knives, the transversely-slotted rests adjacent thereto, said rests having longitudinal through-apertures, the supporting-rod extending through the apertures of the rests, and the stop-rod engaging the edges of said rests to adjust or level them, substantially as described.

2. The combination of the knives, the transversely-slotted rests adjacent thereto, said rests having longitudinal through-apertures, the supporting-rod extending through the apertures of the rests, the stop-rod or guide-rod engaging the edges of said rests to adjust or level them, another guide-rod arranged in advance of the first-mentioned guide-rod, and a guide-bar or tension-bar projecting between said guide-rods, substantially as described.

588,845. MIRROR ATTACHMENT FOR THEATER-CHAIRS. SAMUEL WALKER, Brooklyn, N. Y. Filed July 3, 1896. Serial No. 597,964. (No model.)



Claim.—1. The combination of a theater-chair, a mirror movable upon the back of said chair into and out of position for use, a treadle and connections between the treadle and mirror whereby the movements of the treadle effect a movement of the mirror, substantially as shown and described.

2. A support, a shield or housing carried by said support, a mirror normally held within the said shield or housing and adapted to be projected above the same, a treadle located below the housing, and a rod extending through the bottom of the said shield or housing and connecting the said treadle and mirror, as and for the purpose specified.

3. A support, a box-like shield or housing connected with said support, a mirror normally held within the said shield or housing and movable vertically above the top thereof, the said mirror having its reflecting-face at an inclination to the support, a pivoted treadle located below the bottom of the said shield or housing, and a rod extending through the bottom of the said shield and connecting the treadle and mirror, as and for the purpose specified.

4. The combination with the back of a theater-chair or like support, of a mirror movable vertically upon the said support, and having its reflecting-surface at an angle to the said support, a treadle located below the said mirror, and a rod connecting the treadle and mirror, as and for the purpose specified.

5. The combination with the back of a theater-chair or like support, of a shield or housing attached to said support, a mirror normally held within said shield and adapted to be moved vertically above said shield, the said mirror having its reflecting-surface at an angle to the said back, a pivoted treadle, and a connection between one end of the said treadle and the mirror, the preponderance of weight of the treadle being at the end connected with the mirror, whereby when the treadle is operated to elevate the mirror above the shield, and is released from pressure the weighted portion of the treadle will automatically lower the mirror within the shield, as and for the purpose specified.

6. The combination with the back of a theater-chair or like support, a shield or housing connected therewith, a mirror located within the said shield, and capable of being moved to a point outside of said shield, and a cover for the shield opened by the upward movement of the mirror, of a pivoted lever located below the said shield and a rod extending within the said shield, and connecting the lever and mirror, as and for the purpose specified.

7. The combination, with a support, a shield connected therewith, and a mirror normally located within the said shield and capable of being carried above the shield, the reflecting-face of the mirror being at an angle to the support, of a treadle carried by the support, having one end heavier than the other, its lighter end being provided with a cavity to receive the foot of the operator, and a connection between the weighted end of the lever and the said mirror, as and for the purpose set forth.

8. The combination, with the back of a theater-chair or like support, a shield attached thereto, a mirror located within the said shield and capable of movement out therefrom, and a cover for the shield opened by the upward movement of the mirror, of a lever located on the support, and a connection between the lever and the mirror, the said lever being arranged to automatically return the mirror within the shield, as and for the purpose specified.

9. The combination, with a support, a shield connected therewith, and a mirror normally located within the shield and capable of being bodily moved to a point without the same, of a foot-lever connected with the said mirror and provided with an oblong opening at one side of its pivot, adapted to receive the toe portion of the operator's foot, whereby the lever may be given a decided inclination without danger of the foot slipping therefrom, as and for the purpose set forth.

10. The combination, with the back of a theater-chair or other support, of a mirror having guided movement on the support at its top, and provided with an extension-brace at its bottom, having a hinged connection therewith, and means, substantially as described, for raising and lowering the said extension-brace, whereby the brace may be folded back of the mirror, or may be straightened out to impart an inclined surface to the said mirror, as and for the purpose set forth.

11. A theater-chair provided upon its back with a mirror movable into and out of position for use, and with a treadle located below said mirror, and a rod connecting the treadle and mirror, substantially as shown and described.

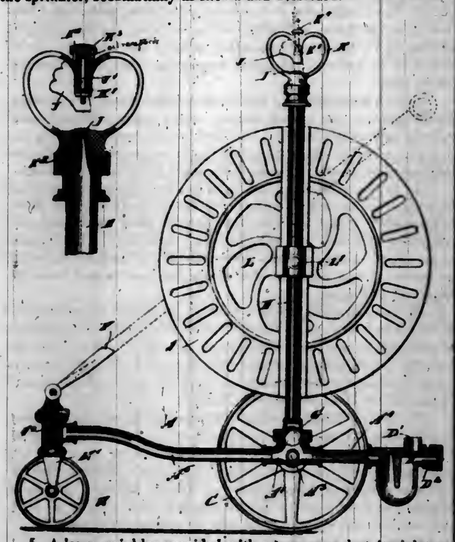
588,846. LAWN-SPRINKLER. ENOCH A. WHITE, Hailey, Idaho. Filed Oct. 24, 1896. Serial No. 609,881. (No model.)

Claim.—1. A lawn-sprinkler, provided with a nozzle, a yoke held to revolve on the end of the said nozzle, and propeller-blades held to revolve on the said yoke, the yoke and propeller-blades being adapted to revolve independently of each other, substantially as described.

2. A lawn-sprinkler provided with a casting connected with the water-supply, a stand-pipe, a ball-and-socket joint for connecting the stand-pipe and casting and a sprinkling-head held on the stand-pipe and provided with a revoluble yoke, and independently-revoluble propeller-blades, the said yoke and propeller-blades revolving at different rates of speed substantially as described.

3. A lawn-sprinkler, provided with a nozzle, a coupling mounted to turn on the said nozzle, a yoke held on the end of the nozzle and secured to the said coupling to turn therewith, and a propeller-blade having a journal mounted to turn in a bearing on the said yoke, substantially as shown and described.

4. A lawn-sprinkler having a carriage-frame comprising a casting, a stand-pipe connected with the said casting, a water-supply pipe connected with the casting, and tubes also connected with the casting to form compressed-air chambers for the water passing through the sprinkler, substantially as shown and described.



5. A lawn-sprinkler provided with a trap or seal at its inlet or supply pipe, substantially as shown and described.

6. A lawn-sprinkler, provided with a carriage-frame, comprising a five-way casting, tubes extending transversely from the said casting and carrying axles for the said casting, a tube extending forwardly from the casting and carrying at its closed end a steering-head for the steering-wheel, and a stand-pipe connected with the said casting and carrying a sprinkling-head, substantially as shown and described.

7. A lawn-sprinkler, provided with a carriage-frame, comprising a five-way casting, tubes extending transversely from the said casting and carrying axles for the said casting, a tube extending forwardly from the casting and carrying at its closed end a steering-head for the steering-wheel, and a stand-pipe connected with the said casting and carrying a sprinkling-head, the connection between the said stand-pipe and casting being in the form of a ball-and-socket joint, substantially as shown and described.

8. A lawn-sprinkler, having a stand-pipe, a nozzle secured to the stand-pipe, a yoke mounted to turn on the said nozzle, and a propeller-blade journaled on the said yoke and receiving water from the said nozzle, the rotary motion given to the propeller-blade causing a revolving of the said yoke, substantially as described.

9. A lawn-sprinkler provided with a sprinkling-head having a revoluble yoke, a pin mounted to turn in a bearing or socket formed on said yoke, a propeller-blade secured to said pin and an oil-receptacle formed at the top of said bearing and inclosing the upper end of said pin, substantially as described.

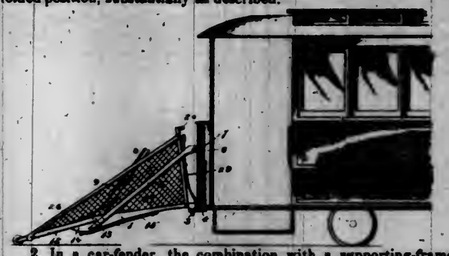
10. A lawn-sprinkler having a stand-pipe, a nozzle secured to the stand-pipe, a yoke mounted to turn on the said nozzle, a propeller-blade journaled in a bearing on the said yoke and a receptacle for oil formed at the top of said bearing and communicating therewith, the said receptacle being provided with a closing-cap, substantially as shown and described.

11. A lawn-sprinkler, having a carriage formed partly by tubes connected with the water-supply in the stand-pipe to form compressed-air chambers for the water passing through the sprinkler, and an inlet-pipe for said sprinkler provided with a trap or seal, substantially as shown and described.

12. A lawn-sprinkler, provided with a nozzle, a yoke loosely held on the said nozzle and adapted to be revolved by the action of the water, and a propeller-blade carried by the said yoke, substantially as shown and described.

588,847. CAR-FENDER. JOHN WICK, South Chester, Pa., assignor of one-half to Jesse Lane, same place. Filed Dec. 17, 1896. Serial No. 616,061. (No model.)

Claim.—1. In a car-fender, the combination with a supporting-frame having provision whereby it may be detachably connected to a car, of a scoop-frame pivotally mounted intermediate its ends on said supporting-frame and adapted to tilt under the weight of the object received therein, and a spring-actuated bolt arranged to engage the rear end of said scoop-frame for holding the latter in its folded position, substantially as described.



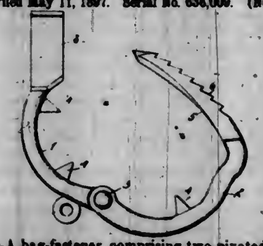
2. In a car-fender, the combination with a supporting-frame adapted to be detachably connected to a car, of a scoop-frame fulcrumed intermediate its front and rear ends on said supporting-frame and adapted to tilt backward on receiving an object, a catch for automatically engaging directly with and holding the rear end of the scoop-frame when tilted, and a lever for releasing said catch, substantially as described.

3. In a car-fender, the combination with a supporting-frame adapted to be detachably connected to a car, of a scoop-frame fulcrumed intermediate its ends on said supporting-frame, an upright back frame or stop pivotally connected to said supporting-frame, and rigid braces forming inflexible guards between the said upright frame and the scoop-frame whereby both are influenced by the weight of the object received in the fender, substantially as described.

4. In a car-fender, the combination with a supporting-frame, of a scoop-frame fulcrumed intermediate its ends on said supporting-frame, an upright back frame or stop pivotally connected to said supporting-frame, inflexible diagonal braces connecting said upright frame with the front end of the scoop-frame and forming non-collapsible side guards, means for holding the front end of the scoop-frame depressed, and means for automatically engaging and holding the rear end of the scoop-frame depressed, substantially as described.

5. In a car-fender, a supporting-frame adapted to be detachably connected to a car, and comprising spaced and substantially parallel arms extending in advance of the car, in combination with a scoop-frame fulcrumed intermediate its ends between said arms, corresponding stops on said supporting-arms and scoop-frame for limiting the downward movement of the front end of the scoop and holding the same depressed, a pivoted back-stop and inflexible oblique braces connecting said back-stop and scoop and forming rigid side guards, substantially as described.

588,848. BAG-FASTENER. NEWELL F. WIGHTMAN, Meriden, Conn. Filed May 11, 1897. Serial No. 636,009. (No model.)



Claim.—A bag-fastener, comprising two pivoted sections, an inwardly extending tooth on each section, a ratchet-toothed arm on one section, a boxing on the other section, having an opening for the passage of the arm, a block movable in the opening for engaging the arm, a stem extended from the block through the end wall of the boxing, a finger-piece on the outer end of the stem, and a spring surrounding the stem and bearing at one end on the block and at the other end on the end wall of the boxing, substantially as specified.

588,849. CAR-FENDER. JAMES K. YOUNG, Meriden, Conn. Filed Feb. 6, 1897. Serial No. 622,342. (No model.)

Claim.—1. In a car-fender, the combination of a pivotally-mounted frame, a sliding plate mounted thereon, and means for operating the plate, such means being in connection with the plate and being moved by force imparted by an object falling on the fender, substantially as described.

2. A car-fender having a fender-frame, a sliding plate mounted thereon, and means for operating the plate, such means being in connection with the plate and being moved by force imparted by an object falling on the fender, substantially as described.

3. In a car-fender, the combination with a support, of two side plates pivoted thereon, a bottom or shield plate rigidly connected to the side plates, a sliding plate located above the bottom plate, and means carried by the side plates and in connection with the sliding plate, whereby as an object falls on the fender the sliding plate will be operated, substantially as described.



4. In a car-fender, the combination with a support, of two side plates pivotally mounted thereon, two shafts rigidly connected to the side plates, a band running over the shafts, and a sliding plate held by the side plates and connected to the band, substantially as described.

5. In a car-fender, the combination with a support, of a pivotally-mounted frame, a sliding plate on the frame, a shaft mounted to swing on the frame, and a connection between the shaft and the plate, whereby upon the movement of the shaft the plate is operated, substantially as described.

6. In a car-fender, the combination with a pivotally-mounted frame, a sliding plate carried thereon, a transversely-swinging shaft mounted on the frame, and a connection between the sliding plate and the transversely-swinging shaft, substantially as described.

7. A car-fender having two side plates, two rods rigidly connected to and passing transversely between the side plates, a bottom or shield plate held by the side plates, a sliding plate located above the bottom plate and beneath the shafts, a band running around the shafts and connected to the sliding plate, a transversely-swinging shaft mounted between the side plates, and a connection between said transversely-swinging shaft and the sliding plate, substantially as described.

8. In a car-fender, the combination with a support, of a frame pivotally mounted thereon, a bottom plate held by the frame, two shafts mounted on the frame, a band passing over the shafts, a sliding plate located above the bottom plate and connected with the band, a transversely-swinging shaft mounted on the frame, and a connection between the transversely-swinging shaft and the sliding plate, substantially as described.

9. In a car-fender, the combination of a frame, a transversely-swinging shaft mounted thereon, a sliding plate, a connection between the transversely-swinging shaft and the sliding plate, and a flexible band located adjacent to the swinging shaft and capable of moving the same, substantially as described.

10. In a car-fender, the combination of a frame, a sliding plate mounted thereon, two plates pivoted on the frame, two shafts rigidly connecting the plates, a flexible connection between one of the shafts and the sliding plate, and a band passing around the shafts of the pivoted plates and serving to engage said shafts to swing the same, substantially as described.

11. In a car-fender, the combination with two rigid supporting-arms, of two side plates respectively pivotally carried on the arms, two shafts passing transversely between the side plates and rigidly connected thereto, a bottom plate connected to and passing between the side plates, a sliding plate located above the bottom plate, a band running around the two shafts and connected to the sliding plate, a transversely-swinging shaft carried by the side plates, a connection between the transversely-swinging shaft and the sliding plate, and a band located adjacent to the transversely-swinging shaft and capable of engaging and of swinging the same, substantially as described.

12. The combination with a car, of car-fenders respectively pivoted to the ends of the car, a spring actuating each fender, and a flexible connection attached to each fender and run oppositely and connected with the car near the opposite ends thereof, substantially as described.

13. The combination with a car, of a car-fender pivoted thereto, a spring connected with the car-fender and with the car, and a flexible connection attached to the fender on the side of its pivot opposite to the spring and attached to the car, substantially as described.

14. The combination with a car, of two arms rigidly carried by the car, a plate pivotally connected to each arm, means for holding the plates in either of two positions with reference to the arms, a fender pivotally carried by the plates, a spring connected to the fender and to the car, and a chain connected to the fender and to the car, the chain and spring being located on opposite sides of the pivot of the fender, substantially as described.

15. The combination with a frame, of a sliding plate, and a belt running on the frame and connected to the plate, the belt being in position to be engaged by an object striking the fender and to be moved by the action of said object whereby to outwardly project the sliding plate.

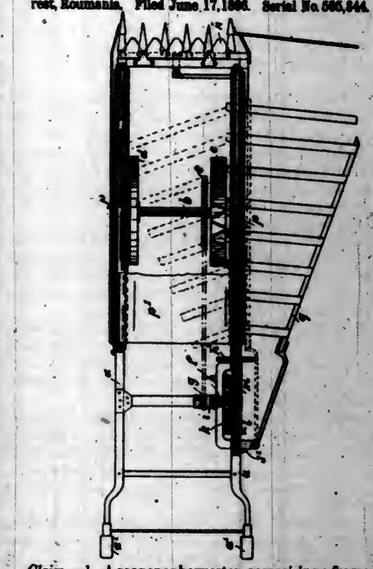
16. In a car-fender, the combination with a frame of a member slidable thereon, and a band running on the frame and connected with the said sliding member, the band being capable of being engaged by an object thrown upon the fender and of moving under the influence of said object to impart movement to the sliding member.

17. In a car-fender, the combination with a frame, of a member supported and movable thereon, and means supported on the frame independently of the said movable member, such means being in connection with said member, and being capable of being engaged by an object thrown upon the fender whereby to transmit operative movement to said movable member by the force derived from the impact of said object.

18. The combination with a support, of an arm projecting outwardly therefrom, a plate pivotally connected to the arm and capable of extending in approximate alinement with the arm and outwardly from the said support, and a car-fender carried by the plate, the car-fender and plate being movable on the arm so that the plate and car-fender will stand upward from the arm.

19. In a car-fender, the combination with a frame, of a movable member mounted on said frame and capable of being projected outward upon the operation of the fender, and means carried on the frame against which means an object struck by the fender is thrown, such means being capable of receiving from the impact of the object operative movement and of transmitting such movement to the movable member so as to project the same by force derived from the impact of the object thrown on the fender.

588,850. REAPING-MACHINE. MIHAIL ALEXANDRESCU, Rochorest, Roumania. Filed June 17, 1896. Serial No. 595,844. (No model.)



Claim.—1. A reaper or harvester, comprising a frame, two wheels upon which the frame is mounted, a cutter on the forward end of the frame, a shaft extended along one side of the frame, means for rotating said shaft, a connection between the shaft and cutter whereby the cutter is operated, an endless apron movable transversely over the frame, a rack mounted to swing on the frame below the plane of the apron, the said rack being normally at one side of the apron, but movable underneath the same, the said rack being moved in one direction by one of the supporting-wheels, and a spring for moving the rack in the other direction, substantially as specified.

2. A reaper or harvester, comprising a carriage, a cutter on the forward end thereof, means for operating the cutter, an endless apron movable transversely over the carriage, a rack normally at one side of, but movable below the apron and actuated in one direction by one of the carriage-wheels, and a spring for moving the rack in the opposite direction, substantially as specified.

588,851. FASTENER FOR HAT-TRIMMINGS. GRACE BARNUM, Arcade, N. Y. Filed Mar. 9, 1897. Serial No. 626,563. (No model.)



Claim.—A fastener, consisting of two pieces of wire secured together to form a body, the wires beyond said body portion being spread apart and forming quadrangular portions, the ends of said wires being twisted together, returned over said quadrangular portions and separated and bent downwardly on each side of said quadrangular portions, as shown and described.

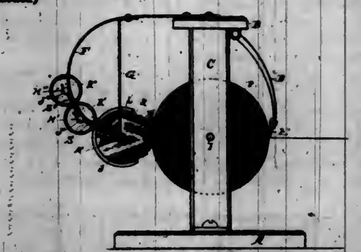
588,852. PLUMB AND LEVEL ATTACHMENT FOR RULERS. EDWARD D. BEATTY, Louisville, Ky. Filed Oct. 15, 1895. Serial No. 565,713. (No model.)



Claim.—1. A folding rule provided with a level-glass pivotally connected thereto to swing into engagement with the edge of the rule or the end thereof, the said glass being of a length equal to the width of the rule, whereby the glass when swung upon the end of the rule will not interfere with the rule being carried in the pocket, substantially as and for the purpose set forth.

2. The combination with a folding rule, of a casing of a length equal to the combined width of the members of the rule, a level-glass in the casing, and a link pivoted to one member of the rule near its end and to the casing at about the center of its length, substantially as herein shown and described.

588,853. PRINTING DEVICE. ROBERT J. BENTLEY and GEORGE H. BOHEN, Joliet, Ill. Filed Apr. 20, 1896. Serial No. 588,225. (No model.)

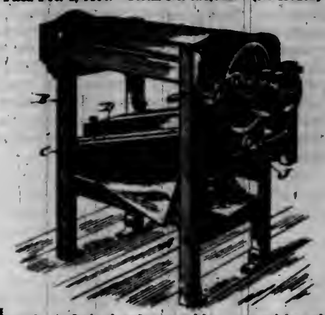


Claim.—1. In combination with a frame supporting a rotatable paper-roll, of a pair of curved spring-arms provided with vertically-disposed chords and having eyes formed therein continuous with the said parts at their points of juncture, a printing-roll rotatably carried in said eyes and having frictional bands thereon to contact with the paper-roll and also provided with type standing out equally with the said bands, successively-arranged hooks on the said arms, ink-rolls rotatably carried by the said hooks, and springs engaging the trunnions of said ink-rolls and the said arms, substantially as described.

2. In combination with a supporting-frame having a paper-roll journaled therein and a cutter coacting with said paper-roll, of a pair of curved spring-arms having vertically-disposed chords, a diametrically-operating type-roller carried by the lower portions of said spring-arms at the point of juncture with the chords, and successive inking-rollers yieldingly engaging the said type-roller, said type-roller being held continuously in line with the axis of the paper-roll, substantially as described.

3. The combination with a supporting-frame having a paper-roll therein and a cutting attachment coacting with the said paper-roll, of a pair of continuous curved spring-arms having their lower ends in line with the axis of the paper-roll and provided with chords, a type-roll carried at the lower portions of the said arms and situated in line with the axis of the paper-roll, and successive inking-rolls bearing against each other and one of the same against the said type-roll, said type-roll and inking-rolls being in curved alinement, and the pressure of each on the other exerted directly in line with the axis of the paper-roll, substantially as described.

588,854. FRUIT-CLEANER. ALEXANDER CHAMBERS, Newtown, Pa. Filed Feb. 1, 1897. Serial No. 621,512. (No model.)

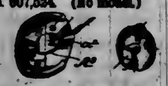


Claim.—1. A fruit-cleaning machine, comprising the framing, the inclined rails, the screen, the screws having a threaded connection with the screen and bearing upon and sliding along the rails, means for securing the screen in position for use, the brush, bearings for said brush, one of said bearings being movable whereby it may be set to release the brush and fastenings for said movable bearing substantially as shown and described.

2. A cleaning-machine substantially as described comprising the frame having rails to support the screen, the brush, the screen, and the screws having threaded connection with the screen and resting upon and slidable along the rails substantially as described.

3. A cleaning-machine comprising the frame provided with rails arranged at an incline, the screen supported on said inclined rails and slidable along the same, a bearing above the upper ends of said rails beneath which the upper end of the screen fits when in uppermost position, means for holding the screen in such position, and the brush substantially as shown and described.

588,855. BAG-TIE. ALBERT DAVISON, Belvidere, Ill. Filed Oct. 1, 1896. Serial No. 607,524. (No model.)



Claim.—1. A fastener composed of the plate-section, the stud-section having a book-like main tongue and provided in rear thereof with the oppositely-projected guide and retaining tongues, the said retaining-tongue being deflected between its ends forming a hump, and means for detachably connecting the plate-section and stud-section substantially as described.

2. A fastener substantially as described comprising the plate-section composed of the outer plate having means for securing the cord, the inner plate held at portions of its edge to the said outer plate and having other portions of its edge free and formed with downwardly-projected ribs such inner plate being provided with a non-circular hole for the stud and the stud-section having the stud arranged to lie between the inner and outer plates of the plate-section and its base-plate provided with seats for the ribs of the inner plate of the plate-section all substantially as shown and described.

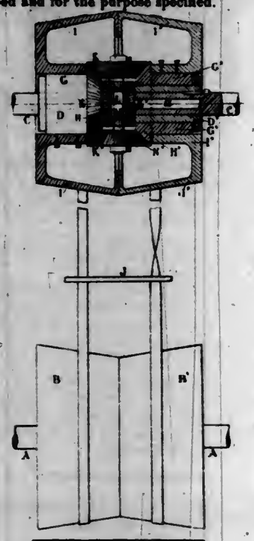
588,856. DIFFERENTIAL GEARING. ALBERT DE DION, GEORGES BOUTON, and FRÉDÉRIC CHAPLET, Paris, France. Filed Mar. 23, 1897. Serial No. 628,014. (No model.) Patented in France Jan. 3, 1895, No. 244,094.

Claim.—1. The combination with a two-part shaft the parts of which are journaled together, of pulleys rotatably supported on said shafts, means for driving said pulleys in opposite directions at both the same and different speeds, and gearing driven by said pulleys and operating when the pulleys are driven at different speeds to drive the two-part shaft, but rendered inoperative when the pulleys are driven at the same speed, substantially as described.

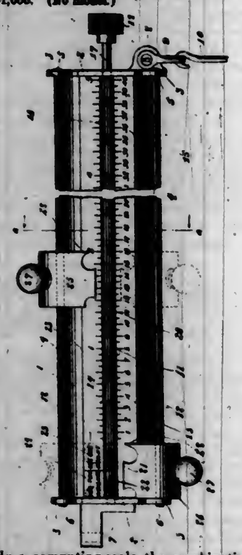
2. The combination with a driving-shaft and reversely-coned pulleys fixed thereon, of a two-part driven shaft the parts of which are journaled together, cone-pulleys rotatably supported thereon and inclined reversely to one another and to the pulleys on the driving-shaft, belts connecting the pulleys on the driving and driven shafts so as to drive the latter in opposite directions, a belt-shifter for shifting the belts to cause said pulleys to rotate at the same or different speeds, and gearing driven by said pulleys and operating when the pulleys are driven at different speeds to drive the two-part shafts, but rendered inoperative when the pulleys are driven at the same speed, substantially as described.

3. The combination with the driving-shaft A and the reversely-

cones pulleys B, B', fixed thereon, of the shafts C, C', journaled together, the sleeves D, D', fixed thereon and provided with gear-wheels E, E', the sleeves G, G', loosely journaled on the sleeves D, D', and provided with gear-wheels H, H', cone-pulleys I, I', reversely inclined to one another and to the pulleys B, B', and fixed on the sleeves G, G', gear-wheels K, K' loosely mounted on the opposite end of a shaft L and gearing with the wheels H, H', gear-wheels N, N', journaled on said shafts I, and gearing with the wheels E, E', a straight belt O connecting the pulleys B, I, a crossed belt O' connecting the pulleys B', I', and a belt-shifter for simultaneously shifting said belts, substantially as described and for the purpose specified.



588,857. COMPUTING SCALE-BEAM. WILLIAM R. DUNN, Alton, Ind., assignor to himself, John T. Hollcroft, Temple H. Dunn, Lycurgus Harrison, and A. N. Peckinpaugh, same place. Filed May 11, 1896. Serial No. 591,053. (No model.)



Claim.—1. In a computing-scale, the combination of a hollow weighing-beam having graduations to indicate units of weights, a price-indicating beam located within the hollow weighing-beam and having price-indicating graduations, and two weights or peas movable along the hollow weighing-beam and adapted for joint or independent use to indicate the weight and the price at the same time, substantially as set forth.

2. In a computing-scale, the combination of a hollow weighing-beam having two series of graduations to indicate units of weight, a price-indicating beam located within the hollow weighing-beam and having price-indicating graduations, and two weights or peas movable along the hollow weighing-beam and having indexes arranged to play along the two sets of graduations on the hollow weighing-beam and the graduations on the price-indicating beam at the same time, substantially as set forth.

3. In a computing-scale, the combination of a hollow weighing-beam having graduations to indicate units of weight, a price-indicating beam mounted to turn therein and having several series of graduations to indicate the price, each series of graduations on the price-indicating beam being provided with two index-characters, and two weights movable along said hollow weighing-beam and adapted for use in connection with the graduations on the weighing-beam and the price-indicating beam and with the index-characters on the price-indicating beam, substantially as set forth.

4. In a computing-scale, the combination of a hollow weighing-beam having a slot and a series of graduations extending along the same, a price-indicating beam mounted to turn in the hollow of the weighing-beam and provided with peripheral price-indicating graduations to appear at the slot in the weighing-beam, heads for the hollow weighing-beam, tie-bolts extending longitudinally of the weighing-beam and connecting the heads to hold the same in place, and a weight or pea movable along the weighing-beam and adapted for use in connection with the graduations on the weighing and price-indicating beams, substantially as set forth.

5. In a computing-scale, the combination of a hollow weighing-beam having a slot and a series of graduations extending along the same, a price-indicating beam mounted to turn in the hollow of the weighing-beam and provided with peripheral price-indicating graduations to appear at the slot in the weighing-beam, heads for the hollow weighing-beam, tie-bolts extending longitudinally of the weighing-beam and connecting the heads to hold the same in place, and a weight or pea guided on one of the tie-bolts and movable along the weighing-beam, and adapted for use in connection with the graduations on the weighing and price-indicating beams, substantially as set forth.

6. In a computing-scale, the combination of a hollow weighing-beam having two series of graduations to indicate units of weight, a price-indicating beam located within the weighing-beam and provided with several series of price-indicating graduations, each series of price-indicating graduations being provided with two index-characters, and two weights movable along the hollow weighing-beam and adapted for joint or independent use to indicate the weight and the price at the same time, substantially as set forth.

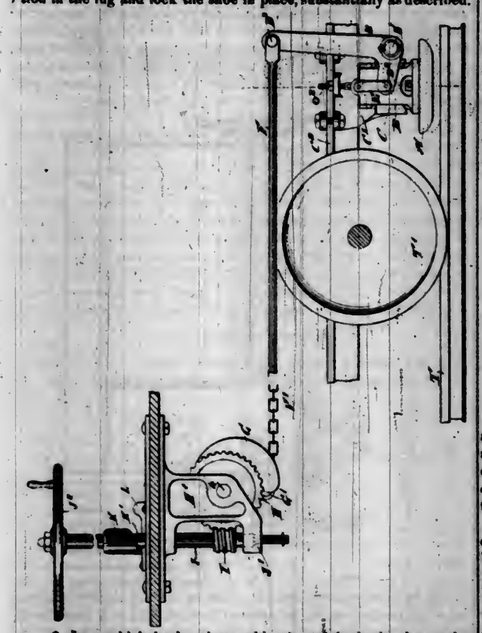
7. In a computing-scale, the combination of a hollow weighing-beam having a slot, a series of graduations at each side of the slot, a price-indicating beam mounted to turn in the said hollow weighing-beam and provided with peripheral price-indicating graduations arranged to appear at the slot in the weighing-beam, and two weights or peas movable along the weighing-beam and adapted for joint or independent use to indicate the weight or price, substantially as set forth.

8. In a computing-scale, the combination of a weighing-beam having a longitudinal slot or opening and provided with two series of graduations to indicate units of weight, the two series of graduations being located one at each side of the said longitudinal slot or opening, a price indicating beam having several series of price-indicating graduations, the said price-indicating beam being movable, whereby either of the series of graduations can be made to appear at the opening between the two series of graduations on the weighing-beam, and two weights or peas movable along one beam and adapted for joint or independent use to indicate the weight or price, substantially as set forth.

9. In a computing-scale, the combination of a weighing-beam having a longitudinal slot or opening formed therein, the said beam being provided with two series of graduations located one at each side of the said longitudinal slot or opening and indicating units of weight, a price-indicating beam having several series of price-indicating graduations, each series of graduations on the price-indicating beam being provided with two index-characters for the purpose set forth, the said price-indicating beam being movable, whereby either of the series of graduations and its accompanying index-characters may be caused to appear in the opening between the two series of graduations on the weighing-beam, and two weights or peas movable along one beam and adapted for independent and joint use to indicate the weight or price, substantially as specified.

588,858. TRACK-BRAKE. JEFFERSON U. ELWOOD, McKeesport, Pa., assignor to himself and Duane P. Smith, same place. Filed Nov. 6, 1896. Serial No. 611,208. (No model.)

Claim.—1. A shoe for a track-brake having dovetailed or inwardly-expanding recesses in its under surface, said recesses being filled with a material, the blocks of which may be molded in place and have a higher frictional resistance than the body of the shoe, a perforated lug upon the upper side of the shoe, a slide carrying the shoe and having a hole for said lug and an intersecting hole exposing the perforation in the lug and a key adapted to fit the perforation in the lug and lock the shoe in place, substantially as described.



2. In a vehicle-brake, the combination of the brake-shoe and a flexible connector for operating the same, with a pivoted cam having a variable radius which decreases as the brake is tightened and to which the flexible connector is attached, a worm-wheel attached to said cam, a worm engaging therewith, and a hand-wheel and shaft carrying said worm, and means by which the worm may be quickly disengaged from the gear, substantially as described.

3. In a vehicle-brake, the combination of the brake-shoe and a flexible connector for operating the same, with a pivoted cam having a variable radius which decreases as the brake is tightened and to which the flexible connector is attached, means for rotating the same, and means by which the worm may be quickly disengaged from the gear, substantially as described.

4. An operating mechanism for a brake, comprising a worm and worm-gear, an end-faced cam surrounding the worm-shaft, operating means attached to said shaft, and a movable latch adapted to be moved so as to engage said end-faced cam, substantially as described.

5. An operating mechanism for a brake, comprising a worm and worm-gear, a grooved cam of decreasing radius attached to the worm-gear, a flexible connector attached to said cam and operating the brake-shoe, an end-faced cam surrounding the worm-shaft, operating means attached to said shaft, and a movable latch adapted to be moved so as to engage said end-faced cam, substantially as described.

588,859. STOVE-GRATE. EDMUND R. FLINT, Tonawanda, N. Y. Filed Feb. 23, 1897. Serial No. 624,530. (No model.)



Claim.—1. The combination of the support having bearings and a stationary pivot, the upper grate-section mounted to oscillate on said bearings and provided with a handle, and the lower grate-section situated beneath the upper section and mounted to oscillate on said pivot, the lower grate-section being connected to the handle, and said stationary pivot being located between the handle and the axis of oscillation of the upper grate-section, substantially as described.

2. The combination of the support having a flange of circular curvature and a stationary pivot below said flange, a rim-shaped upper grate-section having a handle and mounted to oscillate upon said flange and having projections engaging the same, and a pan-shaped lower grate-section situated beneath the upper section and connected to said handle, the lower section being mounted to oscillate upon the pivot, and said stationary pivot being located between the handle and the axis of oscillation of the upper grate-section, substantially as described.

3. The combination of the support having a stationary pivot and a flange of circular curvature inclined inwardly toward its upper edge, a rim-shaped upper grate-section inclined inwardly toward its lower edge and mounted to oscillate upon said inclined flange, and a pan-shaped lower grate-section beneath the upper grate-section and mounted to oscillate upon said stationary pivot, the upper grate-section having a handle, and the lower grate-section being connected to said handle, substantially as described.

588,860. BICYCLE-BELL. JAMES S. FOLEY and JOHN H. BIRCH, West Bromwich, England. Filed Apr. 12, 1897. Serial No. 632,800. (No model.) Patented in England Mar. 23, 1897, No. 7,356.

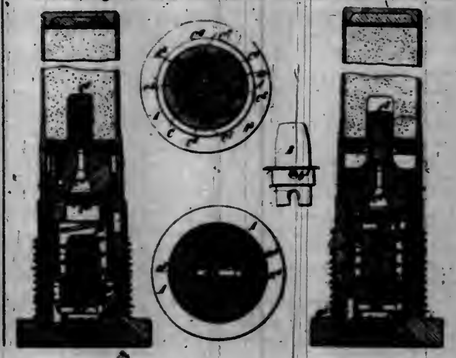
Claim.—1. The combination with the handle-bar of a cycle, and a bell connected therewith, of a rotating handle-section having an annular gear, a rotatable clapper-arm having a clapper, a spindle connected with the clapper-arm and having a pinion, and gearing operatively connecting the annular gear of the handle-section with the pinion on the spindle of the clapper-arm, substantially as described.

2. The combination with the handle-bar of a cycle, and a bell connected therewith, of a rotating handle-section mounted on the handle-bar and having an annular gear, a rotatable clapper-arm having a pivoted clapper, a spindle connected with the clapper-arm and having a pinion, and gearing operatively connecting the annular gear of the handle-section with the pinion on the spindle of the clapper-arm, substantially as described.

3. The combination with the handle-bar of a cycle, of a handle composed of two sections, one having an annular gear and rotatable on the handle-bar and the other connected with the latter and constituting a bell or gong, a rotating clapper-arm having a clapper to strike the bell or gong, a spindle journaled parallel with the axis of the rotatable handle-section, and connected with the clapper-arm, a pinion on the spindle, and rotatable gearing operatively connecting the annular gear of the rotating handle-section with the pinion on the spindle of the clapper-arm, substantially as described.

4. The combination with the handle-bar of a cycle, and a bell connected with one end thereof, of a rotating handle-section mounted on the handle-bar and having an annular gear, a rotatable clapper-arm having a clapper, a spindle connected with the clapper-arm and journaled parallel with and eccentric to the axis of the rotating handle-section, a pinion secured to the spindle, and rotating gearing operatively connecting the annular gear of the rotating handle section with the pinion on the spindle of the clapper-arm, substantially as described.

588,861. SHELL-FUSE. FREDERICK M. HALE and JOHN R. BEAVIS, London, England. Filed Mar. 29, 1897. Serial No. 630,819. (No model.)



Claim.—1. In a percussion-fuse, the combination with the fuse-body and a percussion pellet, of a transverse bolt having a firing-needle which normally occupies an eccentric position with relation to said percussion-pellet, and of a movable portion or plunger carrying the said bolt and adapted to shift on shock of discharge to bring the bolt opposite a lateral recess in the fuse-body so that the bolt will automatically enter the recess during the flight of the shell and thereby bring its firing-needle concentric with the said percussion-pellet.

2. In a percussion-fuse, the combination with the fuse-body provided with a lateral recess, the percussion-pellet, and a plunger adapted to be shifted longitudinally on shock of discharge, of a transversely-arranged bolt carried in said plunger and provided with a firing-needle, the said bolt being adapted to shift automatically and engage in said recess on coming opposite the same, to thereby bring its firing-needle in alinement with the said percussion-pellet, substantially as described.

3. In a percussion-fuse, the combination with the fuse-body having a lateral recess, the percussion-pellet, the plunger, and a laterally-shifting bolt adapted to be engaged in the recess of the fuse-body and carrying a firing-needle, of means for locking said bolt in its shifted position, comprising a spring-pin and a ball interposed between said pin and bolt, substantially as described.

4. In a percussion-fuse, the combination with the fuse-body, the plunger and the transverse bolt, of spring-pins adapted to enter recesses in the fuse-body when the said plunger shifts on shock of discharge for the purpose specified.

5. In a percussion-fuse, the combination with the fuse-body, the plunger and its transverse bolt, of a percussion-pellet having a transverse groove for the reception of a transverse bevel-pointed pin provided with a head that normally engages with a recessed portion in said groove to lock the pellet to the fuse-body, and of a longitudinal bevel-pointed pin whose pointed end normally lies contiguous to the pointed end of the said transverse pin, so that when said longitudinal pin is shifted by the movement of the plunger on shock of discharge it will cause the head of the transverse pin to be disengaged from the pellet and thereby unlock the latter, substantially as described.

6. In a percussion-fuse, the combination with the fuse-body, the plunger, the ferrule, and the percussion-pellet, of a flexible washer or diaphragm which normally resists the movement of the plunger and ferrule but collapses on shock of discharge substantially as described.

7. In a percussion-fuse, the combination with the fuse-body, the plunger, and the percussion-pellet and its flexible diaphragm, of a ferrule interposed between the said diaphragm and the plunger, and of a non-resilient washer at the base of the fuse-body substantially as described and for the purpose specified.

8. In a percussion-fuse, the combination with the fuse-body, the ferrule, the percussion-pellet and the plunger, of a spiral spring interposed between the said plunger and pellet and inclosed by the ferrule, substantially as described and for the purpose specified.

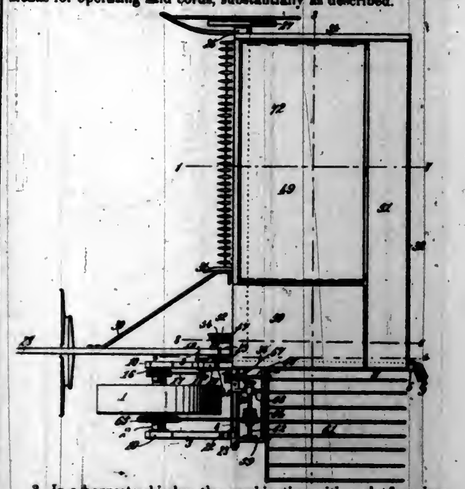
9. In a percussion-fuse, the combination with the fuse-body, the plunger, its bolt, and the percussion-pellet, of a detonator carried by the said plunger, to which the flash from the detonator in the said percussion-pellet gains access by a central passage in the plunger and thereby fires the primer substantially as described.

10. In a percussion-fuse, the combination of the fuse-body, a longitudinally-sliding plunger, a transversely-shifting bolt carrying a firing-needle, a percussion-pellet normally locked to the fuse-body, means for releasing the said pellet as the plunger shifts on shock of discharge, and means for preventing the said pellet from bringing its detonator into contact with the firing-needle until the shell strikes an object, all substantially as described.

588,862. HARVESTER. LEE HANNER, Bridgewater, Va. Filed July 20, 1896. Serial No. 599,919. (No model.)

Claim.—1. In a harvester-binder, the combination with a drive-wheel, of rearwardly and downwardly inclined parallel bars between which the drive-wheel turns, open frames on the ends of said bars having teeth on the inner edge of one of the parts of each frame, pinions lying in said frame, meshing with the teeth and carried by an axle loose in the drive-wheel, a grain-platform having pivotal support upon the parallel bars, in line with its forward edge, a grain-wheel connected to said platform in the same line, a caster-wheel at the rearward edge and stubble end of the platform and carried by the drive-wheel frame, means for operating the pinions to raise or lower the front of the platform, together with the parallel bars and frame, and independent devices for raising and lowering the rear of said platform, its forward edge turning upon the pivotal bearing, substantially as described.

2. In a harvester-binder the combination with a frame having two forwardly-projecting parallel bars at the stubble end, a driving-wheel arranged between said bars, pinions upon both ends of a loose axle in said driving-wheel, said pinions lying in open frames on the ends of the parallel bars and meshing with teeth on the rearward members of said frames, means for operating said pinions to raise and lower the front edge of the platform and the frame, including the parallel bars, a caster-wheel at the rear edge and stubble end of the platform and carried by the drive-wheel frame, a grain-wheel at the forward edge and grain end of said platform, a block vertically movable in a frame on the platform and having a projecting bearing for the grain-wheel, a cord and pulleys to raise and lower the platform, the vertical frame thereon sliding on the block, a cord carried over a pulley on a vertical post near the caster-wheel and attached to the rear of the platform to raise and lower the same independently, and means for operating said cords, substantially as described.



3. In a harvester-binder, the combination with a platform having a spindle upon its stubble end and forward edge, of a supporting-frame on which said spindle has pivotal bearing, a grain-wheel at the forward angle of the platform, a block having a bearing for said wheel and vertically adjustable in a vertical frame on the platform, a cord carried beneath a pulley on the end of the platform and then upward to the block, means for taking up and paying off said cord, a caster-wheel at the rearward edge and stubble end, having pivotal bearing in lugs on a vertical post forming part of the harvester-frame, a cord and pulleys for adjusting the height of the rear edge of the platform upon said post, and independent means for raising and lowering the forward edge of the same, to vary the length of stubble, substantially as described.

4. In a harvester-binder the combination with a frame having parallel bars of a drive-wheel between said bars, its loose axle lying in open frames upon their ends, pinions upon said axle meshing with racks on said frames, means for driving said pinions in either direction, a grain-wheel having its bearing upon a block which is vertically adjustable in a frame at the forward angle of the grain-platform, a caster-wheel at the stubble end and rearward edge of said platform carried by the wheel-frame, independent operating devices, one connected by a cord to the adjustable support for the grain-wheel journal and the other connected to the rear of the platform by a cord carried over a pulley on a post rising from the frame near the caster-wheel and attached to the platform at or near its rearward angle, substantially as described.

5. In a harvester-binder, the combination with a drive-wheel and shaft of a frame having two bars supported at their ends on the ends of the shaft, a platform supported at one end by a prolongation of one of said bars, at the other end by a grain-wheel, and in rear by a caster-wheel having a swivel bearing upon a post on the prolonged bar, a drum and means for rotating the same in either direction located within reach of the driver, and means operated by said drum to raise and lower the forward part of the platform and the cutter mounted thereon to vary the length of stubble, substantially as described.

6. In a harvester-binder, the combination with a drive-wheel and a shaft loose therein, of parallel bars having loops or frames inclosing the ends of the shaft, rigid collars on said shaft having pinions meshed with teeth on the loops, a pulley on one of said collars, a platform supported at one end by a prolongation of one of the parallel bars, and by a caster-wheel at the rear end of the prolongation, a grain-wheel having a journal upon a block arranged in a vertical guideway on the grain end and forward edge of the platform, and means within reach of the driver for simultaneously raising and lowering the forward portion of the platform at both ends, substantially as described.

588,863. HUB-ATTACHING DEVICE. SIMON J. HARRY, Washington, D. C. Filed Dec. 31, 1896. Serial No. 617,667. (No model.)



Claim.—The improvement in axles herein described comprising the spindle having a threaded stem or shank and a non-circular seat at the inner end thereof, the collar fitted on said seat and provided in its outer side with a recess having a shallow portion to receive the pawl-stem and a deeper portion to receive the body of such pawl, the pawl seated in such recess and having its shank provided with an opening for the fastening-screw and its body thickened and tapered toward its point or free end, the plate-spring attached to the tapered end of the pawl and bearing against the base-wall of the recess in the collar and the nut having a flange and provided in the inner side of said flange with a notch forming a seat for the pawl and with an opening through such flange for the insertion of an instrument by which to release the pawl substantially as shown and described.

588,864. NECKTIE-FASTENER. ALBERT R. JOHNS, New York, N. Y. Filed Aug. 24, 1896. Serial No. 603,721. (No model.)



Claim.—1. The herein-described necktie-fastener, consisting of a plate having an inturned upwardly-extending flange at its lower end which is adapted to be passed around the lower edge of the collar, a pin secured to the outside of said plate having an inwardly-projecting end adapted to be passed through the necktie, and a guard for said pin, substantially as and for the purpose described.

2. The herein-described necktie-fastener, consisting of a plate having an inturned upwardly-extending flange at its lower end which is adapted to be passed around the lower edge of the collar, a pin secured to the outside of said plate having an inwardly-projecting end adapted to be passed through the necktie, and a guard for said pin, consisting of a pivotally-mounted plate having an inturned end between which and the main body of said plate said pin is adapted to be inserted, substantially as and for the purpose described.

588,865. ATTACHMENT FOR PENS. JAMES G. JORDAN, Des Moines, Iowa. Filed Dec. 18, 1893. Serial No. 493,996. (No model.)



Claim.—1. An attachment for pens comprising a hollow conical portion adapted for location within the concavity of a pen, and provided with a single aperture in one side near its apex, a shank formed of yielding non-elastic material substantially as described integrally connected to the hollow conical portion and projecting therefrom in alinement with the side thereof in which the vent is located.

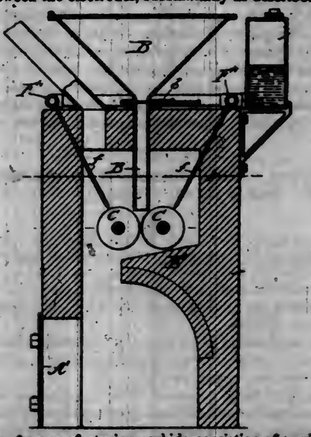
2. In an ink-fountain attachment for pens, a hollow conical portion having a single aperture in one side near its apex, and a shank on the same side formed integrally therewith, said shank being so shaped as to be inserted into the end of a penholder conjunctively with a pen of common form.

3. In an ink-fountain attachment for pens, a hollow conical portion having a single aperture in one side near its apex, a shank on the same side formed integrally therewith, said hollow conical portion being slightly flattened on the side opposite the shank and aperture named, substantially as shown and described.

4. As a new article of manufacture, a pen having secured thereto an ink-fountain attachment consisting of a hollow conical portion having an aperture in one side near its apex, said cone being flattened somewhat on the side opposite said aperture and the aperture in said cone positioned contiguous to the slit between the nibs of said pen.

588,866. MEANS FOR MANUFACTURING CARBIDS. JEANNOTT W. KEENUM, Chicago, Ill., assignor of one-half to Josiah H. Mead, Brooklyn, N. Y. Filed Feb. 1, 1897. Serial No. 621,581. (No model.)

Claim.—1. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the same, and means for connecting the electrodes with a source of electricity; in combination with means for conducting the prepared material between the electrodes, substantially as described.



2. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the same, and means for conducting the electrodes to a source of electricity; in combination with means for conducting the material between the electrodes and means for preventing the adherence of the material to the same, substantially as set forth.

3. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the electrodes, and means for connecting the electrodes with a source of electricity; in combination with a receptacle arranged above the electrodes, adapted to conduct the material between them, and means for controlling the discharge from the receptacle, substantially as, and for the purpose set forth.

4. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, means for adjusting the electrodes relatively to each other, mechanism for rotating the electrodes, and means for connecting them with a source of electricity; in combination with a receptacle arranged above the electrodes adapted to conduct the material between them, substantially as and for the purpose set forth.

5. Means for the manufacture of carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the electrodes, means for connecting them with a source of electricity, and means for conducting the material to be treated between them; in combination with a reservoir and means for conducting the contained material in the reservoir to the electrodes, substantially as and for the purpose set forth.

6. Means for the manufacture of carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the electrodes, means for connecting them to a source of electricity, and means for conducting the material to be treated between them; in combination with a reservoir and conducting-pipes extending from the reservoir to the electrodes, whereby the material is conducted to the surface of the electrodes at a plurality of points, substantially as and for the purpose set forth.

7. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable electrodes arranged in a substantially horizontal plane, mechanism for rotating the same, means for connecting the electrodes to a source of electricity, and means for conducting the prepared material between them; in combination with one or more baffle-plates arranged below the electrodes upon which the treated material will fall, substantially as and for the purpose set forth.

8. Means for manufacturing carbids, consisting of a suitable casing within which are positioned a pair of rotatable multiple electrodes arranged in a substantially horizontal plane, mechanism for rotating the same, and means for connecting the electrodes with a source of electricity; in combination with means for conducting the prepared material between the electrodes; substantially as described.

9. A multiple, rotatable electrode, consisting essentially of the following elements in combination: a suitable supporting-shaft pro-

vided with a sleeve of non-conducting material, an outer sleeve of conducting material, and a plurality of conductors in electrical contact with the outer sleeve, but otherwise insulated from one another, substantially as and for the purpose set forth.

10. A multiple rotatable electrode, consisting essentially of the following elements in combination: a suitable supporting-shaft surrounded by a sleeve of non-conducting material, a second sleeve of conducting material surrounding the first, disks of conducting and non-conducting material arranged alternately upon the outer sleeve in connection therewith, and means for connecting the whole with a source of electricity; substantially as and for the purpose set forth.

588,867. **PENCIL.** GEORGE H. KNIGHT, Lynn, Mass. Filed May 7, 1897. Serial No. 635,563. (No model.)



Claim.—1. As a new and useful article of manufacture; the point-maintaining pencil comprising a central rod or core of hard marking material and one or more concentric sleeves of successively softer marking material in which the rod or core is incased; substantially as set forth.

2. A pencil-filling which consists of the combination of a central graphite core *a*, with an inclosing shell or coating *b*, of like but softer material; for the purpose set forth.

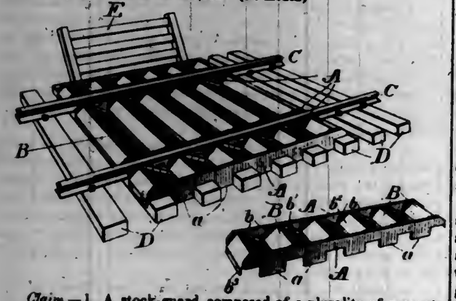
3. A pencil-filling composed of the combination of a graphite center *a*, and the closely-adherent supporting-sleeve *b*, of softer graphite composition; substantially as described and for the purpose set forth.

4. In the described combination; a central core *a*, of marking material and one or more tubular closely-adhering coatings *b*, *c*, of like, but successively softer material, as set forth.

5. The combination with a suitable casing; of the composite filling composed of a graphite center within one or more adherent tubes of a softer graphite composition.

6. The described combination with a casing *d*, of a filling which consists of the graphite core or center *a*, and a series of adherent, tubular layers or coatings *b*, *c*, of successively softer graphite compositions; for the purpose explained.

588,868. **STOCK-GUARD.** JACOB M. LEE, Houston, Tex. Filed Mar. 5, 1897. Serial No. 626,132. (No model.)



Claim.—1. A stock-guard composed of a plurality of separate sections, each section comprising two end plates, with tongues adapted to project down between the cross-ties of the road-bed, and inverted-V-shaped plates, having one leg shorter than the other adapted to rest on top of the cross-ties, and having the outer edge of the shorter leg projecting beyond the face of the cross-tie, substantially as described.

2. In a stock-guard for use on railroads, the combination with the end plates A provided with tongues *a* adapted to project down between the cross-ties of the road-bed, of the flanged plates B secured to the said end plates A and provided with the long legs *b'* and the short legs b^2, the said short legs projecting over the lower edge of the longer legs, and being adapted to project beyond the edge of the cross-ties, substantially as described.

3. A stock-guard composed of a plurality of separate sections, each section comprising two end plates, with tongues adapted to project down between the cross-ties of the road-bed, and inverted-V-shaped plates, having one leg shorter than the other adapted to rest on top of the cross-ties, and having the outer edge of the shorter leg projecting beyond the face of the cross-tie, with flanged ends b^2 to each section adapted to be secured to the cross-ties by spikes or bolts, substantially as described.

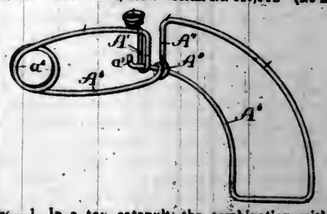
4. In a stock-guard for use on railroads, the combination with the end plates A provided with tongues *a* adapted to project down between the cross-ties of the road-bed, of the flanged plates B secured to the said end plates A and provided with the long legs *b'* and the short legs b^2, the said short legs projecting over the lower edge of the longer legs, and being adapted to project beyond the edge of the cross-ties, with flanged ends b^2 to each section adapted to be secured to the cross-ties by spikes or bolts, substantially as described.

588,869. **ATTACHMENT FOR PIPES, CIGAR-HOLDERS, AND CIGARETTE-HOLDERS.** JERRY J. LYNCH, Wilkes-Barré, Pa., assignor of two-fifths to William O. Mase, same place. Filed Dec. 18, 1896. Serial No. 616,157. (No model.)



Claim.—As an improved article of manufacture, a separable attachment for pipes, cigar-holders, cigarette-holders and like articles, comprising in its construction a solid, imperforated head which is of a diameter not greater than the end of the mouthpiece and is flattened on its under side and provided on said side with radial grooves forming smoke-channels which extend from its center to its outer edge, the head on its outer surface being smooth and rounded, and provided with a small solid stem or shank constructed of spring-wire crimped or bent at intervals between the head and the end of the shank or stem, so as to impinge against the walls of the mouthpiece and hold the attachment in position by frictional contact without interfering with the passage of the smoke, substantially as described.

588,870. **TOY GUN OR CATAPULT.** ALEXANDER S. MANN, St. Louis, Mo. Filed Jan. 4, 1897. Serial No. 617,944. (No model.)



Claim.—1. In a toy catapult, the combination with a spring throwing-arm having at its swinging end a receptacle for the missile, and also a loop adapted to be engaged by a trigger for confining said arm; of a spring trigger-arm passing through a guide and having a tongue adapted to engage said loop when in its normal position, but capable of being withdrawn by pressure from said loop, substantially as described.

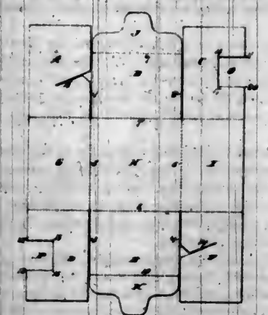
2. In a toy catapult, the combination with a spring throwing-arm having at its swinging end a cup-shaped receptacle for the missile, and a loop formed at approximately right angles to said throwing-arm; of a hand-grip having a spring-arm or trigger provided with a tongue on the end thereof, adapted, when in its normal position, to engage said loop, but capable of being withdrawn by pressure from said loop, and a guide for said tongue near the end thereof, substantially as described.

3. A toy catapult composed of a single piece of spring-wire having one portion bent into the form of a spring throwing-arm with a cup-shaped coil at the extreme end thereof, and a loop adjacent to said cup-shaped coil and at approximately right angles to said throwing-arm; a coil formed in said wire near its middle portion; and another portion bent to form a hand-grip, and terminating in a spring trigger-arm, the end of which passes through said coil which acts as a guide therefor, and is adapted, when in its normal position, to engage said loop on said throwing-arm, substantially as described.

588,871. **BOX.** HARVEY S. MUNSON, New Haven, Conn. Filed Mar. 22, 1893. Serial No. 467,130. (No model.)

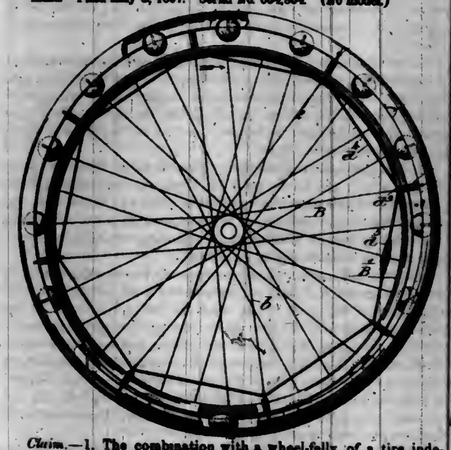
Claim.—1. A box formed from a blank cut and creased to constitute its end or ends with three closing flaps, the two side flaps whereof overlap one another and are provided with means for interlocking each other, and the outermost or end flap of which overlaps the upper edges of both side flaps and has its end secured within the folds forming the box end, so that no free end is left to project into the box, substantially as described.

2. A box formed from a blank cut and creased to provide its ends with three closing flaps, the two side flaps whereof are provided with means for interlocking each other, and the end flap whereof is provided with tongues entering each of said side flaps, whereby the three flaps are combined together and braced one by the other and a box end of great strength is secured, substantially as described.



3. A box formed from a blank cut and creased to provide opposite ends closed by three flaps, one of which flaps has an incision, as 11, 15, 17, and another incision, as 13, whereby two of said flaps are interlocked and provide a locking-pocket as 15, 17, and the third of which flaps carries an overlapping extension having a locking-tongue adapted to enter said pocket, whereby said opposite ends are constituted by flaps two of which are held together laterally and the third of which overlaps the inner ones and is engaged therewith by a tongue entering said pocket, substantially as described.

588,872. **EPICYCULAR TIRE.** WILLIAM H. MURDOCK, Boston, Mass. Filed May 3, 1897. Serial No. 634,304. (No model.)



Claim.—1. The combination with a wheel-felly, of a tire independent of the said felly, a series of independently-movable members between said tire and felly, and means for permitting said members to have limited movement longitudinally of the tire, as the tire and felly are pressed together and moved relatively to each other, due to the revolution of the wheel, and to recover said members from their said longitudinal movement when the felly and tire are not pressed together, substantially as described.

2. The combination with a wheel-felly, of a rigid tire therefor independent thereof, and a plurality of sustaining members between said tire and felly, spaced apart from each other throughout the circumference of the wheel, said members being independently rotatable and having a limited swinging movement relatively to each other and the adjacent parts, substantially as described.

3. The combination with a wheel-felly, of a rigid tire therefor independent thereof, and a plurality of sustaining members between said tire and felly, means to permit said members to move toward each other when pressed between the tire and felly and to restore said members to uniformly-spaced-apart relation when they cease to be pressed between the same, substantially as described.

4. The combination with a wheel-felly, of a rigid tire therefor independent thereof, and a plurality of resilient sustaining members between said tire and felly, means to permit said members to move toward each other when pressed between the tire and felly, and to restore said members to uniformly-spaced-apart relation when they cease to be pressed between the same, substantially as described.

5. A tire provided with a series of independent rotatable sustaining members permanently spaced apart along its inner side, and suspending devices securing said members to the inner side of said tire, said suspending devices permitting the said members to have a limited swinging movement relatively to the tire, substantially as described.

6. The combination with a wheel having a concave felly, of a circumferential series of sustaining members freely movable on said concave felly, a tire beyond and engaging said members, said tire being concave on its inner side next said members and having a trough formed in its outer side, and a tread held taut in said trough, substantially as described.

588,873. **FOOT-REST FOR BICYCLES.** WILLIAM W. NISBET, St. Louis, Mo. Filed June 8, 1896. Serial No. 594,690. (No model.)

Claim.—In a bicycle, a foot-rest attachment secured to the frame of the machine in proximity to the front wheel, each arm of said rest having an inner serrated and an outer smooth side, substantially as and for the purpose set forth.

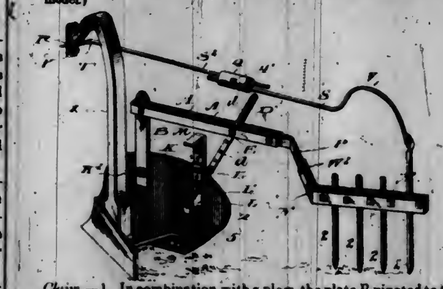
588,874. **ART OF TAWING OR TANNING HIDES OR SKINS.** WILLIAM M. NORRIS, Princeton, N. J. Filed May 5, 1896. Serial No. 590,353. (No specimens.)

Claim.—1. The process herein described of tawing hides or skins, said process consisting in subjecting the hides or skins to the action of a bath prepared from a metallic salt, such as bichromate of potash, then removing the hides or skins from said bath, and then subjecting them to the action of hyposulfurous acid, generated in and below the surface of a second bath, whereby it is immediately brought into direct contact with the hides or skins, substantially as specified.

2. The within-described process of tawing hides or skins, said process consisting in subjecting the hides or skins to the action of a bath prepared from a metallic salt such as bichromate of potash, and then to the action of a bath capable of evolving sulfurous acid, said bath having presented to it metallic zinc, substantially as specified.

3. The within-described process for tawing hides or skins, said process consisting in subjecting the hides or skins to the action of a bath prepared from a metallic salt, such as bichromate of potash, and then to the action of a bath capable of evolving hyposulfurous acid, such as a solution of thiosulfate of sodium, the so-called "hyposulfite of soda" ($N_2S_2O_3$) in presence of an acid, such as hydrochloric acid, and metallic zinc, substantially as specified.

588,875. **HARROW ATTACHMENT FOR PLOWS.** WALTER S. PAYNE, Bailey, Ind. Ter. Filed Apr. 3, 1897. Serial No. 630,647. (No model.)

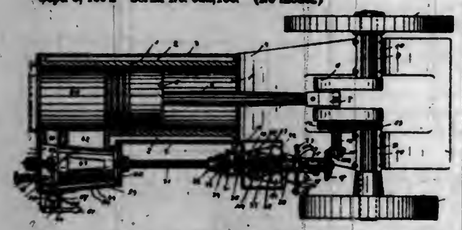


Claim.—1. In combination with a plow, the plate B pivoted to the moldboard, the plates A secured to the upper end of plate B, the plates H, the teeth clamped between same, the angle-plate P connecting the two said of plates, the adjusting-rods S^3 and S, and a spring-actuated tension device connecting the moldboard with the harrow-plates, substantially as shown and described.

2. In a harrow attachment, the combination with the moldboard, the plates A A and B bolted together, the washer K, on which the lower end of said plate B is pivoted, of the plate L secured to the moldboard, the stop M at its upper end, the adjustable perforated

bar D secured to plates A and coiled spring connecting the lower end of said bar, and the lower curved end of plate L, all substantially as shown and described.

588,876. GAS-ENGINE. CHARLES CHASE, Marion, Ohio. Filed Sept. 5, 1894. Serial No. 522,180. (No model.)

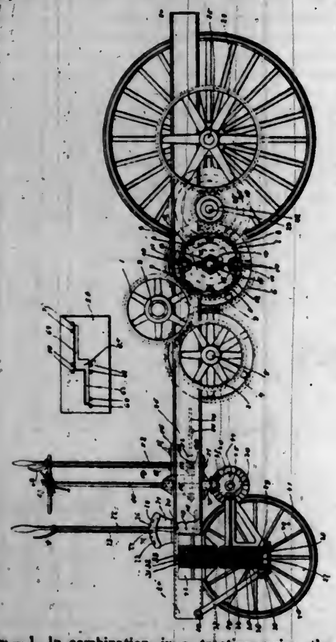


Claim.—1. In combination in a gas-engine, the cylinder and piston, the air and gas supply, the valve, the valve-chest and the igniter-chamber in said chest at the end of the valve and communicating with the combustion-chamber of the engine through a port which is independent of the valve and of the port controlled thereby, substantially as described.

2. In combination in a gas-engine, the cylinder and piston, the inlet-valve the automatic igniter including the electrodes and the push-pin arranged to act as an electrode when operated by hand, said push-pin being independent of the electrodes of the automatic igniter, substantially as described.

3. In combination in a gas-engine, the cylinder, the piston, the valve mechanism, the rotary shaft, the governor thereon comprising the sliding sleeve with connections to the valve mechanism and the collar 32 on the rotary valve-shaft to limit the movement of the sleeve and regulate the position of the valve, substantially as described.

588,877. TRACTION-ENGINE. CHARLES CHASE, Marion, Ohio. Filed Feb. 24, 1894. Renewed May 27, 1896. Serial No. 593,263. (No model.)



Claim.—1. In combination, in a traction-engine, the driving mechanism, the front axle, the frame to which said axle is pivoted, the pivot-standard 29 in which the axle may move vertically, the spring for applying a tension to said axle tending to force the same down, the worm and operating means therefor and the segment connected with the pivot-standard 29, substantially as described.

2. In combination in a traction-engine, the frame, the driving mechanism, the front axle, the hollow standard carrying the same and in which the axle may have vertical movement, the pivot-block 151 having the bearing-point 35 by which lateral tilting of the axle is allowed said block being arranged to move vertically and be guided in the pivot-standard, the spring for forcing the block down and the steering mechanism connected with the standard, substantially as described.

3. In combination in a traction-engine, the frame, the driving mechanism, the vertically-movable axle at the front of the frame, the vertically-movable block having a pivot-point 35 to permit lateral tipping of the spring for forcing the block downward, and the means for steering the machine connected with the front axle, substantially as described.

4. In a traction-engine, the combination of the driving mechanism, the transmitter-shaft 15, the clutch-wheels thereon, the clutch-shoes 8, 8, pivoted on pins 9 and having eccentric portions at their pivotal points to bear on the wheel-rim, the toggle-arms 10 connected to the free ends of the clutch-shoes and the means for operating said arms, substantially as described.

5. In combination in a traction-engine, the driving mechanism, the transmitting-shaft 15, the clutch-wheel, the clutch-shoes 8 pivotally supported and having the toggle-arms 10 at their outer ends, the sliding collars 14 and 83, the arms 13 connected to the collar 14, the arms 81 connecting said arms with the collar 83 and the means for operating the collar 83, substantially as described.

6. In combination, in a traction-engine, the driving-shaft, the transmitting-shaft, the two clutch-wheels thereon, the connections 49 and 117 for operating said clutches in and out and the hand-lever for operating the rods 49 and 117, said hand-lever being arranged between the rods and adapted to be attached to either of them by being shifted laterally to engage the same whereby either clutch may be operated at a time but not together, substantially as described.

7. In combination, in a traction-engine, the driving mechanism, the transmitting-shaft, the clutches thereon, the rods 49 and 117 for operating said clutches, the shifting lever between the rods having projections to engage either of them when shifted laterally, and the latches for holding the rods against movement, said latches being arranged to be operated by the shifting of the lever, substantially as described.

8. In combination, the driving mechanism, the transmitting-shaft 15, the clutches thereon, the connections to said clutches for operating them, the shifting lever arranged to engage and disengage said rods and the plate 56 having non-alined slots 63, 64 connected by an opening 65 and the pawl for holding the lever in the slots and opening, substantially as described.

9. In combination in a traction-engine, the motor-shaft, the transmitting-shafts 15 and 23, the gears 16, 17 and 18 on the shaft 15 having internal clutch-teeth, the companion gears on the shaft 23, the gearing between the shaft 23 and the traction-wheels and the sliding clutch on the shaft 15 with means for operating it within the gears, 16, 17 and 18, substantially as described.

10. In combination, the motor-shaft, the transmitting-shafts 15 and 23, the gears 16, 17 and 18 on the shaft 15, the sliding clutch for fixing either of the gears to the shaft 15, the gear 21 fixed to the shaft 23 meshing with the gear 18 and having the bevel-gear on its inner side, the gears 19 and 20 fixed together and connected to the hub 95 loose on the shaft, the pinions 93 carried by the gear 19 and meshing with the bevel-gear of the gear 21, the loose gear 97 meshing with the pinions 93, the gearing between the shaft 23 and one traction-wheel and the gearing between the gear 97 and the other traction-wheel, substantially as described.

11. In combination in a traction-engine, the frame, the driving mechanism and the wheels having transverse and inclined ribs thereon, substantially as described.

12. In combination in a traction-engine the two traction-wheels, the shaft 23 connected with one, the gear 21 fixed on the shaft 23 for driving one wheel, the gear 97 loose on the shaft and connected with the other wheel, the driving-gearing and the rolling or compensating connection between the gears 97 and 21 consisting of the pinions 93, substantially as described.

588,878. LOCOMOTIVE-HEADLIGHT. GEORGE B. RAIT, Boyden, Iowa, assignor to Katherine F. Rait, same place. Filed Apr. 9, 1897. Serial No. 631,438. (No model.)

Claim.—1. The combination with a headlight-box having a reflector provided with two radial corrugations, sleeves secured to the sides of said box to which the corrugations lead, and provided with openings in their front sides, lens-holders mounted upon said sleeves and provided with means for turning the different lenses in front of the openings therein and holding them locked in that position, substantially as set forth.

2. The combination with a headlight-box, of sleeves secured to the sides thereof in position to receive the rays of light from the reflector of a headlight, and provided with openings in front of the

same, a lens-holder consisting of a band provided with a series of different-colored lenses and with a blank, and means by which the lens-holder may be adjusted to bring the blank or either of the lenses opposite the opening in the sleeves, substantially as set forth.



3. The combination with the headlight-box provided with the sleeves 4, having the fixed springs 11 formed with a detent 13, of the removable lens-holder 6 provided with the fixed catches 10 formed with a central retaining-rib 12, substantially as set forth.

588,879. TOOL. JOHN M. RAUHOFF, Chicago, Ill., assignor of one-half to James Saunders, Marietta, Ga. Filed Mar. 2, 1896. Serial No. 581,532. (Model.)



Claim.—1. In a tool of the class described, the combination of a rod or shaft provided with a spiral bearing-surface of long pitch, a handle portion provided with a ball-bearing interposed between it and the spiral grooves of the rod or shaft such shaft being provided with depressions K, nearest its lower end into which the balls may drop and make a rigid engagement between the handle portion and the rod or shaft to rotate it in either direction as a rigid tool, substantially as described.

2. In a tool of the class described, the combination of a rod or shaft provided with spiral grooves of long pitch, a bit *e* carried on the rod or shaft, a reciprocating handle portion arranged to rotate the rod or shaft, a chuck on the lower portion of the rod or shaft and provided with an axial opening having grooves or depressions *d'* and an inclined slot extending through its side from the axial opening, a longitudinally-adjustable sleeve surrounding the rod or shaft and inserted in the axial opening of the chuck and provided with a screw or pin *f* extending out through the inclined slot of the chuck, whereby as the sleeve is rotated it is moved longitudinally and adjusted in or out, substantially as described.

3. In a tool of the class described, the combination of a rod or shaft provided with spiral grooves of long pitch, a bit *e* carried on the rod or shaft, a reciprocating handle portion arranged to rotate the rod or shaft, balls arranged in the grooves of the rod or shaft and inclosed in the handle portion, a chuck on the lower portion of the rod or shaft and provided with an axial opening having grooves or depressions *d'* and an inclined slot extending through its side from the axial opening, a longitudinally-adjustable sleeve surrounding the rod or shaft and inserted in the axial opening of the chuck and provided with a screw or pin extending out through the inclined slot of the chuck, a handhold on the chuck, and a series of balls interposed between the chuck and the handhold to lessen the friction and hold the handhold against longitudinal movement, substantially as described.

4. In mechanisms of the class described, the combination of a rod or shaft provided with a spiral bearing-surface, a reciprocating handle portion adapted to rotate the rod or shaft by its reciprocations, a chuck on the outer end of the rod or shaft adapted to be rotated in one or both directions by the rod or shaft or be free to rotate in one or both directions independent of the rod or shaft, and means for locking the rod or shaft and the chuck portion rigidly together against independent movements so that both parts have a common rotary motion, substantially as described.

5. In mechanisms of the class described, the combination of a rod or shaft provided with a spiral bearing surface or surfaces, a reciprocating handle portion thereon adapted by its reciprocations to rotate the rod or shaft, a chuck on the outer end of the rod or shaft arranged to be rotated in one or both directions by the rod or shaft and free to have independent rotary motions, means for automatically locking the spiral bearing-rod and handle portion together, and means for locking the rod or shaft and chuck portions rigidly together to provide common rotary and reciprocating motions, substantially as described.

588,880. ELECTRICAL INDICATOR FOR VALVES. WILLIAM J. RICKARD, Philadelphia, Pa. Filed Oct. 31, 1896. Serial No. 610,743. (No model.)



Claim.—1. In an electrical indicating apparatus, a main conduit, a valve-chamber connected therewith outside of the direct line of flow of fluid in said conduit, a nozzle having a cock connected with the conduit, a normally open electric circuit provided with an alarm, and a circuit-closer therein in the outlet of said valve-chamber controlling said alarm.

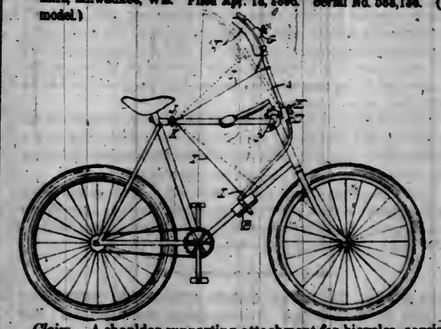
2. In an indicating apparatus, a conduit, a valve communicating therewith, an overflow-pipe leading from said valve, a circuit-closer located in the discharge-outlet of said valve, an alarm device controlled by said circuit-closer, a discharge-nozzle in communication with said circuit, and a valve for opening and closing said nozzle.

3. In an indicating apparatus, a valve-casing having an opening in its lower portion, a valve-seat, a valve adapted to abut against the latter, a spring having one end abutting against said valve, a head located in the upper portion of said valve against which the other extremity of said spring contacts, a threaded stem in engagement with said last-mentioned head, a discharge-outlet for the valve, a terminal of an electric circuit located in said outlet, and having a contact device mounted thereon, the free end of said device being adapted to contact with an adjacent terminal of the electric circuit, and an alarm device.

4. An indicating device, a discharge-main, a gate-valve therein, a safety-valve located in said discharge-main, in advance of said gate-valve, a hose or nozzle located in advance of said safety-valve, an overflow for the latter, and an electrically-operated alarm device attached to said safety-valve, and adapted to be operated when the flow of water through said nozzle is cut off.

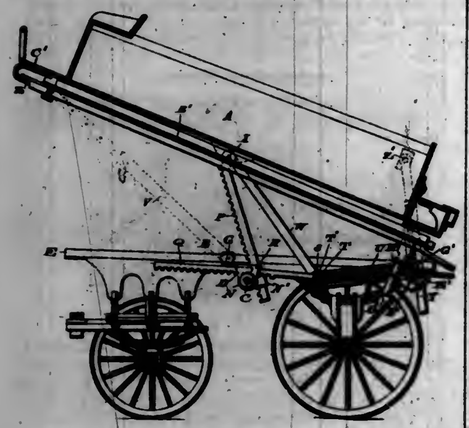
5. In an indicating apparatus of the character described, a main pipe A', a conduit B' attached thereto having a gate-valve C' therein, a T D' leading from said conduit B', and having a safety-valve communicating therewith, an overflow for said valve, a circuit-breaker in said overflow, connections from said circuit-breaker to an alarm, a discharge-nozzle, connections intermediate the latter and said T, and means for stopping the flow of water through said nozzle.

588,881. SHOULDER-BRACE FOR BICYCLES. ARTHUR ROGERS, Milwaukee, Wis. Filed Apr. 16, 1896. Serial No. 588,136. (No model.)



Claim.—A shoulder-supporting attachment for bicycles, consisting in the combination of the elastic bent rods or bows removably and adjustably attached to the bicycle, the shoulder-pads located on the upper ends of the rods, and the stays connecting the upper and lower ends of said rods, with an adjustable clamp adapted to connect the stay-wires with the bicycle-frame at an intermediate point, substantially as described.

588,882. DUMPING-WAGON. William Rosenbaum, Philadelphia, Pa. Filed Dec. 11, 1896. Serial No. 615,236. (No model.)



Claim.—1. A dumping-wagon having the sills on its running-gear provided with ears, the shafts C mounted in said ears having the pinions M and N thereon, a wagon-body having the rack-bars P and the bars W pivoted thereto, the cross-bar T connected to the lower ends of said bars W and the rack-bars Q pivotally connected to said bar T and engaging said pinions M, said rack-bars P being engaged by said pinions N, and means for rotating said shaft C.

2. In a dumping-wagon, a running-gear having the shaft C mounted thereon, the pinions M and N on said shaft, the ways U secured to the sills of said running-gear, a wagon-body, the rack-bars P and the bars W and Y pivotally connected thereto, the cross-bar T mounted in the lower ends of said bars W and guided in said ways U, the rack-bars Q mounted on said cross-bar T and engaging said pinions M, said rack-bars P engaging said pinions N, and means for rotating said shaft C, the lower ends of said arms Y being mounted on said sills.

3. In a dumping-wagon, a body provided with a vertically-moving rack and an operating-pinion therefor, and a horizontally-movable rack and an operating-pinion therefor, both of said operating-pinions being mounted on the same shaft and said horizontal movable rack having a pivoted-arm connection with said body and guided in ways in the wagon-bed.

4. In a dumping-wagon, a running-gear having the shaft C mounted on the sills thereof, the ways U attached to the inner side of the said sills, the wagon-body with the rack-bars P and the bars W pivoted thereto adjacent to each other, the cross-bar T mounted in the lower ends of said bars W, the rack-bars Q mounted on said cross-bar T, the pinions M and N on said shaft C engaging respectively said rack-bars Q and P, means for rotating said shaft C, and the bars V and Y adjustable in length, and connected with said body and running-gear.

5. In a dumping-wagon, a body provided with a pivoted rack vertically movable on mechanism on the wagon-bed, and arms pivotally connected at their ends with the front end of the wagon-body and with the wagon-bed, arms connected with the wagon body and bed at their rear ends, a rack movable in ways on the wagon-bed and connected by an arm with the wagon-body, and mechanism for rotating said racks in unison.

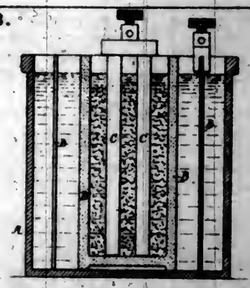
6. In a dumping-wagon, a chute connected at its front end to the body thereof and provided at its rear end with a depending rack, a segmental pinion mounted on an arm secured to said body and a handle for operating said shaft said pinion engaging said rack.

7. In a dumping-wagon, a body with the vertical guides L' arranged angularly to each other and rising from the floor thereof, and sectional spouts hinged to said guides, each of said sections having a vertical and a horizontal limb as described.

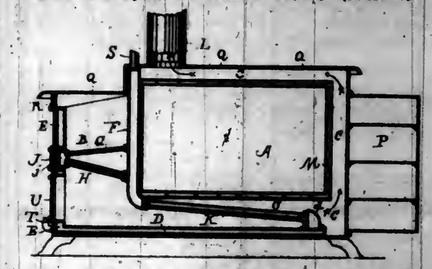
588,888. PROCESS OF MAKING LITHARGE OR PROTOXID OF LEAD FROM LEAD ORE. Pedro G. Salom, Philadelphia, Pa. Filed June 29, 1897. Serial No. 642,864. (No specimens.)

Claim.—The process of converting lead ore into litharge or protoxid of lead, said process consisting in subjecting the ore to the action of nascent hydrogen electrolytically developed, producing thereby a spongy mass, then heating the said spongy mass in the open air first at a temperature below the melting-point of metallic lead and afterward to a higher temperature, substantially as specified.

588,888.



588,884. COOKING AND HEATING STOVE. Howard De Wolfe Sawyer, Revere, Mass., assignor to Daniel W. Wentwood, Chelsea, Mass. Filed July 12, 1895. Serial No. 555,780. (No model.)



Claim.—1. In a downdraft cook stove or range, the fire-pot and the oven, both within the shell or body of the stove proper, and the water-back F immediately between them, in combination with the tubular grate G through which water circulates freely, and a draft-inlet through the stove-body above the grate, admitting air downwardly between the grate-bars, and with the caloric-passage C C C surrounding the oven, substantially as set forth.

2. In a downdraft cook stove or range, the interior oven, in combination with the fire-pot within the stove-body and having water-walls, a tubular water-grate therein and a draft-inlet above said grate, and with a caloric-passage from such fire-pot extending beneath, beyond and over the oven, substantially as set forth.

3. In a downdraft cooking and heating stove, the interior oven and the caloric-passage surrounding said oven, in combination with the fire-pot having a water-back with water-grate connected thereto and a water-bottom extending beneath the oven, and with inclined water-pipes beneath the oven within the caloric-passage and connecting the extension of said bottom with the water-back, substantially as set forth.

4. In a downdraft cooking and heating stove, the oven A, inclosed within the shell or body of the stove proper, and the heat-passage C C C encircling the oven, in combination with the fire-pot having a water-bottom and water-back, an inclosed water-grate communicating with said water-back, a draft-inlet above said grate whereby a downward draft is assured, and flow and return pipes for hot-water circulation to adjacent rooms, substantially as set forth.

5. In a downdraft heating apparatus, the fire-pot having a water-back and a tubular water-grate communicating therewith and extending forward therefrom, in combination with a draft-inlet above the grate, a water-bottom beneath the grate and fire-pot and running rearwardly beyond said water-back, and a tubular connection between the tip of said water-bottom and the lower part of the water-back, substantially as set forth.

588,885. KILN. Carl Schlieb, Vienna, Austria-Hungary, and Rudolf Hoskie, Bucharest, Roumania. Filed Aug. 4, 1896. Serial No. 601,663. (No model.)

Claim.—1. In a kiln, the combination with a series of chambers, a chimney, an air-duct extending around the said chambers, a passage from the said air-duct to the chimney, branch passages connecting the said air-duct with each of the chambers, passages connecting the said chambers with the chimney, and valves to open and close the said passages and to open the said air-duct into the chimney; of gas-passages extending between the said chambers, branch passages connecting the said gas-passages with the said chambers and with the air-duct, and valves in the said passages for controlling the supply of gas, substantially as described.

2. In a kiln, the combination with a series of chambers, a chimney, an air-duct extending around the said chambers, passages from the said chambers to the said air-duct, valves in the said passages, valves in the said air-duct in front of each of the openings of the said passages, passages connecting the said chambers with the chimney, and valves in the said passages, branch passages connecting the chambers with each other in series, and valves in the said passages, of gas-passages extending between the said chambers, branch passages connecting the said gas-passages with the said chambers and with the air-duct, and valves in the said passages for controlling the supply of gas, substantially as described.



588,886. PIN OR HOOK FOR DRAPERIES. Josephine Smith, Jacksonville, Ill. Filed Jan. 13, 1897. Serial No. 619,066. (No model.)



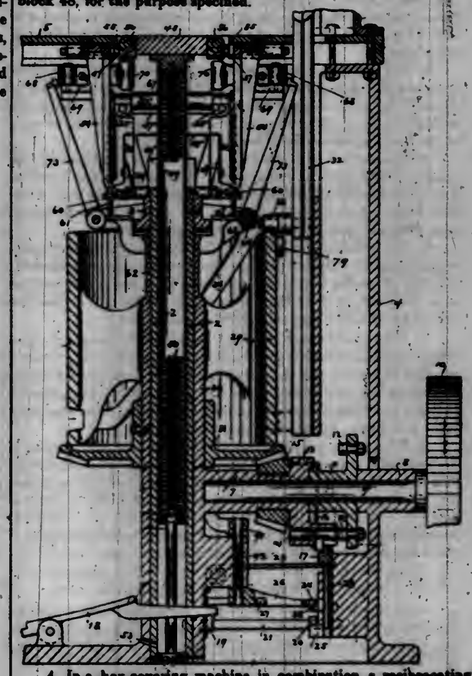
Claim.—As a new article of manufacture, a device for fastening draperies, &c., consisting of a single continuous wire formed into an arm C having a pin-point at one end and formed into a spring-coil beyond said pin-point, thence extending forward as an arm D past the pin-point and turned away from said point in a curved hook, then doubled on itself at the extremity of said hook and carried backward along the same to a point slightly below the pin-point whence it is bent toward and over said pin-point to form a keeper, and then doubled on itself and carried back to and wrapped around the arm D.

588,887. BOX-COVERING MACHINE. Winfield S. Smith and Edwin R. Bullock, Pawtucket, R. I. Filed Nov. 23, 1896. Serial No. 613,498. (No model.)

Claim.—1. A box-covering machine comprising a reciprocating plunger having two parts 37 and 39, a presser-block 48 reciprocated by said plunger, a pair of yielding side rolls, devices for turning side flaps onto ends of box, a pair of yielding end rolls, means for separating parts 37 and 39 of plunger, devices for turning covering material over edges of box, means for forcing follower 39 into box after turning-in devices have acted, framework to carry the moving parts, and the mechanism required to actuate them, substantially as shown and described.

2. A box-covering machine comprising a reciprocating plunger having two parts 37 and 39, a presser-block 48 reciprocated by said plunger, a pair of yielding side rolls, devices for turning side flaps onto ends of box, a pair of yielding end rolls, means for separating parts 37 and 39 of plunger, devices for turning covering material over edges of box, means for forcing follower 39 into box after turning-in devices have acted, a device for removing the completed box from the plunger, framework to carry the moving parts, and the mechanism required to actuate them, for the purpose specified.

3. In a box-covering machine, in combination, a two-part reciprocating plunger, means for separating said parts, means for reuniting said parts, a driving-cam 29, a connecting-rod adapted to communicate motion from said cam to said plunger, and a yielding presser-block 48, for the purpose specified.

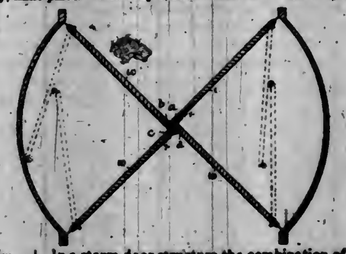


4. In a box-covering machine in combination, a reciprocating plunger to carry and support the box, a yielding presser-block operated by said plunger to cooperate with the plunger in presenting the box to the covering devices, a pair of yielding side rolls, devices for turning the side flaps onto the ends of the box, and a pair of yielding end rolls.

5. In a box-covering machine in combination, a reciprocating plunger to carry and support the box, a yielding presser-block operated by said plunger to cooperate with the plunger in presenting the box to the covering devices, a pair of yielding side rolls, devices for turning the side flaps onto the ends of the box, a pair of yielding end rolls, and a knocking-off device in which two or more adjustable rods pass through corresponding holes in the plunger when near the end of its return stroke, substantially as shown and described.

6. In a box-covering machine, in combination, a two-part reciprocating plunger, means for retaining the upper part or follower above the turning in devices while the other part of plunger is carried below them, devices for turning upper edges of covering material over into the box, means for forcing the plunger-follower into box above covering material, a pair of yielding end rolls, and a pair of yielding side rolls to act against ends and sides of plunger in pasting covering material into the box, all substantially as shown and for the purpose set forth.

588,888. STORM-DOOR STRUCTURE. Theophilus Van Kannel, New York, N. Y., assignor to the Van Kannel Revolving Door Company, same place. Filed May 3, 1897. Serial No. 634,536. (No model.)



Claim.—1. In a storm-door structure the combination of a series of radial wings united at a central line, a suitable doorway therefor,

a ceiling connected to said wings, and means for rotatably supporting said ceiling, substantially as described.

2. In a storm-door structure the combination of a rotating door composed of a series of radial wings united at a central line, an arc-shaped doorway therefor, a rotating ceiling separably connected to said wings, and means for supporting said ceiling, substantially as described.

3. In a storm-door structure the combination of a rotating door composed of a series of radial wings with means for uniting them at a central line, an arc-shaped doorway therefor, a rotatably-supported ceiling, and pivot connections between said ceiling and two or more of the wings, substantially as described.

4. In a storm-door structure the combination of a rotating door composed of a series of radial wings separably united at a central line, a suitable doorway therefor, a ceiling covering the door structure, and a pivot connection between the upper exterior portion of each wing and said ceiling, substantially as described.

5. In a storm-door structure the combination of a series of radial wings separably united at a central line, a suitable doorway therefor, a ceiling extending over said wings, and a pivot connection between each wing and points in the ceiling and in the floor at or near the outer edge of said wings, substantially as described.

6. In a storm-door structure the combination of a series of radial wings separably united at a central line, a suitable doorway therefor, a ceiling extending over the radial wings, a pivot connection between the ceiling and each of said wings, and a separable pivot connection between a corresponding point in the lower part of each wing and a point in the floor, substantially as described.

7. In a storm-door structure the combination with a suitable doorway of a series of radial wings, an elevated rotating support for said wings and means for uniting said wings at a central line consisting of a series of ring-shaped or tubular sections fixed in pairs at opposite extremities of each wing, each section being in a different horizontal plane, a bolt for uniting the sections at one extremity of the wings with each other and with the rotating support, and a bolt for uniting the sections at the other extremity of the wings with each other and with a point in the floor, substantially as described.

8. In a storm-door structure the combination with a suitable doorway of a series of radial wings, an elevated rotating support for said wings, means for uniting said wings at a central line consisting of a series of ring-shaped or tubular sections fixed in pairs at opposite extremities of each wing, each section being in a different horizontal plane, a ceiling extending over said wings and fixed to said rotating support, a bolt for uniting the sections at one extremity of the wings with each other and with the rotating support, a bolt for uniting the sections at the other extremity of the wings with each other and with a point in the floor, a pivotal connection between the upper edge of each wing and the rotating ceiling, and a bolt for connecting a corresponding point in the lower edge of each wing with a point in the floor, substantially as described.

9. In a storm-door structure the combination of a series of radial wings united at a central line, a suitable doorway therefor, a ceiling connected to said wings, means for rotatably supporting said ceiling, and a bolt for locking said ceiling against rotation at a predetermined point, substantially as described.

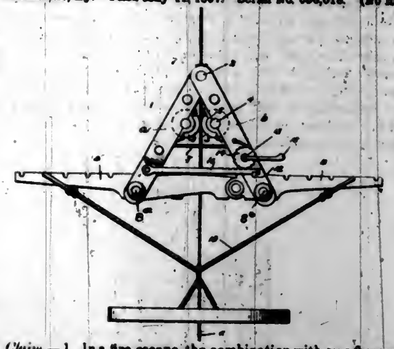
10. In a storm-door structure the combination of a series of radial wings united at a central line, suitable doorways therefor, a ceiling connected to said wings, means for rotatably supporting said ceiling, a bolt for each wing registering with sockets in the floor, a bolt fixed to the rotating ceiling, and a socket therefor in a stationary part of the structure so located with respect to the sockets in the floor that when the ceiling-bolt is in its socket the floor-bolts will register with corresponding sockets, substantially as described.

11. In a storm-door structure the combination with a suitable doorway of a rotating door composed of a series of radial wings united at a central line, a ceiling extending over said wings, a central rotating support for said ceiling and wings, and brace-rods extending from said rotating support to points at or near the periphery of the rotating ceiling, substantially as described.

12. In a storm-door structure the combination with a suitable doorway of a door composed of a series of radial wings united at a central line, a rotating ceiling extending over the rotating door structure, a peripheral rail fixed to said ceiling, and a series of rollers fixed to stationary points in position to engage the peripheral rail and support the ceiling, substantially as described.

13. In a storm-door structure the combination of a series of radial wings, separably united at a central line, suitable doorways therefor, a ceiling extending over said wings, means for rotatably supporting said ceiling and wings, a pivotal connection between said ceiling and a point in the upper exterior edge of each door, an arc-shaped track or groove fixed to the ceiling for each wing, and a traveling connection between the upper edge of each wing and the corresponding groove or rail, substantially as described.

588,889. PORTABLE FIRE-ESCAPE. WILLIAM R. WARNER, Louisville, Ky. Filed May 11, 1897. Serial No. 636,018. (No model.)



Claim.—1. In a fire-escape, the combination with two frames pivoted together and provided with cooperating friction-rollers, of jointed levers connected to the lower ends of said frame and provided with notches to engage the bolts of the opposite frames, a tape extending between said rollers, and a sling or strap adapted to be connected to the outer free ends of said jointed levers, substantially as set forth.

2. In a fire-escape, the combination with two frames pivoted together and provided with cooperating friction-rollers, of jointed levers connected to the lower ends of said frame, and provided with notches to engage the bolts of the opposite frames, a tape extending between said rollers, and a sling or strap adapted to be connected to the outer free ends of said jointed levers, the edges of said levers being provided with graduated notches, substantially as set forth.

3. In a fire-escape, the combination with two frames pivoted together and provided with cooperating friction-rollers, of jointed levers connected to the lower ends of said frame, and provided with notches to engage the bolts of the opposite frames, a tape extending between said rollers, a sling or strap adapted to be connected to the outer free ends of said jointed levers, and a rack-bar pivoted to one of said frames and projecting across and supported upon the lug extending from the other frame, a wheel engaging said rack, and a crank for rotating said wheel to spread or draw together the sections of the frame, substantially as set forth.

588,890. INCANDESCENT-ELECTRIC-LAMP SUPPORT. ERNEST L. P. WETMORE, Marquette, Mich., assignor of one-half to George Barnes and Edwin A. Wetmore, same place. Filed Mar. 13, 1896. Renewed Mar. 27, 1897. Serial No. 629,577. (No model.)



Claim.—1. The combination with suspended metal tracks and circuit-wires connected thereto, of a carriage movable on said tracks comprising a non-conducting body, having a series of holes or openings therein, metallic side plates, screws holding the same to said body, nuts on said screws located in said holes or openings, wheels connected to said sides and engaging said tracks, the plates on said body in electric connection with said side plates, the lamp, and the flexible wires thereof connected to said plates, substantially as set forth.

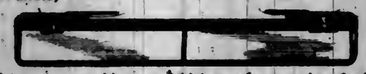
2. The combination with the suspended tracks, of a carriage movable on said tracks comprising a non-conducting body having a central hole or opening, metallic side plates attached to said body and having short hubs, grooved wheels on said hubs, metallic plates on said body, wires connecting said latter plates to said side plates, and the lamp having its flexible wires connected at their upper ends to said metallic plates, substantially as set forth.

3. The combination with suspended tracks, of a carriage comprising a non-conducting body having a central hole or opening and a series of holes or openings, metallic side plates having short hubs, screws holding said side plates to said body, nuts on said screws located in said series of holes or openings, grooved wheels on said hubs, metallic plates on said body, having posts at their ends, fuse-wires connected to two of said posts and to said side plates, the lamp, and

the flexible wires thereof leading through said central hole or opening of said body and connected to the other posts of said metallic plates, substantially as set forth.

588,891. WITHDRAWN.

588,892. MAILING-ENVELOP AND PACKING-CASE. JOHN F. WILHELM, New York, N. Y. Filed Oct. 26, 1896. Serial No. 610,149. (No model.)



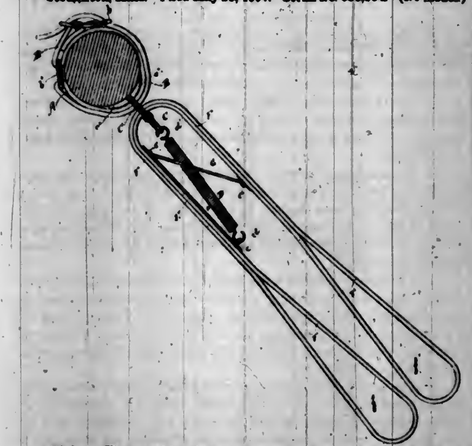
Claim.—1. A packing-case which may be opened perfectly flat; in combination with folding flaps and a fastening-post within the plane of the outside of the casing, substantially as described.

2. A packing-case provided with flaps which may be straightened out flat: in combination with fastening-posts, smooth on the outside and within the line of the plane of the outside of the case and adapted to receive a cable, substantially as described.

3. A packing-case of the character described, provided with flaps which may be straightened out flat, and posts secured to the flaps and a crossed cable having ends adapted to be wrapped around a fastening-post, leaving a smooth package which may be put in with a lot of other packages and removed from them without disturbing adjacent packages, substantially as and for the purposes specified.

4. A packing-case consisting of a main body portion provided with flaps adapted to be folded one or more of the flaps having a fastening-post and one or more of the adjacent flaps having holes adapted to register with and receive said posts substantially as described whereby they may be folded to leave but one of the outer edges of one of the flaps exposed as set forth.

588,893. CAR STRAP OR HANDHOLD. FRANCIS E. BENTON, Stoughton, Mass. Filed May 28, 1897. Serial No. 638,554. (No model.)

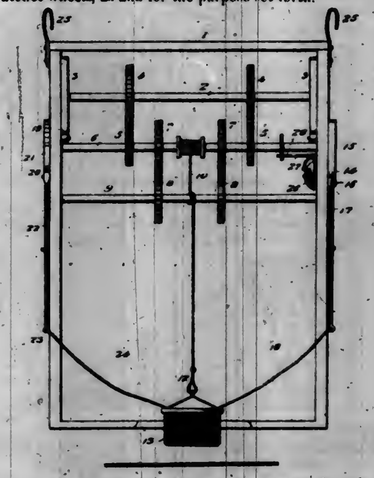


Claim.—The combination with a car-rod A and strap B, of the metallic frame C having the loop *e*, eye *e'* and bearings *e²*, the coil-spring D having the end hooks *d d'*, the plate E having the hole *c* and bearing *c'*, the strap F having a loop *f* and the loop G, the latter arranged to turn in bearings *e' e²*, substantially as shown and described.

588,894. PORTABLE AUTOMATIC FIRE-ESCAPE. JAMES H. BRYAN, Hutchinson, Kans. Filed Mar. 16, 1897. Serial No. 627,741. (No model.)

Claim.—1. A portable automatic fire-escape, comprising the frame 1, the parallel shafts 2, 6 and 9, journaled in said frame, the springs 3 3 fixed on said shaft and having their outer ends secured to the frame, the gear-wheels 4 4 fixed on said shaft, the gear-wheels 5 5 and 7 7 fixed on the shaft 6, the former wheels meshing with the gears 4 4 on the shaft 2 and the latter with corresponding gear-wheels 8 8 on the shaft 9, in combination with the cable 10 having its upper end fixed to and passing several times around the shaft 6 and its depending end encompassing the shaft 9 and provided with the snap-hook 12, and the cage or basket 13 detachably secured to said hook, substantially as shown and described.

2. A portable automatic fire-escape comprising the frame 1, the parallel shafts journaled therein, a series of gear-wheels fixed on said shafts, a rope secured to one of said shafts, a brake-wheel and a ratchet-wheel fixed to the same shaft, and means substantially as described for controlling said shaft through the medium of said brake and ratchet-wheels, as and for the purpose set forth.



588,895. GRIPPER FOR JOB-PRINTING PRESSES. BERA CAMPBELL, Dayton, Wash. Filed May 25, 1896. Serial No. 592,976. (No model.)



Claim.—In a paper-gripper for printing-presses, the combination with a frame, of separate screws journaled in said frame having oppositely-inclined screw-threads, both of said screws carrying clutch members, and one of the screws being adapted for longitudinal movement whereby the clutch members can be thrown either into or out of engagement, a catch adapted to connect with the movable screw, and gripping-fingers, one being operated by one screw and the other by the other screw.

588,896. WIRE FENCE. CYRUS C. CARTER, Neelyville, Ill. Filed Nov. 17, 1896. Serial No. 612,412. (No model.)



Claim. In a fence of the character described, the combination of a series of horizontal strands of wire, a series of vertical wires each having a flat double loop at the point of crossing a horizontal strand, the vertical wires, with their loops, being arranged wholly on one side of the horizontal strands, and a tying-wire attached to the cross-piece of each double loop and twisted around itself, the ends of said tying-wire being then twisted around the horizontal strand on opposite sides of, and away from, the vertical wire, substantially as set forth.

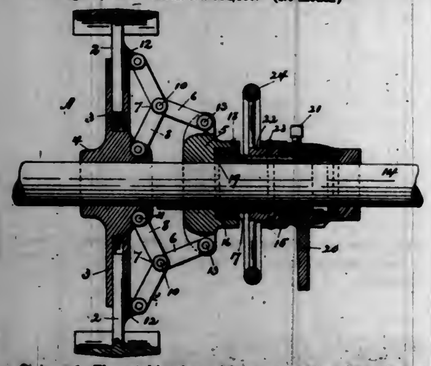
588,897. GARDEN-HOSE REEL. JUDSON P. CAMELMAN, Nebraska City, Nebr. Filed July 2, 1895. Serial No. 554,757. (No model.)

Claim.—In a hose-reel, the combination with a reel-frame, an axle secured in said frame against rotation, and ground-wheels revolubly mounted on said axle, of a drum revolubly mounted on said axle, and designed to have coiled thereon a length of hose, radial guard-arms at one end of said drum, spring-clips carried by said radial arms, and designed to receive and retain the first coil of the hose carrying the hose-nozzle, an auxiliary spring-clip on one of said arms, in which to secure the hose-nozzle, a sprocket-wheel mounted on a shaft, journaled in the frame near the handle-bar, the crank-

handle secured to said shaft and the sprocket-wheel secured to the drum and connected with the first-named sprocket-wheel by a sprocket-chain, substantially as described.



588,898. EXPANSIBLE PULLEY. FREDERICK I. DANA, Providence, R. I., assignor to the Thomas Phillips Company, same place. Filed Aug. 27, 1896. Serial No. 604,105. (No model.)



Claim.—1. The combination, with an expansible pulley, of means for varying the diameter of said pulley comprising a screw-threaded member normally stationary relative to said pulley, and a non-rotatable screw-threaded member operated by said former member, substantially as described.

2. The combination, with an expansible pulley, of means for varying the diameter of said pulley comprising a slide, a non-rotatable screw-threaded member for operating said slide, and a rotatable nut normally stationary relative to said pulley for operating said screw-threaded member, substantially as described.

3. The combination, with an expansible pulley, of means for varying the diameter of said pulley comprising a slide, a non-rotatable screw-threaded sleeve for operating said slide, and a rotatable nut normally stationary relative to said pulley for operating said slide, substantially as described.

4. The combination, with an expansible pulley comprising radially-movable sections, of toggles connected to said sections, a slide for operating said toggles, a non-rotatable screw-threaded sleeve connected with said slide, and a rotatable nut normally stationary relative to said pulley engaging said sleeve, substantially as described.

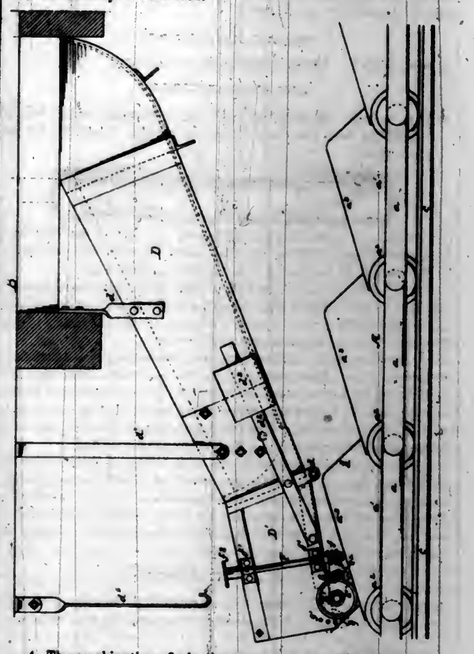
5. The combination, with a pulley provided with radially-movable sections, of toggles connected with said sections and said pulley, a slide, links connected with said slide and said toggles, a non-rotatable screw-threaded member for operating said slide, and a rotatable nut normally stationary relative to said pulley for operating said screw-threaded member, substantially as described.

588,899. AUTOMATIC FEED-SPOUT FOR CONVEYERS. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed Mar. 26, 1897. Serial No. 629,413. (No model.)

Claim.—1. The combination of a conveyer, a chute for charging the conveyer, with means for operating the chute as the conveyer passes thereunder so that the conveyer will be intermittently charged with material from the chute, with mechanism for adjusting the chute to regulate the flow of the material, substantially as described.

2. The combination of a conveyer, a chute made in two sections pivoted together, means for operating the chute as the conveyer passes thereunder, so that the conveyer will be intermittently charged with material from the chute, with adjusting mechanism for changing the relation of one section of the chute to the other, substantially as described.

3. The combination of a bucket conveyer, a chute, said chute being acted upon by the conveyer to intermittently charge the buckets, with means for adjusting the chute to regulate the flow of material, substantially as described.



4. The combination of a bucket conveyer, cams thereon, a chute made in two sections, wheels carried by the chute and resting upon the cams on the conveyer, and means for adjusting the chute to regulate the flow of material, substantially as described.

5. The combination of a conveyer, a spout having a pivoted end section, bearing-wheels carried by the pivoted section and resting upon the conveyer, with means for adjusting the wheels, substantially as described.

6. The combination of a conveyer, buckets thereon having edges in the form of cams, a spout having a pivoted end section, wheels carried by the pivoted section and adapted to rest upon the cam edges of the buckets and means for adjusting the wheels so as to increase or diminish the flow of material through the spout, substantially as described.

7. The combination of a conveyer, buckets thereon having cam-shaped edges, a spout having a pivoted section, wheels carried by the section and resting upon the cam edges of the conveyer-buckets, a pivoted bottom plate at the outer end of the pivoted section and means for securing the pivoted bottom plate in its adjusted position, substantially as described.

8. The combination of a conveyer, buckets thereon having cam-shaped edges, a spout having a pivoted section, a counterbalance on the section extending beyond the pivot, wheels resting upon the cam edges of the bucket and means for adjusting the wheels so as to regulate the flow of material through the spout, substantially as described.

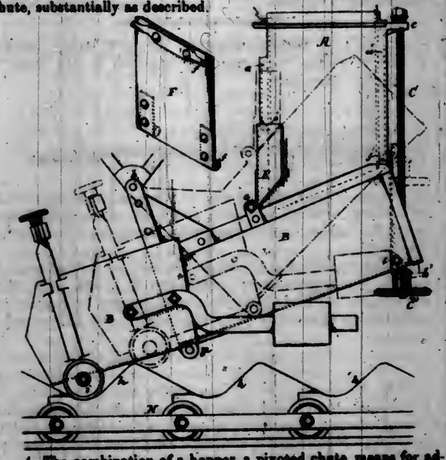
9. The combination of a conveyer, buckets thereon having cam edges, a spout, a section pivoted to the spout and forming a continuation thereof, an arm E pivoted to the said section and carrying a wheel adapted to bear upon the cam edges of the buckets, a toothed segment on the arm, a regulating-shaft, a worm thereon engaging with the segment, substantially as described.

588,900. CHUTE FOR FEEDING CONVEYERS. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed June 3, 1897. Serial No. 639,195. (No model.)

Claim.—1. The combination of a hopper, a chute pivoted at its forward end, and adapted to receive material from the hopper, with adjusting means at the rear of the hopper for changing the incline of the chute, substantially as described.

2. The combination of a hopper, a pivoted chute, a suspended screw, a handled nut on the screw bearing against one end of the chute and by which the chute is adjusted, substantially as described.

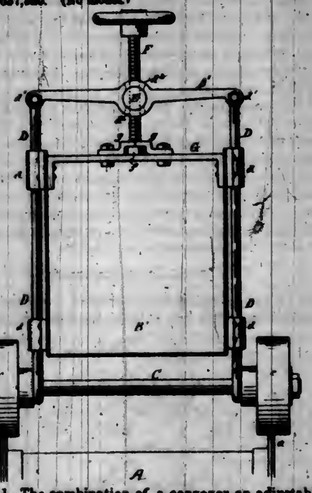
3. The combination of the hopper, the pivoted chute, means for adjusting the chute, and a back plate movable with the chute and adapted to close the back of the hopper on the adjustment of the chute, substantially as described.



4. The combination of a hopper, a pivoted chute, means for adjusting the chute, a movable front plate and a movable back plate under the control of the chute so that they will move with it when it is adjusted, substantially as described.

5. The combination of a hopper, a pivoted chute, means for adjusting the chute to change its angle, a pivoted section on the end of the chute, means for adjusting this section in respect to the chute, with a conveyer adapted to travel under the chute and actuate the pivoted end section of the chute so that it will intermittently feed material to the conveyer, substantially as described.

588,901. ADJUSTING MECHANISM FOR FEED-CHUTES FOR CONVEYERS. ERNE DODGE, Philadelphia, Pa. Filed May 24, 1897. Serial No. 637,986. (No model.)



Claim.—1. The combination of a conveyer, an adjustable chute therefor, a shaft carrying bearing devices, with a screw for adjusting the shaft in respect to the chute, and means connecting the shaft with the screw on each side of the chute, substantially as described.

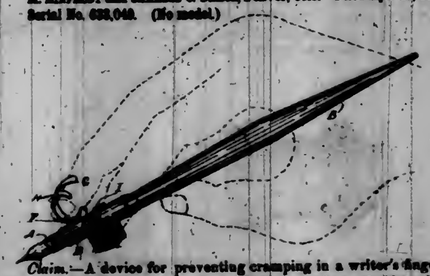
2. The combination of a conveyer, a chute, a shaft, wheels thereon, a cross-head and rods connected thereto carrying the shaft, with means for adjusting the cross-head, substantially as described.

3. The combination of a conveyer, a chute, two rods carried by the chute, a shaft adapted to a bearing in the lower end of each rod, bearing devices on the shaft adapted to rest upon the edges of the buckets of the conveyer, a cross-head coupled to the two rods, a cylindrical nut mounted in the cross-head, and a screw adapted to pass through the nut so that on turning the screw the nut and its connected mechanism will be raised or lowered, substantially as described.

4. The combination of a bucket conveyer having cam-shaped edges, a pivoted chute, rods on each side of the chute, a cross-head pivoted to the rods and having a socket, a cylindrical nut adapted to the socket so that the cross-head will swing thereon, an adjusting-screw adapted to pass through slots in the cross-head, and through the nut, a cross-bar on the chute to which the shaft is held, a shaft carried by the lower end of each rod, wheels on said shaft which rest upon the edges of the conveyer-bucket, substantially as described.

5. The combination of a conveyer, a pivoted shaft, wheels thereon, a chute, a cross-head pivoted to the chute, rods connecting the cross-head with the shaft at each side of the chute, substantially as described.

588,902. DEVICE FOR PREVENTING WRITERS' CRAMP. CHAS. M. REINFLDT and CHARLES C. BRAUN, Denver, Colo. Filed Apr. 30, 1897. Serial No. 633,049. (No model.)



Claim.—A device for preventing cramping in a writer's fingers comprising a split sleeve adapted to slidably fit the penholder adjacent to the pen, a yoke-shaped loop pivotally supported to the side of said sleeve and adapted to receive and support the end of the writer's middle finger, a split clamping-ring on said sleeve, means for operating the same, and a plate pivotally secured to said ring and adapted to receive and support the index-finger of the writer, substantially as described.

2. The combination with the penholder, of the split sleeve, the oscillating yoke pivoted to said sleeve, the clamping-ring surrounding said split sleeve and the oscillating plate attached to said clamping-ring, substantially as described.

3. The combination with the penholder of the split sleeve, the split clamping-ring, the thumb-nut and a plate pivotally attached to said ring and adapted with it to be adjusted circumferentially and longitudinally on said sleeve, and adapted to receive and support the index-finger of an operator's hand, substantially as described.

4. The combination with the penholder, of a split sleeve slidably fitted thereto with an inherent elastic pressure, a narrow, yoke-shaped loop having its outer end twisted spirally to encircle the end of a writer's middle finger and a second projecting end on said yoke adapted to curve over said writer's finger at or near its end, substantially as described.

5. The combination of the split sleeve with the yoke-shaped loop, the split clamping-ring mounted on said split sleeve, the thumb-nut operatively attached to said clamping-ring to tighten or loosen said ring on said sleeve and the index-finger plate attached to said clamping-ring having a covering of rubber or cork, substantially as described.

6. The combination with the penholder, of a split sleeve adapted to slidably fit said penholder, with the yoke-shaped loop adapted to receive the middle finger of an operator and pivotally attached to said sleeve to oscillate under the impulse of an operator's finger independent of said penholder, a split clamping-ring on said sleeve, a thumb-screw operatively arranged therein to loosen or tighten said ring on said sleeve and to clamp said sleeve in an adjusted position on said penholder, and with a plate adapted to receive and support the index-finger of an operator, having a concaved or cupped surface, a depending stem to said plate, and means for pivotally securing the free end of said stem to said clamping-ring, whereby said plate may be oscillated by the impulse of the operator's finger, substantially as described.

7. The combination with the penholder, of the split sleeve mounted thereon adjacent to the pen-holding end of said penholder, the oscillating yoke pivotally secured to the side thereof, the split clamping-ring surrounding said split sleeve and a plate secured to said clamping-ring adapted to receive and support the index-finger of an operator, substantially as described.

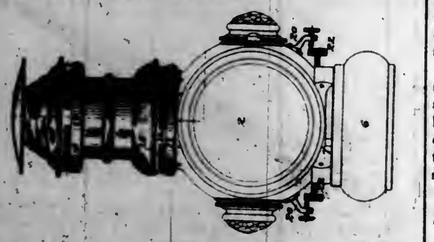
588,903. ROPE-FASTENER. WILLIAM T. GILLIS, Jersey City, N. J. Filed Aug. 20, 1896. Serial No. 602,964. (No model.)

Claim.—The herein-described fastening device, for connecting the ends of a line or cable, which consists of a head provided with a hinged or pivoted jaw, which is adapted to be bolted to said head,

said jaw and said head being provided with a central longitudinal circular opening, adapted to receive one end of the line, and provided with inwardly and backwardly directed teeth or projections, and said head being also provided at one end with a shank in which is formed an opening through which the opposite end of the line is adapted to be passed, and with hooks or projections formed on said shank adjacent to said head, through which said line is also adapted to be passed, substantially as shown and described.



588,904. BICYCLE-LAMP. WILLIAM S. HAHN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Feb. 2, 1897. Serial No. 621,650. (No model.)



Claim.—1. In a lamp or lantern, the combination of an outer case or body, a cap surmounting the same having two series of air-inlets in different horizontal planes and an outlet above the inlets, wind-cones within the cap, one being arranged in proximity to each series of inlets to positively deflect the entering air in opposite directions, and a chimney within the body extending into the cap above the wind-cones, substantially as described.

2. In a lamp or lantern, the combination of an outer case or body, a cap surmounting the same having two sets of air-inlets in different horizontal planes and an outlet above the inlets, a downwardly-deflecting wind-cone within the cap near the lower air-inlets, an upwardly-deflecting wind-cone within the cap near the upper air-inlet, and a chimney within the body extending into the cap to a point above the air-inlets, substantially as shown and described.

3. In a lamp or lantern, the combination of an outer case or body, a burner, a detachable cap surmounting the body above the burner having two sets of air-inlets and an outlet, the said inlets and outlet being in different horizontal planes, wind-cones near the inlets for deflecting in opposite directions the incoming air, and a chimney extending from the burner into the cap above the highest wind-cone, substantially as described.

4. In a lamp or lantern, the combination of a burner, a chimney, a casing surrounding the burner and chimney with an uninterrupted air-space between the said casing and chimney, two or more air-inlets and an outlet being formed in the casing in different horizontal planes, the said openings being above the burner and in communication with the said air space, and wind-cones adapted to deflect the entering air in opposite directions, substantially as shown and described.

5. In a lamp or lantern, in combination with the body, a burner attached thereto, a wick-raiser extending through the body, turn-buttons on each end of the wick-raiser, a bracket secured to each side of the body, and a set-screw in each bracket adapted to engage with its own turn-button, substantially as set forth.

588,905. ACTIVE MATERIAL FOR ELECTRODES OF ELECTRIC ACCUMULATORS. SIEGFRIED HANNACHER, Berlin, Germany. Filed Aug. 28, 1896. Serial No. 604,215. (Specimens.)

Claim.—1. The herein-described active material containing a compound of lead oxid and a member of the pyridin series, substantially as set forth.

2. The herein-described active material containing a compound of hydroxid of lead and a member of the pyridin series, substantially as set forth.

3. The process of producing the herein-described active material by reacting with a lead oxid upon a member of the pyridin series in presence of water, substantially as set forth.

4. In the process of producing the herein-described active material, reacting with a lead oxid upon a member of the pyridin series in presence of water, by admixture and conversion of the materials into a plastic mass, reducing the latter to the desired form for use as electrodes, and, after drying forming the same in the usual manner, substantially as set forth.

588,906. MONKEY-WRENCH. CHARLES H. HARVEY and MARNER D. ARCHER, Philadelphia, Pa. Filed Feb. 3, 1897. Serial No. 621,796. (No model.)



Claim.—1. In a monkey-wrench a sliding jaw fitting around a hollow shank or handle and having an internal core or shoulder fitted to and bearing upon the interior walls of the shank, substantially as described.

2. The combination in a monkey-wrench of a hollow shank and a sliding jaw formed to have a bearing on the outside of the shank and also on the inside of it, the core of the jaw being perforated and interiorly threaded to fit the longitudinal screw, substantially as set forth.

3. In a monkey-wrench the combination of a hollow handle or shank with a horseshoe-shaped channel, a close-fitting shell with a shoulder fitting the hollow of the handle, and a rod running the length of the head and handle and threaded for the length of the channel, and a cap roughened or burred on the outside and fitted on the inside to engage and hold fast the end of the rod or screw, substantially as described.

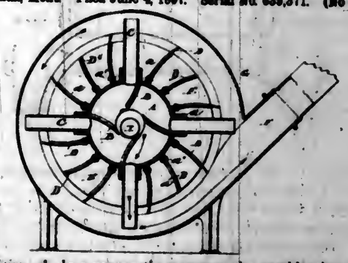
588,907. KNEE-PROTECTOR. ALFRED HERDELIN, Waco, Tex., assignor of one-half to Alexander Ferdinand Girard, same place. Filed Jan. 22, 1897. Serial No. 620,264. (No model.)



Claim.—1. In a leg-protector, the combination with the leg portion A, having an extension at the top thereof reaching to the waist of the wearer, and a belt passing through the said extension and supporting the said leg portion, and a plurality of buttons secured upon the outside of the front of the said leg portion; of a flexible reinforcement provided with a plurality of holes adapted to engage the said buttons; a concavo-convex casing secured to the said flexible reinforcement, and a padding filling the concavity of said casing substantially as described.

2. In a leg-protector, the combination with the leg portion A, having an extension at the top thereof reaching to the waist of the wearer, and a belt passing through the said extension and supporting the said leg portion, and a plurality of buttons secured upon the outside of the front of the said leg portion; of a flexible reinforcement provided with a plurality of holes adapted to engage the said buttons; a concavo-convex block, of unyielding material, secured to the said flexible reinforcement, and a padding in the concave portion of the said block, substantially as described.

588,908. PNEUMATIC CONVEYER. ARTHUR P. HESLOP, Anaconda, Mont. Filed June 4, 1897. Serial No. 639,371. (No model.)



Claim.—1. In a pneumatic conveyer, the combination with the casing having inlet for air, and a discharge-pipe leading therefrom, of a hollow hub rotatably mounted in said casing and fan-blades projecting therefrom, said hub being divided into a plurality of chambers, a discharge-pipe extending outwardly from each of said chambers and a feed-pipe for delivering material into the hollow hub, substantially as described.

2. In a pneumatic conveyer, the combination with a casing, an air-inlet therefor, a discharge-pipe leading from said casing, of a hollow hub rotatably mounted in said casing and divided into a plurality of chambers, means for creating a blast of air in said casing, and means for feeding material to said chambers, discharge-pipes leading from said chambers adapted to deliver material from said chambers into the path of a blast of air as it moves toward the discharge-pipe of the casing, substantially as described.

3. In a pneumatic conveyer for granular material, the combination with the casing provided with inlets for air and a discharge-pipe leading from the casing, of a hollow hub rotatably mounted in said casing, fan-blades projecting from said hub and a discharge pipe or pipes extending outwardly from said hub and terminating outside of the ends of the fan-blades, adapted to discharge the material from the hub into the path of the blast of air passing to the discharge-pipe, substantially as described.

4. In a pneumatic conveyer, the combination with the casing provided with air-inlet and a discharge pipe or passage leading from the said casing, of a hollow hub rotatably mounted in said casing, means for feeding material to said hub, fan-blades projecting from said hub, annular plates confining said blades between them, a discharge pipe or pipes extending from said hub, and terminating beyond the ends of the fan-blades and adapted to discharge the material from the hub into the blast of air passing to the discharge-pipe of the casing, substantially as described.

5. In a pneumatic conveyer, the combination with the casing provided with air-inlet, and a discharge-pipe leading from the casing, of a hollow hub rotatably mounted in said casing, and means for feeding material to said hub, a discharge pipe or pipes extending outwardly from said hub, fan-blades extending outwardly from said casing, some of the blades extending beyond other blades, said discharge-pipes terminating beyond the ends of the fan-blades, and adapted to discharge material from the hub into the path of the blast of air passing through the discharge-pipe of the casing, substantially as described.

6. In a pneumatic conveyer, the combination with the casing provided with air-inlet and a discharge pipe or passage leading from said casing, a hollow hub rotatably mounted in said casing, fan-blades projecting from said hub, discharge pipe or pipes extending from the hub and adapted to discharge the material into the path of the blast of air passing to the discharge-pipe of the casing, substantially as described.

7. In a pneumatic conveyer, the combination with the casing provided with a central inlet for air and a discharge-pipe leading from said casing, of a hollow hub rotatably mounted in said casing, means for delivering the material to said hub, and a plurality of partitions dividing the hub into a plurality of chambers, fan-blades projecting from the hub for creating a blast of air, and discharge-pipes extending outward from the hub, having their outer ends curved in the opposite direction to the motion of rotation, substantially as described.

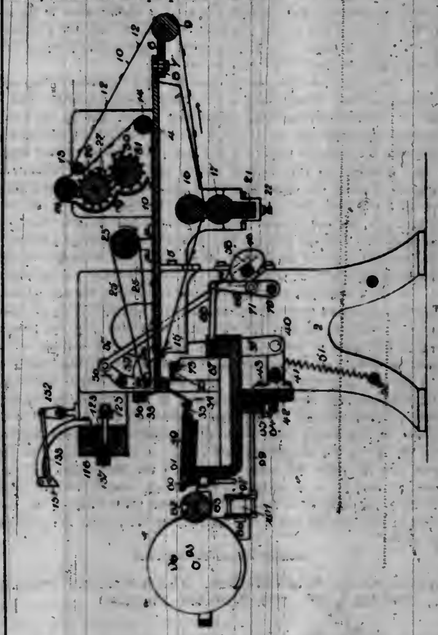
8. In a pneumatic conveyer, the combination with the casing provided with air-inlet and a discharge leading from said casing, of a hollow hub rotatably mounted in said casing, means for feeding material to said hub, means for creating a blast of air in said casing and a discharge pipe or pipes extending outwardly from the hub, said pipe or pipes having their outer ends curved, substantially as described.

9. In a pneumatic conveyer, the combination with the casing provided with air-inlet, and a discharge-pipe leading from the casing, of a hollow hub having discharge pipe or pipes extending outwardly therefrom, fan-blades mounted on said hub and annular plates to which said blades are secured, provided with annular flanges running in contact with the inner face of the casing, substantially as described.

588,909. CIGARETTE-MACHINE. GEORGE H. HILGARTNER, Richmond, Va., assignor of one-half to William Henry Walker, same place. Filed Mar. 25, 1896. Serial No. 584,869. (No model.)

Claim.—1. A machine for making cigarettes, comprising an endless feed-belt, a series of picking-rollers located in the path of said belt, an endless compacting-belt located at an inclination above said feed-belt, a cutter-blade crossing the path of the tobacco, which abuts against said blade while it is being pressed by the feed and compacting belts, a pair of vertically-reciprocating arms carrying said cutter-blade and mounted in guide-brackets secured to the bed-plate, a transverse rod connecting the lower ends of said arms, a pair of levers having their free ends hinged to said transverse rod, and fulcrumed on a rock-shaft, a vertical lever likewise fulcrumed on said shaft, a connecting-rod, one end of which is pivoted to the free end of said vertical lever and having a friction-roller secured to one side of its opposite forked end, and a cam fixed on a driving-shaft and adapted to engage said forked end to impart an intermittent vertical reciprocating movement to said cutter-blade, substantially as and for the purpose set forth.

2. A machine for making cigarettes, comprising an endless feed-belt, an endless compacting-belt located at an inclination above said feed-belt, a series of picking-rollers located in the path of the feed-belt, a cutter-blade crossing the path of the tobacco, which abuts against said blade while it is being pressed by the feed and compacting belts, and means substantially as described for operating the same, in combination with a cigarette-rolling table, a rod mounted in the lower ends of a pair of oscillating levers fulcrumed in the frame of the machine, a roller-apron, one end of which is secured to said table and the other to the rod, a reciprocating carriage, a lever fulcrumed in the frame, a connecting-rod connecting the free end of said lever with said carriage, a cam mounted on the driving-shaft, and in operative contact with said lever, the cigarette-rolling head of said carriage being formed with a recess adapted to engage a pocket in said roller-apron containing a charge of tobacco, and form the same into a roll during its passage across the cigarette-rolling table, as and for the purpose set forth.



3. A machine for making cigarettes, comprising a cigarette-rolling table, a pair of oscillating levers, a rod mounted in said levers, a rolling-apron connected at one end to the cigarette-rolling table and the other end to the rod, a reciprocating carriage having a cigarette-rolling head formed with a recess, plungers, a retractile spring located at each end of said recess in said head, and a pair of stationary converging rails located in the path of said head, as and for the purpose set forth.

4. In a cigarette-making machine, the combination with the conveying-cylinder, the rotating cutters and the conveyer-belt located in a frame immediately below said cylinder, a series of circumferentially-grooved feed-rollers journaled in said frame, and an arm against which one end of the finished cigarette abuts, of an upwardly-inclined elevator-belt provided with fingers adapted to take the finished cigarette from the feed-rollers, substantially as and for the purpose set forth.

5. In a cigarette-making machine, the cigarette forming and rolling devices substantially as described, in combination with a pair of continuously-operated feed-rollers, having oppositely-arranged cut-away portions, an intermittently-operated paste-wheel, adapted to travel to and from the paper, a traveling carriage having a stationary jaw and a movable finger adapted to clamp the paper against said jaw, and a paper-cutting device located between the paste-wheel and the clamping-finger, and adapted to sever a section of the pasted paper, as and for the purpose set forth.

6. In a cigarette-machine, the endless feed-belt provided with cross-strips, the stationary rollers and the adjustable tension-roller upon which said feed-belt is mounted, in combination with the compacting-belt mounted on rollers at an inclination to said endless feed-belt, the picking-rollers located in the path of the feed-belt, the cutter-blade crossing the path of the tobacco which abuts against said

blade while it is being fed forward, the vertical reciprocating arms on which said blade is mounted, the driving-shaft and the cam mounted on said driving-shaft and adapted to intermittently operate said arms and cutter-blade, as and for the purpose set forth.

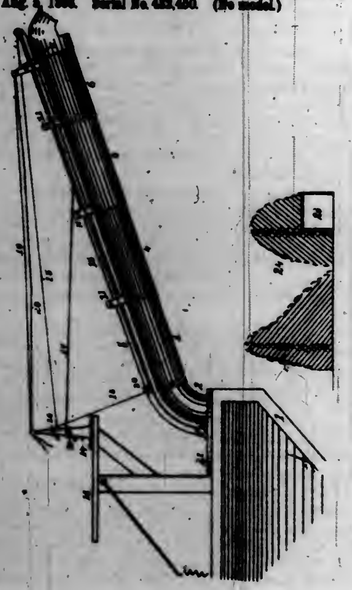
7. In a cigarette-making machine, a cigarette-forming device, consisting of the rolling-table 59, the apron 35, the oscillating arms 54, the rod 53 mounted in said arms, in combination with the carriage 67, the cigarette-rolling head 73, formed with a recess 75, spring-actuated plungers located in said cigarette-rolling head at each end of said recess, and a pair of inwardly-converging rails located in the path of said plungers, as and for the purpose set forth.

8. In a cigarette-machine having cigarette rolling, wrapping and trimming devices, substantially as described, the combination with the frame 101 extending at a right angle to the delivery end of the machine proper, the endless chain 97 mounted in said frame, the series of grooved rollers 105 journaled in the outer end of said frame, the inclined frame 109 located at a right angle to the frame 101 and extending upwardly and forwardly to a point within reach of the attendant at the front of the machine, the endless belt 110 provided with a series of fingers 114 and mounted in said inclined frame 109, substantially as and for the purpose set forth.

9. In a cigarette-making machine having a cigarette rolling and wrapping device substantially as described, the combination with a pair of continuously-operated paper-feed rollers having cut-away portions, the shaft 169, the arm 172, the paste-wheel 191 mounted in said arm, the pressure-finger 179 and arm 178 mounted on said shaft, a cam mounted on the shaft of one of said paper-feed rollers and adapted to cause the paste-wheel and pressure-finger to alternately travel to and from the paper, of the traveling carriage 120, the stationary jaw 144 and pivoted finger 145 mounted on said carriage, the lever 127, and the pitman 125 connecting said carriage and lever, the cam 130, and the shaft 99 on which said cam is mounted, and means substantially as described for operating the same, as set forth.

10. In a cigarette-making machine comprising the pair of continuously-operated feed-rollers, the paste-receptacle having an opening in its bottom, the arm 172, the paste-roller 191 mounted in said arm and adapted to travel from the opening in the bottom of the paste-receptacle to the paper on the bed of the machine, the arm 178 and the pressure-finger 179, the shaft 169 on which said arms and pressure-finger are mounted, a pair of feed-rollers having cut-away portions, the cam 181 mounted on the shaft of one of said feed-rollers, the stationary shear-blade 200, the blade 201 pivoted thereto, and the spring 203 connecting said blades, in combination with the lever 206, the roller 205 mounted in said lever, the pitman 208 connected to said lever, a counter-shaft and a cam mounted on said counter-shaft and adapted to operate the pivoted blade through the medium of said pitman and lever, substantially as and for the purpose set forth.

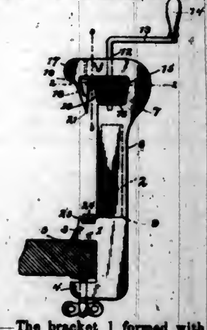
588,910. STRAW-STACKER. WILLIAM A. HIMELE, Forsyth, Ill. Filed Aug. 5, 1896. Serial No. 602,460. (No model.)



Claim.—1. A conveyer for pneumatic straw-stackers comprising a track or guideway, a telescopic conveyer-tube the sections of which are each carried by the track, a pulley at each end of the track, and a line connected by both ends with the outer section of the conveyer-tube, extended around the pulleys and carried to the vicinity of the thresher, substantially as set forth.

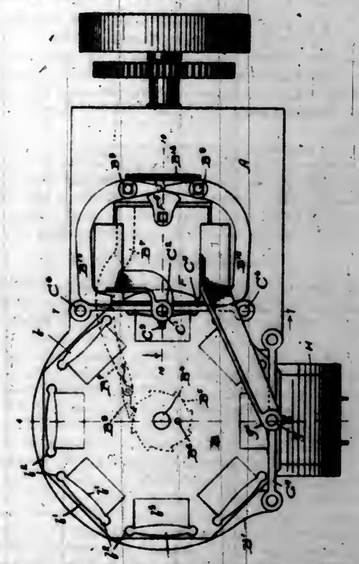
2. A conveyer for pneumatic straw-stackers, comprising a track, a support therefor, telescopic tube-sections, means for supporting one of said sections slidably on the track, a flexible connection attached at both ends to the slidable tube, and means for operating said flexible connection so as to vary the length of the telescopic conveyer.

588,911. CAN-OPENER. FRANK HOYT, Petoskey, Mich. Filed Mar. 22, 1897. Serial No. 628,736. (No model.)



Claim.—The bracket 1 formed with the integral rectangular standard 2 and the horizontal parallel jaws 3 and 4, the bearing-roller 24 journaled in said arm 3, and the thumb-screw 6, in combination with the vertical carriage 7, formed with the vertical rectangular recess 9, adapted to encompass said standard and having the horizontal recess 10, formed in its upper end, and provided with an integral depending arm 17, having a recess 18, a conical guide-roller 19, mounted in said recess, diverging knife-blades 21 22 fixed to the inner face of said arm, and the vertical crank-shaft 12, journaled in the upper end of said carriage, the fluted conical feed-roller 15 secured upon said shaft, rotating in said recess 10, substantially as and for the purpose set forth.

588,912. CIGAR-BUNCHING MACHINE. HERBERT JOHNSON, Chicago, Ill., assignor to Herbert A. Streeter, same place. Filed Dec. 19, 1896. Serial No. 616,266. (No model.)



Claim.—1. In a cigar-bunching machine, the combination with a horizontally intermittently-rotating charger plate or wheel furnished with a series of bottomless chargers, a stationary bottom plate upon which said charger plate or wheel rotates, and provided with notches at the compressing and discharging stations, a compressing-plunger, a movable sectional bottom for the chargers cooperating with the compressing-plunger, a movable knife and opposing knife-block, a discharging-plunger, an up-and-down movable bunch-rolling table, an apron, and a bunching-roller and means for moving the bunch-rolling table up and down, all combined and cooperating substantially as specified.

2. In a cigar-bunch machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers open at top and bottom, with a compressing-plunger cooperating in turn with each of the chargers, a movable bottom cooperating with the compressing-plunger and against which the tobacco is compressed, a knife for severing the surplus tobacco from the charge, a discharging-plunger, and a table, apron and bunching-roller for receiving the charge and wrapping the binder around the same when delivered from each successive charger by the discharging-plunger, substantially as specified.

3. In a bunching-machine, the combination with intermittently-rotary charge-plate B furnished with a series of chargers b having oppositely-curved walls b' b', provided with enlargements b^2 at each end of the charger, and having inclined or dished part b^3, with a bottom plate B', substantially as specified.

4. In a cigar-bunch machine, the combination with a charger-plate having a charger furnished with opposing outwardly-curved walls b' and enlarged circular ends b^2, substantially as specified.

5. In a cigar-bunch machine, the combination with a charger-plate having a charger furnished with opposing outwardly-curved walls b' and enlarged circular ends b^2, and said plate having an inclined or dished part b^3 leading to the charger, substantially as specified.

6. In a cigar-bunch machine, the combination with a bottom plate and an intermittently-rotating charger-plate furnished with a series of chargers, of a compressing-plunger, a movable bottom for the chargers below said charger-plate, and a knife reciprocating between said chargers and said movable bottom, and means for reciprocating said knife, substantially as specified.

7. In a cigar-bunch machine, the combination with a bottom plate and an intermittently-rotating charger-plate furnished with a series of chargers, of a compressing-plunger above said charger-plate, a movable bottom for the chargers below said charger-plate, and a knife reciprocating between said chargers and said movable bottom, said bottom being composed of independently-yielding movable sections, and means for reciprocating said knife substantially as specified.

8. In a cigar-bunch machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers, and a stationary bottom plate above which said charger-plate rotates, of a compressing-plunger above the charger-plate and operating to compress the charges in each of said chargers in turn, a movable bunch-rolling table, an apron and a bunching-roller, and a discharging-plunger above the charger-plate operating to force the compressed charge out of each charger in turn, and means for operating the movable bunch-rolling table, substantially as specified.

9. The combination with a bottomless movable charger, a bottom plate over which said charger is moved, furnished with a notch or recess to permit the discharge of the charge from the charger, a compressing-plunger operating to compress the charge in said charger, and a discharging-plunger above the notch or recess in said bottom plate, and an up-and-down movable bunch-rolling table provided with an apron and a bunching-roller below the discharging-plunger to receive the compressed charge as it is forced out of the charger, and means for operating said movable bunch-rolling table, substantially as specified.

10. The combination with a bottomless movable charger, a bottom plate over which said charger is moved, furnished with a notch or recess to permit the discharge of the charge from the charger, a compressing-plunger, a discharging-plunger and an up-and-down-movable table below said discharging-plunger provided with an apron and a bunching-roller, said table being curved, and said bunching-roller being operated by a lever pivoted concentrically with the curvature of the table, and said operating-lever and means for moving said bunch-rolling table up and down, said compressing-plunger being in advance of the discharging-plunger and operating to compress a charge in one of said chargers as the discharging-plunger forces the charge out of another charger substantially as specified.

11. In a cigar-bunch machine, the combination with a series of intermittently-movable bottomless chargers, a bottom plate upon which they move furnished with an opening, a compressing-plunger, a movable bottom for the charger, a reciprocating knife and a reciprocating opposing knife-block, substantially as specified.

12. In a bunching-machine, the combination with an intermittently-rotating charger plate or wheel B, furnished with a series of chargers, of a stationary notched bottom plate therefor, a compressing-plunger, a movable bottom for the chargers, a knife, a reciprocating slide or block to which the knife is secured, a ratchet secured to the rotating charger plate or wheel, and a pawl and pawl-arm connected to and operated by the knife-slide, substantially as specified.

13. In a bunching-machine, the combination with an intermittently-rotating charger plate or wheel B, furnished with a series of chargers, with a stationary notched bottom plate therefor, a compressing-plunger, a movable bottom for the chargers, a knife, a reciprocating slide or block to which the knife is secured, a ratchet secured to the rotating charger plate or wheel, a pawl and pawl-arm connected to and operated by the knife-slide, and a locking-lever for the charger plate or wheel operated by the knife-slide, substantially as specified.

14. In a bunching-machine, the combination with an intermittently-rotating charger plate or wheel B, furnished with a series of chargers, with a stationary notched bottom plate therefor, a compressing-plunger, a movable bottom for the chargers, a knife, a reciprocating slide or block to which the knife is secured, a ratchet secured to the rotating charger plate or wheel, a pawl and pawl-arm connected to and operated by the knife-slide, and a pair of locking-levers engaging ribs or projections on the charger plate or wheel and operated by the knife-slide, substantially as specified.

15. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers and a compressing-plunger, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, said discharging-plunger following the downward movement of the table to compress or hold the charge in position while the bunching-roller is beginning its movement around the same, said compressing-plunger cooperating with one of said chargers to compress the charge therein while the discharging-plunger cooperates with another charger to force the charge out of the same, substantially as specified.

16. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers and a compressing-plunger, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, said table being curved and a lever pivoted to said table-support and operating to swing or move the bunching-roller over the curved surface of the table, said compressing-plunger cooperating with one of said chargers to compress the charge therein while the discharging-plunger cooperates with another charger to force the charge out of the same, substantially as specified.

17. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers and a compressing-plunger, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, and a lever and cam for moving said table up and down, said compressing-plunger cooperating with one of said chargers to compress the charge therein while the discharging-plunger cooperates with another charger to force the charge out of the same, substantially as specified.

18. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers and a compressing-plunger, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, and a lever and cam for moving said table up and down, a lever upon which the bunching-roller is carried, and a lever and cam for operating said bunching-roller lever, said compressing-plunger cooperating with one of said chargers to compress the charge therein while the discharging-plunger cooperates with another charger to force the charge out of the same, substantially as specified.

19. In a bunching-machine, the combination with an intermittently-rotating charger plate or wheel furnished with a series of chargers, and a movable bottom cooperating in turn with each of the chargers, and a reciprocating knife between the charger and removable bottom, substantially as specified.

20. In a bunching-machine, the combination with a charger-plate having a charger open at top and bottom, of a reciprocating knife reciprocating across the charger and below the same, a double-stroke compressing-plunger and mechanism against which the tobacco in the charger is compressed by said compression-plunger, substantially as specified.

21. In a bunching-machine, the combination with an intermittently-rotating wheel furnished with a series of chargers, and a movable bottom cooperating in turn with each of the chargers, and a double-stroke compressing-plunger, and a reciprocating knife between the chargers and removable bottom, substantially as specified.

22. In a bunching-machine, the combination with an intermittently-rotating wheel furnished with a series of chargers, and a movable bottom cooperating in turn with each of the chargers, and a double-stroke compressing-plunger, and a reciprocating knife between said chargers and movable bottom, substantially as specified.

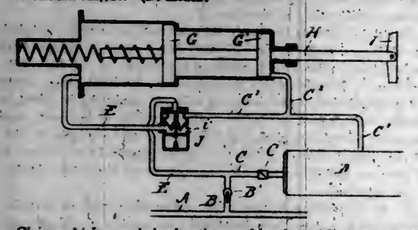
23. In a bunching-machine, the combination with an intermittently-rotating wheel furnished with a series of chargers, and a movable bottom cooperating in turn with each of the chargers, a double-stroke compressing-plunger, and a reciprocating knife between said chargers and movable bottom and an opposing movable knife-block, substantially as specified.

24. In a bunching-machine, the combination with a bottomless charger, of a compressing-plunger, a movable or yielding bottom for the charger, a knife and an opposing knife-block, the knife reciprocating between the charger and its movable bottom, and means for reciprocating said knife substantially as specified.

25. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, said table being curved and a lever pivoted to said table-support and operating to swing or move the bunching-roller over the curved surface of the table, said bunching-roller being mounted upon or carried by swinging arms pivoted to said operating-lever to enable the roller to pass over the bunch and onto the table and said swinging arms, substantially as specified.

26. In a bunching-machine, the combination with an intermittently-rotating charger-plate furnished with a series of chargers, of a discharging-plunger, an up-and-down-movable table, an apron and bunching-roller, and a lever and cam for moving said table up and down, a lever upon which the bunching-roller is carried, and a lever and cam for operating said bunching-roller lever, and swinging arms pivoted to said bunching-roller lever and upon which the bunching-roller is mounted, substantially as specified.

588,913. AIR-BRAKE. WILLIAM K. OBER, Pontiac, Mich., assignor of one-half to William Duffin, same place. Filed Nov. 30, 1896. Serial No. 613,816. (No model.)



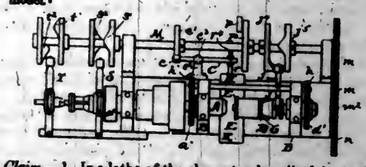
Claim.—1. In an air-brake, the combination with the train-pipe and brake-cylinder, of an auxiliary reservoir in a branch from the train-pipe, a valve in said branch between the train-pipe and auxiliary reservoir, an automatic brake-valve located in a branch between one end of the brake-cylinder and the train-pipe, and a separate branch connecting the brake-valve with the auxiliary reservoir and a pipe putting the reservoir in communication with the other end of the brake-cylinder said brake-valve operating to simultaneously establish through said branch communication between the train-pipe the auxiliary reservoir and the end of the brake-cylinder to which the brake-valve is connected.

2. In an air-brake system, the combination with the train-pipe and brake-cylinder of two branches connecting the opposite ends of the brake-cylinder with the train-pipe and having a common connection with said train-pipe, a check-valve and an auxiliary reservoir located in one of said branches, and an automatic brake-valve located in the other one of said branches and communicating also with the auxiliary reservoir, said brake-valve operating automatically to open an exhaust-port for the air from one end of the brake-cylinder upon diminution of pressure in the train-pipe and to admit air under pressure into the brake-cylinder when said pressure is restored and then maintain a normal position in which said brake-cylinder is disconnected from the train-pipe.

3. In an air-brake system, the combination with the train-pipe, brake-cylinder and auxiliary reservoir, communicating with one end of the brake-cylinder, of a brake-valve, located in a branch between the train-pipe and the other end of the brake-cylinder comprising a casing, freely communicating at one end with the train-pipe, and also communicating with the other end of the brake-cylinder and auxiliary reservoir and having ports and passages adapted to simultaneously connect said end of the casing with the brake-cylinder and with the auxiliary reservoir by the operation of an automatic valve and also having ports and passages controlled by a separate valve adapted to connect the brake-cylinder with an exhaust into the atmosphere under the control of said automatic valve, said valve operating automatically to maintain a normal position in which all the ports and passages are closed, to move in one direction from said normal position upon diminution of pressure in the train-pipe and thereby open the separate valve, and to move in the opposite direction and then back again into its normal position when the pressure is restored.

4. In an air-brake system, the combination with the train-pipe, brake-cylinder and auxiliary reservoir communicating with the train-pipe and with the brake-cylinder of the brake-valve comprising a cylinder freely communicating at one end with the train-pipe and also communicating with the auxiliary reservoir and with the brake-cylinder, the valve-piston in said end controlling ports for simultaneously connecting said end of the brake-cylinder and with the auxiliary reservoir, the double flap-valve having a loose toggle connection upon the stem of the piston-valve and operated by a collar and spring upon said stem to open and close opposite ports in the cylinder whereby the brake-cylinder is put into communication with an exhaust-port, the air-spring formed in the opposite end of the cylinder for controlling the movement of the piston-valve, and the spring-stop in said end.

588,914. BALL-TURNING LATHE. DAVID ROGER, Cleveland, Ohio, assignor of seven-eighths to F. H. Kelly, T. M. Warner, and A. G. Harbaugh, same place. Filed Dec. 1, 1896. Serial No. 614,152. (No model.)

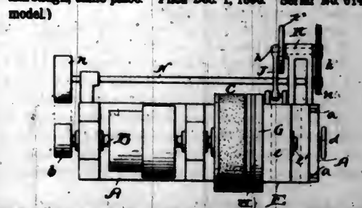


Claim.—1. In a lathe of the character described, in combination, a revolving steady-rest, means for revolving it in unison with the live-spindle, an axial stop-pin in the end of said steady-rest, two radially-movable jaws grooved on their inner ends, and mounted upon the end of the steady-rest, and means for operating said jaws, substantially as and for the purpose specified.

2. In a lathe of the character described, in combination, a revolving steady-rest, means for revolving it in unison with the live-spindle, an axially-placed stop-pin in one end of the steady-rest, two radially-movable jaws mounted upon the same end of the steady-rest, and having grooves in their inner ends and slots near their outer ends, two levers pivoted to said steady-rest, and a cone for operating said levers, substantially as and for the purpose specified.

3. In a lathe, in combination, a transversely-movable tool-slide, a horizontally-adjustable bracket, a lever pivoted on an adjustable fulcrum, a slotted arm secured on the slide with which said lever engages, a cam for operating said lever, and a cam engaging with the slide for moving it in the opposite direction to that in which it is moved by the said lever, substantially as and for the purpose specified.

588,915. BALL-GRINDING MACHINE. DAVID ROGER, Cleveland, Ohio, assignor of seven-eighths to F. H. Kelly, T. M. Warner, and A. G. Harbaugh, same place. Filed Dec. 1, 1896. Serial No. 614,153. (No model.)

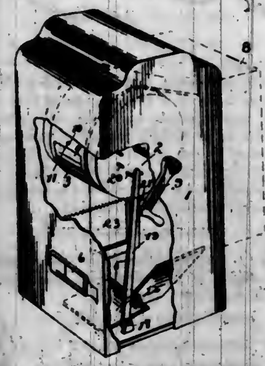


Claim.—1. In a ball-grinding machine, in combination, a revolving grinding-wheel, a slide D adjustable toward and from the grinding-face of said wheel, a transversely-movable slide E mounted on the slide D, and means for imparting to the slide E a reciprocating motion, an upright disk secured upon the slide E, and two concentric rings of different diameters on the face of said disk, the proximate peripheries of said rings being undercut, and means for introducing the balls into the raceway formed between said rings, substantially as and for the purpose specified.

2. In a ball-grinding machine, in combination, a revolving grinding-wheel, a slide D adjustable toward and from the grinding-face of said wheel, a transversely-movable slide E mounted on the slide D, and means for imparting to the slide E a reciprocating motion, an upright disk secured upon the slide E, a hard-metal disk F secured to the face of this disk having a keyway across it, a movable key fitted in said keyway, and two concentric rings of different diameters secured to the ring F, the proximate peripheries of said rings being undercut, substantially as and for the purpose specified.

3. In a ball-grinding machine, in combination, a revolving grinding-wheel, a slide D adjustable toward and from the grinding-face of said wheel, a transversely-movable slide E mounted on the slide D and means for imparting to the slide E a reciprocating motion, a vertical plate carried by said slide E, a disk pivoted to said plate, a clamping device for rigidly connecting said disk and plate, a hard-metal disk F secured to the face of this disk having a keyway across it, a movable key fitted in said keyway, and two concentric rings of different diameters secured to the ring F, the proximate peripheries of said rings being undercut, substantially as and for the purpose specified.

588,916. KINETOSCOPE. WILLARD G. STEWARD and ELLIS F. FROST, Washington, D. C., assignors to Charles M. Campbell, same place. Filed June 1, 1896. Serial No. 593,912. (No model.)



Claim.—1. The herein-described method of directing light-rays, consisting in holding each of the rays of light from a series of moving objects stationary through a given point, substantially as set forth.

2. The herein-described method of forming an impression upon the eye, consisting in causing the rays of light from a series of moving objects, each to be held stationary through a given point, substantially as set forth.

3. In combination with a movable object, a movable reflector connected therewith, whereby the relative positions of the one to the other are changed so that the rays of light from the object will each be held stationary by the reflector through a given point, substantially as set forth.

4. In a kinetoscope, the combination, with a series of movable objects, of a movable reflector, and means for changing the relative positions of the objects and the reflector to each other, so that the rays of light from each succeeding object will each be held stationary by the reflector through a given point, substantially as set forth.

5. In a kinetoscope, the combination, with a series of movable pictures, of a movable reflector, and means for changing the relative positions of the pictures and the reflector to each other, so that the rays of light from each succeeding picture will each be held stationary by the reflector through a given point, substantially as set forth.

6. In a kinetoscope, the combination, with a series of movable pictures, of an oscillating reflector, and means for changing the relative positions of the reflector and the pictures to each other so that the rays of light from each picture will each be held stationary by the reflector through a given point, substantially as set forth.

7. In a kinetoscope, the combination, with a series of movable objects, of a movable reflector, and means for moving the reflector at such an angular rate of speed relatively to that of the objects that the rays of light therefrom each will be held stationary through a given point, substantially as set forth.

8. In a kinetoscope, the combination, with a series of movable pictures, of a movable reflector, and means for moving the reflector in one direction at a greater rate of speed than in the other, so that the time of exposure will be greater than the time of change, substantially as set forth.

9. In a kinetoscope, the combination, with a support, of a wheel journaled therein, an oscillating reflector, a series of pictures upon the wheel, and means for moving the wheel and the reflector in such relation to each other that the rays of light from the object will each be held stationary through a given point, substantially as set forth.

10. In a kinetoscope, the combination, with a support, of a wheel journaled therein, an oscillating reflector, radially-projecting pins upon the periphery of the wheel, a perforated strip upon the pins and provided with pictures, a retaining device upon the strip on the periphery of the wheel, and means for moving the pictures and the reflector in such relation to each other that the rays of light will each be held stationary through a given point, substantially as set forth.

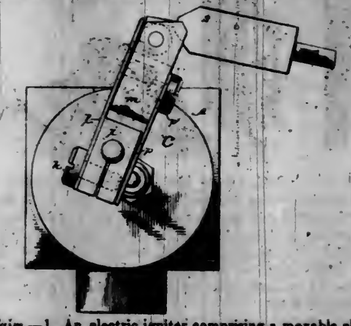
11. In a kinetoscope, the combination, with a support, of a wheel journaled therein, an oscillating reflector, the periphery of the wheel being grooved and provided with radially-projecting pins, strippers within the support, the free ends of which fit within the grooves of the wheel, a retaining device, and means for moving the wheel and the reflector in such relation to each other that the rays of light from each succeeding picture will each be held stationary by the reflector through a given point, substantially as set forth.

12. In a kinetoscope, the combination, with a support, of a wheel journaled therein, an oscillating reflector, a series of pins arranged in one side of the wheel, an arm from the axis of the reflector, the free end of which is adapted to be engaged by said pins, means for returning said arm and reflector to their initial position, and a series of pictures upon the wheel, substantially as set forth.

13. In a kinetoscope, the combination, with a support, one wall of which is provided with two slots, of a wheel and an oscillating reflector journaled within the support, a brake in one of the slots, and strippers extending from the other slot to the periphery of the wheel, a strip through said slots and extending around the periphery of the wheel, and means for moving the pictures and the light in such relation to each other that the rays of light from each succeeding picture will each be held stationary by the reflector through a given point, substantially as set forth.

14. In a kinetoscope, the combination, with a support, of a movable object therein, a source of illumination, and means for holding each of the rays of light therefrom stationary through a given point, and lenses for changing the apparent size of the object, substantially as set forth.

588,917. IGNITER FOR GAS-ENGINES. CHARLES WHITE and ARTHUR B. MIDDLETON, Baltimore, Md. Filed Apr. 11, 1896. Serial No. 586,886. (No model.)



Claim.—1. An electric igniter comprising a movable electrode, a spring extension thereof, means for moving said electrode through the extension and a supplemental spring for returning said electrode to normal position, substantially as described.

2. An electric igniter comprising a movable electrode, and operating means therefor consisting of a slide and operating connections, said slide having a plurality of operating-faces of different shape adapted to actuate the electrode earlier or later, substantially as described.

3. An electric igniter consisting of a stationary electrode, a movable electrode, a block rigidly secured to said electrode and a spring extension secured to said block and projecting therefrom into the path of operating means, substantially as described.

4. An electric igniter consisting of a stationary electrode, a movable electrode, a block connected to said movable electrode, a spring extension secured to said block and projecting into the path of the operating means and a supplemental spring engaging the block to aid in returning the electrode to normal position, substantially as described.

5. In an electric igniter, a casing, electrodes, an extension connected with one of the electrodes, a bifurcated bracket in front of said extension, the end of the extension being in line with the bifurcation and operating means for actuating the extension, substantially as described.

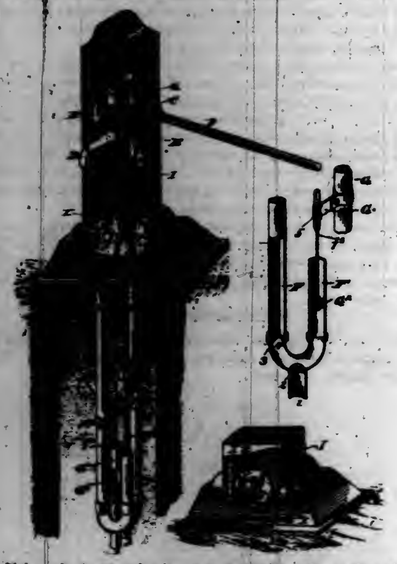
6. In an electric igniter, a casing, electrodes, an extension connected with one of the electrodes, a bifurcated bracket in front of said spring, a roller carried by said bracket and a slide with operating means for actuating the extension, substantially as described.

7. In an electric igniter, a movable electrode, an extension connected therewith and a reversible slide for operating said extension having a plurality of operating-faces, substantially as described.

8. In an electric igniter, a movable electrode, an extension thereof, a bearing in advance of said extension and a slide having a tongue engaging the extension and an inclined shouldered portion in rear thereof, substantially as described.

9. In an electric igniter, a movable electrode, an extension thereof, a bearing in advance of said extension and a reversible slide having a central tongue and inclined shouldered portions in rear thereof at top and bottom, said shoulders varying in extent to actuate the electrode earlier or later, substantially as described.

588,918. PUMP. JAMES A. FIFE, Russell Springs, Kans. Filed Dec. 2, 1896. Serial No. 593,672. (No model.)



Claim.—1. A pump having two vertically-reciprocating pipes, cylinders communicating with the lower end of such pipes movable vertically therewith and upturned therefrom and plungers operating in said cylinders, the plungers operating in the cylinder of each pipe being secured to and movable vertically with the other pipe whereby to give a double length of stroke to the plungers and to discharge water from the ascending pipe of the pair substantially as and for the purposes set forth.

2. In a pump substantially as described the combination with the plunger-rod of the bracket supporting the same and having an opening to receive the plunger-rod and a contracted slit or opening leading outward from the rod-opening of less width than said opening, the plunger-rod having a reduced portion which may be slipped laterally through said opening all substantially as and for the purposes set forth.

3. In a pump a plunger-rod having a threaded portion and a reduced portion adjacent thereto combined with the bracket having a threaded seat for the threaded portion of the plunger-rod and a lateral slit forming a passage for the introduction and withdrawal of the reduced portion substantially as set forth.

4. A pump having a pair of pipes and a pinion on which said pipes are hung, the shaft of said pinion being off its center and arranged as described whereby the ascending pipe at the end of its upstroke is on the long arm of the pinion-lever and the descending pipe on the short arm and mechanism independent of said pinion whereby to reciprocate the said pipes substantially as set forth.

5. In the pump described the combination of the pipes F and G, the check-valves therein, the connections, the valves 2 thereof, the cylinders F' and G' fixed to said connections, the plungers arranged and operating in said cylinders and the brackets F^2 and G^2 arranged and connecting said plungers with said pipes in the manner substantially as and for the purpose specified.

6. In a pump the combination of a pair of vertically and alternately reciprocating cylinders provided with open upper ends and side discharge-passages water-discharge pipes connected fast at their lower ends with the cylinders and communicating with said discharge-passages to carry off the water discharged from the cylinders, means for alternately reciprocating said pipes, and the plunger-rods carrying at their lower ends plunger-heads for the cylinders and the upper end of the plunger-rod for one cylinder being adjustably and detachably connected with the discharge-pipe for the other cylinder substantially as set forth.

588,919. OVERSHOE. DANIEL J. FEY, Morehead, Ky., assignor of one-half to A. W. Vinton, same place. Filed May 27, 1896. Serial No. 593,344. (No model.)



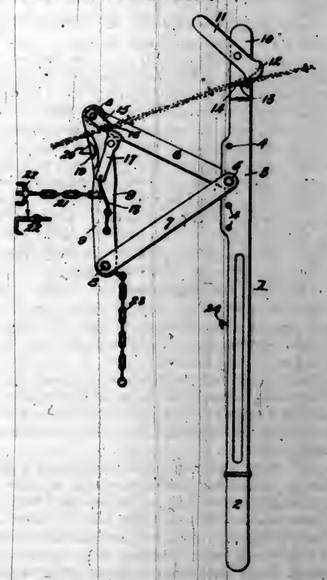
Claim.—The combination with the counter portion of a rubber overshoe, and its lining, of a U-shaped spring-plate interposed between the said counter portion and lining entirely below the upper edges thereof having its forward end portions outwardly curved beyond the plates of its side portions, as shown, to spread the adjacent portions of the overshoe laterally and whereby the automatic or self action of said shoe is facilitated and its retention upon the inner shoe is insured, substantially as specified.

588,920. MOUTH-HARMONICA. JACOB HOHNER, Trossingen, Germany, assignor to Matthias Hohner, same place. Filed Jan. 30, 1896. Serial No. 577,446. (No model.)



Claim.—A mouth-harmonica having a cover-plate whose cross-section is a curve, said curve rising from the line of contact of its front edge with the reed-plate toward the rear of the harmonica, and lugs at each end separated from each other and supporting the covering-plate from the reed-plate, substantially as described.

588,921. WIRE-STRETCHER. SILAS P. HOWARD, Sealy, Tex., assignor of one-half to Benjamin G. Harris, same place. Filed June 24, 1897. Serial No. 642,063. (No model.)



Claim.—1. A wire-stretcher comprising a lever, means carried by said lever for holding the wire after the same has been stretched, two arms pivoted to the lever and having their other ends pivoted to the upper and lower ends of a vertical arm, means carried by said vertical arm to grip and hold the wire while the same is being stretched, means for securing the stretcher to the post, and means for locking the lever after it has operated on the wire, substantially as and for the purpose set forth.

2. A wire-stretcher comprising a lever provided near its upper end with a shoulder, an arm pivoted to said lever and adapted to engage said shoulder and hold the wire, two arms pivoted to the lever and having their other ends pivoted to the vertical arm, a stationary jaw secured to the vertical arm, a pivoted jaw on said arm adapted to engage the stationary jaw and hold the wire while it is being stretched, means for keeping the pivoted jaw in normal engagement with the stationary jaw, means substantially as described for securing the stretcher to the post, a chain secured to the lower end of the vertical arm, a hook on the lever adapted to receive said chain to lock the lever, substantially as described.

588,922. MUD-GUARD FOR BICYCLES. NELSON HOYT, Philadelphia, Pa., assignor of one-half to Chas. S. Hopper, same place. Filed Jan. 14, 1897. Serial No. 619,155. (No model.)



Claim.—1. In a mud-guard for cycles, the combination with supporting-arms adapted to be attached to the frame of a cycle, of a rotatable shaft journaled in the free ends of said arms, a flexible scraper mounted on said shaft and means for locking said shaft in any of its adjusted positions whereby the scraper may be moved into alinement with the supporting-arms or adjusted to extend at an angle thereto at will, substantially as described.

2. In a mud-guard for cycles, the combination with supporting-arms adapted to be attached to the frame of the cycle, of a shaft journaled in the free ends of said arms, a flexible scraper mounted on said shaft, screw-threads formed on the respective opposite ends of said shaft and thumb-nuts mounted on said screw-threads whereby the scraper may be adjusted into alinement with the supporting-arms or at any desired inclination in relation thereto and locked in such position, substantially as described.

3. In a mud-guard for cycles, the combination with supporting-arms adapted to be attached to the frame of a cycle, of a shaft journaled between the free ends of said arms, a clip-plate surrounding said shaft and having its respective opposite ends separated, a flexible scraper secured between the ends of said plate, and means for locking the scraper in any of its adjusted positions, substantially as described.

4. In a mud-guard for cycles, the combination with supporting-arms adapted to be attached to the frame of a cycle, of a rotatable shaft mounted between the free ends of said arms, and a plurality of flexible scrapers mounted on said shaft and extending respectively up and down at an angle so as to engage the periphery of the bicycle-wheel upon opposite sides of the shaft, substantially as described.

588,923. TROLLEY-WIRE HANGER. GEORGE R. JOHNSON, Los Angeles, Cal. Filed June 5, 1896. Serial No. 594,436. (No model.)



Claim.—1. As means for attaching a trolley-wire to a trolley-supporting wire, a connection in which the frame is made of one piece with a suitable insulator for preventing the current from the trolley-wire from passing into the trolley-wire-supporting wire, and suitable screws for fastening the connection to both the trolley-wire and the trolley-wire-supporting wire, substantially and for the purpose as specified.

2. In a connection for attaching a trolley-wire to a trolley-supporting wire, the combination of a frame with suitable screws for fastening the said frame to a trolley-supporting wire, and a trolley-wire, an insulator consisting of a hard-rubber tube, with a slot extending longitudinally its full length, with relation to the said tube, the said frame provided with a hole, into which the said insulator can be placed, and a suitable slot cut into the said frame, extending into the said hole, so that by closing the said slot, the said hole will be reduced in size, for the purpose of clamping the said frame tightly to the said trolley-wire-supporting wire, or a trolley-wire substantially as described.

3. In a trolley-wire support, the combination with a split clamp for embracing the trolley-wire, of a split tube formed integral with said clamp and arranged at right angles thereto, a split-insulator cylinder of hard rubber arranged within said split tube, and screws tapped through said clamp and split tube for contracting them about the trolley-wire and supporting-wire, substantially as described.

588,924. MECHANISM FOR OPERATING REGISTERING DEVICES OF METERS. FRANK LAMBERT, Brooklyn, N. Y., assignor of one-half to Joseph W. Kay, same place. Filed Feb. 6, 1896. Serial No. 577,463. (No model.)



Claim.—1. In a nutating-piston meter, the combination with the piston thereof, of a train of speed-reducing gearing connected with the registering mechanism, one or more of the elements of which train are carried by the piston, substantially as specified.

2. The combination in a water-meter of the nutating type of a disk-chamber, a nutating disk therein, a disk-spindle projecting outside of said chamber, an inclosing case for said chamber, a rotary shaft extending through a wall of said case, a gearing G, G' G^2, G^3 between said spindle and said shaft, substantially as described.

3. The combination in a water-meter of the nutating type having a disk-chamber, a nutating disk therein, and a disk-spindle extending outside of said chamber, an inclosing case for said chamber, a fixed sleeve on the inner side thereof, a gear G' carried by said sleeve, a shaft F journaled in said sleeve and carrying gear G, on said disk-spindle gears G^2, G^3 engaging with said gears G, G', substantially as described.

588,925. STRAP-HINGE. JOHN H. LAWRENCE, Sterling, Ill., assignor of one-half to Edwin F. Lawrence. Filed Mar. 21, 1896. Serial No. 584,313. (No model.)

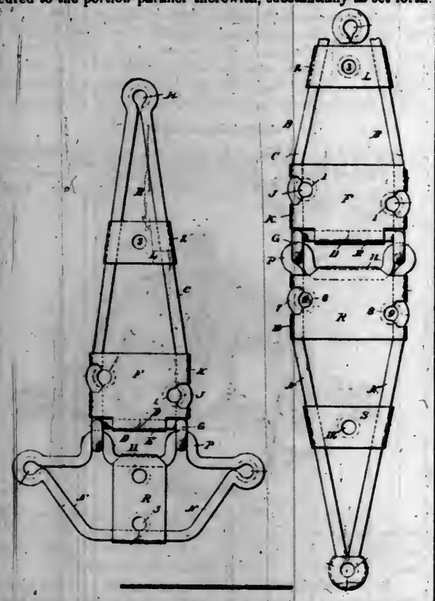
Claim.—1. In a strap-hinge, the combination, with two leaves, each formed from a single piece of wire, one of the leaves having its outer portion provided with a supporting-eye and the inner portion of each leaf being formed into articulating eyes, a plate upon one of said leaves adjacent to the articulating eyes, the ends of the plate being folded around the sides of the leaves and one of the sides being folded around the portion of the leaf between the articulating eyes, substantially as set forth.

2. In a strap-hinge, the combination, with two leaves, each formed from a single piece of wire, the inner portion of each of the leaves being formed into articulating eyes, of a cap upon the outer portion of one of said leaves provided with an eye, and a plate secured to the side of said leaf and to the portion of the leaf between the articulating eyes, substantially as set forth.

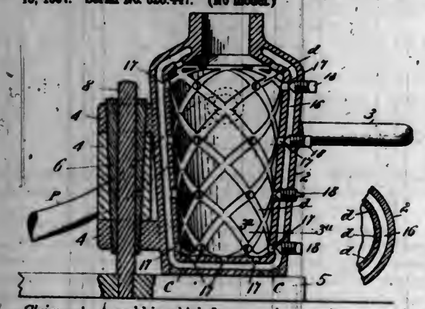
3. In a strap-hinge, the combination, with two leaves, each formed from a single piece of wire, one of the leaves having its outer portion provided with a supporting-eye the inner portion of each of the leaves being formed into articulating eyes, each side of one of the leaves adjacent to the articulating eye being bent outwardly, and a plate upon said leaf, each end of which is provided with a curved opening registering with the bent portion of the side of the leaf and having one side folded around the portion of the leaf between the articulating eyes, substantially as set forth.

4. In a strap-hinge, the combination, with two leaves, one of

which is substantially triangular and the outer end is provided with a supporting-eye and the inner end is provided with articulating eyes, of a plate upon said leaf having its ends bent over the sides of the leaf, and one side extended and bent over the portion of the leaf between the articulating eyes, and the other leaf having its articulating portion provided with eyes and extended to form an eye substantially in a plane parallel with the articulating eyes and having the remaining portion lying at a distance from and parallel with the articulating portion, a plate, one end of which is secured to the articulating portion between the articulating eyes, and the opposite end secured to the portion parallel therewith, substantially as set forth.



588,926. GLASS-BLOWER'S MOLD. MICHAEL J. OWENS, Toledo, Ohio, assignor to the Toledo Glass Company, same place. Filed Feb. 15, 1897. Serial No. 623,447. (No model.)



Claim.—1. A mold in which forms are imparted to warm plastic substances, provided with means for the introduction of air to the inner wall thereof, whereby the space between an article in process of formation in said mold and said wall, shall contain, temporarily, air under more or less pressure, substantially as set forth.

2. A mold in which forms are imparted to hot plastic substances having in the walls thereof one or more air-passages extending from the inner surface of the mold outwardly and means for conveying air to said passages whereby the same is delivered at said inner mold-surfaces, substantially as described.

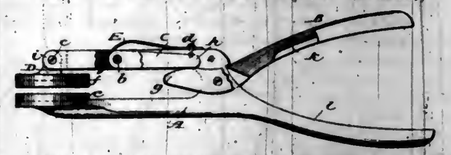
3. A mold in which forms are imparted to hot plastic substances having in the walls thereof one or more air-passages extending from the inner surface of the mold outwardly, and means for conveying air to said passages and for regulating the delivery thereof through said passages to said inner surface under varying degrees of pressure, substantially as described.

4. A mold in which forms are imparted to hot plastic substances having within the walls thereof one or more air-chambers, and one or more air-passages extending from said chambers to the inner surface of the mold, and means for supplying air to said chambers under more or less pressure, substantially as described.

5. A mold in which forms are imparted to hot plastic substances having within the walls thereof one or more air-chambers, several air-passages extending from said chambers to the inner surface of the mold, air-conducting channels in the inner surface of the mold extending between said passages, and means for supplying air to said chambers under more or less pressure, substantially as set forth.

6. A mold in which forms are imparted to hot plastic substances having in the walls thereof one or more air-passages extending from the inner surface of the mold outwardly, means for conveying air to said passages whereby the same is delivered at said inner mold-surface, and valves in the wall of the mold adjustable relative to said passages, whereby the latter are restricted or enlarged, substantially as set forth.

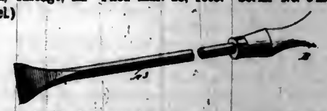
588,927. PORTABLE SEAL-PRESS. THOMAS J. PARKINSON, Pittsburg, Pa. Filed Feb. 20, 1896. Serial No. 580,139. (No model.)



Claim.—1. In a portable seal-press, a lever A, having a seal-plate applied to its outer end, and provided with an extension *a*, combined with a lever B pivoted upon the extension, a lever C pivoted, upon the outer end of the extension, a seal-plate loosely connected to the outer end of the lever C, and a spring secured to the extension and which keeps the lever C normally pressed outward, substantially as shown.

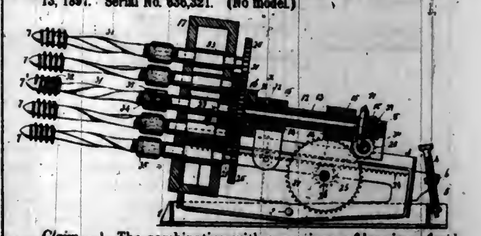
2. In a portable seal-press, a lever A having its outer end formed into a handle, and having applied to its outer end a seal-plate, and which lever A is provided near its center, with an extension which has a horizontal portion to extend forward in a line with the lever A, and which extension is provided with a stop or shoulder upon its rear outer edge, combined with the lever B pivoted upon the vertical portion of the extension, and having its lower inner end bifurcated so as to straddle the extension; a lever C also pivoted upon the extension and having its inner end pronged or bifurcated so as to extend from both sides of the extension, a seal-plate pivoted to the outer end of the lever C; and a spring which is rigidly secured to the extension, and which serves to hold the lever normally pressed outward, substantially as described.

588,928. LEATHER-CUTTING TOOL. GEORGE R. RANK, Allegany, N. Y., assignor to Irving S. Bernheimer, Edwin D. Kohn, and Harry D. Kohn, Chicago, Ill. Filed Mar. 23, 1896. Serial No. 584,930. (No model.)



Claim.—A chisel adapted to separate the grain of the leather from the fiber having a straight and broad cutting edge with receding and blunt side edges terminating in a small shank, the shoulders between the side edges and shank being rounded, whereby the said shank will not rupture the grain and sufficient grain will be separated on each side of the shank to prevent binding thereof and the rounded shoulders will permit the removal of the knife without rupturing the leather, substantially as described.

588,929. DRILL. FRANÇOIS RAYMOND, Woodhaven, N. Y., assignor of one-half to William F. Wyckoff, Jamaica, N. Y. Filed May 13, 1897. Serial No. 636,321. (No model.)



Claim.—1. The combination with a carriage, of bearings fixed thereon, a cylindrical sleeve mounted to turn in said bearings and provided with a plurality of sockets or depressions arranged transversely about its periphery, caps detachably fixed over said bearings and sleeve, a stud carried by one of said caps and arranged to engage either of said sockets, a drill-frame fixed on one end of said sleeve and carrying a gang of drills and their gearing, and a drive-shaft journaled in said sleeve and operating to drive said gearing, substantially as described.

2. The combination with a carriage, of half-bearings fixed thereon, a cylindrical sleeve mounted to turn in said bearings and provided with a plurality of sockets or depressions arranged transversely about its periphery, semicircular caps detachably fixed over said bearings and sleeve, a stud carried by one of said caps and arranged to engage either of said sockets, a drill-frame fixed on one end of said sleeve, a series of drills arranged in a right line in said frame, a drive-shaft journaled in said sleeve, and gearing carried by the frame for transmitting motion from the drive-shaft to the drills, substantially as described.

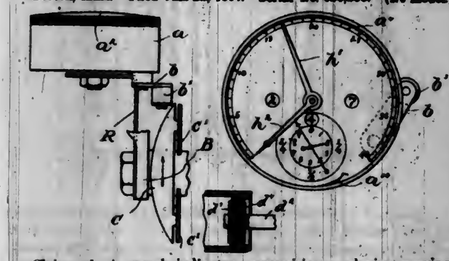
588,930. BERRY-BUCKET. WILLIAM W. ROLAND, Bonnyville, Pa. Filed Apr. 22, 1897. Serial No. 633,512. (No model.)



Claim.—1. A berry-bucket comprising a plurality of sections, each formed with vertically-projecting segmental flanges arranged diametrically opposite each other and provided with deflected continuous binding-wires adapted to interlock with similar flanges on the section next below, whereby when the sections are assembled a space is left between them, as and for the purposes stated.

2. A berry-bucket comprising an upper section, a central section, and a lower section, each of the sections being formed with vertically-projecting segmental flanges provided with deflected continuous binding-wires arranged diametrically opposite each other and adapted to be interlocked with the flanges on the other sections when the sections are assembled, the central section and the lower section being each provided with a spouted opening, whereby the sections may be filled after being assembled to form the bucket.

588,931. SPEED-INDICATOR. WILLIAM S. SCAMP, Everett, Mass., assignor to R. T. Parsons, O. E. Mitchell, and Joseph Seligman, Boston, Mass. Filed Jan. 22, 1897. Serial No. 620,353. (No model.)



Claim.—1. A speed-indicator, comprising a device moving through a predetermined space at a predetermined rate of speed, and whose movements are affected by the rotating part the rate of speed of which is to be indicated, and mechanism for indicating the variations in the movements of the said device.

2. A speed-indicator comprising a device having a predetermined range of movement in a predetermined period of time, and the lengths of whose movements are varied according to the speed of the bicycle-wheel, and mechanism for indicating the length of each movement of the said device.

3. A speed-indicator comprising a device having a predetermined range of movement in a predetermined period of time, and the lengths of whose movements are varied according to the speed of the bicycle-wheel, and mechanism for indicating the variations in the range of movement of the said device.

4. A speed-indicator comprising a device having a predetermined range of movement in a predetermined period of time, and the lengths of whose movements are varied according to the speed of the bicycle-wheel, and mechanism for indicating the position of the said device at the end of each movement.

5. A speed-indicator comprising a device reciprocating at an arbitrary rate of speed, and the lengths of whose reciprocations are varied in accordance with the rate of speed at which the bicycle-wheel is traveling, and mechanism for indicating the variations in the length of the reciprocations of the said device.

6. A speed-indicator, comprising a device moving through a predetermined space at a determined rate of speed, and whose movements are affected by the rotating part, the rate of speed of which is to be indicated, and intermittently-acting mechanism for indicating the variations in the movements of said device.

7. A speed-indicator comprising a device reciprocating at an arbitrary rate of speed, and the lengths of whose reciprocations are varied in accordance with the rate of speed at which the bicycle-wheel is traveling, and intermittingly-acting mechanism for indicating the variations in the length of the reciprocations of said device.

8. A speed-indicator comprising a device moving through a predetermined space at a determined rate of speed, and whose movements are affected by the rotating part, the rate of speed of which is to be indicated, and mechanism actuated by the said moving part, for indicating the variations in the movements of said device.

9. A speed-indicator comprising a device reciprocating at an arbitrary rate of speed, and the lengths of whose reciprocations are varied in accordance with the rate of speed at which the bicycle-wheel is rotating, and mechanism, actuated by the bicycle-wheel, for indicating the variations in the length of the reciprocations of said device.

10. A speed-indicator, comprising an intermittingly-actuated device operated by the bicycle-wheel, and having a predetermined movement in a predetermined period of time, the lengths of whose movements are varied in accordance with the rate of speed of the bicycle-wheel, and mechanism for indicating the variations in the length of movement of the said device.

11. A speed-indicator, comprising a device reciprocating at an arbitrary rate of speed, and the length of whose reciprocations is varied in accordance with the speed of the bicycle-wheel, and mechanism for indicating the variations in the length of the reciprocations of said device, comprising a pointer, and means actuated by said bicycle-wheel and controlled by said device for moving said pointer.

12. A speed-indicator, comprising a device reciprocating at an arbitrary rate of speed, and the length of whose reciprocations is varied in accordance with the speed of the bicycle-wheel, and mechanism for indicating the variations in the length of the reciprocations of said device, comprising a pointer, means for moving said pointer, and means for operating the last said means at the end of each reciprocation of said device.

13. A speed-indicator, comprising a device reciprocating at an arbitrary rate of speed, and the length of whose reciprocations is varied in accordance with the speed of the bicycle-wheel, and mechanism for indicating the variations in the length of the reciprocations of said device, a pointer, means for moving said pointer, and means actuated by the bicycle-wheel for operating the last said means, at the end of each reciprocation of the device.

14. A speed-indicator consisting of a reciprocatory rod, means for checking the movement of said rod to cause it to move through a predetermined distance at a predetermined time, a lever operated by the bicycle-wheel for moving said rod once for every revolution of the bicycle-wheel, and mechanism for indicating the variations in the length of the movements of said rod.

15. A speed-indicator consisting of a reciprocatory rod, means for checking the movement of said rod to cause it to move through a predetermined distance at a predetermined time, a lever operated by the bicycle-wheel for moving said rod once for every revolution of the bicycle-wheel, and mechanism intermittingly operated by said lever for indicating the variations in the length of movements of said rod.

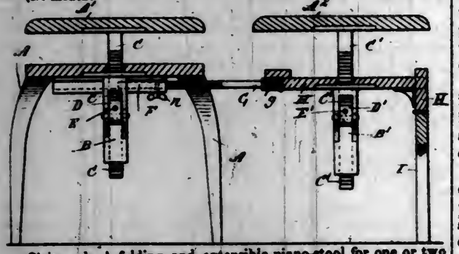
16. A speed-indicator consisting of a reciprocatory rod, means for checking the movement of said rod to cause it to move through a predetermined distance at a predetermined time, a lever operated by the bicycle-wheel for moving said rod once for every revolution of the bicycle-wheel, and mechanism, comprising a pointer, a rack, and pinion for moving the pointer and means operated by said lever for moving said rack to correspond with the variations in the length of movements of said rod.

17. A speed-indicator, consisting of a longitudinally-reciprocatory rod, a piston and cylinder for checking the movement of said rod to cause it to normally move a predetermined distance in a predetermined time, an arm actuated by the bicycle-wheel for varying the length of movement of said rod in accordance with the speed at which the bicycle-wheel revolves, and means operated once for each revolution of said wheel for indicating the length of movements of said rod.

18. A speed-indicator, consisting of a longitudinally-reciprocatory rod, a piston and cylinder for checking the movement of said rod to cause it to normally move a predetermined distance in a pre-

determined time, an arm actuated by the bicycle-wheel for varying the length of movement of said rod in accordance with the speed at which the bicycle-wheel revolves, and mechanism actuated by the said bicycle-wheel for indicating the variations in the length of movements of said rod, said mechanism comprising a pointer, having a pinion on its arbor, a slide, a rack-arm meshing with the pinion and having a cam, and a sliding bar moving laterally with said rod, and adapted to engage said cam, and means for actuating said slide at the end of each reciprocation of the said rod.

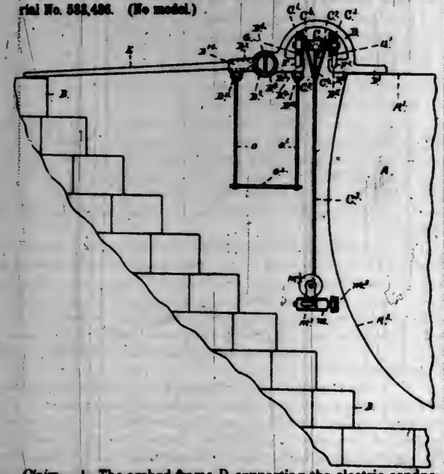
588,932. FOLDING AND EXTENSIBLE PIANO-STOOL. JOSEPH W. STANTON, West Springfield, Mass., assignor of one-half to Charles L. Smith, Springfield, Mass. Filed Jan. 22, 1897. Serial No. 620,195. (No model.)



Claim.—1. A folding and extensible piano-stool for one or two persons comprising two subseats A and H, the latter supported to move horizontally from the former and to swing from a vertical to a horizontal position, combined with supporting-legs for said seats, one of which legs has a hinge connection with said seat H, combined with the seats A' and A², and means for supporting one edge of said seat H, under said seat A, and means for supporting said seats A' and A², vertically adjustable on said subseats A and H, substantially as set forth.

2. A folding and extensible piano-stool for one or two persons comprising the subseat A, and supporting-legs therefor, the slideways F, F, secured under said subseat, a horizontally-sliding frame engaging said slideways, a subseat H, hinged to said frame, a folding leg I, hinged to said last-named subseat, a guide-box B secured under each of said subseats, a pawl pivoted to each of said guide-boxes, combined with two ratchet-posts C, C', entering said guide-boxes, the seats A' and A², attached to said ratchet-posts, and means for operating the said pawls whereby said last-named seats are adjustable to varying vertical positions, substantially as set forth.

588,933. ELECTRICALLY-OPERATED SHIP-CLEANING DEVICE. EDDY T. THOMAS, New York, N. Y. Filed Apr. 21, 1896. Serial No. 588,436. (No model.)



Claim.—1. The arched frame D, supporting the electric conductors G, and G', in combination with the truck C, provided with the wheels C', and C², for holding the portable suspended motor M, and tools operated by said motor as and for the purpose described.

2. The arched frame D, supporting the joist F, the electric conductors G and G' forming a track for the truck C to run on, in combination with the truck C, provided with the wheels C', and C², for holding the portable suspended motor M, and tools operated by said motor as and for the purpose described.

3. The frame D, having adjustable arm D², pole E, and electric conductors G, and G' which form a track for the truck C, to run on, in combination with the truck C, provided with the wheels C', and C², for holding the portable suspended motor M, and tools operated by said motor as and for the purpose described.

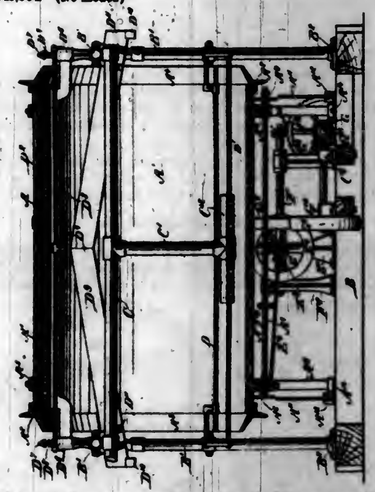
4. The frame D, having adjustable arm D², pole E, and electric conductors G, and G' which form a track for the truck C, to run on, in combination with the truck C, provided with the wheels C', and C², for holding the portable suspended motor M, and tools operated by said motor as and for the purpose described.

5. The frame D, having staples D¹¹, and D¹², to support the ropes O, O', and scaffolding O⁴, the electric conductors G, and G' forming a track for the truck C, to run on, in combination with the truck C, provided with the wheels C' and C², for holding the portable suspended motor M, and tools operated by said motor as and for the purpose described.

6. The frame D, supporting the electric conductors G, and G', in combination with the truck C, provided with the electric conducting-wheels C' and C², conducting-wires C⁴ and C⁵, and suspended portable motor M, and tools operated by said motor as and for the purpose described.

7. The frame D, supporting the electric conductors G, and G', in combination with the truck C provided with the electric conducting-wheels C' and C², conducting-wires C⁴, and C⁵, and portable motor M, and tools operated by said motor with reel M³, as and for the purpose described.

588,934. CONCENTRATING-MACHINE. STEPHEN W. VALE, Annandale, New South Wales. Filed May 16, 1895. Serial No. 549,584. (No model.)



Claim.—1. In a concentrating-machine for discrete metalliferous and other material, the combination of a revolving cylinder lined with clingy material and provided at its opposite ends with annular, frusto-conical flanges extending inwardly toward the axis of the cylinder, a scraper supported in elastic contact with said lining for removing the material therefrom, means for yieldingly supporting said cylinder, and means for vibrating the support and cylinder, substantially as described.

2. In a concentrating-machine of the class described, the combination with a cylinder having annular flanges A⁵, of grooved cradle-frames A⁶ elastically braced and joined together and in which said annular flanges are adapted to rotate, vibratory supports movably supporting said cradle frames, and mechanism for vibrating and rotating said cylinder, substantially as described.

3. In a concentrating-machine of the class described, the combination of a cylinder A, of cradle-frames A⁶ elastically joined together and in which said cylinder is adapted to revolve, uprights A¹⁰ having rounded ends fitted in correspondingly-shaped sockets on the cradle-frames and on the base of the machine, means for vibrating said cradle-frames and the contained cylinder, and mechanism for rotating the cylinder in said cradle-frames, substantially as described.

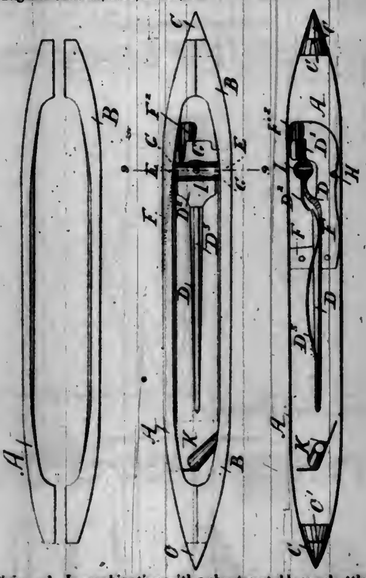
4. In a concentrating-machine of the class described, the combination with a barrel A, of cradle-frames A⁶ in which said barrel is adapted to revolve, said frames being joined together by longitudinal connections A⁹ having springs A⁹, cross-rods A¹¹ for bracing said cradle-frames, a driving-shaft E having mounted thereon eccentrics E², rods E⁴ connected at one end to one of said cradle-frames and provided at their other ends with straps E³ engaging said eccentrics, and driving mechanism actuated by said main shaft for rotating the barrel A, substantially as described.

5. In a concentrating-machine of the class described, the combination with a barrel A adapted to rotate in cradle-frames A⁶ elastically joined together and movably supported, a driving-shaft E, means actuated by said shaft for vibrating the cradle-frames, a friction-disk E' mounted on one end of the driving-shaft, a spindle F having keyed thereon a friction-pulley F' in engagement with the disk E', a worm F¹⁰ on said spindle engaging a worm-wheel G' mounted on a shaft G, a shaft G⁴, miter-gearing G³ connecting the shafts G and G⁴, a pulley G² mounted on the shaft G⁴, and an endless belt G⁷ passing about said pulley and the barrel A for revolving the latter, substantially as described.

6. In a concentrating-machine of the class described, the combination with a barrel A adapted to revolve in cradle-frames A⁶, of the driving-shaft E, friction-pulley F² mounted thereon, the spindle F mounted in the bearing F⁶ and hinged bearing F⁵, the adjusting-screw F⁶ for moving the spindle toward and away from the shaft E, the friction-pulley F' keyed on the spindle F and engaging the friction-pulley E', an adjusting-screw F⁷ for adjusting friction-pulley F' longitudinally on said spindle, and means actuated by said spindle for revolving the barrel A, substantially as described.

7. In a concentrating-machine of the class described, the combination with a barrel A having inwardly-projecting end flanges and means for imparting a combined rotary and vibrating movement thereto, of a water-feed pipe C having perforated distributer C², washing-jets D and D', a scraper D³ arranged in contact with the upper, inner periphery of the barrel A, jets D³ operating to spray water on said scraper for removing the material collected thereby, and an inclined discharge-trough D⁹ arranged beneath said scraper, substantially as described.

588,935. LOOM-SHUTTLE. ABRAHAM WOOD, Ramsbottom, England. Filed June 1, 1896. Serial No. 593,903. (No model.) Patented in England June 21, 1895, No. 12,098.



Claim.—1. In combination with a sheet-metal loom-shuttle body, of a pivot extending across the interior thereof, a shuttle-tongue mounted on said pivot, a projection on the butt of said tongue, and a spring having a recess in which said projection snaps when the tongue is in its normal position, said spring bearing with frictional contact against said projection when the tongue is moved out of its normal position, substantially as set forth.

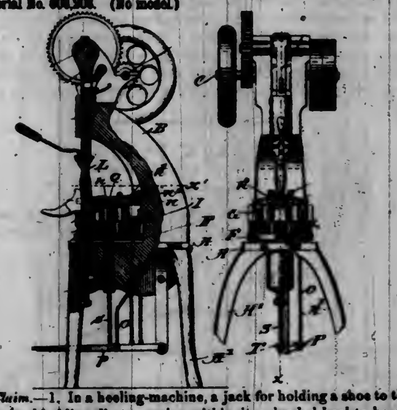
2. In combination with a sheet-metal loom-shuttle body, of a pivot extending across the interior thereof, a shuttle-tongue mounted on said pivot, a projection on the butt of said tongue, a spring having a recess in which said projection snaps when the tongue is in its normal position, and a finger-piece on the spring for disengaging the same from said projection, substantially as set forth.

3. In combination with a sheet-metal loom-shuttle body, of a cross-piece secured therein and carrying two bosses, a pivot secured in said bosses, a shuttle-tongue mounted on said pivot, and semicircular wings on the tongue projecting over said bosses, substantially as set forth.

4. In combination with a sheet-metal loom-shuttle body, of a cross-piece secured therein and carrying two bosses, a pivot secured in said bosses, and a shuttle-tongue mounted on said pivot, the butt of said tongue engaging beneath said cross-piece when the tongue is in its normal position, substantially as set forth.

5. In and in combination with a shuttle-body of the indicated nature the stay-piece K having one side or corner curled upon itself so as to constitute an integral eye to lead the yarn from the cop, formed and applied substantially as described and as illustrated.

588,936. HEELING-MACHINE. JOSEPH H. POPE, Brockton, Mass., assignor to James W. Brooks, principal trustee, Petersham, and John Brooks, associate trustee, Cambridge, Mass. Filed Sept. 13, 1896. Serial No. 606,203. (No model.)



Claim.—1. In a heeling-machine, a jack for holding a shoe to the heel, a heel-holding die to receive within it a loaded heel to be attached to the sole of the shoe, combined with a back-part guide composed of toothed arms in engagement one with the other, a lever having its pivot fixed on a stationary part of the framework on which said arms are pivoted, said lever being movable up and down, and a spring to normally close the acting ends of said guide on the shoe, preparatory to and while attaching the heel, substantially as described.

2. In a heeling-machine, a jack for holding a shoe to the heel, a heel-holding die to receive within it a loaded heel to be attached to the sole of the shoe, combined with a back-part guide composed of toothed arms in engagement one with the other, a lever having its pivot fixed on a stationary part of the framework on which said arms are pivoted, a treadle and connections between it and said lever to depress and raise the same, and a spring to normally close the acting ends of said guide on the shoe, preparatory to and while attaching the heel, substantially as described.

588,937. ROUGHING ATTACHMENT FOR HORSESHOES. WILLIAM J. MAHER, Wheeling, W. Va., assignor of one-half to William S. Hilfrits, Martin's Ferry, Ohio. Filed Mar. 13, 1897. Serial No. 627,333. (No model.)



Claim.—1. In a roughing attachment for horseshoes, the combination with a plate 2 adapted to be fitted to the under side of a horseshoe and having a forwardly-projecting tongue 5 arranged to project over the upper rear side of the toe of the shoe, of conical-headed calks arranged in countersunk perforations in said plate and

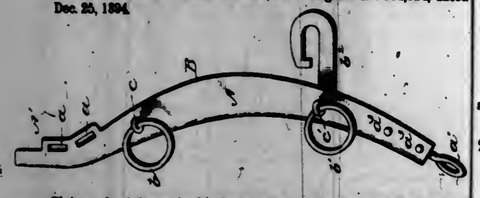
bearing against the under side of the shoe, a clamp extending across and beneath said plate and having clips engaging the forward upper edges of the toe of the shoe, and means for forcing said plate and clamp in opposite directions to clamp them to the shoe, substantially as described.

2. In a roughing attachment for horseshoes, the combination with a plate 2 adapted to be fitted to the under side of a horseshoe and having a forwardly-projecting tongue 5 arranged to project over the upper rear side of the toe of the shoe, of conical-headed calks arranged in countersunk perforations in said plate and bearing against the under side of the shoe, a countersunk boss 6 formed on the rear side of said plate, an arch-shaped clamp 11 extending across and beneath said plate and having clips 12 provided with lips 13 engaging the forward upper edges of the toe of the shoe, and a conical-pointed set-screw carried by said clamp and arranged to engage said countersunk boss to force the clamp and plate in opposite directions to clamp them to the shoe, substantially as described.

3. In a roughing attachment for horseshoes, the combination with a plate 2 having rearwardly-projecting arms 4, said plate being adapted to be fitted to the under side of a horseshoe, and having a forwardly-projecting tongue 5 arranged to project over the upper rear side of the toe of the shoe, of removable calks fitted in said plate, an arch-shaped clamp 11 extending across and beneath said plate and having clips 12 provided with lips 13 engaging the forward upper edges of the toe of the shoe, and a set-screw carried by said clamp and arranged to engage said plate to force the plate and clamp in opposite directions to clamp them to the shoe, substantially as described.

REISSUES.

11,627. SHEET-METAL HAME. CHARLES F. MOCK, Louisville, Ky. Filed July 30, 1896. Serial No. 557,653. Original No. 531,234, dated Dec. 25, 1894.



Claim.—1. A hame-body, formed from a sheet-metal blank, bent longitudinally through the center into approximately U shape in cross-section and also bent into proper curvature to form a hame-body, with the base or closed portion of the U forming the inner or bearing edge of the hame, thus condensing or compacting the metal at the place of greatest wear and strain and permitting the body to be formed from a comparatively thin blank, substantially as described.

2. A hame for harness, consisting of a body, formed from a sheet-metal blank, bent longitudinally through the center into approximately U shape in cross-section and also bent into proper curvature to form a hame-body, with the base or closed portion of the U forming the inner or bearing edge of the hame, said body being provided with strap-holes; and rings and hooks supported by the body.

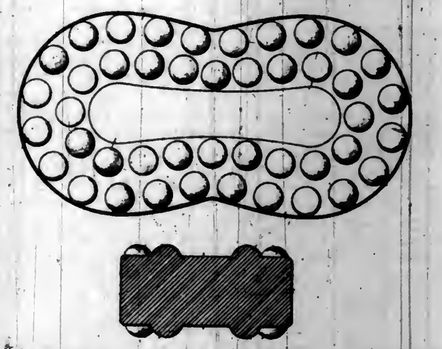
3. A hame for harness, consisting of a body, formed from a flat sheet-metal blank, bent longitudinally into approximately U shape in cross-section and also bent into proper curvature for the hame, with the base or closed portion of the U forming the inner or bearing edge of the hame, thus compacting or condensing the metal at the point of greatest wear and strain; a projection from one side near the top of the body having openings to receive the hame-strap, eyed rivets extending transversely of said body and bracing the folds thereof, rings and a tug-hook supported by said rivets, and a string-loop secured between the folds of the lower end of the body.

4. The combination with a hame-body, formed from a flat sheet-metal blank, whose opposite ends taper similarly from a point between toward its ends, said blank being bent longitudinally through the center into approximately U form in cross-section and also bent into proper curvature for a hame-body, with the base or closed portion of the U forming the inner or bearing edge of the hame, of a projection near the top end of one side thereof, pierced to provide a series of openings to receive the hame-strap, a string-loop having a flattened end fitted and secured between the walls of the lower end of the hame, eyed rivets connecting the folds of the blank, rings fitted in the apertured ends of said rivets, and a tug-hook secured between the folds by one of said rivets.

5. As a new article of manufacture a hame formed from a flat sheet-metal blank, whose opposite edges taper similarly from a point between toward its ends, and having an integral projection at one side near the top end, pierced to provide a series of openings to receive the hame-strap, said blank being folded longitudinally between its edges and curved outward between its ends to adapt it to the collar, the outer edge of the hame being open, a string-loop having a flattened end fitted and secured between the walls of the lower end of the hame, eye-rivets *c c*, connecting the folds of the blank, rings *b b* fitted in the apertured ends of the said eye-rivets, and a tug-hook secured between the said folds by the eye-rivet *c*, substantially as specified.

DESIGNS.

27,556. CAKE OR BAR OF SOAP. WILLIAM GEORGE WEBB, Baltimore, Md., assignor to the Christopher Lipps Company, of Maryland. Filed May 13, 1897. Serial No. 636,341. Term of patent 14 years.



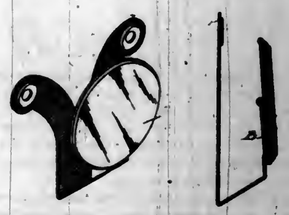
Claim.—The design for a bar or cake of soap, as herein shown and described.

27,557. COVER FOR DRESS-STAYS. CHARLES SIMON, Providence, R. I. Filed June 22, 1897. Serial No. 641,836. Term of patent 14 years.



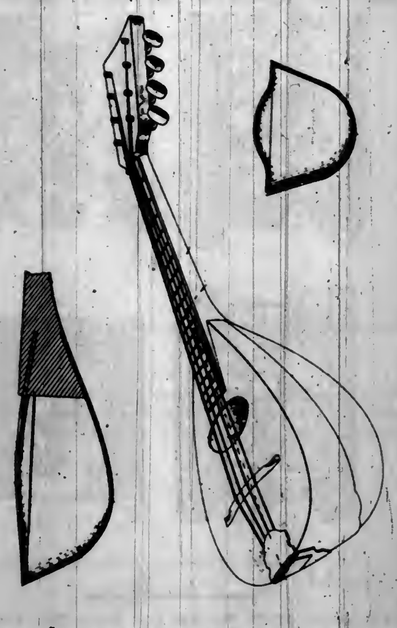
Claim.—The design for a cover for dress-stays and similar articles herein shown and described.

27,558. HAT-SUPPORT. HARRIETTE GROSS CONKLING, New York, N. Y. Filed July 7, 1897. Serial No. 643,766. Term of patent 7 years.



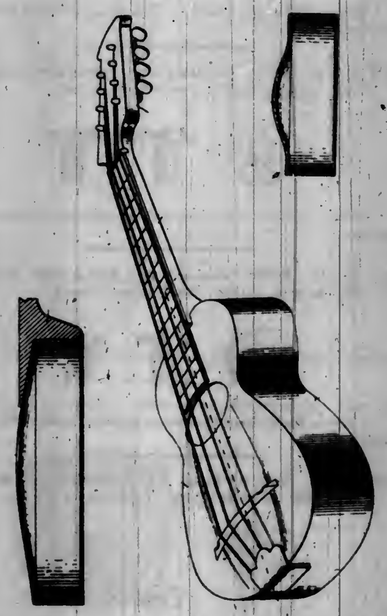
Claim.—The design for a hat and garment support for theater-chairs, substantially as herein shown and described.

27,559. MANDOLIN-BODY. EDWARD F. HOWE, Watertown, Mass. Filed Feb. 18, 1897. Serial No. 624,056. Term of patent 14 years.



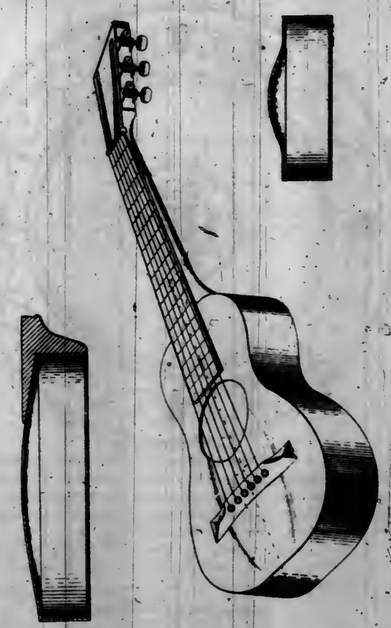
Claim.—The design for a mandolin-body as herein shown and described.

27,560. GUITAR-BODY. EDWARD F. HOWE, Watertown, Mass. Filed Feb. 18, 1897. Serial No. 624,056. Term of patent 14 years.



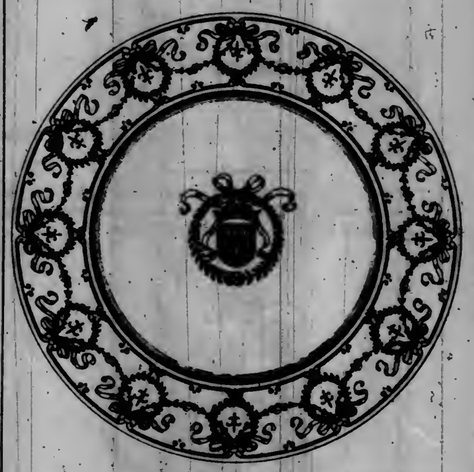
Claim.—The design for a guitar-body as herein shown and described.

27,561. GUITAR-BODY. JAMES S. BACK, Ottawa, Canada. Filed Feb. 18, 1897. Serial No. 624,058. Term of patent 14 years.



Claim.—The design for a guitar-body as herein shown and described.

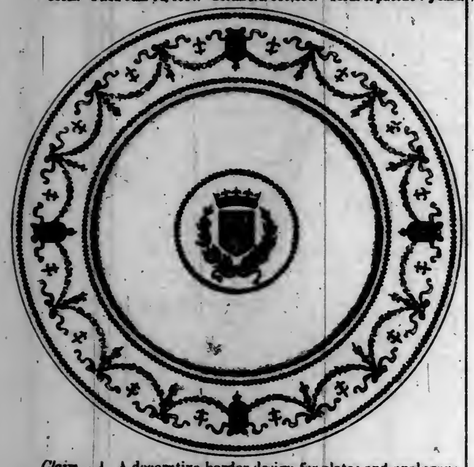
27,562. PLATE OR ANALOGOUS ARTICLE. LOUVIE S. IPSEN, Malden, Mass., assignor to the Richard Briggs Company, of Massachusetts. Filed Jan. 14, 1897. Serial No. 619,205. Term of patent 7 years.



Claim.—1. A decorative design for plates and analogous articles of crockery and porcelain ware, comprising two border-lines broken at regular intervals and having between them festoons of flowers and leaves, tied with ribbons at the several breaks in the lines; wreaths of leaves held by the ribbons at the same points and a fleur-de-lis within the said wreaths, substantially as set forth.

2. The decorative design for plates and analogous articles of crockery and porcelain ware, comprising the ornamental border and coat of arms herein described and shown.

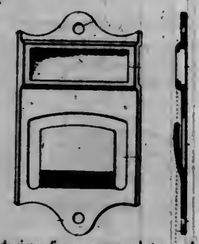
27,563. PLATE OR ANALOGOUS ARTICLE. LUDVIG S. IPSEN, Malden, Mass., assignor to the Richard Briggs Company, of Massachusetts. Filed Jan. 14, 1897. Serial No. 619,256. Term of patent 7 years.



Claim.—1. A decorative border-design for plates and analogous articles of crockery and porcelain ware, comprising two boundary-lines of leaves, festoons of flowers and leaves tied with ribbons, symmetrically arranged between said lines and shields placed at regular intervals over the festoons, substantially as set forth.

2. The decorative design for plates and analogous articles of crockery and porcelain, comprising the ornamental border and coat of arms herein described and shown.

27,564. NAME-PLATE AND CARD-HOLDER. JOHN J. BUCKER, Fort Wayne, Ind. Filed June 29, 1897. Serial No. 642,881. Term of patent 7 years.



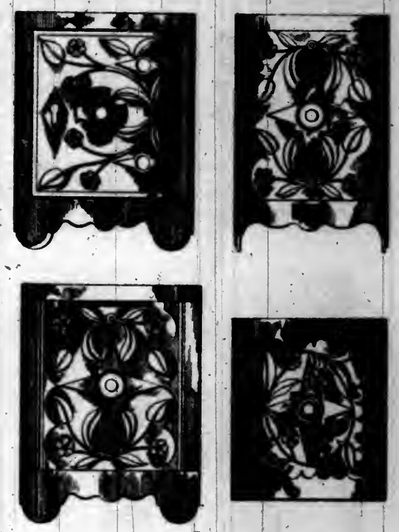
Claim.—The design for a name-plate and card-holder herein shown and described.

27,565. TOY SAVINGS-BANK. PETER ADAMS, Buffalo, N. Y., assignor of one-half to Walter J. Shepard, same place. Filed July 10, 1897. Serial No. 644,147. Term of patent 7 years.



Claim.—The design for a toy savings-bank herein shown and described.

27,566. TOY SAFE. CHARLES A. BAILEY, Cromwell, Conn. Filed June 24, 1897. Serial No. 642,196. Term of patent 7 years.



Claim.—The design for a toy safe substantially as herein shown and described.

27,567. RIVET. WILLIAM C. BRAY, Newton, Mass. Filed Dec. 2, 1896. Serial No. 614,241. Term of patent 14 years.



Claim.—The design for a rivet substantially as herein shown and described.

27,568. RIVET. WILLIAM C. BRAY, Newton, Mass. Filed Dec. 2, 1896. Serial No. 614,243. Term of patent 14 years.



Claim.—The design for a rivet substantially as herein shown and described.

27,569. RIVET. WILLIAM C. BRAY, Newton, Mass. Filed Dec. 2, 1896. Serial No. 614,244. Term of patent 14 years.



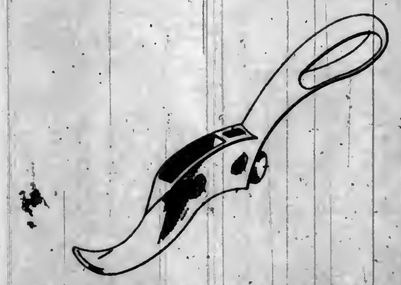
Claim.—The design for a rivet substantially as herein shown and described.

27,570. TACK OR NAIL. FRED A. BOSAR, Denison, Tex. Filed July 8, 1897. Serial No. 643,906. Term of patent 14 years.



Claim.—The design for a tack or nail herein shown and described.

27,571. FULCRUM-SHOE FOR NAIL-PULLERS. CHARLES A. MAYNARD, Springfield, Mass., assignor to Dexter W. Goodell, Greenfield, Mass. Filed July 6, 1897. Serial No. 643,668. Term of patent 14 years.



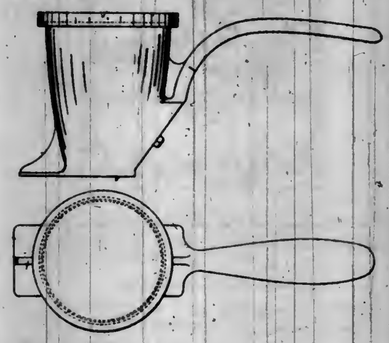
Claim.—The design for the fulcrum-shoe of nail-pullers, substantially as shown and described.

27,572. LEVER FOR SASH-FASTENERS. GEORGE M. HUBBARD, New Haven, Conn., assignor to the W. & B. T. Fitch Company, same place. Filed July 6, 1897. Serial No. 643,657. Term of patent 14 years.



Claim.—The design for levers for sash-fasteners as herein shown and described.

27,573. ICE-SHAVE. DAVID B. FOSTER and ROBERT J. COLEMAN, Baltimore, Md. Filed June 21, 1897. Serial No. 641,713. Term of patent 7 years.



Claim.—The design for ice-shaves herein shown and described.

27,574. BASKET. JOSEPH O. NEEL, Kingsland, Ark. Filed Apr. 6, 1897. Serial No. 631,081. Term of patent 7 years.



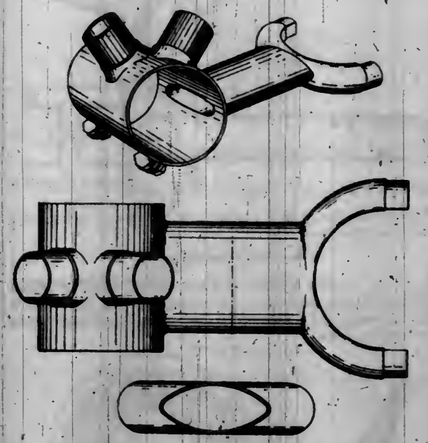
Claim.—The design for a basket made of fluted or corrugated strands, having a round flat bottom, a flaring mouth terminating in a corrugated edge and having convex sides, bulging laterally beyond said flaring mouth, substantially as herein shown and described.

27,575. MOVABLE JAW FOR WRENCHES. JOHN C. IVES, Waterbury, Conn. Filed Feb. 25, 1897. Serial No. 625,054. Term of patent 7 years.



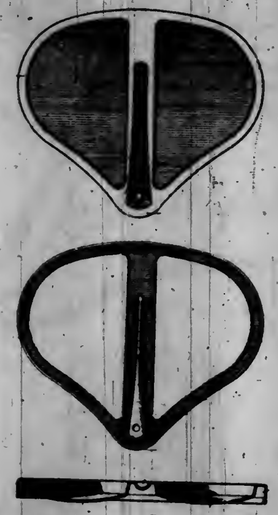
Claim.—The design for the movable jaw of a wrench, substantially as herein shown and described.

27,576. CRANK-BEARING BRACKET. CHARLES W. DAKE, Grand Rapids, Mich., assignor to the Grand Rapids Cycle Company, same place. Filed June 17, 1897. Serial No. 641,208. Term of patent 7 years.



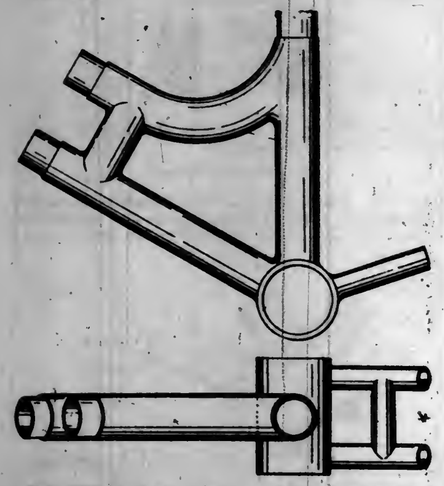
Claim.—The design for a crank-bearing bracket for bicycles, substantially as herein shown and described.

27,577. SADDLE-SEAT FOR BICYCLES. HENRY A. CHENEY, Jackson, Mich. Filed July 6, 1897. Serial No. 643,664. Term of patent 7 years.



Claim.—The design for a saddle-seat substantially as herein shown and described.

27,578. CRANK-HANGER FOR BICYCLES. WILLIAM I. GRIER, Pottstown, Pa. Filed May 20, 1897. Serial No. 638,617. Term of patent 7 years.



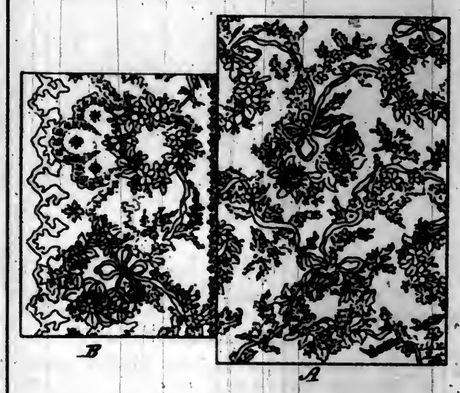
Claim.—The design for a crank-hanger for bicycles, substantially as shown and described.

27,579. CASING AND SUPPORT FOR COIN-ACTUATED WHEELS. WILLIAM H. CATTELL, Decatur, Ill., assignor of one-half to Fletcher T. Phillips, same place. Filed Jan. 16, 1897. Serial No. 619,496. Term of patent 3½ years.



Claim.—The design for a casing and support for coin-actuated wheels, substantially as shown and described.

27,580. CARPET. JOHN MERRY, Newark, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed July 7, 1897. Serial No. 643,763. Term of patent 3½ years.

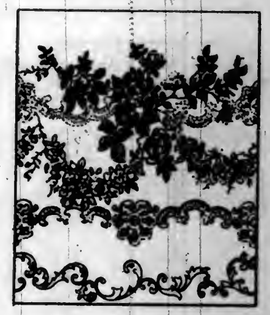


Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for a carpet comprising the body A and the border B, substantially as shown.

27,581. CARPET. JOHN MERRY, Newark, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed July 7, 1897. Serial No. 643,764. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown.

TRADE-MARKS

REGISTERED AUGUST 24, 1897.

30,505. LINENS AND COTTON GOODS. SCHLOSSER & Co., New York, N. Y. Filed July 28, 1897.



Essential feature.—Four Austrian medals placed in juxtaposition to two sides of a triangle containing a conventionalized eagle. Used since September, 1889.

30,506. LEATHER AND IMITATION-LEATHER UPHOLSTERY GOODS AND FRINGE. M. ROSENFELD & Co., Brooklyn, N. Y. Filed July 9, 1897.

FRINGELINE

Essential feature.—The word "FRINGELINE." Used since May 14, 1896.

30,507. WITHDRAWN.

30,508. PEARL BUTTONS. AUGUSTUS FEST & Co., New York, N. Y. Filed July 30, 1897.



Essential feature.—A representation of a man supporting above him a shell. Used since January 1, 1894.

30,509. HOOKS AND EYES, BUTTONS, PINS, BUCKLES, AND SIMILAR GARMENT-FASTENERS. SWEET BROTHERS, New York, N. Y. Filed July 7, 1897.

S.H.&M.

Essential feature.—The letters and character "S. H. & M." Used since May 1, 1897.

30,510. CHEWING-GUM. WESSON & PEIRCE MANUFACTURING COMPANY, Chicago, Ill. Filed July 28, 1897.

GUMBACCO

Essential feature.—The word "GUMBACCO." Used since June 1, 1895.

30,511. BEER. THE J. & P. BALTZ BREWING COMPANY, Philadelphia, Pa. Filed July 21, 1897.

CZAR.

Essential feature.—The word "CZAR" in characteristic letters. Used since April 1, 1896.

30,512. BEER. THE J. & P. BALTZ BREWING COMPANY, Philadelphia, Pa. Filed July 21, 1897.

Baltz

Essential feature.—The word "BALTZ" in fancy characteristic script letters, with a scroll. Used since April 1, 1896.

30,513. BEER. THE J. & P. BALTZ BREWING COMPANY, Philadelphia, Pa. Filed July 21, 1897.



Essential feature.—The capital letter "B," a crown, and the letters "J P." Used since April 1, 1896.

30,514. DARK LAGER-BEER. WESSNER & HESS, Philadelphia, Pa. Filed June 26, 1897.

Shakespeare



Essential feature.—The word "SHAKESPEARE," connected with the coat of arms or seal granted to the poet Shakespeare at the end of the sixteenth or at the beginning of the seventeenth century, which is the conventional shield, furred background, with an oblique or diagonal bar, on which is the representation of a jousting lance. The shield is surmounted by a helmet with a scrolled ornamentation and is crowned with a standing eagle, wings raised, who holds in his right talon the jousting lance. This seal or escutcheon is connected with the legend or motto "NON DANS DROIT," meaning "NOT WITHOUT RIGHT" or "AUTHORITY." Used since March 1, 1897.

80,515. PRESERVED LEMON-JUICE. JAMES D. LEMMER, St. Louis, Mo. Filed June 11, 1897.



Essential feature.—The words "SAN DIEGO FRUIT JUICE CO." arranged along the upper and outer portion of a square or rectangular figure, resting on its corner and containing a lemon-branch with fruit and leaves. Used since March 15, 1897.

80,516. CEREAL WARM DRINK OR SPECIAL PREPARATION. OUR HOME GRANULA CO., Dansville, N. Y. Filed June 26, 1897.

SOMO

Essential feature.—The word "SOMO." Used since June 9, 1897.

80,517. CEREAL-COFFEE. CLIMAX CEREAL COFFEE COMPANY, Auburn, Me. Filed July 2, 1897.



Essential feature.—A representation of a battle scene, the contending forces being armed with boughs or branches. Used since May 4, 1897.

80,518. FLOUR. THE FIRM OF GEORGE T. EVANS, Indianapolis, Ind. Filed June 1, 1897.

ADONIS

Essential feature.—The word "ADONIS." Used since October 20, 1881.

80,519. GELATIN. GHOST & GHOST, Orange, Mass. Filed June 9, 1897.



Essential feature.—A representation of a woman with arms stretched above her head holding a ribbon. Used since February 8, 1897.

80,520. CANNED FRUITS. WILLIAM B. DUDLEY, New York, N. Y. Filed July 23, 1897.



Essential feature.—The word "OSTRICH" or a pictorial representation of an ostrich. Used since June 21, 1897.

80,521. CANNED FRUITS. WILLIAM B. DUDLEY, New York, N. Y. Filed July 23, 1897.



Essential feature.—The word "WINDMILL" or a pictorial representation of a windmill. Used since June 27, 1897.

80,522. CANNED FRUITS. WILLIAM B. DUDLEY, New York, N. Y. Filed July 23, 1897.

CABLE

Essential feature.—The name or representation of a cable. Used since June 21, 1897.

80,523. CERTAIN NAMED CANNED GOODS. PORTLAND PACKING CO., Portland, Me. Filed July 10, 1897.



Essential feature.—The words "CARTON BRAND" and a representation of a child, ears of corn, and a corn-field. Used since January, 1896.

80,524. IMPURE AND PURE OR REFINED BENZOIC SULFINID OR BENZOIC SULFINID COMBINED WITH SODIUM OXID. FAHLBERG, LIST & COMPANY, Salbke-Westerhüsen, Germany. Filed Feb. 20, 1896.

Saccharin

Essential feature.—The word "SACCHARIN." Used since 1884.

80,525. MECHANICAL PIPE-CLEANERS. JOHN CRAIG, Jr., London, England. Filed June 5, 1897.

VOLCANO

Essential feature.—The word "VOLCANO." Used since November 17, 1896.

80,526. AGRICULTURAL AND OTHER FORKS, HOES, SHOVELS, AND RAKES. OTSEGO FORK MILLS COMPANY, LIMITED, Girard, Pa. Filed June 23, 1897.

OTSEGO

Essential feature.—The word "OTSEGO." Used since 1859.

THE HORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WOLF.

Decided July 31, 1897.

TRADE-MARK—"GYRATOR"—NOT REGISTRABLE.

The word "Gyrator," if applied to bolting-machines having a gyratory motion, is used descriptively or, if applied to other bolting-machines it is used deceptively, and in either case it should not be registered as a trade-mark.

SAME—COINED WORDS—DESCRIPTIVE—NOT REGISTRABLE.

Where a word is formed by joining or combining English, Latin, or other words the meaning of which is understood, and said new word is descriptive of the goods to which it is applied, it should not be registered as a trade-mark.

ON rehearing.

TRADE-MARK FOR BOLTING-MACHINES, ETC.

Application of Augustus Wolf for registration filed December 4, 1896, No. 52,566.

Messrs. Howson & Howson for the applicant.

BUTTERWORTH, *Commissioner:*

This is a rehearing of the decision of the Acting Commissioner of Patents, dated April 15, 1897, wherein he sustained the action of the Examiner of Trade-Marks in refusing to register the word "Gyrator" as a trade-mark for bolting-machines or sieves, on the ground that the word is descriptive.

There are numerous patents relating to a class of machines or sieves in which the sieves are given a gyratory motion, and such constructions are termed "gyrating-sieve machines," a sieve having a "gyratory motion," and a "gyrating bolter." If it is to this class of sieves or machines to which appellant applies the mark, the word properly describes the motion of said machine and is therefore descriptive. It is such a word that any one would at once recognize as indicating a gyratory motion. To appellant's argument that the word should be allowed because it is not found in the dictionary, it may be said that new words are constantly being coined where it is convenient to describe a thing, and appellant's word seems to be one of such. Appellant seems to have formed the word by adding the suffix "or" to the verb. In the decisions of the Examiner and of the Acting Commissioner it was substantially held that when a word is formed by adding a suffix or by combining two known words, and the meaning of such newly-formed word is readily understood and descriptive of the article to which it is applied, such newly-formed word should not be registered as a trade-mark. With this I fully agree.

If appellant does not use the word to describe a machine having a gyratory motion, it is deceptively used and misleading, and should not on this account be registered.

I have carefully considered the case of *Penn. Co.* v. *Myers*, (79 Fed. Rep., 87,) to which my attention has been called. In that case it was held that the word "Saponifier," made up of the Latin words "sapo" (soap) and "facere," (to make,) used as a trade-mark for concentrated lye, was not descriptive and restrained unlawful users; but this is not such a case. The appellant has not combined Latin words, but forms his word, as shown above, in the usual way from two other well-known English words, or, rather, from a word (a verb) and suffix, the meaning of the verb being readily understood and descriptive. But it seems to me that it makes no difference whether Latin or English words are combined. Some Latin words are as well known and the meaning thereof as well understood as English words. Where a word is formed by joining or combining English, Latin, or other words the meaning of which is understood, and said new word is descriptive of the goods to which it refers, it cannot be registered as a valid trade-mark. Neither does the *Cottolene Case* apply.

It would serve no useful purpose to further prolong the discussion by passing on all the points raised by appellant's brief. It is sufficient to say that the word as used by appellant is not a valid trade-mark, for the reasons above given, and registration is refused.

EX PARTE SNOW.

Decided August 13, 1897.

1. REOPENING CASE—AMENDMENT PRESENTING NARROW CLAIMS AFTER APPEAL ON BROAD CLAIMS.

Where on appeal only broad claims were presented, which were refused, *Held* that the case should not be reopened to admit narrow claims.

2. SAME—SAME.

An applicant should present his whole case at one time by both broad and narrow claims. It is not considered good practice to allow an applicant to present broad claims, try them through all the tribunals of the Office, and when such broad claims are refused go back to the Examiner and present narrow claims.

3. SAME—SAME.

Applicants insisting upon broad claims only and appealing such claims have no vested right in a further examination if they fail to prevail on the appeal.

ON petition.

WINDMILL.

Application of Gilbert B. Snow filed October 21, 1895, No. 566,335.

Messrs. Banning, Banning & Sheridan for the applicant.

BUTTERWORTH, *Commissioner:*

This is a petition from the refusal of the Primary Examiner to reopen a case and admit an amendment after a decision by the Commissioner. The facts in the case are that on the appeal the applicant presented only broad claims, which were refused by the Commissioner as being too broad in view of the state of the art as shown by the references. The petitioner contends that this was an intimation that narrow claims might be allowed to him and would justify the Primary Examiner in reopening the case. Whether or not he is entitled to narrow claims will not be passed upon, and it was not intended by that decision to intimate or suggest to the Examiner to reopen the case to consider narrow claims.

An applicant should present his whole case at one time by both broad and narrow claims. It is not considered good practice to allow an applicant to present broad claims, try them through all the tribunals of the Office, and when such broad claims are refused go back to the Examiner and present narrow claims. Were such a practice as this approved there would be no end to the examination and appeals in the Office. There must be an end somewhere to the prosecution of an application, and the Office is justified in restricting the power to bring up for consideration matters which should have been presented and disposed of prior to the closing of the case before the Primary Examiner.

The following language of Mr. Commissioner Mitchell in the case of *ex parte Opdyke* (50 O. G., 1293) is pertinent:

> I notice that the applicant has presented narrower claims along with the one under consideration, thereby adopting a very wise course, as applicants insisting upon broad claims only and appealing such broad claims to the Examiners-in-Chief have no vested right in a further examination, if they fail to prevail on the appeal.

The decision of the Examiner in refusing to reopen this case is affirmed and the petition denied.

EX PARTE FIRSCHING.

Decided July 28, 1897.

POWER OF ATTORNEY—COUPLED WITH INTEREST—REVOCATION.

A power of attorney coupled with a promise to pay to the attorney ten per cent. of all money received for the invention does not give him such an interest in the invention as to render the said power of attorney irrevocable, since, although such power was given for valuable consideration, the interest which the attorney has in the invention exists *in futuro* and is an equitable, not a legal, interest.

ON protest.

MATCHES.

Application of Georg Firsching filed April 6, 1897, No. 630,957.

Messrs. L. W. Serrell & Son for the assignees.

GREELEY, *Acting Commissioner:*

This is a protest by Herbert Knight against the revocation of his power of attorney in the above-entitled application, it being alleged that his power of attorney was coupled with an interest and was therefore irrevocable.

This application was assigned by the inventor to Siegmund Neuburg and Ignatz Neuburg, and on April 19, 1897, they appointed Herbert Knight as their attorney in fact to prosecute the application. The application was allowed May 3, 1897, and thereafter Knight's power of attorney was revoked and the entire invention was assigned to Francis George Faxon.

It is alleged by Knight that the revocation of his power of attorney and the assignment of the invention was with the purpose of defrauding him of his rights under an agreement whereby the Neuburgs had promised to pay to him ten per cent. of all money received for the invention. He holds that this agreement, which was at first oral, but which was reduced to writing May 13, 1897, and which has been recorded in this Office, gives him an interest in the invention and therefore renders his power of attorney irrevocable.

The agreement referred to is signed by Joseph, Ignatz, and Siegmund Neuburg, parties of the first part, and Adolph Moonelis and Herbert Knight, parties of the second part, and is in part as follows:

> Whereas the parties of the first part are in possession of a certain invention for which an application has been filed in the United States Patent Office on the 6th day of April, 1897, serially numbered 630,957, which has been allowed, and
>
> Whereas the parties of the second part have performed certain services in connection therewith,
>
> Now, therefore, to all whom it may concern, be it known that for and in consideration of said services and further in consideration of the sum of one dollar paid by each party to the other, receipt of which each party duly acknowledges, it is agreed as follows:
>
> The parties of the first part agree to pay to the said parties of the second part twenty (20) per cent. of moneys, royalties, interests, profits, or other payments (ten per cent. to be paid to Herbert Knight and ten per cent. to Adolph Moonelis) received by them or to be received by them for the sale of any U. S. patent or patents thereon and all other American patent-rights, including the rights in other North American together with Central and South American countries.

Great stress is laid on the principle of law that a power coupled with an interest cannot be revoked and authorities are cited to show that the power of attorney in the present case comes within the rule. The attorney in this case, however, cannot be said to have a legal interest at the present time in the invention or the patent to be granted, since, although his power was given for valuable consideration and as security, the interest which he has in the invention exists *in futuro* and is an equitable interest.

It may be that this interest is sufficient as between the parties themselves to prevent the revocation of the power of attorney, as was held in *ex parte Harrison* (13 O. G., 547) on a similar state of facts; but the present case is complicated by the fact that the invention has been assigned to a third party, and the question arises as to whether the interest of Knight is sufficient to prevent the legal transfer of the invention without his consent. The revocation of his power of attorney, although signed by the Neuburgs, is ratified by their assignee, Faxon, and if Faxon has a legal title to the invention he undoubtedly has the right to prosecute the application to the exclusion of the Neuburgs and their attorney. (*Ex parte Anderson*, 62 O. G., 449.)

As noted above, Knight has no legal title to the invention, and although it is possible that he might have in a court of equity prevented the assignment

of the invention without a proper settlement with him still his interest is merely equitable, and as such cannot be inquired into or enforced by the Office, since the Office has no means to determine disputed questions of title or make decrees as to the equitable rights of parties. In passing upon assignments the Office must be guided by the legal title as recorded in this Office. (*Ex parte Edison*, 7 O. G., 423; *ex parte Paine*, 13 O. G., 408; *ex parte Gallatin*, 59 O. G., 1104.)

The legal title to this invention has passed to Faxon and his right to be represented by an attorney of his own choosing will not be interfered with.

The protest is dismissed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Connecticut.

UNIVERSAL WINDING COMPANY *v.* WILLIMANTIC LINEN COMPANY.

Decided July 27, 1897.

1. WARDWELL—APPARATUS FOR WINDING COPS—INVENTION—INFRINGEMENT.

   Claims 1, 2, 3, and 4 of Letters Patent No. 480,157, granted August 2, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for an apparatus for winding cops, involve invention; but claims 1, 2, and 3 are not infringed, because the defendant's device neither contains the combination of elements nor uses the second source of motion specifically claimed, and claim 4 is not infringed, because in view of the art said claim cannot be sustained if so construed as to embrace unequal cone-pulleys as an equivalent of the means therein claimed.

2. SAME—METHOD OF WINDING COPS—INVALID.

   Letters Patent No. 480,158, granted August 2, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for a method of winding cops, construed and *Held*, in view of the state of the prior art, to cover no patentable novelty.

3. SAME—COP—VOID.

   Letters Patent No. 486,745, granted November 22, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for a cop, *Held* to be void by reason of lack of patentable novelty.

4. PAPER PATENT—PRESUMPTION OF OPERATIVENESS AND UTILITY—ANTICIPATION AND INFRINGEMENT.

   The grant of a patent raises a presumption of operativeness and of some utility, and if prior, even though it be a mere paper patent, it may anticipate, provided it sufficiently discloses the principle of the alleged invention. Such prior patent may be relevant also to show that another device is not an infringement of such alleged invention, but is merely an improvement upon the prior patent or an application thereof to a new purpose. (*Pickering v. McCullough*, 104 U. S., 319; *Dashiell v. Grosvenor*, 162 U. S., 432.)

Messrs. Dickerson & Brown for the complainant.

Messrs. Mitchell, Bartlett & Brownell for the defendant.

TOWNSEND, *J.:*

Complainant herein at final hearing on the usual bill and answer prays for an injunction and accounting by reason of the alleged infringement of Patents No. 480,157, for an apparatus for winding cops, No. 480,158, for a method of winding cops, both dated August 2, 1892, and of No. 486,745, for a cop, dated November 22, 1892, all of said patents having been issued to Joseph R. Leeson as assignee of Simon W. Wardwell, Jr., and duly assigned to this complainant.

A cop, the subject-matter to which these patents relate, consists generally of a ball or roll of thread or rope wound in helixes or spirals on a spindle. In most of the ordinary and earlier cops the successive coils of thread were irregularly wound upon the spindle without any attempt to arrange the threads parallel to each other. The alleged invention of the cop patent, No. 486,745, is therein stated by the patentee to consist in a—

> cop wound so as to have greater uniformity, density, and compactness, and so as to facilitate the unwinding and prevent tangling, and insuring other advantages.

Before discussing the patents in suit it will be necessary to make some general statements concerning the art.

Irrespective of certain alleged anticipations to be hereinafter considered there were found in the prior art various forms of cops distinguished by differences in pitch or angle of the thread and the relations of the threads to each other. Certain of these winds are designated "ball-wind, cross-wind, surface-wind, Z-wind, spool-wind, Spach wind," etc. It is unnecessary to state their distinguishing characteristics. A special form of wind of the prior art is known as the "half-wind" or "crescent-wind." The wind of the patents in suit is known as the "V-wind" or "Wardwell wind." In each of these two winds the thread is ordinarily wound on a core without any head at the ends from one end of the core to the other in the direction of a helix or spiral and is then so reversed as to form a knuckle or abrupt bend and wound in a reverse helix or spiral to that end of the core where the winding was started. In each the thread is again reversed to form another such knuckle, and, passing across the first helix, is wound in a second helix parallel and generally close to the first. In each complete parallel layers will thus be laid one above the other, forming a solid cylindrical cop-alike throughout.

The complainant differentiates the crescent-wind as follows:

First. It is a modified form of ball-wind.

Second. It is not wound in spirals, but in the form of a semicircle or semiellipse, and will therefore in its first courses slip toward the middle of the core, and therefore the successive threads may not lie parallel to each other.

Third. The threads will never cross each other intermediate of the ends of the core, and hence do not interlock, and therefore the cop will not be cylindrical in form and will easily lose its shape.

Fourth. This wind is adapted only for winding extremely small cops.

Whether the crescent-wind is a modified ball-wind is immaterial except in so far as under such designation complainant's expert includes it in the foregoing criticisms of ball-winds in general. The criticisms of ball-winds generally do not necessarily apply to the crescent-wind.

The essential feature of the Wardwell wind, as claimed by complainant, is that the wind is spiral in the sense that—

> the thread turns more than half a revolution in extending from one end of the cop to the other—

at such an angle—

> that when the complete spiral is laid, that is, when the thread has been wound to the end of the cop and has returned, the

angle of delivery and return shall be such that the thread will remain where it is put.

The distinguishing feature of the crescent-wind, as claimed by complainant, is that the thread, although wound in substantially the same direction as in the Wardwell wind, is not spirally wound, because the angle is such that the thread turns only one-half a revolution in extending from one end of the cop to the other, and therefore—

the turns of the thread constitute substantially circles or rings at an angle to the axis of the holder or tube.

This difference of angle is claimed as Wardwell's invention and as the basis of the alleged differences in results. The line between what is thus included within and excluded from the Wardwell invention may be shown by the following statements.

Complainant's expert, Foster, first says:

I was wrong in stating that a complete revolution was necessary to lay such a spiral or helix as is required by the patent.

Later he says:

Q. Then, if I understand you, everything else being alike in machine, in wind and in cop, a spiral crossing in five-eighths of a turn would not exclude the Leeson invention, a spiral crossing in four-eighths of a turn would exclude the Leeson invention, and as to a spiral crossing in nine-sixteenths of a turn, you are somewhat in doubt?—A. So far as I can tell without seeing the cop, a spiral crossing in five-eighths would have reverse spirals interlocking between the ends, and would embody this feature of the Wardwell invention. I do not recognize that there would be a spiral at all at four-eighths of a turn, because that would be a one-half turn, winding what I have pointed out as a ball-wind cop. As regards a spiral of nine-sixteenths, if the thread was fine and the cop relatively long, this would embody this feature of the Wardwell wind if it caused the reverse spirals to be interlocked between their ends.

Wardwell himself in the patents in suit does not claim that any exact pitch or number of turns in the spiral constitutes his invention. On the contrary, he says in No. 486,745:

I make use of a tube, spindle, or cylinder 1, of any suitable character, and I wind the thread x thereon with any suitable number of turns or coils to the length of the tube.

In No. 480,157 he says:

As a result of this operation, the reversal of the movement of the guide takes place not upon the completion of a rotation (or fraction or multiple of a rotation) of the holder, but after and only after the holder has reached a point in its revolution beyond that necessary to complete such movement and beyond that point which it occupied at the time the guide was reversed upon its preceding reversal of movement, so that the thread held by the guide is not started on its return winding until it has been laid over onto the outer side of the previous coil.

The crescent-cops do not necessarily slip toward the middle of the core. Whether such a wind thus slips depends upon the angle at which it is wound and the abruptness of the reversal and may also depend upon whether the core is rough or smooth. The crescent-cops, as originally wound, were small sewing-machine cops, and in them the thread did not cross intermediate the end of the core. This point will be discussed hereinafter.

Wardwell created the cop in the method and by the machine which are the subjects of the three patents in suit. Complainant claims that therein he first disclosed the angle at which threads could be so laid on a cylinder that they would lie parallel to and generally in contact with each other without slipping and would cross each other and interlock intermediate the ends and the method and means for accomplishing said result, and that he was the first inventor thereof.

Patent No. 480,157 covers Wardwell's machine for winding the cops of No. 486,745 by the method of No. 480,158.

The claims alleged to be infringed are the following:

1. In a cop-winding machine, the combination, with a revolving holder for supporting the cop and with a reciprocating thread-guide supported to move in a course parallel to the axis of the cop, of mechanism adapted to give the holder an increment of movement at each rotation, for the purpose set forth.

2. A machine for winding cops, provided with a holder for the cop, and a reciprocating guide for the thread supported to move parallel to the axis of the cop and outward as the cop increases in diameter, and means for turning the holder and for reciprocating the guide, and mechanism for varying the relative movements of the holder and guide to insure an increment of movement to the holder at each rotation, whereby each reversal of the movement of the guide takes place after the holder has turned beyond the point of its revolution occupied at the moment of the preceding reversal of the movement of the guide, substantially as set forth.

3. A machine for winding cops, provided with a revolving holder for supporting the cops and with a reciprocating thread-guide and means for varying the relative movements of the thread-holder and guide, constructed substantially as described, to secure each successive reversal of the movement of the guide at the outer end of the holder after and only after the holder in its rotation has reached a point beyond the point reached at the moment of the preceding reversal of the movement of the guide at such end, substantially as set forth.

4. In a cop-winding machine, the combination of a guide and means for imparting to the same a regular reciprocating movement parallel to the cop, and a holder for supporting the cop, and means for imparting to the same a progressive rotary movement at each rotation, substantially as set forth.

The patented machine comprises a cop-holder in the form of a cylinder and a thread-guide operating close to said cylinder and so arranged that as the cylinder rotates the thread-guide reciprocates in a line parallel to the axis of the cylinder and so that as the thread is brought to either end of the cop thus formed each succeeding coil shall be abruptly bent at a point just beyond the bend in the last preceding coil and shall form such a bend or knuckle beyond the preceding one that the thread shall thereafter lie parallel to the thread of the preceding coil and preferably in direct contact therewith. The patentee does not limit himself to any precise means for accomplishing this result. He describes and illustrates, however, a machine mounted on a frame provided with a cylinder supported between two disks on conical hubs which turn loosely on a shaft driven at a uniform speed by suitable gear and pinion devices.

In view of the conclusion reached that the Wardwell machine involved invention it is unnecessary to describe the mechanical details, fully stated in said specification, whereby the desired result may be accomplished. For the purposes of this case it suffices to say that by means of a cross-arm carrying a lever attached to a pivoted spring-pawl and a rock-shaft carrying arms, one of which is connected with said lever, while the other extends over a cam upon a sleeve turning on said driven shaft, not only do one of said disks and said pawl revolve with said shaft, but the revolution of said sleeve is retarded and one of the arms is released and throws said pawl forward. The patentee says:

The pawl therefore derives its motion from two sources—first, from the rotation of the shaft and the cross-arm carried by the shaft, which would give to the pawl and to the disk the same rate of rotation as the shaft; second, from the cam which imparts to the pawl a progressive or forward traveling movement in excess of that derived from the shaft, so that at the completion of each revolution of the shaft or upon each successive reversal of the movement of the guide the pawl and the disk will have traveled not only the extent of a complete revolution, (or a complete fraction or multiplication of a revolution,) but will also have moved an additional extent corresponding to the movement imparted to the pawl by the cam.

The patentee also suggests that provision might be made for a momentary action of the cam, instead of the described gradual and constant move-

ment, by the substitution of a radial pin for said cam.

The features claimed as distinctive of the Wardwell machine are, first, the rotatable cop-holder; second, the reciprocating thread-guide so operated as to be constantly close to the cop; third, the means for so rotating the cop-holder relatively to the thread-guide that the thread will be deposited in helixes or spirals of such a pitch that they will not slip on the cop-holder; fourth, "a cam or equivalent device reciprocating the thread-guide and so constructed that it will, at the ends of the reciprocations of the thread-guide, reverse it with that celerity which is necessary for producing the knuckles or abrupt bends;" fifth, "means for producing an increment of motion, whereby the thread, about the time of being reversed, will be made to cross a portion of a previously-laid angle or abrupt bend, in order that after reversal the thread may be alongside of and parallel to the latter."

The defendant's machine differs materially in construction from complainant's machine It has guides and devices for so adapting their movements to each other as to produce the same result as is produced by complainant's machine; but the contention of the defendant is that its machine does not infringe because it produces this result without the use of the essential elements claimed in complainant's patent. The complainant's patent, it will be remembered, describes two sources from which the pawl derives its motion and by means of which an increment of motion is imparted to the thread-guide at each succeeding reversal of movement. The result of this twofold speed relationship, says the patentee—

is the same, whether the rotating cop gains sufficient at each revolution to carry the thread being laid across that previously laid at the end of the cop or the cop rotates uniformly without gain, and the guide as it reaches each end of the cop is held for a longer time than is necessary for the cop to complete its rotation.

In the defendant's machine the desired result is secured by regulating the speed relation between the spindle and thread-guide by means of the relative proportions of the wheels which connect these two shafts to the driving-shaft. The defendant therefore does not use the means for the throw or increment of motion described in complainant's patent; but the patentee states that he does not confine himself to the described or preferable construction, and he describes an ingeniously-devised apparatus which produces an improvement upon prior products.

The issue therefore may be fairly reduced to the scope of the claims in suit. For the purposes of this discussion it will be necessary to further examine the prior art in general and the prior experiments of Wardwell and others and their results.

The Morrison use in 1879, if sufficiently proved, would invalidate all of complainant's patents; but it would be unsafe to find anticipation upon such doubtful evidence. Morrison, who swears that he made an anticipating machine, was an employee of defendant. He built only one original machine. It is not proven that the model is in certain essential parts like the original. The persons for whom it was made abandoned its use and took a license under the three patents in suit.

Patent No. 146,210, granted January 6, 1874, to Samuel K. Smith, shows a spooling-machine adjusted for winding threads close together with coils inclined so as to cross each other back and forth the length of the spool. The patent does not show such an apparatus as that of the patent in suit for forming the knuckles or bends, nor would it without modification make a cop such as is made by the machine of the patent in suit; but in connection with its spindle and thread-guide it shows, for giving to said guide its reciprocating motion, a grooved cam, an arm projecting into said groove, and two conical pulleys with a belt for connecting the cop-turning mechanism with the guide-reciprocating mechanism like those shown in defendant's machine. It is a paper patent. If it does not anticipate complainant's machine, it bears directly, if not decisively, upon the question of infringement. The grant of a patent raises a presumption of operativeness and of some utility, and if prior, even though it be a mere paper patent, it may anticipate, provided it sufficiently discloses the principle of the alleged invention. Such prior patent may be relevant also to show that another device is not an infringement of such alleged invention, but is merely an improvement upon the prior patent or an application thereof to a new purpose. (*Pickering* v. *McCullough*, 104 U. S., 319; *Dashiell* v. *Grosvenor*, 162 U. S., 432.) In this case the conclusion reached upon all the evidence is that the defendant's device is such an improvement or adaptation of the art existing at the date of the invention in suit.

Neither the drawings nor the description of the Heal British patent discloses the whole machine. The drawings further fail to show the speed relation between guide and spindle and the thread is delivered from the guide at a considerable distance from the cop. But earlier patents, and notably the British patent to James Combe of 1867, show the thread-guide bearing directly upon the cop, and this Combe patent illustrates the positive connection of thread-guide with a cam and of uniform pitch rotating uniformly with respect to the rotation of the spindle, which are characteristic features of defendant's machine. Neither the Heal nor the Combe patent shows the variation of rotary movement of spindle or the added movement or increment of motion covered by the patent in suit. Neither of these machines, therefore, is like the patent in suit; but no reason is shown why a skilled mechanic could not supply from the then prior art the necessary connection between spindle and thread-guide shaft or provide means for actual contact between the thread-guide and spindle at the point of delivery of the thread, and complainant's expert does not deny that such modifications could be made, or assert that it would require inventive skill to make them, or that if made they would constitute invention.

A mass of testimony has been introduced as to the date of Wardwell's conception and reduction to

practice of his invention. The evidence as to Wardwell's experiments shows that, having been engaged by complainant to make a machine to wind cops, he conceived first the idea of a method of so laying parallel threads and crossing them at an abrupt angle as to make a compact cop; that later he devised two machines, the earlier of which, on account of its complicated construction, was abandoned in an incomplete state and the later of which was finished in October, 1891. This machine embodies the construction shown and claimed in the patent in suit. Wardwell's earlier drawings and both machines show the means employed for securing the increment of motion, which is a characteristic of his patent. As to this, he testifies as follows:

Q. State whether or not there is any difference in the result of the two arrangements of the pawl shown in the drawing and in the patent?—A. The results were substantially the same; the pawl operated to draw or push the cop in excess of the motion imparted by its shaft.

It is significant as bearing upon the claim as to Wardwell's conception of a V-wind as distinguished from a ball-wind that in "Complainant's Exhibit Wardwell's First Machine Drawing" the sharp angles of the cam are such as to suggest a ball-wind, and the cop therein illustrated is a ball-wind cop.

The defendant has been experimenting in cops since 1889. It claims that prior to October, 1890, the superintendent of its factory showed the Merrick cop, to be hereinafter considered, to one of its machinists, Palmer, and asked him whether he could wind such a cop, and that in October, 1890, he did make such a cop by the use of a crude device having a flier or thread-guide on an angle with the spindle; that he continued these experiments and in 1891 produced one machine and in 1892 another improved machine which made the cop of the patent in suit. It is unnecessary to discuss the bearing of this evidence upon the claim of anticipation. It is relevant, however, as throwing light upon the problem presented and the means adopted by different persons for its solution.

If now we again compare the patented machine with defendant's machine, we shall find in the former the completed practical development of the original conception of the increment of motion to secure the parallelism of threads, the knuckle or abrupt bend, and the other advantages of the Wardwell cop. We shall find the embodiment of this invention, first, in the rotating cam-shaft operating the thread-guide through its cam and the cop-shaft, and said cop-shaft rotating the spindle; second, in two distinct speed relationships, one determined by the relation between the cop-shaft and cam-shaft, the other the—

relative movement of the tube-holder with respect to its shaft or the thread-guide cam with respect to its shaft, which causes an increment of motion.

The patentee's description of this increment of motion or added movement by means of motion from two sources has already been given in connection with the description of his machine.

In the defendant's machine the spindle is fastened to and revolved by its shaft and the thread-guide is caused to reciprocate by a cam on another shaft. They are operated by means of belts, pulleys, and gears connected with the main driving-shaft. Two slightly-tapering pulleys with a belt provide means for adjusting the relative proportions of the speed relations between the thread-guide and the spindle. This may be accomplished by shifting the belt lengthwise of the pulleys. The differences of construction material in this connection are the loosely-turning spindle-holders of complainant's machine, while that of the defendant is fast to its shaft, and the arrangement of belts and tapering pulleys in defendant's machine to produce the result accomplished in complainant's machine by means of arms, pawl, cam, and geared wheel, as already described.

The question at issue is therefore reduced to one of infringement depending upon the scope of the invention. The first, second, and third claims do not cover defendant's machine. Its mechanism is not—

adapted to give the holder an increment of movement at each rotation,

nor does it provide means—

whereby each reversal of the movement of the guide takes place after the holder has turned beyond the point of its revolution occupied at the moment of its preceding reversal of the movement of the guide, substantially as set forth.

But the fourth claim is much broader in its terms, and covers—

the combination of a guide and means for imparting to the same a regular reciprocating movement parallel to the cop, and a holder for supporting the cop, and means for imparting to the same a progressive rotary movement at each rotation, substantially as set forth.

And it will be remembered that the patentee has in his specification stated that he does not limit himself to the preferable forms therein described, and that—

different means may be employed for causing such a relative variation of movement as will effect the above-described result.

The defendant contends that its device for regulating the relative motion between thread-guide and cop was old and well known in this and allied arts at the date of the patent in suit. The prior art already considered has shown a single speed relationship, but has not been discussed in connection with defendant's construction for regulating the relation of speed.

Patent No. 245,373, granted to J. Hargraves in 1881, and one of the British patents granted to J. C. Spach and F. A. Spach in 1885, show cone-pulleys and a belt thereon so arranged that by shifting it lengthwise of said pulleys the relative speeds of the two driving-shafts may be adjusted. Further evidence as to defendant's construction is found in the so-called "Merrick" use.

Upon final hearing defendant, in connection with proof of an alleged prior use by the Merrick Thread Company of certain machines and methods claimed to anticipate or limit the patents in suit, introduced two machines, known, respectively, as "Merrick 1890 machine" and "Merrick 1890 machine showing stop-motion attachment." The latter machine was so provided with unequal pulleys that, if prior use and knowledge thereof in the United States had been sufficiently proved, it would have been fatal to the claims of the machine patent in suit, if not as an anticipation at least as showing non-infringement, as will be hereinafter explained. The proof of priority, however, was not so limited. Upon motion of defendant the case was opened to permit the introduction of further testimony on this point.

Much of the new evidence on each side is indefinite and contradictory. Some of the witnesses are manifestly prejudiced, even if their recollection is accurate. The whole evidence as to the Merrick use, taken together, shows that in 1890 and prior to the date of Wardwell's machine invention the Merrick Thread Company used in its mill at Holyoke, Mass., machines for making half-wind cops by the use of conical pulleys of equal size. They embody substantially the defendant's construction, except that in the latter the conical pulleys are unequal. The great preponderance of evidence is to the effect that the "Merrick 1890 machine with stop-over attachment," hereinafter to be called the "second Merrick 1890 machine with conical pulleys of unequal size," also was practically operated in said mill in 1890. Green, the alleged inventor; Baker, the draftsman; Prentice, a superintendent, and Hopkins, president and acting manager of the Merrick Company, interested but intelligent witnesses, testify more or less satisfactorily on this point. Of the witnesses for complainant on the reopening, Cressy is ignorant, untrustworthy, and contradicted by Mary Lipps and by his former testimony. Mary Lipps testified that cones of different sizes might have been used on one or more of these twenty-six machines without her knowing it. Lizzie McDowell's memory is defective, and Hollingsworth is intelligent, but manifestly hostile to defendant. He testifies that he was a draftsman for the Merrick Company until December 24, 1890, and that he never saw a machine with unequal pulleys while in their employ. While, however, the weight of evidence as to said second Merrick machine so strongly preponderates in favor of defendent, I am not satisfied that it establishes the claim of anticipation beyond a reasonable doubt. It does, however, furnish substantial support to the view herein taken upon the question of infringement.

It will be recalled that the prior Hargraves patent showed a machine with conical pulleys of unequal size capable of producing on cards a wind like that of the second Merrick 1890 machine. Furthermore, defendant's witness, Green, in the first claim of an abandoned application for a patent sworn to on September 13, 1890, used the following language:

1. In a cop-winding machine, the combination with a winding-shaft carrying a mandrel and a cone-pulley, of a secondary shaft carrying a cam and a cone-pulley, a vibratory thread-guiding lever operatively engaging the cam on said secondary shaft, and a belt connection between the cone-pulleys on said shafts, whereby the speed of said secondary shaft can be varied at will, substantially as and for the purposes described.

This statement seems to be sufficiently comprehensive to embrace either equal or unequal conical pulleys. In view of Spach and Hargraves it would be unnecessary to specify that the relative speed relations could be varied by unequal pulleys, for that was already old. In this abandoned application reference is also made to the method of making cops of varying width and to winding the threads upon a tube in uniform layers.

The issue of infringement herein may be most directly presented by a comparison of the confessedly prior first Merrick 1890 machine with the second Merrick 1890 machine, the prior use of which is denied by complainant. In the former by the use of a belt at the center of the equal pulleys a half-wind cop is produced. Defendant contends that the adjusting devices of the first Merrick 1890 machine are so constructed that by shifting the belt a V-wind may be produced thereon. This the complainant denies. I have not been able to satisfactorily determine this question. In the second Merrick 1890 machine the cone-pulleys are of unequal size, thus providing a speed relationship which makes the V-wind between the ends of the cop. This is the sole material difference in the construction and resultant operation of the two machines. It may be assumed that this modification was subsequent to the alleged Wardwell invention. It is proved that it made what is known as the "Wardwell" cop.

Whether the V-wind crossing intermediate the ends was an essential feature of Wardwell's invention is very doubtful. He illustrated the half-wind in his drawings. The term "V-wind" is not found in any of the patents. Such crossing is mentioned only once in the three specifications. Most of the claims cover only the crossings at the end of the cop, and no reference is made to the V-wind in the expert testimony-in-chief, and in his later patent, No. 533,934, Wardwell himself, in disclosing certain improvements on his alleged inventions already patented, illustrates and describes not the V-wind or full-wind, but a wind of quarter-turns, thus forcibly suggesting that his conception of his invention was not in the length but in the character of the spirals.

It may be further assumed that it would have involved invention to thus change the size and resultant operation of the pulleys if such change had not been in the prior art; but in the Hargraves patent, already considered, are found such pulleys used to produce said V-wind upon a flat card.

The considerations already suggested show that if Wardwell's fourth claim could be so construed as to embrace all means for imparting progressiye rotary movement to the cop at each rotation it would be void by reason of lack of patentable novelty. If so construed as to include only the device described in the specification, it is not infringed.

If it be conceded on behalf of complainant that the proof of the alleged Morrison use is insufficient; that the date of the Morrison second machine, which contains the Wardwell invention, is not proved beyond a reasonable doubt; that the abandoned application of Green failed to describe how the variation of speeds, included in the first claim, was to be accomplished and failed to show a mode of forming cops of any desired width by varying the throw of the guide-lever; that the crescent and Merrick 1890 cops were irregular in their first layers because of slippage; that the evidence as to the Wardwell Columbian Exposition cops is immaterial; that the first Merrick 1890 machine with equal cones could not be commercially operated so as to produce the Wardwell cop, and that the priority of the second Merrick 1890 machine has not been conclusively shown, and, as stated by complainant's counsel, that—

if anything is clear under all these patents, it is that they are drawn to monopolize a cop, a method and a machine involving layers of winding uniform throughout from the innermost to the outermost, and as to every characteristic except size. It is equally clear that these results were set forth in the specification and illustrated in the drawings as due to the laying of a helix substantially more than a half-turn; or, in other words, substantially more than half-way around a cop, and, hence, of such a character that, when reversed, there would be a crossing

of the thread and a tying down of the helixes intermediate the ends of the cop—

the issue between the parties would be practically embraced in the following statements in the closing brief of complainant's counsel:

Defendant's contention that the substitution of unequal cones bearing a certain relation to each other, for equal cones in "Defendant's Exhibit Merrick 1890 Machine" would have resulted in the production of a cop of the one-wind or V-wind type, has already been discussed. If no other change had been necessary for a successful machine, that would have been sufficient to confer patentability, for only the eighth turn of an adjusting-screw distinguished the Rice telephone from Bell's, and yet Rice's was held to be absolutely immaterial.

The suggestion that the unequal cones were found in Hargraves Patent No. 345,373 * * * is immaterial, because in the Hargraves patent they were in a different combination, as will be seen from the discussion of that patent in our original brief.

That the substitution of unequal cones does produce the Wardwell cop is proved. Such unequal cones, however, were already known and used for an analogous purpose in the art of winding spools.

Assuming, further, the correctness of complainant's contention as to the V-wind, and the material difference between the Wardwell cop and the earlier Merrick cop is in the intermediate crossings of the threads. The angle required to avoid slippage is a mere matter of mechanical experiment and adjustment. The fundamental law of the operation of the two machines is the provision of means for definite speed relations between the tube-shaft and guide-shaft and for such changes therein—

as to allow one to gain or lose on the other at each revolution by as much as the thickness of the threads to be wound.

In order to extend the operation of this fundamental law to a V-wind crossing intermediate the ends, Wardwell devised the special means for securing the increment of motion already explained, while defendant or Merrick applied the unequal cone-pulleys of the prior art.

The conclusion reached upon the whole case is therefore that the defendant does not infringe the first, second, and third claims of the machine patent in suit, No. 480,157, because the defendant's device neither contains the combination of elements nor uses the second source of motion specifically claimed therein, and that it does not infringe said fourth claim, because in view of the state of the art said claim cannot be sustained if so construed as to embrace unequal cone-pulleys as an equivalent of the means therein claimed.

The foregoing discussion is relevant to the consideration of the other patents in suit. The characteristics of the patented cop have already been discussed. Its utility and commercial success and defendant's infringement are sufficiently proved.

In addition to the defense of lack of patentable novelty in view of the art already considered defendant further claims anticipation, as matter of law, by reason of the prior process patent and anticipation—in fact, by reason of certain museum exhibits. It is clear that the patented cop can be produced only by the patented method, and that the patented method cannot be followed without producing the patented cop.

It is not necessary to determine the effect either of a prior patent for a product or of a prior patent for a subsidiary improvement upon a later patent for a broad generic invention. In this case there was but a single invention involved—namely, the method of laying threads on a core in such relations to each other that a certain result is produced. It clearly falls within the first principle stated in *Underwood* v. *Gerber* (48 O. G., 116; 37 Fed. Rep., 682) and affirmed in numerous later decisions. Here, as in that case, there was no invention in the later patent in view of the earlier patent. There it was held, as it must be here, that cases where the later patent was granted for an improvement upon the earlier one have no application.

The defendant has introduced four rope or cord cops which correspond precisely in appearance with the patented cop. Two of these cops have been publicly exhibited in the National Museum at the city of Washington since 1884. The other two cops were similarly accessible to the public in the American Museum of National History at New York for more than two years prior to January 1, 1891. It is proved that all of these cops were known to various persons in the United States long prior to the patent in suit. The complainant has attempted to meet this evidence by proof that these rolls were made in the Fiji Islands; that they were used for decorative purposes at the museum; that the whole of said rolls could not be seen by the general public, and that they were neither sold nor used in the United States. I do not see how any of these facts, if admitted, militate against the proof that they were in the United States and known to persons other than the patentee in the United States prior to the date of the alleged invention. They were on public exhibition where they could have been examined by visitors at any time.

It is true that it does not appear, and cannot be certainly determined without further examination, whether the interior coils are wound in the same manner as the exterior ones. It may therefore be said that without such proof the museum cops do not anticipate the patented cop; but this evidence only serves to shift the defense from anticipation to a denial of patentable novelty, at least so far as the cop patent is concerned. Whether the process of winding was the same is immaterial in this connection. The completed product is identical in appearance, and such of said completed product as was known and open to inspection shows every element of the cop patent precisely as claimed in the first, second, and third claims. In view of the utility of the patented cop, the manifest advantages resulting from its construction, and its success in the market it may be assumed that Wardwell invented it; but—

the statutes authorize the granting of patents only for such inventions as have not been known or used by others in this country and not patented or described in any printed publication in this or any foreign country before the applicant's embodiment of his own conception. It may be a hardship to meritorious inventors, who, at the expenditure of much time and thought, have hit upon some ingenious combination of mechanical devices, which, for aught they know, is entirely novel, to find that in some remote time and place some one else of whom they never heard has published to the world in a patent or a printed publication a full description of the very combination over which they have been puzzling, but in such cases the act none the less refuses them a patent. (*New Departure Bell Co.* v. *Bergin Bros. Mfg. Co.*, 73 Fed. Rep., 469.)

And because the expert testimony satisfactorily proves that the parts of the museum cops which are in suit so fully show their construction that any mechanic ordinarily skilled in the art could make the patented cops therefrom without invention, and because they appear to be and would more naturally be uniform throughout, I am constrained to find, whether they are or are not thus uniform, that there could be no creative conception and no patentable ingenuity or invention in a cop made up of layers arranged alike throughout in the pattern disclosed by the museum cops. It is significant in this connection that in the one hundred and twenty-three pages of rebuttal testimony of the learned and skilful expert for complainant, Charles E. Foster, he nowhere denies the testimony of defendant's expert that a person skilled in the art could have supplied any supposed omission or arranged any supposed variations in the museum cops so as to make the cops of the patent. This patent is void by reason of lack of patentable novelty.

In view of these circumstances the additional defense against the process patent, No. 480,158, on the ground that it covers merely the function of a machine, will not be discussed. The conclusion reached is that in view of the state of the prior art there was no patentable novelty in said process.

Let a decree be entered dismissing the bill.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Changes in Classification.

(ORDER No. 1,145.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 23, 1897.

The following changes in classification are directed:

In Division VII, subclasses 14, Locks, and 25, Luggage-carriers, Class 208, Velocipedes, are abolished, and a subclass is established in the same class to be entitled 45, Velocipedes, carrier.

In Division VIII a subclass is established to be entitled:

211. Store furniture—
28. Display-trays.

In Division XXXIV, Class 105, Railway Rolling-Stock, subclass 216, Derailers and replacers, is abolished.

The following subclasses are established in the same division, in Class 104, Railways:

Car-replacers—
161. Car-attached,
162. Hinged blocks,
163. Rigid blocks,

Car-replacers—
164. Shifting-jacks,
165. Endless-carrier,
166. Guard-rails.

BENJ. BUTTERWORTH,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 66 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 66 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70 pages. In paper covers, $1.50.

Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 98 pages. In paper covers, $1.50.

Delivery of Patent.

The patent will be delivered or mailed on the day of its date to the attorney of record, if there be one; if not, to the patentee; or, if the attorney so request, to the patentee or assignee of an interest therein.

Label.

6,556.—Title: "REGISTERED LABEL OF THE ROCKY FORD MELON GROWERS ASSOCIATION." *The Rocky Ford Melon Growers Association*, Rocky Ford, Colo. Application filed July 10, 1897.

Issue of August 31, 1897.

Patents	462—No. 580,938 to No 580,399, inclusive.
Designs	38—No. 27,582 to No. 27,619, inclusive.
Trade-Marks	5—No. 30,527 to No. 30,531, inclusive.
Labels	1—No. 6,556.
Prints	None.
Reissues	None.
Total issue	506

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	17	.....
Arkansas	2	.....	New Mexico Territ'y	.....	.....
California	17	.....	New York	70	.....
Colorado	2	1	North Carolina	2	.....
Connecticut	54	.....	North Dakota	.....	.....
Delaware	1	.....	Ohio	39	.....
District of Columbia	1	.....	Oklahoma Territory	.....	.....
Florida	1	.....	Oregon	2	.....
Georgia	5	.....	Pennsylvania	33	.....
Idaho	1	.....	Rhode Island	2	.....
Illinois	30	1	South Carolina	.....	.....
Indian Territory	1	.....	South Dakota	1	.....
Indiana	13	.....	Tennessee	4	.....
Iowa	11	.....	Texas	11	.....
Kansas	12	.....	Utah	.....	.....
Kentucky	2	.....	Vermont	1	.....
Louisiana	2	.....	Virginia	5	.....
Maine	5	1	Washington	2	.....
Maryland	2	.....	West Virginia	2	.....
Massachusetts	33	1	Wisconsin	11	.....
Michigan	13	.....	Wyoming	.....	.....
Minnesota	5	.....	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	14	.....			
Montana	4	.....	Total to citizens of the United States	443	4
Nebraska	3	.....			
Nevada	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	1	.....
Austria-Hungary	.....	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	.....	.....
Belgium	3	.....	New Zealand	4	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Portugal	.....	.....
Canada	9	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile, Republic of	.....	.....	Russia	1	.....
China	.....	.....	Scotland	3	.....
Colombia	.....	.....	South African Republic	.....	.....
Cuba	.....	.....	South Australia	.....	.....
Denmark	2	.....	Straits Settlements	.....	.....
Egypt	.....	.....	Sweden	1	.....
England	19	.....	Switzerland	.....	.....
Finland	.....	.....	Victoria	.....	.....
France	4	.....	West Australia	.....	.....
Germany	6	2			
Hawaii	2	.....			
India	2	.....	Total to citizens of foreign countries	57	2
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

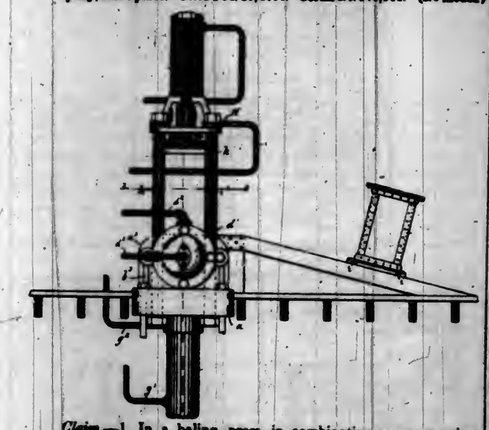
Condition at Close of Business August 24, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 26	Aug. 5	106
106	II. Farm Stock, Products, etc.	July 24	Aug. 4	289
	Between one and two months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	June 24	Aug. 5	261
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 25	Aug. 3	252
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 17	Aug. 2	213
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	July 14	July 28	262
265	XII. Mechanical Engineering, Store-Service, etc.	June 29	July 28	218
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	June 29	July 27	224
215	XVII. Paper Manufactures and Printing.	July 6	July 26	159
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 9	July 26	195
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	July 17	July 24	140
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 25	July 23	181
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	July 9	July 22	273
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 26	July 20	195
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 3	July 12	409
250	VIII. Furniture, Beds, Stone Furniture, etc.	June 28	July 10	519
	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	May 24	Aug. 14	300
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 22	Aug. 9	218
109	XIX. Stoves and Furnaces	June 7	Aug. 4	335
98	XXI. Textiles, etc	June 21	Aug. 2	154
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 18	July 26	389
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 9	248
190	IX. Hydraulics, Fire-Extinguishers, etc.	June 18	July 7	249
206	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 24	July 7	304
240	VII. Velocipedes	June 1	July 1	1232
231	XXIII. Instruments of Precision, Acoustics, etc.	June 9	June 28	292
122	XXIV. Sewing Machines, Apparel, and Toilet.	June 1	June 25	256
246	I. Tillage and Fences	June 18	June 23	361
	Between three and four months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 27	July 20	402
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 23	June 23	197
253	X. Carriages and Wagons	May 21	June 12	383
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	578
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 8	June 14	994
	Total number of applications awaiting action			10,827
	Under one month in arrears.			
	Designs	July 24	Aug. 10	185
	Between one and two months.			
	Trade-Marks	July 7	July 16	261

PATENTS

GRANTED AUGUST 31, 1897.

588,938. BALING-PRESS. HERMANN ALBRECHT and JOHN R. BYRNS, Cleveland, Ohio, assignors to the Johnston & Jennings Company, same place. Filed Feb. 19, 1896. Serial No. 579,961. (No model.)



Claim.—1. In a baling-press, in combination, a compression-trough, two movable plates in said trough, mechanism for moving said plates toward and from each other, a box open at top and bottom and adapted to be placed upon said trough, a cover-plate normally held above the top of said box, mechanism for moving it down through said box to the top of said trough, substantially as and for the purpose specified.

2. In a baling-press, in combination, a compression-trough, two movable plates in said trough, mechanism for moving said plates toward and from each other, a box open at top and bottom and adapted to be placed upon said trough, a cover-plate normally held above the top of said box, mechanism for moving it down through said box to the top of said trough, and a vertically-movable ejector-plunger which forms a part of the bottom of the trough during the compression operation, substantially as and for the purpose specified.

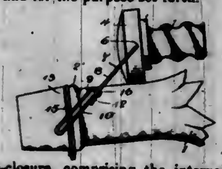
3. In a baling-press, in combination, a hydraulic cylinder having an external mutilated flange near one end, a plate having a socket adapted to receive said end of the cylinder, a mutilated flange on said plate projecting into said socket and adapted to engage with the mutilated flange on the cylinder, substantially as and for the purpose specified.

4. In a baling-press, in combination, a compression-trough having on the under side of its bottom plate a socket surrounded by an internal mutilated flange, a hydraulic cylinder having on its upper end an external mutilated flange which engages with the flange on the bottom of the trough, substantially as and for the purpose specified.

5. In a baling-press, the combination of a compression-trough, a platform adjacent to and at the level of the top of the trough, two movable plates which lie and fit in said trough, mechanism for moving said plates toward and from each other, a box open at top and bottom adapted to slide upon said platform toward and onto the trough, a cover-plate normally held above the box when it is resting upon said trough, and mechanism for moving it down through said box to the top of said trough, substantially as and for the purpose specified.

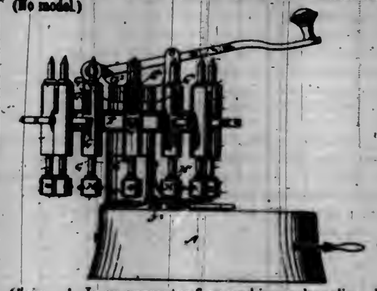
588,939. BOTTLE-CLOSURE. MORRIS ALEXANDER, New York, N. Y. Filed Nov. 13, 1896. Serial No. 612,262. (No model.)

Claim.—1. A bottle-closure comprising a bottle having its neck formed with an external annular groove and an internal screw-threaded mouth, in combination with a cap provided with an integral externally-threaded shank, a transverse orifice, and an independent packing-ring, a bail-wire having its yoke secured in said transverse orifice and formed with the integral parallel arms having detents 16 16 and terminating in oblong links, and the neck-band encompassing said external groove, and provided with radial arms 14 14, engaging said oblong links and terminating in oblong horizontal eyes 15 15, substantially as and for the purpose set forth.



2. A bottle-closure, comprising the internally-screw-threaded neck 1, provided with the external circumferential groove 2, the neck-band 13 loosely secured in said groove 2, and formed with oppositely-disposed radial arms 14 14 terminating in integral oblong horizontal eyes 15 15, in combination with the cap 4 having an integral threaded shank and a transverse horizontal orifice 6 extending through its solid portion, a bail-wire having its yoke 7 secured in said orifice 6 and formed with the integral depending parallel arms 8 8, formed with the integral detents 16 16, and having their free ends terminating in oblong links 10 10 encompassing the oppositely-disposed radial arms 14 14, substantially as shown and described.

588,940. APPARATUS FOR BRANDING CHECKS. ERWIN H. ARGELL, Somerville, Mass. Filed Apr. 8, 1895. Serial No. 544,572. (No model.)



Claim.—1. In an apparatus for punching or branding checks or other articles, a holder of non-conducting material, and a wire of conducting material partly embedded in said non-conducting material and having a series of sections of the same projecting from said non-conducting material to form a character.

2. In an apparatus for punching or branding checks or other articles, a holder of non-conducting material, and a wire of conducting material partly embedded in said non-conducting material, bent into an irregular form, and having a series of sections projecting from said non-conducting material to form a character of a broken outline.

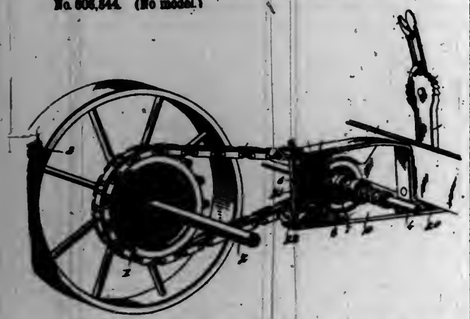
3. In an apparatus for punching or branding checks or other articles, a holder of non-conducting material, and a corrugated wire of conducting material partly embedded in said non-conducting material, and having the spaces of said corrugations projecting from said non-conducting material to form a character of a broken outline.

4. In an apparatus for punching or branding checks or other

articles, an electric circuit normally open, hinged arms forming movable terminals for said circuit, a series of supports, characters formed of conducting material mounted on said supports and insulated from the same, a carrier for said supports adapted to move one or the other of the same into a position to cause the character carried by the support so moved to engage with said arms to close said circuit.

5. In an apparatus for punching or branding checks or other articles, an electric circuit, a hinged spring-arm forming one of the terminals of said circuit, a metallic block forming the other terminal, a hinged spring-pressed arm adapted to contact with said block, a movable support, a character formed of conducting material mounted on said support and insulated from the same, and a mechanism for moving said support to bring said character into contact with said levers and to press the second-mentioned lever into contact with said block and thereby close the circuit.

588,941. **BRAKE MECHANISM FOR BINDERS AND MOWERS.** CHARLES H. AMSPACH, Cedar Grove, Ind. Filed Sept. 24, 1896. Serial No. 606,844. (No model.)



Claim.—1. In a harvesting-machine, the combination of an axle, a ground-wheel, a sprocket-wheel mounted to revolve with the ground-wheel, a shaft in operative relation with the operating mechanism of the harvester for transmitting motion thereto, a sprocket-pinion loosely mounted upon the said shaft, a sprocket-chain between the sprocket-wheel and sprocket-pinion, a brake-wheel applied to the sprocket-pinion to turn therewith independently of the shaft, a brake applied to the brake-wheel for retarding the movement of the machine or ground-wheel whether in or out of gear, and a clutch for connecting the brake-wheel and sprocket-pinion with the aforesaid shaft, substantially as specified.

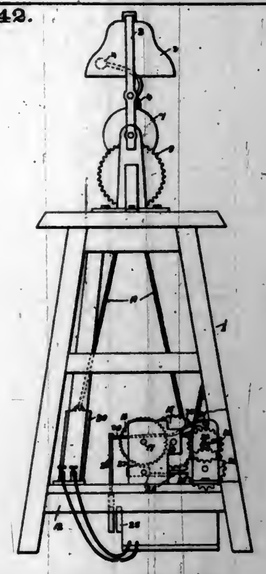
2. In a harvesting-machine, the combination of a power-driven shaft, a brake-wheel having clutched engagement therewith and driven directly from the drive-wheel, a spring-arm overhanging the brake-wheel and bearing a brake-shoe normally held out of action, a second brake-shoe located below the brake-wheel and suspended from the spring-arm, and a hand-lever operatively connected with the second brake-shoe for applying the brakes, substantially as set forth.

3. In a harvesting-machine, the combination of a power-driven shaft, a brake-wheel mounted thereon, a spring-arm extending over the brake-wheel and provided with a brake-shoe, a plate located below the brake-wheel and bearing a brake-shoe, means for loosely and adjustably connecting one end of the plate with the free end of the spring-arm, and a hand-lever operatively connected with the other end of the said plate, substantially as and for the purpose set forth

588,942. **FIRE-ALARM.** JOHN W. ARNOLD, Otsego, Mich. Filed Apr. 29, 1897. Serial No. 634,464. (No model.)

Claim.—A fire-alarm, comprising the following essential elements, to wit: a tower, a bell mounted therein, a bell-clapper, a disk wheel provided with pins adapted to actuate the clapper, a gear-wheel for rotating the disk wheel, a pulley secured on the shaft of the gear-wheel, a winding-drum, a rope wound about said winding-drum and passed over a pulley and provided with a weight moving in vertical guides, a gear-wheel 15 secured on the drum-shaft, a shaft 17, a pinion 16 on said shaft in mesh with the wheel 15, an escapement-wheel 18 on shaft 17, a shaft 22, a ratchet-wheel 21 and a pinion 23 on said shaft 22, a wheel 24 journaled below said shaft and engaging said pinion 23 and provided with an arm 25, a pivoted lever 26 having a toe 27 engaging wheel 18 and having its other end held by arm 25 against movement, a spring-rod 30 having a toe 32 that engages the wheel 21, an electromagnet, the armature of which is provided with a rod 29 that holds the rod 30 with its dog 32 in engagement with the wheel 21, substantially as set forth.

588,942.



588,943. **PRUNING IMPLEMENT.** DARIUS C. BAKER, Saugatuck, Mich., assignor of three-fourths to John Priest, Charles H. Bird, and Cary Hanchett, same place. Filed Feb. 4, 1897. Serial No. 621,991. (No model.)

Claim.—1. A pruning implement consisting of a handle and a rod, a blade pivoted to the upper end of the rod, a slide which embraces the rod and is provided with projecting ears, a hook-section made up of a pair of similarly-shaped end plates between which the blade is pivoted and a flat member or plate F, the ends of which project at an angle with its central portion, the lower portion of the hook-sections overlying the upper end of the plate F and being rigidly secured thereto by rivets, the lower end of said member being positioned between the ears of the slide and pivotally secured thereto, substantially as shown and for the purpose set forth.

2. In a pruning implement, the combination with the handle and rod, a blade pivoted to the upper end of the rod, a hook held in sliding engagement therewith, and pivotally connected to the blade, a slide mounted on the rod, and provided with projecting ears between which the lower end of the hook is pivoted, and a depending lug; together with a tube, the upper end of which is partially closed, bands for connecting the tube to the handle so that it will be parallel therewith, a helical spring positioned within the tube, and a rod engaging with the spring, and the end of the slide, substantially as shown and for the purpose set forth.

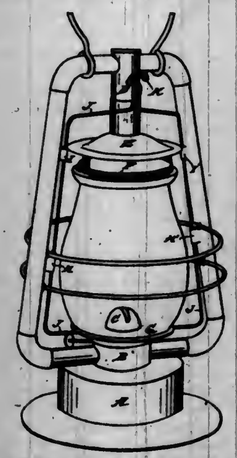
588,944. **HUMIDIFIER.** HENRY J. BARRUS, Boston, Mass. Filed Feb. 19, 1897. Serial No. 624,197. (No model.)



Claim.—1. In a humidifier the combination of a water-tank; a light framework elevated above said tank; an absorbent fabric suspended from said framework and partially immersed in the water in said tank; an outer casing constructed and arranged to inclose the humidifier proper and the source of heat entering the room and having a side thereof perforated to admit the passage of the heated and humidified air to the room.

2. In a humidifier the combination of a water-tank; a light framework elevated above said tank; an absorbent material suspended from said framework and extending into said tank; an outer casing constructed, and arranged to inclose said tank and framework and the register, radiator or other source of heat and having a hinged top, and a side thereof perforated to compel the heated air to pass over or in contact with the surface of said absorbent material to enter the room.

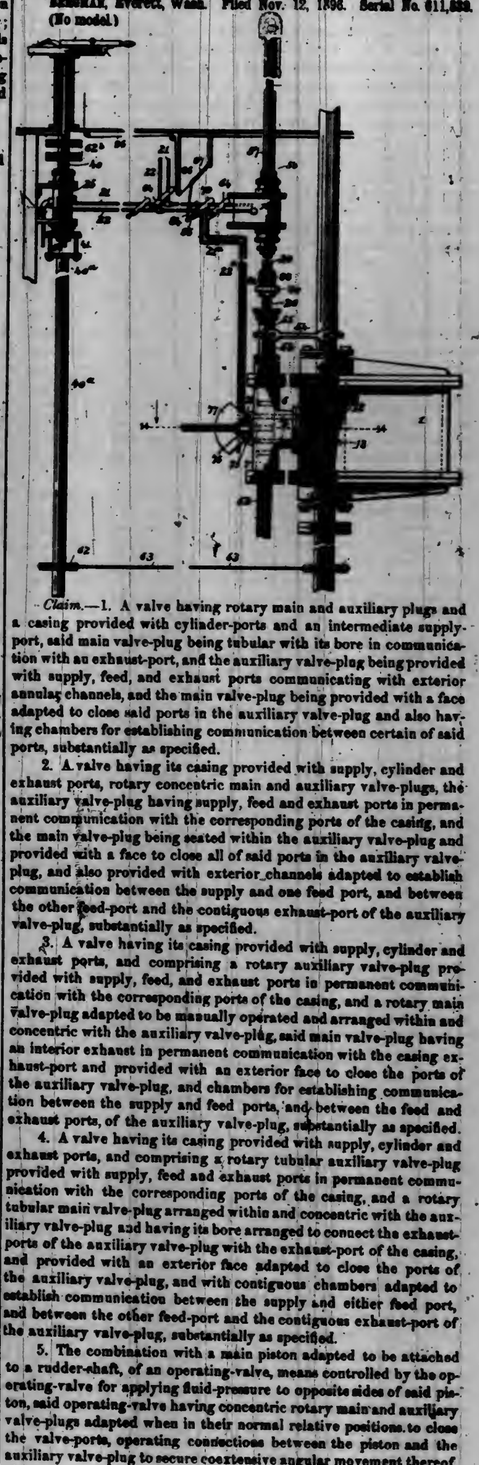
588,945. **TUBULAR OR HURRICANE LANTERN.** WATSON RAYDORFF, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed Mar. 26, 1897. Serial No. 629,223. (No model.)



Claim.—1. A globe-carrying frame for tubular lanterns, consisting of a single piece of wire, having formed upon its upper middle portion a spring-catch to engage the top of the depending air-tube, the depending limbs of the wire passing through guide-loops attached to the inner sides of the vertical air-tubes, and engaging the globe-plate, substantially as described and for the purpose set forth.

2. The combination in a lantern, of a tubular frame attached to the oil-pot, carrying the burner, with a globe-plate mounted thereon, a globe-carrying frame consisting of a single piece of wire, having formed upon its upper middle portion a spring-catch to engage the top of the centrally-depending air-tube, the depending limbs of the wire passing through guide-loops attached to the inner sides of the vertical air-tubes, and engaging the globe-plate, substantially as described and for the purpose set forth.

588,946. **FLUID-PRESSURE STEERING-GEAR.** CHARLES E. BERGMAN, Everett, Wash. Filed Nov. 12, 1896. Serial No. 611,889. (No model.)



Claim.—1. A valve having rotary main and auxiliary plugs and a casing provided with cylinder-ports and an intermediate supply-port, said main valve-plug being tubular with its bore in communication with an exhaust-port, and the auxiliary valve-plug being provided with supply, feed, and exhaust ports communicating with exterior annular channels, and the main valve-plug being provided with a face adapted to close said ports in the auxiliary valve-plug and also having chambers for establishing communication between certain of said ports, substantially as specified.

2. A valve having its casing provided with supply, cylinder and exhaust ports, rotary concentric main and auxiliary valve-plugs, the auxiliary valve-plug having supply, feed and exhaust ports in permanent communication with the corresponding ports of the casing, and the main valve-plug being seated within the auxiliary valve-plug and provided with a face to close all of said ports in the auxiliary valve-plug, and also provided with exterior channels adapted to establish communication between the supply and one feed port, and between the other feed-port and the contiguous exhaust-port of the auxiliary valve-plug, substantially as specified.

3. A valve having its casing provided with supply, cylinder and exhaust ports, and comprising a rotary auxiliary valve-plug provided with supply, feed, and exhaust ports in permanent communication with the corresponding ports of the casing, and a rotary main valve-plug adapted to be manually operated and arranged within and concentric with the auxiliary valve-plug, said main valve-plug having an interior exhaust in permanent communication with the casing exhaust-port and provided with an exterior face to close the ports of the auxiliary valve-plug, and chambers for establishing communication between the supply and feed ports, and between the feed and exhaust ports, of the auxiliary valve-plug, substantially as specified.

4. A valve having its casing provided with supply, cylinder and exhaust ports, and comprising a rotary tubular auxiliary valve-plug provided with supply, feed and exhaust ports in permanent communication with the corresponding ports of the casing, and a rotary tubular main valve-plug arranged within and concentric with the auxiliary valve-plug and having its bore arranged to connect the exhaust-ports of the auxiliary valve-plug with the exhaust-port of the casing, and provided with an exterior face adapted to close the ports of the auxiliary valve-plug, and with contiguous chambers adapted to establish communication between the supply and either feed port, and between the other feed-port and the contiguous exhaust-port of the auxiliary valve-plug, substantially as specified.

5. The combination with a main piston adapted to be attached to a rudder-shaft, of an operating-valve, means controlled by the operating-valve for applying fluid-pressure to opposite sides of said piston, said operating-valve having concentric rotary main and auxiliary valve-plugs adapted when in their normal relative positions to close the valve-ports, operating connections between the piston and the auxiliary valve-plug to secure coextensive angular movement thereof,

an index fixed to the stem of the auxiliary valve-plug and traversing a dial, and means for manually operating the main valve plug, substantially as specified.

6. The combination with a main piston adapted to be attached to a rudder-shaft, of a plurality of operating-valves, means controlled by said operating-valves for applying fluid-pressure to opposite sides of the piston, each operating-valve having an auxiliary valve-plug which is operatively connected with said piston to secure coextensive movement thereof, and each operating-valve having a main valve-plug for cooperation with said auxiliary valve-plug and adapted when in its normal position with relation thereto to close the valve-ports, indicating devices carried respectively by the auxiliary valve-plugs, and means for locking the main and auxiliary valve-plugs of either operating-valve in their normal relative positions, the main valve-plug of each operating-valve being adapted to be manually operated, substantially as specified.

7. The combination with a piston adapted to be attached to a rudder-shaft, of a plurality of operating-valves, means controlled by said operating-valves for applying fluid-pressure to opposite sides of the piston, each operating-valve having an auxiliary valve-plug which is operatively connected with said piston for movement coextensive thereof, and each operating-valve also having a main valve-plug concentric with and adapted when in its normal position with relation to the auxiliary valve-plug to close the valve-ports, indicating devices including an index carried by each auxiliary valve-plug and traversing a dial, and operating-levers connected to the main valve-plugs and having swinging arms adapted to be engaged with said indexes to secure the main and auxiliary valve-plugs in their normal relative positions, substantially as specified.

8. The combination with a main piston adapted to be attached to a rudder shaft and a main valve for controlling the application of fluid-pressure to opposite sides of said piston and having a rotary valve plug or member, of an operating-piston connected to the stem of said rotary valve plug or member, an operating-valve for applying pressure to opposite sides of the operating-piston, and indicating devices operatively connected with the main piston, substantially as specified.

9. The combination with a main piston adapted to be attached to a rudder-shaft, of a main valve for controlling the application of fluid-pressure to opposite sides of said piston and having a rotary valve-plug stem, an operating-piston mounted concentrically with the rotary valve-plug stem, clutch mechanism for connecting the operating-piston with said valve-plug stem, and an operating valve for communicating pressure to opposite sides of the operating-piston, substantially as specified.

10. The combination of a main piston adapted to be attached to a rudder-shaft, of a main valve for controlling the application of pressure to opposite sides of said piston and having a rotary valve-plug stem, an operating-valve mounted concentrically with the valve-plug stem, an operating-lever attached to said stem, a clutch for connecting the operating-piston to said stem to operatively connect with said lever, and an operating-valve for controlling the application of pressure to opposite sides of the operating-piston, substantially as specified.

11. The combination with a main piston and a main valve for controlling the application of pressure to opposite sides of said piston, of an operating-piston operatively connected with said main valve, and a plurality of operating-valves for controlling the application of pressure to opposite sides of the operating-piston, each operating-valve having an indicating device which is operatively connected with the main piston, substantially as specified.

12. The combination with a main piston adapted to be attached to a rudder-shaft, and a main valve for controlling the application of pressure to opposite sides of said piston, of an operating-piston operatively connected with the main valve, a plurality of operating-valves connected with the cylinder of the operating-piston for communicating pressure to opposite sides of the latter, and check-valves located in the conveyers connecting said operating-valves with the operating-piston cylinder, each check-valve being adapted to be actuated by supply-pressure to open both the supply and the exhaust conveyers, substantially as specified.

13. The combination with an operating-piston, and an operating-valve having its casing in communication with the operating-valve cylinder by means of twin conveyers, of a check-valve having a casing in communication with both of said conveyers, and a valve-plug adapted to be adjusted by supply-pressure through either conveyer to open communication to both conveyers, substantially as specified.

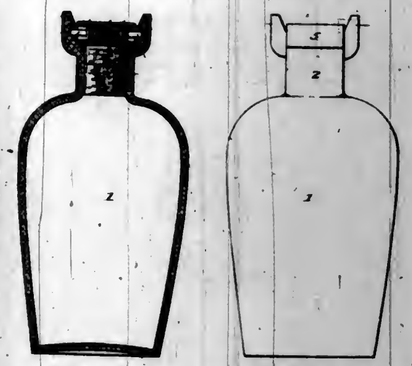
14. The combination with an operating-piston and an operating-valve having its casing in communication by twin conveyers with the operating-piston cylinder, of a check-valve having a casing in communication with both conveyers, a valve-plug seated in said casing and exposed at opposite ends, respectively, to supply-pressure admitted through either conveyer, and normally held by yielding means in position to exclude back pressure through both conveyers, substantially as specified.

15. A check-valve having its casing in communication with twin conveyers to either of which supply-pressure may be admitted, and provided with an axially-movable plug exposed at opposite ends to supply-pressure admitted through said conveyers, respectively, resilient means, as a spring, for normally maintaining the plug in position to prevent the admission of back pressure through said conveyers, and means for adjusting the tension of said spring, substantially as specified.

16. The combination with a main piston, and a main valve for controlling the application of pressure to opposite sides of said piston, of an operating-piston operatively connected with the main valve, a controlling-valve for the supply-port of the main valve, an adjusting-piston connected to the controlling-valve, an operating-valve for controlling the application of pressure to opposite sides of the operating-piston, and a switch-valve for controlling communication between the operating-valve and the cylinder of the adjusting-piston, substantially as specified.

17. The combination with a main piston having a casing, a main valve for controlling the application of pressure to opposite sides of the main piston, the cylinder at opposite sides of its piston being connected by an equalizing-channel and the main valve being provided with a supply-port intersecting said equalizing-channel, of a controlling-valve arranged at the intersection of said equalizing-channel and supply-port, an adjusting-piston connected to the controlling-valve and arranged in the cylinder, an operating-cylinder operatively connected with the main valve, an operating-valve connected by main fluid-pressure conveyers with the operating-piston cylinder, branch conveyers connecting said main conveyers with the adjusting-piston cylinder, and a switch-valve located at the intersection of the main and branch conveyers and adapted to be manually adjusted, substantially as specified.

588,947. NON-REFILLABLE BOTTLE. WILLIAM P. ELBS, Aurora Springs, Mo. Filed Mar. 10, 1897. Serial No. 626,815. (No model.)



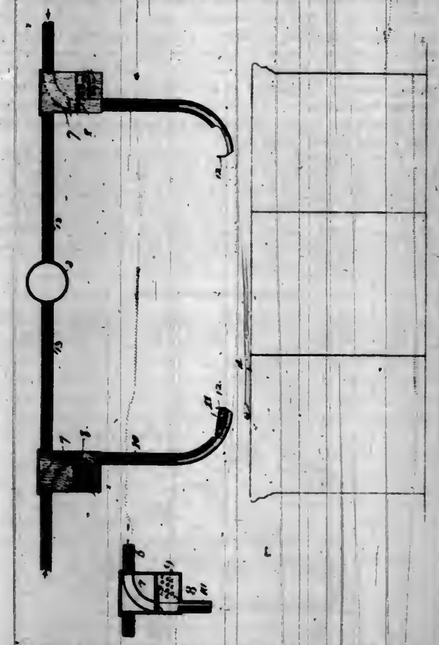
Claim.—1. In combination with the neck of a bottle provided with ears projected upward beyond the mouth of the bottle, said ears having recesses or sockets in their inner faces, of a tube fitted between said ears, and spring-actuated studs arranged within said tube and projecting into the sockets or recesses, substantially as set forth.

2. The combination with the neck of a bottle provided with upwardly-projecting ears formed with sockets or recesses, of a tube fitted between said ears, studs arranged within said tube and provided with collars intermediate their length, a spring around the inner ends of said studs and abutting against the collars and adapted to force the outer end of said studs into the recesses or sockets, substantially as set forth.

3. The combination with the bottle-neck provided with upwardly-extending ears, the inner faces of which are inclined and are provided with sockets or recesses, of a tube fitted between said ears and provided with spring-actuated studs which are adapted to be forced into the recesses or sockets when the ends of the tube come opposite to them, substantially as set forth.

588,948. PNEUMATIC-DESPATCH APPARATUS. LOUIS G. BOSTEDO, Chicago, Ill. Filed July 29, 1896. Serial No. 557,446. (No model.)

Claim.—1. In a pneumatic-despatch-tube apparatus, a main suction-tube, a series of receiving-tubes each provided with a terminal or switch-box and a series of suction branches connecting the switch-boxes and the main suction-tube and a series of delivery-chutes depending from said suction-boxes, substantially as described.



2. In a pneumatic-despatch-tube apparatus, the combination with a main suction-tube elevated above the head-space of the cashier's station, a series of receiving-tubes each having a switch box or terminal and a series of branch suction-pipes one for each switch-box and communicating with the suction-tube, the receiving-tubes, suction branches and main suction-pipe being arranged in or about the same plane, substantially as described.

3. In a pneumatic-despatch apparatus, the combination with a receiving-tube, of a switch box or terminal and a delivery-chute attached to said terminal said chute having its terminal portion extending in a plane substantially horizontal and having an opening in its upper side opposite which the carriers are arrested, the side walls of said opening being of such height as to retain the carrier and the said opening being of such length as to prevent the removal of the carriers except in regular order, substantially as described.

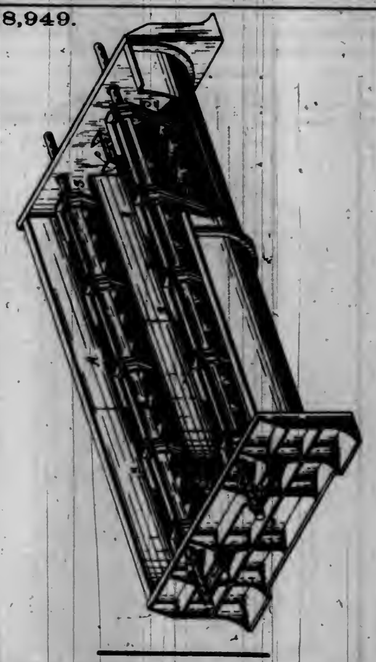
4. The combination with a receiving tube and its terminal, of a delivery-tube connected with the terminal and through which the carriers are discharged by gravity said delivery-chute having its terminal portion extended at an angle to its body and provided in its upper side with an opening, the side walls of said opening being of such height as to retain the carrier and the said opening being of a length substantially equal to that of the carrier, and a stop to arrest the carriers opposite said opening, substantially as described.

5. The combination with a receiving-tube, of a switch-box having fixed guides, a hinged door and perforations in its side walls below the hinged door and a delivery-chute adapted to receive the carriers from the switch-box, substantially as described.

588,949. CALCINING OR ROASTING FURNACE. FRANZ BRASSERSCHMIDT, Lennestadt, Germany. Filed Nov. 24, 1896. Serial No. 613,267. (No model.)

Claim.—In a calcining or roasting apparatus the combination of two pans, connected to each other side by side, a series of stirrers vibrating therein, pivoted to two vibrating frames, properly connected to shafts and made to vibrate by means of two cranks, secured on said shafts, two discharge-shovels being also secured on said vibrating frames and disposed in such manner that the discharge-shovel of one pan throws the material into the other pan and the discharge-shoval of the latter pan in turn throws the material in the first pan, and so on, thereby effecting a continuous circulation of the material to be calcined or roasted, substantially as described and illustrated in the accompanying drawings.

588,949.

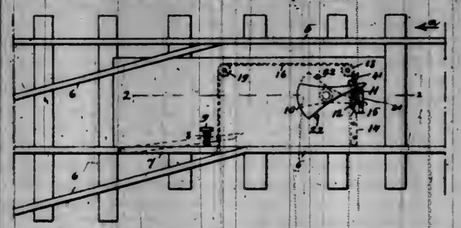


588,950. SPROCKET-GEAR. THOMAS S. BROWN, Poughkeepsie, N. Y. Filed Jan. 20, 1897. Serial No. 619,962. (No model.)



Claim.—A sprocket wheel, embodying teeth, and a series of inclined projections on the rim face of the wheel, integral with the wheel, in alinement with the teeth of the wheel, and alternating with said teeth, substantially as set forth.

588,951. RAILWAY-SWITCH. RICHARD CADY, Los Angeles, Cal. Filed Feb. 25, 1897. Serial No. 624,999. (No model.)

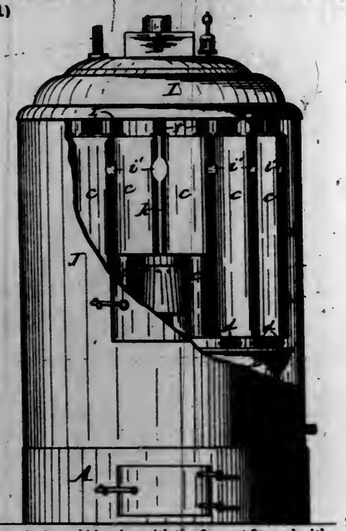


Claim.—1. In a railway-switch-operating apparatus, the combination of a lever which is substantially triangular in form, and which is pivoted between the rails of the main track, and which is provided at the end opposite the switch, with a pin which passes downwardly through a slot formed in a plate with which said lever is pivotally connected, a cord which is secured to said pin, and passes around pulleys mounted between the rails of the track, and connected with the free end of the switch bar or tongue, and springs which operate in connection with said pin, substantially as shown and described.

2. In a railway-switch-operating apparatus, the combination of a lever which is pivoted between the rails of the main track, and which is provided at the end opposite the switch, with a pin which passes downwardly through a slot formed in a plate with which said lever is pivotally connected, a cord secured to said pin, and passed around pulleys mounted between the rails of the track, and connected with the free end of the switch bar or tongue, said lever being adapted

to be operated by devices connected with the platform of the car, and said plate being provided with means for limiting the movement of said lever, substantially as shown and described.

588,952. STEAM AND HOT-WATER BOILER. ALFRED CATONPOLE, Geneva, N. Y. Filed Nov. 25, 1896. Serial No. 613,466. (No model.)



Claim.—1. In combination with the fire-pot formed with a water-leg and a steam or hot-water crown over the combustion-chamber, a series of vertical water circulating and heating loops, each of which consists of two tubes disposed one contiguously throughout its length on the inner side of the other and separated by a vertical diaphragm, forming a portion of the wall of each of said tubes, said diaphragm extending part way the lengths of the tubes and forming transverse water-passages at opposite ends of the diaphragm, as set forth and shown.

2. In combination with the fire-pot formed with a water-leg, and a steam or hot-water crown over the combustion-chamber, a series of vertical water circulating and heating loops, each of which consists of a laterally-elongated outer tube constituting a section of the inclosing wall of the combustion-chamber, and a smaller tube attached throughout its length to the inner face of said outer tube and communicating with the same at opposite ends thereof, said inner tube forming with the adjacent inner tubes vertical fire-flues extending the entire lengths of said inner tubes and separated by vertical partitions formed by the junctions of the inner tubes with the outer tubes, substantially as set forth and shown.

3. In combination with the fire-pot formed with a surrounding water-leg, a series of water circulating and heating loops rising from said water-leg and forming the inclosing wall of the combustion-chamber over the fire-pot, nipples interposed between said loops and water-leg and detachably uniting said parts, and flanges depending from the loops and lapping onto the inner side of the water-leg to protect the aforesaid nipples from the fire in the fire-pot, as set forth.

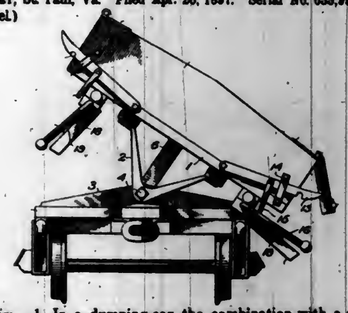
4. In combination with the fire-pot and a jacket inclosing the boiler, a combustion-chamber rising from the fire-pot and provided in the upper portion of its front and sides with radial fire-passages and in its rear portion with lateral vents for escape of gases from the combustion-chamber to the spaces between the same and inclosing jacket, vertical baffle-plates in said space extending from the top thereof part way toward the bottom and the smoke-pipe attached to the back of the jacket, as set forth.

5. In combination with the fire-pot formed with a surrounding water-leg, a series of water circulating and heating loops rising from said water-leg and forming the inclosing wall of the combustion-chamber over the fire-pot and formed with radial fire-passages in the upper parts of the adjacent sides of the side and front loops, a steam or hot-water crown over said combustion-chamber and connected to the upper ends of the loops, a jacket forming a smoke-passage around the exterior of the series of loops, baffle-plates extending from the top part way toward the bottom of the rear portion of said smoke-passage, and the smoke-pipe attached to the top of the rear portion of said jacket, as set forth.

6. In combination with the fire-pot formed with a surrounding water-leg, a series of vertical water circulating and heating loops mounted on and communicating with said water-leg and forming the inclosing wall of the combustion-chamber over the fire-pot, a steam or hot-water crown over said combustion-chamber and connected to the loops, two of said loops extending from the top of the combustion-chamber part way toward the aforesaid water-leg to form the fire-door, said short loops being disposed with a fire-passage between them and joined to the adjacent long loops, a jacket forming a smoke-passage around the exterior of the series of loops, baffle-plates extending from the top of the rear portion of said smoke-passage part way toward the bottom thereof, and the smoke-pipe attached to the back of the jacket, as set forth.

7. The improved water-legged fire-pot provided on its inner wall with shields consisting of vertical plates extending from the grate upward and elongated in the direction of the circumference of the water-leg and united with the water-leg by vertical ribs on the backs of the plates, the successive plates forming between them vertical slots communicating with laterally-elongated fire-passages formed back of the plates, substantially as set forth.

588,953. DUMPING-CAR. JAMES D. CLEEK and CHARLES HUMPHREY, St. Paul, Va. Filed Apr. 26, 1897. Serial No. 633,991. (No model.)



Claim.—1. In a dumping-car, the combination with a suitable supporting-frame, of a tilting body mounted thereon and provided at opposite sides with doors, the independently-operated longitudinal rock-shafts journaled on the body at opposite sides thereof at points beneath the doors, and posts rigid with and carried by the rock-shaft and arranged normally in a vertical position for supporting the tilting body and adapted to swing outward transversely of the car-body in the direction of the tilting thereof to withdraw the support at either side of the same, substantially as and for the purpose described.

2. In a dumping-car, the combination with a suitable supporting-frame, of a tilting body mounted thereon and provided at opposite sides with doors, latches mounted on the body and holding the doors normally closed, outwardly-swinging posts located at opposite sides of the car and arranged to support the tilting body in a horizontal position, said posts being adapted to swing transversely of the body, in the direction of the tilting thereof, and the longitudinal rock-shafts journaled on the body at opposite sides thereof, rigid with and adapted to swing the posts outward, and arranged to engage the latches automatically and release the same simultaneously, substantially as described.

3. In a dumping-car, the combination of a supporting-frame, a tilting body mounted thereon and provided with outwardly-swinging doors, the longitudinal rock-shafts mounted on the body at opposite sides thereof and provided at their ends with handles, the outwardly-swinging supporting-posts carried by the rock-shafts, and the latches mounted on the body at the ends thereof for holding the doors closed, said latches being provided with depending arms arranged in the path of the handles of the rock-shaft, whereby when the latter are swung upward the latches will be automatically operated, substantially as described.

4. In a dumping-car, the combination of a supporting-frame, bolsters mounted thereon, a tilting body provided with depending V-shaped supports pivoted to the bolsters, the inclined braces pivoted to the bolsters and supporting the body at the center thereof, doors arranged at opposite sides of the body, and means for tilting the body and releasing the doors, substantially as described.

588,954. HAIR-CLIPPER. GEORGE H. COATES, Worcester, Mass. Filed Dec. 1, 1893. Serial No. 492,565. (No model.)

Claim.—1. A hair-clipper, having a movable cutting-plate, a stationary cutting-plate held by the framework of the clipper, a movable handle operatively connected with said movable cutting-plate, an arm projecting from said movable handle, a screw-threaded bolt pivotally connected with said arm, a nut carried on said bolt, a spiral spring with one end attached to said nut, a rotating disk attached to the opposite end of said spring, said disk being held from longitudinal movement, substantially as described.



2. A hair-clipper having a head A provided with a lip D bearing upon the movable cutting-plate, a movable cutting-plate, a stationary cutting-plate, a clamping-plate with its edge bearing against said stationary cutting-plate opposite said movable cutting-plate and in the plane of said lip and means for applying pressure to said clamping-plate, substantially as described.

3. A hair-clipper having a head, stationary and movable cutting-plates, a clamping-plate with its forward edge arranged to bear against said stationary cutting-plate and with its rear edge resting against said head and means for applying pressure to said clamping-plate, substantially as described.

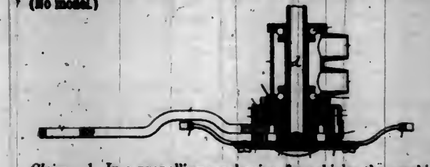
4. A hair-clipper having a head, movable and stationary cutting-plates, a clamping-plate with its forward edge bearing against said stationary cutting-plate and with its rear edge bearing against said head, and a clamping-bolt and nut by which said clamping-plate is drawn toward the head, and pressure applied to said stationary cutting-plate in the plane of the forward edge of said clamping-plate, substantially as described.

5. The hair-clipper having a head, a movable cutting-plate, a stationary cutting-plate, with its forward edge bearing against said movable cutting-plate and with its rear edge supported at its central section only, in order to secure an equal pressure along the entire length of its forward edge, and means for applying pressure to said stationary cutting-plate, substantially as described.

6. A hair-clipper having a head, a tubular boss depending from said head, a movable handle provided with a boss journaled in said tubular boss, and having a boss G^3 projecting from the under side of said movable handle, a stationary cutting-plate having its rear edge bearing at its central section on said boss G^3, a movable cutting-plate held between said stationary cutting-plate and said head and means for applying pressure to said stationary cutting-plate, substantially as described.

7. A hair-clipper having stationary and movable cutting-plates and a clamping-plate E having its forward edge bearing against the central section of said stationary cutting-plate and having its rear edge bearing against said head and having its side edges upturned to inclose the ends of said stationary cutting-plate, substantially as described.

588,955. PROPELLING MECHANISM FOR BICYCLES. IRA W. CONSELYEA, Newark, N. J. Filed Jan. 16, 1897. Serial No. 619,406. (No model.)

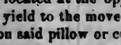


Claim.—1. In a propelling mechanism for vehicles the combination with a driving-sprocket, of a ratcheted disk secured thereto, a shaft secured to the disk, a crank-hanger within which said shaft rotates and supported by the frame of the vehicle, a treadle-lever pivoted on the crank-hanger, a spring coiled around said hanger, one end of said spring being secured to the hanger and the other to the treadle-lever, and a pawl mechanism carried by said treadle-lever and adapted to operate said disk in one direction, substantially as described.

2. The combination of a driving-sprocket, a ratcheted disk secured thereto, a shaft carried by said disk, a crank-hanger supported by the frame of a bicycle, within which the shaft is adapted to rotate, a case or cap secured to said hanger, a sleeve oscillating within said cap, a treadle-lever carried by said sleeve, a coiled spring, one end of which is secured to said cap and the other to said sleeve, and a pawl mechanism carried by said treadle-lever and adapted to operate the ratcheted disk in one direction, substantially as described.

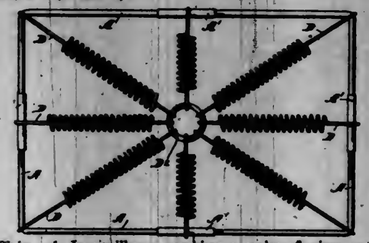
588,956. BUTTON. BYRON H. COOK, Butte, Mont. Filed Aug. 5, 1896. Serial No. 601,758. (No model.)

Claim.—1. A button comprising a base portion and a head, the base portion being formed from a blank of sheet material consisting of a centrally-perforated circular head and oppositely-projecting side arms each having a V-shaped recess or groove, said arms being bent over one side of the body and having their recessed portions bent up parallel with each other to form a shank having an angular chamber formed by the said V-shaped grooves or recesses, and said head being also formed with a shank having a portion of angular cross-section to fit and turn in the angular chamber, the extremity of said shank of the head being passed through the perforation in the body of the base portion and riveted, substantially as shown and described.



2. A button comprising a base portion and a head, the base portion being formed from a blank of sheet material consisting of a centrally-perforated circular head and oppositely projecting side arms each having a groove or recess, the outer portion of which is V-shaped and the inner portion of which is rounded in cross-section, said arms being bent over one side of the body and having their recessed portions bent parallel to form a shank having an angular chamber formed at its extremity by the V-shaped portions of the recesses, and a passage formed by the rounded portions of the recesses and communicating between the said chamber and the perforation in the head, and said head having a shank one portion of which is made angular in cross-section to fit and turn in the angular chamber in the shank of the base portion, the ends of the shank of the head being passed through the passage in the shank of the base portion and also through the perforation in the body thereof, and having its extremity riveted, substantially as set forth.

588,957. PILLOW OR CUSHION. JAMES T. COWLEY, Lowell, Mass., assignor, by mesne assignments, to the American Metallic Cushion Company, of West Virginia. Filed May 4, 1896. Serial No. 590,120. (No model.)



Claim.—1. In a pillow or cushion, a series of wires extending between the opposite edges, supporting means at said edges to which said wires are connected and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, and means connected to said yielding supporting means for returning the pillow or cushion to its normal position when weight is removed.

2. In a pillow or cushion, a series of wires extending between the opposite edges, supporting means at said edges to which said wires are connected and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, and a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

3. In a pillow or cushion, a series of wires provided with an eye on each end and extending between the opposite edges, supporting means for said wires located at the opposite edges and within said eyes and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, and means connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

4. In a pillow or cushion, a series of wires provided with an eye on each end and extending between the opposite edges, supporting means for said wires located at the opposite edges and within said eyes and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, and a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

5. In a pillow or cushion, a series of upper wires forming the top of said pillow or cushion, supporting means for said wires at the opposite edges to which said wires are connected and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, a series of lower wires connected at their upper ends to said supporting means located at the opposite edges and having their lower ends secured to a suitable base, and a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

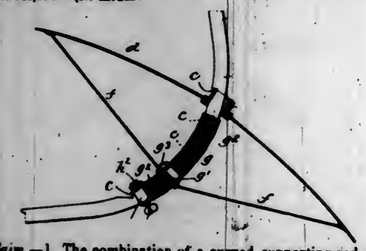
6. In a pillow or cushion, a series of upper wires extending between the opposite edges and forming the top of said pillow or cushion, supporting means for said wires at the opposite edges to which said wires are connected and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, a series of lower wires connected at their upper ends to said supporting means located at the opposite edges and having their lower ends secured to a suitable base, and a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

7. In a pillow or cushion, a series of wires provided with an eye on each end and extending between the opposite edges, supporting means for said wires located at the opposite edges and within said eyes and adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion, a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed, and a series of lower wires connected at their upper ends to said supporting means at the opposite edges and having their lower ends secured to a suitable base.

8. In a pillow or cushion, a series of wires extending between the opposite edges, supporting means for said wires adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion and forming the opposite edges to both of which edges each of said wires is connected, and means connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

9. In a pillow or cushion, a series of wires extending between the opposite edges, supporting means for said wires adapted to yield to the movement of said wires under the action of weight upon said pillow or cushion and forming the opposite edges to both of which edges each of said wires is connected, and a series of springs connected to said supporting means for returning the pillow or cushion to its normal position when weight is removed.

588,958. PARASOL-HOLDER FOR BABY-CARRIAGES. JESSE A. CRANDALL, Brooklyn, N. Y., assignor of two-thirds to Leonard J. Botts and Frank B. Caldwell, same place. Filed June 21, 1897. Serial No. 641,632. (No model.)



Claim.—1. The combination of a curved supporting-rod and a parasol adapted to slide bodily thereon, said parasol consisting of the usual ribs, and braces and runner, said runner being transversely flexible, and means for fastening the parasol at any desired point on the supporting-rod, substantially as described.

2. The combination of a bent supporting-rod, with a parasol slidingly mounted thereon, said parasol consisting essentially of a sliding collar, and a sliding runner and ribs and braces, and means for adjustably fastening the collar to the supporting-rod and means for also adjustably fastening the runner to the supporting-rod, substantially as described.

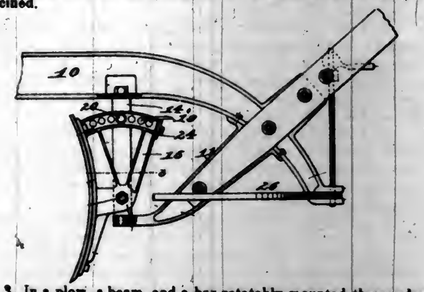
3. The combination of a supporting-rod bent or curved at a portion of its length and provided with a series of stop-notches at said bent portion, a parasol adapted to slide bodily upon said support, and consisting essentially of a sliding collar, a runner, and ribs and braces, said sliding collar of the parasol being adapted to engage said stop-notches and means for fastening the runner to the support, substantially as described.

4. The combination of a bent or curved supporting-rod provided with stop-notches, of a parasol slidingly mounted thereon and consisting of a loose collar adapted to engage said notches, ribs pivoted to the collar, a flexible runner provided with means for fastening it to the support at any point, and suitable braces, substantially as described.

588,959. SCRAPER. JOHN B. CRAFT, Tallapoosa, Ga. Filed Feb. 8, 1897. Serial No. 622,562. (No model.)

Claim.—1. In a plow, a beam, an arm secured to the back end of same and projecting forwardly below same, a bar rotatably mounted between said beam, and the forward end of said arm, a casting pivotally secured to said bar so as to swing in a vertical plane thereon, a scraper-blade secured to the front edge of said casting, and means for securing said bar and casting in any set position, for the purpose specified.

2. In a plow, a beam, an arm secured to the back end of same and projecting forwardly below same, and handles secured to said beam and lying along each side of said arm, a bar rotatably mounted between said beam and the forward end of said arm, a casting pivotally secured to said bar so as to swing in a vertical plane thereon, a scraper-blade secured to the front edge of said casting, and means for securing said bar and casting in any set position, for the purpose specified.



3. In a plow, a beam, and a bar rotatably mounted thereunder so as to rotate in a horizontal plane, a casting pivoted by its lower end upon the lower end of said rotatable bar, a segment on the upper end of said casting provided with a series of holes, said bar being correlatively perforated, a pin fitting the holes in said segment and the perforations in the bar, a scraper-blade secured to the front edge of said casting, and means for securing said bar and casting in any set position, for the purpose specified.

4. In a plow, a beam, and a bar rotarily mounted thereunder so as to rotate in a horizontal plane, a bifurcated casting pivoted by its lower end upon the lower end of said rotatable bar, a segment on the upper end of said casting bifurcated and lying across each side of said bar, and provided with a series of holes, said bar being correlatively perforated, a pin fitting the holes in said segment, and the perforation in the bar, a scraper-blade secured to the front edge of said casting, and means for securing said bar and casting in any set position, for the purpose specified.

5. In a plow, a beam, a bar rotatably mounted thereon in a vertical position, a scraper-blade mounted thereon lying transversely below the bar, a guide secured to the back end of the beam, and a segment secured by its ends to the said scraper-blade and lying within said guide, and means for securing said segment to said guide for the purpose specified.

6. In a plow, a combination of a beam, handles secured thereto, a bar rotatably mounted in a vertical position under said beam, a casting pivotally secured to said bar, means for securing it in any set position, a scraper-blade secured to the front edge thereof, a guide on the back end of said beam, a segment pivotally secured at its ends to the back side of said plate near its ends, and lying in said guide, and means for securing said segment in any set position, substantially as and for the purpose set forth.

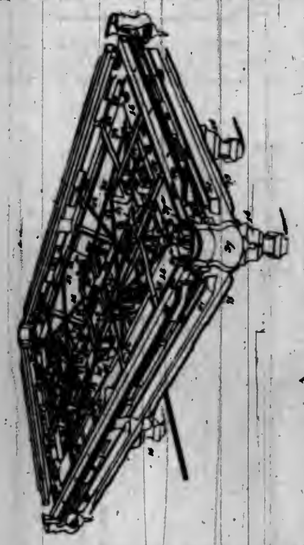
7. In a plow, a combination of a beam and standard thereon, a scraper-blade vertically curved and substantially straight horizontally, and means for adjusting said blade on said standard in vertical and horizontal planes.

588,960. AXLE-BOX LID. NATHAN H. DAVIS, Philadelphia, Pa. Filed Dec. 29, 1893. Serial No. 495,073. (No model.)



Claim.—The combination with an axle-box lid having an inner recess *b* of a spring-socket D having a flat heel extension secured to the body of the lid below recess *b* and a hook-like recess extending from said heel extension over said recess toward the pivot of the lid.

588,961. CONVERTIBLE POOL AND BILLIARD TABLE. GENEVIEVE DERBY, Chicago, Ill., executrix of Albert M. Gerstle, deceased. Filed Nov. 17, 1896. Serial No. 612,430. (No model.)



Claim.—1. In a convertible pool and billiard table the combination with a bed of reversible rails, said rails having cushions of diverse construction upon different portions thereof and adapted to be brought into use by the reversal of said rails, substantially as described.

2. A rail for a table of the class described rotatably supported and having billiard-cushions upon one side or edge thereof and pool-cushions upon the other side or edge thereof, substantially as described.

3. A rail for a table of the class described rotatably supported at its ends and having upon its opposite sides billiard and pool cushions respectively, the acting faces of said cushions extending in opposite directions from the body of the rail and adapted by the rotation thereof to be brought into positions for use, substantially as described.

4. In combination with a table of the class described a set of laterally-movable rails rotatably supported at their ends and each rail carrying two cushions upon opposite edges thereof, substantially as described.

5. In a table of the class described the combination with a stationary bed-frame of movable corner-pieces, rails rotatably supported upon said corner-pieces and connections between the corner-pieces and the rails whereby during their movement to and from the bed the rails are rocked or turned upon their supports, substantially as described.

6. In a table of the class described the combination with slidably-mounted corner-pieces having pockets therein, rods extending from said corner-pieces parallel to the frame members, rails rotatably mounted upon said rods and a slot-and-pin connection between said rails and said rods whereby as the pieces are moved out and in the rails are rocked or rotated upon their supports, substantially as described.

7. In a table of the class described the combination with a frame of laterally-movable corner-pieces having sliding supports upon said frame, rods extending angularly from said corner-pieces parallel to the sides and ends of said frame respectively, rails arranged parallel to the sides and ends of the frame respectively and pivotally supported upon said rods, pins carried by said rods and slotted sleeves carried by said rails and means for simultaneously moving the supports of the corner-pieces, substantially as and for the purpose described.

8. In a table of the class described the combination with laterally-movable rails rotatably supported at their ends and means for moving and rotating said rails, of means for simultaneously locking the several rails in their adjusted positions, substantially as described.

9. In a table of the class described the combination with a stationary bed-frame of laterally-movable corner-pieces, rails rotatably supported upon said corner-pieces and movable therewith, sliding supports extending through the frame of the table to the interior thereof, means located within said table for simultaneously moving said supports and movable locking-plates adapted to engage and lock said rails in their adjusted positions, said locking-plates being operated by the rail moving and reversing mechanism, substantially as described.

10. In a table of the class described the combination with reversible rails having cushions upon opposite edges thereof of movable cover-pieces for covering the lower portions of said rails, substantially as described.

11. In a table of the class described the combination with a stationary bed-frame of laterally-movable and reversible rails carrying cushions, upon opposite longitudinal edges thereof, of cover-pieces hinged to the bed-frame and means for simultaneously moving said cover-pieces on their hinges to cover the lower portion of the rails, substantially as described.

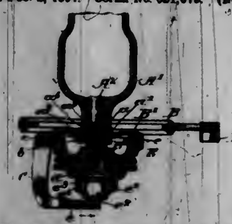
12. In a table of the class described the combination with the stationary bed-frame of laterally-movable and reversible rails, means for moving and reversing said rails and leveling devices carried by the bed-frame and adapted to engage with the rails to secure their horizontal alinement, substantially as described.

588,962. ADJUSTABLE STAY FOR DOORS. CHARLES F. DUPLANTY and ELMER R. WILSON, Caffeyville, Kans., assignors of one-fourth to Lewis McNeal, same place. Filed May 22, 1896. Serial No. 592,594. (No model.)



Claim.—The combination with a screen or other door, of the herein-described means for preventing sagging thereof and bracing and staying it, consisting of a slotted keeper applied to the inner edge of the hinge-stile and having corresponding teeth on opposite sides of the slot, an elbow-dog having a rear extension at the elbow to operate in and pass through the slot of the keeper, and having lateral studs at its inner end to engage with the keeper on opposite sides of the slot, the lower member of the dog engaging with the teeth of the keeper, an angle-bracket secured to the lower rail of the door with its short member extending over the upper edge of the said rail, and formed with a centrally-disposed apertured lug, and a brace connecting the apertured leg with the vertical arm of the elbow-dog, whereby the strain is imposed upon the dog above its fulcrum, thereby holding its lower arm in positive engagement with the slotted keeper, substantially as shown and described.

588,963. FRICTION DRIVING-PULLEY FOR SEWING-MACHINES. GARNER H. DIMOND and WILBUR F. DIAL, Bridgeport, Conn., assignors to The Wheeler & Wilson Manufacturing Company, same place. Filed Feb. 2, 1897. Serial No. 621,678. (No model.)



Claim.—1. The main shaft and its attached fast pulley provided with an antifriction thrust-bearing interposed between said pulley

and the bearing for the said shaft, combined with a pulley E adapted to be rotated continuously coincident with the said fast pulley and provided at its end with an antifriction thrust-bearing, a pressure-lever, and means between said pressure-lever and the thrust-bearing of the pulley E to effect a longitudinal right-line movement of the pulley E frictionally against the said fast pulley and axially of said main shaft, substantially as described.

2. The main shaft A^3, the fast pulley fixed thereto, and having an antifriction thrust-bearing interposed between one of its sides, and the bearing for the said main shaft, and a loose pulley adapted to be continuously rotated and provided at its outer side with an antifriction thrust-bearing, combined with a large ball supported by the balls of the thrust-bearing in the said loose pulley, a tip fixed on said loose pulley and embracing said thrust-bearing and also said large ball, and a pressure-lever acting upon said large ball, thereby to move said loose pulley into engagement with said fixed pulley, substantially as described.

3. The main shaft A^3, and its bearings, the latter having an annular chamber *a* at one end, and a sleeve fitted within said chamber, said sleeve having an outturned flange extending beyond said chamber, combined with a fast pulley secured to said shaft adjacent said end, and having an antifriction thrust-bearing to cooperate with said sleeve, said thrust-bearing comprising a plurality of balls between said pulley and said sleeve, and a cage secured to said pulley, inclosing said balls and overlapping said flange, substantially as described.

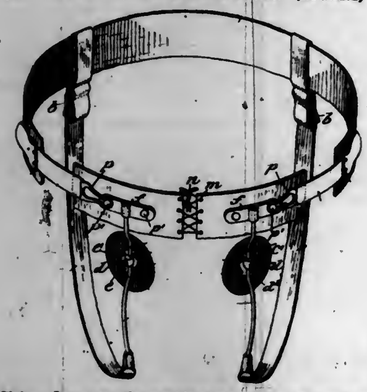
4. The main shaft, and its bearings, a fast pulley secured to said shaft, a loose pulley adjacent said fast pulley, a pressure-lever to move said loose pulley bodily to engage said fast pulley and drive said shaft, and an antifriction thrust-bearing comprising a plurality of small balls mounted on and carried by said loose pulley, said thrust-bearing having a large ball supported by said small balls axially of said pulleys and between said thrust-bearing and said lever, whereby the latter effects a right-line movement of the loose pulley longitudinally of said shaft, substantially as described.

5. The main shaft, and its bearings, the latter having an annular chamber at one end, and a sleeve fitted within said chamber, said sleeve having an outturned flange extending beyond said chamber, combined with a fast pulley secured to said shaft adjacent said end, and having an antifriction thrust-bearing to cooperate with said sleeve, said thrust-bearing comprising a plurality of balls between said pulley and said sleeve, and a cage inclosing said balls and overlapping said flange, substantially as described.

6. The main shaft, and its bearings, combined with a fast pulley on said shaft adjacent said bearings, an antifriction thrust-bearing, comprising a plurality of balls, between said pulley and said bearings, a sleeve between the latter and said balls, said sleeve having an outturned flange adjacent said balls, a cage inclosing said balls and overlapping said flange, and a ring secured to said cage and extending behind said flange, substantially as described.

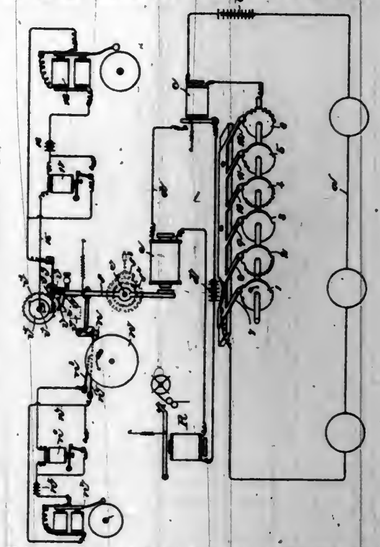
7. The main shaft, and its bearings, combined with a fast pulley on said shaft adjacent said bearings, an antifriction thrust-bearing, comprising a plurality of balls, between said pulley and said bearings, a sleeve between the latter and said balls, and a cage inclosing said balls and overlapping said flange, substantially as described.

588,964. **HERNIAL TRUSS.** JESSE T. DUGGER, Chattanooga, Tenn. Filed Nov. 10, 1896. Serial No. 611,658. (No model.)



Claim.—In a truss, the combination with the body and leg straps thereof, of vertical rigid rods connecting the front portion of the leg-straps to the body-strap, plates connecting the rigid rods to the body-belt, pads on said rigid rods and having vertical and rotary adjustment with relation to the same, and inwardly-bent portions in the rigid rods upon which the pads are adapted to be adjusted, said bent portions permitting the rods to lie clear of the body of the wearer.

588,965. **MUNICIPAL SIGNAL SYSTEM.** HOWARD F. EATON, Cambridge, Mass., assignor to Mulford M. Dunn, Boston, Mass. Filed Nov. 24, 1888. Renewed Feb. 1, 1897. Serial No. 621,552. (No model.)



Claim.—1. In a municipal telegraph system comprising a central station and several substations connected by an electric circuit, a multiple-signal transmitter at each substation constructed and arranged to transmit a series of impulses constituting the substation-number and adapted at times to transmit another long series of short successive impulses, combined with a register to receive the signals transmitted by said transmitters, and a special indicating device unaffected by one of the series of impulses but affected by the long series of short successive impulses, substantially as described.

2. In a municipal telegraph system comprising a central station and several substations connected by an electric circuit, a multiple-signal transmitter at each substation constructed and arranged to transmit a series of impulses constituting the substation-number and adapted at times to transmit an additional long series of impulses, combined with a register to receive the signals transmitted by said transmitters, and a special indicating device unaffected by the series of impulses constituting the substation-number but affected by the additional long series of short successive impulses when the latter are transmitted in conjunction with the substation-number, substantially as described.

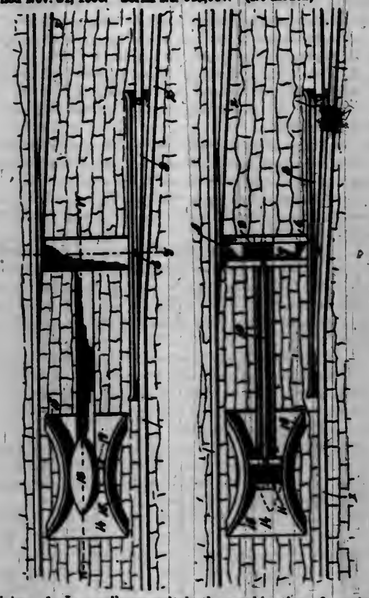
3. In a municipal telegraph system comprising a central station and several substations connected by an electric circuit, the multiple-signal transmitters at the substations for transmitting in conjunction with some of the signals several regular impulses, combined with a register for the signals, the electromagnetically-movable circuit-wheel i^3, a bell, the circuit of which is controlled by said wheel i^3, the creeper *n*, wheel *n'*, and the bell controlled by it, substantially as described.

4. In a municipal telegraph system comprising a central station and several substations connected by an electric circuit, multiple-signal transmitters at the substations constructed and arranged for producing in conjunction with some of the signals a large number of impulses in succession, combined with a register for receiving the signals, and with an electromagnetically-movable circuit-changing device comprising the magnet *e*, its armature, and bar *f*, a pawl carried by it, the escapement for retarding the movement of the bar *f*, and the ratchet-toothed wheel and circuit-wheel i^3, and bell in circuit controlled by said circuit-wheel, substantially as described.

5. The electromagnetically-movable circuit-changing device, comprising the magnet *e*, its armature and bar *f*, a pawl carried by it, the circuit-wheel i^3, and the ratchet-toothed wheel and its back-stop having the extended shank i^3, substantially as described.

6. The electromagnetically-movable circuit-changing device, comprising the magnet *e*, its armature and bar *f*, a pawl carried by it, the escapement for retarding the movement of the bar *f* and the ratchet-toothed wheel and circuit-wheel i^3, substantially as described.

588,966. **STREET-RAILWAY SWITCH.** JOHN F. R. FEATHER, Leadville, Colo., assignor of one-half to John Monaco, same place. Filed Nov. 21, 1896. Serial No. 612,987. (No model.)



Claim.—1. In a railway-switch, the combination of a switch-bar having a toothed portion, a laterally-shiftable cam having a toothed portion, and a longitudinal shaft having toothed portions at its ends intermeshing with the toothed portions of the cam and switch-bar, substantially as set forth.

2. In a railway-switch, the combination of a switch-point, a switch-bar having connection with the switch-point and provided with a toothed portion, a plate having oppositely-curving guard-rails, a cam mounted upon the plate and movable laterally between the guard-rails, and having a toothed portion, and a longitudinal shaft having toothed portions intermeshing with the toothed portions of the cam and switch-bar, substantially as set forth.

3. In a railway-switch, the combination with a switch-point, and a cam operatively connected with the switch-point for moving the latter, of a lever fulcrumed upon a car and having a pendent portion, a cap applied to the lever and having a series of notches, and a hand-lever provided with a latch-bolt to engage with any one of the notches of the said cap, substantially as and for the purpose set forth.

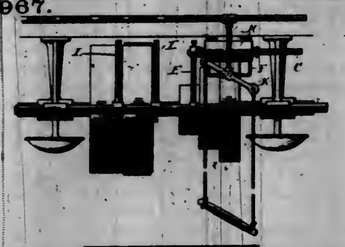
4. In a railway-switch, the combination of a switch-point, and a cam operatively connected with the switch-point for moving the latter, a shaft attached to a car, a pair of switch-throwers mounted upon the said shaft, and a lever mounted upon the shaft between the switch-throwers and having independent latch-bolts to engage with the respective levers to throw the required one into position to engage with the cam, substantially as and for the purpose set forth.

5. In a railway-switch, the combination of a switch-point, a cam operatively connected with the switch-point for moving the latter, a shaft mounted upon a car, a pair of levers fulcrumed upon the shaft and having pendent portions provided at their lower ends with rollers, springs for normally holding the levers out of action, caps secured to the levers and having their inner ends notched, a lever loosely mounted upon the said shaft between the switch-throwing levers, and latch-bolts upon each side of the hand-lever to engage with the notched caps, substantially as and for the purpose set forth.
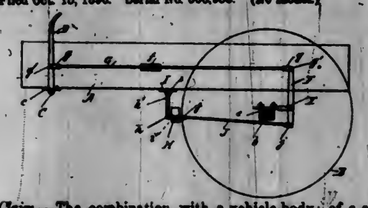
588,967. **BELT-SHIFTER.** HENRY A. FERGUSON and ALEXANDER J. KLINE, Jersey City, N. J. Filed Mar. 13, 1896. Serial No. 583,023. (No model.)

Claim.—An attachment for a belt-shifter consisting of an arm, extending at right angles to the shifter-rod, but removably secured thereto at one end, combined with an operating-cylinder placed above the shifter-rod and provided with a piston, and a piston-rod, and to which piston-rod the other end of the arm is secured; a suitable valve and pipes leading from the valve to both ends of the cylinder, the whole attachment being separate from and attachable to the shifter-rod after the rod has been placed in position, substantially as shown and described.

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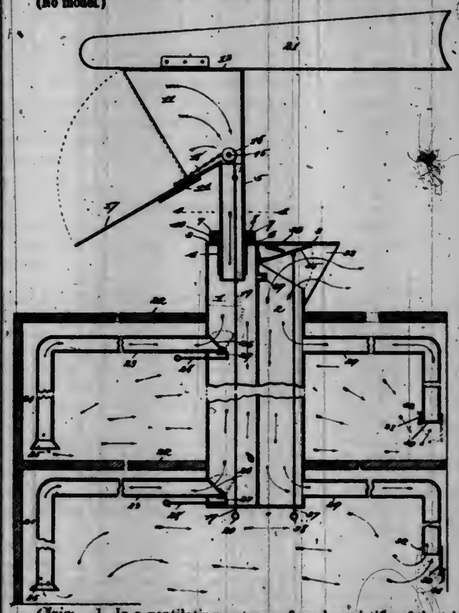


588,968. **VEHICLE-BRAKE.** JOHN FERREE, Zanesville, Ohio. Filed Oct. 15, 1896. Serial No. 608,955. (No model.)



Claim.—The combination, with a vehicle-body, of a coupling-bar provided with lugs *i'*, arms *K'* pivoted to the body, and brake-blocks; pivoted levers supported from the axle in substantially vertical planes one at each side of the body, bearings secured to the body, a shaft journaled in the said bearings and extending transversely under the body, brake-levers secured to the respective ends of the said shaft and enabling the brakes to be applied from each side of the body, rods pivotally connecting the lower parts of the lugs *i'* on the said levers with the said coupling-bar, and rods arranged one at each side of the body and pivotally connecting the upper parts of the said levers with the said brake-levers, substantially as set forth.

588,969. **VENTILATING SYSTEM FOR BUILDINGS.** GEORGE T. FINAGIN, St. Louis, Mo. Filed June 1, 1896. Serial No. 593,623. (No model.)

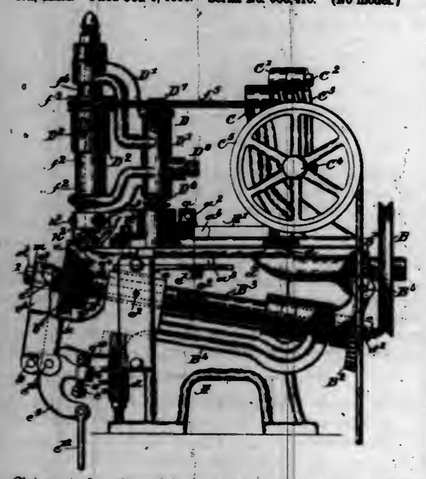


Claim.—1. In a ventilating system, a funnel consisting of the triangular side walls 11 and 12, the top 13 and the flaring bottom 14, the pipe 5 attached to and forming the discharge-opening for said funnel, the trap-door 17 hinged to the front edge of the bottom piece 14 and of such length as to form an extension of the funnel when lowered and close the funnel when lifted, and means of operating said trap-door, substantially as specified.

2. In a ventilating system, a swiveled funnel, a trap-door hinged to the lower outer edge of said funnel and of such a length as to form an extension of the funnel when said trap-door is lowered and to close said funnel when the same is lifted, and means of operating said trap-door, substantially as specified.

3. In a ventilating system, a funnel, a trap-door hinged to the lower outer edge of said funnel and of such a length as to form an extension of the funnel when said trap-door is lowered and to close said funnel when the same is lifted, a pipe positioned vertically through the ceiling and roof of the building, a swiveled connection between the upper end of said pipe and said funnel, a handle operating below the lower end of said pipe, and a suitable connection between said handle through said pipe with said trap-door, whereby said trap-door may be operated by manually engaging said handle, substantially as specified.

588,970. CHANNEL-FLAP TURNER. WILLIAM E. FISCHER, Boston, Mass. Filed Oct. 9, 1896. Serial No. 608,410. (No model.)



Claim.—1. In a channel-flap-turning machine, two rotatable feed-wheels located side by side, means to enable the said feed-wheels to be moved the face of one substantially parallel to the face of the other to adapt said wheels to the work to be done, and a foot to hold the work on said wheels, combined with a wiper-shaft, an attached wiper, a flap-holder and means to rotate said wiper-shaft and cause said wiper to act on and turn over the flap of a sole supported by said wheels, substantially as described.

2. In a machine of the class described, a feed-wheel, a foot to bear on the sole, a rotatable wiper-shaft having a wiper, and a yoke having bearings for said shaft, combined with a vertically-placed stud located at one side of and parallel to said shaft, and means to effect the rotation of the said yoke about said stud when it is desired to remove or replace a wiper, substantially as described.

3. The yoke, the hollow shaft having bearings therein, the shaft c^3 carrying the feed-wheel c fixed thereon at a short distance from its outer end to thus leave the outer end of said shaft exposed, an outer bearing to receive the end of said shaft, a link to contain and guide said bearing, and a spring cooperating with said link to keep said bearing pressed upwardly with a yielding pressure, combined with an independent lever to raise and lower said link, substantially as described.

4. In a machine of the class described, the wiper-shaft, its attached wiper, the yoke having bearings for the said shaft, and a slabbed stud serving as a pivot for said yoke, combined with an adjustable stop carried by said yoke and cooperating with the slabbed part of the said stud to position the said yoke and wiper, substantially as described.

5. In a machine of the class described, the wiper-shaft, its attached wiper, the yoke having bearings for said shaft, and a vertical stud serving as a pivot for said yoke, combined with devices to adjust said yoke vertically on said stud, and means to restrain the rotation of said yoke on said stud during the operation of the same, substantially as described.

6. In a machine of the class described, a wiper-shaft, its attached wiper, and bearings for said shaft, combined with an adjustable foot interposed between said wiper and the bottom of the channel having the flap to be overturned by the said wiper, substantially as described.

7. The feed-wheel b^5, the hollow shaft carrying it, the feed-wheel c and its shaft, and bearing for its outer end, combined with a link carrying said bearing, and means to move said link to change the position of the acting periphery of the wheel c with relation to the acting periphery of the wheel b^5, substantially as described.

8. The feed-wheel b^5, the hollow shaft carrying it, the feed-wheel c and its shaft, and bearing for its outer end, combined with a link carrying said bearing, a spring carried by said link and acting on said bearing, and means to move said link to put the acting periphery of the wheel c above the acting periphery of the wheel b^5, substantially as described.

9. The shaft c^3 having the feed-wheel c fixed thereon near its end but so as to leave the end of said shaft exposed beyond said feed-wheel, an outer bearing in which the outer end of said shaft is placed, a link in which said bearing is free to slide and a spring acting on said bearing, combined with a lever to act on and lift said link, substantially as described.

10. In a machine of the class described, a shaft and an attached feed-wheel, combined with a second shaft and a feed-wheel composed of a plurality of segmental pieces which may be moved laterally, substantially as described, with relation to said shaft, when applying a wheel to or removing a wheel from said shaft, substantially as described.

11. In a machine of the class described, two feed-wheels located side by side, means to rotate said feed-wheels in substantialy parallel planes, and means to change the position of the periphery of one of said wheels with relation to the periphery of the other of said wheels, substantially as described.

12. In a machine of the class described, two feed-wheels applied side by side, means to rotate said feed-wheels, and independent yielding supports to enable said feed-wheels to yield independently one of the other, substantially as described.

13. In a machine of the class described, two feed-wheels applied side by side, and means to rotate said feed-wheels, combined with means to elevate one of said feed-wheels so that its periphery will sustain and feed the work and release the other of said feed-wheels from the duty of supporting and feeding the work, substantially as described.

14. In a machine of the class described, two feed-wheels located side by side, means to rotate said feed-wheels, and means to elevate a part of the periphery of one of said feed-wheels with relation to the periphery of the other of said feed-wheels, combined with a foot located above the axis of both of said feed-wheels to act on the work resting on said feed-wheels, and means to adjust said foot toward and from said feed-wheels in a horizontal direction and at right angles to the plane of rotation of said feed-wheels, substantially as described.

15. In a machine of the class described, two shafts, one located within the other, two feed-wheels, one attached to the end of one and the other to the end of the other of said shafts, a pivoted frame constituting a bearing for the outer one of said two shafts, and means to hold the bearing for the inner shaft to one side of the center of rotation of the outer shaft, substantially as described.

16. In a machine of the class described, a hollow shaft provided with a feed-wheel and having an attached gear, a pivoted frame in which said hollow shaft has its bearings, said frame having its pivotal point in the pitch-line of said gear and pinion, combined with a shaft extended through said hollow shaft and provided with a second feed-wheel, substantially as described.

17. The hollow shaft, its attached feed-wheel and gear, and a shaft extended through said hollow shaft and provided with a second feed-wheel, combined with a universal connection between said two shafts whereby the inner shaft may vibrate in the hollow shaft during their rotation, substantially as described.

18. The hollow shaft, its attached gear, and feed-wheel, and the feed-wheel c and its shaft c^3 extended through said hollow shaft, said feed-wheels lying side by side, and an annular spring-support for one end of said shaft c^3, said spring-support being connected to said gear, said shaft and feed-wheels rotating coincidently, yet being free to change relatively their vertical positions, substantially as described.

19. The feed-wheel c, its shaft, its outer bearing, a link containing said bearing, and a spring acting on said bearing, combined with a lever to act on and lift said link, and means to control and stop the uppermost position of said lever, substantially as described.

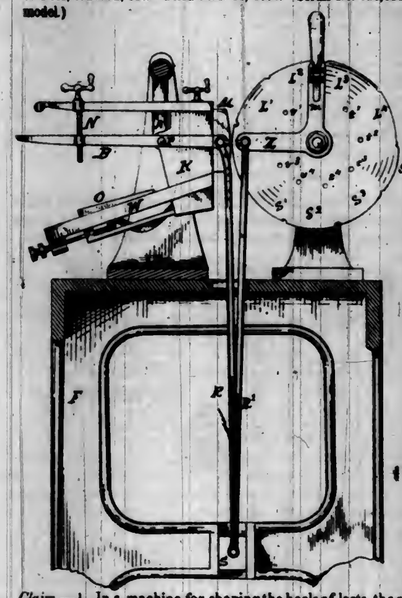
20. The shaft, its attached hub having a flange, and the segmental toothed plates constituting a sectional feed-wheel, combined with pointed set-screws carried by said hub and cooperating with beveled portions of said wheel-sections to engage and hold the same firmly in places, substantially as described.

21. The shaft c^3, its collar, the feed-wheel C mounted on said shaft and resting against said collar, combined with the shaft-bearing acting against the hub of said feed-wheel, means to support and guide said bearing, and a nut and washer acting on one end of said bearing to keep the said feed-wheel against said collar, substantially as described.

22. The wiper-shaft, its attached wiper, a yoke having bearings for said shaft, a whirl on said shaft having a groove for a belt, combined with idle-pulleys, arms having studs on which said pulleys rotate, and a reversible yoke having diagonally-placed studs on which said arms turn, whereby said arms may either depend from or stand above their pivotal points on said yoke, and yet present the belt-sustaining portion of the pulleys in line with the bottom of the belt-groove of the said wiper-shaft, substantially as described.

23. In a channel-flap-turning machine, two rotatable feed-wheels located side by side, means to enable the said feed-wheels to be moved, the side of one substantially parallel to the side of the other to adapt said feed-wheels to the work to be done, and a foot to hold the work on said wheels, combined with a wiper-shaft, an attached wiper, a flap-holder, and means to rotate said wiper-shaft and cause said wiper to act on and turn over the flap of a sole supported by said wheels, and means to adjust said wiper-shaft and foot toward and from the said wheels substantially at right angles to the plane in which they rotate, substantially as described.

588,971. MACHINE FOR SHAPING HEELS OF LASTS. AMOS G. FITZ, Auburn, Me. Filed Mar. 11, 1897. Serial No. 626,961. (No model.)



Claim.—1. In a machine for shaping the heels of lasts, the combination of a heel-pattern attached to the last-support and rocking therewith with a rocking correcting-pattern whose working edge is in contact with that of the heel-pattern, and has a curvature eccentric to the axis about which it rocks: all as set forth.

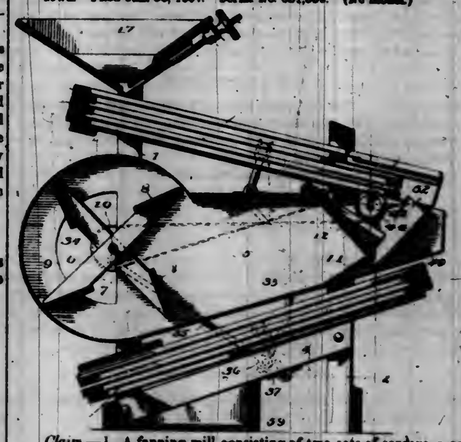
2. In a machine for shaping the heels of lasts, the combination with a rocking last-support of a heel-pattern adjustably attached thereto and a series of correcting-patterns which form part of the circumference of the same disk and are constrained to move in operative relation to the heel-pattern, all as set forth.

3. In a machine for shaping the heels of lasts, a rocking support for the last, a heel-pattern attached thereto, a series of correcting-patterns turning about the same center, a rocking arm, means of attaching the rocking arm to either of the patterns, a sliding piece, a rod connecting it with the rocking arm and a second rod transmitting to it the motion of the rocking support for the last, all combined with each other as set forth.

4. In a machine for shaping the heels of lasts, a rocking support for the last, a heel-pattern attached thereto, an arm rigidly attached to the rocking support above the line of centers about which it rocks, a second arm pivoted to the rocking support at the line of centers, means of adjusting the distance between the outer ends of these two arms to correspond to the heel depths of different lasts, a correcting-pattern and means of connection between the inner end of the lower arm and the correcting-pattern, all combined with each other as and for the purpose set forth.

5. In a machine for shaping the heels of lasts a rocking support for the last, a heel-pattern attached thereto, a vertically-adjustable support for the toe of the last, a correcting-pattern which is in operative relation to the heel-pattern, and means of connection between the last-support and the correcting-pattern: all as set forth.

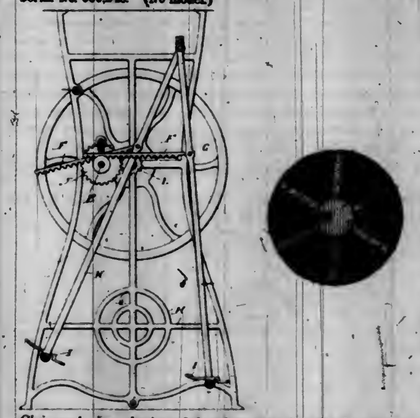
588,972. FANNING-MILL. WILLIAM F. FRANDSEN, Cherokee, Iowa. Filed Jan. 30, 1897. Serial No. 621,330. (No model.)



Claim.—1. A fanning-mill consisting of two sets of screens, a revolving fan located in the casing and adapted to discharge a blast of air between the two sets of screens, said screens provided with a means for separating different kinds of grain, a valve having independent movable sections located at the end of the fan-casing and adapted to regulate the blast and a removable partition adapted to be applied at the end of the fan-casing between the two sets of screens and adapted to keep separate the different kinds of grain as it passes from one set of screens to the other.

2. A fanning-mill having two sets of screens, a suitable means for supplying a blast, the upper set of screens adapted to separate grain of different kinds, the upper screen in the lower set having a valve whereby the finer grain may be deposited on the lower screen of the lower set, a removable partition adapted to be applied at the ends of the screens and adapted to keep separate the different kinds of grain as it passes from one set of screens to the other.

588,978. OPERATING MECHANISM FOR SEWING OR OTHER MACHINES. MARRIS FREEDMAN, Trenton, N. J. Filed Sept. 18, 1894. Serial No. 606,248. (No model.)



Claim.—1. In a device of the character described, a frame, vertical levers pivoted thereto, horizontal rack-bars hinged to the levers, a power-shaft journaled in the frame, pinions mounted on the power-shaft to engage the rack-bars, circular housings carried by the pinions, radial ribs forming ratchet-teeth within the housings, elastic pads secured between the ribs, a spring-pressed pawl pivoted to the power-shaft, a balance-wheel and shaft journaled within the frame and a pinion secured thereon meshing with the gear-wheel, as and for the purpose described.

2. In a device of the character described, a casing, ribs therein.

elastic material located between the ribs having cut-away portions adjacent to the ribs forming teeth therewith and means for engaging the teeth, as and for the purpose described.

3. In a device of the character described, a shaft having a longitudinal slot therein, a spring-pressed pawl within the slot, a circular casing journaled on the shaft, radial ribs secured within the casing, and elastic material between the ribs having cut-away portions adjacent to the ribs forming teeth therewith to be engaged by the pawl, as and for the purpose described.

588,974. PIPE-HOLDER. HENRY S. FROST, CHARLES S. KILBOURN, and JAMES R. WOOLSON, Watertown, Conn., assignors, by mesne assignments, to William Demuth & Co., New York, N. Y. Filed Mar. 31, 1897. Serial No. 630,068. (No model.)



Claim.—A holder for retaining pipes upon a card with the bowls in contact therewith formed from a single strip of metal and consisting of a base, arms bent toward each other to form a neck 4, then outward and inward to form a neck 6 and between said necks an angular recess 5 to receive the stem of a pipe, the ends of the arms being curved outward to permit ready insertion of a pipe-stem.

588,975. BICYCLE-WHEEL. CHARLES H. GARY, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,549. (No model.)



Claim.—1. In a bicycle, a hub provided at each end with an enlarged chamber terminating at a shoulder; an axle provided with shoulders in the same plane with the shoulders on the hub; rollers adapted to fit between the hub and axle and be held in position laterally in one direction by the shoulders on the hub and axle, said rollers being spaced by pintles which are united pivotally with short connecting-links; pintles and connecting-links; and a retaining-cap secured to the end of the hub to hold the rollers in place between said retaining-cap and the shoulders on the hub and axle.

2. In a bicycle, the hub having interior annular shoulders; an axle having shoulders in the same plane as the shoulders on the hub; a nest of rollers fitting to the axle throughout the circumference and spaced from each other; pintles and connecting-links to permit the rollers to travel around the circumference of the axle; a retaining-cap fitted to the hub, and a nut secured to the axle and provided with an annular flange that fits loosely within the retaining-cap; and a dust-cap secured to the retaining-cap, and covering the space between the nut-flange and the retaining-caps, substantially as specified.

588,976. LAP-RING. WILLIAM G. GATEWOOD, Des Arc, Ark. Filed Feb. 25, 1897. Serial No. 624,066. (No model.)



Claim.—1. The detachable link, consisting of the half 1, having in its lower end and inner face the dovetail groove 3, and in one side the opening between the dovetail ends 4 and 5; and on the other side a dovetail enlargement to fill the opening between the dovetail ends *c* and *d*, of the half *a*; the half *a*, having the opening between the dovetail ends *c* and *d*; the dovetail enlargement *g*, to fill the cut between the ends 4 and 5, of half 1; and dovetail lug *h*, adapted to fit the groove 3, both halves pivoted together by the bolt *x*, substantially as shown and described and for the purposes set forth.

2. The detachable link, consisting of two half-links pivoted together at one end, each half-link having its inner face flattened and having a portion cut away to provide an opening, one side having a dovetail groove 3, and the other a dovetail lug adapted to fit said groove, substantially as shown and described and for the purposes set forth.

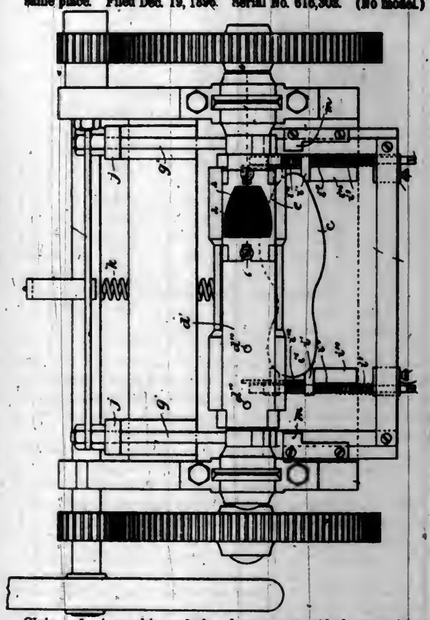
588,977. ATTACHMENT FOR SHOES. EDGAR T. GILBERT, Rochester, N. Y. Filed July 17, 1896. Serial No. 599,532. (No model.)



Claim.—1. An insole for application to the inside of shoes, composed of a plurality of strips *a* of cork or similar flexible material of varying lengths and thinner at their forward ends, detachable connecting devices for securing the strips together at their rear portions only, and a cover *b'* for the upper strip, substantially as described.

2. A loose insole for application to the inside of shoes composed of a plurality of perforated strips *a* of cork or similar flexible material of varying lengths and thinner at their forward ends, a detachable connector for connecting the strips, embodying the head *c* and the separable legs *d* and a cover *b'* for the insole extending over the head of the connector, substantially as described.

588,978. MACHINE FOR INDENTING BOOT OR SHOE SOLES. WILLIAM GORDON, Boston, Mass., assignor of one-half to Peter A. Coupal, same place. Filed Dec. 19, 1896. Serial No. 616,302. (No model.)



Claim.—1. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll cooperating with said die, and means for feeding a sole between the roll and die.

2. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll cooperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and provided with means for holding a sole, and means for advancing said feed-slide.

3. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll cooperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and means for

reciprocating said feed-slide to cause it to advance the sole between the die and bed-roll, and then retract the sole.

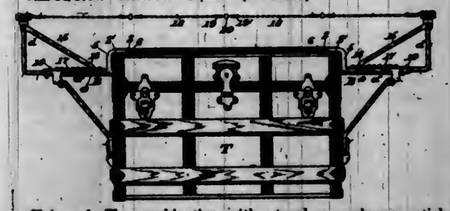
4. In a machine of the character specified, the combination of a positively-rotated holder or shaft having a grooving or indenting die, a bed-roll cooperating therewith, a feed slide or carrier, and means for reciprocating it, said feed-slide comprising a frame movable between the die-carrier and bed-roll and provided with adjustable sole-grasping jaws, yieldingly connected with the feed-slide.

5. In a machine of the character specified, the combination of a positively-rotated holder or shaft having a grooving or indenting die, a bed-roll cooperating therewith, a feed slide or carrier and means for reciprocating it, said feed-slide comprising a frame movable between the die-carrier and bed-roll, two pairs of jaws on said frame, means for adjusting the jaws of each pair simultaneously toward and from each other, and means for adjusting one pair bodily toward and from the other pair.

6. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll cooperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and comprising a frame movable on guides on the machine-frame, and sole-engaging jaws yieldingly connected with said movable frame, means for positively advancing said movable frame, and means for yieldingly retracting said frame.

7. In a machine of the character specified, the combination of a rotary shaft having a die-holder and cams at the ends of said die-holder, a grooving or indenting die affixed to said holder, a bed-roll arranged to cooperate with said die, a feed-slide comprising a frame having lugs arranged to engage said cams, and sole-grasping jaws yieldingly connected with said frame, the frame and jaws being projected by the cams, and a spring arranged to retract said frame and jaws.

588,979. TRUNK-COT. JOSEPH R. GORMAN, Hartford, Conn. Filed Jan. 14, 1897. Serial No. 619,213. (No model.)



Claim.—1. The combination, with a trunk or analogous article having a pair of bracket-supports adjoining each corner thereof, one supported above the other; of a bracket detachably secured to each pair of bracket-supports and adapted for supporting a cot-bottom, and each bracket comprising two members one of which is supported by, and is adjustable longitudinally of, the other member, and each of which members has a depending, hinged brace engaging the support of said member; and means carried by one member, for securing the other member in its adjusted position.

2. A trunk-cot comprising a trunk or analogous article; two pairs of cot-bottom-supporting brackets removably secured one to each end of the trunk, and each bracket comprising two relatively adjustable members one of which is supported by the other and has a slideway at the upper end thereof; two slide-bars, one connecting the brackets of each pair of brackets and having a series of holes therethrough; a resilient foldable cot-bottom having hooks at opposite ends thereof which engage in the holes of the two slide-bars; and clamping means for securing the members of the bracket in adjusted position.

3. In a trunk-cot, the combination, of a trunk or analogous article having a pair of bracket-supports adjoining each corner thereof; a bracket detachably secured to each pair of supports; and a resilient cot-bottom shiftably supported adjacent to its corner on said brackets and above the top line of the trunk.

4. In a trunk-cot, the combination, with a trunk or analogous article; of two pairs of extensible brackets removably secured one to each end of the trunk, and the brackets of each pair being connected together by a transverse bar; a foldable cot-bottom removably secured at opposite ends to the bars of the two pairs of brackets and embodying a series of sections hinged together by resilient connections.

5. In a trunk-cot, the combination, of a trunk or analogous article; two pairs of bracket-supports located at each end of the trunk, one pair adjacent each corner thereof; two extensible brackets detachably secured to each two pairs of supports at opposite ends, respectively, of the trunk; and a resilient foldable cot-bottom detachably secured at opposite ends to the two opposing brackets.

6. In a trunk-cot, the combination, with a trunk or analogous article, of a resilient cot-bottom supported above and extending beyond opposite ends of said trunk; extensible brackets detachably secured to the trunk; and slide-bars connecting said brackets and bottom.

7. In a trunk-cot, a cot-bottom-supporting bracket comprising a bearing member and a cot-bottom-supporting member, the former member of which is adapted to be detachably secured to a trunk and has a rack, and the latter member of which is adjustably carried by the former member and has braces adapted for engaging the teeth of the rack of said former member; combined with means for securing said members in their adjusted positions.

8. The combination, with a trunk or analogous article having two pairs of bracket-supports at each end thereof, one of which supports is located above the other, of a bracket detachably secured to each pair of supports and comprising two relatively adjustable members, and each bracket having a slideway at the end thereof which is located above the top of the trunk; a slide-bar shiftably seated in the slideways of said connecting the two brackets; and a cot-bottom removably secured to said slide-bar.

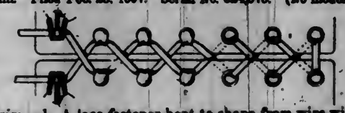
588,980. ASH-SIFTER. JOSEPH R. GORMAN, Hartford, Conn. Filed Feb. 26, 1897. Serial No. 625,073. (No model.)



Claim.—1. In an ash-sifter, the combination, with a casing, of a rotary sieve therein having a central supporting-rod extending therethrough; a handle connected with the upper end of said rod for turning the sieve; a cover for the casing; and a jointed polygonal support removably supported within the casing and having a bearing for the lower end of the supporting-rod of the sieve.

2. In an ash-sifter, the combination, with a casing, of a rotary sieve therein having a central supporting-rod extending therethrough; a handle connected with the upper end of said rod, for turning the sieve; a cover for the casing; stirrers fixed to said cover and projecting into the sieve and adapted to agitate the material therein on the turning of the sieve; holding means for removably clamping the cover to the casing, to hold the cover in place in opposition to the lifting force of the ashes during the rotation of the sieve; and a jointed polygonal support removably supported within the casing and having a bearing for the lower end of the supporting-rod of the sieve.

588,981. LACE-FASTENER. ROBERT R. T. GRAFF, Westville, Conn. Filed Feb. 23, 1897. Serial No. 624,575. (No model.)



Claim.—1. A lace-fastener bent to shape from wire with a middle tongue and side tongues extending obliquely to the middle tongue so as to form V-shaped mouths between the tongues, the front end of the middle tongue being bent below the plane of the side tongues and the front ends of the side tongues crossing and extending beyond the plane of the bent-down portion of the middle tongue, substantially as specified.

2. A lace-fastener bent to shape from wire with a middle tongue and side tongues extending obliquely to the middle tongue so as to form V-shaped mouths between the tongues, the front end of the middle tongue being bent below the plane of the side tongues, the front ends of the side tongues crossing and extending beyond the plane of the bent-down portion of the middle tongue, and the back ends of the side tongues being bent downwardly to form prongs for securing the fastener in position, substantially as specified.

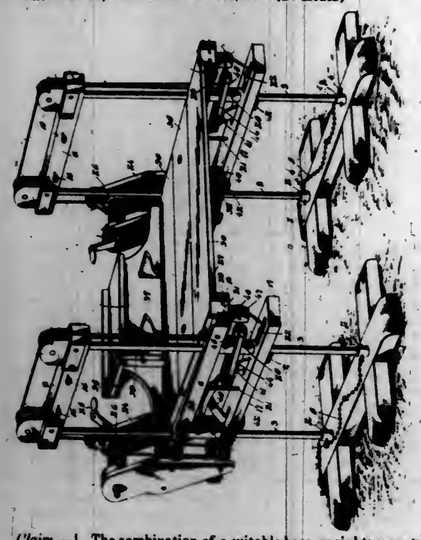
3. A lace-fastener bent to shape from wire with a middle tongue and side tongues extending obliquely to the middle tongue so as to

form V shaped mouths between the tongues, the front end of the middle tongue being bent below the plane of the side tongues, the front ends of the side tongues crossing and extending beyond the plane of the bent-down portion of the middle tongue, and the back ends of the side tongues being bent downwardly and horizontally to form supports for the fastener and then downwardly to form prongs for securing the fastener in position, substantially as specified.

4. A lace-fastener bent to shape from wire and having a relatively long middle tongue and relatively short side tongues extending obliquely to the middle tongue so as to form V-shaped mouths between the tongues, the front end of the middle tongue being bent downwardly and adapted to pass beneath the surface of the material to which the fastener is to be attached for holding the front end of the fastener, and the back ends of the side tongues being bent so as to pass beneath the surface of the material to which the fastener is to be attached for holding the back end of the fastener, substantially as specified.

5. A lace-fastener bent to shape from wire with a middle tongue formed of two parts of the wire that extend substantially parallel and with side tongues standing obliquely to the middle tongue so as to form V-shaped mouths between the tongues, each of the side tongues being formed of two parts of the wire that extend substantially parallel and the ends of the wire extending from the back ends of the tongues downwardly to form attaching-prongs, substantially as specified.

588,982. SCAFFOLD. WILLIAM H. GRAY, Falconer, N. Y. Filed Mar. 31, 1897. Serial No. 630,171. (No model.)



Claim.—1. The combination of a suitable base, uprights mounted thereon and arranged in pairs, cross-heads connecting the upper ends of the uprights of each pair, a vertically-movable stage-bed guided by the uprights, hoisting mechanism suspending the stage-bed from the cross-heads, and the automatically-operating brake mechanism carried by the stage-bed and arranged to engage the uprights, said brake mechanism being held out of engagement with the uprights by the tension of the hoisting-ropes, substantially as and for the purpose described.

2. The combination with a suitable base, and uprights mounted thereon, of a movable stage bed, hoisting mechanism carried thereby, and a brake mechanism comprising a pair of brake-levers having shoes and pivotally connected to the bed and to each other, a spring for throwing the brake-shoes against the uprights, and an arm or lever connected to the brake-levers and also having a sliding engagement with the hoisting-rope whereby the latter when under tension will hold the brake-shoes out of engagement with the uprights, while the breaking of the same will allow the brake-shoes to act through the assistance of the aforesaid spring, substantially as described.

3. The combination with a suitable base and uprights mounted thereon, of a vertically-movable stage-bed mounted thereon, hoisting mechanism whereby the bed may be raised and lowered, and a safety appliance carried by the bed and comprising a pair of brake-levers having pivotal connection with the bed and carrying brake-shoes which work against the uprights, a spring connecting one of said levers with the bed and operating to hold the shoe of said lever against its respective upright, an elbow-lever having pivotal connection with both of said brake-levers and carrying a pulley at the swinging extremity of one of its arms, and a hoisting-rope passing around said pulley and over other pulleys carried by the bed, the arrangement being such that the tension of the rope holds the brake-shoes out of action while upon the parting of the rope, the shoes are thrown into action through the assistance of said spring, substantially as described.

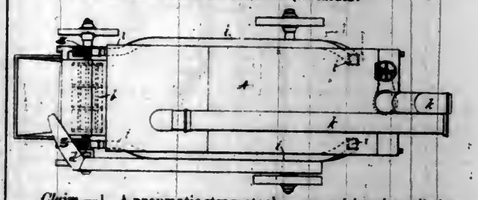
4. The combination with a suitable base having a socket, of a tubular upright having its lower end seated in said socket and made in two or more sections, and a coupling-piece having shank or plug portions which enter the open ends of the tubular sections and also having intermediate its ends an annular enlargement or collar which lies between the adjacent ends of the tubular sections, substantially as and for the purpose described.

5. The combination with a suitable base having sockets, of tubular uprights having their lower ends in said sockets, a cross-head removably fitted upon and connecting the upper ends of the uprights and carrying at its ends brackets in which the pulleys are mounted, one of said brackets being formed with oppositely-disposed notches, and a hoisting-rope having attached to its end a V-shaped grapple the terminal portions of which are hooked to engage the aforesaid notches, substantially as described.

6. The combination with a pair of end supports having vertically-movable stage-beds mounted thereon, each bed comprising a horizontal cross-bar connecting the uprights of such end supports and having plates attached to its opposite side edges and projecting above the upper surface thereof, of a stage comprising one or more boards formed adjacent to their ends with grooves or kerfs in the under surfaces thereof, the said grooves or kerfs being adapted to receive the upper edges of said plates on the bed-pieces, substantially as and for the purpose described.

7. The combination with a stage-board provided at one edge with sockets, of a detachable work-bench mounted on the stage-board and projecting outward beyond the same, said bench being provided at its outer side with depending legs fitting in said sockets, and the saw-horses extending from the inner side of the bench and detachably mounted thereon, substantially as described.

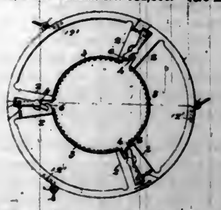
588,983. PNEUMATIC STRAW-STACKER. JOHN J. GREEN, Toledo, Ohio; Henry J. Weller administrator of said Green, deceased. Filed Oct. 17, 1895. Serial No. 566,017. (No model.)



Claim.—1. A pneumatic straw-stacker, comprising the cylinder-shaft of a threshing-machine, a fan or fans on said shaft independent of the thresher-blades, a chamber in the rear end in the body of said threshing-machine, an air conduit or conduits leading from said fan or fans to said chamber, and a stacker-tube leading from said chamber, substantially as and for the purpose specified.

2. In a pneumatic straw-stacker, the cylinder shaft of a threshing-machine, a blower or blowers on said shaft, a conduit leading from above the cylinder of said threshing-machine into said blower or blowers, a chamber in the rear part of said threshing-machine and a conduit or conduits leading from said blower or blowers to said chamber, in combination with a swinging stacker-tube leading from said chamber, substantially as and for the purpose specified.

588,984. SHADE-HOLDER. MORRIS D. GREENGARD, St. Louis, Mo. Filed Nov. 12, 1896. Serial No. 611,880. (No model.)



Claim.—1. In a shade-holder, a suitable shade-ring, a series of webs arranged in pairs carried by the ring, a series of clamping-band

sections, connecting the free end of one member of each pair with the nearest member of the next succeeding pair of webs, a controlling-lever pivoted to one member of each pair and having the free end of one arm thereof secured to the free end of the other member of the same pair of webs, and means for retaining the said lever in any position to which it may be tilted, substantially as set forth.

2. In a shade-holder, a suitable shade-ring, a series of webs arranged in pairs the members of which are slightly separated from one another, a series of clamping-band sections connecting the free end of one member of each pair with the nearest member of the next succeeding pair of webs, a controlling-lever pivoted to one member of each pair and having the free end of one arm thereof pivotally secured to the free end of the other member of the same pair of webs, and means for retaining the said lever in any position to which it has been tilted, substantially as set forth.

3. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried by the same, a series of clamping-band sections connecting the nearest members of each pair of webs, a lever pivoted to one member of each pair and having the free end of one arm thereof pivotally secured to the free end of the other member of the same pair, a knob carried by the actuating-arm of the lever, and a series of depressions formed along the second member of the pair of webs with which said knob engages, substantially as set forth.

4. In a shade-holder, a suitable shade-ring, means for securing the same to the socket of a lamp, a series of wings pivoted along the periphery of the ring for gripping the shade introduced thereinto, and suitable devices for frictionally holding the wings in any position to which the same have been tilted, substantially as set forth.

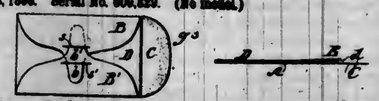
5. In a shade-holder, a suitable shade-ring, a series of wings pivoted along the periphery of the same for gripping the shade introduced thereinto, a finger forming a part of each wing, and a friction-band cut from the peripheral flange of the ring against the surface of which the said finger is adapted to ride, substantially as set forth.

6. In a shade-holder, a suitable shade-ring, a series of wings pivoted along the periphery thereof, an opening cut from the flange of the ring through which one member of each wing is adapted to be inserted for gripping the shade introduced into the ring, a friction-band cut from the ring opposite the wing, a series of indentations formed along the outer surface of said friction-band, and a finger carried by each wing for riding over said indentations and thus retaining the wing in any of its tilted positions, substantially as set forth.

7. In a shade-holder, a suitable shade-ring, a series of pairs of lugs formed along the same, a wing pivoted between each pair of lugs, each wing having two members, an opening cut from the body of the ring for the free passage of the inner member of the wing, a shoulder bounding each side of the said opening against one of which shoulders the inner member of the wing is adapted to come in contact for limiting the tilting of the wing in one direction, a friction-band having a medial resilient looped portion cut from the body of the ring, a finger forming a part of each wing adapted to ride over the said looped portion, the inner member of the wing serving to limit the tilting of the wing in the opposite direction, substantially as set forth.

8. In a shade-holder, a suitable shade-clamping wing comprising a pivotal axis, an outer actuating-arm, an inner deflected member adapted to seize the shade, and a finger projecting inwardly, substantially as set forth.

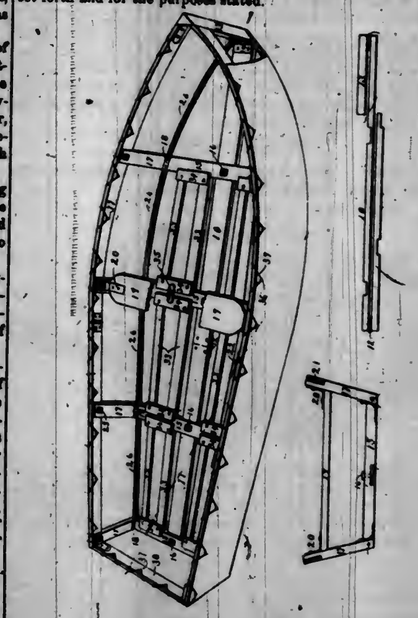
588,985. ENVELOP. JOHN C. GRIFFITH, Everett, Pa. Filed Oct. 23, 1896. Serial No. 609,839. (No model.)



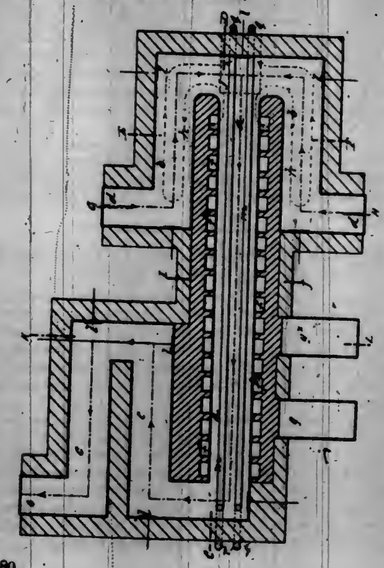
Claim.—The herein-described safety-envelop, comprising the main or face flap A carrying the side flaps B and B' respectively, provided with tongues and slits, the sealing-flaps C provided at one end of the face-flap A, and the back-flap D provided at the face-flap and carrying the supplementary flap E, and conjointly forming the double end flap *d* between or within which the sealing-flap is adapted to be secured, substantially as and for the purpose set forth.

588,986. SECTIONAL FOLDING BOAT. ANDREW J. HAGGEN, Eagle Grove, Iowa. Filed Mar. 5, 1897. Serial No. 625,917. (No model.)

Claim.—An improved collapsible boat, comprising a keel hinged near its central portion to fold downwardly, a bow or cut-water hinged to the front of the keel to fold rearwardly, staples on the upper end of the bow, a series of ribs detachably connected with the keel and hinged at their corners so that the ends may turn to a position parallel with the bottom, but may not fold over the bottom piece, corner-pieces round in cross-section, connected with the ribs at their corners, two gunwales fixed detachably to the upper end of the ribs, a hinged joint in each, near its central portion, a hook at the forward end of each, designed to engage the aforesaid staples, one or more seats detachably fixed between the ends of the ribs, a stern-piece fixed to the upper ends of the rear ribs, a series of bars designed to enter between the ribs, cross-pieces on the ends of said bars to overlap the top of the ribs, turn buttons fixed to the ribs to overlap said cross-pieces, a canvas cover designed to overlap the said frame, a series of hooks on its outer top portion, a series of hooks on the interior of the gunwales and stern-piece, and a cord or rope fixed to the canvas to be engaged with said hooks, substantially in the manner set forth and for the purposes stated.



588,987. POTTERY MUFFLE OR KILN. FREDERICK HANCOCK, Burslem, and CHARLES B. WIENER, Shelton, England. Filed Feb. 9, 1897. Serial No. 622,616. (No model.)

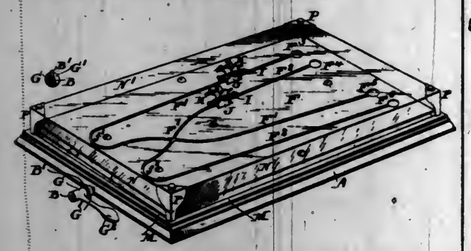


Claim.—1. In combination, a firing-chamber *a*, surrounded with flues for its entire length, and having duplicate warming-chambers *b*, built at one end and on opposite sides of and doubled back alongside the chamber *a*, to their inlets *d*, and a cooling-chamber *c*, at the other end and on one side of and alongside the chamber *a*, and doubled back on itself to its outlet *e*, as set forth.

2. In combination, a firing-chamber *a* surrounded with flues for its entire length, and having duplicate warming-chambers *b* built at one end and on opposite sides of the chamber *a*, a cooling-chamber *c* at the other end and on one side of the chamber *a*, the chamber *a* having longitudinal parallel grooves *m* adapted to receive series of balls for supporting the ware-carriers, as set forth.

3. In combination, a firing-chamber *a*, surrounded with flues for its entire length, and having duplicate warming-chambers *b*, built at one end and on opposite sides of and doubled back alongside the chamber *a*, to their inlets *d*, and a cooling-chamber *c*, at the other end and on one side of and alongside of the chamber *a*, the chamber *a*, and the chambers *b*, *c*, having parallel grooves *m*, adapted to receive series of balls of fire-clay or other refractory material for supporting the ware-carriers, as set forth.

588,988. TOY. SAMUEL H. HARRINGTON, Philadelphia, Pa. Filed May 25, 1896. Serial No. 593,611. (No model.)



Claim.—1. A toy having in combination a board having two or more grooves in its face, a series of magnets situated in the grooves, magnetized balls or their equivalents adapted to roll in said grooves, and light figures adapted to engage the balls as described so as to move over the board as the balls roll in the grooves thereof.

2. A toy having in combination a board having two or more grooves in its face, a series of magnets situated in the grooves, magnetized balls or their equivalents adapted to roll in said grooves, and light figures resting on or above the surfaces of the board and having dependent clutches adapted to engage the balls in the grooves and so that the movement of said balls will cause the figures to move over the board.

3. A toy having in combination a board having two or more grooves in its face, balls or their equivalents adapted to roll in said grooves, a platform secured above the board and having slots through it corresponding with the grooves in the board, said slots being enlarged at their ends so as to permit the clutches to turn therein, light figures supported on the platform, magnets secured to the upper parts of said figures, clutches extending from said figures through the slots in the platform to engage the balls, and a glass case inclosing the platform and figures supported thereon.

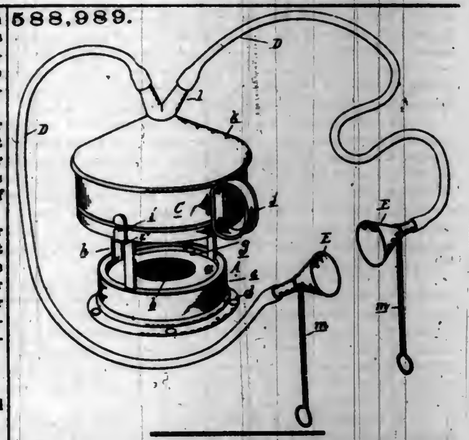
4. In a toy substantially as described the combination of the slotted board D with a shaft B upon which it is substantially balanced, and a weight G^2 adapted to move to either side of a vertical line and to engage and move the shaft and board through a determined arc in either direction.

588,989. FACE-STEAMER. MARION R. HARRIS, Toledo, Ohio. Filed June 6, 1896. Serial No. 594,490. (No model.)

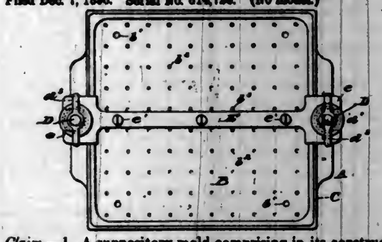
Claim.—1. In a steaming appliance or the like, the combination with a lamp member forming a base or support having an upwardly-projecting flange, of a stand member consisting of a yielding base-ring fitted within and against the flange portion of the lamp, and yielding clasps or arms having clasping and supporting means at their upper ends, and a receptacle mounted on the arms, substantially as described.

2. In a steaming apparatus or the like, the combination with the lamp member having an upwardly-projecting marginal flange with a turned-in upper edge, a stand member consisting of a split ring fitted within and against the flange, and upwardly-extending clasps or arms having locking and holding means at their upper ends, a receptacle on the arms and locked in place by the locking means, and a handle on the receptacle whereby, as the receptacle is lifted, the various members will be lifted, substantially as described.

588,989.



588,990. SUPPOSITORY-MOLD. LEON J. HARVEY, Saratoga Springs, N. Y., assignor to the C. F. Harvey Company, same place. Filed Dec. 7, 1896. Serial No. 614,726. (No model.)



Claim.—1. A suppository-mold comprising in its construction a lower horizontal plate having a series of cone-shaped cavities, and an upper horizontal plate movable toward and from the lower plate and having a corresponding number of cone-shaped cavities equal in depth and shape to those of the lower plate, the cavities of the upper plate being provided with small vent-openings.

2. A suppository-mold comprising in its construction two horizontal plates each having a series of molding-cavities, the lower of said plates having a flange or wall adapted to closely surround the margin of the upper plate, the cavities of said upper plate having vent-openings, and means for clamping said plates together.

3. A suppository-mold comprising in its construction two horizontal plates each having a series of molding-cavities, the lower of said plates having a flange or wall adapted to closely surround the margin of the upper plate, the cavities of said upper plate having vent-openings, and means which, when moved in one direction are adapted to clamp said plates together, and when reversed, to separate them and hold one plate removed from the other.

4. A suppository-mold comprising in its construction two plates having molding-cavities, one of said plates having suitable lugs, and the other plate having threaded rods pivoted thereto and provided with nuts having annular grooves to receive said lugs.

5. The combination with the mold-plate A having flange C and ears *d*, of the threaded rods D pivoted to said ears, the nuts *d'* each having an annular groove forming shoulders 1 and 2, and the mold-plate B provided with lugs *e* adapted to enter the annular grooves of the nuts, substantially as and for the purpose set forth.

588,991. PIPE-WRENCH. DAVID A. HENDERSON, Fond du Lac, Wis. Filed Aug. 3, 1896. Serial No. 601,492. (No model.)

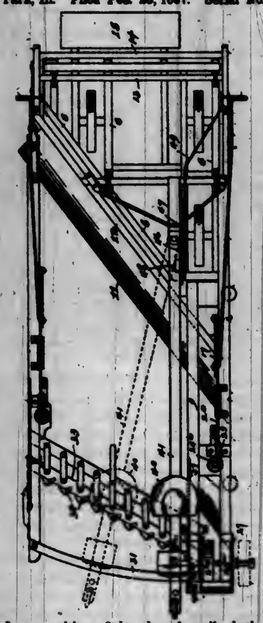
Claim.—1. An adjustable pipe-wrench comprising a toothed shank terminating in a laterally-projecting stationary convex-faced toothed jaw, having an obliquely-disposed slot therethrough, one end wall of which slot extends in opposite directions from about its center, and the bottom of the other end wall of said slot forms the first tooth on said shank, in combination with another shank, passing through said slot and having teeth in engagement with the teeth on the first-named shank, and terminating in a transverse stationary concave-faced toothed jaw, projecting to a line beyond that of the projection of the described slotted jaw, substantially as set forth.

2. An adjustable two-part pipe-wrench, consisting of a toothed shank terminating in a transverse stationary curved jaw, having

teeth on its under concave operative face and an overhanging inward-projecting lip at its extreme edge, in combination with another toothed shank, terminating in a transverse stationary slotted curved jaw projecting to a line within the line of projection of the said first-named jaw, and having teeth upon its convex operative face and the slot in said last-named jaw being obliquely disposed therethrough for the reception of the other toothed shank, the bottom of the wall of said slot adjacent to the teeth on said other shank terminating in a tooth forming the upper or first tooth of this shank, and the opposite wall of said slot, adjacent to the smooth or straight side of said other shank, extending in opposite directions from about its center and being free from teeth, substantially as set forth.



588,992. GRADING AND SCRAPING MACHINE. JOHN HEUERMANN, Oak Park, Ill. Filed Feb. 23, 1897. Serial No. 624,517. (No model.)



Claim.—1. In a machine of the class described, the combination with a main frame provided with a scraper, of a supplemental frame detachably connected with the main frame and a breaker-beam adjustably connected to the main frame and supplemental frame in front of the scraper, substantially as described.

2. In a machine of the class described, the combination with a main frame provided with a scraper and mounted upon a supporting-truck, of a supplemental frame provided with a breaker-beam and a draft-pole or tongue pivoted to the main frame in the rear of the scraper and having suitable supports or guides on the supplemental frame for its swinging end, substantially as described.

3. In a machine of the class described, the combination with the main frame, a truck for supporting the rear end thereof, a scraper mounted on the main frame, a supplemental frame having a breaker-beam attached thereto, and supporting-wheels whose journals are slidably connected with the main frame and supplemental frame respectively, between the scraper and the breaker-beam, substantially as described.

4. The combination in a scraper and grader of a frame having a truck for supporting its rear end, and carrying-wheels on which the frame is adjustably mounted, a scraper located in front of the truck, a breaker-beam located in front of the supporting-wheels, said supporting-wheels having shanks or journals adapted to slide in bearings on the frame, levers connected thereto, said levers being pivoted upon the main frame and connections extending from the said levers to the rear of the frame whereby the levers may be rocked on their pivots and the front end of the frame raised and lowered, substantially as described.

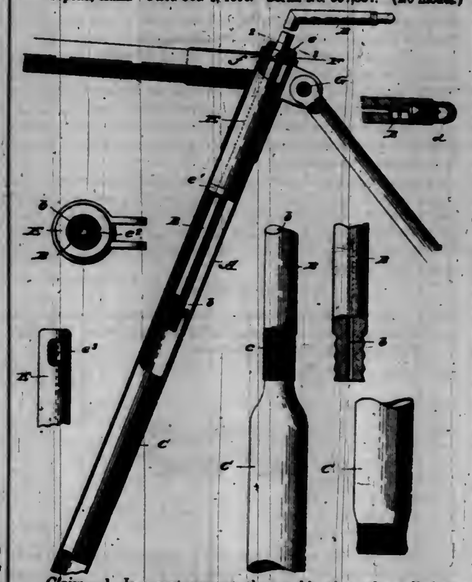
5. A frame-tilting mechanism comprising in combination with the frame, supporting-wheels located between the ends of the frame, the journals of said wheels having a sliding bearing upon the frame, levers connected to said extended bearings, said levers being pivoted between their ends, a pull-rod, and a swinging arm, having a slot-and-pin connection with the lever, substantially as described.

6. In a scraper and grader the combination with a frame, of a gage-wheel located at the front end thereof, a pivoted frame in which the gage-wheel is journaled, and the journal of said gage-wheel being extended laterally from the frame, whereby said gage-wheel may be mounted so as to travel within the limits of the frame or outside thereof, substantially as described.

7. In a scraper and grader the combination with the main frame, having a scraper mounted thereon, a supplemental frame having a breaker-beam mounted thereon, and an adjustable gage-shoe at the outer angle of said supplemental frame, substantially as described.

8. In a machine of the class described, the combination, with a main frame provided with a scraper and mounted upon a supporting-truck, of a supplemental frame provided with a breaker-beam, and a draft-pole or tongue pivoted to the main frame in rear of the scraper, extending forward of the supplemental frame, and there provided with a supporting caster-wheel, substantially as described.

588,993. PNEUMATIC SEAT-SUPPORT. PERCY J. HINDMARSH, Topeka, Kans. Filed Oct. 1, 1896. Serial No. 607,557. (No model.)



Claim.—1. In a seat-support, the combination, of a cylinder or tube, a bag positioned therein and supported solely by frictional contact with the inner wall thereof when inflated, together with a seat-post pneumatically supported by engagement with the bag.

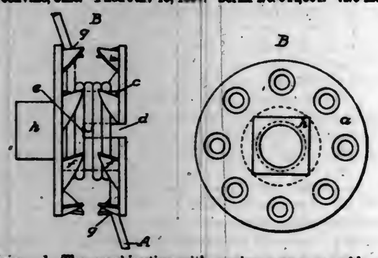
2. In a vehicle, the combination with a cylinder or tube, of a hollow seat-post which is partially mounted within the cylinder or tube, a bag carried by the lower end of the seat-post, means for inflating the bag so that it will be held in the cylinder or tube when inflated solely by frictional contact therewith to pneumatically support the seat-post.

3. In a vehicle, the combination with a cylinder or tube, of a seat-post mounted therein, an elongated bag the open end of which is secured over the lower end of the seat-post and adapted when inflated to support the seat-post by the frictional engagement of the bag with the cylinder or tube, said seat-post having a longitudinal bore closed at its upper end by a valve or stopper; together with a sleeve or thimble positioned in the upper end of the tube and presenting annular flanges which embrace the seat-post and guide the same, substantially as shown and for the purpose set forth.

4. In a vehicle, the combination with the cylinder or tube A, of a seat-post mounted therein and provided with a longitudinal bore extending throughout its length and closed at its upper end by a valve or plug, an elongated bag the open end of which is secured

over the lower end of the seat-post; which bag when inflated is held in frictional contact with the cylinder or tube A to provide supporting means for the seat-post together with a thimble or sleeve E located in the tube or cylinder A to provide guides for the seat-post, and a collar or stop F on the seat-post to limit the upward movement thereof, substantially as shown and for the purpose set forth.

588,994. WIRE OR CABLE TIGHTENER. ANDREW HUBER, Greenville, Ohio. Filed July 15, 1897. Serial No. 644,661. (No model.)

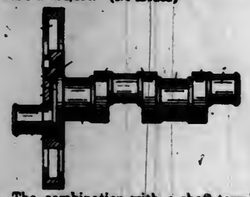


Claim.—1. The combination with a wire runner or cable, of a metallic tightener or ratchet, having a front disk *a*, connected by a cylinder or axle *c*, to a rear disk *b*, each disk having around its outer edge a series of inward and backward projecting lugs or stops *f f*, the rear disk and a portion of the cylinder being divided diametrically by a slot *d*, with a square lug *h* in the center of the face side of the front disk, all substantially as set forth.

2. The combination with a wire runner, or cable, of a rotary tightener or ratchet, having a cylinder or axle connecting front and rear disks, each disk having around its outer edge a series of inward and backward projecting lugs or stops, the front disk having a square lug in the center of its face side, the rear disk and a portion of the cylinder or axle being divided diametrically by an aperture or slot all for the purpose specified.

3. A metallic wire-tightener having two disks connected by an axle or cylinder, each disk having around its outer edge a series of inward and backward projecting lugs or stops, one disk and a portion of the cylinder being divided diametrically by an aperture or slot, the other having a square lug in the center of its face side, all substantially as described.

588,995. PUMP. EDWARD R. JOHNSON, Chicago, Ill., assignor to Wakeman R. Henion and Charles W. Hubbell, same place. Filed Mar. 2, 1896. Serial No. 581,466. (No model.)



Claim.—1. The combination with a shaft terminating in an integral crank arm and pin, and formed with a concentric flange on the crank-arm, of a gear provided with a central web concentrically recessed to fit over said flange, and having an eccentric aperture through which said terminal cank-pin projects, and clamping devices between the web and flange.

2. An integral crank-shaft for triplex pumps comprising a middle and end cranks and a journaled portion between the middle crank and each end crank, the end-crank pins constituting the extremities of the integral crank-shaft, a concentric flange on one end crank, a concentrically-recessed gear fitting over said flange, an eccentric aperture in said gear to receive the adjacent end-crank pin, and clamping devices between the gear and flange.

3. A crank-shaft for power-pumps comprising journal and crank portions, a flange on one of the cranks concentric with the journals, a gear fitting concentrically against said flange and apertured to permit the crank-pin to project through it, and securing means between the hub and flange.

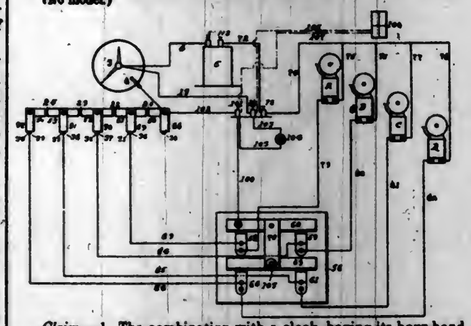
4. In a triplex pump the combination with the cylinders and plungers of a crank-shaft provided with intermediate and end cranks connected with said plungers and with journal portions resting in bearings between the cranks, a flange on one crank concentric with the journal, a gear fitting concentrically against said flange, securing means between the hub and flange, and an aperture in said hub through which the crank-pin projects.

588,996. TYPE-FONT. LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed Nov. 20, 1895. Serial No. 570,395. (No model.)



Claim.—As an article of manufacture, a font of type, adapted to be distributed by automatic mechanism into channels for use in a setter-case of the class herein designated, the bodies of the several sets or duplicates of individual types or characters which constitute the font being formed with various combinations of distributing-nicks, so arranged with relation to each other and to the distributing-nicks in the rest of the types composing the font that certain types of a given face or character will be selected automatically to contribute to the formation of a prescribed word or combination of types formed with coinciding distributing-nicks while certain others of the same given face or character will be selected to contribute to the formation of other prescribed words or combinations having coinciding distributing-nicks and still others of the same given face or character will be selected for individual use in combination with other types of the font of different face or character and formed with different distributer-nicks as in ordinary composition, substantially as described.

588,997. ELECTRIC ALARM AND CALL-BELL. FRANK C. JORDAN, Wadsworth, Ohio. Filed Jan. 11, 1897. Serial No. 618,806. (No model.)



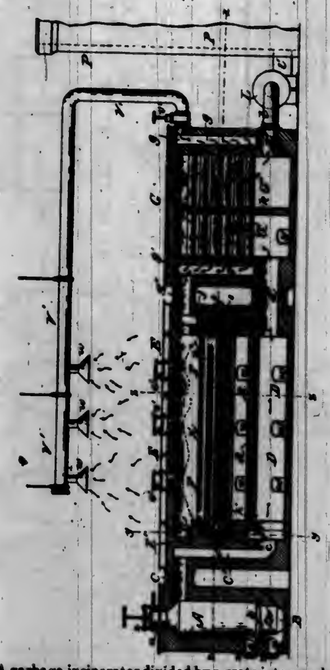
Claim.—1. The combination with a clock, having its hour-hand in connection with one pole of a battery; of contact-fingers adapted to make connection with said hour-hand, and connected with a switch-board; a series of contact-plates severally connected with said switch-board and one post of a series of bells; the other posts of said bells connected with the opposite pole of said battery; and sliding plates to simultaneously connect said contact-plates, to cause all of said bells to ring by the contact of said hour-hand and any of said fingers, substantially as shown and described.

2. The combination of a clock, having its hour-hand in connection with one pole of a battery, of contact-fingers adapted to make connections with said hour-hand, a series of transverse plates each connected with a contact-finger, a series of detached plugs adapted to connect said plates, a series of dependent plates connected with said transverse plates, a series of plugs each connected with one pole of a bell and adapted to connect with said dependent plates, a series of independent bells connected with said last-named plugs and with the opposite pole of said battery, substantially as shown and described.

3. The combination of a clock and battery, the clock having its hour-hand in connection with one pole of the battery, a series of electric bells each having one pole in connection with the opposite pole of the battery, a multiple switchboard consisting of a perforated non-conducting base 10, a series of independent plates 50, 51, 52, 53, 54, on said base connected severally with contact-fingers adapted to make connection with said hour-hand, said plates arranged to be connected by plugs, a number of series of plates as 88, 43; 89, 46; 90, 47; 91, 48; 92, 49; each of these series as 91, 48; and one of said independent plates as 53, being all electrically connected together, and plugs 36, 37, 38, 39, 111, 112, arranged to connect with any of said plates, said plugs being connected with said bells substantially as shown and described.

588,998. GARBAGE-INCINERATING APPARATUS. JEREMIAH J. KENNEDY, Philadelphia, Pa. Filed Nov. 15, 1895. Serial No. 569,091. (No model.)

Claim.—1. In a garbage-incinerator, the combination of an air-heating chamber having an air-inlet and an air-outlet; a garbage-chamber having an air-inlet, outlets for air and vapors from the charge of garbage, inlet and outlet ports in opposite walls, means for maintaining draft-channels connecting said inlet and outlet ports through the charge of garbage, flues connecting the inlet-ports with the air-inlet, flues connecting the outlet-ports with the outlet for air and vapors and a flue connecting the air-inlet of the garbage-chamber with the air-outlet of the air-heating chamber, substantially as described.



2. A garbage-incinerator divided by a grate into a garbage-chamber having an air-inlet, and a fuel-furnace having a fuel-supply, inlets for air and vapors from the charge of garbage, and an outlet for the products of combustion; and having an air-heating chamber, a flue connecting the air-outlet of the air-heating chamber with the air-inlet of the garbage-chamber and flues connecting the garbage-chamber with the inlets of the fuel-furnace, substantially as described.

3. A garbage-incinerator divided by a grate into a garbage-chamber having an air-inlet and a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion and an outlet for the products of combustion, and having air-flues connecting the garbage-chamber with the air-inlet ports of the fuel-furnace, and also having a series of air-pipes passing through the garbage-chamber and connecting at one end with said air-flues, and connecting at the other end with air-flues connecting said air-pipes with the upper part of the garbage-chamber, and also having dampers for regulating the amount of air passing through said air flues and pipes, substantially as described.

4. A garbage-incinerator having a fuel-furnace, a garbage-chamber, a series of channel-bars passing through the garbage-chamber, inlet and outlet ports in opposite walls of the garbage-chamber, said ports being directly under said channel-bars and connecting at one end with flues connecting with the fuel-furnace and at the other end with flues connecting with the outer air, substantially as described.

5. A garbage-incinerator divided by a grate into a garbage-chamber having an air-inlet, and a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion, and an outlet for products of combustion, air-flues connecting the garbage-chamber with the air-inlet ports of the fuel-furnace, and a gas-supply flue and ports connecting with the fuel-furnace, in combination with a gas-generator connecting with said gas-supply flue in the garbage-incinerator, an air-blower and a pipe connecting it with the gas-generator, and an exhauster connecting with the outlet-flue of the incinerator, whereby a continuous current of gas will be delivered to the incinerator, and a continuous current of air will be drawn through the garbage-chamber in contact with the body of garbage, for absorbing the vapors and odors, and the same burned with said gas, substantially as described.

6. A garbage-incinerator divided by a grate into a garbage-chamber having an air-inlet and a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion and an outlet for the products of combustion, and having air-flues connecting the garbage-chamber with the air-inlet ports of the fuel-furnace, and also having a series of channel-bars passing through the garbage-chamber and connecting through ports at one end with said air-flues and connecting through ports at the other end with air-flues connecting said channel-bars with the air-inlet of the garbage-chamber, and also having dampers for regulating the amount of air passing through said air flues, ports, and channels, substantially as described.

7. A garbage-incinerator divided by a grate into a garbage-chamber having an air-inlet and a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion and an outlet for products of combustion, and having air-flues connecting the garbage-chamber with the air-inlet ports of the fuel-furnace, and also having a series of air pipes and channels passing through the garbage-chamber and connecting at one end with said air-flues, and connecting at the other end with air-flues connecting said air pipes and channels with the air-inlet of the garbage-chamber, and also having dampers for regulating the amount of air passing through said air flues, pipes and channels, substantially as described.

8. A garbage-incinerator having in combination an air-heating chamber, a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion and an outlet-flue for delivering the hot products of combustion to the air-heating chamber; a garbage-chamber having a grated bottom separating it from the fuel-furnace, an air-inlet flue connecting with the air-outlet of the air-heating chamber and a series of channel-bars connecting at one end with flues which connect the garbage-chamber with the air-inlet ports of the fuel-furnace, and at the other end with flues which connect with the air-supply from the air-heating chamber, substantially as described.

9. A garbage-incinerator having in combination, an air-heating chamber; a fuel-furnace having a fuel-supply, air-inlet ports and an outlet-flue for delivering the hot products of combustion to the air-heating chamber; a garbage-chamber having an air-inlet flue connecting with the air-outlet of the air-heating chamber, and a series of pipes connecting at one end with flues connecting with the garbage-chamber, and connecting at the other end with flues connecting with the air-inlet ports of the fuel-furnace, substantially as described.

10. A garbage-incinerator having in combination, an air-heating chamber, a fuel-furnace having a fuel-supply, air-inlet ports for supplying air for combustion and an outlet-flue for delivering the hot products of combustion to the air-heating chamber; a garbage-chamber having a grated bottom separating it from the fuel-furnace, an air-inlet flue connecting with the air-outlet of the air-heating chamber, and a series of channel bars and pipes connecting at one end with flues which connect the garbage-chamber with the air-inlet ports of the fuel-furnace, and at the other end with flues which connect with the air-supply from the air-heating chamber, substantially as described.

11. A garbage-incinerator divided by a grate into a fuel-furnace having a fuel-supply, inlets for air and vapors from the charge of garbage and an outlet for the products of combustion, and a garbage-chamber having an air-inlet, inlet and outlet ports in opposite walls, means for maintaining draft-channels connecting said inlet and outlet ports through the charge of garbage and having flues connecting the inlet-ports with the garbage-chamber and air-inlet and flues connecting the outlet-ports with the inlets of the fuel-furnace, substantially as described.

12. A garbage-incinerator having an air-heating chamber; a fuel-furnace having a fuel-supply, inlets for air and vapors from the charge of garbage and an outlet for the products of combustion; a garbage-chamber having an air-supply flue connecting with the air-outlet of the air-heating chamber, inlet and outlet ports in opposite walls, means for maintaining draft-channels connecting said inlet and outlet ports, through the charge of garbage, flues connecting the inlet-ports with the garbage-chamber and air-supply from the air-heating chamber, and flues connecting the outlet-ports with the inlet of the fuel-furnace, substantially as described.

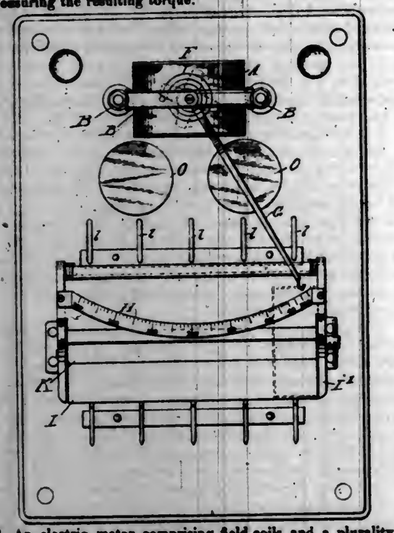
13. In a garbage-incinerator, the combination with the chamber F and a combustion-chamber in operative relation thereto, of the flues *f*, *f*, the flues *f'*, *f'*, and the channel-bars *k'*, *k'*, connecting the flues *f*, *f*, with the flues *f'*, *f'*, through the chamber F, said flues *f'*, connecting with the combustion-chamber, substantially as shown and described.

588,999. ELECTRIC METER. ELTON J. KIRK, Fort Wayne, Ind. Filed May 1, 1897. Serial No. 634,673. (No model.)

Claim.—1. An electric meter comprising field-coils and a plurality of movable coils secured at an angle to each other upon a common axis within the field, connections for energizing the coils, and means for measuring the resulting torque.

2. An electric meter comprising field-coils and two movable coils

secured approximately at right angles to each other upon a common axis within the field, connections for energizing the coils, and means for measuring the resulting torque.



3. An electric meter comprising field-coils and a plurality of movable coils secured in adjustable angular relation to each other upon a common axis within the field, connections for energizing the coils, and means for measuring the resulting torque.

4. An electric meter comprising field-coils and a plurality of movable coils secured at an angle to each other upon a common axis within the field, connections for energizing the coils, a spring-resistance normally holding the movable coils stationary, and a pointer and scale for measuring the movement effected by the torque in opposition to said spring-resistance.

5. An electric meter comprising field-coils and a plurality of movable coils secured in adjustable angular relation to each other upon a common axis within the field, connections for energizing the coils, a spring-resistance normally holding the movable coils stationary, and a pointer and scale for measuring the movement effected by the torque in opposition to said spring-resistance.

6. An electric meter, comprising field-coils and a plurality of movable coils secured at an angle to each other upon a common axis within the field, a yielding resistance opposing the movement of the movable coils, a pointer secured thereto and provided with a marking-point, and means for moving a record-sheet past said marking-point.

7. An electric meter comprising field-coils and a plurality of movable coils secured in adjustable angular relation to each other upon a common axis within the field, connections for energizing the coils, a yielding resistance opposing the movement of the movable coils, a marking-point actuated by the movable coils, and means for moving a record-sheet past said marking-point.

8. An electric meter provided with stationary and movable coils, the latter being mounted on an oscillatory spindle, spiral springs applied to resist the movement of the spindle, and connecting-wires carried along the convolutions of the springs to connect the movable circuit without affecting the oscillations of the meter.

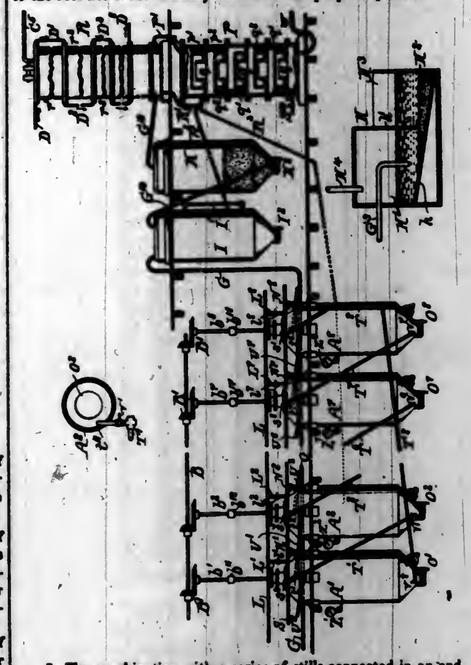
9. An electric meter comprising field-coils and a plurality of movable coils secured at an angle to each other upon a common axis within the field, spiral springs applied to resist the movement of the movable coils, and connections for energizing the coils including connecting-wires carried along the convolutions of the springs to connect the movable circuit without affecting the oscillations of the meter

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589,000. DISTILLING APPARATUS. HENRIK J. KREBS, Wilmington, Del. Filed June 1, 1894. Serial No. 513,114. (No model.)

Claim.—1. In a distilling apparatus the combination with one or more independent stills of a series of condensing-chambers R and a series of distilling-chambers P arranged as described so that the condensed liquid from the gas condensed in the chambers R will flow down into the chambers P and the gas and vapors from chambers P will rise into chambers R and a delivery-pipe leading from the independent stills to the condensing-chambers R.

2. In a distilling apparatus for ammonia the combination with a series of stills connected in an endless circuit by pipes leading from the head of each still to the lower part of the still next in consecutive order, cocks for closing any of the pipes at will, a take-off pipe having connections with each still and cocks arranged in each take-off pipe connection, a series of condensing-chambers forming a rectifier R and into which the take-off pipe leads, and a series of distilling-chambers forming an analyzer P arranged relatively to and connected to the rectifier R substantially as and for the purpose specified.



3. The combination with a series of stills connected in an endless series by pipes as T' T^2 leading from one still into the lower part of the still next in order, cocks in said pipes, a take-off pipe G having branches leading from each still, and pipe-sections U' U^2 &c. leading from each still to the next and suitable cocks in said pipe-sections all substantially as specified, and so that any of the stills may be used as a chamber to catch spray carried by the gas.

4. A condenser consisting of a number of sections as r r' &c. each section consisting of a casing C, a cover C having passages c d, a bell or chamber E in said casing into which the passages c d open, the passages c d and bell E forming part of a conduit for a cooling medium all arranged substantially as specified and so that the cover of one section forms the bottom of the next.

5. A condenser consisting of a number of sections r r' &c. each section consisting of a casing C, a cover C having passages c d, a bell or chamber E into which the passages c d open, a pipe as d' connected to the opening and extending to near the bottom of the bell E, all arranged substantially as and for the purpose specified.

6. A rectifying-column having sections r r' each consisting of a casing C, a bell E in said casing, a cover C having passages c d and pipes c' d' extending different distances into the bell.

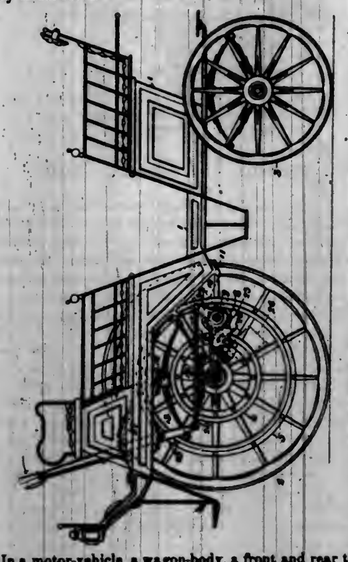
7. A rectifier-column having sections r r' &c. each section consisting of a casing C, a bell E having a neck E', a cover C having passages c d, a pipe c' extending to near the bottom of the bell and a pipe d' extending substantially to the base of the neck substantially for the purpose specified.

589,001. MOTOR-VEHICLE. GOTTHOLD LAPOEN, St. Louis, Mo., assignor of three-fourths to Charles J. Rauch, Memphis, Tenn., John Schmeiser, Centralia, Ill., and Joseph B. Hiermann, St. Louis, Mo. Filed Aug. 31, 1896. Serial No. 604,437. (No model.)

Claim.—1. In a motor-vehicle, a suitable wagon-body, wheels for the same, a motor carried by the vehicle, a drive-shaft for said motor adapted to be rotated in one direction during the travel of the vehicle, the axes of rotation of the wheels being movable relatively to the motor-shaft, mechanism for effecting engagement between the motor-shaft and wheels for turning the latter in either direction, and means under the control of the operator for shifting the position of the wheels relatively to said shaft whereby the direction of rotation

of the wheels in one direction or the other is determined, substantially as set forth.

2. In a motor-vehicle, a suitable wagon-body, wheels for the same, a motor carried by the vehicle, a drive-shaft for said motor, a friction-disk carried by or connected with the motor-shaft, suitable concentric rings or engaging surfaces forming a part of or carried by each wheel for engaging with the friction-disk and turning said wheels, the axes of rotation of the wheels being movable relatively to the motor-shaft, and means under the control of the operator for shifting the wheels relatively to said shaft whereby the direction of rotation of the wheels in one direction or the other is determined while the motor-shaft is rotating in one and the same direction, substantially as set forth.



3. In a motor-vehicle, a wagon-body, a front and rear truck for the same, a yielding connection between the front truck and the wagon-body whereby the front truck may be shifted toward or from the rear truck, a motor carried by the wagon-body, a shaft for the motor, bevel friction-disks actuated by the shaft, concentric channel-rings carried by the wheels of the front truck, and intermediate connections between the wagon-body and front truck for shifting the latter to or from the rear truck and bringing the channel-rings alternately into cooperation with the driving-disks, substantially as set forth.

4. In a motor-vehicle, a wagon-body, a front truck for the same, a yielding spring connection between the truck and wagon-body, a motor carried by the wagon-body, a shaft for the motor, driving-disks carried by the shaft, concentric channel-rings carried by the wheels of the truck, brackets having terminal tubular extensions for the support of the opposite ends of the motor-shaft, a channel guide-plate loosely embracing each tubular extension of the bracket, a toothed quadrant pivoted to said channel guide-plate, an arm having a toothed loop loosely embracing each tubular extension of the brackets and located adjacent to the channel guide-plate, the teeth of the loop of the arm meshing with the teeth of the quadrant, a sliding bar having one end guided within the channel of the guide-plate, and the opposite end loosely embracing the axle of the truck, a link connection between the sliding bar and the oscillating end of the quadrant, and a controlling-lever connected to each toothed arm, whereby the wheels of the truck and the channel-rings carried by them can be brought into engagement with the rotating drive-shaft, substantially as set forth.

589,002. CAR-TRUCK. JOHN LINDEN, Chicago, Ill. Filed June 30, 1897. Serial No. 642,934. (No model.)

Claim.—1. In a car-truck, the combination with a bolster, of an arch-bar, an inverted arch-bar, a tapering guide plate or column arranged between and filling the space inclosed by the arch-bars and conforming to the configuration thereof, said guide plate or column being provided with suitable ways for the bolster, and a spring for cushioning the bolster, substantially as described.

2. In a car-truck, the combination with an arch-bar, an inverted arch-bar, journal-boxes arranged at the terminals of said bars, a pedestal tie-bar connecting the journal-boxes, an oppositely-tapering guide plate or column filling the space between the arch-bar and the inverted arch-bar and conforming to the configuration thereof, said guide plate or column being provided with a vertical way, a bolster arranged within the way, and a spring for cushioning the bolster, substantially as described.



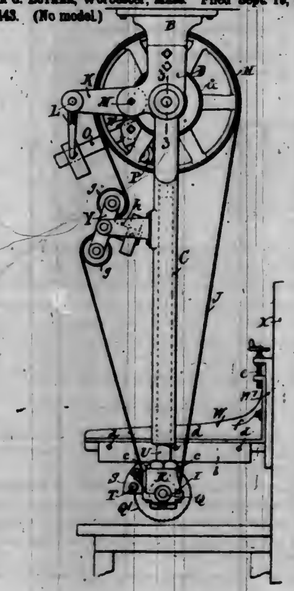
3. In a car-truck, the combination of the arch-bars, the inverted arch-bars, the pedestal tie-bars, journal-boxes arranged at the ends of such bars, the oppositely-tapered guide plates or columns arranged within the spaces between the arch-bars and the inverted arch-bars and filling the same, said guide plates or columns being provided with vertical openings, a bolster having its ends arranged in said openings, springs interposed between the bottoms of the openings and the bolster, the horizontal angle-bars connecting the guide plates or columns, and fastening devices passing through the guide plates or columns and all of said bars, substantially as described.

4. In a car-truck, the combination of the guide plates or columns provided with ways, a bolster mounted in said ways, and a truss supporting the bolster and comprising the truss-plate secured at its ends to the bolster, and the strut-plate secured to the lower face of the bolster at the center thereof and provided with depending longitudinal flanges interposed between the bolster and the truss-bar, substantially as described.

5. In a car-truck, the combination of guide plates or columns provided with ways, a bolster mounted in the ways, a truss comprising a longitudinal truss-bar secured at its ends to the bolster and extending upward on the ends and horizontally on the top of the same, and a strut-plate interposed between the bolster and the truss-bar, the side plates 21 arranged in pairs at the ends of the bolster and provided with vertical flanges located at the inner and outer faces of the guide plates or columns, and fastening devices securing the side plates to the bolster, substantially as described.

6. In a car-truck, the combination of an arch-bar, an inverted arch-bar, the oppositely-tapered guide plate or column provided with a vertical opening and having a seat at the bottom thereof formed by laterally-extending ledges or flanges forming ridges at their upper faces, a bolster, and a spring interposed between the bolster and said seat, substantially as described.

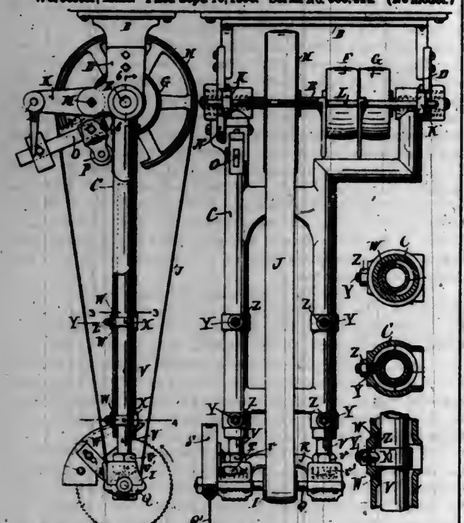
589,003. SWING SAWING AND GROOVING MACHINE. BENJAMIN G. LUTHER, Worcester, Mass. Filed Sept. 19, 1896. Serial No. 606,443. (No model.)



Claim.—1. In a swing sawing and grooving machine, the combination of the cutter-arbor, the arbor-frame, the swing-frame and sliding connection between the arbor-frame and the swing-frame and the driving-shaft, with the stationary pattern-guide, and means for holding the arbor-frame in guiding engagement with the pattern-guide, substantially as described.

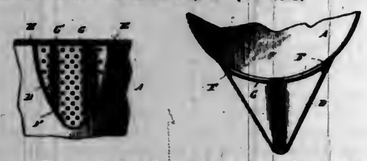
2. In a swing sawing and grooving machine, the combination of the cutter-arbor, the arbor-frame, the swing-frame, and sliding connection between the arbor-frame and the swing-frame and the driving-shaft, with the stationary pattern-guide, the adjustable bracket for holding the pattern-guide, and means for holding the arbor-frame in guiding engagement with the pattern-guide, substantially as described.

589,004. **SWING SAWING-MACHINE.** BENJAMIN G. LOTHER, Worcester, Mass. Filed Sept. 19, 1896. Serial No. 606,444. (No model.)



Claim.—In a swing sawing-machine, the combination of the hollow swinging frame provided with the bearing-seats within the cavity of the frame, with a saw-arbor frame provided with the parallel bars adjustably held in the cavity of the pivoted frame, and the ring-bolts adapted to clamp the parallel bars to their bearing-seats, substantially as described.

589,005. **COFFEE OR TEA POT.** AMANDA MACY, Macy, S. D. Filed Nov. 23, 1896. Serial No. 613,219. (No model.)

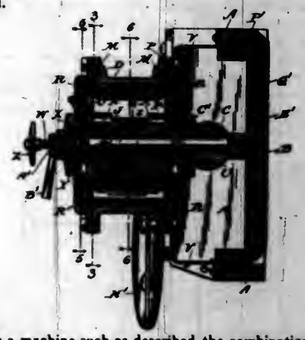


Claim.—The herein-described coffee or tea pot having the spout D punched out of the body of the pot, the upper edge of the spout and pot proper being beaded as at E, the guideways P, the detachable strainer-plate G slidable within said guideways, the upper edge thereof being beaded as at G', so that when the strainer is inserted into place the beaded edge will come into coincidence with the body edge of the pot, and thereby provide an unbroken circle within which the flange of the top is adapted to fit, substantially as shown and described.

589,006. **SANDPAPERING OR ANALOGOUS MACHINE.** JAMES H. MANNING, Omaha, Nebr. Filed Apr. 21, 1896. Renewed June 24, 1897. Serial No. 642,161. (No model.)

Claim.—1. In a machine such as described, the combination of a rotary shaft, a motor mounted thereon for turning it, a working surface secured to one end of said shaft, and means for regulating the action of the machine upon the work in the manner and for the purpose described.

2. In a machine such as described, the combination of a rotary shaft, a motor mounted thereon for turning it, a working surface secured to one end of said shaft, a guide-frame or bearing-surface adjacent said working surface and adapted to rest against the surface of the work, and means for adjusting the working surface to project it more or less beyond such frame or bearing-surface for the purpose described.



3. In a machine such as described, the combination of a rotary shaft, a motor mounted thereon for turning it, a working surface secured to one end of said shaft, a guide-frame or bearing-surface adjacent said working surface and adapted to rest against the surface of the work, and means at the opposite end of the shaft for adjusting the same longitudinally to project said working surface more or less beyond such frame or bearing-surface, for the purpose described.

4. In a machine such as described, the combination of a cylinder, a rotary shaft journaled therein, a rotary piston mounted upon and turning with the shaft within the cylinder, a working surface secured to one end of said shaft, and means for regulating the action of said surface upon the work in the manner and for the purpose described.

5. In a machine such as described, the combination of a cylinder, a rotary shaft journaled therein and movable longitudinally in its bearings, a rotary piston mounted upon said shaft within the cylinder and connected thereto so as to turn the shaft with it but permit independent longitudinal movement of it, a working surface secured to one end of the shaft, a guide-frame secured to the cylinder and adapted to rest against the surface of the work adjacent said working surface, and means for adjusting the rotary shaft longitudinally to project the disk more or less beyond said frame, for the purpose described.

6. In a machine such as described, the combination of the frame A, the rotary shaft C, the disk B secured to the end of said shaft, a rotary motor mounted upon said shaft for turning it, the adjusting-screw W threaded through a fixed support and provided with a head bearing against the end of the shaft C opposite the end which carries the disk B, the collar Y confining the head of said screw against the end of said shaft, and the lock-nut A' for holding the screw and shaft in their different adjusted positions, substantially as described.

7. In a machine such as described, the combination of the cylinder D having the heads O P, the rotary shaft C journaled in said cylinder, the rotary piston mounted upon said shaft within said cylinder and connected to the shaft by means permitting independent longitudinal adjustment of the shaft, the cap-nut X screwed upon the cylinder-head O, the adjusting-screw W threaded through the nut X and provided with the conical head bearing against the front end of the shaft C, the collar Y screwed upon the front end of the shaft and confining the head of the screw W against the same, and the lock-nut A' mounted on the screw W and cooperating with the cap-nut X, substantially as described.

8. The combination of the cylinder D having the heads O P, the rotary shaft C journaled therein, the rotary piston keyed upon said shaft within the cylinder, the frame A secured to the rear cylinder-head P, the working disk B secured to the rear end of the shaft C, the adjusting-screw W threaded through the cap-nut X screwed upon the front cylinder-head O and having the conical head bearing against the front end of the shaft C, and the collar Y screwed upon the front end of said shaft and confining the head of the screw W against the same, substantially as described.

9. The combination of the cylinder, the rotary shaft journaled therein, the rotary piston mounted upon said shaft within the cylinder, the working disk upon the front end of the shaft, the frame and casing forming the chamber between said disk and the cylinder, the pipe leading from said chamber, and the exhaust-pipe from the cylinder connected to the first-mentioned pipe, for the purpose described.

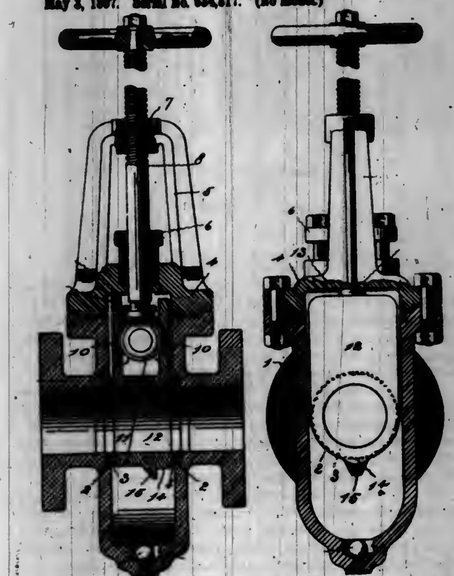
589,007. **HAND-STAMP.** CHARLES W. MARTIN, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,221. (No model.)

Claim.—The combination, with the stamp-body having a cavity

therein, of a detachable handle therefor having a projecting shank or stem provided with an enlarged head or extremity, said shank and head being substantially equal in height to the depth of the cavity in the body, and an elastic cushion adapted to be placed and rest entirely within the cavity of the body below the surface thereof and having a vertical socket to receive the shank and head of the handle and thereby operatively connect the handle and body, substantially as set forth.



589,008. **SEALED GATE-VALVE.** GEORGE R. MARTIN, Hartford, Conn., assignor to The Pratt & Cady Company, same place. Filed May 3, 1897. Serial No. 634,817. (No model.)



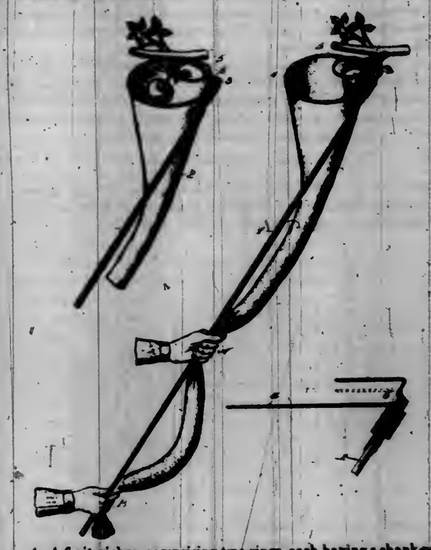
Claim.—In a gate-valve, in combination, a body with a fluid-way, a gate-chamber, a fluid-drip opening through the walls of the body at the bottom of the gate-chamber and recesses in the walls of the gate-chamber around the ports of the fluid-way, seats located within the recesses, a bonnet secured to the body over the gate-chamber, a spindle supported by the body, a gate formed of wedge-shaped sections borne by the spindle, a lug with an inclining face projecting from one of the sections of the gate, and a movable valve located in the bottom of the gate-chamber and normally stopping the opening to the fluid-drip and adapted to be moved therefrom by the engagement of the inclining face of the lug connected with one of the gate-sections when the gate is moved so as to close the valve, substantially as specified.

589,009. **FRUIT-PICKER.** JOHN H. MARTINDALE, Russell, Pa. Filed Sept. 15, 1896. Serial No. 605,942. (No model.)

Claim.—1. A fruit-picker, comprising a suitable attaching-shank and two rings projecting at an angle from the shank, and one above the other, so as to leave a space between them in which the stems may enter and permit the fruit to be engaged by the rings, substantially as explained.

2. A fruit-picker, comprising an attaching-shank and two rings of different diameters projecting at an angle from said shank, and with the smaller placed above the larger, a distance suitable to permit the stems to pass between them, and the gripping of the fruit to take place adjacent to the shank as explained.

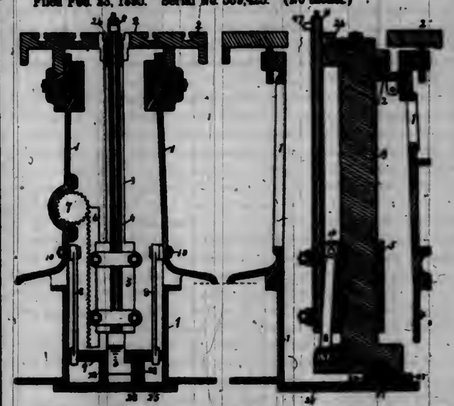
3. A fruit-picker comprising two rings projecting at an angle from a suitable shank which holds them tangential to the line of said shank and relatively adjustable in said line; the upper ring being of sufficiently smaller diameter than the lower to permit the fruit to pass between their peripheries on the side away from the shank, the said rings being spaced apart a distance suitable to permit the passage of the stems between them, or to cause them to grip the fruit adjacent to the shank, as explained.



4. A fruit-picker, comprising two rings, each having a shank projecting from its periphery in substantially the manner shown, said shanks being made to screw one within the other to render the rings relatively adjustable, as herein explained.

5. In a fruit-picker, a grip comprising two rings formed of rod or wire having the ends wound spirally to form attaching-shanks, which shanks are made to fit one within the other as explained.

589,010. **KEY-SEAT-CUTTING MACHINE.** WILLIAM MERRILL, Saginaw, Mich., assignor of one-half to Sylvanis S. Mitts, same place. Filed Feb. 23, 1895. Serial No. 539,425. (No model.)



Claim.—1. In a key-seating machine having a reciprocating tool-bar, the combination of the table 2, the perforated extension-bars 43, and jack-screws 45, pivotally attached to the extension-bars, substantially as described.

2. In a key-seat-cutting machine the combination of a shaft 29 operating racks 13, and 14 and feed-rack 32, the feed-screw 36 and an adjusting-screw 38, arranged substantially as, and for the purpose set forth

3. In a key-seat-cutting machine, as a device for centering the work, the combination of a tool-bar having an inserted cutter, and, attached to the tool-bar, a collar having two projecting end portions, the extreme points of which are equidistant from the center of the tool-bar, and also equidistant from the center of the cutter, substantially as and for the purpose set forth.

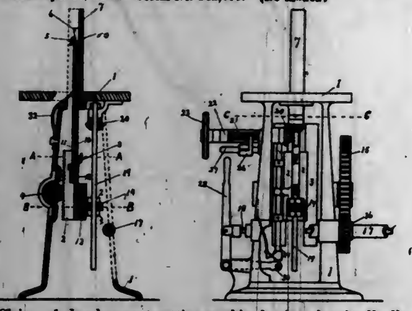
4. In a key-seat-cutting machine, the combination of a tool-bar,

a supporting-bar back of the tool-bar, a movable wedge and a stationary wedge, with a suitable device for operating the movable wedge automatically, substantially as and for the purpose set forth.

5. In a key-seat-cutting machine, a tool-bar in combination with a supporting-bar, a screw adjustably secured to the supporting-bar, and an adjustable hook attached to the screw, substantially as and for the purpose set forth.

6. In a key-seating machine of the class described the combination of the vertical guide-bar 3, the upper and lower wedges 12 and 11 adapted to moving the guide-bar horizontally in both directions, and the vertical hangers 8 to suspend the guide-bar and relieve it of the friction due to gravity, substantially as described.

589,011. KEY-SEAT-CUTTING MACHINE. WILLIAM MERRILL, Saginaw, Mich., assignor of one-half to Sylvanis S. Mitts, same place. Filed Sept. 17, 1895. Serial No. 562,799. (No model.)



Claim.—1. In a key-seat-cutting machine having a longitudinally-grooved post for centering and holding the work, the combination of the tool 5 and the supporting-wedge 6 immediately behind the tool 5, with the tool-bar 11 and the feed-bar 10 for connecting them to the reciprocating cross-head, substantially as, and for the purpose set forth.

2. In a machine for cutting key-seats, the combination of the stationary grooved post 7, having in the post-groove the simultaneously-reciprocating tool 5 and supporting-wedge 6, with means for imparting a slight reciprocating motion to the wedge 6, separate from its conjoint motion with the tool 5, substantially as, and for the purpose set forth.

3. In a machine for cutting key-seats, the combination of the tool-bar, and feed-bar having a feed-wedge at one end and attached by a slip-joint at its other end to a reciprocating cross-head, with means for intermittently reciprocating the feed-bar in the cross-head for the purpose of relieving the tool on the back stroke, substantially as described.

4. In a machine for cutting key-seats, the combination of a feed-bar having a feed-wedge at one end, and the tool-bar attached by a slip-joint to the reciprocating cross-head, with means for intermittently reciprocating the tool-bar in the cross-head, for the purpose of relieving the tool on the back stroke, substantially as described.

5. In a key-seat-cutting machine of the class described, the cross-head 2, having attached to it the tool-bar 11 and the tool 5, in combination with the feed-rack 13 having attached to it the feed-bar 10 and wedge 6, with mechanism for moving the feed-rack on the cross-head, substantially as, and for the purpose set forth.

6. In a machine for cutting key-seats, the combination of a pair of simultaneously-reciprocating tool and feed bars, with a friction-clamp attached to one of them to retard it at the beginning of each stroke for the purpose set forth, substantially as described.

7. In a key-seat-cutting machine the combination of a supporting-frame, a reciprocating cross-head having attached to it the tool-bar and the feed-bar, with a friction-clamp attached to the supporting-frame substantially as, and for the purpose set forth.

8. In a machine for cutting key-seats, the combination of a reciprocating cross-head having attached to it a tool-bar and feed-bar, with mechanism for checking at the beginning of each stroke of the cross-head the motion of the tool-bar, for the purpose of relieving and setting the tool, substantially as described.

9. In a machine for cutting key-seats the combination of a reciprocating cross-head having attached to it a tool-bar and a feed-bar, with mechanism for checking at the beginning of each stroke of the cross-head the motion of the feed-bar, for the purpose of relieving and setting the tool, substantially as described.

10. In a machine for cutting key-seats the tool-bar 11, attached by slip-joint to the reciprocating cross-head, in combination with the spring 12 and the hook 8, substantially as, and for the purpose set forth.

11. In a machine for cutting key-seats, the combination of a stationary grooved post 7 and reciprocating tool-bar 11, the tongue 55, and the chip-spout 54, substantially as, and for the purpose set forth.

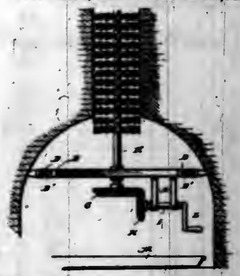
12. In a machine for cutting key-seats the combination of a grooved post 7, the reciprocating tool-bar 11, and the feed-bar 10, with the wedge 31 inserted behind the feed-bar 10 in the groove of the post 7 substantially as, and for the purpose set forth.

13. In a key-seat-cutting machine the combination of the supporting-frame 1, the spring 56, the tongue 55 and the chip-spout 54 arranged substantially as, and for the purpose set forth.

14. In a key-seat-cutting machine the combination of a reciprocating cross-head, a pair of wedge-shaped clamping-jaws attached to the cross-head, and the tool-bar held by the clamping-jaws, substantially as described.

15. In a key-seating machine, the combination of a supporting frame or table, a grooved post, a cutting-tool in the post-groove, and a vise attached by its lower portion to the table, and by its upper portion to the post, substantially as set forth.

589,012. CHIMNEY-SWEEPER. GEORGE W. MIDDLETON, Appling, Ga. Filed June 2, 1897. Serial No. 639,144. (No model.)



Claim.—1. In a chimney-sweeping device, a rotary brush adapted to be projected up the flue, a bar or frame in which the shaft of the brush is journaled, said bar or frame being provided with adjustable feet, whereby it can be fitted in any size of fireplace, and the power-transmitting devices carried by the bar or frame for the purpose of rotating the brush, substantially as shown and described.

2. In a chimney-sweeping device, the combination with the bar having adjustable feet at each end, of the rotary shaft journaled in the said bar and provided with a brush at the upper end; and a beveled gear at the lower end, the shaft arranged at right angles to the vertical shaft and provided with a beveled gear at one end, the crank at the opposite end, substantially as shown and described.

3. In a chimney-sweeping device, the combination with a bar, of the adjustable metallic feet at the opposite ends, the vertical shaft carrying the brush and beveled gear, the horizontal shaft carrying the beveled gear, the crank, and the hanger-brackets, all arranged and adapted to operate, substantially as shown and described.

4. In a chimney-sweeping device, the combination with the bar having screws at the opposite ends, the metallic feet having longitudinal slots, and the winged nuts for securely holding the feet upon the ends of the bar, of the vertical shaft journaled centrally of the bar and having a brush at the upper end and carrying a beveled gear at the lower end, the depending hanger-brackets, the rotary shaft journaled therein carrying the beveled gear at the inner end, and the crank at the outer end, substantially as shown and described.

589,013. NUT-LOCK. GEORGE MILLER, San Antonio, Tex. Filed Dec. 11, 1896. Serial No. 615,360. (No model.)



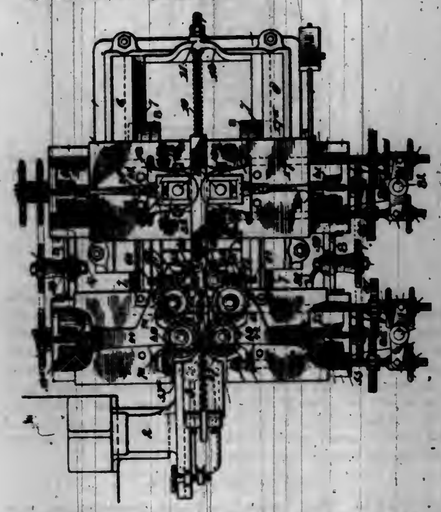
Claim.—1. A nut-lock comprising a nut having a recess in one of its faces, and a key fitting in said recess and having spaced arms to straddle the bolt and be forced by the walls of the recess toward each other and between the threads of the bolt, substantially as described.

2. In a nut-lock, the combination of a nut having a recess provided with a curved inner wall, a key having locking-arms adapted to be turned inward so as to enter between the threads of the bolt and tightly grip the same by the action of the locking-arms against the inner wall of the recess, substantially as shown and described.

3. In a nut-lock, the combination of a nut having a recess provided with a curved inner wall, a key having locking-arms adapted to enter between the threads of the bolt and tightly grip the same by the action of the locking-arms against the inner wall of the recess, and a tongue or lug upon the key, situated between the locking-arms, and adapted to enter a suitable recess in the bolt, substantially as shown and described.

4. A nut-lock, comprising a nut having one of its faces provided with a recess, the bottom of which is inclined downwardly toward its inner closed end, a locking-key fitting in the recess and having locking-arms which are forced to enter between and tightly grip the threads of the bolt, by the action of the arms against the walls of the recess, substantially as shown and described.

589,014. FEED MECHANISM FOR BAND-SAW RESAWING-MACHINES. FRANK MCDONOUGH, Eau Claire, Wis. Filed Oct. 3, 1896. Serial No. 607,797. (No model.)



Claim.—1. In a band-resaw feed-works, a stationary base-frame, and a feed-carriage slidably mounted on the base-frame and carrying a series of feed-rolls arranged respectively at opposite sides of the saw-line, said feed-carriage having a timber-rest, and a saw-receiving bifurcation formed at the side thereof next to the saw and extending into the timber-rest between the rear pair of feed-rolls, substantially as set forth.

2. In a band-resaw feed-works a stationary base-frame provided at opposite upper sides with longitudinally-disposed slideways, a slidable feed-carriage supported on the base-frame and essentially comprising a pair of transverse front and rear semitubular table-supports, intermediate connections between said supports, and parallel slide-feet connecting the two supports at their lower sides and engaging in the slideways of the base-frame, slide-tables mounted on each table-support and carrying rotary upright feed-rolls, and suitable operating mechanism having gear connection with the lower spindle extremities of the feed-rolls within the semitubular table-supports, substantially as set forth.

3. In a band-resaw feed-works, a stationary base-frame, a feed-carriage slidably mounted on the base-frame and having a pair of transverse front and rear semitubular table-supports, a pair of slide-tables mounted on each of the table-supports over their open sides and carrying rotary upright feed-rolls, shafts arranged in the semitubular table-supports and geared with each other and with the feed-rolls to provide for the simultaneous rotation of the latter, pressure-adjusting mechanism for the tables of each pair, and an adjusting device for the feed-carriage, substantially as set forth.

4. In a band-resaw feed-works, a stationary base-frame, an adjustable feed-carriage mounted on the base-frame and provided with a pair of transverse front and rear semitubular table-supports provided at their opposite upper side edges with longitudinally-disposed guide-flanges, a pair of slide-tables mounted on each of said table-supports and carrying rotary upright feed-rolls, said slide-tables being provided at opposite side edges with inturned flanges interlocking with those of the table-supports, and suitable adjusting mechanism for each pair of slide-tables, substantially as set forth.

5. In a band-resaw feed-works, a stationary base-frame, a feed-carriage adjustably mounted on the base-frame and having at its side next to the saw a reëntrant saw-space, front and rear pairs of upright feed-rolls adjustably supported on the carriage respectively at opposite sides of the saw-line, the rolls of the front and rear pairs being of a uniform diameter, and the rear pair of rolls being arranged respectively at opposite sides of said saw-space, a pair of intermediate feed-rolls arranged between and in line with the other pairs of rolls and in a relatively close relation to the rear pair of rolls, and suitable pressure-adjusting mechanism for simultaneously and uniformly adjusting the rolls at opposite sides of the saw-line, substantially as set forth.

6. In a band-resaw feed-works, a stationary base-frame, a feed-carriage adjustably mounted on the base-frame and having a pair of transverse front and rear table-supports, the rear of which supports is provided in its side next to the saw with a reëntrant saw-space, a pair of slide-tables mounted on each of said table-supports, the rear pair of slide-tables carrying two relatively close pairs of upright rotary feed-rolls, and the front pair of slide-tables carrying a single pair of upright feed-rolls arranged in line with the other rolls, and suitable adjusting mechanism for moving the slide-tables of each pair toward and away from the longitudinal saw-line of the works, substantially set forth.

7. In a band-resaw feed-works, a stationary base-frame, a feed-carriage slidably mounted on the base-frame and provided in its side next to the saw with a reëntrant saw-space to receive therein the saw, pairs of upright feed-rolls suitably mounted on the carriage respectively at opposite sides of the reëntrant saw-space, adjusting mechanism for said rolls, and a longitudinally-arranged rest-bar secured on top of the carriage in line with the longitudinal center of the works below the plane of the lower ends of the feed-rolls and provided at its rear end with a fork or bifurcation to permit the saw to extend in between the front pair of rolls, substantially as set forth.

8. In a band-resaw feed-works, a stationary base-frame, a feed-carriage mounted on the base-frame and having a pair of transverse front and rear semitubular table-supports, a pair of slide-tables mounted on each of the table-supports over their open sides and carrying pendent bearing-boxes disposed within the table-supports, upright feed-rolls mounted on the upright table-supports respectively at opposite sides of the saw-line and carrying on their lower spindle extremities within the table-supports horizontally-disposed beveled gear-wheels, shafts arranged longitudinally within the front and rear table-supports and carrying on their outer ends, beyond the ends of said supports, sprocket-wheels, vertically-disposed beveled gear-wheels slidably mounted or feathered on the shafts in the table-supports and provided with hub extensions journaled in the bearing-boxes at the under sides of the slide-tables, said vertically-disposed beveled gear-wheels meshing with those at the lower spindle ends of the feed-rolls, adjusting mechanism for sliding the tables on said supports, and chain connections between the sprocket-wheels of the oppositely-located shafts, substantially as set forth.

9. In a band-resaw feed-works, a stationary base-frame, a feed-carriage slidably mounted on the base-frame and having a pair of transverse front and rear semitubular table-supports, a pair of slide-tables mounted on each of the table-supports and carrying rotary upright feed-rolls, shafts arranged longitudinally in the semitubular table-supports and geared with the lower ends of the feed-rolls, said shafts carrying at their outer ends, beyond the ends of the supports, sprocket-wheels, chain connections between the sprocket-wheels of the oppositely-located shafts, wheel-brackets arranged between the table-supports near the ends thereof, vertically-adjustable journal-bolts fitted to said wheel-brackets, and tightener sprocket-wheels journaled on said bolts, substantially as set forth.

10. In a band-resaw feed-works, a stationary base-frame, a feed-carriage mounted on the base-frame and having a pair of transverse front and rear table-supports, a pair of slide-tables mounted on each of said table-supports and provided with upright roll-brackets, a pair of upright front feed-rolls mounted in the brackets of the front pair of slide-tables, a pair of relatively close rear and intermediate upright feed-rolls mounted in the roll-brackets of the rear pair of the slide-tables, the rear pair of rolls being adapted to receive the saw therebetween and said intermediate rolls being of a smaller diameter than the adjacent rear rolls, gearing connections with the lower ends of the feed-rolls of the front and rear pairs, cog-gearing between the upper spindle extremities of the feed-rolls of the rear and intermediate pairs, and suitable pressure-adjusting mechanism for moving the slide-tables toward and away from the saw-line of the works, substantially as set forth.

11. In a band-resaw feed-works, a stationary base-frame, a feed-carriage mounted on the base-frame, front and rear pairs of upright feed-rolls movably supported on the carriage respectively at opposite sides of the saw-line, a pair of intermediate upright feed-rolls arranged between and in line with the other pairs of feed-rolls and in a relatively close relation to the rear feed-rolls and the cutting-point of the saw, adjusting devices for individually adjusting the feed-rolls of the intermediate and front pairs at an inclination to a vertical plane and independently of the rear rolls, and pressure-adjusting mechanism for moving the rolls toward the saw-line, substantially as set forth.

12. In a band-resaw feed-works, the combination of a table-sup-

port, a pair of slide-tables mounted on said support respectively at opposite sides of the saw-line and provided with upright roll brackets having at their upper ends horizontally-disposed squared guide-yokes at the outer sides of which yokes are formed integral hollow offstanding bosses provided with threaded openings, squared bearing-boxes slidably mounted in said yokes, bolts connected at their inner ends with said boxes and provided with spaced collars and nuts respectively located within and exterior to said bosses, exteriorly-threaded adjusting-sleeve loosely mounted on the bolts between their collars and nuts and engaging in the openings of the bosses, pivotal bearing-collars pivotally mounted on the slide-tables below the adjustable bearing-boxes, upright rotary feed-rolls having their spindle extremities respectively mounted in the bearing-boxes and pivotal bearing-collars, suitable gearing for turning said rolls, and adjusting mechanism for sliding the tables on their supports, substantially as set forth.

13. In a band resaw feed works, the combination of a table-support, a pair of slide-tables mounted on said support respectively at opposite sides of the saw-line and carrying upright feed-rolls, a pair of adjusting-rods having screw connections at their inner ends respectively with the separate slide-tables and extending beyond one end of the table-support, an equalizing gear connection between the two rods, a vertical rock-shaft supported between the outer ends of the rods, an oscillatory adjusting-lever fitted on the upper end of the rock-shaft and provided with forked ends, knuckle-blocks fitted on the rods and pivotally embraced by the forked ends of said adjusting-lever, a pair of adjusting hand-wheels threaded on one of the rods respectively at opposite sides of the knuckle-block thereon, a single hand-wheel threaded on the other rod at one side of the knuckle-block thereon, a rock-arm fitted at one end on the lower end of the vertical rock-shaft, and a weighted bell-crank lever pivotally supported at its angle and having one of its arms slotted, to loosely receive the free end of said rock-arm, substantially as set forth.

589,015. ELECTRICAL BODY APPLIANCE. JAMES P. MCGILL, Chicago, Ill. Filed Feb. 23, 1897. Serial No. 624,663. (No model.)



Claim.—1. A flexible battery-belt comprising a plurality of continuously-arranged galvanic or voltaic couples, insulation between the adjacent couples, and flexible connections between the couples and insulation, substantially as described.

2. An electric battery-belt comprising a continuous series of separated galvanic or voltaic couples, insulators of the same size and form as the electrodes of the couples and arranged between and alternating with the adjacent couples, and flexible connections for joining the couples and the insulators in a continuous series, substantially as set forth.

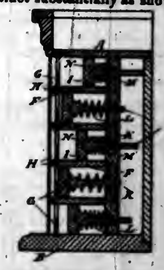
3. An electric belt comprising a plurality of separated cells, each consisting of a pair of tubular bared electrodes or elements arranged side by side to form a galvanic couple, and insulating-tubes alternating with said cells and flexibly joined therewith, substantially as set forth.

4. An electric belt comprising a plurality of separated cells, each consisting of a pair of bare copper and zinc tubes arranged side by side to form a galvanic couple, insulating-tubes of the same size and shape as the cell-tubes and alternating with the pairs of such cell-tubes, a flexible binding cord or wire laced back and forth through all of the tubes to flexibly connect the same in a continuous series, and a detachable clasp connection between the terminal tubes of the belt, substantially as set forth.

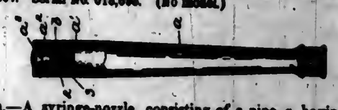
5. An electric belt comprising a plurality of cells insulated from each other and each consisting of a pair of tubular bared positive and negative elements, and a flexible binding cord or wire laced through said tubes to flexibly connect the same together, substantially as set forth.

589,016. TICKET OR LABEL CABINET. ALEXANDER F. MCINTYRE, Ottawa, Canada. Filed Aug. 19, 1896. Serial No. 603,296. (No model.)

Claim.—A ticket and label cabinet having compartments formed by the upright partitions E, horizontal partitions F, inner back K, and the glass fronts G, held in rabbets in said partitions by removable cleats H; movable backs I, having guide-rods J, sliding through openings in the inner back K; coil-springs L, set in recesses M, in the inner back, and around the shoulder N, on the guide-rod; and outer back D, of the cabinet substantially as shown and described.

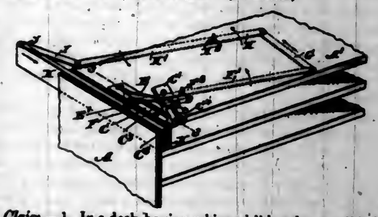


589,017. SYRINGE-NOZZLE. ANDREW MCTERNEN, Andover, Mass., assignor to the Tyer Rubber Company, same place. Filed Jan. 11, 1897. Serial No. 618,698. (No model.)



Claim.—A syringe-nozzle, consisting of a pipe *a*, having at its extremity a perforated end portion *a'* externally screw-threaded and provided with a central projecting stem a^2 surmounted by a head a^3 and having a seat at the base of said end portion, and an internally-screw-threaded sleeve or end piece *b* having a hole through it larger in diameter than the diameter of the head a^3 and adapted to be screwed onto the pipe *a* abutting against said seat, and inclosing the perforated end portion, the stem and head, the parts being so disposed with relation to each other that the water is delivered in a globular or ball-shaped spray or film, substantially as described.

589,018. DESK. JONAS P. L. NELSON, Philadelphia, Pa. Filed Sept. 29, 1896. Serial No. 607,392. (No model.)



Claim.—1. In a desk having a hinged lid and extensible lid-rests as specified, the combination with levers F F' and H H' pivoted to the desk, a rod G connecting adjacent ends of said levers, a rod E pivotally connected to the lid and to lever F F' and a rod I pivotally connected to lever H H' and to an extensible lid-rest all substantially as specified and so that the lid-rest will be drawn out by the opening of the lid and retracted by the closing thereof.

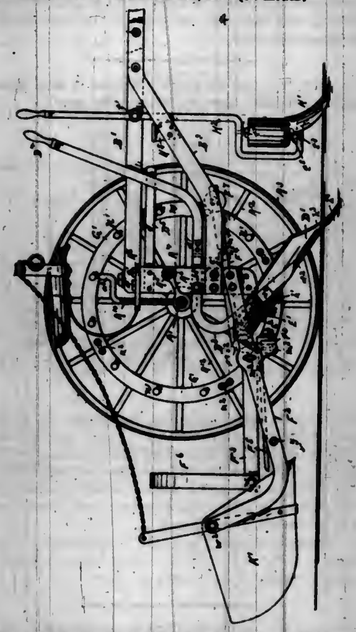
2. In a desk having a lid and extensible lid-rests, the combination of lid-hinges C C' having slots C^3 C^4 with levers F F' and H H' pivoted to the desk and connected by rod G, a rod E pivoted to the wing C' of the hinge and to lever F F' said rod lying and moving in slots C^3 C^4 and a rod I pivoted to lever H H' and to a lid-rest substantially as and for the purpose specified.

589,019. SHIELD FOR PNEUMATIC TIRES. MAURICE O'BRIEN, Fresno, Cal. Filed Oct. 27, 1896. Serial No. 610,227. (No model.)



Claim.—A shield for pneumatic tires comprising semicircular sections, corrugations on the outer periphery thereof, a double series of slots and tongues in each section, the tongues adapted to engage said slots longitudinally around the wheel and bent back after passing through said slots to form additional roughness for the purpose set forth.

589,020. POTATO-DIGGER. CASPAR OERTLEIN, St. Paul, Minn. Filed June 27, 1896. Serial No. 597,247. (No model.)



Claim.—1. In a potato-digger, an arch-frame supporting the draft-tongue and with the bearing-wheels journaled to its depending ends, a concave moldboard having beams attached to its under side and carving upward and forward and pivotally connected to the depending portions of said arch-frame, an irregular block attached to said arch-frame beneath each of said beam members, whereby by turning said blocks said beam members may be adjusted to alter the draft of said moldboard, substantially as set forth.

2. In a potato-digger, the combination of an arch-frame, the axle and bearing-wheels supported from said arch-frame, a concave moldboard, beams attached to the under side of said moldboard and carving backward and upward and pivotally connected to said arch-frame, riddle-fingers connected to and projecting beyond the rear edge of said moldboard, side frame rigidly connected to the lower ends of said arch-frame and projecting backward beyond said moldboard, a U-frame pivoted by its bends to said side frames, a series of riddle-fingers connected to the transverse member of said U-frame, an arm extended from said U-frame, and means whereby said arm may be actuated by the revolution of the bearing-wheels to vibrate said U-frame and its attached riddle-fingers, substantially as set forth.

3. In a potato-digger, a framework mounted on wheels, a concave moldboard having beams attached to its under side and carving upward and forward and pivotally connected to said framework, fingers connected to and projecting beyond the rear edge of said moldboard, side frames secured to said wheel-frame and projecting backward therefrom, a U-frame pivotally connected to said side frames and having riddle-fingers connected by one end thereto, means for agitating said riddle-fingers as the machine is drawn forward, a receptacle pivotally suspended from the rear ends of said side frames and adapted to receive the potatoes passing over said riddle-fingers, and means for dumping said receptacle to discharge its load, substantially as set forth.

4. In a potato-digger, a standard pivoted to the tongue in advance of the moldboard, and with a furrow-opener attached to its lower end and with its upper end extended into a handle, a stop upon the tongue-frame to limit the backward movement of the standard, and a weed-roller pivoted into a recess in the standard above the furrow-opener, substantially as set forth.

589,021. KNOB-LOCKING DEVICE. THEODORE F. OSTHUS and VICTOR FOURCHER, Augusta, Ga. Filed Dec. 26, 1895. Serial No. 573,322. (No model.)

Claim.—1. The combination with a spindle and a fixed inclosing sleeve having registering seats, and spring-pressed locking tumbler-pins mounted in the registering seats, of a hollow knob fixed to the outer extremity of the spindle and having a cylindrical inwardly-extending portion inclosing and concealing said sleeve, substantially as specified.



2. The combination with a spindle, of a fixed sleeve surrounding and fitting said spindle, said spindle and sleeve being provided with registering transverse seats, a longitudinal cross-sectionally dovetailed stop-plate slidably fitted in a seat formed in the outer surface of the sleeve in communication with the transverse seats, and adapted to close the outer extremities of said transverse seats, locking and tumbler pins mounted in the transverse seats, the actuating-springs of the locking-pins being seated at their outer ends against said stop-plate, and a hollow knob fixed to the outer extremity of the spindle and having an inwardly extending cylindrical portion fitting and inclosing said sleeve and concealing the stop-plate, substantially as specified.

589,022. RUBBER TIRE. CHARLES H. PALMER and JOHN W. DENHEAD, Akron, Ohio. Filed June 16, 1897. Serial No. 641,012. (No model.)

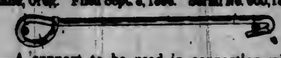


Claim.—1. In combination with a rubber tire, an incurvated supporting-wire having alternate transverse and vertical supporting-walls formed integral with the tire as and for the purposes shown and described.

2. In a rubber tire, the combination of the incurvated wire provided with transverse and vertical supporting-walls, and the holding wire or wires arranged within the tire substantially as shown and described.

3. In a rubber tire or cushion having apertures within which the retaining wire or wires are threaded, the incurvated wire molded therein for the support of said retaining-wires to prevent their cutting or wearing the rubber, substantially as shown and described.

589,023. CLOTHES-LINE SUPPORT. THADDEUS T. PARKER, Wheatland, Oreg. Filed Sept. 8, 1896. Serial No. 605,184. (No model.)



Claim.—A support to be used in connection with an endless clothes-line, constructed of a single length of wire having one end flattened and bent to provide a hook, forming a flaring space into which one stretch or portion of the line wedges to secure the support to and fix its position with reference to the said line, and having the opposite end of the wire bent and formed into an eye in about the plane of the hook, the terminal portion of the eye overlapping the body of the wire and being deflected therefrom, forming a lateral passage for the ingress and egress of the opposite portion of the said line upon turning the support to bring its eye and hook in a plane about parallel with the line, substantially as set forth.

589,024. KNITTING-MACHINE NEEDLE. GEORGE E. PHILBRICK, Manchester, N. H. Filed Mar. 11, 1897. Serial No. 626,947. (No model.)

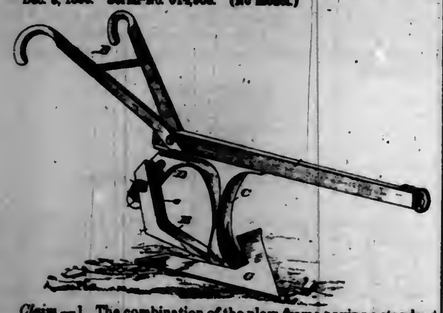


Claim.—1. A knitting-machine needle having a crossed nib, substantially as described.

2. A knitting-machine needle having a crossed and flattened nib, substantially as described.

3. A knitting-machine needle having a crossed and flattened nib and provided with a shoulder *c'*, substantially as described.

589,025. PLOW. RICHARD H. PURNELL, Rosedale, Miss. Filed Dec. 8, 1896. Serial No. 614,902. (No model.)

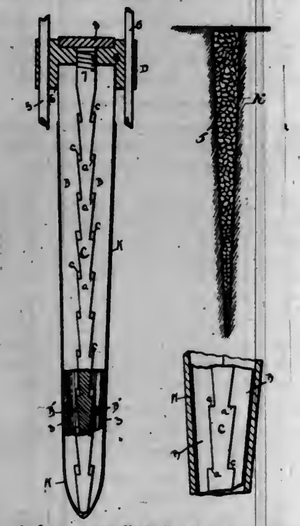


Claim.—1. The combination of the plow-frame having a standard and a rear bar the foot-bar or sole-piece pivoted or fulcrumed to the standard, and provided at its rear end with an upturned portion and having the blade rigid with it at its front end, and means for securing said upturned end in different adjustments substantially as shown and described.

2. A plow substantially as described comprising the beam, the frame attachment secured thereto and composed of the depending standard, and rear bar and connecting-piece integral with said standard and rear bar, the latter terminating at its lower end in a plane above that of the standard, the foot-bar or sole-piece pivoted to the standard having the blade rigid with its front end and having at its rear end an upturned portion and means for securing it in different adjustments with the depending rear bar of the standard attachment substantially as shown and described.

3. A plow-frame having an integral standard, connecting portion and rear bar, the latter terminating at its lower end above the lower end of the standard, the foot-bar or sole-piece bearing the blade at its front end pivoted to the standard and having at its rear end an upturned portion and devices connecting such upturned portion with the rear bar substantially as shown and described.

589,026. PILE-CORE. ALFRED A. RAYMOND, Omaha, Nebr., assignor of one-fourth to Arminta Root, same place. Filed Mar. 6, 1896. Serial No. 582,055. (No model.)

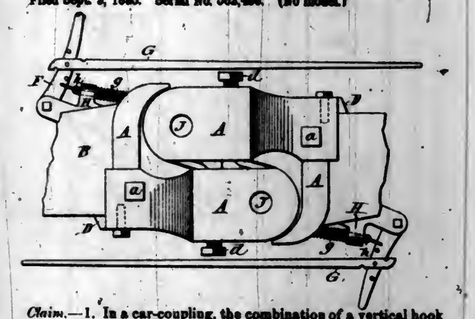


Claim.—1. In an expanding pile-core the combination with a main serrated center core of a head secured to said core and two core-sections shackled to said main core and provided with a serrated edge meshing with said main core said core-section working within said head all substantially as and for the purpose set forth.

2. An expanding pile-core comprising the main central section C having two serrated sides *a a*, the ears B' B' the core-sections B B shackled to said main core-section C by means of the bars 3 3, the head D secured to said main section C and provided with the opening 6, adapted to movably hold the upper ends of said core-sections B B in combination with shell K all substantially as and for the purpose set forth.

3. The method of driving a pile which consists in providing a temporary pile-covering with a solid core then driving said temporary shell into position and then removing said solid core and finally providing the said shell with a suitable filler, all substantially as and for the purpose set forth.

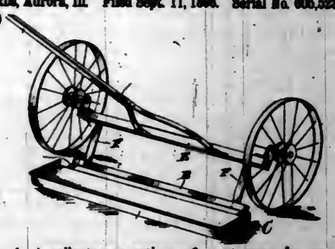
589,027. CAR-COUPLING. WILLIAM R. RICE, Modesto, Cal. Filed Sept. 9, 1895. Serial No. 562,466. (No model.)



Claim.—1. In a car-coupling, the combination of a vertical hook C, retired within its outside frame A, pivoted upon its shaft B attached to the car, and provided with a spring *e* and a rivet I, a curved or hollowed outside frame or buffer A, provided with a hole J and a pin K for a link-coupler, and a dog or lever E, pivoted to the said shaft B, operated by means of a spring-rod and pivoted levers *h*, *g*, F and G, substantially as described.

2. The combination of a grip-hook C, a hollowed or curved outside frame or buffer A, a rivet I and a dog E riveted to said shaft B, substantially as and for the purpose specified.

589,028. GRASS COLLECTOR OR GATHERER. MARCUS C. RICHARDS, Aurora, Ill. Filed Sept. 11, 1896. Serial No. 605,523. (No model.)



Claim.—1. A collector or gatherer for cut grass, &c., consisting of a receptacle having a device to engage and bend forward the blades of grass, and provided with an opening or space in rear of such device, wherein the blades can return to their normal position, substantially as and for the purpose specified.

2. A collector or gatherer for cut grass, &c., consisting of a receptacle having in advance of its front edge, a bar to engage and bend forward the blades of grass, substantially as and for the purpose shown.

3. A collector or gatherer for cut grass, &c., consisting of a receptacle, having in advance of its front edge a bar with an inclined under surface to engage and bend forward blades of grass, substantially as and for the purpose set forth.

4. A collector or gatherer for cut grass, &c., consisting of a receptacle, arms attached to, and extending in advance of the front edge of its bottom, and a bar attached to said arms, in advance of said edge, substantially as and for the purpose described.

589,029. DYNAMITE-HEATER. GEORGE RICKERT, Hazlebrook, Pa. Filed Mar. 10, 1897. Serial No. 626,816. (No model.)

Claim.—A device of the class described comprising a casing provided near its top with a horizontal series of perforations, a boiler fitting within the casing and provided with an L-shaped flange engaging over the upper edges of the casing, forming a cap for the same and supporting the boiler, said flange being located above said perforations and being arranged below the upper edge of the boiler to provide a vertical flange, the latter having a horizontal series of perforations 13 and extending above the casing, a dynamite-receptacle arranged within the boiler, extending above the same and provided a short distance from its upper edge with an exterior annular flange 12, fitting over and forming a cap for the boiler and supporting the receptacle in the same, the depending portion of the flange being arranged above the perforations 13, and a cap fitting on the receptacle and provided with a series of perforations, combined with a heating device arranged at the bottom of the casing, substantially as described.



589,080. PATH DELINEATING, RECORDING, AND MEASURING MACHINE. JOHN RIDDELL, Schenectady, N. Y. Filed Sept. 23, 1896. Serial No. 606,754. (No model.)



Claim.—1. A path delineating, measuring and recording apparatus, adapted to be mounted upon a vehicle and operated by the running-gear of the latter, and consisting of a revoluble recording-surface, a marker adjacent to said surface, mechanism connected with and operating the revoluble recording-surface and driven by the movement of the vehicle, mechanism normally at rest and connected with said marker to operate the same, and mechanism normally out of gear with the marker-operating mechanism, and connected with and operated by the recording-surface mechanism, and thrown into gear with the latter when the apparatus is tilted endwise, as herein set forth.

2. In a path delineating, recording and measuring apparatus, a supporting-frame, having mounted thereon a revoluble recording-surface, a mechanism for rotating the recording-surface, a marker bearing against the recording-surface, a mechanism normally at rest, connected with the marker and adapted to move the marker above or below its normal position, and a mechanism normally out of connection with the marker-operating mechanism, and adapted to be thrown into connection with the marker raising or lowering mechanism by the tilting of the supporting-frame of the several parts, as set forth.

3. In a path delineating, recording and measuring apparatus, a supporting-frame having mounted therein a movable base or support having a recording-surface, mechanism for operating the movable recording-surface support, a marker bearing against the recording-surface, a mechanism normally at rest and adapted to raise or lower the marker from its normal position, a mechanism normally out of gear with the marker-operating mechanism and a weighted pendulum connected with the said mechanism out of gear with the marker-operating mechanism, and operating by the tilting of the aforesaid supporting-frame to connect the said mechanisms together and move the marker from its normal position, as set forth.

4. The combination with a vehicle, of a path delineating, recording and measuring apparatus, consisting of a supporting-frame mounted on said vehicle, a revoluble cylinder mounted on said frame, a mechanism operating said cylinder and connected with the driving-gear of the vehicle, a vertical screw-shaft normally at rest, a nut mounted on said shaft and held from turning thereon, a marker bearing against the recording-surface of the cylinder and mounted on a support projecting from said nut, a disk at the bottom of said vertical screw-shaft, a mechanism connected with the driving mechanism of the vehicle and normally out of gear with the disk of the vertical screw-shaft, and a weighted pendulum connected with said mechanism, by means of which, when the vehicle is tilted endwise, said mechanism is moved into gear with the wheel of the vertical screw-shaft and the marker is moved above or below its normal position, as set forth.

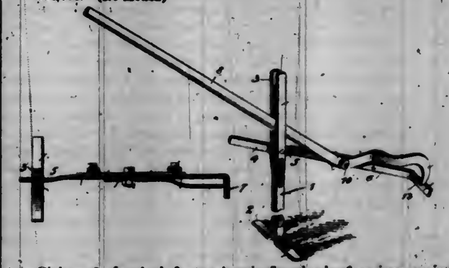
5. In a path delineating, recording and measuring apparatus, adapted to be driven over the earth's surface, a revoluble recording-surface, mechanism for operating said recording-surface, a vertical screw-threaded rotary shaft, normally at rest and having a nut mounted thereon, a second screw-threaded shaft having a nut mounted thereon, and connected with and operated by the recording-surface mechanism, an arm connecting the latter nut with that on the first screw-threaded shaft, mechanism automatically movable into connection with the first screw-threaded shaft to drive the latter in one direction or the other as the apparatus is tilted, and a marker bearing against the recording-surface, and mounted on the second screw-threaded shaft, and raised and lowered with the latter as the nut on the first screw-threaded shaft is raised or lowered, as set forth.

6. A path delineating, recording and measuring apparatus, adapted to be mounted on a vehicle, said apparatus embracing a revoluble cylinder serving as a support for a recording-surface, a marker in fixed relation to said cylinder, a mechanism driven by the vehicle, and operating the said cylinder, and a mechanism connected with the driving mechanism of the vehicle and automatically movable into connection with the marker, and moving the marker to indicate the irregular outline of the path traveled over, said marker being also moved vertically to mark the outline of the path in a spiral direction on the recording-surface, and means for releasing said marker when it has reached the top of the cylinder and permitting it to be moved back to a position at the bottom of the cylinder, as set forth.

7. A path delineating, recording and measuring apparatus to be mounted on a vehicle, said apparatus consisting of a revoluble recording-surface, a mechanism driven by the vehicle and operating the recording-surface, a vertical screw-threaded shaft in proximity to said recording-surface, and having a horizontal disk-wheel on its lower end, said shaft and disk being normally at rest, a nut on said shaft adapted to travel on the latter, an arm on said nut having a nut at its outer end, a vertical screw-threaded shaft adjacent to said recording surface and projecting through said second nut, a marker mounted on said last-named shaft and movable vertically therewith, said shaft being geared with the recording-surface to have a rotary movement and also an independent vertical sliding movement, a pair of vertical friction-disks adjacent to the periphery of and normally out of engagement with the said horizontal disk-wheel and mounted on a shaft driven by the main driving mechanism, and also connected by a sleeve movable endwise on said shaft, said sleeve having rack-teeth, and a toothed segment having a depending arm and weight, whereby as the entire apparatus tilts endwise when the vehicle passes over irregular surfaces one or the other of said friction-disks is moved by the action of the weight into engagement with the horizontal disk and causes the marker to be raised or lowered to delineate irregular surfaces of the path, as set forth.

8. A path delineating, recording and measuring apparatus, comprising a movable recording-surface, a marker, mechanism for operating the marker, and mechanism normally out of engagement with and movable into engagement with the marker mechanism when the apparatus is tilted endwise, and also automatically adjustable in engagement with the marker mechanism to increase or decrease the speed of the latter as the apparatus is tilted endwise, as herein set forth.

589,081. JACK FOR TURNING FLY-WHEELS OF ENGINES, &c. JOHN S. ROBERTS, Granbury, Tex. Filed Apr. 26, 1897. Serial No. 634,001. (No model.)



Claim.—1. In a jack for turning the fly-wheels of engines, or similar objects, the combination of a supporting-standard, a bar pivoted

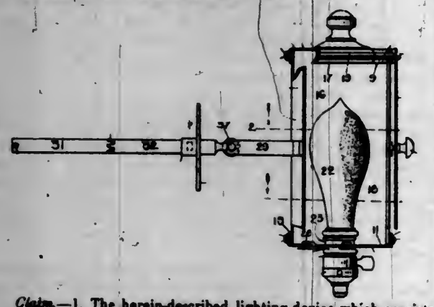
to said standard and provided at its front end with a jaw adapted to engage the inner face of the rim of the wheel, a lever pivoted to said bar at a point intermediate the standard and the front end of said bar, and a jaw on the front end of the lever adapted to engage the outer face of the rim of the wheel, substantially as described.

2. In a jack for turning the fly-wheels of engines, or similar objects, the combination of a supporting-standard having spaced arms at its upper end, a bar pivoted between said arms near their lower ends, said bar being offset to bring its front portion into alinement with one of said arms, and having its front end bent to form a horizontally-disposed jaw adapted to engage the inner face of the rim of the wheel, a lever pivoted to the said bar at a point intermediate the standard and the front end of the bar, said lever working between the spaced ears and having its front end portion bent at an obtuse angle to the main portion, and a jaw on the front end of the lever to engage the outer face of the rim of the wheel, substantially as described.

3. In a jack for turning the fly-wheels of engines, or similar objects, the combination of a supporting-standard, a bar pivoted to said standard and provided at its front end with a horizontally-disposed jaw adapted to engage the inner face of the rim of the wheel, a lever pivoted to said bar at a point intermediate the standard and the front end of said bar, that part of the lever in front of its pivot being offset to bring its front end about midway the length of the jaw on the bar, and a vertically-disposed jaw on the front end of the lever having a curved outer face adapted to engage the outer face of the rim of the wheel, substantially as described.

4. In a jack for turning the fly-wheels of engines, or similar objects, the combination of a supporting-standard, a bar pivoted to said standard and provided at its front end with a jaw adapted to engage the inner face of the rim of the wheel, a plate adjustably secured to the bar on one side thereof, a pivot-pin secured to said plate and passing through an elongated opening in said bar, a lever pivoted on said pin on the opposite side of the bar, and a jaw on the front end of the lever adapted to engage the outer face of the rim of the wheel, substantially as described.

589,032. **DESK-LIGHT.** ARTHUR H. RYDER, New York, N. Y. Filed Dec. 30, 1896. Serial No. 617,467. (No model.)

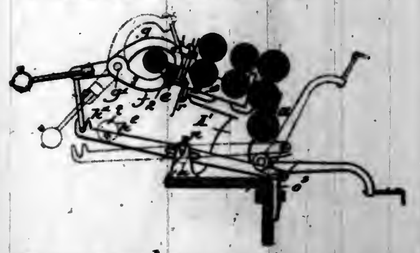


Claim.—1. The herein-described lighting device which consists of a cylindrical casing which is provided in one side thereof with an oblong opening, a shade which is connected with said casing by means of circular spring clamps or bands, which are adapted to turn thereon, said casing being also provided with an arm which is secured thereto, and which is provided with an extension, consisting of two sections which are hinged together, and a slide which is mounted on said extension, and provided with a transverse plate, by which the light is secured to a desk or other article, substantially as described.

2. The herein-described lighting device which consists of a cylindrical casing which is provided in one side thereof with an oblong opening, a shade which is connected with said casing by means of circular clamps or bands, which are adapted to turn thereon, said casing being also provided with an arm which is secured thereto, and which is provided with an extension, consisting of two sections which are hinged together, and a slide which is mounted on said extension, and provided with a transverse plate, by which the light is secured to a desk or other article, said casing being also provided with end pieces in one of which is formed an opening which is adapted to receive the head of an incandescent electric light, said head being provided with a spring clasp or clamp by which it is held in the casing, substantially as shown and described.

3. The herein-described lighting device, the same consisting of a cylindrical casing which is provided with two end pieces, one of which is provided with an opening which is adapted to receive the head of an incandescent electric light, which is provided with means for securing it in the casing, said casing being also provided in one side thereof with a longitudinal opening, and with a shade which is connected with the casing by means of circular spring-clamps which are adapted to turn on said casing, and said casing being also provided with an arm which is secured thereto, and to which is secured an extension which is composed of two sections which are hinged or pivoted together. and a fastening device which is mounted on said extension and adapted to slide thereon, and by means of which the light may be secured to a desk or other article, substantially as shown and described.

589,033. **ROVING STOP-MOTION.** ERPA H. RYDE, Waltham, Mass., assignor of one-half to Alfred M. Goodale, same place. Filed Dec. 11, 1896. Serial No. 615,333. (No model.)



Claim.—1. In a roving stop-motion, the roving-bar, an attached bracket provided with a roving-guide carrier, a roving-guide, and means to move said carrier and cause it on the breaking of the roving being spun, to clasp the roving between itself and said roving-guide to break the same between the roving-guide and the rolls, substantially as described.

2. A roving-guide, its attached stop-rod, and a guide for said stop-rod, combined with a roving-guide carrier made as a lever, the movement of said lever in one direction causing the roving-guide to be moved with it until the stop-rod of the roving-guide is arrested, the further movement of the said carrier after arresting the movement of the roving-guide parting and holding the roving ready to be again delivered to the rolls, substantially as described.

3. The roving-guide carrier made as a lever provided with a guideway, a roving-guide in said guideway and provided with a stop to control its upward movement with relation to said carrier, a leg connected with said carrier, and a lever provided with a thread-guide, combined with an intermediate lever, to operate, substantially as described.

4. The roving-guide carrier made as a lever provided with a guideway, a roving-guide in said guideway provided with a stop to control its upward movemeet with said carrier, and a leg connected with said carrier, and a lever provided with a thread-guide, combined with an intermediate lever, and means to support it in an adjustable manner on its fulcrum, substantially as described.

5. The combination with a set of rolls, a carrier, and means to move it vertically, of a sliding roving-guide mounted in ways in said carrier and adapted in the upper position of the carrier to clamp and brace the roving, leaving a long dangling end, and to unclamp said roving as the carrier comes into lowest operative position, the descent of the carrier pulling the dangling end of the roving between the rolls, substantially as described.

589,034. **HAME-TUG.** WILLIAM O. SCHELLHAMMER, Conway Springs, Kans. Filed Feb. 15, 1897. Serial No. 623,543. (No model.)

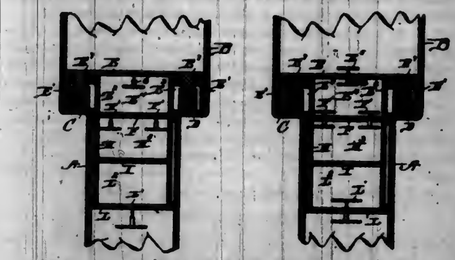


Claim.—1. In a hame attachment the combination of a plate provided with a series of openings, a hook having a recess in a side, a latch seated in a depression in the same side of the hook with the recess and having its butt-end located in the said recess and pivotally connected with the hook, and a spring consisting of a wire doubled upon itself and having its side portions formed into coils intermediate of their ends and mounted upon the pin or bolt pivotally connecting the latch with the hook, and having its end portions engaging, respectively, with the hook and latch, substantially as set forth.

2. The herein-described hame attachment, comprising a plate having a series of openings along one edge, eyebolts pivotally connecting the plate at its opposite edge with a hame, a hook having a loop at one end and having a recess in a side, means for connecting

a tug or trace with the loop of the hook, a latch seated in a depression in the same side of the hook with the recess and coming flush with the hook, means for pivotally connecting the latch with the hook, and a spring formed of a length of wire doubled upon itself and having its side members formed into coils intermediate of their ends and mounted upon the pin pivotally connecting the latch with the hook, substantially in the manner set forth for the purpose specified.

589,035. **NON-REFILLABLE BOTTLE.** GEORGE W. SCOTT, Peoria, Ill. Filed Dec. 31, 1896. Serial No. 617,687. (No model.)



Claim.—1. A bottle having the top portion of its neck expanded and a shoulder in the base of the mouth thereof, and suitable lugs or recesses to receive hooks or catches, in combination with a cap for fitting in the expanded portion of the neck with catches for engaging the lugs or depressions in the neck of the bottle, and provided with perforations through the body of the cap and a valve for opening and closing to permit the egress of liquid out of the bottle and to exclude ingress of liquid therein, and a series of dividing-partitions also provided with openings and valves covering same, all substantially as described and shown.

2. In a bottle having the expanded portion of the neck B, forming a shoulder C, in the base of the mouth thereof, a cap E, for fitting in the expanded portion of the neck, provided with downwardly depending flanges E', E^2, forming a circumferential chamber or groove E^3, with catches E^4, secured to the cap purposed to engage the lugs D, D, in the neck of the bottle, of perforations E^5, through the body of the cap and a valve E^6, for opening and closing same to permit the egress of liquid out of the bottle and exclude ingress of liquid therein, of dividing wall or partition F, the tube H, and the dividing-partition I, each provided with openings and valves covering same, substantially as and for the purpose described.

3. In a bottle, a neck having the expanded portion B, forming a shoulder C, in the base of the mouth thereof, the shoulder having lugs D, D, integral therewith, a cap E, for fitting in the expanded portion of the neck, provided with depending flanges E', E^2, forming a circumferential channel or groove E^3, clasps or catches E^4, for engaging with lugs D, of the dividing wall or partition F, having upwardly-extending and depending flanges, the upwardly-extending flange purposed to be secured to the lower edge of flange E^2, of cap E, the tube H, provided with a dividing-partition I, and threaded at its upper end to be secured to the depending flange of partition F, of the dividing wall or partition L, secured to the lower end of tube H, cells E^4, H^2, and L^4, the partitions being provided with suitable valves F', and L', to permit the egress of liquid out of the bottle and to exclude ingress of liquid therein, all substantially as described and shown.

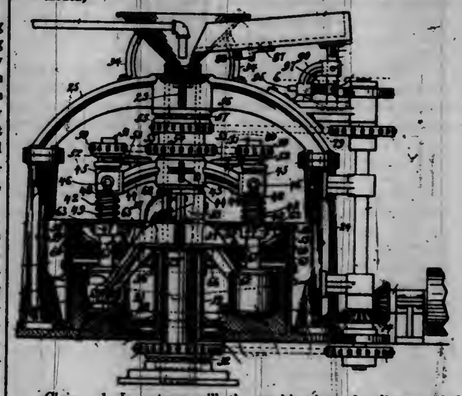
4. In a bottle, a neck having the expanded portion B, and the shoulder C, in the base of the mouth thereof, lugs D, D, integral with the shoulder C, the combination therewith of the cap E, formed with suitable depending flanges E', E^2, channel or groove E^3, within which are provided spring-catches E^4, adapted to engage the lugs D, which when engaging the lugs are seated partially below the surface of the shoulder in depressions *d*, therein, of the partition F, located at the mouth of the lower neck having upwardly-extending and depending flanges, the upwardly-extending flange purposed to engage with the flange E^2, the tube H, the upper extremity of which is secured to the depending flange of the partition F, and provided with the centrally-disposed partition I, integral with the tube H, the dividing wall or partition L, secured to the lower end of tube H, of suitable perforations through the cap and partitions disposed in such a manner as to be in opposite vertical lines, and of automatic valves connected with said openings or in immediate proximity thereto adapted to open to permit the liquid to flow from the bottle and to close against the admission of liquid into the bottle, all substantially as described and shown.

5. The combination with a bottle having a neck provided with an expanded upper portion, providing a shoulder and lugs for receiving spring-catches, of a cylindrical cap provided with catches to engage said lugs, a series of partitions suitably connected together and to the cap forming a series of cells and perforations in the cap and the dividing-partition and suitable valves connected with said perforations or openings in such a manner as to automatically open to permit the egress of liquid from the bottle and to prevent the ingress of liquid into the same, all substantially as described and shown.

6. A bottle, having a neck expanded at its upper portion, providing a shoulder at the base of the opening and having suitable lugs at or near the shoulder, a circular cap for fitting in the expanded portion of the neck having a peripheral depending flange and a centrally-disposed depending flange, both flanges purposed to rest on the shoulder and having spring-catches located in the channel formed by said flanges purposed to engage the lugs on the bottle-neck, dividing-partitions provided with flanges connected together to form cells and the cap and dividing-partitions provided with perforations or openings or sets of perforations or openings located in different vertical lines and suitable valves connected with said perforations or openings, as may be desired, in such a manner as to permit the egress of liquid from the bottle and to prevent the ingress of liquid into the bottle, all substantially as described and shown.

7. In a bottle, provided with a neck expanded internally at its upper end providing a shoulder at the base of the expanded portion and having lugs thereon or therein purposed to be engaged by spring-catches, a series of cells formed by a cap provided with a depending flange or flanges and with spring-catches for engaging said lugs and of partitions located below the said cap and fitting in the lower portion of the neck and suitably connected together and openings leading into and out of the cells and suitable valves connected with the openings in such a manner as to permit the egress of liquid from the bottle and to prevent the ingress of liquid into the bottle, all substantially as described and shown.

589,036. **CENTRIFUGAL MULLER-MILL.** CHARLES E. SAYBOLT, Lake Geneva, Wis. Filed Dec. 11, 1895. Serial No. 571,744. (No model.)



Claim.—1. In a stamp-mill, the combination, of a die provided with a series of steps or inclines, a revoluble muller acting against the steps or inclines, a muller, an oscillating journal-box in which the shaft has its bearings, and is movable vertically therein, and means for carrying the journal-box, and with it the shaft and muller in a circular path of movement, which muller, as it thus travels in a circular path, is caused to drop as it passes over the summit and off the inclines, thereby producing a crushing, as well as grinding, action, substantially as set forth.

2. In a stamp-mill, the combination, of a die provided with a series of steps or inclines, a revoluble muller acting on the die, a shaft fixed to the muller, a journal-box having a double pivotal connection to permit an inward and outward swing or oscillation, as well as a sidewise swing or oscillation, said journal-box receiving the muller-shaft vertically movable therein, and means for carrying the journal-box, and with it the muller and shaft, in a circular path of movement, which muller as it thus travels in a circular path is caused to drop as it passes over the summit and off the inclines, thereby producing a crushing, as well as grinding, action on the material, substantially as set forth.

3. In a stamp-mill, the combination, of a die, a revoluble muller having its bottom end bearing against the die and grinding material received on the die, said muller provided with a shaft or stem, and independent means for revolving the muller in its revolution, faster than said muller would revolve by frictional contact with the side of the die, whereby an increased amount of grinding force is produced, substantially as set forth.

4. In a stamp-mill, the combination, of a rotatable main shaft carrying a pulley, a grinding-surfaced die, mullers acting on the grinding-surface, shafts fixed to the mullers, said shafts provided with pulleys, and belting connecting the pulleys of the muller-shafts with the pulley of the main shaft, whereby the mullers are caused to be revolved rapidly in their revolution in an opposite direction to the direction of revolution of the main shaft, substantially as set forth.

5. In a stamp-mill, the combination, of a main shaft carrying a sprocket-wheel, a die forming a grinding-surface, mullers acting upon the die, said mullers provided with shafts or stems, arms revolving with the main shaft, the ends of said arms forming bearings for the shafts or stems of the mullers, sprockets on the muller-shafts, a counter-shaft carrying sprockets, a belt transmitting motion from one of the sprockets of the counter-shaft to the sprocket of the main shaft, and another belt connecting the other sprocket of the counter-shaft with the sprockets of the muller-shafts, whereby the mullers are given an independent revolving motion in their circuit around and against the die, substantially as set forth.

6. In a stamp-mill, the combination, of a die provided with a series of steps or inclines, a revolving arm provided with a bifurcated outer end, a journal-box within said bifurcated outer end, said journal-box provided with laterally-extending trunnions turning loosely in apertures in the bifurcated end of the arm, a muller adapted to act on the die, a shaft fixed to the muller, said shaft passing loosely through the journal-box, and provided with a spline or feather, a wheel mounted on the shaft and provided with a groove fitting the spline or feather, and means for preventing vertical movement of said wheel, substantially as set forth.

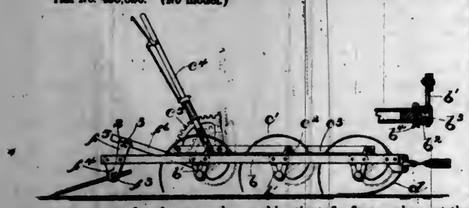
7. In a stamp-mill, the combination, of a die, an arm adapted to be carried in a circular path of movement, said arm provided at its end with a cylindrical recess, another arm provided with a cylindrical stem held and oscillating within the cylindrical recess of the first-named arm, said last-named arm having a bifurcated outer end, a journal-box within the bifurcated end, said journal-box provided with laterally-extending trunnions fitting loosely in apertures in the bifurcated parts, and a muller adapted to act on the die, said muller provided with a shaft passing through the journal-box, substantially as set forth.

8. In a stamp-mill, the combination, of a mortar, mullers within the mortar provided with shafts, said shafts having pulleys mounted thereon, arms by which the mullers are revolved, means for revolving said arms, a main shaft provided with a pulley, a belt connecting the pulley of the main shaft with the pulleys of the muller-shafts, and a tightening-pulley arranged to take up the slack of the belting as the pulleys are revolved, substantially as set forth.

9. In a stamp-mill, the combination, of a mortar, a muller within the mortar traveling in a circular path of movement, a chute arranged above the mortar, a block secured beneath the chute, a bumper in front of said block, a medially-pivoted lever connected to the under side of the chute, a spring-encircled guide-pin connected to the lever, a cam acting on the lever, whereby a shaking movement is imparted to the chute, and thereby through the block an intermittent bumping action is produced, substantially as set forth.

10. In a stamp-mill, the combination, of a die, a revoluble muller acting on the die, a shaft fixed to the muller, a journal-box having two pivotal points or connections, arranged, respectively, at right angles to each other, one of said pivotal points constructed to permit an inward and outward swing of the journal-box, and the other constructed to permit sidewise swinging of the journal-box, said journal-box receiving the muller-shaft therein, and thereby susceptible to the movement of said muller-shaft, in order to permit the free swinging of the muller both inwardly and outwardly, as well as laterally, and means for carrying the journal-box and the muller and shaft in a circular path of movement.

589,037. HARROW. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Jan. 5, 1894. Serial No. 495,836. (No model.)

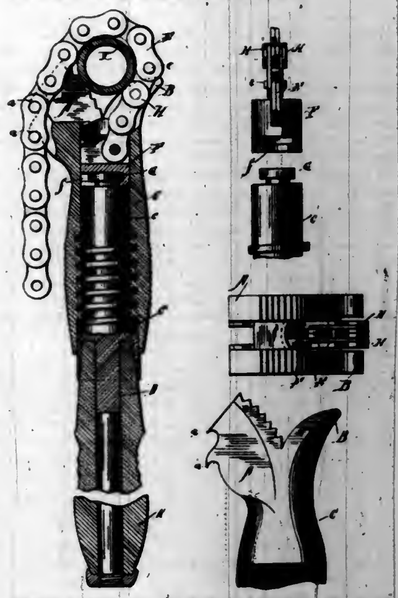


Claim.—1. In a harrow, the combination of a frame, shoes at the front end thereof, and a set of rearwardly-declining spike-teeth at the rear end thereof which terminate substantially in a plane with said shoes, and a set of spring harrow-teeth supported by said frame, and means for adjusting said spring harrow-teeth whereby their ends terminate in a plane with said shoes and spike-teeth, or above or below said plane, substantially as described.

2. In a harrow, the combination of a frame, shoes at the front end thereof, and a set of rearwardly-declining spike-teeth at the rear end thereof which terminate substantially in a plane with said shoes, a shaft from which said spike-teeth rearwardly project, and an adjusting device for adjusting said shaft on its axis, and a set of spring harrow-teeth supported by said frame, and means for adjusting said spring harrow-teeth independently of the supporting spike-teeth whereby their ends terminate in a plane with said shoes and spike-teeth, or above or below said plane, substantially as described.

3. In a harrow, the combination of a frame, shoes at the front end thereof, spring harrow-teeth secured to rock-shafts supported by said frame, means for rocking said shafts to raise and lower said teeth, and for holding them in their different adjusted positions, the shaft *f* loosely supported by and at the rear end of said frame, spike-teeth secured to and projecting rearwardly from said shaft, and means for holding said shaft *f* and adjusting it on its axis consisting of the arm *f'* projecting from the shaft, arm *f'* loosely supported on the rear rock-shaft and connecting-rod *f*^{3}, one of said members being provided with a series of holes and the bolt 3, substantially as described.

589,038. PIPE-WRENCH. JAY K. SHEVY, Chicago, Ill. Filed Jan. 7, 1897. Serial No. 618,228. (No model.)



Claim.—1. In a pipe-wrench the combination with a handle-bar, and a chain attached to the end of the bar by a swiveled joint, of a shank sleeved upon the handle-bar and in screw-threaded engagement therewith, and a serrated jaw carried by the shank and having its back adapted to engage the chain.

2. In a pipe-wrench, the combination with a handle-bar, and a chain attached to the handle-bar by a swiveled joint, of a shank sleeved upon and in screw-threaded engagement with the handle-bar, the shank and handle-bar having smooth cooperating bearing-surfaces upon each side of their cooperating screw-threaded portions, and a jaw fixed upon the shank for cooperating with the chain and having its back adapted to engage the chain.

3. In a pipe-wrench, the combination with a handle-bar, and a chain attached to the end of the handle-bar by a swiveled joint, of a shank sleeved upon and in screw-threaded engagement with the handle-bar and carrying a jaw for cooperating with the chain, the throat of the shank-aperture being oblong in cross-section, its major diameter being parallel with the plane of action of the chain, the chain having a thickened portion near its attached end to limit its inward movement.

4. In a pipe-wrench, the combination with a tubular jaw-carrying shank, and a handle-bar adapted to fit within the shank and being in screw-threaded engagement therewith, of a chain and a swivel-block attached to the chain, such block being attached to the end of the handle-bar by means of a T-shank on one of said members and a cooperating T-socket in the other of said members.

5. In a pipe-wrench, the combination with a tubular jaw-carrying shank, and a handle-bar adapted to fit within the shank and being in screw-threaded engagement therewith, of a chain, a swivel-block attached to the chain, and having a transverse T-socket in one end, and a T-shank on the end of the handle-bar for engaging the socket.

6. The combination with a handle-bar, a chain attached to the handle-bar by a swiveled joint, and a tubular shank sleeved upon the bar and in screw-threaded engagement therewith, the shank and bar having cooperating smooth bearing-surfaces upon each side of their screw-threaded sections, of a pair of relatively flaring bifurcated jaws mounted upon the end of the shank, one of such jaws having a serrated face, hooks or notches on the back of such jaw, and laterally-projecting studs carried by the chain for engaging such hooks or notches, all substantially as described and for the purposes set forth.

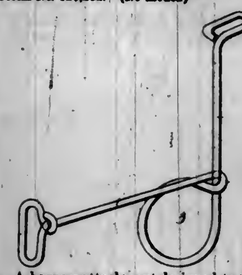
589,039. SHUTTER BOWER AND FASTENER. DANIEL M. STAUFFER, East Petersburg, Pa. Filed Feb. 16, 1897. Serial No. 623,655. (No model.)



Claim.—1. In a device of the kind described, the combination with the casings, of the bowing-bolts arranged therein, one of which has a hook and the other an eye, the spring-catches for securing the said bolts, and operating mechanism, substantially as shown and described.

2. In a device of the kind described, the combination with the bowing-bolts having a series of recesses, one of said bolts having a hook and the other an eye, the casings in which the said bolts slide, and the spring-catches adapted to work through the casings and engage the recesses in the bolts, substantially as shown and described.

589,040. HARNESS ATTACHMENT. HARRY L. STEEL, Dayton, Ind., assignor of one-half to John R. Ray, Lafayette, Ind. Filed Mar. 6, 1897. Serial No. 626,232. (No model.)



Claim.—1. A harness attachment designed to form a permanent part of a harness and consisting of a loop to receive a shaft, a vertical arm extending upward from the loop and provided at its upper end with a horizontal eye, and a horizontal arm extending rearward from the loop and provided with a vertical eye, substantially as described.

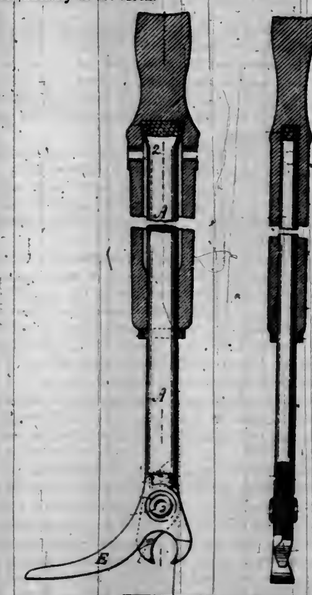
2. A harness attachment designed to form a permanent part of a harness and constructed of a single piece of metal and consisting of a loop to receive a shaft, a vertical arm extending upward from the loop and provided at its upper end with a horizontal eye, and a horizontal arm coiled around the other arm at the top of the loop, extending rearward therefrom and provided with a vertical eye, substantially as described.

589,041. NAIL-PULLER. THOMAS F. STEVENSON, Brooklyn, N. Y. Filed Nov. 2, 1896. Serial No. 610,811. (No model.)

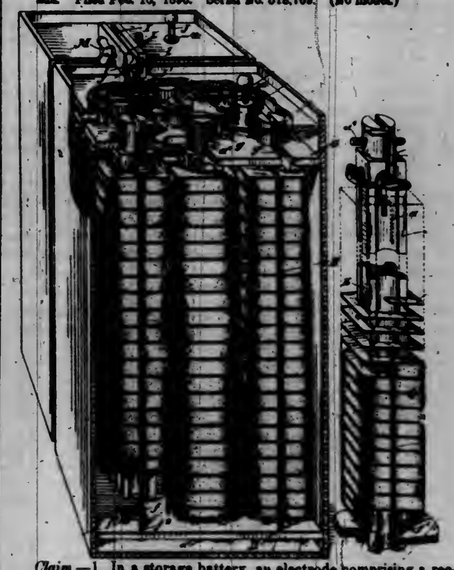
Claim.—1. The combination with the shank having a jaw at the end and the rolling lever having the second jaw, of a pivot composed of a rivet that is smallest in the middle and larger toward both ends for preventing looseness and lessening wear, substantially as set forth.

2. The combination with the shank and the tubular ram or hammer in a nail-puller, of a band of rubber surrounding the shank as and for the purposes set forth.

3. The combination with the rolling lever and jaw having a flanged toe upon the upper part of the lever, of the shank to which the rolling lever is pivoted, such shank having a flanged recess in its side adjacent to the toe on the rolling lever and a block of rubber held in the recess by the flange and forming a spring for opening the jaw, substantially as set forth.



589,042. STORAGE BATTERY. WILLIAM J. STILL, Toronto, Canada. Filed Feb. 10, 1896. Serial No. 578,769. (No model.)



Claim.—1. In a storage battery, an electrode comprising a rectangular continuous hollow spiral of flat strip sheet-lead in flexible form with both edges free and an interposed hollow spiral of active material exposed at the inside and outside and a supporting-post for the electrode extending up within the spiral and forming a guide for the free lengthwise movement of the spiral, as and for the purpose specified.

2. In a storage battery an electrode comprising a rectangular hollow spiral of flat strip sheet-lead and an interposed hollow spiral of active material, a rectangular supporting-post for the electrode extending up through the spiral and longitudinal grooves in each side of the post as and for the purpose specified.

3. In a storage battery an electrode comprising a rectangular hollow spiral of flat strip sheet-lead and an interposed hollow spiral

4. In a stamp-mill, the combination, of a rotatable main shaft carrying a pulley, a grinding-surfaced die, mullers acting on the grinding-surface, shafts fixed to the mullers, said shafts provided with pulleys, and belting connecting the pulleys of the muller-shafts with the pulley of the main shaft, whereby the mullers are caused to be revolved rapidly in their revolution in an opposite direction to the direction of revolution of the main shaft, substantially as set forth.

5. In a stamp-mill, the combination, of a main shaft carrying a sprocket-wheel, a die forming a grinding-surface, mullers acting upon the die, said mullers provided with shafts or stems, arms revolving with the main shaft, the ends of said arms forming bearings for the shafts or stems of the mullers, sprockets on the muller-shafts, a counter-shaft carrying sprockets, a belt transmitting motion from one of the sprockets of the counter-shaft to the sprocket of the main shaft, and another belt connecting the other sprocket of the counter-shaft with the sprockets of the muller-shafts, whereby the mullers are given an independent revolving motion in their circuit around and against the die, substantially as set forth.

6. In a stamp-mill, the combination, of a die provided with a series of steps or inclines, a revolving arm provided with a bifurcated outer end, a journal-box within said bifurcated outer end, said journal-box provided with laterally-extending trunnions turning loosely in apertures in the bifurcated end of the arm, a muller adapted to act on the die, a shaft fixed to the muller, said shaft passing loosely through the journal-box, and provided with a spline or feather, a wheel mounted on the shaft and provided with a groove fitting the spline or feather, and means for preventing vertical movement of said wheel, substantially as set forth.

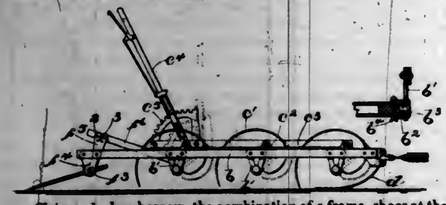
7. In a stamp-mill, the combination, of a die, an arm adapted to be carried in a circular path of movement, said arm provided at its end with a cylindrical recess, another arm provided with a cylindrical stem held and oscillating within the cylindrical recess of the first-named arm, said last-named arm having a bifurcated outer end, a journal-box within the bifurcated end, said journal-box provided with laterally-extending trunnions fitting loosely in apertures in the bifurcated parts, and a muller adapted to act on the die, said muller provided with a shaft passing through the journal-box, substantially as set forth.

8. In a stamp-mill, the combination, of a mortar, mullers within the mortar provided with shafts, said shafts having pulleys mounted thereon, arms by which the mullers are revolved, means for revolving said arms, a main shaft provided with a pulley, a belt connecting the pulley of the main shaft with the pulleys of the muller-shafts, and a tightening-pulley arranged to take up the slack of the belting as the pulleys are revolved, substantially as set forth.

9. In a stamp-mill, the combination, of a mortar, a muller within the mortar traveling in a circular path of movement, a chute arranged above the mortar, a block secured beneath the chute, a bumper in front of said block, a medially-pivoted lever connected to the under side of the chute, a spring-encircled guide-pin connected to the lever, a cam acting on the lever, whereby a shaking movement is imparted to the chute, and thereby through the block an intermittent bumping action is produced, substantially as set forth.

10. In a stamp-mill, the combination, of a die, a revoluble muller acting on the die, a shaft fixed to the muller, a journal-box having two pivotal points or connections, arranged, respectively, at right angles to each other, one of said pivotal points constructed to permit an inward and outward swing of the journal-box, and the other constructed to permit sidewise swinging of the journal-box, said journal-box receiving the muller-shaft therein, and thereby susceptible to the movement of said muller-shaft, in order to permit the free swinging of the muller both inwardly and outwardly, as well as laterally, and means for carrying the journal-box and the muller and shaft in a circular path of movement.

589,037. HARROW. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Jan. 5, 1894. Serial No. 495,836. (No model.)

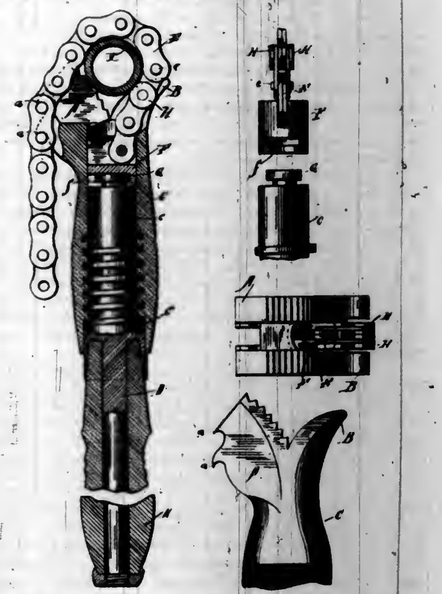


Claim.—1. In a harrow, the combination of a frame, shoes at the front end thereof, and a set of rearwardly-declining spike-teeth at the rear end thereof which terminate substantially in a plane with said shoes, and a set of spring harrow-teeth supported by said frame, and means for adjusting said spring harrow-teeth whereby their ends terminate in a plane with said shoes and spike-teeth, or above or below said plane, substantially as described.

2. In a harrow, the combination of a frame, shoes at the front end thereof, and a set of rearwardly-declining spike-teeth at the rear end thereof which terminate substantially in a plane with said shoes, a shaft from which said spike-teeth rearwardly project, and an adjusting device for adjusting said shaft on its axis, and a set of spring harrow-teeth supported by said frame, and means for adjusting said spring harrow-teeth independently of the supporting spike-teeth whereby their ends terminate in a plane with said shoes and spike-teeth, or above or below said plane, substantially as described.

3. In a harrow, the combination of a frame, shoes at the front end thereof, spring harrow-teeth secured to rock-shafts supported by said frame, means for rocking said shafts to raise and lower said teeth, and for holding them in their different adjusted positions, the shaft f loosely supported by and at the rear end of said frame, spike-teeth secured to and projecting rearwardly from said shaft, and means for holding said shaft f and adjusting it on its axis consisting of the arm f^3 projecting from the shaft, arm f^4 loosely supported on the rear rock-shaft and connecting-rod f^5, one of said members being provided with a series of holes and the bolt 3, substantially as described.

589,038. PIPE-WRENCH. JAY K. SHEFFY, Chicago, Ill. Filed Jan. 7, 1897. Serial No. 618,228. (No model.)



Claim.—1. In a pipe-wrench the combination with a handle-bar, and a chain attached to the end of the bar by a swiveled joint, of a shank sleeved upon the handle-bar and in screw-threaded engagement therewith, and a serrated jaw carried by the shank and having its back adapted to engage the chain.

2. In a pipe-wrench, the combination with a handle-bar, and a chain attached to the handle-bar by a swiveled joint, of a shank sleeved upon and in screw-threaded engagement with the handle-bar, the shank and handle-bar having smooth cooperating bearing-surfaces upon each side of their cooperating screw-threaded portions, and a jaw fixed upon the shank for cooperating with the chain and having its back adapted to engage the chain.

3. In a pipe-wrench, the combination with a handle-bar, and a chain attached to the end of the handle-bar by a swiveled joint, of a shank sleeved upon and in screw-threaded engagement with the handle-bar and carrying a jaw for cooperating with the chain, the throat of the shank-aperture being oblong in cross-section, its major diameter being parallel with the plane of action of the chain, the chain having a thickened portion near its attached end to limit its inward movement.

4. In a pipe-wrench, the combination with a tubular jaw-carrying shank, and a handle-bar adapted to fit within the shank and being in screw-threaded engagement therewith, of a chain and a swivel-block attached to the chain, such block being attached to the end of the handle-bar by means of a T-shank on one of said members and a cooperating T-socket in the other of said members.

5. In a pipe-wrench, the combination with a tubular jaw-carrying shank, and a handle-bar adapted to fit within the shank and being in screw-threaded engagement therewith, of a chain, a swivel-block attached to the chain, and having a transverse T-socket in one end, and a T-shank on the end of the handle-bar for engaging the socket.

6. The combination with a handle-bar, a chain attached to the handle-bar by a swiveled joint, and a tubular shank sleeved upon the bar and in screw-threaded engagement therewith, the shank and bar having cooperating smooth bearing-surfaces upon each side of their screw-threaded sections, of a pair of relatively flaring bifurcated jaws mounted upon the end of the shank, one of such jaws having a serrated face, hooks or notches on the back of such jaw, and laterally-projecting studs carried by the chain for engaging such hooks or notches, all substantially as described and for the purposes set forth.

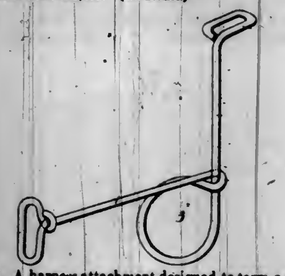
589,039. SHUTTER BOWER AND FASTENER. DANIEL M. STAUFFER, East Petersburg, Pa. Filed Feb. 16, 1897. Serial No. 623,655. (No model.)



Claim.—1. In a device of the kind described, the combination with the casings, of the bowing-bolts arranged therein, one of which has a hook and the other an eye, the spring-catches for securing the said bolts, and operating mechanism, substantially as shown and described.

2. In a device of the kind described, the combination with the bowing-bolts having a series of recesses, one of said bolts having a hook and the other an eye, the casings in which the said bolts slide, and the spring-catches adapted to work through the casings and engage the recesses in the bolts, substantially as shown and described.

589,040. HARNESS ATTACHMENT. HARRY L. STEEL, Dayton, Ind., assignor of one-half to John B. Ray, Lafayette, Ind. Filed Mar. 6, 1897. Serial No. 626,232. (No model.)



Claim.—1. A harness attachment designed to form a permanent part of a harness and consisting of a loop to receive a shaft, a vertical arm extending upward from the loop and provided at its upper end with a horizontal eye, and a horizontal arm extending rearward from the loop and provided with a vertical eye, substantially as described.

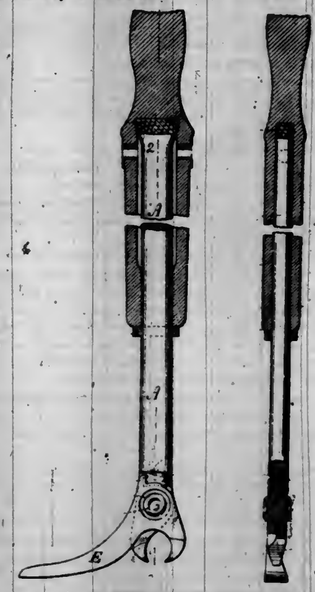
2. A harness attachment designed to form a permanent part of a harness and constructed of a single piece of metal and consisting of a loop to receive a shaft, a vertical arm extending upward from the loop and provided at its upper end with a horizontal eye, and a horizontal arm coiled around the other arm at the top of the loop, extending rearward therefrom and provided with a vertical eye, substantially as described.

589,041. NAIL-PULLER. THOMAS F. STEVENSON, Brooklyn, N. Y. Filed Nov. 2, 1896. Serial No. 610,811. (No model.)

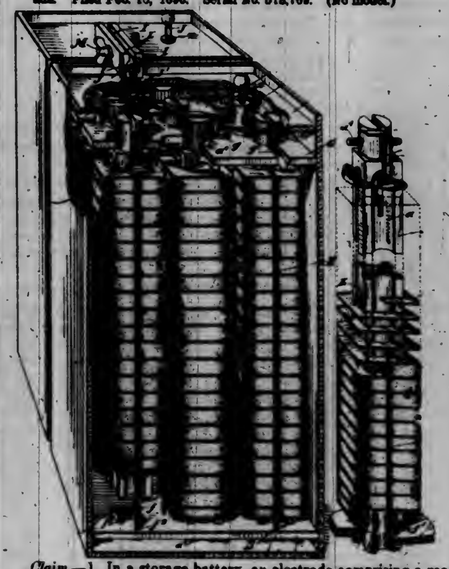
Claim.—1. The combination with the shank having a jaw at the end and the rolling lever having the second jaw, of a pivot composed of a rivet that is smallest in the middle and larger toward both ends for preventing looseness and lessening wear, substantially as set forth.

2. The combination with the shank and the tubular ram or hammer in a nail-puller, of a band of rubber surrounding the shank as and for the purposes set forth.

3. The combination with the rolling lever and jaw having a flanged toe upon the upper part of the lever, of the shank to which the rolling lever is pivoted, such shank having a flanged recess in its side adjacent to the toe on the rolling lever and a block of rubber held in the recess by the flange and forming a spring for opening the jaw, substantially as set forth.



589,042. STORAGE BATTERY. WILLIAM J. STILL, Toronto, Canada. Filed Feb. 10, 1896. Serial No. 578,769. (No model.)



Claim.—1. In a storage battery, an electrode comprising a rectangular continuous hollow spiral of flat strip sheet-lead in flexible form with both edges free and an interposed hollow spiral of active material exposed at the inside and outside and a supporting-post for the electrode extending up within the spiral and forming a guide for the free lengthwise movement of the spiral, as and for the purpose specified.

2. In a storage battery an electrode comprising a rectangular hollow spiral of flat strip sheet-lead and an interposed hollow spiral of active material, a rectangular supporting-post for the electrode extending up through the spiral and longitudinal grooves in each side of the post as and for the purpose specified.

3. In a storage battery an electrode comprising a rectangular hollow spiral of flat strip sheet-lead and an interposed hollow spiral

of active material, a supporting-post for the electrode extending up within the spiral and a lead from the center of the lead spiral as and for the purpose specified.

4. In a storage battery an electrode comprising a rectangular hollow spiral of flat strip sheet-lead and an interposed hollow spiral of active material, a rectangular supporting-post for the electrode extending up through the spiral, longitudinal grooves in each side of the post and a lead from the center edge of the spiral extending up through one of the grooves through the central opening of the spiral as and for the purpose specified.

5. The combination with the rectangular hollow spiral of flat strip sheet-lead and the hollow spiral of active material filling the spaces between the convolutions, of the central post having a top slit and the elastic band passing through the slit and from end to end of the electrode, the lower end of the band being suitably fastened, substantially as described.

6. The combination with the rectangular electrodes formed of a flat rectangular spiral with an interposed spiral of active material and central post with cylindrical top and slits in the tops of such posts, of the top and bottom insulating-plates oppositely-formed slots for each alternate electrode in the top plate and circular openings in the center of such slots to receive the cylindrical heads of the posts and an elastic band for holding the plates together having the top on a line with the slots as and for the purpose specified.

7. The combination with the spirally-formed electrodes having the reduced top and bottom ends forming shoulders, of the top and bottom insulating-plates into which such reduced ends fit as and for the purpose specified.

8. The combination with the spirally-formed electrodes having the reduced top and bottom ends forming shoulders, of the top and bottom plates and the winged holes in the bottom plate to receive the corresponding reduced ends as and for the purpose specified.

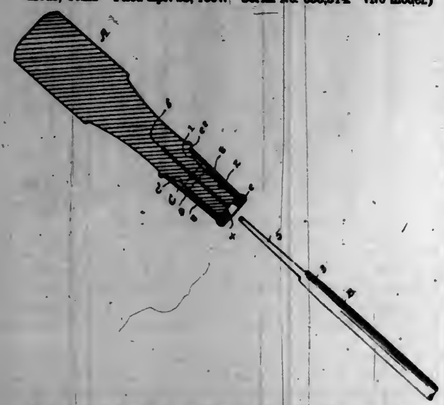
9. The combination with the spirally-formed electrodes having the reduced top and bottom ends forming shoulders, of the top and bottom plates and the pins extending through the bottoms of the posts above the shoulder and separating the bottoms of the electrodes from the insulating-plates as and for the purpose specified.

10. The combination with the spirally-formed electrodes having the reduced top and bottom ends forming shoulders, of the top and bottom plates and pins extending through the reduced ends to bind the posts of the electrodes to the top and bottom plates as and for the purpose specified.

11. The combination with the spirally-formed electrodes having the reduced top and bottom ends forming shoulders, of the top and bottom plates, slots in the same through which the leads extend, binding-posts to which the leads are connected, and the top sealing-plate resting on the tops of the posts and having openings through which the binding-posts extend as and for the purpose specified.

12. In a storage battery the combination with the electrodes and leads therefrom and binding-posts to which the leads for each cell are connected having stems with spherical heads, of a pair of connecting-plates for the cells having arc-shaped grooves and clamping means for holding the spherical heads in the grooves as and for the purpose specified.

589,043. FERRULE FOR TOOL-HANDLES. JAMES SWAN, Seymour, Conn. Filed Apr. 22, 1897. Serial No. 633,314. (No model.)



Claim.—1. A ferrule for tool-handles having the internal shoulder *c*, and head *c*, the walls between said shoulder and head having longitudinal grooves and being tapered to substantially correspond with the taper of the ordinary tang of a tool.

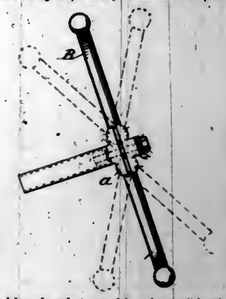
2. A ferrule for tool-handles having the internal shoulder *c* and head *c*, the walls between said shoulder and head having longitudinal grooves and being tapered to substantially correspond with the taper of the ordinary tang of a tool, said ferrule having also the circumferential groove 9 and being outwardly tapered above the upper wall of said groove.

589,044. BOTTLE. DENNIS J. SWEENEY, Brooklyn, N. Y. Filed Oct. 28, 1896. Serial No. 610,366. (No model.)



Claim.—A bottle, jug or jar having a neck, an annular bead on the inner wall thereof, the walls of said neck extending upwardly and outwardly to a predetermined point above said bead, an annular inwardly-directed shoulder at the upper end of said outwardly-directed wall, a cylindrical plug adapted to enter the said neck and rest upon the said bead, said plug having formed in the lower part thereof a conical chamber with an upwardly-directed apex, the upper part of said plug being also provided with a conical chamber having a downwardly-directed apex said chambers communicating at their apices, a movable spring secured therein, a ball-valve mounted in said passage, springs secured to the outer side of said plug and, engaging said shoulder, said springs projecting outwardly and upwardly, the upper ends being turned inwardly at right angles, or nearly so, and adapted to pass through the openings I9, formed in the upper end of said plug while the plug is being inserted in the bottle.

589,045. BICYCLE HANDLE-BAR. ANSEL P. TEMPLE, Muskegon, Mich. Filed July 24, 1896. Serial No. 600,399. (No model.)



Claim.—In a bicycle, the combination with the front standard thereof, of lateral ledges on the upper end of said standard, an adjustable flanged plate engaging said ledges and provided with concave seats, a clamping-plate likewise having concave seats, a clamping-bolt, and curved handle-bars provided with terminal spheres or balls located between said seats.

589,046. WRENCH. COLEMAN A. TERRY, Kingston, N. Y., assignor of one-half to Charles S. Ackley, Brooklyn, N. Y. Filed Aug. 4, 1896. Serial No. 601,633. (No model.)



Claim.—1. In a wrench, the combination of a standard or bar provided with a fixed jaw, a movable jaw provided with a rod loosely mounted upon said standard so that it may be adjusted endwise thereon, and a rocking clutch-piece loosely engaging with and adapted to bear against said rod, and also engaging a point fixed relatively to said standard, and means for holding said piece in inclined position relative to the rod for locking the same against endwise movement in one direction.

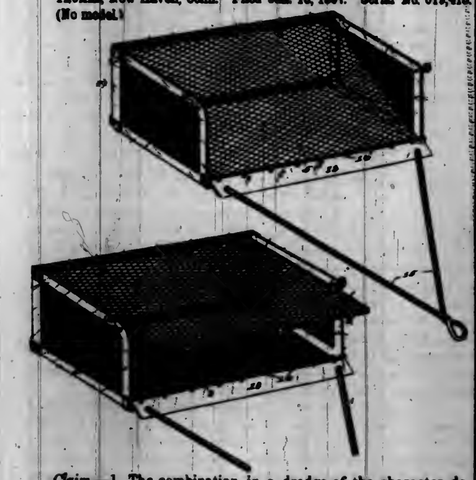
2. In a wrench, the combination of a standard or bar provided with a fixed jaw, a movable jaw provided with a rod loosely mounted upon said standard so that it may be adjusted endwise thereon, a detached rocking clutch-piece consisting in a perforated plate through the perforation of which the said rod loosely passes, said clutch-piece engaging a point fixed relatively to said standard, and means for holding the clutch-piece in inclined position on the rod.

3. In a wrench, the combination of a standard or bar provided with a jaw, a movable jaw provided with a rod mounted loosely upon said standard and adjustable endwise thereon, the two said jaws having a relative rocking movement, and a clutch comprising a rocking clutch-piece engaging the said rod upon one or two sides and engaging a fixed point adjacent said rod, and means for holding said piece in inclined position upon the rod for locking said piece against endwise movement in one direction.

4. In a wrench, the combination of a standard or bar 3 provided with a fixed jaw 4, a movable jaw 5 having a rod 19 adjustable longitudinally relative to said standard, and a detached clutch 9 loosely engaging said rod and a point 11 fixed relatively to said standard, substantially as and for the purpose set forth.

5. In a wrench, the combination of a standard or bar 3 provided with a fixed upper jaw 4, a movable lower jaw 5 adapted to slide on said bar 3, a bracket secured upon the bar 3 below said movable jaw 5, a depending rod 19 secured to said movable jaw 5 and extending loosely through said fixed bracket, and a rocking clutch-piece loosely engaging with and adapted to bear against said rod and also engaging a point on said fixed bracket, substantially as and for the purpose set forth.

589,047. COMBINED DRILL AND OYSTER DREDGE. THOMAS THOMAS, New Haven, Conn. Filed Jan. 16, 1897. Serial No. 619,415. (No model.)



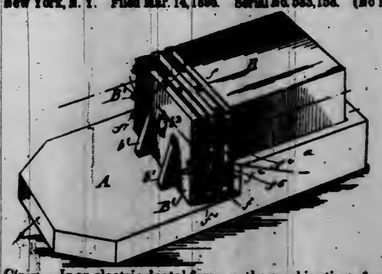
Claim.—1. The combination, in a dredge of the character described, of a holding-receptacle and a screen overlying such receptacle adapted to retard drills and other objectionable matter and deposit them into the receptacle, and permit larger bodies to pass freely over the said screen, for the purpose set forth.

2. The combination, in a dredge of the character described, of a holding-receptacle and a screen overlying the same, and a blade or scraper to remove objects from the ground so that they may be deposited on the screen for the purpose described and set forth.

3. The combination, in a dredge, of the character described, of an open-work holding-receptacle, an inclined open-work screen of larger mesh adapted to close the mouth of such receptacle, a blade forward of said receptacle so that objects may be removed from the surface of the ground by such blade and be deposited on the said screen, the larger objects passing over while the smaller ones—like drills &c.—are forced through the mesh of the said screen into the receptacle, for the purpose set forth.

4. The combination, in a dredge, of the character described, of a network receptacle, an overlying network screen of larger mesh than the receptacle, said screen adapted to be readily attached to and be detached from said receptacle, means whereby said screen can be maintained in an elevated position, a forward blade adapted to scrape the surface of the ground, removing oysters, drills &c., therefrom which are passed over the said screen by the forward movement of the dredge when the said screen is in an inclined position, the drills and other small matter passing through the screen into the receptacle, while the larger objects will be deposited back of said dredge, as described and for the purpose set forth.

589,048. ELECTRIC DENTAL FURNACE. CHARLES A. TIMBY, New York, N. Y. Filed Mar. 14, 1896. Serial No. 583,158. (No model.)



Claim.—In an electric dental furnace, the combination of a muffle composed of refractory material, removable independent heating-plates disposed in the walls of said muffle, and composed of refractory material having conductors embedded therein, two separate conductive straps surrounding said muffle near its front end, each provided with a plurality of binding-posts for establishing connection with the electric source and with the heating-plates independently of each other.

589,049. NOODLE-MACHINE. PHILIPP WARNER, Buffalo, N. Y. Filed Apr. 1, 1897. Serial No. 630,344. (No model.)



Claim.—1. A noodle-cutting machine comprising a supporting-table, feeding mechanism operated intermittently and mechanism for removing the weight of the feeding mechanism from the dough strip during the intermissions.

2. In a noodle-cutting machine, the combination of the supporting-table, the upper and lower feed-rollers, the rotating cutting hand-wheel, mechanism for intermittently operating the lower feed-roller, and mechanism for lifting the upper feed-roller from contact with the dough strip during the intermissions of the lower feed-roller.

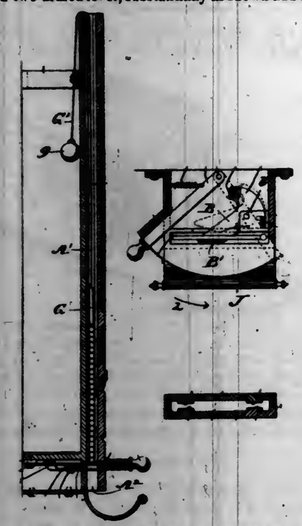
3. In a noodle-cutting machine, the combination of the supporting-table provided with a dough-strip slideway, a lower feed-roller rotatably mounted in the table and transversely in the path of the slideway and at the lower end thereof, a supporting portion pivoted to the table, an upper feed-roller journaled in the forward end of said supporting portion, an operating-shaft mounted in the forward portion of the table, a hand-wheel at the forward end of said shaft, cutting-blades on the inner face of said hand-wheel, a stationary cutting-blade at the front of the table arranged to act in conjunction with the blades on the hand-wheel, a cam-wheel mounted on the operating-shaft for intermittently operating the lower feed-roller, and a second cam-wheel also on the operating-shaft arranged to lift the upper feed-roller from contact with the dough during the intermissions of the lower feed-roller.

4. In a noodle-cutting machine, the combination of the supporting-table, the feeding mechanism, the cutting mechanism, mechanism for intermittently operating the feeding mechanism, and mechanism for lifting the upper portion of the feeding mechanism from contact with the dough strip during the said intermissions.

589,050. MATCH-BOX. AMOS W. WARNOCK, Dorchester, Mass. Filed Jan. 2, 1897. Serial No. 617,762. (No model.)

Claim.—1. A match-box adapted for discharging one match at a time, comprising a vertical compartment adapted to receive a series of matches, a spring-pressed lever normally closing the outlet from the said compartment and a swinging lever adapted for separating the matches and throwing the said spring-pressed lever out of line with the discharge-opening, substantially as shown and described.

2. In a match-box for delivering but one match at a time, the combination of a vertically-arranged compartment adapted for receiving a series of matches and a two-armed spring-actuated lever located at the discharge-opening of the said compartment, and a spring-retained swinging lever for separating the matches and operating the said two-armed lever, substantially as shown and described.



3. In a match box for delivering but one match at a time, the combination of the vertically-arranged compartment having projections upon the inner surface of the front and rear walls thereof and the weight for feeding the matches, and the two-armed lever for normally closing the outlet of the said compartment, said lever being normally maintained in position by means of a spring, and the swinging lever normally maintained out of line with the discharge-opening by means of a spring, and the receptacle for receiving the matches as they are discharged from the machine, substantially as shown and described.

589,051. LAMP. GEORGE WASHINGTON, Brussels, Belgium, assignor to the George Washington Lighting Company, Jersey City, N. J. Filed July 14, 1897. Serial No. 644,562. (No model.)

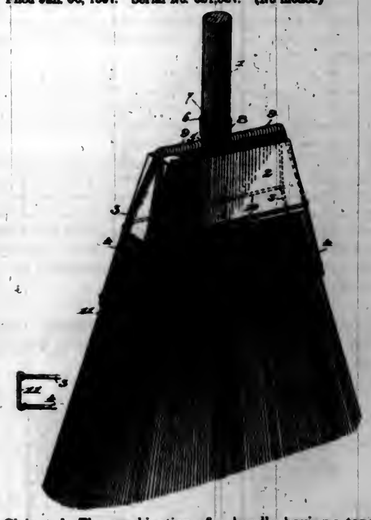


Claim.—1. In a hydrocarbon incandescent lamp the combination with a vaporizing-tube, a mixing-chamber connected with the upper end of said tube and a burner depending from the mixing-chamber, of an incandescent mantle located in close proximity to and at one side of the vaporizing-tube and having its upper end connected with the depending burner, substantially as set forth.

2. In a hydrocarbon incandescent lamp the combination with a vaporizing-tube, a mixing-chamber connected with the upper end of said tube depending burners communicating with the mixing-chamber and located at the sides of the vaporizing-tube, of incandescent mantles located in close proximity to the vaporizing-tube and connected at their upper ends to said burners, substantially as set forth.

3. In a hydrocarbon incandescent lamp, the combination with a vaporizing-tube, a mixing-chamber connected with the upper end of said tube, and a burner connected with the mixing-chamber and depending therefrom, of an incandescent mantle arranged parallel to the upper end of the vaporizing-tube and in close proximity thereto, the upper end of the mantle being attached to the burner, and a mantle-holder secured to the lamp-frame and arranged to engage the lower end of the mantle, substantially as set forth.

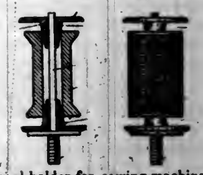
589,052. BROOM-HEAD. WILLIAM T. WATTS, Collinsville, Ala. Filed Jan. 30, 1897. Serial No. 621,327. (No model.)



Claim.—1. The combination of a handle having a tapered extremity, of a cap or socket having in its upper side an opening removably fitted upon the extremity of the handle and adapted to inclose the upper ends of broom-corn, a bridle inclosing the cap or socket and comprising a fixed looped member attached to the handle above the cap or socket, a movable looped member mounted upon a transverse portion of the fixed member and adapted to swing outwardly therefrom to facilitate the application and removal of the cap or socket, intermediate bearing rods or braces connecting the sides of the members and bearing upon opposite sides of the cap or socket, and means for securing the free end of the movable member in its normal or operative position, and the bearing-rods in engagement with the cap, substantially as specified.

2. The combination with a handle, of a bridle comprising a fixed member of looped construction having its sides extended inwardly to form alined journal portions terminally secured to the handle, a movable member of looped construction having its sides extended to form alined coiled sleeves 9, which are axially expansible and bear terminally against the sides of the fixed member and the contiguous surfaces of the handle, and means for connecting the sides of the members to secure the movable member in its operative position, substantially as specified.

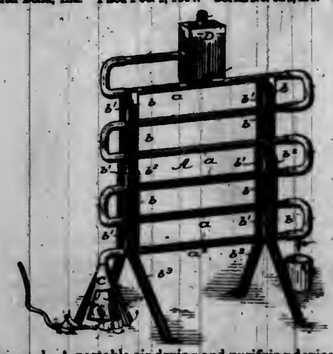
589,053. SPOOL-SUPPORT FOR SEWING-MACHINES. HELEN L. WEBSTER, Wellesley, Mass. Filed Oct. 9, 1896. Serial No. 608,335. (No model.)



Claim.—1. A spool-holder for sewing-machines, consisting of a stationary upright rod, and two cones which are adapted to turn thereon, and one of which is inverted, said cones being also provided with a flat circular base flange or plate, and the apex of each being of less diameter than the bore of the spool and the base thereof of greater diameter, and the apex being adapted to enter the ends of the spool, substantially as shown and described.

2. A spool-holder for sewing-machines, consisting of a stationary upright rod, and two cones which are adapted to turn thereon, and one of which is inverted, said cones being also provided with a flat circular base flange or plate, and the apex of each being of less diameter than the bore of the spool, and the base thereof of greater diameter, and the apex being adapted to enter the ends of the spool, substantially as shown and described.

589,054. DISINFECTING APPARATUS. ROBERT WESTPHAL, South Bend, Ind. Filed Feb. 1, 1897. Serial No. 621,420. (No model.)

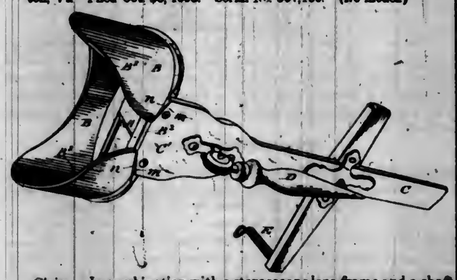


Claim.—1. A portable air drying and purifying device consisting of a series of vertically-disposed pipe-sections, connected at their ends successively in zigzag order, the disconnected lower end of the bottom pipe being connected to a combustion-chamber and the upper end connected with a condensing-chamber and frame-pieces connected to the pipe-sections to provide standards or supports, substantially as described.

2. An air drying and purifying device consisting of a series of pipes connected in zigzag order; a combustion-chamber at the lower end thereof, and a condensing-chamber at the upper end thereof provided with absorbent or vapor-arresting media, substantially as described.

3. An air drying and purifying device comprising a combustion-chamber, a series of pipes connected in zigzag order, a condensing-chamber provided with vapor-arresting media connected to the upper terminus of said pipe, and a faucet to permit the water to be withdrawn from the condensing-chamber, substantially as described.

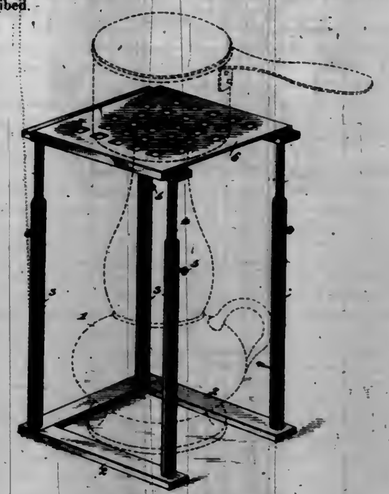
589,055. STEREOSCOPE. HAWLEY C. WHITE, North Bennington, Vt. Filed Oct. 28, 1895. Serial No. 567,109. (No model.)



Claim.—In combination with a stereoscope lens-frame and a shaft having a broadened end which is attached thereto, a hood which is fastened to said lens-frame and forms a dark chamber before the eyes, the said shaft and hood being formed with the beveled edges *m n* which fit together without overlapping the said hood being substantially flush on the under side with the end of the said shaft substantially as set forth.

589,056. HEATER-FRAME FOR LAMPS. ROSA C. WHITE, Waldoborough, Me. Filed Feb. 3, 1897. Serial No. 621,817. (No model.)

Claim.—A heater-frame for use in connection with lamps, comprising a similarly-formed top and bottom frame of substantially U form composed of bars having their meeting end portions halved together and formed with threaded openings in coincident relation, standards connecting the said top and bottom frames and having their terminals threaded and let into the threaded openings of the aforesaid matching frame-bars for connecting them, and a shelf fitted upon the top frame, the parts being constructed and combined to admit of them being readily taken apart and packed in a small space, and quickly set up when required for use, substantially as described.

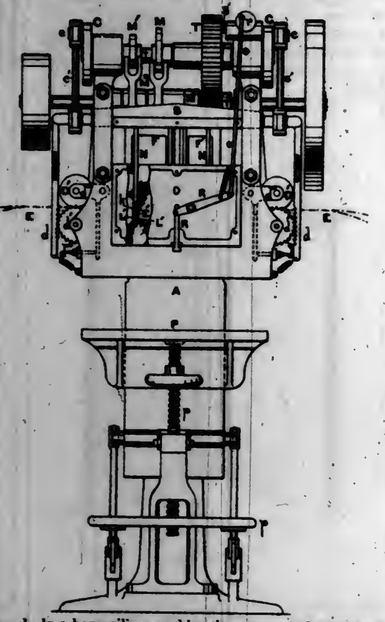


589,057. BOB-SLED. LEWIS WILEY, Westmoreland, N. Y. Filed Feb. 19, 1897. Serial No. 624,155. (No model.)



Claim.—A coupling for the runner and bolster of a sled, consisting of two members adapted to be secured to the runner and bolster respectively, the runner member consisting of a plate formed in two sections and an upwardly-extending cross-sectionally-T-shaped portion integral with one of the plate-sections and projecting at one end therefrom to extend over the other plate-section, and the horizontal flanges of the T-shaped portion being curved downwardly at each end, the said plate-sections and horizontal flanges forming ways closed at each end, and the bolster member having spaced depending ears provided with inwardly-projecting lugs to enter the ways in the runner member, and a V-shaped portion between the ears to engage the upper face of the runner member, and the plate-section which is separate from the T-shaped portion being independently removable to permit the lugs to be entered in or withdrawn from the ways, substantially as described.

589,058. APPARATUS FOR FORMING AND DRIVING STAPLES INTO BOXES. EDWARD WILLIAMS, Chester, England. Filed Apr. 11, 1896. Serial No. 587,163. (No model.)



Claim.—1. In a box-nailing machine the apparatus for setting it in motion comprising the lever R which is raised by the box or case the connecting-rod *o* the disk *r* rotated thereby the spiral clutch *s* the fixed clutch *s'* the toothed wheel S operated by the finger projecting from disk *r* and the rack S' which penetrates the interior of the wheel T to throw the pawl *u* into and out of gear with the internal teeth substantially as described.

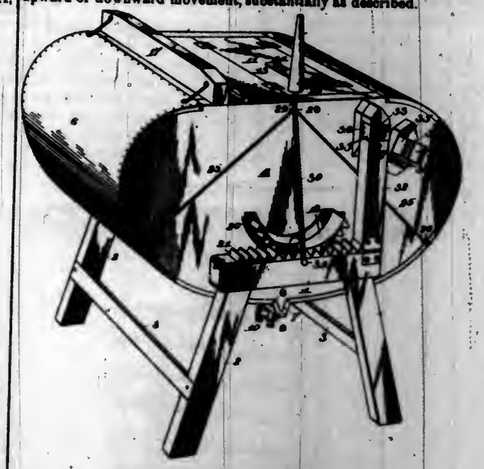
2. In a box-nailing machine the combination with the mechanism for driving the nails of the movable table P upon which the box is placed capable of adjustment at any desired height the adjusting-screw *p* the treadle *p'* and lever by which the box is raised into position for nailing the lever R which is raised by the box or case the connecting-rod *o* the disk *r* rotated thereby, the spiral clutch *s* the fixed clutch *s'* the toothed wheel S operated by the finger projecting from the disk *r* and the rack S' which penetrates the interior of the wheel T to throw the pawl *u* into and out of gear with the internal teeth substantially as described.

3. In a machine for forming staple-shaped nails the combination with the reciprocating cross-head of a tool-holder of angular formation F F' to carry one tool behind another substantially as described.

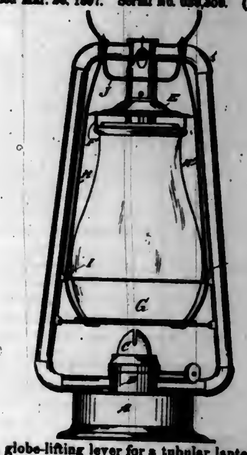
4. The combination with the vertically-reciprocating cross-head B cutting-tools G bending-tools H and driving-tools N all attached to and moving to and fro with the cross-head of the fixed anvils K over which the wire is bent the horizontally-reciprocating pushers L placed at each side of the anvils to deliver the finished staple-shaped nail to the driving-tools of the cams M M' on the driving-shaft the cranked levers M^3 which transmit the movement of the cams to the pushers and the springs *m m'* which move the pushers in the reverse direction substantially as described.

589,059. WASHING-MACHINE. GEORGE T. WIFFERS, Cameron, W. Va. Filed May 23, 1896. Serial No. 590,391. (No model.)

Claim.—In a washing-machine, the combination of a supporting-stand, a rocking body mounted thereon, an arm hinged to the stand at one end thereof, adapted to be arranged in a vertical position and provided near its upper or free end with oppositely-disposed notches forming straight outwardly-converging inner walls and providing upper and lower horizontal shoulders, and a spring-clip 34 constructed of a single piece of resilient metal, centrally secured to the body and consisting of a pair of horizontally-disposed outwardly-extending arms 35, inwardly bent between their ends to form shoulders for engaging the said notches and having outwardly-bent terminals forming a flaring mouth, said arms being adapted to engage and release the bar automatically as the latter is swung inward and outward, and engaging the upper and lower shoulders of the notches, when the bar is in a vertical position to lock the washing-machine body against upward or downward movement, substantially as described.



589,060. TUBULAR OR HURRICANE LANTERN. JOHN WOOD, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed Mar. 26, 1897. Serial No. 629,360. (No model.)



Claim.—A globe-lifting lever for a tubular lantern, consisting of a single piece of wire of substantially U shape, the ends thereof adapted to be journaled around the upper horizontal air-tubes, and terminating in loops to which may be attached the upright wires carrying the globe-plate, substantially as described and for the purpose set forth.

589,061. TUBULAR OR HURRICANE LANTERN. JOHN WOOD, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed Mar. 26, 1897. Serial No. 629,360. (No model.)

Claim.—1. A handle or bail for a tubular lantern formed of a single piece of wire, the ends thereof being constructed to embrace the upper horizontal air-tubes, of a tubular lantern, and then being bent around and back upon themselves, forming substantially semicircular camways engaging the ends of the upright wires carrying the globe-plate substantially as and for the purpose set forth.

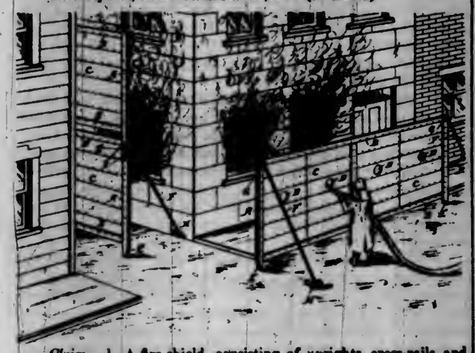
2. A handle or bail for a tubular lantern formed of a single piece of wire, the ends thereof being journaled about the upper horizontal air-tubes, and having formed thereon substantially semicircular camways engaging the upright wires carrying the globe-plate, substantially as described and for the purpose set forth.

3. The combination in a tubular lantern, of the vertically-movable globe-plate, with a handle or bail, the ends thereof being journaled around the upper horizontal air-tubes, and substantially semicircular camways attached thereto, and upright supporting-wires engaged therewith and carrying the globe-plate, substantially as described and for the purpose set forth.

589,061.



589,062. FIRE-SHIELD. WILSON J. WOODRUFF, Foster, Iowa. Filed Sept. 15, 1896. Serial No. 605,907. (No model.)

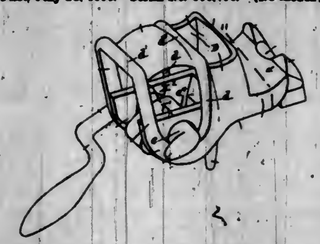


Claim.—1. A fire-shield, consisting of uprights, cross-rails and plates secured thereon, certain of said plates having holes formed therein, rods pivoted to the frame, and handholds formed upon said rods, substantially as and for the purpose set forth.

2. The herein-described combination of the uprights A terminating in feet E, rails B, plates C, certain of said plates having holes formed therethrough, sockets I carried by the uprights, stay-rods F pivoted to the uprights, and handholds H, all arranged substantially as and for the purpose set forth.

3. In a device of the character described, a frame composed of uprights terminating in feet, rails connecting the uprights, a covering secured on the frame and sockets on the uprights adapted to hold the feet of similar frames, as and for the purpose described.

589,063. THILL-COUPLING. ALFRED H. WOEBERT, Lancaster, Pa. Filed July 28, 1896. Serial No. 600,796. (No model.)



Claim.—1. The combination, in a thill-coupling, of a coupling-frame, bearings in the sides of said frame, a cam-lever journaled in said bearings, a thill-iron having a shoulder thereon and adapted to engage said frame, a cam on said lever and constructed to engage the shoulder on the thill-iron, a tongue on the cam, and a spring adapted to engage the tongue on the cam, for the purpose specified.

2. The combination, in a thill-coupling, of a coupling-frame having U-shaped bearings thereon, a cam-lever journaled in said bearings, a keeper-plate having arms resting on the journals of the cam-lever, jaws on said arms and embracing the journals of the cam-lever, a cam located between the arms of the keeper-plate, and a thill-iron having a shoulder thereon constructed to be engaged by the cam, for the purpose specified.

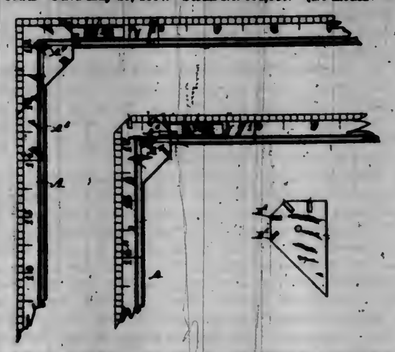
3. The combination, in a thill-coupling, of a coupling-frame having U-shaped bearings thereon, a cam-lever journaled in said bearings, a keeper-plate having arms resting on the journals of the cam-lever, jaws on said arms and embracing the journals of the cam-lever, a cam located between the arms of the keeper-plate, a tongue on the cam, a thill-iron having a shoulder thereon constructed to be engaged by the cam, and a spring bearing against the tongue on the cam, for the purpose specified.

4. The combination, in a thill-coupling, of a coupling-frame having U-shaped bearings thereon, a cam-lever journaled in said bearings, a keeper-plate having arms resting on the journals of the cam-lever, jaws on said arms and embracing said journals, one pair of said jaws depending below the keeper-plate, a cam located between the arms of the keeper plate, a tongue on the cam, a spring on the bottom of the keeper-plate and located between said depending jaws, said spring bearing against the tongue on the cam, and a thill-iron having a shoulder thereon constructed to be engaged by the cam, for the purpose specified.

5. The combination, in a thill-coupling, of a coupling-frame provided with U-shaped bearings, a clip-plate on the frame, having shoulders embracing the axle, a cam-lever journaled in said bearings, a keeper-plate in a channel in the bottom of the clip-plate, the arms on the clip passing through the clip-plate and the keeper-plate, arms on the keeper-plate and resting on the journals of the cam-lever, jaws on said arms and embracing said journals, one pair of said jaws depending below the keeper-plate, a spring secured to the bottom of the keeper-plate by a tension-bolt and located between said depending jaws, said spring bearing against the tongue on the cam, and a thill-iron having a shoulder thereon constructed to be engaged by the cam, for the purpose specified.

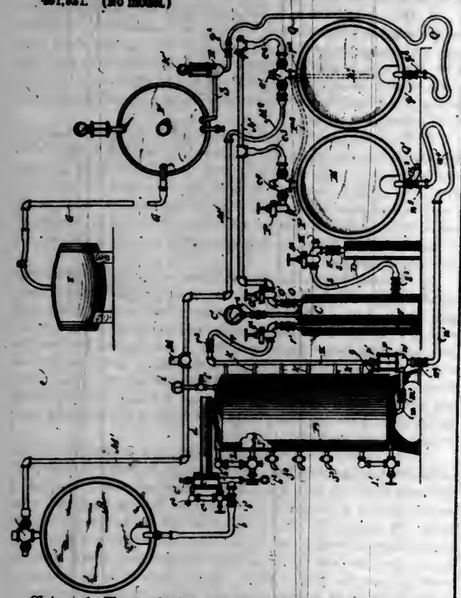
6. The combination, in a thill-coupling, of a coupling-frame provided with U-shaped bearings a clip-plate on the frame, having shoulders embracing the axle, a cam-lever journaled in said bearings, a keeper-plate in a channel in the bottom of the clip-plate, the arms on the clip passing through the clip-plate and the keeper-plate, arms on the keeper-plate and resting on the journals of the cam-lever, jaws on said arms and embracing said journals, one pair of said jaws depending below the keeper-plate, a spring secured to the bottom of the keeper-plate by a tension-bolt and located between said depending jaws, said spring bearing against the tongue on the cam, a thill-iron adapted to rest on the arms of the keeper-plate, a shoulder on said thill-iron and depending between said jaws, the cam being adapted to engage said shoulder, and a handle on the cam-lever, adapted to extend beneath the coupling, all substantially as and for the purpose specified.

589,064. ADJUSTABLE RULE. FRANK REA, Cedar Rapids, Iowa. Filed May 25, 1897. Serial No. 638,018. (No model.)



Claim.—An adjustable rule composed of two main arms provided with suitable hinge-plates provided with notches for the engagement of a catch-plate mounted to slide in one of the arms said adapted to engage with said notches, a variously-angled top plate mounted adjacent to said hinge and having recesses formed on the inner side thereof adapted to engage with the projections on said catch-plates, substantially as and for the purpose set forth.

589,065. METHOD OF AND APPARATUS FOR TREATING BEER. OTTO SWIETUSCH, Milwaukee, Wis. Filed Feb. 11, 1893. Serial No. 461,921. (No model.)



Claim.—1. The method of treating beer and other malt liquids within carbonic-acid gas, which consists in leading a current of said liquid from a suitable vessel through a carbonator, to a resting-cask, impregnating said liquid while it is thus flowing with carbonic-acid gas from an outside source under automatically-controlled pressure, keeping the liquid in said resting-cask under a certain pressure during the time necessary to produce coagulation, and then passing the said liquid through a filter and into the ultimate receptacle for the market.

2. The combination with a suitable closed vessel, having a liquid-inlet at its top and a liquid-outlet at its bottom, of a series of removable perforated disks, arranged one above another within said vessel, the latter being provided with a series of gas-inlets, arranged one beneath each of said perforated disks, and the inner ends of said inlets coming flush with the inner surface of the wall of said vessel, whereby said disks may fit tightly within said vessel, but be always freely removable therefrom and replaceable within the same.

3. The combination with a suitable closed vessel having a valve-controlled liquid-inlet at its top and a valve-controlled liquid-outlet at its bottom, of a series of corrugated and perforated disks, arranged one above another within said vessel, the latter being provided with a series of gas-inlets, arranged one beneath each of said perforated disks, fluid-gages located, respectively, at the upper and lower portions of said vessel, and a series of try-cocks arranged one above each of said perforated disks.

4. The combination with a suitable closed vessel having a liquid-inlet at its top and a liquid-outlet at its bottom, of a series of perforated disks extending, one above the other, across the entire inner space of said vessel, the perforations in the upper disk being smaller than those in the other disks, and said vessel having a series of gas-inlets arranged one beneath each of said disks.

5. The combination with a suitable closed vessel, having a liquid-inlet at its top and a liquid-outlet at its bottom, of a series of removable perforated and corrugated disks, each provided with a circumferential or edge upwardly-extending flange or rim, and adapted to fit closely within the interior of said vessel, and to rest on suitable supports within the same, said vessel having a series of gas-inlets arranged one beneath each of said disks, and the inner ends of said inlets coming flush with the inner surface of the wall of said vessel.

6. The combination with a suitable closed vessel, having a liquid-inlet and a liquid-outlet, of a series of perforated and corrugated disks, extending one above the other, across the entire inner space of said vessel, the perforations in the upper disk being smaller than those in the other disks and said vessel having a series of gas-inlets arranged one beneath each of said disks.

7. The combination with a suitable closed vessel having a valve-controlled liquid-inlet at its top, and a valve-controlled liquid-outlet at its bottom, a series of transverse inner perforated disks, a pressure-gage, an air-escape cock, fluid-gages at the upper and lower portions, respectively, of the vessel, the latter having a series of try-cocks arranged one above each of said perforated disks, and a series of gas-inlets arranged one beneath each of said disks.

8. In apparatus for the treatment of beer and other liquids, the combination with a closed vessel provided with suitable liquid-inlet and liquid-outlet, a series of perforated interior disks, and a series of gas-inlets, located one beneath each of said disks, of another closed vessel, comprising a vertical chamber and communicating horizontal chamber, the former having a liquid-inlet, and the latter having a liquid-outlet which coincides with the liquid-inlet of the first-named vessel, a lever pivoted centrally within the said horizontal chamber, and having a float-ball on one end which projects into said vertical chamber, and a valve-stem on its other end, said stem projecting through the outlet of the said horizontal chamber into the first-named vessel, and a valve on the lower end of said stem, within said vessel.

9. In apparatus for the treatment of beer and other liquids the combination with a ruh-cask and a carbonator of an interposed closed vessel, comprising a vertical chamber, and communicating horizontal chamber, the former having a liquid-inlet and valve-controlled pipe connecting the same with said ruh-cask, and the latter having a liquid-outlet communicating with the carbonator, a lever pivoted centrally within the said horizontal chamber, and having a float-ball on one end which projects into the said vertical chamber, and a valve-stem on its other end, projecting down into the carbonator, and there carrying a valve, the said carbonator having a suitable liquid-outlet and a suitable inlet or inlets for carbonic-acid gas.

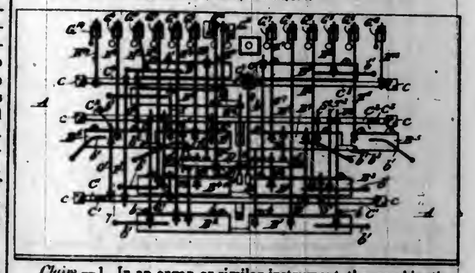
10. In apparatus for the treatment of beer and other liquids, the combination of a ruh-cask, a carbonator having a series of perforated transverse inner disks, a carbonic-acid-gas reservoir, a valve and pressure-regulator-controlled pipe leading from the latter, a gas-supply pipe connected to the last-named pipe, branches leading from the gas-supply pipe to and into the carbonator, one beneath each disk, and suitable valve-controlled pipes, inlets, and outlets, leading to and from the several parts named.

11. In apparatus for the treatment of beer and other liquids, the combination of a ruh-cask, a carbonator having a series of perforated transverse inner disks, a carbonic-acid-gas-supply cylinder, a carbonic-acid-gas reservoir, a gas-supply pipe, valve and pressure-regulator-controlled pipes connecting the said cylinder and reservoir, and the said reservoir and gas-supply pipe, branches leading from the gas-supply pipe to and into the carbonator, one beneath each disk, and suitable valve-controlled pipes, inlets, and outlets, leading to and from the several parts named.

12. In apparatus for the treatment of beer and other liquids, the combination of a ruh-cask, a carbonator having transverse inner perforated disks, a carbonic-acid-gas reservoir, a carbonic-acid gas-supply cylinder, and a second ruh-cask or series of casks, with interposed valve-controlled pipe connections, a gas-supply pipe connected to the reservoir and having branches leading into the carbonator, arranged one beneath each disk, pressure-regulators on the pipe connections between the cylinder and reservoir, and between the reservoir and gas-supply pipe, an air-pressure-supply pipe and branches and cross-cock connections between said pipe and the several first and second ruh-casks.

13. In apparatus for the treatment of beer and other liquids, the combination with a ruh-cask, a carbonator, a carbonic-acid-gas reservoir, a gas-supply pipe connecting the reservoir and carbonator, a carbonic-acid-gas-supply cylinder, a second ruh-cask or series of casks, an air-pressure-supply pipe connected to the several ruh-casks, a filter, and a filling-pipe leading therefrom, and suitable valve-controlled pipe connections between the several parts.

589,066. HARMONIUM. KONRAD FRH. VON RAMIN, Munich, Germany. Filed Mar. 21, 1896. Serial No. 584,330. (No model.) Patented in Germany Mar. 24, 1895, No. 84,497.



Claim.—1. In an organ or similar instrument the combination, with a stop-action, of a pair of knee-levers so placed as to admit the knee of the performer between its constituent members, and mechanism connected to the parts of the stop-action and arranged to be actuated by the knee-levers, the operating movement of one lever of the pair being in a direction opposite to that of the operating movement of the other lever of the same pair, substantially as described.

2. In an organ or similar instrument, the combination, with a stop-action, of two pairs of knee-levers, each pair being so placed as to admit the knee of the performer between its constituent members, and mechanism connected to the parts of the stop-action and arranged to be actuated by the knee-levers, the operating movement of one lever of each pair being in a direction opposite to that of the operating movement of the other lever of the same pair, substantially as set forth.

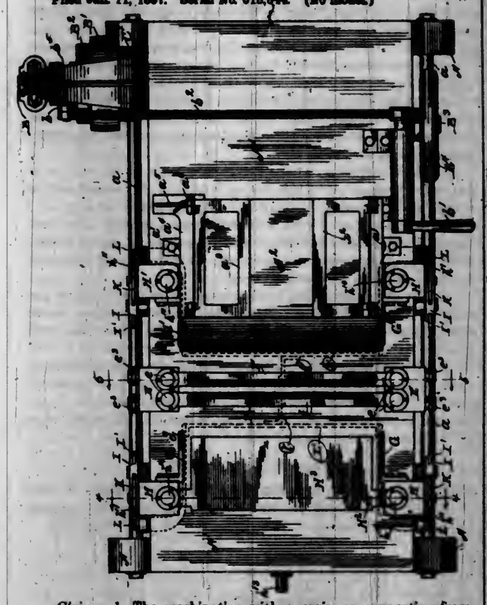
589,067. EXPANDING REAMER. WILLIAM T. BEARD, Boise, Idaho; John Maloney administrator of said Beard, deceased. Filed Apr. 6, 1897. Serial No. 631,007. (No model.)



Claim.—1. An expanding reamer comprising the solid cylindrical shank 1, the integral fluted bar 2, provided with the guide-slots 5 and 7, in combination with the movable fluted bar 3, formed with the integral guide-tongues 6 and 8, and adjusting-screws 4 4 adapted to adjustably secure said bar 3 to the stationary bar 2, substantially as shown and described.

2. An expanding reamer, comprising the cylindrical shank 1, provided with the integral fluted bar 2, having the guide-slots 5 and 7 and the central guide-recess 9, and the parallel fluted bar 3, formed with the integral guide-tongues 6 and 8 on its outer ends and with the central guide-lug 10, in combination with the adjusting-screws 4 4, provided with the integral collars 14 and grooves 15, and the retaining-screws 17 formed with conical ends 16 projecting radially into the groove in said adjusting-screws, substantially as shown and described.

589,068. FOLDING-MACHINE. AXEL BLOMFELDT, Chicago, Ill. Filed Jan. 11, 1897. Serial No. 618,844. (No model.)



Claim.—1. The combination with a main or supporting frame provided with a top or bed plate, of two pairs of blocks located thereon, a retaining-jaw exteading across the bed-plate and secured in the blocks of each pair but having a vertical movement therein, a lever fulcrumed on each of the blocks and having a connection at one of its ends with the retaining-jaw, a cross-bar uniting the other ends of the levers beneath the bed-plate, a lifting-post movably connected to said cross-bars and a foot-lever adapted to lift said post, substantially as described

2. The combination with a main or supporting frame provided with a top or bed plate, of the blocks H, and H', located thereon, each having the vertical opening A^7, the retaining-jaws H^3, located between the blocks and across the bed-plate, the spring-actuated feet H^3, provided with the projections A^8, secured to the said jaws and located in the openings of the blocks, the levers L, fulcrumed on the blocks and engaging at one of their ends with the projections A^8, the cross-bars L', uniting the other ends of the levers in pairs, the lifting-rod M', movably connected to said cross-bars, and a foot-lever to lift said post, substantially as described.

3. The combination with a main or supporting frame provided with a top or bed plate, of the blocks H, and H', having the vertical openings A^7, the retaining-jaws H^3, located between the blocks and across the bed-plate, the spring-actuated feet H^3, provided with the projections A^8, secured to the said jaws and located in said openings of the blocks, the bell-cranks I, fulcrumed on the blocks, the cams K, pivoted on the upper arm of the bell-crank levers and having the prongs k, and k', adapted to lift and release the jaws through the projections A^8, substantially as described.

4. The combination with a main or supporting frame provided with a top or bed plate, of the blocks H, and H', provided with the side pieces G, and G', respectively, and having the vertical openings A^7, the retaining-jaws H^3, located between the blocks and across the bed-plate, the spring-actuated feet H^3, provided with the projections A^8, secured to the said jaws and located in said openings of the blocks, the bell-cranks I, fulcrumed on the blocks, the cams K, pivoted on the upper arm of the bell-crank levers and having the prongs k, and k', adapted to lift and release the jaws through the projections A^8, the carriers E, mounted on the bed-plate between the blocks H, and H', two parallel blades extending across the bed-plate and connected to the carriers and having a vertical movement therein, the rollers e^3, journaled on the outer surface of the carriers and adapted to impinge the lower part of the bell-crank levers, the rollers f^3, journaled on the said blades and adapted to contact with the rails G, and G', and a mechanism to impart a reciprocating movement to the carriers, and a vertical movement to the blades and retaining-jaws, substantially as described.

5. The combination with a main or supporting frame, provided with a top or bed plate, of the carriers E, mounted on the bed-plate at its edges and each provided with vertical openings and grooves for the reception and operation of two parallel blades, said blades extending across the bed-plate and having at their ends upward bends fitting in the grooves of the carriers, springs within said vertical openings and secured to the ends of the blades, rollers journaled on the bent portions of the blades and adapted to contact with inclined surfaces to raise the blades, substantially as described.

589,069. STORM-APRON FOR CARRIAGES. ALBERT F. BRANDENBURG, Dayton, Ohio. Filed Aug. 10, 1896. Serial No. 602,282. (No model.)



Claim.—1. In a storm-apron for buggies and other vehicles, the combination with a lap-apron, of a series of oblong retaining straps or plates attached to the lower edge of said apron, and adapted to lie across the lower side of a transverse opening in the floor of the vehicle, and thereby maintain the said apron in position to direct the rain off through said opening, substantially as shown and described.

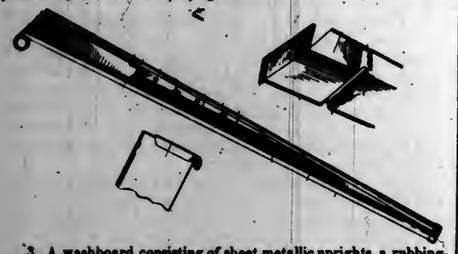
2. In a storm-apron for buggies and other vehicles, the combination with a lap-apron, of a series of oblong retaining straps or plates attached near their centers to the lower edge of the apron, the lower ends of said straps essentially projecting beyond the edge of the apron so that they may be projected through a transverse opening in the floor of the vehicle, and drawn to a position across the lower side of said opening, to hold the apron in position, as herein shown and described.

3. A lap covering or apron of waterproof material, in combination with a series of oblong retaining-straps fixed to the lower edge of said apron, and adapted to be inserted into a transverse slot in the floor of the vehicle; the said straps being essentially attached to the apron at a point near their centers so that their ends may project on one or both sides of said slot and thereby maintain the apron in position, as herein shown and described.

589,070. WASHBOARD. LEWIS O. BROWN, Toledo, Ohio. Filed Feb. 11, 1897. Serial No. 622,960. (No model.)

Claim.—1. In a washboard consisting of suitable uprights, a rubbing-surface supported thereby, a bracing-plate located at the back of the rubbing-surface, said bracing-plate having at its perpendicular edges flanges, said flanges being secured to the uprights.

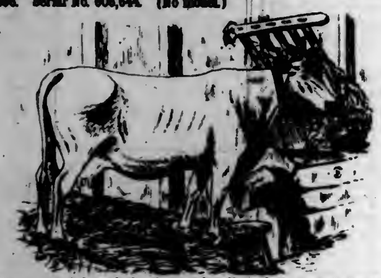
2. A washboard consisting of sheet-metal uprights, said uprights having at their forward edges curls and at their rear edges flanges, a rubbing-surface having at its perpendicular edges flanges adapted to engage the curls of the uprights, a bracing-plate located behind the rubbing-surface, said bracing-plate having flanges adapted to engage the rear flanges of the uprights, the flanges of the bracing-plate being secured to the uprights.



3. A washboard consisting of sheet metallic uprights, a rubbing-surface supported thereby, said uprights having at their rear edges flanges, folds located at the ends of the flanges, a sheet metallic head-piece having at its perpendicular edges flanges passing under the folds of the flanges of the uprights, the head-piece having at its forward edge a curl, said curl coming in contact with the forward edges of the uprights.

4. A washboard consisting of sheet metallic uprights, said uprights having at their forward edges curls, said uprights supporting a suitable rubbing-surface, a sheet metallic head-piece secured at the upper ends of the uprights, the forward edge of the head-piece being curled, said curl coming in contact with the curls of the uprights.

589,071. **HOPPLE.** LEE CARR, Minco, Ind. Ter. Filed Sept. 22, 1896. Serial No. 606,644. (No model.)



Claim.—1. A hopple having a plurality of connected clamps arranged in a common plane and adapted to receive, respectively, the hind legs of a cow, said clamps being relatively adjustable to vary the interval therebetween, and each clamp comprising cooperating members of which one is adjustable independently of the other to facilitate the engagement of the cow's legs, and means for securing the members of the clamps in their normal relative positions, substantially as specified.

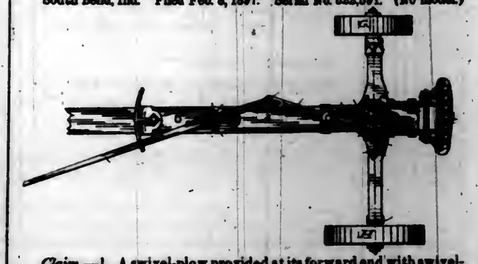
2. A hopple for the purpose named, having a staff, clamps carried by the staff, and each having a movable claw mounted to slide upon the staff, operating-rods connected respectively to the movable claws, and means for securing said rods against longitudinal movement, substantially as specified.

3. A hopple for the purpose named, having a staff, a stationary clamp, an adjustable clamp mounted for movement toward and from the stationary clamp and parallel with the staff, each clamp having one of its members movable independently of the other member in a direction parallel with the staff, and means for securing the movable members of the clamps at the desired adjustment, substantially as specified.

4. A hopple for the purpose named, having a staff provided with guide-grooves, clamps carried by the staff and having movable members mounted to slide upon the staff, operating-rods fitted in said guide-grooves and connected, respectively, to the movable members of the clamps, said rods being capable of longitudinal and rocking movement, and racks arranged contiguous, respectively, to the operating-rods for engagement by finger-holds carried thereby, substantially as specified.

5. A hopple for the purpose named, having a staff provided with guide-grooves, clamps carried by the staff and comprising fixed and movable claws, the movable claws being provided with sleeves mounted to slide upon the staff and held from rotary movement, operating-rods mounted for longitudinal movement upon the staff and respectively connected for rocking movement to the sleeves of the movable claws, racks arranged contiguous to the operating-rods and having notches provided with inner and outer seats, and finger-holds carried by the operating-rods for engagement with the notches and adapted to be seated in the inner or outer ends thereof, substantially as specified.

589,072. **SWIVEL OR HILLSIDE PLOW.** WILLIAM L. CASADAY, South Bend, Ind. Filed Feb. 8, 1897. Serial No. 623,391. (No model.)



Claim.—1. A swivel-plow provided at its forward end with a swivel-truck comprising a double wheel-axle swiveled to the beam of the plow, a small land-wheel and a larger furrow-wheel supported upon said axle and adapted to be swung from one side to the other of the beam, substantially as described.

2. The combination with a swivel-plow, of an axle pivotally supported at the forward end of the beam, a small land-wheel and a larger furrow-wheel journaled thereon at unequal distances from the pivotal center of the axle, a plate having a fixed stop secured to the beam and a stop-lug on the axle, substantially as and for the purpose described.

3. The combination with a hillside-plow of an axle carrying a land and a furrow wheel pivotally supported at the forward end of the beam to be reversibly connected therewith, a toothed plate secured to said pivot-bolt, a segment rack-lever pivoted to the beam and a hand-lever also pivoted to the beam to operate said segment rack-lever and axle, and a stop-plate secured to the beam for holding the hand-lever in either of its positions substantially as described.

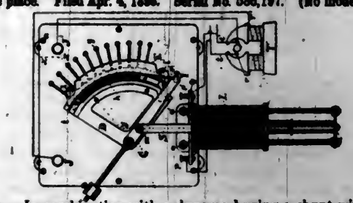
4. The combination with a swivel-plow, a wheel-truck pivotally supported upon the forward end of the plow-beam, a lever for reversing the position of the truck-axle, a double moldboard-jointer swiveled upon the plow-beam and a hand-lever connected to the said jointer and beam to operate the wheel-truck and jointer conjointly, substantially as described.

5. The combination with a swivel-plow, of a wheel-truck swiveled to the beam, a gear upon the truck-pivot, a segment rack-lever pivoted to the beam to engage the gear upon the truck-pivot, a swivel-jointer supported upon a spindle passing through the plow-beam and a hand-lever secured to the jointer-spindle and connected to the segment rack-lever to operate the wheel-truck conjointly with the jointer, substantially as described.

6. The combination in a hillside or swivel plow, of the axle pivotally secured to the forward end of the beam and carrying wheels adjustably secured to the axle and adapted to be reversed therewith upon the beam, substantially as described.

7. The combination in a hillside-plow, of the axle pivotally secured to the forward end of the beam and carrying wheels supported upon the axle to bear at unequal elevations respectively upon the land and in the furrow and adapted to be reversed therewith upon the beam, substantially as described.

589,073. **ELECTRIC REGULATOR FOR DYNAMOS.** WILLIAM H. CHAPMAN, Portland, Me., assignor to the Belknap Motor Company, same place. Filed Apr. 4, 1896. Serial No. 586,197. (No model.)



Claim.—In combination with a dynamo having a shunt-winding on its field-magnet a rheostat connected in circuit with said shunt-winding, a solenoid electrically connected with the terminals of said dynamo and having a movable iron core arranged and adapted by its magnetic force to operate the arm and slider of said rheostat—an adjustable retarding device consisting of a cylinder, a piston and piston-rod, said piston-rod being attached to said core at one end and at the other end being threaded to receive the piston and having a passage through it which the piston is arranged to close or open according as it is screwed to different positions along the rod, substantially as and for the purpose described.

589,074. **STREET LETTER-BOX.** JOSEPH M. CLOUSE, St. Louis, Mo., assignor, by direct and mesne assignments, to Harry R. Wade, George H. Cray, Solomon C. Wyan, and Rosa A. Wade, Toledo, Ohio, and Alice C. Morris, Annie Ridenour, Juliet King, Virginia S. Carpenter, Willard A. Holcomb, Martha G. Brooke, and Scott C. Bone, Washington, D. C. Filed Oct. 30, 1896. Serial No. 610,602. (No model.)



Claim.—1. In a device of the class described, the combination of a letter-box provided at its front with a receiving-opening and having an ordinary drop-lid or cover, a hood rigidly mounted within the letter-box and comprising an inclined top arranged in direct alinement with the upper boundary of the said opening, and a back disposed opposite the receiving-opening, and a pivoted plate connected with and operated by the lid or cover and arranged to swing to a position in direct alinement with the lower boundary of the receiving-opening, whereby a box or chute is provided to prevent access to the interior of the letter-box when the lid or cover is open and also to form a receptacle for mail, substantially as described.

2. In a device of the class described, the combination of a letter-box provided at its front with a letter-receiving opening and with a door, an ordinary drop-lid or cover hinged to the top of the letter-box at the receiving-opening, a hood rigidly mounted within the letter-box and comprising an inclined top extending downward from the upper boundary of the receiving-opening, and a forwardly-inclined back arranged opposite the receiving-opening and disposed in the direction of the door of the letter-box to direct mail toward the same to facilitate its removal from the box, and a pivoted plate connected with and operated by the lid or cover and cooperating with the hood to form a box or chute when the lid or cover is open, substantially as described.

3. In a device of the class described, the combination of a letter-box provided with a receiving-opening, a hood rigidly mounted within the box and comprising an inclined top arranged in direct alinement with the upper boundary of the opening and terminating short of the back of the box, and a forwardly-inclined back extending toward the front of the box and disposed opposite the opening, a pivoted plate mounted in the letter-box at the open bottom of the hood and arranged to swing upward to close the same and form a box or chute, and an ordinary drop-lid mounted at the receiving-opening and connected with and operating the pivoted plate, substantially as described.

4. In a device of the class described, the combination of a box having a receiving-opening, a hood or casing mounted within the box, a pivoted plate arranged within the hood or casing and adapted to form a shield, a movable cover mounted on the box and connected with and actuating the pivoted plate, and an adjusting device mounted on the hood or casing and extending between the same and the cover to vary the size of the receiving-opening, substantially as described.

5. In a device of the class described, the combination of a box having a receiving-opening, a movable cover, a casing mounted within the box, a movable plate forming a shield and connected with the cover, an adjusting device composed of a plate mounted on the casing and a flange arranged between the casing and the cover, and means for securing the plate in its adjustment, substantially as described.

6. In a device of the class described, the combination of a box having an opening, a casing mounted within the box, an adjusting device comprising a hinged plate provided with a keyhole-slot and mounted on the casing, and a flange arranged to vary the size of the opening of the box, a screw hinged to the casing and extending through the keyhole-opening, and a grooved nut arranged on the screw and engaging the keyhole-slot, substantially as described.

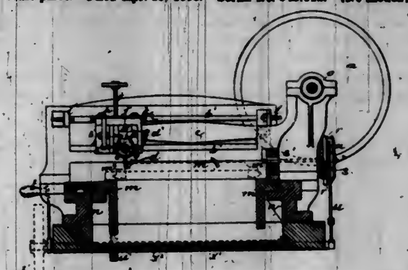
7. In a device of the class described, the combination of a letter-box provided with a receiving-opening, a hood or casing arranged within the box and comprising an inclined top portion, vertical sides, a forwardly-inclined back portion terminating short of the front edges of the sides, and the curved front portion provided with a flange or lip located at the bottom of the receiving-opening, a pivoted plate mounted in the casing or hood and provided at its top with a curved flange arranged adjacent to the curved front of the hood or casing, and a hinged cover connected with and operating the pivoted plate, substantially as described.

8. In a device of the class described, the combination of a box having a receiving-opening, a movable cover provided with a series of inwardly-extending arms, a casing arranged within the box, a movable plate forming a shield and connected with the cover, and an adjusting device mounted on the hood or casing, extending between the same and the cover to vary the size of the receiving-opening and provided with a series of slots receiving the said arms, substantially as described.

9. In a device of the class described, the combination of a box provided at its front with a mail-receiving opening, a stationary hood or casing arranged within the box and communicating with the said opening, said hood or casing comprising essentially an upper wall the former extending rearward from the upper boundary of the mail-receiving opening and a back wall, the latter being on a direct line with the same so as to obstruct communication with the interior of the box, and means connected with the cover to form a movable bottom for the hood or casing to direct mail-matter to the bottom of the box, substantially as described.

10. In a device of the class described, the combination of a box having a receiving-opening, a movable lid or cover, a hood or casing arranged within the box and arranged to form a space between it and the receiving-opening, a movable plate forming a shield and connected with the lid or cover, and an adjusting device mounted on the hood or casing and extending into the space between the same and the receiving-opening to vary the size of the latter and partially close the mouth or entrance of the hood, substantially as described.

589,075. **MACHINE FOR CUTTING CARDBOARD OBLIQUELY.** ANTON W. DARRÉ, Copenhagen, Denmark, assignor to Carl Mortensen, same place. Filed Apr. 15, 1896. Serial No. 587,512. (No model.)



Claim.—1. In machines for beveling the edges of cardboards a reciprocating vertically-adjustable knife-holder in which the knife is fixed, consisting of the slide h^2, a revolving disk c' with the top piece i, an adjustable disk e, lever k with the hook k' engaging with the piece i and the sliding plate l in combination with projections l and l' on the machine-frame, substantially as set forth.

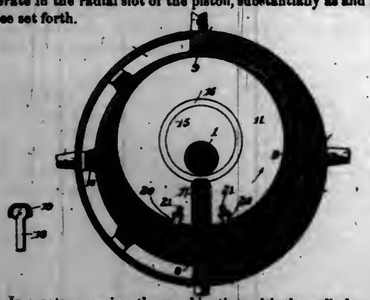
2. In machines for beveling the edges of cardboards the combination of a sliding carriage consisting of the plate v, arms v', bolt v'', frame w, bolts w' passing through the plate v and united with a cross-bar w'', having nut for the hand-screw x, another frame z turning on the pivot z', knobs z'', and screw y, by means of which clamp card-presses of various sizes can be inserted in the cutting-machine; substantially as set forth.

589,076. **ROTARY ENGINE.** CHARLES E. DUNCAN, Old Hundred, N. C. Filed Nov. 11, 1896. Serial No. 611,769. (No model.)

Claim.—1. A rotary engine comprising a fixed shaft having tubular or hollow ends, a cylinder rotatably mounted upon the shaft and having hollow heads in communication with the hollow ends of the shaft, and having a space surrounding its bore and subdivided, each part of the space having independent communication with the respective hollow heads and with the interior of the cylinder, a piston eccentrically mounted upon the shaft and having a radial slot, and an abutment secured to the cylinder and adapted to operate in the slot of the piston, substantially as set forth.

2. In a rotary engine, the combination of a fixed shaft having tubular or hollow ends, a cylinder rotatably mounted upon the shaft and having a space which is subdivided and in communication with

the hollow or tubular ends of the shaft, a piston eccentrically mounted upon the shaft and rotatable with the cylinder, and having a radial slot, and an abutment fixed with respect to the cylinder and adapted to operate in the radial slot of the piston, substantially as and for the purpose set forth.



3. In a rotary engine, the combination with the cylinder, an eccentrically-mounted piston having a radial slot formed with parallel walls, and means for admitting and exhausting steam or other motive medium, of an abutment secured to the cylinder and operating in the radial slot of the piston, and a spring-packing secured to the abutment to maintain a steam-tight joint between the abutment and the parallel walls of the radial slot, substantially as set forth.

4. In a rotary engine, the combination of a hollow cylinder having its space subdivided by longitudinal webs, and having ports upon opposite sides of a web, a piston eccentrically mounted with respect to the cylinder and having a radial slot, an abutment secured to the cylinder and located opposite a divisional web and between the two sets of ports, and adapted to operate in the radial slot of the piston, and means for admitting and exhausting steam or other motive medium, substantially as set forth.

5. In a rotary engine, a fixed shaft having hollow or tubular ends, a hollow cylinder provided with hollow ends rotatably mounted upon the said shaft and having the steam-space between its walls subdivided and in communication with the hollow or tubular ends of the shaft, a piston eccentrically mounted upon the shaft and having a radial slot, and provided with packing upon each side of and adjacent to the said slot, and an abutment rigidly secured to the cylinder and operating in the radial slot of the piston, and located between the ingress and egress ports, substantially as and for the purpose set forth.

589,077. WHIFFLETREE-HOOK. JOHN P. ELKJER, Pennock, Minn. Filed Apr. 9, 1897. Serial No. 631,350. (No model.)



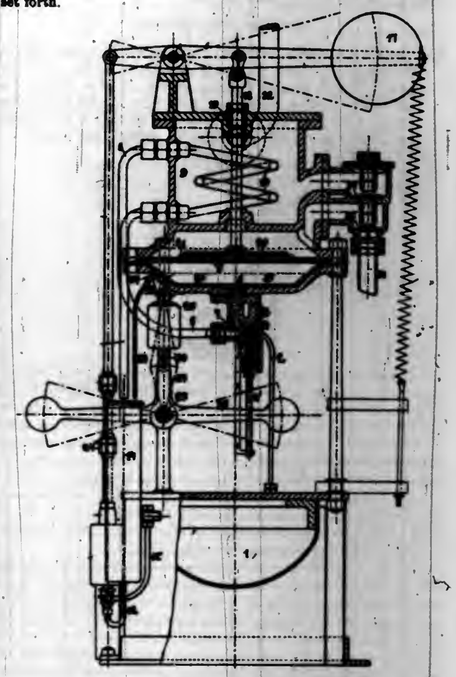
Claim.—1. The combination with a whiffletree-hook having its shank provided with a shoulder or stop and a lug, of a lock-disk removably slipped upon the hook and having a notch at one side of the opening through which the hook passes for the aforesaid lug to pass through, and having a cut-away portion, substantially as and for the purpose set forth.

2. The combination with a whiffletree-hook, of a lock-disk loosely mounted upon the shank thereof so as to turn freely, and having its upper portion cut away and its lower portion made heaviest, substantially as and for the purpose set forth.

3. In combination a whiffletree-hook having its shank provided with an annular shoulder or stop and a lug, and a lock-disk having an opening to receive the hook and provided with a notch to one side of the opening for the aforesaid lug to pass through, and having its upper portion cut away and its lower portion made heaviest, substantially as described for the purpose set forth.

589,078. DIAPHRAGM-PUMP. GUSTAF F. FLODMAN, Stockholm, Sweden. Filed May 8, 1896. Serial No. 590,661. (No model.)

Claim.—In a diaphragm-pump worked by steam or other gaseous motive fluid, the combination of a diaphragm, a weighted lever and connections between the weighted lever and the diaphragm to cause the weighted lever to press on one side of the diaphragm, with means for distributing the motive fluid to and from the steam-chamber on the other side of the diaphragm, a non-conducting lining resting on a penetrable layer of metal and covering the inner wall of said steam-chamber, and a hole through said wall, substantially as set forth.



589,079. METAL BASE FOR POLES. GEORGE W. GLASIER, Salem, Mass. Filed July 7, 1897. Serial No. 643,785. (No model.)



Claim.—1. In combination with an electric-wire-supporting or other pole, a metal base composed of sections adapted to be secured to the pole and having outwardly-flaring ground portions and ramming perforations in the latter substantially as and for the purpose set forth.

2. In combination with an electric-wire-supporting or other pole, a metal base composed of sections secured to the pole, said sections having outwardly-flaring ground portions, ramming perforations in the latter, and vertical reinforcing-ribs on the outside of said sections substantially as and for the purpose set forth.

589,080. SAFETY-RAZOR. WILLIAM GREENFIELD, San Francisco, Cal. Filed Sept. 15, 1896. Serial No. 606,890. (No model.)



Claim.—1. In a safety-razor a handle made in two or more sliding parts and having a razor-carriage connected with the extremity of one of said sliding parts, a spring applied between said parts to give a yielding pressure against the razor-pressure, substantially as described.

2. In a safety-razor handle composed of sliding sleeves operated by spring-pressure, and carrying a razor-carriage at the extremity of one of said sleeves, finger-lugs connected with said sliding sleeves whereby the razor is applied with a yielding pressure against the face, substantially as described.

3. In a safety-razor having a razor-carriage arranged transversely

to the handle, a hollow handle; slots in the sides of said hollow handle opposite each other; sleeves adapted to slide on the hollow handle, and a spring arranged in the hollow handle to resist the movement of the slides, substantially as described.

4. In a safety-razor, guards adjustable longitudinally with the handle relatively to the razor-blade, and a razor-wiper arranged to be moved across the edge of the razor and remove the lather by mechanism operated by the finger of the hand, substantially as described.

5. In a safety-razor, a movable guard having a wiping device at one end and means for causing the guard and wiper to be moved transversely of the handle and lengthwise of the blade so as to wipe off and free the blade and implement from lather, substantially as described.

6. In a safety-razor a pivoted guard, a wiper attached to one end of the guard, a lever attached to the guard-arm below the pivot, a bent extension of the guard-arm below the pivot, and a spring connecting the bent arm with the handle of the implement, substantially as described.

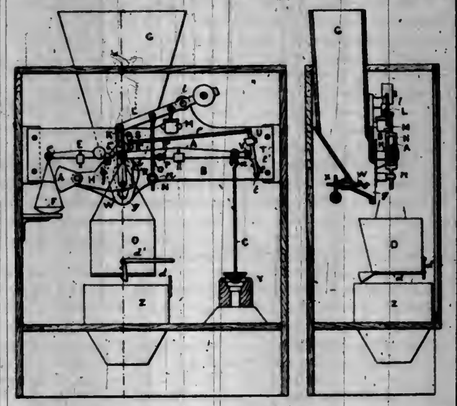
7. In a safety-razor, an adjustable wiper attached to one end of a movable guard and means for causing the guard to move lengthwise of the shaving-blade and carry the wiper along its edge to free it from lather, substantially as described.

8. In a safety-razor having an upper and lower adjustable guard, notches formed on the upper guard adapted to gage the position of the cutting edge of the razor with reference to the angle between said upper and lower guards, substantially as described.

9. In a safety-razor, a wiping device arranged to be moved lengthwise of the shaving-blade, and a locking mechanism adapted to lock it in position when not in use, substantially as described.

10. In a safety-razor, a shaving-blade secured transversely across the end of the handle between two adjustable guards; a handle having yielding sleeves with finger-supporting lugs for giving an elastic pressure against the face; a razor-wiping device adapted to move across the edge of the razor and a locking mechanism adapted to lock the wiping device in position when not in use, substantially as described.

589,081. SCALE WEIGHING-MACHINE. DAVID C. B. GRIFFITH, Bedford, England. Filed May 15, 1896. Serial No. 591,693. (No model.)



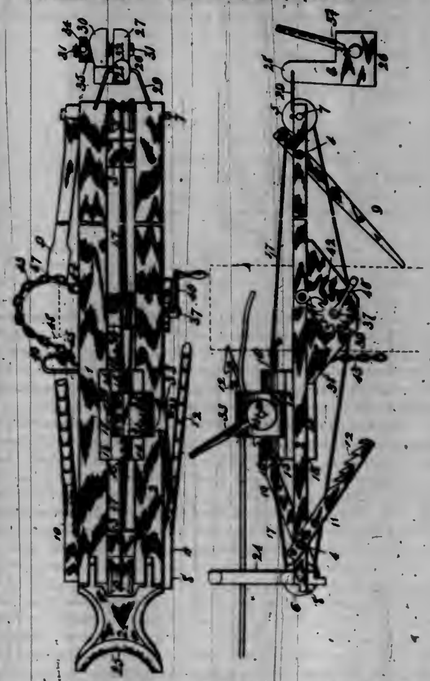
Claim.—1. A machine for automatically delivering predetermined quantities of weighted material consisting of a main beam and a secondary beam adapted to engage with one another and to trip by one another when the approximate balanced position of the beam is reached, each carrying a portion of the counterbalancing standard of weight, a receptacle containing the material to be weighed, having an orifice controllable by a door, a retaining device controlling the door, means for operating the retaining device by the movement of the main beam, and a hopper with an automatic discharging-door, carried by the main beam.

2. In an automatic weighing-machine in combination, a main beam, a secondary beam each carrying a portion of the counterbalancing standard of weight, adapted to first engage with one another before the full weight of material is obtained and to trip past one another after the full proper weight of material has been obtained and the beam has reached an approximately balanced position, a hopper or receptacle provided with a controllable orifice, a device operated by the main beam controlling said orifice before and after the critical period of movement of the beam, and a hopper carried by the main beam having a counterbalanced hinged bottom and a retaining-catch released by the movement of the device substantially as described.

3. In an automatic weighing-machine in combination, a main beam carrying a portion of the counterbalancing standard of weight, a secondary beam carrying the remaining portion of the said weight, the main beam being adapted to engage with the secondary beam during the period of weighing and to trip past same after the weighing has been effected and the beam has reached an approximately balanced position, a device controlling the delivery of the material from bulk, means operated by the main beam for controlling the delivering device during the non-critical period of operation of the main beam, a hopper carried by the main beam adapted to deliver the material automatically after being weighed, means connected with the main beam for effecting the return motion of the weighing device and opening of the controllable feeding device and an agitating device to maintain the delivery of the material from bulk.

4. In combination in an automatic weighing-machine, the main beam, a hopper, an agitating device therein, the said main beam being counterbalanced, the motor mechanism, the agitating device and means for utilizing the energy of the falling counterbalance of the main beam to reinforce the motor mechanism of the agitating device, substantially as described.

589,082. WIRE-STRETCHER. GUSTAVE HAHER, Adair, Iowa, assignor of two-thirds to Christ Lockband and A. G. Savage, same place. Filed Mar. 26, 1897. Serial No. 629,331. (No model.)

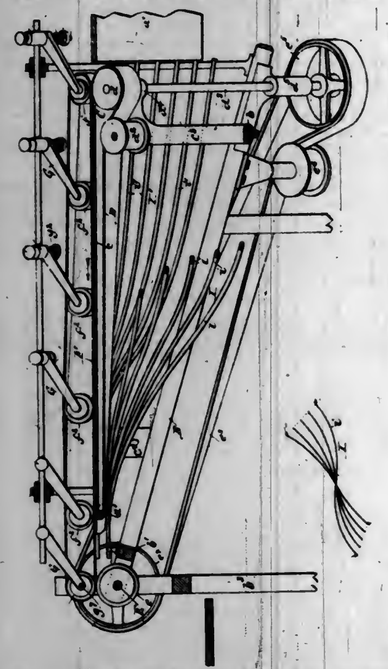


Claim.—1. As an improvement in wire-stretchers, the combination with the framework, of a guide-block mounted thereon; clamping-jaws secured to said guide-block; an operating-drum for said guide-block rotatably mounted upon said frame; a cable connecting said block and drum; levers pivotally secured to the end of the framework and having a series of notches upon their edges and a biting-notch upon their free ends, and a stationary clamp attached to the outer end of the framework and designed to cooperate with the jaws upon the movable block, substantially as specified and for the purpose set forth.

2. As an improvement in wire-stretchers, the herein-described appliance consisting of the frame or body having the members 1 and 2 and the end blocks 3; grooved pulleys 5 and 6 rotatably mounted between the ends of the side pieces; a guide-block slidingly mounted between the inner edges of said pieces and carrying the jaws 18 and 19 and the cam-lever therefor; a guide-block having a beveled edge pivotally mounted upon one end of the body; clamping-jaws 27 and 30 secured to the opposite end of the body and provided with the operating-lever and the post-engaging brace, and lever, and chain-

engaging staple having the link-clamp 45, all operatively combined in the manner and for the purpose set forth.

589,088. FOLDING-MACHINE. FREDERICK HART, Poughkeepsie, N. Y. Filed Oct. 2, 1896. Serial No. 607,654. (No model.)



Claim.—1. In a machine for closing folded blanks, the combination with a propelling mechanism which seizes each blank near its fold, of a folding-guide having its receiving end arranged obliquely on one side of said propelling mechanism and extending from its receiving end underneath the propelling mechanism longitudinally and spirally to the opposite side thereof, substantially as set forth.

2. In a machine for closing folded blanks, the combination with a longitudinal folding bar or table, arranged to support on its upper side the upper flap of the folded blank, of a propelling-tape having its propelling portion arranged upon the upper side of said bar or table, and a folding-guide having its receiving end arranged on the under side of said bar or table to receive the lower flap of the blank and extending from its receiving end longitudinally and spirally to the opposite side of said propelling-tape, substantially as set forth.

3. In a machine for closing folded blanks, the combination with a propelling mechanism which seizes each blank near its fold, of a lower folding-guide having its receiving end arranged obliquely on one side of said propelling mechanism and extending from its receiving end underneath the propelling mechanism longitudinally and spirally to the opposite side thereof, and an upper twisted folding-guide arranged on the same side of the propelling mechanism on which the rear end of the lower folding-guide is arranged, substantially as set forth.

4. In a folding-machine, the combination with a longitudinal folding table or bar, and a blank-propelling mechanism, of a twisted folding-guide having its receiving end arranged obliquely below said table or bar and on one side thereof, and its delivery end arranged horizontally on the opposite side of said table or bar, substantially as set forth.

5. In a folding-machine, the combination with a longitudinal folding table or bar and a blank-propelling mechanism, of a twisted lower closing-guide having its receiving end arranged obliquely on one side of said table or bar and its delivery end horizontally on the opposite side thereof, and an upper twisted closing-guide having its horizontal discharge end arranged above that of the lower guide and its oblique receiving end arranged on the same side of said table or bar, substantially as set forth.

6. In a folding-machine, the combination with a twisted closing-guide, of a longitudinal folding table or bar having its receiving portion arranged obliquely and its delivery portion horizontally, of a blank-propelling tape having its upper propelling portion arranged upon said table or bar and means whereby the blanks are held down upon the tape, substantially as set forth.

7. In a folding-machine, the combination with a twisted closing-guide, of a twisted longitudinal folding table or bar, rollers arranged at the front and rear ends of said table or bar, a propelling-tape arranged with its upper carrying portion on said table or bar and passing with its end portions around said rollers and means whereby the blanks are held down upon the tape, substantially as set forth.

8. In a folding-machine the combination with a twisted closing-guide, of a twisted longitudinal folding table or bar, rollers arranged at the front and rear ends of said table or bar, a propelling-tape arranged with its upper carrying portion on said table or bar and passing with its end portions around said rollers and presser-rollers whereby the blanks are held down upon the tape, substantially as set forth.

9. In a folding-machine, the combination with a twisted closing-guide, of a twisted longitudinal folding table or bar, rollers arranged at the front and rear ends of said table or bar, a propelling-tape arranged with its upper carrying portion on said table or bar and passing with its end portions around said rollers, presser-rollers whereby the blanks are held down upon the tape, rock-arms supporting the presser-rollers and springs whereby the presser-rollers are yieldingly held in a depressed position, substantially as set forth.

10. In a folding-machine, the combination with the twisted closing-guide, of a twisted longitudinal folding table or bar, a blank-propelling tape arranged with its upper carrying portion on said table or bar, and an upper presser-tape bearing with its lower portion against the upper portion of the lower tape, substantially as set forth.

11. In a folding-machine, the combination with the twisted closing-guide, of a twisted longitudinal folding table or bar, a blank-propelling tape arranged with its upper carrying portion on said table or bar, an upper presser-tape arranged above the lower tape and presser-rollers supporting the upper tape and pressing the lower portion of the latter against the upper portion of the lower tape, substantially as set forth.

12. In a folding-machine, the combination with the twisted closing-guide, of a twisted longitudinal folding-table, a blank-propelling tape arranged on said table, a discharge-roller arranged in rear of the folding-table and means whereby the blanks are held down on the tape and discharge-roller, substantially as set forth.

13. In a folding-machine, the combination with the main frame, the twisted longitudinal folding-table and the propelling mechanism whereby the blanks are carried over the table, of a lower guide extending in a curve or spiral from the front side of the receiving end of the table underneath the table to the opposite side of the rear end of the table, an upper guide extending in a curve or spiral from the rear side of the receiving end of the table to the rear end of the table on the same side and a bracket secured to the main frame and carrying the upper guide, substantially as set forth.

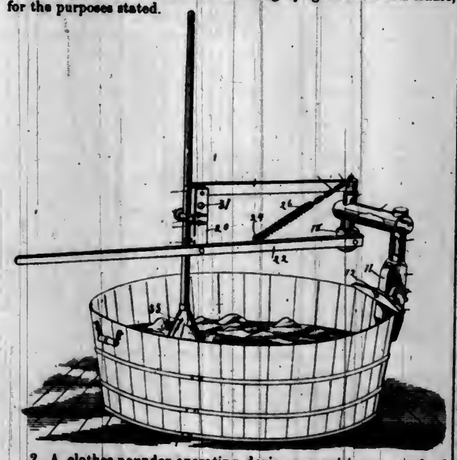
14. In a folding-machine, the combination with the twisted closing-guide, of a twisted longitudinal folding-table, a blank-propelling tape arranged on said table, an inner discharge-roller arranged in rear of the folding-table and an outer discharge-roller arranged in rear of the twisted guide and having a peripheral speed greater than that of the inner discharge-roller, substantially as set forth.

15. In a folding-machine, the combination with the main frame, the twisted longitudinal folding-table and the propelling mechanism whereby the blanks are carried over the table, of a lower guide extending in a curve or spiral from the front side of the receiving end of the table underneath the table to the opposite side of the rear end of the table, an upper guide extending in a curve or spiral from the rear side of the receiving end of the table to the rear end of the table on the same side, a shaft journaled transversely on the rear portion of the main frame, an inner discharge-roller mounted on said shaft in rear of the folding-table and an outer discharge-roller mounted on said shaft in rear of the guides and having a diameter greater than that of the inner discharge-roller, substantially as set forth.

16. In a folding-machine, the combination with a longitudinal folding table or bar, of a transverse bracket supporting the rear end of said table or bar, a lower closing-guide adapted to operate upon the lower flap of the blank and having its front end arranged on one side of said table or bar and extending rearwardly to the opposite side of said table or bar underneath said bracket, and an upper closing-guide arranged in front of said bracket and adapted to carry the upper flap over said bracket, substantially as set forth.

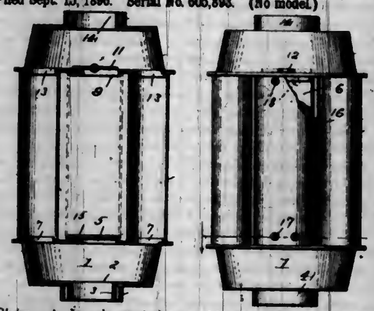
589,084. WASHING-MACHINE. LOREN D. HART and ALBERT J. HART, Nora Springs, Iowa. Filed Apr. 2, 1897. Serial No. 630,396. (No model.)

Claim.—1. The combination in a clothes-pounder-operating device, of a standard, means for detachably connecting the standard with a tub or the like, an arm pivoted to the standard and capable of moving in a horizontal plane, a frame comprising two uprights and two horizontal pieces pivoted together, and having one of said uprights pivotally mounted in the outer end of the said arm, a contractile spring adjustably attached to one of the said uprights and to one of the said horizontal pieces of the frame, and means for detachably connecting a pounder with the remaining upright of the said frame, for the purposes stated.



2. A clothes-pounder-operating device, comprising a standard having a rounded extension at its top, means for clamping the same to a tub or the like, a device comprising a sheet-metal cylinder, and two similar cylinders extended at right angles thereto at the opposite ends thereof, one being designed to receive the rounded end of the said standard, a frame composed of two uprights, one of said uprights being rounded to enter the remaining tube of the said device, a bar pivoted to the upper ends of said uprights, a lever pivoted to the lower ends of the said uprights at the opposite side thereof, a contractile spring secured to the upper edge of the lever and adjustably secured to the upper end of the rounded upright, two wire loops at the opposite sides of the remaining upright, guides at the upper and lower ends of the said upright, and a pin designed to pass through the said loops and clamp a clothes-pounder handle to the said upright, all arranged and combined substantially in the manner set forth and for the purposes stated.

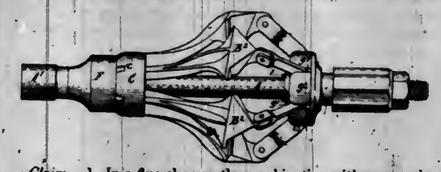
589,085. HEATER. RICHARD M. HERRANCE, Poughkeepsie, N. Y. Filed Sept. 15, 1896. Serial No. 605,893. (No model.)



Claim.—1. In a heater, the combination of a top and bottom casing, adapted each to be connected to a stovepipe connection, a direct-draft pipe connecting them, a jacket surrounding said direct-draft pipe and forming an air-space around it, said jacket being provided with an opening near each end, side flues connecting the top and bottom casing, and a damper adapted to regulate the draft through the direct-draft pipe, substantially as described.

2. In a stovepipe-heater, the combination of a lower casing adapted to be connected to a stovepipe, and having an opening in its upper side, said opening being adapted to receive a removable plate, an upper casing provided with an opening in its under side and adapted to be connected to a stovepipe, a removable direct-draft pipe connecting said openings in the casings, side flues connecting the casings, and a damper supported in the upper casing over the opening communicating with the direct-draft tube, substantially as described.

589,086. FLUE-CLEANER. HIRAM W. HUBBARD, Painted Post, N. Y., assignor to Hubbard & Co., Philadelphia, Pa. Filed Jan. 6, 1897. Serial No. 618,127. (No model.)



Claim.—1. In a flue-cleaner, the combination with a central rod or stem, of a head surrounding said stem and provided with radial slots opening into the bore thereof, scraper-arms having one of their ends fitted loosely in said slots and bearing against said central stem and provided at their ends with enlargements, a retaining cap or collar for preventing displacement of said enlargements in said slots, a second head also arranged on the central rod, and means for attaching the opposite ends of the scraper-arms to the last-named head, substantially as set forth.

2. In a flue-cleaner, the combination with a central rod or stem, of a head surrounding said stem having a reduced rear portion and provided with radial slots extending outwardly from the bore of the head, the front portions of said slots being closed at their outer ends and their rear portions being open at their outer ends, scraper-arms seated with one of their end portions in the closed portions of said slots and provided at their ends with heads or enlargements arranged in the open portions of said slots, a retaining cap or collar bearing against said enlargements and inclosing the reduced rear portion of said head, a second head also arranged on said central rod, and means for attaching the opposite ends of the scraper-arms to the last-named head, substantially as set forth.

3. In a flue-cleaner, the combination with a central rod or stem, of scraper-arms each provided at one end with a T-head or cross-bar, a head surrounding said central stem and provided with radial slots which admit said T-heads, a retaining-cap whereby said T-heads are confined in place in the head, a second head also arranged on said central rod, and means for attaching the opposite ends of the scraper-arms to the last-named head, substantially as set forth.

4. In a flue-cleaner, the combination with a central rod or stem, of a head surrounding said stem and having a marginal flange provided with radial slots extending inwardly from its edge into the head, scraper-arms having one of their end portions loosely fitted in said slots and provided at their ends with T-heads or trunnions bearing against the inner side of said marginal flange, a retaining-cap which covers the open ends of said slots, a second head also arranged on said central rod, and means for attaching the opposite ends of the scraper-arms to the last-named head, substantially as set forth.

5. In a flue-cleaner, the combination with a central rod or stem, of a head surrounding said stem and having an externally-screw-threaded collar and a marginal flange provided with radial slots extending inwardly from its edge into the head, scraper-arms having one of their end portions fitted loosely in said slots and provided at their ends with T-heads or trunnions, a screw-cap engaging with said screw-threaded collar, a second head also arranged on said central rod, and means for attaching the opposite ends of the scraper-arms to the last-named head, substantially as set forth.

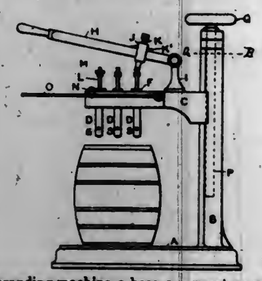
6. In a flue-cleaner, the combination with a central rod or stem, of a fixed head surrounding said stem and provided with radial slots opening into the bore thereof, a yielding head also surrounding the central stem and having a marginal flange provided with radial slots extending inwardly from its edge into the head, jointed scraper-arms provided at one end with enlargements arranged in the radial slots of said fixed head, and at their opposite ends with T-heads arranged in the slots of said yielding head, and retaining-caps whereby the ends of the scraper-arms are confined in their respective slots, substantially as set forth.

589,087. BRANDING-MACHINE. JAMES INGLE, London, England. Filed May 29, 1896. Serial No. 593,613. (No model.) Patented in England Sept. 3, 1895, No. 16,509, and in France July 15, 1896, No. 255,271.

Claim.—1. In combination, the base, the head having a series of slots, the stamps adapted to slide vertically in said slots and to be adjusted laterally therein, the lever pivoted to the head and a contact-block adjustable on the lever to engage one of the series of stamps, substantially as described.

2. In combination, the base, the head, the series of stamps arranged to be forced down through the said head, the guides L on the head, the cross-plate M adapted to force the series of stamps down as a whole, the lever and the contact thereon adapted to engage either the plate M or the stamps singly, substantially as described.

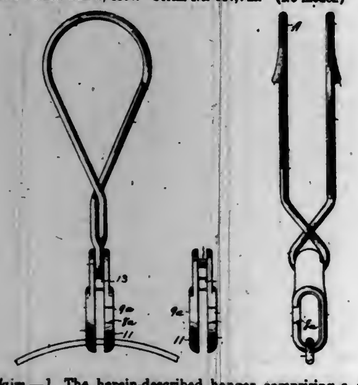
3. In combination, a series of stamps having openings in their lower ends alining with each other and forming a continuous open channel from one side of the series of stamps to the other and a burner directed to the opening in one stamp at one end of the series whereby the heat will pass through the whole series, substantially as described.



4. In a branding-machine, a base, a support on said base, a head adjustably carried on said support, a series of independent stamps adapted to slide in said head and means for operating said stamps, substantially as described.

5. In combination, the head having a series of parallel slots, the stamps in said slots, the lever extending over the slots and having an adjustable contact, the frame N and the lever O to which said frame is adjustably connected to be moved to engage the stamps in either slot.

589,088. **HANGER FOR PAINT-PAILS.** JOHN I. ISBELL, Berlin, Conn. Filed Jan. 2, 1897. Serial No. 617,742. (No model.)



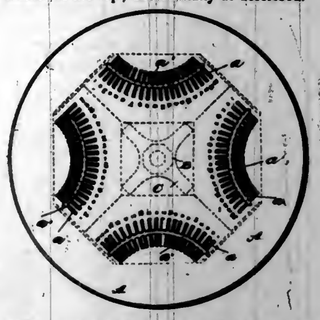
Claim.—1. The herein-described hanger comprising a pair of parallel hooks of a link form with a side opening near the middle of their length and with confronting hooked ends both above and below said side opening, the said link-like hooks being arranged with their broad sides parallel to each other and separated for the admission between them of the object to be hung thereon, substantially as described.

2. A hanger having at one end a pair of upwardly-extended larger hooks adapted to receive a ladder-rung and at its opposite end a pair of downwardly-extended smaller hooks adapted to receive the article to be suspended from the ladder, the hooks in each pair arranged with their broad sides parallel and with a space between and with the shank portion of each hook opposite the space at the end of its companion hook substantially as described.

3. The combination of a pair of parallel ladder-rung hooks with a pair of parallel bail-receiving hooks, the said two pairs of hooks being pivotally connected at their confronting ends whereby a joint is formed upon which the bail-receiving hooks may swing together while the said ladder-rung hooks are stationary, substantially as described.

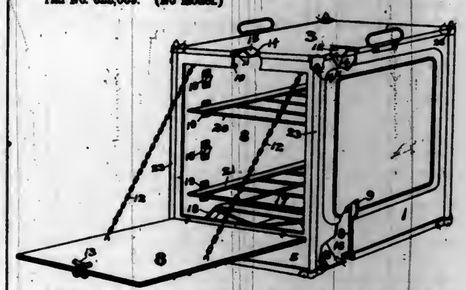
589,089. **DUPLICATE-WHIST TABLE.** JAMES W. JOHNSON, Chattanooga, Tenn., assignor to Robert H. Philips, same place. Filed Sept. 16, 1895. Serial No. 562,695. (No model.)

Claim.—1. A duplicate-whist table having a top provided with a series of slots arranged in radial relation to each other, with their inner ends in the arc of a circle and their outer ends upon a smaller arc, with a curved groove intersecting said slots, and a support for the cards beneath the slots at such a distance beneath the same that when cards are placed in the slots their upper edges will fall beneath the upper surface of the top; substantially as described.



2. A duplicate-whist table having a top provided with a series of slots arranged in radial relation to each other, with their inner ends in the arc of a circle, the center of which is near the edge of the table at the players' position, and a support for the cards beneath said slots; substantially as described.

589,090. **OVEN.** ISAAC KIRBY, Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Feb. 5, 1897. Serial No. 622,069. (No model.)



Claim.—1. A domestic oven in which two edges of two of its walls terminate in tubular-like curls or hollow beads and in which two edges of two of its other walls likewise terminate, one set of said curls incasing the other set thus uniting the said four walls together in a non-collapsible manner, one of said walls having a door-opening and a door, said door, and three of said walls, each being provided with a lining secured thereto, removable therewith and forming an air-chamber between, in combination with a top wall, and a bottom having an opening for the admission of heat to the oven, and means for connecting said four walls and said top wall and bottom together, whereby a rigid separable structure is produced which can be readily put together and taken apart, and when in the latter condition can be packed in a surface-space represented by the dimensions of the largest wall of the oven, substantially as and for the purpose set forth.

2. A domestic oven in which the vertical edges of its two side walls terminate in tubular-like curls or hollow beads and in which the vertical edges of its two end walls likewise terminate, one set of said curls incasing the other set thereby uniting the said four walls together in a non-collapsible manner, one of said end walls having a door-opening and a door, the door, the opposite end wall and the two side walls each having a lining secured thereto, removable therewith and forming an air-chamber between, in combination with a top having a lining forming an air-chamber between, a bottom provided with an opening for the admission of heat to the oven and means for connecting said top and said bottom to said walls, whereby a rigid separable structure is produced which can be readily put together and taken apart, and when in the latter condition can be packed in a surface-space represented by the dimensions of the largest wall of the oven, substantially as and for the purpose set forth.

3. A domestic oven in which two edges of two of its walls terminate in tubular-like curls or partial tubes, and in which two edges of two of its other walls likewise terminate, one set of said curls incasing the other set thus uniting the said four walls together in a non-collapsible manner, one of said walls being provided with a door-opening and a door, said door and the other three walls each having a lining secured thereto, removable therewith, and forming an independent air-space between, in combination with two other walls adapted to register with the said four walls, bolts which pass through said curls and which are provided with washers at either end thereof, said washers having extensions overlapping the corners of the oven, and nuts to engage said bolts, whereby the structure is bound firmly together, and whereby it can be readily taken apart and packed in a surface-space represented by the dimensions of the largest wall of the oven, substantially as and for the purpose set forth.

4. A domestic oven in which two edges of two of its walls terminate in tubular-like curls or partial tubes, and in which two edges of two of its other walls likewise terminate, one set of said curls incasing the other set thereby uniting the said four walls together in a non-collapsible manner, one of said walls being provided with a door-opening and a door, said door and the other three walls each having a lining secured thereto, removable therewith, and forming an air-space between, in combination with a top wall, and a bottom wall, each having their edges flanged at an angle to their flat surfaces; said flanged edges overlapping the said other four walls and the said bottom wall having an opening for admission of heat to the oven, washers located at and overlapping the corners of the oven, bolts which pass through said washers and through said curls, and nuts engaging said bolts, whereby the structure is bound firmly together, and whereby it can be readily taken apart and packed in a surface-space represented by the dimensions of the largest wall of the oven, substantially as and for the purpose set forth.

5. A domestic oven in which two edges of two of its walls terminate in tubular-like curls or hollow beads and in which two edges of two of its other walls likewise terminate, one set of said curls incasing the other set thus uniting the said four walls together in a non-collapsible manner, one of said walls having a door-opening and a door, in combination with a top wall, a bottom having an opening for the admission of heat to the oven, a deflector mounted above said opening, and means for connecting said four walls and said top wall and bottom together, whereby a rigid separable structure is produced which can be readily put together and taken apart, and when in the latter condition can be packed in a surface-space represented by the dimensions of the largest wall of the oven, substantially as and for the purpose set forth.

6. A domestic oven consisting of two side and two end walls, one of said end walls having an opening and a door adapted to close the same, a top wall and a bottom having an opening for the admission of heat to the oven, and a deflector mounted above said opening, the said top wall, the said two side walls, one of said end walls and the said door each having separate linings secured thereto and removable therewith, and each having an air-chamber between, in combination with means for removably securing said walls and said bottom together, in a non-collapsible manner, whereby a rigid separable structure is produced which can be readily put together and taken apart, and when in the latter condition can be packed in a surface-space represented by the largest wall of the oven, substantially as set forth.

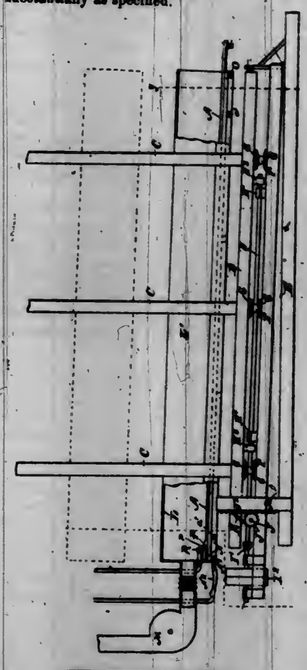
589,091. **EVAPORATOR.** HORACE A. MERRIAM, San Francisco, Cal. Filed Aug. 14, 1896. Serial No. 602,813. (No model.)

Claim.—1. In an evaporator, the combination of the lower frame hinged at one end, and means for raising and lowering said frame on its hinges, of the upper frame, the movable bearings between the two frames and upon which the said upper frame rests, the heating-coils supported in said upper frame and forming an evaporating-surface, and means for imparting motion to said upper frame, substantially as specified.

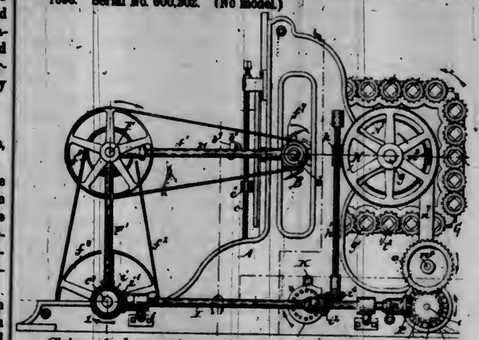
2. In an evaporator, the combination of an upper frame, a pan supported therein, a lower frame having rolling bearings upon which the upper frame rests, said lower frame being hinged at one end and means for imparting vibratory or oscillatory motion to said upper frame and pan, substantially as specified.

3. In an evaporator, the combination of the lower frame having the longitudinal sills or beams hingedly secured at one end to the bed of the evaporator, and means for raising and lowering the free ends of said sills, the ball-seating cups carried by said sills, the upper frame having similar but inverted cups, the balls seated in and interposed between the upper and lower cups, the pan secured in said upper frame, and means for imparting motion to said upper frame to agitate the liquid flowing over the said pan, substantially as specified.

4. In an evaporator, the combination of the lower frame having the longitudinal sills hingedly connected at one end to the bed of the evaporator, means for raising and lowering their opposite ends, the movable balls seated in bearings of said sills, the upper frame having bearings which rest on the said balls, means for imparting motion to the said upper frame, the series of contiguous steam-pipes supported in said upper frame and constituting the bottom of an evaporating-pan, the extensions at each end of said pan, into one of which the feed-pipe discharges, and from the other of which the evaporated product is discharged, means for supplying steam to said pipes and for removing the water of condensation therefrom, an air-chamber above said pan, and means for forcing a current of air through said chamber, substantially as specified.



589,092. **WOOD-TURNING MACHINE.** NICHOLAS MEYERS, Buffalo, N. Y., assignor to Peter C. Meyers, same place. Filed July 23, 1896. Serial No. 600,202. (No model.)



Claim.—1. In a turning-machine, the combination with the driving shaft and the cutter, of a rotary carrier, a rotary blank-holding chuck journaled on the carrier outside of the pivot of the latter, intermediate driving-gearing connecting said shaft and chuck and provided with a clutch, and a cam arranged on said chuck and adapted to uncouple and couple said clutch during each revolution of the chuck, substantially as set forth.

2. In a turning-machine, the combination with the driving-shaft, the reciprocating cutter and the rotating blank-carrier, of a carrier-sleeve secured to said shaft, and provided at one end with a cone, a friction driving-sleeve mounted on the carrier-sleeve and bearing with one end against said cone, a screw-nut arranged on the opposite end of the carrier-sleeve and bearing against the opposite end of the driving-sleeve, an intermediate gearing connecting said driving-sleeve with the blank-carrier and a controlling mechanism which permits said sleeve to rotate intermittently with said shaft, substantially as set forth.

3. In a turning-machine, the combination with the driving-shaft, the reciprocating cutter-carriage and the rotating blank-carrier, of a driving-sleeve frictionally connected with said shaft, an intermediate gearing connecting said sleeve with the blank-carrier, a controlling-disk geared with said sleeve, a trip-lever adapted to engage with said

controlling-disk, and a tappet arranged on said carriage and adapted to engage with said lever, substantially as set forth.

4. In a turning-machine, the combination with the driving-shaft, the reciprocating cutter-carriage and the blank-carrier of a driving-sleeve frictionally connected with said shaft and provided with a stop, an intermediate gearing connecting the driving-sleeve with said blank-carrier, a controlling or locking disk provided with a notch in its periphery and geared with said sleeve, a trip-lever adapted to engage with one arm in said notch and provided with a stop adapted to engage with the stop of the friction-sleeve, a trip-arm connected with said trip-lever and upper and lower tappets arranged on the cutter-carriage and adapted to engage respectively with the trip-arm and trip-lever, substantially as set forth.

5. In a turning-machine, the combination with the driving-shaft, the reciprocating cutter-carriage and the carrier, of a blank-holding chuck journaled in said carrier, a controlling mechanism whereby said carrier is connected with and disconnected from the driving-shaft, a trip-lever adapted to engage with said controlling mechanism, a tappet-lever arranged on said carriage and provided with a tappet, and a cam arranged on said chuck and adapted to shift said tappet-lever for bringing its tappet into engagement with said trip-lever, substantially as set forth.

6. In a turning-machine, the combination with the driving-shaft, the reciprocating cutter-carriage and the carrier, of a blank-holding chuck journaled in said carrier, a controlling mechanism whereby said carrier is connected with and disconnected from the driving-shaft, a trip-lever adapted to engage with said controlling mechanism, a tappet-lever arranged on said carriage and provided with a tappet, a cam arranged on said chuck and adapted to shift said tappet-lever for bringing its tappet into engagement with said trip-lever, and an incline adapted to engage with the tappet-lever and move its tappet out of line with the trip-lever, substantially as set forth.

7. In a turning-machine, the combination with the cutter having a forward-and-backward movement and the rotary carrier, of blank-holding chucks arranged in sets on said carrier, each set being adapted to present a number of blanks for the cutter to operate upon during each stroke, substantially as set forth.

8. In a turning-machine, the combination with the reciprocating cutter and the rotary carrier, of blank-holding chucks arranged in sets on said carrier, the chucks of each set being arranged in a straight line, substantially as set forth.

9. In a turning-machine, the combination with the cutter and the rotary carrier, of blank-holding chucks journaled in the carrier and arranged in sets and gearing connecting the chucks of each set, substantially as set forth.

10. In a turning-machine, the combination with the cutter and the rotary carrier, of blank-holding chucks journaled in the carrier and arranged in sets, intermeshing gear-wheels arranged on the chucks of each set, and a movable driving gear-wheel adapted to be engaged with and disengaged from the gear-wheels of each set of chucks, substantially as set forth.

11. In a turning-machine, the combination with the cutter and the rotary carrier, of blank-holding chucks journaled in the carrier and arranged in sets, intermeshing gear-wheels arranged on the chucks of each set, a movable driving gear-wheel adapted to be engaged with and disengaged from the gear-wheels of each set of chucks and shifting mechanism connecting said driving-wheel with the carrier for shifting the driving-wheel simultaneously with the carrier, substantially as set forth.

12. In a turning-machine, the combination with the cutter and the rotary carrier, of blank-holding chucks journaled in the carrier and arranged in sets, intermeshing gear-wheels arranged on the chucks of each set, a driving gear-wheel adapted to be engaged with and disengaged from the gear-wheels of each set of chucks, a movable bearing supporting the driving gear-wheel and a cam connected with the carrier and adapted to shift said bearing, substantially as set forth.

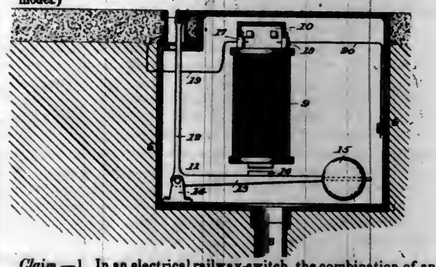
13. In a turning-machine, the combination with the cutter and the rotary carrier, of blank-holding chucks journaled in the carrier and arranged in sets, intermeshing gear-wheels arranged on the chucks of each set, a driving gear-wheel adapted to be engaged with and disengaged from the gear-wheels of each set of chucks, a movable bearing supporting the driving gear-wheel, a rocking standard pivoted with its lower end on a horizontal shaft and connected at its upper end with said bearing, gearing mounted on said standard and connecting the said shaft with the driving gear-wheel and a cam connected with the carrier and engaging with said rocking standard, substantially as set forth.

14. In a turning-machine, the combination with the cutter, the movable carrier and a rotary chuck journaled in said carrier, of a driving-shaft, a driving-sleeve mounted on said shaft, a cone secured to the shaft and bearing against one end of the sleeve, a screw-nut arranged on the shaft and bearing against the other end of the sleeve, intermediate gearing connecting said driving-sleeve with the rotary chuck and a controlling mechanism which permits said sleeve to rotate intermittently with said shaft, substantially as set forth.

15. In a turning-machine, the combination with the cutter-carriage, the movable carrier and a rotary chuck journaled on said carrier, of a driving-shaft, a driving-sleeve frictionally connected with said shaft, intermediate gearing connecting said sleeve with the rotary chuck, a locking or controlling disk arranged in said intermediate gearing, a trip-lever adapted to engage with the controlling-disk and a tappet arranged on the cutter-carriage and adapted to engage with said lever, substantially as set forth.

16. In a turning-machine, the combination with the cutter-carriage, the movable carrier and a rotary chuck journaled on said carrier, of a driving-shaft, a driving-sleeve frictionally connected with said shaft, intermediate gearing connecting said sleeve with the rotary chuck, a locking-disk arranged in said intermediate gearing and provided with a notch, a lower trip-lever adapted to engage with said notch, an upper trip-lever connected with the lower trip-lever and upper and lower tappets arranged on the cutter-carriage and adapted to engage respectively with the upper and lower trip-levers, substantially as set forth.

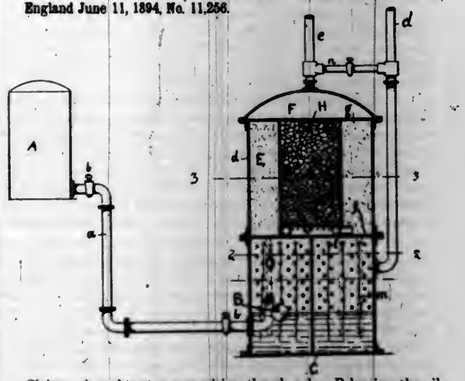
589,093. AUTOMATIC SWITCH FOR RAILROADS. LORING A. MOORE, Brooklyn, N. Y. Filed Apr. 10, 1897. Serial No. 631,568. (No model.)



Claim.—1. In an electrical railway-switch, the combination of an insulated track-section, a movable switch-point forming a part thereof, an inclosing case beneath the insulated track-section, a weighted elbow-lever pivoted within the case, engaging the switch-point and tending to keep the switch open at all times to the main line, an electromagnet arranged in position to attract an armature on the elbow-lever and close the switch to the main line when an electric circuit is completed through the magnet, and electrical connections between the insulated track-section, the magnet and the ground, substantially as described.

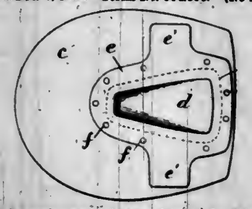
2. In an electrical railway-switch, the combination of an insulated track-section, a movable switch-point forming a part thereof, an elbow-lever pivoted beneath the switch-point the upright arm of which lever engages the said switch-point toward its vibrating end, the horizontal arm of the aforesaid elbow-lever being weighted and provided with an armature, an electromagnet arranged above the horizontal arm to attract the armature thereon, and electrical connections between the insulated track-section, the magnet and the ground, substantially as described.

589,094. CARBURETER. JACOB ORMEROD, London, England. Filed June 25, 1896. Serial No. 596,906. (No model.) Patented in England June 11, 1894, No. 11,256.



Claim.—A carbureter comprising the chamber D having the oil and gas inlets, the chamber E superimposed upon the chamber D with a port connecting the chambers, both chambers being divided by a series of radially-extending perforated plates and a single vertical imperforate plate, the wicks depending from the top of the lower chamber into the liquid hydrocarbon, the said upper chamber having a central vertical chamber H with a gas-outlet, the jet-pipe at the bottom of the chamber H having its inlet end opening into one of the divisions of the chamber E and the filling within the chambers E and H, substantially as described.

589,095. HORSESHOE-GUARD. DANIEL R. PORTER, Chelsea, Mass. Filed Dec. 7, 1896. Serial No. 614,853. (No model.)



Claim.—A horseshoe-guard comprising a flexible pad, a flanged rubber boss thereon, and a metallic fastening-frame riveted to the pad and engaged with the flange of the boss.

589,096. PLANTER. JOHN R. RAUSENCK, Linden, Tex., assignor of one-half to J. R. Haynes and W. F. Ford, same place. Filed Apr. 20, 1897. Serial No. 633,034. (No model.)



Claim.—1. In a planter, the combination of a valve located at the lower end of the spout, a rod having connection with the valve and provided with a rear extension at its upper end, a rock-shaft extending across the hopper and having its rear end bent to engage with the rear extension of the valve-operating rod for opening the valve, an agitator or seed-dropping device secured upon the rock-shaft and operating in the hopper, a vibrating lever having connection with the rock-shaft, and a ground-wheel having tappets for vibrating the lever positively in each direction for operating the rock-shaft and the parts connected therewith, substantially as set forth.

2. In a planter, the combination of a valve for closing the lower end of the grain-spout, a rod having connection with the valve and having its upper end bent rearwardly, a rock-shaft journaled lengthwise of the machine and extending across the hopper, and having its end portions bent, the rear bent end engaging with the upper bent end of the valve rod for opening the valve, a lever fulcrumed between its ends, a link connecting the rear end of the lever with the front bent end of the rock-shaft, and a ground-wheel provided with tappets for positively vibrating the lever in each direction, substantially as set forth for the purpose described.

3. In a planter, the combination of a hopper, a rock-shaft extending across the hopper and provided with a seed agitating or dropping device, a lever fulcrumed between its ends and having a beak at its front end, means for connecting the rear end of the lever with a bent portion of the rock-shaft, and a ground-wheel provided with tappets disposed to alternately engage with the rear and front portions of the said levers for positively actuating it in each direction, substantially in the manner set forth for the purpose described.

4. In a planter, the combination of longitudinal bars, front and rear pieces flaring at their upper ends, side plates secured to the edges of the front and rear pieces and to the longitudinal bars, and side pieces secured to the front and rear pieces below the plane of the longitudinal bars and having their rear portions extending in the rear of the aforesaid rear piece, a valve secured to the lower end of the rear piece and operating in the space formed between the rear extensions of the side pieces, and actuating mechanism for the said valve, substantially as set forth.

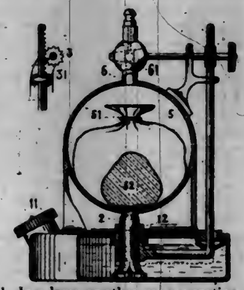
5. In a planter, the combination of a hopper, a frame having uprights, a rock-shaft extending across the hopper and provided with a seed agitating or dropping device, a lever having a beak at its front end and an extension between its ends, a link connecting the rear end of the lever with a lateral extension of the rock-shaft, a pin or bolt connecting the upper ends of the said uprights and passing through the extension of the lever and forming a pivotal support therefor, and a ground-wheel having tappets to alternately engage with the lever upon opposite sides of its pivotal support, substantially as set forth for the purpose described.

589,097. STOPPER OR COVER FOR BOTTLES, JARS, OR SIMILAR VESSELS. VINCENT REISER and TOM SUTCLIFFE, Bradford, England. Filed Apr. 13, 1897. Serial No. 632,005. (No model.) Patented in England Jan. 20, 1897, No. 1,520.



Claim.—The herein-described capsule or cover for a bottle, the same being composed of compressed paper-pulp and provided with a depending annular flange or rim which is provided with inwardly-directed lugs or projections, the neck of the bottle being provided at its opposite sides with downwardly-directed grooves having lateral extensions, and which are adapted to receive said lugs or projections, the lower portion of the said depending flanges being lined with gum, and provided adjacent to said gummed portion with a series of perforations, and a disk composed of cork adapted to be placed in said cap or cover, as set forth.

589,098. ACETYLENE-GAS-GENERATING LAMP. FRANK REHND, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Mar. 26, 1897. Serial No. 629,461. (No model.)



Claim.—1. In a lamp or other gas-generating apparatus in combination, a liquid-containing chamber, means for retaining in position a consumable mass, a wick, a gas-emission orifice and means for simultaneously regulating the flow of liquid through said wick and the flow of gas from said orifice, said means being also adapted to break the contact of said wick and said mass, substantially as described.

2. In a lamp or other gas-generating apparatus in combination, a liquid-containing chamber, means for retaining in position a consumable mass, a wick, a gas-emission orifice and means for simultaneously regulating the contact of said wick with said mass and the flow of gas through said orifice, said means being also adapted to move said wick out of contact with said mass, substantially as described.

3. In a lamp or other gas-generating apparatus in combination, a liquid-containing chamber, a solid-containing chamber adapted to contain a consumable mass and adjacent thereto, an aperture in said second chamber, a wick in said first chamber having its free end normally at or near said aperture and means substantially as described for simultaneously regulating the flow of liquid through said wick to said mass and the flow of gas from said orifice, said means being also adapted to break the contact between said wick and said mass.

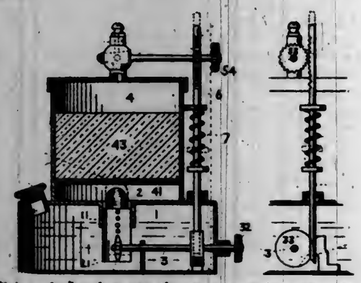
4. In a lamp or other gas-generating apparatus in combination, a liquid-containing chamber, a wick, a solid-containing chamber, a gas-emission tube, a cock in said tube, a pinion on the stem of said cock and means substantially as described whereby the opening or closing of said cock operates through said pinion to regulate the flow of liquid through said wick, said means being also adapted to break the contact between said wick and said mass.

5. In a lamp in combination, a liquid-containing chamber, a wick, a solid-containing chamber, a gas-emission tube, a cock in said tube, a pinion on the stem of said cock, a rod provided with a rack engaging with said pinion and means substantially as described, connected with said rod to regulate the flow of liquid through said wick, said

means being also adapted to break the contact between said wick and said mass.

6. In a lamp in combination, a liquid-containing chamber, a wick-sleeve adapted to carry a wick, a rod on said wick-sleeve, and extending out of said chamber, a solid-containing chamber, a gas-emission tube leading from said chamber, a cock in said tube, a pinion on the stem of said cock engaging with a rack on said rod whereby the rotation of said stem operates to open and close said cock and to raise and lower said wick-sleeve, so as to make and break contact between a wick in said sleeve and a consumable mass in said solid-containing chamber, substantially as described.

589,099. ACETYLENE-GAS-GENERATING LAMP. FRANK REIND, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed May 7, 1897. Serial No. 635,537. (No model.)



Claim.—1. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, manually-operated means for causing and discontinuing the flow of liquid to said mass and means for automatically retaining said valve in its open position during the flow of said liquid, substantially as described.

2. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, manually-operated means for causing and discontinuing the flow of liquid to said mass and means for automatically preventing the causing of such flow of liquid except when said valve is in its open position, substantially as described.

3. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, a wick adapted to convey liquid to said mass, manually-operated means for causing and discontinuing the flow of liquid through said wick and means for automatically retaining said valve in its open position during the flow of said liquid, substantially as described.

4. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, a wick adapted to convey liquid to said mass, manually-operated means for causing and discontinuing the flow of liquid through said wick and means for automatically preventing the causing of such flow of liquid except when said valve is in its open position, substantially as described.

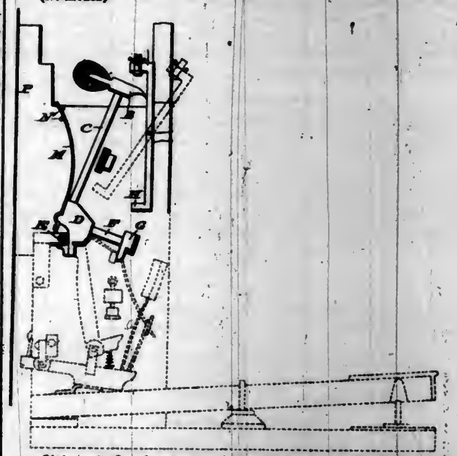
5. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, a wick adapted to convey liquid to said mass, manually-operated means for bringing said wick and said mass into and out of contact and means for automatically retaining said valve in its open position during such contact, substantially as described.

6. In a lamp or other gas-generating apparatus in combination, a liquid-chamber, means for retaining in position a consumable mass, a gas-emission valve, a wick adapted to convey liquid to said mass, manually-operated means for bringing said wick and said mass into and out of contact and means for automatically preventing the causing of such contact except when said valve is in its open position, substantially as described.

7. In a lamp in combination, a liquid-chamber, a second chamber adapted to contain a consumable mass, a wick adapted to convey liquid to said mass, a shaft by which said wick is manually adjustable, a manually-adjustable gas-valve, and means for automatically retaining said valve in its open position when said wick is in contact with said mass, substantially as described.

8. In a lamp in combination, a liquid-chamber, a second chamber adapted to contain a consumable mass, a wick adapted to convey liquid to said mass, a shaft by which said wick is manually adjustable, a gas-valve and means for automatically preventing the bringing of said wick and said mass into contact except when said valve is in its open position, substantially as described.

589,100. LEGATO ATTACHMENT FOR PIANOS. RICHARD C. SCHIRMER, Philadelphia, Pa. Filed Aug. 22, 1896. Serial No. 603,564. (No model.)



Claim.—1. In a legato attachment, a pivoted strip having a suitable support, a hammer having its heel adapted to strike said strip, and a striker connected with said hammer and adapted to also contact with said strip.

2. In a legato attachment, a strip of suitable material located at the rear and in the path of a piano-hammer, a block upon which the latter is mounted, a striker carried by said block, an abutment near the lower extremity of said strip, and adapted to be hit by said striker, while the heel of said hammer is adapted to contact with the body of said strip.

3. In a legato attachment, a piano-hammer, a block upon which the same is mounted, a striker connected with said block and a spring having one end contacting with said block, in combination with a strip mounted at the rear and in the path of said hammer, and having a body portion against which the heel of said hammer is adapted to impinge, said strip having an abutment at or near its lower portion, located in the path of said striker.

4 In a legato attachment, a pivoted strip having an abutment at its lower end, a pivoted block provided with projecting arms, one of which has secured thereto a hammer provided with a projecting heel contacting with the body of said strip, and the other arm having a striker adapted to contact with said abutment thereby preventing the contact of the hammer-head with a string.

589,101. PIPE-CUTTER. WILLIAM SCHOLM, Paterson, N. J. Filed Nov. 21, 1896. Serial No. 612,933. (No model.)

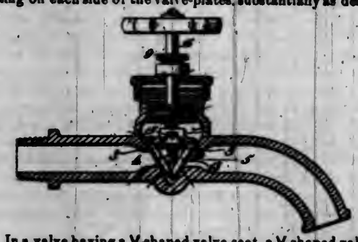


Claim.—A pipe-cutter consisting of two members, *a*, *b*, hinged together at one of their ends, a pin journaled in the member *b* near the hinged end thereof, a cutting-disk rigidly mounted on the pin and arranged close to one side of the member *b*, the side of said member being recessed to receive the disk, a ratchet-wheel also mounted rigidly on the pin and arranged close to the other side of the member *b*, and a pawl carried by the member *a* and adapted when the members are folded together to engage the ratchet so as to revolve the disk, said member *a* having a vertical slot adapted to receive the disk edge, and being curved downwardly opposite the disk for the reception of the pipe, substantially as described.

589,102. VALVE OR FAUCET. LEO SIMMONS, Washington, D. C. Filed Aug. 20, 1896. Serial No. 603,235. (No model.)

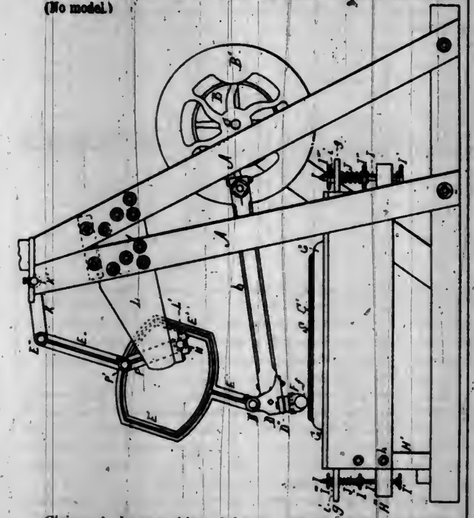
Claim.—1. In a valve, the combination with the valve-casing provided with a V-shaped valve-seat, of a V-shaped valve consisting of a pair of plates hinged together at their lower ends, an operating device for moving the valve to and from its seat, a linked connection between the valve and operating device, and stop-lugs on the valve-plates directly below the links for limiting the downward movement of the latter, substantially as described.

2. In a valve, the combination with the valve-casing provided with a V-shaped valve-seat, of a V-shaped valve consisting of a pair of plates hinged together at their lower ends, an operating device for the valve, links connecting the valve-plates and operating device, and guide-rods secured to and spanning the walls of the valve-seat and acting on each side of the valve-plates, substantially as described.



3. In a valve having a V-shaped valve-seat, a V-shaped valve consisting of a pair of plates hinged together at their lower ends and having a linked connection at their upper ends with an operating device for moving the valve to and from its seat, stop-lugs on the valve-plates directly below the links, and guide-rods secured to and spanning the walls forming the valve-seat, said rods acting on each side of the valve-plates, substantially as described.

589,103. MACHINE FOR GLAZING AND PEBBLING LEATHER. CHARLES A. SOUTHWICK, Peabody, Mass., assignor of one-half to Horace A. Southwick, same place. Filed Jan. 23, 1897. Serial No. 620,335. (No model.)



Claim.—1. In a machine of the character described, the frame; the bed; the driving mechanism and connecting-rod *b* extending therefrom, the pendulum pivotally supported at its upper end by the frame and comprising a toggle consisting of a long upper arm or lever and the short lower arm or lever D provided on the under surface of its bottom plate D″ with the central, downwardly-extending, substantially V-shaped rib; and the hand or agate-holder held pivotally against said rib and adjustably secured to said plate D″ on opposite sides of the rib, whereby the angle of the agate-holder may be altered and set and thereby adapted to cause the agate to bear evenly upon the leather to be treated, substantially as described.

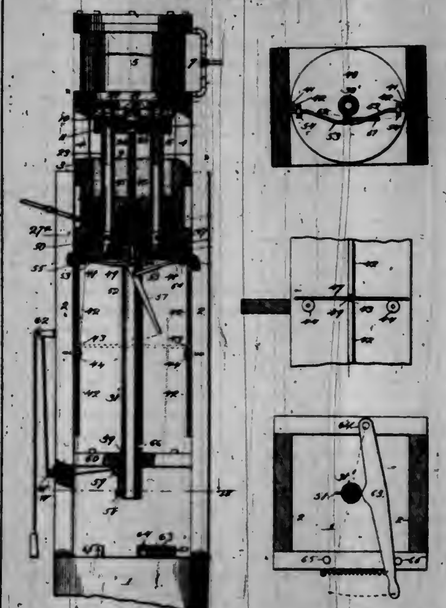
2. In a machine of the character described, the frame; the bed; the driving mechanism and connecting-rod *b* extending therefrom, the pendulum pivotally supported at its upper end to the frame and comprising a toggle consisting of a long upper arm or lever and the short lower arm or lever D provided on the under surface of its bottom plate D″ with the central, downwardly-extending, substantially V-shaped rib; and the hand or agate-holder F provided on its upper surface with a groove adapted to receive and center said rib; and mechanism connecting said agate-holder F and bottom plate D″ whereby the angle of the former with relation to the latter may be adjusted, substantially as set forth.

3. In a machine of the character described, the frame; the bed; the pendulum pivotally connected at its upper end to the frame and formed on its lower end with a rib extending downwardly therefrom in line with the stroke of the pendulum; mechanism for reciprocating said pendulum over the surface of the bed; and a hand or holder pivoted or fulcrumed upon the under edge of said rib and thereby adapted to be swung and adjusted at right angles with the line of direction of the stroke of the pendulum, substantially as described.

4. In a machine of the character described, the frame; the base-piece H″ supported by the frame and provided with three triangularly-located fixed nuts *k*′; the table *g* above the base-piece and supporting the bed; the screws or bolts I engaged by said nuts and extending up through the base-piece and table; the nuts I″ on the upper ends of said bolts above the table; the nuts I′ upon said bolts between the table and the base-piece; and the springs *s* upon said bolts between the nuts I′ and the table, substantially as and for the purpose set forth.

5. In a machine of the character described, the frame; the pendulum consisting of the jointed arm or toggle E, D, the main portion E of said pendulum being formed into a bow E′; arms or brackets extending from the frame on opposite sides of said pendulum; a shaft or rod connecting said arms and extending through the bow of the pendulum; and the links P extending from said shaft or rod on opposite sides of the bow and pivotally connected at their upper ends with opposite sides of the pendulum, substantially as described.

589,104. SEWER-PIPE AND EARTHENWARE MANUFACTURING MACHINE. DANIEL SPOONER, Independence, Mo. Filed June 26, 1896. Serial No. 597,076. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a clay-cylinder, a superposed plate, plugs depending therefrom, and cores mounted upon said plugs and depending vertically into the clay-cylinder, of a presser-head mounted upon said cores and adapted to reciprocate in said cylinder, substantially as described.

2. In an apparatus of the character described, the combination of a clay-cylinder, a superposed plate, plugs depending therefrom and annularly grooved at their middle and threaded at their lower ends and vertically grooved, hollow cores or sleeves screwed upon the threaded ends of said plugs and overlapping partially the grooves of the same so as to form lubricator-chambers, and provided with internal flanges adapted to close the lower ends of the said vertical grooves and thereby prevent the lubricant escaping from the reservoir or chamber, substantially as described.

3. In an apparatus of the character described, the combination with a clay-cylinder, a multiple die therein, provided with a central passage, a point-board bearing against the lower end of the cylinder and die, a plug-shaft supporting said point-board in such position, devices locking said plug-shaft in its elevated position, a series of cores extending vertically through the cylinder and the die, a piston-rod

extending through the die, a presser-head mounted rigidly upon said piston-rod and perforated to receive said cores, means to force said piston-rod downward, and means to simultaneously unlock the plug-shaft from its elevated position and lock it rigidly to the descending piston-rod, substantially as and for the purpose set forth.

4. In an apparatus of the character described, the combination with a clay-cylinder, a multiple die therein, a headed plug-shaft, core-dies projecting from the same vertically upward through the die and the cylinder, hollow cores or sleeves mounted upon said core-guides, a point-board interposed between the head of the plug-shaft and the lower end of the cylinder and die and provided with perforations through which the core-guides extend, and a presser-head mounted slidingly upon said cores or sleeves and adapted to reciprocate within the cylinder, substantially as described.

5. In an apparatus of the character described, the combination with a clay-cylinder, a multiple die therein, hollow cores or sleeves extending vertically through said cylinder and said die, a reciprocatory rod extending through a central passage in the die and a presser-head perforated to receive said hollow cores or sleeves and mounted rigidly upon said rod, of a reciprocatory plug-shaft, core-guides projecting vertically upward from the same and into said hollow cores or sleeves, a perforated point-board resting upon the head of the plug-shaft and provided with holes through which said core-guides extend, lever-actuated plates locking the plug-shaft and point-board in their elevated position at the lower end of the cylinder and guide, means to force the presser-head downwardly to compress the clay within the die and around said cores and to cause said rod to descend through an opening in the point-board and into the upper end of the plug-shaft, means to support the point-board in a certain horizontal plane when the plug-shaft has reached a certain point in its descent, and the upper ends of the core-guides are below the lower ends of the cylinder and die, means to lock said plug-shaft in such depressed position until the pipe or articles formed have been severed and then to unlock it to permit the core-guides to be withdrawn entirely from said pipe that the point-board supporting the same may be removed, and devices to reelevate said plug-shaft at the proper time, substantially as described.

6. In an apparatus of the character described, the combination with a clay-cylinder, a multiple die therein, and a plug-shaft provided with core-guides extending through said die and cylinder, of a plate superposed with relation to the cylinder, hollow cores or sleeves suspended vertically therefrom and embracing snugly said core-guides, and a presser-head mounted slidingly upon said hollow cores or sleeves, substantially as described.

7. In an apparatus of the character described, the combination with a clay-cylinder, a die therein provided with a plural number of openings diametrically enlarged at their upper ends, a plug-shaft at the lower end of said cylinder, core-guides projecting upwardly from the same, through the die and enlarged diametrically at their lower ends, an apertured point-board resting upon the plug-shaft, hollow cores or sleeves extending vertically and centrally through the openings of the die and embracing snugly the diminished upper portions of the core-guides, and a presser-head mounted slidingly upon said cores or sleeves, substantially as described.

8. In an apparatus of the character described, a clay-cylinder, and a die therein divided horizontally into two members provided with vertically-alined openings to determine the form and external diameter of the pipe or other articles formed, an oil-channel in the lower half of the die connected to a suitable pressure-supply, annular grooves or channels surrounding the openings of the lower half of the die having their inner walls terminating short of the plane represented by the upper face of the lower half of the die, connecting grooves or channels between said annular channels and the first-named annular channel, and a gasket of elastic material interposed between the halves of the die and provided with annular series of corrugations bridging the channels surrounding the openings of the die, substantially as described.

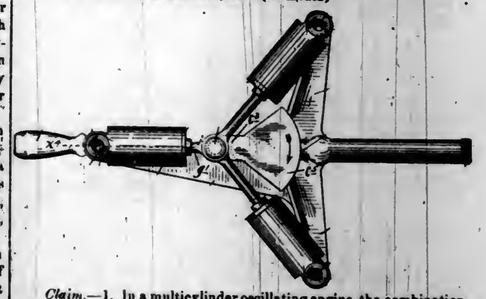
9. In an apparatus of the character described, the combination with a clay-cylinder, a multiple die therein, enlarged internally at its lower end, cores depending vertically and centrally through said die, and a reciprocatory presser-head to compress the clay in the cylinder and through the die, of a vertically-adjustable plug-shaft below the cylinder, core-guides projecting upwardly into said cores, and provided at the lower end of the die with enlargements, a point-board resting upon the plug-shaft and provided with openings through which said core-guides project, and rings embracing loosely said core-guides and adapted to form a lining for the flange formed at the lower end of the pipe produced by compressing clay in the die, substantially as described.

10. In an apparatus of the character described, the combination with a clay-cylinder, a reciprocatory presser-head thereon, a multiple die therein, and cores extending vertically through said die, of a plug-shaft vertically adjustable below said cylinder, and provided with upwardly-projecting dowel-pins projecting into openings in the lower end of the cylinder at times, a point-board resting upon said plug-shaft and provided with openings through which said dowel-pins extend, and core-guides projecting upwardly from said plug-shaft through said point-board and into said cores, substantially as described.

11. In an apparatus of the character described, the combination with a framework, a clay-cylinder in the framework, a multiple die therein, provided with a central hole, cores extending vertically through said die, a piston-rod depending into the central opening of the die, and a presser-head mounted rigidly upon said rod and embracing said cores, of a plug-shaft vertically grooved at opposite points and suitably guided and provided with a central hole in alinement with the piston-rod, and with core-guides for said cores, a set-screw carried by said plug-shaft and provided with an arm or lever, sliding bolts suitably guided and pivotally connected to said lever at opposite sides of the set-screw and adapted to engage notches in the framework of the apparatus, and a point-board resting upon the plug-shaft and provided with openings through which the core-guides extend, and with a central opening in alinement with the piston-rod, substantially as and for the purpose set forth.

12. In an apparatus of the character described, the combination with a clay-cylinder, a presser-head and cores extending through the clay-cylinder, and around which the presser-head compresses the clay, of a multiple die in the cylinder surrounding the said cores, and annularly grooved or hollowed out at its upper end and partitions equally dividing the grooved upper end of the die and corresponding in number to the die openings or cores, substantially as described.

589,105. MOTOR. HENRY H. VAUGHAN, St. Paul, Minn. Filed Oct. 17, 1896. Serial No. 609,238. (No model.)



Claim.—1. In a multicylinder oscillating engine, the combination with the frame formed with radial supporting-arms, one of which is provided with an extended handpiece, of a combined handpiece and feed-stem extending diametrically opposite to said projecting handpiece, and a throttle-valve in said combined feed-stem and handpiece, operated substantially as described.

2. In a multicylinder oscillating engine, the combination with the spider-like frame, formed with radial arms which terminate in trunnion-seats formed by half-split sections, the inturned ends of which are adapted to be clamped to the body of the arms, and the chambered trunnions clamped in said seats and serving as pivots for the oscillating engine, substantially as described.

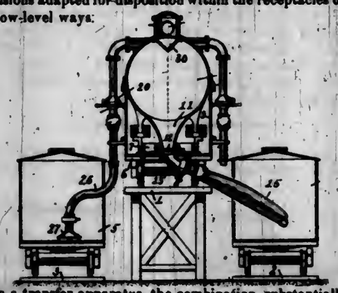
3. In a multicylinder oscillating engine, the combination with the spider-like frame, formed with three radial supporting-arms, one of which is provided with a projecting handpiece, and all of which terminate in trunnion-seats formed by half-split sections with inturned clamping ends, of the hollow trunnions mounted in said seats and constituting pivots for the oscillating engines, the combined handpiece and feed-stem projecting from said spider-like frame, diametrically opposite to said projecting handpiece, and a throttle-valve in said combined handpiece and feed-stem, operated substantially as described.

589,106. GRAIN-TRANSFER APPARATUS. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed Mar. 1, 1897. Serial No. 625,614. (No model.)

Claim.—1. A transfer apparatus comprising, substantially as set forth, an elevated structure, a tank thereon and connected with air-exhausting mechanism, ways on a low level alongside said elevated structure at each side thereof, receptacles adapted for travel on said ways, and suction and discharge pipes connected with said tank and having flexible extensions adapted for disposition within the receptacles on either of said low-level ways.

2. A transfer apparatus comprising, substantially as set forth, an elevated structure, weighing-scales supported thereon, a tank supported on said weighing-scales and connected with air-exhausting

devices, ways on a low level alongside said elevated structure and at each side thereof, receptacles adapted for travel on said ways, and suction and discharge pipes connected with said tank and having flexible extensions adapted for disposition within the receptacles on either of said low-level ways.



3. In a transfer apparatus, the combination, substantially as set forth, of a supported pipe having a flaring mouth, a second pipe having a conical coupling-piece removably engaging said flaring mouth, a support for said conical coupling-piece independent of the support of the first-mentioned pipe, and a slip-joint upon the end of the second pipe.

4. In a transfer apparatus, the combination, substantially as set forth, of a cylindrical tank having a suction-opening in the top thereof, an angular conduit along under the roof of the tank and open at its center to said suction connection and open at its ends to the interior of the tank, and inlet connections to said tank in the roof thereof at the sides of and between the ends of said angular conduit.

5. In a transfer apparatus, the combination, substantially as set forth, of an elevated horizontally-disposed tank having a pair of hopper-discharge openings at the base thereof near the ends, flexible discharge-pipes connected with said openings and adapted for projection and use at either side of said tank, a suction-pipe surmounting said tank and having connections with the interior of the tank, a pair of inlet-pipes connected at each side of said tank near the ends of the top thereof, and flexible extensions adapted for connection and use on said inlet-pipes.

6. A grain-transfer apparatus, comprising an elevated structure, a tank thereon, a plurality of discharge-pipes connected therewith at the bottom of the tank, a suction-pipe having a plurality of connections with the top of the tank, suction-pipes leading into each of said connections upon opposite sides, and ways on a low level upon each side of the elevated structure.

7. A grain-transfer apparatus, comprising an elevated structure, a tank thereon and connected with air-exhausting mechanism, ways on a low level alongside said elevated structure and at each side thereof, receptacles adapted to travel on said ways, a pair of discharge-pipes connected with the base of said tank and having flexible extensions adapted for disposition in said receptacles on either of said low-level ways, and a pair of suction-pipes having flexible extensions and adapted for connection on either side of said tank and for disposition within a receptacle on either of said low-level ways.

589,107. PAPER-FEEDING MACHINE. WILLIAM WOOLERSLEY, Brooklyn, N. Y., and JEREMIAH KEATING, Lawrence, Mass., assignors to the Economic Machine Company, New York, N. Y. Filed Dec. 1, 1896. Serial No. 614,072. (No model.)

Claim.—1. The combination with the sheet-carrying tapes having an offset or depression in their upper carrying portion, of a cover or shield which is arranged over the front part of the depressed carrying portion of the tapes and which leaves the rear part thereof exposed for propelling the sheets, substantially as set forth.

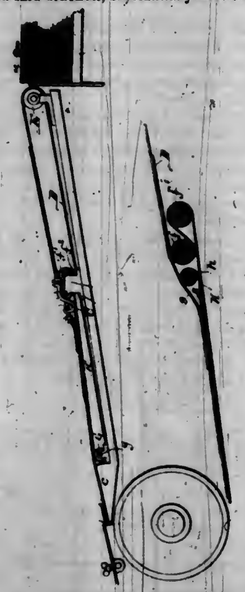
2. The combination with sheet-carrying tapes, of a cover or shield arranged over part of the carrying portion of the tapes and made extensible in the direction of their movement, substantially as set forth.

3 The combination with sheet-carrying tapes, of a flexible cover or apron resting upon part of the carrying portion of the tapes, substantially as set forth.

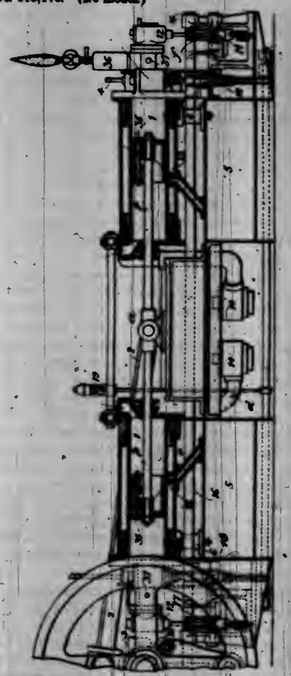
4. The combination with sheet-carrying tapes, of a flexible cover or apron attached to a roller and arranged over part of the carrying portion of the tapes, substantially as set forth.

5. The combination with sheet-carrying tapes and their intermediate rollers supported in brackets which are adjustable lengthwise of the tapes, of a cover or shield mounted on said brackets and arranged over part of the carrying portion of the tapes, substantially as set forth.

6. The combination with the sheet-carrying tapes and their intermediate rollers supported in brackets which are adjustable lengthwise of the tapes, of a flexible cover or apron attached to a roller which is mounted on said brackets, substantially as set forth.



589,108. MOTOR WORKED BY HYDROCARBON OR OTHER GASES. CHRISTOPHER T. WORDSWORTH, Manchester, EDMUND WIREMAN, Luton, and JOHN HOLROYD, London, England. Filed Nov. 23, 1896. Serial No. 613,176. (No model.)



Claim.—1. The combination of a cylinder, its piston, the air-reservoir, a port in the side of the cylinder connecting with a passage leading to the reservoir, an air-admission valve in the cylinder, and means for reciprocating the piston to compress air into the reservoir and to uncover the port in the side of the cylinder thereby permit-

ting the compressed air to enter and mingle with the charge in the cylinder and thus increase the density of the charge, substantially as described.

2. In a hydrocarbon-motor the combination of the working cylinder, the inlet-valve, means for operating it, the piston and means for admitting air under pressure to the working cylinder immediately after the charge of hydrocarbon vapor has been drawn into the cylinder and the inlet-valve is closed.

3. The feeding appliance for hydrocarbon-motors, consisting of the combination of a vessel kept constantly full of the liquid fuel, a plug with a measuring-passage of suitable capacity formed in it, a shell containing the plug and provided with ports communicating respectively with the interior of the vessel, an open vent-tube, a pipe supplying air under pressure, and a pipe which delivers the charge to the cylinder of the engine.

4. In a hydrocarbon-motor the combination of the cylinder, a heated chamber at one end thereof through which the heated products of combustion are discharged, passages for air and vapor disposed around the heated chamber, a partition between the cylinder and the heated chamber having numerous openings connecting the heated chamber with the surrounding passages and a central opening which serves both to admit the charge to the cylinder and for the discharge of the products of combustion therefrom, admission and exhaust valves, and means for operating them.

589,109. TROLLEY. ALBERT O. WYMAN, Turner's Falls, Mass., assignor of one-half to James A. Gunn, same place. Filed Apr. 20, 1897. Serial No. 633,047. (No model.)

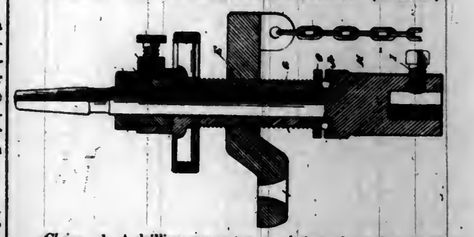


Claim.—1. A support for the trolley-wheel of trolley-cars consisting of a frame which is pivotally supported longitudinally thereof on the top of a car, said frame being provided at each end with springs which bear on the top of the car, and with shafts which are mounted transversely thereof, said shafts being provided at one end with cranks which are connected by a crank-rod, and said shafts being also provided with upwardly-directed main arms which connect at their upper ends with a tubular cross-head, and provided with a shaft which passes therethrough, said tubular cross-heads being also provided each with an upwardly-directed supplemental arm, and said shafts in said tubular cross-heads being provided with springs which operate upon the main arms, and on the supplemental arms, and said supplemental arms being pivotally connected at their upper ends with a cross-head in which is mounted a trolley-wheel, and means for depressing said trolley-wheel, and operating said frame, substantially as shown and described.

2. A support for the trolley-wheel of trolley-cars, consisting of a frame which is pivotally supported longitudinally thereof on the top of a car, said frame being provided at each end with springs which bear on the trolley-car, and with shafts which are mounted transversely thereof, said shafts being provided at one end with cranks which are connected by a crank-rod, and said shafts being also provided with upwardly-directed main arms which connect at their upper ends with a tubular cross-head, and provided with a shaft which passes therethrough, said tubular cross-heads being also provided each with an upwardly-directed supplemental arm, and said shafts in said tubular cross-heads being provided with springs which operate upon the main arms, and on the supplemental arms, and said supplemental arms being pivotally connected at their upper ends with a cross-head in which is mounted a trolley-wheel, and means for depressing said trolley-wheel, and operating said frame, consisting of a trolley cord or rope which is connected with said cross-head and which is under the control of the conductor or motorman, substantially as shown and described.

3. A support for the trolley-wheel of trolley-cars, consisting of a main or base frame which is pivotally supported above the top of the car, said frame being provided at each end with springs which bear on the top of the car, and at one end thereof, with a segmental gear-head, a lever which is pivotally connected with the top of the car, and which is also provided with a segmental gear-head which operates in connection with that with which said frame is provided, said lever being also provided at its free end with a ring or eye, and said frame being provided at each end with shafts which are connected by means of cranks, and a crank-rod, arms which are secured to said shafts, and which are projected upwardly and which connect at their upper ends with tubular cross-heads, supplemental arms connected with said cross-heads and projecting upwardly, springs mounted in said tubular cross-heads, and acting in connection with said supplemental arms, a cross-head by which the upper ends of the supplemental arms are connected, a trolley-wheel mounted therein, and a trolley cord or rope which is connected with said cross-head, and passed downwardly around a pulley supported in said main or base frame, and then through the eye or ring at the end of said lever, substantially as shown and described.

589,110. DRILLING APPARATUS. THOMAS L. ARMSTRONG, Philadelphia, Pa. Filed Apr. 6, 1897. Serial No. 630,930. (No model.)

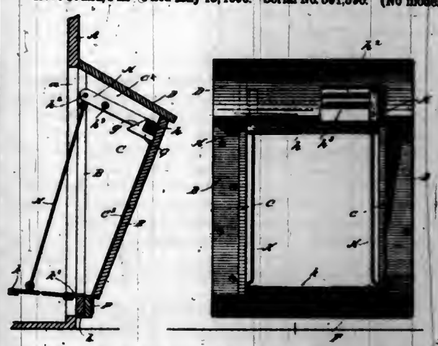


Claim.—1. A drilling apparatus consisting of a yoke, a hollow screw threaded therethrough, a spindle fitted to revolve within said screw, a drill-socket carried upon one end of the spindle, a wrench-shank formed upon the opposite end of said spindle, a collar fitted upon the spindle and exteuding within the screw, and a thumb-screw passed through the head of the first-named screw for creating a friction upon the collar, as specified.

2. In combination, a bracket-yoke, a hollow screw threaded therethrough, a smooth spindle fitted to revolve within said screw, a drill-socket carried by one end of the spindle, a ball-bearing interposed between said socket and screw, a hand-wheel formed upon the screw, a collar formed upon the spindle and extending within the socket in the screw, a thumb-screw threaded in the boss formed upon the first-named screw, and a washer interposed between the end of the thumb-screw and the collar, substantially as and for the purpose set forth.

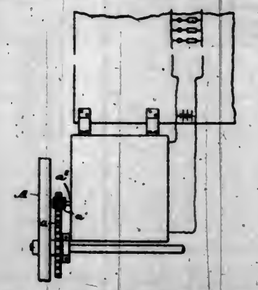
3. A drilling apparatus consisting of a yoke, a hollow screw threaded therethrough, a spindle provided with a drill-socket at one end, said spindle being fitted to revolve within the hollow screw a thumb-nut run through the upper end of the screw, a collar on the spindle projecting within the hollow screw and adapted to be engaged by said thumb-nut, and a ball-bearing interposed between the drill-socket and the hollow screw, substantially as described.

589,111. DOOR FOR POULTRY-HOUSES. THOMAS N. BANNER, Hobe Sound, Fla. Filed May 13, 1896. Serial No. 591,390. (No model.)



Claim.—The herein-described door for poultry-houses, comprising the combination with a door-frame of triangular plates C, inclined as shown at C^2, the outer sides being inclined as shown at C^3, a cap or cover D, a door E, hinged to a cross-plate F which is secured to a transverse plate *b*, said door being provided with arms G, having projections *g*, levers H, pivotally connected with said plate C, said levers being connected with cross-rods A^2 and A^3, said levers H, being provided with a pivoted rod K, which is pivotally connected with a platform *k*, which is hinged to the door frame at k^2, substantially as and for the purpose described.

589,112. ELECTRIC CAR-LIGHTING SYSTEM. FREDERICK M. BENNETT, New York, N. Y., assignor of one-half to Adolph A. Berle. Filed Jan. 4, 1897. Serial No. 617,803. (No model.)



Claim.—1. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, of a secondary battery, and of a switch for directing the current to the secondary battery, consisting of an armature controlled by the field of the dynamo.

2. The combination, with a vehicle, of a dynamo actuated by the hub of the vehicle-wheel, of a secondary battery, and of a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo.

3. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, of a secondary battery, of a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo, and of a switch for opening the circuit between the commutator and a brush of the dynamo, controlled by the said dynamo.

4. The combination, with a vehicle, of a dynamo actuated by the hub of the vehicle-wheel, of a secondary battery, of a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo, and of a switch for opening the circuit between the commutator and a brush of the dynamo, controlled by the said dynamo.

5. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, intermediate gearing of a secondary battery, a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo, and a box for incasing the dynamo, switch and gearing.

6. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, intermediate gearing of a secondary battery, and a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo and also a box supported by the vehicle for incasing the dynamo and gearing and constructed and arranged to form bearings for the dynamo-shaft.

7. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, of a secondary battery, and of a switch for directing the current to the secondary battery, consisting of an armature controlled by the field of the dynamo, the said dynamo consisting of a rotary ring armature carried by the commutator-shaft, and a stationary field provided with segmental pole-pieces.

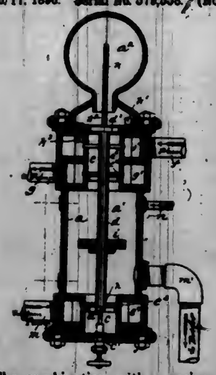
8. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, of a secondary battery, a switch for directing the current to the secondary battery consisting of an armature controlled by the field of the dynamo and a double-acting switch for opening the circuit between the commutator and a brush of the dynamo, actuated by the said dynamo either when running at an abnormal high or low speed.

9. The combination with a vehicle, of a box X, secured to the vehicle, a dynamo-shaft B, and gearing supported by and within the sides of the said box, a dynamo consisting of a rotary ring armature carried by the said shaft and a stationary field secured to a side of said box and provided with segmental pole-pieces, and of a switch for controlling the output of said dynamo consisting of an armature controlled by the field of said dynamo.

10. The combination, with a vehicle, of a dynamo actuated by the movement of the vehicle, of a secondary battery and a double-acting switch consisting of the centrifugal governor G', grooved ring G, arms A', A^2, A^4, lever H, for opening the circuit between the commutator and the brushes J, J', of the dynamo actuated by the said dynamo either when running at an abnormal high or low speed, and of another switch also controlled by the dynamo for directing the current to the secondary battery.

11. In a dynamo a rotary ring armature D', carried by a spider D, the shaft B of which carries a commutator and passes through a field-magnet F, in combination with a stationary concentric field provided with segmental pole-pieces F, F', located within said ring armature, and provided with supporting devices, as pins *f*, and of a switch consisting of an armature controlled by said field.

589,113. FEED-WATER REGULATOR. RUDOLF ERNST, Pittsburg, Pa. Filed Feb. 17, 1896. Serial No. 579,558. (No model.)



Claim.—1. The combination, with a casing and chambers arranged within the same, of pistons in said chambers, a tubular piston-rod connecting said pistons, ports in the upper chamber, and pipes connecting the casing with the steam and water spaces of the boiler, and with the feed-pump, substantially as set forth.

2. The combination, with a casing and chambers arranged within the same, of pistons located in said chambers, a tubular piston-rod connecting said pistons, a float on said piston-rod, ports in the upper chamber, and pipe connections between the casing and the water and steam spaces of the boiler and between the casing and the feed-pump, substantially as set forth.

3. The combination, with a casing and chambers arranged within the same, of pistons located in said chambers, a tubular piston-rod connecting said pistons, a float on said piston-rod, ports in the upper chamber, a condensing-chamber above the upper piston, and pipe connections between the casing and the water and steam spaces of the boiler and between the casing and the feed-pump, substantially as set forth.

4. The combination, with a casing and chambers arranged at the lower and upper parts of the same, of pistons located in said chambers, a hollow piston-rod connecting said pistons, a float on the piston-rod, a condensing-chamber at the upper part of the casing, pipes connecting the casing and condensing-chamber with the water and steam spaces of the boiler, and pipes connecting the casing with the feed-pump, substantially as set forth.

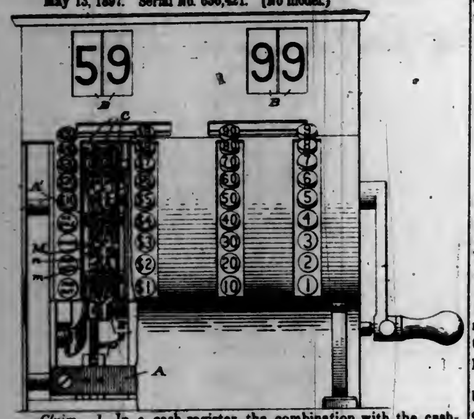
5. The combination, with a casing and of cylinders arranged within said casing, of pistons located in said cylinders, a tubular piston-rod connecting said pistons, a float on the piston-rod, ports arranged in the upper chamber, a condensing-chamber at the upper part of the casing, steam-passages arranged around the upper cylinder, pipes connecting the steam and water spaces of the boiler respectively with the float-chamber and steam-passages, and pipes connecting said steam-passages with the steam-space of the boiler and with the feed-pump, substantially as set forth.

6. The combination, with a casing and cylinders arranged within the same, of pistons located in said cylinders, a hollow piston-rod connecting said pistons, a float on said piston-rod, a port located in the lower cylinder, a passage arranged around the lower cylinder, pipes connecting the casing with the steam and water spaces of the boiler, and a pipe connecting the passage around the lower cylinder with the feed-pump, substantially as set forth.

7. The combination, with a casing and chambers arranged at the lower and upper parts thereof, each chamber being provided with ports, passages extending around said cylinders, pistons located in said cylinders, a tubular piston-rod connecting said pistons, a float on said piston-rod, pipes connecting the casing with the steam and water spaces of the boiler, and pipes connecting the passages around the upper and lower cylinders with the boiler and feed-pump, substantially as set forth.

8. The combination, with a casing and cylinders having ports located within the same, of pistons located in said cylinders, a hollow piston-rod connecting said pistons, a float on said piston-rod, a condensing-chamber, at the upper part of the casing, stops for limiting the up-and-down motion of the pistons, pipes connecting the casing with the steam and water spaces of the boiler, a pipe connecting the condensing-chamber with the boiler, and pipes for connecting the cylinders with the boiler and the feed-pump, substantially as set forth.

589,114. CASH-REGISTER. FRANK H. BICKFORD, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 13, 1897. Serial No. 636,421. (No model.)



Claim.—1. In a cash-register, the combination with the cash-registering wheels, the cash-keys and the driving means arranged to actuate the cash-registering wheels after the cash-keys have been pressed, of the special counter, normally-disengaged mechanism connecting the driving means and the special counter, and the special key for setting the connecting means to operative position and arranged when pressed, to partially actuate the special counter.

2. In a cash-register, the combination with the cash-registering wheels, the cash-keys and the driving means arranged to actuate the cash-registering wheels, of the special counters, normally-disengaged mechanisms connecting the driving means and the special counters and the special keys one appropriated to each of the special counters, so arranged that when one of the special keys is pressed, it will partially actuate its cooperating special counter and set the cooperating mechanism to operative position, whereby the driving mechanism, when operated, will complete the actuation of the special counter.

3. In a cash-register the combination with the driving mechanism, of the special counter, normally-disengaged connecting means, between the driving mechanism and the special counter comprising a spring-pressed plunger, and an operating-bar, and a special key arranged to move the operating-bar.

4. In a cash-register the combination with the driving mechanism, of the special counter, the pawl arranged to move the special counter, the operating-bar pivoted to said pawl and having a beveled end, and a spring-pressed plunger arranged to transmit motion from the driving mechanism to the operating bar.

5. In a cash-register the combination with the driving mechanism, of a special counter, the pawl-carrier bearing a pawl cooperating with the special counter, the operating-bar provided with a notch and having a beveled surface, and a spring-pressed plunger arranged to be moved by the driving mechanism and having a beveled end arranged normally to slide into the notch of the operating-bar.

6. In a cash-register the combination with the driving mechanism, of a special counter, a special key, a pawl cooperating with the special counter, an operating-bar arranged to actuate the pawl and having an arm inclined to the path of travel of the special key, and a projection on the key arranged to strike the arm and move the operating-bar when the key is pressed.

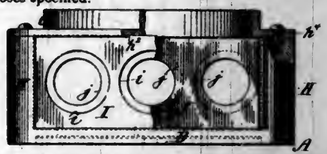
7. In a cash-register the combination with the driving means, of a special counter, a special key, a pawl cooperating with the special counter, an operating-bar arranged to actuate the pawl and provided with a notch, a spring pressed plunger arranged to cooperate with the notched portion of the operating-bar, and moved by the driving means, a projecting arm carried by the operating-bar, and a projection carried by the special key for moving the operating-bar when the key is pressed.

589,115. OUTLET-BOX FOR GAS-PIPES AND ELECTRICAL CONDUITS. WILLIAM J. BILLINGS and MATHIAS MAUER, New York, N. Y. Filed June 7, 1897. Serial No. 639,692. (No model.)

Claim.—1. An outlet-box for gas-pipes and electrical conduits provided with removable and interchangeable sides and a removable and interchangeable bottom plate in manner described and for the purposes specified.

2. A double-walled outlet-box for gas-pipes and electrical conduits, the inner walls of such box being fixed, and the outer walls and bottom being removable and interchangeable.

3. A double-walled outlet-box for gas-pipes and electrical conduits having its inner walls provided with apertures of a smaller diameter than the apertures in its outer walls as described and for the purposes specified.



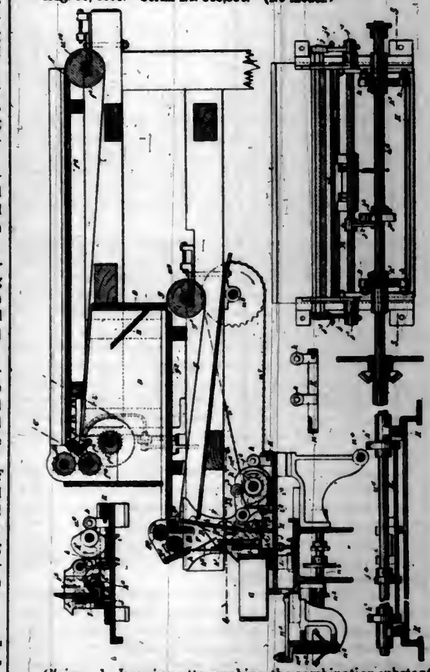
4. In an outlet-box for gas-pipes and electrical conduits the combination of the frame A, the base-plate B, diametrical bridge, D, removable bottom plate, F, provided with apertures for the reception of gas-pipes and electrical conduits, the removable and interchangeable walls I provided with similar apertures, and the cover G as described.

5. In an outlet-box for gas-pipes and electrical conduits the combination of the frame A provided with the corner-posts H, the removable and interchangeable walls I I, the removable perforated bottom plate F, and the cover G, all as shown and described and for the purposes specified.

6. In an outlet-box for gas-pipes and electrical conduits the combination of the frame A, bridge D, cover G, removable and interchangeable outer walls I, I, the inner walls J, J, and the removable perforated bottom plate F, as shown and described and for the purposes specified.

7. In an outlet-box for gas-pipes and electrical conduits the combination of the frame A, the inner walls J, J, the removable and interchangeable outer walls I, I, and the non-conducting and uninflammable packing K, placed between the inner walls J, J, and the outer walls I, I, substantially as described and for the purposes specified.

589,116. CIGARETTE-MACHINE. JAMES A. BONSACK, Philadelphia, Pa., assignor to the Bonsack Machine Company, Salem, Va. Filed Aug. 30, 1890. Serial No. 363,536. (No model.)



Claim.—1. In a cigarette-machine, the combination substantially as set forth, of a hopper provided with a movable bottom, means for opening and closing the movable bottom at predetermined times and mechanism for feeding an uninterrupted stream of tobacco upon the bottom of the hopper, whereby the quantity of tobacco for each filler is determined by the time the bottom of the hopper remains closed.

2. In a cigarette-machine, the combination substantially as set forth, of a hopper or receptacle for receiving tobacco, a movable hopper-bottom, mechanism for feeding an uninterrupted stream of tobacco upon the hopper-bottom, means for operating the movable bottom to open, close and retain the same in the closed position, such means being controlled by the speed of the machine, whereby the hopper will remain closed until the desired quantity of tobacco for a cigarette-filler is deposited therein and will then be opened to discharge the same and then be closed again.

3. In a cigarette-machine, the combination substantially as set forth, with a hopper provided with a movable bottom, mechanism for feeding an uninterrupted stream of tobacco upon the hopper-bottom, means for retaining the bottom in the closed position until the desired quantity of tobacco for a cigarette-filler is deposited thereon and means for opening said bottom to discharge the tobacco and then closing the same, of a receiving-surface located beneath the hopper, a gatherer or compressor and means for moving it along such receiving-surface, and a plunger and means for operating the same to force the tobacco into the filler-mold.

4. The combination of a mold adapted to receive a paper wrapper of definite length and a definite charge of tobacco, feed mechanism arranged to carry said mold and its contents longitudinally; a pair of cleaners arranged in the path of the mold for cleaning the tobacco away from the edges of the wrapper, and mechanism arranged to draw said cleaners in away from the sides of the mold as they enter the same.

5. The combination of a mold adapted to receive a paper wrapper of definite length and a definite charge of tobacco, and means for supplying a wrapper and tobacco thereto; mechanism for folding down the wrapper over the filler arranged to act as the mold moves longitudinally along it; mechanism arranged to move the mold laterally from the wrapper and tobacco supplying means into registering position with the folding mechanism, and mechanism arranged to move the said mold longitudinally along the folding mechanism.

6. The combination of a series of molds, each adapted to receive a wrapper of definite length and a definite charge of tobacco, a table or frame supporting said molds in a common plain, mechanism situated at each end of the table and arranged to carry the molds sidewise across the same, mechanism situated at each side of the table arranged to carry the molds longitudinally from one end thereof to the other, and mechanism arranged along one side of the table to fold down the edges of the wrapper on the filler as the mold moves longitudinally along it.

7. The combination of a series of molds, each adapted to receive a wrapper of definite length and a definite charge of tobacco; mechanism for folding down the edges of the wrapper, and mechanism arranged to move the molds in turn longitudinally along the folding mechanism and return them by a different path to a position registering with the folding devices; said mechanism operating as described to move the molds by a series of intermittent impulses permitting a rest between them.

8. The combination of a movable mold adapted to hold a wrapper of definite length; wrapper-feeding mechanism arranged to form a wrapper into a U form and thrust it endwise into the mold: a supplemental feeding device arranged to engage the wrapper and draw it to correct position in the mold, and means for moving the mold into and out of position to register with the wrapper-feeding mechanism.

9. In combination with a mold adapted to contain a wrapper of definite length; wrapper-feeding mechanism adapted to deliver a wrapper to the mold; a stop for the wrapper arranged to enter one end of the mold; an adjusting-finger arranged to enter the mold and to engage the wrapper and draw it to and against the stop and mechanism as described arranged to retract the stop and finger from the mold.

10. The combination of an intermittently-moving mold adapted to contain a wrapper of definite length; a wrapper-feeding mechanism with which the mold registers in one position of rest; said mechanism consisting as described of a device for thrusting a U-formed blank into the mold, and an adjusting device for bringing said blank-wrapper to correct position therein, and a tobacco-feeding mechanism arranged to register with the mold during the same position of rest, and to deliver a charge of tobacco thereto after the wrapper has been adjusted in the mold, and means for moving the mold into and out of registration with the wrapper and tobacco feeding mechanisms.

11. The combination with molds in which cigarettes are formed, of cutters adapted to sever a strip of paper into the desired wrapper-lengths and mechanism for feeding the strip of paper thereto, of a downwardly-extending guide, as *d*, located below the cutters through which the severed wrappers descend by gravity, and wrapper-feeding mechanism arranged to carry the blanks from the bottom of the guide and deliver them to the molds.

12. The combination with cutters adapted to sever a strip of paper into wrapper-blanks; of mechanism for continuously feeding the paper strip thereto and an intervening guide consisting of plates adapted to lie on each side of the paper strip, and formed so as to flare away above the cutters permitting the paper to buckle while the paper-cutters are in operation and directing it between the cutters when they open.

13. The combination with a mold in which cigarettes are formed, of tobacco-feeding mechanism adapted to register with the top of the mold in one position of rest, a guide-channel substantially flush with the top of the mold and provided with grooves upon its under edges registering with the edges of the mold, wrapper-feeding mechanism adapted to feed a U-formed wrapper-blank endwise into the mold so that its edges will pass through the said grooves, and means for intermittently moving the mold into and out of registering position with the wrapper and tobacco feeding mechanisms.

14. In a cigarette-machine, the combination substantially as set forth, with a mold in which the cigarette is formed, devices for disengaging the cigarette from the mold, and a series of cutters arranged to sever the cigarette into the desired lengths, of a cigarette-holder, as e^{13}, arranged to hold the cigarette and press it against the cutters, and an intermediate carrier arranged to take the cigarette from the disengaging devices and deliver it to the holder by a positive action, and means for operating the carrier and holder.

15. In combination with the mold and the mechanism for feeding the wrapper-blank endwise to the same; the adjusting-finger e^8 the slide *e* to which said finger is attached, and which thrusts it into and withdraws it from the mold; the slide e' actuated by slide *e* as described, the cam e^{14}, the pin e^{15} carried by slide e' and moved up and down by cam e^{14}, said pin lying below finger e^8 and serving to support it as it enters the mold and to permit it to fall and engage the wrapper-blank at a proper position.

16. The combination in a cigarette-machine, substantially as set forth, of a mold, the slide *e*, the lever e^6, the slide e', the rod e^5, the lever e^3, the pin e^{12}, the inclined cams e^{13}, the pin e^{16}, inclined cam e^{14}, pin e^{15}, inclined cam e^{17}, and spring e^{11}, whereby the levers e^3, and e^6, are moved into and out of the mold to feed and stop the wrapper therein.

17. The combination in a cigarette-machine, substantially as set forth, of a movable mold, mechanism for moving the same composed of two parts, one of which parts moves continuously and the other intermittently, and a locking device whereby the intermittently-moving part is locked during the intermission between its movements and is unlocked to permit it to move.

18. The combination in a cigarette-machine, substantially as set forth, of a divided or two-part mold-moving mechanism and means for connecting the two parts together, whereby the continuous movement of one part will give an intermittent movement to the other part.

19. The combination in a cigarette-machine, substantially as set forth, of a divided or two-part mold-moving mechanism, means for connecting the two parts together and a locking mechanism, whereby the continuous movement of one part will give an intermittent movement to the other part and will also operate the locking device to permit such part to move.

20. In a wrapper-folding mechanism for cigarette-machines, the combination substantially as set forth, with a mold, adapted to receive a wrapper and a tobacco filler, and means for operating the same, of a guide and a supplemental presser edge or starter, whereby the edge of the wrapper is received and pressed or started inward by the presser edge or starter and is directed into the guide.

21. In a wrapper-folding mechanism for a cigarette-machine, the combination substantially as set forth, with a mold, adapted to receive a wrapper and a tobacco filler, and means for operating the same, of a device, as Q, having two spiral guides, and two supplemental presser edges or starters, whereby the two edges of the cigarette-wrapper are received and pressed or started inward by such presser edges or starters and are directed into the spiral guides.

22. In a wrapper-folding mechanism for cigarette-machines, the combination substantially as set forth, with a mold, adapted to receive a wrapper and a tobacco filler, and means for operating the same, of a hood, one or more spiral guides, as *q* and a presser edge as q^9.

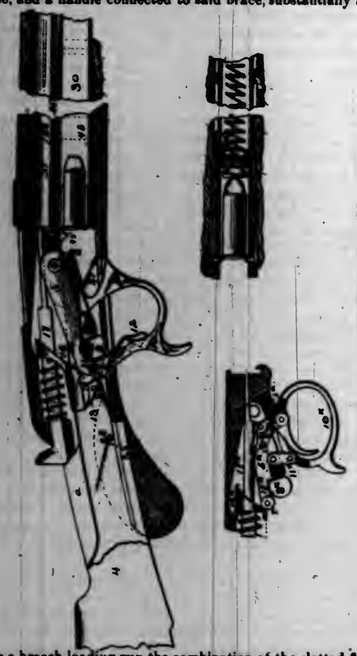
589,117. MAGAZINE-FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed Feb. 25, 1892. Serial No. 422,784. (No model.)

Claim.—1. In a breech-loading gun, the frame having a curved guideway in its upper surface, a curved bolt moving in said guideway, a handle at the bottom of the frame, and a direct connection from the bolt through a slot in the frame to the handle, whereby the handle and bolt are moved in the same general direction in opening and closing, all combined substantially as described.

2. A breech-loading gun having a curved bolt and guideway therefor, and an operating-handle connected directly to said bolt and moving in a curved path corresponding to the path of the bolt in opening and closing the same.

3. The combination with the frame having a curved boltway, of

the curved bolt moving therein, the locking-brace pivoted to the bolt and having an extension reaching through a slot in the bottom of the frame, and a handle connected to said brace, substantially as described.



4. In a breech-loading gun the combination of the slotted frame having a curved boltway, a curved bolt moving therein, a locking-brace connected to said bolt and extending through the slot in the bottom of the frame, and a sliding plate having a handle-piece and connected to said brace, substantially as described.

5. In a breech-loading gun, the combination of the frame and bolt moving therein, the locking-brace pivoted to the bolt and having a bearing against an abutment in the frame, and projections from said brace in front and in rear of said abutment and extending downward to form the trigger-guard, substantially as described.

6. In a magazine-gun, the magazine-tube, the sleeve surrounding said tube and having fingers extending inward over the ends of the tube, the proximate surfaces of these parts provided with inclines by which the fingers are expanded by longitudinal movement relative to the tube, and an abutment in the frame against which said sleeve bears to expand the fingers.

7. The magazine having spring-fingers at its outer end, an abutment in the frame against which said spring-fingers bear when in operative position and a holding-catch by which the magazine may be adjusted in the gun to expand said fingers when in operative position, and allow them to close when in inoperative position, all combined substantially as described.

589,118. AUTOMATIC MAGAZINE-FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed May 20, 1892. Serial No. 433,692. (No model.)

Claim.—1. In a breech-loading gun, and in combination with the barrel and frame, a curved housing for the breech-bolt, and a curved bolt in said housing having an extension to the rear of the small of the stock and inclosed in the housing and stock in all positions of the breech-bolt, when assembled in the gun.

2. In a magazine-gun of the character described, the frame, barrel, and reciprocating bolt, said frame having a fixed bridge in proximity to the bolt, a flexible magazine-strip and flexible clasps thereon, and means for passing the magazine-strip across the bridge in position for the bolt to pass lengthwise of the clasp and move the cartridge therefrom directly into the barrel, all combined substantially as described.

3. In a magazine-gun, the frame having a fixed bridge as described, the bolt reciprocating in proximity to said bridge, the flexible magazine-strip and means for moving it across said bridge, said strip having flexible clasps with inclined rear ends against which the cartridge-flange or bolt-head acts to expand the clasps when pushed directly forward, all combined and relatively arranged substantially as described.

4. In a recoil-operated breech-loading gun, the barrel and frame, the breech-bolt and a bell-crank lever connected thereto, and a spring bearing on the bell-crank lever to close the breech-bolt, in combination substantially as described.



5. In a recoil-operated breech-loading gun, the frame and barrel, the reciprocating breech-bolt, a bell-crank lever hung in rear of the bolt and connected thereto by a link, and the spring acting on one arm of the bell-crank lever in opposition to the rearward movement of the breech-bolt, all combined substantially as described.

6. In a recoil-operated breech-loading gun, the frame, barrel, and breech-piece, a lever connected to the breech-piece and a spring offering resistance to the movement of the lever to resist the opening of the breech-piece, and an adjustable abutment by which the initial position of the lever may be regulated, all combined substantially as described.

7. In a recoil-operated breech-loading gun, the frame and suitable operative connections, the reciprocating breech-bolt, the bell-crank lever and link connected to said bolt and a spring bearing on said lever against the opening of the bolt, and the movable abutment for regulating the initial position of the arms of the bell-crank lever, all combined substantially as described.

8. The frame and connections, the reciprocating breech-bolt, the lever connected to said bolt to resist the rearward movement thereof, the spring bearing on the lever, and means for disengaging the lever and breech-bolt, in combination substantially as described.

9. The frame and connections, the reciprocating breech-bolt and bell-crank lever connected thereto, the spring bearing on said lever, and a detaching-piece extending outside the frame and in position to force the lever connections out of operative engagement with the bolt, all in combination.

10. The frame and operative connections, the reciprocating bolt, bell-crank lever and spring, the link connecting the bell-crank lever and spring by a knuckle-bearing, and the handle suitably supported and having a hook in position to lift the link from engagement with the bolt as the handle is moved, all combined substantially as described.

11. The combination with the frame, breech-bolt, and operative connections, of the recoil-operated devices for opening and closing the breech, and a hand-operated breech-controlling mechanism, capable of connection to or disconnection from the breech-closing piece, all combined.

12. In a gun, the barrel, frame, and reciprocating breech-piece, the recoil-operated mechanism substantially as described by which the breech may be opened and closed, the hand mechanism outside the stock for operating the breech-piece, and means extending outside the stock for disengaging the hand mechanism from the breech-piece, all combined.

13. The frame and operative connections, the breech-piece reciprocating about lengthwise of the frame in opening and closing, the handle supported on the frame to reciprocate about lengthwise thereof, and the catch connected to the handle, and movable into position to engage with the breech-moving mechanism while unlocking the handle or to release said mechanism when locking the handle, all in combination.

14. The frame, bolt, and operative connections, the locking-brace in the bolt provided with a hook having inclined face, the slide-piece having a hook in position to engage the hook of the locking-brace, and the handle on the frame having a catch in position to engage with the slide or to be disengaged therefrom, all in combination.

15. The frame, bolt, and operative connections, the locking-brace engaging the bolt, and the spring acting normally to unlock said brace, combined with an operating-handle and mechanism in position to engage the brace and overcome the spring when desirable, all combined substantially as described.

16. An open-sided gun-frame, suitable breech and operating mechanism carried by said frame, and a cartridge-magazine consisting of a flexible strip wound on a spindle, and insertible into said frame in position for the exterior cartridge on the strip to be engaged by the breech-piece, and a spring-catch for holding said magazine-strip in place, all combined substantially as described.

17. In a magazine-gun, the combination with the frame and longitudinally-reciprocating breech-bolt, of the flexible belt and means for moving the same, said belt having flexible clasps with the rear ends inclined to such extent that the cartridge-flanges can be forced directly forward, thus flexing and expanding the clasps, all combined substantially as described.

18. The shoulder-gun having a magazine-receptacle in its frame, open at both sides, and in rear and partly in line with the barrel, a coiled magazine of flexible material having clasps for the attachment of cartridges, and means for retaining said coiled magazine in said receptacle, and a vibrating piece operated by the breech mechanism to uncoil the flexible magazine, by the operation of the breech-piece, all combined substantially as described.

19. The flexible magazine-belt having cartridge-clasps, the bridge having teeth over which said belt passes, the feed-lever having teeth engaging the opposite face of the magazine-belt, and the bolt operating on said lever to swing it as the bolt opens, combined with the frame and operative connections substantially as described.

20. The combination of the frame and operative connections, the flexible magazine-belt, the lever pivoted on a vertical pivot and having teeth engaging said belt, said lever having a projection at the side toward the bolt, and the bolt having side projections at front and rear of the projection on the lever, to engage said lever, substantially as described.

21. The frame and operative connections, the hammer hung in the frame, the bolt reciprocating over the hammer to cock the same by its backward movement, and the safety-catch lever pivoted in the bolt, having an operating-piece in line with an opening in the housing when the bolt is closed, and a surface at its lower part which may be turned over the hammer in its cocked position, all combined substantially as described.

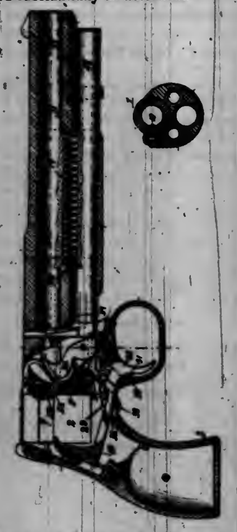
22. The frame having a curved boltway and recess tangential thereto, the curved bolt, and the locking-brace extending tangentially to the body of the bolt, and having its locking-face when in locked position directly in rear of the face of the bolt and at one side of the body thereof, all combined in a gun, substantially as described.

589,119. GAS-OPERATED FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed Nov. 25, 1892. Serial No. 452,991. (No model.)

Claim.—1. In an automatic gun, the barrel and breech-piece constructed to permit a longitudinal opening and closing movement, a locking-dog by which said barrel and breech-piece are locked together when the breech is closed, an opening in the barrel, and a gas-check pin in this opening, said pin operating directly on the locking-dog to unlock the parts by means of pressure in the barrel acting on said pin, whereby the parts may be unlocked and the breech opened by direct pressure from within the bore, all combined substantially as described.

2. In an automatic gun, a frame supporting the breech and barrel, and means for opening said breech by the longitudinal movement of one the parts relatively to the other, a breech-locking dog engaging an abutment at the side of the barrel and extending into proximity to a hole in the barrel, whereby pressure in the bore of the gun, acting through the hole in the barrel will directly unlock the locking-dog, whereby when unlocked the breech will be opened by residual pressure in the bore acting backward on the cartridge-shell, and a spring acting to close the breech-opening, substantially as described.

3. In an automatic gun, the barrel and breech-piece constructed to permit a longitudinal opening and closing movement, a locking-dog by which said barrel and breech-piece are locked in closed position, and means extending to the bore of the barrel whereby the breech may be unlocked by pressure within the bore, and whereby the breech and barrel may be separated by direct residual pressure within the bore, all combined substantially as described.



4. In a gun, the barrel, frame and breech-piece and reciprocating handle rigidly connected to and reciprocating in the same direction with said breech piece, means for locking the handle to the barrel, and an opening in the barrel in proximity to said lock, whereby the handle is released by pressure through said opening when the gun is fired, all combined substantially as described.

5. In a gun, the frame and longitudinally-reciprocating breech-piece, the extractors having fulcrum-bearings on the breech piece, and abutments by which the extractors are rocked and cramped to clamp the flange of the cartridge at about the rearmost position of the breech-piece, all combined substantially as described.

6. In a breech-loading gun, the frame and barrel, the longitudinally-moving breech-closing piece, the spring-pressed extractor-hook hung in said breech-piece on horizontal trunnions entering loosely into a hole in the breech-piece, and the abutment in the frame acting as a stop to cramp the extractor-hook on the cartridge, all combined substantially as described.

7. A reciprocating breech-piece, an ejector hung with reciprocating movement therein and a spring to press the ejector back and downward, in combination with a resisting-piece in the line of movement of the ejector to protrude said ejector's point forward of the breech-face, and then raise it, substantially as described.

8. The combination of barrel and frame, a breech-block free to reciprocate in the frame, means for normally locking the gun in closed position, and means reaching to the bore of the gun for unlocking the locking device, whereby on firing the gun the pressure of gas in the bore of the gun first unlocks the breech-block, and then directly opens the breech, substantially as described.

9. A breech-loading firearm provided with an opening in its frame to receive the cartridges, a projecting ring around said opening, a guideway to receive and hold the magazine beneath the barrel and a spring-snap to confine it against said ring, in combination with a detachable tubular magazine closed at its front end, and provided with alternate spring stops and guides at it open rear end, substantially as and for the purpose specified.

10. A breech-loading firearm provided with an opening in its frame to receive the cartridges, a projecting ring around said opening, a guideway to receive and hold the magazine beneath the barrel, and a spring-snap to confine the magazine against said projecting ring, all in combination and with a detachable tubular magazine arranged to feed and guide the cartridges, substantially as described.

11. A detachable tubular magazine closed at its front end, provided with alternate spring stops and guides, to form a continuation of its rear end, in combination with a breech-loading firearm provided with means to receive and hold said magazine beneath the barrel and thereby retire the spring-stops from holding engagement with the cartridges, substantially as described.

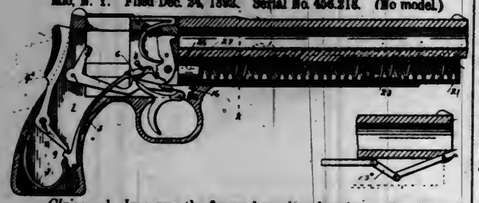
12. A detachable tubular magazine closed at its front end, slits in its open rear end to form alternate blanks and hooks, connected with the body of the magazine, the hooks being formed to spring inward and to hold the cartridges in the magazine against the pressure of its spring, all in combination substantially as described.

13. A detachable tubular magazine closed at its front end, slits in its open rear end to form alternate blanks and hooks, integral with the body of the magazine the hooks being formed to spring inward and hold the cartridges in the magazine against the pressure of its spring, and a follower having annular grooves or corrugations, substantially as described.

14. A gun having a barrel and breech-closing piece constructed to relatively open and close, locking means for retaining the parts in closed position, means reaching to the bore of the gun by which the parts are unlocked by pressure within the bore on the firing of the gun, and the breech and barrel separated by residual pressure within the bore, all combined substantially as described.

15. In an automatic gun, the barrel and breech-piece, constructed to have a longitudinal movement of one part relatively to the other, in opening and closing, a locking-piece to retain the breech in closed position, and an elastic gas, developed in the bore of the gun by firing and acting on the locking-dog to unlock the same, and on the barrel and breech to separate the same by direct pressure, all combined substantially as described.

589,120. GAS-OPERATED FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed Dec. 24, 1892. Serial No. 456,218. (No model.)



Claim.—1. In a gun, the frame, barrel, and reciprocating breech-block, a breech-locking mechanism independent of the breech-actuating lever and means for unlocking the same, a breech-moving lever hung in the frame and connected to the breech-block, a spring connected to said lever and tending to close the breech-block, and a recoil-lever operating on said breech-lever to open the breech-block against the resistance of said spring, all combined substantially as described.

2. In a breech-loading gun, the barrel frame, and reciprocating breech-block, and means for locking and unlocking said breech-block, a lever connected to the breech-block by its long arm and pivoted in the frame, and a second lever having a long arm acting as a recoil-piece, and a short arm acting on the short arm of the first-mentioned lever to accelerate the movement of the breech-block when opened by recoil action, all combined substantially as described.

3. In a gun, the barrel, frame, and movable breech-block, and mechanism connected to said breech-block by which the breech is opened by the recoil of some part of the gun, a breech-locking catch, and mechanism extending to the bore of the gun forward of the cartridge-seat, by which said catch is unlocked by the gas-pressure in the bore of the gun, and opened by the recoil of the gun, all combined substantially as described.

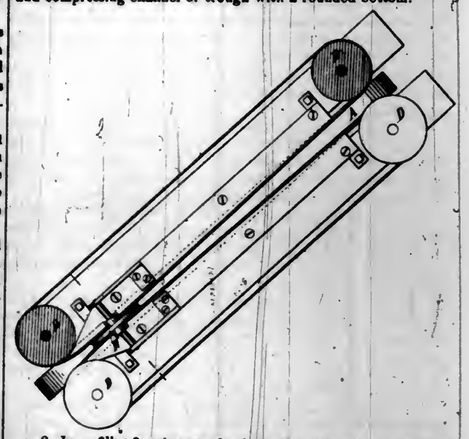
4. In a gun, the barrel, frame, and longitudinally-reciprocating breech-block, mechanism connected to the breech-block and operated by the recoil of the gun to open the breech, a locking-catch for the breech-block, and connections from said catch extending to the front of the gun-muzzle, so that the catch is unlocked by gas-pressure and the breech opened by the recoil, all combined substantially as described.

5. The barrel, frame, and breech-block, the breech-locking dog and means extending to the front of the muzzle of the gun whereby the dog may be unlocked by the firing of the gun, and a projection from the dog whereby the same may be manipulated by hand, all combined substantially as described.

6. The inner magazine-tube having a shouldered slot and an opening therein, and the outer magazine-tube having a double catch extending through an opening in the side thereof, in position to engage the shoulder of the slot in the inner tube or the outer end of said tube when adjusted, all combined substantially as described.

589,121. CONTINUOUS-CIGARETTE MACHINE. KENT H. CARPER, Salem, Va., assignor to the Bonsack Machine Company, same place. Filed Aug. 11, 1894. Serial No. 520,049. (No model.)

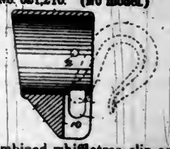
Claim.—1. In a filler forming mechanism of a cigarette-machine, the combination substantially as set forth, of two endless converging side belts having their lower edges curved or offset, an endless bottom belt and a pressure device operating to press down the tobacco between the side belts, whereby there is formed a tobacco feeding and compressing channel or trough with a rounded bottom.



2. In a filler-forming mechanism of a cigarette-machine, the combination substantially as set forth, of two endless converging side belts having their lower edges curved or offset and beveled off to a thin edge to conform to the upper surface of the bottom belt, an endless bottom belt and a pressure device operating to press down the tobacco between the side belts, whereby there is formed a tobacco feeding and compressing channel or trough with a rounded bottom and the lower edges of the side belts have a flat smooth contact with the upper surface of the bottom belt.

3. In a filler-forming mechanism of a cigarette-machine, the combination substantially as set forth, of two endless converging side belts having their lower edges curved or offset and without slits or notches, and pulleys of sufficient diameter to permit such belts to pass around them without causing their flanged or curved edges to break, an endless bottom belt and a pressure device operating to press down the tobacco between the side belts, for the purpose described.

589,122. COMBINED WHIFFLETREE CLIP AND HOOK. CHAS. E. COE, St. Louis, Mo., assignor to C. H. Sawyer, same place. Filed Jan. 29, 1897. Serial No. 621,210. (No model.)

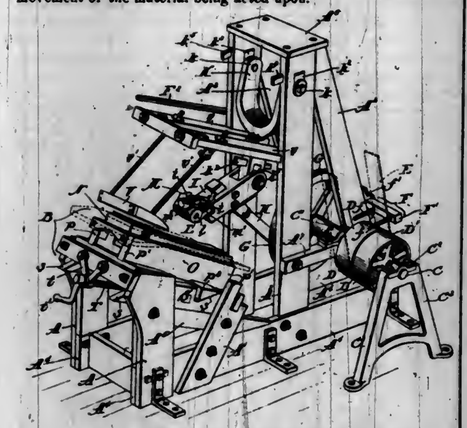


Claim.—1. A combined whiffletree clip and hook comprising a suitable clip, lugs projecting from the periphery of the same, U-shaped pockets formed along the inner adjacent surfaces of the lugs, a suitable depression formed in the clip between the pockets and adjacent to the rear walls of the same, a hook having a suitable shank and outwardly-projecting pivotal lugs at the end of the hook-shank adapted to be inserted into the pockets and between the inner adjacent surfaces of the lugs, and a rib connecting the clip-lugs to the body portion and having an inclined edge cooperating with the end of the hook when the latter is in its closed position, substantially as set forth.

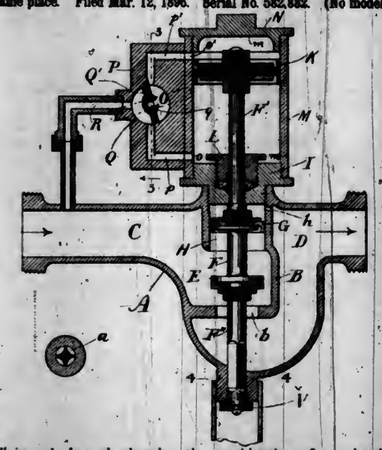
2. A combined whiffletree clip and hook comprising a suitable clip, lugs projecting from the periphery of the same, U-shaped pockets formed along the inner adjacent surfaces of the lugs, a suitable depression formed in the clips between the pockets and adjacent to the rear walls of the same, a hook having a suitable shank expanding gradually from its free end to the base thereof, outwardly projecting pivotal lugs at the end of the hook-shank, adapted to be inserted into the pockets of the clip, and a rib connecting the clip-lugs to the body portion of the clip, substantially as set forth.

589,123. MOROCCO-GLASSING MACHINE. EDWARD T. EBB, Philadelphia, Pa. Filed Oct. 27, 1896. Serial No. 610,196. (No model.)

Claim.—The combination of the work bed or table, the polishing-tool L, a clamp carrying the same, means for reciprocating said tool, and a guard V hung on a support at the front of the table and having its lower edge some distance above the table to permit free movement of the material being acted upon.



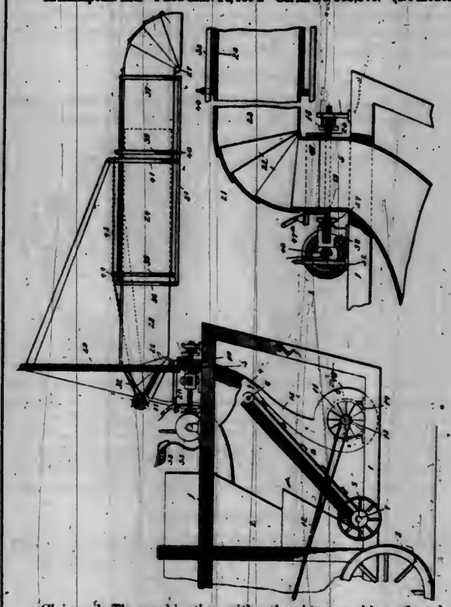
589,124. VALVE. EILERT EVERTSEN, Chicago, Ill., assignor of three-fourths to Harold T. Thams, Hugo Freels, and Benjamin Dalsing, same place. Filed Mar. 12, 1896. Serial No. 582,882. (No model.)



Claim.—1. In a check-valve, the combination of a casing having a web dividing its interior into two chambers, C and D, adapted to communicate with the main and service-pipe, respectively, said web having a port through which the chambers communicate, a valve E seating in the direction of the pressure from the main, for controlling said port, a stem F by which the valve is carried, a piston G secured to the stem, the valve and piston being of equal area and having their opposed faces exposed to the pressure in the chamber C, a cylinder H in which the piston fits, the chamber C and cylinder being in direct communication with each other on but one side of the piston and the chamber D and cylinder being in direct communication on the opposite side of the piston, and a motor for operating the valve, said motor having a piston connected with the valve-stem, a cylinder in which the piston works, passages communicating with opposite ends of the cylinder and with the main, a valve for controlling said passages, and means for operating said valve, substantially as set forth.

2. In a check-valve, the combination of a casing having a web dividing its interior into two chambers C and D, adapted to communicate with the main and service-pipe, respectively, said web having a port through which the chambers communicate, and said casing having a waste-opening located opposite said port and communicating with the chamber D on the service-pipe side of the web, a valve E seating in the direction of the pressure from the main for controlling said port, a valve for controlling the waste-opening, a stem by which the valves are carried, a piston G secured to the stem, the valve E and piston being of equal area and having their opposed faces exposed to the pressure in the chamber C, a cylinder H in which the piston fits, a port A connecting the chamber D with the cylinder H upon the side of the piston G which is remote from the valve E, whereby the valve is at all times balanced, and means for operating the valves, substantially as set forth.

589,125. PNEUMATIC STRAW-STACKER. CHARLES C. HIERS, Connersville, Ind., assignor to The Indiana Manufacturing Company, Indianapolis, Ind. Filed Mar. 14, 1894. Serial No. 503,579. (No model.)



Claim.—1. The combination, with a threshing-machine, of an elevator-casing connected with the casing of the machine, a discharge-pipe connected with the upper end of the elevator-casing, an inclined carrier arranged in said casing and leading from the casing of the machine and terminating at its upper end below the discharge-pipe of the stacker, and a blower arranged under the elevator and terminating in a discharge-spout below the upper end of said elevator, substantially as set forth.

2. The combination with a threshing-machine, of an elevator-casing arranged therein and terminating at the platform thereof, a series of standards arranged about the casing and provided with horizontal shafts with rollers thereon arranged in pairs, a ring mounted between the upper and lower sets of rollers, a cylinder within the ring, a discharge-pipe carried by the ring, and means for rotating the ring in either direction, substantially as set forth.

3. The combination with a threshing-machine, of a discharge-casing, a ring revolubly supported in a horizontal position around said casing, teeth on said ring, a cylinder arranged in said ring, a discharge-pipe connected with said cylinder, a transverse shaft capable of longitudinal movement mounted at one side of said ring, means for driving said shaft, gears on said shaft a distance apart, one on each side of the center thereof, an intermediate gear-wheel engaging the teeth of the ring and adapted to be operated by either of said gears on said shaft, and means for moving said shaft longitudinally to throw either of said gears into engagement with said intermediate gear-wheel, according as it is desired to drive it in one or the other direction, substantially as set forth.

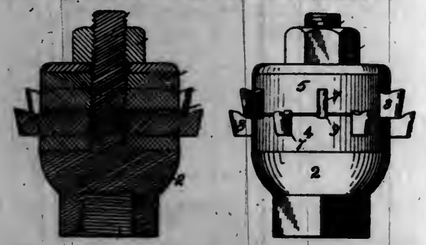
4. The combination with a threshing-machine and a casing leading therefrom, of a toothed ring revolubly mounted around said casing, a cylinder within the ring, a discharge-pipe within the cylinder, a vertical standard or shaft at one side of the ring with a journal formed thereon, a horizontal gear-wheel mounted thereon and engaging with the teeth of said ring, a horizontally-disposed shaft at one side of said ring mounted to be moved longitudinally, a central flange thereon, gears thereon arranged on each side of and near to said horizontal gear-wheel, and a pivoted lever arranged in the rear of the shaft and adapted to loosely engage said flange, whereby it may be operated to shift said shaft to throw either of its gears into engagement with said horizontal gear-wheel, substantially as set forth.

5. The combination with a threshing-machine and discharge-casing, of a ring and a cylinder arranged thereon, means for rotating the ring, and an adjustable elbow connected with the upper end

of the cylinder, telescopic pipe-sections connected with the elbow, an adjustable elbow at the outer end of said pipe-sections, means for raising and lowering said sections, and means for contracting and distending said sections, substantially as set forth.

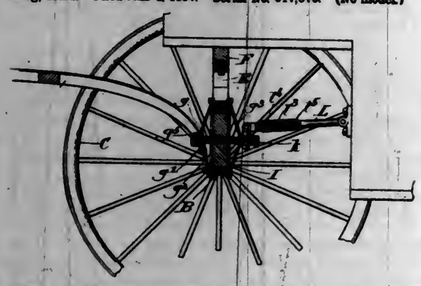
6. The combination with a threshing-machine and the discharge-casing, of telescoping pipe-sections, one of which is stationary and the other movable, means for telescoping said sections, a series of segmental pipe-sections connected to each other and arranged at the outer end of the movable section, a coiled spring for normally distending said segmental sections, and an operating-cord connecting the sections and leading to the machine, substantially as set forth.

589,126. BOILER-TUBE CLEANER. PHILIP HOERLEIN, Toledo, Ohio. Filed Feb. 23, 1897. Serial No. 624,585. (No model.)



Claim.—A boiler-tube cleaner comprising a threaded bolt, a head or base, integral with said bolt, means for securing a handle to said base, a pair of disks having central openings therethrough, mounted upon said bolt and having radial slots in their meeting faces, the slots of one disk alternating with the slots of the other disk, radially-projecting cutting-teeth in said slots, and a nut upon the extremity of said bolt, whereby said disks are forced together and said teeth clamped in place.

589,127. VEHICLE RUNNING-GEAR. ALBERT A. HOLT, Fitchburg, Mass. Filed Jan. 4, 1897. Serial No. 617,870. (No model.)



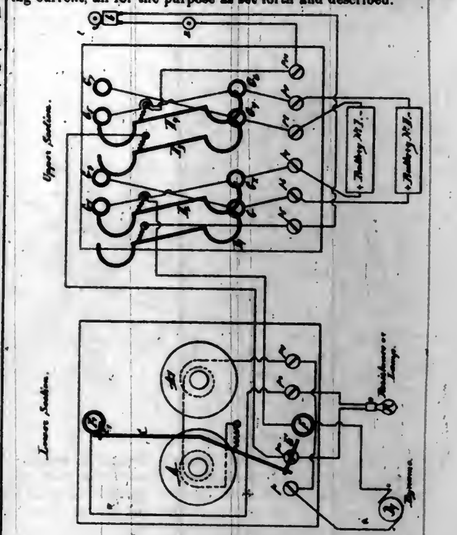
Claim.—1. The combination with a vehicle-body, and its running-gear, of a longitudinal horizontal pivot connection and also a vertical pivot connection cooperating with said horizontal pivot connection, and both between said body and running-gear, substantially as described.

2. A forked reach comprising a single bar bent at its middle, its divergent ends terminating in hinge members, and its angular middle portion clamped between castings provided therefor, substantially as described.

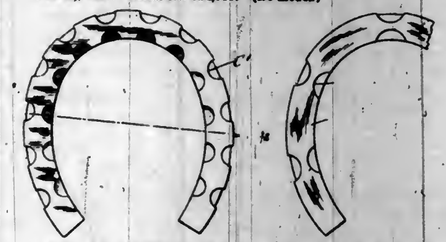
3. In a vehicle running-gear, the combination with a forked reach consisting of a single bar bent at its middle, said reach at its angular middle portion being clamped between opposite castings having a web at their rear inner side, of a link connection between the forward bent end of said reach and the front running-gear of the vehicle, said link having a vertical pivot at each end, its rear pivot being located in said web, substantially as described.

589,128. AUTOMATIC SWITCH FOR CHARGING OR DISCHARGING SECONDARY BATTERIES. ALBERT S. HUBBARD, New York, N. Y., assignor to the Electro-Chemical Storage Battery Company, same place. Filed Oct. 23, 1896. Serial No. 609,515. (No model.)

Claim.—In an automatic charging-switch for storage batteries the combination of a charging-circuit and a working circuit, two sets of storage batteries, connections between the charging and working circuits and said batteries, a switch for alternating the connections between the storage batteries, and the charging and working circuits held out of operation by a magnet in the charging-circuit, whereby the circuit connections are changed upon the cessation of the charging-current, all for the purpose as set forth and described.



589,129. HORSESHOE. DAVID S. JAFFRAY, Chicago, Ill. Filed Feb. 23, 1897. Serial No. 624,585. (No model.)



Claim.—1. A horseshoe comprising a base, a longitudinal vertical web attached thereto, and tread-flanges attached to said web and extending on opposite sides thereof.

2. A horseshoe provided between its edges with a longitudinal calk consisting of a web provided on its lower edge with oppositely-extending tread-flanges having inwardly inclined or tapered upper surfaces.

3. A horseshoe comprising a base, a vertical web attached thereto, and tread-flanges attached to said web and extending on opposite sides thereof, said flanges being provided on opposite sides of the web with inwardly-extending marginal recesses.

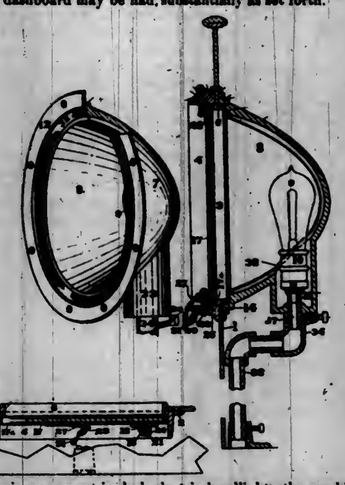
4. A horseshoe comprising a base, a vertical web attached thereto, and tread-flanges attached to said web and extending on opposite sides thereof, said flanges being provided on opposite sides of the web with marginal recesses which extend at their inner sides to the plane of the web.

5. A horseshoe comprising a base, a vertical web attached thereto, and tread-flanges attached to said web and provided with converging lower surfaces which intersect each other and form a sharp tread.

6. A horseshoe comprising a base, a vertical web attached thereto, and tread-flanges attached to said web provided with converging lower surfaces which intersect each other and afford a sharp supporting-tread, said flange being provided on opposite sides thereof with marginal recesses which extend at their inner sides to the plane of the web.

589,130. ELECTRIC HEADLIGHT. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the United States Headlight Company, Utica, N. Y. Filed Feb. 15, 1897. Serial No. 623,522. (No model.)

Claim.—1. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through the same, of a headlight-case provided at its front or open end with means by which it is secured to the rear side of said dashboard opposite the said opening therein; a reflector, a lamp-socket holder, a lamp-socket and an incandescent lamp mounted within the case and removable therewith, a dash-collar secured to said dashboard on the front side thereof, the open center of which registers with the opening in said dashboard and with the open end of the headlight, a rim projecting forward of said dash-collar and carrying a glass-holder provided with a glass for covering the said openings, a fastening for securing the glass within said holder and a device for coupling the said glass-holder within said rim, whereby access to the interior of the headlight through said openings and from the front side of said dashboard may be had, substantially as set forth.



2. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through the same, of a headlight-case provided at its front or open end with means by which it is secured to the rear side of said dashboard opposite the said opening therein; a reflector, a lamp-socket holder, a lamp-socket and an incandescent lamp mounted within the case and removable therewith, a dash-collar provided with a forwardly-projecting rim and secured to the front side of said dashboard; the open center of which dash-collar registers with the opening in said dashboard and with the front or open end of the headlight, a removable glass-holder carrying a glass for covering the open end of said reflector, a fastening for securing the glass within said glass-holder, and a device for retaining the said glass-holder within the said rim and against a shoulder adjacent thereto, whereby access to the interior of the headlight through said openings, and from the front side of the dashboard may be had, substantially as set forth.

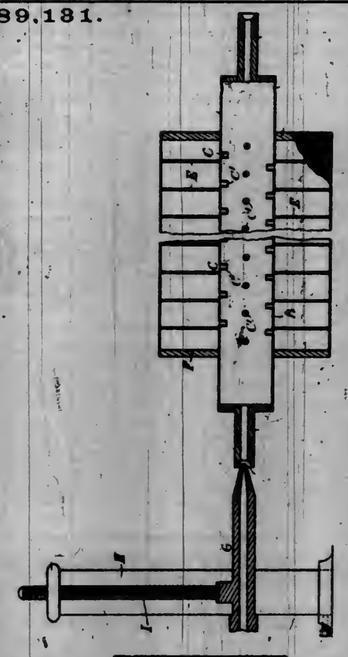
3. In a headlight for street-cars, the combination with the dashboard of such car having an opening cut through the same, of a headlight with the front or open end of its casing secured to the rear side of said dashboard and registering with said opening therein, a removable glass-holder carrying a glass for covering the open end of the reflector of said headlight, a rim projecting forward of the open end of said reflector and of said dashboard, a shoulder formed adjacent to said rim, fastenings for retaining the said glass-holder within the said rim, springs operating in conjunction with the said fastenings and said glass-holder, whereby the latter is pressed closely against said shoulder and access to the interior of the headlight through said openings can be had, substantially as set forth.

589,131. DANDY-ROLL FOR PAPER-MAKING MACHINES. JOHN LESTER, Leslie, Scotland, assignor to the New Paper-Makers' Engineering and Dandy-Roll Patents Company, Limited, London, England. Filed Nov. 21, 1896. Serial No. 569,700. (No model.)

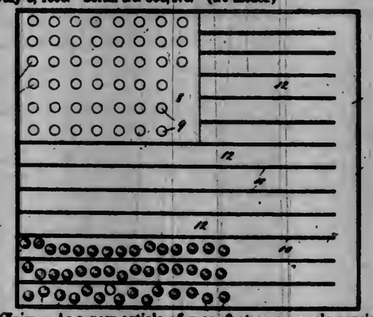
Claim.—1. The combination with the hollow dandy-roll closed at each end, of a hollow perforated spindle extending longitudinally through the roll and through the ends thereof, and projecting beyond said ends, and being provided in one projecting portion with water-escape openings, and a steam or hot-air admission pipe adapted to project steam or hot air into the other projecting portion of the spindle, whereby the fluid is caused to pass radially through the perforations in the spindle and be sprayed upon the inner surface of the roll.

2. The combination with a dandy-roll, of a hollow spindle supporting the same and having a series of perforations in its periphery, and inwardly-projecting tubular extensions alining with said perforations.

589,131.



589,132. PUZZLE. LEWIS S. MARSH, Columbus, Ohio. Filed July 3, 1896. Serial No. 598,470. (No model.)

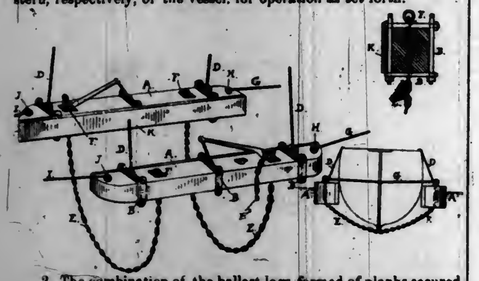


Claim.—As a new article of manufacture a puzzle consisting of a plate or board, vertical end plates and vertical side plates engaging the same secured to said board, a plurality of circular cavities or chambers in said board and near the corner thereof surrounded by the said vertical walls and arranged in longitudinally-extending and transversely-extending rows, a plurality of partition-plates arranged longitudinally across the said box, a part of which begins at the lower left-hand corner of the said casing and extending to nearly the other end thereof forming thereby a transverse space or chamber and the remaining said partition-plates beginning at the inner end of said rectangular space and extending to the said space or chamber thus forming in general appearance by the said transversely-extending plates and cavities a figure representing the American flag and a plurality of balls or spherical bodies corresponding in number to the said cavities or chambers and bearing numbers corresponding to other numbers placed adjacent to said cavity and adapted to enter the same all of the said parts being combined substantially as and for the purpose set forth and described.

589,133. BALLAST-LOG FOR VESSELS. STEWART MEHRTEN, San Francisco, Cal. Filed Apr. 6, 1896. Serial No. 586,296. (No model.)

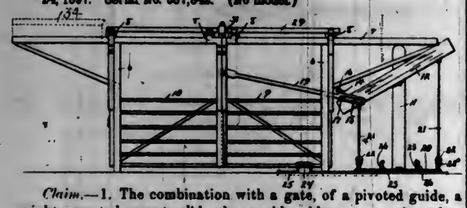
Claim.—1. The herein-described apparatus for ballasting unloaded vessels in port, consisting of the ballast-logs A A, the chain cables E E passing through holes in the logs and loosely connected to said logs to be shortened or extended in length from one log to the other under the keel of the vessel, the claw-bar or lever L as a

means for drawing up said cable through the hole in one log and securing it to the log, the suspending-ropes D D and the fore and aft cables G I connecting the said logs together around the bow and the stern, respectively, of the vessel, for operation as set forth.



2. The combination of the ballast-logs, formed of planks secured together by clamps B B and the removable wearing plates K on the inner face of the logs covering the clamps, said logs having holes running vertically through each log near the ends thereof, the chain cables passed through said holes from beneath upward and loosely attached to the log, whereby the said cables can be taken up and tightened, the suspending-ropes D D and the fore and aft cables G I connecting the front ends and the rear ends of the said logs around the bow and the stern of the vessel respectively, constructed and arranged for operation as set forth.

589,134. GATE. JACOB B. MILLER, Noblesville, Ind. Filed May 24, 1897. Serial No. 637,842. (No model.)



Claim.—1. The combination with a gate, of a pivoted guide, a weight mounted so as to slide along said guide, an arm pivoted to the gate, an arm carried by the weight and adapted to engage said first-mentioned arm, and means for swinging the guide.

2. The combination with a gate, of a pivoted guide, a weight mounted so as to slide along said guide, intermediate connecting mechanism between said weight and gate whereby a downward movement of the weight along the guide will cause a movement of the gate, an operating-lever 23 mounted in the roadway, and intermediate connecting mechanism between said lever and the pivoted guide whereby the operation of said lever will cause a swinging movement of the guide.

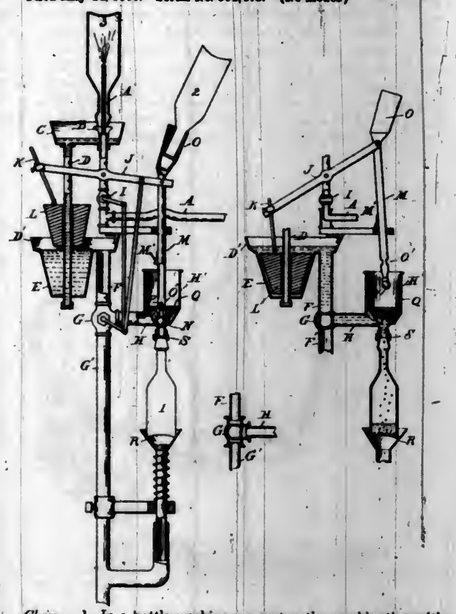
3. The combination with a gate, of a pivoted guide, a weight mounted so as to move along said guide, an arm carried by said weight, an arm pivoted to the gate and adapted to engage said first-mentioned arm, an operating-lever 23 mounted in the roadway, lever 20, cords 21 connecting the ends of said lever with opposite ends of the pivoted guide, and a link connecting levers 23 and 20, all combined and arranged to cooperate substantially as and for the purpose set forth.

4. The combination with a pair of sliding gate-sections, of a pivoted guide, a weight mounted so as to slide thereon, intermediate connecting mechanism between said weight and one of the gate-sections, means for swinging the pivoted guide, and intermediate connecting mechanism between the two gate-sections whereby a movement of one of said sections will cause a similar opposite movement of the other section.

5. The combination with a pair of sliding gate-sections, of a pivoted guide, a weight mounted so as to move along said guide, intermediate connecting mechanism between said weight and one of the gate-sections, means for swinging the pivoted guide, a rack-bar carried by each of the gate-sections, and a pinion engaging both of said rack-bars, all combined and arranged to cooperate substantially as and for the purpose set forth.

6. The combination with a pair of sliding gate-sections, of a pivoted guide, a weight mounted so as to slide thereon and provided with suitable rollers, an arm carried by one of the gate-sections and adapted to engage the weight, a rack-bar carried by each gate-section, a pinion engaging both rack-bars, lever 23 mounted in the roadway, lever 20, cords 21, and link 26, all combined and arranged to cooperate substantially as and for the purpose set forth.

589,135. BOTTLE-WASHER. HENRY H. MILLER, Lakeside, Ohio. Filed May 14, 1896. Serial No. 591,475. (No model.)



Claim.—1. In a bottle-washing apparatus, the combination with supporting means of a rinsing-nozzle, a catch-basin for said nozzle, a discharge-nozzle, a support for holding a bottle to said discharge-nozzle, a pipe connection from said catch-basin to said discharge-nozzle, and a valve controlling said pipe connection.

2. In a bottle-washing apparatus, the combination with a support, of a bottle-holder, a bottle-rinser, a catch-basin for said rinser, the connection from the basin to the bottle in the holder, a receptacle or tank in said connection and a plunger for displacing the water in said tank to cause it to flow into the bottle in the holder.

3. In a bottle-washing apparatus, the combination with a supporting means, of a bottle-holder, a rinser, a catch-basin, a receptacle connected with said catch-basin, an overflow-pipe from said receptacle leading to a point above the bottle-holder, a valve in said pipe, a plunger for displacing the water in said receptacle, and means for simultaneously operating said plunger and valve, substantially as set forth.

4. The combination with a bottle-holder, and a shot-holder above the same, of a valve-controller discharge for the shot, a water connection for charging the bottle in the holder, and a waste-water discharge communicating into the shot-holder.

5. The combination with the funnel H' into which the shot and water are discharged, a perforated false bottom in which the water is separated from the shot, a waste-pipe, a water-supply connection, a valved discharge for the shot.

6. The combination with a support, of a bottle-holder, a valve-controlled funnel above the same which discharges into the bottle in the holder, a perforated false bottom therein, a lateral connection below the false bottom and a valve to connect said connection with a waste-pipe or a water-supply pipe.

7. The combination with a support, of the receptacle H', the tube M, movably mounted on the support having a valve at its lower end controlling the exit from the receptacle, and ports O' in its side, a perforated false bottom in the receptacle, beneath which is a waste connection, a water-supply connection, and a nipple O at the top of the tube M adapted to hold an inverted bottle for the purpose described.

8. In an apparatus of the kind described, and in combination with a support a bottle-rinser, a holder O for a bottle to be filled, a holder for a bottle to be emptied, a receptacle above said first holder into which the shot and water from the emptied bottle discharge, means for separating the shot and water, and means for feeding the shot and rinsing-water into the bottle in the holder.

9. In a bottle-washing apparatus, the combination with a support, a rinser, a catch-basin therefor, a receptacle, a connection from the basin to said receptacle, a water-supply for said rinser, an overflow from said receptacle, a waste-pipe connecting with said overflow, a funnel, means for holding a bottle below said funnel, a connection H from said funnel to the waste-pipe and the overflow, a plunger working in said receptacle, a valve controlling said overflow waste-pipe and the connection H, a valve in the water supply, and connections between the plunger and valves whereby the latter are operated on the movement of the plunger.

10. In a bottle-washing apparatus, the combination with supporting means, of a funnel, means for holding a bottle below said funnel, a rinsing-nozzle, a water-supply for said rinsing-nozzle, a basin to catch the water from said nozzle, a connection from said basin to said funnel, means for causing the water to enter said funnel, valves controlling said water-supply and said connection, and means for carrying the waste water from said connection and funnel.

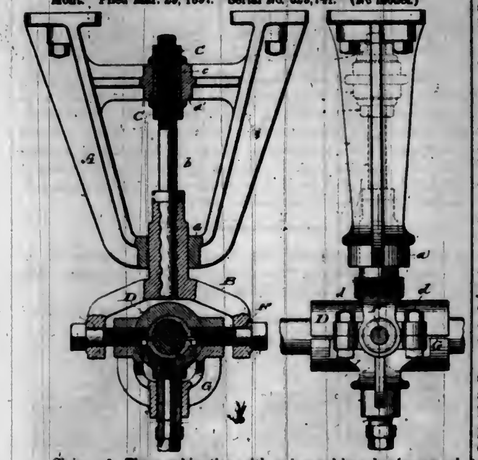
11. In a bottle-washing apparatus, the combination with a waste-pipe, a bottle-holder supported by said pipe, a receptacle above said holder supported by said pipe and communicating therewith, receptacle D' communicating with said pipe and with said first receptacle, a water-supply and nozzle supported by said pipe, a catch-basin for said nozzle, a connection from said basin to said receptacle D', and means for controlling said water-supply and waste-pipe.

589,186. BASIN-CLAMP. HIERONYMUS MUHLLER, Decatur, Ill. Filed Apr. 13, 1895. Serial No. 546,173. (No model.)



Claim.—A basin-clamp comprising a bridge having a number of concavities in its under surface and a longitudinal slot cutting the concavities centrally, a bolt adapted to the slot of the bridge, and a nut for the bolt having a ball or hemispherical bearing-surface adapted to the concavities of the bridge, substantially as set forth.

589,187. ADJUSTABLE BEARING. ERNST J. MULLER, Butte, Mont. Filed Mar. 20, 1897. Serial No. 629,741. (No model.)



Claim.—1. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening comprising a spacing-screw constituting an adjustable abutment adapted to hold the cap or adjustable part of the box the desired distance from the opposing part of the box, and a binding-screw securing said spacing-screw to its seat, said fastening serving to adjust the cap toward and from the box and to hold the same a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

2. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening consisting of a hollow spacing-screw constituting an abutment for holding said cap or adjustable part the desired distance from the opposing part of the box and a binding-screw passing through the hollow spacing-screw and securing it to its seat, said fastening being constructed and arranged to adjust said cap toward and from the axis of the box and to hold the same when adjusted a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

3. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening consisting of a hollow spacing-screw threaded in a relatively stationary support or adjunctive part of the bearing opposite said cap, and a binding-screw passing through the spacing-screw and threaded into the cap or adjustable part of the box, said fastening serving to adjust the cap toward and from the box and to hold the same at a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

4. The combination with a journal-box having a cap or adjustable part, of an adjustable fastening consisting of a hollow screw threaded in a yoke or relatively stationary part opposite said cap and at right angles to the box, and engaging at one end with a recess or seat in said cap to prevent lateral or endwise displacement thereof, and to relieve the binding-screw of lateral strain, and a binding screw passing through said hollow screw into the cap in which it is threaded and provided with a head adapted to bear against the outer end of the hollow screw, said fastening serving to adjust the cap toward and from the box and to hold the same when adjusted, a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

5. The combination with a journal-box having an adjustable cap which is formed in its outer face with a central screw-threaded hole and a concentric countersunk seat or recess, of an adjustable fastening constructed and arranged to adjust the cap toward and from the box and to hold the same when adjusted, a determinate distance therefrom independently of the journal, and consisting of a relatively fixed yoke or part having a screw-threaded hole in line with the central hole in said cap and at right angles to the axis of the box, a hollow externally-threaded screw fitting the threaded hole in said yoke, formed at its outer end with a wrench-head and fitting at its inner end into the seat or recess in said cap, and a binding-screw passing through said hollow screw into the threaded hole in said cap with which it engages and formed with a head which is adapted to abut against the outer end of said hollow screw, substantially as and for the purposes set forth.

6. In a journal-bearing the combination of a suitable support, having two pivot-bearings in line with each other and transverse to the axis of the journal-bearing, two separable parts having bores formed partially in each part and in line with each other, and pivot-screws adapted to turn in the bearings of said support and secured by their threaded portions in the bores of said separable parts which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

7. In a journal-bearing the combination of a fixed or stationary bearing-support, a journal-box, a yoke pivotally connected with said box and with said support in lines transverse to each other and to the axis of the box, pivot-screws adapted to turn freely in one part of the bearing and secured by their threaded portions in two separably-connected parts which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

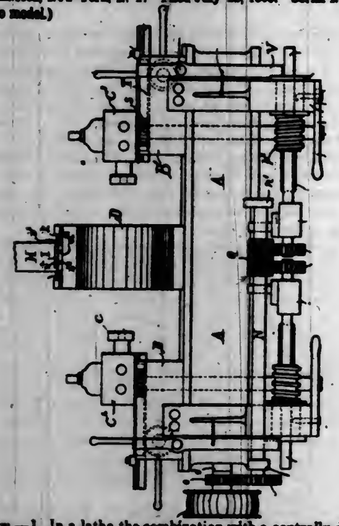
8. In a journal-bearing the combination of a suitable fixed or stationary support, a box having a detachable cap or adjustable part, a yoke pivotally connected with said support and box in lines transverse to each other and to the axis of the box, a cap-supporting yoke or part rigidly connected with the box opposite its cap, and an adjustable cap-fastening consisting of a hollow screw threaded in said cap-supporting yoke or part and abutting at one end against said cap, and a binding-screw passing through said hollow screw and threaded in said cap, substantially as and for the purposes set forth.

9. In a journal-bearing the combination of a suitable fixed or stationary support, a journal-box having a detachable cap or adjustable part, a yoke pivotally connected with said support and box in lines transverse to each other and to the axis of the box, a cap-support detachably connected with said box and formed opposite said cap and transversely to the axis of the box with a threaded sleeve, a hollow screw fitted in said sleeve and adapted to bear at one end against said cap, a binding-screw passing through said hollow screw and threaded in said cap, and pivot-screws adapted to turn in bearings in the box-supporting yoke and threaded partly in said box and partly in said cap-support which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

10. In a journal-bearing the combination of a suitable fixed support, a yoke having a threaded stem pivoted in said support and adjustably held therein by a sleeve surrounding the threaded part and nuts abutting against the ends of said sleeve at opposite ends of the bearing in which said sleeve is fitted, a journal-box having formed therein on opposite sides and in line with each other semicylindrical parts of threaded holes for pivot-screws, a bail or cap-support bolted to said box and formed with the corresponding parts of the threaded holes for the pivot-screws, headed pivot and adjusting screws having bearings next to their heads in said yoke and engaging at their inner threaded ends with the holes in said box and bail, a cap loosely fitting between the sides of said bail, and an adjustable fastening consisting of a hollow screw threaded in said bail and abutting at the end against said cap, and of a headed binding-screw passing through

said hollow screw and threaded into said cap, substantially as and for the purposes set forth.

589,188. DOUBLE-TURRETED CHUCKING-LATHE. George G. Prentiss, New York, N. Y. Filed July 22, 1895. Serial No. 556,230. (No model.)



Claim.—1. In a lathe the combination with a centrally-disposed chuck, having a hollow interior; removable channel-plates at both ends of said chuck secured to the same; and a head mounted to revolve on said channel-plates, and adapted to hold stock so that both ends thereof may be operated upon simultaneously, substantially as described.

2. In a lathe, the combination with a centrally-disposed chuck; of channel-plates on both ends thereof, said plates having inwardly-extending circular flanges; a head with circular grooves on both ends to fit over said flanges of said plates, and adapted to revolve thereon, substantially as described.

3. In a lathe, the combination with a centrally-disposed chuck, having a hollow interior; channel-plates at both ends of said chuck secured to the same; a head mounted to revolve on said channel-plates, and internally adapted to receive jaws to hold stock so that both ends may be operated upon simultaneously; and mechanism for revolving said head, substantially as described.

4. In a lathe the combination with a centrally-disposed chuck having a hollow interior; removable channel-plates at both ends of said chuck, having inwardly-projecting flanges; a hollow head mounted to revolve in ball-bearings on the flanges of said channel-plates; and jaws adapted to be secured within said head to revolve therewith and hold stock against longitudinal and turning movement therein, substantially as described.

5. In a lathe, the combination with a centrally-disposed chuck; of tool-holders on opposite sides thereof having separate operating mechanisms; a driving-shaft; two intermediate shafts pivoted at their inner ends to swing in a horizontal plane, said inner ends receiving motion from said driving-shaft, the outer ends being adapted to be connected and disconnected with said operating mechanisms, substantially as described.

6. In a lathe, the combination with a centrally-disposed chuck; of tool-holders on opposite sides thereof, having separate operating mechanisms; a driving-shaft; two intermediate shafts pivoted at their inner ends to swing in a horizontal plane, said inner ends receiving motion from said driving-shaft, the outer ends bearing in journal-boxes; brackets in which said journal-boxes are capable of a limited transverse sliding movement to connect and disconnect said shafts with said operating mechanisms, substantially as described.

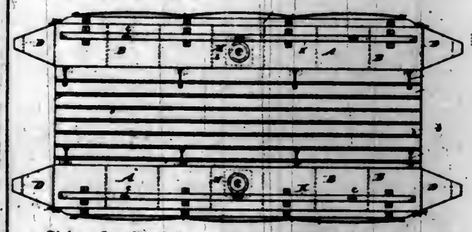
7. In a lathe, the combination with the lathe-bed; of a tool-holder; of a driving-shaft, pivoted at one end to the lathe-bed, the other end thereof bearing in a journal-box; a bracket secured to the lathe-bed in which said journal-box is capable of a limited horizontal sliding movement transverse to the length of said driving-shaft; and operating mechanism for said tool-holder connected and disconnected with said driving-shaft upon the movement of said journal-box, substantially as described.

8. In a lathe, the combination with a tool-holder, of a driving-shaft hinged at one end to swing in a horizontal plane the other end thereof bearing in a journal-box capable of a limited transverse sliding movement in a supporting-bracket; a lever pivoted so that one end thereof may engage in said supporting-bracket and lock said journal-box against movement; and operating mechanism for said tool-holder connected to said driving-shaft when said journal-box is locked by said lever, substantially as described.

9. In a lathe, the combination with a tool-holder, of operating mechanism for the same; a driving-shaft pivoted at one end, the other end thereof bearing in a journal-box capable of a limited transverse horizontal sliding movement in its supporting-bracket, connecting and disconnecting said driving-wheel with said operating mechanism; a lever pivoted so that one end may engage in said supporting-bracket and lock said journal-box to connect said driving-shaft and operating mechanism; and a tripper on said tool-holder for disengaging said lever from said supporting-bracket to unlock said journal-box, substantially as described.

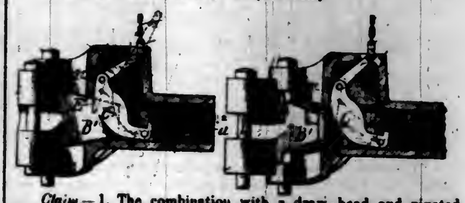
10. In a lathe, the combination with a tool-holder; of operating mechanism for the same; a driving-shaft one end of which bears in a journal-box capable of a limited horizontal sliding movement in its supporting-bracket transverse to the length of said driving-shaft to connect and disconnect said driving-shaft and operating mechanism; and a lever pivoted to swing in a horizontal plane, one end of which is connected to said journal-box for giving the same its transverse motion; substantially as described.

589,139. LIFE-RAFT. Lewis H. Raymond, Brooklyn, N. Y., assignor to Emma I. Raymond, same place. Filed Dec. 10, 1896. Serial No. 571,635. (No model.)



Claim.—In a life-raft comprising rectangular side tanks having bulkheads, top and bottom string-pieces and centrally-disposed flooring connected with the tanks as explained, the combination with the said tanks, of the provision-compartments located therein, removed from the side walls, but touching at top and bottom and provided each with removable upper and lower screw-threaded covers of which the outer faces are flush with the surfaces of the tanks, substantially as and for the purposes set forth.

589,140. CAR-COUPLING. Paul M. Reagan, Chicago, Ill., assignor to the Hinson Manufacturing Company, same place. Filed Jan. 11, 1897. Serial No. 618,771. (No model.)



Claim.—1. The combination with a draw-head and pivoted knuckle, of a locking-detent for the knuckle and safety locking-arm pivotally connected with the detent and adapted to engage a shoulder on the draw-head and having a trip-arm which projects into the path of the tail of the knuckle, said locking and trip arms being constructed to move in the same plane with the detent and connections for operating the detent by hand attached to said locking-arm in such position that strain on the said connections will move said arm to release the same before the detent itself is moved.

2. The combination with a draw-head and a pivoted knuckle, of a locking-detent for the knuckle and a safety locking-arm pivotally connected with the detent at a point remote from the pivot of the latter and adapted to be engaged with and disengaged from a shoulder on the draw-head by an oscillatory movement of its free end; said arm being provided with a part which projects into the path of the tail of the knuckle and means for moving said arm and detent by hand, attached to the arm near the free end of the latter and acting laterally on the same in a direction to disengage it from the shoulder.

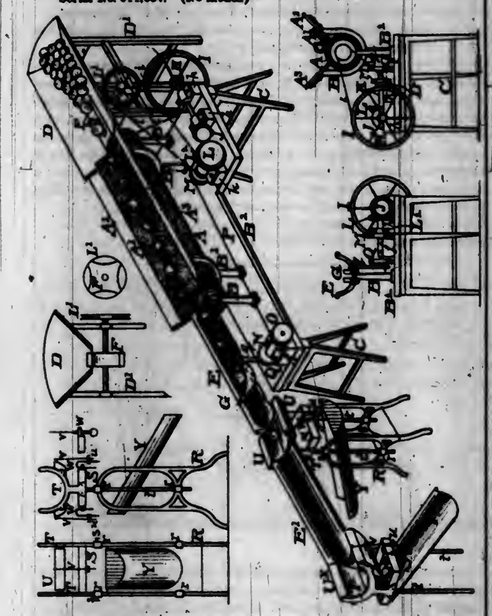
3. The combination with a draw-head and pivoted knuckle, of a rearwardly-movable locking-detent for the knuckle, a safety locking-arm which is pivoted to the detent and extends rearwardly therefrom, said arm being adapted to engage a shoulder on the draw-head and being provided with a part which projects into the path of the tail of the knuckle and hand actuating connections so attached to the arm that an upward pull thereon will release the rear end of the arm and also actuate the detent.

4. The combination with a draw-head and pivoted knuckle, of a rearwardly-movable locking-detent for the knuckle, a safety locking-arm pivotally connected with the detent and extending rearwardly therefrom and a forwardly-facing abutment or shoulder on the draw-bar adapted to engage the rear end of the arm and from which the same may be disengaged by an upward pull.

5. The combination with a draw-head and a pivoted knuckle, of a locking-detent for the knuckle, a safety locking-arm pivoted to the detent and extending rearwardly therefrom, said arm being provided with a part which extends into the path of the tail of the knuckle, a forwardly-facing abutment or shoulder on the draw-head adapted to engage the rear end of the arm and connections for operating the detent by hand comprising a link which is pivoted to the locking-arm below the said shoulder or abutment and in such position that a rearward pull on the upper end of the link will force the end of the arm above the said shoulder.

6. The combination with a draw-head, and a pivoted knuckle, of a locking-detent for the knuckle arranged to swing upwardly and rearwardly, a safety locking-arm pivoted to the upper part of the said detent and extending rearwardly therefrom, said arm being provided with a depending, rigidly-attached trip-arm which extends at the front of the detent in the path of the tail of the knuckle, a shoulder on the draw-head adapted to engage the said locking-arm and connections for operating the detent by hand connected with said arm and adapted to release the same by an upward pull thereon.

589,141. MACHINE FOR CLEANING AND ASSORTING FRUITS. Walter P. Rice and Harvey Rice, Cleveland, Ohio. Filed Nov. 10, 1896. Serial No. 611,637. (No model.)



Claim.—1. In a machine for cleaning and assorting fruit by a continuous operation, a rotary brush A journaled in posts B B, standing on table B^2, an inclined stationary brush A', fixed on an inclined leaf A^2 at the side of the brush A, and supported by the yokes B' B', also standing on said table B^2, a shaft H supported in bearings *h h*, mounted on said table B^2, at one side of the brushes, a driving pulley-wheel mounted on said shaft H, a driving-belt *i* connecting said driving-wheel with a pinion *i'* on the end of the rotary-brush journal, a bevel-pinion J on said shaft H, a counter-shaft K mounted in a bearing-block *k*, also mounted on the table B^2, a bevel-gear L on said counter-shaft meshing with pinion J, a pulley L^2 on said shaft K, a hopper D mounted adjacent to the end of said brushes A A', a rotary feed-block F mounted on a cross-shaft under the hopper, a pulley L' on said cross-shaft, a belt *l* connecting the pulley L' with the driving-pulley L^2, a receiving-trough E connected with lower ends of the brushes A A', a fruit-separating rocker G pivoted in slots in the bottom of the said trough, a shaft N mounted in a block *f* standing on the table B^2, a crank-disk Q on said shaft N, connected by a rod *g* with said rocker-separator, a pulley O on said shaft N connected by belt P with the pulley M on the aforesaid counter-shaft K, the construction and combination being such that the several parts of the machine have simultaneous operation, as and for the purpose set forth.

2. In a machine for cleaning and assorting fruit, the combination with a receiving-trough, of a reciprocating separator consisting of a curved rocker pivoted in slots in the bottom of the trough, a connecting-rod connecting the rocker with a crank-shaft fixed on the table beneath said trough, and means for operating said rocker simultaneously with the feed-separator and the rotary brush, substantially as described.

3. In a machine for cleaning and assorting fruit, the combination with the brushes and separating mechanisms, of assorting-traps, comprising supporting-stands, yokes adjustably mounted on said stands, troughs supported by said yokes, trap-leaves pivoted between said yokes, springs attached to said trap-leaves and connected with adjusting-screws attached to the frames below the leaves, the arrangement of the tension of the springs being such that the assortment is made by the difference in weight of the fruit for tipping the trap-leaves, substantially as described.

589,142. COMBINED EQUALIZING STOP AND CHECK VALVE. Abraham S. Rosenberg, Brooklyn, N. Y., assignor of one-half to Thomas Reese, Jr., Newark, N. J. Filed Feb. 14, 1895. Serial No. 538,329 (No model.)



Claim.—1. In a valve, in combination, with the valve-casing, a valve-stem having a piston-head thereon and packing-rings on said piston-head, and a valve-disk provided with a chamber, as c^4, movably arranged on said piston-head and a duct c^{10} leading into said chamber, substantially as and for the purposes set forth.

2. In a valve, in combination, with the valve-casing, a screw-threaded valve-stem having a piston-head thereon and packing-rings on said piston-head, and a valve-disk provided with a chamber, as c^4, movably arranged on said piston-head, and a duct c^{10} leading into said chamber, substantially as and for the purposes set forth.

3. In a valve, the combination, of a valve-casing *a* having openings a^3 and a^4 and a cap provided with a stuffing-box, a valve-stem having a piston-head thereon, and packing-rings on said piston-head, a valve-disk *c* provided with a chamber, as c^4, and a stem c^3 on the under side of said valve-disk adapted to move in a guide in said opening a^3 in the valve-casing *a*, substantially as and for the purpose set forth.

4. The herein-described stop and check valve comprising therein, in combination, with the casing *a* and the valve-stem thereof having a piston-head, of a valve-disk *c* provided with a chamber, as c^4, movably arranged on said piston-head, said cylinder consisting essentially, of an annular screw-threaded portion c^5 formed on said disk *c* and a perforated cylinder-head c^6 connected therewith, a duct c^{10} leading into said chamber, substantially as and for the purpose set forth.

5. The herein-described stop and check valve comprising therein, in combination with the casing *a* and the valve-stem thereof having a piston-head, of a valve-disk *c* provided with a chamber, as c^4, movably arranged on said piston-head, said cylinder consisting essentially

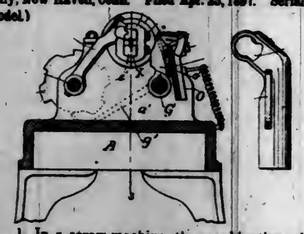
of an annular screw-threaded portion c^3 formed on said disk c, and a perforated cylinder-head c^9 connected therewith, a duct c^{10} leading into said chamber, and guides connected with bottom of said valve-disk, substantially as and for the purpose set forth.

6. In a combined stop and check valve in combination, a casing *a* having an inlet a^3 and an exit a^4, a valve-seat *d*, a cap *b'*, provided with a stuffing-box and a valve-stem *c* movably arranged in said stuffing-box and provided with a piston-head on its lower end, a valve-disk *e* provided with a chamber, as e^4, movably arranged on said piston-head, and guides on the under side of said valve-disk, all substantially as and for the purpose set forth.

7. In a combined stop and check valve, in combination, a casing *a* having an inlet a^3 and an exit a^4, a valve-seat *d*, a cap *b'*, provided with a stuffing-box and a valve-stem *c* movably arranged in said stuffing-box having a piston-head on its lower end, a valve-disk *e* provided with a chamber, as e^4, movably arranged on said piston-head, and guides on the under side of said valve-disk, said steam-cylinder comprising therein a screw-threaded annular portion c^5 formed on the upper side of said valve-disk, and a perforated cylinder-head c^6 secured thereon, all substantially as and for the purpose set forth.

8. In a combined stop and check valve, in combination, a casing *a* having an inlet a^3 and an exit a^4, a valve-seat *d*, a cap *b'*, provided with a stuffing-box and a yoke b^4 on said cap having a bushing b^5, a screw-threaded valve-stem working in said bushing and in said stuffing-box, said valve-stem having a piston-head on its lower end, having packing-rings on said piston-head, a valve-disk *e* provided with a chamber, as e^4, movably arranged on said piston-head, and guides on the under side of said valve-disk, all arranged, substantially as and for the purpose set forth.

589,143. SCREW-MACHINE. HENRY B. SARGENT, New Haven, and ALBERT A. PAGE, East Haven, Conn., assignors to the Sargent & Company, New Haven, Conn. Filed Apr. 23, 1897. Serial No. 633,530. (No model.)



Claim.—1. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a separator adapted to fit over and in close proximity with the end of the tool, when engaging the stock, to deflect or guide the chips from the stock, substantially as described.

2 In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a separator adapted to fit over and in close proximity with the end of the tool, and to move synchronously therewith, to deflect or guide the chips from the stock, substantially as described.

3. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a separator also mounted on the tool-holder and adapted to fit over and in close proximity with the end of the tool, when engaging with the stock, to deflect or guide the chips from the stock, substantially as described.

4. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a separator adjustably mounted on the tool-holder, and adapted to fit over and in close proximity with the end of the tool, when engaging with the stock, to deflect or guide the chips from the stock, substantially as described.

5. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a rocking reciprocating shaft; a tool-holder mounted on said shaft, adapted for carrying the tool and to bring it into proper engagement with the stock; and a separator mounted on the tool-holder to move therewith and adapted to fit over and in close proximity with the end of the tool, when engaging with the stock, to deflect or guide the chips from the stock substantially as described.

6. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a rocking reciprocating shaft; a tool-holder mounted thereon for carrying the tool and bringing it into proper engagement with the stock; and a conduit also mounted on the tool-holder and extending from substantially beneath the point of engagement between the tool and stock, to guide the chips from the stock in their proper direction, substantially as described.

7. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; a conduit to guide the chips from the stock in their proper direction; and a separator adapted to fit over and in close proximity with the end of the tool, when engaging with the stock, to deflect or guide the chips from the stock, substantially as described.

8. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; a conduit mounted on the tool-holder to guide the chips from the stock in their proper direction; and a separator mounted on the conduit, and adapted to fit over and in close proximity with the end of the tool, when engaging with the stock, to deflect or guide the chips from the stock, substantially as described.

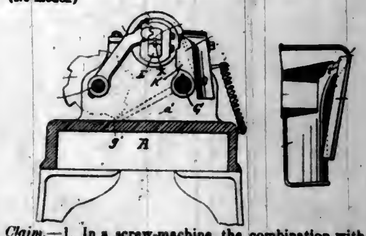
9. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; a conduit mounted on the tool-holder to guide the chips from the stock in their proper direction; and a separator adjustably mounted on the conduit, and adapted to fit over and in close proximity with the end of the tool, to deflect or guide the chips from the stock, substantially as described.

10. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a separator having a slot into which the end of the tool is adapted to extend when engaging with the stock, so as to allow a clearance between one end of the slot and tool, into which the chips from the stock are deflected or guided, substantially as described.

11. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; a conduit to guide the chips from the stock in their proper direction; and a separator mounted on said conduit, provided with a slot into which the end of the tool is adapted to extend, when engaging with the stock, so as to allow a clearance between one end of the slot and tool into which the chips from the stock are deflected or guided by the separator; and an orifice in the separator through which the chips may pass into the conduit, substantially as described.

12. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; a conduit to guide the chips from the stock in their proper direction, and provided with a loop at its upper end; and a separator mounted in said loop on the conduit and provided with a slot into which the end of the tool is adapted to extend, when engaging with the stock, so as to allow a clearance between one end of the slot and tool into which the chips from the stock are deflected or guided by the separator, and an orifice in the separator through which the chips may pass into the conduit, substantially as described.

589,144. SCREW-MACHINE. HENRY B. SARGENT, New Haven, and ALBERT A. PAGE, East Haven, Conn., assignors to the Sargent & Company, New Haven, Conn. Filed Apr. 23, 1897. Serial No. 633,531. (No model.)



Claim.—1. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; an integral device, the body portion of which comprises a conduit for guiding the chips from the stock, and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

2. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device adapted to move synchronously with the tool-holder and the body of which forms a conduit for guiding the chips from the stock; and the upper end a separator formed integral with said conduit and adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

3. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock; and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

4. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device adjustably mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock; and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

5. In a screw-machine, the combination with a spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a conduit adjustably mounted on the tool holder and extending from substantially beneath the point of engagement between the tool and stock to guide the chips from the stock in their proper direction, substantially as described.

6. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a rocking reciprocating shaft; a tool-holder mounted thereon for carrying the tool and bringing it into proper engagement with the stock; and an integral device mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock, and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

7. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder having a clamp and bolt; a tool secured to the tool-holder by said clamp and bolt and adapted to engage with the stock carried by the spindle; and a device mounted on said bolt, securing said tool, and the body portion of which forms a conduit for guiding the chips from the stock and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

8. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device, the body portion of which forms a conduit for guiding the chips from the stock, and the upper end a separator, provided with a slot into which the end of the tool is adapted to extend, when engaging with the stock, so as to allow a clearance between one end of the slot and tool into which chips from the stock are deflected or guided by the separator into the conduit, substantially as described.

9. In a screw-machine, the combination with a spindle for carrying stock or blanks; of a tool-holder having a clamp and bolt: a tool secured to the tool-holder by said clamp and bolt and adapted to engage with the stock carried by the spindle; and a conduit mounted on said bolt, securing said tool and extending from substantially beneath the point of engagement between the tool and stock to guide the chips from the stock in their proper direction, substantially as described.

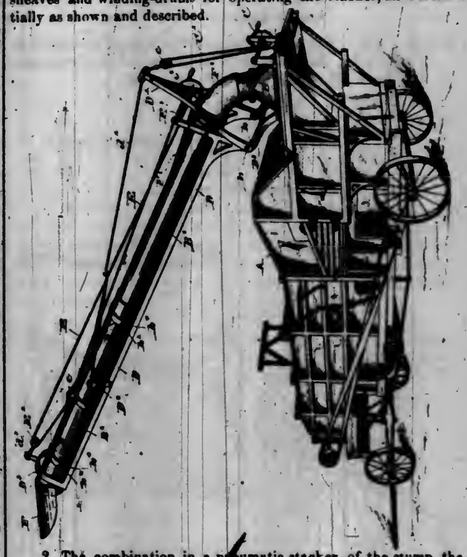
589,145. HAT-PIN. LYDIA A. SCOTT, Great Bend, Kans., assignor to Anna Scott and Fannie Scott, same place. Filed Apr. 26, 1897. Serial No. 633,881. (No model.)



Claim.—The herein-described pin comprising a tubular portion A, provided with a head B, and a point C, said tubular portion being provided with a slot D, adjacent to the point thereof, and another slot E, adjacent to the said head, a spring-arm F, secured to said tubular pin and adapted to be projected through the slot E, a rod G, pivotally connected with said spring-arm, a rod H extending longitudinally through the pin and provided with an angular arm K, adapted to project through the slot E, said rod H being also pivotally connected with the rod G, and a guide L, through which the said rod H passes, substantially as shown and described.

589,146. PNEUMATIC STRAW-STACKER. FRANK STANLEY, Liberty, Ind. Filed Oct. 16, 1894. Serial No. 526,074. (No model.)

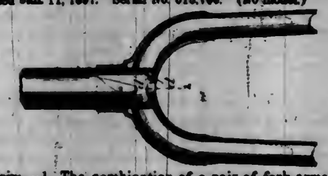
Claim.—1. The combination, in a pneumatic straw-stacker, of the stump (including the movable portion of the turn-table), having arms B^3 on one side, with pivots *b* at their ends, and a windlass C on the opposite side, the tubular portion of said stump being curved in the form of a sector of a circle struck from said pivots; a trunk or chute composed of a plurality of telescoping sections, the lower end of the inner section being correspondingly curved and fitting over the curved portion of the stump; a standard D', mounted on the pivots *b*, and rigidly attached to the lower portion of the telescoping section; a track-frame D, also mounted on said pivots; suitable supports connected to the movable or telescoping portion of the trunk or chute and resting on the tracks of said frame; and suitable ropes, sheaves and winding-drums for operating the stacker, all substantially as shown and described.



2. The combination, in a pneumatic stacker, of the stump, the telescoping trunk or chute connected to said stump, a track on which the telescoping part travels, means for operating said telescoping part, a hood mounted on the outer end of the telescoping part, cross-bars f' and f^2, one of which is mounted on the hood and the other on the lower end of the upper telescoping part, ropes or wires connecting said bars, and ropes running from the ends of the bar f^2 to a windlass and wound upon the same side thereof, whereby the slack in said ropes may be taken up as the telescoping part is moved inwardly and let out as it is moved outwardly, and the point from which the hood may be operated maintained in one place, substantially as set forth.

3. In a pneumatic straw-stacker, the combination with the stump and a chute part, non-movable with respect to the part on which it is mounted, of a telescoping chute part provided with axles b^3, clamp bars or caps b^3, and wheels b^4 on the ends of the axles, a frame D forming a track for said wheels, and appropriate mechanism for driving the telescoping part back and forth, substantially as set forth.

589,147. FORK FOR BICYCLES. LEE STURGES, Chicago, Ill. Filed Jan. 11, 1897. Serial No. 618,766. (No model.)



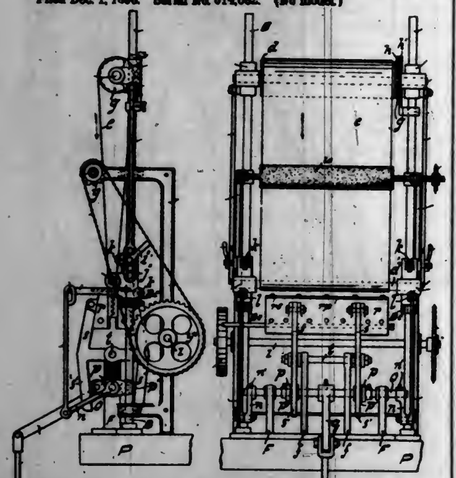
Claim.—1. The combination of a pair of fork-arms made of a piece of tubing bent to form a curved crown, said crown being provided in its top with an opening, a fork-stem fitting in said opening, and a crown-piece having a curved socket in which the curved crown fits, said crown-piece being formed in two parts the edges of which meet in a plane which cuts the fork-stem and fork-arms longitudinally, and all of the parts being permanently secured together, substantially as set forth.

2. The combination of a pair of fork-arms made of a piece of tubing bent to form a curved crown, said crown being provided in its

top side with an opening, a fork-stem fitting in said opening, and a crown-piece having a curved socket in which the curved crown fits and a socket in which the fork-stem fits, the parts being permanently secured together, substantially as set forth.

3. The combination of a pair of fork-arms made of a piece of tubing bent to form a curved crown, said crown being provided in its top with an opening and in its bottom with a smaller opening, a hollow fork-stem fitting in the opening in the top of the crown, a plug secured within the lower end of the fork-stem and having a reduced portion fitting in the opening in the bottom of the crown and a crown-piece having a curved socket in which the curved crown fits and a socket in which the fork-stem fits, the parts being secured together, substantially as set forth.

589,148. **PELT-REFINING MACHINE.** THOMAS B. TIEFENBACHER, New York, N. Y., assignor of one-half to Herskovits & Roth, same place. Filed Dec. 1, 1896. Serial No. 614,082. (No model.)



Claim.—1. A pelt-refining machine comprising a frame, a shaft mounted on suitable standards, secured to the frame, crank-levers fulcrumed on the shaft, jaws, having their gripping-surfaces provided with longitudinal grooves pitched together, secured to the levers opposite each other and means for heating the jaws; an oscillating shaft mounted underneath the other shaft on suitable standards secured to the frame, cams secured to the oscillating shaft in position to engage the crank-levers operating the jaws, means for oscillating the shaft, and means for conveying the pelts to be refined to and and from the jaws.

2. The combination in a pelt-refining machine of a frame, a shaft mounted on suitable standards, secured to the frame, crank-levers fulcrumed on the shaft, jaws, having their gripping-surfaces provided with longitudinal grooves pitched together, secured to the levers opposite each other and means for heating the jaws; an oscillating shaft mounted underneath the other shaft on suitable standards secured to the frame; cams secured to the oscillating shaft in position to engage the crank-levers operating the jaws, means for oscillating the shaft, of posts or slideways, set in the frame of the machine, sockets slid on the posts, adjustable connecting-rods connecting the sockets on each slideway or post, an upper and a lower shaft, pillowed in the sockets at right angles to the posts or slideways, rollers mounted on the shafts, an endless apron stretched over the rollers and of means for moving the sockets to and fro upon the posts or slideways.

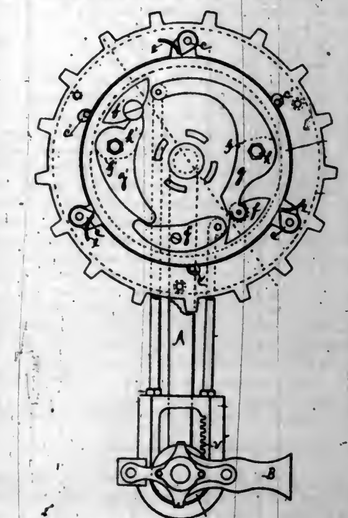
3. In a pelt-refining machine comprising a stationary frame and jaws, having correspondingly-grooved gripping surfaces, secured to pivotally-connected levers, the combination with the pivotally-connected levers having the jaws mounted thereon, of a shaft mounted in the frame, cams rigidly secured to the shaft in position to engage the levers, and of means for oscillating the shaft for the purpose of operating the jaws.

4. In a pelt-refining machine comprising a stationary frame, pivotally-connected levers mounted in the frame, jaws having correspondingly-grooved gripping-surfaces secured to the levers, an oscillating shaft, cams rigidly secured on the oscillating shaft and operating the levers, guides or slideways secured in the stationary frame, an adjustable sliding frame, means for stretching thereon and intermittently moving the pelts to be refined, the combination with the oscillating shaft of cranks rigidly secured thereto, links pivoted to the cranks and connecting them with the sliding frame for the purpose of operating the sliding frame concurrently and correspondingly with the motions of the jaws.

5. The combination with a pelt-refining machine comprising a stationary frame, jaws having correspondingly-grooved gripping-surfaces, secured to pivotally-connected levers, mounted in the frame, means for heating the jaws, means for operating the levers to press the jaws together, guides or slideways secured to the stationary frame, an adjustable sliding frame, mounted on the guides, means for moving the sliding frame to and from the jaws, a driving and a driven roller mounted adjustably in relation to each other in the sliding frame, an endless apron stretched over the rollers, and means for imparting an intermittently-rotating motion to the driving-roller, of a rotary brush, mounted on a shaft pillowed in the stationary frame and means for driving the brush for the purpose of removing from the pelts dust and impurities and sweeping the hair in parallel streaks pointing toward the jaws.

6. In a pelt-refining machine, comprising a stationary frame, jaws having correspondingly-grooved gripping-surfaces, secured to pivotally-connected levers mounted in the frame, means for heating the jaws, means for operating the levers to press the jaws together, guides or slideways secured to the stationary frame, an adjustable sliding frame, mounted on the guides, means for moving the sliding frame to and from the jaws, a driving and a driven roller mounted in the sliding frame, and an endless apron stretched over the rollers, the combination with the driving-roller of a ratchet-wheel rigidly secured thereto, an adjustable bracket mounted on the post, a pawl pivoted to the bracket and engaging the ratchet-wheel, for the purpose of imparting to the driving-roller an intermittent rotary motion in conformity with the motion of the sliding frame.

589,149. **BRAKE AND COASTING SPROCKET-WHEEL FOR VELOCIPEDES.** NICHOLAS WALLERICH, Fort Worth, Tex. Filed June 16, 1896. Serial No. 595,804. (No model.)



Claim.—1. A sprocket-wheel constructed in an outer and an inner section capable of independent rotation and provided with circular flanges bolted to said outer section, said flanges having broad shoulders on their inner rims, brake-levers pivoted on said inner section, and brake-shoes pivoted on said levers and adapted to be pressed against said flanges, and means adapted to operate said levers.

2. A sprocket-wheel composed of two sections capable of independent rotation provided with braking mechanism consisting of levers pivoted on the inner section, brake-shoes pivoted on said levers, link-rods pivoted to said levers, a cog-wheel mounted on the pedal-shaft and a bracket provided with a rack to mesh with said cog, said link-rods being adjustable to said bracket by means of nuts.

3. In a sprocket and coasting wheel the combination of two sections forming said wheel, one section running within the other, the outer section being provided with spring-pressed cams adapted to lock said sections while being propelled and to release the same for coasting, circular flanges bolted to the outer section, brake-levers mounted on the inner section and having brake-shoes pivoted thereon, link-rods pivoted on said levers, and a bracket mounted on the pedal connected to said levers and provided with a rack and cog, said cog being rigid with the pedal and normally out of engagement with said rack.

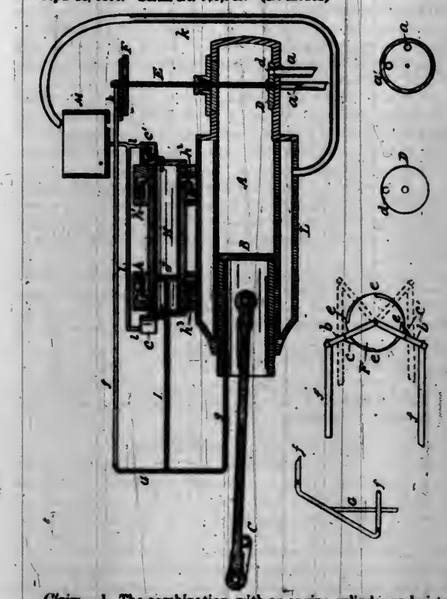
4. A braking mechanism for velocipedes consisting of levers mounted on one section of a sprocket-wheel and brake-shoes pivoted on said levers and adapted to operate on the other section of said wheel, and link-rods mounted on the pedal adapted to operate said levers by a reverse motion of the pedal-crank, one of said wheel-sections being adapted to run outside of and independently of the other.

5. In a sprocket-wheel provided with annular shoulders on the rim, said wheel consisting of an outer rim and a central portion, levers having shoes pivoted on said central portion adapted to engage said shoulders, a bracket provided with a cog and rack mounted on the pedal, and link-rods connecting said bracket and said levers.

6. A sprocket and coasting wheel constructed in two sections and provided with locking-cams for said sections, brake-levers, a bracket provided with a rack, a cog and a flange, said cog and flange being rigidly mounted on the pedal, link-rods connecting said bracket to said levers, said bracket having a shoulder rigid therewith and constituting a bearing for said flange.

7. A sprocket and coasting wheel composed of two sections and provided with locking-cams for said sections and brake-levers, a bracket provided with a rack and a cog, said cog being rigidly mounted on the pedal, a spring-pressed cam mounted in a recess in said bracket and adapted to engage said cog, and link-rods connecting said bracket to said levers.

589,150. **GAS-ENGINE.** JOHN C. WILSON, Allegheny, Pa. Filed Sept. 11, 1896. Serial No. 605,845. (No model.)

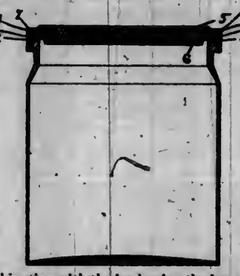


Claim.—1. The combination, with an engine-cylinder and piston, of a rotative valve seated in said cylinder, a ratchet-wheel secured to the spindle of said valve, two arms pivotally connected with said spindle, two pawls connected with said pivoted arms and adapted to engage said ratchet-wheel alternately, rods connected with said pivoted arms and also having connection with said piston, substantially as set forth and described.

2. In a gas-engine, the combination with an engine-cylinder and piston, said cylinder being provided with a water-jacket, of a cylinder H and piston therein, said cylinder H being provided with air-valves and also having valve connections with a water-chamber formed by said water-jacket, a water-tank and pipes connecting said tank with said cylinder H at different points, said pipes being provided with check-valves, and a pipe extending from said water-chamber and adapted to discharge water into said tank, substantially as and for the purposes described.

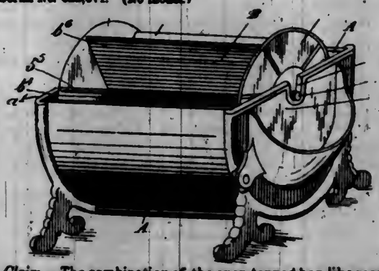
589,151. **CLOSURE FOR JARS.** CHARLES S. ALDEN, Rochester, N. Y., assignor to Alden & Nicholson, same place. Filed Feb. 13, 1897. Serial No. 623,292. (No model.)

Claim.—1. The combination with the jar or receptacle having the upwardly-extending external flange and the substantially flat seat inside of and below the upper edge of the flange, the packing-ring resting upon the seat; and the cover having the central portion extending below the seat, the sharp downwardly-projecting annular shoulder or flange 7 resting upon and adapted to sink slightly into the packing-ring, the periphery of the cover being substantially the same thickness as the height of the flange on the jar, substantially as described.



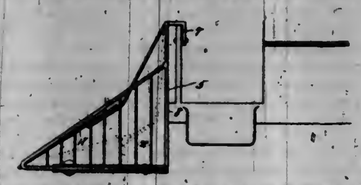
2. The combination with the jar having the internal ledge or seat and the external flange extending above the same and cut away at one or more places down to the level of the seat, and the packing-ring, of the cover having the sharp shoulder 7 at the edge resting upon the packing-ring, and the internal projecting portion, substantially as described.

589,152. **RECEPTACLE FOR HOLDING TOBACCO-ASHES.** FRANCIS R. BAKER, Birmingham, England, assignor to George William Herbert and Wilfred Kirby Ingham, same place. Filed Feb. 10, 1897. Serial No. 622,871. (No model.)



Claim.—The combination of the open-topped box-like receptacle A, for the reception of tobacco-ashes or the like, and the paddle B having radiating blades forming receptacles and adapted to close the open top of said box-like receptacle and having its axle ends supported thereby so as to rotate and deposit the tobacco-ashes therein all substantially as hereinbefore described and illustrated by the accompanying drawings.

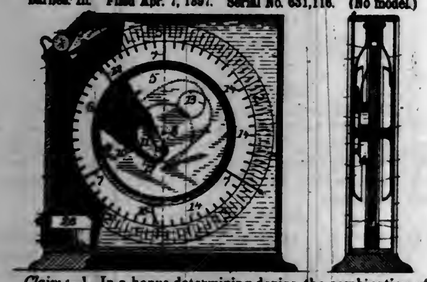
589,158. **FENDER OR GUARD FOR CARS.** ALBERT BARUH, Honolulu, Hawaii. Filed Jan. 28, 1897. Serial No. 621,001. (No model.)



Claim.—1. A fender or guard for tramway-cars, comprising a main frame, composed of a back portion, by which the fender or guard is connected with the car, a forwardly-directed bottom portion, tubes mounted on or secured to said bottom portion, springs located in said tubes, a buffer-frame provided with rods which enter said tubes, and bear on said springs, and a spring-supported supplemental frame pivotally connected with the forward part of said buffer-frame, and held in a backwardly and upwardly inclined position, and a spring-supported auxiliary frame pivotally connected with the upper portion of the main frame, and held in a downwardly and forwardly inclined position, the backwardly-directed free side of the supplemental frame resting on the forwardly-directed free side of the auxiliary frame, substantially as shown and described.

2. A fender or guard for tramway-cars, comprising a main frame, composed of a back portion, by which the fender or guard is connected with the car, a forwardly-directed bottom portion, tubes mounted on or secured to said bottom portion, springs located in said tubes, a buffer-frame provided with rods which enter said tubes, and bear on said springs, and a spring-supported supplemental frame pivotally connected with the forward part of said buffer-frame, and held in a backwardly and upwardly inclined position, and a spring-supported auxiliary frame pivotally connected with the upper portion of the main frame, and held in a downwardly and forwardly inclined position, the backwardly-directed free side of the supplemental frame resting on the forwardly-directed free side of the auxiliary frame, and said main frame being also provided with side frames between which the auxiliary and supplemental frames are adapted to be depressed, substantially as shown and described.

589,154. BONUS-DETERMINING DEVICE. ALDEN BARNES, Barnes, Ill. Filed Apr. 7, 1897. Serial No. 631,116. (No model.)



Claim.—1. In a bonus-determining device, the combination of a frame having an opening therethrough, radial projections on the wall of the opening, a wheel journaled in the opening, and a yielding pointer on the wheel adapted to engage the projections, whereby the relation of the pointer to the projections may be seen from both sides of the wheel.

2. In a bonus-determining device, the combination of a frame having an opening therethrough, radial projections on the wall of the opening, disks, smaller in diameter than the opening and sustained concentric therewith, a wheel journaled between the disks, and a yielding pointer on the wheel adapted to engage the projections, substantially as set forth.

3. In a bonus-determining device, the combination of a frame having an opening therethrough, radial projections on the wall of the opening, disks, smaller in diameter than the opening and sustained concentric therewith, a wheel journaled between the disks, a yielding pointer on the wheel, spring-actuated clutch mechanism connected with a disk and adapted to engage the wheel, a coin-passage in the frame, an arm obstructing the passage, and a connection between such arm and the clutch mechanism, whereby the spring of the clutch is put under operative tension by the insertion of a coin into the passage.

4. In a bonus-determining device, the combination of a frame having an opening therethrough, disks, smaller in diameter than the opening and sustained concentric therewith, a wheel journaled between the disks, clutch mechanism on a disk adapted to engage the wheel, a coin-passage in the frame, an arm obstructing the passage and having a notch in its inner side, and a rod connecting with the clutch mechanism and adapted to extend into the notch of the passage-obstructing arm, substantially as set forth.

5. In a bonus-determining device, the combination of a frame, a wheel journaled therein, spring-actuated clutch mechanism for rotating the wheel, a coin-passage in the frame, and an arm obstructing the passage and connecting with the clutch mechanism, substantially as set forth.

6. In a bonus-determining device, the combination of a frame, a wheel journaled therein and having a flange thereon, an arm pivoted concentric with the flange and having a surface opposed to the flange at an acute angle therewith, a roller adapted to engage the flange and the inclined surface of the arm when the arm is lowered, a coin-passage obstructed by an arm, and a connection between the passage-obstructing arm and the clutch-arm, substantially as set forth.

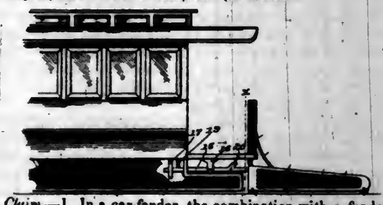
589,155. PROCESS OF PREPARING FOOD ARTICLES FROM MILK. ALEXANDER BERNSTEIN, Boston, Mass. Filed June 12, 1897. Serial No. 640,563. (No specimens.)

Claim.—1 The process of forming a food product from milk which consists in adding farinaceous material such as flour to the milk, then coagulating the milk while holding the flour in suspension, then removing the whey and moisture from the curd, substantially as described.

2. The process of forming a food product from skimmed milk which consists in adding farinaceous material such as flour to the milk, then coagulating the milk while holding the flour in suspension then contracting the curd by heat, then removing the whey and moisture from the curd, substantially as described.

3. An article of manufacture consisting of a curd, having farinaceous material such as flour included uniformly in the mass and interposed between the particles of casein, substantially as described.

589,156. CAR-FENDER. HERMAN BOOM, New York, N. Y. Filed May 23, 1896. Serial No. 592,902. (No model.)



Claim.—1. In a car-fender, the combination with a fender-bed, of side guards located at opposite sides of said fender-bed but independent of the latter and adapted for movement vertically independently thereof, and means for adjusting the said side guards vertically

2. In a car-fender, the combination with a horizontal fender-bed, of side guards located at opposite sides of the fender-bed and extending vertically, said side guards being independent of the fender-bed, and means for adjusting the fender-bed vertically and also the side guards vertically but the latter being adapted for adjustment independently of the fender-bed.

3. In a car-fender, the combination with a fender-bed provided with cushion devices, of side guards independent of the fender-bed and adapted to move vertically, and means for simultaneously adjusting said side guards vertically in relation to the fender-bed, substantially as described.

4. In a car-fender, the combination with a fender-bed, of side guards, levers pivoted to the car-frame and connected to the side guards, a depressible bar connected to said levers, and catch mechanism for holding the side guards in adjusted position, substantially as described.

5. A car-fender comprising the combination of an open frame, connected to the car-body, a supplemental frame inside the open frame and consisting of coil-springs radiating from a central point, and wire-netting covering said supplemental frame, substantially as described.

589,157. SICKLE FOR MOWING OR REAPING MACHINES. WILLIAM BRERTON, St. German, England. Filed Aug. 3, 1896. Serial No. 602,147. (No model.)



Claim.—1. The combination with the finger-bar having its fingers provided with recesses to receive the knife-bar, of the knife-bar located in said recesses, a knife-section formed of a single piece of material of uniform thickness secured to said knife-bar, and having its rear end projecting over the rear edge of said knife-bar, said projecting portion of the section being severed transversely of the knife-bar, one of said severed portions being bent downwardly to engage the rear face of said knife-bar and another of said severed portions lying in the plane of the main portion of the section, and sliding upon the finger-bar, in rear of said recesses, substantially as described.

2. The combination with the finger-bar, having its fingers provided with recesses to receive the knife-bar, of the knife-bar located in said recesses, a knife-section formed of a single piece of material of uniform thickness secured to the knife-bar, having a downwardly-extending shoulder forward of said knife-bar and having its rear end projecting over the rear end of said knife-bar, said projecting portion being severed transversely of the knife-bar, one of said severed portions being bent downwardly into engagement with the rear edge of the knife-bar, and another of said severed portions engaging and sliding upon the finger-bar, in rear of said recesses, substantially as described.

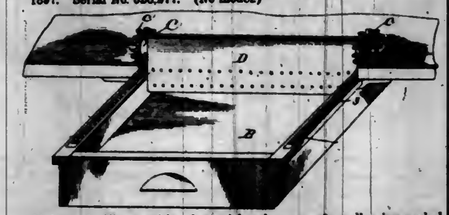
3. As a new article of manufacture, a section-knife for mowing-machines, formed of a single piece of material of uniform thickness, having its rear portion severed, perpendicularly to its rear edge, one of said severed portions being bent downwardly and another of said portions being in the plane of the knife-bar-engaging portion of the section, substantially as described.

589,158. SAFETY DEVICE FOR ENVELOPS. CHARLES H. BROWN, Boston, Mass. Filed Nov. 27, 1896. Serial No. 613,642. (No model.)



Claim.—A safety device for envelops, comprising a backing sheet or layer, a facing-sheet or layer of transparent or translucent material, and soluble coloring-matter between said sheets disposed in a printed design which is visible through the facing-sheet, the said facing-sheet being adapted to be penetrated by moisture and permit access of the same to the coloring-matter.

589,159. DEVICE FOR COVERING AND PROTECTING CONTENTS OF DRAWERS. HORACE R. BURT, Austin, Tex. Filed Mar. 19, 1897. Serial No. 628,277. (No model.)

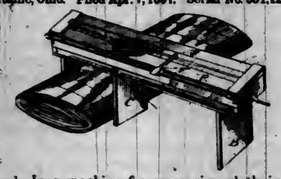


Claim.—1. The combination, with a drawer, of a roller journaled in bearings secured to a fixed support, a flexible cover secured at one end to the inner end of the drawer and at the other end to the roller, and means for automatically operating the roller to wind and unwind the cover on pulling out and pushing in the drawer.

2. The combination, with a drawer provided with one or more gear-racks, of a roller carrying one or more gear-wheels adapted to mesh with said rack or racks, said roller being journaled in bearings secured to a fixed support, and a flexible cover secured at one end to the inner end of the drawer and at the other end to the roller, substantially as described and for the purposes stated.

3. The combination, with a drawer provided with one or more gear-racks, of a roller carrying one or more gear wheels adapted to mesh with said rack or racks, said roller being journaled in bearings secured to a fixed support, a flexible cover secured at one end to the inner end of the drawer and at the other end to the roller, and means for locking the roller against rotation.

589,160. CLOTH-MEASURING MACHINE. EDWARD T. BUTLER, Bellefontaine, Ohio. Filed Apr. 7, 1897. Serial No. 631,122. (No model.)

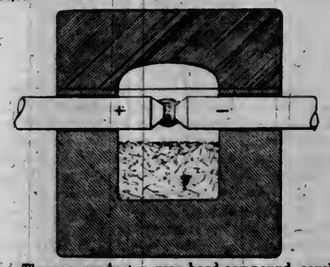


Claim.—1. In a machine for measuring cloth in the bolt, the combination of a fold-indicating slip divided or scaled, and having consecutive numbers, a sliding arm having a pointer, a scale with which the same registers, a movable sheet divided into columns, the head of each column numbered correspondingly to the number on the scale, and with numbers to indicate the yards and fractions of yards, and a movable hand or pointer to register with both the fold-indicating slip and the movable yard and inch indicator, substantially as, and for the purpose set forth.

2. In a machine for measuring cloth in the bolt, a frame the supports therefor, a fold-indicating slip divided or scaled and consecutively numbered, a sliding arm carrying a pointer, a plate or strip divided into sections with a series of figures of like number, consecutively arranged, and each number representing the quarter of a whole, a pair of rollers carrying a sheet divided into columns, each column being headed with a figure which corresponds in order with the figures on the plate and with the column divided into sections and numbered with a series of figures of like number consecutively arranged, and a movable hand or pointer to register with both the fold-indicating slip and the numbers on the column of the movable sheet, substantially as and for the purpose set forth.

3. In a machine for measuring cloth in the bolt, a fold-indicating slip, a sliding arm carrying a pointer, a scale with a series of figures of like number consecutively arranged, a movable sheet divided into columns and numbered substantially as described, a movable pointer and means for setting and holding the same registered with the fold-indicating slip, and means for moving the sheet to expose a column numbered to correspond with the number indicated by the pointer on the fold-indicating slip, as and for the purpose set forth.

589,161. HARD BODY FOR RIFLING CHROMATED STEEL. FREDERIC CHAPLET, Laval, France. Filed Sept. 15, 1894. Serial No. 523,137. (Specimens.) Patented in France Aug. 8, 1893, Nos. 232,034 and 232,037.



Claim.—The new product, a very hard compound, consisting of carbon, titanium and silicium, in chemical combination, substantially as described.

589,162. BRUSH FOR DYNAMOS. FREDERICK J. CHAPLIN, Birmingham, England. Filed Mar. 17, 1897. Serial No. 628,041. (No model.) Patented in England Aug. 22, 1896, No. 18,617.



Claim.—The improvements in brushes for dynamos consisting of one or more sheets B having the wires running diagonally and one or more sheets A having the wires running square with the length and breadth of the brush and with a wire center substantially as and for purpose herein set forth and as shown upon the drawings.

589,168. BICYCLE-TIRE ARMOR. MICHELLE CROQUETTE, Kankakee, Ill. Filed Dec. 19, 1896. Serial No. 616,242. (No model.)



Claim.—In a pneumatic-tire armor, the combination of a series of overlapping, flexible, metallic plates, adapted to snugly fit about the exposed portions of a pneumatic tire, the posterior edges of said plates being scalloped and bent downward forming lips or projections; the front portions of said metallic plates being provided with a lateral corrugation adapted to facilitate the movements of the plates upon each other, and means for joining said plates together in the form of a flexible band, substantially as described.

589,164. NON-REFILLABLE BOTTLE. GEORGE W. COATES and ALBERT J. SCHUTZ, Schutz Mills, Ill. Filed Apr. 20, 1897. Serial No. 633,010. (No model.)

Claim.—1. In a device of the class described, the combination of a bottle having a neck with a breakable upper portion, a lower removable cork arranged within the neck and located below the breakable portion, and a removable corkscrew located within the space between the corks and adapted when the neck of the bottle is broken to be employed for withdrawing the lower cork, said corkscrew engaging the upper cork and the neck and serving as a catch or locking device to retain the upper cork in the neck, whereby the latter

must be broken to obtain access to the contents of the bottle, substantially as described.



2. In a device of the class described, the combination of a bottle having a neck with a breakable upper portion, said neck being provided with oppositely-disposed upper and lower shoulders 7 and 10, a removable lower cork arranged within the neck below the breakable portion, an upper cork arranged in the breakable portion of the neck, a metal disk covering the lower cork and arranged on the lower shoulder 7, and an inverted corkscrew embedded in the upper cork and provided with a substantially U-shaped spring-handle engaging the upper shoulder 10 and locking the upper cork in the neck to prevent its withdrawal without breaking the latter, said corkscrew being adapted for withdrawing the lower cork when the upper portion of the neck is severed from the lower portion, substantially as described.

3. In a device of the class described, the combination of a bottle having a neck with a breakable portion, a removable lower cork arranged within the neck below the breakable portion, an upper cork, and a corkscrew arranged within the space between the corks and adapted for withdrawing the lower cork when the neck of the bottle is broken, said corkscrew being embedded in the upper cork and provided with resilient arms forming a handle and engaging the breakable portion of the neck, whereby the same must be severed from the lower portion of the neck in order to obtain access to the contents of the bottle, substantially as described.

589,165. WIRE-AND-PICKET-FENCE MACHINE. BENONI L. COUTANT, McKinley, Tenn., assignor of one-half to Sandford C. Rowe, same place. Filed Oct. 31, 1896. Serial No. 610,667. (No model.)



Claim.—A wire-and-picket-fence machine, consisting of a handled rod with arms B B, a handled shaft in bearings of said arms and with reversed end cranks, curved plates made fast to said cranks, and hooks E pivoted on studs whose heads are cut away on one side, all combined, constructed and arranged substantially as shown and described.

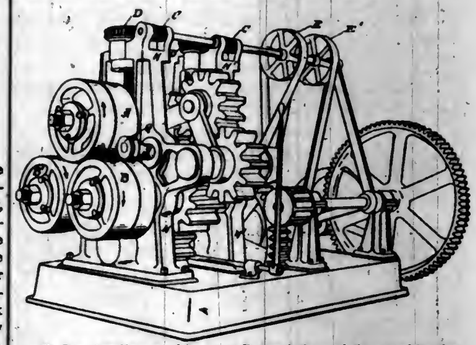
589,166. QUICK-ACTION WRENCH. FRIEND F. DE VOE, Lima, Ohio. Filed Jan. 23, 1897. Serial No. 620,315. (No model.)



Claim.—A monkey-wrench comprising a stock toothed upon one side, a fixed jaw on said stock, a movable jaw slidingly mounted thereon, a stop projection on the inner end of said sliding jaw, and a partially-rotatable collar mounted on said stock and provided with a tooth which is movable laterally into and out of engagement with the teeth on the stock, said collar also embodying an enlarged portion formed with an internal segmental groove or recess terminating in abrupt radial or transverse shoulders which cooperate with the stop projection on the sliding jaw to limit the rotative movement of the collar, substantially as described.

589,167. BENDING-MACHINE. JOHN F. DOOLITTLE, Cleveland, Ohio, assignor to the Cleveland Punch and Shear Works Company, same place. Filed May 26, 1896. Serial No. 592,910. (No model.)

Claim.—1. In a bending-machine, a roll consisting of the combination with two elemental roll-sections, of a shaft adapted to mount said roll at its end, and provided with means adapted to limit one of said sections in its motion in the direction of the axis of said shaft, the other section provided with means adapted to vary the distance between said two sections, said shaft provided with means for limiting the action of said varying means, whereby said two sections are fixed relatively to each other, substantially as set forth.



2. In a bending-machine, a roll consisting of the combination with two elemental roll-sections, of a shaft adapted to mount said roll at its end and provided with means adapted to limit one of said sections in its motion in the direction of the axis of said shaft, the other section provided with screw-bolts passing longitudinally therethrough, having screw-threaded engagement therewith and adapted to vary the distance between said two sections, said shaft provided with means for limiting the action of said bolts, whereby the said two sections are fixed relatively to each other, substantially as set forth.

3. In a bending-machine, a roll consisting of the combination with two elemental roll-sections, of a shaft adapted to mount said roll at its end, said shaft provided with a shoulder adapted to limit one of said sections in its motion in the direction of the axis of the shaft, the other section provided with means adapted to vary the distance between said two sections, said shaft provided with means for limiting the action of said varying means, whereby said two sections are fixed relatively to each other, substantially as set forth.

4. A roll consisting of the combination with two elemental roll-sections, of a shaft formed with a shoulder and provided at its end with a nut and washer, said roll-sections being located between said shoulder and washer, and provided with means adapted to separate said sections, whereby they are caused to bear respectively against said shoulder and washer, whereby they are relatively fixed, substantially as set forth.

5. A roll consisting of the combination of roll-section *a*, roll-section *a'*, shaft J provided with a shoulder *j* and formed with a threaded portion at its end, washer K, nut I and means for separating said sections, whereby they are caused to bear respectively against said shoulder and washer and whereby they are relatively fixed, substantially as set forth.

6. A roll consisting of the combination of roll-sections *a* and *a'*, shaft J provided with a shoulder *j* and a threaded end, a washer K, nut I, and screw-bolts M, substantially as set forth.

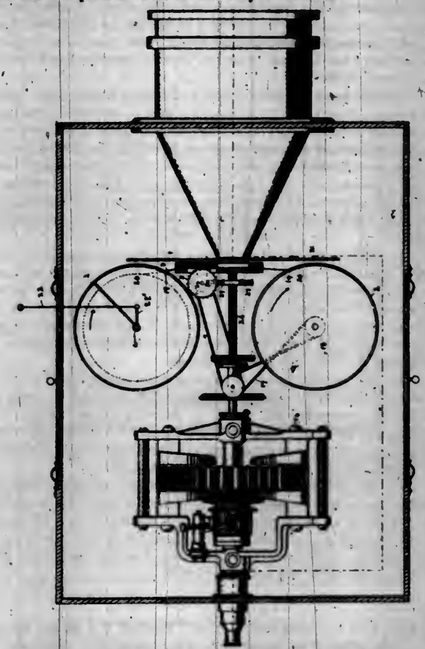
7. A roll consisting of the combination of roll-sections *a* and *a'*, shaft J provided with a shoulder *j* and a threaded end, a washer K, a nut I, screw-bolts M and a washer N, substantially as set forth.

8. In a guide for guiding stock issuing from rolls, the combination with a guide-rod laterally adjustable, a guide-body rigidly attached to said rod, of a rotatable disk pivoted upon said guide-body, the face of the guide body and inner face of the rotatable disk being provided with ball-races, and balls adapted to bear in said races and having contact with said rotatable disk and guide-body, substantially as set forth.

589,168. KINETOGRAPHIC CAMERA. THOMAS A. MOISON, Llewellyn Park, N. J. Filed Aug. 24, 1891. Serial No. 403,534. (No model.)

Claim.—1. An apparatus for effecting by photography a representation, suitable for reproduction, of a scene including a moving object or objects, comprising a means for intermittently projecting at such rapid rate as to result in persistence of vision images of successive positions of the object or objects in motion, as observed from a fixed and single point of view, a sensitized tape-like film, and a means for so moving the film as to cause the successive images to be received thereon separately and in a single-line sequence.

2. An apparatus for taking photographs suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film at a high rate of speed across the lens of the camera and for exposing successive portions of the film in rapid succession, substantially as set forth.



3. An apparatus for taking photographs suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film across the lens of the camera at a high rate of speed and with an intermittent motion, and for exposing successive portions of the film during the periods of rest, substantially as set forth.

4. An apparatus for taking photographs suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film across the lens at a high rate of speed and with an intermittent motion, and for exposing successive portions of the film during the periods of rest, the periods of rest being greater than the periods of motion, substantially as set forth.

5. An unbroken transparent or translucent tape-like photographic film having thereon equidistant photographs of successive positions of an object in motion, all taken from the same point of view, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, substantially as described.

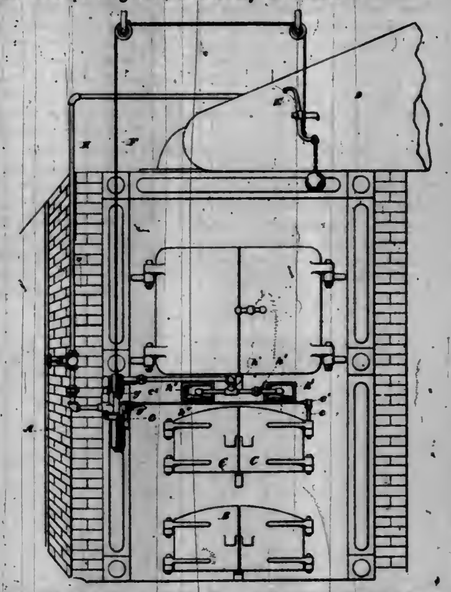
6. An unbroken transparent or translucent tape-like photographic film provided with perforated edges and having thereon equidistant photographs of successive positions of an object in motion, all taken from the same point of view, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, substantially as described.

589,169. SMOKE-CONSUMING APPARATUS. ALFRED A. FRESLAND, New York, N. Y., assignor of one-half to Francis Deimel, same place. Filed Apr. 6, 1897. Serial No. 630,955. (No model.)

Claim.—1. In a smoke-consuming apparatus, the combination of air and steam supply devices, of a cataract and an operating device therefor, comprising an elbow-lever *g* provided with an arm g^9 in operative relation to the piston of said cataract but disconnected therefrom.

2. In a smoke-consuming apparatus, the combination of a valved steam-supply device, a controlling mechanism therefor comprising a cataract, and valve-operating mechanism for operating the steam-valve, and a cam-lever operating on the cataract but disconnected therefrom, so that the said cataract may be operated and the cam-lever returned to its original position, allowing the cataract to perform its function.

3. In a smoke-consuming apparatus, the combination of a valved steam-supply, a valve-operating lever, a piston, a cam-lever for operating said piston, and a cam moved by the said piston and operating the valve-operating lever, substantially as described.



4. In a smoke-consuming apparatus, the combination of a steam-controlling valve, and means for operating the same, comprising a piston, a cam g^8 moved by the said piston, a valve-operating lever g^{10}, and a cam-lever for moving the piston, all of the said parts being disconnected from each other so as to be movable independently of each other at predetermined times.

5. In a smoke-consuming apparatus, the combination of a steam-regulating valve H, an operating-lever g^{10} therefor, a piston, a cam g^8 moved by the said piston and operating to swing the lever g^{10}, and a cam-lever g^8 for operating the piston combined with a connection with the furnace-door, substantially as described.

6. In a smoke-consuming apparatus, the combination of an air-inlet chamber or funnel h^2, a header therein provided with nozzles, a steam-supply pipe for bringing steam to the header, and a steam-disbursing apparatus having radiating passages located beyond the header and adapted to spread the mixed steam and air in a curtain over the fire.

7. In a smoke-consuming apparatus, the combination of an air-inlet chamber or funnel h^2, a steam-inlet device located in the funnel and adapted to draw air into the funnel, and a disbursing apparatus located beyond the funnel and adapted to distribute the mixed steam and air over the fire, the said disbursing apparatus being pivotally mounted so as to be adjustable, substantially as described.

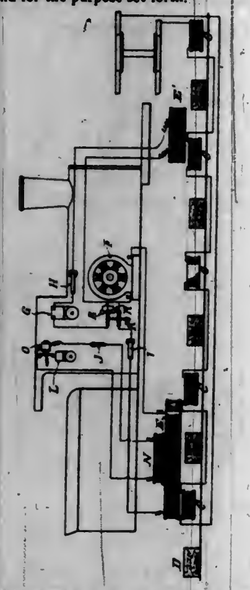
589,170. RAILWAY-SIGNAL. CHARLES W. GRANT, Concord, Mass., assignor to the American Electric Train and Switch Signal Company, Boston, Mass. Filed Nov. 19, 1896. Serial No. 612,733. (No model.)

Claim.—1. The combination in a railway signaling system of a series of coils located along a section of railway and having their terminals connected to the track-rails of a neighboring section, a generator on the train for energizing the said coils by induction and a receiving-coil carried by the same train in proximity to the said series of track-coils and connected with signal-receiving apparatus on the train, substantially as and for the purpose set forth.

2. The combination in a railway signaling system of a series of coils provided with iron cores located along a section of railway and having their terminals connected to the track-rails of a neighboring section, a generator on the train for energizing the said coils by induction and a receiving-coil having an iron core carried by the same train in proximity to the said series of track-coils and connected with signal-receiving apparatus on the train.

3. The combination in a railway signaling system of a series of track-coils having their terminals connected to the opposite insulated rails of a neighboring section of the track, an alternating-current generator carried by the train, a coil on the train in the circuit of said generator carried at a point adjacent to the track-coils, so as to induce current therein, and a receiving-coil also on the train carried

in a similar position and provided with signal-receiving devices, substantially as and for the purpose set forth.



4. The combination in a railway signaling system of three adjacent sections of track, the rails of each section being insulated from those of the other sections, a series of track-coils arranged along the first of the said sections, two insulated line-wires connected to the terminals of said coils respectively and extending along the second or intermediate one of the said sections and connected respectively to the insulated track-rails of the third or last one of the said sections, an alternating-current generator, an inducing-coil in the circuit of said generator forming a primary coil for inducing an alternating current in said track-coils, a receiving-coil carried by the train in proximity to the said track-coils so as to receive a tertiary induced current in the event of the circuit of said track-coils being closed, and signaling devices on the train included in the circuit of said receiving-coil, substantially as and for the purpose set forth.

5. The combination in a railway signaling system of three adjacent sections of track, the rails of each section being insulated from those of the other sections, a plurality of track-coils connected in series in a common circuit and arranged in a single line adjacent to the first of the three sections aforesaid, two insulated conductors, one connected at the beginning of the said first section to the terminal of the first one of the said track-coils and the other connected at the end of the same section to the terminal of the last of the said track-coils, the two conductors extending from their said connection-points along and beyond the second or intermediate one of the said three track-sections and connected respectively to the two insulated rails of the third or last one of the aforesaid three track-sections, an alternating-current generator, an inducing-coil in the circuit of said generator, forming a primary coil for inducing an alternating current in said track-coils, a receiving-coil carried by the train in proximity to the said track-coils, so as to receive a tertiary induced current in the event of the circuit of said track-coils being closed, and signaling devices on the train included in the circuit of said receiving-coil, substantially as and for the purpose set forth.

6. The combination in a railway signal system of a series of track-coils, an inducing-coil carried by the locomotive for generating current in said track-coils, an alternating-current generator energizing the said inducing-coils, a test-coil placed adjacent to the said inducing-coil, and indicating devices in the circuit of the said test-coils, substantially as and for the purpose set forth.

7. The combination of track-coils C C, &c., an inducing-coil E carried by the train in proximity to the said track-coils, indicating-coil N, generator F, normally energizing coil E, magnet O in the circuit of coil N, and a signaling device L controlled by said magnet O, substantially as and for the purpose set forth.

8. The combination with one or more car-axles of a railway-vehicle, of an inducing-coil suspended directly therefrom, a series of track-coils arranged at or near the surface of the road-bed in proximity to the said inducing-coil, a generator on the train for energizing the inducing-coil and a signaling device on the same train inductively operated by the said track-coil, substantially as and for the purpose set forth.

9. The combination with an induced track-circuit formed in part of the track-rail and in part by a conductor subject to inductive action, of a generator on the train for supplying the said circuit with alternating current and a signaling-circuit on the same train energized inductively from the said track-circuit, substantially as and for the purpose set forth.

10. The combination in a railway signaling system of an induction-circuit along the railway formed in part by insulated sections of track-rail, a drawbridge, or turnout, in said section, a switch controlled by the said drawbridge, or turnout-switch, for closing the circuit between the two rails in the event of the bridge, or turnout, being open, a generator on the train for inducing an alternating current in said track-circuit and signaling devices on the same train operated by the said induced current, substantially as and for the purpose set forth.

11. The combination in a railway signaling system of a railway-track having its rails divided into three or more insulated sections, two induced circuits adjacent to one section and connected respectively with the section in advance and in rear thereof, a generator on the train for inducing alternating currents in said circuits and signaling devices on the same train operated by said induced circuits, substantially as and for the purpose set forth.

12. The combination in a railway signaling system of a line of track-coils adjacent to a section of railway, said track-coils being included in a normally open circuit, an inducing-coil and a receiving-coil carried by the same train and arranged in the same longitudinal line adjacent to the line of track-coils and means for closing the track-coil circuit by the presence of a neighboring train.

13. The combination in a railway signaling system of a series of section track-coils on one section, a circuit for said coils controlled by a train on a neighboring section, local track-coils, a local circuit therefor, a signaling device in said local circuit and an inducing-coil for energizing both the local track-coils and section track-coils, substantially as and for the purpose set forth.

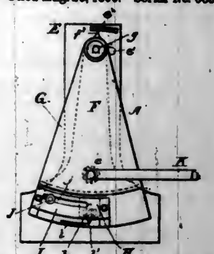
589,171. SCRUBBING-BRUSH. BENJAMIN F. C. GRIMES, Walnut Grove, Miss. Filed Jan. 20, 1897. Serial No. 619,860. (No model.)



Claim.—1. In a scrubbing-brush, the combination with clamping-strips, of scrubbing material located therebetween, means for securing the clamping-strips and scrubbing material, and independent catches or retainers pivoted to one strip and having a free portion adapted to be swung across to the other strip at the ends of the said strips.

2. In a scrubbing-brush, the combination with clamping-strips, of scrubbing material located therebetween, means for holding the strips and scrubbing material together, and independent L-shaped catches located at the outer ends of the clamping-strips and having one leg pivotally received in one strip and the other leg free and adapted to be extended across the scrubbing material and rested against the other clamping-strip.

589,172. MARINE-ENGINE GOVERNOR. WILLIAM G. HANNAH, Taunton, Mass. Filed Aug. 20, 1896. Serial No. 603,314. (No model.)



Claim.—1. A marine governor consisting of a throttle-operating pendulum provided with an adjustable pivot, substantially as described.

2. A marine governor consisting of a throttle-operating forwardly-swinging pendulum G, provided with a backwardly-adjustable pivoted supporting-bracket F, and a fixed supporting-frame E, substantially as described.

3. In a marine governor, a throttle-operating pendulum G, and connecting-rod K, in combination with a supporting-bracket F, having the pivots g and e, and the fixed supporting-frame E having the slot e', substantially as described.

4. In a marine governor, a throttle-operating, adjustably-pivoted pendulum having the tongue H, finger h' and roller h in combination with the bracket I, having the slot j and adjustable stop J, and with the supporting-bracket F, having the dial i, substantially as described.

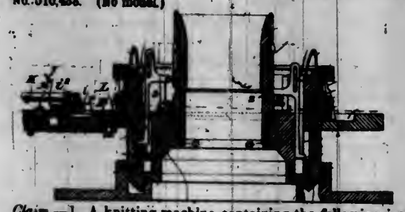
5. In a marine governor, a throttle-operating pendulum and a swinging supporting-bracket F, having a finger f^3 in combination with a frame E, having a dial e^3, substantially as described.

589,173. TOY. FREDERICK R. HENKE, Lindenhurst, N. Y. Filed Oct. 21, 1896. Serial No. 609,494. (No model.)



Claim.—A toy or advertising device consisting of a structure or frame provided with two horizontal rows of windows covered by screens, in combination with a pattern-cylinder located inside said frame and directly opposite one row of windows, the lower end of said pattern-cylinder having a transverse diaphragm provided with openings, a source of light and heat inside of said cylinder, and means whereby the heat from said source will rotate said cylinder, whereby moving images will be caused to move successively across the screen in both of said rows, substantially as described.

589,174. FASHIONING MECHANISM FOR KNITTING-MACHINES. LEON C. HUNT, Laconia, N. H. Filed May 8, 1894. Serial No. 510,433. (No model.)



Claim.—1. A knitting-machine containing the following instrumentalities, viz: a needle bed or cylinder, a series of needles therein, a cam plate or cylinder having suitable cams for knitting, a series of needle-actuators loosely mounted therein and adapted to be bodily reciprocated thereby in the direction of movement of the needles by the said cams and having projections to engage and move each its own needle when it is desired that a needle shall knit, and needle-actuator-selecting mechanism cooperating with said needle-actuators to move the same into and out of engagement with said needles, to operate, substantially as described.

2. A knitting-machine containing the following instrumentalities, viz: a needle bed or cylinder, a series of needles therein, a cam plate or cylinder having suitable cams for knitting, a series of needle-actuators adapted to be longitudinally reciprocated in the direction of movement of the needles by the said cams and having lateral projections to engage and move each its own needle when it is desired that a needle shall knit, and needle-actuator-selecting mechanism positively connected to said needle-actuators and actuator-controlling mechanism cooperating with said selecting mechanism to determine which of the said needle-actuators in their reciprocations by the cam-cylinder shall engage and move a needle, substantially as described.

3. In a knitting-machine, a needle-cylinder grooved for the reception of needles, a series of needles mounted in said grooves, a series of needle-actuators having laterally-extended fingers to engage said needles, devices removed from said needles and interposed between said fingers to guide said needle-actuators in their reciprocations, means to move said actuators into and out of engagement with the needles, and a cam device to reciprocate said needle-actuators to operate, substantially as described.

4. In a knitting-machine, a needle-bed or cylinder having a series of grooves for the reception of a series of needles, a series of needles having notches, a series of needle-actuators, one for each needle, adapted to engage said notches, and arranged to swing to and from said needles at their engaging ends, a cam to reciprocate said actuators in the direction of the length of the needle, devices to serve as guides for said needle-actuators in their movement of reciprocation, and a series of springs to normally keep the fingers of the needle-actuators pressed toward and so as to engage said needles, substantially as described.

5. A needle bed or cylinder, a series of needles therein, a series of reciprocable needle-actuators adapted to engage said needles, means to press the upper ends of said needle-actuators in a yielding manner toward the said needle-cylinder and needles in order that the projections on the said needle-actuators may engage the needles and move them, combined with a needle-actuator displacer to displace the projections of the needle-actuators from the notches of the needles to enable the needle bed or cylinder to be withdrawn, substantially as described

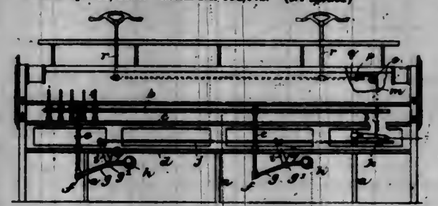
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589,175. RAIL-JOINT. JOHN H. JOHNSON, Allentown, Pa., assignor of two-thirds to Silas A. Lentz and A. D. Hunsinger, same place. Filed Mar. 17, 1897. Serial No. 627,966. (No model.)



Claim.—In a rail-joint, fish-plates adapted to bear at their top and bottom edges against the under surface of the rail-tread and the upper surface of a rail-base and yieldingly at their central portions, a securing-nut to compress said plates, vertically-depending loops from said fish-plates at the sides thereof, and an independent cross-bar having a recess for the rail-base and shoulders for the loops of the fish-plates, substantially as specified.

589,176. SPINNING-FRAME. JOHN C. JUDGE, Fall River, Mass. Filed Apr. 12, 1897. Serial No. 631,672. (No model.)



Claim.—1. In a spinning-frame the combination of the shipping-rod, of the weight-rod and of means operated by the shipping-rod for locking the weight-rod against movement.

2. In a spinning-frame, the combination of the shipping-rod, of the weight-rod provided with a suitable projection, of a latch located to engage the said projection when the ring-rail is depressed, and a suitable connection between the shipping-rod and the latch.

3. In a spinning-frame the combination of the shipping-rod, of the weight-rod, of a detent for locking the weight-rod and of a yielding connection between the shipping-rod and the detent.

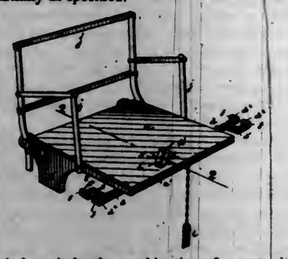
4. In a spinning-frame the combination of a shipping-rod, of a detent for preventing the movement of the ring-rail, of the cord and of the spring, said cord and spring forming a yielding connection between the shipping-rod and the detent.

5. In a spinning-frame the combination with a ring-rail of mechanism for raising and lowering said rail, a detent for preventing the movement of said rail, and a rod extending longitudinally of the frame and having connection with said detent, whereby the detent may be operated from any part of the frame.

589,177. WINDOW-CHAIR. FRANZ KAWENKY, New York, N. Y. Filed May 12, 1897. Serial No. 636,181. (No model.)

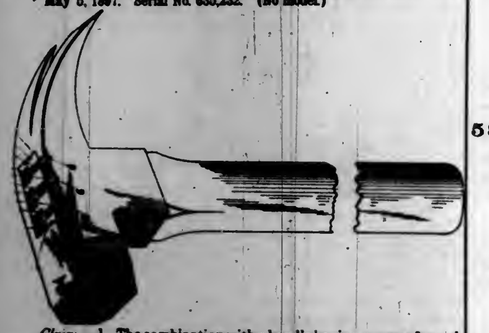
Claim.—1. In a window-chair, the combination of a seat with a pair of laterally-movable racks having upturned ends, buffers secured

to such ends, a pinion engaging the racks, and a bolt for locking the racks, substantially as specified.



2. In a window-chair, the combination of a seat with a pair of laterally-movable racks, straps embracing the same, a pinion engaging the racks, a key-plate having a pair of bolt-holes, and a bolt adapted to engage either one of said holes and to lock the racks, substantially as specified.

589,178. HAMMER. JAMES S. KELLY, Mount Iron, Minn. Filed May 5, 1897. Serial No. 635,232. (No model.)



Claim.—1. The combination with a handle having grooves formed in its ends, said grooves terminating in cavities, of an implement having an eye through which the handle is adapted to extend, said eye formed with grooves registering with the grooves of the handle, and means for gripping and holding the nail within the grooves when the implement is passed thereover, substantially as described.

2. The combination of a handle having a series of transverse grooves formed in its end, said grooves terminating in cavities, of an implement having an eye through which the handle is adapted to extend, one of the side walls of said implement provided with grooves registering with the grooves of the handle, and spring clamping members positioned in the grooves of the handle for gripping the nail when the implement is pressed thereover, the head of said nail being positioned within the cavity with its stem resting in the groove of the handle and wall of the eye, substantially as described.

589,179. PLOW. HERMAN O. KRUEGER, Auroraville, Wis. Filed Dec. 29, 1896. Serial No. 617,230. (No model.)

Claim.—1. The combination with a plow-beam and its plow, of a spreader situated in front of the same and consisting of an inner plate practically parallel with said beam, and an outer inclined plate.

2. The combination with a plow-beam and its plow, of a spreader situated in front of the same and consisting of an inner plate practically parallel with said beam, and an outer inclined plate provided with an overhanging flange.

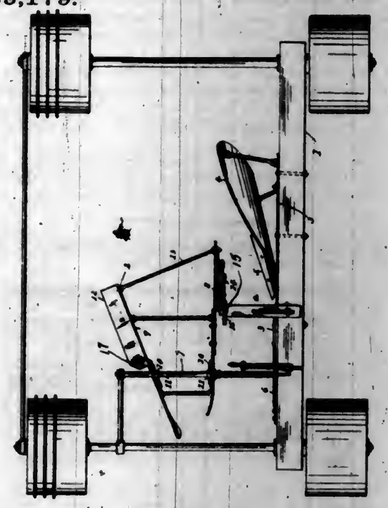
3. The combination with a plow-beam and its plow, of a spreader situated in front of the same and consisting of an inner plate practically parallel with said beam, and an outwardly-inclined plate provided with an inclined flange having an upturned or curved forward end.

4. The combination with a beam and plow, of a spreader adjustably secured to one side thereof and in advance of said plow.

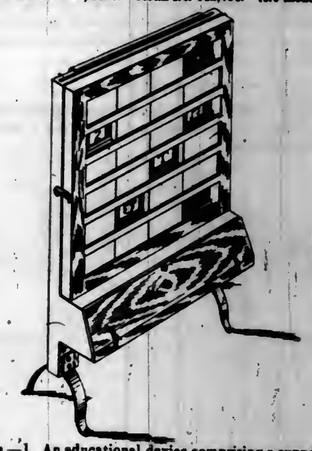
5. The combination with a beam and plow, of a laterally-extending arm, a spreader pivotally mounted upon said arm, and movably connected at its rear end with said arm.

6. The combination with a beam and a plow, of a laterally-extending arm upon said beam and attached to said plow, a spreader pivotally mounted upon said arm, and a lever mounted upon said beam in the rear of said spreader and pivotally connected with said spreader.

589,179.



589,180. EDUCATIONAL APPLIANCE. JESSE M. LANE, Dalton, Ind. Filed Nov. 19, 1896. Serial No. 612,751. (No model.)



Claim.—1. An educational device comprising a support, a frame thereon, a frame hinged to one end of the fixed frame and having movable blocks, and leaves held at one end in a groove at the upper edge of the movable frame, substantially as described.

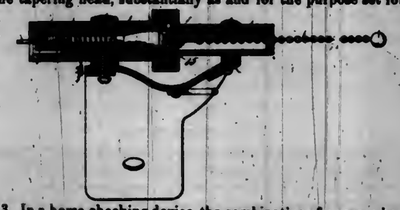
2. An educational device comprising a support, a frame thereon, a frame hinged to one end of the fixed frame and having movable blocks, and leaves held at one end in a groove at the upper edge of the movable frame, and a receptacle supported upon the lower end of the stationary frame, substantially as described.

3. The educational appliance described, comprising a support, a frame thereon, wires extending across the frame, slides detachably mounted upon said wires, leaves held at one end in grooves at the upper end of said frames, a subdivided receptacle having a hinged cover, and a frame hinged at one edge to one edge of the stationary frame and having transverse strips with guide-grooves and blocks mounted to slide in said grooves, substantially as described.

589,181. HORSE-CHECKING DEVICE. FRANK X. LOEHLER, San José, Cal. Filed Jan. 20, 1897. Serial No. 619,956. (No model.)

Claim.—1. In a horse-checking device, a case, a barrel removably fitted within the case, a rod located within the barrel and adapted to have the check-line and the release-line connected therewith, a spring arranged within the barrel and operating upon the said rod, and a catch carried by the case and adapted to engage with the said rod, substantially as and for the purpose set forth.

2. In a horse-checking device, the combination of a case, a catch operating at right angles to the case and having a projection or lip, and a rod adapted to have the release and check lines connected therewith and having a tapering head hollowed out at its inner end to receive the aforesaid lip or projection and having a neck portion in front of the tapering head, substantially as and for the purpose set forth.



3. In a horse-checking device, the combination of a case, a barrel removably and slidably fitted therein, a rod slidably mounted within the barrel and having a tapering head, a plug having adjustable connection with the rod, a spring mounted upon the rod, located within the barrel, and confined between the said plug and a shoulder or stop of the barrel, the said rod having the check and release lines connected therewith, and a catch provided on the case to engage with the head of the rod, substantially in the manner set forth for the purpose described.

4. In a horse-checking device, the combination of a case comprising corresponding sections having a chamber formed between their inner or opposing ends, a catch located in the said chamber, a rod removably and slidably fitted within the front section of the case and having a tapering end or head to be engaged by the said catch, and adapted to have the check and release lines connected therewith, and a spring for giving an initial impetus to the rod to shoot it by the catch when suddenly released, substantially as and for the purpose set forth.

5. In a horse-checking device, the combination of a case, a catch applied thereto, a barrel removably and slidably fitted within the case and having an inner shoulder or stop, a headed rod slidably fitted within the barrel and having a threaded end, a plug mounted upon the threaded end of the rod, and a spring located within the barrel and confined between its shoulder and the aforesaid plug, substantially as and for the purpose set forth.

6. The combination with a harness-saddle, of front and rear guides, a two-part case fitted in the guides and having an enlarged portion between its ends, a catch attached to the case, a barrel removably and slidably fitted within the case, and a spring-actuated rod slidably mounted within the barrel and adapted to be engaged by the said catch and to have the check and release lines connected therewith, substantially as and for the purpose set forth.

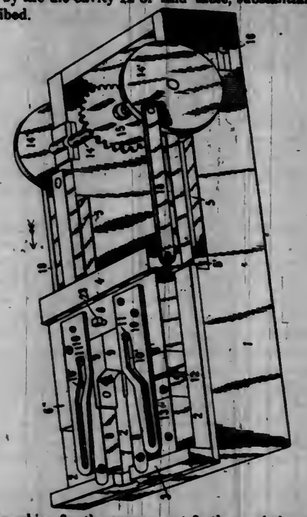
7. A horse-checking device, comprising a case formed of front and rear sections having a chamber between their inner or opposing ends, a catch having a lip or projection located within the said chamber, a barrel operating within the front section of the case and having an inner shoulder, a rod, a plug adjustably connected with the rod, a spring placed within the barrel and confined between the said plug and shoulder thereof, an eye having a swivel connection with the said plug and adapted to have the check-line attached thereto, and a release-line operating through the rear section of the case and connected with the rear end of the aforesaid rod, and provided with a button, substantially as described for the purpose set forth.

589,182. MACHINE FOR FORMING TURNBUCKLES. HARMAN MARKHOFF, Sr., Detroit, Mich. Filed Apr. 16, 1897. Serial No. 632,403. (No model.)

Claim.—1. A machine for the purpose set forth, consisting of a frame having a stationary bed mounted thereon and a guideway formed therein, a cross-head and table adapted to slide in said guideway and to be moved in the direction of the length of said frame, movable arms pivoted to said bed; said arms having dies secured thereto, and the punching-tooth secured to said table and adapted to enter between the dies of said arms by the movement of said table, for the purpose set forth.

2. A machine for the purpose set forth, consisting of a suitable framework having a bed mounted thereon, arms pivoted at one of their ends upon said bed, suitable guideways formed in said framework, a cross-head adapted to travel therein, a U-shaped table secured to said cross-head, one portion of said table having a die-cavity formed therein, metal plates having angled ways cut therein, in which ways pins projecting from said arms, are adapted to travel to operate said arms, and the die-block having a cavity therein corresponding with the cavity in said table, substantially as shown and described.

3. A machine for forming turnbuckles &c., consisting of a suitable framework having a bed mounted thereon, arms pivoted at one of their ends upon said bed, guideways formed in said framework, a cross-head adapted to travel therein, a U-shaped table secured to said cross-head, one portion of said table having a die cavity 12 formed therein, metal plates 10 having angled ways 10′ therein, in which ways pins projecting from the free ends of said arms, are adapted to travel, said arms having dies secured to their inner sides, a block 13 secured to the upper face of bed 2 and standing in the terminal of the path traversed by the die-cavity 12 of said table, substantially as shown and described.



4. A machine for the purpose set forth, consisting of a suitable framework having an angled body mounted thereon, arms 8 pivoted at one of their ends upon said bed and bearing against its angled portion, said arms having dies 9 removably secured to the inner sides of their free ends, said framework having suitable guideways in which a cross-head 4 is adapted to travel, said cross-head having a U-shaped table extending from its forward side, the guide-pieces having recesses 10′ formed therein secured to said table and extending over said arms, the pins of said arms extending upward through said guideways, the block 13 having the complementary portion of a die-cavity 12 formed therein, the shafts 14 and 16 journaled in said framework, said shaft 14 having wheels 14′ mounted thereon and said wheels being connected with said cross-head by means of connecting-rods, a gear-wheel also mounted upon said shaft 14, which is adapted to mesh with a corresponding wheel mounted upon shaft 16, the drive-wheel mounted on said shaft 16, the punching-tooth removably secured in the depressed portion of said U-shaped table, all substantially as and for the purpose set forth.

589,183. TRAP. HETHERLY A. MARINER, Amesbury, Mass. Filed Dec. 29, 1896. Serial No. 617,401. (No model.)

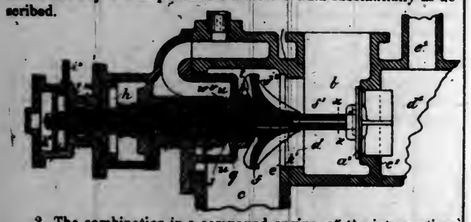


Claim.—An animal-trap comprising a base, a gravity-operated body pivoted at one end thereto, a pivoted latch member on the body having a shoulder, a pivoted latch member on the base whose free end is adapted to engage said shoulder, and a trip-rod projecting from the inner face of the base latch member, the free end of said rod adapted to support the bait, substantially as described and for the purpose designated.

589,184. EMERGENCY-VALVE DEVICE FOR COMPOUND ENGINES. CARL J. MELLIN, Richmond, Va., assignor to the Richmond Locomotive and Machine Works, same place. Filed Dec. 12, 1895. Serial No. 571,850. (No model.)

Claim.—1. The combination in a compound engine, of the intercepting-valve having a hollow stem, emergency-valve having its stem extended through the hollow stem of the intercepting-valve, casings for, and passages controlled by said valves, a piston attached to each

stem respectively, a cylinder for said pistons and an admission-port intermediately of said pistons for a motive fluid substantially as described.



2. The combination in a compound engine, of the intercepting-valve, emergency-valve casings for, and passages controlled by said valves, and means whereby live steam admitted to the low-pressure cylinder, also takes effect on the emergency-valve for closing it prior to the action of the high-pressure exhaust on said emergency-valve substantially as described.

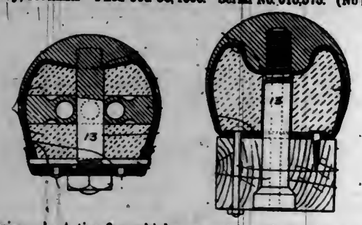
3. The combination in a compound engine, of the intercepting-valve, emergency-valve casings for, and passages controlled by said valves, the bored stem of the intercepting-valve, and shouldered stem of the emergency-valve said stem of the emergency-valve subject to live steam admitted to the low-pressure cylinder for closing said emergency-valve prior to the action of the high-pressure exhaust on said emergency-valve substantially as described.

4. The combination in a compound engine, of the intercepting-valve, emergency-valve casings for and passages controlled by said valves, bored stem of the intercepting-valve, stem of the emergency-valve extending through the stem of the intercepting-valve, piston on the extremity of the intercepting valve stem, piston on the stem of the emergency-valve, cylinder for said pistons and the motor-fluid-admission port intermediately of said pistons substantially as described.

5. The combination in a compound engine, of the intercepting-valve, emergency-valve casings for, and passages controlled by said valves, stem of the emergency-valve extending through the stem of the intercepting-valve, dash-pot for the intercepting-valve, piston on the extremity of the intercepting-valve stem, piston on the extremity of the emergency-valve, cylinder for said pistons, and the motor-fluid-admission port intermediate of said pistons substantially as described.

6. The combination of an intercepting-valve normally held open by the exhaust-steam from the high-pressure cylinder and provided with means for closing it in the absence of said exhaust-steam, an exhaust-valve for relieving said intercepting-valve of said exhaust-steam, and an air dash-pot located in the head of the casing of the intercepting-valve substantially as described.

589,185. PNEUMATIC TIRE. William Menzies, Broughty Ferry, Scotland. Filed Oct. 30, 1896. Serial No. 610,575. (No model.)



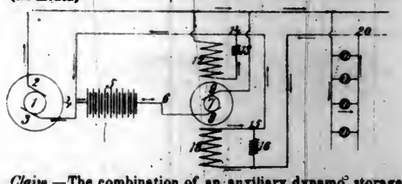
Claim.—1. A tire for vehicles comprising the cork center, the canvas covering the outer tread, and the rubber bolts or filling-pieces arranged in openings in the cork center and extending radially from the wheel-rim to the outer tread portion, substantially as described.

2. A tire for vehicle-wheels comprising the cork center, the canvas covering, the outer tread and the rubber filling-pieces passing through openings in the cork center and canvas cover and having their outer ends threaded into said tread, substantially as described.

3. A tire for vehicle-wheels comprising the cork center, the canvas covering, the outer tread, and the rubber filling-pieces or bolts passing through openings in the cork center and canvas cover and having their inner ends connected with the rim and their outer ends connected with the tread, substantially as described.

4. A tire for vehicle-wheels comprising the cork center, the canvas covering, the plates for securing the cover to the rim, the outer tread, and the rubber bolts having their outer ends connected with the tread and their inner ends connected with the rim, substantially as described.

589,186. MEANS FOR OPERATING GENERATORS AND STORAGE BATTERIES IN CONJUNCTION. Wynn Meredith and Andrew M. Hunt, San Francisco, Cal. Filed Sept. 8, 1896. Serial No. 605,189. (No model.)



Claim.—The combination of an auxiliary dynamo, storage battery, and main dynamo, the armature of the auxiliary dynamo and the storage battery being connected in series, and the two being in shunt with the main dynamo; the auxiliary dynamo having two independent field-windings magnetically opposed, one being in series with the external circuit of the main dynamo, and the other in shunt with any source of approximately constant potential difference.

589,187. GROUND-LEVER SWITCH. Miles F. Moore and Chas. E. Fike, Harrisburg, Pa. Filed Dec. 5, 1896. Serial No. 614,647. (No model.)



Claim.—1. The combination with a suitable supporting-frame, of a cylinder mounted thereon and formed with a spiral groove, a handle for rotating said cylinder, and a switch-operating lever pivoted on said frame and provided with a projection adapted to enter the spiral groove whereby said lever is operated upon the movement of said cylinder.

2. In a switch-stand the combination with a suitable supporting-frame, of a cylinder mounted thereon and provided with a spiral groove, a handle for rotating said cylinder, a switch-operating lever pivoted on said frame, a stud or projection mounted on said lever and adapted to project into the spiral groove, and an antifriction-sleeve mounted on said stud.

3. In a switch-stand the combination with a suitable supporting-frame having spaced lugs mounted thereon, of a cylinder rotatably mounted between said lugs and formed with a spiral groove, a handle for rotating said cylinder, and a switch-operating lever pivoted on the frame and provided with a projection adapted to enter said groove, whereby said lever is operated upon the rotation of said cylinder.

4. In a switch-stand the combination with a supporting-frame, a cylinder mounted upon the same and formed with a spiral groove, a handle for operating said cylinder, a switch-operating lever pivoted on said frame and provided with a projection adapted to enter said groove, a semaphore also mounted on said frame and means for connecting said semaphore to the switch-stand.

5. In a switch-stand the combination with a suitable supporting-frame, a cylinder rotatably mounted thereon and formed with a spiral groove, a lever attached to said cylinder for rotating the same, a weight mounted on said lever for holding it in its adjusted position, a switch-operating lever pivoted upon the base and provided with a projection adapted to enter the spiral groove, and a suitable housing over the working parts for protecting the same.

589,188. BOX ATTACHMENT. James H. Morlan, Kansas City, Kans. Filed May 19, 1896. Serial No. 592,212. (No model.)



Claim.—1. In a collapsible or knockdown crate, the combination with a bottom, of longitudinal strips connected to the bottom and rebent on themselves, thereby providing guide-grooves, side pieces, longitudinal connecting-strips secured to the side pieces and provided with rebent portions, the rebent portions of one strip sliding in the groove of the other strip in each instance, detachable end pieces, a cover, and a fastening for securing the cover in position.

2. In a collapsible or knockdown crate, the combination with a bottom, of longitudinally-movable and detachable sides, rebent connecting-strips secured to the sides inside the crate, ends having vertical connecting-strips that interlock with and slide in the aforementioned strips whereby the ends may be moved vertically, a vertically-removable partition, a similar connection between it and the sides, a removable cover, and a fastening device.

3. In a collapsible or knockdown crate, the combination with a bottom having rebent connecting-strips at its opposite longitudinal edges, said sides having similar longitudinal connecting-strips interlocked with the connecting-strips of the bottom, and said sides likewise being provided with upper and similar connecting-strips, a cover having similar connecting-strips interlocking with and slidable longitudinally in the upper connecting-strips of the sides, and vertically-removable ends connected to the sides by similar connecting-strips.

589,189. FILTER. James A. Mullen, New York, N. Y. Filed Nov. 18, 1896. Serial No. 612,715. (No model.)



Claim.—1. In a filter, the combination with a suitable supporting-casing having an inlet and an outlet, of a filtering-stone mounted in said casing between said inlet and outlet, and a scraping-knife mounted in said casing so as to extend entirely across the diameter of one end of the stone to scrape the same, and a sediment-outlet connected to said casing above the filtering-stone, substantially as described.

2. In a filter, the combination with a suitable casing having an inlet at its upper end, of a knife rigidly mounted in said casing, a filtering-stone, a tube supporting said stone and extending through the bottom of said casing, and a handle mounted on said tube for rotating the same to cause the filtering-stone to engage the under side of the knife, and scrape the sediment therefrom, and means for withdrawing said sediment from above the stone, substantially as described.

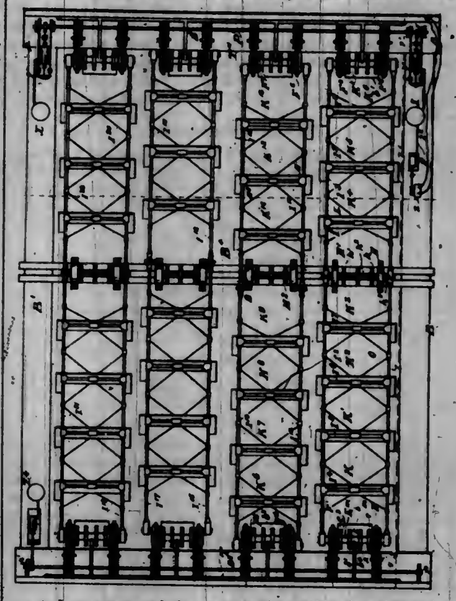
3. In a filter, the combination with a suitable casing, of a closing-top secured to the same, a scraping-knife pendent from said top and extending across the entire diameter of said casing, a movable filtering-stone mounted in said casing, a perforated tube supporting said stone and extending through a suitable packing in the bottom of the casing, and a handle mounted on the lower end of said tube for rotating the same to cause a movement of the stone and the scraping-knife to scrape the sediment therefrom, substantially as described.

589,190. APPARATUS FOR COMPRESSING AIR. Edwin C. Nichols, Topeka, Kans. Filed Aug. 14, 1896. Serial No. 602,810. (No model.)

Claim.—1. In a compressed-air apparatus, a conductor for compressed air comprising a hollow wheel, having a hollow perforate crank-wrist, a hollow shaft having openings within the wheel, and a compressed-air conductor connected with said crank-wrist, as and for the purpose described.

2. In a compressed-air apparatus a receiver for compressed air and a sluice, a hollow compressed-air-conveying wheel at each end of said sluice having its axis provided with openings extending within said wheel, and a perforate crank-wrist, horizontal air-conducting pipes having closed ends journaled upon said crank-wrists and connecting the wheels at opposite ends of said sluice, a conductor of compressed air connected with the axis of said wheels and said receiver, and a water-energized air-compressor within said sluice having an eduction-pipe connected with said horizontal air-conducting pipes on said wheels, and suitable check-valves, substantially as shown and described.

3. In a compressed-air apparatus the combination of a receiver for compressed air and a sluice, hollow compressed-air-conveying wheels at each end of said sluice, each wheel having its axis provided with openings extending within said wheel, and a perforate crank wrist-pin, horizontal air-conducting pipes having closed ends journaled upon said crank wrist-pin and connecting the wheels at opposite ends of the sluice, a conductor of compressed air connected with the axis of each of said wheels and said receivers, and water-energized inverted cups in said sluice having branch pipes connected with the horizontal air-conducting pipes on said wheels and check-valves for checking the backflow of compressed air, and a relief-valve for the admission of the external air, substantially as shown and described.



4. In a compressed-air apparatus the combination of a receiver for the compressed air, and a sluice, and a hollow compressed-air-conveying wheel at each end of said sluice having a hollow perforated shaft closed at both ends, and openings in said shaft within said hollow wheel, and a hollow perforate crank wrist-pin having a removable cap, horizontal air-conducting pipes having closed ends, journaled at said ends upon said crank-pins, and connecting the wheels at each end of said sluice, water-energized air-compressors within said sluice having a pipe connected with said horizontal air-conducting pipes, and a loose sleeve on said shaft having a packed collar at each end, and a conductor of compressed air connected with said sleeve and said receiver, substantially as and for the purpose described.

5. In a compressed-air apparatus a receiver for the compressed air and a sluice, a series of water-actuated inverted air-compressing cups, a hollow compressed-air-conveying wheel having crank-pins at each end of said sluice and compressed-air-conducting pipes journaled upon said crank-pins, and a hollow wheel having a hollow perforate shaft, a conductor of compressed air connected with said shaft and said receiver, and a conductor of compressed air connected with the said conducting-pipes on said wheels and said shaft, substantially as shown and described.

6. In a compressed-air apparatus a water-actuated inverted cup, having forward extensions or wings, substantially as shown and described.

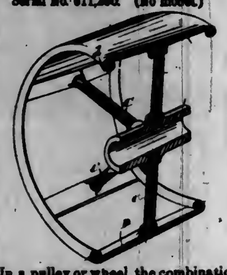
7. In a compressed-air apparatus a water-actuated inverted cup and forward extensions of said cup having inwardly-inclined sides, substantially as and for the purpose described.

8. In a compressed-air apparatus the combination of receivers for the compressed air, and a frame supported by said receivers, a sluice, a transverse line-shaft journaled upon the forward end portion of said frame, a hollow compressed-air-conveying wheel at each end of said sluice each having a crank-pin, and a hollow perforate shaft each shaft being journaled on the sides of the sluice within the line of the transverse line-shaft and parallel therewith, horizontal air-conducting pipes journaled at each end upon the crank-pins of the said wheels at respective opposite ends of the sluice, a series of inverted air-compressing cups within said sluice having valvular branch pipes connected with the horizontal air-conducting pipes, a conductor of compressed air connected with the latter pipes and said receiver and meshing gear on said line-shaft and each separate shaft having the power-wheels, as and for the purpose described.

9. In a compressed-air apparatus the combination of receivers for compressed air and a sluice between said receivers, and a compressed-air pipe connected with the separate receivers, hollow wheels at each end of said sluice, each hollow wheel having a perforate

tubular crank wrist-pin and a hollow revoluble shaft closed at both ends and having an opening for the compressed air within the hollow wheel and also externally thereto, a loose sleeve upon said shaft, and a conductor of compressed air connected with said sleeve and also with the pipe connected with the receivers, and horizontal compressed-air-conducting pipes closed at both ends and journaled upon the cranked wrist-pins, upon wheels at respective opposite ends of the sluice, inverted air-compressing cups in said sluice, and branch pipes connected with the horizontal pipes and also with the top portion of said cups, and a valve for checking the backflow of compressed air, and a separate valve for admitting the external air, substantially as described.

589,191. WHEEL. JOHN P. HORTERY, Toronto, Canada. Filed Nov. 6, 1896. Serial No. 611,260. (No model.)



Claim.—1. In a pulley or wheel, the combination with the spokes and hub, of a rim formed separately from the spokes and having convolute beads at the edges thereof, spoke-heads connected to the spokes extending across within the rim, and having the ends entering into the convolute beads and held therein as and for the purpose specified.

2. In a pulley or wheel, the combination with the spokes and hub, of a rim formed separately from the spokes and having convolute beads at the edges thereof, and spoke-heads connected to the ends of the spokes, extending across within the rim and having reduced outer ends which are formed up into convolutions within the convolute beads and following the convolutions of the bead as and for the purpose specified.

3. In a pulley or wheel, the combination with the spokes and hub, of a rim formed separately from the spokes and having convolute beads at the edges thereof, spoke-heads extending across within the rim and having central bosses to receive and hold the ends of the spokes, the reduced outer ends to such spokes entering into and being held in the convolute beads as and for the purpose specified.

589,192. COMBINED WASHBENCH AND STEP-LADDER. JOHN H. PFLIEGER, Johnstown, Pa. Filed Mar. 13, 1897. Serial No. 627,313. (Model.)



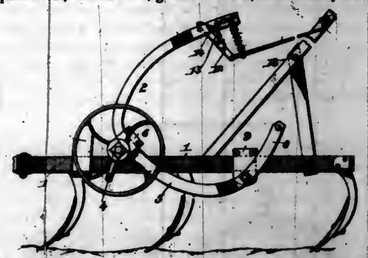
Claim.—1. A step-ladder consisting of the supports A and B, the pivoted ladder portion C having links D, and an extension beyond the ends of the supports, said links being adapted to swing and raise said extension, and bring the ladder portion and supports to a folded position, when they may be used for an ordinary ladder, substantially as described.

2. A step-ladder comprising the supports A, and B, the ladder portion C, one end being pivoted at *c*, the other being adapted to swing by means of links D, and by its swinging motion up or down, the supports are made to open or close, substantially as set forth.

3. The combination in a step-ladder, of the supports A, and B, the ladder portion C, pivoted as described, the links D, and round *g*, all adapted to operate together for the purpose set forth.

589,193. CULTIVATOR-TRUCK. OLIVER PHINNEY, Cairo, N. Y. Filed Nov. 30, 1896. Serial No. 613,863. (No model.)

Claim.—1. In combination, an agricultural implement, similarly-formed bars 2 and 5 deflected or curved between their ends, means for adjustably and pivotally connecting one end of the deflected bars to the longitudinal middle frame-bar of the implement, a locking means applied to and carried by the opposite end of the deflected bars for securing them to the said middle frame-bar in a working position, and an axle journaled to the deflected bars at an intermediate point and provided with ground-wheels, substantially as set forth.



2. A truck for transporting agricultural implements, consisting of similar frame-bars curved longitudinally and having their end portions bent toward each other, thence about parallel to receive between them a beam of the implement, means for pivotally and adjustably securing the ends of the truck together and to a beam or frame-bar of the implement, an axle connecting the lower portion of the frame-bars, and ground-wheels mounted upon the ends of the axle, substantially as set forth.

3. A truck for transporting agricultural implements, composed of similar frame-bars of approximately U form having their end portions bent toward each other, thence to extend parallel and come upon opposite sides of a bar or beam of the implement, means for pivotally and adjustably securing the said beam or bar between the end portions of the frame-bars, an axle connecting the lower portion of the frame-bars and having a crank portion between its ends to afford clearance for the beam, and ground-wheels mounted upon the ends of the crank-axle, substantially as set forth.

4. The combination with an agricultural implement, of a truck having pivotal connection with a bar or beam thereof at one end, a latch at the opposite end of the truck to engage with a portion of the implement to hold the truck in position for supporting the implement, and an operating-rod having connection with the latch to release the latter, and provided with a stop to engage with a portion of the implement to hold the truck elevated when not required for active service, substantially as set forth.

5. The combination with an agricultural implement, of a truck having pivotal connection therewith at one end, a latch having sliding connection with the opposite end of the truck and adapted to engage with a portion of the implement for holding the truck in working relation, an operating-rod having pivotal connection with the said latch and provided with a stop or projection to engage with a portion of the implement for holding the truck up out of the way, and a spring for normally holding the latch projected and in engagement with the part cooperating therewith, substantially as and for the purpose set forth.

6. The combination with an agricultural implement, of clips secured thereto, a truck having pivotal connection with one of the clips at one end, a latch having slidable connection with the opposite end of the truck and adapted to engage with the other clip to hold the truck in a working position, an operating-rod having pivotal connection with the latch and provided with a stop to engage with a portion of the implement to hold the truck up out of the way, and a spring for holding the latch in engagement with the clip with which it cooperates, substantially as and for the purpose set forth.

589,194. WASHING-MACHINE. SYLVESTER R. RALEY and TIMOTHY M. RALEY, Abilene, Tex. Filed June 13, 1896. Serial No. 595,428. (No model.)

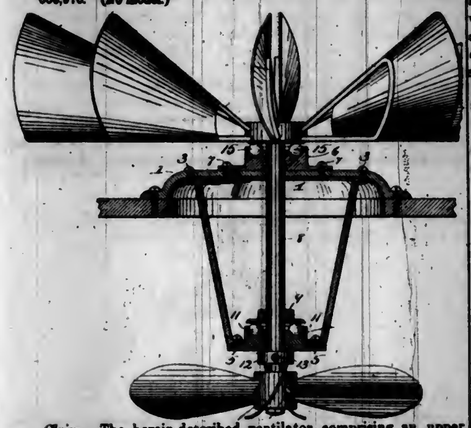


Claim.—1. In a washing-machine, the combination of a pair of separate boilers secured together and provided with a communicating opening, clothes-supports arranged within the boiler, provided with perforated horizontal plates and having upwardly-extending concentric rings mounted on and projecting from the upper faces of the plates, and the reciprocating plungers provided with conical shells and having radial flanges terminating short of the lower edges of the shell to permit the rings to project into the plungers, substantially as described.

2. In a washing-machine, the combination with a plunger, of a clothes-support comprising a horizontal plate provided with perforations, concentric rings mounted on the upper face of the plate and projecting therefrom, the depending supporting-flanges secured to the edges of the plate conforming to the configuration of the same and having their ends separated to provide opposite openings, and the diametrically-disposed supporting-flange provided with crimps or corrugations and arranged in line with the said openings, substantially as described.

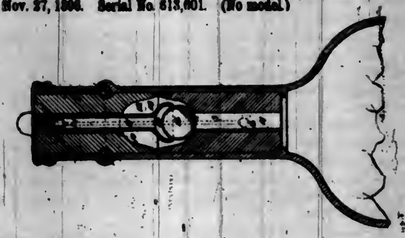
3. In a washing-machine, the combination of a pair of separate boilers provided near their bottoms with a communicating opening, clothes-supports comprising a horizontal plate provided with perforations, concentric rings secured to and extending upward from the upper face of said plate, the depending marginal supporting-flanges secured to the edges of the plate and having their ends separated to provide opposite openings, one of the openings being located opposite the communicating opening of the boilers, and the crimped or corrugated diametrically-arranged supporting-flange secured to the plate and arranged in line with the said openings, and the reciprocating plungers having conical shells greater in diameter at the base than the concentric rings, said plungers being provided within the shells with radial flanges terminating short of the lower edges of the shells to permit the rings to project into the same, substantially as described.

589,195. CAR-VENTILATING WIND-WHEEL. WILLIAM ROBINSON and MICHAEL S. RAHER, Dubois, Pa. Filed Oct. 15, 1896. Serial No. 608,970. (No model.)



Claim.—The herein-described ventilator comprising an upper plate secured to the top of the car, a ball-cup secured to said plate, arms connected to the plate and depending therefrom, a ball-cup secured to the lower ends of the arms, a vertical spindle passing through the two ball-cups, and having a head at its upper end, balls interposed between the said head and the upper ball-cup, wind-wheel blades connected to said head and extending laterally, a plate adjustable on the spindle and removable therefrom, being located above the lower ball-cup, balls interposed between said plate and the cup, a collar adjustable on the spindle and removable therefrom, which is located below the said lower ball-cup, and a laterally-disposed fan detachably connected to the lower end of the spindle.

589,196. BOTTLE. GEORGE V. STALLINGS, Strawn, Tex. Filed Nov. 27, 1896. Serial No. 613,601. (No model.)



Claim.—1. The combination with a bottle having a neck provided interiorly with a plurality of recesses and grooves extending from said recesses to the mouth of the bottle, of a stopper consisting of two sections, each of which is provided with a plurality of recesses corresponding in number and location to the recesses in the neck of the bottle, and a plurality of keys situated within said recesses.

2. The combination with a bottle having a neck provided interiorly with a plurality of recesses and grooves extending from said recesses to the mouth of the bottle, of a stopper provided exteriorly with recesses corresponding in number and location to the recesses of the bottle, and a plurality of keys situated within said recesses, said keys being provided with tongues, substantially as described.

3. A stopper provided with a chamber, openings leading from said chamber to the ends thereof, a ball-valve situated within said chamber, a sliding tube situated within one of said openings and having one end within said chamber and provided with a flaring end portion, an opening in said tube at the other end portion thereof, and a sealing-cap upon the outer end of said tube, substantially as described.

4. A stopper having a chamber, openings leading from said chamber to the ends thereof, a ball-valve situated within said chamber, a sliding tube situated within one of said openings and provided at its inner end with a flaring end portion situated within said chamber, an opening in the other end portion of said tube, and a sealing-cap upon the other end of said tube provided with a handle, substantially as described.

589,197. PHOSPHATE AND METHOD OF MAKING SAME. JOHN E. STEAD, Middlesbrough, England. Filed May 22, 1895. Serial No. 550,254. (No specimens.)

Claim.—1. The herein-described process of increasing the solubility of normally insoluble phosphates which consists in melting them with silicions and calcareous matter in proportion to yield compounds containing the ratio of three hundred and ten of tribasic phosphate of lime to between fifty-eight and one hundred and sixteen of monosilicate of lime, substantially as described.

2. A silico-phosphate readily soluble in solvents existing in the soil, for use as a fertilizer, having substantially the formula

$$(CaO)_3P_2O_5+CaO.SiO_2=Ca_4P_2SiO_{10},$$

capable of isolation in characteristic crystals in the form of a double salt, substantially as described.

589,198. GRAIN-CAR DOOR. HARRY M. TYRRELL, Colleyville, Kans. Filed Oct. 12, 1896. Serial No. 608,633. (No model.)



Claim.—1. The combination of fixed keepers provided at their upper ends with horizontal rigid flanges, stationary brackets arranged above said flanges, and spaced vertically with relation thereto, to leave openings between said brackets and said flanges, a door fitted slidably between said brackets, locking-levers fulcrumed on, and carried by, said door and adapted to be swung horizontally to occupy the spaces between said brackets and the keeper-flanges, and vertically-adjusted locking rods or pins carried by said brackets and arranged to be projected across the levers to confine the latter in their locked positions, as and for the purposes described.

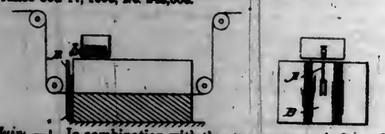
2. The combination with fixed keepers and a slidable door, of brackets fastened above, and spaced vertically with relation to said keepers, locking-levers fulcrumed on, and carried by, said door, and provided with wedge or cam formed faces arranged to have wedging engagement with said brackets, and locking devices carried by the brackets to have fixed engagement with the keepers and to confine the locking-levers against displacement beneath the brackets, as and for the purposes described.

3. A vertically-sliding grain-door, in combination with locking-levers fulcrumed on vertical axes on the top edge of the door at opposite sides and provided with inclined surfaces, as described, stationary brackets on the car-body having inclined portions for engagement with said levers, and locking-bolts mounted in said brackets and adapted to engage said levers, substantially as described.

4. A sliding grain-door, in combination with spaced keepers

between which the door slides, horizontal flanges at the upper ends of said keepers having vertical openings as described, locking-levers pivotally connected to said door at opposite sides, stationary brackets on the car-body arranged above said flanges, the locking-levers being movable between said flanges and brackets, and vertically-movable locking-bolts mounted in said brackets and adapted to engage the openings in said flanges, substantially as described.

589,199. CUTTING STONE. GREGOIRE WINCOS and HUBERT MAGNEPT, Soignies, Belgium. Filed Jan. 27, 1897. Serial No. 620,958. (No model.) Patented in Belgium June 9, 1896, No. 121,840, and in France Oct. 17, 1896, No. 262,006.



Claim.—1. In combination with the stone a reservoir formed exterior thereto and comprising a wall or shell placed directly against the end of the stone and in the same horizontal plane therewith and the saw passing directly through said reservoir from the outside and into the stone, substantially as described.

2. In combination with the saw, a receptacle at the end of the stone and in the same horizontal plane in which the saw is working, said receptacle having its wall of soft material adapted to be cut by the passage of the saw through it, substantially as described.

589,200. COMBINATION-TOOL. WILHELM A. RIEPER, Bozeman, Mont. Filed Oct. 16, 1896. Serial No. 608,951. (No model.)



Claim.—A combination-tool comprising a body portion, one end of said body portion being provided with a handle and the other end of said body portion being sharpened to produce a lid-lifter, a notch in said sharpened end, a hammer-face upon said body portion, the body portion being on its under side provided with a recess, a leaf-spring secured in said recess, a corkscrew pivoted between the walls of the recess in front of the leaf-spring, the pivot of said corkscrew being provided with a pin and the leaf-spring having in it an opening adapted to receive said pin when the corkscrew is in its open position, a plate pivoted upon the body portion in front of the recess, one end of said plate being sharpened to form a screw-driver and the other end being provided with an angular recess to produce a wrench, and a spring located in a slot in the body portion under the pivoted plate, said spring being provided with a recess adapted to receive the plate when in its open position, substantially as described.

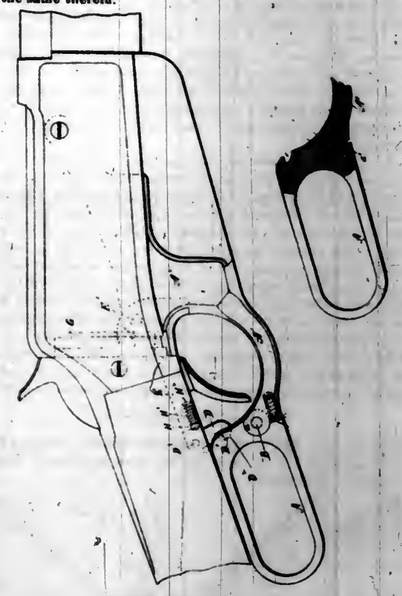
589,201. LOCKING MEANS FOR OPERATING-LEVERS OF FIREARMS. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed June 14, 1897. Serial No. 640,618. (No model.)

Claim.—1. In a lever-gun, the combination with an operating or finger lever having its bow pivoted to its shank, and having its said bow constructed at its forward upper corner to act as a hook; of means connected with the frame of the gun for being engaged by the pivotal bow when the lever is brought into its closed position for locking it therein.

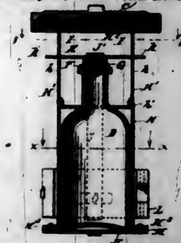
2. In a lever-gun, the combination with an operating or finger lever having its bow pivoted to its shank, and having its said bow constructed at its forward upper corner with an undercut forming a nose; of a frame-hook depending from the frame of the gun in position to be engaged by the nose of the pivotal bow of the lever when the lever is brought into its closed position in which it is locked by the coaction of the nose and the hook.

3. In a lever-gun, the combination with an operating or finger lever having its bow pivoted to its shank, and constructed to act as a hook, a spring coacting with the said pivotal bow, and a yielding frame-hook depending from the frame of the gun in position to be engaged by the pivotal bow when the lever is brought into its closed position, for locking it in that position.

4. In a lever-gun, the combination with an operating or finger lever having its bow knuckle-jointed to its shank, and the two parts constructed with stop-shoulders limiting the pivotal movement of the bow, a spring located below the said joint and coacting with the bow to lift it into its locking position; and a yielding lever-hook depending from the frame of the gun in position to be engaged by the pivotal bow when the lever is brought into its closed position, for locking the same therein.



589,202. FIRE-EXTINGUISHER. BENJAMIN S. BROWN, New York, N. Y. Filed May 31, 1895. Serial No. 551,074. (No model.)



Claim.—1. A device for retaining acid in a fire-extinguisher, consisting of a suitable bottle, in combination with a sealing part adapted to be held to the orifice of said bottle, and a weight adapted to hold the sealing part to the orifice by gravity and force the same from such orifice by percussion, substantially as described and shown.

2. A fire-extinguisher provided with a suitable tank to hold a liquid solution and an acid vessel disposed in such tank, and supported in a suitable cage therein; such acid vessel provided with a closing device adapted to be held in place upon its orifice, in combination with a suitable weight arranged to hold the closing device upon such orifice by gravity and to force the same away from such orifice by percussion, substantially as described and shown.

3. An acid vessel for fire-extinguishers provided with a stopple, G, having an elastic sealing portion as the disk, F, adapted to be held to the orifice of such vessel by gravity, in combination with a weight adapted to release such stopple by percussion, substantially as described and shown.

4. A support for an acid-bottle in fire-extinguishers, consisting of a cap, C, and a suitable cage having legs, H', H', ring, A', ring, M, and bottom, N, in combination with a weight adapted to move along such support between the cap C and ring M, substantially as described and shown.

5. A support for an acid-bottle in a fire-extinguisher consisting of a cage formed by the legs H', H', having slots h, h, cross-piece H², ring h', ring M, and bottom N, in combination with a stopple adapted to seal the orifice of said vessel, and provided with a guide K, having ends k, k, projecting through the slots h, h, substantially as described and shown.

6. A support for an acid-bottle in a fire-extinguisher, consisting of a suitable cage to hold the bottle in place, in combination with a stopple having a sealing device adapted to seal such bottle, and a weight adapted to move upon such cage, and to hold the sealing device down upon the orifice of the bottle by gravity when in one position, and to strike the sealing device away from such orifice when the bottle is reversed, substantially as described and shown.

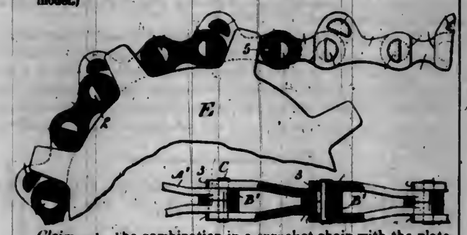
7. A support for an acid-bottle in a fire-extinguisher, consisting of a suitable cage to hold the bottle in place, a stopple and elastic portion F, adapted to seal the orifice of said bottle, a guide for said stopple adapted to keep the same in line with such orifice, a device adapted to support a weight upon such stopple, as the parts J, J, J', and feet m, m, in combination with a weight, as L, adapted to engage said weight-supporting device and retain the sealing device in place upon the neck of the bottle when the bottle-neck is raised, and to slide down upon the parts J, J, and force the sealing device from the orifice when the position of the bottle is reversed, substantially as described and shown.

8. A support for an acid-bottle in a fire-extinguisher, consisting of a suitable cage to hold the bottle in place, a stopple provided with a sealing portion as G adapted to close the orifice of said bottle, a weight adapted to move from one part of said cage to another, in combination with suitable parts adjusted to said stopple, and projecting into the path of such weight, such weight adjusted to act upon one set of such projections to hold the stopple upon the orifice by gravity, and to act upon another set of such projections by percussion to drive the stopple away from such orifice when the cage is reversed, substantially as described and shown.

9. A support for an acid-bottle in a fire-extinguisher, consisting of a cage formed of the legs H', H', ring h', ring M, bottom N, legs J, J, and guide K, in combination with a suitable stopple as G, provided with a sealing portion, as F, and a weight, as L, adapted to rest upon the feet m, m, to hold the stopple in place when the bottle stands upright, and to move upon the cage and against the projections k, k, to force the stopple away from the bottle when the same is reversed, substantially as described and shown.

10. The combination, in a chemical fire-extinguisher in which the chemicals are combined by inverting the tank, of a suitable cage designed to receive a bottle and fixed to the top of the receptacle, a stopper for the bottle held in alinement with the mouth of the bottle by said cage, a frame connected with the bottle-stopper and longitudinally movable relatively to the cage, and a weight connected with said frame.

589,203. CHAIN FOR SPROCKET-WHEELS. GEORGE W. BURFORD, Brooklyn, N. Y. Filed Jan. 6, 1897. Serial No. 618,144. (No model.)



Claim.—1. The combination in a sprocket-chain with the plate-links and intermediate links or butts having round holes, of pivot-pins, each formed as a segment of a cylinder and rigidly attached at the ends to the plate-links, so that the cylindrical surface takes the bearing within the round hole, there being a chamber for lubricating material at the opposite side to the bearing-surface, substantially as set forth.

2. The combination in a sprocket-chain with intermediate links or butts having round holes through them, of segmental cylindrical pivot-pins passing through the round holes, and exterior plate-links having through them holes of the same sectional shape as the pivot-pins, each pivot-pin passing through the holes and being riveted up, the curved sides of the holes being toward the middle of the links, so that the cylindrical surfaces of the pins take their bearings within the round holes, substantially as set forth.

3. The combination in a sprocket-chain with the intermediate links or butts, of plate-links having straight ends, pivot-pins passing through the links and recessed for lubricating material within the round holes of the intermediate links or butts, such intermediate links being countersunk near their ends to form channel-ways for the introduction of lubricating material when the links are swung closely together, substantially as set forth.

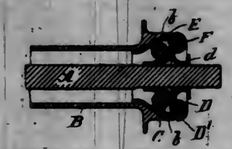
4. The combination in a sprocket-chain, of intermediate links and plate-links, pivot-pins passing through the respective links, and cross bearing-pins passing through the plate-links and having their longest diameter substantially perpendicular to the projection upon the sprocket-wheel, as set forth.

5. The combination in a sprocket-chain, of intermediate links and plate-links, pivot-pins passing through the respective links and half-cylindrical cross bearing-pins passing through the plate-links and having their flat sides closely adjacent to the round ends of the intermediate links, substantially as set forth.

6. The combination in a sprocket-chain with the links or butts, of pivot-pins passing through the links and having recesses for lubricating material at the sides that are opposite to the cylindrical surfaces of the pivot-pins that take the bearings, and openings in the links that are uncovered by swinging the adjacent links closely together, so that lubricating material can be passed through such openings into the recesses of the pivot-pins, and such openings will be covered when the chain is drawn out with the links in their normal positions, substantially as set forth.

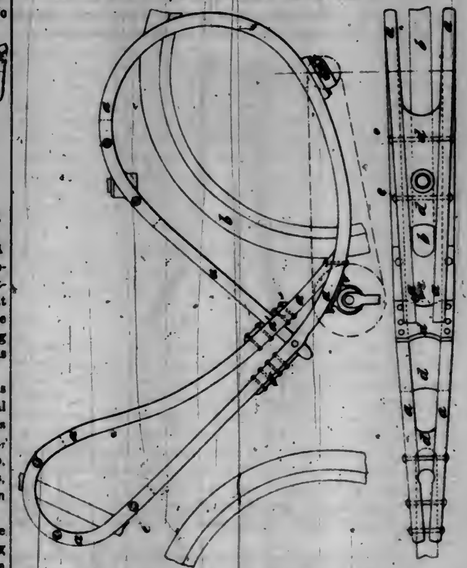
7. The combination with the chain-links, of pivot-pins passing at their ends through holes in the outer links and riveted up so as not to turn, and passing through round holes in the intermediate links and filling the ends of the holes, and such pivot-pins having recesses in their sides opposite the bearing-surfaces for holding lubricating material and spreading the same around the interior of the intermediate links by the movement of the links in relation to the pin, substantially as specified.

589,204. DUST-PROOF BALL-BEARING FOR BICYCLES. LYMAN H. COBB, Portland, Me., assignor to the Lovell Cycle and Motor Company, same place. Filed Dec. 9, 1896. Serial No. 615,092. (No model.)



Claim.—In a ball-bearing the combination of cone D having a trough-shaped base D', a ball-case C and trough-shaped ring E, all arranged as described.

589,205. BICYCLE-FRAME. HENRY COOPER, Bristol, England. Filed Jan. 8, 1897. Serial No. 618,465. (No model.)



Claim.—1. In a bicycle-frame, a pair of members placed alongside and secured to each other, each member composed of a single piece bent upon itself to form two loops, substantially as described.

2. In a bicycle-frame, a pair of members placed alongside and secured to each other, each member composed of a single piece bent upon itself to form two loops, the ends of each member crossing each other and secured to that member, substantially as described.

589,206. MATCH-SAFE. GEORGE POSTHOUSE, Lyndhurst, N. J. Filed Feb. 16, 1897. Serial No. 623,602. (No model.)



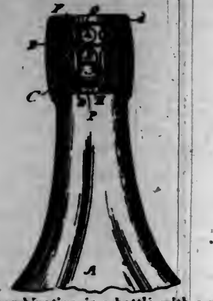
Claim.—1. In a match-holder, a box closed on the sides and bottom and adapted to contain matches, in combination with a protecting-grating consisting of a series of parallel bars extending across the open top, each of the spaces so formed being so small as to allow the introduction of one finger or thumb only therethrough in grasping the matches, and allow the withdrawal of such only of the latter as are presented in proper relation to said spaces, all substantially as herein specified.

2. In a match-holder, a box closed on the sides and bottom and adapted to contain matches, in combination with a protecting-grating consisting of parallel bars extending across the open top each of the spaces so formed being so small as to allow the introduction of one finger or thumb only therethrough in grasping the matches, and allow the withdrawal of such only of the latter as are presented in proper relation to said spaces, and a bar extending transversely of said parallel bars, all substantially as herein specified.

3. In a match-holder, a box closed on the sides and bottom and adapted to contain matches, in combination with a frame corresponding to said box, removably secured thereto and forming the upper portion thereof, and a series of parallel bars extending across said frame, the spaces between said bars forming long and narrow rectangular openings of sufficient width to admit the finger and thumb in grasping the matches, and allow the withdrawal of such only as are presented in proper relation to said openings, all substantially as herein specified.

4. The body A, and frame A' matching thereto and secured movably thereon by the hinges *a*, in combination with transverse bars B mounted in said frame and the longitudinal bar C crossing the said bars at about the mid-length, the spaces between the several bars forming long and narrow rectangular openings adapted to allow the insertion of the finger and thumb in grasping the contained matches, and allow the withdrawal of such only of the latter as are presented in proper relation to said openings, all substantially as herein specified.

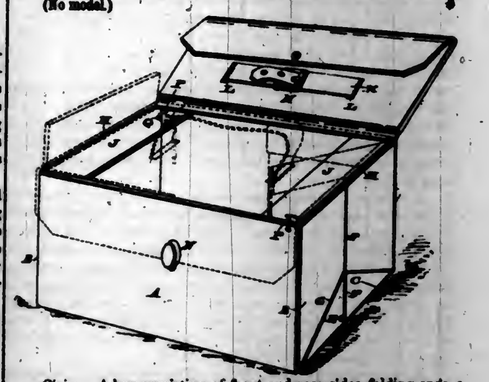
589,207. NON-REFILLABLE BOTTLE. JACOB FULEN, Indianapolis, Ind. Filed Mar. 24, 1897. Serial No. 629,006. (No model.)



Claim.—1. The combination, in a bottle, with a neck open at its top and provided near the open end thereof with an internal annular groove and a packing in said neck having a central circular opening therethrough, of the cylindrical case in said circular opening and having the valve seated near the bottom thereof, the valve-cage in said case providing a passage-way between said cage and said case and having the stop-plate above said valve, the centrally-perforated locking-plate attached to the end of said cage and covering said case and said packing at their upper ends, said locking-plate being dished downward and the edge thereof engaging said groove, and a stopper in the perforation of said locking-plate, substantially as shown and described.

2. In a bottle, the combination with the neck, of the annular groove *d* in the interior walls thereof near its upper end, the hollow packing C in said neck, the case D having the valve-seat *a* near its lower end and inserted in said packing, the cage E having perforated sides and provided with the transverse partition *c* and inserted in said case, the spherical valve H in said cage below said partition and seated in said case, the dished locking-plate F having the central opening O corresponding to the mouth of said cage and secured thereto, said locking-plate being adapted to spring at its edge *b* into said groove and to cover said case and said packing at the upper end, and the stopper in the mouth of said cage, substantially as shown and described.

589,208. FOLDING BOX, SATCHEL, VALISE, TRUNK, &c. JOHN G. GARESS, Philadelphia, Pa. Filed Nov. 16, 1896. Serial No. 612,561. (No model.)



Claim.—A box consisting of front and rear sides, folding ends, a folding bottom and a lid, said ends having the reinforce-strips R with diverging ends, and stretchers hinged to the said box within the same and adapted to be connected with said front when said box is extended, said ends having vertical and diverging creases, and said bottom having a horizontal crease which joins the base of the vertical crease, said diverging creases extending from the vertical crease toward the corners of the box.

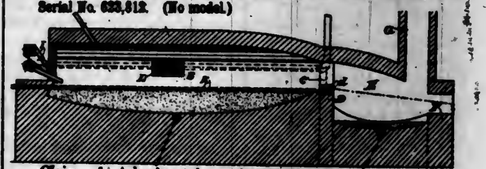
589,209. TOOTH-CLEANER. FRANK D. GOULD, Port Richmond, N. Y. Filed June 5, 1897. Serial No. 638,516. (No model.)



Claim.—1. A tooth-cleaner, comprising a flexible body having a concave and ribbed face of approximately egg-shaped contour, and a projection extended approximately at right angles from the rear of said body, and a handle connected to said projection, substantially as shown and described.

2. In a tooth-cleaner, the combination of a flexible body having a concaved and ribbed face of approximately egg-shaped contour, and a cylindrical projection extended rearwardly therefrom, and a handle having a threaded socket in the end thereof engaging with the said projection, whereby the flexible body may be secured to the handle or removed therefrom at will, substantially as shown and described.

589,210. REVERBERATORY SMELTING AND REFINING FURNACE. BENJAMIN HALL, Nevada City, Cal. Filed Feb. 17, 1897. Serial No. 623,812. (No model.)



Claim.—1. A horizontal reverberatory smelting-furnace having a feed mechanism at one end and a discharge at the opposite end, said feed mechanism comprising a series of chutes leading into the furnace and a feed-screw whereby the ore is delivered successively to the chutes and thence to the furnace.

2. A horizontal-hearth smelting-furnace having a series of chutes leading into one end thereof and a feed-screw whereby the ore is delivered regularly and continuously at the receiving end, a passage through which the slag is discharged at the opposite end and a blast apparatus delivering air in at the receiving end along the line of travel of the ore.

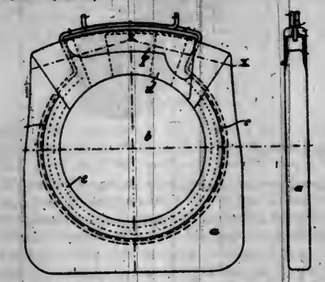
3. A horizontal-hearth reverberatory furnace having a feed-inlet and a feed-screw at one end, a discharge at the opposite end and a blast-inlet at the receiving end along the line of travel of the ore whereby the action of the draft skims the slag from the matte or metal.

4. In a horizontal-hearth reverberatory furnace, a continuous feed device comprising a series of chutes leading into the furnace and a feed-screw delivering ore successively to the chutes whereby the ore is delivered at one end of the furnace, a discharge-passage at the opposite end, the blast pipe or pipes delivering the air into the feeding end of the furnace along the line of travel of the ore, a supplemental furnace-chamber in line beyond the discharge adapted to receive the overflow of slag and matte whereby the level of the matte is approximately maintained, a chimney or stack at the outer end of the second chamber through which the products of combustion escape after acting upon the matte and slag within said chamber, and a final discharge-passage for the slag at the end of said chamber.

5. In combination with a horizontal reverberatory furnace, a mechanism for regularly feeding the ore thereto consisting of a trough extending across behind the feed end of the furnace, a screw revolving in said trough to advance the ore transversely, inclined chutes opening from the main trough and having their receiving-openings inclined from one side to the other, said chutes each receiving a supply of ore from the rotating screw and delivering it into the rear of the furnace.

6. A horizontal reverberatory furnace, a transverse trough extending across behind the receiving end of the furnace, a series of inclined chutes leading therefrom into the furnace, said chutes having partitions at the receiving ends inclined transversely so that one edge is lower than the other, and a revolving feed-screw journaled in the main transverse trough whereby the ore is carried along said trough and delivered successively to the inclined chutes and thence to the furnace.

589,211. DUST-GUARD FOR AXLE-BOXES OF VEHICLES. JOHANNES LOMBERTZ, Witten, Germany. Filed Mar. 22, 1897. Serial No. 628,570. (Model.)



Claim.—1. In a dust-ring, the combination, with a divided body portion provided with overlapping tongues, of a spring holding the said tongues together, substantially as set forth.

2. In a dust-ring, the combination, with a divided body portion, of a spring inclosed in the said body portion and provided with projecting arms for closing the joint in the said body portion, substantially as set forth.

3. In a dust-ring, the combination, with a divided body portion provided with overlapping tongues faced with leather, of a spring for holding the said tongues together, substantially as set forth.

4. In a dust-ring, the combination, with a divided body portion provided with overlapping tongues, of guide-plates secured to one side portion of the ring for the other side portion to slide between, and a spring for holding the said tongues together, substantially as set forth.

5. In a dust-ring, the combination, with a divided body portion, of guide-plates secured to one side portion of the ring for the other side portion to slide between, a metallic cap coupling the said guide-plates, and a spring for closing the joint of the body portion, substantially as set forth.

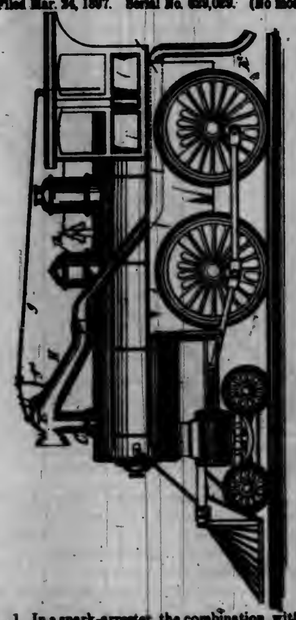
589,212. NIPPLE. JACOB C. MICHAEL, Newark, N. J., assignor, by mesne assignments, to Francis R. McDermott, Brooklyn, N. Y. Filed Dec. 26, 1896. Serial No. 617,080. (No model.)



Claim.—1. The herein-described nursing-nipple, formed of elastic material, and provided with one or more continuous spiral stiffening-ribs extending along the body of the nipple from the neck to the head thereof, by which the collapse of the nipple may be prevented and a passage through the nipple maintained at all times, substantially as described.

2. The herein-described nursing-nipple, formed of elastic rubber, and having a continuous internal spiral stiffening-rib formed integrally with it and extending along the body of the nipple from the neck to the head thereof, by which the collapse of the nipple may be prevented and a passage through the nipple maintained at all times, substantially as described.

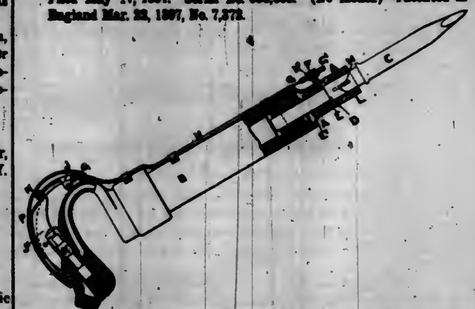
589,218. SPARK-ARRESTER. BEN MIESSENHEIMER, New York, N. Y. Filed Mar. 24, 1897. Serial No. 629,069. (No model.)



Claim.—1. In a spark-arrester, the combination, with the smoke-stack, having a dome-shaped crown, of a front funnel, the upper part of which merges into said dome-shaped crown, while the latter rises above said front funnel, a main discharge-trunk leading rearwardly and downwardly from the smoke-stack and merging also into the dome-shaped crown, and means for discharging the products of combustion from said trunk, substantially as set forth.

2. In a spark-arrester, the combination, with the smoke-stack, having a dome-shaped crown and a front funnel, the upper part of which merges into said dome-shaped crown, while the latter rises above the front funnel, of a main discharge-trunk leading from the smoke-stack, and inclined downwardly from its crown portion to the mid-width of the boiler, and branch pipes extending from said trunk on both sides of the boiler and to the rear of the locomotive, substantially as set forth.

589,214. PNEUMATIC HAMMER. JOHN MOORE, York, England. Filed May 17, 1897. Serial No. 634,898. (No model.) Patented in England Mar. 23, 1897, No. 7,373.

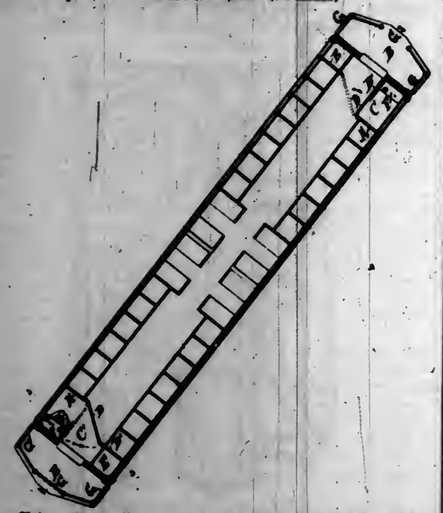


Claim.—1. The combination, with a pneumatic percussive tool provided with an air-supply valve, of a slidable spring-pressed rod connected with the reciprocatory shank of the tool, and lever mechanism interposed between the said rod and valve and operating to open the valve when the said rod is pushed back, substantially as set forth.

2. In pneumatic hammers, or other like percussive tools, the combination of the tool C, spring E', socket or ferrule E, push-rod G,

lever J and trigger J' for operating the valve, as and for the purposes substantially as shown and described.

589,215. RAILWAY-CAR. LINCOLN MOSS, New York, N. Y. Filed Apr. 8, 1897. Serial No. 631,262. (No model.)



Claim.—1. A railway-car provided with a convertible cab having a movable partition which completely incloses the apparatus when the apparatus is not in use and divides the cab from the remainder of the car when the apparatus is in use.

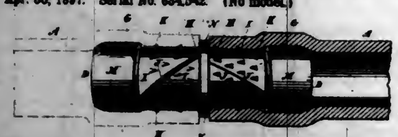
2. In a car provided with an entrance at the end, the stationary partition H, and a movable partition inclosing, with the stationary partition and the sides or walls of the car, a space at one side of the said entrance, the said movable partition adjustable to form a transverse partition across the said car, substantially as and for the purposes described.

3. In combination in a car, the stationary partition H, the partition or door D flexibly connected therewith, extending either across the car or longitudinally, at will, and the section D' flexibly connected to and extending from the said partition D transversely when desired, substantially as set forth.

4. In combination in a car, the platform and end entrance, the side entrances or gates opening into said platform and the controlling apparatus and inclosure therefor, back of the said gates and at one side of the said end entrance and platform, whereby all the said entrances are entirely unobstructed and whereby the said apparatus is protected from collisions by the said platform.

5. In combination in a car the platform, the gates or entrances thereto, and the controlling apparatus set back and entirely clear of the platform, substantially for the purposes set forth.

589,216. HOSE-FITTING. ADAM MCKEE, Union, N. J. Filed Apr. 30, 1897. Serial No. 634,542. (No model.)



Claim.—1. In a hose-fitting, the neck D having the band or washer M at its inner end and provided with the annular groove H, combined with the band I applied within said groove and having the prongs K inclined outward toward the end of the hose; substantially as set forth.

2. In a hose-fitting, the neck D having at its inner end the grooves L and provided with the annular groove H and shoulders F, G, combined with the band or washer M engaging said grooves L, and the sheet-metal band I applied within said groove H between the shoulders F, G, and having the prongs K struck up therefrom and inclined outward toward the end of the hose; substantially as set forth.

3. In a hose-fitting, the neck D having at its inner end the band or washer M, combined with the sheet-metal band I encompassing said neck and capable of turning thereon, said band having struck-up prongs K inclining outward toward the end of the hose; substantially as set forth.

4. In a hose-fitting, the neck D having the groove H and shoulders F, G, combined with the washer or band M at the inner end of said neck, and the sheet-metal band I applied within said groove H, said band having the diagonal end edges and also the prongs K struck up therefrom and inclining outward toward the end of the hose; substantially as set forth.

5. A hose-fitting having the central annular shoulder N and the necks D at each side of said shoulder, said necks corresponding with one another and each having an annular groove, combined with the washer or band M at the end of each of said necks, the shoulder G at the outer end of each washer or band, and the sheet-metal band I applied within the groove formed between the shoulders N, G, and having the prongs struck up therefrom and inclining outward toward the end of the hose; substantially as set forth.

6. In a hose-fitting, the neck D to enter the hose, combined with the sheet-metal band I encompassing and adapted to turn with the hose on said neck, the surface of said band having the series of prongs struck up therefrom and inclining outward toward the end of the hose; substantially as set forth.

589,217. CASTER. GEORGE B. NEUBERTH, Newark, N. J., assignor to Henry Ill, same place. Filed Jan. 15, 1897. Serial No. 619,379. (No model.)



Claim.—1. In a caster, the combination, with a caster-frame, consisting, essentially, of a flat top plate a^3 having a central perforation, and a pair of downwardly-extending horns or brackets, of a tubular sleeve or bearing arranged in said perforation and secured on the under side of said plate a^3 and extending through the perforation in said top plate and above the same, a cup-shaped plate having a central opening, whereby said plate is arranged over said sleeve and is placed upon the upper surface of said plate a^3, means connected with said sleeve for tightly drawing said cup-shaped plate down upon the top of said plate a^3, and a pintle rotatively arranged in said sleeve or bearing, substantially as and for the purposes set forth.

2. In a caster, the combination, with a caster-frame, consisting, essentially, of a flat top plate a^3 having a central perforation, and a pair of downwardly-extending horns or brackets, of a tubular sleeve or bearing c arranged in said perforation and having a bead c^3 for securing it against the under side of said plate a^3, said sleeve c extending through said perforation in said top plate and above the same, a cup-shaped plate d having a central opening d' whereby said plate d is arranged over said sleeve and is placed upon the upper surface of said plate a^3, an annular bead c' on the upper portion of said sleeve c adapted to be closed down upon said cup-shaped plate d for tightly drawing the same down upon the top of said top plate a^3, and a pintle rotatively arranged in said sleeve or bearing, substantially as and for the purposes set forth.

3. In a caster, the combination, with the caster-frame having a perforated top plate a^3, and a downwardly-extending annular ridge a^4 surrounding the opening in said top plate, a cup-shaped plate on said top plate having a central opening, a sleeve or bearing in said openings in said top plate and the said cup-shaped plate, and a pintle rotatively arranged in said bearing, substantially as and for the purposes set forth.

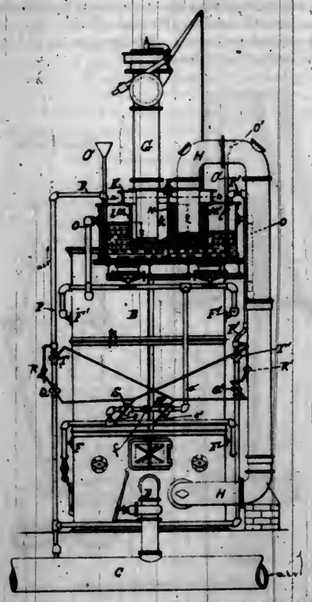
4. In a caster, the combination, with the caster-frame having a perforated top plate a^3, and a downwardly-extending annular ridge a^4 surrounding the opening in said top plate, a cup-shaped plate d on said top plate having a central opening d', a sleeve or bearing c in the opening in said top plate of the caster-frame and said plate d, said sleeve or bearing having annular beads c' and c^3 for securing the several parts together, and a pintle rotatively arranged in said sleeve or bearing, substantially as and for the purposes set forth.

589,218. WELDING COMPOUND. THOMAS ODLUM, Richmond, Va. Filed June 23, 1897. Serial No. 641,942. (No specimens.)

Claim.—1. A compound for use in facilitating the welding of metals, and for restoring life to burned metals, comprising a mixture of sand, ground marble, borax, salt, and powdered charcoal, in approximately the proportions named.

2. A welding compound, composed of sand, ground marble, borax, salt, and powdered charcoal.

589,219. GAS APPARATUS. JOHN W. OSBON, Plainfield, N. J. Filed Apr. 23, 1897. Serial No. 633,456. (No model.)



Claim.—1. As an improvement in sealing devices for gas apparatus, the chamber l partially filled with liquid and closed above the surface of the liquid, means for varying at will the pressure on the surface of the said liquid within the chamber l, a second chamber k in which opens the mouth of a gas pipe or passage as G, and with which the said liquid communicates, and a second gas pipe or passage, as J, communicating with the said second chamber, whereby the said liquid may seal or unseal the said gas pipe or passage G, according to the pressures therein and to the pressure in the said chamber l, substantially as set forth.

2. In combination in a water-seal apparatus, an inclosing casing containing a body of liquid divided at its surface into three separated areas, the spaces above two of the said areas being connected respectively with gas receiving and delivering connections, and means for varying the pressure at will upon the third said area, and thereby affecting the levels in the other two said areas, substantially as set forth.

3. In combination in a water box or seal for gas apparatus, the respective pipes or passages G and H extending down into the said water-box, and connection J for delivering gas from the said water-box, the partition N dividing the said water-box between the pipes or passages G and H, other partitions dividing off the surface of the water in each side of the box into two separate portions or areas k k', into which dip the mouths of the respective pipes G and H, such portions or areas k k' of the water immediately surrounding the pipes G and H being subjected to the pressure in, and in communication with, the said pipe J, and means for controlling at will the pressure to which the remaining portions or areas of the water are subjected, substantially as set forth.

4. The improved water-box divided into two portions by the partition N, the gas-pipes G and H extending into the water in the respective portions of the box, the partitions M M' extending down into the water around the respective pipes G and H and subdividing the space above the water in each said portion into two chambers, namely, the space immediately surrounding each pipe, which space is in connection with the outlet or discharge pipe J, and the space or chamber containing the remainder of the liquid, which, latter chamber is closed and provided with means for varying the pressure upon the surface of the water therein, substantially as and for the purposes set forth.

5. In combination in water-gas-generating apparatus and with the means for introducing steam above and below the incandescent fuel, the respective gas pipes or passages G and H, the water seals for the said passages G and H, reservoir-chambers for the said water seals, and means for introducing air or gas under pressure upon the liquid in said reservoir-chambers and thereby altering the depth of the seal at will, substantially as set forth.

6. In combination in water-gas-making apparatus, the pneumatically controlled water seal therefor, and pneumatic connections for the said seal cooperatively connected with the steam-valve, substantially as set forth.

7. In combination in water-gas apparatus, with connections and valves for introducing the steam from above or below the fuel at will, the respective gas-passages G and H therefor, and the pneumatically-controlled water seals therefor, substantially as set forth.

589,220. BICYCLE-BELL. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed June 14, 1897. Serial No. 640,622. (No model.)



Claim.—1. In a bicycle-bell, the combination with the gong-post and gong thereof, of a carrier rotating upon the gong-post as upon a center, means for actuating the said carrier in rotation, and one or more strikers mounted upon the carrier for reciprocation thereupon, and each having an arm which extends to one side of and beyond the gong-post.

2. In a bicycle-bell, the combination with the gong-post and gong thereof, of a carrier rotating upon the gong-post as upon a center, means for actuating the said carrier in rotation, and one or more strikers mounted upon the carrier for reciprocation thereupon, each having an arm which extends to one side of and beyond the gong-post, and which is formed with a clearance-space for clearing the gong-post, and with a stop-lug for coacting with the gong-post.

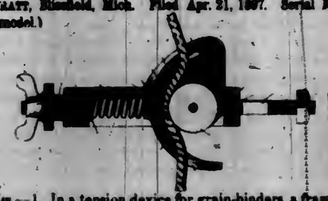
3. In a bicycle-bell, the combination with the gong-post and gong thereof, of a carrier rotating upon the gong-post as upon a center, means for actuating the said carrier in rotation, and two strikers mounted upon the carrier for reciprocation thereupon, and each having a stop-arm arranged to extend to one side of and beyond the gong-post, the stop-arms being right and left so that the two arms are respectively located on opposite sides of the post, and means for holding the said strikers down upon the carrier under frictional restraint.

4. In a bicycle-bell, the combination with the gong-post and gong thereof, of a carrier rotating upon the gong-post as upon a center, means for actuating the said carrier in rotation, two flat strikers mounted upon the carrier for reciprocation thereupon, and each having a stop-arm arranged to extend to one side of and beyond the gong-post on the opposite sides of which the arms of the respective strikers are located, and adjustable means applied to the post for holding the strikers down upon the carrier under frictional restraint.

589,221. BRASQUING OF CRUCIBLES OR LINING OF FURNACES. PAUL E. PLACET, Paris, France. Filed Dec. 24, 1896. Serial No. 616,018. (No specimens.) Patented in France July 24, 1896, No. 256,333.

Claim.—The within-described process for the brasquing of crucibles and lining of furnaces or earthen structures for the purpose of rendering them refractory, consisting in applying to the surfaces of such articles and structures compounds of chromium which are decomposed by heat and substantially free of other ingredients, such as bichromates of magnesia, lime, alumina and potassa and chromic acid, and heating and thereby producing upon the said surfaces and even in the body of such articles and structures, a very adherent and refractory coating or lining of sesquioxid of chromium.

589,222. TENSION DEVICE FOR GRAIN-BINDERS. NATHANIEL L. PRATT, Bloomfield, Mich. Filed Apr. 21, 1897. Serial No. 633,194. (No model.)

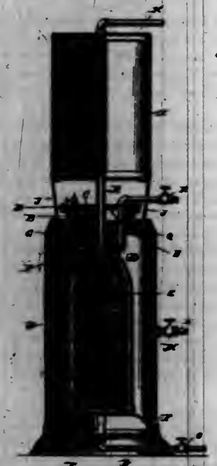


Claim.—1. In a tension device for grain-binders, a frame, a roller journaled therein, a twine-guide having a frictional surface in coincidence with the roller, and a suspension-rod secured thereto provided

with a screw-threaded upper end, a tension-spring upon the rod, a tubular externally-threaded nut run into the frame and bearing upon the upper end of the spring, a nut upon the upper end of the suspension-rod, whereby the guide may be raised to allow of inserting the twine through holes formed in the ends of the twine-guide and over the roller, the internal diameter of the tubular nut allowing lateral sway to the rod passed therethrough to allow a rocking motion of the twine-guide with respect to the roller, to compensate for unevenness of the twine.

2. In a tension device for grain-binders, a frame for attachment to the binder, formed with forwardly-projecting wings or fenders, a roller journaled in the frame, a twine-guide formed with a semicircular lower face, secured in the frame by a vertical post and a coiled spring thereon, a tubular nut screwed in the frame and bearing upon the spring, and a screw-thread upon the post having a nut thereon for raising the twine-guide to allow of insertion of the twine through a hole formed in each side of the guide.

589,223. WATER-FILTER. WILLIAM P. ROBERTSON, St. Louis, Mo. Filed Oct. 19, 1896. Serial No. 609,355. (No model.)



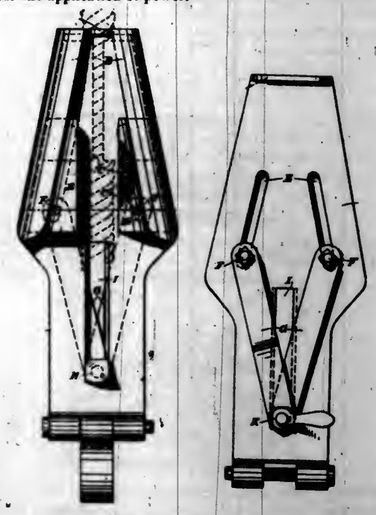
Claim.—In combination, a tank A, a tube E composed of unglazed earthenware supported within said tank, a tube H inserted within the stopper of the tube E and leading upward therefrom, a top for closing the tank A, a reservoir I with which the tube H communicates, a pipe K for drawing the filtered water from the reservoir, a coil P arranged around the upper portion of the filtering-tube, said coil having small perforations therein for the projection of streams of water against the outer surfaces of the filtering-tube, a pipe Q leading to said coil, a pipe L leading to the interior of the tank, and a pipe N leading from the bottom of said tank, all arranged substantially as and for the purpose set forth.

589,224. ROPE GRIP AND TAKE-UP. JOHN SAMUELSON, San Francisco, Cal., assignor of one-half to Cornelius Kramer, same place. Filed Nov. 27, 1896. Serial No. 613,497. (No model.)

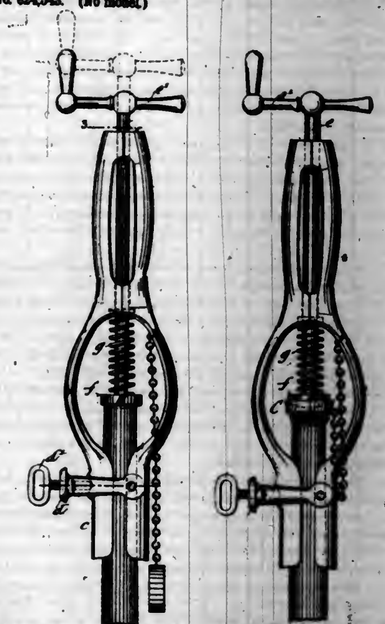
Claim.—1. A rope gripping and take-up device consisting of jaws having channels longitudinally between them adapted to receive and grip a rope, converging guides between which the jaws are slidable, slots made in the guide-plate parallel with the converging guides and an intermediate longitudinal slot beyond the ends of the diverging slots, pins passing through the gripping-jaws and through the diverging slots, links connected with said pins at one end having the other end connected with a pin or bolt passing through the central slot.

2. A rope grip and take-up device, consisting of a base-plate having converging guides, with slots converging coincidently with the guides, gripping-jaws slidable between the guides having channels made in their meeting faces, with corrugations adapted to grip and hold a rope, pins passing through the jaws and through the angular slots, links connecting with said pins at one end and with another pin at the opposite end movable in a central longitudinal slot, and a locking-nut by which the parts are secured at any desired point.

3. A rope grip and take-up device consisting of a base having converging guides formed upon it and angular slots made through the base parallel with the guides, gripping-jaws having their adjacent faces channeled and corrugated to grip and hold the rope, said jaws being movable in the converging guides to open or close, pins passing through the jaws and through the angular channels in the base-plate, a longitudinal beveled channel having its line of direction between the angular channels, a pin having a head to fit the beveled slot through which it extends, links connecting said pin with the pins which pass through the angular slots whereby the jaws and links move in unison, a locking-nut turnable upon the threaded end of the pin which passes through the beveled slot, and an attachment at the end of the base-plate for the application of power.



589,225. BILLIARD-CUE TRIMMER AND TIP-FASTENER. CONRAD SCHOENLEBER, Bridgeport, Conn. Filed Feb. 23, 1897. Serial No. 624,543. (No model.)

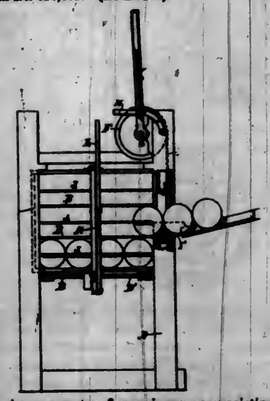


Claim.—1. An implement for trimming billiard-cues, comprising a hollow handle, holding-jaws, clamping means for locking said jaws, a spring-pressed rod journaled in said hollow handle, a suitable trimming-tool carried by said rod, a handle whereby the spring-pressed rod may be rotated and partially withdrawn, and means for locking the said rod in its withdrawn position, substantially as set forth.

2. An implement for trimming billiard-cues, comprising a hollow handle provided with a groove in its upper portion, holding-jaws, clamping means for locking said jaws, a spring-pressed rod rotatably journaled in said handle portion, a ledge at the upper end of said hollow handle, a pin attached to said rod and adapted to pass through the said groove and to bear upon said edge, and a suitable trimming-tool carried by said rod, substantially as set forth.

3. In an implement for trimming billiard-cues, the combination with an upper handle portion, clamping-jaws, a spring-pressed rod rotatably journaled in said handle portion, a suitable trimming-tool secured to said rod, and means whereby said trimming-tool may be withdrawn and locked in its withdrawn position, of a cap hollowed out on one side to fit over the top of the trimming-tool and concave on the other side, substantially as set forth.

589,226. CAN-CASING MACHINE. JOHN P. SIMMONS, San Francisco, Cal., assignor to Lyman C. Parks, same place. Filed Mar. 13 1897. Serial No. 627,068. (No model.)



Claim.—1. An apparatus for casing cans consisting of a series of superposed tables, a can-delivering chute and mechanism by which the tables and chute are successively brought into line whereby the cans pass by gravitation upon the tables, a receiver in line with the tables and a reciprocating mechanism by which the cans are forced from the tables to the receiver.

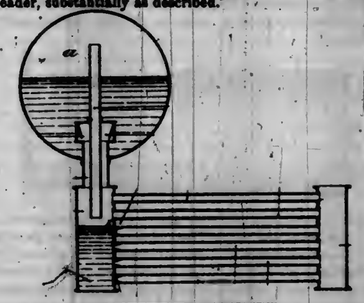
2. A can-casing machine consisting of a series of tables, an inclined chute from which the cans are adapted to roll by gravitation, a mechanism by which the tables and chute are brought successively into line whereby the tables are charged with cans, a carrier extending in line with the tables, a reciprocating mechanism whereby the cans are forced from the tables into the carrier, a support and guide for the case whereby the latter is registered with the carrier to allow the cans to slide therefrom into the case, and to move away from the machine after it is filled.

3. A can-casing machine consisting of a series of tables, an inclined chute from which the cans are adapted to roll by gravitation, a mechanism by which the chute and tables are brought successively into line to charge the tables with cans, a carrier extending in line with the tables, a reciprocating mechanism whereby the cans are forced from the tables into the carrier, a guide to register the case with the carrier and upon which the case is retracted from the carrier, said carrier being hinged and adapted to tilt with the guide into an inclined position, whereby the cans are delivered into the case and the case removed from the carrier.

4. An apparatus for casing cans consisting of a series of tables, a can-delivering chute and mechanism by which the tables and chute are successively brought into line whereby the cans pass by gravitation upon the tables, a carrier in line with the tables, a reciprocating mechanism by which the cans are forced from the tables to the carrier and a sheet-metal casing fitting the sides and bottom of the carrier and against which the sides of the cans slide.

589,227. STEAM-BOILER. LOUIS H. SOLOMAS, Paris, France. Filed Jan. 11, 1897. Serial No. 618,708. (No model.) Patented in France July 7, 1896, No. 257,891.

Claim.—A steam-generator consisting of a lower set of steam-generating, and an upper set of steam-conveying tubes connected together at one end and both sets connected to the same header or chamber at the other end, the connection of the generating-tubes with the water-space of the header being through constricted orifices while the return steam-tubes are fully open to the steam-space of the header, a water and steam reservoir at a higher level, connected with the header by ascension and descension pipes or passages, and automatically-operated valves controlling the outlet of said descension-pipes whereby the water may be maintained at a constant level in the header, substantially as described.



589,228. WRENCH. JOHN H. STEPHENS and SAMUEL PRUDHOMME, Crystal Falls, Mich. Filed Dec. 17, 1896. Serial No. 616,100. (No model.)



Claim.—1. A wrench, comprising a shank, a fixed jaw at one end thereof, a sliding jaw mounted on the shank, a locking-lever pivoted to the sliding jaw and provided with a longitudinal recess having outwardly-converging side walls, and a substantially U-shaped spring mounted on the shank and engaging said recess, substantially as described.

2. A wrench comprising a shank, a fixed jaw at one end thereof, a sliding jaw mounted on the shank, a locking-lever pivoted to the sliding jaw provided with a recess having outwardly-converging side walls, a spring held on the shank, having a head portion adapted to engage with the said recess of the locking-lever, said locking-lever having a projecting rest 8, adapted to engage the shank and limit the closing movement of the lever, substantially as shown and for the purposes described.

3. A wrench, comprising a longitudinally-slotted shank, a fixed jaw at one end of the shank, a sliding jaw mounted in the slot of the shank, a plate secured in the slot of the shank and retaining the sliding jaw therein, and a locking-lever pivoted to the sliding jaw, interlocking with the shank and provided with the rest 8 engaging the shank and limiting the closing of the locking-lever, substantially as described.

4. The combination with the fixed jaw, having a slotted shank, and the sliding jaw having a shank held to slide in the slotted shank, and having lateral shoulders and a cross-head to engage the upper and lower faces, respectively, of such fixed shank, said fixed shank having transverse lock-notches, of the lever 7 pivotally connected at its front end to the sliding jaw, and having at such end lock-teeth to engage the notches of the fixed shank, said lever having a pendent rest member 8 and means for holding the lever normally in a locked engagement with the fixed shank, as specified.

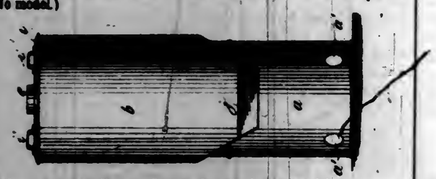
589,229. COVERED BAKE-PAN. NICHOLAS STRACK, Oconto, Wis. Filed May 20, 1897. Serial No. 636,734. (No model.)



Claim.—A sheet-metal bake-pan comprising a suitable vessel having a continuous exterior horizontal flange, and an inwardly-flaring upper edge above said flange, in combination with a cover formed of a skeleton metallic frame covered with foraminous material, and having a base formed of a continuous metallic strip provided with an upper inwardly-inclined flange resting on and projecting inwardly beyond the said inwardly-flaring upper edge of the pan, a lower outwardly-inclined flange resting on the exterior horizontal flange of

the pan, and an oblique central portion fitting snugly against the said inwardly-flaring upper edge of the pan, substantially as set forth.

589,230. **POULTRY FEEDING AND WATERING DEVICE.** SAMUEL D. STRONG, Homer, Mich. Filed Jan. 20, 1896. Serial No. 576,063. (No model.)



Claim.—1. A feeding and watering device comprising a water-receptacle, and a feed-receptacle forming a jacket about the water-receptacle, a watering-trough connected to the water-receptacle, and a feed-trough near the bottom of the feed-receptacle and connected therewith and means for directly heating the water in the water-receptacle, said water-receptacle intervening between the feed-receptacle and the heating means, substantially as described.

2. A feeding and watering device comprising a casing and a jacket about the same, the casing being divided by a partition into two compartments, one above the other, the upper compartment forming a water-receptacle closed and air-tight except at a single outlet, and the lower compartment being open for the admission of air, said partition having a raised central portion forming an upwardly-extending recess in the bottom of the water-receptacle, and the jacket forming a feed-receptacle, a watering-trough, the upper compartment and watering-trough being connected by a conduit which forms said single outlet from said upper compartment and extends from near the bottom of said upper compartment and terminates below the top of the watering-trough, heating-tubes extending through the upper compartment from the raised portion of the partition to the top of the water-receptacle, and a feed-trough near the bottom of the feed-jacket and connected therewith, and a burner and chimney in the lower compartment, said chimney extending up into said recess, substantially as set forth.

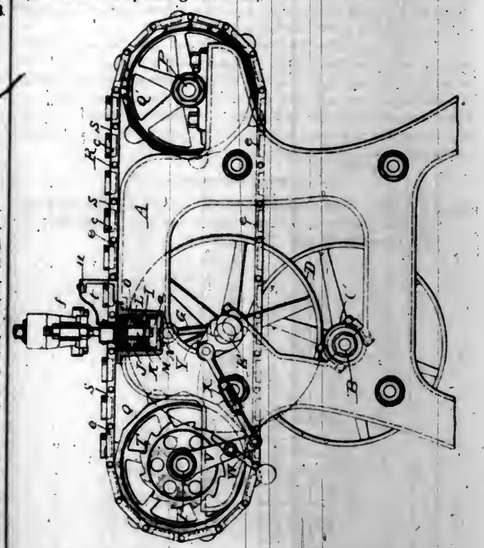
3. In a watering device, in combination, a casing *a*, a partition *c* having a raised central portion and dividing the casing into two compartments, one above the other, the upper compartment forming the water-receptacle and being closed and air-tight except at a single outlet near the lower end thereof, and the lower compartment being open to the air, heating-tubes *d* inclined inwardly and upwardly and extending from near the outer periphery to the raised central portion of the partition *c* to the top of the casing, a wall *e* around the upper ends of the tubes *d*, a removable air-tight plug closing an opening in the top of the water-receptacle, the water-trough *g*, outside the casing *h*, the tube *h* connecting the water-receptacle and water-trough and terminating in the receptacle slightly above the raised central portion of the partition and opening into the watering-trough below the top thereof and forming said single outlet of the water-receptacle, and an oil-fount, burner and chimney in said lower compartment, said chimney extending up into the recess formed by the raised portion of the partition *c*, substantially as set forth.

4. In a watering and feeding device, in combination, a casing *a*, a partition *c* having a central raised portion and dividing the casing into two compartments one above the other, the upper compartment being closed and air-tight except at a single outlet, and the lower compartment being open to the air, heating-tubes *d* inclined inwardly and upwardly and extending from the raised central portion of the partition *c* to the top of the casing, a wall *e* around the upper ends of the tubes *d*, a removable air-tight plug *f* closing an opening in the top of the casing *a*, the watering-trough *g* formed outside of the casing *a*, the tube *h* connecting the upper compartment of the casing and the watering-trough and terminating in the receptacle slightly above the raised central portion of the partition *c* and opening into the watering-trough below the top thereof and forming said single outlet of the water-receptacle, the jacket-casing *b*, the cover *i*, the feed-trough *j*, an oil-fount, burner and chimney in said lower compartment of the casing *a*, and a water-reservoir covering said oil-fount, substantially as set forth.

589,231. **BUNG-BRANDING MACHINE.** JACOB F. THEURER, Milwaukee, Wis., assignor to the Pabst Brewing Company, same place. Filed May 12, 1897. Serial No. 636,137. (No model.)

Claim.—1. In a bung-branding machine, the combination of a frame; a die-holder mounted above said frame; a bung-carrying chain mounted upon the frame and designed to be traversed beneath the die; and yielding mechanism for elevating the chain and presenting the bungs carried thereby to the printing-die.

2. In a bung-branding machine, the combination of a frame; a branding-die secured above the same; a bung-carrying chain mounted upon the frame and designed to be traversed beneath the die; yielding mechanism for elevating the chain; and means for advancing the chain step by step beneath the die, said elevating and chain-advancing mechanisms operating alternately.



3. In a bung-branding machine, the combination of a frame; a branding-die secured above the same; a chain mounted upon the frame and designed to be traversed beneath the branding-die, said chain comprising a series of links or bars provided with a series of pockets or depressions in their upper faces; means for elevating the bars and presenting the bungs carried thereby to the die; and means for moving said chain, the elevating and chain-moving mechanisms operating alternately.

4. In a bung-branding machine, the combination of a frame; a fixed branding-die mounted above the same; a bung-carrying chain mounted upon the frame and designed to be traversed beneath said die; means for elevating the chain to the die and a series of spring-fingers mounted above said chain contiguous to the die, substantially as and for the purpose set forth.

5. In a bung-branding machine, the combination of a frame; a branding-die mounted thereover; a bung-carrying chain mounted upon the frame and designed to be traversed beneath the die; a series of pockets formed in each cross-bar of the chain; and a series of spring-fingers secured above the chain in line with the pockets in the bars, substantially as described.

6. In a bung-branding machine, the combination of a frame; a branding-die secured above the same; a chain mounted upon the frame and designed to be traversed beneath the die; a series of pockets or recesses formed in the cross-bars of said chain; and a series of spring-fingers mounted above the chain in line with the pockets, said spring-fingers being curved downwardly and extending beneath the die-holder, substantially as described.

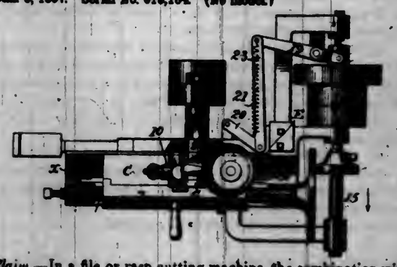
7. In a bung-branding machine, the combination of a frame; a branding-die mounted thereover; a bung-carrying chain mounted upon the frame and designed to be traversed beneath the die; and means for elevating the chain, comprising shaft E, cranks F and pitman G; and yielding pistons working in the frame and connected to the upper end of the pitman, substantially as described.

8. In a bung-branding machine, the combination of a frame; a branding-die mounted above the same; a bung-carrying chain designed to be traversed beneath said die; a cross-bar H secured to the frame beneath said die and provided with cylindrical openings I; yielding pistons mounted within said openings; and means for raising and lowering said pistons.

9. In a bung-branding machine, the combination of a frame; a cross-bar H mounted thereon and provided with cylindrical openings I; pistons working in said openings and comprising cups J having centrally-depending lugs K; cup M provided with a collar L extending upwardly therefrom and embracing the stud K; a spring O mounted within the cup J and bearing at its lower end upon the upper face of the lower cup M; and connections between said cup M and the moving part of the machine, for elevating and lowering the pistons.

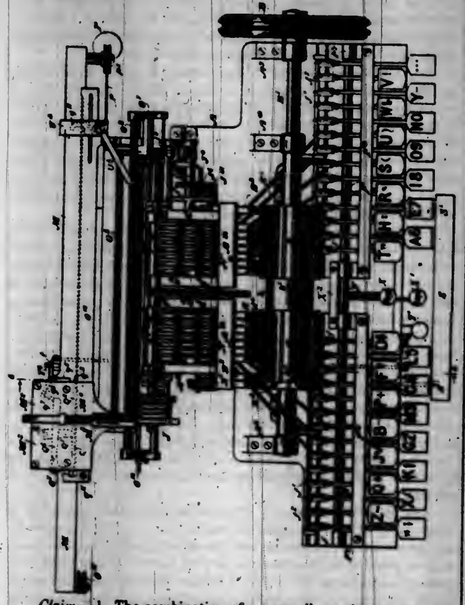
10. In a bung-branding machine, the combination of a frame; a chain mounted thereon, comprising a series of alternately long and short bars, each bar having laterally-extending lugs *b* formed upon its ends; links *c* connecting the lugs upon the ends of the long bars; and pins passing through the ends of the links and the lugs upon the long and short bars, substantially as shown and described.

589,232. **FILE-CUTTING MACHINE.** JAMES TURNER, Paterson, N. J., assignor to the Kearney & Foot Company, New York, N. Y. Filed Jan. 6, 1897. Serial No. 618,184. (No model.)



Claim.—In a file or rasp cutting machine, the combination with the cutter and carriage, of a feed-screw for moving said carriage, a disk carried upon the feed-screw, a friction-wheel engaging said disk, a longitudinally-movable driving-shaft upon which the friction-wheel is fixedly mounted, a movable pattern-plate carried by the carriage and connections intermediate said plate and the driving-shaft for shifting the latter, substantially as described.

589,233. **TYPE-WRITING MACHINE.** OLOF TYBERG, Brooklyn, N. Y., assignor to the Tyberg Typewriter Company, New York, N. Y. Filed Mar. 17, 1891. Renewed June 3, 1896. Serial No. 594,175. (No model.)



Claim.—1. The combination of a normally stationary type-carrier, a continuously-moving cammed, ribbed or toothed driver, and type-carrier-actuating mechanism interposed between the carrier and the driver and intermittently mechanically connected therewith, substantially as set forth.

2. The combination of a type-carrier, a continuously-moving driver, intermediate mechanism between the driver and the carrier positively connected to the carrier, but normally disconnected from the driver, and mechanical devices for moving said intermediate mechanism into positive mechanical engagement with the driver.

3. In a type-writer, the combination with a cammed ribbed or toothed driver, and a normally stationary type-carrier, of intermediate mechanism for operating said type-carrier from said driver, and normally disconnected from the driver, a series of keys, and means for mechanically throwing said intermediate mechanism into mechanical operative connection with the driver by the action of said keys.

4. The combination of a normally stationary intermittently-actuated type-carrier, a continuously-moving driver, type-carrier-actuating mechanism interposed between the driver and the carrier, and means for moving the type-carrier-actuating mechanism transversely to the axis of the driver into the path thereof, to be actuated thereby, substantially as set forth.

5. The combination of a normally stationary, movable type-carrier, a continuously-moving driver, and type-carrier-actuating mechanism normally disconnected from the driver, but moved by springs at the will of the operator into the path of the driver to be actuated thereby, substantially as set forth.

6. The combination of a progressively-rotated type-carrier, a continuously-moving driver having teeth, ribs or cams on its periphery, type-carrier-actuating mechanism interposed between the driver and the carrier normally disconnected from the driver, but connected therewith at the will of the operator, substantially as set forth.

7. The combination of a normally stationary, progressively-rotated type-carrier, a continuously-moving driver, type-carrier-actuating mechanism interposed between the driver and the carrier, and provided with springs for moving it into the path of the driver, substantially as set forth.

8. The combination of a normally stationary, progressively-rotated type-carrier, a cammed, ribbed or toothed driver, and type-carrier-actuating mechanism interposed between the driver and the carrier, normally disconnected from the driver, but connected therewith at the will of the operator, substantially as set forth.

9. The combination of a normally stationary type-carrier, a continuously-moving driver, type-carrier-actuating mechanism interposed between the driver and the carrier, and mechanism for causing the type-carrier-actuating mechanism to move transversely to the axis of the driver into the path thereof to be actuated thereby, substantially as set forth.

10. The combination of a type-carrier, a rotary driver, type-carrier-actuating mechanism interposed between the carrier and the driver, and finger-keys adapted to engage, through intermediate mechanism, with the type-carrier-actuating mechanism to cause it to move transversely to the axis of the driver into the path thereof to be actuated thereby, substantially as set forth.

11. The combination of a type-carrier, a driver, dog-carriers, dogs thereon adapted to engage with the driver, the type-carrier-actuating frame with which the dog-carriers engage, and connections between this frame and the type-carrier, substantially as set forth.

12. The combination of a type-carrier, a driver, a series of dogs adapted to engage with the driver, a type-carrier-actuating frame, operated by the dogs and connections between the frame and the type-carrier, substantially as set forth.

13. The combination of a type-carrier, a rotary driver, dog-carriers, dogs thereon adapted to engage with the rotary driver, the rocking type-carrier-actuating frame with which the dog-carriers engage, pawl-and-ratchet mechanism actuated by this frame, and gearing operated thereby, and actuating the type-carrier, substantially as set forth.

14. The combination of a type-carrier, a rotary driver, dog-carriers, dogs thereon adapted to engage with the driver, the rocking type-carrier-actuating frames with which the dog-carriers engage, pawl-and-ratchet mechanism actuated by these frames, and gearing connected with the type-carrier shaft and actuated by the pawl-and-ratchet mechanism, substantially as set forth.

15. The combination of a type-carrier, a rotary driver, dog-carriers, dogs thereon adapted to engage with the driver, mechanism connecting the type-carrier with the dog-carriers, pawls on the dog-carriers for holding the dogs from engagement with the driver, and keys, with intermediate connections, for releasing the pawls from the dogs, substantially as set forth.

16. The combination of a driver, the type-carrier, normally disconnected from the driver, the finger-keys, mechanism connecting the finger-keys with the type-carrier, and means for causing the return of said mechanism to its normal position before the keys are returned, substantially as set forth.

17. The combination of a continuously-moving driver, a normally stationary type-carrier, finger-keys, mechanism for connecting the finger-keys with the type-carrier, and means for causing the return of said mechanism to its normal position before the keys are returned, substantially as set forth.

18. The combination of a continuously-moving driver, a type-carrier, a type-carrier-actuating frame having an inclined, stepped bar, connections between this frame and the type-carrier, and means for actuating the frame from the driver to move the type-carrier, substantially as set forth.

19. The combination of a type-carrier, a rotary driver, a type-carrier-actuating frame having an inclined bar, connections between the frame and the type-carrier, a series of dog-carriers, and dogs thereon adapted to engage with the rotary driver, and to move the type-carrier-actuating frame, substantially as set forth.

20. The combination of a type-carrier, a type-carrier-actuating frame having an inclined cross-bar, a pawl actuated by this frame, a ratchet with which it engages, a gear-wheel connected with the ratchet and rotated thereby, and connections between this gear-wheel and the type-carrier, substantially as set forth.

21. The combination of a normally stationary progressively-rotated type-carrier, a pinion connected therewith, a gear-wheel operatively connected with the pinion, a pawl and ratchet-wheel for operating the type-carrier through the gear and pinion, and means for actuating the pawl and ratchet-wheel, substantially as set forth.

22. The combination of a type-carrier, a pinion connected therewith, a gear-wheel operatively connected with the pinion, a ratchet-wheel on each side of the gear-wheel with teeth out of line with each other, pawls engaging with the ratchet-wheels, and mechanism for actuating the pawls, substantially as set forth.

23. The combination of a type-carrier, a pinion connected therewith, a gear-wheel, the number of whose teeth is a multiple of the teeth in the pinion, a pawl and ratchet-wheel for operating the type-carrier through the gear and pinion, and means for actuating the pawl and ratchet-wheel, substantially as set forth.

24. The combination of a type-carrier, a pinion connected therewith, a gear-wheel, the number of whose teeth is a multiple of the teeth in the pinion, a pawl and ratchet-wheel for operating the type-carrier through the gear-wheel and pinion, the number of teeth in the ratchet-wheel corresponding in number to the multiple between the teeth in the pinion and gear-wheel, substantially as set forth.

25. The combination of a rotary driver, a normally stationary, progressively-rotated type-carrier, a series of dog-carriers, dogs thereon adapted to engage with the rotary driver, pawls for holding the dogs out of engagement with the driver, finger-keys, mechanism interposed between the keys and the pawls for releasing them from engagement with the dogs, a guide-bar with which the tails of the dogs engage, a rocking frame having an inclined, stepped cross-bar with which the dog-carriers engage, pawl-and-ratchet mechanism actuated thereby, a gear-wheel, and a pinion connected with the type-carrier with which the gear-wheel engages, substantially as set forth.

26. The combination of a type-carrier, a driver, a series of dogs adapted to engage intermittently with the driver, connections between the dogs and the carrier, and stop mechanism for arresting the movement of the carrier, substantially as set forth.

27. The combination of a type-carrier, a rotary cammed, ribbed or toothed driver, type-carrier-actuating mechanism interposed between the driver and the carrier, and normally disconnected from the driver, and stop mechanism actuated by the type-carrier-actuating mechanism, substantially as set forth.

28. The combination of a rotary type-carrier, a stop-cylinder having grooves or notches arranged spirally thereon, a series of spring-actuated stop-pawls, and means for rotating the type-carrier, and for releasing the stop-pawls to engage with the stop-cylinder, substantially as set forth.

29. The combination of a type-carrier, a series of stop-pawls, and a yielding frame in which the stop-pawls are mounted, substantially as set forth.

30. The combination of a type-carrier, a stop-cylinder, a series of stop-pawls adapted to engage therewith, and a yielding frame in which the stop-pawls are mounted, substantially as set forth.

31. The combination of a rotary type-carrier, a stop-cylinder connected therewith and formed with a series of notches or grooves arranged spirally, a series of spring-controlled stop-pawls adapted to engage with the notches, and a frame in which the stop-pawls are mounted, substantially as set forth.

32. The combination of a rotary type-carrier, a rotary driver, a series of dog-carriers, dogs thereon adapted to engage with the driver, a type-carrier-actuating frame with which the dogs engage, mechanism connecting this frame with the type-carrier, a stop-cylinder, stop-pawls adapted to engage therewith, and with which the dog-carriers engage, and a frame in which the stop-pawls are mounted, substantially as set forth.

33. The combination of a progressively-rotated type-carrier, having a series of rows of type on its periphery, a power-driven device for operating the type-carrier and connections between the power-driven device and the carrier for moving the type-carrier longitudinally, relatively to its axis of rotation, substantially as set forth.

34. The combination of an intermittently-rotated type-carrier, having a series of rows of type on its periphery, a driver, actuating mechanism between the driver and the type-carrier for rotating it, and means connecting the type-carrier with the driver for moving it longitudinally, relatively to its axis, and keys normally disconnected from the type-carrier-actuating mechanism for moving said mechanism into engagement with the driver, substantially as set forth.

35. The combination of a normally stationary progressively-rotated type-carrier, a driver, type-carrier-actuating mechanism interposed between the driver and carrier, and normally disconnected from the driver, means for operatively connecting the type-carrier actuating mechanism with the driver, and means for moving the type-carrier longitudinally, relatively to its axis, substantially as set forth.

36. The combination of a progressively-rotated type-carrier, a rotary driver, and mechanism normally disconnected from the driver but adapted to connect it with the type-carrier to move said carrier longitudinally, substantially as set forth.

37. The combination of a normally stationary, progressively-rotated type-carrier, a rotary toothed driver, a series of dog-carriers, dogs thereon adapted to engage with the driver, connections between the dog-carriers and the type-carrier for rotating it, and means for moving the type-carrier longitudinally, relatively to its axis, substantially as set forth.

38. The combination of a type-carrier, a segmental notched plate, an arm carrying a pawl engaging the notches in the plate, and operatively connected with the type-carrier, keys for oscillating the segmental plate, and shifting keys for moving the pawl into different notches on the plate, substantially as set forth.

39. The combination of a type-carrier, a shifter for moving it longitudinally, a segmental notched plate, an arm carrying a pawl adapted to engage said notches, a key, and mechanism connecting the key with the arm, whereby, when the key is depressed, the pawl is moved into a notch in the plate, substantially as set forth.

40. The combination of the longitudinally-movable type-carrier, a type-carrier shifter, a pawl operatively connected to and moving with said shifter, a segmental notched plate with one of the notches of which the pawl engages when the carrier is moved into a given position, and means for moving the plate to act upon the pawl to move the carrier into another given position, substantially as set forth.

41. The combination of a type-carrier, a shifter for moving the carrier longitudinally, an oscillating plate, an arm operatively connected with said plate, means for changing the relation between the arm and the plate, thereby controlling the amount of motion given to the type-carrier, and means for oscillating the plate to produce a longitudinal motion of the type-carrier corresponding to the motion of the plate, but less in degree, substantially as set forth.

42. The combination of a longitudinally-movable type-carrier, having a series of rows of type, a segmental notched plate having an oscillating movement corresponding to the distance between two rows of characters on the type-carrier, an arm operatively connected with the type-carrier and carrying a pawl engaging the plate, a shifting key for moving the pawl from one notch to another, the arrangement being such that the distance between the notches in the plate corresponds to twice the distance between two rows of characters on the type-carrier, substantially as set forth.

43. The combination of a longitudinally-movable type-carrier, a type-carrier shifter, a pawl connected to and moving with said shifter, an oscillating notched plate, means for moving the shifter to move the carrier into a given position and the pawl into a given notch in said plate, and means for moving the plate which acts on the pawl to move the carrier into another given position, substantially as set forth.

44. The combination of a longitudinally-movable type-carrier having a series of rows of type, a shifter for moving it longitudinally, a notched oscillating plate adapted to be oscillated a distance equal to the distance between two rows of characters on the type carrier, and thereby cause the longitudinal movement of the carrier a distance equal to the distance between two rows of type, a pawl for engaging either of the notches in said plate, mechanism operated by a key-lever for determining which notch the pawl shall engage, and means for oscillating the plate to move the carrier, substantially as set forth.

45. The combination of a longitudinally-movable type-carrier, a type-carrier shifter for moving it longitudinally, a key and mechanism connecting it with the shifter, whereby the carrier is moved into a given position on the depression of said key, a notched oscillating plate connected with the shifter, a pawl or dog moved by the mechanism interposed between said key and shifter to engage one of the notches in said plate, a series of keys for effecting impressions from one row of type when the carrier is in the position determined by the depression of said first-named key, and a second series of keys, and mechanism interposed between said keys and the notched plate and printing devices, whereby, on the depression of one of said last-mentioned keys, the plate is first caused to move and, acting on the pawl, advance the carrier another row of type and the printing devices then act to take an impression from said last row of type, substantially as set forth.

46. The combination of a type-carrier, its shaft, a cam operatively connected with the shaft, a shaft on which the cam is mounted, a continuously-moving driver, and connections between the cam-shaft and the rotary driver for moving it to effect the longitudinal movement of the type-carrier, substantially as set forth.

47. The combination of a type-carrier, the shaft on which it is mounted, a rotary driver, a dog-carrier, a dog thereon adapted to engage with the driver, a key in the keyboard, mechanism operated by this key to cause the dog to move into the path of the driver, a cam operatively connected with the type-carrier shaft, and connections between the cam and the dog-carrier whereby, when the dog-carrier is actuated, the type-carrier is moved longitudinally, substantially as set forth.

48. The combination of a type-carrier, a cam operatively connected therewith, a dog-carrier operatively connected with the cam, a dog on the dog-carrier, a rotary driver with which it is adapted to engage, a pawl normally holding the dog out of the path of the driver, an actuating-key in the keyboard, an oscillating frame with which it engages, a pawl-tripping rod, and connections between this rod and the oscillating frame, substantially as set forth.

49. The combination of a type-carrier, its shaft, a cam with which this shaft is operatively connected, a shaft upon which the cam is mounted, a toothed wheel or pinion thereon, a segmental lever engaging therewith, a shifting key, connections between the shifting key and the segmental lever, an arm secured to the cam-shaft, and connections between this arm and the pinion, substantially as set forth.

50. The combination of a type-carrier, its shaft, a cam with which the shaft is operatively connected, the cam-shaft, a pinion loosely mounted thereon, a pawl-carrying arm secured to the cam-shaft, a notched plate with which the pawl on the arm engages, means for connecting the pinion with the pawl-carrying arm, means for turning the pinion on its shaft, and means for moving the notched plate independently of the pinion, substantially as set forth.

51. The combination of a type-carrier, its shaft, a cam operatively connected with said shaft, a shaft to which the cam is secured, a pawl-carrying arm secured to this shaft, a notched plate with which the pawl engages, a lever pivoted to the arm and engaging with the pawl, a pinion on the cam-shaft, connections between the pinion and the pawl-carrying arm, and means for turning the pinion about its axis, substantially as set forth.

52. The combination of a type-carrier, its shaft, a cam operatively connected therewith, a shaft to which it is secured, a pinion carried by this shaft, a segmental lever engaging therewith, an arm secured to the cam-shaft and adapted to be moved by the pinion, a shifting key operatively connected with the segmental lever, a dog-carrier, means for connecting it with the arm secured to the cam-shaft, a rotary driver, a dog on the dog-carrier adapted to engage with the driver, a pawl for holding the dog out of engagement with the driver, a finger-key, an oscillating frame with which said key engages, and connections between this frame and the pawl, substantially as set forth.

53. The combination of the type-carrier, the shaft on which it is mounted, the longitudinally-slotted stop-cylinder revolving with the shaft, the arms on the type-carrier shaft sliding in said slots, and means for moving the type-carrier shaft longitudinally through the stop-cylinder, substantially as set forth.

54. The combination of a type-carrier, a driver, a series of dogs normally disconnected from the driver but adapted to be connected therewith at the will of the operator, connections between the dogs and the type-carrier for actuating it, a hammer and hammer-operating mechanism actuated by the driver, substantially as set forth.

55. The combination of a type-carrier, a hammer, a driver, hammer-actuating mechanism interposed between the driver and the hammer, type-carrier-actuating mechanism, and devices operated by the type-carrier-actuating mechanism, for causing the hammer-actuating mechanism to move into the path of the driver.

56. The combination, in a type-writing machine, of a hammer, a continuously-rotating cammed driver, and hammer-actuating mechanism normally disconnected from the driver, but automatically moved into the path thereof, substantially as set forth.

57. The combination of a type-carrier, a driver, a series of type-carrier-actuating dogs, a hammer-actuating dog, a carriage-actuating dog, a key for throwing the type-carrier-actuating dog into operation, and devices operated by the type-carrier-actuating dog to bring the hammer and feed dogs into operation.

58. In a type-writer, the combination with a cammed ribbed or toothed driver, of a normally stationary type-carrier, a locking mechanism for the latter, an impression-hammer, and intermediate mechanism for operating said type-carrier, locking mechanism and impression-hammer from said driver.

59. In a type-writer, the combination with a cammed ribbed or toothed driver, of a normally stationary type-carrier, a locking mechanism for said type-carrier, intermediate mechanism for operating said type-carrier, and locking mechanism from said cammed ribbed or toothed driver, a series of keys, and means for throwing said intermediate mechanism into operative connection with said driver by the action of said keys.

60. In a type-writer, the combination with a cammed ribbed or toothed driver, of a normally stationary type-carrier, a locking mechanism, an impression-hammer, intermediate mechanism for operating said impression-hammer, type-carrier and locking mechanism from said cammed ribbed or toothed driver, a series of keys, and means for throwing said intermediate mechanism into operation by the action of said keys.

61. In a type-writer, the combination with a cammed ribbed or toothed driver, of a movable type-carrier, an impression-hammer, intermediate mechanism for operating said type-carrier and hammer from said driver, a series of keys, a series of impulse or tripping levers, and means for throwing said intermediate mechanism into operation by the action of said keys and levers.

62. The combination of a type-carrier, a rotary driver, dog-carriers, dogs thereon adapted to engage with the driver, a type-carrier-actuating frame with which the dog-carriers engage, connections between this frame and the type-carrier, a hammer, a dog-carrier connected therewith, a dog carried by said dog-carrier and adapted to engage with the rotary driver, a pawl for holding the dog out of the path of the driver, and mechanism operated by the dog-carriers of the type-carrier-actuating mechanism for tripping the pawl which holds the dog of the hammer mechanism, substantially as set forth.

63. The combination of a type-carrier, dog-carriers, dogs thereon, a rotary toothed driver with which these dogs engage, a type-carrier-actuating frame connected with the type-carrier, a hammer, a dog-carrier connected therewith, and a dog mounted on this carrier adapted to engage with teeth on the rotary driver, substantially as set forth.

64. The combination of a type-carrier, dog-carriers, dogs thereon, a rotary toothed driver with which these dogs engage, a type-carrier-actuating frame connected with the type-carrier, a hammer, a dog-carrier connected therewith, and a dog mounted on this carrier adapted to engage with teeth on the rotary driver out of line with those which engage the dogs of the type-carrier-actuating mechanism, substantially as set forth.

65. The combination of a type-carrier, a driver, type-carrier-actuating mechanism interposed between the driver and the type-carrier, a hammer, mechanism connecting the hammer with the driver, a frame carrying a series of pawls adapted to engage with the type-carrier-actuating mechanism, and connections between this frame and the hammer-actuating mechanism, whereby the hammer-actuating mechanism is caused to engage with the driver each time that the type-carrier-actuating mechanism is operated, substantially as set forth.

66. The combination of a type-carrier, a series of dog-carriers, a type-carrier-actuating frame, connections between said frame and the type-carrier, connections between the dog-carriers and the driver, a hammer, a dog-carrier connected therewith, a dog thereon adapted to engage with the driver, a pawl for holding this dog out of engagement with the driver, a series of pawls adapted to engage with the dog-carriers of the carrier-actuating mechanism, a lever for tripping the pawl of the hammer-actuating mechanism, and connections between this lever and the pawl-carrying frame which engage with the dog-carriers of the carrier-actuating mechanism, substantially as set forth.

67. The combination of a type-carrier, a series of stop-pawls, a ratchet-wheel connected with the carrier, and a yielding locking-pawl adapted to engage with the ratchet, substantially as set forth.

68. The combination of a roller, a series of pivoted fingers adapted to press the paper against the roller, independently, and means for withdrawing the fingers from the roller simultaneously, substantially as set forth.

69. The combination of a roller, a series of spring-actuated fingers adapted to press the paper against the roller, a shaft on which the fingers are independently mounted, and connections between the shaft and the fingers, whereby they may all be withdrawn from the roller simultaneously, substantially as set forth.

70. The combination of a carriage, a rotary driver, a dog-carrier, a dog thereon adapted to engage with the driver, connections between the dog-carrier and the carriage for feeding it forward, a pawl for normally holding the dog on the dog-carrier out of the path of the rotary driver, and means for releasing this pawl, substantially as set forth.

71. The combination of a carriage, a rotary driver, a dog-carrier, a dog thereon adapted to engage with the driver, connections between the dog-carrier and the carriage for feeding it forward, a pawl for normally holding the dog on the dog-carrier out of the path of the rotary driver, a spacing-key, and connections between this key and the pawl, substantially as set forth.

72. The combination of a type-carrier, a rotary driver, a series of dog-carriers, dogs thereon adapted to engage with the driver, a

type-carrier-actuating frame with which the dog-carriers engage, connections between this frame and the type-carrier, carriage-actuating mechanism connecting the carriage with a dog-carrier, a dog on this carrier adapted to engage with the rotary driver, a pawl for normally holding the dog withdrawn from the driver, a frame carrying pawls adapted to engage with the dog-carriers of the type-carrier-actuating mechanism, and connections between this frame and the pawl that engage with the dog on the carriage-actuating mechanism, substantially as set forth.

73. The combination of a carriage, a continuously-moving driver, carriage-actuating mechanism interposed between the driver and the carriage and normally disconnected from the driver, and means for automatically returning the carriage to its initial position after a line has been printed, substantially as set forth.

74. The combination of a carriage, a continuously-moving driver, a feed-pawl operatively connected with and actuated by the driver, and engaging with the carriage, a stop-pawl, and means for automatically withdrawing both pawls from engagement with the carriage, substantially as set forth.

75. The combination of a carriage, a feed-pawl engaging therewith, a dog-carrier, connections between the dog-carrier and the feed-pawl, a rotary driver adapted to engage with the dog on the dog-carrier, a pawl engaging with this dog, means for releasing it, a stop-pawl engaging with the carriage, and means for withdrawing both the feed and stop pawls from engagement with the carriage, substantially as set forth.

76. The combination of a carriage, feed and stop pawls engaging therewith, springs for holding the pawls in engagement with the carriage and devices actuated by a spring stronger than the pawl-springs, engaging the tails of the pawls to withdraw them both simultaneously from the carriage, substantially as set forth.

77. The combination of a carriage, a feed-pawl, the rocking arm on which it is mounted, means for operating this arm, a stop-pawl, a spring-actuated rod or plunger adapted to engage with the feed and stop pawls, a lever connected with the plunger, a pawl engaging the lever to hold the plunger away from the pawls, means for disengaging the pawl from the lever, and means for automatically causing the engagement of the pawl with the lever, substantially as set forth.

78. The combination of the carriage, the feed and stop pawls engaging therewith, a spring-actuated plunger adapted to engage with the tails of the pawls, a lever connected with the plunger, a pawl engaging therewith to hold it away from the tails of the pawls, an adjustable finger carried by the carriage, and adapted to engage with said pawl, a bell-crank lever connected with the lever to which the plunger is connected, and an arm or finger on the carriage adapted to engage with the bell-crank lever, substantially as set forth.

79. In a type-writing machine, a frame formed in one piece with front and rear downwardly-projecting flanges, and with front and rear upwardly-projecting flanges, an elevation between the front and rear ends, a flange in rear of this elevation, and uprights or supports on the bed-plate, substantially as set forth.

80. The combination of the bed-plate, the uprights or supports thereon, the rotary driver mounted in said supports, an upwardly-projecting flange in rear of the supports, overhanging brackets secured to said flange, a type-carrier, and type-carrier-actuating mechanism mounted on the bed-plate and between the overhanging brackets, substantially as set forth.

81. The combination of a series of key-levers, and a series of actuating-levers E', each of which is operatively connected with two of the key-levers, substantially as set forth.

82. The combination of a series of key-levers, a series of levers E', pivoted dogs engaging with the key-levers, and connections between these dogs and the levers E', substantially as set forth.

83. The combination of a series of key-levers of different lengths and mounted on a common rod, springs connected with the rear ends of these levers, adjusting devices for varying the tension of the springs, and the cushioned guide-pieces through which the key-levers extend, substantially as set forth.

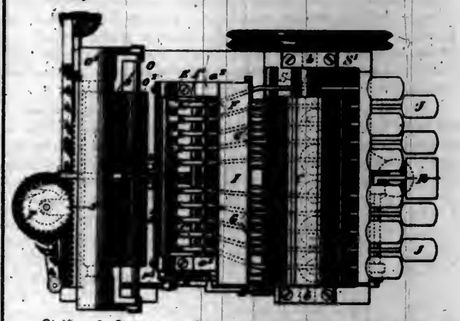
84. In a type-writing machine, the combination, substantially as hereinbefore set forth, of an actuating key or lever, a tripping-lever, and a dog interposed between the actuating-key and tripping-lever, and pivotally connected with one of them.

85. In a type-writing machine, the combination, substantially as hereinbefore set forth, of an actuating key or lever, a tripping-lever, a dog interposed between the actuating-key and the tripping-lever, and carried bodily by and pivotally connected with one of them.

86. In a type-writing machine, the combination, substantially as hereinbefore set forth, of an actuating key or lever, a spur or lug thereon, a tripping-lever, a dog interposed between the actuating-key and the tripping-lever, and pivoted to the tripping-lever, and normally engaging at its opposite end with the lug on the actuating-lever, whereby, in operation, the free end of the dog has both a direct movement in the same direction and plane as the lug on the actuating-lever, and a lateral movement in the same plane, but in a different direction so that the dog and lug may be disengaged.

87. In a type-writing machine, the combination, substantially as set forth, of the key or lever, the dog which it engages, the pivoted tripping-lever upon which the dog is pivoted, a lever E' acted upon by the tripping-lever, the plunger E, the pawl d^7, the dog D^4 and the driver.

589,284. TYPE-WRITING MACHINE. OLOF TYBERG, Brooklyn, N. Y., assignor to the Tyberg Typewriter Company, New York, N. Y. Filed Nov. 16, 1891. Renewed July 23, 1897. Serial No. 646,253. (No model.)



Claim.—1. In a power-driven type-writing machine, the combination of a driver, a series of character-keys, a series of printing-controlling devices, actuated by the driver and controlled by the keys, and interposed between the keys and driver, means for preventing the simultaneous action of two of said interposed devices by the simultaneous depression of their respective keys, means for permitting the depression of a second key while a previously-depressed key is held down, and means for automatically restoring the printing-controlling devices to their normal position after their keys have been depressed.

2. The combination of a series of keys, and devices for permitting a key being depressed before a previously-depressed key is released, but which prevent two keys being simultaneously depressed, substantially as hereinbefore set forth.

3. The combination of a type-carrier, a series of keys or impulse-levers, connections between the keys or impulse-levers and the type-carrier, means for permitting the depression of one key before a previously-depressed key is released, and devices for preventing two or more keys from being simultaneously depressed, substantially as hereinbefore set forth.

4. The combination of a type-carrier, a driver, a series of dog-carriers, dogs thereon adapted to engage with the driver, pawls for normally holding the dogs out of engagement with the driver, a series of keys or impulse-levers, and stops with which the pawls engage and which prevent two or more keys from being simultaneously depressed, substantially as hereinbefore set forth.

5. The combination of a driver, a series of mechanisms actuated by the driver and controlled by a corresponding series of keys or impulse-levers, and devices preventing more than one mechanism being actuated simultaneously by the driver through the simultaneous depression of two or more keys, but permitting the actuation of a mechanism before previously-depressed keys have been released.

6. The combination of a type-carrier, a driver, a series of dog-carriers, dogs thereon adapted to engage with the driver, a hammer, and a hammer-operating frame with which the dog-carriers engage, substantially as hereinbefore set forth.

7. The combination of a type-carrier, its shaft, arms arranged at different angles on the shaft and respectively determining the extent of its movement, a continuously-moving driver, and mechanism interposed between the driver and type-carrier shaft operated by the driver and acting upon the arms on the shaft to effect the required movement of the type-carrier, substantially as hereinbefore set forth.

8. The combination of a carriage, a shaft operatively connected therewith, an oscillating arm, a ratchet-wheel driven thereby, a pawl operatively connected with the shaft, and carried by the ratchet-wheel, a stop for releasing the pawl from the shaft, and means for returning the carriage to the starting-point, substantially as hereinbefore set forth.

9. The combination of a carriage, a shaft and pinion thereon gearing with a rack on the carriage, an oscillating arm, a ratchet-wheel driven thereby, a pawl carried by the ratchet-wheel, and operatively connected with the shaft, and a stop for releasing the pawl, substantially as hereinbefore set forth.

10. The combination of a carriage, a roller carried thereby, a paper holder or receptacle connected with and carried by the carriage, an independent frame pivoted to the carriage and carrying a second roller, the paper being fed between the two rollers, substantially as set forth.

11. The combination of a carriage, a roller carried thereby, a frame pivoted to the carriage, and carrying a second roller, a cross-piece or table secured to said frame, and a paper-holder from which the paper is fed between the rollers, substantially as hereinbefore set forth.

12. The combination of a continuously-rotating driver, a type-carrier, type-carrier-actuating mechanism normally disconnected from the driver but connected therewith at the will of the operator, keys or impulse-levers for controlling the type-carrier-actuating mechanism, a keyboard provided with circuit making and breaking devices, and connected with electromagnetic devices for operating the keys or impulse-levers, substantially as hereinbefore set forth.

13. In a type-writing machine, a continuously-rotating driver, a normally stationary type-carrier, type-carrier-actuating mechanism, normally disconnected from the driver, hammer and carriage actuating mechanism, keys or impulse-levers controlling the type-carrier-actuating mechanism, a keyboard provided with circuit making and breaking devices, electromagnetic devices for operating the keys or impulse-levers, and electrical connections between the electromagnetic devices, and the circuit making and breaking devices and the keyboard, substantially as hereinbefore set forth.

14. In a type-writing machine, the combination of a driver, a series of devices that select or determine the character to be printed, a series of printing-controlling devices actuated by the driver and controlled by said selecting devices, electromagnetic devices for actuating any selecting device at will, and a keyboard having keys and electrical contacts controlling the circuits of the electromagnetic devices, substantially as set forth.

15. In a type-writing machine, the combination, of a driver, a normally stationary intermittently progressively rotatable type-carrier, a series of type-carrier-actuating devices normally disconnected from the driver, a series of selecting devices controlling the type-carrier-actuating devices and determining their respective engagement with the driver, electromagnetic devices for actuating any of said selecting devices at will, a keyboard having keys and contacts controlling said electromagnetic devices, a paper-carriage, its forward-feed devices, and its automatic returning or retracting devices.

16. A keyboard having the character-keys arranged in groups, each group containing more than four, some of the keys being common to two or more groups, and the keys of each group surrounding a space unoccupied by a character-key.

17. A keyboard having the character-keys arranged in groups, each group containing more than four, some of the keys being common to two or more groups, and the keys of each group surrounding a space unoccupied by a character-key, and one or more of said spaces containing a spacing-key.

18. In a type-writing machine, the combination with a rotary driver and a type-carrier having a series of surfaces in different planes, of mechanism interposed between the driver and carrier and operating the latter, the extent of movement of the carrier being determined by the surface acted upon and key-levers controlling said mechanism.

589,285. VEHICLE-WHEEL. CHARLES K. WELCH, Coventry, England, assignor to the Pneumatic Tyre Company, Limited, Dublin, Ireland. Filed July 23, 1895. Serial No. 556,987. (No model.) Patented in England Mar. 30, 1895, No. 6,617; in France June 26, 1895, No. 243,662, and in Belgium June 28, 1895, No. 116,310.

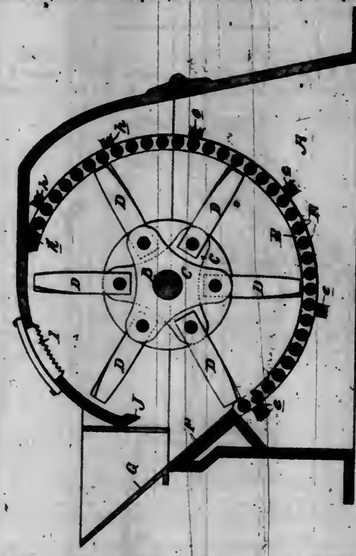


Claim.—1. The combination of a metal rim or felly formed with spherical concavities in the body of the metal of which it is composed and on the inner or hub side thereof, wooden spokes radiating from a hub, metal sockets or caps fitted over and inclosing the ends of said spokes, the said sockets or caps being formed with spherical heads which fit the concavities in the rim, the whole being held together by the shrinking or contraction of the metal rim on the spokes, as set forth.

2. The combination of a metal rim or felly exteriorly grooved to receive a pneumatic tire and having spherical concavities in the body of the metal composing the rim and on the inner or hub side thereof, wooden spokes radiating from the hub, metal sockets or caps fitted over the reduced ends of the spokes, and having closed spherical ends fitting the concavities of the rim, and wedge-shaped cross-bars in the bottom of the sockets to enter the ends of the spokes and wedge the same against the sides of the sockets, the whole being held together by the contraction of the rim, as set forth.

3. The combination of a metal rim or felly adapted to receive a pneumatic tire, spherical concavities or recesses in the inner circumference of the rim or felly, spokes radiating from a hub or box, metal sockets on the extreme ends of the spokes, said sockets having spherical ends adapted to fit into the concavities of the rim, the whole being held together by the contraction of the rim, substantially as described.

589,286. CRUSHER AND PULVERIZER. MILTON F. WILLIAMS, St. Louis, Mo. Filed Sept. 3, 1896. Serial No. 604,722. (No model.)



Claim.—1. The combination with a shaft, of hammer-supports strung thereon, said supports being formed with projections, the projections of one support being staggered relative to the next adjacent support, so that the projections of every other support aline, through-bolts which pass through said projections, and hammers on said through-bolts and between the projections, said hammers being in line with the body portion of the support for the next adjacent hammer; substantially as described.

2. The combination with a shaft, of hammer-supports strung thereon, said supports being formed with radially-extending projections, the projections of every other support alining, whereby, the supports act as spacers for each other, pivot-bolts which pass through said projections and hammers mounted on said pivot-bolts between said projections; substantially as described.

3. The combination with a shaft, of hammer-supports strung thereon, said supports being formed with radially-extending projections, every other support being so arranged on the shaft that their projections aline, pivot-bolts through said alining projections, hammers strung on said pivot-bolts, said hammers being arranged in rows disposed longitudinally of the shaft, the hammers of each row being staggered relatively to the adjacent rows; substantially as described.

4. The combination with a shaft, of hammer-supports strung thereon, said supports being formed with radially-extending projections, every other support being so arranged on the shaft that their projections aline, pivot-bolts through said alining projections, hammers strung on said pivot-bolts, said hammers being arranged in rows disposed longitudinally of the shaft, the hammers of each row being staggered relatively to the adjacent rows; the ends of said hammers of each row being twisted, every other row being twisted in opposite directions; substantially as described.

5. In a crusher and pulverizer, the combination with a suitable frame, of a shaft mounted therein, a cover hinged to one side of the frame, a concentric cage comprising curved side bars, mounted in the frame, hammer-supports mounted on the shaft, hammers pivotally mounted in said supports, and a removable wear-plate mounted in the hinged cover, substantially as described.

6. The combination with a frame, of a shaft journaled therein, hammers carried by said shaft, a concentric cage partially surrounding said hammers, a dead-plate arranged at the feed end of the machine, a hopper above said dead-plate, a cover, a wear-plate in said cover in front of the upper edge of the cage, and an interned lip arranged on the cover above the dead-plate for deflecting the air and circulating material inwardly, whereby, a suction is formed to draw in the material from the dead-plate; substantially as described.

7. In a crusher and pulverizer, the combination with a suitable frame, of a hopper arranged thereon at its front end, a dead-plate arranged beneath the hopper, a shaft journaled in the frame, rows of pivoted hammers carried by the shaft which cooperate with the dead-plate to primarily crush the refractory material as it enters the machine, a concentric cage mounted beneath the hammers and having its front end abutting against the dead-plate, and a hinged shell or cover against which the other end of the cage abuts; substantially as described.

589,287. COMBINED BEER TAP, COOLER, AND PUMP. WILLIAM B. BAKER, Newport News, Va., assignor to W. B. Baker & Bros., same place. Filed May 26, 1897. Serial No. 638,109. (No model.)



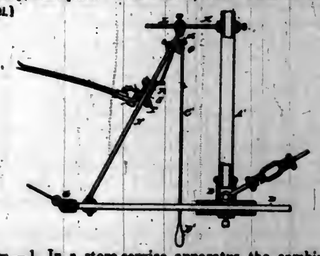
Claim.—1. The combination of a pipe for drawing off liquid, such as beer, from a keg, or barrel, or other receptacle, a bung-plug through which the said pipe is passed with an annular passage between the pipe and plug, an air-inlet nozzle communicating with the side of said annular passage, a stuffing-box at the outer end of said passage, a bung-driver permanently surrounding the drawing-off pipe, an ice chest or chamber having therein a cooling coil or passage connected at one end with the said drawing-off pipe and provided at the other end with a faucet, and an air-pump located in the ice-chest and having a pipe connected with the air-inlet nozzle of the bung-plug, substantially as described.

2. The combination of a pipe for drawing liquid, such as beer, from a keg, or barrel, or other receptacle into which said pipe is inserted, an ice-chest, a cooling coil or passage inclosed by a casing removably located in the bottom of the ice-chest, one end of said passage being connected with the pipe that is inserted into the liquid-receptacle and the other end being provided with a faucet, an air-pump located in the ice-chest above the said cooling-coil and provided with a piston having a spring-compressed packing, and pipe connections from the air-pump cylinder to the liquid-receptacle, substantially as described.

3. The combination of an ice-chest having therein a cooling coil or passage connected at one end with a receptacle for beer or other liquid and provided at the other end with a faucet outside the ice-chest, an air-pump secured to the inner side of the ice-chest above said cooling coil or passage and provided with a pipe leading to the liquid-receptacle, a hand-lever having an arm pivotally connected with the piston-rod of the air-pump, and a link connection between said hand-lever and its support, to furnish a movable fulcrum for said hand-lever, substantially as described.

4. The combination with a keg, barrel or other receptacle for liquid and a drawing-off pipe inserted into said receptacle, of a bung-plug through which the said pipe is passed with an annular passage between the pipe and plug, a stuffing-box for said plug to prevent the escape of gas or air at said annular passage, an ice chest or chamber having therein a cooling coil or passage connected at one end with the drawing-off pipe of the liquid-receptacle and provided at the other end with a faucet, an air-pump cylinder secured in the ice-chest above the cooling coil or passage and connected with the liquid-receptacle through the annular passage between the bung-plug and drawing-off pipe, an air-pump piston having a spring-compressed packing, and a pump-operating hand-lever provided with a movable fulcrum and having an arm pivotally connected with the piston-rod of the air-pump, substantially as described.

589,288. STORE-SERVICE APPARATUS. THOMAS E. BARROW, Mansfield, Ohio, assignor to the Mansfield Cash and Package Carrier Company, same place. Filed June 7, 1894. Serial No. 513,749. (No model.)

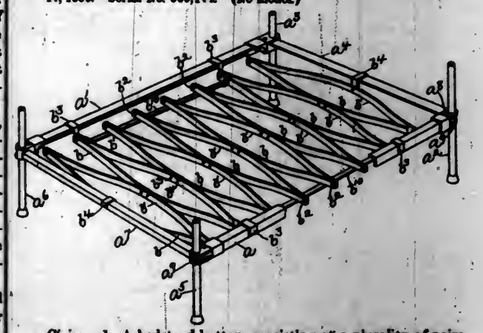


Claim.—1. In a store-service apparatus, the combination of a hanger or support, a T-shaped foot secured to said hanger at its lower end, a horizontal bar adjustable within said foot, a stationary track-wire secured to the end of said bar, a horizontal bar secured near the upper end of said hanger, a guide-rod having its upper and lower ends secured to said horizontal bars, the said guide-rod being placed in front of the hanger, a guide mounted upon the guide-rod, the said guide having rollers one at the top at the front of the guide-rod, and one at the bottom at the rear of the guide-rod.

2. In a store-service apparatus, in combination with an upward-spread propelling-wire and guide-rod, a guide adapted to slide upon said rod, the said guide being composed of a hollow case, provided with two rollers, one at the top in front of the guide-rod, and one at the bottom and in rear of the guide-rod, a hinged foot secured to said hollow case, the said foot being provided with a car stop and retainer, and being adapted to be adjusted to the grade of the line.

3. In combination with the hanger or support, a home-station plate, track-wire and propelling-wire, an L-shaped foot having a slot through the same and provided with a pivoted lever and car-retainer, the stationary track-wire secured to the L-shaped foot, and the propelling-wire secured to the pivoted lever and a rubber stop placed between the lever and the foot.

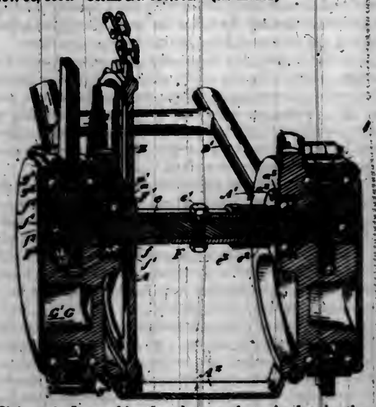
589,289. BED. GEORGE W. BENT, Hyde Park, Mass. Filed Oct. 17, 1896. Serial No. 609,174. (No model.)



Claim.—1. A bedstead-bottom consisting of a plurality of pairs of bars connected together intermediate of their ends, supporting-bars extended longitudinally under the ends of the center pairs of bars and engaging bars of pairs located on opposite sides of the center pairs of bars, and hangers attached to the pairs of bars with which the supporting-bars are connected, substantially as described.

2. The combination with a bed-frame having side and end rails, of an extensible bed-bottom composed of a plurality of centrally-connected bars *b b'*, hangers attached to the end bars to engage the end rails of the bed-frame, hangers attached to the ends of the pairs of bars on opposite sides of the central pairs of bars for engagement with the side rails of the bed-frame near the opposite ends of the same, and bars b^{10} extended under the ends of the centrally-disposed pairs of bars *b b'* and provided with hooks or hangers for engagement with the ends of the bars *b b'* of pairs to which the side hangers are secured, substantially as described.

589,240. BICYCLE CONSTRUCTION. JOHN F. BLACK, Montreal, Canada, assignor of one-half to Alfred Martin Smith, same place. Filed Nov. 30, 1896. Serial No. 613,861. (No model.)



Claim.—1. In combination the sprocket-wheel axle, the crank-hangers, the sprocket-wheel provided with a sleeve secured to the sprocket-wheel axle, the interior threaded recesses in the crank-hangers, the cups with shoulder-flanges screwed into the recesses, the balls and the cones secured to the axle, said crank-hangers having threaded openings in the outer faces thereof in alinement with said axle, the plugs adjustable in said openings and the balls interposed between said plugs and the ends of the axle, all arranged as and for the purpose specified.

2. In combination, the sprocket-wheel axle, the crank-hangers, the sprocket-wheel provided with a sleeve secured to the sprocket-wheel axle, the interior threaded annular recess in one crank-hanger next the sprocket-wheel, the cup with shoulder-flange screwed into the same, the balls, the shoulder on the sprocket-wheel axle, the cone extending between such shoulder and the hub of the sprocket-wheel, the interior threaded recess in the opposite crank-hanger, the cup with shoulder-flange, the balls, the cone with threaded cup-shaped end screwed onto the end of the sleeve of the sprocket-wheel and the lock-nut on the threaded end of such sleeve, as and for the purpose specified.

3. In combination, the crank-hangers, the sprocket-wheel axle and sprocket-wheel, the bearings for the sprocket-wheel axle at the interior of the crank-hangers, the caps secured to the opposite ends of the crank-hangers and the single ball-bearing at each end of the sprocket-wheel axle, comprising a threaded plug fitted into a corresponding recess in each crank-hanger and a ball fitting in a recess in the end of the axle, as and for the purpose specified.

4. In combination, the sprocket-wheel axle, the crank-hangers and bearings in the same forming a support for each end thereof, the sprocket-wheel, the pinions on the ends of the sprocket-wheel axle, the gear-rings with cranks attached to or forming part of the same, the supplemental rings secured to the gear-rings by suitable lugs and bolts, the ball-bearings between the inner supplemental rings and the crank-hangers, the removable caps screwed onto the threaded outer end of each crank-hanger, and the ball-bearings between the removable caps and the outer supplemental rings, as and for the purpose specified.

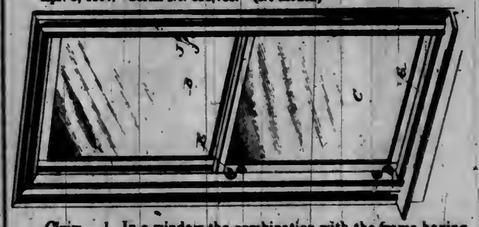
5. In combination the disk-hangers, the axle journaled therein, the integral crank and eccentrically-journaled internal gear, the pinion on the axle meshing with said gear, the independent ring secured to each side of said gear, the cap and ball-bearings interposed between the cap and the opposing ring, and the disk and the ring opposite thereto, substantially as described.

589,241. UNION GARMENT. JOHN L. BOYER, Piqua, Ohio. Filed Apr. 14, 1897. Serial No. 632,120. (No model.)

Claim.—The herein-described undergarment, consisting of an elastic, knitted fabric provided with a neck-opening and slits or cuts extending from said neck-opening, respectively, from a point about midway between the front and shoulder portions thereof outwardly and downwardly to the lower front edge of the armpit-openings, the meeting edges of said slits or cuts being provided with fastening devices, whereby the respective openings in the garment and the fastenings therefor are located along the line of the natural depression between the breast and shoulder portions of the wearer and also leave the breast portion of the garment unbroken and elastic throughout its entire width, as set forth.



589,242. WINDOW. LEWIS S. BRADSHAW, Buffalo, N. Y. Filed Apr. 5, 1897. Serial No. 630,785. (No model.)



Claim.—1. In a window the combination with the frame having the socket-plate and hook secured thereto, of the sliding sash also having a hook and socket-plate secured thereto, cooperating respectively with the hook and socket-plate on the frame to form a hinge-joint; substantially as and for the purpose set forth.

2. In a window the combination with the frame and sash of the hooks secured thereto having the curved portion bent out of the plane of the body or shank, and the cooperating socket-plates secured to the frame and sash; substantially as and for the purpose set forth.

3. In a window the combination with the frame and sash of the hooks and socket-plates secured thereto, said socket-plates having the lip; substantially as described.

589,243. CYCLE-SADDLE. JOHN R. BROOKS, Birmingham, England, assignor to the J. R. Brooks & Company, Limited, same place. Filed Dec. 5, 1896. Serial No. 614,656. (No model.) Patented in England Sept. 30, 1896, No. 21,805.

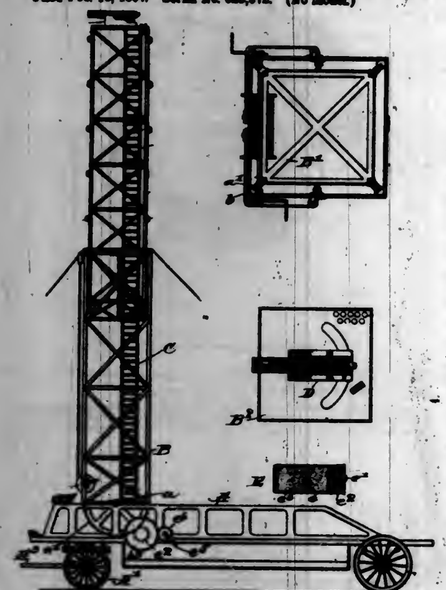


Claim.—1. A support and attachment-boss for cycle-saddles consisting of a seat-pillar surmounted by a trough-sectioned bed having yielding sides and fitted with an internal support in the form of a sliding block or body or other part of the attachment-boss and with gripping-cheeks, strung upon a pin or equivalent and taking a bearing upon the outer sides of the said bed, the said yielding sides being thus nipped and clamped between the internal block or support and the outer gripping-cheeks, substantially as and for the purpose described and set forth.

2. A support and attachment-boss for cycle-saddles consisting of a seat pillar, surmounted by a trough-sectioned bed, having yielding

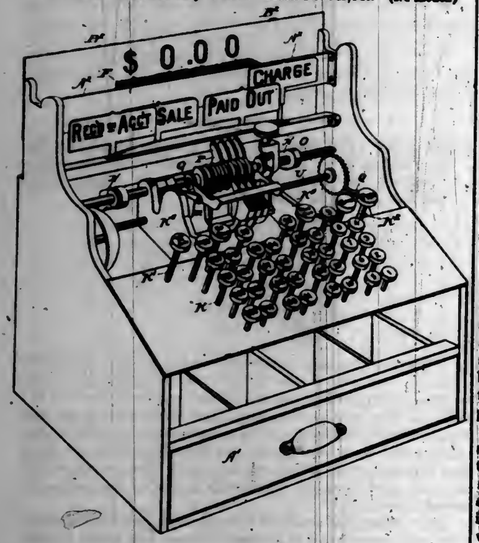
sides and fitted with an internal support in the form of a sliding block or body or other part of the attachment-boss, and with gripping-cheeks strung upon a pin or equivalent and taking a bearing upon the outer sides of the said bed, which are thus nipped and clamped between the internal block or support and the outer gripping-cheeks, and with a frame-clamping washer or washers and a securing nut or nuts also taking upon the ends of the pin or equivalent, substantially as described and set forth.

589,244. METHOD OF EXTINGUISHING FIRES. FRANK CARTOZZI, Boston, Mass., assignor of one-half to Michele Russo, same place. Filed Feb. 16, 1897. Serial No. 623,672. (No model.)



Claim.—The herein-described method of extinguishing fire which consists in discharging sand from a cannon into the fire, substantially as described.

589,245. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov. 11, 1895. Renewed July 1, 1897. Serial No. 643,140. (No model.)



Claim.—1. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which a plurality of keys may be successively connected at will, and a motor for actuating said mechanism normally held in check or restrained from action but adapted to be released or permitted to act by means of a releasing device independent of the keys, whereby upon connecting the keys with the operating or driving mechanism and releasing the motor or permitting it to act it will impart a definite movement to the connected keys and cause them to properly operate the respective mechanisms of the machine, substantially as described.

2. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be successively connected at will, and a motor normally held in check but operating when released or permitted to act to give said movable member a definite movement, whereby upon connecting the keys to said member and releasing the motor the latter will impart a definite movement to the connected keys, for the purpose described.

3. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be successively connected by starting or slightly moving them from normal position, and a motor normally held in check but operating when released or permitted to act to give said movable member a definite movement and thereby impart a corresponding movement to the connected keys, for the purpose described.

4. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends so as to cause said member to carry the connected levers with it, and a motor normally held in check but operating when released or permitted to act to impart a definite movement to the movable member and thereby to operate the connected levers, substantially as described.

5. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends so as to cause said member to carry the connected levers with it, a series of setting-keys adjacent the front ends of the levers but disconnected therefrom, by which the front ends of said levers may be slightly depressed to connect their rear ends with the movable member, and a motor operating when released or permitted to act to give said member a definite movement and thereby operate the connected levers, substantially as described.

6. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor, to which the keys may be connected at will, a motor consisting of a spring, for actuating said mechanism, means for putting said spring under tension and thereby storing power in the motor, and means for holding it in check and for releasing it at will independently of the operation of the keys, whereby upon connecting the keys to the operating or driving mechanism and then releasing the motor the latter will impart a definite movement to the connected keys and cause them to properly actuate the respective mechanisms of the machine, substantially as described.

7. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a motor, consisting of a spring, for giving said member a definite movement at each operation of the machine, means for putting the spring under tension and thereby storing power in the motor, and means for holding it in check and for releasing it at will independently of the operation of the keys, for the purpose described.

8. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends so as to cause said member to carry the connected levers with it, a motor, consisting of a spring, for imparting a definite movement to said member at each operation of the machine, means for putting the spring under tension and thereby storing power in the motor, and means for holding it in check and for releasing it at will, for the purpose described.

9. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a motor consisting of a coiled spring, means for winding up said spring and thereby storing power in the motor, a rotary member actuated by the motor and cooperating with the aforesaid movable member to impart a definite reciprocating movement to the latter back and forth at each operation of the machine, and means for holding the motor in check and for releasing it at will, for the purpose described.

10. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends, a motor consisting of a coiled spring, means for winding up the spring and thereby storing power in the motor, a rotary cam actuated by the motor and cooperating with the movable member to impart a definite reciprocating movement to the latter at each operation of the machine, and means for holding the motor in check and for releasing it at will, for the purpose described.

11. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a motor consisting of a coiled spring, means for winding up said spring, a rotary member turned in one direction at the winding up of the spring and in the opposite direction at the unwinding of the spring, a second rotary member, a connection between said members by which the first member turns the second member with it in one direction but not in the other, so that said second member turns always in one direction, a connection between said second rotary member and the first-mentioned movable member common to the keys, by which said latter member is given a definite movement at each operation of the machine, and means for holding the motor in check and for releasing it at will, for the purpose described.

12. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends, a motor consisting of a coiled spring, means for winding up said spring, a rotary member turned in one direction at the winding up of said spring and in the opposite direction at the unwinding thereof, a rotary cam-disk and a connection between the same and said rotary member by which the latter is caused to turn the cam-disk with it in one direction but not in the other, means intermediate the cam-disk and movable member common to the keys for imparting a definite reciprocating movement to said movable member at each operation of the machine, and means for holding the motor in check and for releasing it at will, for the purpose described.

13. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor consisting of a spring, for actuating said mechanism, a money-drawer cooperating with said spring to put it under tension when moved in one direction and to be moved in the opposite direction by the spring, and means for holding the motor in check, with the drawer in one position, and for releasing the motor at will independently of the operation of the keys and permitting it to actuate the driving mechanism and move the drawer to its opposite position, for the purpose described.

14. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor, consisting of a spring, for actuating said mechanism, a money-drawer cooperating with the spring to put the same under tension when the drawer is closed and to be moved to open position by the spring when the latter is permitted to act, and means for holding the spring under tension, with the drawer closed, and for releasing it at will independently of the operation of the keys and permitting it to actuate the driving mechanism and open the drawer, for the purpose described.

15. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor, consisting of a coiled spring, for actuating said mechanism, a rotary member to which one end of said spring is connected, a money-drawer geared to said rotary member to cause the drawer to wind up the spring when moved in one direction and to cause the unwinding of the spring to move the drawer in the opposite direction, and means for holding the spring under tension, with the drawer in one position, and for releasing it at will independently of the operation of the keys to permit it to actuate the driving mechanism and move the drawer to its opposite position, for the purpose described.

16. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor, consisting of a coiled spring, for actuating said mechanism, a rotary member to which one end of said spring is connected, a money-drawer geared to said rotary member to cause the drawer to wind up the spring when the drawer is moved to closed position and to cause the drawer to be moved to open position when the latter unwinds, and means for holding the spring under tension, with the drawer closed, and for releasing it at will independently of the operation of the keys and permitting it to actuate the driving mechanism and open the drawer, for the purpose described.

17. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a motor, consisting of a coiled spring, operating to impart a definite reciprocating movement to said member in both directions at each operation of the machine, a rotary member to which one end of the coiled spring is secured, a money-drawer geared to said rotary member to cause the drawer to wind up the spring when moved in one direction, means intermediate said rotary member and the movable member common to the keys, for causing said rotary member to actuate the other member and impart a definite movement to it at each operation, and means for holding the spring under tension and for releasing it at will, for the purpose described.

18. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends, a motor, consisting of a coiled spring, for imparting a definite movement to said movable member at each operation of the machine, a rotary member to which one end of the coiled spring is secured, a money-drawer geared to said rotary member to cause the latter to wind up the spring when the drawer is moved in one direction, a second rotary member with means intermediate the same and the first rotary member for causing the latter to actuate the former and turn it always in the same direction, and means intermediate the second rotary member and the movable member overlying the rear ends of the key-levers for causing said rotary member to impart a definite reciprocating movement to said movable member at each operation of the machine, and means for holding the spring under tension and for releasing it at will, for the purpose described.

19. In a cash-register, having a money-drawer, the combination of a series of keys, a movable member common thereto and independent of the money-drawer, to which movable member the keys may be successively connected at will, and means intermediate the drawer and said member for causing the movement of the drawer to actuate said member and the connected keys, for the purpose described.

20. In a cash-register having a money-drawer, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, and a rotary member actuated by the movement of the drawer and cooperating with said movable member to impart a definite reciprocating movement to said member and the connected keys in both directions at each operation of the machine, for the purpose described.

21. In a cash-register, having a money-drawer, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, and a rotary member turned by the drawer as the latter is moved in one direction but remaining stationary while the drawer is moved in the opposite direction, and cooperating with the aforesaid movable member to impart a definite movement to it and the connected keys at each operation of the machine, for the purpose described.

22. In a cash-register having a money-drawer, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a rotary member geared to the money-drawer, to be turned in opposite directions at the outward and inward movements of said drawer, and a second rotary member with means intermediate the same and the first rotary member for causing the first member to turn the second in one direction only, said second member cooperating with the aforesaid movable member to impart a definite reciprocating movement to said member and the connected keys at each operation of the machine, for the purpose described.

23. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor for actuating said mechanism, means for holding the motor in check and for releasing it independently of the operation of the keys, and means controlled by the keys for locking said releasing means to prevent the release of the motor without first operating some one of said keys.

24. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor for actuating said mechanism, means for holding the motor in check, a releasing-key cooperating with said holding means to release the motor, and locking means controlled by the first-mentioned keys and cooperating with the releasing-key or means to prevent release of the motor without operating some one of said keys.

25. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor for actuating said mechanism, a detent for holding the motor in check, a special key cooperating with the detent for releasing the motor, and a movable bar common to the first-mentioned keys and moved by the operation of any one of them, and cooperating with the special key to normally lock the same and prevent its operation until said bar has been moved by the operation of some one of the other keys.

26. In a cash-register, the combination of a series of keys, an operating or driving mechanism therefor to which the keys may be connected at will, a motor for actuating said mechanism, a detent for holding the motor in check, a special key cooperating with the detent for releasing the motor, and a movable bar common to the first-mentioned keys and moved by the operation of any one of them and having a portion normally projecting into the path of the special key, to lock the same except when the bar has been moved by the operation of some one of the other keys.

27. In a cash-register, the combination of a series of key-levers, a movable member common thereto and overlying their rear ends and to which the rear ends of the levers may be connected at will by slightly depressing their front ends, a motor cooperating with said movable member to impart a definite movement to the same at each operation, a detent for holding the motor in check, a releasing-key operating with the detent, and a movable bar common to the key-levers and moved by the operation of any one of them and having a portion normally projecting into the path of the releasing-key, for the purpose described.

28. In a cash-register, the combination of a driving mechanism for actuating the several mechanisms of the machine, a series of keys cooperating therewith to determine the movements imparted to said mechanisms, a money-drawer and means intermediate the same and the driving mechanism by which the movement of the drawer actuates such mechanism, means for normally locking or holding the drawer in closed position, means independent of the keys for releasing it and permitting it to open or be opened, and means controlled by the keys and cooperating with said releasing means to prevent the releasing and opening of the drawer without first operating some one of said keys.

29. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a money-drawer and means intermediate the same and said movable member for actuating the latter by the movements of the drawer, means for normally locking or holding the drawer in closed position and means independent of the keys for releasing it, and means controlled by the keys and cooperating with said releasing means to prevent release of the drawer without first operating some one of said keys.

30. In a cash-register, the combination of a series of keys, a movable member common thereto and to which the keys may be connected at will, a money-drawer and means intermediate the same and said movable member for actuating the latter by the movements of the drawer, means for normally locking or holding the drawer in closed position, a special releasing-key cooperating with such holding means, and a movable bar common to the first-mentioned keys and moved by the operation of any one of them, and having a portion normally projecting into the path of the special releasing-key, for the purpose described.

31. In a cash-register, the combination of a series of keys representing different values, a registering mechanism operated thereby to register their respective values, an operating or driving mechanism for said keys to which the keys may be connected at will, a motor for actuating said mechanism, and means for normally holding the motor in check and for releasing it independently of the operation of the keys and permitting it to act, for the purpose described.

32. In a cash-register, the combination of a series of keys representing different values, a registering mechanism operated thereby to register their respective values, a movable member common to the keys to which they may be successively connected at will, and a motor normally held in check but operating when released or permitted to act to give said movable member a definite movement, for the purpose described.

33. In a cash indicator, the combination of a series of keys representing different values, an indicating mechanism operated thereby to indicate their respective values, a movable member common to the keys to which they may be successively connected at will, and a motor normally held in check but operating when released or permitted to act to give said movable member a definite movement, for the purpose described.

34. In a cash-register having a money-drawer, the combination of a series of key-levers, a registering mechanism operated thereby to register their respective values, a vertically-movable member located at the rear ends of said key-levers, to which movable member the key-levers may be successively connected at will by depressing their front ends, and means intermediate the money-drawer and said movable member for causing said member to be raised at the movement of the drawer in one direction, to actuate the connected keys.

35. In a cash-register having a money-drawer, the combination of a series of key-levers, a series of vertically-movable indicator-rods located over the rear ends of the respective levers and carrying indicators representing the values thereof, a vertically-movable member located at the rear ends of the key-levers, to which the latter may be successively connected at will by depressing their front ends, and means intermediate the money-drawer and said member for raising the latter at the movement of the drawer in one direction, to expose the indicators of the connected keys.

36. In a cash-register having a money-drawer, the combination of a series of key-levers, registering devices actuated thereby and a series of vertically-movable indicator-rods located over the rear ends of the levers and carrying indicators representing the values thereof, a vertically-movable member located at the rear ends of the key-levers to which the latter may be connected at will by depressing their front ends, and means intermediate the money-drawer and said member for raising the latter at the movement of the drawer in one direction, to lift the rear ends of the connected key-levers and expose their indicators and register their values.

37. In a cash-register having a money-drawer, the combination of a series of key-levers, a vertically-movable member located at the rear ends of said levers and to which the levers may be successively connected at will by depressing their front ends, a spring for moving said member vertically, and means intermediate said spring and the money-drawer for causing the latter to put the spring under tension when moved in one direction.

38. In a cash-register having a money-drawer, the combination of a series of key-levers, registering and indicating devices actuated thereby, a movable member located at the rear ends of said levers and to which the latter may be successively connected by depressing their front ends, a spring for moving said member vertically to actuate the indicating and registering devices, and means intermediate said spring and the money-drawer whereby the spring is put under tension by movement of the drawer.

39. In a cash-register having a money-drawer, the combination of a series of key-levers, a series of vertically-movable indicator-rods located over the rear ends of said levers and carrying indicators representing their respective values, a vertically-movable member located at the rear ends of the key levers and to which the latter may be connected at will by depressing their front ends, a motor-spring for lifting the movable member, to expose the indicators of the connected keys, and means intermediate the money-drawer and said spring for causing the latter to be put under tension by the movement of the drawer.

40. In a cash-register having a money-drawer, the combination of a series of key-levers, registering devices actuated thereby, a series of vertically-movable indicator-rods located over the rear ends of the key-levers and carrying indicators representing their respective values, a vertically-movable member located at the rear ends of said key-levers and to which the latter may be connected at will by depressing their front ends, a motor-spring for lifting said member to expose the indicators of the connected keys and actuate the registering devices, means intermediate the money-drawer and said spring for putting the latter under tension by movement of the drawer in one direction, and a detent or locking device for holding the drawer in position to maintain the spring under tension, whereby upon depressing the front end of one of the key-levers its rear end will become connected to the movable member, and whereby upon then releasing the money-drawer the spring will move said drawer and also lift the movable member to expose the indicator and register the value of the operated key.

41. In a cash-register having a money-drawer, the combination of a series of key-levers, registering devices actuated thereby, a series of vertically-movable indicator-rods located over the rear ends of the levers and carrying indicators representing their respective values, a vertically-movable member located at the rear end of said levers and to which a plurality of said levers may be successively connected at will by depressing their front ends, a motor-spring for lifting said member to expose the indicators of the connected keys and to actuate the registering devices, means intermediate the money-drawer and said spring whereby the spring serves to propel the drawer in one direction and is put under tension by the movement of the drawer in the opposite direction, and means for holding the drawer in position after it has been moved to place the spring under tension, for the purpose described.

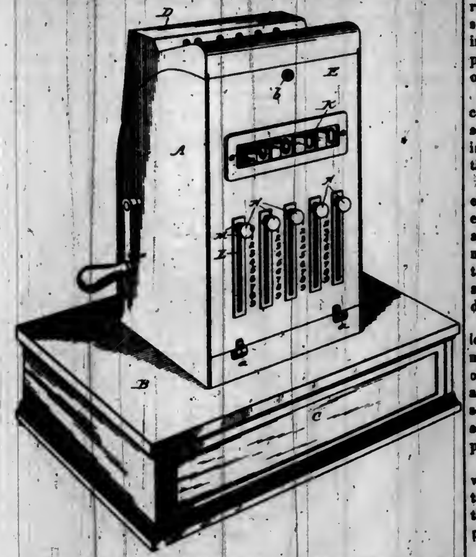
42. The combination, with the money-drawer A', means for holding it closed and a spring for throwing it open, of the spring-pressed buffer-arm X' cooperating with the drawer at the end of its outward movement to arrest it when thrown open by its spring, for the purpose described.

43. The combination, with the money-drawer A' having the adjustable plate Z^3, and means for holding the drawer closed and a spring for throwing it open, of the spring-pressed buffer-arm X' standing in the path of the plate Z^3 and adapted to cooperate therewith, in the manner and for the purpose described.

44. The combination of the disk N^2, the detent O' cooperating therewith, the releasing-key K^2, and means intermediate said key and the detent O' for causing the depression of the key to disengage the detent from the disk N' but permit reëngagement of it with the disk without returning the key K^2 to normal position, for the purpose described.

45. The combination of the disk N', detent O' cooperating therewith, the releasing-key K^2, the plate *b* carried thereby and cooperating with the detent, and the pendent arm *d* cooperating with the projection *f* on the disk N' and having the portion *e* cooperating with the plate *b*, substantially as and for the purpose described.

589,246. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Mar. 23, 1896. Renewed July 1, 1897. Serial No. 643,141. (No model.)



Claim.—1. The combination of the reciprocating bars provided with the racks and the series of types, the indicator-wheels geared to the bars, a movable frame carrying an inking-pad and an impression-platen, and means for moving said frame toward the types twice in succession at each operation and shifting it between said movements, to first press the inking-pad against the types and then press the impression-platen against them, substantially as described.

2. The combination of the reciprocating bars provided with the series of types, a swinging frame, a second frame pivoted in the swinging frame and carrying an inking-pad and an impression-platen, means for moving the swinging frame toward the types twice in succession at each operation, and means for moving the second frame on its pivot between such movements of the swinging frame, to cause the inking-pad to be pressed against the types at the first movement of the swinging frame and the impression-platen at the second movement thereof, substantially as described.

3. The combination of the reciprocating bars provided with the series of types, a swinging frame, a second frame pivoted in the swinging frame and carrying an inking-pad and an impression-platen, two rotary cams cooperating with the swinging frame to move the same toward the types twice in succession at each operation, and a third cam cooperating with the pivoted frame to move the same upon its pivot between the movements of the swinging frame, to cause the inking-pad to cooperate with the types at the first movement of the swinging frame, and the impression-platen at the second, substantially as described.

4. The combination of the vertically-reciprocating bars F provided with the types O', the indicator-wheels H geared to said bars, the swinging frame E' hung upon the rod C', the frame G' pivoted at its rear end in the lower end of the frame E' and carrying at its forward end the inking-pad N' and impression-platen L', the rotary cams T' U' and means intermediate the same and the swinging frame E' for moving the latter and the frame G' toward the types twice in succession at each complete revolution of said cams, and the cam Z' and means intermediate the same and the frame G' for moving the latter upon its pivot, between the movements of the swinging frame E', substantially as described.

5. The combination of the vertically-reciprocating bars F provided with the types O', the swinging frame E' hung upon the rod C, the frame G' pivoted at its rear end in the lower end of the frame E' and carrying at its forward end the inking-pad B' and impression-platen L', the toggle-levers P' Q' intermediate the frame E' and rod R', the rotary cams T' U' cooperating with the lever Q' to straighten the toggle twice in succession at each revolution of said cams, the spring S' for returning them to normal position, the lever X' cooperating with the arm W' projecting from the pivoted frame G', the cam Z' cooperating with the lever X', and the spring *j* for resetting the parts, substantially as described.

6. The combination of the reciprocating bars F provided with the types O', the indicator-wheels H geared to said bars, the movable frame carrying the inking-pad and impression-platen, the rotary cams and intermediate devices for operating said frame, the storage-reel T upon which the record-strip is wound after being led from the supply-roll across the impression-platen, the actuating-pawl cooperating with the storage-reel T, and the rotary cam cooperating with said pawl to turn the ratchet and reel and advance the paper strip at each operation, substantially as described.

7. The combination of the reciprocating bars, the segment-levers cooperating therewith, the registering-wheels cooperating with the segments and moved in one direction by them, and means for returning all of the displaced segments to a given position at each operation of the machine, substantially as described.

8. The combination of the reciprocating bars movable to different positions to register different amounts, the segment-levers cooperating therewith, the registering-wheels mounted in a movable frame and provided with pinions cooperating with the segments, means for moving said frame to throw the pinions into and out of mesh with the segments, and means for returning all of the displaced levers to a given position at each operation of the machine, substantially as described.

9. The combination of the reciprocating bars, the spring-pressed levers bearing at one end against said bars and provided with the segments at their opposite ends, the registering-wheels mounted in a pivoted frame and provided with pinions to cooperate with the segments, and rotary cams cooperating with said pivoted frame and with the segment-levers to throw the pinions into and out of mesh with the segments, and to move the displaced levers in one direction to a given position, at each operation of the machine, substantially as described.

10. The combination of the reciprocating bars, the indicator-wheels geared thereto, the segment-levers cooperating with the bars, the registering-wheels cooperating with the segments and moved by them in one direction, and means for returning the levers to a given position at each operation of the machine, substantially as described.

11. The combination of the reciprocating bars, the indicator-wheels geared thereto, the spring-pressed levers bearing at one end against said bars and provided with the segments at their opposite ends, the registering-wheels mounted in a pivoted frame and provided with pinions adapted to cooperate with the segments, and rotary cams and connections for moving the pivoted frame to throw the pinions into and out of mesh with the segments and for restoring the displaced levers to a given position, at each operation of the machine, substantially as described.

12. The combination of the reciprocating bars provided with the series of types, means for inking said types and pressing the paper strip against them, the spring-pressed segment-levers bearing at one end against said bars and provided at their opposite ends with the segments, the registering-wheels cooperating with the segments and moved in one direction by them, and means for restoring the displaced levers to a given position at each operation of the machine, substantially as described.

13. The combination of the reciprocating bars, provided with the series of types, the indicator-wheels geared to said bars, means for inking the types and pressing the paper strip against them, the spring-pressed segment-levers cooperating with the bars, the registering-wheels cooperating with the segments and moved in one direction by them, and means for restoring the displaced levers to a given position at each operation of the machine, substantially as described.

14. The combination, with the money-drawer and its latch, of a rotary disk provided with a cam-groove having an offset or shoulder, a reciprocating bar having a projection fitting in said groove and cooperating with the drawer-latch to release the drawer when the bar is moved by the cam, a latch for holding the bar in moved position, with its projection in the path of the shoulder in the cam-groove, to lock the disk from further movement, and a trip for said latch operated by the closing of the money-drawer, to release the bar and permit its projection to move out of the path of said shoulder, substantially as described.

15. The combination, with the money-drawer C and its latch-lever 54, of the rotary disk 64 provided with the cam-groove 65 having the offset or shoulder *x*, the reciprocating bar 60 cooperating at its lower end with the latch-lever 54 and provided at its upper end with the projection 66 fitting in the cam-groove 65, the latch 68 cooperating with the bar 60, and a trip-lever 71 cooperating with the money-drawer C and with the latch 68, substantially as described.

16. The combination of the rotary disk 64 having the cam-groove 65, the reciprocating bar 60 having the projection 66 fitting in said groove, the gong 83, the gong-striker 84, the spring 86, and the trip 85 carried by the bar 60 and cooperating with the striker 84, substantially as described.

17. The combination of the reciprocating bars, the indicator-wheels geared thereto and provided with the notched locking-disks, the swinging locking-frame provided with the locking teeth or projections cooperating with the notches in said disks, the money-drawer

and its latch, releasing means for disengaging the latch from the drawer, and means intermediate the locking-frame and such releasing means for disengaging the locking-frame from the disks of the register-wheels when the drawer-latch is disengaged from the drawer to release the latter, substantially as described.

18. The combination of the reciprocating bars F, the indicator-wheels H geared to said bars and provided with the notched locking-disks I, the swinging locking-frame cooperating with said disks, the money-drawer C, the latch 54 therefor, the rotary disk 64 having the cam-groove 65, the reciprocating bar 60 cooperating at its lower end with the latch 54 and provided at its upper end with the plate 63 having the projection 66 fitting in the cam-groove 65, means intermediate the plate 63 and the locking-frame for causing the latter to be disengaged from the indicator-wheels by the movement of the plate 63 in one direction and to become reengaged with them at the movement of said plate in the opposite direction, the latch 68 cooperating with the bar 60, and the trip-lever 71 intermediate said latch and the money-drawer C, substantially as described.

19. The combination of the casing A having the hinged wall or door E, the locking-lever 76 cooperating with the catch 78 on said door, the reciprocating bar 60 having the projection 82, the lever 80 cooperating with said projection and with the lever 76, the rotary disk 64 having the cam-groove 65 in which fits the projection 66 on the bar 60, the money-drawer C, the latch-lever 54 cooperating therewith and with the lower end of the bar 60, the latch 68 cooperating with the bar 60, and the trip-lever 71 intermediate the drawer C and latch 68, whereby upon the release and opening of the drawer the locking-lever 76 is disengaged from the catch upon the door E, and whereby upon the closing of the drawer C said lever is reengaged with the catch, substantially as described.

20. The combination of the casing A having the hinged wall or door E provided with the window K, the reciprocating bars F mounted upon the inner face of said wall or door and having the racks and types, the indicator-wheels H also supported upon the inner face of said door opposite the window K and geared to the bars F, the knobs N connected to the bars F through the vertical slots in the wall E, and means for inking the types and pressing the paper strip against them, substantially as described.

21. The combination of the casing A having the hinged wall or door E having the window K, the reciprocating bars F mounted upon the inner face of said wall or door and provided with the types O and the series of notches, the springs O secured to said wall or door and cooperating with the notches, the indicator-wheels H supported upon the inner face of said wall or door opposite the window K and geared to the bars F, the operating-knobs N connected to the bars F through the vertical slots L, and the inking and impressing devices cooperating with the types upon the bars, substantially as described.

589,247. RAIL-JOINT. WILLIAM COOPER, Auburndale, Mass., assignor to the Johnson Company, Lorain, Ohio. Filed June 10, 1897. Serial No. 640,149. (No model.)



Claim.—1. In a rail-joint, the combination with the rails of a wedge below each rail and means for driving said wedge, and a pair of splice-bars which do not bear on that part of the flange of the track-rails which is above the wedges and which uphold a base member which bears against the under side of the wedges.

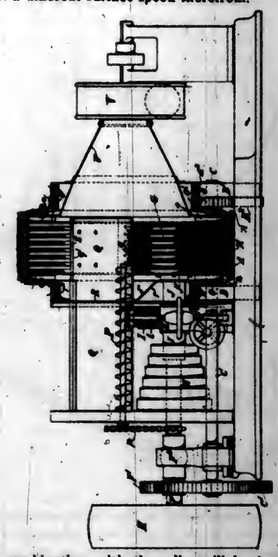
2. In a rail-joint, the track-rails and subrail beneath the ends thereof in combination with splice-bars which at their ends grip said track-rails and subrail so as to check upward or downward movement thereof but which at their central portion do not bear against the flanges of the track-rails, and means for exerting a separative pressure between either track-rail and the subrail.

3. The combination, in a rail-joint, of the track-rails and the subrail, the splice-bars engaging the said rails, the wedge between each track-rail and the subrail, and the set-screws and nuts for each wedge.

4. In a rail-joint, a splice-bar adapted to engage the under side of the head of the track-rail and the upper and lower portions of a subrail, and having that portion adapted to bear against the flange of the track-rail inclined upwardly from each end toward the center.

589,248. CRUSHING AND GRINDING MILL. WILLIAM H. COWARD, Erith, England. Filed May 13, 1896. Serial No. 591,330. (No model.) Patented in France Nov. 27, 1895, No. 252,033; in Belgium Nov. 28, 1895, No. 118,501, and in Cape Colony Dec. 5, 1895, No. 514.

Claim.—1. The herein-described roller-mill, consisting of a revolving drum having large trunnions and lateral lifting-cups, the cups at the one side being attached to the side of the drum and the cups at the other side being attached to a perforated gage-plate extending across the full area of the drum at a distance within the side of the drum so that clearance is left between the gage-plate and the side of the drum, and of an edge runner or roller revolving within the drum, the drum being geared with and driven positively from the roller-shaft and at a different surface speed therefrom.



2. The combination, with the roller-mill having a drum with a series of cups at each side, of a feed-trough and screw conveyer passing into the drum through the cover thereof, the trough being formed as described so as to act as a hopper outside the drum and as a chute within the drum and of an under chute attached below the trough and passing up between the two sets of cups, the double chute thus formed being in position to receive the material which falls from the cups and return it over the grinding-roller to the front thereof as described.

3. In the herein-described roller-mill, the perforated gage-plate extending across the whole area of the drum at the outlet side thereof and forming the backing of the cups at the side of the drum, the cups mounted on the inside of the gage-plate and the end of the drum dished outwardly from the gage-plate so as to leave clearance between it and the gage-plate in order that the effective area of the gage-plate shall correspond to the full internal diameter of the drum.

4. A grinding-mill having a driven rolling-drum, a roller located within the drum and bearing on the lower portion thereof, cups secured to each side of the drum and lifting the material upward from the roller, a trough projecting into the drum and feeding the material on one side of the roller, and a chute attached to the trough and extending upward between the two sets of cups, substantially as described.

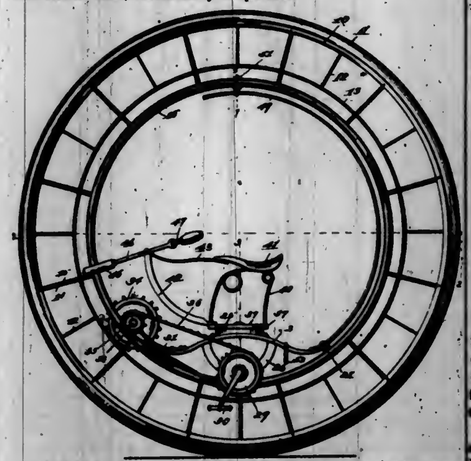
5. A grinding-mill having a rolling-drum, one side of which is slightly tapered, a roller located within the drum, a perforated gage-plate held within the drum and directly adjacent to the tapered side thereof, the diameter of the gage-plate being equal to the diameter of the drum, and a series of cups attached to the gage-plate and lifting the material upward from the roller, substantially as described.

6. A grinding-mill having a turning drum, a roller located within the lower portion of the drum, a perforated gage-plate located within the drum, the diameter of the gage-plate being equal to the diameter of the drum, and a series of cups carried by the gage-plate and lifting the material upward from the roller, substantially as described

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589,249. UNICYCLE. JACOB W. DORNSEIF and ORADIAH Y. MOSER, Worden, Ill. Filed Mar. 29, 1897. Serial No. 629,763. (No model.)

Claim.—1. In a device of the class described, a wheel-rim, spokes projecting inwardly from said wheel-rim, an endless rack attached to the inner ends of said spokes and in a position concentric with said wheel-rim, a second series of spokes projecting inwardly from said wheel-rim, a pair of rings 16 and 17 mounted one upon each side and a short distance inside of said endless rack and attached to the inner ends of said second series of spokes; said rings 16 and 17 being tubular and having the slots 18 and 19 formed from their inner faces, bearing-boxes mounted within said rings 16 and 17, balls mounted within said bearing-boxes and engaging the inner faces of said rings, posts projecting outwardly from said bearing-boxes through said slots, a seat mounted inside of said endless rack and attached to said posts, a pedal-shaft rotatably mounted and rigidly connected to the seat-frame, a counter-shaft mounted parallel with said pedal-shaft, a chain connecting said pedal-shaft with said counter-shaft and a toothed wheel upon said counter-shaft and engaging said endless rack, substantially as specified.



2. In a device of the class described, a wheel-rim, spokes projecting inwardly from said wheel-rim, an endless rack attached to the inner ends of said spokes in a position concentric with said wheel-rim, a pair of rings 16 and 17 mounted one upon each side and a short distance inside of said endless rack; said rings 16 and 17 being tubular and having the slots 18 and 19 formed from their inner faces; bearing-blocks mounted within said rings 16 and 17, balls within said bearing-blocks and engaging said rings, posts projecting outwardly from said bearing-blocks through said slots, a seat-frame attached to said posts, a seat, bearings forming a swiveled connection between said seat and said seat-frame, a pedal-shaft mounted in said seat-frame, a counter-shaft mounted in said seat-frame, connections between said pedal-shaft and said counter-shaft, a toothed wheel upon said counter-shaft and engaging said endless rack, a handle-bar mounted adjacent said seat, a three-armed pivoted lever attached to the base of the seat, two of the arms of said lever projecting forwardly upon opposite sides of said rings, and a handle-bar attached to the free end of the third arm of said lever and adjacent to said seat, substantially as specified.

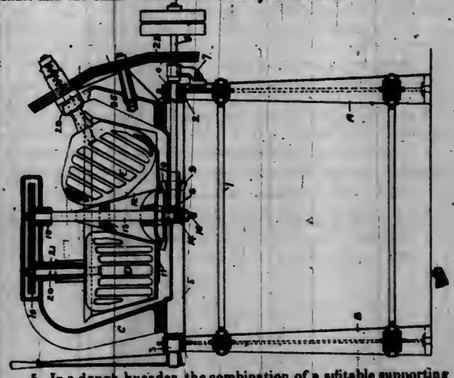
589,250. MACHINE FOR KNEADING DOUGH. LOUIS DURAND, New York, N. Y., assignor to Emilia Durand, Schraalenburg, N. J. Filed Aug. 17, 1895. Renewed May 7, 1897. Serial No. 635,604. (No model.)

Claim.—1. In a dough-kneader, the combination of a suitable supporting frame or standards, a dumping frame or table journaled therein, the dough-pan rotatably mounted upon the table, kneaders or stirrers mounted also upon said dumping-table, and means for operating the stirrers and pan, substantially as set forth.

2. In a dough-kneader, the combination of a suitable supporting frame or standards, a dumping frame or table formed with trunnions journaled therein, a rotatable pan journaled upon said dumping-table, suitable stirrers or kneaders also journaled in said dumping-frame, a driving-shaft journaled concentrically to the journals of the dumping-frame, and suitable gearing between said shaft and the pan and stirrers, substantially as set forth.

3. In a dough-kneader, the combination of a suitable supporting frame or standards, the dumping frame or table formed with supporting-trunnions journaled therein, a driving-shaft journaled in said dumping frame or table and extending out through one of the trunnions, a vertical rotary shaft journaled in said dumping-frame, a rotary pan rigidly secured to said shaft, a bevel-gear on said pan, a bevel-gear on the operating-shaft meshing with the gear on the pan, suitable stirrers working in the pan, and means for operating them, substantially as set forth.

4. In a dough-kneader, the combination of a suitable supporting frame or standards, the dumping frame or table formed with supporting-trunnions journaled therein, a rotatable pan mounted upon a vertical shaft which is journaled in said dumping-frame, a driving-shaft geared to the pan and journaled concentrically with the trunnions, a vertical stirrer and an inclined stirrer journaled in suitable bearings supported upon the dumping-table, gearing between the pan-supporting shaft and one of the stirrers, and gearing between the driving-shaft and the other stirrer, substantially as set forth.

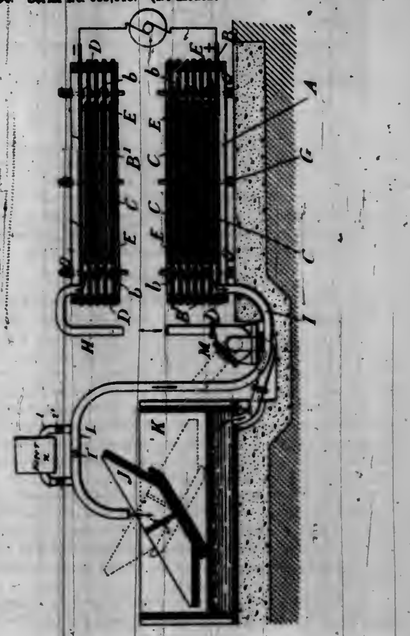


5. In a dough-kneader, the combination of a suitable supporting frame or standards, a dumping frame or table journaled therein, the dough-pan rotatably mounted upon the frame, kneaders or stirrers operatively mounted upon said dumping-table, inside of the pan, means for dumping the table carrying the pan, and means for locking the table in operative position, substantially as set forth.

6. In a dough-kneader, the combination of a suitable table or support, a vertical shaft journaled at its lower end in said table, a bracket extending up from said table and formed with a journal for upper end of said shaft, a pan mounted on the shaft, a suitable driving-shaft gearing directly with the pan, a vertical stirrer working in the pan and journaled in said bracket, gearing between said vertical stirrer and said shaft, an inclined stirrer also working in said pan and journaled in another bracket extending up from the table, and suitable gearing between the driving-shaft and said inclined stirrer, substantially as set forth

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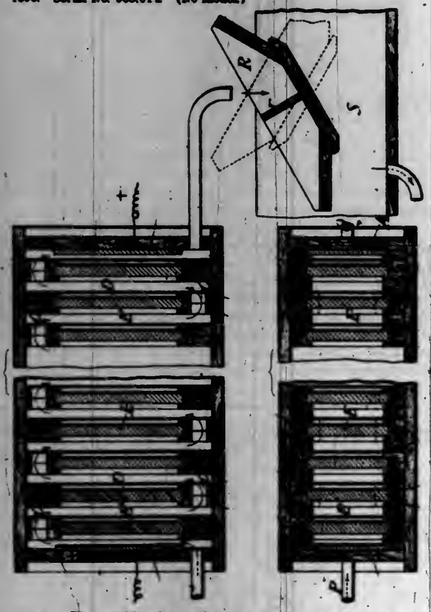
589,251. APPARATUS FOR REFINING METALS BY ELECTROLYSIS. JOHN O. S. ELMORE, Kapurthala, India. Filed Aug. 17, 1896. Serial No. 603,013. (No model.)



Claim.—1. The combination of a series of non-conducting frames and sheets of metal carrying plates of the crude material to be refined, said frames and sheets being piled over one another and clamped together, and said sheets having holes arranged in their alternate ends for the passage of an electrolyte liquid in a zigzag course between each plate and the sheet above it, and an electric circuit connected at its terminals to the lowest and uppermost sheet respectively, substantially as described and for the purpose specified.

2. The combination of a series of non-conducting frames and sheets of metal carrying plates of the crude material to be refined, said frames and sheets being piled over one another and clamped together, to form a tortuous passage for an electrolyte fluid, a tank, a rocking trough arranged in said tank, a pump communicating with said tank and with said tortuous passage, a discharge-pipe leading from the said tortuous passage to said rocking trough, and an electric circuit connected at its terminals with upper and lower sheets respectively, substantially as described and for the purpose specified.

589,252. APPARATUS FOR REFINING METALS BY ELECTROLYSIS. JOHN O. S. ELMORE, Kapurthala, India. Filed Aug. 17, 1896. Serial No. 602,014. (No model.)



Claim.—The combination with a closed tank, of a series of cross-frames arranged in said tank at intervals apart, plates or slabs of the metal to be refined inclosed within said frames, apertures arranged in the alternate ends of said frames, an anode-plate and outlet-pipe in one end of the tank, a cathode-plate and inlet-pipe at the other end of the tank, and an electric circuit connected at its terminals to said anode and cathode plates, substantially as described.

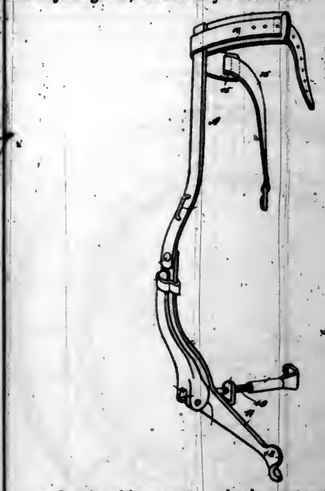
589,253. ANKLE-BRACE FOR SKATES. CARL EPPERSON, St. Joseph, Mich. Filed Jan. 27, 1897. Serial No. 620,966. (No model.)

Claim.—1. An ankle-support, consisting of a shank, a screw carried by the lower end of the shank, a claw adjustable on the said screw, an adjusting-arm connected with the screw, and a keeper for the arm and carried by the shank, as and for the purpose specified.

2. An ankle-support, consisting of a shank, a screw carried by the lower end of the shank, a claw adjustable on said screw, an adjusting-arm connected with the screw having a cam-surface at its connected ends engaging with the shank, and a keeper for the adjusting-arm, substantially as described.

3. An ankle-support, consisting of a shank arranged for engagement with one side of the sole of a boot or shoe, an adjustable claw connected with said shank and arranged for engagement with the opposite side of the sole, an adjusting-arm connected with said claw and means for locking said claw in its adjusted position, substantially as described.

4. In an ankle-support, a shank, an arm forwardly projected from the lower end of the shank, adapted for engagement with the sole of a boot or shoe, a claw carried by the rear end of the said arm, a screw held to turn in the lower end of the shank, a claw adjustable on the said screw and facing the claw of the arm attached to the shank, an adjusting-arm attached to the screw, and a keeper for the said adjusting-arm, substantially as described.



5. In an ankle-support, a shank constructed in pivotally-connected sections, the upper section being provided with a fastening device, a screw held to turn in the lower portion of the lower section, a claw adjustable on the said screw, a second claw projected rearward from the lower section of the shank and facing the adjustable claw, and means, substantially as described, for turning the screw and locking the same against turning, as and for the purpose set forth.

6. An ankle-support, consisting of a shank constructed in pivotally-connected sections, the upper section being provided with a fastening device, an arm projected forwardly and slightly rearwardly from the lower section of the shank, the forward end of the arm terminating in a jaw and the rear end in a claw, a screw held to turn in the lower portion of the lower section of the shank, a claw adjustable on the said screw, and means, substantially as described, for turning the screw and holding said screw against turning when an adjustment has been made, as and for the purpose set forth.

7. An ankle-support, consisting of a shank constructed in two sections pivotally connected, the upper section being provided with a fastening device, an arm extending from the lower portion of the lower shank-section at an angle thereto, projecting forwardly and rearwardly therefrom, terminating at its forward end in a jaw and at its rear end in a claw, a screw held to turn in the lower portion of the lower shank-section, a claw adjustably connected with the screw, facing the claw on the arm extending from the shank, an adjusting-arm attached to the said screw, and a keeper held to slide on the lower section of the shank, arranged for engagement with the aforesaid adjusting-arm, substantially as specified.

8. An ankle-support, consisting of a shank, a screw carried by the lower end of said shank, a claw adjustable on said screw, and adjusting and locking devices for said screw, substantially as described.

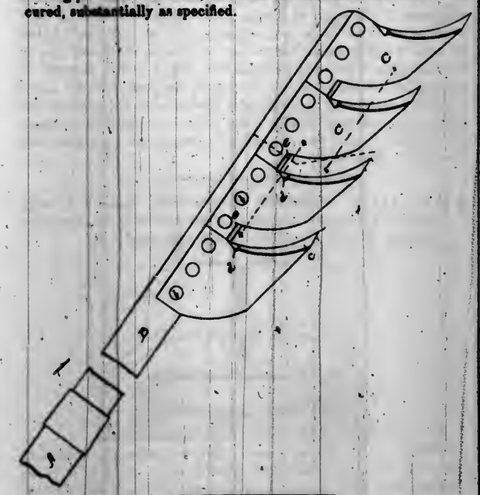
9. An ankle-support, consisting of a shank, clamping-arms integral with said shank and arranged for engagement with one side of the heel and sole of a boot or shoe, an adjustable claw extending through the lower end of said shank and at right angles to the aforesaid clamping-arms, said claw being arranged for engagement with the opposite side of the heel, an adjusting-arm connected with the said claw, and means for locking said claw in its adjusted position, as described.

589,254. ICE-TOOL. JOHN S. FIELD and WILLIAM J. SHEDD, Chicago, Ill. Filed May 28, 1896. Serial No. 593,405. (No model.)

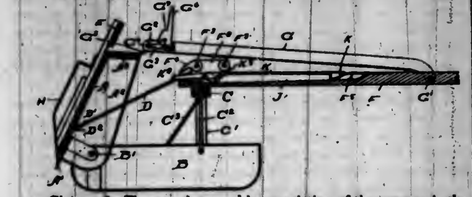
Claim.—1. The hand ice-tool provided with a series of teeth adapted to cut with a draw cut arranged in a straight line and provided with flanges upon one side of their front edges, such flanges tapering upwardly and inwardly, substantially as specified.

2. The hand ice-tool provided with a series of teeth adapted to cut with a draw cut arranged in a straight line and provided with flanges upon one side of their front edges, such flanges tapering upwardly and inwardly, said teeth being also provided with beveled cutting-points, substantially as specified.

3. The hand ice-tool consisting of a series of bevel-faced and pointed teeth C adapted to cut with a draw cut arranged in a straight line and also having upwardly-tapering flanges upon one side, a supporting-blade to which the teeth are attached made thinner than the cutting-points of the teeth, and a handle to which the blade is secured, substantially as specified.



589,255. SCRAPER FOR REMOVING SNOW, &c. JOHN S. FIELD and WILLIAM J. SHEDD, Chicago, Ill. Filed May 28, 1896. Serial No. 593,406. (No model.)



Claim.—1. The scraping-machine consisting of the scraper A, the runners B, the tongue supported upon said runners, and movable longitudinally thereon, a latch and shoulder for attaching the tongue to its supports, a slide K and lever K^3 for releasing said latch from the shoulder, and a draft connection between the rear side of the scraper A and the tongue, substantially as specified.

2. The combination with the scraper A of the draft-frame to which the scraper is pivoted and draft connections made adjustable by a screw and nut between the central portion of the scraper and said frame, substantially as specified.

3. The machine for scraping ice-fields &c., having a draft-frame a pivoted and reversible scraper A, provided with under runners H upon which it may ride with the gathered snow, a tongue releasably attached to the draft-frame and also attached to the rear of the scraper and adapted when released to overturn it by the forward movement of the horses, and means upon the tongue for locking the scraper in the riding position, substantially as specified.

4. The machine for scraping ice-fields &c., having a draft-frame a pivoted and reversible scraper A provided with under runners H, a tongue releasably attached to the draft-frame, and connections between said tongue and the rear of the scraper whereby the scraper may be dumped by the horses, and whereby the scraper may also be locked in position while carrying the load upon said runners, substantially as specified.

5. The combination with the draft-frame and the releasable scraper, of the draft-rods D pivotally attached at one end to the forward portion of the scraper, and adjustably attached at their other ends to the draft-frame, substantially as specified.

6. The combination with the draft-frame and the reversible scraper, of draft-rods D pivotally attached at one end to the forward portion of the scraper, and at their other ends to the frame by fastenings which permit the rods to slide in them, substantially as specified.

7. The combination of the draft-frame and the pivoted reversible scraper, of draft-rods D pivotally attached to the scraper, and attached to the draft-frame by means of plates through which the ends of the rods pass freely and nuts upon the ends of the rods, substantially as specified.

589,256. PROCESS OF MAKING INSULATING MATERIAL. JOHN GRAY and CHARLES H. CASE, South Manchester, Conn. Filed May 16, 1896. Serial No. 591,852. (No specimens.)

Claim.—1. The improved process of making an insulating material consisting in forming a mass of pulp to shape, heating the same in a bath of molten sulfur, and subsequently setting such article by immersion in a cold bath.

2. The improved process of making an insulating material consisting in forming a mass of pulp to shape, heating the same in a bath of molten sulfur, then subjecting the mass to heat under pressure, and subsequently setting such article by immersion in a cold bath.

589,257. AWNING. LOUIS T. HAGAN, Winchester, Ky., assignor, by mesne assignments, to the Anchor Supply Company, Evansville, Ind. Filed Mar. 9, 1897. Serial No. 626,640. (No model.)



Claim.—1. In an awning, the combination with a main supporting or guide bar, a socket or ring loose upon said bar and adapted to engage a pin on the sill of the window, a hook secured to said bar and adapted to engage an eye carried by the upper part of the frame of the window, substantially as described.

2. In an awning, the combination with a main supporting or guide bar, of two cross-arms pivotally connected intermediate their ends to said bar, and adapted to be turned on their pivots into a plane substantially parallel with said guide-bar, and an awning-frame and awning secured to said cross-arms, substantially as described.

3. In an awning, the combination with a main supporting or guide bar, of a cross-arm pivotally connected intermediate its ends to said bar near its upper end, a second cross-arm having a pivotal and vertically-movable connection intermediate its ends with said main supporting or guide bar, said cross-arms adapted to be turned on their pivots into a plane substantially parallel with said guide-bar, and an awning-frame and awning secured to said cross-arms, substantially as described.

4. In an awning, the combination with a main supporting or guide bar having means for detachable connection with a window-frame, of two cross-arms pivotally connected to said bar, rods pivotally connected to the lower of said cross-arms, a front cross-arm connecting said rods, and an awning secured to the upper cross-arm and the front cross-arm, substantially as described.

589,258. TOBACCO-PIPE. WILLIAM S. HANNAFORD, Pasadena, Cal. Filed Apr. 6, 1897. Serial No. 630,911. (No model.)



Claim.—1. A tobacco-pipe provided with a convolutional spiral passage connected at one end with the bowl and at the other end with the pipe-stem to cause the smoke to pass through the said convolutional spiral passage on its way from the bowl to the stem to cool and purify the smoke, substantially as shown and described.

2. A tobacco-pipe provided with a convolutional spiral passage having its wall disposed vertically and connected at its center with the bowl and at its outer end with the pipe-stem, to cause the smoke to pass through the passage on its way from the bowl to the stem, to cool and purify the smoke, substantially as shown and described.

3. A tobacco-pipe provided with a convolutional spiral passage having an inlet-opening at one end connected with the bowl and an exit-opening at the other end connected with the stem, whereby the smoke is caused to pass through the passage on its way from the bowl

to the stem to cool and purify the smoke, and an absorbent material over which the smoke passes during its travel through the spiral passage, substantially as shown and described.

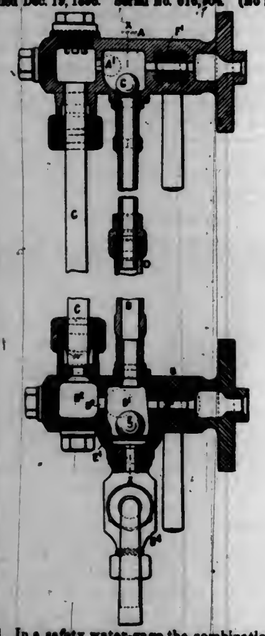
4. A tobacco-pipe comprising a bowl, a stem formed with a chamber and adapted to receive the said bowl, a convolutional spiral passage arranged in the said chamber and having its wall disposed vertically, the said passage being covered at the top and bottom, the center of the passage being connected with the outlets of the bowl, and the outer end of the passage being connected with an inclined end of the bore of the said pipe-stem, substantially as shown and described.

5. A tobacco-pipe comprising a bowl, a stem formed with a chamber and adapted to receive the said bowl, a convolutional spiral passage arranged in the said chamber and having its wall disposed vertically, the said passage having a cover at its top, the center of the passage being connected with the outlets of the bowl, and the outer end of the passage being connected with an inclined end of the bore of the said pipe-stem, and an absorbing material in the bottom of the said chamber and forming the bottom for the said passage, substantially as shown and described.

6. A tobacco-pipe comprising a bowl, a stem formed with a chamber and adapted to receive the said bowl, a convolutional spiral passage arranged in the said chamber and having its wall disposed vertically, the center of the passage being connected with the outlets of the bowl, and the outer end of the passage being connected with an inclined end of the bore of the said pipe-stem, a cover placed on the open top of the said passage and formed with a central aperture leading to the center of the spiral passage, to conduct the smoke from the outlet of the bowl to the center of the passage, and an absorbent material forming the bottom for the spiral passage, substantially as shown and described.

7. A tobacco-pipe comprising a stem formed with a chamber, a bowl removably connected with the said stem at the said chamber and formed in its bottom with outlet-openings leading to a recess in the under side of the bowl, a cover over the said chamber and forming a bottom for the said recess in the bowl, the cover being provided with a central opening, a convolutional spiral passage arranged in the said chamber directly under the said cover and connected at its middle with the opening in the cover, and at its outer end with the bore of the pipe-stem, and an absorbing material held in the bottom of the chamber and forming the bottom for the spiral passage, substantially as shown and described.

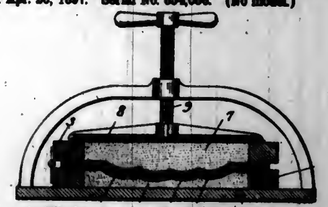
589,259. WATER-GAGE. JOSEPH HOPKINSON and JOHN LOWIS, Huddersfield, England, assignors to J. Hopkinson & Co., Limited, same place. Filed Dec. 19, 1896. Serial No. 616,204. (No model.)



Claim.—1. In a safety water-gage the combination of steam and water arms connected by a gage-glass C and a tube D, a try-cock connected to the water-arm, a chamber B' below the tube D, a ball-valve in said chamber, and thoroughfares forming communications between said chamber and the boiler, the tube D, the gage-glass, and the try-cock, substantially as described.

2. In a safety water-gage the combination of a steam-arm A and water-arm B connected by a gage-glass C and a tube D, a try-cock B^4 connected to the water-arm, a chamber B' in the water-arm below the tube D said chamber communicating with the boiler, the tube D, the gage-glass C and the try-cock B^4, a ball E in the chamber B' adapted to close the passage B^3 leading to the gage-glass, the top of said ball when resting on the floor of the chamber being below the level of the passage B^5 leading to the boiler, and a ball G in the steam-arm adapted to close the passage A' leading to the gage-glass, substantially as described.

589,260. EMBOSSING PHOTOGRAPHS. DURAN F. HULBERT, St. Louis, Mo., assignor to the Hulbert Bas Relief Company, same place. Filed Apr. 26, 1897. Serial No. 634,036. (No model.)



Claim.—1. The improvement in the art of embossing, which consists of taking a malleable-metal plate having a picture or design upon one of its sides, embossing said picture or design with embossing-tools and thus producing a pattern, placing plastic material against one side of said pattern and allowing said material to harden thus producing a form or die, placing a second malleable-metal plate against the first plate and pressing said plate firmly into the indentations of the first plate thus producing a second pattern, placing plastic material against one side of said second pattern and allowing said material to harden thus producing a second form or die, placing the copy to be embossed between said forms or dies and pressing said forms firmly together, substantially as specified.

2. In an apparatus or device for embossing photographs and the like, an embossing die or form consisting of a malleable-metal plate having a picture or design upon one of its sides, said plate being embossed to form a pattern, said pattern being outlined or indicated by said picture or design and said plate being backed by a mass of hardened plastic material, and an embossing die or form consisting of a malleable-metal plate adapted to be pressed firmly against the first-mentioned malleable-metal plate and backed by a mass of hardened plastic material, substantially as specified.

589,261. FLAGSTAFF-HOLDER FOR BICYCLES. GEORGE R. KOCH, Rutherford, N. J., and CARL REHN, Brooklyn, N. Y. Filed June 7, 1897. Serial No. 639,637. (No model.)

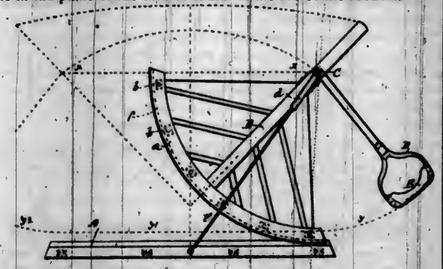


Claim.—1. The combination with a spring-clip comprising a circular part and two parallel parts, of a tubular member having an integral screw-stem and a nut thereon, and means for maintaining the relation of the tubular member to the spring-clip, substantially as and for the purposes set forth.

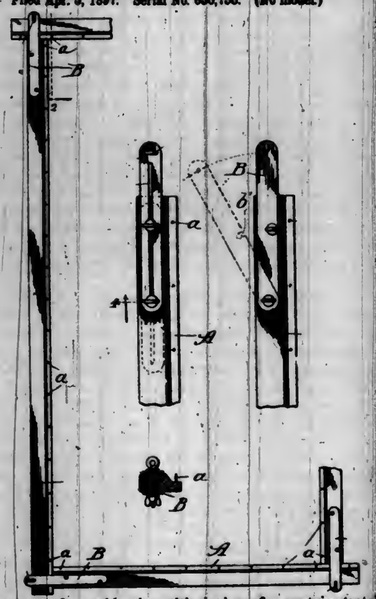
2. The combination with the spring-clip comprising a circular part and two parallel parts having openings therein in line with each other, the one being circular and the other square or six-sided, of a tubular member or socket for the staff, a screw-stem and head integral therewith, the head conforming in shape to the square or six-sided opening, and a nut upon the screw-stem for clamping the clip upon the cycle and holding the tubular member in the desired relation to the spring-clip, substantially as set forth.

589,262. ROCKING SWING. AUGUSTUS MATHEWS, Pawtucket, R. I., assignor to himself, and James B. Allen, Providence, R. I. Filed Jan. 23, 1896. Serial No. 576,585. (No model.)

Claim.—The combination of the rocking frame having its rockers formed in the arc of a circle, and the swing pivoted at the center of the circle of which the rockers are an arc, the supporting-track, and the slotted stop-rods connecting the central portion of the track with the rocking frame at points on oppoite sides of the frame which lie in the plane of the central radius of the arc of the rockers.



589,263. CURTAIN-STRETCHER. WALTER A. MAYR, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,756. (No model.)



Claim.—1. In combination with the bar of a curtain-stretcher, two clamping-plates at one end securely fastened to the bar, one on its upper and one on its lower surface and extending longitudinally thereto, and a bolt passing through the clamping-plates at a point sufficiently distant from the end of the bar to permit the insertion of a cross-bar, the bolt being provided with screw mechanism for tightening or loosening the clamping-plates, substantially as described.

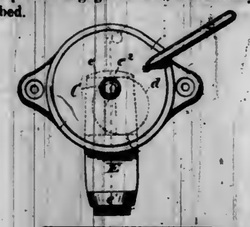
2. In combination with the bar of a curtain-stretcher, clamping-plates at one end securely fastened to the bar and extending longitudinally thereto, and a bolt passing through the clamping-plates at a point sufficiently distant from the end of the bar to permit the insertion of a cross-bar, the clamping-plates being adjustable longitudinally on the bar and the bolt being provided with screw mechanism for tightening or loosening the clamping-plates, substantially as described.

3. In a curtain-stretcher, the combination of bars forming framework, each of the bars being provided with two clamping-plates at one end, one on its upper and one on its lower surface, and extending longitudinally thereto for receiving and holding the bars extending at right angles thereto, and screw mechanism for compressing the outer ends of the clamping-plates to rigidly and firmly secure the bars in place, substantially as described.

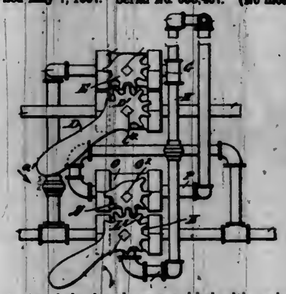
589,264. DOOR-STOP. JOHN R. MINOTT, Aurora, Ill. Filed Dec. 17, 1896. Serial No. 616,023. (No model.)

Claim.—1. The combination of a base plate, a sliding bolt, means for guiding the same in a straight line, a rotary part having an eccentric to actuate said bolt, and a stop-lug, on said part to engage the bolt, substantially as and for the purpose specified.

2. In a door-stop, the combination of a base-plate having a circular flange, a sliding bolt passing through a slot in the flange, a disk pivoted to said plate concentrically therewith and resting against said flange, an eccentric on said disk engaging shoulders on the bolt, the latter having a guide-slot engaged by the disk pivot, and a stop-lug on the disk, adapted to engage the bolt, substantially as and for the purpose described.



589,265. AIR-BRAKE ALARM-COCK. ADAM MCILVOSE, Albany, N. Y. Filed May 7, 1897. Serial No. 635,467. (No model.)



Claim.—1. An air-brake alarm provided with an angle-cock in the train-pipe containing a plug, a second or auxiliary cock also provided with a plug, a connection between the stems of said plugs, whereby the plugs are operated in unison, the plugs being so arranged that when one is opened the other is closed and vice versa, one end of said auxiliary cock being connected by a pipe with the signal-pipe, and the other end of the said auxiliary cock being connected by a pipe with the alarm to sound the latter when the train-pipe angle-cock is closed, substantially as shown and described.

2. An air-brake alarm, comprising a three-way cock in the signal-pipe, and an auxiliary cock opening and closing in unison with the closing and opening of the said signal-pipe cock, the auxiliary cock being connected with the alarm and with the signal-pipe, substantially as shown and described.

3. An air-brake alarm, comprising a three-way cock in the signal-pipe, an auxiliary cock opening and closing in unison with the closing and opening of the said signal-pipe cock, the auxiliary cock being connected with the alarm and with the signal-pipe, and a connection between the said three-way cock and the alarm, substantially as shown and described.

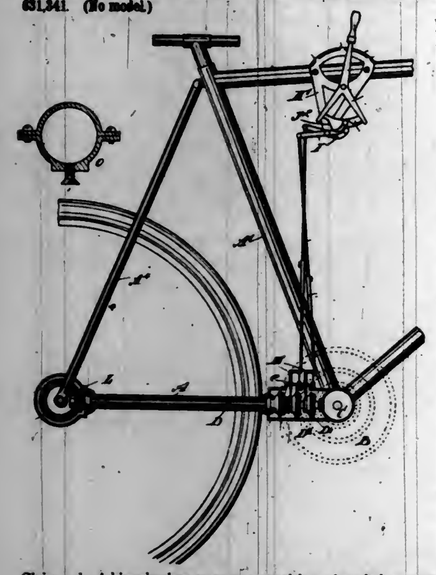
4. An air-brake alarm, comprising an angle-cock in the train-pipe containing a plug, a second or auxiliary cock located adjacent to the train-pipe angle-cock and also containing a plug, a segmental gear secured on the stem of one of said plugs, a handle secured on the stem of the other plug and formed with a segmental gear, the said gears being in mesh, whereby the plugs are operated in unison, the cocks being so arranged that when the angle-cock plug is opened the auxiliary plug is closed and vice versa, a connection between the auxiliary cock and the signal-pipe, and a connection between the auxiliary cock and the alarm, substantially as shown and described.

5. An air-brake alarm, comprising an angle-cock in the train-pipe, an auxiliary cock opening and closing in unison with the closing and opening of the said angle-cock, a three-way cock in the signal-pipe, and a second auxiliary cock opening and closing in unison with the closing and opening of the said three-way cock, a connection between the first auxiliary cock and the signal-pipe, and a connection between the signal-pipe cock and the alarm, a connection between the first auxiliary cock and the alarm, a connection between the second auxiliary cock and the alarm, and a connection between the second auxiliary cock and the signal-pipe, substantially as shown and described.

6. An air-brake alarm, comprising an angle-cock in the train-pipe, an auxiliary cock, means for operating the said cocks in unison, the cocks being so arranged that when one is opened the other is closed, the said auxiliary cock having connection with the signal-pipe and the alarm, a cock in the signal-pipe and connected with the

alarm, and a second auxiliary cock connected with the alarm and the signal-pipe, substantially as shown and described.

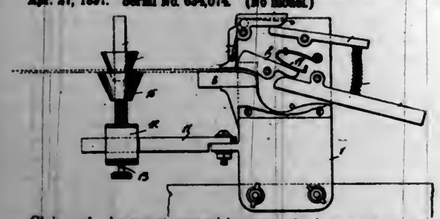
589,266. BICYCLE CHANGE-GEAR. BERNT T. NEDLAND and CHRISTIAN FREDRICHSON, Westby, Wis. Filed Apr. 9, 1897. Serial No. 631,341. (No model.)



Claim.—1. A bicycle change-gear, comprising a beveled gear attached to the crank-axle and having concentric rings of beveled teeth, a shaft having beveled pinions and means for connecting and disconnecting said pinions, comprising a pivoted lever having segment-arms composed of concentric and eccentric surfaces, the latter being non-registering on different arcs, levers having one end engaging said cam-surfaces and connections therefrom to the pinions.

2. A bicycle change-gear, comprising a beveled gear attached to the crank-axle and having concentric rings of beveled teeth, a shaft having beveled pinions, a plate secured to the bicycle-frame in front of the saddle, having a notched locking-quadrant, a shifting lever pivoted concentric with said quadrant and having segments thereon composed of concentric and eccentric sections, the eccentric sections being differently located on each, levers pivoted to said plate, each engaging at one end the surface of one of said segments and connections from the said levers to the pinions to shift them.

589,267. SAW-SET. HENRY NEIDHARDT, Brooklyn, N. Y. Filed Apr. 27, 1897. Serial No. 634,074. (No model.)



Claim.—1. A saw-set, comprising a standard, an anvil supported by the standard, a pivoted pressure-lever, a pivoted setting-dog operated by the lever, and a pivoted holding-lever having a spring connection with and operated by the pressure-lever, substantially as specified.

2. A saw-set, comprising a standard, an anvil supported by the standard, a pressure-lever pivoted in the standard, a setting-dog pivoted in the standard and operated by the pressure-lever, a holding-lever pivoted in the standard, a lever pivoted in the standard and engaging with the holding-lever, and a yielding connection between said lever and the pressure-lever, substantially as specified.

3. A saw-set, comprising a standard, an anvil supported by the standard, a setting-dog pivoted in the standard, means for rocking the dog, a spring for moving the dog in one direction, a pivoted holding-lever actuated in one direction by the means for rocking the dog, and a spring for moving the holding-lever in its open position, substantially as specified.

4. A saw-set, comprising a standard, saw-setting devices supported by the standard, an arm extended forward from the standard, a post adjustable along said arm, a saw-support adjustable on the post, and a conical centering-block mounted loosely on the post, substantially as specified.

589,268. ADJUSTABLE GAGE-BAR FOR RAILWAYS. PETER OLSON, Field, Canada. Filed June 4, 1897. Serial No. 639,389. (No model.)



Claim.—1. An adjustable gage-bar for railways, comprising two bars having hooks adapted to engage the outer edge of the rail-base, means for drawing the bars inward, bars sliding upon the first-named bars and engageable with the inner edges of the rail-base, and means for forcing said sliding bars outward, substantially as described.

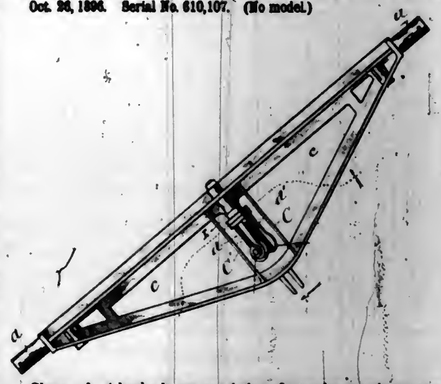
2. An adjustable track-bar for railways, comprising a set of bars having hooks upon one end adapted to engage the outer edge of the rail-base, and also having overlapping eyes upon their inner ends, a wedge fitting said eyes, a second set of bars slidable upon the first-named set of bars, and engageable at their outer ends with the inner side of the rail, and a wedge engageable with the inner ends of said bars to force them outward, substantially as described.

3. An adjustable track-bar for railways, comprising a set of bars having hooks upon one end adapted to engage the outer edges of the rail-base, also having overlapping eyes upon their inner ends, a wedge between said eyes, a second set of bars slidable upon the first-named set of bars by means of slots in one set and pins in the other, the outer ends of the second set of bars being engageable with the inner side of the rail and the inner ends of said bars being turned up to form a socket, and a wedge fitting said socket, substantially as described.

4. An adjustable track-bar for railways, comprising a set of two bars having hooks upon one end adapted to engage the outer edge of the rail-base, and overlapping eyes upon their inner ends, a wedge fitting said eyes, a second set of bars slidable upon the aforesaid bars by means of slots in one set and pins upon the other, the outer ends of the second set being engageable with the inner side of the rail, a wedge engageable with their inner ends to force them outward, and means for locking said wedges in place, substantially as described.

5. An adjustable track-bar for railways, comprising a set of two bars having hooks upon one end adapted to engage the outer edge of the rail-base, and overlapping eyes upon their inner ends, a wedge fitting said eyes, a second set of bars slidable upon the aforesaid bars by means of slots in one set and pins upon the other, the outer ends of the second set being engageable with the inner side of the rail, a wedge engageable with their inner ends to force them outward, said wedge having locking-holes, and pins fitting said holes and preventing withdrawal of the wedges, substantially as described.

589,269. BRAKE-BEAM. JOHN PLAYER, Topeka, Kans. Filed Oct. 26, 1896. Serial No. 610,107. (No model.)



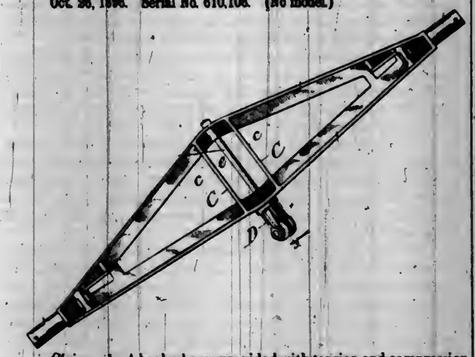
Claim.—1. A brake-beam, consisting of a tension member, a compression member, a strut portion interposed between the same, and bearing portions *a* formed of cast malleable iron in one integral portion, in combination with a rotatable lever-block arranged to adapt the beam for use either in a right or left hand position, substantially as described.

2. A brake-beam provided with tension and compression members formed in one integral casting, a rotatable lever-block rotatably secured to one of such members, with its other end free, and means to prevent the rotation of the lever-block when in operative position, substantially as described.

3. A brake-beam provided with tension and compression members formed in one integral casting, and a rotatable lever-block rotatably mounted on the compression member with its free end extending in the direction of the tension member, and means to prevent the rotation of the lever-block when in operative position, substantially as described.

4. A brake-beam provided with tension and compression members, one of such members having an irregular-shaped recess, a rotatable lever-block free at one end secured at opposite end in the irregular-shaped recess, and means for detachably securing the lever-block in position, substantially as described.

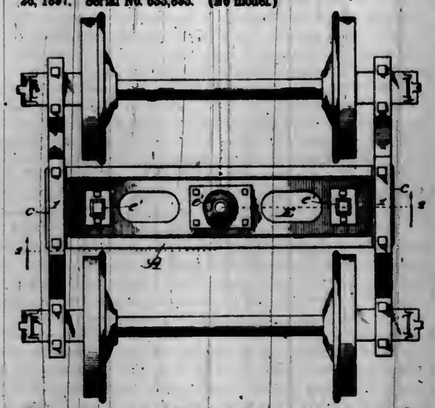
589,270. BRAKE-BEAM. JOHN PLAYER, Topeka, Kans. Filed Oct. 26, 1896. Serial No. 610,108. (No model.)



Claim.—1. A brake-beam provided with tension and compression members formed in one integral casting, the outer side of the tension member having an irregular-shaped portion, a rotatable lever-block provided with an irregular shaped portion fitting the irregular-shaped portion *d* of the tension member, and means for securing the rotatable lever-block to the tension member, substantially as described.

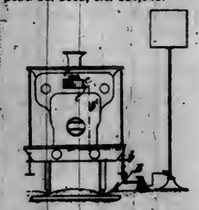
2. A brake-beam provided with compression and tension members formed in one integral casting, the tension member having an irregular-shaped recess in its outer side or surface, a rotatable lever-block provided with an irregular-shaped projection adapted to fit the recess of the tension member and be used in either a right or left hand position, and bolt mechanism arranged to pass through the lever-block and the truss members of the brake-beam to securely hold and tie the parts together, substantially as described.

589,271. CAR-TRUCK. JOHN PLAYER, Topeka, Kans. Filed Apr. 26, 1897. Serial No. 633,893. (No model.)



Claim.—As a new article of manufacture, a car-truck having a transom provided with vertical side bars, a spring-seat at each lower end thereof, a truck-head at each end having grooves in its upper and lower portion, a central perforated cross-piece connecting the lower portions of the side bars, and side strengthening-ribs all formed in one integral casting, substantially as described.

589,272. ARRANGEMENT FOR NOTIFYING AND RECORDING WAY-SIGNALS ON LOCOMOTIVES. GEORGES DE BENOIT-PUTVALLÉE and JOSEPH A. MEUNIER, Paris, France. Filed Apr. 25, 1896. Serial No. 589,108. (No model.) Patented in France Sept. 10, 1895, No. 250,178, and in Belgium Sept. 10, 1895, No. 117,373.



Claim.—1. The combination with a frame or casing, a shaft, a gong, means for sounding the gong from the shaft, an indicator, a disk carried on the shaft, operating mechanism for the indicator, a pin on the disk and capable of actuating the indicator-operating mechanism, and a rod connected to the disk and capable of moving the same, substantially as described.

2. The combination with a frame or casing, of an indicator, means for operating the indicator, a shaft carried by the frame or casing, a disk on the shaft, a pin fixed to the disk and engaging the indicator-operating mechanism, and means for operating the disk, substantially as described.

3. The combination with a frame or casing having an opening and a shutter slidable to close the opening, of a shaft carried by the frame or casing, a disk carried by the shaft and having an eccentric periphery, a lever mounted on the frame or casing and actuated by the disk, a rod connected to the lever and slidable to permit movement of the shutter, and means for operating the disk, substantially as described.

4. The combination of the bracket or support, a spring-pressed rod slidable thereon, a tappet pivoted to the support, a flexible connection extending from the tappet at each side of its pivot to the said slidable rod, and a spring connected to the said tappet to keep it in a central position substantially as described.

5. A locomotive-engine provided with a signal, an operating means connected to said signal and projecting from the engine to be actuated by a suitable part on the track, and an indicator located on the engine and connected to the signal-operating means whereby the number of times the signal is operated will be recorded or indicated upon the indicator, substantially as described.

6. A locomotive-engine, provided with a lamp, a colored slide or shutter adapted to register with the lamp, a locking and releasing device for said shutter, and operating means connected to said locking device and projecting from the engine to be actuated by a suitable part on the track, substantially as described.

7. A locomotive-engine, provided with a lamp, a colored slide or shutter adapted to register with the lamp, a locking and releasing device for said shutter, operating means connected to said locking device and projecting from the engine to be actuated by a suitable part on the track, and an indicator connected to the operating means to show the number of actuations thereof, substantially as described.

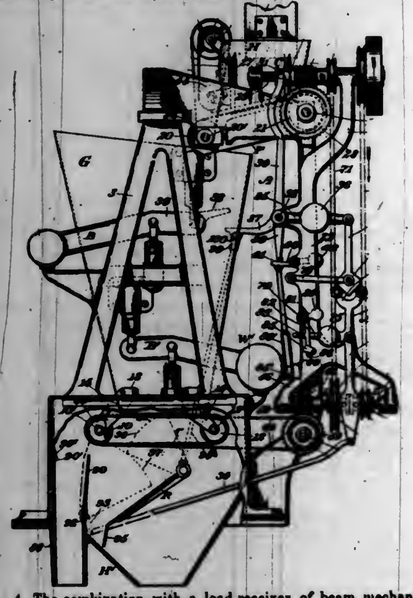
589,273. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 10, 1897. Serial No. 626,760. (No model.)

Claim.—1. The combination of weighing mechanism embodying a load-receiver; a supply-conveyer; a discharge-conveyer mounted on the load-receiver; and mechanism for driving the supply-conveyer to furnish the load-receiver with an overload, and then for stopping the supply-conveyer and for subsequently operating the discharge-conveyer in different directions, first, to remove the surplus, and then to remove the predetermined load.

2. The combination, with weighing mechanism including a load-receiver, of a carrier in position to deliver an overload to said load-receiver; a continuously-operative shaft; means controlled by the weighing mechanism, for coupling said shaft to and uncoupling it from the carrier; a conveyer mounted on the load-receiver; a shaft connected to said conveyer; two drivers mounted on said last-mentioned shaft and connected with the continuously-operative shaft; and means operative with the weighing mechanism, for successively coupling said drivers to their shaft on the stoppage of the carrier.

3. The combination, with weighing mechanism including a load-receiver, of a carrier in position for conducting a supply of material to the load-receiver for overloading the same; a continuously-oper-

stive shaft; gearing located between said shaft and the carrier, one of the members of the gearing being supported on said shaft; means operated by the weighing mechanism, for coupling said gear member to and uncoupling it from its supporting-shaft; a conveyer mounted on the load-receiver; pulleys secured to the continuously-operating shaft; a second shaft connected with said conveyer and having pulleys loose thereon and connected by belting with the first-mentioned pulleys; and means controlled by the weighing mechanism, for successively coupling said loose pulleys to their supporting-shaft when the gear member is uncoupled from its shaft.



4. The combination, with a load-receiver, of beam mechanism therefor; a carrier; driving mechanism for said carrier, embodying a clutch; a clutch-actuator; means operative with the beam mechanism, for shifting said clutch-actuator; a latch operative to engage and hold said clutch-actuator when shifted; and latch-tripping means also operative with the beam mechanism.

5. The combination, with a load-receiver, of beam mechanism therefor; a carrier; driving mechanism for said carrier, embodying a clutch; a self-operative clutch-actuator; means operative with the beam mechanism, for shifting said clutch-actuator in one direction; a latch located to engage and to hold said clutch-actuator when shifted; and latch-tripping means also operative with the beam mechanism.

6. The combination, with a load-receiver, of a pair of scale-beams therefor; a carrier; driving mechanism for said carrier, embodying a clutch; a clutch-actuator; means operative with one of said beams, for shifting said clutch-actuator; a latch located to engage said clutch-actuator when shifted; and means operative with the other beam, for tripping said latch.

7. The combination, with a load-receiver, of a pair of scale-beams therefor; a carrier; driving means for said carrier, embodying a clutch; a lever constitnting an actnator for said clutch; a projection on one of the scale beams, for engaging one of the arms of said lever to shift the same; a latch located to engage said lever when shifted; and connections between said latch and the other scale-beam.

8. The combination, with a load-receiver, of a pair of scale-beams therefor; a carrier; driving mechanism for said carrier, embodying a clutch; a lever constituting an actuator for said clutch; a projection on one of the scale-beams, adapted to engage one of the arms of said lever at a predetermined point to shift the same; a latch located to engage said lever when shifted; and a link connected to said latch and having a loop at one end, which embraces a pin on the other scale-beam.

9. The combination, with a load-receiver, of a pair of supporting scale beams therefor, one of which has a projection, and the other of which is provided with a pin; a carrier; driving mechanism for said carrier, embodying a clutch; a compound counterweighted lever constituting an actuator for said clutch, one of the arms of which is disposed in the path of movement of said projection; a latch pivoted to the framework and adapted to engage said compound lever at a predetermined point; a link pivoted to said latch and having a loop at its lower end, which embraces said pin.

10. The combination, with weighing mechanism including a load-receiver, of overloading means operable for delivering to said load-receiver a supply of material in excess of the predetermined load; a conveyer mounted on the load-receiver and having two distinct stages of operation, on the first of which it is adapted to remove the surplus from the load-receiver, the residue constituting the true load, and on the second of which it is adapted for removing said load; and driving mechanism for said conveyer.

11. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on said load-receiver; two drivers for said conveyer; and means for successively throwing said drivers into operative relation with the conveyer.

12. The combination, with weighing mechanism having load-reducing and load-discharging periods and including a load-receiver, of a conveyer mounted on said load-receiver; and driving mechanism for operating said conveyer at different speeds, respectively, during the load-reducing and load-discharging periods.

13. The combination, with weighing mechanism having load-reducing and load-discharging periods and including a load-receiver, of a conveyer mounted on said load-receiver; and driving mechanism for operating said conveyer at fast and slow speeds during the load-reducing and load-discharging periods, respectively.

14. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on said load-receiver; a shaft connected with said load-receiver and supporting two loose differential pulleys thereon; means for driving said pulleys; and instrumentalities for successively coupling said pulleys to their supporting-shaft.

15. The combination, with weighing mechanism including a load-receiver, of overloading means; a combined load-reducing and load-discharging conveyer mounted on the load-receiver; driving mechanism for operating said conveyer; and a duplex hopper, the respective branches of which are situated to receive material removed from the load-receiver by said conveyer.

16. The combination, with weighing mechanism including a load-receiver, of overloading means; a combined load-reducing and load-discharging conveyer mounted on the load-receiver; driving mechanism for operating said conveyer; a duplex hopper situated to receive material removed from the load-receiver by said conveyer; and means for controlling the passage of material into the branches of the duplex hopper.

17. The combination, with weighing mechanism embodying a load-receiver, of overloading means therefor; a combined load-reducing and load-removing conveyer mounted on the load-receiver; driving mechanism for said conveyer; a duplex hopper the branches of which are situated to receive material removed from the load-receiver by said conveyer; and a shiftably-supported deflector adapted to control the passage of material from said branches and governed by the driving mechanism.

18. The combination, with weighing mechanism including a load-receiver; of a carrier and its driving mechanism, embodying a clutch; a clutch-actuator; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; and a stop normally adapted for holding the last-mentioned clutch-actuator against movement and connected with the first-mentioned clutch-actuator.

19. The combination, with weighing mechanism including a load-receiver, of a carrier; driving mechanism for said carrier, embodying a clutch; a clutch-actuator having a pendent bar connected therewith and also with the framework; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; and a clutch-actuator having a portion thereof bifurcated, said bifurcated portion being coöperative with the pendent bar.

20. The combination, with weighing mechanism including a load-receiver, of a carrier; driving mechanism for said carrier, embodying a clutch; a clutch-actuator having a pendent bar connected therewith and also with the framework by a link, the head of said bar being wedge-shaped; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; and a clutch-actuator having a portion thereof bifurcated, said bifurcated portion being co-operative with the wedge-shaped head of said pendent bar.

21. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying a clutch; a clutch-actuator; means operative with the weighing mechanism, to shift said clutch-actuator; and a latch adapted to engage said clutch-actuator when shifted.

22. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on said load-receiver; a shaft having two drivers thereon; an actuator coöperative with said drivers; means operative with the weighing mechanism, for shifting said actuator; and a latch adapted to engage said actuator when shifted.

23. The combination, with a load-receiver, of a scale-beam therefor: a conveyer mounted on the load-receiver; driving mechanism for said conveyer, having two clutches constituting a part thereof; drivers connected with the movable clutch members; a clutch-actuator: means for engaging said clutch-actuator, to shift it in one direction; a latch operative for engaging said actuator when shifted; and latch-tripping means operated by said beam, whereby the clutch-actuator is released.

24. The combination, with a load-receiver and with supporting-beam mechanism therefor, of a carrier; driving mechanism for said carrier, embodying a clutch; a clutch-actuator; a conveyer mounted on the load-receiver; driving mechanism for said conveyer, embodying two clutches, the movable members of which are located intermediate the two fixed members thereof; and means for simultaneously centering said movable clutch members, said centering means being operative with the clutch-actuator.

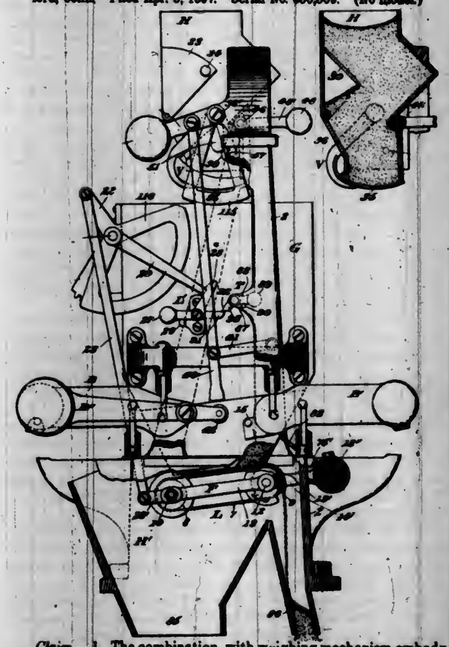
25. The combination, with weighing mechanism embodying a load-receiver, of a conveyer mounted on said load-receiver; driving mechanism for said conveyer; an actuator coöperative with one of the drivers of said driving mechanism; a duplex hopper; a valve for regulating the passage of material into the branches of said hopper; and connections between said valve and actuator.

26. The combination, with weighing mechanism embodying a load-receiver; of a duplex hopper, the respective branches of which are situated to remove material discharged from the load-receiver; a valve controlling the passage of material to said branches; a regulator positioned to be acted upon by the load discharged from the load-receiver; and means operative with said regulator, for blocking the action of said valve.

27. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on said load-receiver; a duplex hopper, the branches of which are situated to receive material removed from said load-receiver by the conveyer; a regulator located to be acted upon by the load discharged from said load-receiver; and means operative with said regulator, for blocking the action of said valve.

28. The combination, with weighing mechanism including a load-receiver, of a conveyer mounted on said load-receiver; a driver for said conveyer; an actuator operative for throwing the driver into operative connection with said conveyer; a duplex hopper, the branches of which are situated to receive material removed from the load-receiver by said conveyer; a valve controlling the passage of material into said branches and connected with said actuator; a regulator located to be acted upon by the material discharged from the load-receiver; and means operative with said regulator, for blocking the action of said valve.

589,274. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 3, 1897. Serial No. 630,509. (No model.)



Claim.—1. The combination, with weighing mechanism embodying a conveyer; of means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

2. The combination, with weighing mechanism embodying a load-receiver, of a conveyer mounted on said load-receiver; and means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

3. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a conveyer situated to close said outlet; and means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

4. The combination, with weighing mechanism including a load-receiver having an outlet, of a conveyer shiftably connected with the load-receiver and adapted normally to close said outlet; and means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

5. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a counterweighted conveyer situated to close said outlet; and means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

6. The combination, with weighing mechanism including a load-receiver having a discharge-outlet; of an endless conveyer mounted on the load-receiver, the upper run of said conveyer being situated adjacent to the load-receiver; and means controlled by the weighing mechanism, for driving said conveyer in opposite directions.

7. The combination, with weighing mechanism comprehending a conveyer; of driving mechanism for said conveyer, including a pair of drivers operative in reverse directions; and means controlled by the weighing mechanism, for successively throwing said drivers into operative connection with the conveyer.

8. The combination, with weighing mechanism comprehending a conveyer; of driving mechanism for said conveyer, embodying two reversely-rotative drivers; and means controlled by the weighing mechanism, for successively throwing said drivers into operative connection with the conveyer.

9. The combination of weighing mechanism comprehending a conveyer; driving mechanism for said conveyer, including two continuously and reversely operative drivers; and means controlled by the weighing mechanism, for successively throwing said drivers into operative connection with the conveyer.

10. The combination of weighing mechanism comprehending a conveyer; driving mechanism for said conveyer, including two reversely-operative drivers; a clutch; and means controlled by the weighing mechanism, for successively coupling said clutch to said drivers.

11. The combination, with weighing mechanism comprehending a conveyer; of means controlled by the weighing mechanism, for driving said conveyer in reverse directions; and a duplex hopper coöperative with the conveyer.

12. The combination, with weighing mechanism comprehending a conveyer, of a duplex hopper the respective branches of which are situated below the two ends of the conveyer; and means controlled by the weighing mechanism, for driving said conveyer in reverse directions.

13. The combination, with weighing mechanism embodying a load-receiver, of overloading means therefor; a conveyer mounted upon the weighing mechanism; and means controlled by the weighing mechanism, for driving said conveyer in reverse directions.

14. The combination, with weighing mechanism comprehending a load-receiver having a discharge-outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for the discharge-outlet; a driver; and means controlled by the conveyer, for throwing the driver into operative connection therewith.

15. The combination, with weighing mechanism comprehending a load-receiver having a discharge-outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for the discharge-outlet; a driver; a slide coöperative with the driver; and means connected with the conveyer or closer, for operating said slide.

16. The combination, with weighing mechanism comprehending a load-receiver having a discharge-outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for the discharge outlet; a shaft carrying a driver, said shaft being connected with the conveyer; a clutch; an actuator for said clutch; and a slide for operating said actuator, said slide being operated by a device connected with the conveyer.

17. The combination, with weighing mechanism comprehending a load-receiver having a discharge-outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for the discharge-outlet; a driver for the conveyer; a clutch; an actuator for said clutch; a slide provided with pins between which the actuator is disposed; and means connected with the conveyer, for operating said slide.

18. The combination, with weighing mechanism comprehending a load-receiver having a discharge-outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for said discharge-outlet; a driver; a slide coöperative with the driver; a lever on the load-receiver, connected with said slide; and a device connected with the closer, for imparting a blow to said lever.

19. The combination, with weighing mechanism comprehending a discharge outlet, of a conveyer shiftably connected with the load-receiver and constituting a closer for the discharge-outlet; a driver; a slide cooperative with the driver and carried by the framework; a link pivoted to said slide; an elbow-lever mounted on the load-receiver and connected with said link; and a device cooperative with the closer, for imparting a blow to said lever.

20. The combination, with weighing mechanism comprehending a conveyer; of driving mechanism for said conveyer, including two drivers; a clutch; an actuator for said clutch; a stop for holding the actuator in an ineffective position; a spring adapted to operate the actuator to force it to throw the clutch into engagement with one of the drivers; and means for subsequently throwing the clutch into connection with the other driver.

21. The combination, with weighing mechanism comprehending a conveyer; of driving mechanism for said conveyer, including two drivers; a clutch; an actuator for said clutch; a pin from which the actuator is loosely suspended; a lever against one arm of which a lug on said actuator is adapted to bear; and a device on the load-receiver, for operating said lever.

22. The combination, with weighing mechanism comprehending a conveyer; of driving mechanism for said conveyer, including two drivers; a clutch; an actuator for said clutch; a pin from which the actuator is loosely suspended; a slide having pins between which said actuator is disposed; a spring bearing against one of the last-mentioned pins; a weighted lever on the support for the actuator; a lug on the actuator, bearing against one of the arms of said lever; and means on the load receiver, for operating said lever.

23. The combination, with weighing mechanism including a load-receiver having a closer connected to said load-receiver for shifting movement relatively thereto, of overloading means; and means for first operating the closer, to cause it to remove the surplus from the load-receiver, the remainder in the latter constituting the true load, and for subsequently operating the closer to effect the removal of the true load.

24. The combination, with weighing mechanism including a load-receiver provided with a closer, of a centrifugal retarding device; and gearing situated between and cooperative, respectively, with the retarding device and closer.

25. The combination, with weighing mechanism including a load-receiver provided with a closer; of a shaft having a gear, said shaft being connected with the closer; a pinion meshing with said gear; and a governor connected with the pinion.

26. The combination, with weighing mechanism including a load-receiver provided with a closer; of a shaft carrying a gear, said shaft being connected with the closer; a hub on the load-receiver; a pinion meshing with said gear; a governor; and arms connected with the pinion, said arms being adapted frictionally to engage said hub.

27. The combination, with weighing mechanism embodying a load-receiver having a discharge-outlet; of a conveyer mounted on the load-receiver, for shifting movement and constituting a closer for said outlet; and means cooperative with the conveyer, for retarding the action thereof.

28. The combination, with weighing mechanism embodying a load-receiver, of a conveyer mounted on the load-receiver; a shaft also supported by the load-receiver and having a sector-gear; a pinion meshing with said sector-gear; a hub on the load-receiver; a shaft having a pinion passing through said hub and load-receiver; arms connected with the pinion and passing through apertures therein, said arms being adapted to frictionally engage said hub; and balls secured to said arms.

589,275. AUTOMATIC WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 23, 1897. Serial No. 633,506. (No model.)

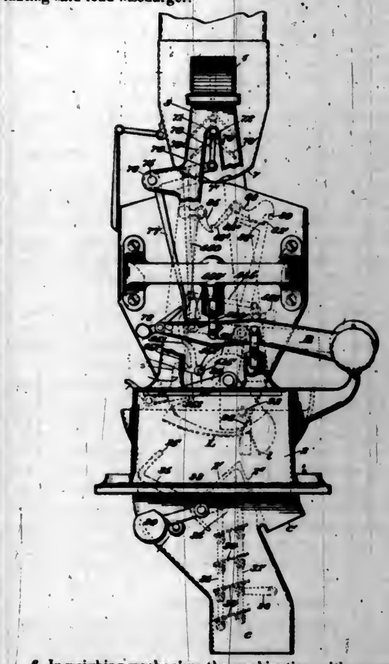
Claim.—1. In weighing mechanism, the combination of a load-discharger adapted to discharge an entire completed load and having material-discharging movements and an intermediate movement during a single cycle of operation of said mechanism, and means for actuating said load-discharger.

2. In weighing mechanism, the combination of a reciprocatory load-discharger adapted to discharge an entire completed load and having material-discharging movements and an intermediate return movement during a single cycle of operation of said mechanism, and means for actuating said load-discharger.

3. In weighing mechanism, the combination of an oscillatory load-discharger adapted to discharge an entire completed load and having material-discharging movements and an intermediate return movement during a single cycle of operation of said mechanism, and means for actuating said load-discharger.

4. In weighing mechanism, the combination of a reciprocatory load-discharger having opposite material-discharging movements and an intermediate movement in a common path during a single cycle of operation of said mechanism, and means for actuating said load-discharger.

5. In weighing mechanism, the combination of a reciprocatory load-discharger having opposite differential material-discharging movements and an intermediate movement in a common path during a single cycle of operation of said mechanism, and means for actuating said load-discharger.



6. In weighing mechanism, the combination, with a counterpoised load-receiver having discharge-outlet; of a closer for said outlet, supported and operable for successive material-discharging movements and adapted to have an intermediate movement to close the outlet, whereby the load may be discharged first slowly and then rapidly, and whereby also such load may first be reduced and afterward entirely discharged.

7. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; a closer for said load-receiver, having a plurality of discontinuous movements for uncovering said discharge-opening during a single cycle of operation of the weighing mechanism, and means for actuating said closer.

8. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; a closer for said load-receiver, having discontinuous differential load-reducing and load-discharging movements during a single cycle of operation of the weighing mechanism; and means for actuating said closer.

9. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; closing means for said load-receiver, having opposite opening movements for uncovering said discharge-opening from opposite ends thereof during a single cycle of operation of the weighing mechanism; and means for actuating said closing means.

10. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; and an oscillatory closer therefor having opposite material-discharging movements during a single cycle of operation of the weighing mechanism, and also having its axis of movement at one side of the center of the path of discharge of the load; and means for actuating said closer.

11. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; an oscillatory closer for said load-receiver, having load-reducing and load-discharging movements in opposite directions during a single cycle of operation of the weighing mechanism, and also having its axis of movement at that side of the center of the path of discharge of the load nearest the load-reducing end of the closer; and means for actuating said closer.

12. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; closing means for said load-receiver, having material-discharging movements and an intermediate movement in a common path during a single cycle of operation of the weighing mechanism; and an actuating member for imparting one of said movements to the closing means.

13. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; closing means for said load-receiver, having load-reducing and load-discharging movements and an intermediate movement in a common path during a single cycle of operation of the weighing mechanism; and an actuating member for imparting said load-reducing movement to the closing means.

14. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; closing means therefor having material-discharging movements and an intermediate movement in a common path during a single cycle of operation of the weighing mechanism; and a fixed actuating member in position for imparting one of said movements to the closing means during one of the movements of the load-receiver.

15. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; closing means therefor having opposite load-reducing and load-discharging movements and an intermediate movement in a common path during a single cycle of operation of the weighing mechanism; and a fixed actuating member for imparting said load-reducing movement to the closing means during the descent of the load-receiver.

16. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; and an oscillatory closer therefor oppositely movable for reducing and discharging the load, and having a curved load-supporting face eccentric to its axis of movement.

17. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; and an oscillatory closer therefor oppositely movable for reducing and discharging the load, and having a stream-director at the load-reducing side thereof.

18. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; and an oscillatory closer therefor oppositely movable for reducing and discharging the load, and having a stream-directing chute at the load-reducing side thereof.

19. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; a reciprocatory closer therefor oppositely movable for reducing and discharging the load; closer-latching means for latching the closer in its closed and load-reducing positions successively; and latch-tripping means operative on the ascent of the load-receiver.

20. The combination, in weighing mechanism, of a load-receiver having a discharge-opening therein; a reciprocatory closer therefor oppositely movable for reducing and discharging the load; a pair of stops movable in unison with the closer; a by-pass latch for engaging said stops successively to latch the closer in its closed and load-reducing positions, respectively; and a by-pass-latch tripper operative on the ascent of the load-receiver.

21. In a weighing-machine, the combination, with stream-supplying means, of a valve; a load-discharger; a valve-opening actuator; a valve-opening thrust-rod; and reciprocally-effective valve-opening-movement and load-discharging-movement limiters operative, respectively, with the load discharger and with the valve-opening thrust-rod.

22. In a weighing-machine, the combination, with stream-supplying means, of a valve; a load-receiver; a closer; a valve opening actuator; a valve-opening thrust-rod; reciprocally-effective valve-opening-movement and closer-opening-movement limiters operative, respectively, with the closer and with the valve-opening thrust-rod; and a fixed locking-stop in position and adapted to lock the closer-opening-movement limiter against movement while the closer is open.

23. In weighing mechanism, the combination, with framework, of a load-receiver having a closer; and a counterweighted closer-locking regulator supported on the framework and having a closer-locking arm adapted for holding the closer open while the regulator is in its regulating position.

24. In a weighing mechanism, the combination, with framework, of a load-receiver having a closer; a counterweighted closer-locking regulator supported on the framework and having a closer-locking arm adapted for holding the closer open while the regulator is in its regulating position; and a by-pass stop carried by the closer and adapted to be engaged by the arm on the regulator.

25. In weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a counterweighted oscillatory carrier and a series of superposed connected regulator-blades pivotally connected with the carrier at different points relatively to the axis of the latter.

26. In weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a counterweighted oscillatory carrier and a series of superposed connected regulator-blades pivotally connected with the carrier at different distances from the axis of the latter.

27. In weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a rock-shaft, rock-arms adjacent to opposite ends of said rock-shaft, a pair of connecting-rods pivoted to the rock-arms at each end of said rock-shaft, and parallel regulator-blades pivoted at their ends to the connecting-rods of each pair.

28. In weighing mechanism, the combination, with a supply-spout, beam mechanism, and a load-receiver, of a self-closing valve located within said supply-spout in the path of the material flowing through the spout, said valve having its closing movement controlled by the descent of the beam mechanism.

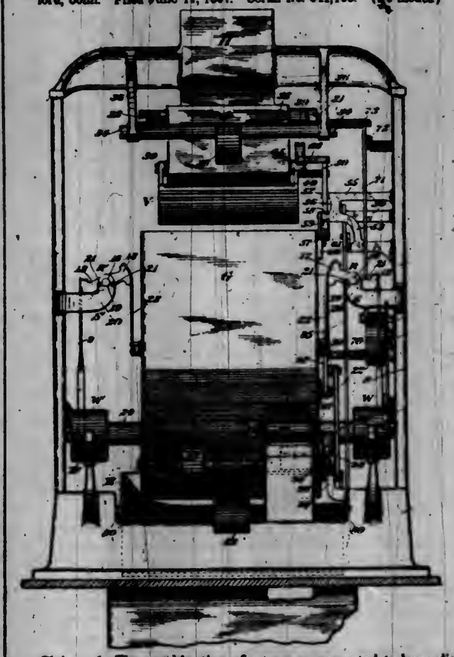
29. In weighing mechanism, the combination, with a supply-spout, of a valve located within the supply-spout in the path of the material flowing through the spout and reciprocatory toward and from the discharge end of the latter; and a superposed fixed stream-supporting member for relieving the pressure on the valve.

30. In weighing mechanism, the combination, with a supply-spout, of a steam-deflecting valve located within the supply-spout in the path of the material flowing through the spout and reciprocatory toward and from the discharge end of the latter; and a superposed fixed stream-supporting member for relieving the pressure on the valve.

31. In weighing mechanism, the combination, with a supply-spout having a discharge-opening of relatively small area; of a valve located within the supply-spout, above said discharge-opening and disposed substantially centrally of the spout in the path of the material flowing through the latter and reciprocatory toward and from said discharge-opening; and a superposed fixed stream-supporting member for relieving the pressure on the valve.

32. In weighing mechanism, the combination, with a supply-spout having a discharge-openieg of relatively small area; of an inverted-V-shaped valve located in the supply-spout, above said discharge-opening and disposed substantially centrally of the spout in the path of the material flowing through the latter and reciprocatory toward and from said discharge-opening; and a superposed fixed stream-supporting member for relieving the pressure on the valve.

589,276. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed June 17, 1897. Serial No. 641,168. (No model.)



Claim.—1. The combination of a hopper supported to have distinct stages of operation in the same direction; a device for controlling the discharge of material from said hopper; and means cooperative, respectively, with the hopper and said device for successively causing the operation of the latter on the series of movements and by the power of the hopper.

2. The combination of a hopper supported to have distinct stages of operation in the same direction; a device connected with the hopper for controlling the discharge of material therefrom; and means cooperative, respectively, with the hopper and said device for succes-

sively causing the operation of the latter on the series of movements and by the power of said hopper.

3. The combination of a hopper supported to have distinct stages of operation in the same direction; a device for controlling the discharge of material therefrom and pivoted to the hopper; and means coöperative, respectively, with the hopper and said device for successively causing the operation of the latter on the series of movements and by the power of said hopper.

4. The combination of a hopper supported to have distinct stages of descending movement; a device for controlling the discharge of material from said hopper; and means coöperative, respectively, with the hopper and said device for successively causing the operation of the latter on the series of movements and by the power of said hopper.

5. The combination of a hopper supported for reciprocation and also to have distinct stages of operation on its descending movement; a device for controlling the discharge of material from the hopper; and means coöperative, respectively, with the hopper and said device for successively causing the operation of the latter on the series of descending movements and by the power of said hopper.

6. The combination of a hopper supported to have distinct stages of operation in the same direction; a valve; and means coöperative, respectively, with the hopper and valve for successively causing the operation of the latter on the series of movements and by the power of said hopper.

7. The combination of a hopper supported to have distinct stages of operation in the same direction; a valve connected with the hopper; and means coöperative, respectively, with the hopper and valve for successively closing and then opening the valve on the series of movements and by the power of the hopper.

8. The combination of a hopper supported to have distinct stages of operation in the same direction; a valve; and means coöperative, respectively, with the hopper and the valve for successively causing the operation of the latter on the series of movements and by the power of said hopper; and means for returning the hopper to its primary position after its second period of operation.

9. The combination of weighing mechanism; a hopper supported for movement; a valve; means coöperative, respectively, with the hopper and valve for causing the operation of the latter on the movements and by the power of said hopper; a device mounted independently of the weighing mechanism and shiftable thereby for returning the hopper to its primary position; and a latch for holding the said device in its shifted position.

10. The combination of weighing mechanism; a hopper supported for movement; a valve; means coöperative with the hopper and valve for causing the operation of the latter on the movements and by the power of said hopper; a device mounted independently of the weighing mechanism and shiftable thereby for returning the hopper to its primary position; a latch for engaging said device when in its shifted position; a load-receiving regulator situated below the weighing mechanism; and means coöperative with said regulator for tripping the said latch.

11. The combination of a load-receiver; a scale-beam; a movably-mounted hopper; a valve; means coöperative, respectively, with the hopper and the valve for causing the operation of the latter on the movements and by the power of said hopper; an actuator supported independently of the weighing mechanism; a link pivoted to the scale-beam and having a loop at one end embracing a projection on said actuator thereby to shift the latter on the movement of the scale-beam; a latch for engaging said actuator when in its shifted position; and means for tripping said latch.

12. The combination of weighing mechanism; a regulator situated below the same; a movably-mounted hopper; a valve having arms furnished with projections; movably-mounted detents on which said projections are adapted successively to rest; and means coöperative, respectively, with the weighing mechanism and the regulator for successively tripping said detents.

13. The combination of a movably-mounted hopper; an arm connected therewith and provided with a projection; an actuator; a rod connected with the actuator, the upper end of said rod being adapted to engage said projection; means for shifting and for holding said actuator in its shifted position; a valve for the hopper, provided with an arm furnished with a projection; a detent on which said last-mentioned projection is adapted normally to rest, thereby to hold the hopper; and means for releasing said hopper.

14. The combination of a movably-mounted hopper; a valve for said hopper, having oppositely-disposed arms furnished with projections; a series of detents alternately disposed and adapted to be successively engaged by said projections, one of said projections being fixed to the framework and the others being movably mounted; and means for successively tripping said movably-mounted detents.

15. The combination of weighing mechanism including a load-receiver; a movably-mounted hopper provided with a valve having an arm furnished with a projection; a detent on which said projection normally rests; and a link connected with the load-receiver for tripping said detent.

16. The combination of a movably-mounted hopper having a valve; weighing mechanism including a load-receiver; an arm fixed to the valve, provided with a projection; a detent on which said projection normally rests and having an angular arm; a link pivoted to said angular arm and provided at its end with a longitudinal loop embracing a projection on the load-receiver.

17. The combination of a load-receiver; a counterpoise device therefor; a rocker movable about an axis transverse to that of the counterpoise device; and flexible straps connecting the rocker with the load-receiver and also with the counterpoise device.

18. The combination of a load-receiver; a scale-beam therefor; a rocker movably mounted about an axis transverse to that of the scale-beam; and flexible straps connecting the rocker with the load-receiver and also with the scale-beam.

19. The combination of a load-receiver; a counterweighted scale-beam fulcrumed against the framework; a rocker movable about an axis transverse to that of the counterpoise device; and flexible straps connecting the rocker with the load-receiver and also with the counterpoise of the scale-beam.

20. The combination of a load-receiver; a scale-beam therefor; and a rocker having journal portions at its opposite ends adapted to travel along a flat bearing-surface, said rocker having oppositely-disposed segments connected, respectively, with the load-receiver and the scale-beam by flexible straps.

21. The combination of a load-receiver; a scale-beam; a longitudinal shaft having journal portions adapted to travel along a flat bearing-surface on the framework; means for limiting the motion of the shaft; oppositely-disposed segments fixed to said shafts; and straps attached, respectively, to the segments and also to the load-receiver and scale-beam.

22. The combination of weighing mechanism including a load-receiver having a closer; a valve mounted on the load-receiver; and an actuator for said valve, supported for movement by the closer.

23. The combination of weighing mechanism including a load-receiver having a closer; a valve mounted on the load-receiver; and an actuator supported for movement by the closer and connected with said valve.

24. The combination of weighing mechanism including a load-receiver having a closer; a valve mounted on the load-receiver; and a counterweighted actuator for said valve, supported for movement by the closer.

25. The combination of weighing mechanism including a load-receiver having a closer; a valve mounted on the load-receiver; an actuator supported for movement by the closer; and a resistance device on the framework, adapted to be engaged by said actuator.

26. The combination of weighing mechanism including a load-receiver having a closer; a valve mounted on the load-receiver; an actuator for said valve, supported for movement by the closer; a link connected, respectively, with the valve and actuator; and means for operating the actuator.

27. The combination of weighing mechanism including a load-receiver having a closer; a valve pivoted on the load-receiver; a counterweighted actuator carried by the closer and provided with oppositely-disposed arms one of which is connected with the valve by a link; and a resistance device on the framework, adapted to be engaged by the other arm.

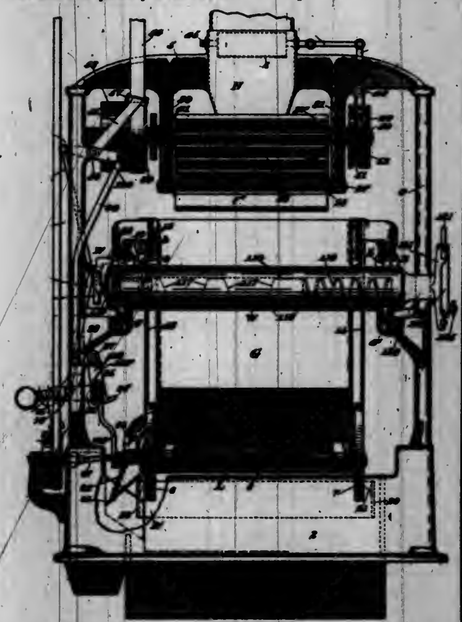
589,277. AUTOMATIC WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 30, 1897. Serial No. 633,036. (No model.)

Claim.—1. The combination of weighing mechanism embodying a load-receiver; a plurality of vertically-disposed conveyers having blades, the blades of one conveyer overlapping those of the other conveyer; and means controlled by the weighing mechanism for stopping the feed device when the load-receiver has received a predetermined quantity of material.

2. The combination, with weighing mechanism, of a hopper; a feed device comprehending two conveyers having blades, the blades of one conveyer being disposed between the blades of the other conveyer; and driving mechanism for said feed device, controlled by the weighing mechanism.

3. The combination, with weighing mechanism; of a feed device comprehending two conveyers having blades, the blades of one conveyer being disposed between the blades of the other conveyer; a shaft for one of the conveyers, carrying fast and loose pulleys and also provided with a gear; a meshing gear on the shaft of the other conveyer; a belt shiftable along said pulleys; and a belt-shipper operated by the weighing mechanism.

4. The combination of weighing mechanism embodying a load-receiver; a hopper; a plurality of vertically-disposed conveyers having inclined blades situated between the load-receiver and hopper, the blades of one of the conveyers overlapping the blades of the other conveyer; and means operative with the weighing mechanism for stopping said conveyers when the load-receiver has received a predetermined quantity of material.



5. The combination of weighing mechanism including a load-receiver; a hopper; a feed device situated between the hopper and the load-receiver and comprehending two conveyers having oppositely-disposed blades overlapping each other; a stream-brake situated in the load-receiver in line with the falling stream from the feed device and consisting of two oppositely-inclined sections; and means for stopping the feed device at a predetermined stage in the descent of the load-receiver.

6. The combination of weighing mechanism embodying a load-receiver having near its end a stream-brake consisting of two oppositely-inclined sections; cooperating and oppositely-disposed stream-brakes located below the first-mentioned stream-brake and secured inside the load-receiver; a supply-hopper; a feed device comprehending two vertically-disposed and oppositely-movable conveyers having overlapping blades extending obliquely therefrom; and means operative at a predetermined stage in the descent of the load-receiver for stopping said feed device.

7. The combination, with weighing mechanism, of a hopper; a deflector situated on said hopper; a shaft provided with a wheel having a peripheral cam-groove; a rock-shaft connected with the deflector; an arm secured to the rock-shaft and furnished with a projection located in the cam-groove; driving mechanism for said first-mentioned shaft; and means controlled by the weighing mechanism for throwing the driving mechanism out of operative relation with said first-mentioned shaft at a predetermined stage in the descent of the load-receiver.

8. The combination of weighing mechanism embodying a load-receiver; a hopper having a deflector therein; a feed device consisting of two cooperative vertically-disposed conveyers having overlapping blades; means for simultaneously operating the feed device and deflector; and automatically-operative means controlled by the weighing mechanism for stopping the motion of the deflector and feed device at a predetermined stage.

9. The combination, with weighing mechanism, of a feed device comprehending two conveyers having overlapping blades; a shaft; tight and loose pulleys mounted on said shaft; a rock-shaft provided with a belt shipper; and an arm secured to said rock-shaft and connected with the weighing mechanism.

10. The combination, with weighing mechanism including a load-receiver provided with a closer, of a conveyer; a shaft; tight and loose pulleys mounted on said shaft; a belt shiftable from one of the pulleys to the other; a rock-shaft provided with an arm connected with the weighing mechanism; a conveyer mounted on the load-receiver; a shaft connected with said last-mentioned conveyer and provided with fast and loose pulleys; a belt shiftable from one of the pulleys to the other; a shipper for the last-mentioned belt; a stop connected with one of said shippers; and a cooperating stop connected with the closer.

11. The combination of a load-receiver provided with a closer, the load-receiver having a load-reducing opening; a plate connected with said closer; and a resistance member connected with said plate, whereby on the opening of the closer the plate will be shifted relatively thereto.

12. The combination of a load-receiver provided with a closer; a load-reducing conveyer carried by the load-receiver and operative when driven to force a stream of material through an opening in the load-receiver; a plate attached to the closer; and a resistance member connected with the plate.

13. The combination of weighing mechanism embodying a load-receiver provided with a closer, the load-receiver having a load-reducing opening; load-reducing means; a plate pivoted to the closer; and a resistance member connected with the plate.

14. The combination of weighing mechanism; a resistance member; a device mounted to effect the removal of material from the weighing mechanism; and a guide shiftably supported by the weighing mechanism and connected with said resistance member.

15. The combination of weighing mechanism including a load-receiver; a conveyer carried by the load-receiver; a shaft for said conveyer; a bracket; a shifting guide cooperative with the conveyer; and a connection between said shifting guide and bracket.

16. The combination of weighing mechanism embodying a load-receiver provided with a closer; overloading and load-reducing means; a surplus-receiving device; a guide-plate pivoted to the closer and in position to deliver the surplus removed from the load-receiver by the load-reducing means into said surplus-receiving device; and mechanism for shifting the guide-plate relatively to the closer on the opening of the latter.

17. The combination of weighing mechanism including a load-receiver provided with a closer; a duplex discharge-hopper situated below the weighing mechanism; overloading and load-reducing means; a plate connected with the closer; and a resistance member connected with said plate.

18. The combination, with weighing mechanism including a shiftable load-discharge member, of a regulator-receptacle shiftably connected with said load-discharge member.

19. The combination, with weighing mechanism including a load-receiver provided with a closer, of a regulator-receptacle shiftably connected with the closer and adapted to receive a part of the mass discharged from the load-receiver.

20. The combination, with weighing mechanism including a load-receiver provided with a closer, of a swinging regulator-receptacle supported by the closer and adapted to receive a part of the mass discharged from the load-receiver.

21. The combination, with weighing mechanism including a load-receiver provided with a closer, of a movably-mounted regulator-receptacle connected to the closer adjacent to its discharge edge for swinging movement.

22. The combination, with weighing mechanism including a load-receiver provided with a closer, of a movably-mounted regulator-receptacle connected with the closer and having a reduced discharge-outlet.

23. The combination, with weighing mechanism including a load-receiver provided with a closer, of a regulator-receptacle having arms at its opposite ends pivoted to the closer.

24. The combination, with a load-receiver, of a supporting scale-beam therefor the weight of which has a bore; a series of weights insertible in the bore; and means for holding said weights against longitudinal movement.

25. The combination, with a load-receiver, of a supporting scale-beam therefor the weight of which has a bore; a series of weights insertible in said bore; and a spring adapted to act against said weights.

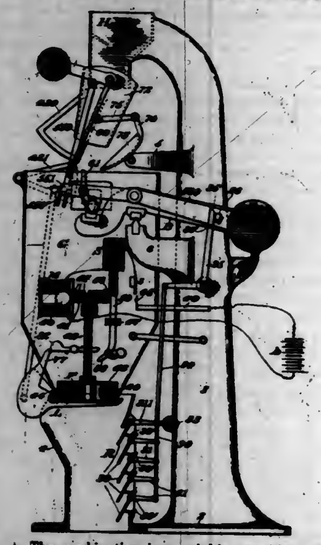
26. The combination, with a load-receiver, of a supporting scale-beam therefor the weight of which has a bore permanently closed at one end; a series of beveled weights insertible in said bore; and means for holding said weights against longitudinal movement.

27. The combination, with a load-receiver, of a supporting scale-beam therefor the weight of which has a bore; a series of weights insertible in said bore; means for holding the weights against longitudinal movement; an auxiliary beam connected with said beam-weight; and a load-weight carried by the auxiliary beam, for sliding movement.

28. The combination, with a load-receiver, of a supporting scale-beam therefor the weight of which has a bore permanently closed at one end; a series of weights insertible in said bore; a spring situated in said bore and adapted to act against one of the weights; a removable plug seated in one end of the bore; an auxiliary beam se-

cured to said beam-weight; and a sliding load-weight carried by said auxiliary beam.

589,278. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 3, 1897. Serial No. 630,508. (No model.)



Claim.—1. The combination, in a weighing-machine, of a member shiftable for discharging the load: a latch for said shiftable member; an electric circuit; an automatic circuit-controller carried by a movable member of the weighing mechanism: and an electrically-operated striking latch-tripper having a latch-tripping movement independent of the movements of the weighing mechanism and controlled by said circuit and adapted to release the latch by a blow

2. The combination, in a weighing-machine, of a member shiftable for discharging the load; a latch for said shiftable member; an electric circuit; an automatic circuit-controller carried by a movable member of the weighing mechanism; and a striking latch-tripping solenoid mounted on a movable member of the weighing mechanism and having a latch-tripping movement independent of the movement of such movable member and controlled by said circuit and adapted to release the latch by a blow.

3. The combination, in a weighing-machine, of a load-receiver; a closer for the load-receiver; a closer-latch; an electric circuit; an automatic circuit-controller carried by a movable member of the weighing mechanism; and a striking latch-tripping solenoid carried by said load-receiver and having a latch-tripping movement independent of the movement of the load-receiver and controlled by said circuit and adapted to release the latch by a blow.

4. The combination, in a weighing-machine, of a member shiftable for discharging the load; a latch for said shiftable member; a normally-closed electric circuit; an automatic circuit-breaker carried by a movable member of the weighing mechanism and controlling said circuit and operative at a determined point in the movement of such movable member; and a solenoid in said circuit and carrying a core having a gravitative latch-tripping movement independent of the movements of the weighing mechanism and adapted to release the latch by a blow on the breaking of the circuit.

5. The combination, in a weighing-machine, of a member shiftable for discharging the load; a latch for said shiftable member; an electric circuit; an automatic electric-circuit controller carried by a movable member of the weighing mechanism; a solenoid in said circuit and mounted on a movable member of the weighing mechanism; and a striking by-pass latch-tripper carried by the core of the solenoid and having a latch-tripping movement independent of the movements of the weighing mechanism and controlled by said circuit and adapted to release the latch by a blow.

6. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; and a rotary feed-wheel rotatable in a plane transverse to the path of discharge of the load for removing material from the load-receiver.

7. The combination, in a weighing mechanism, of a load-receiver; overloading means for supplying an overload to said load-receiver; and a rotary load-reducing wheel rotatable in a plane transverse to the path of discharge of the load.

8. The combination, in a weighing mechanism, of a load-receiver; overloading means for supplying an overload to said load-receiver; and a rotary load-reducing wheel carried by said load-receiver and rotatable in a plane transverse to the path of discharge of the load.

9. The combination, in a weighing mechanism, of a load-receiver; overloading means for supplying an overload to said load-receiver; and a rotary load-reducing wheel disposed partly within and partly without the load-receiver and rotatable in a plane transverse to the path of discharge of the load.

10. The combination, in a weighing mechanism, of a load-receiver; overloading means for supplying an overload to said load-receiver; and a rotary load-reducing wheel supported on the outside of the load-receiver and projecting into the same and rotatable in a plane transverse to the path of discharge of the load.

11. The combination, in a weighing mechanism, of a load-receiver; a closer for the load-receiver; stream-supplying means; and a rotary feed-wheel having one of its sides in juxtaposition with and its axis of rotation substantially perpendicular to the inner side of the closer.

12. The combination, in a weighing mechanism, of a load-receiver; a closer for the load-receiver; stream-supplying means; a rotary horizontal feed-wheel disposed partly within and partly without the load-receiver and having its under side in juxtaposition with and its axis of rotation substantially perpendicular to the inner side of the closer; and a casing for said feed-wheel.

13. The combination, in a weighing mechanism, of a load-receiver; a closer for the load-receiver; stream-supplying means; a rotary horizontal feed-wheel supported on the outside of the load-receiver and projecting into the same and having its under side in juxtaposition with and its axis of rotation substantially perpendicular to the inner side of the closer; and a casing on the load-receiver for covering said feed-wheel.

14. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a rotary feed-wheel for removing material from the load-receiver; a stop member movable in unison with the feed-wheel; driving means for rotating said feed-wheel; and a stop movable into the path of said stop member for positively stopping the rotation of said feed-wheel.

15. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a feeder for removing material from the load-receiver; a stop member movable in unison with the feeder; driving means for actuating said feeder; an electric circuit; and an electrically-operated stop in said circuit and movable into the path of said stop member for positively stopping the operation of the feeder.

16. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a feeder for removing material from the load-receiver; a stop member movable in unison with the feeder; an electric circuit; an electric motor in said circuit, for operating the feeder; and an electrically-operated stop in said circuit and movable into the path of said stop member for positively stopping the operation of the feeder.

17. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a closer for the load-receiver; a closer-latch; a feeder for removing material from the load-receiver; an electric circuit; an electric motor in said circuit, for operating said feeder; a latch-tripping solenoid in said circuit; and feeder-stopping means controlled by the solenoid.

18. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a feeder for removing material from the load-receiver; an electric circuit; feeder driving means; a solenoid in said circuit; and a stop carried by the core of the solenoid, for stopping the operation of the feeder.

19. The combination, in a weighing mechanism, of a load-receiver; stream-supplying means therefor; a feeder for removing material from the load-receiver; an electric circuit; an electric motor in said circuit, for operating the feeder; a solenoid in said circuit; feeder-stopping means controlled by the solenoid; and an automatic circuit-controller for alternately making and breaking said circuit.

20. The combination, in a weighing mechanism, of a load-receiver; overloading means for supplying an overload to the load-receiver; a load-reducing feeder; an electric circuit; an electric motor in said circuit, for operating the feeder; a solenoid in said circuit; feeder-stopping means controlled by the solenoid and operative on the breaking of the circuit; and an automatic circuit-controller operative for making said circuit on the overloading of the load-receiver, and for breaking said circuit on the ascent of the load-receiver to the poising position.

21. In a weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a plurality of superposed overlapping regulator-blades.

22. In a weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a plurality of superposed overlapping oscillatory regulator-blades.

23. In a weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a plurality of superposed overlapping regulator-blades connected for movement in unison.

24. In a weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a plurality of superposed overlapping regulator-blades and a plurality of guard-plates carried by said regulator-blades, respectively.

25. In a weighing mechanism, the combination, with stream-supplying means and with a load-receiver, of a load-discharger; and a regulator comprising a plurality of superposed overlapping regulator-blades and a plurality of guard-plates carried by said regulator-blades, respectively, and concentric with the respective axes of movement of the regulator-blades.

26. In a weighing mechanism, the combination, with a valve and with a load-receiver, of a valve-opening actuator; a load-discharger; a regulator comprising a plurality of regulator-blades connected for movement in unison; and a valve-opening-movement limiter movable with said regulator and operative for blocking the operation of the valve-opening actuator while the regulator is in its regulating position.

27. In a weighing mechanism, the combination, with a valve and with a load-receiver, of a valve-opening actuator; a load-discharger; a regulator comprising a plurality of regulator-blades connected for movement in unison; and a pair of stops one movable with the regulator and in position to engage the other and block the operation of the valve-opening actuator while the regulator is in its non-regulating position, and the second movable with the valve-opening actuator and in position and adapted to return the regulator to its normal position on the completion of the discharge of the load.

28. In a weighing mechanism, the combination, with a support, of stream-supplying means; a main valve; and a rocking cut-off valve pivoted between its ends on said support and having its axis of movement below its stream-supporting face when in its closed position.

29. In a weighing mechanism, the combination, with a support, of stream-supplying means; a tubular swinging main valve; and a rocking cut-off valve pivoted between its ends on said support and having its axis of movement below its stream-supporting face when in its closed position and adapted to close under said tubular valve.

30. In a weighing mechanism, the combination, with a support, of stream-supplying means; a main valve; a rocking cut-off valve pivoted between its ends on said support and having its axis of movement below its stream-supporting face when in its closed position; and connecting means between the main valve and the cut-off valve, for operating the latter from the former.

589,279. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed May 5, 1897. Serial No. 635,130. (No model.)

Claim.—1. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; means for preventing the discharge of the load except at a predetermined time, said means including a stop supported for action independently of the stream-controller; and means connected with the load-receiver, for simultaneously advancing said stream-controller and stop.

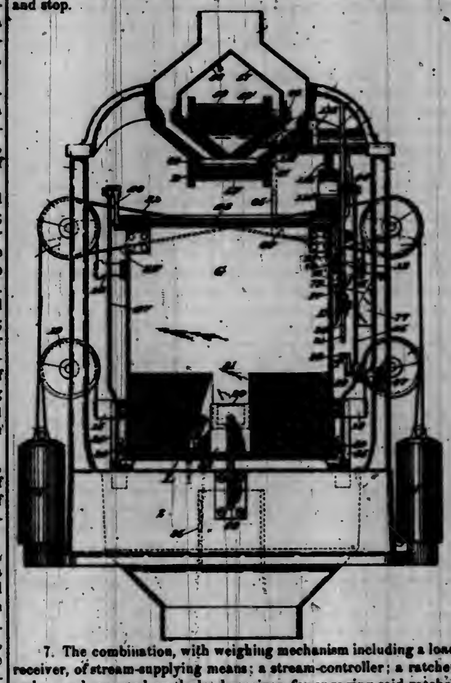
2. The combination, with weighing mechanism including a load-receiver having a closer, of stream-supplying means; a stream-controller; a stop connected with the closer; a cooperating stop supported for action independently of the stream-controller; and a device movably mounted on the load-receiver, for simultaneously advancing said stream-controller and stop.

3. The combination, with weighing mechanism including a load-receiver having a closer, of stream-supplying means; a stream-controller; a stop connected with and operated by the closer; a cooperating stop independent in action from the stream-controller; and a device pivoted to the load-receiver and serving simultaneously to advance the stream-controller and stop.

4. The combination, with weighing mechanism, of stream-supplying means; a stream-controller; means for preventing the discharge of a load except at a predetermined time, said means including a stop supported for action independently of the stream-controller; and an actuator yieldingly supported by the weighing mechanism and operated for simultaneously advancing said stream-controller and stop.

5. The combination, with weighing mechanism, of stream-supplying means; a rotary stream-controlling drum; means for preventing the discharge of the load except at a predetermined time, said means including a stop supported for action independently of the stream-controller; and means mounted on the weighing mechanism, for simultaneously advancing said stream-controller and stop.

6. The combination, with weighing mechanism, of stream-supplying means; a stream-controller; means for preventing the discharge of the load except at a predetermined time, said means including a stop supported for action independently of the stream-controller; a ratchet connected with the stream-controller; and a device mounted on the weighing mechanism, for actuating said ratchet and stop.



7. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; a ratchet; and a pawl mounted on the load-receiver, for engaging said ratchet.

8. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; a ratchet connected to said stream-controller; a pawl for engaging said ratchet, thereby to operate the stream-controller; and a locker for said pawl.

9. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller having a ratchet; a pawl mounted on the load-receiver; and a locker for the pawl, also mounted on said load-receiver.

10. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; a ratchet connected with the stream-controller; a pawl mounted to engage said ratchet, for operating the stream-controller; a locker for said pawl; and means for operating said locker.

11. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller; a ratchet connected with said stream-controller; a pawl for operating the stream-controller by engaging said ratchet; a locker for said pawl; and means on the framework for operating said locker.

12. The combination, with weighing mechanism including a load-receiver, of stream-supplying means; a stream-controller having a ratchet; a pawl mounted to engage said ratchet; a locker for the pawl; and a cam for operating the locker.

13. The combination, with weighing mechanism including a load-receiver, of a supply-hopper having oppositely-disposed branches or channels; a stream-controller mounted for rotation on said branches; and means on the weighing mechanism, for intermittently actuating said stream-controller.

14. The combination, with weighing mechanism including a load-receiver, of a supply-hopper having oppositely-disposed branches or channels provided with bearing-disks; a drum mounted for rotation on said disks, the branches of the hopper being situated in said drum; and means on the weighing mechanism, for intermittently and partially rotating said drum.

15. The combination, with weighing mechanism including a load-receiver provided with a closer, of a stop connected with the closer; a stream-controller; a closer-limiting stop mounted for cooperation with the first-mentioned stop; means simultaneously operative for advancing the stream-controller and the closer-limiting stop; and a de-

vice, acting independent of the stream-controller, for returning said closer-limiting stop to its normal position.

16. The combination, with weighing mechanism including a load-receiver provided with a closer, of a stop connected with the closer; a stream-controller; a closer-limiting stop cooperative with the first-mentioned stop; means operative with the weighing mechanism, for simultaneously advancing the stream-controller and closer-limiting stop; and a device connected with said closer-limiting stop and operable independently of the stream-controller, for returning the same to its normal position.

17. The combination, with weighing mechanism including a load-receiver provided with a closer, of a stop connected with the closer; a stream-controller; a closer-limiting stop movable about an axis in common with the stream-controller; means operative with the weighing mechanism, for advancing the stream-controller and closer-limiting stop on the descent of the load-receiver; means connected with the closer, on the shutting thereof, for also operating the stream-controller; and a device supported for action independently of the stream-controller, for returning the closer-limiting stop to its normal position, when the stream-controller is operated by the means connected with the closer.

18. The combination, with weighing mechanism including a load-receiver provided with a closer, of stream-supplying means; a rotary stream-controller having a ratchet; a pawl mounted on the load-receiver, for operating said ratchet on the descent of the load-receiver; and a second pawl also adapted to operate the ratchet and connected with the closer, whereby, as the latter shuts, said last-mentioned pawl will receive its working stroke to rotate the ratchet.

19. The combination, with weighing mechanism including a load-receiver provided with a closer, of a hopper: a rotary stream-controller having a ratchet; a pawl mounted on the load-receiver and adapted to engage said ratchet and to operate it on the descent of the load-receiver; a second pawl also adapted to engage the ratchet; a shaft mounted on the load-receiver; crank-arms carried by the shaft, one of said crank-arms being connected with the last-mentioned pawl: and a connector between the other crank-arm and the closer.

20. The combination, with weighing mechanism including a load-receiver provided with a closer, of stream-supplying means; a rotary stream-controller having a ratchet connected thereto; a pawl mounted on the load receiver, for engaging said ratchet to operate it on the descent of the load-receiver; a second pawl; a carrier for said pawl; a shaft having crank-arms, one of which is connected with the pawl-carrier; a stop mounted on the load-receiver and connected with the other crank-arm and also with the closer; and a second stop cooperative with the other stop.

21. The combination, with weighing mechanism including a load-receiver provided with a closer, of stream-supplying means; a stream-controller; a stop connected with the closer and having an auxiliary by-pass stop, and a second stop mounted for operation with the valve and having an auxiliary stop cooperative with the auxiliary by-pass stop.

22. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of a stationary valve supported independently of the weighing mechanism and adapted to cover and uncover said opening.

23. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of a stationary valve mounted on the framework and adapted to cover and uncover said opening.

24. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of an arm mounted on the base and having a stationary valve secured thereto, said valve being adapted to cover and uncover the load-reducing opening.

25. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of overloading means therefor; and a stationary valve adapted to cover and uncover said opening.

26. The combination, with weighing mechanism including a load-receiver having a load-reducing opening in a wall thereof, of a flat stationary plate mounted adjacent to the load-receiver and adapted to cover and uncover said opening.

27. The combination, with weighing mechanism including a load-receiver, of a series of movably-mounted load-supporters one of which is disposed in the load-receiver.

28. The combination, with weighing mechanism including a load-receiver, of a series of movably-mounted and simultaneously-operative load-supporters one of which is disposed in the load-receiver.

29. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a closer for said outlet; and a load-supporter situated in the load-receiver and mounted for simultaneous operation with the closer.

30. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a closer for said outlet; a load-supporter pivoted in the load-receiver and connected with the closer for operation; and a guard situated in the load-receiver over the pivot of said load-supporter.

31. The combination, with weighing mechanism including a load-receiver having a discharge-outlet and a load-reducing opening, of a closer for the outlet; a load-supporter movably mounted in the load-receiver and connected with the closer for operation, said load-supporter having an opening; a chute-plate leading from said opening in the load-supporter to the load-reducing opening; and a valve for controlling the passage of material from said load-reducing opening.

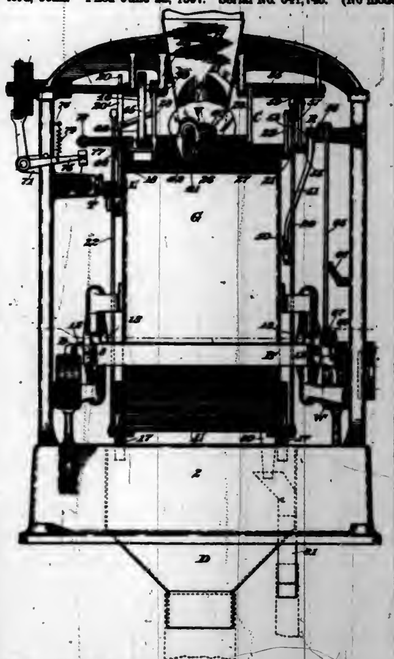
32. The combination, with weighing mechanism including a load-receiver having a discharge-outlet, of a closer connected with the load-receiver and having a rock-arm; and a load-supporter situated in the load-receiver and connected with said rock-arm.

33. The combination, with a load-receiver, of flexible connectors secured at their opposite ends to the load-receiver; counterpoise-weights suspended from the flexible connectors; guide-pulleys over which said flexible connectors are adapted to run; shafts for carrying said guide-pulleys; and connections between two of the shafts, for effecting a simultaneous movement of the counterpoise-weights.

34. The combination, with a load-receiver, of flexible connectors secured to the load-receiver at opposite sides thereof; counterpoise-weights depending from said flexible connectors; guide-pulleys over which the flexible connectors are adapted to run; shafts for supporting said guide-pulleys; oppositely-disposed segments carried by two of the shafts; and connectors between said segments.

35. The combination, with weighing mechanism including a load-receiver having a load-reducing opening, of overloading means therefor; a stationary valve adapted to cover and uncover said opening; and a conduit situated below the load-reducing opening and adapted to receive the material gravitating from the load-reducing opening when the valve uncovers said opening.

589,280. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed June 23, 1897. Serial No. 641,743. (No model.)



Claim.—1. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver and adapted to deliver a stream of material thereto; a valve movably mounted upon the framework to cut off said stream and supported for independent rotation; and means for rotating said valve during its closing movement.

2. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver and adapted to deliver a stream of material thereto; an oscillatory valve to cut off said stream and supported upon the framework for independent rotation about an axis transverse to its axis of oscillation; and means for rotating said valve during its closing movement.

3. The combination of weighing mechanism embodying a load-receiver: a supply-hopper situated over the load-receiver; and a rotary valve movably mounted to cut through a stream of material from said hopper and having a serrated edge.

4. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver; and a rotary disk valve movably mounted to cut through a stream of material from said hopper and having its discharge edge serrated.

5. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver; and an oscillatory rotary disk valve having its discharge edge serrated.

6. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver; an oscillatory carrier mounted on the framework; and a valve for the hopper, supported for rotation by said carrier.

7. The combination of weighing mechanism embodying a load-receiver; a supply-hopper located over the load-receiver; an oscillatory carrier depending from the framework; a valve for the hopper, having a spindle supported by said carrier and provided with a gear; a shaft mounted on the carrier and provided with a cooperating gear; and a second shaft connected with the first-mentioned shaft.

8. The combination of weighing mechanism embodying a load-receiver: a supply-hopper situated over said load-receiver; an oscillatory carrier; a valve having a spindle supported by said carrier and provided with a gear; a shaft mounted on said carrier and furnished with a gear cooperating with the first-mentioned gear and also equipped with a pulley; a second shaft furnished with a pulley connected by a belt to the first-mentioned pulley; a series of tight and loose pulleys on the last-mentioned shaft; and a belt shiftable along said series of pulleys.

9. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over said load-receiver: a valve for said hopper, movably mounted upon the framework and supported for independent rotation: and means for rotating and for stopping the rotation of the valve when it reaches the end of its cut-off stroke.

10. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over said load-receiver; an oscillatory valve supported by the framework for independent rotation; means for rotating the valve during its closing movement; and means operative with said valve for stopping the rotation thereof when it reaches the end of its cut-off stroke.

11. The combination of weighing mechanism embodying a load-receiver; a supply-hopper situated over the load-receiver; an oscillatory carrier; a valve supported for oscillation by said carrier: driving mechanism for operating the valve independently of its cut-off movement, said mechanism including fast and loose pulleys and a belt shiftable along said pulleys; a shipper for the belt; and means operative with the valve for operating said shipper.

12. The combination of weighing mechanism embodying a load-receiver: a supply-hopper located over the same; an oscillatory carrier: a valve for the hopper, rotatively supported by the carrier; driving mechanism for said valve, embodying a series of tight and loose pulleys and a belt shiftable along said pulleys; a belt-shipping lever; and a device on the carrier for operating said belt-shipper.

13. The combination of weighing mechanism embodying a load-receiver: a supply-hopper situated over the load-receiver: an oscillatory carrier; a valve supported by said carrier; driving mechanism for operating the valve, embodying a series of tight and loose pulleys and a belt shiftable along said pulleys; a belt-shipper one arm of which is provided with a curved shoe: and a device on the valve-carrier for engaging said shoe.

14. The combination of weighing mechanism embodying a load-receiver: a supply-hopper located over the same: an oscillatory carrier; a valve supported for rotation by the carrier and having a gear; a cooperating gear; a shaft carrying said last-mentioned gear and supported by the carrier and also provided with a pulley; a second shaft furnished with a pulley connected by a belt with the first-mentioned pulley and equipped with a series of tight and loose pulleys; a belt shiftable along said series of tight and loose pulleys; a belt-shipper; a spring connected, respectively, to the belt-shipper and the framework; and a device on the carrier for engaging the belt-shipper.

15. The combination of weighing mechanism embodying a load-receiver: a supply-hopper located over the weighing mechanism: an oscillatory carrier; a valve rotatively supported by said carrier; a rocker on the framework, having oppositely-disposed arms one of which is connected with a crank-arm on the carrier and the other of which is provided with a rod; an actuator adapted to engage said rod; a depending member operative with the rocker; and a stop adapted to be engaged by said depending member.

16. The combination of weighing mechanism embodying a load-receiver: a supply-hopper situated over the load-receiver; a valve having a serrated discharge edge and supported for movement about two different axes; and means for actuating the valve to open and close the same alternately, and for also causing said serrated edge to cut through the supply from said hopper.

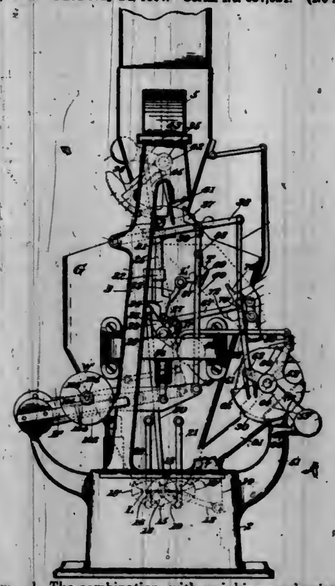
17. The combination of weighing mechanism embodying a movably-mounted load-discharger having a valveless opening; a conduit supported independently of the weighing mechanism; means for conducting to the latter a supply of material in excess of the predetermined load, the surplus passing through said opening into the conduit; and means whereby the load will be discharged and the load-discharger moved to a position to divert the stream flowing through said opening away from said conduit.

18. The combination of weighing mechanism embodying a swinging load-discharger having a valveless opening; a conduit supported independently of the weighing mechanism; means for conducting to the weighing mechanism a supply of material in excess of the predetermined load, the surplus passing through said opening into the conduit; and means whereby the load will be discharged and the load-discharger swung to a position to divert the stream flowing through said opening away from said conduit.

19. The combination of weighing mechanism embodying a swinging member having a spout; means for supplying to the weighing mechanism an overload or mass of material in excess of the predetermined load; main and auxiliary conduits; and means whereby said swinging member is operated to swing the spout into and out of alinement with the auxiliary conduit.

20. The combination of weighing mechanism embodying a load-receiver provided with a closer; a spout on the closer; means for supplying to the load-receiver a supply of material in excess of the predetermined load; a plurality of conduits supported independently of the weighing mechanism, one of them being located to receive the surplus which gravitates through said spout when the closer is shut; means for holding the closer shut during the supplying period; and means for effecting the release of said closer.

589,281. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed May 24, 1897. Serial No. 637,921. (No model.)



Claim.—1. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; and means for actuating said receptacle to bring one of the compartments thereof in position to receive the surplus removed from the load-receiver.

2. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; a cut-off for said receptacle; and means for actuating said receptacle to bring one of the compartments thereof into position to receive the surplus removed from the load-receiver.

3. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; a stationary cut-off

for said receptacle; and means for actuating the latter to bring one of its compartments in position to receive the surplus removed from the load-receiver.

4. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; an oscillatory receptacle having a plurality of compartments; and means for actuating said receptacle to bring one of the compartments thereof in position to receive the surplus removed from the load-receiver.

5. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; and means controlled by the weighing mechanism for actuating said receptacle to bring one of the compartments thereof in position to receive the surplus removed from the load-receiver.

6. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for swinging said receptacle in one direction; and an independent device for oppositely swinging said receptacle.

7. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; and a cut-off for said receptacle, having an outlet.

8. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; a stationary cut-off for said receptacle, carried by the framework and adapted to support said receptacle; and means for operating the latter to bring one of the compartments in position to receive the surplus removed from the load-receiver.

9. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for swinging said receptacle in one direction; and a counterweight connected with said receptacle for oppositely swinging the same.

10. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for swinging said receptacle to bring one of the compartments thereof in position to receive the surplus removed from the weighing mechanism; and a counterweighted lever connected with said receptacle for swinging the same in the opposite direction.

11. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for shifting said receptacle; and a latch adapted to hold the receptacle in its shifted position.

12. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for shifting said receptacle; a gravity-latch in position to hold the receptacle in its shifted position.

13. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for shifting said receptacle; and a latch connected with the closer, for holding said receptacle in its shifted position.

14. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means for shifting the receptacle to bring one of the compartments thereof in position to receive the surplus removed from the weighing mechanism, and for also imparting a return movement thereto; and a latch adapted to hold the receptacle in its successive shifted positions.

15. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; an oscillatory receptacle having a plurality of compartments; a device connected with the receptacle for shifting the same; and means connected with the weighing mechanism for engaging said device.

16. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a pivotally-supported receptacle having a plurality of compartments; a counterweighted lever fixed to a pivot of the receptacle; and means connected with the weighing mechanism for engaging said lever to shift the receptacle.

17. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; a movably-mounted receptacle having a plurality of compartments; means controlled by the weighing mechanism for shifting said receptacle to bring the same in position to receive an overload, and for also imparting a return movement thereto; and a spout on the load-receiver, situated below said receptacle.

18. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means; an oscillatory receptacle having a plurality of compartments; and means for actuating said receptacle during the weighing of a load to bring the respective compartments in position to receive the material removed from the load-receiver.

19. The combination, with weighing mechanism including a load-receiver carrying an auxiliary load-receiver; of means for delivering an overload, portions of which are supplied to the respective load-receivers; means for removing material from the auxiliary load-receiver during the weighing of a load; an oscillatory receptacle having a plurality of compartments; and means for actuating the receptacle during the weighing of a load to bring the respective compartments in position to receive the material removed from the auxiliary load-receiver.

20. The combination, with weighing mechanism including a load-receiver, of an auxiliary valved load-receiver carried thereby; means for delivering an overload, parts of which are supplied to the respective load-receivers; means for operating the valve, during the weighing of a load, to effect the removal of material from the auxiliary load-receiver; an oscillatory receptacle having a plurality of compartments; and means for actuating the receptacle, during the weighing of a load, to bring the respective compartments in position to receive the material removed from the auxiliary load-receiver.

21. The combination, with weighing mechanism including a load-receiver having a closer, of overloading and load-reducing means, the load-reducing means including a valve; and a cam connected with the closer and adapted to hold said valve in its shut position during the supply of the overload and to be moved away from the valve on the opening of the closer.

22. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means, the load-reducing means embodying a valve; a rocker; and a cam connected with the rocker and operable to hold the valve in its shut position during the supply of an overload, the rocker being operated on the discharge of the load whereby the cam will be moved away from the valve to permit the latter to open.

23. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading and load-reducing means, the load-reducing means embodying a valve; a rocker on the load-receiver connected with the closer; and a cam in position to hold the valve shut during the supply of the overload and to be moved away from the valve by the closer, as it opens, acting through said rocker.

24. The combination, with a load-receiver and a supporting scale-beam therefor, of a closer for the load-receiver; overloading and load-reducing means, the load-reducing means embodying a valve; and a cam in position to hold the valve shut during the supply of the overload, said cam being connected, respectively, with the scale-beam and the load-receiver.

25. The combination, with weighing mechanism including a load-receiver provided with a closer; of overloading and load-reducing means, the load-reducing means embodying a valve; a cam in position normally to hold the valve shut; an oscillatory receptacle having a latch; and connections between the cam and the latch and the closer, respectively.

26. The combination, with weighing mechanism including a load-receiver, of a closer supported for bodily reciprocatory movement relatively to the load-receiver; and means for rotating the closer, to present its edge to the discharging mass, on one of its strokes.

27. The combination, with weighing mechanism including a load-receiver, of a closer-plate supported for bodily reciprocatory movement relatively to the load-receiver; and means for rotating said closer-plate, to present its edge to the discharging mass, on one of its strokes.

28. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means, the load-reducing means embodying a counterweighted valve having a projection; a cam in position to hold the valve shut during the supply of an overload; and means for moving the cam away from the projection on the discharge of the load.

29. The combination, with weighing mechanism including a load-receiver provided with a closer supported for bodily reciprocatory movement toward and from the load-receiver; and pawl-and-ratchet mechanism for imparting a step-by-step movement to the closer, to present its edges alternately to the discharging mass.

30. The combination, with weighing mechanism, of overloading and load-reducing means; a movably-mounted surplus-receiving receptacle; means for shifting said receptacle during the weighing of a load; and a latch for holding it in its shifted position.

31. The combination, with weighing mechanism including a load-receiver provided with a closer having trunnions, of arms attached to the load-receiver and having bearings to receive said trunnions; a ratchet secured to one of the trunnions; and a pawl connected with the load-receiver, for engaging said ratchet.

32. The combination, with weighing mechanism including a load-receiver, of a closer supported for bodily reciprocatory movement relatively to the load-receiver; and means for rotating the closer, on its opening and shutting movements, respectively, alternately to present its edges to the discharging mass.

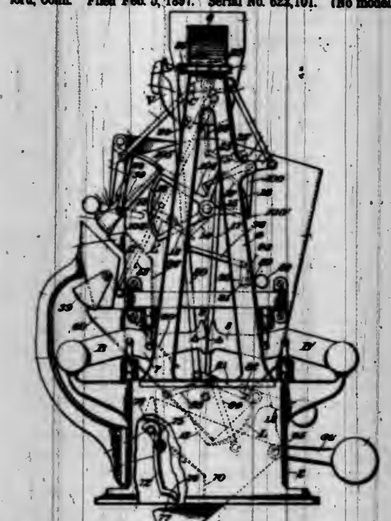
33. The combination, with weighing mechanism including a load-receiver, of a closer supported for bodily reciprocatory movement relatively to the load-receiver and flattened at its opposite ends; and means for rotating the closer.

34. The combination, with weighing mechanism including a load-receiver, of a closer therefor flattened on one end; and means for operating the closer to present it in an edgewise position to the discharging stream of material from the load-receiver.

35. The combination, with weighing mechanism including a load-receiver provided with a closer having trunnions, of arms attached to the load-receiver and having bearings for receiving said trunnions; a ratchet secured to one of the trunnions; arms loosely mounted on the trunnions carrying the ratchet, said arms being connected with the load-receiver; and pawls carried by said arms and in position to engage the ratchet.

36. The combination, with weighing mechanism including a load-receiver having a closer; a rocker mounted on the load-receiver and connected with the closer; a slide having an offset portion and connected with said rocker by a link; a latch in position to engage said offset portion; a stream-controller; and a stop connected with said stream-controller and adapted to cooperate with said slide.

589,282. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 5, 1897. Serial No. 622,101. (No model.)



Claim.—1. The combination, with a load-receiver, of stream-supplying means; a stream-controller; a regulator located to receive and to be lowered by the contents discharged from the load-receiver and constituting an actuator for the stream-controller; a connector between the regulator and the stream-controller, for transferring the power of the former to the latter; means for throwing the connector into operative relation with the stream-controller on the depression of the regulator; and instrumentalities for temporarily blocking the return movement of the regulator.

2. The combination, with a load-receiver, of a steam-controller; means for actuating said stream-controller, said means including a regulator located to receive and to be depressed by the contents discharged from the load-receiver; a valve on said regulator; means for holding the valve against movement when the regulator is in its normal position; and instrumentalities for blocking temporarily the return of the regulator when it is depressed.

3. The combination, with weighing mechanism including a load-receiver provided with a closer, of stream-supplying means; a stream-controller; a regulator located to receive and to be depressed by the contents discharged from the load-receiver; instrumentalities for blocking the return movement of the regulator when it is depressed; a rod connected with the regulator; and means for throwing said rod into operative connection with the stream-controller on the depression of the regulator, whereby as the latter rises the valve will be opened.

4. The combination, with weighing mechanism including a load-receiver, of a hopper; a valve for controlling the passage of material from the hopper to the load-receiver; a valve-closing device; a regulator located to receive and to be depressed by the contents discharged from the load-receiver; instrumentalities for temporarily blocking the return movement of the regulator when it is depressed; a rod connected with the regulator; and a counterweighted device mounted on the framework and connected with the rod, said device being operative, on the depression of the hopper, to throw the rod into operative relation with the valve, whereby on the ascent of the regulator the valve will be opened.

5. The combination, with weighing mechanism including a load-receiver, of a stream-controller having a projection; a regulator located to receive and to be depressed by the contents discharged from the load-receiver; a thrust-transferring member connected with said regulator; means for throwing such transferring member under said projection; and a second projection on the stream-controller, adapted to throw said thrust-transferring member out of contact with the first-mentioned projection.

6. The combination, with weighing mechanism including a load-receiver, of a stream-controller having a projection; a regulator adapted to receive and to be depressed by the contents discharged from the load-receiver; a thrust-transferring member connected with said regulator; means for throwing said thrust-transferring member under said projection; a second projection on the stream-controller, adapted to throw said thrust-transferring member out of contact with the first-mentioned projection; and means for temporarily locking the return movement of the regulator when it is depressed.

7. The combination, with a load-receiver, of a regulator adapted to receive and to be depressed by the contents discharged from said load-receiver; a stream-controller; a thrust-transferring member; a lever connected with said thrust-transferring member; a pair of links attached, respectively, to the regulator and to the framework; and also to said lever and an operating-weight on the framework, connected with said thrust-transferring member.

8. The combination, with weighing mechanism embodying a load-receiver, of overloading and load-reducing means each including a valve; an actuator for the load-reducing valve; connected with the overloading-valve; a regulator located to receive and to be depressed by the contents discharged by the load-receiver; a thrust-transferring member connected with the regulator; and means for throwing said thrust transferring member into operative connection with the over-load-controlling valve.

9. The combination, with weighing mechanism embodying a load-receiver, of overloading and load-reducing means each including a valve; an actuator for the load-reducing valve, connected with the overload-controlling valve; means comprehending a latch, for governing the discharge of the load-repeiver; a latch-tripping device cooperative with said load-reducing valve; a regulator positioned to receive and to be depressed by the contents discharged by the load-receiver; a thrust-transferring member connected with said regulator; and means for throwing said thrust-transferring member into operative connection with the overload-controlling valve.

10. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means each comprehending a valve; an actuator for the load-reducing valve, connected with the overload-controlling valve for operation; a valved receptacle positioned to receive the material removed from the load-receiver by the load-reducing means; and a connection between the overload-controlling valve and the valve of said receptacle, whereby the latter may be operated.

11. The combination, with a load-receiver having a closer, of a stream-controller; an actuator for said stream-controller; a lever the fulcrum of which is on the closer, said lever being connected with the actuator; and a connection between the lever and the stream-controller.

12. The combination, with a load-receiver having an outlet; of a closer for said outlet, carrying a pin; a stream-controller; a stream-controller actuator; a lever adapted to bear against said pin, which constitutes a fulcrum therefor, said lever being connected with the actuator; and a connection between said lever and the stream-controller.

13. The combination, with a load-receiver, of a stream-controller; an actuator for said stream-controller; a pair of links connected, respectively, with the framework and with said actuator; a lever jointed to said links; and a connection between said lever and the stream-controller.

14. The combination, with a stream-controller, of an actuator for said stream-controller; an intermediate thrust-transferring member connected with the actuator and disconnected from the stream-controller; a shaft carried by the framework and furnished with an

operating-weight; and a connection between said shaft and thrust-transferring member.

15. The combination, with a load-receiver, of a stream-controller; a regulator positioned to receive the contents from the load-receiver, and constituting an actuator for the stream-controller; a thrust-transferring member situated between the regulator and the stream-controller; a shaft on the framework, carrying two crank-arms, one of which is counterweighted and the other of which is connected by a link to said thrust-transferring member.

16. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, provided with a pin; a valve supported for opening and closing movements, and having a projection; a regulator located to receive the contents discharged from said load-receiver; a lever bearing against said pin, which acts as a fulcrum therefor: a pair of links connected, respectively, with the framework and with said regulator, said links being joined to said lever at their point of connection; a rod pivoted to said lever and cooperative with the projection on the valve; a rock-shaft carried by the framework, furnished with two crank-arms, one of which is weighted and the other of which is connected by a link to said rod; and a second projection on said valve, adapted to engage said rod on the opening movement thereof.

17. The combination, with a load-receiver having a closer, of a stream-controller: means for actuating said stream-controller, said means including a load-receiving hopper supported for descending and ascending movements beneath the load-receiver; and a device independent of the closer, for temporarily blocking said hopper against ascending movement.

18. The combination, with a load-receiver and with load-discharging means therefor, of a stream-controller; means for actuating said stream-controller, said means including a hopper supported for descending and ascending movements beneath said load-receiver, said hopper having a gate: and locking means for said gate, operable on one of the strokes of said hopper and adapted to prevent the immediate ascent of said hopper.

19. The combination, with a load-receiver and with load-discharging means therefor, of an oscillatory hopper situated to receive the contents discharged from said load-receiver; a gate carried by said hopper, having a crank-arm fixed thereto provided with a projection; and a stop having a longitudinal curved face along which said projection is adapted to travel, said curved face being concentric with the axis of said hopper.

20. The combination, with a load-receiver and with load-discharging means therefor, of an oscillatory hopper situated to receive the contents from the load-receiver and having a gate provided with a crank-arm equipped with a projection; a stop-rib on the framework, having a curved face along which said projection travels, said stop-rib also having an oblique portion at its lower end under which the said projection can be thrust on the movement of the gate.

21. The combination, with a load-receiver and with load-discharging means therefor, of an oscillatory hopper situated to receive the contents discharged from the load-receiver; a gate carried by said hopper and having a crank-arm provided with a projection; a rib having a curved face along which said projection is adapted to travel, said rib having stop portions at its ends.

22. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means operative in this order during the weighing of the load, the load-reducing means embodying a valve; and an actuator for said valve, connected with the overloading means.

23. The combination, with weighing mechanism including a load-receiver, of overloading means and load-reducing means each embodying a valve; and an actuator for the load-reducing valve, connected to the overload-controlling valve.

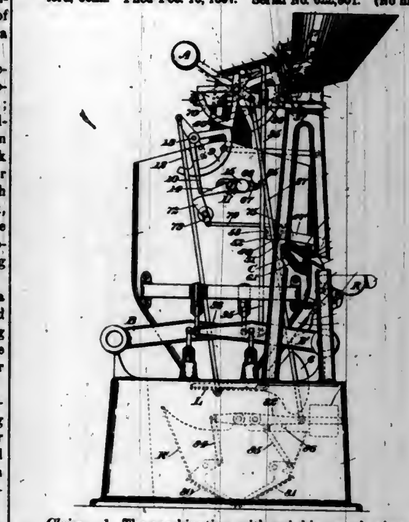
24. The combination, with a load-receiver, of a supply-hopper; a valve for said hopper, the shaft of said valve having a crank-arm; an auxiliary valve carried by the load-receiver; an actuator for said auxiliary valve: and a link connected, respectively, to said crank-arm and actuator.

25. The combination, with a load-receiver, of load-discharging means therefor including a latch; overloading and load-reducing means, each comprehending a valve; and a tripper connected with the auxiliary valve and adapted to trip the latch through the momentum acquired by the auxiliary valve in closing.

26. The combination, with weighing mechanism including a load-receiver, of overloading and load-reducing means therefor, the first-mentioned embodying a valve; a receptacle situated to receive the contents removed from said load-receiver during the weighing of a load; and a valve for said receptacle, connected with the overload-controlling valve for operation.

27. The combination, with a load-receiver and with load-discharging means therefor, of overloading and load-reducing means operative during the weighing of a load, the load-reducing means including a valve; and means operative on the discharge of a load, for positively blocking the opening movement of said valve.

589,283. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 10, 1897. Serial No. 622,801. (No model.)



Claim.—1. The combination, with weighing mechanism embodying a load-receiver, of a rotative tubular cut-off in position to deliver a stream of material to the load-receiver; means for holding said cut-off spout in its normal position until the load-receiver is overloaded; means controlled by the weighing mechanism for imparting a one-half rotation to said spout on the descent of the load-receiver, thereby to stop the supply of material thereto; and means mounted on the load-receiver for effecting the removal of the surplus supplied by the spout.

2. The combination, with weighing mechanism embodying a load-receiver, of a tubular cut-off spout; an actuator controlled by the weighing mechanism, for partially rotating said spout in one direction; a regulator positioned to receive the contents discharged from the load-receiver; and a device connected with the regulator, for partially turning said spout in the opposite direction.

3. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a rotative elbow cut-off communicating with said hopper: means for holding the cut-off in its normal position for a predetermined length of time or until the load-receiver has received a supply of material in excess of the predetermined load; means controlled by the weighing mechanism for imparting a one-half rotation to said cut-off on the descent of the load-receiver; and load-reducing means mounted on said load-receiver for effecting the removal of the surplus supplied by said cut-off.

4. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a rotative elbow cut-off communicating with said hopper; and means connected with the weighing mechanism for imparting a one-half rotation to said spout on the descent of the load-receiver and for imparting an opposite one-half rotation to the cut-off when the load-receiver is in position to receive the supply-stream.

5. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a cut-off spout sleeved to said hopper; a regulator positioned for receiving the contents discharged from the load-receiver; means cooperative with the weighing mechanism, for partially rotating said cut-off spout in one direction; and means connected with the regulator, for partially rotating said spout in the opposite direction.

6. The combination, with a load-receiver, of a regulator positioned to receive the contents discharged by the load-receiver; a stream-controller; an actuator for said stream-controller; a latch cooperative with the stream-controller and positioned to engage a normally stationary device connected with the regulator, for holding the actuator ineffective; and means for tripping said latch whereby the actuator is rendered effective for operating the stream-controller.

7. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a spout sleeved to said hopper and having thereon a ring provided with a channel; a series of projections on the hopper, provided with antifriction devices lying in said channel; a spindle on said spout, journaled in the framework; and means controlled by the weighing mechanism, for turning said spout.

8. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a rotative spout sleeved to said hopper; an actuator for operating said spout; a latch connected to said actuator and normally engaging a fixed part to hold the actuator ineffective; and means operative with the weighing mechanism for tripping said latch.

9. The combination, with a load-receiver, of a scale-beam for supporting the same; a hopper; a spout sleeved to said hopper; a shaft carrying an actuator for the spout; a regulator positioned to receive the contents discharged from the load-receiver; a latch connected with said actuator and adapted to engage a normally stationary part connected with the regulator, thereby to hold the actuator ineffective; and a tripper for said latch.

10. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a rotative elbow-spout sleeved on said hopper; a shaft; an actuator secured to said shaft; a latch connected with the actuator and in position to engage a relatively-fixed part, thereby to hold the actuator ineffective; and means connected with the weighing mechanism for tripping said latch.

11. The combination, with weighing mechanism embodying a load-receiver, of a spout: meshing gears secured, respectively, with the shaft and spout; an actuator mounted on said shaft; a latch connected with the actuator and adapted to engage a normally stationary part; and means controlled by the weighing mechanism, for tripping said latch.

12. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a tubular spout communicating with said hopper; a ring-gear on said spout; a shaft having a gear meshing with said ring-gear and also having an arm provided with a weight; and means for normally holding said weight out of action.

13. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a spout communicating with said hopper; a regulator positioned to receive the contents discharged from the load-receiver; a shaft carrying an actuator for the spout and also having an arm provided with a latch; and a member loose on said shaft, said member being located to be engaged by the latch and being connected with the regulator.

14. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a spout communicating with said hopper; a regulator positioned to receive the contents discharged from the load-receiver; a shaft cooperating with said spout and having an angle-lever thereon connected with the regulator; and an actuator carried by said shaft and having an arm operative therewith that is provided with a latch, said latch being situated to engage the angle-lever.

15. The combination, with a load-receiver, of a regulator-hopper situated to receive the contents thereof and having a pair of valves; a lever connected with said regulator; and a pair of links jointed, respectively, to the lever and the valves of the regulator; said links being attached to the lever at opposite sides of its connection with the regulator.

16. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a spout communicating with said hopper; an actuator for turning said spout in one direction: and a regulator located to receive the contents discharged from the load-receiver and having a device connected therewith for turning said spout in the opposite direction.

17. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of a hopper; a spout communicating with said hopper; a shaft; gearing secured, respectively, to said shaft and the spout; an actuator mounted on said shaft; an interlocking stop also mounted on said shaft; a cooperating interlocking stop connected with the closer; a latch cooperative with the actuator and adapted to engage a normally stationary part; and a tripping device for said latch.

18. The combination, with weighing mechanism embodying a load-receiver, of a valved regulator-hopper; a lever connected with the valve of said hopper; a stream-controller; and means connected with said lever, for turning said spout in one direction.

19. The combination, with weighing mechanism embodying a load-receiver, of a valved regulator-hopper situated to receive the contents discharged from the load-receiver; a weighted lever mounted on the framework and connected with the valve for said regulator; a stream-controller; and means connected with said lever, for operating the stream-controller.

20. The combination, with weighing mechanism embodying a load-receiver, of a valved regulator-hopper located to receive the contents discharged from said load-receiver; a spout; an actuator for turning said spout; a shaft carrying said actuator and having a member loose thereon; a lever connected with the valves of the regulator; a rod pivoted, respectively, to said member and the lever; and an arm on said shaft, provided with a latch located to engage said member.

21. The combination, with weighing mechanism comprehending a load-receiver, of load-discharge-controlling means embodying a latch; overloading and load-reducing means, the overloading means including a stream-controller and the load-reducing means including a valve; an actuator for said stream-controller; a latch normally adapted to hold said actuator out of action; and a rod connected with the weighing mechanism and having three projections, two of which are adapted to successively trip the actuator-holding and load-discharge-controlling latches, and the third of which is adapted to open the load-reducing valve at a stage between the tripping of said latches.

22. The combination, with weighing mechanism embodying a load-receiver having an opening to permit the removal of material from the load-receiver before the discharge of a load; and an obliquely-disposed valve controlling the efflux of material from said opening, said valve having a movement into the load-receiver; and valve-actuating means.

23. The combination, with weighing mechanism embodying a load-receiver having a load-reducing opening, of overloading means; an obliquely-disposed valve having a movement through said opening into the load-receiver; and valve-actuating means.

24. The combination, with weighing mechanism embodying a load-receiver having an opening to permit the removal of material from the load-receiver before the discharge of a load, of an obliquely-disposed valve controlling the efflux of material through said opening, said valve having a movement into the load-receiver; and a spout situated adjacent to said opening to deliver the material removed from the load-receiver into a suitable receptacle.

25. The combination, with a load-receiver having a load-reducing opening; of a plate within the load-receiver, supported adjacent to said opening and consisting of two inclined sections, one of which is adapted to guide material from the load-receiver toward said opening, and said sections being so disposed that a pocket is formed between the same.

26. The combination, with weighing mechanism embodying a load-receiver having an opening; of a plate situated within the load-receiver, adjacent to said opening and consisting of two inclined sections the uppermost situated to guide material to said opening, the space between said sections constituting a pocket; and a valve for said opening.

27. The combination, with weighing mechanism, embodying a main load-receiver, of means for removing material from the main load-receiver before the discharge of the load; and a movably-mounted surplus-receiver located to receive said material.

28. The combination, with weighing mechanism embodying a main load-receiver, of overloading and load-reducing means operative in such order during the weighing of a load; and a movably-mounted surplus-receiver located to receive the material removed from the main load-receiver.

29. The combination, with weighing mechanism embodying a main load-receiver, of means for removing material from said main load-receiver before the discharge of the load; a movably-mounted surplus-receiver located to receive the material withdrawn from the main load-receiver; and means for emptying said surplus-receiver into the main load-receiver subsequent to the discharge of a load by the latter.

30. The combination, with weighing mechanism embodying a main load-receiver, of a regulator positioned to receive the contents discharged from the main load-receiver; a surplus-receiver; means for removing the material from the main load-receiver and delivering it to the surplus-receiver; and means for emptying said surplus-receiver, said means being operative with the regulator.

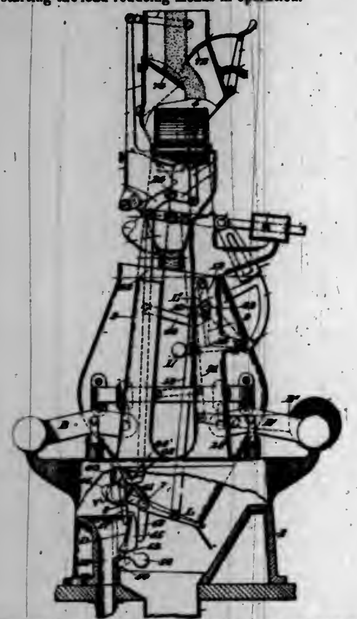
31. The combination, with weighing mechanism embodying a main load-receiver, of a regulator positioned to receive the contents discharged from the load-receiver; a movably-mounted surplus-receiver; means for removing the material from the main load-receiver and for delivering the same to the surplus-receiver; and means for emptying said surplus-receiver, said means being operative with the regulator.

32. The combination, with weighing mechanism embodying a load-receiver having a load-reducing opening, of a valve for said opening; a shaft carrying said valve, said shaft being furnished with arms, the head of one of which is equipped with a rock-arm; load-discharge-controlling means including a latch; a segment on the load-receiver; and a link pivoted, respectively, to said segment and the rock-arm.

589,284. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed May 17, 1897. Serial No. 636,937. (No model.)

Claim.—1. The combination, with weighing mechanism, of overloading and load-reducing means, the overloading means embodying

a movably-mounted hopper; and means coöperative with said hopper, for starting the load-reducing means in operation.



2. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a reciprocatory hopper; and means coöperative with said hopper, for starting the load-reducing means in operation.

3. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted valved hopper; and means coöperative with said hopper, for starting the load-reducing means in operation.

4. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted balanced hopper; and means coöperative with said hopper, for starting the load-reducing means in operation.

5. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a vertically-reciprocatory hopper; and means coöperative with said hopper, for starting the load-reducing means in operation.

6. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper; a valve controlling the passage of material from said hopper; and means coöperative with said hopper, for starting the load-reducing means in operation and for also closing said valve.

7. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper; a valve connected with said hopper; a link connected with the valve and with a resistance device; and means coöperative with the movably-mounted hopper, for starting the load-reducing means in operation.

8. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper; a valve pivoted to said hopper; a link connected, respectively, with the valve and the framework; and means coöperative with said hopper, for starting the load-reducing means in operation.

9. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper and the load-reducing means embodying a valve; and means coöperative with said hopper, for operating the valve.

10. The combination, with weighing mechanism; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper and the load-reducing means embodying a valve carried by the weighing mechanism; and means coöperative with said hopper, for operating the valve.

11. The combination, with weighing mechanism including a load-receiver having a spout; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper and the load-reducing means embodying a valve adapted normally to cover the outlet of the spout; and means coöperative with the hopper, for opening said valve at a predetermined stage.

12. The combination, with weighing mechanism including a load-receiver, of a movably-mounted hopper having a reduced end; a valve connected, respectively, with the hopper and the framework; a valve mounted on the load-receiver; a rod connected with the hopper and adapted to engage a device coöperative with the last-mentioned valve, to open the same at a predetermined stage.

13. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means, the overloading means embodying a movably-mounted hopper; means coöperative with said movably-mounted hopper, for starting the load-reducing means in operation; and a fixed hopper located above the movably-mounted hopper, to supply the same with material.

14. The combination, with weighing mechanism including a load-receiver; of overloading and load-reducing means embodying a movably-mounted hopper, and the load-reducing means being carried by the load-receiver; and means coöperative with said hopper, for starting the load-reducing means in operation.

15. The combination, with weighing mechanism including a load-receiver, of a valve; a shaft carrying the valve and supported by the load-receiver, said shaft being furnished with an arm; a reciprocatory hopper; and a device connected with the reciprocatory hopper, for engaging said arm to operate the valve.

16. The combination, with weighing mechanism including a load-receiver, of a reciprocatory hopper; a shaft having arms connected with the hopper; a valve; a second shaft for carrying the valve, said latter shaft being supported by the load-receiver and provided with an arm; and a rod connected with one of the first-mentioned arms and adapted to engage the last-mentioned arm.

17. The combination, with weighing mechanism including a load-receiver, of a reciprocatory hopper; a shaft having forwardly-extending arms pivoted to the hopper and a rearwardly-extending arm furnished with a weight; a valve; a shaft for carrying said valve, said shaft being supported by the load-receiver; and a rod connected with one of the first-mentioned arms and adapted to engage the last-mentioned arm to open the valve.

18. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; an actuator for the valve; a device located between the actuator and the valve, for transferring the power of the former to the latter; and means for shifting said device.

19. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; an actuator for the valve; a rod situated between the actuator and the valve, for transferring the power of the former to the latter; and means for shifting said rod.

20. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; a movably-mounted hopper, constituting an actuator, for the valve; a rod situated between the hopper and the valve; and means for shifting said rod.

21. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; an actuator for the valve; a device situated between the actuator and the valve, for transferring the power of the former to the latter to operate the valve; means for shifting said device; and independent means for opening the valve when said device is shifted.

22. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; an actuator for the valve; a rod situated between the actuator and the valve, for transferring the power of the former to the latter; means for shifting the rod; and means independent of the rod, for operating the valve.

23. The combination, with weighing mechanism including a load-receiver, of a valve carried by the load-receiver; an actuator for the valve; a rod situated between the actuator and the valve, for transferring the power of the former to the latter, thereby to open said valve; means for shifting said rod, to permit the valve to close; and a device independent of the actuator, for opening the valve subsequent to the shifting of said rod.

24. The combination, with weighing mechanism including a load-receiver provided with a closer, of a valve carried by the load-receiver; an actuator for the valve; a rod connected with the actuator and adapted to transfer the power thereof to the valve, to open the same; means for shifting said rod; and a device connected with the closer and adapted to open the valve when the rod is shifted.

25. The combination, with weighing mechanism including a load-receiver, of a valve mounted on the load-receiver; a pair of arms connected with the valve; a valve-actuator; a device adapted normally to engage one of said arms and connected with the valve-actuator; instrumentalities for shifting the device out of operative relation with said arm; and means for engaging the other arm of the valve when the device is shifted.

26. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading and load-reducing means; a plurality of conduits; a deflector controlling the passage of material into said conduits; and means operative with the closer, for simultaneously actuating the deflector and load-reducing means.

27. The combination, with weighing mechanism including a load-receiver, of overloading means therefor; a load-reducing valve; an actuator; a rod for transferring the effect of the actuator to the valve; and means for successively shifting the rod and opening the valve.

28. The combination, with weighing mechanism including a load-receiver provided with a closer, of overloading means; a load-reducing valve; an actuator; a rod for transferring the power of the actuator to the valve; and means connected with the closer, for successively shifting said rod and operating the valve.

29. The combination, with weighing mechanism including a load-receiver, of overloading means; a load-reducing valve; an actuator; a rod for transferring the power of the actuator to the valve; a plurality of conduits; a deflector for controlling the passage of material to said conduits; and means for shifting the rod and deflector and for opening the valve.

30. The combination, with weighing mechanism including a load-receiver, of overloading means; a load-reducing valve; a pair of arms; a plurality of conduits; a deflector controlling the passage of material to the respective conduits; a cam secured to the deflector and adapted to engage one of the arms; a rod in position to engage the other arm; an actuator connected with said rod; and means for shifting the latter.

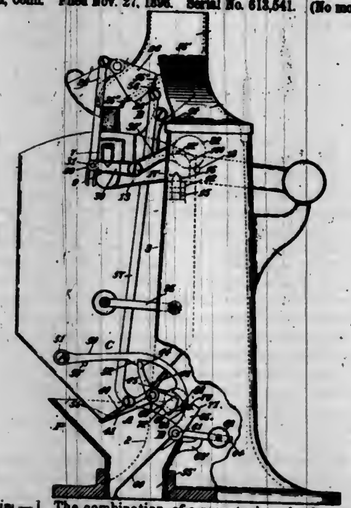
31. The combination, with weighing mechanism including a load-receiver having a closer, of a load-reducing valve; a plurality of conduits; a deflector controlling the passage of material to the respective conduits; a pair of arms connected with the valve; a cam secured to said deflector and adapted to engage one of the arms; a rod located to engage the other arm; an actuator connected with said rod; and an arm on the closer, for engaging said cam.

32. The combination, with weighing mechanism including a load-receiver, of overloading means therefor; a rocker; a load-reducing valve mounted on the load-receiver; an actuator for the load-reducing valve; and a device located between the actuator and the load-reducing valve and connected with the rocker.

33. The combination, with weighing mechanism including a load-receiver having a closer, of a rocker connected with said closer; a load-reducing valve mounted on the load-receiver; an actuator; a rod for transferring the power of the actuator to the valve, said rod being connected with the rocker; and means independent of the actuator, for operating the valve.

34. The combination, with weighing mechanism including a load-receiver having a closer, of a load-reducing valve; an actuator; a rod for transferring the power of the actuator to the valve; an arm; a cam for engaging said arm; an arm on the closer, coöperative with said cam; and means for shifting said rod.

589,285. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 27, 1896. Serial No. 613,541. (No model.)



Claim.—1. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; and a regulator operable in one direction by the direct engagement of the discharging load therewith to lock the closer open and operable in the other direction to unlock the same from its open-lock position, to thereby permit the same to shut.

2. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for holding or locking the same shut; a hopper; and a regulator shiftable therein in one direction by the discharging load, and in position to engage said closer-locking means and unlock the closer and thereby permit the same to open.

3. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; a hopper; and a regulator shiftable therein and operable in one direction by the discharging load, to lock the closer open, and operable in the opposite direction to unlock the same from its open-lock position, to thereby permit the same to shut.

4. The combination, of a load-receiver provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; and regulating mechanism operative in one position to unlock the closer from its closed-lock position, and then operable to lock the same open, and to unlock the same from its open-lock position and permit it to shut.

5. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; and regulating mechanism shiftable in an inclined plane, in position successively to unlock the closer, lock the same open, and unlock the same from its open-lock position, to thereby permit it to shut.

6. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; and regulating means operable below such locking means, successively to unlock the closer from its closed position, to lock the same open, and to unlock said closer from its open-lock position, to thereby permit it to shut.

7. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for locking or holding the closer shut; and oscillatory regulating means in position successively to unlock the closer from its closed-lock position, lock the same open, and to unlock said closer from its open-lock position, to thereby permit it to shut.

8. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; oscillatory means for locking or holding the closer shut; and oscillatory, inclinedly-disposed regulating means in position successively to unlock the closer from its closed-lock position, lock the same open, and unlock said closer, to thereby permit it to shut.

9. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means carried by the bucket, for holding or locking said closer shut; and regulating mechanism operable successively to unlock the closer from its closed-lock position, lock the same open, and to unlock the same from its open-lock position, to thereby permit it to shut.

10. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means carried by the bucket, for holding or locking said closer shut; a hopper; and regulating means carried by the hopper and operable successively to unlock the closer from its closed-lock position, lock the same open, and unlock the same from its open-lock position, to thereby permit the same to shut.

11. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; a holding or locking latch pivotally connected to the bucket and operative to hold or lock the closer shut; and regulating means disposed and operable below said latch, to engage the same and successively to unlock the closer from its closed lock position, lock the same open, and to unlock said closer from its open-lock position, to thereby permit it to shut.

12. The combination of a load-receiver provided with a shiftable member operative to discharge a load; means for locking said shiftable member shut; and regulator mechanism operative to unlock said shiftable member from its closed-lock position, thereby to permit it to open, and then operative to lock said shiftable member open.

13. The combination of a load-receiver provided with a shiftable member operative to discharge a load; means for locking said shiftable member shut; and regulator mechanism, substantially as described, controlled by the discharge of the load from said load-receiver, and normally in position to unlock the shiftable member and thereby permit it to open and be locked open, and also operable after the complete discharge from said receiver, and while a part of such load is still passing the regulator mechanism, to unlock said shiftable member from its open-lock position, and thereby permit it to shut and allow the load-receiver, during the passage of the remaining part of such first load by the regulator mechanism, to receive a second load; and said regulator mechanism being also operable in a direction opposite to that in which it was operated by the discharging load to again engage the shiftable-member-locking means in

readiness to unlock the same immediately after the complete passage of the material from the regulator mechanism, and thereby permit the shiftable member to open, and the load-receiver to discharge its second load.

14. The combination, of a load-receiver provided with a member shiftable to discharge the load; means for locking or holding said shiftable member shut; and regulating mechanism operative to unlock the shiftable member when said regulating mechanism is in its normal position or is moving thereto, and also operable to lock said shiftable member open and to unlock the same from its open-lock position, and thereby permit it to shut.

15. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; a hopper; and regulating means operable in one direction by the discharging load, and in position to unlock the closer and permit it to open and be locked open and also operable to unlock the same from its open-lock position after the complete discharge of the bucket-load, to thereby permit such closer to shut and allow the bucket to receive a second load while a part of the first load is still passing from the hopper.

16. The combination, of a rising-and-falling receptacle or bucket provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; a hopper; and regulating means operable by the discharging load and comprehending a regulator-blade and means operative successively to unlock the closer and permit it to open and to lock the same open and also operable to unlock the same from its open-lock position after the complete discharge of the bucket-load and permit such bucket to receive a second load while a part of the first load is still passing from the hopper.

17. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; a hopper; and regulating means, substantially as described, operable in one direction by the discharging load, and in position to unlock the closer and thereby permit it to open and be locked open, and also operable, after the complete discharge from the bucket and while a part of such load is still passing from the hopper, to unlock said closer from its open-lock position and thereby permit it to shut and allow the bucket, during the passage of the remaining part of such first load from said hopper, to receive a second load; and said regulating mechanism being also operable in a direction opposite to that in which it was operated by the discharging load, to engage again the closer-locking means, in readiness to unlock the same immediately after the complete discharge from the hopper of said first bucket-load and thereby permit the closer to open and the bucket discharge its second load therefrom.

18. The combination, of a rising-and-falling bucket or receptacle provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; a hopper; and regulating means, substantially as described, operable in one direction by the discharging load and comprehending a regulator-blade and means operative successively to unlock the closer and thereby permit it to open and lock the same open, and also operable, after the complete discharge from the bucket and while a part of such load is still passing from the hopper, to unlock said closer from its open-lock position and thereby permit it to shut, and allow the bucket, during the passage of the remaining part of such first load from said hopper, to receive a second load; and said regulating means being also operable in a direction opposite to that in which it was operated by the discharging load, to again engage the closer-locking means in readiness to unlock the same immediately after the complete discharge from the hopper of such first bucket-load and thereby permit the closer to open and the bucket to discharge its second load therefrom.

19. The combination of a movable load-receiver provided with a shiftable member operative to discharge a load; regulator mechanism comprehending a plurality of united locking means, one of which is operable to lock said shiftable member open when said receiver is in its load-discharging position, and the other locking means operable to lock said shiftable member open while the receiver is returning to its normal position.

20. The combination of a rising-and-falling load-receiver provided with a closer shiftable to discharge a load; means for holding or locking said closer shut; and regulator mechanism operable to unlock the closer and permit it to open, and comprehending a plurality of united locking means, one of which is operable to lock the closer open when the load-receiver is in its lowermost position, and the other locking means operable to lock the closer open while the receiver is ascending to its normal position.

21. The combination, of a rising-and-falling bucket or receptacle provided with a closer shiftable for discharging the load; means for locking or holding the closer shut; and regulating means operable to unlock the closer and permit it to open, and comprehending a plurality of locking means disposed one above the other, and one of which is operable to lock the closer open when the bucket is in its lowermost position and the other operable to lock said closer open while the bucket is returning to its normal position, and also operable to unlock said closer from its open-lock position, to thereby permit it to shut.

22. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; and regulating mechanism operable in one direction by the discharging load and comprehending a regulator-plate and means operable to engage the closer to lock the same open and to release the same from its open-lock position, to permit it to shut.

23. The combination, of a rising-and-falling receptacle or bucket provided with a closer shiftable for discharging the load; means for locking or holding the closer shut; and regulating mechanism embodying a regulator-plate and an instrumentality operative successively to unlock the closer from its closed-lock position, lock the same open, and to unlock the same from its open-lock position, to thereby permit it to shut.

24. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; and regulating mechanism operable in one direction by the discharging load and comprehending an inclinedly-disposed, oscillatory, counterbalanced regulator-plate carrying means movable in the same plane therewith to lock the closer open and operable on the movement of said plate to release the same from its open-lock position, to thereby permit it to shut.

25. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for locking or holding the closer shut; and regulating means comprehending a shiftable, inclinedly-disposed, flanged regulator-plate and means operative successively to unlock the closer from its closed-lock position, lock the same open, and to unlock said closer from its open-lock position, to thereby permit it to shut.

26. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; and regulating mechanism comprehending a pivotally-disposed regulator-plate having a plurality of working parts operative successively to have one of its working parts engage the closer-locking means to unlock said closer from its closed-lock position, and have another of its working parts engage the closer to lock the same open, and to unlock said closer from its open-lock position, to thereby permit it to shut.

27. The combination, with weighing mechanism embodying a receptacle or bucket provided with a closer shiftable for discharging the load, said closer having a pair of stops; of a locking-latch pivotally secured to the bucket and having a catch for engaging one of the stops of said closer, to thereby lock the same shut, and also having a stop or stop-face; and regulating mechanism operable to engage the stop of the locking-latch, to thereby unlock the closer and permit the same to open and to then engage the other stop of such closer and lock the same open.

28. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load, said closer having a plurality of working parts; a locker also having a plurality of working parts and operable to have one of its working parts engage one of the working parts of the closer, to thereby lock the same shut; and regulating mechanism likewise having a plurality of working parts and operable successively to have one of its working parts engage a working part of the locker, to thereby unlock the closer and permit it to open and to have another of its working parts engage a working part of the closer, to thereby lock the same open.

29. The combination, with weighing mechanism embodying a receptacle or bucket provided with a closer shiftable for discharging the load, said closer having a pair of stops; of a locking-latch pivotally secured to the bucket and having a catch for engaging one of the stops of said closer, to thereby lock the same shut, and also having a stop and a cam-face adjacent thereto; and regulating mechanism comprehending a regulator-blade operable in one direction by the discharging load, and having a bearing or roll in position to engage the stop of the locking-latch, to unlock the same from the closer-stop and permit said closer to open, and also having a stop adapted to engage the other closer-stop and thereby lock the same open.

30. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; means for locking the same shut; a hopper; a regulator-plate disposed in said hopper for shiftable movement; and an instrumentality operative therewith and in position successively to unlock the closer, to permit it to open, lock the same open, and to release the same from its open-lock position, to thereby permit it to shut.

31. The combination, with weighing mechanism embodying a bucket or receptacle provided with a closer shiftable for discharging the load; of a locker having a series of working parts, one of which is operative to lock the closer shut; a hopper disposed below the bucket; a regulator-blade pivotally disposed for oscillatory movement in said hopper and operable in one direction by the discharging load and likewise having a series of working parts, one of which is operative to engage one of the working parts of said locker to unlock the closer to permit it to open, and another operative to engage the closer, to thereby lock the same open.

32. The combination, with weighing mechanism embodying a rising-and-falling bucket or receptacle having successive ascending positions and provided with a closer shiftable for discharging the load, said closer having a pair of stops; of a locking-latch pivotally secured to the bucket and having a catch operative to engage one of the stops of the closer to lock the same shut, and also having a stop or stop-face; a hopper having a discharge-mouth; and regulating means comprising an inclinedly-disposed, oscillatory regulator-blade pivotally secured to said hopper and having a counterbalance-weight, and a member operative with the regulator-blade, to engage the stop or stop-face of the locking-latch, to thereby unlock the closer to permit the same to open, and also having a series of stops operative successively to engage the other stop of the closer, to thereby lock the same open in its successive ascending positions.

33. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle; valve mechanism operable to regulate the supply of material to said bucket and comprising a shiftable valve; and means comprehending weighted mechanism for operating said valve, the weight thereof having its center of gravity substantially over a neutral point of said beam, whereby it does not appreciably affect the poise thereof.

34. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle; valve mechanism operable to regulate the supply of material to said bucket and comprising a shiftable valve; and means movable with said beam mechanism and comprehending weighted mechanism for opening and holding said valve open, the weight thereof having its center of gravity substantially over a pivotal point of said beam, whereby it does not appreciably affect the poise thereof.

35. The combination, of pivotally-supported beam mechanism carrying a receptacle or bucket; and valve mechanism operable to regulate the supply of material to said receptacle and comprising a shiftable valve, an actuating-lever therefor, and a lever secured to said beam, for movement therewith and having one of its ends in operative engagement with said actuating-lever and carrying adjacent to its opposite end a weight having its center of gravity substantially over a pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof, and operable to open and hold the valve open.

36. The combination, of pivotally-supported beam mechanism carrying a receptacle or bucket; and valve mechanism operable to regulate the supply of material to said bucket and comprehending a weighted valve self-closable on the descent of said bucket, an actuating-lever pivotally secured to said valve, and a lever pivotally secured to said beam and in operative engagement at one end with said actuating-lever and carrying adjacent to its opposite end a weight having its center of gravity substantially over a pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof, and operable to open and hold said valve open.

37. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle provided with a closer shiftable for discharging the load; valve mechanism operable to regulate the supply of material to said bucket and comprising a shiftable valve; means comprehending weighted mechanism for operating said valve, the weight thereof having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof; and means for locking the valve closed against operation by said weight, when the closer is open.

38. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle provided with a closer shiftable for discharging the load; valve mechanism operable to regulate the supply of material to said bucket and comprising a shiftable valve; means comprehending weighted mechanism, for operating said valve, the weight thereof having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof; and valve-closer-locking means operatively connected to said valve and closer and operable to lock the valve closed against operation by said weight when the closer is open, and to lock the closer shut when the valve is open.

39. The combination of a load-receiver provided with a shiftable member adapted to discharge a load: means for locking or holding said shiftable member shut; and regulator mechanism controlled by the discharging load and operative in one position to unlock said shiftable member from its closed-lock position and thereby permit said member to open and be locked open, and then operative to unlock said member from its open-lock position to permit it to shut.

40. The combination of a load-receiver provided with a shiftable member operative to discharge a load; means for locking or holding said shiftable member shut; and regulator mechanism controlled by the engagement of the discharging load therewith and operative to lock the shiftable member open when unlocked from its closed-lock position, and thereby permit the discharge of the load.

41. The combination, of a load-receiver provided with a closer shiftable for discharging the load; means for locking the same shut, and a regulating instrumentality normally in position before the discharge of the material from the load-receiver to unlock said closer and permit the same to open; and then controlled by the discharging material from said load-receiver at a certain predetermined period to again unlock said closer should a premature load be received by said load-receiver, and thereby permit said closer to open.

42. The combination, of a load-receiver provided with a closer shiftable for discharging the load; means for locking said closer shut; shiftable means operative when in its normal non-movable position to unlock said closer at a predetermined period and permit it to open, and also operative during a predetermined period of its shifting movement to again unlock said closer and permit it to open.

43. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle provided with a closer shiftable for discharging the load and also provided with a shiftable stop operatively connected with the closer; valve mechanism comprising a swinging valve also having a stop adapted to have a bearing engagement on the stop of the bucket in a direct downward direction when the closer is open, whereby any tendency to move the bucket laterally is obviated; an actuating-lever for said valve; and a lever movable with said beam mechanism and having one of its ends in engagement with the actuating-lever and its opposite end carrying a weight having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof.

44. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; a valve operable to regulate the supply of material to said bucket; valve-closer-locking means operable to lock the closer shut when the valve is open and to lock the valve closed when the closer is open; independent means for locking or holding the closer shut; and regulating means operable to engage said independent locking means, to thereby unlock the closer and permit the same to open.

45. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load, a valve operable to regulate the supply of material to said bucket; valve-closer-locking means operable to lock the closer shut when the valve is open and to lock the valve closed when the closer is open; and regulating means operable to engage said closer and lock the same open.

46. The combination, of a receptacle or bucket provided with a closer shiftable for discharging the load; a valve operable to regulate the supply of material to said bucket; valve-closer-locking means operable to lock the closer shut when the valve is open and to lock the valve closed when the closer is open; independent means for locking or holding the closer shut; and regulating mechanism operable to engage said independent locking means, thereby successively to unlock the closer and permit it to open, lock the same open, and to unlock said closer from its open-lock position, to thereby permit the same to shut.

47. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; a valve operative to regulate the supply of material to said bucket; means operatively connected with said valve and closer, for locking the closer shut when the valve is open and for locking the valve shut when the closer is open and comprising a stop carried by the valve, a stop carried by the bucket and shiftable thereon and in engagement with the valve-stop, and a lever connecting said bucket-stop and closer, whereby they are operated together; independent locking or holding means for the closer; and regulating means operative to engage said independent locking means, thereby successively to unlock the closer and permit it to open, lock the same open, and to unlock said closer from its open-lock position, to thereby permit the same to shut.

48. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; a valve operative to regulate the supply of material to said bucket; means operatively connected with said valve and closer, for locking the closer shut when the valve is open and for locking the valve closed when the closer is open and embodying a plurality of stops, one movable with the valve and the other with the bucket, and one having a bearing engagement on the other in a direct downward direction at a certain predetermined period in the operation of the apparatus, whereby tendency to move the bucket laterally is obviated; independent locking or holding means for the closer; and regulating mechanisms operable in one direction by the discharging load, and in position to engage said independent locking means, thereby successively to unlock the closer and permit the same to open, lock said closer open, and to unlock said closer from its open-lock position, to thereby permit the same to shut.

49. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load and with a shiftable stop

operatively connected with said closer; a shiftable valve operable to regulate the supply of material to said bucket; a stop operative therewith and having a direct bearing engagement in a downward direction on the stop of the bucket at a certain predetermined period in the operation of the apparatus, whereby tendency to move the bucket laterally is prevented; actuating means operable to open and hold the valve open; an independent locker for locking the closer shut; and regulating means operable to engage said locker, to thereby unlock the closer and permit the same to open.

50. The combination, of a pivotally-supported beam mechanism carrying a bucket or receptacle provided with a closer shiftable for discharging the load; valve mechanism operative to regulate the supply of material to said bucket and comprising a shiftable valve, an actuating-lever therefor, a lever movable with said beam mechanism and operatively connected at one end to said actuating-lever and carrying a weight at its opposite end and having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof; valve-closer-locking means in operative engagement with the valve and closer, for locking the valve closed against operation thereof by said weight when the closer is open and for locking the closer shut when the valve is open; independent locking means for said closer; and regulating mechanism operative to engage the independent locking means, thereby successively to unlock the closer and permit the same to open, lock the same open, and unlock said closer from its open-lock position, to thereby permit the same to shut.

51. The combination, of pivotally-supported beam mechanism carrying a bucket or receptacle provided with a closer shiftable for discharging the load; valve mechanism comprehending a valve operative to regulate the supply of material to the bucket and mechanism for opening and holding the same open and embodying a weight having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof; means operatively connected with the valve mechanism and closer, for locking the closer shut when the valve is open and for locking the valve closed against operation thereof by said weight when the closer is open and embodying a plurality of stops, one movable with the valve and the other with the bucket and closer, and one bearing directly downward on the other at a certain predetermined period in the operation of the machine, whereby tendency to move the bucket laterally is prevented; independent locking means for the closer; and regulating mechanism operable in one direction by the discharging load, and in position to engage said independent locking means, thereby successively to unlock the closer and permit the same to open, lock the same open, and unlock said closer from its open-lock position, to thereby permit it to shut.

52. The combination, of a pivotally-supported beam mechanism carrying a bucket or receptacle provided with a shiftable stop and with a closer shiftable for discharging the load, said closer having a plurality of working parts; a lever connecting said stop and closer; valve mechanism comprehending a weighted valve shiftable to regulate the supply of material to said bucket and having a stop movable therewith, said stop having a bearing engagement in a direct downward direction on the bucket-stop at a certain predetermined period in the operation of the apparatus, whereby tendency to move the bucket laterally is prevented, an actuating-lever pivotally secured to said valve, a lever pivotally secured to and movable with the beam mechanism and operatively connected at one end to said actuating-lever and carrying at its opposite end a weight having its center of gravity substantially over a neutral or pivotal point of said beam mechanism, whereby it does not appreciably affect the poise thereof; a locking-latch pivotally secured to the bucket and having a plurality of working parts, one operative to engage one of the working parts of said closer, to thereby lock the same shut; and regulating mechanism comprehending a regulator-blade operable in one direction by the discharging load and carrying a plurality of working parts, one operative to engage a working part of the locking-latch, to thereby unlock the closer and permit the same to open, and another operative to engage a working part of said closer and lock the same open and also operative to permit the same to shut at the proper period in the operation of the apparatus.

53. The combination, of a bucket or receptacle provided with a closer shiftable for discharging the load; a hopper; a valve operable to regulate the supply of material to said receptacle; valve-closer-locking means embodying a pair of stops, one movable with the valve and the other with the bucket and operatively connected with and shiftable with the closer, and one of said stops bearing directly downward on the other stop when the closer is open, whereby tendency to move the bucket laterally is prevented; independent locking means for the closer; and regulating means operable in one direction by the discharging load, and in position to engage said independent locking means, to thereby unlock said closer and permit the same to open and then to lock the closer open, and operative in the opposite direction not only to unlock said closer to thereby permit the same to shut and allow the bucket to receive a second load, but also into position, when the hopper is not completely free of the first bucket-load, to reengage the independent locking means in readiness to again actuate the same after the complete discharge from said hopper and thus again unlock the closer.

54. In a weighing mechanism, the combination with a bucket, of a bucket-closer; and a closer-latching regulator having a latch thereon for holding the bucket-closer when the latter is open, thereby latching the closer in its open position.

55. The combination of a load-receiver provided with a shiftable member operative to discharge a load; main locking means for locking the shiftable member shut; independent locking means for also locking said shiftable member shut; and regulator mechanism operable to lock said shiftable member open.

56. The combination of a load-receiver provided with a shiftable member operative to discharge a load; main locking means for locking the shiftable member shut; independent locking means for also locking said member shut; and a regulator operative in one position to unlock said independent locking means and permit the shiftable member to open.

57. The combination of a load-receiver provided with a closer shiftable to discharge a load; main locking means for locking said closer shut; independent locking means for also locking said closer shut; and a regulator operative when in its stationary position to unlock said independent locking means and thereby permit the closer to open; and also shiftable at one predetermined period into position to again unlock said independent locking means to permit the closer to open when the load-receiver obtains a premature second load.

58. The combination of a load-receiver provided with a shiftable member operative to discharge a load; main locking means for locking the shiftable member shut; independent locking means for also locking said shiftable member shut; and a regulator operative in one position to unlock said independent locking means and permit the shiftable member to open, and then operative to lock the same open.

59. The combination, of a load-receiver provided with a closer shiftable for discharging the load; means for locking the closer shut; and regulating mechanism normally in position to unlock the same, and thereby permit said closer to open, and then operative successively to lock said closer open and unlock the same at the proper predetermined period, and also shiftable in the same direction as its open-lock-unlocking movement to again unlock said closer should the load-receiver obtain a premature second load; and then operative successively to lock such closer open to permit the discharge of such premature load and then release the closer to permit said closer again to shut.

60. The combination of a load-receiver provided with a shiftable member operative to discharge a load; means for locking said shiftable member shut; and shiftable means controlled by the engagement of the discharged material therewith after the same has completely left said load-receiver, and operative, when said receiver obtains a premature load, to unlock said locking means and permit said shiftable member to open.

61. The combination of a load-receiver provided with a closer shiftable to discharge a load; a discharge-hopper; means for locking the closer shut; and a weighted instrumentality normally in position to unlock said locking means to permit said closer to open, and shiftable into position by its weight, and controlled by the passage of the material from said discharge-hopper again to unlock said locking means to permit the closer to open when the load-receiver obtains a premature second load.

62. The combination of a load-receiver provided with a closer shiftable to discharge a load; main locking means operative to lock the closer shut; independent locking means for locking said closer shut; and regulator mechanism operable successively to engage one of said locking means, thereby to unlock the closer and permit the same to open, then lock the same open, and then to unlock the same from its open-lock position to permit said closer to shut.

63. The combination, of a hopper; a load-receiver provided with a closer shiftable for discharging the load; a valve operable to regulate the supply of material to said load-receiver; valve-closer-interlocking means operable to lock the valve closed when the closer is open and to lock the closer shut when the valve is open; independent means for also locking the closer shut; and a regulator-plate operable in one direction on the discharge of the load from said hopper to engage said independent locking means, and thereby unlock said closer and permit the same to open should the load-receiver obtain a premature second load.

64. The combination, of a load-receptacle provided with a closer shiftable for discharging the load; means for holding or locking the closer shut; and a regulator operable in one direction by the direct engagement therewith of the discharging load, and also operative to unlock the closer from its closed-lock position and thereby permit the same to open.

65. The combination, of a load-receptacle provided with a closer shiftable for discharging the load; means for locking the closer shut; a regulator-plate, and means carried thereby and in position to unlock the closer from its closed-lock position, to thereby permit the same to open.

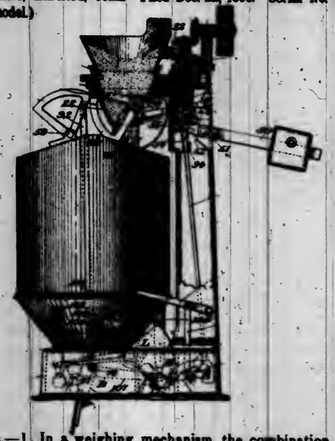
66. The combination, of a load-receptacle provided with a member shiftable to discharge the load; and a regulator disposed below such shiftable member and operable in one direction to lock the member open.

67. The combination, of a load-receptacle provided with a member shiftable to discharge the load; a regulator-plate; and means carried thereby and operable therewith in one direction to lock the member open.

68. The combination, of a load-receptacle provided with a closer shiftable for discharging the load; a hopper; and a regulator shiftable therein and operable in one direction by the discharging load to lock the closer open.

69. The combination of a load-receiver provided with a shiftable member operative to discharge a load; regulator mechanism controlled by the direct engagement therewith of the discharging material, and operative when in its normal stationary position to unlock said closer and permit the same to open and thereby discharge the load.

589,286. AUTOMATIC WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Dec. 22, 1896. Serial No. 616,614. (No model.)



Claim.—1. In a weighing mechanism, the combination, with a transversely-divided hopper comprising a plurality of stream-supplying hopper-sections, of power mechanism for actuating one of said sections in a curvilinear path; and stream-controlling means controlling the delivery of material from said hopper.

2. In a weighing mechanism, the combination, with a transversely-divided hopper comprising a plurality of rotary stream-supplying hopper-sections, of power mechanism for rotating one of said sections; and stream-controlling means controlling the delivery of material from said hopper.

3. The combination, with a divided hopper comprising a plurality of stream-supplying hopper-sections, of means for actuating said sections at different rates of speed.

4. In a weighing mechanism, the combination, with a transversely-divided hopper comprising a pair of stream-supplying hopper-sections, one supported on the other; of power mechanism for actuating one of said sections in a curvilinear path; and stream-controlling means controlling the delivery of material from said hopper.

5. In a weighing mechanism, the combination, with a transversely-divided hopper embodying a pair of stream-supplying hopper-sections, the upper supported on the lower; of power mechanism for actuating the upper section in a curvilinear path; and stream-controlling means controlling the delivery of material from said hopper.

6. The combination, with a pair of stream-supplying hopper-sections, of a driving-shaft; and differential gearing connecting said shaft and hopper-sections.

7. The combination, with a plurality of stream-supplying hopper-sections, of a driving member; a driven member connected with one of the hopper-sections, for turning the same; a bucket; beam mechanism; and a clutch operative with the beam mechanism, for connecting and disconnecting said driving and driven members.

8. The combination, with a plurality of stream-supplying hopper-sections, of a driving-shaft; a differential gearing connected with said hopper-sections, for rotating the same at different rates of speed; a bucket; beam mechanism; and a clutch operative with the beam mechanism, for connecting said driving-shaft and differential gearing on the ascent of the bucket and for disconnecting them on the descent of the bucket.

9. In a weighing mechanism, the combination, with a bucket, of a bucket-closer; and a double-action closer-latching regulator having a pair of catches operative, when the regulator is in its non-regulating and regulating positions, respectively, for latching the closer in its respective shut and open positions.

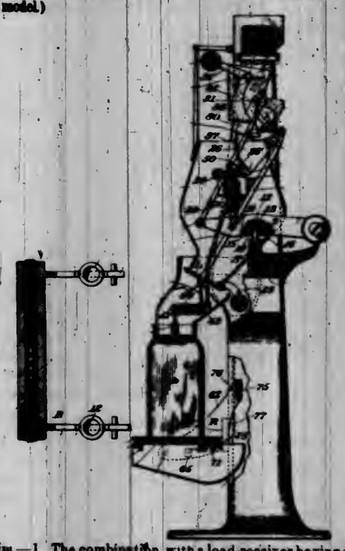
10. In a weighing mechanism, the combination, with a bucket, of a counterweighted bucket-closer having a stop; and an oscillatory closer-latching regulator mounted on the bucket and adapted to be held in its regulating position by the material discharged from the bucket, and having a pair of catches in position, respectively, for engaging the stop on the closer when said closer is in its respective closed and open positions.

11. In a weighing mechanism, the combination, with a bucket and with a closer therefor, of a closer-latch mounted on the bucket; a toggle connection between said latch and the bucket; a by-pass lever on said latch, for actuating said toggle; and a tripper for operating said lever.

12. In a weighing mechanism, the combination, with a bucket and with stream-supplying means therefor; of bucket-supporting beam mechanism comprising a rock-frame, a pair of pivotally-supported beam-arms having bucket-pivots at corresponding ends thereof and connected at their opposite ends to the rock-frame at one side of the axis of movement of the latter, and a pivotally-supported beam-arm between said pair of beam arms and having a bucket-pivot between its supporting-pivot and the free end thereof and connected at its free end with said rock-frame at the opposite side of the axis of movement of said frame.

15. In a weighing mechanism, the combination, with the framework, of a bucket; stream-supplying means therefor; bucket-supporting beam mechanism comprising a pair of pivotally-supported connected beams, one having a bucket-pivot at the end thereof opposite its point of connection with the other beam, and the other having a bucket-pivot between its supporting-pivot and such point of connection; a counterweighted lever supported on the framework and connected with said beam mechanism; a driving member; a driven member; and a coupling member operative by said lever, for coupling the driving and driven members.

589,287. WEIGHING AND BAGGING MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 9, 1897. Serial No. 622,999. (No model.)



Claim.—1. The combination, with a load-receiver having a closer, of a supply-hopper; a valve, a swinging stream-diverter situated between the valve and the hopper; means for simultaneously closing the valve and swinging the stream-diverter rearward; and means connected with the closer for oppositely swinging said stream-diverter.

2. The combination, with a load-receiver having a closer, of a hopper; a valve; a swinging stream-diverter situated between the

valve and the hopper: means for simultaneously operating the valve and the stream-diverter; a shaft mounted on the load-receiver and connected with the closer: a stop connected with said shaft; and a member cooperative with, and movable relatively to, the stream-diverter, said member being adapted normally to bear against said stop.

3. The combination, with a load-receiver having a closer, of a hopper; a valve; a movable stream-diverter situated between the valve and the hopper; a shaft connected with the closer and having a crank-arm provided with a stop; a rod connected with, and movable relatively to, the stream-diverter, the free end of said rod being adapted normally to bear against said stop; and means for simultaneously closing the valve and swinging the stream-diverter rearward.

4. The combination, with a load-receiver having a closer, of a hopper; a valve; a swinging stream-diverter; a shaft connected with said closer and having a crank-arm provided with a stop; a rod, the free end of which is normally adapted to bear against said stop and which is cooperative with the stream-diverter; an interlocking stop carried by said shaft and operative with the closer; and a cooperating interlocking stop connected with the stream-diverter.

5. The combination, with a load-receiver having a closer, of a hopper; a valve; a swinging stream-diverter; a shaft having a crank-arm provided with a stop; a rod connected with said stream-diverter and with the framework by a guide, the free end of said rod being adapted to bear normally against said stop; an interlocking stop operative with the closer and carried by said shaft; a cooperating interlocking stop connected with the stream-diverter; and a third interlocking stop operative with the valve and adapted to coact with the closer interlocking stop.

6. The combination, with weighing mechanism including a load-receiver the discharge of which is controlled by means comprehending a latch, of stream-controlling means; a rod situated between the steam-controlling means and the weighing mechanism; a tripping-lever connected to said rod; a second rod pivoted to said tripping-lever at a point between its connection with said first-mentioned rod and its free end; and hand-operated means for drawing said rod downward.

7. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of said load-receiver; and a bag-support located below the weighing mechanism and adapted to sustain a bag in position to receive material from the load-receiver, said bag-support embodying a tilting pan.

8. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of said load-receiver; and an adjustable bag-support situated below the weighing mechanism and adapted to sustain a bag to receive material from the load-receiver, said bag-support embodying a tilting pan.

9. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of said load-receiver; and a vertically-adjustable bag-support below the weighing mechanism and adapted to sustain a bag in position to receive material from the load-receiver, said bag-support embodying a tilting pan.

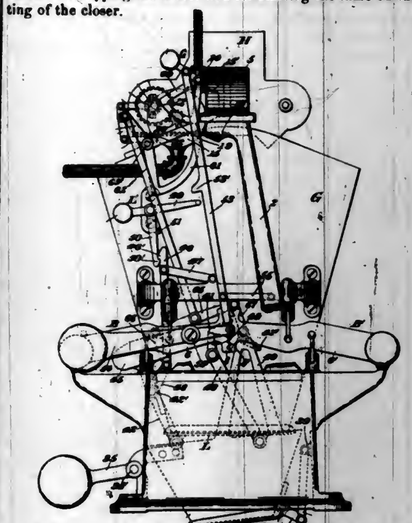
10. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of said load-receiver; a bracket on the framework, having two arms; and a tilting pan located below the weighing mechanism and adapted to sustain a bag in position to receive material from the load-receiver, said pan being pivotally suspended between said arms and having its axis of movement at one side of its center of gravity.

11. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of said load-receiver; a bag-support adapted to sustain a bag in position to receive material from the load-receiver and including a pivotally-supported pan the axis of movement of which is forward of its center of gravity, whereby a forward movement of the pan is prevented: and means for preventing the opposite action of said pan.

12. In a weighing and bagging machine, the combination, with weighing mechanism including a load-receiver, of means for effecting the discharge of the load-receiver; a bracket adjustably carried by the framework and having a pair of arms; a pan pivotally supported between said arms, the pivotal point of said pan being located forward of its center of gravity; a lug on one of the bracket-arms; a coacting lug on the pan, adapted to rest on said first-mentioned lug; and a grated bag-rest carried on said pan and adapted to sustain a bag in position to receive material from the load-receiver.

589,288. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Feb. 27, 1897. Serial No. 625,331. (No model.)

Claim.—1. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon and having a gravitative closer, of a feed-case located above the load-receiver and having an inlet and a discharge opening located one above and at one side of the other; two superposed horizontal material-supporting plates having their inner ends in juxtaposition to the inlet and discharge openings, respectively: an endless open-work feeder supported in the feed-case with the upper run thereof above the upper plate and with the lower run thereof between the two plates; a motor in operative connection with, and adapted for imparting a circuitous movement to, said feeder, whereby the material is force-fed to the end of the upper plate and is allowed to gravitate through the two runs of the feeder and fall upon the lower plate, whence it is moved along this plate to the discharge-opening of the feed-case; and means controlled by the beam mechanism on the descent of the load-receiver for stopping the motor and for starting the same on the shutting of the closer.



2. In a weighing-machine, a supply apparatus comprehending a feed-case having an inlet and a discharge opening, the former of which is located above and at one side of the latter; two horizontal parallel material-supporting plates, located one above the other, with their inner ends in juxtaposition to the inlet and discharge openings, respectively, and in overlapping relation, and one of which plates is movably supported; an endless open-work feeder having the upper and lower runs thereof located, respectively, above and below the upper table; and means for imparting a circuitous movement to the feeder whereby material supported upon the upper table is advanced to the end of said table and permitted to gravitate through the two runs of the feeder and fall upon the lower table, whence it is conveyed to the end of said lower table and allowed to pass through the discharge-opening of the feed-case; and means for reciprocating the movable table during the operation of the feeder.

3. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon and having a gravitative closer, of a feed-case having an inlet and a discharge opening the former of which is located above the latter; two horizontally-parallel material-supporting plates located one above the other with their inner ends in juxtaposition to the inlet and discharge openings, respectively, and one of which plates is supported for reciprocatory movement: an endless feeder supported in the feed-case and having a series of remote blades set up edgewise in a plane transversely to the path of movement of the feeder and adapted for force-feeding the material along the two plates in two independent oppositely-moving streams and permitting the gravitation of said material between the blades of the feeder and through the two runs from one to the other plate; a motor in connection with the feeder and reciprocatory plate and adapted for simultaneously imparting a circuitous movement to the feeder and a reciprocatory movement to said plate; and means controlled by the beam mechanism and the closer of the load-receiver for stopping the motor on the descent of the beam mechanism and for starting the same on the shutting of the closer.

4. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a feed-case located above the load-receiver and having an inlet and an outlet opening and also having a series of superposed material-supporting plates located with their adjacent ends in juxtaposition to the inlet and outlet openings, respectively; an endless feeder located in said feed-case and effective for force-feeding material along the supporting-plates and crosswise of the inlet and discharge openings; and a motor in operative connection with the feeder and one of said plates, and controlled by the beam mechanism, for simultaneously actuating the feeder and reciprocating said plate.

5. The combination, with weighing mechanism including a load-receiver having a shiftable closer, of a feed-case located above the receiver and having an inlet and a discharge opening; a horizontally-disposed material-supporting plate shiftably supported in the feed-case below the opening thereof; a chute in communication with the feed-case; a horizontally-disposed feeder supported in the feed-case and operable for separating out portions of the mass lying on the table and for force-feeding the same over the end of said table; a rotary feeder-actuator controlled by the movements of the weighing mechanism; and means in connection with the feeder-actuator and effective, during the operation of said feeder, for simultaneously reciprocating said plate.

6. In a weighing-machine, the combination, with oscillatory beam mechanism and with a load-receiver supported thereon having a shiftable closer, of a feed-case located above the receiver and having an inlet and a discharge opening and also having two superposed material-supporting plates located therein adjacent to the inlet and discharge openings, respectively; an endless open-work feeder supported in the feed-case with one run thereof above and in position to force-feed material along the upper supporting-plate; a motor in operative connection with and effective for imparting a circuitous movement to the feeder; a motor-governing device controlled by the beam mechanism and by the closer, for stopping the motor on the descending movement of the beam mechanism and for starting the same on the shutting of the closer; and means controlled by the motor, for reciprocating one of said plates simultaneously with the operation of the feeder.

7. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported on said beam mechanism and having a shiftable closer, of a feed-case located above the receiver and having an inlet and a discharge opening and also having a material-supporting plate located therein adjacent to the inlet-opening thereof; a feeder located in the feed-case in position to force feed material along, and over the end of, the supporting-plate and so constructed that material may gravitate through said feeder in a plane transverse to the line of movement thereof; a feeder-actuating motor in operative connection with said feeder and embodying a governing device; means controlled by the beam mechanism, on the ascending and descending movements thereof, for actuating the governing device to stop and start the motor; two cooperative and reciprocally-effective stop devices controlled by the closer and motor-governing device, respectively, and effective for blocking the operation of the motor when the closer is in its open position, and for preventing the opening movement of the closer when the motor is operating.

8. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported on said beam mechanism and having a shiftable closer, of a feed-case located above the receiver and having an inlet and a discharge opening; a reciprocatory material-supporting plate located in said case below the inlet-opening thereof; a feeder supported in the feed-case and operable for force-feeding material along the supporting-plate and adapted for controlling the supply of material to the load-receiver; a rotary fluid motor in operative connection with the feeder and reciprocatory plate and effective for actuating the feeder and plate simultaneously; a throttle-valve for controlling the movements of the motor; and means controlled by the beam mechanism and closer, on certain movements thereof, for actuating the throttle-valve to start and stop the motor.

9. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported on said beam mechanism and have a shiftable closer, of a feed-case located above the receiver and having an inlet and a discharge opening; a reciprocatory material-supporting plate located in the feed-case adjacent to and below the inlet-opening thereof; a feeder supported in the feed-case for circuitous movement and effective for force-feeding material along the supporting-plate and adapted for controlling the supply of material to the load-receiver; a rotary fluid-motor in operative connection with the feeder and the reciprocatory plate and embodying a throttle-valve for controlling the movements of said motor; a throttle-valve actuator operatively connecting said valve and beam mechanism; and two cooperative stop devices controlled by the closer and throttle-valve, respectively, and reciprocally effective for blocking the motor-starting movement of the valve when the closer is in its open position and for blocking the opening movement of the closer when the throttle-valve is open.

10. The combination, with weighing mechanism, of a casing having an inlet and a discharge opening; an endless-chain feeder supported within the casing, with the upper and lower runs thereof in horizontal planes, and composed of a series of remotely-disposed scraper-blades set up edgewise at right angles to the line of movement to the feeder; means for supporting and facilitating a circuitous movement to the feeder; a fixed horizontally-disposed material-supporting plate located below and in juxtaposition to the upper run of the feeder; a reciprocatory material-supporting plate located below and in juxtaposition to the lower run of said feeder and having its inner end below and between the inner and outer ends of the upper plate; a rotary motor in operative connection and effective for imparting a circuitous movement to the feeder and, simultaneously, a reciprocatory movement to the lower material-supporting plate, whereby material supported on the upper material-supporting plate is force-fed by the scraper-blades of the upper run of the feeder over the end of said plate, whence it falls through the two runs of the feeder upon the lower reciprocatory plate where it is agitated by the movement of said plate and is simultaneously advanced by the scraper-blade of the lower run of the feeder along this plate to the discharge-opening of the casing; and a throttle-valve controlled by the weighing mechanism, for starting and stopping the motor.

11. In a weighing-machine, the combination, with a casing having an inlet and a discharge opening, of an endless-chain feeder supported within the casing, with the upper run and the lower thereof in horizontal planes, and composed of a series of remotely-disposed scraper-blades set up edgewise at right angles to the line of movement of the feeder; means for supporting and facilitating a circuitous movement of the feeder; a horizontally-disposed material-supporting plate located below and in juxtaposition to the upper run of the feeder; a reciprocatory material-supporting plate located below and in juxtaposition to the lower run of said feeder and having its inner end located below, and between the inner and outer ends of, the upper plate; a rotary motor in operative connection with the feeder and adapted for imparting a circuitous movement to said feeder; and an actuating-connector between the reciprocatory plate and motor and effective, during the operation of said motor, for actuating this plate to agitate the material supported thereon, substantially as described and for the purpose set forth.

12. In a weighing-machine, the combination, with a load-receiver, of a load-discharge member suspended from the load-receiver in such manner that the weight of the load will inaugurate the opening movement of said member; a counterweighted actuator carried on the closer in such position as to continue the opening movement of the closer after the same has arrived at a predetermined position: and means for normally locking the closer in its closed position.

13. In a weighing-machine, the combination, with a load-receiver having a discharge-opening in vertical alinement with the longitudinal axis thereof, of a load-discharge member connected to the load-receiver out of vertical alinement with the center of gravity of said member and adapted to have a partial opening movement imparted thereto by the weight of the load supported thereon; a counterweighted actuator shiftably connected with said closer and effective at a predetermined point in the opening movement of said closer for imparting an opening force thereto; and means for locking the closer normally in its closed position.

14. In a weighing-machine, the combination, with a load-receiver, of two depending sets of links pivotally supported on the load-receiver at one side the longitudinal axis thereof; a load-discharge member pivotally supported at opposite ends thereof to the two sets of links, respectively; and a gravitative actuator fixed to one of said links and effective for completing the opening and closing movements, respectively, of said member.

15. In a weighing-machine, the combination, with a load-receiver, of two sets of links pivotally connected at their upper ends to the load-receiver at one side the longitudinal axis thereof, and one of said links having an arm extending upward beyond the pivotal point thereof; a closer pivotally connected to the lower ends of said links; a gravitative regulator having a discharge-member-actuating by-pass in position to engage the arm of said link during the ascending movement of said regulator and inaugurate the closing movement of the discharge member; a gravitative actuator in connection with another link of said member and effective for continuing the closing movement of the discharge member after the same has arrived at a predetermined point.

16. In a weighing-machine, the combination, with a load-receiver having a shiftable load-discharge member, of a gravitative regulator-hopper having a pivotally-supported closer: a link connecting the closer and the framework of the weighing-machine in such manner that a closing movement will be imparted to the closer on the ascending movement of the regulator; and a load-discharge-member actuator carried by the regulator and adapted, on the ascending movement of the regulator, for imparting a closing movement to said discharge member of the receiver.

17. In a weighing-machine, the combination, with a load-receiver having a shiftable load-discharge member, of a counter-

weighted gravitative regulator pivotally supported on the framework below the load-receiver and having a shiftable closer; a toggle device pivotally connecting the closer and framework and effective, on the rising and falling movements of the regulator, for imparting an opening and closing movement to the regulator-closer; and means carried by the regulator and effective, on the rising movement thereof, for imparting a closing movement to the load-discharge member of the receiver.

18. In a weighing-machine, the combination, with a load-receiver having a shiftable load-discharge member, of a counterweighted gravitative regulator pivotally supported on the framework below the load-receiver and having a shiftable closer; a toggle device pivotally connecting the closer and framework and effective, on the rising and falling movements of the regulator, for imparting an opening and closing movement to the closer; means carried by the regulator and effective, on the rising movement thereof, for inaugurating a closing movement of the load-discharge member; and a shiftable gravitative actuator in connection with the load-discharge member and effective for continuing the closing movement of said member.

19. The combination, with weighing mechanism embodying a load-receiver, of two sets of links pivotally mounted on the load-receiver at one side the longitudinal axis thereof; a load-discharge member pivotally connected at one end to one set of links and at the opposite end to the other set of links; a gravitative regulator pivotally supported below the load-receiver and having a toggle-actuated closer; a counterweight for imparting a return movement to the regulator; a series of links connecting the regulator and load-discharge member; means carried by the regulator, for inaugurating the closing movement of the load-discharge member; a gravitative actuator carried by the load-discharge member and effective at a predetermined point in the closing movement thereof for continuing said closing movement; and a latch mechanism for locking the load-discharge member normally in its closed position.

20. In a weighing-machine, the combination, with a load-receiver, of a shiftable discharge member; a gravitative regulator pivotally supported below said receiver and embodying means for inaugurating the closing movement of the load-discharge member; and means carried by the load-discharge member for continuing such closing movement.

21. In a weighing-machine, the combination, with a load-receiver having a shiftable load-discharge member, of a gravitative regulator-hopper supported on the framework of the machine below said discharge member; a counterweight in connection with said regulator and effective for imparting a return movement thereto; a closer pivotally supported on the regulator; two pivotally-connected links one of which is pivoted to the closer and the other of which is pivotally connected to the framework, and which links are so disposed as to block the closing movement of the closer and the ascending movement of the regulator when material is passing through said regulator, and are adapted for effecting a closing movement of the closer on the ascending movement of the regulator; and means carried by the regulator and effective, on the ascending movement thereof, for inaugurating the closing movement of the discharge member of the load-receiver.

22. The combination, with weighing mechanism embodying a load-receiver having a shiftable load-discharge member and with a gravitative closer, of duplex linkage pivotally connecting the load-discharge member and regulator; stream-supply means embodying a motor having a throttle-valve; and cooperative and reciprocally-effective stop devices, one of which is carried by the throttle-valve and is actuated by a lever on the beam mechanism, and the other of which is operatively connected with the duplex linkage and is effective, on the closing movement of the regulator and load-discharge member, for blocking the opening movement of said valve.

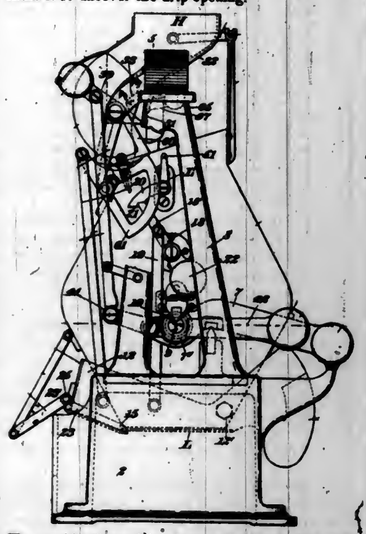
23. In a weighing-machine, the combination, with a load-receiver, of a load-discharge member suspended from said load-receiver; a shiftable gravitative actuator in connection with the load-discharge member; and means for shifting said actuator beyond its dead-center position to complete the closing and opening movements of the load-discharge member.

589,289. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 10, 1897. Serial No. 626,759. (No model.)

Claim.—1. The combination, with a hopper having a drip-opening or notch in its front wall, of a drip-regulator; a device adapted normally to hold said regulator in a position to cover the drip-opening or notch; a cut-off valve situated below the hopper; valve-closing mechanism; and means for causing the drip-regulator to uncover said opening at a predetermined point in the closure of the valve.

2. The combination, with a hopper having a drip-opening or notch in its front wall, of a cut-off valve for the hopper; a drip-regulator adapted normally to cover said drip-opening; and means operated by the valve for causing said drip-regulator to uncover said drip-opening.

3. The combination, with a hopper having a drip-opening or notch in a wall thereof, of a drip-regulator mounted on the hopper; means acting against said drip-regulator to cause it normally to cover said drip opening; a cut-off valve; valve-closing mechanism; and means operated by said cut-off valve for actuating the drip-regulator to cause it to uncover the drip-opening.



4. The combination, with a hopper having a drip-opening in a wall thereof, of a cut-off valve for said hopper; means for holding the drip regulator in a position normally to cover said drip-opening; and a cam on the cut-off valve, for operating the drip-regulator to cause the same to uncover the drip-opening.

5. The combination, with a hopper having a drip-opening in a wall thereof, of a cut-off valve for said hopper; an oscillatory drip-regulating plate supported on the hopper; means in position normally to cause the drip-regulator to cover said drip-opening; and means operated by the cut-off valve for causing the drip-regulator to uncover the drip-opening.

6. The combination, with a hopper having a drip-opening in a wall thereof, of a cut-off valve for said hopper; a drip-regulator pivotally supported on the hopper and having a lateral projection; and a cam on the cut-off valve, adapted to engage said projection.

7. The combination, with a load-receiver having a cylindrical tube transversely disposed therein, of a scale-beam consisting of two counterweighted members connected by a shaft at their poising or inner ends for simultaneous movement and disconnected at their counterweighted or opposite ends, said shaft passing through said tube.

8. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, pivoted to the load-receiver and having flanges along its ends and front, said front flange being so situated as to form an opening between the same and the discharge edge of the closer.

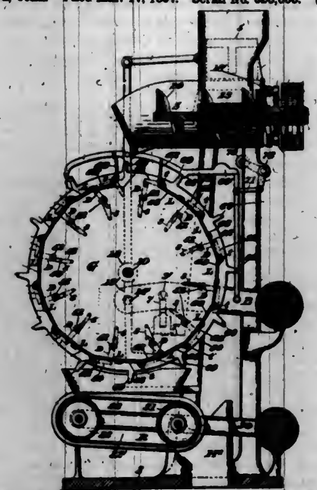
9. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, having flanges along its front and ends, said front flange being so situated as to form an opening between the same and the discharge edge of the closer; and a valve for said opening.

10. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, pivoted to the load-receiver and having flanges along its ends and front, said front flange being so situated as to form an opening between the same and the discharge edge of the closer; and a valve for said opening, connected with the load-receiver.

11. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, pivoted to the load-receiver and having flanges along its ends and front, the front flange being so situated as to form an opening between the same and the discharge edge of the closer; a valve for said opening, said valve having a crank-arm; and a link connected, respectively, with the load-receiver and crank-arm.

12. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, pivoted to the load-receiver, said closer having flanges at its ends and front, the front flange being so situated as to form a space between the same and the discharge edge of the closer; a counterweighted lever mounted on the load-receiver and connected with the closer; and a latch adapted to engage said counterweighted lever.

589,290. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 17, 1897. Serial No. 628,035. (No model.)



Claim.—1. A weighing-machine embodying a cylindrical load-receiver supported for rotation about a horizontal axis and having its periphery composed of a continuity of independently-operable closers.

2. A weighing-machine embodying a rotative cylindrical load-receiver having a multiplicity of peripherally-disposed pivotally-connected closers whose axes are parallel to the axis of movement of the load-receiver.

3. A weighing-machine embodying a rotative load-receiver having a multiplicity of circumferentially-disposed closers arranged contiguous to one another with the inner free ends of adiacent closers in overlapping relation.

4. A weighing-machine embodying a load-receiver supported for rotative movements and having its periphery composed of a circuit of pivotally-connected sets of closers whose axes are parallel to the axis of the load receiver.

5. A weighing-machine embodying a rotative load-receiver having a multiplicity of pivotally-connected sets of closers concentrically disposed relatively to the axis of movement of the load-receiver and each set of which comprises two closers having their free ends in overlapping relation and having their axes parallel to each other and to the axis of movement of the load-receiver.

6. A weighing-machine embodying a substantially cylindrical load-receiver supported for rotative movement and having a multiplicity of circumferentially-disposed closers; means for supplying material to the load-receiver at one side the axis thereof to effect a rotative movement of said receiver; means for intermittently interrupting such rotative movement; and means for intermittently opening one or more closers.

7. A weighing-machine embodying a rotative load-receiver having a series of sets of closers arranged in a circuit, and each set comprising two closers each of which is pivotally connected to a closer of the next adjacent set.

8. A weighing-machine embodying a rotative load-receiver having a series of independently-operable sets of closers, each set consisting of two closers pivotally connected at their outer ends to the adjacent closers of the next adjacent sets of closers, respectively.

9. A weighing-machine embodying a rotative load-receiver having a body portion consisting of a series of independently-operable sets of closers, each set comprising two closers normally overlapping each other at their inner ends and pivotally connected at their outer ends to the closers of the next adjacent sets, respectively.

10. A weighing-machine embodying a rotative load-receiver having a series of independently-operable sets of closers, each set consisting of two closers pivotally connected at their outer ends to the adjacent closers of the next adjacent sets, respectively; and means for holding the closers normally in their closed positions.

11. A weighing-machine embodying a rotative load-receiver having a circuit of independently-operable sets of closers, each set consisting of two closers pivotally connected at their outer ends to the adjacent closers of the next adjacent sets, respectively; means for holding the closers normally in their closed positions; and means for opening the sets of closers independently and successively as they arrive, during the rotation of the load-receiver, at predetermined positions.

12. A weighing-machine embodying a load-receiver supported for rotative movements and having a multiplicity of closers arranged in sets substantially concentric to the axis of the receiver, and each set comprising two closers pivotally supported at their outer ends and having their inner ends normally in overlapping relation.

13. A weighing-machine embodying a load-receiver supported for rotative movements and having a multiplicity of closers arranged in sets, and each set comprising two pivotally-supported closers having their inner ends normally in overlapping relation; and a closer-actuator operatively connecting the two closers of each set.

14. A weighing-machine embodying a load-receiver supported for rotative movements and having a multiplicity of closers arranged in sets, and each set comprising two pivotally-supported closers having their inner ends normally in overlapping relation; and means controlled by the rotative movements of the load-receiver for actuating the closers of each set, one slightly in advance of the other, and the sets of closers independently and successively as they arrive, during the rotation of the load-receiver, at predetermined positions.

15. A weighing-machine embodying a load-receiver supported for rotative movements and having a multiplicity of closers arranged in sets, and each set comprising two pivotally-supported closers having their inner ends normally in overlapping relation; an actuating-connector between the two closers of each set; and means located in the path of movement of the connectors and effective, at predetermined points in the rotative movements of the load-receiver, for operating said connectors.

16. A load-receiver having a series of independently-operable pivotally-supported closers having crank-arms; combined with a series of detent devices, each of which normally engages a crank-arm of, and holds, a closer in a closed position.

17. A load-receiver having a series of independently-operable pairs of pivotally-supported closers arranged substantially in the arc of a circle, and the pivot of one closer of each pair having a crank-arm; combined with a series of detent devices each normally engaging a crank-arm of, and holding, a closer in a closed position.

18. A load-receiver supported for rotative movements and having a pivotally-supported closer furnished with a crank-arm; combined with a detent device engaging the crank-arm of said closer normally, and holding the same in a closed position.

19. A load-receiver supported for rotative movements and having a pivotally-supported closer the pivot of which has a crank-arm; combined with a detent device engaging the closer normally, and holding the same in a closed position; and means located in the path of movement of the detent device and effective, at a predetermined point in the rotation of the receiver, for releasing said device from engagement with the crank-arm to facilitate an opening movement of the closer.

20. The combination, with a load-receiver supported for rotative movement, of two closers pivotally supported at their outer ends on the load-receiver near the periphery thereof and having their inner ends normally in overlapping relation; a crank-arm fixed to the pivot of one of said closers; a detent device pivotally supported on the load-receiver in position for normally engaging the crank-arm, to thereby lock the two closers normally in their closed positions; and means located in the path of movement of the detent device and effective, at a predetermined point in the rotation of the receiver, for actuating said device to release, and facilitate an opening movement of, the two closers.

21. The combination, with a load-receiver supported for rotative movement and having an opening, of two closers pivotally supported near their outer ends on the receiver in position to close said opening and having their inner free ends normally in overlapping relation; a crank-arm fixed to the pivot of one of said closers; a detent device normally engaging the crank-arm, for locking the two closers in their closed positions; a detent-actuator located in the path of movement of the detent and effective, at a predetermined point in the rotation of the receiver, for releasing said detent device from engagement with the crank-arm, to facilitate an opening movement of said closer; and an actuating-connector between the two closers and effective, on the opening movement of one closer, for imparting an opening movement to the bther closer.

22. A load-receiver comprising two end walls connected by tie-rods, and a cylindrical body composed of a series of closers carried by said tie-rods.

23. A load-receiver comprising two end walls; a series of tie-rods connecting the two end walls; and a series of closers carried by said tie-rods between said end walls and arranged to form the body portion of the receiver.

24. A cylindrical load-receiver consisting of two discous end walls fixedly secured together by tie-rods; and a concentrically-disposed body portion intermediate the end walls and composed of a series of

closers carried by said tie-rods and having the inner free ends of the adjacent closers in overlapping relation.

25. In a weighing-machine, the combination, with beam mechanism, of a cylindrical load-receiver supported on the beam mechanism for rotative and reciprocatory movements and comprising two end walls fixedly secured together by tie-rods; and a multiplicity of body sections or closers carried by the tie-rods between the two end walls and arranged in a circuit substantially concentric to the axis of rotation of the load-receiver.

26. In a weighing-machine, the combination, with oscillatory beam mechanism, of a load-receiver supported on the beam mechanism for rotative movement and embodying a circuit of pivotally-supported pairs of closers; a series of detent devices carried by the load-receiver near the periphery thereof and normally engaging and holding the closers in a closed position; and a detent-actuator organized to partake of the oscillatory movement of the beam mechanism and effective, at a predetermined point in the rotation of the load-receiver, for actuating a detent device to release and facilitate the opening movement of a pair of closers.

27. In a weighing-machine, the combination, with a load-receiver having a series of closers, of means embodying two independent reciprocally-effective closer-actuators, one for opening one closer and the other for shutting another closer.

28. In a weighing-machine, the combination, with a load-receiver having a series of closers, of a closer-opening actuator located in position to engage and effect an opening movement of one closer; an independent closer-shutting actuator located in position to engage and effect a closing movement of the other closer independent of the movement of the first-mentioned closer; and means for simultaneously imparting a closer-actuating stroke to one closer-actuater and an ineffective return stroke to the other closer-actuator.

29. In a weighing-machine, the combination, with a load-receiver having two or more closers, of two reciprocally-effective closer-actuators; a regulator located below the load-receiver; and means operatively connecting the closer-actuators and regulator and effective, on the descending movement of said regulator, for imparting a closer-opening movement to one closer-actuator and effective, on the ascending movement of said regulator, for imparting a closer-shutting movement to the other closer-actuator.

30. In a weighing-machine, the combination, with a rotative load-receiver having a series of circumferentially-disposed closers and with means for controlling the rotative movement of said load-receiver, of two reciprocally-effective closer-actuators located one with its working end in position to engage and impart an opening movement to an upper closer, and the other located with its working end in position for imparting a closing movement to a lower closer, and both of which are so connected that an effective movement of one closer will impart a return movement to the other closer; a load-receiving regulator supported below the load-receiver for ascending and descending movements; and means connecting the regulator and the two closers and effective, on the descending movement thereof, for imparting a closer-opening movement to one actuator and, on the ascending movement thereof, for imparting a closer-shutting movement to the other actuator.

31. In a weighing-machine, the combination, with a rotative load-receiver having a series of circumferentially-disposed closers and with means for controlling the rotative movement of said receiver, of two reciprocally-effective closer-actuators; a rocker connecting said two closer-actuators; and means for actuating the rocker, to impart an effective closer-opening stroke to one actuator and an ineffective return or positioning stroke to the other actuator, simultaneously.

32. In a weighing-machine, the combination, with beam mechanism and with a rotative load-receiver supported on the beam mechanism for rotative movements, and having a series of escapement-arms extending outward, radially, from the periphery thereof, of means for supplying material to the load-receiver at one side the axis of rotation thereof; and an escapement actuated by the beam mechanism and effective for controlling the intermittent rotations of said load-receiver.

33. In a weighing-machine, the combination, with oscillatory beam mechanism, of a rotative load-receiver supported on said beam mechanism for oscillatory movement therewith and having a series of escapement-arms extending outward from the periphery thereof; means for supplying material to the load-receiver at one side the axis of rotation thereof, whereby the weight of material will tend to rotate said receiver; an escapement-lever pivotally supported near the middle portion thereof at one side the periphery of the load-receiver and having pallets at opposite ends thereof for alternately engaging the arms of said load-receiver; and means actuated by the beam mechanism, for throwing the pallets of the escapement-lever alternately into and out from engagement with the arms of the load-receiver, to thereby control rotative movements of said receiver.

34. The combination, with beam mechanism, of a rotative load-receiver supported thereon for oscillatory movements and having a series of equidistantly-disposed radial arms extending outward from the periphery thereof; means for supplying material to the load-receiver at one side the axis of movement thereof to effect a rotative movement of said load-receiver; a counterweighted escapement-lever having pallets at opposite ends thereof adapted for alternately engaging the radial arms of the load-receiver; and an escapement-lever actuator pivotally connected at one end to the beam mechanism and having its opposite end in position to engage and actuate the escapement-lever on the oscillatory movements of the load-receiver and beam mechanism.

35. In a weighing-machine, the combination, with oscillatory beam mechanism, of a load-receiver supported for rotative movement on the poising end of the beam mechanism and having a series of circumferentially-disposed closers and also having a series of circumferentially-disposed escapement-arms; means for supplying material to the load-receiver at one side the axis of rotation thereof, to effect a rotative movement of said load-receiver; an escapement-lever having pallets shiftable alternately into the path of movement of the escapement-arms of the load-receiver and adapted for intermittently interrupting and limiting the rotative movement of said receiver; an escapement-lever actuator in operative connection with the beam mechanism; means controlled by the beam mechanism for stopping the supply of material to said load-receiver just preceding the actuation of the escapement-lever by said beam mechanism; means for locking the closers normally in their closed positions; means for unlocking and facilitating an opening movement of the lowermost closer immediately succeeding the operation of the escapement-lever; and means for opening the uppermost closers immediately succeeding the opening movement of the lower closers.

36. In a weighing machine, the combination, with a rotative load-receiver having a series of circumferentially-disposed pivotally-supported closers, of crank-arms fixed to the pivots of said closers; detent devices for locking the closers normally in their closed positions; means for supplying material to the load-receiver at one side the axis thereof, to thereby facilitate a rotative movement of the receiver by the weight of the load; means for controlling the intermittent rotative movements of the receiver; a closer-actuator shiftable into engagement with the crank-arms of the successive closers; and means for imparting a closer-opening movement to the actuator at a predetermined point in the rotative movements of said receiver.

37. The combination, with beam mechanism, of a load-receiver supported for rotative movements on the poising end of the beam mechanism and having a series of circumferentially-disposed sets of pivotally-supported closers; actuating-connectors between the closers of each set; crank-arms fixed to the pivots of alternating closers; means for supplying material to the load-receiver at one side the axis thereof, to cause the receiver to rotate by the weight of the load; an escapement device controlling the intermittent rotative movements of the load-receiver; a closer-opening actuator shiftable into and out from engagement with the successive crank-arms, intermediate two intermittent rotations of the receiver, to thereby effect an opening movement of a pair of closers; and a gravitative regulator supported below the load-receiver and connected with the closer-opening actuator in such manner as to control the movements thereof.

38. The combination, with beam mechanism, of a load-receiver supported on the poising end of the beam mechanism for rotative movements and having a series of circumferentially-disposed closers; means for supplying material to the load-receiver at one side of its axis, to facilitate a rotative movement of the load-receiver; and a track-plate for normally retaining the majority of the closers in a closed position during the rotative movements of the load-receiver and having depressed portions for facilitating an opening movement of two of the closers.

39. The combination, with beam mechanism, of a load-receiver supported on the poising end of the beam mechanism for rotative movements and having a series of circumferentially-disposed closers; means for supplying material to the load-receiver at one side of its axis, to facilitate a rotative movement of the load-receiver; a substantially circular track-plate for normally retaining the majority of the closers in a closed position during the rotative movements of the load-receiver and having two depressed portions for facilitating an opening movement of the two closers; a regulator or discharge-conveyer supported below the load-receiver for oscillatory movement; and means controlled by said regulator, on the ascending and descending movements thereof, for closing and opening, respectively, independent closers.

40. In a weighing-machine, the combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of a feed-case having a discharge-opening located above the receiver; a rotative force-feeder journaled in said feed-case; a fast and a loose pulley on the shaft of said feeder and adapted to be driven by a belt; means in connection with the feeder-shaft and adapted during the rotation of said feeder for vibrating the feeder and feed-case simultaneously; a belt-shipper having a depending arm in normal engagement with a by-pass on the beam mechanism; a belt-shipper actuator effective, on the descent of the load-receiver and on the release of the arm from the by-pass, for moving the belt-shipper in one direction; a regulator supported for oscillatory movement below the load-receiver; two reciprocally-effective stop members operative with the belt-shipper and regulator, respectively, for locking the belt-shipper in its feed-stopping position when the regulator is depressed and for locking the regulator in its elevated position when the belt-shipper is in its feed-starting position; and means controlled by the beam mechanism for shifting the belt-shipper to its feed-starting position on the ascent of the regulator.

41. In a weighing-machine, a rotatably-supported load-receiver having a series of pairs of closers each pair consisting of two pivotally-supported closers; combined with actuating-toggles pivotally connecting the two closers of the successive pairs of closers; a fixed plate having a substantially circular track bearing against the knuckles of the several closers, for holding said closers normally in their closed position during the major portion of the rotative movement of the receiver; and means for effecting opening and closing movements of the closers.

42. In a weighing-machine, a substantially cylindrical load-receiver supported for rotative movements and having a pair of pivotally-supported circumferentially-disposed closers; combined with a toggle comprising two links pivotally connected together at their inner ends, and one of said links being fixed at its outer end to the pivot of one closer, and the other link being pivotally connected at its outer end to the inner end of the adjacent closer; a roller mounted on the knuckle of said toggle; a fixed plate having a track or runway for the rolls on the toggles and adapted for normally retaining the closers in their closed positions during the major portion of the rotative movement of the receiver and having two diametrically opposite depressed portions for facilitating an opening movement of said closers and for assisting the closing movements thereof.

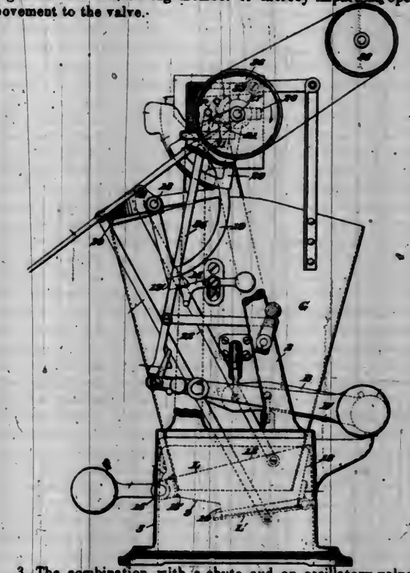
43. In a weighing-machine, the combination, with a cylindrical load-receiver having a multiplicity of circumferentially-disposed pivotally-supported closers, of a fixed plate having a track for retaining the closers normally in their closed positions during the rotative movement of the receiver; means for supplying material to the load-receiver, at one side the axis of movement thereof, to effect a rotative movement of said receiver; means for intermittently interrupting the supply of material; and means for locking the load-receiver against movement while material is being supplied thereto, and for releasing and facilitating a rotative movement of said receiver on the interruption of the supply.

44. In a weighing-machine, the combination, with a rotative load-receiver having a multiplicity of circumferentially-disposed closers, of a track-plate having a depressed peripheral portion; closer-actuating toggles in connection with said closers, bearing on the periphery of the track-plate during the rotative movement of the receiver; a counterweighted track-segment normally bridging the depressed portion of the track-plate and supported to have a limited advancing movement with the load-receiver; a force-feeder for supplying a stream of material to the load-receiver at one side the axis of movement thereof, to effect a rotative movement of said receiver; a feed-controller in operative relation with the force-feeder and adapted for starting and stopping, intermittently, said feeder; and means controlled by the feed-controller, on the feeder-stopping movement thereof, for retracting the track-segment.

589,291. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 23, 1897. Serial No. 628,827. (No model.)

Claim.—1. The combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of a supply-chute located above the receiver; an oscillatory valve pivotally supported in operative relation with the supply-chute; a rotative driving member supported with its axis substantially coincident with the axis of the valve and operative independently of said valve; a driven member shiftably carried by the valve; means for actuating the driving member; and means, including a thrust-rod, in operative connection with the beam mechanism and driven member, for intermittently effecting an operative engagement between the driving and driven members, whereby said driven member will partake of the movements of the driving member and actuate the valve.

2. In a weighing-machine, the combination, with oscillatory beam mechanism and with stream-supplying means including an oscillatory valve and a valve-closing actuator, of a valve-opening actuator comprising a rotative driving member whose axis is substantially coincident with the axis of the valve; a driven member pivotally supported on the valve for movement with the valve in a plane concentric to the axis thereof and for independent rocking movement toward and away from the axis of said valve; and actuating means, including a thrust rod, supported upon the beam mechanism and connected to said driven member and adapted, on certain movements of the beam mechanism, for shifting the driven member into operative engagement with the driving member to thereby impart an opening movement to the valve.



3. The combination, with a chute and an oscillatory valve, of two cooperative clutch members one of which is normally continuously driven and has its axis coincident with the axis of oscillation of the valve and the other of which is pivoted at one end upon the valve for movement in a plane concentric to said valve and is adapted to have its opposite free end shifted toward and away from the axis of said valve; and means for shifting the free end of the last-mentioned clutch member toward the axis of said valve to effect an operative engagement between the two members.

4. The combination, with oscillatory beam mechanism and with stream-supply means including an oscillatory valve and valve-closing means, of a valve-opening actuator comprising a rotative valve-actuating drum having its axis substantially coincident with the axis of the valve; a power-transmitter pivotally supported at one end of the valve for movement therewith and having at the opposite end thereof a brake-shoe in position to engage the periphery of the drum; means for rotating the drum in the direction of the opening movement of the valve; means, including a thrust-rod, in operative engagement with the beam mechanism, for shifting the brake-shoe of the power-transmitter into operative engagement with said drum, whereby an opening movement will be imparted to the valve; and means for limiting the opening movement of the valve.

5. In a weighing-machine, the combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of a supply-chute located above said receiver; an oscillatory valve having a crank-arm extending outward from the axis thereof; a friction-drum supported for independent rotative movement with its axis substantially coincident with the axis of movement of the valve; a lever pivotally connected to the outer end of the crank-arm, a brake-shoe pivotally supported on the lever with its inner face in juxtaposition to the periphery of the drum; and an actuating-rod pivoted at its upper end to the lever and having its lower end supported upon the poising end of the beam mechanism and adapted, on the movement of the beam mechanism, for throwing the brake-shoe into working engagement with the drum and effect an opening movement of the valve.

6. In a weighing-machine, the combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of a supply-chute located above the receiver; a counterweighted self-closing valve supported in operative relation with the supply-chute; a friction-clutch comprising two members one of which is supported for continuous rotative movement in operative relation with the first-mentioned member; a thrust-rod pivotally connected at its upper end to one clutch member and supported at its lower end on the poising end of the beam mechanism and adapted during the ascent of the bucket for effecting frictional engagement between the two clutch members to thereby impart an opening movement to the valve; and a pointer carried by one clutch member and cooperating with a by-pass for temporarily arresting the closing movement of the valve.

7. The combination, with a load-receiver, of a main and a supplemental closer, the latter of which is pivotally connected to the former and the former of which is pivotally supported on the load-receiver; a rocker mounted on the load-receiver; and two closer-supporting rods or links pivotally connected at their lower ends to the main closer and supplemental closer, respectively, and pivotally connected at their upper ends to the rocker in such manner as to impart to said links simultaneous strokes of relatively different lengths.

8. The combination, with a load-receiver, of a main and a supplemental closer, the latter of which is pivotally connected to the former and the former of which is pivotally supported on the load-receiver; a rocker mounted on the load-receiver; two closer-supporting links, one of which is pivotally connected at its lower end to the supplemental closer and at its upper end to the outer end of the rocker, and the other of which is pivotally connected at its lower end to the main closer and at its upper end to the rocker at a point intermediate the axis of said rocker and the pivotal point of the other link; and a latch carried on the load-receiver and coöperating with the rocker to hold the closers against accidental opening movement.

9. In a weighing-machine, the combination, with oscillatory beam mechanism including a power-transmitter actuator and with a load-receiver supported on said beam mechanism, of a supply-chute located above the receiver; an oscillatory valve pivotally supported in operative relation with the supply-chute; a valve-closing actuator; a friction-drum having a peripheral path of movement concentric to the path of movement of the valve; a power-transmitter having a pivotally-supported shoe with its working face in operative relation with the friction-drum, and which power-transmitter is pivotally supported on the valve; a thrust-rod pivotally connected at its upper end to the power-transmitter and supported at its lower end on the poising end of the power-transmitter actuator in such manner that on a descending movement of the counterweighted end of said actuator the shoe of the power-transmitter will be thrown into operative engagement with the friction-drum; and means for rotating the friction-drum in a direction corresponding to the direction of opening movement of the valve.

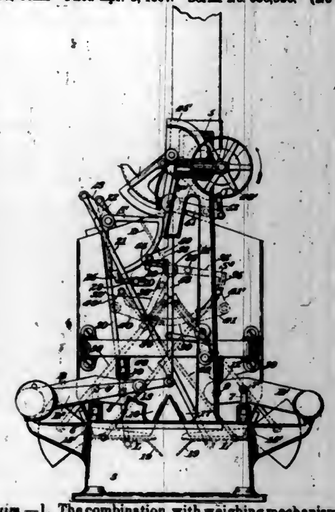
10. The combination, with a supply-chute, of a pivotally-supported counterweighted valve; a friction-drum supported for rotative movement in concentric relation with the axis of the valve; a rock-shaft carried on said valve and having its axis parallel to, and at one side the axis of movement of, said valve; a lever fixed at one end to said rock-shaft; a brake-shoe pivotally carried at the opposite end of said lever in position to engage the periphery of the friction-drum; means for rotating the friction-drum; and a thrust-rod pivotally connected to said lever intermediate the ends thereof.

11. In a weighing-machine, the combination, with beam mechanism including an auxiliary beam and with a load-receiver supported on the beam mechanism, of a supply-chute located above the load-receiver; a self-closing valve pivotally supported in operative relation with the supply-chute; a friction-drum supported for rotative movement in concentric relation with the valve; a rock-shaft supported on the valve, with its axis parallel to, and at one side the axis of movement of, said valve; a power-transmitting lever fixed at one end to said rock-shaft; a brake-shoe pivotally mounted on the opposite end of said lever and having its working face in operative relation with the periphery of the friction-drum; a thrust-rod connected at its upper end to said lever at one side the rock-shaft and supported at its lower end on the auxiliary beam; means for imparting a normally continuous rotative movement to the friction-drum in a direction corresponding to the direction of opening movement of the valve; a by-pass carried on the auxiliary beam; and an arm depending from, and fixed to, the rock-shaft of the power-transmitting lever and having its outer end in position to engage the by-pass and interrupt the closing movement of the valve.

12. The combination, with a load-receiver; of a main and a supplemental closer, the latter of which is pivotally connected with the former, and the former of which is pivotally supported on the load-receiver; a rock-shaft mounted on the load-receiver; a stop member carried by said rock-shaft and having a rearwardly-projecting arm; and two closer-supporting rods or links, one of which is pivotally connected at its lower end to the supplemental closer and at its upper end to the outer end of the arm of the stop member, and the other of which is pivotally connected at its lower end to the main closer and at its upper end to the arm of the stop member at a point intermediate to the axis and the outer end of said arm.

13. The combination, with a load-receiver having a discharge-opening, of a counterweighted closer-chute pivotally supported at one end to the lower end of the load-receiver in position for closing the discharge-opening thereof, and having a discharge-spout; a supplemental closer pivotally supported at one end on the closer-chute in position to cover the discharge-opening of the spout thereof; a stop member pivotally supported on the load-receiver and having a rearwardly-extended arm; and two closer-supporting arms, one of which is pivotally connected at its lower end to the supplemental closer near the middle portion thereof and is pivotally connected at its upper end to the outer end of the stop-member arm, and the other of which is pivotally connected at its lower end to the forward end of the closer-chute and at its upper end to the stop-member arm intermediate its ends; and means for locking the closers normally in their closed positions.

589,292. **WEIGHING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 3, 1897. Serial No. 630,506. (No model.)



Claim.—1. The combination, with weighing mechanism including a reciprocatory load-receiver and with stream-supply means including a pivotally-supported counterbalanced valve located above said load-receiver, of a power-driven valve opening and closing actuator in operative connection with the valve and embodying a normally continuously-rotative driving member and a reciprocatory driven member; and means controlled by the weighing mechanism, for intermittently shifting the driven member into operative engagement with diametrically opposite peripheral portions, alternately, of the driving member, to thereby effect alternate opening and closing movements of said valve

2. The combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of stream-supply means including an oscillatory valve located above the load-receiver; a continuously-rotative power-driven member; a power-transmitting lever pivotally connected to the valve; and means controlled by the beam mechanism, on the ascending and descending movements thereof, for shifting the lever into engagement with diametrically opposite peripheral portions of the power-driven member, to thereby effect a movement of such lever in opposite directions, alternately, and impart opening and closing movements, alternately, to said valve.

3. The combination, with weighing mechanism including a load-receiver and with a supply apparatus located above said load-receiver and including a valve, of a drum supported at one side the axis of the valve; means for rotating said drum; a power-transmitter pivotally connected at one end to the valve and having a yoke at the opposite end thereof, the ends of which are located in position to engage diametrically opposite peripheral portions of the drum; and means controlled by the weighing mechanism, for intermittently shifting the power-transmitter into engagement with opposite peripheral portions, alternately, of the drum, to effect intermittent and alternate opening and closing movements of the valve.

4. The combination, with stream-supply means including a valve, of valve-actuating mechanism embodying a drum; means for rotating said drum; a power-transmitter connected with the valve and having oppositely-disposed arms in position to engage diametrically opposite peripheral portions of the drum; and means for actuating the transmitter to bring the opposite arms, alternately, into engagement with the drum, whereby opening and closing movements will be imparted, alternately, to the valve.

5. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a supply-chute having a discharge-opening located above the load-receiver; a counterbalanced valve supported for oscillatory movement in operative relation with the discharge-opening of the supply-chute; a friction-drum supported at one side the axis of the valve; means for continuously rotating the friction-drum during the weighing operation; a shiftably-supported power-transmitter pivotally connected at one end to the valve and having projecting arms in position for engaging diametrically opposite peripheral portions of the drum; and transmitter-actuating instrumentalities controlled by the weighing mechanism, for shifting the power-transmitter into engagement with diametrically opposite peripheral portions of the drum, alternately, to thereby effect alternate opening and closing movements of the valve.

6. The combination, with beam mechanism and with a load-receiver carried thereby, of a supply-chute; a counterbalanced valve pivotally supported for reciprocatory movements in operative relation with the chute; a valve opening and closing actuator in operative connection with the valve and comprising a drum; means for continuously rotating said drum; a power-transmitter one end of which is pivotally connected to the valve and the other of which is bifurcated and is adapted for engaging diametrically opposite peripheral portions of the drum; and means connecting the transmitter and beam mechanism and effective for shifting said transmitter into working engagement with diametrically opposite peripheral portions, alternately, of the drum, to impart opening and closing movements, alternately, to the valve.

7. The combination, with a scale-beam having a lever connected therewith, of a valve; a drum; means for rotating said drum; a yoke pivotally connected to the valve and having means for engaging diametrically opposite portions of the drum; and a yoke-actuator in pivotal connection at its upper end with the yoke and supported at its lower end on the lever.

8. The combination, with a scale-beam having a pivotally-connected auxiliary beam and with a load-receiver carried on the scale-beam, of a supply-chute above the load-receiver; a valve in operative relation with the supply-chute; a drum; means for rotating said drum; a yoke pivotally connected to the valve and having means for engaging diametrically opposite portions of the drum; and a yoke-actuator in operative connection with the yoke and auxiliary beam and adapted, on a movement of the beam in one direction, for shifting the yoke into engagement with one portion of the drum, to effect an opening movement of the valve, and on a movement of the beam in the opposite direction for shifting said yoke into engagement with an opposite portion of the drum, to effect a closing movement of said valve.

9. The combination, with a scale-beam having a pivotally-connected auxiliary beam and with a load-receiver carried on said scale-beam, of a fixed supply-chute above the load-receiver; a counterbalanced valve pivotally supported in operative relation with the supply-chute; a drum supported at one side the axis of movement of the valve; means for rotating the drum; a yoke pivotally connected to the valve and adapted for engaging diametrically opposite peripheral portions of the drum; and a yoke-actuator in operative connection at its upper end with the yoke and supported at its lower end on the auxiliary beam in such manner that a movement of the beam in one direction will cause the yoke to be thrown into engagement with one portion of the drum and effect an opening movement of the valve, and a movement of the beam in an opposite direction will cause the yoke to be thrown into engagement with an opposite portion of the drum and effect a closing movement of the valve.

10. The combination, with a scale-beam having a pivotally-connected auxiliary beam, of an oscillatory valve; a rotative valve-actuating drum located at one side the axis of movement of said valve; a yoke pivotally connected at one end to the valve and having means for engaging diametrically opposite peripheral portions of said drum; a counterweighted lever pivotally connected at its non-counterweighted end to the yoke and tending normally to throw the yoke toward a position for engaging one portion of the drum; and a thrust-rod pivotally connected at its upper end to the counterweighted end of the lever and supported at its lower end on the auxiliary beam.

11. The combination, with beam mechanism and with a load-receiver supported thereon and having a series of closers, of a series of concentrically-disposed stop members each of which is connected to an independent closer; latches for normally locking the stop members in their closer-shutting positions; and means controlled by the load-receiver, on the descending movement thereof, for releasing the latches.

12. The combination, with a load-receiver having a series of independently-operable closers; of a series of independently-operable stop members having coincident axes of movement, and each stop member of which is directly connected to an independent closer; and means for controlling the movements of said stop members.

13. The combination, with a reciprocatory load-receiver having a series of closers; of a series of independently-operable stop members having coincident axes of movement, and each stop member having a crank-arm; closer-sustaining rods in pivotal connection with the crank-arms of the stop members and the closers, respectively; independently-operable latches normally holding the stop members in their closer-shutting positions; and means controlled by the load-receiver, for actuating the latches.

14. The combination, with beam mechanism and with a two-chambered load-receiver supported thereon, each chamber having a discharge-opening; of two counterweighted closers in operative relation with the discharge-openings of the two chambers of the load-receiver; two independent concentrically-movable stop members pivotally connected to the two closers, respectively; independently-operable latches for engaging the independent stop members, to normally retain the closers in their closed positions; and means, effective on successive corresponding movements of the load-receiver, for actuating the latches successively to facilitate alternate opening movements of the closers.

15. The combination, with beam mechanism and with a load-receiver supported thereon and having a series of chambers, each chamber having a discharge-opening; of a series of counterweighted closers in operative relation with the discharge-openings of said chambers; a series of independent concentrically-movable stop members pivotally connected to the series of closers, respectively; a supply-chute located above the load-receiver; an oscillatory valve in operative relation with the supply-chute; a stop member operative with said valve and coöperating with the series of concentrically-movable stop members, for normally holding the closers in their closed positions; means for imparting closing movements to the valve; a series of latches for engaging the concentrically-movable stop members; and means controlled by the beam mechanism, for actuating the latches to successively release the stop members simultaneously with the complete closing movements of the valve, to facilitate opening movements of the closers successively.

16. The combination, with beam mechanism and with a load-receiver having a series of independently-operable closers, of a series of concentrically-disposed stop members each having a crank-arm; a series of rods or links each of which is pivotally connected at its lower end to a closer and at its upper end to a stop-member crank-arm; a latch in operative relation with each stop member; a shiftable latch-actuator operable with the load-receiver; and means for shifting the latch-actuator in operative relation with the different latches, successively.

17. The combination, with beam mechanism and with a load-receiver having a series of closers, of a supply-chute; a valve in operative relation with the supply-chute; means controlled by the beam mechanism, for imparting opening and closing movements, alternately, to the valve; a stop member carried by the valve; a series of concentrically-movable stop members each of which is operatively connected to an independent closer, and which latter stop members coöperate alternately with the valve stop member, for preventing an opening movement of the valve when a closer is open; means for locking one or more closer stop members against movement when one or more closers are open; and means controlled by the load-receiver for successively releasing the closer stop members to facilitate successive opening movements of the closers simultaneously with the successive closing movements of the valve.

18. The combination, with a load-receiver having two independently-operable closers and with stream-supply means having an oscillatory stream-controller; of reciprocally-effective stop devices one of which is operative with the stream-controller and comprises a single oscillatory stop member, and the other of which comprises two concentrically-disposed stop members operative with the two closers, respectively, and which alternately coöperate with the stop device of the stream-controller, for locking said stream-controller against opening movement when either closer is in its open position.

19. The combination, with a compartment load-receiver having a closer; of a stream-diverter pivotally supported on the load-receiver, and having a stop member; means controlled by the closer, on the opening movement thereof, for shifting the stream-diverter; and a second stop member coöperating with the stop member of the stream-diverter and effective for locking the same normally in one position; and means controlled by the closer, on the opening movement thereof, for actuating the second stop member to release the stream-diverter.

20. The combination, with a compartment load-receiver having two independently-operable closers, of stream-supply means located above said receiver; a stream-diverter pivotally supported on the load-receiver and operable for directing a stream to the different compartments, alternately, and having a stop member shiftable therewith; two independent locking devices effective, on the closing movements of the two closers, for locking the stream-diverter in different positions alternately; and means controlled by the two closers, on the opening movements thereof, for releasing the locking devices alternately and for simultaneously shifting the stream-diverter from one to another position.

21. The combination, with a compartment load-receiver having independently-operable closers, of stream-supply means located above the load-receiver; an oscillatory stream-diverter supported on the

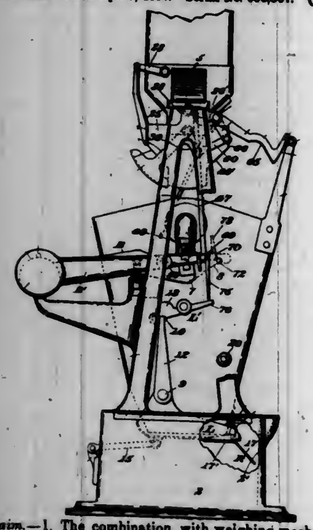
load-receiver in position to direct the stream to one or the other compartment; means controlled by the closers for shifting the stream-diverter in opposite directions alternately; and reciprocally-effective stop devices operative with the stream-diverter and closers, respectively, and effective for locking the stream-diverter, first, in one, then in another, position, and for simultaneously locking one or the other closer against opening movement.

22. The combination, with a compartment load-receiver having two independently-operable closers, of a stream-diverter pivotally supported on the load-receiver and operable for directing the stream to different compartments, alternately, and having a stop member shiftable therewith; two stop members alternately operable, on the alternate closing movements of the closers, for engaging the stream-diverter stop member, to thereby lock the stream-diverter, first, in one, and then in another, working position; and means controlled by the closers, on the opening movements thereof, for releasing the last-mentioned stop members, alternately, and for simultaneously shifting the stream-diverter to a different position.

23. The combination, with a compartment load-receiver supported for reciprocatory movements and having two independently-operable closers, and with stream-supply means; of two independently-operable closer-stops in operative connection, respectively, with the two closers; two independently-operable latches normally engaging the two closer-stops; a shiftable stop-actuator movable with the load-receiver into and out of operative relation with the latches; a stream-diverter pivotally supported on the load-receiver; means controlled by the closers, on the opening movements thereof, for shifting the stream-diverter, first, in one, and then in an opposite, direction; and means carried by the stream-diverter actuator, on the oscillatory movement thereof, for shifting the latch-actuator into position for engaging one or the other latch.

24. The combination, with a compartment load-receiver having two independently-operable counterweighted closers and with stream-supply means located above the load-receiver, of a stream-diverter supported for oscillatory movement on the load receiver in position to direct the stream to one or the other compartment of the receiver; and two oppositely-disposed thrust-rods pivotally secured at their lower ends to the counterweighted ends of the two closers, respectively, and having their upper ends normally out of engagement with, but in position to engage, the stream-diverter at opposite sides, respectively, of the axis thereof and impart opposite oscillatory movements, alternately, to the stream-diverter on alternate opening movements of the closers.

589,293. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 3, 1897. Serial No. 630,507. (No model.)



Claim.—1. The combination, with weighing mechanism including a load-receiver provided with a closer connected with the framework, of supply mechanism for the load-receiver; a latch in position normally to hold the closer shut; and a tripper for said latch, connected with the supply mechanism.

2. The combination, with a load-receiver and its scale-beam having a projection, of a closer connected with the load-receiver and with the framework; a latch in position to hold the closer normally against movement; supply mechanism; a rod connected with the supply mechanism and having a bifurcation at its lower end embracing said projection, one of the legs of the bifurcation being extended downward to form a tripper for the latch.

3. The combination, with weighing mechanism including a load-receiver provided with a closer connected with the framework, whereby when the closer is opened the load-receiver will be caused to tilt; of a latch in position normally to hold the closer shut; a tripper for the latch; supply mechanism; a stop cooperative with the supply mechanism; and a cooperating stop secured to the load-receiver, to be thrown under the first-mentioned stop when the load-receiver is tilted.

4. The combination, with weighing mechanism including a load-receiver having a closer connected with the framework, whereby when the closer is opened the load-receiver will be caused to tilt, said closer having a rigid arm; of a latch mounted on the load-receiver and adapted to engage said arm; and a stop on the load-receiver, disposed in the path of movement of said arm and adapted to prevent the closer from opening too far.

5. The combination, with a load-receiver having a discharge-outlet; of a closer for the discharge-outlet, connected with the load-receiver and having a longitudinal ridge near its discharge edge and on the upper side thereof, which, when the closer is shut, is in contact with the lower edge of the load-receiver; and a guard fixed to the front wall of the load-receiver near the lower edge thereof.

6. The combination, with weighing mechanism embodying a load-receiver, of means including a latch for governing the discharge of a load; a reciprocatory hopper controlled by the weighing mechanism; a stream-controller carried by, and reciprocatory with, said hopper; and connections between said hopper and the stream-controller for actuating the latter.

7. The combination, with a scale-beam and with a load-receiver, of a reciprocatory hopper having a valve connected thereto; a rock-shaft carried by a stationary part and connected, respectively, with the hopper and valve; and a connection between the scale-beam and the valve.

8. The combination, with a load-receiver and a scale-beam, of a reciprocatory hopper having a valve; a rock-shaft carried by a stationary part and having a pair of oppositely-disposed crank-arms connected, respectively, with the hopper and the valve, and having a third crank-arm; and a connector between said third crank-arm and the scale-beam.

9. The combination, with weighing mechanism embodying a load-receiver, of a reciprocatory hopper; a valve; a transverse rock-shaft having oppositely-disposed arms, one of which is connected with said hopper; a link connected with the other arm and also with the valve; and connections between said rock-shaft and the weighing mechanism.

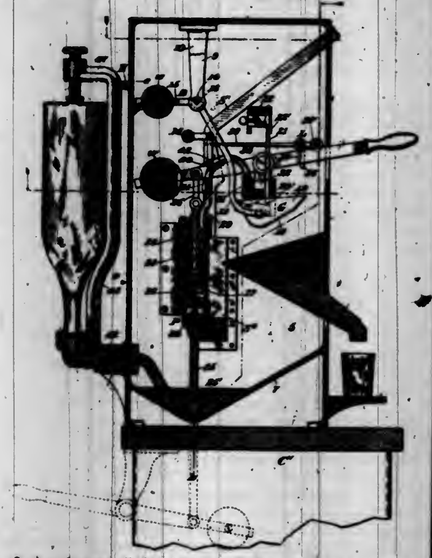
10. The combination, with weighing mechanism embodying a load-receiver having a closer, of means operable on the opening of the closer for tilting said load-receiver; a stream-controller; a stop-arm connected with the stream-controller and having a transverse portion; and a coöperating stop-arm having an auxiliary stop adapted to ride along a face of said transverse portion.

11. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of means operable on the opening of the closer for tilting said load-receiver; a stream-controller having a stop-arm provided with a transverse portion at one end and having a curved face adjacent thereto; and a coöperating stop-arm on the load-receiver, having an auxiliary stop adapted to run in contact with a face of said transverse portion and to also run in contact with said curved face when the load-receiver is tilted.

12. The combination, with weighing mechanism embodying a load-receiver provided with a closer, of means operable on the opening of the closer for tilting said load-receiver; a reciprocatory hopper; a valve carried by and reciprocatory with said hopper; a transverse rock-shaft connected, respectively, with the reciprocatory hopper and valve; a stop-arm on said rock-shaft; and a coöperating stop-arm connected with the load-receiver.

589,294. COIN-CONTROLLED WEIGHING AND DISPENSING APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 17, 1897. Serial No. 632,570. (No model.)

Claim.—1. A coin-controlled weighing and dispensing apparatus comprising a casing having a supply-reservoir; weighing mechanism including a gravitative tiltable load-receiver located above said reservoir; a discharge-conduit in operative relation with the load-receiver; a coin-controlled supply apparatus, including a pump, for supplying material from the reservoir to the load-receiver and for governing the operation of the weighing mechanism, the constructions and organizations of the load-receiver, discharge-conduit, and supply apparatus being such that on the discharge of the load-receiver the same will be carried out of operative relation with the supply apparatus, and the surplus material will be directed past the receiver and discharge-conduit into the reservoir to be returned to the reservoir at the next operation of the pump.



2. A coin-controlled weighing and dispensing apparatus comprising a casing having a supply-reservoir in the lower portion thereof, a supply apparatus including a pump having an induction-pipe located in the reservoir and having an eduction-pipe located with its discharge end above said reservoir; a pump-actuator; a locking-device for normally holding said pump-actuator against movement; coin-controlled instrumentalities for releasing said locking device; a discharge conduit located between the reservoir and discharge end of the eduction-pipe of the pump; a gravitative tiltable load-receiver located between the discharge-conduit and eduction-pipe, the construction and organization of the load-receiver being such that on the filling thereof by the supply apparatus it will have a movement transversely of, and out of vertical alinement with, the discharge end of the eduction-pipe to thereby gradually reduce the amount of material supplied thereto and allow the surplus to fall back into the receiver to be carried back to the reservoir on the next operation of the pump.

3. In an apparatus of the class specified, a casing having a supply-reservoir; a feed vessel movably supported at one side of the casing and having a conduit communicating with the reservoir; a supply apparatus including a pump supported within the casing and having an induction-pipe whose discharge end is located below the water-line of the reservoir, and also having an eduction-pipe whose discharge end is located above said water-line; a counterweighted oscillatory scale-beam supported in the casing; a load-receiver pivotally supported on the scale-beam for movement transversely across the discharge-opening of the eduction-pipe to decrease the volume supplied to said receiver; a discharge-conduit located below the main portion of the receiver; an actuator for the pump; and coin-controlled instrumentalities for locking the actuator normally against movement and to thereby control the load-discharging movement of the receiver.

4. An apparatus of the class specified comprising weighing mechanism including a gravitative load-receiving discharger; a conduit in operative relation with said discharger; and coin-controlled instrumentalities, including a pump, in operative relation with the discharger and effective for supplying material thereto and for governing the operation of the weighing mechanism.

5. An apparatus of the class specified comprehending automatic weighing mechanism including an oscillatory scale-beam and a load-receiver pivotally supported on said scale-beam; a reservoir located below, and in position to catch the overflow from, the load-receiver; a supply apparatus including a feed pump having an induction-pipe whose receiving end is located in the reservoir, and also having an eduction-pipe whose discharge end is located in position to supply material to the load-receiver when said receiver is in its normal load-receiving position, and to direct the surplus material to the reservoir when the load-receiver is in its load-discharging position; and coin-controlled instrumentalities for actuating the pump and for governing the operation of the weighing mechanism.

6. The combination, with a casing having a reservoir and with weighing mechanism including a counterweighted oscillatory scale-beam and a tiltable load-receiver supported on said scale-beam, of a discharge-conduit having its receiving end located between the load-receiver and reservoir in position to receive the contents of said load-receiver on the load-discharging movement thereof; a by-pass located above the load-receiver; a by-pass-engaging arm carried on said load-receiver and cooperating with the by-pass to prevent the tilting movement of the load-receiver until the scale-beam has arrived at a predetermined position, and embodying means for accelerating the load-discharging movement of the load-receiver on the release of said arm from the by-pass; a supply apparatus for supplying material to the load-receiver from the reservoir; and coin-controlled instrumentalities for governing the operation of the supply apparatus and weighing mechanism.

7. In an apparatus of the class specified, the combination, with a casing having a supply-reservoir and a discharge-conduit, of a piston-pump supported in said casing and having an induction-pipe extended into the reservoir and having an eduction-pipe located with its discharge end above said reservoir; a counterweighted hand-lever connected to the piston of the pump and having the handle thereof extended outside the casing; a coin-chute; a locking device normally engaging the hand-lever and having an arm extending into the coin-chute, whereby on the deposit of a coin the locking device will release and permit an operation of the hand-lever; and weighing mechanism including a gravitative tiltable load-receiver supported below the discharge end of the eduction-pipe of the piston-pump and constructed and operating to gradually reduce the volume of material supplied thereto during the gravitative movement of said receiver.

8. An apparatus of the class specified comprising weighing mechanism including a load-receiver; supply apparatus embodying a piston-pump having an eduction-pipe located with its discharge end above, and in position for supplying material to, the load-receiver; a counterweighted pump-actuating lever in operative connection with the piston of said pump; a coin-chute; a latch normally engaging and locking the pump-actuating lever against movement and having a latch-releasing arm in position to be actuated by a coin passing through said chute; and a discharge-conduit located below and in position to receive the load from the receiver.

9. The combination, with weighing mechanism including a gravitative tiltable load-receiver, of supply apparatus embodying a feed-pump having an eduction-pipe located with the discharge end thereof above and in position to supply material to the load-receiver; a pump-actuator having a handle extending through said casing; and a coin-controlled locking device for automatically locking the handle of the pump-actuator at the end of each ascending movement thereof, and said locking device having an arm in operative relation with a coin-chute and which arm is effective for releasing said locking device on the deposit of a coin.

10. A coin-controlled weighing and dispensing apparatus comprising a casing having a reservoir at the lower end thereof; weighing mechanism including a gravitative tiltable load-receiver located above the reservoir within said casing; a piston-pump supported within the casing and having an induction-pipe extended into the reservoir and an eduction-pipe located in position to discharge liquid into the load-receiver; a hand-lever pivotally supported on the casing and having one end thereof pivotally connected to the pump-piston and having the opposite end thereof extending through the casing; a locking device for normally holding the hand lever against movement; and coin-controlled means for releasing said locking device to permit the operation of the hand-lever.

11. In combination, an angled scale-beam fulcrumed intermediate its ends at the angle and having a counterweight at one end thereof; a load-receiver pivotally supported for tilting movement on the non-counterweighted end of the scale-beam; a by-pass located above the load-receiver; and a vertically-disposed by-pass-engaging arm carried by the load-receiver and having a counterweighted end in normal engagement with the by-pass and adapted, at a predetermined point in the oscillatory movement of the scale-beam, for disengaging the by-pass and accelerating the tilting movement of the load-receiver.

12. The combination, with stream-supply means including an eduction-pipe, of weighing mechanism including a gravitative tilting load-receiver having a spout so disposed with relation to the discharge end of the eduction-pipe that on the gravitative movement of the load-receiver said spout will move transversely of the stream and gradually reduce the volume flowing into said spout.

13. The combination, with supply means including a pump having an eduction-pipe, of an oscillatory scale-beam; a gravitative tilting load-receiver pivotally supported on the scale-beam and having a communicating transversely-disposed material-receiving spout located below, and so disposed relatively to, the discharge end of the eduction-pipe that on the gravitative movement of the load-receiver said spout will be carried crosswise of the path of the stream to al-

low a gradually-increasing portion of the stream to flow over the edge of said spout and thereby gradually decrease the amount of material flowing into said spout.

14. The combination, with supply means including a pump having an eduction-pipe, of an oscillatory scale-beam; a gravitative tilting load-receiver pivotally supported on the scale-beam and having a transversely-disposed material-receiving spout located below, and so disposed relatively to, the discharge end of the eduction-pipe, that on the gravitative movement of the load-receiver said spout will be carried transversely across the path of the stream to allow a portion of the stream to flow over the edge of said spout and gradually decrease the amount of material flowing into said spout; and by-pass devices in operative relation with the load-receiver and effective for controlling the tilting movement thereof.

15. The combination, with a reservoir, of a feed apparatus comprising a pivotally-supported vessel-holder having a conduit coincident with the axis of movement thereof and in position to conduct material to the reservoir; and a vessel removably secured in said holder and having its discharge end in communication with the conduit.

16. In an apparatus of the class specified, the combination, with a casing having a reservoir, of a pivotally-supported bottle-holder having a conduit the discharge end of which is located in position to discharge liquid into the reservoir; a bottle removably supported on the holder, with the neck-opening thereof in communication with the conduit; a clamping device carried on the holder and adapted for holding the bottle; and means for retaining the holder normally in an elevated position.

17. In an apparatus of the class specified, the combination, with weighing mechanism including an oscillatory load-receiver, of a piston-pump having a suction-pipe at one end, and an eduction-pipe at the opposite end whose outlet is located above, and in position to supply material to, the load-receiver; means for actuating the piston of said pump; a reservoir for supplying liquid to the pump; a feed vessel shiftably supported at one side the reservoir; and a conduit communicating with the feed vessel and reservoir.

18. In an apparatus of the class specified, the combination, with a casing having a reservoir at the lower end thereof, of a piston-pump mounted in said casing and having at opposite ends thereof a suction-pipe and an eduction-pipe, respectively, the former of which extends into the reservoir; weighing mechanism including a gravitative tilting load-receiver supported below and in operative relation with the discharge end of the eduction-pipe; a counterweighted piston-actuator fulcrumed intermediate its ends and having the handle end thereof located outside the casing; coin-controlled devices for normally locking the piston-actuator against movement and effective, on the deposit of the coin, for releasing said actuator; a delivery-chute located below, and in position to receive the load from, the load-receiver and having a spout extending outside the casing; a shiftable bottle-holder having a conduit whose inner end is movable from a point above to a point below the liquid-level of the reservoir on the shifting movement of the holder; a bottle supported normally in an inverted position and having its throat in communication with the conduit; means carried by the holder for clamping said bottle in place; and means for normally locking the holder against movement.

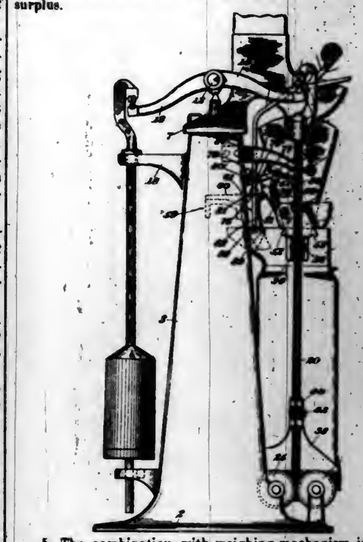
589,295. WEIGHING AND BAGGING MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 20, 1897. Serial No. 632,917. (No model.)

Claim.—1. The combination, with weighing mechanism including a plurality of receivers, of means for supplying an overload part of which is directed to one receiver; means operative during the weighing of a load for removing the surplus from said last mentioned receiver; and a reservoir supported independently of the weighing mechanism, for receiving the surplus.

2. The combination, with weighing mechanism including main and auxiliary load-receivers; means for supplying an overload to the several receivers; means operative during the weighing of a load for removing the surplus from the auxiliary load-receiver; and a reservoir supported independently of the weighing mechanism and located to receive the surplus.

3. The combination, with a scale-beam, of means for suspending a bag from the scale-beam; an auxiliary load-receiver also suspended from the scale-beam; means for supplying an overload part of which is delivered to the bag and the remainder to the auxiliary load-receiver; instrumentalities operative during the weighing of a load for removing the surplus from the auxiliary load-receiver; and a reservoir mounted on the framework and located to receive the surplus.

4. The combination, with weighing mechanism including main and auxiliary load-receivers the auxiliary load-receiver having a valve, of means for supplying an overload part of which is delivered to the main load-receiver and the remainder to the auxiliary load-receiver; means operative during the weighing of a load for removing the surplus from the auxiliary load-receiver; and a reservoir supported independently of the weighing mechanism, for receiving the surplus.



5. The combination, with weighing mechanism including main and auxiliary load-receivers, of a load-reducing valve mounted on the auxiliary load-receiver; means for supplying an overload part of which is delivered to the main load-receiver and the remainder to the auxiliary load-receiver; means operative during the weighing of a load for actuating the load-reducing valve to effect the removal of the surplus from the auxiliary load-receiver; and a reservoir supported independently of the weighing mechanism, for receiving the surplus.

6. The combination, with weighing mechanism including main and auxiliary load-receivers; a load-reducing valve carried by the auxiliary load-receiver and provided with an arm; means for supplying an overload part of which is delivered to the main load-receiver and the remainder to the auxiliary load-receiver; and an abutment on the framework, disposed in the path of movement of and adapted to be engaged by said arm thereby to open the valve, whereby the removal of the surplus from the auxiliary load-receiver will be caused.

7. The combination, with weighing mechanism including main and auxiliary load-receivers, of a load-reducing valve mounted on the auxiliary load-receiver and provided with a counterweight arm; means for supplying an overload part of which is delivered to the main load-receiver and the remainder to the auxiliary load-receiver; an abutment on the framework, disposed in the path of movement of and adapted to be engaged by said counterweighted arm thereby to open the valve, whereby the removal of the surplus from the auxiliary load-receiver will be caused; and a reservoir supported independently of the weighing mechanism to receive the surplus.

8. The combination, with weighing mechanism including main and auxiliary load-receivers, of means for supplying an overload part of which is delivered to the main load-receiver and the remainder to the auxiliary load-receiver; a device carried by the auxiliary load-receiver for effecting the removal of the surplus therefrom; and a reservoir supported by the framework, to receive the surplus.

9. The combination, with main and auxiliary load-receivers, of a hopper located to deliver a stream of material to the auxiliary load-receiver; a valve for said hopper; a counterweighted arm connected with the valve for closing the same, said arm having a cam-face; a valve-controlling arm cooperative with the weighing mechanism and adapted to engage said cam-face; means on the auxiliary load-receiver for effecting the removal of material therefrom before the completion of the load; and a reservoir carried by the framework and in position to receive the material thus removed.

10. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom: means for supplying an overload part of which is delivered to the auxiliary load-receiver and by the latter directed into the bag; means for closing said valve when the bag has received a predetermined quantity; instrumentalities adapted to remove material from the auxiliary load-receiver when the valve is closed; and a reservoir supported by the framework and in position to receive material thus removed.

11. The combination, with a scale-beam; of a support for a bag, suspended from the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; means for supplying an overload part of which is delivered to the bag when the valve is open; instrumentalities for holding the valve open for a predetermined length of time and for also closing the same; means for removing material from the auxiliary load-receiver when the valve is closed; and a reservoir in position to receive the material thus removed.

12. The combination, with a scale-beam; of a support for a bag, suspended therefrom; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; means for supplying an overload part of which is delivered to the bag and the remainder to the auxiliary load-receiver when the valve is closed; means for holding the valve open for a predetermined length of time; instrumentalities operative to first close and then open said valve; means for removing the surplus from the auxiliary load-receiver when the valve is closed; and a reservoir in position to receive the surplus.

13. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for the auxiliary load-receiver; a stop plate connected with said valve; a pawl for engaging said stop-plate; means for tripping the pawl whereby the valve can be closed; and instrumentalities adapted, when said valve is closed, to remove material from the auxiliary load-receiver.

14. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for the auxiliary load-receiver; valve-actuating means; a stop-plate connected with said valve and having a series of shoulders; a pawl mounted on the load-receiver and adapted successively to engage said shoulders; means for successively tripping said pawl whereby the valve can be closed and again opened by its actuating means; and instrumentalities for removing material from the auxiliary load-receiver when said valve is closed.

15. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for the auxiliary load-receiver; a shouldered stop-plate connected to said valve; valve-actuating means; a pawl mounted on the auxiliary load-receiver and having oppositely-disposed arms; means for successively engaging said arms, thereby to trip the pawl, whereby the valve can be closed and successively opened; and instrumentalities operative, when said valve is closed, for removing material from the auxiliary load-receiver.

16. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for the auxiliary load-receiver; a stop-plate connected to said valve and provided with a series of shoulders; a pawl mounted on the load-receiver and having oppositely-disposed arms; devices mounted on the framework, for successively engaging said arms, thereby to trip the pawl, whereby the valve can be closed; a load-reducing valve carried by the auxiliary load-receiver; and means on the framework, for opening said valve when the first-mentioned valve is closed, whereby material can be withdrawn from the auxiliary load-receiver.

17. The combination, with weighing mechanism including main and auxiliary load-receivers, of means for supplying an overload to the respective receivers; means in position to remove the surplus from one of said receivers during the weighing of a load; and a reservoir mounted independently of the weighing mechanism and located to receive the surplus.

18. The combination, with a scale-beam, of main and auxiliary load-receivers suspended therefrom; means operative, during the weighing of a load, for removing material from one of said load-receivers; a valved reservoir mounted to receive material withdrawn from said load-receiver; a supply-hopper; and a valve for said supply-hopper, connected with the valve of said reservoir.

19. The combination, with a scale-beam, of hangers suspended therefrom; rollers mounted on the framework, between which said hangers are adapted to reciprocate; a bag-support; a bag-rest secured, respectively, to said hangers; an auxiliary load-receiver also secured to said hangers; a load-reducing valve carried by the auxiliary load-receiver; and means operative, during the weighing of a load, for actuating the auxiliary valve to effect the removal of material from the auxiliary load-receiver.

20. The combination, with a scale-beam; of a support for a bag, suspended from the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for said auxiliary load-receiver; means for removing material from the latter during the weighing of a load; and instrumentalities coöperative with said valve, for locking the auxiliary load-receiver against ascending movement.

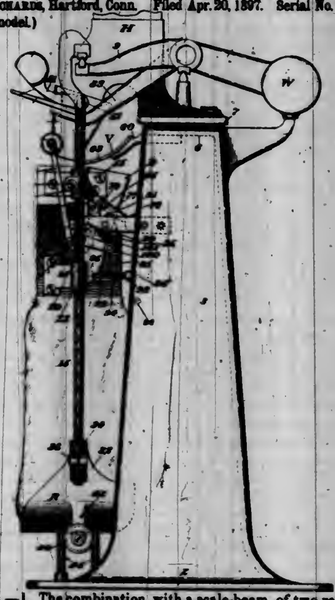
21. The combination, with a scale-beam; of a support for a bag suspended from the scale-beam; an auxiliary load-receiver mounted on the scale-beam and having a valve for regulating the discharge of material therefrom; stream-supplying means for said auxiliary load-receiver; means for removing material from the latter during the weighing of a load; instrumentalities coöperative with said valve, for locking the auxiliary load-receiver against ascending movement; and hand-operated means for throwing the machine into action.

22. The combination, with a scale-beam, of main and auxiliary load-receivers suspended therefrom; a valve controlling the discharge of material from the auxiliary load-receiver; means for closing said valve; instrumentalities for removing material from the auxiliary load-receiver when the valve is closed; stream-supplying means for the auxiliary load-receiver, including a valve; and reciprocally-effective stops coöperative, respectively, with said valves.

23. The combination, with a scale-beam; of a support for a bag, suspended from the scale-beam; an auxiliary load-receiver mounted on the scale-beam and provided with a valve for regulating the discharge of material therefrom; means for removing material from the auxiliary load-receiver during the weighing of a load; a hopper provided with a valve; a stop connected with said last-mentioned valve; an arm secured to the valve on the auxiliary load-receiver and provided with a projection; a bifurcated lever, the bifurcation of which is adapted to straddle said projection; and a stop connected with said bifurcated lever and located to coöperate with the first-mentioned stop.

24. The combination, with a scale-beam; of a support for a bag, carried by the scale-beam; an auxiliary load-receiver mounted on the scale-beam and provided with a valve having an arm provided with a projection; a cam mounted on the framework and adapted to be engaged by said projection at a predetermined point; means for closing said valve; instrumentalities for removing material from the auxiliary load-receiver during the weighing of a load; a supply-hopper having a valve; a stop connected with the valve of said hopper; a coöperating stop; a bifurcated lever, the bifurcation of which is adapted to straddle said projection; and a link connected, respectively, to said last-mentioned stop and with the bifurcated lever.

589,296. WEIGHING AND BAGGING APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 20, 1897. Serial No. 633,025. (No model.)



Claim.—1. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a cut-off having a drip-opening; and a swinging stream-controller supported, first, to deliver the stream to one of said receivers, and, subsequently, to deliver a supply of material through said drip-opening to the other receiver.

2. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a stationary cut-off having a drip-opening; and a swinging stream-controller supported, first, to deliver the stream to one of said receivers, and, subsequently, to deliver a supply of material through said drip-opening to the other receiver.

3. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a stationary cut-off mounted on the framework and having a drip-opening; and a swinging stream-controller supported, first, to deliver a stream of material to one of said receivers, and, subsequently, to deliver a supply of material through said opening to the other receiver.

4. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a stationary cut-off having a drip-opening; and a swinging spout supported, first, to deliver the stream to one of said receivers, and, subsequently, to deliver a supply of material through said drip-opening to the other receiver.

5. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a cut-off having a drip-opening; arms secured to said cut-off and also to the framework; and a swinging spout supported, first, to deliver the stream to one of said receivers, and, subsequently, to deliver a supply of material through said drip-opening to the other receiver.

6. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a cut-off having a drip-opening; and means cooperative with the scale-beam, for swinging said spout over the cut-off, on the descent of the said receivers, whereby a supply of material will be caused to pass through said drip-opening and into one of the receivers, and for subsequently swinging said spout into a corresponding direction to carry it past said drip-opening.

7. The combination, with a scale-beam, of two receivers suspended therefrom; stream-supplying means; a cut-off having a drip-opening; a swinging stream-controller; means for swinging said stream-controller over the cut-off, on the descent of the scale-beam, whereby a supply of material will be caused to pass through said drip-opening and into one of said receivers, and for subsequently swinging said stream-controller in a corresponding direction to carry it past said drip-opening; and instrumentalities for discharging one of said receivers into the other.

8. The combination, with a scale-beam having an arm connected therewith, of a supply-hopper; a swinging spout; a counterweighted arm operative with said spout and adapted to rest on the arm of the scale-beam; a stationary cut-off secured to the framework and having a drip-opening; two receivers suspended from the scale-beam; and means, operative at a predetermined point, for discharging one of said receivers into the other.

9. The combination, with a scale-beam, of a support for a bag, suspended from the scale-beam, said bag being adapted to receive the major part of a load; a drip-catcher also suspended from the scale-beam; a valve for said drip-catcher; stream-supplying means; a cut-off having a drip opening; a swinging spout; means for shifting said spout to carry it over the cut-off and then past the drip-opening therein; and instrumentalities adapted to open said valve, whereby the contents of the drip-catcher can enter the bag.

10. The combination, with a scale-beam, of two receivers suspended therefrom side by side; stream-supplying means for said receivers; a valve for controlling the discharge of material from one of said receivers; means supported independently of the valve, for operating the same; a latch normally effective for holding said valve-operating means out of action; and a tripper for said latch.

11. The combination, with a scale-beam, of two receivers suspended therefrom one of which is valved, said valved receiver being adapted to catch the drip; a cam supported independently of the valve, for operating the same; a latch normally effective for holding said cam against action; and a tripper for said latch, adapted to release the cam whereby it will open the valve to permit the drip to flow from the receiver.

12. The combination, with a scale-beam, of two receivers suspended therefrom one of which is adapted to catch the drip-stream and is valved; stream-supplying means for said receiver; a cam supported independently of the valve, for operating the same; a counterweighted arm connected with said cam; a latch adapted to engage the cam; and a tripper for the latch, operative to release the cam whereby the valve will be opened.

13. The combination, with a scale-beam, of two receivers suspended therefrom one of which has a valve and is adapted to catch the drip; stream-supplying means for said receivers; a cam supported independently of the valve, for operating the same; a latch adapted normally to hold the cam against action; a tripper for the latch, mounted on the framework; a counterweighted arm connected to said cam, the weight of said arm being furnished with a handle.

14. The combination, with a scale-beam, of two receivers suspended therefrom one of which has a valve and is adapted to catch the drip-stream; stream-supplying means for said receivers; a stationary cut-off having a drip-opening to deliver the drip-stream to the drip-catching receptacle; a swinging spout cooperative with said cut-off; a cam for operating the valve; and a latch adapted normally to hold the cam against action.

15. The combination, with a scale-beam, of a bag-support suspended therefrom; means for securing a bag to said support; a drip-hopper also suspended from the scale-beam and provided with a valve and also with a stop; a counterweighted arm connected with the valve and adapted to hold the same against said stop; stream-supplying means; a cam for operating said valve; means normally adapted for holding the cam against action; and instrumentalities operative at a certain point for releasing the cam whereby it will open the valve to permit the drip-supply from said hopper to pass into the bag.

16. The combination, with a scale-beam, of hangers suspended therefrom; a support for the bag, connected to said hangers and having means for securing a bag thereto; a drip-hopper also suspended from the scale-beam and provided with a valve; a counterweighted arm secured to said valve and having a branch arm; a cam in position to engage said arm to operate the valve; a latch adapted to engage the cam to hold the same against action; means for tripping the latch to release the cam, whereby the valve can be opened to permit the drip to pass into the bag.

17. The combination, with a scale-beam, of hangers suspended therefrom; a bag-support connected with the hanger and having means for securing a bag thereto; a drip-hopper also suspended from the scale-beam and having a valve; a counterweighted arm secured to said valve and provided with a branch arm; a stop on said drip-hopper against which the valve is adapted normally to bear; a cam having a shouldered lug and mounted on the bag-support and also adapted to engage said branch arm; a counterweighted latch shiftably carried by the bag-support; a tripper for said latch, situated on the framework; and a counterweighted arm secured to said cam.

18. The combination, with a scale-beam, of two receivers suspended therefrom one of which has a valve; stream-supplying means for said receivers adapted to deliver to the valved receiver a drip-supply; a device supported independently of the valve, for operating the same; a latch adapted normally to hold said valve-operative device out of action; means for tripping the latch, to release the valve-operating device whereby the valve can be opened to permit the drip-supply to pass from the receiver; and locking means operative on the opening of the valve to block the ascent of the scale beam.

19. The combination, with a scale-beam, of two receivers suspended therefrom one of which has a valve; stream-supplying means for said receivers, adapted to deliver a drip-supply to the valved receiver; a cam for operating said valve; a stationary cam; a locking-arm cooperative with the first-mentioned cam and adapted to engage the working face of the stationary cam; a latch in position to engage the valve-operating cam; and means for tripping said latch to release the cam whereby the valve can be opened to permit the drip-supply to pass from the valved receiver.

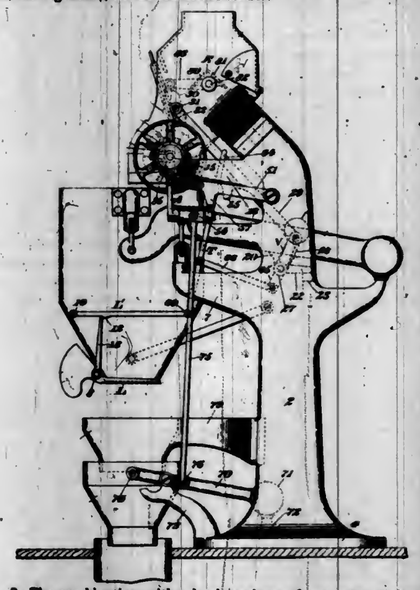
20. The combination, with a scale-beam, of hangers suspended therefrom; a bag-support having a spur for securing a bag thereto; a transverse plate connected with the hangers and secured to said support; a drip-hopper attached to said transverse plate; and means for discharging the drip-hopper into a bag on said support, at a predetermined point.

21. The combination, with a scale-beam, of hangers suspended therefrom; a bag-rest secured to said hangers; a transverse plate provided with clamps for engaging the hangers; a bag-support furnished with a device for securing a bag thereto, said bag-support being secured to the transverse plate and having a valve; and means for operating said valve.

589,297. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 20, 1897. Serial No. 632,918. (No model.)

Claim.—1. The combination, with weighing mechanism including a load-receiver, of a hopper; a feeder located within said hopper; a slide disposed in the hopper above the feeder; means controlled by the weighing mechanism, for moving said slide toward the feeder during the weighing of a load; mechanism for driving said feeder; instrumentalities cooperative with the load-receiver, for stopping the feeder when the load-receiver reaches a predetermined point; a regulator-hopper positioned to receive a load discharged from the load-receiver and to be lowered thereby; and means connected with the regulator-hopper, for starting the feeder in operation.

2. The combination, with weighing mechanism including a load-receiver, of a hopper having a longitudinal slot; a feeder situated within the hopper; a reciprocatory slide located in the hopper above the feeder and having an ear of a length to cover the slot when the slide is at the limits of its respective strokes; a connector between the ear and the weighing mechanism, said connector being pivoted at one end to said ear and the pivot passing through the longitudinal slot in the hopper; and means controlled by the weighing mechanism, for regulating the action of the feeder.



3. The combination, with a load-receiver, of a counterweighted scale-beam therefor; a variable-efficiency device shiftably mounted on the scale-beam; and means whereby said device will be caused automatically to approach the counterweight of the scale-beam during the descent of the load-receiver.

4. The combination, with a load-receiver, of a counterweighted scale-beam therefor; an oscillatory variable-efficiency device carried by the scale-beam; and means whereby said variable-efficiency device will be caused automatically to approach the counterweight during the descent of the load-receiver.

5. The combination, with a load-receiver, of a scale-beam therefor; a counterweighted lever pivoted to the scale-beam; and a stop on the framework, upon which one of the arms of the lever is adapted to rest, whereby on the descent of the load-receiver the weight of said lever will be caused to approach the counterweight of the scale-beam.

6. The combination, with weighing mechanism including a load-receiver, of a variable-efficiency device supported by the scale-beam; a hopper; a slide disposed in said hopper; and a connection between said slide and the variable-efficiency device.

7. The combination, with weighing mechanism embodying a load-receiver, of a hopper having a longitudinal slot; a reciprocatory slide located within said hopper, said slide having an ear of a length to cover said slot when the slide is at the limit of its respective strokes; and a connector between said ear and the weighing mechanism, said connector being pivoted at one end to said ear, and the pivot passing through the longitudinal slot in the hopper.

8. The combination, with weighing mechanism including a load-receiver, of a feeder; a driver for said feeder; a regulator in position to receive and to be lowered by the material discharged from the load-receiver; means operative independently of the regulator, for throwing the feeder out of working relation with its driver; and means cooperative with the regulator, for throwing the feeder into working relation with its driver on the ascent of the regulator.

9. The combination, with weighing mechanism including a load-receiver, of a feeder; a driver for said feeder; a regulator in position to receive and to be lowered by the material discharged from the load-receiver; a lever supported by the framework and carrying said regulator; means operative independently of the regulator, for throwing the feeder out of working relation with its driver; and means connected with said regulator, for throwing the feeder into working relation with its driver.

10. The combination, with weighing mechanism including a load-receiver, of a feeder; a continuously-operative driver for said feeder; a regulator-hopper in position to receive and to be lowered by the material discharged from the load-receiver; a counterweighted lever mounted on the framework and connected with the regulator; a connector joined to said lever; and instrumentalities between said connector and the feeder, for throwing the latter into working relation with its driver on the ascent of the empty regulator.

11. The combination, with weighing mechanism including a load-receiver, of a regulator located to receive the contents discharged from the load-receiver; a feeder; a driver for said feeder; a clutch situated between and cooperative with the feeder and its driver; an actuator for the clutch; means operative with the load-receiver, for operating the clutch to uncouple the feeder and its driver; and connections between said actuator and the regulator, for coupling the clutch members.

12. The combination, with weighing mechanism embodying a load-receiver, of a regulator positioned to receive the contents discharged from said load-receiver; a feeder; a driver for the feeder; a clutch cooperative, respectively, with the feeder and its driver; a shaft having a clutch-actuator and also having two arms; a projection on the load-receiver, adapted to strike one of said arms; and a connection between the other arm and the regulator.

13. The combination, with weighing mechanism embodying a load-receiver, of a hopper; a feeder and a slide situated in said hopper; connections between said slide and the weighing mechanism; a driver for the feeder; a regulator situated to receive a load discharged by the load-receiver; and means cooperative with the regulator, for controlling the feeder.

14. The combination, with weighing mechanism including a load-receiver, of a feeder; a driver; a clutch cooperative, respectively, with the driver and the feeder; a shaft provided with an actuator for said clutch; a regulator located to receive the contents discharged from the load-receiver; a counterweighted lever for supporting said regulator; a pair of arms extending from said shaft; a projection on the load-receiver, adapted to engage one of said arms; and a rod connected, respectively, with the other arm and with said lever.

15. The combination, with weighing mechanism, of a feeder; means for driving said feeder; instrumentalities for throwing the feeder out of action; a regulator in position to receive and to be lowered by the material discharged from the weighing mechanism; a wheel carried by the shaft on the feeder; a brake; and means connected with the regulator, for operating said brake.

16. The combination, with weighing mechanism, of a feeder; means for driving said feeder; instrumentalities for throwing the feeder out of action; a wheel carried by the shaft of the feeder; a brake; a lever carried by the framework upon which the brake is mounted; a regulator in position to receive and to be lowered by the material discharged from the load-receiver; and means connected with the regulator, for actuating said lever to carry the brake into engagement with said wheel.

17. The combination, with weighing mechanism including a load-receiver, of a supply-hopper; a deflector situated within the hopper, to break the force of impact of the descending material therein; and means operative independently of the weighing mechanism, for vibrating said deflector during the descent of the load-receiver.

18. The combination, with weighing mechanism including a load-receiver, of a feeder; driving mechanism for said feeder; a deflector situated within the hopper and adapted to break the force of impact of the descending column of material therein; and means connected with the feeder-driving mechanism, for vibrating said deflector.

19. The combination, with weighing mechanism including a load-receiver, of a hopper; a deflector carried by a shaft and mounted in the hopper, said deflector being adapted to break the force of impact of the descending column of material in said hopper; a power-shaft; crank-arms affixed to the respective shafts; and a link connecting said crank-arms.

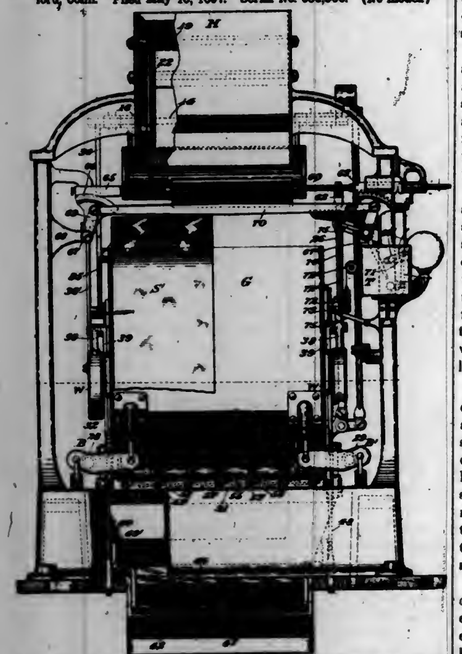
20. The combination, with weighing mechanism comprehending a shiftable load-discharge member, of a latch operable to hold the same normally against action; a continuously-operative toothed wheel; a tripper for the latch; and means for throwing the tripper into engagement with said toothed wheel.

21. The combination, with weighing mechanism including a load-receiver provided with a closer; of a latch on the load-receiver, adapted to hold the closer shut; a tripper for the said latch; a continuously-rotative toothed wheel; and means for throwing the tripper into engagement with said toothed wheel.

22. The combination, with a load-receiver provided with a closer, of a latch pivoted to the load-receiver and adapted to hold its closer normally shut; a tripper pivoted to the latch; a continuously-operative toothed wheel; and means for throwing the tripper into engagement with said toothed wheel.

23. The combination, with weighing mechanism including a load-receiver provided with a closer, of a feeder; a shaft; a continuously-operative driver mounted on said shaft, the hub of which is provided with a toothed wheel; a clutch; an actuator for the clutch; a latch for holding the closer against movement; a tripper for said latch; and means for throwing the tripper into engagement with the toothed wheel.

589,298. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed May 13, 1897. Serial No. 636,300. (No model.)



✦ *Claim.*—1. In a weighing-machine, the combination, with a main supply apparatus, of a reciprocatory load-receiver and a reciprocatory auxiliary supply device connected together and having, during the weighing operation, concurrent movements of predetermined ratio in relatively-intersecting planes.

2. In a weighing-machine, the combination of a reciprocatory load-receiver and a reciprocatory supply device movable concurrently in relatively-intersecting planes; means connecting, and maintaining a predetermined ratio of movement between, said load-receiver and supply device; and means for imparting a discharge movement to the supply device at a predetermined point in the movements of the load-receiver.

3. The combination, with a vertically-reciprocatory load-receiver and with a main supply apparatus, of an auxiliary supply device supported between the load-receiver and main supply apparatus for horizontal reciprocatory movements concurrently with the vertically-reciprocatory movements of the load-receiver and for independent oscillatory movements.

4. The combination, in a weighing-machine, of a vertically-reciprocatory load-receiver; a main supply apparatus located above said receiver; a horizontally-adjustable load-completer interposed between the load-receiver and the main supply apparatus; an actuating-connector between the load-receiver and load-completer and effective, on the ascending and descending movement of said load-receiver, for adjusting the load-completer to positions for discharging a greater or lesser portion of its mass into and outside of the load-receiver according to the position of said load-receiver relatively to a given point; and means for imparting a load-discharging movement to the load-completer at a predetermined point in the movement of the load-receiver.

5. The combination, with a vertically-reciprocatory load-receiver and with a supply-chute having a main outlet and a drip-outlet, of a valve shiftable across the main and drip outlets; means for actuating said valve; an oscillatory load-completer located below, and in position to be filled from, the drip-outlet; means controlled by the load-receiver, for shifting the load-completer horizontally in one direction concurrently with and in proportion to the descending movement of the load-receiver and in an opposite direction concurrently with and in proportion to the ascending movement of said load-receiver; and means for imparting a load-discharging movement to said load-completer at a predetermined point in the movement of the load-receiver.

6. The combination, with weighing mechanism including a load-receiver, of a main supply apparatus including a valve; means for actuating the valve; an auxiliary supply device; means controlled by the weighing mechanism, for shifting the auxiliary supply device bodily crosswise of the load-receiver during the closing movement of the valve; and means for effecting a tilting load-discharge movement of said auxiliary supply device subsequent to the complete closure of said valve.

7. The combination, with a vertically-reciprocatory load-receiver and with a discharge-chute, of stream-supplying means for supplying an approximate load to the load-receiver; an oscillatory auxiliary supply device supported above the entrant ends of the load-receiver and discharge-chute and movable independent of its oscillatory movement crosswise of said load-receiver and discharge-chute in proportion to and in accordance with the vertical movements of the load-receiver relatively to a given point.

8. The combination, with a vertically-reciprocatory load-receiver and with a discharge-chute, of stream-supplying means adapted for supplying an approximate load to the load-receiver; an auxiliary supply device supported above and movable in a horizontal direction crosswise of said load-receiver and discharge-chute in accordance with and in proportion to the vertical movements of the load receiver relatively to a given point, to vary the volume of material delivered from the auxiliary supply device to the load-receiver in proportion to the requirements, as indicated by the position of said load-receiver with respect to a true poising position; and means for imparting a load-discharge movement to said auxiliary supply device.

9. The combination, with a reciprocatory load-receiver and a discharge-chute, of a main supply apparatus operative for supplying an approximate load to the load-receiver: an auxiliary supply device supported above and shiftable in one direction crosswise of the entrant ends of the load-receiver and discharge-chute on the descent of said load-receiver beyond a predetermined point and shiftable in an opposite direction on the ascent of the load-receiver beyond a predetermined point; and means for imparting a load-discharge movement to the auxiliary supply device, to empty a portion of the contents thereof into the load-receiver and a portion into the discharge-chute and thereby complete the load.

10. The combination, with beam mechanism and with a load-receiver supported thereon, of a discharge-chute having the entrant end thereof located above and intersecting a portion of the entrant end of the load-receiver; a main supply apparatus controlled by the beam mechanism, for supplying an approximate load to the load-receiver; an auxiliary supply device shiftably supported above the entrant ends of the load-receiver and discharge-chute; and means controlled by the beam mechanism, for shifting the auxiliary supply device crosswise of the entrant ends of said load-receiver and discharge-chute in opposite directions on opposite movements, respectively, of the load-receiver, to thereby bring greater or less areas of said auxiliary device over the entrant end of the discharge-chute according to the position of the load-receiver with respect to a poising-point; and means controlled by the beam mechanism, for tilting the auxiliary supply device to thereby complete the load in the load-receiver and discharge the surplus material into the discharge-chute.

11. The combination, with weighing mechanism including a vertically-reciprocatory load-receiver and with a discharge-chute, of a main supply apparatus located above the receiver; means controlled by the weighing mechanism, for cutting off the supply of material from the main supply apparatus to the load-receiver before the load-receiver arrives at its poising position; an auxiliary supply device located between the load-receiver and main supply apparatus; means controlled by the weighing mechanism, for advancing and retracting the auxiliary supply device concurrently with and in proportion to the upward and downward movements, respectively, of the load-receiver; and means operative subsequent to the cutting off of the supply from the main supply apparatus, for imparting a load-discharge movement to the auxiliary supply device.

12. The combination, with weighing mechanism including a vertically-reciprocatory load-receiver and with a discharge-chute having its entrant end adjacent to the entrant end of said receiver; of means governed by the weighing mechanism, for supplying an approximate load to the load-receiver; a load-completing device controlled by the weighing mechanism and shiftable, on the descent of the load-receiver, toward and over the entrant end of the discharge-chute, and shiftable, on the ascent of said load-receiver in the opposite direction, to vary the volume of additional material supplied to the load-receiver by the load-completing device in proportion to the requirements as determined by the position of said load-receiver relatively to a given point; and means for tilting the load-completing device on the arrival of the load-receiver at a predetermined position.

13. The combination, with beam mechanism and with a vertically-reciprocatory load-receiver carried thereby, of a surplus-discharger located with its entrant end adjacent to the entrant end of the receiver; a main supply apparatus controlled by the weighing mechanism, for supplying an approximate load to the load-receiver; an auxiliary supply device governed by the weighing mechanism and having a progressively-advancing horizontal movement over the entrant end of the discharge-chute on the descent of the load-receiver, and a progressive retractive movement on the ascent of the load-receiver; and means for tilting the auxiliary supply device, to deliver material to the load-receiver and supply-chute in proper proportion as determined by the position of the load-receiver, to make up a true load in said receiver.

14. The combination, with beam mechanism and with a load-receiver supported thereon, of a main supply apparatus located above the load-receiver; a horizontally-disposed rock-shaft located between the load-receiver and main supply apparatus and supported for longitudinal movement; an auxiliary supply device carried by the said shaft; means connecting the rock-shaft and beam mechanism and effective for shifting the rock-shaft longitudinally in proportion to the movements of the load-receiver and beam mechanism; and means for imparting a rocking movement to said shaft and auxiliary supply device at a predetermined point in the movement of said load-receiver.

15. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a valve-controlled main supply apparatus; a rock-shaft supported for longitudinal reciprocatory movements below the load-receiver: an auxiliary supply device carried by said shaft: gearing connecting the rock-shaft and beam mechanism and effective, concurrently with the ascending and descending movement of the load-receiver, for shifting the rock-shaft, longitudinally, distances proportionate to the distances traversed by the load-receiver: and means controlled by the beam mechanism, for imparting a rotative movement to the rock-shaft and auxiliary supply device.

16. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a valve-controlled main supply apparatus: a rock-shaft supported for longitudinal reciprocatory movements below the load-receiver; an auxiliary supply device carried by said shaft; gearing connecting the rock-shaft and beam mechanism and effective, concurrently with the ascending and descending movement of the load-receiver, for shifting the rock-shaft, longitudinally, distances proportionate to the distances traversed by the load-receiver; means controlled by the beam mechanism, for imparting a rotative load-discharge movement to the rock-shaft and auxiliary supply device, concurrently with the arrival of the load-receiver, at a predetermined point in the descending movement thereof; and means carried by the rock-shaft, for imparting a return movement to said auxiliary supply device.

17. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a horizontally-disposed auxiliary supply device located above the load-receiver; a rock-shaft carrying said supply device and supported for longitudinal reciprocatory movements; a rack carried by the rock-shaft; a segment-gear actuated by the beam mechanism and meshing with said rack; a locking device for normally holding the rock-shaft against rotative movement and, with the auxiliary supply device carried thereby, in position to receive a load: means controlled by the beam mechanism, for releasing the locking device at a predetermined point in the movements of the load-receiver, to thereby effect a discharge movement of the supply device: and means carried by the rock-shaft, for returning the supply device to its normal position.

18. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a gravitative oscillatory supply device supported above the load-receiver, for reciprocatory movements in a plane transverse to the plane of its oscillatory movement: means controlled by the beam mechanism, for shifting the supply device in one or the other direction horizontally concurrently with, and in proportion to the movements in one or the other direction of, the load-receiver; a locking device for normally holding the supply device against oscillatory movement; and a time-train controlled by the beam mechanism and operative after the arrival of the load-receiver, at a predetermined point in the movement thereof, for releasing the locking device, to effect an oscillatory movement of the supply device.

19. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a supply device located above the load-receiver, for independent movements in relatively transverse planes; means controlled by the beam mechanism, for advancing and retracting said device in a horizontal plane in accordance with, and to an extent in proportion to, the extent of ascending and descending movements of the load-receiver; and a time-train controlled by the movements of the beam mechanism, for effecting a vertical oscillatory movement of the supply device.

20. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a supply device supported for horizontal reciprocatory and vertically-oscillatory movements; gearing actuated by the weighing mechanism, for imparting horizontal oscillatory movements to the supply device, concurrently with and in proportion to the movements of the load-receiver; a locking device for normally holding the supply device against oscillatory movements during the horizontal reciprocatory movements thereof; a time-train in operative relation with said locking device; a time-train-locking device for normally holding said time-train against movement; means controlled by the beam mechanism, for releasing the locking device of the time-train at a predetermined point in the movements of the load-receiver; and means carried by the time-train, for releasing the locking device that controls the oscillatory movement of the supply device.

21. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a supply device supported for oscillatory movement above the load-receiver; and means including a time-train, controlled by the beam mechanism, for effecting a movement of the supply device.

22. The combination, with beam mechanism and with a load-receiver, of a supply apparatus; and means including a time-train, actuated by the beam mechanism at a predetermined point in the movements of the load-receiver and adapted for governing the supply of material to said load-receiver.

23. In a weighing-machine, the combination, with beam mechanism and with a load-receiver, of a shiftable device in operative relation with the load-receiver; and means including a time-train, controlled by the beam mechanism, for actuating said shiftable device.

24. The combination, with beam mechanism and with a load-receiver supported thereon, of a main supply apparatus; an auxiliary supply device supported between the load-receiver and main supply apparatus, for horizontal reciprocatory and vertically-oscillatory movements; means controlled by the beam mechanism, for reciprocating the auxiliary supply device; and means including a time-train, for effecting an oscillatory movement of the auxiliary supply device at the expiration of a predetermined length of time after the load-receiver arrives at a predetermined point.

25. The combination, with beam mechanism and with a load-receiver supported thereon, of a fixed supply-chute located above the load-receiver; a valve in operative relation with the supply-chute; means controlled by the beam mechanism, for actuating said valve; a shiftable supply device located below the fixed supply-chute; and means including a time-train, controlled by the beam mechanism, for effecting a load-discharge movement of the shiftable supply device subsequently to the closure of the valve and the arrival of the load-receiver at a predetermined point.

26. The combination, with beam mechanism and with a load-receiver supported thereon, of a shiftable load-completer located above the load-receiver; a normally inactive time-train; means controlled by the beam mechanism, for starting the time-train at a predetermined point in the movement of the load-receiver; and means actuated by the time-train, for effecting a load-discharge movement of the load-completer.

27. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a load-completing device supported above the load-receiver, for oscillatory movement; means including a time-train, for effecting an oscillatory movement of the completing device; means controlled by the beam mechanism, for actuating the time-train at a predetermined point in the movement of the load-receiver; and means for normally locking the time-train against movement.

28. In a weighing-machine, the combination, with beam mechanism and with a shiftable member independent of the beam mechanism, of a time-train normally locked against movement; means controlled by the beam mechanism, at a predetermined point in the descending movement thereof, for unlocking the time-train; means for actuating the time-train after the same is unlocked; and means controlled by the time-train, for effecting a movement of the shiftable member.

29. In a weighing-machine, the combination, with an oscillatory scale-beam and with an independent shiftable member, of gearing operatively connecting the shiftable member and scale-beam and effective for imparting horizontal reciprocatory movements to said member, concurrently with and in proportion to the oscillatory movements of the scale-beam: and means including a time-train, controlled by the scale-beam, for effecting an oscillatory movement of said shiftable member at a predetermined point in the movements of the scale-beam.

30. In a weighing-machine, the combination, with framework, of a rock-shaft supported for horizontal reciprocatory movements; an oscillatory scale-beam supported on the framework; a rack in connection with the rock-shaft; and a segment-gear meshing with said rack and having its axis coincident with the axis of movement of the scale-beam and effective for reciprocating the rock-shaft concurrently with the oscillatory movements of the scale-beam.

31. In a weighing-machine, the combination, with framework, of a rock-shaft supported for horizontal reciprocatory movements; an oscillatory scale-beam supported on the framework: a rack in connection with the rock-shaft; a segment-gear meshing with said rack and having its axis coincident with the axis of movement of the

scale-beam and effective for reciprocating the rock-shaft concurrently with the oscillatory movements of the scale-beam; and means controlled by the scale-beam, at a predetermined point in the oscillatory movements thereof, for effecting a vertical oscillatory movement of the rock-shaft.

32. In a weighing-machine, the combination, with framework, of a rock-shaft supported for horizontal reciprocatory movements; an oscillatory scale-beam supported on the framework; a rack in connection with the rock-shaft; a segment-gear meshing with said rack and having its axis coincident with the axis of movement of the scale-beam and effective for reciprocating the rock-shaft concurrently with the oscillatory movements of the scale-beam; and means including a time-train, controlled by the beam mechanism, for imparting an oscillatory movement to the rock-shaft at the expiration of a predetermined length after the scale-beam arrives at a given point.

33. The combination, with a vertical oscillatory scale-beam, of a horizontal reciprocatory member; and means including a rack and a segment-gear operatively connecting, and effective for maintaining a predetermined ratio of movement between, the reciprocatory member and scale-beam.

34. In a weighing-machine, the combination, with beam mechanism and with a load-receiver supported thereon, of a main supply apparatus including an oscillatory valve; means controlled by the weighing mechanism, for actuating said valve; a gravitative load-completing device including a rock-shaft, supported for longitudinal reciprocatory movements; a rack carried by the rock-shaft; a rack-actuator meshing with said rack and operated by the beam mechanism, to impart a reciprocatory movement to the rock-shaft in accordance with the movements of the load-receiver; a catch-arm on said shaft; a latch normally engaging the catch-arm and holding the shaft against oscillatory movement; means controlled by the beam mechanism, for actuating the latch to release the rock-shaft and permit an oscillatory movement of the load-completing device; and means carried by the rock-shaft, for imparting a return movement thereto.

35. The combination, with beam mechanism and with a load-receiver supported thereon; of a rock-shaft supported above said load-receiver, for horizontal reciprocatory movements; a gravitative tilting receptacle carried by said rock-shaft; a rack carried by the rock-shaft; a segment-gear meshing with said rack and connected to, and adapted to be operated by, the beam mechanism, for reciprocating the rock-shaft; a locking device in connection with and effective for holding the rock-shaft normally against rocking movement; means including a time-train, controlled by the beam mechanism, for releasing the locking device, to effect a tilting movement of the receptacle; a counterweighted arm carried by the rock-shaft and effective for imparting a return movement thereto; and a main supply apparatus for supplying material to the load-receiver and the tilting receptacle.

36. In a weighing-machine, the combination with beam mechanism and with a load-receiver supported thereon, of a supply-chute having a main and a drip conduit, the latter of which is divided, by vertically-disposed partitions, into a series of drip-compartments; a load-completing device supported below the drip-conduit for reciprocatory movement; and means controlled by the beam mechanism for shifting the load-completing device in a horizontal plane crosswise of the several compartments of the drip-conduit, concurrently with and in proportion to the movements of the load-receiver, and for effecting an oscillatory load-discharge movement of the load-completing device at a predetermined point in the movement of said load-receiver.

37. In a weighing-machine, the combination, with oscillatory beam mechanism and with a load-receiver supported thereon, of a supply-chute having a main and a drip conduit, the latter of which has a series of vertically-disposed break-walls; a valve shiftable across the discharge ends of the two conduits; a load-completer supported below the break walls for oscillatory movement in a vertical direction and for reciprocatory movement in a horizontal direction; and means controlled by the beam mechanism for shifting the load-completer in a horizontal direction, concurrently with the ascending and descending movements of the load-receiver, and for imparting an oscillatory load-discharge movement to said load-completer at a predetermined point in the movements of said receiver.

38. The combination, with a supply-chute, of two oppositely-disposed break-walls located above the chute in superposed relation: two break-wall-supporting shafts journaled in bearings at opposite sides, respectively, of the chute, and the upper one of which has a crank-arm located on the outside of said chute; a valve-carrying rock-shaft journaled in the chute below said break-walls; a valve fixed to said shaft; a crank-arm on said valve-shaft, located outside of said chute; a link pivotally connecting the valve-shaft crank-arm and the break-wall-shaft crank-arm; a break-wall-actuating arm fixed to the valve-shaft within the chute and having its free end in operative engagement with the lower break-wall; and means for imparting a closing movement to the valve and thereby simultaneously swing the break-walls inward and upward.

39. The combination, with beam mechanism and with a load-receiver supported thereon; of a supply-chute having a main and a drip conduit at the lower end thereof, the latter of which is divided by transverse vertical partitions into a series of drip-chambers; a valve supported for oscillatory movement across the discharge ends of the main and drip conduits; means controlled by the beam mechanism, for actuating said valve; a load-completing device supported below the drip-conduit, for horizontal reciprocatory movements across the several compartments of the drip-conduit; means controlled by the beam mechanism, for shifting the load-completing device horizontally concurrently with and in proportion to the movements of the load-receiver; and means controlled by said beam mechanism, for effecting an oscillatory load-discharge movement of the load-completing device subsequently to the closure of the valve and at the expiration of a predetermined length of time after the load-receiver has arrived at a given point.

40. The combination, with beam mechanism and with a load-receiver supported thereon, of a discharge-chute located at one side of the load-receiver and having its entrant ends above and intersecting the entrance of the load-receiver; a supply-chute having a main and a drip conduit, located above the load-receiver; a valve for controlling the supply from the main and the drip conduits; means controlled by the beam mechanism, for actuating said valve to supply an approximate load to the load-receiver; a gravitative oscillatory load-completing device located above the entrant ends of the load-receiver and discharge-chute and in vertical alinement with the drip-conduit of the supply-chute and supported for horizontal reciprocatory movements; means controlled by the beam mechanism, for shifting the load-completing device toward and from the discharge-chute a greater or lesser distance concurrently with and proportionate to the distance traversed by the load-receiver relatively to a given point, to thereby render the load-completing device effective for delivering a small or large charge of material to the load-receiver, as required, for completing the load; and means controlled by the beam mechanism, for imparting a load-discharge movement to the load-completing device.

41. The combination, with a load-receiver, of a closer comprising a series of independent closer-blades each having two independent axes of movement located in transverse planes one relatively to the other.

42. The combination, with a load-receiver, of a closer comprising a series of pivotally-supported closer-blades independently movable upon their individual axes, and also unitarily movable upon a common axis which is transverse to said individual axes.

43. The combination, with a load-receiver, of a closer comprising a closer blade-supporting frame pivotally mounted on the load-receiver for oscillatory movements; and a series of closers each pivotally supported on said frame for oscillatory movements in directions transverse to the direction of oscillation of said frame.

44. The combination, with a load-receiver, of a gravitative closer embodying a series of pivotally-supported separately operable closer-blades having independent axes of movement located in substantial parallelism and having a common axis of movement located in a plane transverse to the plane of the independent axes.

45. The combination, with a load-receiver, of a gravitative closer pivotally supported on a bracket secured to said load-receiver and having a material-supporting wall composed of a series of closer-blades pivotally supported for oscillatory movement about their independent axes; and actuating instrumentalities in connection with the closer-blades and effective, on the descending and ascending movements of the closer, for imparting a rotative movement to said blades on their independent axes.

46. The combination, with a load-receiver, of a series of closer-blades pivotally supported for oscillatory movements about their independent axes and also supported for oscillatory movement about a common axis; and actuating instrumentalities in connection with the closer-blades and load-receiver and effective, on a movement of the closer-blades about their common axis, for imparting an oscillatory movement to said closer-blades about their individual axes.

47. The combination, with a load-receiver having a discharge-opening, of a series of closer-blades pivotally supported for rotative movement on independent axes below and adapted for normally closing the discharge-opening of the receiver and also supported for vertical oscillatory movement about a common axis; a locking device for normally holding the closer-blades against vertical oscillatory movement about their common axis; means for releasing said locking device, to effect a downward oscillatory movement of the closer-blades about their common axis; and means operative on the downward movement of the closer-blades, for imparting rotative movement thereto about their individual axes.

48. The combination, with a load-receiver, of a closer comprising a series of closer-blades movable in one direction in individual arcs and movable in a different direction in a common arc.

49. The combination, with a load-receiver, of a closer comprising a series of independent closer-blades supported for rotative movements in relatively different arcs and also for unitary movement in the same arc.

50. The combination, with a load-receiver, of a series of closer-blades supported for independent rotative movements in different arcs and also for unitary movement in the same arc; a crank in connection with each closer-blade; and means for actuating said cranks, to impart rotative movements to the closer-blades.

51. The combination, with a load-receiver, of a gravitative closer embodying a series of independent closer-blades supported for oscillatory movements in relatively different arcs and also for unitary movements in a common arc; a crank in connection with each closer-blade; and a cam device for actuating said cranks to impart oscillatory movements to said closer-blades in individual arcs simultaneously with the unitary movement of said blades in a common arc.

52. The combination, with a load-receiver, of a closer comprising a series of closer-blades supported for independent rotative movements in different arcs and also for unitary movement in the same arc; cranks fixed to, and movable in paths concentric to the path of movement of, said closer-blades; a cam-plate fixed to the load-receiver and having cam-faces engaging the ends of said cranks, said cranks and cam-faces being so disposed that, on the unitary movement of the closer-blades in the same arc, a rotative movement will be imparted to said closer-blades in different arcs.

53. The combination, with a load-receiver, of a gravitative closer having a rotative closer-blade; a crank on the closer-blade; and means carried by the load-receiver, for effecting a rotative movement of the crank and closer-blade simultaneously with the gravitative movement of said closer.

54. The combination, with a load-receiver; of a closer-blade carrier pivotally supported on the load-receiver, for vertical oscillatory movements; and a closer-blade pivotally supported on said carrier, for rotative movements in a path intersecting the path of oscillatory movement of said carrier.

55. The combination, with a load-receiver, of a closer-blade carrier pivotally supported intermediate its ends for vertical oscillatory movements; a closer-blade supported on said carrier, for rotative movements in a path intersecting the path of oscillatory movement of said carrier; and means controlled by the carrier, on the descending movement thereof, for imparting an oscillatory load-discharge movement to the closer-blade.

56. The combination, with a load-receiver, of a closer-blade carrier pivotally supported intermediate its ends for vertical oscillatory movements; a closer-blade pivotally supported on said carrier for rotative movement in a path intersecting the path of oscillatory movement of the carrier; a cam-plate fixed to the load-receiver and having a cam-groove therein; and a crank on the closer-blade and having the outer end thereof projecting into the cam-groove, whereby, on a vertical oscillatory movement of the closer-blade carrier, a rotative movement will be imparted to the closer-blade.

57. The combination, with a load-receiver; of a closer-blade carrier pivotally supported at one end thereof on the load-receiver, for vertical oscillatory movement; a series of independent closer-blades pivotally supported on said carrier, for opening and closing movements relatively to each other in paths intersecting the path of oscillatory movement of the carrier; a series of cranks fixed one to the end of each closer-blade and extending outward beyond the axis of movement of the carrier; and a cam-plate fixed to the load-receiver in the path of movement of the outer ends of the closer-blade cranks and having a series of cam-faces engaging the outer ends of said cranks, whereby, on the descending movement of the free end of the carrier, an opening movement will be imparted to the closer-blades about their individual axes.

58. The combination, with a load-receiver having a discharge-opening, of a closer pivotally supported at one end thereof for opening and closing movements relatively to said discharge-opening and embodying a series of closer-blades pivotally supported for rotative movements about independent axes and each having a crank at one end thereof movable in a path concentric to the arc of rotative movement of said blades; latch mechanism for normally holding the closer against opening movement; means for releasing said latch mechanism, to facilitate an opening movement of said closer; and a closer-blade actuator carried by the load-receiver in position to engage the cranks of the closer-blades, on the closing movement of the closer, to impart a rotative movement to said blades.

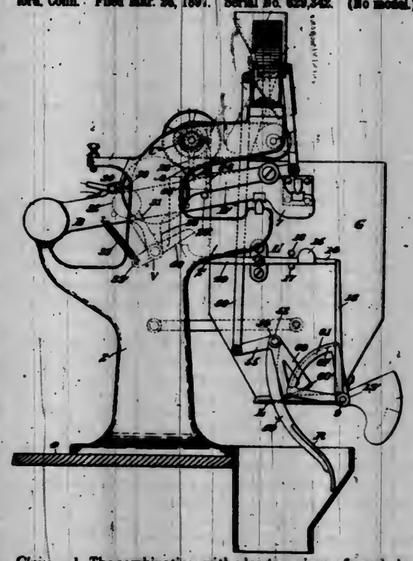
59. The combination, with a load-receiver having a closer and with a regulator-hopper located below said load-receiver, of a float located in the regulator-hopper and movable inward and outward in a plane intersecting the vertical axis of said hopper; and means connecting the float and closer in such manner that during the passage of material through the regulator-hopper the float will be forced outward thereby and will block the return or closing movement of the closer.

60. The combination, with beam mechanism and with a reciprocatory load-receiver supported thereon, of a gravitative closer pivotally supported on the load-receiver; means for locking the closer normally against opening movement; means controlled by the beam mechanism, for releasing, and facilitating an opening movement of, the closer; a regulator-hopper supported below said closer and having in one side thereof a float-guide; a gravitative float supported in said guide, for inward and outward movements in the arc of a circle and in a plane intersecting the vertical axis of the regulator-hopper; means connecting the float and closer and effective, when the float is in its retracted or upward position and the closer is in its open position, for blocking the return or closing movement of said closer; and means operative on the inward movement of the float, for imparting a return movement to said closer.

61. The combination, with a load-receiver and with a regulator-hopper, of an oscillatory gravitative closer; a float shiftably supported for movement toward and from the vertical axis of the regulator-hopper and operatively connected with the closer; and actuating means in connection with the closer.

62. The combination, with a load-receiver having a gravitative closer and with means for normally locking the closer in its closed position, of a regulator-hopper located below said closer; a float shiftably supported in the regulator-hopper and adapted to be forced outward in a plane intersecting the vertical axis of the hopper by the material flowing through said hopper; a link pivotally connected at its upper end to the closer, in the rear of the axis of movement thereof, and having a loop at its lower end engaging a projection on the float, whereby the closer will be locked against return movement when the float is in its retracted position and will be free to have a return movement when said float is in its advanced position; and a counterweight in connection with said closer and adapted for imparting return movement thereto when the float is in its advanced position.

589,299. WEIGHING-MACHINE. PRESTON H. RICHARDS, Hartford, Conn. Filed Mar. 26, 1897. Serial No. 629,342. (No model.)



Claim.—1. The combination, with a load-receiver, of a scale-beam therefor; a counterweighted lever pivoted to the scale-beam; means normally operative for holding said lever against action; means for releasing said lever; and means for shifting said lever.

2. The combination, with a scale-beam having a depending arm, of a load-receiver supported by said scale-beam; a counterweighted lever pivoted to said arm; and automatically-operative means for shifting said lever relatively to the scale-beam prior to the discharge of a load.

3. The combination, with a load-receiver, of a scale-beam therefor; a variable-efficiency device supported by the scale-beam; a latch normally adapted to hold said device against action; and means for tripping said latch.

4. The combination of a load-receiver; a supporting scale-beam therefor; a counterweighted lever supported on the scale-beam; a spring for shifting said lever; and a detent normally operative to hold the lever against action by the spring.

5. The combination, with a load-receiver and a supporting scale-beam therefor, of a variable-efficiency device carried by the scale-beam; a spring attached, respectively, to the scale-beam and said device; a latch for engaging said device; and a latch-tripping device.

6. The combination, with a load-receiver and a supporting scale-beam therefor, of a counterweighted lever pivoted to the load-receiver; a spring attached, respectively, to the beam and said lever; a latch adapted to engage the lever; and a tripper for said latch, on the framework.

7. The combination, with a load-receiver, of a supporting scale-beam therefor; a counterweighted device mounted on the scale-beam for shifting movement; a latch adapted normally to engage said counterweighted device; and an adjustable tripper for said latch.

8. The combination, with a load-receiver: of means including a latch, for governing the discharge of the load thereof; and a variable-efficiency device carried by the weighing mechanism and constituting a tripper for said latch.

9. The combination, with a load-receiver having a discharge-outlet; of a closer for said outlet, connected with the load-receiver; means including a latch, for holding said closer against movement; and a variable-efficiency device carried by the weighing mechanism and constituting a tripper for said latch.

10. The combination, with a load-receiver; of means including a latch, for governing the discharge of a load; and a counterweighted angle-lever carried by the weighing mechanism, one arm of which is adapted to engage said latch to trip the same.

11. The combination, with a load-receiver, of a closer therefor; an arm connected with said closer; a counterweighted latch pivoted to the load-receiver and adapted to engage said arm; a scale-beam for supporting the load-receiver; a counterweighted angle-lever pivoted to the scale-beam, one arm of which is adapted to engage the latch; a spring connected, respectively, with the scale-beam and said angle-lever; a spring-actuated latch adapted normally to hold said angle-lever against action; and an adjustable tripper for said spring-actuated latch, said tripper being carried by the framework.

12. The combination, with a load-receiver having a closer connected therewith for oscillation, of a regulator supported for oscillatory movement in a direction opposite to that of the closer; and means for shifting said regulator, whereby it will be carried into the path of the stream discharged from the load-receiver.

13. The combination, with a load-receiver having a discharge-outlet, of a closer for said outlet; a regulator mounted on the load-receiver and oscillatory in a direction opposite to that of the closer; and means for shifting said regulator to carry it into the path of the discharging stream from the load-receiver.

14. The combination, with a load-receiver having a discharge-outlet, of a closer connected with said load-receiver; a regulator mounted on the load-receiver and oscillatory in a direction opposite to that of the closer; means for shifting said regulator to carry it into the path of the discharging stream from the load-receiver; a stop connected with the regulator; and a cooperating stop connected with the closer, each of said stops being adapted to block the action of the other.

15. The combination, with a load-receiver having a closer, of a regulator oscillatory in a direction opposite to that of the closer; means for shifting said regulator to carry it into the path of the discharging stream from the load-receiver; a stop connected with said regulator; and a cooperating stop connected with the closer, each of said stops being adapted to block the action of the other.

16. The combination, with weighing mechanism including a load-receiver, of a conveyer; driving mechanism for said conveyer, including a clutch; a clutch-actuator; and a swinging stream-director having means for holding the clutch-actuator in its shifted position.

17. The combination, with weighing mechanism including a load-receiver, of a conveyer; driving mechanism for said conveyer, including a clutch; a clutch-actuator; a swinging spout cooperative with the conveyer; and means operative with said swinging spout, for holding the clutch-actuator in a shifted position.

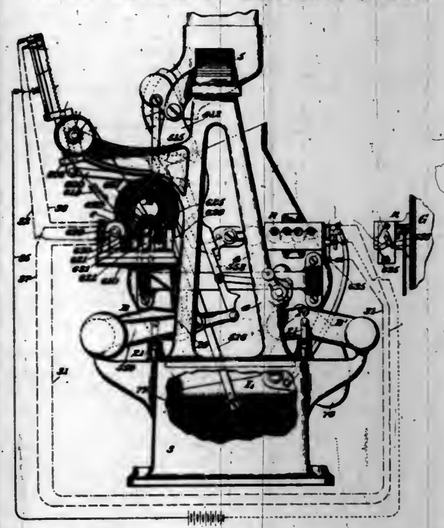
18. The combination, with a load-receiver having a closer, of a regulator mounted on the load-receiver; a conveyer; a swinging stream-director cooperative with said conveyer; connections between the stream-director and the weighing mechanism; and a rod connecting said regulator and stream-director, respectively.

19. The combination, with weighing mechanism including a load-receiver, of a conveyer; driving mechanism for said conveyer, embodying a clutch; a clutch-actuator; a swinging stream-director; and stops connected, respectively, with the stream-director and the clutch-actuator, each of said stops being adapted to block the action of the other.

20. The combination, with weighing mechanism including a load-receiver, of an endless belt constituting a conveyer; a swinging stream-director cooperative with said belt; and means connected with the stream-director, for holding said belt out of action.

21. The combination, with weighing mechanism embodying a load-receiver, of a closer for said load-receiver; a regulator; stops connected, respectively, with the regulator and the closer, each for blocking the action of the other; a conveyer; and a swinging stream-director cooperative with the conveyer and connected with said regulator.

589,800. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 22, 1897. Serial No. 628,616. (No model.)



Claim.—1. The combination, with weighing mechanism embodying beam mechanism, of a stream-controller; carrying means independent of the beam mechanism; and a stream-controller-actuating member supported by said carrying means and shiftable bodily toward and from the stream-controller from an operative to an inoperative position, and vice versa.

2. The combination, in weighing mechanism, of a stream-controller: a stream-controller actuator; and a power-transmitting member between said stream-controller and the stream-controller actuator and shiftable bodily toward and from the stream-controller from an operative to an inoperative position and also shiftable into and out of operative relation with the stream-controller actuator.

3. The combination, in weighing mechanism, of a valve; a valve-actuator; and a valve-actuating thrust-rod connected with the valve and shiftable bodily toward and from the valve from an operative to an inoperative position and having its lower end normally in position to be operated by said valve-actuator.

4. The combination, in weighing mechanism, of a valve: a valve-actuator; and a valve-actuating thrust-rod shiftable bodily toward and from the valve from an operative to an inoperative position and also shiftable into and out of operative relation with the valve-actuator.

5. The combination, in weighing mechanism, of a valve; a valve-actuator; and a valve-actuating thrust-rod bodily shiftable longitudinally toward and from the valve from an operative to an inoperative position and also shiftable transversely into and out of operative relation with the valve-actuator.

6. The combination, in weighing mechanism, of a valve: a valve-actuating member; a link connected with the valve; and connecting means between and joining the valve-actuating member and the link, for throwing one of said members into and out of operative relation with the other.

7. The combination, in weighing mechanism, of a valve; a valve-actuator; a valve-actuating thrust-rod; a thrust-rod-shifting rack operative for shifting the thrust-rod bodily toward and from the valve from an operative to an inoperative position; and means for operating the rack.

8. The combination, in weighiug mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a load receiver; beam mechanism; and actuator-shifting means operative on the weighing of a determined number of loads.

9. The combination, with weighing mechanism, of a stream-controller; a load-receiver; beam mechanism; a stop-register; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; and actuator-shifting means controlled by the stop-register and operative on the weighing of a determined number of loads.

10. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a switch operative at a predetermined point in the operation of the machine; an electric circuit controlled by said switch; and actuating-member-shifting means controlled by said circuit.

11. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an automatic switch operative at a determined point in the operation of the machine; an electric circuit controlled by said switch; and actuating-member-shifting means controlled by said circuit.

12. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; a circuit-maker operative for closing said circuit at a determined point in the operation of the machine; and actuating-member-shifting means controlled by said circuit.

13. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a load-receiver; beam mechanism; a stop-register; an automatic switch controlled by said register; an electric circuit controlled by said switch; and actuating-member-shifting means controlled by said circuit.

14. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; a circuit-maker for closing said circuit at a determined point in the operation of the machine; actuating-member-shifting means controlled by said circuit; and an automatic circuit-breaker for breaking said circuit.

15. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; a circuit-maker operative for closing said circuit at a determined point in the operation of the machine; actuating-member-shifting means controlled by said circuit; and a circuit-breaker controlling said circuit and controlled by said actuating-member-shifting means.

16. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; actuating-member-shifting means controlled by said circuit; and an automatic circuit-breaker for breaking said circuit.

17. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a pair of electric circuits; actuating-member-shifting means controlled by said circuits; and automatic circuit-breaking means for breaking said respective circuits alternately when the actuating member is in its operative and inoperative positions, respectively.

18. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a pair of electric circuits; actuating-member-shifting means controlled by said circuits; circuit-making means for closing said circuits alternately to permit the shifting of the actuating member toward and from its operative position; and automatic circuit-breaking means for breaking said respective circuits alternately when the actuating member is in its operative and inoperative positions, respectively.

19. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a pair of electric circuits; actuating-member-shifting means controlled by said circuits; circuit-making means for closing said circuits and for automatically closing one of said circuits at a determined point in the operation of the machine; and automatic circuit-breaking means for breaking said respective circuits alternately when the actuating member is in its operative and inoperative positions, respectively.

20. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; actuating-member-shifting means controlled by said circuit; and an automatic circuit-breaker movable with said actuating-member-shifting means.

21. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; actuating-member-shifting means controlled by said circuit; and an automatic circuit-breaker carried by said actuating-member-shifting means.

22. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; an electric circuit; a contact-strip in said circuit; a reciprocatory actuating-member shifter controlled by said circuit; and an automatic circuit-breaker carried by said actuating-member shifter and slidable onto and off from said contact-strip.

23. The combination, in weighing mechanism, of a stream-controller; a stream-controller-actuating member shiftable bodily toward and from the stream-controller from an operative to an inoperative position; a pair of electric circuits controlling the respective movements of the actuating-member shifter; a contact-strip common to said circuits; a reciprocatory actuating-member shifter controlled by said circuits; and a pair of automatic circuit-breakers carried by said actuating-member shifter and slidable onto and off from said contact-strip.

24. In an automatic weighing-machine, the combination, with normally idle power-driven stopping mechanism for stopping the operation of the weighing mechanism, of an electric circuit controlling the operation of said stopping mechanism; and an automatic electric circuit-controller operative at the end of a predetermined period to cause the starting of said stopping mechanism in operation.

25. The combination, in weighing mechanism, of a pair of oppositely-rotative driving members; a valve; a valve-controlling driven member operative by said driving members, respectively; an electric circuit; a stop-register; an automatic circuit-controller for said circuit and controlled by the stop-register; and a shifter controlled by said circuit and operative, at a determined point in the operation of the weighing mechanism, for shifting said driven member.

26. The combination, in weighing mechanism, of a pair of oppositely-rotative driving members; a valve; a rotatable valve-controlling driven member; a coupling member slidable on said driven member and rotatable therewith and operative by said driving members, respectively; an electric circuit; a stop-register; an automatic circuit-controller for said circuit and controlled by the stop-register; and an automatic coupling-member shifter controlled by said circuit.

27. The combination, in weighing mechanism, of a pair of oppositely-rotative driving members; a valve; a valve-controlling driven member operative by said driving members, respectively; a pair of electric circuits; a stop-register; an automatic circuit-controller for said circuits and controlled by the stop-register; and an electromagnetically-operated shifter normally in an idle position and controlled by said respective circuits and operative, at determined points in the operation of the weighing mechanism, for shifting said driven member into operative relation with said driving members, respectively.

589,801. WEIGHING AND PACKING APPARATUS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Oct. 7, 1896. Serial No. 608,139. (No model.)

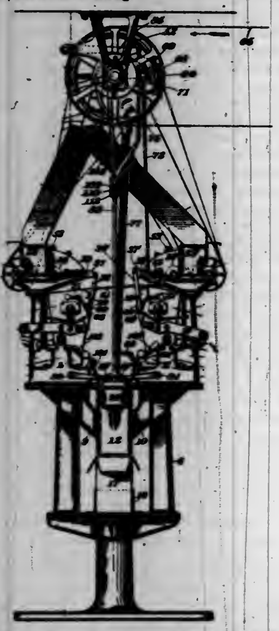
Claim.—1. The combination, with a support for a receptacle, of a casing having an inlet-opening; a plunger reciprocative in said casing; mechanism for reciprocating said plunger; and means independent of the plunger-reciprocating mechanism for stopping the plunger when it is opposite said inlet-opening, and for positively holding it in such position whereby it acts as a valve to cover said opening and prevent the entrance of material to said casing.

2. The combination, with a support for a receptacle, of a casing having an inlet-opening; a chute leading to said inlet-opening; means for delivering charges of material to said chute; a plunger situated in the casing; driving mechanism for the plunger; and means independent of the plunger-driving mechanism for stopping the plunger when it is opposite said inlet-opening, and for positively holding the plunger in such position whereby it acts as a valve to cover said opening and prevent the entrance of material to said casing.

3. The combination, with a support for a receptacle, of a casing having an inlet-opening; weighing mechanism embodying a load-receiver, a chute leading from the weighing mechanism to the inlet-opening; means for effecting the discharge of said load-receiver; a plunger reciprocative in said casing; and means independent of the plunger and reciprocating mechanism for stopping the plunger when it is opposite the inlet-opening, and for positively holding the plunger in such position whereby it acts as a valve to cover said opening and prevent the entrance of material to said casing.

4. The combination, with a support for a receptacle, of a casing having an inlet-opening; a chute leading to said opening; weighing mechanism embodying a load-receiver; a plunger reciprocative within said casing; plunger-reciprocating mechanism; instrumentalities controlled by the plunger-reciprocating means for effecting the discharge of said load-receiver; and means independent of the plunger-driving

mechanism for stopping the plunger when it is opposite said inlet-opening, and for positively holding the plunger in such position whereby it acts as a valve to cover said inlet-opening and prevent the entrance of material to said casing.



5. The combination, with a support for a receptacle, of a casing having an inlet-opening; a plunger reciprocative in said casing; a pair of weighing mechanisms comprehending a load-receiver; means for alternately effecting the discharge of said load-receivers for conducting the charges to the casing; mechanism for reciprocating the plunger; and means independent of the plunger-reciprocating mechanism for stopping the plunger when it is opposite said inlet-opening, and for positively holding the plunger in such position whereby it acts as a valve to cover said opening and prevent the entrance of material to said casing.

6. The combination, with a support for a receptacle, of a casing having inlet-openings in its opposite sides; a plunger reciprocative in said casing; a pair of weighing mechanisms each embodying a load-receiver; chutes leading from the weighing mechanisms to said inlet-openings; plunger-reciprocating mechanism; instrumentalities operative with the plunger-reciprocating mechanism for effecting the alternate discharge of said load-receivers; and means independent of the plunger-reciprocating mechanism for stopping the plunger when it is opposite said inlet-openings, and for positively holding the plunger in such position whereby it acts as a valve to cover said opening and prevent the entrance of material to said casing.

7. The combination, with a support for a receptacle, of a plunger and its casing, the latter having an inlet-opening; a supply-chute leading to said inlet-opening; rotary driving mechanism for reciprocating said plunger; and means for throwing the plunger into and out of connection with its driving mechanism when the latter has made a single rotation, and for holding the plunger at a point opposite said inlet-opening when said plunger has been stopped.

8. The combination, with a support for a receptacle, of a casing having inlet-openings; a plunger situated within said casing; a pair of weighing mechanisms; chutes leading from said weighing mechanisms to the inlet-openings; load-discharge-controlling means for each of the weighing mechanisms, each embodying a latch; trippers, one for each of said latches; plunger-driving mechanism; and shifting means controlled by the plunger-driving mechanism, for alternately throwing said trippers into their operative and inoperative positions, respectively, whereby the simultaneous discharge of the two weighing mechanisms is prevented.

9. The combination, with a support for a receptacle, of a casing having inlet-openings; a pair of weighing mechanisms; chutes leading from the weighing mechanisms to said inlet-openings; a plunger situated within said casing; a shaft and its driving mechanism; differential gears, one of which is mounted on said shaft; means for intermittently coupling one of the gears to the shaft and for uncoupling it therefrom when it has made a complete rotation; load-discharge-controlling means for the weighing mechanisms, each embodying a latch; connected trippers, one for each of the latches; and a connection between one of the trippers and one of the gears.

10. The combination with a pair of weighing mechanisms, each of which comprehends a load-receiver; of load-discharge-controlling means for each of said load-receivers, each embodying a latch; trippers, one for each of said latches; and shifting means for alternately throwing said trippers into their operative and inoperative positions, respectively.

11. The combination with a pair of weighing mechanisms, each of which comprehends a load-receiver; of load-discharge-controlling means for each of said load-receivers, each embodying a latch; trippers, one for each of said latches; and shifting means for simultaneously throwing said trippers into their operative and inoperative positions, respectively.

12. The combination with weighing mechanism comprehending a load-receiver, of load-discharge-controlling means embodying a latch; a tripper for said latch; a shaft having a gear; a meshing gear operatively connected to said tripper; and means for intermittently coupling said first-mentioned gear to its shaft.

13. The combination with weighing mechanism embodying a load-receiver, of load-discharge-controlling means including a latch; a tripper for said latch; a shaft having a pinion thereon; a meshing gear operatively connected to said tripper, the ratio of efficiency of said pinion and gear being as one to two; and means for intermittently coupling said pinion to its shaft.

14. The combination with a pair of weighing mechanisms, each of which comprises a load-receiver; of load-discharge-controlling means for each of said load-receivers, each embodying a latch; trippers, one for each of said latches; a direct connection between said trippers and extending beyond one of them; an angle-lever attached to said direct connection; a shaft carrying a pinion; a meshing gear operatively connected to said angle-lever; and means for intermittently coupling said pinion to its shaft.

15. The combination with a support for a receptacle, of a casing having an inlet-opening; a plunger, reciprocative within said casing and normally acting as a valve to close the inlet-opening and prevent the entrance of material to said casing; a chute leading to said inlet-opening; weighing mechanism comprehending a load-receiver; load-discharge-controlling means for said load-receiver, including a latch; a tripper for said latch; means for alternately throwing said latch-tripper into its operative and inoperative positions, respectively; and mechanism for elevating said plunger to uncover the inlet-opening and for also depressing said plunger.

16. The combination with a support for a receptacle, of a casing having an inlet-opening; a packing device operative within said casing; weighing mechanism including a load-receiver; load-discharging instrumentalities; actuating mechanism for said packing device; and means controlled by the weighing mechanism, for throwing the actuating mechanism for the packing device into and out of action.

17. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; actuating mechanism for said packing device, including a shaft and a loose sleeve thereon; and means controlled by the weighing mechanism, for intermittently coupling said sleeve to its shaft.

18. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device reciprocative within said casing; actuating mechanism for said packing device, including a shaft and a loose sleeve thereon, said sleeve being provided with an eccentric connected by a rod to said packing device; and means controlled by the weighing mechanism, for intermittently coupling said sleeve to its shaft.

19. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; a shaft carrying a pulley provided with a projection; a loose sleeve on said shaft, operatively connected to said packing device and carrying a dog; and means for throwing said dog across the plane of rotation of said projection.

20. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; a shaft carrying a pulley provided with a projection; a loose sleeve on said shaft, operatively connected to said packing device and carrying a spring-actuated dog; a detent device for normally holding said dog against movement; and means for intermittently releasing said dog, whereby

it will be thrown across the plane of rotation of said projection by the force of its actuating-spring.

21. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities, a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; a shaft carrying a pulley provided with a projection; a loose sleeve on said shaft operatively connected to said packing device and carrying a spring-actuated dog; a lever adapted for engaging said dog; and a rod attached to said lever and adapted to receive a dog-releasing thrust from means controlled by the weighing mechanism.

22. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; a shaft carrying a pulley provided with a projection; a loose sleeve on said shaft, operatively connected to said packing device and carrying a spring-actuated dog; an intermittently-reciprocative lever having a cam-face, the lever being adapted to maintain the dog in its normal position; and means for reciprocating said lever, whereby the dog will be released on one of its strokes and whereby the cam-face thereof will be interposed in the path of movement of said dog to return the latter to its normal position.

23. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharging instrumentalities; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; a shaft carrying a pulley provided with a projection; a loose sleeve on said shaft, operatively connected to said packing device and carrying a spring-actuated dog; an intermittently-reciprocative lever having a cam-face and an adjacent stop, said lever being adapted to maintain the dog in its normal position; and means for reciprocating said lever, whereby the dog will be released on one of its strokes and whereby the cam-face thereof will be interposed in the path of movement of said dog to return the latter to its normal position, said dog, when it has made a complete turn, being adapted to abut against said stop.

24. The combination with a support for a receptacle, of a casing; weighing mechanism embodying a load-receiver; load-discharge-controlling mechanism including a latch; a tripper for said latch; a chute leading from the weighing mechanism to the casing; a packing device operative in said casing; actuating mechanism for said packing device, including a shaft and a loose sleeve thereon; means controlled by the weighing mechanism, for intermittently coupling said sleeve to its shaft; and a pair of meshing gears one of which is fast on said sleeve, the other being operatively connected to said latch-tripper.

25. The combination with a support for a receptacle, of a casing; a packing device operative in said casing; weighing mechanism including a load-receiver; load-discharging instrumentalities; a shaft carrying a pulley having a projection; a sleeve on said shaft; a band on said sleeve having a dog normally held against movement by a detent device; a rod connected to said detent device; an eccentric on said band, having a rod operatively connected to said first-mentioned rod by a slide-joint; and means carried by said shaft, for actuating said packing device.

26. The combination with a support for a receptacle, of a casing; a packing device located in said casing; weighing mechanism including a load-receiver; load-discharging instrumentalities; a shaft having a pulley provided with a projection; a sleeve loose on said shaft and carrying a spring-actuated dog; a lever normally holding said dog against movement; a rod connected to said lever, a second lever on which said rod is adapted to rest; a spring-plunger for operating said second lever; and a trigger for normally holding said second lever against movement and thereby the spring-plunger against effective action.

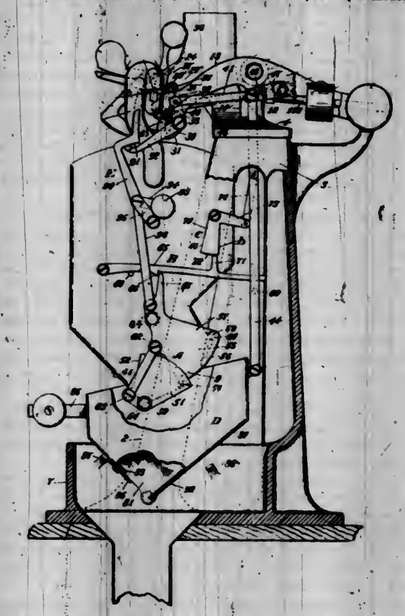
27. The combination with a support for a receptacle, of a casing; a packing device located in said casing; a shaft having a pulley provided with a projection; a sleeve loose on said shaft and carrying a spring-actuated dog; a lever normally holding said dog against movement; a rod connected to said lever; a second lever on which said rod is adapted to rest; a spring-plunger for operating said second lever; and a trigger for normally holding said second lever against movement and thereby the spring-plunger against effective action.

28. The combination with a support for a receptacle, of a casing; a packing device located in said casing; weighing mechanism embodying a closer; instrumentalities including a latch for normally holding said closer against movement; a shaft having a pulley provided with a projection; a sleeve loose on said shaft and carrying a spring-actuated dog; a lever normally holding said dog against movement; a rod connected to said lever; a second lever on which said rod is adapted to rest; a spring-plunger for operating said second lever; a trigger for normally holding said second lever against movement and thereby the spring-plunger against effective action; and means operated by such closer for tripping said plunger.

29. The combination with a support for a receptacle, of a casing; a packing device located in said casing; weighing mechanism embodying a closer; instrumentalities including a latch, for normally holding said closer against movement; a shaft having a pulley provided with a projection; a sleeve loose on said shaft and carrying a spring-actuated dog; a lever normally holding said dog against movement; a rod connected to said lever; a second lever on which said rod is adapted to rest; a spring-plunger for operating said second lever; a trigger for normally holding said second lever against movement and thereby the spring-plunger against effective action; and a device located between the closer and said second lever and adapted to be operated by the closer, said device being also adapted to trip said trigger.

30. The combination with a pair of weighing mechanisms, each embodying a load-receiver; of load-discharge-controlling means for each of said weighing mechanisms; each embodying a latch; cam-levers constituting trippers for said latches; and means for throwing said cam-levers alternately into their operative and inoperative positions.

589,302. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Jan. 8, 1897. Serial No. 618,458. (No model.)



Claim.—1. The combination, with beam mechanism and with a load-receiver provided with a shiftable closer, of a regulator; and means carried by the load-receiver and beam mechanism, for locking said regulator against premature operation.

2. The combination, with beam mechanism, of a load-receiver supported thereby and having a shiftable closer; a regulator; and means operatively connected with the closer and carried by a load-receiver and beam mechanism, for locking the regulator against premature operation.

3. The combination, with weighing mechanism embodying a load-receiver provided with a shiftable closer, and with a regulator, of weighted locking mechanism operable to lock the regulator against premature operation and operatively connected with the closer, for operation thereby on the opening of the same to thereby unlock the regulator, said locking mechanism being operable, by its weight on the shutting of the closer, to relock such regulator.

4. The combination, with beam mechanism, of a load-receiver having a shiftable closer; a regulator; and locking mechanism for locking said regulator against premature operation, and comprising a plurality of shiftable members, one carried by the beam mechanism and connected with the regulator, and the other carried by the load-receiver.

5. The combination, with beam mechanism, of a load-receiver having a shiftable closer; a regulator; locking mechanism for such regulator and comprehending a locker carried by the load-receiver and connected with the closer, whereby it is shiftable therewith, and lever mechanism connected with the beam mechanism and regulator

and embodying an arm adapted to be locked against movement, whereby the regulator is likewise locked against movement.

6. The combination, with beam mechanism, of a load-receiver having a shiftable closer; a supply-valve; a regulator; valve-actuating means connected with and operated by the regulator for opening said valve; and locking mechanism for said regulator, a part thereof operative with said valve-actuating means.

7. The combination, with beam mechanism, of a load-receiver having a shiftable closer; a supply-valve; a regulator-hopper; means operatively connected to the beam mechanism and hopper and operative to actuate said valve; and locking mechanism for said hopper, a part thereof operatively connected with the valve-actuating mechanism and a part thereof carried by the load-receiver and connected with the closer and shiftable therewith to unlock said hopper.

8. The combination, with a counterweighted scale-beam, and with a load-receiver having a shiftable closer, of reducing and cut-off valves; shiftable actuators for said valves; a regulator; means connecting said regulator with said actuators, whereby said actuators are operative by and with said regulator thereby to open said valves at the proper predetermined period; and locking mechanism for said regulator.

9. The combination, with a counterweighted scale-beam and with a load-receiver having a closer, of reducing and cut-off valves; shiftable actuators, one for each valve; a regulator-hopper below said load-receiver; shifting devices connected with said hopper and with each of said actuators: and locking mechanism for said regulator, comprising a plurality of interlocking members, one pivotally connected with one of said actuators and the other with the load-receiver and closer and shiftable with said closer to unlock said regulator.

10. In a weighing-machine, a regulator having a pair of inclined walls terminating in a discharge-opening and pivotally supported at the extreme lower edge of one of said inclined walls, whereby the outflowing stream offers no resistance to the movement of the regulator at the point of discharge thereof.

11. In a weighing-machine, the combination, with a load-receiver, of a supply-valve; actuating means for said valve; a regulator; and a reciprocatory connector secured to said regulator and operatively connected with said valve-actuating means, and operative to carry said valve-actuating means into its ineffective position and thereby permit the valve to close on the descending movement of said connector simultaneously with the descending movement of said regulator, and to carry said valve-actuating means into its effective position, thereby to open said valve on the ascent of said connector simultaneously with the return or ascent of said regulator to its normal position.

12. The combination, with a load-receiver; of closers, each pivotally secured to said load-receiver and comprising a pair of blades, one radially disposed relatively to its pivotal axis, and the other concentrically disposed relatively to its pivotal axis.

13. The combination, with a load-receiver; of shiftable closers pivotally secured thereto and having overlapping sides, and one embodying a blade radially disposed relatively to its pivotal axis, and the other a concave blade concentrically disposed relatively to its pivotal axis, the sides of said closers maintaining a permanent overlapping engagement with the walls of said load-receiver, thereby forming stream-directing walls for the discharging material.

14. The combination, with weighing mechanism embodying a load-receiver, of a main and a supplemental closer secured to said load-receiver and shiftable to discharge the load and coupled together for movement, said main closer being operative to open the supplemental closer and regulate the shutting of both of said closers; a regulator; and locking means for locking said regulator against premature operation and operatively connected with said regulator and directly connected with said supplemental closer, whereby it is operated thereby on the operation of the main closer.

15. The combination, with a load-receiver, of a pair of closers each pivotally secured to said load-receiver and coupled together for simultaneous movement, one radially disposed relatively to its pivotal axis and the other concentrically disposed relatively to its pivotal axis, and one of said closers constructed and timed to have a relatively slow closing movement during the latter part of its operation as compared with the closing movement of its companion closer.

16. The combination, with a load-receiver, of a pair of closers pivotally secured to said load-receiver, and coupled together for simultaneous movement, and comprising a main or regulator closer radially disposed relatively to its pivotal axis, and a supplemental or valve closer concentrically disposed relatively to its pivotal axis, said regulator-closer being constructed and operable to open the supplemental closer and regulate the shutting of both of said closers, and said valve-closer being constructed and operable to shut said regulator-closer on its own closing movement, and said regulator-closer also being constructed and timed to have, during the latter part of its closing operation, a relatively slow movement as compared with the movement of the valve-closer, whereby said regulator-closer is scraped or cleaned free of material.

17. The combination, with a load-receiver, of a pair of closers coupled together for simultaneous movement and each comprising a blade or plate pivotally secured for shiftable movement relatively to said receiver and one having its blade radially disposed relatively to its axis and the other having its blade concentrically disposed relatively to its axis.

18. The combination, with beam mechanism, of a load-receiver; a regulator; and means carried by the load-receiver and beam mechanism, and connected with the regulator for locking said regulator against premature operation.

19. The combination, with a load-receiver; of a main closer and a supplemental closer, both pivotally secured thereto for shiftable movement and comprising a pair of blades or plates, one radially disposed relatively to its axis and the other concentrically disposed relatively to its axis; and a connector pivotally secured to each of said closers, the pivotal point of the connector with the main closer being such that when said closers are open such pivotal point will be in approximate alinement with the axis of said main closer, whereby comparatively little power is required to maintain such closers open.

20. The combination, with a load-receiver having a discharge opening or spout and a flange adjacent thereto, of a closer shiftably secured to said receiver and provided with a flange at its rear end extending around said receiver-flange and thereby forming a guard to prevent the discharge of material from said receiver at this point.

21. The combination, with a load-receiver having a discharge opening or spout and a flange adjacent thereto, of a main closer shiftably secured to said load-receiver; and a supplemental closer also shiftably secured thereto and comprising a concave blade having a curved rear end extending around said flange and thereby forming a guard to prevent the discharge of material at this point.

22. The combination, with a load-receiver having a flange adjacent its discharge-opening, of a main closer pivotally secured to said receiver and provided with a pair of relatively wide sides and a blade radially disposed relatively to the axis of said closer; a supplemental closer also provided with a pair of relatively wide sides overlapped by the sides of said main closer and a concave blade concentrically disposed relatively to the axis of said closer and having a curved flange at its rear end coacting with the flange on the load-receiver; and a connector pivotally secured to each closer, its pivotal point with the main closer being such that when said closers are open such pivotal point will be in approximate alinement with the pivotal axis of said closer.

23. The combination, with a load-receiver having a shiftable closer, of regulator mechanism; main locking means for securing said closer in a shut position; and supplemental locking means operative to lock said main locking means against premature operation and connected to, and operable with, said regulator mechanism.

24. The combination, with a load-receiver having a shiftable closer, of regulator mechanism; main locking means operative to lock said closer shut; and supplemental locking means operative to lock said main closer-locking means against premature operation and operatively connected with the receptacle and regulator mechanism, whereby, on the movement of said receptacle and regulator mechanism, said supplemental locking means will lock and unlock said main locking means.

25. The combination, with weighing mechanism embodying a load-receiver provided with a shiftable closer, of a main locker for maintaining the same shut; and a supplemental locker operative to secure said main locker against premature operation and having a reciprocatory and oscillatory movement, and oscillatory on its reciprocatory movement into position to lock and unlock said main locker.

26. The combination, with a reciprocatory load-receiver having a shiftable closer, and with a regulator; of an oscillatory main locker carried by the load-receiver, for maintaining said closer shut: and an oscillatory locker connected with the regulator and operable, on the descent and ascent of said load-receiver and regulator, in a plane transversely of the plane of movement of such reciprocatory load-receiver, to lock and unlock said main locker.

27. The combination, with a load-receiver having a shiftable closer, of a regulator; main locking means operative to lock said closer shut; and supplemental locking means operative in two directions on the movement of the load-receiver and also operative in two directions on the movement of the regulator, to lock and unlock said main locking means.

28. The combination, with a load-receiver having a shiftable closer, of regulator mechanism; main locking means for locking said closer shut; and supplemental locking means carried by the load-receiver and operatively connected with the regulator mechanism, for movement therewith, and operative to lock the main locking means against premature operation.

29. The combination, with a load-receiver having a shiftable closer, of regulator mechanism; a main locker carried by the load-receiver and operative to lock the closer shut; and a supplemental locker also carried by, and movable with, the load-receiver and having movements in two intersecting planes and operatively connected with the regulator mechanism for operation thereby.

30. The combination, with a load-receiver having a shiftable closer, of a supply-valve; means for actuating said valve; a regulator having a connector in engagement with the valve-actuating means; a main locker to look the closer shut: and a supplemental locker to lock the main locker against premature movement, and connected with the regulator-connector for operation by said regulator.

31. The combination, with a load-receiver having a shiftable closer, of a supply-valve; means for actuating said valve; a regulator-hopper having a connector in engagement with the valve-actuating means; a locker carried by the load-receiver and operative to lock the closer shut; and a supplemental locker also carried by, and movable with, the load-receiver and operative to lock the main locker against premature movement and connected with the connector of said regulator-hopper, for operation by said hopper.

32. The combination, with a reciprocatory load-receiver having a shiftable closer, of a supply-valve; means for actuating said valve; a regulator having a connector in engagement with the valve-actuating means; main locking means comprising a latch-lever pivotally secured to the load-receiver and provided with a stop-arm; supplemental locking means comprising an oscillatory member secured to the load-receiver and in position to engage said stop-arm; and a device connecting said oscillatory member with the regulator-connector.

33. The combination, with a load-receiver having a shiftable closer, of a supply-valve; means for actuating said valve; a regulator having a connector in engagement with said valve-actuating means; an actuator carried by said connector; a main locker carried by said load-receiver and operative by said connector-actuator to unlock said closer; and a supplemental locker also carried by said load-receiver and operatively connected with the regulator-connector.

34. The combination, with beam mechanism, of a load-receiver supported thereby and having a shiftable closer; locking means for said closer; regulator mechanism; locking means for said regulator mechanism, and operative, on the opening of the closer, to unlock said regulator mechanism; and actuating means carried by said regulator mechanism and in position to unlock said closer-locking means.

35. The combination, with beam mechanism, of a load-receiver supported thereby and having a plurality of shiftable closers coupled together for simultaneous movement; locking means for said closers; a regulator; and locking means for said regulator, and connected with one of the closers and operative, on the opening of said closers, to unlock said regulator.

36. The combination, with beam mechanism, of a load-receiver supported thereby and having a shiftable closer; regulator mechanism; main locking means for said closer: supplemental locking means connected with the regulator mechanism, for locking the main locking means; and locking means for said regulator, and connected with the closer and operable, on the opening of said closer, to unlock said regulator.

37. The combination, with beam mechanism, of a load-receiver supported thereby and having a pair of shiftable closers; valve mechanism; a regulator-hopper; means for actuating said valve mechanism, and operable by said hopper; main locking means for said closers; supplemental locking means for said main locking means, and connected to said load-receiver and hopper; and locking means for said hopper, and carried by said valve-actuating means and load-receiver and connected with one of said closers.

38. The combination, with a load-receiver having a pair of shiftable closers pivotally secured thereto and comprising blades or plates, one radially disposed relatively to its axis and the other concentrically disposed relatively to its axis; of locking means in operative engagement with one of said closers and operable to lock both of said closers shut.

39. The combination, with a load-receiver having closer mechanism comprehending a pair of shiftable closers pivotally secured thereto and comprising blades or plates, one radially disposed relatively to its axis and the other concentrically disposed relatively to its axis; of locking means in operative engagement with one of said closers and operable to maintain both of said closers shut: and supplemental locking means for maintaining the main locking means against premature operation.

40. The combination, with a load-receiver having closer mechanism comprehending a pair of shiftable closers pivotally secured thereto and comprising blades or plates, one radially disposed relatively to its axis, and the other concentrically disposed relatively to its axis; regulator mechanism; main locking means carried by said load-receiver and in engagement with said closer mechanism, for maintaining the same shut: and supplemental locking means also carried by said load-receiver, for maintaining the main locking means against premature operation and in engagement with said regulator mechanism for operation thereby.

41. The combination, with beam mechanism, of a load-receiver having a shiftable closer supported thereby; a regulator disposed below said load-receiver; a supply-valve; means for actuating said valve, said means being connected with said regulator for operation thereby; locking means for said regulator, comprehending an arm connected with said beam mechanism; a weighted locker shiftably secured to said load-receiver; and a connector pivotally secured to said locker and closer.

589,803. TOOL-HOLDER. JOHN M. RICHARDSON, Daingerfield, Tex. Filed Feb. 2, 1897. Serial No. 621,692. (No model.)



Claim.—1. A slotted socket, a shank arranged to enter said socket and provided with lugs adapted for locking engagement with the walls of the slot in the socket, a key shaped to fit the said slot, and means for holding the key in the slot, substantially as described.

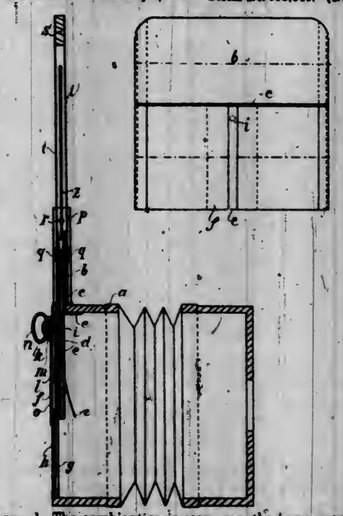
2. A socket provided with an L-slot, and a recess in a wall of the shorter member of the slot, a shank adapted to enter the socket, lugs on the shank arranged at angles to each other, and a clamping device located upon the socket, serving to prevent the movement of the socket on the shank, as and for the purpose specified.

3. A socket provided with a flange at one end, and an L-slot extending through the flange and having a recess in the wall of its shorter member, a shank likewise provided with a flange, lugs on the shank arranged at angles to one another, a key shaped to enter the L-slot, and a clamp for the said key, substantially as shown and described.

4. A socket provided with an L-slot having a recess at its shorter member, a flange on the socket through which the L-slot extends, the said shank being provided also with a circumferential recess adjacent to the shorter member of the L-slot, a shank provided with a flange, lugs on the shank, placed at angles to one another, a key fitted to the L-slot, and a locking device for the key, substantially as shown and described.

5. The combination, with a socket provided with an L-slot having a recess in the wall of its shorter member, the said socket being provided with a circumferential recess adjacent to the shorter member of the said slot, of a shank adapted to enter the socket, provided with lugs placed at angles to one another and arranged one to enter the recess in the shorter member of the L-slot and the other to be located in the longer member of the said slot, a key fitted to the L-slot, and a locking device for the key, substantially as set forth.

589,804. PHOTOGRAPHIC CAMERA. SOPHUS RITTER, Copenhagen, Denmark. Filed May 4, 1897. Serial No. 635,019. (No model.)



Claim.—1. The combination in a camera, the box or case, and a funnel carried thereby, said funnel being permanently and movably

connected with the box or case, to be projected therefrom or to be moved into the case, substantially as described.

2. The combination, with a box or case having the slotted back, the funnel moving in the casing and the handle projecting outside the casing for moving the funnel, substantially as described.

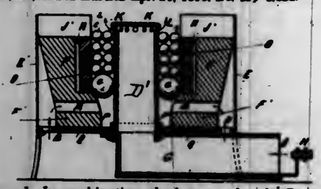
3. The combination in a camera with the box or case, a funnel arranged to be moved into and out of the same, and the hinge-pieces arranged at the ends of the slot through which the funnel can be moved, said hinge-pieces having spring-clips *q*, pins *u* and guide-pieces *r*, substantially as described.

589,305. BICYCLE OR TRICYCLE ATTACHMENT. HIPPOLYTE SCHNEIDER, Pittsburg, Pa. Filed Aug. 21, 1896. Serial No. 603,490. (No model.)



Claim.—In a device of the character described, a crank provided with notches along one side, a casing slidable on the crank, a plate of greater width than the casing forming a slide thereto, a pedal-shaft secured to said plate, an angular trip pivoted to the plate, a pin carried by the angular lever sliding in an opening in the plate and engaging one of the notches of the crank, a spring connecting one end of the angular lever to the plate, a coil-spring connecting the casing to the inner end of the crank, an offset and pin on the crank to limit the movements of the casing thereon, a pedal journaled on the pedal-shaft, a brace carried by the pedal, a lever pivoted to the brace adapted to engage the angular lever to operate same and a spring connecting said lever to the pedal for normally keeping the lever out of engagement with the angular lever as described.

589,306. GAS HEATING APPARATUS. GUILLAUME SCHOONJANS, Brussels, Belgium, assignor to the Société Anonyme pour l'Exploitation des Appareils Economiques à Gaz Système Schoonjans, same place. Filed Apr. 26, 1897. Serial No. 633,947. (No model.) Patented in Belgium Sept. 17, 1895, No. 117,449; in Germany Dec. 14, 1895, No. 88,564; in England Dec. 14, 1895, No. 24,012; in France Mar. 31, 1896, No. 254,965, and in Austria Apr. 26, 1896, No. 46/1,620.



Claim.—1. In combination, the burner-tube, the Bunsen tube G leading thereto, a shell surrounding the burner-tube and having openings M for the inlet of the air, a mantle surrounding the shell, and a disk Q having openings connecting with the space between the mantle and shell, substantially as described.

2. In combination, the burner, the Bunsen tube connecting therewith, the shell surrounding the burner and having openings M for the inlet of air, the ring O inserted within the shell with a dead-air space N between the said parts and the balls *c* between the ring O and the burner-tube, substantially as described.

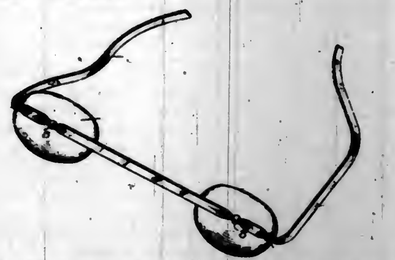
3. In combination, the burner, the Bunsen tube connecting therewith, the shell surrounding the burner and having openings M for the inlet of air, the ring O inserted within the shell with a dead-air space N between the said parts, the heat-retaining mantle about the shell, air-inlets leading to the space between said shell and mantle, and the balls *c* between the ring O and the burner-tube, substantially as described.

4. In combination, the burner, the perforated shell about the same having the upwardly-flared outer walls, the Bunsen tube leading to the burner, the perforated disk Q and the cylindrical mantle about the shell, substantially as described.

589,307. HOODWINK. HUBERT SEYFER, Houston, Tex. Filed Dec. 30, 1896. Serial No. 617,426. (No model.)

Claim.—1. The combination with an elastic cord or web, of a pair of eyepieces mounted thereon and capable of adjustment longitudinally thereof, substantially as described.

2. The combination with a pair of eyepieces provided with eyes or loops, of an elastic cord passing through said eyes or loops and adapting the eyepieces to be adjusted as to their distance apart, substantially as described.



3. A pair of eyepieces or hoods each having upon its outer surface a central eye, of an elastic cord passing through said eyes and adapting the said eyepieces to be moved toward or away from each other, substantially as described.

4. The combination with a pair of eyepieces having upon their outer surfaces the central eyes or loops, and similar eyes or loops at or near their outer edges, of a cord passing through the several eyes or loops, substantially as and for the purpose described.

589,308. GLASS-CUTTING APPARATUS. JOHN W. SEITER, Harlan, Iowa, assignor of one-half to Emile M. Hertert, same place. Filed Feb. 27, 1897. Serial No. 625,290. (No model.)



Claim.—The combination of a rail having a rabbet therein, a carriage-bar having a grooved under side matching with the top of the rail whereby the carriage-bar may slide longitudinally on the said rail, a guide-bar fixed to the carriage-bar and having a rib run longitudinally along its upper face, a carriage-block with a groove to receive the rib of the guide-bar, the carriage-block being slidable longitudinally on the guide-bar, and a blade pivoted to the carriage-block and moving therewith, the blade bearing against the guide-bar so as to be guided thereby.

589,309. NUT-LOCK. BENJAMIN F. SKILES and JACOB H. MAINE, Allegheny, Pa. Filed Jan. 23, 1897. Serial No. 620,493. (No model.)



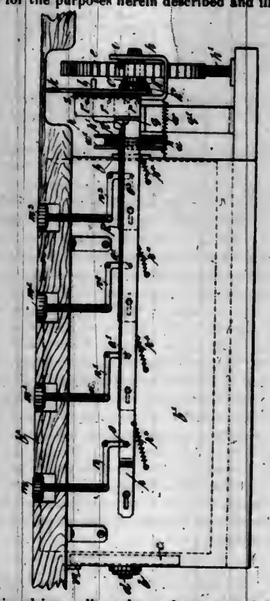
Claim.—1. In a nut-lock, a plate having an opening to receive the bolt to form a washer, said plate having an extension carrying lugs or ears bent at right angles to the extension, a plate forming the lock, provided with a cut-away portion to engage the nut, and downwardly-extending lugs to engage the washer, said plate having an extension pivotally connected to the lugs or ears, and a spring to hold the locking-plate into operative engagement with the nut, substantially as shown and described.

2. In a nut-lock, the plate *a*, having the opening *b*, to receive the bolt, extension *d*, carrying lugs or ears *e*, in combination with the plate *g*, provided with a cut-away portion to engage the nut, downward extensions *h*, extension *f*, pivotally engaging the lugs or ears *e* of plate *a*, and spring *k*, adapted to hold plate *g* in operative engagement with the nut, substantially as shown and described.

589,310. COMBINED MEASURING AND COST-INDICATING APPARATUS. ALFRED SMITH, Christchurch, New Zealand. Filed Apr. 17, 1897. Serial No. 632,681. (No model.)

Claim.—1. In a machine for indicating the cost of goods sold by lineal measurement a spring-driven roller having cost-markings in longitudinal and circumferential columns upon its periphery, such roller being controlled by ratchet-and-escapement gearing operated by tappets placed at intervals upon a measuring-staff whereby one or other of the longitudinal columns of figures is brought into position in relation to a fixed indicating-scale substantially as specified herein and illustrated.

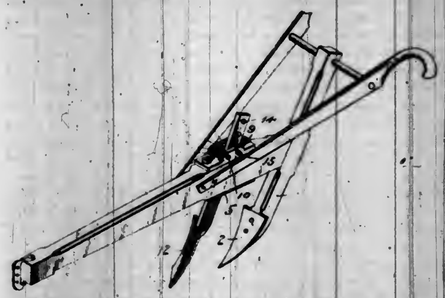
2. A roller having cost-markings in longitudinal and circumferential columns upon its periphery; an indicating-scale fixed above it denoting the prices to which the circumferential columns are devoted; a spring for revolving the roller, and a ratchet-wheel upon the roller-axle, controlled by an escapement, whereby one or other of the longitudinal columns is brought into indicating position, slide-bars for operating and differentiating the action of the escapement and tappets fixed upon bell-crank levers for operating the slide-bars substantially as and for the purposes herein described and illustrated.



3. The spring-driven roller *a* the ratchet escapement-wheel *c* journaled upon the roller-axle and revolving with it in one direction, the pivoted loop *k* and the spring *w* the pawl-pin *i* normally engaging the wheel *c* the lever *k* upon the boss k^3 having a pawl-pin *l* engaging wheel *c* when the loop is vibrated, the spring *x* operating upon lever *k* and the stop-pin *y* the whole substantially as herein described and illustrated.

4. The spring-driven roller *a*, the ratchet-wheel *c* fixed upon a sleeve journaled upon the roller-axle, an arm *f* upon the sleeve having a pawl *g'* engaging with a ratchet-wheel *g* fixed upon the axle, the sheave *s'* and the cord *u* coiled around it for returning the roller to starting-point substantially as specified and illustrated.

589,311. ADJUSTABLE COLTER AND SCRAPER FOR COTTON-CULTIVATORS. HARRY W. SMITH, Paragould, Ark., assignor of one-half to James R. McDonald, same place. Filed Apr. 13, 1897. Serial No. 631,907. (No model.)



Claim.—In a cotton-cultivator, the combination with the beam having an inclined opening thereon, the adjustable bottom plate having a central slot and a longitudinal opening at each end thereof, the adjustable slotted top plate provided with longitudinal openings, and formed with lugs having alined holes therein, and the bolts and nuts, of the colter or scraper, the shank of which is provided with a series of holes and the retaining-pin, substantially as described.

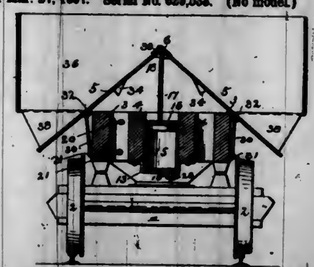
589,312. WRENCH. LEIGHAL A. SMITH, New Bern, N. C. Filed June 10, 1897. Serial No. 640,175. (No model.)



Claim.—1. A wrench comprising a handle at one end of which is a curved stationary jaw, said handle being provided on its upper side with a central longitudinal rib or flange, and on its under side with a longitudinal chamber, and a sliding casing mounted thereon and provided with a groove which is adapted to receive said rib or flange, said casing being provided in the end thereof adjacent to the stationary jaw with a wheel, the perimeter of which is provided at one side with ratchet-teeth which are adapted to engage with ratchet-teeth formed in said rib or flange, and a spiral spring which is mounted in said chamber, one end of which is connected with said casing, substantially as shown and described.

2. A wrench comprising a handle at one end of which is a curved stationary jaw, said handle being provided on its upper side with a central longitudinal rib or flange, and on its under side with a longitudinal chamber, and a sliding casing mounted thereon and provided with a groove which is adapted to receive said rib or flange, said casing being provided in the end thereof adjacent to the stationary jaw with a wheel, the perimeter of which is provided at one side with ratchet-teeth which are adapted to engage with ratchet-teeth formed in said rib or flange, and a spiral spring which is mounted in said chamber, one end of which is connected with said casing, said wheel being also provided on its perimeter with projections or teeth, substantially as shown and described.

589,313. DUMPING-CAR. WILLIAM A. SMITH, Trinidad, Colo. Filed Mar. 27, 1897. Serial No. 629,533. (No model.)



Claim.—1. In a dumping-car the combination with the hinged platforms forming the bottom thereof, of the air-cylinders, the pistons, the piston-rods pivotally connected with said platforms, the longitudinal and branch compressed-air pipes and the stop-cocks, substantially as described.

2. In a dumping-car, the combination with the longitudinal beams or timbers, the hinged platforms, and the links pivotally connected with said beams and platforms, of the air-cylinders, the pistons, the piston-rods pivotally connected with said platforms, and the air-pipes provided with stop-cocks, connected with said cylinders, substantially as described.

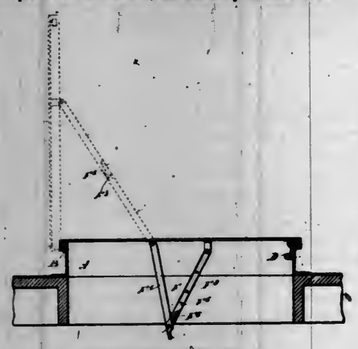
3. In a dumping-car, the combination with the longitudinal beams or timbers, the hinged platforms, the guide-rods connected therewith provided with stop-nuts at their lower ends and formed with holes or apertures and the pins passing through said holes, of the air-cylinders, the pistons, the piston-rods, pivotally connected with said platforms, the air-pipes and the stop-cocks, substantially as described.

4. In a dumping-car the combination with the longitudinal beams, the hinged platforms, the flanges at the ends thereof, the triangular lugs on the under sides of said platforms, the guide-rods, having stop-nuts, and formed with holes, the pins engaging with said holes, and the links pivotally connected with said beams and with the platforms, of the air-cylinders, the pistons, the piston-rods pivotally connected with the platforms and the compressed-air pipes and stop-cocks, substantially as described.

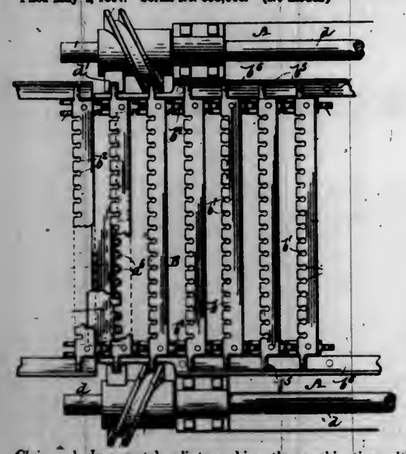
589,314. SCUTTLE-COVER. WILLIAM L. SPRINGER, Chicago, Ill. Filed Dec. 16, 1896. Serial No. 615,919. (No model.)

Claim.—A stay formed of two links one of which has a tongue formed at one end and the second of which is formed of two bars rigidly secured to each other and receiving between two end portions thereof the end of the first link, which end has the tongue, a pivot-pin passing through the bars and through the first link and pivotally connecting the two links, and a bar secured between the two bars

which form the said second link and having a tongue formed therein, and adapted to be engaged by the tongue on the first link so that as the two links swing the tongues will engage each other to limit the movement of the links, the bars forming the second link serving to hold the first link from twisting on the pivot-pin whereby to relieve said pivot-pin of strain thereon, substantially as described.



589,315. MATCH-MACHINE. BERNARD T. STEBER, Utica, N. Y. Filed May 4, 1897. Serial No. 635,018. (No model.)



Claim.—1. In a match-splint machine, the combination with a splint-cutter, of an endless chain consisting of holders linked together, each of said holders being composed of a single bar adapted to extend longitudinally with respect to the cutter, said holders being provided with deep slots in their lateral edges adapted to receive and hold the splints after they are cut, substantially as described.

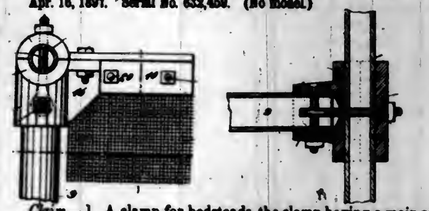
2. In a match-splint machine, the combination with a suitable cutter, of holders each composed of a single bar adapted to extend longitudinally with respect to the cutter, and provided with deep slots extending inwardly from the lateral edges of the same for receiving and holding the match-splints after they are cut, substantially as described.

3. In a match-machine, the combination with a splint-cutter, of holders having slots in their edges, the said slots being provided with groove portions opposite each other in the walls of said slots adapted to receive and hold the match-splints after they are cut, substantially as described.

4. In a match-machine, the combination with a splint-cutter, of an endless chain comprising holders linked together, the said holders being provided with slots in their edges having grooves opposite each other in the walls of the said slots for receiving and holding the match-splints after they are cut, substantially as described.

5. In a match-machine, the combination with a cutter, of an endless chain consisting of holders linked together having slots in their edges to receive the match-splints, ways for supporting and guiding said chain, springs constituting a yielding support for said ways, means for depressing the holders of the chain for forcing them upon the match-splints, said ways being connected to said depressing means whereby they are depressed to correspond to the downward movement of the chain, substantially as described.

589,316. BEDSTEAD. AUGUSTUS R. STRAHS, Salem, Oreg. Filed Apr. 16, 1897. Serial No. 632,459. (No model.)



Claim.—1. A clamp for bedsteads, the clamp having a main section with a socket, the clamp also having a cap, a bolt passed through the socket, and a second bolt in connection with the first bolt and passing through the main section of the clamp to engagement with the cap.

2. A clamp for bedsteads, the clamp having a main section, and a cap, the main section having a socket with a bracket running outward therefrom, a bolt passed transversely through the socket, and a second bolt in connection with the first-named bolt and running through the two sections of the clamp to hold them together.

3. A bedstead having round posts and round side rails and angle-iron end rails, and a clamp for each post by which to hold the end and side rails thereto, each clamp consisting in a main section and a cap-section, the main section having a curved portion to lie against the corresponding post, and the main section also having a tubular socket to receive the adjacent end of the corresponding side rail, and also having a bracket run laterally from the socket to hold the adjacent end of the corresponding end rail, a bolt run through the socket and through the adjacent side-rail end, and a second bolt connected to the first bolt and run through the two sections of the clamp to hold them together.

4. A clamp for bedsteads, the clamp having a portion adapted to bear against a part of the bedstead, such portion having a socket, a bolt passed through the socket, and a second bolt attached to the first bolt and run through the said portion adapted to bear against the part of the bedstead.

589,317. GARMENT-SUPPORTER. GEORGE A. SUEPPEL and JOHN M. KENNEY, Keokuk, Iowa. Filed Mar. 6, 1897. Serial No. 626,945. (No model.)



Claim.—1. A supporting device comprising a body and a jaw connected together at their lower parts and having at opposite sides alined eyes formed near the point of connection of said body and jaw, the upper portions of the body and jaw being separated by a space communicating with the upper portions of the eyes, and permitting the introduction therein of the article to be supported, substantially as described.

2. A supporting device comprising a body and a jaw connected together at their lower parts and having at opposite sides alined eyes formed near the point of connection of said body and jaw, the upper portions of the body and jaw being separated by a space communicating with the upper portions of the eyes, to permit the introduction into said eyes of the article to be held, and being bent out of the plane in which said eyes are arranged, substantially as described.

3. A supporting device formed of a piece of wire bent to form oppositely-directed arms, loops at the ends of said arms and a jaw connecting said loops, the loops being arranged below the central portion of the jaw and the adjacent ends of said arms and being open at their upper parts to permit of the introduction into the loops of an article passed between the arms and jaw, substantially as described.

4. A supporting device formed of a piece of wire bent to form oppositely-directed arms, downwardly-directed loops at the ends of the arms and an upwardly-extending jaw connecting the loops, said loops being open at top to permit the introduction therein of an article passed between said arms and jaw, and said arms and jaw being bent out of the plane in which said eyes stand, substantially as described.

589,318. PORTABLE SHELVING. LYLE C. TABB, Bluefield, W. Va. Filed Mar. 30, 1897. Serial No. 629,898. (No model.)

Claim.—1. In shelving, the combination of a case or cabinet provided with a transverse suspending-rod, shelving constructed independently thereof and provided with a base-board inclining upwardly from front to the rear to enable it to be readily swung out of the cabinet and with suspending means to engage said rod, a lowering device adapted to be engaged by the shelving and assist in supporting the weight of the same while being removed, and a tension device acting on the lowering device, substantially as described.



2. In shelving, the combination of a case or cabinet provided with a transverse suspending-rod, shelving provided with suspending means to engage said rod, a lowering device adapted to be engaged by the detached shelves and assist in supporting the weight of the same while being removed, and tension devices acting on said lowering device, substantially as described.

3. In shelving, the combination of a case or cabinet, shelving detachably secured therein, a lowering-lever fulcrumed in the said case or cabinet and adapted to be engaged by the said shelving to partially sustain the weight of the same, and tension devices acting on the said lever, and offering resistance to the movement of the same, substantially as described.

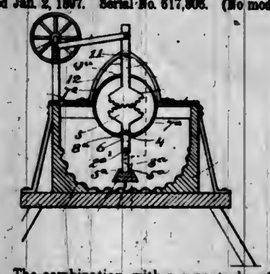
4. In shelving, the combination of a case or cabinet provided with a suspending device, shelving provided with supporting-hooks consisting of an attaching portion secured to the shelving and provided with upwardly and downwardly projecting hooks, a lowering device fulcrumed in the case or cabinet and adapted to be engaged by the said lower hooks when the upper hooks are released from the suspending devices, and tension devices acting upon the said lowering-lever, whereby the latter assists in supporting the weight of the shelving while the latter is being removed, substantially as described.

5. In shelving, the combination with the case or cabinet, of shelving provided with hooks for detachably securing the same therein, a lowering device consisting of a lever fulcrumed in said cabinet and adapted to be engaged by the said hooks when the shelving is to be removed, and tension devices acting on the said lever, whereby the lever partially supports the weight of the shelving and is automatically returned to its normal position when the said shelving is released therefrom, substantially as described.

6. In shelving, the combination of a case or cabinet, shelving constructed independently thereof and supported therein, a lowering-lever adapted to be engaged by the said shelving, and springs acting on the said lever to partially support the weight of the shelving and automatically return the lever to its normal position, substantially as described.

7. In shelving, the combination of a case or cabinet provided with a suspending rod or shaft, a lowering-lever fulcrumed therein, tension devices acting on said lever, and shelving provided with hooks having upper and lower engaging devices, one of which is adapted to normally suspend the same from the said rod or shaft, while the other is adapted to engage the said lowering-lever when the shelving is being removed, substantially as described.

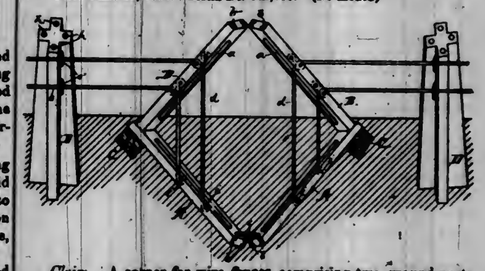
589,319. WASHING-MACHINE. ISAAC M. TURNBAUGH, Parson, Kev. Filed Jan. 2, 1897. Serial No. 617,906. (No model.)



Claim.—1. The combination, with a receptacle, of the bracket at each end of the machine, the toothed sector pivoted from the brackets, a like sector pivoted in the receptacle and meshing with said toothed sector, said like sector being provided with a sleeve, the standard vertically adjustable in the sleeve and having a tongue, and the pronged rubber having a groove in which the said tongue is adapted to be adjusted at right angles to the said standard, as set forth.

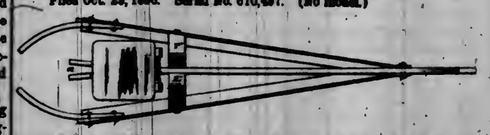
2. The combination, with a receptacle, of the bracket at each end of the machine, the toothed sector pivoted from the brackets, a like sector pivoted in the receptacle and meshing with said toothed sector, said like sector being provided with a sleeve, the standard vertically adjustable in the sleeve and having a tongue, and the pronged rubber having a groove in which the said tongue is adapted to be adjusted at right angles to the said standard, and the cylindrical hood suspended from the pivot of the said toothed sector to inclose the said two sectors, as set forth.

589,320. FENCE-POST. DANIEL VANIMAN, McPherson, Kans. Filed June 24, 1897. Serial No. 642,739. (No model.)



Claim.—A corner for wire fences, comprising two ground-posts A A slanting outwardly and converging at their lower ends to a common point, a connection at the lower ends of said posts, two upper posts B B having their upper ends converging and their lower ends slanting outwardly and resting upon the upper ends of the lower posts, all of said posts having longitudinal slots therein, tie-wires between the upper and lower posts on each side, and means for securing the line-wires to the upper posts, as herein shown and described.

589,321. CORN-PLANTER. DAVID R. VIVION, Columbia, Mo. Filed Oct. 29, 1896. Serial No. 610,497. (No model.)



Claim.—1. The combination with a furrow-opener having a forked shoe, and gage-plates connected at their front ends to said opener, of a holder common to both gage-plates and attached to said furrow-opener and to the gage-plates in advance of the forked shoe of said opener, as and for the purposes described.

2. The combination with a furrow-opener having a forked shoe, of a holder fastened to the opener in advance of the shoe thereof, gage-plates attached to the opener at points in front of the holder, and adjustable bars connecting the gage-plates and the holder, as and for the purposes described.

3. The combination with a furrow-opener, and gage-plates attached thereto, of a single holder attached to the furrow-opener and having a transverse head extending toward the gage-plates, and arms or bars fastened to said gage-plates and the head of the holder, as and for the purposes described.

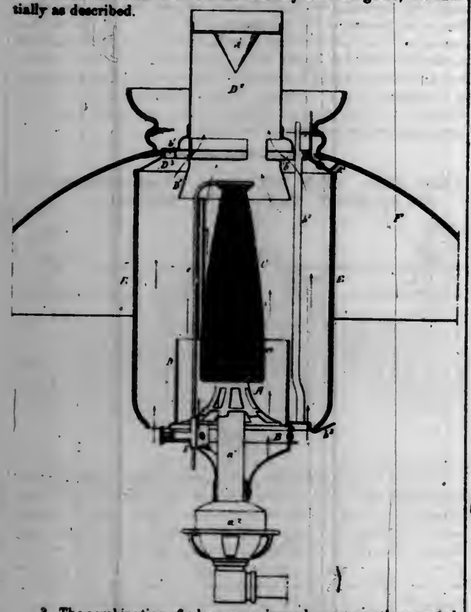
4. The combination with a furrow-opener and gage-plates, of a cast-metal holder having a forked foot which embraces said furrow-opener and is clamped thereto, and arms attached to the gage-plates and the head of the holder, substantially as and for the purposes described.

589,322. CHIMNEY FOR INCANDESCENT GAS-BURNERS. ERNEST M. WHITE, Philadelphia, Pa. Filed Jan. 13, 1897. Serial No. 619,086. (No model.)

Claim.—1. The combination in an incandescent lamp, of the burner, a mantle above the burner, a two-part chimney, one part at the base of the mantle and the other part above the mantle, a globe inclosing the chimney and mantle whereby two currents of air are formed one within the chimney and the other between the chimney and the globe, substantially as described.

2. The combination in an incandescent lamp, of the burner, a mantle mounted above the burner, a two-part chimney, one part at the lower portion of the mantle and the other part mounted above the mantle, a stack above the chimney, a hood, a globe below the hood inclosing the chimney and mantle, a space between the chimney and globe communicating with the stack so that two currents of air are formed, one within the chimney and in contact with the

mantle and the other between the chimney and the globe, substantially as described.



3. The combination of a burner, an incandescent mantle mounted above the same, a two-part chimney separated at the center opposite the mantle, a globe inclosing the mantle and chimney and open to the atmosphere at the bottom, with a hood above the globe and openings for the escape of the heated air from the space between the globe and chimney so that two currents of air are produced, one through the chimney in close contact with the mantle and the other between the chimney and the globe, substantially as described.

4. The combination of a burner, an incandescent mantle mounted above the same, a two-part chimney separated at the center opposite the mantle, the lower portion of the chimney extending to or slightly above the end of the mantle and open at the bottom, the upper portion of the chimney being conical, a globe inclosing the chimney and the mantle and open at the bottom and a hood above the globe, the space between the mantle and the globe communicating under the hood with the chimney, substantially as described.

5. The combination of a burner, a mantle mounted above the burner, a two-part chimney separated at the center opposite the mantle, the upper portion of the chimney being in the form of a cone, a flue into which the upper end of the chimney extends and an inverted cone mounted directly above the chimney, substantially as described.

6. The combination of the burner, a mantle mounted above the same, a two-part chimney separated at the center opposite the mantle, a hood, a globe extending from the burner to the hood and brackets on the hood for supporting the reflector, substantially as described.

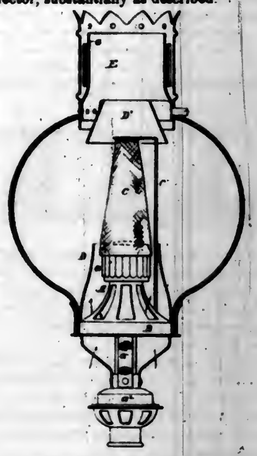
589,823. CHIMNEY FOR INCANDESCENT GAS-BURNERS. ERNEST M. WHITE, Philadelphia, Pa., assignor to Thomas White, same place. Filed Dec. 2, 1895. Serial No. 570,785. (No model.)

Claim.—1. The combination of the burner, its mantle, the sleeve inclosing the burner and contracted at its upper end, a conical hood directly above the mantle, a flue extending to a point below the upper portion of the hood and a globe inclosing the burner and mantle, substantially as described.

2. The combination of the burner, a mantle suspended above the burner, a two-part chimney separated at the center opposite the mantle, the lower portion of the chimney being contracted at its upper end and the upper portion of the chimney being in the form of a cone, with a flue into which the upper end of the chimney extends and a globe inclosing the mantle and burner, substantially as described.

3. The combination of a burner, a mantle mounted above the burner, a sleeve inclosing the burner and contracted at its upper end, a globe, a flue mounted above the burner and a conical hood having arms extending through the walls of the flue, substantially as described.

4. The combination of the burner, a mantle mounted above the same, a sleeve inclosing the burner, a flue above the mantle, a globe extending from the burner to the flue, brackets on the flue for supporting the reflector, substantially as described.

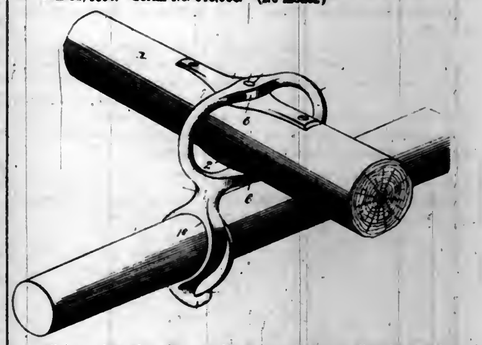


589,824. BUGGY-TOP ATTACHMENT. WILLIAM O. WILSUR, Girard, Mich. Filed Apr. 24, 1897. Serial No. 633,773. (No model.)



Claim.—A buggy-top attachment comprising a sectional clamp, and a shaft loosely journaled in a perforation of the clamp and provided at its outer end with an L-shaped arm and having a handle at its inner end, said shaft being of a sufficient length to have a limited longitudinal movement to permit the engaging arm to be withdrawn from the plane of the brace of a buggy-top in order that it may engage the said brace above or below the same, substantially as and for the purpose described.

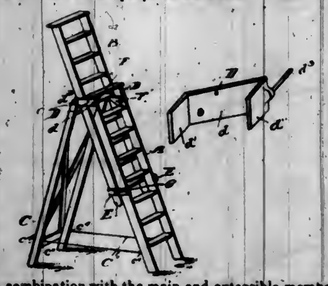
589,825. NECK-YOKE. JACOB ZIEGLER, Arlington, Nebr. Filed Jan. 12, 1897. Serial No. 618,996. (No model.)



Claim.—A neck-yoke coupling comprising a collar designed to encircle a tongue, disposed at a backward inclination and provided at its bottom with a hook extending rearward and adapted to interlock detachably with the top of the tongue, the rearwardly-inclined neck extending upward from the tip of the collar and rigid with the same, and the rearwardly-extending longitudinally-disposed ring arranged horizontal and formed integral with the neck and being rigid with the inclined collar to prevent the neck-yoke from rolling over out of its proper vertical position by the pull of the horses, said neck-yoke being pivoted within the ring at a point in rear of the collar and having its pivot disposed vertically, substantially as described.

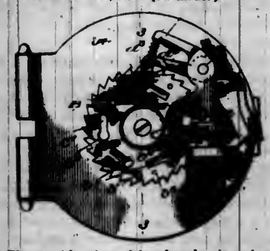
589,826. EXTENSION STEP-LADDER. THEOPHILUS W. ALEXANDER, Burlington, Iowa. Filed Jan. 19, 1897. Serial No. 619,795. (No model.)

Claim.—1. The combination with a main-ladder member A, and a slidable extension member B fitted edgewise against said member A, of the stationary keepers D fastened to the side rails of the main member and flanged to embrace the slidable member, said keepers projecting at their rear ends beyond the slidable extension member and provided with the integral threaded pedals d^3 which project laterally from the keepers, the non-extensible prop C fitted loosely on the pintles and thereby attached pivotally to the stationary keepers, nuts fitted on the threaded ends of said pintles, and holding-dogs pivoted to the side rails of the main member and engaging with the extension member, as and for the purposes described.



2. The combination with the main and extensible members of a ladder, and a hinged prop, of the automatic holding-dogs F arranged within the rails of the two ladder members and provided with the stop-arms *g* flanged to embrace the edges of the rails of the main-ladder member, for the purpose of arresting the movement of said dogs toward the extension-ladder member, said dogs being pivoted to the main-ladder member to hang by gravity in inclined positions across said side rails of both ladder members and to present their vertically-inclined edges and their straight top edges to the steps of the extension-ladder member, for the purposes described, substantially as set forth.

589,827. COMBINATION-LOCK. CHARLES A. BAILEY, Cromwell, Conn., assignor to the J. & E. Stevens Company, same place. Filed May 15, 1897. Serial No. 636,691. (No model.)



Claim.—1. The combination with a door having a keyhole formed therein, of a latch pivoted thereto, a rotatable disk also mounted on said door and having a series of keyholes therein adapted to register with said former keyhole, and means adjoining all but one of the keyholes in the disk to prevent a key from engaging said latch, as set forth.

2. The combination with a door having a keyhole formed therein, of a rotatable disk mounted thereon and having a series of keyholes therein adapted to register with said former keyhole, pins or lugs formed on the face of said disk adjacent each of said keyholes save one, and a latch adapted to be engaged and moved by a key, as set forth.

3. The combination with a door having one or more keyholes therein, of a toothed disk mounted on said door and having a series of concentrically-arranged keyholes adapted to register with said former keyholes, pins or lugs formed on said disk adjacent each of said keyholes save one, a pawl adapted to engage the teeth of said disk, and a latch adapted to be engaged and moved by a key, substantially as set forth.

4. The combination with a door having one or more keyholes therein, of a plate or casting secured thereto and having a keyhole coincident with one of said former keyholes, but at right angles thereto, a disk having a series of keyholes therein adapted to coincide with the keyholes of said door and said plate or casting, and a latch adapted to be engaged and moved by a key, substantially as set forth.

5. The combination with a door having a keyhole therein, of a plate or casting secured thereto and having a keyhole coincident with said former keyhole but at right angles thereto, a disk mounted on said door and having a series of concentrically-arranged keyholes adapted to coincide with said former keyholes, pins or lugs formed on said disk adjacent each of said keyholes save one, and a latch adapted to be engaged and moved by a key, substantially as set forth.

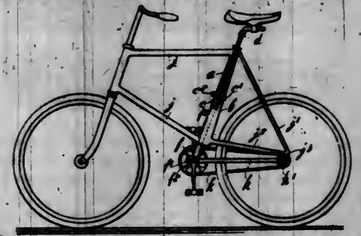
6. The combination with a door having a scale on its front face and a keyhole, of a shaft mounted in said door and having a disk secured on one end thereof, said disk having an arrow or indicator thereon adapted to coincide with said scale, a second disk mounted on the other end of said shaft and having a series of keyholes adapted to register with said former keyhole, means secured to said latter disk for preventing the turning of a key in all of said keyholes save one, and a pivoted latch adapted to be engaged and moved by a key, substantially as set forth.

7. The combination with a door having a keyhole therein, of a disk having a series of concentrically-arranged keyholes adapted to register with said former keyhole, a plate or casting secured to said door and having a lower right-angular extension, and a pivoted latch having an arm or extension adapted to be guided by said right-angular extension, substantially as set forth.

8. The combination with a door having a keyhole therein, of a disk having a series of concentrically-arranged keyholes adapted to register with said former keyhole, a plate or casting secured to said door and having a keyhole adapted to coincide with the keyhole of the latter but arranged at right angles thereto, and a pivoted latch having a hooked arm or extension adapted to be engaged by a key, substantially as set forth.

9. The combination with a door having a keyhole therein, of a plate or casting having a keyhole therein adapted to register with said former keyhole but arranged at right angles thereto, said casting having a lower right-angular extension, a toothed disk having a series of concentrically-arranged keyholes adapted to register with said former keyholes, pins or lugs secured to said disk adjacent each of said keyholes save one, a spring-pressed pawl adapted to engage said disk, and a spring-pressed pivoted latch having a lower extension adapted to be guided by the right-angular portion of said plate or casting, said latch having a hook-arm or extension adapted to be engaged by a key, substantially as set forth.

589,828. VELOCIPEDE. ELLIOTT L'ESTRANGE BARTON, Wellington, New Zealand. Filed Oct. 12, 1896. Serial No. 608,582. (No model.)



Claim.—1. In a velocipede having an oval pillar, a spring-supported rod passing through the pillar and carrying a seat at its upper end and pedal-bearings at its lower end and links connecting the pedal-bearings to the axle.

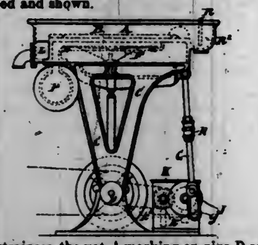
2. In a velocipede having an oval pillar, a rod passing through the pillar, a saddle supported from the upper end of said rod, a pedal-bearing at the lower end thereof, links from said pedal-bearing to the axle, and springs upon each side of the pillar supporting the rod, substantially as described.

589,829. PULP-STRAINER. DAVID M. BERTRAM, Edinburgh, Scotland. Filed July 17, 1894. Serial No. 517,905. (No model.) Patented in England June 17, 1893, No. 11,943, Nov. 23, 1893, No. 22,463, and Mar. 7, 1894, No. 4,771; in France Jan. 7, 1894, No. 235,291, and July 7, 1894, No. 237,730, and in Canada July 20, 1894, No. 46,027, and Oct. 8, 1894, No. 47,195.

Claim.—1. In a pulp-strainer, the combination of the strainer-vat, arranged at a horizontal or at an incline toward the discharge end with means for intermittently raising the feed side of the vat, as distinguished from the continuous oscillatory or rocking motion so as to prevent the refuse matter from being carried back over the strainer-plates, and the diaphragm with means for moving the same, as described and shown.

2. In a pulp-strainer, the combination of the strainer-vat arranged normally at a horizontal or at an incline toward the discharge and adapted to be tilted toward the discharge end of the strainer-plate, with means for intermittently raising the feed side of the vat as distinguished from a continuous oscillatory or rocking motion, so as to

wash the refuse matter from, and prevent its being carried back over the strainer-plates, and the diaphragm with means for moving the same as described and shown.



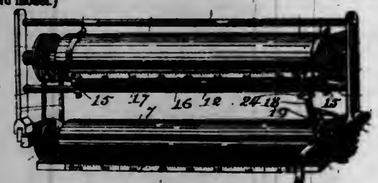
3. In pulp-strainers, the vat A working on pins D and connected at the back to the top ends of the adjustable connecting-rods G, H, the rod G being driven by the gearing k, k^3, k^2, k^4, and k' through the medium of the crank-pin J and slot g, and the other rod H having a spiral spring H', whereby the back of the vat A is intermittently raised and lowered, as described and shown.

4. In pulp-strainers, the strainer-plates B having the slits b running parallel to apex of the plates and also in rows running down at an angle to the flow of the pulp, as described and shown.

5. In pulp-strainers, the combination of the elliptical sleeve T, eccentrically-tapered ends S' of the shaft S, collars S^3, screws U and recess t' with key t^2, whereby the stroke of the diaphragm may be altered, as described and shown.

6. In pulp-strainers, the vat A working on pins D and connected at the back to the top ends of the adjustable connecting-rods G, H, the rod G being driven by the crank-pin J which fits a slot g of the rod G, and the other rod H having a spiral spring H'; whereby the back of the vat A is intermittently raised and lowered, as described and shown.

589,330. COPY-HOLDER FOR TYPE-WRITING MACHINES. ELI B. BINGHAM, Wellston, Ohio. Filed Apr. 29, 1897. Serial No. 634,402. (No model.)



Claim.—1. In a copy holder and feeder for type-writing machines, the frame adapted to be applied to the carriage of the machine, the rollers in the frame, and a pawl connected to the line-space lever of the machine to operate said rollers, as set forth.

2. The combination with the copy-holder frame adapted to be applied to the carriage of a type-writing machine, and the rollers in the frame, of a lever secured to the line-space lever of the machine, and a pawl to operate the said frame-rollers automatically with the platen of the machine, as set forth.

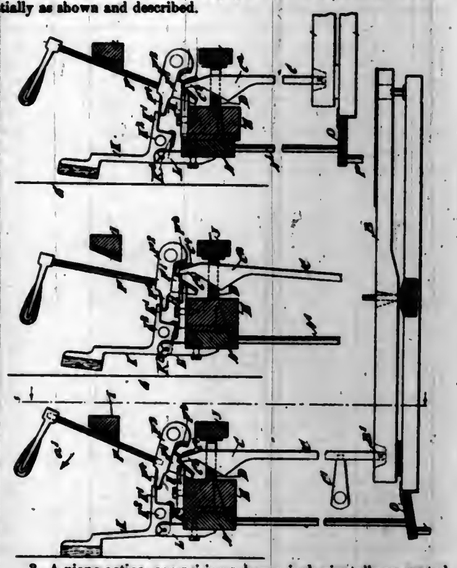
3. The combination with the copy-holder frame adapted to be secured to the carriage of a type-writing machine, and the rollers in said frame, of the lever having a scale and secured to the line-space lever of the machine, a pawl, a clamp on the scale-lever, and a controlling-rod connected to the pawl and to the said clamp, as set forth.

4. The combination with the platen of a type-writing machine having a pulley, a copy-roller suspended from the carriage of the machine and having a pulley and a belt connected to the pulleys, of means for varying the movement of the copy-rollers relative to the movement of the platen, comprising a scale-lever fixed to the line-space lever of the machine, a pawl pivoted to the scale-lever, a clamp adjustably secured to the scale-lever, and a controlling-rod connected to the pawl and to the said clamp, as set forth.

589,331. PIANO. JULIUS H. BLOCK, Moscow, Russia. Filed June 8, 1896. Serial No. 594,675. (No model.)

Claim.—1. In a piano-action, a pivoted damper provided with a forwardly-extending arm or projection, a hammer provided with a projection extending rearwardly under the said arm of the damper, and having a sliding engagement therewith, and means for throwing the hammer against the string, substantially as shown.

2. A piano-action, comprising a key, a jack pivotally connected with said key and having a weighted arm, a wedge-shaped head and an inclined projection, and a weighted hammer having on its butt-end a shoulder adapted to be engaged by said projection, substantially as shown and described.



3. A piano-action, comprising a key, a jack pivotally connected with said key and having a weighted arm, a wedge-shaped head and an inclined projection, a weighted hammer having on its butt-end a shoulder adapted to be engaged by said projection, and a forked guide for the head of said jack, to impart a swinging motion to the jack on its upward movement, to disengage the projection from said shoulder, substantially as shown and described.

4. A piano-action, provided with a gravity-damper, and a gravity-arm normally holding said damper on the strings, the hammer on its forward stroke releasing said damper and permitting the latter to move by its own weight out of engagement with the strings, substantially as shown and described.

5. A piano-action, provided with hammers, a damper-rail, and dampers supported on said rail and normally pressed in contact with the strings by the hammers while the latter are in an inactive position, said dampers on the rearward stroke of the hammers moving out of engagement with the strings by their own gravity, substantially as shown and described.

6. A piano-action, provided with a movable damper-rail, and gravity-dampers pivoted on said rail and normally held on the strings by the hammers while at rest, said dampers moving out of engagement with the strings by their own gravity on the lifting of said damper-rail, substantially as shown and described.

7. A piano-action, provided with a hammer having a weighted butt-end, and a pivoted damper having a weighted arm engaged by a projection on the butt-end of said hammer, to hold said damper on the strings while the hammer is at rest or inactive, substantially as shown and described.

8. A piano-action, provided with a hammer having a weighted butt-end, a pivoted damper engaged at its weighted butt-end by a projection on the butt-end of the hammer, to hold said damper on the strings while the hammer is at rest or inactive, a hammer-rail mounted to slide and carrying the dampers, and means, substantially as described, for imparting a sliding motion to said damper-rail from one of the pedals, substantially as shown and described.

9. In a piano-action, a pivoted damper arranged to move out of contact with the string when released, and provided with a forwardly-extending arm or projection, a hammer provided with a projection extending rearwardly under said damper-arm to press said arm upward while the hammer is at rest, and thereby hold the damper against the string, the projection of the hammer having a sliding engagement with the damper-arm, and means for actuating the hammer to release the damper, substantially as described.

10. A piano-action, provided with a damper-rail mounted to slide longitudinally of the strings and connected to a pedal, dampers pivoted to said rail, hammers controlling said dampers individually and directly and means for actuating the hammers, substantially as described.

11. A piano-action, comprising a damper-rail mounted to slide longitudinally of the strings and connected to a pedal, dampers pivoted to said rail and provided with projections, hammers provided with projections engaging those of the dampers and means for actuating the hammers, substantially as described.

589,332. ARTIFICIAL TEETH. SAMUEL G. BLOOM, York, Pa. Filed June 3, 1897. Serial No. 639,231. (No model.)



Claim.—1. The combination of a tooth of porcelain or the like material having an elongated narrow cavity opening into its side and a shallow wide undercut recess extending transversely to the narrow cavity and opening therefrom, a threaded pin in said narrow cavity and an apertured plate of metal in the shallow recess, said pin being threaded into said aperture, and said plate being of less thickness than the distance between successive threads of the pin, substantially as described.

2. The combination of a tooth of porcelain or the like material having an elongated narrow cavity opening into its side and a shallow wide undercut recess extending transversely to the narrow cavity and opening therefrom, a thin flexible plate of metal in the shallow recess, said recess being so shallow that the plate fits snugly therein, being thereby prevented from bending in said recess, though thin enough to be flexible when removed therefrom, and a pin in the narrow cavity, secured to said plate by any suitable means, substantially as described.

3. The combination of a tooth of porcelain or the like material, having an elongated narrow cavity opening at one side of the tooth, and a shallow wide undercut recess extending transversely to the narrow cavity and opening therefrom and also opening into a side of the tooth, with a plate of metal passed into said recess through the latter opening and a pin in the cavity secured to said plate, substantially as described.

4. The combination of a tooth of porcelain or the like material, having an elongated narrow cavity opening at one side of the tooth, and a shallow wide undercut recess extending transversely to the narrow cavity and opening therefrom and also opening into a side of the tooth, an apertured plate of metal adapted to be passed into said recess through the latter opening and a pin in the cavity screw-threaded into said plate, substantially as described.

589,333. FASTENING DEVICE. WILLIAM H. BOHM, Westwood, N. J. Filed June 11, 1897. Serial No. 640,345. (No model.)



Claim.—A fastening device for lines comprising a link one end of which is provided with a shaft on which is mounted a plate, said plate being approximately as long as said link, and being provided at its free end with shoulders or projections which are adapted to rest on the side of said link, and said plate being provided adjacent to each side thereof with a row of perforations or holes, and pins or plugs which are adapted to enter said perforations or holes, and which support a shaft or rod, and means for connecting a line with said shaft or rod, substantially as shown and described.

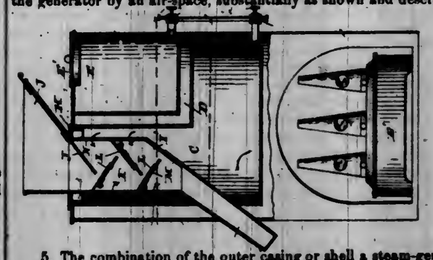
589,334. GRAIN-STEAMER. ELI T. BUTLER, Philadelphia, Pa. Filed Jan. 30, 1897. Serial No. 621,309. (No model.)

Claim.—1. An improved grain-steamer, comprising a generator formed with an open vertical extension which constitutes a steam-chamber, a removable cover for the chamber, a chute carried by the cover and depending into the chamber and open thereto, and a discharge for the chute, substantially as shown and described.

2. An improved grain-steamer, comprising an outer shell or casing, a generator therein and removed from the upright walls of the casing whereby the same is surrounded by an air-space, a heater beneath the generator, and a grain passage-way through the upper portion of the generator and open thereto to admit steam which acts on the grain, substantially as shown and described.

3. An improved grain-steamer, comprising a shell or casing, an L-shaped steam-generator therein, a feed-water reservoir overhanging the horizontal portion of the generator but separated therefrom to form an air-circulating space, a grain passage-way through the upper portion of the generator to subject the grain to the action of the steam, and a heater beneath the generator, substantially as shown and described.

4. An improved grain-steamer, comprising an outer shell or casing, a steam-generator therein, means for subjecting the grain to the action of the steam, and a feed-water reservoir having its outer wall formed by the shell or casing and at its inner side separated from the generator by an air-space, substantially as shown and described.



5. The combination of the outer casing or shell a steam-generator and an elevated feed-water reservoir within the casing, and a transparent gage-tube for passing water from the reservoir to the generator and also for indicating the height of water in the latter, substantially as shown and described.

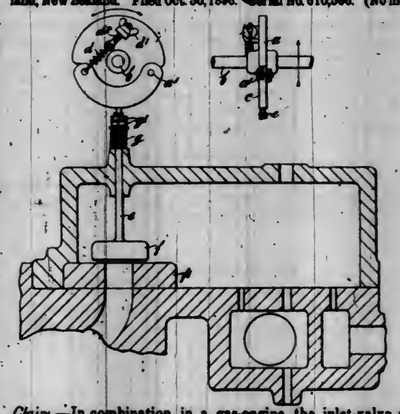
6. The combination of a generator, an elevated feed-water reservoir, and a valved gage-tube for passing water from the reservoir to the generator and for indicating the height of the water in the generator, substantially as shown and described.

7. The combination of a casing, a heater at the base thereof, a steam-generator and a feed-water reservoir depending into the casing and closing the upper end thereof, and a grain-chute extending through the upper portion of the generator and open thereto above the water-line, substantially as shown and described.

8. In a wheat-steamer, the combination of a generator open at its upper end, an outwardly-extending spout permanently secured in the wall thereof, a vertically-elongated chute open from end to end and adapted to be removably positioned in the upper portion of the generator with its lower end uniting with the upper end of the spout, the opposite sides of the chute being slotted to admit steam, and the inclined oppositely-extending shelves secured to opposite sides of the chute above the slots and adapted to interrupt the grain and cause it to follow a zigzag course downward through the chute, substantially as shown and described.

9. In a wheat-steamer, the combination of a steam-chamber, a spout leading therefrom, a chute depending in the chamber and at one side contracted to fit within the spout, said contracted side forming a shelf or inclined surface to deflect the grain before finally passing to the spout, the oppositely-inclined shelves within the chute above said inclined lower end, to divert the grain in zigzag course before reaching said inclined surface, the chute being open to the steam-chamber, substantially as shown and described.

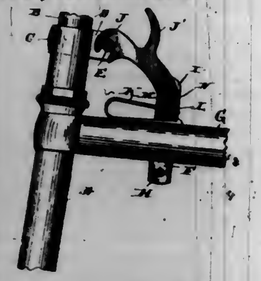
589,335. GAS-ENGINE GOVERNOR. ROBERT CALDWELL, Auckland, New Zealand. Filed Oct. 30, 1896. Serial No. 610,566. (No model.)



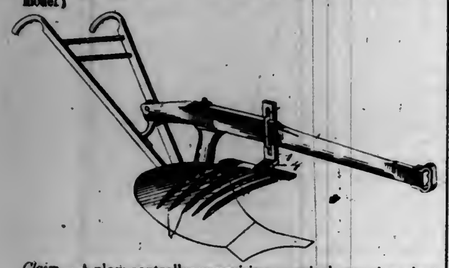
Claim.—In combination, in a gas-engine, the inlet-valve and a governor comprising a rotary disk having a centrifugal part carried thereby bearing directly on the valve-stem, substantially as described.

589,336. BICYCLE-FASTENER. CHARLES P. CARLSON, Honolulu, Hawaii. Filed Mar. 14, 1896. Serial No. 583,166. (No model.)

Claim.—The combination in a bicycle, with the frame, the steering-head, the split steering-head clamp C, and the clamping-bolt E, of elongated clamp F arranged vertically and embracing the top bar of the frame, the clamp being secured by transverse bolt H extending beneath the bar, the upper end of the clamp bifurcated with the bottom of the bifurcated portion extending transverse the upper side of the frame-bar, the U-shaped spring having its arms extending horizontally and paralleling the frame-bar with the under arm of the spring bearing flatly on the bar with its end clamped thereto by the bottom of bifurcated portion of clamp H, the upper free arm of the U-shaped spring normally raised and extended into the bifurcation of the clamp, elongated latch J pivoted centrally at its lower end in said bifurcation and at its extremity formed with the transverse central bearing-point L, and on its edges between said point and the pivot formed with abutting points M and N, the free portion of the spring constantly bearing upward on point L and holding the latch either in a backwardly or forwardly turned position with either point M or N acting as a stop against the spring, the forward hooked end of the latch being adapted to embrace bolt E between clamp-ears D when turned forward and alined with the space between said ears, all as herein specifically described and shown.

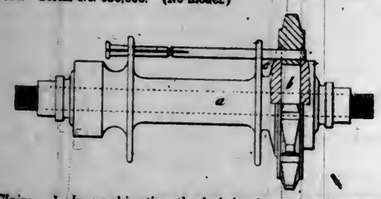


589,837. CONTROLLER FOR TURN-PLOWS. CHARLES CARNAHAN, Youngsville, La. Filed Nov. 26, 1896. Serial No. 613,446. (No model.)



Claim.—A plow-controller comprising a vertical extension adapted to be adjustably connected with a plow-beam, a bar connected to the lower end of the standard and extending parallel with the beam, and a controlling-surface extending outward from the said parallel beam in approximately a horizontal position and consisting of fingers having a rearward sweep in respect to the horizontal bar, substantially as and for the purpose described.

589,838. SPROCKET-WHEEL CLUTCH. JAMES COPELAND and HENRY M. COPELAND, Brunswick Line, New Zealand. Filed Mar. 5, 1897. Serial No. 626,066. (No model.)

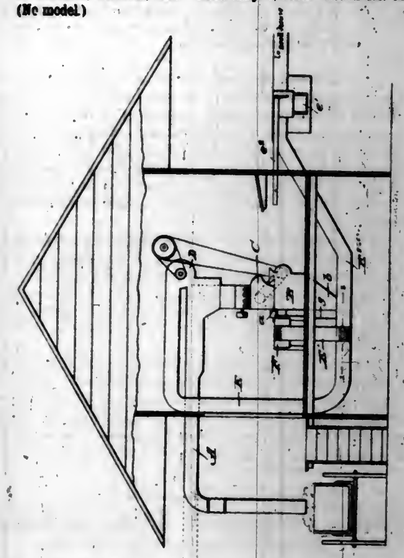


Claim.—1. In combination the hub having a circular bed, and side flanges and having two spoke-flanges, a sprocket-wheel rotatably mounted upon said bed between the flanges and having a clutch connection therewith, and the locking-pin passing through said flanges and sprocket-wheel, the said locking-pin passing also through the spoke-flange, substantially as described.

2. In combination the hub having the usual spoke-flanges, the sprocket-wheel rotatably mounted thereon and having a clutch connection with said hub, the longitudinally-movable pin passing through openings in the spoke-flanges and adapted to be moved to engage or disengage said sprocket, and means for holding said pin in its locking or unlocking position, substantially as described.

3. In combination the hub having the usual spoke-flanges, the sprocket rotatably mounted upon the hub and having a clutch connection therewith, and means for locking said sprocket-wheel to the hub comprising a longitudinally-movable pin passing through openings in the spoke-flanges and adapted to engage the sprocket, said pin having a split end provided with notches adapted to engage the edge of the opening in the spoke-flange to hold the pin in its locking or unlocking position, substantially as described.

589,839. ATTACHMENT FOR GINNING-MACHINES. NETTIE R. COURSEY, Blossom, Tex. Filed May 7, 1896. Serial No. 590,552. (No model.)



Claim.—In a seed-cotton conveyer and separator, the combination of the pneumatic tube A, gins B, and feeders C, a fan positioned at one end of the tube A, a tube E, connected with the fan-casing, branch tubes E' E², a cut-off or damper G, at the intersection of the branch tubes with the tubes E, a trunk or casing F, connected with the several gins and with the branch tube E', said trunk communicating with the baling-room, means for establishing communication between the gins and the branch tube E² positioned to one side of the branch tube E' so that the seed will be delivered thereto, said tube leading to the seed-house and provided between said house and gin-room with a discharge-opening and a closure therefore and an operating-arm for said closure extending therefrom to a point within the room containing the gin substantially as shown and for the purpose set forth.

589,840. TRANSMITTING HEAT. GEORGE F. DINSMORE, Boston, Mass. Filed June 18, 1897. Serial No. 641,376. (No model.)

Claim.—1. The process which consists in heating and setting in rapid motion a long narrow stream of gas through a passage free from obstructions, simultaneously applying heat to, and at various points along, said stream, the length, thickness and velocity of the stream being maintained at such magnitudes, substantially as described, that the greatest attainable part of the heat applied thereto is utilized solely in causing expansion of the gas and a consequent acceleration in its velocity, then compressing said gas under such conditions that the energy represented by the velocity of the stream is converted into sensible heat and added to the sensible heat already in said gas, and employing said heat to intensely heat any desired material, as a difficultly-fusible material, substantially as described.

2. The process which consists in heating and setting in rapid motion a long narrow stream of gas through a passage free from obstructions, simultaneously applying heat to, and at various points along, said stream, the length, thickness and velocity of the stream being maintained at such magnitudes, substantially as described, that

the greatest attainable part of the heat applied thereto is utilized solely in causing expansion of the gas and a consequent acceleration in its velocity and then directing said stream of gas against difficultly-fusible material and compressing the gas, whereby the energy represented by the velocity of the stream is converted into sensible heat which, added to the sensible heat already in the gas, serves to fuse or refine said material, substantially as described.



3. The combination of a furnace, a continuous pipe therein, means for supplying steam at about one hundred pounds pressure to said pipe, and a vessel into which said pipe discharges, provided with means to cause compression of the steam discharged thereinto, whereby the latent heat of said steam will be converted into sensible heat, the diameter of the pipe being about three-fourths of an inch internally and the length of the pipe being about two hundred and thirty-six feet, substantially as described.

589,841. COMBINED CUTTER AND REEL OR SPOOL FOR THREAD. HENRY V. DODD, London, England. Filed May 3, 1897. Serial No. 634,960. (No model.)



Claim.—The combination with the reel having a notch in its head, of a cutting-blade located in the face of the head and extending across the notch at a suitable distance from the edge of the head, substantially as and for the purpose set forth.

589,842. TIP FOR ACETYLENE-GAS BURNERS. EDWARD J. DOLAN, Philadelphia, Pa., assignor, by mesne assignments, to the Acetylene House Lighting Company, of West Virginia. Filed Feb. 16, 1897. Serial No. 624,039. (No model.)



Claim.—1. The process of burning acetylene gas, which consists in projecting a small cylinder of gas, in surrounding the same with an envelop of air sufficient to cause combustion of all the gas, and in finally supplying the gas with an additional amount of oxygen by allowing the stream of gas to expand above the burner-tip into contact with the air, thereby burning the same, substantially as described.

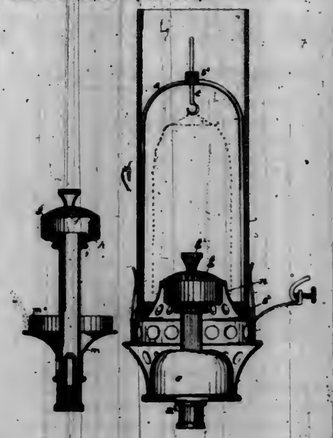
2. The process of burning acetylene gas, which consists in projecting toward each other two cylinders of acetylene gas, in surrounding the same with envelops of air sufficient to produce combustion of all the gas, and in finally causing the cylinders of gas to impinge upon each other and produce a flat flame, substantially as described.

3. The combination in an acetylene-burner of the block A having the minute opening C, the cylindrical opening E, opening without obstruction to the atmosphere, and the air-passages *a*, substantially as described.

4. The combination in an acetylene-burner of two air-mixing burners mounted upon a suitable support and inclined toward each other, the said burners being each provided with an air-ejecting apparatus within the burner itself, substantially as described.

5. The combination of the burners A, A, mounted upon a suitable support and inclined toward each other, each having within the single block constituting the burner the central minute cylindrical orifice C, the large unobstructed cylindrical opening E, and the inclined air-passages *a*, substantially as described.

589,843. INCANDESCENT BURNER. JOHN H. DURROW, Cleveland, Ohio, assignor to Willis U. Masters, same place. Filed Mar. 27 1896. Serial No. 585,049. (No model.)



Claim.—1. The combination of a burner-tube having an expanded chamber at top and air-inlets below, a perforated air-chamber of larger diameter, inclosing said air-inlets, a revoluble shutter or diaphragm adapted to close the perforations of said air-chamber, and a chimney-gallery seating on said shutter and having an upward-extending sleeve surrounding the upper chamber with an annular space between, substantially as described.

2. The combination in a burner of the gas-tube having air-inlets at its lower part, a cup of mineral material attached to the top of said tube and into which it opens, a perforated cap closing the top of said cup and forming a chamber, an air-chamber of larger diameter inclosing the air-inlet of the gas-tube and perforated at its bottom, a revoluble shutter beneath the air-chamber and extending beyond the same and having corresponding perforations, and a chimney-gallery seating on said shutter outside of the air-chamber and having an upward-extending sleeve surrounding the upper chamber with an annular space between, substantially as described.

3. The combination in a burner of the gas-tube having air-inlets at its lower part, a cup of mineral material attached to the top of said tube and into which it opens, a perforated cap provided with a flame-deflector and closing the top of said cup and forming a chamber, an air-chamber of larger diameter inclosing the air-inlet of the gas-tube and perforated at its bottom, a revoluble shutter beneath the air-chamber and extending beyond the same and having corresponding perforations, and a chimney-gallery seating on said shutter outside of the air-chamber and having an upward-extending sleeve surrounding the upper chamber with an annular space between, substantially as described.

589,844. TICKET-HOLDER. S SPENCER ECCLESTON, Syracuse, N. Y., assignor of one-half to Jay J. Eccleston, same place. Filed Dec. 26, 1895. Serial No. 573,274. (No model.)

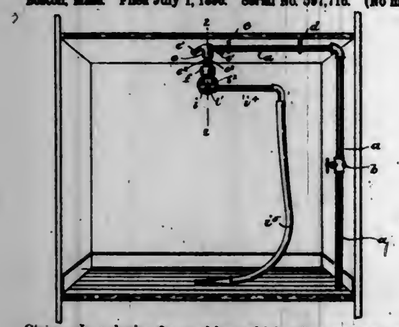
Claim.—1. The combination with a vessel, of a back-piece, a hook secured to the back-piece and adapted to engage the edge of the vessel, a holder pivoted to the lower end of the back-piece, means to retain the holder in an inclined position, when open, and a lid pivoted to the upper part of the said back-piece and provided with a

lip to engage the holder to retain it in its closed position, substantially as described and shown.



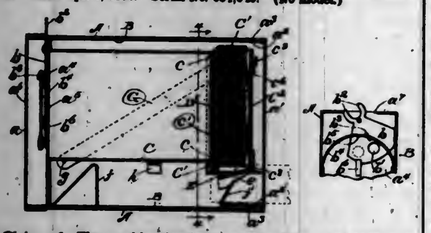
2. The combination with a vessel, of a back-piece, a hook secured to the back-piece and adapted to engage the edge of the vessel, flanges on the sides of the back-piece, a holder having its bottom pivoted to the lower edge of the back and having its sides lying between the said flanges, the upper ends of the sides being beveled, a lid pivoted to the upper edge of the back-piece, and having a lip bent downward to engage the said beveled ends and to retain the holder in a vertical position when closed, and a projection on the bottom of the holder to retain it in an inclined position, substantially as described and shown.

589,845. VEHICLE-WASHING DEVICE. CHARLES R. EMERY, Boston, Mass. Filed July 1, 1896. Serial No. 597,716. (No model.)



Claim.—In a device for washing vehicles the combination with a water-supply pipe, of a hanger *c*, a pipe c^3 depending from said hanger, an elbow *g*, coupled to said pipe c^3 and free to turn with respect thereto in a horizontal plane, a pipe *h* secured to said elbow, an elbow *i* connected to said pipe *h* and partaking of the horizontal movement of the elbow *g* and also free to turn in a vertical plane on the pipe *h*, a torsional spring connected at one end to the elbow *g* and at the other end to an adjustable collar upon the elbow *i* and serving to maintain said elbow in its normal position, a bracket *l* carried by the elbow *g*, a set-screw carried by said bracket *l* and bearing upon to support and form a bearing for said elbow *i*, a pipe i^3 secured to the elbow *i* and a hose-pipe connected to said pipe i^3, substantially as described.

589,846. MAGAZINE-CAMERA. ELLSWORTH B. FLORA, Chicago, Ill. Filed Apr. 7, 1897. Serial No. 631,049. (No model.)



Claim.—1. The combination in a camera, of the telescoping sections forming the casing, with a plate-carrier or magazine pivotally secured in one of the sections, and a mechanism to raise the carrier or magazine to a vertical position by the inward movement of the sections and to lower it to a horizontal position and release one of the plate-holders by the extension of said sections, substantially as described.

2. The combination in a camera, of the telescoping sections forming the casing, with a box fixed in one of said sections and having its rear end open, a plate-carrier or magazine pivotally secured in the other section, and a mechanism to raise the carrier or magazine to a vertical position at the open end of the fixed box by the inward movement of the sections and to lower it to a horizontal position and release one of the plate-holders by the extension of said sections, substantially as described.

3. The combination in a camera, of the telescoping sections forming the casing, one of the sections having a removable cap, or end plate, with the frame C, pivotally secured in said section near its end plate, the box or magazine C^3, pivotally secured in said frame and adapted to engage therewith, and a mechanism to raise the frame and box to a vertical position by the inward movement of the sections and to lower it to a horizontal position by the extension of the sections, substantially as described.

4. The combination in a camera, of the telescoping sections forming the casing, one of the sections having a removable cap, or end plate, with the frame C, pivotally secured in said sections near its end plate, the box or magazine C^3, pivotally secured in said frame and adapted to engage therewith, and a mechanism to raise the frame and box to a vertical position by the inward movement of the sections and to lower it to a horizontal position and to release one of the plate-holders, by the extension of the sections, substantially as described.

5. In a camera, the combination of the telescoping sections forming the casing, with a box fixed in one of said sections and having its rear end open, a removable plate or cap on the outer end of the other section, the frame C, pivotally secured in said section near its end plate, the box or magazine pivoted in said frame and adapted to engage therewith, and a mechanism to raise the frame and box to a vertical position at the open end of the fixed box by the inward movement of the sections and to lower it to a horizontal position by the extension of the sections, substantially as described.

6. In a camera, the combination of the telescoping sections, forming the casing, with a box fixed in one of said sections and having its rear end open, a removable plate or cap on the outer end of the other section, the frame C, pivotally secured in said section near its end plate, the box or magazine pivoted in said frame and adapted to engage therewith, and a mechanism to raise the frame and box to a vertical position at the open end of the fixed box by the inward movement of the sections and to lower it to a horizontal position and release one of the plate-holders, by the extension of the sections, substantially as described.

7. In a camera, the combination of the telescoping sections forming the casing, with a plate-carrier or magazine pivotally secured in one of the sections, a mechanism to raise the carrier or magazine to a vertical position by the inward movement of the sections and to lower it to a horizontal position by the extension of said sections, and a spring-actuated releaser secured on one end of the magazine and having a projection to enter the same and adapted to forwardly project and release one of the plate-holders, substantially as described.

8. The combination of the telescoping sections A, and B, forming the casing, with the box C, fixed in the section A, the removable cap or end plate *a'* on the outer end of the section B, the frame C, pivotally secured in the section B, the levers G, pivoted at one of their ends to said frame and likewise secured at their other ends within the section A, the box or magazine C^3, pivotally secured within the frame C, and adapted to engage therewith, and having at one of its ends the lugs c^7, and in its other end the slots c^8, and arms c^9, the spring-actuated releaser E, having the projection *e'*, adapted to extend into the box C^3, substantially as described.

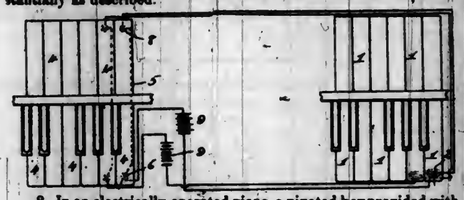
9. In a camera, the combination of a plate or partition, having an opening therein, with a shutter pivotally secured on said partition, and having arms or prongs extending through a slot in the casing and provided with an opening and adapted to close the opening in the partition, a hook on the surface of the shutter and a spring secured at its ends to the sides of the casing and provided at its middle with a depression to receive the hook on the shutter, substantially as described.

10. A magazine, comprising the box C^3, having at one of its ends the inwardly-projecting lugs c^7, and its other end provided with the slots c^8, and arms c^9, the springs c^6, the plate-holder D, having at one of its ends the lateral projections *d'*, to engage the projections c^6, and the spring-actuated releaser E, having the arm *e'*, to enter the box or magazine, substantially as described.

11. A magazine, comprising the box C^3, having at one of its ends the inwardly-projecting lugs c^7, the springs c^6, on the inner surface of its back, the slots c^8, and arms c^9, at the other end of the magazine for the reception and engagement of suitable projections on the plate-holders and means to release the plate-holders from the magazine or box, substantially as described.

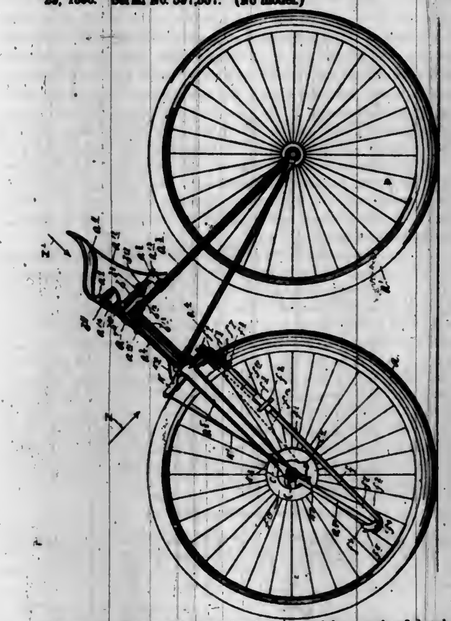
589,847. ELECTRIC PIANO. JAMES L. FULKERSON, Kansas City, Mo. Filed Dec. 4, 1896. Serial No. 614,676. (No model.)

Claim.—1. In an electrically-operated piano, a transmitting-key provided with a wire extending longitudinally thereof, a contact-point at the front end of the key extending downward, a contact-plate arranged beneath said contact-point, and a spring arranged at the rear end of the key and electrically connecting the longitudinal wire of the key and the circuit-wire, whereby the circuit is normally broken but adapted to be completed when the key is depressed, substantially as described.



2. In an electrically-operated piano, a pivoted key provided with a longitudinal slot, a wire extending within said slot, a contact-point arranged at the front end of the key and connected to said wire, a platinum spring at the opposite end of the key having connection with said wire and maintained in electrical contact with the circuit-wire, and a contact-plate arranged under the front end of the key, substantially as described.

589,848. CYCLE. THOMAS HILL, River Falls, Wis. Filed June 29, 1896. Serial No. 597,337. (No model.)



Claim.—1. A propelling mechanism comprising a pair of clutches, one section of each of which clutches is movable with the traction-wheel and the other section of which is loose, a pair of winding-drums carried by each of said loose clutch-sections, a pair of pedals, flexible connections connected to said pedals, and engageable, at will, with either member of the pair of winding-drums, substantially as described.

2. A propelling mechanism comprising a pair of clutches, one section of each of which is movable with the traction-wheel and the other section of which is loose, a pair of winding-drums carried by each of said loose clutch-sections, a pair of pedals, a pair of flexible connections connecting said pedals, and a shifting device which is tripped by the extreme downward movement of the rider's foot and is operative to shift said flexible connection from one to the other of the sections of said winding-drums, substantially as described.

3. A propelling mechanism comprising a pair of clutches, one section of each of which clutches is movable with the traction-wheel and the other section of which is loose, small drum-sections rigidly secured to said loose clutch-sections, large drum-sections mounted for spiral movement on said small drum-section and provided with face-channels, a pair of pedals mounted for reciprocating motions, a pair of flexible connections secured together at their intermediate portions and connecting the pedals with each other and to the small members of said winding drum-sections, springs tending to move said small drum-sections against the advanced movement of the wheel, and a shifting device tripped by the extreme downward movement of the rider's foot and adapted to throw the drum-attached ends of said flexible connections into the face-channels of said large drum-sections, and thereby to shift the same, substantially as described.

4. A propelling mechanism comprising a pair of clutches, one section of each of which is movable with the traction-wheel and the other of which is loose, the hubs or drum-sections c^4 secured to the loose clutch-sections and provided with the lug portion c^{11}, the large drum-sections f^{10} mounted for spiral movement on said small drum-sections c^4 and provided with the passage f^{14} and face-channels f^{15}, the anchor-bar f^{13} working through said passages f^{14} and seated in the lug c^{11} of said drum c^4, the pedal guide-rods *f*, the pedals f^2 movable on said guide-rods *f*, the pair of flexible connections f^{16}, f^{17} connecting said pedals f^2 together and to said anchor-bars f^{13}, the pivoted trip-stops f^4 at the lower ends of the guide-rods *f*, and the stop-lugs *g* on the ends of the flexible connection f^{16} cooperating with the face-grooves f^{15} to shift said drum f^{10}, substantially as described.

5. The propelling mechanism comprising a pair of clutches, one section of each of which is movable with the traction-wheel and the other of which is loose, the pair of hubs or drum-sections c^4 secured to the loose clutch-sections and provided with the lug portions c^{11} and flanges c^{10}, the large drum-sections f^{10} mounted for spiral movement on the drums c^4 and provided with the passages f^{14} and face-channels f^{15}, the anchor-bars f^{13} working through said passages f^{14} and seated in said lugs c^{11} and flanges c^{10}, the pedal guide-rods *f*, the pedals f^2 movable on said guide-rods *f*, the pair of flexible connections f^{16}, f^{17} connecting said pedals together and to the anchor-bars f^{13}, the pivoted trip-stops f^4 at the lower ends of said rods *f*, the stop-lugs *g* secured on the connection f^{16} provided with detent-notches g^7 and slots g^8, the cam-lugs g^9 also secured on said connection f^{16}, and the springs g^4, g^5, g^6 carried by said drums f^{10}, working through passages g^8, g^5 thereof, and cooperating with the lugs *g* and g^9, substantially as described.

6. In a cycle, the combination with a pair of independently-swiveled steering-handles, of a steering head or plate secured to the upper end of the pivoted fork-stem, a latch carried by said steering-head, operative to positively hold the steering-wheel in line with or parallel to the other wheel or wheels of the cycle, and connections from said handpieces to said steering-head and to said lock, so arranged as to move said steering-head or to operate said lock, at will, substantially as described.

7. In a cycle, the combination with the steering head or plate *b* secured to the upper end of the pivoted fork-stem, and provided with the cam-slots *b'* in which work loose pins b^3, of the reciprocating latch b^4 carried by said head *b* and cooperating with the notched flange b^5, b^5 on the cycle-frame, the link b^7 engaging said pins b^3 and a projection b^6 of the lock b^4, the swiveled hand-bars b^{10}, b^{11} provided with arms b^{12}, and the links b^{17} connecting said arms b^{12} to said pins b^3, substantially as described.

8. In a cycle, the combination with the steering head or plate *b* secured to the upper end of the pivoted fork-stem and provided with the cam-slots *b'* in which work loose pins b^3, of the reciprocating latch b^4 carried by said head *b* and cooperating with the notched flange b^5, b^5 on the cycle-frame, the link b^7 engaging said pins b^3 and a projection b^6 of the lock b^4, the swiveled handle-bars b^{10}, b^{11} mounted for vertical adjustments and provided with adjustable arms b^{12}, and the links b^{17} connecting said arms b^{12} to said pins b^3, substantially as described.

9. A clutch device, comprising two parts rotatable independently of each other, one having ratchet-teeth and the other carrying one or more pawls, and the pawl-ring c^{17} provided with passages through which the free ends of said pawl or pawls pass, said ring having a limited rotary movement with respect to one section of said clutch, and having frictional engagement with the other section thereof, whereby said pawl or pawls are rendered silent in their action on said ratchet-teeth, substantially as described.

10. A clutch device, comprising two parts rotatable independently of each other, one having ratchet-teeth and the other carrying a series of pawls, one of which pawls is spring-held in advance of the others, and a pawl-ring with which said pawls engage, said ring having a limited rotary movement with respect to one of said clutch-sections and having frictional engagement with the other section thereof, substantially as described.

11. The combination with the wheel-hub provided with the internal ratchet-teeth, of the pair of loose hubs provided with a pawl disk or flange, the series of pawls mounted on said pawl-disk and engageable with said ratchet-teeth, one of which pawls is mounted for limited endwise movement and is spring-held in advance of the others, and the loose pawl-ring through which said pawls work, said pawl-ring being mounted for a limited rotary motion with respect to the pawl-disk and having frictional engagement with the flange of said wheel-hub, substantially as described.

12. The combination with the wheel-hub carrying the ball-seat

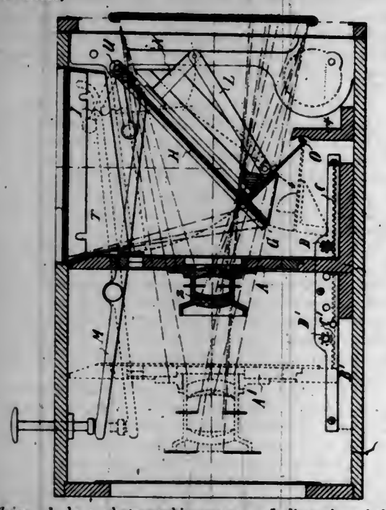
a^{10}, of the spindle c provided with keyways c^3, the loose hub c^4 provided with ball-seats c^7 and c^8, the double-faced cone-bearing c^5 and the single-faced cone-bearing c^6, both free for sliding movement but fixed from rotary movement on said spindle by means of key portions working in the grooves or keyways c^3, and bearing-balls working between said cone-bearings and the cooperating ball-seats, substantially as described.

13. The combination with the wheel hub carrying the ball-seat a^{10}, of the spindle c provided with keyways c^3, the loose hub c^4 provided with ball-seats c^7 and c^8, the double-faced cone-bearing c^5 and the single-faced cone-bearing c^6, both free for sliding movement but fixed from rotary movement on said spindle by means of key portions working in the grooves or keyways c^3, the follower or jam-nut c^9, screw-threaded on the end of said spindle and working against said cone-bearing c^6, and bearing-balls working between said cone-bearings and the cooperating ball-seats, substantially as described.

14. A seat, comprising the laterally-adjustable spring yoke-bar a^9, and the flexible covering a^{11} stretched over the bow of the same and rigidly secured thereto, substantially as described.

15. A seat comprising the laterally-adjustable spring yoke-bar a^9, a flexible covering a^{11} secured thereto, the spring front bar a^{14} supporting the forward central portion of the covering a^{11}, and the rear spring-bar a^{13} secured at its upper end to the bow of said bar a^9, substantially as described.

589,849. PHOTOGRAPHIC CAMERA. LODEWYK J. R. HOLST, Amsterdam, Netherlands. Filed Feb. 12, 1897. Serial No. 623,138. (No model.)



Claim.—1. In a photographic camera, a finding-mirror behind the lens, composed of two parts, one of which is adapted to be elevated and the other depressed out of the path of the rays from the lens to the plate, substantially as described.

2. In a photographic camera, a finder light-well in the top thereof, covered with a ground-glass plate, a finding or focusing mirror composed of two abutting parts under said plate, means for elevating the upper part of said mirror to close the light-well, and simultaneously lowering the bottom part thereof, substantially as described.

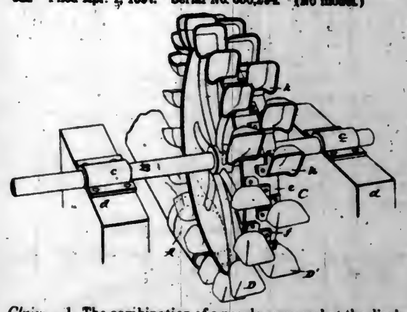
3. In a photographic camera, a finding or focusing mirror composed of two abutting parts, a link connection between said parts, a lever yieldingly connected at one end to one of them and a button-operated main lever engaging the other end, substantially as described.

4. A box-camera, comprising an adjustable partition carrying a lens limited in its rearward motion by a light-well, a finder light-well in the upper rear portion of the camera covered by a ground-glass plate, a mirror behind the partition composed of two abutting parts, means for simultaneously moving the parts from the path of the rays from said lens and covering the light-well by one of them, brackets for supporting the mirror when behind the lens, and an adjustable pinion for moving the partition, substantially as described.

5. In a photographic camera, an adjustable pinion comprising a plate, two bushings therein forming bearings for the ends of the pinion-spindle, said camera provided with holes in its sides for receiving the bushings, and auxiliary holes normally closed by said plate and adapted to receive the bushings when the plate is reversed, and a second plate on the opposite inner side of the camera having perforations registering with the aforementioned holes forming bearings for the other end of the pinion-spindle, substantially as described.

6. In a photographic camera, an adjustable pinion comprising two plates each having a bush forming bearings for the ends of the pinion-spindle, said camera provided with slots in its sides for receiving the bushings and covered by the said plates in all positions of the same, substantially as described.

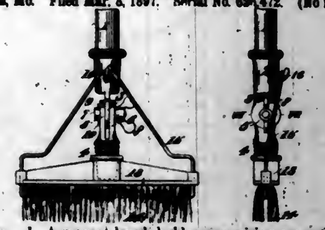
589,850. WATER-WHEEL. LUDWIG J. HOLSHAUSER, Etna Mills, Cal. Filed Apr. 1, 1897. Serial No. 630,294. (No model.)



Claim.—1. The combination of a nozzle arranged at the discharge end of a conduit, and a wheel arranged in the same vertical plane as the nozzle and having buckets upon its periphery adapted to be acted upon by water from the nozzle; the said buckets respectively comprising the base-flange f, the bottom i, the side walls j, the outer wall k, and the inner wall g, having its outer side perpendicular or approximately perpendicular to the base-flange and its inner side inclined inwardly so as to accelerate the discharge of water from the bucket and form a channel g', extending in the direction of the width of the bucket and also having the depending lip k at one end of said channel g' and arranged at the side of the periphery of the wheel, substantially as specified.

2. The combination of a twin nozzle arranged at the discharge end of a conduit and having the two spouts in the same horizontal plane and a wheel arranged in the same vertical plane as the nozzle and having the two parallel series of buckets on its periphery, the buckets of one series being arranged staggering with respect to the buckets of the other series and each bucket comprising the base-flange f, secured to the wheel-periphery, the bottom i, the side walls j, the outer wall k, and the inner wall g, having its outer side perpendicular or approximately perpendicular to the base-flange and its inner side inclined inwardly so as to accelerate the discharge of water from the bucket and form a channel g', extending in the direction of the width of the bucket and also having the depending lip k at one end of said channel g' and arranged at one side of the periphery of the wheel, substantially as specified.

589,851. BRUSH OR MOP HOLDER. PETER H. HUMBACH, St. Louis, Mo. Filed Mar. 8, 1897. Serial No. 626,472. (No model.)

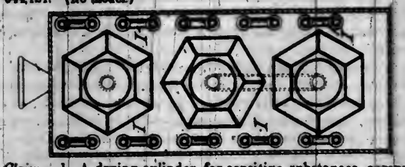


Claim.—1. A mop or brush holder comprising a cap 2 provided with a plate 3, having side projections 11, 12, and a bolt-hole, the screw 4 provided with two plates 5, 6, having recesses 5^a, 6^a, and bolt-holes, and the bolt; substantially as described.

2. The combination consisting of a handle provided with the cap 2, an adjustable screw 4 attached thereto, a mop-frame 13, a wire form 15 attached to said frame 13 and adapted to engage a hook 16 attached to the said part 2, substantially as described.

3. A handle provided with a cap 2, a plate attached to said cap 2, said plate being provided with circular corrugations 11 and 12, an adjustable screw 4, a means of attaching said screw to the said plate 3, a frame 13 adapted to be secured to the screw 4, a wire form 15 adapted to secure the material 14 to the said frame 13, and a hook 16 adapted to secure said form 15 in place, substantially as described.

589,852. CYLINDER DRIER. JOHANNES HUNDHAUSEN, Hamm, Germany. Filed June 10, 1896. Renewed July 10, 1897. Serial No. 644,121. (No model.)



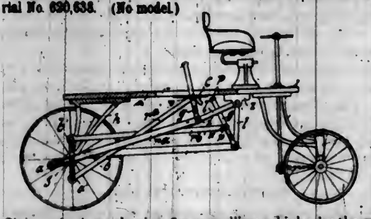
Claim.—1. A drying-cylinder for sensitive substances, comprising an imperforate tubular center, a fabric periphery, and intermediate supports for the fabric, substantially as described.

2. A drying-cylinder comprising the imperforate tubular center having steam-heating connections, the inner and outer clamps supported from said tubular center and the inner and outer fabrics carried by said clamps.

3. A drying system for sensitive substances comprising the closed chamber, the series of steam-cylinders arranged vertically in said chamber, the inner and outer fabrics supported by said cylinders and having a space between, means for continuously feeding the substances to be dried, in between the fabrics at one end of each cylinder and means for rotating the cylinders, substantially as described.

4. A drying system comprising the closed chamber having steam-heating pipes, the tubular steam-cylinders journaled therein, the inner and outer clamps supported by said cylinders, the inner and outer fabrics carried by said clamps, means for feeding the material to be dried continuously in at one end of each cylinder between the fabrics, and means for rotating the cylinders, substantially as described.

589,358. MECHANICAL MOVEMENT FOR PROPELLING VEHICLES. HENRY J. JENNER, Brooklyn, N. Y. Filed Jan. 25, 1897. Serial No. 620,638. (No model.)

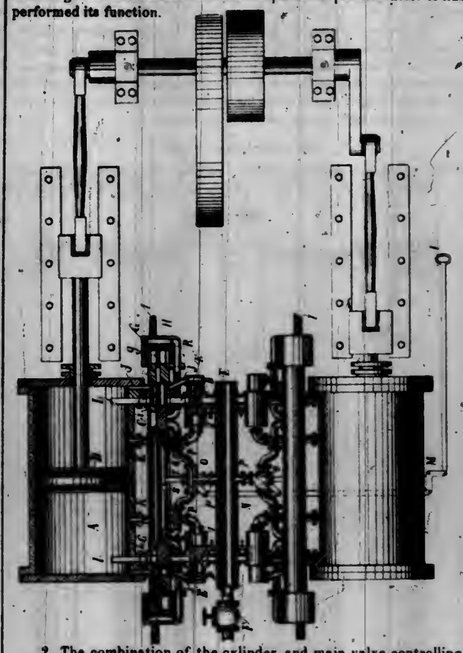


Claim.—1. A mechanism for propelling vehicles by the pedaling power of the rider, comprising a crank-shaft, having two sets of cranks, a main and an auxiliary crank, the main crank being angularly in advance of the auxiliary crank and the cranks of one set oppositely to the cranks of the other set; oscillating links, pivoted to the body of the vehicle, gyrating links, pivoted to the free ends of the oscillating links, and extended into pedals; main connecting-rods, connecting the main cranks to the joints of the oscillating with the gyrating links, auxiliary connecting-rods, connecting the auxiliary cranks to the gyrating links, stationary cams, diverting the motion of the gyrating links, secured to the body of the vehicle in suitable position, pins joining the connecting rods to the gyrating links and projecting from the joint toward the cams, and antifriction-rollers set on the pins.

2. In mechanism for propelling vehicles by the pedaling power of the rider, of a crank-shaft, having two sets of cranks, a main, and an auxiliary crank, the main crank being angularly in advance of the auxiliary crank and the cranks of one set oppositely to the cranks of the other set; oscillating links, pivoted to the body of the vehicle, gyrating links, pivoted to the free ends of the oscillating links, and extended into pedals; main connecting-rods, connecting the main cranks to the joints of the oscillating with the gyrating links, auxiliary connecting-rods, connecting the auxiliary cranks to the gyrating links, stationary cams, diverting the motion of the gyrating links, secured to the body of the vehicle in suitable position, pins joining the connecting-rods to the gyrating links and projecting from the joint toward the cams, and antifriction-rollers set on the pins, and of means for transmitting the motion of the crank-shaft to the axle of the vehicle.

589,854. FLUID-PRESSURE ENGINE. WALTER H. KNIGHT, New Brighton, N. Y. Filed Dec. 30, 1895. Serial No. 573,825. (No model.)

Claim.—1. In a fluid-pressure engine in which the valves are operated by the fluid-pressure, the combination with said valves, of a reversing device for reversing the valves so as to cause a reversal of the engine, and a device actuated by the valves for automatically throwing such mechanism into an inoperative position after it has performed its function.



2. The combination of the cylinder, and main valve controlling admission and exhaust to and from the same, a reversing device for reversing the main valve so as to reverse the engine, and hand-lever for controlling such reversing device, and a device attached to the main valve and adapted to engage with the reversing device to automatically throw the same into an inoperative position.

3. The combination in a fluid-pressure engine of the cylinder, the ports thereto controlled by the main valve; the said valve operated normally by the fluid-pressure so as to give the regular reciprocations and means for throwing the said valve into a reversed position by means of fluid-pressure said means controlled by a manual lever and thrown out of action when the valve is so reversed.

4. In a fluid-pressure engine, the combination with the cylinder and piston, a main valve and two (2) passages leading from the cylinder to the main-valve chamber, the passage nearest the end of the cylinder for operating the valve by the compression of the fluid by the piston at the end of the stroke, and the other passage located a sufficient distance from the end of the cylinder to give the necessary compression when cut off by the piston and adapted to be covered by the piston when compression is taking place, the said passage being so controlled by the main valve as to be alternately in communication with the fluid-pressure supply and with the exhaust.

5. The combination in a fluid-pressure engine of a cylinder and piston, a main valve operated by the fluid-pressure, cut-off valves operated by the fluid-pressure from the cylinder to cut off the supply of fluid-pressure to the cylinder operating upon an enlarged area of said valve, and by fluid-pressure due to compression at the end of the cylinder, operating on a smaller area of said valve to set the cut-off valves open.

6. The combination in a fluid-pressure engine, of the cylinder and piston with a fluid-actuated main valve and cut-off valves also fluid-actuated, and means for holding said cut-off valves in their open position.

7. The combination in a fluid-pressure engine of pistons and cylinders with fluid-actuated valves, passages leading from the ends of the cylinders to the valve-chambers to enable said valves to be operated by the compression occurring at the end of the stroke with passages leading from the said valve-chambers to the source of fluid-pressure, so that when the valves are thrown, the fluid under pressure will enter the cylinders through the same passages that admitted compression-pressure to the valve-chamber.

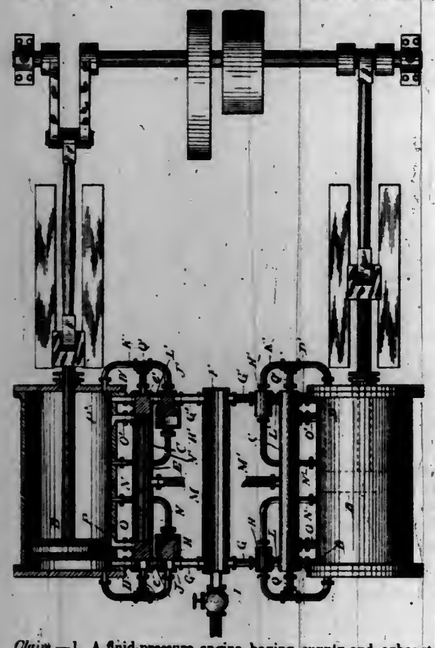
8. The combination in a fluid-pressure engine of pistons and cylinders with valves operated by the fluid-pressure generated at the end of the stroke after the piston passes and closes the exhaust-port, one of said valves being a main valve controlling the main admission and exhaust ports, and the other valve being a cut-off valve.

9. The combination in a fluid-pressure engine of main valves and

cut-off valves both actuated by the fluid compressed at the end of the stroke.

10. The combination in a fluid-pressure engine of pistons and cylinders, the latter having double ports at each end, the ports nearest the ends serving alternately to admit fluid-pressure due to compression from the cylinders to the valves, and to admit fluid-pressure from the source to the cylinders, and the ports farther from the ends serving alternately as exhaust and admission ports.

589,355. **FLUID-PRESSURE MOTOR.** WALTER H. KNIGHT, New Brighton, N. Y. Filed May 7, 1896. Serial No. 590,612. (No model.)



Claim.—1. A fluid-pressure engine having supply and exhaust ports, and main and cut-off valves, with depressions or extensions forming continuations of the exhaust-ports in the cylinder for bleeding the expanding working fluid from the cylinder into the exhaust when uncovered by the piston at or near the end of its stroke, as set forth.

2. In a fluid-pressure engine, the combination of the cylinder having supply and exhaust ports adjacent to its opposite ends, depressions or recesses extending from the exhaust-ports toward the center of the cylinder and the piston adapted to uncover the depressions or recesses just before or at the completion of each stroke for the purpose of bleeding the expanding working fluid from behind the piston before it starts on its return stroke, as set forth.

3. In a fluid-pressure engine, the combination of the cylinder having supply and exhaust ports adjacent to its opposite ends, tapering depressions or recesses extending from the exhaust-ports and tapering toward the center of the cylinder, and the piston adapted to uncover the depressions or recesses just before or at the completion of each stroke for the purpose of bleeding the expanding working fluid from behind the piston before it starts on its return stroke, as set forth.

589,356. **CAR-WHEEL.** THEODORE J. LEWIS, Philadelphia, and ARCHY A. STEVENSON, Burnham, Pa., assignors to the Standard Steel Works, Burnham, Pa. Filed Nov. 7, 1896. Serial No. 611,417. (No model.)



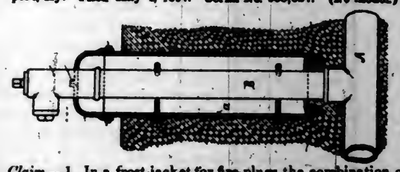
Claim.—1. The combination in a wheel, of the center having an annular recess in its periphery, a rim or tire having an internal flange adapted to said recess and bolts securing the rim and center together said internal flange being on the same side as the flange of the wheel, substantially as described.

2. The combination of the wheel-center having a recess in one side of its periphery, a rim or tire having an internal flange adapted to the said recess, said internal flange being on the same side as the flange of the wheel, a rib on the opposite edge overlapping the wheel-center and means for securing the parts together, substantially as described.

3. The combination of the wheel-center having an annular recess in its edge, a flanged rim or tire having an internal flange adapted to the recess of the center and having an annular rib overlapping the wheel-center, said internal flange being on the same side as the flange of the wheel, and transverse bolts passing through the center and through the internal flange of the rim-section, substantially as described.

4. As a new article of manufacture, a rim-section for car-wheels having a deep internal flange on one side, perforated for the reception of bolts, and an annular shallow rib on the opposite side, said rib being of such a height that the wheel-center will pass the rib when the rim-section is expanded by heat during the process of manufacture, substantially as described.

589,357. **FROST-JACKET FOR FIRE-PLUGS.** JOHN LINK, Newport, Ky. Filed May 4, 1897. Serial No. 635,027. (No model.)



Claim.—1. In a frost-jacket for fire-plugs the combination of an upper and a lower section, the lower section located centrally around the plug by means of guide-screws, said section covering that portion of the plug which is underground and projecting above the curb-line, the top section detachably connected to the projecting end of the lower section, substantially as specified.

2. In a frost-jacket for fire-plugs, the combination of an upper and a lower section, the lower section located centrally around the plug by means of guide-screws, said section covering that portion of the plug which is underground and projecting above the curb-line, and the top section formed of two vertical sections connected together and to the projecting end of the lower section, substantially as described.

589,358. **REDUCING MECHANISM FOR STEAM-ENGINE INDICATORS.** ALPHEUS C. LIPPINCOTT, New York, N. Y., assignor to James L. Robertson, same place. Filed May 26, 1897. Serial No. 638,263. (No model.)



Claim.—1. The combination with a reducing mechanism for steam-engine indicators, of an indicator-drum designed to be operated thereby, a clutch connection intermediate of said drum and said mechanism, and means controlled by the operating medium for said mechanism for operating said clutch connection, substantially as set forth.

2. The combination with a reducing mechanism for steam-engine indicators, of an indicator-drum designed to be operated thereby, a clutch connection intermediate of said drum and said mechanism, and the engine-cord designed to operate said clutch connection, substantially as set forth.

3. The combination with a reducing mechanism for steam-engine indicators, of an indicator-drum designed to be operated thereby, a clutch connection intermediate of said drum and said mechanism, and a movable member for operating said clutch connection designed to be operated by the engine-cord, substantially as set forth.

4. The combination with a reducing mechanism for steam-engine indicators, and the operating-cord therefor having a button or projection thereon, of an indicator-drum designed to be operated by said mechanism, a clutch connection intermediate of said mechanism and said drum, and a movable member designed to operate said clutch connection when acted upon by said button or projection, substantially as set forth.

5. The combination with a reducing mechanism for steam-engine indicators, and the operating-cord therefor having a button or projection thereon, of an indicator-drum designed to be operated by said mechanism, a clutch connection intermediate of said mechanism and said drum, a movable plate or member designed to operate said clutch connection, and a movable arm connected thereto designed to be engaged by said button or projection when in line with the path thereof, substantially as set forth.

6. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and receiving the engine-cord, a vertically-movable guide for said cord and means operated by said wheel for raising and lowering said guide, a spring box or drum, and connections between the latter and said wheel, substantially as set forth.

7. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and provided with a central sleeve, the engine-cord being connected to said wheel, and a guide for said cord mounted on said sleeve, whereby the rotation of said wheel will raise or lower said guide, a spring box or drum, and connections between the latter and said wheel, substantially as set forth.

8. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and designed to have the engine-cord connected thereto, a depending exteriorly-threaded sleeve carried by said wheel, and a guide for said cord having a threaded portion engaging said sleeve and designed to be raised and lowered by the rotation of said wheel, substantially as set forth.

9. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and designed to have the engine-cord connected thereto, a depending exteriorly-threaded sleeve carried by said wheel, a guide for said cord, and a threaded collar carried by said guide and engaging said sleeve, substantially as set forth.

10. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and designed to have the engine-cord connected thereto, a depending exteriorly-threaded sleeve carried by said wheel, a guide for said cord having an opening, and an interiorly-threaded collar pivotally mounted in said opening and designed to engage said sleeve and move up and down thereon when said wheel is rotated, substantially as set forth.

11. In a reducing mechanism for steam-engine indicators, a wheel having a rotary movement and designed to have the engine-cord connected thereto, a depending exteriorly-threaded sleeve carried by said wheel, a guide for said cord comprising a lower stationary arm, an upper arm pivoted thereto at one end and carrying guide-pulleys for the said cord, and a collar on said upper arm engaging said sleeve, substantially as set forth.

12. The combination with the bracket, of the shaft depending therefrom having a lower threaded end, a wheel having a central, exteriorly-threaded sleeve inclosing said shaft, a lower arm held on the lower end of said shaft, an upper arm pivoted to said lower arm and having an opening, a collar pivotally mounted in said opening and having a threaded opening designed to engage the thread of said sleeve, substantially as set forth.

589,359. **SASH-HOLDER.** ALBERT LOWRY, Dillon, Mont. Filed May 11, 1896. Serial No. 591,123. (No model.)

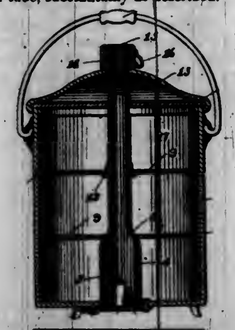


Claim.—In a window-frame, the combination with a pair of window-sashes, a pair of laterally-movable bars *g* and *g'*, provided with tongues *n*, adapted to enter grooves in the sashes, the contiguous sides of said bars being in contact with and sliding against each other, and having a series of wedge-sections on one side, a pair of vertically-movable bars provided with a series of wedge-sections, coacting with the first-named wedge-sections, racks upon each of said vertically-movable bars, and independent pinions engaging said racks, all arranged and adapted to operate in the manner and for the purposes substantially as described.

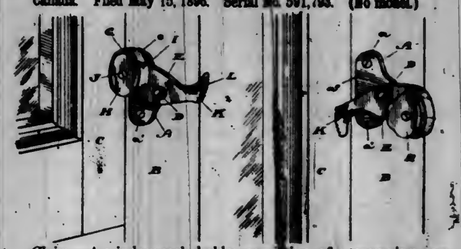
589,360. **DINNER-KETTLE.** WILLIAM MACCALLUM, Magog, Canada. Filed Apr. 5, 1897. Serial No. 630,726. (No model.)

Claim.—1. In a dinner-pail, the combination of a pail provided with a funnel-shaped tube or flue having an enlarged bottom end, and a top contracted end having shoulders formed at their intersections, and a series of perforated supporting-plates contained within the pail and resting upon flanges on said tube and side walls of the pail, the lowermost one of said plates resting upon the said shoulder of the flue or tube, substantially as described.

2. In a dinner-pail, the combination of a pail having a tube or flue extending therethrough and adapted to contain a lamp or other heating medium, a cover closing the said pail and provided with an opening for passage of the products of combustion from the lamp to the atmosphere, and an auxiliary cover below the said top cover and adapted to fit tightly about the tube or flue and prevent the products of combustion from the lamp from being forced back into the pail, and a series of supporting-plates within the pail and supported upon said tube, substantially as described.



589,361. **SASH-HOLDER.** THEODORE MARTIN, Wallaceburg, Canada. Filed May 15, 1896. Serial No. 591,793. (No model.)



Claim.—A window-sash holder consisting of a cramping cam-lever having a laterally-projecting lug on its binding end, a rubber ring surrounding this lug and lying in the same plane therewith, and a retaining-plate lying parallel to the lever on the outside of said rubber ring, said retaining-plate having at its rear edge a laterally-projecting lug extending inwardly toward the lever and in rear of and crimping and pinching the rubber ring on its rear side, whereby it is more firmly held and prevented from slipping in its seat substantially as and for the purpose described.

589,362. **PIPE-COUPLING.** JOHN S. MILLER, Dayton, Ohio. Filed Feb. 4, 1895. Serial No. 537,945. (No model.)



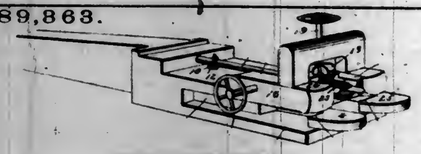
Claim.—1. A coupling consisting essentially of an outer casing, an inner flexible sleeve having a V-shaped groove and a depending lip, a movable nipple adapted to be forced in said casing and engage said sleeve, said nipple having an interior bore slightly larger than the depending lip, substantially as specified.

2. The combination with a tubular pipe, an outer casing having an inner projecting flange, a flexible sleeve in said casing provided with a central bore and having a V-shaped groove on its outer periphery and a depending lip at its end opposite said flange, a screw-threaded nipple in said casing, said nipple having a bore slightly greater than the diameter of said flange, substantially as specified.

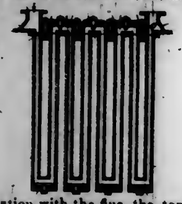
589,363. **CAR-COUPLING.** JOSIAH MILLER, Mansfield, Ohio. Filed Mar. 30, 1897. Serial No. 629,839. (No model.)

Claim.—In a car-coupling, the combination of a draw-head having a movable and a stationary jaw therein, a shaft having a flexible connection with said movable jaw which is adapted to wind thereon and provided with a gear and an outer coupling-head, and an upper and a side gear engaging the gear on the shaft and having connections adapted to be operated from the top or side of the car, substantially as and for the purposes specified.

589,863.

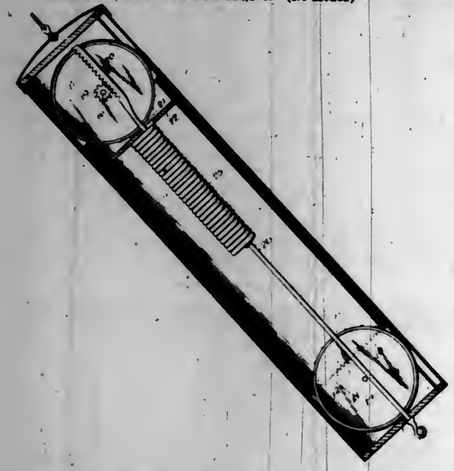


589,364. FEED-WATER HEATER. JOSEPH PIMBLEY, Bolton, England, assignor of one-half to William Andrew Rothwell, Walkden, England. Filed Mar. 4, 1896. Serial No. 581,827. (No model.) Patented in England Mar. 2, 1894, No. 4,404; in France Jan. 26, 1895, No. 244,645; in Belgium Jan. 26, 1895, No. 113,844, and in Germany Jan. 29, 1895, No. 83,700.



Claim.—In combination with the flue, the top box having partitions and a series of downwardly-directed openings, the depending tubes each having two legs and provided with an open center for the circulation of the heat, the lower ends of the said tubes having openings, and the box having openings over the junctures of the tubes, and covers for the lower tube-openings, and the upper box-openings whereby access into adjacent tube-legs may be had by removing the covers, substantially as described.

589,865. COMPUTING-SCALE. JULIUS R. PITRAT, Gallipolis, Ohio. Filed Dec. 2, 1896. Serial No. 614,171. (No model.)



Claim.—A computing-scale, comprising a slotted barrel, an inner sleeve connected at top and bottom to said barrel sprocket-wheels journaled in said sleeve, a sprocket-band connecting said wheels and provided with a traveling index or pointer registering with the slot in said barrel a pinion fixed to one of the said sprocket-wheels, a vertically-reciprocating rack-bar, in operative connection with said pinion, a spiral spring encompassing said rack-bar and connected at one end thereto and at its other end to a transverse bar fixed in said sleeve in combination with a vertically-arranged computing-cylinder, concentrically mounted between said sleeve and barrel, and means substantially as described for rotating said cylinder on its axis, to present its vertical divisions into successive alinement with the path of the traveling index, as and for the purpose set forth.

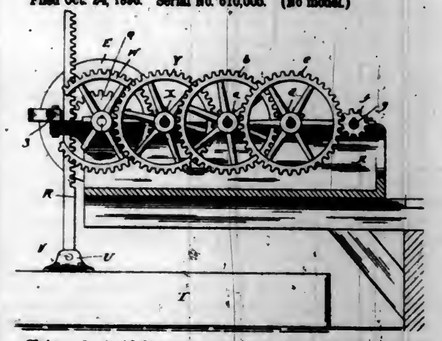
589,866. CAP FOR BOTTLES. WILLIAM POLSON, Fabyans, N. H. Filed Nov. 14, 1896. Serial No. 612,105. (No model.)

Claim.—1. The combination with a bottle whose neck has a bead or shoulder upon its outer surface, of a cap thereon consisting of a ring adapted to embrace said neck and provided with openings therein, inwardly-projecting pins on said ring fitting and secured within said openings and adapted to engage the under side of said bead or shoulder, and arms extending upwardly from said ring having inwardly-projecting flanges thereon, substantially as and for the purpose described.



2. The combination with a bottle whose neck has a bead or shoulder upon its outer surface, of a cap thereon consisting of a ring adapted to embrace said neck and provided with openings therein, inwardly-projecting pins on said ring fitting and secured within said openings and adapted to engage the under side of said bead or shoulder, and arms extending upwardly from said ring formed integral therewith having transverse grooves therein, and inwardly-extending flanges at their upper ends, substantially as and for the purpose described.

589,867. TIDAL MOTOR. CHARLES A. PRESCOTT, Victoria, Canada. Filed Oct. 24, 1896. Serial No. 610,005. (No model.)



Claim.—1. A tidal motor, consisting of a drum-wheel carrying pawls, two beveled gears mounted side by side, said gears having ratchet-teeth for engagement with the pawls, beveled pinions for causing the gears to move in unison but in opposite directions, means for transmitting this motion to a train of gears always in one direction, a rack-bar arranged to mesh with a gear-wheel carried by the drum-wheel, and a float such as a scow or ship for raising and lowering the rack-bar by the action of the tide, as specified.

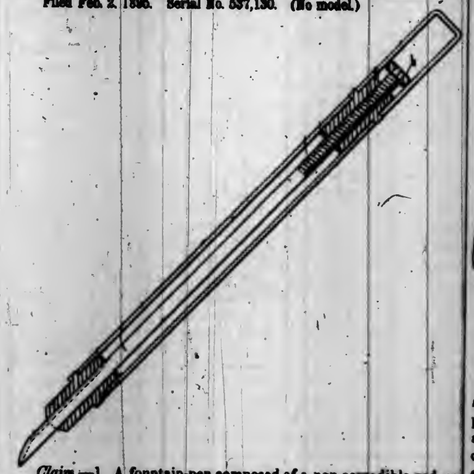
2. A motor of the character described, consisting of a frame, a shaft journaled therein, a sleeve arranged around a portion of said shaft, a disk secured to said sleeve, said sleeve being held against rotation, beveled pinions carried by the disk, beveled gear-wheels F and G, the former being secured to the shaft and the latter loosely mounted upon the sleeve, said gears meshing with the pinions, ratchets formed upon the gears, a drum-wheel inclosing said gears, pawls pivoted within said drum-wheel and adapted to engage the teeth of the ratchets, a gear Q carried by the drum-wheel, a rack-bar meshing with said gear, a float to which said rack-bar is attached, and a train of gears for increasing the motion imparted to the drum-wheel by the float, substantially as and for the purpose set forth.

3. In a tidal motor of the character described, a shaft journaled in a suitable frame, a drum-wheel mounted upon said shaft, a sleeve so arranged as to allow the shaft to revolve freely therein, a disk secured to the sleeve so as to remain stationary therewith, beveled pinions mounted upon the disk, a beveled gear F rigidly secured to the shaft and meshing with the pinions, a beveled gear G loosely mounted upon the sleeve and also meshing with the beveled pinions, ratchet-teeth formed upon each of the beveled gears, pawls carried by the drum-wheel and adapted to engage the ratchet-teeth in opposite directions, springs for holding said pawls in engagement with the teeth, a gear-wheel Q carried by the drum-wheel, a rack-bar meshing with the last-named gear, and a float to which said rack-bar is secured for causing the revolving of the drum-wheel in opposite directions by the rising and falling of the tide, substantially as and for the purpose set forth.

4. The herein-described motor, consisting of a frame, a shaft B journaled within said frame, a sleeve C arranged around said shaft but made stationary by connection with one of the bearings, a drum-wheel mounted upon said shaft, and sleeve so as to revolve independent of the latter, a disk H secured upon the sleeve, beveled pinions J journaled upon the disk, a beveled gear F rigidly secured upon the shaft B and meshing with the beveled pinions, a pawl O pivoted to the drum-wheel, ratchet-teeth formed upon the beveled gear F and

so set as to be engaged by the pawl in one direction, a beveled gear G loosely mounted upon the sleeve and meshing with the beveled pinions, ratchet-teeth formed upon said gear oppositely disposed to the disposition of the teeth to the beveled gear F, a pawl N pivoted to the drum-wheel and adapted to drive the gear G in one direction, a gear-wheel Q carried by the drum-wheel, a rack-bar R arranged to mesh with the last-named gear-wheel, a float T to which said rack-bar is secured and by means of which it is moved up and down through the action of the tide, and a series of gear-wheels and pinions arranged to increase the motion of the drum, substantially as and for the purpose set forth.

589,868. FOUNTAIN-PEN. FRANCIS J. PRIBYL, Hazleton, Pa. Filed Feb. 2, 1896. Serial No. 577,130. (No model.)



Claim.—1. A fountain-pen composed of a non-corrodible rod, or strong wire, passing through a tube plugged at each end, and having at both ends a tapering longitudinal groove, one for the outflow of writing fluid and the other for admission of air, and means for projecting and retracting said rod to simultaneously expose greater or less portion of said grooves or wholly closing same, substantially as set forth.

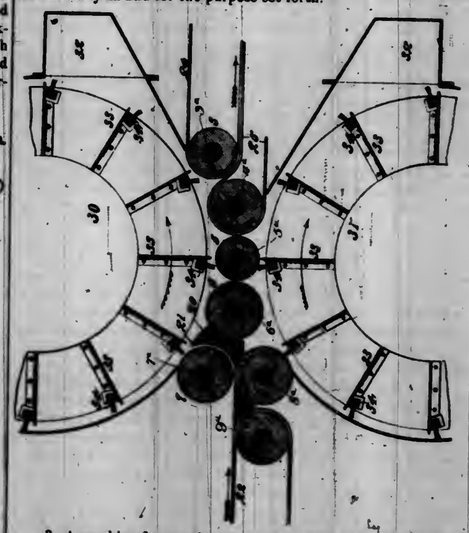
2. A fountain-pen comprising a tubular body, a rod extending longitudinally therethrough, threaded upon its rear end and adapted to be turned to project or retract the same, a groove in the forward end of said rod, increased in size from the inner end thereof outwardly for the outflow of the fluid, and a corresponding groove in the rear end of the rod increasing from the outer end inwardly for the admission of air, whereby the inward movement of the forward end of the rod creates a greater or less outlet for the fluid, and similarly actuates the opposite groove for the inlet of air, substantially as set forth.

3. A fountain-pen comprising a tubular body, having plugs secured in either end thereof, a rod extending longitudinally through said body, screw-threaded at the rear and working in the rear plug, the forward end of said rod having a pen thereon with the point in the periphery of the rod, the slot running through the rod narrowing down to same, the sharp edges of the slot running diametrically and longitudinally in slightly oval line to opposite side of the point three-eighths of an inch, more or less, and then extending through the rod into the tube, increasing in depth and diameter from the inner end outwardly; and the rear end of said rod having a corresponding groove therein increasing slightly in depth from the outer end inwardly, and a head secured upon the rear end of said rod to turn the same, and having a washer upon the inner face thereof to seal the pen when said rod is turned to close the grooves, substantially as set forth.

589,869. MACHINE FOR TREATING RAMIE. ALBERT PRICE, St. Louis, Mo., assignor to Chas. D. McLure, Lawrence D. Kingsland, and Edward D. Meier, trustees, same place. Filed Aug. 12, 1896. Serial No. 602,532. (No model.)

Claim.—1. In a machine for treating ramie, the combination of a series of rollers between which the material is passed, a fan having a casing provided with an exhaust-opening and located above the rollers, and a fan having a casing provided with an exhaust-opening and located beneath said rollers, said fans being provided with means for removing the bark as the material passes through the machine, substantially as set forth.

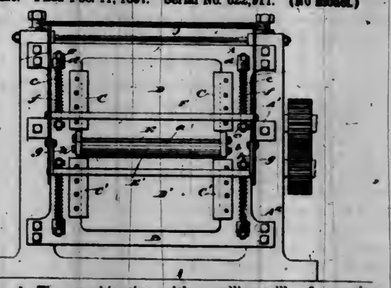
2. In a machine for treating ramie, the combination of a series of rollers between which the material is passed, a fan having a casing and located above the rollers, and a fan having a casing and located beneath the rollers, each fan being provided with blades and brushes, substantially as and for the purpose set forth.



3. A machine for treating ramie comprising a corrugated roller, a circumferentially-grooved roller, a bridge-block having an upwardly-projecting breaking edge and located between the corrugated roller and the circumferentially-grooved roller, a feed roller and belt, the discharge rollers and belts, a roller located between the circumferentially-grooved roller and the discharge rollers and belts, and the upper and lower fans, located respectively above and beneath the rollers; each fan having beating-blades and brushes and a casing provided with an exhaust-opening; substantially as described.

4. A machine for treating ramie comprising a corrugated roller, a circumferentially-grooved roller, a bridge-block having an upwardly-projecting breaking edge and located between the corrugated roller and the circumferentially-grooved roller, the pivoted lever connected at one end with the shaft of the circumferentially-grooved roller and on the other end with a cam-disk, a feed roller and belt, discharge rollers and belts, a roller located between the circumferentially-grooved roller and the discharge rollers and belts, and the upper and lower fans located respectively above and beneath the rollers, each fan having beating-blades and brushes and a casing provided with an exhaust-opening; substantially as described.

589,870. SCALE-SCRAPING DEVICE. WILLIAM M. REED, Bellaire, Ohio. Filed Feb. 11, 1897. Serial No. 622,911. (No model.)



Claim.—1. The combination with a rolling-mill, of a spring-pressed scraping-bar for engaging with the slab or plate in the process of rolling, whereby scale will be removed therefrom, and means for withdrawing said scraping-bar from the slab or plate, comprising two bell-crank levers, connections between the upper ends thereof and said scraping-bar, a link connecting the angle of each lever, and a handle connected to the free legs of said bell-crank levers substantially as set forth.

2. The combination with a rolling-mill, of two oppositely-depressed independently-operating spring-pressed scraping-bars for en-

gaging with the slab or plate in the process of rolling, whereby scale will be removed from the same, and means for retracting said scraping-bars, substantially as set forth.

3. The combination with a rolling-mill, of two oppositely-depressed independently-operating spring-pressed scraping-bars for engaging with the slab or plate in the process of rolling, whereby scale will be removed from the same, and means for simultaneously retracting said scraping-bars, substantially as set forth.

4. In a scraping device for use in rolling-mills, the combination of a bed plate or plates, a vertical plate secured to the same and having an opening therein for the reception of the slab or plate in the process of rolling, two independently-operating spring-pressed scraping-bars carried by said plate, for engaging the slab or billet, and means for retracting said scraping-bars, substantially as set forth.

5. In a scraping device for use in rolling-mills, the combination of a bed plate or plates, a vertical plate secured to the same and having an opening therein through which is passed the bar or billet to be operated upon, guides carried by said vertical plate above and below said opening, a slide-plate mounted in said guides above said opening, a slide-plate mounted in said guides below said opening, a scraping-bar carried by the lower end of the upper slide-plate for engaging the upper surface of the bar or billet to be operated upon, a scraping-bar carried by the upper end of the lower slide-plate for engaging the under side of the bar or billet to be operated upon, and means for applying spring-pressure independently to each of said slide-plates, substantially as set forth.

6. In a scraping device for use in rolling-mills, the combination of a bed plate or plates, a vertical plate secured to the same and having an opening therein through which is passed the bar or billet which is to be operated upon, guides carried by said vertical plate above and below said opening, a slide-plate in said guides above said opening, a slide-plate in said guides below said opening, a scraping-bar removably secured to the lower end of the upper slide-plate for engaging the upper surface of the bar or billet to be operated upon, a scraping-bar removably secured to the upper end of the lower slide-plate for engaging the under surface of the bar or billet to be operated upon, and means for applying spring-pressure independently to each of said slide-plates, substantially as set forth.

7. In a scraping device for use in rolling-mills, the combination of a bed plate or plates, a vertical plate carried by the same and having an opening therein for the reception of the slab or plate in the process of rolling, guides carried by said vertical plate, two slide-plates working in said guides, two scraping-bars carried by said slide-plates adjacent to said opening, a cross-head carried by each slide-plate, a guide-bar at each end of each cross-head engaging a lug carried by the bed plate or plates, a spiral spring surrounding each guide-bar, and means for simultaneously separating the scraping-bars, substantially as set forth.

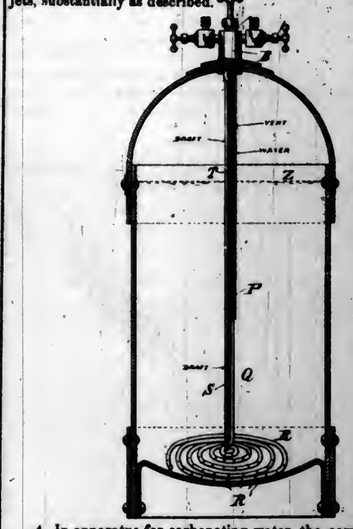
8. In a scraping device for use in rolling-mills, the combination of a bed plate or plates, a vertical plate carried by the same and having an opening therein for the reception of the slab or plate in the process of rolling, guides carried by said vertical plate, two slide-plates working in said guides, two scraping-bars carried by said slide-plates adjacent to said opening, a cross-head carried by each slide-plate, a guide-bar at each end of each cross-head engaging a lug carried by the bed plate or plates, a spiral spring surrounding each guide-bar, and means for simultaneously separating the scraping-bar comprising two bell-crank levers pivoted at their upper ends to one of said cross-heads, a link connecting the ends of the other cross-head with the angle of said lever, and a handle connected to the free legs of said bell-crank levers, substantially as set forth.

589,371. APPARATUS FOR CARBONATING LIQUIDS. GARRET D. REINHART, New York, N. Y. Filed June 22, 1896. Serial No. 596,380. (No model.)

Claim.—1. In a fountain or tank for carbonated water, a bung provided with a channel for the gas, a channel for the water, and a channel for the exit of the charged water, valves controlling the three channels, in combination with an automatic vent adapted to be operated by a suitable valve, substantially as described.

2. In apparatus for carbonating water, the combination with a fountain or tank, of a bung or casing provided with a channel for the gas, a channel for the water, and a channel for the exit of the charged water, a controlling-valve for each of said channels, a pipe connected with the gas-channel and extending into the tank, pipes connecting with the water and exit channels and also extending into the tank, and means connecting with the gas-pipe for discharging the gas into the water in the form of jets, substantially as described.

3. In apparatus for carbonating water, the combination with a fountain or tank, of a bung or casing provided with a channel for the gas, a channel for the water, a channel for the exit of the charged water, and a vent-channel, a controlling-valve for each of said channels, a pipe connecting with the said gas-channel and extending into the tank, pipes connecting with the water, the exit, and vent channels, and also extending into the tank, and means connecting with the gas-pipe for discharging the gas into the water in the form of jets, substantially as described.



4. In apparatus for carbonating water, the combination with a fountain or tank, of a bung or casing provided with four channels three of which run vertically to near the top of the bung, and thence horizontally to three sides of the bung, and the fourth channel running through the bung at the top, extensions at the three sides of the bung forming continuations of the said three channels, and each extension having a nipple for a pipe connection, a valve controlling each of said channels, a water-pipe, a gas-pipe, and an exit and a vent pipe, and means connecting with the gas-pipe for discharging the gas into the water in the form of jets, substantially as described.

5. In apparatus for carbonating water, the combination with a fountain or tank, of a bung or casing provided with a channel for the gas, a channel for the water, and a channel for the exit of the charged water, a valve controlling each of said channels, a pipe connecting with the gas-channel and extending into the tank, pipes connecting with the water and exit channels, and also extending into the tank, and a coil connecting with the gas-pipe and having a series of perforations, substantially as described.

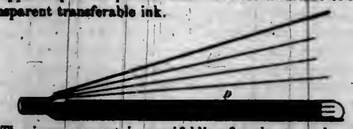
6. In apparatus for carbonating water, the combination with a fountain or tank, of a bung or casing provided with a channel for the gas, a channel for the water, a channel for the exit of the charged water, and a vent-channel, a valve controlling each of said channels, a pipe connecting with the gas-channel and extending into the tank, pipes connecting with the water, the exit, and the vent channels, and also extending into the tank, and a coil connected to the gas-pipe and having a series of perforations substantially as described.

7. A plant or apparatus for the manufacture of carbonated water, comprising a draft apparatus, a gas and a water supply, two tanks or fountains, a bung or casing fitting in each tank and each provided with a channel for the gas, a channel for the water, a channel for the exit of the charged water, and a vent-channel, a valve controlling each of said channels, pipes or tubes leading from said channels into the tank, means connecting with the gas-pipe for discharging the gas into the water in the form of jets, pipe connections between the tanks and the gas and water-supplies, and similar connections between said tanks and the draft apparatus, substantially as described.

8. A fountain or tank for carbonated water having a bung provided with a channel for the gas, a tube leading from said channel to the bottom of the fountain, and being provided with a coil having a series of perforations; a channel in said bung for the admission of water, having a tube leading into the fountain; a draft-channel in said bung; a tube from said channel to the bottom of the fountain; a vent-channel in said bung having located therein a tube having a vent to the air, whereby when the water reaches the bottom of the tube, a portion thereof will be forced out of the fountain, all combined and adapted to operate in the manner and for the purposes set forth.

589,372. DUPLICATING PAD OR SHEET. HORACE P. BROWN, San Francisco, Cal. Filed Dec. 23, 1896. Serial No. 616,796. (No specimens.)

Claim.—1. The improvement in manifolding consisting of sheets having applied upon the printed backs thereof a surface of non-drying transparent transferable ink.

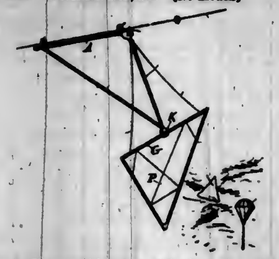


2. The improvement in manifolding for sheets, pads, or books consisting of sheets arranged in series having applied upon the printed backs thereof a surface of non-drying transparent transferable ink and a device for separating said sheets into groups of as many as the number of copies desired and preventing a further imprinting upon subsequent sheets.

3. The improvement in manifolding consisting of sheets bound together in series of as many as there are desired copies having imprinted upon the printed backs of those sheets from which copies are to be transferred, a non-drying transferable ink, perforations or means for separating the sheets from the binding being formed upon those sheets which are to be removed, and the final sheet of each group having its edge projecting beyond the previous one so as to separate the groups.

4. The improvement in manifolding-sheets bound into books consisting of a surface of non-drying transferable and transparent ink imprinted upon the printed backs of sheets through which the transfer is to be made, said sheets being bound in series of as many as there are copies required and with the front edge of the final sheet projecting slightly beyond the anterior ones to separate the groups, lines of perforations formed adjacent to the binding along those sheets which are to be removed from the book, and an impenetrable flap or surface loosely hinged to the front edge of the book and adapted to be folded between the series of sheets to prevent a transfer beyond the particular series required.

589,373. TRAVELER FOR KITE-STRINGS. ELMER POLAND and ROBERT H. PACKARD, Bloomington, Ill. Filed July 16, 1894. Renewed July 2, 1897. Serial No. 643,264. (No model.)



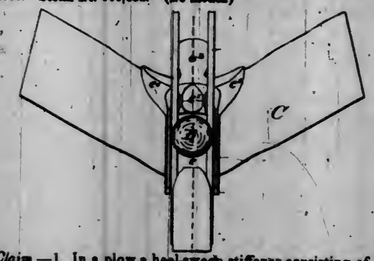
Claim.—1. The combination with the string of a kite of a traveler having a main frame suspended from said string, a displaceable sail-frame carried by the main frame and occupying a plane that is transverse to the general direction of the string, a catch holding the sail-frame in operative position with relation to the main frame, an unattached sail arranged against the rear side of the sail-frame, and a button secured to the string in the path of the catch for tripping it and releasing the sail-frame and permitting the wind-pressure to move the sail-frame out of normal position and dislodge the sail, substantially as set forth.

2. The combination with the string of a kite of a traveler having a main frame suspended from said string, a sail-frame having its lower side hinged to the lower side of the main frame and occupying a plane that is transverse to the general direction of the string, a catch for securing the sail-frame to the main frame, an unattached sail arranged against the rear side of the sail-frame, and a button secured to the string in the path of the catch and adapted to trip it whereby the wind-pressure upon the sail displaces the sail-frame and dislodges the sail, substantially as set forth.

3. The combination with the string of a kite, of a traveler having a main frame, pulleys journaled thereto and resting upon the string, a sail-frame, pivoted to the main frame, a catch for holding the sail-frame in operative position with relation to the main frame, an unattached sail arranged against the rear side of the sail-frame, and a button secured to the string in the path of the catch and adapted to trip it and thereby liberate the sail-frame and permit it to swing away from the main frame and release the sail, substantially as set forth.

4. The combination with the string of a kite of a traveler having a main frame suspended from said string and constructed of three strips united in the form of a triangle, the sail-frame being hinged at the center of one of its sides to the lower end of one of the sides of the main frame, a catch holding the sail-frame normally in a plane that is transverse to the general direction of the string, a sail carried by the sail-frame, and a button secured to the string in the path of the catch for tripping it and releasing the sail-frame, substantially as set forth.

589,374. PLOW. REUBEN JONES, Kirkwood, Ga. Filed Oct. 23, 1896. Serial No. 609,853. (No model.)



Claim.—1. In a plow a heel-sweep stiffener consisting of a plate adapted to fit the back side thereof at its middle and having lips adapted to project through the heel-bolt hole and be bent over against the face of the said heel-sweep, for the purpose specified.

2. In a plow, a heel-sweep stiffener consisting of a plate adapted to fit the middle portion thereof at its back side and having lips on its face provided with angular projecting sections on their free ends adapted to be passed through the heel-bolt hole and be bent down upon the face of said heel-sweep.

3. In a plow, a heel-sweep stiffener consisting of a plate adapted to fit the middle portion thereof at its back side and having inwardly-inclined lips on its face provided with angular projecting sections on their free ends adapted to be passed through the heel-bolt hole and be bent down upon the face of said heel-sweep.

4. In a plow, a heel-sweep stiffener consisting of a plate adapted to fit the back side thereof at its middle and having lips adapted to project through the heel-bolt hole and be bent over against the face of the said heel-sweep, and project above the face thereof above and below said heel-bolt hole, for the purpose specified.

5. In a plow, a heel-sweep and a plate adapted to be secured to the back side of the standard and having an inclined surface at the back side of its upper end and a roughened or dentated surface on the back side of its lower end, for the purpose specified.

6. In a plow, a heel-sweep and a slotted plate adapted to be secured to the back side of the standard, backwardly and upwardly extended arms on its upper end and a multiplicity of sweep-engaging abutments on its lower back surface, for the purpose specified.

589,375. CURTAIN-POLE RING. GEORGE R. STEINERT and FANNIE E. RABB, New York, N. Y. Filed Apr. 15, 1896. Serial No. 587,617. (No model.)



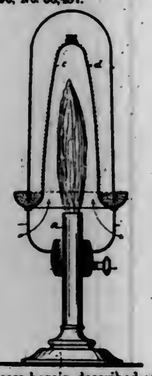
Claim.—1. An open ring for curtain-poles, the ends of the sections of which are cut away to form depending shoulders which are adapted to overlap each other, the cut-away portion being bent at right angles, and are pivotally connected to form a hinge for the sections, and a triangular fastening device connected with said depending shoulders or hangers, the ends of said sections having a transverse slot and a central projection respectively to detachably connect the free ends thereof of the ring, whereby the ring may be bent and secured upon a pole when the latter is in position, as herein set forth and described.

2. A ring for curtain-poles consisting of two interhinged sections, the free ends of which are provided with a transverse slot and a central upwardly-directed projection respectively, which projection is adapted to engage the slot in the end of the opposite section and a hanger connected with the hinge of said sections.

3. A ring for curtain-poles, consisting of two interhinged sections, the free end of one section being provided with a transverse slot, and the similar end of the other section having an upwardly-directed projection, adapted to enter said slot and detachably connect the sections, the hinged end of said sections being cut away and

a bent portion at right angles to form lugs which are connected by an eyelet to form a hinge and a hanger suspended from said eyelet.

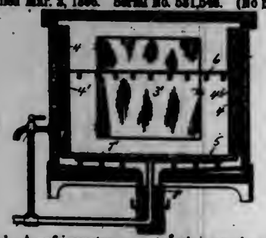
589,376. **MANUFACTURE OF MANTLES FOR INCANDESCENT GAS-LIGHTS.** KONRAD THORACH, Pankow, Germany, assignor to Max Arendt, Berlin, Germany. Filed Jan. 20, 1896. Renewed July 15, 1897. Serial No. 644,723. (No specimens.) Patented in England Jan. 12, 1896, No. 811; in Switzerland Mar. 22, 1896, No. 10,287, and in Germany Sept. 26, 1896, No. 88,437.



Claim.—1. The process herein described of making mantles for incandescent gas-lights, which consists in partly carbonizing a knit blank by subjecting it to dry distillation under exclusion of atmospheric air while holding it in distended form, then impregnating the partly-carbonized blank with a solution of the salts of the refractory earths, then drying the blank and lastly subjecting it to final carbonization in distended condition under exclusion of air, substantially as set forth.

2. A mold for carbonizing knit fabrics or blanks for the mantles of incandescent gas-lights, which consists of a heating-burner of tubular form corresponding to the shape of the mantle to be produced, said form being provided with an annular trough-shaped base, means for supporting said form above the burner, a cover or hood placed over the form, and means for sealing the lower edge of the cover or hood in the annular base of the form, substantially as set forth.

589,377. **WATER-COOLER FOR REFRIGERATORS.** FRANK H. TRUMBULL, Palmyra, N. Y., assignor of one-half to W. J. Hennessy, same place. Filed Mar. 2, 1896. Serial No. 581,546. (No model.)

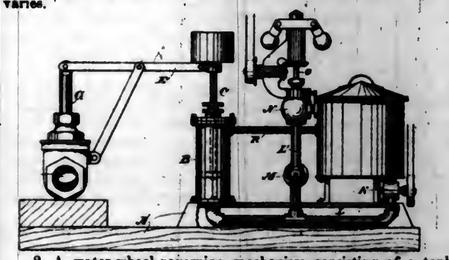


Claim.—1. A refrigerator, a water-pipe passing into the same through its drip-outlet, a sealing-cup surrounding the pipe adjacent the said outlet and filled with capillary material, and having capillary material connected to its exterior to conduct the drip along the pipe below the said sealing-cup, substantially as described.

2. A refrigerator, a water-pipe passing into the same through its drip-outlet, a sealing-cup surrounding the pipe adjacent the said outlet and filled with capillary material, and having capillary material connected to its exterior to conduct the drip along the pipe below the said sealing-cup, and a second cup connected to said inlet-pipe and provided with capillary material, substantially as described.

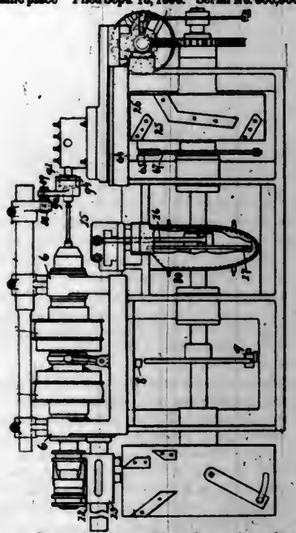
589,378. **GOVERNOR.** STEPHEN J. TUTTHILL, Oakland, Cal., assignor, by direct and mesne assignments, to the Tutthill Water Wheel Company, San Francisco, Cal. Filed Jan. 5, 1897. Serial No. 618,014. (No model.)

Claim.—1. A water-wheel-governing mechanism, consisting of means for increasing or decreasing the amount of water discharged upon the wheel, a cylinder with a reciprocating piston, and intermediate mechanism through which the movement of the piston actuates the water-supply device, a divided pipe, one branch of which connects with the bottom of the cylinder, and the other branch forms communication between the bottom and the top of a water-containing tank with a pump by which circulation therethrough is maintained, and valve mechanism in a branch of said circulating-pipe to increase or decrease the area of the discharge-passage, whereby the reduction of said passage forces a portion of the water into the cylinder to actuate the wheel-controlling mechanism, and a governor driven from the wheel-shaft, and connected with the valve in the circulating-pipe, to increase or decrease the flow therein as the speed of the wheel varies.



2. A water-wheel-governing mechanism consisting of a tank having one pipe connecting the lower part of the tank with a pump, and the other connecting with the upper part of the tank whereby constant circulation is effected, a valve interposed within the length of the pipe, a governor whereby said valve is opened or closed by the varying speed of the governor, a vertically-disposed cylinder having a piston and weighted piston-rod, a pipe connecting with the circulating-pipe of the tank, opening into the bottom of the cylinder whereby an increased speed will raise the piston and weight by surplus pressure of water, and a gate controlling the supply-pipe of the water-wheel, connected with the rising and falling weight so as to be closed or opened by its movements and a fulcrumed lever-arm connecting the stem of the gate with the piston-rod.

589,379. **AUTOMATIC SCREW-MACHINE.** GEORGE R. WITHERELL, Hartford, Conn., assignor to the Hartford Machine Screw Company, same place. Filed Sept. 18, 1896. Serial No. 606,208. (No model.)



Claim.—1. In combination with an intermittently-revolving turret, means for rotating the turret, an index-ring borne on the turret and having locking-sockets, a spring-actuated index-bolt adapted to engage said sockets, and automatic means independent of the spring for seating the bolt in a socket, all substantially as described.

2. In combination with an intermittently-revolving turret, means for rotating the turret, an index-ring borne on the turret and having locking-sockets, a spring-actuated index-bolt adapted to engage said sockets, and a locking-lever adapted to automatically engage the index-bolt to seat it in its socket, all substantially as described.

3. In combination with an intermittently-revolving turret, means for revolving the turret, a revoluble clamping-ring surrounding the

turret, a cam located on the flat surface of the ring and means for rotating the ring whereby the turret is locked or unlocked.

4. In combination with an intermittently-revolving turret, means for rotating the turret, a revoluble clamping-ring surrounding the turret, means for rotating said ring to lock or unlock the turret, and means for preventing the rotation of the turret whereby locking action of the ring is permitted.

5. In combination with an intermittently-revolving turret, means for revolving the turret, a revoluble clamping-ring surrounding the turret, a cam-surface on the ring, and means for rotating the ring to cause the cam-surface to operate to lock or unlock the turret, all substantially as described.

6 In combination with an intermittently-revolving turret, means for rotating the turret, a revoluble clamping-ring surrounding the turret, a cam-surface on the upper side of the ring adapted to engage the turret, and means for rotating the clamping-ring to exert pressure on the turret in a direction transversely to its plane of rotation, all substantially as described.

7. In combination with an intermittently-revolving turret, means for rotating the turret, a revoluble clamping-ring surrounding the turret, a cam-surface on the upper side of the ring adapted to engage the turret, means for preventing backward movement of the turret, and means for rotating the clamping-ring to exert pressure on the turret in a direction transversely to its plane of rotation, all substantially as described.

8. In combination with an intermittently-revolving turret, means for rotating the turret, means for holding it against rotation at intervals, a clamp adapted to exert pressure upon the turret in a direction transversely to its plane of rotation, and automatic means for operating the clamp.

9. In combination with an intermittently-revolving turret, means for revolving the turret, means for holding it against rotation, a clamping-ring surrounding the turret and adapted to exert pressure thereon in a direction transversely to its plane of rotation, and automatic means for operating the clamping-ring.

10. In combination with an intermittently-revolving turret, means for revolving the turret, means for holding it against rotation at intervals, a clamping-ring surrounding the turret, and means for rotating the ring whereby pressure is exerted thereon in a direction transversely to its plane of rotation, all substantially as described.

11. In combination with an intermittently-revolving turret, means for revolving the turret, locking-sockets in the edge of the turret, an index-bolt adapted to automatically engage the locking-sockets, a rotary clamping-ring, cam-surfaces located between the clamping-ring and adjacent surface, and means for rotating the ring to cause the cam-surfaces to cooperate in locking the turret, all substantially as described.

12. In combination with an intermittently-revolving turret, means for revolving the turret, a revoluble clamping-ring adapted in its rotation to lock or unlock the turret, and a clamping-bolt in engagement with a cam-slot in the clamping-ring, and the cam-slot located diagonally across the path of movement of the clamping-bolt, all substantially as described.

13. In combination with an intermittently-revolving turret, means for revolving the turret, a rotatable clamping-ring surrounding the turret and exerting clamping action without movement in an axial line, a sliding bolt in engagement with a cam-slot in the clamping-ring, and the cam-slot located diagonally across the path of movement of the sliding bolt, all substantially as described.

14. In combination with an intermittently-revolving turret, means for revolving the turret, locking-sockets in the turret, an index bolt adapted to engage said sockets in the turret, a rotatable clamping ring adapted to lock or unlock the turret in its rotation, and a clamping-bolt in engagement with the clamping-ring and with the index-bolt and adapted to be withdrawn by the movement of the latter, all substantially as described.

15. In combination with an intermittently-revolving turret, means for revolving the turret, locking-sockets borne on the turret, an index-bolt adapted to engage said sockets, a clamping-ring located on the turret, a bolt for operating the clamping-ring, and a single lever operating the index and clamping-ring bolts, all substantially as described.

16. In combination with an intermittently-revolving turret, means for revolving the turret, locking-sockets borne on the turret, a spring-actuated index-bolt adapted to engage said sockets, a locking lever adapted to automatically engage the index-bolt to seat it in its socket, and a rotatable clamping-ring having a cam-surface cooperating with a cam-surface on the turret and adapted to be operated after the seating of the index-bolt, all substantially as described.

17. In combination with an intermittently-revolving turret, means for revolving the turret, locking-sockets borne on the turret, a spring-actuated index-bolt adapted to engage said sockets, a locking-lever adapted to seat the index-bolt in said socket and to rotate a clamping-ring, and the rotatable clamping-ring adapted in its rotation to clamp the turret, all substantially as described.

18. In combination with an intermittently-revolving turret having locking-sockets, means for revolving the turret, an index-bolt adapted to enter the sockets located in the turret, a rotatable clamping-ring, and a lever bearing a spring-seated plunger adapted to engage the index-bolt and also operating the clamping-ring.

19. In combination with an intermittently-revolving turret, means for revolving the turret, an index-bolt adapted to engage locking-sockets located in the turret and having a pin projecting through a slot in a clamping-ring bolt, the clamping-ring bolt for operating a clamping-ring, the rotatable clamping-ring adapted to lock the turret, and means for operating the clamping-ring and index bolts, all substantially as described.

20. In combination with a sliding carriage, means for moving the carriage, a sliding bolt borne on the carriage, a pivoted lever bearing a rotary head, means for operating the lever, and a plunger located in the rotary head and adapted to operate the sliding bolt, all substantially as described.

21. In combination, a base, a pivoted lever borne on the base, a rotary head mounted on the lever, a plunger located in the head, a sliding carriage, a revoluble turret mounted on the carriage, locking-sockets located in the carriage, an index-bolt adapted to engage said sockets and operated by the plunger on the swinging head, a clamping-ring borne on the turret and adapted to be operated by the pivoted lever, all substantially as described.

22. In combination with a revolving turret, means for revolving the turret, a clamping-ring borne on the turret, a cam-surface on the turret, and a cam located in a socket in the clamping-ring, all substantially as described.

23. In combination with a sliding carriage having a turret-socket, means for sliding the carriage, a revoluble turret located in the turret-socket, a clamping-ring mounted on the sliding carriage, and means for rotating the ring to clamp the turret in its socket and without movement of the ring in an axial line, all substantially as described.

24. In combination with a sliding carriage, means for reciprocating the carriage, a revolving turret mounted on the carriage, means for revolving the turret, locking-sockets located in the turret, an index-bolt adapted to engage said sockets, a revoluble clamping-ring mounted on the carriage and a clamping-ring bolt for operating the clamping-ring, all substantially as described.

25. In combination with a sliding carriage, means for reciprocating the carriage, a revolving turret mounted on the carriage, means for revolving the turret, an index-bolt borne on the carriage and engaging sockets in the turret, the sockets located in the turret, a clamping-ring bolt borne on the carriage and operatively connected with the index-bolt, and a clamping-ring mounted on the carriage and operatively connected with the clamping-ring bolt, all substantially as described.

26. In combination with a sliding carriage having a turret-socket with a broadened base, a revolving turret located in the socket, means for revolving the turret, an index-ring secured to the turret, an index-bolt adapted to engage sockets in the index-ring, a clamping-ring cover secured to the carriage and overlying the turret, a rotatable clamping-ring located in said cover and having a cam-surface acting on the turret, a cam-slot in the clamping-ring extending diagonally across the path of movement of a clamping-ring bolt, a sliding clamping-ring bolt mounted on the carriage, and means for operating the clamping-ring bolt, all substantially as described.

27. In combination with a work-holding clamp, a tool-holding arm overlying the clamp, a reciprocating support and a plural number of interengaging projections and recesses located on the arm and support, all substantially as described.

28. In combination with a work-holding clamp, a tool-holding arm overlying the clamp, a reciprocating support, and a plural number of projections having parallel axial lines, and corresponding recesses located on the arm and support, all substantially as described.

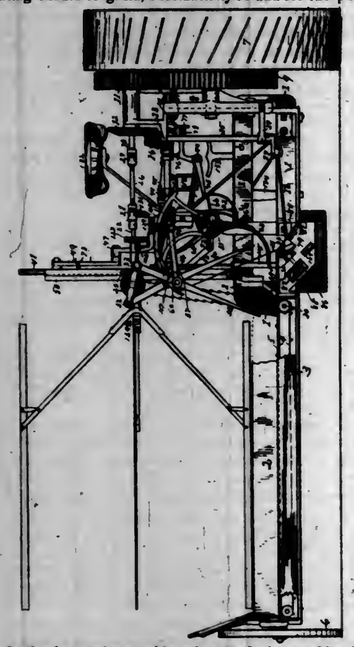
29. In combination with an intermittently-revolving turret, means for revolving the turret, a flange located on the turret, a clamping-ring interposed between said flange and a part overlying the flange, and means for rotating the clamping-ring.

30. In combination with an intermittently-revolving turret, means for revolving the turret, a revoluble clamping-ring supported in operative relation to the turret, a cam-surface on the ring, and means for rotating the ring to cause the cam-surface to operate to lock or unlock the turret.

589,380. **GRAIN-HARVESTING MACHINE.** CALVIN P. ALLEN, Cambridge, Kans., assignor of one-half to John H. Pasel, Wichita, Kans. Filed Aug. 3, 1892. Serial No. 441,917. (No model.)

Claim.—1. In the harvesting-machine described, the combination with the binder drive-shaft thereof provided with a driven clutch-head sleeved thereon, with a corresponding clutch-head feathered

thereon; of the rock-shaft provided with a forked lever arranged to throw said feathered clutch-head into and out of gear with the sleeved clutch-head, and with an extending arm arranged resting upon and adapted to be operated, to rock the shaft, by an extending arm of the binder-cradle, and of the said binder-cradle adapted to be given movement to actuate said arms by means of the pressure of an accumulating bundle of grain, substantially as and for the purpose set forth.



2. In the harvesting-machine described, the combination with the binder drive-shaft provided with the crank; of the vertically-arranged reciprocating head, the connecting-rod, for connecting said crank and head, the oscillating arm provided with the laterally-extending and bent arm, the keeper fixed to said head for retaining and actuating said bent arm, the horizontal reciprocating rack and cam bars connected with and adapted to be actuated by said oscillating arm, the knife-arm carried by said cam-bar and the knotter-head and mechanism thereof, substantially as and for the purpose set forth.

3. In a grain-harvesting machine, in combination with the drive mechanism thereof, a grain-binder comprising a shaft provided with a clutch mechanism adapted to be thrown into gear to rotate said shaft, by the pressure of an accumulating bundle of grain, an interposed trip mechanism for actuating said clutch, a vertically-arranged reciprocating head, a crank and connecting-rod arranged connecting said shaft and head for imparting movement from said shaft to said head, of an oscillating needle-shaft connected with and adapted to be operated by said reciprocating head, a knotter-head provided with mechanism for holding the binder-twine and tying the binding-knot, a cam-bar and a rack-bar connected with and adapted to be reciprocated horizontally by said reciprocating head to actuate said twine-holding and knot-tying mechanism, a yielding cradle for holding an accumulating bundle of grain, packer-arms operated to deliver grain to and pack it against said cradle, and a needle for placing the binder-twine about the bundle and to the knotter mechanism, substantially as set forth.

4. In the grain-binder described, the combination with the knotter-head, and with the horizontally-arranged channeled cam-bar adapted to have a reciprocating movement imparted thereto, of the twine-holding device consisting of the stationary slotted plate provided with the extending horn, the spring-plate in the rear of said slotted plate, and the pivoted jaw provided with the extending arm and arranged to operate at the face of said slotted plate, and provided with the lever having the side extending stud arranged in the channel of and adapted to be actuated, to operate said jaw, by the movement of said cam-bar, in the manner substantially as and for the purpose set forth.

5. In the grain-binder described, the twine-holding device consisting of the combination with the cam-bar adapted to have a horizontal reciprocating movement imparted thereto, of the stationary slotted plate provided with the downwardly and outwardly extending horn; the spring-plate arranged at the back of, and bearing against said stationary plate, and of the pivoted jaw provided with the inclined side, with the guard-arm, with the twine-holding finger, and with the actuating-lever, substantially as set forth.

6. In the grain-binder described, the combination with the vertically-reciprocating head provided with the extending face stud or lug and with the hinged binder-cradle; of the lever arranged at one end connected with said cradle, and at its opposite end in the path of said head-stud, wherein a down movement of said head will cause said cradle to be raised, in the manner substantially as and for the purpose specified.

7. In the grain-binder described, the combination with the stationary latch-piece of the binder-cradle provided with the extending hook-arm adapted to register with said latch-piece, the pivoted lever arranged adjacent to said latch-piece, adapted to be operated to engage said cradle-arm and release it from said latch-piece, and the horizontally-arranged arm having the extending stud adapted, when reciprocated, to engage and operate said lever, in the manner substantially as set forth.

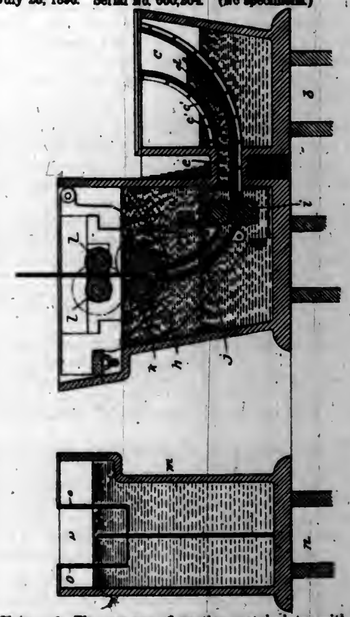
8. In the grain-binder described the combination with the binder-needle provided with the extending, yielding arm; of the hinged binder-cradle arranged to be held forward by said arm, when the needle is raised, in the manner substantially as and for the purpose set forth.

9. In the grain-binder described, the binder-needle and binder-cradle thereof respectively provided with the adjacent wings arranged extending from their hub portion to the junction of their face-curve, in the manner substantially as and for the purpose set forth.

10. In the grain-binder described, the combination with the vertically-reciprocating head 48, and the horizontally-reciprocating bars 87, and 105; of the oscillating arm 115, provided with the lateral extending and bent arm 116, and arranged pivoted at its swinging end with said bars, and of the keeper 117, of said head, arranged to hold said lateral arm from movement during certain partial reciprocations of said head, and to operate said arm to impart movement to said bars at other certain partial reciprocations of said head, in the manner substantially as and for the purpose set forth.

11. In the grain-binder described, in combination with the knotter-head and the knotter-hook and twine-holder thereof; the stationary guide-bar, 82, the pivoted twine-holding arm 114, the spring for holding said arm into position for service, and the reciprocating-bar-and-link connection for operating said arm, in the manner substantially as and for the purpose set forth.

589,381. METHOD OF COATING METALS. WILLIAM BANFIELD, Irondale, Ohio, assignor to Wallace Banfield & Co., Pittsburg, Pa. Filed July 23, 1896. Serial No. 600,204. (No specimens.)



Claim.—1. The process of coating metal plates with lead, consisting in giving the plates a preliminary coating of an alloy of lead and tin, immersing the plates thus coated in a bath of molten lead, and creating non-oxidizing fumes at the exposed surface of the molten lead, substantially as set forth.

2. The process of coating metal plates with lead, consisting in giving the plates a preliminary coating of an alloy of lead and tin, immersing the plates thus coated in a bath of molten lead, and generating oil fumes at the surface of the molten lead, substantially as set forth.

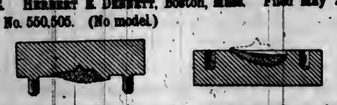
3. The process of coating metal plates with lead, consisting in giving the plates a preliminary coating of an alloy of lead and tin, applying oil to the coated surface of said plates, and immersing the plates in a bath of molten lead and withdrawing same, substantially as set forth.

589,382. MILK JAR AND TESTER COMBINED. LEWIS E. BROWN, Hartwell, Ohio, assignor to William Rodenbeck, Elmwood Place, Ohio. Filed Mar. 5, 1897. Serial No. 626,073. (No model.)



Claim.—A milk jar and tester comprising a glass receptacle inclosed in a metal jacket having a vertical slot, a self-adjusting jar-cover provided with a ventilating-tube, a spring-bail adapted to retain the cover in position when closed, and a graduated scale for indicating the quality or grade of milk or cream substantially as herein specified.

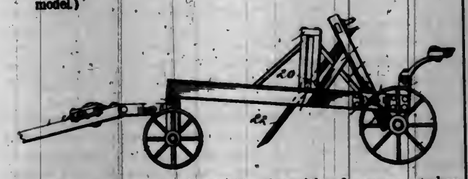
589,383. ARTIFICIAL TOOTH AND METHOD OF MAKING SAME. HERBERT E. DENNETT, Boston, Mass. Filed May 24, 1895. Serial No. 550,505. (No model.)



Claim.—1. An artificial tooth formed of a translucent body with a core tinted to represent the pulp.

2. The herein-described improvement in the art of producing artificial teeth which consists of placing plastic enamel material in a mold-box, covering it with plastic material to form the tooth-body, inserting a plastic mass to form the pulp, placing plastic tooth-body material in the other mold-box, molding the two masses thus formed together, and then baking and finishing them in the usual way.

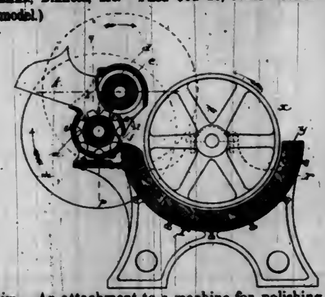
589,384. HAY-RAKE. ARTHUR FOURNIER, Irish Bend, La. Filed Nov. 16, 1896. Renewed Aug. 4, 1897. Serial No. 647,098. (No model.)



Claim.—1. In a rake, the combination with a frame mounted on wheels and having a seat at its rear end, a rake-head having stub-shafts journaled in the sides of the frame, and rake-teeth passing completely through said head and to equal distances on opposite sides thereof; of cleats on the sides of the frame, bolts passing through said cleats and into the frame, and a yoke whose cross-bar extends across the machine in front of the seat and is adapted to be engaged by one set of teeth and whose upright arms have sets of holes adjustably pivoted on said bolts, as and for the purpose set forth.

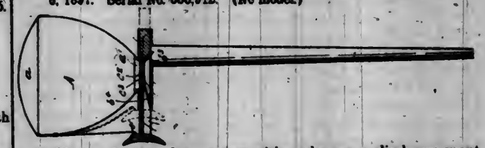
2. In a rake, the combination with a frame mounted on wheels and having a seat at its rear end, guides supported at opposite sides of the frame and having upright slots, and stops also carried by the frame; of a yoke whose cross-bar extends across the machine in front of said seat and whose upright arms are pivoted to the side-bars of the frame in rear of said stops, a rake-head having stub-shafts at its ends loosely mounted in said slots, and straight rake-teeth passing completely through said rake-head and extending an equal distance on opposite sides thereof, the rearmost set being adapted to strike under the cross-bar of the yoke when the latter rests with its arms against the stops, as and for the purpose set forth.

589,385. DEVICE FOR FEEDING BLANKS, &c. CHARLES C. FREEMAN, Dixfield, Me. Filed Oct. 26, 1891. Serial No. 409,776. (No model.)



Claim.—An attachment to a machine for polishing splints, consisting of the hopper, a curved inclosing frame, the roller *a*, provided with longitudinal and circumferential grooves, and which is journaled in the curved inclosing frame and has a motion toward the place where the blanks are delivered; the curved shield for preventing the splints from leaving the roller *a*, until the orifice *l* is reached; the fingers *f*, fastened at one end to the frame, and having their free ends in the circumferential grooves *c*; the roller *d*, placed immediately above the roller *a*, and provided with circumferential grooves *e*, and moving in the same direction as the roller *a*, and the spring-fingers *h*, attached at one end to the frame of the machine, and having their free ends in the grooves *e*; the curved inclosing frame being attached to the frame of the polishing mechanism, all combined substantially as shown.

589,386. HAND SEED-SOWER. GEORGE L. GERHARD, Reading, Pa., assignor of one-half to Charles J. Dwight, same place. Filed Apr. 6, 1897. Serial No. 630,912. (No model.)



Claim.—1. A seed-sower comprising a hopper, a discharge spout or tube, an intervening valve-casing having a raised valve-seat therein, and a reciprocating feed-valve riding above said raised seat and having a perforation to receive the seeds, which perforation is normally closed by said raised valve-seat, substantially as set forth.

2. A seed-sower comprising a hopper, a discharge spout or tube, an intervening valve-casing having a yielding valve-seat therein and a reciprocating feed-valve riding above said yielding seat, substantially as set forth.

3. A seed-sower comprising a hopper, a discharge spout or tube, an intervening valve-casing having a yielding valve-seat therein with downwardly-inclined end, and a reciprocating feed-valve riding above said yielding seat and having a recess to engage the same provided with a shoulder adapted to contact with the wedge-shaped end of the yielding valve-seat substantially as set forth.

4. In a seed-sower the combination with the hopper and discharge-spout, of an intervening valve-casing provided with a yielding valve-seat adapting the same for the reception of reciprocating valves of varying thickness substantially as and for the purpose set forth.

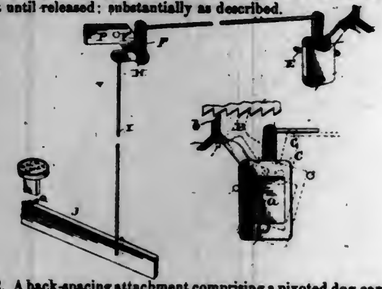
5. A hand seed-sower comprising a hopper forming a knob-like handle, a discharge-spout communicating therewith, and a feed-valve between the same provided with a spring adapted to normally close it against a stop and a button conveniently placed for the hand of the operator substantially as set forth.

6. A seed-sower comprising a hopper, a discharge spout or tube, an intervening valve-casing having a yielding valve-seat therein the intermediate portion of which is normally raised above the bottom of the casing and the front and rear thereof inclined downward, and a reciprocating feed-valve adapted to ride upon or forcibly depress said seat, substantially as set forth.

589,387. TYPE-WRITER. JUSTIN GILBERT, Victoria, Canada. Filed Jan. 24, 1895. Serial No. 536,112. (No model.)

Claim.—1. A back-spacing attachment comprising a pivoted dog-carrying plate, a dog having a tooth adapted to engage the rack-bar of a paper-carriage, and pivoted to the said dog-carrying plate, a stop limiting the rearward movement of the dog-carrying plate and means whereby the dog is actuated to first insert its tooth into a rack-bar space and then to move the carriage and to positively lock

the dog, dog-carrying plate and carriage together from further movement until released; substantially as described.



2. A back-spacing attachment comprising a pivoted dog-carrying plate, a dog having a tooth adapted to engage the rack-bar of a paper-carriage, and pivoted to the said dog-carrying plate, a stop limiting the rearward movement of the dog-carrying plate, a key-lever, and connections between the said dog and the said key-lever whereby the dog is actuated to first insert its tooth into a rack-bar space and then to move the carriage and to positively lock the dog, dog-carrying plate and carriage together from further movement until released; substantially as described.

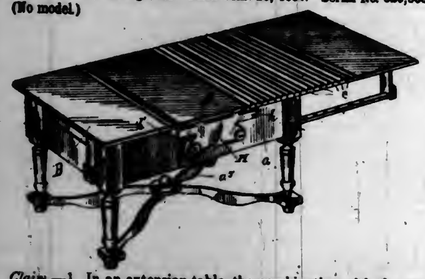
3. A back-spacing attachment comprising a pivoted dog-carrying plate, a dog having a tooth adapted to engage the rack-bar of a paper-carriage and pivoted to the said dog-carrying plate, a stop limiting the rearward movement of the dog-carrying plate, means whereby the dog is actuated to first insert its tooth into a rack-bar space and then to move the carriage and to positively lock the dog, dog-carrying plate and carriage together from further movement until released, a spring returning the dog-carrying plate and a stop limiting the forward movement of the dog-carrying plate; substantially as described.

4. A back-spacing attachment comprising a pivoted dog-carrying plate, a dog having a tooth adapted to engage the rack-bar of a paper-carriage and pivoted to the said dog-carrying plate, a stop limiting the rearward movement of the dog-carrying plate, a key-lever, connections between the said dog and the said key-lever whereby the dog is actuated to first insert its tooth into a rack-bar space and then to move the carriage and to positively lock the dog, dog-carrying plate and carriage together from further movement until released, a spring returning the dog-carrying plate, and a stop limiting the forward movement of the dog-carrying plate; substantially as described.

5. The back-spacing attachment comprising an approximately C-shaped and pivoted dog-carrying plate, having stops, an approximately L-shaped dog having a tooth and pivoted to the dog-carrying plate and working between the stops, means for swinging the dog and dog-carrying plate, and a spring for returning the dog-carrying plate; substantially as described.

6. A back-spacing attachment comprising a pivoted dog-carrying plate, a dog having a tooth adapted to engage the rack-bar of a paper-carriage and pivoted to the said dog-carrying plate, a stop limiting the rearward movement of the dog-carrying plate, a spring returning the dog-carrying plate, a stop limiting the forward movement of the dog-carrying plate, a bell-crank lever, a horizontal rod connecting the bell-crank lever to the dog, a key-lever and a vertical rod connecting the key-lever to the bell-crank lever; substantially as described.

589,888. EXTENSION-TABLE. DANIEL J. HAYNES and VALENTINE LAPHAM, Chicago, Ill. Filed Mar. 29, 1897. Serial No. 629,803. (No model.)



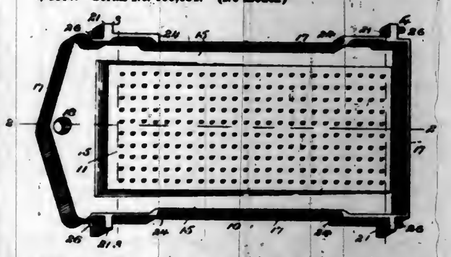
Claim.—1. In an extension-table, the combination with the supporting-frame and a fixed table-top portion mounted thereon, of an extensible roll-top portion, folding supports cooperating with said roll-top portion, an inflexible leaf portion secured to the outer end of the roll-top portion, a receiving-roll adapted to receive the roll-top portion as the latter is closed, a spring arranged to act upon said receiving-roll, guides arranged to maintain said inflexible leaf portion in the same plane with the fixed top portion and a latch adapted to lock the extensible part of the table in adjusted position.

2. In an extension-table, the combination with the supporting-frame embracing parallel side frame members arranged at a distance apart less than the width of the table, and a fixed table-top portion mounted upon said frame, of an extensible roll-top portion, recesses formed in said side frame members, a receiving-roll mounted in said recesses and adapted to receive the roll-top portion, guides for directing the roll-top portion into the same plane with the fixed table-top portion and folding supports cooperating with said roll-top portion.

3. In an extension-table, the combination with the supporting-frame embracing parallel side frame members arranged at a distance apart less than the width of the table, a fixed table-top portion mounted upon said frame, of an extensible roll-top portion, recesses formed in said side frame members, supporting-plates arranged to overlie said recesses, a receiving-roll mounted in said recesses, having bearing in said supporting-plates, and adapted to receive the roll-top portion, guides for directing the roll-top portion into the same plane with the fixed table-top portion and folding supports cooperating with said roll-top portion.

4. In an extension-table, the combination with the supporting-frame embracing parallel side frame members arranged at a distance apart less than the width of the table, a fixed table-top portion mounted upon said frame, of an extensible roll-top portion, recesses formed in said side frame members, supporting-plates arranged to overlie said recesses, a receiving-roll mounted in said recesses, having bearing in said supporting-plates and adapted to receive the roll-top portion, guides for directing the roll-top portion into the same plane with the fixed table-top portion and folding supports cooperating with said roll-top portion; the said supporting-plates being provided with extensions acting as guides to hold the folded roll-top portion in alinement with the fixed top portion.

589,889. OIL-PRESS BOX. JOSEPH H. HUSSELL, Dayton, Ohio, assignor to the Buckeye Iron and Brass Works, same place. Filed May 4, 1897. Serial No. 635,061. (No model.)



Claim.—1. An oil-press box having an elevated horizontal mat-bed with flanges depending from the sides of said mat-bed and forming a recess at its under side, the upper and under sides of said mat-bed being provided with spurs to hold a mat in place assisted by the said depending flanges, and drainage-gutters surrounding the elevated horizontal mat-bed and inclined from front to rear of the box, substantially as described.

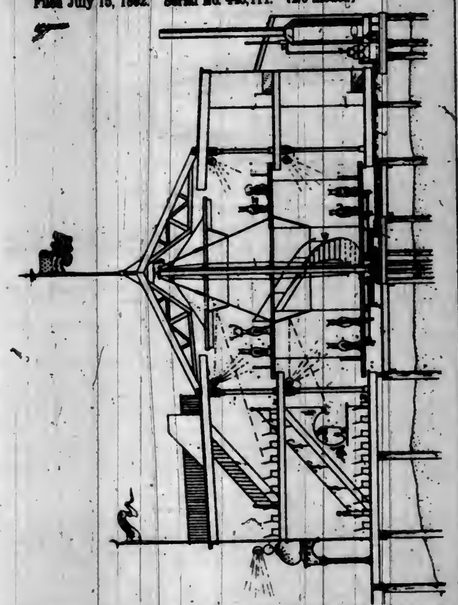
2. An oil-press box having drainage-gutters extended around its sides and inclined from front to rear of the box, and provided with a horizontal mat-bed elevated above said gutters and having spurs on its upper and under sides to engage a mat and hold the same in place, the under spurs being within a recess formed by flanges that depend from the edges of the elevated horizontal mat-bed and which form the inner side walls of the drainage-gutters and which are adapted to assist the under spurs in preventing side slip or spreading of a mat, substantially as described.

3. An oil-press box provided with drainage-gutters extended around the sides of the box and inclined from front to rear, an elevated horizontal mat-bed having triangular spurs on its upper and under sides to hold a mat in place, the under spurs being located in a recess formed by the inner side walls of the drainage-gutters, and jaws on the sides of the box to engage supports for guiding a series of boxes in a press, substantially as described.

4. An oil-press box having an elevated horizontal mat-bed formed with spurs on its upper and under sides to hold a mat in place, drainage-gutters surrounding said elevated mat-bed and having their inner side walls formed by flanges depending from the edges of the mat-bed and forming a recess in which the under spurs are located and countersunk outer side walls having jaws formed therein to engage supports for guiding the box, substantially as described.

5. The combination with a press-frame, of oil-boxes having countersunk sides provided with jaws 24 formed therein to engage supports for guiding the boxes and with legs 21 having pins 26 for attachment of connecting links, substantially as described.

589,890. CAROUSEL. RUDOLPH M. HUBNER, Philadelphia, Pa. Filed July 15, 1892. Serial No. 440,111. (No model.)



Claim.—1. In a carousel, the combination of the main structure having two stationary floors and a central pivot, with two pivoted platforms supported respectively at or about the level of the two floors and forming continuations thereof, power mechanism to revolve the two platforms, and a stairway or means of communication between the lower platform and the upper platform movable with the platforms, whereby the riders of the upper platform are hidden from view by the upper floor and said riders may dismount without descending to the lower floor.

2. In a carousel, the combination of the main structure having two stationary floors with two pivoted platforms supported respectively at or about the level of the two floors and forming continuations thereof, power mechanism to revolve the two platforms, moving figures upon at least one of said platforms, and power devices arranged close to the central axis for operating the said moving figures.

3. The combination of a structure or framing having two stationary floors and an opening between the floors of less diameter than the upper platform, two circular or polygonal pivoted platforms respectively arranged close to the floors and the upper one extending somewhat over the opening between the floors and provided with suitable supports for the riders, and power mechanism for rotating said pivoted platforms, whereby the riders upon the upper platform are hidden from the lower floor and may quickly dismount.

4. The combination of a structure having two floors the upper of which is formed with an opening, a central post pivoted in said structure and extending up through the opening and having a platform adapted to fill the opening in the upper floor and provided with supports for the riders, and power mechanism to rotate said central post and its platform.

5. The combination of a structure having two floors the upper of which is formed with an opening, a central post pivoted in said structure and extending up through the opening and having a platform adapted to fill the opening in the upper floor and provided with supports for the riders, a lower support for riders arranged near the lower floor and suspended from the upper platform, and power mechanism to rotate said central post and its platform.

6. The combination of two circular or polygonal platforms arranged at different levels, a pivoted support therefor, tie-rods for supporting the platforms from the pivoted support, power mechanism to revolve the platforms, and a framework provided with stationary floors substantially at the outer portions or perimeters and at the level of the two platforms and forming continuations thereof.

7. In a carousel, the combination of a stationary building or framework having an elevated floor with a large circular or approximately circular opening therein, a revolving pivoted platform suspended on or about the level of said elevated floor and adapted to be rotated about a vertical axis, and a lower platform suspended below the elevated platform by suspension devices and rotated therewith whereby the lower platform is at a considerably lower elevation than the upper platform and stationary floor.

8. The combination of a rotating platform provided with a series of animals or supports for the riders, suitable back-rests independent of the animals or supports substantially as set out arranged near the periphery and between the periphery of the platform and animals or supports for the riders to lean against when standing on the platform near and facing its periphery, and power mechanism for rotating the platform.

9. In a carousel, the combination of a lower stationary platform, an upper stationary platform having a circular opening of slightly less diameter than the diameter of the rotating platforms, two revolving platforms of substantially the same diameter one arranged above and close to each of the stationary platforms, tie-rods extending down from the upper revolving platform to the lower revolving platform to sustain it and moving within the space formed by the circular opening in the upper stationary platform, a central pivot at a higher elevation than both platforms, and tie-rods connecting the upper revolving platform with the central pivot.

10. The combination of a framework, a pivoted rotating platform having supports for the riders, power mechanism to rotate the said platform, a light, a reflector for said light, varied-colored screens or glasses sustained by the framework for changing the colors of the light and reflecting it upon the riders on the platform, and automatic devices controlled by the rotating platform or its power devices for changing the screens or glasses to project different-colored lights upon the riders while being carried around by the platform.

11. The combination of a frame, a pivoted rotating platform and supports for the riders pivoted in said frame, power mechanism for revolving the said platform, a series of lamps or lights R, a reflector *r* arranged upon the framework in a fixed position to reflect the light upon the riders while being moved by the platform, a movable frame inclosing the said lights and reflector, a series of different-colored glasses arranged about the periphery of said frame, and means controlled by the rotating platform to intermittently rotate the said frame and colored glasses so as to project upon the riders varied-colored beams of light.

12. The combination of a frame, a pivoted platform and supports for the riders pivoted in said frame, power mechanism for revolving the said platform, a series of lamps or lights R and a reflector *r* arranged upon the framework in a fixed position to reflect the light upon the riders on the platform, a movable frame inclosing the said lights and reflector, a series of different-colored glasses arranged about the periphery of same frame, and means consisting of lever and ratchet mechanism and a cam secured to the platform to intermittently move the said frame and colored glasses so as to project upon the riders varied-colored beams of light.

13. The combination of a frame, a pivoted platform having supports for riders, power mechanism for rotating said platform, mirrors supported above the riders toward the inner part of the platform, fixed devices for projecting varied-colored lights simultaneously upon said mirrors and riders carried by the platform whereby the revolving mirrors cause the said lights to be projected in all directions upon the riders and connecting devices whereby the devices for projecting varied-colored lights are operated from the same power mechanism which rotates the revolving mirrors and platform.

14. The combination of a frame, a pivoted platform having supports for riders, power mechanism for rotating said platform, mirrors supported above the riders and toward the inner part of the platform, fixed devices for projecting varied-colored lights simultaneously upon said mirrors and riders carried by the revolving platform whereby the revolving mirrors cause the said lights to be projected in all directions upon the riders, and means operated by the rotating platform or its power devices for automatically operating said varied-colored-light devices to change the colors of the lights with the travel of the platform in a predetermined manner.

15. The combination of a central post, a platform carried thereby, moving objects pivoted or supported thereon, power mechanism for rotating the said platform or post, and power devices for operating the objects extending from the said objects to or near the pivot-point of the post and platform, consisting of a shaft carried by the platform, a connection between the said shaft and the moving objects, a stationary part arranged adjacent to the pivot of the post, a moving connection between the said stationary part and the shaft, and clutch devices for holding the said stationary part stationary or permitting it to move with the platform as desired.

16. The combination of a revolving platform having a central pivot, power mechanism to revolve the platform, moving objects or supports for the riders, a shaft for operating the moving objects or

supports extending therefrom to or near the pivot of the platform, power devices arranged adjacent to the said pivot for operating the said shaft consisting of a stationary part in contact with which the end of the shaft or a part secured thereto is made to engage, whereby great speed may be obtained in the platform and the objects or supports be made to move with a minimum amount of friction, and means to hold the said stationary part against movement or permit it to be moved for the purpose of operating the animals or supports or permitting them to remain at rest.

17. A revolving platform, in combination with power mechanism to revolve it, movable supports for the riders carried upon said platform, and movable shafts arranged upon the under side of the platform and mechanically connected at one end with the movable supports for the riders so as to impart motion thereto and the other end with variable-power mechanism arranged adjacent to the pivot of the platform for putting the supports into or out of motion.

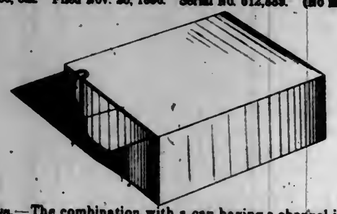
18. A revolving platform, in combination with power mechanism to revolve it, movable supports for the riders carried upon said platform, movable shafts arranged upon the under side of the platform and mechanically connected at one end with the movable supports for the riders so as to impart motion thereto and the other end with power mechanism arranged adjacent to the pivot of the platform consisting of a stationary gear-wheel and pinions arranged upon the end of the movable shafts, and hand-controlled devices for producing a variable motion by the gearing.

19. A revolving platform, in combination with power mechanism to revolve it, movable supports for the riders carried upon said platform, movable shafts arranged upon the under side of the platform and mechanically connected at one end with the movable supports for the riders so as to impart motion thereto and the other end with power mechanism arranged adjacent to the pivot of the platform consisting of a stationary gear-wheel and pinions arranged upon the end of the movable shafts, and means to hold the stationary gear-wheel in a fixed position or permit it to be carried around with the revolving platform.

20. The combination of a pivoted platform, a movable support for the rider arranged near its periphery, power mechanism to revolve the platform, a movable shaft carried by the platform upon its under side, a mechanical connection between the shaft and the movable support for the rider, power mechanism arranged near the pivot of the platform for operating the shaft, and means substantially as set out for throwing the power mechanism into or out of action independently of the power mechanism for rotating the platform.

21. In a carousel, the combination of a rotating platform, vertical suspending tie-rods therefor, a series of animals arranged upon the platform at a distance from the periphery, and a series of back-supports arranged upon the platform between the periphery thereof and the animals and formed of horizontal curved supports separated at intervals to form passages and arranged to correspond to the curve of the periphery of the platform.

589,891. COMBINED CUP AND CAN. CHARLES P. KERTELL, San Mateo, Cal. Filed Nov. 20, 1896. Serial No. 612,889. (No model.)



Claim.—The combination with a can having a channel in one of its sides and a port-hole at the deeper end of the channel, and a cup attached to the can over said channel and hole; of a flap-valve within the cup, and a stem on the valve having its outer end hook-shaped and adapted to be sprung over a fixed member, when the valve is closed, as and for the purpose set forth.

589,892. COMBINATION-KNIFE. ANTONIN R. KOLAR, Clinton, Iowa, assignor of one-third to Katherine A. Wills, same place. Filed Aug. 26, 1896. Serial No. 604,043. (No model.)

Claim.—1. In a combination-tool, the combination with a frame carrying a knife-blade and one jaw of a cutter, of another frame carrying a corkscrew, a pencil-sharpener and the other jaw of a cutter, a pivot-pin connecting said frames, a spring for holding said frames normally separated, a spring for holding the corkscrew in either its open or closed position, and a catch adapted to lock the two frames together and engaged by said latter spring to hold it in its adjusted position, substantially as described.

2. In a combination-tool, the combination with a frame carrying a knife-blade and a cutting-jaw, of another frame carrying a corkscrew, pencil-sharpener, and a cutting-jaw, and pivoted to the first-mentioned frame, a spring for keeping said frames normally separated, a spring for holding the corkscrew in either its open or closed position, securing-eyes formed on said frames respectively, and a pivot-catch adapted to pass through said eyes to secure the frames together, substantially as described.



589,893. GAS-INCANDESCENT. ROBERT MOSCHELES, Berlin, Germany, assignor to Louis H. Hall, Philadelphia, Pa. Filed Sept. 22, 1896. Serial No. 606,654. (No specimens.)

Claim.—1. The herein-described incandescent, containing calcium zirconate.

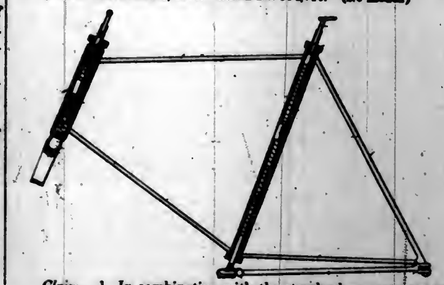
2. The herein-described incandescent, containing calcium zirconate used as a carrier of the light-producing bodies.

3. An incandescent for use in gas-lighting, consisting of calcium zirconate in combination with the oxids of the platinum metals.

4. An incandescent for gas-lighting, consisting of calcium zirconate in combination with oxygen-carriers like the oxids of chromium, manganese, vanadium, cerium, erbium, tungsten, &c.

5. An incandescent, consisting of the platinum metals, the oxygen-carriers like the oxids of chromium, manganese, &c., and calcium zirconate.

589,894. BICYCLE. GEORGE P. OHLGART, Baltimore, Md., assignor of two-thirds to Herbert R. Oliver and Clifton R. Krebs, same place. Filed June 8, 1896. Serial No. 594,719. (No model.)



Claim.—1. In combination with the standard or seat-post tube of a bicycle-frame, a seat, means for supporting the same, the crank-box, the pivoted reaches carrying the same, and the sliding connection between said reaches and seat-supporting means, substantially as described.

2. In combination with the hollow seat-standard of a bicycle-frame, a rod extending entirely therethrough, a seat carried on the upper end of said rod, means located in said tube for flexibly holding said rod therein, means for guiding said rod to prevent the lateral movement thereof, the reaches pivoted on the axle of the rear wheel, the crank-box carried thereby, and the sliding connection between said reaches and rod, substantially as described.

3. The combination with the hollow head of a bicycle-frame, the handle-bar elastically supported therein and the binding-screw for rigidly clamping said handle-bar against vertical movement, but permitting the free rotary movement thereof, substantially as described.

4. In combination with the hollow head of a bicycle having a slot therein of the fork having the sleeve extension extending therethrough with a slot coinciding with the slot in said head, the handle-bar, the tube carrying the same flexibly held in said sleeve, and the binding-screw extending through the slot in said sleeve into said tube, the said screw being adapted to be moved to cause the head thereof to bind against the edge of said slot and hold said tube rigidly, substantially as described.

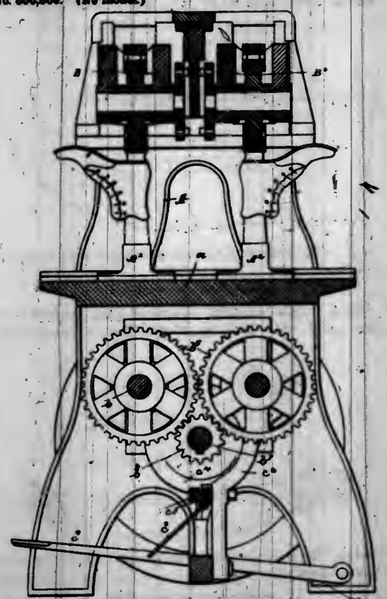
589,895. COMBINATION LACING HOOK AND EYELET. RUDOLPH C. PLEHN, St. Paul, Minn., assignor, by direct and mesne assignments, of five-eighths to De Witt C. Jones and Miles S. Chittenden, same place. Filed Dec. 1, 1896. Serial No. 614,050. (No model.)

Claim.—1. As an improved article of manufacture, a resilient spiral constituting an eyelet, with the end thereof closed upon the adjacent spiral to form a spring-closed lateral opening, and means for securing it upon the top of the fabric.



2. As an improved article of manufacture, an eyelet adapted to be superposed upon the fabric, and having a spring-closed lateral lacing-opening, and the plate upon the opposite face of the fabric secured to, and forming a support for, said eyelet.

589,896. HEEL-ATTACHING MACHINE. FREEBORN P. RAYMOND, 2d, Newton, Mass., assignor to James W. Brooks, Peterham, and John Brooks, Cambridge, Mass., trustees. Filed May 2, 1890. Serial No. 350,209. (No model.)

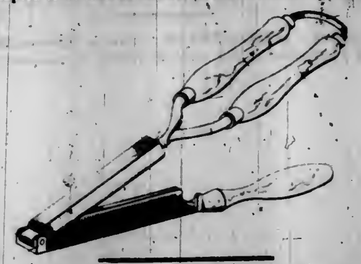


Claim.—1. The combination in a heel-attaching machine of two nailing-heads, a last or work-support for each head, a common motor-shaft, two independent or separate shafts each of which is connected with the motor-shaft by a separate or independent clutch independently-actuated mechanism connecting each nailing-head with its actuating-shaft comprising connecting-rods and cranks upon the shaft, as and for the purposes described.

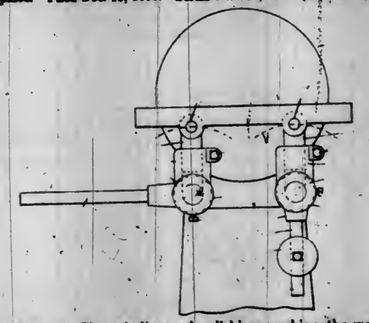
2. The combination of the frame of the machine having two fronts, the jacks A' A^2 mounted thereon back to back to face each front of the machine, the cross-heads B B', a rotary head carried by each cross-head, the crank-shaft b and connecting-rods b' b^2 connecting it with the head B, the crank-shaft b^3 and the connecting-rods b^4 connecting it with the head B', the gears b^5 on the crank-shafts, the power-shaft b^7, the pinion b^6 to mesh with the gears b^5, the said gears b^5 being loose upon their respective shafts, and each of them having a section of a clutch c and the movable section or member c' of a clutch upon each of the shafts b b^3, a spring for forcing each movable member of the clutch into engagement with the other member, and separate treadles, latches, and stopping-cams for each clutch, as and for the purposes described.

589,897. HAIR-STRAIGHTENER. ROBERT E. RHODES, Atlanta, Ga. Filed Nov. 28, 1896. Serial No. 613,812. (No model.)

Claim.—In a toilet article of the character described, the combination with a comb comprising the back having downwardly and laterally extended teeth, the said teeth having at the intersection of the vertical and lateral sections rounded ironing-surfaces to enable it to be rocked down upon and iron straight the hair, through which the comb has been drawn, of a sleeve pivoted at one end of the comb and adapted to be swung down in contact with the teeth, and a heating-iron adapted to be inserted in said sleeve, substantially as set forth.



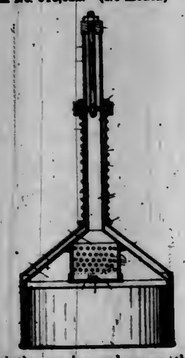
589,898. GRINDING AND POLISHING MACHINE. FRANK RUDOLPH, Chicago, Ill., assignor to himself and Louis C. Krummel, same place. Filed Dec. 19, 1896. Serial No. 616,299. (No model.)



Claim.—1. The grinding and polishing machine, the work-table whereof is mounted upon parallel swinging arms located one under each of its end portions, substantially as specified.

2. The grinding and polishing machine having a work-table mounted upon parallel swinging arms, such arms being pivoted at their upper ends to the table and at their lower ends to the frame of the machine, substantially as specified.

589,899. CLOTHES-POUNDER. WILLIAM P. RYLANDER, Temple, Tex., assignor to the Hot Air Washing Machine Co., same place. Filed Jan. 5, 1897. Serial No. 618,022. (No model.)

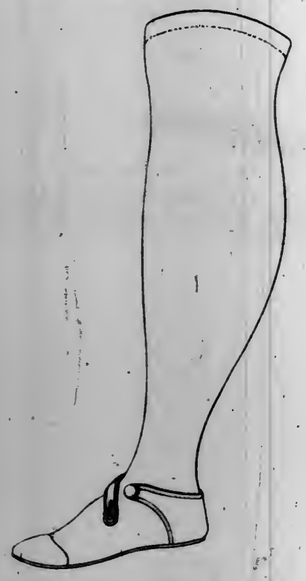


Claim.—1. In a clothes washer and soaper, the combination with the cylinder having a sleeve projecting from its top, of an open-bottom imperforate plunger having a tube projecting from its top through the sleeve, and provided with a handle, and a soap-receptacle having an imperforate top and bottom and depending from the inside top of the plunger, and provided with a series of side apertures.

2. The combination with a cylinder having a cone-shaped top, and a sleeve projection integral with the top, of an open-bottom imperforate plunger inclosed by the cylinder and having a cone-shaped top, and a tubular projection integral with the said top and projecting through the sleeve, and an operating-handle secured to the said tube and a soap-receptacle depending from the inside top of the plunger, and having a series of side apertures, and side pins, and a solid removable bottom provided with L-shaped slots, as set forth.

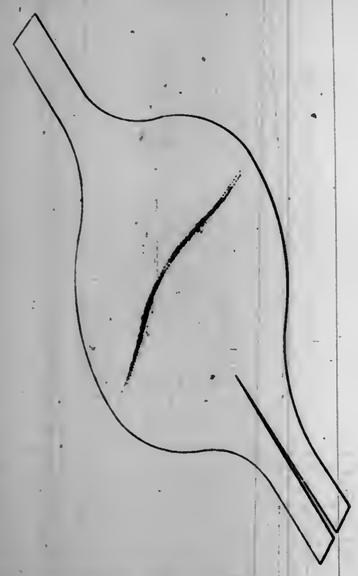
DESIGNS.

27,582. BATHING-STOCKING. EDWIN A. GUINZBURG, New York, N. Y. Filed Dec. 19, 1896. Serial No. 616,342. Term of patent 7 years.



Claim.—The design for bathing-stockings substantially as shown and described.

27,583. UNDERGARMENT-REINFORCE. MARIE STEINER, Milwaukee, Wis. Filed Apr. 29, 1897. Serial No. 634,481. Term of patent 14 years.



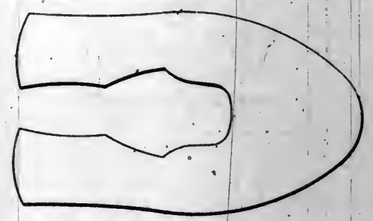
Claim.—The design for an undergarment-reinforce substantially as herein shown and described.

27,584. SUSPENDER-END. WILLIAM ROSENBERG, New York, N. Y. Filed July 10, 1897. Serial No. 644,142. Term of patent 7 years.



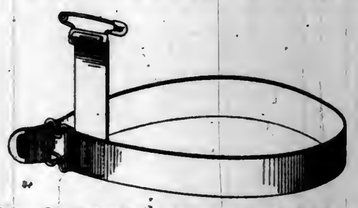
Claim.—The design for a suspender-end, substantially as shown and described.

27,585. SHOE-VAMP. EDWIN L. SPRAGUE, Boston, Mass. Filed Mar. 25, 1895. Serial No. 543,155. Term of patent 7 years.



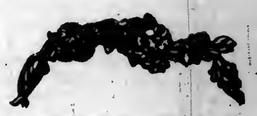
Claim.—The design for a shoe-vamp, substantially as herein shown and described.

27,586. SKIRT-HOLDER. ROBERT M. STRENDLER, New York, N. Y. Filed Apr. 24, 1897. Serial No. 633,802. Term of patent 7 years.



Claim.—The design for an elastic bicycle-skirt holder as herein shown and described.

27,587. SILVERSMITH'S STOCK. SETH WILLIAM RABBITT, Meriden, Conn. Filed July 22, 1897. Serial No. 645,598. Term of patent 7 years.



Claim.—The design for silversmiths' and britannia-workers' stock, substantially as shown and described.

27,588. HANDLE FOR KNIVES. WILLIAM C. CODMAN, Providence, R. I., assignor to the Greenleaf & Crosby Company, Jacksonville, Fla. Filed July 23, 1897. Serial No. 645,741. Term of patent 7 years.



Claim.—The design for a handle for knives and similar articles herein shown and described.

27,589. HANDLE FOR SPOONS, &c. ARTHUR G. ROGERS, Meriden, Conn., assignor to C. Rogers & Bros., same place. Filed July 20, 1897. Serial No. 645,267. Term of patent 7 years.



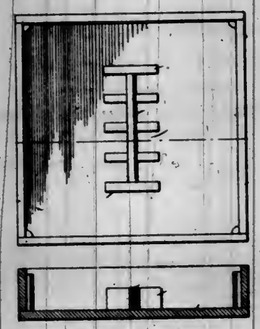
Claim.—The design for handles of spoons forks, &c., as herein described and shown in the accompanying illustration.

27,590. HANDLE FOR BUTTON-HOOKS. PHILIP H. LOSE, Newark, N. J. Filed July 15, 1897. Serial No. 644,735. Term of patent 7 years.



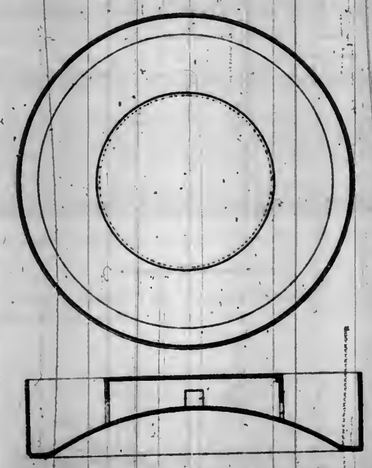
Claim.—The design for a handle for button-hooks, manicure articles, &c., substantially as shown and described.

27,591. GAME-BOARD. ROSWELL A. DANDARAW and GEORGE R. GORDON, Rensselaer, N. Y. Filed July 21, 1897. Serial No. 645,474. Term of patent 7 years.



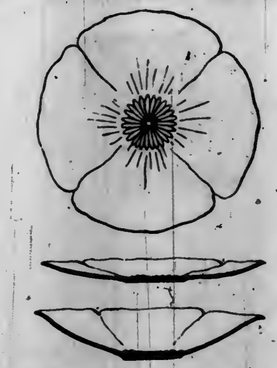
Claim.—The design for the game-board herein shown and described.

27,592. PUZZLE BOX OR CASE. GEORGE L. SMITH, Bayonne, N. J. Filed July 3, 1897. Serial No. 643,465. Term of patent 3½ years.



Claim.—The design for puzzle box or case herein shown and described.

27,593. DISH. CHARLES J. KING, San Francisco, Cal. Filed Oct. 17, 1896. Serial No. 609,249. Term of patent 7 years.



Claim.—The design for a dish as herein shown and described.

27,594. CLIP FOR COFFEE-POT STRAINERS. CHRIS F. DOWNEY, Waterbury, Conn. Filed July 13, 1897. Serial No. 644,451. Term of patent 14 years.



Claim.—The design for a wire clip for strainers for coffee-pots &c., substantially as shown and described.

27,595. BENT-WOOD CHAIR-SEAT. FRED A. DENNETT, Sheboygan, Wis. Filed May 15, 1897. Serial No. 636,796. Term of patent 14 years.



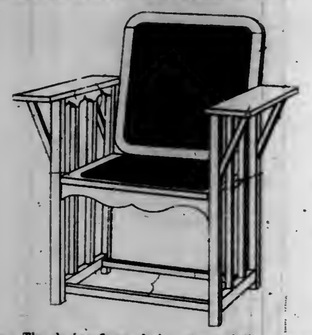
Claim.—The design for a bent-wood chair-seat, as herein shown and described.

27,596. CHAIR. DAVID W. KENDALL, Grand Rapids, Mich., assignor to the Phoenix Furniture Company, same place. Filed July 24, 1897. Serial No. 645,869. Term of patent 3½ years.



Claim.—The design for a chair substantially as shown and described.

27,597. CHAIR. DAVID W. KENDALL, Grand Rapids, Mich., assignor to the Phœnix Furniture Company, same place. Filed July 24, 1897. Serial No. 645,870. Term of patent 3½ years.



Claim.—The design for a chair, substantially as shown and described.

27,598. STOOL-LEG. JOHN R. AUFULDISH, Dayton, Ohio. Filed July 19, 1897. Serial No. 645,174. Term of patent 3½ years.



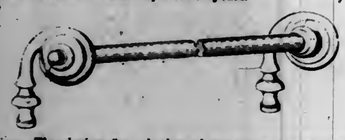
Claim.—The design for a stool-leg herein shown and described.

27,599. LEG FOR BATH-TUBS. CHARLES F. ARBOTT, Allegheny, Pa. Filed July 22, 1897. Serial No. 645,599. Term of patent 14 years.



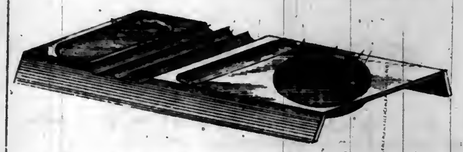
Claim.—The design for a leg or support as herein shown and described.

27,600. MOUNT FOR BEDSTEADS. WILLIAM K. PINE, Lockport, N. Y., assignor to Oliver Brothers, same place. Filed May 26, 1897. Serial No. 638,312. Term of patent 14 years.



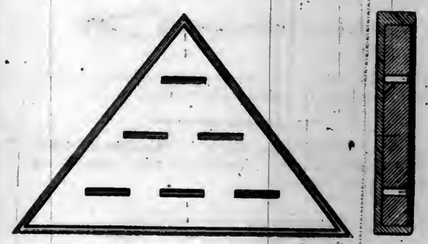
Claim.—The design for a bedstead mount or ornament, substantially as herein shown and described.

27,601. TRAY FOR CIGARS, &c. CHARLES H. HAHN, New Haven, Conn. Filed July 12, 1897. Serial No. 644,342. Term of patent 14 years.



Claim.—The design for a combination-tray as herein shown and described.

27,602. TRAY. LAZARUS WEIL, New York, N. Y. Filed May 7, 1897. Serial No. 635,599. Term of patent 3½ years.



Claim.—The design for a tray as herein shown and described.

27,603. DISPLAY-RACK. WILLIAM F. SCOTT, Alexandria, Ind. Filed July 15, 1897. Serial No. 644,733. Term of patent 3½ years.

Claim.—The design for a display-rack, herein shown and described.

27,604. DISPLAY-RACK. WILLIAM F. SCOTT, Alexandria, Ind. Filed July 15, 1897. Serial No. 644,734. Term of patent 3½ years.

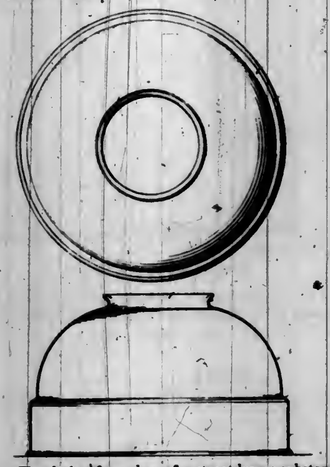


27,604.



Claim.—The design for a display-rack, herein shown and described.

27,605. DOME FOR STREET-LAMPS. DANIEL J. FRENDERGAST, New York, N. Y., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed July 23, 1897. Serial No. 645,738. Term of patent 14 years.



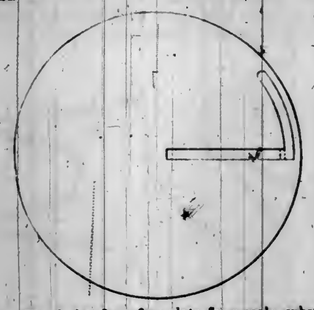
Claim.—The design for a dome for street-lamps substantially as herein shown and described.

27,606. HOT-AIR-REGISTER PLATE. FAY O. FARWELL, Dubuque, Iowa, assignor of one-half to the Adams Company, same place. Filed July 19, 1897. Serial No. 645,175. Term of patent 14 years.



Claim.—A design for hot-air-register plates, as described and shown in the drawing.

27,607. FACE-PLATE FOR SCALES. JOHN HENRY SWIHART, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed June 7, 1897. Serial No. 639,762. Term of patent 14 years.



Claim.—The design for a face-plate for a scale, substantially as herein shown and described.

27,608. WHIFFLETREE-HOOK. ALLEN LOGE CLARK, Jackson, Tenn. Filed June 9, 1897. Serial No. 640,077. Term of patent 14 years.



Claim.—A design for a whiffletree-hook, as shown and described.

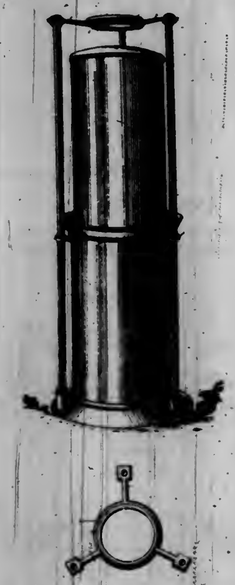
27,609. LOCK-CASING. WOODBURY D. ROBERTS, Centralia, Wash. Filed Apr. 6, 1897. Serial No. 631,035. Term of patent 3½ years.



Claim.—The design for a lock-casing substantially as shown and described.

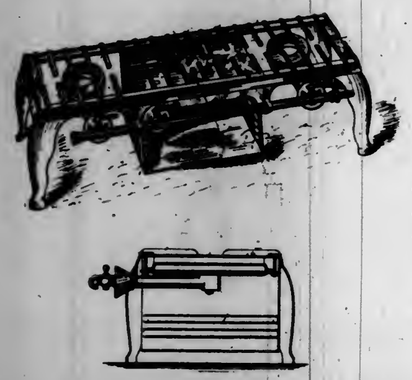
27,610. WITHDRAWN.

27,611. FRAME FOR GAS-METER PROVERS. JOHN H. MANSUR, Royersford, Pa., assignor to the Keystone Meter Company, of Pennsylvania. Filed July 14, 1897. Serial No. 644,579. Term of patent 7 years.



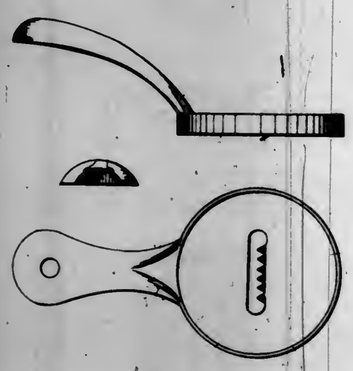
Claim.—The design for the frame of a gas-meter prover substantially as described and shown.

27,612. GAS-STOVE. LAZAR J. GRINBERG, New York, N. Y. Filed July 14, 1897. Serial No. 644,576. Term of patent 3½ years.



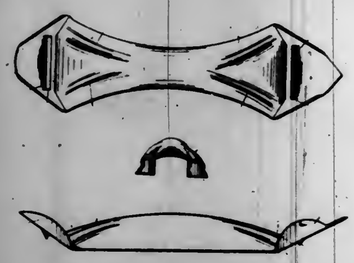
Claim.—The design for a gas-stove, substantially as herein shown and described.

27,613. ICE-SHREDDER. HENRY L. SCHWARZENBERG, Cleveland, Ohio. Filed June 26, 1897. Serial No. 642,543. Term of patent 3½ years.



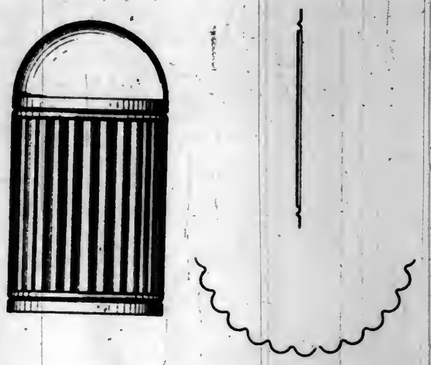
Claim.—The design for an ice-shredder substantially as herein shown and described.

27,614. KITCHEN UTENSIL. HENRY L. SCHWARZENBERG, Cleveland, Ohio. Filed June 26, 1897. Serial No. 642,547. Term of patent 3½ years.



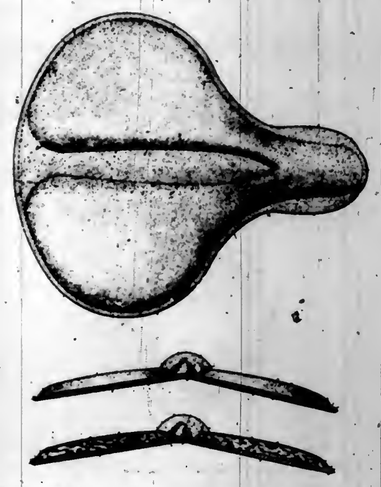
Claim.—The design for a kitchen utensil, substantially as herein shown and described.

27,615. OIL-CAN. CHARLES L. WAGANDT, Baltimore, Md. Filed Apr. 5, 1897. Serial No. 630,866. Term of patent 7 years.



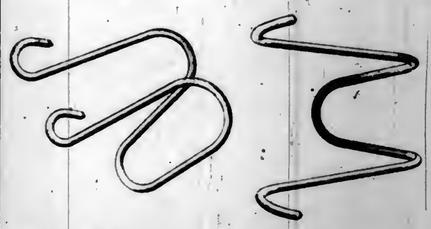
Claim.—The design for cylindrical vessels, substantially as herein shown and described.

27,616. SADDLE-SEAT. HENRY A. RUSCH, Newark, N. J., assignor of one-half to Nicholas Schroder, Brooklyn, N. Y. Filed July 21, 1897. Serial No. 645,472. Term of patent 7 years.



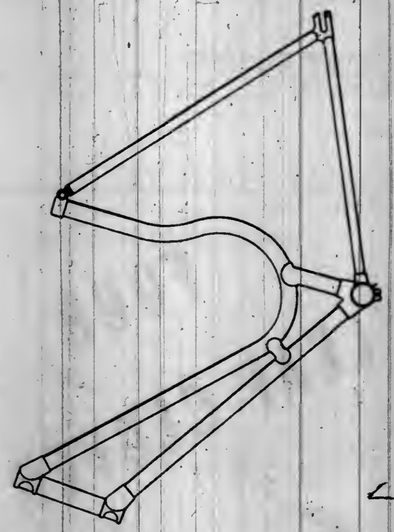
Claim.—The design for a saddle-seat, substantially as herein shown and described.

27,617. PARCEL-CARRIER. JOHN P. SMITH, New Haven, Conn., assignor of one-half to Edward F. Smith, same place. Filed July 14, 1897. Serial No. 644,577. Term of patent 3½ years.



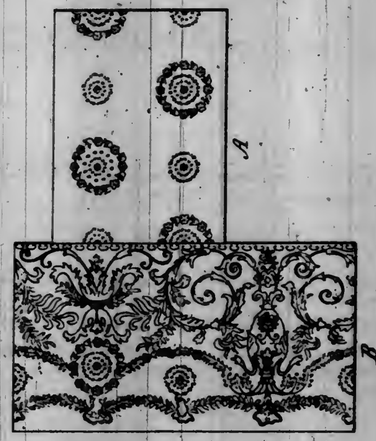
Claim.—The design for a parcel-carrier, substantially as shown and described.

27,618. BICYCLE-FRAME. JONAS M. ASHCRAFT, Boston, Mass. Filed Dec. 5, 1896. Serial No. 614,662. Term of patent 14 years.



Claim.—The design for a bicycle-frame herein shown and described.

27,619. CARPET. WILLIAM F. BROWN, Newark, N. J., assignor to the Bigelow Carpet Company, of Massachusetts. Filed July 14, 1897. Serial No. 644,575. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for a carpet comprising the body A and the border B, substantially as shown.

TRADE-MARKS

REGISTERED AUGUST 31, 1897.

30,527. LAGER-BEER. AKTIENBRAUEREI ZUR LÖWENBRÄU IN MÜNCHEN, Munich, Germany. Filed Feb. 24, 1897.

Löwenbräu · München

Essential feature.—The word "LÖWENBRÄU" in combination with the word "MÜNCHEN." Used since 1872.

30,528. LAGER-BEER. AKTIENBRAUEREI ZUR LÖWENBRÄU IN MÜNCHEN, Munich, Germany. Filed Feb. 24, 1897.

Löwenbräu

Essential feature.—The word "LÖWENBRÄU." Used since 1872.

30,529. CANNED FRUITS AND VEGETABLES. N. C. CUMMINGS & BRO., Portland, Me. Filed July 23, 1897.



Essential feature.—The word "SUNSHINE" with a pictorial representation of the sun, on the face of which are ears of corn with the husks partly open to give the appearance of eyes, nose, and mouth. Used since March 1, 1897.

30,530. BUTTER. ELGIN CREAMERY COMPANY, Chicago, Ill. Filed June 12, 1897.

30,580.



Essential feature.—A representation of a shamrock having four lobes with the words "FOUR LEAF CLOVER" upon the three upper lobes. Used since August 1, 1891.

30,581. CORN-FED STEERS. H. H. ANTHONY & Co., Fall River, Mass. Filed June 1, 1897.



Essential feature.—The words "BANQUET BEEF" and a representation of a steer. Used since January, 1897.

PHOTO-LITH. WASHINGTON D.C.
THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE MACMASTER.

Decided August 12, 1897.

1. REJECTION—REOPENING CASE—OLD RULE 65—AMENDMENT TO RULE.

Where the claims of an application were rejected under old Rule 65 and no action was taken until several months after the six months' limit of appeal under Rule 134, *Held* that as the rules had been amended to permit applicants two years within which to prosecute their cases no showing is required as to why amendment was not earlier presented.

2. RULES—RETROSPECTIVE EFFECT OF RULES CHANGING PROCEDURE—AMENDMENT TO APPLICATION.

It is a well-settled principle of law that alterations of procedure or practice are always retrospective unless there be some good reason against it. In this case it seems that justice and equity demand that the applicant should have two years from the last official action in which to prosecute his case.

ON petition.

PROCESS OF AND APPARATUS FOR SEPARATING PRECIOUS METALS FROM THEIR ORES.

Application of James R. Macmaster filed May 16, 1895, No. 549,465.

Messrs. C. A. Snow & Co. for the applicant.

BUTTERWORTH, *Commissioner:*

This is a petition taken from the action of the Primary Examiner refusing to admit an amendment filed within two years of the last rejection.

The facts in the case are that on June 21, 1895, the case was examined and the claims rejected. No response being received from the applicant to this rejection within six months, the case was reëxamined and on December 27, 1895, rejected under Rule 65 then in force. A limit of appeal of six months was set under Rule 134. No action was taken by the applicant until June 3, 1897, when he presented an amendment, which was refused entry by the Examiner on the ground that there was no excuse for the delay of five months after the expiration of the limit of appeal.

Prior to this last letter of the Examiner the Rules of Practice were amended and the "six-months rules" were abolished. By the new rules applicants were given two years from the last official action in which to prosecute their cases. The Examiner's sole ground for refusing this entry is that it is not seen—

that the new rules are intended to operate retrospectively to relieve applicant of the consequences of his own laches and disregard of the rules that, for the time being, have governed the Office.

With this ruling of the Examiner I do not agree. It is a well-settled principle of law that alterations in the procedure or practice are always retrospective unless there be some good reason against it. In this case it seems to me that justice and equity demand that the applicant should have two years from the last official action in which to prosecute his case.

The amendment presented June 3, 1897, may therefore be admitted, and the petition is granted.

EX PARTE ALTMANN.

Decided August 17, 1897.

APPLICATION—CHANGING AFTER SWORN TO—STRIKING FROM THE FILES.

Where it appeared that the sheets of the specification were removed from the cords or ribbons connecting the same to the other papers of the application, and over the ends of which the seal of an officer before whom the oath was taken was affixed, and another specification was substituted, *Held* that there was a violation of Rule 31 and an offense against the notice published in the OFFICIAL GAZETTE, Vol. 79, page 1369, and the application was ordered stricken from the files of the Office.

ORDER to show cause.

APPARATUS FOR BURNING HYDROCARBON OILS WITH BLUE FLAME.

Application filed July 22, 1897, No. 645,502.

Messrs. Goepel & Raegener for the applicant.

BUTTERWORTH, *Commissioner:*

On July 22, 1897, there was filed in this Office on behalf of Fritz Altmann papers which purported to be an application for a patent for apparatus for burning hydrocarbon oil. These papers received application serial number 645,502.

As the cords or ribbons over the ends of which the seal of the United States consul-general before whom the oath was taken was affixed and impressed did not pass through all the sheets of the specification, the following order to show cause why the application should not be stricken from the files of this Office was issued July 28, 1897:

It seems from the appearance of the papers that this cord was passed through all the sheets of the application as originally prepared and its ends brought together under the seal before the latter was affixed and impressed, in accordance with the instructions to the diplomatic and consular officers of the United States, issued by the Secretary of State on May 11, 1897, a copy of which was published in the OFFICIAL GAZETTE, June 1, 1897. (79 O. G., 1369.) This cord does not now pass through all the sheets of the application as filed. It appears that subsequently to the execution of these papers, the original papers to which you affixed your signature and which contained a description of the invention to which your oath applied were removed and other papers to which your signature and oath do not apply have been substituted.

You are required to show cause on or before August 7, 1897, why this application should not be stricken from the files as being an application altered after being signed and sworn to. See Rule 31 of the Rules of Practice approved June 18, 1897.

On July 30, 1897, the following reply was made to this order:

As under the rules no specification except in the English language is accepted, we believe that no harm was done in removing the same. The United States consul had accepted this German specification and attached the same to the papers by cord and eyelets.

In view thereof it seems to us that the proper way would be not to strike the application from the files, but to return the same to the applicant and call for a new oath, so that the United States consul be given a chance to attach the English application to the papers.

I do not consider this a sufficient and valid excuse for deliberately detaching papers from under the seal of an officer and substituting other papers in place thereof. When the papers as sworn to by the inventor were received by his attorneys and they knew that the papers were in such form that they did not comply with the Office requirements, it seems to me that what they should have done was to return them for proper correction. Instead of this they deliberately violated one of the rules of the Office, (Rule 31,) and they did this in the face of instructions to the diplomatic and consular officers of the United States respecting the execution of applications for United States patents by applicants residing abroad, due notice of which was given by publication in the OFFICIAL GAZETTE of this Office on June 1, 1897, and subsequently. Such violation of the rules and orders of this Office will not be tolerated.

It is directed that the application herein referred to be stricken from the files of this Office.

EX PARTE BEACH.

Decided July 19, 1897.

REJECTION — INOPERATIVENESS — OVERCOMING REJECTION BY WORKING MODEL—APPEAL TO EXAMINERS-IN-CHIEF.

A petition taken from the action of the Examiner rejecting claims on the ground of inoperativeness of the device and suggesting a model as a possible way in which the operativeness might be established, although the structure of the apparatus was understood, was dismissed, holding that, the claims being rejected, the applicant may either show to the Examiner that the apparatus is operative or appeal to the Examiners-in-Chief.

ON petition.

DINETICAL AEROSTAT OR PNEUMATIC SHIP.

Application of James W. Beach filed September 14, 1895, No. 562,546.

Mr. L. T. Michener for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition taken from the following requirement by the Examiner made in Office letter of November 9, 1895:

Before action can be had as to the claims applicant is required to furnish either a working model, *i. e.*, one capable of ascension and propulsion, or satisfactory evidence as to successful practical results obtained from a working model.

In the letter referred to it was stated that the Examiner held the device to be totally inoperative, and in Office letter of August 28, 1896, it was stated that a model was not required to enable the Office to understand the structure of the apparatus, and it was intimated that the reference to a model was not intended as an official requirement, but merely as a suggestion of a possible way in which the operativeness of the device might be established. In this letter the claims were rejected. The original letter left the matter entirely with the applicant and merely suggested the filing of a working model as one way in which to establish the practicability of the device. The contention by the applicant that such model could not be received in the case in view of the Examiner's statement that it was not necessary to understand the structure of the apparatus is clearly not sound, since Rule 59 expressly provides for working models to demonstrate the operation as well as the structure of an apparatus.

The applicant attacks the general proposition that the Office has the right to call for proof of the operativeness of an invention, it being held that the oath to the application establishes *prima facie* evidence that the device is operative. In most cases proof is unnecessary; but since operativeness is one of the necessary requisites to patentability it seems obvious that this question must be considered by the Examiner, and if from his knowledge of the subject he concludes that the invention is inoperative it is his duty to reject the claims for that reason. When claims are so rejected, the applicant may attempt to convince the Examiner that the device is operative either in the way suggested by him or otherwise, and if he fails his remedy is by appeal to the Examiners-in-Chief.

In the present case the claims have been rejected, and the applicant may either show to the Examiner that the device is operative by furnishing an operative model or otherwise or appeal to the Examiners-in-Chief. The applicant refers to a patent granted to Pennington, No. 571,737, during the pendency of this application and states that an interference should have been declared. He also objects to that patent being cited against the claims in this application: but it is noted that the application on which that patent issued was filed long before this application, and therefore it can properly be cited as a reference. (*Ex parte Eddleblute*, 52 O. G., 751.)

It is not necessary now to pass on the question of an interference, since the applicant's claims have not been decided to be patentable, and until such decision is reached no interference can be declared.

The petition is dismissed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

WALTER BAKER & COMPANY, LIMITED, *v.* SANDERS *et al.*

Decided May 26, 1897.

1. TRADE-MARK—"BAKER'S CHOCOLATE"—SAME NAME—DIFFERENT MANUFACTURERS.

Where by long use the words "Baker's Chocolate" have come to indicate to purchasers of ordinary intelligence complainant's goods, *Held* that a subsequent manufacturer should not be allowed to use his surname, Baker, whether his given name or initials are prefixed or not, so as to indicate upon labels or advertisements that the goods he sells are "Baker's chocolate."

2. SAME—USE OF ONE'S OWN NAME—DISTINGUISHING GOODS FROM OTHERS'.

A manufacturer entering into competition with another manufacturer of the same name who has an old and established business is bound to distinguish his goods from those of the latter, so as to prevent confusion in the mind of the purchaser as to what goods he is buying.

3. SAME—SAME—SAME.

The doctrine is well settled that equity will direct how a man shall use his name in his purpose to denote his own individuality. He will not be allowed to so use it as to work an injury to another having the same name, nor to perpetrate a fraud upon the public.

4. SAME—INFRINGEMENT—EFFECT OF DECREE IN ANOTHER CIRCUIT.

A decree of a circuit court in one circuit enjoining infringement and unfair competition is not conclusive in a suit by the same party in another circuit against an agent of the principal where such decree is merely interlocutory and still subject to the control or modification of the court.

5. SAME—SAME—SUIT AGAINST AGENT OF NON-RESIDENT—INJUNCTION.

The fact that defendant is selling alleged infringing goods as agent for a non-resident is no ground for refusing an injunction, though he may not be liable for profits which his principal takes, as injunction operates upon the individual, and in a proper case the individual will be restrained from manufacture, preparation, and sale which infringe upon another's rights, whether he be principal or merely agent.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

STATEMENT OF THE CASE.

This is an appeal from a decree of the Circuit Court for the Southern District of New York rendered in a suit brought by the proprietors of the original "Baker's Chocolate" to restrain unfair competition by defendants in the sale of a rival chocolate manufactured and put up in the city of New York in the name of W. H. Baker, of Winchester, Va. When the case was presented to the circuit court, it appeared that another suit had been brought against W. H. Baker himself in the Western District of Virginia wherein upon the same evidence an interlocutory decree had been entered against Baker. (77 Fed. Rep., 181.) The defendant Sanders is his chief salesman and manager of his business here. The other defendants, upon the employment either of W. H. Baker directly or of said Sanders, are concerned more or less with the manufacture and putting up of said chocolate. Some of the defendants submitted to a final decree in the form asked for by complainant, other defendants have obtained extensions of their time to plead, and this cause has been prosecuted to interlocutory decree only against the defendant Sanders.

The judge who heard this case in the circuit made a decree in substantial conformity with the decree in the Western District of Virginia. It enjoins the defendant Sanders, first, from using on labels, wrappers, bill-heads, advertisements, etc., the name "W. H. Baker & Co." and from using the words "& Company" or any abbreviation thereof following any form of the name of W. H. Baker, of Virginia; second, from using in like manner the words "Established in Mercantile Business, 1785" or any words calculated to lead dealers or consumers or the public to believe that such business (manufacturing and dealing in chocolate) carried on by said W. H. Baker has been long established or any words so nearly resembling the words "Established 1780," used by the complainant, as to be calculated to mislead; third, from using in connection with the business of making or selling chocolate, on labels, wrappers, cans, boxes, cakes, molds, signs, letter-heads, bill-heads, or advertisements or in any other manner whatsoever, the name "Baker's" alone, but is required to insert in lieu thereof the full name "W. H. Baker" or "W. H. Baker's" wherever the name "Baker's" now exists upon any such labels, cans, cakes, etc.; fourth, from using on or in connection with the sale of chocolate the label now used by respondent on plain chocolate, a sample of which is hereto annexed, (marked "Exhibit Defendant's Label No. 1,") and from using on or in connection with the sale of said Baker's plain chocolate any yellow label or any label of a color resembling yellow and from using on or in connection with the sale of said Baker's plain chocolate any label which in its lettering, arrangement, and design is not plainly distinguishable from that used by complainant; fifth, but the court refuses to enjoin the respondent from using the name "W. H. Baker" in connection with the manufacture or sale of chocolate and from using the blue wrapper upon said Baker's plain chocolate or making and selling cakes of plain chocolate of the shape and size and with the marks and lines thereon as at present used by him or from putting thereon the words "No. 1" and "Premium," as at present used by him, or from using molds of the shape, size, etc., in which the said chocolate is now made, and the court refuses to grant any injunction against the said defendant Sanders except as herein set forth and refuses any other relief than that by this decree granted or reserved.

The complainant appealed and now contends that this decree allowing (or rather requiring) defendant to mark and advertise his chocolate as "W. H. Baker's Chocolate" does not give it the full measure of relief to which it is entitled, in that it allows the chocolate sold by defendant to be designated in such a way that, although W. H. Baker's own name is used, it is so used as to cause his goods to be mistaken for complainant's and thus work a fraud upon the public. Defendant Sanders has not appealed.

Mr. Rowland Cox and *Mr. William Lowell Putnam* for the appellant.

Mr. Robert C. Barton and *Mr. John Vincent* for the appellees.

LACOMBE, *J.*, (after stating the facts as above:)

It is contended by respondent that both the circuit court and this court are concluded by the decree in the Virginia circuit, such decree being rendered in a suit between the same complainant and the principal or employer of defendant Sanders. The difficulty with this contention, however, is that the Virginia decree is interlocutory only. The whole matter is still open there, and when the case comes up on final hearing that court may enlarge or contract the measure of interlocutory injunctive relief, as the record then before it may warrant, without being in any way embarrassed by its prior decision. Certainly the defendant Sanders can be in no better position in some other circuit than his principal, W. H. Baker, will be in when his case comes before the Virginia court for further and final adjudication upon a record which contains evidence additional to that adduced in support of the interlocutory decree. Nor is the circumstance that Sanders is selling the alleged infringing packages as agent for a non-resident any ground for refusing injunction. He may not be liable for profits which his principal takes, but injunction operates upon the individual, and in a proper case the individual will be restrained from

manufacture, preparation, and sale which infringe upon another's rights, whether he be principal or merely employee.

The law of unfair competition is well settled. It is only the application of that law to individual cases which requires discussion, and quite frequently it becomes necessary to recite the facts at great length in order to demonstrate that there has been such unfair competition and to point out what precise measure of relief should, under well-settled principles, be accorded to the complainant. In the case at bar, however, it will not be necessary to rehearse all the salient points in the voluminous record now before the court. They have been most exhaustively presented and their bearing most carefully and elaborately discussed in the opinion of Judge Paul, rendered in the Virginia case above referred to, and which will be found reported in 77 Fed. Rep., 181. It would be a work of supererogation to undertake any restatement of them. Reference to that opinion will fully indicate the proofs upon which our conclusion is based. A brief synopsis, as near as may be in the language of Judge Paul, will be quite sufficient for the purposes of this opinion.

The complainant is engaged in the business of manufacturing chocolate, having succeeded to the business originally established about the year 1780 by one James Baker at Dorchester, Mass. The business has been extensive and successful, and its preparations have a high reputation in the markets of the United States. A large amount of money has been spent in advertising it. It is put up in the ordinary size and shape of chocolate-packages, wrapped in blue paper with a yellow label thereon. Upon the top and bottom of this yellow label is a scroll of intertwined leaves, and at each end a coat of arms surmounted by a flag, also surrounded by a scroll of intertwined leaves, bearing in the upper center the words "Baker's Chocolate," in large type, and the words "W. Baker & Co., Dorchester, Mass.," in small capitals, with a list of some other articles manufactured by the complainant. This blue wrapper and yellow label have been used by complainant and its predecessors for more than forty years.

Complainant's goods had become well known as "Baker's Chocolate," and the evidence from the trade shows that when "Baker's Chocolate" was called for it was understood to be Walter Baker's chocolate that was intended. The W. H. Baker (or defendant's) package, which is of the standard shape and size, was (until a modification was made after entry of the interlocutory degree in Virginia) also wrapped in blue paper with a yellow label having at its top and bottom a scroll of leaves and at each end a coat of arms partially surrounded by a scroll of leaves. At the top were the words "Established in Mercantile Business 1785." Below these words, in large type, were the words "W. H. Baker & Co.'s Chocolate," and under them, in smaller capitals, the words "Premium No. 1." Then, in smaller type, was given a description of the goods and directions for using, and finally at the foot, in small capitals, "W. H. Baker & Co., Winchester, Va."[1]

The wrapper was the same shade of blue as complainant's. The yellow label was a shade lighter than complainant's and of the same length and width. As is usual in such cases, the alleged infringer insists that he had no intention to dress up his goods to resemble complainant's; that, on the contrary, the very identity of the surnames, Baker, "made him all the more careful to avoid any confusion therefrom," and that in wrapping his goods he—

> has used every possible device to accentuate a difference by using a wholly different inscription—a design of marked dissimilarity; figures that have no possible likeness, and a *tout ensemble* that strikes the eye of the most casual observer.

His success in accentuating differences has certainly not been remarkable, and it is curious to note how frequently in cases of this kind the designer's efforts to produce wrappers, labels, and inscriptions which shall be distinctly characteristic of some new make of goods result only in producing confusion with some earlier and well-known brand. In the following excerpts from Judge Paul's opinion we fully concur:

> He has taken the testimony of a number of witnesses to prove his high character as a citizen and a business man. In the argument great stress is laid upon this testimony by respondent's counsel, as negativing the idea of a fraudulent purpose on the part of the respondent in dressing up his goods in imitation of the complainant's. The court cannot give to this evidence the weight to which counsel insist it is entitled. It must in this case, as in every case where intent is the subject of investigation, deduce the intent from the acts of respondent. * * * It is clearly apparent from the testimony of the respondent, and from other evidence in the cause, that in the arrangement between the respondent and Sanders respondent's name of "Baker" was to play a prominent part in the sale of his goods. When this testimony is taken in connection with the similarity in shape and size, * * * the identity in color of the blue wrappers, and the similarity of the yellow labels on each, it is impossible to escape the conclusion that it was the purpose of the respondent to put upon the market his goods in such condition and appearance that the same might be readily accepted as the goods of complainant. That such was the result the evidence abundantly shows. * * * The testimony of grocers and consumers * * * abundantly shows that great confusion exists in the trade and with the public between the goods of the complainant and those of the respondent, and that both the trade and the public were deceived into purchasing the goods of respondent when they thought they were getting those of complainant. * * * A careful consideration of the evidence, and an inspection of the packages, wrappers, labels, inscriptions, etc., of the goods of complainant and those of respondent, can lead the court to no other conclusion than that there was deliberate purpose to place the goods of the respondent upon the market in a guise resembling the complainant's goods as nearly as possible so as to avoid a direct imitation. * * * In the preparation of his goods the respondent has closely imitated the goods of the complainant in the most prominent characteristics in which they are presented to the public. In the plain chocolate the most striking of these prominent characteristics are the shape and size of the packages, the blue wrapper and the yellow label, * * * with the prominent words "Baker's Chocolate."

In all of this we fully concur, and it will not be necessary further to refer to some earmarks of intent to deceive, which Judge Paul points out, such as the use of the firm-name "W. H. Baker & Co.," when respondent had no partner, and the words "Established in Mercantile Business 1785," when respondent had commenced the chocolate business only in 1894. The conclusion of Judge Paul's opinion is expressed in these words:

> The respondent entering the chocolate-market under a firm-name so nearly resembling that of complainant, an old-established and well-known concern, did not make the effort incumbent on him to distinguish his goods from those of the complainant so as to prevent confusion. An inspection of the great number of cans, labels, inscriptions, designations, and characteristic marks of other dealers in chocolate, American and foreign, produced as evidence in this cause, shows that there is no difficulty in one dealer so preparing his goods as to distinguish them from those of another. With the widest field from which to select wrappers, labels, cans, inscriptions, words, phrases, and designations, the respondent has so nearly simulated in these respects the chocolate goods of the complainant as to lead dealers and customers to believe that they were buying the complainant's goods, when they were really getting those of the respondent. To prevent this confusion, and to protect the complainant and the public against this unfair competition and deception, an injunction will be entered restraining the respondent in the following particulars: from using in connection with his business as a maker and seller of chocolate * * * the words "& Co.;" the words "Established in Mercantile Business 1785;" from the use of the yellow label on his plain chocolate, and he will be required to substitute another and entirely different label therefor. * * * The court will not enjoin the respondent from using his name "Baker" in connection with the manufacture and sale of chocolate.

And an interlocutory decree was entered substantially as set forth in the statement of facts, *supra*.

The conclusions of the circuit court in Virginia are expressed with no uncertain sound. Unfair competition is found, is condemned, and its continuance enjoined. Preserving to the respondent the right to use his name, the court hedges that use about with safeguards calculated to prevent his so using it as to deceive the public. Most drastic provisions to this end are contained in the decree, such as the prohibition of the further use of the yellow label. It must surely have seemed to Judge Paul that when this opinion was filed and this decree entered complainant was fully protected against this unfair competition. Certainly it so seemed to this court upon the argument, and it was difficult at first to conceive what further relief than that embodied in the fourth paragraph of the decree, *supra*, could be asked for; but inspection of the new style of dressing the goods with the light-blue wrapper (shown in the sample attached to appellee's brief) and the ingenious announcement thereon, "Best Quality now with Blue Label," and the words "Baker's Chocolate" still the most prominent feature of the inscription, demonstrates how the letter of the Virginia decree may be followed and its spirit violated.[2] As was said in the quotation, *supra*:

> Complainant's goods had become well known as "Baker's Chocolate," and when "Baker's Chocolate" was called for it was understood to be Walter Baker's chocolate that was intended.

The public do not go into the minuter refinements of the title or the label. Whether it is described as "Walter Baker's Chocolate," or "William Baker's Chocolate," or "W. H. Baker's Chocolate," or "W. H. Baker's Best Chocolate," so long as the title contains the words which in trade and among consumers have come to be the every-day designation of complainant's goods the chocolate so labeled will naturally be assumed to be complainant's unless special care be taken to indicate that it is not. Of course it would be very easy under the Virginia decree to mark the goods "W. H. Baker's Chocolate" and still so dress them up that no one of ordinary intelligence would be deceived as to their identity; but that presupposes a *bona fide* effort to "accentuate differences," such an effort as was made by the designer of the package of "Barker's Chocolate," which is an exhibit in this case. No such effort has yet been made, and it is hardly to be expected that any such effort ever will be made. The complainant is entitled to relief against further use of a title which causes confusion, provided such relief can be granted without depriving W. H. Baker of the right to use his own name in connection with the chocolate business. The measure of such right is tersely expressed by Judge Paul:

> The doctrine is equally well settled that equity will direct how a man shall use his name in his purpose to denote his own individuality. He will not be allowed to so use his own name as to work an injury to another having the same name, nor to perpetrate a fraud on the public.

See also *Meyer* v. *Medicine Co.*, (7 C. C. A., 558; 58 Fed. Rep., 884;) *Landreth* v. *Landreth*, (22 Fed. Rep., 41;) *Pillsbury* v. *Flour Mills Co.*, (12 C. C. A., 432; 64 Fed. Rep., 841;) *Brinsmead* v. *Brinsmead*, (12 Times Law, 631; 13 Ad., 3, and [1897] 1 Ch., 46.) And this court had occasion to refer to the same doctrine in *Duryea* v. *Manufacturing Co.*, (Dec., 1896; 79 Fed. Rep., 651.) In that case the defendants placed their goods on the market in packages which prominently displayed the words "Laundry Starch Prepared by Duryea & Co.," and it was contended that the defendants' goods competed unfairly with the starch made by complainant's predecessors, and known as "Duryea's Starch." This court said:

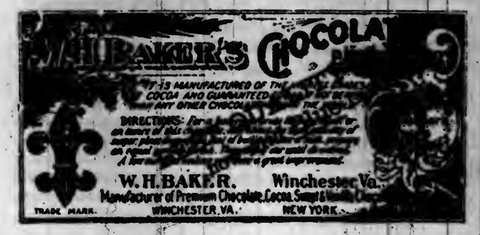
> It cannot be denied that by continuous and rightful use for forty years the name of "Duryea Starch" had become identified with its "source of manufacture," and that an attempt by persons of the name of Duryea, or of any other name, to put upon the market their own product under the name of "Duryea's Starch" could be suppressed. Inasmuch as defendants have not called their goods by this well-known name, etc., [injunction was refused.]

This principle of equity indicates quite clearly what relief may be appropriately accorded to complainant here. W. H. Baker's legitimate use of his own name is not interfered with so long as he is allowed to use it in connection with his chocolate goods, setting forth on labels or advertisements that the chocolate is "made by" or "for" or "prepared by" or "for" or "sold by" W. H. Baker, or even that it is made or prepared at W. H. Baker's factory; but he should not be allowed to use his surname, Baker, whether his given name or its initials are prefixed or not, so as to announce upon label or advertisement that the goods he sells are "Bakers' Chocolate."

[1] The following is a copy of the label of W. H. Baker to which this court here refers:



[2] The following is the label to which the court here refers:



The interlocutory decree of the Circuit Court for the Southern District of New York, now appealed from, is therefore affirmed in all respects, except as to the third paragraph, which should be modified so as to read:

3. From using in connection with the business of making or selling chocolate, on labels, wrappers, cans, boxes, cakes, molds, signs, letter-heads, bill-heads, or advertisements, or in any other manner whatsoever, the word "Baker," "Baker's," or "Bakers" alone, or the word "Bakers," "Bakers'," or "Baker's" (whether the same be or be not coupled with other names or initials) in such a collocation with the word "chocolate" (whether the same be or be not coupled with some further descriptive word or words) as to indicate that the chocolate so made or sold is a variety of "Baker's Chocolate." But defendant may indicate thereon in appropriate language that the chocolate is made or prepared or sold for or by W. H. Baker, of Winchester, Va.

Equally appropriate relief would be afforded to complainant by adopting the method used in the Brinsmead case, *supra*. And since it is urged that the expense of making a complete change in all the particulars above enumerated will be extremely heavy the mandate will, if defendant prefers, direct a modification of the interlocutory decree solely by requiring the affixing upon every package sold, in type as prominent as the title, of the statement that—

W. H. Baker is distinct from and has no connection with the old chocolate manufactory of Walter Baker & Company.

Unless defendant prefers this change the mandate will direct modification as above set forth.

The cause is remanded to the circuit court for further proceedings in accordance with this determination. Costs of this appeal to the appellant.

U. S. Circuit Court—District of Massachusetts.

GREEN *v.* CITY OF LYNN.

Decided April 28, 1897.

1. SUITS FOR INFRINGEMENT—JOINDER OF SUITS ON DIFFERENT PATENTS—RULES AS TO COSTS.
The joinder in one suit of claims for infringement of two patents relating to the same subject-matter is in the interest of the public as well as of private litigants and should not be discouraged by too stringent rules as to costs or otherwise.
2. SAME—SAME—APPORTIONMENT OF COSTS.
Where two patents relating to the same subject-matter were sued on in the same suit and a decree was entered for complainant on one of them and for defendant in respect to the other, the costs disbursed in regard to the patent adjudged against the complainant were not, under the circumstances, adjudged in favor of either party.

STATEMENT OF THE CASE.

This was a suit in equity by Nelson W. Green against the city of Lynn for alleged infringement of two patents. The cause was heard upon complainant's claim in respect to the taxation of costs.

Mr. Harvey N. Pratt for the complainant.

Messrs. Fish, Richardson & Storrow and *Mr. Guy Cunningham* for the defendant.

PUTNAM, *J.:*

The complainant brought a bill in equity for alleged infringements of two patents relating to the same subject-matter and therefore very properly included in the same suit. A consolidation of this character within reasonable limits is for the interest of the public as well as of private litigants and should not be discouraged by too stringent rules as to costs or otherwise.

One patent was sustained; but the other contained three claims, of which two were found invalid by reason of not covering a patentable invention, and the third was not infringed. The final decree, so far as this patent is concerned, was against the complainant. The complainant disbursed for the taking and printing of proofs with reference to the patent on which the judgment of the court was against him $544.50, and he now claims that this sum should be taxed in his costs against the respondent. That under circumstances of this character costs may be equitably apportioned is too well settled to require any special observations. Numerous cases illustrating the practical application of this equitable discretion in patent suits will be found in the notes to Robinson on Patents, section 1162. Some of the decisions there cited and elsewhere found seem to us too severe as against complainants, and, moreover, where the amounts are small or the issues much complicated there may not be sufficient involved or the apportionment may not be capable of being made with sufficient clearness to appeal to the equity powers of the court. Yet some practical method of preventing substantial injustice can always be found.

On the one hand, the advantages to come from the consolidation of several claims made in good faith, which we have already spoken of, and the analogy of the common law where a plaintiff who recovers only a portion of his demands is ordinarily entitled to all his costs are not to be overlooked, while, on the hand, the apparent injustice of saddling respondents with substantial costs of issues which are easily distinguished and severed and which they have successfully defended and the necessity of warning complainants in equity that considerable additions to the record which prove unnecessary may be at their own risk demand the exercise of a sound discretion with reference to questions like that now before us. We do not think that there are any such exigencies as require us to award the respondent costs on account of the issues raised with reference to the patent which was adjudged against the complainant; but the amount which the complainant claims in that behalf is so substantial and is so easily severable from the rest of the cause that we think it would be inequitable to allow it in his behalf under the circumstances of the case.

The respondent urges on us the statutory provisions with reference to costs in suits where claims are found invalid which have not been disclaimed; but as the complainant is entitled to recover costs generally these provisions do not apply, unless possibly by analogy. Our conclusion gives them full effect in that aspect.

It is ordered that the clerk disallow the amount of $544.50 claimed in complainant's bill of costs.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Payment of Fees.

(ORDER No. 1,147.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 3, 1897.

On and after September 15, 1897, fees intended for entry on the day of payment must be paid to the Financial Clerk before three o'clock p. m., in order that his accounts for the day may be balanced before the Office is closed.

BENJ. BUTTERWORTH,
Commissioner.

Amendment to the Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

Rule 17 of the Rules of Practice, approved June 18, 1897, is amended to read as follows:

17. An applicant or an assignee of the entire interest may prosecute his own case; but he is advised, unless familiar with such matters, to employ a competent attorney, as the value of patents depends largely upon the skilful preparation of the specification and claims. The Office cannot aid in the selection of an attorney.

A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

BENJ. BUTTERWORTH,
Commissioner.

Approved:
THOS. RYAN,
Acting Secretary of the Interior.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Issue of September 7, 1897.

Patents	404—No. 589,400 to No 589,803, inclusive.
Designs	16—No. 27,620 to No. 27,635, inclusive.
Trade-Marks	None.
Labels	None.
Prints	None.
Reissues	1—No. 11,628.
Total issue	421

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	5		New Hampshire	3	
Arizona Territory			New Jersey	11	
Arkansas	3		New Mexico Territ'y		
California	16		New York	81	
Colorado	1		North Carolina	2	
Connecticut	26		North Dakota	1	
Delaware			Ohio	20	
District of Columbia			Oklahoma Territory		
Florida			Oregon		
Georgia	2		Pennsylvania	41	
Idaho	1		Rhode Island	1	
Illinois	28		South Carolina		
Indian Territory			South Dakota	3	
Indiana	11		Tennessee	4	
Iowa	7		Texas	14	
Kansas	9		Utah	1	
Kentucky	4		Vermont	2	
Louisiana			Virginia	7	
Maine	3		Washington	2	
Maryland	10		West Virginia		
Massachusetts	37		Wisconsin	3	
Michigan	6		Wyoming		
Minnesota	6		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	9				
Montana	1		Total to citizens of the United States	306	
Nebraska	4				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary			Newfoundland		
Barbadoes			New South Wales	1	
Belgium			New Zealand		
Bermuda			Norway		
Brazil			Portugal		
Canada	3		Queensland		
Cape Colony			Roumania		
Chile, Republic of			Russia		
China			Scotland	1	
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Straits Settlements		
Egypt			Sweden		
England	10		Switzerland	1	
Finland			Victoria		
France	3		West Australia		
Germany	4				
Hawaii					
Ireland	1		Total to citizens of foreign countries	24	
Japan					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 31, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc.	July 31	Aug. 9	341
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	July 31	Aug. 6	135
	Between one and two months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 26	Aug. 14	107
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	July 1	Aug. 12	259
96	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 17	Aug. 10	239
215	XVII. Paper Manufactures and Printing.	July 6	Aug. 6	191
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 15	Aug. 5	224
248	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	July 21	Aug. 4	302
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	July 10	Aug. 3	207
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 1	Aug. 3	293
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	July 17	July 29	288
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 8	July 29	168
250	VIII. Furniture, Beds, Store Furniture, etc.	July 1	July 17	473
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 3	July 12	401
	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	June 1	Aug. 21	387
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 25	Aug. 16	239
102	XIX. Stoves and Furnaces	June 17	Aug. 11	316
255	XII. Mechanical Engineering, Store-Service, etc.	June 29	Aug. 9	216
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 28	Aug. 9	190
98	XXI. Textiles, etc	June 21	Aug. 6	167
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 21	Aug. 3	370
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 18	July 16	236
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 3	July 10	282
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 9	282
122	XXIV. Sewing Machines, Apparel, and Toilet.	June 1	July 8	231
240	VII. Velocipedes	June 4	July 1	1207
246	I. Tillage and Fences	June 22	June 28	346
221	XXIII. Instruments of Precision, Acoustics, etc.	June 10	June 28	326
	Between three and four months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 24	July 15	184
253	X. Carriages and Wagons	May 21	July 1	379
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	611
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 27	Aug. 10	414
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 13	July 17	890
	Total number of applications awaiting action			10,931
	Under one month in arrears.			
	Designs	Aug. 3	Aug. 18	167
	Between one and two months.			
	Trade-Marks	July 8	Aug. 6	241

PATENTS

GRANTED SEPTEMBER 7, 1897.

589,400. WAGON-WRENCH. ALFRED ALBRIGHT, Wells Bridge, N. Y. Filed Feb. 24, 1897. Serial No. 624,767. (No model.)



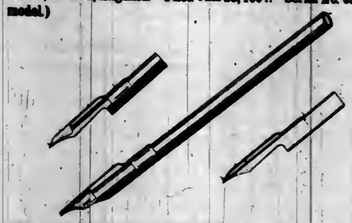
Claim.—1. A wrench adapted to fit within the band or flange of a wheel-hub and to contact with the inner surface thereof, said wrench being provided with an overhanging rigid arm adapted to lie outside of the hub, and a binding-screw carried by said arm, substantially as and for the purpose specified.

2. A wrench having a nut-engaging portion adapted to fit within the band or collar at the outer end of a wheel-hub, the said wrench being provided with an overhanging arm adapted to lie outside of said band or collar, a binding-screw carried by said arm, and a clamp connected to the end of said clamping-screw and adapted to engage the outer surface of said band or collar, substantially as described.

3. A wrench provided as to its nut-engaging portion with a rounded outer surface adapted to fit within the band or collar of a wheel-hub, said wrench being provided with an overhanging arm, a thumb-screw carried by said arm, and a clamp having a swivel connection with said screw and provided with a concaved surface conforming substantially to the exterior surface of said band or collar, substantially as described.

4. A wrench adapted to fit within the band or flange of a wheel-hub and to contact with the inner surface thereof, said wrench being provided with an elongated slot or bore for engaging the nut, and a clamp on said wrench adapted to bear against the outside of the hub or the band thereon, substantially as described.

589,401. RESERVOIR ATTACHMENT FOR PENS. MALCOLM A. ALVIS, London, England. Filed Jan. 23, 1897. Serial No. 620,406. (No model.)



Claim.—A reservoir attachment for pens comprising a split cylindrical attachment end, adapted to be fitted on the upper or convex side of the pen, and connected by a narrow strip of springy metal to a scoop-shaped reservoir, conforming to the shape of the nib or writing end of the pen and having ridges on the inner side to keep it at the proper capillary distance therefrom, substantially as described.

589,402. BICYCLE TOOL-BAG. NORMAN R. BADGLEY, Lockport, N. Y. Filed Mar. 29, 1897. Serial No. 629,671. (No model.)

Claim.—In a tool-bag, the combination of a body portion formed at the upper end with a semicircular receiving portion and having one of its side edges inclining inwardly from the said receiving portion to the lower end of the body, a cylindrical pump-inclosing case at the bottom of the body and of less length than the said body portion, a series of spring-clips attached to the body and adapted to receive tools, the said body portion being adapted to be rolled up from the lower end thereof and inclosed within the said receiving portion, substantially as described.



589,403. WAX-THREAD SEWING-MACHINE. JOSEPH R. BERTRAND, Boston, Mass. Filed Jan. 14, 1897. Serial No. 619,303. (No model.)

Claim.—1. In a chain-stitch wax-thread sewing-machine the combination of the feed-point-operating slide; a stand formed upon or secured to said slide and provided with a slot extending at an angle to the line of movement of said slide; a thread-pull-off bar arranged parallel or nearly so to said slide; a lever pivoted at one end to a fixed portion of the machine and at its other end to said thread-pull-off bar; means for adjustably connecting said lever to said stand; two thread-guiding pulleys or sheaves mounted upon fixed journals on opposite sides of said pull-off bar; and a thread-guiding sheave mounted upon said pull-off bar and movable therewith.

2. In a chain-stitch wax-thread sewing machine the combination of the reciprocating feed-slide D; the slotted stand H; the lever E; the bar F; means for adjustably connecting said lever E to said bar F and stand H; the thread-guiding sheave movably attached to said bar F; the spring I; and the two thread-guiding sheaves *k* and *k'* all constructed arranged and operating substantially as described.

3. In a chain-stitch wax-thread sewing-machine the combination with a curved barbed needle and a reciprocating back-gage slide, of a back-gage pivotally connected to said slide and provided with the laterally-projecting finger *o* arranged to engage the loop of thread drawn through the work by the needle; and a radius-arm connecting said back-gage to a fixed part of the machine whereby the front end of said gage is depressed to set the stitch as it is moved toward the rear by the action of its carrying-slide after the needle has completed its rearward movement.

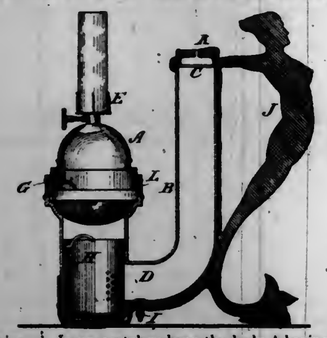
4. In a chain-stitch wax-thread sewing-machine the combination with a curved barbed needle, means for reciprocating said needle in a curved path, and a reciprocating back-gage slide, of a back-gage pivotally connected to said slide and provided with a laterally-projecting finger at its front end; and means for moving said back-gage about its pivotal connection to said slide as said slide is reciprocated.

5. In a chain-stitch wax-thread sewing-machine the combination of a reciprocating bar or slide arranged to be moved toward and from the front of the machine; a back-gage pivotally attached to said slide and provided with a stitch-setting finger; a link or radius-arm pivoted at one end to said back-gage and at its other end to a normally stationary pivot; and means for adjusting the front end of said back-gage to a higher or lower level when in its forward position.

6. In a chain-stitch wax-thread sewing-machine the combination with a curved barbed needle and its carrier, of a back-gage provided

with a laterally-projecting stitch-setting finger at its front end; means for moving said gage to and from the work; and means for imparting to the front end of said gage an up-and-down movement and causing said stitch-setting finger to engage the thread drawn from the work by the needle between the needle and work and thus set the stitch.

589,404. ACETYLENE-GAS LAMP. GIANNI BETTINI, New York, N. Y. Filed Dec. 19, 1895. Serial No. 572,630. (No model.)



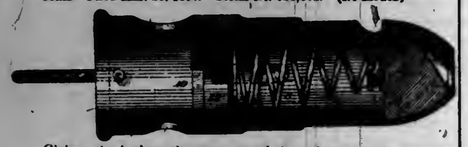
Claim.—1. In an acetylene-lamp the body A having burner E, gas-tight joint G, support F for the calcium carbid and vessel H for holding the solid residue, and the liquid-reservoir B, the latter connecting with the body A at a point above the bottom of the same and below the support F, substantially as set forth.

2. In an acetylene-lamp the body A having burner E, gas-tight joint G, support F for the calcium carbid and vessel H for holding the solid residue, and the liquid-reservoir B, the latter connecting with the body A at a point above the bottom of the same and below the support F and having a liquid-cock I, substantially as set forth.

3. In a lamp the combination with the main lamp-body A and upright part B connecting at the bottom, of the holder J having cup-shaped base, handle or bracket, and upper arm encircling the upright part B, substantially as set forth.

4. In a lamp the combination with the main lamp-body A and upright part B connecting at the bottom, of the holder J having cup-shaped base, handle or bracket, and upper arm encircling the upright part B and the locking-cover K, substantially as set forth.

589,405. CIGAR-TIP CUTTER. CHARLES E. BILLINGS, Hartford, Conn. Filed Mar. 29, 1897. Serial No. 629,672. (No model.)

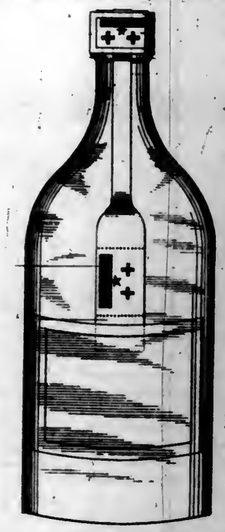


Claim.—1. A cigar-tip cutter consisting of two tubular sections one slidable in the other, the internal section being provided at its inner end with an annular cutter and having longitudinal slots in the opposite sides thereof, and the external section having an opening for the introduction of a cigar-tip; a guide-pin fixed to the opposite sides of the external section and passing through said longitudinal slots; a disk bearing against said guide-pin and having an annular flange lying against the inside face of the internal tubular section; a coiled spring one end of which bears against the disk; and a fixed stud on the internal section, embraced by the other end of the spring.

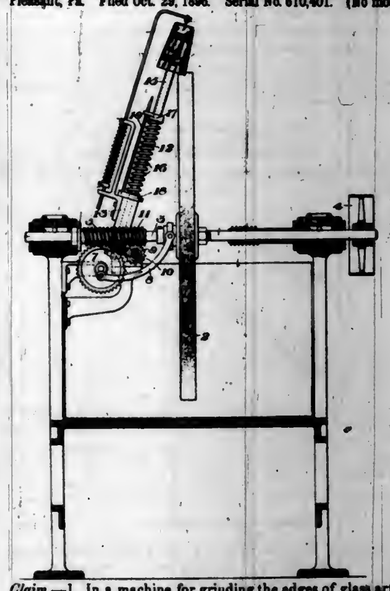
2. A cigar-tip cutter consisting of two tubular sections one slidable in the other, the internal section being provided at its inner end with an annular cutter and having longitudinal oblique slots in opposite sides thereof, and the external section having an opening for the introduction of a cigar-tip; a guide-pin fixed to the opposite sides of the external section and passing through said longitudinal slots; a disk bearing against said guide-pin and having an annular flange lying against the inside face of the internal tubular section; a coiled retracting-spring the inner coil of which acts against the disk; and a fixed stud on the internal section, embraced by the other end of the spring.

589,406. MEANS FOR PREVENTING FRAUDULENT REFILLING OF BOTTLES, &c. ANDRÉ BRALY and LOUIS BRALY, Paris, France. Filed Apr. 19, 1897. Serial No. 632,771. (No model.)

Claim.—In a device of the character described, the combination of the container having a flange below its mouth or orifice, a transparent ring adapted to be supported on said flange, a stopper adapted to close the orifice or mouth of the container, a safety-band passed over the upper face of the stopper and between the ring and the container, a distinctive label arranged on the inner periphery of the ring and between the ring and safety-strip, a duplicate detachable label carried by the strip and affixed to the container below the ring, said duplicate label having on its reverse side certain concealed identification marks or symbols, substantially as and for the purposes described.



589,407. GRINDING-MACHINE. JOHN J. BRANAGAN, Mount Pleasant, Pa. Filed Oct. 29, 1896. Serial No. 610,401. (No model.)



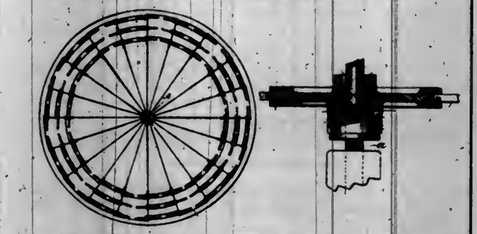
Claim.—1. In a machine for grinding the edges of glass articles, a rotary holder for the article consisting of a rod, means for rotating the same, a collar surrounding and rotated by the rod and slidable along the same, a series of disks upon the sleeve arranged to fit within the article, an arm arranged to force the article upon the disks, and a grinding-disk arranged to grind the edge of the article.

2. In a grinding-machine, a holder consisting of a swinging arm, a rod passing through the arm and having an actuating-wheel, a sleeve surrounding and actuated by the rod, said sleeve having several disks arranged to fit within the article, and an arm arranged to press the article upon the disks.

3. In a grinding-machine, the combination with a rotary grinding-disk, of an externally-screw-threaded sleeve surrounding and rotated by the disk-shaft, a rotary holder for the article having worm-gear connection with said sleeve, and a connection with the sleeve arranged to give the disk a slow endwise motion in opposite directions.

4. In a grinding-machine, a rotary grinding-disk secured to a shaft, an externally-screw-threaded sleeve splined to the shaft, connections between the sleeve and the shaft arranged to give the disk a slow endwise motion, and a rotatory holder also having actuating connections with the sleeve.

589,408. CIRCLE-CYCLE. EDWARD I. BRANHAM, Richmond, Va. Filed June 3, 1896. Serial No. 594,138. (No model.)



Claim.—1. In an apparatus as described, the combination with the trackway, and the wheeled carrier-frames, of the turn-post, having a vertically-adjustable turn-plate or wheel and the radial arms connected at the outer ends to the carrier-frames and at the inner to the turn-plate substantially as shown and described.

2. The combination with the trackway and the turn-post, said post having a vertically-adjustable collar, and a turn-plate or wheel held thereon, of the wheeled carrier-frames, having their wheel-shafts extended the radial arms detachably connected at their inner ends to the turn-plate and coupling devices for joining their outer ends with the wheel-shafts all arranged substantially as shown and for the purposes described.

3. In an apparatus as described, the combination with the turn-post, the radial arms and the wheeled carriages, having the outer ends of the wheel-shafts extended and threaded at each side of the wheels, of the drop-frame connections having their ends threaded the coupling devices secured to the projecting ends of the wheel-shafts and disposed longitudinally of the carrier-frames and the union members for joining the coupling devices with the ends of the connecting-frames all arranged substantially as shown and for the purposes described.

4. In an apparatus as described, the combination with the bicycle-framing, having a slotted bearing member for the rear wheel-axle, said slotted member having a horizontally-disposed curved section, said member having stop portions, of the wheel-axle, and the non-circular washer having its opening arranged eccentric and its edges adapted to engage the stop portions of the frame all arranged substantially as shown and for the purposes described.

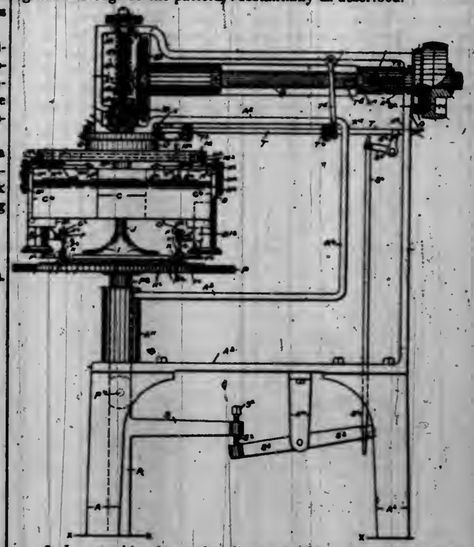
5. In an apparatus of the class described, the combination of a turn-post, carrier-frames radial arms connecting the frames with the post and capable of vertical adjustment on the latter, and the stay-rods extending from the post to the frames and provided at their inner ends with knuckle-joints, substantially as described.

6. In an apparatus of the class described, the combination of the threaded turn-post, the vertically-adjustable collar mounted thereon, the turn-plate supported by the collar, the ball-bearings arranged below the post and the plate and between the latter and the collar, the carrier-frames, and the connections between the same and the plate, substantially as described.

589,409. MACHINE FOR CUTTING OUT BOOT OR SHOE SOLES. JAMES J. BREACH, Boston, Mass. Filed June 15, 1891. Serial No. 396,366. (No model.)

Claim.—1. In a machine for cutting sheet material, the combination with a pattern of a reciprocating cutter, a cutter-guide through which the cutter reciprocates arranged to bear against the edge of the pattern, and mechanism for causing the cutter and its guide to travel along the pattern, substantially as described.

2. In a machine for cutting sheet material, the combination with a pattern, of a reciprocating swiveling cutter, a freely-revoluble guide turning on the swiveling axis of the cutter, and arranged to bear against the edge of the pattern, substantially as described.



3. In a machine for cutting sheet material the combination with a rotary block, of a slide moving radially thereon, and a reciprocating knife carried by said slide, and connected mechanism for actuating the knife and slide, substantially as described.

4. In a machine for cutting sheet material, the combination with a rotary block, of a slide moving radially thereon, swinging arms on said slide, and a reciprocating knife mounted in said arms and connected mechanism actuating the knife and slide, substantially as described.

5. In a machine for cutting sheet material, the combination with a rotary block, of a slide moving radially thereon, swinging spring-pressed arms on said slide, a reciprocating cutter mounted in said arms, and connected mechanism for actuating the knife and slide, substantially as described.

6. In a machine for cutting sheet material the combination with a radially-movable knife-carrier, of a reciprocating swiveling knife carried thereby and connected mechanism for actuating the knife and radially moving the knife-carrier, substantially as described.

7. In a machine for cutting sheet material the combination with a rotary block, of slides movable thereon and reciprocating cutters carried by said slides, and connected mechanism for actuating the cutters and slides, substantially as described.

8. In a machine for cutting sheet material, the combination with swinging arms, of freely-revoluble blocks carried thereby, and a reciprocating cutter movable in said blocks, substantially as described.

9. In a machine for cutting sheet material the combination with swinging spring-pressed arms, of freely-revoluble blocks carried thereby, and a reciprocating cutter movable in said blocks, substantially as described.

10. In a machine for cutting sheet material the combination with a power-driven cutter, of a clamp to clamp the material to be cut, and connected mechanism operating to actuate said cutter upon the clamping of the material, and to stop the operation thereof at a predetermined point, substantially as described.

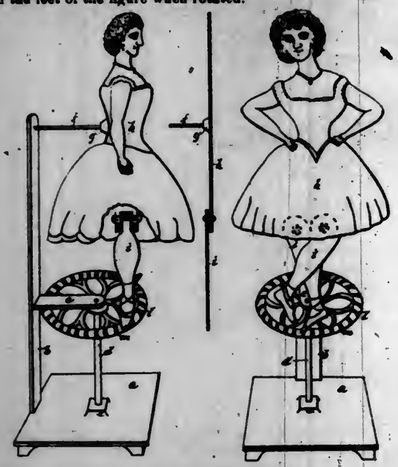
11. In a machine for cutting sheet material the combination with a rotary block of radially-movable cutters carried thereby, and connected mechanism for simultaneously radially moving said cutters in opposite directions during the cutting operation, substantially as described.

12. In a machine for cutting sheet material the combination with a pattern support and pattern, and apertures in said pattern, of a spacing-plate and bolt and stud connections between said plate and support, for clamping the pattern, substantially as described.

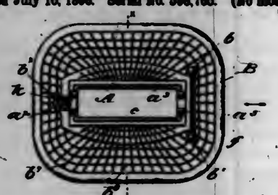
13. In a machine for cutting sheet material the combination with a reciprocating cutter and a swiveling grooved block through which said cutter passes, of a pattern having an exposed edge fitting the groove in said block, substantially as described.

589,410. TOY. ALFRED BRENNECKE, Springfield, Mass. Filed Apr. 12, 1897. Serial No. 631,772. (No model.)

Claim.—The toy herein described, comprising a suitable base-piece, a vertical standard secured to the base-piece, a supporting-rod projecting from the standard over the base, a figure secured to the end of the said rod to stand suspended over the wheel and base, pivotally-supported legs on the figure, a suitably journaled and supported vertical shaft on the base, and a wheel mounted on the upper end of the vertical shaft, said wheel being formed with a rim having projections on its perimetrical upper edge and arranged to contact with the feet of the figure when rotated.



589,411. PLATFORM FOR WELLS OR CISTERNS. LEO A. BAUER, Cincinnati, Ohio, assignor to the Bucket Pump Company, same place. Filed July 10, 1896. Serial No. 598,703. (No model.)



Claim.—1. In a platform for wells or cisterns, the combination of the movable part having a central opening detachably hinged to the fixed part having a central opening, substantially as set forth.

2. In a platform for wells or cisterns, the combination of the fixed part provided with central opening, and movable part provided with central opening detachably hinged together by notched bearing and beveled journal, substantially as set forth.

3. In a platform for wells or cisterns, the combination of the journals and bearings detachably hinged together, one or both of said bearings being notched, and one or both of said journals being beveled, substantially as set forth.

4. In a platform for wells or cisterns, the combination of a fixed part having a large central opening and a movable part having a small central opening, said movable part being detachably mounted upon said fixed part and adapted to cover the outer portion of the opening in the fixed part, substantially as set forth.

5. As an article of manufacture, a platform consisting of a fixed part having a large central opening, and a movable part having a small central opening, the movable part being mounted upon and detachably connected to the fixed part, said movable part forming a permanent base for the well-curb or pump-casing, substantially as set forth.

6. As an article of manufacture a cast-iron platform having a central opening, a raised surface or bead around the same, circular and outwardly-extending grooves on the upper surface thereof and downwardly-extending outer flange, substantially as set forth.

7. As an article of manufacture, a cast-iron platform having a central opening, a raised surface or bead around the same, circular and outwardly-extending grooves on the upper surface thereof, downwardly-extending outward flange, and corrugations or ribs on the lower surface, substantially as and for the purpose set forth.

8. As an article of manufacture, a metal platform consisting of a fixed part having a large central opening, a raised surface or bead around the same, circular and outwardly-extending grooves on the upper surface, downwardly-extending outer flange, corrugations or ribs on the lower surface, of a movable part having a small central orifice for the reception of the pump-fixtures, a rib on the upper side of said part near its inner edge and forming a socket for the curb or pump-casing, said parts being suitably connected, substantially as set forth.

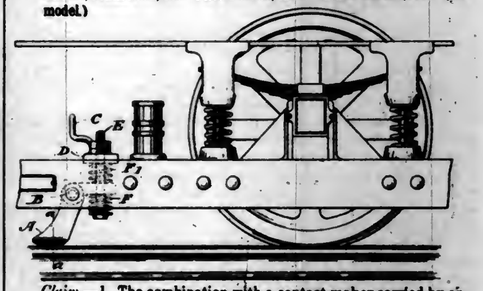
9. In a platform for wells or cisterns, a fixed part permanently cemented to the top of the well, a movable part detachably mounted thereon and adapted to partially cover the central opening in the fixed part, said movable part forming a permanent base for the curb which has front and rear ends projecting downwardly into the well a short distance below the horizontal plane of the fixed part of the platform, substantially as and for the purpose set forth.

10. In a platform for wells or cisterns, the combination of a bearing having a V-shaped notch in the inner edge thereof, with a journal having a beveled or wedge-shaped end adapted to take through said notch and work in said bearing, substantially as set forth.

11. As an article of manufacture, an iron platform having a central opening, circular and outwardly-extending grooves on the upper surface thereof, downwardly-extending outer flange and corrugations or ribs on the lower surface, substantially as set forth.

12. In a platform for wells or cisterns, a well-curb D mounted upon a movable part A of said platform, said curb having downwardly-projecting front and rear lower ends *d* adapted to extend into the well a short distance below the horizontal plane of the fixed part B, substantially as set forth and for the purposes specified.

589,412. AUXILIARY ELECTRIC CONTACT. WILLIAM M. BROWN, Johnstown, Pa. Filed Feb. 23, 1897. Serial No. 624,661. (No model.)



Claim.—1. The combination with a contact-maker carried by an electrically-propelled vehicle, of a spring-pressed, knife-edged contact device in multiple therewith for contacting with the same side of the circuit, and means for retaining said device either in an operative position or in an inoperative as desired.

2. A pivoted and spring-pressed contact-shoe having a knife-edge and carried by an electrically-propelled vehicle in multiple circuit with the regular contact-making devices carried thereby for contacting with a given side of a circuit, in combination with means for retaining said shoe in an inoperative position when it is not needed for use.

3. In an electrically-propelled vehicle, the combination with the side bars of the truck, of a contact-shoe pivoted thereto, a vertical post encircled by springs which engage one end of said shoe, and means for raising or lowering said post to throw said shoe into or out of engagement with the railroad-rail.

4. In an electrically-propelled vehicle, a pivot between the side bars of the truck, a contact-shoe pivoted thereon, a block resting upon said side bars, a post movable within said block, springs encircling said post and engaging one end of the pivoted shoe, and means for raising or lowering said post.

589,413. HANDLE-BAR FOR BICYCLES. CHARLES C. CANDY, Chicopee, Mass., assignor to the Lamb Manufacturing Company, of New Jersey. Filed July 16, 1896. Serial No. 599,413. (No model.)

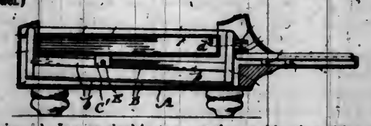


Claim.—1. The combination with a steering-post having at its upper end a transverse sleeve serrated at one end and internally conical at both ends, of a handle-bar lying in said sleeve a loose halved ferrule having one end conically enlarged and provided with teeth to engage the serrations in the end of the sleeve, a conical ring surrounding the other projecting end of the ferrule, and a nut working upon the ferrule to force the ring into the conical end of the sleeve, substantially as set forth.

2. The combination with a steering-post having at its upper end a transverse sleeve internally enlarged to conical form at each end, of a one-piece wood handle-bar lying in said sleeve, a ferrule interposed between the sleeve and bar and composed of two slightly-separated halves provided with internal teeth and bearing at one end a cone to fit the end of the sleeve, a removable cone mounted upon the opposite end of the ferrule and adapted to fit the corresponding end of the sleeve, and a nut arranged to force the last-mentioned cone into its seat: whereby the ferrule follows shrinkage of the wood and never turns upon the wood although the bar is perfectly adjustable and is readily and securely fixed in any of its positions.

3. The combination with a steering-post provided at its upper end with a transverse sleeve serrated at one end and having its bore conically enlarged at each end, a wood handle-bar passed through the sleeve, a split ferrule seated upon the bar, longer than the sleeve, threaded at its ends, provided with internal lugs to engage the wood and with an external enlargement adapted to fit into one end of the sleeve and to engage its teeth, a conical ring encircling the ferrule and entering the opposite end of the sleeve, and two nuts screwed upon opposite ends of the ferrule, respectively.

589,414. STRINGED MUSICAL INSTRUMENT. PAUL M. B. CARSTENS, Duluth, Minn. Filed Dec. 19, 1896. Serial No. 616,295. (No model.)



Claim.—1. In a musical instrument the combination with a case, of a sounding-board, frames pivoted below said sounding-board, and having posts extending above the same, strings or wires stretched upon said posts and extending across the top of said sounding-board and finger-keys for operating the said frames, substantially as described.

2. In a musical instrument the combination with a case, and sounding-board, of frames consisting of longitudinal pieces pivoted below the sounding-board and end posts secured to said pieces and extending above the sounding-board, braces connecting the lower ends of said posts, strings or wires secured to the upper ends of said posts, and keys for operating said frames, substantially as described.

589,415. SILICON ALLOY. GUILLAUME DE CHALMOT, Leakville, N. C., assignor to the Wilson Laboratory Company, New York, N. Y. Filed May 14, 1896. Serial No. 591,514. (Specimens.)

Claim.—1. The described new product consisting of an alloy of silicon with a metallic silicid.

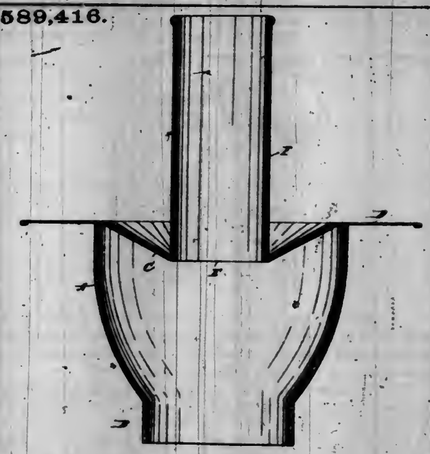
2. The described process consisting in subjecting a material or materials containing a metal and silicon, with carbonaceous matter, to the action of an electric furnace with a direct current, until the carbonaceous matter is eliminated by the reduction of said materials, whereby is produced an alloy of silicon with a silicid of the metal.

3. The improved process of producing crystalline silicon which consists in first producing an alloy of silicon with a metallic silicid, and then treating the alloy with a solvent of the silicid to dissolve away the latter.

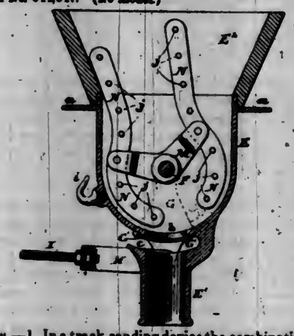
589,416. LAMP-CHIMNEY. JAMES COLLINGS, Hill Place, England. Filed Oct. 6, 1896. Serial No. 608,021. (No model.) Patented in England Nov. 27, 1895, No. 22,731.

Claim.—A combined lamp-chimney and reflector, consisting of a main base or body portion, which is cup-shaped or conical in form, and the apex of which is directed downwardly, and provided with a neck whereby it is adapted to be mounted on or connected with a burner, and a supplemental part or portion which is mounted thereon, and which consists of a conical attachment, the base of which is directed upwardly and outwardly, and provided with an annular rim which rests on the top of the main base or body portion of the chimney, and extends beyond the same, and is provided with a reflecting-surface on its under side, and the apex of the conical attachment which is directed downwardly within the main base or body portion of the chimney being provided with a central opening around which is formed or secured an upwardly-directed tube which forms a part of the chimney, the inner or lower surface of the conical portion of the attachment being provided with a reflecting-surface, and the main or base portion of the chimney being composed of transparent material, substantially as shown and described.

589,416.



589,417. TRACK-SANDING DEVICE FOR STREET-RAILWAY CARS. EDWARD C. COLLINS, Taunton, Mass., assignor to the Taunton Locomotive Manufacturing Company, same place. Filed July 15, 1897. Serial No. 644,647. (No model.)



Claim.—1. In a track-sanding device the combination of the sand-holding casing having a semicircular bottom with a discharge-opening through its lowest part, and a conveying nozzle or pipe in axial line with said discharge-opening formed integral with said casing but connected thereto only at one side of said discharge-opening; and a reciprocating valve movable in an arc of a circle between said discharge-opening and nozzle.

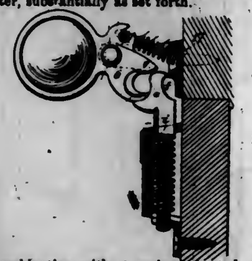
2. In a track-sanding device the combination of a sand-holding receptacle having a semicircular bottom and provided with a discharge-opening in its bottom; a rocker-shaft mounted in bearings in said receptacle with its axis coinciding with the axis of the curved bottom of said receptacle; an elbow-lever secured upon said shaft within said receptacle; a bar N pivoted loosely to the end of each arm of said lever, and extending above and below said pivotal connection; a series of transverse rods or arms *j j* set in each of said bars, the pendent arms G secured one upon each end of said shaft; the valve G′ secured to and connecting said arms in position to close said discharge-opening; and means for vibrating said arms G to open and close said discharge-opening.

3. In a track-sanding device the combination of a sand-holding receptacle having a curved bottom and provided with a discharge-opening in said curved bottom; a sand-conveying nozzle or pipe in axial line with said discharge-opening and formed integral with said sand-holding receptacle; the rocker-shaft F; the arms G G; the valve G′; the yoke H; the rod I; the elbow-lever J; the rod *g h*; the spring L; the lever M; the bars N N and transverse rods *j j* all constructed, arranged, and operating substantially as described.

589,418. DOOR-CHECK AND FASTENER. EDWARD COWLIN, Channahon, Ill. Filed Feb. 26, 1896. Renewed Feb. 12, 1897. Serial No. 623,198. (No model.)

Claim.—1. The combination with a spring-actuated plunger adapted to be applied to a door or other hinged device, of spring-actuated means applied to the door-casing in position to be struck

by the plunger in closing the door whereby said means is reversed and thrown into the path of the door, whereby to effect a tight closing of the latter, substantially as set forth.



2. The combination with a spring-actuated slidable plunger adapted to be secured to the door or other hinged device, of a pivoted part connected to the casing and adapted to be struck by the plunger and swung over on its pivot, substantially as set forth.

3. The combination with a spring-actuated plunger adapted to be applied to a door or other hinged device, of a pivoted lever adapted to be attached to the casing of said door or other hinged device and to be engaged by said plunger, and a spring adapted to bear against said lever and to be moved from one side to the other of the fulcrum of said lever when the latter is turned by the engagement therewith of said plunger, substantially as set forth.

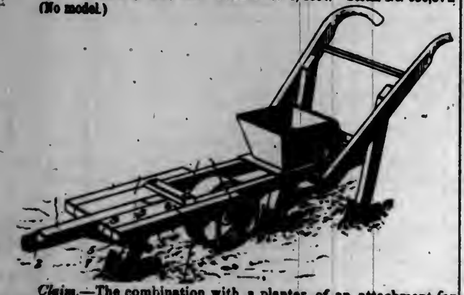
4. The combination with a spring-actuated plunger adapted to be attached to a door or other hinged device, of a pivoted lever adapted to be attached to the casing of said door or other hinged device, one arm of said lever being made to form jaws with which said spring-actuated plunger is adapted to engage, and a spring connected with said lever normally at one side of its fulcrum, substantially as set forth.

5. The combination with a spring-actuated plunger adapted to be applied to a door or other hinged device, of a pivoted lever adapted to be attached to the casing of said door or other hinged device, one arm of said lever being weighted and the other arm being formed with jaws for the engagement therewith of the spring-actuated plunger, and a spring connected with said lever at one side of its fulcrum, substantially as set forth.

6. The combination with a spring-actuated plunger adapted to be attached to a door or other hinged device, of a bracket adapted to be secured to the casing of said door or other hinged device, a lever pivoted between its ends to said bracket and adapted to be engaged by said spring-actuated plunger on the door or other hinged device, said lever having a recessed projection between its arms, a plunger having a cross-bar to enter said recess, and a spring bearing at one end against said plunger and at the other end against said bracket whereby, when the lever is turned on its pivot the connection of said plunger with the recessed projection on the lever, will move from one to the other side of the fulcrum of said lever and compress said spring, substantially as set forth.

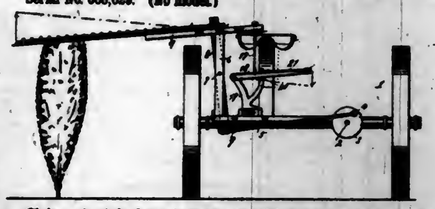
7. The combination with a casing or shell adapted to be secured to a door or other hinged device, of a spring-actuated plunger mounted in said casing or shell and having a head at its forward end, said head having an undercut recess and an outwardly-projecting tooth, a bracket adapted to be secured to the casing of the door or other hinged device, a spring-actuated lever pivoted to said bracket and having jaws to be engaged by the head of the spring-actuated plunger, substantially as and for the purpose set forth.

589,419. PLOW ATTACHMENT FOR PLANTERS. MALCOM C. COPOLEY, Liberty Hill, Tex. Filed June 3, 1897. Serial No. 639,574. (No model.)



Claim.—The combination with a planter, of an attachment for breaking and preparing the land in advance of the furrow-opener and seeding mechanism, consisting of a stub-tongue, side beams, blocks intermediate of the stub-tongue and side beams and having the latter extending in the rear thereof to be secured to the sides of the planter-frame, a standard bearing a plow-point and located in the rear of the stub-tongue and between the rear portion of the blocks, braces adjustably connecting the front portion of the stub-tongue with the lower portion of the standard, and a series of bolts for connecting the several parts and admitting of a ready separation thereof, substantially as set forth for the purpose described.

589,420. HEDGE-TRIMMING ATTACHMENT FOR MOWING-MACHINES. JOHN T. COULTER, Morse, Kans. Filed Aug. 17, 1896. Serial No. 603,029. (No model.)



Claim.—1. A hedge-trimmer, comprising a pair of standards, a frame mounted pivotally thereon, cutting mechanism carried by said frame, and a rock-bar pivotally mounted between said standards and connected to said cutting mechanism, substantially as described.

2. A hedge-trimmer, comprising a pair of standards, a frame mounted pivotally thereon, provided with a slot, cutting mechanism carried by said frame and provided with a registering slot, a rock-bar projecting up through said registering slots and pivotally mounted between said standards, and means to rock said bar, substantially as described.

3. A hedge-trimmer, comprising a pair of standards, a frame mounted pivotally thereon, provided with a slot, cutting mechanism carried by said frame and provided with a registering slot, a rock-bar projecting up through said registering slots and pivotally mounted between said standards, means to rock said bar, and means to pivotally adjust said frame in order to raise or lower the cutting mechanism, substantially as described.

4. The combination with a mowing-machine, provided with a rotating disk and a pitman connected thereto, of a hedge-trimming attachment, consisting of a pair of standards secured to the frame of the machine, a rock-bar pivotally mounted between the same and connected to said pitman at its lower end, a frame pivotally mounted upon said standards and provided with a slot through which said rock-bar projects, a reciprocating cutter-bar upon said frame and provided with a registering slot through which said rock-bar also projects, and means to adjust vertically said frame, substantially as described.

589,421. FEED MECHANISM FOR MECHANICAL MUSICAL INSTRUMENTS. EMILE L. CUENDET, New York, N. Y. Filed Sept. 21, 1896. Serial No. 606,467. (No model.)

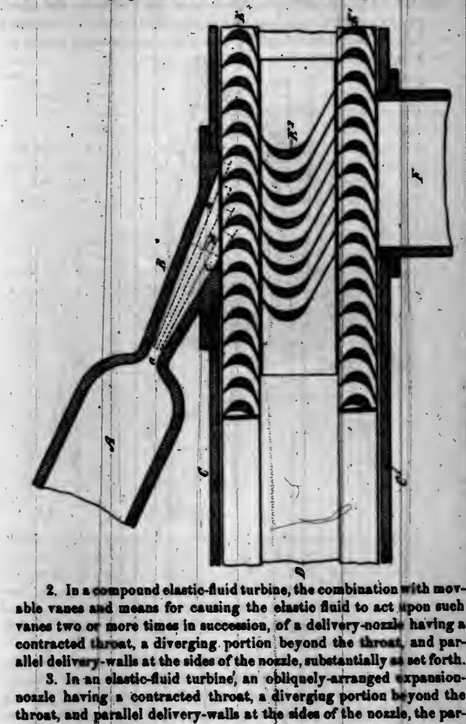


Claim.—A feed mechanism for mechanical musical instruments consisting of a music-sheet A, having embossed teeth that are provided with a severed working edge, a pair of disks *b*, adapted to engage the lower side of sheet A, at the sides of such teeth, driving-pins *b'*, connecting the disks, and a pair of pressure-rollers C, that are adapted to engage the upper side of sheet A, in vertical alinement with the disks, substantially as specified.

589,422. ELASTIC-FLUID TURBINE. CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Aug. 4, 1896. Serial No. 601,605. (No model.)

Claim.—1. In a compound elastic-fluid turbine, the combination with movable vanes and means for causing the elastic fluid to act upon such vanes two or more times in succession, of a delivery-nozzle having a contracted throat and permitting the expansion of the fluid beyond the contracted throat and provided with extended parallel

sides to transform the motion of the particles into a parallel motion before discharging them from the nozzle, substantially as set forth.



2. In a compound elastic-fluid turbine, the combination with movable vanes and means for causing the elastic fluid to act upon such vanes two or more times in succession, of a delivery-nozzle having a contracted throat, a diverging portion beyond the throat, and parallel delivery-walls at the sides of the nozzle, substantially as set forth.

3. In an elastic-fluid turbine, an obliquely-arranged expansion-nozzle having a contracted throat, a diverging portion beyond the throat, and parallel delivery-walls at the sides of the nozzle, the parallel delivery-walls being produced by changing the angle of the longer outer side wall at its delivery end so as to make it substantially parallel with the inner or shorter side wall of the nozzle, substantially as set forth.

4. In an elastic-fluid turbine, a delivery-nozzle having a curved discharging end with parallel top and bottom edges, substantially as set forth.

5. In an elastic-fluid turbine, an expansion-nozzle having parallel side walls at the discharging end of the nozzle, in combination with means for varying the cross-sectional area of the nozzle throughout its length simultaneously and proportionately, substantially as set forth.

6. In an elastic-fluid turbine, the combination with an expansion-nozzle having two opposite parallel walls at its discharging end, of an adjustable piece forming one of such parallel walls, substantially as set forth.

7. In an elastic-fluid turbine, an obliquely-arranged expansion-nozzle having the angle of its longer outer side wall changed at the delivery end of the nozzle so as to be parallel with the shorter or inner side of the nozzle, in combination with a sliding piece which forms the inner or shorter side wall of the nozzle, substantially as set forth.

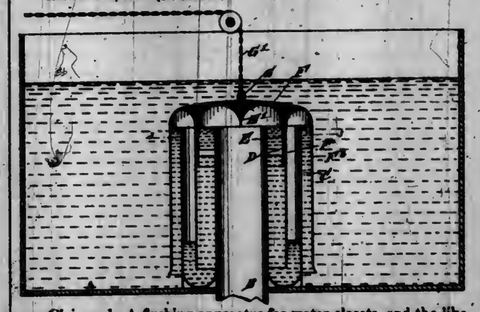
8. In an elastic-fluid turbine, a curved delivery-nozzle, in combination with a curved slide for adjusting said nozzle simultaneously and proportionately at its receiving and discharging ends, substantially as set forth.

9. In an elastic-fluid turbine, an obliquely-arranged expansion-nozzle having a straight inner or shorter side wall and having the angle of its longer or outer side wall changed intermediate between its ends so that its delivery end is made substantially parallel with the inner side wall, in combination with a sliding piece which forms the inner side wall and which by its adjustment is caused to approach toward or recede from the parallel portion of the outer side wall and thereby vary the cross-sectional area of the nozzle simultaneously and proportionately from its receiving to its discharging end, substantially as set forth.

10. In an elastic-fluid turbine, the combination with a jet-expansion delivering-nozzle, of means for varying the cross-sectional area of the nozzle, and a plunger or piston for balancing any excess of pressure on the movable parts, substantially as set forth.

11. In an elastic-fluid turbine, the combination with the inlet A and nozzle B, of the passage H, sliding piece G and plunger I, substantially as set forth.

589,423. FLUSHING APPARATUS FOR WATER-CLOSETS, &c. WILLIAM A. EBERHART, Asbury Park, N. J. Filed Sept. 19, 1896. Serial No. 562,947. (No model.)



Claim.—1. A flushing apparatus for water-closets, and the like, comprising a tank provided with a discharge-pipe, a cap secured to the upper end of the said pipe but spaced therefrom to allow the water to pass between said pipe and cap, and a vertically-movable inverted cup having guided movement on said cap, substantially as described.

2. A flushing apparatus for water-closets and the like, comprising a tank provided with a discharge-pipe, a cap secured to the upper end of the said pipe but spaced therefrom to allow the water to pass between said pipe and cap, the cap being provided on its lower side with a deflector projecting downwardly over the center of the discharge-pipe, and a vertically-movable inverted cup having guided movement on said cap, substantially as described.

3. A flushing apparatus for water-closets and the like, comprising a tank provided with a discharge-pipe and an upright cup surrounding the same, a cap secured to the upper end of the discharge-pipe but spaced therefrom to allow the water to pass between said pipe and cap, and a vertically-movable inverted cup comprising an inner shell having guided movement on said cap, and an outer shell surrounding the upright cup, substantially as described.

4. A flushing apparatus for water-closets and the like, comprising a tank provided with a discharge-pipe and an upright cup surrounding the same, a cap secured to the upper end of the discharge-pipe but spaced therefrom to allow the water to pass between said pipe and cap, the cap being provided on its lower side with a deflector projecting downwardly over the center of the discharge-pipe, and a vertically-movable inverted cup, comprising an inner shell having guided movement on said cap, and an outer shell surrounding the upright cup, substantially as described.

589,424. NUT-LOCK. HOWELL EVANS, Blocton, Ala. Filed May 19, 1897. Serial No. 637,153. (No model.)



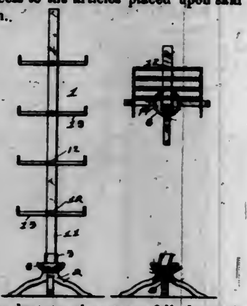
Claim.—1. A bolt provided with a reduced end extension with a screw-thread thereon for engaging one fish-plate, the larger or body portion of the bolt being provided with a reverse screw-thread, in combination with a nut thereon for engaging the opposing fish-plate, substantially as described.

2. The bolt for clamping the fish-plate to the interposed rail, the body portion of the bolt being screw-threaded to receive a nut for clamping the adjacent fish-plate, said bolt having a reduced and reversely-threaded extension for engaging the opposing fish-plate, in combination with a nut adjustable on said body portion, and a spiral spring surrounding the bolt intermediate said nut and the bolt-head, substantially as and for the purpose described.

589,425. ROTARY INSECT-PROOF DISPLAY-RACK. SAMUEL S. GOLDMAN, St. Louis, Mo. Filed July 29, 1896. Serial No. 600,987. (No model.)

Claim.—1. An improved rotatory insect-proof display-rack, having a base, a cup or bowl-shaped casting pivotally mounted upon said

base, said casting constructed for the insertion of water, a riser placed in said casting, arms held to said riser for the purpose of supporting the articles to be displayed, said cup-shaped casting preventing insects from gaining access to the articles placed upon said arms, substantially as set forth.



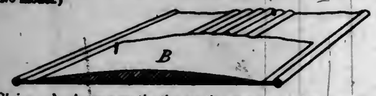
2. An improved rotatory insect-proof display-rack, composed of a base or stand, a casting pivotally mounted upon said stand, said casting having on its inner surface a socket, the cup around said socket adapted to be filled with liquid, a riser firmly secured in said socket, arms placed upon said riser, for the purpose as shown and described.

3. In an improved rotatory insect-proof display-rack, the combination of a stand, said stand provided with a cup constructed to carry liquid, a socket formed in the center of said cup, a riser firmly fixed in said socket, said riser provided with arms, said arms constructed to support shelves and cases, said riser and cup pivotally secured to the stand, said riser held at an angle to said cup, substantially as set forth.

4. An improved insect-proof display-rack, composed of a stand, a cup-shaped casting pivotally mounted upon said stand, a socket secured in said cup and formed of the same material, said socket constructed at an incline, a single standard placed in said socket, T-shaped arms placed upon said riser, substantially as shown and described.

5. An improved insect-proof display-rack, composed of a square beam or riser secured to a cup or bowl shaped casting, said casting pivotally mounted upon a stand, T-shaped arms secured to said riser, water placed in said cup to prevent insects from gaining access to the shelving, substantially as set forth.

589,426. TIRE-COVER FOR VEHICLE-WHEELS. JOHN C. CRAFT, London, England. Filed Jan. 26, 1897. Serial No. 620,781. (No model.)



Claim.—1. A pneumatic tire or tire-cover consisting of a woven fabric having longitudinal ribs therein and an outer coating filling the spaces between the ribs and covering the same: substantially as described.

2. A pneumatic tire or tire-cover consisting of a woven fabric having hard ribs formed thereon by weaving and coated with caoutchouc, substantially as described.

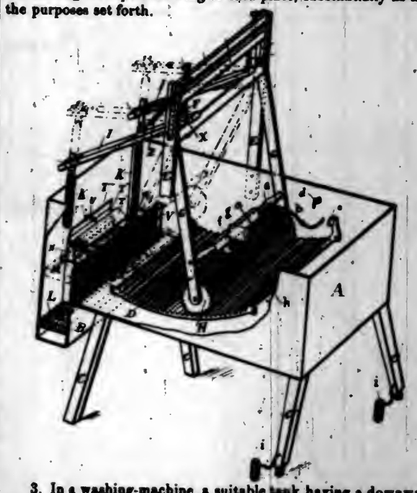
3. A pneumatic tire or tire-cover, consisting of a woven fabric having longitudinal outer ribs woven therein, and a coating of caoutchouc or similar material covering the ribs and having a substantially smooth outer face; substantially as described.

4. A pneumatic tire or tire-cover consisting of a woven fabric, having outer longitudinal ribs and inner longitudinal ribs alternating therewith, and a coating of suitable material covering the outer ribs; substantially as described.

589,427. WASHING-MACHINE. FRED D. HARDING, Baldwin, Mo. Filed Feb. 3, 1897. Serial No. 621,797. (No model.)

Claim.—1. In a washing-machine, a suitable tank provided with a downwardly-extending offset at one end, a scrubbing-board, standards, an oscillating frame mounted on said standards and carrying a scrubbing-roller a plunger adapted to be forced into and withdrawn from said offset by the oscillation of said roller and a delivery-spout having its lower extremity extending down into said offset, substantially as and for the purposes set forth.

2. In a washing-machine, a suitable tank having a downwardly-extending offset at one end, a scrubbing-board, upright standards, an oscillating frame mounted in said standards and carrying a scrubbing-roller, a plunger secured to and adapted to be operated by the oscillation of said frame, said plunger being adapted to be forced into and entirely withdrawn from the offset, a delivery-spout having its lower end extending down into said offset and its delivery and curved ends toward the scrubbing-board, a hood pivotally mounted above the delivery end of said spout and resting lightly thereon and means for limiting the upward swing of said plate, substantially as and for the purposes set forth.



3. In a washing-machine, a suitable tank having a downwardly-extending offset at one end, a delivery-spout having one end extending down into said offset, a plunger adapted with the delivery-spout to close said offset and to be alternately forced down into and lifted out of the same, a perforated guard between the scrubbing-board and the offset and means for operating said plunger, substantially as and for the purposes set forth.

4. In a washing-machine, a suitable tank having a downwardly-extending offset at one end, a plunger operating therein and adapted to be withdrawn entirely therefrom, a delivery-spout having one end extending down into said offset and the other curved to deliver water upon the scrubbing-board, a scrubbing-board mounted in said tank, standards secured to the sides thereof, a rectangular frame pivotally mounted in said standards and carrying a scrubbing-roller at its lower extremity, horizontal arms secured to said swinging frame, connecting-rods between said arms and plunger, and a tension-spring connecting said standards and said horizontal arm, said spring tending to hold the roller suspended above the board at the end opposite the operator, substantially as and for the purposes set forth.

5. In a washing-machine, a tank having a downwardly-extending offset at one end, a plunger operating in said offset, a delivery-spout mounted in said offset, the upper end extending above the offset and curved toward the opposite end of the tank, a hood pivotally mounted on said delivery-spout and adapted to rest normally down upon the delivery end thereof and means for adjustably regulating the upward movement of said hood, substantially as and for the purposes set forth.

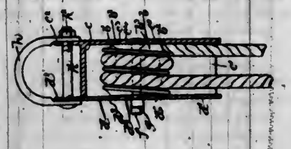
6. In a washing-machine, a suitable tank having a downwardly-extending offset at one end, a plunger adapted to reciprocate in said offset, a delivery-spout consisting of two telescoping sections mounted in said offset, means for adjusting said sections to regulate the size of the orifice and means for operating said plunger in said offset, substantially as and for the purposes set forth.

7. In a washing-machine, a suitable tank having a downwardly-extending offset at one end, a plunger, a delivery-spout, standards, an oscillating frame carrying a scrubbing-roller adapted, through intermediate mechanism, to operate said plunger and a water-shield pivotally mounted on the roller-frame and normally held in a raised position and means for tilting said guard downwardly as the swinging frame is oscillated, substantially as and for the purposes set forth.

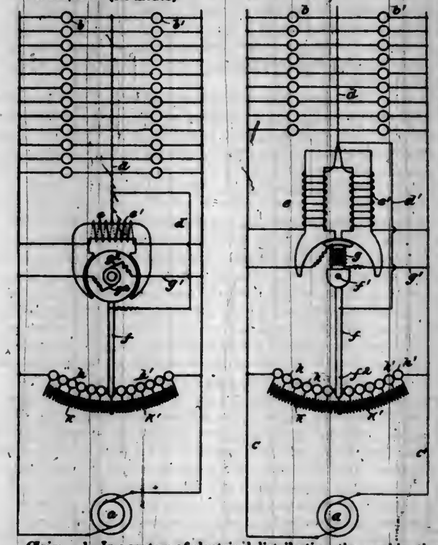
8. In a washing-machine, a suitable tank, a scrubbing-board mounted therein, standards, a swinging frame carrying a scrubbing-roller, means for intermittently conveying water to the board, a shield pivotally mounted on the swinging frame near said roller, a lug on the side of the tank and a curved arm secured to said pivoted shield whereby, when the roller is drawn back, said arm contacts with said lug and depresses the shield in front of the roller, substantially as and for the purposes set forth.

589,428. FIRE-ESCAPE. CYRUS R. HARVEY, Waterloo, Canada. Filed Nov. 17, 1896. Serial No. 612,590. (No model.)

Claim.—A fire-escape consisting of a rope, a friction device comprising a cylindrical block *b*, formed with a worm-recess *b'* adapted to have a portion of the rope coiled about same, a pair of laterally-projecting lugs, b^2 formed upon each end of said block and a central longitudinal perforation, b^3, therethrough; an open-ended cylindrical casing *c*, of slightly-larger diameter than the circumference of the block, and provided with a flared opening, *c'*, in the side thereof, a perforated wing-section, c^2 and perforations, c^3, c^3 in the closed end thereof to receive the laterally-projecting lugs b^2 upon the adjacent side of the friction-block, and a perforation, c^4, concentric of said closed end to register with the perforation b^3 through the friction-block; a cover *d* for the open end of said casing, said cover having an extension, *d'* corresponding in contour to the longitudinal section of the flared opening, *c'*, a perforated wing-section corresponding to the wing-section, c^2, and perforations d^2, d^2 adapted to receive the projections b^2, upon the adjacent side of the friction, and a perforation, d^4 adapted to register with the perforation, b^3; a screw-threaded bolt, *f*, adapted to be passed through the perforations, b^3, c^4 and d^4; a cleat-like nut, *g* screwed upon said bolt, a staple *h* having its ends flattened and perforated; and a bolt *h'* adapted to be passed through the perforation in said staple and said perforated wing-sections, and receive a retaining-nut, h^2, as and for the purpose set forth.



589,429. MULTIPLE-SERIES SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES D. HASKINS, Brooklyn, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed June 8, 1896. Serial No. 594,705. (No model.)



Claim.—1. In a system of electrical distribution, the combination with a source of electrical energy, of the mains of a working circuit connected therewith wherein the translating devices are connected in multiple series between the said mains, a compensating conductor, and an electromagnetic device consisting of a polarized element and an element energized by differential coils respectively connected between the compensating conductor and the mains, and means controlled by the actuation of the said electromagnetic device for maintaining the balance of the system, substantially as described.

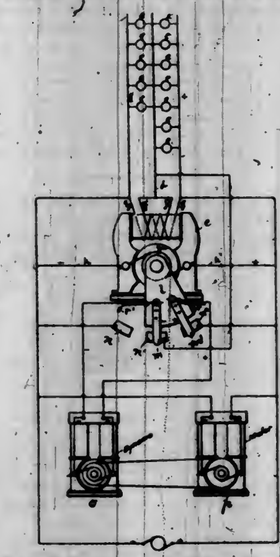
2. In a multiple-series system of electrical distribution, the combination with a dynamo or other source of electrical energy, of supply-mains, translating devices connected in multiple series between the said supply-mains, a compensating conductor connected with said translating devices, an electromagnet provided with coils differentially wound, which are connected in parallel between the compensating conductor and the mains and in multiple series between the said mains, a polarized armature provided in the field of the said magnet, and means controlled by the movement thereof for maintaining the balance of the system, substantially as described.

3. In a system of electrical distribution, the combination with a source of electrical energy, of translating devices connected in multiple series in the working circuit thereof, a compensating conductor, a circuit-controlling device provided with a polarized element, and coöperating helices differentially wound, the said helices being connected in multiple series with the mains of the system and in parallel with the compensating conductor and the mains, resistances connected respectively with the mains, and a contact-arm connected with the compensating conductor adapted to be actuated by the circuit-controlling device to connect the said compensating conductor with either of the mains through resistance calculated to maintain the balance of the system, substantially as described.

4. In a multiple-series system of electrical distribution, the combination with a dynamo or other source of electrical energy, of supply-mains connecting the same with the working circuit, a neutral or compensating conductor, translating devices, a circuit-controlling device provided with coils differentially wound, the said translating devices and differential coils being respectively connected in parallel between the neutral conductor and the mains and in multiple series between the said mains, a polarized armature energized by a branch across the mains, resistances respectively connected with either of the said mains, and a contact-arm connected with the neutral conductor adapted to be actuated by the armature to connect the said neutral conductor with either side of the system through resistance proportional to the unbalanced condition thereof, substantially as described.

5. In a multiple-series system of electrical distribution, the combination with the source of electrical energy *a*, of mains *c c'*, neutral or compensating wire *d*, translating devices *b b'*, an electromagnet whereon are provided differential windings *e e'*, the said translating devices and windings being connected in parallel between the compensating wire and the mains and in multiple series between the said mains, resistances *k k'* respectively connected with the mains *c c'*, contact-arm *f* connected with the wire *d*, and rotatable armature *g* energized by a branch across the mains, upon which the contact-arm is mounted and adapted to be actuated by the said armature to connect the wire *d* with either side of the system through variable amounts of resistances *k* or *k'*, proportional to the lack of balance in the said system, substantially as described.

589,430. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES D. HASKINS, Brooklyn, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed July 6, 1896. Serial No. 598,160. (No model.)



Claim.—1. In a multiple-series system of electrical distribution, the combination with mains and equalizing conductors, of a generator from which the main conductors are led, an electromagnetic switching device having two relatively movable elements, namely an armature and a magnet, one of said elements being connected with said conductors and adapted to have its polarity changed as the load

predominates in one branch of the system or another, the other of said elements being polarized in a constant direction and means controlled by said switching device for maintaining a balance between the branches of the system, substantially as described.

2. In a multiple-series system of electrical distribution, the combination with main and equalizing conductors, of a generator from which the main conductors are led, an electromagnetic switching device having two relatively movable elements, namely, an armature and a magnet, one of said elements being connected with said conductors and adapted to have its polarity changed as the load predominates in one branch of the system or another, the other of said elements being polarized in a constant direction, and a dynamo-electric machine adapted to be included in circuit with one branch or another of the system by said switching device, substantially as described.

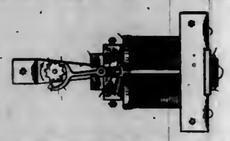
3. In a multiple-series system of electrical distribution, the combination with main and equalizing conductors, of a generator from which the main conductors are led, an electromagnetic switching device comprising an electromagnet having differentially-wound helical portions or coils connected in multiple series with the main and equalizing conductors and an armature which is polarized in a constant direction, and means controlled by said switching device for maintaining a balance between the branches of the system, substantially as described.

4. In a multiple-series system of electrical distribution, the combination with main and equalizing conductors, of a generator from which the main conductors are led, an electromagnetic switching device comprising an electromagnet having differentially-wound helical portions or coils connected in multiple series with the main and equalizing conductors and an armature which is polarized in a constant direction, and a dynamo-electric machine adapted to be included in circuit with one branch or another of the systems, by said switching device, substantially as described.

5. In a system of electrical distribution, the combination with main and equalizing conductors, with which the translating devices are connected in multiple series, of a generator from which the main conductors are led, an auxiliary generator or source of electricity and a switching device for connecting the latter generator in circuit with one branch or another of the system, said switching device comprising an electromagnet having differentially-wound helical portions or coils connected in multiple series with the main and equalizing conductors and an armature which is polarized in a constant direction, said switching device being arranged to connect the auxiliary generator in circuit with the overloaded branch of the system, substantially as described.

6. In a system of electrical distribution, the combination of main and equalizing conductors, of a generator from which the main conductors are led, translating devices being connected in multiple series with said conductors, a switching device comprising an electromagnet having differentially-wound helical portions or coils connected in multiple series with the main and equalizing conductors and an armature which is adapted to be polarized in a constant direction, said armature having a winding included in circuit with said generator, and means controlled by said switching device for maintaining a balance between the branches of the system, substantially as described.

589,431. **TELEPHONIC MEASURED-SERVICE SYSTEM.** HAMMOND V. HAYES, Cambridge, and THOMAS C. WALES, Jr., Newton, Mass., assignors to the American Bell Telephone Company, Boston, Mass. Filed June 23, 1897. Serial No. 641,918. (No model.)



Claim.—1. In a telephone system, the combination with a main telephone-circuit extending between a subetation and a central station; of a call-register at the substation responsive for the registration of a call, to two successive oppositely-directed electrical current-impulses traversing the said circuit in a definite order: telephone call apparatus at the said subetation organized to establish in the circuit the required initial current-impulse of appropriate direction, when operated to transmit the call; and switch apparatus at the central station adapted when operated for the answer of said call to establish in the circuit the required final current-impulse, of direction opposite to that of the first; substantially as set forth.

2. In a telephone-exchange system the combination of a party-line telephone-circuit extending between two or more substations and a switchboard at the central station; with a call-register at each substation adapted to count and register the answered calls of said station only when two successive current-impulses of opposite direction, in a given order, traverse the said circuit; means at each substation controlled by the call-sending apparatus thereof, for establishing the initial current of required direction in the main circuit when the said apparatus is operated to send the call-signal; and other means at the central station controlled by the call-answering switchboard apparatus, whereby the second required current-impulse of opposed or reversed direction may be established in the said circuit, when the said switch apparatus is operated to answer such call-signal; substantially as described.

3. The combination in a telephone-exchange system, substantially as hereinbefore described, of a party-line telephone subscriber's circuit; the substation signal mechanism; and the central-station switch apparatus thereof; with a service-registering mechanism at each substation requiring for the registration of a call two independent armature movements, in response to two successive independent main-line current-impulses, following one another in prescribed order; circuit-controlling devices at each substation operated by the said call-signal-sending mechanism, and acting to establish the initial current-impulse required; and current-controlling switch apparatus at the central station for answering the substation-call, and simultaneously establishing the final required current-impulse; whereby a call can be registered only at the station transmitting the same, and only when the operation of transmission and answering have both been performed.

4. In a telephone-exchange, the combination of a main telephone-circuit uniting a number of subscribers' stations, at each of which it is normally open, to a central station where it is normally closed through a current-generator, and signal-receiving devices; with a normally discontinuous portion or branch of the said circuit at each substation; an electromagnetic telephone call register or meter, contained in the said discontinuous branch, requiring for its operation two successive current-impulses of opposed direction; a circuit-controlling switch adapted to close the said main circuit through the said branch, thereby furnishing the first required current-impulse, and simultaneously transmitting the call-signal; and switching and answering apparatus at the central station controlling the direction of the line-current, and adapted in answering the call to withdraw the original current from the circuit, and to substitute therefor the second and oppositely-directed current required, to complete the registration of the said call.

5. The combination in a telephone-exchange, of a main telephone-circuit extending between a number of subscribers' stations at each of which it is normally open, to a central station where it is normally closed through a call-current generator, and signal-receiving appliances; with a normally discontinuous branch of the said circuit at each substation including the station-telephones; a telephone-call register or meter requiring for its operation two successive current-impulses of opposite polarity, having its electromagnet included also in said telephone branch; an automatic telephone-switch adapted to close the main circuit through the said telephone branch and register-magnet, and thereby establish the current of said call-generator in the said completed circuit; a second current-generator at the central station; switching and call-answering apparatus controlling the poles of both generators, and adapted by the act of answering the call-signal, to withdraw the original generator, and connect the second one but with its poles reversed, substantially as specified herein.

6. In a telephone-exchange system the combination of a normally open party-line telephone-circuit extending between several substations and a central station, and provided at the latter with call-signal apparatus; a source of current normally associated therewith and arranged to establish therein when the circuit is closed a call-current of definite direction; a switch or key at each substation adapted to close the said circuit, for the establishment of such current, and thereby to operate the said call-signal apparatus; call-answering and current-reversing switchboard mechanism at the central station, controlling the connections of the same or a separate source of current, and adapted by the act of answering a substation-call to withdraw the original current and establish in the circuit another of opposed direction; and a register or meter at each substation for counting and recording answered calls, having a polarized electromagnet-actuating mechanism organized to operate by two successive movements, corresponding to the two relatively-reversed successive current-impulses accompanying respectively the independent acts of sending and answering the call-signals; whereby the call-signals transmitted by the several substations may be registered only when they have been answered; substantially as described herein.

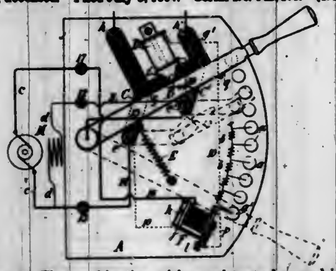
589,432. **COMBINATION TRUSS-ROD AND CORNER-BRACE FOR CARS.** FREDERICK HEIDELBERG, Marshall, Tex. Filed Feb. 1, 1897. Serial No. 621,412. (No model.)

Claim.—1. In a device of the character described, a bracket, side and end flanges formed therewith, a lip formed on the end of the end flange, a boss arranged under the side flange, and a truss-rod secured through an aperture of the boss, substantially as described.



2. In a device of the character described, a bracket for fitting in the corner of a car-frame, flanges extending from the side and end, a boss extending from the under side of one flange, said boss and flange having an inclined opening and a truss-rod passing through the opening, substantially as described.

589,433. **STARTING-BOX FOR ELECTRIC MOTORS.** ROBERT B. HIRST, Brooklyn, N. Y.; Ellen Hirst administratrix of said Robert B. Hirst, deceased. Filed July 3, 1897. Serial No. 643,470. (No model.)



Claim.—1. The combination with a resistance-box and its lever of a switch controlling the main circuit, movable to closed position by said lever, a spring tending to open said switch, a retaining-magnet adapted when excited to hold said switch closed, and means operated by said lever for breaking the circuit of said magnet to release said switch.

2. The combination with a resistance-box and its lever of a switch controlling the main circuit, movable to closed position by said lever, a spring tending to open said switch, a retaining-magnet adapted when excited to hold said switch closed, an overload-magnet adapted when excited beyond the normal to break the circuit of said retaining-magnet, and means operated by said lever for breaking said circuit to release said switch.

3. The combination with a resistance-box and its lever of a switch controlling the main circuit, movable to closed position by said lever, a spring tending to open said switch, a retaining-magnet adapted when excited to hold said switch closed, an overload-magnet adapted when excited beyond the normal to attract its armature to break the circuit of said retaining-magnet, and a mechanical connection between said overload-magnet and said lever, whereby the movement of said lever acts upon said armature to break the circuit of said retaining-magnet.

4. The combination with a resistance-box and its lever, of a double-pole switch controlling the connection of the respective circuit-mains, with the resistances and motor movable to closed position by said lever, a spring tending to open said switch, a retaining-magnet adapted when excited to hold said switch closed, and means for breaking the circuit of said magnet to release said switch whereby the motor is controlled solely by the resistance-box switch.

5. The combination with a resistance-box and its lever, of a double-pole switch controlling the circuit-mains, constructed with movable arms or members C C, turning around separate pivot-posts *a c*, with an insulating parallel bar *f* connecting them, an armature carried by said bar, a retaining-magnet arranged to attract said armature, a spring for throwing said switch open, and means for breaking the circuit of said magnet to release said switch.

589,434. **BICYCLE-TIRE.** CHARLES HOOPER, Port Norbik, Va. Filed Aug. 14, 1896. Serial No. 602,712. (No model.)



Claim.—1. As an improved article of manufacture, a non-puncturable shield for a pneumatic tire composed of closely-woven wire having the transverse strands thereof extended beyond the longitudinal strands, substantially as described.

2. As an improved article of manufacture, a non-puncturable shield for a pneumatic tire composed of closely-woven wire having the transverse strands thereof extended beyond the longitudinal strands and alternately disposed upon opposite sides of the closely-woven portion, substantially as described.

589,435. **NON-REFILLING BOTTLE.** NATHANIEL F. T. HUNT, Braintree, Mass. Filed Mar. 16, 1896. Serial No. 583,304. (No model.)



Claim.—1. In a non-refilling bottle the combination with the main valve of a floating tumbler shaped substantially as shown, whereby liquid forced into the mouth of the bottle when the bottle is inverted and inclined will cause the edge of the floating tumbler to strike against the wall of its chamber and thereby swing the tumbler on that edge against the main valve, substantially as described.

2. In a non-refilling bottle the combination of a main valve with a vent-hole through it; a floating tumbler whose buoyancy swings it toward the main valve when its edge is against the wall of its chamber; a valve covering the vent-hole through the main valve placed between the main valve and the floating tumbler; and a non-buoyant tumbler above the floating tumbler, substantially as described.

589,436. **CLOCK-CASE.** WILLIAM S. INGRAHAM, Bristol, Conn., assignor to the E. Ingraham Company, same place. Filed Dec. 19, 1896. Serial No. 616,237. (No model.)



Claim.—1. In a clock of the kind herein described the frame for supporting the mechanism, a dial with tongues clenched into the strips at H, and the herein-described strips bent out and turned upon themselves, the ends being attached firmly to the frame and case respectively and the angles bearing against the dial, said strips holding the dial and movement-frame firmly in position within the case.

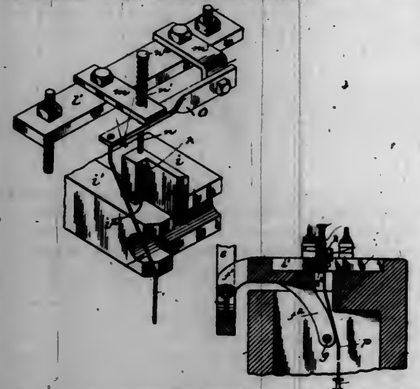
2. In clocks of the kind herein described, the combination with the case, movement-frame, and dial provided with tongues clenched into the strips, of strips, formed as described, fastened to the frame by rivets on the ends of the movement-supporting studs at one end, and to the case by screws on the ends of the supporting parts, all constructed as described to hold the dial, movement-frame, and supporting parts firmly in their respective proper positions.

589,437. **SPECTACLE-FRAME.** HENRY H. KIRSTEIN, Rochester, N. Y. Filed Apr. 3, 1897. Serial No. 630,579. (No model.)



Claim.—In combination with the lenses and temples of a spectacle, a spectacle nose bridge composed of a pliable metal, and consisting of a saddle and arms continuous of said saddle, the free ends of which arms make connection with the lenses, the metal at the junctions of the saddle and arms being bent to form non-resilient coils, the axes of which are substantially parallel to the plane of the lenses, as specified.

589,438. **BOLT-MACHINE.** CHARLES LANE, Pittsburg, Pa. Filed Nov. 30, 1896. Serial No. 613,898. (No model.)



Claim.—1. In a machine for forming bolts, rivets, &c., the combination with the dies and header and mechanism for operating the same, of a movable knife normally out of action, and mechanism for bringing said knife into position to cut the bolt from the blank, substantially as set forth.

2. In a bolt-machine, the combination with the dies and header and mechanism for operating same, of a knife normally above the plane of said dies, and mechanism for lowering said knife into position to cut the bolt, substantially as set forth.

3. In a bolt-machine, the combination with the dies and header and mechanism for operating same, of a knife supported normally above the plane of said dies, and connections between said knife and a lever for lowering said knife, substantially as set forth.

4. In a bolt-machine, the combination with the dies and header and mechanism for operating same, of a knife fitting in a seat in one of the die-holders and adapted to move up and down therein, a knife-blade above the plane of said dies, and mechanism for lowering said knife-blade in position to cut the bolt, substantially as set forth.

5. In a bolt-machine, the combination with the dies and header and mechanism for operating same, of a knife fitting in a seat in one of the die-holders, a rod connected to said knife, a support above said knife, said rod passing up through said support, a spring interposed between said support and a head on said rod, and connections between said rod and a treadle whereby said rod can be lowered, substantially as set forth.

6. In a bolt-machine, the combination with the dies and header and mechanism for operating same, of a knife having a downwardly-extending arm fitting in a seat in one of the die-holders and adapted to move up and down therein, a knife-blade above the plane of said dies, and mechanism for lowering said knife-blade in position to cut the bolt, substantially as set forth.

7. In a machine for forming bolts, rivets, &c., the combination with the dies and header and mechanism for operating same, of a knife having a downwardly-extending arm and a blade extending out from the upper end thereof, said arm fitting in a seat in one of the die-holders and the blade fitting in a portion of the same seat which extends out adjacent to the end of said blade, and mechanism for lowering said knife-blade in position to cut the bolt, substantially as set forth.

589,439. **RUBBISH-CONVEYER ATTACHMENT FOR HARVESTERS.** DAVID E. LOSER, Ocheyedan, Iowa. Filed Feb. 23, 1895. Serial No. 539,407. (No model.)

Claim.—As a new article of manufacture, a butt-feeding attachment adapted to be detachably secured to the cutter-bars of harvesters and similar machines to cooperate with the transverse conveyer-apron, said attachment consisting of a continuous strip approximately equal in length with the upper or exposed side of the apron and having its upper edge serrated, and angle-brackets, the vertical arms of which are permanently secured to the said strip and the horizontal arms of which extend below the lower edge of said strip and are provided with openings for the passage of bolts by means of which the strip may be secured to a cutter-bar, substantially as described.

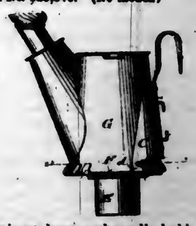


589,440. **BICYCLE-LOCK.** WILLIAM MELVIN, Philadelphia, Pa. Filed Oct. 22, 1896. Serial No. 609,740. (No model.)



Claim.—In a lock, a casing, ears formed with said casing for securement to the top brace of a bicycle, a bolt fitted to slide within said casing, a spring for actuating said bolt in one direction, a lug formed with the bolt to receive the key, guards to regulate the operation of the key, a spring-actuated pin passed through the casing and a buttonhole-slot in the bolt, a button secured upon the pin, and a knob formed upon said pin, all arranged substantially as and for the purpose set forth.

589,441. **MINING-LAMP.** ROBERT A. MILLER, Menominee, Mich., assignor of one-half to Charles H. Treiber, Norway, Mich. Filed Oct. 11, 1894. Serial No. 525,575. (No model.)

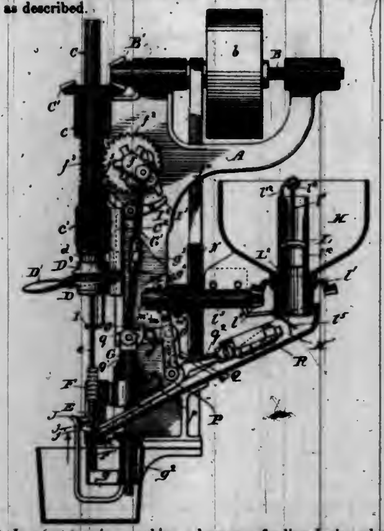


Claim.—1. A miner's lamp and candle holder comprising an upright shield with a horizontal perforated base, a back plate secured to said shield and terminating in a hook, a candle-socket extending through said perforated base and a perforated lamp-holding plate pivotally mounted on said candle-socket and resting on said base, substantially as set forth.

2. A miner's lamp and candle holder comprising an upright shield with a horizontal perforated base, a back plate secured to said shield and terminating in a hook, and having oppositely-extending fingers projecting from its rear surface, a candle-socket and movable lamp-holding plate attached to said base, and a combined spear and wick-trimmer provided with spring-shanks having recesses therein for engagement with said fingers on the back plate, substantially as set forth.

589,442. **NUT-TAPPING MACHINE.** JAMES A. PLOPPER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Nov. 16, 1895. Serial No. 569,145. (No model.)

Claim.—1. In a nut-tapping-machine, the combination of a hopper into which the blanks are promiscuously thrown, and the chute down which the said blanks slide to the tapping-spindle, with a hollow cylinder L adapted to be rotated and having an aperture L^3 through which the said blanks fall from said hopper into said chute, substantially as described.



2. In a nut-tapping machine, a hopper, a feeding device adapted to be moved to feed the nut-blanks from said hopper, a chute adapted to receive the said blanks from said device, and means adapted to allow said feeding device to be intermittently moved, said means having a lever adapted to be prevented from dropping to move said feeding device, by the nut-blanks lying thereunder in the said chute, and to be permitted to drop when said nut-blanks move past it, substantially as described.

3. In a nut-tapping machine and in combination with the tapping-spindle, the tap, the tapping-box and the chute down which nut-blanks slide to the said tapping-box with a hopper, a feeding device revolving upon a substantially vertical axis in said hopper and having an aperture through which the nut-blanks drop from the said hopper to the said tapping-box, substantially as described.

4. In a nut-tapping machine the combination of a hopper, a feeding device revolving therein and having an opening through which the nut-blanks fall, and means for making said opening adjustable so as to limit the number of nut-blanks falling therethrough, substantially as described.

5. In a nut-tapper and in combination with the hopper, a feeding device revolving in said hopper and having a plow-shaped projection on its periphery and an aperture through which the nuts may fall, substantially as described.

6. In a nut-tapping machine, and in combination with the tapping-spindle and associated devices, a chute down which the nut-blanks slide, a hopper, a feeding device adapted to be intermittently moved to feed the said blanks into said chute, a constantly-revolving wheel, a clutch adapted to connect said wheel with said feeding device and a lever adapted to rest upon the nut-blanks in the said chute and hold said clutch disengaged, and to fall when said nut-blanks have passed beyond it, and thus throw the said clutch into engagement with the said wheel, whereby said feeding device is intermittently moved to maintain a supply of nuts in said chute, substantially as described.

7. In a nut-tapping machine, and in combination with the tapping-spindle and associated devices, a chute down which the nut-blanks slide, a hopper, a feeding device adapted to be intermittently moved to feed the said blanks into said chute, a constantly-revolving wheel, a clutch adapted to connect said wheel with said feeding device and a lever adapted to rest upon the nut-blanks in the lower end of the chute and hold said clutch disengaged and to fall when said nut-blanks have passed beyond it, and thus throw the said clutch into engagement with the said wheel, whereby said feeding device is intermittently moved to maintain a supply of nuts in said chute, and a tappet carried by a moving part of the machine and adapted to disengage the clutching mechanism, substantially as described.

8. In a nut-tapping machine and in combination with the constantly-revolving tapping-spindle and a reciprocating anvil adapted to feed nut-blanks to the tap, a spring presser-finger adapted to prevent the said nut-blanks from getting out of place upon said anvil and operating substantially as and for the purpose described.

9. The combination of the tap-spindle having an enlarged end in which is a transverse slot d^2, the stationary jaw D^2, the spring-jaw D^3, a clamping-block d^3, a sliding collar d^4 carrying said clamping-block, and means for operating the same, substantially as described.

10. In a nut-tapping machine, the combination of a revolving tap, a nut-blank-feeding device adapted to move to and from said tap and a shuttle pivoted to said feeding device and adapted to form with the said device an inclosure into which the blank to be operated upon is delivered, said shuttle having a cam-shaped surface and a stationary spring adapted to press against said surface when said feeding device and shuttle are in their blank-receiving position, substantially as and for the purpose described.

11. In a nut-tapping machine the combination of a chute down which the nut-blanks may slide by means of the aid of gravity, with a clearing device hinged to a moving support and adapted to prevent the said blanks from becoming clogged in said chute, substantially as described.

12. In a nut-tapping machine the combination of a chute into which the nut-blanks drop without regard to their relative positions and down which they slide by means of the aid of gravity, with a moving clearing device hinged to its support so as to yieldingly float upon the nut-blanks and free them one from another, substantially as described.

13. In a nut-tapping machine the combination of a chute down which the nut-blanks are dropped without regard to their relative positions and down which they slide by means of the aid of gravity, with a reciprocating clearing device overhanging said chute and hinged to its support, substantially as and for the purpose described.

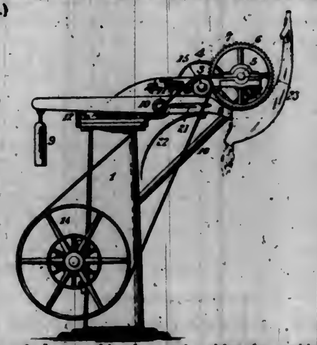
14. In a nut-tapping machine, the combination of a chute with a clearing device reaching into said chute, a support to which said device is hinged, means for limiting the distance between said device and said chute and means for giving the desired movement to said support, substantially as described.

589,443. **RIDER'S SHOE.** JAMES B. RAYBURN, Trenton, N. Y. Filed Nov. 14, 1896. Serial No. 612,128. (No model.)



Claim.—A boot or shoe having its sole provided with a transverse groove, for the purpose specified, and with a reinforcing-plate in said groove, substantially as herein described.

589,444. **MACHINE FOR OPENING SKINS.** CHARLES H. SACKETT, Danbury, Conn. Filed Nov. 16, 1896. Serial No. 612,263. (No model.)



Claim.—1. In a machine for opening skins, the combination with a cutting device of an automatic feeding device consisting of a wheel having projections around its periphery, and a shell fitting partially around the circumference of said projections, said shell being constructed to exert an elastic pressure against the projections of said wheel for the purposes set forth and substantially as described and shown.

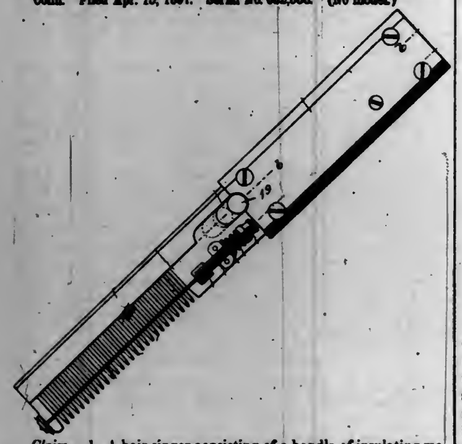
2. In a machine for opening skins the combination with a cutting device of a lever having at one end a bearing against a feeding-wheel, a fulcrum, and at the other end a device for creating an elastic pressure between the bearing end of the lever and the peripheral ex-

tremities of the feeding-wheel, for the purpose set forth and substantially as described and shown.

3. In a machine for opening skins the combination with a cutting device of a feeding-wheel to automatically feed the skins, a bar bearing against the wheel, and at the end of the bar upon which the skin is entered a pointed device for piercing said skins, substantially as described and shown.

4. In a machine for opening skins the combination with a cutting device, a feeding-wheel and a bar bearing against the periphery of said wheel, of side and bottom guide-plates 21 21 22 placed along the line of said bar for the purpose of diverting the skins after being cut into any convenient receptacle, substantially as described and shown.

589,445. ELECTRIC HAIR-SINGER. DAVID SHIDE, Hartford, Conn. Filed Apr. 15, 1897. Serial No. 632,338. (No model.)



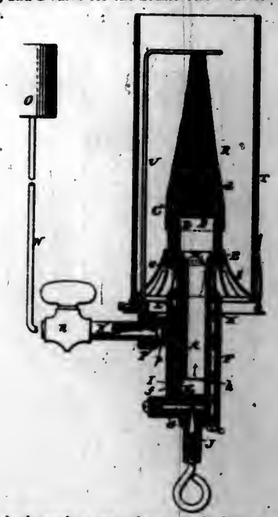
Claim.—1. A hair-singer consisting of a handle of insulating material, a comb of conducting material held by the handle and adapted to be connected with the wire of an electrical circuit, a wire of comparatively small conducting capacity held adjacent to the comb-teeth and adapted to be connected with the wire of an electrical circuit, said comb and wire being electrically connected at one end, a switch borne by the handle for opening and closing a circuit through the comb and wire, and means for connecting the comb and wire with an electrical circuit, substantially as specified.

2. A hair-singer consisting of a handle of insulating material, a comb of conducting material held by the handle, a sliding switch-plate connected with the comb and provided with a button and arranged to be moved into and out of contact with a plate that is adapted to be connected with a wire of an electrical circuit, a wire of comparatively small conducting capacity held adjacent to the comb-teeth and adapted to be connected with the wire of an electrical circuit, said comb and wire being electrically connected at one end, and means for connecting the switch-plate and the resistance-wire with an electrical circuit, substantially as specified.

3. A hair-singer consisting of a handle of insulating material, bearing a pair of sockets of conducting material, a comb of conducting material held by the handle, a sliding switch-plate connected with the comb and provided with a button and arranged to be moved into and out of contact with a plate connected with one of the conducting-sockets in the insulating-handle, a wire of comparatively small conducting capacity held adjacent to the comb-teeth, said wire being connected at one end with the comb and at the other end with the other of the conducting-sockets in the insulating-handle, and means for connecting the conducting-sockets with an electrical circuit, substantially as specified.

589,446. HYDROCARBON INCANDESCENT BURNER. VICTOR H. SLIMACK, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed Dec. 5, 1895. Serial No. 571,185. (No model.)

Claim.—1. In a hydrocarbon-vapor burner, a body structure formed of one integral casting containing the following features, namely, an annular rim at the top, a series of straight passage-ways leading from the source of hydrocarbon-supply and extending upward toward one side of the annular rim then transversely across through the rim and near one lateral edge thereof and then downward and terminating in a nozzle directed upwardly, and also having a mixing-tube arranged above the nozzle and extending through the body structure to one side of the transverse passage-way through the annular rim to the top with provision for the entrance of air at the bottom, in combination with a burner-tip arranged at the upper part of the mixing-tube and adapted to direct the flame toward the annular rim, and a valve for the nozzle below the lower part of the mixing-tube.



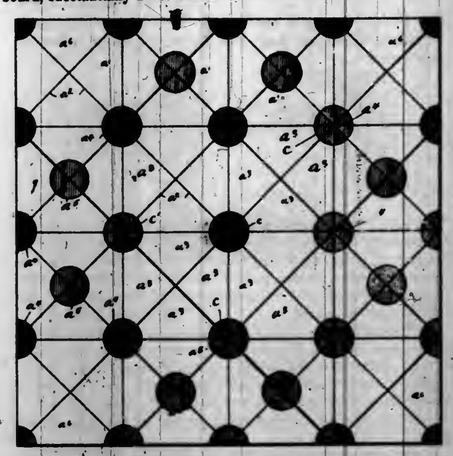
2. In a hydrocarbon-vapor burner, a body structure formed of one integral casting containing the following features, namely, an annular rim at the top, a series of straight passage-ways leading from the source of hydrocarbon-supply and extending upward toward one side of the annular rim then transversely across through the rim and near one lateral edge thereof and then downward and terminating in a nozzle directed upwardly, and also having a mixing-tube arranged above the nozzle and extending through the body structure to one side of the transverse passage-way through the annular rim to the top with provision for the entrance of air at the bottom, in combination with a burner-tip arranged at the upper part of the mixing-tube and adapted to direct the flame toward the annular rim, a valve for the nozzle below the lower part of the mixing-tube, and a mantle of refractory incandescing material supported above the burner so as to be rendered incandescent simultaneously with the heating of the annular rim by the outwardly-directed flame.

3. In an incandescent hydrocarbon-burner, the combination of a burner comprising a vertical mixing-tube, a burner-tip at the top of the mixing-tube for directing the flame outward in an annular shape, a vapor-nozzle a short distance below the mixing-tube, straight flues extending through a heated portion of the burner and connecting with each other for vaporizing the hydrocarbon and supplying it to the nozzle, one of said straight flues extending transversely across through the solid metal between the burner and mixing-tube and connecting with the upper ends of the other straight flues, a reservoir for hydrocarbon oil arranged at a considerable distance above the burner, a stand-pipe leading from the oil-reservoir and connected with the flues of the burner for supplying hydrocarbon oil under pressure, an incandescing mantle above the burner and adapted to be heated by the combustion of the admixed air and hydrocarbon vapor formed in the mixing-tube, and a valve to control the draft created from the hydrocarbon-nozzle.

4. In a vapor-burner, the combination of the burner-head, generator, oil and vapor flues and mixing-chamber all in one integral casting in which the generator consists of a horizontal transverse straight aperture M between the mixing-tube and burner-head located wholly to one side of the vapor-aperture between the burner-head and mixing-tube and having its ends connected to the upper ends of two straight oblique passages L K, to one of which the oil-supply nozzle P connects and to the other of which a vertical flue F connects leading to the vapor-nozzle H at the bottom below the mixing-tube, and a regulating vapor needle-valve for the nozzle.

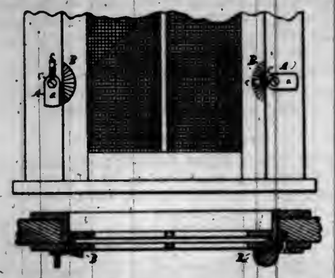
589,447. GAME APPARATUS. SYLVESTER H. STRASSER, Columbus, Ohio. Filed Nov. 23, 1896. Serial No. 613,763. (No model.)

Claim.—1. In a game apparatus the combination of a board having its upper surface divided into a plurality of adjoining squares, each having two crossed diagonal lines drawn through the same, disks or circles at the corners of the said squares, and disks or circles at the intersecting points of a number of diagonal lines, and a central disk or circle, and suitable checkers adapted to be moved over said board, substantially as described.



2. In a game apparatus the combination of a board having its upper surface divided into sixteen squares, of a central disk or circle upon said board, disks or circles at the corners of each of the squares, two crossed diagonal lines drawn through each of the squares, and disks or circles at the intersecting points of the diagonal lines of the squares whose sides adjoin the four squares surrounding the center and suitable checkers of different color adapted to be moved over said board, substantially as described.

589,448. STORM-WINDOW FASTENER. ENOCH SVENDSEN, Minneapolis, Minn. Filed Dec. 15, 1896. Serial No. 615,754. (No model.)



Claim.—In a storm-sash, or window-screen fastener, the combination of a button adjustably secured to the casing, by means of a screw-pivot, said button being fashioned with a wing having a V-shaped edge; and a plate rigidly secured to the storm-sash, or window-screen, by means of screws or otherwise, said plate being of varying thickness and fashioned with radial V-shaped notches adapted to interlock with the V-shaped edge of the said button substantially as shown and described.

589,449. LUBRICATOR. WILLIAM H. THOMPSON and ROBERT THOMPSON, London, England. Filed Oct. 31, 1896. Serial No. 610,713. (No model.) Patented in England June 1, 1893, No. 10,770; in France May 23, 1894, No. 238,743, and in Belgium May 23, 1894, No. 110,179.

Claim.—1. The combination with a lubricator and parts to be lubricated of a connecting-duct formed in part by hollow pivoted rods, a hollow crank-pin by which said rods are joined together, and suitable jointed or flexible connections communicating between the ducts formed in the hollow rods and the ends of said crank-pin, whereby the lubricating fluid is conducted through said crank-pin without communicating with the bearing-surfaces thereof.

2. The combination with a lubricator and parts to be lubricated of a connecting-duct formed in part by hollow pivoted rods, a hollow crank-pin by which said rods are joined together, and suitable jointed or flexible connections communicating between the ducts formed in the hollow rods and the ends of said crank-pin, whereby the lubricating fluid is conducted through said crank-pin without communicating with the bearing-surfaces thereof and a valve-controlled branch leading from said duct to said bearing-surfaces.



589,450. CLASP. JENNIE WALKER, Brooklyn, N. Y. Filed May 12, 1896. Serial No. 591,213. (No model.)



Claim.—1. A clasp comprising a body having fastening devices thereon, and a cover entirely embracing the body, the edges of the cover, together with the bottom of the body being arranged for contact with the surface to which the clasp is applied, as and for the purpose specified.

2. A clasp comprising a body portion provided with fastening devices, and a cover having hinged connection with the body, the said cover being of such dimensions as to substantially surround the body when closed, the bottom edges of the cover when in closed position contacting with the surface to which the clasp is applied, all exterior surfaces of the clasp being smooth, as and for the purpose specified.

3. A clasp comprising a body portion provided with fastening devices, and a cover having hinged connection with the body, the said cover being of such dimensions as to substantially surround the body when closed, the bottom edges of the cover when in closed position contacting with the surface to which the clasp is applied, the exterior surface of the entire clasp having a smooth convexed shape, as and for the purpose specified.

4. A clasp comprising a body having pins secured thereon, and a shell-like cover having a hinged connection with the body and practically surrounding the same when closed, that portion of the body having the pins attached being of less width than the width of the cover, and the said cover being of sufficient depth to extend downward to the surface to which the clasp is applied when the said cover is in closed position, as and for the purpose specified.

5. A clasp comprising a body having pins secured thereon, and a shell-like cover having a hinged connection with the body and practically surrounding the same when closed, that portion of the body having the pins attached being of less width than the width of the cover, and the said cover being of sufficient depth to extend to the surface to which the clasp is applied when the said cover is in closed position, and the said cover being also provided with an interior groove receiving the points of the pins, all exterior surfaces of the body and cover being smooth, as and for the purpose specified.

589,451. AXLE-LUBRICATOR. THEODORE T. WAITE, Lysander, Ohio, assignor of one-half to A. C. Burson and Samuel K. Burson, same place. Filed Oct. 3, 1896. Serial No. 607,786. (No model.)

Claim.—1. An axle, provided with a longitudinal recess, in combination with an oil-receptacle located above the plane of said re-

cess, a slide operating between said receptacle and recess for admitting oil to the recess or cutting off the supply, a button connected to said slide and arranged within reach, whereby the slide may be operated, and a locking-shoulder on the slide to engage a fixed part of the device to prevent accidental displacement of the slide, substantially as described.



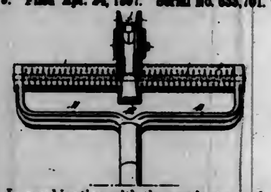
2. An axle provided with a longitudinal recess for conveying oil to the spindle, in combination with a casing fitted over the axle and secured thereon, an oil-receptacle arranged above said casing and having an opening communicating with the recess in the axle, a slide operating between the casing and axle and extending under the oil-receptacle and provided with an opening adapted to register with the opening in the receptacle, a button for operating and a locking-shoulder on the slide to engage a fixed part of the device to prevent accidental displacement of the slide, substantially as described.

3. The combination with an axle provided in its upper surface with a longitudinal recess, and an oil-trough fitted in said recess, of a casing fitted over the axle and embracing the sides thereof, an oil-receptacle on said casing having a discharge-opening arranged above said trough, a slide for opening and closing said opening, a button for operating said slide, a guide-plate connected rigidly to said button and slide, and spaced guides on the casing between which said guide-plate moves, substantially as described.

4. The combination with an axle provided in its upper surface with a longitudinal oil-conducting recess, of a collar arranged at the junction of the axle with the spindle and formed with an aperture alining with the end of said recess, a casing fitted over the axle and covering said recess, an oil-receptacle on the casing having a discharge-opening over said recess, a cut-off slide mounted between the casing and axle and moving across the discharge-opening of the oil-receptacle and having its outer end working through the aperture in the collar and bearing against the spindle, and means for operating said slide, substantially as described.

589,452. TRAVELING CONTACT FOR ELECTRIC RAILWAYS.

WILLIAM F. WEBB, Stockton, N. J., assignor to Walter R. Harrington, Camden, N. J. Filed Apr. 24, 1897. Serial No. 633,701. (No model.)



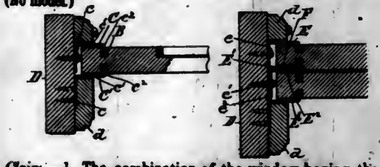
Claim.—1. In combination with the conductor and contact-pole of an electric car, a grooved wheel adapted to revolve freely and contact at its upper periphery with the conductor, the means of carrying the said wheel at the end of the contact-pole, the transverse rod adapted to support the said carrying means and to permit of lateral movement of the same upon it and the slotted cylinder as means for protecting the rod from contact with the conductor.

2. In combination with the conductor and contact-pole of an electric car, a grooved wheel adapted to revolve freely and contact at its upper periphery with the conductor, the means of carrying the said wheel at the end of the contact-pole, said carrying means having flanges on either side of the grooved wheel as means of preventing the conductor from leaving the wheel, the transverse rod adapted to support the said carrying means and to permit of lateral movement of the same upon it, the springs as means of maintaining the normal position of the carrying means, and means for protecting the springs and rod which they surround, from contact with the conductor.

3. In combination with the conductor and contact-pole of an electric car, a carrying-piece provided with a contact-wheel and flanges on either side of same, a transverse rod with which said carrying-piece is adapted to engage from its lower side and upon which it is adapted to slide, the spiral springs surrounding said rod adapted to maintain the carrying-piece normally at the middle of the rod, supporting-arms attached to either end of the said transverse rod to connect the same with the pole and a cylinder surrounding the transverse rod and springs, with a longitudinal slot upon its lower side to permit lateral movement of the carrying-piece but prevent its pivotal movement on the transverse rod, and also as means of preventing the contact of the conductor with the said transverse rod and springs.

589,453. WINDOW AND CASING FOR CARS, &c.

CHARLES A. WELLINGTON, Lexington, Mass. Filed Mar. 24, 1897. Serial No. 629,077. (No model.)



Claim.—1. The combination of the window having the metal-lined groove B, with the stationary casing or housing comprising the metal plates C, C', having feet by which they are secured to the window casing or frame, parallel sections c' and inwardly-turned sections c^2 to enter the metal-lined or other grooves of the window, as and for the purposes described.

2. The combination of the window having the metal-lined groove, with the metal casing C, C', having the yielding portions c' which are held from contact with the window and with the cleats upon the outside thereof, and the ends c bent toward each other and bottomed in the metal-lined or other grooves and holding the window from contact with the portions c' of the casing, as and for the purposes set forth.

3. The combination of the windows arranged to slide by each other, having metal-lined grooves arranged therein as specified, the metal housing E, E' engaging the grooves of the upper sash, the metal housing E^3, E^4 engaging the grooves of the lower sash, the upper sash being cut away at F to afford room for the parallel portions of the casing-sections E', E^3, as and for the purposes set forth.

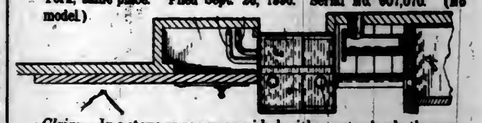
4. The combination of the window-sash having the inclined or beveled surface f, the yielding holders and the sill-piece having the surface f' against which the window-casing is closed and held by the yielding side holders.

5. The combination in a window-casing of the window having grooves therein substantially as specified, the holder C' having a foot extending inward from said window and fastened to the window-casing, and the housing or holder C having the inward-extending foot attached to the window-casing, as and for the purposes described.

6. The combination of the window having grooves substantially as specified, with side housings C, C' engaging said window as specified, the inner housing being removable from the inner side of the window-casing to permit the placing and removal of the window in relation to the outer housing, as and for the purposes described.

589,454. STAND-BOILER FOR STOVES OR RANGES.

FREDERICK V. WINTERS, New York, N. Y., assignor of one-half to John A. York, same place. Filed Sept. 26, 1896. Serial No. 607,070. (No model.)



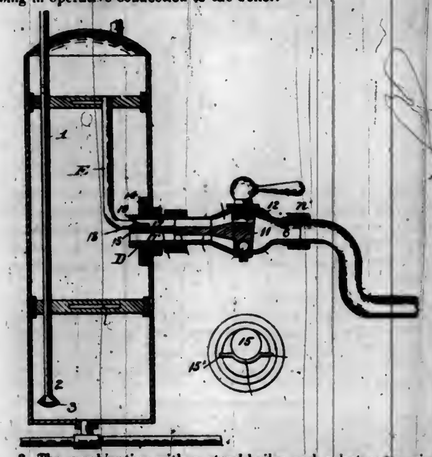
Claim.—In a stove or range provided with a water-back, the combination of a rectangular boiler, square in cross-section arranged above the stove or range with its upper face projecting to form a shelf, a system of circulating-pipes connected to the water-back and leading into the boiler, a warming-oven on the boiler, a portion of the top thereof forming the bottom for the oven and steam-pipes leading from the boiler into the oven and arranged against the inner face of the ends and back walls of the oven.

589,455. STAND-BOILER.

FREDERICK V. WINTERS, New York, N. Y., assignor of one-half to John A. York, same place. Filed Feb. 6, 1897. Serial No. 622,299. (No model.)

Claim.—1. The combination with a stand-boiler, of a water-back having between it and the stand-boiler the usual pipe connections, a partition dividing the hot-water pipe at the end adjacent to the stand-boiler and forming ducts into the boiler, a pipe leading from one of the said ducts to the top of the stand-boiler, and means for causing the hot water to flow through either of said ducts as desired.

2. The combination with a stand-boiler and a hot-water pipe leading thereto, of a valve-casing interposed in the hot-water pipe, having a shell or body formed with a single inlet-port, and two outlet-ports opening into the boiler, a valve-stem in the valve-casing formed with two water-ports arranged at right angles to each other to alternately open and close the outlet-ports, a vertical hot-water pipe in the boiler opening therein adjacent to the top of the boiler, means to secure the vertical pipe to the valve-casing in registration with one of the outlet-ports, and means to hold the said pipe and valve-casing in operative connection to the boiler.



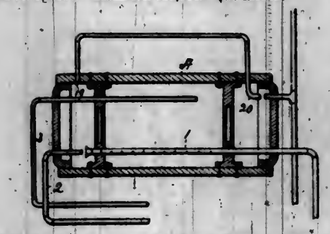
3. The combination with a stand-boiler and a hot-water pipe leading thereto, of a valve interposed in the hot-water pipe, formed with a single inlet-port, and two outlet-ports leading to the boiler, a valve-stem in the valve-shell formed with two water-ports arranged at right angles to each other to alternately open and close the outlet-ports, a connecting-sleeve to connect the valve-shell to the boiler, a partition-plate in the connecting-sleeve, and a hot-water standing pipe in the boiler having its lower end connected to the said connecting-sleeve above the partition therein.

4. The combination with a stand-boiler and a hot-water pipe leading thereto, of a valve interposed in the hot-water pipe, formed with a single inlet-port, and two outlet-ports leading to the boiler, a valve-stem in the valve-shell formed with two water-ports arranged at right angles to each other to alternately open and close the outlet-ports, a connecting-sleeve to connect the valve-shell to the boiler, a detachable partition-plate in the connecting-sleeve, and a hot-water standing-pipe in the boiler having its lower end connected to the said connecting-sleeve above the partition therein.

5. The combination with a stand-boiler and a hot-water pipe, of a valve interposed in the hot-water pipe and formed with a single inlet-port and two outlet-ports and having a slot in the end of the partition between the outlet-ports, a valve-stem in the valve-shell having two ports arranged at right angles to each other to alternately open and close the said outlet-ports, a connecting-sleeve secured in the boiler and to the valve-shell and formed with interior oppositely-arranged grooves, a partition-plate detachably disposed in the said grooves and standing across the bore of the sleeve and said plate being formed with a tongue on its outer end to engage in the slot in the end of the partition between the outlet-ports, and a vertically-arranged pipe in the boiler having its lower end secured in the end of the connecting-sleeve above the said partition-plate.

589,456. STAND OR RANGE BOILER.

FREDERICK V. WINTERS, New York, N. Y., assignor of one-half to John A. York, same place. Filed Feb. 8, 1897. Serial No. 622,500. (No model.)



Claim.—1. In a horizontally-disposed range-boiler, an air-discharging relief-pipe having one end opening into the boiler above the water-line and the other end disposed below the water-line and arranged to direct the air into the hot-water-discharge pipe.

2. In a horizontally-arranged range-boiler, an air-discharging relief-pipe having one end leading into the hot-water-discharge pipe and the other end disposed above the water-line and adapted to take the air from the boiler and discharge it through the hot-water-discharge pipe.

3. In a horizontally-arranged range-boiler, a pipe-coupling in the head of the boiler, and a detachable air-discharging relief-pipe in the boiler having one end opening into and secured to the pipe-coupling and its other end extending in the boiler and reaching above the water-line.

4. In a horizontally-arranged range-boiler, the combination of a pipe-joint formed with exterior screw-threads and an intermediate annular collar, a bent relief-pipe having its lower end secured in the pipe-joint and its upper end arranged to reach above the water-line in the boiler.

5. The combination of a horizontally-arranged range-boiler, a hot-water-pipe joint detachably fixed in the head of the boiler, a relief-pipe to withdraw the air from the boiler, having one end in the said pipe-joint and the other end extended above the water-line in the boiler, and means to lock the relief-pipe to the pipe-joint.

589,457. CAR-COUPLING.

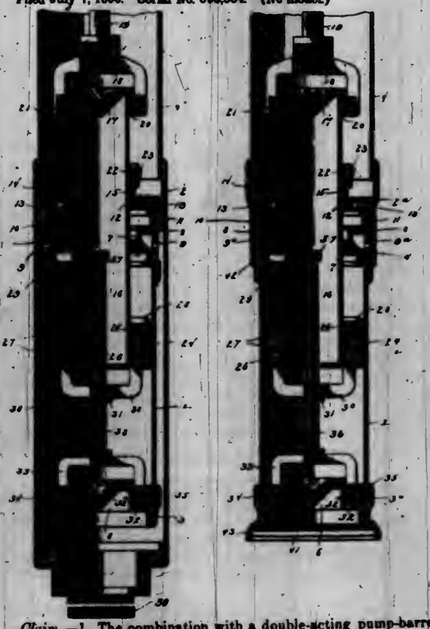
JAMES W. WOLFE, Belvidere, Ill. Filed Oct. 21, 1896. Serial No. 609,586. (No model.)



Claim.—In a car-coupling, the combination with a draw-bar having spaced lugs formed with vertical pin-passages, of a jaw pivotally mounted between said lugs and formed with a link-receiving recess, a pin-passage intersecting said recess, and a plurality of pin-passages arranged concentrically about its pivot, and a pin adapted to be passed through the passages formed in the spaced lugs and any one of the passages formed in the pivoted jaw so as to hold the latter in any of its adjusted positions, substantially as described.

589,458. PUMP.

WILLIAM C. WOODWARD, Los Angeles, Cal. Filed July 7, 1896. Serial No. 598,334. (No model.)



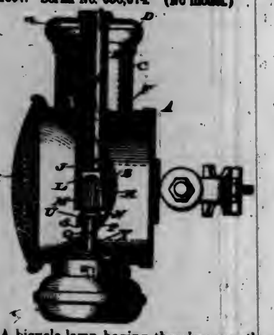
Claim.—1. The combination with a double-acting pump-barrel, of upper and lower inlet-valve seats removably fitted in the barrel and adapted to be upwardly displaced, the lower seat being of smaller diameter than the upper, a plunger for operating in the barrel between the valve-seats and having a valved tubular portion extending through the upper seat, the upper valve-seat being in the path of and adapted to be engaged and elevated by the plunger when the latter is elevated beyond the limit of its stroke, and loose connections between the plunger and the lower valve-seat whereby the latter may be displaced and suspended, substantially as specified.

2. The combination of a pump-barrel provided with terminal upper and lower castings forming downwardly-tapered valve-seat rests, the upper casting having its lower end reduced and provided with inlet-openings, a jacket approximately equal in diameter with the upper portion of the upper casting and secured thereto to inclose said inlet-openings, the lower end of the jacket being provided with a strainer, upper and lower valve-seats removably fitted in said rests, a hollow plunger operating in an opening in the upper valve-seat and provided with a head operating between the planes of the valve-seats, and connections between the plunger and the lower valve-seat, substantially as specified.

3. The combination with a pump-barrel, of upwardly-displaceable upper and lower cylinder inlet-valve seats removably mounted in the barrel, a plunger having a tubular body portion operating in a central opening in the upper valve-seat and provided at its lower end, between the planes of the valve-seats, with a head in the path of which the upper valve-seat is arranged, and a lifting-rod fixed to the lower valve-seat and extending upwardly into the tubular body portion of the plunger through a guide carried thereby and terminating in a head or enlargement to limit the relative separation of the plunger and the lower valve-seat, substantially as specified.

4. The combination with a pump-barrel, of upwardly-displaceable upper and lower cylinder inlet-valve seats removably mounted in the barrel, the upper valve-seat being provided with a shoulder 29, a plunger having a tubular body portion operating in a central opening in the upper valve-seat and provided with a plunger-head fitting snugly in the barrel, said plunger-head being provided with an upwardly-extending flange 28 to engage said shoulder, and loose connections between the plunger and the lower valve-seat for limiting the relative separation thereof, substantially as specified.

589,459. BICYCLE-LAMP. MARION M. YOUNG, Philadelphia, Pa. Filed Apr. 5, 1897. Serial No. 630,674. (No model.)



Claim.—1. A bicycle-lamp having therein a mantle, and means for supporting the latter from its base, said supporting means forming a guide for the wick-tube of the lamp.

2. A bicycle-lamp having therein a mantle, consisting of a head-supporting wire with an attached ring, arms forming a chamber, a shell sustained by said arms, and a wick-tube adapted to occupy said chamber.

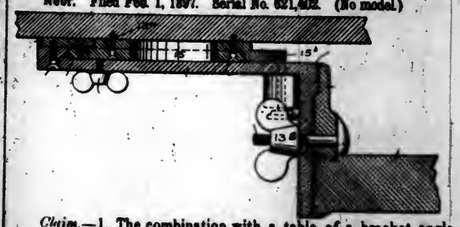
3. A bicycle-lamp, a suitable casing, a hood C supported thereon, a cowl D supported thereon and to which is secured the chimney E, the lower portion of the latter entering the tube J, which latter is supported on said chimney E, a mantle K supported within said tube J, a shell P supporting said mantle, arms R supporting said shell, and a wick-tube Q adapted to occupy the space between said arms.

589,460. PROCESS OF PURIFYING SEWAGE. WALTER R. ADENEY and WILLIAM K. PARRY, Dublin, Ireland. Filed Aug. 17, 1896. Serial No. 603,055. (No specimens.) Patented in England Mar. 17, 1896, No. 5,955; in Belgium Aug. 31, 1896, No. 123,287; in Cape Colony Sept. 10, 1896, No. 1,223, and in New South Wales Sept. 12, 1896, No. 6,890.

Claim.—1. The process herein described for the precipitation of impurities from sewage or foul waters, which consists in treating flue-dusts produced in the manufacture of iron, ferromanganese and steel with acid bodies and then adding the precipitating agents thus produced to the sewage.

2. The process herein described, which consists in treating flue-dusts produced in the manufacture of iron, ferromanganese and steel with acid bodies to extract therefrom the chief basic substances and convert them into soluble salts, then separating them from the insoluble silica and then applying the precipitating agents to sewage for its purification.

589,461. ADJUSTABLE TABLE. EDWARD R. BENNETT, Lincoln, Nebr. Filed Feb. 1, 1897. Serial No. 621,402. (No model.)



Claim.—1. The combination with a table, of a bracket angle-plate having a U-shaped socket upon the horizontal plate thereof, a hub-plate secured to the under side of the table to fit into said socket and a pin fitted upon the said horizontal plate opposite the opening of the socket thereon to hold the hub-plate therein, substantially as described.

2. The combination with a table, of a bracket angle-plate having a U-shaped socket, a hub-plate secured to the under side of the table to fit into said socket, a pin fitted into the angle-plate opposite the opening of the U-shaped socket and a clamping-bolt in the angle-plate to secure the hub-plate and table fixedly thereto, substantially as described.

589,462. ROTATION PUMP. EMIL BIRUS, Munich, Germany. Filed June 27, 1896. Serial No. 597,122. (No model.)



Claim.—1. In a rotary pump, substantially as specified the combination with a casing as G, having a dividing wall or partition B of two sets of rotary pistons K each piston being set in line with one in the opposite set and the two sets of pistons being arranged one on each side of the partition B, a reversed cylinder E arranged to coact with the rotary pistons and inlet and outlet ports leading to and from the casing and communicating with the chambers on both sides of partition B.

2. In a rotary pump the casing G in combination with two geared shafts passing through the casing, a cylinder E having recesses O secured to one shaft, an inner cylinder C surrounding the other shaft said cylinder having a segmental depression D and being secured to the casing by a centrally-located partition B, disks N N secured to the shaft surrounded by cylinder C and pistons K secured to said disks as specified.

3. In a rotary pump substantially as specified the combination with a casing as G, having a dividing wall or partition B having an opening as S at or near the delivery side of the casing of two sets rotary pistons K each piston being set in line with one in the opposite set and the two sets of pistons being arranged one on each side of the partition B, a reversed cylinder E arranged to coact with the rotary piston and inlet and outlet ports leading to and from the casing and communicating with the chambers on both sides of partition B.

589,463. CABINET. FRANK R. CASE, Canton, Ohio. Filed Feb. 16, 1891. Serial No. 381,535. (No model.)



Claim.—The combination of the cabinet A, having fixed thereto the supporting-bar a, the pivoted trays F, having secured thereto the

brackets E, provided with the flanges b', and the recesses d, and the cross-pins e, substantially as and for the purpose specified.

589,464. BICYCLE-REST. EUGENE CHURCH, Tacoma, Wash., assignor to the International Novelty Company, same place. Filed Nov. 28, 1896. Serial No. 613,731. (No model.)



Claim.—1. A bicycle-support consisting of a stand and a rest-block connected to the upper end of said stand, the said block having an acute-angled ridge or corner at its free or upper end so as to be capable of receiving and supporting an inverted bicycle at the junction of the frame proper with the crank-hanger, substantially as described.

2. A bicycle-support consisting of a stand and a rest-block connected to the upper end of said stand, the rest-block having two converging or meeting inclined channels or seats in its free or upper face so as to be capable of receiving and supporting an inverted bicycle at the junction of the frame proper with the crank-hanger, substantially as described.

3. A support for bicycles, consisting of a head, legs having a hinged connection with the said head, the said legs being substantially triangular in cross-section, a rest-block attached to the head, provided with an inclined channel in its upper face, keepers secured to the forward legs near their lower ends, tying devices attached to the said forward legs, being adapted for engagement with the keeper and to be passed around the handle-bar of the bicycle, a second tying device and keeper being secured to one of the rear legs, the second tying device being arranged to pass around one of the braces of the bicycle-frame, as and for the purpose specified.

4. In a support for bicycles, the combination, with a rest-block provided with an inclined channel in its upper face, of legs having a hinged connection with the rest-block, the said legs being arranged to fold closely together, and keepers and tying devices attached to sundry of the said legs, as and for the purpose set forth.

5. In a support for bicycles, the combination, with a rest-block provided with an inclined channel in its upper face, a ring-like head, and a cross-bar received to receive the said head, the cross-bar being attached to the rest-block, of legs shaped to fit closely together, hinges connecting the said legs with the said head, and keepers and tying devices secured to sundry of the said legs at their exterior, as and for the purpose set forth.

589,465. INSECT-PROOF ROLLER OR PEDESTAL. WILLIAM H. CURRY and ANNY M. CURRY, Pioneer, Tex. Filed Feb. 24, 1897. Serial No. 624,869. (No model.)

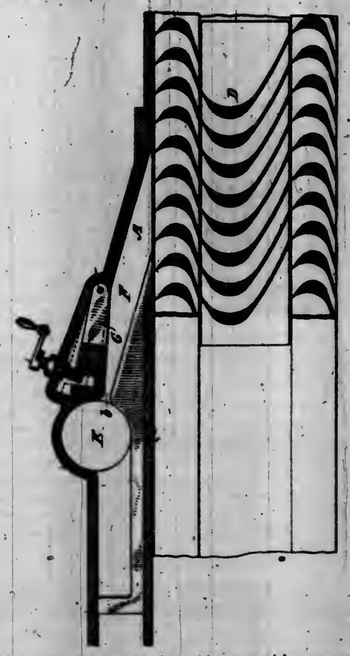


Claim.—1. A caster or pedestal, having a fluid-holding chamber, between its base and shank portions, and an absorbent or oil-receiving member covering the top of the holder and surrounding the shank, and having a portion projected into the fluid within the holder, as specified.

2. A caster or pedestal, having a fluid-holding chamber at a point between the base and the shank, said holder having an annular rim at the top, and an opening in such top, and a disk or pad of an absorbent material detachably held within the said rim to surround the shank, having a pendent wick adapted to pass down through the top of the holder as set forth.

3. The combination of the base having a shank projected up from the bottom, a fluid-holding chamber surrounding the lower end of the shank, a top having an annular vertical rim and an aperture, said top being detachably connected to the upper end of the fluid-holding chamber, and a disk of absorbent material detachably held on such top, having an extension adapted to be bent down to pass through the aperture in the said top, all substantially as described.

589,466. ELASTIC-FLUID TURBINE. CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Aug. 4, 1896. Serial No. 601,601. (No model.)



Claim.—1. An elastic-fluid turbine comprising means by which the elastic fluid is used at different ratios of expansion, whereby the turbine may be used either as a condensing or a non-condensing engine, substantially as set forth.

2. In an elastic-fluid turbine, a delivery-nozzle adjustable to vary the ratio or degree of conversion of pressure into velocity therein, substantially as set forth.

3. In an elastic-fluid turbine, an expansion delivery-nozzle adjustable to vary the ratio of expansion, substantially as set forth.

4. In an elastic-fluid turbine, an expansion delivery-nozzle, in combination with an adjustable piece forming one of the diverging side walls and controlling and varying by its movement the ratio of expansion, substantially as set forth.

5. In an elastic-fluid turbine, a delivery-nozzle adjustable to vary the ratio or degree of conversion of pressure into velocity and also adjustable to vary the volume of the fluid without substantial variations in its velocity, substantially as set forth.

6. In an elastic-fluid turbine, a delivery-nozzle having one of its sides adjustable to vary the volume of the fluid without substantial variations in its velocity, and its opposite side adjustable to vary the ratio of conversion of pressure into velocity, substantially as set forth.

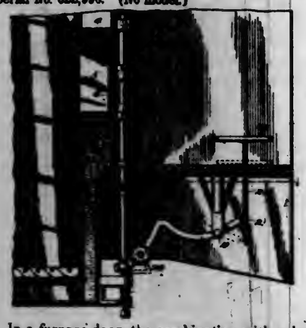
7. In an elastic-fluid turbine, the combination with the nozzle A, of the sliding tongue F and the pivoted piece G, substantially as set forth.

589,467. GRAINING-TOOL. MICHAEL J. DAVIS, Flint, Mich. Filed Dec. 26, 1896. Serial No. 617,062. (No model.)



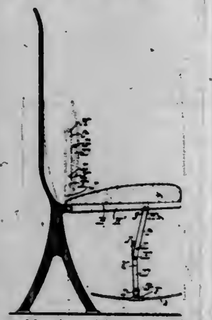
Claim.—The combination of a thin and firm sheet of rubber a, provided with raised designs, adapted to reproduce a design upon a stained surface, similar to different grains of woods, with a soft and pliable sheet of rubber b, adapted to furnish a body for the sheet a, said two sheets of rubber, being rolled into the form of a cylinder, the uniting edges of the sheets abutting but not engaging each other, all substantially as described and for the purpose set forth.

589,468. AUTOMATIC FURNACE-DOOR. HENRY FARRNIER and ALONZO H. WARREN, Higginsville, Mo.; said Warren assignor to Daniel Hoefer, same place. Filed Apr. 12, 1895. Renewed Feb. 11, 1897. Serial No. 622,996. (No model.)



Claim.—In a furnace-door, the combination with a locomotive, of a vertical hinge-post rotatably mounted in the cab of the locomotive, a door carried by said hinge-post closing the fuel-opening of the furnace, and provided below the floor of the cab with a spiral hinge-rod, a standard depending from the floor of the cab, a lever pivotally mounted in the lower end of said standard, and provided at one end with antifriction-rollers which normally engage snugly the lower end of said hinge-rod, an adjustable weight upon said lever contiguous to said antifriction-rollers, a vertical rod extending through the floor of the cab, pivotally connected at its lower end to the opposite end of said lever, and provided at its upper end with a foot-plate, and a set-screw, engaging a cavity in the lower end of said hinge-post, substantially as set forth.

589,469. HAT-SUPPORT FOR THEATER-SEATS. ERNST J. GUERNEL, Milwaukee, Wis. Filed Apr. 6, 1897. Serial No. 630,967. (No model.)



Claim.—1. The combination with a supporting-seat, of a pair of suspension-arms pivotally attached thereto and depending therefrom, a shelf provided with upwardly-projecting standards pivotally attached to the lower ends of the suspension-arms, studs projecting laterally from said arms, and adapted to register in the apertures in said standards, when the shelf is in a position at right angles to the suspension-arms, substantially as described.

2. The combination with a supporting-seat, of a shelf suspended therefrom by a pair of depending arms, said arms being formed in two or more sections adapted to fold together, and one of said sections being provided with a stud adapted to register in an aperture of the other section for holding the sections in a folded position, substantially as described.

3. The combination with a supporting-seat, of the clamps H attached to the side rails thereof, suspension-arms pivotally attached thereto and depending therefrom, a shelf pivotally attached to the lower ends of the suspension-arms, and means for adjusting the shelf upon the suspension-arms, substantially as described.

589,470. MATRIX. THOMAS T. HEATH, Loveland, Ohio. Filed Mar. 17, 1897. Serial No. 627,942. (No model.)

Claim.—1. The improved typographic matrix which consists of a plate having a finely-recessed face, in conjunction with a sheet of matrix material having face-impressions and having rearwardly-extending condensations engaging the recesses of said plate and uniting the sheet of matrix material to the plate.

2. The improved matrix consisting of a sheet of impressible material having facial recesses impressed therein and having a rearwardly-extending group of condensed portions projecting from its rear face opposite each of said facial impressions.



3. The combination, substantially as set forth, of a metallic plate having its face formed with closely-grouped recesses, a sheet of impressible matrix material disposed against the recessed face of said plate, an anvil adapted to engage the rear face of said plate and have the plate move along the same, and a punch adapted to produce impressions in the face of said matrix material against the resistance offered by said plate and anvil.

589,471. CIGAR-VENDING MACHINE. ALVIS J. HOSKINS, Alton, Ill., assignor to Frank N. Schafer and Harry C. Belk, same place. Filed Sept. 26, 1896. Serial No. 607,023. (No model.)



Claim.—1. In a vending-machine, the combination of a casing, a hopper in said casing, a slide located beneath said hopper, a slide over which a coin is adapted to fall on its insertion into the machine, a track over which said coin passes, a spring side to said track, a projection on one side of said track, but rigid with the side of the box, and free from the moving portion said projection being adapted to be struck by an inserted coin in its movement upon the track for the purpose of displacing the spring side from the line of travel of said track, substantially as set forth.

2. In a vending-machine, the combination of a casing, a hopper in said casing, a slide located beneath said hopper, a pull by means of which said slide is actuated, a weighted keeper adapted to retain a coin on said slide, a spring adapted to return said slide to its normal position, and a keeper arranged to control the movement of said slide until displaced by the interrention of an inserted coin, substantially as set forth.

3. In a vending-machine, the combination of a coin-chute provided with a coin-receiving slot, a guideway for said coin, and a weighted keeper adapted to keep said coin in position, substantially as described.

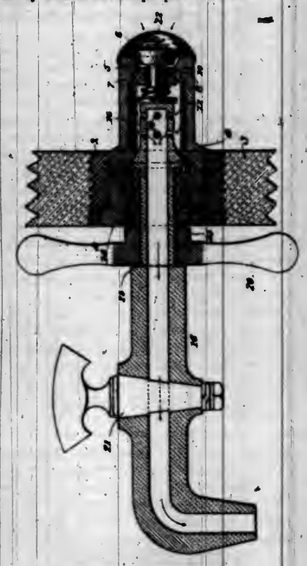
4. A vending-machine comprising a passage-plate having a stop-piece, a block having a shoulder, and spring side moving therewith, and the projection on the passage-plate for forcing the coin and the spring side outward from the stop-piece; substantially as described.

589,472. FAUCET. HARRY C. HOYT, Stamford, Conn. Filed Jan. 22, 1895. Serial No. 535,812. (No model.)

Claim.—1. In a device of the class described, the combination of an automatically-closing valve adapted to be held open by an extension or key of the faucet when the latter is mounted in place, an ordinary faucet 16 having an extension or key upon its inner end for engaging said valve and holding it open when the faucet is mounted in place, said faucet having its stem provided upon the exterior with the abutments 23 and 18, a collar 15 loosely mounted upon the said stem intermediate said abutments and held against lengthwise movement thereon, said collar being attached to and carried by the stem of said faucet and adapted to engage and lock with a fixed part or bushing by rotary movement at the same time seating the faucet in place for use and leaving it freely adjustable on its axis within said collar, so that it may be readily turned to any angle at will.

2. In a device of the class described, the combination of the casing 4 formed upon the interior with an annular beveled shoulder 17, an automatically-closing valve adapted to be held open by an extension or key of the faucet when the latter is mounted in place, an ordinary faucet 16 having an extension or key upon its inner end for engaging said valve and holding it open when the faucet is mounted in place, said faucet having its stem provided with an abutment 23 and an annular beveled shoulder 18 fitting against said shoulder 17 of the casing to form a tight joint therewith, a rotary collar 15 loosely

mounted upon the stem of said faucet intermediate said shoulder 18 and the abutment 23 whereby the faucet may be adjusted on its axis within said collar, said collar fitting within said casing 4 and adapted to lock therewith by rotary movement and to force said beveled shoulder 18 of the faucet tightly against the shoulder 17 of said casing thereby holding the faucet in adjusted position at the same time cutting off the escape of gas or liquid between said shoulders 17 and 18, substantially as and for the purpose set forth.



589,473. STOVE. GODFRIED LAUBE, Huron, S. D. Filed Dec. 23, 1896. Serial No. 616,709. (No model.)



Claim.—1. In combination, a base having pipes with split seams, pipes telescopically arranged in the base-pipes, means for clamping the pipes and a burner having a flared collar to engage the stove-pipe, substantially as described.

2. In combination, a base having partitions, pipes communicating with the base between and on each side of the partitions, said pipes having split seams, lugs and clamping-bolts, pipes telescopically arranged in the base-sections, a removable burner arranged on the base communicating with the central pipe and a damper for directing the products of combustion through the side pipes, as and for the purpose described.

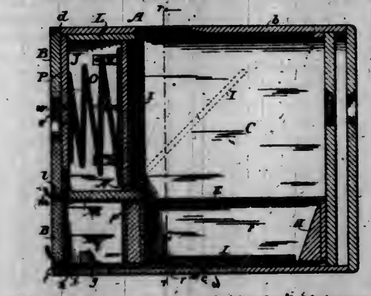
589,474. BALL-BEARING. HERMANN LEITNER, Grand Rapids, Mich. Filed Sept. 14, 1896. Serial No. 605,836. (No model.)

Claim.—1. In a ball-bearing, an outer sleeve, an inner slotted sleeve, each of said sleeves tapered so that the outer one may be made to encompass the inner one and draw it snugly to place, an axletree end fitted with grooves for the reception of balls, there being corresponding grooves in the inner surface of the inner sleeve, balls to travel in said grooves, in combination with a removable plate fitted in the inner sleeve and adapted to be reduced in size to allow the inner sleeve to be contracted by the action of the outer sleeve, substantially as and for the purpose set forth.



2. An outer tapering sleeve and an inner tapering and slotted sleeve, the inner sleeve being grooved for the reception of balls to form a ball-bearing, an axletree correspondingly grooved, balls in said grooves, plates in slots in the inner sleeve, adapted to be reduced in width to reduce the size of the inner sleeve, means for holding the plates in place when the outer sleeve is removed, and means for forcing the outer sleeve upon the inner sleeve, substantially as and for the purpose stated.

589,475. MAGAZINE-CAMERA. HARVEY W. LOCKE, Rochester, N. Y., assignor to William F. Carlton, same place. Filed Jan. 20, 1897. Serial No. 619,970. (No model.)



Claim.—1. A magazine-camera having fixed side bottom and top walls, a removable rear lid, a lower compartment, a drawer sliding through the rear into said lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment but of a lesser height and width, said chamber having a bottom plate separating it permanently from the lower compartment, a top plate extending forward a lesser distance than the bottom plate, and projecting studs *u*, *u*, at its front and sides, in combination with a sliding partition between said upper and lower compartments sliding rearwardly through a slot in the said lid; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs, the front plate or film holder alone being then located forward of the front edge of the said top plate and with its notches below the corresponding studs; sliding bars on each side of the said upper compartment having on their ends arms which project beneath the bottom edge of the front holder, and said arms having upwardly-projecting lips forward of the front edge of the front holder; spring-arms carried by said sliding bars and projecting rearwardly to the rear of said chamber; a vertically-movable slide connected with said spring-arms, and sliding up and down; means for operating said slide accessible through an opening in said rear lid, so that when said slide is moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity; a follower located within said chamber back of the plate or film holders therein; and a spring interposed between said follower and said slide for forcing said follower against said holders, substantially as set forth.

2. A magazine-camera having, in combination, a movable rear lid, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment but of a lesser height and width, said chamber having a bottom plate, a top plate extending forward a lesser distance than the bottom plate, and projecting studs *u*, *u*, at its front and sides; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs, the front plate or film holder alone being then located forward of the front edge of the said top plate and with its notches below the corresponding studs; sliding bars on each side of the said upper compartment having on their ends arms which project beneath the bottom edge of the front holder; spring-arms carried by said sliding bars and projecting rearwardly to the rear of said chamber; a vertically-movable slide connected with said spring-

arms, and sliding up and down; means for operating said slide so that when said slide is moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity; a follower located within said chamber back of the plate or film holders therein; and a spring interposed between said follower and said slide for forcing said follower against said holders, substantially as set forth.

3. A magazine-camera having, in combination, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment but of a lesser height and width, said chamber having a bottom plate, a top plate extending forward a lesser distance than the bottom plate, and projecting studs *u*, *u*, at its front and sides; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs, the front plate or film holder alone being then located forward of the front edge of the said top plate and with its notches below the corresponding studs; sliding bars on each side of the said compartment having on their ends arms which project beneath the bottom edge of the front holder; arms carried by said sliding bars and projecting rearwardly to the rear of said chamber; a vertically-movable slide connected with said arms, and sliding up and down; and means for operating said slide so that when said slide is moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity, substantially as set forth.

4. A magazine-camera having, in combination, a movable rear lid, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment, said chamber having projecting studs *u*, *u*, at its front and sides; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs with their notches below the corresponding studs; sliding bars on each side of the said upper compartment having on their ends arms which project beneath the bottom edge of the front holder; spring-arms carried by said sliding bars and projecting rearwardly to the rear of said chamber; a vertically-movable slide connected with said spring-arms, and sliding up and down; means for operating said slide accessible through an opening in said rear lid, so that when said slide is moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity; a follower located within said chamber back of the plate or film holders therein, and a spring interposed between said follower and said slide for forcing said follower against said holders, substantially as set forth.

5. A magazine-camera having, in combination, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment, said chamber having projecting studs *u*, *u*, at its front and sides; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs with their notches below the corresponding studs; sliding bars on each side of the said upper compartment having on their ends arms which project beneath the bottom edge of the front holder, arms carried by said sliding bars and projecting rearwardly to the rear of said chamber, a vertically-movable slide connected with said arms, and sliding up and down; means for operating said slide so that when said slide is moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity; a follower located within said chamber back of the plate or film holders therein; and a spring interposed between said follower and said slide for forcing said follower against said holders, substantially as set forth.

6. A magazine-camera having, in combination, a movable rear lid, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said upper compartment, said chamber having projecting studs *u*, *u*, at its front and sides; plate or film holders having notched side flanges, said flanges being adapted to seat against said studs, with their notches below the corresponding studs; arms which project beneath the bottom edge of the front holder; means for operating said arms accessible through an opening in said rear lid, so that when said arms are moved up the front plate or film holder alone is elevated until its notches register with the said studs *u*, *u*, whereupon said front holder is free to fall down by gravity; a follower located within said chamber back of the plate or film holders therein; and a spring for forcing said follower against said holders, substantially as set forth.

7. A magazine-camera having, in combination, a rear movable lid having a horizontal slot therein, a front upper compartment, a rear upper plate or film holder chamber in line with said front upper compartment, said chamber being accessible through the rear of the camera when said lid is opened, a lower compartment extending beneath the upper compartment and the bottom plate of said chamber, a sliding drawer located within said lower compartment and sliding outwardly when said lid is opened, and a sliding partition between said upper and lower compartments above said chamber, said partition extending beneath the bottom plate of said chamber and sliding outwardly through the slot in said lid, substantially as set forth.

9. A magazine-camera having, in combination, a lower compartment, a drawer sliding therein, a rear upper plate or film holder chamber, a front upper compartment in line with the said chamber, said chamber being smaller in height and width than said upper compartment, and said lower compartment extending beneath both said chamber and said upper compartment; and a sliding partition between said upper and lower compartments and extending below said chamber, substantially as set forth.

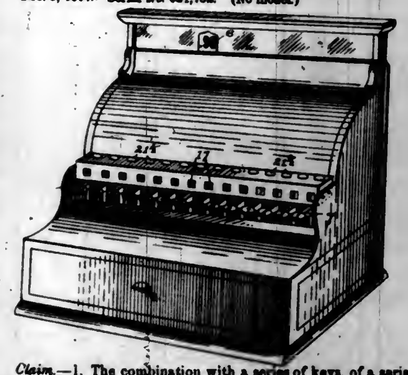
9. A magazine-camera having, in combination, a lower compartment, a rear upper plate or film holder chamber, a front upper compartment in line with the said chamber, a drawer sliding within said lower compartment and extending beneath said front upper compartment to receive the plate or film holders after exposure, and a sliding partition between said upper and lower compartments which covers said drawer during exposure and is adapted to initially receive the plate or film holders after exposure, substantially as set forth.

10. A magazine-camera having, in combination, a lower compartment, a rear upper plate or film holder chamber, a front upper compartment in line with the said chamber, said lower compartment extending below both said upper compartment and said chamber, and a drawer sliding within said lower compartment and extending beneath said front upper compartment to receive the plate or film holders after exposure, substantially as set forth.

11. A magazine-camera having, in combination, a lower compartment, a front upper compartment, a rear upper plate or film holder chamber in line with said front compartment, and a sliding partition between said upper and lower compartments which covers said lower compartment during exposure and is adapted to initially receive the plate or film holders after exposure, substantially as set forth.

12. A magazine-camera having, in combination, a plate or film holder chamber, a front upper compartment in front of said chamber, a lower compartment extending beneath both said chamber and said upper compartment which receives the plate or film holders after exposure, and a movable rear lid which closes both said chamber and said lower compartment, substantially as set forth, whereby when said lid is opened said chamber is open for the reception, and said lower compartment is open for the removal, of plate or film holders.

589,476. CASH-REGISTER. ALVAN MACAULEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Feb. 3, 1897. Serial No. 621,732. (No model.)



Claim.—1. The combination with a series of keys, of a series of cooperating type-blocks normally locked in position by the keys but so arranged that when one of the keys is operated it will unlock its cooperating type-block.

2. In a device of the class described, the combination with a series of keys, of a series of type-blocks each cooperating with one of the keys of the series, and means controlled by the keys for locking the type in normal position, and for unlocking the type when the keys are operated.

3. In a device of the class described, the combination with a series of keys, of a series of type-blocks cooperating with the keys respectively, and means for locking the type-blocks in normal position when the keys are in normal position and for unlocking any one of the series of type-blocks when its cooperating key is actuated.

4. The combination with the series of manually-operated type-blocks, of a registering mechanism, and keys controlled by the type-blocks for registering the value of the type-blocks which cooperate with the keys operated upon the registering mechanism.

5. In a device of the class described, the combination with the series of keys, of the type-blocks, means controlled by the keys for normally locking the type-blocks, and for releasing one of the type-blocks when a key is operated, devices for locking the operated key in operated position, and means controlled by the type-block for releasing the operated key.

6. In a device of the class described, the combination with a series of keys, of the type-blocks normally within the type-rack, and means controlled by the keys for ejecting, or partially ejecting, the type-blocks when the keys are operated.

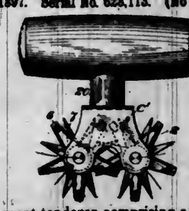
7. In a device of the class described, the combination with the series of keys, of the series of type-blocks, means controlled by any key of the series that may be operated for releasing its cooperating type-block, and devices for locking the operated key out of normal position until its type-block is returned to substantially normal position.

8. In a device of the class described, the combination with a series of keys, of the type-rack carrying the series of type-blocks normally locked in position, means released by the operation of a key for ejecting the cooperating type-block, and devices for automatically relocking the type-block when it is returned to normal position.

9. In a device of the class described, the combination of the series of keys, of the series of type-blocks, pins carried by the keys and arranged to lock the type-blocks when the keys are in normal position, and a series of arms arranged to eject, or partially eject a type-block when its cooperating key is actuated.

10. In a device of the class described, the combination with the series of keys, of the series of type-blocks, a series of pins carried by the keys and arranged to lock the type-blocks in normal position, a series of spring-actuated arms bearing detents and arranged to eject the type-block from normal position when released by the operation of a key, and a series of studs also carried by the keys and arranged to cooperate with the detents in the manner described.

589,477. MEAT-TENDERER. FRANCIS E. MARCHVILLE, New Britain, Conn., assignor of one-half to Justus A. Trant, same place. Filed Mar. 18, 1897. Serial No. 628,113. (No model.)



Claim.—1. A meat-tenderer comprising a frame and a series of independently-rotatable rotary cutters carried thereby and disposed in sets having different numbers of teeth, the cutting edges of one set being located in a transverse plane relatively to the cutting edges of the other set.

2. A meat-tenderer comprising a frame and two series of independently-rotatable cutters movable about two different axes, the cutting edges of one of said series of cutters extending into the spaces between the other series, and the cutters of each of the series being disposed in sets, the cutting edges of one set being located in a transverse plane relatively to the cutting edges of the other set.

3. A meat tenderer comprising a frame and a series of rotary cutters carried by said frame, the cutting edges of the alternate cutters being in transverse planes relatively to each other, and the cutting edges of the individual cutters being disposed in one and the same direction.

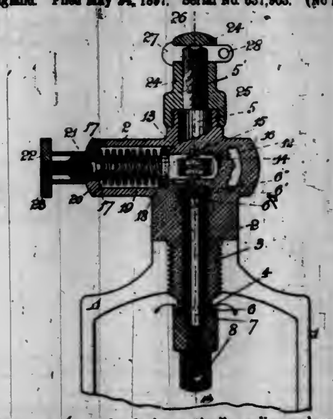
589,478. CLEVIS. WILLIAM R. A. PIPERS, Parkers Landing, Pa., assignor of one-third to A. A. Moore, same place. Filed May 20, 1897. Serial No. 637,437. (No model.)



Claim.—1. A clevis formed from a piece of spring-steel wire and having an eye formed at the end of one of its horizontal arms, and a vertically-arranged coiled spring at the end of its other horizontal arm and integral therewith, substantially as described.

2. The combination with the cross-bar, of a pair of shafts, the singletree, and the retaining-bolt, of a clevis formed of a piece of spring-wire the upper horizontal arm of which engages the upper face of the singletree and is provided with an eye at its end for the passage of the retaining-bolt, and the lower horizontal arm of which engages the lower face of the cross-bar and has its end bent to form a vertically-arranged coiled spring through which the end of the bolt passes, and a nut working on the end of the bolt to engage and compress the coiled spring, substantially as and for the purpose specified.

589,479. VALVE APPLICABLE TO VESSELS CONTAINING COMPRESSED GAS. JOSEPH G. PLUNKETT and GUSTAVO DONAT, London, England. Filed May 24, 1897. Serial No. 637,903. (No model.)



Claim.—1. In a valve for hermetically sealing and regulating the supply from vessels containing compressed gas, mixed gases, and gaseous liquids, the combination of a partially-rotating spindle 5, upon which is secured a plain or faced valve 7 closing against a V-shaped metallic seating 4, the stud 12, secured to and turning with said spindle and carrying a metallic roller 13, which engages with the inclined slot 14, formed in casing, the shouldered guide 17, flexibly secured to stud 12, and surrounded by spring 19, the respective parts cooperating and interacting for the purposes set forth.

2. In a valve for operating vessels containing compressed gas, gases and liquids, the combination with the operating-spindle 5, shaped for the attachment of a lever as at 5' and the valve on the said spindle with the metallic cap 24, screwed to the body 2, and secured by the pin or cotter 27, the vulcanized fiber packing-ring 6, and the grooved channel 6' in which is the soft-rubber washer 6" substantially as and for the purposes set forth.

3. The combination in a valve for operating vessels containing compressed gas, gases, and gaseous liquids, of the shouldered guide 17, having a tapped end 21 and fitted with a shouldered screwed plug 22, cooperating therewith for maintaining the valve in the open position when charging the spindle 5, the valve carried thereby and connections to said guide, substantially as set forth.

589,480. BUGGY-AXLE. LINDLEY M. PRESNALL, Hazelton, Kans. Filed Mar. 6, 1897. Serial No. 626,249. (No model.)



Claim.—An axle for vehicles comprising an axle-cap having a central solid portion and outer hollow ends open at the under side, bearings located in the outer portions of the said hollow ends of the cap and having ears extending from the bases thereof, clips surrounding the said hollow ends of the cap and having their lower portions secured in the said ears, and spindles mounted in said hollow portions of the cap and having the inner ends thereof rotatably mounted in the solid portion of the cap and the outer parts movable in the said bearings, and wheels fixed to the outer ends of said spindles, substantially as and for the purposes specified.

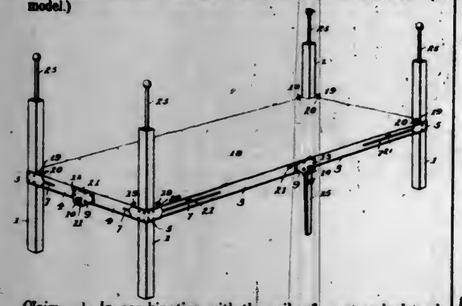
589,481. WALL-TIE. WILLIAM R. RAYWOOD and THOMAS R. GOODEL, Covington, Ky. Filed Apr. 22, 1897. Serial No. 633,243. (No model.)

Claim.—As an article of manufacture, a wall-tie, made of a single piece of wire composed of a straight shank portion with end loops whose planes are at right angles with each other, one loop being slightly open with the end projecting at right angles to the shank the other loop being closed with the end projecting back at right angles to the shank within the bend of the loop with the shank, substantially as shown and described.

589,481.



589,482. FOLDING COT OR BEDSTEAD. EDWARD H. RINNELIN, Galveston, Tex. Filed Dec. 12, 1896. Serial No. 615,488. (No model.)



Claim.—1. In combination with the rails of a cot or bedstead, the mediate folding joints of the rails pivotally connecting their meeting ends, consisting of separate iron parts secured to one of the rail-sections, forming a projecting end socket or jaw, each iron part having a symmetrical slot, and a pivot-forming bolt on the other rail-section transversely engaging said slots, the latter being formed to allow the movement therein of the bolt to permit the abutting engagement of the rail parts within the jaws of the irons and to allow the pivot-bolt to move in said slots and engaging supporting parts formed by slots in the irons and projections on the sides of the meeting rail-section.

2. In a folding cot or bedstead, the combination with the mediately-jointed rails, of joint-forming irons consisting of plates fixed in pairs to the opposite sides of one of the rail parts, forming a projecting end socket or jaw, and coincident slots in said socket-forming parts, curved as described, the other end of the meeting rail part having a bolt passing transversely through said slots, forming a pivot connection and support for the meeting rail ends within the socket-forming irons, and a prop-leg pivoted to the socket-forming irons and adapted to be folded with the rail parts.

3. As a new manufacture, a folding cot-frame for beds, consisting of the side and end rails jointed mediately of their length and each rail part jointed also to the posts, the said mediate joints being formed by irons having curved slots and fixed on one of the rail parts and bolts engaging said slots fixed upon the other rail part whereby the rails are adapted for sliding engagement endwise with each other and with the posts, at such joints and for folding the rail-sections and the posts together in the way and for the purpose stated.

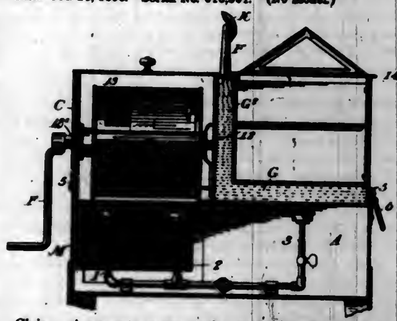
4. In a cot or bedstead, the combination of the posts and the rails, with the angle-irons for pivotally connecting the posts and rails, having hooks at opposite sides of the posts for engaging and supporting the sacking bottom and bolts for engaging the rails.

5. In a folding cot or bedstead having rails jointed mediately of their length, the joint-forming plates 9, 9 secured to and forming a socket at the meeting end of one of the rail parts, each plate having coincident parallel slots 12 in the line of the rail open at the projecting edges of said plates, the other meeting rail part having on its opposite sides projections or tongues 13, formed with lips 14 and adapted to engage the plates at the slots by a sliding movement to bring the rails in abutting relation, the said plate having slots 10 below the slots 12, and a bolt 11 in the rail part having the projections 13, the said slots 10 being in coincident relation and having a form adapted to allow a sliding of the rail parts toward and from each other and to bring the bolt in the upper part of said slots 10 in which it forms a support for the rail ends.

6. In a folding cot or bedstead having rails jointed mediately of their length, a hinge or joint therefor consisting of double slotted irons, forming a jaw on the meeting end of one of the rail parts, and a bolt on the meeting end of the other rail part engaging the slots of the double irons, whereby the bolt containing rail ends are adapted to be supported within the jaws in abutting relation.

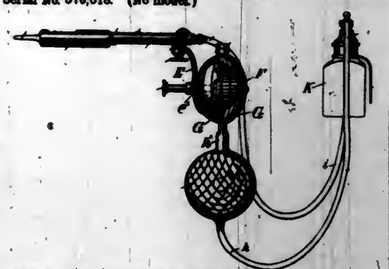
7. In a folding cot or bedstead having rails jointed mediately of their length, the joint-forming irons consisting of a pair of plates bolted to and projecting from each side of the meeting end of one rail part and forming a socket or jaw, each plate having slots in their projecting edges, the slots of each plate being coincident, in combination with tongues on the opposite sides of the other meeting rail end adapted to enter the said slots in joining the rail ends and a suitable pivotal connection of the tongued rail, with the said slotted plates, whereby the jointed ends of the rails are secured and braced within the socket or jaw.

589,488. PEANUT-ROASTER. NICHOLAS ROSSI, Emporia, Kans. Filed Oct. 28, 1896. Serial No. 610,391. (No model.)



Claim.—A peanut roaster and receptacle, comprising a rectangular supporting-box, an inclined chute therein disposed under the roasting-cylinder, a heating appliance in the supporting-box, a rectangular casing supported on the said box, composed of receptacles B, B, having glass outer sides, a receptacle for raw material, a casing for a roasting-cylinder, a water jacket or reservoir under the receptacles B, B, and extending vertically up their rear walls, covers on the respective receptacles, and a roasting-cylinder journaled in the casing therefor and over the inclined chute, substantially as described.

589,484. CAUTERIZING APPARATUS. WILHELM SCHERER, Tuttlingen, Germany, assignor to the Actien-Gesellschaft für Fein Mechanik, vormals Jetter & Scheerer, same place. Filed Jan. 18, 1896. Serial No. 576,018. (No model.)



Claim.—1. In a cauterizing apparatus, the combination, with a burner-tube, and a handle connected to the burner-tube, of a blower-holder carried by the handle, a manually-operated blower supported by the blower-holder, and mechanism in front of the blower for actuating the same, substantially as set forth.

2. In a cauterizing apparatus, the combination, with a burner-tube, and a handle pivotally connected to the burner-tube, of a blower-holder carried by the handle and a manually-operated blower supported by said holder, substantially as set forth.

3. In a cauterizing apparatus, the combination, with a burner-tube, and a handle pivotally connected to the burner-tube, of a blower-holder carried by the handle, a manually-operated blower supported by said holder, and means for operating the blower, substantially as set forth.

4. In a cauterizing apparatus, the combination, with a burner-tube, and a handle connected to the burner-tube, of a blower-holder carried by the handle, a manually-operated blower supported by said holder, and a plunger in front of the blower and arranged to actuate the same, substantially as set forth.

5. In a cauterizing apparatus, the combination, with a burner-tube, and a handle connected to the burner-tube, of a blower-holder carried by the handle, a manually-operated blower supported by said holder, and a plunger passing through the handle and arranged to actuate the blower, substantially as set forth.

6. In a cauterizing apparatus, the combination, with a burner-tube, and a bracket connected thereto, of a blower-casing shaped to fit the palm of the hand and secured to the bracket, a manually-operated blower located in the casing, and a plunger passing through the front of the bracket and arranged to press against the blower, substantially as set forth.

589,485. ELECTRIC RAIL-BOND. GEORGE H. SCOTT, Worcester, Mass. Filed Jan. 26, 1897. Serial No. 620,590. (No model.)



Claim.—1. In a rail-bond, the combination with two metallic rails, each provided with a hole to receive a bushing, of bushings held in said holes and having recesses in one end to receive a conducting-wire, said bushing being cut away on one side to allow the conducting-wire to be bent closely against the side of the rail, and a conducting-wire with its ends held in said recesses, substantially as described.

2. In a rail-bond, the combination of bushings E, E each provided with a diametrical slot E' forming a recess to receive the end of a conducting-wire, and a conducting-wire with its ends held in said diametrical slot, substantially as described.

3. In a rail-bond, the bushing E provided with a diametrical slot E' to receive the end of a conducting-wire and forming prongs E^2 and E^3 with one of said prongs shorter than the other, substantially as described.

4. The combination in a rail-bond of a bushing E having a recess to receive a conducting-wire, said recess having parallel opposing walls, and a conducting-wire with its ends held in said recess, said wire being rectangular in its cross-section, substantially as described.

5. The combination with a pair of metallic rails each having a hole to receive a bushing, of bushings inserted in said holes and having recesses to receive the ends of a conducting-wire, of a conducting-wire inserted in said recesses, said bushings being upset longitudinally whereby they are expanded diametrically and crowded against said conducting-wire, substantially as described.

6. In a rail-bond, the combination with a rail provided with a cylindrical hole of a bushing inserted in said hole, said bushing having prongs E^2 and E^3 with one of said prongs the longer, and having a recess to receive a conducting-wire, a conducting-wire inserted in said recess, with said bushing upset longitudinally whereby one end is expanded to form a flange against the side of the rail and the longer of said prongs is expanded against the side of the rail and also against the conducting-wire, substantially as described.

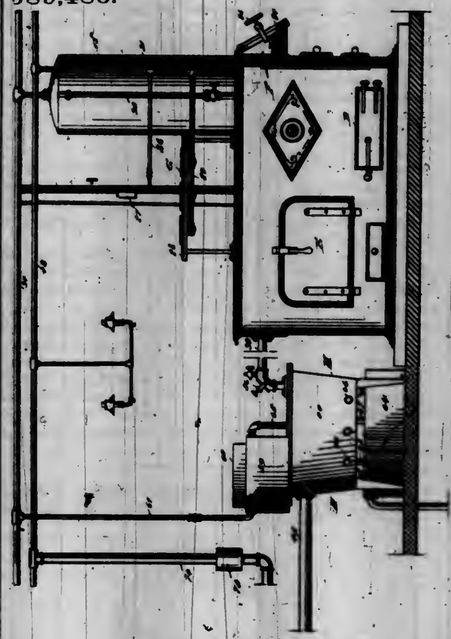
589,486. RANGE GAS-GENERATOR. MIGUEL VÉLEZ, New York, N. Y. Filed Nov. 16, 1894. Serial No. 528,977. (No model.)

Claim.—1. The combination, with the range and the retort therein, of the gasometer connected to the retort, said gasometer comprising the body adapted to be filled with water, the fixed dome within the body, the movable body between the body and the fixed dome, the gas-inlet pipe constructed to discharge gas into the movable dome, the gas-outlet pipe connected to the interior of the movable dome and to the main service-pipe, a valved branch pipe leading from the outlet-pipe to the interior of the fixed dome, and a pump connected to the outlet-pipe and to the branch pipe between the body of the gasometer and the connection of the branch pipe with the outlet-pipe, as and for the purpose set forth.

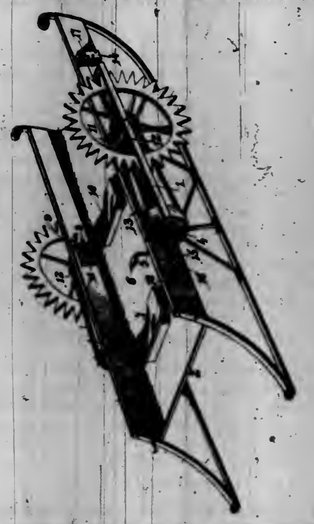
2. The combination, with a range or an equivalent cooking or heating device, of a retort contained therein, adapted for the generation of gas from wood or vegetable substances, a purifier and washing device connected with the said retort, the said purifier and washing device being provided with water-receiving compartments and a gas-purifying compartment, the said compartments being connected and provided with conductors for the gas, a purifying-box located in the purifying-compartment, having a reticulated bottom and a substantially open top, being adapted to contain lime and waste, or other gas-purifying material, a water seal located over the purifying-compartment, a water-feed entering the said seal and supplying water therefrom to the water-compartments, an overflow leading from the water-compartment, and a drip-pan adapted to receive the overflow, and a receiver for the gas, connected with the purifying-chamber of the purifying and washing device, substantially as and for the purpose specified.

3. In an apparatus for the manufacture of gas, a purifier, a water-tank forming a water seal for the purifier, a washer, an overflow for discharging the water from the water seal into the washer, and a drip-pan for receiving the overflow from the washer, substantially as described.

589,486.



589,487. SLED-PROPELLER. CHARLES P. WAGONER, Eagle Lake, Minn. Filed Mar. 24, 1897. Serial No. 629,060. (No model.)



Claim.—1. In a device of the class described, the combination of a sled, a crank-shaft journaled in suitable bearings, a longitudinal frame pivotally mounted on the crank-shaft and extending therefrom, a spring connected with the frame and extended from the shaft in the opposite direction, a tension device connecting the spring with the sled, a gear-wheel mounted on the crank-shaft, a propelling-wheel mounted on the longitudinal frame, gearing connecting the propelling-wheel with the gear-wheel, and means for limiting the upward movement of the frame, substantially as described.

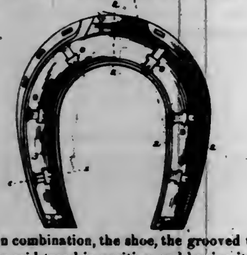
2. In a device of the class described, the combination of a sled provided with a slot, a crank-shaft journaled in suitable bearings, a longitudinal frame pivotally mounted on the crank-shaft and extending therefrom, a spring connected with the frame and extending from

the shaft in the opposite direction and provided at its outer end with a return-bend forming a loop, a set-screw passing through the slot and the loop and securing the spring at the desired adjustment, and propelling mechanism mounted on the longitudinal frame and connected with the crank-shaft, substantially as described.

3. In a device of the class described, the combination with a sled, of a longitudinal frame pivoted near its rear end and capable of vertical oscillation, propelling mechanism mounted on the pivoted frame and provided with a propelling-wheel for engaging the ice, a spring engaging the frame and forcing the propelling-wheel downward, a vertical guide provided with a groove receiving the front of the pivoted frame, and a removable pin mounted on the guide and adapted to be arranged in suitable perforations thereof to limit the upward movement of the frame and to support the same in an elevated position, substantially as described.

4. In a device of the class described, the combination of a sled provided at opposite sides with openings, longitudinal frames arranged at the sides of the sled and capable of vertical movement, front and rear crank-shafts mounted on the frames and extending through the sides of the sled, the front shafts being arranged in the openings of the slides and the rear shafts pivoting the frames to the sled, the propelling-wheels mounted on the front crank-shafts, sprocket-pinions arranged on the same and connected with the propelling-wheels, sprocket-wheels mounted on the rear crank-shafts, sprocket-chains connecting the sprocket-wheels and the sprocket-pinions, and means for forcing the frames downward, substantially as described.

589,488. SOFT-TREAD HORSESHOE. ROBERT S. WIESENFELD, Baltimore, Md. Filed Dec. 29, 1896. Serial No. 617,361. (No model.)



Claim.—1. In combination, the shoe, the grooved tread, and the band for retaining said tread in position and having its ends held in said groove in said tread, substantially as described.

2. In combination, a horseshoe having a groove formed by the walls 2 2, said walls having alining openings therein, the tread having concentric grooves, and the bands adapted to be threaded through said openings and beneath said tread and adapted to have their free ends held in said concentric grooves, substantially as described.

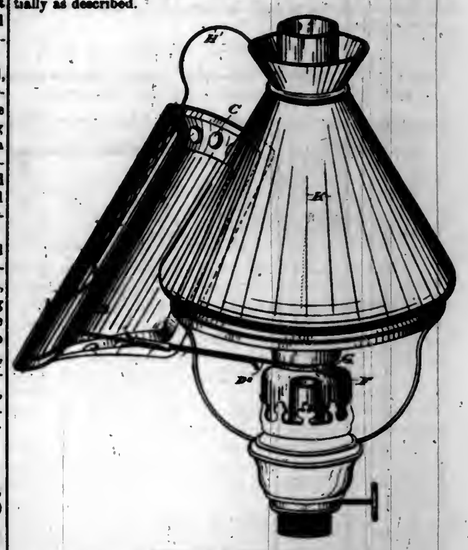
3. In combination, the tread having concentric grooves, the shoes having the grooves therein formed by the walls 2 2, said walls having alining openings, the projections extending upwardly from said walls, said walls having slits in line with the sides of said projections whereby said projections may be pressed into the grooves in said tread, and the independent bands adapted to be threaded through the opening in said side walls and beneath said tread, said bands being adapted to be passed over said projections and have their free ends held centrally in said concentric grooves, substantially as described.

4. In combination, the shoe having a groove with end walls and a tread inserted in said groove, the calks having the shoulders resting on the top of said end walls, and the tailpieces depending between the ends of said tread and the end walls and resting against said walls, and the binding-screws extending through said walls into said tailpieces, substantially as described.

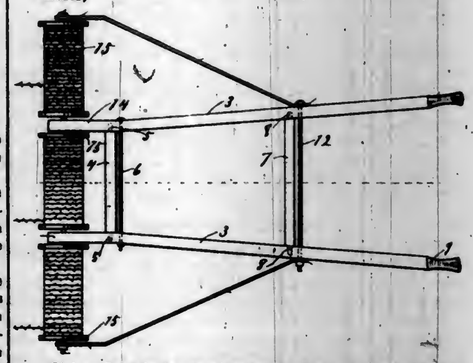
589,489. LAMP-SCREEN. AUGUST WOLFF, Berlin, Germany. Filed Sept. 19, 1895. Serial No. 562,991. (No model.)

Claim.—1. An article of manufacture comprising a lamp-screen, made of two pieces of heavy paper, each having four matched or corresponding sides, one of said sheets being made bowl-like to provide an intervening space between said sheets, the lower and top edges of one of said sheets being provided with holes for ventilation, and the said sheets united at each of their adjacent edges to form a hollow ventilated conical paper segment, substantially as described.

2. In an adjustable lamp-screen, the combination of two sheets of paper united at their edges and formed to provide an intervening space between their faces, the lower and top edges of one of said sheets being perforated, and an undulated bar, having a hooked top to engage the top of the chimney, passing into the said space between said sheets, and having a frictional engagement with the same, substantially as described.

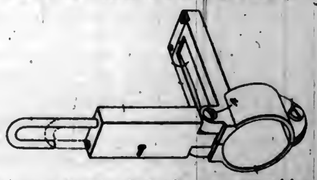


589,490. DEVICE FOR DISTRIBUTING FENCE-WIRE. FRED S. YOUNG, Iuka, Ill. Filed May 3, 1897. Serial No. 634,679. (No model.)



Claim.—In a device for distributing fence-wire, two side bars having handles at one end and alined bearings at the opposite end, suitable cross-pieces rigidly connecting said side bars, bars attached to opposite sides of said side bars at points intermediate of their ends and extending outwardly and toward the bearing ends of said side bars, the last-mentioned bars having bearings in alinement with the first-mentioned bearings, and a shaft operating in all of said bearings, substantially as specified.

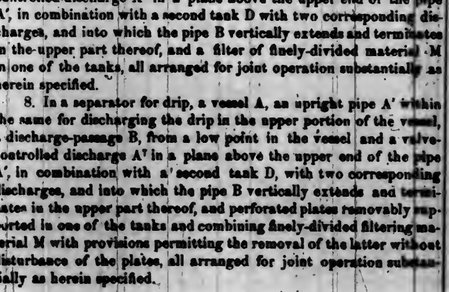
589,491. BICYCLE-LOCK. EDWARD J. BAKER, Hackensack, N. J. Filed June 18, 1896. Serial No. 596,017. (No model.)



Claim.—1. A fastening device for cycles comprising a base, provided with a clamp arranged to be rigidly secured to one of the lower tubes of the frame of the machine, a lock pivoted to said base, a spring or detent engaging with said lock to hold the lock in operative and inoperative position and a shackle forming part of the lock and arranged to enter between the side plates of a link of the sprocket-chain, substantially as shown and described.

2. A fastening device for cycles comprising a base formed of two pivotally-connected members, a two-part clamp arranged to be secured to one of the lower tubes of the machine-frame, one of said parts being carried by each of said members, and a lock pivoted to said base having a shackle arranged to enter between the side plates of a link of the sprocket-chain, substantially as shown and described.

589,492. ELIMINATOR OR WATER-SEPARATOR. SIDNEY BANCROFT, Brooklyn, N. Y., assignor to himself, and John H. Dalley, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,609. (No model.)



Claim.—1. In a separator for drip, a vessel, a pipe for discharging drip within the same, a water-discharge passage delivering from a low point in the vessel and a valve-controlled oil-discharge passage leading from the upper portion thereof, all combined and operating substantially as herein specified.

2. In a separator for drip, a vessel, a pipe for discharging drip within the same, an overflow-pipe communicating with the lower part of the vessel, and a valve-controlled oil-discharge passage leading from the upper portion thereof, all combined and operating substantially as herein specified.

3. In a separator for drip, a vessel A, a pipe for discharging drip within the same, a retarder in the vessel, a water-discharge passage communicating with the lower part of the latter, and a valve-controlled oil-discharge passage leading from the upper portion thereof, all combined and operating substantially as herein specified.

4. In a separator for drip, a vessel A, a pipe A' within the same for discharging the drip in the upper portion of the vessel, a discharge-passage B, from a low point in the vessel, and a valve-controlled discharge A^7 in a plane above the discharge of the pipe A', all arranged for joint operation substantially as herein specified.

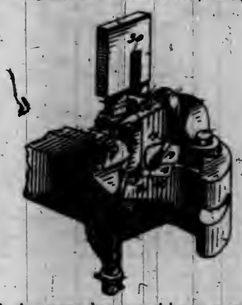
5. In a separator for drip, a vessel A, a pipe A' within the same for discharging the drip in the upper portion of the vessel, a discharge-passage B, from a low point in the vessel, a valve-controlled discharge A^7 in a plane above the discharge of the pipe A', and a retarder A^8, adapted to insure a slow and uniform descending motion of the water, all substantially as herein specified.

6. In a separator for drip, a vessel A, an upright pipe A', within the same for discharging the drip in the upper portion of the vessel, a discharge-passage B from a low point in the vessel and a valve-controlled discharge A^7 in a plane above the upper end of the pipe A', in combination with a second vessel or tank D, with two corresponding discharges vertically upward into which the pipe B extends and terminates in a plane below the end of the pipe A' in the tank A, all arranged for joint operation substantially as herein specified.

7. In a separator for drip, a vessel A, an upright pipe A', within the same for discharging the drip in the upper portion of the vessel, a discharge-passage B, from a low point in the vessel and a valve-controlled discharge A^7 in a plane above the upper end of the pipe A', in combination with a second tank D with two corresponding discharges, and into which the pipe B vertically extends and terminates in the upper part thereof, and a filter of finely-divided material M in one of the tanks, all arranged for joint operation substantially as herein specified.

8. In a separator for drip, a vessel A, an upright pipe A' within the same for discharging the drip in the upper portion of the vessel, a discharge-passage B, from a low point in the vessel and a valve-controlled discharge A^7 in a plane above the upper end of the pipe A', in combination with a second tank D, with two corresponding discharges, and into which the pipe B vertically extends and terminates in the upper part thereof, and perforated plates removably supported in one of the tanks and combining finely-divided filtering material M with provisions permitting the removal of the latter without disturbance of the plates, all arranged for joint operation substantially as herein specified.

589,493. CAR-COUPLING. ALFRED BENTON, Sr., East Pierre, S. D. Filed May 11, 1897. Serial No. 635,961. (No model.)



Claim.—1. A car-coupler, comprising a coupler-head which is provided at each side with stationary outwardly-directed jaws, one of said jaws being provided with a pivoted jaw, which is provided with a backwardly-directed arm, a vertically-movable lock-bar which passes through said coupler-head, and which is adapted to engage with said arm, an arm pivotally connected with said coupling-head and movable in a vertical chamber formed therein, said arm being provided with a downwardly-curved extension which is adapted to be operated by the arm of the pivoted jaw, and said pivoted arm being provided with a pin which is adapted to operate said vertically-movable bar, substantially as shown and described.

2. A car-coupler, comprising a coupler-head which is provided at each side with stationary outwardly-directed jaws, one of said jaws being provided with a pivoted jaw, which is provided with a backwardly-directed arm, a vertically-movable lock-bar which passes through said coupler-head, and which is adapted to engage with said arm, an arm pivotally connected with said coupling-head, and movable in a vertical chamber formed therein, said arm being provided with a downwardly-curved extension which is adapted to be operated by the arm of the pivoted jaw, and said pivoted arm being provided with a pin which is adapted to operate said vertically-movable bar, and said vertically-movable bar being provided at one side thereof, with a longitudinal shoulder or projection, substantially as shown and described.

3. A car-coupler, comprising a coupling-head, which is provided at its opposite sides with outwardly-directed stationary jaws, a movable jaw pivotally connected with one of said stationary jaws, and provided with a backwardly-directed arm, said coupler-head being provided between said stationary jaws with a transverse chamber into which said arm is adapted to pass, a vertically-movable locking-bar mounted in said coupling-head, and provided at one side thereof, with a longitudinal shoulder or projection a pivoted arm mounted in a vertical chamber formed in said coupling-head, said pivoted arm being provided with a downwardly-directed extension which is adapted to be operated by the arm of a jaw, and said vertically-movable locking-bar being provided with a head or plate at one side of which is formed a downwardly-directed arm, and said pivoted arm being provided with a pin which operates in connection with the arm formed on said head or plate, and said head or plate being also provided with a vertical slot which is adapted to receive said pin, substantially as shown and described.

4. A car-coupling device which is adapted to be connected with the opposite ends of a car, said coupling device, consisting of a bar on which is formed a coupling-head, said coupling-head being provided at its opposite sides with outwardly-directed stationary jaws, and a pivoted jaw mounted in one of said stationary jaws, and provided with a backwardly-directed arm which is adapted to enter a transverse chamber formed in said coupling-head between said jaws, a vertically-movable locking-bar which passes through said coupling-head and which is provided at one side with a longitudinal shoulder or projection which is adapted to engage with the arm of said pivoted jaw, an arm pivotally mounted in a vertical chamber formed in said coupling-head, and provided with a downwardly-directed extension which is adapted to be operated by the arm of said pivoted jaw, said pivoted arm being provided with a pin, and said vertically-movable locking-bar being provided with a head or plate in which is formed a vertical slot, said pin being adapted to operate in connection with said head or plate so as to raise said vertically-movable locking-bar, substantially as shown and described.

589,494. BARREL, &c. GEORGE W. BIGLEY, Minneapolis, Minn. Filed Aug. 17, 1896. Serial No. 603,035. (No model.)

Claim.—1. A new article of manufacture consisting of a series of slats, united by a pair of parallel wires running transversely of the

series, one on each side of said slats, and tied together by a continuous third wire wound around said parallel wires between said slats, substantially as described.



2. As a new article of manufacture, a skeleton vessel formed of a series of slats united by a pair of parallel wires running transversely thereof, one on each side of said slats, and tied together by a continuous third wire wound around said parallel wires between said slats, substantially as described.

3. A knockdown barrel, the body of which is made up of a series of staves spaced apart and united at their central portions by means of a pair of parallel wires running transversely thereof, one on each side of said staves, and tied together by a continuous third wire wound around said parallel wires between said staves, substantially as described.

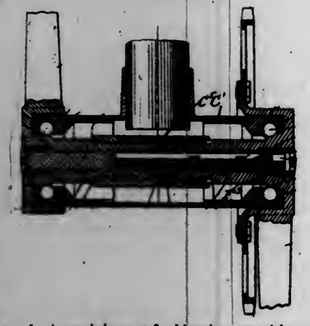
4. A knockdown vessel involving a flexible body made up of a series of slats woven together by transverse wires, the ends of certain of which wires are formed with inturned ends that are adapted to be embedded in one of the slats, and a keeper-plate serving to hold the ends of said wires in engagement with said slat, substantially as described.

589,495. APPARATUS FOR HEADING NAILS OR TACKS. ALBERT H. BRIGHAM, Whitman, Mass. Filed June 12, 1896. Serial No. 595,299. (No model.)



Claim.— In a heading-die, a carrier having a longitudinal, partially-threaded bore and a central abutment at one end, headed guides rigidly secured thereto at the sides of said abutment, a spring-controlled die proper freely movable upon the guides and having a head-forming opening, a heading-pin extended into the bore of the carrier, an adjusting-screw in the threaded portion of the bore to bear upon the inner end of said pin, and a set-screw to rigidly retain said pin in adjusted position, the die proper being free to position itself upon the abutment of the carrier, substantially as described.

589,496. CRANK-HANGER FOR BICYCLES. FRANKLIN P. BURNHAM and JEFFERSON D. ALSUP, Chicago, Ill. Filed Dec. 13, 1895. Serial No. 572,007. (No model.)



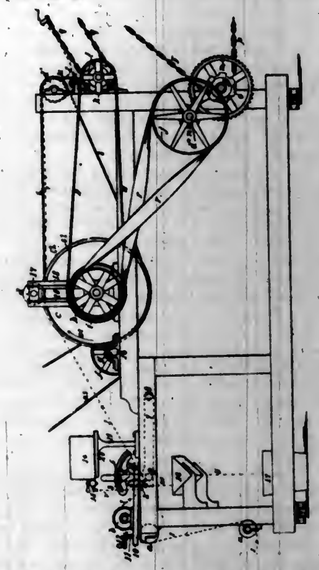
Claim.—1. A crank-hanger for bicycles comprising a sleeve provided at each end with short tubes, containing a series of balls, cranks provided with hollow hubs into which said tubes project and provided with bearing-surfaces for said balls, said hubs provided with inwardly-projecting parts having interlocking parts on their ends adapted to be brought into engagement, a bolt passing through said inwardly-projecting parts and provided with screw-threads adapted to engage the threaded portion of one of said inwardly-projecting parts so as to hold them together, said bolt connected with one of said hubs so as to be free to rotate therein but having no longitudinal motion in either direction with relation thereto.

2. A crank-hanger for bicycles comprising cranks provided with hollow hubs having inwardly-projecting parts connected therewith, a sleeve into which said inwardly-projecting parts fit, said sleeve provided at each end with short tubes carrying a series of balls, said hollow hubs being provided with bearing-surfaces for said balls, a second sleeve surrounding said inwardly-projecting portions of the hub and adapted to engage them so as to bind them together, a bolt passing through said hubs and inwardly-projecting portions and provided with a head countersunk in one of said hubs, a washer or the like inserted in a countersunk portion of said hub and adapted to hold said bolt in position at the same time allowing it to have a rotary motion, a screw-threaded part on the inwardly-projecting part of the other hub adapted to be engaged by said bolt, a cap adapted to be inserted in said latter hub and engaging the end of said bolt, and a second cap adapted to be inserted in a countersunk portion of the first hub so as to cover the head of the bolt substantially as described.

3. A crank-shaft for bicycles comprising cranks with hollow hubs, having inwardly-projecting parts thereon, an interlocking connection between said parts, a bolt passing through such inwardly-projecting parts, said bolt threaded at one end and engaging threads in the opening in one of said projecting parts, the other end of said bolt being provided with a head countersunk in one of said hubs, the opening containing said head being screw-threaded, and a washer having a screw-threaded periphery, the screw-threads thereon engaging the threaded opening containing the head of said bolt, said washer engaging a projection or collar on said bolt so as to prevent it from moving longitudinally with relation to the hub, but allowing it to be rotated about its axis.

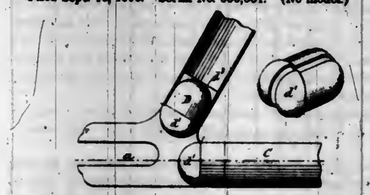
4. A crank mechanism for bicycles comprising a divided crank-shaft having cranks connected therewith, a sleeve or hanger in which said shaft is mounted, a rod or bolt passing through said divided crank-shaft and provided at one end with screw-threads which engage screw-threads in an opening in one part of said shaft, a holding or securing device associated with the other part of said shaft and adapted to hold said rod or bolt so as to prevent it from being moved backward, but which allows it to be rotated about its axis.

589,497. MACHINE FOR MAKING OIL-CLOTH. WILLIAM D. CRAGIN, New York, N. Y., assignor to George S. Bracher, Rahway, N. J. Filed Nov. 20, 1894. Renewed Feb. 20, 1897. Serial No. 624,487. (No model.)



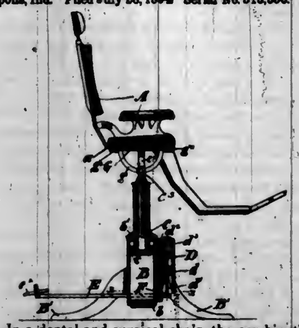
Claim.—The combination in an oil-cloth machine of the following features: tension-rollers *a*, *a*, adjustable roller *b*, automatically-adjustable knife 2, color-tank 14, cloth-forcing drum *c* and automatically-adjustable roller *d*, roller *d'*, belts *u*, roller *e* and chains *q*, for separating the cloth from said roller *d'*, the chains *q* also elevating the cloth to the "run-chains," and the run-chain mechanism driven by belt *r* and pulley *i*, all combined to operate substantially as herein shown and described.

589,498. VELOCIPEDE-FITTING. WILLIAM DICKS, Buffalo, N. Y., assignor to the Spaulding Machine Screw Company, same place. Filed Sept. 16, 1896. Serial No. 606,001. (No model.)



Claim.—A connection or bushing for uniting a cycle-fitting with a tubular member of a cycle-frame, consisting of similar halves or sections of approximately semicylindrical form adapted to bear with their opposing flat edges against opposite sides of the cycle-fitting, each of said sections having closed rounded end portions, one of which end portions is enlarged, forming a semicircular shoulder on the outer surface of each section which extends transversely from edge to edge of the section and against which the end of a tubular cycle member is adapted to abut, substantially as set forth.

589,499. DENTAL AND SURGICAL CHAIR. HENRY H. ELSNER, Indianapolis, Ind. Filed July 28, 1894. Serial No. 518,890. (No model.)



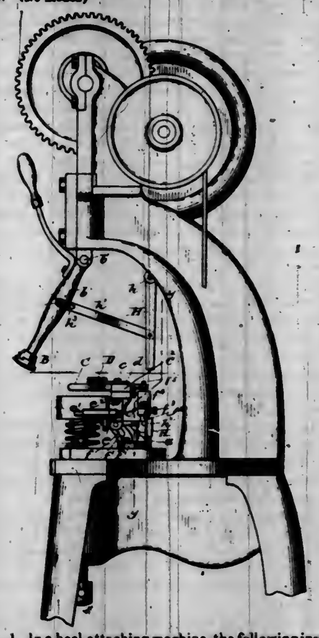
Claim.—In a dental and surgical chair, the combination of the base, the follower, having an upward slotted extension, the chair-seat, the ring, G, secured to the chair-seat and having a downwardly-projecting perforated lug to enter the slotted extension of the follower, downwardly-projecting studs having horizontal journal-pins extending from them, a downwardly-extending segment, *g'*, adapted to traverse the slot in said upward extension of the follower, curved arms extending upon opposite sides of said central extension and having bearings in their upper ends to receive the journal-studs, *g''*, and a set-screw tapped through one of the slotted walls of said upper extension to bear upon the segment and hold it firm when adjusted, substantially as shown and described.

589,500. RETURN-BALL. ALBERT A. FREEMAN, Philadelphia, Pa., assignor of one-half to John H. Scott, same place. Filed Oct. 15, 1896. Serial No. 609,023. (No model.)



Claim.—A musical return-block consisting of the combination of block 1 provided with an interior space 2; guide 3; cap 5; plunger 14; rod 17 attached thereto and piercing said cap, the outer end of said rod being adapted to be attached to a cord; ball 19 set in said plunger; double bottom or whistle 10, 11, pierced with openings 9, 12; spring 21 arranged between said plunger and one of the caps, substantially as and for the purposes described.

589,501. HEEL-ATTACHING MACHINE. JOHN R. GLIDDEN, Lawrence, Mass., administrator of Charles W. Glidden, deceased, assignor to James W. Brooks, principal trustee, Petersham, and John Brooks, associate trustee, Cambridge, Mass. Filed Aug. 17, 1896. Serial No. 602,967. (No model.)



Claim.—1. In a heel-attaching machine, the following instrumentalities, viz: a heel-holder to receive and center a heel-blank, a pivoted jack or stump adapted to receive the shoe to which the heel is to be attached, and automatically-acting, uniformly-yielding side guides having their acting ends arranged above and at opposite sides of the center of said heel-holder, said guides receiving between them the heel-covering end of the shoe to which the heel is to be attached to thus center the heel end of the sole of the shoe correctly over the heel-blank, substantially as described.

2. In a heel attaching machine, the following instrumentalities, viz: a heel-holder to receive and center a heel-blank, a pivoted jack or stump adapted to receive the shoe to which the heel is to be attached, and automatically-acting, uniformly-yielding side guides having their acting ends arranged above and at opposite sides of the center of said heel-holder, said guides having toothed portions in engagement one with the other, and a spring to hold their outer ends in their normal closed position, substantially as described.

3. In a heel-attaching machine, the following instrumentalities, viz: a heel-holder to receive and center a heel-blank, a pivoted jack or stump adapted to receive the shoe to which the heel is to be attached, and automatically-acting, uniformly-yielding side guides having their acting ends arranged above and at opposite sides of the center of said heel-holder, and having rearwardly-extended arms *f'*, said guides receiving between them the heel-covering end of the shoe to which the heel is to be attached to thus center the heel end of the sole of the shoe correctly over the heel-blank, and a cam-surface to act on said rearwardly-extended arms to open the said side guides after the heel is attached, substantially as described.

4. In a heel-attaching machine, the following instrumentalities, viz: a heel-holder for holding and centering a loaded heel-blank, a movable jack or stump provided at its end with a sliding plate, and automatically-acting side guides arranged over the heel-holder at opposite sides of the center and adapted to act on the heel-covering part of the upper of, and to automatically center, the boot or shoe, the plate *b'* moving on the jack or stump as the shoe is moved into position over the heel, substantially as described.

5. In a heel-attaching machine, a heel-holder for holding and centering a heel-blank, and a movable jack or stump, combined with automatically-acting side guides arranged over the entrance to the heel-holder and adapted to automatically center the boot or shoe and with a back-stop against which the back of the counter of the boot or shoe is adapted to be moved, substantially as described.

6. In a heel-attaching machine, the following instrumentalities, viz: a heel holder or die, a nail-spanking plate, and automatically

acting side guides, the side guides and heel holder or die being connected one to the other to be moved vertically together, substantially as described.

7. The combination with a heel holder or die, and a nail-spanking plate, of automatically-acting side guides, the side guides and the heel holder or die being connected one to the other to be moved vertically together, and a device for automatically locking them in their lowest position, substantially as described.

8. The combination with a heel holder or die, and a nail-spanking plate, of a back-stop and automatically-acting side guides, the said back-stop and side guides being connected to the heel holder or die to be moved vertically therewith, substantially as described.

9. The combination of the heel holder or die, the heel-spanking plate, the automatically-acting side guides, a back-stop, the side guides and back-stop being connected with the die and adapted to be moved vertically therewith, and a device for locking them down at the end of their vertical movement, substantially as described.

10. The combination with a heel holder or die, and a nail-driving plate, of an independent back-stop made vertically movable with said heel holder or die, substantially as described.

11. The combination with the heel holder or die, a nail-driving plate, and a back-stop attached to said holder or die and vertically movable therewith, of means for locking them down at the end of their downward movement, substantially as described.

12. The combination with a heel holder or die, and a nail-driving plate, of automatically-acting side guides connected with said holder or die and means for adjusting them lengthwise the die, substantially as described.

13. In a heel-attaching machine, the following instrumentalities, viz: a heel holder or die, a nail-driving plate, automatically-operating side guides, and supporting means for the said side guides loosely connected to said heel-holder and made longitudinally movable with relation to said holder, substantially as described.

14. In a heel-attaching machine, the following instrumentalities, viz: a vertically-movable spring-supported heel holder or die, a nail-driving plate, automatically-operating side guides, and supporting means for the said side guides loosely connected to said heel-holder and made longitudinally movable with relation to said holder, substantially as described.

15. The combination with a heel holder or die, and a nail-spanking plate, of automatically-acting side guides, and a back-stop adjustable lengthwise the side guides, substantially as described.

16. The combination with a heel holder or die, and a nail-driving plate, of automatically-acting side guides, a back-stop, and means for adjusting the back-stop and side guides together lengthwise of the holder or die, substantially as described.

17. The combination with a heel holder or die, and a nail-driving plate, of side guides, and means for opening the side guides, substantially as described.

18. The combination with the heel holder or die, a nail-driving plate, and automatically-acting side guides, of means for moving the holder or die and guides downwardly and means for opening the said guides at or near the end of said downward movement, substantially as described.

19. The combination with a heel holder or die, a nail-driving plate, and side guides, of means for automatically opening said side guides at the end of the attaching operation, substantially as described.

20. The combination with a heel holder or die, side guides having a vertical movement, and means for opening the side guides during the said vertical movement, of latching means to hold the side guides open in their lowest position, substantially as described.

21. The combination of the heel holder or die, the nail-driving plate, the side guides and means for moving them vertically and for moving backward the side guides near the end of the vertical movement, substantially as described.

22. The combination of the heel holder or die, the nail-driving plate, the side guides and means for moving them backward from the die at the end of the attaching operation, substantially as described.

23. The combination of the heel holder or die, the nail-driving plate, the side guides and means for opening them and moving them backward from the die at or near the end of the attaching operation, substantially as described.

24. The combination of the heel holder or die, the back-stop and means for moving it from the die at or near the end of the attaching operation, substantially as described.

25. The combination of the heel holder or die, the nail-driving plate, the side guides and the back-stop and means for moving the holder or die, side guides and back-stop together vertically, and for opening the side guides and withdrawing the side guides and back-stop from the said holder or die at or near the end of their downward movement, substantially as described.

26. The combination of the heel holder or die, the nail-driving plate, the side guides, the back-stop and heel holder or die, side guides and back-stop being vertically movable together, and means for opening the side guides and moving them and the back-stop backward from the holder or die during the attaching movement, and a locking device for locking them open at the completion of the operation of the machine, substantially as described.

27. The combination with a hollow heel holder or die to receive within it a heel-blank, of pivoted horizontal swinging side guides, and a bracket attached to said holder or die to support the said side guides, the latter rising and falling with said holder or die and being normally located at a sufficient distance above the upper end of said holder or die to enable the projecting heel end of the sole to enter the space between the said guides and the upper end of the said holder or die, substantially as described.

28. The combination of a heel holder or die, a bracket carried thereby and a back-stop also connected to said bracket, substantially as described.

29. The combination of the heel holder or die, a bracket secured thereto, a slide-plate mounted upon said bracket, a screw for adjusting it toward and from the die-cavity lengthwise, and side guides carried by said plate and movable therewith, substantially as described.

30. The combination with the heel holder or die having upon its sides hollow ears or extensions, and a bracket at the rear of the die having horizontal studs to enter the holes of said ears, with side guides supported by said bracket, whereby the bracket is adapted to be moved toward and from the rear of the holder or die with its side guides, substantially as described.

31. The combination of the heel holder or die, the bracket attached to the die to be movable vertically therewith and backward and forward from its rear end and supporting side guides above the die and a back-stop, and a cam for moving the bracket from the holder or die at or near the end of their downward movement, substantially as described.

32. The combination of the heel holder or die, the bracket attached to it to be moved vertically therewith and supporting side guides, as specified, a cam for moving said bracket away from the back of the die at or near the end of its downward movement and a spring for moving said parts upwardly, substantially as described.

33. The combination of the heel holder or die, a bracket attached thereto, to be moved vertically therewith and supporting side guides, a cam for moving said bracket away from the die at or near the end of its downward movement, a device for locking the die and bracket with the side guides separated at the end of their downward movement, and a spring for moving them upwardly, substantially as described.

34. The combination of the heel holder or die, a bracket attached thereto to be movable vertically therewith and supporting side guides, a cam for moving said bracket away from the die at or near the end of their downward movement, a device for locking the die and the bracket with the side guides separated at the end of their downward movement, a device for releasing the said locking or latching mechanism, and a spring for moving them upward substantially as described.

35. The combination with a heel holder or die, and side guides having rearward extensions, of a V-shaped guide or cam into which the said ends are adapted to be moved and by which the side guides are opened, substantially as described.

36. The combination with a heel holder or die, of side guides and means to close said guides, of means for automatically opening said guides at the end of their centering operation, substantially as described.

37. The combination with a heel holder or die, connected side guides adapted to have a vertical movement imparted to them with the holder or die, and a device for locking said holder or die in its lowest position, of a spring for elevating said holder, a pivoted jack or stump, and latching means to retain said holder or die depressed, and a releasing arm or device attached to said jack or stump, said arm in its outward movement acting on said latching means to effect the release of said heel holder or die and side guides, substantially as described.

38. The combination of the heel holder or die, and opening and closing side guides above the die upon each side thereof, and separated from the die by rearward-extending space of sufficient size to receive the untrimmed heel edge of the shoe-sole, as and for the purposes described.

39. The combination in a heel-attaching machine of side guides for centering the boot or shoe as it is presented to the attaching devices, means for automatically opening said guides at the end of the attaching movement, and means to thereafter release said guides and permit them to resume their closed position upon the removal of the shoe with the heel attached to it, as and for the purposes described.

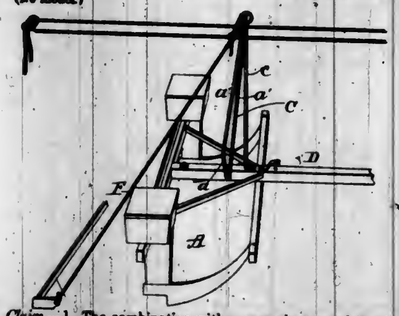
40. In a heel-attaching machine the side guides and means for automatically opening them at the end of the attaching operation and for moving them backward in relation to the jack or stamp, as and for the purposes described.

41. The combination of the jack or stump, the side guides and means for opening them, moving them backward and holding them open and in their backward position at the completion of the action of the attaching mechanism, substantially as described.

42. The combination of the jack or stump, the side guides, the back-stop and means for opening the side guides and moving the side guides and back-stop backwardly and downwardly in relation to the jack or stump and for locking them in said position, substantially as described.

43. The combination of the jack or stump, the side guides, the back-stop and means for opening the side guides and moving the said guides and back-stop backwardly at the end of the attaching movement and for automatically releasing them upon the upward movement of the jack or stamp, substantially as described.

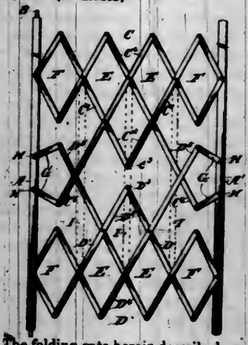
589,502. MARKER ATTACHMENT FOR PLANTERS. EDWARD B. GUERRIE, Tracy, Iowa. Filed Feb. 27, 1896. Serial No. 581,001. (No model.)



Claim.—1. The combination with a corn-planter and its pivoted gage or marking pole, of a standard mounted on the machine and terminating at its upper end at a point above the position normally occupied by the lines or reins and a rope or chain connected at one end to said standard so as to extend over the lines and at its other end to the gage or marking pole, substantially as set forth.

2. The combination with a corn-planter and its pivoted gage or marking pole, of a standard located centrally on the machine so as to project between the driving lines or reins and terminate above the same, and a loose connection between the upper end of said standard and the gage or marking pole, substantially as set forth.

589,503. FOLDING GATE. BERNHARD HUMMERS, Winfield, N. Y., assignor to Herbert G. Thompson, New York, N. Y. Filed July 9, 1896. Serial No. 598,545. (No model.)

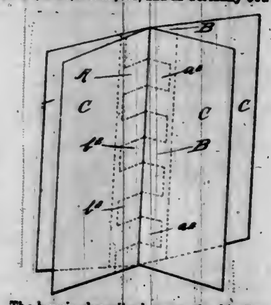


Claim.—1. The folding gate herein described, as comprising parallel bars A A′ connected by a lazy-tongs as C, pivoted at its respective ends to the bars A A′, the lazy-tongs rods C′, having outside extensions C³ pivoted together at C⁵, and the lazy-tongs rods C⁴ having outside extensions C⁶ pivotally connected to braces G, pivoted to the bars A A′.

2. The folding gate herein described, as comprising parallel bars A A′, connected by a lazy-tongs as C, pivoted at its respective ends to the bars A A′, the lazy-tongs rods C⁴ of the diamonds E having outside extensions C⁶ continued beneath the adjoining end diamonds F, and pivotally connected to braces G, pivoted to the bars A A′.

3. The folding gate herein described, as comprising parallel bars A A′ connected by parallel lazy-tongs C, D, pivoted at their ends to the bars A A′, the lazy-tongs rods C⁴ D⁴ of the respective lazy-tongs having extensions C⁶ D⁶, crossed over each other and pivotally connected to braces G, converging toward and pivoted to each of the bars A A′.

589,504. MUSIC-BINDER. GEORGE JACK, Edinburgh, Scotland. Filed Jan. 9, 1897. Serial No. 618,532. (No model.) Patented in England June 18, 1896, No. 13,432, and in Germany Oct. 1, 1896, No. 91,454.



Claim.—The herein-described means for binding sheets of music and similar articles together, the same consisting of two similar flexible strips, each of which is provided with notches or recesses in one edge thereof, whereby corresponding tongues or projections are formed, said strips and said tongues being gummed on one side, said tongues of one strip being adapted to pass through the notches in the other strip thereby forming interlocking projections, half of the leaves being gummed to the tongues projecting in one direction and the other half of the leaves being gummed to the tongues projecting in the opposite direction, the covers being gummed to the body portion of the strips thereby binding the leaves together at one edge thereof, as set forth.

589,505. BOTTLE-STOPPER. GEORGE F. JOHNSON, Hartford, Conn. Filed May 5, 1897. Serial No. 635,109. (No model.)



Claim.—1. The combination, with a bottle having an internally-threaded neck, with a flared extreme outer end, of an externally-threaded stopper adapted to be screwed into said neck; and a relatively thick flexible packing-ring encircling the stopper and normally filling the space between the under side of the head of the stopper and the outer end of the neck of the bottle and extending into the flare of the neck of said bottle.

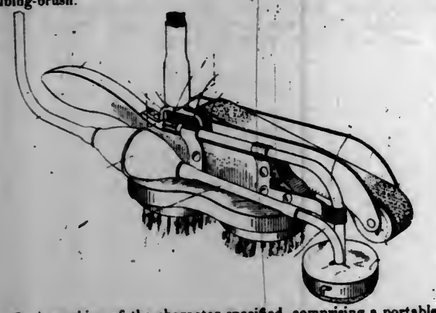
2. The combination, with a bottle having an internally-threaded neck with a flared extreme outer end, of an externally-threaded stopper adapted to be screwed into said neck; and a combined relatively thick flexible packing-ring and relatively thin sleeve, the former encircling the stopper and normally filling the space between the under side of the head of the stopper and the outer end of the neck of the bottle and extending into the flare of the same, and the latter surrounding the threaded portion of the stopper.

3. The combination, with a bottle having an internally-threaded neck with a flared extreme outer end, of an externally-threaded stopper adapted to be screwed into said neck; and a combined relatively thick flexible packing-ring and relatively thin thimble, the former encircling the stopper and normally filling the space between the under side of the head of the stopper and the outer end of the neck of the bottle and extending into the flare of the same, and the latter completely inclosing the threaded portion of the stopper.

589,506. LEATHER-BLACKING MACHINE. CHARLES K. KIMBALL, Haverhill, Mass., assignor of one-third to James H. Murray, same place. Filed Oct. 1, 1896. Serial No. 607,590. (No model.)

Claim.—1. A machine of the character specified, comprising a portable holder, a daubing device composed of a casing having a tubular perforated stem and brush material secured thereto in position to receive liquid from said stem, a hollow bearing affixed to the holder and inclosing the stem, said bearing having liquid-inlets coinciding with the perforations in the stem, a liquid-supply tube or conduit composed of a rigid section attached to the bearing and a flexible section having liquid-forcing means, one or more polishing-brushes

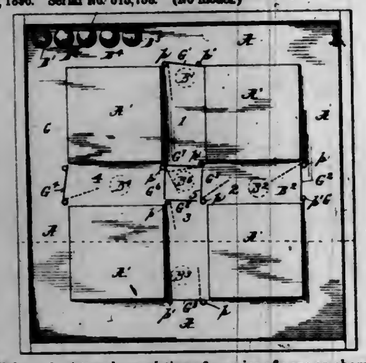
rotatively mounted on the holder, a flexible shaft connected at one end with said holder, and connections between said shaft and the daubing and polishing brushes through which said brushes are simultaneously rotated, said connections including a flexible shaft extending through the said hollow bearing and attached to the stem of the daubing-brush.



2. A machine of the character specified, comprising a portable holder, a cleaning-belt mounted on pulleys supported by said holder, means for moistening the belt, one or more polishing-brushes rotatively mounted on the holder, a flexible shaft connected at one end with the holder, and connections between said shaft, the cleaning-belt, and the polishing-brushes, whereby said belt and brushes are simultaneously impelled.

3. A machine of the character specified, comprising a portable holder, a daubing-brush rotatively mounted thereon, a flexible liquid-supply pipe communicating with said brush, one or more polishing-brushes rotatively mounted on the holder, a flexible shaft connected with the holder, and connections between said shaft and all the brushes, whereby they are simultaneously rotated.

589,507. PUZZLE. CHARLES W. MEAD, New Baltimore, N. Y., assignor of two-fifths to William R. Bronk, New York, N. Y. Filed Nov. 28, 1896. Serial No. 613,738. (No model.)



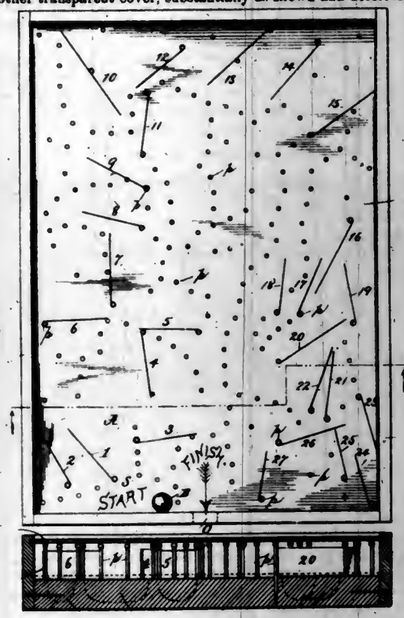
Claim.—1. A puzzle consisting of a series of pens or chambers, a runway running entirely around said pens or chambers; a pivoted gate at the entrance of each pen or chamber, and a central pen or chamber composed of a series of pivoted gates, in combination with a series of balls, one for each pen or chamber, substantially as described.

2. A puzzle consisting of a series of pens or chambers, a runway running entirely around said pens or chambers, a pivoted gate at the entrance of each pen or chamber, a central pen or chamber composed of a series of pivoted gates, in combination with a series of balls, one for each pen or chamber, and a glass or other transparent cover, substantially as described.

589,508. PUZZLE. CHARLES W. MEAD, New Baltimore, N. Y., assignor of two-fifths to William R. Bronk, New York, N. Y. Filed Nov. 28, 1896. Serial No. 613,739. (No model.)

Claim.—1. A puzzle consisting of a base-board and a ball adapted to move thereon, in combination with a series of pins secured to said base-board at such distances from each other as to prevent the passage of the ball between them except at stated points, and a series of pivoted gates or switches adapted to permit the passage of the ball over various routes until it reaches an outlet or finishing-point, substantially as described.

2. A puzzle consisting of a base-board and a ball adapted to move thereon, in combination with a series of pins secured to said base-board at such distances from each other as to prevent the passage of the ball between them except at stated points, a series of pivoted gates or switches adapted to permit the passage of the ball over various routes until it reaches an outlet or finishing-point, and a glass or other transparent cover, substantially as shown and described.



589,509. ELECTRICAL IGNITER FOR GAS-ENGINES. EDWARD R. MOFFITT, San Francisco, Cal. Filed Feb. 27, 1896. Serial No. 581,062. (No model.)

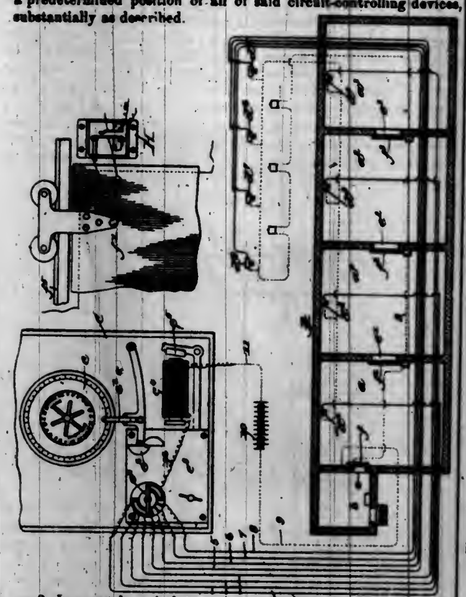


Claim.—1. The combination of the tubular casing having longitudinal slots or grooves extending through the bore on opposite sides of its axis and in the same plane, the spring-tongue fitted loosely in said grooves and projecting from the said casing into the exploding-chamber and the screw-shaft extending into the casing from the opposite end through a threaded socket and loosely attached to the end of the spring-tongue at one end and provided with a head on the other end for turning it, the said tongue being adapted for operation with a movable electrode and to form the terminal of the opposite pole of an electric circuit that includes the other electrode.

2. In an electrical igniter for gas-engines the combination of the tubular casing having longitudinal grooves on opposite sides of the bore and in the same plane, the flat spring-tongue resting loosely in said grooves and extending beyond the casing at one end thereof in working relation to a movable electrode and means connected to the said tongue at the opposite end within the casing for moving the said tongue longitudinally in the grooves and thereby adjusting the position of the projecting end with relation to the moving electrode as set forth.

589,510. WATCHMAN'S ELECTRIC TIME-RECORDER. CHARLES H. PHINNEY, Boston, Mass. Filed Dec. 9, 1895. Serial No. 571,478. (No model.)

Claim.—1. In a watchman's detector system, an electrically-actuated indicating apparatus, a plurality of circuit-controlling devices electrically connected therewith in series, and adapted to be moved when a like number of independent objects are placed in predetermined position, combined with a series of manually-operable circuit-changing devices each arranged in multiple in electrical circuit with said series circuit and also arranged to operate said indicating apparatus, the operation of each of which is dependent upon a predetermined position of all of said circuit-controlling devices, substantially as described.



2. In a watchman's detector system, an electrically-actuated indicating apparatus, a plurality of circuit-controlling devices electrically connected therewith and adapted to be moved when a like number of independent objects are placed in predetermined position, combined with a series of manually-operable circuit-changing devices, arranged in electrical circuit with and to operate said indicating apparatus, the operation of each of which is dependent upon a predetermined position of all of said circuit-controlling devices, substantially as described.

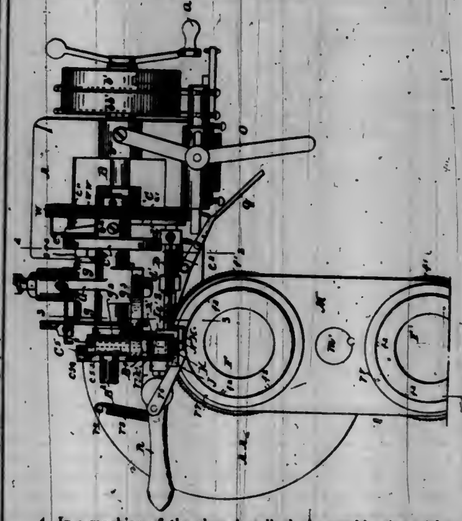
3. The herein-described protective system for factories, &c., comprising in connection with a watchman's indicating system, having a plurality of signaling devices located respectively at various remote points desired, a plurality of controlling devices for certain movable articles whose positions it is desired shall be ascertained and controlled, said controlling devices being operated by movement of all of said articles into predetermined positions to render said signaling devices operative, the latter being inoperative otherwise, said predetermined positions remaining the same, so long as the protective system is in operative condition whereby the watchman is obliged to carefully attend to the said positioning of all of said articles before he can send his required signals over the indicating system from the said various points thereof, substantially as described.

589,511. MACHINE FOR SEWING LOOPED FABRICS. JOHN G. POWELL, Philadelphia, Pa., assignor to himself and Edward Powell, same place. Filed Sept. 11, 1894. Serial No. 522,982. (No model.)

Claim.—1. In a machine of the class described, the combination of a series of impaling-points secured to the common bed or support, mechanism for imparting to said support a step-by-step movement, a vibrating thread-carrying needle arranged to pass through the loops of parts of fabrics impaled on the said points and also to make an intermediate vibration between each two adjacent points, means, including a looper, cooperating with said needle to form a stitch upon each vibration thereof, and means independent of said needle and looper and operating intermittently to engage and hold distended certain of the loops formed by said needle and looper, whereby the stitches formed intermediately of the said points are formed with slack or spare thread, and the stitches through the impaled loops are made tight substantially as specified.

2. In a machine of the class recited, the combination of the cylinder provided with impaling-points, means for imparting a step-by-step movement to said cylinder, the needle-carrying bar and needle, means for vibrating said needle-bar and needle with relation to the impaling-points and for moving said bar whereby alternate vibrations are made in paths unequally distant from the axis of the said cylinder, the horn and means for actuating the same at the described intervals, and a vibratory device arranged to cooperate with the said needle and horn in forming the stitch, substantially as and for the purposes specified.

3. In a machine of the class recited, the combination of the driving-shaft, the gear W and cams as C, C', and C^3, thereon, the horn and its bar adapted to be actuated by cam, C, the pawl-carrying bar, E, adapted to be actuated by cam, C', the pivoted arm, G, adapted to be actuated by cam, C^3, means for holding said arm in contact with the said cam C^3, the shaft, B^3, journaled in said arm, the pinion on said shaft, the shaft, B^3, journaled in arm, G, the needle-carrying bar thereon, the mechanism for actuating said shaft B^3 to impart an up-and-down vibratory movement of the needle-bar, the bifurcated hook, J, and mechanism for actuating the same, together with the cylinder provided with the impaling-points and teeth adapted to be engaged by the pawl of said bar, E, the construction, arrangement and mode of operation of the parts being such as shown and described, whereby the parts of a fabric impaled upon the cylinder are united by series of alternate tight and loose stitches.



4. In a machine of the class described, the combination with a rotary cylinder upon which the work is adapted to be supported, and the bed or support therefor, of the pivoted-lever dog arranged to engage and lock the said support, and having a friction-arm arranged to contact with the said cylinder, substantially as specified.

5. In a machine for the purpose described, the combination of a main shaft, its cams C, C' and C^3 the horn-actuating device operated of said cam C', the horn, the pawl-carrying slide and pawl operated by the cam C', the pivoted arm G operated by a to-and-fro movement of the cam C^3, the needle-arm, its needle, the shaft B^3 geared to the main shaft, the cam-disk C^4 on said shaft B^3 and arranged to vibrate said needle-arm vertically, the cam-wheel C^5 also carried by the said shaft B^3, the hook-carrying arm having a shoe which engages the wheel, and the hook, together with one or more cylinders arranged to be rotated in turn by the said pawl, substantially as specified.

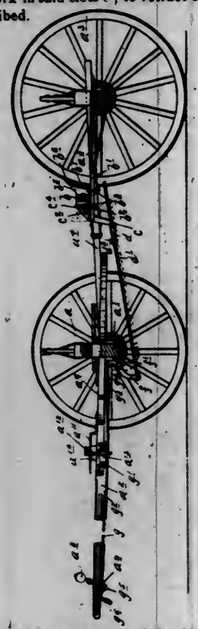
6. In a machine for the purpose described, the combination of the main shaft, a cylinder, means for rotating said cylinder, the horn, and means for advancing and retracting the same, the pivoted arm G, means for vibrating said arm and for moving it toward and away from the said cylinder, the needle-arm, its needle, and the bifurcated hook, together with means for advancing said hook toward and away from the needle in a plane at right angles to the plane of its vibration, and for moving it toward and away from the cylinder, substantially as specified.

589,512. AUTOMATIC WAGON-BRAKE. ED SKAAR, Kenyon, Minn. Filed Dec. 7, 1896. Serial No. 614,768. (No model.)

Claim.—1. The combination with a wheeled vehicle and draft-rigging, of a brake-beam mounted to slide on suitable guides and provided with brake-shoes at its ends, and automatic operating connections from said draft-rigging to said brake-beam, involving a pair of cam-levers, the free ends of which are connected to a common link or connection and the cam ends of which act against the intermediate portion of said sliding brake-beam, substantially as described.

2. The combination with a wheeled vehicle and draft-rigging, of a brake-beam mounted to slide on suitable guides and provided with brake-shoes at its ends, and automatic operating connections from said draft-rigging to said brake-beam, involving the cam-levers c, connected for parallel movements, provided with the slots c^2 and

working with their cam ends against the intermediate portion of said brake-beam, and links secured on said brake-beams and provided with parts that work in said slots c^3, to retract the brake-shoes, substantially as described.



3. The combination with the wheeled vehicle and draft-rigging, of a brake-beam mounted to slide on suitable guides, and provided with brake-shoes at its ends, and operative connections from said draft-rigging to said brake-beam, involving the cam-levers c, connected at their lower ends to a common link or connection, and the bearing-plates b^2 secured to the intermediate portion of said brake-beam and provided with vertical grooves in which the cam ends of said levers c work, substantially as described.

4. The combination with a wheeled vehicle and draft-rigging, of the brake-beam b mounted to slide on suitable guides and provided at its ends with brake-shoes b^3 and at its intermediate portion with the grooved bearing-plates b^2, the cam-levers c pivoted at c' and connected at their lower ends to the link-head d, the rod d' adjustably securable to said head d, the slots c^3 in the cam ends of said levers c, and the link connections c^4 secured to said brake-beam b and provided with antifriction-rollers c^5 which work in said slots c^3 and serve to hold the cam ends of said levers c against said bearing-plates b^2, substantially as described.

5. The combination with a wheeled vehicle and draft-rigging, of a brake, and connections from said brake to said draft-rigging, provided with an adjustable rod or link section and arranged to automatically and positively apply and release the brakes, respectively, under the hold back and draft strains on said draft-rigging, substantially as described.

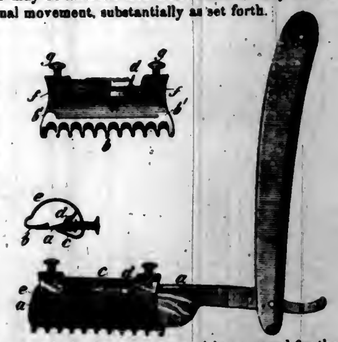
6. The combination with a wheeled vehicle, of a brake shoe or shoes operative on the wheel or wheels of the same, and provided each with a projecting spring scraper-section arranged to engage the coöperating wheel, in advance of the application of the brake.

7. The combination with a wheeled vehicle, of one or more brake-shoes involving each the shoe-block b^3, the spring scraper-section b^4 and the wearing-face b^7 arranged and operating substantially as described.

8. The combination with a wheeled vehicle, of a brake device involving, the brake-beam b, provided with brake-shoes at its ends, the bearing-plates b^2 on said beam b, the cam-levers c pivoted at c', provided with cam ends engaging the plates b^2 and having the slots c^3, the antifriction-rollers c^5 working in the slots c^3 and supported by the coöperating strap c^4 and studs c^5, the bracket d pivoted to the lower ends of said levers c, and operating connections extending from said bracket d, substantially as described.

589,513. SAFETY-RAZOR. PRESTON W. STROBE, Brooklyn, N. Y. Filed May 12, 1896. Serial No. 591,264. (No model.)

Claim.—1. A safety device for razors comprising a guard and guide, said guard being arranged to come in contact with the razor alongside the edge thereof and having a series of bars united together to form one continuous surface in proximity to the edge of the razor, the guide being arranged to come in contact with the inner side of the razor near the back thereof, an inwardly-pressing spring-tongue shaped to present an oblique edge to the end of the razor when the razor is inserted and arranged to bear upon the outer side of the razor, an arched lather-cup connecting the guard and guide and tongue, and screw-adjusting means arranged to bear against the back of the razor, whereby an adjustable spring-socket is formed into which the blade may be inserted and from which it may be removed by longitudinal movement, substantially as set forth.



2. A safety device for razors comprising a guard for the edge of the razor arranged to come in contact with the razor alongside of the edge thereof, said guard consisting of a series of bars united together to form one continuous surface in proximity to the edge of the razor, a spring-tongue arranged to bear upon the outer side of the razor, a guide arranged to come in contact with the inner side of the razor near the back thereof, a lather-cup joining the guard and tongue and guide, and an adjustable plate arranged to bear against the back of the razor, substantially as set forth.

3. A safety device for razors comprising a guard and guide, an arched lather-cup extending rearwardly from the guard, a spring-tongue having a smooth outer surface arranged to bear upon the outer side of the razor, adjusting means bearing against the back of the razor, and a handle pivotally connected to said arched lather-cup whereby the razor and guard are permitted to adjust themselves in operation to the contour of the face of the user, substantially as set forth.

4. In a safety device for razors, in combination, a guard b having a series of bars arranged to come in contact with the face of the user, said bars being united at their rear ends to form one continuous surface arranged to bear against the sides of the razor in proximity to its edge, an inwardly-extending longitudinally-arched guide d, a spring-tongue c constructed and arranged to present an oblique edge to the end of the razor when the razor is being inserted, an arched lather-cup joining the guard and guide and tongue, and an adjusting-plate f, and means for adjusting the position of said plate f, substantially as set forth.

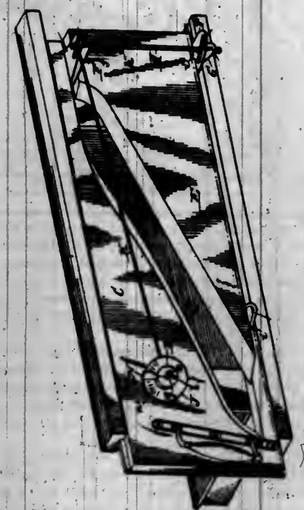
5. In a safety device for razors, in combination, the guard b having a series of bars arranged to come in contact with the face of the user, an inwardly-extending guide d, and spring-tongue c, an arched lather-cup e joining the guard to the guide and tongue, an adjusting-plate f and means for adjusting the same, lugs i, i, extending inwardly from said lather-cup, and the handle h having a bifurcated shank h' and pivoted to said lugs, substantially as set forth.

589,514. SLICER. JOHN E. STUART and HARVE R. STUART, Newark, N. Y. Filed Feb. 15, 1897. Serial No. 623,475. (No model.)

Claim.—1. The combination with the knife-slide and its guide-frame, of a laterally-adjustable gage-board, upper and lower pairs of oblique guides arranged on said board and the knife-slide, respectively, the guides of each pair trending in opposite directions, and a shifting lever pivoted to the gage-board and having its arms engaged with said upper and lower pairs of guides, substantially as set forth.

2. The combination with the knife-slide and its guide-frame, of a laterally-adjustable gage-board, upper and lower pairs of oblique guides arranged on said board and the knife-slide, respectively, the guides of each pair trending in opposite directions, and a shifting lever fulcrumed between its ends on a pivot carried by the gage-board and capable of sliding lengthwise of said pivot and having its arms engaged with said upper and lower pairs of guides, substantially as set forth.

3. The combination with the knife-slide and its guide-frame, of a laterally-adjustable gage-board, upper and lower pairs of oblique main guides arranged on said board and the knife-slide, respectively, the guides of each pair trending in opposite directions, a shifting lever pivoted between its ends to the gage-board and having its arms engaged with said main upper and lower pairs of guides, and oblique auxiliary guides which are arranged on the knife-slide and the gage-board and which determine the direction of movement of the gage-board, substantially as set forth.



4. The combination with the knife-slide and its guide-frame, of a laterally-adjustable gage-board, a pair of upper guide-brackets arranged on the knife-slide and gage-board, respectively, and having intersecting oblique slots, a pair of lower guide-brackets arranged on the knife-slide and gage-board, respectively, and having intersecting oblique slots which trend in the reverse direction from the slots of the upper pair of guide-brackets, and a shifting lever pivoted between its ends to the gage-board and having its arms arranged in the slots of said upper and lower guide-brackets, substantially as set forth.

5. The combination with the knife-slide, its guide-frame and the gage-board, of a laterally-movable ring or dial mounted on the knife-slide and provided with a scale, an eccentric pivoted to the knife-slide and engaging with said dial and having a pointer which traverses the scale of the dial, and a connection between said dial and the gage-board, substantially as set forth.

6. The combination with the knife-slide, its guide-frame and the gage-board, of a laterally-movable ring mounted on the knife-slide, an eccentric pivoted to the knife-slide, fitted in the opening of said ring and having means for turning it, a clamping device for holding the eccentric against turning, and a connection between the ring and the gage-board, substantially as set forth.

7. The combination with the knife-slide, its guide-frame and the gage-board, of a laterally-movable ring mounted on the knife-slide, an eccentric pivoted to the knife-slide, fitted in the opening of the ring and having means for turning it, a bolt passing through the eccentric, and a clamping-nut applied to the projecting end of said bolt, substantially as set forth.

8. The combination with the table of the slicer, the knife-slide and the folding guide-frame for said slide hinged to the table, of a duplex latch carried by said guide-frame and arranged to interlock with both the table and the knife-slide in the folded position of the guide-frame, substantially as set forth.

9. The combination with the table of the slicer having a projection at its end, of a folding upright guide-frame hinged to the table, a knife-slide guided in said frame and having a locking-recess, and a duplex latch pivoted transversely to the guide-frame and having a notch adapted to interlock with the projection of the table and an extension adapted to enter the recess of the knife-slide, substantially as set forth.

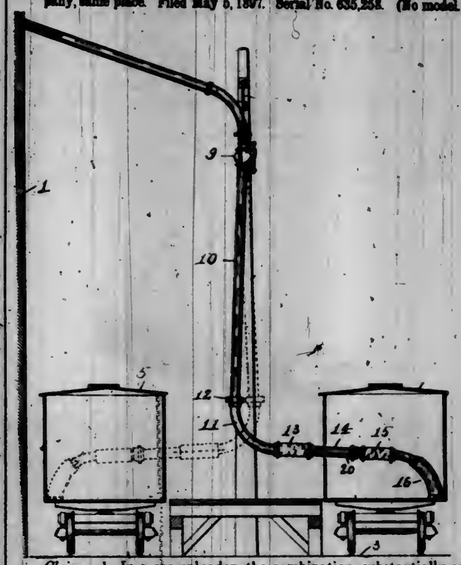
589,515. OIL-CAN. DAVID TRUE, Amesbury, Mass. Filed Jan. 2, 1896. Serial No. 574,060. (No model.)

Claim.—1. In an oil-can of the character described, the plug B provided with an air-passage extending from the outer surface thereof to the surface which is within the reservoir, the tube R' set into said passage, a pin or screw T extending through said passage at a short distance below the lower end of the tube, and a ball T' within said passage between said pin or screw and tube, said ball being of too large diameter to enter the tube and of smaller diameter than the passage, substantially as described.



2. In an oil-can of the character described, the plug B provided with a passage therethrough extending from the outer surface of the plug to the surface within the reservoir, said passage being on a non-vertical line and containing a suitable valve, whereby the oil-can may be laid in a horizontal position without the oil escaping, substantially as set forth.

589,516. CAR-UNLOADER. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed May 5, 1897. Serial No. 635,258. (No model.)



Claim.—1. In a car-unloader, the combination, substantially as set forth, of an elevated support, an elevated pipe having a flexible joint carried by said support, a vertical pipe pendulous from said flexible joint, an elbow united to the base of said flexible pipe by a swivel-joint, and a mouthpiece united to said elbow by piping having a flexible portion.

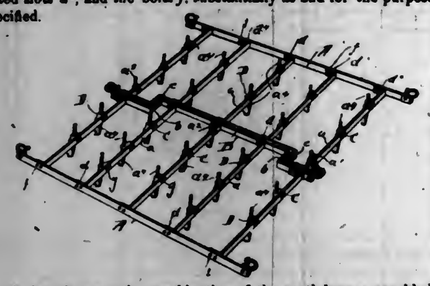
2. In a car-unloader, the combination, substantially as set forth, of an elevated support, an elevated pipe having a flexible joint carried by said support, a vertical pipe pendulous from said flexible joint, an elbow united to the base of said flexible pipe by a swivel-joint, a flexible pipe connected with the lower extremity of said elbow, a telescope pipe connected with the outer end of said flexible pipe, a flexible pipe at the outer end of said telescope pipe, and a mouthpiece connected with the outer end of said flexible pipe.

3. In a car-unloader, the combination, substantially as set forth, of an elevated support, an elevated pipe having a flexible joint carried by said support, a vertical pipe pendulous from said flexible joint, an elbow united to the base of said flexible pipe by a swivel-joint, a curved mouthpiece, and a pipe having a flexible portion uniting the upper end of said curved mouthpiece with the outer end of said elbow.

589,517. HARROW. JOHN S. WECKMAN, Canton, Ohio. Filed Dec. 21, 1896. Serial No. 616,413. (No model.)

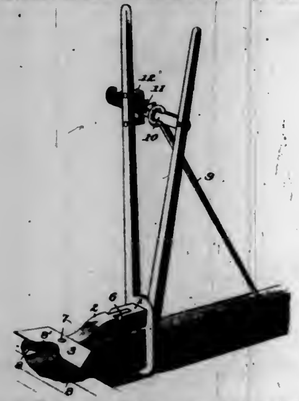
Claim.—1. The combination of two frames consisting of the bars A, B, and a, the bars B, provided with the right-angled portions b, said portions hinged together by the short bolts c, the teeth-bars a, pivotally attached to the bars A, and B, and provided with the right-angled portions d, said right-angled portions provided with the elon-

gated slots d^3, and the bolts f, substantially as and for the purpose specified.



2. In a harrow, the combination of the teeth-bars a, provided with apertures A^3, the heads D, provided with the inclined flanges h, and the clamping-bolt C, provided with the inclined shoulders g, substantially as and for the purpose specified.

589,518. JOINER'S FLOOR-CLAMP. ABLE M. WHITE, Tilmon, Tex. Filed Dec. 14, 1896. Serial No. 615,681. (No model.)



Claim.—1. The combination, in a joiner's floor-clamp, a pair of gripping-tongs and a clamp-block, an adjustable and reversible arm connecting the tongs and clamp-block and having the intermediate knuckle-joint 6 whereby to maintain the clamp-block in an extended relation to the tongs and to reverse its position thereon to facilitate applying the device to the flooring or ceiling board.

2. In a joiner's floor-clamp, the combination of a pair of gripping-tongs, and a clamp or bearing block, a connecting-arm therefor screw-nutted to the tongs, pivot-jointed to the bearing-block and knuckle-jointed between the tongs and the bearing-block, in the way and for the purpose stated.

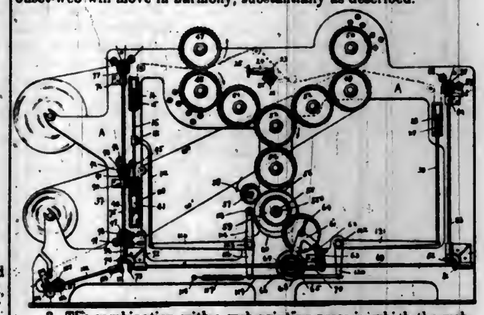
3. The combination, in a joiner's floor-clamp, of the gripping-tongs, a latch-bar for securing their handles when gripped, and a driving clamp-block for the board, with a take-hold brace mounted to swing freely upon the latch-bar, whereby the resistance upon the brace in driving and holding the clamp-block, serves to securely hold the latch in locking relation to the tongs.

4. In a joiner's floor-clamp, the combination with the gripping-tongs, of a clamp-block for the board mounted upon said tongs by a knuckle-jointed arm by which the clamp-block may also be reversed in position, a pivotal connection of said arm with the tongs, and means for clamping said arm when set.

589,519. PRINTING-MACHINE. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed Jan. 14, 1895. Serial No. 534,893. (No model.)

Claim.—1. The combination in a rotary printing-press, of controlling means for intermittingly withholding the web to be printed, an offset-web interposed between the web to be printed and the second impression-surface and separate controlling means for intermittingly withholding the offset-web, substantially as described.

2. The combination in a rotary printing-press of controlling means for intermittingly withholding the web to be printed, an offset-web interposed between the web to be printed and the second impression-surface and separate controlling means for intermittingly withholding the offset-web so arranged that the web to be printed and the offset-web will move in harmony, substantially as described.



3. The combination with a web-printing press in which the web to be printed is intermittingly withheld, of an offset-web interposed between the web to be printed and the second impression-surface, and means for controlling the offset-web so that the same will move in harmony with the main web, consisting of continuously-running feeding-in and feeding-out devices and looping devices, substantially as described.

4. The combination with a web-printing press in which the web to be printed runs intermittingly, of an offset-web interposed between the web to be printed and the second impression-surface, means whereby the length of the sheet printed may be varied and means whereby the offset-web may be adjusted to always move in unison with the web to be printed, substantially as described.

5. The combination with a rotary web-printing press in which the web to be printed is withheld during the non-impression period, of an offset-web interposed between the web to be printed and the second impression-surface and a single adjusting mechanism arranged to vary the length of the sheet that may be printed and to adjust the movement of the offset-web so that the offset-web will always move in unison with the web to be printed, substantially as described.

6. The combination with a rotary web-printing press, of controlling mechanism for the web to be printed consisting of continuously-running feeding-in and feeding-out devices and devices arranged so that the main web may be withheld during a non-impression period, an offset-web interposed between the web to be printed and the second impression-cylinder, controlling mechanism for the offset-web, consisting of continuously-running feeding-in and feeding-out devices and loopers, and a single adjusting mechanism adapted to vary the speed and action of the controlling mechanism of both the web to be printed and the offset-web, substantially as described.

7. The combination with a rotary web-printing press, of gearing whereby the printing-couples will be continuously rotated, mechanism for withholding the web to be printed during a non-impression period, an offset-web interposed between the web to be printed and the second impression-cylinder, controlling mechanism for the offset-web arranged so that the offset-web may move in harmony with the web to be printed, and a single adjusting mechanism adapted to vary the length of the sheet printed and to adjust the action of the offset-web so that the same will always move in unison with the web to be printed, substantially as described.

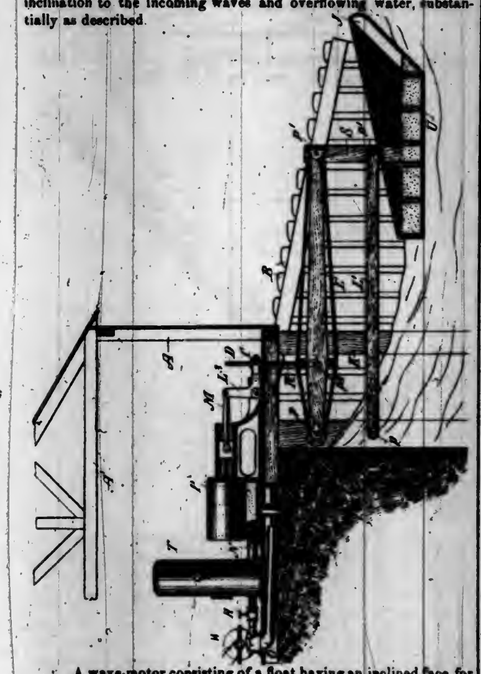
589,520. WAVE-MOTOR. PARVIN WRIGHT, Keswick, Cal. Filed May 11, 1896. Serial No. 591,087. (No model.)

Claim.—1. In a wave-motor a float provided with an inclined top surface and an inclined outer bottom face, said float being pivotally connected to one or more stationary points of support in such manner that it maintains its top surface at a constant inclination for all conditions of tide and wind, substantially as described.

2. In a wave-motor a float having an inclined outer face adapted to receive the force of incoming waves and an inclined top surface adapted to shed any overflowing water, in combination with one or more vertical standards secured by one or more pairs of pivoted levers to a stationary point of support and in such manner that the vertical standards remain always vertical and the inclined face always inclined for all conditions of tide and wind.

3. A wave-motor provided with an inclined face for receiving the force of incoming waves, said motor being pivotally secured to a stationary point of support in such manner that the aforesaid inclined face presents the same angle of inclination to the waves for all conditions of tide and wind, substantially as described.

4. A wave-motor consisting of a float having a horizontally-disposed bottom, an outer lower inclined face which maintains an angular relation to incoming waves, an upper inwardly-inclined surface adapted to shed any overflowing water, in combination with one or more vertical standards pivotally secured by one or more pairs of levers to a stationary point of support, and means for connecting said levers to a source of power, the arrangement being such that the vertical standards remain vertical for all conditions of wind and tide, and the inclined face and surface offer always constant angles of inclination to the incoming waves and overflowing water, substantially as described.



A wave-motor consisting of a float having an inclined face for receiving the force of incoming waves and an inclined top surface for shedding any overflowing water, one or more vertical standards pivotally connected through one or more pairs of levers to a stationary point of support, in combination with power-transmitting mechanism and interconnecting clutching mechanism adapted to act constantly upon the power-transmitting mechanism under all conditions of tide and waves, substantially as described.

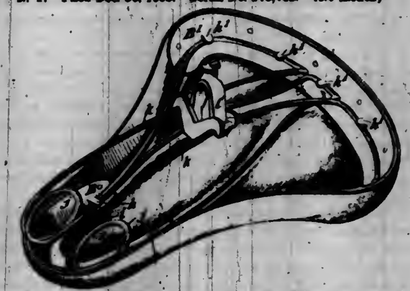
6. A wave-motor consisting of a float pivotally secured to one or more pairs of levers pivoted to a stationary support, in combination with a pivoted rod or rods attached to said levers and clutching mechanism attached to a source of power-transmission, said clutching mechanism being provided with means for automatically giving to the source of power constant action under all conditions of tide and waves.

7. A wave-motor consisting of a float pivotally secured by one or more pairs of levers L and L' to a stationary point of support, mechanism connecting said levers to a power-transmitting mechanism as a pump, power-storing mechanism, such as a pressure-tank, connected to said pump, in combination with a Pelton water-wheel operatively connected with the pressure-tank, substantially as described.

8. A system of power-transmission consisting of a float having an inclined outer face adapted to receive the force of incoming waves, an inclined top surface adapted to shed overflowing water, one or more pairs of levers pivotally connecting said float with a stationary point of support, mechanism connecting said levers with a pump, a pressure-tank operatively connected with said pump, and a water-wheel operatively connected with said pressure-tank, substantially as described.

9. In a system of power-transmission a float having an inclined face adapted to receive the force of incoming waves, an inclined top surface adapted to shed the overflow of such waves, one or more pairs of pivoted levers operatively connecting said float with a stationary point of support and in such manner as to maintain its angular relations constant with relation to the surface of the sea; mechanism operatively connecting said levers with a power-transmission as a pump, power-storing mechanism in the nature of a pressure-tank operatively connected with said pump, and a source of water-supply, in combination with a Pelton water-wheel and circulating-pipes between the water-wheel, the source of water-supply, and the pressure-tank, substantially as described.

589,521. BICYCLE-SADDLE. CHARLES H. YOUNG, New York, N. Y. Filed Dec. 30, 1895. Serial No. 573,782. (No model.)



Claim.—A spring-frame for a bicycle-saddle, the same being formed of a rod bent to conform to the thigh-curves of the saddle, then curved inwardly toward the center of the saddle to conform to the rear portion, thence extending to the front of the saddle and curved downwardly away from the under surface of the saddle, then returned along the under surface of the saddle at the edge of the perineal depression then extending along the rear portion of the saddle, thence returning to the front of the saddle at the edge of the perineal cavity, being curved to conform to the shape of the said cavity, then bent in the order which is the reverse of that just described, forming the remaining half of the spring-frame, substantially as specified.

589,522. STATION-INDICATOR. SOLOMON P. BENTLEY, Springfield, Minn., assignor of one-half to Michael Lehrer, same place. Filed Jan. 12, 1897. Serial No. 615,944. (No model.)



Claim.—1. In a street or station indicator, the combination with an inclosing case provided with a display-opening at the front thereof, substantially semicircular guideways in its interior side walls leading past said opening, and straight vertical guideways g^2 in communication with said semicircular guideways, of a horizontal reciprocating push-block provided with a raised rear portion and normally disposed below said rear guideways, tilting guide-catches located at the junction of said guideways, a series of display-boards resting on the front portion of said push-block, so that the raised portion of the block will bear against the rear edge of the lowermost board, said boards being provided with arms traversing said guideways, and a lever for operating the push-board, substantially as described.

2. In a street or station indicator, the combination with a suitable inclosing house or case having a display-opening at the front thereof, of a reciprocating push-block contained therein, a series of display boards or plates resting thereon, and a tilting actuating device connected with said push-block and provided at the front thereof with a lever whereby it and the push-block may be moved forward, and means for automatically returning said actuating device and push-block to their normal positions, substantially as described.

3. In a street or station indicator, the combination with a suitable inclosing house or case having a display-opening at the front thereof, of a reciprocating push-block contained therein, a series of display boards or plates resting thereon, and a tilting actuating device connected with said push-block and provided at the front thereof with a lever whereby it and the push-block may be moved forward, and weights at the rear for automatically returning said actuating device and push-block to their normal positions, substantially as described.

4. In a street or station indicator, the combination with a suitable inclosing house or case having a display-opening at the front thereof, of a reciprocating push-block contained therein, a series of display boards or plates resting thereon, and a tilting actuating device provided with trunnion ends journaled in the side walls of the case and connected with a lever at the front and means at its rear for automatically returning the push-block and actuating device to their normal positions, substantially as described.

5. In a street or station indicator, the combination with an inclosing case provided with a display-opening at the front thereof and with guideways in its interior side walls leading past said opening, of

a series of display boards or plates each having parallel end arms to travel in said guideways, catches in said guideways, and means for moving said boards to a position for display at said opening, substantially as described.

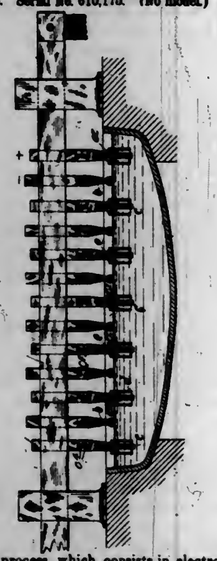
6. In a street or station indicator, the combination with an inclosing case provided with a display-opening at the front thereof and with guideways in its interior side walls leading past said opening, of a series of display boards or plates each having parallel end arms to travel in said grooves, a push-block carrying said boards, and a tilting actuating device connected with said push-block and provided with a lever for moving it and said push-block and means for automatically returning said block and actuating device to their normal position, substantially as described.

7. In a street or station indicator, an inclosing case or housing having a display-opening at the front thereof, a series of display boards or plates contained therein and adapted to be displayed at said opening, a push-block carrying said plates and provided with rack-teeth on its under side, and pivoted dogs engaging said teeth to prevent backward movement of said push-block when the same has been pushed partially forward only, substantially as and for the purpose described.

8. In a street or station indicator, a case or housing provided with a display-opening at the front and with guideways leading past said opening, a series of display boards or plates having arms to travel in said guideways and adapted to be displayed at said opening, a reciprocating push-block carrying said boards, and a tilting actuating device connected with said push-block and provided with a lever for tilting it and reciprocating the push-block one way and weighted at the rear, whereby, when the said lever is released the push-block and actuating device will be automatically returned to their normal positions, substantially as described.

9. In a street or station indicator, a case or housing provided with a display-opening at the front and with guideways leading past said opening and thence extending rearwardly and connecting with a vertical guideway, pivoted catches in said guideways, a series of display boards or plates having arms to travel on said guideways and adapted to be displayed at said opening, a reciprocating push-block carrying said boards and located beneath the said vertical guideways, and pivoted guide-blocks at the upper end of said vertical guidway for conducting the boards thereto, substantially as described.

589,523. PROCESS OF AND APPARATUS FOR ELECTROLYZING FUSED SALTS. JOHANN BOECKERELL, Neuhausen, Switzerland. Filed Oct. 27, 1896. Serial No. 610,175. (No model.)



Claim.—1. The process, which consists in electrolyzing a fused alkali-metal salt and liberating the alkali metal exclusively at the surface of the electrolyte, substantially as described.

2. The combination with an anode having a gas-conducting sheath insulated and suspended therefrom and a supporting-rod therefor, of a spider supported and insulated from said rod, whose arms support the cathodes, and means for vertically and horizontally adjusting said cathodes, substantially as set forth.

3. The combination with an anode depending from a supporting-rod and a sheath insulated from, surrounding and depending from said anode, of an insulated spider on said rod, metallic cathodes suspended from said spider-arms adapted to have surface contact with the electrolyte, and means for vertically and radially adjusting the cathodes, substantially as set forth.

589,524. COMBINATION FENCE-TOOL. JOHN H. BROWN, Malta, Ill. Filed May 26, 1897. Serial No. 638,111. (No model.)

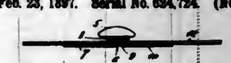


Claim.—1. A fence-tool comprising a handle and hammer, said handle being provided with a longitudinal rib and a series of sockets, a claw having a sliding engagement with the head of the hammer, and provided with a shank having a groove to engage said handle-rib, and a spring-stud to engage said sockets, substantially as set forth.

2. A fence-tool comprising a handle and hammer, said handle being provided with a longitudinal rib and a series of sockets, a claw having a shoulder adapted to engage a recess formed in the head of the hammer, and having a shank provided with a groove adapted to receive the longitudinal rib of the handle, and a spring-stud to engage the sockets in the handle, substantially as set forth.

3. A fence-tool comprising a hammer and handle, and a claw and shank having a sliding connection therewith, said shank having a wire-cutter adapted to act in conjunction with the head of the hammer for severing a wire, substantially as set forth.

589,525. FASTENING DEVICE. CORNELIUS W. GARIS, Easton, Pa. Filed Feb. 23, 1897. Serial No. 624,724. (No model.)



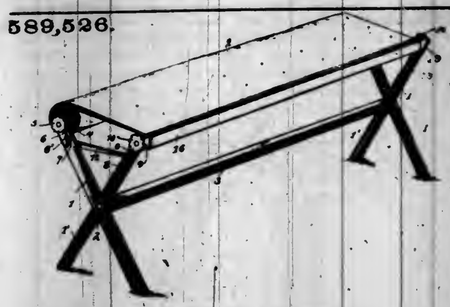
Claim.—1. A fastening device consisting of two parts, one of which is provided with a head in which is formed an opening, and to the bottom of which is secured a shank which is provided with an arm which projects at right angles thereto, and the other part consisting of a head which is also provided with a shank, on which is formed an arm which projects at right angles thereto, said arm and said shank being adapted to pass through said opening, substantially as shown and described.

2. The herein-described fastening device, comprising two parts, one part of which consists of a head 5, shank 6, and arm 7; the other part consisting of a head 8, shank 9, and arm 10, said head 8 being provided with an opening 13, substantially as and for the purpose described.

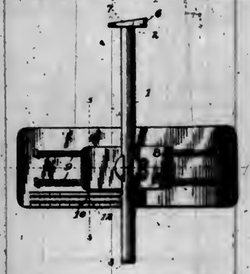
589,526. PORTABLE QUILTING-FRAME. JOHN H. GIBSON, Lawrence, Tenn. Filed Mar. 22, 1897. Serial No. 628,735. (No model.)

Claim.—A portable quilting-frame comprising the diagonally-crossed legs 1 1', fulcrumed on the opposite ends of the longitudinal brace 3, and provided with the toothed notches 13, and pivoted levers 12 12, in combination with the beam 4, journaled in the upper ends of the legs 1, and the parallel beam 9 journaled in the upper ends of the legs 1', both beams being provided with ratchet-wheels and having the spring-pawls 6 6, extending through a guide-slot in the studs 6' 6' and having their outer ends pivoted to the lever 7, mounted on the screw 8, and the rectangular spring-clamp 16, adapted to partially encompass the beam 9, substantially as shown and described.

589,526.



589,527. TELEMETER. CHARLES GULLIKSEN, Grand Forks, N. D. Filed Mar. 30, 1897. Serial No. 630,005. (No model.)



Claim.—1. A telemeter comprising a support, a movable carriage mounted on the support, a sight-tube mounted on the carriage, a detachable prism in the tube, and a fixed scale and movable pointer, substantially as described.

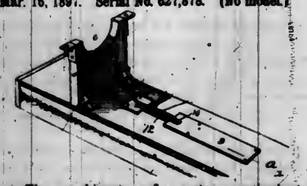
2. The movable carriage 8, provided with the pointer 12, the tube 1, provided with the prism 7 mounted on said movable carriage, and the stationary track provided with the fixed scale 10, substantially as shown and described.

589,528. MANHOLE. ARTHUR F. HEGEWALD, New Albany, Ind., assignor to the Charles Hegewald Company, same place. Filed May 17, 1897. Serial No. 636,980. (No model.)



Claim.—A manhole having the marginal edge of the metal forming the same bent backward and against the inner wall of the boiler-head, to form a smooth rounded edge to the hole, in combination with the closing-plate having a marginal seat fitting against the bent edge within the hole, slotted lugs at the ends of said plate on the outer side thereof, frogs spanning the hole, bolts passing through the frogs and connected to the lugs, and a central handle for the plate, substantially as described.

589,529. SEAT OR BENCH. SIMON K. HELMER, Aspen, Colo. Filed Mar. 16, 1897. Serial No. 627,878. (No model.)



Claim.—The combination of a seat or equivalent article, provided with a recess, a guide-bar disposed longitudinally of the recess, a hinged leg supporting the seat, a brace connected at one end to the leg and having its other end bent at an angle and sliding on the guide-bar, and an automatically-operating latch arranged within the recess of the seat and pivoted near one end, its shorter arm being bent upward and arranged adjacent to the guide-bar and located in the path of the brace in position to be engaged by the same, the longer arm of the latch being adapted to maintain the shorter arm in operative position, substantially as described.

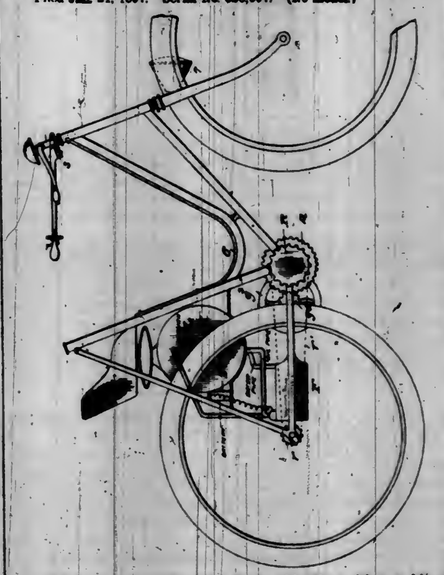
589,530. AUTOMATIC WINDMILL. GERRY E. KNOWLTON, Boone, Iowa. Filed Jan. 16, 1897. Serial No. 619,500. (No model.)



Claim.—1. A windmill comprising a horizontal shaft, parallel disks fixed on said shaft, a frame 9 having its parallel arms 8 8 secured to said disks, the outer ends of said arms being connected by a transverse brace 13, in combination with the rectangular frame 14 hinged to said frame 9 by the bolts 16, 16, and the sail fabric 18 connected to said transverse brace 13 and to the free end of the frame 14, substantially as shown and described.

2. A windmill comprising a horizontal crank-shaft, the parallel disks fixed on said shaft, a series of radial rectangular frames 9 9, each frame being formed with parallel arms 8 8 terminating in inclined parallel bars 12 12, connected at their outer ends by a transverse brace 13, in combination with the hinged frame 14, the sides 15 15 of which are pivoted to said arms 8 8 by bolts 16 16, and the sail fabric 18 connected along its upper edge to the brace 13, and along its lower edge to the free end of the frame 14, substantially as shown and described.

589,531. VELOCIPEDE. HERMANN C. MEUMANN, Bessemer, Ala. Filed Jan. 21, 1897. Serial No. 620,097. (No model.)



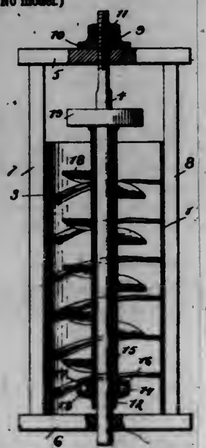
Claim.—1. In a velocipede, the combination with two bicycles of ordinary construction, and the frame of another bicycle, means for connecting the parts together, an engine-frame supported by the bicycle-frames, the driving-shaft connected with the driving-shafts of the two bicycles, and connections between the engines and the driving-shafts for imparting the movement of the engine to the driving-shaft, substantially as set forth.

2. The combination with two bicycles and the frame of a third bicycle, said parts being removably connected together, of an engine supported by the several frames, provided with a crank-shaft connected to the piston-rods of the engine, a drive-shaft having a geared connection with the crank-shaft and with the ordinary drive-shafts of the two bicycles, substantially as set forth.

3. In a velocipede, the combination with two bicycles of the usual or well-known construction, and the frame of a bicycle removably clamped thereto, of an engine-frame, an engine supported by said frame, a crank-shaft to which the piston-rods of said engine are connected, gear-wheels loosely mounted upon the ends of said crank-shaft, a driving-shaft connected to the driving-sprockets of bicycles, gear-wheels on said driving-shaft in mesh with those on the crank-shaft, clutches connecting said gear-wheels with said driving-shaft, whereby the gear-wheels are caused to turn in unison with the driving-shaft, the construction being such that the gear-wheels may rotate faster than the working of the engine, substantially as set forth.

4. The combination with two bicycles of the usual and well-known construction, and the frame of a third bicycle clamped thereto, of an engine for driving the bicycles, a steering-lever, a rod connecting the steering-heads of the two bicycles and pivoted to the steering-lever, whereby when said lever is actuated, the steering of the two bicycles will be moved in unison, substantially as set forth.

589,532. LIFTING OR IRRIGATING PUMP. ALLEN B. MCCONKEY, Gering, Nebr. Filed July 14, 1896. Renewed July 22, 1897. Serial No. 645,622. (No model.)



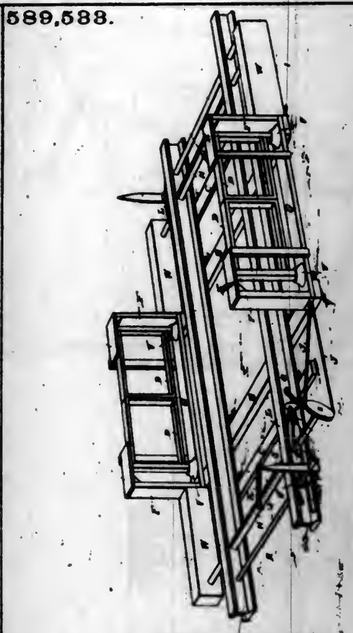
Claim.—1. A pump comprising a stationary cylinder provided with a female Archimedean screw-thread, in combination with a central vertically-adjustable shaft provided with a bearing-collar upon which revolves a sleeve provided with a male Archimedean screw and means for rotating the same, substantially as and for the purpose set forth.

2. A pump comprising the frame, the stationary cylinder 1 provided with the spiral flange 3, in combination with the central stationary shaft 4, provided with the adjustable nut 9 and the stationary collar 12, the sleeve 15 journaled on said shaft 4 and formed with a bearing-flange 16, a driving-pulley 19, and a spiral flange 18, the pitch of which rises in the opposite direction to the rise or pitch of the spiral flange on the stationary cylinder, substantially as and for the purpose set forth.

589,533. RAILWAY-GATE. CHARLES R. MCDANIEL, Ridgewood, Mo. Filed Mar. 16, 1897. Serial No. 627,750. (No model.)

Claim.—The combination with swinging gates normally swung across the track, of operating-shafts provided with pulleys, cables connecting the pulleys with the gates, coiled springs connecting the operating-shafts to ties and exerting energy to retain the gates in a position across the track, crank-arms on the operating-shafts, gate-operating levers pivoted to the rails of the track extending upward within the path of the wheels of a traveling train, and having an end as N and a lateral extension, spring-actuated triggers pivoted to the rail below the operating-levers and adapted to engage the end N of the same, the cranks on said shafts connected to the lateral extensions of the operating-levers, trip-shafts connected to the outer ends of said triggers by links, and trip-arms projecting upward and adapted to be engaged by a bracket or other device carried by the rear end of the rear car, all arranged and combined as set forth.

589,588.



589,534. BAND-CUTTER AND FEEDER. JOHN P. OLSON and OLOF ISAACSON, Assaria, Kans. Filed Mar. 10, 1897. Serial No. 626,834. (No model.)



Claim.—A band-cutter and feeder comprising an inclined endless conveyer composed of two sections hinged together, the rotary cutter arranged above and in advance of the rear end of said conveyer, a downwardly-inclined bucking-board arranged below and to the rear of the conveyer and leading to the threshing-cylinder, a cover over the rotary cutter, a cover leading therefrom and extending over the bucking-board, the front end of said bucking-board and the rear end of the extension-cover being vertically adjustable by perforated bars and bolts to always retain a parallel relation, and means for actuating the cutter, conveyer and bucking-board substantially as set forth.

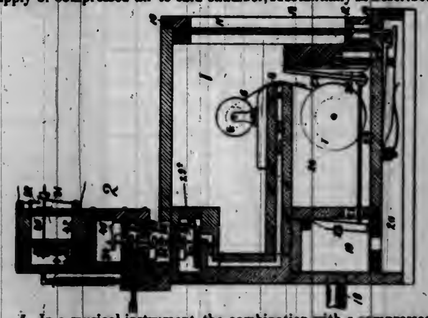
589,535. ELECTROPNEUMATIC MUSICAL INSTRUMENT. ROBERT W. PAIN, New York, N. Y., assignor to the Aeolian Company, same place. Filed May 13, 1896. Serial No. 591,344. (No model.)

Claim.—1. In a musical instrument the combination with a compressed-air chamber inclosing the operating music-sheet, of a movable door for affording access to the interior of said chamber, and mechanism operated respectively by the opening and closing of said door, to control the entrance of air to said chamber, substantially as described.

2. In a musical instrument, the combination with a compressed-air chamber, the tracker-range, music-sheet and delivery and take-up rollers arranged in said chamber, of a sliding door operating to close said chamber air-tight, and mechanism operated by said door when the latter is closed to effect the admission of compressed air to said chamber from a suitable source of supply, substantially as described.

3. In a musical instrument, the combination with a compressed-air chamber inclosing the operating music-sheet, of a sliding door for affording access to said sheet, and mechanism operated by said door when the latter is closed to effect the admission of compressed air to said chamber from a suitable source of supply, substantially as described.

4. In a musical instrument, the combination with a compressed-air chamber inclosing the operating music-sheet, of a sliding door for affording access to said sheet, a source of supply for normally supplying compressed air to the compressed-air chamber, and mechanism operated by said door when the latter is opened to shut off the supply of compressed air to said chamber, substantially as described.



5. In a musical instrument, the combination with a compressed-air chamber inclosing the operating music-sheet, of a movable door for affording access to the interior of said chamber, a primary chamber 19, having a passage leading into the compressed-air chamber, a valve for closing said passage, a pneumatic arranged within the compressed-air chamber, a connection between the said valve and pneumatic, an air-passage leading from the primary chamber to said pneumatic, and a valve 16 controlling the entrance of air to said pneumatic, said latter-named valve being operated by the opening and closing of the door, substantially as described.

6. The combination with a compressed-air chamber, of an initial pneumatic, a tracker-range having a duct communicating with said pneumatic, a music-sheet arranged to travel in the compressed-air chamber over the tracker-range and controlling the admission of air to said initial pneumatic, a pneumatically-operated musical instrument, a contact-chamber, a pneumatic arranged in said contact-chamber, and operating to make and break an electric circuit through suitable connections to operate the musical instrument, an intermediate chamber, a duct leading from said contact-chamber to said intermediate chamber, and a double puppet-valve controlling said latter-named chamber, said valve being connected with and raised by the said initial pneumatic, substantially as described.

7. The combination with a compressed-air chamber, of an initial pneumatic, a tracker-range within said compressed-air chamber having a duct communicating with said initial pneumatic, a music-sheet arranged to travel over said tracker-range and controlling the admission of air to said pneumatic, an intermediate chamber, a contact-chamber, a pneumatic arranged in said contact-chamber and operating to make and break an electric circuit through suitable electric connections, a duct leading from said contact-chamber to said intermediate chamber, a double puppet-valve arranged within said latter-named chamber, said valve being operated by the said initial pneumatic a key 59, a pneumatic for operating said key, a striker-rod connecting the pneumatic and key, an exhaust-chamber, a duct connecting said chamber and pneumatic, a double puppet-valve operating to alternately place said duct into communication with the chamber and with the atmosphere, an armature connected with the stem of said valve, and an electromagnet in circuit with the aforesaid electric connections operating when energized to attract said armature and raise said valve and shut off the communication between the said duct and atmosphere and open the communication with the exhaust-chamber, whereby the pneumatic is caused to collapse and actuate the key.

589,536. HARNESS ATTACHMENT. STEPHEN A. D. REYNOLDS, Girard, Ill., assignor of one-half to Moses A. Newell, Virden, Ill. Filed Apr. 19, 1897. Serial No. 633,843. (No model.)



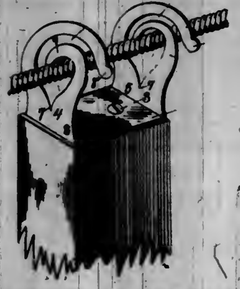
Claim.—An attachment for harness, comprising a bar, the ends of which are provided with two loops on one edge of said bar while the intermediate portion of the other edge is provided with a third loop, a yoke pivoted to one of the end loops and having its free end projecting upwardly through the opposite end loop, and formed with an eye-opening, substantially as set forth.

589,537. PNEUMATIC FOOT. WILLIAM ROBERTS, Plymouth, Pa., assignor of one-half to Morgan Bevan, same place. Filed Jan. 9, 1897. Serial No. 618,626. (No model.)



Claim.—An artificial foot, comprising the socket 1, the block 2 secured in the lower end thereof, in combination with the pneumatic sole 4 provided with the inflating-tube 5 extending vertically upward through said block 2, and the leaf-spring 6 having its vertical arm 7 permanently fixed to said block, and its integral horizontal arm 8 extending around the heel portion of the block and pneumatic sole and underneath and parallel with said sole, substantially as shown and described.

589,538. CLOTHES-LINE PROP. JOHN H. STOCKMAN, Oscoda, and LYMAN A. THORNTON, Au Sable, Mich. Filed Nov. 27, 1896. Serial No. 613,533. (No model.)



Claim.—The combination with a clothes-line prop, of a substantially U-shaped head secured thereto which has arms that are provided with inwardly and downwardly extending slots which terminate in an upwardly-extending portion, thereby providing inner hook-guards.

589,539. CAR-COUPLING. WILLIAM H. H. TARBERT and WILLIS TARBERT, St. Ansgar, Iowa. Filed Apr. 26, 1897. Serial No. 634,053. (No model.)

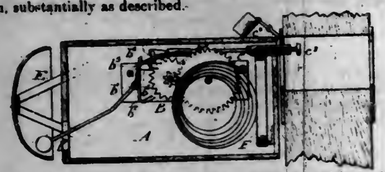


Claim.—A car-coupling comprising the draw-head 1, provided with the inclined bottom 2, the transverse lever 3, the coupling-pin 7, supported in the inner end of said lever, and the solid coupling-link 12, provided with the vertical orifice 13, and having a beveled lower face 14, in combination with the fixed guide-stud 8, the spiral spring 10 encompassing said stud and the locking-arm 15, provided with a spring-clip 16, to engage a stud 17, located on the car-body for holding the lever when uncoupling, substantially as shown and described.

589,540. BURGLAR-ALARM. JOHN P. FOWLER, Broomfield, Nebr. Filed Nov. 17, 1896. Serial No. 612,466. (No model.)

Claim.—1. In a portable burglar-alarm, the combination with a suitable casing, of a bell-clapper pivoted therein, an escapement controlling said clapper, a locking device for said escapement, a spring

for releasing said locking device, a crank-shaft for operating said spring, a trigger connected to said crank-shaft and projecting from the casing, and means for securing said casing in position so that the trigger will be engaged by an opening door or window to set off the alarm, substantially as described.



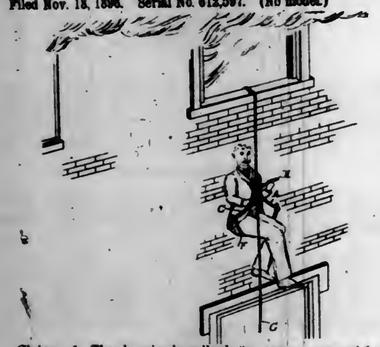
2. In a portable burglar-alarm, the combination with a suitable casing, of a bell-clapper mounted therein, an escapement mechanism connected to said clapper, a catch for said escapement, a trigger for controlling said catch and projecting from the casing, and a clamp attached to said casing and adapted to be applied within the keyhole to hold the casing in position, and the trigger in the proper relation to be engaged and operated by the insertion of a key in said keyhole, substantially as described.

3. In a portable burglar-alarm, the combination with a suitable casing, of a bell clapper mounted therein, a spring-actuated escapement mechanism connected to said clapper, a catch for locking said escapement, a trigger connected to said catch and extending out of the casing, an expansion-spring mounted upon said casing and supporting the trigger-rod and adapted to be expanded within a keyhole to hold the casing in position, substantially as described.

4. In a portable burglar-alarm, the combination with a suitable casing, of a spring-actuated escapement mounted therein, an alarm device, connected to said escapement, a locking-catch for said escapement, means for setting said catch from the exterior of the casing, a trigger connected to said catch for setting off the same, and a clamping device attached to the casing and adapted to be inserted within a keyhole to secure said casing in position, substantially as described.

5. In a portable burglar-alarm, the combination with a suitable casing, of a spring-actuated escapement mounted therein, an alarm device connected to said escapement, a locking-catch for said escapement, a trigger for setting off said catch, attaching means for securing the casing in position, and a protecting-cap adapted to be applied over the portion of the trigger extending from the casing when the alarm is not in use, substantially as described.

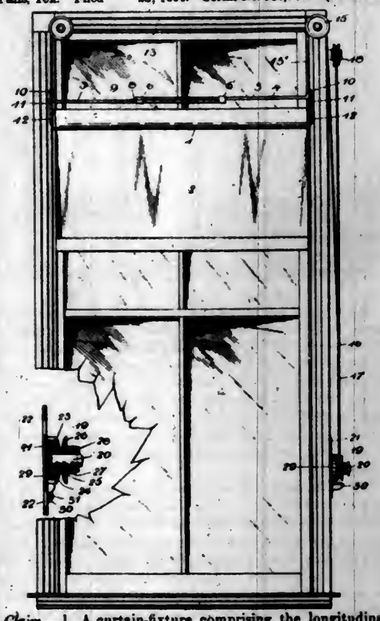
589,541. **FIRE-ESCAPE.** WILLIAM B. WILSON, Aberdeen, Wash. Filed Nov. 18, 1896. Serial No. 612,597. (No model.)



Claim.—1. The herein-described fire-escape, comprising a friction-lever A having the bearing-plates formed integral therewith, the opposing friction-lever pivoted between said bearing-plates, the friction-levers being curved away from each other at their lower ends and having the corrugated upper portions, the supporting-strap attached to the lower ends of said levers, and a regulating-lever pivoted upon the exterior of the bearing-plates and provided with a pin I at its lower end to engage the lever C for the purpose set forth.

2. In a portable fire-escape, the combination with the friction-lever A having the bearing-plates formed integral at the upper portion thereof, the top part of said lever being corrugated and curved as described, of the opposing friction-lever pivoted between the bearing-plates and having the upper portion thereof corrugated and curved as shown, said friction-levers curving outwardly away from each other at their lower ends and provided with hooks at said lower portion, the supporting-strap having loops at each end adapted to engage the hooks, the bifurcated and regulating lever pivoted upon the exterior bearing-plates of the lever A and having a pin adapted to engage the inner curved surface of the lever C, substantially as shown and described.

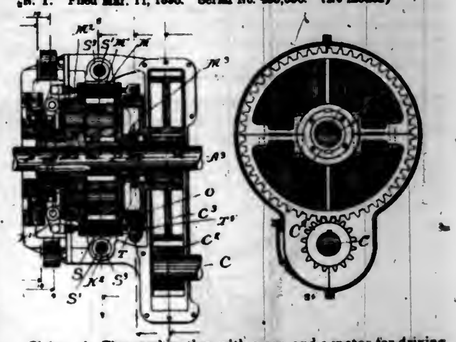
589,542. **CURTAIN-FIXTURE.** EDGAR M. WHITNEY, Wichita Falls, Tex. Filed [illegible] 29, 1896. Serial No. 617,383. (No model.)



Claim.—1. A curtain-fixture comprising the longitudinally-adjustable parallel rods 4 5, provided with sleeves 6 6', the detents 9 and the spring-clip 8 and having the integral loops 10 10, bars 11 11, eyes 12 12, the cords 13 13', the single and double grooved pulleys 14 15, over which said cords pass, in combination with the endless cord 17, the fixed pulley 18, and the adjustable pulley 19 having the integral ratchet-wheel 29 and weighted thumb-pawl 30, substantially as and for the purpose set forth.

2. A curtain-fixture comprising the longitudinally-adjustable parallel rods 4 5 provided with sleeves 6 6', the detents 9, and the spring-clip 8, and having the integral loops 10 10, bars 11 11, and eyes 12 12, the cords 13 13', secured at one end to said loops, and the endless cord 17, to which the opposite ends of the cords 13 13' are connected, the fixed pulleys 14, 15 and 18, and the plate 21 provided with the integral stud 20, in combination with the externally-threaded hub 23, having flange 24 and ratchet-wheel 29, the internally-threaded hub 25, and flange 26, the jam-nut 27, and the weighted thumb-pawl 30, substantially as and for the purpose set forth.

589,543. **ELECTRIC-MOTOR CAR.** HAROLD P. BROWN, New York, N. Y. Filed Mar. 11, 1893. Serial No. 465,630. (No model.)



Claim.—1. The combination with a car, and a motor for driving the same of a double-reduction planet-gear friction-brake mechanism for communicating and reducing motion from the motor-shaft to

the axle of the car, said mechanism being provided with two friction brake-wheels and brakes, one of said brakes being mounted on the stationary frame and the other on a revolving part of the mechanism, substantially as specified.

2. In an electric-motor car, the combination of the car-axle with an electric motor, a planet-gear disk or wheel carrying planet-gears, an internal gear meshing therewith, a sleeve loose on the car-axle and furnished with a pinion meshing with said planet-gears, means for communicating motion from the motor-shaft to said sleeve, a friction brake-wheel and friction-brake, and a supplemental brake-wheel, and a revolving supplemental brake engaging said supplemental brake-wheel, substantially as specified.

3. In an electric-motor car, the combination of the car-axle, with an electric motor, a planet-gear disk or wheel carrying planet-gears, an internal gear meshing therewith, a sleeve loose on the car-axle and furnished with a pinion meshing with said planet-gears, means for communicating motion from the motor-shaft to said sleeve, a friction brake-wheel and friction-brake, and a supplemental brake-wheel and a revolving supplemental brake engaging said supplemental brake-wheel, mechanism for operating said first-mentioned brake and mechanism for operating said supplemental brake, substantially as specified.

4. In an electric-motor car, the combination of the car-axle with an electric motor, a planet-gear disk or wheel carrying planet-gears, an internal gear meshing therewith, a sleeve loose on the car-axle and furnished with a pinion meshing with said planet-gears, means for communicating motion from the motor-shaft to said sleeve, a friction brake-wheel and friction-brake, and a supplemental brake-wheel and a revolving supplemental brake engaging said supplemental brake-wheel, a sliding collar surrounding the car-axle, and suitable connecting mechanism for operating said revolving supplemental brake by the movement of said sliding collar, substantially as specified.

5. In an electric-motor car, the combination of the car-axel with an electric motor, a planet-gear disk or wheel carrying planet-gears, an internal gear meshing therewith, a sleeve loose on the car-axle and furnished with a pinion meshing with said planet-gears, means for communicating motion from the motor-shaft to said sleeve, a friction brake-wheel and friction-brake and a supplemental brake-wheel and a revolving supplemental brake engaging said supplemental brake-wheel, a sliding collar surrounding the car-axle, and suitable connecting mechanism for operating said revolving supplemental brake by the movement of said sliding collar, and devices connecting said sliding collar with the brake lever or handle, substantially as specified.

6. In an electric-motor car, the combination of an electric motor with a planet-gear mechanism furnished with the revolving friction-brake T, arranged so that its partial application will effect a double reduction of speed between motor and car-axle, and its full application will effect a single reduction between same, substantially as specified.

7. The combination with a car and a motor for driving the same of a planet-gear mechanism with two independent friction-brakes so arranged that the application of one friction-brake will effect a double reduction of speed between motor and car-axle, and the application of the other will lock together the planet-gears and the internal gear and effect a single reduction of speed between the motor-shaft and car-axle, substantially as specified.

8. The combination with a car and a motor for driving the same, of a main circuit which can be closed by a switch at either end of the car and a brake-circuit leading through contacts at each end of the car, so arranged that the closing of the main circuit will first cause the opening of the brake-circuit and the opening of the main circuit at both ends of the car will cause the closing of the brake-circuit, substantially as specified.

9. The combination with a car and a motor for driving the same of a controlling-switch, a removable handle for same and a lock or detent for locking the switch in position by removing the handle, substantially as specified.

10. The combination with a car and a motor for driving same, of the switch-lever E, connecting-rod x^6, stud x', wheel x and handle Y, substantially as specified.

11. The combination with a car and a motor for driving same, of switch-lever E, connecting-rod x^6, stud x', cam-wheel x, lever r, slide r', rod r^6, switch R^4 and handle Y, substantially as specified.

12. The combination with a car and a motor for driving same, of two sets of brakes and brake-chains, brake-shaft U, crank U', ratchet-wheels u u, dog u', double ratchet u^3, slot u^2 and springs u^4, substantially as specified.

13. The combination with a car and a motor for driving same of two sets of brakes and brake-chains, brake-shaft U, crank U', ratchet-wheels u u, dog u', double ratchet u^3, slot u^2, springs u^4, ratchet-wheels V, ratchet V', spring v, and rods r', substantially as specified.

14. The combination with a car and a motor for driving same, of a means of transmitting motion from the motor to the car-axle, an axle with a groove w, a split beveled bushing W W fitting in said groove, a car-wheel W' having a beveled bore, hook-bolts w', washer w^2 and nuts w^3, substantially as specified.

589,544. **BOTTLE-STOPPER.** THOMAS BURRIDGE, London, England. Filed Feb. 10, 1896. Serial No. 578,795. (No model.) Patented in England Nov. 11, 1893, No. 21,554; in France Mar. 16, 1894, No. 237,064, and in Belgium Mar. 21, 1894. No. 109,004.



Claim.—1. In a bottle, jar or the like, the combination with the neck having a detachable ring I and a flat circular plate that is provided with a concentric port, of a rotatable cap-plate having a concentric port and a downwardly-extending screw-threaded flange mounted on the edge of said cap-plate, a screw-threaded collar provided with an inwardly-projecting flange I and adapted to engage with the screw-threaded portion of the cap-plate; and a spring interposed between the detachable ring on the neck and the inwardly-projecting flange of the collar, substantially as and for the purpose described.

2. In a bottle, jar or the like, the combination with the neck having a groove and a washer engaging therein and projecting therefrom, and a flat circular plate that is provided with a concentric port, of a rotatable cap-plate having a concentric port and a downwardly-extending screw-threaded flange mounted on and secured to the edge of said cap-plate, a screw-threaded collar provided with an inwardly-projecting flange and adapted to engage with the screw-threaded portion of the cap-plate; and a coiled spring interposed between the extended portion of the washer and the inwardly-projecting flange of the collar, substantially as and for the purpose described.

589,545. **NUT-LOCK.** WILLIAM COBRA, Philadelphia, Pa. Filed Jan. 16, 1897. Serial No. 619,405. (No model.)



Claim.—1. A nut-lock, consisting of a key adapted to fit within a keyway formed in the nut and having a washer upon which is formed a detent, and a screw adapted to run within a left-handed threaded hole and having notches formed upon its under side for engagement with said detent, as specified.

2. In combination, a key adapted to fit within a keyway formed upon a nut, a washer formed with said key, a detent carried by the washer, a left-handed threaded screw adapted to run within a suitably-threaded hole in the bolt, and a head formed upon said screw in which are notches for engagement with the detent, as specified.

3. The herein-described combination of a bolt, having a left-handed threaded hole in its under side, a screw adapted to run within said hole, said screw having a head formed thereon in which are notches, a nut having a keyway formed therein, a key adapted to fit said way, a washer formed with the key, and a detent carried by the washer for engagement with the notches of the head, substantially as and for the purpose set forth.

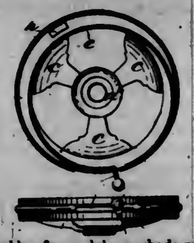
589,546. **FERTILIZER-DISTRIBUTER.** JOHN B. CROWDOVER, Maxville, [illegible] Filed Oct. 6, 1896. Serial No. 608,018. (No model.)



Claim.—In a machine of the class described, the combination with a frame, ground-wheels, of a receptacle having a feed-opening, a shaft extending through the receptacle and operatively connected

with the ground-wheels, said shaft carrying agitator-arms, a spring return-slide for controlling the feed-opening, a lever operatively connected with the slide, and a disk having radial pins to engage the other arm of said lever, the disk being carried by said shaft, substantially as specified.

589,547. HOLDER FOR GLOBES OR SHADES. FRANK A. DIEHM, New York, N. Y. Filed Nov. 27, 1896. Serial No. 613,531. (No model.)



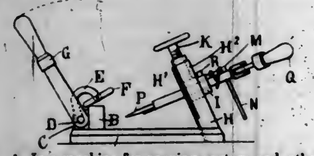
Claim.—1. A holder, for a globe or shade provided with a contracted neck at its base, said holder comprising a flanged supporting-gallery for the globe, having a guide-slot therein, and a spring-collar *c*, secured rigidly at one of its extremities to the gallery near said slot and having its free end guided in said slot, whereby practically the entire length of the collar is left free to contract and expand, said collar being adapted to expand wholly into an annular hollow in the gallery out of the way of the globe, as set forth.

2. A holder, for a globe or shade provided with a contracted neck at its base, said holder comprising a flanged supporting-gallery for the globe, the upright flange having a hollow to receive the expanded collar, and a lip A, and the spring-collar arranged within the gallery and secured at one end thereto, the other end having a stem guided in a slot in the gallery, said collar being adapted to embrace the neck of the globe by contraction and hold the latter securely.

3. A holder, for a globe or shade provided with a contracted neck at its base, said holder comprising a flanged supporting-gallery for the globe and a single spring-collar arranged within the gallery, secured at one end thereto and adapted to encircle the neck of the globe, the other end having a stem guided in a slot in the gallery, said slot having a keeper at its end to receive the stem of the collar and hold the latter against reaction from its own resiliency.

4. A holder, for a globe or shade provided with a contracted neck at its base, said holder comprising a flanged supporting-gallery for the globe, and the spring-collar arranged within the gallery and secured at one of its ends thereto, the other end having a stem guided in a slot in the gallery, said gallery having an annular hollow to receive the collar and a projection situated opposite to the said slot to take over the base-flange of the globe and the collar at this point, substantially as set forth.

589,548. MACHINE FOR OPENING OYSTERS. WILLIAM C. REMY and ALBERT REAME, Hull, England. Filed Apr. 28, 1896. Serial No. 589,260. (No model.)



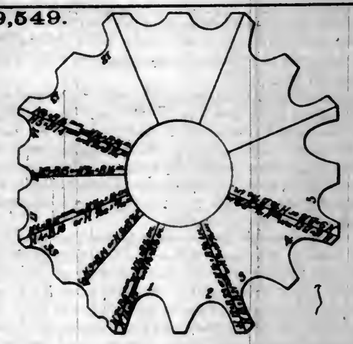
Claim.—1. In a machine for opening oysters and other similar mollusks, a fixed knife P, a spindle O and hand-lever Q, to operate the said knife P, and means for adjusting said knife, comprising a hand-wheel J, and screw K, substantially as described.

2. In a machine for opening oysters and other similar mollusks, having a fixed knife P and a spindle O with hand-lever Q to operate said knife, a gripping mechanism consisting of a shaft D, two curved arms upon said shaft, a grip-ring F supported by said arms E, and a lever G for operating said mechanism, substantially as described.

589,549. COMBINATION NOSE-GAGE. SOLOMON C. HIRSCHBERG, New York, N. Y. Filed Jan. 19, 1897. Serial No. 619,763. (No model.)

Claim.—A nose-gage consisting of a plate having a multiplicity of notches in its edge, the notches being of different forms to correspond with a variety of external shapes of the bridge of the nose, the plate being provided with figures or characters indicating the measurements of the notch, all substantially as described.

589,549.



589,550. DUSTING-BRUSH. JOHN C. LEES, Philadelphia, Pa. Filed Oct. 24, 1896. Serial No. 609,594. (No model.)



Claim.—1. In combination, a duster having a pocket formed therein with a single opening leading therefrom of less width than said pocket, and a handle having spring-arms upon the ends of which are formed loops for passage within the pocket, as specified.

2. In combination, a duster having a pocket formed therein and an opening leading from said pocket, a handle formed of wire doubled on itself, twisted centrally, the arms being bent outwardly with loops formed at their ends, said loops being adapted to engage the sides of the pocket, substantially as described.

3. The herein-described combination of a duster made of sheep or a like skin having the wool thereon, a pocket formed within said duster having an opening of less width leading therefrom, a handle, spring-arms formed with said handle, loops formed upon the ends of said arms for engagement with the pocket, substantially as and for the purposes set forth.

589,551. MACHINE FOR REMOVING INCRUSTATION FROM BOILER-TUBES. JAMES L. LOCKHART, Bellefontaine, Ohio. Filed May 22, 1897. Serial No. 637,806. (No model.)

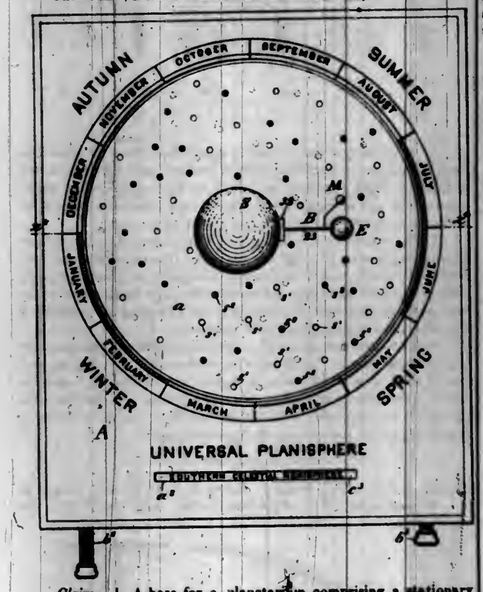


Claim.—1. In a boiler-tube cleaner, the combination with a head having three longitudinal channels in the sides thereof, at equal distances apart, of movable jaws mounted in said channels, two series of rotary cutters mounted in the outer end of each of said jaws on angles to the longitudinal center of said jaw, and a spreading-bar mounted in said head and inclosed between said jaws, the outer end of said spreading-bar being provided with two series of inclined ribs which afford said jaws a bearing whether in their extreme inner or outer positions, or at any intervening point of their expansion, substantially as shown and described.

2. In a boiler-tube cleaner, the combination with a head, and a plurality of movable jaws mounted therein, each of which has two series of rotary cutters mounted therein at angles to the longitudinal centers of said jaws, of a spreading-bar mounted in said head, and inclosed between the jaws, the portion of said spreading-bar inclosed by the jaws being provided with a front series of ribs and a rear series of ribs, the front series terminating where the rear series begins and both of said series of ribs being on a slant toward their inner ends, whereby there is a gradually-inclining bearing-surface for said jaws throughout approximately one-half the length of the spreading-bar, so that a substantial range of movement may be imparted to the jaws, as herein shown and described.

3. A boiler-tube cleaner comprising a head having three channels in its sides, a corresponding number of jaws mounted in said channels, and maintained therein by a collar, the said jaws being provided with grooves 21 and 22 on their inner sides, two series of rotary cutters mounted in each of said jaws on angles to the longitudinal centers of said jaws, one of said series of cutters projecting outwardly beyond the other, and a spreading-bar provided with two series of ribs 19 and 20 adapted to enter the grooves 21 and 22 on the jaws, the said ribs providing a gradually-inclined bearing for said jaws, substantially as shown and described.

589,552. PLANETARIUM. JAMES MCWADE, New York, N. Y. Filed Jan. 7, 1897. Serial No. 618,278. (No model.)



Claim.—1. A base for a planetarium comprising a stationary stellar chart having stars of both hemispheres marked on it by apertures, a rotating disk behind said chart and adapted for partial rotation, means for limiting such rotation, and means for effecting such rotation, said disk having also the stars of the different hemispheres marked thereon and adapted to be brought into register with the star-apertures in the chart, substantially as set forth.

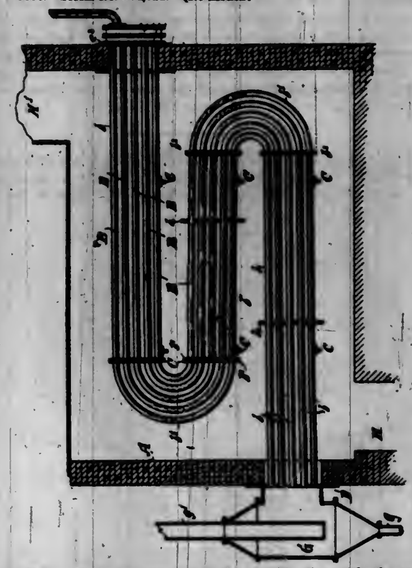
2. In the base A of the planetarium, the combination with the fixed stellar chart *a*, having in it two sets of apertures a' and a^2, representing respectively the stars of the two hemispheres, of the rotatable disk *b*, back of said chart, said disk having in it two sets of apertures c' and c^2, adapted to be brought, respectively, into register with the sets of apertures a' and a^2 by the rotatory movement of the disk, means for limiting the extent of rotation of said disk, and means for rotating said disk, substantially as set forth.

3. In the base A of the planetarium, the combination with the fixed stellar chart *a*, having in it two sets of apertures a' and a^2, representing respectively the stars of the two hemispheres, of the rotatable disk *b*, back of said chart, said disk having in it two sets of apertures c' and c^2, adapted to be brought, respectively, into register with the sets of apertures a' and a^2 by the rotatory movement of the disk, means for limiting the extent of rotation of said disk, tabs b^2 and b^3, connected to opposite sides of said disk for operating the same, and a hinged strip c^3, bearing inscriptions, arranged behind a sight-opening in the face of the base A, and connected with one of the said tabs, whereby said hinged strip is operated when the disk *b* is shifted, substantially as set forth.

4. In a planetarium, the combination with an upright spindle 4, carrying a head 5, the said head, and a cradle 6 mounted for reciprocating movement on said head transversely to the axis of the spindle 4, of the tubular spindle 12, a train of gears connecting the spindles 4 and 12, whereby they are rotated simultaneously in opposite directions, the long pinion 21, in the cradle, a gearing-train between the spindle 12 and said pinion, whereby the pinion is rotated therefrom as the head turns, racks 6^b on the cradle, a mutilated-gear wheel 30 on the shaft 12 adapted to engage said racks alternately and thus impart a reciprocating movement to the cradle, a sphere E, carried by the pinion 21, and representing the earth, the tubular spindle 23, on the spindle carrying the earth, gearing between the pinion 21 and spindle 23 whereby the former drives the latter, a sphere M, carried by the spindle 23 and representing the moon, an upright spindle 27, on the cradle, gearing between the pinion 21 and said spindle, whereby the former drives the latter, and a sphere S on said spindle 27, representing the sun, substantially as set forth.

5. In a planetarium, the combination with the cradle 6, and mechanism for imparting thereto a rotary movement and a reciprocating movement at right angles to the plane of said rotary movement, of the spheres representing the earth and moon carried by said cradle, mechanism for imparting the proper rotatory and orbital movements to said spheres, the upright spindle 27, mechanism for rotating the same, and the sphere S, representing the sun, mounted adjustably in said spindle 27, so that it may be shifted up or down thereon at will, substantially as set forth.

589,553. EVAPORATOR. GEORGE STIFF, Long Island City, N. Y., assignor of one-half to Francis J. Oakes, same place. Filed Jan. 9, 1896. Serial No. 574,922. (No model.)



Claim.—1. In an evaporator, the combination with the casing provided with induction and eduction passages, of inclined tortuous conveying-tubes within the casing, a distributing-chamber provided with a perforated partition having upon one side a series of pockets with which the conveying-tubes communicate, and a separator at the discharge end of said tubes, substantially as described.

2. In an evaporator, the combination with the casing, of conveying-tubes within the casing, and a distributing-chamber provided with a perforated partition having upon one side a series of pockets with which the conveying-tubes communicate, substantially as described.

3. In an evaporator, the combination with the casing, of conveying-tubes within the casing, a distributing-chamber provided with a perforated partition having upon one side a series of pockets with which the conveying-tubes communicate and detachable perforated plugs in the perforations of the partition, substantially as described.

4. In an evaporator, the combination with the casing of conveying-tubes within the casing, a distributing-chamber provided with a perforated partition having upon one side a series of pockets with which the conveying-tubes communicate, detachable perforated plugs in the perforations of the partitions and removable plugs in openings in the casing which aline with the plugs in the partition, substantially as described.

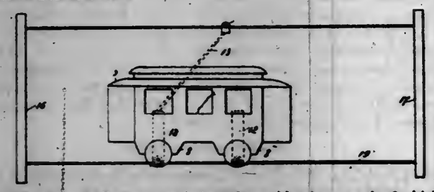
589,554. ENAMEL. ERNST TRAINER, Dortmund, Germany. Filed Apr. 23, 1895. Serial No. 546,916. (No specimens.)

Claim.—Glazes, glass, or enamels having with silica, an alkali compound and an admixture of a minimum quantity of five per cent. of a phosphate of an alkali metal, such phosphate acting as a flux and a dulling agent, substantially as described.

589,555. TOY. JOHN A. WEITZEL, Lancaster, Pa. Filed Sept. 3, 1896. Serial No. 604,740. (No model.)

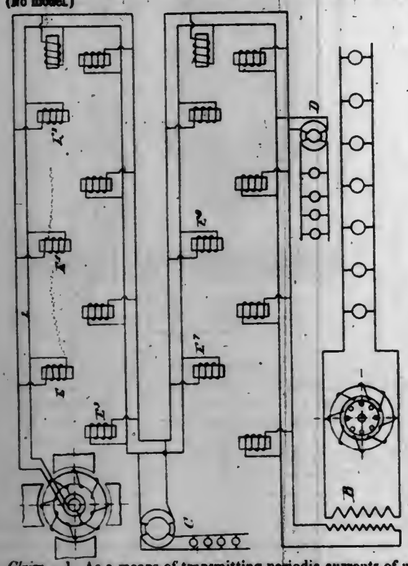
Claim.—1. A toy car constructed as herein described, and pro-

vided with pulleys or wheels in the bottom thereof, said car being also provided with a trolley-arm, and two cords or wires connected with suitable end pieces or supports, one of said cords or wires serving as a support for the pulleys or wheels in the bottom of the car, and the other of which supports said trolley-arm, substantially as shown and described.



2. A toy trolley car consisting of two side pieces, each of which represents the side of a car, and between the bottom of which are mounted a plurality of pulleys, said car being provided at its upper side with a trolley-arm, in which is mounted a pulley and two cords connected with suitable end pieces or supports which are adapted to be raised and lowered, one of which serves as a support for the pulleys in the bottom of the car, and the other for the pulley in the trolley-arm, substantially as shown and described.

589,556. TRANSMISSION OF ENERGY BY ALTERNATING CURRENTS. CHARLES S. BRADLEY, Avon, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 21, 1896. Serial No. 584,337. (No model.)



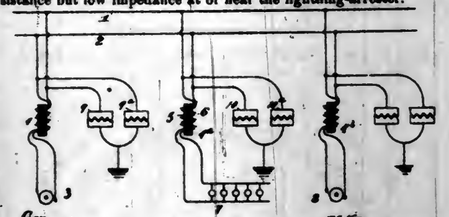
Claim.—1. As a means of transmitting periodic currents of uniform rate, a generator having a definite rate, a circuit containing a plurality of inductances in multiple arc, said inductances being proportioned to render the line resonant with the periodic electromotive force.

2. A system of transmission for alternating currents comprising an alternating-current generator of definite fundamental rate and a circuit containing inductances connected in parallel at intervals, said inductances being proportioned to produce resonance of the circuit with the generator.

589,557. LIGHTNING-ARRESTER. CHARLES S. BRADLEY, Avon, N. Y., assignor to the General Electric Company, of New York. Filed May 28, 1895. Renewed Feb. 9, 1897. Serial No. 623,702. (No model.)

Claim.—1. A lightning-arrester comprising two conductors in mutual inductive relation having two terminals connected to line and two to a translating device, said conductors being associated to oppose one another in magnetizing effect under the working current passing to the translating device, thereby permitting such current to pass freely, but assisting one another in magnetizing effect when the line is charged by a lightning-stroke.

2. A lightning-arrester comprising two conductors in mutual inductive relation having two terminals connected to line and two to a translating device, said conductors being associated to oppose one another in magnetizing effect under the working current passing to the translating device, thereby permitting such current to pass freely, but assisting one another in magnetizing effect when the line is charged by a lightning-stroke, and a ground connection of high resistance but low impedance at or near the lightning-arrester.

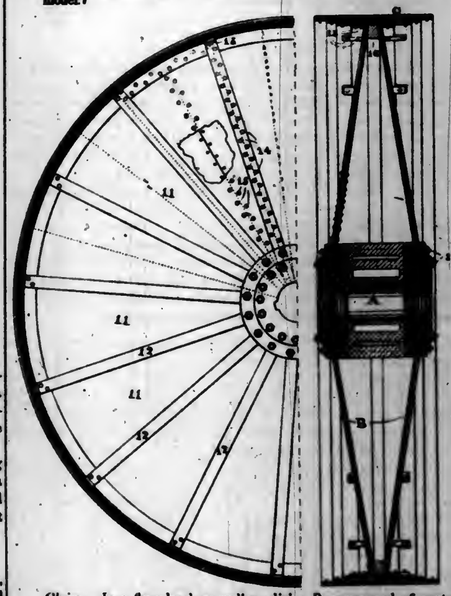


3. A lightning-arrester comprising two conductors in mutual inductive relation, a translating device between said conductors, the conductors being wound or associated to oppose each other under line-current, and a branch connection of high resistance and low inductance to earth from the line side of the conductors.

4. The combination with a pair of lines connected to one or more translating devices, of a lightning-arrester interposed therein comprising two conductors surrounded by a magnetic core and connected with the lines to neutralize one another in magnetizing effect under current traversing them in opposition, but impeding the passage of lightning-discharges entering from the lines.

5. As a means of grounding lightning-discharges, an inductive device comprising two conductors connected with the outgoing and return wires of a circuit so as to oppose one another in inductive effect, under current from the generator but assist one another with grounded currents, and a branch connection to earth including a spark-gap on the line side of the inductive device.

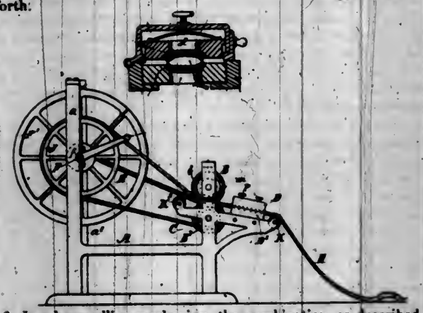
589,558. FLY-WHEEL. HARRY E. CAMPBELL and THOMAS R. MURRAY, Albany, N. Y. Filed May 18, 1896. Serial No. 591,995. (No model.)



Claim.—In a fly-wheel or pulley, disks, B, composed of sector-shaped plates of wrought metal, and having joint-plates, 12, secured over the joints between said sector-shaped plates and to the hub A and rim C; said disks having a dishing form and being secured together so that their hollow sides will be faced toward each other, as herein specified.

589,559. FIRE-HOSE-CLEANING MECHANISM. RANALDO V. CAREY, Millbury, Mass. Filed Sept. 25, 1896. Serial No. 606,918. (No model.)

Claim.—1. The hose cleaning and rolling mechanism, comprising in combination as described the supporting-frame, the rotatable winding-spindle carrying the face-wheel provided with the pin or means for retaining the end of a hose, the means for turning said spindle, the sprocket-wheel fixed on said spindle, the rotary brushes having their arbors respectively mounted in bearings, one on the main frame the other in the laterally-tilting head-frame hinged thereto, the sprocket-wheel on the brush-arbor, the drive-chain connecting the sprocket-wheels, and gears connecting the brush-arbors, all substantially as set forth.



2. In a hose-rolling mechanism, the combination, as described, with the main frame, the winding-spindle mounted in a bearing on said main frame, the face-wheel fixed on said spindle, a device for temporarily retaining the end of the hose thereon, and means for rotating said spindle and face-wheel; of the removable front standard, its hinge and fastening devices, substantially as and for the purposes set forth.

589,560. SHEAVE. JOHN A. CLARK, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Feb. 25, 1897. Serial No. 624,938. (No model.)



Claim.—The combination with a stud or rod B, of a series of sheaves each composed of a metallic disk and a hub, the free end of the hub abutting and turning against the outer face of a disk attached to another hub, substantially as described.

589,561. FOUNTAIN-PEN. SAMUEL W. FRASER, Brooklyn, N. Y. Filed Oct. 20, 1896. Serial No. 609,446. (No model.)



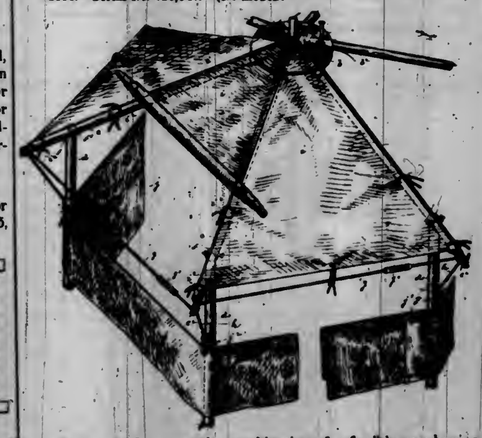
Claim.—A fountain-pen having a tubular reservoir 22, threaded at both ends, an extension 17 holding a pen and provided with the usual bore 21, secured in one end of said reservoir, and a threaded plug 6, provided centrally with an annular rib 7, screwed in the other; rod 12 passing through said plug, head 13 formed on the upper end of said rod, a spiral extension-spring 14 mounted between said head and plug and to normally keep the piston in contact with the under side of the plug, a washer 4 and piston 15 secured to the lower end of said rod; tube 8 one end of which is screwed close to the plug 6, and a detachable cap 10, all of said parts being combined substantially as described.

589,562. LEG-SHIELD. EDWARD A. GRAY, Collinwood, Ohio, assignor to Adelbert N. Russel and Ralph C. Shepard, same place. Filed Sept. 25, 1896. Serial No. 607,000. (No model.)

Claim.—A leg-shield for a locomotive fireman, consisting of the flexible apron forming the rear face of the shield, said apron being folded upon itself at the side and end edges thereof; the asbestos or fireproof sheet constituting the front and major portion of the face of the shield and stitched or sewed to the said folded or overlapping portions and to the main or rear portion of the apron; the bands or straps secured to the vertical edges of the apron and passing around the rear portion of the leg, and the belt and straps for suspending and accommodating the vertical adjustment of the shield from the fireman's body, substantially as shown and described.



589,563. TENT. HANS JENSEN, New York, N. Y. Filed Dec. 24, 1896. Serial No. 616,847. (No model.)



Claim.—1. In a tent the combination of a flexible cap having pockets with rafters engaging the same, upright posts, and means for connecting the rafters to the posts, substantially as specified.

2. In a tent the combination of a center pin with a flexible cap having pockets, rafters engaging the same, posts, and eyes secured to the posts and adapted to embrace the rafters, substantially as specified.

3. In a tent the combination of a center pin with a cap, rafters connected thereto, posts having eyes that embrace the rafters, and braces connecting the outer ends of the rafters, substantially as specified.

4. In a tent the combination of a center pin with a cap, rafters connected thereto, posts having eyes that embrace the rafters, and with a sectional roof adapted to be secured to the rafters and having eyelets that are adapted to engage the center pin, substantially as specified.

5. In a tent the combination of a center pin with a cap having pockets, rafters engaging the same, posts having eyes that embrace the rafters, braces connecting the outer ends of the rafters, stays connecting the lower ends of the posts, and with a roof and wall which are adapted to be secured respectively to the rafters and posts, substantially as specified.

589,564. DEVICE FOR REGULATING GAIT OF HORSES. CHAS. C. JEROME, Chicago, Ill. Filed May 5, 1896. Serial No. 590,261. (No model.)

Claim.—1. In an equalizer for preventing horses from leaving their feet, the combination with boots, of a cord connecting the boots and a guide adapted to be secured against the under side of the body and held against forward movement, substantially as set forth.

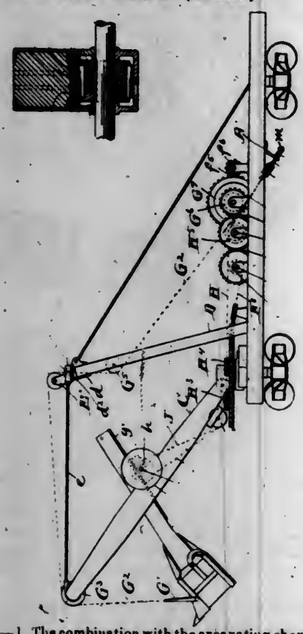
2. In an equalizer for preventing horses from leaving their feet, the combination with boots, and a strap connecting the boots and adapted to pass over the shoulders of the horse, of a guide adapted to be secured against the under side of the body and held against forward movement, and a cord connecting the boots and passing through the stationary guide.

3. In an equalizer for preventing horses from leaving their feet, the combination with boots, and a strap connecting the boots and adapted to pass over the shoulders of the horse, of a frame adapted to be secured to the horse against movement, a pulley mounted in said frame and a cord connecting the boots and passing around the pulley.



4. In an equalizer for preventing horses from leaving their feet, the combination with the boots, straps secured to the boots, and a strap connecting the boots and adapted to pass over the shoulders of the horse, of a frame adapted to be secured to the horse against movement, a pulley mounted in said frame and a cord attached at its ends to the straps secured to the boots, and passing around the pulley, substantially as set forth.

589,565. EXCAVATOR. GEORGE W. KIPP, Marion, Ohio. Filed Mar. 17, 1896. Serial No. 583,518. (No model.)



Claim.—1. The combination with the excavating-shovel's forward side having notches or recesses formed at its upper edge at suitable intervals, of teeth bolted or riveted to said side and occupying the aforesaid notches or recesses, substantially as and for the purpose set forth.

2. In an excavator, the excavating-shovel having each of its bail-bearing sides provided exteriorly with a cylindrical recess and having cylindrical bail-engaging trunnions snugly fitted into said recesses, and several rivets extending longitudinally through said trunnions and through the trunnion-bearing sides of the bucket.

3. The combination of the shovel-arm: a plate arranged at the forward or upper side, and secured to the load-bearing end, of said arm; another plate arranged at the back or under side, and secured to said end, of the arm: the shovel proper attached to said plates and adjustable at different angles to the arm in a vertical plane, and means for securing the shovel in the desired adjustment, substantially as and for the purpose set forth.

4. The combination with the shovel proper and shovel-arm, of a plate arranged at the forward or upper side of and secured to the arm, another plate arranged at the lower or back side of and secured to the arm, an arc-shaped slideway formed upon one of said plates and arranged up and down and facing the shovel proper, a slide engaging said slideway and rigid with the shovel proper, means for securing the slide in the desired adjustment upon the slideway, and the other plate being adjustable longitudinally of the arm, substantially as and for the purpose set forth.

5. The combination with the shovel proper and shovel-arm, of a plate arranged at the forward or upper side of and secured to the arm, another plate arranged at the lower or back side of and secured to the arm, arc-shaped slideways formed upon the forward ends of said plates, and arranged up and down and facing the shovel proper, slides engaging said slideways and rigid with the shovel proper, means for securing the slides in the desired adjustment, and one of said plates being adjustable longitudinally of the arm, substantially as and for the purpose set forth.

6. The combination of the shovel proper and shovel-arm; a plate arranged at the forward or upper side, and secured to the load-bearing end, of the arm; another plate arranged at the lower or back side, and secured to said end, of the arm; an arc-shaped slideway formed upon one of said plates and arranged up and down and facing the shovel proper; a slide formed upon the shovel proper and engaging said slideway; means for securing the slide in the desired adjustment upon the slideway; the other plate being adjustable longitudinally of the arm and having a suitable connection with the shovel proper, and the arm's side engaged by said last-mentioned plate having such trend that an adequate bearing for said plate is obtained in the different adjustments of the shovel proper, substantially as and for the purpose set forth.

7. The combination with the shovel proper and shovel-arm, a plate arranged at the forward or upper side of and suitably secured to the arm, another plate arranged at the lower or back side of and suitably secured to the arm, one of said plates being adjustable longitudinally of the arm, of a mutually-engaging segmental flange and correspondingly-concave member instrumental in connecting together each of the aforesaid plates and shovel proper and having a common axis extending widthwise of the shovel proper, one of said mutually-engaging members being formed upon the respective plate and the other being formed upon the shovel proper, and means for clamping said mutually-engaging members together, substantially as and for purpose set forth.

8. The combination with the shovel proper and shovel-arm, a plate arranged at the forward or upper side of and suitably secured to the arm, another plate arranged at the back or under side of and suitably secured to the arm, one of said plates being adjustable longitudinally of the arm, of a mutually-engaging segmental flange and correspondingly-concave member instrumental in connecting together each of the aforesaid plates and shovel proper and having a common axis extending widthwise of the shovel proper, one of said mutually-engaging members being formed upon the respective plate and the other being formed upon the shovel proper, bolts and nuts instrumental in rigidly clamping together said mutually-engaging members, said bolts extending through said mutually-engaging members, and the bolt-holes in the member formed upon the respective plate being elongated in the direction required to accommodate the adjustment of the shovel proper concentrically of the aforesaid axis, substantially as and for the purpose set forth.

9. The combination of the shovel-arm, a plate arranged at the forward or upper side of and secured to the arm, another plate arranged at the back or under side of and secured to the arm, the shovel proper attached to said plates and adjustable at different angles to the arm in a vertical plane, nuts and bolts arranged at intervals longitudinally of the arm for securing one of said plates to the arm, and said last-mentioned plate having bolt-holes engaged by said bolts and having other bolt-holes arranged in line with and equidistant from the different occupied bolt-holes, respectively, substantially as and for the purpose set forth.

10. The combination of the shovel-arm, a plate arranged at the forward or upper side of the arm, another plate arranged at the back or under side of the arm, the shovel proper attached to said plates and adjustable at different angles to the arm in a vertical plane, nuts and bolts arranged at intervals longitudinally of the arm and instrumental in securing both of said plates to the shovel-arm, and one of the aforesaid plates having other holes arranged in line with the holes engaged by said bolts, substantially as and for the purpose set forth.

11. The combination of the shovel-arm, a plate at the forward or upper side of the arm, another plate at the lower or back side of the arm, the shovel proper attached to said plates and adjustable at different angles to the arm in a vertical plane, nuts and bolts arranged at intervals longitudinally of the arm and instrumental in securing both of said plates to the arm, one of the aforesaid plates having other bolt-holes arranged in line with the holes engaged by said bolts, and other bolts or devices independently securing the other plate to the shovel-arm, substantially as set forth.

12. The combination with the boom, a suitably-actuated shaft supported upon the boom, a pinion operatively mounted upon said shaft, the excavating-shovel having an arm provided with a rack arranged longitudinally of the arm and meshing with the aforesaid pinion, and provided furthermore with two grooves or recesses arranged at opposite sides, respectively, of the rack, of the oil reservoir or shell embracing the pinion and journaled upon the aforesaid shaft, and provided with flanges engaging the aforesaid recesses, substantially as set forth.

13. The combination with the boom, a pinion suitably supported from the boom, the excavating-shovel having an arm provided with a rack meshing with said pinion, two drums operatively connected with the pinion, and two suitably-actuated cables engaging the different drums, respectively, substantially as and for the purpose set forth.

14. The combination with the boom, a shaft suitably supported from the boom, the excavating-shovel operatively connected with said shaft, two drums operatively connected with said shaft and one of said drums being diametrically larger than the other, a suitably-actuated cable operatively engaging the larger drum, another suitably-actuated cable operatively engaging the smaller drum, and the arrangement of parts being such that the larger drum is instrumental in effecting the excavating stroke of the shovel, and the smaller drum is employed in effecting the return stroke of the shovel after excavating, substantially as and for the purpose set forth.

15. The combination of the machine's body portion; a shaft suitably supported from said body portion and rotating when operated, continuously in the one direction; two winding-drums loose upon said shaft; a clutch for each drum for controlling operative connection between the drum and shaft; the boom; the excavating-shovel; a shaft on the boom; means establishing operative connection between the boom-shaft and shovel, so that the shovel is fed in the one direction or the other, according as the boom-shaft is rotated in the one or the other direction; two drums operatively mounted upon the boom-shaft, and two cables operatively connecting the different boom-shaft drums, respectively, with the different clutch-controlled drums, respectively, substantially as and for the purpose set forth.

16. The combination of the machine's body portion; a shaft suitably supported from said body portion and suitably rotated, when operated, continuously in one direction; two winding-drums mounted loosely upon said shaft; a clutch for each drum for controlling operative connection between said drum and the shaft; the boom; a pinion suitably supported from the boom; the excavating-shovel having an arm provided with a rack meshing with said pinion, the two pinion-driving drums operatively connected with said pinion and differing in size diametrically, two cables operatively connecting the different pinion-driving drums, respectively, with the different clutch-controlled drums, respectively, and the arrangement of parts being such that the larger pinion-driving drum shall be instrumental in effecting the excavating stroke of the shovel, and the other pinion-driving drum shall find employment in effecting the return stroke of the shovel after excavating, substantially as and for the purpose set forth.

17. The combination of the excavating-shovel and two suitably-supported drums operatively connected with and adapted to feed the shovel in opposite directions, respectively, a suitably-supported shaft suitably rotated in the one direction, two drums loose upon said shaft, a clutch for each of said loosely-mounted drums for controlling operative connection between the drum and shaft, two cables operatively connecting the different first-mentioned drums, respectively, with the different clutch-controlled drums, respectively, and a tension-cable connected, at opposite ends, with the different clutch-controlled drums, respectively, substantially as and for the purpose set forth.

18. The combination with a suitably-supported shaft rotating, when operated, continuously in one direction, two drums loose upon said shaft, a clutch for each drum for controlling operative connection between the drum and shaft, the excavating-shovel, two cables engaging different drums, respectively, and such operative connection between said cables and the shovel as will adapt the drums to propel or actuate the shovel in opposite directions, respectively, and will cause one of said drums to pay out the engaging cable more rapidly than the other drum during the feeding operation of the shovel, of an enlarged end or drum formed upon one of said drums, and a tension-cable connected, at one end, with the diametrically-enlarged drum end or drum and connected, at its opposite end, with the other winding-drum, substantially as and for the purpose set forth.

19. The combination with two suitably-supported drums instrumental in feeding the shovel in opposite directions, respectively, a suitably-supported shaft suitably rotated in one direction, two drums loose upon said shaft and one of said drums having a diametrically-larger end, a clutch for each of said loosely-mounted drums for controlling operative connection between the drum and shaft, a cable operatively connecting the smaller shovel-feed drum with the clutch-controlled drum that has the diametrically-larger end, another cable operatively connecting the larger shovel-feed drum with the other clutch-controlled drum, of a tension-cable connected, at one end with the diametrically-larger end of the clutch-controlled drum having said end, and connected at its opposite end with the other clutch-controlled drum, substantially as and for the purpose set forth.

20. The combination of the machine's body portion; a shaft supported from said body portion and suitably driven, when operated, continuously in one direction, two drums mounted loosely upon said shaft and having equal or approximately equal diameters except that one of said drums has a diametrically-enlarged end; a clutch for each drum for controlling operative connection between said drum and the shaft; the boom; a pinion supported from the boom; the excavating-shovel having an arm provided with a rack meshing with said pinion; two drums operatively connected with said pinion and adapted to drive the pinion in opposite directions, respectively, and said pinion-driving drums differing in size diametrically; two cables operatively connecting the different pinion-driving drums, respectively, with the different clutch-controlled drums, respectively, and a suitably-guided tension-cable connected at one end with the diametrically-enlarged portion of the one clutch controlled drum and suitably connected at its other end with the other clutch-controlled drum, all arranged and operating, substantially as shown, for the purpose specified.

21. The combination of the turn-table, the boom operatively connected with said table, a pinion supported from the boom, the excavating-shovel having an arm provided with a rack arranged longitudinally of the arm and meshing with said pinion, two drums operatively connected with the pinion, two vertically-arranged sheaves arranged at opposite sides, respectively, of and supported at or near the boom's lower end, a pair of horizontal sheaves arranged between the vertically-arranged sheaves and table's axes a distance apart equal or approximately equal to the distance between the vertically-arranged sheaves, another pair of horizontal sheaves arranged just rearward of and at opposite sides, respectively, of the table's axes, and the two suitably-driven shovel-feed chains or cables operatively connected with the different drums, respectively, and guided over the turn-table by the aforesaid sheaves, substantially as shown, for the purpose specified.

22. The combination with the suitably-actuated and suitably-supported horizontally-arranged turn-table, the boom operatively connected with said table, a pinion suitably supported from the boom, the excavating-shovel having an arm provided with a rack arranged longitudinally of the arm and meshing with the aforesaid pinion, two drums differing in size diametrically and operatively connected with said pinion and located at opposite sides, respectively, of the boom, two vertically-arranged sheaves arranged at opposite sides, respectively, of and suitably supported at or near the boom's lower end, a pair of suitably-supported horizontal sheaves arranged between the vertically-arranged sheaves and table's axis a distance apart equal, or approximately equal, to the distance between the vertically-arranged sheaves, and another pair of horizontal sheaves arranged just rearward of and at opposite sides, respectively, of the table's axis, and the two suitably-actuated shovel-feed chains or cables operatively connected with the different drums, respectively, and suitably guided over the turn-table by the aforesaid sheaves, in a manner substantially as shown, for the purpose set forth.

23. A machine of the character indicated, having the hoisting-drum loosely mounted upon one shaft, the two shovel-feed drums loosely mounted upon another shaft suitably driven continuously in one direction, and the two boom-swinging drums loosely mounted upon a third shaft rotating continuously in one direction, and a clutch for each of said drums for controlling operative connection between the drum and the shaft supporting it, substantially as and for the purpose set forth.

589,566. LIGHTNING-ROD. ELBRIDGE MARSHALL, Garnett, Kans., assignor of nine-tenths to Ed Stein, J. H. Cannon, D. M. Moore, R. A. Dupree, J. H. McEwen, C. A. McEwen, and W. L. McEwen, same place. Filed June 1, 1897. Serial No. 638,932. (No model.)

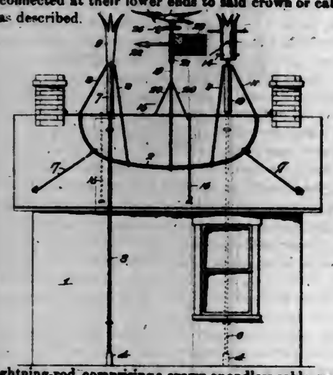
Claim.—1. A lightning-rod, comprising a crown or endless cable, a pair of rods or cables connecting with the same and grounded at their lower ends, and provided at their upper ends with a plurality of points, substantially as and for the purpose set forth.

2. A lightning-rod, comprising a crown or endless cable, a pair of rods or cables connecting with the same and grounded at their lower ends, and provided at their upper ends with hollow or cylindrical points provided with subpoints or spines, substantially as and for the purpose described.

3. A lightning-rod, comprising a crown or endless cable, a pair of rods or cables connecting with the same and grounded at their lower ends, and provided at their upper ends with hollow or cylindrical points provided with subpoints or spines, metallic cylinders or sleeves incasing said rods or cables below said tubular points, to strengthen them and increase their conductive capacity, and braced vertically

by means of guys, which are connected at their lower ends to said crown or cable, substantially as described.

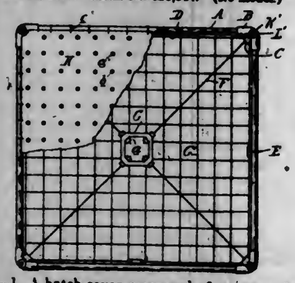
4. A lightning-rod, comprising a crown or endless cable, provided with arms radiating in various directions upon the roof of the building equipped with the lightning-rod, a pair of rods or cables connecting with the same and grounded at their lower ends, and provided at their upper ends with hollow or cylindrical points provided with subpoints or spines, metallic cylinders or sleeves incasing said rods or cables below said tubular points, to strengthen them and increase their conductive capacity, and braced vertically by means of guys, which are connected at their lower ends to said crown or cable, substantially as described.



5. A lightning-rod, comprising a crown or endless cable, provided with arms radiating in various directions upon the roof of the building equipped with the lightning-rod, a pair of rods or cables connecting with the same and grounded at their lower ends, and provided at their upper ends with hollow or cylindrical points provided with subpoints or spines, metallic cylinders or sleeves incasing said rods or cables below said tubular points, to strengthen them and increase their conductive capacity, and braced vertically by means of guys which are connected at their lower ends to said crown or cable, a rod electrically connected to said crown or cable, and to the vertical rods or cables, and provided with conducting-rods 16, substantially as described.

6. In combination with and forming a part of a lightning-rod, an "earth-rod," comprising a steel rod or bar and a copper cylinder incasing the same and hermetically sealed, substantially as and for the purpose described.

589,567. COVER FOR CLOSING ELEVATOR HATCH-OPENINGS. HUGO MATTULLATH, New York, N. Y., assignor to the Anderson Safety Elevator Company, Limited, Detroit, Mich. Filed Feb. 8, 1896. Renewed Feb. 13, 1897. Serial No. 623,317. (No model.)



Claim.—1. A hatch-cover composed of an outer frame and an interior filling or panel supported on tie-rods connecting the corners of the outer frame, substantially as described.

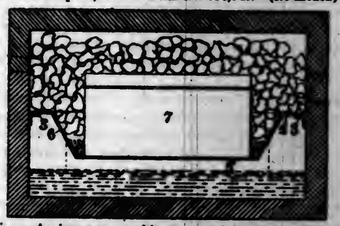
2. A hatch-cover having an outer frame formed of frame-bars and corner-brackets connecting the same, tie-rods connecting adjacent corner-brackets within the outer frame and a panel or filling supported by said tie-rods, substantially as described.

3. A hatch-cover having an outer main frame composed of frame-bars and corner-brackets connecting the same, an interior flange or webbing in the angle of the corner-brackets, tie-rods connecting with their outer ends the flanges of adjacent corner brackets and a filling or panel connected to and supported by said tie-rods substantially as described.

4. A hatch-cover comprising the tubular frame-bars A, the corner-brackets B connecting the same, the side tie-rods D connecting adjacent corner-brackets, the diagonal tie-rods F, the screen G secured to the tie-rods and the fireproof covering secured to the screen, substantially as described.

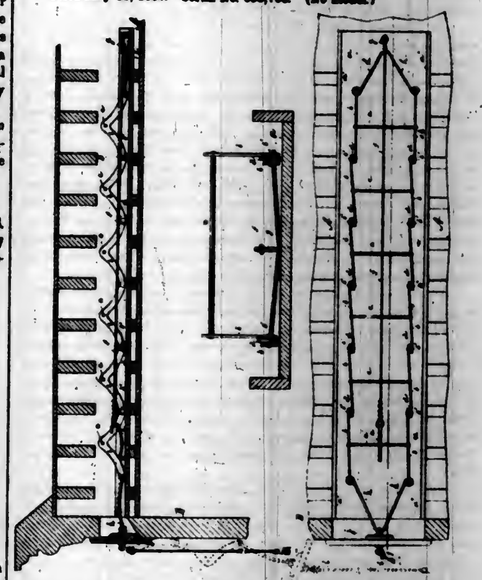
5. A hatch-cover formed with spring-buffers at its corners, each consisting of a branch I, formed with the corner-bracket, the spring-buffer L in the top of the socket and provided with the conical stud L' and elastic pad K', and the conical seat or recess O in the bottom of the sockets.

589,568. ICE-CREAM CABINET. CARSTEN MEINCKE, Elizabeth, N. J. Filed Apr. 3, 1897. Serial No. 630,542. (No model.)



Claim.—An ice-cream cabinet comprising a casing or receptacle provided at the top with a suitable cover and divided into an upper freezing-chamber and a lower waste-liquid reservoir by a substantially horizontal shelf or partition having a recess or depression in its upper side with drip-apertures in the side of said recess or depression a sufficient distance above the bottom thereof to retain a portion of the cold liquid in said recess or depression, said shelf or partition serving to sustain the ice-cream mold and the surrounding freezing mixture and to maintain them in a position above the spent liquid in the reservoir, as herein set forth.

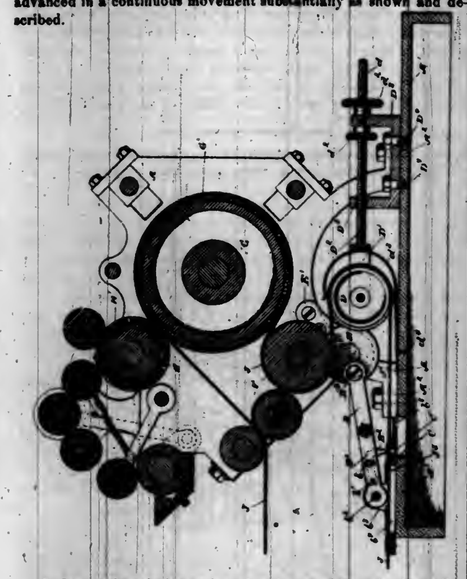
589,569. FIRE-ESCAPE. WENDELIN MÜLLER, Newark, N. J. Filed May 10, 1897. Serial No. 635,762. (No model.)



Claim.—In a fire-escape the combination of angular links with rounds at the apexes of the links, a cross-arm connecting the rear-most pair of links, a guide extending longitudinally between the links beneath the rounds and above the cross-arm, and a stop to which the forward end of the guide is secured, substantially as specified.

589,570. STRIP PRINTING AND PERFORATING MACHINE. CHARLES H. PALMER and JOHN W. DENNEAD, Akron, Ohio. Filed Apr. 8, 1897. Serial No. 631,363. (No model.)

Claim.—1. In a strip printing and perforating machine, a horizontally-reciprocating die B^2, secured to its actuating-lever B, means for actuating the lever to cause the die to perforate the strip and move forward therewith during the operation of perforating and to rise and reciprocate back to make a new perforation as the strip is advanced in a continuous movement substantially as shown and described.



2. In a strip printing and perforating machine a horizontally-reciprocating perforating-die combined with an adjustable regulating guide-roll and the printing-rolls whereby the perforations may be varied or changed to secure proper relation of the same to the printing-rolls and the design thereon substantially as shown and described.

3. The combination with the printing-cylinder and its adjustable roll D and guiding-roll F of a reciprocating arm and its vertically-adjustable perforating-die B' pivoted thereon to perforate the material as it moves forward to the printing-cylinder substantially as shown and described.

4. In a printing-machine the combination of the reciprocating die, its vibrating and actuating arm B, the guiding-roll D and adjusting-rod D^2, the guide-roll F, the feeding pressure-cylinder G and elastically-faced surface G', with the printing-roll H and its type printing-face H' operating substantially as shown and described.

5. The horizontally-reciprocating perforating-die adjustably secured to its actuating-lever B operating on a continuously-moving material for the purpose of perforating the same as it moves forward in combination with the shield guide-spring d^3, the horizontally-adjustable guide-roll D the frame D' its adjusting-rod D^2 in the supporting-frame D^3 and adjusting thumb-screws d^2 d^4.

589,571. FASTENING DEVICE FOR SHOE-LACES. GEORGE W PATTERSON, Rutherford, N. J. Filed Apr. 6, 1897. Serial No. 630,931. (No model.)

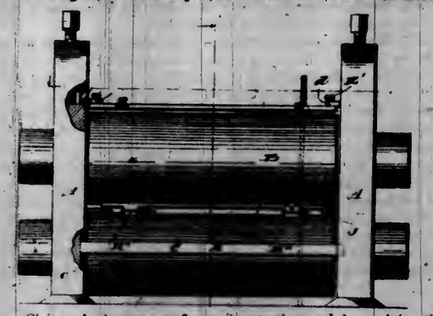


Claim.—1. A shoe-lace-fastening device consisting of a plate which is provided with teeth or projections on one side thereof, and also with a hook or loop and an oblong plate which is connected with said hook or loop, said oblong plate being provided with a slot or opening through which the hook or loop is passed and said plate being provided with a link which is free to move thereon, substantially as shown and described.

2. A shoe-lace-fastening device consisting of a plate which is provided with teeth or projections on one side thereof, and also with a hook or loop and an oblong plate which is connected with said hook or loop, said oblong plate being provided with a slot or opening through which the hook or loop is passed and said plate being provided with a link which is free to move thereon, and said plate being also provided at its free end with outwardly-directed lugs or projections by means of which the link is held thereon, substantially as shown and described.

3. A shoe-lace-fastening device consisting of a plate which is adapted to be secured to the shoe and provided with a hook or loop, and an oblong plate which is connected with said hook or loop, said oblong plate being provided with a slot or opening through which the hook or loop is passed and said plate being provided with a link which is free to move thereon, substantially as shown and described.

589,572. DEVICE FOR TRUING ROLLS. JOSEPH PHILLIPS, Washington, Pa. Filed May 20, 1896. Serial No. 593,033. (No model.)



Claim.—1. As a means for gaging, testing, and determining the concavity of a roll, a non-rotatable straight-edge, and stops for successively presenting the same at a predetermined angle to the axis of the roll, substantially as specified.

2. As a means for testing, gaging, and determining the configuration of a roll, a non-rotatable straight-edge, combined with means for determining its being successively put in the same position with relation to the axis of the roll, substantially as specified.

3. The combination with the housings of a roll, of a cross-bar supported by the housings and having lugs projecting different distances from the bar, and a straight-edge adapted to be placed against said lugs, substantially as specified.

4. The combination with a cross-bar having a lug and an adjustable slide, of a straight-edge adapted to bear against said lug and slide to determine the position of the edge, substantially as specified.

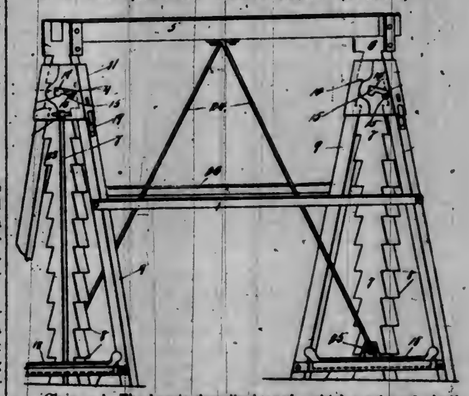
5. The combination with the housings of a roll, of a cross-bar, means for adjustably supporting the cross-bar on the housings, and a rod provided with an adjustable arm and adapted to rest against the rolls in the housings, substantially as specified.

6. The combination with the housings of rolls, of cross-bars each having a fixed lug and an adjustable slide, and means for adjusting the cross-bars within the housings, substantially as specified.

7. The combination with the housings of rolls, of a cross-bar having a fixed lug and an adjustable slide, and means for determining the position of said cross-bar with relation to the axes of the rolls, substantially as specified.

8. The combination with the housings of rolls, of a cross-bar having a fixed lug and an adjustable slide, brackets, and means for connecting the bar adjustably with the brackets, substantially as specified.

589,573. WORK-TRESTLE. WILLIAM A. REARDON, Port Leyden, N. Y. Filed Apr. 16, 1897. Serial No. 632,401. (No model.)



Claim.—1. The herein-described trestle, which consists of a horizontal top bar, the ends of which are provided with depending legs on the opposite sides of which are formed shoulders or projections, and each of said legs being also provided with two supplemental legs which are provided at their upper ends with corresponding shoulders or projections, and said supplemental legs being held together at their upper ends by adjustable clamp-heads, through which the depending legs of the top bar pass, whereby the legs of the top bar are vertically adjustable between the supplemental legs, and said supplemental legs being directed outwardly and downwardly and

provided with cross-braces, and the top bar being provided with braces which extend downwardly, and are connected with the lower ends of the depending legs which are formed on or secured to said top bar, substantially as shown and described.

2. The herein-described trestle, which consists of a horizontal top bar, the ends of which are provided with depending legs on the opposite sides of which are formed shoulders or projections, and each of said legs being also provided with two supplemental legs which are provided at their upper ends with corresponding shoulders or projections, and said supplemental legs being held together at the upper ends by adjustable clamp-heads, through which the depending legs of the top bar pass, whereby the legs of the top bar are vertically adjustable between the supplemental legs, and said supplemental legs being directed outwardly and downwardly and provided with cross-braces, and the top bar being provided with braces which extend downwardly, and are connected with the lower ends of the depending legs which are formed on or secured to said top bar, said top bar being longitudinally adjustable, substantially as shown and described.

589,574. CORK-EXTRACTOR. MICHAEL REDLINGER, Freeport, Ill. Filed Dec. 23, 1893. Serial No. 494,591. (No model.)



Claim.—1. In a cork-extractor, a reciprocable plunger carrying a rotatable screw, a nut for rotating the screw reciprocably confined in the extractor-case and a rotatable head having an eccentric connection with the plunger and provided with an actuating-handle, and operating, by continued rotation in one direction, to reciprocate the screw-carrying plunger, substantially as described.

2. In a cork-extractor, a reciprocable plunger carrying a rotatable screw, a nut for the screw reciprocably confined in the extractor-case, a rotatable head provided with an operating-handle and having an eccentric connection with the plunger, and stop mechanism engaging the nut to lock it; substantially as and for the purpose set forth.

3. In a cork-extractor, a reciprocable plunger carrying a rotatable screw, a nut for the screw reciprocably confined in the extractor-case, a disk-shaped head rotatably supported on a center, and provided with a cam, a link connecting the plunger with the head to one side of its center an operating-handle on the head to rotate with it, and a stop-rod extending from the nut into the path of the cam; substantially as and for the purpose set forth.

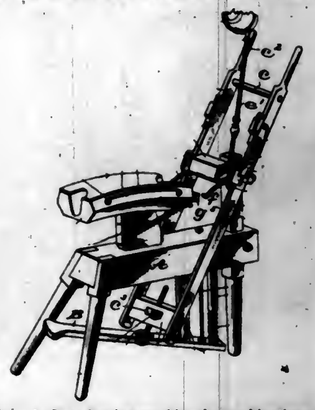
4. In a cork-extractor, the combination with a suitable case, of a longitudinally-moving worm, a non-rotating guide conforming to the worm and adapted to rotate the latter when the worm and guide move longitudinally with relation to each other, a swinging lever connected with the worm and adapted to alternately project and retract it and means connecting the lever and the guide, whereby during a predetermined part of the movement of the lever, the guide is held stationary and during the remainder of such movement the guide slides longitudinally.

5. The combination with the case, of the lever, B, formed at its inner end with a plate, *b*, having the flange, *b'*, the sliding block, C, the non-rotating guide, E, provided with the rod, F, impinging at its free end upon the flange, *b'*, in certain positions of the lever, B, the worm, D, supported by the block, C, and encircled by the guide, E, and the rod, R, connecting the lever, B, and the block, C, whereby oscillation of the lever alternately projects and retracts the worm, longitudinal movement of the guide, E, being prevented by the rod, F, and flange, *b'*, during a portion of each oscillation of the lever.

6. In a corkscrew, the combination with a suitable case, of a block free to slide longitudinally therein, means for moving said block reciprocally in the case and a worm adapted to be inserted in or removed from the block in a line oblique with reference to the line of movement thereof, and when inserted and brought into the line of movement of the block to be secured against longitudinal movement with reference thereto.

7. The combination with a suitable case, of a block, C, sliding longitudinally and formed with a chamber c, and an opening from the chamber through the end of the block, means for moving the block reciprocally in the case and a worm, D, having a head, *d*, adapted to lie in the chamber and of greater diameter than the opening in the end of the block, said worm being adapted to be passed obliquely through the chamber and the opening in the block and brought into working position; substantially as shown and described.

589,575. IRONING-MACHINE. CHARLES J. RICHARDSON, Adrian, Mich. Filed Feb. 26, 1896. Serial No. 580,776. (No model.)



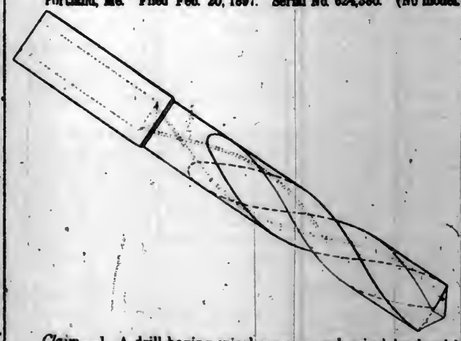
Claim.—1. In an ironing-machine the combination with the main frame provided with a wedge-shaped socket, of the pivotally-mounted ironing-frame, means for moving said frame toward and from the work and a work-support provided with a wedge-shaped shank adapted to engage said socket, whereby said work-support may be removed and another substituted therefor, substantially as described.

2. In an ironing-machine the combination with the main frame, of a lever pivoted thereto, an ironing-frame pivoted to said lever, at its lower end, adapted to be moved vertically by said lever, and having a swinging movement with respect to said lever, supporting-arms *f f* and a work-support detachably secured to said main frame adjacent to said ironing-frame, substantially as described.

3. In an ironing-machine the combination with the main frame, of a lever pivoted thereto, a rectangular ironing-frame, a connecting-bar adjustably secured to the ironing-frame, and pivoted directly to said lever, and a work-support detachably secured to said main frame, substantially as described.

4. In an ironing-machine the combination with the main frame, of a lever pivoted thereto, an ironing-frame pivoted to said lever, said frame being provided with retaining-brackets and spring-latches adjacent thereto, an iron having end portions adapted to engage said brackets and latches and a work-support detachably secured to the main frame, substantially as described.

589,576. LUBRICATING TWIST-DRILL. WALTER J. RICKEY, Danbury, Conn., assignor to The T. & B. Tool Company, same place and Portland, Me. Filed Feb. 20, 1897. Serial No. 624,380. (No model.)



Claim.—1. A drill having spiral grooves and spiral lands with spiral passages surrounded by solid metal beneath the surfaces of the lands, substantially as specified.

2. A drill having point, shank, web, spiral grooves and spiral lands with spiral passages in the solid metal beneath the surfaces of the lands, said passages opening through the point and shank, substantially as specified.

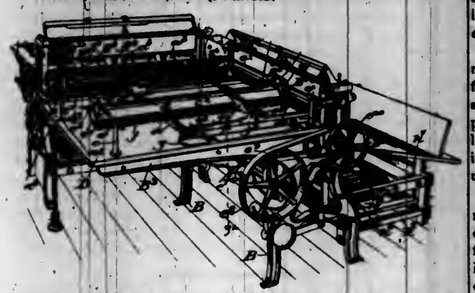
3. A drill having point, shank, web, spiral grooves and spiral lands with spiral passages in the solid metal beneath the surfaces of the lands, said passages inclining to the axis of the drill and opening through the point and shank, substantially as specified.

4. A drill having point, shank, web, spiral grooves and spiral lands with spiral passages in the solid metal outside of the web of the drill but entirely beneath the surfaces of the lands, substantially as specified.

5. A drill having a point, chambered shank, web, spiral grooves and spiral lands with spiral passages in the solid metal beneath the surfaces of the lands, said passages opening through the point at one end and into the chambered shank at the other end, substantially as specified.

6. The method of forming lubricating-drills which consists in boring a rod to form passages, scoring said rod outside of the passages, heating the scored rod and twisting it while hot until the passages assume the spiral of the lands to be formed, then milling the grooves and pointing and finishing the drill, substantially as described and for the purpose specified.

589,577. QUADRUPLE SCORER. JOHN T. ROBINSON and HENRY J. CHAMBERLAIN, Hyde Park, and DEERROW M. SMITH, Boston, Mass., assignors to John T. Robinson & Co., Hyde Park, Mass. Filed Aug. 7, 1896. Serial No. 602,032. (No model.)



Claim.—1. In an apparatus of the class described, two sets of scoring devices to act successively upon the work, means to feed the work and change its direction of movement between the scorers, to present it to the second scorer, a stationary flexible downhold parallel to the first scorer and beneath which the work passes, the downhold engaging and maintaining the work flat between the sets of scorers and preventing its retrograde movement, and a roll between the two sets of scorers with its axis at right angles to the path of the work delivered from the first set of scorers, to permit passage of the work under said roll and to prevent retrograde movement of the work in a direction parallel to the axis of the roll, substantially as described.

2. In an apparatus of the class described, two sets of scoring devices located at substantially right angles to each other, means to feed the work and to change its direction of movement between the two sets of scorers, a stationary downhold substantially parallel to the first set of scorers and comprising a series of fibers or flexible tines to rest upon the work and bent in the direction of its feeding movement as it passes from the first set of scorers, said fibers or tines engaging with and preventing movement of the work toward the first set of scorers as it is fed to the second set, a stop-gage to cooperate with the leading edge of the work and act as a fulcrum therefor as its direction of movement is changed, and a roll having its axis at right angles to and near the second set of scorers to permit passage of the work thereunder from the first set of scorers, and to prevent its retrograde movement in a direction parallel to the axis of the roll, substantially as described.

3. In an apparatus of the class described, two sets of scoring devices located substantially at right angles to each other, means to feed the work and to change its direction of movement between the two sets of scorers, a downhold to engage and maintain the work smooth between the sets of scorers, and a roll mounted at the inner end of the downhold, having its axis at right angles to the path of the work delivered from the first set of scorers, to permit passage of the work thereunder and to prevent its retrograde movement in a direction parallel to the axis of the roll, substantially as described.

4. In an apparatus of the class described, two sets of scoring devices located substantially at right angles to each other, means to feed the work and to change its direction of movement between the two sets of scorers, a downhold to maintain the work smooth between the scorers, and a narrow stop-gage to cooperate with the leading edge of the work and act as a fulcrum therefor as its direction of movement is changed, substantially as described.

5. In an apparatus of the class described, two sets of scoring devices located substantially at right angles to each other, means to feed the work and to change its direction of movement between the two sets of scorers, and a roll mounted between the two sets of scorers and having its axis at right angles to the path of the work delivered from the first set of scorers to permit passage of the work under said roll and to prevent retrograde movement of said work in a direction parallel to the axis of the roll, substantially as described.

6. In an apparatus of the class described, two sets of scoring devices located substantially at right angles to each other, means to feed the work and to change its direction of movement between the two sets of scorers, a pivotally-mounted stop-gage to bear against the leading edge of the work as it passes from the first set of scorers, and a roll having its axis at right angles to said set of scorers, to permit passage of the work under the roll and to prevent retrograde movement of the work in a direction parallel to the axis of the roll, substantially as described.

7. In an apparatus of the class described, two sets of scorers at right angles to each other, means to feed the work to the scorers, and a pivotally-mounted stop-gage to bear against a portion of the leading edge of the work as it passes from the first set of scorers, substantially as described.

8. In an apparatus of the class described, two sets of scorers at right angles to each other, means to feed the work to the scorers, a downhold to maintain the work smooth as its direction is changed, and a pivotally-mounted stop-gage to bear against a portion of the leading edge of the work as it is delivered from the first set of scorers, substantially as described.

9. In an apparatus of the class described, two sets of scorers at right angles to each other, means to feed the work to the scorers, a flexible downhold extended parallel to the first set of scorers, and a stop-gage pivotally mounted beyond the downhold, to swing in a plane parallel to the length of the downhold, to cooperate with the leading edge of the work as it passes under the downhold, and when its direction of movement is changed to yield or rock to irregularities in said edge, substantially as described.

10. In an apparatus of the class described, two sets of scorers at right angles to each other, means to feed the work to the scorers, a downhold extended across the path of the work as it is delivered from the primary scoring device, supports upon which the downhold is adjustable, a stop-gage for the edge of the work, and an independent support therefor upon which it is pivotally mounted, substantially as described.

11. In an apparatus of the class described, primary and secondary scoring devices, a cutter operating with the primary device, to sever the work, an apron to receive a portion of the work, a reciprocating feed-gage to engage and present one portion of the work to the secondary scoring device, and delivery mechanism, including adjustable deflecting-switches, adapted to be moved above the end of the apron to deflect the other portion of the work from the said secondary device and to deliver it at a predetermined point, substantially as described.

12. In a paper-scoring apparatus, a bed-roll, scoring devices and a cutter cooperating therewith, rolls to deliver the scored paper, deflecting-switches to turn one portion of the paper from said rolls, guides to control the passage of the deflected portion, and a delivery mechanism at the extremities of the guides, substantially as described.

13. In a paper-scoring apparatus, a bed-roll, a cutter to trim the edge of the sheet, and a waste-controller to engage and remove the waste from the bed-roll, said controller comprising a curved guide adjacent the bed-roll, and a rotating guide-roll at the lower end of said guide, to engage the waste strip as it emerges from the guide and to positively draw it therefrom, substantially as described.

14. In a paper scoring apparatus, a bed roll, a cutter to trim the edge of the sheet, and a waste-controller, comprising a curved strip-guide adjacent the bed-roll, a guide-roll, and a delivery chute having its entrance below the guide-roll, to receive the waste, substantially as described.

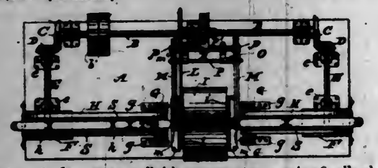
15. In an apparatus of the class described, a vertically-movable delivery-table adapted to maintain the top of the pile of work thereon at substantially the same level as the work accumulates, a drum-shaft, flexible connections between it and the table, to raise the latter when the shaft is rotated in one direction, a friction-controller to regulate the speed of rotation of said shaft in the opposite direction, and a clutch intermediate the shaft and controller, substantially as described.

16. In a paper-scoring apparatus, a bed-roll, a cooperating cutter, a pair of waste-strip guide-rolls, an arm on which they are adjustably mounted, said arm having a recess therein, a clamp-block in said recess, and means to adjust the clamp-block, to thereby secure the arm to its support, substantially as described.

17. In a paper-scoring apparatus, an arm, guide-rolls adjustably

mounted thereon, and an open supporting-bearing for the arm, comprising a fixed abutment on the arm, a cooperating clamp-block, and means to adjust it, whereby the arm may be readily secured to or removed from its support, substantially as described.

589,578. SAUSAGE LINKING OR TWISTING MACHINE. WILLIAM F. SCHÖLAND, Manchester, N. H. Filed Apr. 28, 1897. Serial No. 634,214. (No model.)



Claim.—1. In a sausage-linking apparatus, a pair of rolls placed adjacent to each other and rotating both in the same direction, a suitable sausage-clamping device at either end of said rolls, and suitable means for intermittently moving a filled sausage-casing across said rolls.

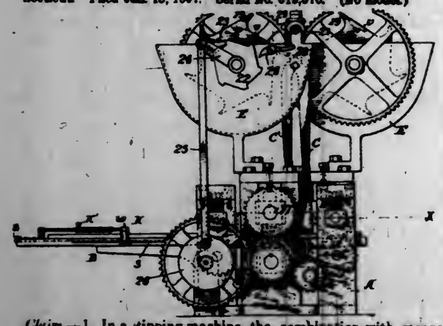
2. In a sausage-linking apparatus, a pair of intermittently-movable sausage-carriers, a pair of rolls both rotating in the same direction placed adjacent to each other at right angles with and between said sausage-carriers, and a suitable gripping or sausage-clamping device at each end of said rolls.

3. In a sausage-linking apparatus, horizontally-movable sausage-casing-carriers, a pair of rolls located between and revolving at right angles therewith, a pair of jaws adapted to divide or compress the sausage-casing at each end of said rolls, and means for moving said carriers intermittently, substantially for the purpose set forth.

4. In a machine of the character described, suitable belts adapted to carry sausage-casings longitudinally and to move intermittently, a pair of linking-jaws, and suitable rolls rotating in a course at right angles with said belt and between said jaws and adapted to twist the sausage-casing into the required links.

5. In a machine of the character described, a pair of carrier-belts passed each over a pair of pulleys, both belts running in longitudinal alinement and at opposite ends of a sausage twisting and clamping mechanism, said twisting and clamping mechanism, and suitable rests or clips attached to one of said carrier-belts for receiving the links of the sausage-casing.

589,579. MACHINE FOR APPLYING TIPS. COLES A. SEELEY, Bridgeport, Conn., assignor to the Warner Brothers Company, of Connecticut. Filed Jan. 15, 1897. Serial No. 619,370. (No model.)



Claim.—1. In a tipping-machine, the combination with means for feeding blades successively first in one direction and then in another, chutes or holders for tips arranged to feed the tips successively into position opposite the advancing ends of the blades, and means for compressing the tips upon opposite ends of the blades, substantially as described.

2. In a tipping-machine, the combination of a table provided with a channel, a chute arranged to communicate with said channel to supply tips thereto, a hopper for said tips, devices for feeding the tips from the hopper to the chute, and pressing-rollers arranged beyond the chute to compress the tips upon the ends of the blades passing through the channel, substantially as described.

3. In a tipping-machine, the combination with chutes or holders for containing tips, means for feeding blades successively to present first one end and then the other of each blade to the tips in the holders and means for compressing the tips upon the ends of the blades, substantially as described.

4. The combination in a tipping-machine of a table provided with a longitudinal channel for receiving the blades to be tipped, means for feeding the blades along the channel, a chute for containing the tips communicating with the channel and pressure-rollers arranged beyond the chute to compress the tips upon the ends of the blades passing through the channel, substantially as set forth.

5. The combination with the channeled table B, and chute C, of feed-wheels *e*, *f*, and intermediate pressure-wheels *e*, *e*, one having a groove and the other a rib, substantially as set forth.

6. The combination with the table B, having a longitudinal rib 6, of the movable bar 7, having the overhanging flange 8, yielding means for pressing the bar toward the rib and holding it downward, a chute communicating with the channel between the bar and rib, and feed-wheels and presser-wheels, substantially as set forth.

7. In a tipping-machine the combination of the devices for applying and pressing tips upon blades and for feeding the blades, of a chamber *j*, and means for moving the blades laterally and successively in said chamber, substantially as set forth.

8. The combination with the two sets of devices for applying and compressing tips and for feeding the blades in opposite directions of the intermediate chamber *j*, receiving the blades from one tipping mechanism and means for successively feeding the blades toward the other tipping mechanism, substantially as set forth.

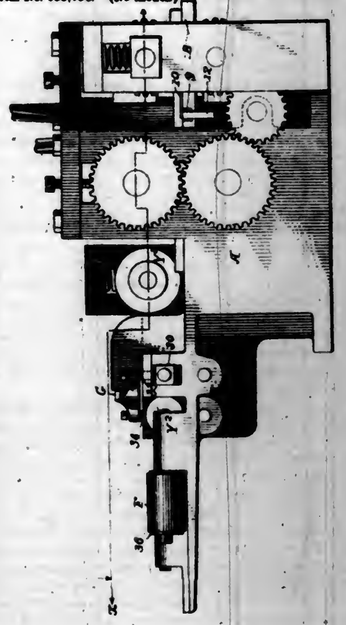
9. The combination with the table B, and its chamber *j*, and means for moving the blades laterally in said chamber, of two sets of tipping mechanism, a slide I^2, and a lever having an arm 3, extending into the chamber *j*, and connecting to operate the slide I^2, substantially as set forth.

10. The combination with a hopper containing tips or other articles, of a chute or holder communicating with the hopper, mechanism within the hopper including a rotating carrier for transferring tips from the hopper to the chute, and devices for transferring tips from the chute back into the hopper to constantly maintain a clear space in the chute opposite the carrier, substantially as described.

11. The combination with the blade and tip-feeding devices, of compressor-wheels arranged beyond the tip-feeding devices to compress the tips upon the ends of the blades, substantially as described.

12. In a tipping-machine, the combination with means for feeding blades in one direction, of devices for applying and securing a tip to one end of the blades, means for feeding the blades in the opposite direction, mechanism for transferring the blades into position to be engaged by said means, and devices for applying and securing a tip to the untipped end of the blades, substantially as described.

589,580. MACHINE FOR PUTTING TIPS ON ENDS OF COVERED WIRES OR STEELS. COLES A. SEELEY, Bridgeport, Conn., assignor to the Warner Brothers Company, same place. Filed May 8, 1897. Serial No. 635,731. (No model.)



Claim.—1. In a tipping-machine, the combination with means for feeding blades in one direction, of devices for applying and securing a tip to one end of each blade, means for feeding the blades in the opposite direction and a transverse friction feed device for transferring the blades into position to be engaged by said latter means, and devices for applying and securing tips to the untipped ends of the blades, substantially as described.

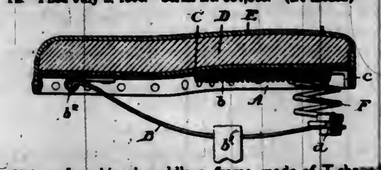
2. In a tipping-machine, the combination with means for feeding blades in one direction, of devices for applying and securing a tip to one end of each blade, means for feeding the blades in the opposite direction, and a traveling belt for transferring the blades into position to be engaged by said latter means, and devices for applying and securing tips to the untipped ends of the blades, substantially as described.

3. In a tipping-machine, the combination with means for applying and securing a tip to one end of each blade, of devices for independently transferring the blades laterally, means for feeding each blade to the transfer devices, means for feeding each blade in the opposite direction, said means being operated alternately with said other feeding means, and mechanism for applying and securing a tip to the untipped end of the blade, substantially as described.

4. In a tipping-machine, the combination with mechanism for applying and securing a tip to one end of a blade, of mechanism for applying a tip to the opposite end of the blade, devices for transferring the blade from one tipping mechanism to the other, feed-wheels for feeding the blade from the first tipping mechanism to the transferring devices, means for separating and for moving the said wheels together, feed-wheels for feeding the blade from the transferring devices to the second tipping mechanism, and means for separating and for moving the wheels together, substantially as described.

5. The combination of the compressing-rolls, the chute for supplying the tips, and a channel *x* contracting laterally between the chute and the rolls, substantially as described.

589,581. BICYCLE-SADDLE. WILLIAM W. ENOS, Wallingford, Pa. Filed July 2, 1896. Serial No. 597,812. (No model.)



Claim.—In a bicycle-saddle a frame made of T-shaped metal formed to the desired shape, the top edge *a* of said frame extending upward and around the rear or seat portion of said frame to form a receptacle for the cushion, the said top edge *a* of the frame being tapered off gradually at the forward or pommel end until the edge comes flush with the stem of the T-iron, the support *d* in said frame, and the springs *b*, *b*, secured to the stem of said T-iron, in combination with the cushion, and springs for supporting said saddle and securing it to the machine, as set forth.

589,582. ELECTRIC SWITCH. JOSEPH R. SMITH, ARTHUR W. FERRIN, and ALBERT L. CLOUGH, Manchester, N. H., assignors to the Brodie Electric Company, same place. Filed Aug. 15, 1896. Serial No. 602,857. (No model.)



Claim.—1. In an electric switch, electric magnets in series with the field-current and armature-current of an electric motor, independent armatures under the influence of said magnets, spring-actuated switch-blades, a spring attached to one of said armatures for holding it normally away from the pole of the magnet traversed by the armature-current, and means whereby a variation of current in the armature or field circuit causes the switch to automatically open.

2. In an electric switch, means for holding the armature of the switch which is under the influence of the motor armature-current away from its magnet during the period of excessive current incident upon the starting of the motor, comprising a releasing-lever provided with a projection at its free end adapted to engage the armature 8, only when said lever is not under the influence of the opening-springs acting through the detent W and catch V.

3. An electric switch, electromagnets in series with the field-current and armature-current of a motor, independent armatures under the influence of said magnets, means for automatically opening said switch by an excess of the armature-current or a failure of the current in the field or the main circuit, and a variable spring-tension device adapted to cause one of said armatures to resist to a predetermined extent the influence of the pole of that magnet traversed by the armature-current of a motor, substantially for the purpose set forth.

4. An electric switch having a pair of electromagnets in series with the field and armature current of a motor, a pair of independent armatures adapted each to be influenced by one of said magnets, a releasing mechanism consisting of a pivoted lever having a long and short arm, the outer end of said long arm being adapted for contact with the armature influenced by the pole of that magnet which is in series with the field-current of a motor and with a suitable spring attached to said armature, a horizontally spring-actuated latch movably connected to the short arm of said pivoted lever and to the electromagnet frame or standard, a detent upon the switch-lever connection engaging said latch, a pivotally-connected handle for said switch-levers, and a suitable spring attached to said handle and adapted to depress said latch by an upward movement of the handle.

5. In an electric switch, slotted standards secured to a suitable base, spring-actuated levers for opening and closing the circuit pivotally connected within the slots of said standards, said levers having a slot formed in their end at a right angle with their pivot, substantially for the purpose set forth.

6. In an automatic electric switch, a manual releasing mechanism consisting of a suitable detent attached to the switch-levers, a spring-actuated latch normally engaging said levers, a handle pivotally connected to said switch-levers, and carrying a flat spring secured to the top of the handle and resting upon the detent in close proximity to said spring-actuated latch and adapted to move horizontally to depress the same.

7. A manual releasing device for automatic electric switches consisting of a handle loosely connected to the switch-levers, a detent rigidly attached to said levers, a spring-actuated latch adapted to normally engage said detent, and a flat spring secured to the handle and adapted to move horizontally upon the detent to depress said spring-actuated latch.

589,583. GOVERNOR FOR GAS-ENGINES. FRED W. SPACKE, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,570. (No model.)



Claim.—1. In a governor for gas-engines, the combination with the gas-inlet valve thereof, a lever pivoted to said valve, and means for operating said valve through the medium of said lever, of a rock-shaft, an arm carried by said rock-shaft and adapted to engage with one end of the gas-valve lever but independent thereof, and means controlled by the speed of the engine for operating said rock-shaft, the arrangement being such that, when the gas-valve lever is moved so as to open the valve, the said lever will be moved out of engagement with the arm carried by the rock-shaft, substantially as and for the purpose specified.

2. In a double-acting gas-engine, the combination with a pair of gas-inlet valves, and means for opening said valves, of a governor-shaft mounted in suitable bearings and provided with governor-balls, and intermediate connecting mechanism between said balls and the gas-valve-operating means, whereby the movement of said balls from the governor-shaft will cause one of said valve-operating means to to become inoperative while the other of said means still remains in operative position, the arrangement being such that, as each of the means for opening the valves is operated to open its valve, the said means will be moved out of engagement with said intermediate connecting mechanism, as and for the purpose described.

3. In a governor for gas-engines, the combination with the gas-inlet valve thereof, a lever pivoted to said valve, and means for opening said valve through the medium of said lever, of a governor-shaft mounted in suitable bearings and having governor-balls secured thereto, a rock-shaft, intermediate connecting mechanism between said rock-shaft and the governor-balls whereby the movement of said

balls toward and from the governor-shaft will cause a rocking movement of said rock-shaft, an arm carried by said rock-shaft and adapted to engage with one end of the gas-valve lever but independent thereof, the arrangement being such that, as the gas-valve lever is moved so as to open the valve, the said lever will be moved out of engagement with said arm, all combined and arranged to cooperate in such a manner that a movement of the governor-balls toward or from the governor-shaft will cause the said gas-valve lever to swing upon its pivot, as and for the purpose set forth.

4. In a governor for gas-engines, the combination with the gas-inlet valve thereof, a lever pivoted to said valve, and means for opening said valve through the medium of said lever, of a governor-shaft mounted in suitable bearings, a link pivoted to said shaft, a block longitudinally movable on said shaft, a link pivoted thereto, a governor-ball mounted between the free end of said links, a rock-shaft, an arm carried by said rock-shaft and adapted to be engaged by said longitudinally-movable block, and an arm secured to said rock-shaft and adapted to engage with one end of the gas-valve lever but independent thereof, the arrangement being such that, as the lever is moved so as to open the valve, the said lever will be moved out of engagement with said last-mentioned arm, all combined and arranged to cooperate substantially as and for the purpose set forth.

5. In a governor for gas-engines, the combination with the gas-inlet valve thereof, a lever pivoted to said valve, and means for opening said valve through the medium of said lever, of a governor-shaft mounted in suitable bearings, a link pivoted to said shaft, a block longitudinally movable on said shaft, a link pivoted thereto, a governor-ball mounted between the free ends of said links, a rock-shaft, an arm carried by said rock-shaft and adapted to be engaged by said longitudinally movable block, a spring secured at one end to said arm and at the other end to a fixed point, and an arm secured to said rock-shaft and adapted to engage with one end of the gas-valve lever but independent thereof, the arrangement being such that, as the lever is moved so as to open the valve, the said lever will be moved out of engagement with the said last-mentioned arm, all combined and arranged to cooperate as and for the purpose set forth.

6. In a double acting gas-engine, the combination with a pair of gas-inlet valves, and independent means for operating each of said valves, of means controlled by the speed of the engine and connected to said gas-valve-operating means, whereby the movement of said speed-controlled means will cause one of the valve-operating means to become inoperative while the other of said valve-operating means still remains in operative position, the arrangement being such that, as each of the means for operating the valves is operated so as to open its valve, the said means will be moved out of engagement with said speed-controlled means, as and for the purpose set forth.

7. In a governor for a double-acting gas-engine, the combination with the pair of gas-inlet valves, a lever pivoted to each of said valves, and means for independently opening each of said levers through the medium of its respective lever, of a governor-shaft mounted in suitable bearings and having governor-balls secured thereto, a rock-shaft, intermediate connecting mechanism between said rock-shaft and the governor-balls whereby the movement of said governor-balls toward and from the governor-shaft will cause a rocking movement of said rock-shaft, and two arms carried by said rock-shaft and rotatively adjustable thereon, each of said arms being adapted to engage with one of the gas-valve levers, but each of said arms being capable of a movement independent of the gas-valve levers all combined and arranged to cooperate in such a manner that a movement of the governor-balls toward or from the governor-shaft will cause the said gas-valve levers to swing upon their pivots.

8. In a governor for a double-acting gas-engine, the combination with the pair of gas-inlet valves, a lever pivoted to each of said valves, and means for independently opening each of said valves through the medium of its respective lever, of a governor-shaft mounted in suitable bearings, two links pivoted to said shaft, a block longitudinally movable on said shaft, two links pivoted thereto, two governor-balls mounted one between each pair of links, a rock-shaft, a pair of arms carried by said rock-shaft and adapted to be engaged by said longitudinally-movable block, a collar longitudinally movable toward and from said block, two springs each secured at one end to said collar and at the other end to one of said arms, and two arms secured one at each end of the rock-shaft and rotatively adjustable thereon, each of the said arms being adapted to engage one end of one of the gas-valve levers, substantially as and for the purpose set forth.

9. In a governor for gas-engines, a gas-inlet valve therefor which consists of a valve-seat secured in the gas-inlet, a guide carried by said valve-seat, a cross-bar also carried by said valve-seat, a valve-stem mounted in a bearing in said cross-bar and provided with a valve adapted to close the opening in the valve-seat, a collar carried by said valve-stem and adapted to move in said guide, a spring mounted between the collar and the cross-bar, a lever pivoted to said collar, means for engaging one end of said lever and thereby opening the said valve, and means for engaging the other end of said lever and thereby lifting the said lever out of the path of movement of the valve-operating means, substantially as set forth.

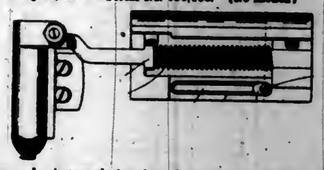
589,584. STAPLE-FASTENER. ARTHUR H. SWETT, Chicago, Ill. Filed Oct. 15, 1896. Serial No. 608,960. (No model.)



Claim.—1. A fastener comprising a body portion B' formed of a web *t* and strengthening-ribs *s*, said strengthening-ribs being extended beyond the ends of the web and forming prongs *r*, substantially as and for the purpose set forth.

2. A fastener, comprising a body portion B' formed of a web *t* and strengthening-ribs at opposite sides and projecting beyond opposite ends of the web to form prongs *r*, said prongs being tapered and serrated, substantially as and for the purpose set forth.

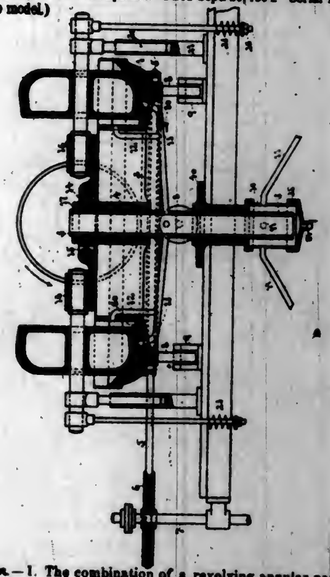
589,585. LOOM-TEMPLE. THOMAS STEBB, Philadelphia, Pa., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed May 12, 1897. Serial No. 636,196. (No model.)



Claim.—1. A temple-head, and its bar, combined with a stand composed of two parts, one of which is hinged on or with relation to the other part, and a fastening device to retain the said two parts locked together, substantially as described.

2. A loom-temple stand composed of a slotted bottom piece, and a hinged top cap, also slotted, combined with a fastening device cooperating with the slotted part of the cap to hold it closed or permit it to be opened, substantially as described.

589,586. QUARTZ-MILLING MACHINE. ALBERTO T. VAN HORN, Boston, Mass., assignor to the Van Horn Manufacturing and Process Company, of New Hampshire. Filed Sept. 20, 1894. Serial No. 534,447. (No model.)



Claim.—1. The combination of a revolving annular pan, a ring carried in bearings fixed to the pan, stationary crushing-rollers each having one of its journal-boxes pivoted to the ring while the other is movable vertically, and springs bearing the rollers downward.

2. The combination of a revolving annular pan, stationary crushing mechanisms acting therein, and a ring journaled to the center of the pan and adapted as a support for said mechanisms.

3. A mercury-trap consisting of a stationary receptacle with discharge-pipes from its upper part, and a revolving delivery-tube projecting downward into said receptacle.

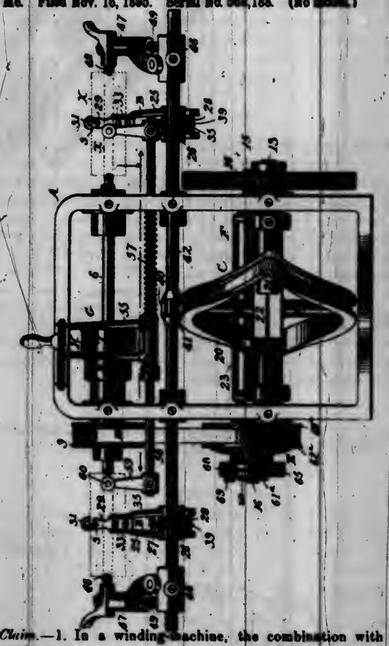
4. The combination of crushing mechanism, a rotating pan, a hollow shaft projecting downward from the pan and rotating therewith, and pulp-discharging pipes from the pan to the interior of the shaft, the whole arranged to discharge the pulp by gravity.

5. The combination of crushing mechanism, a rotating pan, a hollow central shaft revolving with the pan, pulp-discharging pipes from the pan to the shaft also revolving with the pan, and a mercury-receptacle into which the shaft dips.

6. The combination of crushing mechanism, a rotating pan, a hollow central shaft revolving with the pan, pulp-discharging pipes from the pan to the shaft also revolving with the pan, and a mercury-trap consisting of a box completely inclosing the end of the shaft and provided with outlets.

7. The combination of crushing mechanism, an annular pan, a hollow central shaft, pulp-conduits from the pan to the shaft, and a mercury-trap into which the shaft leads.

589,587. COP-WINDING MACHINE. SIMON W. WARDWELL, Jr., Boston, Mass., assignor to the Universal Winding Company, Portland, Me. Filed Nov. 16, 1895. Serial No. 569,188. (No model.)



Claim.—1. In a winding-machine, the combination with the frame, of a shaft mounted thereon and adapted at each end to support one end of a bobbin, means for positively rotating the shaft, an adjustable support for the opposite end of each bobbin, a rod, means for reciprocating the same, and a plurality of guide-arms adapted to swing to and from the bobbin carried upon the rod, substantially as described.

2. The combination with the sliding rod 12 of a forked arm swinging on the rod, a ring on said rod provided with an ear constituting a stop, said ring being adjustable axially and arranged between the divided parts of the fork, a spring for swinging the said arm in one direction, substantially as described.

3. The combination of the reciprocating rod of a swinging guide-arm 25, supported thereon, the plate 29 detachably secured to said arm and notched at its outer end, and the thread-guide rod 30 also detachably secured to said guide-arm, substantially as shown and in the manner described.

4. The combination in a winding-machine, of a shaft adapted at each end to support the end of a bobbin, a support for the opposite end of each of said bobbins, a rod and means for reciprocating the same, and a plurality of swinging guide-arms carried by said rod, substantially as set forth.

5. The combination in a winding-machine, of a shaft adapted to receive one end of a bobbin, and a pivoted arm 47 secured to an adjustable block 46, and adapted to engage the opposite end of the bobbin, said pivoted arm carrying a rotatable stud substantially as set forth.

6. The combination with the shaft adapted to receive one end of a bobbin, of a rod supporting the adjustable block 46, an arm 47 pivoted to said block, a rotatable stud carried by said arm adapted to the opposite end of the bobbin, and a spring arranged to carry the arm toward the end of the bobbin, substantially as set forth.

7. The combination in a winding-machine, of a shaft adapted at each end to support one end of the bobbin and an adjustable bobbin-support for the opposite end of each bobbin, a sliding rod, guide-arms connected adjustably with said rod, and means for reciprocating the said rod, substantially as set forth.

8. An expansion-pulley consisting of a section having a disk and threaded hub, another disk sliding on said hub, an intermediate spring, and a nut turning on the threaded hub, whereby the parts retain their positions independent of the shaft to which they are applied, substantially as described.

9. The combination with the fixed section, of an expansion-pulley having a hub threaded at the outer end and with the sliding section and with the nut turning on the threaded end of the hub and having a peripheral slot *w*, of a loose perforated disk 68, and screw 69, substantially as set forth.

10. The combination in a winding-machine, of a main drive-shaft projecting at the end beyond its bearings and adapted to receive one end of a bobbin, an adjustable block supported adjacent to but beyond said end, a pivoted arm carried by said block, and a rotatable stud held in said arm coincident with said shaft and adapted to receive the other end of the bobbin, substantially as described.

11. The combination with a shaft adapted to receive one end of a bobbin, of a rod, an adjustable block on the rod, an arm pivoted to said block and carrying a rotatable device adapted to receive the other end of the bobbin, means for adjusting or regulating the inward movement of said arm, and means tending to carry the arm toward the end of the bobbin, substantially as described.

12. The combination with the shaft 6 adapted to receive one end of a bobbin, of a rod, an adjustable block on the rod, an arm pivoted to said block and supporting a rotatable device adapted to receive the other end of the bobbin, an arm and a set-screw for regulating the inward movement of said arm, and a spring normally pressing the arm toward the end of the bobbin, substantially as described.

13. The combination with an arm of the frame having a notch, of a rock-shaft having at the end an arm which is borne upon by the cop as the latter increases in size, a spring carried on said shaft and tending to move the same longitudinally in one direction and a yoke on the shaft engaging the notch of the frame-arm against the tension of said spring, the whole operating, substantially as described.

14. In a winding-machine, the combination with a shaft adapted to support one end of a bobbin, means for positively rotating the shaft, a spring-actuated support for the other end of the bobbin, and a rotatable stud carried by said support, a thread-guide arm, and means for reciprocating the same, substantially as described.

15. In a winding-machine, the combination with the frame, of a shaft mounted thereon and adapted to support two bobbins, means for rotating the shaft, two guide-arms cooperating with the bobbins, means for reciprocating the guide-arms, stop devices, an arm 59 for each bobbin adapted to be borne upon by the cop when of a predetermined size, and connections between the arms and the stop devices, said arms 59 being independently adjustable toward and away from the bobbins whereby cops of different relative sizes may be simultaneously wound, substantially as described.

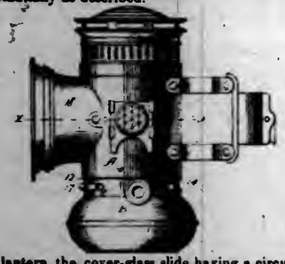
16. In a winding-machine, the combination of a shaft adapted to support one end of a bobbin at its end, means for rotating the shaft, an arm adjacent the end of the shaft, a rotatable stud provided with a peripheral groove held in said arm and adapted to support the opposite end of the bobbin, and a screw carried by the arm, the end of which engages the groove of the stud, substantially as described.

589,588. LANTERN. FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Dec. 26, 1896. Serial No. 616,977. (No model.)

Claim.—1. A lantern the lamp of which has upon one side the fixed holding-lug 13 and vertical wing 14 and on its opposite side a spring-pressed latch and the body of which lantern is provided at its lower end with the inwardly-turned flange 10, having a radial slit 11, the said lug 13 and latch engaging said flange over its top face while the said wing 14 enters the said slit in said flange substantially as described.

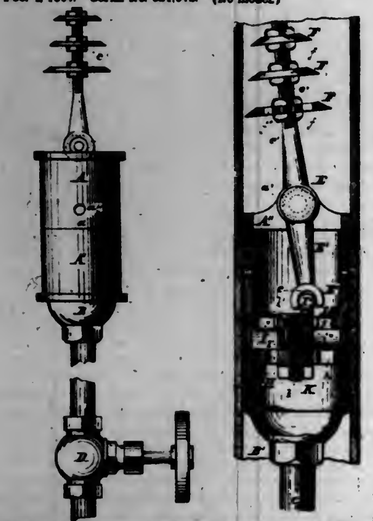
2. A lantern having a cover-glass fitted to a recess in a suitable support and a wire-holding spring extended in circular form for about three-quarters of a circle and secured by its two separated ends to

said support with its free circular portion otherwise disconnected from said support and adapted to bear on the said cover-glass near its edge substantially as described.



3. In a lantern the cover-glass slide having a circular opening and cover-glass seat with perforated lugs near the lower corners of said slide, the cover-glass fitted to the said slide, and a wire spring embracing the major portion of a circle for resting on said cover-glass near its edge and with outwardly-bent shanks extended through the holes in said lugs and permanently secured thereto substantially as described.

589,589. FLUE-CLEANER. LOUIS J. WOLF, Buffalo, N. Y. Filed Feb. 4, 1897. Serial No. 621,972. (No model.)



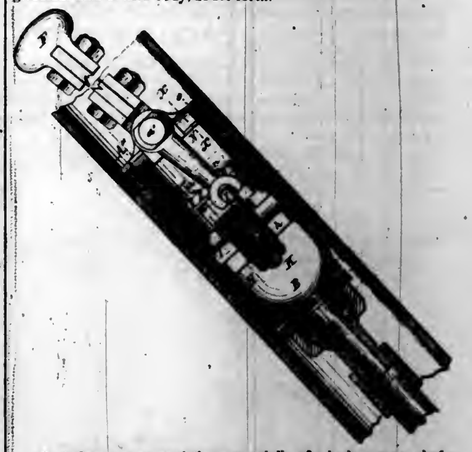
Claim.—1. A water-tube cleaner consisting, essentially, of a suitable shell, a motor within said shell, a vibrating lever pivoted within said shell and connected with said motor at one end, and a series of circular cutting-disks upon the other, projecting, end of said lever, said cutting-disks being of progressively-decreasing diameter and revolubly and adjustably mounted upon said projecting end of said lever, as and for the purpose specified.

2. A water-tube cleaner consisting, essentially, of a shell, a propeller-wheel in said shell, a ball-shaped arm on said propeller-wheel, a lever pivoted to a bridge in said shell, a groove at the lower end of said lever adapted to engage the ball of the arm, and a series of sharp-edged disks adjustably arranged upon said lever, as described.

3. In a water-tube cleaner the combination, with the shell composed of two parts screwed together as described, of a bridge in one of said parts and located to one side of the center thereof, a lever pivoted to said bridge and projecting with one end into the said body, a spider formed in one piece with the upper part of said body, a propeller-wheel below said spider, a further spider located below said propeller-wheel and formed in one piece with the lower part of said body, a ball-shaped arm at the upper surface of the propeller-wheel, a slotted projection on the lower end of the said lever engaging the ball of said pitman, and a series of chisels at the upper end of said lever, said chisels being of different diameter, as and for the object stated.

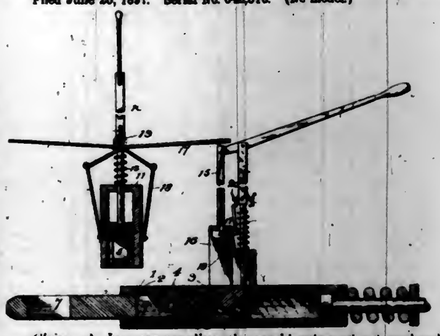
589,590. FLUE-CLEANER. LOUIS J. WOLF, Buffalo, N. Y. Filed May 5, 1897. Serial No. 635,248. (No model.)

Claim.—1. In a flue-cleaner, a suitable body having a bell-shaped bottom, an externally-screw-threaded portion thereon, a clamping and a lock nut upon said screw-threaded portion, a supply-pipe having a ball on its end and engaging a recess in the end of said screw-threaded portion and held therein by said clamping nut, an internally-projecting ledge in said body, having a series of inclined slots or notches, a propeller-wheel within said body, a lever pivoted in said body and engaging said propeller-wheel with one end, and a suitable tool on the other end of said lever, whereby said lever is reciprocated and at the same time caused to automatically revolve around the longitudinal axis of said body, as set forth.



2. A flue-cleaner consisting, essentially of a body composed of a lower section having a bell and a supply-pipe connected therewith, a spider in said lower section, a propeller-wheel having a ball-shaped arm projecting therefrom, an upper section secured to said lower section, a spider in said upper section above said propeller-wheel, a shell within said upper section and retained therein by a nut on the end of the upper section, a ledge in said shell having a series of inclined notches or slots, a bridge in said shell, a lever pivoted to said bridge and connected with its lower end with said propeller-wheel, and a suitable cutting-tool on the outer end of said lever, whereby said lever is reciprocated and the said shell and lever caused to automatically revolve within said body, as stated.

589,591. CAR-COUPLING. JAMES R. BEARD, Harrisburg, Ark. Filed June 25, 1897. Serial No. 642,316. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head a spring-actuated hook mounted in the draw-head and disposed longitudinally thereof for engaging a link, a vertically-reciprocating rod arranged to engage the hook and adapted to release the same, a standard rising from the draw-head, a longitudinally-disposed operating-lever fulcrumed on the standard and connected with the rod and adapted to be operated from the top of a car, and transverse levers connected with and adapted to operate the rod from the sides of a car, substantially as described.

2. In a car-coupling, the combination of a draw-head, a spring-actuated hook mounted within the draw-head and disposed longitudinally thereof, a vertically-reciprocating rod mounted above the hook and provided at its front and back with hooks, a spring disposed on the rod and supporting the same, link-rods mounted on the draw-head and extending upward from the sides thereof, the transverse levers fulcrumed on the link-rod and provided between their ends with eyes engaging the hooks of the said rod, and means for operating the rod from the top of the car, substantially as specified.

3. In a car-coupling, the combination of a draw-head, a hook mounted in the draw-head and pivoted to the same at a point between the ends of its shank, a spring mounted on the draw-head at a point below the hook, and having its rear portion extended upward and bearing against the rear portion of the shank of the hook, a guide rigid with the draw-head and adapted to abut against a car, a vertically-reciprocating rod passing through the guide and engaging the rear portion of the shank of the hook, a spring disposed on the rod and bearing against the guide and supporting the former, the support mounted on the draw-head in advance of the guide, a standard rising from the support, a longitudinal operating-lever fulcrumed on the standard and pivoted to the rod, supporting-hooks connected with the rod and arranged in advance and in rear of the same, and the oppositely-disposed transverse levers fulcrumed at their inner ends and provided between their ends with eyes engaging the supporting-hooks, substantially as described.

4. In a car-coupling, the combination of a draw-head, a hook arranged within the draw-head, a transverse pin passing through the hook and the sides of the draw-head and extended beyond the latter, the substantially rectangular support provided at its top with an opening and recessed at the lower ends of its sides to form supporting-shoulders, the standard passing through the opening of the top of the support and having its lower end enlarged and fitting between the sides of the same, a transverse fastening device passing through the sides and the lower end of the standard, a vertically-reciprocating rod engaging the hook, and a lever fulcrumed on the standard and connected with the rod, substantially as set forth.

589,592. COMPOSITION OF MATTER FOR MANUFACTURING CALCIUM CARBID. SYLVAIN BLUM, Galveston, Tex., assignor of three-fourths to Hilliary Eldridge and Daniel J. Clark, same place, and Sam Lamaris, Sherman, Tex. Filed Feb. 3, 1897. Serial No. 621,851. (No specimens.)

Claim.—A compound for the manufacture of calcium carbid composed of air-slaked lime, carbon, plumbago containing iron, and potash, substantially as described.

589,593. FENCE-STAY. ROBERT V. CLARK, Tiffin, Ohio. Filed May 15, 1897. Serial No. 636,656. (No model.)



Claim.—The herein-described cross-sectionally flat metallic fence-stay for connecting runners, the same being provided at intervals with runner-locks, each consisting of parallel lateral tongues 3 upstruck from the body of the stay at its edges, to form side recesses and an intermediate reduced or neck portion, and said tongues and reduced or neck portion being crimped or bowed respectively in opposite directions to equal extents to receive a runner therebetween, and the extremities of the tongues being pressed rearwardly into the plane of the body portion of the stay to fill the lower ends of the recesses and lie in contact with the shoulders at the lower extremities thereof, substantially as specified.

589,594. MINER'S FOLDING CANDLESTICK. ROBERT CLINCH, Combination, Mont. Filed Nov. 28, 1896. Serial No. 613,784. (No model.)

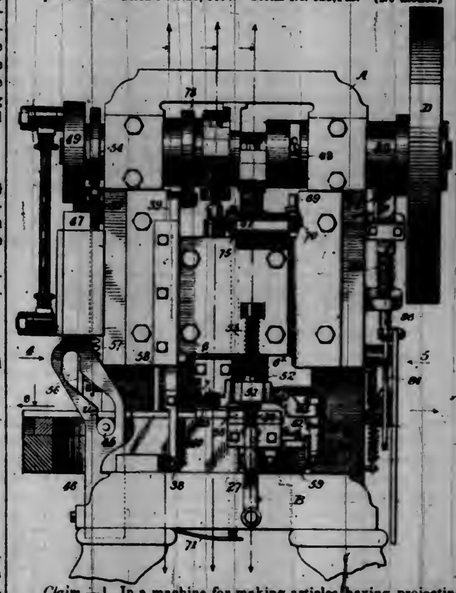


Claim.—1. miner's candlestick, comprising the parallel spring-arms 2 and 3, the spike 6 hinged to the arm 2 and the blade 13 pivoted in the arm 3, in combination with the transverse shaft 24, having a collar 25, the candle-holder 26 secured thereto, and the hook 32, having its integral shank 31 secured to one end of the shaft 24, substantially as shown and described.

2. A miner's implement, comprising the handle-bow, having integral parallel spring-arms 2 3, provided with lugs 22, 23, the latter provided with an inclined face 33, notch 29 and shoulder 30, the shaft 24 journaled in said lugs and having an integral collar 25, a candle-holder secured to said collar and provided with a lip 27 having retaining-lug 28, and the hook 32 having its shank 31 secured to said shaft so as to engage said notch and shoulder on the lug 23, in combination with the spike 6 hinged to the outer end of the arm 2, and its shank adapted to engage the lug on the lip 27, when folded, substantially as and for the purpose set forth.

3. A miner's implement, comprising the handle-bow, the integral parallel spring-arms provided with lugs 22 23, the latter having an inclined face 33, notch 29 and shoulder 30, the shaft 24 journaled in said lugs and provided at one end with a collar to which is fixed a spring candle-clamp and the hook 32 having its shank 31 secured to the other end, in combination with the hinged spike 6, the pivoted knife-blade 13, and the lever 36 fulcrumed in the handle-bow, and having a serrated jaw contiguous to the recess 39 in one of said arms, substantially as and for the purpose set forth.

589,595. BLANKING OR STUDDING MACHINE. JOHN DRAHER, Waterbury, Conn., assignor to the Warner Brothers Company, Bridgeport, Conn. Filed Feb. 26, 1897. Serial No. 625,145. (No model.)



Claim.—1. In a machine for making articles having projecting pins or rivets, the combination of devices for cutting and perforating blanks and devices for feeding wires, of means for cutting pins from said wires and for carrying the same beneath the perforations in the blanks, means for moving the blanks to insert the pins in the perforations thereof, and a header-die for spreading the ends of the pins to rivet the same to the blank, substantially as set forth.

2. The combination with devices for mechanically feeding a strip X, and for feeding wires and for cutting the wires to form pins, of punches for perforating the strip and cutting blanks therefrom, a carrier for carrying the blanks into position in line with the pins, grippers for engaging and positively gripping the pins, means for carrying them to positions in line with the perforations in the blanks, and means for introducing the pins into the openings in the blanks and for heading the pins, substantially as described.

3. The combination with devices for mechanically feeding a strip and punching devices, of a carrier moving transversely to the direction in which the strip is fed, means for cutting pins from the ends of wires, and grippers for positively gripping and carrying the pins to position opposite the perforations in the blank punched from the strip, and means for inserting the pins in the perforations and for heading the pins, substantially as set forth.

4. The combination with devices for mechanically feeding a strip, punching devices, and carrier C, of means for feeding wires, a cutter for cutting pins from the said wires, and grippers for positively gripping the pins and for carrying the said pins into position below the blank, and heading devices, substantially as set forth.

5. The combination with the devices for mechanically feeding and punching a strip, and the devices for feeding and cutting wires to form pins, of a carrier for the blank, and grippers for positively gripping the pins, and means for operating the carrier and grippers to bring the blank with its openings in line with the pins, substantially as set forth.

6. The combination with strip-feeding devices, of means for perforating the strip and for punching a blank therefrom, devices for transferring the blank to a reciprocating carrier, wire-feeding mechanism, cutting devices for severing sections from the wire and mechanism for feeding the severed sections of wire through the perforations of the strip, and mechanism for upsetting the wire sections upon opposite faces of the blank, substantially as described.

7. The combination with strip-feeding devices, of means for perforating the strip and for punching a blank therefrom, wire-feeding mechanism, means for transferring the perforated blank to bring the holes thereof in alinement with the ends of the wires, means for moving the blank to receive the ends of the wires in its holes, and devices for upsetting the wires upon both faces of the blank, substantially as described.

8. The combination with strip-feeding mechanism, of means for perforating the strip and for punching a blank therefrom, wire-feeding mechanism, devices for moving the blank to receive the ends of the wires in the perforations, means for upsetting the wires upon opposite faces of the blank to form studs and mechanism for automatically discharging the blank and its attached studs, substantially as described.

9. The combination with strip-feeding mechanism, of means for perforating the strip and for punching a blank therefrom, wire-feeding mechanism, devices for transferring sections of the wire in alinement with the perforations of the blank, means for automatically locking said devices when the wire sections have been brought into proper position, mechanism for projecting the ends of the wires through the openings in the blank and devices for upsetting the wire upon opposite faces of the blank, substantially as described.

589,596. NUT-LOCK. HIRAM R. REY, Mastersonville, Pa. Filed Aug. 21, 1896. Serial No. 603,476. (No model.)



Claim.—In a nut-lock, the combination with the rails, the fish-plate, the bolts and nuts, the socket-plate at one end of the fish-plate having a bolt-hole near one end through which one of the bolts passes and the other end formed with a lug at right angles thereto and having a socket therein, and the clamp-plate at the opposite end of the fish-plate formed with a lug having an aperture and an intersecting slot, of the fork consisting of a single piece of spring-wire bent over at the center forming a pintle which engages with said socket and then curved outwardly in opposite directions and then extended horizontally forming two arms which alternately cross each other between the nuts so as to engage with the upper and lower sides thereof and the ends bent or kinked and passed through the slot in the clamp-plate and seated in the recess therein, substantially as described.

589,597. ANNEALING PLANT. FRANCIS I. FREEMAN, Pittsburg, Pa. Filed May 27, 1897. Serial No. 638,394. (No model.)



Claim.—1. In an annealing plant, a truck consisting of two connected members, each consisting of side plates, wheels mounted in said side plates, a lift-bar provided on its under side with cams or inclined projections and rollers mounted in the side plates for supporting the lifting-bar, in combination with means for simultaneously shifting both lifting-bars longitudinally, substantially as set forth.

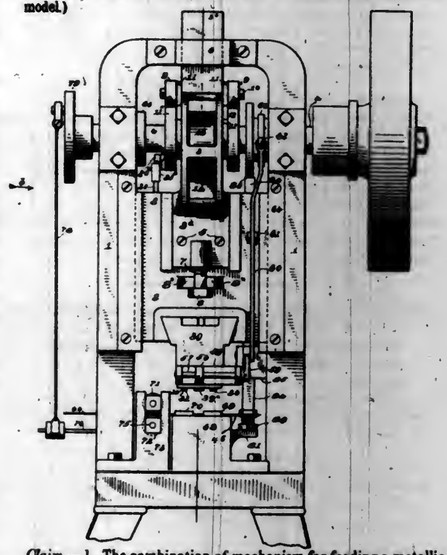
2. In an annealing plant, a truck consisting of two connected members, each consisting of side plates, wheels mounted in said side plates, a lifting-bar provided on its under side with cams or inclined projections, rollers mounted in the plates for supporting the lifting-bars and a bearing-strip supported on the lifting-bar, but separated therefrom, in combination with means for simultaneously shifting both lifting-bars longitudinally, substantially as set forth.

3. In an annealing plant, a truck consisting of two connected members, each consisting of side plates, wheels mounted in said side plates, and a lifting-bar in combination with means for simultaneously moving said bars longitudinally and vertically, substantially as set forth.

4. In an annealing plant, the combination of a furnace having depressed tracks, a truck consisting of two members connected at one end, lateral supporting-rollers mounted on the sides of said members and adapted to bear against the sides of the grooves in which the tracks are arranged, lifting-bars and means for simultaneously shifting the bars for raising and lowering the annealing-pots, substantially as set forth.

5. In an annealing plant a truck consisting of connected members, wheels mounted in said members, lifting-bars, bearing-strips supported on the lifting-bars, but separated therefrom, in combination with means for simultaneously moving said bars longitudinally and vertically, substantially as set forth.

589,598. METAL BLANKING AND STUDDING MACHINE. JAMES W. GRANT, Bridgeport, Conn., assignor to the Warner Brothers Company, same place. Filed Apr. 23, 1896. Serial No. 588,761. (No model.)



Claim.—1. The combination of mechanism for feeding a metallic strip and for punching a hole therein, of means for feeding a section of wire through the hole in the strip and cooperating devices upon opposite sides of the strip for upsetting the wire section upon both sides thereof, one of said devices comprising gripping-jaws moving in the line of the wire, and the other comprising a reciprocating header, substantially as described.

2. The combination with a die-block having a reciprocating header, of an anvil, and means for reciprocating it toward and away from the die-block, devices for punching an opening in a strip, means for feeding the strip upon the die-block to bring its opening into alinement with the header, and mechanism for feeding a section of wire beneath the anvil and in alinement with the opening in the strip, substantially as described.

3. The combination with a die-block, a reciprocating header and a reciprocating anvil carrying a punch, of means for feeding a strip upon the die-block, wire-feeding mechanism, and devices for severing a section from the wire and for moving said section beneath the reciprocating anvil in alinement with the hole in the strip, substantially as described.

4. The combination with a die-block a punch and strip-feeding mechanism, of a reciprocating gate and an anvil, devices for feeding a wire and severing a section thereof and transferring the severed section beneath the anvil in alinement with the hole in the strip, all carried upon the gate, substantially as described.

5. The combination with mechanism for feeding a metal strip, for punching openings therein, and for cutting blanks therefrom, of devices for feeding wire and for securing sections thereof to the strip before the blanks are cut from said strip, substantially as described.

6. The combination with mechanism for feeding a metallic strip, of punches provided with convex shoulders adapted to punch openings in the strip, means for feeding a section of wire through the opening in the strip and for upsetting the section on opposite sides of the strip and within the depression formed by the punches, the upset portion of the wire section within the depression being flush with the face of the strip, substantially as described.

7. The combination, in a machine for forming studded blanks, of a movable support carrying a wire-feeding device, piercing and blanking tools, transversely-operating tools for severing sections from the wire and carrying them out of the wire-feeding line, said support adapted to move forward, insert, and secure such sections in holes formed in a metal strip, and means, substantially as shown, whereby a partial release is given to one of the section-carrying tools to prevent dragging on the sections when the movable support returns, substantially as described.

8. In a blanking and studding machine of the character described, the combination with a stationary die-block, a movable header therein, of a gate or other like movable support carrying independent wire-feeding mechanism, piercing and blanking punches, cut-off and stud-blank-carrying tools, said cut-off and stud-blank-carrying tools and punches placed between the wire-feeding mechanism and the die-block and header, so that, by the combination and cooperation of the above-named elements holes are pierced in a metal strip, the wires are fed forward, stud-blanks cut therefrom and such blanks transferred in line with said holes and secured therein, and an article embracing such studs blanked out of such metal strip, substantially as set forth.

9. In a blanking and studding machine of the character described, the combination with a stationary die-block having piercing and blanking dies therein, a heading-tool operatively placed intermediate of said piercing and blanking dies, a gate or other like movable support carrying piercing and blanking punches, cutting-off and stud-blank-carrying tools intermediate of said punches, a wire-feeding device on said movable support, said punches, cutting-off and stud-blank-carrying tools intermediate of the wire-feeding device and the said die-block and header, all combined so as to pierce holes in a metal strip, cut-off sections of the wires to form studs and transfer such sections out of the wire-feeding line and in line with such holes, insert and secure them therein, and blank out a corset-eye or other like article embracing such studs, from the said metal strip, substantially as described.

10. The combination, in a blanking and studding machine, of a wire-feeding device consisting of stationary and movable jaws having an intermediate spring-tongue, a movable gate on which such wire-feeding device has an independent movement, a tool-holder carrying piercing and blanking tools attached to such gate, cut-off and stud-carrying tools in said holder, a clamp having a finger at right angles thereto to engage with and prevent the wire moving back when the wire-feeding device is retreating, for the purpose set forth.

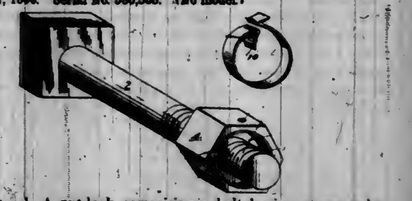
11. The combination, in a blanking and studding machine, of a wire-feeding device, a tool-holder carrying piercing and blanking punches, tools for cutting a projected section of wire and carrying such section out of the wire-feeding line, a die-block and header, such tool-holder, section cutting and carrying-tools placed between the wire-feeding device and said die-holder and header, for the purpose described.

12. In a combined blanking and studding machine, a wire-feeding device having an independent movement on a movable support, a tool-holder having piercing and blanking tools for cutting a section (to form a stud) from the projecting end of the wire and carrying such stud out of the feeding-line of such wire and in line with the piercing-tools, a die-block, such tool-holder, and section cutting and carrying tools placed intermediate of the wire-feeding device and the said die-block, a header to engage the projecting end of the wire section or stud, combined with an upper anvil to engage the opposite end of the stud, which, combined with the side pressure of the section-carrying tools, will form a head and shoulder on such stud, for the purpose as set forth.

13. The herein-described machine for blanking and studding, comprising, in combination, a movable gate, a yoke attached to said gate and embracing the driving-shaft, the upper end of such yoke adjustably secured to the machine-frame, rolls on such yoke to engage lifting-cams on such shaft, said gate carrying an adjustable roll to engage a cam on such shaft, a wire-feeding device having an independent movement on such gate, a tool-holder in the lower end of such gate and carrying piercing and blanking punches, transversely-operating tools for cutting a section from the projecting end of the wire and conveying such section, or stud-blank, out of the feeding-line of such wire and in line with the piercing-tools, a die-block and header, all combined so that, when the wire-feed has projected a section of wire, sufficient to form a stud, the cut-off and stud-carrying tools will sever such section and carry it out of the feeding-line of the wire and in line with holes—formed by the piercing-tools—in a metal strip on the die-block, and such stud-blank headed from below and shoulders formed on the stud above the metal strip, for the purpose set forth.

14. In a machine for forming studded blanks, the combination of sheet-metal feeding, piercing and blanking devices, wire feeding, cutting, transferring and upsetting devices, cooperating so as to pierce stud-holes in a metal strip; feed the wires a predetermined length, cut sections therefrom, transfer such sections out of the wire-feeding line and in line parallel with said stud-holes, said strip fed forward so as to bring such holes in vertical alinement with said sections, insert and secure such sections therein to form studs, feed the metal strip containing such studs to the blanking-tools and blank an article embracing such studs therefrom, substantially as set forth.

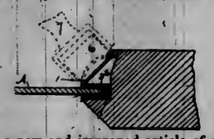
589,599. NUT-LOCK. ROBERT D. HARDY, Lorain, Ohio. Filed Apr. 7, 1896. Serial No. 586,563. (No model.)



Claim.—1. A nut-lock comprising a bolt having at one end a continuous uninterrupted thread, a nut formed with a circular recess, a circular spring located in said recess and having a reversely-formed chisel-pointed tooth, adapted to freely pass over the threads of the bolt when the nut is being screwed home and to bite into the apexes of the thread and lock the nut when turned in the opposite direction.

2. A nut-lock comprising a bolt having at one end a continuous uninterrupted thread, a nut formed with a circular recess, a circular spring located in said recess and having a reversely-formed chisel-tooth at one end, and at the other end a chisel-pointed tooth projecting beyond and in a reverse direction to the first-named tooth, the said teeth being adapted to engage respectively the threads of the bolt and the interior wall of the recess and slide upon the same when the nut is turned in one direction and to bite into the threads and into the interior wall of the recess and lock the nut when it is turned in the opposite direction, substantially as shown and described.

589,600. FASTENER FOR WINDOW-LIGHTS. CHARLES P. HENDRICKS, Somerset, Va. Filed Jan. 12, 1897. Serial No. 619,018. (No model.)



Claim.—1. As a new and improved article of manufacture, the hereinbefore-described fastener for window-lights, consisting of a sheet-metal strip having a groove therein near its one edge, and its opposite edge forming a flexible curved flange adapted to engage the sash, substantially as described.

2. As a new and improved article of manufacture, the hereinbefore-described fastener for window-lights, consisting of a sheet-metal strip having a groove therein and having a flange provided with a cutting edge adapted to be forced into the sash, substantially as described.

3. As a new and improved article of manufacture, the hereinbefore-described fastener for window-lights, consisting of a sheet-metal strip having a groove therein and having a flange provided with serrated teeth adapted to be forced into the sash, substantially as described.

4. As an improved article of manufacture the hereinbefore-described fastener for window-lights, consisting of a metallic strip having a groove formed therein near one edge thereof, the opposite edge of the strip being formed into a flange provided with a cutting edge presented substantially at right angles to the sash, substantially as described.

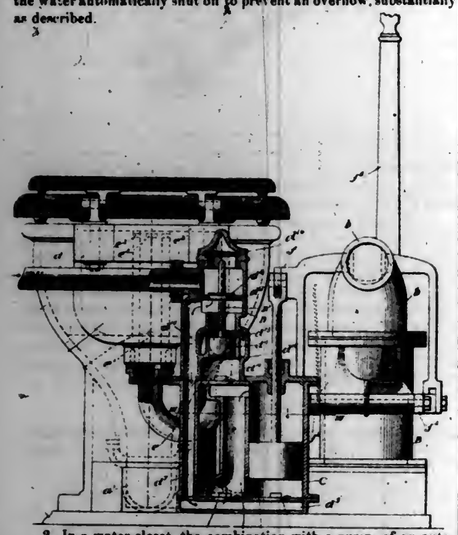
5. As an improved article of manufacture the hereinbefore-described fastener for window-lights, consisting of a metallic strip having a groove formed therein and having a curved flexible flange provided with a cutting edge, substantially as described.

6. The combination with a sash, provided with seating-shoulders and a channel thereabove, of a strip having a groove formed therein to receive the glass and having a flange, the edge of which is inserted in the channel, substantially as described.

7. The combination with a sash provided with seating-shoulders and a channel thereabove, of a strip having a groove formed therein to receive the glass, and a curved flexible flange, the edge of which is inserted in the channel, substantially as described.

589,601. PUMP, WATER-CLOSET. GEORGE B. HOWELL, Philadelphia, Pa. Filed Apr. 21, 1897. Serial No. 633,078. (No model.)

Claim.—1. In a pump water-closet, the combination with a bowl provided with a refill-chamber communicating therewith and with means adapted to permit water to enter to flush the bowl, of a discharge-pump for the bowl, a second or water pump and connections therewith for supplying clean water to the refill-chamber and to the bowl for flushing purposes, means for simultaneously operating both pumps, together with an automatically-actuated valve controlling the supply of water to said second pump and normally suspended in an open position to permit water to be supplied to the bowl and the refill-chamber while the pumps are in operation, and which automatically shuts off the supply of water when the pumps are at rest, whereby, by a single operation, the proper quantity of clean water may be supplied to the bowl during and after the discharging process, and the water automatically shut off to prevent an overflow, substantially as described.



2. In a water-closet, the combination with a pump, of an automatically-actuated valve controlling the water-supply thereto and normally suspended in an open position by said pump while in operation, and which automatically shuts off the supply of water when the pump is at rest, substantially as described.

3. In a water-closet, the combination with a bowl, of a discharge-pump therefor, a second or water pump and means connecting said pump to the bowl for supplying clean water thereto, means for simultaneously operating both pumps, together with an automatically-actuated valve controlling the supply of water to said second pump and normally suspended in an open position while said latter pump is in operation to permit clean water to be supplied to the bowl and which automatically shuts off the supply of water when the pumps are at rest, substantially as described.

4. In a pump water-closet, the combination with a bowl, of a pump, a discharge conduit or waterway leading from the pump, to the bowl, a valve controlling the inlet to the pump, and means for operating said valve located in the discharge-conduit and operated by the flow of liquid therethrough, substantially as described.

5. In a pump water-closet, the combination with a bowl, of a pump, a discharge-conduit leading from the pump to the bowl, a supply-passage in communication with the pump, a valve located in said passage and means for operating said valve located in the discharge-conduit from the pump and operated by the pressure of fluid in said conduit, substantially as described.

6. In a pump water-closet the combination with a bowl, of a pump, a discharge conduit or waterway leading from the pump to the bowl, a supply-passage leading to the pump, and a valve located in said supply-passage adapted to be opened by the passage of fluid from the pump to the bowl to permit the fluid to pass from the supply-passage to the pump, substantially as described.

7. In a pump water-closet, the combination of a bowl, a water-pump, a cylinder provided with an inlet for the water, a pipe connecting the cylinder with the bowl, connections between the pump and said cylinder, together with an automatic valve controlling the water-supply and normally suspended in an open position while said pump is in operation and which automatically shuts off the supply of water when the pump is at rest, substantially as described.

8. In a pump water-closet, the combination with a bowl, of a double-acting water-pump and a discharge-pump therefor, and mechanism for simultaneously operating said pumps, a cylinder communicating with the water-pump and the closet-bowl, and provided with an inlet connected to a suitable source of water-supply, together with a valve controlling the water-supply inlet and automatically actuated and suspended while the pumps are in operation and which automatically shuts off the supply of water when the pumps are at rest, substantially as described.

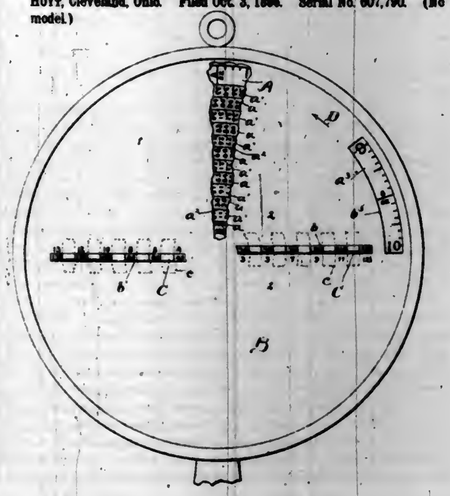
9. In a pump water-closet, the combination with a bowl, of a water-pump, a cylinder provided with an inlet connected to the source of water-supply, means connecting the cylinder with the bowl and with the pump, a piston-valve controlling the water-supply and automatically actuated in one direction by said pump, and means arranged in said cylinder for retarding and permitting the gradual return of the piston-valve to its seat, substantially as described.

10. In a pump water-closet, the combination with a bowl, of a water-pump, a cylinder interposed between the pump and the bowl and provided with an inlet connected to the source of water-supply, a valve actuated in one direction by the water-pump and comprising a rod, a piston at or near one end of said rod, and a disk or other valve arranged on the rod and adapted to control the water-supply inlet, said cylinder having the lower portion thereof in which the piston of the valve works provided with an annular chamber which communicates at or near its upper end with the interior of said cylinder, and with an aperture connecting the lower portion of said chamber with the interior of the cylinder below the piston of the valve when in its lowest position to permit said valve to gradually lower to its seat, and means connecting said chamber of the cylinder with the bowl, substantially as described.

11. In a pump water-closet, the combination with a bowl, of a double-acting water-pump, a cylinder interposed between the pump and the bowl and provided with an inlet connected to a source of water-supply, waterways provided with suitable valves connecting the inlet of the cylinder with both ends of the pump, said cylinder being provided with an outlet connected with the bowl for supplying water thereto, waterways provided with suitable valves connecting both ends of the pump with the outlet in the cylinder, together with a valve having a portion thereof interposed between the pump and the outlet in the cylinder so as to be automatically raised by said pump and which is normally suspended while the pump is in operation, said valve being adapted to control the supply of water to the pump and to the bowl, substantially as described.

12. In a pump water-closet, the combination with a bowl, of a water-pump, a cylinder interposed between the pump and the bowl and provided with an inlet connected to a source of water-supply and an outlet connected to the bowl, waterways provided with suitable valves connecting the inlet of the cylinder with the pump and said pump with the outlet in the cylinder, a piston-valve having the piston thereof interposed between the pump and the outlet in said cylinder so as to be automatically raised above the outlet by said pump and means for normally suspending said valve while the pump is in operation and to permit the valve to automatically gradually lower to shut off the water-supply when the pump is at rest, substantially as described.

589,602. SPRING-BALANCE COMPUTING-SCALE. FRANK C. HOYT, Cleveland, Ohio. Filed Oct. 3, 1896. Serial No. 607,790. (No model.)

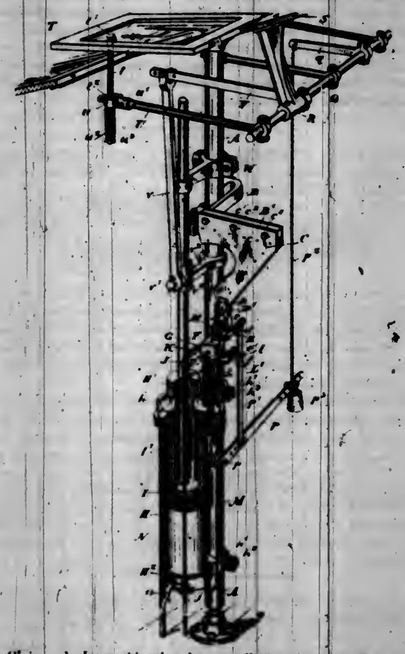


Claim.—1. In a computing-scale, the combination of a face-plate having sight-openings on opposite sides of the center, and rate-indicating figures adjacent to said sight-openings, with a rotatable dial divided into circular columns, each of which is divided by one set of radial lines into as many equal spaces as will equal the product of the associated rate-figure multiplied by the number of pounds which will cause one complete revolution of the dial, each of said spaces containing a figure indicating the number of spaces it is removed from the zero-point, the figures in alternate columns having their zero-points on opposite sides of the center of the dial, substantially as and for the purpose specified.

2. In a computing-scale, the combination of a rotatable dial having annular columns which contain value-indicating figures, the figures in alternate rows being inverted, with a face-plate having sight-openings on both sides of the center, and means for hiding on both sides of the center the columns which contain the figures which appear upside down, substantially as and for the purpose specified.

3. In a computing-scale, the combination of a rotatable dial having annular columns containing value-indicating figures, with a fixed face-plate having a long narrow sight-opening the edges of which are bent outward, and a plano-cylindrical magnifying-glass which projects through said sight-opening, and has its edges behind the outwardly-bent edges of the sight-opening, and retaining-strips, secured to the rear side of said face-plate, which hold the glass in place, substantially as and for the purpose specified.

589,603. TEMPERATURE-REGULATOR. ROBERT W. KING, Toronto, Canada. Filed Dec. 4, 1895. Serial No. 571,050. (No model.)



Claim.—1. In combination, in a ventilating apparatus for greenhouses, the shutters, means for automatically actuating the same comprising the thermostat, the pin carried thereby, the cylinder, having a piston, said piston being in connection with said shutters, the water-supply for said piston, the valve for controlling said supply, the lever fulcrumed on said pin, the connections between said lever and the shutters and the link interposed between said lever and said valve for controlling the same, substantially as described.

2. In a ventilating apparatus, the combination with a thermostat, down-hangers therefrom connected by a pin, a double-acting valve provided with a suitable supply-pipe, a double-headed cylinder and piston, the rock-shaft operated therethrough and pipes connecting the ports of the valve to the interior of the cylinder through each end, a bent lever having a forked end straddling the pin extending between the down-hangers, a link secured on the end of the double-acting valve and having its upper end forming a pivot for the bent lever and the rod p', lever P, rod p^3, arm g and rock-shaft Q all actuated as and for the purpose specified.

3. In a ventilating apparatus, the combination with the thermostat and the pin d deriving a lateral movement therefrom, of the valve F' provided with the ports f' f^3 f^3 and f^4 and the valve-box provided with the ports g, g' and g^3, the supply-pipe for the port f^3, the drip-pipe for the port g' and the double-headed cylinder provided with a piston and rod, the ventilator operated thereby, a pipe connecting the port g^3 to the upper end of the cylinder and a pipe connecting the port g to the bottom of the cylinder and means for controlling the relation of the port f' to the port g and the port f^3 to the ports g' and g^4 simultaneously and for controlling the position of the port f^3 to the port g^3 and the port f^3 to the ports g and g' simultaneously as and for the purpose specified.

4. In a ventilating apparatus, the combination with the thermostat and the pin d deriving a lateral movement therefrom, of the valve F' provided with the ports f' f^3 f^2 and f^4 and the valve-box provided with the ports g g' and g^3, the supply-pipe for the port f^3, the drip-pipe for the port g' and the double-headed cylinder provided with a piston and rod, the rock-shaft operated thereby, the shutters operated through said shaft, a pipe connecting the port g^3 to the upper end of the cylinder and a pipe connecting the port g to the bottom of the cylinder and a lever E fulcrumed on the pin d connected by a link F to the valve F' and operated from the rock-shaft Q as and for the purpose specified.

5. The combination of a shutter, a rock-shaft suitably supported, an arm rigidly secured at one end to the rock-shaft and reaching toward the shutter and provided at its other end with a perforation, a rod attached at one end to the shutter and extending through the perforation in the arm, a stop arranged on the rod above the arm, a stop on the rod beneath the arm, a spring on the rod resting at one end against the lower stop and at the other against the arm, and means for rocking the shaft, substantially as described.

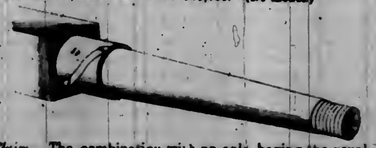
6. The combination of a shutter, a rock-shaft suitably supported, an arm rigidly secured at one end to the rock-shaft, and reaching toward the shutter and provided at the other end with a swiveled guide, a rod attached at one end to the shutter and extending through the guide on the arm, a spring on the rod, a stop on the rod designed to abut against the guide, a stop to limit the movement of the opposite end of the spring and means for rocking the shaft, substantially as described.

589,604. ANTIREFILLING BOTTLE. ALEXANDRE LESIEUR, Montreal, Canada. Filed Nov. 27, 1896. Serial No. 613,536. (No model.)



Claim.—A bottle provided as to its neck with an internal annular flange or thickened portion forming an annular upwardly-facing shoulder adjacent to the mouth and provided at an intermediate point in its height with an annular groove, a stopper fitting snugly within the neck and having a head forming an annular shoulder resting upon the annular shoulder in the neck and also provided with a diametrical opening extending therethrough, oppositely movable and sliding blocks or catches of rectangular shape in cross-section fitting within said opening and having parallel adjacent edges, and a Z-shaped spring formed from a flat strip of spring metal having its end portions arranged in parallel relation and at acute angles to the intermediate connecting portion which extends obliquely, the end portions of the spring adapted to bear flatwise throughout their entire length against the adjacent edges of the blocks or catches, substantially as described.

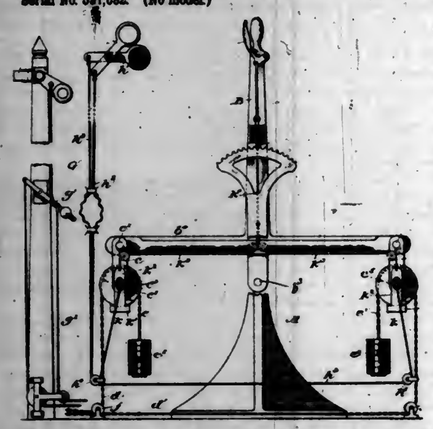
589,605. AXLE-SKEIN. ALONZO A. MARSH, Florence, Kans. Filed Jan. 16, 1896. Serial No. 575,760. (No model.)



Claim.—The combination with an axle having the usual collar and spindle, and a skein, of the single, cam-rib protruding from the

cylindrical surface of the axle-collar and extending diagonally across the same, from end to end thereof, and the cam-groove provided in the inner surface of the skein, to extend diagonally part way around its inner circumference, said rib and groove being of corresponding angular form in cross-section and having slight sigmoidal curvature to tightly wedge together, and interlock intimately one with the other, when the skein is fitted in place by a partial rotation thereof, substantially as described.

589,606. COMPENSATOR FOR RAILWAY-SIGNALS. JOHN A. MARKLEY, Clifton Forge, Va., assignor of eleven-twentieths to James Baily and Joseph R. Worth, Wilmington, Del. Filed July 1, 1896. Serial No. 597,682. (No model.)



Claim.—1. In a compensator, the combination with a suitable support, of an operating-lever pivoted thereto, independently-weighted pulleys arranged upon said lever at substantially the same distance from the pivot so as to practically balance each other at all times, together with connections secured to said pulleys and adapted to operate a movable body and have the slack therein taken up by said pulleys, whereby the lever may be readily operated and the slack taken up in the connections, substantially as described.

2. In a compensator, the combination with a suitable support, of an operating-lever provided with oppositely-extending arms pivoted to said support, pulleys arranged upon the arms of the lever at substantially the same distance from the pivot so as to practically balance each other at all times, connections adapted to operate a suitable body, and separate weights for the pulleys adapted to constantly exert a tension upon said connections so as to take up the slack therein, whereby the lever may be readily operated and the slack taken up in the wires, substantially as described.

3. The combination with a suitable support, of an operating-lever pivoted to said support and provided with oppositely-extending arms, pulleys arranged upon said arms, connections having their ends secured to the pulleys and adapted to operate a signal, and separate weights secured to chains depending from said pulleys so as to practically balance each other and adapted to exert a tension upon said connections to take up the slack therein, whereby the lever may be readily operated and the slack taken up in the wires, substantially as described.

4. In a compensator, the combination with a suitable support, of an operating-lever pivoted to said support and provided with oppositely-extending arms, pendent brackets arranged upon said arms, pulleys journaled in said brackets, connections having their ends secured to the pulleys and adapted to operate a signal, chains having one of their ends secured to the pulleys, together with weights secured to the lower ends of said chains so as to practically balance each other and adapted to constantly exert a tension upon the connections so as to take up the slack therein, whereby the lever may be readily operated and the slack taken up in the wires, substantially as described.

5. The combination with a movable body, of an operating-lever, connections between said lever and the body, together with an indicator adapted to be operated by the lever should said body fail to respond to its movements, substantially as described.

6. The combination with a signal, of an operating-lever, connections between said lever and the signal, arms or indicators pivoted to a suitable support convenient to the operating-lever, pulleys carried by the connections, together with wires passing around the pulleys and having their ends secured to said arms and the operating-lever and adapted to be operated by said lever should the signal fail to respond to its movements, substantially as described.

7. In a compensator, the combination with a suitable support, of an operating-lever pivoted to said support, independently-weighted pulleys arranged upon said lever on opposite sides of its pivot so as to practically balance each other, connections secured to said pulleys and adapted to operate a movable body and have the slack therein taken up by said pulleys, together with means for engaging said pulleys to prevent the rotation of the same when the lever is operated to shift the signal, substantially as described.

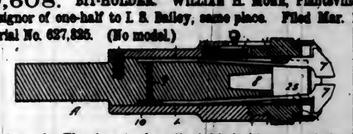
8. In a compensator, the combination with a suitable support, of an operating-lever pivoted to said support, weighted pulleys arranged upon said lever so as to practically balance each other, connections secured to said pulleys and adapted to operate a movable body and have the slack therein taken up by said pulleys, together with brakes slidingly held upon said lever and adapted to directly engage the under surface of the pulleys; said brakes being connected to the lever so as to be simultaneously operated therewith to prevent the rotation of said pulleys when the lever is shifted on its pivot, substantially as described.

589,607. FISHING-TOOL FOR OIL-WELLS. JOHN A. MILLS, Gainesville, Tex. Filed Feb. 23, 1897. Serial No. 624,684. (No model.)



Claim.—A fishing-tool having a head adapted to be introduced into the bore of a drill tube or rod, pivotal clutches mounted upon said head and projecting beyond the sides thereof to engage the inner surface of the tube or rod, and a spring-actuated bar connected to the inner extremities of the clutches and normally holding the latter in their operative positions, substantially as specified.

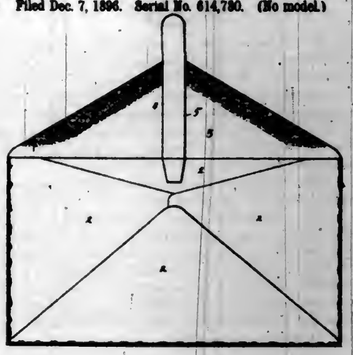
589,608. BIT-HOLDER. WILLIAM H. MOHR, Plantsville, Conn., assignor of one-half to I. S. Bailey, same place. Filed Mar. 16, 1897. Serial No. 627,835. (No model.)



Claim.—1. The herein-described bit-holder, consisting of the head, provided with spring-jaws and shank-receiving socket, the sleeve 10 inclosing the shanks of said jaws and fixed on said head, and the cam-ring surrounding the said jaws and head and having a reduced inner end fitted to and rotating within the outer end of the said sleeve substantially as described.

2. The combination of the head having the shank-receiving socket 8, the spring-jaws 7 secured thereon, the clamping-ring having internal cams, and secured against longitudinal movement upon said head and also provided with ratchet-teeth on its inner end, the sleeve 10 inclosing the shanks of the said jaws and fixed on said head, and a spring-pawl in the outer end of the said sleeve for engaging the ratchet-teeth of the cam-ring, the engaging faces of the said ratchet-teeth and pawl being constructed for permitting the cam-ring to turn freely in the direction to tighten the jaws substantially as described.

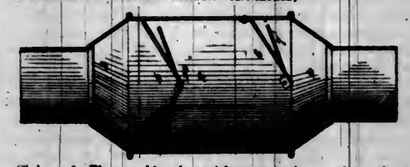
589,609. SAFETY-ENVELOP. MINTA J. MCCONNELL, Smithville, Ga. Filed Dec. 7, 1896. Serial No. 614,780. (No model.)



Claim.—1. In an envelop, a sealing-flap having a gummed locking-tongue adapted to be stuck to the inside of the envelop when said sealing-flap is sealed.

2. In a safety-envelop, a locking-tongue comprising a reinforcing-strip pasted to the sealing-flap and front of the envelop inside the same, and having a free gummed portion adapted to stick to the side and bottom flaps of the envelop when the latter is closed.

589,610. STOVEPIPE. ROBERT MCPHAIL, Brenham, Tex., assignor of one-half to J. F. Schramm and W. Seidel, same place. Filed Feb. 12, 1897. Serial No. 623,145. (No model.)



Claim.—1. The combination with a stovepipe-section, of an inclined segmental deflector arranged therein and provided near its upper edge with an opening, and a damper hinged to the deflector and inclining upward in the opposite direction, substantially as described.

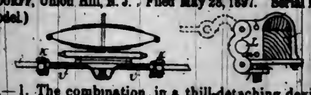
2. A stovepipe-section provided with an inclined deflector arranged at one side thereof, and provided near its upper edge with a slit and having its body portion depressed to form an upper opening, substantially as described.

3. The combination of a stovepipe-section, the upper and lower inclined deflectors located at opposite sides of the stovepipe-section and provided near their upper edges with slits and having their body portions depressed to form openings, and a damper hinged to the upper deflector and inclining in the opposite direction, said damper being provided with a depressed body portion and an opening similar to the deflectors, substantially as described.

589,611. MOWING AND REAPING MACHINE. LEWIS J. MORTENSEN, Highland, Kans. Filed Sept. 9, 1896. Serial No. 605,338. (No model.)

Claim.—In a cutting mechanism for mowing and reaping machines, the combination with a plurality of fingers provided with channels, of flat cutter-knives movable across said fingers, flat lower slides fitting snugly yet easily in the channel so as to be movable therein, said slides being located below the knives, upright pins connecting the slides with the knives, the slide of one knife being independent of the adjacent slide, and links, each consisting of flat strips having both ends bent toward each other and said bent or hooked ends engaging with adjacent pins of adjacent knives.

589,612. HORSE-DETACHER AND WAGON-BRAKE. WILLIAM OSTENDORFF, Union Hill, N. J. Filed May 28, 1897. Serial No. 638,489. (No model.)



Claim.—1. The combination, in a thill-detaching device, of the axle of a vehicle, a pair of thills, provided with cross-bolts in the ends thereof, a pair of clips each consisting of an anteriorly-socketed body portion, provided with a depending, perforated pin, and a detachable, posteriorly-socketed portion, hinged at the upper end to said body portion, and having an eyeleted link hinged to the lower end and adapted to engage with said depending pin, and a locking-pin seated in the perforation in said depending pin, substantially as described.

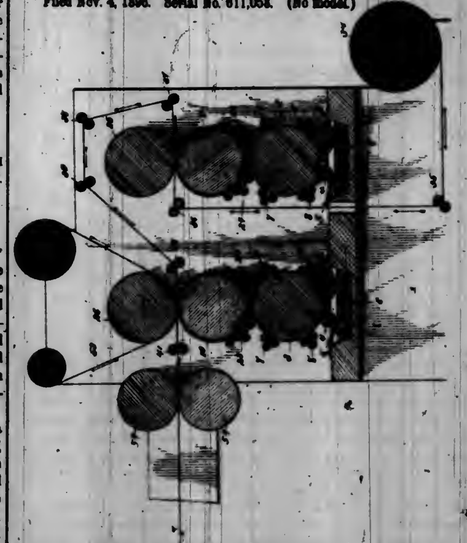
2. The combination, in a thill-detaching device, of the axle of a vehicle, a pair of thills, provided with cross-bolts in the ends thereof, a pair of clips each consisting of an anteriorly-socketed body portion provided with transverse guideways, and a depending, perforated pin, and a detachable, posteriorly-socketed portion, hinged at the upper end to said body portion, and having an eyeleted link hinged to the lower end and adapted to engage with said depending pin, guides sliding in said guideways, and a locking-pin linked to said guides and seated in the perforation in said depending pin, substantially as described.

3. The combination, in a thill-detaching device, of the axle of a vehicle, a pair of thills provided with cross-bolts in the ends thereof, a pair of clips each consisting of an anteriorly-socketed body portion provided with transverse guideways and a depending, perforated pin, and a detachable, posteriorly-socketed portion, hinged at the upper end to said body portion, and having an eyeleted link hinged to the lower end and adapted to engage with said depending pin, guides sliding in said guideways and connected by a vertical shank, a locking-pin linked to the lower end of said shank, and seated in said perforation in said depending pin, a pair of levers each swinging at its outer end upon one of said guide-shanks, and pivoted at its inner end to the other lever, and means for throwing forward the central joint of said levers to withdraw said guides and locking-pins, substantially as described.

4. The combination, in a thill-detaching device, of the axle of a vehicle, a pair of thills provided with cross-bolts in the ends thereof, a pair of clips each consisting of an anteriorly-socketed body portion provided with transverse guideways and a depending perforated pin, and a detachable, posteriorly-socketed portion, hinged at the upper end to said body portion, and having an eyeleted link hinged to the lower end and adapted to engage with said depending pin, guides sliding in said guideways and connected by a vertical shank, a locking-pin linked to the lower end of said shank and seated in said perforation in said depending pin, a pair of levers each swinging at its outer end upon one of said guide-shanks, and pivoted at its inner end to the other lever, at a point in line with the vertical axis of the king-bolt, a connecting-rod and a hand-lever to actuate said rod and throw forward the central joint of said levers to withdraw said guides and locking-pins, substantially as described.

5. The combination, in a thill-detaching device, of the axle of a vehicle, a pair of thills provided with cross-bolts in the ends thereof, a pair of clips each consisting of an anteriorly-socketed body portion provided with transverse guideways and a depending perforated pin, and a detachable, posteriorly-socketed portion, hinged at the upper end to said body portion, and having an eyeleted link hinged to the lower end and adapted to engage with said depending pin, guides sliding in said guideways and connected by a vertical shank, a locking-pin linked to the lower end of said shank and seated in said perforation in said depending pin, a pair of levers each swinging at its outer end upon one of said guide-shanks, and pivoted at its inner end to the other lever at a point in line with the vertical axis of the king-bolt, a connecting-rod, connected at its forward end to said pivoted levers, and at its rear end with brakes adapted to engage with the rear wheels of the vehicle, and a hand-lever to actuate said connecting-rod and throw forward the central joint of said levers to withdraw said guides and locking-pins, and by a continuation of the same movement, to set the brakes, substantially as described.

589,618. PRINTING-MACHINE. JAMES OWENS, Brooklyn, N. Y. Filed Nov. 4, 1896. Serial No. 611,058. (No model.)



Claim.—1. A printing-press, consisting of a suitable frame, form-cylinders journaled therein and adapted to revolve in two directions, means for revolving said cylinders, pressure-cylinders so journaled as to bear against the form-cylinders when the latter are revolving in one direction but be elevated from said cylinders when revolving in

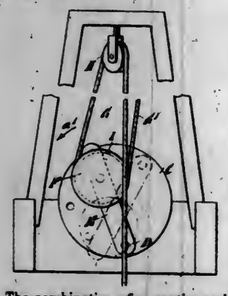
the other direction, means for bringing about these movements of the pressure-cylinders, inking-cylinders arranged beneath the form-cylinders, distributing-rollers bearing upon the inking-cylinders, feed-rollers for transmitting the ink from the inking-fountains to the inking-cylinders, and series of rollers for spreading the ink upon the forms, substantially as and for the purpose set forth.

2. In a printing-press, two form-cylinders journaled within the frame of the machine and adapted to revolve in two directions, gears for revolving said cylinders, a rack-bar for imparting motion to said gears, means for operating the rack-bar, pressure-cylinders also adapted to revolve in two directions, means for raising and lowering the last-named cylinders into and out of contact with the first-named cylinders, inking-cylinders journaled beneath the form-cylinders and adapted to revolve in unison with said form-cylinders ink-rollers extending within the inking-fountains, feed-rollers 4 arranged to bear against the inking-cylinders and also against the ink-rollers so as to draw ink from the inking-fountains and transmit it to the inking-cylinders, rollers 7 and 8 for distributing the ink upon the inking-cylinders when the latter move back and forth, and two series of rollers 23 and 24 arranged to transmit the ink from the inking-cylinders to the forms and evenly spread the same, substantially as and for the purpose set forth.

3. The herein-described combination of a frame, form-cylinders journaled therein, gears carried by said form-cylinders, a train of gears meshing with the first-named gears, a rack-bar adapted to operate the train of gears first in one direction and then in the other, a crank-disk 22 connected by pitman to the rack-bar for reciprocating the same, pressure-cylinders geared to the first-named cylinders so as to revolve in unison therewith, a yoke in which the pressure-cylinders are journaled, a cam carried by the main shaft and adapted to elevate the yoke so as to remove the pressure-cylinders from the form-cylinders at predetermined times, inking-cylinders journaled beneath the form-cylinders, feed-rollers 4, two of which are adapted to bear against each of the inking-cylinders, ink-rollers against which the rollers 4 bear and from which the latter take the ink, distributing-rollers 7 and 8 for spreading the ink uniformly upon the inking-cylinders, rollers 23 and 24 for spreading the ink upon the forms, and means for guiding paper to be printed from a roll over the form-cylinders, all arranged substantially as and for the purpose set forth.

4. In a device of the character described, a frame, form-cylinders journaled therein, gears carried by said form-cylinders, a train of gears meshing with the first-named gears, a rack-bar adapted to operate the train of gears first in one direction and then in the other a crank-disk on the main shaft connected by a pitman to the rack-bar for reciprocating the same, pressure-cylinders geared to the first-named cylinders so as to revolve in unison therewith, a yoke in which the pressure-cylinders are journaled and a cam carried by the main shaft adapted to elevate the yoke so as to remove the pressure-cylinders from the form-cylinders at predetermined times, as and for the purpose described.

589,614. **MECHANICAL MOVEMENT.** SIDNEY M. POLSON, JAMES T. POLSON, and JOHN A. POLSON, Laclede, Mo. Filed Feb. 23, 1896. Serial No. 581,129. (No model.)



Claim.—1. The combination of a continuously-rotating crank-head, an arm pivoted to the face of said crank-head at one side of the center, and a stop fixed to the face of the said crank-head and adapted to engage the said arm at a predetermined point in each revolution, substantially as described.

2. The combination of a continuously-rotating crank-head, an arm pivoted on the crank-head face at one side of the center, and a stop fixed to the crank-head face at or near the opposite side and adapted to engage the free end of said arm once in each revolution and carry it around until it passes over its pivotal center and drops forward, producing an alternate lift-and-drop motion while the crank-head is being rotated continuously in one direction, substantially as described.

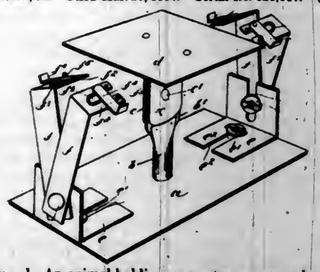
3. In combination with a crank-head, and means for rotating it continuously, an arm pivotally connected to said crank-head at one side of the center, a sheave pivoted on the said arm, and a stop adapted to engage the free end of the said arm at a predetermined point in each revolution and to carry it around until it passes over its pivoted center and drops forward, substantially as and for the purpose set forth.

4. A mechanical movement, comprising a rope-carrying arm, a crank-disk having a wrist-pin on which said arm is fulcrumed, and a second wrist-pin adapted to form a rest for said arm, substantially as shown and described.

5. A mechanical movement, comprising a crank-disk having two wrist-pins located opposite one another, an arm fulcrumed on one of said wrist-pins and adapted to rest on the other wrist-pin, and a rope-receiving sheave held on the free end of said arm, substantially as shown and described.

6. A mechanical movement, comprising a crank-disk having two wrist-pins located opposite one another, an arm fulcrumed on one of said wrist-pins and adapted to rest on the other wrist-pin, a sheave held on the free end of said arm, a second sheave suspended above said disk, and a rope adapted for carrying a tool and passing over said sheaves, as set forth.

589,615. **ANIMAL-HOLDING APPARATUS.** JOHN RALSTON, Slippery Rock, Pa. Filed Mar. 29, 1897. Serial No. 629,687. (No model.)



Claim.—1. An animal-holding apparatus, having a base, a stub shaft standing on the base, a hollow column revolubly inclosing the stub-shaft, a table pivotally supported by the hollow column, arms pivotally mounted on the base-plate, and means carried by the arms, whereby the legs of the animal are held.

2. An animal-holding apparatus, having a base-plate, a table mounted on the base-plate, an angle-plate adjustable on the base-plate, an arm adjustably pivoted on the angle-plate, and means carried by the arm and capable of holding one leg of the animal.

3. An animal-holding apparatus having a base-plate, a ratchet-plate mounted to turn on the base-plate, a table, a plate pivoted to the ratchet-plate and fixed to the table, and a pawl carried by the table and engaging the ratchet-plate.

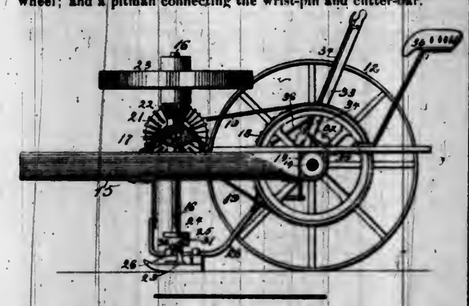
4. An animal-holding apparatus having a base-plate, a slotted angle-plate carried on the base-plate, a pivot adjustable in the slot of the angle-plate, an arm swinging on the pivot, and means on the arm for holding one leg of an animal.

5. An animal-holding apparatus having a base-plate, two pivotally-mounted arms supported on the base-plate, and holding devices respectively carried by the arms and adapted to hold two legs of an animal, whereby the legs may be moved toward and from each other by the adjustment of the arms on their pivot.

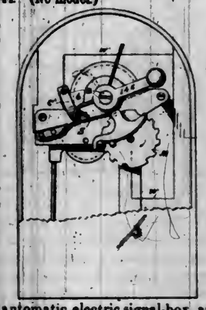
6. The combination of a base, a column standing on the base, a table supported by the column, two angle-plates adjustable on the base and respectively arranged at the sides of the table, and two arms pivoted to each angle-plate, the arms of each angle-plate swinging on a common center and each arm being capable of holding the leg of an animal.

589,616. **MOWER.** LEWIS J. RING, Stanton, Iowa. Filed Nov. 6, 1896. Serial No. 611,306. (No model.)

Claim.—An apparatus for mowing comprising the following elements in combination: traction-wheels; an axle-shaft in and rigidly connected with the traction-wheels; a sleeve on the axle-shaft; a frame loosely mounted on the axle-shaft; a segmental rack on the frame; a lever mounted rigidly on the sleeve; a pawl on the lever and engaging the segmental rack; a hanger hinged to the frame; a cutter-bar mounted on the hanger; a cable fixed at its rearward end to the lever, extended over the frame and fixed at its front end to the hanger; a sheave on the frame in front of the lever, through which sheave the bight of the cable runs; a shaft 17 horizontally mounted on and above the frame in front of and parallel to the axle-shaft; a sprocket-wheel rigidly mounted on the axle-shaft; a sprocket-wheel rigidly mounted on the shaft 17; a sprocket-chain connecting said sprocket-wheels; a shaft 16 vertically positioned in the frame at right angles to the shaft 17; intermeshing bevel-gears on the shafts 16, 17; a balance-wheel on the upper end of the shaft 16; a wrist-wheel on the lower end of the shaft 16; a wrist-pin on the wrist-wheel; and a pitman connecting the wrist-pin and cutter-bar.

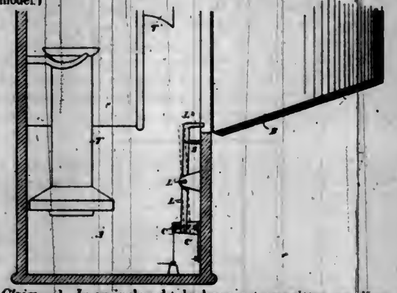


589,617. **SIGNAL-BOX.** ARTHUR C. ROBBINS, San Francisco, Cal., assignor to Edward C. Hughes, same place. Filed Mar. 26, 1897. Serial No. 629,344. (No model.)



Claim.—In an automatic electric signal-box, and in combination with operating mechanism, a spring-plate secured to the box independent of said mechanism, a brush with which said spring-plate normally contacts, a lever connected with the mechanism and adapted to hold the spring-plate in normal contact with the brush and the wires leading to the spring-plate, brush and clock-work whereby the electric current is transmitted through the plate and brush and independently of the operating mechanism, or any part thereof, when the said mechanism is in a normal or rest position, and is shunted through the operating mechanism when the latter is placed in operative condition.

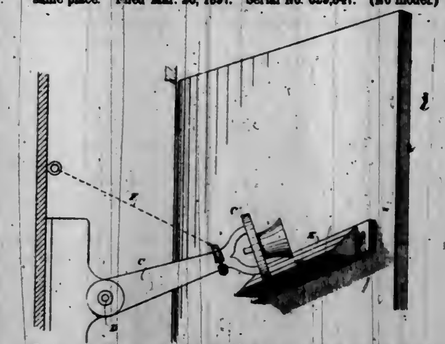
589,618. **ELECTRIC SWITCH AND CUT-OUT FOR TELEPHONE-BOXES.** ARTHUR C. ROBBINS, San Francisco, Cal., assignor to Edward C. Hughes, same place. Filed Mar. 26, 1897. Serial No. 629,345. (No model.)



Claim.—1. In an inclosed telephone, a transmitter, receiver, and local battery with induction-coil and connecting-wires, a door attached and opening to expose the interior of the inclosing box, contacts and a lever fulcrumed between its ends, having one portion bent into the path of the door so as to be actuated thereby and the opposite portion having the contacts on its opposite sides whereby when one contact is made, the telephone apparatus is thrown into the circuit, and when this is broken and the other made the current is shunted around said apparatus.

2. In an inclosed telephone, a transmitter, receiver, and local battery with inductive coil and connecting-wires, a door attached and opening to expose the interior of the inclosing box, contacts whereby when one contact is made, the telephonic apparatus is thrown into the circuit, and when this is broken and the other is made, the current is shunted around said apparatus, and a mechanism consisting of a fulcrumed lever automatically operated when the door is opened to throw the telephonic apparatus into the circuit by making one and breaking the other of the contacts, and correspondingly operated when the door is closed to reverse the movement of the contacts and shunt the current around the telephone apparatus.

589,619. **TELEPHONE-TRANSMITTER FOR SIGNAL-BOXES.** ARTHUR C. ROBBINS, San Francisco, Cal., assignor to Edward C. Hughes, same place. Filed Mar. 26, 1897. Serial No. 629,347. (No model.)



Claim.—1. The combination with a box having an outwardly-opening door and a transmitter hinged or pivoted therein, of a lug or cleat adapted to contact with and raise the outer end of the transmitter by the closing of the door.

2. A box having an outwardly-opening door, a telephone-transmitter arm hinged or pivoted within the box adapted to fall into position for use by gravitation or otherwise when the door is opened, and an attachment whereby the act of closing the door operates to raise the transmitter and close it within the box.

3. A box having an outwardly-opening door, a telephonic transmitter hinged or pivoted within the box and adapted to be raised to an approximately vertical position or to drop by gravitation into position for use, a flexible chain or connection whereby the limit of the drop is regulated and an attachment adapted to contact with the head of the transmitter when the door is closed, whereby the transmitter is raised and folded into the box by said closure.

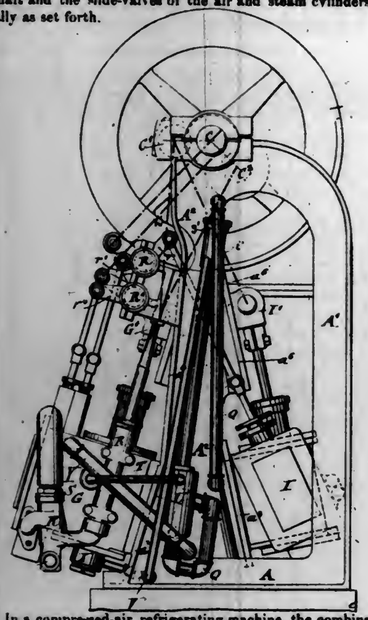
589,620. **COMPRESSED-AIR REFRIGERATING-MACHINE.** HUGO B. ROELKER, New York, N. Y. Filed Dec. 24, 1896. Serial No. 616,836. (No model.)

Claim.—1. In a compressed-air refrigerating-machine, the combination of air compressing and expanding cylinders arranged alongside of each other at one side of the machine, a steam-cylinder arranged at the other side of the machine, the air-cylinders and the steam-cylinder being arranged at an angle of twenty-five to fifty degrees toward each other, a crank-shaft supported above the cylinders and two cranks on said crank-shaft arranged at an angle of one hundred and twenty to one hundred and fifty degrees toward each other, one crank being linked to the piston-rod of the air-expanding cylinder and the other to the piston-rods of the steam and air compressing cylinders, substantially as set forth.

2. In a compressed-air refrigerating-machine, the combination of an air-compressing and an expanding cylinder and a steam-cylinder arranged on an upright frame, a crank-shaft supported above said cylinders, three crank-pins on said crank-shaft, one connected with the connecting-rod of the air-expanding cylinder and the other two with the connecting-rods of the steam and air compressing cylinders, said crank-shaft being supported in journal-bearings of the supporting-frame outside of said cranks, substantially as set forth.

3. In a compressed-air refrigerating-machine, the combination, with an upright supporting-frame, of air compressing and expanding cylinders arranged at one side, and a steam-cylinder arranged at the other side of said frame, the two air-cylinders being supported at a suitable angle of inclination toward the steam-cylinder, a crank-shaft supported above the air and steam cylinders, an eccentric on said crank-shaft, a rock-shaft operated by said eccentric on said crank-shaft, and connecting-rods between the rock-shaft and the slide-valves of the air and steam cylinders, substantially as set forth.

4. In a compressed-air refrigerating-machine, the combination, with an upright supporting-frame, of air compressing and expanding cylinders arranged at one side, and a steam-cylinder arranged at the other side of said frame, the two air-cylinders being supported at a suitable angle of inclination toward the steam-cylinder, and the valve-face of the air-cylinders located at right angles to the valve-face of the steam-cylinders, a crank-shaft supported above the air and steam cylinders, an eccentric on said crank-shaft, a rock-shaft operated by said eccentric on said crank-shaft, and connecting-rods between the rock-shaft and the slide-valves of the air and steam cylinders, substantially as set forth.



5. In a compressed-air refrigerating-machine, the combination, with an upright supporting-frame, of an air-compressing, an air-expanding and a steam cylinder, a crank-shaft supported above said cylinders and provided with three crank-pins, one for the connecting-rod of the air-expanding cylinder and the other two for the connecting-rods of the steam and air compressing cylinders, two eccentrics on said crank-shaft, two rock-shafts operated by said eccentrics, and connecting-rods between the main and top slide-valves of the three cylinders so that said slide-valves are operated by two rock-shafts only, substantially as set forth.

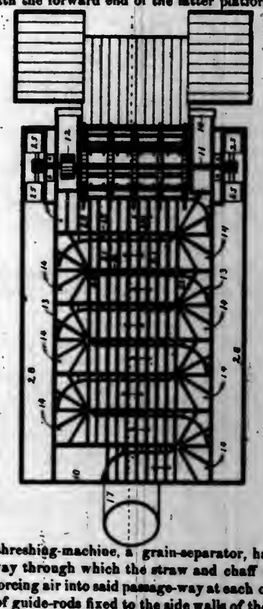
589,621. GRAIN-SEPARATOR. JAMES W. RUSSELL, Newton, Iowa. Filed Feb. 19, 1897. Serial No. 624,137. (No model.)

Claim.—1. In a grain-separator, the combination with a threshing device, of a tortuous passage-way extending transversely of the machine and leading to a point of discharge, means for producing an air-blast, and discharging said air-blast into the passage-way at each turn or bend thereof, and a bottom in said passage-way through which grain may pass.

2. In a grain-separator, the combination of a threshing device, a passage-way leading therefrom to a point of discharge, and having a number of bends or turns therein, a slatted bottom in said passage-way, arranged as shown and described, a means for producing an air-blast, and for discharging said air-blast into the passage-way at each turn or bend thereof, for the purposes stated.

3. In a grain-separator, the combination of a threshing device, a passage-way extending therefrom backwardly and forwardly transversely of the machine, a bottom in said passage-way, composed of slats arranged as shown and described, guide-bars arranged in said passage-way as shown and described, a fan at each side of the machine, means for operating said fans, and conduits leading from said fans, and opening into the said passage-ways at each of the bends or turns therein, substantially as and for the purposes stated.

4. In a grain-separator, the combination of a threshing device, a passage-way extending therefrom backwardly and forwardly transversely of the machine, a bottom in said passage-way, composed of slats arranged as shown and described, guide-bars arranged in said passage-way as shown and described, a fan at each side of the machine, means for operating said fans, and conduits leading from said fans, and opening into the said passage-ways at each of the bends or turns therein, an endless conveyer arranged to travel in an approximately horizontal plane beneath the said passage-way, a platform under the upper part of said endless conveyer, to extend from a point beneath the threshing device to a point near the rear end portion of the machine, another platform beneath the rear end of the under part of the endless conveyer, to extend from the rear end of the machine forwardly, means for operating said conveyer, and a sieve located beneath the forward end of the latter platform.



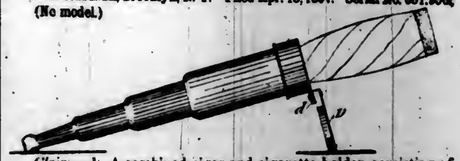
5. In a threshing-machine, a grain-separator, having a tortuous passage-way through which the straw and chaff must pass, and a device for forcing air into said passage-way at each of its turns, the combination of guide-rods fixed to the side walls of the passage-way, and supported at some distance therefrom, and curved around the corners of said passage-way, substantially as and for the purposes stated.

589,622. REIN-HOLDER. LOUIS M. SCHULZ, Edgerton, Kans. Filed Feb. 5, 1897. Serial No. 622,144. (No model.)



Claim.—The combination of a whip-socket, the lugs integral with the socket and the yokes therefor adapted to embrace the dash-rail, lateral arm 3 integral to the said socket and provided with vertical parallel jaws having rabbeted seats 5, a lever with a head adapted to enter between the jaws and provided with beads 12 at its sides adapted to rest in the rabbets 5, a pivot securing the said lever in its correlation to the jaws, a foot-plate 9 at the end of the said lever, and a spring adapted to engage the said head with the said jaws, substantially as described.

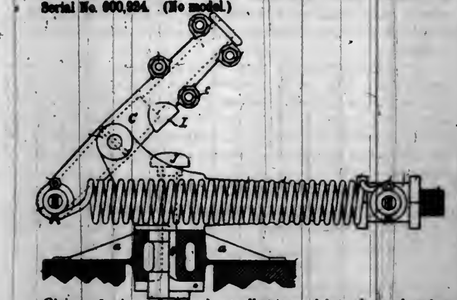
589,623. COMBINED CIGAR AND CIGARETTE HOLDER. ALOIS SEIDENSPINNER, Brooklyn, N. Y. Filed Apr. 13, 1897. Serial No. 631,959. (No model.)



Claim.—1. A combined cigar and cigarette holder, consisting of a large section provided with a tapering socket for receiving a cigar, a smaller section provided with a mouthpiece and having a tapering end socket for receiving a cigarette when detached, an interior shoulder at the inside of the large section for receiving the end of the smaller section, and washers arranged in the large and smaller sections and prepared so as to form a nicotine-absorber, substantially as set forth.

2. The combination with a cigar-holder, of a combined support and protector, consisting of a split ring, an incombustible cap pivoted to the same, and a tip-cutting device pivoted to the said split ring, substantially as set forth.

589,624. UNDERRUNNING TROLLEY FOR ELECTRIC RAILWAYS. SIDNEY H. SHORT, Cleveland, Ohio. Filed July 29, 1896. Serial No. 600,894. (No model.)



Claim.—1. An underrunning trolley comprising a base-plate having a central hub, a casting arranged to be seated in said hub, a trolley-pole carried by said casting, said trolley-pole being pivotally mounted to swing vertically, a movable lock for normally locking said hub and casting against relative rotation, said lock arranged in the path of vertical swing of said trolley-pole, whereby, when said pole is depressed, said lock is encountered thereby and disengaged from locking position, thereby permitting said casting to rotate in its seat in said hub, and an elongated contact-roller carried by said trolley-pole, as and for the purpose set forth.

2. In an underrunning trolley, a base-plate provided with a central hub, a casting having a sleeve arranged to be received in said hub, a trolley-pole pivotally mounted on said casting to swing vertically, a movable bolt arranged in said sleeve and normally engaging said hub, whereby said sleeve is locked against axial rotation in said hub, said bolt arranged in the path of vertical movement of said pole, whereby, when said pole is depressed, said bolt is engaged thereby and depressed out of locking position, and an elongated contact-roller carried by said trolley-pole, as and for the purpose set forth.

3. In an underrunning trolley, a base-plate provided with a central hub, a casting arranged to be seated in said hub, a trolley-pole pivotally mounted on said casting to swing vertically thereon, a longitudinally-movable bolt mounted on said casting and in the path of vertical swing of said pole, a spring normally acting to maintain said bolt in position to lock said casting against rotation in said hub, whereby, when said pole is depressed, said bolt is engaged thereby and projected against the action of said spring to unlock said casting, and an elongated contact-roller carried by said pole, as and for the purpose set forth.

4. In an underrunning trolley, a base-plate provided with a central hub having a seat or recess formed in the under edge thereof, a casting arranged to be seated in said hub, a bolt mounted in said casting and having a bent lower end, a spring arranged to normally maintain said bolt in position for the bent end thereof to be seated in said recess, a trolley-pole pivotally mounted on said casting to swing vertically, said bolt arranged in the path of vertical swing of said pole, whereby, when said pole is depressed, said bolt is engaged thereby and projected against the action of said spring in a direction to disengage the locked end thereof from the seat in said hub, and an elongated contact-roller carried by said pole, as and for the purpose set forth.

5. In an underrunning trolley, a base-plate provided with a central hub, an arm having a projection adapted to be received and seated in said hub, a socket pivotally mounted on said arm to swing in a vertical plane, a cross-head carried by the lower end of said socket, a bar adjustably mounted on said arm, springs respectively connected at the ends thereof to said bar and cross-head and normally acting to maintain said socket in vertical position, a lock arranged in the path of vertical movement of said socket and adapted to lock said projection against rotation in said hub, whereby, when said socket is depressed, said lock is engaged thereby and unseated, a trolley-pole mounted in said socket and an elongated contact-roller carried in the free end of said arm, as and for the purpose set forth.

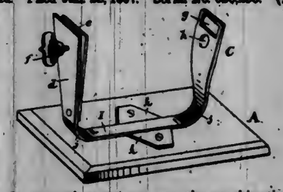
589,625. AXLE-BOX BEARING. WILLIAM B. SMITH, New York, N. Y. Filed Mar. 10, 1897. Serial No. 626,702. (No model.)

Claim.—1. The combination with the bearing-sections, the one provided with a convex surface and the other with a concave surface adapted to conform to and seat upon the said convex surface of the other, of a safety-stop fixed to and uprising from the convex surface of one of the sections, the other of said bearing-sections being provided with a recess in its concave surface to receive the stop on the other section, the said stop being sufficiently smaller than the recess in which it seats to permit the sections to rock relatively to each other in a horizontal plane, substantially as set forth.



2. The combination with the bearing-sections, the one provided with a convex surface and the other with a concave surface adapted to conform to and seat upon the said convex surface of the other, of a safety-stop uprising from the convex surface of the bearing-section, said stop being elongated and gradually narrowed in width from its opposite ends toward its central portion, the other of said bearing-sections being provided with a correspondingly-shaped recess in its curved face for the reception of said stop, the said recess being somewhat larger than the stop to permit a limited rocking of the sections relatively to each other in a horizontal plane, substantially as set forth.

589,626. SCISSORS-SHARPENER. JOSEPH P. SOLLERS, Baltimore, Md. Filed Jan. 22, 1897. Serial No. 620,295. (No model.)



Claim.—1. In a scissors-sharpener, the combination of a clamp-standard; a guide-standard having an opening; a base supporting said two parts; and a file-holder having three detachable parts—a rod end provided with a ring-shoulder and adapted to hold one end of a file, a handle to hold the other end of a file, and a union-bar having at one end a collar which surrounds the rod end and bears against the said ring-shoulder and whose other end is attached to the handle, as set forth.

2. The combination of a rod end, s, provided with a ring-shoulder; a handle; a union-bar having at one end a collar which surrounds the said rod end and bears against the shoulder and having its other end attached to the handle; and a file one end of which is held in the rod end and the other end in the handle, as set forth.

3. The combination of a rod end, s, provided with a ring-shoulder; a handle; a union-bar having at one end a collar which surrounds the said rod end and bears against the shoulder and having its other end attached to the handle, and provided with two longitudinal parallel flanges forming a channel; a whetstone clamped between the said two flanges; and a file one end of which is held in the rod end and the other end in the handle, as set forth.

589,627. ENDLESS-BELT ORE-CONCENTRATOR. AMOS G. SPRINGER, San Francisco, Cal. Filed Oct. 21, 1896. Serial No. 609,544. (No model.)

Claim.—1. In an ore-concentrator, and in combination with the bed-frame and shaking belt-frame thereof, the supporting-standards having their extremities convex or half-round, bearings upon the bed-frame and shaking belt-frame having concaved recesses in which the convex extremities of the standards fit and rock, and a means for vertically adjusting one pair of said supporting-standards, to vary the inclination of the shaking belt-frame, consisting of the vertically-disposed guides on the inner sides of the base-frame, bearing movable in said guides, and having depending racks, and the rotatable shaft in the bed-frame having pinions engaging with said racks.

2. In an ore-concentrator, and in combination with the bed-frame and shaking belt-frame thereof, the supporting-standards having end castings with their extremities convex or half-round, bearings upon the bed-frame and shaking belt-frame having concaved recesses in which the convex extremities of the standards fit and rock, and a means for vertically adjusting one pair of said supporting-standards, to vary the inclination of the shaking belt-frame, consisting of the vertically-disposed guides on the inner sides of the base-

frame, bearings movable in said guides, and having depending racks, the rotatable shaft in the bed-frame having pinions engaging with said racks, and a pawl and ratchet for holding the shaft where adjusted.



3. In an ore-concentrator, having a fixed bed-frame and a shaking belt-carrying frame provided with a head-drum for causing the travel of the belt, the means for rotating said drum, consisting of a shaft mounted upon the shaking belt-frame and having a worm engaging with a gear on the drum, a series of pulleys of different diameters on said worm-shaft, a driving-shaft on the fixed bed-frame and a series of pulleys of different diameters on said shaft, a flexible driving-belt extending between said pulleys, and means for tightening said belt and holding it in proper position, consisting of tightener-pulleys, a weighted lever carrying said pulleys between its ends and pivotally connected, at one extremity, by a link with the bed-frame, and means for holding the lever in position where adjusted.

4. In an ore-concentrator, having a fixed bed-frame and a shaking belt-carrying frame provided with a head-drum for causing the travel of the belt, the means for rotating said drum consisting of a shaft mounted upon the shaking belt-frame and having a worm engaging with a gear on the drum, a series of pulleys of different diameters on said worm-shaft, a driving-shaft on the fixed bed-frame and a series of pulleys of different diameters on said shaft, a flexible driving-belt extending between said pulleys, and means for tightening said belt and holding it in proper position, consisting of tightener-pulleys, a weighted lever carrying said pulleys between its ends and pivotally connected, at one extremity, by a link with the bed-frame, a removable pin adapted to fit in any of a series of holes in said lever, and a fixed vertically-disposed bar forming a stop against which said pin bears, whereby the lever may be moved and held where adjusted.

5. In an ore-concentrator, a concentrating-belt, independent side strips fastened removably by lines of stitching to said belt, and side flanges of rubber vulcanized to said side strips.

6. In an ore-concentrator, a concentrating-belt having independent side strips of canvas or like fabric removably secured thereto by lines of stitching, and rubber flanges vulcanized to said side strips.

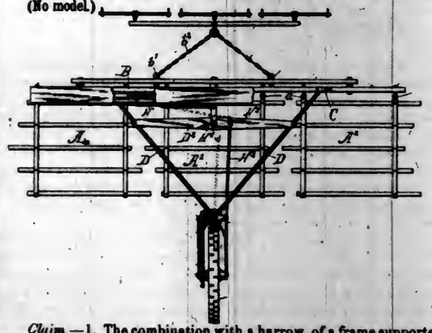
7. In an ore-concentrator, a concentrating-belt made of canvas or like fabric and having independent side strips of canvas or like fabric removably secured thereto and rubber side flanges vulcanized to said side strips.

8. In an ore-concentrator, a pulp-distributer therefor consisting of a centrally-located hopper, oppositely-extending inclined chutes with which said hopper communicates, longitudinal partitions of varying lengths dividing said chutes into parallel longitudinal runs of different lengths, gates for controlling the communication between the hopper and said runs, openings in the chutes at the ends of said runs, an underlying box or casing provided with parallel cross runs adapted to receive the material from the openings in the chutes, discharge-holes from each of said cross runs, and apertured troughs lying over the belt and communicating with said holes, said troughs being independent of each other and separately and removably secured to the box or casing.

9. In an ore-concentrator, a pulp-distributer therefor, consisting of a centrally-located hopper, a receiving-chamber under said hopper, oppositely-extending inclined chutes communicating with said chamber over the tops of its end walls, longitudinal runs of different lengths in said chutes, gates controlling said runs and openings at the ends of the runs, an underlying box with parallel cross runs adapted to receive the material from said chute-openings and having discharge-holes in the front walls of the box, independent and endwise removable apertured troughs lying over the belt and communicating with said holes, front passages communicating with the front of the central chamber, gates controlling said passages and openings by which the passages discharge into the central pair of the series of troughs.

10. In an ore-concentrator and in combination with a concentrating-belt having side flanges with enlarged bases, the underlying guide-rollers having end gudgeons and the independently-rotatable tapering end pieces abutting against said roller ends and having hollow stems fitting freely upon said gudgeons, said side flanges of the belt adapted to engage the rotatable end pieces, substantially as herein described.

589,628. SEEDER ATTACHMENT FOR HARROWS. FREDERICK H. STORM, Preston, Iowa. Filed Sept. 28, 1896. Serial No. 607,169. (No model.)



Claim.—1. The combination with a harrow, of a frame supported from and above the harrow, a seedbox provided with grain-dropping mechanism, mounted upon said frame transversely of the harrow, a drive-wheel having swiveling connection with the frame to permit it to accommodate itself to the direction of travel of the harrow, and flexible operative connections between the wheel and dropping mechanism, permitting caster action of the wheel without ungearing said driving connections.

2. The combination with a harrow, composed of a plurality of floating sections, of a connecting-bar with which the several sections are flexibly connected, a frame attached at its front to said connecting-bar and supported at its rear by means of a trailer-wheel, a seedbox mounted upon said frame transversely of the harrow and provided with grain-dropping mechanism and flexible operative connections between the wheel and grain-dropping mechanism, whereby the wheel is permitted to have caster action without ungearing the dropping mechanism and the grain will be sown as the harrow is drawn along.

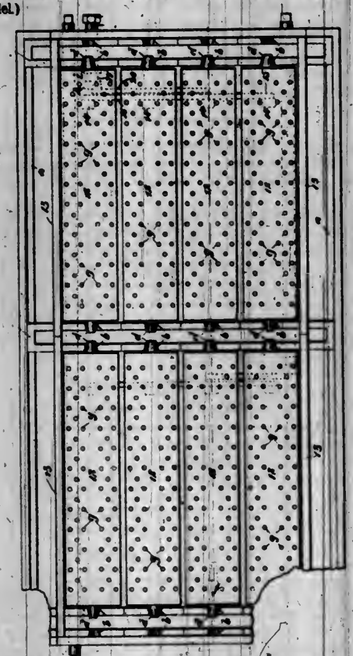
3. The combination with a harrow composed of a plurality of floating sections, of a connecting-bar with which the several sections are flexibly connected, a frame comprising standards rising from said connecting-bar, horizontal frame members connected with the upper ends of said standards and converging rearwardly, a yoke-frame with which the converging ends of said horizontal frame members are connected, a drive-wheel mounted between the ends of said yoke-frame, an upright drive-shaft journaled in the yoke-frame, operative connections between the drive-wheel and the drive-shaft whereby the latter is rotated as the wheel traverses the ground, a seedbox mounted upon said supporting-frame so as to extend transversely of the harrow and provided with dropping mechanism and operative connections between said drive-shaft and the dropping mechanism of the seedbox.

4. The combination with a harrow composed of a plurality of floating sections, of a connecting-bar with which the several sections are flexibly connected, a frame comprising standards rising from said connecting-bar, horizontal frame members connected with the upper ends of said standards and converging rearwardly, a yoke-frame with which the converging ends of said horizontal frame members are connected, a drive-wheel mounted between the ends of said yoke-frame, an upright drive-shaft journaled in the yoke-frame, operative connections between the drive-wheel and the drive-shaft whereby the latter is rotated as the wheel traverses the ground, a seedbox mounted upon said supporting-frame so as to extend transversely of the harrow and provided with dropping mechanism embracing a reciprocatory dropping-bar arranged to cooperate with seed-outlets in the bottom of the seedbox and operative connections between said dropping-bar and the vertical drive-shaft, comprising a crank-arm mounted upon the drive-shaft, a bell-crank lever mounted upon the frame between the seedbox and drive-shaft and operating-rods connecting the arms of said bell-crank lever with the crank-arm and with the dropping-bar respectively.

5. The combination with a harrow, of a seeding attachment comprising a seedbox and a carrying-frame for supporting the latter supported at its front part from the harrow and at its rear by means of a trailer-wheel having swiveling connections with said frame, and flexible operative connections between the seed-dropping mechanism and the trailer-wheel, arranged to permit free movement of said wheel without ungearing the driving mechanism.

6. The combination with a harrow of a seeding attachment, comprising a seedbox provided with dropping mechanism and a carrying-frame for supporting the latter supported at its front part from the harrow and at its rear by means of a drive-wheel arranged to trail behind the harrow and having swiveled connection with said frame, operative connections between said drive-wheel and dropping mechanism and means for throwing said connections out of gear, arranged upon the rear part of the carrying-frame accessible to the operator walking behind the harrow.

589,629. GRATE-BAR AND SHAKER THEREFOR. ABRAHAM STROH, Freeland, Pa. Filed Sept. 23, 1896. Serial No. 606,695. (No model.)



Claim.—1. A furnace-grate, comprising a frame having inwardly-projecting ledges upon opposite sides, grate-carrying bars supported by and movable on said ledger, and spacing-bars adapted to hold the grate-carrying bars in their adjusted positions, substantially as described.

2. A furnace-grate, comprising a frame having inwardly-projecting ledges upon opposite sides, grate-carrying bars supported by and movable on said ledges, spacing-bars adapted to hold the grate-carrying bars in their adjusted positions, and grate-bars having coniform end journals, said grate-carrying bars having bearings therefor of a similar shape, substantially as described.

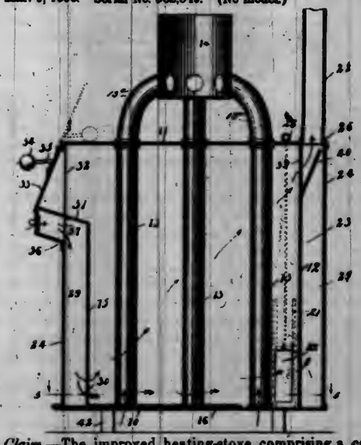
3. A furnace-grate, comprising a frame having inwardly-projecting ledges upon opposite sides, grate-carrying bars supported by and movable on said ledges, spacing-bars adapted to hold the grate-carrying bars in their adjusted positions, and grate-bars having a projecting pivot and transverse flange at each end, the lower edge of the flange being concentric with the pivots and the grate-carrying bars having notches forming bearings for said pivots, substantially as described.

4. A furnace-grate, comprising a frame having inwardly-projecting ledges upon opposite sides, grate-carrying bars supported by and movable on said ledges, spacing-bars adapted to hold the grate-carrying bars in their adjusted positions, grate-bars having coniform projecting end journals, said grate-carrying bars having bearings therefor of a similar shape, and means for rocking the grate-bars upon their pivots, substantially as described.

5. The combination with a bearing-frame, and transversely-disposed carrying-bars thereon, which are top-channeled to provide parallel flanges thereon, of spacing-bars which are notched near their ends, and thus adapted to hook upon the carrier-bar flanges and hold said bars spaced apart, as specified.

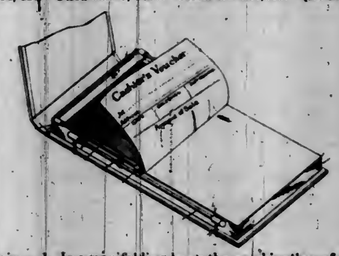
589,630. WITHDRAWN.

589,631. STOVE. CHAUNCEY T. ANDREAS, Bayfield, Wis. Filed Mar. 9, 1896. Serial No. 582,349. (No model.)



Claim.—The improved heating-stove, comprising a casing, two series of vertical air-flues arranged opposite each other within said casing, the rear vertical outlet-flue 25, having the two lateral openings 22, at the bottom, and the central opening 26, at the top, the central air-inlet, or flue, 29, arranged at the front, within the casing, and extending down to the bottom of the combustion-chamber, as shown and described, to operate as specified.

589,632. MANIFOLDING-BOOK. WILLIAM ASHETON, Baltimore, Md. Filed Jan. 5, 1897. Serial No. 617,995. (No model.)



Claim.—1. In a manifolding-book the combination of the leaves bound or fastened at one end; the cover or back; a rod extending longitudinally along one side edge of the leaves and mounted on arms secured to said cover or back; and a carbon-paper holder hinged to and also sliding along said rod, as set forth.

2. In a manifolding-book the combination of the leaves bound or fastened at one end; the cover or back; a rod extending longitudinally along one side edge of the leaves and mounted on arms secured to said cover or back; and which have a tilting or inclining movement; and a carbon-paper holder hinged to and also sliding along said rod, as set forth.

3. In a manifolding-book the combination of the cover or back; a rod mounted at its ends to said back at one side edge thereof so as to extend parallel with the side edges of the leaves; and a rectangular carbon-paper holder hinged by one side on said rod so as to allow the opposite side of said holder to tilt up.

4. The combination of a rod; a rectangular frame carbon-paper holder having at one end two parallel cross-bars both fixed, and at the opposite end one fixed cross-bar provided at one of its ends with a hook, and a second cross-bar one end of which is pivoted so as to swing and permit its free end to engage said hook and thus clamp the carbon-paper between the fixed bar and swinging bar: and hinges connecting the said frame to the rod, as set forth.

5. The combination in a manifolding-tablet, of a back; a rod mounted on arms which are pivoted or jointed to said back, said rod being parallel with the side edges of the leaves and capable of lowering as the leaves are detached, so as to maintain the same relation with respect to the topmost leaf without regard to the number of leaves in the tablet: and a carbon-paper carrier hinged by one of its sides on said rod.

589,633. CURTAIN-FIXTURE. JOHN M. BARNARD and JACOB P. RUPPERT, Mooeow Mills, Md. Filed Oct. 24, 1896. Serial No. 609,908. (No model.)



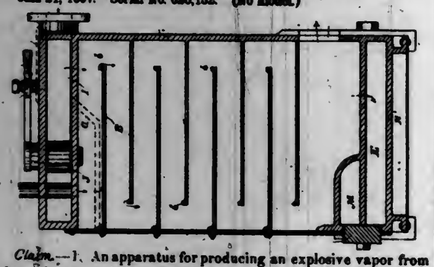
Claim.—1. In a curtain-fixture, the combination with the pole, of the curtain-supporting arms pivoted to the pole at the ends, said arms being grooved upon the outer faces, and a wire attached to each arm located in the groove and adapted to secure the curtains, substantially as shown anddescribed.

2. In a curtain-fixture, the combination with the pole, of the supporting-arms grooved as described, and the wire hooked at their inner ends to fit the end of arm and threaded at their outer ends and adapted to receive a tension-nut, substantially as shown and described.

3. In a curtain-fixture, the combination with the pole, of the curtain-supporting arms constructed as described and pivoted to the ends of the pole, the bracket-arm rigidly attached to the pole provided with a rest and stop at the inner end, and the integral eyes at both the inner and outer ends, the pull-cords and the eyes upon the ends of the pole all arranged and adapted to operate, substantially as shown and described.

4. In the curtain-fixture, the combination with the brackets A, having the recesses A' and A², of the pole seated in the recess A', set-screws for securing said pole in place, the curtain-supporting arms pivoted to the pole near the ends of the same, the central bracket-arm rigidly attached to the pole and having a stop and rest at the inner end, the integral guide-eyes, the draw-cords and the guide-eyes arranged upon the end of the pole, substantially as shown and described.

589,634. CARBURETER. DANIEL BEST, San Leandro, Cal. Filed Jan. 21, 1897. Serial No. 620,132. (No model.)



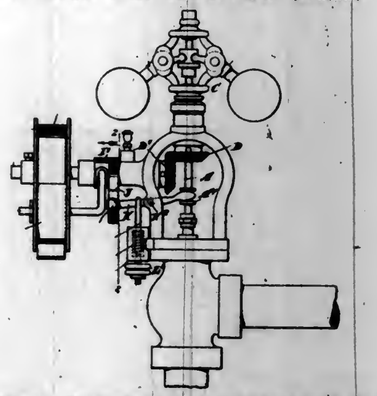
Claim.—1. An apparatus for producing an explosive vapor from hydrocarbons, consisting of a rectangular chamber having trays or shelves extending from side to side in one direction and having openings or passages at alternate ends in a direction at right angles thereto, a passage by which hydrocarbon oil is admitted upon the uppermost of the trays, an exterior passage extending continuously down upon the two sides of the chamber against which the sides of the trays abut and beneath the bottom of the chamber, having one end in communication with the exhaust from the engine and the opposite end communicating with the interior of said chamber whereby the liquid and air will move in the same direction from top to bottom of the apparatus and a passage at the bottom through which the vapor is withdrawn.

2. An apparatus for producing an explosive vapor from hydrocarbons, consisting of a rectangular chamber having trays or shelves, with passages that alternate at opposite ends, a passage by which hydrocarbon oil is admitted upon the uppermost of the trays, a continuous passage surrounding the chamber on two of its sides and bottom, said passage communicating at one of said sides with the exhaust from the engine and at the opposite side with the interior of the chamber, whereby the hot products from the engine are carried around the vaporizing-chamber and are then delivered into the same to mix with the liquid, and a passage below the lowermost tray from which the mingled air and vapor are withdrawn.

3. An apparatus for producing an explosive vapor consisting of a rectangular chamber having shelves or trays with passages that alternate at opposite ends, openings through which hydrocarbon liquid and air are delivered above the uppermost of the shelves, a passage below the lowermost shelf from which the mingled air and vapor are withdrawn, a continuous passage surrounding the chamber on two of its sides and bottom having one end connecting with the exhaust from the engine and the opposite end with a discharge-passage whereby the hot products from the engine are carried around the vaporizing-chamber and an exterior passage following the course of the exhaust-passage and through which the air admitted to the interior chamber passes in contact with the exhaust-passage so as to be heated thereby.

4. An apparatus for the production of an explosive vapor consisting of a rectangular chamber having shelves or trays arranged from top to bottom with openings at alternate ends, a passage by which the hydrocarbon liquid and air are admitted above the uppermost shelf, a passage below the lowermost shelf through which the vapor thus produced is withdrawn, a passage surrounding the sides and the bottom of the chamber, one end of said passage connecting with the discharge and the other receiving the exhaust products from the engine, an exterior passage inclosing this heat-passage, one end of which connects with the interior vaporizing-chamber and the other is open to the outer air, whereby the air is drawn in and heated before being admitted to the vaporizing-chamber, a damper arranged within the exhaust-passage and adapted to divert the hot exhaust products around the generator, or directly to the discharge-passage, or partially in each direction.

589,635. STOP-MOTION FOR GOVERNORS. GEORGE F. BOOS, St. Mary's, Ohio, assignor to the St. Mary's Machine Company, same place. Filed Nov. 21, 1896. Serial No. 612,985. (No model.)



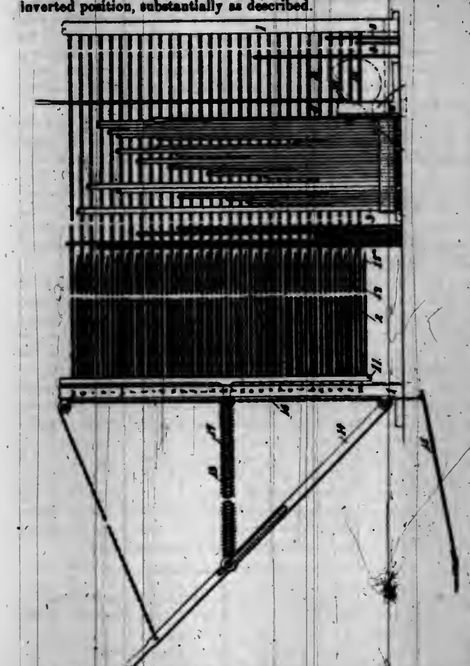
Claim.—1. The combination with the stem of the shut-off valve, of a normally-stationary cam mounted to turn, an idler-pulley normally bearing against the driving-belt, an arm connecting said pulley to said cam, and a spring-pressed lever held in engagement at one side of its fulcrum with the said cam, and having a connection with the valve-stem at the other side of the fulcrum, substantially as described.

2. A stop-motion for governors, comprising a spring-pressed lever adapted to engage the valve-stem, a friction-roller carried at the outer end of the said lever, a heart-shaped cam engaged at its inside by the said friction-roller, and an arm mounted to swing and carrying the said cam, the said arm supporting an idler-pulley adapted to engage the driving-belt for the governor, substantially as shown and described.

589,636. TYPE-SETTING AND LINE-CASTING MACHINE. CHARLES J. BOYS, Sedalia, Mo. Filed Mar. 13, 1896. Serial No. 583,109. (No model.)

Claim.—1. The combination of the type-bars adapted to form a line of type, and a casting-box adapted to fit over said types and having an inlet for the molten metal, said casting-box being pivoted adjacent to the end of the line about an approximately horizontal axis and capable of a motion of about one hundred and eighty degrees

on said axis so that said box can be swung from an upright to an inverted position, substantially as described.

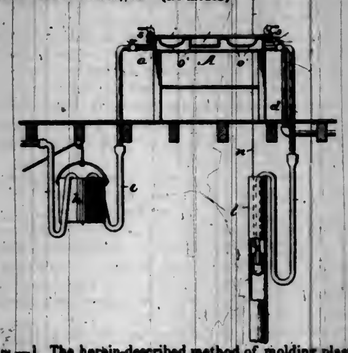


2. The combination of the matrices having at each side of the characters longitudinal grooves adapted to register with each other, said grooves being depressed below the type-surface, and the casting-box provided with an inlet, for the molten metal and with side walls adapted to fit into the depressed grooves at each side of the matrices, said casting-box being pivoted adjacent to the end of the line about an approximately horizontal axis and capable of a motion of about one hundred and eighty degrees on said axis so that said box can be swung from an upright to an inverted position, substantially as described.

3. The combination of the type-bars, the guides on which they are adapted to run, and the distributer held to move in the same direction as the type-bars, and having wedge-shaped projections adapted to engage the lower surfaces of the type-bars to lift the same and then carry them forward on their guides, substantially as specified.

4. The combination of the type-bars, the guides on which they are adapted to run, and the distributer likewise held to run on said guides, and provided with projections adapted to lift and carry forward the said type-bars, substantially as specified.

589,637. METHOD OF AND MEANS FOR MOLDING PLASTIC MATERIAL. WILLIAM G. BRISTOW, Medicine Lodge, Kans. Filed Mar. 28, 1896. Serial No. 585,205. (No model.)



Claim.—1. The herein-described method of molding plastic material which consists in creating a partial vacuum beneath a flexible tissue placed over a pattern, and thereby drawing the tissue into the pattern, casting the plastic material within the tissue thus drawn into the mold, hardening the material in said tissue, and then restoring the pressure beneath the tissue, forcing it from the pattern and releasing the cast from said tissue, substantially as and for the purposes described

2. The herein-described method of molding and coloring plastic materials which consists in distributing coloring-matter on an expansible tissue sheet placed over a pattern, drawing the tissue sheet into the pattern by creating a partial vacuum thereunder, casting the plastic material in the tissue in contact with the coloring-matter, hardening the plastic material in the tissue, and then restoring the pressure beneath the pattern thereby releasing the tissue from the pattern and the cast from the tissue, substantially as described.

3. The herein-described method of molding plastic material which consists in drawing an expansible tissue sheet into a mold by creating a partial vacuum beneath the same, casting the plastic material directly into the tissue in the mold, cooling and hardening the same in the tissue by the pressure of water, and increasing the water-pressure beneath the mold to release the tissue from the pattern and the cast from the tissue, substantially as described.

4. In combination, a chamber open at the top, a pattern over the top thereof and having openings therein, a sheet of expansible tissue secured over the pattern and entirely covering the same and closing the chamber to the passage of air, means for creating a partial vacuum in said chamber so that the tissue is drawn down into and conforms to the shape of the pattern, the plastic material being cast directly into the tissue, and means for restoring the pressure in said chamber, thereby freeing the cast, substantially as described.

5. In an apparatus for molding plastic materials having a table or mold-box, a design plate or mold thereon, rubber tissue spread over the plate, a frame laid on the outer edges of the same, and clamps for locking the whole together, in combination with a water-supply pipe and a waste-water pipe, each having means for controlling the flow of water passing through the same, substantially as and for the purpose described.
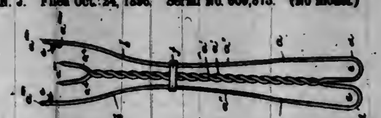
6. In an apparatus for molding plastic substances, the combination of a design plate or mold applied thereto, a sheet of rubber tissue covering the same, means for clamping the whole air-tight, two water-supply pipes, one connected with a tank, and one with the direct service, and a pipe leading from the table or mold-box to the waste-pipe, and having on its lower or free end a cup, with means for raising or lowering both the pipe and cup, substantially as described.

7. The combination of a table or mold-box, a suitable design plate or mold, a sheet of rubber tissue over the same, the whole suitably clamped air-tight, a water-supply pipe from a tank, the same capable of being raised or lowered, a valve in said pipe to control the supply, a pipe providing a direct pressure, a valve for controlling said flow of water, a pipe leading from the mold-box to the waste-pipe, the aforesaid pipe having a flexible connection, the free end of which extends into the waste-pipe, and having a cup secured to the lower end of said flexible connection, with means for raising the same and the cup simultaneously, substantially as described.

589,638. COMPOSITION FOR PURIFYING WATER. ADOLPH BUECH and GERHARD SANDERS, Paterson, N. J. Filed Dec. 10, 1896. Serial No. 615,248. (No specimens.)

Claim.—The herein-described composition of matter to be used for filtering and purifying water consisting of sawdust, treated as herein stated with tin chlorid and washing-soda, and gelatin in the proportions specified.

589,639. KNIFE-CLEANER. ANNA D. CANFIELD, Cedar Grove, N. J. Filed Oct. 24, 1896. Serial No. 609,873. (No model.)



Claim.—1. The improved knife-cleaning device, comprising a cork and a handle or holder of bent wires having a central two pronged fork and longer prongs adapted to engage the opposite sides of the cork, and means for holding the said longer prongs in holding relation with the cork, substantially as set forth.

2. The combination with the cork, of a holder or handle comprising two wires each bent into a U shape to form pairs of prongs, the wires being united and the outlying wires forming bearings to engage the opposite sides of the cork, and a sliding collar, all parts being arranged, substantially as set forth.

3. The combination with the bent wires *a*, *a*, having a center

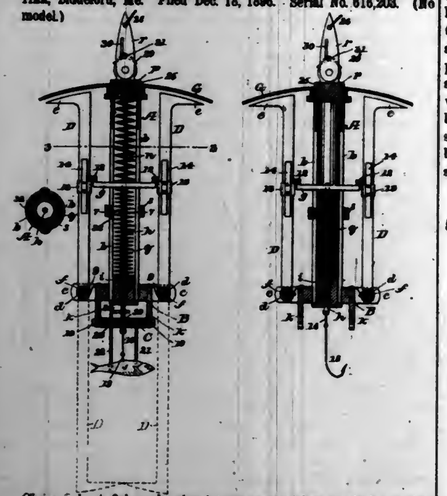
fork a''', to enter the cork and prongs to engage the outer sides of said cork, said prongs being bent near their extremities, as at a'''' and lying in parallel planes and form broad bearings to engage the said outer sides of the cork, of means for holding said prongs against the said opposite sides, substantially as set forth.

4. The combination of the wires, a, a, bent as at d, d, to provide holding-prongs a', a'', the prongs a'' having bends a''', to form bearings and bends a'''', to form oppositely-directed points, substantially as set forth.

5. A holder for cork, or the like, for service in cleaning knives, comprising wires a, a, doubled to form prongs a', a', a'', a'', the prongs a', a', being laid together and fastened and thus rendered unseparable in their relation to one another, the said prongs a', a', a'', a'', each providing points or extensions adapted to enter into holding relation with said cork at opposite sides and intermediate points, substantially as set forth.

6. The improved knife-cleaner, comprising two doubled wires, united by twisting the contiguous prongs, the outer prongs being bent at their extremities to engage the sides of the cork, substantially as set forth.

589,640. COMBINED FISH AND ANIMAL TRAP. JACOB CARTIER, Biddeford, Me. Filed Dec. 18, 1896. Serial No. 616,203. (No model.)



Claim.—1. A fish and animal trap, comprising a tubular casing provided on each side with a longitudinal slot, spring-actuated arms or levers pivoted at the bottom of the casing and provided with hooks at their outer ends, said arms being adapted to be swung upward into parallelism or nearly so with the casing, a tripping-bar extending transversely across the interior of the casing and projecting on each side through the longitudinal slots thereof, catches on the spring-actuated arms adapted to engage the opposite ends of the tripping-bar, whereby said hooked arms are held in a raised position against the resistance of their springs when the trap is set, and a bait-holding device for operating the tripping-bar to release the spring-actuated arms, substantially as described.

2. In a fish and animal trap, the combination with a tubular casing provided on each side with a longitudinal slot, of spring-actuated arms or levers pivoted at the bottom of the casing and provided at their outer ends with hooks and adapted to be turned upward into parallelism or nearly so with the sides of the casing when the trap is set, a tripping-bar extending transversely across the interior of the casing and having its ends extended through the slots thereof and adapted to engage catches on the spring-actuated arms to hold the latter in a raised position against the resistance of their springs, when the trap is set, a spiral spring placed above the tripping-bar and acting to depress the same when released, a rod attached to the tripping-bar and extending beyond the bottom of the casing and provided with a lateral projection, and a bait-holding device consisting of a cross-bar secured to supports connected with the casing and provided with two barbed bait-rods, one rigidly secured to the cross-bar and the other pivoted thereto in such manner that its upper end will engage the lateral projection on the tripping-bar rod to hold the same against the pressure of the spring above the same, whereby when the bait is seized, the upper end of the pivoted bait-rod will be moved to release the tripping-bar and spring the trap, substantially as described.

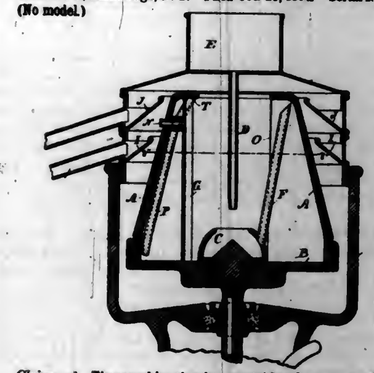
3. In a fish and animal trap, the combination with the casing, its spring-actuated arms, the tripping-bar for holding the same in a raised position, and the bait-holding device for operating the tripping-bar to release said arms, of a curved guard-plate located at the upper end of the tubular casing and extending over the hooked upper ends of the spring-actuated arms when raised, whereby the hooks are protected and prevented from becoming entangled in weeds or the like, substantially as set forth.

4. In a fish and animal trap, the combination with the tubular casing, of the yoke B carrying the spring-actuated arms D, D, said yoke being made removable from the casing, substantially as set forth.

5. In a fish and animal trap, the combination with the slotted tubular casing and the tripping-bar, of the spring-actuated arms provided with catches adjustable thereon and adapted to engage the upturned ends of the tripping-bar, said catches having friction-springs bearing on the arms to hold them in place when adjusted, substantially as set forth.

6. In a fish and animal trap, the combination with the tubular casing A provided with longitudinal slots b and having plugs fitted into its opposite ends, of the spring-actuated arms D pivoted at the bottom of the casing and provided with hooks at their free ends, the tripping-bar g extending across the interior of the casing and out through the slots b and engaging catches on the arms D to hold the latter in a raised position, the spiral springs n, q, placed one above and the other beneath the tripping-bar g, the spring n being of greater strength than the spring q, a rod h secured to the tripping-bar and provided with a pin or projection 24, and a bait-holding device consisting of a cross-bar C secured to hangers or supports k and provided with bait-rods 21, 22, the rod 21 being rigidly secured to the cross-bar and the rod 22, being pivoted thereto and extending above the same to engage the projection 24 on the rod h to hold the tripping-bar against the resistance of the spring n, all constructed to operate substantially in the manner and for the purpose set forth.

589,641. CREAM-SEPARATOR. THOMAS COLLINS and ERNEST L. HARTMANN, Bainbridge, N. Y. Filed Oct. 29, 1894. Serial No. 527,386. (No model.)



Claim.—1. The combination in a centrifugal separator for cream and similar materials, of a conical separator-bowl, a milk-receiving cup at the bottom within such bowl, a pipe passing up from said cup and delivering the liquid within the bowl near the top thereof, and a cream-trough having its edges parallel with the axis of rotation and a lateral delivery-pipe for discharging the cream from such trough, substantially as set forth.

2. The combination in a centrifugal separating apparatus, of a centrifugal bowl, a milk-supply pipe, a pipe for the discharge of the skim-milk open at its lower end near the interior of the bowl where the bowl is of the largest diameter and passing through the upper part of the bowl, a cream-trough having its cream-receiving edge straight from end to end and parallel with the axis of rotation and a pipe passing off laterally from such trough for the discharge of the cream, substantially as set forth.

3. The combination in a centrifugal separating apparatus, of a centrifugal bowl, a milk-supply pipe, a pipe for the discharge of the skim-milk open at its lower end near the interior of the bowl where the bowl is of the largest diameter and passing through the upper part of the bowl, a cream-trough having its cream-receiving edge straight from end to end and parallel with the axis of rotation, and a pipe passing off laterally from such trough for the discharge of the cream, and a wing within the bowl and at the opposite side thereof to the cream-trough, substantially as set forth.

4. A centrifugal separator-bowl having a distributing-cup at the base, a conduit communicating at the lower end directly with said cup and at the upper end with the upper portion of the separating-chamber of the bowl, a skim-milk discharge-pipe communicating with the lower portion of said separating-chamber and extending to and discharging at the upper part of the bowl, whereby the milk is compelled to pass first downward then upward, and then again downward and then again upward, both milk and cream discharging at or near the top of the bowl substantially as specified.

589,642. COMBINED DESK-RULER AND SCALE. MATTHEW F. CORBETT, Jr., Memphis, Tenn., assignor to Edward E. Cord, same place. Filed Jan. 12, 1897. Serial No. 619,005. (No model.)



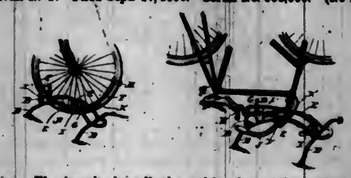
Claim.—1. A combined ruler and scale comprising a main portion provided with marks indicating inches and divisions thereof, the main portion being provided at one end with a weight and at the other end with a clamping-jaw, the clamp being formed of parts so connected as to move in opposite directions when the jaw is opened and closed whereby the weight of the parts is at all times maintained at the same listance from the center, substantially as described.

2. A combined desk-ruler and scale comprising a main body provided with marks indicating inches and parts thereof, and having at one end a weight and at the other end clamping-jaws consisting of two plates provided on their inner faces with racks, and a pinion interposed between the racks, whereby the plates are caused to slide in opposite directions and the weight of the parts maintained at the same distance from the center of the body during use, substantially as described.

3. A combined desk-ruler and scale comprising a main body provided with marks indicating inches and fractions thereof, having at one end a weight and at the other clamping-jaws comprising plates of metal having their ends bent at right angles and provided with racks on their inner faces, and a pinion mounted on a shaft and engaging the racks to cause the plates to move equal distances in opposite directions simultaneously, the shaft being provided with a spiral spring so connected with the pinion as to return the plates to their normal positions when released, substantially as described.

4. A combined desk-ruler and scale comprising a main body provided at one end with a weight and at the other end with clamping-jaws made up of plates capable of sliding, the plates being so connected as to move in opposite directions, and one plate being provided with a spring-finger adapted to engage the end of the ruler and retain the jaws in an open position substantially as described.

589,643. BICYCLE STAND OR RACK. ARMAND J. DE MEES, Batavia, N. Y. Filed Sept. 17, 1896. Serial No. 606,090. (No model.)



Claim.—The herein-described combination of the rack A having notches E formed therein, ends B turned at right angles to the rack, teeth C formed upon said ends, reach-bars D secured to the rack for supporting the same, swinging arms F pivoted to the rack and having a removable receiver, a stationary receiver carried by the arms and adapted to receive the tire of the bicycle, and a receiver I carried by one of the reach-arms, substantially as and for the purpose set forth.

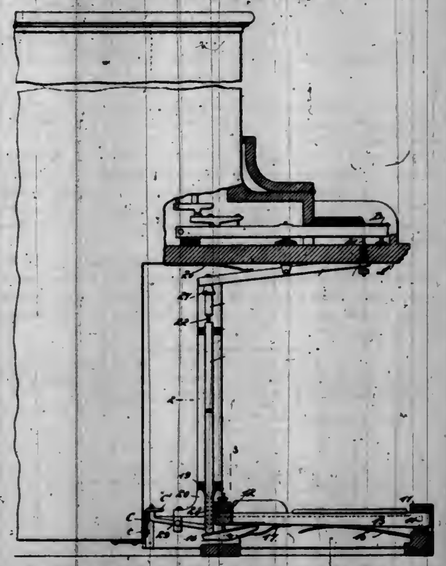
589,644. DETACHABLE PEDAL FOR MUSICAL INSTRUMENTS. FRANK H. DERNELL and PHILLIP H. BREHMER, Rutland, Vt.; said Brehmer assignor to Lillian E. Brehmer, same place. Filed Mar. 30, 1897. Serial No. 629,914. (No model.)

Claim.—1. An organ-pedal attachment for pianos, and a locking device for detachably connecting said pedal attachment with the instrument, the said locking device being operated by the movement of the pedal attachment, as and for the purpose set forth.

2. In an organ-pedal attachment for pianos, pedals, tracker-bars operated by the pedals and arranged to be carried parallel with the pedals or at an angle thereto, and a locking device operated by raising and lowering the tracker-bars, as and for the purpose set forth.

3. In an organ-pedal attachment for pianos, a base-frame carrying pedals, an action-frame having a hinged connection with the base-frame, and locking devices operated by the movement of the action-frame, as and for the purpose specified.

4. In an organ-pedal attachment for pianos, the combination with the base-frame, pedals carried thereby, and levers operated by the pedals, of an action-frame having a hinged connection with the base-frame, tracker-bars carried by said action-frame and operated by the said levers, and locking devices operated by the movement of the action-frame, as and for the purpose set forth.



5. In an organ-pedal attachment for pianos, a base-frame, an action-frame having a hinged connection with the base-frame, pedals carried by the base-frame, tracker-bars operated by the said pedals, and locking devices operated by the movement of the action-frame, as and for the purpose set forth.

6. In an organ-pedal attachment for pianos, the combination, with the key-supporting board of the instrument, its keys, levers connected with said keys and keepers attached to the instrument, of a base-frame, pedals carried by the base-frame, an action-frame having a hinged connection with the base-frame, tracker-bars carried by the action-frame, operated from the said pedals and arranged for engagement with the said levers, and locking devices adapted for engagement with the keepers, as and for the purpose specified.

7. In an organ-pedal attachment for pianos, the combination, with the key-supporting board of the instrument, its keys, levers connected with said keys, and keepers attached to the instrument, of a base-frame, pedals carried by the base-frame, an action-frame having a hinged connection with the base-frame, tracker-rods carried by the action-frame, operated from the said pedals and arranged for engagement with the said levers, means, substantially as shown and described, for increasing or decreasing the length of the tracker-rods, and locking devices carried by the base-frame and operated by the movement of the action-frame, substantially as described.

8. The combination with a piano having keepers attached thereto, of an organ-pedal attachment provided with locking devices adapted for engagement with said keepers, the said locking devices being automatically operated by the movement of the pedal attachment, substantially as described.

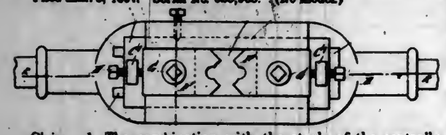
9. The combination with a piano, and keepers attached thereto, of an organ-pedal attachment comprising a base-frame, pedals carried by the base-frame, an action-frame having a hinged connection with the base-frame, tracker-bars carried by the action-frame, said bars being operated by the said pedals, and locking devices adapted for engagement with the keepers, as and for the purpose specified.

10. A pedal attachment, comprising a base-frame carrying pedals, an action-frame having a hinged connection with the base-frame, links pivotally connected with the action-frame, and angle-levers pivotally connected with the said links, as and for the purpose set forth.

11. In a pedal attachment, the combination with the base-frame, pedals carried thereby, and levers operated by the pedals, of an action-frame having a hinged connection with the base-frame and adapted to be folded thereon, tracker-bars carried by the action-frame and provided with adjustable cap-sections, the said tracker-bars being operated by the said levers, and locking devices, com-

priming angle-levers connected by links with the said action-frame, substantially as shown and described.

589,645. STOCK AND DIE. GEORGE G. DOYLE, Ogden, Utah. Filed Mar. 5, 1897. Serial No. 626,985. (No model.)

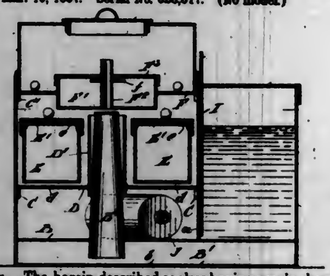


Claim.—1. The combination with the stock, of the centrally-apertured die-plate adapted for attachment thereto, and having slideways ranging toward the center of the plate at the aperture thereof, dies mounted to move on said slideways, and adjusting devices carried by the plate and engaging the dies, substantially as described.

2. The combination with the stock having a slideway, of a die-plate fitted to move on said slideway, and a plurality of dies carried by said plate, at opposite sides of the plate's center, substantially as described.

3. The combination with the stock having a slideway, of a die-plate fitted to move on said slideway, a plurality of dies arranged to move on said plate, at opposite sides of the plate's center, and adjusting devices carried by the plate and engaging the dies, substantially as described.

589,646. COOKER. ANNIE B. RIGNEY, Clifton Springs, N. Y. Filed Mar. 19, 1897. Serial No. 628,317. (No model.)



Claim.—The herein-described cooker having a main chamber and a water-chamber separated by a vertical partition and communicating with each other, the said chambers having a common bottom which is raised above the bottom of the cooker providing a hot-air chamber beneath both chambers, said hot-air chamber having an air-inlet in its bottom, the main chamber having a diaphragm for supporting suitable vessels, the diaphragm having openings, a vertical air-tube extending from the bottom of the main chamber above the diaphragm in said chamber, and closed at its top, and a second diaphragm above the air-tube, the said second diaphragm having a closed pan projecting below the diaphragm and provided with a central tube open at top and bottom for the passage therethrough of steam from the bottom part of the main chamber, as specified.

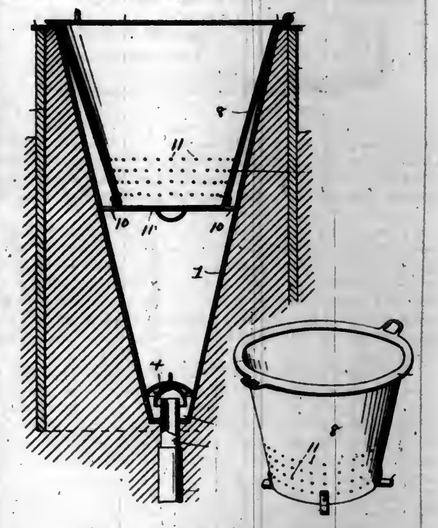
589,647. GONDOLA CAR. SAMUEL G. FAIRLEY, Wilkinsburg, Pa. Filed Nov. 14, 1896. Serial No. 612,089. (No model.)



Claim.—In a gondola car, sides hinged to the top, cross-pieces extending across the car forming boxes, segmental rack-bars resting on the bottom of the boxes and pivoted at one end to the sides, guides on the bottom of the car in which said rack-bars operate, shafts journaled in the cross-pieces and ends of the car, a cog-wheel mounted on the shafts and meshing with the rack-bar, ratchets also mounted on the shaft, pawls for engaging the ratchet and operating wheels secured on the outer ends of the shafts, as and for the purpose described.

589,648. SINK. GEORGE L. FERRIS, Toledo, Ohio. Filed May 29, 1896. Serial No. 593,551. (No model.)

Claim.—In a sink, a conical casing of a length to extend into the ground below the freezing-point and a trap located in the extreme lower end thereof, a garbage-receptacle, the sides being of greater angle than the angle of the sides of the casing, whereby the outside diameter of the receptacle at its upper end is equal to the inside diameter of the casing at its upper end whereby the receptacle is suspended within the casing, the diameter of the lower end of the receptacle being of less diameter than the interior of the casing adjacent thereto, the lower end and sides of the receptacle being perforated, and lugs extending outwardly from the receptacle and bearing against the inside of the casing to properly center the lower end of the receptacle within the casing whereby there is formed an annular conduit between the lower end of the receptacle opposite the perforations therein and the casing.



589,649. PHOTOMETER. JOHN L. FUELLING, Peoria, Ill. Filed Oct. 26, 1896. Serial No. 610,138. (No model.)



Claim.—1. In a photometer, the combination, of a mirror, a pupil-gage, and means for supporting the mirror and the gage opposite each other, substantially as described.

2. The combination, in a photometer, of a magnifying-mirror, and a pupil-gage, supported opposite the same, substantially as described.

3. In a photometer, the combination of a supporting-plate, a mirror carried thereby, and a transparent pupil-gage, opposite said mirror, substantially as described.

4. In a photometer, the combination, of a magnifying-mirror and a transparent pupil-gage, and means for supporting them opposite each other, substantially as described.

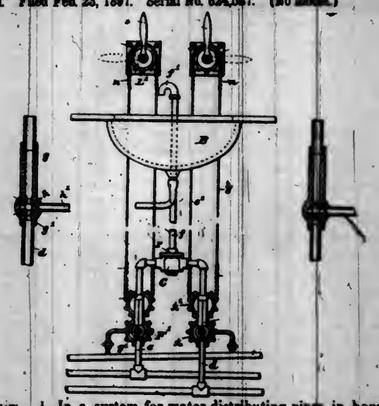
5. In a photometer, the combination, of a mirror and a pupil-gage opposite the mirror, said gage consisting of two plates having a variable opening between them, substantially as described.

6. The combination, in a photometer, of a supporting-plate, a magnifying-mirror, and a pupil-gage, said pupil-gage consisting essentially of two plates and a graduated scale-plate, and means for adjusting one of the plates to and from the other plate substantially as described.

7. The combination, of a main plate, a mirror-carrying frame pivoted at one end thereof, and adapted to fold down thereon, and a pupil-gage pivoted at the other end of the main plate and also adapted to fold down thereon, substantially as described.

8. The combination, in a photometer, of a supporting-plate, a mirror carried thereby, a pupil-gage consisting of two plates, means for adjusting one of said plates to and from the other plate, an amplifier connected to said movable plate, and a scale-plate, substantially as described.

589,650. WATER-PIPE SYSTEM. EDWARD W. GLEIM, Baltimore, Md. Filed Feb. 23, 1897. Serial No. 624,587. (No model.)



Claim.—1. In a system for water-distributing pipes in houses, the combination of a lower distributing-pipe for hot water and another pipe for cold water; a union with which both of said pipes connect; a single pipe leading upward from said union and terminating in an always-open discharge-nozzle; a valve in said union which opens communication between either the hot-water pipe and the discharge-nozzle or the cold-water pipe and the discharge-nozzle; a waste-water pipe; and a valve-controlled drain-tube connecting from the hot and cold water pipes, respectively, to said waste-water pipe.

2. In a system for water-distributing pipes in houses, the combination of a lower distributing-pipe for hot water and another pipe for cold water; a union with which both of said pipes connect; a single pipe leading upward from said union and terminating in an always-open discharge-nozzle; a valve in said union which opens communication between either the hot-water pipe and the discharge-nozzle or the cold-water pipe and the discharge-nozzle; a controlling-valve in each distributing-pipe; and means located adjacent said discharge-nozzle and connecting therefrom to the said controlling-valves, as set forth.

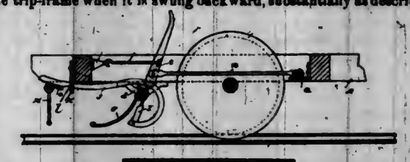
3. In a system for water-distributing pipes in houses, the combination of a lower distributing-pipe for hot water and another pipe for cold water; a union with which both of said pipes connect; a single pipe leading upward from said union and terminating in an always-open discharge-nozzle; two inclined valve-seats in said union one having a hot-water port and the other a cold-water port; a tilting or vibrating valve to close either one of said ports; a waste-water pipe; a valve-controlled drain-tube connecting from the hot and cold water pipes, respectively, to said waste-water pipe; and means located adjacent said discharge-nozzle and connecting therefrom to the said controlling-valves, as set forth.

4. In a system for water distributing pipes in houses, the combination of a lower distributing-pipe for hot water and another pipe for cold water; a union with which both of said pipes connect; a single pipe leading upward from said union and terminating in an always-open discharge-nozzle; a valve in said union which opens communication between either the hot-water pipe and the discharge-nozzle or the cold-water pipe and the discharge-nozzle; a waste-water pipe; a controlling-valve in each distributing-pipe; a drain-tube connecting from each of said controlling-valves to the waste-water pipe; and means located adjacent said discharge-nozzle and connecting therefrom to the said controlling-valves, as set forth.

5. In a system for water-distributing pipes in houses, the combination of a distributing-pipe; an always-open discharge-nozzle; a waste water pipe in the lower part of the building; a valve case in said distributing-pipe; a drain-tube connecting from said valve-case to the waste-water pipe; a rotary plug-valve in said valve-case and provided with a gear-wheel; a sprocket-wheel and gear wheel loosely mounted on said valve-case—the two gear-wheels being engaged; and an endless-chain connection from a point near the said always-open nozzle to the sprocket-wheel on the valve-case, as set forth.

589,651. CAR-FENDER. ELIAS GROAT, San Luis Obispo, Cal. Filed Sept. 10, 1896. Serial No. 605,426. (No model.)

Claim.—In a car-fender, a scoop hinged at its upper corners to the side beams of the car; an upward-projecting lever attached to said scoop and connected at its upper end by a link with a spring secured to the framework of the car; a suspended trip-frame mounted across the car in front of the scoop and having a tripping-lug at its upper edge and a latch-bar connected at one end with the scoop and having a notch at its opposite end adapted to engage with the upper edge of guide or yoke attached to and depending from the front beam of the car-frame so as to be detached by the trip-lug on the trip-frame when it is swung backward, substantially as described.

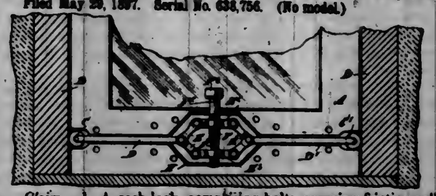


589,652. WHEEL. CHARLES E. GUIDES, Baltimore, Md. Filed July 22, 1896. Renewed Aug. 2, 1897. Serial No. 646,831. (No model.)



Claim.—An all-metal wheel having in combination a hub provided with a collar whose outer side is beveled as at *g*, said hub having on its cylindric surface a flattened seat, *i*, close to said collar; a rim having a flange or lugs projecting inwardly from the tread part; and curved spoke-bars which in cross-section have angle-shaped flanges, extending from one side of the wheel-rim to the other side, said spoke-bars forming arches one flange, *j*, of which abuts against the said flattened seats of the hub while the other flange is secured to the said beveled hub-collar by bolts—each end of the said spoke-bars being secured by a bolt to the said flange or lugs on the rim.

589,653. SASH-LOCK. RICHARD A. HASSELIN, St. Joseph, Mo. Filed May 29, 1897. Serial No. 638,756. (No model.)



Claim.—1. A sash-lock, comprising bolts carrying friction-rollers adapted to engage the window-frame, toggle-levers pivotally connected with the said bolts, and a screw-rod having right and left hand threads screwing in links of the said toggle-levers, to open and close the same on turning the screw-rod, substantially as shown and described.

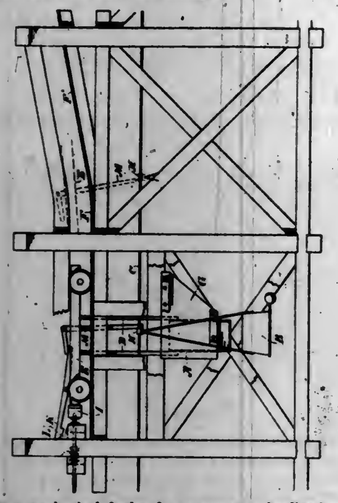
2. The combination of two bolts, two toggle-levers respectively connected to the bolts and a differentially-threaded screw coacting with the toggle-levers whereby to throw or withdraw the bolts upon the operation of the screw.

589,654. MECHANICAL FEEDER FOR ROPEWAY-CARRIERS. ANDREW S. HALLIDIE, San Francisco, Cal. Filed Mar. 2, 1897. Serial No. 625,774. (No model.)

Claim.—1. A mechanical feeder for traveling carriers consisting of a loading-box having an inclined bottom and one open side, a stationary wall against which the open side of the box normally rests, a means for suspending the loading-box whereby it is movable in a plane parallel with the fixed partition, and stops by which the loading-box is moved away from the wall and in unison with the movement of the carrier when the latter has reached a point below and opposite the loading-box, whereby the contents of the loading-box are transferred to the carrier.

2. A mechanical feeder for continuously-traveling carriers consisting of a chute, an open-topped loading-box supplied thereby, said box having an inclined bottom and an open discharge side meeting the lower edge of the bottom, a stationary wall opposite which the loading-box normally stands whereby the wall serves to close the open side of the loading-box, a suspending device to which the loading-box is connected and by which it is allowed to move in a plane parallel with the face of the stationary wall so as to uncover its open

side, stops fixed respectively to the moving parts and to the loading box connections, whereby the loading-box is caused to move in unison with the movement of the carrier when the latter has arrived at a point opposite to and below the loading-box.



3. In a mechanical feeder for ropeways, a loading-box and a means for supplying it with material, said box having an inclined bottom and one open side, a stationary wall lying parallel with the open side and serving to close it while the box is in its normal position, an endless traveling rope and carriers suspended therefrom, a means for suspending the loading-box and allowing it to travel parallel with the traveling rope, a stop fixed to the supports of the loading-box and a corresponding clip upon the rope whereby contact of the latter with the loading-box stop, causes the box to move in unison with the movement of the carriet after the latter has arrived in position beneath and in line with the loading-box, and means for disengaging the stop from the clip and returning the loading-box to its normal position.

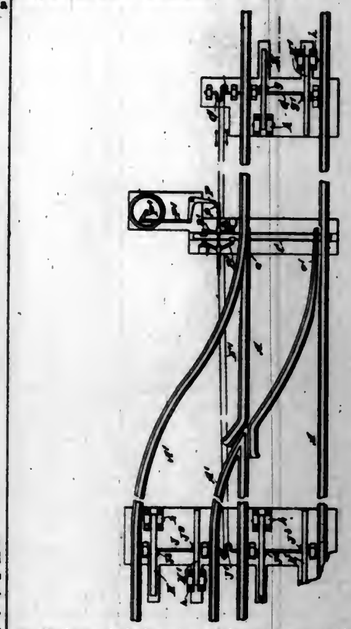
4. In a mechanical feeder for ropeways, a loading-box having an inclined bottom and one open side, a stationary wall against which the open side of the box lies when in its normal position, a stop connected with the box-carrier, a means whereby the box may be filled with material to be transferred, a ropeway and carriers movable in line parallel with the face of the stationary wall, a clip fixed upon the rope, a latch adapted to be operated by the stop, said latch normally holding the loading-box in position and being disengaged by contact of the clip with the stop, whereby the loading-box is moved in unison with the carrier, a means for returning the box automatically to its normal position, a spring whereby the recoil of the loading-box is received, the spring compressed and the latch caused to engage with a holding-catch.

5. In a mechanical feeder for ropeways, a loading-box having an inclined bottom and one open side, a stationary wall opposite which the open side of the box normally stands, means for charging the box, a traveling rope and carriers suspended therefrom, clips upon the rope and a latch and stop upon the loading-box whereby when the clip makes contact with the stop the loading-box is unlatched and impelled forward in the line of travel of the rope, the open side is moved beyond the stationary wall, and the contents of the loading-box delivered into the carrier beneath, a suspending device for the loading-box whereby it is carried above the line of travel of the clip and rope and is disengaged from the stop and the latter is released and allowed to return by gravitation to its normal position.

6. In a mechanical feeder for ropeways, a movable loading-box having an inclined bottom and an open side, and a stationary wall to form a closure for the open side when the box is in position to be charged.

589,655. SWITCH-OPERATING MECHANISM. CHARLES E. HARRIS, Elwood City, Pa., assignor of one-half to Wilbur J. Harris, Mount Pleasant, Ohio. Filed Dec. 26, 1896. Serial No. 617,089. (No model.)

Claim.—1. In a switch-throwing mechanism, the combination of a cross-bar connected to the movable portions of the rails, with two sets of toggle-joint levers connected by opposite ends with said cross-bar and by their other ends to fixed pivots, and a bar having a common yielding or spring connection with the centers of both sets of toggle-joint levers, substantially as described.



2. In a switch-throwing mechanism, the combination of a cross-bar connected to the movable portions of the rails, with two sets of toggle-joint levers connected by opposite ends with said cross-bar and by their other ends to fixed pivots, and an operating-bar attached to the center of said toggle-joints by a connection which is positive in one direction and yielding in the other, said connections being oppositely arranged upon opposite sets of levers, substantially as described.

3. In a switch-throwing mechanism, a cross-bar connected to the moving switch-points, two sets of toggle-joint levers lying side by side on opposite sides of the cross-bar and connected thereto by opposite ends, and attached by their other ends to fixed pivots, and a rod lying parallel with the rails and connected to the centers of both toggle-joints, substantially as described.

4. In a switch-throwing mechanism, a cross-bar connected to the moving switch-points, two sets of toggle-joint levers lying side by side on opposite sides of the cross-bar, and connected thereto by opposite ends and attached by their other ends to fixed pivots, and a rod lying parallel to the rails and connected to the centers of both toggle-joints by a connection which is positive in one direction and yielding in the other, said connections being oppositely arranged upon opposite sets of levers, substantially as described.

5. In a switch-throwing mechanism, a cross-bar attached to the moving switch-points, two sets of toggle-joint levers lying side by side upon opposite sides of the cross-bar and connected thereto by opposite ends, and attached by their other ends to fixed pivots, and an operating-rod lying parallel to the rails and connected to the centers of both toggle-joints by a yielding or spring connection, substantially as described.

6. In a switch-throwing mechanism, the combination of a cross-bar connected to the movable portions of the rails, with two sets of toggle-joint levers connected by opposite ends with said cross-bar, and by their other ends to fixed pivots, a bar having a common yielding or spring connection with the centers of both sets of toggle-joint levers, a shaft extending across the track having cranked connection with the bar which operates the toggle-joint levers, levers extending lengthwise the track and dapted by their depression to oscillate the shaft, and means mounted upon the cars for depressing either one of said levers at will, substantially as described.

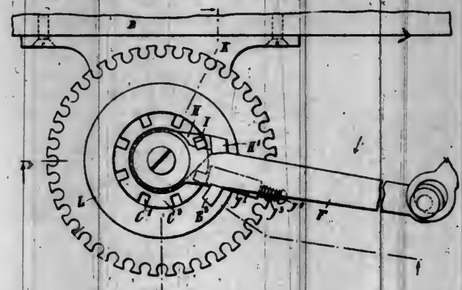
7. In a switch-throwing mechanism, the combination of a cross-bar connected to the movable portions of the rails, with two sets of toggle-joint levers connected by opposite ends with said cross-bar, and by their other ends to fixed pivots, a bar having a common yielding or spring connection with the centers of both sets of toggle-joint levers, a shaft extending across the track having cranked connection with the bar which operates the toggle-joint levers, levers extending lengthwise the track and adapted by their depression to oscillate the shaft, a wheel mounted upon the car-axle and adapted to engage and depress said levers, and means for shifting the lateral position of said wheel relative to the rails, substantially as described.

8. In a switch-throwing mechanism, a cross-bar connected to the switch-points, two sets of toggle-joint levers lying side by side on opposite sides of the cross-bar and connected thereto by opposite ends, and attached by their other ends to fixed pivots, an operating-rod lying parallel to the rail and connected to the centers of both toggle-joints, a shaft extending across the track having cranked connection with the bar which operates the toggle-joint levers, levers extending lengthwise the track and adapted by their depression to oscillate said shaft, and means mounted upon the cars for depressing either one of said levers at will, substantially as described.

9. In a switch-throwing mechanism, the combination of a cross-bar connected to the movable portions of the rails, with two sets of toggle-joint levers connected by opposite ends with said cross-bar and by their other ends with fixed pivots, a bar having a common yielding or spring connection with the centers of both sets of toggle-joint levers, levers which are pivoted between the rails and have convexly-curved upper surfaces sloping each way from the center and adapted by their depression to throw the switch, wheels pivoted beneath the cars adapted to engage and depress said levers, and means for laterally shifting said wheels, substantially as described.

10. In a switch-operating mechanism, the combination of a cross-bar connected to the movable parts of the rails, lever connections for reciprocating the same, and actuating mechanism therefor consisting of a cranked shaft extending across beneath the rails, pivoted levers lying lengthwise the track and engaging the cranks of said shaft, wheels pivoted beneath the car to engage said levers to depress them, a spring connected to each lever for raising the same, and means for laterally shifting said wheels, substantially as described.

589,656. DOOR-SPRING. JOHN M. HESTON, Lead, S. D. Filed Apr. 6, 1896. Serial No. 586,391. (No model.)



Claim.—1. A spring for doors and the like, comprising a casing, a spring mounted therein, a pivoted arm adapted to be connected with a door, means for adjusting the arm to hold the door in the position desired, and means between the arm and spring, whereby the opposite ends of the spring will exert a constant pressure on opposite sides of the said arm, substantially as and for the purpose set forth.

2. A spring for doors and the like, comprising a casing, a shaft journaled therein, a barrel mounted to rotate in the casing, a spring connected to the barrel and shaft respectively, an arm loosely mounted on the shaft independently of the barrel, and means for moving the shaft and barrel respectively in opposite directions from said arm, substantially as described.

3. A check for doors and the like, comprising a casing, a shaft journaled therein, a barrel mounted to turn within the casing, a spring connected to the shaft and to the barrel respectively, a crank-arm loosely mounted on the shaft and adapted for connection with the door, and arms or projections connected to move the shaft and barrel respectively and extending into the path of the said crank-arm on opposite sides thereof, so that the crank-arm is between said projections, substantially as described.

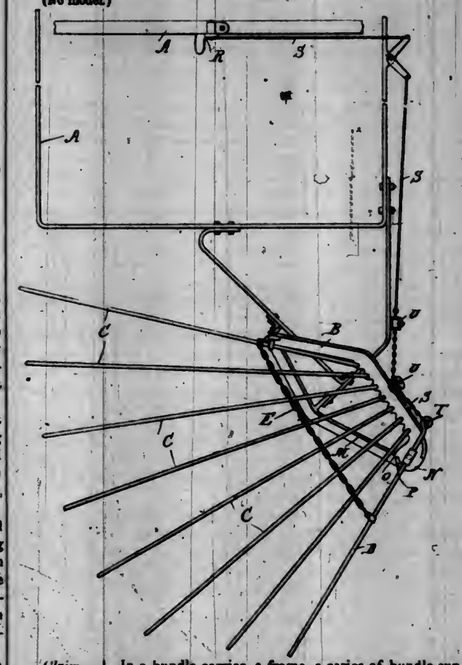
4. A spring for doors and the like, comprising a casing, a shaft journaled therein, a barrel mounted to turn within the casing, a spring connected to the shaft and to the barrel respectively, a crank-arm loosely mounted on the shaft and adapted for connection with the door, another arm likewise mounted to turn on the shaft but normally rigidly connected thereto, a locking device for connecting the shaft and said second arm in different positions, said arm extending into the path of the crank-arm and normally engaging the same at one side, and a projection from the spring-barrel engaging the opposite side of the crank-arm, as and for the purpose set forth.

5. A spring for doors and the like, comprising a casing, a shaft journaled in the casing, a barrel mounted in the casing, a spring connected to the shaft and barrel respectively, a crank-arm loosely mounted and adapted for connection with a door, a wheel loosely mounted on the casing and provided with a stop, arms or projections connected to move the shaft and barrel respectively and extending into the path of travel of the crank-arm on opposite sides thereof, the said arms or projections being also arranged to engage the stop on the said wheel, and means for locking the said loosely-mounted wheel in different positions, substantially as described.

6. A spring for doors and the like, comprising a casing a shaft journaled therein, a barrel mounted to turn within the casing, a spring connected to the shaft and to the barrel respectively, a crank-arm loosely mounted on the shaft and adapted for connection with the door, a ratchet-wheel loosely mounted on the casing and provided with a stop, arms or projections connected to move the shaft or barrel respectively and extending into the path of travel of the said crank-arm on opposite sides thereof so that the crank-arm is between the said projections, the said arms or projections being also arranged to engage the stop on the ratchet-wheel, and a key arranged to engage the ratchet-wheel to hold it stationary, substantially as described.

7. A device of the class described, comprising a main casing, a spring-barrel mounted to revolve therein, a shaft carrying a crank-arm and provided with a recessed head, a coil-spring in said barrel and connected at one end to the barrel and at its other end to said shaft, a ratchet-wheel adapted to be locked in place on said casing and carrying a stop, and adapted to be engaged at one side by an arm of said spring-barrel and at its other side by a lug on an arm adapted to be locked in said recessed head, said lug and barrel-arm being adapted to be engaged at opposite sides of the crank-arm, and a key for locking and unlocking said ratchet-wheel to and from said casing, as set forth.

589,657. BUNDLE-CARRIER FOR HARVESTING-MACHINES. MAURICE KANE, Austin, Ill. Filed Oct. 29, 1895. Serial No. 567,336. (No model.)



Claim.—1. In a bundle-carrier, a frame, a series of bundle-supporting arms mounted therein, the extreme outer arm of the series provided with a spring-pressed pivot, a lug formed on the frame, adapted to lock said outer arm, connections between said outer arm and the other arms of the series, means for swinging said arm about its pivot; as and for the purpose set forth.

2. In a bundle-carrier, a series of supporting-arms, a frame in which said bundle-arms are mounted, said frame provided with a perforated seat, a sleeve through which the outer arm of said series is arranged to pass, said sleeve adapted to be received in said seat, a spring arranged to hold said sleeve to its seat, said frame provided

with a cut-away rim, a flexible connection between the outer arm and the other arms of the series, means for swinging said arm; as and for the purpose set forth.

3. In a bundle-carrier, a tilting frame, a series of independently-mounted bundle-supporting arms, connections between said arms, one of said arms comprising a control bar or arm, said control-arm mounted upon the forward end of said tilting frame, a guide mounted upon said tilting frame and rearwardly with respect to said control-arm, a guide upon the main frame, arranged in a lower plane than the guide upon the tilting frame, a control-lever and connections arranged to engage said guides and connected at opposite ends thereof with said control-arm and said lever; whereby when said lever is actuated said frame is tilted and all of said arms distended, as and for the purpose set forth.

4. The combination in a bundle-carrier, of a frame, a series of bundle-supporting arms pivotally mounted upon said frame, said frame being provided with a seat adapted to receive the pivot of the outermost of said arms, a spring arranged to press said pivot to its seat to hold the same in the position to which it may swing, means for positively swinging said extreme or outermost arm about its pivot, and an independent flexible connection between said outer arms of the series and each of the other arms of the series, as and for the purpose set forth.

5. The combination with a frame, a series of bundle-supporting arms independently mounted thereon, one of said arms being provided with a yielding pivot, a stop arranged in the path of swing of said arm to engage and hold the same in the position in which it may be rocked, means for positively swinging said arm about its pivot, an independent flexible connection between said arm and each of the other arms of the series, as and for the purpose set forth.

589,658. **ATTACHMENT FOR STRINGED MUSICAL INSTRUMENTS.** JUSTUS I. KELMAN, Marco, Ill. Filed Nov. 25, 1896. Serial No. 613,415. (No model.)



Claim.—1. The combination of the frame, the chord-producing bars, and actuating devices adapted to engage said bars, said actuating devices being hinged or pivoted to the frame and capable of being swung on their pivots until their lower surface is uppermost or substantially so, for the purpose of fully exposing the chord-producing bars, as set forth.

2. A device of the class described, provided with sets of pressers arranged to extend diagonally over the finger-board, and adapted to engage and press sets of strings, to produce chords when the corresponding strings are played, substantially as shown and described.

3. A device of the class described, comprising chord-producing bars, levers engaging said bars, and keys engaging both the bars and the levers, substantially as described.

4. A device of the class described, comprising chord-producing bars, actuating devices extending transversely of the bars, and operating-blocks mounted on said actuating devices and adapted to engage said bars, said blocks being adjustable transversely of the bars to engage with any of them, substantially as described.

5. A device of the class described, provided with sets of pressers each adapted to press a set of strings into chord position, bars for actuating the said pressers, keys for actuating the said bars, and sets of levers engaging the said bars and actuated from the said keys, substantially as shown and described.

6. A device of the class described, provided with sets of pressers adapted to press a set of strings into chord position, bars for actuating the said pressers, keys for actuating the said bars, and sets of levers engaging the said bars and actuated from the said keys, each key being provided with an adjustable block for engagement with a bar, substantially as shown and described.

7. A device of the class described, provided with sets of pressers each adapted to press a set of strings into chord position, bars for actuating the said pressers, keys for actuating the said bars, and sets of levers engaging the said bars and actuated from the said keys, each lever being provided with adjustable blocks for engagement with the corresponding bar, substantially as shown and described.

8. A device of the class described, comprising a casing arranged for removable connection with the finger-board of a musical instrument, a series of keys on the said casing, and each having blocks, a series of spring-pressed bars fitted to slide in the casing and adapted to be engaged by some of the blocks, a series of pressers engaged by the said bars, and adapted to press the strings, and a set of levers having blocks and controlled by the keys, the said set of levers being adapted to actuate the said bars, substantially as shown and described.

9. The combination of the keys, the chord-producing bars operated thereby and arranged transversely thereof, and the diagonally-arranged pressers operated by the said bars, substantially as described.

589,659. **OIL-CAN AND FUNNEL.** WILLIAM W. KRAUK, Louisville, Ky. Filed Sept. 15, 1896. Serial No. 605,905. (No model.)

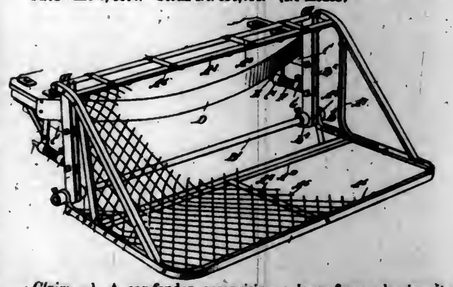


Claim.—1. An oil-can, having an internally and externally threaded mouth in combination with a funnel having two threaded sections, one adapted to fit the internal, and the other the external threads of said mouth, substantially as and for the purpose set forth.

2. In combination with a can of the character described a funnel having a spout formed in sections of different diameters, said sections being threaded so as to fit the interior or the exterior of the can, as specified.

3. The herein-described combination of a can, a top formed therewith, the base of which is of less diameter than the diameter of the can, the flange connecting the upper edge of the can with the lower edge of the top, a ledge inclosing said flange, the drain-pipe leading from the flange to the interior of the can, a mouth threaded externally and internally, a funnel whose spout is formed in sections of different diameters, each section being threaded, and a cap for closing the spout of the funnel whereby the mouth of the can is also closed, substantially as and for the purpose set forth.

589,660. **CAR-FENDER.** JOHN LANDAU, Jr., Brooklyn, N. Y. Filed June 7, 1897. Serial No. 638,730. (No model.)



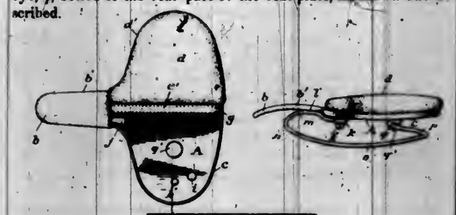
Claim.—1. A car-fender comprising a lever-frame, having its side arms fulcrumed on brackets attached to the car-body, rods pivotally connected with the side arms of the said frame, springs pressing on the said rods, and a basket having a frame arranged for removable connection with the said lever-frame, substantially as shown and described.

2. A car-fender comprising a lever-frame fulcrumed on the car-body, and having side arms formed at their upper ends with hooks, and a basket having a frame provided with hooks adapted to be hooked upon the said lever-frame, the said basket-frame being adapted to engage the hooks on the side arms of the said lever-frame, the hooks of the basket-frame having their openings in a downward direction and the hooks on the lever-frame being at the upper ends of the side arms, and having their openings upwardly and forwardly, substantially as shown and described.

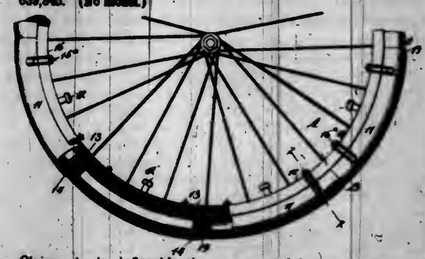
589,661. **BICYCLE-SADDLE.** HARRY A. LERCH, Baltimore, Md. Filed Dec. 10, 1896. Serial No. 615,067. (No model.)

Claim.—1. A bicycle-saddle having in combination a sheet-metal seat-plate provided at the front with a horn-point curved downward and said plate having a plain top surface free of recesses; two unconnected pads or cushions secured on said top surface and separated by a longitudinal center space and each cushion provided along its central edge with a flange flush with the bottom of the cushion—the flanges of the two cushions projecting toward each other; and a sheath separate from the cushions and incasing the said horn-point and having on top an attached center piece which extends from the said sheath and overlaps the said two flanges on the cushions, as set forth.

2. In a bicycle-saddle the combination of a seat-plate having at its front a horn-point; and a spring supporting said seat-plate—said spring consisting of a wire rod having a central eye, *i*, bolted to the front of said plate back of the horn, and the wire rod thence extending parallel forward under the horn-point and slightly downward at, *m*, and both parallels curved back at, *n*, and the two parall parts, *o*, extending toward the rear, and at the rear each part curving away from the other into a coil, *p*, which terminates in an eye, *q*, bolted to the rear part of the seat-plate, as shown and described.



589,662. **TIRE FOR VEHICLE-WHEELS.** JACOB A. LEWIS and WILLIAM G. SPINDEL, New York, N. Y. Filed June 8, 1897. Serial No. 639,845. (No model.)



Claim.—1. An inflatable tire constructed in sections arranged for interlocking engagement, each section being provided with an independent fastening device and an independent inflating device, and tapered longitudinally with its wider end abruptly rounded off, whereby a stepped appearance is given to the tire, as and for the purpose set forth.

2. An inflatable tire constructed of interlocking sections or segments, each section being tapered longitudinally and having its tread-surface at its larger end rounded off, as and for the purpose set forth.

3. An inflatable tire constructed in sections, each section being provided at one end with a lip 13 and at the other end with a recess 14 arranged to receive the lip of an adjacent section, each section being also provided with oppositely-located ears 17 and 18 and inelastic lever 15 and link 16 arranged to interlock over the rim of the wheel, as and for the purpose set forth.

4. An inflatable tire for bicycle and other vehicle wheels, the same being constructed in sections, each section being provided with a valve and having its ends formed with a lip and a recess arranged to receive the lip of an abutting section, each section tapering longitudinally and having its larger end abruptly rounded off, whereby a stepped appearance is given to the complete tire, and an inelastic lever and hook attached to each section and arranged to interlock over the rim of the wheel, as and for the purpose set forth.

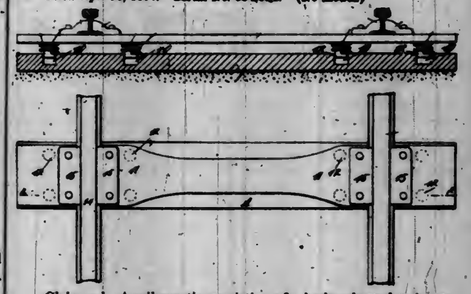
589,663. **ROLL FOR TYPE-WRITERS.** MORRIS C. MEIGS, Sheepshead Bay, N. Y. Filed July 15, 1896. Serial No. 599,350. (No model.)



Claim.—1. A roll for type-writers consisting of a spindle, heads secured near the ends of the spindle, disks of the same diameter as the heads secured at intervals along the spindle, so as to leave spaces between each other, a cylindrical cover secured over the disks and heads, said cover consisting of layers of rubber with a layer of canvas interposed, the layer struck by the type being directly supported by the disks, and a valve leading through one of the heads to the interior of the casing, as and for the purpose described.

2. A roll for type-writing machines consisting of a spindle, heads secured near the ends of the spindle, a cylindrical cover secured around the heads whereby a hollow cylinder is formed, said cover consisting of layers of rubber with a layer of canvas interposed, a valve leading through one of the heads into the cylinder and means for directly supporting the layer struck by the type to prevent sagging near the center, substantially as described.

589,664. **RAILROAD-TIE.** STEPHEN K. MILLER, Newtown, Ohio. Filed Apr. 30, 1897. Serial No. 634,521. (No model.)



Claim.—1. A railway-tie consisting of a body adapted to be stationary, and provided with openings in its upper surface, and an upper section parallel with the body-section, provided with pins extending from its under surface into the openings of the body-section, and springs coiled around said pins, having a bearing against each section of the tie.

2. The combination, with the body portion of a railway-tie having openings at its upper surface, of an upper parallel section provided with pins which extend loosely into the openings of the body-section, springs coiled around the pins, having bearing against both sections of the tie, and fastening devices for rails located upon the upper section of the tie between the pins.

3. In a metal railway-tie, the combination, with a body-section adapted to be fixed in the ground, and provided near each of its ends with a series of openings, of an upper section for the tie, likewise of metal, pins secured to the under face of the upper tie section, having end movement in the openings in the body-section, springs coiled around said pins, engaging with opposing faces of the two sections of the tie, and angular clamps arranged in pairs between the pins of each end series, the clamps being adapted to hold a rail between them.

589,665. **END-GATE.** JOHN C. MILNER, Kansas City, Mo. Filed Dec. 12, 1896. Serial No. 615,507. (No model.)

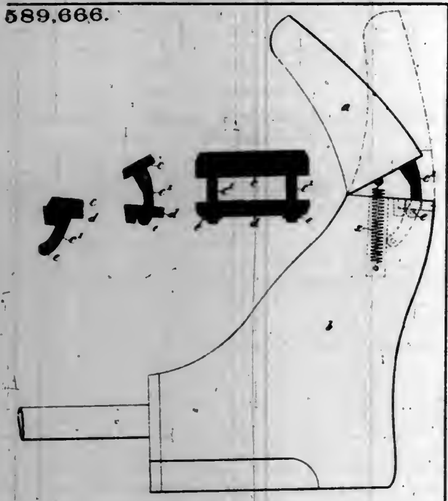


Claim.—A sectional end-gate adapted to be fitted terminally in vertical guides on the sides of a wagon-body, said sections being hinged together; a shield, approximately coextensive with the end-gate, secured to one of the sections to overlap the other and provided with horizontally-alined closed bearings; a locking-rod permanently mounted in said bearings and extending terminally through horizontal slots, open at their rear ends, in the sides of the wagon-body, to allow the end-gate with the attached rod to be removed rearwardly; socket-plates secured to the sides of the wagon-body and provided respectively with angular and round seats and communicating slots which register with the slots in the sides of the wagon-body; the said locking-rod being provided with a shoulder or enlargement 10 to fit in the round seat, and a nut threaded upon the locking-rod contiguous to and adapted to be fitted in said angular seat, said locking-rod being provided at the shouldered end with a fixed handle 19 and at the nut-engaged end with a head 18 to prevent disengagement of the nut; substantially as specified.

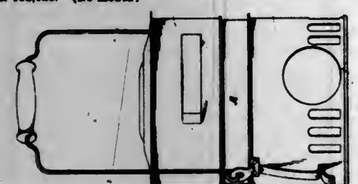
589,666. **TREE FOR BOOTS OR SHOES.** HARRY W. MORRIS and ALFRED LEWIS, Kettering, England. Filed Jan. 23, 1897. Serial No. 620,377. (No model.)

Claim.—In toe-jointed trees for boots and shoes, the hinge or shackling device above described, consisting of plates secured to the divided portions of the tree, and connected together by curved arms, substantially as set forth.

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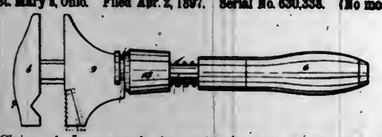


589,667. DINNER-PAIL HEATER. WILFRED W. MONTAGUE and WILLIAM G. DOUGALL, San Francisco, Cal. Filed Apr. 20, 1897. Serial No. 632,925. (No model.)



Claim.—An improved dinner-pail-heating attachment, consisting of an open-topped casing into which the bottom of the pail is adapted to slide telescopically, a heater within the casing, means for supporting the bottom of the pail above the heater and allowing the pail to descend and extinguish the heater, a swinging bail fitted to said casing and extending up alongside the pail, and the pail-cover having notches into which the arms or members spring into contact whereby the device is retained in a vertical position when being carried.

589,668. WRENCH. HARRY S. NOBLE and CHARLEY M. TOBBING, St. Mary's, Ohio. Filed Apr. 2, 1897. Serial No. 630,338. (No model.)



Claim.—1. In a wrench, the combination of a shank with a rigid jaw fixed thereon and a shank with a series of broken threads at one side of which a rib runs longitudinally along the shank, a jaw sliding on the shank, and a thimble revolubly connected with the jaw and turning on the shank, the thimble having broken internal threads coacting with the threads on the shank.

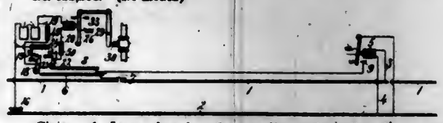
2. The combination of a shank having broken threads at one side of which a rib runs longitudinally with the shank, and a thimble turning on the shank and having internal threads coacting with the threads on the shank.

3. The combination of a shank with a rigid jaw thereon and with broken threads at one side of which is a rib running longitudinally with the threads, a jaw sliding on the shank, and a thimble revolubly connected with the jaw and having internal threads coacting with the threads on the shank

4. The combination of a shank having a series of broken threads, the lengths of which are separated from each other to form a longitudinal space running along the shank, and the shank also having a rib running longitudinally at one side of the threads, and a thimble turning on the shank and having broken internal threads coacting with the threads on the shank, the threads of the thimble being capable of moving through the space between the ends of the threads on the shank when not engaging said threads on the shank.

5. The combination of a shank having broken threads, with a stop at one side of the threads, the ends of the threads being separated to form a space running longitudinally along the shank between the ends of the threads, and a thimble turning on the shank and having broken internal threads coacting with the threads on the shank and capable of running through the space between the ends of the threads on the shank.

589,669. ELECTRIC SAFETY APPLIANCE FOR RAILROADS. EDWARD L. OSGOOD, Somerville, Mass., assignor to the International Railroad Appliance Company, Kittery, Me. Filed Feb. 6, 1897. Serial No. 622,268. (No model.)



Claim.—1. In an electric safety appliance for railroads, a track mechanism, consisting of an open track-circuit, composed in part of both rails of the track and including a contact-plate, an open line-circuit composed in part of one rail of the track, including a contact-plate and governed and controlled by the track-circuit, and a train mechanism, consisting of a supply of electricity, an open circuit having a brush engaging the contact-plate in the track-circuit and charging the track-circuit, a closed circuit having a brush engaging the contact-plate in the line-circuit, looping in said circuit, a magnet in the closed circuit, and a signal operated by the movement of the armature of said magnet, for the purpose set forth.

2. In an electric safety appliance for railroads, a track mechanism, consisting of, an open track-circuit composed in part of both rails of the track, and an open line-circuit governed or controlled by the track-circuit, and a train mechanism, consisting of a supply of electricity, an open circuit charging the track-circuit, a closed circuit looping in the line-circuit, a magnet in the closed circuit, and a signal governed or controlled by the armature of said magnet, for the purpose set forth.

3. In an electric safety appliance for railroads, a track mechanism, consisting of a track-circuit composed in part of both rails of the track having a contact-plate at one end of the track-circuit, electrical connections between the rails of the track, a magnet in said connections, and a line-circuit having a contact-plate at one end thereof, the armature of said magnet included therein governing said circuit, and a train mechanism, consisting of a supply of electricity, an open circuit, a brush therein engaging the contact-plate and charging the track-circuit, a closed circuit, a brush thereon engaging the contact-plate in and looping in the line-circuit, a magnet in the closed circuit, and a signal operated by the armature of said magnet in the train mechanism, for the purpose set forth.

4. In an electric safety appliance for railroads, a track mechanism, composed of two circuits, combined with a train mechanism, consisting of a supply of electricity, an open circuit charging one of the circuits on the track, a closed circuit looping in and charging the other circuit on the track, and a signal operated by the breaking of the closed circuit, either by the breaking of any of the members constituting said closed circuit or the breaking of the circuit on the track at the time or during the time that it is looped into said closed circuit, for the purpose set forth.

5. In an electric safety appliance for railroads, a track mechanism, composed of two open circuits, a contact-plate in each circuit, combined with a train mechanism, composed of an open circuit, a brush in said circuit engaging the contact-plate in and charging one of the circuits on the track, a closed circuit, a brush in said circuit engaging the contact-plate in and looping in the other circuit on the track, a signal governed by the closed circuit, and a resistance in the closed circuit cut out by the looping in of the track-circuit, whereby the potential of the electricity in the closed circuit is substantially constant at all times, for the purpose set forth.

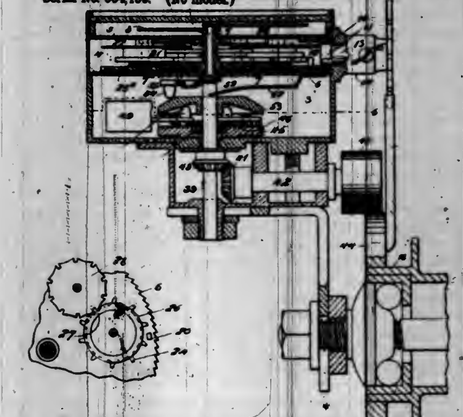
6. In an electric safety appliance for railroads, a track mechanism, consisting of two open circuits one governed or controlled by the other, and a contact-plate in each circuit, combined with a train mechanism, consisting of a supply of electricity, and open circuit having a brush engaging the contact-plate in and charging one of the circuits in the track mechanism, a closed circuit having a magnet and a brush engaging the contact-plate in and looping in the other circuit in the track mechanism, a secondary circuit including and governed or controlled by the armature of the last-named magnet, for the purpose set forth.

7. In an electric appliance for railroads, a track mechanism consisting of two open circuits having a contact-plate in each, one circuit governing or controlling the other, combined with a train mechanism, consisting of a supply of electricity, an open circuit having a brush engaging the contact-plate in and charging one of the circuits in the track mechanism, a closed circuit having a brush engaging the contact-plate in and looping in the other circuit on the track, and a magnet therein, a plurality of secondary circuits including and governed or controlled by the armature of the magnet in the closed circuit, a magnet in each of the secondary circuits, and a signal for each secondary circuit operated by the armature of its respective magnet, for the purpose set forth.

8. In an electric safety appliance for railroads, a track mechanism containing an open circuit, combined with a train mechanism containing a closed circuit looping in the open circuit on the track, and a resistance in the closed circuit on the train cut out by the looping in of the track-circuit, for the purpose set forth.

9. In an electric safety appliance for railroads, a circuit on the track, combined with a closed circuit on the train looping in the track-circuit, two resistances in said closed circuit, one cut out by the looping of said track-circuit equalizing the potential of the current of electricity in the circuit, and the other resistance preventing the overflashing of electricity from the train-circuit into the track-circuit, for the purpose set forth.

589,670. COMBINED SPEED-INDICATOR AND CYCLOMETER. WILLIS H. OSTRANDER, Boston, Mass., assignor to himself, and Antonio Ramos and Louis H. Newton, New York, N. Y. Filed Aug. 28, 1896. Serial No. 604,159. (No model.)



Claim.—1. In a speed-indicator, the combination of a disk having a conical upper surface, and pivoted revolving weights actuated from the vehicle-wheel and controlling the vertical position of said disk, with an indicating-pointer and a pivoted lever controlling the same and engaged at one end by the conical side surface of said disk to swing the end of said lever to or from the disk-center, substantially as described.

2. In a speed-indicator, the combination of a disk having conical upper and lower surfaces, spring-restrained revolving weights actuated from the vehicle-wheel and having bearing-points engaging the under conical surface of the disk to control its position, with a pivoted lever bearing at one end upon the upper conical surface of the disk and swinging radially thereof, and an indicator hand or pointer controlled by said lever, substantially as described.

3. In a speed-indicator, the combination of a disk having conical upper and lower surfaces, spring-restrained revolving weights actuated from the vehicle-wheel and having bearing-points engaging the under conical surface of the disk to control its position, with a pivoted lever bearing at one end upon the upper conical surface of the disk and swinging radially thereof, a spring holding said lever in contact with the conical surface of the disk, and a pointer controlled by said lever, substantially as described.

4. In a speed-indicator, the combination of a disk having conical upper and lower surfaces, spring-restrained revolving weights actuated from the vehicle-wheel and having bearing-points engaging the under conical surface of the disk to control its position, with a pivoted lever bearing at one end upon the upper conical surface of the disk and swinging radially thereof, and provided with a segment-gear, a pointer and a pinion connected to the pointer-pivot and controlled from the segment-gear, substantially as described.

5. In a speed-indicator, the combination of a disk having conical upper and lower surfaces, spring-restrained revolving weights actuated from the vehicle-wheel and having bearing-points engaging the under conical surface of the disk to control its position, with a pivoted lever bearing at one end upon the upper conical surface of the disk and swinging radially thereof and provided with a segment gear, a spring holding said lever in contact with the conical cam-surface of the disk, a pointer and a pinion connected to the pointer-pivot and controlled from said segment gear, substantially as described.

6. The combination with a casing, of a cyclometer consisting of a series of rotary parts, one of said rotary parts having a tubular hub, a rod mounted to rotate in said tubular hub, a pointer carried by said rod and movable over a dial in the casing, a shaft extended through the lower wall of the said casing, means for operating said shaft from the rotary part of a vehicle, a disk mounted on said shaft within the casing, weighted levers pivoted on said disk, a pinion loosely mounted on the shaft, a spring connection between the shaft and pinion-segment, gears on the weighted levers meshing with said pinion, pins carried by said levers, a disk loosely mounted on said shaft, said disk being convexed on its under side, a spring bearing with its free end upon said disk, and means operated by said disk for rotating the rod extending through the tubular hub, substantially as specified.

7. A cyclometer, comprising a wheel having a tubular hub, a rod mounted to rotate in said tubular hub, a pointer on the outer end of said rod movable over a dial, a pinion on the inner end of said rod, a segment-gear engaging with said pinion, a pinion carried by said segment-gear, a fulcrumed lever having a segment-gear engaging with said last-named pinion, a shaft adapted to be operated by a rotary part of a vehicle, weighted levers carried by a disk rigidly secured to said shaft, a disk loosely mounted on the shaft and convexed on its under side, pins on the weighted levers engaging said convexed under side, and a lug extended from the lever having a segment-gear engaging with the beveled upper edge of the said loosely-mounted disk, substantially as specified.

589,671. BICYCLE HANDLE-BAR. SAMUEL PALMITER, Jamestown, N. Y., assignor to Robert M. Keating, Springfield, Mass. Filed Oct. 10, 1894. Serial No. 525,534. (No model.)



Claim.—1. In bicycle handle-bars the main bar provided with a worm-gear around said bar, said bar being inserted in a head and held in position by a worm on a bolt engaging the gear of the bar as shown and for the purpose set forth.

2. In bicycle handle-bars the main bar made in one or more parts and provided with a worm-gear around said bar, said bar being inserted in a head and held in position by a worm on a bolt which engages the worm-gear, said worm-bolt being provided with a set-nut as shown, and for the purpose set forth.

3. A bicycle-handle adjuster, comprising the combination of an adjusting-screw having a spiral thread, with a handle-bar having a series of teeth in connection therewith, adapted to engage the spiral thread of said adjusting-screw.

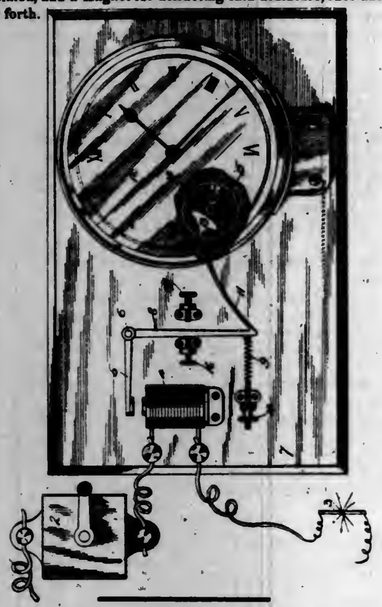
589,672. ELECTRIC METER. CHARLES C. SCHUMACHER and ALBERT G. ZAMEL, Chicago, Ill. Filed May 22, 1897. Serial No. 637,695. (No model.)

Claim.—1. A device for the purpose described having in combination a recorder provided with a balance-wheel, a pinion on said balance-wheel, a toothed segment engaging said pinion, an armature connected with said segment, and a magnet for attracting said armature, substantially as set forth.

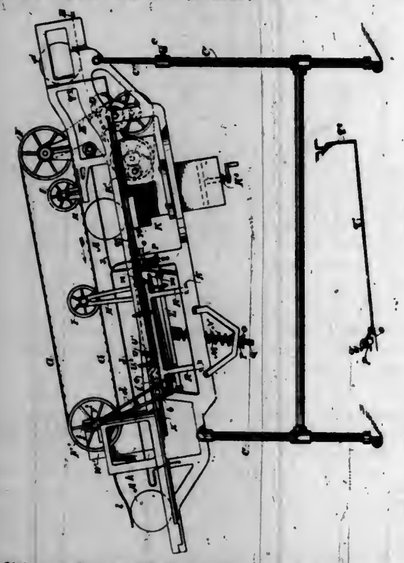
2. A device for the purpose described having in combination an electric circuit or supply conductor, a switch interposed therein, an electromagnet interposed in said circuit between said switch and the point of consumption, an armature for said magnet, an arm projecting from said armature and carrying a toothed segment, a recorder having a pinion with which said segment engages and means for holding said segment in engagement with said pinion when the magnet is deenergized, substantially as set forth.

3. A device for the purpose described having in combination a recorder provided with a balance-wheel, a pinion on said balance-wheel, a pivoted armature having an arm, a segment carried by said

arm and engaging said pinion and having its face struck on an arc concentric with the arc described by said arm whereby it will move into engagement with and also beyond and out of engagement with said pinion, and a magnet for attracting said armature, substantially as set forth.



589,678. CAN-LABELING MACHINE. JOHN P. SIMMONS, San Francisco, Cal., assignor to Lyman C. Parks, same place. Filed Mar. 12, 1897. Serial No. 627,091. (No model.)



Claim.—1. In a can-labeling machine, an inclined runway over which the cans are adapted to move by gravitation, a label support or table interposed in the length of the runway, with means for raising it so as to keep the surface of the labels at a constant level, means comprising a horizontal tubular chamber and a rotatable compartment-shaft therein, for applying paste and means for rolling the labels upon the cans as they pass.

2. In an apparatus for applying labels to cans, an inclined runway through which the cans are adapted to roll by gravitation, arms projecting radially from a shaft into the line of travel of the cans, whereby the passage of the cans causes them to engage with each arm successively and rotate the shaft, an endless traveling belt passing around rollers above the runway, a chain or belt and intermediate pulleys by which said endless belt is advanced by the movement of the cans engaging the arms above described, rollers pressing upon the lower side of the belt having vertically-movable shafts whereby the rollers exert a pressure to force the belt into contact with the cans passing beneath, while allowing the belt to adjust itself to irregularities in the passing cans.

3. In a gravity can-labeling machine, an inclined runway, mechanism by which the cans are guided and directed down the runway, a vertically-movable spring-actuated table carrying labels, guide-plates upon opposite sides between which the edges of the label are movable, and by which they are retained in line, one of said plates being slidable in guides and the other plate being hinged at the bottom and provided with means for adjusting its free end.

4. In a gravity can-labeling machine, an inclined runway, mechanism by which the cans are guided and their rate of motion regulated, a vertically-movable spring-actuated table carrying labels, a guide-plate against which one edge of the labels contact, said plate being slidable in guides so as to move up and down and retain its position, and form a stop against which the edges of the labels are held true upon that side, a hinged spring-actuated plate pressing against the opposite edge of the labels to retain them in position and an adjusting-screw for the free end of the hinged plate.

5. In a gravity can-labeling machine, an inclined runway, mechanism by which cans are guided therethrough, and their rate of motion regulated, a vertically-movable spring-actuated label-carrying table with directing-guides, and guides upon the sides by which the edges of the labels are retained in proper line, a device by which the rear edges of the labels are retained in position, consisting of spring-actuated rotary shafts extending along the runway, having curved pointed projecting arms U adapted to press upon and hold the ends of the labels, and other arms U^3 also projecting from said shafts and extending into the pathway of the can, in advance of the first-named arms, whereby said arms U^3 are actuated by the passing cans to release the labels from the pointed holders.

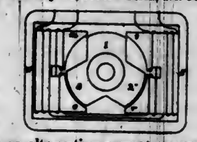
6. In a gravity can-labeling machine, an inclined runway, mechanism by which the cans are guided and their rate of passage therethrough is regulated, a vertically-movable spring-actuated table with guides and plates for retaining the labels in their proper position, a spring-actuated sliding arm having a depression made in its upper surface, a rod *f* having a bent arm projecting over the sliding bar and another arm at the opposite end adapted to move in or out the line of the runway, a lug projecting from the table so as to engage the spring-arm when the table has nearly reached the top, whereby the notched bar is moved to allow the bent arm to drop into it and the arm at the opposite end to be projected in front of the moving cans to arrest them.

7. In a gravity can-labeling machine, a runway through which the cans are passed, and mechanism by which they are guided and their rate of motion determined, a spring-actuated vertically-movable label-carrying table, a paste-receptacle, a channel connecting said receptacle with a horizontal tubular chamber into which the paste is delivered, a rectangular compartment-shaft rotatable within the tubular chamber adapted to carry forward a small portion of paste in each compartment as it rotates, a spring-actuated rod pressing against the front edge of the shaft so as to wipe off the paste and deposit it upon the rear edge of the labels ready to be applied to the approaching can.

8. In a gravity can-labeling machine, an inclined runway through which the cans pass by gravitation, a label-carrying table over which the cans are adapted to roll in contact with the uppermost labels successively, a horizontal tubular chamber with a means for supplying paste thereto, a polygonal or compartment shaft with means for rotating it within the chamber, whereby a portion of paste is advanced in each compartment by its rotation, a spring-actuated rod pressing against the front edge of the shaft whereby the paste in each compartment is successively forced off upon the edge of a label beneath and a corrugated or toothed roller *i* by which the rear edge of the label is held so as to be properly smoothed and applied to the passing can.

9. In a gravity can-labeling machine, an inclined runway through which the cans pass by gravitation, guides and mechanism by which their rate of speed and direction are regulated, a label-carrying table with labels, the upper surface of which is constantly kept in position to be picked up by the can rolling over them, a device for applying paste to the rear ends of the labels, consisting of a polygonal or chambered shaft rotating within a tubular casing to which paste is constantly supplied, a rod by which the paste is forced out of each compartment upon the edge of the label beneath, and a mechanism for rotating the shaft, consisting of a ratchet-wheel upon its outer end, rack-bars engaging the teeth of the ratchet-wheel, said rack-bars being connected with a vertically-movable shaft or arm, and an upward inclination of the runway over which the cans pass whereby said shaft or arm is periodically lifted so that the rack-bars will act upon the ratchet-wheel, substantially as described.

589,674. ALTERNATING-CURRENT GENERATOR. FRANK H. SLEEPER, St. Johnsbury, Vt., assignor of one-half to Henry Fairbanks, same place. Filed May 21, 1896. Serial No. 592,505. (No model.)



Claim.—1. In an alternating-current generator, a continuously-magnetized field, each pole divided to present two or more divisions to the armature, and shaped to the path of its teeth, a revolving armature having teeth of nearly the same form and angular breadth (measured from the axis of rotation) as the said divisions of the field-poles, and moving close to them, these teeth separated by depressions of substantially the same angular breadth as the teeth, and, in combination with these elements, circuit-generating coils upon these divisions of the field poles, the arrangement and spacing of the whole being such that, for the generating-coils of each circuit, all the right-hand-wound north-pole divisions, and all the left-hand-wound south-pole divisions shall, in one position of the armature, have its teeth presented to them, and in the next position when the armature has moved the breadth of one tooth, all the left-hand-wound north-pole divisions and all the right-hand-wound south-pole divisions shall have its teeth presented to them, whereby, when the armature is rotated, the magnetic flux is directed alternately through the two opposite-wound sets of pole-divisions, and an alternating electric current is induced in the generating-coils, substantially as herein set forth.

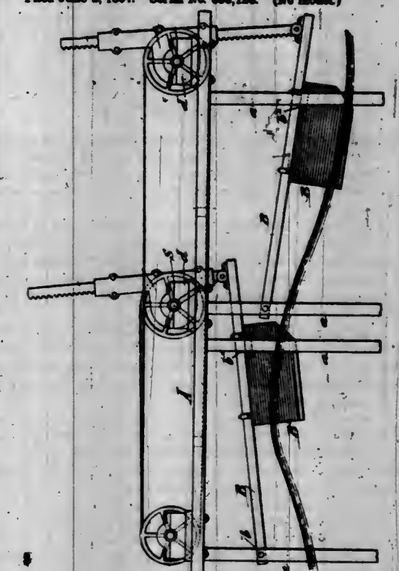
2. In an alternating-current generator, a continuously-magnetized field, each pole presenting to the armature two or more divisions, upon which divisions are alternately right and left hand wound generator-coils, and, in combination with these, a revolving armature having teeth, of which the angular breadth and also the spacing are substantially the same as the angular breadth of the presenting ends of the said pole-divisions, the spacing of the pole-divisions being such with reference to that of the armature-teeth that those teeth furnish, at one point of the rotation, paths for the magnetic flux across from all the right-hand-wound north-pole divisions to all the left-hand-wound south-pole divisions, and, an instant later, paths from all the left-hand-wound north-pole divisions to all the right-hand-wound south-pole divisions, whereby an alternating electric current is generated in the said circuit-coils, as herein specified.

3. In an alternating-current generator, an inductor-armature having teeth separated by spaces of the same breadth as the presenting ends of these teeth, in combination with a continuously-magnetized field, of which each pole presents to the armature-teeth pole-divisions of substantially the same angular breadth as the said teeth, these projecting pole-divisions being alternately right and left hand wound with generating-coils which are connected in two or more circuits, the angular spacing of the pole-divisions being such that at a given instant, when the pole-divisions of one circuit are fairly presented to the teeth of the armature, those of another circuit are only partly covered, being fairly presented an instant later, when the armature has moved a few degrees farther, whereby the wave of magnetic flux is also later, and the currents generated in these circuits are in different phase, as herein set forth.

4. In an alternating-current generator, an inductor-armature having teeth separated by spaces of the same breadth as the presenting ends of these teeth, in combination with a continuously-magnetized field, of which each pole presents to the armature-teeth several projecting subdivisions, upon which subdivisions are overlapping coils of two or more current-generating circuits, the coils of each circuit being alternately right and left hand wound, and the subdivisions encircled by each coil having together substantially the same angular breadth as one tooth of the armature, and the spacing of all the subdivisions being such that, at a given instant, all those right-hand wound in one circuit shall be fairly presented to the armature-teeth, and when the armature has moved part of the breadth of one tooth, all of those right-hand wound by the overlapping coils of another circuit shall be fairly presented, whereby, the magnetic flux in the latter being delayed, the currents generated in these two circuits are in different phase, as herein fully set forth.

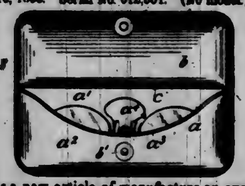
5. In an alternating-current generator, an inductor-armature having teeth separated by spaces equal to the breadth of the teeth, in combination with a continuously-magnetized field upon the divisions of the presenting poles of which are right and left hand wound circuit generating coils, and in combination with these a winding upon the armature, and a commutator arranged to generate and convey the current necessary to magnetize the field, as herein described.

589,675. WAVE-MOTOR. HENRI VOELMY, New York, N. Y. Filed June 2, 1897. Serial No. 638,128. (No model.)



Claim.—In a wave-motor, the combination of a supporting-frame, an actuating-lever, a stationary pivot on which the lever is fulcrumed, a float fixed to the outer end of the lever, a rack-bar pivoted to the outer end of the lever, a transmitting-shaft journaled in the frame, a guide-box pivoted on the transmitting-shaft and provided with ways for said rack-bar, a gear-wheel on said transmitting-shaft with which the rack-bar is held in mesh by the guide-box, and a clutch on said shaft formed of a member attached to said gear-wheel, and a spring-actuated member splined to said shaft, substantially as set forth.

589,676. SPECTACLE-CASE. ROY L. WARREN, North East, Md. Filed Nov. 16, 1896. Serial No. 612,351. (No model.)



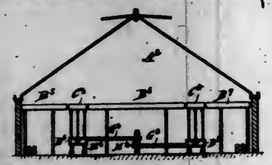
Claim.—As a new article of manufacture an eyeglass-case, comprising a pocket composed of a back plate and a front piece, secured at three of its edges to the back plate, a distance-block in the middle of the pocket to hold the front piece away from the back plate and protect the nose-piece of an eyeglass, the free edge of the front piece cut low to enhance the insertion and removal of an eyeglass, a bulged-out or buckled lid of stiff material, hinged to the upper edge of the back plate of the pocket, and a lock for securing the lid in a closed position, substantially as and for the purposes set forth.

589,677. GREENHOUSE. WILLIAM H. WITTE, Baltimore, Md. Filed May 20, 1896. Serial No. 593,562. (No model.)

Claim.—1. A greenhouse, provided with rails extending transversely of the greenhouse-walk, a wheeled framework adapted to travel on the said rails, a bench carried by the said framework, and means substantially as described, for raising and lowering the said bench on the said framework, as set forth.

2. A greenhouse, provided with a wheeled framework adapted to travel on transverse rails, a bench carried by the said framework, and a platform supported on the said framework and forming a walk, substantially as shown and described.

3. A greenhouse, provided with a wheeled framework, posts supported on the said framework, a bench fitted to slide vertically on the said posts, and springs coiled on the said posts and carrying the said bench, substantially as shown and described.



4. A greenhouse, provided with a wheeled framework, posts supported on the said framework, a bench fitted to slide vertically on the said posts, springs coiled on the said posts and carrying the said bench, and means, substantially as described, for raising and lowering the said bench, as set forth.

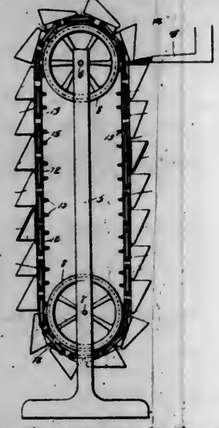
5. A greenhouse having two stationary benches held at different elevations and having a walk between them, a frame capable of moving transversely out from beneath the higher stationary bench and of occupying the walk, and a bench carried by the said framework and approximately level with the lower stationary bench, substantially as described.

6. A greenhouse having two stationary benches with a walk between them, a transversely-movable framework capable of extending into the walk or being withdrawn beneath one of the stationary benches, and a bench carried by the framework and moving with the same, substantially as described.

7. A greenhouse, having a bench forming a bed, a walk at one side thereof, and a second bench also forming a bed and having transverse guided movement to occupy a position in which the second bench extends over the walk or to extend within the vertical lines of the stationary bench, substantially as described.

8. A greenhouse having a stationary bench forming a bed, a walk at one side thereof, a track running transversely beneath the bench, and a wheeled bench also forming a bed and movable on the track to a position above the walk or beneath the stationary bench, substantially as described.

589,678. WATER-POWER APPARATUS. ORSON J. WOODARD, Mannsville, N. Y. Filed Jan. 26, 1897. Serial No. 620,745. (No model.)

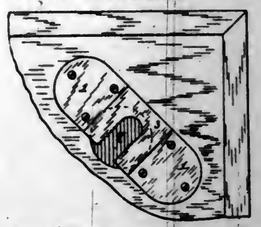


Claim.—1. In a water-power apparatus, the combination with two suitably-supported shafts, each of which is provided with two wheels, each of which is peripherally grooved, of a bucket-chain, consisting of separate buckets, the backs of which are provided with two sets of transverse strips, which are secured thereto, and links which are mounted between said strips, and pivotally connected therewith, and which overlap the space between the buckets, said links being each provided with inwardly-directed wedge-shaped teeth which operate in the annular grooves in said wheels, substantially as shown and described.

2. In a water-power apparatus, the combination with two suitably-supported shafts, each of which is provided with two wheels, each of which is peripherally grooved, of a bucket-chain, consisting of separate buckets, the backs of which are provided with two sets of transverse strips, which are secured thereto, and links which are mounted between said strips, and pivotally connected therewith, and which overlap the space between the buckets, said links being each provided with inwardly-directed wedge-shaped teeth which operate in the annular grooves in said wheels, and said strips being also provided with supplemental links which are pivotally connected with the outer sides thereof, and which overlap the spaces between the buckets, substantially as shown and described.

3. In a water-power apparatus, the combination with two suitably-supported shafts, each of which is provided with two wheels, each of which is peripherally grooved, of a bucket-chain, consisting of separate buckets, the backs of which are provided with two sets of transverse strips, which are secured thereto, and links which are mounted between said strips, and pivotally connected therewith, and which overlap the space between the buckets, said links being each provided with inwardly-directed wedge-shaped teeth which operate in the annular grooves in said wheels, and said strips being also provided with supplemental links which are pivotally connected with the outer sides thereof, and which overlap the space between the buckets, the links which are mounted between the strips and provided with teeth, being connected with the said strips by the same pins or bolts by which the supplemental links are connected therewith, substantially as shown and described.

589,679. TABLE-LEG FASTENER. AUGUST ZWIEBLER, Dayton, Ohio, assignor to the Gem Fastener Co., same place. Filed June 1, 1897. Serial No. 639,047. (No model.)



Claim.—1. In a fastener for table-legs, the combination with a table-leg having its upper end terminating on a slant and provided with slots in opposite sides thereof on a plane parallel with said slanting edge, of a fastener adapted to be secured to the under side of a table, having a slot cut in the lower horizontal portion thereof providing two toothed edges adapted to enter the slots in the table-leg, the distance of said slots from the upper edge of the leg being essentially equal to the distance between the lower horizontal portion of the fastener and the table-top, so that when the leg is in position it will be maintained against any lateral movement by both the table and the fastener, substantially as shown and described.

2. A fastener for table-legs, comprising a metallic plate bent to form two horizontal ears 1 1, two parallel side walls 2 2, and a transverse portion 3 uniting said walls and occupying a lower plane than the ears 1 1, the said transverse portion having a slot 4 cut therein providing two serrated edges 6 adapted to enter slots in the opposite sides of a table-leg, as herein shown and described.

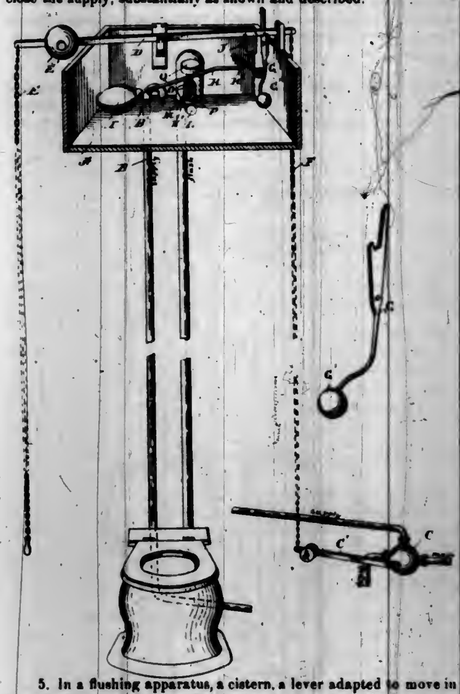
589,680. WATER-CLOSET CISTERN. GEORGE D. ACKLEY, Fort Worth, Tex. Filed Jan. 9, 1897. Serial No. 618,615. (No model.)

Claim.—1. A flushing apparatus comprising a cistern, a lever adapted to swing vertically over the cistern, a float-carrying latch adapted to automatically engage the lever when raised, a water-supply adapted to be opened by the raising of the lever, a float mechanism adapted to automatically raise the lever from engagement with the latch when the latter falls back out of the path of the lever, and a discharge, substantially as shown and described.

2. An improved flushing apparatus comprising a cistern, a lever fulcrumed thereover and controlling the water-supply, the supply being cut off when the lever is depressed and open when the lever is raised, a mechanism for holding the lever raised, a float actuated device adapted to exert upward pressure upon the lever to release it from said holding mechanism, and a discharge for the cistern, substantially as shown and described.

3. An improved flushing apparatus comprising a cistern, a vertically-swinging lever controlling the water-supply, a device for holding the lever raised, a float-actuated mechanism adapted during a portion of its vertical movement to engage the lever and release it from said holding device, and mechanism for automatically depressing the lever upon the release of said holding device, thus shutting off the water-supply, substantially as shown and described.

4. In an improved flushing apparatus, the combination with a cistern, a vertically-swinging supply-controlling lever, a vertically-swinging float-actuated device adapted to engage the lever during a portion of its vertical movement and thus sustain the lever in an elevated position, of a discharge mechanism adapted to be started at the time the float-actuated device is sustaining the lever, the water discharging more rapidly from the cistern than it flows thereinto, thus lowering the float-actuating device and causing the latter to disengage the lever and permitting the latter to drop and thereby close the supply, substantially as shown and described.



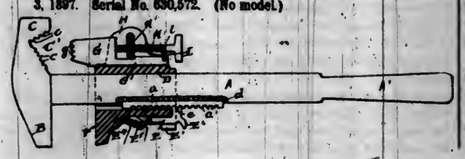
5. In a flushing apparatus, a cistern, a lever adapted to move in a vertical arc, a mechanism for holding the lever in a raised position, a float-actuated device adapted to swing in a vertical arc in a direction opposite to that of the lever, and adapted during a portion of its upward movement to engage and elevate the lever, said holding mechanism being adapted to release upon the elevation of the lever, substantially as shown and described.

6. An improved flushing apparatus comprising a cistern, a lever fulcrumed above the cistern for controlling the water-supply, said lever being normally lowered with the water-supply cut off, a float-carrying latch adapted to swing automatically beneath the lever when raised, the tendency of the latch being to disengage the lever when the water rises in the cistern, mechanism for elevating the lever so as to permit the latch to disengage the same, and a discharge for the cistern, substantially as shown and described.

7. In a flushing apparatus, the combination of a vertically-swinging lever for controlling the water-supply, a device for holding the lever raised, an extension depending from the lever, and a vertically-swinging float-arm adapted to engage said extension, the holding device being adapted to release upon engagement of said parts, substantially as shown and described.

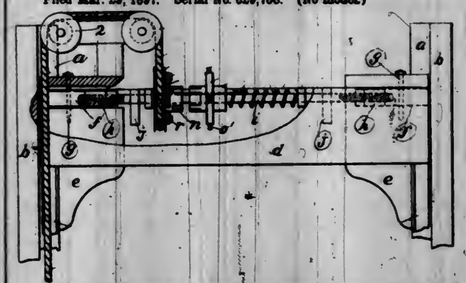
8. In a flushing apparatus, the combination of a vertically-swinging supply-controlling lever, a loop depending therefrom, the float-latch adapted to engage the lever and hold it elevated, and the vertically-swinging float-arm formed with a lateral offset adapted to engage the depending loop and thus sustain the lever and permit the float-latch to release, substantially as shown and described.

589,681. WRENCH. HENRY ALTHOFF, Melrose, Ill. Filed Apr. 3, 1897. Serial No. 630,572. (No model.)



Claim.—The herein-described combined pipe and nut wrench, comprising a bar or shank having at one end a T-head which forms the two fixed lateral jaws B and C, and below said head a toothed spline, or rib, said jaw C having therein a V-shaped notch whose walls are toothed, the slide fitted to said shank and engaging said rib or spline, the spring-actuated locking dog or pawl carried by the slide and adapted to engage the teeth of said rib, or spline, the said slide having at one side a jaw projection F which opposes the jaw B, and at the opposite side a slotted lug H, the sliding jaw-piece G seated in the slot of said lug and having a toothed jaw-face which is opposite the said notch in the jaw C, and the actuating-screw which engages an arm of said jaw-piece, substantially as specified.

589,682. ELEVATOR-STOP. JESSE P. ALTHER, Chicago, Ill. Filed Mar. 29, 1897. Serial No. 629,758. (No model.)



Claim.—1. The combination with an elevator car and its guides, a shaft with right and left handed threads and non-revolable nuts at its ends, a clutch element feathered on its shaft, a shive loose on the shaft, and a clutch member affixed thereto, and means to rotate said shive mechanism, mechanism tending to engage said clutch parts, means to normally hold said clutch elements apart and means to release said holding means, said releasing means being dependent for its action on the speed of the travel of said car, of levers connected to and actuated by said nuts, fulcrumed and placed to pinch said guides, substantially as specified.

2. The combination with an elevator-car and its guides, of a right and left handed screw-threaded shaft provided with a clutch member, feathered on the shaft, and a shive loose on the shaft, and a clutch member affixed thereto, and means to rotate said shive, and means tending to engage said clutch elements, means to normally hold said clutch elements apart, and centrifugally-acting mechanism to release said holding elements, and non-revoluble nuts on said threaded shaft ends, and levers connected to and actuated by said nuts, fulcrumed and placed to pinch said guides, substantially as specified.

589,683. DRIVE-CHAIN FOR CYCLES. ALFRED APPLEBY, Birmingham, England. Filed June 10, 1897. Serial No. 640,185. (No model.)



Claim.—1. In a drive-chain, the combination with end links having cross holes or piercings adapted to register with one another, of a locking-plate attached to one end of one of the said links and the other end of which is formed into two spring gripping-jaws, and a pivot-pin arranged to fit registering holes in the end links and provided with a rounded end and a contracted neck into which latter the edges of the spring-jaws take to normally hold the cross-pin in its joining-up position, substantially as described.

2. In a drive-chain, the combination with end links having cross holes or piercings adapted to register one with the other, of a locking-plate attached to one end of one of the said links and the other end of which is formed into two spring gripping-jaws provided with parts to form a gate or entrance and a keyhole, the said gripping-jaws being able to be forced apart to enlarge the gate, and a pintle arranged to fit registering holes in the end links to pivotally connect the latter and provided with a rounded end and a contracted neck, into which latter the edges of the spring-jaws adjacent to the gate or entrance take to normally hold the pintle in its joining-up position, substantially as described.

3. In a drive-chain, the combination with end links having cross holes or piercings adapted to register one with the other, of a locking-plate attached to one end of one of said links and the other end of which is formed into two spring gripping-jaws provided with parts to form a gate or entrance and a keyhole, the said gripping-jaws being able to be forced apart to enlarge the gate, a pivot pin arranged to

fit registering holes in the end links and provided with a rounded end and a contracted neck, into which latter the edges of the spring-jaws adjacent to the gate take to normally hold the cross-pin in its joining-up position, a limiting slot or piercing within the link to which the locking-plate is attached and adjacent to the keyhole thereof, and a key adapted to fit the said keyhole and locking-plate and to extend into limiting-slot, substantially as described.

589,684. MAGAZINE BOLT-GUN. THOMAS H. R. ASHTON, North Deniliquin, New South Wales. Filed Dec. 5, 1896. Serial No. 614,628. (No model.)



Claim.—1. In a magazine-rifle, the combination with the receiver having an interior inclined recess f^3, of a bolt consisting of three parts D, D′ and D^2, the central part D′ being externally threaded at one end and internally-threaded at the other, and the end pieces D, D^2, being respectively screwed on and in said threaded ends, and a locking-lever and lug formed integrally with said central piece D′, the lug being arranged to engage the recess f^3, substantially as described and for the purpose specified.

2. In a magazine-rifle, a bolt made in three parts, the two end parts being rotatably mounted on the central part, a locking lever and lug carried by said central part, an upwardly-projecting longitudinal feather d^3 formed on the forward portion of said central part, in combination with a receiver provided with a longitudinal slot in its rear upper portion arranged to receive said feather or lug, whereby the central portion of the bolt may be turned independently of the end pieces but is prevented from turning when in its retracted position, substantially as described.

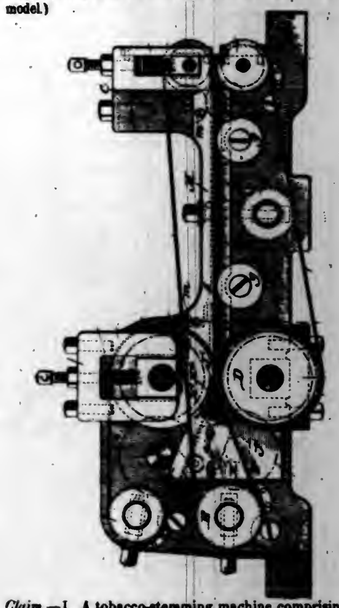
3. In a rifle, a trigger made in the form of a bell-crank lever one arm of which extends horizontally rearward and terminates in an open hook or loop, a fixed pin detachably engaged by said hook or loop, a shoulder formed on the upper side of said horizontal arm and arranged to engage the cocking-head, a spring arranged beneath the horizontal arm of the trigger for maintaining the said shoulder in engagement with the cocking-head, and means for adjusting the tension of the spring, substantially as described.

4. In a rifle the combination with a sliding bolt, of an extractor provided with lateral lugs projecting from its opposite sides and journaled in bearings formed on the forward end of the bolt, the rear portion of said extractor terminating in a flat spring having a downwardly-turned end resting on the bolt, a curved projection formed on the extractor between said lugs, and a sand or dust cover detachably fixed on the bolt and resting at its forward end on said projection, substantially as described.

5. In a rifle, the combination with a receiver and a sliding bolt arranged therein, and provided with dovetailed projections on its ends, of a sand or dust cover provided on its under side with dovetailed grooves adapted to engage said projections and hold said cover on the bolt, and provided on one side near its rear end with a slot m^3, and a locking-lever carried by the bolt and arranged to engage said slot in the cover and lock the latter against longitudinal movement on the bolt, substantially as described.

6. In a rifle, the combination with the rotatable sliding bolt provided with a recess in its periphery and the trigger, of a vertically-movable bolt-catch loosely connected with the trigger, and a spring for normally holding said bolt-catch in engagement with the recess in said bolt to lock the latter against rotation until the cartridge has been exploded, substantially as described.

589,685. TOBACCO-STEMMING MACHINE. MILTON C. RAUGHAN, Richmond, Va., assignor to the Raughan Tobacco Stemming Machine Company, same place. Filed Nov. 7, 1896. Serial No. 611,312. (No model.)



Claim.—1. A tobacco-stemming machine comprising the infeed-pulleys, the infeed-bands moving upon such pulleys in close relation to each other whereby to feed the folded leaves to the stem-feeding devices, the gages alongside said bands whereby to prevent the stem from entering between the bands, means for severing the stem from the leaf, and the stem-feeding devices substantially as shown and described.

2. A tobacco-stemming machine comprising the infeed devices means for severing the stem from the folded leaf and the stem-feeding devices comprising a pulley having a surface to receive the stem and a moving part cooperating with said surface of the pulley, and adapted to feed the stem positively substantially as shown and described.

3. A tobacco-stemming machine, comprising the lower stem-feeding pulley, the stem-feeding wheel, a guide-pulley arranged in rear of the said pulley and having its lower face arranged below the crown thereof, the upper and lower guide-pulleys in advance of the said pulley, means for severing the stem from the leaf and the upper and lower infeed-belts, the upper belt being passed at its rear end around the said rear guide-pulley, substantially as described.

4. In a tobacco-stemming machine, the combination with the infeed belts by which the leaves are fed folded, and the pulleys around which they pass, of the gage-plates arranged alongside said belts extended longitudinally in the direction of length of said belts and adjacent to the contacting surfaces thereof, substantially as shown and described.

5. In a tobacco-stemming machine, the combination of the infeed-belts by which the leaves are fed folded, and the gage-plates arranged alongside the same extended longitudinally in the direction of length of said belts and adjacent to the contacting surfaces thereof, one of such gage-plates being adjustable, substantially as shown and described.

6. In a tobacco-stemming machine, the combination of the stem-feeding pulley, the stem-feeding wheel, the front guide-pulleys, the rear guide-pulley arranged with its lower side below the crown of the stem-feeding pulley, the stem-discharging belt, the infeed-belts, the upper one being passed at its rear end around the rear guide-pulley, means for severing the stem and the gage-plates extended longitudinally alongside the infeed-belts, one of the gage-plates being adjustable, substantially as shown and described.

7. In a tobacco-stemming machine, a stemming-pulley having its periphery divided into a belt-receiving portion, and a milled-feed portion arranged side by side, substantially as shown and described.

8. The combination with the stem feeding pulley, the stem-feeding wheel, the cutter and the infeed devices by which the leaf is fed folded, of the stem-guide arranged in rear of the stemming devices, and the stem-discharging belt running upward in close proximity to the upper side of said stem-guide substantially as shown and described.

9. A tobacco-stemming machine, comprising the frame, the infeed belts arranged alongside said frame and unobstructed at their outer edges, and adapted to receive between them a leaf which has been folded along the stem, a space being provided between the inner edges of said belts and the frame for the passage of the stem, and the stemming devices, substantially as shown and described.

10. The combination in a tobacco-stemming machine, of the stem-feeding wheel, the stem-feeding pulley having a groove and a belt-surface, the infeed-belt running upon said pulley at one side of the groove, the cutter projecting into the said groove, and the spring whereby the stem is directed to said cutter substantially as shown and described.

11. In a tobacco-stemming machine, the combination of the frame, the infeed-belts by which the leaf is fed folded, means for supporting the belts, the stem-feeding wheel and the stem-feeding pulley arranged alongside said frame and unobstructed at their outer edges, the upper and lower gage-plates extending alongside the inner edges of the infeed-belts, the spring arranged at the inner ends of said gage-plates and adjacent to the stemming-pulley and the stem-guide and stem-discharging belt arranged in rear of the stemming-pulley substantially as shown and described.

12. In a tobacco-stemming machine, the combination of the stem-feeding wheel, the stem-feeding pulley, the infeed-belts by which the leaf is fed folded, the upper one of which is carried in rear of the stemming-pulley, the stem-guide and stem-discharging belt arranged in rear of the stemming-pulley and the stem-cutter having its blade extended up between the upper infeed-belt and the stem-discharging belt substantially as shown and described.

13. In a tobacco-stemming machine, the combination of the frame, the stem-feeding pulley projecting laterally from said frame and unobstructed at its outer end the infeed-belts by which the leaf is fed folded, guide-pulleys for the front ends of said belts, the rear guide-pulley for the upper belt arranged in rear of and at its lower edge below the upper surface of the stem-feeding pulley, the cutter, the upper and lower gage-plates spaced apart and arranged alongside the inner edges of the infeed-belts, the stem-guide and the stem-discharging belt all substantially as shown and described.

14. The combination of the stem-feeding pulley having a belt-surface and alongside the same, a milled or roughened surface, the infeed-belts one of which runs on the said belt-surface such belts operating to feed the leaf folded, supports for the other infeed-belt, the stem-guide in rear of the stem-feeding pulley, the part cooperating with the said pulley in feeding the stem, the pulley G′, the stem-discharging belt and the pulleys for the said belt one of said pulleys being arranged adjacent to the milled or roughened surface of the stem-feeding pulley and means for severing the stem substantially as shown and described.

15. The combination of the frame, the stem-feeding pulley, the part cooperating therewith in feeding the stem and the pulleys for the front ends of the infeed-belts arranged alongside and supported from said frame and unobstructed at their outer ends, the infeed-belts by which to feed the leaf folded, the guide-pulley for the inner end of the upper belt said guide-pulley being arranged with its lower surface below the crown of the stemming-pulley, the upper and lower gage-plates arranged alongside the infeed-belts and between the same and the frame one of such plates being adjustable, the stem-guide arranged in rear of the stemming-pulley, the stem-discharging belt, the stem-cutter and the spring by which the stem is pressed to said cutter substantially as shown and described.

16. In a machine substantially as described, the combination of the stemming devices, the longitudinal infeed-belts for feeding the folded leaf to said stemming devices, the devices for folding the leaf, the upright belts leading from said folding devices to the infeed-belts and a deflecting-plate extending adjacent to said upright belts and arranged to turn the leaf to a horizontal position and deliver it to the horizontal infeed-belts substantially as shown and described.

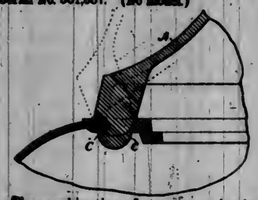
17. In a tobacco-stemming machine, the combination with the stemming devices and the horizontal infeed-belts for directing the folded leaf thereto of the devices for folding the leaf the vertical belts extending from said folding devices nearly to the receiving ends of the horizontal infeeding-belts and the deflecting-plate having one end arranged adjacent to the said vertical belts and twisting gradually therefrom toward its opposite end and having the latter end arranged approximately horizontal and extending beyond the discharge end of the vertical belts and adjacent to the receiving ends of the horizontal infeeding-belts substantially as shown and described.

18. In a machine substantially as described, the combination with a table or support of the opposite brushes for folding the leaf and the belts arranged to receive the folded leaf when folded by said brushes and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

19. In a machine substantially as described, the combination of a table or support, the folding brushes the rollers for feeding the leaf to said brushes, and the belts arranged to receive the folded leaf as it passes from the brushes and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

20. The combination substantially as described of the table or support the leaf-folding brushes, the devices for feeding the leaf to said brushes, the belts arranged to receive the folded leaf as it passes from the brushes and the deflecting-plate twisting from a plane parallel with that of the said belts to one approximately at right angles thereto and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

589,686. SWINGING STOVE-TOP. ARTHUR K. BENKWITH, Dowagiac, Mich., assignor to Fred R. Lee, same place. Filed Feb. 24, 1894. Serial No. 501,357. (No model.)



Claim.—The combination of a stove-top having a circular opening at one side of the same, and a lid having a pendent lug to one side thereof adapted to enter said opening, the said lug having a notch in one side thereof and a curved or spherical side opposite said notch the said lug being substantially circular in the cross-section of said notch, substantially as described.

589,687. LEVER-LOCKING MEANS FOR FIREARMS. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed June 14, 1897. Serial No. 640,619. (No model.)



Claim.—1. In a lever-gun, the combination with an operating or finger lever adapted at its forward end to be connected with the action mechanism of the gun, and formed at its rear end with a bow; of a lever-hook located within the bow of the operating-lever and formed at its forward end with a beak and having a long, rearwardly-extending tailpiece which is arranged to lie along the inner face of the outer portion of said bow; and means connected with and depending from the frame of the gun with which the beak of the hook is automatically engaged when the lever is brought into its closed position.

2. In a lever-gun, the combination with an operating or finger lever adapted at its forward end to be connected with the action mechanism of the gun, and furnished at its rear end with a bow, the base or forward end of which is formed with a vertical slot; of a lever-hook comprising a beak located in the said slot upon a horizontally-arranged pivot, and also comprising a long, rearwardly-extending tailpiece lying along the inner face of the outer portion of the bow; and a frame-hook depending from the frame of the gun for being engaged by the beak of the lever-hook when the lever is brought into its closed position.

589,688. CARPENTER'S COMBINATION-GAGE. AARON T. BINKERD, Allegheny, Pa. Filed May 3, 1897. Serial No. 634,545. (No model.)

Claim.—1. The stock A formed with the longitudinal slot a^3, the slide G, provided with the longitudinal groove g, aligned with said slot a^3, the rod F provided at its outer ends with the scratch-points f' f' and arranged to simultaneously engage the slot a^3 and groove g, and the adjustable block E, provided with the thumb-screw E', and adapted to simultaneously secure said stock A, slide G, and rod F in position, substantially as shown and described.



2. The stock A formed with the longitudinal slot a^3, the slide G, formed with the groove g and lug g' and cross portion G', the outer face of which is provided with the notch g^3, in combination with the rod F, provided at its outer end with the scratch-points f' f', and the block E, provided with the notch g^3, substantially as shown and described.

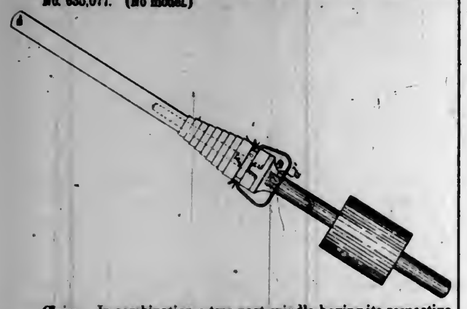
589,689. NUT-LOCK. JOHN P. BIRMINGHAM, Lexington, Va., assignor of one-half to Josiah Kolp, Buena Vista, Va. Filed Nov. 5, 1895. Serial No. 568,054. (No model.)



Claim.—1. A nut-lock, comprising a threaded bolt, a nut, a spring-blade having one end seated in the apex of a V-shaped recess opening off from the bore of the nut and having its free end formed to engage the threaded portion of the bolt, the spring being capable of biting the threads at one inclination, and, while so biting, of bending and reversing its inclination, as and for the purpose set forth.

2. A nut-lock, comprising a threaded bolt, a nut, a spring-blade having one end seated in the apex of a V-shaped recess opening off from the bore of the nut and having its free end formed to engage the threaded portion of the bolt, aside from its apices, the spring being capable of biting the threads at one inclination, and, while so biting, of bending and reversing its inclination, as and for the purpose set forth.

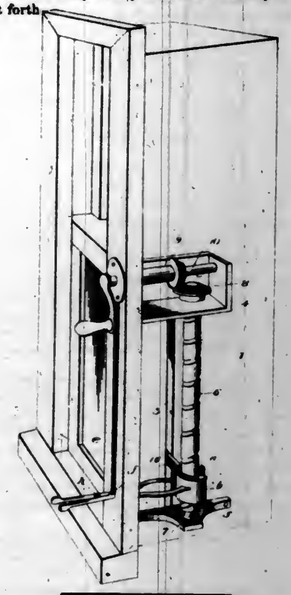
589,690. BOBBIN HOLDER OR CLAMP. GEORGE T. BOWMAN, Philadelphia, Pa. Filed June 12, 1894. Renewed May 4, 1897. Serial No. 635,077. (No model.)



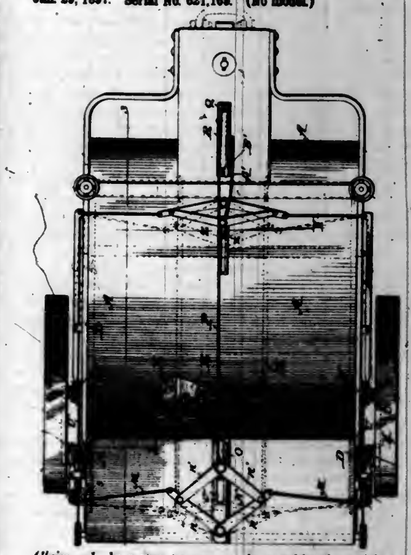
Claim.—In combination a two-part spindle having its respective parts detachably connected and whereof one is internally threaded and whereof the other is provided with a screw end adapted to engage the internally-screw-threaded portion of the first-mentioned part; and a clamp or holder comprising a base perforated for the passage of said screw end and held between the respective parts of the spindle and having spring-arms carried by its base, substantially as and for the purposes set forth.

589,691. SASH-RAISER. ALBERT W. BOYTE and WALTER B. HOUSTON, Monroe, N. C. Filed Feb. 10, 1897. Serial No. 622,831. (No model.)

Claim.—In a sash-raiser, the combination with a window-frame and a sliding sash, of a rotary screw-shaft, a nut mounted on said shaft and consisting of two hinged parts, one of which has a swing movement and a key or feather to engage the groove of said shaft, means for rotating said shaft, means for throwing the swinging section of the nut from engaging with the shaft, and means for automatically throwing said section into engagement with the shaft to hold the sash in its adjusted position, substantially as and for the purpose set forth.



589,692. STREET-SWEEPER. ALVIN BROWN, Aurora, Ill. Filed Jan. 29, 1897. Serial No. 621,169. (No model.)

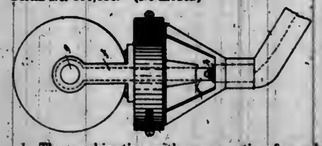


Claim.—1. In a street-sweeper, the combination, with a casing, and transporting-wheels having annular internal gears affixed thereto, pinions engaging said gears, and levers for sliding them into and out of engagement with said gears, of a lazy-tongs arranged on the casing, a slide, a hand-lever arranged on the driver's platform, rods connecting the lazy-tongs and slide with the pinion-levers and hand-levers, and endless traveling brush-belts which are within the casing and driven by the pinion-shaft, as shown and described.

2. In a street-sweeper, the combination, with the casing, having a bottom discharge-opening, of a shutter pivoted by arms arranged on the sides of the casing and adapted to close by gravity, clutch-pulleys mounted slidably on the axle, and transporting-wheels with which they are adapted to engage; shutter-hoisting chains attached to said pulleys and adapted to wind thereon; pivoted levers for sliding the pulleys; a lazy-tongs arranged on the casing and connected with the pivoted levers; and rods and a hand-lever for operating the lazy-tongs, as shown and described for the purpose specified.

3. In a street-sweeper, the combination, with the casing, having a discharge-opening, a self-closing gravity-shutter, pivoted by arms to the casing, transporting-wheels, and clutches or clutch-wheels, chains connecting the latter with the shutter, levers for operating the clutches, a lazy-tongs arranged on the casing; a slide working in guideways; a hand-lever on the driver's platform, and rods connecting said lazy-tongs with the respective levers, as shown and described.

589,693. TROLLEY. FRANK W. CANALES, Portland, Me., assignor to the Canales Trolley Company, Boston, Mass. Filed May 21, 1895. Serial No. 550,068. (No model.)



Claim.—1. The combination with a supporting-frame having an annular top plate, of a cap fitting over and turning upon the top plate, a trolley-wheel mounted on the cap, and double-acting springs between the cap and top plate, said springs having one end connected to the cap and their other ends engaging stops on the top plate, substantially as described.

2. The combination with a trolley-pole and a supporting-frame having an annular top plate and carried by the trolley-pole, of a cap fitted to turn on the top plate, standards secured to the cap, a trolley-wheel mounted in the standards, double-acting springs for holding the trolley-wheel normally in a central position relatively to the trolley-pole, and a fork pivoted to the trolley-pole and apertured to receive the pivot of the trolley-wheel, substantially as described.

3. The combination with a supporting-frame, having an annular grooved top plate, of a cap fitted to turn on the top plate of the frame, a trolley-wheel mounted on the cap, and springs in the groove of the top plate, said springs having one end connected with the cap and their free ends engaging abutments carried by the top plate, substantially as described.

4. In a trolley, the combination of the trolley-arm, the trolley-wheel support formed of the frame having an annular top piece, a cap fitted to the frame and provided with standards, a pin extending through the standards, a grooved trolley-wheel placed loosely on the pin, and a swiveled forked conductor embracing the trolley-wheel and trolley-wheel pin, and connected with the conductor of the trolley-arm, substantially as specified.

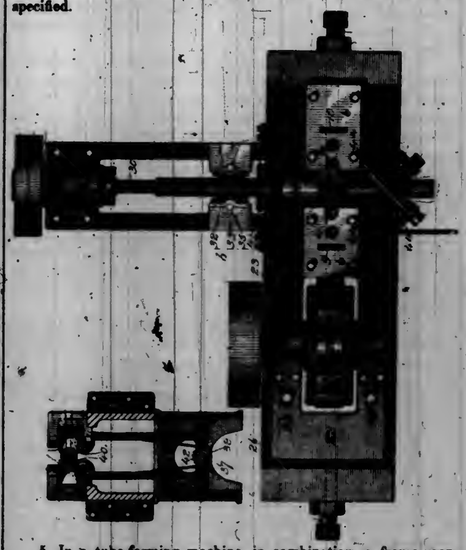
589,694. MACHINE FOR FORMING TUBES. GEORGE J. CAPEWELL, Hartford, Conn. Filed July 1, 1896. Serial No. 597,677. (No model.)

Claim.—1. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, a rotary device adapted by percussive contact to violently drive forward one of the dies, means for opening the dies to permit the hollow blank to be fed between them, a mandrel held against longitudinal movement by the frame and extending between the dies for supporting the hollow blank, mechanisms for feeding the hollow blank along the mandrel between and through the opening and closing dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

2. In a tube-forming machine, in combination, a frame, chambered dies supported by the frame said chambers in the dies being adapted to be connected with a source of water-supply, mechanisms for rapidly and violently opening and closing the dies, a chambered mandrel extending between the dies said chamber in the mandrel being adapted to be connected with a source of water-supply, and mechanisms for feeding the hollow blank between and through the opening and closing chambered dies, substantially as specified.

3. In a tube-forming machine, in combination, a frame, dies supported by the frame, a percussive wheel for rapidly and violently closing and mechanism for rapidly opening the dies, a rotary mandrel extending between the dies for supporting and rotating the hollow blank, and feed-rolls for advancing the rotating hollow blank between and through the opening and closing dies, substantially as specified.

4. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, mechanisms for rapidly opening and closing the dies, a mandrel extending from the feed end of the frame to and between the dies and supporting the blank between the dies, rolls for advancing the hollow blank between and through the opening and closing dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.



5. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, a rotary device adapted by percussive contact to violently drive forward one of the dies, means for opening the dies to permit the hollow blank to be fed between them, mechanisms for feeding the hollow blank between and through the opening and closing dies, a mandrel extending from the feed end of the frame to and between the dies and supporting the blank between the dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

6. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, percussive mechanisms for rapidly closing the dies, mechanisms for feeding the hollow blank between and through the opening and closing dies, mechanisms for rotating the hollow blank as it is fed between the dies, a mandrel held by the frame for supporting the blank, said mandrel extending between the dies, and mechanisms for rotating the mandrel, substantially as specified.

7. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, mechanisms for rapidly opening and closing the dies, mechanisms for feeding the hollow blank between and through the opening and closing dies, mechanisms for rotating the hollow blank as it is fed between the dies, a mandrel for supporting the blank, said mandrel extending between the dies and having a chamber for the circulation of water at the die end, and means for rotating the mandrel, substantially as specified.

8. In a tube-forming machine, in combination, a frame, dies supported by the frame, mechanisms for rapidly opening and closing the dies, mechanisms for feeding the hollow blank between and through the opening and closing dies, and rolls for rotating the hollow blank before it reaches the dies, substantially as specified.

9. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, mechanisms for rapidly opening and closing the dies, a mandrel extending between the dies for supporting the hollow blank, mechanisms for feeding a hollow blank between and through the opening and closing dies, means for rotating the hollow blank as it is fed between the dies, and cylindrical rolls supported by the frame in front of the dies and arranged at an angle with each other and with the blank for advancing and aiding the rotation of the blank, substantially as specified.

10. In a tube-forming machine, in combination, a frame, non-rotating dies movably supported by a stationary frame, mechanisms for rapidly opening and closing the dies, a mandrel extending between the dies for supporting the hollow blank, a sleeve supported by and movable independently of the mandrel for forcing the hollow blank between and through the opening and closing dies, feed-rolls for advancing the sleeve, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

11. In a tube-forming machine, in combination, a frame, non-

rotating dies movably supported by a stationary frame, backing-shoes supported by a frame behind the dies, mechanisms for rapidly opening and closing the dies, a mandrel extending between the dies for supporting the hollow blank, mechanisms for feeding the hollow blank between and through the opening and closing dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

12. In a tube-forming machine, in combination, a frame, nonrotating dies supported by a stationary frame, backing-shoes supported by a frame behind the dies, removable wedges located between the dies and backing-shoes, mechanisms for rapidly opening and closing the dies, a mandrel extending between the dies for supporting the hollow blank, mechanisms for feeding the hollow blank between and through the opening and closing dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

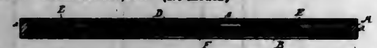
13. In a tube-forming machine, in combination, a frame, dies supported by the frame, a percussive wheel adapted to drive one of the dies forward, a mandrel extending between the dies for supporting the hollow blank, and mechanisms for feeding the hollow blank between and through the opening and closing dies, substantially as specified.

14. In a tube-forming machine, in combination, a frame, dies supported by the frame, a percussive wheel mounted in bearings held by an adjustable block and adapted to percussively drive one of the dies forward, means for adjusting the block, a mandrel extending between the dies for supporting the hollow blank, and mechanisms for feeding the hollow blank between and through the opening and closing dies, substantially as specified.

15. In a tube-forming machine, in combination, a frame, nonrotating dies movably supported by a stationary frame, a spring for opening the dies, wedges held back of the dies, levers and arms connected with the wedges whereby they may be removed from back of the dies to allow the spring to throw the dies open, a percussive wheel adapted to drive one of the dies forward, a mandrel extending between the dies for supporting the hollow blank, mechanisms for feeding the hollow blank between and through the opening and closing dies, and means for rotating the hollow blank as it is fed between the dies, substantially as specified.

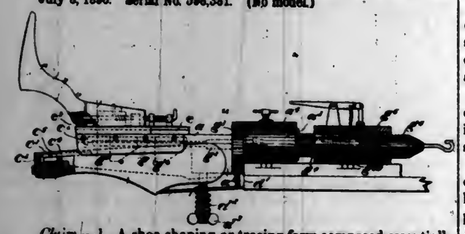
16. In a tube-forming machine, in combination, a frame, hollow dies supported by the frame, a spring normally tending to thrust the dies from each other, wedges back of the dies, removable shoes back of the wedges, a revolving wheel with rolls adapted to make percussive contact with one of the shoes said wheel being mounted on a journal held by bearings on an adjustable carriage, a hollow rotary mandrel for supporting and revolving the blank between the dies, and feed-rolls for advancing the blank between and through the dies, substantially as specified.

589,695. PASSE-PARTOUT. EUGENE CARRAINE, Philadelphia, Pa., assignor of one-half to George D. Sligo, same place. Filed Jan. 13, 1897. Serial No. 619,077. (No model.)



Claim.—The combination of the framework A having a groove *a*, a backing adapted to the said groove, a sheet of glass mounted upon the framework, a strip *d* of paper or other material overlapping the framework and the glass so that the glass is secured permanently to the framework, with a mat or mount adapted to the space between the glass and the backing, substantially as described.

589,696. SHAPING OR TREEING MACHINE FOR BOOTS OR SHOES. GEORGE H. CLARK, Boston, Mass., assignor, by mesne assignments, to the Morley Finishing Machine Company, of Maine. Filed July 8, 1896. Serial No. 598,381. (No model.)



Claim.—1. A shoe shaping or treeing form composed essentially of a back part, and a fore part, movable one with relation to the other to extend the form, comprising means whereby all the circumferential measurements of said form below the ankle are reducible to the ankle measurement of the shoe when the parts of said form are extended, substantially as described.

2. A shoe shaping or treeing form consisting essentially of a back part and a fore part constructed to slide longitudinally one with relation to the other, and having means whereby all the measurements below the ankle are reducible to less than the ankle measurement of the shoe when the parts of said form are extended to draw on and off the shoe, and an expanding device for spreading the parts of said form, substantially as described.

3. An expansible shoe shaping or treeing form adapted for shaping a shoe having its ankle and ball measurements approximately equal, said form comprising means for reducing it whereby said shoe, with its top or ankle portion closed, may be drawn off said form, substantially as described.

4. In a shaping or treeing machine for boots and shoes, the combination of a back part and a fore part, the shank of which adjacent the heel is removed, reducing the instep measurement of said fore part to the ankle measurement of the shoe, one of said parts being movable in and out with relation to the other part to reduce the heel measurement of the form to said ankle measurement of the shoe, substantially as described.

5. In a shaping or treeing machine for boots and shoes, the combination of a back part and a fore part, the instep measurement of which is no greater than the ankle measurement of the shoe, said parts being movable one with relation to the other to reduce the heel measurement of the form to said ankle measurement of the shoe, substantially as described.

6. A shoe shaping or treeing form adapted for shaping a shoe, the ankle measurement of which is less than its heel or instep measurement, said form having means for expanding it whereby the shoe is shaped, and having means for reducing it, whereby said shoe, with its top or ankle portion closed may be drawn off said form, substantially as described.

7. A shoe shaping or treeing form composed essentially of a back part and a fore part, the instep measurement of which is no greater than the ankle measurement of the shoe, said parts being movable toward and from each other and also in and out with relation to each other, the heel measurement of the form being reduced to the ankle measurement of the shoe when the parts thereof are closed together and extended, substantially as described.

8. In a shaping-machine for boots and shoes, a form having a heel, and a fore part the shank of which adjacent the heel is removed, one of said parts being movable with relation to the other, to reduce the heel measurement of the form to the ankle measurement of the shoe, and means for expanding said form, substantially as described.

9. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, and a sliding fore part the shank of which adjacent the heel is removed, diminishing the thickness of the instep, substantially as described.

10. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, and a sliding fore part the shank of which adjacent the heel is cut off obliquely, thereby diminishing the thickness at the instep, substantially as described.

11. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, a fore part, the shank of which adjacent the heel is removed, and a slide to which said fore part is detachably connected, substantially as described.

12. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, and a sliding fore part the shank of which adjacent the heel is removed, said heel and fore part gradually approaching each other as the boot or shoe is withdrawn, substantially as described.

13. In a shaping-machine for boots and shoes, the combination of a back leg portion having a sliding heel-piece, and a sliding fore part the shank of which adjacent the heel is removed, substantially as described.

14. In a shaping-machine for boots and shoes, the combination of a back leg portion having a sliding heel-piece, and a fore part the shank of which adjacent the heel is removed, a slide to which it is connected, and a shin-piece connected with said slide, substantially as described.

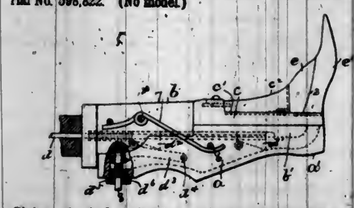
15. In a shaping-machine for boots and shoes, the combination of a back leg portion having an oblique sliding heel-piece and a sliding fore part, the shank of which adjacent the heel is removed, substantially as described.

16. In a shaping-machine for boots and shoes, the combination of a back leg portion having an oblique sliding heel-piece, a frame having a slide, a shin-piece detachably connected thereto, and a fore part connected to said shin-piece, the shank of which is removed adjacent the heel, substantially as described.

17. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, a sliding fore part the shank of which adjacent the heel is removed, a support for said sliding fore part, and an expanding device for spreading the parts, substantially as described.

18. In a shaping-machine for boots and shoes, the combination of a back leg portion having an oblique sliding heel-piece, a frame carrying a slide, a detachable shin-piece connected thereto, a fore part connected to said shin-piece, the shank of which is removed adjacent the heel, and an expanding device for spreading the parts, substantially as described.

589,697. TREEING-MACHINE FOR BOOTS OR SHOES. GEORGE H. CLARK, Boston, Mass., assignor, by mesne assignments, to the Morley Finishing Machine Company, of Maine. Filed July 11, 1896. Serial No. 598,822. (No model.)



Claim.—1. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having its shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said back part and fore part being movable one with relation to the other to reduce the heel measurement of the form to the ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

2. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having a sliding shank portion whereby its instep measurement may be reduced to the ankle measurement of the shoe, said essential parts being movable one with relation to the other to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

3. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having its shank portion movable to reduce its instep measurement to the ankle measurement of the form, one of said essential parts sliding longitudinally with relation to the other to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

4. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having a sliding shank portion, whereby its instep measurement may be reduced to the angle measurement of the shoe, one of said essential parts sliding longitudinally with relation to the other to reduce the heel measurement of the form to the ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

5. A shoe shaping or treeing form composed essentially of a back leg portion having a heel, and a front leg portion having a detachable fore part provided with a shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said fore part sliding in and out with relation to the heel to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating the essential parts of the form, substantially as described.

6. A shoe shaping or treeing form composed essentially of a back leg portion having a heel and a front leg portion carrying a slide and a fore part detachably connected to said slide, having its shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said fore part sliding in and out with relation to the heel to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating the essential parts of the form, substantially as described.

7. An expansible shoe shaping or treeing form having a sliding fore part with a movable shank portion, all the circumferential measurements of said form being reducible to the ankle measurement of the shoe, substantially as described.

8. In a machine for shaping or treeing boots and shoes, a form having a bodily movable back leg portion, a guide-pin therefor an expanding rod having thereon two wedges, an arm pivotally connected to said back leg part which is engaged by the uppermost wedge, a spring for said arm, and an adjusting device for said spring, substantially as described.

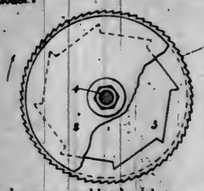
9. In a machine for shaping or treeing boots and shoes, a form having a front part with a pin 8, back leg part having a hole through it for said pin, an expanding wedge, a pivoted arm d^3 on the back leg part engaged by said wedge, a spring for said arm, and an adjusting nut for said spring, substantially as described.

589,698. BOTTLE-STOPPER. WILLIAM A. COGHLAN, Santa Rosa, Cal. Filed May 11, 1897. Serial No. 635,992. (No model.)



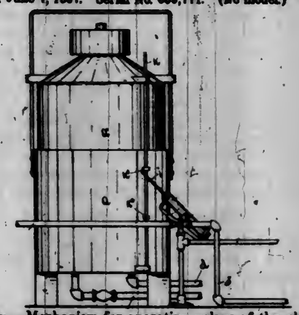
Claim.—The combination with a bottle having a shoulder near its mouth, of a rod or stiff wire bent around the neck of the bottle below the shoulder, thence bent upwardly to form a post, which is provided with an eye, the free ends of said wire being connected together, and then extending laterally to form parallel ears, a hook-lever having a flattened portion pivoted between said ears, a spring having one end secured between said ears and its other end engaging the lower end of the hook-lever, an angular bail having one end formed with an eye adapted to be engaged by the eye of the post, and having its other end formed with an eye to be engaged by the hook-lever, and a stopper hung upon said bail, substantially as set forth.

589,699. COMBINATION SAWING AND PLANING DEVICE. CHARLES S. COON, Philadelphia, Pa. Filed Apr. 19, 1897. Serial No. 633,767. (No model.)



Claim.—A circular saw combined with two external longitudinally-separated cutting disks or plates and two intermediate disks having notched edges, arranged to be clamped together on a common arbor; substantially as shown.

589,700. VALVE-OPERATING MECHANISM. BURTON S. COWLES, Norwich, Conn., assignor of one-fourth to Sidney L. Geer, same place. Filed June 7, 1897. Serial No. 639,771. (No model.)



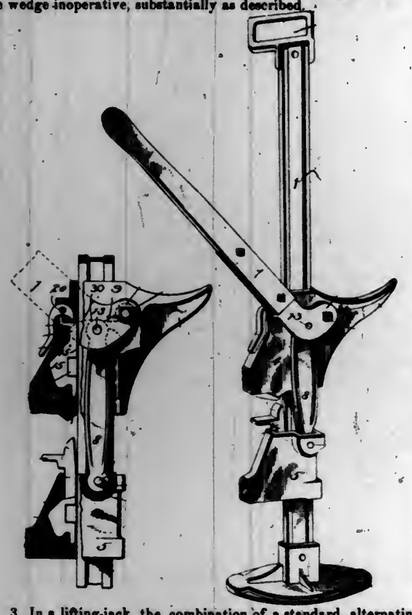
Claim.—Mechanism for operating valves of the class herein referred to, consisting of a frame secured to the valve-stem, a cylinder trunnioned in said frame and capable of a limited rocking movement independently of said frame, a weight within said cylinder free to travel by gravity from end to end thereof and means for rocking the said cylinder and frame.

589,701. LIFTING-JACK. WILLIAM H. COX, Virden, Ill. Filed Jan. 7, 1897. Serial No. 618,218. (No model.)

Claim.—1. In a lifting-jack, the combination of a standard, a pair of alternating runners, a wedging device in each runner, and means for making the upper runner engage and release the wedge in the lower runner to allow the clutches to climb down the standard, substantially as described.

2. In a lifting-jack, the combination of a standard, alternating runners each provided with an inclined or cam surface, a pitman and lever connecting said runners, a wedge in each runner, a spring for holding each wedge normally against said inclined or cam surface,

and a throw-out lever connected with one of the wedges, to render the wedge inoperative, substantially as described.

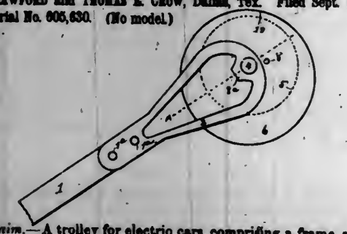


3. In a lifting-jack, the combination of a standard, alternating runners having inclined or cam surfaces, wedging devices actuated thereby, said devices consisting of a substantially triangular wedge, the base of which lies next the standard, said inclined surface on each runner adapted to engage the vertex opposite the side of the base of the wedge to crowd the wedge against the standard, and a spring interposed between the wedge and its casing to hold the two in engagement, substantially as described.

4. In a lifting-jack, the combination of a standard provided with upper and lower runners having hollow chambers containing gripping-wedges, cam-surfaces on the runner adapted to engage the wedges to force them into contact with the standard, a spring in each runner to normally hold the wedges up against the cam-surface, a projection on the lower wedge adapted to come in contact with the upper runner, a pitman and lever forming a toggle-link connection between the two runners, and a hand-lever adapted to operate the toggle-link mechanism to move the runners toward and away from each other, substantially as described.

5. In a lifting-jack, the combination of a standard provided with a runner having a chamber containing a wedge, a cam-surface on the inside of the chamber adapted to engage one side of the wedge, a spring, and an inserted toothed block in the opposite side of the wedge to engage the standard, substantially as described.

589,702. TROLLEY-WHEEL FOR ELECTRIC CARS. JAMES A. CRAWFORD and THOMAS E. CROW, Dallas, Tex. Filed Sept. 12, 1896. Serial No. 605,630. (No model.)



Claim.—A trolley for electric cars, comprising a frame, a wheel, a wheel-axle, disks eccentrically journaled upon the axle, lugs upon the disks, and projections upon the frame lying in the path of said lugs.

589,708. DEVICE FOR SUSPENDING DRAPERIES. SAMUEL W. CUSHING, Derby, Conn., assignor to Robert S. Gardner, same place. Filed Feb. 3, 1897. Serial No. 621,733. (No model.)

Claim.—A device for suspending draperies consisting of a free ball and a carrier therefor comprising in its construction a flat plate having an opening which receives the ball loosely and a ring secured to the plate by which the ball is loosely held in the opening, the edge of the opening in the plate resting on the ball in the line of its path of movement, and a portion of said plate being adapted to extend through a slot in a runway and guide the plate in said line.



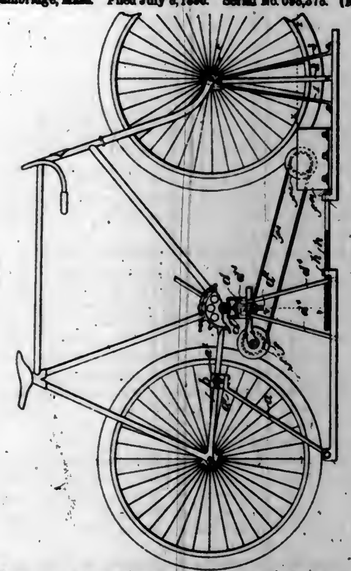
589,704. BOTTLE-STOPPER. CHARLES DE WITT, Baltimore, Md. Filed Jan. 6, 1897. Serial No. 618,179. (No model.)



Claim.—1. The herein-described improvement in bottle-stoppers, consisting of a stopper-plug made of a material liable to crush under ordinary usage, having a downwardly-projecting elongated nipple provided with a washer adapted to be compressed between the nipple and the bottle-mouth when in position thereon, the said stopper-plug being provided with a vertically-elongated slot, said slot having its bottom rounded at the ends to conform to the curvature of the bail, in combination with a bail passing through said slot and fitting the same snugly and adapted to seat the stopper in the bottle-mouth, substantially as described.

2. The herein-described improvement in bottle-stoppers, consisting of a stopper-plug made of material liable to crush under ordinary usage, having a downwardly-projecting elongated nipple and a washer seated thereon and adapted to be compressed between the nipple and the bottle-mouth, when in position thereon, said stopper-plug having a rectangular vertical slot of slightly greater width than the diameter of the bail, and having its bottom rounded at the ends to conform to the curvature of the bail, in combination with a bail passing through said slot and fitting the same snugly, and adapted to center and seat the stopper in the bottle-mouth, substantially as described.

589,705. BICYCLE TRAINING-MACHINE. MICHAEL J. DWYER, Cambridge, Mass. Filed July 8, 1896. Serial No. 598,378. (No model.)



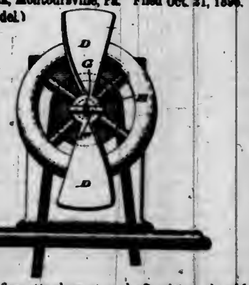
Claim.—1. A bicycle-support consisting of adjustable uprights on opposite sides of the bicycle adapted to support the weight of the rear end of the same, and uprights on opposite sides of the bicycle adapted to support the front end of the same, having blocks at their upper ends which partially embrace the nuts on the axle of the wheel, each of said blocks provided with lateral projections which partially embrace the forks of the bicycle and a pin adapted to pass through said projections on the inside of said forks, substantially as described.

2. A bicycle-support consisting of uprights adapted to support the weight of the rear end of the bicycle, uprights adapted to support the weight of the front end of the bicycle and an intermediate upright adapted to support the weight of the bicycle directly beneath the crank-hanger said intermediate upright having a block at the upper end provided with a plate having upwardly-projecting sides, and a piece of flexible material stretched over said sides, having its ends secured, substantially as described.

3. In a bicycle exercising apparatus, uprights adapted to support the rear end of the bicycle in elevated position, and uprights adapted to support the front end of a bicycle in elevated position, and an intermediate upright adapted to support the bicycle directly beneath the crank-hanger, a cooperative part of which is made yielding to accommodate the spring of the frame.

4. In a bicycle exercising apparatus, uprights adapted to support the rear end of the bicycle in elevated position, uprights adapted to support the front end of a bicycle in elevated position, and an intermediate upright adapted to support the bicycle beneath its crank-hanger having an opening through it, a pair of friction-rollers and a belt connecting them, located between the wheels of the bicycle with the friction-rollers in contact with the tires of the said wheels, said belt passing through the opening provided in said intermediate support, substantially as described.

589,706. FAN ATTACHMENT FOR SEWING-MACHINES. LEONIDE B. FISHER, Montoursville, Pa. Filed Oct. 21, 1896. Serial No. 609,542. (No model.)



Claim.—1. In a fan attachment, a shaft with a shoulder on one end thereof, a fan with a hub on said end, a clamp having lips engaging with said shoulder, and a screw on said clamp bearing against said hub.

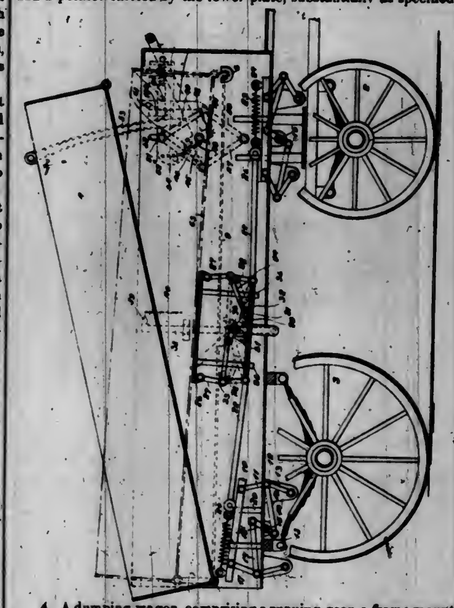
2. A fan adapted to be connected with a movable member of a sewing or other machine and a clamp therefor consisting of a bar with lips on the end thereof and a screw, said lips being attachable to a head or shoulder of said member and said screw being adapted to force the neck of the fan against the end of said member adjacent to said head.

589,707. WEIGHING AND DUMPING VEHICLE. GEORGE H. FLETCHER, New York, N. Y., assignor of three-fourths to James Lawson and Anna Fletcher, same place. Filed Oct. 7, 1896. Serial No. 608,116. (No model.)

Claim.—1. A weighing and dumping vehicle, comprising a running-gear, a frame supported thereon, a weighing-platform comprising an upper and lower plate, means for elevating the upper plate relatively to the lower plate, a pointer carried by the lower plate, track-plates supported in the frame, means for elevating said track-plates relatively to the frame, rods extended from the lower plate of the weighing-platform, springs connected to the outer ends of said rods and to the track-plates, and means for elevating the body portion to a position to be engaged by the weighing-platform, substantially as specified.

2. A weighing and dumping wagon, comprising a running-gear, a frame supported thereon, track-plates arranged at the ends of the frame, rotary shafts having bearings in portions of the frame, toggle-links connected at one end to the track-plates and at the other end to fixed portions of the frame, links extended between said toggle-links and arms on the shaft, a weighing-platform, rods extended from the corners of said weighing-platform, rollers on said rods for engagement with the track-plates, springs having connection at one end with the rods and at the other end with the track-plates, a pointer carried by the weighing-platform and a body portion movable relatively to the frame and adapted to rest upon the weighing-platform, substantially as specified.

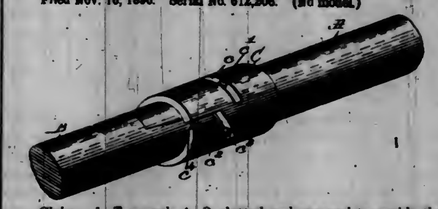
3. A weighing mechanism for a vehicle, comprising a lower plate, spring-balances supported in the vehicle and with which said lower plate is connected, an upper plate, toggle-link connections between said lower and upper plates, a rotary shaft having bearings on the lower plate, arms extended in opposite directions from said shaft, links extended from said arms to the pivotal points of the toggles, and a pointer carried by the lower plate, substantially as specified.



4. A dumping-wagon, comprising a running-gear, a frame mounted thereon, a body portion having swinging connection relatively to the frame, toggle-links on the opposite sides of the frame, levers for moving said toggle-links of a side toward and from each other, spring-pressed pawls carried by the toggle-links, rack-bars adapted for pivotal connection with the body portion and for engagement with the pawls, spring-yielding dogs adapted also for engagement with said rack-bars, arms having pivotal connection with the toggle-links and each arm having cam-shaped upper ends, pins extended from the dogs and adapted to engage upon one side of said arms, and pins extended from the frame and adapted to engage the opposite sides of said arms and also with the cam portions of said arms, substantially as specified.

5. In a weighing and dumping vehicle, the combination with weighing mechanism, of a running-gear, a frame thereon, a body portion adapted to swing relatively to the frame, toggle-links at the opposite sides of the frame, levers for moving the toggle-links of a side toward and from each other, spring-pressed pawls pivoted to the toggle-links, pivoted rack-bars having engagement with the pawls, spring-yielding dogs engaging with the rack-bars, and connections between the dogs and links, whereby the dogs are operated, substantially as specified.

589,708. COUPLING. HERBERT L. FLINT, Cambridge, Mass. Filed Nov. 16, 1896. Serial No. 612,206. (No model.)



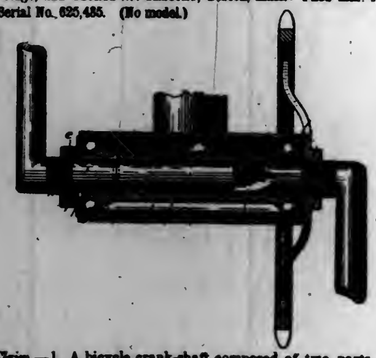
Claim.—1. Two ends A, B, slotted and grooved to enable them to be forked together, combined with a collar surrounding said forked ends, said collar having two slots, and each slot receiving a pin or stud from one of said ends, substantially as described.

2. The forked end A, the grooved end B, the loose collar having slots c, and c^2 c^2, and a pin or projection to retain said collar on one

of said ends, combined with a pin or projection on the other of said ends to enter said slot c^4 c^5, substantially as described.

3. A coupling the members of which are grooved at their adjacent ends, one of said members being longitudinally slotted, to enable them to be forked together, combined with a collar rotatably connected with one member and to surround the said forked ends, and a detachable pin-and-slot connection between the collar and the other member, substantially as described.

589,709. BICYCLE CRANK-SHAFT. HERBERT I. FLINT, Cambridge, and GEORGE W. GREGORY, Boston, Mass. Filed Mar. 1, 1897. Serial No. 625,435. (No model.)



Claim.—1. A bicycle crank-shaft composed of two parts, each part having one end grooved along its sides parallel to its axis to present prongs or fingers, having parallel longitudinal sides each having also a pin or projection, a prong or finger on one part entering a groove in the other part when the said ends are forced one into the other, a surrounding sleeve provided near its ends with grooves to receive said pins, said grooves having their inner ends extending circumferentially at right angles to the axis of the crank-shaft, the sleeve when partially turned thereby cooperating with said two pins to lock the shaft ends in engagement to prevent relative longitudinal movement of one of the shaft parts on the other shaft part, and ball-holders containing balls to cooperate with inclined or tapered surfaces on said sleeve, combined with a sprocket-wheel secured on a part of said shaft, substantially as described.

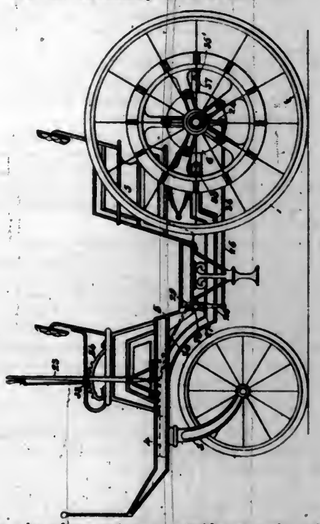
2. The combination, in a bicycle, with a stationary hub, of a crank-shaft composed of two parts, one part being grooved along its sides rearwardly from its end, and the other part having separated, distinct prongs or fingers projecting freely forward at its end, said fingers registering snugly with said grooves to interlock therewith, the two parts sliding endwise into each other and forming a tight joint whether slid into each other a long or a short distance, a surrounding sleeve having internal slots at its ends, each of said parts having a pin to enter the adjacent slot, said slots having their inner ends extended circumferentially about said sleeve, and ball-bearings formed respectively on the adjacent portions of said hub and sleeve at each end of the latter, balls therefor, and means to prevent relative rotation of said shaft and sleeve when locked together by said pins and slots, substantially as described.

589,710. HORSELESS CARRIAGE. PAUL FLOCKE, St. Louis, Mo., assignor of one-half to Gotthold Langer, same place. Filed Jan. 18, 1897. Serial No. 619,587. (No model.)

Claim.—1. In a horseless carriage, a suitable carriage-body, a reservoir mounted in connection with the same, a series of fixed radial arms independent of the wheels leading from the reservoir and having passages for conducting the fluid of the reservoir and causing the same to impinge against the wheels and drive the same in either direction, the center of said arms or spider being disposed substantially in the line of the axis of rotation of the wheels, substantially as set forth.

2. In a horseless carriage, a suitable carriage-body, a reservoir mounted in connection with the same and adapted to support the wheels, a series of arms having passages leading from the reservoir, a ring having a series of blades carried by, or forming a part of each wheel, the fluid confined within the reservoir being adapted to be led through the arms and impinge on the blades and drive the wheels in one direction or the other, substantially as set forth.

3. In a horseless carriage, a suitable carriage-body, a reservoir for the same, tubular extensions carried at the opposite ends of the reservoir and disposed in line of the axis of rotation of the wheels, a spider forming a part of each extension and comprising a series of arms having passages communicating with the tubular extension, a valve carried by each arm and adapted to be controlled by the operator, wheels carried by the spider, and a series of blades forming a part of each wheel and adapted to be impinged upon by the fluid from the reservoir, substantially as set forth.



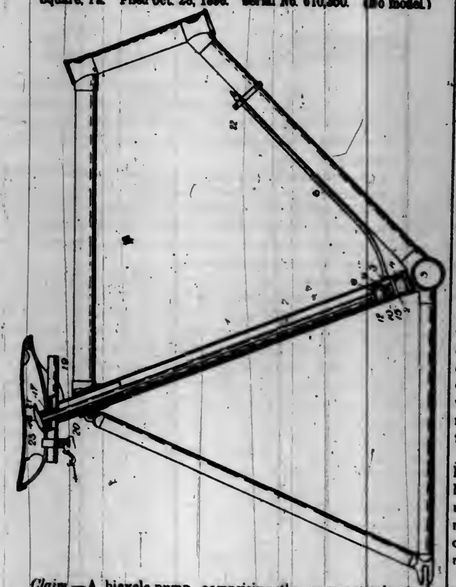
4. In a horseless carriage, a suitable reservoir, a dish-shaped spider carried at each end thereof, suitable arms radiating from the base of the spider and communicating with the reservoir, extensions forming each a continuation of each arm, passages formed in each extension communicating with the passage formed in the arm proper, a valve mounted at the juncture of each arm and its extension said valve having a port adapted to establish communication between the passage of the arm and either of the passages of the extension-arm, the outer ends of the passages of the extension-arms being adapted to eject the fluid supplied from the reservoir in opposite directions, a series of blades carried by wheels and arranged in a circle concentric with the outer rim of the wheel, the said blades being adapted to be impinged by the fluid thus ejected from either one or the other of the said passages of the extension-arms, and the wheels thus be driven in one direction or the other, substantially as set forth.

5. In a horseless carriage, a suitable reservoir, a spider at each end of the same, a tubular extension forming a part of the spider and communicating directly with the reservoir, a rotatable sleeve passed over said tubular extension, a series of arms radiating from the periphery of the sleeve, a series of arms forming a part of the spider and having passages leading to the tubular extension, each arm having one passage, a series of extension-arms for the aforesaid arms, each extension-arm having two passages, a valve located at the juncture of the passages of the extension-arms and the arms proper of the spider, a lever carried by each valve and adapted to cooperate with the arm of the sleeve adjacent thereto, means under the control of the operator for rocking the sleeve in either direction and thereby establish communication between the passage of each arm of the spider and either one of the passages of the extension-arm, the outer ends of the passages of the extension-arms being deflected in opposite directions, a wheel carried by each spider, a ring carried by each wheel concentric with the outer rim of the wheel and having a series of blades, the ejecting ends of the passages of the extension-arms being located along the inner circle of the blade-ring, whereby the fluid ejected through either passage of the extension will impinge against the blades of the ring, and cause the wheel to rotate in one direction or the other, the controlling devices for the sleeve on one side of the carriage being independent of those on the other side, whereby each wheel is under perfect control of the operator, substantially as set forth.

6. In a horseless carriage, a suitable spider having a tubular extension or bearing at the base thereof, a series of arms and extensions therefor radiating from one end of the extension, a valve located at the juncture of each arm and its extension, a lever secured to each valve and disposed substantially in line with the arm of the spider and directed toward the tubular extension, a fork at the free end of each lever, a rotatable sleeve loosely embracing the tubular extension, a series of arms radiating from the sleeve and corresponding in number to the number of valves or levers carried thereby, a pin projecting laterally from each arm of the sleeve and adapted to be embraced by the fork of each valve-lever, a controlling-lever mounted on the body of the carriage, and intermediate connections between the controlling-lever and the sleeve for rocking the latter and controlling the escape of the fluid held in the reservoir, substantially as set forth.

7. In a horseless carriage, a suitable reservoir, a spider for each end of the same, a tubular extension or bearing forming a part of the spider and carried at each end of the reservoir, a spindle formed at the base of the spider and serving to support the wheel of the carriage, the axis of the spindle being in line of the axis of the tubular extension, the spider being adapted to convey the fluid from the reservoir against the wheel, and impart rotation to the same, substantially as set forth.

589,711. AIR-PUMP FOR BICYCLES. JOHN G. FOOTE, Kennett Square, Pa. Filed Oct. 28, 1896. Serial No. 610,350. (No model.)



Claim.—A bicycle-pump, comprising the seat-post tube 1, the plug 2 adjustably secured in the lower end of said tube, the tubular piston-rod 7, the bevel-faced piston 8, the beveled-faced follower 9 adjustably secured on the lower threaded end of said piston-rod, the packing 12 secured in place on the rod between the contiguous beveled faces of the piston and follower, and the jam-nut 10 adjustably secured on the immediate end of the piston-rod to lock the follower on said rod, the perforated cap 15, formed integral with said nut and the ball-valve 14 located within said perforated cap, substantially as shown and described.

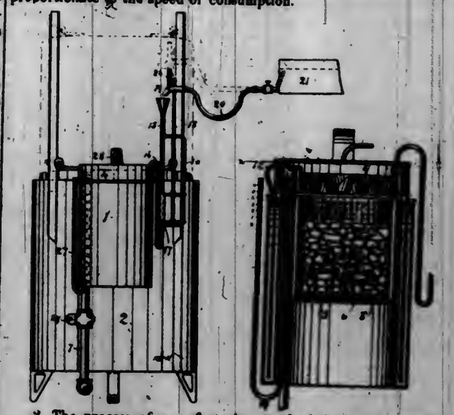
589,712. DEVICE FOR APPLYING REMEDIES. PAUL J. FOUQUIER, San Francisco, Cal. Filed Apr. 17, 1896. Serial No. 588,023. (No model.) Patented in England July 21, 1893, No. 14,140, and in Germany Aug. 18, 1893, No. 74,135.



Claim.—The improved appliance for administering pastils, medicines, and the like, which is composed of the box A, having perforated walls, and the base C, of elastic material, which is attached to said box, and has an inverted-cup-like form whereby it is adapted to be attached to the tongue by suction, as shown and described.

589,713. PROCESS OF AND APPARATUS FOR GENERATING ACETYLENE GAS. JOHN C. GALLAGHER, Elmira, N. Y., assignor of two-thirds to David W. Payne and M. C. Arnot, same place. Filed Mar. 10, 1896. Serial No. 582,674. (No model.)

Claim.—1. The process of manufacturing gas by bringing into contact with each other a solid and a liquid which consists in delivering the liquid to the solid from a source of supply and in so automatically regulating the head of flow from the source of supply that the generation of gas shall be continuous during consumption and proportionate to the speed of consumption.



2. The process of manufacturing gas by bringing into contact with each other a solid and a liquid which consists in delivering the liquid to the solid through the medium of a column of the liquid, in delivering the liquid to the column from a fixed source of supply, and in so automatically regulating the head of flow from the source of supply that the generation of gas shall be continuous during consumption and proportionate to the speed of consumption.

3. In a gas-generating apparatus, in combination, an elevated supply-tank, a spout leading from the tank, a flexible connection between spout and tank, a generating-chamber, a liquid-sealed column entering the chamber to deliver liquid thereto and having its open end located beneath the spout, a gas-holder connected with the generating-chamber, and a connection between gas-holder and spout whereby the spout is made to rise and fall in conformity with the rise and fall of the holder to automatically adjust the head of flow from the supply-tank.

4. In a gas apparatus of the character described, an automatic liquid-delivery system composed of a source of supply in which the liquid is held at an approximately constant level, a sealed liquid column, a spout delivering into the top of the column, a flexible connection between the spout and source of supply, a gas-holder, and a connection between the spout and gas-holder whereby the spout is raised above the supply-level when the holder is full.

5. In a gas apparatus of the character described, an automatic liquid-delivery system composed of a sealed liquid column, a spout delivering into the top of the column, a flexible connection between the spout and the source of liquid-supply, a sliding frame attached to the spout, suitably-located guides for the frame, a gas-holder, and a connection between the frame and holder whereby the spout is raised above the supply-level when the holder is full.

6. In a gas apparatus of the character described, an automatic liquid-delivery system composed of a sealed liquid column, a curved spout delivering into the top of the column, a flexible connection between the spout and the source of liquid-supply, a vent-pipe at the top of the spout of sufficient length to extend above the supply-level when the spout is in its lowest position, a gas-holder, and a connection between the spout and holder whereby the spout is raised by the holder and the liquid delivery is stopped immediately the top of the spout is raised above the supply-level.

7. In a gas-generating apparatus, in combination, a generating-chamber, a perforate receptacle therein for containing a solid, an inlet to the generating-chamber arranged to deliver a liquid to the solid from the bottom and sides of the perforate receptacle, a gas-outlet from the top of the chamber, and a sealed overflow leading from the chamber at a point below the gas-outlet, whereby the liquid is allowed to fill the chamber and is drawn off before it reaches the gas-outlet.

8. In a gas-generating apparatus, the combination of a generating-chamber, an inlet thereto from a source of liquid-supply, a gas-outlet from the top of the chamber, and an indicator for the purpose described, consisting of a tube which leads from the chamber at a point below the gas-outlet, extends thence downward and then upward outside the chamber to form a liquid seal, and terminates with an open end at a point also below the gas-outlet.

9. In a gas-generating apparatus, the combination of a generating-chamber, an inlet thereto from a source of liquid-supply, a gas-outlet from the top of the chamber, and a combined indicator and pressure-gage consisting of a tube which leads from the chamber at

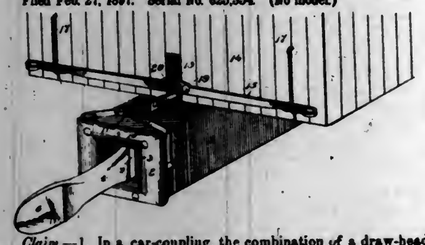
a point slightly below the gas-outlet, extends thence downward and then upward outside the chamber to form a liquid seal, and terminates with an open end at a point also below the gas-outlet, the outer extremity of the tube being of glass and having thereon a properly-gradnated scale, and a petcock located at the bend of the tube in order that the liquid may be drawn down to the zero-point of the scale after the tube has been flooded.

10. In a gas-generating apparatus, the combination with the generating-chamber of a cover therefor having a diaphragm below its top to form a cooling-chamber across the top of the generating-chamber, said diaphragm being provided with an upward projection to form a small chamber open to the generating-chamber and adapted to be covered by the substance in the cooling-chamber, and a gas-outlet leading from the top of said small chamber.

11. In a gas-generating apparatus, the combination with the generating-chamber of a cover therefor having a corrugated diaphragm below its top to form a cooling-chamber across the top of the generating-chamber, said diaphragm being provided with an upward projection to form a small chamber open to the generating-chamber and to the corrugations, and a gas-outlet leading from the top of said small chamber.

12. In a gas-generating apparatus, the combination of a receptacle for holding a solid, a water-sealed cover therefor, a water-chamber formed in the cover above the receptacle, spiral corrugations in the bottom of the water-chamber, a supply-pipe leading to the water-chamber, an overflow-pipe therefrom leading to the water seal for the cover, an overflow from the water seal, a delivery-pipe from a source of liquid-supply passing through the cover to deliver liquid to the solid in the receptacle, a small chamber formed in the bottom of the water-chamber and connected with the corrugations, and a gas-outlet leading from said small chamber.

589,714. CAR-COUPLING. AMARIAH J. GLENN, Spruce, Pa. Filed Feb. 27, 1897. Serial No. 625,354. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head, oppositely-disposed spring-actuated jaws mounted within the draw-head, an arrow-headed link, and a transversely-disposed link-holder mounted within the draw-head in rear of the jaws and provided above the link with a substantially U-shaped bend, substantially as and for the purpose described.

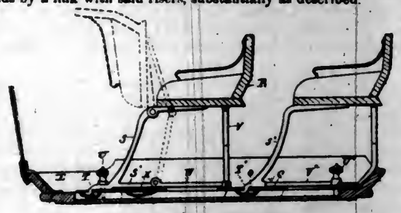
2. In a car-coupling, the combination with a car, and a draw-head, of spring-actuated jaws mounted within the draw-head, a longitudinal lever fulcrumed on the draw-head and connected at its outer end with the spring-actuated jaws, a vertically-reciprocating slide mounted in suitable ways of the car, having an opening to receive loosely the inner portion of the longitudinal lever and provided with a stud or projection, vertical keepers, mounted on the car, and an operating-lever arranged in said keepers, provided at its center with a slot to receive the projection or stud, and having notches for engaging the bottoms of the keepers, substantially as described.

3. In a car-coupling, the combination with a car, and a draw-head, of spring-actuated jaws mounted within the draw-head, a vertically-reciprocating slide mounted in suitable ways of the car and having an opening, a longitudinal lever fulcrumed on the draw-head and connected at its outer end with said jaws, the inner end of the lever being loosely arranged in the opening of the slide and capable of longitudinal movement independent of the latter, and means for reciprocating the slide, substantially as and for the purpose described.

589,715. CONVERTIBLE WAGON. GEORGE H. GOODWIN, Waterbury, Conn. Filed Mar. 15, 1897. Serial No. 627,452. (No model.)

Claim.—1. In a wagon, the combination with the body thereof, of a seat having risers and supports formed from metal, extensions from the lower ends of said risers to the lower ends of said supports, and means including forwardly-extending hooks, for interlocking the supports or risers with the body of the wagon, substantially as described.

2. In a wagon, the combination with the body thereof, of a seat and risers therefor, said seat hinged to the upper ends of said risers, and supports also hinged to said seats and connected at the lower ends by a link with said risers, substantially as described.



589,716. FOUNTAIN MARKING-PEN. JOHN W. GRAVES, Cordele, Ga. Filed Oct. 30, 1896. Serial No. 610,604. (No model.)



Claim.—1. A reservoir-handle for fountain pens and brushes consisting of a triangular tube suitably closed at one end and having a perforation at or near the other end, said tube having thin resilient flat walls adapted to be compressed in the act of writing, substantially as described.

2. A reservoir-handle for fountain pens and brushes consisting of a triangular tube suitably closed at one end and having at or near the other end a thin transverse diaphragm perforated so as to permit the liquid in the handle to pass out when the tube is compressed, said tube having thin resilient walls adapted to be compressed in the act of writing, substantially as described.

3. The combination with a reservoir-handle consisting of an angular compressible tube suitably closed at one end and having a perforation at or near the other end, of a holder adapted to fit the latter end, and a pen or brush composed of fabric, one end of said fabric fitting against the perforated end of the handle and receiving ink directly from said perforation, substantially as described.

4. In a fountain pen or brush, the combination with a compressible handle closed at one end and having a perforation at the other end, and a flange or projection extending beyond the perforated end, of a holder adapted to fit over the perforated end, and a feeding device within the holder, one end of which is in proximity to the perforation and is inclosed by the projection, substantially as described.

5. The combination with a reservoir-handle consisting of an angular compressible tube closed at one end and having a perforation in the opposite end, of a holder fitting the perforated end and a felt brush or pen carried by said holder and abutting against the perforated end of the handle, said holder having an internally-grooved flattened portion 20 in which the felt fits closely, substantially as described.

6. A reservoir-handle for fountain pens and brushes consisting of an angular compressible tube having an internal longitudinal partition, the edges of said partition being connected to the angles of the tube, substantially as described.

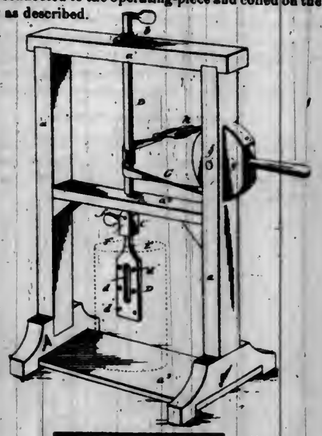
7. In combination, a reservoir-handle consisting of an angular compressible tube having an internal longitudinal partition dividing it into two compartments, the edges of said partition being connected to the angles of the tube, perforations at one end of each of said compartments, a holder fitting the perforated end of the handle, and a fabric brush or pen carried by said holder and having its inner end registering with the perforations of the handle, substantially as described.

8. In combination, a reservoir-handle consisting of an angular compressible tube having an internal longitudinal partition dividing it into two compartments, the edges of said partition being connected to the angles of the tube, perforations at one end of each of said compartments, a holder fitting the perforated end of the handle, said holder being divided longitudinally into two compartments, and a fabric pen or brush carried by each of said compartments, said brushes having their inner ends registering with the perforations of the handle, substantially as described.

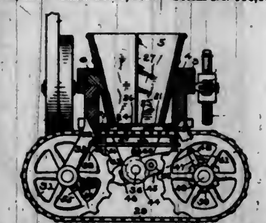
589,717. CHURN. PLEASANT N. GREEN, JAMES H. THOMPSON, and ALLEN FOWLER, Union City, Tenn. Filed May 6, 1897. Serial No. 635,494. (No model.)

Claim.—1. The combination with a frame and a dasher-staff, of a sleeve fitted on said staff, gearing connecting said sleeve and dasher-staff, a pivoted operating-piece mounted on said frame and a belt connection between said sleeve and said operating-piece for driving said sleeve, substantially as described.

2. The combination with a dasher-staff and an operating-piece, of a sleeve fitted loosely on the staff and provided with an internal gear, a spur-pinion fixed to the staff, an intermediate idler-pinion meshing with said internal gear and with the spur-pinion, and a strap or belt connected to the operating-piece and coiled on the sleeve, substantially as described.



589,718. MACHINE FOR ICING CAKES. THOMAS L. GREEN, Indianapolis, Ind. Filed Oct. 7, 1896. Serial No. 608,167. (No model.)



Claim.—1. In a machine for icing cakes, candies, &c., a perforated die, means for holding the cake under the die, and an open-bottom hopper or receptacle for icing that is reciprocable on the die, whereby the icing will be deposited on the cake and be struck off at a uniform thickness, substantially as and for the purpose set forth.

2. In a machine for icing cakes, candies, &c., a die provided with a designed perforation, means for holding the cake under such design against the die, and an open-bottom hopper or receptacle for icing that is reciprocable on the die, substantially as and for the purpose set forth.

3. In a machine for icing cakes, candies, &c., a perforated die, means for holding the cake under the die, and an open-bottomed hopper or receptacle for icing that is reciprocable on the die, said hopper being divided into compartments, whereby different-colored icing may be deposited upon different parts of the cake, substantially as shown and described.

4. In a machine for icing cakes, candies, &c., a perforated die, means for holding the cake under the die, an open-bottom hopper or receptacle for icing that reciprocates on the die, and means for adjusting the limit of movement of the hopper, whereby its striking-off edge will not move substantially beyond the design in the die, substantially as and for the purpose set forth.

5. In a machine for icing cakes, candies, &c., a perforated die, means for holding the cake under the die, a pair of guideways on the opposing sides of such die, an open-bottom hopper or receptacle for icing provided with flanges fitting in such guideways, a suitable driving-shaft, an eccentric mounted thereon, and an adjustable link-and-lever connection between the hopper and eccentric, whereby the former is reciprocated on the die, substantially as and for the purpose set forth.

6. In a machine for icing cakes, candies, &c., a framework provided with a pair of side pieces having in their opposing faces a guideway extending horizontally along the lower portion of them and another horizontal guideway along the upper portion thereof, a perforated die that slips into the guideways in the lower portion of such pieces, an open-bottom hopper or receptacle for icing provided with side ribs that fit loosely in the guideways in the upper portion of said side pieces, and means for reciprocating the hopper on the die so that the openings in the hopper and die will register with each other during a portion of the movement of the hopper, substantially as and for the purpose set forth.

7. In a machine for icing cakes, candies, &c., a die centrally recessed on its under side, a perforated design in the recessed portion of the die, and means for holding a cake against the die under the design, substantially as and for the purpose set forth.

8. In a machine for icing cakes, candies, &c., a die with a perforated design under which the cake is placed such die centrally recessed on its under side and the walls of the design-perforation beveled to make the width of the lower portion of the perforation greater than that of the upper portion, and an open-bottom hopper or receptacle for the icing that reciprocates on the die, substantially as and for the purpose set forth.

9. In a machine for icing cakes, candies, &c., a perforated die, means for depositing icing through the perforation upon a cake below, a series of feed-plates, and means for passing such feed-plates immediately beneath the die, whereby the cakes may be fed to the machine in succession, substantially as and for the purpose set forth.

10. In a machine for icing cakes, candies, &c., a perforated die, means for depositing icing through the perforation upon a cake below, a pair of sprocket-chains, a series of feed-plates pivoted on each side to the sprocket-chains, a pair of sprocket-wheels on each side of the machine over which said sprocket-chains pass and so located that the series of feed-plates will pass immediately beneath the die, and means for driving the sprocket-wheels, substantially as and for the purpose set forth.

11. In a machine for icing cakes, candies, &c., a mechanism to feed the cakes to the machine beneath the die comprising a series of feed-plates secured on each side to a sprocket-chain, a pair of sprocket-wheels on each side of the machine to actuate such series of feed-plates, a ratchet mounted on one of the sprocket-wheel shafts, a rotary counter-shaft driven by suitable power, a cam-collar mounted thereon provided with a tooth or extended portion, an arm loosely mounted on the shaft so as to be longitudinally movable, means on the arm with which the tooth or extended portion of the cam-collar engages once each revolution, whereby the arm is propelled forward, a pawl on such arm to engage and drive the ratchet-wheel, and a spring to withdraw such arm when it is not propelled forward by the tooth on the cam-collar, substantially as and for the purpose set forth.

12. In a machine for icing cakes, candies, &c., means for depositing icing through the perforation upon the cake below, a series of feed-plates that pass immediately below the die to feed cakes to the machine, a vertically-movable plate over which such series of feed-plates move, and springs that tend to force such plate upward, whereby a cake is held in contact with the lower side of the die, substantially as and for the purpose set forth.

13. In a machine for icing cakes, candies, &c., a perforated die, means for depositing icing through the perforation upon a cake below, a series of feed-plates that pass immediately below the die to feed cakes to the machine, a vertically-movable plate over which such series of feed-plates move, and means for elevating such plate while the cake is being iced and of lowering the plate while the cake is being moved by the feed-plates, substantially as and for the purpose set forth.

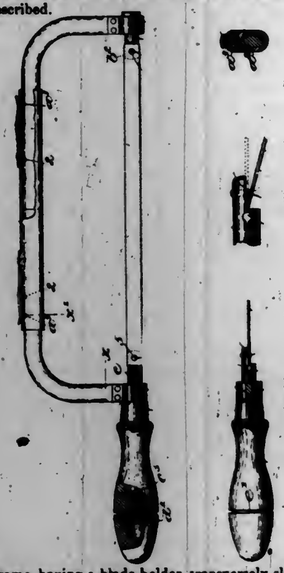
14. In a machine for icing cakes, candies, &c., a perforated die, means for depositing icing through the perforation upon a cake below, a series of feed-plates that pass immediately below the die to feed cakes to the machine, a vertically-movable plate over which such series of feed-plates move, a second plate placed below the first, springs placed between such plates, a friction-wheel mounted on the under side of the lower plate, a cam-wheel that engages such friction-wheel having a depression in a portion of its periphery, and means for rotating such cam-wheel, substantially as and for the purpose set forth.

15. In a machine for icing cakes, candies, &c., a perforated die, means for depositing icing through the perforation upon a cake below, a series of feed-plates that pass immediately below the die and are pivoted on each side to a sprocket-chain, a pair of sprocket-wheels on each side of the machine by which the sprocket-chains are moved, means for intermittently driving such sprocket-wheels, pressure-plates immediately below the die and series of feed-plates, a cam-wheel so formed as to engage and elevate such plates while the sprocket-wheels are not being actuated and that lowers the same while the sprocket-wheels are being actuated, and means for rotating such cam-wheel, substantially as and for the purpose set forth.

589,719. HACK-SAW. GEORGE W. GRIFFIN, Franklin, N. H. Filed Apr. 16, 1896. Serial No. 587,767. (No model.)

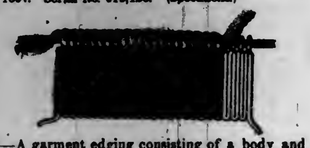
Claim.—1. A blade-holder for saw-frames, cut away longitudinally at its inner end to form a rest for the side of the blade, and a pin extended from said rest to engage a hole in the blade, said holder having a transverse keyhole-slot therein at the base of the cut-away portion, thereby leaving a lip to overlap the end of the blade while said end turns in the enlarged part of the keyhole-slot whereby the

blade may be moved to bring it into place on the holder, substantially as described.



2. A frame having a blade-holder transversely slotted and cut away longitudinally from said slot, to its inner end, the slot being interiorly enlarged, a retaining-pin on said cut-away portion, and the blade having a hole therein to receive the pin, the end of the blade at such time entering the recess and being thereby retained in operative position on the holder, substantially as described.

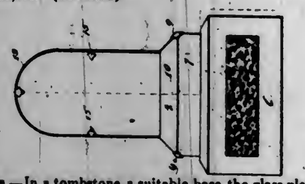
589,720. GARMENT-EDGING. HENRY HAASE, Philadelphia, Pa., assignor to the Hensel Colladay Company, of Pennsylvania. Filed Jan. 6, 1897. Serial No. 618,120. (Specimens.)



Claim.—A garment edging consisting of a body and a border, said body being formed of warp-threads and a weft-thread, said border being formed of an auxiliary warp-thread around which the weft-thread of said body is passed, and a cord coiled around said auxiliary warp-thread, said cord having its convolution alternating with the loops of the weft-thread on said auxiliary warp-thread.

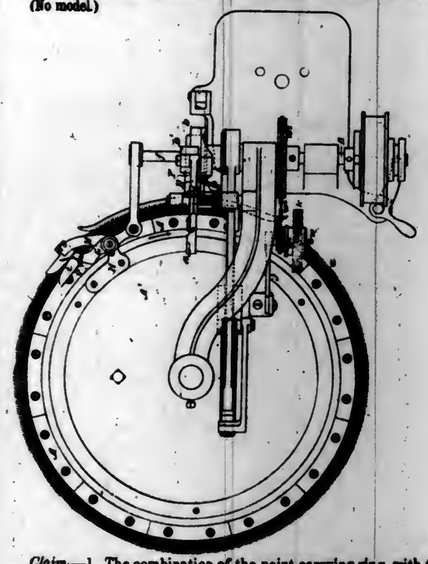
589,721. WITHDRAWN.

589,722. TOMBSTONE OR MONUMENT. WILLIAM A. HANNOND and ROBERT W. TAYLOR, St. Louis, Mo. Filed Apr. 19, 1897. Serial No. 632,579. (No model.)



Claim.—In a tombstone, a suitable base, the glass plates 7 placed in vertical positions and end to end upon said base and forming a rectangular inclosure, the anchors 8 having their heads anchored in said base and extending upwardly and outwardly to positions at the upper corners of said plates 7, the metallic plates 9 attached to the outer upper ends of said anchors 8 and engaging the outer surfaces of said plates 7, the glass plates 10 placed together end to end with their lower edges resting upon the upper edges of the glass plates 7, said plates 10 being inclined inwardly, the plastic material 11 within the glass inclosure and upon the base, the glass plates 12 placed together side by side with their lower ends inserted through the opening formed by the upper edges of the plates 10 and embedded in said plastic material, the metallic strap 13 placed in position to cover the exposed edges of said glass plates and having its ends embedded in said plastic material, and the ears 15 projecting from said metallic strap upon opposite sides of said glass plates, substantially as specified.

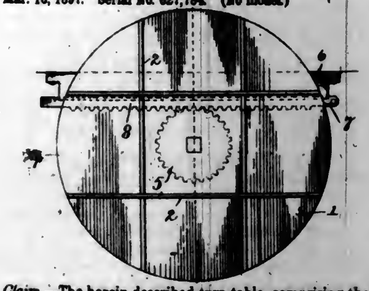
589,723. MACHINE FOR UNITING KNIT FABRICS. SAMUEL HENSHALL, Philadelphia, Pa.; Anna K. Henshall executrix of said Samuel Henshall, deceased. Filed July 25, 1894. Serial No. 518,530. (No model.)



Claim.—1. The combination of the point-carrying ring, with the trimmer comprising a fixed blade and a vibrating blade, the fixed blade being located beneath and, except as to its cutting edge, outwardly beyond the vibrating blade, and wholly beyond the loops applied to said points, the upper face of said fixed blade being substantially flush with the upper ends of the said loops, whereby said fixed blade is located closely to the work-holding points and enables the vibrating blade to cut by an outward movement close to the loops carried by said points, substantially as specified.

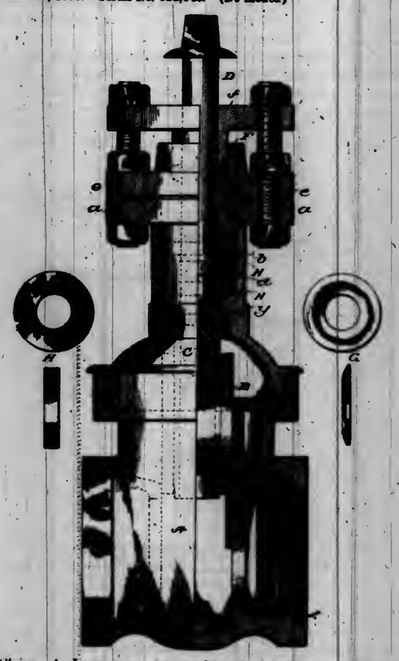
2. The combination of the point-carrying ring with the trimmer comprising a plate having a fixed blade and vertical spindle, a movable blade mounted upon a lever having a hub adapted to said spindle, a ring bearing upon said hub, an adjusting-screw adapted to the spindle and acting upon said ring to depress it and a set-screw whereby the ring may be locked to the spindle after adjustment, substantially as specified.

589,724. TURN-TABLE. JACOB M. HESS, McKeesport, Pa. Filed Mar. 16, 1897. Serial No. 627,784. (No model.)



Claim.—The herein-described turn-table, comprising the rotatable table 1, having the rack-wheel 5, secured to the under side thereof, the rack-slide 7, meshing with the teeth of the rack-wheel and connected by a dovetail to the support 6, in combination with the circular track 3, having the supporting-wheels 4, journaled therein and the table resting on said wheels, substantially as described.

589,725. STUFFING-BOX FOR VALVES. WILLIAM F. HODGE, North Adams, Mass., and HARVEY M. GEER, Ballston Spa, N. Y. Filed Mar. 17, 1897. Serial No. 628,043. (No model.)



Claim.—1. In an emergency packing for valves, the combination of the casing and stem, and a collar on said stem tapered or conical on one side; with a soft elastic and expansible packing surrounding the stem intermediate the ordinary stuffing-box and valves, and adapted to be compressed and expanded simultaneously by the screw action of the valve-stem, all substantially as and for the purpose described.

2. The combination with the casing, valve, and collared valve-stem; of loose metallic collars placed above and below the stem-collar, and elastic packing-rings, above and below said metallic collars, adapted to be packed by means of the pressure of the stem-collar thereon exerted by the screw action of the stem itself after the valve is fully opened or closed, substantially as and for the purpose described.

3. The combination of the casing, having chamber *b*, the casting E having stuffing-box F and gland *f*, the valves, and the threaded valve-stem having a collar *d* within said chamber *b*; with the hard-metal packing-rings G, G, in said chamber *b* above and below the collar *d*, and the elastic packing-rings H in said chamber *b* above and below the collars G, whereby the valve-stem can be packed, in an emergency, by means of the screw action of the stem exerted on packings G, H, through collar D, after the valves are fully opened or closed, all substantially as and for the purpose described.

4. The combination with the casing, valve and collared valve-stem; of loose metallic collars G, G, having one of its sides tapered or conical, placed above and below the stem-collar, and elastic and expansible packing-rings above and below said metallic collars, adapted to be compressed and expanded simultaneously by means of the pressure of the stem-collar thereon exerted by the screw action of the stem itself after the valve is fully opened or closed, substantially as and for the purpose described.

589,726. COIN-OPERATED TELEPHONE. FREDERICK HOFFMAN, Paragould, Ark., assignor to Ross Hoffman, same place. Filed May 3, 1897. Serial No. 634,930. (No model.)

Claim.—1. The combination with a telephone, of a lever pivotally mounted in position to have one of its ends engage under the receiver-hook, a second lever pivotally mounted in position to have one of its ends engage the opposite end of the first-mentioned lever from the receiver-hook, a weight attached to said second lever to elevate the receiver-hook, a toothed segment upon the opposite end of the second mentioned lever from the end which engages the first-mentioned lever, a spur-pinion rotatably mounted in position to be engaged by said toothed segment, a weighted lever mounted upon the spindle carrying said spur-pinion, a frame attached to said spur-pinion and carrying a spring, which spring performs the function of a ratchet and engages said weighted lever, a coin-chute, a lever pivotally mounted with one of its ends extending into said coin-chute and the opposite one of its ends in position to be engaged by said weighted lever, said coin-chute being constructed in two parts, said parts being insulated from each other and used as terminals for the telephone-circuit, the insertion of a coin serving to close the circuit, substantially as specified.



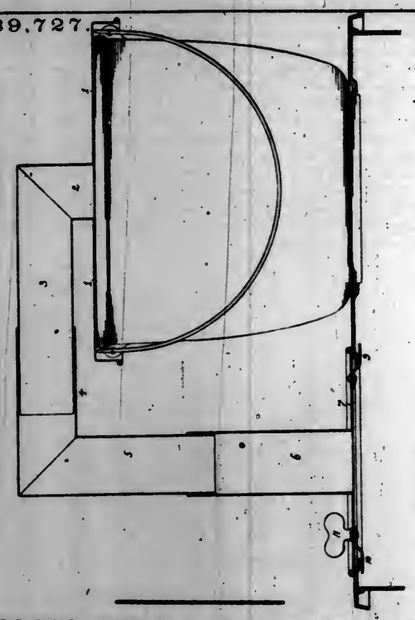
2. In a device of the class described, a telephone-box consisting of the back wall 10, the side walls 11 and 12, the top 13, the bottom 14 and having the receiver-hook 16 pivotally attached to the back wall 10 and extending through the side wall 12, the upper floor 17 and the lower floor 18 having the opening 19, the side wall 11 having the opening 20 immediately below the upper floor 17, the U-shaped strip of sheet metal 21 connecting the opening 20 with the opening 19, the U-shaped strip of sheet metal 22 connecting the upper floor 17 with the side wall 12 and running parallel with the strip 21, said strips 21 and 22 forming a coin chute and serving as terminals for the telephone-circuit, substantially as specified.

3. In a device of the class described, the lever 24 pivotally mounted in position to have its end 27 engage under the lever of the receiver-hook, the segmental gear 28 pivotally mounted adjacent to the lever 24, the arm 31 projecting from the segment 28 and engaging the lower end of the lever 24, a weight attached to said arm 31 to overbalance the segment, the spur-gear 36 rotatably mounted in position to be engaged by the teeth of the segment 28, the arm 39 attached to said spur-gear, the spring-arm 42 attached to the outer end of the arm 39, the weighted lever 43 pivotally mounted upon the shaft carrying the spur-gear and having its upper end 44 bent forwardly into a horizontal plane, said weighted lever being in position to be engaged by the free end of the spring-arm 42, a coin-chute, a lever pivotally mounted with one of its ends projecting into said coin-chute and its opposite end in position to be engaged by the end 44 of the weighted lever, said coin-chute being constructed in two parts and serving as terminals for the telephone-circuit and said circuit being closed by the insertion of a coin, substantially as specified.

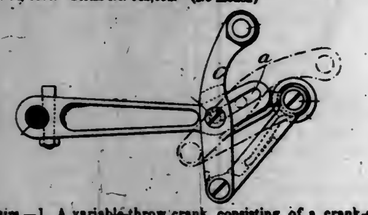
589,727. VENTILATING DEVICE FOR COOKING UTENSILS. CHARLES HOOPES, Combehocken, Pa., assignor of one-half to MARTIN HOOPES, same place. Filed Feb. 8, 1897. Serial No. 622,494. (No model.)

Claim.—The combination of a lid or cover for a cooking utensil, a plate adapted to rest upon the flat surface of the top of a stove or range and to cover a pot-hole therein, a projecting finger on the under side of the plate at one edge of the same, and a pivoted turnbuckle located on the under side of the plate at the opposite edge of the same and having a handle above the plate, and a pipe connection between said plate and the lid or cover of the cooking utensil, substantially as specified.

589,727.



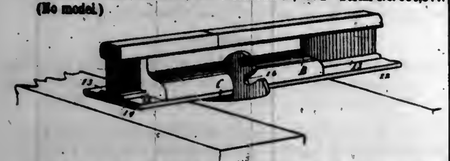
589,728. CRANK. THOMAS S. JAMES, London, England. Filed Nov. 14, 1896. Serial No. 612,152. (No model.)



Claim.—1. A variable-throw crank consisting of a crank-arm fixed on the crank-shaft and having an inclined surface lying at an angle to the radial line of the crank-arm, a separate lever carrying the crank-pin, connected to the crank-arm by a pivoted link, and a roller or equivalent device on said lever bearing upon the said inclined surface of the crank-arm and made to travel thereon when pressure is applied to the crank-pin, substantially as and for the purpose set forth.

2. A variable-throw crank consisting of a crank-arm fixed on the crank-shaft, a separate lever carrying the crank-pin connected to the crank-arm by pivoted link, said lever having a slot or loop through which the end of the crank-arm passes pins or rollers on said lever bearing on inclined surface upon the crank-arm, and a spring tending to keep the said lever in a retracted or inward position in which the crank-pin is nearer the crank-shaft than when the lever is forced outward against the action of the spring, substantially as and for the purposes described.

589,729. FISH-PLATE AND MEANS FOR HOLDING SAME. JAMES JOHNSTON, Bradford, Pa. Filed Dec. 10, 1894. Serial No. 531,877. (No model.)

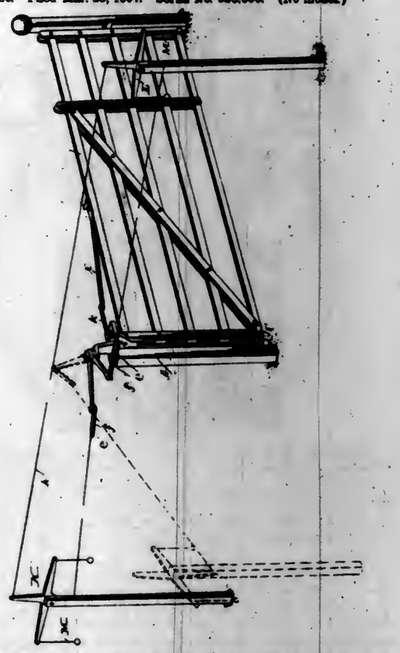


Claim.—1. The combination, with a rail the head of which is provided with a flat under surface, and the flange with a rib upon its upper face at each side of the web, of fish-plates engaging with the under surface of the head and with the upper face of the rail-flanges, conforming to the latter and likewise engaging with the web, and a band of spring material extending beneath the flange of the rail and held in clamping engagement with the outer faces of the fish-plates, one end of the band being fitted to receive a lever, as and for the purpose specified.

2. The combination with a rail, of fish-plates shaped to fit upon and engage with the web, flanges and under surface of the head of the rail, and a band of spring material extending beneath the flange of the rail and held in clamping engagement with the outer faces of the fish-plates, one end of the band having a recess formed therein, as and for the purpose set forth.

3. The combination with the fish-plates shaped to fit upon the rail of a spring-band extending beneath the flanges and adapted to engage with the outer faces of the fish-plates, one end of said band being bent upward to engage the toe of one of said fish-plates, and the other end being enlarged and having recesses in its outer edge to receive the head of a lever, as and for the purpose specified.

589,730. SWINGING GATE. WILLIAM H. JOHNS, Mount Cory, Ohio. Filed Mar. 23, 1897. Serial No. 628,390. (No model.)



Claim.—1. In a swinging gate of the character described, a shifting plate, arms for said plate adjustably secured thereto, and operating connections connected to said arms, substantially as and for the purpose described.

2. A shifting plate for swinging gates, comprising a plate adapted to shift the center of gravity of the gate, operating-arms therefor adapted to be adjusted relatively to the plate, and a clamping means for said arms, substantially as described.

3. A shifting plate for gates comprising a plate having at its rear side an extension, arms carried by said extension, and a clamping means passing through the extension and the arms, whereby the latter are adjustable in relation to the plate, substantially as described.

4. In a swinging gate the combination of hinges therefor, a shifting plate, and a connection between the shifting plate and the gate, said connection independent of the hinges, substantially as described.

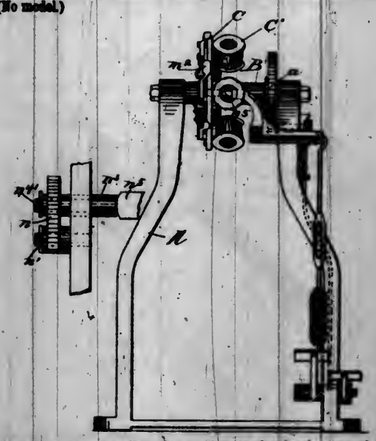
5. In a swinging gate the combination of a shifting plate forming a hinge for the upper end of the gate, and a connection between the shifting plate and the gate, said connection being independent of the hinge of the gate, substantially as described.

6. In a swinging gate, the combination of the gate, a shifting plate forming the hinge for the upper end of the gate, and a link having one end pivotally connected with the shifting plate and its opposite end loosely connected with the gate to permit it a slight independent longitudinal movement in respect to the gate, substantially as described.

7. In a swinging gate, the combination of the gate, a shifting plate therefor, a link having one end connected with the gate and the other connected with the plate, one end of link having a slot to permit it a longitudinal independent movement, substantially as described.

8. In a swinging gate, the combination of the gate, a shifting plate therefor, and a connection loosely connected with the plate and the gate at a point between its ends, one end of the link having a limited longitudinal movement independent of its connected member, substantially as described.

589,731. BOOT OR SHOE TREE. JOHN E. LAWTON, Swampscott, Mass., assignor, by mesne assignments, to the Morley Finishing Machine Company, of Maine. Filed Oct. 21, 1895. Serial No. 566,330. (No model.)



Claim.—1. In a machine for treeing or shaping boots and shoes, a rotatable disk, two or more expansible forms on one side of it, a spring-controlled expanding device for each form having a pin c', a locking device for each expanding device on the opposite side of said disk, consisting of the pivoted ratchet-toothed member n, and pawl in engagement therewith, and an arm at the other side of said disk attached to and movable with said member n, which terminates just back of said pin c', and an operating-lever common to all of the expanding devices which engages said arm and thereby moves both the expanding and locking devices, substantially as described.

2. In a machine for treeing or shaping boots and shoes, an expansible form, an expanding device therefor, a locking device for said expanding device, consisting of a ratchet-toothed segment, an actuating-arm connected therewith having a rocker-plate which engages the expanding device, and means for moving said arm to turn the segment and also operate the expanding device, and a pawl for said segment, substantially as described.

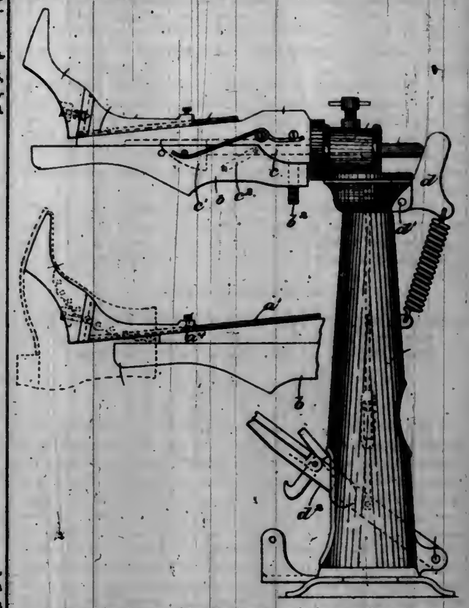
3. In a machine for treeing or shaping boots and shoes, the rotatable disk C, two or more expansible forms supported thereby, expanding devices therefor having pins c', a treadle-operated bell-crank lever common to all said expanding devices, an independent locking device for each expanding device, consisting of a ratchet-toothed segment n, pivoted to the disk C, having secured to and movable with it a right-angular arm n^3 n^2, which works in a slot in said disk and terminates just back of said pin c', and in position to be acted upon by said bell-crank lever, and a pawl m for each ratchet-toothed segment having a hand engaging portion, substantially as described.

589,732. MACHINE FOR SHAPING BOOTS OR SHOES. JOHN E. LAWTON, Swampscott, Mass., assignor, by mesne assignments, to the Morley Finishing Machine Company, of Maine. Filed Dec. 12, 1895. Renewed Mar. 23, 1897. Serial No. 628,745. (No model.)

Claim.—1. In a shaping-machine for boots and shoes, the combination of a back leg portion having a heel, a front leg portion having an oblique face, a fore-part support sliding on said oblique face and a fore part detachably connected to said support, having its shank adjacent the heel removed, and means for limiting the withdrawal of said fore-part support, substantially as described.

2. In a shaping-machine for boots and shoes, an expansible form comprising essentially front and back leg parts, the latter being bodily movable with relation to the former, and an expanding device comprising a rod having thereon a wedge, which engages a pin on the back leg part, and a link connected loosely at one end to said rod and at the other end to said back leg part some distance from said pin, substantially as described.

3. In a shaping-machine for boots and shoes, an expansible form comprising a front and a back leg portion, means for moving the latter bodily with relation to the former, a guide-pin for said back leg portion, at the rear end thereof, and a spring supporting said back leg portion which engages it in advance of said guide-pin, substantially as described.



4. In a shaping-machine for boots and shoes, a form having a frame, a shin-piece sliding thereon and carrying a fore part, and a spring-pin adapted to limit the withdrawal of said shin-piece, and when operated to permit detachment of said shin-piece, substantially as described.

5. In a shaping-machine for boots and shoes, an expansible form comprising a back leg portion having a heel, a front leg portion having an oblique face, an expanding device for moving said back leg portion away from said front leg portion, to expand the form, a fore-part support sliding on said oblique face, a fore part detachably connected to said support, the instep and heel measurements of the form both being reducible to the ankle measurement, when said fore part is drawn out and means for limiting withdrawal of said fore-part support, substantially as described.

589,733. BICYCLE-TIRE. JOHN C. LIGHTBOURN, Rochester, N. Y. Filed May 19, 1896. Serial No. 592,231. (No model.)



Claim.—1. In a bicycle-tire, the combination of a concave wheel-rim, an external covering-tube resting therein provided with telescoping ends, an inflatable air-tube provided with lapping ends at the telescopic joint, coupling-pieces at the ends of the covering-tube provided with lugs extending out laterally through holes in the covering-tube, and means for connecting the coupling-pieces on opposite sides, for tightening and closing the telescopic joint, as herein shown and described.

2. The combination of the hollow wheel-rim, the covering-tube and air-tube resting therein, a flexible binding-strip provided with hooks uniting the edges of the covering-tube, coupling-pieces at the ends of the binding-strip provided with lugs extending out laterally through the tube, and means uniting the lugs of said coupling-pieces whereby the ends of the tube may be drawn toward each other as and for the purpose specified.

3. In a bicycle-tire, the combination of a concave wheel-rim, an external covering-tube provided with telescoping ends, a binding-strip uniting the inner edges of the tube, an inflatable air-tube inside the covering-tube provided with overlapping ends at the telescopic joint, coupling-pieces at the ends of the covering-tube provided with

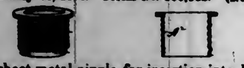
lugs extending out laterally through holes in the covering-tube, and screws connecting said lugs on opposite sides for tightening the same and closing the telescopic joint, as herein shown and described.

4. The combination of the open-ended covering-tube, a binding-strip uniting the edges of the same, coupling-pieces attached to the ends of the binding-strips, screws connecting the coupling-pieces together, and an extension to the binding-strip at one end for the purpose of uniting the lapping edges of the lap portion of the tube as specified.

5. The combination of the exterior covering-tube, the binding-strip for attaching the edges of the same, an extension to said binding-strip for securing the edges of the lapping end of the tube, coupling-pieces attached to the binding-strip, that on one side being provided with studs which enter adjusting-holes of the binding-strip, and screws uniting the coupling-pieces as and for the purpose specified.

6. The combination with the telescopic covering-tube and disconnected air-tube of the guard H, to which one end of the air-tube is attached and to which it is projected into the opposite end of the covering-tube in the act of telescoping the parts together as herein set forth.

589,734. NIPPLE FOR HOT-WATER BAGS. JOHN LINES, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed July 20, 1896. Serial No. 599,812. (No model.)



Claim.—A sheet-metal nipple for insertion into hot-water bags for the reception of plugs or stoppers therefor, the said nipple being formed from a single piece of sheet metal, furnished at its outer end with an outwardly-turned flange, and having a spiral thread produced in its body portion so as to form internal screw-threads for engagement by the threads of a plug or stopper, and so as to form external screw-threads by which the nipple is fastened in place within the mouth of the bag, the high points or crowning edges of said external threads having formed in them vertically-arranged, cross-sectionally wedge-shaped notches, provided for increasing the grip between the nipple and the mouth of the bag, arranged in a series of lines at equal distances apart, extending parallel with the longitudinal axis of the nipple, and formed by subjecting the nipple to the action of a die which produces the notches without cutting through the metal, substantially as described.

589,735. OIL-CAN. HARVEY F. MARAMVILLE, Akron, Ohio. Filed Aug. 10, 1896. Serial No. 602,234. (No model.)

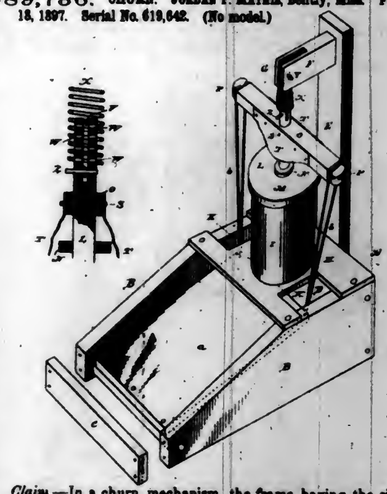


Claim.—1. In an oil-can, an interior conductor rotatably secured to the bottom of said can and having a flanged neck engaging the neck thereof, a removable spout adapted to engage with the neck of said conductor, a spring surrounding the neck of the conductor, and an actuating-lever, the parts being constructed, arranged, and operating substantially in the manner and for the purpose set forth.

2. In an oil-can, an interior conductor rotatably secured to the bottom of the can and having a flanged neck engaging the neck thereof, a spring surrounding the neck of the conductor, a vent valve and pipe, and an actuating-lever arranged to compress the bottom of the can and open the valve, substantially as and for the purpose set forth.

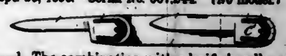
3. In an oil-can, an interior conductor rotatably secured to the bottom of said can and having a flanged neck engaging the neck thereof, a spring surrounding the neck of the conductor, a removable cylindrical extension to said conductor a valve-disk, an extension-chamber having a seat for said valve-disk, and a removable and rotatable spout, substantially as and for the purpose set forth.

589,736. CHURN. JORDAN P. MATHIS, Bently, Miss. Filed Jan. 18, 1897. Serial No. 619,642. (No model.)



Claim.—In a churn mechanism, the frame having the sides B, standard E with arm F, and the platform H connecting the sides; in combination with the treadle *a* arranged between the sides B; the dasher-rod L having the series of openings W and slot V, the cross-bar O, the loops *b* adapted to connect the treadle and the cross-bar, and the coiled retractile spring X attached to the arm F and to the pin Z in one of the openings W, substantially as described.

589,737. POCKET-KNIFE. GEORGE W. MILLER, Meriden, Conn. Filed Sept. 28, 1896. Serial No. 607,244. (No model.)



Claim.—1. The combination with a knife-handle, of a knife-blade pivoted therein, and having its butt or tang cut away to form an integral spring, and means connected with the handle and engaging with the said spring for springing the same in locking the blade in its open and closed positions.

2. In a knife, the combination with the handle thereof, of a knife-blade, the butt or tang of which is formed with an integral spring and a segmental slot, and two locking-shoulders, and a pin located in the said slot and connected with the plates for engaging with the said shoulders which lock the blade in its open and shut positions, and which spring the spring preparatory to opening and shutting the blade.

3. In a knife, the combination with the handle thereof, of a blade having its butt or tang formed with a pivot-finger, a bowed spring, and with two locking-shoulders which are located near the end of a segmental slot which separates the said pivot-finger and bowed spring; and a stationary pin fixed in the handle of the knife, and furnished with an antifriction-roll which coacts with the said spring and shoulders.

589,738. POCKET-KNIFE. GEORGE W. MILLER, Meriden, Conn. Filed Sept. 28, 1896. Serial No. 607,245. (No model.)



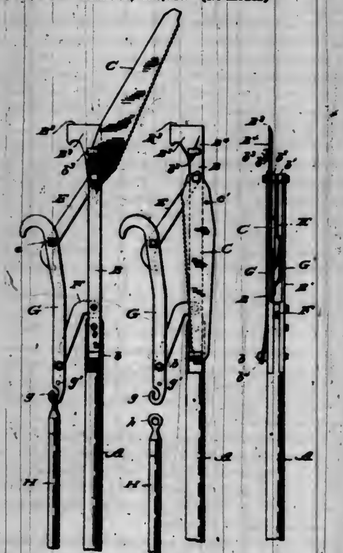
Claim.—1. A knife having a metal frame-plate constructed to form a longitudinally-arranged spring yielding edgewise in the plane of the plate, a knife-blade having its tang pivotally connected with the outer end of the said spring, and an antifriction-roll coacting with the tang of the blade which yields or moves with the spring under the action of the roll which places the spring under tension.

2. A knife having two frame-plates, each longitudinally cut away to form a spring adapted to yield edgewise in the plane of the plate, a knife-blade having its tang secured to the said springs by means of a pivot passing through it and into the ends of the springs, and an antifriction-roll with which the heel of the tang of the blade coacts and which places the springs under tension.

3. A knife having two frame-plates, each cut away to form two springs extending in opposite directions, and yielding edgewise in the plane of the plate, and having their outer ends pierced to form pivot-holes, knife-blades pivotally hung in the outer ends of the said springs, the pivot of each blade passing into a spring of each plate, and two antifriction-rolls mounted between the plates in position to be engaged by the heels of the tangs of the blades, the said rolls placing the springs under tension and coacting therewith to firmly hold the blades in their open and shut positions.

4. A knife having the tang of its blade formed with two notches, and with a curved bearing-surface located between the said notches, a yielding spring to which the said blade is pivoted, and an antifriction-roll mounted upon a stationary pivot and coacting with the said bearing-surface and notches for holding the blade in its open and shut positions and reducing the friction of its action.

589,739. PRUNING IMPLEMENT. JAMES L. MILLER, Fairfield, Ill., assignor of one-half to Reuben K. Parkhurst, same place. Filed May 27, 1897. Serial No. 638,348. (No model.)



Claim.—1. In a pruning implement, the combination with a frame or bar having a saw-blade pivoted thereto, of a lug or bolt head having a slit at an angle with the plate with which the end of the saw-blade engages; together with means for engaging the opposite side of the saw when the same is projected, for the purpose set forth.

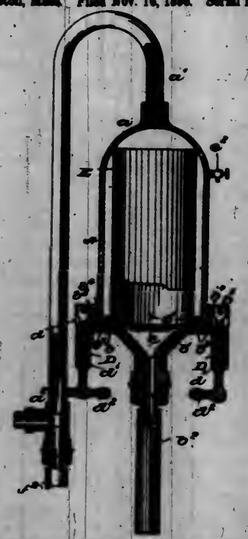
2. In a pruning implement, the combination with the bar or plate having a saw-blade pivoted thereto, of a lug carried by the plate, a portion of the lug overlying the same and provided with an inwardly-projecting portion, the plate beneath the projecting portion of the lug being concave; together with a saw-blade having an aperture for engagement with the projecting portion of the lug, substantially as shown and for the purpose set forth.

3. In a pruning implement, the combination with a bar or plate having a laterally-extended end which is sharpened, of a saw-blade pivoted to the plate and means for holding the saw at an angle with the cutting edge for the purpose set forth.

4. In a pruning implement, the combination with a bar or plate constructed to present a chisel or cutting end and a hook below the same, said plate having a concave recess, a lug having a projecting portion secured to the plate so as to lie partially over the recess, of a saw-blade pivotally attached to the plate and provided with an aperture with which the projecting portion of the lug engages substantially as shown and for the purpose set forth.

5. The combined pruning implement having plates B, B' with inwardly-projecting bosses, plates or members E, F, pivotally attached to the plates so as to engage with said bosses, a hook member pivotally attached to the outer end of the members E, F, said hook member having a spring-plate G', one end of said plate having a projection with which the head of the pivot-bolt engages, the lower portion of the hook member having a stop-pin *g'* for limiting its swinging movement in one direction together with an auxiliary handle removably connected with the hook-member, substantially as shown.

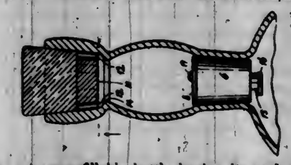
589,740. PIPE-CLEANER. FRANK W. MILWARD and JOHN C. MCGEE, Boston, Mass. Filed Nov. 16, 1896. Serial No. 612,268. (No model.)



Claim.—1. A cleaner of the character herein described, comprising a water-chamber having an upper supply-opening and open at its lower end, a removable bottom for said chamber having a water-outlet and a flat horizontal portion, means for detachably holding said flat horizontal portion of said bottom against the lower end of said chamber, and the receptacle open at its ends and resting upon said flat horizontal portion of said bottom adjoining said water-outlet, substantially as set forth.

2. A cleaner of the character herein described, comprising a water-chamber having an upper supply-opening, a water-pipe communicating with said supply-opening, a removable bottom provided with a funnel-like extension, means for detachably holding said bottom to said chamber, an outlet pipe or hose connected to said funnel-like extension, and a two-way cock having its casing provided with two branches, one of which is connected to a branch of said water-pipe and the other to said outlet pipe or hose, substantially as and for the purpose set forth.

589,741. NON-REFILLABLE BOTTLE. OLIVER J. MOUSSETTE, Brooklyn, N. Y. Filed Nov. 19, 1896. Serial No. 612,756. (No model.)

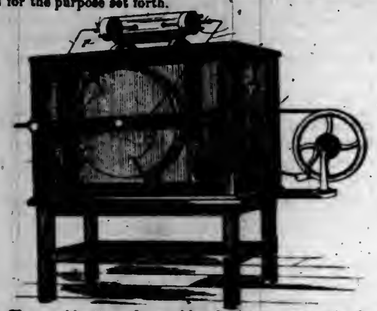


Claim.—A non-refillable bottle having its neck formed with a tapering cork-seating portion, a bulged portion above the cork-seating portion, a contraction or baffling-bead above the bulged portion, a guard secured above and having passages made to lead to the bead, and a perforated cork at said cork-seating portion, said cork having a rigid lining for said perforation, a closing-disk, and an angular retaining-stem for the closing disk extended through the perforation, substantially as described.

589,742. STATIC MACHINE. CORNELIUS H. MYERS and HENRY C. ROSS, South Bend, Ind. Filed Dec. 5, 1896. Serial No. 614,621. (No model.)

Claim.—1. The combination with a machine for generating static electricity, and an inclosing case therefor; of means for refrigerat-

ing or reducing the temperature of the air in the case, substantially as and for the purpose set forth.



2. The combination of a machine for generating static electricity, and a case inclosing such machine; with a tank in said case containing a refrigerant, substantially as and for the purpose described.

3. The herein-described electrotherapeutic apparatus, consisting of a machine for generating static electricity, a case inclosing said machine, and means for refrigerating or reducing the temperature of the air in said case; with a closed glass chamber exterior to the case, opposite electrodes in the ends of said chamber respectively connected with the positive and negative brushes or collectors of the machine; and means for introducing air into and withdrawing air from the chamber, all substantially as and for the purpose described.

589,743. BICYCLE. JOHN J. NARREGANG, Leesport, Pa. Filed July 30, 1896. Serial No. 601,010. (No model.)

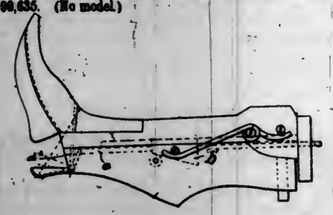


Claim.—1. A coupling and adjusting device for the rear apex of a bicycle-frame, consisting of a frame-plate having a horizontal slot with an outlet therefrom at the bottom at its front end and a connection for the tube A in rear of said outlet combined with an axial pin arranged transversely in said slot, and a horizontal adjusting-screw having a forked end opening downwardly at its rear end and loosely embracing the axial pin and a swiveling nut arranged in the coupling-frame and meshing with the front part of the screw-stem substantially as and for the purpose described.

2. The combination of the tubes A and B, the rigidly-attached plate C having horizontal slot with bottom outlet *a'* near its front end a connection for tube A in rear of the outlet and rounded projections *l l'*, with transverse slot between them an axial pin arranged in the horizontal slot, a screw-stem E having a forked end in the rear embracing the axial pin and having its front end extending into the lower tube, and a swiveling nut and locking device for the screw substantially as and for the purpose described.

3. The combination with the slotted coupling-plate and the axial pin arranged in the slot and having a screw-threaded end, of the screw-threaded cone-bearing fitting on the axial pin, a clamping-nut on the end of the axial pin, and an adjusting-screw having its end loosely connected to axial pin, and provided with a locking-face engaging the cone-bearing to prevent it from turning substantially as and for the purpose described.

589,744. SHAPING OR TREEING MACHINE. BERNICE J. NOYES, Boston, Mass., assignor, by mesne assignments, to the Morley Finishing Machine Company, of Maine. Filed July 18, 1896. Serial No. 599,635. (No model.)



Claim.—1. In a machine for shaping or treeing boots and shoes, an expansible form comprising essentially a back leg part, a front leg part, and a detachable fore part, and having a recess at the heel, a heel-piece pivoted to said back leg part, and means for operating it, and an expanding device for the form, substantially as described.

2. In a machine for shaping or treeing boots and shoes, an expansible form comprising essentially a back leg part, a front leg part, and a detachable fore part, said back and front leg parts being cut away at the heel portion of the form, a heel-piece pivotally connected to said back leg part, means for operating it, and an expanding device for said form, substantially as described.

3. An expansible shoe shaping or treeing form comprising essentially a back leg part, a front leg part, and a detachable fore part, and having its heel portion removed to reduce its heel and instep measurements to the ankle measurement of the boot or shoe to be shaped thereon, a heel-piece working in the recess thus formed, an operating device for it, and an expanding device for the form, substantially as described.

4. In a machine for shaping and treeing boots and shoes, a form comprising essentially a back leg part, a front leg part, and a detachable fore part, said form having its heel portion removed to reduce its heel and instep measurements to the ankle measurement of the boot or shoe to be shaped thereon, combined with a heel-piece working in the recess thus formed, and an operating device for it, substantially as described.

5. In a machine for shaping and treeing boots and shoes, a form comprising essentially a back leg part, a front leg part and a detachable fore part, said form having its heel portion removed to reduce its heel and instep measurements to the ankle measurement of the boot or shoe to be shaped thereon, combined with a heel-piece working in the recess thus formed, and a yielding operating device for it, substantially as described.

6. In a machine for shaping and treeing boots and shoes, an expansible form comprising essentially a back leg part, a front leg part, and a detachable fore part, said form having its heel portion removed to reduce the heel and instep measurements to the ankle measurement of the boot or shoe to be shaped thereon, combined with a heel-piece working in the recess thus formed, an expanding device for the form, and an actuating device for both the expanding device and heel-piece adapted to operate them successively, substantially as described.

7. In a machine for shaping and treeing boots and shoes, an expansible form comprising essentially a back leg part, a front leg part, and a detachable fore part, said form having its heel portion removed to reduce its heel and instep measurements to the ankle measurement of the boot or shoe to be shaped thereon, a heel-piece working in the recess thus formed, an expanding device for the form, and an operating device for said heel-piece connected with said expanding device, substantially as described.

8. In a machine for shaping and treeing boots and shoes, a form comprising a back leg part and a detachable fore part, the heel end of said form being removed to reduce the heel and instep measurements to the ankle measurement of the boot or shoe, the line of severance crossing both the back leg portion and the fore part, and a heel-piece, substantially as described.

9. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a retreating heel-piece, and a fore part having a sliding shank-piece, substantially as described.

10. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a retreating heel-piece, and a fore part having a movable shank-piece, substantially as described.

11. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a pivoted heel-piece, and a fore part having a movable shank-piece, substantially as described.

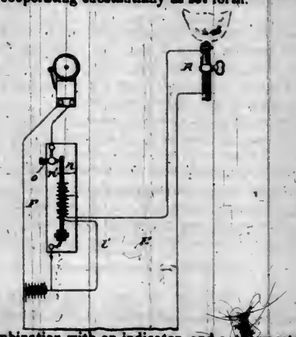
12. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a retreating heel-piece, a fore part having a movable shank-piece, and an expanding device for spreading the parts, substantially as described.

13. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a retreating heel-piece, a fore part having a movable shank-piece, and means for operating said heel-piece and for expanding the form, substantially as described.

14. In a machine for shaping and treeing boots and shoes, a form comprising a back part having a retreating heel-piece whereby the heel measurement may be reduced to the ankle measurement of the boot or shoe, and a fore part having a movable shank-piece whereby the instep measurement may be reduced to said ankle measurement of the boot or shoe, and an expanding device for the form, substantially as described.

589,745. DEVICE FOR INDICATING ESCAPE OF GAS. MICHAEL O'DONOVAN, Boston, Mass., assignor of one-half to Charles W. Buxton, Waverly, Mass. Filed May 24, 1895. Renewed Jan. 25, 1897. Serial No. 620,682. (No model.)

Claim.—1. A device for operating an indicator to indicate the escape of gas, it comprising in its construction a thermostat adapted to be influenced by the gas-flame, a resistance-coil in circuit with said thermostat, a supplemental thermostat adapted to be influenced by said resistance-coil, and an indicator in circuit with said supplemental thermostat all cooperating substantially as set forth.

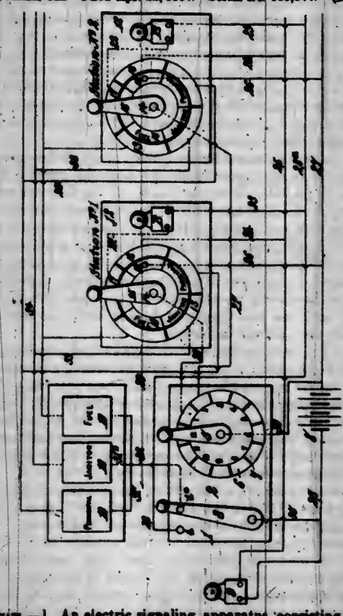


2. The combination with an indicator, and a thermostat in circuit therewith, of a resistance-coil on said thermostat, a gas-burner having a valve, a thermostat adapted to be acted on by the flame, and in circuit with the resistance-coil, and a switch for closing the last said circuit and coacting with the valve of the gas-burner, whereby if the valve be turned and the gas be not lighted, the resistance-coil will act upon the first said thermostat to close its circuit and operate the indicator.

3. A gas-burner and a thermostat adapted to be placed in proximity to the flame, in combination with a collar, for supporting it, an adjustable screw normally in contact with the end of said thermostat and mounted on said collar, substantially as set forth.

4. The combination with a gas-burner, a collar thereon, a thermostat mounted on said collar and an adjustable screw also mounted on said collar and contacting with said thermostat, of a contact on the burner, an electrical connection with said thermostat on said screw, and a switch-arm mounted to turn with the valve and in electrical connection with the screw on the thermostat, as set forth.

589,746. ELECTRIC SIGNALING APPARATUS AND CIRCUIT. EDWARD H. OWEN, CHARLES N. WILLIAMS, and FRED H. DONALDSON, Carvanza, Cal. Filed Apr. 22, 1897. Serial No. 633,377. (No model.)



Claim.—1. An electric signaling apparatus, consisting of apparatus at a central station comprising a call-bell, a battery having one pole connected to the bell-coil and to a switch-arm, two contact-points for said arm, one connected to an annunciator and to a wire having branch connection to other annunciators and the second contact to a line-wire, having branches to all the line-stations, a series of circularly-arranged numbered contacts, an arm to sweep the same, a like series of contacts at each line-station, the first connected through a line-wire and through a bell-coil at a line-station to one of the contact-points at the main station, the second through a separate line and bell-coil at main station to one pole of the battery, and the remainder to line-wires leading to the annunciators, a switch-arm to sweep said contacts, its pivot being connected to a corresponding numbered contact at the main station and a contact-post in line with the second contact at each line-station connected by a line-wire to one pole of the battery, substantially as described.

2. The combination with a battery, and bell-coil, of a wire from one pole of the former to one terminal of the latter, a line-wire from the second terminal, a series of line-stations having each a series of contacts the second thereof connected by branch wires to said line-wire, a contact-post in line with said contact, a separate line-wire connected to said post at each line station and to the second pole of the battery, a switch to sweep said contacts, a series of annunciator-drops at the main station, having different communications, line-wires connected by branches to the similarly-designated contacts at the line-stations, a series of numbered contacts at the main station connected to the switch-arms at the line-stations, a switch-arm for said contacts connected to the line-wire from the second pole of the battery, a bell for each line-station having its coil connected to the first contact and to a line-wire, a contact-point at the main station connected to said line-wire, a second contact point connected to all the annunciator drops and a switch-arm connected to the bell-coil and battery, substantially as described.

3. In an electric signaling mechanism, a call-receiving apparatus for a main station, comprising two independent switch-arms, the first having two contact-points, one of which is connected to a line-wire having branch wires to call-bells at the line-stations, and the other to a series of annunciators having messages on their drops, a circular series of numbered contact-plates each of which save one is connected to a switch-arm at one of the line-stations, and a battery having one pole connected to the second switch-arm which sweeps said contact-plates, and its other pole to a line-wire which includes a call-bell at the main station, and to the first switch-arm, said line-wire having branch wires to contact-posts at the line-stations.

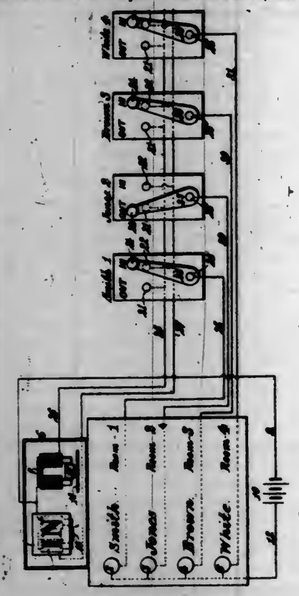
4. In an electric signaling mechanism, a call-sending apparatus consisting of a series of contact-plates arranged in a circle, the first plate wired through a branch line, line wire and local call-bell to a contact-post at a main station, the second through a separate branch, line-wire and call-bell at the main station to one pole of a battery, a contact-post in line with the second contact-plate and connected through a third branch and line wire to the other pole of said battery, the remaining plates having calls and connected through branch and line wires to annunciators having like calls on their drops, and a switch-arm to sweep said contact-plates having connections through a branch and line wire to one of a series of numbered contact-plates at the main station, substantially as described.

589,747. ANNUNCIATOR SYSTEM. EDWARD H. OWEN, CHARLES N. WILLIAMS, and FRED H. DONALDSON, Carvanza, Cal. Filed June 18, 1897. Serial No. 641,371. (No model.)

Claim.—1. In a signaling system, the combination with a suitable support of a plurality of pushes and push-button contacts arranged upon said support and associated with marks, or words, which identify each one of a series of distant points, a series of separate wires, one from each push-button being led to one of the distant points, a series of switches at said points, each switch consisting of a conducting-arm, to the pivotal support of which one of the separate wires is led, and two contact-pieces each of which is associated with a different character, or word, two independent wires each of which is common to the contact-pieces associated with the same word or character, two series of branch wires, one series connected to one contact-piece at each point and to one of the two wires and the other series to the second contact-piece and second wire, a signaling apparatus having signals responsive to both the contact-pieces at the distant points and a source of electric energy, substantially as described.

2. In a signaling system the combination with a suitable support of a plurality of pushes and push-button contacts, a series of separate wires one from each push-button to one of a series of distant points, a series of switches at said points each comprising a conducting-arm to the pivotal support of which one of the separate wires is connected, two contact-pieces on each switch-base with either of which the arm can engage, two or more independent wires having branch connections to all the contact-pieces on one side and the other to all those on the other side of the switch-arm, two or more independent signaling devices each comprising an electromagnet and a visual signal

operated by it, the winding of each magnet being connected to one or the other of the independent wires, and a generator of electric energy connected to each of the push-button contacts, substantially as described.

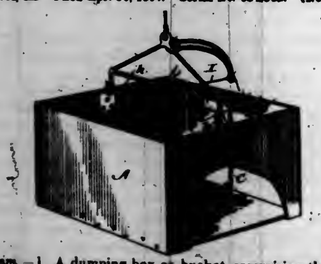


589,748. MUSIC-PULPIT. THEODORE J. PALMER, Hackensack, N. J. Filed May 27, 1896. Serial No. 593,270. (No model.)



Claim.—In a music-pulpit, the combination with the supporting-pillar, the stem adjustable upward and downward in said pillar, of the desk-board and the two-armed bracket connecting the lower part of the desk-board with the said stem and serving as a stop to control the lowest position of the said stem and board, substantially as herein described.

589,749. DUMPING BOX OR BUCKET. MICHAEL W. PETERSON, Elliott, Ill. Filed Apr. 30, 1897. Serial No. 634,503. (No model.)



Claim.—1. A dumping box or bucket comprising the body the hinged bottom, the securing-link having a section and pins or projections over and under which said section may be engaged substantially as described.

2. In a dumping box or bucket substantially as described the bail having a projecting steering-arm provided with a guide for the tripping-rope substantially as described.

3. The combination of the body having a hinged bottom and provided with two pins or projections spaced apart, the securing-link having a section arranged to engage above one and below the other of said pins or projections substantially as described.

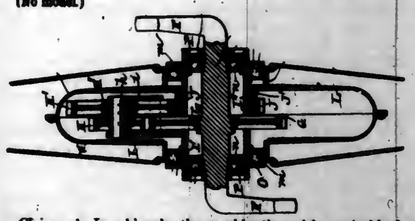
4. In a dumping box or bucket a bail provided with a projecting steering-arm and a clamp securing said arm to the bail whereby the arm may be adjusted to and secured in any desired position substantially as described.

5. A dumping box or bucket comprising the body having a hinged bottom, and the two pins or projections spaced apart, the securing-link connected with the bottom and having a section arranged to fit over one and under the other pin or projection the bail having the steering-arm provided with a guide for the tripping-rope and the tripping-rope connected with the securing-rod substantially as described.

6. In a dumping box or bucket, the body having a hinged bottom, and a securing device therefor, an adjustable steering-arm and a rope connected to said securing device and steering-arm, and by which the bucket or box may be swung to any desired position and tripped, as and for the purpose described.

7. The combination with the bucket or box having a hinged bottom and eyes on opposite sides; of the locking device for said bottom, a rope I attached to said locking device, a bail having its ends arranged for engagement with the said eyes, said bail being formed with a guide for said rope, and an adjustable steering-arm carried by said bail and also provided with a guide for the said rope which latter is passed through said guides and serves both as a steering-rope and tripping-rope, substantially as shown and described.

589,750. BICYCLE. WILBER J. PIKE, Oshkosh, Wis., assignor of one-half to R. B. Hayes, same place, S. V. R. Hayes, Milwaukee, and Arthur F. Pike, Omro, Wis. Filed Apr. 26, 1897. Serial No. 633,989. (No model.)



Claim.—1. In a bicycle, the combination with a suitable frame, of an axle carrying a master-gear, a smaller gear-wheel rigidly attached to the hub, sleeves secured to the frame of the bicycle on each side, interior of the hub, one of said sleeves having a projecting arm upon which intermediate gear-wheels are pivotally mounted so as to communicate motion from said master gear-wheel to the hub-gear, the opposite sleeve carrying a fork to engage and slide on the projecting arm and uphold the intermediate gears, substantially as shown.

2. In a bicycle, the combination with a suitable frame, of an axle carrying a master-gear, a smaller gear rigidly attached to the hub of the bicycle driving-wheel, sleeves secured to the frame of the bicycle upon each side, extending into the hub, one of said sleeves having a projecting arm with intermediate gear-wheels pivotally mounted thereon and so arranged as to communicate motion from the master-gear to the hub-gear, pins carried by said arm, and a bifurcated supporting-plate integral with the opposite sleeve, the legs of which support said pins, and a yoke on the pins to form a bearing for the intermediate-gear shaft, substantially as described.

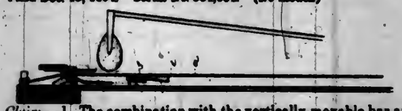
3. In a bicycle, the combination with a suitable frame, of an axle carrying a straight-faced master-gear, a smaller gear-wheel rigidly attached to the hub, and sleeves interior of the hub and secured to the frame of the bicycle on each side, one of said sleeves having a projecting arm upon which intermediate gear-wheels are pivotally mounted so as to communicate motion from said master-gear to the hub-gear, a bifurcated plate integral with the opposite sleeve, the legs of which support pins attached to the opposite-sleeve arm, said bifurcated plate being movable laterally upon said pins, and a yoke mounted upon said pins to support the bearing for the intermediate-gear shaft, substantially as shown.

4. In a bicycle, the combination with a suitable frame, of an axle carrying a gear-wheel, a hub also provided with a gear-wheel, independent sleeves mounted in the said frame and extending within the hub, means for supporting the inner ends of said sleeves, the construction being such that the said sleeves are free to slide with relation to each other, and intermediate gears mounted on bearings carried by the sleeves for communicating movement from the said axle-gear to the hub-gear, substantially as described.

5. In a bicycle, the combination with a suitable frame, of an axle carrying a gear-wheel, a hub also provided with a gear-wheel, independent sleeves mounted in the said frame, and extending within the hub, means for supporting the inner ends of said sleeves so that they are free to slide with relation to each other, intermediate gears mounted on bearings carried by the sleeves for connecting the axle-gear and the hub-gear, and bearings interposed between the hub and the said sleeves and between the sleeves and the axle, the said bearings being so constructed with relation to the axle that all tendency of the sleeves to move laterally thereon is prevented, substantially as described.

6. In a bicycle, the combination with a suitable frame, of an axle carrying a gear-wheel, independent hubs upon each side of the wheel, one of said hubs being provided with a gear-wheel, independent sleeves mounted in the said frame and extending within the hub, means for supporting the inner ends of the said sleeves so that they are free to slide with relation to each other, intermediate gears mounted on bearings carried by the sleeves for connecting the axle-gear and the hub-gear, a casing interposed between and mounted upon the independent hubs for inclosing the gearing, and bearings interposed between the hubs and the said sleeves and between the sleeves and the axle, the said bearings being so constructed with relation to the axle that all tendency of the sleeves to move laterally thereon is prevented and the casing is also free from all lateral strains, substantially as described.

589,751. PIANO ATTACHMENT. CALEB G. POLK, Valparaiso, Ind., assignor to the Polk's Italian Harp Piano Company, same place. Filed Dec. 13, 1894. Serial No. 531,681. (No model.)



Claim.—1. The combination with the vertically-movable bar and its arm, of the rock-shaft and the series of pendants or strikers depending from the rock-shaft and adapted to be brought against the adjacent piano-strings when the vertical movable bar is operated; substantially as described.

2. The combination with the strings, the bar movable longitudinally of the strings, the rock-shaft operated from said movable bar, the pendants or strikers hung to the rock-shaft and having the hard contact-surfaces for engaging the strings, the strip of soft material depending from the movable bar and the hammers of the key action, substantially as described.

3. The combination with the strings, of the bar movable longitudinally of the strings, the arm extending from said bar for engaging the arm of the rock-shaft, the rock-shaft and its arm and the pendants or strikers hung to the rock-shaft and having the hard contact-surfaces for engaging the strings, substantially as described.

4. The combination with the strings, of the bar movable longitudinally of the strings, the arm extending from said bar for operating the arm of the rock-shaft, the rock-shaft and its arm, the swinging pendants or strikers hung to the rock-shaft and having the hard contact-surfaces for engaging the strings, the dependent strip of soft material secured to the movable bar and the hammers of the key action; substantially as described.

5. A metallic pendant or striker formed with a body portion with two arms or branches forming an angle with the body portion; one of said branches having a straight contact edge at its lower end, substantially as described.

6. The combination with the rock-shaft of the support or hangers secured thereto and the pendants or strikers hung upon said hangers so as to swing freely thereon; substantially as described.

7. In a piano, the combination with the strings and means for putting the same in vibration, of a series of suspended strikers thrown into vibration by the vibration of the strings; substantially as described.

589,752. BICYCLE-BELL. HERBERT S. PULLMAN, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Mar. 1, 1897. Serial No. 625,530. (No model.)



Claim.—1. In a bicycle-bell, the combination with the base and the gong thereof, of a finger-lever pivotally mounted in the base near the edge thereof, and having a finger-piece projecting outward beyond the said edge, a spring connected with the finger-lever for operating the same in one direction, an oscillating striker located near the edge of the base and adapted to strike the gong, and a spring-controlled, plate-like striker-lever connected with the said striker for oscillating the same and pivotally mounted upon the said finger-lever with its pivot out of alinement with the center upon which the striker oscillates.

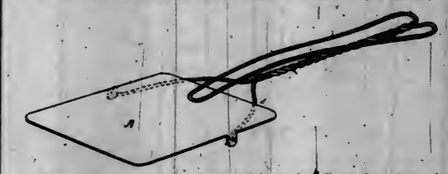
2. In a bicycle-bell, the combination with a finger-lever, of a spring for actuating the same in one direction, an oscillating striker, a striker-lever connected with the said striker for actuating the same and pivotally mounted upon the said finger-lever with its pivot out of alinement with the center upon which the striker oscillates, and a striker-lever spring connected at one end with the striker, and at the other end with the finger-lever.

3. In a bicycle-bell, the combination with a finger-lever, of a spring for actuating the same in one direction, a striker-stud or post, an oscillating carrier oscillating upon the said stud or post as upon a center, and a striker-lever connected with the said carrier for actuating the same and pivotally mounted upon the said finger-lever with its pivot out of alinement with the said stud or post.

4. In a bicycle-bell, the combination with a finger-lever, of a spring for actuating the same in one direction, a striker-stud or post, a carrier formed of wire and consisting of two arms and of a coil which is passed over the said post on which the carrier oscillates, a striker attached to one of the said arms of the carrier, a striker-lever connected with the other arm of the carrier which it oscillates, and pivotally mounted upon the said finger-lever with its pivot out of alinement with the said stud or post, and a spring for the striker-lever.

5. In a bicycle-bell, the combination with a finger-lever, of a spring for actuating the same in one direction, a stud or post, an oscillating carrier mounted thereupon, a striker secured to the said carrier, a striker-lever connected with the said carrier for oscillating the same in the actuation of the striker and pivotally mounted upon the said finger-lever with its pivot out of alinement with the said stud or post, and a spring having one end connected with the striker-lever, and the other connected with the said finger-lever.

589,753. CAKE-TURNER. ALFRED H. RANEY and JACOB EYE, Aurora, Ill. Filed Dec. 10, 1896. Serial No. 615,167. (No model.)



Claim.—1. A cake-turner comprising a handle and a plate pivoted to the handle and swinging freely on its pivot with more weight on one side of its pivot than the other, and means for holding said plate from swinging which consists of a part that is movable into and out of contact therewith, substantially as and for the purpose specified.

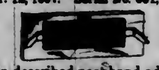
2. A cake-turner comprising a handle, a plate pivoted eccentrically to the handle and swinging freely on its pivot, and means to restrain said plate from swinging on its pivot, which consists of a part that is movable into and out of the path of movement of the shorter side thereof, substantially as and for the purpose described.

3. A cake-turner comprising a handle, a plate pivoted eccentrically to the handle, and a spring member attached to the handle adapted to be engaged with said plate, substantially as and for the pupose set forth.

4. A cake-turner comprising a plate, a handle to which the same is pivoted, and a movable part, attached at one end to and extending in the same direction as the handle, and having its free end adapted to be engaged with and disengaged from said plate, substantially as and for the purpose shown.

5. A cake-turner comprising a plate, a handle to which the same is pivoted, formed of wire, and a yielding extension from one end of said handle whose free end is adapted to be engaged with and disengaged from said plate, substantially as and for the purpose specified.

589,754. NECKBAND-ADJUSTER. THOMAS J. REDWINE, Cherokee, Ala. Filed Apr. 12, 1897. Serial No. 631,770. (No model.)

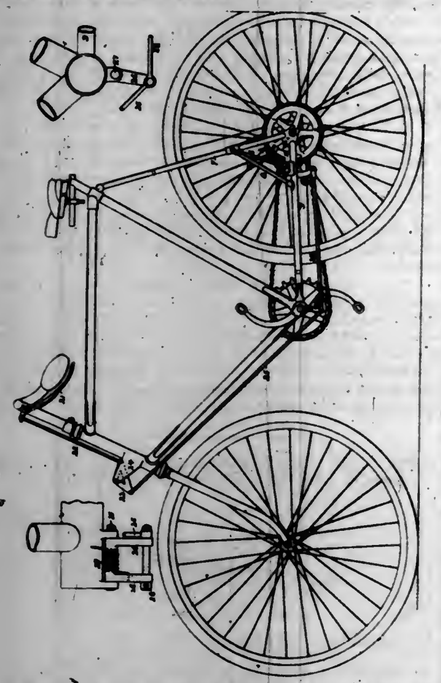


Claim.—The herein-described neckband-adjuster for shirts, comprising a flexible shield, a strip or tab of elastic material secured centrally at its upper edge thereto, and unattached at its lower edge and outer ends, and provided with a central buttonhole and means at its outer ends for attaching it to the ends of a neckband of a shirt, substantially as described.

589,755. BRAKE FOR VEHICLES. FRANK RITTENHOUSE, Norristown, Pa. Filed Oct. 27, 1896. Serial No. 610,215. (No model.)

Claim.—1. The combination of the wheel having a laterally-projecting annular flange, the inner and outer brake-shoes, a lever carried by the frame of the wheel having projecting pins in different

planes, one of said pins engaging with the outer brake-shoe and the other engaging with the inner brake-shoe, and provision for moving said lever, substantially as specified.



2. The combination of the wheel having a laterally-projecting annular flange, inner and outer brake-shoes, a lever having pins in different planes, one engaging one shoe and the other engaging the other shoe, and means for moving the lever and for supporting said brake-shoes independently of said lever, substantially as specified.

3. The combination of the wheel having an annular flange projecting laterally therefrom, the inner and outer brake-shoes, a lever having a pin engaging with the outer brake-shoe, and another pin in a different plane engaging with the inner brake-shoe, means for moving the lever and for supporting said shoes, and a bracket or stop-plate for restricting lateral movement of the same, substantially as specified.

4. The combination of the wheel having an annular flange projecting therefrom, the inner and outer brake-shoes, a depending link to which the outer brake-shoe is hung, and lever mechanism whereby the brake-shoes are moved toward and from the inner and outer faces of the annular flange, substantially as specified.

5. The combination of the wheel having an annular flange projecting therefrom, inner and outer brake-shoes, a lug projecting from said inner brake-shoe, a set-screw providing a support for said lug, and lever mechanism whereby the brake-shoes are moved toward and from the inner and outer faces of the annular flange, substantially as specified.

6. The combination of the lower and rear forks of the frame, the angular brace-rod connecting said lower and rear forks, the wheel having an annular flange projecting therefrom, inner and outer brake-shoes, a hanger whereby the outer brake-shoe is suspended from the rear fork, and lever mechanism for operating said brake-shoes, substantially as specified.

7. The combination of the wheel having an annular flange projecting therefrom, inner and outer brake-shoes, lever mechanism for operating the same, and a swinging hanger for the outer brake-shoe having a portion serving by contact with said shoe to limit the pivotal movement of the latter on the hanger, substantially as specified.

8. The combination of the wheel having an annular flange beveled on the inner side so as to be thickest at the outer edge, inner and outer brake-shoes, and lever mechanism for operating the latter, substantially as specified.

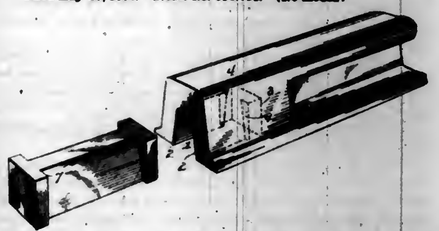
9. The combination in a bicycle of the driving-wheel having an annular flange projecting therefrom, brake-shoes for engaging said flange, a lever for operating said brake-shoes, a lever adjacent to the handle-bar of the machine, and means for transmitting the movement of said handle-bar lever to the brake-lever, one of the elements of said transmitting mechanism being a duplex link hung to bearings on the crank-hanger, and acted upon by a spring tending to move it so as to release the brakes, substantially as specified.

10. The combination in a brake for bicycles, of the driving-wheel having an annular flange projecting therefrom, inner and outer brake-shoes for engaging said flange, a lever for operating said brake-shoes, a lever adjacent to the handle-bar of the machine, a bell-crank lever hung to bearings on the head of the machine, a link hung to bearings on the crank-hanger, a compression-rod connecting the handle-bar lever and the lever on the front head, and tension-rods connecting said lever on the front head to the link on the crank-hanger, and connecting the latter to the brake-lever, substantially as specified.

589,756. PROCESS OF PRESERVING FOODS. DANIEL A. ROSENTHIEL, Paris, France, assignor to the Société Anonyme des Matières Colorantes et Produits Chimiques de St. Denis, same place. Filed Mar. 15, 1897. Serial No. 627,676. (No specimens.)

Claim.—The herein-described process of preserving alimentary substances, by repeatedly heating the same in an acid medium under exclusion of air to a temperature between 45° and 55° centigrade, substantially as described.

589,757. LOCK RAIL-JOINT. GEORGE W. SHINDLEDOWER, Lexington, Ky., assignor of one-third to Henry C. McDowell, same place. Filed May 29, 1897. Serial No. 638,791. (No model.)



Claim.—1. The combination with a rail-section having a slot in its end under the tread portion of the rail and an angular recess at the inner end of said slot and of greater width than said slot whereby to form shoulders, of a key having a portion to enter the slot in the end of the rail-section, and a head adapted to enter the recess and engage said shoulders, the said slot, recess, key and head being of such shape and size that the key and rail can be united without turning or similarly manipulating either part.

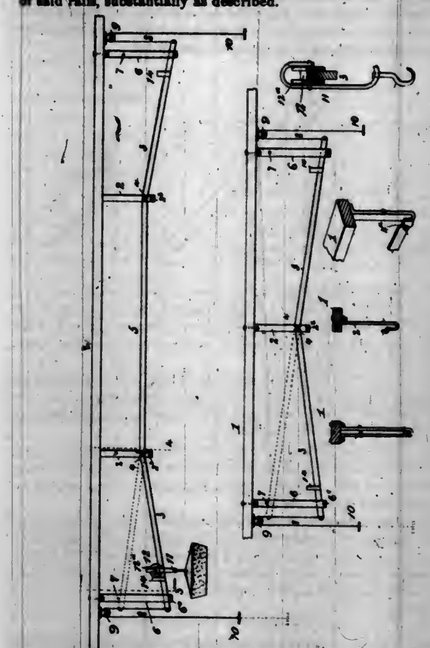
2. The combination with a rail-section having a tapering slot in its end under the tread portion of the rail, the said slot being widest at its base and having an angular recess or socket at the inner end of said slot whereby to form tapering shoulders, of a key having a tapering portion to enter the tapering slot in the rail-section and a head on said key adapted to enter said angular recess or socket in the rail-section and engage the shoulders formed by said recess or socket, the openings in the rail being widest at the bottom whereby the rail can be lowered onto the key and into proper relative position to the next rail without turning or otherwise manipulating the key or rail.

3. The combination with two rail-sections, each having an opening in its end and each having a socket at the inner end of said opening, of a separate key to enter said openings, said key having heads to enter said sockets in such manner as to permit independent movement of the rail-sections to compensate for expansion and contraction without straining the key, the openings in the rail-sections being widest at the bottoms whereby the rails can be lowered onto the keys and into proper relative positions without turning or otherwise manipulating the key or rails, substantially as set forth.

589,758. STORE-SERVICE APPARATUS. GUSTAV STAIB, Tompkinsville, N. Y. Filed Feb. 17, 1897. Serial No. 623,773. (No model.)

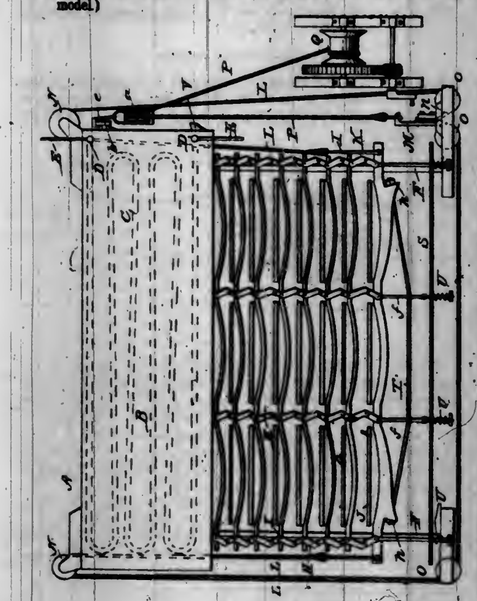
Claim.—1. In a store-service apparatus the combination of a pair of rails located in line and having their inner ends pivotally supported and so arranged that a carrier can travel over one rail to the other, a support for the free ends of said rails, parallel arms on opposite sides of the pivoted rails to prevent lateral movement of said rails, and means for raising said ends of said rails, substantially as described.

2. In a store-service apparatus, the combination of a pair of rails composed of flat bars turned on edge and pivotally supported at corresponding ends, an intermediate rail composed of a flat bar turned on edge and located between the pivoted ends of the first-mentioned rails, means for supporting the free ends of said pivoted rails, parallel arms on opposite sides of the pivoted rails, and means for raising said ends of said rails, substantially as described.



3. In a store-service apparatus, the combination of a hanger, a pair of pivoted rails having their outer ends normally inclined downwardly and outwardly, yoke-like hangers having a bottom piece and two parallel side arms for supporting the free ends of said rails and for preventing lateral play thereof, pulleys and flexible connections passing over said pulleys and connected to one end of each movable rail, the opposite end of each connection being adapted to be operated to change the normal positions of the movable rails, as and for the purposes set forth.

589,759. DEVICE FOR FORMING STAVES. TIMOTHY J. SULLIVAN, Bowling Green, Ky. Filed Dec. 4, 1896. Serial No. 614,459. (No model.)



Claim.—1. A drying and forming apparatus consisting of a drying-chamber, a series of forms connected by jointed links and mounted to be raised and lowered into and out of said chamber, and means for raising and lowering the same, substantially as set forth.

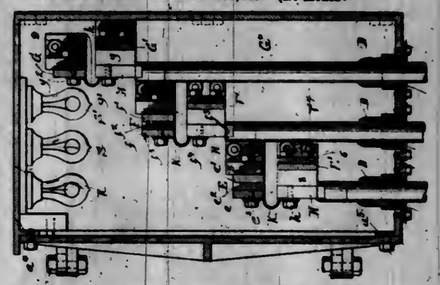
2. In a drying and forming apparatus, the combination, of the drying-chamber mounted at an elevation, forms joined by hinged links and mounted to slide vertically into and out of said chamber through its bottom, means for operating them, and a follower and floor carried on the top and lower sides of said forms respectively, to close the top and bottom of said chamber when said forms are in position therein, substantially as set forth.

3. In a drying and forming apparatus, the combination of the series of forms arranged in vertical tiers and connected by links jointed midway of their length, said parts being formed one with a curver or bend therein and means for limiting the pivot action to prevent vertical alinement of the several pivots, whereby the opening and closing together of the forms cannot be prevented or impeded, substantially as set forth.

4. The combination in a drying and forming apparatus, of the drying-chamber mounted on supports above the working level, a series of forms mounted one above another and connected by jointed links, which series is mounted to be slid up and down into and out of said drying-chamber, a rigid base supporting said forms, elevating devices connected thereto, and locking devices for locking said forms in position when elevated into the drying-chamber, substantially as set forth.

5. The combination in a drying and forming apparatus, of the drying-chamber, the series of forms arranged one above another and connected by jointed links, a rigid base on which all said forms are supported, a follower mounted to bear upon the uppermost one, and elevating mechanism connected to said base, whereby, when said forms are elevated all the weight rests thereon, substantially as set forth.

589,760. ELECTRICAL JUNCTION-BOX. GEORGE TAILLON, Chicago, Ill., assignor to the Chicago Edison Company, same place. Filed June 7, 1897. Serial No. 639,648. (No model.)



Claim.—1. An electrical junction-box having holes in one of its walls through which the conductors pass in combination with perforated flanged bushings the bodies of said bushings projecting through said holes and the flanges of said bushings being secured to the box-wall and suitable packing interposed between the bodies of the bushings and the conductors passing therethrough.

2. In an electrical junction-box the combination with a series of conductors of different polarities entering said box, of a series of pole-bars arranged within said box out of vertical alinement.

3. In an electrical junction-box the combination with a series of conductors leading through the wall of said box and pole-bars with which said conductors are connected, said pole-bars extending across the ends of said conductors and being connected therewith by terminal-supports.

4. In an electrical junction-box the combination with a series of conductors entering said box, of a series of terminal-supports extending across the corresponding conductors and connected to the terminals thereof, and a corresponding series of pole-bars arranged adjacent said terminal-supports and electrically connected with the conductor-terminals.

5. In an electrical junction-box the combination with a series of conductors of different polarity entering said box, of a series of terminal-supports extending across and connected with the terminals of said conductors and a series of pole-bars extending parallel with and adjacent to their corresponding terminal-supports and electrically connected with the conductor-terminals.

6. In an electrical junction-box the combination with a series of conductors, of one or more pole-bars formed of plural plates connected with the conductor-terminals.

7. In an electrical junction-box the combination with a series of conductors, of one or more pole-bars formed of interspaced plates

extending across the ends of the conductor-terminals, and electrically connected therewith by terminal-supports.

8. In an electrical junction-box, pole-bars for the conductor-terminals provided with sockets to receive shunt-circuit plugs.

9. In an electrical junction-box the combination with the conductors and pole-bars of plural test-lamps arranged in series and fixed within the box and circuit-wires whereby said lamps may be electrically connected with the pole-bars.

589,761. **TWYER-IRON FOR FORGES.** ALBERT R. THOMPSON, Indianapolis, Ind. Filed Apr. 1, 1897. Serial No. 630,233. (No model.)



Claim.—1. In a twyer-iron for forges a valve for partially closing the blast-outlet, and a spring that presses against such valve when closed.

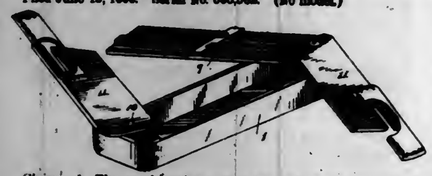
2. In a twyer-iron for forges, the combination of a grate, a valve or plate with a central opening in it to close portions of the grate, and a spring that presses against each end of such valve or plate when closed.

3. In a twyer-iron for forges, the combination of a blast-box, a grate thereon, a swinging valve or plate to partially close the grate, a rotatable rod extending through the blast-box beneath the valve, and a spring so mounted on such rod that when the rod is rotated the spring will engage, close and hold the valve.

4. In a twyer-iron for forges, the combination of a blast-box, a grate thereon, a swinging valve or plate to partially close the grate, a rotatable rod extending through the box beneath the valve, and a cam-shaped spring so mounted on the rod that when the rod is rotated the spring will close the valve and hold it tightly closed.

5. In a twyer-iron for forges, the combination of a blast-box with bearing-plates made in its end walls, a grate in the box, a valve or plate with a pivot-rod along one of its edges which is mounted in the box so that the valve when turned into a horizontal position will close the grate, a rod extending through the box under the valve, and springs on the rod that engage, close and hold the valve when said rod is rotated.

589,762. **PENCIL-BOX.** ANDREW THOMPSON, New York, N. Y. Filed June 15, 1896. Serial No. 595,582. (No model.)



Claim.—1. The combination with a box, of a main cover pivoted at one end to said box, a pair of supplemental covers pivoted to the ends of said box and movable upon the upper surface of said main cover and means for locking said supplemental covers to said main cover, substantially as and for the purpose described.

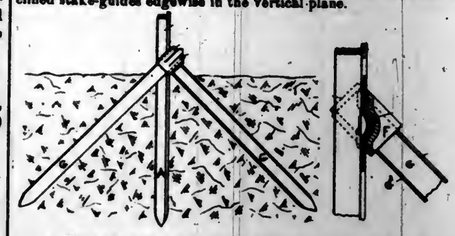
2. The combination with a box, of a main cover therefor pivoted in an elongated slot to one end of said box and having a tooth or projection upon its opposite end which is adapted to fit within a recess in a ledge or shoulder on said box, a strip upon the upper surface of said cover having recesses therein, a pair of supplemental covers pivoted to opposite ends of said box and movable upon their pivotal points upon the top surface of said main cover and sliding locking-strips on said supplemental covers having tongues upon their under surfaces which are adapted to fit within the recesses in said strip, substantially as and for the purpose described.

589,763. **ANCHOR FOR FENCE-POSTS.** HERBERT G. THOMSON, New York, N. Y. Filed Mar. 8, 1897. Serial No. 626,363. (No model.)

Claim.—1. The combination, with a post anchor-base formed with a vertical post-socket, and on opposite sides with flat downwardly-inclined stake-guides whose edges are in the vertical plane, of wide ground-stakes driven through said inclined stake-guides edgewise in the vertical plane.

2. The post anchor-base formed with a vertical post-socket and on opposite sides with flat downwardly-diverging stake-guides whose wide sides are in planes parallel with the axis of the post-socket.

3. The combination, with a post anchor-base formed with a vertical post-socket and on opposite sides with flat downwardly-inclined stake-guides whose edges are in the vertical plane, of wide ground-stakes having like flanges along both edges driven through said inclined stake-guides edgewise in the vertical plane.



4. The post anchor-base herein described as consisting of a vertical post-socket, to receive a T-iron post, and having a recess on the inside of its closed wall to receive the upset portion of the head of the T-iron; and said post-socket formed with oppositely-inclined stake-guides on opposite sides.

5. The combination with the base formed with a post-socket, having a recess on its inside, and inclosed stake-guides on the sides of the post-socket, of a T-iron post held in said socket, and having a part of its head upset into said recess.

6. The post anchor-base herein described as consisting of a vertical post-socket formed on its sides with downwardly-inclined stake-guides formed with malleable metal lugs on their upper ends to be bent over the heads of the stakes.

7. The combination with the base formed with a vertical post-socket having on its sides downwardly-inclined stake-guides with lugs bent over their upper ends, of a post held in the vertical socket, and stakes driven through the stake-guides, and having their heads retained by the said bent-over lugs.

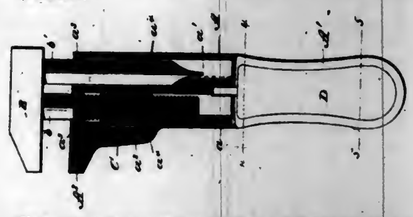
589,764. **BRAIDING ATTACHMENT FOR SEWING-MACHINES.** MIDOR R. TYNER, Dallas, Tex. Filed Jan. 15, 1897. Serial No. 619,334. (No model.)



Claim.—1. A braiding attachment for the presser-foot of a sewing-machine, comprising a flattened tube open at both ends, one of said ends having a contracted opening the walls of which taper into the body of the tube, as set forth.

2. A braiding attachment for the presser-foot of a sewing-machine, comprising a flattened tube open at both ends, one of said ends having a contracted opening the walls of which taper into the body of the tube, on the lower side, and a tabular passage on the upper side open at both ends, as set forth.

589,765. **NUT-WRENCH.** THEODORE F. VANDERGRIFT, Shelbyville, Ind., assignor to the Vandegrift Manufacturing Company, same place. Filed Nov. 14, 1895. Renewed Aug. 6, 1897. Serial No. 647,360. (No model.)



Claim.—1. A nut-wrench comprising a handle portion A constructed to present a rigid jaw A^2, looped grasping portion A', transverse opening a^2 and longitudinal recesses a and a' having annular bearing-surfaces a^3 and a^4 therein, and a sliding jaw B having members b and b' which slide in the longitudinal recesses a and a', one of the members being screw-threaded together with a nut C let into the transverse opening a^2 to engage the threaded member of the sliding jaw, substantially as shown and for the purpose set forth.

2. In a wrench, the combination, with the sliding jaw having two members one of which is threaded, of a handle portion having a rigid jaw, a looped grasping portion and longitudinal recesses which receive the members of the sliding jaw; a nut let into the handle portion to engage the threaded member of the sliding jaw, webs a^2 extending inwardly from the upper part of the looped grasping portion; and a wooden block D cut away at its upper end to fit into the loop and engage the webs therein, substantially as shown and for the purpose set forth.

3. The combination in a nut-wrench, of a handle portion A constructed to present a rigid jaw A^2, looped handle portion A', transverse opening a^2 to receive the adjusting-nut, and longitudinal recesses a and a' having annular bearing-surfaces a^3 and a^4; the looped handle portion being provided with inwardly-projecting webs a^5; a sliding jaw B having members b and b' which enter the longitudinal recesses a and a', one of the members being threaded to engage the adjusting-nut; and a block D having its upper end recessed on each side to engage the webs when placed in the looped handle portion, the side of the looped handle portion being bent in upon the block to retain it in position, substantially as shown and for the purpose set forth.

4. A sliding-jaw nut-wrench, consisting of four parts: to wit, a fixed jaw and integral handle made of a casting or forging to present a jaw A^2, longitudinal recesses a and a' separated from each other by a central wall and provided with annular bearing-surfaces a^3 and a^4, the central wall terminating above the lower end of the longitudinal recesses, a transverse nut-receiving opening a^2, the integral handle having webs a^5 opposite the curved end thereof so as to render the end portions opposite the loop rigid; a sliding jaw having parallel members b and b', one member being threaded; a nut C; and a filling-block D for the handle, said filling-block being recessed for engagement with the webs a^5 and curved inner edges of the handle; all as shown.

589,766. **RED DYE.** JULES VILLE, Montpellier, France. Filed Feb. 10, 1897. Serial No. 622,856. (Specimens.) Patented in France July 17, 1896, No. 258,144.

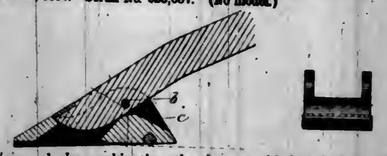
Claim.—1. The process of producing red coloring-matters consisting in heating aromatic hydrazins with rosolic acid, the vapors evolved during the operation being condensed, and the proportion of aromatic hydrazins and rosolic acid varying in accordance with the depth of color desired, substantially as described.

2. The process of producing red coloring-matters by heating an aromatic hydrazin with rosolic acid in the presence of alcohol, substantially as described.

3. The process of producing red coloring-matters by heating phenylhydrazin with rosolic acid, substantially as described.

4. The described coloring-matters produced by heating an aromatic hydrazin with rosolic acid, said product being of a reddish color, soluble in alcohol and acetic acid, forming red solutions, and in concentrated hydrochloric and sulfuric acids forming yellow solutions, and being distinguished by the other characteristics hereinbefore set forth.

589,767. **PUSH-BAR.** EDWARD L. WEBB, Higganum, Conn. Filed Feb. 12, 1897. Serial No. 623,057. (No model.)



Claim.—1. In combination, the shoe provided with the curved fulcrum highest in the center, the loose-action pivot-shaft, and the hand-lever adapted to rock on said curved fulcrum, all substantially as described and for the purposes set forth.

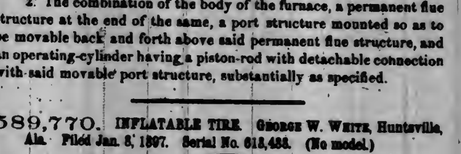
2. In combination, the shoe provided with the curved fulcrum highest in the center, the hardened and raised bearing in the rear of the center of the fulcrum, the loose-action pivot-shaft and the hand-lever adapted to rock on said curved fulcrum, all substantially as described, and for the purposes set forth.

3. In combination, the open-bottomed shoe provided with a curved fulcrum highest in the center, the many-angled bearing-bar on the rear of the center of the fulcrum, the loose-action pivot-shaft, and the hand-lever adapted to rock on said curved fulcrum, all substantially as described and for the purposes set forth.

589,768. **CHARGING-BOX FOR FURNACE-CHARGING APPARATUS.** SAMUEL T. WELLMAN and CHARLES H. WELLMAN, Cleveland, Ohio. Filed Mar. 15, 1897. Serial No. 627,598. (No model.)

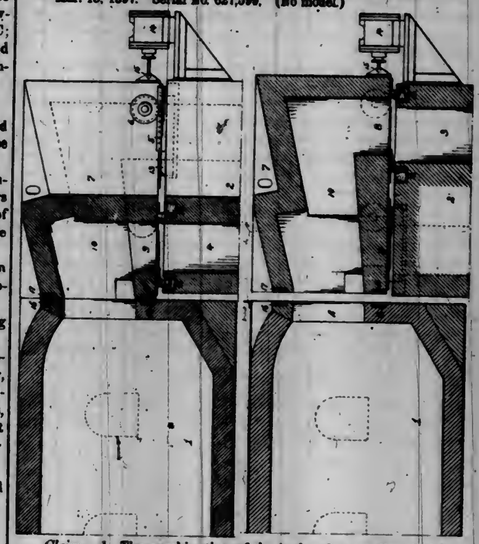
Claim.—1. A furnace-charging box having a socket for the reception of the flanged end of a swinging charging-bar, said socket having walls curved so as to coincide substantially with the arc in which the flanged end of the bar swings.

2. A furnace-charging box consisting of sheet-metal sides, bottom and rear end, and a cast-metal front end having therein a socket for the reception of the end of the charging-bar, projecting side and bottom flanges for being secured to the sheet-metal sides and bottom of the box, and a projecting boss having formed therein a recess for the reception of a bolt carried by the charging-bar, substantially as specified.



3. A furnace-charging box having a socket for the reception of the flanged end of a charging-bar, said socket being open at top and bottom, and having walls curved so as to substantially coincide with the arc in which the flanged end of the bar swings, substantially as specified.

589,769. **PORT END FOR METALLURGICAL FURNACES.** SAMUEL T. WELLMAN and CHARLES H. WELLMAN, Cleveland, Ohio. Filed Mar. 15, 1897. Serial No. 627,599. (No model.)



Claim.—1. The combination of the body of a metallurgical furnace, a permanent flue structure at the end of the same, a port structure mounted above said permanent flue structure and having ports corresponding with the flues of the same, means for moving the port structure from and toward the body of the furnace, and water-sealed flanges surrounding the ports of the port structure and playing in the sealing-troughs as said port structure is moved back and forth, substantially as specified.

2. The combination of the body of the furnace, a permanent flue structure at the end of the same, a port structure mounted so as to be movable back and forth above said permanent flue structure, and an operating-cylinder having a piston-rod with detachable connection with said movable port structure, substantially as specified.

589,770. **INFLATABLE TIRE.** GEORGE W. WHITE, Huntsville, Ala. Filed Jan. 8, 1897. Serial No. 618,488. (No model.)



Claim.—1. An inflatable tire divided transversely into tread and rim sections and joined together by resilient means which afford air-proof joints and permit radial expansion of the tread-section beyond the normal inflating capacity of the tire, substantially as and for the purposes described.

2. An inflatable expansible tire consisting of sections having their edges free from restraint by each other and elastic sealing devices joined to the sections to close the joint between them and furnish the medium by which the sections may expand without exposing the joints to leakage by the inflating medium, substantially as described.

3. An inflatable expansible tire consisting of a horizontally-divided tube having the edges of the sections joined by elastic sealing members which are united to said sections on opposite sides of the lines of division thereof, as set forth.

4. An inflatable expansible tire comprising a horizontally-divided tube, an inner sealing member joined to the sections of said tube on opposite sides of the joint and arranged adjacent to the tread-section of the tube, and elastic sealing members joined to the sectional tube on the outside thereof, as set forth.

5. The combination of a sectional tube having its tread and rim members united by resilient air-proof joints, an armor-layer united to the tread-section of the tube and terminating at its edges within the elastic joints, and an inner elastic sealing member united over said joints to the section of said tube and inclosing the armor-layer between itself and the tread-section of the tire, as and for the purposes described.

6. The combination of a sectional tube having its tread and rim sections united by elastic sealing members, an inner continuous sealing member D joined to the tube-sections and forming between itself and the tread-section of the tube a space or chamber, and a punctureless armor confined within said space or chamber, as and for the purposes described.

7. The combination of a sectional tube having its tread and rim members joined by elastic sealing members which permit radial expansion of the tread-section beyond the normal inflating capacity of the tire, an inner continuous sealing member D united to the sectional tube, an armor-layer united to the tread-section and having its edges terminating within the sealing members, and a stuffed or packed tube between said armor-layer and the inner sealing member, as and for the purposes described.

8. The combination of an expansible tire provided with an inner elastic member forming a space or chamber between itself and the tread-surface of the tire, an armor-layer in said space and united to the tread-surface of the tire, and a packed or stuffed tube arranged between said elastic member and the armor-layer, as set forth.

9. The combination of a continuous tube forming an inflatable tire, metallic hooks provided with prongs, which engage with the tube near the ends thereof, and sealing-bands inclosing said hooks and the ends of the tube, for the purposes described, substantially as set forth.

589,771. **MEANS FOR HEATING AND VENTILATING BUILDINGS.** CHARLES J. H. WOODBURY, Lynn, Mass. Filed Jan. 23, 1897. Serial No. 620,998. (No model.)



Claim.—1. In a heating and ventilating system, an air-duct containing a heating-coil, and a steam-diffuser consisting of a perforated pipe in front of said coil and provided with a protecting and insulating shield or hood on the side away from the coil, to prevent access of cold air to that side of the pipe, as set forth.

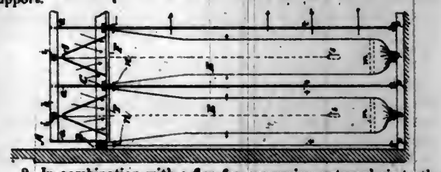
2. In a plenum system for heating and ventilating buildings, an air-duct containing means for screening or straining external air, a box of heating-coils, a blower, and a steam-diffuser in front of said coils provided on its outer face with a protecting and insulating shield, as set forth.

3. The combination in a heating and ventilation system of a box of heat-coils; with a steam-diffuser consisting of a perforated pipe in front of said coils having a protecting and insulating shield or hood of felt attached thereto, as set forth.

4. In a plenum system for heating and ventilating buildings means for screening or straining external air, a box of heating-coils connected to a heat-shaft inclosing a blower, a steam-diffuser in front of said coils provided on its outer face with a protecting and insulating shield, as set forth.

589,772. **AIR-PURIFYING APPARATUS.** CHARLES J. H. WOODBURY, Lynn, Mass. Filed Mar. 2, 1897. Serial No. 625,716. (No model.)

Claim.—1. In combination with a flue for conveying external air to the interior of a building, a frame secured to the walls of the flue and provided with one or more openings, a screening apparatus consisting of one or more tubes or bags having porous sides or walls, the open end of each tube being opposite one of the said openings and having means for moving it toward and from said frame, and the other end being closed and provided with means for securing it to a fixed support.



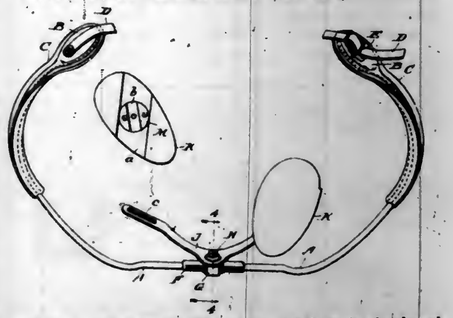
2. In combination with a flue for conveying external air to the interior of a building, a frame secured to the walls of the flue at the upper part thereof and provided with one or more openings; a portable screening apparatus consisting of one or more vertical tubes or bags located under the said frame and having porous sides or walls, the upper open end of each tube being opposite one of the said openings and thereby in communication with the external air, and the lower ends closed, each tube or bag being provided with means substantially as described whereby the lower end is secured in fixed position and the upper end raised, guided and supported to its position and removed therefrom, as set forth.

3. In combination with a flue for conveying external air to the interior of a building, a frame secured to the walls of the flue at the upper part thereof provided with one or more openings; a screening apparatus consisting of one or more tubes or bags of cotton cloth made open at each end with a distending and supporting frame at one end, means at the other end for distending and also for tightly closing the same, and means for moving the ends away from each other and holding them to secure each tube or bag in taut position under one of said openings, as set forth.

4. A screening tube or bag of porous material held open at one end by a frame which is provided with a crossed rope to which is attached a raising and lowering rope, means as a hoop near the other end for holding the bag distended, and means for tightly closing the same, consisting of a drawing-cord, and means as cords for assisting in turning the bag inside out and back again.

5. Means for cleaning air-screening bags consisting of a steam-pipe supporting on its open end two disks which are held at a suitable distance apart, over which the bag can be drawn, as set forth.

589,773. **TRUSS.** THADDEUS H. WOODWARD, Lincoln, Nebr. Filed Sept. 30, 1895. Serial No. 564,178. (No model.)



Claim.—1. In a truss, the combination, with the main wire shaped to fit around the body and provided at its rear ends with pads adapted to bear against the back, of a supporting block or collar mounted upon and adjustable axially around said wire at or near the middle of its forward side, a sheet-metal spring-arm loosely hung upon and depending from said block, a holding-pad mounted upon said spring-arm at its outer end and adjustable longitudinally thereof, and means for firmly securing the supporting block or collar to the main wire in different positions around the latter while still leaving the spring-arm loosely connected to said block, substantially as and for the purpose specified.

2. In a truss, the combination, with the main wire shaped to fit around the body and provided at its rear ends with pads adapted to bear against the back, of a supporting block or collar mounted upon and adjustable axially around said wire at or near the middle of its forward side, a pad-supporting plate loosely mounted upon and depending from said block or collar and provided with two divergent spring-arms, said plate and arms being formed of a single piece of thin spring metal, so that they are free to move upon the supporting-block and also yield to outward pressure, holding-pads adjustably mounted upon said arms at their extremities, and means for firmly securing the supporting block or collar to the main wire in different positions around the same while still leaving the pad-supporting plate loose upon said block, substantially as and for the purpose described.

3. In a truss, the combination of the main wire A, the collar G supported upon and adjustable around the same, and having the boss I, the plate J loosely swiveled upon said boss, the interposed flanged washer L, the set-screw H, and the pads K carried by the spring-arms of the plate J, substantially as described.

4. In a truss, the combination of the main wire A having the enlarged bearing F at the middle of its forward side, the collar G fitting around the part F, the set-screw H for holding the collar in different adjusted positions, the plate J swiveled on the collar G and having the spring-arms, and the pads K adjustably supported on said arms, substantially as described.

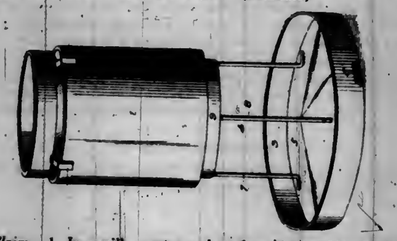
5. In a truss, the combination of the main wire A, the collar G supported upon and adjustable around the same, the plate J pivotally supported on said collar and having the spring-arms, the pad K having the plates M provided with the recesses *b* in which fit the ends of the spring-arms, and the screws *d* passing through the slots *c* in the ends of said arms and entering the plates M, substantially as described.

6. In a truss, the combination of the main wire A, the collar G supported upon and adjustable around the same, the pad-supporting plate J pivotally supported on said collar and having the spring-arms, the pads K having the plates M provided with the recesses *b* in which fit the ends of the spring-arms, the clamping-plates *e* fitting over the ends of the spring-arms, and the screws *d* passing through the plates *e* and slots *c* in the spring-arms and entering the plates M, substantially as described.

7. The herein-described truss, consisting of the main wire A shaped to partially surround and fit the body and having its rear extremities provided with the pads C adapted to bear against the back of the wearer and connected by the strap D, the collar G adjustable around the wire A at or near the middle of its forward side, the set-screw H for holding the collar G in its adjusted positions, the plate J swiveled upon the collar G and having the spring-arms, and the pads K adjustably mounted upon the outer ends of said arms, substantially as described.

8. The herein-described truss, consisting of the main wire A shaped to partially surround and fit the body and having its rear extremities formed into the rings B and covered by the pads C adapted to bear against the back of the wearer, and having the middle portion of its forward side provided with the enlarged bearing F, the collar G mounted upon and adjustable around the part F, the set-screw H for holding the collar in different adjusted positions, the plate J swiveled upon the collar G and having the two spring-arms, and the pads K adjustably mounted upon the ends of said arms, substantially as described.

589,774. **MILK-AERATOR.** WILLIAM H. YOUNG, Aurora, Ill. Filed June 4, 1897. Serial No. 639,456. (No model.)



Claim.—1. In a milk aerator and strainer, the combination of a tray, having an outlet at its bottom, a stand erected on the tray, a reservoir having a perforated bottom and an annular depending flange secured to an imperforate portion of the bottom within its outer circumference, and adapted to fit over the outside of the stand and be held in engagement therewith by friction and to be removed therefrom when desired, substantially as described.

2. In a milk aerator and strainer, the combination of a tray having a suitable outlet at its bottom, a stand erected on the tray, a reservoir with a perforated bottom and an annular flange for removably securing it to the outside of the legs of the stand, and a strainer of smaller diameter than the cylinder and provided with depending legs or feet for detachably securing it to said cylinder and to provide a circumferential air-space between it and the cylinder, substantially as described.

3. In a milk aerator and strainer, the tray having a conical bottom and an outlet in one side thereof, a wire stand erected on the tray and having the strands thereof crossing one another at the upper end of said stand, combined with a reservoir having a perforated bottom and an annular flange or rim on an imperforate part of the bottom arranged to fit frictionally tight upon the upper end of said stand, substantially as and for the purposes described.

589,775. **EVACUATING DEVICE.** ANDERS AKERON, Providence, R. I., assignor of one-half to Walter Vose Lawton, same place. Filed June 27, 1896. Serial No. 597,211. (No model.)



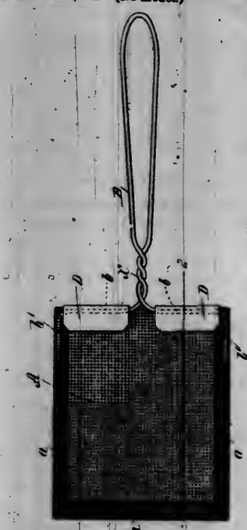
Claim.—1. A device for the purposes described, comprising a holder a body portion having means for detachably connecting it to the said holder, said body consisting of a drum-shaped receptacle, having apertured ends, a central passage opening into the holder and a discharge-nozzle, a drum held entirely within the body portion having end pintles held in the end openings of such body portion, a handle connected to one of such pintles, said drum having a single opening adapted to be alternately brought in register with the central passage or the discharge-nozzle as set forth.

2. In the device as described, the combination with the bottle or other receptacle, of the outer drum member having a centrally-apertured base member and a discharge opposite such aperture, said base member having an annular groove, the inner rotatable drum having a single opening adapted to be moved in register with the openings in the outer drum, and clamp devices adapted to engage the annular groove in the base member and the neck of the bottle or other receptacle to which such base is to be attached substantially as shown and described.

3. In a device as described, the combination of the outer drum D, having openings D' D^2 and a centrally-apertured base E, said base having an annular groove, the receptacle-neck, the clamps F, having portions adapted to extend under the said neck and into the groove, the sleeve G, and the inner drum A, all arranged substantially as shown and described.

4. In a device as described, the combination of the inner and outer drums A D arranged substantially as shown, the outer drum having an annular groove *e*, having an inturned portion e', of the clamps F, each having an inturned finger f, at the upper end, a finger f' at the lower end and a spur f^2, and the sleeve G having portions *g*, to receive the said spurs as and for the purposes hereinbefore set forth.

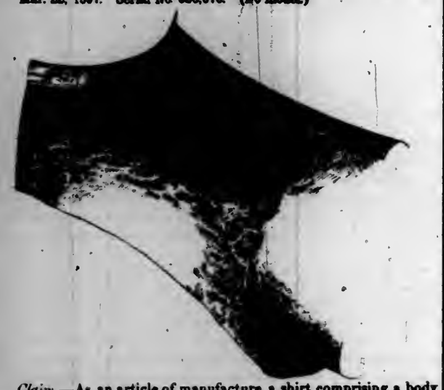
589,776. **FLY-EXTERMINATOR.** BERKEL W. BULLARD, Barre, Mass., assignor to Alexander G. Williams, same place. Filed May 24, 1897. Serial No. 637,854. (No model.)



Claim.—A fly-killing device consisting of the wire-cloth A, having the infolded edges *a*, the handle B having the parts *b* thereon,

the binding-clips D, for clamping said parts *b*, of the handle to said wire-cloth, and the extremities of said handle parts inclosed in said folded edges *a*, of the wire-cloth, substantially as described.

589,777. SHIRT. GEORGE D. EICHNER, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,678. (No model.)



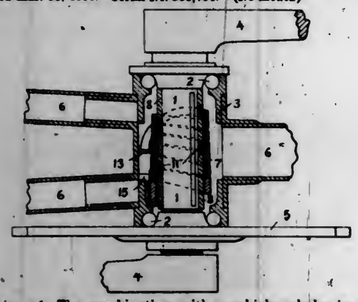
Claim.—As an article of manufacture, a shirt comprising a body portion, a bosom, a neckband, and yokes secured to the body portion, bosom, and neckband, each of said yokes having its long or rear edge cut bias of the cloth and its front edge cut practically parallel with the grain of the cloth, whereby the strain on the rear buttonholes in the neckband and on the body portion incident to the wearer leaning forward or bending the arms is compensated for by the elastic or bias portion of the yoke, while the rigid or front portion of the yoke maintains a proper and unyielding set of the bosom.

589,778. SHIRT. GEORGE D. EICHNER, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,678. (No model.)



Claim.—A shirt having a placket reinforced by a facing secured to one edge of the placket by a longitudinal row of stitching, the lower end of the facing being secured to both edges of the placket by one or more upwardly-curved rows of stitching, said curved stitching being located in close proximity to the lower end or crotch of the placket, whereby the strain incident to the separation of the edges of the placket is sustained by a number of stitches in said upwardly-curved row or rows.

589,779. VEHICLE-BRAKE. EDWARD S. HALL, New York, N. Y. Filed Mar. 18, 1896. Serial No. 583,751. (No model.)



Claim.—1. The combination, with a vehicle-axle having a uniformly hard circumferential surface, of a friction brake-coil surrounding the axle and adapted to clamp the same, said axle-surface being enough softer than the brake-coil to assure sufficient degree of noiseless frictional contact between the axle and coil when the brake is applied while preventing tearing up of the axle-surface by the coil; and means in reach of the vehicle-rider tightening the coil on the axle, substantially as described.

2. The combination, with a vehicle-axle, of a bushing thereon having a uniformly hard circumferential surface, and a friction brake-coil surrounding the bushing and adapted to clamp the same, said bushing being enough softer than the brake-coil to assure sufficient degree of noiseless frictional contact between the bushing and coil when the brake is applied while preventing tearing up of the bushing-surface by the coil; and means in reach of the vehicle-rider tightening the coil on the bushing, substantially as described.

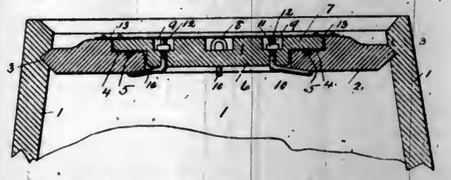
3. The combination, with a vehicle-axle having a uniformly hard circumferential surface, of a friction brake-coil surrounding the axle and adapted to clamp the same, said axle-surface being enough softer than the brake-coil to assure sufficient degree of noiseless frictional contact between the axle and coil when the brake is applied while preventing tearing up of the axle-surface by the coil, a cooling lubricant interposed between the axle and coil, and means in reach of the vehicle-rider tightening the coil on the axle, substantially as described.

4. The combination in a brake and with a vehicle-axle having a uniformly hard circumferential surface and the vehicle-frame having a stop 15, of a resilient tapering spiral brake-coil 7, on the axle and having heavy end 12^a and a holdback-shoulder 12 adapted to the stop 15; a pulling connection leading from the lighter end of the brake-coil, and an appliance in reach of the rider operating said pulling connection and thereby tightening the coil on the axle and applying the brake, said axle-surface being enough softer than the brake-coil to assure sufficient degree of noiseless frictional contact between the axle and coil when the brake is applied while preventing tearing up of the axle-surface by the coil, substantially as described.

5. The combination in a brake and with a vehicle-axle, of a bushing on the axle having a uniformly hard circumferential surface and the vehicle-frame having a stop 15, of a resilient tapering brake-coil 7, placed on the bushing and having heavy end 12^a, and a holdback-shoulder 12 adapted to the stop 15; a pulling connection leading from the lighter end of the brake-coil, and an appliance in reach of the rider operating said pulling connection and thereby tightening the coil on the bushing and applying the brake, said bushing-surface being enough softer than the spiral brake-coil to assure sufficient degree of noiseless frictional contact between the bushing and coil when the brake is applied while preventing tearing up of the bushing-surface by the coil, substantially as described.

6. The combination in a brake and with a vehicle-axle, of a bushing on the axle having a uniformly hard circumferential surface and the vehicle-frame having a stop 15, of a resilient tapering brake-coil 7, placed on the bushing and having heavy end 12^a, and a holdback-shoulder 12 adapted to the stop 15; a pulling connection leading from the lighter end of the brake-coil, and an appliance in reach of the rider operating said pulling connection and thereby tightening the coil on the bushing and applying the brake, said bushing-surface being enough softer than the spiral brake-coil to assure sufficient degree of noiseless frictional contact between the bushing and coil when the brake is applied while preventing tearing up of the bushing-surface by the coil, said bushing also having channels receiving a lubricant preventing overheating of it and the brake-coil, substantially as described.

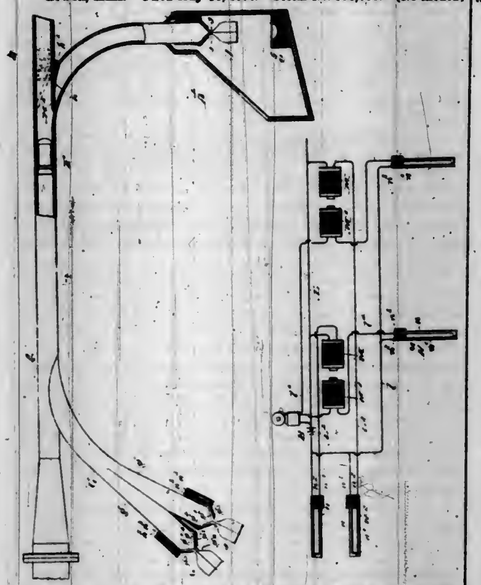
589,780. BARREL-HEAD. THOMAS R. HOWARD, Wilkinsburg, Pa. Filed Dec. 2, 1896. Serial No. 614,233. (No model.)



Claim.—1. In combination with a barrel-head constructed as described, the bolts bent at an angle at the lower ends, a threaded portion at the top, and an integral square head 12, whereby a wrench may be applied, as and for the purpose set forth.

2. A barrel-head, consisting of the combination of the chime-ring 2 provided with a central opening having a recess 4, a packing-ring 5 arranged about the said recess, a head 6, having a flange 7, the bolts 10 constructed and arranged as described, as a means for holding the said head to the chime-ring, and a covering 13 attached in position to cover the joint of the said head and ring, all arranged and combined for service, substantially as and for the purpose described.

589,781. PNEUMATIC-DESPATCH TUBE. JAMES JACQUES, Lowell, Mass. Filed May 11, 1896. Serial No. 591,030. (No model.)



Claim.—1. The combination of a main line of tubing connecting a central station with an outlying station, a siding or branch at said outlying station, a mechanical switch adapted to be opened to connect said main line and said siding, an electromagnet having an armature movable with said switch, an electric circuit including said magnet, a circuit-closer in said circuit arranged at said siding and normally open but closed by the passage of a carrier through said siding to close said switch and to disconnect said main line and said siding, as and for the purpose specified.

2. The combination of a main line of tubing connecting a central station with an outlying station, a siding or branch at said outlying station, a mechanical switch adapted to be opened to connect said main line and said siding, an electromagnet having an armature movable with said switch, an electric circuit including said magnet, a circuit-closer in said circuit arranged beyond said switch and normally open, but closed by the passage of a carrier through said siding to close said switch and to disconnect said main line and said siding, as and for the purpose specified.

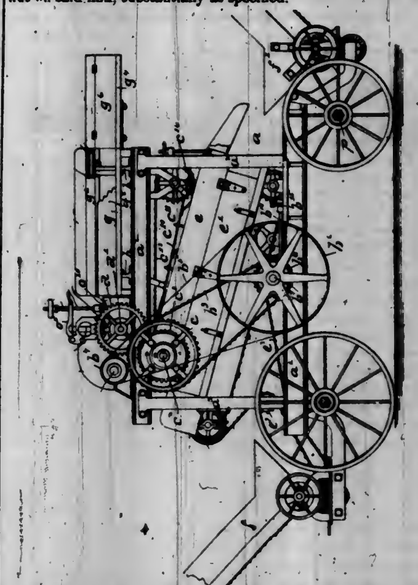
589,782. CORN-HUSKER AND STALK-CUTTER. GEORGE C. JANNEY, Muncie, Ind., assignor to Mary H. Janney, same place. Filed Mar. 10, 1896. Serial No. 582,535. (No model.)

Claim.—1. In a machine, such as described, feeding-rolls having engaging projections on the peripheries thereof, said projections being arranged in longitudinal and circumferential rows, and interposed pockets or recesses on the peripheries of said rolls and between said projections, said pockets being formed concave at the bottom, substantially as specified.

2. The combination with the feeding-rolls, of intermeshing gears at each end of said feeding-rolls, said gears having elongated teeth, with the teeth of one gear of each roll placed opposite the space between the teeth of the other gear of the same roll so that alternately-arranged teeth shall be on opposite ends of said roll, substantially as and for the purpose specified.

3. In a corn-husker, the combination with the main frame having the slotted openings as described, feeding-rolls having bearings supported in said slotted openings, one of said rolls being supported in stationary bearings and the other in movable bearings, as described, a plunger having a head fitted to said slotted opening and recessed to receive a spring which is seated at its other end in said movable bearing, a hinged lever on said frame having a concave recess therein to engage the end of said plunger, which is formed to fit in said recessed opening, a link pivoted to said frame and adapted to engage an open bearing in said lever, and means on said link for adjusting said lever, substantially as specified.

4. The combination with the feeding-rolls, one of which is supported in movable bearings, and a spring on said bearings, a pivoted lever above said spring, a screw-threaded pivoted link extending through said lever, and a spring between said lever and an adjustable nut on said link, substantially as specified.



5. The combination with the feeding-rolls, one of which is supported in movable bearings, of a spring-box and plunger, and a spring between said bearings and spring-box, a pivoted lever to engage said plunger, said lever having an open bearing to receive a pivoted screw-threaded link, and an adjustable nut on said link to adjust said lever and spring, substantially as specified.

6. The combination with the feeding-rolls, one of which is supported in movable bearings, a spring-box, an interposed spring between said box and bearing, a pivoted lever to adjust said box, and a pivoted link adapted to engage in an open bearing in said lever, a screw-threaded nut on said link, and an interposed spring between said nut and lever, substantially as specified.

7. In a corn-husker, the combination with the feeding or snapping rolls, of a driving-shaft geared to said feeding or snapping rolls, and a clutch on said shaft, a rock-shaft having at one end a crank and at the other a foot-lever journaled in suitable bearings adjacent to said clutch with the crank engaging the movable part of said clutch, and a spring connected to said shaft adapted to hold said clutch normally out of engagement whereby said snapping-rolls are retained normally inactive until said foot-lever is depressed, substantially as specified.

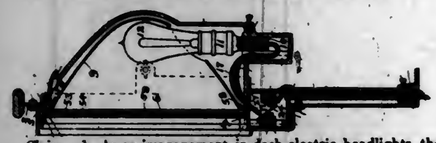
8. The combination with a main frame, of the feeding or snapping rolls, a drive-shaft supported on said main frame, and a clutch on said drive-shaft, one part of said clutch being secured to said shaft and the other geared to said feeding or snapping rolls, a rock-shaft supported in journals on said frame and adapted to engage one portion of said clutch, a foot-lever connected with said rock-shaft, and a spring to hold the parts of said clutch normally disconnected whereby the feeding or snapping rolls are disconnected until said foot-lever is depressed, substantially as specified.

9. In a corn-husker, and in combination with the feeding-rolls thereof, a folding table consisting essentially of two main portions arranged in different horizontal planes, said portions being each hinged on opposite sides to elevated standards whereby either or both of said portions may be turned on their pivoted connections, substantially as specified.

10. In a corn-husker, a hinged table consisting of two main portions arranged at different elevations and hinged on T-shaped supporting-standards as described, each of said portions being also provided with auxiliary extensible portions hinged thereto so as to be folded, substantially as specified.

11. In a corn-husker a folding table consisting essentially of the main portions arranged at different elevations and hinged to the same supporting-standards so as to be turned independently to or from each other or to be moved together, as described, each of said main portions having an auxiliary portion or extension hinged thereto and adapted to be folded in the same or substantially the same horizontal plane, and an intermediate vertical portion hinged to one of said extended portions, substantially as specified.

589,783. DASH ELECTRIC HEADLIGHT. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the United States Head-Light Company, Utica, N. Y. Filed Feb. 10, 1897. Serial No. 622,796. (No model.)



Claim.—1. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through said dashboard below the top thereof, of an open headlight-frame registering with said opening and secured to said dashboard, and a headlight-case containing a reflector; a lamp-socket; a lamp-socket holder; and an incandescent electric lamp held in said lamp-socket, the said headlight-case being carried by said frame and detachably held therein.

2. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through said dashboard below the top thereof, of an open headlight-frame registering with said opening and secured to said dashboard, and a headlight having a reflector provided with an opening in its side, a lamp-socket registering with said opening in the reflector, a lamp-socket holder and an incandescent electric lamp held in said lamp-socket, the headlight being carried by said headlight-frame and detachably held therein substantially as set forth.

3. A headlight-supporting frame adapted to register with an opening cut through the dashboard of a railway-car and to be secured thereto, said frame being provided with a pocket within which ends of current-conveying wires leading from a source of electrical supply are secured, in combination with a headlight detachably held in said frame, said headlight having a pocket within which ends of current-conveying wires leading to a lamp-socket are secured and means for connecting said wires when the headlight is placed in position within said frame and for disconnecting the same when the headlight is removed therefrom, substantially as and for the purpose set forth.

4. A headlight-supporting frame adapted to register with an opening cut through the dashboard of a railway-car, and to be secured thereto, in combination with a headlight detachably held in said frame, the headlight being provided with a socket-holder, a lamp-socket, current-conveying wires whose ends lead to said lamp-socket for connection therewith, a suitable pocket within which the opposite ends of said wires are secured, and means for forming a connection between said wires and corresponding current-conveying wires leading from a source of electrical supply to within a suitable recess adjacent to said supporting-frame, whereby the headlight may be bodily set in said frame and removed therefrom and said wires thereby connected and disconnected, substantially as and for the purpose set forth.

5. A headlight-supporting frame adapted to register with an opening cut through the dashboard of a railway-car and to be secured thereto, in combination with a headlight detachably held in said frame, the headlight being provided with an adjustable socket-holder through which current conveying wires lead to a lamp-socket to which their ends are connected and a pocket within which the opposite ends of said wires are secured and means for forming a connection between said wires and corresponding current-conveying wires leading from a source of electrical supply to within a suitable recess adjacent to said supporting-frame, whereby the headlight may be bodily set in said frame and removed therefrom and said wires thereby connected and disconnected, substantially as and for the purpose set forth.

6. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through said dashboard below the top thereof, of an open headlight-frame registering with said opening and secured to said dashboard; said frame having a flange projecting forward of the dashboard and beyond the face of the headlight; to protect the latter from damage, and a headlight-case containing a reflector; a lamp-socket; a lamp-socket holder; and an incandescent electric lamp held in said lamp-socket, the headlight being carried by said headlight-frame and detachably held therein, substantially as set forth.

7. A headlight-supporting frame adapted to register with an opening cut through the dashboard of a railway-car below the top thereof and to be secured thereto, in combination with a headlight having a reflector provided with an opening in its side, a lamp-socket registering with said opening in the reflector, a lamp-socket holder and an incandescent electric lamp held in said lamp socket, the headlight being detachably held in said supporting-frame, and the latter having a flange projecting forward of and beyond the face of the headlight to protect it from damage substantially as set forth.

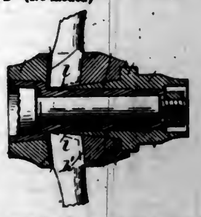
8. As an improvement in dash electric headlights, the combination with the dashboard of a railway-car having an opening cut through said dashboard, of a headlight-supporting frame registering with said opening and secured to said dashboard, and a headlight-case having a reflector secured therein provided with an opening in its side, a lamp-socket registering with said opening in the reflector, a lamp-socket holder, and an incandescent electric lamp held in said lamp-socket, the said case having a slot cut through the upper half thereof forward of the reflector to receive a glass and a groove formed in its lower half, said groove constituting a seat for the glass, the said case being detachably held in the supporting-frame, substantially as set forth.

9. A headlight-supporting frame adapted to register with an opening cut through the dashboard of a railway-car and to be secured thereto, in combination with a headlight detachably held in said frame, said headlight having a slot cut through the upper half of its case forward of the reflector to receive a glass and a groove formed in the lower half of said case, said groove constituting a seat for the glass, and springs located behind the glass, substantially as and for the purpose set forth.

10. In combination with the dashboard of a railway-car having an opening cut through the same, a headlight-supporting frame registering with said opening and secured to said dashboard, a headlight provided with a lamp-socket, a lamp-socket holder, a pocket and a set of current-conveying wires leading from the socket to within said pocket, said headlight being detachably held in said frame, a set of current-conveying wires leading from a source of electrical supply to a suitable pocket adjacent to said frame, a conduit through which the latter set of wires pass from the platform of the car to said latter pocket and means for connecting said two sets of wires when the headlight is placed in position in said frame and for disconnecting the same when the headlight is removed, substantially as and for the purpose set forth.

11. As an improvement in dash electric headlights, the combination with the dashboard of a railway car having an opening cut through said dashboard below the top thereof, of an open headlight-frame registering with said opening and secured to said dashboard, a headlight having a reflector provided with an opening in its side; a lamp-socket registering with said opening in the reflector; a lamp-socket holder; and an incandescent electric lamp held in said lamp-socket, the headlight being carried by said headlight-frame and detachably held therein, current-conveying wires leading from said frame to underneath the car-platform, and a conduit extending from said frame to the car-platform and through which conduit said wires pass, substantially as set forth.

589,784. WHEEL. JAMES C. MICHIE, Waldrop, Va., assignor of one-fourth to Thomas S. Watson, same place. Filed May 13, 1897. Serial No. 636,234. (No model.)



Claim.—1. The combination with a box, a hub portion fixed thereto and formed with open end sockets, the box being screw-threaded at its forward end, a nut adjustable on the screw-threaded portion of the box and formed with a circumferential shoulder and an integral tapered portion extending inward from said shoulder, a clamping-ring having a tapered opening and countersunk whereby it is adapted to fit snugly on the taper on the nut and interlock with the shoulder thereof, the ring being adapted to move toward the hub portion and clamp the spokes in the sockets thereof, substantially as shown and described.

2. The combination of the box having the screw-threads at its forward end, the hub portion adapted to be fixed to the rear end of the box and formed with the open end backwardly-tapering sockets, the projections separating the sockets being formed with the over-hanging lips and the forward ends of said projections and the rear walls of the depressions being inclined for the purpose specified, the combined nut and hub-band having the integral tapering portion at its inner ends adapted to extend beneath the sockets, and at the outer end of said taper formed with the circumferential shoulder, the internally-tapered ring adapted to fit snugly on the taper and countersunk on its outer face to interlock with said shoulder, the inner face of the nut being formed with peripheral depressions to interlock with the said overhanging lips and also inclined to conform to the inclines of the rear walls of the sockets and the projections separating the sockets, the nut adjacent said shoulder being formed with the wrench-hold, and the outer end of the nut constituting a hub-band, all substantially as herein specified and shown

589,785. SURFACE-CONTACT ELECTRIC RAILWAY. LEE H. PARKER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 13, 1896. Serial No. 612,584. (No model.)



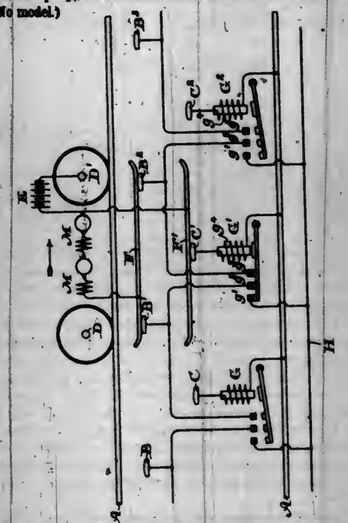
Claim.—1. In a surface-contact electric railway, the combination of a vehicle, stationary contacts, switch mechanism for including the contacts in circuit with the source of supply, coils permanently connected between each contact and the ground, a contact-shoe mounted on the vehicle and supplying current to the coil as it advances, a magnet mounted at the front of the vehicle cooperating with the coils to close the switches, and a second magnet mounted on the rear of the vehicle cooperating with the coils to open the switches.

2. In a surface-contact electric railway, the combination of a moving vehicle, contacts located along the line of travel, switches for closing the circuit between the source of supply and the contacts, armatures for operating the switches, a coil mounted on each armature forming a permanent connection between the contact and the ground, fixed pole-pieces for the armature, and a magnet carried by the vehicle supplying a magnetic flux to the pole-pieces.

3. In a surface contact electric railway, the combination of a vehicle, a magnet mounted thereon and making sliding contact with the rails, a coil for energizing the magnet, pole-pieces secured to the tracks at intervals, armatures mounted for movement between the pole-pieces, switch mechanism operated thereby, and a coil on each armature permanently connected between each surface contact and ground.

4. In a surface-contact electric railway, the combination of a vehicle, magnets of opposite polarity located in advance and rear of the vehicle, shoes for each magnet making sliding contact with the rails, energizing-coils for the magnets, a source of supply, and a switch for simultaneously reversing the polarity of the magnets when it is desired to reverse the direction of movement of the vehicle.

589,786. CLOSED-CONDUIT ELECTRIC-RAILWAY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 6, 1896. Serial No. 607,998. (No model.)



Claim.—1. A surface-contact electric-railway system, comprising a feeder, sectional conductors, a track, and electromagnetic switches for establishing temporary connection between the feeder and the successive sectional conductors, each switch provided with a single coil in circuit on the negative side of the system, and contacts making direct connection between the feeder and the sectional conductors, each switch furnishing current to more than one sectional conductor.

2. A surface-contact electric-railway system, comprising a feeder, sectional conductors, and electromagnetic switches for establishing temporary connection between the feeder and the successive sectional conductors, each switch provided with a single coil in circuit on the negative side of the system, and contacts making direct connection between the feeder and the sectional conductors, each switch furnishing current to more than one sectional conductor, and each section taking current by permanent independent connections from more than one switch.

3. A surface-contact electric railway, comprising a feeder, sectional conductors, a source of electromotive force of low potential upon the vehicle, and electromagnetic switches for making temporary connection between the feeder and the sectional conductors, each switch provided with a coil forming a ground connection through which both the motors and the auxiliary source of electromotive force are grounded, and contacts making direct connection between the feeder and the sectional conductors, each switch energizing more than one sectional conductor and each sectional conductor taking current by permanent independent connections from a plurality of switches.

4. The combination in an electric-railway system, of a row of high-potential studs or sectional conductors insulated from each other and from the line, when electrically inactive, switches having contacts by which said studs are connected to the line-circuit in pairs or sets when the switches are closed, and a second row of low-potential studs or sectional conductors connected with the negative branch of the supply-circuit through magnet-coils upon the switches, said high and low potential studs respectively forming part of a series circuit through the car motor or motors when the system is in operation.

5. The combination in a surface-contact electric-railway system, of a row of high-potential studs or sectional conductors disconnected from each other and from the line, when electrically inactive, and automatically-acting electromagnetic switches, each of which forms when closed a direct connection between the line-circuit and a pair of said studs.

6. The combination in a surface-contact electric-railway system, of a row of high-potential studs or sectional conductors, a row of low-potential studs, switches comprising a magnet-coil between the low-potential studs and the line-circuit, electrical connections from each high-potential stud to two of the switches, and separate normally-insulated contacts at each switch connected to adjacent studs, whereby when the system is in operation each switch in closing connects a new stud to the line and establishes a new connection to a second stud already alive.

7. The combination in a surface-contact electric-railway system, of a series of studs or sectional conductors insulated from each other when electrically inactive, three-point switches which on closing connect the line conductor with a pair of adjacent studs through the several switch-contacts, and magnet-coils on the switches the circuit of which is completed by collector-shoes on the cars.

8. In a surface-contact electric-railway system, the combination of a row of high-potential studs forming one side of the motor-circuit, a second row of low-potential studs completing the circuit so that the two sets of studs and the motor are in series, line-switches, each having a magnet-coil coupled permanently, and independently of the magnet-winding of any other switch, in a separate branch connection between one of the low-potential studs and the line-circuit; whereby each switch may be energized independently of any other switch, and electrical connections between the switches and high-potential studs, such that one of the high-potential studs is always connected to line before the collector-shoe makes contact with it in either direction of travel of the car.

9. The combination in a surface-contact electric-railway system, of a row of high-potential studs or sectional conductors, switches, electrical connections between contacts at each switch and a pair of said studs such that when the system is in operation any given stud is connected to line, first through one switch and then through a second switch, and the two connections are then opened successively in the order in which they are made, a row of low-potential studs, and magnet-coils on the switches connected permanently between the low-potential studs and the negative side of the line-circuit.

10. The combination in an electric-railway system, with the three-point line-switches G, the high-potential studs or sectional conductors B each connected with contacts at a pair of switches and in pairs to each switch, the row of low-potential studs C staggered with reference to the high-potential studs, and magnet-coils on the switches permanently connected between the low-potential studs and the return-conductor forming part of the line-circuit, as set forth.

11. A controlling device for a surface-contact railway, comprising contacts and connections for regulating the motors from rest to full speed, and a contact or contacts shunting a part of the line-current through the electromagnetic switches during the time the motor-current is interrupted, thereby preserving the live circuit of the car.

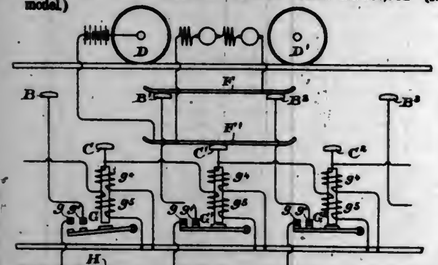
12. A controlling device for a circuit-contact railway provided with contacts for regulating the motors from rest to full speed, and a contact or contacts completing a shunt-circuit through a limiting-resistance and the automatic switches of the system, thus shunting a

part of the line-current through the switches during the time the motor-current is interrupted and keeping alive the contact over which the car may be.

13. A controller for a surface-contact electric railway provided with contacts for regulating the motor from rest to full speed, a contact or contacts connected to energize at least one of the automatic electromagnetic switches of the system during the time that the motor-current is interrupted and thus keep alive the contact or contacts over which the car may be, thereby preserving the lighting system and the capacity for starting the motors.

14. In a surface-contact railway system, a magneto-generator connected between the sliding contacts of the car, actuated by a stud, and a rack and pinion so arranged that the foot of the motorman may rotate the magneto-generator to pick up the switch-contacts at starting.

589,787. CLOSED-CONDUIT ELECTRIC RAILWAY. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 18, 1896. Serial No. 612,644. (No model.)

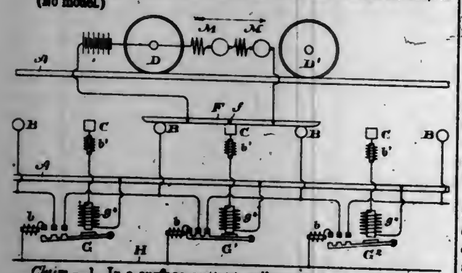


Claim.—1. A surface-contact electric-railway system, comprising a feeder, track-rails, and sectional conductors in the roadway, with electromagnetic switches serving to make temporary connection in sequence between the feeder and the sectional conductors, the switches connected between the negative side of the system and ground by coils in multiple upon the different switches.

2. A surface-contact electric-railway system, comprising a feeder, track-rails, and sectional conductors in the roadway, with electromagnetic switches serving to make temporary connection in sequence between the feeder and the sectional conductors, the switches connected between the negative side of the system and ground by coils in multiple upon the different switches, each coil having an independent ground connection; in combination with a vehicle moving on the line of way, and making traveling contact with the sectional conductors, provided with motors in circuit between the traveling contacts, and a storage battery.

3. A surface-contact electric railway, comprising track-rails, sectional conductors, a feeder, and electromagnetic switches for making connection between the feeder and the sectional conductors in sequence; each of the switches furnishing current to a single contact or conductor in the roadway, and being provided with operating-coils in multiple with more than one of the sectional conductors upon the negative side of the system, each of the coils upon the switch being separately grounded.

589,788. CLOSED-CONDUIT ELECTRIC-RAILWAY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 23, 1896. Serial No. 613,743. (No model.)



Claim.—1. In a surface-contact railway system, a single row of sectional contacts, some of which are directly connected to the feeder by the closing of suitable electromagnetic switches, while others are connected to ground through high-resistance magnets actuating the switches, the high-resistance coils of these magnets forming a shunt to the motor-circuit, and permanent electrical connections connecting each of the motor-contacts with more than one of the switches and each of the switches likewise with a plurality of motor-contacts, as set forth.

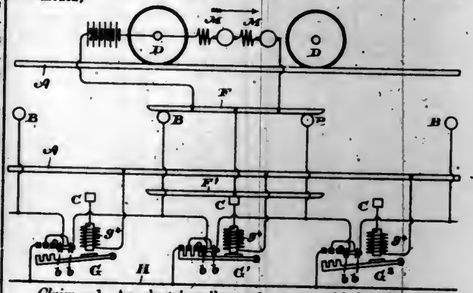
2. In an electric railway system, the combination of a feeder, sectional motor-contacts and switch-contacts arranged alternately in a single row, electromagnetic switches for connecting the sectional motor-contacts with the feeder in sequence, and permanent electrical connections between the contacts and switches such that current may flow from a given contact to the motor, first through one of the line-switches and then through a second switch, said switches operating successively; whereby each motor-contact is connected to the feeder for a longer interval of time than that during which any line-switch individually considered is held closed.

3. The combination in an electric railway, of sectional motor-contacts and switch-contacts arranged alternately in a single row, grounded high-potential magnets connected to the switch-contacts, switches, permanent electrical connections for connecting the motor-contacts in pairs to the source of supply through the switches, and a collector for maintaining during normal operation a circuit through the magnets in shunt to the motor-circuit.

4. In an electric railway, the combination of switch-contacts C alternating with motor-contacts B in a single row, grounded high-potential magnets connected to the switch-contacts, switches picked up by the magnets, permanent electrical connections from each switch to a pair of the motor-contacts and from each motor-contact to a pair of the switches, and a collector adapted to bridge three of the sectional contacts, as set forth.

5. In an electric railway, the combination of a feeder, sectional motor and switch contacts, electromagnetically-operated switches connecting the motor-contacts with the feeder, permanent electrical connections between the motor-contacts and switches, whereby each switch makes connection with a pair of motor-contacts and each motor-contact may also be connected through a pair of switches, a collector completing the motor-circuit from the motor-contacts, magnets operating the switches having a shunt-coil forming part of a circuit around the motor, and a series coil in circuit with the motor, for the purposes set forth.

589,789. CLOSED-CONDUIT ELECTRIC RAILWAY. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 23, 1896. Serial No. 613,744. (No model.)



Claim.—1. An electric-railway system provided with sectional normally-insulated contacts, a feeder, switches for connecting the sectional contacts in sequence with the feeder, and electromagnets operating the switches having a pick-up coil in shunt to the motor-circuit, each switch energizing a plurality of surface contacts carrying motor current, and each motor-contact taking current from more than one of the switches.

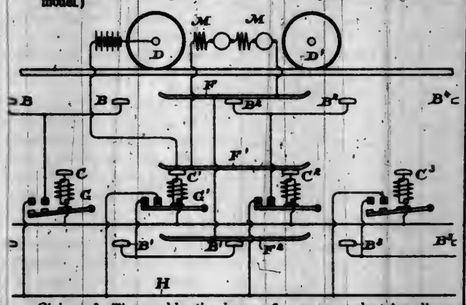
2. In an electric railway the combination of a feeder, two rows of staggered sectional contacts, high-potential magnets grounded at one terminal and connected at the other terminal to one row of contacts, switches controlled by said magnets connecting the feeder directly with the other row of contacts and collectors on the car which, when the system is in operation, bridge adjacent contacts in each row alternately, and establish a circuit through the magnets in shunt to the motor-circuit.

3. In an electric railway the combination of a feeder, sectional motor-contacts, switches corresponding in number with the motor-contacts, electrical connections by which each motor-contact may be connected to line through two of the switches, each switch energizing at least two contacts, and electromagnets for operating the switches having a pick up coil in shunt to the motor-circuit.

4. In an electric-railway system the combination of a feeder, motor-contacts forming part of the motor-circuit, switches each having contacts by which a plurality of said motor-contacts, adjacent to one another, are connected with the feeder in multiple, and electro-

magnets controlling the switches provided with a pick-up coil in shunt to the motor-circuit.

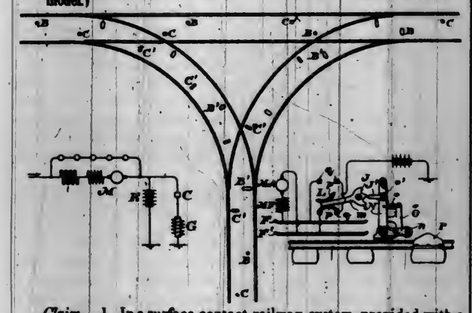
589,790. CLOSED-CONDUIT ELECTRIC RAILWAY. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 2, 1897. Serial No. 617,702. (No model.)



Claim.—1. The combination in a surface-contact electric-railway system, of a series of high-potential studs arranged alternately in a number of different parallel rows, switches for connecting said studs with the line-circuit, and electromagnets for closing automatically the switch-contacts, as set forth.

2. The combination in a surface-contact electric-railway system, of a series of high-potential studs arranged alternately in a number of different parallel rows, a series of low-potential studs forming part of the circuit between the negative terminal of the motor and the return-conductor, and a series of switches comprising contacts through which the high-potential studs are connected with the feeder and magnet-coils permanently connected between the low-potential studs and the return-conductor, as set forth.

589,791. SURFACE-CONTACT RAILWAY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 25, 1897. Serial No. 620,566. (No model.)



Claim.—1. In a surface-contact railway system, provided with a car having a storage battery and contact-shoes, means for turning the car, in combination with means for reversing the connection of the storage battery to the contact-shoes.

2. In a surface-contact railway system, provided with a car having a storage battery and contact-shoes, means for turning the car, in combination with automatic mechanical means for reversing the connection of the storage battery with the contact-shoes.

3. In a surface-contact railway system, a controlling device provided with contacts for regulating the motors and auxiliary contacts at its normal off position, and connections from the latter contacts to the storage battery, by which the storage battery preserves the connection of the lighting-circuit of the car to the surface contacts when the motor-circuit is interrupted.

4. In a surface-contact railway system, motors, a lighting-circuit, sliding contacts cooperating with electromagnetic switches for connecting up the working conductors, a storage battery, and a controlling device the contacts and connections of which are adapted to operate the motors in the ordinary positions of the controller, and to maintain the storage battery in circuit to operate the electromagnetic switches at the normal off position of the controller; whereby one or more of the road-switches may be maintained closed for preserving the lighting-circuit intact when the motor-circuit is interrupted.

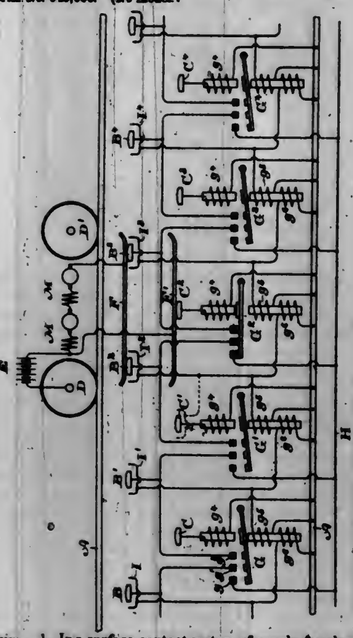
5. In a surface-contact electric-railway system, having a car provided with a storage battery, motors and sliding contacts, a controlling device having a normal off position in which the motor-current is interrupted, and contacts at such normal off position for maintaining the storage battery in circuit to keep the trolley-circuit alive while the motor-circuit is interrupted.

6. In a surface-contact railway system, having a car provided with motors, a storage battery, and sliding contacts, a controlling device having a normal off position in which the motor-circuit is interrupted, with auxiliary contacts at such off position for maintaining the circuit of the storage battery so as to keep the trolley-circuit alive while the motor-circuit is interrupted; in combination with a switch for rendering such auxiliary contacts useful or idle at will.

7. In a surface-contact railway system, a reversing-switch or Y for reversing the car, having a dead or drifting space provided with no surface contacts, and with curved portions provided with surface contacts having greater width than the ordinary studs or contacts of the road.

8. A Y for reversing the cars in a surface-contact railway system, having curved portions provided with studs of greater width than those used in the straight parts of the road.

589,792. CLOSED-CONDUIT ELECTRIC RAILWAY. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 18, 1896. Renewed June 30, 1897. Serial No. 643,006. (No model.)



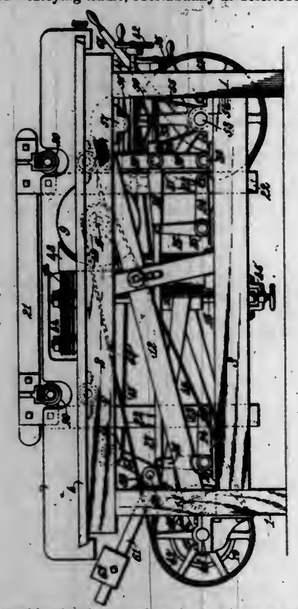
Claim.—1. In a surface-contact system of supply for electric railways, a safety device comprising an independent "ground" adjacent to the sectional conductors having included in its circuit a coil upon the pick-up switch.

2. A safety device for a surface-contact system of supply, composed of a metal box or sheath intermediate between and insulated from the sectional conductors, the box or sheath grounded through a coil upon the pick-up switch.

3. In an electric railway, the combination of a distributing-circuit composed of a positive feeder and ground-return, with two sets of sectional conductors, switches for connecting one set of sectional conductors with the positive feeder, electromagnets connected to ground and to the second set of sectional conductors for closing said switches, circuits for leakage-current arranged to intercept current tending to leak from the first to the second set of sectional conductors, and magnets in said last-named grounded circuits for opening the circuit between the positive feeder and the sectional conductors.

589,793. WOOD-SAWING MACHINE. LEWIS S. PROCTOR and FREDERIK NEUDORFF, Sheffield, Ala. Filed Apr. 22, 1897. Serial No. 633,383. (No model.)

Claim.—1. The combination, in a wood-sawing machine, of a pivoted vertically-adjustable saw-carrying frame, a pivoted laterally-adjustable saw-carrying frame, the planes of the saws on said frames being substantially at right angles, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, connected mechanisms for adjusting the vertically-adjustable saw-carrying frame and the said upper feed-rollers, and means for adjusting the laterally-adjustable saw-carrying frame, substantially as described.



2. The combination, in a wood-sawing machine, of a pivoted vertically-swinging saw-carrying frame, a pivoted laterally-swinging saw-carrying frame, the planes of the saws on said frames being substantially at right angles, toggle-levers pivoted, respectively, to the main frame and to the vertically-swinging saw-carrying frame, means for operating the toggle-levers to adjust the vertically-swinging frame, toggle-levers connected with the laterally-swinging frame, and devices for operating the toggle-levers of the laterally-adjustable frame, substantially as described.

3. The combination, in a wood-sawing machine, of a pivoted vertically-swinging saw-carrying frame, a pivotally laterally-swinging saw-carrying frame, the planes of the saws on said frames being substantially at right angles, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, toggle-levers for adjusting the vertically-swinging saw-carrying frame, means for operating said toggle-levers, connections between said toggle-levers and the vertically-adjustable frame of the upper feed-rollers, and means for adjusting the laterally-adjustable saw-carrying frame, substantially as described.

4. The combination, in a wood-sawing machine, of a pivoted vertically-swinging saw-carrying frame, a laterally-adjustable saw-carrying frame, the planes of the saws on said frames being substantially at right angles, toggle-levers pivoted, respectively, to the main frame and to the vertically-adjustable saw-carrying frame, a screw-shaft for operating said toggle-levers to raise and lower the vertically-swinging frame, and means for adjusting the laterally-adjustable frame, substantially as described.

5. The combination, in a wood-sawing machine, of a vertically-adjustable saw-carrying frame, a laterally-adjustable saw-carrying frame, the planes of the saws on said frames being substantially at right angles, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, mechanism for simultaneously adjusting the vertically-adjustable saw-carrying frame and the frame carrying the upper set of feed-rollers, and means for adjusting the laterally-adjustable saw-carrying frame, substantially as described.

6. The combination, in a wood-sawing machine, of a vertically-adjustable saw-carrying frame, a laterally-adjustable saw-carrying frame, the planes of the saws on said frames being substantially at right angles, a lower set of feed-rollers, a vertically-movable frame carrying an upper set of feed-rollers and having vertical limbs, toggle-levers connected with the vertically-adjustable saw-carrying frame, means for operating the toggle-levers, connected bell-crank levers pivotally engaged with the vertical limbs of the frame which carries the upper set of feed-rollers, and connections between said bell-crank levers and said toggle-levers, substantially as described.

7. The combination, in a wood-sawing machine, of a pivoted vertically-swinging saw-carrying frame, a lower set of feed-rollers, a vertically-movable frame carrying an upper set of feed-rollers, and provided with vertical limbs, toggle-levers connected with the vertically-swinging saw-carrying frame, a screw-shaft for operating the toggle-levers, connected bell-crank levers engaged with the vertical limbs of the frame which carries the upper set of feed-rollers, and means connecting the bell-crank levers with the said toggle-levers, for simultaneously adjusting the saw-carrying frame and the upper set of feed-rollers vertically, substantially as described.

8. The combination, in a wood-sawing machine, of a vertically-adjustable saw-carrying frame, means for adjusting said frame vertically, a pivoted laterally-swinging saw-carrying frame, the planes of the saws on said frames being substantially at right angles, a gear having a vertical shaft, toggle-levers connected, respectively, with the laterally-adjustable frame and with the shaft of said gear, and a shaft having a pinion engaging said gear for rotating the same to adjust the laterally-swinging frame, substantially as described.

9. The combination, in a wood-sawing machine, of a vertically-adjustable saw-carrying frame, a lower set of feed-rollers, a vertically-movable frame carrying an upper set of feed-rollers, an endless belt passing around the upper and lower feed-rollers, means for imparting motion to said belt, a belt-tightener engaging said belt and serving to hold the belt under tension while permitting the frame which carries the upper set of feed-rollers to be raised and lowered, and mechanism for raising and lowering the vertically-adjustable saw-carrying frame and said feed-roller frame, substantially as described.

10. The combination, in a wood-sawing machine, of a pivoted vertically-swinging saw-carrying frame, toggle-levers pivoted to the main frame and to the said saw-carrying frame, a horizontal screw-shaft having a swivel connection with the toggle-levers, a pivoted screw-nut with which said screw-shaft engages, for operating the toggle-levers to raise and lower the saw-carrying frame, a movable frame carrying feed-rollers, and devices connected with said feed-roller frame and operated by said toggle-levers, substantially as described.

11. The combination, in a wood-sawing machine, of a pivoted vertically-swinging frame carrying a gang of saws and a gang of splitters, a pivoted laterally-swinging frame carrying a gang of saws and a gang of splitters, the planes of the saws on said frames being substantially at right angles, two sets of toggle-levers connected, respectively, with the vertically-adjustable and the laterally-adjustable saw and splitter carrying frames, and independent devices for operating the two sets of toggle-levers, substantially as described.

12. The combination, in a wood-sawing machine, of a pivoted vertically-swinging frame carrying a gang of vertical saws, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, and mechanism for simultaneously raising and lowering the said saw-carrying frame and the said feed-roller frame, substantially as described.

13. The combination, in a wood-sawing machine, of a vertically-adjustable frame carrying a gang of vertical saws, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, an endless belt passing around all of said feed-rollers, a belt-tightener engaging said belt and holding it under tension while permitting the frame which carries the upper set of feed-rollers to be raised and lowered, a belt mechanism for imparting motion to said endless belt, and a hand-lever having a tightener-pulley cooperating with said belt mechanism for the purpose of regulating the motion of the endless belt which actuates the upper and lower feed-rollers, substantially as described.

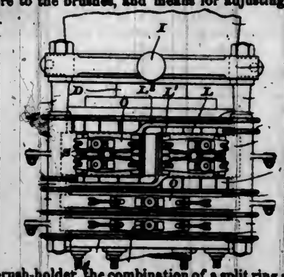
14. The combination, in a wood-sawing machine, of an adjustable frame carrying vertical saws, a laterally-adjustable frame carrying saws, the planes of the saws carried by said frames being substantially at right angles, a lower set of feed-rollers, a vertically-adjustable frame carrying an upper set of feed-rollers, and means for simultaneously raising and lowering the said vertically-adjustable frames to raise and lower the vertical saws and the upper feed-rollers in unison, substantially as set forth.

589,794. BRUSH-HOLDER. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 24, 1897. Serial No. 637,855. (No model.)

Claim.—1. In a brush-holder, the combination of a box in which the brushes are mounted, an equalizer extending between the brushes, and a spring for applying pressure to the brushes.

2. In a brush-holder, the combination of a box in which the brushes are mounted, an equalizer extending between the brushes and resting thereon, a spring for applying pressure to the brushes through the equalizer, and means for adjusting the spring.

3. In a brush-holder, the combination of a cast-metal box in which the brushes are mounted, a spring-metal equalizer having downwardly-curved ends engaging with the brushes, a support mounted upon the upper side of the equalizer, a spiral spring for applying pressure to the brushes, and means for adjusting the tension of the spring.

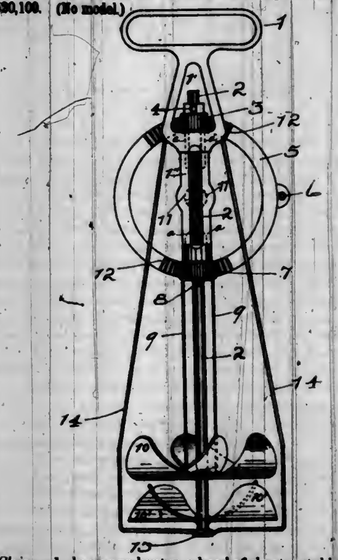


4. In a brush-holder, the combination of a split ring sleeved upon the armature-shaft bearing, studs carried by one half of the ring, and cast-metal pieces forming boxes for the brushes extending between and supported by both studs.

5. In a brush-holder, the combination of a pair of studs extending parallel with the armature-shaft, brush-holder boxes sleeved upon the studs and situated directly in line with each other, and offset-arms extending from each of the boxes to the opposite studs.

6. In a brush-holder for dynamo-electric machines, the combination of a pair of studs extending parallel with the armature-shaft, holders or boxes for the commutator-brushes situated directly in line and sleeved upon the studs, offset-arms formed integral with the boxes and extending from the boxes to the opposite studs, castings forming holders for the collector-ring brushes, sleeved upon both of the studs, and means for clamping all the brush-holders together.

589,795. EGG-BEATER. EDWARD J. SCOFIN, Albany, N. Y., assignor to Nelson Lyon, same place. Filed Aug. 13, 1894. Serial No. 520,109. (No model.)



Claim.—1. In an egg-beater, a head of sheet metal having blades of substantially the shape described, each having horizontal forward edges and upturned rear corners, there being open spaces between the blades, substantially as described.

2. In an egg-beater, heads of sheet metal having blades of substantially the shape described, each having horizontal forward edges and upturned rear corners, there being open spaces between the blades, the heads being reversely formed, and means for turning them in opposite directions, substantially as described.

3. In an egg-beater, a head of sheet metal having blades of substantially the shape described, each having horizontal forward edges and upturned rear corners, there being open spaces between the blades, a pinion 7 with moving mechanism, a shaft 2 connecting the lower head and its driving mechanism and passing through pinion 7, and a frame 9 of metal strip connecting the pinion 7, and the upper head, substantially as described.

589,796. HAY-TEDDER. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Sept. 22, 1893. Serial No. 486,220. (No model.)



Claim.—1. In a tedder, the combination of a fork-arm, a crank-shaft and link for operating it constructed and arranged to give to said fork-arm a downward thrust approximately in alinement with the arm, a fork pivotally connected to the lower end of said arm having bent tines which extend from said arm toward the front of the machine and terminate at that side of said arm, whereby it is adapted to turn on its pivot in a direction toward the front of the machine when the points thereof encounter an obstacle during the downward thrust of the fork arm, as well as at all times while performing its work, substantially as described.

2. In a tedder, the fork-arm *m* provided with an eye at its upper end to receive the link, and, having metallic clips *m'* at its lower end provided with ears m^3 in line with the arm, a fork pivotally supported in said ears having a loop m^4 projecting from the crown thereof between said ears at one side of said arm in a direction toward the rear of the machine, and having its tines bent and extended from said arm at the opposite side thereof in a direction toward the front of the machine, and terminated at that side of said arm, a rod m^5 connected with said loop m^4, and located beside and parallel with said arm *m*, a guide-loop m^6 for the upper end of said rod, a spring m^7 encircling said rod and arranged to draw said rod upward, and a clamp securing the fork-arm to the crank-shaft from which said guide-loop m^6 projects, substantially as described.

3. A tedder-fork pivotally connected to a fork-arm having bent tines which project toward the front of the machine, and terminate at that side of said fork-arm, substantially as described.

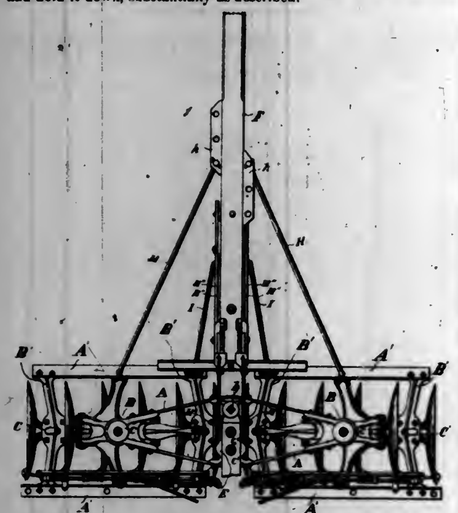
4. A tedder-fork pivotally connected to a fork-arm having right-angularly-bent tines which project toward the front of the machine, and terminate at that side of said fork-arm, substantially as described.

589,797. DISK HARROW. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Aug. 26, 1896. Serial No. 603,943. (No model.)

Claim.—1. In a disk harrow, a disk gang, a support therefor pivoted to the main frame, and devices connected with said support and with the gang-frame and operated by the end thrust of said disk gang, to apply a downward pressure to the gang at one end, substantially as described.

2. In a disk harrow, a main frame, a disk-gang support thereon, a disk gang connected thereto by a device swinging on a horizontal axis parallel to the line of draft, and devices connected with said

support and with the gang-frame and operated by the end thrust of said disk gang to apply a downward pressure to the gang at one end and hold it down, substantially as described.



3. In a disk harrow, a draft-frame, a yoke D″ swinging on a horizontal axis parallel to the line of draft and having a bearing portion d^3, a disk gang pivotally connected to said yoke, a rocking bar one end of which bears a friction-roll which rests upon said bearing portion, and a link connecting the other end of said bar with one end of the disk gang, substantially as described.

4. In a disk harrow, a main frame, a disk-gang support pivoted thereto and turning on a vertical axis, a yoke pivoted thereto, and movable in the arc of a circle inwardly and upwardly and having a bearing portion, a disk gang pivotally connected to said yoke, a rocking bar pivoted to the disk-gang support, one end of which bears a friction-roll which rests upon said bearing portion, and a link connecting the other end of said bar with one end of the disk gang, substantially as described.

5. In a disk harrow, a draft-frame, a yoke D turning on a vertical axis, a yoke D″ pivotally connected to one arm thereof, a disk gang connected to said yoke D″, a rocking bar connected to the other arm of said yoke D, one end of which engages said yoke D″, and a link connecting the other end of said bar to one end of the disk gang, substantially as described.

6. In a disk harrow, a draft-frame, a yoke swinging on a horizontal axis parallel to the line of draft and having a bearing portion d^3, a disk gang connected to said yoke, a rocking bar one end of which bears a friction-roll which rests upon said bearing portion, and a link connecting the other end of said bar with one end of the disk gang, and limiting-stops for said yoke and said rocking bar, substantially as described.

7. In a disk harrow, a gang-frame, consisting of front and rear bars A′, cross-pieces B′, B′, to which they are attached which are formed integral with the bearings for the disk-gang shaft, combined with a yoke pivotally connected to said front and rear bars which is connected with the main frame, the rocking bar D′, one end of which bears upon said yoke and link connecting the opposite end of said bar to the disk gang, substantially as described.

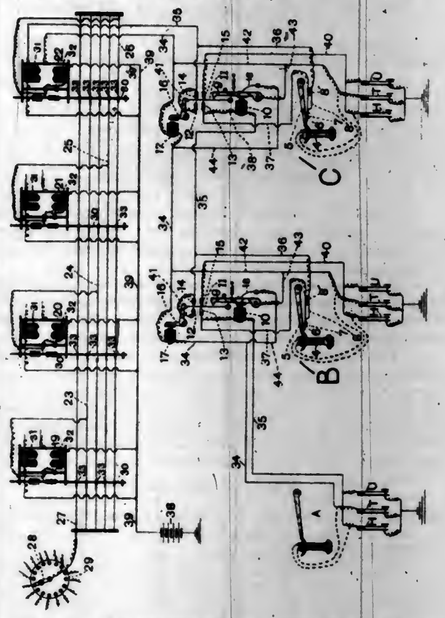
8. In a disk harrow, wherein the disks are adapted to be located one in advance of the other, a main frame having a disk gang pivotally connected to it at each end, and a pole pivotally connected to said main frame at a point between its ends and in advance of a line passing through the pivots of the disk gangs, substantially as described.

9. In a disk harrow, a main frame having a disk gang pivotally connected to it at each end, and a pole pivotally connected to said main frame at a point between its ends and in advance of a line passing through the pivots of the disk gangs, and a seat pivoted centrally to said main frame, substantially as described.

10. In a disk harrow, a main frame comprising the bowed bars A, A, pivot-blocks at the ends thereof, and a supporting-plate at the middle, pivoted disk gangs, the pivots of which turn in said pivot-blocks, and a pole attached to said central supporting-plate, substantially as described.

11. In a disk harrow, a main frame comprising the bowed bars A, A, pivot-blocks at the ends thereof, and a supporting-plate at the middle, pivoted disk gangs, the pivots of which turn in said pivot-blocks, and a pole pivoted to said supporting-plate at a point in advance of the pivots of the gangs, substantially as described.

589,798. MULTIPLE CUT-OUT FOR TELEPHONE SYSTEMS. ALBON B. STROWGER and ALEXANDER E. KEITH, Chicago, Ill. Filed Feb. 19, 1896. Serial No. 579,846. (No model.)



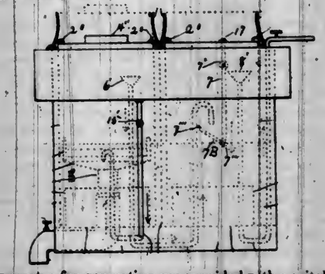
Claim.—1. The combination, with a central station, of a series of substations, an electrical circuit common to all of the stations, a switch, a locking device and two magnets for each substation, one of the magnets being connected with one of the wires and the other magnet being connected with the other wire, and means for moving the switch in one direction by one of the magnets and causing it to automatically engage with the locking device, and means for releasing the switch by the other magnet, and means for completing the circuit through either of the substations, substantially as set forth.

2. The combination, with a central station, of a series of substations, an electrical circuit common to all the stations, a switch, two magnets, a lock, operating mechanism, a shunt around the switch provided with two terminals and a holder for the telephone-receiver in each substation, said holder being adapted to close the terminals when the receiver is in position, one of the magnets being connected with one line of the circuit, and the other magnet being connected with the other line, and means for moving the switch into engagement with the lock by one of the magnets and for releasing it by the other magnet, substantially as set forth.

3. The combination with a telephone or other electric circuit extending between a central station and a series of substations on the same line, each substation normally in electrical connection with the central station, of mechanism at the substations consisting of an automatic cut-out adapted to be actuated by the removal of the telephone and break connection between the central station and all substations preceding the one at which the before-mentioned cut-out is operated, each substation except the last or terminal substation in the circuit having apparatus comprising two electromagnets, one magnet in the circuit of each line, one of such magnets adapted to operate a cut-out and break the circuit of the substation in which it is located, while the other magnet serves to release the cut-out whereby it may return to the normal position, the currents for operating these magnets being controlled by means located at some preceding substation, substantially as hereinbefore described.

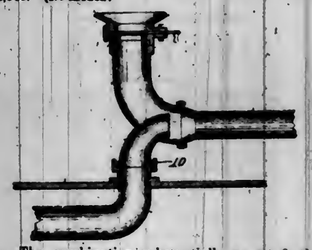
589,799. ACETYLENE-GAS GENERATOR. GEORGE TAYLOR, Dallas, Tex. Filed Apr. 5, 1897. Serial No. 630,671. (No model.)

Claim.—1. In an apparatus for generating gas provided with a suitable cylinder, means mounted in said cylinder for holding material, for generating gas and removing sediment from said material said means consisting of a perforated band provided with an offset for attaching same to said cylinder, a screen mounted in said band below said perforations, a basket attached to said band, a perforated disk mounted above said basket, a suitable pipe connected to the bottom of said basket, and a suitable pipe provided with a valve for the discharge of sediment.



2. In apparatus for generating gas provided with a suitable cylinder the combination of means for holding material for generating gas and means for removing sediment from said material, said means consisting of a perforated band provided with an offset for attaching same to said cylinder, a screen mounted in said band below the perforations, a basket attached to the lower part of said band, a perforated disk mounted on the top part of said basket, suitable pipes for discharging the sediment, and a tank provided with a suitable pipe whereby water is thrown on said disk and basket.

589,800. SWIVEL FOR PNEUMATIC GRAIN-PIPES. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed June 21, 1897. Serial No. 641,585. (No model.)



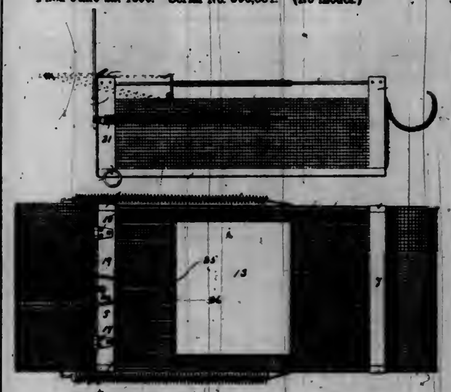
Claim.—The combination, substantially as set forth, of a discharge-pipe, an elbow having one extremity connected with said discharge-pipe, a swivel-joint at the other extremity of said elbow, an elbow-nozzle connected with said elbow and presenting its nozzle portion within said elbow toward said pipe and presenting its opposite extremity in the axial line of but away from said swivel-joint, a swivel-joint at the base of said elbow-nozzle and having its axis in line with that of the first-mentioned swivel, and an air-pipe connected with said elbow-nozzle through the medium of the last-mentioned swivel-joint.

589,801. PROCESS OF MANUFACTURING WHITE LEAD. HERMAN C. WOLTERECK, New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,449. (No specimens.)

Claim.—1. The process of producing white lead which consists in passing an electric current from an anode of metallic lead through an alkaline electrolyte consisting of a solution of a salt of ammonia in combination with any acid, which will produce a soluble lead salt (including sulfuric acid) and of a bicarbonate of an alkali to a cathode of lead, carbon or any other suitable material, thereby causing a decomposition of the salts in the electrolyte, and a formation of a soluble compound of lead, which is transformed into the hydrated carbonate of lead by the simultaneous generation of free carbonic acid at the said anode and by the presence of caustic alkali (ammonia) generated at said cathode, passing a current of carbonic-acid gas through said electrolyte to regenerate the spent alkaline bicarbonate until said anode is completely dissolved.

2. The process of producing white lead which consists in passing an electric current from an anode of metallic lead through an alkaline electrolyte consisting of a solution of a salt of an alkali in combination with any acid which will produce a soluble lead salt, and of a bicarbonate of an alkali, said solution to contain more than five per cent. of said salt or salts to a cathode of lead, carbon or any other suitable material, thereby causing a decomposition of the salts in the electrolyte and formation of a soluble compound of lead, which is transformed into the hydrated carbonate of lead by the simultaneous generation of free carbonic acid at the said anode and by the presence of caustic alkali generated at said cathode, and passing a current of carbonic acid gas through said electrolyte to regenerate the spent alkaline bicarbonate until said anode is completely dissolved, all for the purpose as set forth and described.

589,802. TRAP. BENJAMIN D. B. SHOCK, Wickatunk, N. J. Filed June 22, 1896. Serial No. 596,531. (No model.)

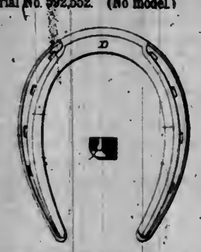


Claim.—1. The combination with an insect-trap having an opening in one of its sides, of an interior partition extending across the trap but of less height than the trap, and an inclined guard-shelf projecting over the upper edge of said partition, substantially as described.

2. A trap of the character set forth, comprising a casing or trap-body of suitable contour, provided at one end with an entrance-way, a spring-actuated door normally closing said entrance, a bait-holder within said trap, a locking device for holding said door in open position, a tripping-trigger for releasing said door when the trigger is agitated, said trap-body having an opening in its end opposite the entrance-way, an interior partition extending across said opening, but of less height than the trap, and an inclined guard-shelf projecting over the upper edge of said partition.

3. A trap of the character set forth, comprising a casing or body, having an entrance-opening at one end thereof, a spring-actuated door normally closing said entrance-opening, means for locking the door in open position, a tripping-trigger for releasing said door to permit the same to be closed by the spring, rods extending across the top of the trap-body and separated therefrom so as to leave a space between them and the body, said body having an opening in its end wall opposite the entrance-opening, an interior partition extending across said opening but of less height than the trap-body, and an inwardly and downwardly projecting guard-shelf extending over the top of said partition in immediate proximity to the top edge of the partition.

589,803. HORSESHOE. IDA M. BULLINGS, Chicago, Ill. Filed May 22, 1896. Serial No. 592,552. (No model.)

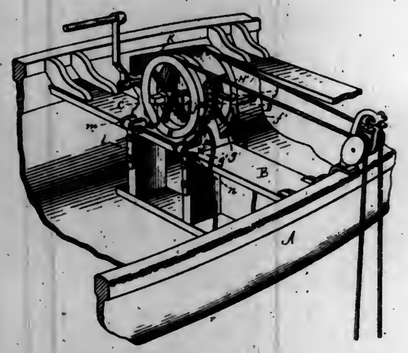


Claim.—1. A horseshoe blank or bar formed with a continuous calk along its inner edge, a bead on the outer edge of less height than the calk, forming between the calk and the bead a groove, the calk being beveled from the bearing-surface toward the groove to a point above the level of the bead, said groove being arranged to receive the nail-heads flush with the bead, and the face of the calk next to the groove to guide the flat face of the nail-head in the operation of driving, as described.

2. A horseshoe formed with a continuous calk along its inner edge, a bead on the outer edge of less height than the calk, forming between the calk and the bead a groove, the calk being beveled from the bearing-surface toward the groove to a point above the level of the bead, said groove being arranged to receive the nail-head flush with the bead, and the face of the calk next the groove to guide the flat face of the nail-head in the operation of driving, as shown.

REISSUES.

11,628. ROPE-HAULING MACHINE. WILLIAM R. LAWTS, Gloucester, Mass. Filed Apr. 6, 1896. Serial No. 586,456. Original No. 531,318, dated Dec. 25, 1894.



Claim.—1. For use on a seine-boat and to be operated in connection with crane-supported tackle-blocks for guiding and controlling the purse-lines of a seine, a power-machine adapted for hauling in the purse-lines of seines, said machine comprising a frame, toothed gear-wheel, grooved frictional biting-wheels on each side of the gear-wheel, and means by which it may be mounted upon a support in the boat and removed from said support as occasion requires, substantially as described.

2. For use on a seine-boat and to be operated in connection with crane-supported tackle-blocks for guiding and controlling purse-lines of seines, a power-machine adapted for hauling in the purse-lines of seines, said machine comprising a frame, toothed gear-wheel and grooved frictional biting hauling-wheels, and means by which the purse-lines are held in position and prevented from dropping off the grooved wheels, and means for removing the purse-lines from the grooved wheels, said machine being adapted to be hinged at its front to one of the seats of the boat, mounted upon such seat, and fastened at the aft edge of the seat, the whole construction being such that the purse-lines can be guided and hauled in, and the seine drawn up to the boat by the power-machine, and the seine thereby pursed; the purse-lines taken out of the hauling-machine, and said machine then unfastened at the aft edge of the seat and turned down at the forward edge of the same, and the pursed seine drawn by hand over the seats of the boat without obstruction from the machine, and the machine again mounted on the seat for a rehauling of the purse-lines of the seine, substantially as described.

3. For use on a seine-boat having seats, a purse-line power hauling-machine, comprising a frame, intermediate toothed gear-wheels, and grooved, frictional biting hauling-wheels, on each side of the gear-wheels; said machine being adapted to be mounted on a seat of the boat, and hinged to the seat at one edge thereof, and suitably fastened to the seat at the other edge, substantially as described.

4. A purse-line-hauling machine comprising, in combination, a framework, a supporting-base in the form of a boat-seat, and provided with strong uprights and supporting-partitions; toothed gearing mounted upon the same, grooved purse-line-hauling wheels mounted on each side of the gearing and operated thereby, purse-line-pressing sheaves, pivoted supporting-bars having bifurcated ends in which the sheaves are journaled, springs connected to said pivoted bars and the frame, whereby the sheaves are pressed against the purse-lines in the grooved drums or wheels, and caused to pass almost completely around the said wheels, and are retained in said grooves; and fingers or claws for freeing the purse-lines from the grooves of the wheels; said bifurcated bars guiding the purse-lines as the pass from the hauling-wheels; and a device for locking the gearing, substantially as described.

5. A purse-line-hauling machine provided with separable hinges removably secured at its opposite edges to a supporting-seat of a boat, said hinges consisting of spaced apertured lugs located on the frame, apertured shanks secured to the supporting-seat, and adapted to engage the apertured lugs, and removable pins passed through the lugs and shanks, so that the machine may be hinged to and removed entirely from the supporting-seat or turned down on an edge of said supporting-seat, substantially as described.

6. A purse-line-hauling machine provided with separable hinges and removably secured to a supporting-seat of a boat by said hinges, consisting of spaced apertured lugs located on the frame, apertured shanks secured to the supporting-seat and adapted to engage the apertured lugs, and removable pins passed through the lugs and shanks, whereby the machine may be mounted upon, hinged to and removed entirely from the supporting-seat or turned down on an edge of the said supporting-seat, substantially as described.

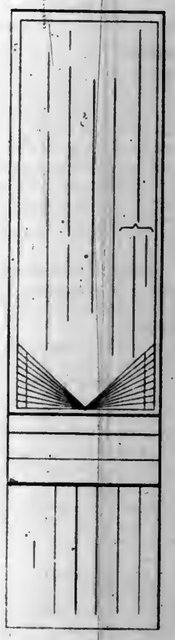
7. A purse-line-hauling machine provided with separable hinges and removably secured to the supporting-seat of a boat, whereby the machine may be mounted upon, hinged to and entirely removed from the supporting-seat, or turned down on an edge of the said supporting-seat, substantially as described.

8. A purse-line-hauling machine provided with separable hinges and a supporting-base in form of and forming a seat of a boat, whereby the machine may be mounted upon, hinged to and entirely removed from the seat of the boat or turned down on an edge of the said seat, substantially as described.

9. In a seine-boat, the combination with a boat proper, of crane-supported tackle-blocks secured to one side of the boat, for guiding and controlling purse-lines of seines to a power-machine, a power-machine adapted for hauling the purse-lines of a seine supported upon a base in the form of and forming a seat of the boat, the machine being hinged at one end to the bow edge of the seat and removably secured at its other end to the aft edge of the seat, the construction being such that the machine can be turned down into the boat toward the bow out of the way of the rowers and the seat be used in rowing, and be turned up again and secured at the aft edge of the seat, and when desired entirely removed from the seat, substantially as described.

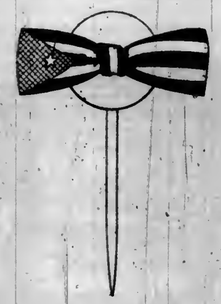
DESIGNS.

27,620. BANK-CHECK, &c. WILLIAM HENRY HOWARD, New York, N. Y. Filed July 13, 1897. Serial No. 644,452. Term of patent 14 years.



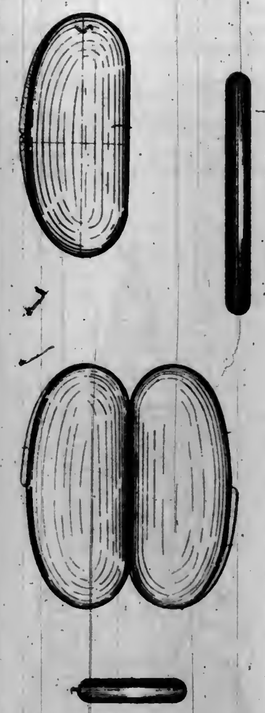
Claim.—The design for a bank-check or similar article, substantially as herein shown and described.

27,621. BADGE. HENRY M. CALDWELL, Hartwell, Ohio. Filed Jan. 30, 1897. Serial No. 621,357. Term of patent 3½ years.



Claim.—The design for a badge substantially as herein shown and described.

27,622. EYEGLASS OR SPECTACLE CASE. WILLIAM ZOERR, Dedham, Mass. Filed Apr. 10, 1897. Serial No. 631,630. Term of patent 14 years.



Claim.—The design for an eyeglass or spectacle case, substantially as described and shown.

27,623. WATER-BOTTLE STOPPER. BERTRAM G. WORK, Akron, Ohio. Filed June 21, 1897. Serial No. 641,715. Term of patent 14 years.



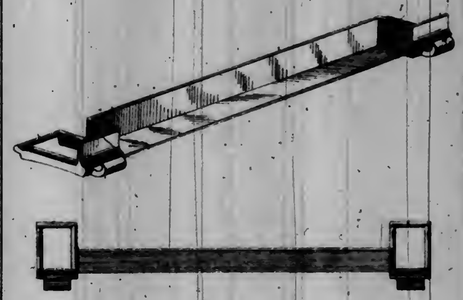
Claim.—The design for a water-bottle stopper, as herein shown and described.

27,624. RAILROAD-SPIKE. HENRY N. RANEY, Kingsland, Tex. Filed June 30, 1897. Serial No. 643,033. Term of patent 14 years.



Claim.—The design for a railroad-spike herein shown and described.

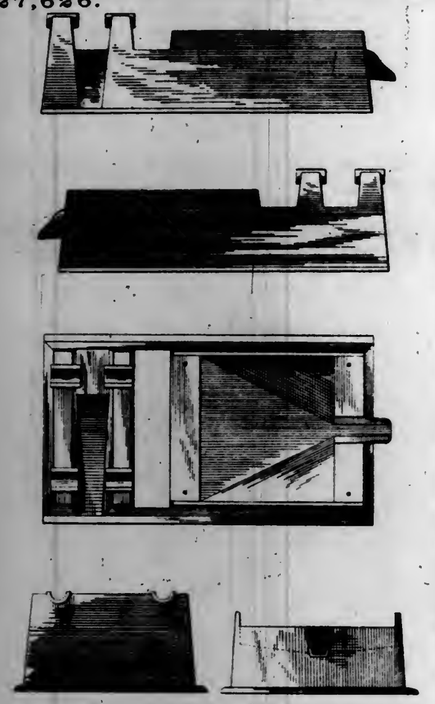
27,625. ELEVATOR CHAIN BUCKET. LEVI L. LAMB, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed July 17, 1897. Serial No. 644,989. Term of patent 14 years.



Claim.—The design for an elevator chain bucket as herein shown and described.

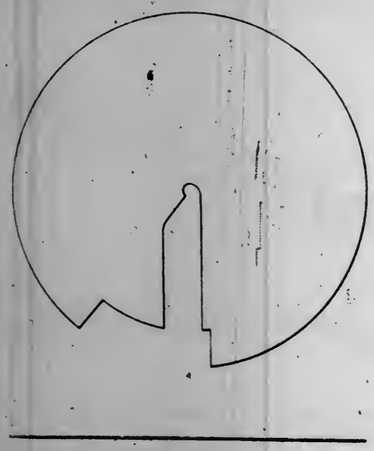
27,626. BASE FOR CANE-MILLS. NEWELL SANDERS, Chattanooga, Tenn. Filed July 27, 1897. Serial No. 646,143. Term of patent 14 years.

27,626.



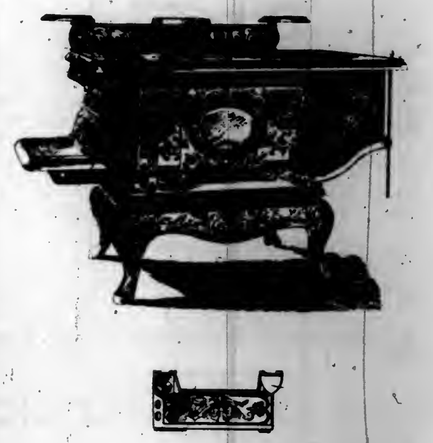
Claim.—The design for the base of a cane-mill as herein shown and described.

27,627. FACE-PLATE FOR SCALES. JOHN HENRY SWIHART, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed June 17, 1897. Serial No. 641,202. Term of patent 14 years.



Claim.—The design for a face-plate for computing-scales, as herein shown and described.

27,628. STOVE OR RANGE. JOHN A. KLINE and CHARLES S. PRIZER, Reading, Pa., assignors to The Reading Stove Works, Orr, Painter & Co., same place. Filed June 11, 1897. Serial No. 640,389. Term of patent 7 years.

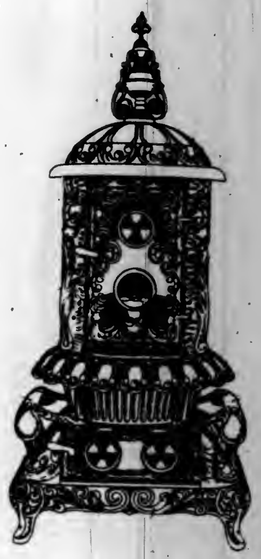


Claim.—1. The design for a stove or range substantially as herein shown and described.

2. In a design for a stove or range the design for a side plate having a forwardly-extended ash-pit panel substantially as shown and described.

3. In a design for a stove or range the design for a front panel-piece substantially as shown and described.

27,629. HEATING-STOVE. STANHOPE BOAL, Piqua, Ohio. Filed July 19, 1897. Serial No. 645,178. Term of patent 7 years.



Claim.—1. The design for a heating-stove, substantially as herein shown and described.

2. The design for the ash-pit door, substantially as herein shown and described.

3. The design for a foot-rest, substantially as herein shown and described.

4. The design for the overhanging flange of the fire-pot, substantially as herein shown and described.

5. The design for the upper front of the stove, substantially as herein shown and described.

6. The design for the feed-door, substantially as herein shown and described.

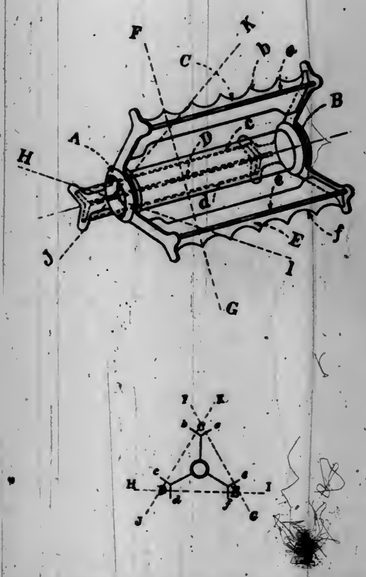
7. The design for the top of the heating-stove, substantially as herein shown and described.

27,680. HEEL-PLATE. WILLIAM RAYMOUR, Boise, Idaho. Filed May 11, 1897. Serial No. 636,567. Term of patent 14 years.



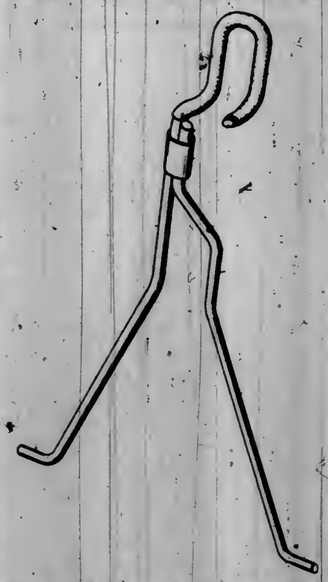
Claim.—The design for a heel-plate for boots and shoes as herein shown and described.

27,681. PEDAL FOR BICYCLES, &c. BENJAMIN HENRY DAVIES, Cincinnati, Ohio. Filed Jan. 30, 1896. Serial No. 577,467. Term of patent 7 years.



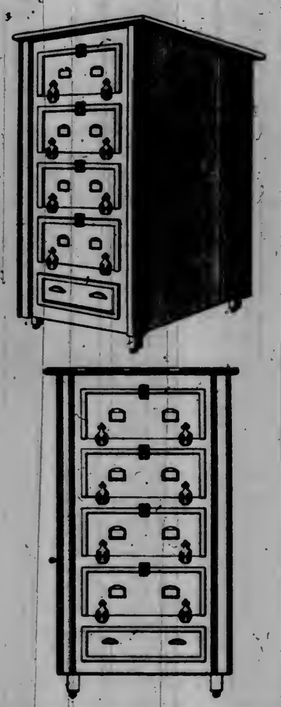
Claim.—The design for a trilateral pedal as herein shown and described, the same having three faces or sides for the foot: F G, H I and J K and having two three-armed end pieces A and B and angular pieces C, D, and E attached to the arm terminals as set forth.

27,682. BICYCLE-SUPPORT. FRANK B. FELTON, Bridgeport, Conn. Filed June 15, 1896. Serial No. 595,602. Term of patent 14 years.



Claim.—The design for a bicycle-support; substantially as herein shown and described.

27,683. CABINET. ALBERT F. WALTER, Chatsworth, Ill. Filed May 14, 1896. Serial No. 636,569. Term of patent 14 years.



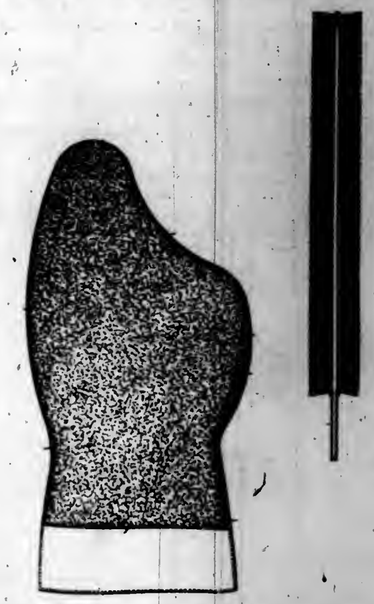
Claim.—The design for a curtain-cabinet, herein shown and described.

27,684. CURTAIN. AMY A. SHERMAN, Ithaca, N. Y. Filed May 20, 1897. Serial No. 637,454. Term of patent 3½ years.



Claim.—The design for curtains and draperies as herein shown and described.

27,685. MITTEN. KATHARINE D. HOEFLER, Philadelphia, Pa. Filed June 14, 1897. Serial No. 640,782. Term of patent 7 years.



Claim.—A design for a mitten, as shown and described.

PHOTO LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

REPORT OF THE COMMISSIONER OF PATENTS

FOR THE FISCAL YEAR 1896-1897.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 30, 1897.

SIR: Complying with your letter of July 1, 1897, I have the honor to submit the following report of the business of the United States Patent Office for the fiscal year ending June 30, 1897:

Applications and Caveats received.

Applications for letters patent	43,524
Applications for design patents	2,088
Applications for reissue patents	80
Applications for registration of trade-marks	1,964
Applications for registration of labels	54
Applications for registration of prints	37
Caveats	2,137
Total	49,884

Patents granted and Trade-Marks, Labels, and Prints registered.

Letters patent granted (including reissues and designs)	23,994
Trade-marks registered	1,790
Labels registered	3
Prints registered	32
Total	25,819

Patents withheld and Patents expired.

Letters patent withheld for non-payment of final fee	5,034
Letters patent expired	12,584

Receipts and Expenditures.

Receipts from all sources	$1,343,779 44
Expenditures (including printing and binding, stationery, and contingent expenses) approximated	1,026,644 39
Surplus	317,135 05

Balance in the Treasury of the United States on account of the Patent fund.

June 30, 1896	$4,776,479 18
June 30, 1897	317,135 05
Total	5,093,614 23

Applications awaiting action.

Number of applications awaiting action on the part of the Office on July 1, 1897	12,241

Comparative statement.

	Receipts.	Expenditures.
June 30, 1890	$1,347,203 21	$1,091,173 56
June 30, 1891	1,302,794 59	1,145,502 90
June 30, 1892	1,208,727 35	1,114,134 23
June 30, 1893	1,298,809 07	1,111,444 22
June 30, 1894	1,183,523 18	1,053,102 38
June 30, 1895	1,195,557 07	1,099,106 08
June 30, 1896	1,307,090 30	1,097,908 85
June 30, 1897	1,343,779 44	1,026,644 39

Applications for Patents, including Reissues, Designs, Trade-Marks, Labels, and Prints.

June 30, 1890	43,810
June 30, 1891	43,616
June 30, 1892	43,544
June 30, 1893	43,599
June 30, 1894	39,206
June 30, 1895	41,014
June 30, 1896	45,645
June 30, 1897	47,747

Applications awaiting action on the part of the Office.

June 30, 1890	6,585
June 30, 1891	8,911
June 30, 1892	9,447
June 30, 1893	8,283
June 30, 1894	7,076
June 30, 1895	4,927
June 30, 1896	8,943
June 30, 1897	12,241

Summarizing these tables, there were received in the fiscal year ending June 30, 1897, 43,524 applications for patents, 2,088 applications for designs, 80 applications for reissues, 2,137 caveats, 1,964 applications for trade-marks, 54 applications for labels, and 37 applications for the registration of prints. There were 23,994 patents granted, including reissues and designs; 1,790 trade-marks and 32 prints registered. The number of patents which expired was 12,584. The number of allowed applications which were by operation of law forfeited for non-payment of the final fees was 5,034. The total receipts were $1,343,779.44. The receipts over expenditures were $317,135.05, and the total receipts over expenditures to the credit of the Patent Office in the Treasury of the United States amount to $5,093,614.23.

CURRENT WORK.

On the 30th of June, 1897, seven of the Examiners had their work within one month of date, sixteen were between one and two months and the other ten were between two and three months from date. At the close of the fiscal year there were 12,241 applications awaiting action on the part of the Office.

I desire to call especial attention to the steady increase in the business of this Office, and to say that if the work is not to fall hopelessly in arrears an increase in the force must be provided during the ensuing fiscal year. Such increase will be included in the estimates which I shall submit in a few days. I also lay particular emphasis upon the imperative necessity that means be provided for the improvement of our facilities for transacting the vast amount of business which is daily expanding in every branch and division of the Office. I shall include in the estimates a recommendation that Congress provide a contingent fund of not less than $40,000, to be disbursed under the direct supervision of the Commissioner of Patents. The Commissioner is, or if at all competent, should be, qualified to pass upon the needs of the Bureau, and yet it is of frequent occurrence that his requisitions are either wholly disapproved or radically trimmed by members of the clerical force through whose hands they pass, and who are presumably less familiar with the needs of this Bureau than its official head. It occurs that the mere custodian of supplies in this Department sometimes constitutes himself a judge as to whether or not this Office needs a new type-writer, or another desk, or case of portfolios, and he takes this action after the Commissioner and his chief clerk, upon actual knowledge, certify to the necessity. It is submitted with all respect that both of these officers in this Bureau are bonded and are in a large degree responsible for the million and more dollars annually received, and are chosen because of their

supposed competency to honestly and prudently disburse the appropriation provided by Congress for the maintenance and conduct of the Patent Office.

A greater number of applications for patents were filed during the year 1896 than in any previous year in the history of the Patent Office, and yet the number filed during the first six months of 1897 has exceeded by more than seven per cent. the number received in the first half of 1896. From January 1, 1897, to June 30, 1897, there were filed 25,559 applications. During the same period the total receipts of the Office were $722,897.47, a gain of $102,015.50 over the six months immediately preceding. A comparison of the same periods shows an increase of about six per cent. in the number of patents granted, and a like increase is shown in the number of assignments recorded and certificates issued. During the same period in 1896 there were sold 334,931 printed copies of patents, while in 1897 there were sold 679,483 copies, or an increase of nearly one hundred and three per cent. during the first six months of the present year. The increase in the number of copies sold has not, however, resulted in the material reduction in the space occupied by these records which was expected when the price of the copies was reduced.

While it was reported that on June 30, 1896, there were 8,943 applications before the office awaiting its action, during some weeks prior thereto, during all of October and November of that year, and at other periods the number exceeded ten thousand; but beginning with February, 1897, and continuing to the close of June, 1897, a steady increase was maintained until the applications pending for action on the part of the office reached the number of 12,241, reported in the above table. By constant and diligent effort by the examining corps the number has since June 30 been brought down to about the number in arrears in the fall of 1896. In crowding the work, however, it occurs that the examinations may not be as thorough as they ought to be, and inasmuch as inventors have provided a fund ample to employ a force sufficient to insure efficiency and promptness in the despatch of business it is submitted that the appropriation of the fund so provided should be adequate to the just requirements of the bureau. It is not probable that the number of applications on hand could be brought or kept below ten thousand with the present force of the office, even under the rushing process, if there were no increase over 1896 in the receipts of applications. The field of search, especially among foreign patents now accessible to this office, has greatly increased during the last few years, and the character of the work is such that it is impossible for the examining corps, in which there has been no increase since 1891, already pressed to its utmost capacity, to reduce the volume of work and do the work properly. With the indicated increase of applications the work must continue to fall further behind unless relief is afforded.

I call your attention to these facts at this time because they present the situation with which I have to deal and make clear the necessity for increased facilities. In the estimates of appropriations to be hereafter submitted I shall include only such increases as are essential to enable the Office to bring the work up and with earnest effort keep it in such state as a proper administration of the Office demands. In the annual report to Congress I shall discuss the subject generally at greater length.

Very respectfully, your obedient servant,

BENJ. BUTTERWORTH,
Commissioner.

The SECRETARY OF THE INTERIOR.

DECISIONS OF THE COMMISSIONER OF PATENTS.

COMMISSIONER'S DECISIONS.

MCCORMICK *v.* CLEAL.

Decided June 28, 1897.

1. INTERFERENCES—BURDEN OF PROOF—TESTIMONY, REJECTING FOR INSUFFICIENCY—TRUTHFUL INTENT OF WITNESSES.

Testimony which should be rejected for insufficiency cannot be used in favor of a party on whom is the burden of proof to defeat another party, although the truthful intent of the witnesses may not be doubted. It is incumbent upon the party on whom is the burden of proof to produce such clear and direct evidence as will satisfactorily prove his case.

2. SAME—PRIORITY OF INVENTION—REDUCTION TO PRACTICE—REASONABLE DILIGENCE—EXCUSES FOR DELAY.

Whether reasonable diligence is exercised in reducing an invention to practice is a question to be determined in view of all the circumstances of the case. While the law is indulgent to the inventor and saves him from the consequences of delays which he could not avoid, it gives him no option as to the diligent pursuit of his reduction according to his actual abilities, but holds him strictly to the rule, as justice and the public interest require. No difficulties in reducing to practice will excuse delay, unless they relate to matters or circumstances beyond the control of the inventor, such as sickness, poverty, or other involuntary disability not having the consent of the claimant.

3. SAME—SAME—SAME—OTHER ENGAGEMENTS OF ATTORNEY.

M.'s application, except the claims, was prepared in February, 1894, but he delayed filing until October, 1894, and in the meantime, in July, 1894, C. filed his application. *Held* that the sole excuse of the delay—that M.'s attorney was too busy with other engagements to take up his case—was insufficient to defeat C.'s right to a patent.

4. PRACTICE OF THE OFFICE SHOULD BE STABLE—RULE *Stare Decisis.*

Where the practice of the Office is settled, it should be followed, unless there are very good reasons for changing it. The rule *stare decisis* must prevail in the Patent Office as in the courts.

APPEAL from the Examiners-in-Chief.

CASH-REGISTER.

Application of John H. McCormick filed October 6, 1894, No. 525,185. Application of Joseph P. Cleal filed July 6, 1894, No. 516,691.

Messrs. Staley & Shepherd for McCormick.
Mr. Edward Rector for Cleal.

BUTTERWORTH, *Commissioner:*

This is an appeal by Cleal from the decision of the Examiners-in-Chief awarding priority of invention to McCormick upon the following issue:

In a cash-register, the combination of a series of numbered keys representing different amounts, a series of special keys and locking means controlled by the special keys to prevent operation of the numbered keys until a special key has been operated.

This issue relates to a small detail of a complicated cash-register machine, and it seems that it may or may not be a part of the machine without affecting the general operation of the machine. In his preliminary statement and at the time of taking testimony it was admitted by McCormick that no machine containing the subject-matter of the issue was ever built by him prior to the filing of the application in this interference. At the hearing, however, he contended that that part of the issue which states that the special keys prevent the operation of the numbered keys until a special key has been operated is a mere functional statement and should be disregarded in considering the mechanism covered by this issue. As thus construed the claim is broad enough to cover the mechanism shown by McCormick's exhibit machine No. 5, which is said to have been completed in June, 1894, prior to the filing date of Cleal's application. It becomes necessary, therefore, to consider the issue and determine whether it covers what is shown by this exhibit machine.

Turning to McCormick's specification, this statement is found on lines 5 to 10, page 5:

To provide, however, for preventing any registration unless the amount so registered be included in one of the departments, means are provided by which the keys are normally locked and can only be unlocked by an operation which will place one of the department devices in condition to be operated.

After this follows a detailed description of the locking means and of a special key and mechanism for controlling this locking means, and in this description are found these words, on lines 25 to 28, page 5:

Inasmuch, however, as the main keyboard is normally locked, means are provided on each of the department-keys by which the keys of the main keyboard are unlocked whenever a department-key is depressed.

McCormick testified, in answer to the question why the locking device between the cash (numbered) keys and special keys was arranged to lock the cash-key *until* a special key was depressed in the No. 3 machine and in the construction shown in this interfering application, while in the No. 4 and No. 5 machines this locking device was arranged to lock the cash-keys *after* a special key was depressed, that—

the locking device for locking cash-keys before the special keys were operated was put on No. 3 machine because in that machine the registrations took place as soon as the cash-key had been operated and it was necessary for the department-wheels to be unlocked and ready for operation when the amount-keys were pushed, consequently the department-key necessarily had to be operated first. In the No. 4 machine this was not necessary, because none of the registrations took place until the department-key which also unlocked the drawer had been operated.

From these statements I am led to believe that the words of the issue referred to instead of being a mere statement of function are a specific limitation of the claim to means to control the numbered keys until the special key is operated. In the exhibit machine No. 5 the numbered keys are normally unlocked, and in the operation of this machine a numbered key is first pressed and then the special key is pressed to put the machine in operation. The mechanism and operation in this machine are specifically different from those covered by the issue, and the issue, being limited to a specific construction, cannot be read on said machine. McCormick therefore cannot derive any benefit from said machine.

Having construed the issue and holding that the issue is not in this exhibit machine, what has McCormick done to defeat Cleal's right to a patent? Cleal has taken no testimony, but relies upon the record date of his application, July 6, 1894. McCormick did not reduce the invention to practice prior to Cleal's record date. He filed his application subsequent to this date, on October 6, 1894. In order to prevail, therefore, he must prove that he conceived the invention prior to Cleal's date and used reasonable diligence in reducing the invention to practice by filing his application. McCormick claims to have conceived the invention in controversy prior to December 1, 1893; that soon thereafter he explained the same to others and began making working drawings, which were completed about January 1, 1894; that Patent Office drawings were completed by February 20, 1894, when they were delivered to his attorney for the purpose of filing with the application for a patent; that the specification of the application was prepared from these drawings by his attorney in February, 1894, and that the claims were drawn and the application completed for filing in September, 1894.

To prove his conception, McCormick has put in evidence as exhibits drawing No. 1 and drawing No. 2 and has taken certain testimony in relation thereto. After a careful comparison of these drawings and consideration of the testimony I am of the opinion that the following language from the decision of the Examiner of Interferences correctly disposes of this question:

The drawings which McCormick claims to have made in the latter part of 1893 are put in evidence as exhibits "Drawing No. 1" and "Drawing No. 2." These drawings illustrate several features of a complicated machine and the only delineation of the detail which forms the subject-matter of the present controversy is found in pencil on the inked drawing No. 2. McCormick testifies that these drawings were "finished" about December 1, 1893, and it may be true that for McCormick's purpose they were finished. The material and pertinent inquiry in connection with these drawings is, when was the pencil addition made to drawing No. 2, and upon this the testimony is wholly insufficient to establish the fact claimed. McCormick attempts to explain the condition of drawing No. 2 being partly in ink and partly in pencil by stating that the portion of the drawing in ink was traced from drawing No. 1, while the portion in pencil was added afterward. A complete refutation of the statement that No. 2 is a tracing of No. 1 is found in a comparison of the two drawings. But even if this were so there is not a word of testimony in the entire record to show when the parts in pencil were added. McCormick states that they were drawn after the tracing was made, but he fails to say how long thereafter it was. The testimony of the witnesses Morrison and Bradshaw is equally as deficient in regard to the particular feature embraced within the present issue.

The history of the Patent Office drawings, according to the testimony on behalf of McCormick, is that two sets of such drawings were made from exhibit drawings Nos. 1 and 2, one set for machine No. 3, the other set for machine No. 4. McCormick made pencil drawings and then called in

Bradshaw, a draftsman, to ink them in, and by February 1, 1894, he had what he considered a full set of Patent Office drawings for both machines. These drawings were turned over to Mr. Staley, McCormick's attorney, from which to prepare the specifications and claims of applications for patents. In February, 1894, Mr. Staley stopped at Columbus, Ohio, for one day and prepared the specification and part of the claims for the application of the No. 4 machine and gave directions to make additional sheets of drawings to more completely show the machine. These drawings were finished on the 18th of February. On the 19th all the drawings were taken to Mr. Staley's office at Springfield, Ohio, where the application for the No. 4 machine was finished and the specification of the second or interfering application was prepared. The drawings said to have been made for the No. 4 machine were filed as part of the application of March 5, 1894, which resulted in Patent No. 570,141 October 27, 1896, and the drawings for the No. 4 machine, which was never built, are the drawings filed with the application in this interference.

McCormick testified at length as to the making of these drawings; but he was not asked nor did he state that the feature of the matter in issue was on the drawings as made and said to have been completed in 1894. Bradshaw, in testifying about these drawings, was shown certain blue-prints and stated that they were copies of the ones he inked in for McCormick. These prints, however, are not offered in evidence. He also stated that the exhibit drawings Nos. 1 and 2 were used by him as references during the inking in of the Patent Office drawings. He gives no testimony, however, as to whether the pencil sketch now showing the feature of this issue was on said exhibit drawings or whether said feature was inked in by him on the Patent Office drawings at the time stated. As these exhibit drawings were used in preparing another application than the one in this interference, Bradshaw's statement does not connect the exhibit drawings with or in any way identify the drawings of the application under consideration.

Mr. Staley also testifies at some length about these application drawings and the preparation of the specifications in February, 1894; but he does not state that the feature in controversy was on these drawings at this time or that the drawings as filed were the same or in the same condition when filed as they were in February, 1894.

The lower tribunals held that the testimony in relation to these drawings was unsatisfactory, and with this holding I fully agree. The decision of the Examiner of Interferences on this point is:

> * * * It may be said of the testimony of these and other witnesses that it deals in general statements and fails to specifically identify the particular feature of McCormick's cash-register here in controversy as being present in the Patent Office drawings and specifications as prepared in January and February, 1894, and should be rejected for insufficiency.

The Examiners-in-Chief, after reviewing the testimony as to the making of these drawings, say:

> This deposition, (Mr. Staley's,) like all the others, does not definitely state that the drawings as filed were the same or in the same condition as they were in February, 1894.

Notwithstanding this finding both tribunals hold that the truthful intent of the witnesses cannot be doubted and that the evidence as a whole is sufficient to prove that these drawings showed in January and February, 1894, the construction of the issue.

Testimony which should be rejected for insufficiency cannot be used in favor of a party on whom is the burden of proof to defeat another party, although the truthful intent of the witnesses may not be doubted. It is incumbent upon the party on whom is the burden of proof to produce such clear and direct evidence as to satisfactorily prove his case. This is what McCormick has failed to do. There is no direct, positive, and specific proof that the Patent Office drawings and specification contained in January and February, 1894, the time they are said to have been prepared, the particular feature in controversy or that the drawings and specification were finally filed in the Patent Office in the condition in which they were said to have been when originally prepared.

Furthermore, I am of the opinion that the testimony as to the dates when these drawings and the specification were prepared is also defective. McCormick testified solely from memory concerning the dates when these drawings were made, which dates, it would seem, were more than two years prior to the time of taking the testimony. Mr. Staley in giving his testimony frequently referred to books, papers, and memoranda for the purpose of refreshing his memory as to the various matters given in his direct deposition, and he admits that he could not testify as to the dates from memory alone. Welch, the stenographer, to whom it is stated Mr. Staley dictated the specification of this application in February, 1894, referred to his shorthand note-book in giving the dates. This note-book is not in evidence, and he also admits that he could not testify from memory alone as to when he took notes relating to any particular specification dictated to him on any particular day in 1893, 1894, or 1895.

It would seem that in order to prove his dates McCormick should have presented in evidence the books, papers, and memoranda used by Messrs. Staley and Welch, so that it could be seen what was contained therein and what bearing they had on the drawings and specification said to have been made in January and February, 1894. At least the other side should have been given an opportunity to inspect the documents, and it should appear that this was done. The testimony was objected to at the time it was taken as being secondary. It is thought, therefore, that McCormick has failed to prove that the drawings were made in January and February, 1894, as well as that they contained the issue in controversy.

Granting, however, that these drawings and the specification were prepared at the time alleged and that the drawings contained the matter in issue, which might be done, yet McCormick would not be entitled to an award of priority unless it has been shown that he was diligent in reducing the invention to practice.

The settled rule of law is that whoever first reduces an invention to practice is the real inventor and is entitled to a patent. To this settled rule a single exception is recognized—to wit, that if the one first to conceive the invention used reasonable diligence in reducing to practice he is the first inventor, although the second to conceive may have been the first to reduce to practice. In applying this rule the filing of an allowable application is considered a reduction to practice. Whether reasonable diligence is exercised in reducing an invention to practice is a question to be determined in view of all the circumstances of the case. While the law is indulgent to the inventor and saves him from the consequences of delays which he could not avoid, it gives him no option as to the diligent pursuit of his reduction according to his actual abilities, but holds him strictly to the rule, as justice and the public interest require. No difficulties in reducing to practice will excuse delay, unless they relate to matters or circumstances beyond the control of the inventor—such as sickness, poverty, or other involuntary disability not having the consent of the claimant.

Considering now the question whether McCormick was using reasonable diligence in reducing the invention to practice when Cleal constructively reduced to practice by filing his application on July 6, 1894, it is to be remembered that McCormick's witnesses testified that the whole specification of McCormick's application was prepared in February, 1894. After this there was nothing to do but to draw the claims. It seems, however, that these claims were not drawn and the application was not filed until more than seven months thereafter. The excuse for not completing and filing the application is that Mr. Staley was engaged in such work as he thought more important, and he delayed further work on this case, and—

> after it once got out from under my (Staley's) immediate thought the time between the dictation of the specification and the claims went rapidly by.

McCormick, when asked how he accounted for the delay in filing his application if the description was prepared on February 20, 1894, said that he knew—

> Mr. Staley claimed to be very busy, and we had just filed what we considered our most important applications, and that it was put off from time to time by some excuse or other.

He also stated that he knew that Mr. Hallwood, his assignee, was very anxious to have the case filed.

The testimony of Welch shows that from March, 1894, to September of that year Mr. Staley dictated to him from fifty to seventy-five specifications. There is no evidence that either McCormick or Hallwood took any steps to have the case promptly completed and filed, but both acquiesced in the delay, which is excused solely on the ground that Mr. Staley was too busy with other engagements, among which was the preparation of from fifty to seventy-five specifications, to take up this case, the greater part of the work on which was completed in February, 1894.

To my mind there is no doubt that the application could have been finished and filed in the Patent Office in much less time than seven months and prior to the time when Cleal filed his application, although the invention may be as complicated as alleged, had Mr. Staley taken it up. Under the circumstances is the excuse of McCormick for the delay in completing the invention by filing his application such a one as should defeat Cleal's right to a patent?

The case at bar is substantially on all fours with that of *Garford* v. *Jeffrey*, (54 MS. Dec., 71,) as will appear by the following quotation therefrom:

> Testimony was taken in Garford's behalf, but he did not show actual reduction to practice. He proves that he conceived the invention and disclosed it to others in October, 1891; that he delivered a sketch to his attorney November 18, 1891, and instructed him to apply for a patent. The application was filed seven months later. The sole issue here is upon the question of diligence on Garford's part in reducing the invention to practice after conception by filing his application. The testimony shows that several times before the filing of the application Garford asked his attorney about the application and urged its early preparation. Each time the attorney stated that he had no time to give to the case, as he was engaged night and day upon more important matters. And there was no especial hurry, but he would prepare the case soon. The repeated excuses seem to have satisfied Garford. Garford alleges that the delay was not his, but was the delay of his attorney. From what is before me, however, I am of the opinion that Garford acquiesced in the delay, took no steps to have his application promptly prepared, and is responsible for any delay. The invention is simple and could have been prepared in a short time. As his attorney did not have time to do so, it appears that he should have seen to it that some one else promptly prepared and filed his application, if he desired to patent his invention, and not have waited, thinking there was no especial hurry, until another came into the Office with an application for the same thing. The practice is well settled that he who is the first to conceive of an invention is entitled to a patent, if he reduces the same to practice with reasonable diligence, but if he does not reduce to practice with reasonable diligence he who is subsequent to conceive but first to reduce to practice will prevail. While Garford was the first to conceive the invention, first to make a drawing, and first to disclose it to others, he was not in my opinion reasonably diligent in constructively reducing to practice by filing his application. As Jeffrey was the first to reduce to practice by filing his application before Garford, priority should be awarded to him.

In the case of *Morse* v. *Clark*, decided in 1872, this very good rule was laid down:

> Now the law admits of showing indulgence to inventors in such cases who are hindered by circumstances over which they have no control, but it is only such as are beyond their control that will excuse them.
>
> If they may plead the pressing nature of their engagements which they deem of more consequence, the rule becomes a nullity.
>
> There is never a man who has not enough to employ him besides his inventions, or who cannot make a plausible showing, at least, to that effect. Once establish such a modification of the rule, and every one will find sufficient reasons for postponing the maturing of his devices as long as he finds convenient.

In the case of *Morgan* v. *Wheeler* (46 MS. Dec., 346) Morgan's delay was from September, 1888, to June, 1889. He explained the delay from September, 1888, to March 1, 1889, on the ground of sickness; but as no excuse for the delay from March 1 to June 10, 1889, a period less than four months, was given it was held that such delay was fatal.

In *Electric Co.* v. *Hall Co.* (6 Fed. Rep., 603, 611) it appeared that Pope, the plaintiff's assignee, conceived the invention about November 6, 1872, and that he made no effort to reduce to practice until he applied for a patent on May 15, 1873, which was granted July 1, 1873. Hall reduced the invention to practice in April, 1873. Pope's lack of diligence for a period less than seven months was held fatal to him. The language of the court is:

> During the period between November 6th and May 15th, Pope was busy, but he was not busy about this invention. He was occupied with other inventions, but he was doing nothing with this one. The just and equitable principle of the law, which gives a patent to the inventor who first conceives of the invention, provided he is diligently engaged in perfecting and adapting it to use, and overcoming the practical difficulties which are always to be surmounted before theory becomes fact, although he was slower in the race than the one who was second to conceive, does not apply to Pope. Who faintly conceived the idea is not known. Pope first attained a mental result. After that, he was actively

occupied in the same branch of study, but he did not develop this system in wood and metal. Hall did develop it, made it useful and practicable, and achieved success. In my opinion it would be a great wrong to decide that the defendant is liable as an infringer.

Let the bill be dismissed.

Numerous other decisions might be cited to show what has been the practice of the courts and of the Office in cases similar to the one under consideration, but these are thought to be sufficient to show that under the circumstances McCormick was unreasonably slow in reducing the invention to practice, even if he had a conception in February, 1894, and no valid excuse has been offered for such delay. To award priority to McCormick on the ground that he has given a sufficient excuse for his delay would be to overturn the decisions of the Office and to ignore the decisions of the courts cited above. This I am not inclined to do. Where the practice of the Office is settled, it should be followed, unless there are very good reasons for changing it. To do otherwise would invite confusion. Stability in practice is as essential as stability in the law.

In deciding that under all the circumstances surrounding McCormick his delay is not excusable I have not overlooked the fact that there are cases in which a much longer period of inactivity than seven months has been held not fatal; but in such cases the disability to proceed was due to sickness, poverty, or some other cause over which the inventor had no control. But in the case of McCormick there was neither sickness, poverty, nor any obstacle beyond his control. It was simply not convenient for his attorney to complete the work, and so it was delayed seven months, and three months after his competitor had reduced the invention to practice.

It is with reluctance that I dissent from the views of the Examiners-in-Chief; but the rule *stare decisis* must prevail here, as in the courts, and an observance of that rule requires that the decision of the Examiners-in-Chief in awarding priority to McCormick be reversed and that priority be awarded to Cleal.

EX PARTE HUTIN AND LEBLANC.

Decided July 8, 1897.

RIGHT TO MAKE A CLAIM—OPPOSITION BY PARTY PRIOR TO DECLARATION OF INTERFERENCE.

Where it appears that after a declaration of an interference, including H. and L.'s application, P. filed certain claims some of which are identical with those of H. and L. and if allowed to P. would make him a party to a branch interference in which H. and L. are involved, and that said branch interference is suspended pending the determination of P.'s right to the claims, a petition by H. and L. that they be heard in opposition to P. in all proceedings relative to said claims denied, as it is contrary to the established practice to allow a party to be heard on this question prior to the declaration of the interference.

ON petition.

ALTERNATING-CURRENT TRANSFORMATION.

Application of Maurice Hutin and Maurice Leblanc filed April 3, 1895, No. 544,224.

Mr. Joseph Lyons for the applicants.

GREELEY, *Acting Commissioner:*

This is a petition asking that the petitioners be allowed to be heard in opposition to Patten in all proceedings relative to certain claims presented by him in his application, Serial No. 525,007.

It appears that after the declaration of interference No. 18,669, including the above-noted application, Patten filed certain claims, some of which are identical with claims of Hutin and Leblanc and which if allowed to Patten would make him a party to a branch interference in which Hutin and Leblanc are now involved. It appears also that the branch interference is now suspended in accordance with the Commissioner's decision of May 20, 1897, pending the determination of Patten's right to the claims referred to.

In view of the above facts it is contended by Hutin and Leblance that the question is one the determination of which affects their interests, and therefore they claim that they have the right to be heard on the question of Patten's right to make the claims.

Hutin and Leblanc certainly have an interest in the matter and therefore at the proper time should have the right to be heard in opposition to Patten's right to make the claims; but it is contrary to the established practice to allow a party to be heard on this question prior to the declaration of the interference.

If it should be decided on the *ex parte* hearing that Patten has no right to make the claims, Hutin and Leblanc have nothing to complain of, whereas if it should be held that he is entitled to the claims he will be made a party to the interference, and Hutin and Leblanc may then be heard on the question under a motion to dissolve.

For the reasons noted I see no reason for departing from the regular practice in such cases.

The petition is denied.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 11. TUESDAY, SEPTEMBER 14, 1897. PRICE—$5 per year.

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Payment of Fees.

(ORDER No. 1,147.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 3, 1897.

On and after September 15, 1897, fees intended for entry on the day of payment must be paid to the Financial Clerk before three o'clock p. m., in order that his accounts for the day may be balanced before the Office is closed.

BENJ. BUTTERWORTH,
Commissioner.

Regulations in Relation to Mail-Matter.

(ORDER No. 1,139.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 18, 1897.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mailing room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked:

BENJ. BUTTERWORTH,
Commissioner.

Order in Relation to Drawings and Blue-Prints.

(ORDER No. 1,135.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 12, 1897.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

BENJ. BUTTERWORTH,
Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of September 14, 1897.

Patents	398	—No. 589,804 to No 590,201, inclusive.
Designs	13	—No. 27,636 to No. 27,648, inclusive.
Trade-Marks	29	—No. 30,532 to No. 30,560, inclusive.
Labels	None.	
Prints	None.	
Reissues	1	—No. 11,620.
Total issue	441	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1	----	New Hampshire	3	----
Arizona Territory	----	----	New Jersey	17	----
Arkansas	4	----	New Mexico Territ'y	1	----
California	10	1	New York	53	10
Colorado	4	----	North Carolina	5	----
Connecticut	15	----	North Dakota	1	----
Delaware	----	----	Ohio	30	2
District of Columbia	3	1	Oklahoma Territory	----	----
Florida	4	----	Oregon	1	1
Georgia	1	1	Pennsylvania	33	2
Idaho	----	----	Rhode Island	1	----
Illinois	28	2	South Carolina	----	----
Indian Territory	1	----	South Dakota	2	----
Indiana	10	----	Tennessee	7	1
Iowa	5	----	Texas	8	----
Kansas	6	----	Utah	1	----
Kentucky	7	1	Vermont	4	----
Louisiana	4	----	Virginia	4	----
Maine	2	----	Washington	2	----
Maryland	2	----	West Virginia	1	----
Massachusetts	24	1	Wisconsin	8	----
Michigan	7	2	Wyoming	1	----
Minnesota	10	----	U. S. Army	1	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	15	1	Total to citizens of the United States	353	26
Montana	----	----			
Nebraska	4	----			
Nevada	----	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Mexico	----	----
Australia	----	----	Netherlands	----	----
Austria-Hungary	1	----	Newfoundland	----	----
Barbadoes	----	----	New South Wales	----	----
Belgium	1	----	New Zealand	1	----
Bermuda	----	----	Norway	----	----
Brazil	----	----	Portugal	----	----
Canada	6	----	Queensland	----	----
Cape Colony	1	----	Roumania	----	----
Chile, Republic of	----	----	Russia	----	----
China	----	----	Scotland	1	----
Colombia	----	----	South African Republic	1	----
Cuba	----	----	South Australia	----	----
Denmark	----	----	Straits Settlements	----	----
Egypt	----	----	Sweden	----	----
England	23	2	Switzerland	1	----
Finland	----	----	Victoria	----	----
France	9	----	West Australia	----	----
Germany	13	1	Total to citizens of foreign countries	58	3
Hawaii	----	----			
Ireland	----	----			
Japan	----	----			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business September 7, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 9	Aug. 16	113
106	II. Farm Stock, Products, etc.	Aug. 7	Aug. 9	321
	Between one and two months.			
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	July 8	Aug. 18	243
96	XXI. Textiles, etc	July 28	Aug. 11	309
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	July 7	Aug. 11	178
96	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 17	Aug. 10	248
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	July 10	Aug. 10	200
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Aug. 3	Aug. 7	133
215	XVII. Paper Manufactures and Printing.	July 12	Aug 6	206
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	July 23	July 31	277
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 8	July 30	184
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 23	July 27	210
250	VIII. Furniture, Beds, Store Furniture, etc.	July 8	July 26	481
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 19	July 3	439
	Between two and three months.			
248	XVIII. Steam-Engineering, etc.	June 7	Aug. 28	348
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc	June 25	Aug. 20	241
255	XII. Mechanical Engineering, Store-Service, etc.	June 29	Aug. 16	224
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 29	Aug. 12	187
109	XIX. Stoves and Furnaces	June 17	Aug. 11	348
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 24	Aug. 7	305
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 1	Aug. 3	302
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 9	July 29	244
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 18	July 16	253
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 9	321
240	VII. Velocipedes	June 10	July 1	1255
246	I. Tillage and Fences	June 23	June 28	369
221	XXIII. Instruments of Precision, Acoustics, etc.	June 10	June 28	363
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	May 10	Aug. 9	800
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 24	Aug. 2	176
253	X. Carriages and Wagons	May 21	July 28	380
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 1	July 8	219
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	601
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	May 1	Aug. 10	441
	Total number of applications awaiting action			11,034
	Under one month in arrears.			
	Designs	Aug. 9	Aug. 18	167
	Between one and two months.			
	Trade-Marks	July 17	Aug. 10	261

PATENTS

GRANTED SEPTEMBER 14, 1897.

589,804. HORSESHOE. HORACE ATWELL, West Bridgewater, Mass. Filed Jan. 15, 1897. Serial No. 619,317. (No model.)



Claim.—1. The combination with a horseshoe having a depending ledge upon the under side thereof provided with dovetailed recesses, of a plate located within the inner edges of said shoe having pockets formed therein opposite the said recesses, detachable calks having laterally-extending tongues thereon adapted to fit within said recesses and pockets, and means for securing said tongues to said plate, substantially as and for the purpose described.

2. The combination with a horseshoe having a depending ledge upon its under side provided with dovetailed recesses, of a plate fitting within said shoe, lugs upon the upper surface of said plate having dovetailed recesses therein registering with the recesses in said ledge, detachable calks having laterally-extending dovetailed tongues thereon adapted to fit within said registering recesses, and screws passing through said tongues and said lugs, substantially as and for the purpose described.

589,805. RAZOR HONE AND STROP. CHARLES H. BALLEW, Higginsville, Mo., assignor to Charles Hosier, same place. Filed Apr. 9, 1897. Serial No. 631,415. (No model.)



Claim.—1. In a razor-hone the combination with a supporting-block, of a retaining and guide member, a strop detachably secured at one end to the block by said retaining member, a movable head to which the opposite end of the strop is attached, said movable head being guided by the guide member and an adjusting-screw engaging the movable head and effecting the movement thereof, substantially as described.

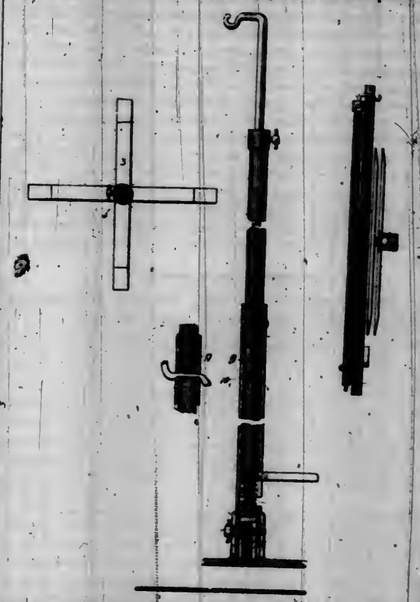
2. In a razor hone and strop, the combination with a supporting-block, of a retaining and guide member, a strop detachably secured to the supporting-block by said member, a movable head, rods carried thereby and passing through the opposite end of the strop, said guide member being formed with depressions to receive said rods, an adjusting-screw engaging the movable head and the supporting-block, said adjusting-screw being guided by the guide member, and a handle for said adjusting-screw, substantially as set forth.

589,806. SYRINGE CUT-OFF. CEPHAS L. BARD, Ventura, Cal. Filed Apr. 8, 1897. Serial No. 631,280. (No model.)

Claim.—1. A stand having a support at or near its upper end for the attachment of a bag-syringe and provided at or near the lower end with a pedal cut-off for the tubing extending from the bag.

2. The combination with a standard, of a spring-acteated slide having a pedal connected therewith for operating it, said slide operating in connection with a fixed part of the standard to compress tubing passing between said parts.

3. An irrigating-stand containing pedal cut-off, composed of detachable parts which can be compactly packed for transportation.



589,807. WINDMILL. CAPTAIN H. BARKER, Wallville, Ind. Ter. Filed Oct. 29, 1896. Serial No. 610,997. (No model.)



Claim.—1. The combination with the column and the wheel and its shaft, of the rudder-arm rigidly secured to the column, the rudder fixed thereon, the larger rudder-arm, the rudder pivoted on the outer end thereof, and the pivotal connection between the same and the other rudder-arm, as set forth.

2. The combination of the two rudder-arms, one rigid and the other pivoted, of the rudder pivotally mounted on the pivoted arm.

the arm pivotally connecting the inner end of the pivoted rudder with the fixed arm, as set forth.

3. The combination of the two rudder-arms one rigid and the other pivoted, of the rudder pivotally mounted on the pivoted arm, the arm pivotally connecting the inner end of the pivoted rudder with the fixed arm, and the cord connected with the pivoted arm and carrying a weight, as and for the purposes specified.
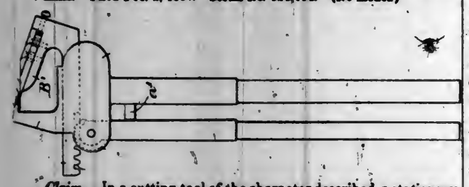
589,808. CORN-ROW MARKER. OREN BILLINGSLEY, East Cape Girardeau, Ill. Filed Jan. 19, 1897. Serial No. 619,740. (No model.)



Claim.—1. In a corn-row marker, the combination with the main frame having a draft-tongue and pendent markers, of auxiliary frames hinged to said main frame and also provided with markers, rods having hook ends and pivotally connected to the under sides of the auxiliary frames, and screw-eyes secured to the sides of the markers of the main frame and adapted to be engaged by the hooks of the rods to hold the auxiliary frames down in their operative position to permit of their being raised at will, substantially as described.

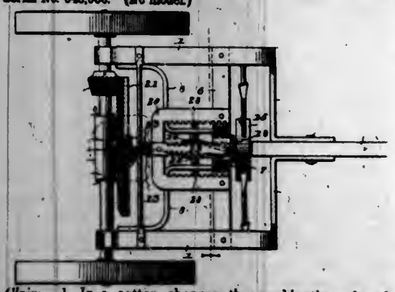
2. In a corn-row marker, the combination with the main frame having a draft-tongue and pendent markers, of rigid inclined braces connecting said main frame and markers, auxiliary frames hinged to said main frame and also provided with markers, a plurality of rods hinged on the main frame and provided with hook ends, and screw-eyes mounted upon the auxiliary frames and adapted to be engaged by the hooked rods to hold said auxiliary frames in their elevated positions to permit of their being lowered at will, substantially as described.

589,809. HOOF-CUTTING TOOL. WILLIAM I. BLISS, Egremont, Mass. Filed Feb. 2, 1897. Serial No. 621,691. (No model.)



Claim.—In a cutting-tool of the character described, a stationary arm having a head formed thereon, a sliding jaw having a rack thereon passing through said head, a swinging lever having a pinion and pivoted on the head for operating the sliding jaw, a vertical jaw extended from the head and having a lateral projection thereon with a plate riveted thereto, an extension on said sliding jaw projected at an angle, a knife mounted thereon having its beveled edge upon a horizontal line parallel with the plate of the projection on the fixed jaw and also parallel with the rack-arm of the sliding jaw, the lower side of said extension inclining downward from the outer end, whereby the hoof may be cut without contact of the frog by the extension carrying the knife, and means for adjusting the knife in the extension, substantially as shown and described.

589,810. COTTON-CHOPPER. JOHN H. BONNER, Lockport, Tenn., assignor of one-half to D. W. King, same place. Filed June 14, 1897. Serial No. 640,686. (No model.)



Claim.—1. In a cotton-chopper, the combination of a sleeve loosely mounted upon the axle, a pole or tongue having pivotal connection with the frame and having a vertical slot in its inner or rear end, a longitudinally-disposed shaft bearing a chopping-wheel having its rear end journaled in the aforesaid sleeve and its front end let into the vertical slot of the pole, means for imparting a rotary movement to the shaft for operating the chopping-wheel, and means for raising and lowering the front end of the said shaft and holding it in an adjusted position, whereby the elevation of the chopping-wheel may be regulated, substantially as set forth.

2. In a cotton-chopper, the combination of a sleeve loosely mounted upon the axle, a pole or tongue having a vertical slot in its rear end, a transverse bar having a pendent loop, a longitudinal shaft having its rear end journaled in the aforesaid sleeve and its front end passing through the pendent loop and entering the slot of the pole, and bearing a chopping-wheel, actuating mechanism for the shaft, and means for raising and lowering the front end of the shaft and holding it in an adjusted position, substantially as set forth.

3. In a cotton-chopper, the combination of an axle provided with a pinion, a sleeve loosely mounted upon the axle, a pole having a vertical slot in its rear end, a longitudinal shaft bearing a chopping-wheel and having its rear end journaled in the said sleeve and its front end entering the slotted end of the pole, a gear-wheel slidably mounted upon the shaft to turn therewith, and independent means for raising and lowering the front end of the shaft and for throwing the gear-wheel into and out of mesh with the pinion, whereby the chopping mechanism may have its elevation regulated and be thrown into and out of gear at will, substantially as specified.

4. In a cotton-chopper, the combination of a longitudinal shaft bearing a chopping-wheel, a transverse bar having a pendent loop in which operates the longitudinal shaft, an approximately U-shaped frame having the inner edges of its side members notched and their front ends secured to the transverse bar upon opposite sides of the pendent loop, scrapers having pivotal connection with the pendent loop, and levers having connection with the scrapers for adjusting them and adapted to cooperate with the notched members of the U-shaped frame for holding the scrapers in an adjusted position, substantially as specified.

5. In a combined cotton scraper and chopper, the combination of a longitudinally-disposed shaft bearing a chopping-wheel, a transverse bar having a pendent loop in which operates the longitudinal shaft, an approximately U-shaped frame connected with the transverse bar upon opposite sides of the pendent loop and having the inner edges of its side members notched, a notched bar secured to the closed end of the U-shaped frame, adjustable scrapers, a series of levers mounted upon a common fulcrum and operatively connected with the working parts for raising and lowering the scrapers, changing the elevation of the chopping-wheel, and throwing the latter into and out of gear, and actuating mechanism for the longitudinal shaft, substantially as set forth.

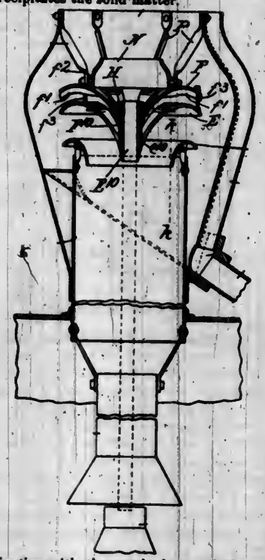
589,811. BLIND-FASTENER. PHILIP BROWN, Jr., Haverstraw, N. Y. Filed Apr. 26, 1897. Serial No. 633,906. (No model.)



Claim.—In a blind-fastener, the combination of a latch-lever designed to be pivotally mounted on a blind at the outer or free edge thereof and extend from opposite sides of the same to engage devices upon the sill and the side of a house to hold the blind in open and closed positions, said lever being provided at one side with spaced projections forming a stop, a spring secured to the lever between the projections and arranged to engage the blind, a pivoted dog arranged to engage the latch-lever at the inner ends of said projections, whereby the latch-lever is positively held against movement, and operating mechanism connected with the latch-lever for enabling the same to be operated at a point adjacent to the hinged edge of the blind, substantially as described.

589,812. LOCOMOTIVE SMOKE-STACK. CHARLES S. BURTON, Oak Park, Ill. Filed Oct. 19, 1896. Serial No. 609,274. (No model.)

Claim.—1. In a locomotive smoke-stack, in combination with an uptake-pipe, a deflector which is situated so as to be encountered by the ascending column from the uptake-pipe before the same has been reflected, and which is radially concave toward such ascending column, whereby it is adapted to deflect the gaseous current sufficiently to precipitate the solid matter therefrom, such precipitating-deflector consisting of bars which are radially continuous and separated by radially continuous apertures, and a second series of radially continuous bars overhanging such apertures, whereby the steam is allowed to escape by expansion laterally between the upper and lower series of radial bars simultaneously with the deflection of the gases which precipitates the solid matter.



2. In combination with the smoke-box and the steam-jet discharging upward at the bottom thereof, the uptake-pipe leading upward from the smoke-box in direct line with the discharge of the steam-jet, whereby the steam-jet entrains the gases of combustion in a column with it in the uptake-pipe; an inverted conical deflector interposed directly in the path of such column, such deflector being coaxial with the uptake-pipe and radially concave toward the upper margin of the latter, whereby it is adapted to deflect the gases of combustion sufficiently to precipitate the solid matter therefrom outside the uptake-pipe, and consisting of radially continuous bars alternating with radially continuous apertures, and a second series of radially continuous bars overhanging such apertures, whereby, simultaneously with the deflection of the gases which precipitates the solid matter outside the uptake-pipe, the steam has opportunity to expand and escape laterally between the two series of radial bars.

3. In a locomotive smoke-stack, in combination with an uptake-pipe, a deflector which is situated so as to be encountered by the ascending column from the uptake-pipe before the same has been reflected, and which is radially concave toward such ascending column, whereby it is adapted to deflect the gaseous current sufficiently to precipitate the solid matter therefrom, such precipitating deflector consisting of bars which are radially continuous and separated by radially continuous apertures, and a second series of radially continuous bars overhanging such apertures, whereby the steam is allowed to escape by expansion laterally between the lower and upper series of radial bars simultaneously with the deflection of the gases which precipitates the solid matter; the upper series of bars having depending flanges from the lateral margins at the outer portion of their radial extent.

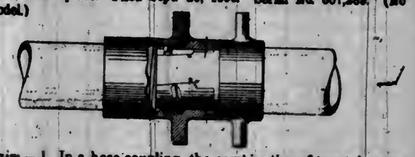
4. In a locomotive smoke-stack, in combination with an uptake-pipe, a deflector which is situated so as to be encountered by the ascending column from the uptake-pipe before the same has been reflected, and which is radially concave toward such ascending column, whereby it is adapted to deflect the gaseous current sufficiently to precipitate the solid matter therefrom, such precipitating-deflector consisting of bars which are radially continuous and separated by radially continuous apertures, and a second series of radially continuous bars overhanging such apertures, whereby the steam is allowed to escape by expansion laterally between the lower and upper series of radial bars simultaneously with the deflection of the gases which precipitates the solid matter, and an expanded head within which such deflector is inclosed and into which the uptake-pipe protrudes, and a duct leading from the pocket thus formed outside the protruding part of the uptake-pipe to conduct away the precipitated matter.

5. In a locomotive smoke-stack, in combination with the uptake pipe or barrel, the principal deflector which overhangs the same radially concave toward the mouth of the uptake-pipe, and a supplemental annular deflector interposed between the upper mouth of the uptake-pipe and the principal deflector, and overhanging the outer annular portion only of the uptake-pipe and extended radially beyond the same.

6. In a locomotive smoke-stack, in combination with the uptake pipe or barrel and an expanded head within which said uptake-pipe discharges; a deflector overhanging the uptake-pipe consisting of two inverted conical crowns having each a plurality of radially-extended apertures alternating with radial bars, the bars of the upper crown overhanging the apertures of the lower, whereby vent for the exhaust-steam is afforded through the deflector; a steam-gathering annulus mounted above the upper crown adapted to gather the exhaust-steam which passes through the apertures of the deflector at the central part, and cause the same to be delivered centrally from the discharge-mouth of the stack.

7. In a locomotive smoke-stack, in combination with the uptake pipe or barrel and an expanded head into which the uptake-pipe discharges; an inverted conical deflector overhanging the uptake-pipe radially concave toward the margin thereof and a supplemental annular deflector interposed between the mouth of the uptake-pipe and the principal deflector and overhanging the margin only of the uptake-pipe, whereby the outer annular portion of the column discharged from said pipe is deflected over the margin of the latter without impact against the principal deflector: substantially as and for the purpose set forth.

589,813. HOSE-COUPLING. HENRY C. CAMPBELL, New York, N. Y., assignor of two-thirds to Matilda C. Campbell and Frederick W. Dyer, same place. Filed Sept. 29, 1896. Serial No. 607,239. (No model.)



Claim.—1. In a hose-coupling, the combination of two telescopical sections, the section of larger diameter having a thread therein which does not extend to the outer end thereof and the section of smaller diameter having a plurality of swinging arms pivotally attached thereto, said arms containing a spiral thread for engagement with the interior thread of the larger sections, substantially as shown and described.

2. In a hose-coupling, the combination of a cylindrical section having a threaded portion therein which does not extend to the outer end thereof, and a cylindrical section having a plurality of pivotally-attached swinging arms connected therewith, said arms having threaded portions thereon which extend beyond the diameter of the said cylindrical section carrying them, substantially as shown and described.

589,814. SAW-STRETCHING MACHINE. ARTHUR CARRIER, Bay City, Mich. Filed Jan. 23, 1897. Serial No. 620,423. (No model.)



Claim.—1. In a saw-stretching machine, the combination of the bed-plate having a shaft journaled thereon and carrying a roll, and provided with a reduced portion extending rearwardly from said bed-plate, a chair provided with supporting portions extending downwardly on each side of and pivotally secured to the said rear reduced portion of the bed-plate, a beam extending over said bed-plate and provided on its rear end with an enlarged bearing-surface resting upon and pivoted to the upper side of said chair, and provided on its under side with a roll for opposing said roll on the bed-plate, and having on its front end a longitudinal slot, a bar having its upper end resting in said slot and with its lower end pivotally secured to the front end of said bed-plate, and provided on its upper end with an adjusting-nut, and a spring secured to the rear portion of the bed-plate and arranged for actuating said chair rearwardly for lifting the beam, substantially as set forth.

2. In a saw-stretching machine, the combination of the bed-plate and the beam carrying the lower and upper rolls for stretching the saw longitudinally, and means for imparting revolution to said rolls, with a guide-bar in front of and parallel with said rolls and pro-

vided with a series of vertical openings for carrying a guide-roller and having hinge portions extending outwardly from the side of said bar, the rigid supports projecting up from said bed-plate, and a rod passed horizontally through said supports and hinge portions, and set-screws passed into said supports and hinge portions for holding the rod adjustably in position, substantially as set forth.

589,815. BLOWPIPE-LAMP. WILLIAM A. CHAPMAN, Yellville, Ark. Filed Mar. 10, 1897. Serial No. 626,705. (No model.)



Claim.—1. In a blowpipe, the combination of a reservoir having a wick-tube and a support attached to said reservoir, a clamp pivoted to the support, and the spring bearing against the lower end of the clamp, substantially as shown and for the purposes set forth.

2. In a blowpipe-lamp, the combination with a reservoir having a wick-tube, of a support carried by said reservoir, a plate in engagement with the support to slide in a direction to and from the wick-tube, and a clamp pivoted to said plate, substantially as shown and for the purposes set forth.

3. In a blowpipe-lamp, the combination with the reservoir, having a wick-tube extending therefrom, a support carried by the reservoir and presenting a horizontal plate having a longitudinal slot, and turned upward at its edges to present guides or channels, a plate in sliding engagement with said guides or channels, a clamp pivoted to the plate, the pivot-pin of the clamp extending through the slot in the support, and a flat spring secured to the end of the pivot and bearing at its ends on the under side of the plate, substantially as shown and for the purposes set forth.

4. In a blowpipe-lamp, the combination with the reservoir, having a wick-tube extending therefrom, of a support carried by the reservoir, a plate in sliding engagement with the support, and a clamp for the blowpipe presenting a bifurcated member 10, between which the nozzle is placed, the member having a threaded aperture receiving a screw with a plate on its inner end, substantially as shown and for the purposes set forth.

5. In a blowpipe, the combination with the circular reservoir having a tube extending at a tangent therefrom, of a band extending nearly around the circumference of the reservoir and a clamp carried by said band, substantially as shown and for the purposes set forth.

6. In a blowpipe-lamp, the combination with the circular reservoir, having a wick-tube extending at a tangent therefrom, of a band nearly encircling the periphery of the reservoir, a sliding plate supported by the band and the clamp for the blowpipe pivoted to the sliding plate, substantially as shown and for the purposes set forth.

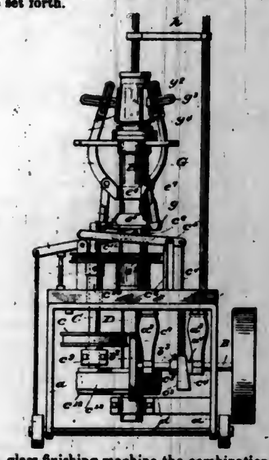
7. In a blowpipe, the combination with the circular reservoir, having a wick-tube extending at an angle therefrom, of a band nearly encircling the wick-tube and held in engagement therewith by strips connecting the ends of said bands extending across the sides of the reservoir, a bracket attached to the band, a plate in sliding engagement with the bracket, a clamp pivoted to the sliding plate and having its pin projecting through the bracket, and the flat spring in engagement with the lower end of the pin and bearing at its ends against the bracket, substantially as shown and for the purposes set forth.

8. In a blowpipe-lamp, the combination with a circular reservoir, having a wick-tube extending therefrom, of a band nearly encircling the wick-tube, a bracket attached to the band, a plate in sliding engagement with the bracket, a clamp for the blowpipe pivoted to said plate, and a projection extending from the band adjoining one end of the bracket, substantially as shown and for the purposes set forth.

589,816. MACHINE FOR FINISHING GLASSWARE. GEORGE E. CLEVELAND, Freedom, Pa., assignor of one-half to Julius P. Miller, Washington Borough, Pa. Filed Feb. 27, 1897. Serial No. 626,310. (No model.)

Claim.—1. In a glass-finishing machine, the combination with a hollow shaft and sleeve therefor, means for rotating the shaft and sleeve in opposite directions, a hollow former carried by the hollow shaft and buffers carried by the sleeve, substantially as shown.

2. In a glass-finishing machine, the combination with a rotatable shaft, a former mounted thereon, a sleeve mounted on the shaft, means for rotating the sleeve and buffers carried by the sleeve, for the purpose set forth.



3. In a glass-finishing machine the combination of a rotatable shaft and former carried thereby, of a sleeve mounted on the shaft, arms pivotally attached to the sleeve, said arms carrying buffers and a slide for engagement with the lower ends of the arms to move the buffers toward the former, substantially as shown.

4. The combination with a hollow shaft, and a hollow former having air-ducts, of buffers movable to and from the former, and mechanism for rotating the former and buffers in opposite directions.

5. The combination with a former-supporting shaft and mechanism for driving the same, of a sleeve inclosing the upper portion of the shaft and movable thereon, a sheave rigid with the sleeve, buffer-carrying arms supported from the sleeve, and means for opening and closing the arms.

6. The combination with a former-supporting shaft and mechanism for driving the same, of a sleeve inclosing the upper portion of the shaft and movable thereon, a sheave rigid with the sleeve, buffer-carrying arms supported from the sleeve and having their lower ends provided with cone-shaped rollers, and a cone-faced collar on the sleeve for closing the arms.

7. The combination of two shafts constituting respectively the former and buffer driving shafts, of a main driven shaft carrying a pulley and a friction-wheel adapted to drive a similar wheel on the buffer-driving shaft, mechanism for shifting these two wheels into and out of engagement with each other, and belts driven by the buffer-driving shaft to drive buffers and the former in opposite directions.

589,817. CORN-POPPER. CHARLES L. COLE, Bushnell, Ill. Filed June 4, 1896. Serial No. 594,267. (No model.)



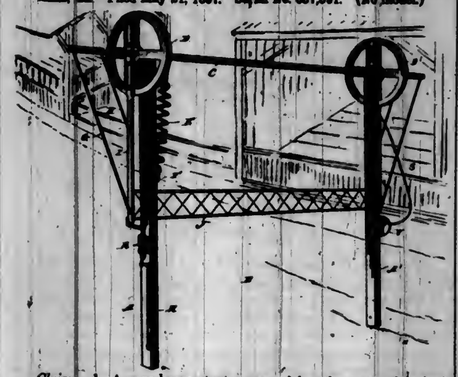
Claim.—1. In a corn-popper, a sifting-cylinder connected with the popping-cylinder and receiving corn delivered therefrom, provided with a series of diagonally-disposed conveyers, and an inclosing cylinder for said sifting-chamber provided with conveyers for returning unpopped corn received from the said sifting-chamber to the popping-cylinder.

2. In a corn-popper, the combination with the case C, formed of the foraminated part C', and the non-perforated wall C^3 provided with interior overlapping conveyers, of the interior cone formed of the foraminated sheet-metal part F, having an opening leading into the cylinder and provided with a lift connecting the cone and the foraminated wall of the cylinder and the foraminated sifting-chamber H, provided with the conveyer *h*, and a suitable shield for bearing within the mouth of the sifting-chamber, all substantially as described and shown.

3. In a corn-popper, an exterior cylinder partially foraminated and partially non-foraminated of an interior cone formed of two parts one of foraminated sheet metal bearing within the foraminated part of the exterior cylinder opening into the same and connected therewith by means of a suitable lift or slanting partition designed to receive deposits of corn therefrom and the other part formed of wire-netting and constituting a sifting-chamber and carried within the non-perforated part of the exterior cylinder and to which it delivers unpopped corn and refuse resulting from popping, the same being provided with a number of conveyers fixed to the inner wall and at the rear end thereof, all substantially as described and shown.

4. A corn-popper consisting of the exterior cylinder C having the foraminated and non-foraminated parts C' and C^3, the part C^3, provided with the overlapping conveyers I, and with the opening E provided with a suitable slide or cover, an interior cone formed of the sheet-metal foraminated part F carried within the foraminated portion of the exterior cylinder opening into the same and connected therewith by means of a suitable lift or slanting partition and with the interior ledge G and the sifting portion of the cone H extending out from the end of the cone F and provided with a series of conveyers diagonally disposed upon the inner surface and at the inner end of the said sifting-chamber and the auxiliary sifting-chamber J, located at the mouth of the sifting-chamber and opening into the same and connected therewith by means of the lift or diagonally-disposed partition J', all substantially as described and shown.

589,818. RACE-HORSE STARTER. JOSEPH E. CURRY, New Orleans, La. Filed May 21, 1897. Serial No. 637,591. (No model.)



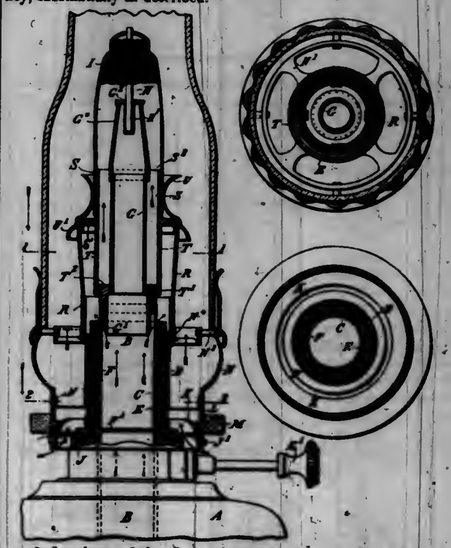
Claim.—1. A race-horse starter comprising the posts, the shaft mounted in the upper portions thereof carrying the wheels D and D', a lever attached to the wheel D and secured to the webbing at its lower end, a spring secured to said wheel and to the side of the post A, the wheel at the opposite end of the shaft carrying a cord or chain to sound a gong or bell, and mechanism substantially as described for simultaneously raising the webbing and sounding the gong as and for the purpose set forth.

2. A race-horse starter comprising the upright posts, the shaft mounted in the upper portions thereof carrying the wheels D and D', the operating-rod attached to the wheel D, and the webbing, a spring connected to said wheel and the side of the post A, the wheel D' on the opposite end of the shaft provided with the cord or chain connection to operate the hammer of a bell on the post A', and the operating mechanism controlled by the spring to raise the webbing and sound the gong or bell in the manner and for the purpose set forth.

589,819. BURNING LIQUID HYDROCARBONS FOR PRODUCING INCANDESCENT OIL-BURNERS. WALTER DARBY, IDA DARBY, and JOHN H. PINCHARD, London, England. Filed Nov. 16, 1896. Serial No. 612,360. (No model.) Patented in England Sept. 6, 1895, No. 16,716.

Claim.—1. In a burner of the character described, the combination with an inner wick-tube, of a wick mounted thereon, and an outer wick-tube adapted to envelop the said wick; a reticulated cylinder inside of said wick and extending above the top thereof; a short cylinder inserted in the upper portion of said reticulated cylinder, made tapering on its outside at its lower end; a reticulated cylinder of diminished diameter fitted in the top of the said short cylinder; a perforated hood surmounting the said smaller reticulated cylinder; a mantle mounted on said hood and enveloping the same; a short cylinder engaging the lower part of said mantle, having a flange around the lower portion thereof and mounted on the aforesaid short cylinder; a reticulated tube carried on top of the said outer wick-tube and engaging at its upper extremity the aforesaid flange, substantially as described.

2. In a burner of the character described, the combination with an inner wick-tube, of a wick mounted thereon and an outer wick-tube adapted to envelop the said wick; a reticulated cylinder inside of said wick and adapted to extend above the top thereof; a short cylinder made tapering at its lower end on the outside and inserted in the upper end of the said reticulated cylinder; a reticulated cylinder of diminished diameter engaging and carried by the upper end of said short cylinder; a perforated hood surmounting the said smaller reticulated cylinder and having a bearing at the upper end thereof; a support mounted in said bearing; a mantle mounted on said support and enveloping said hood; a short cylinder engaging the lower part of the said mantle, having a flange around its lower extremity and supported by the aforesaid short cylinder; a reticulated tube mounted on the top of the said outside wick-tube, increased in diameter at its upper end and engaging thereat the aforesaid flange; an outer casing surrounding the lower portion of the said burner and having air-passages upward therethrough; a chimney and means carried by the said casing for supporting the said chimney, substantially as described.

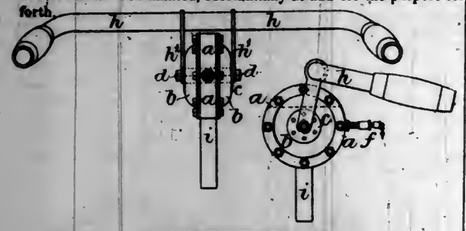


3. In a lamp of the character described, the combination with an oil-reservoir having a vertical air-passage therethrough, of an inner wick-tube and a wick mounted thereon; an outer wick-tube adapted to envelop the said wick; a reticulated cylinder mounted within said wick and adapted to extend above the top thereof; a short cylinder made tapering at its lower end on its outside and inserted in the upper end of the said reticulated cylinder; a reticulated cylinder of diminished diameter engaging and carried by the upper portion of said short cylinder; a perforated hood surmounting the said smaller reticulated cylinder and having a bearing in the upper end thereof; a support mounted in said bearing; a mantle mounted on said support and enveloping said hood; a short cylinder engaging the lower part of said mantle, having a flange around its lower extremity and supported by the aforesaid short cylinder; a reticulated tube mounted on top of the said outside wick-tube, increased in diameter at its upper end and engaging thereat the aforesaid flange, an outer casing surrounding the lower portion of the said burner and having air-passages upward therethrough, a chimney and means carried by said casing for supporting the said chimney and means for simultaneously raising the reticulated tube, the outer casing and the chimney for lighting the said lamp, substantially as described.

589,820. PNEUMATIC SPRING FOR VELOCIPEDES. WILLIAM DOSE and DAVID DOSE, London, England. Filed Nov. 13, 1896. Serial No. 611,953. (No model.) Patented in England July 31, 1895, No. 14,551, and in France June 5, 1896, No. 256,976.

Claim.—1. In a pneumatic spring for velocipedes or other road-vehicles, the combination of a circumferential frame *a* in two or more parts connected together; leather side disks *b*, *b*, having their circumferential edges secured to the said frame; metal washers *c*, *c*, secured to the central portions of the said disks, a stud or studs *d* on which the said washers are mounted; and an inflatable air-tight bag *e*, placed within the said frame and adapted to distend the said leather disks when inflated, substantially as and for the purpose set forth.

2. In a pneumatic spring for velocipedes or other road-vehicles, the combination of a spring-clip circumferential frame *a* semicircular in cross-section and having extensions *i*; leather side disks *b*, *b*, having metal rings *g* at their circumferential edges; metal washers *c*, *c*, secured to the central washers of the said disks, a stud or studs *d* on which the said washers are mounted; and an inflatable air-tight bag *e*, placed within the said frame and adapted to distend the said leather disks when inflated, substantially as and for the purpose set forth.

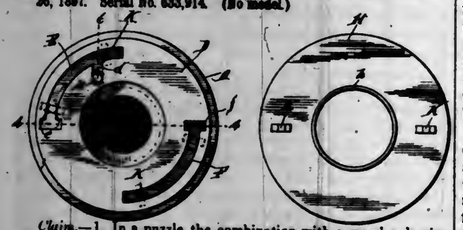


589,821. SWINGING CANDLE-HOLDER. FELIX RIEHLING, Hanover, Germany. Filed Mar 18, 1897. Serial No. 628,091. (No model.)



Claim.—The combination of a candle-holder, a ball attached thereunder, a counterpoise under said ball and attached thereto, an arm having means for supporting said ball free to rotate within certain limits, a downwardly-extending arm at the opposite end of said arm, and means for pivotally attaching the same to a duplicate arm in the manner and for the purpose substantially as described.

589,822. PUZZLE. SAMUEL F. BUTELL, Chicago, Ill. Filed Apr. 26, 1897. Serial No. 633,914. (No model.)



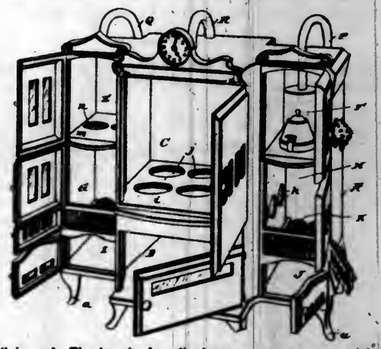
Claim.—1. In a puzzle, the combination with a member having a segmental T-groove with a lateral enlargement at one end, of a member having a T-lug adapted to slide within the groove and to pass through its enlarged portion, a ball adapted to run within the groove and being of greater diameter than any portion of the throat thereof, such groove also having a lateral extension intermediate of its ends adapted to receive the ball but not to admit of the passage therethrough of the head of the lug.

2. In a puzzle, the combination with a member having a disk face and a segmental T-groove in such face, a member adapted to engage the first-mentioned member and having an angular movement over its disk face concentric with the T-groove, a beaded stud projecting from the contacting face of the second member and adapted to slide in the T-groove, said groove being widened at one end to admit the head of the stud, a ball adapted to run within the groove but being of greater diameter than any portion of its throat, and a pocket for the ball opening laterally from the groove intermediate of its ends.

3. In a puzzle, the combination of two members adapted for mutual engagement so as to be capable of relative angular movement upon a common axis, one of such members having a segmental slot radially extended within the body of the member and having a transverse enlargement extending axially through the contacting surface of the member at one end of the slot, a stud projecting from the contacting face of the other member and having a radial projection at its outer end, such stud being adapted to enter the transverse enlargement of the groove and to slide within the groove, a ball adapted to run within the groove and being of greater diameter than the throat thereof.

4. In a puzzle, the combination with an annular plate, A, having two concentric annular flanges one near each of its edges, an annular plate, D, connecting the outer edges of such flanges and having segmental slots radially widened at one end, one of such slots having a lateral extension intermediate of its ends, an annular plate, H, having an axial flange at its inner edge adapted to fit within the inner flange of the plate, A, but being of less axial length than such flange, headed studs projecting from the face of the plate, H, and adapted to enter the widened portions at the ends of the slots and to move in said slots, and a ball of greater diameter than the distance between the plate, A, and the plate, D, and of less diameter than the segmental slots and being placed upon the plate, A, so as to project into one of the slots and run therein, substantially as described and for the purpose set forth.

589,823. STOVE. FRANK FALKOWSKI, Port Richmond, N. Y. Filed May 5, 1897. Serial No. 635,198. (No model.)



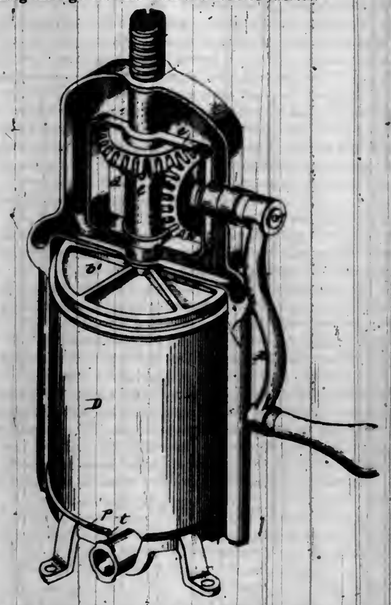
Claim.—1. The herein-described stove or range comprising the middle chamber C, having holes *j*, in its bottom wall, the fire-boxes with ash-boxes below them disposed on opposite sides of the chamber C, the chamber E, arranged above one fire-box, the chamber F, arranged above the other fire-box and provided with a boiler having flues communicating with said fire-box, a flue L, arranged below the middle chamber and communicating at its ends with the fire-boxes and also communicating with the openings *j*, in the lower wall of the middle chamber, the smoke-box arranged at the back of the stove or range and communicating with the flue L, flues Q, R, connecting the chambers E, C, and the smoke-box, and a flue connecting the boiler and the smoke-box, substantially as specified.

2. The herein-described stove or range comprising the middle chamber C, having holes *j*, in its bottom wall, the fire-boxes with ash-boxes below them disposed on opposite sides of the chamber C, the chamber E, arranged above one fire-box, the chamber F, arranged above the other fire-box and provided with a boiler having flues communicating with said fire-box, a flue L, arranged below the middle chamber and communicating at its ends with the fire-boxes and also communicating with the openings *j*, in the lower wall of the middle chamber, the smoke-box arranged at the back of the stove or range, and communicating with the flue L, flues Q, R, connecting the chambers E, C, and the smoke-box, a flue connecting the boiler and the smoke-box, and the chamber D, arranged below the flue L, and interposed between the ash-boxes, substantially as specified.

3. The stove or range described, comprising a chamber C, having holes *j*, in its bottom wall, a fire-box with an ash-box below it disposed at one side of the chamber C, the chamber F, arranged above the fire-box, a boiler in said chamber F, having flues communicating with the fire-box, a flue L, arranged below the middle chamber and communicating with the fire-box and the openings *j*, in the lower wall of the chamber C, the smoke-box arranged at the back of the stove or range and communicating with the flue L, a flue R, connecting the chamber C, and the smoke-box, and a flue P, connecting the boiler and the smoke-box, substantially as specified.

589,824. SAUSAGE-STUFFER PRESS. JOHN FINNEGAN, Philadelphia, Pa., assignor to Thomas Devlin and Louis J. McGrath, same place. Filed May 28, 1896. Serial No. 593,365. (No model.)

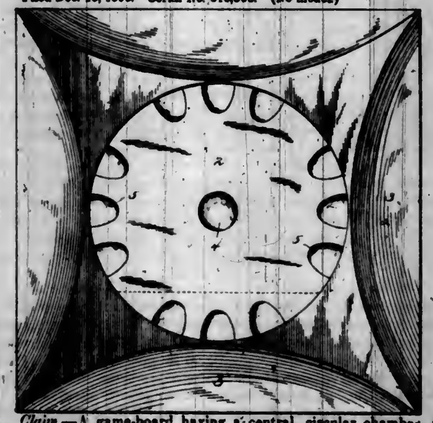
Claim.—1. The combination in a device of the character described, comprising a reciprocating piston and rod, actuating-gearing therefor, and a removable cylinder, of a frame composed of a base-plate having an interior annular flange or rim within which the cylinder is supported, a yoke-like frame-casting comprising a pair of hollow vertical arms united at the top to form the housing or bearing for the piston-rod and actuating-gearing, and a pair of screw-rods passing through the said arms and secured therein.



2. The combination in a device of the character described with a base-plate having an interior annular upright rim or flange, of a yoke comprising a pair of hollow arms and independent screw-rods, whereby the base-plate is secured to the piston-bearing, and a removable cylinder the base of which is adapted to be supported and maintained within the annular flange of the base-plate, substantially as specified.

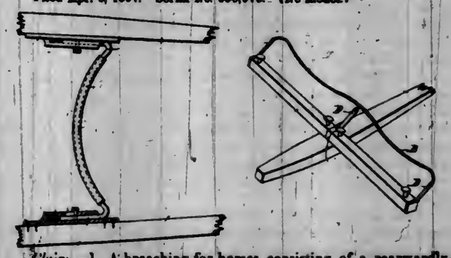
3. The combination in a device of the character described, of a frame composed of a base-plate having an inner annular upright rim or flange, a housing or bearing for the piston-rod and its actuating-gearing, a pair of hollow arms and independent screw-rods binding the parts to each other, and a removable cylinder adapted to rest within the annular flange of the base-plate; said cylinder having a depressed recess at its base terminating in a projecting discharge-pipe, and said base-plate having an opening in its annular flange, whereby when the parts are brought into register they are prevented from movement relatively to each other: substantially as described.

589,825. GAME-BOARD. GEORGE W. GEPHART, Franklin, Ohio. Filed Dec. 19, 1896. Serial No. 616,368. (No model.)



Claim.—A game-board having a central, circular chamber, a pocket in the center of said chamber, an upright wall surrounding said chamber, the bottom of said chamber sloping from the center to the outer edge of the same, and a plurality of inclined faces extending from the outer edge of the board to the outer edge of the chamber, the inner edges of said inclined faces being curved so as to meet the outer edge of the pocket at one point only.

589,826. HOLDBACK. CHARLES M. GOWER, Goring, England. Filed Apr. 6, 1897. Serial No. 630,976. (No model.)

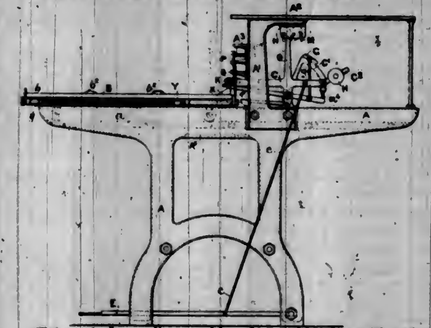


Claim.—1. A breeching for horses consisting of a rearwardly-sliding rod or bar bent at the middle into the form of ordinary leather breeching and slidingly secured to the vehicle and not attached to the horse or horses, and a rearwardly-yielding connection between said breeching and vehicle, substantially as set forth.

2. In combination with a vehicle, a rearwardly-movable rod or bar extending across the front of the vehicle and curved to serve as a breeching, and having turned-back rigid ends tilted at a suitable angle, and sockets on the vehicle receiving, and movably and removably holding, said ends substantially as set forth.

3. In combination with a vehicle, a rod or bar extending across the front of the vehicle and curved to serve as a breeching, and having turned-back ends, sockets on the vehicle to receive said ends, slots in said sockets, retaining-studs screwed into the said turned-back ends and projecting through said slots, and springs in the said sockets to receive the impact of the turned-back ends of the breeching, substantially as set forth.

589,827. RULING-MACHINE. ELLIS GRABER and LEWIS HEPWORTH, Tunbridge Wells, England. Filed Feb. 29, 1896. Serial No. 581,969. (No model.) Patented in England June 19, 1894, No. 11,858, and in France Aug. 17, 1895, Nos. 249,669 and 249,673.



Claim.—1. In a ruling-machine, the combination, with a pivoted pen-beam provided with a lug *c* projecting downward below its pivots, of a hooked catch pivoted to the said lug, and a stationary projection supporting the said catch in a substantially horizontal position, the hooked portion of the said catch operating to engage with the said projection and prevent the descent of the pens when they have been raised above a prearranged height, substantially as set forth.

2. In a ruling-machine, the combination, with a pivoted pen-beam provided with a projecting arm O, and a curved toothed rack carried by the said arm and arranged concentric with the pivots of the beam; of a stationary support; a fly journaled in the said support, and a train of toothed wheels also journaled in the said support and operatively connecting the said rack and fly, substantially as set forth.

3. In a ruling-machine, the combination, with a pivoted pen-beam, of a striker pivoted concentric with the pen beam, and clutch mechanism connecting the rear end portions of the said beam and striker while the said striker is moving in one direction, constraining the beam to rise when the front end of the striker is raised, but otherwise permitting it to oscillate independent of the striker, substantially as set forth.

4. In a ruling-machine, the combination, with a pivoted pen-beam provided with a quadrant at its rear part, of a pivoted striker for raising the pen-beam, a spring-pressed arm pivoted to the rear part of the striker, and a friction-block carried by the said arm and bearing on the said quadrant, substantially as set forth.

5. In a ruling-machine, the combination, with a pivoted pen-beam, of a striker pivoted concentric with the pen-beam, an adjustable screw arranged between the said beam and striker, thereby determining their relative positions when the striker is moving in one direction, and clutch mechanism operatively connecting the said beam and striker when the said striker is moving in the opposite direction, substantially as set forth.

6. In a ruling-machine, the combination, with a tube for supplying ink to the pen, and a stationary bar p; of a spring-guide for the said tube, said guide being formed of a band of metal having its middle portion bent to fit around the tube and having its end portions longitudinally straight and bent transversely so as to be both slidable longitudinally and revoluble axially in a hole in the said bar, and normally retained in position by its own elasticity, substantially as set forth.

7. In a ruling-machine, the combination, with a pivoted pen-beam, and a pen carried thereby; of an arm K' rigidly secured to the said pen-beam over the pen, a downwardly and forwardly inclined arm K pivoted to the said arm K' and provided with a roller at its lower end for bearing on the paper in advance of the pen, and a thumb-screw for clamping the arms together, substantially as set forth.

8. In a ruling-machine, the combination, with a pivoted pen-beam, a pivoted striker for raising the pen-beam, and clutch mechanism connecting the rear end portions of the said beam and striker when the said striker is moving in one direction; of a second pivoted striker for depressing the pen-beam, and clutch mechanism connecting the rear end portions of the said beam and the second pivoted striker in the opposite direction, substantially as set forth.

9. In a ruling-machine, the combination, with a pivoted pen-beam, a hooked catch pivoted to the said beam, and a stationary projection for the said catch to engage with when the pens are raised to a prearranged height; of a movable table, and tappet mechanism carried by the table and operating to raise the said catch and release the pen-beam at the commencement of each line, substantially as set forth.

10. In a ruling-machine, the combination, with an ink-reservoir, and a row of flexible ink-tubes depending vertically therefrom; of a stationary support, a horizontal bar Q carried by the said support and arranged on one side of the said tubes, arms q pivoted to the said support above the bar Q, a horizontal bar Q' carried by the said arms and arranged on the other side of the said tubes from the bar t, and a weighted arm q' operating to press the bar Q' against all the said tubes, substantially as set forth.

11. In a ruling-machine, the combination, with an ink-reservoir, a tube of flexible material depending therefrom, and automatic clamping-bars normally compressing the tube so that no ink flows through it, one of the said bars being provided with a depending arm; of a movable table, and tappet mechanism carried by the said table and operating the said arm so that ink may flow through the said tube at prearranged intervals of time, substantially as set forth.

12. A pen for ruling broad lines, comprising a plate, and a piece of flexible material stretched over the ruling-point of the plate and secured under tension with its fold pressed against the ruling-point of the plate, substantially as set forth.

13. A pen for ruling broad lines, comprising a plate provided with an enlargement at its ruling-point, and a piece of flexible material stretched over the said enlargement and secured under tension with its fold pressed against the said enlargement of the plate, substantially as set forth.

14. A pen for ruling broad lines, comprising a plate provided with an enlargement at its ruling-point and teeth on its upper side above the said enlargement, and a piece of flexible material having one of its end portions engaging with the said teeth, passing around the said enlargement, and secured under tension with its fold pressed against the enlargement of the said plate, substantially as set forth.

15. In a ruling-machine, the combination, with the two plates forming the penholder, and the adjusting-screws provided with heads fitting loosely in countersunk holes and thereby pivotally connecting the middle portions of the said plates; of an eccentric bar journaled between the rear portions of the said plates and operating to rock one of the said plates upon the said screws, substantially as set forth.

16. In a ruling-machine, the combination, with a penholder, of pads of absorbent material of different width placed one above the other on top of the penholder, and masks arranged over each said pad, each mask being narrower than the pad next below it, substantially as set forth.

17. In a ruling-machine, the combination, with a table, of brackets slidable vertically in the table, a stencil-plate pivotally supported in the said brackets, a shaft supported from the table and provided with an arm for rocking it, arms and links connecting the said shaft with the said brackets, and tappet mechanism operating to turn the stencil-plate on its pivots when the said brackets are raised by the said shaft, substantially as set forth.

18. In a ruling-machine, the combination, with a table, of brackets slidable vertically in the table, a stencil-plate pivotally supported in the said brackets, a shaft supported from the table and provided with an arm for rocking it, fingers projecting from the said shaft and normally clamping the paper against the table, arms and links connecting the said shaft with the said brackets, and tappet mechanism operating to turn the stencil-plate on its pivots when the said brackets and fingers are raised by the said shaft, substantially as set forth.

19. In a ruling-machine, the combination, with a revoluble table formed of two parts superposed one above the other, the lower part having radial slots, and the upper part S having pins projecting through the said slots; of a base-plate provided with a pin supporting the lower part of the table, and a slidably-adjustable guide-ring supported by the said base-plate and provided with a groove with which the said pins engage, substantially as set forth.

20. In a ruling-machine, the combination, with a revoluble table formed of two superposed parts, the lower part having radial slots, and the upper part S having pins projecting through the said slots; of a base-plate provided with a pin supporting the lower part of the table, a shaft provided with means for revolving it and journaled in bearings on the said base-plate, beveled toothed wheels connecting the said shaft with the lower part of the table, a slidably-adjustable guide-ring provided with a groove with which the said pins engage and an arm having longitudinal slots in it and resting on the said bearings, and clamping-screws passing through the said slots and securing the said guide-ring to the base-plate, substantially as set forth.

21. In a ruling-machine the combination with a table for carrying the sheets of paper to be ruled, of a rocking beam carrying the penholder, of a striker operated by adjustable cams mounted on the table for lifting the rocking beam, and of a clutch for communicating the lifting motion only of the striker to the rocking beam, as set forth.

22. In a ruling-machine, the combination with a table for carrying the sheets of paper to be ruled and of a rocking beam for carrying the penholder, of a striker operated by adjustable cams mounted on the table for lifting the rocking beam and of a clutch for communicating the lifting motion only of the striker to the rocking beam and of a fly for controlling the downward movement of the said beam, as set forth.

23. The combination in a ruling-machine, of a table having adjustable cams b^3 mounted on it, of a rocking beam C carrying the penholder, of a striker F actuated by the cams b^3 and engaging with the rocking beam C by means of a clutch, and of an arm K mounted on the rocking beam and carrying a small roller k adapted to roll on surface of the sheets of paper on the table to relieve the ruling-pens of the weight of the beam, as set forth.

24. The combination in a ruling-machine, of a table having adjustable cams b^3 mounted on it, of a rocking beam C carrying the penholder, of a striker F actuated by the cams b^3 and engaging with the rocking beam C by means of a clutch, of a fly M for controlling the fall of the beam C, and of an arm K mounted on the rocking beam and carrying a small roller k at its free end, as and for the purpose set forth.

25. The combination in a ruling-machine, of a table, of a rocking beam C adapted to carry the ruling-pens, of a striker F operated by adjustable cams mounted on the table for lifting the rocking beam, of a clutch for communicating the lifting motion only of the striker to the rocking beam and of the device for automatically controlling the flow of the inks to the pens, substantially as hereinbefore described.

26. The combination in a ruling-machine, of a table for carrying the sheets of paper to be ruled of a rocking beam C for carrying the penholder, of a fly M for controlling the fall of the said beam and of the device for automatically controlling the flow of the inks to the pens substantially as hereinbefore described.

27. The combination in a ruling-machine, of a table having adjustable cams b^3 mounted on it, of a rocking beam C carrying the penholder, of a striker F actuated by the cams b^3 and engaging with the rocking beam C by means of a clutch, and of an arm K mounted on the rocking beam and carrying a small roller k, and of the device for automatically controlling the flow of the inks to the pens, as set forth.

28. The combination in a ruling-machine, of a table having adjustable cams b^3 mounted on it, of a rocking beam C carrying the penholder, of a striker F actuated by the cams b^3 and engaging with the rocking beam C by means of a clutch, of a fly M for controlling the fall of the beam C, and of an arm K mounted on the rocking beam and carrying a small roller k and of the device for automatically controlling the flow of the inks to the pens, as set forth.

29. In a ruling-machine, a pen for ruling broad lines tints and the like consisting essentially of a piece of flannel, felt or other absorbent material of a width equal to the width of the line or tint to be ruled and of a plate or frame over which the absorbent material is laid and stretched as set forth.
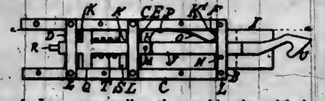
30. In a ruling-machine, a pen for ruling broad lines, tints and the like consisting of a plate R having teeth r' cut or formed on its front upturned edge and a longitudinal bar r^2 in front of the said teeth, and of a piece of flannel felt or like absorbent material R' one edge of which engages with the teeth r' on the plate R and the other edge is passed round the bar r^2 and stretched over the top face of the plate, as set forth.

31. In a ruling-machine the device for grouping the absorbent ink-pads consisting of a series of plates adapted to cover the ink-pads and each having an opening to expose the pad it covers for the purpose of receiving the supply of ink, the sizes of the said openings in the plates being progressive so that all the pads are exposed in close proximity to one another, as set forth.

32. In a ruling-machine, the combination with the table for carrying the sheets of paper, of a device for carrying a stencil for masking the paper where lines are not to be ruled, consisting essentially of a clamp U adapted to hold the stencil and pivoted to brackets V, V, sliding in vertical slots in the table, of lifting mechanism to raise the said brackets consisting of links w' and w^3 of a rocking shaft W of lifting-arm w and of controlling-spring w^3, as set forth.

33. In a ruling-machine the combination with the table for carrying the sheets of paper to be ruled, of a device for carrying the stencil for masking the paper where lines are not to be ruled, consisting essentially of a clamp U adapted to hold the stencil and pivoted to brackets V, V sliding in vertical slots in the table, of lifting mechanism to raise the said brackets consisting of links w' and w^3, of a rocking shaft W, of lifting-arm w, of controlling-spring w^3 and of the holders or fingers w^4 for gripping the sheets of paper on the table and holding them against the stops b, as set forth.

589,828. CAR-COUPLING. AUGUST M. GUSTAFSON, Gile, Wis., assignor of one-half to Andrew Nelson, same place. Filed Feb. 11, 1897. Serial No. 622,963. (No model.)



Claim.—1. In a car-coupling, the combination with the swinging spring-pressed hook U, of the chain Z, spring-lever X, secured thereto and to bracket V, secured upon the end of the car and having a V-shaped notch for receiving said spring-lever, and the rocking rod d, extending to the top of the car and having its lower end provided with a horizontally-swinging arm engaging the chain Z, and its upper end provided with a spring-lever adapted to be sprung into a V-shaped notch in a bracket, and the bracket g, secured upon the top of the car and having a V-shaped notch for holding said lever when the hook U, is to stand disengaged ready for the cars to move apart, substantially as and for the purpose set forth.

2. In a car-coupling the combination with the box or frame B, having the cross-walls D and E, of the draw-bar H, having the head I, adapted to receive the ordinary link and pin and having its rear end formed with a vertical flange or wing and a spring guiding-rod extending rearwardly therefrom, and the hook-shaped, jointed draw-bar J, having the upwardly-projecting wing Q, provided with a hole in which the guiding-rod R, of the upper draw-bar slides, and the spring T, interposed between the wings Q and S, of said draw-bars; said wings being located between and butting against the transverse walls D and E of the frame, substantially as shown and described.

589,829. HAT-CARRIER. EUGENE W. HAWLEY, St. Louis, Mo., assignor to T. B. Peddle & Co., Newark, N. J. Filed July 20, 1896. Serial No. 599,968. (No model.)



Claim.—1. A hat-carrier comprising the flat block 1^b, a covering, a packing, fastenings for securing the covering to the block, and means for securing the carrier to a receptacle; substantially as described.

2. A hat-carrier comprising a block, a covering, a packing, means for securing the covering to the block, the plate secured to the block formed with a pendent screw-thread, and the flat standard formed with a base-plate having a slight circular screw-threaded projection; substantially as described.

589,830. SECONDARY BATTERY. HENRY W. HEADLAND, London, England. Filed Feb. 11, 1896. Serial No. 578,940. (No model.)



Claim.—1. In an electrode for storage batteries, a metallic grid-like support for the active material consisting essentially of a series of superposed open frames of polygonal form interconnected at their exterior and interior angles by connecting bars or posts, for the purpose set forth.

2. In an electrode for storage batteries, a metallic grid-like support for the active material consisting essentially of a series of superposed open polygonal, preferably square frames, interconnected at their exterior and interior angles by flat bars or posts lying in the planes of the diagonals of said frames, for the purpose set forth.

3. In an electrode for storage batteries, a metallic grid-like support for the active material consisting essentially of a series of superposed open frames of different diameters arranged alternately and connected at their exterior and interior angles by bars or posts, for the purpose set forth.

4. In an electrode for storage batteries, a metallic grid-like support consisting essentially of a series of superposed polygonal, preferably square, open frames having their outer edges beveled, said frames interconnected at their exterior and interior angles by flat bars or posts having their outer edges also beveled and lying in the planes of the diagonals of said frames, for the purpose set forth.

5. In an electrode for storage batteries, a metallic grid-like support consisting of a series of superposed polygonal, preferably square, open frames of different diameters arranged alternately and having their outer edges beveled, said frames interconnected at their exterior and interior angles by flat bars having their outer edges likewise beveled, said bars lying in the planes of the diagonals of said frames, for the purpose set forth.

6. In a storage battery, a group of positive and negative electrodes, conductive connections connecting electrodes of like name those connecting unlike electrodes superposed, a single connecting-up bar or tang for each set of electrodes, and insulators interposed between the conductive connections and spacing the electrodes, for the purpose set forth.

7. In a storage battery, a group of alternating positive and negative electrodes substantially square in cross-section, a single conductive connection for each set of electrodes of like name, insulators interposed between said conductive connections and spacing the electrodes, and means for connecting up the electrodes of unlike name, substantially as and for the purpose set forth.

8. In a storage battery, a group of electrodes consisting of a series of positive and a series of negative electrodes, a conductive supporting-frame for both series of electrodes, said frame provided with elastic feet, insulators for insulating the positive electrodes from the frame and from the negative electrodes, two conductive connectors connecting all the electrodes of like name together, and a connecting-up bar or tang for each of said connectors, for the purpose set forth.

9. In a storage battery, a group of electrodes consisting of a series of positive and a series of negative electrodes substantially square in cross-section, a conductive support for all the electrodes, provided with elastic feet, insulators for insulating the positive electrodes from said frame and from the negative electrodes, conductive bar-connectors connecting all the electrodes of like name together, each of said bar-connectors provided with a connecting-up bar or tang, for the purpose set forth.

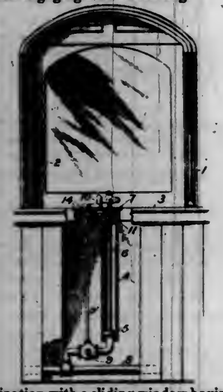
10. The combination with a group of four (two positive and two negative) electrodes substantially square in cross-section, of a cruciform insulator H in which electrodes of like name are set diagonally opposite each other, a conductive connection between two such oppositely-arranged electrodes and a cruciform box-like insulator G interposed between said conductive connections and a connecting-up bar or tang for one of the positive and negative electrodes, respectively, for the purpose set forth.

589,831. PNEUMATIC CAR-WINDOW. WILLIAM H. HEVELY, St. Paul, Kans. Filed Feb. 1, 1897. Serial No. 621,432. (No model.)

Claim.—1. The combination with a sliding window, of a cylinder having a piston connected with said window, passages communicating with the lower end of said cylinder and with a source for supplying the controlling medium and with the atmosphere, a cock for controlling said passages, a rod for controlling said cock, and a clutch for engaging the said piston-rod and situated to be moved by said controlling-rod.

2. The combination with the movable piston-rod and the rotatable rod for controlling the cock as shown, of a pivoted clutch-dog

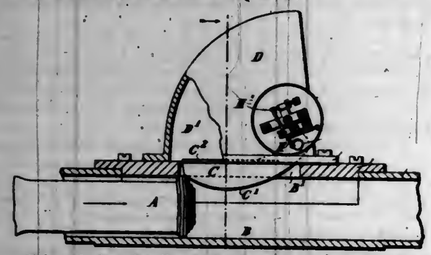
through which said piston-rod passes, and a cam carried by said cock-controlling rod and engaging said clutch-dog.



3. The combination with a sliding window having a downwardly-extending rod, of a clutch engaging said rod and a controlling-rod for moving said clutch.

4. The combination with a sliding window having a downwardly-extending rod, of a pivoted clutch-dog engaging said rod and a cam carried by a controlling-rod and engaging said clutch-dog.

589,832. ELECTRICAL SIGNALING DEVICE FOR USE ON PNEUMATIC CONVEYER-TUBES. GEORGE W. HOOK, London, England. Filed Feb. 1, 1897. Serial No. 621,492. (No model.)

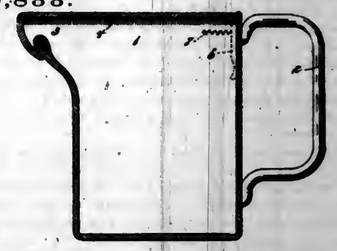


Claim.—1. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube and pivoted within an air-tight chamber outside said conveyer-tube; and a cam on the axis of said trigger-arm; of a contact device adapted to be operated by said cam as said trigger-arm swings on its pivot, substantially as described.

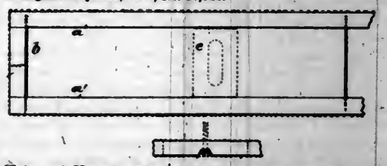
2. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube, and adapted to allow the passage of the conveyer in either direction, said trigger-arm being mounted upon an axis pivoted in an air-tight chamber outside of said conveyer-tube; and a cam on the axis of said trigger; of a contact-arm mounted upon a movable pivot; and means for normally holding one end of said contact-arm in engagement with said cam, and the opposite end of said arm out of contact, substantially as described.

3. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube, and mounted upon an axis pivoted in an air-tight chamber outside of said conveyer-tube; and a cam on the axis of said trigger; of a contact-arm provided with trunnions mounted in a forked frame; and a spring normally holding said contact-arm in engagement with said cam and out of contact, substantially as described.

589,833.



589,834. VENETIAN BLIND. GEORGE W. JOHNS, London, England. Filed Feb. 25, 1896. Serial No. 580,705. (No model.) Patented in England Sept. 18, 1893, No. 17,527.



Claim.—A Venetian blind of the character described comprising frames rectangular in form, pins inserted therein at right angles to the sides thereof, said frames being covered with textile fabric, which is perforated centrally of each frame, said perforations being provided with eyelets; the lower slat of the lowermost frame being perforated and provided with a thin metal plate secured inside the said covering, said blind being provided with a cord which passes through the said eyelets and the said perforation in the lower slat, as set forth.

589,835. MATCH BOX OR SAFE. BERNARD W. KARST, Harlansburg, Ind., assignor of one-half to George R. Miller, same place. Filed Mar. 6, 1897. Serial No. 626,311. (No model.)



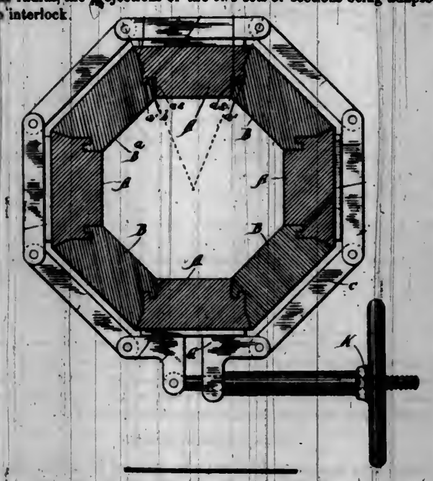
Claim.—1. A match box or safe comprising a casing having a compartment for the articles to be delivered, a gravity-follower vertically movable in said compartment and carrying a picker adapted to engage the articles singly, means for tripping the picker at the limit of its upward movement to project the match from the casing, and means operated by hand for imparting said upward movement, substantially as described.

2. A match box or safe comprising a casing having a compartment for the articles to be delivered, a gravity-follower vertically movable therein, a picker pivoted to said follower, having spring picker-fingers at one end and a cam-shaped opposite end, trips in the paths of said latter end for tilting and restoring the picker, and means for elevating the follower and picker, operated by hand, substantially as described.

3. A match box or safe comprising a casing having a delivery-slot, a compartment for the articles to be delivered having a hopper-bottom provided with the depression and recess described, a gravity-follower within the compartment, a picker pivotally secured to said follower having spring picker-fingers at one end and a cam-shaped opposite end, trips for tilting and restoring the picker, and a hand-operated cord for elevating the follower and picker, substantially as described.

589,836. WOOD COLUMN. ERNST KOLL, Milwaukee, Wis. Filed Apr. 1, 1897. Serial No. 630,271. (No model.)

Claim.—A column composed of a plurality of circumferentially-arranged sections, more than four in number, adjacent sections meeting to form joints, the general direction of which follow radii of the column, the contacting faces of alternate sections having inwardly-directed projections inclined away from the radius, and the remaining sections having outwardly-directed projections inclined away from the radius, the projections of the two sets of sections being adapted to interlock.



589,887. AUTOMATIC GATE. JOHN L. KRENDER, Indian Grove, Mo. Filed June 12, 1896. Serial No. 595,258. (No model.)



Claim.—In an automatic gate, the combination with a swinging gate, of a latch connected to the gate, a gate-post provided with a catch adapted for engagement with the latch when the gate is closed, a second gate-post adapted for engagement with the latch when the gate is open, a pivot-block pivoted to the gate, a link also pivoted to the gate independently of the pivot-block which has a depending portion, wires or equivalent devices connected to the pivot-block on opposite sides of its pivotal point and also connected to the depending portion of the link, a wire connecting the depending portion of the link to the latch, pivoted tripping-levers located on opposite sides of the gate, a wire connecting the tripping-levers to each other and wires also connecting said levers to the pivot-block, said parts being so disposed and related that movement of either lever in one direction will unlatch the gate, swing it open and latch it to the second gate-post and a movement in the opposite direction will unlatch the gate from the second gate-post, close said gate and latch it to the first-named gate-post.

589,888. COIL FOR ELECTRICAL MACHINES AND METHOD OF MAKING SAME. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Apr. 17, 1897. Serial No. 633,607. (No model.)



Claim.—1. The method of manufacturing bar windings for armatures of electrical machines which consists in forming a single flat bar of approximately uniform lateral dimensions into a loop the arms of which are approximately parallel and lie in the same plane, then bending the respective arms in opposite directions about an axis which is parallel to the long portions of said arms and passes through the end of the loop.

2. The method of forming bar windings for armatures of electrical machines which consists in bending a flat bar of approximately uniform lateral dimensions into a loop, each arm of the loop being approximately of an L shape, one arm being within the angle of the other, and then bending the two arms in opposite directions about an axis passing through the end of the loop.

3. An armature-winding comprising a flat bar provided with an edgewise bend to form parallel arms and with a sidewise bend to separate said parallel arms from each other, the free ends of the latter being bent to bring the same into proper position for attachment to the commutator-segments.

4. An armature-winding comprising a flat bar bent into a loop having approximately parallel sides, the opposing faces of which lie in converging planes and the portion uniting these sides having a middle U-shaped section the flat sides of which are in a plane which is approximately parallel to the general direction of the respective sides.

5. An armature-winding comprising a flat bar bent into a loop having approximately parallel sides, the opposing faces of which lie in converging planes and the portion uniting these sides being curved and embodying a middle U-shaped section the flat sides of which are in a plane which is approximately parallel to the general direction of the respective sides.

589,889. ARMATURE FOR ELECTRICAL GENERATORS AND MOTORS. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed July 2, 1897. Serial No. 643,199. (No model.)



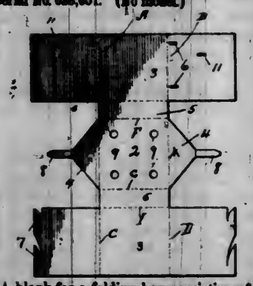
Claim.—1. An armature for electrical machines comprising a core provided with slots and a winding located in said slots, said winding comprising an inner long bar and outer short bar in each slot, and end connectors bolted or riveted to the projecting ends of the bars.

2. An armature for electrical machines comprising a core provided with slots, relatively long bar conductors in the inner portions of said slots, shorter bar conductors in the outer portions of the slots and connecting bars or strips each of which is fastened at one end to the extremity of a short bar and at the other end to the corresponding extremity of a long bar.

3. An armature for electrical machines comprising a core provided with slots and a set of coils composed of inner long bars, outer short bars and curved connecting strips or bars, the respective ends of which are fastened to the projecting ends of a long and a short bar located in different slots.

4. An armature for electrical machines comprising a core provided with slots and a winding consisting of relatively long inner bars and relatively short outer bars located in said slots, and connecting bars or strips the respective ends of each of which are riveted to the projecting end of a long bar and the projecting end of a short bar in different slots.

589,840. FOLDING BERRY-BOX. DAVID W. LEATHERMAN, Milford, Ind., assignor of one-third to E. Hess, Syracuse, Ind. Filed Feb. 16, 1897. Serial No. 623,651. (No model.)

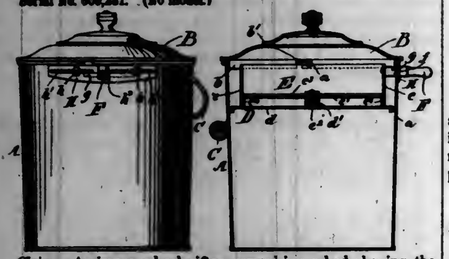


Claim.—1. A blank for a folding box consisting of a central portion 2, having wings 4 with end tongues 8, the side portions 3 with end extensions, and the rectangular pieces 5 joining the parts 2 and

3, the extensions of part 3 on one side having tongues 7 on their outer edges, and the extensions of part 3 on the other side having slots 6 to receive said wings 7 and slots 11 to receive the tongues 8, when the box is folded, all substantially as set forth.

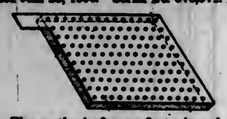
2. A box formed from a single blank composed of the central portions 2 forming the bottom of the box, the end pieces 3 with their extensions forming the sides of the box, the rectangular pieces 5 connecting pieces 2 and 3 and forming supports for the bottom of the box, and the wings, 4 with tongues 8 adapted to engage slots 6 and 11 in side portions 3 all substantially as set forth.

589,841. ASH-SIFTER. RICHARD LEHMANN, Brooklyn, N. Y., assignor of one-half to John A. Quell, same place. Filed Oct. 19, 1896. Serial No. 609,261. (No model.)



Claim.—An improved ash-sifter, comprising a body having the top or cover, said body having near the top of the interior edge projections adapted to engage slots in the flange of the cover, and provided interiorly with the skeleton supporting-frame, and with the right-angular guide-slot in its side wall at the top edge, and the sifting-pan having a central bearing upon said interior skeleton frame and provided with the downwardly-projecting annular bottom flange or edge resting upon said frame, the sifting-pan being provided with a laterally-projecting handle received by said guide-slot and being locked in position by said slot in conjunction with the top or cover, substantially as and for the purpose set forth.

589,842. METHOD OF MANUFACTURING ELECTRODES FOR SECONDARY BATTERIES. HENRY LAUTHER, Niederschlehausen, Germany. Filed Jan. 23, 1896. Serial No. 576,571. (Specimens.)



Claim.—1. The method of manufacturing electrodes for secondary electric batteries, consisting in finely powdering and intimately mixing about ninety-five per cent. oxid of lead with about five per cent. carbon; turning that mixture into a pulp by aid of a suitable medium; forming said pulp into a flat or curved plate by distributing it upon a sheet of pierced lead, or upon a piece of lead network; letting the pulp become hard; reducing it to porous lead by exposing the plate to the action of an electric current, and subjecting said plate to a high pressure, for the purpose as described.

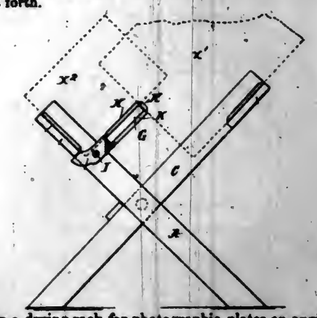
2. The method of manufacturing electrodes for secondary electric batteries, consisting in finely powdering and intimately mixing oxid of lead with retort-carbon; turning that mixture into a pulp by aid of glycerin; forming said pulp into a plate by distributing it upon a sheet of pierced lead or upon a piece of lead network; letting the pulp become hard; reducing the pulp to porous lead by exposing the plate to the action of an electric current; subjecting said plate to a high pressure, and bending it into cylindrical shape, for the purpose as described.

589,843. PHOTOGRAPHER'S DRYING-RACK. WILLIAM H. LEWIS, Huntington, N. Y. Filed Oct. 16, 1896. Serial No. 609,137. (No model.)

Claim.—1. The combination with a drying-rack composed of two frames pivoted together, of an auxiliary frame pivoted to one member of the main frame, and adapted to be swung into two positions, one at right angles to the member to which it is pivoted, and the other in the same plane with it, for the purposes set forth.

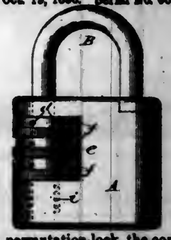
2. The combination in a drying-rack of a main frame, composed of two members which are pivoted together, and an auxiliary frame pivoted to one of said members, and adapted to fold entirely within it, for the purposes set forth.

3. The combination in a drying-rack of a main frame and an auxiliary frame pivoted to it, and adapted to two positions relative thereto, said auxiliary frame having recesses for the reception of the edges of the photographic plates on two or more sides, for the purposes set forth.



4. In a drying-rack for photographic plates an auxiliary frame adapted to be pivoted to a drying-rack embodying a cross-bar having recesses for the reception of the edges of the plates on two or more sides, and arms at its ends whereby it may be pivotally supported on the said rack, for the purposes set forth.

589,844. PERMUTATION-LOCK. PHINEAS W. LOWERY, Huntsville, Ala. Filed Oct. 19, 1896. Serial No. 609,373. (No model.)



Claim.—1. In a permutation-lock, the combination with a series of visible revolving tumblers having a system of holes, or notches arranged at equal distances around the outer edge, and in one hole of each of said tumblers having a plug or screw, to act as a stop or guide, of a series of plungers, arranged to drop into said notches or holes as they pass successively under said plungers, the whole forming a provision whereby the location of the slot in the inside of the tumbler may be arranged by the sense of feeling or hearing; all for the purpose and substantially as set forth.

2. A permutation-lock, consisting of a body with a recess in one side thereof, a shackle fitted with ribs, passing through said recess, of a system of counterbored and slotted tumblers fitted to revolve thereon and to be operated in conjunction with said ribs on said shackle, of a series of holes or notches located circumferentially around said tumblers, and plungers located in the body and arranged to work in said notches or holes; forming thereby a provision for the opening and closing of the lock without the use of dials or figures, but by the sense of feeling, or by hearing the plungers as they engage in the holes or notches, all substantially as set forth.

589,845. COIL FOR ELECTRICAL MACHINES. JOHN P. MALLETT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Feb. 15, 1897. Serial No. 623,352. (No model.)



Claim.—1. A coil for electrical machines comprising straight parallel sides of unequal length the opposing faces of which lie in converging planes, and ends, each of which consists of a portion adjacent to the long side and approximately perpendicular thereto and a longitudinally-inclined portion joining said perpendicular end portion with the short side.

2. A coil for electrical machines having six sides, each of which is oblong in cross-section, two of said sides being parallel, of unequal length and oppositely inclined laterally with reference to the general plane of the coil, two being parallel, of equal length and lying in or parallel to the general plane of the coil and the remaining sides being laterally perpendicular to the general plane of the coil and oppositely inclined longitudinally with reference to the other sides.

3. A coil for electrical machines comprising two parallel sides of unequal length and ends joining the same, said ends being bent both laterally and longitudinally at approximately their middle points, so that the corresponding faces of the adjacent portions lie in planes substantially perpendicular to each other.

4. A coil comprising a straight long side, a straight short side parallel thereto and ends of substantially the same shape and dimensions, each of which embodies two substantially straight portions the corresponding side faces of which lie in planes substantially perpendicular to each other.

5. The combination with a slotted core, of a set of coils each of which comprises a side of substantially the length of the core and located in the inner portion of the slot, a side materially longer than the core and located in the outer portion of another slot and ends projecting from the extremities of the long side at right angles to said side for approximately one-half the distance between the two sides and thence extending directly to the extremities of the short side.

6. The combination with a slotted core, of a set of coils each of which comprises a side of substantially the length of the core and located in the inner portion of a slot, a side materially longer than the core and located in the outer portion of another slot and ends bent both laterally and longitudinally at approximately their middle points, said sides and ends being oblong in cross-section and the broad faces of the adjacent end portions being in planes substantially perpendicular to each other.

589,846. POTATO-DIGGER. WILLIAM F. MAVIS and CHRIST MAVIS, Davenport, Iowa. Filed Aug. 7, 1895. Serial No. 558,513. (No model.)



Claim.—1. In a potato-digger and in combination substantially as described, the beam B having a curved rear part, the scoop A fixedly secured on the end of the beam, the downwardly-inclined runner C located below and secured to the end of the beam its rear end being curved upwardly, the inclined bars D on the beam and the fingers extending from the scoop to the bars D.

2. In a potato-digger, the combination with the curved beam, of the scoop A on its end, a central finger *g* connected to the scoop having a turned rear end, the side fingers connected to the scoop, the downwardly-inclined side bars D, having their inner ends bent at an angle and resting against the beam and the clip E spanning the beam, the inner end of finger *g* and the angular portions of the bars D, whereby the same are held firmly on the beam, substantially as described.

589,847. COMBINATION PENCIL AND TAPE-MEASURE. ADELINE J. MILLER, Brooklyn, N. Y. Filed June 11, 1896. Serial No. 595,119. (No model.)



Claim.—The combination with a pencil, of an anchoring device connected to the pencil, a slotted pencil-tip encircling the pencil and anchoring device, a tape-measure connected to the anchoring device and passing through the slot in the pencil-tip, said tape-measure being adapted to be wrapped around the pencil-tip, and a fastener for holding the tape-measure in wrapped position on the pencil-tip, substantially as described.

589,848. DIFFERENTIAL-SCREW DRILL. PETER MITSCH, Chicago, Ill. Filed Dec. 30, 1896. Serial No. 617,530. (No model.)

Claim.—1. In a drilling-machine, a differential screw, said differential screw consisting of a combination of a thread-bar L, having an auger-holder at each end, with cog-wheels R and K, a shaft H with pinions I and J, and a frame A, said cog-wheel R and said thread-bar L being respectively provided with tongue and groove, while the hub of said cog-wheel K forms or contains a nut for said thread-bar L, said frame A being provided with a disk B, which disk is furnished with a journal U and with a series of holes V, located as described and placed diametrically one opposite the other, all substantially as described, according to the principle set forth and for the purpose specified.

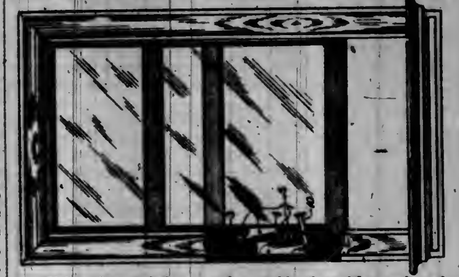


2. In a drilling-machine, the combination with the bar L, the socket M provided at one end with means for securing it to the said bar, and at the other end with an opening N, into which a bolt O is fixed, and which opening is covered by a hinged lid P and a hinged clasp Q, substantially as shown and described according to the principle set forth, and for the purpose specified.

3. In a drilling-machine, a chair, said chair consisting of a disk C, said disk C provided with clamps W, a hole S, and a removable pin Y; said disk C fastened to two rings *k*; said rings provided with a lever-arm D, and said lever-arms coupled together by a tube Z, all substantially as described according to the principle set forth and for the purpose specified.

4. In a drilling-machine, a main supporting apparatus, said main supporting apparatus consisting of a suitable support, which support is furnished with a movable collar *g*, and an apparatus called "prop-carrier," said collar *g* provided with a set-screw *h*, said prop-carrier consisting of two rings *b*, which are coupled together by two lever-arms *n*, said lever-arms run together, say in the shape of an angle having on its summit a hole *f*, through which is linked a prop F, said lever-arms *n* having further two holes *v* centered over one another and giving passage to a removable pin *a*, said rings *b* provided further with two arms *m*, one of which having a hole *d*, through which is linked a prop G, all substantially as described, according to the principle set forth and for the purpose specified.

589,849. SASH-HOLDER. PETER MCBRIDE, Brooklyn, N. Y. Filed Nov. 10, 1896. Serial No. 611,582. (No model.)



Claim.—In a sash-fastener, the combination with a sash, and a window-frame, of a plate having an inclined surface and connected to the sash, a locking-plate adapted to bind on the frame and which is provided with an inclined surface, a roller bearing on the two inclined surfaces, and a lever pivoted to the sash and operatively connected to the locking-plate.

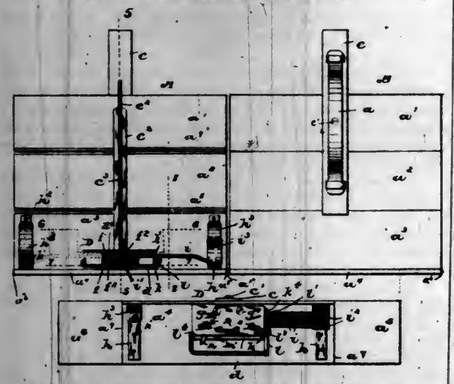
589,850. CASTER. GEORGE E. NEUBERTH, Newark, N. J., assignor to Henry Ill, same place. Original application filed Jan. 15, 1897. Serial No. 619,279. Divided and this application filed Aug. 2, 1897. Serial No. 646,750. (No model.)



Claim.—1. In a caster, the combination, with the caster-frame having a perforated top plate, a cup-shaped plate *d* on said top plate having an opening *d'*, a sleeve or bearing *c* in said openings in said top plate of the caster-frame and said plate *d*, holding-tongues on said bearing or sleeve *c*, and a pintle rotatively arranged in said sleeve, substantially as and for the purposes set forth.

2. In a caster, the combination, with the caster-frame having a perforated top plate, a cup-shaped plate *d* on said top plate having an opening *d'*, a sleeve or bearing *c* in said openings in said top plate of the caster-frame and said plate *d*, holding-tongues on said bearing or sleeve *c*, said sleeve or bearing having annular beads *c'* and *c²* for securing the several parts together, and a pintle rotatively arranged in the sleeve or bearing, substantially as and for the purposes set forth.

589,851. **MUSIC-LEAF TURNER.** CHARLES NICHOLSON, Brooklyn, N. Y., assignor of one-half to Frank H. Douglas, Newark, N. J. Filed Aug. 14, 1896. Serial No. 602,714. (No model.)



Claim.—1. A music-leaf turner, consisting, essentially, of a casing having hinged sides a', a^3, a^2 and a^4, and hinged end pieces, said sides being constructed to form a box when folded and a music-rack when opened, a bar c^3, pivotally secured on the front surface of the side a^3, and a leaf-turning mechanism arranged in said casing, said bar being adapted to be turned against the several sides of the casing to hold them in their open and rigid relation to each other, substantially as and for the purposes set forth.

2. A music-leaf turner, consisting, essentially, of a casing having hinged sides a', a^3, a^2 and a^4, and hinged end pieces, said sides being constructed to form a box when folded and a music-rack when opened, means connected with said sides to hold them in opened and rigid relation to each other, a leaf-turning mechanism in said casing, and a pair of brackets *h*, having portions h^3 and spring-clamps h^3 connected with and secured to said brackets by pins *h'*, substantially as and for the purposes set forth.

3. A music-leaf turner, consisting essentially, of a casing A, having hinged sides a', a^3, a^2 and a^4, and hinged end pieces, said sides being adapted to form a box when folded and a music-rack when opened, a bar c^3 pivotally secured on the front surface of the side a^3, and a bar *c* pivotally secured on the rear of the side a', said bars being adapted to be turned against said several sides to hold them in opened and rigid relation to each other, substantially as and for the purposes set forth.

4. A music-leaf turner, consisting essentially, of a casing A, having hinged sides a', a^3, a^2 and a^4, and hinged end pieces, said sides being adapted to form a box when folded and a music-rack when opened, a bar c^3 pivotally secured on the front surface of the side a^3, and a bar *c* pivotally secured on the rear of the side a', said bars being adapted to be turned against said several sides to hold them in open and rigid relation to each other, and a leaf-turning mechanism arranged in said casing, substantially as and for the purposes set forth.

5. In a music-leaf turner, a leaf-turning mechanism, comprising a base-plate *d* provided with an end piece d' having a slot d^7, a post on said base-plate, and a series of spring-actuated leaf-turning arms on said post, a detent *k* pivoted on one side of said end piece d' having a holding-tooth k^3, adapted to hold said arms in their inoperative positions, and a finger k^4 extending laterally from the end of said detent and projecting through said slot d^7, and a pivoted lever on the other side of said end piece d' having an arm l' adapted to engage with said finger k^4, and a stop or tooth l^3 on said arm l', adapted to be brought between the first two leaf-turning arms, substantially as and for the purposes set forth.

6. In a music-leaf turner, a leaf-turning mechanism, comprising a base-plate *d*, a post thereon, having an end piece d' provided with a slot at or near one end thereof, a series of volute or spiral springs having their inner ends secured to said post, a series of leaf-turning arms *i* having looped ends i' in which said springs are arranged and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, a detent *k* having a holding-tooth k^3 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot in said piece d', and a pivoted lever having an arm l' adapted to engage with said finger k^4, and a stop or tooth l^3 on said arm l', substantially as and for the purposes set forth.

7. In a music-leaf turner, a casing D, comprising a base-plate *d*, a post thereon, plates *f* and f', said plates f' being perforated and arranged over said post, a series of volute or spiral springs arranged in the spaces formed between said plates f', having their inner ends secured to said post, a series of leaf-turning arms *i* having looped ends i' in which said springs are arranged, and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, having a slot d^7, a detent *k* having a holding-tooth k^3 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot d^7, and a pivoted lever having an arm l' adapted to engage with said finger k^4 on the detent, and a stop or tooth l^3 on said arm l', substantially as and for the purposes set forth.

8. In a music-leaf turner, a casing D, comprising a base-plate *d*, a hollow post thereon, a vertical rod or stem removably arranged in said post, plates *f* and f', said plates f' being perforated and arranged over said post, a series of volute or spiral springs arranged in the spaces formed between said plates f', having their inner ends secured to said post, a series of leaf-turning arms *i* having looped ends i' in which said springs are arranged, and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, having a slot d^7, a detent *k* having a holding-tooth k^3 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot d^7, and a pivoted lever having an arm l' adapted to engage with said finger k^4 on the detent, and a stop or tooth l^3 on said arm l', substantially as and for the purposes set forth.

589,852. **REAR-DRIVING SAFETY-BICYCLE.** FREDERICK D. OWEN, Washington, D. C. Filed July 3, 1895. Serial No. 554,911. (No model.)



Claim.—1. In a rear-driving safety-bicycle having a fixed crank-shaft, adjustable rear axle, and operative connecting devices, the combination of the rear forks, brace-rods provided at their lower ends with open-ended slots to receive the axle and with projections constituting a permanent but normally free-sliding connection with the rear forks, and a single nut to clamp the rear forks and brace-rod rigidly to each other and to the rear axle, substantially as described.

2. In a rear-driving safety-bicycle, the combination of the rear forks having longitudinal slots open at their forward ends, brace-rods provided at their lower ends with open-ended slots arranged to intersect the slots of the forks and receive the rear axle, nuts to clamp the rear forks, brace-rod and rear axle together, and means connected to the brace-rods to engage the rear forks and constitute a sliding connection between them, substantially as described.

3. In a rear-driving safety-bicycle, the combination of the rear forks, and the brace-rods pivoted at their upper ends and provided at their lower ends with projections constituting normally free-sliding connections with the rear forks, and with open-ended slots so proportioned as to receive the rear axle and permit of the rigid clamping of said brace-rods and rear forks between the cone and axle-nut of said axle, substantially as described.

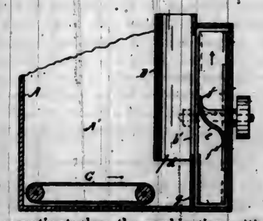
589,853. **PNEUMATIC STRAW-STACKER.** LEMUEL D. PARMLEY, Waynesborough, Pa., assignor of two-thirds to Charles J. Danielson and Minnie D. Ellingson, Hamlet, Ind. Filed Feb. 26, 1897. Serial No. 625,212. (No model.)

Claim.—1. In a pneumatic stacker, the combination, with a discharge-pipe, of a frame carried by the said pipe, and a revoluble cylinder journaled in the said frame and operating to deflect the straw, substantially as set forth.

2. In a pneumatic stacker, the combination, with a discharge-pipe, of a frame carried by the said pipe, and a barrel-shaped cylinder journaled in the said frame, said cylinder being larger at its middle portion than at its ends and operating to deflect and spread the straw, substantially as set forth.

3. In a pneumatic stacker, the combination, with a discharge-pipe, of a frame hinged to the said pipe and provided with means for raising and lowering it, and a revoluble cylinder journaled in the said frame and operating to deflect the straw, substantially as set forth.

4. In a pneumatic stacker, the combination, with a discharger-casing provided with an opening on one side, of a hood covering the said opening and provided with an inlet at its lower part and an outlet above the said inlet, and a discharger journaled in the said casing, substantially as set forth.



5. In a pneumatic stacker, the combination, with a discharger-casing provided with an opening on one side and a lip at the bottom of the said opening, of a hood covering the said opening and provided with an inlet below the said lip and an outlet above the said inlet, and a discharger journaled in the said casing, substantially as set forth.

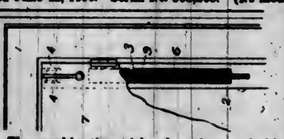
6. In a pneumatic stacker, the combination, with a discharger-casing provided with an outlet arranged to one side of the casing, of a discharger journaled in the said casing and provided with blades having forwardly-projecting lips on their front edges and rearwardly-projecting lips on their rear edges, whereby the air is forced spirally through the said outlet, substantially as set forth.

7. In a pneumatic stacker, the combination, with a straw chamber, of a discharger-casing having its inlet and outlet arranged upon the same side of it and within the said chamber, and a discharger journaled inside the said casing, substantially as set forth.

8. In a pneumatic stacker, a discharger or fan provided with blades having forwardly-projecting curved lips on their front edges and rearwardly-projecting curved lips on their rear edges, and a disk arranged on the same side as the rear edges of the blades, substantially as set forth.

9. In a pneumatic stacker, the combination, with a discharger-casing having a discharge-opening formed through one side wall thereof and extending to the periphery of the said casing, of a discharger journaled inside the said casing, substantially as set forth.

589,854. **SPRING-HINGE.** WILLARD A. PLACE, Kansas City, Kans. Filed June 12, 1896. Serial No. 595,263. (No model.)



Claim.—1. The combination with a door-frame of a block hinged at one corner to said frame, a spring mounted in said block, a door hinged to the opposite corner of said block and cords connected to one end of said spring and attached to said door and frame respectively, substantially as and for the purpose described.

2. The combination with a door-frame of a block having an elongated slot therein, hinged at one corner to said frame, a coiled spring moving within said slot and secured at one end to said block, a pair of rollers pivotally mounted in the upper end of said block, a door hinged to the opposite corner of said block and chains or cords connected to the free end of said spring, passing around said rollers and attached respectively to said door and frame, substantially as and for the purpose described.

589,855. **HITCHING DEVICE.** EDWARD L. PROPST, Charlotte, N. C. Filed Nov. 17, 1896. Serial No. 612,468. (No model.)



Claim.—1. In a buggy attachment, the combination with a casting adapted to be attached to the dashboard, of antifriction-rollers mounted in said casting, chains adapted to be connected to the respective reins and passing down and over said rollers for attachment to the wheels upon the respective sides of the buggy, and auxiliary chains connected to the first-mentioned chains and passed forward upon each side of the buggy and attached to the shafts, substantially as described.

2. In a buggy attachment, the combination with a casting comprising an attaching-plate and an upwardly and outwardly inclined apertured bracket, of antifriction-rollers journaled in the aperture of said bracket in an inclined position, chains passing over said rollers and provided with snap-hooks at their respective ends for attachment to the reins and the wheels respectively, and auxiliary chains connected to the respective outer ends of the first-mentioned chains and each provided with an attaching-plate adapted to be secured to the shafts upon the opposite sides of the buggy, substantially as described.

589,856. **SYSTEM OF ANCHORING EARTHWORKS.** HANS RABITZ, Berlin, Germany. Filed Nov. 30, 1896. Serial No. 613,921. (No model.)



Claim.—1. An anchor for concrete facings for earthworks, comprising a checker-work of flat rails and anchors therefor, said rails secured on edge to said anchors and laid flat at the points of intersection, for the purpose set forth.

2. An anchor for concrete facings for earthworks, comprising a checker-work of rails having alternate portions at right angles to each other, anchors to which said rails are secured to present flat surfaces to each other at their points of intersection, at which point said rails are secured together for the purpose set forth.

3. An anchor for concrete facings for earthworks, comprising anchors having forked heads, a series of intersecting rails having alternate portions at right angles to each other set on edge and secured in the fork of their anchors to present horizontal or flat portions to each other at the points of intersection, at which points said rails are secured together, for the purpose set forth.

4. A facing for earthworks, comprising a checker-work of flat rails, grounded anchors having forked heads in which the rails are set on edge, said rails being laid flat and bolted or riveted together at their points of intersection, means for securing the rails against longitudinal displacement in the anchor-heads, and a body of concrete in which said parts are completely embedded, substantially as and for the purpose set forth.

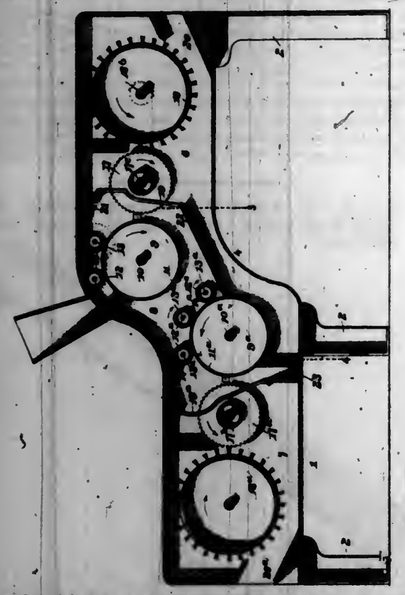
5. A facing for earthworks, comprising a checker-work of flat rails, grounded anchors having forked heads in which the rails are set on edge, said rails being laid flat and bolted or riveted together at their points of intersection, means for securing the rails against longitudinal displacement in the anchor-heads, a coarse-mesh wire fabric secured to said rail checker-work, and a body of concrete in which said parts are completely embedded, substantially as and for the purpose set forth.

589,857. **COTTON-SEED-DELINTING-MACHINE.** WILLIAM A. RAGSDALE, Greenville, Miss. Filed June 6, 1896. Serial No. 594,601. (No model.)

Claim.—1. In a delinting-machine, a delinting-roll having an abrasive surface, a hollow roller formed with a cylindrical thin yielding shell having a peripheral roughened or abrasive surface similar to the corresponding surface of the delinting-roll and normally contacting therewith, means for rotating the delinting-roll in one direction, and means for rotating the hollow roller in an opposite direction to the delinting-roll and at a slower speed, substantially as set forth.

2. In a delinting-machine, the casing, a horizontal delinting-roll mounted within the casing and having a roughened or abrasive surface, a plurality of cushion-rollers arranged on the arc of a circle above and in contact with the delinting-roll and provided with cylindrical thin rubber shells having roughened or abrasive surfaces,

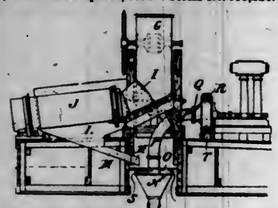
means for rotating said rollers in an opposite direction to the delinting-roll and slower than the latter, and lint-removing mechanism arranged at one side of the delinting-roll, substantially as set forth.



3. In a delinting-machine, the casing provided with a lint-flue at each end, upper and lower separate adjacent sets of delinting mechanism mounted within the casing, independent lint-removing mechanism arranged within each end of the casing at one side of each set of delinting mechanism, and a seed-board arranged between the two sets of delinting mechanism for delivering seed from one to the other, substantially as set forth.

4. In a delinting-machine, the casing provided with a central inclined portion, separate upper and lower horizontal delinting-compartments and a lint-discharge flue at each end, two separate sets of delinting mechanism arranged one above the other within the central inclined part of the casing, lint-removing mechanism arranged at one side of each set of delinting mechanism and adjacent to each lint-flue, and an inclined seed-board arranged within the casing below the upper set of delinting mechanism, substantially as set forth.

589,858. PLACER-MINING DREDGE. ARTHUR W. ROBINSON, Milwaukee, Wis. Filed Apr. 22, 1897. Serial No. 633,220. (No model.)



Claim.—1. The combination with a scow or like support of excavating mechanism, a rotary and positively-driven screen, a submerged hopper, a centrifugal pump and means to feed the material from one to the other successively, for the purposes set forth.

2. The combination with a scow or like support of excavating mechanism, a rotary and positively-driven screen, a submerged hopper, a centrifugal pump, a sluice-box, and means to feed the material from one to the other successively, for the purposes set forth.

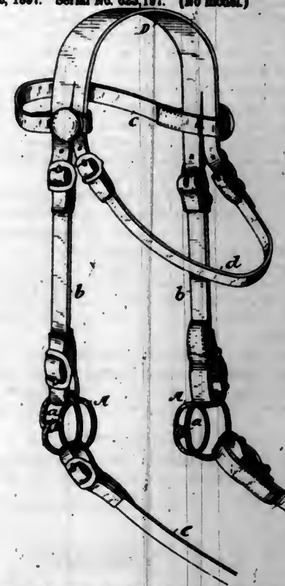
3. The combination with a scow or like support, of excavating mechanism, a screen, a submerged hopper, pivotally supported, so that it may be elevated above the water, a centrifugal pump, and means to feed the material from one to the other, for the purposes set forth.

4. The combination with a scow or like device, of excavating mechanism, a screen, a submerged hopper connected with a pipe pivotally connected to the eye of a centrifugal pump, said centrifugal pump itself and means to feed the material from one to the other of said instrumentalities, successively, for the purposes set forth.

5. The combination with a scow or like support of a submerged hopper supported upon a pipe which is pivotally connected to the eye of a centrifugal pump and an amalgam-tank or sluice-box into which said pump discharges, for the purposes set forth.

6. The combination of a scow upon which the following instrumentalities are supported, to wit, excavating apparatus which discharges into a grizzly or screen, a receptacle beneath the grizzly which catches the fine material, and which discharges into a submerged hopper, said submerged hopper itself, a pipe or conduit connecting it with a suction-pump, and a discharge conduit or pipe which connects the pump with an amalgam-tank or sluice-box, for the purposes set forth.

589,859. GUIDING DEVICE FOR BRIDLES, HEADSTALLS, &c. OSWALD R. ROUTH, Jersey City, N. J. Filed Oct. 29, 1895. Renewed Feb. 12, 1897. Serial No. 623,197. (No model.)



Claim.—1. An appliance for use in a bridle comprising in combination a ring constructed to be placed between the cheek and the lateral portion of a jaw or jaws of an animal, a ring constructed to be placed outside of the cheek more or less parallel with the other and a stem connecting the two rings and constructed to bear in a rearward direction against a corner of the mouth, substantially as and for the purpose herein set forth.

2. An appliance for use in a bridle combining a ring constructed to be placed between the cheek and the lateral portion of a jaw or jaws of an animal, a ring constructed to be placed outside of the cheek more or less parallel with the other, and a stem integral with both rings and constructed to bear rearwardly against an inner corner of the mouth, substantially as and for the purpose herein set forth.

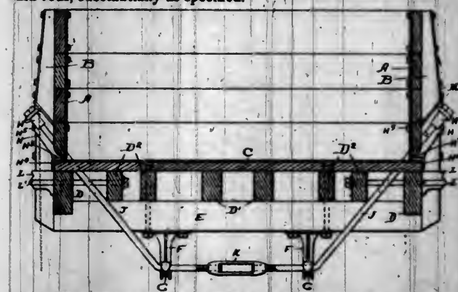
3. An appliance for use in a bridle or the like comprising a ring constructed to be placed between the cheek and a lateral portion of a jaw or jaws of an animal, a ring constructed to be placed outside of the cheek and more or less parallel therewith and a stem connecting said rings integral therewith, twisted upon itself, and arranged to bear rearwardly against a corner of the mouth of the animal when in use, substantially as and for the purpose herein set forth.

589,860. GONDOLA CAR. WILLIAM A. SCHROEDER, Chicago, Ill., assignor of one-half to Charles A. Schroyer, Oak Park, Ill. Filed Mar. 8, 1897. Serial No. 626,461. (No model.)

Claim.—1. The combination in a railway-car, with the side planking and stakes, and pockets attached to the stakes, of continuous truss-rods connecting the pockets of corresponding stakes at opposite sides of the car, substantially as specified.

2. The combination with corresponding stakes and their pockets at opposite sides of the car and the side planking, of truss-rods J attached one to the pocket of each stake and joined together at their lower ends below the car-body, substantially as specified.

3. The combination of the corresponding stakes at opposite sides of the car, the truss-rods J joined to said stakes and connected together at their lower ends, and the queen-posts affording bearings to said rods, substantially as specified.



4. The combination in a gondola car of corresponding stakes at the opposite sides of the car, truss-rods attached to said stakes and united together at their lower ends, the cross center tie and the queen-posts attached to said tie and affording bearings to the truss-rods, substantially as specified.

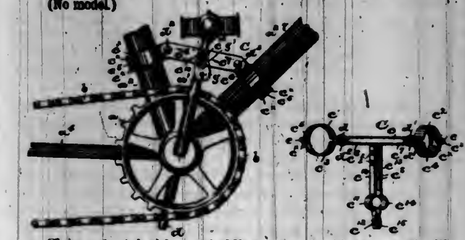
5. The combination in a gondola car of stake-pockets located above and supported upon the floor or side sills, the stakes, and truss-bolts connecting corresponding pockets at opposite sides of the car and acting to support the center of the car-body, substantially as specified.

6. The combination in a gondola car, of stake-pockets located above and supported upon the floor or side sills, the stakes, the truss-bolts connecting corresponding pockets at opposite sides of the car, and having bearings upon the queen-posts, and said posts, substantially as specified.

7. The combination in a gondola car of the side planking tied to side sills, stake-pockets supported above said sills, and truss-bolts connecting corresponding pockets at opposite sides of the car and acting to support the center of the car-body, substantially as specified.

8. The combination with the stake of the truss-bolts, the stake-pocket H and the stake-pocket L, the latter supporting the other stake-pocket, substantially as specified.

589,861. LOCKING MEANS FOR BICYCLES. CARL P. R. SCHRODER, Harrison, N. J. Filed July 15, 1897. Serial No. 644,672. (No model.)



Claim.—1. A locking or holding means for bicycles or the like, comprising a plate having at each end a pivotally-arranged clamping portion adapted to embrace the frame portions of the bicycle, a pair of clamping or holding plates pivotally connected therewith, adapted to embrace the pedal-crank, and a lock connected with said plates for locking them fast to said crank, substantially as and for the purposes set forth.

2. The herein-described locking means for a bicycle or the like, consisting, essentially, of a plate c, a pair of semicylindrical plates c' and c^3 at each end of said plate c, a pair of semicylindrical plates c^3 and c^4 hinged to said plates c' and c^3, and a pair of clamping-plates connected with said plates c^3 and c^4, substantially as and for the purposes set forth.

3. The herein-described locking means for a bicycle or the like, consisting, essentially, of a plate c, a pair of semicylindrical plates c' and c^3 at each end of said plate c a pair of semicylindrical plates c^3 and c^4 hinged to said plates c' and c^3, and a pair of plates c^5 and c^6 connected with said plates c^3 and c^4, having arms c^8 extending therefrom, and clamping-plates, having holding portions adapted to embrace the pedal-crank, connected with said arms c^8, substantially as and for the purposes set forth.

4. The herein-described locking means for a bicycle or the like, consisting, essentially, of a plate c, a pair of semicylindrical plates c' and c^3 at each end of said plate c, a pair of semicylindrical plates c^3 and c^4 hinged to said plates c' and c^3, and a pair of plates c^5 and c^6 connected with said plates c^3 and c^4, having arms c^8 extending therefrom, and clamping-plates, having holding portions adapted to embrace the pedal-crank, adjustably connected with said arms c^8, substantially as and for the purposes set forth.

5. The herein-described locking means for a bicycle or the like, consisting, essentially, of a plate c, a pair of semicylindrical plates c' and c^3 pivotally attached to the opposite ends of said plate c, a pair of semicylindrical plates c^3 and c^4, hinged to said plates c' and c^3, a plate c^5 pivotally attached to said plate c^3, and a plate c^7 pivotally attached to said plate c^4, and said plates c^5 and c^7 having arms c^8 extending therefrom, and clamping-plates, having holding portions adapted to embrace the pedal-crank, connected with said arms c^8, substantially as and for the purposes set forth.

6. The herein-described locking means for a bicycle or the like, consisting, essentially, of a plate c, a pair of semicylindrical plates c' and c^3 pivotally attached to the opposite ends of said plate c, a pair of semicylindrical plates c^3 and c^4, hinged to said plates c' and c^3, a plate c^5 pivotally attached to said plate c^3, and a plate c^7 pivotally attached to said plate c^4, and said plates c^5 and c^7 having slotted arms c^8 extending therefrom, and plates c^{10} and c^{11} slidably arranged on said arms c^8, said plates having curved parts c^{11} and c^{14}, and perforated ends c^{13} and c^{14}, substantially as and for the purposes set forth.

589,862. MUSIC-HOLDER. REINHARD SCHUMACHER, San Francisco, Cal., assignor of one-half to Rudolph Herold, Jr., same place. Filed Nov. 14, 1896. Serial No. 612,129. (No model.)



Claim.—1. In a temporary binder, the combination with a suitable back, of spring-clips applied at the opposite ends of the same and formed with extended clamping-lips adapted to pass about said back, a plurality of elastics, and hooks secured to the opposite ends of said elastics and adapted to be forced down between the portions of the spring-clips and the back, and thus securely held in position, substantially as described.

2. In a temporary binder, the combination with a suitable back, of spring-clips applied at the opposite ends of the same and each provided with an extended protecting-lip and a plurality of clamping-lips adapted to surround said back, a plurality of elastics, and hooks secured to the opposite ends of said elastics and each comprising an eye and an extended hook portion, the latter adapted to be forced down between the spring-clips and the back and held in position under spring-tension, substantially as described.

589,863. HOE. WILLIAM A. SCOTT, Quincy, Fla. Filed Jan. 28, 1896. Serial No. 577,203. (No model.)

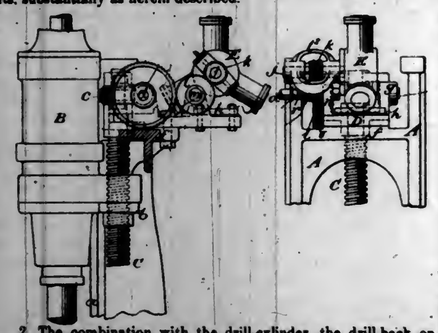


Claim.—A hoe having the sides of the blade turned backward, the edges of the backward-turned portions curved from top to bottom of said blade and sharpened, substantially as set forth.

589,864. DEVICE FOR OPERATING FEED OR ROCK-DRILLING AND CHANNELING MACHINES. HENRY C. SERGEANT, Westfield, N. J., assignor to The Ingersoll-Sergeant Drill Company, New York, N. Y. Filed Oct. 21, 1896. Serial No. 609,513. (No model.)

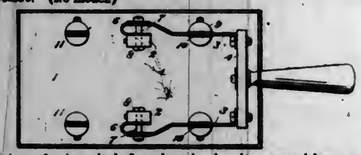
Claim.—1. In a rock-drilling or channeling machine, the combination with the drill-cylinder, the drill-back to which said cylinder is fitted to move lengthwise but which otherwise moves only with the cylinder, and a screw arranged parallel with the said cylinder for effecting said movement lengthwise, of a prime mover carried by the drill-back to move therewith in all directions and geared with the said screw for the purpose of applying thereto the power for raising

or drawing back the cylinder, the drill or bit stock and the drill or bits, substantially as herein described.



2. The combination with the drill-cylinder, the drill-back on which the said cylinder moves lengthwise, a screw arranged parallel with the cylinder but confined lengthwise to the drill-back, a nut affixed to the cylinder and fitting said screw, and a shaft arranged upon the drill-back and geared with said screw for operating it by hand, of a prime mover arranged on the drill-back and gears between the said prime mover and said shaft one of which gears is movable for disengaging the prime mover from said shaft to permit its use by hand, substantially as herein described.

589,865. SWITCH FOR ELECTRIC CIRCUITS. HERBERT B. SHALLENBERGER, Rochester, Pa. Filed May 26, 1897. Serial No. 638,239. (No model.)



Claim.—1. A switch for electric circuits comprising a suitable base provided with stationary terminals, a movable contact member having one end bent to form a bow-spring and means for pivoting said spring end to one of the stationary terminals.

2. A switch for electric circuits comprising a suitable base provided with stationary contact-terminals, a cooperating movable contact member having a spring portion, and an adjustable means for fastening said spring portion to one of the stationary terminals whereby the pressure exerted by said spring portion may be varied.

3. A switch for electric circuits comprising a base provided with stationary contact-terminals, a movable contact member having one end bent to form a bow-spring and an adjustable means for fastening said bow-spring to one of the stationary contact-terminals whereby the pressure exerted by said spring may be varied.

4. A switch for electric circuits comprising a suitable base having stationary contact-terminals, a movable contact member having one end bent to form a bow-spring and a screw or bolt for holding said spring in contact with one of the stationary contact-terminals and varying the pressure exerted by it.

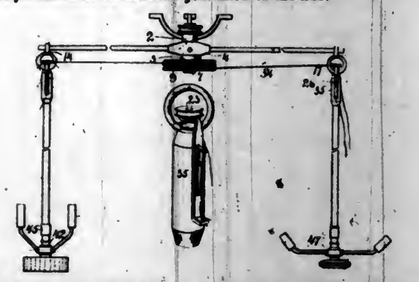
5. A switch for electric circuits comprising a base, a pair of jaw-terminals mounted thereon, a movable member comprising a pair of blades, a connecting-head and an operating-handle, each of said blades being bent at its free end to form a bow-spring, a pair of terminals to which said spring ends are pivoted and means for varying the pressure exerted by said spring ends against said terminals.

6. A switch for electric circuits comprising a base having two pairs of jaw-terminals and a pair of block-terminals, a pair of blades connected at one end by an insulating-head and having their other ends bent to form bow-springs, and bolts or screws for pivotally fastening said spring ends to the block-terminals.

589,866. CALK-SHARPENER AND HOOF-TRIMMER. ALVIA B. SMITH, Middlebury, Vt. Filed Mar. 25, 1897. Serial No. 629,108. (No model.)

Claim.—1. In a device of the class described, the combination with a hanger-bracket having a hub, of a shaft journaled in the hub, pulleys carried by said shaft, an arm connected to the hub, a rotary tool carried by the arm and operated by a pulley, and a belt running over the tool and a pulley of the shaft.

2. In a device of the class described, the combination with a hanger-bracket having a hub, of a shaft journaled in said hub, pulleys carried by said shaft, a coupling on the hub which has sockets, hanger-rods secured in the sockets and extending in opposite directions, flexible shafts depending from the hanger-rods, tools carried by said shafts, pulleys on the shafts and bands running over the said pulleys and those on the shaft journaled in the hub.



3. In a device of the class described, the combination with a hanger-coupling and a spindle journaled therein, of a tool actuated by the spindle, a clutch carried by the spindle, a pulley running on the spindle and provided with a clutch, and means for shifting said pulley.

4. In a device of the class described, the combination with a hanger-coupling, of a spindle journaled therein, a tool operated by said spindle, a clutch member on the spindle, a pulley running on the spindle and having a clutch member, a slidable shifter connected to the hanger-coupling and adapted to actuate the tool, an eye secured to the hanger-coupling, and cords connected to the shifter, one of which passes through the eye.

5. In a device of the class described, the combination with a hanger-coupling, of a spindle journaled therein, a tool operated by the spindle, a pulley running on the spindle, a shifter for said pulley, a spring connected thereto, a locking-pin connected to the spring and adapted to work through an opening in the shifter and be received in openings in the hanger-coupling, an upper eye and cords both of which are connected to the lower portion of the shifter and one of which runs through the locking-pin and through the upper eye.

6. In a device of the class described, a tool-holder consisting of a shank having a means for holding the tool and provided with a collar, a box that loosely encircles the shank and abuts on the collar, and a nut on the shank which abuts on the box.

7. In a device of the class described, a tool-holder comprising a shank having tool-holding means and provided with a collar, a box loosely encircling the shank and provided with an enlarged mouth and an inner shoulder, which mouth receives the collar and the shoulder abuts thereagainst, a nut secured on the shank and abutting against the other end of the box, and a coupling-sleeve fitted over the box.

8. In a device of the class described, a tool-holder comprising a shank and tool-holding means carried thereby, a box loosely encircling the shank, and arms or handles pivoted to the box on opposite sides and adapted for attachment.

9. In a device of the class described, a tool-holder comprising a shank having tool-holding means, a box loosely encircling the said shank, clamping members encircling the box, handles fitted in between the ends of the clamp members and bolts passing through the handles and the clamp members.

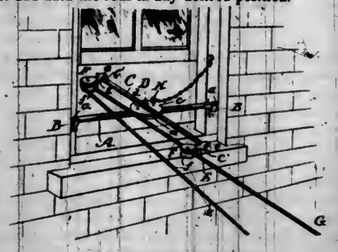
10. In a device of the class described, a flexible shaft comprising interlocked links having shoulders, and separable boxes encircling the links and located between the shoulders.

11. In a device of the class described, a flexible shaft comprising links interlocked with each other and having shoulders, and boxes encircling the links between the shoulders and formed in separable halves, and bands encircling the sections of the boxes and holding them together.

12. In a device of the class described, a flexible shaft comprising links interlocked with each other, and a hook made from a single piece of material which is interlocked with the last link and has its ends bent into separated hooks.

589,867. CLOTHES-LINE HANGER. WALTER W. SMITH and DENNIS J. DOYLE, Brooklyn, N. Y. Filed Nov. 10, 1896. Serial No. 611,592. (No model.)

Claim.—A clothes-line hanger, comprising two rods, the lower one of which is flattened at each end, for the purpose of engaging in brackets, a flat circular apertured plate secured on the upper portion and centrally of said rod, and the upper rod provided near its extremities with screw-threads adapted to engage with eyes secured to pulleys, a flat circular apertured plate, located on the lower surface of the upper rod, a bolt adapted to pass through each rod and plate, and a pin adapted to pass through the apertures in the circular plates and hold the rods in any desired position.



589,868. BICYCLE-FRAME. JAMES SPRUCE and CHARLES H. KELLERMANN, Kenosha, Wis. Filed May 25, 1896. Serial No. 593,038. (No model.)



Claim.—1. A velocipede-frame comprising tubular frame members consisting of two sheet-metal parts each of semitubular form and provided with radially-extending marginal flanges interlocked to form a tubular structure and a fitting or junction piece provided with sockets which are adapted to receive the ends of the frame members, said frame members being secured in the sockets by means of interlocking projections and recesses on the said marginal flanges and sockets.

2. A velocipede-frame comprising frame members consisting of two semicylindrical sheet-metal parts provided one with two flat outwardly-extending flanges and the other with two flanges of greater width which are bent or folded around the flanges of the first-named member with their edges in contact with the side of the latter and a junction-piece provided with sockets to receive the ends of the frame member said frame members being secured in the sockets by interlocking projections and recesses on the said marginal flanges and sockets.

3. The combination with a frame member consisting of two sheet-metal parts joined by outwardly-extending flanges in the parts folded to form longitudinal seams, of a fitting or junction piece consisting of two sheet-metal parts joined by similar seams and having a socket to receive the end of the frame member; the seams of the frame member being inserted in and embraced by the seams of the fitting, and the seams of the frame member and fitting being provided with notches and recesses which are interlocked to hold the parts from endwise movement with relation to each other, substantially as described.

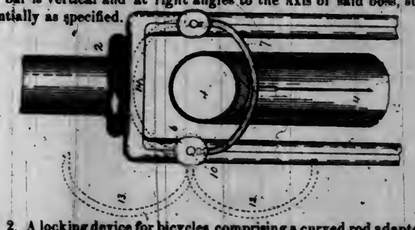
4. The combination with a frame member consisting of two sheet-metal parts joined by outwardly-extending flanges on the parts folded or seamed to form radially-projecting ribs, of a fitting or junction piece also consisting of two sheet-metal parts joined by similar seams and having a socket to receive the ends of the frame member, those portions of the radial frame-member ribs which are inserted within said socket being notched or reduced in width through portions of their lengths and the overfolding flange of the socket member being provided with corresponding apertures adapted to receive the unreduced portion of the ribs of the frame member when the parts are assembled, substantially as described.

5. A crank-hanger consisting of two tubular parts arranged in alinement with each other and having semicylindric projections on their adjacent ends, said parts being joined by flanges on the tubular and semicylindric parts, which flanges are interfolded or seamed together, substantially as described.

6. A seat-post fixture comprising two semicylindric parts provided each with a semicylindric projection adapted to form a tubular frame-bar socket, and also with lateral hollow projections adapted to form an attaching-lug, said semicylindric parts and the projections thereon being provided with outwardly-extending flanges which are interfolded or seamed together to permanently join the parts, substantially as described.

589,869. BICYCLE-LOCK. WILLIAM F. STEARNS, Cambridge, Mass. Filed Sept. 5, 1896. Serial No. 604,939. (No model.)

Claim.—1. A locking device for bicycles comprising a rod adapted to extend transversely across the wheel-rim and provided with a free end to engage locking mechanism, and a pivotal end secured to a revoluble boss, the axis of the boss being horizontal, while the axis of the bar is vertical and at right angles to the axis of said boss, substantially as specified.



2. A locking device for bicycles, comprising a curved rod adapted for a position transversely of the path of movement of the wheel-rim, locking mechanism on the bicycle-frame to engage one end of said rod, a revoluble boss to engage the opposite end, and means to permit the rod to swing in vertical planes above or beneath the wheel-rim at a designated point, substantially as stated.

3. In combination with the front fork of a bicycle, two bosses adjustable thereupon, one boss fixed and to contain locking mechanism, a second boss for axial movement, and a curved rod pivotally attached to the movable boss, said rod to interconnect the two bosses and to extend transversely of the path of rotation of the wheel either above or below the wheel-rim at a designated point, substantially as explained.

589,870. PYROXYLIN COMPOUND. JOHN H. STEVENS, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed June 12, 1897. Serial No. 640,575. (No specimens.)

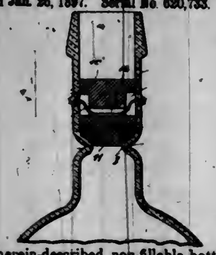
Claim.—1. The new composition of matter consisting of soluble pyroxylin in combination with one or more of the urea salts of the monohydric monobasic aliphatic acids; namely, urea formate, urea acetate, urea propionate, urea butyrate and urea valerate.

2. The process for rendering soluble pyroxylin compounds stable, which consists in introducing into the compound one or more of the urea salts of the monohydric monobasic aliphatic acids; namely, urea formate, urea acetate, urea propionate, urea butyrate and urea valerate.

3. The new composition of matter consisting of soluble pyroxylin in combination with urea acetate.

4 The process of rendering soluble pyroxylin compounds stable, which consists in introducing urea acetate into the compound.

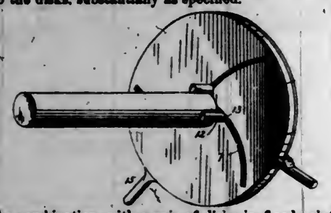
589,871. NON-FILLABLE BOTTLE. LEOPOLD P. STRAUBE, Chicago, Ill. Filed Jan. 26, 1897. Serial No. 620,733. (No model.)



Claim.—The herein-described non-fillable bottle having a neck inwardly contracted at a predetermined distance above the body portion of said bottle, the construction being such as to form a deep annular groove around the said neck and an inwardly-directed annular shoulder therein, said neck being provided with an annular packing which is mounted on the upper portion of said shoulder, said packing being provided with a central opening, and said neck being provided with a plug which is mounted on said packing, and adapted to fit closely in said neck, and is provided with a reduced extension which fits in said central opening, said plug being provided at the sides thereof with vertical chambers or recesses and with a transverse passage connecting the same, through which passes a metal spring having the ends thereof curved upwardly into said chambers, said neck being provided with an annular groove which engages the ends of said spring when the plug is inserted, substantially as and for the purpose set forth.

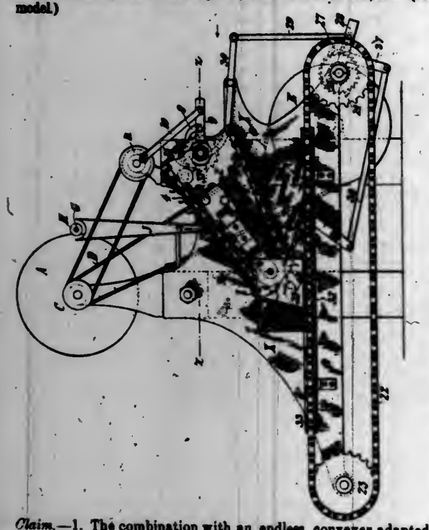
589,872. CENTERING-TOOL. IRA STRATTON and JAMES K. ROGERS, Beattyville, Ky. Filed Jan. 23, 1897. Serial No. 620,366. (No model.)

Claim.—1. The combination, with a plurality of disks united by peripheral brackets and provided with correlative substantially radial curved slots, of a disk intermediate the disk aforesaid and provided with substantially radial slots curved in the direction opposite the curvature of the slots in the first-named disks, shaft-centering jaws provided with spindles passing through the slots in the several disks, and a spring-actuated center-indicating plunger disposed axially with respect to the disks, substantially as specified.



2. The combination, with a pair of disks in fixed relation and provided with correlative curved slots and with a handle, of a plunger-casing located axially with respect to said disks, an intermediate disk revolubly upon said casing and provided with slots curved in a direction opposite to the curvature in said first-named disks and with a handle, shaft-centering jaws provided with reduced spindles passing through the slots in the several disks and provided with caps upon their extremities, and a spring-actuated plunger within the casing and provided at its opposite ends with a head and point respectively, substantially as specified.

589,878. MECHANISM FOR DISPOSING AND ARRANGING CIGARETTES AS DELIVERED FROM CIGARETTE-MACHINES. DEMETRIUS B. STROUSE, Salem, Va., assignor to the Bonsack Machine Company, same place. Filed Sept. 29, 1896. Serial No. 607,337. (No model.)



Claim.—1. The combination with an endless conveyer adapted to receive and convey cigarettes and an inclined guide, as J, connecting the conveyer with the cutting-off mechanism of a cigarette-machine, of an abutting-plate 18 and foot-plate 19 arranged to act upon the forward end of the cigarettes as they are delivered from the guide to the conveyer, substantially as and for the purpose set forth.

2. The combination with an endless conveyer adapted to receive and carry cigarettes and of less width than the length of the cigarettes, of means for centering the cigarettes transversely on such conveyer, and devices arranged on each side of the conveyer and in the path of the overhanging ends of the cigarettes to remove the cigarettes from the conveyer.

3. The combination with an endless chain belt provided with a series of receptacles, as 4, secured thereto and adapted to receive and carry cigarettes and of a less width than the length of the cigarettes, of devices for centering the cigarettes in the receptacles, as they are delivered thereto, so that their ends will overhang, devices for maintaining the cigarettes in such centered position as the conveyer is advanced and devices arranged in the path of the overhanging ends of the cigarettes to remove them from the receptacles and deposit them in regular relation with each other.

4. The combination with an endless conveyer adapted to receive and transport cigarettes and devices, as plates 21, arranged on each side of the discharge of the conveyer to remove the cigarettes therefrom, of a receiver adapted to contain the cigarettes and constructed and arranged to permit the discharge end of the conveyer and devices for removing cigarettes therefrom to operate within the receiver, substantially as and for the purpose set forth.

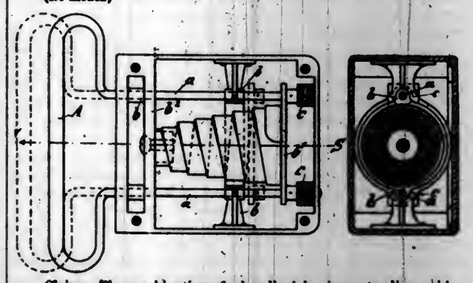
5. The combination with a conveyer adapted to receive and carry cigarettes, of a receiver and means for advancing the same relatively to the conveyer and additional means for quickly advancing the receiver, whereby its forward end will quickly pass the discharge end of the conveyer, for the purpose set forth.

6. The combination with a conveyer for cigarettes, of two receivers, means for advancing the same relatively to the conveyer, and additional means for quickly advancing the receivers, whereby the rear end of one receiver and the forward end of the other will quickly pass the discharge of the conveyer, for the purpose set forth.

7. The combination with a conveyer for cigarettes, boxes or other receptacles for receiving the same from the conveyer and means for advancing the boxes relatively to the conveyer, of a device constructed and arranged to reciprocate along the line of movement of the boxes and at the proper time to engage the boxes and push them quickly forward, for the purpose set forth.

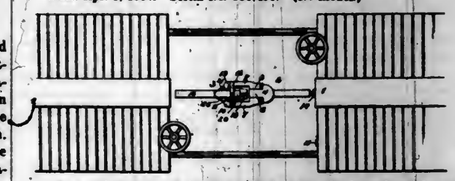
8. The combination with a box or other receptacle adapted to receive cigarettes from a conveyer or other source of supply and provided with a projection or lug as 40, means for advancing the box relatively to the source of supply, of a device, as pawl 35, means for reciprocating the same along the line of movement of the box and means for bringing the reciprocating device into engagement with the projection on the box to suddenly push it forward, for the purpose set forth.

589,874. ELASTIC HANDHOLD FOR VEHICLES. BERNHARD THERRMIN, Leipsic, Germany. Filed Oct. 31, 1896. Serial No. 610,693. (No model.)



Claim.—The combination of a handle A having extending guide-arms *a a*, a housing in which said arms are guided and a transverse bar to connect said arms, a spring mounted between said bar and one end of the housing and adapted to be compressed when the handle is pulled out and means for preventing noise when the handle is returned by its spring substantially as described.

589,875. CAR-COUPLING. HENRY THURER, Spencer, Iowa. Filed Apr. 3, 1897. Serial No. 630,495. (No model.)



Claim.—In a car-coupler, the combination of a draw-head formed with vertical spaces or recesses at each side thereof separated by a division-wall, a link member having its arms formed with broad inturned rear extremities occupying said recesses and pivoted to have vertical upward movement therein by a pin or rod extending therethrough and through said division-wall, and the arms thence extending forward and formed at their outer end with inclined hook-lips, a bar connecting said arms, and a pin or bar jaw member formed with a level front portion terminating in upwardly-inclined guide-faces, a guiding-ridge separating said guiding-faces and having its outer or front end arranged in line with the base at the rear of said level front portion, locking-shoulders at the ends of said guiding-faces arranged substantially midway of the length of the said guiding-ridge and formed by recessing the pin member at the rear of the guide-faces, a stop-web at the base of the shoulder, and a shank projecting from the guiding-ridge, substantially as described.

589,876. VEHICLE-SPRING COUPLING. HERMAN H. UCHOTTEN, Cincinnati, Ohio, assignor to the Anchor Buggy Co., same place. Filed Jan. 9, 1897. Serial No. 618,537. (No model.)



Claim.—1. The combination of a support A, and bolt and spring, and two circular bearings curving in axial section, and facing each other, and touching each other, the spring receiving these bearings in openings from opposite sides of it, the bolt passing through the support and spring and bearings, substantially as and for the purposes specified.

2. The combination of a support, and a bolt and spring, and two bearings, annular, and inclining on their sides and facing each other, and in contact, and provided with flanges, at points separated from where they bear upon the spring, the spring being recessed on each side so as to receive the bearings, and a bolt passing through the support and bearings, and springs, and secured by a nut, the flange of one bearing impinging against the support, and the flange of the other bearing impinging against the nut, substantially as and for the purposes specified.

3. The combination of two annular bearings, each in cross-section being in external shape segments of a sphere, and a support, and a spring, and bolt, the segments meeting at their adjacent ends and the spring embracing them there and in that vicinity, and provided above and below with recesses, whose edges form bearing-surfaces for contact with the segmental bearings, substantially as and for the purposes specified.

4. The combination of two annular bearings, and having beveled edges and in operation, inverted as regards each other and substantially in contact, and a spring having a beveled recess on each side of it, these recesses being axially coincident, there being an aperture through the spring, a continuation of the recesses, the meeting-point of these recesses forming the narrowest part of the aperture through the spring, this narrowest part of the aperture being around the narrowest part of the combined bearing viz: at and in the vicinity of their junction, the bolt or securing device holding the support to the bearings, the bearings being also secured together and holding the spring thereon, substantially as and for the purposes specified.

5. The combination of the body-loop A, having opening A^2, and the spring C, having the upper opening C^2, and lower opening C^3, united by the middle aperture N, and the bearings D having the bearing part D^2 in opening C^2, and the bearing part E^2 in the opening C^3, and essentially one with bearing D^2 and securing-bolt passing through the opening A^2 of the support and the bearings, substantially as and for the purposes specified.

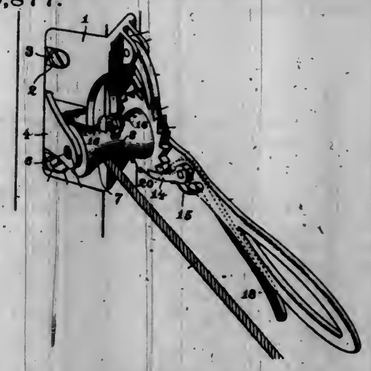
6. The combination of the support A with square eye A^2, bearings D and E, and respectively having bearing-surfaces D^2, E^2, inclining toward one another, and the spring having inclining recesses, and embracing the bearings D and E, and a bolt having a square shank located in opening A^2, and passing through the bearings, and having a nut, whereby the bearings with spring are held to the support, substantially as and for the purposes specified.

7. The combination of the support A with square eye A^2, bearings D and E, and respectively having flanges D^4 and E^4 and bearing-surfaces D^2, E^2, inclining toward one another, and the spring having inclining recesses, and embracing the bearings D and E, and a bolt having a square shank located in opening A^2 and passing through the bearings and having a nut, whereby the bearings with spring are held to the support, the flange D^4 bearing against the support A and the flange E^4 against the nut, substantially as and for the purposes specified.

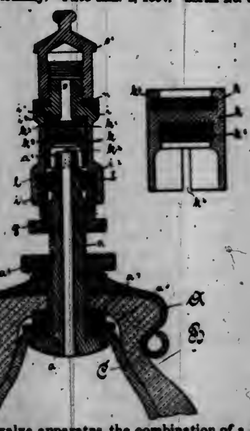
589,877. CLOTHES-LINE TIGHTENER. HERMAN VEDDER, Schenectady, N. Y. Filed Apr. 22, 1897. Serial No. 633,313. (No model.)

Claim.—A clothes-line tightener, consisting of an angular base provided with means for securing it to an angular or flat support, a drum and ratchet-wheel mounted thereon, a detent-pawl engaging said ratchet-wheel, an operating-lever loosely fulcrumed on the drum-shaft and having an operating-pawl engaging the ratchet-wheel, and a lever mounted on the said operating-lever and having its handle adjacent to the handle of the latter, and engaging the operating-pawl to release the same, as set forth.

589,877.



589,878. VALVE APPARATUS. FRIEDRICH VERTH, Offenbach-on-the-Main, Germany. Filed Mar. 1, 1897. Serial No. 625,632. (No model.)



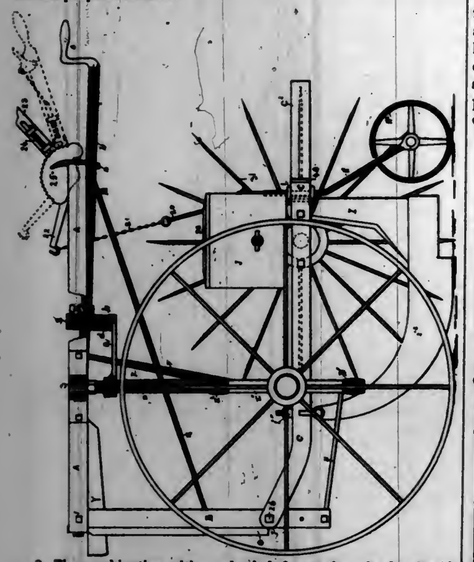
Claim.—In a valve apparatus, the combination of a hollow stem *a* terminating in a valve-seat *a'*, a sleeve *i* provided with an annular rib *i'* located opposite to and extending toward valve-seat *a'*, the said sleeve *i* being movable longitudinally over the stem, and a valve *k* recessed on one side for the reception of a packing k^2 and adapted to cooperate with the valve-seat *a'* and provided at its other side with a rim k^2 inclosing the packing k^2, the said valve being located between the valve-seat *a'* and the rim *i'*, so that when the sleeve *i* is moved longitudinally over the stem *a*, the rim *i'* will enter within the rim k^2 on the valve and force the valve down upon its seat *a'* on the hollow stem *a*, substantially as described.

589,879. SEED-DRILL AND CULTIVATOR. FRANKLIN M. WALLACE, North Bend, Nebr. Filed Feb. 1, 1896. Serial No. 577,711. (No model.)

Claim.—1. The combination with a carriage comprising a rectangular frame mounted upon wheels, said wheels being secured to stub-axles said stub-axles being controllable of a runner-frame detachably secured to said wheel-frame said runner-frame being provided with runners a stalking-wheel secured to said runners a projecting hollow seed-reservoir an opening within said seed-reservoir said runner communicating with said opening a plate provided with seed-openings revolving within said reservoir and a gear upon said projecting shaft to actuate said seed-plate, all substantially as and for the purpose set forth.

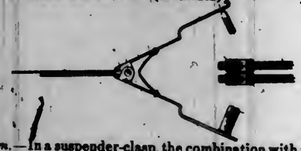
2. The combination with a carriage comprising a rectangular frame mounted upon wheels said wheels being secured to stub-axles said stub-axles being controllable of a runner-frame detachably secured to said wheel-frame means for raising and lowering said frame said runner-frame being provided with runners a stalking-wheel secured to said runners said stalking-wheel being provided with a projecting axle a seed-reservoir an opening within said seed-reservoir said runner communicating with said opening a plate provided with seed-openings revolving within said reservoir and a gear upon said

projecting shaft to actuate said seed-plate, all substantially as and for the purpose set forth.



3. The combination with a wheeled frame the wheels of said frame being mounted upon stub-axles said stub-axles being controllable of a detachable frame secured to said wheel-frame said frame being rectangular cultivator-shovels and shackles for securing said cultivator-shovels to said detachable frame comprising a twin-shaped clip embodying the straight portion, 71, the two U-shaped clips, 72, terminating in the stems, 73, provided with the nuts, 74, all substantially as and for the purpose set forth.

589,880. CLASP. JAMES F. WALSH, Orlando, Fla. Filed June 27, 1896. Serial No. 597,157. (No model.)



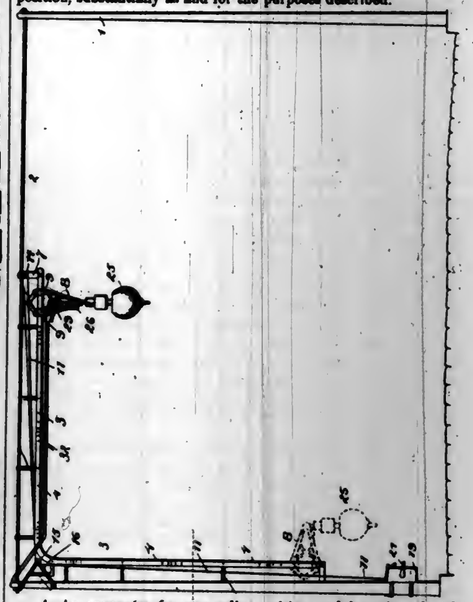
Claim.—In a suspender-clasp, the combination with members provided with ears, of a pivot-pin passing through said ears, a spring for keeping the members normally opened, a socket connected to one of the members, and a head connected to the other member and adapted for reception in the socket and to be held therein.

589,881. APPARATUS FOR SUSPENDING, RAISING, AND LOWERING ELECTRIC LAMPS. MILTON R. WARNER, Manchester, and CHARLES O. BULOCK and ALEXANDER E. MCLAUCHLIN, York Haven, Pa. Filed Nov. 16, 1896. Serial No. 612,315. (No model.)

Claim.—1. An apparatus for suspending, raising and lowering electric lamps, consisting essentially of a transversely-extending cable, a vertically and horizontally extending track, arched brackets suspending said track from the cable so as to leave the top of the track unobstructed, a carriage traveling upon said track and carrying the lamp, and an endless carrying-cable connected to said carriage and adapted to draw the carriage over the horizontal and vertical portions of the track, substantially as and for the purposes described.

2. An apparatus for suspending, raising and lowering electric lamps, consisting essentially of a transversely-extending cable, a vertically and horizontally extending track composed of plate-sections, brackets for suspending said track from the cable so as to permit a carriage to travel over said track, a carriage resting upon said track and carrying a lamp, and an endless carrying-cable connected to said carriage and adapted to draw the same over the horizontal and vertical portions of the track, substantially as and for the purposes described.

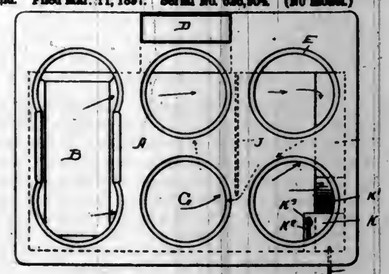
3. An apparatus for suspending, raising and lowering electric lamps, consisting essentially of a vertically and horizontally extending track, a support therefor, a carriage to travel over the track, an endless carrying-cable for moving the carriage back and forth over the horizontal and vertical extending portions of the track, sheaves for the endless cable to travel over located at one end of the track and at the point where the track changes from its vertical to its horizontal position, and a sheave supported by the carriage and receiving the endless cable and serving to lift the cable from its sheave-support where the carriage passes from its horizontal to its vertical position, substantially as and for the purposes described.



4. An apparatus for suspending, raising and lowering electric lamps, consisting essentially of a vertically and horizontally extending track, a support therefor, a carriage to travel over the track, a lamp pivotally suspended from the carriage, a stop to prevent the lamp striking against the track as the carriage travels along the vertical portion thereof, and an endless carrying-cable for moving the carriage back and forth over the horizontal and vertically extending portions of the track, substantially as and for the purposes described.

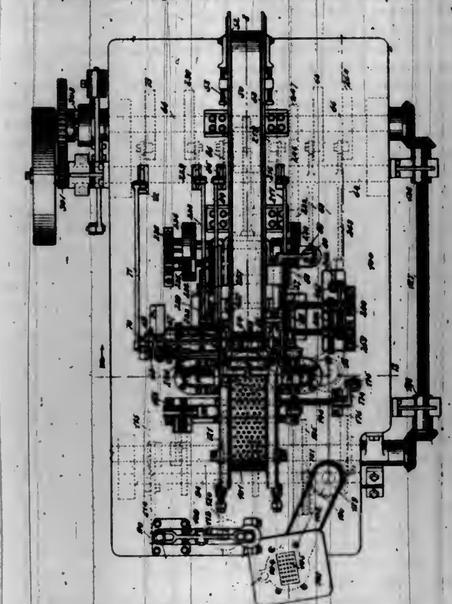
5. An apparatus for suspending, raising and lowering electric lamps, consisting essentially of the poles, the cable extending from one pole to the other, the horizontal and vertically extending track supported from the cable and one of the poles by brackets, a carriage to travel over the track provided with sheaves bearing against opposite faces of the track, an endless carrying-cable for moving the carriage back and forth over the horizontal and vertical portions of the track, a sheave at the end of the track for the endless cable, a bracket extending from one of the poles and provided with sheaves at the point where the track changes from a horizontal to a vertical position, said sheaves receiving the endless cable, a sheave supported by the carriage and lifting the cable from the sheave where the carriage passes from the horizontal to the vertical portion of the track, and a stop on the carriage to prevent the lamp from bearing against the track as the carriage moves along the vertical portion of the track, substantially as and for the purposes described.

589,882. SHEET-FLUE RANGE. STEPHEN S. WEBBER, La Porte, Ind. Filed Mar. 11, 1897. Serial No. 626,954. (No model.)



Claim.—The combination with the oven of a sheet-flue cooking-range, of means whereby the products of combustion may be allowed to pass over substantially the entire surface of the oven and be then deflected to the rear of the stove, such means consisting of a movable plate K, positioned over the sheet-flue at the front thereof and having a downward and rearward extension K', substantially as specified.

589,883. CIGARETTE-MAKING MACHINE. JOHN R. WILLIAMS, East Orange, N. J., assignor to the John R. Williams Company, New York, N. Y. Filed Sept. 9, 1896. Serial No. 605,280. (No model.)



Claim.—1. In a machine of the character described, rolling mechanism for rolling the cigarettes, the cutting-die for cutting the wrappers for the cigarettes, the oscillating arm carrying the said die, suction apparatus connected with said die for holding the leaf distended while the wrapper is being cut, means for oscillating said arm carrying said die, and means in the path of said die for pressing the leaf thereon to effect the cutting of the wrapper, combined with transferring means connected with air-suction for taking the cut wrapper from the die when the latter is at its inward position and transferring said wrapper while held by air-suction to the rolling mechanism, means for cutting off the air from said die when the latter is to deliver the cut wrapper to the transferring means, and means cutting off the air-suction within said transferring means from the wrapper upon the delivery of the latter to the rolling mechanism; substantially as set forth.

2. In a machine of the character described, rolling mechanism for rolling the cigarette, the cutting-die by which the wrappers are cut from the leaf, air-suction apparatus connected with said die, the table surrounding said die, the oscillating arm carrying said die and table, and means for oscillating said arm, combined with means in the path of said die for pressing the leaf thereon to effect the cutting of the wrappers, transferring means connected with air-suction adapted to remove the cut wrapper from the die when the latter is at its inward position and deliver said cut wrapper to the rolling mechanism, means for cutting off the air from said die when said transferring means is to take the wrapper therefrom, and means cutting off the air-suction within said transferring means from the wrapper upon the delivery of the latter to the rolling mechanism; substantially as set forth.

3. In a machine of the character described, the rolling mechanism for rolling the cigarette, the die for cutting the wrappers for the cigarettes, air-suction apparatus for holding the leaf thereon preparatory to the cutting of the wrapper therefrom, means for moving said die outward to receive the leaf and then inward to surrender the cut wrapper, and means in the path of said die for automatically pressing the leaf thereon to effect the cutting of the wrappers, combined with transferring means also connected with air-suction adapted to remove the cut wrapper from said die when the latter is at its inward position and deliver the same to the rolling mechanism; substantially as set forth.

4. In a cigarette-making machine, the feed-belt for feeding the filler-tobacco, the rollers supporting said belt, mechanism for imparting to said belt an intermittent motion, and the knife for severing the charges of tobacco for the cigarettes, combined with cigarette-rolling mechanism, the oscillatory charge-box intermediate said mechanism and the inner end of said feed-belt, the oscillatory arms carrying said charge-box and rigidly secured to the hinged bottom thereof, means for oscillating said arms, and means for arresting said box during the downward movement of said arms without stopping said arms whereby the bottom of said box is opened downward to discharge the filler-tobacco; substantially as set forth.

5. In a cigarette-making machine, the feed-belt for the filler-tobacco, mechanism for imparting to the belt an intermittent motion, the knife for severing the charges of tobacco for the cigarettes, and cigarette-rolling mechanism, combined with the charge-box, the oscillatory arms carrying said charge-box and rigidly secured to the hinged bottom thereof, the segmental gearing for oscillating said arms, the stop carried by the body of said box, and the contact which is in the path of said stop for arresting the body of said box during the downward movement of said arms without stopping said arms, whereby the bottom of said box is opened downward to discharge the filler-tobacco; substantially as set forth.

6. In a cigarette-making machine, the feed-belt for filler-tobacco, the knife for severing the separate charges thereof, cigarette-rolling mechanism, and means for delivering the said charges to the rolling mechanism, combined with the porous or perforated transferring-belt, suction apparatus connected therewith, and means for pasting the edge of the wrapper while held by said belt previous to its transfer thereby to the rolling mechanism; substantially as set forth.

7. In a cigarette-making machine the feed-belt for filler-tobacco, the knife for severing the charges therefrom, means for rolling the cigarette, and means for delivering the charges of tobacco to the rolling mechanism, combined with the porous or perforated belt for feeding the cut wrapper to the rolling mechanism, air-suction apparatus connected with said belt, means for applying paste to the edge of the wrapper, while held on said belt, and means for trimming the ends of the cigarette after leaving said rolling mechanism; substantially as set forth.

8. In a cigarette-making machine, the feed-belt for filler-tobacco, the knife for severing the separate charges therefrom, the rolling mechanism, and means for delivering the separate charges of filler-tobacco to the rolling mechanism, combined with the punch and die for cutting the wrappers, means for moving the die inward to deliver its wrapper, air-suction apparatus connected with said die, and means connected with air-suction for removing the wrapper from said die and delivering it to the rolling mechanism; substantially as set forth.

9. In a cigarette-making machine, the feed-belt for filler-tobacco, the knife for severing the separate charges of the filler-tobacco fed inward on said belt, the rolling mechanism, and means for conveying the severed charges of tobacco to said mechanism, combined with the punch and die for cutting the wrappers, air-suction apparatus connected with said die for holding the leaf, means for moving said die inward to deliver its wrapper, and transferring means also connected with air-suction for removing the cut wrapper from said die and delivering it to the rolling mechanism, said transferring means being capable of depression upon said die when engaged in taking the wrapper therefrom; substantially as set forth.

10. The die containing the perforated yielding platen, the hollow oscillating arm carrying said die, means for imparting an oscillating movement to said arm, and suction apparatus connected with said arm and provided with a valve, combined with the punch adapted to cooperate with said die, and means for actuating said punch; substantially as set forth.

11. The die having the perforated platen and surrounded by a table, the hollow arm carrying said table and die, means for moving said arm, and air-suction apparatus connected with said arm and having a valve, combined with the punch for cooperating with said die, means for actuating said punch, and means for locking said die in position below said punch and then releasing the same; substantially as set forth.

12. In a cigarette-making machine, the rolling mechanism, the die containing the perforated platen, the hollow arm carrying said die, means for moving said arm, air-suction apparatus connected with said arm, the punch for cooperation with said die when the latter is below the same, and means for actuating said punch, combined with the porous or perforated apron for transferring the cut wrapper from said die to the rolling mechanism, and means for pressing said apron against said die to take the wrapper therefrom; substantially as set forth.

13. In a machine of the character described, rolling mechanism for rolling the cigarettes, the die for cutting the wrappers for said cigarettes, the table surrounding said die, air-suction apparatus con-

nected with said die, means for moving said die and table outward toward the operator to receive the leaf and then inward toward the operative mechanism of the machine to surrender the cut wrapper, and means in the path of said die for automatically pressing the leaf thereon to effect the cutting of the wrapper, combined with transferring means also connected with air-suction and adapted to take the cut wrapper from said die when the latter is at its inward position and deliver the same to the rolling mechanism; substantially as set forth.

14. In a machine for making cigarettes, the feed-belt for the filler-tobacco, the knife for severing the charges therefrom, the rolling mechanism, and means for conveying the separate charges of tobacco to the rolling mechanism, combined with the die for cutting out the wrappers, means for moving said die inward with its wrapper, the endless porous belt for removing the wrapper from the die and conveying it to the rolling mechanism, suction apparatus connected with said belt, and the plunger between the parts of said transferring-belt for pressing the latter against the said die to take the wrapper therefrom; substantially as set forth.

15. In a cigarette-making machine, the feed-belt for filler-tobacco, the knife for serving the charges therefrom, the rolling mechanism, and means for conveying the severed charges of tobacco to said mechanism, combined with the die for cutting the wrappers, means for moving said die inward, the endless porous transferring-belt, air-suction apparatus connected therewith, the plunger between the sections of said belt and corresponding substantially with the outline of said die, means for pressing the plunger against the belt to cause the latter to engage the wrapper on the die, and means for applying paste to the edge of the wrapper while in line with the said plunger; substantially as set forth.

16. In a machine of the character described, rolling mechanism for rolling the cigarettes, the die for cutting the wrappers for the cigarettes, the yielding platen in said die, air-suction apparatus connected with said die, and means for effecting the outward movement of said die to receive the leaf from which the wrapper is to be cut and then the inward movement of said die to surrender the cut wrapper, combined with means in the path of said die for automatically pressing the leaf thereon to effect the cutting of the wrappers, and transferring means connected with air-suction for removing the wrapper from the die when the latter is at its inward position and delivering the same to the rolling mechanism; substantially as set forth.

17. For use in connection with cigarette-making machines, to reprepare the trimmed ends, the revoluble serrated rollers, and means for causing said rollers to revolve toward one another, the teeth of one of said rollers passing between the teeth of the other roller, combined with the chute over one of said rollers to receive the trimmed ends and retain the same until they are moved by said roller to the other roller; substantially as shown and described.

18. In a cigarette-making machine, the feed-belt for filler-tobacco, the knife for severing the separate charges therefrom for the cigarettes, cigarette-rolling mechanism, and means for conveying the said charges of filler-tobacco to said mechanism, combined with the endless porous or perforated belt for feeding the wrappers while in a distended condition to said rolling mechanism, air-suction apparatus connected with said belt, means for applying paste to one edge of the wrapper while held by said belt, and means for imparting to said belt an intermittent motion; substantially as set forth.

19. For use in connection with cigarette-making machines, to reprepare the trimmed ends, the revoluble serrated rollers, and means for causing the said rollers to revolve toward one another, the teeth of one of said rollers passing between the teeth of the other roller and the inclined sides of the teeth of said rollers facing and moving toward one another as said rollers revolve, combined with the chute over one of said rollers to receive the trimmed ends and retain the same until said ends are moved by the roller below the chute to the other roller; substantially as shown and set forth.

20. In a cigarette-making machine, the rolling mechanism, and means for feeding the charges of filler-tobacco thereto, combined with the die for cutting the wrappers, air-suction apparatus connected with said die, means for moving said die inward, the endless porous or perforated belt for receiving the wrapper from said die when the latter is at its inward position and delivering the same to the rolling mechanism, air-suction apparatus connected with said belt, and means for cutting the air off from said die at the time the belt is to take the wrapper therefrom; substantially as set forth.

21. In a cigarette-making machine, the feed-trough for the filler-tobacco, the knife for severing the charges thereof, and cigarette-rolling mechanism, combined with the charge-box, the oscillatory arms carrying said charge-box and rigidly secured to the hinged bottom thereof, the arm carried by said box, the adjusting-screw carried by said arm, the stop for contact with said screw to arrest said box while said arms continue downward to open the bottom from said box, and segmental gearing with intermediate connections for oscillating said arms from the main driving-shaft; substantially as set forth.

22. In a cigarette-making machine, the rolling mechanism, and mechanism for feeding the charges of filler-tobacco thereto, combined with the die for cutting the wrappers, air-suction apparatus connected with said die, means for moving the die inward, the endless perforated belt for transferring the cut wrapper from the said die to the rolling mechanism, air-suction apparatus connected with said belt, the plunger between the sections of said belt, means for pressing said plunger against the belt and moving the latter against said die when the latter is at its inward position, the supporting-rollers for said belt, and the yielding tension-bearing for one of the said rollers of said belt; substantially as set forth.

23. In a cigarette-making machine, the rolling mechanism, means for feeding the charges of filler-tobacco thereto, and means for feeding the wrappers to said rolling mechanism, combined with the oscillating knives having the pockets to receive the cigarette from said rolling mechanism, the cooperating cutters for said knives, the arms having a spring-tension against the bearings of said knives, means to operate said arms to eject the cigarette, and the gearing connected with the shaft of said knives for oscillating the same; substantially as set forth.

24. In a cigarette-making machine, the rolling mechanism, means for feeding the filler-tobacco thereto, and means for feeding the wrappers to said rolling mechanism, combined with the knives for trimming the ends of the rolled cigarettes, and the pair of serrated rollers receiving said trimmed ends and acting upon the same to reprepare the tobacco for use in making cigarettes; substantially as set forth.

25. In a cigarette-making machine, the rolling mechanism, means for feeding the filler-tobacco thereto, and means for feeding the wrappers to said rolling mechanism, combined with the cutters located below said rolling mechanism to receive the rolled cigarettes and cut the ends therefrom, the chute receiving said ends, the serrated roller directly below the said chute, the cooperating roller having small serrations at the side of the said first-mentioned roller, and means for revolving said rollers toward one another for the purpose of carrying said cigarette ends between the same; substantially as set forth.

26. For use in connection with cigarette-making machines to reprepare the trimmed ends, the revoluble serrated rollers, and means for causing said rollers to revolve toward one another, the teeth of one of the rollers having the blunt ends, and the other roller having the small teeth passing between the larger teeth of the first roller; substantially as set forth.

27. For use in connection with cigarette-making machines to reprepare the trimmed ends, the serrated rollers, and means for causing the said rollers to revolve toward one another, one of the rollers being smaller in diameter than the other roller and the teeth of the latter roller having the blunt ends, while the said smaller roller has the lines of teeth adapted to pass between the larger teeth of the larger roller; substantially as set forth.

28. For use in connection with cigarette-making machines to reprepare the trimmed ends, the braking-rollers, adapted to revolve toward one another and having serrated surfaces, one of the rollers being smaller than the other roller and having its teeth in line with the spaces between the teeth of the said other roller, combined with means for rotating said larger roller and means for imparting to said smaller roller an intermittent motion from said larger roller; substantially as set forth.

29. For use in connection with cigarette-making machines, to reprepare the trimmed ends, the revoluble serrated rollers adapted to revolve toward one another, the teeth of one of said rollers passing between the teeth of the other roller and the inclined sides of the teeth of said rollers facing and moving toward one another as said rollers revolve, combined with means for imparting a constant revolving motion to one of said rollers and an intermittent revolving motion to the other of said rollers, and the chute over one of said rollers to receive the trimmed ends and retain the same until said ends are moved by the roller below the chute to the other roller; substantially as set forth.

30. In a cigarette-making machine, cigarette-rolling mechanism, and means for delivering the charges of filler-tobacco to the rolling mechanism, combined with the porous or perforated transferring-belt, suction apparatus connected therewith, and means for pasting the edge of the wrapper while held by said belt previous to its transfer thereby to the rolling mechanism; substantially as set forth.

31. In a cigarette-making machine, means for rolling the cigarette, and means for delivering the charges of tobacco to the rolling mechanism, combined with the porous or perforated belt for feeding the cut wrapper to the rolling mechanism, air-suction apparatus connected with said belt, means for applying paste to the edge of the wrapper while held on said belt, and means for trimming the ends of the cigarette after leaving said rolling mechanism; substantially as set forth.

32. In a cigarette-making machine, the rolling mechanism, combined with the endless perforated transferring-belt for delivering the cut wrappers, air-suction apparatus connected with said belt, the plunger within said belt for depressing the latter against the wrapper to be received by it, the strip carried by said plunger below the said belt to serve as a base for the edge of the wrapper, and means for applying paste to said edge of the wrapper while held on said strip; substantially as set forth.

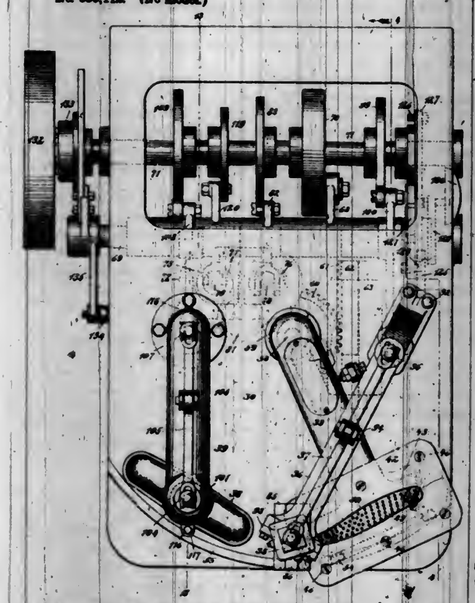
33. The die having its side and end sections independent of one another and each of said sections having the inclined outer edges, the clamping-screws for said sections, and the adjusting-screws acting against said inclined edges of said sections, combined with the yielding platen within said die, air-suction apparatus connected with said die, and the automatically-operating punch for said die; substantially as set forth.

34. In a cigarette-making machine, the rolling mechanism, and means for feeding the charges of filler-tobacco thereto, combined with the oscillating knives having the pockets to receive the cigarette from said rolling mechanism, the cooperating cutters for said knives, the oscillating arms for ejecting the trimmed cigarette from said pockets, the means for actuating said arms, and the gearing for oscillating the said knives and rotating said cutters; substantially as set forth.

35. In cigarette-making machines to reprepare the trimmed ends, the revoluble serrated braking-rollers, and means for causing said rollers to revolve toward one another, the teeth of one of the rollers having the blunt ends, inclined sides and substantially straight sides, and the other roller having the small teeth passing between the larger teeth of the first roller; substantially as set forth.

36. In cigarette-making machines to reprepare the trimmed ends, the serrated braking-rollers, and means for causing the said rollers to revolve toward one another, one of the rollers being smaller in diameter than the other roller and the teeth of the latter roller having the blunt ends, inclined sides and substantially straight sides, while the said smaller roller has the lines of teeth adapted to pass between the larger teeth of the larger roller; substantially as set forth.

589,884. MACHINE FOR CUTTING WRAPPERS AND BINDERS FOR CIGARS. JOHN R. WILLIAMS, East Orange, N. J., assignor to the John R. Williams Company, New York, N. Y. Filed June 2, 1897. Serial No. 639,112. (No model.)



Claim.—1. In a machine of the character described, the cutting-die, air-suction apparatus connected therewith, and means for moving said die from the position in which it receives the leaf to the position in which it surrenders the wrapper, combined with means in the path of said die for pressing the leaf thereon to effect the cutting of the wrapper, the nozzle adapted to remove the cut wrapper from said die, suction apparatus connected with said nozzle, and means for imparting a reciprocating movement to said nozzle; substantially as set forth.

2. In a machine of the character described, the cutting-die, air-suction apparatus connected therewith, and means for moving said die from the position in which it receives the leaf to the position in which it surrenders the wrapper, combined with means in the path of said die for pressing the leaf thereon to effect the cutting of the wrapper, mechanism for imparting a vertical reciprocation to said pressing means, the nozzle adapted to remove the cut wrapper from said die, suction apparatus connected with said nozzle and means for imparting a reciprocating movement to said nozzle; substantially as set forth.

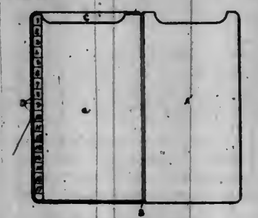
3. In a machine of the character described, the cutting-die, air-suction apparatus connected therewith, and means for moving said die from the position in which it receives the leaf to the position in which it surrenders the wrapper, combined with means in the path of said die for pressing the leaf thereon to effect the cutting of the wrapper, the nozzle adapted to remove the cut wrapper from said die, suction apparatus connected with said nozzle and means for imparting first a downward motion to said nozzle to take the wrapper from the die, then an upward movement to said nozzle to permit the escape of the die, and then a downward movement of said nozzle to permit the delivery of the wrapper to the receiver for the wrapper; substantially as set forth.

4. In a machine of the character described, the cutting-die, and means for holding the leaf thereon, combined with the rollers in line with said die for pressing the leaf thereon to effect the cutting of the wrapper, means for lowering said rollers to effect the cutting of the wrapper and then elevating them above the horizontal plane of the travel of the die, and the nozzle connected with air-suction for removing the cut wrapper from the die; substantially as set forth.

5. In a machine of the character described, the hollow arm 36 connected with air-suction apparatus, the die carried by said arm for cutting the wrapper, and means in the path of said die for pressing the leaf thereon, combined with the segment 60 secured to the inner end of said arm 33, the sliding rack 62 having teeth upon one side in engagement with said segment 60, the pivoted segment 65 having its teeth in engagement with the teeth at the lower side of said rack 62, the lever 68 having one arm connected with said segment 65 and the cam 70 upon the driving-shaft and engaging the other arm of said lever 68 for oscillating the same and thereby imparting motion through said segments and sliding rack to said oscillating arm 33; substantially as set forth.

6. In a machine of the character described, the cutting-die, air-suction apparatus connected therewith, and means for moving said die from the position in which it receives the leaf to the position in which it surrenders the wrapper, combined with means in the path of said die for pressing the leaf thereon to effect the cutting of the wrapper, the hollow arm or frame 39 connected with air-suction apparatus, the nozzle 38 adapted to have a vertical reciprocation in the end of said frame 39 to take the wrapper from the die and deliver the same, the collar 115 on said nozzle, the guide 116 carried by said collar and entering a guide-lug 117 on said hollow arm or frame 39, and means for reciprocating said nozzle from the main driving-shaft of the machine; substantially as and for the purposes set forth.

589,885. AMBIDEXTER OR LEFT-HAND REFERENCE-BOOK. JOSEPH W. WOODWARD, Omaha, Nebr. Filed Jan. 18, 1897. Serial No. 619,700. (No model.)

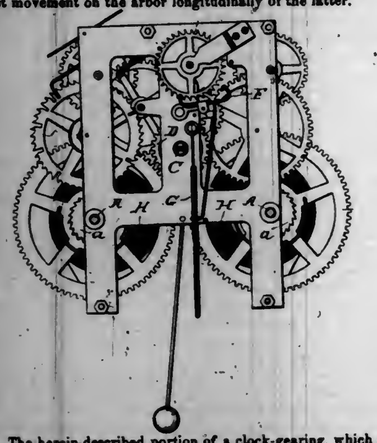


Claim.—The combination in a reference-book, of the covers, A, and A', the back, B, and the rear removed cover portion, C, secured to the fly-leaf, *a*, in combination with the index-pages, D.

589,886. CLOCK-GEARING. WILLIAM H. WRIGHT, Bristol, Conn. Filed Mar. 28, 1896. Serial No. 585,308. (No model.)

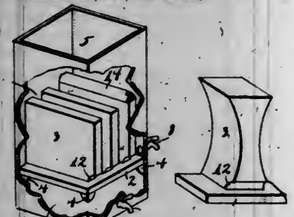
Claim.—1. In a train of gearing for clocks, a main arbor formed with a shoulder, and provided with a spline, a spring-washer on said arbor and bearing against said shoulder, and a gear-wheel mounted directly on said arbor to turn loosely thereon, and bearing against said washer, in combination with a ratchet-wheel on said arbor and engaged by said spline to connect it fixedly with the arbor, and a

collet on said arbor for holding the gear-wheel and the ratchet-whee against movement on the arbor longitudinally of the latter.



2. The herein-described portion of a clock-gearing, which consists of a main arbor having a shoulder integral therewith, a gear-wheel loose on the arbor provided with the spring-controlled pawl, a previously-cut ratchet-wheel attached fixedly to the arbor and bearing against said gear-wheel, a spring-washer, and a collet on said arbor to hold the parts firmly against said shoulder, all so constituted and arranged that the parts may each be made separately and easily combined in manufacture substantially as described.

589,887. **FILTER.** JOHN F. ZIEGLER, Toledo, Ohio. Filed Jan. 30, 1897. Serial No. 621,356. (No model.)



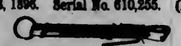
Claim.—1. In a filter, a casing, an apartment for unfiltered water and an apartment for filtered water, formed by a dividing-wall integral with a plurality of filtering-shells, having cut-out portions at the lower ends thereof and a plurality of guards mounted thereon substantially as set forth.

2. In a filter, a casing, an apartment for unfiltered water, and an apartment for filtered water, a dividing-wall integral with a plurality of filter-shells, secured by cementation to the sides of the casing and having mounted thereon inverted-V-shaped guards, substantially as set forth.

3. In a filter, a casing, a chamber, for unfiltered water, and a chamber for filtered water, a dividing-wall integral with a plurality of filtering-shells, guards mounted thereon, the sides of the guards being inclined and the end thereof being cut out, substantially as set forth.

4. In a filter, a casing, a chamber for unfiltered water and a chamber for filtered water, guards mounted upon filtering-shells integral with a dividing-wall, the ends of the guards being secured to the filtering-shells and to the casing substantially as set forth.

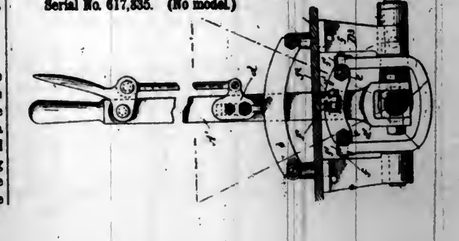
589,888. **HAT-FASTENER.** EDWARD B. ALEXANDER, Chicago, Ill. Filed Oct. 28, 1896. Serial No. 610,255. (No model.)



Claim.—1. The combination with a hat, of a fastening device therefor consisting of a strip of elastic material folded back upon itself, a ring or eye upon one end of said strip by means of which the same may be permanently secured to said hat, a hook made of a single piece of wire bent at its central point, forming two parallel arms which are themselves bent rearwardly, a cross-bar connecting the same at a point adjacent to the bent portion of said arms, the central portion of said hook and said cross-bar lying between the folds of said strip, and means for preventing the slipping of said hook on said strip, substantially as and for the purpose described.

2. The combination with a hat, of a fastening device therefor consisting of a strip of elastic material folded back upon itself, a ring or eye upon one end of said strip by means of which the same may be permanently secured to said hat, a metallic clip for holding said ring in place upon said strip, a hook made of a single piece of wire bent at its central point, forming two parallel arms which are themselves bent rearwardly, a cross-bar connecting the same at a point adjacent to the bent portion of said arms, the central portion of said hook and said cross-bar lying between the folds of said strip, and metallic spring-clips located upon opposite sides of said cross-bar and the bent portion of said hook by which said arms are formed, substantially as and for the purpose described.

589,889. **ADJUSTABLE LATHE-DOG.** EDWIN A. ANTHONY, Dighton, Mass. Filed Jan. 14, 1897. Serial No. 619,138. (No model.)



Claim.—1. In a lathe attachment, the combination with two spaced plates rigidly secured to the face-plate of the lathe, of a jaw having one end pivoted between said plates so that it may be passed between them when adjusted, and adjusting means connected to said jaw and having one end mounted between said plates for drawing said jaw and plates together to clamp an article between them, substantially as described.

2. In a lathe attachment, the combination with spaced plates rigidly secured to the face-plate of a lathe, of a jaw having one end pivoted between said plates so that it may pass between them when adjusted, an auxiliary jaw movably mounted upon said pivoted jaw and the spaced plates whereby the auxiliary jaw may be drawn forward to clamp an article between it and the spaced plates, substantially as described.

3. In a lathe attachment, the combination with spaced plates adapted to be secured to the face-plate of a lathe, of a segmental pivoted jaw mounted between said spaced plates, a notched segmental auxiliary jaw adjustably mounted on said pivoted jaw and means connecting the pivoted jaw and the spaced plates whereby the two are drawn together to clamp an article between the auxiliary jaw and said plates, substantially as described.

4. In a lathe attachment, the combination with spaced plates adapted for attachment to the face-plate of the lathe and provided in one edge with V-shaped notches, of a jaw pivotally mounted between said plates, an auxiliary jaw adjustably mounted on said pivoted jaw and provided with V-shaped notches and means for drawing the spaced plates and pivoted jaw together whereby an article may be clamped between the auxiliary jaw and said spaced plates, substantially as described.

5. In a lathe attachment, the combination with spaced plates adapted to be secured to the face-plate of the lathe, of a pivoted jaw mounted between said plates, a screw-bolt also pivotally mounted between said plates, an apertured toggle pivotally connected to said pivoted jaw and adapted to receive the screw-bolt and an adjusting-nut mounted on said screw-bolt so as to engage the toggle-joint and force the same forward to clamp an article between the pivoted jaw and the spaced plates, substantially as described.

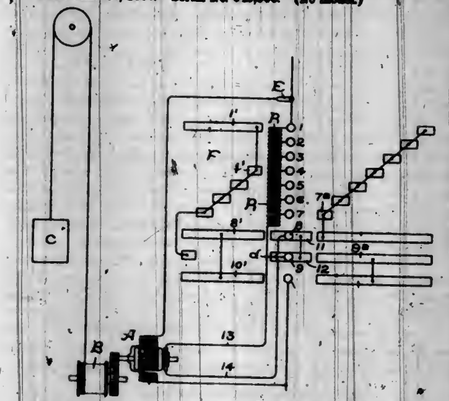
589,890. **HAND-LEVER.** GEORGE S. BINCKLEY, San Francisco, Cal., assignor to the Union Iron Works, same place. Filed Jan. 2, 1897. Serial No. 617,835. (No model.)

Claim.—1. The combination in a lever mechanism, of a hand-lever, a jaw formed on the lower end thereof, which embraces an oscillatory shaft controlling a train of mechanism, a bolt passing through the jaw and oscillatory shaft and forming a fulcrumed point for the hand-lever, at right angles to the axis of the shaft, the fixed quadrants between which the hand-lever works, the latch or catch movably connected to the hand-lever and arranged to engage the quadrants, the swinging or secondary quadrants secured between the horns of a swinging yoke which is thrown by the lateral throw of the hand-lever, and of connection between the swinging yoke and an independent train of mechanism from that controlled by the oscillatory shaft.

2. The combination with the hand-lever, of an oscillatory shaft to which the hand-lever is fulcrumed at right angles to its axis, said shaft being connected to one train of mechanism, the quadrant-bars between which the hand-lever works, a movable latch or catch carried at each side of the hand-lever which engages the quadrant-bars, the secondary quadrants suspended between the horns of a swinging yoke, the disks arranged between the swinging quadrants and held in place by a spherical-ended pin passing through the hand-lever, and of suitable connection between the swinging yoke and a second train of mechanism.

3. In a lever mechanism, the combination with the oscillatory shaft connected to a train of mechanism, of a hand-lever fulcrumed to the shaft at right angles to its axis, the fixed quadrants between which the hand-lever works, a movable latch carried at each side of said lever which embraces the sides of the fixed quadrants, the swinging yoke connected to a second train of mechanism, the secondary quadrants suspended between the horns of the swinging yoke, the sliding disks arranged between said quadrants and held in place by means of a spherical-ended pin passing through the hand-lever, an arm having a slot cut in its outer end portion projecting from one of the suspended quadrants and a pin working in the slotted end portion of the arm and serving to hold the arm and suspended quadrants in a horizontal plane during the movement of the swinging yoke.

589,891. **ELEVATOR-CONTROLLER.** MAXWELL W. DAY, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed June 12, 1897. Serial No. 640,508. (No model.)



Claim.—1. In an electric controller, the combination of contacts for connecting the motor with the source of supply, means for disconnecting the motor from said source and connecting a resistance across the mains, and means for shunting the armature by a portion of the resistance.

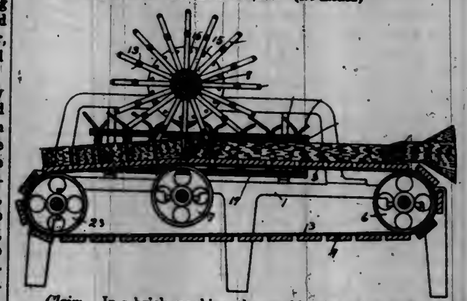
2. In an electric controller, the combination of a set of contacts for establishing connection between the source of supply and the motor, a second set of contacts for connecting a resistance across the supply-mains and coupling the armature in shunt thereto, and contacts for short-circuiting the armature for stopping.

3. The combination with an electric hoist-motor having its field-coils connected across the supply-mains, of a controller having a set of contacts for connecting the armature in circuit with the source of supply, a second set of contacts for connecting a resistance across the mains and coupling the armature in shunt to a portion of the resistance, and means for varying the amount of resistance which shunts the armature.

4. The combination of a shunt-wound motor having its field-winding permanently connected to the source of supply, a winding-drum geared to the motor by spur-gearing so that under certain conditions the drum can drive the motor as a generator, contacts for connecting the armature and a regulating-resistance across the mains and regulating the amount of resistance included in each circuit, contacts for short-circuiting the armature for stopping, a second set of contacts for coupling a resistance across the supply-mains and the armature in shunt thereto, and means for varying the amount of resistance which shunts the armature.

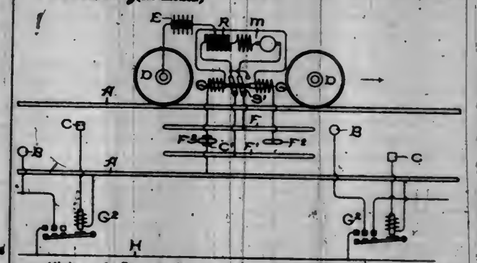
5. In a controller for an electric hoist-motor, the combination of a resistance, a set of contacts controlling the speed of the motor-armature when rotating in one direction, a second set of contacts for regulating the armature when rotating in the opposite direction, and a separate commutating-switch provided with a set of contacts for short-circuiting a portion of the controlling-resistance when in one position, and a second set of contacts for completing a portion of the lowering-circuit.

589,892. **BRICK MACHINERY.** AXEL GOAN, Grant Park, Ill. Filed May 7, 1896. Serial No. 590,561. (No model.)



Claim.—In a brick-machine, the combination of an endless belt supported on suitable pulleys, a pair of link belts suitably supported, a number of pairs of vertical rods each pair fastened at each end to said link belts, one of each pair of rods adapted to be driven by said endless belt, a shaft provided with suitable hubs, a number of arms pivoted in pairs to said hubs, each pair of arms joined near their ends by a wire, and provided with projections which are adapted to be received between said pairs of vertical rods, and a means of limiting the oscillating movement of said pivoted arms, as and for the purpose set forth.

589,893. **AUTOMATIC SWITCH FOR SURFACE-CONTACT RAILWAYS.** EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 25, 1897. Serial No. 620,577. (No model.)



Claim.—1. In a surface-contact railway system, a car provided with a storage battery, means for turning the car, and an automatic switch for reversing the battery connections.

2. In a surface-contact railway system, a car provided with a storage battery, means for turning the car, and a switch mechanism automatically actuated to reverse the battery connections at the time of turning of the car.

3. In a surface-contact railway system, a car provided with a storage battery and an operating motor or motors, the battery being in series with the motors between the source of supply and ground, and an automatic switch for reversing the connections of the motors and the battery relative to the road-contacts.

4. In a surface-contact railway system, a car provided with a motor or motors, and a storage battery in series therewith between the source of supply and ground, means for turning the car, and an automatically-operated switch for reversing the connections of the motor and the battery relative to the road-contacts.

5. In a surface-contact railway system, a car carrying a motor or motors and a storage battery, the battery being in series with the motors between the source of supply and ground, and a common re-

sistance for controlling the speed of the motors and the potential of the current supplied to the battery.

6. In a surface-contact railway system, a car carrying a motor or motors and a storage battery, the battery being in series with the motors between the source of supply and ground, and a common resistance for controlling the speed of the motors and the potential of the current supplied to the battery, the battery being in multiple with part of the resistance.

7. In a surface-contact railway system, the combination of a dead section of track, containing a contact a car provided with sliding contacts, and an automatic switch for reversing the connections of the sliding contacts, the contacts in the dead track coöperating with the sliding contacts on the car for actuating the automatic switch.

8. In a surface-contact railway system, the combination of a dead section of track, a car provided with sliding contacts, and a motor or motors, and an automatic switch for reversing the connections of the motor or motors acting to maintain the resistance always on the ground side of the system, with a contact or contacts in the roadway coöperating with the sliding contacts on the car for actuating the automatic switch.

9. In a surface-contact railway system, the combination with a dead section of track provided with suitable coöperating contacts, of a car having sliding contacts, a storage battery, and an automatic switch for reversing the connections of the storage battery, the switch actuated by a circuit including the sliding contacts on the car and the contacts in the roadway.

10. In a surface-contact railway system, the combination with a dead section of track provided with suitable contacts coöperating with the sliding contacts on the car, of a car provided with sliding contacts, a motor or motors and a storage battery in series with the motors between the source of supply and ground, and an automatic switch operated by the circuit including the sliding contacts and the coöperating road-contacts to reverse the connections of the battery and the motors.

11. In an electric car, the combination with a motor or motors and a storage battery, of a device including the battery in series with the motor or motors between the source of supply and ground at times when the current is of considerable volume, and cutting it out when the current diminishes.

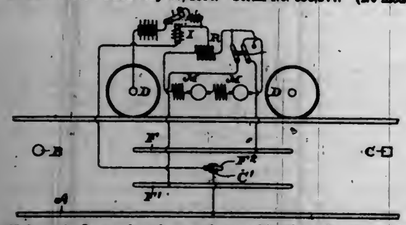
12. In an electric car, the combination with a motor or motors and a storage battery, of a device for including the battery in series with the motors and in multiple with a resistance, thus reducing the potential of current supplied, the device so including the battery with the motors when the current is of considerable volume, and cutting it out when the current diminishes.

13. In an electric car, the combination with a motor or motors and a storage battery, of a controlling device including the battery in series with the motors between the main source of supply and ground, and in multiple with a part of the main motor resistance at starting, and for cutting out the battery when the motor acquires speed sufficient to cut down the current.

14. A controlling device for an electric car provided with motors, a storage battery and a resistance, the controlling device provided with contacts and connections adapted to include the battery in series with the motors and a part of the main motor resistance, and in multiple with another part of the resistance while a large current flows, and afterward to cut out the battery.

15. A controlling device for an electric car, provided with motors, a storage battery and a resistance, the controlling device having contacts and connections adapted to include the battery at starting in series with the motors and one part of the resistance, and in multiple with another part of the resistance, and to cut it out as the speed of the motors is increased.

589,894. SURFACE-CONTACT RAILWAY. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 27, 1897. Serial No. 638,377. (No model.)



Claim.—1. In an electric car, the combination of motors, a battery, and contact-shoes connected thereto, with an auxiliary shoe, an automatic switch in circuit therewith acting to open the battery-circuit upon grounding the auxiliary shoe, and a switch for reversing the leads to the contact-shoes while the battery-circuit opens.

2. In a surface-contact railway provided with means for turning the car, an automatic switch for opening the lead from the battery to one of the contact-shoes, and a contact in the roadway for opening the switch.

3. The combination of an automatic switch actuated by a contact in the roadway to open the battery-circuit, with a switch acting to reverse the leads between the motors and battery and the contact-shoes.

4. In a surface-contact railway provided with a Y for turning the car, the Y having a dead space in which there are no working contacts, a battery one end of which is grounded, a switch in the battery-circuit, a coil acting to open the switch, an auxiliary shoe connected to the coil, and a contact in the dead space for grounding the auxiliary shoe.

589,895. DRYING-KILN. DAVID HILL and JAMES S. HILL, Washington, N. C. Filed Dec. 16, 1896. Serial No. 615,921. (No model.)



Claim.—1. In a drying-kiln, the combination with a drying-chamber sealed at its bottom and sides, and having a discharge-passage communicating with the top of said chamber, of a heating device in said chamber, and means for positively removing aqueous vapor from said chamber through said discharge-passage, substantially as described.

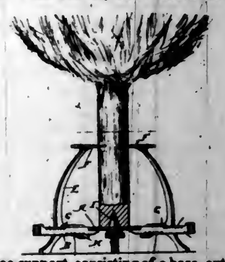
2. In a drying-kiln, the combination with a drying-chamber sealed at its bottom and sides, and having a discharge-passage communicating with the top of said chamber, of a heating device adjacent to the bottom of said chamber and an exhausting device communicating with said discharge-passage, substantially as described.

3. In a drying-kiln, the combination with the drying-chamber sealed at its bottom and sides, of a heating device adjacent to the bottom of said chamber, means for admitting air to said chamber adjacent to its top, and an air-exhausting device for removing air from said chamber adjacent to its top, substantially as described.

4. In a drying-kiln, the combination with the drying-chamber, sealed at its bottom and sides, of a heating device adjacent to the bottom of said chamber, an eduction-pipe provided with a series of apertures adjacent to the top of the chamber, an exhausting device connected with said eduction-pipe, and a water-pipe connected with said eduction-pipe, and provided with a controlling-valve, whereby the contents of the drying-chamber may be flooded in case of fire, substantially as described.

5. In a drying-kiln, the combination with the drying-chamber, sealed at its bottom and sides, of a heating device located in said chamber adjacent to its bottom, an eduction-pipe adjacent to the top of said chamber having a series of apertures communicating therewith, an exhausting device connected with said eduction-pipe, and an air-pipe connected with said eduction-pipe and having a portion lying adjacent to said heating device, substantially as described.

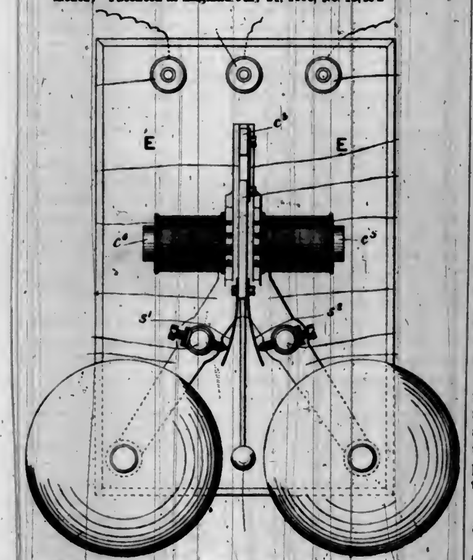
589,896. CHRISTMAS-TREE HOLDER. JOSEPH H. JARDOT, Philadelphia, Pa. Filed Oct. 21, 1896. Serial No. 609,583. (No model.)



Claim.—1. A tree-support, consisting of a base, extensions formed therewith, ratchet-teeth formed upon both sides of the extensions, support-arms guided by the extensions and held by the teeth, and a spur for centering the butt of the tree, as specified.

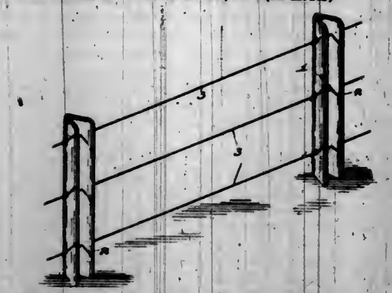
2. A base, extensions formed therewith, said extensions consisting of two members lying parallel with each other and of a distance apart, ratchet-teeth formed with the extensions upon the upper and under sides thereof, supports fitted between the members of the extensions, detents formed with said supports for the engagement with the ratchet-teeth, jaws also formed with said supports, and feet formed upon the lower ends thereof, substantially as shown and described.

589,897. BELL. SAMUEL JEVONS and WILLIAM COLLINS, Birmingham, England. Filed Oct. 23, 1896. Serial No. 610,355. (No model.) Patented in England July 21, 1896, No. 13,404.



Claim.—In combination with the two bells, a single hammer arranged between them and common to both, the single armature attached to the hammer, a pair of magnets arranged to act on the common armature, the contact-pillars, one on each side of the armature, the contact-springs carried by the armature, a circuit and push-button for each magnet and contact-pillar, and a double push-button independent of the two first-mentioned and adapted to be located at any desired distance therefrom with circuit connections for closing both circuits to energize both magnets and sound both bells from the common hammer, substantially as described.

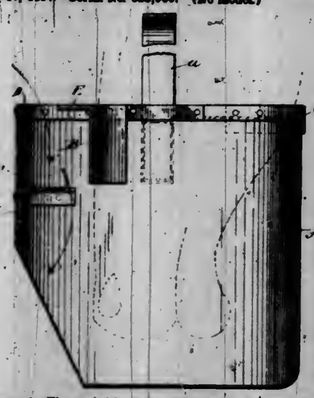
589,898. FENCE-POST. JAMES B. JOHNSTON, Pueblo, Colo., assignor of one-half to H. W. Gibbons and Charles H. Schell, same place. Filed Jan. 12, 1897. Serial No. 618,920. (No model.)



Claim.—1. A fence-post having slits in the side edges thereof through which the line-wires are adapted to be passed, the said line-wires being held in place by the application of cement or concrete to said slits, substantially as described.

2. A fence-post having angularly-arranged slits in the outer edge thereof in which the line-wires of the fence are adapted to be inserted, the said line-wires being sealed in place and prevented from slipping by means of cement or concrete applied in a plastic condition to said slits, substantially as described.

589,899. NOSE-BAG. WILLIAM F. KELLETT, Chicago, Ill. Filed Feb. 17, 1897. Serial No. 623,909. (No model.)

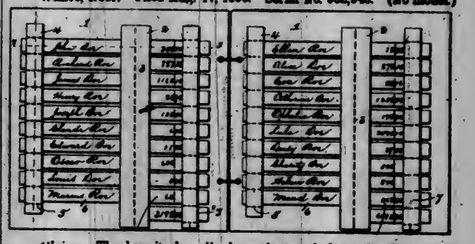


Claim.—1. The combination with the bag A, of the face-band crossing the top of the bag, the means for contracting the bag at the back, the plate E and the plate F, constructed and arranged substantially as shown and described.

2. The combination with the bag A, of the face-band crossing the top of the bag, the means for contracting the back of the bag, the distending-band D, the plate E and the plate F, constructed and arranged substantially as shown and described.

3. The combination with a nose-bag adapted to fit closely to the under jaw of an animal and to project forwardly from the animal's face, of a pair of plates radially disposed with reference to the bag and crossing its forwardly-projecting portion, one of the plates extending backwardly from the front wall of the bag, and the other plate being spaced apart therefrom, and being adapted to abut against the animal's face.

589,900. CONTINUOUS BALANCE-BOOK. EDWARD LEMKUHL, Wahoo, Nebr. Filed Aug. 17, 1896. Serial No. 602,948. (No model.)



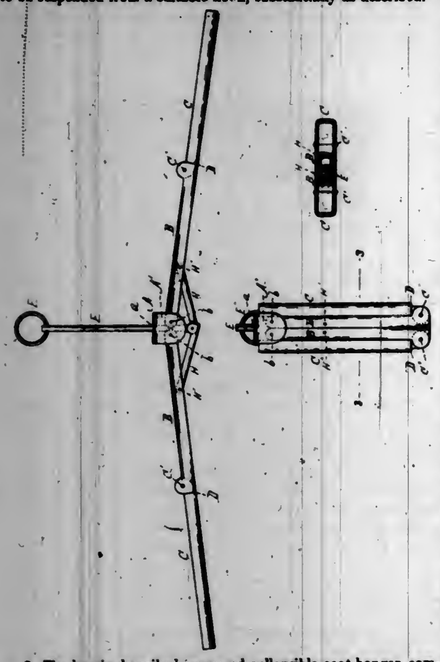
Claim.—The herein-described continuous balance-book, consisting of a series of pages suitably bound together, each having a strip of stiff paper or pasteboard sewed to said page and extending longitudinally thereof, the edges of said strips being free, and strips parallel thereto located on each side thereof, the said parallel strips being divided up by seams or rivets arranged at regular intervals forming compartments on one side for the reception of slips containing the names of customers and compartments on the opposite sides for receiving slips containing the balances of respective customers.

589,901. COAT-HANGER. BENJAMIN M. LINCOLN and ABRAHAM SUMMERFIELD, Boston, Mass. Filed Feb. 2, 1897. Serial No. 621,867. (No model.)

Claim.—1. A coat-hanger comprising a central support; a pair of jointed stretchers adapted to fold back upon themselves and pivotally secured at their inner ends to said support; a toggle extending from one stretcher to the other and pivotally secured to the under sides thereof; and a supporting-rod extending from the joint of said toggle up through said central support and adapted to be suspended from a suitable hook, substantially as set forth.

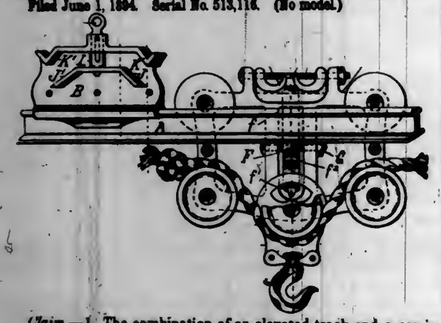
2. The herein-described improved collapsible coat-hanger, comprising a central support; the jointed stretchers, each consisting of the pivotally-connected arms B, C and with their connected ends bearing against each other at D, said stretchers being pivotally secured at their inner ends to said support, and the inner arms B thereof being channeled on their under sides; the toggle H pivotally secured to said arms B within the channels therein; and the rod E extending

from the joint of said toggle up through said support and adapted to be suspended from a suitable hook, substantially as described.



3. The herein-described improved collapsible coat-hanger, comprising the central support A formed with the substantially parallel sides A', the jointed stretchers B, C pivotally secured at their inner ends within and to said central support, said stretchers being formed with channels on their under sides; the toggle H secured at its opposite ends to the stretchers within their channels and formed with channels on its upper sides; and the rod E extending up from the joint of the toggle through the central support, the outer ends of the stretchers being adapted to fold up into the central support when the device is closed, the toggle folding into the channels of the stretchers and over the supporting-rod, substantially as set forth.

589,902. HAY-CARRIER. WILLIAM LOUDEN, Fairfield, Iowa. Filed June 1, 1894. Serial No. 513,116. (No model.)



Claim.—1. The combination of an elevated track and a carrier to run on the sides thereof, a stop-block secured to the upper edge of the track-rail, a dog mounted in the carrier-frame above the track and adapted to engage the stop-block thereon, a pulley-block for the carrier and a grappling-hook pivoted in the carrier-frame adjacent to the lower edge of the track-rail and adapted to engage the dog above the track and support the pulley-block below the track, substantially as described.

2. The combination of an elevated track and a carrier to run on the sides thereof, a stop-block secured to the upper edge of the track-rail, a dog pivoted at one end to the frame of the carrier above the track and its free end adapted to engage the stop-block thereon, a pulley-block for the carrier, and a grappling-hook pivoted in the carrier-frame adjacent to the lower edge of the track-rail and adapted to engage the dog above the track and support the pulley-block below the track, substantially as described.

3. The combination of a suspended track and a carrier to run thereon, a stop-block having an inclined face secured to the upper edge of the track-rail, a dog pivoted at one end to the frame of the carrier above the track, and its free end adapted to slide up the incline of said stop-block, a pulley-block for the carrier, and a grappling-hook pivoted in the carrier-frame adjacent to the lower edge of the track-rail and adapted to engage the dog above while it supports the pulley-block below the track, substantially as described.

4. The combination of a suspended track and a carrier to run thereon, a stop-block having an inclined face and a retaining-shoulder secured to the upper edge of the track-rail, a dog pivoted at one end to the frame of the carrier above the track and its free end adapted to slide up the incline and catch against the shoulder of said stop-block, a pulley-block for the carrier, and a grappling-hook pivoted in the carrier-frame adjacent to the lower edge of the track-rail and adapted to engage the dog above it while it supports the pulley-block below the track, substantially as described.

5. The combination of a track and a carrier to run thereon, a stop-block secured to said track, a dog pivoted at its outer end to the frame of the carrier so as to stand in a horizontal position and at right angles to the track, and its inner end adapted to engage the stop thereon, and a grappling-hook pivoted to the carrier so as to stand in a vertical position and at right angles to the track and the upper end of the grappling-hook being adapted to engage the central part of the dog and its lower end to support the pulley-block, substantially as described.

6. The combination of a track and a carrier to run thereon, a stop-block secured to said track, a dog pivoted at its outer end to each opposite side of the frame of the carrier, the free ends of said dogs pointing toward each other and being adapted to engage the stop-block, a pulley-block for the carrier, a grappling-hook pivoted to each opposite side of the carrier-frame below the dogs, the lower ends of said grappling-hooks being adapted to support the pulley-block and their upper ends to engage the central parts of the dogs substantially as set forth.

7. The combination of a track and carrier thereon, a stop-block secured to the track and having an inclined face on each of its sides, a dog pivoted at its outer end to each opposite side of the carrier-frame, the free ends of said dogs pointing toward each other and being adapted to slide up the inclines of the stop-block, a pulley-block for the carrier, a grappling-hook pivoted to each opposite side of the carrier-frame below the dogs, the lower ends of said grappling-hooks being adapted to support the pulley-block and their upper ends to engage the central parts of the dogs, substantially as set forth.

8. The combination of a track and carrier to run thereon, a stop block secured to the track and having an inclined face and a retaining-shoulder on each of its sides, a dog pivoted at its outer end to each opposite side of the carrier-frame, the free ends of said dogs pointing toward each other and being adapted to slide up the inclines and catch against the retaining-shoulders of the stop-block, a pulley-block for the carrier, a grappling-hook pivoted to each opposite side of the carrier-frame below the dogs, the lower ends of said grappling-hooks being adapted to support the pulley-block and their upper ends to engage the central parts of the dogs, substantially as set forth.

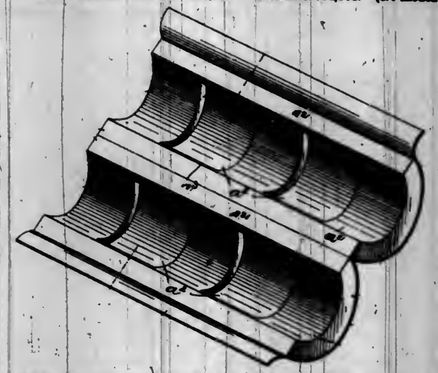
9. The combination of a track and a carrier to run thereon, a stop-block secured to said track, dogs pivoted at their outer ends to the frame of the carrier, the outer pivoted ends of said dog being forked and their inner free ends being adapted to engage the stop-block, a pulley-block for the carrier, and grappling-hooks pivoted in the carrier-frame below the dogs and the lower ends of said grappling-hooks being adapted to support the pulley-block and their upper ends to engage the central parts of the dogs, substantially as described.

10. In hay-carriers, a stop-block secured to the track thereof, and having an inclined face on each of its ends to operate the lock mechanism of the carrier and an adjustable abutting-stop between said inclines which is adapted to be lifted to open the passage-way of the stop-block or lowered to entirely close it, substantially as described.

11. In hay-carriers, the combination of a stop having an inclined face on each of its sides and a pair of dogs hinged at their outer ends to the opposite sides of the carrier-frame so as to stand at right angles to the stop, said dogs being adapted to drop over and lock grappling devices to catch the hoisting-tackle, and their inner ends adapted to slide up the inclined faces of the stop and effect the release of the hoisting-tackle.

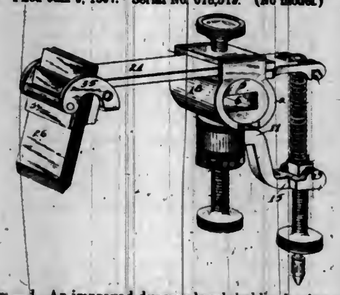
12. The combination of an elevated track, a carrier to straddle the track, a stop having inclined faces mounted upon the upper edge of the track, a pair of locking-dogs hinged at their outer ends to the opposite sides of the carrier-frame so as to stand at right angles to the stop, and in substantially a horizontal position, the inner ends of said dogs being adapted to be lifted by the inclined faces of the stop and a pair of grappling-hooks also pivoted in opposite sides of the carrier-frame, at right angles to the track and in substantially a perpendicular position, the lower ends of said grappling-hooks being adapted to catch the hoisting-tackle below the track, and their upper ends extended above the track to engage their respective dogs, and be locked to and released from the hoisting-tackle by the action of the dogs upon the stop.

589,903. SECTIONAL PIPE-COVERING. ROBERT W. LYSLE, Philadelphia, Pa. Filed Feb. 24, 1897. Serial No. 624,861. (No model.)



Claim.—A sectional covering, consisting of two semicylindrical sections of molded non-conducting material, each section having on its interior a series of annularly-arranged grooves separated from each other by a series of annularly-arranged relatively wide ridges, said grooves extending only partly through the interior periphery of each section, and corresponding grooves of the two sections being separated from each other by longitudinally-arranged ridges, the arrangement being such that when the two sections inclose a pipe the grooves of one section are wholly separated or disconnected from the grooves of the other section, substantially as and for the purposes described.

589,904. DYNAMO BRUSH-HOLDER. JOHN A. MARSH, St. Louis, Mo. Filed Jan. 9, 1897. Serial No. 618,519. (No model.)



Claim.—1. An improved dynamo brush-holder, having a casting provided with a slot adapted to be fitted over a quadrant-bar of a machine, a casting movably secured to the casting held to the quadrant-bar, a bar adjustably secured to said movable casting, a clamp placed upon the end of said bar, said clamp carrying a brush, said movable casting regulated by a spring, said spring connecting both castings substantially as shown and described.

2. An improved dynamo brush-holder having a cylindrical-shaped casting, said casting provided with a slot to be placed over a quadrant-bar, said casting provided with a projection, a set or thumb screw placed in said projection, said screw holding said casting to the quadrant-bar, making a positive mechanical and electrical connection, an arm secured around the projection and insulated therefrom, said arm provided with prongs, said prongs carrying and supporting spring-supports, a casting movably secured to the casting by which the device is held to the quadrant-bar, said casting carrying a bar, said bar adjustably secured to said casting and held by a screw, an arm extending from the said casting, said arm also provided with prongs, a spring-support guided and held by said prongs, said spring-supports connected by a spring, for the purpose as shown and described.

3. An improved dynamo brush-holder having a cylindrical T-shaped casting provided with an opening, said casting secured to the quadrant-bar of the machine, a casting provided with an opening to fit over the cylindrical T-shaped casting an opening formed in the top of said casting, a bar adjustably held in said opening, a brush-clamp secured to said bar, arms connected to both castings, a spring communicating with both arms, for the purpose as shown and described.

4. An improved dynamo brush-holder composed of a circular sleeve having on its upper side an extension, said sleeve adapted to slip over the cylindrical-shaped casting, a slot cut in said sleeve to correspond with the opening in the cylindrical-shaped casting, an opening or slot centrally located and cut from the under slot, around and to the rear side of said sleeve, said slot to act as a guide for said sleeve when in operation by spanning the projection formed on said cylindrical casting, arms formed on said castings, a spring connecting said arms but insulated therefrom, for the purpose to guide the brush and give it necessary tension, substantially as set forth.

5. An improved dynamo brush-holder having journaled spring-bearing blocks, a rod insulated but secured to said spring-blocks, a hollow thumb-screw placed over said rod and in contact with a collar, said screw passing through one spring-block for the purpose to gage the tension of said spring, said rod constructed at its lower end with an elongated enlargement for the purpose to prevent said rod from slipping out of said screw, arms supporting spring-blocks, said spring-blocks located in recesses formed in the arms, said arms secured to both castings, said castings movably connected to each other, yet connected to the quadrant-bar, substantially as set forth.

6. An improved dynamo brush-holder, composed of a casting, provided with a horizontal elongated disk, said disk provided with an elongated opening throughout its entire length, a downwardly-projecting extension forming part of said disk, a casting having a portion of itself formed with a sleeve, said sleeve provided at its lower end with a slot of the same width as the extension formed on the disk, a slot formed on the rear side of said sleeve extending from the horizontal slot to the under side of the arm formed on said casting, said sleeve adapted to slide over said disk, and be tilted thereon, said sleeve provided with a projection, said projection provided with a horizontal elongated opening, a bar carrying the brush adapted to be adjusted therein, substantially as set forth.

7. An improved dynamo brush-holder, having a sleeve carrying the brush, said sleeve adapted to fit and be held and tilted upon a circular disk, said disk secured to a quadrant-bar by means of a set-screw, said screw located in the downwardly-extending projection, an arm secured to said sleeve and one arm secured to the projection but thoroughly insulated therefrom, a spring communicating with said arms, and guided by a rod, substantially as shown and described.

8. An improved dynamo brush-holder, the combination of a disk, said disk adapted to be placed and held to a quadrant-bar by means of a set or thumb screw, of a sleeve movably placed over said disk, a rod carrying the clamp and brush held by said sleeve, said sleeve provided with slots for the purpose to allow its movement upon said disk, a spring guided by a rod, and resting upon blocks, said blocks supported by arms secured to the sleeve and disk, said spring used for the purpose to adjust the tension of the brush as it wears always bringing it in close electrical contact with the commutator of the machine, substantially as set forth.

9. An improved dynamo brush-holder, the combination of a disk, of an extension formed on the bottom of said disk, a bore formed in said extension, a set or thumb screw placed in said bore, an arm secured around said extension, and insulated therefrom, a nut holding said arm in position upon the extension, a horizontal opening formed in said disk, a sleeve adapted to be movably secured over said disk, a bar held in an opening formed in said sleeve, said bar held to its adjustment by a screw formed in the top of said sleeve, a clamp formed on the end of said bar, said sleeve and disk provided with an arm, said arms supporting a spring, said spring regulating the tension brought by said brush, substantially as set forth.

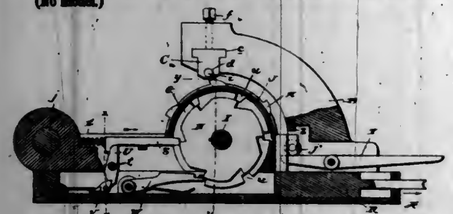
10. An improved dynamo brush-holder composed of a casting adapted to be held to a quadrant-bar, said casting having an elongated opening in the side thereof, said opening of sufficient size to slip over said quadrant-bar, a circular projection extending from said casting and at right angles thereto, a collar formed on said circular projection, for the purpose to act as a guide, and a shoulder, intended as a support, against and around which is placed an insulating-washer, an arm placed upon said projection, the end of said projection provided with threads, a threaded nut placed thereon, for the purpose of insulating and holding said arm mechanically secure, a bore formed through said circular projection longitudinally, a screw inserted in said bore for the purpose of forming a positive mechanical and electrical connection to said quadrant-bar, a sleeve placed over said casting, said sleeve carrying a brush, substantially as set forth.

11. An improved dynamo brush-holder composed of a casting

adapted to be secured to the quadrant-bar of a dynamo, a casting formed with a sleeve, said sleeve adapted to slide over said casting, a bar adjustably secured to said sleeve-casting, a clamp formed on the end of said bar, said clamp composed of a segment, a plate secured to said segment, a screw adapted to adjust the said clamp, a brush placed in said segment between the plate and bar, substantially as set forth.

12. An improved dynamo brush-holder having a clamp, said clamp composed of a segment or locking device pivotally secured to a bar, a plate secured to said segment, a screw placed in said segment, said screw bearing against the extension of the bar for the purpose of tightening said clamp, a carbon or brush held in said segment between the plate and bar, said bar adjustably held to a casting, said casting provided with a sleeve, said sleeve mounted upon a cylindrical-shaped casting, said casting placed upon a quadrant-bar of a dynamo, substantially as set forth.

589,905. MACHINE FOR TURNING SLENDER WORK. JAMES D. MATTISON, New York, N. Y. Filed May 20, 1897. Serial No. 637,496. (No model.)



Claim.—1. In a metal-turning machine, the combination of a bed or main frame, a frame pivotally connected with said bed or frame at one end so as to permit of its being swung, a cutter-head arranged in and movable with said frame, one or more cutters carried by said head, a work-support and a hard-metal die arranged in said support and having a transverse opening for the reception of work and also having one or more openings in its side contiguous to the cutter-head to enable the cutter to engage the work, substantially as specified.

2. In a metal-turning machine, the combination of a bed or main frame, a frame pivotally connected with said bed or frame at one end so as to permit of its being swung, a rotary cutter-head arranged in and movable with said frame, and having a plurality of cutters on its periphery, a work-support, a hard-metal die arranged in said support and having a transverse opening for the reception of work and also having one or more openings in its side contiguous to cutter-head, to enable the cutters to engage the work, a latch-wheel fixed with respect to the cutter-head, a ratchet-wheel also fixed with respect to said cutter-head, a spring-pressed bolt engaging the latch-wheel, a slide-bar, mechanism intermediate of said bar and the bolt for disengaging the same from the latch-wheel, and a spring-pressed pawl carried by the slidable bar and adapted to engage and rotate the ratchet-wheel and consequently the cutter-head when the bolt is disengaged from the latch-wheel, substantially as specified.

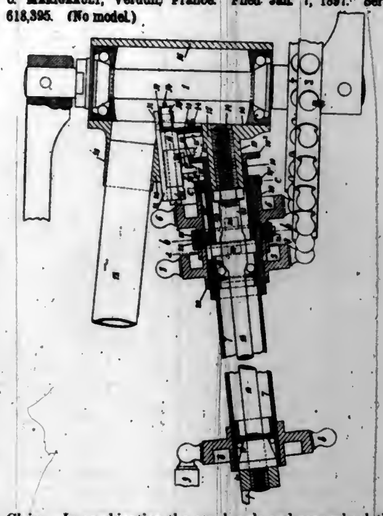
3. In a metal-turning machine, the combination of a bed, a movable frame connected therewith, a rotary cutter-head arranged in said frame and having a plurality of cutters, a latch for holding said head against casual rotation, a slide-bar, mechanism intermediate of the slide-bar and the latch for disengaging said latch from the cutter-head, and mechanism intermediate of said slide-bar and the cutter-head for partially rotating said head when it is released, substantially as specified.

4. In a metal-turning machine, the combination of a bed, a movable frame connected therewith, a rotary cutter-head arranged in said frame and having a plurality of cutters, a latch for holding said head against casual rotation, a ratchet-wheel fixed with respect to the cutter-head, a slide-bar, mechanism intermediate of the slide-bar and the latch for disengaging said latch from the cutter-head, and a spring-pressed pawl carried by the slide-bar and adapted to engage the ratchet-wheel, substantially as specified.

5. In a metal-turning machine, the combination of a bed, a frame pivotally connected with said bed, a rotary cutter-head arranged in said frame and having a plurality of cutters on its periphery, a latch-wheel fixed with respect to the cutter-head, a ratchet-wheel also fixed with respect to said cutter-head, a spring-pressed bolt engaging the latch-wheel, a lever engaging said bolt, a slide-bar, a spring-pressed trip carried by said slide-bar and adapted to engage the said lever and a spring-pressed pawl also carried by the slide-bar and adapted to engage the ratchet-wheel, substantially as specified.

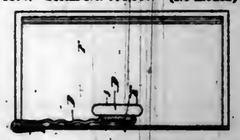
6. The combination of a cutter-head having a recess in one of its sides extending to its periphery and a transverse bore of angular form in cross-section extending from the inner end of the recess and terminating at its opposite end in a circular recess formed in the opposite side of the cutter-head, the apertured cutter arranged in the recess of the head and having the lip projecting beyond the periphery of said head, the apertured washer also arranged in said recess, the transverse bolt extending through the cutter, the washer and the transverse bore of the cutter-head and having the threaded end and the circular nut arranged on said threaded end and within the recess in the side of the head opposite to that in which the cutter and washer are arranged substantially as specified.

589,906. CHAINLESS CYCLE OR AUTOMOBILE CAR. DÉSIRÉ C. MÉRIGEAULT, Verdun, France. Filed Jan. 7, 1897. Serial No. 618,395. (No model.)



Claim.—In combination the crank-axle and rear wheel, the two gear-wheels carried by the crank-axle, the rotatable sleeve carrying two gears loosely journaled thereon and engaging the gears on the crank-axle, recesses formed in said gears, a rotary member connected with the rotary sleeve, a supporting-journal for the rotary member and driving connections between such rotary member and the rear wheel, the sliding sleeve within the rotatable sleeve having a lug or projection adapted to engage with one or the other of said recesses, the way secured to the machine-frame parallel to said sleeve, the carriage traveling in said way and having a connection with the sleeve, and means for reciprocating the carriage to move the sleeve to cause it to engage one or the other of the gears, substantially as described.

589,907. BOOK-MARK. RUFUS S. PICKETT, New Haven, Conn. Filed Apr. 9, 1897. Serial No. 631,567. (No model.)

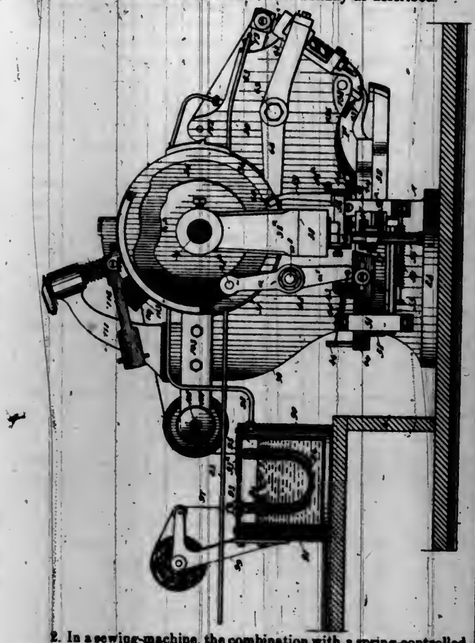


Claim.—As an improved article of manufacture, a book-mark, comprising a blank of spring-wire bent to form a yoke, consisting of a short arm and a long arm, said short arm being flattened, and said long arm being provided at the end thereof with a loop; a name-plate provided at one side thereof with a tubular attachment adapted to engage said loop, said long arm being corrugated, substantially as shown and described.

589,908. SHOE-SEWING MACHINE. ADAM H. PREISEL, Adamsdale, Pa., assignor, by direct and mesne assignments, of three-fourths to Franklin P. Adams, same place, and Katie V. Zuber, Reading, Pa. Filed Mar. 29, 1895. Serial No. 543,720. (No model.)

Claim.—1. In a sewing-machine, the combination with a shoe-rest, or table, and a needle held to reciprocate over the table, of a breakdown mounted to reciprocate between the rest or table and needle and following the movement of the needle to and from the rest, the breakdown having its forward end bifurcated between the members of which the needle projects, and provided at its shank with

teeth, a vertical shaft adjacent to the shank of the breakdown, a dog carried by said shaft and engaging the teeth of the shank of the breakdown to hold the breakdown at the end of its forward movement, and means for rocking said vertical shaft to disengage the dog at the inward travel of the needle, substantially as described.



2. In a sewing-machine, the combination with a spring-controlled movable shoe rest or table provided with teeth on its shank, and a needle held to reciprocate over said rest, of a spring-controlled breakdown adapted to reciprocate over the table between it and the needle, following the movement of the needle and adapted to hold the upper in engagement with the sole, the shank of the breakdown being provided with teeth above the teeth of the rest or table, a vertical shaft adjacent to the shanks of the rest or table and breakdown, a dog on the shaft and engaging the teeth of both the rest and breakdown when the latter is at its full outward throw, means for rocking the shaft to disengage the dog from the teeth of the rest and breakdown at the inward travel of the needle, and means for drawing back the breakdown while the dog is disengaged, and then releasing it to permit its spring to again force the breakdown forward, substantially as described.

3. In a sewing-machine, the combination with a drive-shaft, a cam-disk thereon, a shoe-rest, and a needle reciprocating over the rest, of a breakdown between the needle and rest, said breakdown having a bifurcated forward end and provided with teeth and a lug on its shank, a pivoted lever having one member engaging the cam-disk and its other member extending into the path of the lug on the shank of the breakdown, a spring secured to the lever and to the shank of the breakdown, a vertical shaft, a dog on the shaft and engaging the teeth of the breakdown-shank, and means for rocking said shaft to disengage the dog from the teeth at the inward travel of the needle, substantially as described.

4. In a sewing-machine, the combination with a drive-shaft, a disk on the drive-shaft and provided with a cam-groove and cam-rib, a shoe-rest, and a needle reciprocating over the rest, of a breakdown between the rest and needle provided on its shank or bar with a stud and teeth, a pivoted lever having one member engaging the cam-groove of the disk and its other member projecting into the path of the stud of the breakdown, a spring secured to one member of the lever and to the shank or bar of the breakdown, a vertical shaft provided with an angular arm engaging the cam-rib of the said disk, and a dog on said shaft and engaging the teeth of the breakdown shank or bar, substantially as described.

5. In a sewing-machine, the combination with a drive-shaft, a disk on the drive-shaft and provided with a cam-groove and a cam-rib, and a reciprocating needle, of a sliding and spring-pressed shoe-rest provided with teeth on its shank, a breakdown above the shoe-rest and provided with teeth and an upwardly-projecting stud on its shank, a pivoted lever having one member engaging the cam-groove of the disk and its other member projecting into the path of the stud of the shank of the breakdown, a spring secured to the lever and to the breakdown-shank, a vertical shaft provided at its upper end with an angular arm engaging the cam-rib of the disk, and a dog on the shaft and engaging the teeth of the shanks of the rest and breakdown, substantially as described.

6. In a sewing-machine, the combination with a shaft, of a sleeve fitting upon the shaft and having one end enlarged and provided with an annular chamber, and its reduced portion screw-threaded at its end, a tension-wheel loosely mounted on the sleeve, a jam-nut on the sleeve, and means for conveying steam to the said chamber, substantially as and for the purpose set forth.

7. In a sewing-machine, the combination with a tension device, and a take-up, of an auxiliary tension-wheel of greater diameter than the surface of the main tension over which the thread passes, and a spring-controlled take-up roller, located adjacent to the auxiliary tension-wheel, the thread being passed from the ordinary tension around the auxiliary tension, around the spring-controlled take-up roller and to the main take-up of the machine, substantially as described.

8. In a sewing-machine, the combination with a take-up device, and the tension device, of an auxiliary tension device, consisting of a channeled wheel loosely mounted upon a support and placed between the take-up and tension device, a brake normally in engagement with the auxiliary tension-wheel, and means for raising the said brake at a reversal of the driving-shaft of the machine, substantially as described.

9. In a sewing-machine, the combination with the take-up, the tension device, the main shaft, and a pulley secured thereon, of an auxiliary tension, consisting of a peripherally-grooved wheel loosely mounted on the drive-shaft and located between the take-up and tension device, a spring-controlled brake normally in engagement with the auxiliary tension-wheel, an inclined plane formed upon the periphery of the said pulley, and an arm projected from the said brake having a shoe adapted to travel up the inclined plane of the pulley when the pulley is given backward movement, as and for the purpose specified.

10. In a sewing-machine, the combination with the take-up, the tension device, the main shaft and a pulley secured thereon, of a spring-controlled brake normally bearing on the auxiliary tension-wheel, a lever-arm connected with the said brake, a trip-arm having lateral movement independent of the lever-arm but vertical movement in conjunction therewith, an inclined plane formed upon the said pulley and provided with an offset, a shoe pivotally connected with the said trip-arm and adapted to travel up the inclined plane of the pulley when the latter is rearwardly turned, and a spring normally holding the shoe in the path of the said inclined plane, as and for the purpose set forth.

11. In a shoe-sewing machine, the combination with a support, a segmental needle-holder pivoted upon the said support, and a driving mechanism, substantially as described, connected with the said needle-holder, of a guide-arm pivoted independent of and adjacent to the said needle-segment, a spring connected to the guide-arm and to the needle-holder and normally maintaining the needle-guide in a predetermined position, and an offset formed on the needle-guide, adapted to meet an equivalent construction on the needle-segment, whereby the needle-segment at one end of its throw will carry the needle-guide in the same direction, as and for the purpose set forth.

12. In a sewing-machine, the combination with a pivoted segmental needle-holder, and means for operating the holder, of a guide-arm on the pivot of the needle-holder, said guide-arm being provided with a stud working in a recess of the head of the said pivot-pin and with a shoulder opposite the stud and adapted to engage a shoulder on the needle-holder, and a spring secured to the guide-arm and needle-holder, substantially as described.

13. In a sewing-machine, the combination with a pivoted segmental needle-holder, provided with an arm having a pin projecting therefrom, and means connected with said arm for operating the holder, of a pivot-pin provided with a recess in its head, a guide-arm on the pivot-pin and provided with a pin working in the recess of the head of the pivot-pin and with a pin and shoulder opposite the recess, the shoulder being adapted to engage a shoulder on the needle-holder, and a spring having one end secured to the pin of the guide-arm and its other end to the pin of the arm of the needle-holder, substantially as described.

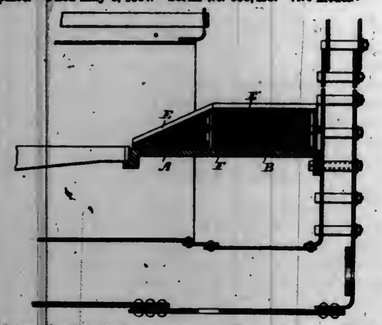
14. In a shoe-sewing machine, the combination with a tubular looper-shaft provided with a looper, and means for rotating said shaft, of a slideway, a take-up provided with a thread-receiving pulley at its outer end, means for reciprocating said take-up in said slideway and passing the pulley over the looper-shaft and having a pulley at its inner end and an opening between its ends within the slideway, a spring located in said opening having bearing against its rear wall, and a pin extending within the opening and secured to a slide likewise attached to the said spring, a drive-shaft, and a cam operated

by said shaft and engaging with the inner wall of the said take-up, substantially as and for the purpose set forth.

15. In a turn-shoe sewing-machine, the combination with a table or rest, comprising a body portion and a shank, the body portion being provided with a longitudinally-arched front and having a curve in one side at one end meeting the shank, and a curve at the same end in the top likewise carried to the shank, of a breakdown held to reciprocate over said table, the said breakdown being curved in direction of the curvature of the table and upwardly and outwardly in direction of its front, having a claw-front end for the passage of the needle, the breakdown being adapted to hold the upper on the periphery of the sole to be sewed, breaking down the upper and forming a shoulder to receive the needle, substantially as and for the purpose set forth.

16. In a shoe-sewing machine, the combination with the take-up, and tension device, an auxiliary tension intermediate of the main tension device and take-up, and a brake mechanism adapted to control the intermediate or auxiliary tension, of a spring-controlled sliding arm attached to a support below the auxiliary tension device and the take-up and provided with a pulley at its upper end, substantially as and for the purpose specified.

589,909. FIRE-BRIDGE FOR BOILER-FURNACES. JAMES REAGAN, Philadelphia, Pa., assignor of one-half to Frank H. Fleer, same place. Filed May 6, 1897. Serial No. 635,435. (No model.)

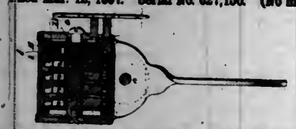


Claim.—1. A fire-bridge composed of the sections A and B, of box-like form having inclined and flat tops respectively, and grooves or channels E and E', formed therein, with the interior and grooves filled with ashes or other non-conductors of heat, substantially as and for the purpose specified.

2. A fire-bridge composed of the hollow sections A and B, having open ends C C', and covers or lids D D', for the introduction of ashes or other material, and grooves or channels E E', on the upper surface for the retention of ashes, substantially as specified.

3. The combination in a fire-bridge, of the hollow sections A and B, covers or lids D D', tap-bolts *k*, grooves or channels E E', tongues and grooves G and G', substantially as specified.

589,910. CYCLOMETER. WENDELL L. SHEPARD, Waterbury, Conn. Filed Mar. 12, 1897. Serial No. 627,150. (No model.)



Claim.—1. A cyclometer comprising a series of numbering-disks, washers between the disks, a single pinion carried by each washer of width sufficient to be engaged and actuated by the preceding disk and to engage and actuate the succeeding disk, substantially as described.

2. A cyclometer comprising a series of numbering-disks, each having on one side a flange with internal teeth and on the other side a recess, the wall of which is provided with a segmental gear, washers fitting said recesses, and each carrying a single pinion of width sufficient to mesh with the segmental gear on the preceding disk and the internal gear on the succeeding disk; substantially as described.

3. A cyclometer comprising a star-wheel adapted to be engaged by a moving part of the vehicle, a pinion carried thereby, a numbering-disk having a flange within an internal gear, engaging said pinion, a washer fitting within a recess in the numbering-disk, a pinion carried by and rotatable on said washer, a second numbering-disk having a flange with an internal gear engaging the pinion and a segmental gear on the first disk also engaging and rotating said pinion; substantially as described.

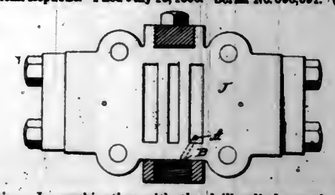
4. A cyclometer comprising the inclosing casing having flanges, a central arbor, caps at each end secured to said arbor over which said flanges extend, and a series of numbering-disks rotatable on said arbor and a series of washers non-rotatable on said arbor, and carrying means for driving the disks; substantially as described.

5. A cyclometer having disks each with a recess on one side having segmental gearing, and a flange on the opposite side with a row of teeth and washers within said recesses, each washer carrying a pinion which engages the segmental gear of the preceding disk and the row of teeth of the succeeding disk, the washer being of such thickness as to allow of snug fit of the parts; substantially as described.

6. A cyclometer comprising a series of numbering-disks, washers between the disks, each having a recess and a pin within said recess, a pinion carried by each washer and supported on said pin within the recess, each pinion being engaged with and actuated by the preceding disk and engaging and actuating the succeeding disk, substantially as described.

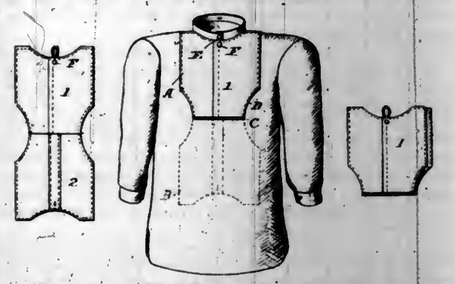
7. A cyclometer having disks, each with a recess on one side having a segmental gear, a flange on the opposite side with a row of internal teeth, washers fitting within the recesses of the numbering-disks, each washer being provided with an annular recess, a pin, as 1, projecting from said washer within the recess and a pinion loosely supported on said pin and engaging the segmental gear of the preceding disk and the internal row of teeth of the succeeding disk, substantially as described.

589,911. ROCK-DRILL. JOHN H. SMITH, Johannesburg, South African Republic. Filed July 10, 1896. Serial No. 598,691. (No model.)



Claim.—In combination with the drill-cylinder and piston, the air-chest having the valve therein, of an auxiliary or supplementary (air or steam) inlet A B formed directly through the air-chest and forming a passage between the back port E in the air-chest and the main feed-port F, said back port E being thereby placed in constant communication with the rear of the piston to form a cushion, substantially as described.

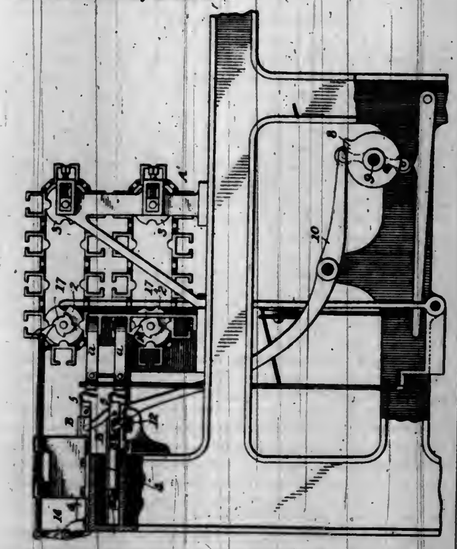
589,912. SHIRT-BOSOM. EMANUEL STERN, Baltimore, Md. Filed May 5, 1897. Serial No. 635,124. (No model.)



Claim.—A reversible dickey having four fronts or bosoms, comprising two or more substantially rectangular plies of fabric united by suitable stitching and finished on the outer faces of the outer plies, said plies being cut away centrally at each end to form neck-openings, and also cut away centrally at each side to divide the dickey into two substantially shield-shaped portions, each portion being provided with a suitable fastening adjacent to the neck-opening, substantially as described.

589,913. LOOM. WILLIAM WEAVER, Norwalk, Conn., assignor to the Weaver Jacquard and Electric Shuttle Company, same place. Filed June 23, 1896. Serial No. 596,613. (No model.)

Claim.—1. In a loom, the combination of a continuous series of shuttle-boxes, a supporting-wheel therefor, a ratchet-wheel connected to the supporting-wheel, a slide, weft-fingers pivotally supported upon the slide and adapted to cooperate with stop-fingers upon the lathe, a rod carrying a pawl adapted to engage with the ratchet-wheel, connections whereby said rod is reciprocated from the slide, and means for actuating the slide upon the breaking or exhaustion of a shuttle-thread, substantially as described.



2. In a loom, the combination of two series of shuttles and their supporting means, a slide for each of said series of shuttles, weft-fingers pivotally supported upon the slides adapted to cooperate with stop-fingers upon the lathe, devices intermediate the slides and shuttles for shifting the latter, and a lever common to both slides for actuating them independently or simultaneously, substantially as described.

589,914. COW-TIE. WILLIAM WITT, Ripon, Wis. Filed June 2, 1896. Serial No. 594,034. (No model.)



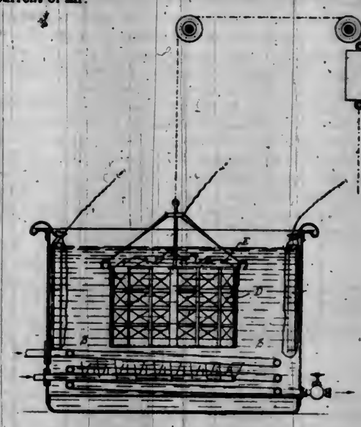
Claim.—1. A cow-tie consisting of a shield or apron, a cross-bar to which said apron is attached, the opposite edge thereof being attached to the trough, a halter secured to the cross-bar, and means for guiding said bar upward and rearward, substantially as and for the purpose set forth.

2. In combination with a trough, a shield having its lower edge attached to said trough, a cross-bar to which the upper edge of said shield is attached, means for securing a cow to the cross-bar, and guide-rods set at an angle to the horizontal and adapted to guide said bar, substantially as shown and for the purpose set forth.

3. In combination with a stall and the trough thereof, a shield having its lower edge attached to the upper edge of said trough, a cross-bar to which the upper edge of said shield is attached, rods C, arranged at an angle to the horizontal and supported by the sides of the stall, loops E, adapted to run upon said rods, said loops being secured to the cross-bar, and means for securing the cow to said cross-bar, substantially as shown and described.

589,915. PROCESS OF RECOVERING IRON FROM SCRAP. HERMAN C. WOLTERBECK, New York, N. Y., assignor to the Electro-Chemical Storage Battery Co., same place. Filed Nov. 3, 1896. Serial No. 610,952. (No specimens.)

Claim.—The process of recovering iron from tin-scrap which consists in placing the scrap in a heated solution of a caustic alkali, passing a current of electricity from said scrap through the solution to a suitable cathode, and simultaneously injecting into the solution a current of air.



589,916. STEP-LADDER. SAMUEL WRIGHT, Beatrice, Nebr. Filed Feb. 25, 1896. Serial No. 580,763. (No model.)



Claim.—1. In a step-ladder the socket L having straps *l l* adapted to be attached to the under side of platform A in combination with the brace-pin E having an end ball *e* adapted to work in said socket as and for the purpose set forth.

2. In a step-ladder the metallic angle-strap β having guides *g g*, the nut H and the screw K in combination with the brace and prop-sticks as and for the purpose described.

589,917. MECHANICAL TOY. WILLIAM R. WYNNE, London, England. Filed Sept. 28, 1896. Serial No. 607,148. (No model.) Patented in England June 20, 1895, No. 12,007, and in Germany May 18, 1896, No. 86,208.



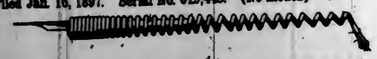
Claim.—1. In a bubble-blowing or similar toy, the combination with a suitable horizontal shaft, provided with four cams, of four suitably-mounted levers which are operated by said cams, two bellows in operative connection with two of said levers, and a toy figure one arm and the head of which are operated by the other two levers, substantially as shown and described.

2. In a bubble-blowing or similar toy, the combination with a suitable horizontal shaft, provided with four cams, of four suitably-mounted levers which are operated by said cams, two bellows in operative connection with two of said levers, and a toy figure one arm and the head of which are operated by the other two levers, said arm of said figure being hollow and provided with a pipe which is held in the hand, and one pair of said bellows being provided with means for discharging air through the arm and pipe, substantially as shown and described.

3. In a bubble-blowing or similar toy, the combination with a suitable horizontal shaft, provided with four cams, of four suitably-mounted levers which are operated by said cams, two bellows in operative connection with two of said levers, and a toy figure one arm and the head of which are operated by the other two levers, said arm of said figure being hollow and provided with a pipe which is held in the hand, and one pair of said bellows being provided with means for discharging air through the arm and pipe, and said bellows being also provided with means for regulating the amount of air discharged, substantially as shown and described.

4. In a mechanical toy, the combination with a suitably-mounted horizontal shaft provided with four cams, of four suitably-mounted levers, two pairs of bellows which are operated by two of said levers, and a toy figure provided with a movable hollow arm, and a movable head, and a toy pipe held in the hand of the arm, said parts being in operative connection, and said bellows being provided with means for discharging air through said arm and said pipe, substantially as shown and described.

589,918. **PENHOLDER.** ABRAHAM L. ADAMS, Bridgeport, Conn. Filed Jan. 16, 1897. Serial No. 619,443. (No model.)



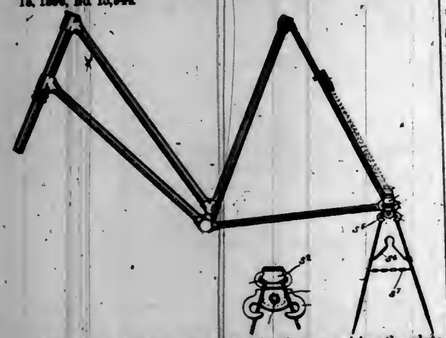
Claim.—1. An improvement in penholders, consisting of a continuous coiled-spring body, said coils closely wound at the lower end, the remainder of the coils open-wound, and an internal support in said larger end for the coils and pen, substantially as set forth.

2. A coiled-spring penholder, the coils closed and wound larger at the lower end to give increased bearing-surface for the fingers, the remainder of the coils open-wound and tapered, and an internal support for said larger end for the coils and pen, substantially as described.

3. A coiled-spring penholder, the coils closely wound at the lower end, as shown, open-wound above such close coils, and terminating in an angular projection to prevent rolling, and an internal support in the lower end for the coils and pen.

4. A coiled-spring penholder, the coils closely wound at the lower end, open-wound and tapered above such closely-wound coils, and terminating in an angular projection to form a combined eraser and letter-opener and also to prevent the holder rolling on an inclined surface, and an internal support in the lower end for the coils and pen, substantially as shown.

589,919. **FOLDING PORTABLE CYCLE-SUPPORT.** GEORGE ADCOCK, Loughborough, England. Filed Oct. 3, 1896. Serial No. 607,779. (No model.) Patented in England July 14, 1896, No. 15,563, and July 18, 1896, No. 15,944.

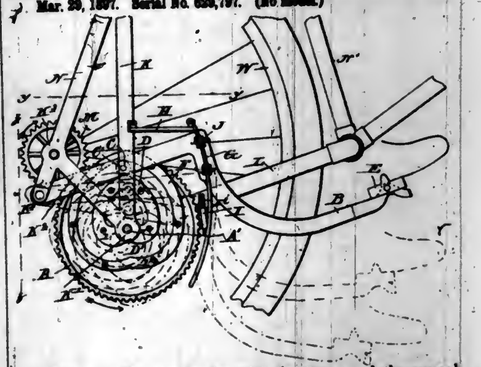


Claim.—1. A folding support for bicycles comprising the plate adapted to be secured to a bicycle, the legs having a pivotal connection with the upper edge of said plate, and the hooked extensions supported from the lower end of said plate and adapted to engage the legs and prevent them from spreading, substantially as described.

2. A folding support for bicycles comprising the plate adapted to be secured to a bicycle, the folding legs having a pivotal connection with the upper portion of said plate, the supplemental plate adjustably connected to the lower portion of the main plate, and hooks carried by said supplemental plate adapted to engage the legs, substantially as described.

3. A folding support for bicycles comprising the plate adapted to be secured to a bicycle and having upper and lower angular extensions, the legs having a hinged connection with the upper extension and the retaining-hooks adjustably carried by the lower extension and adapted to engage the legs to prevent them from spreading, substantially as described.

589,920. **BICYCLE.** ISRAEL F. ALGER, Fitchburg, Mass. Filed Mar. 29, 1897. Serial No. 629,797. (No model.)



Claim.—1. The combination with the frame and the ground-wheel provided at opposite sides with pinions, of driving-gears, meshing with said pinions, and having their axes parallel to that of the ground-wheel, oppositely-arranged eccentrics or cams on the faces of the drive-gears parallel therewith or within the vertical plane thereof, and vertically-rocking treadle-levers each provided with a pin or roller engaging the periphery of the adjacent cam; whereby as the levers are alternately depressed their pins or rollers will bear against the highest points of the eccentrics and thus impart a full rotary movement to the drive-gears, substantially as described.

2. The combination with the frame and the ground-wheel provided at opposite sides with pinions, of driving-gears meshing with said pinions; said driving-gears having their axes parallel to that of the ground-wheel and provided in their outer faces around their axes with oppositely-arranged heart-shaped cam-grooves, and vertically-rocking treadle-levers provided on one side with laterally-projecting pins or projections entering said cam-grooves and adapted to impart a full rotary movement to the drive-shaft by being alternately forced by the levers against the highest points of the cams or eccentrics, substantially as described.

3. The combination with the frame and the rear ground-wheel having pinions at its oppodite sides, of drive-gears having their axes below, in front of and parallel with, the axis of the ground-wheel, cam-grooves in the outer faces of the drive-gears, eccentric to their axes, treadle-levers journaled at their rear ends to the frame in rear of the drive-gears, extending forwardly across the upper portions of the grooved faces of the drive-gears and there provided with laterally-projecting pins or rollers entering said grooves to engage the highest points of the cams or eccentrics when the levers are raised; whereby when the levers are depressed the pins or rollers will be forced down on the cams from the highest to the lowest point and cause them to rotate the drive-shaft, substantially as described.

4. The combination with the bicycle-frame, the bottom bars L of which are inclined downwardly to the bearings L′ and thence upwardly to the rear bearings L^2, the hangers K depending from the rear-wheel fork N and provided with bearings K′ opposed to the bearings L and having rear extensions K^2 terminating in bearings K^3, and the rear ground-wheel journaled in the bearings K^3 L^2 and provided with pinions M, M, of the drive-gears A, A, having their axles or shafts parallel to that of the rear ground-wheel journaled in the bearings K′, L′ said drive-gears meshing with the pinions A and provided on their outer sides with heart-shaped cams eccentric to their axes, and the pedal-levers pivoted to the frame in rear of the drive-gears and provided with lateral pins engaging said cams to rotate them and their gear-wheels rearwardly, substantially as described.

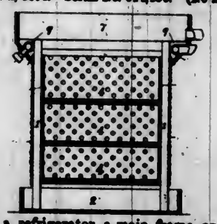
5. The combination with the frame and the rear ground-wheel having pinions at its opposite sides, of drive-gears meshing with said pinions and having their axes parallel with, and in front of and below the axis of the rear ground-wheel, said drive-gears being provided in their outer faces eccentric to their axes with heart-shaped cam-grooves, the vertically-rocking treadle-levers pivoted at their rear ends to the frame in rear of and above the axes of the drive-gears and extending forwardly across the grooved faces of said gears above their axis and there provided with lateral rollers entering said grooves said levers being offset downwardly in front of the drive-gears and then extended forwardly, and depending curved guides on the frame and between which the offset portions of the levers work, substantially as described.

589,921. **MATCH-BOX.** RICHARD J. AINSWORTH, Waterbury, Conn., assignor to the Waterbury Manufacturing Company, same place. Filed Dec. 7, 1896. Serial No. 614,471. (No model.)



Claim.—In a match-box the combination with a body portion drawn from a single piece of sheet metal and having an opening formed in its forward edge at a point near its open end, of a cover or cap also formed from a single piece of sheet metal, hinged to the said body portion and formed in its outer edge with an outwardly-projecting notch, a U-shaped spring formed from a long strip or strap of sheet metal adapted to be set into the body portion of the box and comprising a rear and a forward leg, its rear leg being constructed to extend above the open end of the body portion of the box and into the cap or cover thereof with which it engages at a point above the hinge, and the forward leg of the spring being also adapted to extend above the open end of the body portion of the box and into the cap or cover, and provided with a downwardly-projecting, outwardly-inclined retaining-finger adapted to enter the said outwardly-projecting notch formed in the outer edge of the cap or cover, and formed by longitudinally and transversely cutting the upper end of the said leg of the spring, and lifting the metal so partially detached outward, and the said forward leg of the spring being also formed with an outwardly-projecting operating-stud or bowed finger, adapted to project outward through the opening in the forward edge of the box, and formed by cutting the metal of the spring longitudinally and transversely, and lifting the metal so partially detached outward, and then bending it into bowed form, the stud or finger thus produced projecting outward beyond the plane of the outer face of the forward leg of the spring farther than the retaining-finger before mentioned, substantially as described.

589,922. **REFRIGERATOR.** JAMES C. AYRES, San Francisco, Cal. Filed Dec. 2, 1896. Serial No. 614,158. (No model.)



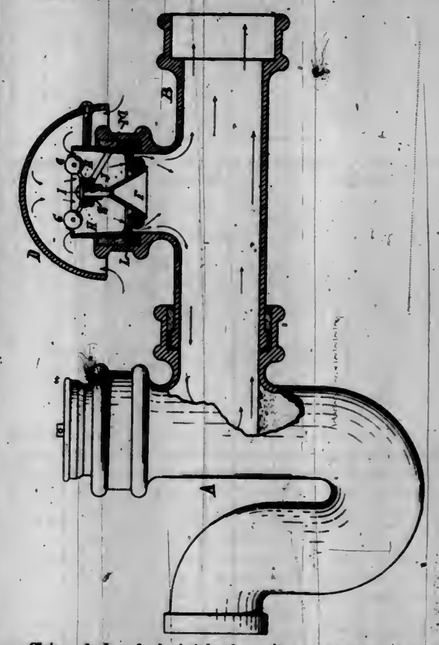
Claim.—1. In a refrigerator, a main frame, an inner food-containing chamber having perforated sides and open at the top, and an outer inclosing chamber or case out of contact with said inner chamber, having walls composed of permeable textile material, in combination with a water-pan surmounting and overhanging the said main frame and outer walls, a perforated pipe arranged beneath the overhanging edge of the said water-pan and beyond the said outer walls, and a pipe connection with suitable stop-cock for supplying water to the said perforated pipe, substantially as specified.

2. In a refrigerator, a main frame, an inner food-containing chamber having perforated sides and open at the top, and an outer inclosing chamber or case out of contact with said inner chamber, having walls composed of permeable textile material, in combination with a water-pan surmounting and overhanging the said main frame and outer walls, a perforated pipe arranged beneath the overhanging edge of the said water-pan and beyond the said outer walls, a wasteway for the said perforated pipe, and a pipe connection with suitable stop-cock between said perforated pipe and said water-pan, substantially as specified.

3. In a refrigerator, a main frame, an inner food-containing chamber having perforated sides and open at the top, and an outer inclosing chamber or case out of contact with said inner chamber, having walls composed of permeable textile material, in combination with a water-pan surmounting and overhanging the said main frame and outer walls, a perforated pipe arranged beneath the overhanging edge of the said water-pan and beyond the said outer walls, a wasteway for the said perforated pipe, a pipe connection with suitable stop-cock for supplying water to the said perforated pipe, a drip-pan 2, and a waste-pipe 14, substantially as specified.

4. In a refrigerator, a main frame, an inner food-containing chamber having perforated sides and open at the top, and an outer inclosing chamber or case out of contact with said inner chamber, having walls composed of permeable textile material, in combination with a water-pan surmounting and overhanging the said main frame and outer walls, a perforated pipe arranged beneath the overhanging edge of the said water-pan and beyond the said outer walls, a cornice extending from the outer edge of the said water-pan to and in contact with the textile covering of the outer wall, and a pipe connection with suitable stop-cock for supplying water to the said perforated pipe, substantially as specified.

589,923. **FRESH-AIR INLET FOR SANITARY VENTILATION.** PAUL AYRES, Rockville Centre, N. Y. Filed Oct. 1, 1896. Serial No. 584,230. (No model.)



Claim.—1. In a fresh-air inlet for sanitary ventilation, the combination of a sewer or drain pipe T or a saddle-hub with a cylindrical shell E, lead-jointed to said hub or T, and having a valve-seat at the inner end; a valve F, engaging said seat, packing-ring K and valve-stem J thereon, and screw I in said stem; equilibrium-levers *t*, *t*, engaging said stem and adjustable weights G, G, on said levers substantially as set forth.

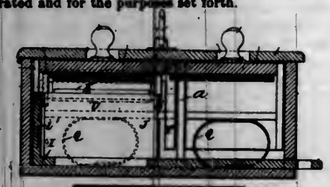
2. In a fresh-air inlet for sanitary ventilation, the combination of a sewer or drain pipe T or a saddle-hub, with a cylindrical shell E lead-jointed to said T or saddle-hub; said shell being provided with spiral grooves *r*, *r*, a hood D over said shell and two or more studs or posts *o*, *o*, *o*, for supporting said hood; a valve F, packing-ring K and valve-stem J thereon, and screw I in said stem; equilibrium-levers *t*, *t*, engaging said stem and adjustable weights, G, G, on said levers substantially as described.

3. In a fresh-air inlet for sanitary ventilation, the combination of a sewer or drain pipe, an inlet thereto provided with a valve-seat, a valve therefor having a stem provided with an annular shoulder, levers pivoted adjacent to said valve, one end of each of which engages said shoulder; adjustable weights attached to the opposite ends of said levers, said weights being adjusted so that they will overbalance and close said valve, substantially as described.

589,924. **TIME-RECORDER.** FRANCIS BARKER, Ilkley, England. Filed Sept. 5, 1896. Serial No. 604,960. (No model.) Patented in England June 25, 1896, No. 14,067.

Claim.—The combination of the inclosing case having a lid provided with apertures and a glazed opening as described, a sliding frame slotted on the top and mounted upon springs within said inclosing case capable of being depressed from the outside thereof as described, said sliding frame being armed on its under surface with an inking-pad and a printing-pad capable of being used separately but depressed simultaneously, and rollers for receiving a traveling strip on which the records are printed, said traveling strip being arranged to pass above and below the top of the sliding frame as described for recording and inspection purposes, and to be operated by a key

from the outside of the inclosing case; clock mechanism mounted axially upon a slide within the inclosing case below the inking and printing pads whereby the recording mechanism may be brought under the said pads, said clock mechanism being provided with dials as described for indicating and printing on the said traveling strip the day, hour, minute, and second the record is taken; the lock and seal on the inclosing casing, all arranged in the manner described and illustrated and for the purposes set forth.

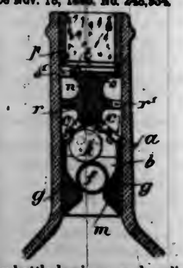


589,925. SUPPORT FOR BICYCLES. PAUL A. BARR, Philadelphia, Pa. Filed Mar. 17, 1896. Serial No. 583,510. (No model.)



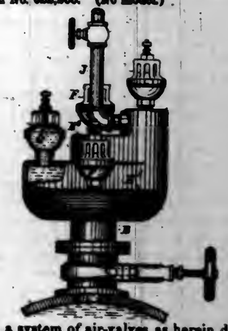
Claim.—A brace for a bicycle consisting of a clamp in combination with the forward upright, said clamp consisting of two segmentally-formed portions hinged together at one side, shoulders or projections secured on either side of the same and extending outwardly therefrom, each of said shoulders being provided therein with chambers, a bolt in each of said chambers, each of said bolts having screw-threads on the inner ends thereof, a nut secured on the inner end of said bolts and adapted to keep the same in position, said bolts having transversely-extending openings in the outer end of the same a head adapted to pass over the said outer end of said bolt and engage the same, a tubular downwardly-directed shaft secured in each of said heads and extending downwardly to a predetermined point, said shaft extending outwardly below said point, an outwardly-curved arm secured to the lower side of said clamp and engaging a ring or band on the lower end of said arm connected with each of said shafts said rod or shaft being hollow, a rod mounted in the lower end of each of said shafts, a piston on the upper end thereof a cross-head on the lower end of said rods, legs pivotally secured to either end of said cross-head, outwardly-directed upper ends or bars secured to said legs, a spring secured to one of said legs and below said cross-head and engaging said outer legs and a clamping device adapted to be connected with the rear fork of said bicycle and secure the said brace in a horizontal position when not in position, all of the said parts being combined substantially as and for the purpose described.

589,926. SAFETY-CLOSURE FOR BOTTLES. DAVID BLUM, Paris, France. Filed Jan. 8, 1897. Serial No. 618,467. (No model.) Patented in France Nov. 18, 1896. No. 262,934.



Claim.—A safety-bottle having a neck *a* slightly flared and polished in the interior in combination with block *m* polished exteriorly and forming a closure by reposing upon the polished part of the neck, said block having a conical cavity forming a valve-seat *g*, and a block *n* placed freely in the neck over the piece *m*, having in its base a conical cavity, and a buoyant ball *f* and a heavy ball *h* in said cavities, a glass ring *p* placed in the neck over the block *n* and united at its upper extremity with the border of the neck.

589,927. GROUPING AND MOUNTING AIR-VALVES. THOMAS W. BROOKS, San Francisco, Cal. Filed Sept. 24, 1895. Renewed Feb. 5, 1897. Serial No. 622,306. (No model.)



Claim.—1. In a system of air-valves as herein described, a hollow vessel or chamber communicating throughout, and provided on its top with inlets for air-valves at different heights, or levels, so as to secure successive opening and closing of the valves, in the manner substantially as described.

2. In a system of air-valves as herein described, a hollow vessel provided with a series of air-valves fixed in different planes, to secure successive opening and closing of the valves, and in combination therewith a valve to close communication between the hollow vessel and the pipe to which it is attached, substantially as described.

589,928. TOBACCO-PIPE. PHILIP BROWN, Jr., Haverstraw, N. Y. Filed Apr. 22, 1897. Serial No. 633,276. (No model.)



Claim.—1. A pipe having a stem, the shank of which is provided with a cup projecting from its upper surface and adapted to receive a cigar, a hollow plug adapted for insertion in said cup and adapted to receive and hold a cigarette, and a pipe-bowl having at its lower end a socket to receive and fit on the cup over said plug, substantially as set forth.

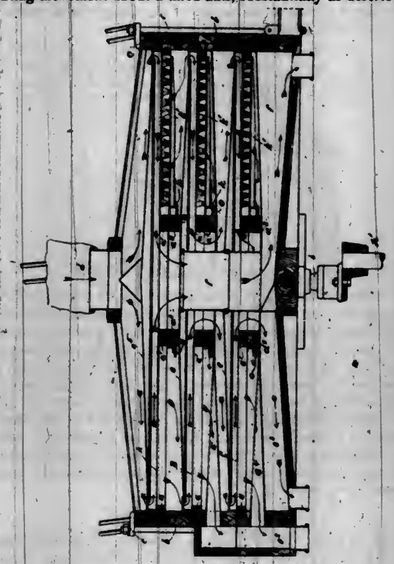
2. A pipe, the stem of which is provided with a shank having a cup projecting from its upper surface and adapted to receive a cigar, a hollow plug adapted for insertion in said cup and adapted to receive a cigarette, and a pipe-bowl having at its lower part a socket to receive and fit on the cup over said plug, said bowl having an interior shoulder to engage said plug and hold the same in place, substantially as set forth.

3. A pipe, the stem of which is provided with a shank having a cup projecting from its upper surface and adapted to receive a cigar, said cup being provided with exterior screw-threads, a hollow plug fitting in said cup and adapted to receive and hold a cigarette, and a pipe-bowl having at its lower end a screw-threaded socket to receive and fit on the cup over the plug and provided with an interior shoulder to engage the plug and hold the same in place, substantially as set forth.

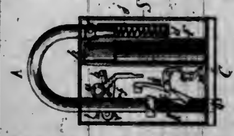
4. In a pipe, the stem having an externally-threaded cup projecting from its upper surface and adapted to receive a cigar, a hollow plug insertible in the cup, and a bowl screwed to said cup and flanged to engage with, and confine the plug in place therein, as and for the purposes described.

589,929. SIFTING-MACHINE. WILHELM BUNER, Lubeck, Germany. Filed Mar. 10, 1894. Serial No. 503,208. (No model.) Patented in Germany July 21, 1893, No. 77,583; in England Mar. 1, 1894, No. 4,338; in Switzerland Mar. 1, 1894, No. 8,321; in France Mar. 6, 1894, No. 236,797; in Belgium Mar. 6, 1894, No. 108,854; in Hungary May 30, 1894, No. 519; in Canada Aug. 4, 1894, No. 48,733, and in Austria Aug. 11, 1894, No. 3,900.

Claim.—In combination, a series of sieves, having inner rings, the flanges O secured to the outer side of said inner rings, the brushes and the rings *k* forming a part of the brush-support and loosely held on the rings *o* to have lateral movement, the said brushes bearing on the under sides of the sieves, and means for giving the sieve a gyrating movement about a fixed axis, substantially as described.



589,930. ALARM-PADLOCK. EDWARD H. CASE, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,345. (No model.)



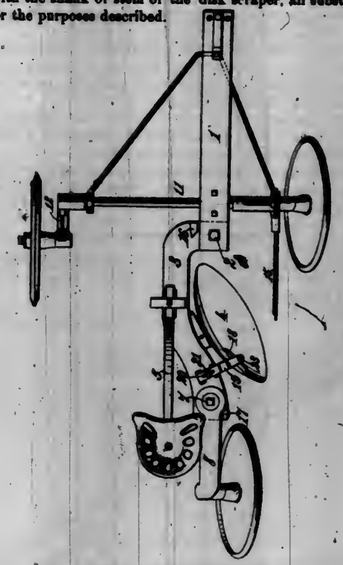
Claim.—1. In an explosive alarm-padlock the bow A having attached pawl *i* and spring *c* in combination with double levers *n* and *o*, all arranged and operating to force trigger *m* from edge of barrel F provided with the edge n^3, thereby releasing spring *t*, all operating when tension is brought upon said bow A substantially as set forth.

2. In an explosive alarm-padlock the firing device C having projection Z and socket Q^3 in combination with barrel F having slots O and *p* and bow A all arranged to hold and lock said firing device C to padlock, substantially as described.

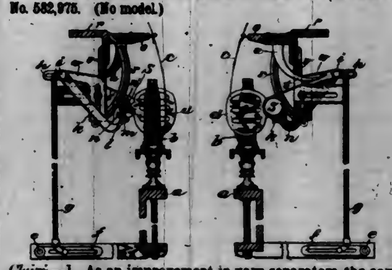
589,931. ROTARY DISK PLOW. WILLIAM H. CRAFTS, New Orleans, La. Filed Feb. 17, 1897. Serial No. 623,849. (No model.)

Claim.—1. In a rotary plow, the combination of an axle having the furrow-wheel on one end and provided at the other end with a rearward-extended arm having a spindle on which is mounted the landside-wheel, a plow-beam constructed in three sections having their ends connected by pivotal joints, the forward plow-beam section being mounted on said axle and the middle plow-beam section being curved toward the landward side and provided on its ends with stops adjacent to the pivotal connections of the forward and rear beam-sections, respectively, a diagonally-placed rotary plow-disk mounted on the middle beam-section in rear of the forward beam-section, and a caster-wheel attached to the rear beam-section, all substantially as and for the purposes described.

2. In a rotary plow, the combination of an axle having the furrow-wheel on one end and its other end provided with an arm carrying the landside-wheel, a plow-beam constructed in three sections, the forward beam-section being mounted on said axle, pivotal connections for the middle beam-section with the forward beam-section and rear beam-section, respectively, the said middle beam-section being curved toward the landward side and provided at its ends with stops adjacent to its pivotal connections, one of said stops being located at the landward side of the forward beam-section and the other stop being located at the furrow side of the rear beam-section, a rotary plow-disk mounted on the middle beam-section, a caster-wheel mounted on the rear beam-section, a disk scraper, and an angle-bracket or scraper-holder adjustably mounted on the middle beam-section at the back of the rotary plow-disk and overhanging the same and having its upper and outer end in adjustable connection with the shank or stem of the disk scraper, all substantially as and for the purposes described.



589,932. YARN-SEPARATOR FOR SPINNING-MACHINES. ALFRED D. CHANDLER, Fall River, Mass. Filed Mar. 12, 1896. Serial No. 582,975. (No model.)



Claim.—1. As an improvement in yarn-separators, the combination of the rotary separator-bar, carrying the separators, the retainers, cooperating with the separator-bar to prevent rotation, the hinged thread-board, and the trip connection *r* between the thread-board and the retainer, whereby when the thread-board is raised the retainer is released and the separator is allowed to revolve downward and backward by gravity, substantially as and for the purposes specified.

2. The combination of the rotary separator-bar, carrying the separators, the retainers, the thread-board, hinged to the roller-beam, the trip connection between the thread-board and the retainer, the drum on the separator-bar, and the connection between the said drum and the thread-board, whereby when the latter is depressed to normal position the separator-bar is rotated and the separators are raised to their normal horizontal position between the bobbins, substantially as and for the purposes specified.

3. The combination of the rotary separator-bar *l* carrying separators *d*, the retainer *n* having hook or catch engaging the separator-bar, the hinged thread-board *o*, and the trip connection *r* whereby the separator-bar is released when the thread-board is raised, and the separators are permitted to revolve downward and backward by gravity, substantially as and for the purposes specified.

4. The roller-beam having the thread-board hinged thereto, and supporting the shaft *i*, said shaft carrying arms *k*, with retainers *n* pivoted thereto, in combination with rotary separator-bars carried on the arms *k*, separators *d* borne on the separator-bars, and the curved slotted connection between the hinged thread-board and the retainers *n*, all substantially as and for the purpose specified.

5. The roller-beam having the thread-board hinged thereto and supporting the shaft *i* carrying arms *k* with retainers *n* pivoted thereto, in combination with a rotary separator-bar carried on the arms *k*, separators *d* borne on the separator-bar, a curved slotted connection

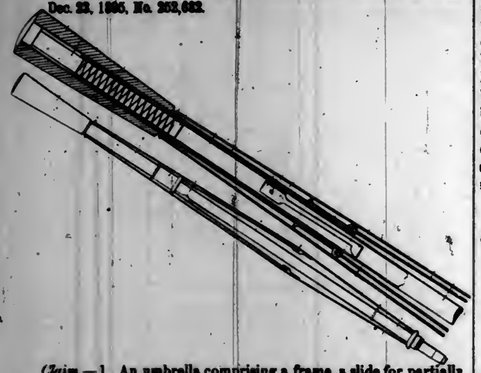
fixed to the hinged thread-board and loosely attached to the retainer *n* by means of projection *n'*, and drum *s*, strap *t* and curved arm *u*, forming an extensible connection between the hinged thread-board and the rotary separator-bar, all substantially as and for the purpose specified.

6. In combination, the rotatory separator-bar *l* carrying separators *d*, pawl *n* hung on rotatory arm *k* and carrying projection *n'*, the slotted connecting-rod *r* and thread-board *o*, all substantially as described and for the purposes set forth.

7. In combination, the rotatory separator-bar *l* carrying separators *d*, the drum *s*, strap *t*, arm *u* and thread-board *o*, all substantially as described and for the purposes set forth.

8. In combination, the builder-shaft *e*, arm *f*, rod *g*, arm *h*, shaft *i*, and arms *k* carrying the separator-bar *l* with its separators, all substantially as described and for the purposes set forth.

589,983. UMBRELLA. EMILE CHARAGNAT, Paris, France. Filed July 22, 1896. Serial No. 600,131. (No model.) Patented in France Dec. 23, 1895, No. 252,682.



Claim.—1. An umbrella comprising a frame, a slide for partially opening the same and a stick formed of a main part and a handle part, the latter comprising a tubular portion moving on the main part, said tubular portion bearing on the slide to move the same a slight distance toward the point of the stick, substantially as described.

2. An umbrella comprising a frame, a slide connected thereto, the two-part stick arranged to be shortened and thereby to move the slide longitudinally of the stick toward the point to partially open the umbrella, the catch for holding the parts in this partially open position, said catch being located at a point intermediate of the extreme positions of the slide whereby the slide in moving from its position at the handle part of the stick toward the point will contact with and operate the catch to release the parts, substantially as described.

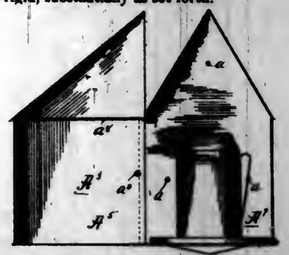
3. An umbrella comprising the frame, the two-part stick, the slide operated to partially open the frame by the movement of the handle part of the stick, the catch located at a point on the main portion of the stick over which the slide passes in moving toward the point from the handle so that said slide will release said catch in the opening movement of the frame, and the spring for returning the parts to normal position when released by the catch.

4. In combination in an umbrella, the frame, the tubular main part of the stick, the tubular handle portion, sliding in connection therewith, the slide on the main part of the stick and the catch within the main part of the handle having its projection extending into the path of the slide at the point between the extreme positions of rest thereof, said catch acting to hold the parts in partially open position and to be released by the movement of the slide toward the point of the stick.

589,984. MILK-CABINET. ARTHUR B. CLARKE, Chicago, Ill., assignor to the Clarke Safety Milk Cabinet Company, same place. Filed May 29, 1896. Serial No. 593,530. (No model.)

Claim.—1. The combination, in a wall-cabinet, of the sheet-metal back having peaked top and outsetting edge flanges along the sides and top, the casing having cylindriform body and conoid top hinged to one of said side flanges and shutting in past the other side flange and beneath the top flanges, and the sheet-metal bottom conforming in outline to the horizontal cross-section of the body of the casing, substantially as set forth.

2. The combination, in a wall-cabinet, of the sheet-metal back having peaked top and outsetting edge flanges along the sides and top, the casing having cylindriform body and conoid top hinged to one of said side flanges and shutting in past the other side flange and beneath the top flanges, the sheet-metal bottom conforming in outline to the horizontal cross-section of the body of the casing, and the reinforcement applied to the bottom of the casing so as to render the latter more rigid, substantially as set forth.



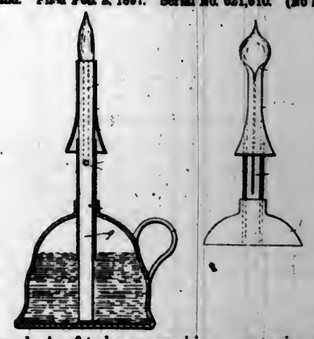
3. The combination, in a wall-cabinet, of the sheet-metal back having peaked top and outsetting edge flanges along the sides and top, the casing having cylindriform body and conoid top hinged to one of said side flanges and shutting in past the other side flange and beneath the top flanges, the sheet-metal bottom conforming in outline to the horizontal cross-section of the body of the casing, the bracing-strip secured to the outer edge of the lower corner of the back wall and extending thence along, and secured to, the adjacent edge of the bottom so as to form a combined support and guide to direct the outer margin of the swinging casing into position, and the sheet-metal outwardly-convex reinforcement applied to the bottom, substantially as set forth.

589,985. ALLOY. ALPHA F. COTELAS, Ivry-sur-Seine, France. Filed July 31, 1896. Serial No. 601,320. (No specimens.) Patented in France June 2, 1896, No. 256,853; in Belgium June 30, 1896, No. 122,236; in England June 30, 1896, No. 14,479; in Austria July 31, 1896, No. 3,443; in Spain July 31, 1896, No. 19,417; in Hungary July 31, 1896, No. 7,294; in Italy July 31, 1896, No. 42,231; in Luxemburg July 31, 1896, No. 2,582, and in Portugal Aug. 1, 1896, No. 2,276.

Claim.—1. The process herein described consisting of the melting together of copper and tin, adding, during the melting, zinc, remelting and letting the mass cool down to the consistency of paste; adding aluminium and hydrochlorate of ammonia and also phosphides.

2. The composition herein described consisting of copper one hundred and eighty grains; tin one hundred and fifty grains; zinc six hundred and sixty grains and aluminium ten grains.

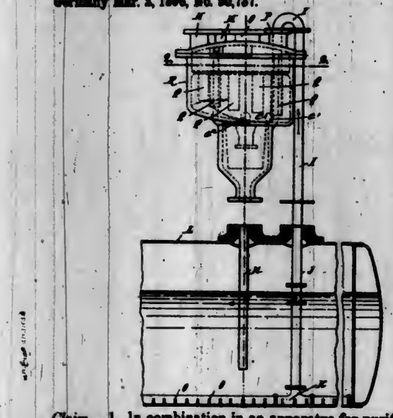
589,986. SAFETY-LAMP. FREDERICK DAINTREE, Richmond, England. Filed Feb. 2, 1897. Serial No. 621,610. (No model.)



Claim.—1. A safety-lamp comprising a reservoir, which is provided with the usual neck, a tube mounted therein, and a wick composed of wood or similar material, which is mounted in said tube, said wick being extended above said tube, and provided with a flame-regulating tube, which is adjustable thereon, and said wick being provided with means for feeding air upwardly through the upper end thereof, consisting of a central longitudinal bore which is in communication with the air at the side of said wick, substantially as shown and described.

2. A safety-lamp comprising a suitable reservoir, provided with the usual neck, a vertically-adjustable tube mounted in said neck, a wick composed of wood, mounted in said vertically-adjustable tube, said wick being split for a portion of its length, and the split portion being directed upwardly, said tube being provided with apertures which communicate with the said split portion and cooperate therewith to supply air to the flame, said wick being provided with a vertically-adjustable flame-regulating tube which is mounted thereon, substantially as shown and described.

589,987. APPARATUS FOR PURIFYING WATER. JEAN DESMOULIN, Liege, Belgium. Filed Feb. 23, 1897. Serial No. 624,048. (No model.) Patented in Belgium Aug. 19, 1895, No. 117,089; in France Feb. 18, 1896, No. 254,061; in England Mar. 2, 1896, No. 4,723, and in Germany Mar. 2, 1896, No. 90,737.



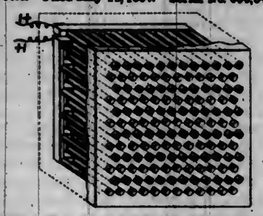
Claim.—1. In combination in an apparatus for purifying water, a steam-chamber having steam-inlets thereto, a water-chamber beneath the same with openings between, a feed-water inlet to the lower chamber, a receiving-chamber in communication with the water-chamber, an outlet-pipe and a filter interposed between the receiving-chamber and the outlet, substantially as described.

2. In combination with a steam-boiler a receiving-chamber and a filter having a pipe connection extending below the water-level in the boiler, a feed-water inlet and the sediment-chamber in communication with the receiving-chamber, a float within said sediment-chamber and a valve connected with and operated by said float to permit the water in the boiler to rise through said filter, substantially as described.

3. In combination with a boiler a receiving-chamber C, a feed-water inlet, a steam-chamber above the water-chamber having steam-inlets, a receiver S a pipe I leading from the bottom of the boiler to said receiver S, an opening between said receiver S and the receiving-chamber C, a filter between the receiving-chamber C and the boiler, and a discharge for the sediment, substantially as described.

4. In combination with a central receiving-chamber C, a water-chamber partially encircling the same having an inclined bottom, a steam-chamber above the water-chamber separated by a partition but having openings between the two chambers, a feed-water pipe to the chamber B, a sediment-chamber D having a float and valve and a mud-drum S having a pipe connection P to the boiler, substantially as described.

589,988. ELECTRICAL CIGAR-LIGHTER. TIMOTHY C. DOBBINS, Telluride, Colo. Filed May 11, 1897. Serial No. 636,047. (No model.)



Claim.—The combination of a block having rows of insulated metallic pegs therein, the pegs in the alternate rows being electrically connected and adapted to be oppositely polarized, with a separate metallic igniting device constructed to be drawn across the surface of said pegs to create a series of short circuits, and thereby cause an ignition of the material on the igniting device, substantially as described.

589,989. BICYCLE-TIRE. GEORGE W. DEAN, Chicago, Ill. Filed Mar. 22, 1897. Serial No. 628,569. (No model.)

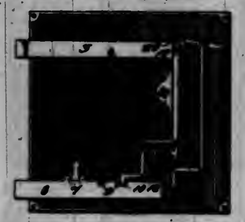
Claim.—1. A tire for bicycle or other wheels provided with lugs, ridges or projections around its external periphery divided by a longitudinal circumferential groove.



2. A tire for bicycle or other wheels provided with lugs, ridges or projections around its external periphery divided by a longitudinal circumferential groove, and arranged at an angle which presents a portion of the lug, ridge or projection first to the ground, while [illegible] a part of one is coming into contact as a part of another is passing out of contact with the ground.

3. A tire for bicycle or other wheels provided with lugs, ridges or projections around its external periphery having uninterrupted air-passages between them.

589,940. LOCK. VIRGIL B. DOWNING, Mankato, Minn. Filed Nov. 6, 1896. Serial No. 611,260. (No model.)



Claim.—1. In a lock of the character described, the combination with a slidingly-mounted latch-bar, a spring for normally urging said latch-bar to its outer position, and a slidingly-mounted locking-bolt having means whereby the same may be shifted through the medium of a key, and provided with notches or recesses in one edge thereof, of a bell-crank lever having a tooth or projection upon one arm adapted to fit within one or the other of said notches or recesses, a swinging rod or bar pivoted to the rear end of said latch-bar, a pitman connecting the lower end of said swinging bar with the other arm of said bell-crank lever, and means actuated by the turning of the door-knob for swinging said pivotally-mounted rod or bar, substantially as and for the purpose described.

2. In a lock of the character described, the combination with a slidingly-mounted latch-bar, a spring for normally urging said latch-bar to its outer position, and a slidingly-mounted locking-bolt having means whereby the same may be shifted through the medium of a key, and provided with notches or recesses in one edge thereof, of a bell-crank lever having a tooth or projection upon one arm adapted to fit within one or the other of said notches or recesses, a swinging rod or bar pivoted to the rear end of said latch-bar, a pitman connecting the lower end of said swinging bar with the other arm of said bell-crank lever, a knob-shaft, and a block secured to said knob-shaft adjacent to said swinging rod or bar, whereby upon the turning of said shaft said pivotally-mounted rod or bar will be swung outwardly, substantially as and for the purpose described.

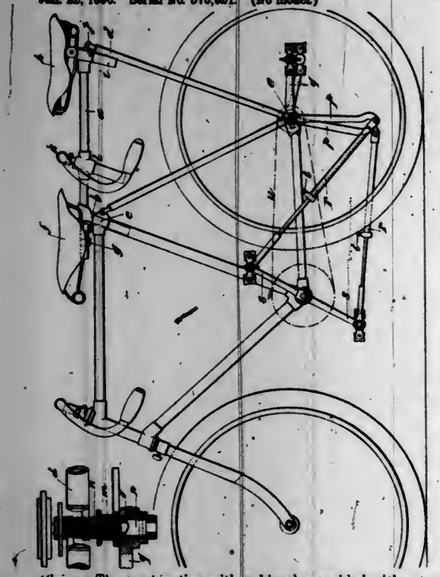
3. In a lock of the character described, the combination with a slidingly-mounted latch-bar, a spring for normally urging said latch-bar to its outer position, and a slidingly-mounted locking-bolt having means whereby the same may be shifted through the medium of a key, and provided with notches or recesses in one edge thereof, of a bell-crank lever having a tooth or projection upon one arm adapted to fit within one or the other of said notches or recesses, a swinging rod or bar pivotally mounted in an elongated slot to the rear end of said latch-bar and provided with an extension at its lower end having an elongated slot therein which surrounds a guide pin or stop, a spring for normally holding the lower end of said rod or bar inwardly, a pitman connecting the lower end of said rod or bar and the other arm of said bell-crank lever, a knob-shaft, and a block upon said knob-shaft adjacent to said rod or bar, whereby upon the turning of said shaft said rod or bar will be swung to its outer position, substantially as and for the purpose described.

4. In a lock of the character described, the combination with a slidingly-mounted latch-bar, a spring for normally urging said latch-bar to its outer position, and a slidingly-mounted locking-bolt having means whereby the same may be shifted through the medium of a key, and provided with notches or recesses in one edge thereof, of a bell-crank lever having a tooth or projection upon one arm adapted to fit within one or the other of said notches or recesses, a swinging rod or bar pivoted to the rear end of said latch-bar, a pitman connecting the lower end of said swinging bar with the other arm of said

bell-crank lever, means actuated by the turning of the door-knob for swinging said pivotally-mounted rod or bar, a stop-bar pivoted at one end to a stationary part of the device and having two shoulders thereon which are adapted to limit the rearward movement of said latch-bar according to the position to which said stop-bar is moved, a pitman pivoted to said stop-bar and leading downwardly therefrom, and a bell-crank lever one arm of which is pivoted to said pitman and the other of which lies within the path of movement of said locking-bolt and is adapted to be engaged thereby when said locking-bolt is in its rearward position, substantially as and for the purpose described.

5. In a lock of the character described, the combination with a slidingly-mounted latch-bar, a spring for normally urging said latch-bar to its outer position, and a slidingly-mounted locking-bolt having means whereby the same may be shifted through the medium of a key, and provided with notches or recesses in one edge thereof, of a bell-crank lever having a tooth or projection upon one arm adapted to fit within one or the other of said notches or recesses, a swinging rod or bar pivoted to the rear end of said latch-bar, a pitman connecting the lower end of said swinging bar with the other arm of said bell-crank lever, means actuated by the turning of the door-knob for swinging said pivotally-mounted rod or bar, a stop-bar pivoted at one end to a stationary part of the device and having two shoulders thereon which are adapted to limit the rearward movement of said latch-bar according to the position to which said stop-bar is moved, a spring for urging the free end of said stop-bar downwardly, a pitman pivoted to said stop-bar and leading downwardly therefrom, and a bell-crank lever one arm of which is pivoted to said pitman and the other of which lies within the path of movement of said locking-bolt and is adapted to be engaged thereby when said locking-bolt is in its rearward position, substantially as and for the purpose described.

589,941. BICYCLE. ARTHUR DURET and LOUIS SCHERRINER, Paris, France, assignors to themselves and Albert Eikan, same place. Filed Jan. 22, 1896. Serial No. 576,621. (No model.)

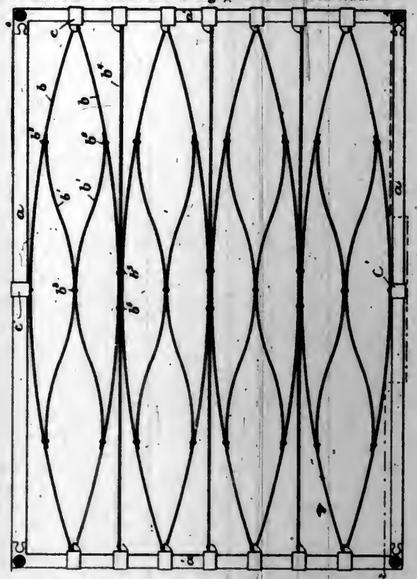


Claim.—The combination with a bicycle provided with rotary-pedal driving mechanism, of an extension-bar *a* of the frame having a socket *b* at its front and socketed and supported in the front-seat pillar of the bicycle, an extra fork *d* fixed at its lower end on the rear-wheel spindle *c*, and pivoted to and supporting the rear end of the extension-bar *a*, and of up and down oscillating pedal-cranks *g*, the said cranks not performing a full rotation and lever-arms *p* carried upon nuts *n* upon the extensions *e* of the rear-wheel spindle, and adjustable links *r* pivoted to and connecting the lever-arms *p* to the rotary pedals of the bicycle, whereby the up-and-down movement of the oscillating pedals will be effective to carry the rotary cranks over their dead-points

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589,942. SPRING BED-BOTTOM. AUGUST H. FREESE, Boston, Mass. Filed Dec. 3, 1896. Serial No. 614,377. (No model.)

Claim.—1. A bed-bottom comprising a series of flexible metal strips or slats riveted together, and forming a frame which is adjustable laterally and non-adjustable longitudinally, or in the direction of the length of the strips, and hooks pivotally connected to the ends of said strips and adapted to swing in the direction of the length of the strips, whereby the hooks may be caused to project outwardly from the ends of the frame to engage a longer bedstead, or inwardly over the ends of the frame to engage a shorter bedstead.



2. A bed-bottom comprising a series of flexible metal strips or slats riveted together and forming a frame which is adjustable laterally, and non-adjustable longitudinally, hooks having shank portions 3 pivoted to the ends of the strips, and adapted to swing lengthwise thereof, and offset portions 2, on the outer ends of the shank portions, said hooks being adapted to be bent to cause the offset portions to stand at different angles with the shank portions, so that by swinging the shanks outwardly from the ends of the frame, and adjusting the offset portions at an obtuse angle with the shank portions, the frame may be engaged with a bedstead of extreme length, as set forth.

3. A bed-bottom comprising a series of flexible metal strips or slats forming a laterally-adjustable frame and grouped in sections, hooks secured to the outer sections, and transverse bars engaged with the outer sections and supporting the ends of the intermediate sections.

4. A bed-bottom comprising a series of flexible metal strips or slats forming a laterally-adjustable frame, hooks secured to end portions of the frame for engagement with the end rails of a bedstead, and a central cross-bar having arms formed to engage the outer strips of the frame and prevent the frame from closing or collapsing.

5. A bed-bottom comprising a series of flexible metal strips or slats forming a laterally-adjustable frame, hooks secured to end portions of the frame for engagement with the end rails of a bedstead, and a central cross-bar having arms formed to engage the outer strips of the frame and provided with hooks to engage the side rails of the bedstead.

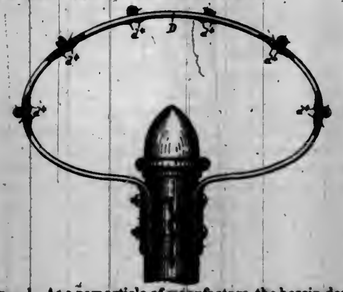
6. A bed-bottom comprising a series of flexible metal strips or slats forming a laterally-adjustable frame, hooks secured to end portions of the frame for engagement with the end rails of a bedstead, and a central cross-bar having arms formed to engage the outer strips of the frame, said cross-bar being longitudinally adjustable and provided with means for holding it at any desired adjustment.

7. A bed-bottom or frame comprising a plurality of curved longitudinal strips extending the entire length of the frame, and rigidly connected at their ends in pairs, each pair constituting an elliptical section, while the sections collectively constitute a frame which is adjustable by the opening and closing of the sections, and flexible fillings within the elliptical sections adapted to open and close therewith.

8. A bed-bottom or frame comprising a plurality of curved longitudinal strips extending throughout the entire length of the frame, and rigidly connected at their ends in pairs, each pair constituting an elliptical section, while the sections collectively constitute a frame which is adjustable laterally by the opening and closing of the sections, and flexible filling-strips located within the elliptical sections and riveted at their ends to the longitudinal strips and between their ends to each other, said filling-strips constituting flexible fillings which are laterally adjustable with the longitudinal strips.

9. A bed-bottom, or frame comprising a plurality of curved longitudinal strips rigidly connected at their ends in pairs, each pair constituting an elliptical section adapted to be opened and closed to vary the width of the frame, the sections being connected by rivets b^3 at or near the center of the length of the frame, and flexible filling-strips located within the openings of said sections and connected at their ends with the longitudinal strips by rivets b^3 which are located between the rivets b^2 and the ends of the frame, the filling-strips being connected centrally by rivets b^3.

589,943. FENCE. JEROME B. GRAHAM, Syracuse, N. Y. Filed Sept. 12, 1896. Serial No. 605,612. (No model.)



Claim.—1. As a new article of manufacture, the herein-described wire fence, the same being provided with overhanging substantially upright loop-shaped crests, and a wire supported by said crests substantially as and for the purpose described.

2. As a new article of manufacture, the herein-described wire fence, the same being provided with upwardly-extending loop-shaped crests projecting laterally beyond the opposite sides of the underlying portion of the fence and a wire supported by said crests, substantially as and for the purpose specified.

3. The combination with the main body of a wire fence; of loop-shaped cross-bars projecting laterally and upwardly from the main body, and having their opposite ends secured to said main body, and a wire supported by the bars and extending lengthwise of said main body, substantially as and for the purpose set forth.

4. The combination with the main body of a wire fence provided with upright posts; of open or hollow upwardly-extending crests secured to the upper ends of the posts and projecting laterally therefrom, and a wire supported by the open crests and extending lengthwise of said main body, substantially as and for the purpose described.

5. The combination with the main body of a wire fence provided with upright posts; of open or hollow crests secured to the upper ends of the posts and projecting laterally and upwardly therefrom, wires arranged at one side of the main body of the fence, and means for removably securing the wires to said crests, substantially as and for the purpose set forth.

6. The combination with the main body of a wire fence provided with upright posts; of loop-shaped cross-bars extending laterally and upwardly from the posts and having their opposite ends secured thereto, and wires supported by the cross-bars and extending lengthwise of said main body, substantially as and for the purpose set forth.

7. The combination with the main body of a wire fence provided with upright posts; of cross-bars having substantially-parallel ends secured to opposite sides of the posts, said cross-bars extending outwardly from the posts and being formed with bow-shaped central portions, and wires supported by the cross-bars and extending lengthwise of said main body, substantially as and for the purpose described.

8. The combination with the main body of a wire fence; of perforated projecting bars secured to the main body, wires extending crosswise of the bars, and fastening members secured to the wires and arranged in the perforations of the bars, substantially as and for the purpose set forth.

9. The combination with the main body of a wire fence provided with upright posts; of perforated projecting bars secured to the main body, a wire extending crosswise of the bars, and fastening members passed through the perforations of the bars and having their corresponding ends engaged with the wire and their opposite ends provided with laterally-extending flexible extremities engaged with said bars, substantially as and for the purpose specified.

10. The combination with the main body of a wire fence provided with upright posts; of cross-bars having substantially parallel ends secured to opposite sides of the posts, said cross-bars extending outwardly from the posts and being formed with perforated bow-shaped central portions, wires extending crosswise of the cross-bars, and fastening members provided with eyes for receiving the wires, and spring-arms passed through the perforations of the cross-bars and formed with laterally-extending extremities engaged with said cross-bars, substantially as and for the purpose described.

589,944. SAFETY APPLIANCE FOR STEAM-BOILERS. FRANCIS W. GREENGRASS, Epsom, England, assignor to Stanley Reynolds and Harry Reynolds Docking, Croydon, England. Filed Apr. 3, 1897. Serial No. 630,554. (No model.) Patented in England Sept. 6, 1895, No. 16,707.



Claim.—The herein-described safety appliance for steam-boilers, comprising a tubular attachment 5 having screw-threaded ends 6 and 7, a cap 9 consisting of a band 10, which is screw-threaded, and a rim 12, a safety attachment 13 mounted on the end of said tubular attachment 5 and having a flange 14 adapted to engage said rim 12, said attachment being substantially dome-shaped in form and being thickest adjacent to said flange and gradually diminishing in thickness to the apex of the dome which is made of a predetermined tensile strength, substantially as and for the purpose described.

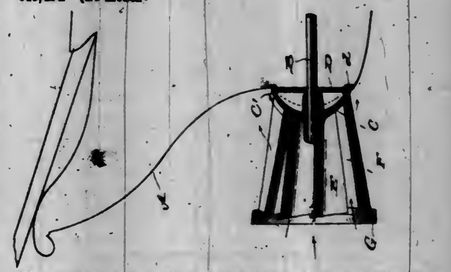
589,945. PICTURE-HANGER. GEORGE H. GROAT, Brooklyn, N. Y. Filed Feb. 8, 1897. Serial No. 622,634. (No model.)



Claim.—1. The herein-described hanger for picture-frames and other articles, the same comprising a handle, a head at one end of the handle on which are formed upwardly and outwardly directed arms having forks at their ends, said head being also provided with a transverse slot by means of which a hook may be suspended, substantially as shown and described.

2. The herein-described hanging device which comprises a handle as 8, a head, as 9, on one end of said handle, said head being provided with a backwardly-directed portion 10, in which is formed a slot 11, said head being also provided with upwardly and outwardly directed arms 12, having forks at their ends, as 13, substantially as shown and described.

589,946. PROPELLING DEVICE FOR SHIPS. FRANK A. L GRUNOW, New Orleans, La., assignor of one-half to Columbus H. Allen and Alphonso D. Riffel, same place. Filed Nov. 25, 1896. Serial No. 613,424. (No model.)

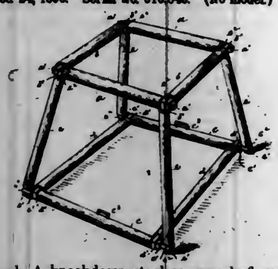


Claim.—1. In a propelling device for ships, the combination with the propelling-shaft B, the plate D through which the shaft passes, the hub C having a convexed flange, of the circular series of blades E secured at their rear ends to the said flange, their forward ends fastened to a ring G, substantially as described.

2. In a propelling device for ships, the combination wth the propelling-shaft, of the plate D having an annular shouldered portion *d*, of the hub C, mounted on the shaft, the convexed flange C', the outer circumference of the edge of which is designed to travel about the

shoulder on plate D, of the curved blades E, arranged substantially as shown and described.

589,947. KNOCKDOWN STOOL. HANS JENSEN, New York, N. Y. Filed Dec. 24, 1896. Serial No. 616,846. (No model.)



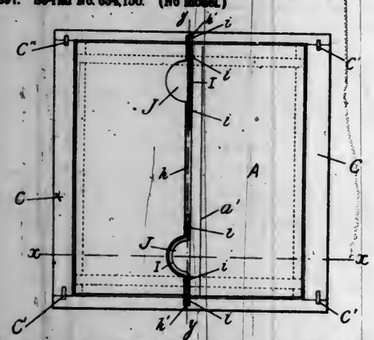
Claim.—1. A knockdown stool composed of upper horizontal bars having at their ends interlocking eyes and tenons, lower horizontal bars having at their ends interlocking eyes and tenons, and of legs having at their ends eyes and tenons that engage the tenons and eyes respectively of the upper and lower bars, substantially as specified.

2. A knockdown stool composed of a sectional upper frame, legs removably connected thereto, a flexible seat having pockets f^3, at its sides, that are adapted to engage a pair of parallel frame-bars, and flaps f^3, at its ends, that are adapted to be folded around a second pair of parallel frame-bars, and of means for connecting the free ends of the flaps to each other, substantially as specified.

3. A knockdown stool composed of a flexible seat having pockets, a sectional upper frame adapted to engage the same, legs connected to said frame, a sectional lower frame, and a strap for connecting the lower frame to the seat, substantially as specified.

4. A knockdown stool composed of bars a, having tenons a'; bars b, having eyes b'; bars c, having tenons c', eyes c^3, and staples c^4; bars d, having eyes d'; legs e, having tenons e', and eyes e^3; a flexible seat f, having pockets f^3; a lacing-string f^4; and a strap g, substantially as specified.

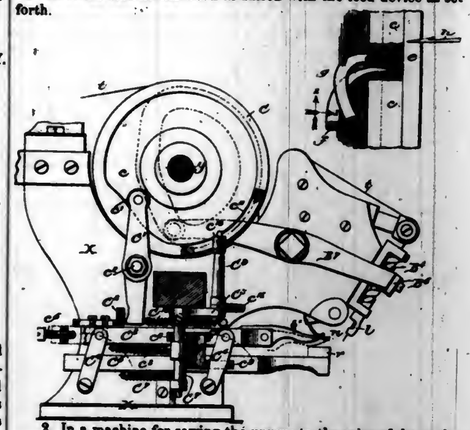
589,948. BUTTER-BOX. SIMEON PICHÉ, Ste. Anne de la Perade, Canada, assignor of two-thirds to Telesphore Piché, same place, and François Xavier Ovide Trudel, St. Prosper, Canada. Filed Apr. 27, 1897. Serial No. 634,150. (No model.)



Claim.—In a butter-box, the combination, with the sides provided with grooves; of a cover formed in two parts connected by a tongue and groove and provided with tongues k for engaging with the said grooves in the sides, and grooves g in its under side; and a back and front provided with tongues f and grooves f' in their tops, said tongues f being adapted to engage with the said grooves g, substantially as set forth.

589,949. SHOE-SEWING MACHINE. ADAM H. PRENSIL, Landingville, Pa., assignor of three-fourths to Franklin P. Adams, Adamsdale, and Katie V. Zuber, Reading, Pa. Filed Dec. 2, 1895. Serial No. 570,734. (No model.)

Claim.—1. The combination in a shoe-sewing machine, of a curved needle, a feeding device, means for causing said feed device to enter the channel in the sole and feed the work toward the path of the needle, and a channel-guide located in advance of the feeding device, and means for moving said channel-guide back and forth in the direction of the feed of the work in unison with the feed device as set forth.



2. In a machine for sewing the uppers to the soles of shoes, the combination with the needle and its actuating mechanism; of a channel-guide arranged upon the opposite side of the line of stitching from the needle, and a feeding-awl arranged beside the channel-guide and on the same side therewith, the channel-guide having only a back-and-forth reciprocating movement parallel to the line of feed so that it does not leave its bearing in the channel, and the feed-awl having both a back-and-forth movement and also a sidewise movement, and means for actuating these parts substantially as shown and described.

3. The combination with the channel-guide, and the feed-awl arranged beside it; of a reciprocating and oscillating sleeve carrying the feed-awl, two cams one for reciprocating, and the other for oscillating this sleeve, a concentric sleeve carrying the channel-guide, and arranged within the first-named sleeve and connected to it for the same longitudinal reciprocation, a guide for preventing said channel-guide sleeve from oscillating, and a rigid central stem or pin for supporting said sleeves substantially as and for the purpose described.

4. The combination with the channel-guide g, and the feed-awl f; of an oscillating and reciprocating sleeve having rear arm A^2 bearing a friction-roller, and bottom arm A^5 bearing the feed-awl, a feed-cam A having cam-slots on its periphery and side, an upright arm A' with friction-roller playing in the peripheral slot for reciprocating the sleeve, a friction-roller on the rear arm A^2 entering the side slot for oscillating the sleeve, a concentric inner sleeve A^7 bearing the channel-guide, guide-pin a^7 for preventing it from rotating, and the supporting pin or stem A^8 substantially as shown and described.

5. The combination of the feed-awl and the reciprocating and oscillating sleeve A^2 having downwardly-projecting arm A^5 provided with a seat for the feed-awl head, a screw arranged longitudinally to said arm and adjusting the feed-awl head vertically in said arm, and oppositely-arranged transverse screws carried by said arm and adjusting the feed-awl head laterally thereto substantially as shown and described.

6. In a sole-sewing machine, the combination with the needle and its actuating mechanism, and a channel-guide and means for reciprocating it in the channel exclusively in a direction parallel to the line of feed and preventing its movement in any other path; of a feed-awl having both a reciprocating motion in the direction of feed and a motion at right angles thereto, said awl being provided with means for adjusting it laterally to the direction of feed to cause it to penetrate the leather more or less according to the density of the same substantially as shown and described.

7. In a sole-sewing machine, the combination with the needle, the looper and the feeding and guiding devices; of a breakdown bar arranged on the same side with the needle, and means for imparting to it a movement equal and parallel throughout its length and in a direction at an angle to its own longitudinal axis forwardly and downwardly against the edge of the shoe substantially as shown and described.

8. In a sole-sewing machine, the breakdown bar $b^{\times}$ having a shank, two radially-moving arms supporting said shank, and means for oscillating it with a parallel motion substantially as shown and described.

9. In a sole-sewing machine, the breakdown bar $b^{\times}$ having an elongated shank with lug C^3 radial arms C^5 C^6 sustaining the said shank, a spring c^9 for advancing said bar, an actuating-lever C, and a cam C operating upon said lever, substantially as shown and described

10. In a sole-sewing machine, the breakdown bar having an adjustable stop to limit its forward movement, and an adjustable tappet-lug, a spring for moving the bar forward, and an actuating-lever for moving it back, said bar being detached from its actuating-lever and operated thereby with a tappet action substantially as shown and described.

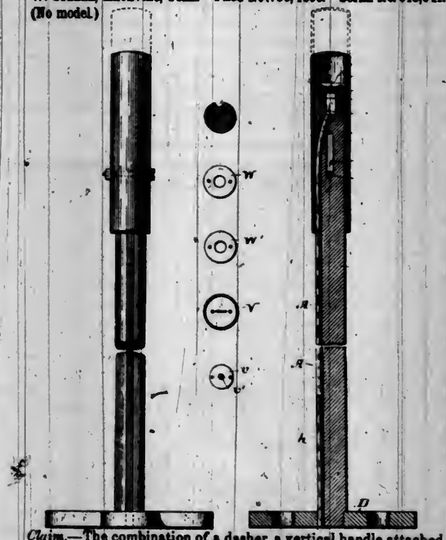
589,950. BICYCLE-FRAME. ABNEL F. TEMPLE, Muskegon, Mich. Filed July 24, 1896. Serial No. 600,398. (No model.)



Claim.—1. In a bicycle-frame, the combination with a metallic joint, of a wooden frame-rod, a rigid sleeve within said rod, and a split bolt connected to the sleeve by being introduced into the same and automatically interlocking with the inner extremity thereof and also to the metallic joint by means of a plate or partition, substantially as described.

2. In a bicycle-frame, the combination with a metallic socket, of a hollow frame-rod, a rigid metallic sleeve within the end of said rod, a split bolt within said sleeve, having its split end connected to the sleeve and its opposite end adjustably connected to the socket by means of a partition-plate and a nut on the end of the bolt, substantially as described.

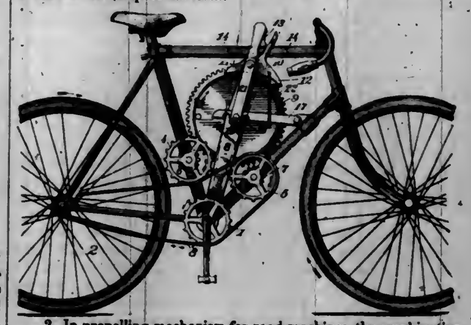
589,951. CHURN-DASHER. NELSON J. TUBBS and CORNELIUS W. STEELE, Knoxville, Tenn. Filed Nov. 30, 1896. Serial No. 613,941. (No model.)



Claim.—The combination of a dasher, a vertical handle attached to said dasher and provided in its periphery with a longitudinal groove, a tube in said longitudinal groove and suitably attached to said handle, the lower end of said tube extending to and through said dasher and the other end thereof opening into a cavity in the top of said handle, leather washers, a rubber valve, a valve-cover provided with a perforation, said washers, valve and valve-cover being attached to the top of said handle in the order stated and covering the cavity therein, and a sliding sleeve closed at the upper end and attached to and adapted to move up and down on said handle by means of a bolt through a slot in the upper portion of said handle, substantially as described.

589,952. BICYCLE PROPULSION. ROBERT S. ABERNETHY, Connellys Springs, N. C., assignor of one-half to J. R. Coulter, same place. Filed May 20, 1897. Serial No. 637,380. (No model.)

Claim.—1. In a propelling mechanism for road-machines, the combination of independently-mounted spur-gears reversely driven and operatively connected with the drive-wheel and with the normal means for propelling the machine, a movable spring barrel or drum, and means under the control of the rider for shifting the said spring barrel or drum to bring it into engagement with one or the other of the individual spur-gears or to an intermediate position, substantially as and for the purpose set forth.



2. In propelling mechanism for road-machines, the combination of independently-mounted spur-gears reversely driven and operatively connected with the drive-wheel and with the normal means of propulsion, a spring barrel or drum, means for shifting the said spring-barrel to bring it into engagement with one or the other of the individual spur-gears or to an intermediate position, and a locking means for securing the barrel against rotation when out of mesh with the spur-gears and when moving from one position to another, substantially as and for the purpose set forth.

3. In propelling mechanism for road-machines, the combination of independently-mounted spur-gears reversely driven and operatively connected with the drive-wheel and with the means for normally propelling the machine, a spring barrel or drum, means for shifting the said barrel from one to the other of the individual spur-gears or to an intermediate position, means for securing the spring-barrel against rotation when out of mesh with the said spur-gears, and a locking mechanism for holding the said spring-barrel in any one of its several positions, substantially as set forth.

4. In propelling mechanism for road-machines, the combination of reversely-driven spur-gears operatively connected with the drive-wheel and with the means for normally propelling the machine, a spring-barrel adapted to intermesh with either one of the spur-gears or to be brought to an intermediate position, a hand-latch for engaging with the toothed portion of the spring-barrel, and a brake-shoe forming a part of the hand-latch and adapted to engage with the peripheral portion of the said spring-barrel, substantially as set forth for the purpose described.

5. In propelling mechanism for road-machines, the combination of reversely-driven spur-gears, a spring-barrel, a movable support therefor, a hand-latch carried by the movable support to hold the spring-barrel against rotation when out of mesh with the spur-gears, and a bar for holding the movable support in any desired position and operatively connected with the hand-latch to move simultaneously therewith, substantially as and for the purpose set forth.

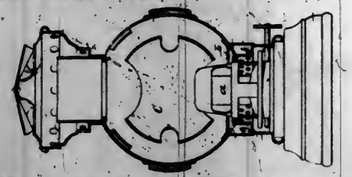
6. In propelling mechanism for road-machines, the combination of reversely-driven spur-gears, a spring-barrel, a pivoted support therefor, a notched bar to engage with a lateral extension of the pivoted support to hold the latter in an adjusted position, a plate secured to the pivoted support to hold the free end of the notched bar in place and direct it in its movements, a hand-latch to hold the said spring-barrel against rotation when out of mesh with the spur-gears, and a link interposed between the notched bar and hand-latch, substantially as set forth.

7. In propelling mechanism for road-machines, the combination of reversely-driven spur-gears operatively connected with the drive-wheel and with the means for normally propelling the machine, a spring-barrel, a lever carrying the spring-barrel, means for securing the lever in an adjusted position, a hand-latch pivoted to the lever and adapted to control the movement of the spring-barrel, and stops extending across the path of the aforesaid lever to limit its movement, substantially as set forth.

8. In propelling mechanism for road-machines, the combination of separate and individual idlers independently mounted and reversely driven and located to one side of the plane of the machine-frame and operatively connected with the drive-wheel and with the means for normally propelling the machine, individual spur-gears connected with the respective idlers to rotate therewith and located upon the opposite side of the plane of the machine-frame, a spring-

barrel adapted to have its toothed portion brought into engagement with either of the spur-gears, a movable support for the spring-barrel, a hand-latch for holding the spring-barrel against turning when out of engagement with the spur-gears, and a locking means for securing the movable support in any one of its positions, substantially as set forth.

589,953. LAMP. CHARLES L. REITH, Brooklyn, N. Y., assignor to The R. E. Dietz Company, New York, N. Y. Filed Feb. 6, 1897. Serial No. 622,338. (No model.)



Claim.—1. The combination with a lamp-case having at its lower end a finely-perforated collar, of an oil-pot secured in said collar below the perforations thereof, a burner mounted on said oil-pot and projecting into said lamp-case and having its lower portion arranged opposite said perforations, and air-injectors which are arranged on both sides of said collar outside of said perforations and deflect the air inwardly through said perforations against the lower portion of the burner, substantially as set forth.

2. The combination with a lamp-case having at its lower end a finely-perforated collar, of an oil-pot secured in said collar below the perforations thereof, a burner mounted on said oil-pot and projecting into said lamp-case and having its lower portion arranged opposite said perforations, and air-injectors which are arranged on both sides of said collar and which consist each of a transverse vertical plate extending from said perforations outwardly and a longitudinal plate arranged at the outer end of said transverse plate, substantially as set forth.

3. The combination with a lamp-case having at its lower end a perforated collar, and having perforations in its lower portion above said collar, of an oil-pot secured in said collar below the perforations thereof, a burner mounted on said oil-pot and projecting into said lamp-case and having its lower portion arranged opposite the perforations in said collar, air-injectors which are arranged on both sides of said collar and deflect the air inwardly through the perforations of said collar and case, and a deflecting-plate which is arranged within the lamp-case above the perforations thereof and deflects the air inwardly against the burner, substantially as set forth.

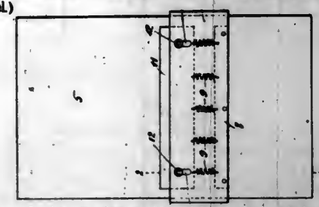
589,954. CYCLE-HUB. WILLIAM H. BURNS, Chicago, Ill. Filed Feb. 10, 1896. Serial No. 578,754. (No model.)



Claim.—1. The herein-described hub for cycle and other wheels, the same comprising a tubular shell having circumferential beads near its ends, forming the outward and inward abutting shoulders 2 and 3, the spoke rims or flanges 4, fitting the outside of the hub or shell and adapted to abut against the shoulders 2, and the ball-cups 5 fitting within the hub or shell and adapted to abut against the shoulders 3, as described and for the purpose set forth.

2. The herein-described hub for cycle and other wheels, the same comprising a tubular shell, having circumferential beads near its ends, of the reversed form described, that form the outward and inward abutting shoulders 2 and 3, the spoke rims or flanges 4, fitting the outside of the hub or shell and adapted to abut against the shoulders 2, and the ball-cups 5 fitting within the hub or shell and adapted to abut against the shoulders 3, as described and for the purpose set forth.

589,955. ATTACHMENT FOR WRITING-PADS. EDITH F. BLACK, San Antonio, Cal. Filed Apr. 15, 1897. Serial No. 632,296. (No model.)



Claim.—1. An attachment for writing-pads consisting of an oblong plate, and a transversely-movable spring-operated plate mounted beneath one side thereof, and adapted to be projected therefrom, substantially as shown and described.

2. An attachment for writing-pads consisting of a main oblong plate in one side of which are formed short transverse slots or openings, a transversely-movable plate mounted thereunder, and connected therewith by pins which pass through said slots or openings and springs connected with the bottom of said oblong plate by which said movable plate is projected, substantially as shown and described.

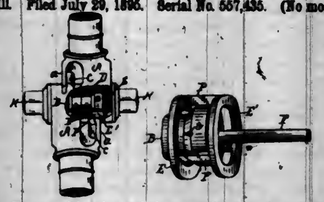
3. An attachment for writing-pads consisting of a main oblong plate in one side of which are formed short transverse slots or openings, a transversely-movable plate mounted thereunder, and connected therewith by pins which pass through said slots or openings and springs connected with the bottom of said oblong plate by which said movable plate is projected, said oblong plate being also provided at each end with downwardly-directed flanges, substantially as shown and described.

589,956. NON-FILLABLE BOTTLE. PHILIP C. BROWN, Brooklyn, N. Y. Filed Apr. 10, 1896. Serial No. 586,967. (No model.)



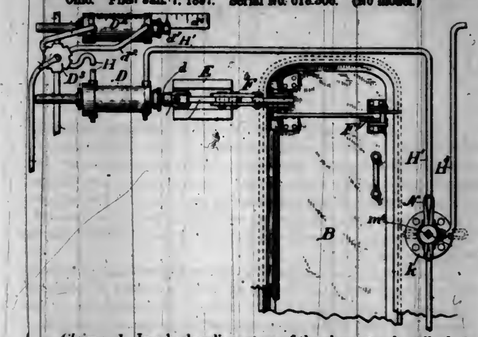
Claim.—The combination of the valve the upper part being of wood the lower part weighted with porcelain, glass or similar substances, so constructed and weighted as to be semifloatable when horizontal but not floatable when vertical, said valve resting on a contracted opening in the bottle-neck below the top, of the nozzle having projections or tongues on the inside on alternate sides thereof, extending horizontally half-way or more across the nozzle and integral therewith cemented or otherwise secured to the neck of the bottle.

589,957. AIR-BRAKE COUPLING. FREDERICK G. BUCKPITT, Joliet, Ill. Filed July 29, 1895. Serial No. 557,435. (No model.)



Claim.—The combination of the coupling-head A having the screw-cap H provided with a barrel J, gasket D, valve B having the rearwardly-extending stem F adapted to enter said barrel, and having its side opposite said stem protrude out beyond said gasket, and having the notch or groove *r* in its seat for gradually releasing air in the train-pipe to set the brakes, coil-spring S arranged on said stem and the thimble-frame E, E', P for holding said gasket in place and forming a seat for said valve, all arranged to operate substantially as and for the purpose set forth.

589,958. HYDRAULIC SYSTEM FOR CLOSING WATER-TIGHT BULKHEADS ON BOARD SHIPS, &c. WILLIAM R. COWLES, Cleveland, Ohio. Filed Jan. 7, 1897. Serial No. 618,906. (No model.)



Claim.—1. In a hydraulic system of the character described, the combination with an operating-cylinder, a piston therein, and mechanism operated by said piston, of pipes adapted to contain fluid under pressure connected to each end of said cylinder, a device for indicating the flow of fluid through said pipes, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

2. In a hydraulic system of the character described, the combination with an operating-cylinder, provided with a piston therein, and mechanism operated by said piston, of means for injecting fluid under pressure into one end of said operating-cylinder, and means for registering the fluid expelled from the opposite end of said cylinder, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

3. In a hydraulic system of the character described, the combination with an operating-cylinder and mechanism operated thereby, of a pipe connected to a source of fluid-pressure, and an exhaust-pipe, a valve for forcing fluid under pressure into either end of the operating-cylinder, means for registering the flow of fluid through the system, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

4. In a hydraulic system of the character described, the combination with an operating-cylinder, a piston therein, of a door and mechanism operated by said piston for moving said door, pipes adapted to contain fluid under pressure connected to each end of said cylinder, means for causing a flow of fluid through said pipes, a device for indicating the flow of fluid through the said pipes, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

5. In a hydraulic system of the character described, the combination with an operating-cylinder, provided with a piston therein, of a swinging door, and mechanism operated by said piston for swinging said door, means for injecting fluid under pressure into one end of said operating-cylinder, means for registering the fluid expelled from the opposite end of said cylinder, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

6. In a hydraulic system of the character described, the combination with an operating-cylinder of a door and mechanism operated by said cylinder for moving said door, an indicating-cylinder, a double system of pipes connecting the two cylinders and means for forcing fluid under pressure into one end of the operating-cylinder, and for permitting the flow of fluid from the other end of the operating-cylinder to the indicating-cylinder, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

7. In a hydraulic system of the character described, the combination with an operating-cylinder, of a door and mechanism operated by said cylinder for moving said door, a pipe connected to a source of fluid-pressure, and an exhaust-pipe, a valve for forcing fluid under pressure into either end of the operating-cylinder, means for registering the flow of fluid through the system, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

8. In an apparatus of the character described, the combination with a fluid-circuit, of an operating-piston with mechanism operated thereby, an indicating device moving synchronously with said operating-piston, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

9. In an apparatus of the character described, the combination with a fluid-circuit, of an operating-piston with mechanism operated thereby, an indicating-piston moving synchronously with said operating-piston, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

10. In a hydraulic system of the character described, the combination with a fluid-circuit, an operating-cylinder in said circuit, with a piston operated by the fluid, a signaling device for indicating the motion of said piston, and an independently-operated releasing-valve for controlling the flow of fluid in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

11. In a hydraulic system of the character described, the combination with a cylinder and an operating-piston of a door, and mechanism operated by said piston for moving said door, an indicating-cylinder, a double system of pipes connected thereto, a pipe for supplying fluid-pressure and an exhaust-pipe, a six-way valve located between said cylinders and adapted to connect said supply-pipe with either end of said operating-cylinder, to connect the opposite end of the operating-cylinder with one end of the indicating-cylinder, and to connect the opposite end of the indicating-cylinder with the exhaust-pipe, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

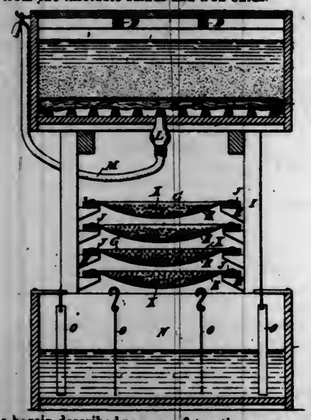
12. In a hydraulic system of the character described, the combination with an operating-cylinder and mechanism operated thereby, and a reciprocating indicating device, of a double system of pipes connecting the two, a pipe for supplying fluid-pressure and an exhaust-pipe, a six-way valve placed between said cylinder and said device adapted to connect said supply-pipe with either end of said operating-cylinder, to connect the opposite end of the operating-cylinder with one end of the indicating device, and to connect the opposite end of the indicating device with the exhaust-pipe, and a hand-operated releasing-valve contained in said circuit located in the pipe for supplying fluid-pressure to the operating end of the power-cylinder, substantially as described.

589,959. PROCESS OF TREATING COPPER SULFIDS. JOHN J. CROOKE, New York, N. Y. Filed Aug. 7, 1895. Serial No. 558,502. (No specimens.)

Claim.—1. The herein-described process of treating copper sulfids associated with iron sulfids, which consists in roasting the pulverized sulfids with sodium chlorid, leaching or lixiviating the roasted mass with an oxidizing solution, whereby the iron sulfids are largely converted into oxids and the copper sulfids are only slightly decomposed, and then subjecting the copper sulfids and iron oxids to a melting or smelting operation to extract the copper in a metallic condition.

2. The herein-described process of treating copper sulfids associated with iron sulfids and noxious or interfering elements or compounds to prepare them for the extraction of metallic copper, which consists in roasting the pulverized sulfids and associated compounds with sodium chlorid, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid and copper nitrate, whereby the iron sulfids are largely converted into oxids and provide a valuable adjunct

for the conversion of copper sulfids into metallic copper, and the interfering elements or compounds are dissolved by the solution and separated from the insoluble sulfids and iron oxids.



3. The herein-described process of treating copper sulfids associated with iron sulfids, which consists in roasting the pulverized sulfids and associated compounds with sodium chlorid, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid and copper nitrate, whereby the iron sulfids are largely converted into oxids and the interfering elements or compounds are dissolved by the solution and separated from the insoluble copper sulfids and iron oxids, and then subjecting the leached copper sulfids and iron oxids to a subsequent smelting operation to extract the copper in a metallic condition.

4. The herein-described process of treating copper sulfids associated with iron sulfids and noxious or interfering elements or compounds to prepare them for the extraction of metallic copper, which consists in roasting the pulverized sulfids and associated compounds with sodium chlorid, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid, copper nitrate and free nitric acid, whereby rapid reactions are produced to convert the iron sulfids into oxids and to dissolve the noxious elements or compounds and separate them from the insoluble copper sulfids and iron oxids.

5. The herein-described process of treating copper sulfids associated with iron sulfids and carrying silver or gold, which consists in roasting the pulverized sulfids with sodium chlorid at a low heat, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid and copper nitrate, whereby the silver and gold are converted into soluble chlorids and are dissolved in and removed with the solution from which they are easily recovered in a metallic condition, and the iron sulfids are largely converted into oxids to provide a valuable adjunct for the conversion of the copper sulfids into metallic copper by a subsequent operation or process.

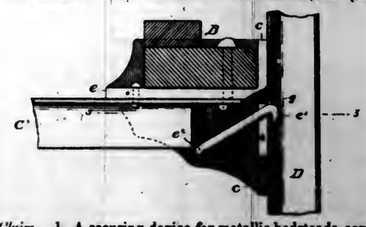
6. The herein-described process of treating copper sulfids associated with iron sulfids and carrying silver or gold, which consists in roasting the pulverized sulfids with sodium chlorid at a low heat, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid, copper nitrate and free nitric acid, whereby rapid reactions are produced to convert the iron sulfids into oxids for use in the subsequent conversion of the copper sulfids into metallic copper, and the silver and gold into soluble chlorids which are dissolved in and removed with the solution from which they can be readily recovered in a metallic condition.

7. The herein-described process of treating copper sulfids associated with iron sulfids and carrying silver or gold, which consists in roasting the pulverized materials with sodium chlorid at a low heat, leaching the roasted mass with a hot solution of sodium chlorid, sulfuric acid and copper nitrate, whereby the silver and gold are converted into soluble chlorids and are dissolved by and removed with the solution, and the iron sulfids are largely converted into oxids, recovering the silver and gold from the solution, and then subjecting the residuum or tailings of the leaching operation to a subsequent treatment to extract the copper in a metallic condition.

8. The herein-described process of extracting metallic copper from the residuum of tailings of a leaching operation containing copper sulfids and iron oxids, which consists in fluxing the tailings with silica and pulverized carbon, gradually melting the fluxed charge whereby the iron oxids are converted into a metallic condition and the copper sulfids are desulfurized with the liberation of metallic copper and the formation of an iron silicate slag, removing the slag from the melted copper, adding a small per centum of fresh silica to convert any remaining iron oxid, or the metallic iron alloyed with the copper, into an iron silicate slag, and then removing this slag from the copper.

9. The herein-described process of recovering silver or gold and extracting copper in a metallic condition from copper sulfids associated with iron sulfids, which consists in roasting the pulverized sulfids with sodium chlorid at a low heat, leaching the roasted mass with a solution whereby the iron sulfids are largely converted into oxids and the silver and gold are dissolved by and removed with the solution, recovering the silver and gold from the solution, roasting the residuum or tailings, fluxing the roasted tailings with silica and pulverized carbon, gradually melting the roasted and fluxed charge to convert the oxid of iron into metallic iron and desulfurize the copper sulfids to liberate metallic copper and form an iron silicate slag, removing the slag from the melted copper, adding a small per centum of silica to convert any remaining iron oxid or metallic iron into an iron silicate slag and removing this slag from the copper.

589,960. BEDSTEAD-SECURING DEVICE. WILLIAM R. CROSS, Philadelphia, Pa. Filed Mar. 31, 1897. Serial No. 630,104. (No model.)



Claim.—1. A securing device for metallic bedsteads, comprising in combination, a hollow standard having an orifice, a corner-plate, C, provided with a flange or rear wall, *c*, concaved to accommodate the standard and having a horizontal rib, *c'*, for connection with the side rails and cross-bars of the bed structure, and a hooked bar pivoted to said plate and adapted to engage with the orifice of the standard, there being in said rear wall, *c*, a vertical groove, *h*, through which the hooked bar passes.

2. A metallic-bedstead-securing device comprising in combination, a hollow standard, D, having an orifice, *g*, a plate, C, having a rear flange, *c*, extending at a right angle to the main body of the plate and provided with an elongated vertical groove, *h*, a bar, E, pivoted to the plate, C, and passing through the groove, *h*, a hooked end, *e'*, on said bar for engagement with the wall of the orifice, *g*, said bar being of such length with respect to the plate, C, that when its hooked end is in engagement with the wall of the orifice, *g*, the bar will be at a considerable angle to the horizontal so that the weight of the bed structure will operate to tighten the connection between the plate, C, and the standard, D, substantially as and for the purpose set forth.

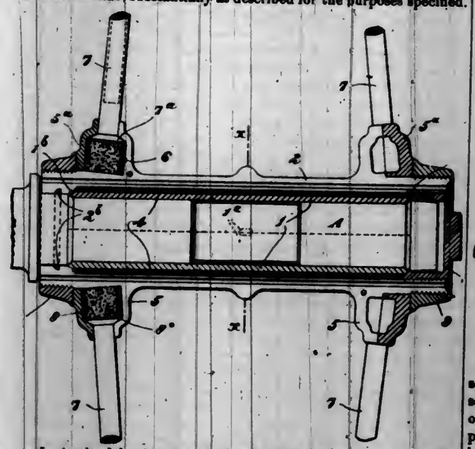
589,961. METALLIC WHEEL. ISAAC DAVIS, London, England. Filed Aug. 19, 1896. Serial No. 602,909. (No model.) Patented in Victoria Mar. 3, 1896, No. 12,980; in England June 6, 1896, No. 12,564; in France Aug. 1, 1896, No. 258,561; in New South Wales Dec. 31, 1896, No. 7,164; in South Australia Dec. 31, 1896, No. 3,510; in New Zealand Jan. 5, 1897, No. 9,167, and in Canada Jan. 19, 1897, No. 54,663.

Claim.—1. In a wheel, a combined sectional axle-box and hub of the kind herein referred to provided with a layer of material such as leather arranged between the exterior of the axle-box and the interior of the hub, substantially as described and shown for the purposes specified.

2. In a wheel, a hub divided longitudinally and provided near each end with a pair of flanges 5, 5ª having formed within and between them a series of recesses, or an annular recess, and elastic or yielding material arranged within said recesses or recess and against which the enlarged inner ends of the wheel-spokes bear, the outer flange of each pair being made removable and coupling-rings adapted to hold the removable flanges in place and also to hold the parts of the divided hub together, substantially as herein described.

3. In a metallic wheel, the combination of a hub provided near each end with a pair of similar flanges 5, 5ª having formed within and between them a series of recesses or an annular recess 6 and a series of radial holes leading outward therefrom the outer flange of each pair being made removable, a wheel-rim, a series of spokes connected to said rim, adapted to work radially and independently of each other through said radial holes and formed at their inner ends with enlarged parts that are normally rigidly held in an outward direction directly against the corresponding pair of flanges, means for putting said spokes in tension, elastic or yielding material located in said recess or recesses and between the enlarged inner ends of said spokes and the bottom of the recess or recesses, and means for securing the movable flange of each pair in place, substantially as described.

4. In a wheel, a combined sectional axle-box and hub of the kind herein referred to provided with a layer of flexible material between the axle-box and hub, a ring of flexible material let into an annular recess in the axle-box so as to surround the adjacent part of the wheel-axle to which the wheel is fitted, and lengths of flexible material located in recesses in the adjacent longitudinal edges of the two sections of the hub, substantially as described for the purposes specified.



5. A wheel having its hub and rim tied together by a series of tension-spokes formed with enlarged inner and outer free ends, the enlarged inner ends of said spokes bearing in a non-elastic manner and in and outward direction against the hub but free to move in an inward direction independently of each other, and the enlarged outer ends of the spokes bearing in a non-elastic manner and in an inward direction against the rim but free to move outward relatively thereto, and elastic or yielding material located between the inner or central portion of the hub and the inner end surfaces of the spokes and upon which the latter are bedded so that their inward movement is resisted by such material, substantially as described.

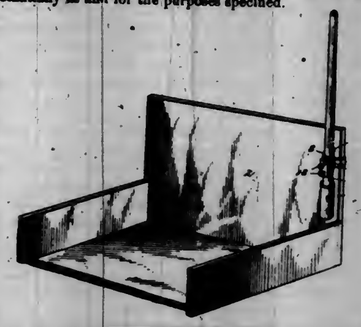
6. A metallic wheel having its spokes enlarged at their inner and outer ends, the inner ends being arranged to bear in an outward direction against a rigid part of the wheel-hub and in an inward direction against elastic or yielding material carried by said hub, and the outer ends of said spokes being arranged to bear in an inward direction directly against tightening-up devices and in an outward direction against layers of cushioning material, substantially as described.

7. A metallic wheel comprising a hub provided with pairs of flanges, one of the flanges of each pair being removable, elastic or yielding material held between each pair of flanges, a wheel-rim having sockets each provided with a tightening-up nut and with a layer of cushioning material, and two series of spokes each having enlarged inner and outer ends, the inner ends being each held between and directly against one of the pairs of flanges by the elastic or yielding material and the outer ends of the spokes being held between the nuts and layers of cushioning material in the sockets and bearing directly against said nuts, substantially as described for the purpose specified.

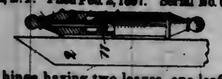
8. A metallic wheel comprising a combined sectional axle-box and hub provided with pairs of flanges 5, 5ª with interposed elastic or yielding material, a wheel-rim having attached to its inner periphery internally-screw-threaded sockets 10 fitted with layers 13 of cushioning material and nuts 12, and spokes 7 having enlarged inner ends located between said pairs of flanges, bedded on the elastic or yielding material held between the same and strained in an outward direction against the flanges, the outer end of said spokes being enlarged and bedded against the cushioning material in the sockets and forced radially outward by direct contact therewith of said nuts, substantially as described.

589,962. WHIP-LOCK. ALONZO EGGLESTON, Rochester, Ill. Filed Apr. 22, 1897. Serial No. 633,291. (No model.)

Claim.—In a whip-lock, the combination with a dashboard and whip-socket, of a clip connected thereto having posts on the upper and lower portions thereof, opposite pairs of clamps engaging the said cross-piece and the posts of the same, a clasp having a recessed arm attached to the opposite ends of one pair of said clamps, a lock-casing with a slot in one side attached to the opposite ends of the opposite pair of said clamps, disks mounted in said lock-case having cut-away portions, and outer disks connected to the aforesaid disks, substantially as and for the purposes specified.

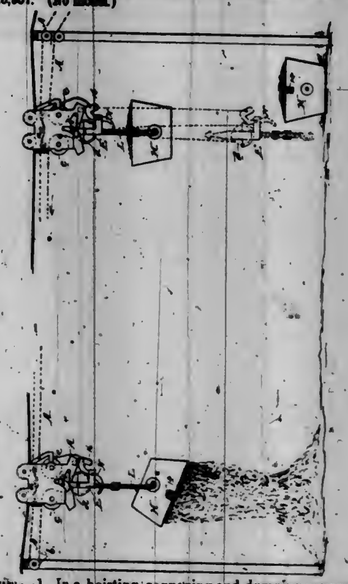


589,963. HINGE. CHRISTOPHER FROELICH, Brooklyn, N. Y., assignor of one-half to Henry Blank, New York, and Elizabeth Imhauser, Ronkonkoma, N. Y. Filed Feb. 2, 1897. Serial No. 621,632. (No model.)



Claim.—A hinge having two leaves, one leaf having a recess or socket, the other leaf having a projection to enter said recess or socket, and adapted to slide therein, said projection having an inclined or cam-like face or edge, said projection also having a bore, a pin or pintle journaled in said bore and extending to the first-mentioned leaf, and rigidly secured to said leaf, and a projection carried by said pin or pintle within said recess or socket and adapted to travel along said inclined or cam-like face or edge, substantially as described.

589,964. HOISTING, CONVEYING, AND DUMPING APPARATUS. OMAR H. GARDNER, Jamestown, N. Y. Filed Dec. 17, 1896. Serial No. 615,967. (No model.)



Claim.—1. In a hoisting, conveying and dumping apparatus, the combination of a trolley, a tramway or guide therefor, a hoisting line or cable, connected with the trolley, a sheave-carrier, a tiltable bucket having a separable connection with the sheave-carrier, a swinging latch carried by the trolley and into engagement with which the sheave-carrier is drawn by the hoisting-line, means for effecting the automatic release of the sheave-carrier from the latch and means for releasing the connections between the bucket and sheave-carrier simultaneously with the release of said carrier from its latching devices.

2. In a hoisting, conveying and dumping apparatus, the combination of a trolley and means whereby it is transported from one place to another, a swinging latch carried by the trolley, a sheave-carrier from which the load is suspended having means for automatically latching with said lever, and a pivoted trip in the path of movement of the carrier adapted to be actuated by the latter for withdrawing the latch from the path of descent of the carrier to pass out of the trolley and remain unlatched during the return of the empty bucket for reloading.

3. In a hoisting, conveying and dumping apparatus, the combination, with a trolley, a tramway or guide therefor and a hoisting rope or line connected with the trolley and effecting its movement from one point to another, of a latch pivoted within the trolley and having a hook-shaped end, a sheave-carrier connected with the hoisting-line and from which the load is suspended, having a head to enter the trolley from below and provided with trunnions adapted to raise said latch as said head passes into the trolley, said latch automatically dropping into the path of the trunnions and latching thereto whereby the weight of the load is transferred to the latch, and a pivoted trip for withdrawing the latch to allow the carrier to pass out of the trolley.

4. In a hoisting, conveying and dumping apparatus, the combination of a tramway or guide, a hoisting-line, a trolley connected with said line and adapted to travel on said tramway or guide, a sheave-carrier, having trunnions on its opposite sides, a latching-lever pivoted in the trolley and having a free end in the path of said trunnions, a pulley in said carrier beneath which the hoisting-line passes, whereby the carrier is drawn into the trolley and the latch raised to permit the trunnions to pass it, said latch adapted to fall, by gravity, beneath the trunnions and form a support therefor, and a pivoted trip for withdrawing the latch and allowing the carrier to pass out of the arme and be returned to the loading-point in an unlatched condition.

5. In a hoisting, conveying and dumping apparatus, the combination, with a suspended track or tramway, a trolley adapted to travel thereon, a hoisting-line connected with the trolley and a carrier from which the load is suspended, having a pulley beneath which the hoisting-line passes, and having trunnions on its opposite sides, of a gravity latching-lever in said trolley, pivotally secured at one end, and having its opposite end free, and having an upwardly-presented hook formation between said ends, said free end being elevated by the trunnions, when the sheave-carrier is elevated into the trolley by the action of the hoisting-line, and then falling beneath the trunnions and receiving them into the hook portion, and a pivoted trip for again elevating the latch and allowing the sheave-carrier to pass out of the carrier.

6. In a hoisting, conveying and dumping apparatus, the combination, with an elevated track or tramway and a trolley adapted to travel thereon and having a bottom opening for the entrance of the sheave-carrier, and having the lower portion of its sides slotted, of a latch within the trolley, pivotally held at one end and having its opposite end free, an inclined throat in the latch and forming an upturned hook, a sheave-carrier from which the load is suspended and having trunnions on its sides, a hoisting-line passing beneath the sheave of the carrier whereby the carrier is adapted to be elevated into the bottom opening of the trolley and the trunnions of said carrier are passed into the slots in the sides of the trolley and contact with and elevate the latch, said latch dropping by gravity, beneath the trunnions and receiving the latter into the inclined throat, and suspending the load, a rocking lever in the trolley-frame above the latch, having one end in the path of upward movement of the sheave-carrier and its opposite end in engagement with the free end of said latch, said lever adapted to be tripped by the sheave-carrier to cause it to elevate the latch out of the path of descent of the carrier, to allow the latter to pass out of the trolley-frame.

7. In a hoisting, conveying and dumping apparatus, the combination, with an elevated track or tramway, a trolley, having guide-pulleys and a pivoted latch, a sheave-carrier from which the load is suspended, having side trunnions, and a hoisting-line connected with the trolley and passing beneath the sheave of the carrier, and elevating the latter until its trunnions engage and are held by said latch, of means for automatically releasing the carrier from its locked position and allowing it to pass out of the trolley and be returned to the loading-point in an unlatched condition, consisting of a rocking lever or piece having an arm in contact with the latch and into engagement with which lever or piece the sheave-carrier is lifted by the hoisting rope, whereby its weight trips said lever or piece and causes the latch to be moved out of the path of descent of the carrier to permit the latter to pass out of the trolley-frame.

8. In a hoisting, conveying and dumping apparatus, the combination, with an elevated track or tramway, a trolley, having guide-pulleys and a pivoted latch, a sheave-carrier having side trunnions, and a hoisting-line connected with the trolley and passing beneath the sheave of the carrier, and elevating the carrier until its trunnions engage and are held by said latch, of pivoted stops or plates on the sides of the trolley-frame, engaged by said trunnions and limiting the projection of the sheave-carrier into the trolley, and means for automatically releasing the carrier from its locked position and allowing it to pass out of the trolley and be returned to the loading-point in an unlatched condition, consisting of a locking lever or piece having one portion to contact with the free end of the latch and another portion to be engaged by the carrier to swing said piece about its fulcrum and thereby move the latch out of the plane of the descent of the carrier to permit the latter to pass out of the trolley.

9. In a hoisting, conveying and dumping apparatus, the combination, with an elevated track or tramway and a trolley having guide-pulleys, of a pivoted latch in the trolley consisting of separated or spaced plates having one end fulcrumed in the trolley and having the opposite ends connected together and adapted to swing in vertical planes, said plates having their intermediate portions formed with inwardly and upwardly extending hook portions, a sheave-carrier having side trunnions, a hoisting-rope connected with the carrier and elevating it into the trolley whereby its trunnions elevate the latch sufficiently to enable them to pass the hook portion thereof, when said latch drops beneath the trunnions and receives said trunnions into its hook portion, and means for automatically withdrawing the latch to permit the carrier to pass out of the trolley and be returned to the loading point in an unlatched condition.

10. In a hoisting, conveying and dumping apparatus, the combination, with an elevated track or tramway, a trolley adapted to travel thereon and consisting of separate side plates secured together, having slots in their central lower portions, and having curved slots at one side of the central slots, pulleys mounted between said plates, a downwardly-curved latch between said plates, fulcrumed at one end on one of the pulley-shafts and having its opposite end free to move in vertical planes, said latch having an inwardly and upwardly turned hook at its intermediate portion and normally closing the central slots in the side plates of the trolley-frame, a stop on each side plate, fulcrumed at one end and having its opposite end projecting into said slots, and having a pin working in said curved slots to limit the swinging movement of the stop, and an L-shaped or bell-crank lever fulcrumed on the other pulley-shaft, having a horizontal member with a free end lying in the vertical center of the trolley and a vertical member lying in contact with the free end of the swinging latch, a sheave-carrier having side trunnions adapted to engage and raise said latch and stops and to be engaged and suspended by the latter, and a hoisting-line passing around said pulleys and the sheave of the carrier to elevate the carrier into engagement with the latch and to lift it out of the latch and into contact with the horizontal member of the L-shaped lever whereby the other member of said lever automatically lifts the latch out of the plane of descent of the carrier and allows it to pass out of the trolley.

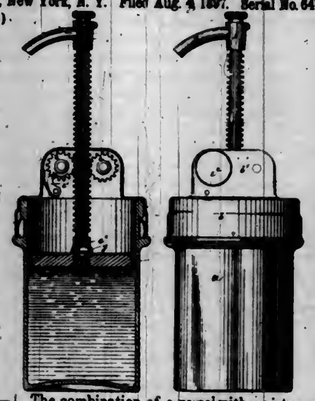
11. In a hoisting, conveying and dumping apparatus, the combination, with a trolley, means whereby it is supported and means whereby it is caused to travel back and forth, a sheave-carrier and a gravity-latch in the trolley into engagement with which the carrier is elevated, said latch having its downward movement limited by its contact with fixed stops on the trolley-frame, of means for releasing the carrier from its engagement with the latch consisting of a downwardly-swinging lever or piece centrally fulcrumed, in the trolley, having vertical and horizontal arms, said horizontal arm consisting of separated spaced members adapted to be spread apart by the head of the carrier, to permit the latter to pass, said lever or piece swinging downward under the influence of the weight of the carrier upon said members to cause the vertical arm of the lever or piece to lift the latch out of the plane of descent of the carrier, whereby the carrier may be returned to the loading-point in an unlatched condition.

12. In a hoisting, conveying and dumping apparatus, the combination, with a trolley, means whereby it is supported, and means whereby it is caused to travel back and forth, of a sheave-carrier, a latch by which it is suspended from the trolley, means for automatically releasing the carrier from said latch, a hoisting-bucket and means for permitting it to tilt in unison with the release of the carrier from the latching devices consisting of a slide adapted to engage locking lugs or flanges on the bucket and a fulcrumed lever on the carrier having one portion to strike a stop on the trolley and another portion to lift the slide and sever the connection between the latter and the bucket whereby said bucket is permitted to swing about its trunnions.

13. The combination, with a tramway or guide, a trolley having a latch, a sheave-carrier to engage therewith, means for automatically releasing the carrier from the latch, a hoisting-line connected with the trolley and carrier and elevating the latter into the former prior to its release and again elevating it to trip the releasing devices, of a hoisting-bucket having trunnions and a main bail to engage the same and connect the bucket with the carrier, and having vertical guides, flanges or lugs on said bucket, a supplemental bail having flanges or lugs slidable in the main bail and having forks to embrace the flanges on the bucket and lock the bucket, and a lever fulcrumed between its ends to the carrier, having one end to contact with a stop on the trolley as the carrier is being elevated and having its opposite end to ride under the cross-bar of the supplemental bail and thereby slide the forked portions thereof out of engagement with the flanges on the bucket, to allow the bucket to tilt and discharge its load simultaneously with the release of the carrier from the latching devices of the trolley.

14. In a hoisting, conveying and dumping apparatus, the combination, of a sheave-carrier, a tiltable bucket having side flanges or lugs, a bail carried by the carrier and suspending the bucket, a trolley, having means for latching with and releasing the carrier, a hoisting-line by which the carrier is elevated and the trolley moved from place to place, a lever fulcrumed to the carrier, having one end weighted and connected with an extremity of the hoisting-line and adapted to contact with a fixed stop on the trolley, and having its opposite end adapted to be forced inward, by said contact, a button or stop on the hoisting-line near the end which connects with the lever, a supplemental bail for the bucket, slidable on the main bail and having forked extremities to engage the side flanges of the bucket and to release said flanges when the supplemental bail is moved upward by the lever.

589,965. NON-REFILLABLE JAR OR BOTTLE. JOSEPH GONOROVSKY, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,049. (No model.)



Claim.—1. The combination of a vessel with a piston, a toothed tube projecting upwardly therefrom, a housing, a pinion hung within the same and engaging the tube, and a pawl engaging the pinion, substantially as specified.

2. The combination of a vessel with a bulged cover to constitute a housing, a piston within the vessel, a toothed tube projecting upwardly therefrom, a pinion hung within the housing and engaging the tube, a pawl engaging the pinion, and a valve for closing the tube, substantially as specified.

3. The combination of a vessel having a pair of beads with a cover resting on the lower bead, a spring projecting inwardly from the cover and engaging the upper bead, a piston within the vessel, a toothed tube projecting upwardly therefrom, a pinion hung within the cover, and a pawl engaging the pinion, substantially as specified.

589,966. NUT-LOCK. HENRY R. HARRIS, Rockfoot, Tenn., assignor of one-half to Harry Wm. Smith, same place. Filed Dec. 24, 1896. Serial No. 616,571. (No model.)



Claim.—1. In a nut-lock, a keeper having an opening to receive the bolt and provided with a pin and devices for holding it rigid with relation to the part to which it is applied, and a locking-plate having a notch to receive the nut, and a plurality of open slots extending from said notch.

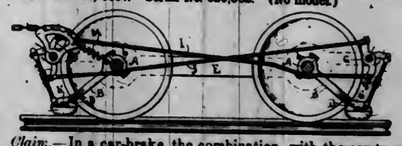
2. In a nut-lock, a keeper having an opening to receive the bolt and provided with a pin and devices for holding it rigid with relation to the part to which it is applied, a locking-plate having a notch to receive the nut, and a plurality of open slots extending from said notch and provided with lateral extensions at their inner ends.

3. In a nut-lock, a keeper consisting of a plate provided with an opening to receive the bolt and having a headed pin and a marginal flange, and a locking-plate provided with a notch to receive the nut and a plurality of open slots extending from said notch.

589,967. COMPOSITION FOR MANUFACTURING CALCIUM CARBIDS. ROBERT F. S. HEATH, Camden, N. J., assignor, by direct and mesne assignments, of forty-nine one-hundredths to Henry D. Hughes, Strafford, Pa. Filed Mar. 2, 1896. Serial No. 581,440. (Specimens.)

Claim.—A composition for the production of carbid of calcium and sodium, consisting substantially of quicklime nine parts, carbon four parts, and one-quarter ounce of sodium or potassium chlorid to the pound of the aforesaid mixed lime and carbon.

589,968. CAR-BRAKE. LAWRENCE R. HERRINGTON, Elmira, N. Y. Filed Mar. 27, 1897. Serial No. 629,502. (No model.)



Claim.—In a car-brake, the combination, with the car-truck, of swing-arms coupled thereto, brake-shoes attached to the extremities of the swing-arms in line with the track-rails, shafts journaled in the truck-sills at either end of the car, arms at the ends of the shafts, links coupling these arms to the ends of the swing-arms, other arms on the shafts oppositely disposed and coupled together by crossed connecting-rods running between the shafts close to the car-wheels, in the manner shown, and sectors fastened to the shafts in line with and coupled by chains or cables to the brake-lever shafts substantially as described.

589,969. DEVICE FOR CLEANING WINDOWS. ODELIA HILCKES, Wood Haven, N. Y. Filed Dec. 5, 1896. Serial No. 614,537. (No model.)



Claim.—1. A device for cleaning windows, comprising a suitable base or support, a transverse yoke mounted thereon, the ends of which are each inwardly curved, and secured to upright keepers, and a spring-metal slide mounted in said keepers, and passed beneath the lower ends thereof, and in line with said yoke, each side of said slide being provided with a suitable link or holder to which is secured a mop, of suitable material, and means for moving said spring-metal slide through the keepers, substantially as shown and described.

2. The herein-described device for cleaning windows, consisting of a base yoke 10, a support 11, rollers 12, on the under side and rollers 13 of the upper side thereof, upright keepers 15, a spring-metal slide 17 an arm 18, an oblong link 20 pivotally connected therewith, said link being provided with a mop of suitable material a spring 12, and a handle 24, all substantially as shown and described and for the purpose set forth.

589,970. SELF-HEATING SOLDERING-IRON. CHARLES HOLMBERG, Brooklyn, N. Y. Filed Jan. 9, 1897. Serial No. 618,565. (No model.)

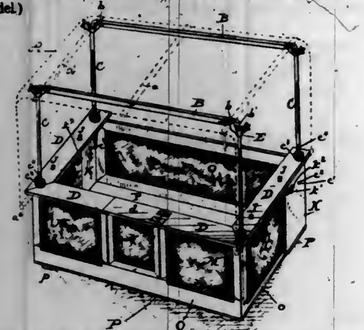


Claim.—1. In a self-heating soldering-iron, the combination with a central tube or pipe, and means for connecting the same to a gas

or vapor supply, of a plurality of burners upon the forward end of said pipe, a frame connected to said pipe consisting of a plurality of curved outwardly-extending bracing rods or bars, threaded bands or rings attached to the outer ends of said rods or bars, a supplemental bracing-rod connecting said bands or rings, and soldering-tips adapted to be screwed upon said bands, substantially as and for the purpose described.

2. In a self-heating soldering-iron, the combination with a central tube or pipe having an opening in one side adjacent to its rear end, a cock connected to the rear end of said pipe having a nozzle thereon adapted to fit up within said pipe, and a flexible coupling between said cock and a gas or vapor supply, of a plurality of burners upon the forward end of said pipe, a frame connected to said pipe consisting of a plurality of curved outwardly-extending bracing rods or bars, threaded bands or rings attached to the outer ends of said rods or bars, a supplemental bracing-rod connecting said bands or rings, and soldering-tips adapted to be screwed upon said bands, substantially as and for the purpose described.

589,971. **PORTABLE KNOCKDOWN BOOTH.** HENRY A. KEPHART, Troy, Ohio. Filed Dec. 21, 1896. Serial No. 616,511. (No model.)



Claim.—1. In a booth or other knockdown structure; end panels K and L connected by detachable fastenings, front panels M, door N, rear panel Q, sills O and *o*, hinged floor P, cleats *p* all so hinged as to fold up completely, as shown and described.

2. In a curtain for windows or doors two vertical or upright strips, having both ends bifurcated so as to make bearings above and below capable of being moved or slid together or apart; and horizontal brace-bars for holding them apart, each horizontal brace-bar having a metal tip or extension which is riveted to vertical or upright strips and so pivoted and slotted as to work freely, and the other end thereof bifurcated so as to fold, when this end is disengaged and vertical or upright strips are moved together, substantially as set forth.

3. The combination with the canvas A; of a chain G, wheel or pulley F having hooked tooth *f*, and pin c^4 substantially as and for the purposes specified.

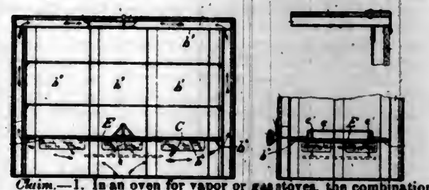
4. The tubular standards each terminating at their lower ends in a leg formed with a foot thereon; said legs screw-threaded to receive nut and washer for binding against the counter: and having their upper ends screw-threaded to receive a collar; and also provided with an opening in said upper end to receive legs *b'* of bifurcated extensions *b*, which support horizontal rafters riveted therein substantially as and for the purpose specified.

5. A collar formed on one side with lips *e*, other side formed with journal-bearings e' provided with openings adapted to receive axle of wheel or pulley F, said bearing also provided with an opening or eye to receive pin or stop e^4, substantially as and for the purpose specified.

6. A tray or carrier for transporting a knockdown booth or any device underneath the vehicle; formed with side pieces, floor-strips, forward end piece, provided with hook to grasp over perch, hooks coming up from side pieces and passing over and grasping axle of vehicle; substantially as shown and described.

7. The combination in a knockdown booth or other structure of solid wooden end panels K having slot *k* and connected by a staple *k'*, having ends k^2 and pin k^3 or otherwise, to canvas end panels L; connected by dowel-pin *m* to canvas front panels M, metallic angle T for mitering joists or frames canvas door N, canvas rear panel Q, front sills O, end sills *o*, floor P, cleats *p*, counter D provided with hinges *d'* at corners and door *d*; shelves S; counter-receiving standards C formed with foot *c'* on leg *c*, screw-threads c^6 to receive nut and washer c^5; screw-threads c^6 at top to receive collar E formed with lips *e* supporting horizontal rafters B by means of bifurcated extension *b* formed with leg *b'* resting inside top of tubular standards; having ears c^7 carrying wheel or pulley F formed with hooked tooth *f* on axle c^4 formed with keyed end c^3, pin c^4 passing through pulley, and hook H with eye *h* curtain A having slat *a* and link a^4, slats *a'*, rollers a^2, straps I retained by pins J, chain or rope G to engage hooked tooth *f*, substantially as and for the purposes set forth and described.

589,972. **OVEN FOR VAPOR OR GAS STOVES.** LUDWIG LENTZ, Covington, Ky. Filed Feb. 21, 1896. Serial No. 580,173. (No model.)

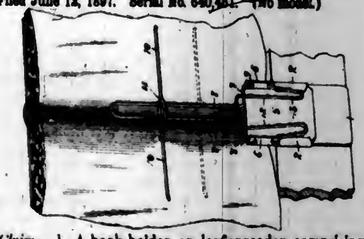


Claim.—1. In an oven for vapor or gas stoves, the combination of the sheet-metal frames forming the end and back walls, having their vertical edges bent around to form grooves to hold the asbestos sheets forming the outer covering, the inner walls bent to bear against the inside of the covering and form between said bends air-chambers, the asbestos sheets held in said frames and secured thereto by rivets, the top of the oven having frames similarly formed and the end walls of its air-chambers turned down to bear against the wall of the air-chamber in the end pieces, and angle-strips overlapping the corners for securing the walls together, substantially as shown and described.

2. The combination of the outer non-conducting walls formed of asbestos or similar material, the sheet-metal frames incasing and holding said asbestos sheets and forming air-chambers between said sheets and the oven proper, the vertical end and back walls of the air-chambers being perforated and having inturned lugs to support the lower shelf of the oven, the ends of the top air-chamber being turned down to bear against the walls of the vertical air-chamber in the oven ends, the shelf resting upon said lower lugs and centrally perforated, and the swinging valve to open or close said perforation for the purpose of admitting the heat from the burner to the oven, or excluding it therefrom, substantially as shown and described.

3. The combination of the oven, communicating air-chambers surrounding the end and top walls, the top wall of one of the air-chambers and the top cover being perforated, connected valves controlling said openings or perforations for the purpose of conducting the heated vapors into the oven or from the oven to the open air, substantially as shown and described.

589,973. **BOOK-HOLDER.** WALLACE C. MILLER, Bruce, S. D. Filed June 12, 1897. Serial No. 640,461. (No model.)

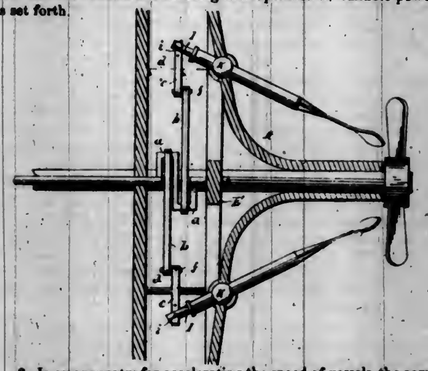


Claim.—1. A book-holder or leaf-spreader comprising a plate having upturned side edges extending throughout a portion of its length, an arm pivoted between said edges and extending beyond the plate, a vertically-adjustable arm on said pivoted arm, a spring-arm secured between said edges and bearing on said pivoted arm to keep it pressed against the leaves of the book or music-sheets, substantially as described.

2. A book-holder or leaf-spreader, comprising a plate having upturned forward edges, a pivoted arm provided with laterally-extending arms pivotally secured in said edges, a spring-arm bearing upon the laterally-extending arms of the pivoted arm and under said arm to limit its forward movement, and means for securing the holder to the piano, organ, or other support, substantially as and for the purpose set forth.

589,974. **SCULLING AND PROPELLING MECHANISM.** DECATUR MORGAN, Washington, D. C. Filed Apr. 8, 1896. Serial No. 586,743. (No model.)

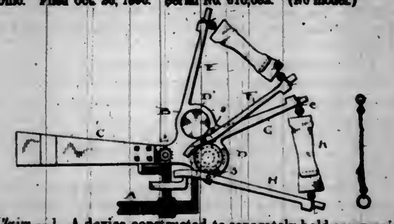
Claim.—1. An apparatus for accelerating the speed of vessels by means of paddles, consisting of the oscillating paddle-shaft, an oscillating sleeve surrounding the same, the sleeve and shaft having independent working bearings in relation to each other, the universal joint and the connected oscillating arm operated by suitable power, as set forth.



2. In an apparatus for accelerating the speed of vessels, the combination of the crank-shaft, the oscillating arm or lever, a pitman-rod connecting said crank and arm, said arm being journaled near its center and adjustably connected to the paddle-shaft, the paddle and the swivel-bearing, the parts being adapted to regulate the sweep and dip of the paddles as set forth.

3. The combination in an apparatus for accelerating the speed of vessels comprising the crank-shaft, the oscillating arm or lever, connecting-rod connecting the crank and arm, the paddle-shaft connected to said arm, the latter connection being adjustable to raise and lower the paddle-shaft, the sleeve surrounding said shaft, the universal joint carrying said sleeve, all arranged for joint operation, substantially as set forth.

589,975. **METHOD OF INDICATING AND DELIVERING SPECIAL ORDERS TO MOVING TRAINS.** ALBERT M. MOSIER, Cleveland Ohio. Filed Oct. 26, 1896. Serial No. 610,082. (No model.)



Claim.—1. A device constructed to separately hold communications for the conductor and engineer of a passing train, in combination with a signal constructed to automatically change its position and give different indications when either and both of said communications are removed from said device, substantially as described.

2. A device substantially of the kind described, having a series of two or more holders for train communications, and a temporary support for said holders constructed to bring each holder successively into receiving position, substantially as described.

3. A device for delivering separate communications to the conductor and engineer of a passing train, a combined semaphore and delivering mechanism, said mechanism constructed to automatically change the position of said semaphore when said communications are removed, giving separate indications of the semaphore-blade and lamp-signal when either of the communications are removed, substantially as described.

4. In the device described, a plurality of holders to receive train communications, and a supporting member therefor constructed to bring each individual holder into a certain position when one of said holders is removed, and means to indicate the changed position of said holder, substantially as described.

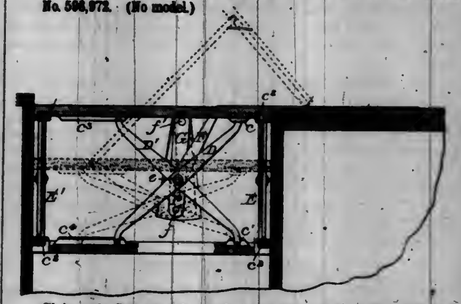
5 A device for delivering separate orders or communications to the conductor and engineer of a passing train, comprising a support located at the side of the track and means thereon to temporarily hold said communications, said means constructed to change positions when either one of the orders or communications are removed, and signals automatically operated connected with said means, substantially as described.

6. A device for delivering separately to the conductor and engineer of a moving train orders or other communications, the mechanism being such that the orders or communications for the conductor will be automatically brought into position for delivery when orders or communications have been taken by the engineer of a moving train, a suitable support and duplicate tilting members on said support, each of these duplicate tilting members having one fixed and one pivotal carrying-arm for pouches or other receptacles, substantially as described.

7. A receptacle for delivering orders to moving trains constructed to be suspended between two arms, said receptacle being elastic and having a pocket for said orders, and means to prevent the pouch or receptacle from being suspended in a reversed position, substantially as described.

8. In a device for delivering communications to moving trains, a support located at the side of the track and a tilting member on said support having a plurality of arms, pouches or other receptacles to contain communications suspended between said arms, a semaphore-arm and colored lenses connected with said tilting member to indicate a change in position of said arms, and a light for the pouch, substantially as described.

589,976. **MACHINE-INCLOSING CABINET.** JOHN R. McLAREN, Jr., and EUGENE H. BOYCE, Burlington, Vt. Filed July 13, 1896. Serial No. 598,972. (No model.)



Claim.—1. In a machine-inclosing cabinet, the combination with a vertically-movable platform, and a hinged cover or top, of crossed vertical toggle-levers beneath the platform, and a controlling-lever coupled to the toggle-levers and to the hinged cover, substantially as described, whereby power applied in raising the cover will be communicated through the controlling-lever to the toggle-levers for lifting the platform.

2. In a machine-inclosing cabinet, the combination with a hinged cover or top, and a vertically-movable platform, of crossed vertical toggle-levers beneath the platform, a controlling-lever hinged near one end to the toggle-levers and having a suitable shifting fulcrum; a link which couples the other end of said controlling-lever to the hinged top, and means for maintaining the platform in a horizontal plane, substantially as described.

3. In a machine-inclosing cabinet, the combination substantially as described, of a hinged top or cover, a vertically-movable platform, vertical crossed toggle-levers beneath the platform, and a controlling-lever which is coupled to the toggle-levers and to the hinged top, and serves as a part of the lifting mechanism and also to lock the toggle-levers in their opened position as when the platform has been fully elevated.

4. In a machine-inclosing cabinet, the combination with a vertically-movable platform and a hinged top or cover, of crossed vertical toggle-levers beneath the platform, a controlling-lever hinged to the pivot-pin of the toggle-levers, a pendent link affording a shifting fulcrum for the controlling-lever, and a link which couples said controlling-lever to the hinged top or cover substantially as described.

589,977. **INK-WELL.** EARL B. HOUSER, Clinton, Ind. Filed Jan. 22, 1897. Serial No. 620,213. (No model.)



Claim.—1. A self-closing ink-well or the like comprising the box or casing, an ink-well or bottle therein, an opening in the top of said casing registering with said bottle, a sliding cover for said bottle, a weight-actuated rock-shaft loosely connected to said cover and a push-button adapted to operate said rock-shaft and sliding cover substantially as described.

2. A self-closing ink-well having a casing, a bottle or well therein, a removable cover on said casing an opening in said casing registering with said bottle, a way or guide in the under side of said top, a

sliding plate or cover working in said way, a weight-actuated rock-shaft carrying a post loosely engaging said sliding plate or cover and cushions in the end of said way for the purpose set forth.

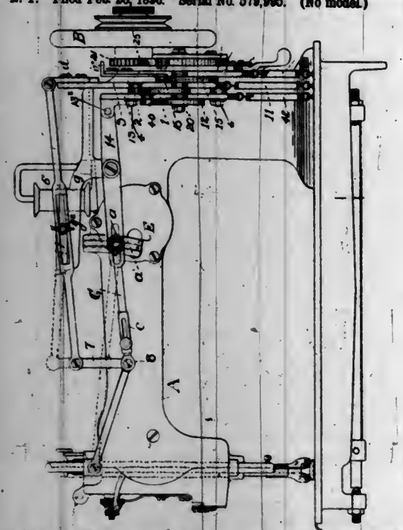
3. A self-closing ink-well comprising the casing having a removable top, an opening in said top registering with a bottle within said casing, a button having a shank or stem passing through said top, a guide for said stem, a rock-shaft having bearings, a weight controlling said rock-shaft, a post or bar carried by said rock-shaft, a sliding plate or cover operated by said post, cushioned way in the cover for said sliding plate, and a lug or ear on said rock-shaft to receive the pressure from the button substantially as described.

589,978. MANUFACTURE OF GERM-FLOUR. JOHN T. O'CALLAGHAN, London, England. Filed June 25, 1896. Serial No. 596,930. (No specimens.) Patented in England Sept. 3, 1894, No. 17,086.

Claim.—1. The herein-described process of making germ flour or meal, which consists in steeping germ of wheat in hot water and protecting the same from evaporation or heat radiation for about three hours meanwhile stirring it at intervals, filtering or straining said mixture and evaporating it and adding thereto a solution of concentrated extract of barley-malt and lime-water, then preparing from the mixture thus obtained a dough and finally drying said dough and grinding it to a powder and mixing it with plain flour or fine wheaten meal.

2. The herein-described process of making germ-flour which consists in pouring over the germ of wheat a quantity of water at a temperature of from about 153° to 187° Fahrenheit, protecting the mixture from evaporation or heat radiation for about three hours and meanwhile stirring the same at intervals, filtering or straining the said mixture and evaporating it to about twenty per cent. of its original weight, and then adding thereto a solution of concentrated extract of barley-malt and lime-water, and in preparing a dough from the product thus obtained drying it and grinding the same to a powder and mixing it with plain flour or fine wheaten meal.

589,979. SEWING-MACHINE. WILLIAM H. PARKER, Brooklyn, N. Y. Filed Feb. 20, 1896. Serial No. 579,995. (No model.)



Claim.—1. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

2. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means for automatically varying the extent of the throw of aforesaid lateral vibrations of the needle-bar, substantially as described.

3. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means adapted to automatically vary the number of said lateral movements of the working position of said needle-bar, substantially as described.

4. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to vary the extent of said lateral movements of the working position of the needle-bar, substantially as described.

5. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to automatically vary the extent and the number of said lateral movements of the working position of the needle-bar, substantially as described.

6. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to automatically vary the extent of aforesaid lateral vibrations and to automatically vary the extent and the number of aforementioned lateral movements of the working position of the needle-bar, substantially as described.

7. The combination with a sewing-machine having a needle-bar, means for vertically reciprocating the same, complemental stitch-forming mechanism, a cam, and operative means between the cam and the needle-bar for vibrating the latter laterally, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

8. The combination with a sewing-machine having a needle-bar, means for vertically reciprocating the same, a complemental stitch-forming mechanism, a cam, and operative means between the cam and the needle-bar for vibrating the latter laterally, of an actuating pattern-cam, and operative means between said pattern-cam and the needle-bar constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

9. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a feed mechanism, and means for automatically increasing or decreasing the extent of the throw of the feed, substantially as described.

10. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a reversible feed mechanism, and means for reversing the feed mechanism and for changing the extent of movement of the feed mechanism on reversal, substantially as described.

11. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and a complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a reversible feed mechanism, and means for automatically increasing, decreasing and reversing for a predetermined number of stitches in one direction and a predetermined number of stitches in the opposite direction aforesaid feed mechanism, substantially as described.

12. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, and means for actuating said second lever, substantially as described.

13. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, a pattern-cam in operative connection with said second lever, and means for actuating said pattern-cam, substantially as described.

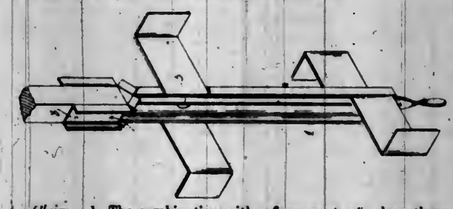
14. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid movable needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, a pattern-cam in operative connection with said second lever, a ratchet-wheel in operative connection with said pattern-cam, an adjustable pawl-lever for operating said ratchet-wheel, and an operative connection between the driving-shaft of the machine and said adjustable pawl-lever, substantially as described.

15. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said needle-bar and aforesaid vibratory segment-lever, a gear-wheel driven by the main shaft of the machine, an adjustable crank-pin on the side of said gear-wheel, a lever in operative connection with said adjustable crank-pin, a pawl on said lever, a ratchet-wheel engaged by said pawl, a cam circularly adjustable on the ratchet-wheel shaft, and an operative adjustable connection between said cam and aforesaid toggle-joint, substantially as described.

16. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid needle-bar, a ratchet-wheel mounted to turn loosely on a bearing, a second ratchet-wheel placed at the side of the first ratchet-wheel and fastened on a shaft running through the bearing on which the first ratchet-wheel is mounted, an adjustable pawl-lever in operative connection with the driving-shaft of the machine, a pawl on said lever, means constructed to cause said pawl to engage the ratchet-wheels intermittently and alternately for a predetermined number of strokes, a pattern-cam mounted on same shaft with the second ratchet-wheel, and an adjustable operative connection between said cam and the toggle-joint, substantially as described.

17. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and the needle-bar, two ratchet-wheels of different diameters, the smaller one being loosely mounted and the larger one being adjacent to the smaller and fastened on a shaft, means whereby said ratchet-wheels are caused to intermittently engage with each other, an actuating-pawl for engaging said ratchet-wheels, a pattern-cam mounted on the same shaft with the larger ratchet-wheel, one or more gaps in the periphery of aforesaid larger ratchet-wheel constructed to permit aforesaid actuating-pawl to engage intermittently and alternately with said ratchet-wheels, an adjustable lever connection between the toggle-joint and the pattern-cam, and adjustable means for closing the aforesaid gaps in the periphery of the larger ratchet-wheel so as to cause a continuous feed of said ratchet-wheel by the actuating-pawl, substantially as described.

589,980. FENCE-POST. FREDERICK R. RANDOLPH, Leslie, Mich. Filed Oct. 8, 1896. Serial No. 608,231. (No model.)

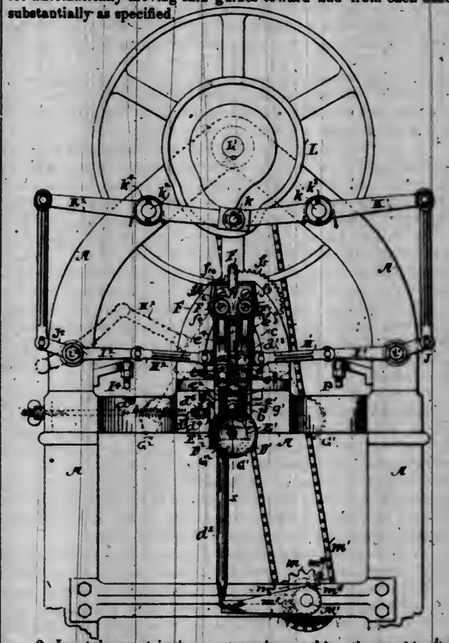


Claim.—1. The combination with a fence-post, of a base therefor, the same being constructed of strips of channel-iron riveted or otherwise secured together with the convex surface of one strip adjacent to the convex surface of the other and provided with means for connecting the fence-post thereto, one of said strips having a pointed twisted extension at its lower end, substantially as and for the purpose described.

2. The combination with a fence-post, of a base therefor constructed of substantially parallel strips of channel-iron riveted or otherwise secured together, the convex portion of one of said strips lying adjacent to the convex portion of the other and the upper ends of said strips being slightly flared forming extensions between which the fence-post proper is adapted to fit and to be bolted and laterally-extending wings or shields of sheet metal secured between said strips and projecting outwardly therefrom in opposite directions, substantially as and for the purpose described.

589,981. MACHINE FOR STRIPPING OR STEMMING TOBACCO-LEAVES. SAMUEL REID, Jersey City, N. J., and EDWARD G. TREMAINE, Brooklyn, N. Y., assignors to the Reid Tobacco Machinery Company, New York, N. Y. Filed June 17, 1896. Serial No. 595,865. (No model.)

Claim.—1. In a tobacco stripping or stemming machine, the combination of tubular concentric cutters, guides for directing a leaf to the same, and feeding means controlled by the stem of the leaf for automatically moving said guides toward and from each other, substantially as specified.

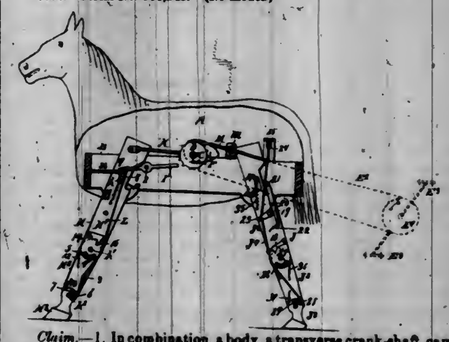


2. In a tobacco stripping or stemming machine, the combination of tubular concentric cutters, guides for directing a leaf to the same, a pair of feed-rollers controlled by the stem of the leaf, and connections between the guides and feed-rollers for moving said guides toward and from each other, substantially as specified.

3. In a tobacco stripping or stemming machine, the combination of tubular concentric cutters, guides for directing a leaf to the same, a roller bodily movable by the stem of the leaf, a surface coacting with the roller and between which and the roller the stem is fed, and connections between said guides and roller for moving the guides toward and from each other, substantially as specified.

4. In a tobacco stripping or stemming machine, the combination of tubular concentric cutters, guides for directing a leaf to the same, means for moving said guides toward and from each other, comprising a constantly-driven shaft, a cam frictionally clutched to said shaft, a stop connected to said cam and determining its time of motion, a roller moved by the stem of a leaf to release said stop, and a surface coacting with said roller and between which and the roller the stem is fed, substantially as specified.

589,982. TOY. OSBORNE ROUSSEAU, Detroit, Mich. Filed Apr. 20, 1896. Serial No. 588,343. (No model.)



Claim.—1. In combination, a body, a transverse crank-shaft, cams mounted thereon, longitudinally of the body, front and rear legs, each having jointed portions, longitudinally-extended bars K and N connected with the upper ends of the legs, respectively, and with the crank-shaft, longitudinally-extended levers I, I and M, M actuated

by said cams, said levers connected with the lower portions of the legs, substantially as described.

2. In a toy, the combination of a body, a transverse crank-shaft, cams mounted thereon longitudinally of the body, front and rear legs, each having an upper arm, a foot portion, and an intermediate arm having a jointed connection with the upper arm and foot portion, longitudinally-extended levers actuated by said cams, to actuate the foot portion and intermediate arm of the legs, and longitudinally-extended bars connecting the upper ends of the upper leg portions with the crank-shaft, substantially as described.

3. In a toy, the combination of a crank-shaft, cams mounted thereon, legs, having jointedly-connected portions, levers actuated by said cams to actuate the jointed portions of the legs, and bars connecting the upper portions of the legs with the crank-shaft, said legs having a vertical and oscillatory movement, substantially as described.

4. In a toy, the combination of a supporting-frame, a transverse crank-shaft, cams mounted upon said shaft, front and rear legs each formed with an upper arm, a foot portion and an intermediate arm jointedly connected with the upper arm and foot portion, levers 1, 1 and M, M actuated by said cams to operate the front and rear legs, and means to raise the lower portions of each leg and retract said lower portions into normal position, said levers 1, 1 and the levers M, M acted upon on opposite sides of said cams, respectively, substantially as described.

5. In a toy, the combination of a supporting-frame, oscillatory forward and rear legs, each constructed with an upper arm, a foot portion, and an intermediate arm jointedly connected with the upper arm and foot portion, means to oscillate the foot portion and intermediate arm, said intermediate arm and upper arm, the one constructed with an elongated arc shaped slot, the other provided with a pin in said slot, and said intermediate arm and foot portion, the one provided with an elongated arc-shaped slot, and the other with a pin engaged in said slot, for the purpose described.

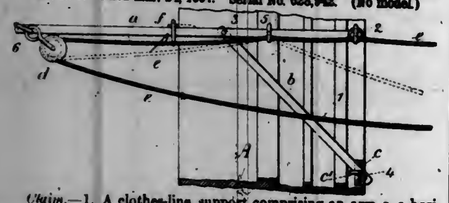
6. In a toy, the combination of oscillatory front and rear legs, each constructed with an upper arm, a foot portion, and an intermediate arm jointedly connected with the upper arm and foot portion, a locking-pawl to limit the movement of the intermediate arm in its jointed connection with the upper arm, and means to release said locking-pawl and to oscillate said intermediate portion and foot portion, substantially as described.

7. In a toy, the combination of oscillatory rear legs, springs 35 to lift said legs, a pin 21, a latch fulcrumed to the corresponding leg to engage said pin, and means to throw the latch out of engagement with the pin, substantially as described.

8. In a toy, the combination of an oscillatory leg J, a spring to lift said leg, mechanism to lock the leg to counteract the tendency of said spring, and to unlock the same to permit the spring to exert its power, substantially as and for the purpose set forth.

9. In a toy, the combination of oscillatory legs, constructed of portions jointedly connected together, and a rubber hoof engaged with the lower portion of each of said legs, substantially as described.

589,983. CLOTHES-LINE SUPPORT. WILLIAM A. ROWE, Hoboken, N. J. Filed Mar. 24, 1897. Serial No. 628,942. (No model.)

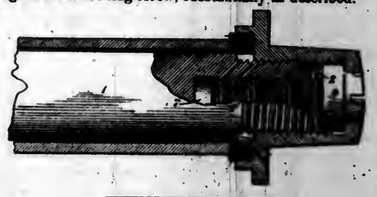


Claim.—1. A clothes-line support comprising an arm *a*, a horizontal screw-pivot hook 2, passing through one end to secure the arm to the window-frame and allow it to be swung vertically, a pulley at the other end of the arm for the clothes-line, a brace *b* pivoted at one end to the arm *a* and having a notch at the other end and a hook *c* upon the window-frame below the hook 2 engaging the lower end of the brace *b* to support the arm *a* in a horizontal position and to act as a stop for the arm when in a vertical position, substantially as specified.

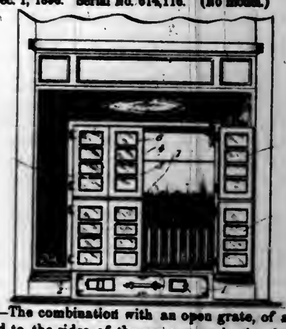
2. A clothes-line support comprising an arm *a*, a screw-pivot hook 2 at one end, a hook 6 for a pulley *d* at the other end and the intermediate hook 5, a brace *b* pivoted at one end to the arm *a* and having a bayonet-slot 4 at the other end, a plate *c* and L-shaped hook *f* thereon, and the hook *f*, substantially as and for the purposes set forth.

589,984. NUT-LOCK. WILLIAM F. SCHLABACH, Wadsworth, Ohio. Filed Sept. 4, 1896. Serial No. 605,035. (No model.)

Claim.—The combination with an exteriorly-threaded part provided with a longitudinal bore extending inwardly from its end, said bore being threaded oppositely to the exterior thread, of a threaded locking-screw working in said threaded bore and provided with an annular shoulder intermediate its head and the thread of its shank, said shoulder being of less diameter than the said threaded part, and an internally-threaded nut screwing upon the said exteriorly-threaded part and provided with a reduced opening in its end wall adapted to receive the head of the locking-screw and the annular shoulder on the said screw being adapted to engage the inner face of the end wall, the construction being such that the screw will lock the nut in place and the latter may be removed from the threaded part without engaging with the locking-screw, substantially as described.

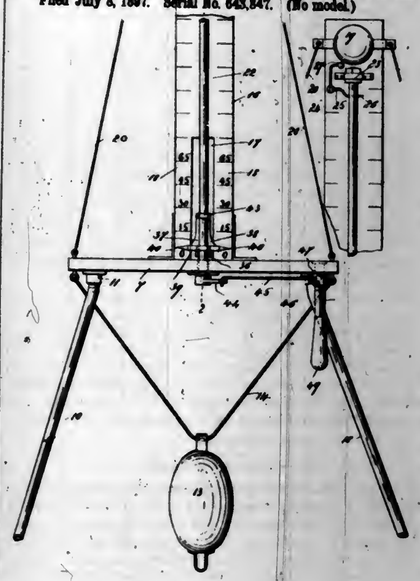


589,985. OPEN GRATE. WALLIE SCHMITT, Nashville, Tenn. Filed Dec. 1, 1896. Serial No. 614,116. (No model.)



Claim.—The combination with an open grate, of a plurality of doors hinged to the sides of the same, a projection fastened to the fire-basket of the grate provided at its outer end with a lip and shoulders to engage the upper and lower doors, and a projection upon the ash-pan of the grate.

589,986. TESTING-MACHINE. WILLIAM SHAY, Ansonia, Conn. Filed July 8, 1897. Serial No. 643,847. (No model.)



Claim.—1. A testing-machine comprising a suitably-supported main frame, composed of a front plate, and a yoke secured thereto, a supplemental plate hinged to said front plate and occupying the space within said yoke, a vertical standard secured to the front plate and provided in its lower end with a slot at the side of which is a scale, a lever pivotally supported above the rear end of said yoke and provided with a fulcrum-block which is mounted on said supplemental plate, and with an extension which passes through the slot in said standard, a revoluble rod mounted in front of said standard, and provided with notches or recesses in one side thereof, and with a vertically-movable gage which rests upon the extension of said lever, said gage being provided with a spring which operates in connection with said notches or recesses, substantially as shown and described.

2. A testing-machine comprising a suitably-supported main frame composed of a front plate, and a yoke secured thereto, a supplemental plate hinged to said front plate and occupying the space within said yoke, a vertical standard secured to the front plate and provided at its lower end with a slot at the side of which is a scale, a lever pivotally supported above the rear end of said yoke and provided with a fulcrum-block which is mounted on said supplemental plate, and with an extension which passes through the slot in said standard, a revoluble rod mounted in front of said standard, and provided with notches or recesses in one side thereof, and with a vertically-movable gage which rests upon the extension of said lever, said gage being provided with a spring which operates in connection with said notches or recesses, and a punching-bag suspended beneath said front plate by a flexible support, substantially as shown and described.

3. A testing-machine comprising a suitably-supported main frame composed of a front plate, and a yoke secured thereto, a supplemental plate hinged to said front plate and occupying the space within said yoke, a vertical standard secured to the front plate and provided at its lower end with a slot at the side of which is a scale, a lever pivotally supported above the rear end of said yoke and provided with a fulcrum-block which is mounted on said supplemental plate, and with an extension which passes through the slot in said standard, a revoluble rod mounted in front of said standard, and provided with notches or recesses in one side thereof, and with a vertically-movable gage which rests upon the extension of said lever, said gage being provided with a spring which operates in connection with said notches or recesses, and a punching-bag suspended beneath said front plate by a flexible support, said standard being also provided at its upper end with a bell or gong which is adapted to be operated by said vertically-movable gage, substantially as shown and described.

4. A testing-machine comprising a suitably-supported main frame, composed of a front plate, and a yoke secured thereto, a supplemental plate hinged to said front plate and occupying the space within said yoke, a vertical standard secured to the front plate and provided at its lower end with a slot at the side of which is a scale, a lever pivotally supported above the rear end of said yoke and provided with a fulcrum-block which is mounted on said supplemental plate and with an extension which passes through the slot in said standard, a revoluble rod mounted in front of said standard, and provided with notches or recesses in one side thereof, and with a vertically-movable gage which rests upon the extension of said lever, said gage being provided with a spring which operates in connection with said notches or recesses, and a punching-bag suspended beneath said front plate by a flexible support, said standard being also provided at its upper end with a bell or gong which is adapted to be operated by said vertically-movable gage, and a registering apparatus which is adapted to be operated by said supplemental plate, substantially as shown and described.

589,987. PRUNING IMPLEMENT. THOMAS H. SPRINGSTON, Paso, W. Va. Filed Apr. 2, 1897. Serial No. 630,435. (No model.)

Claim.—1. In a pruning implement, the combination of a handle, a saw-frame movable along the handle and provided with a knife-blade, a saw-blade also carried by the saw-frame, means to lock the saw-frame against longitudinal movement on the handle, and a knife-blade carried by the handle and arranged to operate in connection with the knife-blade of the saw-frame, substantially as set forth.

2. In a pruning implement, the combination of a handle, a saw-frame movable along the handle and pivotally connected to the lever, said saw-frame having a saw-blade and being provided with a knife-blade, a lever fulcrumed at its inner end on the handle and pivoted between its ends to the saw-frame, adjacent to the knife-blade thereof, and having its outer portion forming a knife-blade, arranged to co-operate with the said blade, and means to lock the saw-frame against movement along the handle, substantially as set forth.

3. In a pruning implement, the combination of a handle, side bars secured to the upper end thereof and connected by a tie-piece extending across the front of the handle, a lever pivoted to the upper ends of the side bars and having a knife-blade, a saw-frame having its lower end guided on the handle and its upper end pivotally connected to the lever and provided with a knife-blade to operate in connection with the knife-blade on the lever, a saw-blade carried by the saw-frame, and a dog pivoted to the saw-frame and arranged to engage a recess in the handle beneath said tie-piece to hold the saw-frame against longitudinal movement on the handle, substantially as set forth.



589,988. TOE-CLIP. HENRY L. YOUPE, Elkhart, Ind., assignor to the Buescher Manufacturing Company, same place. Filed Mar. 23, 1897. Serial No. 628,307. (No model.)



Claim.—1. A toe-clip provided with rearwardly-projecting horns to engage the upper edge of the pedal adapted to serve as herein specified.

2. In a toe-clip for a bicycle-pedal, the rearwardly-extending horns formed integrally with the clip and adapted to engage the pedal and to serve therewith, and with fastening means B, B', substantially as herein specified.

3. A toe-clip for bicycle-pedals comprising the main body portion and side wings for the toe extending upwardly and inwardly, so set and shaped as to engage only the sole of the shoe under ordinary conditions, the downwardly-bent lug having the slot to receive the fastening-screws, and the rearwardly-projecting horns, the whole formed integral, substantially as herein specified.

4. The within-described toe-clip comprising the main body portion tapering forward provided with upwardly and inwardly curved wings D^4, D^4, set in correspondingly oblique positions, the rear portion of the clip having the extended horns D^2, D^2, and downwardly-extending lug D' having the slot *d*, the whole formed integral, substantially as herein specified.

589,989. INTERLOCKING CONE-PULLEY. WILLIAM H. GRIFFITHS, Medford, Mass. Filed Oct. 7, 1896. Serial No. 608,118. (No model.)



Claim.—1. In an extensible pulley the combination of two counterpart sections each section consisting of a flaring shell provided with a hub and a rim formed with seats, and a head provided with integral, separated fingers resting at their free ends in said seats and removable means securing them therein, the fingers of one section passing into the spaces separating the fingers of the other section, substantially as described.

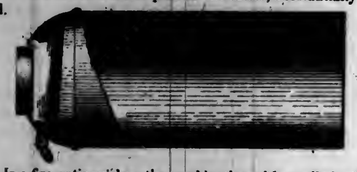
2. In an extensible pulley the combination of two counterpart sections, each section consisting of a flaring shell provided with a hub and a thickened rim formed with seats, and a head provided with integral, separated fingers resting at their free ends in said seats, removable means for securing them therein, the fingers of one section passing into the spaces separating the fingers of the other section, and shipper-levers engaging the said hubs, substantially as described.

589,990. FIRE-EXTINGUISHER. ALFRED J. KNIGHT, Boston, Mass. Filed June 5, 1897. Serial No. 639,496. (No model.)

Claim.—1. In a fire-extinguisher, a cylinder provided at its upper end with an outlet-pipe, and containing within its upper end a circular conduit having its bottom sloping downward and outward, and having its lower edge detached from the interior of said cylinder at a point distant from the said outlet to form a drip-passage, substantially as described.

2. In a fire-extinguisher, a cylinder provided within its upper end with a conduit in the form of an annulus adjacent the sides of the cylinder and forming an annular chamber therewith, said conduit being detached at its lower edge for a part of its length from the interior of said cylinder so as to leave a space or open drip-passage, and an outlet-pipe in said cylinder and communicating with the said

conduit above the lowermost part of the latter, substantially as described.

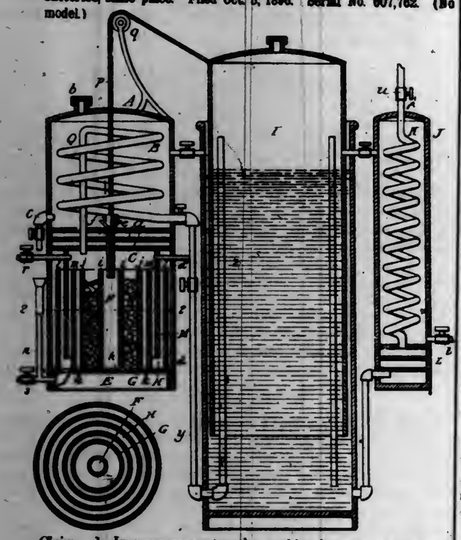


3. In a fire-extinguisher, the combination with a cylinder having an outlet-pipe, of an annular conduit inclosing said outlet, said conduit being in the form of a strip bent at its upper and lower edges to approach the cylinder, whereby an annular open passage is formed between said strip and cylinder to prevent the splashing of the chemicals in the cylinder out of said outlet-pipe, said conduit at its lower edge being inclined away from said outlet whereby the tendency of the liquid which may splash therein is to run away from the outlet, substantially as described.

4. In a fire-extinguisher, the combination with a cylinder having an outlet-pipe, of an annular conduit inclosing said outlet, said conduit being in the form of a strip bent at its upper and lower edges to approach the cylinder, whereby an annular open passage is formed between said strip and cylinder to prevent the splashing of the chemicals in the cylinder out of said outlet-pipe, said conduit at its lower edge being inclined away from said outlet whereby the tendency of the liquid which may splash therein is to run away from the outlet, and a reticulated opening provided in said conduit at its lowermost side, substantially as described.

5. In a fire-extinguisher, the combination with a cylinder having an outlet-pipe, of an annular conduit inclosing said outlet, said conduit being in the form of a strip bent at its upper and lower edges to approach the cylinder, whereby an annular open passage is formed between said strip and cylinder to prevent the splashing of the chemicals in the cylinder out of said outlet-pipe, said conduit at its lower edge being inclined away from said outlet whereby the tendency of the liquid which may splash therein is to run away from the outlet, said strip being secured to the cylinder throughout its upper edge and at portions only of its lower edge, the unsecured portions of said lower edge being slightly removed from the adjacent surface of the cylinder to provide drip-openings at said point, substantially as described.

589,991. ACETYLENE-GAS GENERATOR. NELSON LIKINS, Minneapolis, Minn., assignor of two-fifths to F. R. Salisbury and W. E. Satterlee, same place. Filed Oct. 8, 1896. Serial No. 607,762. (No model.)

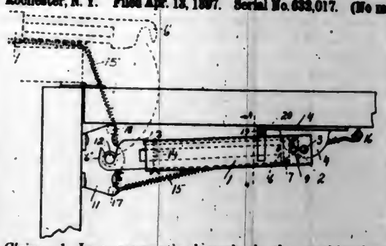


Claim.—1. In a gas-generator, the combination of a case, closed at its top and open at its bottom, horizontally divided into two compartments by two or more floors having vented air-spaces between them, the upper one of said compartments being adapted to serve as a water-tank, and the lower one of said compartments being adapted to serve as a retort-chamber; said compartments being connected by means of a duct extending through the said floors, said duct having a gravity-valve therein, through the operation of which the flow of water from the said water tank to the said retort-chamber is automatically controlled; a removable retort chambered within the retort-chamber, said retort being fashioned with double walls whereby it may be water-sealed, and having an annular calcium-carbid holder formed with perforated interior and exterior walls, whereby water may be admitted to the lower strata of the calcium carbid; an annular wall extending downward from the said water tank to the said retort-chamber for the purpose of sealing the retort; a pipe extending from the said retort-chamber through the said water-tank thence to a telescope gas-holder; and a chain connecting the said gravity-valve with the dome of the said telescope gas-holder, whereby the said gravity-valve is operated, all substantially as shown and described.

2. In a gas-generator, the combination of a case horizontally divided into two compartments, said compartments being connected by a duct having a gravity-valve therein; a retort chambered within the lower one of said compartments, said retort being fashioned with double walls whereby it may be water-sealed, and provided with an annular chamber having interior and exterior perforated walls adapted to hold calcium carbid or other gas-forming material, an annular wall extending downward from the upper into the lower chamber for the purpose of sealing said retort; a pipe leading from the lower through the upper of said chambers, thence to a telescope gas-holder, for the purpose of carrying off the gas, and a chain connecting the said gravity-valve with the dome of the said telescope gas-holder whereby said gravity-valve is operated substantially as shown and described.

3. In a gas-generator, the combination of the case A divided into two compartments B and C, by means of the floors *a*, *a*, *a*; the duct *e* connecting the said compartments B and C; the gravity-valve *f* operating within the said duct *e*; the pipe D extending from the said compartment C, through the said compartment B, thence to the gas-holder I; the retort E, having the annular chamber G fashioned with perforated walls, adapted to hold calcium carbid or other gas-forming material, and with the annular chamber H fashioned with solid walls adapted to hold water for the purpose of sealing the same; the annular wall M incased within the annular chamber H; the chain *p* connected with, and extending from the said gravity-valve *f*, to, and over or around the pulley *q*, thence to, and connected with the dome of the said telescope gas-holder I, whereby the said gravity-valve *f* may be automatically operated; the purifying-box L and the condensing-coil K, substantially as shown and described.

589,992. PNEUMATIC DOOR-CHECK. CHARLES H. COMPAGEN, Rochester, N. Y. Filed Apr. 13, 1897. Serial No. 632,017. (No model.)



Claim.—1. In a pneumatic door-check, the combination of a bracket having a post 12, a cylinder having a diaphragm adjacent its end and an air-vent, a plunger movable in the cylinder and adapted to engage the post, a stud passing through the cylinder on the side of the diaphragm opposite the vent, and a spring connecting the cylinder and stud to hold the cylinder to the door, substantially as described.

2. The combination of a pneumatic door-check comprising a cylinder hinged at one end to the door, and one or more guide-arms 19 fixed to the door and transverse to said cylinder, substantially as described.

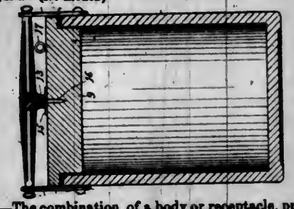
3. The combination of a door, the cylinder provided with a hinge at one end connected to said door, the bracket having a post 12 and two studs and fixed to the door-casing, the cylinder-plunger having a hook and a spring fixed to one of said studs and to the door, the studs being situated oppositely with respect to the bracket-post, substantially as described.

4. The combination of a pneumatic door-check comprising a cylinder hinged to the door, means for keeping the cylinder close to the door, and an adjustable screw or stop 20 situated between the cylinder and door for regulating the distance of the cylinder from the door to suit doors of different thickness, substantially as described.

5. The combination of a pneumatic door-check comprising a cylinder having a hinge to connect it to a door with a plunger movable in said cylinder having a hook at its outer end, a fixed post to engage the plunger-hook, and guides 14 for the plunger fixed in the cylinder near the hooked end of the plunger, substantially as described.

6. The combination of a bracket having a post 12 with a hinged pneumatic door-check, comprising a cylinder having a vent, a plunger having a hook at its outer end and a flexible disk at its inner end, and a shoulder 13 situated on the plunger and adapted to engage the end of the cylinder to prevent the disk overrunning the air-vent and to stop the movement of the plunger when its hook is adjacent the post, substantially as described.

589,993. COMBINED PRESS AND PRESERVING-RECEPTACLE. MICHAEL W. GUIRE, Jr., Milwaukee, Wis. Filed Jan. 23, 1897. Serial No. 620,491. (No model.)



Claim.—The combination, of a body or receptacle, provided near its upper end with a semicircular bead, a removable wire fitting beneath said bead and shaped to conform to the shape of the body or receptacle, and having its ends bent upwardly adjacent to the ends of the bead to form arms, said arms extending above the upper edge of the body or receptacle, the upper extremities of the arms being bent over, said bent-over portions being in a plane with the arms, whereby integral removable journal-bearings are formed, a top or cover for the body or receptacle, and adapted to extend downwardly therein to form a compression-platen, an eccentric-bar extending across the top or cover and having its ends removably journaled in the bent-over upper ends of the arms of the wire, and means for turning the bar so as to cause the same, when turned in one direction, to press firmly on the top or cover, and, when turned in the opposite direction, to remove pressure therefrom.

589,994. SUPPORT AND DRIVING MECHANISM FOR SPINNING-SPINDLES. S. LLOYD WIEGAND, Philadelphia, Pa. Filed Sept. 16, 1890. Renewed Sept. 20, 1893. Serial No. 486,032. (No model.)



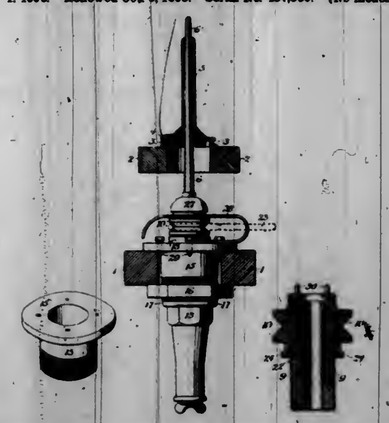
Claim.—1. In a spinning-spindle supporting and driving mechanism, a spinning-spindle, a rigidly-supported bearing through which both ends of said spindle project, a stationary spindle normally in line with the spinning-spindle and arranged to support the lower end of the spinning-spindle, and a whirl fitted to rotate on said stationary spindle, in combination with diametrically opposite projections on the lower end of said spinning-spindle a radially-slotted plate fitting upon said projections to slide thereon and diametrically opposite projection secured upon said whirl and fitted to slide in said plate in a direction transverse to the motion of said plate on the projections attached to the spinning-spindle substantially as and for the purpose set forth.

2. In a spinning-spindle supporting and driving mechanism, a spinning-spindle, a frame having a screw-threaded and shouldered upper portion adapted to fit in the rail of a spinning-frame, a bearing concentric with the screw-threaded and shouldered portion adapted to fit the spinning-spindle, a lower portion internally screw-threaded in axial line with the spindle-bearing, a base fitting said lower screw-threaded portion provided with a stationary spindle in axial line with the spinning-spindle, a whirl fitted to turn upon said stationary spindle having a downwardly-projecting rim inclosed in a chamber in said base surrounding the base of said stationary spindle and a chamber contracted at the upper end surrounding the lower end of the spinning-spindle in combination with propelling projections attached to the whirl, propelling projections attached to the spinning-spindle and a revolving slotted plate or ring connecting said projections substantially as set forth.

3. In a spinning-spindle-supporting mechanism, a frame provided at its upper end with a screw-thread and nut and an opposed shoulder adapted to secure the frame in the rail of a spinning-machine, a concentric seat for a spindle-supporting bushing, a downwardly-projecting arm provided with a female screw-thread in line with the axis of the spinning-spindle bearing, in combination with a screw-threaded base fitting said female screw, an oil-receptacle formed in said base and a central stationary spindle adapted to form a bearing for a whirl and an end support for the spinning-spindle substantially as set forth.

4. In a mechanism for supporting and driving spinning-spindles, a bushing, a spinning-spindle supported laterally in said bushing a stationary spindle supporting said spinning-spindle endwise, a whirl turning upon said stationary spindle and provided with a pair of opposite driving projections, a pair of driving projections on the spinning-spindle in combination with a ring having pairs of radial slots embracing the projections upon the whirl and the spinning-spindle substantially as set forth.

589,995. SUPPORT AND DRIVING MECHANISM FOR SPINNING-SPINDLES. S. LLOYD WIEGAND, Philadelphia, Pa. Filed Aug. 1, 1890. Renewed Oct. 6, 1893. Serial No. 487,389. (No model.)



Claim.—1. In a spinning-spindle supporting and driving mechanism a stationary bushing or bearing sleeve, the spindle having a journal bearing in said bushing or bearing sleeve, a whirl concentric with said spindle and supported upon said bushing or bearing sleeve independently of the spindle, in combination with a rotative driving mechanism, consisting of a pair of projections attached to the spindle, a pair of projections attached to the whirl, and the connecting-plate 18 engaged on said projections for transmitting rotary motion and permitting motion of each pair of projections in a direction at right angles to the motion of the other pair of projections substantially as set forth.

2. In a spinning-spindle supporting and driving mechanism, the independently-supported whirl 10 and series of rollers 12 located within the whirl in two or more planes, in combination with the spindle 6 and bushing 9 arranged to centrally support the spindle 6 independently of the whirl 10, and the yielding connection between the spindle and whirl, substantially as set forth.

3. In a spindle-driving mechanism the bushing 9, whirl 10 provided with the rim 24 formed therein, and balls 12 located within the whirl, in combination with the bushing-support 13 provided with the rim 25 surrounding the rim 24, and arranged to operate substantially as described.

4. In a spindle support and driving mechanism, the spindle 6, bushing 9, lower bearing 7, and step 8, in combination with the whirl, supported independently of the spindle, projections 20 attached to the spindle 6, projections 30 attached to the whirl 10, and the slotted plate 18 connecting said projections 20 and 30 and free to assume

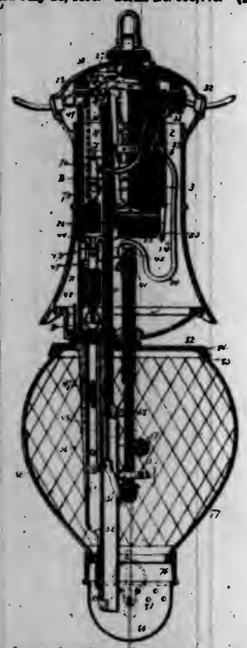
automatic adjustment in direction transverse to each other upon said projections substantially as and for the purpose set forth.

5. The tube 13, the nut 16, and flanged bushing 15, having a central threaded opening adapted to pass the whirl 10, and to fit and hold the tube 13 in central position, in combination with the tapering pointed screws 29 adapted to center the bushing and tube in axial alinement with the traveler-ring of a spinning-frame substantially as set forth.

6. The spindle 6 bushing 9 and whirl 10 supported on said bushing independently of the spindle 6, in combination with the spring-plate 28 arranged to operate alternately to prevent lifting of the whirl 10 and as a brake on the whirl, substantially as set forth.

7. In a spinning-spindle support and driving mechanism, a spinning-spindle, a whirl-support surrounding said spinning-spindle, a whirl fitted to rotate thereon provided with angularly-equidistant projections, in combination with angularly-equidistant projections on the spindle, and mechanism connecting the projections on the whirl with the projections on the spindle, positively as to angular or rotative motion, and free to slide in transverse radial directions, substantially as set forth.

589,996. ELECTRIC-ARC LAMP. THOMAS R. ADAMS, Cleveland, Ohio. Filed July 28, 1896. Serial No. 600,778. (No model.)



Claim.—1. In an electric-arc lamp, a magnet constructed with two salient poles of one and the same polarity and an intermediate or consequent pole of polarity different from that of the salient poles, and an armature pivotally supported by the intermediate or consequent pole and adapted to be turned on its fulcrum by the salient poles, substantially as set forth.

2. In an arc lamp, the combination with a magnet having salient poles of like polarity and a consequent pole of the other polarity, of an armature pivotally supported between its ends by the consequent pole within the path of the lines of force, said armature being constructed and adapted to be vibrated by the action of the salient poles, substantially as set forth.

3. In an arc-lamp, the combination with an electromagnet having salient poles of like polarity and a consequent pole of the other polarity, of a pole-shoe on the consequent pole, an armature having knife-edge bearings between its ends on said pole-shoe, said armature being adapted to be operated by the action of the salient poles of the magnet, substantially as set forth.

4. In an arc-lamp, the combination with a magnet having salient poles of like polarity, and a consequent pole of opposite polarity, of a pole-shoe secured to the consequent pole, an armature, a plate secured to the armature centrally between its ends, and a plate secured to the pole-shoe and having a knife-edge to receive the under edge of the plate on the armature, substantially as set forth.

5. In an arc-lamp, the combination with a magnet having salient and consequent poles, of a pole-shoe secured to the consequent pole, arms projecting from the ends of the said shoe, an armature, a steel plate secured to the armature approximately centrally between its ends, a steel plate secured to the shoe and having a knife-edge to receive the steel plate on the armature, and a steel plate on the armature, having knife-edges to bear against the arms projecting from the shoe, substantially as set forth.

6. The combination with a magnet, of an armature made in separate sections and a yieldable thermostatic strip secured to and connecting said sections, substantially as set forth.

7. In an arc-lamp, the combination with a magnet, of an armature pivotally supported between its ends and adapted to be actuated by the poles of said magnet, said armature being made in two parts connected together by a thermostatic strip, substantially as set forth.

8. In an arc-lamp, the combination with a magnet, of an armature made in two parts, the meeting ends of said sections being inclined, and a yieldable thermostatic strip secured at one end to one end of one section of the armature and at the other end to the other section of the armature, substantially as set forth.

9. In an arc-lamp, the combination with a coarse-wire magnet and the carbons in series therewith, of an armature, a low resistance carried by said armature and included in a shunt-circuit around said magnet, and a switch included in said shunt-circuit and operated by said armature, substantially as set forth.

10. In an arc-lamp, the combination with a coarse-wire magnet and the carbons included in series therewith, of an armature, a low resistance secured to and carried by said armature and included in a shunt-circuit around the magnet, a contact-arm secured to a terminal of the lamp, and a contact block or plate carried by the armature and adapted to engage said contact-arm, substantially as set forth.

11. In an arc-lamp, the combination with a magnet, its armature and carbons, of a horizontally-disposed air-pot having its plunger-rod connected with said armature, one end of said air-pot being pivotally supported, and a spring fixed at one end and bearing at its free end against the pivoted end of the air-pot at a point below said pivotal support, substantially as set forth.

12. In an arc-lamp, the combination with a magnet and its armature, of a vertically-movable cross-head, an upper-carbon holder carried thereby, a movable carbon-holder, flexibly connected between the cross-head and lower-carbon holder, a clutch-blade attached to the cross-head, a clutch connected with the armature, and an adjustable weight secured to the cross-head whereby to insure the proper overbalancing by the cross-head, of the lower-carbon holder and attached devices, substantially as set forth.

13. In an arc-lamp, the combination with a magnet having salient and consequent poles, and a vertically-movable cross-head, of an armature pivotally supported between its ends by the consequent pole of the magnet, upper and lower carbon holders connected with said cross-head, a clutch-blade connected with said cross-head, a clutch and connections between said clutch and armature, substantially as set forth.

14. In an arc-lamp, the combination with a magnet and its armature, of a weighted connection between said armature and said clutch, said weighted connection being adapted to transmit motion from the armature to the clutch and also to move said armature when released by the magnet, substantially as set forth.

15. A clutch comprising a yoke having an inwardly-projecting tongue, a jaw pivotally supported within said yoke, and a movable jaw adapted to be engaged and moved toward the pivoted jaw by said tongue, substantially as set forth.

16. A clutch comprising a yoke, a jaw pivotally supported within said yoke, a movable jaw having a recessed projection on its back, and a tongue on the yoke adapted to enter the recess in said projection on the movable jaw whereby to move the latter toward the pivoted jaw, substantially as set forth.

17. In a clutch, the combination with a yoke having an arm projecting therefrom, and a rod extending transversely through said yoke, of a jaw having ears pivotally connected to said rod, a movable jaw disposed between said ears, an enlargement on the back of said movable jaw and adapted to ride against said rod, said enlargement having a recess in its under face, and a hook-shaped tongue projecting from the said yoke and entering said recess whereby to move the movable jaw toward the pivoted jaw, substantially as set forth.

18. In an arc-lamp, the combination with the carbons and a clutch, of a magnet comprising a core, a coarse-wire coil on one end of said core included in the lamp-circuit, and a fine-wire coil on the other end of the core included in a shunt-circuit, a consequent pole between said coils, an armature supported between its ends by said consequent pole and adapted to be actuated by poles at the respective ends of said core, and connections between said armature and clutch, substantially as set forth.

19. The combination with an arc-lamp having a movable lower carbon, of a guide for said carbon consisting of arms pivoted at one end to the lamp-arm and having a roller mounted in their free ends adapted to bear against said lower carbon, substantially as set forth.

20. The combination with an arc-lamp having a movable lower carbon, of a guide for said lower carbon, said guide consisting of arms pivoted at one end to the lamp-arm and a roller carried in the free ends of said arms, said arms being of such length as to project farther beyond the carbon than is necessary to cause the roller to bear against the latter, whereby said roller can have a vertical movement and prevent the possibility of the carbon binding in its guide, substantially as set forth.

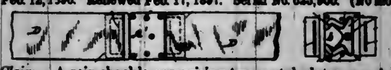
21. The combination with an arc-lamp having a movable lower carbon, of a guide for said carbon, said guide consisting of pivoted arms and a roller carried by said arms and a socket-piece above said guide, to receive the carbon, substantially as set forth.

22. In an arc-lamp, the combination with the lamp-casing and lamp-arm, of a globe-holder attached to the lamp-arm, a globe supported by said holder, a ring mounted on the upper edge of the globe and having a depending flange, a netting on the globe and secured to said depending flange of the ring, and a cover for said globe secured to the casing and having an annular depending flange to receive and inclose the ring on the globe, substantially as set forth.

23. In an arc-lamp, the combination with the lamp-arm, of a globe-holder, a socket-piece in said globe-holder, adapted to receive the lamp-arm and to be moved vertically thereon and means for retaining said globe-holder in a fixed position at any desired adjustment, substantially as set forth.

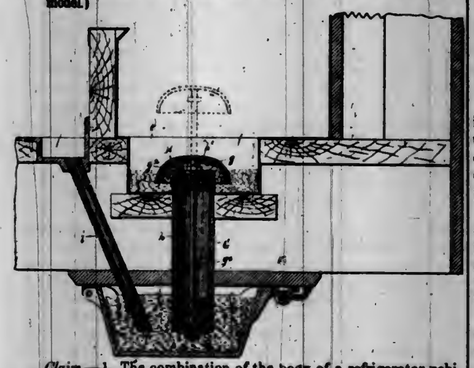
24. In an arc-lamp, the combination with the lamp-arm, of a globe-holder, a socket-piece in said globe-holder adapted to receive and be guided vertically on said lamp-arm, a set-screw for securing the globe-holder in a fixed position on the lamp-arm, and a shoulder on the lamp-arm against which said set-screw will rest when the globe-holder is lowered, substantially as set forth.

589,997. REIN-FASTENING. ORIN BAGLEY, Sutton, N. H. Filed Feb. 12, 1896. Renewed Feb. 17, 1897. Serial No. 623,900. (No model.)



Claim.—A rein-shackle comprising two metal plates, one being provided with a socket the interior of which is wider on two sides than is its mouth, the other having a tongue provided with projections on opposite sides, and a spring in said socket having its ends bent slightly in a direction toward each other to engage the opposite projections of said tongue.

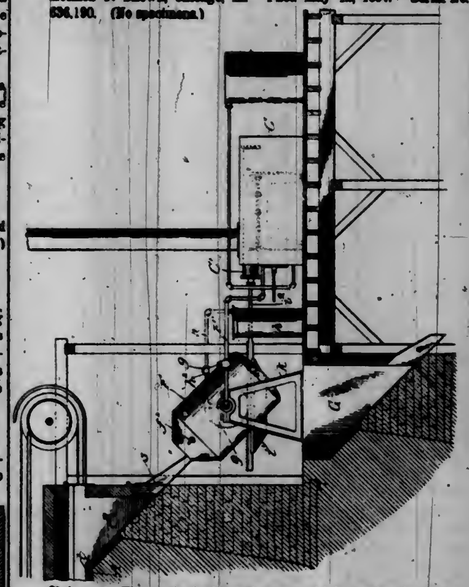
589,998. TRAP FOR REFRIGERATOR-CARS. CHARLES W. BRADLEY, Rochester, N. Y. Filed Oct. 4, 1895. Serial No. 564,615. (No model.)



Claim.—1. The combination of the body of a refrigerator-vehicle, a receiving-chamber extending downwardly from the upper face of the floor of the vehicle-body and having its upper end open, a second receiving-chamber supported beneath the floor of the vehicle-body and having its upper end open, a substantially upright conduit or pipe extending through the base of the first receiving-chamber and the floor of the vehicle-body, said conduit or pipe having its upper end extended above the base of the first receiving-chamber and provided with an inlet arranged beneath the open end of said receiving-chamber, and having its lower end provided with an outlet arranged beneath the open end of the second receiving-chamber, and a hood or cap for the upper end of the conduit or pipe movable into and out of the first receiving-chamber through its upper open end and provided with a depending stem movable lengthwise in said conduit or pipe, substantially as and for the purpose described.

2. The combination of the body of a refrigerator-vehicle, a drip-receptacle extending upwardly above the floor of the vehicle-body, a receiving-chamber extending downwardly from the upper face of the floor of the vehicle-body and having its upper end open and communicating with said drip-receptacle, a second receiving-chamber supported beneath the floor of the vehicle-body and having its upper end open, a substantially upright conduit or pipe extending through the base of the first receiving-chamber and the floor of the vehicle-body, said conduit or pipe having its upper end extended above the base of the first receiving-chamber and provided with an inlet arranged beneath the open end of said receiving-chamber, and having its lower end provided with an outlet arranged beneath the open end of the second receiving-chamber, and a hood or cap for the upper end of the conduit or pipe movable through the upper open end of the first receiving-chamber into the drip-receptacle and provided with a depending stem movable lengthwise in said conduit or pipe, substantially as and for the purpose specified.

589,999. METHOD OF TREATING ORES BY CHLORINATION. HORACE F. BROWN, Chicago, Ill. Filed May 12, 1897. Serial No. 636,190. (No specimens.)



Claim.—1. The method of treating ore, which consists in confining it in a highly-heated state against the escape and loss of the volatilized parts of the ore, subjecting it while confined to the action of chlorin gas and then permitting the said volatilized parts to cool under confinement and form stable chlorids, substantially as and for the purpose set forth.

2. The method of treating ore, which consists in confining it in a highly-heated state against the escape and loss of the volatilized parts of the ore, subjecting it while confined to the action of chlorin gas and moisture, and permitting the said volatilized parts to cool under confinement and form stable chlorids, substantially as and for the purpose set forth.

3. The method of recovering by chlorination, in a practically continuous treatment the values from ores bearing gold, and also bearing metal requiring for its recovery to be chlorinated in the presence of a high temperature, which consists in first roasting the ore, then charging it into a close receptacle, and there chlorinating it while in its hot condition and thereupon cooling the contents of the receptacle while confined and subjecting the same to the action of chlorin gas, substantially as and for the purpose set forth.

4. The method of treating ore by chlorination, which consists in subjecting the ore while confined in a close receptacle and at a high temperature to the action of chlorin gas, and then lowering the temperature of the contents of the receptacle, and subjecting the same, while confined against the escape of volatile parts of the ore, to the action of chlorin gas, substantially as and for the purpose set forth.

5. The method of treating ore, which consists in first charging

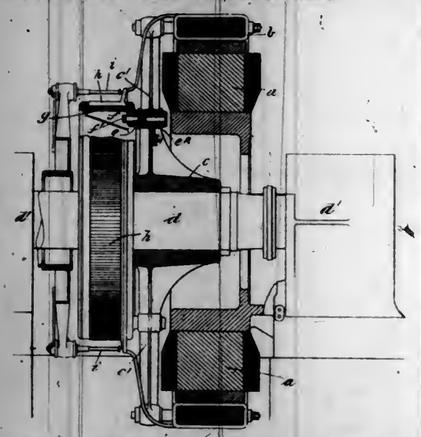
it in a highly-heated state into a close receptacle, then forcing into the receptacle chlorin gas under pressure, then permitting the contents of the receptacle to cool while confined and maintaining the supply of chlorin gas throughout, substantially as and for the purpose set forth.

6. The method of treating ores containing gold and silver, which consists in charging the ore in a highly-heated state into a close receptacle, there subjecting it to the action of chlorin gas to chloridize the silver, then cooling the ore while still confined in the receptacle below the point where stable gold chlorids are formed, meanwhile keeping up the supply of chlorin gas, substantially as described.

7. The method of treating ore by chlorination, which consists in confining it in a highly-heated state in a close receptacle, there subjecting it to the action of chlorin gas, agitating the receptacle and cooling the ore while still subjected to the action of the chlorin gas in the close receptacle, substantially as and for the purpose set forth.

8. The method of treating ore by chlorination, which consists in confining it in a highly-heated state in a close receptacle, there subjecting it to the action of chlorin gas and moisture, agitating the receptacle and cooling the ore while still subjected to the action of the chlorin gas in the close receptacle, substantially as and for the purpose set forth.

590,000. MOUNTING FOR COMMUTATORS OF DYNAMO-ELECTRIC MACHINES. ERASMUS CARENBERR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, same place. Filed May 13, 1897. Serial No. 636,348. (No model.)



Claim.—1. The combination in a dynamo-electric machine with the commutator, of the commutator-frame supporting said commutator but electrically insulated therefrom, and an insulating-mounting interposed between the commutator-frame and the supporting part of the dynamo-electric machine, substantially as described.

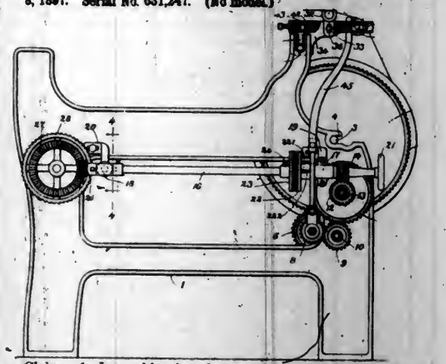
2. The combination with the fields and armature of a dynamo-electric machine, of a commutator-frame mounted to rotate with said armature, commutator-bars provided upon and insulated from said frame, and an insulating-mounting provided between the said commutator-frame and the supporting part of the dynamo, substantially as described.

3. In a dynamo-electric machine, the combination with the fields and armature thereof, of a commutator-frame mounted to rotate with said armature, commutator-bars provided upon and insulated from said frame, and insulating-mountings interposed between the commutator and the supporting part of the dynamo at the points of support, the parts being constructed to reduce the exposure of conducting-surfaces at said points of support, substantially as described.

4. The combination with the fields and armature of a dynamo-electric machine, of a rotatable spider *e* upon which said armature is carried, a commutator-frame *f*, commutator-bars *h* mounted thereon and insulated from the frame, studs *e* secured to said frame and the spider, and insulating-mountings e' e^2 interposed between said frame and spider, substantially as described.

5. The combination in a dynamo-electric machine, with fields *a*, of an armature *b*, a rotatable spider *c* upon the arms of which said armature is mounted, a commutator-frame *f*, commutator-bars *h* mounted upon and insulated from said frame, studs *e* and insulating-mountings therefor provided for a portion of said spider-arms, adapted to be bolted to said commutator-frame and secure it in position upon the spider, substantially as described.

590,001. LET-OFF FOR LOOMS. HENRY C. COOKERILL, Lowell, Mass., assignor of one-half to Jeremiah Clark, same place. Filed Apr. 8, 1897. Serial No. 631,247. (No model.)



Claim.—1. In combination, the warp-beam, the side shaft having one member of a clutch applied thereto, a sleeve applied to the said shaft having the other member of the clutch applied thereto, one of such clutch members being movable relatively to the other, the spring interposed between the said clutch members, gearing intermediate the said sleeve and the warp-beam, the whip-roll, a lever operated by the movement of the said whip-roll and itself operating the movable member of the clutch, and a moving member of the take-up motion actuating the said side shaft, substantially as described.

2. In combination, the warp-beam, the side shaft having one member of a clutch applied thereto, a sleeve applied to the said shaft and having the other member of the clutch applied thereto, one of such clutch members being movable relatively to the other, gearing intermediate the said sleeve and the warp-beam, the whip-roll, the lever operated by the whip-roll and itself operating the movable member of the clutch, means acting to move said movable member and lever in opposition to the pressure on the whip-roll, the adjustment device located between the said lever and the whip-roll, and means to operate the said side shaft, substantially as described.

3. In combination, the warp-beam, the side shaft having one member of a clutch applied thereto, a sleeve applied to the said shaft having the other member of the clutch applied thereto, one of such clutch members being movable relatively to the other, gearing intermediate the said sleeve and the warp-beam, the whip-roll, the lever operated from the whip-roll and operating the movable clutch member, the stand supporting the end of the whip-roll and permitting the whip-roll to slide backwardly and forwardly, the spring which presses the whip-roll rearwardly, and means to operate the said side shaft, substantially as described.

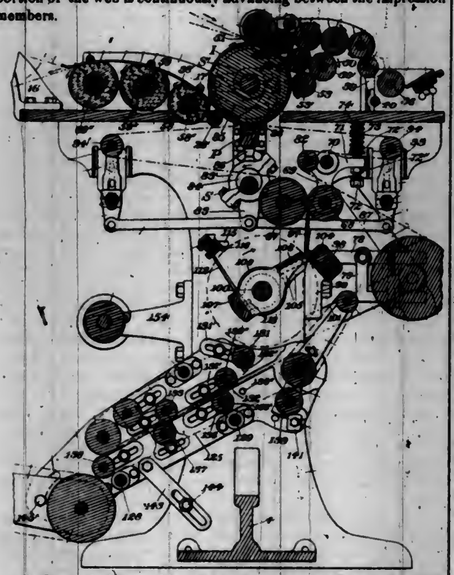
4. In combination, the warp-beam, the side shaft having one member of a clutch applied thereto, a sleeve applied to the said shaft having the other member of the clutch applied thereto, one of such clutch members being movable relatively to the other, gearing intermediate the said sleeve and the warp-beam, the whip-roll, the lever operated from the whip-roll and operating the movable clutch member, the stand supporting the end of the whip-roll and permitting the whip-roll to slide backwardly and forwardly, the spring which presses the whip-roll rearwardly, means to adjust the tension of the spring, and means to operate the said side shaft, substantially as described.

590,002. PRINTING-MACHINE. WALTER R. CRANE, Hartford, Conn. Filed July 9, 1895. Serial No. 555,390. (No model.)

Claim.—1. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-form through the machine at a relatively low rate of speed and for presenting successive portions of said form to successive impression portions of the web; of feeding means operative for feeding a web of paper into and away from the machine at the same, and at a relatively high, rate of speed; and speed-modifying mechanism having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web, and operative for slowing down the impression portion of the web during the impression period to the rate of advance of the printing-form, and while said impression portion is continuously advancing between the impression members.

2. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-form through the machine at a relatively low rate of speed and for presenting successive portions of said form to successive impression portions of the web; of feeding means operative for feeding a web of

paper into and away from the machine at the same, and at a relatively high, rate of speed; take-up members controlling opposite ends, respectively, of the impression portion of the web; a driving-eccentric; and connections between said eccentric and said take-up members for imparting equal and synchronous web taking-up and giving-up movements to said take-up members, and for slowing down the impression portion of the web during the impression period to the rate of advance of the printing-form, and while the impression portion of the web is continuously advancing between the impression members.



3. In a printing-machine, the combination with two impression members; feed-rolls adapted to feed a web of paper between said impression members; take-up members for controlling the movements of the impression portion of the web, and operative in unison; adjustable levers carrying said take-up members; a driving-eccentric; and connections between said eccentric and said levers for actuating said take-up members, substantially as specified.

4. In a printing-machine, the combination with the framework having vertical guides; of two impression members; feed-rolls adapted to feed a web of paper between said impression members; take-up members for controlling the movements of the impression portion of the web between the paper-roll and the feed-rolls, and operative in unison; levers carrying said take-up members; carriers for said levers, and adjustably connected therewith; means for adjusting the carriers in vertical direction in said guides; a driving-eccentric; and connections between said eccentric and levers for actuating said take-up members, substantially as specified.

5. In a printing-machine, the combination with the framework; of two impression members; feed-rolls adapted to feed a web of paper between said impression members; take-up members for controlling the movements of the impression portion of the web between the paper-roll and the feed-rolls, and operative in unison; levers carrying said take-up members; a driving-eccentric; an arm mounted on said eccentric; connecting-rods connecting said arm and said levers; and a guide connection between said arm and the framework for controlling the movements of said arm, substantially as described.

6. In a printing-machine, the combination with the framework; of a main driving-shaft; an eccentric carried by said driving shaft; a pair of impression members having one of said impression members operative from said eccentric; feed-rolls operative in unison with the driving-shaft, and adapted to feed a web of paper between said impression members; take-up members operative in unison for modifying the movements of the impression portion of the web; and connections between said take-up members and the eccentric for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

7. In a printing-machine, the combination with the framework; of a main driving-shaft; eccentrics carried by said driving-shaft; arms mounted on said eccentrics; a pair of impression members having equal movements during the impression period, and having one of said members secured to said arms above the shaft for movement with said arms; feed-rolls operative in unison with the driving-shaft, and adapted to feed a web of paper between said impression members; take-up members operative in unison for modifying the movements of the impression portion of the web; levers carrying said take-up members; connecting-rods connecting said levers with the lower ends of the arms carried by the eccentrics, and operative for bringing the impression portion of the web to rest relatively to the impression members during the impression period; and guide connections between the upper ends of the arms and the framework for controlling the movements of said arms, substantially as specified.

8. In a printing-machine, the combination with the framework; of a main driving-shaft; eccentrics carried by said driving-shaft; arms mounted on said eccentrics; a pair of impression members having equal movements during the impression period, and having one of said members secured to said arms above the shaft for oscillatory reciprocatory movement with said arms, and having the other of said members mounted for rotation adjacent to said oscillatory reciprocatory impression member; feed-rolls operative in unison with the driving-shaft, and adapted to feed a web of paper between said impression members; take-up members operative in unison for modifying the movements of the impression portion of the web; levers carrying said take-up members; connecting-rods connecting said levers with the lower ends of the arms carried by the eccentrics, and operative for bringing the impression portion of the web to rest relatively to the impression members during the impression period; and guide connections between the upper ends of the arms and the framework for controlling the movements of said arms, substantially as specified.

9. In a wiping mechanism, the combination with a continuously-advancing member to be wiped; of a plurality of wiping members simultaneously movable in the same direction as the first-mentioned member, the alternating wiping members having, respectively, faster and slower advancing movements than the member to be wiped, whereby said wiping members are adapted to wipe in alternately opposite directions, substantially as specified.

10. In a wiping mechanism, the combination with a continuously-advancing member to be wiped; of a plurality of wiping-rollers simultaneously rotative in the direction of movement of the first-mentioned member, the alternating wiping-rollers having, respectively, faster and slower peripheral movements than the movement of the member to be wiped, whereby said wiping-rollers are adapted to wipe in alternately opposite directions, substantially as specified.

11. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine; of a pressure-roll cooperating with said rotatable impression member for maintaining said printing-strip in contact with the rotatable impression member; feed-rolls adapted to feed a web of paper between said impression members; and take-up members for controlling the movement of the impression portion of the web, and having equal and synchronous web taking-up and giving-up movements for slowing down the impression portion of the web during the impression period to the rate of advance of the printing-strip, and while said impression portion is continuously passing between the impression members, substantially as specified.

12. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine; of a pressure-roll cooperating with said rotatable impression member for maintaining said printing-strip in contact with the rotatable impression member; a paper-roll carrier adapted to support a paper-roll; feed-rolls adapted to feed a web of paper between said impression members from said paper-roll; retarding means for preventing racing of the paper-roll; and take-up members for controlling the movement of the impression portion of the web, and having equal and synchronous web taking-up and giving-up movements for slowing down said impression portion of the web during the impression period to the rate of advance of the printing-strip, and while said impression portion is continuously passing between the impression members, substantially as specified.

13. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing through the machine a printing-strip having relief-characters thereon, and for presenting successive portions of said strip to successive impression portions of the web; of a pressure-roll having a yielding peripheral surface, and in position and adapted for engaging said printing-strip and holding the same in contact with the rotatable impression member, whereby said strip is fed between said impression member and the pressure-roll without injuring the relief characters on said strip; feeding means adapted to feed a web of paper between the impression members; a web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

14. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing through the machine a printing-slip having relief characters thereon, and for presenting successive portions of said strip to successive impression portions of the web; of a pressure-roll cooperative with the rotatable impression member, and having a yielding peripheral surface;

a pressure-roll carrier; a support for said carrier; an adjustable resilient connection between said support and carrier, whereby the pressure of said roll upon the rotatable impression member is varied; feeding means adapted to feed a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

15. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing through the machine a printing-strip having relief-characters thereon, and for presenting successive portions of said strip to successive portions of the web; of a pressure-roll having a yielding peripheral surface; a pressure-roll carrier; a fixed rod supporting said carrier for oscillation; a torsion-spring mounted on said rod and secured to said carrier and adjustably connecting said rod and carrier, whereby the pressure of the roll upon the rotatable impression member is varied; feeding means adapted to feed a web of paper between the impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

16. In a printing-machine, the combination with two impression members, one of which has a circuit of peripheral indentations and is rotatable for advancing through the machine a printing-strip having relief-characters upon one side thereof, and a series of projections on the other side thereof complementary to the indentations of said impression member; of a pressure-roll having a yielding peripheral surface, and in position and adapted for engaging said printing-strip and holding the same in contact with the rotatable impression member, whereby said strip is fed between the rotatable impression member and the pressure-roll without injuring the relief-characters on said strip; feeding means adapted to feed a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

17. In a printing-machine, the combination with web-feeding mechanism for carrying a web of paper into and away from the machine at a rapid rate of speed; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web as it emerges from the machine; of a sheet-delivery mechanism below said cutter mechanism, and embodying a sheet-transfer mechanism radially adjustable to carry its receiving end nearer to or farther away from the cutter mechanism, and operable for carrying the severed sheets at a slower speed than the speed at which the web is fed by the feeding mechanism; and a sheet-flier in position and adapted for receiving the sheets from the sheet-transfer mechanism, and operable at a slower rate of speed than said sheet-transfer mechanism, substantially as specified.

18. In a printing-machine, the combination with web-feeding mechanism for carrying a web of paper into and away from the machine at a rapid rate of speed; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web as it emerges from the machine; of a sheet-delivery mechanism below said cutter mechanism, and radially adjustable to carry its sheet-guide nearer to, or farther away from, the cutter mechanism, and embodying a sheet-guide and a sheet-transfer mechanism radially adjustable relatively to each other, substantially as specified.

19. In a printing-machine, the combination with web-feeding mechanism for carrying a web of paper into and away from the machine at a rapid rate of speed; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web as it emerges from the machine; of a sheet-delivery mechanism below said cutter mechanism, and radially adjustable to carry its sheet-guide nearer to, or farther away from, the cutter mechanism, and embodying a sheet-guide and a sheet-transfer mechanism radially adjustable relatively to each other, and said sheet-guide and sheet-transfer mechanism having endless traveling carriers for receiving the sheets as they are cut from the web, substantially as specified.

20. In a printing-machine, the combination with web-feeding mechanism; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web; of an adjustable sheet-delivery mechanism below said cutter mechanism, and embodying a pair of frames radially adjustable relatively to each other, the upper of said frames having endless carriers for guiding the sheets as they are severed from the web, and the lower of said frames having two sets of endless traveling carriers for receiving the sheets from the upper carriers, and adjustable rollers carried by the lower frame and carrying the endless carriers thereof, and adapted for varying the positions of the carriers longitudinally and transversely of the lower frame, whereby the point of engagement of the sheets by the carriers and the path of movement of the sheets, are varied, substantially as specified.

21. In a printing-machine, the combination with web-feeding mechanism for carrying a web of paper into and away from the machine at a rapid rate of speed; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web as it emerges from the machine; of a sheet-delivery mechanism below said cutter mechanism, and embodying a sheet-guide and a sheet-transfer mechanism radially adjustable to each other, and a sheet-flier radially adjustable relatively to, and adjacent to the delivery end of, the sheet-transfer mechanism, and said sheet-guide and sheet-transfer mechanism and sheet-flier having endless traveling carriers for successively receiving the sheets as they are cut from the web, substantially as specified.

22. In a printing-machine, the combination with web-feeding mechanism; and with cutter mechanism for severing the web into sheets at predetermined points in the movement of the web; of an adjustable sheet-delivery mechanism below said cutter mechanism, and embodying a sheet-guide and sheet-transfer mechanism radially adjustable relatively to each other; and said sheet-guide and sheet-transfer mechanism having endless traveling carriers for receiving the sheets as they are cut from the web; and said sheet-delivery mechanism also embodying a sheet-flier carried at the delivery end of, and radially adjustable relatively to, the sheet-transfer mechanism; and said sheet-flier having a driving-roll, means for actuating the endless carriers of the sheet-guide and the sheet-transfer mechanism at one rate of speed, a ratchet-wheel carried by the driving-roll of the sheet-flier, a pawl for actuating said ratchet-wheel at a slower peripheral velocity than the rate of movement of the endless carriers of the sheet-guide and the sheet-transfer mechanism, and endless carriers actuated by the driving-roll of the sheet-flier, substantially as specified.

23. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine, and for presenting successive portions of said strip to successive impression portions of the web; of inking mechanism for inking said form; feed-rolls adapted to feed a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

24. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive impression portions of the web, and the other of which is movable into and out of engagement with said rotatable impression member; of inking mechanism for inking said strip; feed-rolls adapted to feed a web of paper between said impression members; and web-take-up mechanism cooperative with the second impression member, and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web, and operative for slowing down the impression portion of the web during the impression period to the rate of advance of the printing-strip and while said impression portion is continuously advancing between the impression members, substantially as specified.

25. In a printing-machine, the combination with the framework; of a main driving-shaft; an eccentric carried by said shaft; a pair of impression members, one of which is rotatable for advancing the printing-strip through the machine and for presenting successive portions of said strip to successive impression portions of the web, and the other of which is operative from said eccentric; inking mechanism for inking said strip; feed-rolls operative by the driving-shaft, and adapted to feed a web of paper between said impression members; take-up members operative in unison for modifying the movements of the impression portion of the web; and connections between said take-up members and the eccentric for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

26. In a printing-machine, the combination with the framework; of a main driving-shaft; an eccentric carried by said driving-shaft; a pair of impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive impression portions of the web, and the other of which is operative from said eccentric; inking mechanism for inking said strip; feed-rolls operative by the driving-shaft, and adapted to feed a web of paper between said impression members and into and away from the machine at the same, and at a relatively high, rate of speed; take-up members operative in unison for modifying the movements of the impression portion of the web; and connections between said take-up members and the eccentric for imparting to said take-up members equal and synchronous web taking-up and giving-up movements controlling opposite ends of, and acting in a direction opposite to the direction of movement of, the impression portion of the web, for slowing down the impression portion of the web during the impression period to the rate of advance of the printing-strip, and while said impression portion is continuously advancing between the impression members, substantially as specified.

27. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive portions of the web, and the other of which is movable into and out of operative relation with the first, and has a progressive advancing movement during the impression period equal to the rate of advance of the printing-strip; of feeding means operative for feeding a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

28. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine, and for presenting successive portions of said strip to successive portions of the web; of inking mechanism for inking said strip; wiping mechanism for wiping said strip as it emerges from between the impression members; feed-rolls adapted to feed a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

29. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine, and for presenting successive portions of said strip to successive impression portions of the web; of inking mechanism for inking said strip; wiping mechanism for wiping said strip as it emerges from between the impression members; feed-rolls adapted to feed a web of paper between said impression members; web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period; cutter mechanism for severing the web into sheets at predetermined points in the movement of the web after each impression; and sheet-delivery mechanism embodying successive sets of endless carriers having successively slower rates of advancing movement than the rate of feed of the web by the feed-rolls, substantially as specified.

30. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-form through the machine, and for presenting successive portions of said form to successive impression portions of the web; of inking mechanism for inking said form; wiping mechanism for wiping said form as it emerges from between the impression members; feed-rolls adapted to feed a web of paper between said impression members; take-up members for controlling the movement of the impression portion of the web, and having equal and synchronous web taking-up and giving-up movements controlling opposite ends, respectively, of the impression portion of the web, and operative for slowing down the impression portion during the impression period to the rate of advance of the printing-form and while said impression portion is continuously advancing between the impression members; cutter mechanism for severing the web into sheets at predetermined points in the movement of the web after each impression; and sheet-delivery mechanism operable for receiving said sheets and forming them into a pile, substantially as specified.

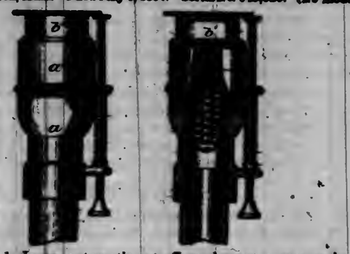
31. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive impression portions of the web, and the other of which has a movement into and out of engagement with the first; of inking mechanism for inking said strip; feed-rolls adapted to feed a web of paper between said impression members; web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period and while the printing-strip is continuously advancing through the machine; and locking means operative in unison with said respective impression members, and in position and adapted for engagement during the impression period, to thereby lock said impression members against shifting movement relatively to each other during said period, and thus prevent unequal advancing movements of the printing-strip and the impression portion of the web at the printing movement, substantially as specified.

32. In a printing-machine, the combination with the framework; of a main driving-shaft; a driven shaft operated from said driving-shaft; an impression member rotatable with said driven shaft; a driving-eccentric carried by the driven shaft; a crank-arm mounted on said eccentric; a second impression member carried by said crank-arm; feed-rolls adapted to feed a web of paper between said impression members; take-up members controlling the movements of the impression portion of the web between the paper-roll and the feed-rolls, and operative in unison; levers carrying said take-up members; connecting-rods connecting said crank-arm and levers; a guide connection between said crank-arm and the framework for controlling the movements of the crank-arm; locking means carried by the driven shaft; and cooperative locking means movable with the crank-arm, and in position and adapted for engaging the locking means of the driven shaft during the impression period, to thereby prevent shifting movement of the impression members relatively to each other during said period, substantially as specified.

33. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive impression portions of the web; of inking mechanism for inking said strip; wiping mechanism for wiping said strip, as it emerges from between the impression members; rewinding mechanism for rewinding the strip and for advancing the same through the machine; feed-rolls adapted to feed a web of paper between said impression members; web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period; cutter mechanism for severing the web into sheets at predetermined points in the movement of the web after each impression; and sheet-delivery mechanism embodying a sheet-guide mechanism; a sheet-transfer mechanism having endless traveling carriers movable at a slower rate of speed than the rate of feed of the web by the feed-rolls, and a paper-flier having endless carriers movable at a slower rate of speed than the endless carriers of the sheet-guide mechanism and the sheet-transfer mechanism, substantially as specified.

34. In a printing-machine, the combination with two impression members, one of which is rotatable for advancing a printing-strip through the machine and for presenting successive portions of said strip to successive portions of the web; of inking mechanism for inking said form, and embodying an inking-roller mounted for rotation in contact with the printing-strip, during the passage of said strip around said impression member, and fixed against movements toward and from said strip; and means for positively rotating the rotatable impression member and the inking-roller in unison; feed-rolls adapted to feed a web of paper between said impression members; and web-take-up mechanism for bringing the impression portion of the web to rest relatively to the impression members during the impression period, substantially as specified.

590,003. AUTOMATIC-CUT-OFF GAS-BURNER. FRED F. CHEESMAN, Boston, Mass. Filed July 6, 1897. Serial No. 643,526. (No model.)



Claim.—1. In an automatic-cut-off gas-burner, a case or body having a gas-passage, a valve-seat, and a tubular portion, an expansible ring sliding telescopically in said tubular portion when contracted, and adapted to frictionally engage therewith when expanded, a valve-plate carried by said expansible ring which closes upon said valve-seat to cut off the gas, substantially as described.

2. In an automatic-cut-off gas-burner, a case or body having a gas-passage, a valve-seat, and a tubular portion, an expansible ring sliding telescopically in said tubular portion when contracted, and adapted to frictionally engage therewith when expanded, a valve-plate carried by said expansible ring which closes upon said valve-seat to cut off the gas, and means for raising said valve-plate and ring, substantially as described.
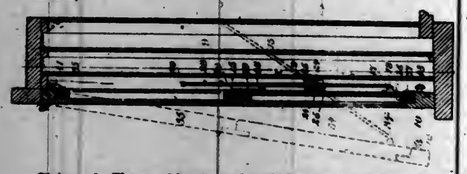
3. In an automatic-cut-off gas-burner, a case or body having a gas-passage, a valve-seat, and a tubular portion, an expansible ring sliding telescopically in said tubular portion when contracted, and adapted to frictionally engage therewith when expanded, a valve-plate carried by said expansible ring which closes upon said valve-seat to cut off the gas, and a tip also carried by said expansible ring, substantially as described.

4. In an automatic-cut-off gas-burner, a case or body having a gas-passage, a valve-seat, and a tubular portion, an expansible ring sliding telescopically in said tubular portion when contracted, and adapted to frictionally engage therewith when expanded, a valve-plate carried by said expansible ring which closes upon said valve-seat to cut off the gas, and a spring for closing said valve-plate upon its seat, substantially as described.

5. In an automatic-cut-off gas burner, a case or body having a gas-passage, a valve-seat, and a tubular portion, an expansible ring sliding telescopically in said tubular portion when contracted, and adapted to frictionally engage therewith when expanded, a valve-

plate carried by said expansible ring which closes upon said valve-seat to cut off the gas, a tip also carried by said expansible ring, and a spring-actuated rod for engaging said tip and raising it together with the ring and valve-plate carried by it, substantially as described.

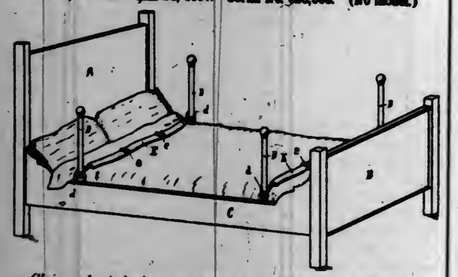
590,004. STORM OR SCREEN FRAME. BERNHARD J. DANIELSEN, Milwaukee, Wis. Filed July 31, 1896. Serial No. 601,172. (No model.)



Claim.—1. The combination, of a window-casing, a frame for a storm-sash, screen-sash, blind, or analogous device, said frame pivoted at its upper edge to the upper edge of the window-casing, a rod pivoted at or near the free end of the frame and adapted to swing up and down on its pivot, a sleeve having a horizontal pivot or swivel-point, said pivot or point extending into a bearing in the inner side of the side piece of the window-casing, said sleeve adapted to have the rod pass therethrough, and to describe an arc of a circle with the rod as the frame is swung in or out, the sleeve and the rod being disposed at an incline when the frame is swung out, and disposed in a vertical plane adjacent to the inner side of the frame, when said frame is swung in to a closed position, the arc of the circle described by the rod being such that the end of said rod is prevented from contacting with the shade or curtain of the window, and means for holding the rod in adjusted position within the sleeve.

2. The combination, of a window-casing, a frame for a storm-sash, screen-sash, blind, or analogous device, said frame pivoted at its upper edge to the window-casing, rods pivoted at opposite sides of the storm or screen frame at or near the free end of said frame, sleeves having horizontal pivots or swivel-points said pivots or points extending into bearings in the inner sides of the side pieces of the window-casing at opposite points, said sleeves adapted to have the rods pass therethrough, and to describe an arc of a circle with the rods as the frame is swung in or out, the sleeves and their rods being disposed at an incline when the frame is swung out, and disposed in a vertical plane adjacent to the inner side of the frame, when said frame is swung in to a closed position, the arc of the circle described by the rods being such that the ends of the rods are prevented from contacting with the shade or curtain of the window, and means for holding the rods in adjusted position within the sleeves.

590,005. BED-COVER CONTROLLER. LEVI H. GOODWIN, Cincinnati, Ohio. Filed Jan. 21, 1897. Serial No. 620,062. (No model.)



Claim.—1. A bed-cover controller consisting of standards attached to the side rails of a bed, in combination with webs detachably connected to said standards and having vertical movement thereon, and fastening devices attached to said web and adapted to engage with the covers, substantially as specified.

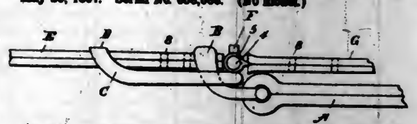
2. In combination with a bedstead, standards detachably connected to the side rails near the head, and the web E secured to said standards by loose ring attachments substantially as specified.

3. A bed-cover controller consisting of standards detachably connected to the side rails of a bed near the head and foot thereof, one or more webs detachably connected to rings mounted upon said standards, and fastening devices attached to said web, substantially as specified.

4. In a bed-cover controller the combination of standards supported in brackets pivoted to the side rails of a bed, webs E detachably connected to said standards by means of rings *d* sliding on said standards, and means for attaching said webs to the bed-covers, substantially as specified.

5. In a bed-cover controller the combination of standards detachably supported in brackets secured to the side rails of a bed, one or more webs E stretched across the bed and detachably connected to said standards and having vertical movement thereon, and fastening devices secured to said web substantially as specified.

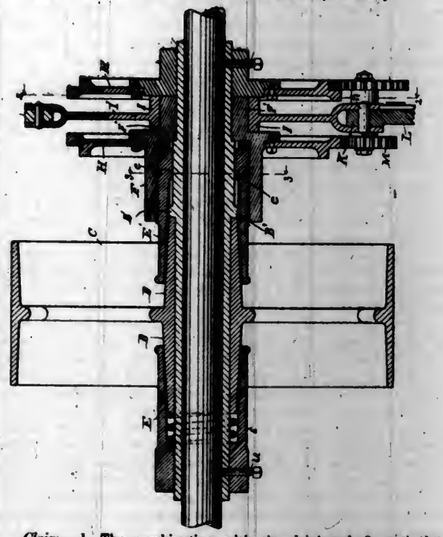
590,006. TRACE. WILLIAM H. HAGLOCK, Sterling, Ill. Filed May 20, 1897. Serial No. 638,686. (No model.)



Claim.—1. In combination with a hame-tug A provided with the loop B, the buckle C provided with a looped portion D and the short lateral boss or tongue F, the forward section G of the trace provided with lateral sleeves 5 5 and intermediate recess 6 and the rear portion E of the trace provided centrally with the head 2 adapted to project loosely into said recess 6 and with lateral trunnions 4 4 adapted to extend loosely within the sleeves 5 5 respectively, said head 2 being provided with the opening 3 adapted to receive loosely the tongue F of the buckle C substantially as shown for the purpose described.

2. In combination with the severed portions of a trace, the buckle member J provided with opening 6 and lateral sleeves 5 5, and adapted to be inserted within and riveted to one portion of said trace, and a member H provided with head 2, having buckle-tongue opening 3 and lateral trunnions 4 4, adapted respectively to be inserted within opening 6 and sleeves 5 of member J, and adapted to be inserted within and rigidly attached to the adjacent end of the other portion of said trace, substantially as shown and for the purpose described.

590,007. CLUTCH MECHANISM. CYRUS L. HIGGINS, Bellevue, Mich. Filed Oct. 12, 1896. Serial No. 608,532. (No model.)



Claim.—1. The combination with the driving-shaft, and the loosely-journaled longitudinally-movable pulley having a tapered surface, of a fixed collar on one side of said pulley, having a tapered surface, a spring for forcing said pulley away from said collar, a device constructed and arranged to engage the other side of said pulley and movable longitudinally to force the same into close frictional engagement with said collar, said device rotating with the shaft and at the same speed as the same, and mechanism operative at a speed different from that of the shaft to impart said longitudinal movement to said device, as specified.

2. The combination with the driving-shaft, the loosely-journaled pulley longitudinally movable on said shaft, said pulley having a tapered surface, a fixed collar at one side of said pulley, having a tapered surface to engage that of the pulley and a recess in its end, and a spring in said recess tending to press said pulley away from said collar, of a device at the other side of said pulley, rotating with the shaft at the same speed thereas and movable longitudinally thereof, mechanism acting on said device to force it longitudinally and thereby engage said pulley with the collar or disengage said device from the pulley, said mechanism being rotated independently of the shaft, and means for rotating said mechanism at various speeds different from that of the shaft to cause said device to move in one or the other direction.

3. In combination with a shaft and a pulley having a tapered hub, loosely journaled thereon; a collar having a funnel-shaped end adapted to engage said hub, and externally screw-threaded; a spline connecting said collar and shaft; a wheel journaled on said shaft and having an internally-screw-threaded opening in its hub to engage said collar, and means for retarding and increasing the speed of said wheel, substantially as described.

4. The combination with the driving-shaft, and the loosely-journaled pulley of an externally-threaded collar splined on said shaft and constructed to engage said pulley and cause the same to rotate with said shaft, of means for moving said collar longitudinally into and out of engagement with said pulley, comprising a rotative collar on said shaft, having an internally-threaded engagement with said first-mentioned collar, a wheel secured to the internally-threaded collar, a wheel fixed on the shaft, each of said wheels being constructed to form two gears of different diameters, and a shiftable train of gears constructed and arranged to engage said gears of the wheels and co-operating therewith to change the speed of said rotative collar, substantially as described and for the purposes specified.

5. The combination with the driving-shaft and the loosely-journaled pulley, of a longitudinally-movable externally-threaded collar constructed to engage said pulley and cause the same to rotate with the shaft, said collar being rotated by said shaft and always at the same speed as the same, an internally-threaded collar engaging the longitudinally-movable collar, a wheel on said internally-threaded collar, a second wheel, fixed on the shaft, and connections between said wheels, constructed to cause the first-mentioned one to rotate at a speed different from that of the second one, substantially as described and for the purposes specified.

6. The combination with the driving-shaft, the loosely-journaled pulley having a tapered surface, and the longitudinally-movable threaded collar having a tapered surface designed to engage that of the pulley, said collar rotating with, and at the same speed as the shaft, of a wheel having a threaded hub engaging said collar, a second wheel (H') adjacent to said first-mentioned wheel, and mechanism, embodying a shiftable train of gears, engaging said wheels and constructed to change the speed of the first-mentioned one, for the purpose specified.

7. The combination with the shaft, and the loosely-journaled pulley having a tapered surface, of collars at opposite sides of the pulley, rotatable with the shaft and having tapered surfaces designed to engage that of the pulley, a spring in one collar engaging one side of the pulley, and means for moving the other collar longitudinally, to force the pulley longitudinally so that its tapered surface will be brought into wedging engagement with the tapered surfaces of both collars at the same time, as specified.

8. The combination with the shaft, and the loosely-journaled pulley thereon, having oppositely-tapered surfaces, of rotatable collars at opposite sides of said pulley, one of said collars being fixed and the other movable longitudinally of said shaft and each having a tapered surface designed to engage that at the adjacent side of the pulley, a spring in said fixed collar, pressing the pulley longitudinally in one direction, and means for moving the other collar longitudinally on the shaft to and from the pulley, embodying a wheel, the hub of which has a threaded engagement with said collar, and means for rotating said wheel at a speed different from that of said collar, substantially as specified.

9. The combination with the shaft, a loosely-journaled pulley having a tapered hub, and a grooved sleeve secured to said shaft and having a shoulder, of a longitudinally-movable threaded collar, having a tapered bore encircling said hub and provided with a key engaging said groove in the sleeve, a loose wheel mounted on said sleeve adjacent to said shoulder and having a threaded hub engaging said collar, a second wheel secured to said shaft, and a shiftable train of gears engaging both of said wheels and co-operating therewith to rotate said first-mentioned wheel at speeds different from that of the shaft.

10. The combination with the shaft, and a grooved sleeve secured thereto, having a shoulder, of a loose pulley on said sleeve, having a tapered hub, a longitudinally-movable threaded collar, having a tapered bore encircling said hub and provided with a key engaging said groove, a loose wheel, mounted on said sleeve adjacent to said shoulder and constructed with a hub having a threaded engagement with said collar, a second wheel (H') adjacent to said first-mentioned wheel, and mechanism, embodying a shiftable train of gears, engaging said wheels to change the speed of the first-mentioned one.

11. The combination with the shaft, of a loosely-journaled longitudinally-movable pulley rotatable therewith, said pulley having an elongated hub the ends of which are tapered in opposite directions, a fixed collar at one side of said pulley, having a tapered bore to receive the adjacent end of said hub, a spring in said bore, pressing the pulley outward from the same, a rotatable collar at the opposite side of said pulley, having a tapered bore receiving the contiguous end of said hub, and means for forcing the latter collar longitudinally, in one direction to lock the hub at once within both of said collars and in the other direction to cause the hub to become released from said collars.

12. The combination with the shaft, loose pulley, and longitudinally-movable device, rotatable with the shaft, for causing the pulley to rotate with the shaft, of means for moving said device longitudinally, comprising a loose wheel, having a threaded engagement with said device, and provided with gears of different diameters, a wheel rotatable with the shaft and formed to provide gears of different diameters, and two sets of shiftable gears, each set comprising two gears of different diameters, the larger of which gears engages the smaller gear of one wheel and the smaller of which gears engages the larger gear of the other wheel, as specified.

13. In combination, a shaft, a pulley loosely journaled on said shaft and having a tapered hub; an externally-threaded collar having a funnel-shaped end adapted to engage said hub splined on said shaft; a wheel having an internally-threaded hub and adapted to engage said externally-threaded collar journaled on said shaft; a wheel secured to said shaft; and gears rigidly connected to each other engaging said wheels, whereby the speed of the first-named wheel is changed, substantially as described.

14. In combination with a shaft and a longitudinally-movable pulley, having a tapered hub; a collar having a funnel-shaped end and a recess secured to said shaft; a spring within said recess; a collar splined on said shaft and externally screw-threaded; a recessed collar having an internal screw-thread, on said shaft; a wheel having two peripheries, one of less diameter than the other secured to said last-named collar; a wheel having two peripheries of different diameters secured to said shaft; a shaft supported beneath said wheels; and pinions, one of lesser diameter than the other, secured to the ends of said shaft and adapted to engage the peripheries of said wheels, substantially as described.

15. In combination with a shaft and a pulley having a tapered hub journaled on said shaft; a collar having a funnel-shaped end, and externally screw-threaded; a grooved sleeve on said shaft and ribs on said collar to engage said grooves; a collar having an internally-threaded recess, on said shaft; a wheel having two peripheries of different diameters secured to said recessed collar; a wheel having peripheries of different diameters secured to said shaft; a downwardly-extending arm journaled on one end of said recessed collar; a T-lever pivoted on said arm and pinions journaled on the arms of said T-lever and adapted to engage the peripheries of said wheels, substantially as described.

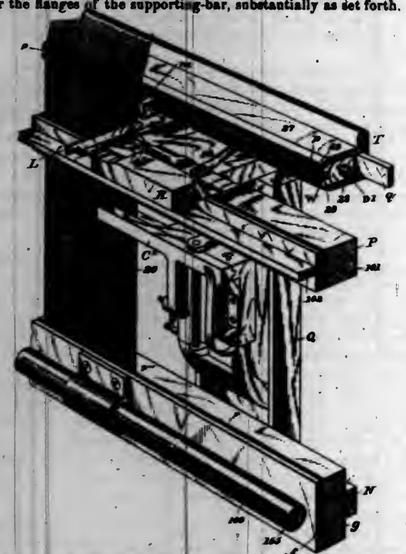
16. In combination, a shaft; a sleeve on said shaft having an enlarged portion; a pulley journaled on said sleeve and having a tapered hub; a collar having a funnel-shaped opening in its end, secured to said sleeve; a spring in said opening; an externally-screw-threaded collar having a funnel-shaped end, on said enlarged portion of said sleeve; ribs on said collar engaging grooves in said portion; a collar journaled on said sleeve and having an internally-screw-threaded end, a wheel having two corrugated peripheries, one of less diameter than the other, secured to said last-named collar; a wheel having two corrugated peripheries one of less diameter than the other secured to said sleeve; a collar between said wheels having an upwardly and a downwardly extending arm; a brace secured to said upper arm; a T-lever pivoted to said lower arm; shafts journaled in the ends of the laterally-extending arms of said lever; pinions secured to the ends of said shafts; and a latch secured to said lever and adapted to engage a notch in said arm, substantially as described.

590,008. THREAD-SELECTING DEVICE FOR MACHINES FOR DRAWING IN WARP-THREADS. RICHMOND H. INGERSOLL, Biddeford, Me., assignor to Marvin M. Ingersoll, same place. Filed May 3, 1897. Serial No. 634,943. (No model.)

Claim.—1. In a warp-drawing machine, the combination with a warp-holding frame, of a bar or support provided with parallel flanges over the edges of which the warp-threads are stretched, and a warp-thread-separating comb movable inwardly and outwardly between said flanges and having its face provided with a series of vertical thread-holding grooves for the reception of the warp-threads when said comb is projected beyond the edges of the flanges of the supporting-bar between which it is held, substantially as set forth.

2. In a warp-drawing machine, the combination with a warp-holding frame, of a supporting-bar provided with parallel flanges over which the warp-threads are stretched, a warp-thread-separating

comb movable inwardly and outwardly between said flanges and having its outer face provided with vertical thread-holding grooves for the reception of the warp-threads, and means for actuating said comb, whereby it may be projected beyond the edges of its supporting-flanges to cause the warp-threads to enter its grooves, and retracted within said flanges out of engagement with the warp-threads while the latter are being arranged in the warp-holding frame and stretched over the flanges of the supporting-bar, substantially as set forth.



3. In a warp-drawing machine, a thread-separating comb composed of a series of thin plates clamped upon a rod or bar, and of different lengths arranged alternately to form vertical thread-holding grooves on the front face of the comb, a flanged supporting-bar embracing said comb, and means for moving said comb to cause its front grooved face to engage the warp-threads, substantially as described.

4. In a warp-drawing machine, the combination with a double flanged bar T, of the thread-separating grooved comb W, provided at its back with wedge-shaped projections 34, the sliding bar q having corresponding wedge-shaped projections 33 engaging the projections 34, springs for retracting the comb within the flanges of the supporting-bar, and means for operating the sliding bar q to advance or push out the comb to cause it to engage the warp-threads, substantially as set forth.

5. In a warp-drawing machine, the combination with a warp-holding frame, of a thread-separating comb provided with vertical thread-holding grooves and movable outwardly and inwardly in a supporting bar or holder, and having a longitudinal slot extending from one end to the other, a warp-thread-selecting hook operating within said longitudinal slot and adapted to successively engage the warp-threads held within the grooves of the comb, and means for operating said selecting-hook, substantially as described.

6. In a warp-drawing machine, the combination with a warp-thread holding and stretching device, of a laterally-swinging selecting-hook having a reciprocating movement in the direction of its length and adapted to successively engage the warp-threads and draw out the same, a second hook reciprocating transversely across the path of the selecting-hook and adapted to engage the warp-thread after it has been drawn out by the selecting-hook, and means for reciprocating said hooks and swinging the selecting-hook away from the warp threads as it is moved inward to take a fresh thread, substantially as set forth.

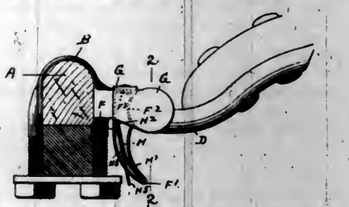
7. In a warp-drawing machine, the combination with the warp-drawing needle and a thread-separating comb provided with vertical thread-holding grooves and movable inwardly and outwardly in a supporting bar or holder and having a longitudinal slot extending from one end to the other, of a thread-selecting hook mounted on a laterally-swinging arm having a reciprocating movement in the direction of its length, said hook operating within the longitudinal slot of the thread-separating comb, a spring for holding the selecting-hook with a light pressure against the foremost warp-thread, a second hook reciprocating at an angle transversely across the path of the selecting-hook and adapted to catch the warp-thread after it has been drawn out by the selecting-hook and carry the same at an angle against the lower edge of the warp-drawing needle, and means for operating said second hook and swinging the selecting-hook backward against the resistance of its spring to clear the foremost warp-thread as it enters the longitudinal comb-slot, substantially as set forth.

8. In a warp-drawing machine, the combination with a warp-holding device, and a warp-drawing needle, of a thread-separating comb provided with a central longitudinal slot and having on its front face a series of vertical thread-holding grooves, a supporting bar or holder for said comb provided with horizontal parallel flanges over the edges of which the warp-threads are stretched and between which the comb is placed, said comb having an independent inward and outward movement, whereby it may be projected beyond the edges of the flanges of the supporting-bar to cause the warp-threads to enter its vertical grooves, a reciprocating slide the arm 8 with its selecting-hook m pivoted to said reciprocating slide and having a laterally-swinging movement toward and away from the warp-threads and provided with a light spring for holding the selecting-hook against the foremost warp-thread, an arm provided with a pin for drawing back the selecting-hook arm against the resistance of its light spring, a second hook reciprocating at an angle transversely across the path of the selecting-hook and adapted to engage the warp-thread after it has been drawn out by the selecting-hook, and carry the same at an angle against the lower edge of the warp-drawing needle, and means for operating the said two hooks, substantially as set forth.

9. In a warp-drawing machine, the combination with a warp-threaded holding and stretching device and a warp-drawing needle, of a traveling table or platform, a slide moving in a guideway therein, a post rising from said slide a laterally-swinging arm pivoted to said post and provided with a thread-selecting hook, a light spring for swinging the selecting-hook into contact with a warp-thread, a second slide moving in a guideway in the table at right angles to the first slide, and provided with an arm acting to swing the arm of the selecting-hook away from the warp-threads against the resistance of its light spring, a third slide moving in a guideway in the table parallel with the second slide, and having a hook at one end adapted to catch the warp-thread after it has been drawn out by the selecting-hook and carry the same at an angle against the lower edge of the warp-drawing needle, and cams and springs for actuating the said slides, all operating substantially as set forth.

590,009. WITHDRAWN.

590,010. THILL-COUPLING. FRED F. WHEELER, Athol, Mass. Filed July 31, 1896. Serial No. 601,236. (No model.)

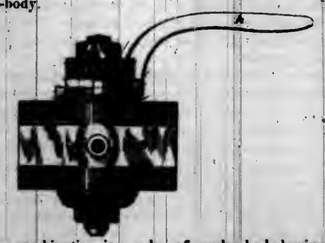


Claim.—1. In a thill-coupling, the combination with the axle-clip, a thill-iron hinged thereto and a bent blade-spring arranged to press against said axle-clip and said thill-iron, of a key inserted in said bent spring, said key having elastic prongs overlapping the edges of said spring, whereby said key is held from displacement sidewise and said blade-spring is held from being lifted, substantially as described.

2. The combination with an axle-clip and a thill-iron of a loose pintle E by which said thill-iron is hinged to said axle-clip, a bent blade-spring F arranged to bear against said axle-clip and said thill-iron, a plate G attached to said spring and provided with ears G', G', overlapping the ends of said pintle and a removable key H inserted in said blade-spring, said key having elastic prongs H^2 overlapping the edges of the blade-spring whereby said key is held from sidewise movement, substantially as described.

590,011. VALVE. HUBERT K. WOOD, Hartford, Conn., assignor to the Landers, Frary & Clark, New Britain, Conn. Filed May 8, 1897. Serial No. 635,671. (No model.)

Claim.—1. The combination, in a valve, of a valve-body having a pair of oppositely-disposed stops; a valve-plug; a stop secured to said plug and limited in its movements in one direction by one of the stops on the valve-body; and a handle also secured to the valve-plug and having a stop disposed at an angle to the stop on the plug and limited in its movements in one direction by the other stop on the valve-body.



2. The combination, in a valve, of a valve-body having a pair of oppositely-disposed stops; a valve-plug having a polygonal portion; a removable stop-washer fitted over said polygonal portion of the plug and having a laterally-projecting stop limited in its movements in one direction by one of the stops on the valve-body; and a handle also fitted to the polygonal portion of the valve-plug and having a stop disposed at an angle to the stop on the washer and limited in its movement in one direction by the other stop on the valve-body.

590,012. SPARK-DEFLECTOR FOR SMOKE-STACKS. WILLIAM ABBOTT and DANIEL E. HUGHES, Espy, Pa. Filed Mar. 27, 1897. Serial No. 629,582. (No model.)



Claim.—1. A cinder-deflector for locomotive smoke-stacks comprising two wings or flukes each bent in the arc of a circle or volute so as to extend in opposite directions upwardly and outwardly immediately over the stack, said wings or flukes inclining from the front downwardly, substantially as shown.

2. A spark and cinder deflector for locomotive smoke-stacks comprising two substantially semicircular plates bent to present inverted arcs which spring in opposite directions upwardly and outwardly from the straight edges of the plates, said straight edges abutting and being connected at their ends to the inner walls of the smoke-stack on different planes so that the inverted arcs or plates will incline from their forward edges downwardly, the plates carried by the stack being of such a size that they do not project materially beyond the wall of the stack, substantially as shown and for the purpose set forth.

590,013. BURGLAR-GUARD. THERESA D. AVARA, Rushing's Store, Miss. Filed Nov. 27, 1896. Serial No. 613,551. (No model.)



Claim.—1. A door-guard comprising an upright cage or body pivoted to the door and to the door-casing and which cage is adapted to permit opening of the door and close the space made when the door is opened.

2. A door-guard comprising an upright cage or body and strips hinged to the edges of said cage and also hinged to the door and the door-casing respectively, said cage and strips being adapted to permit opening of the door and to close the space made when the door is opened.

3. A door-guard comprising a substantially impervious body or cage pivoted to both the door and casing and adapted to permit the former to be partially opened and which cage serves to close the opening, and an opening in said body provided with a closure, substantially as described.

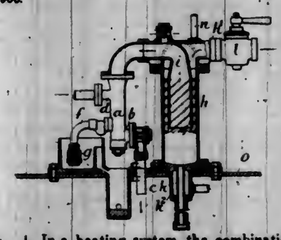
4. A door-guard made in the shape of a cage having portions connected to the door and casing, and rods or bars passing loosely through the sides of the cage and adapted to limit their spread, substantially as described.

5. A door-guard made in the shape of a cage, strips hinged to the edges of the cage and to the door-casing, and rods or bars passing loosely through the hinged strips and adapted to limit their spread.

6. In a door-guard, the combination with a body formed with projections having slots, and thumb-screws passing through said slots and into the door and casing, substantially as described.

7. In a door-guard, the combination with an upright body or cage adapted to close the opening between the door and casing when the former is swung open, of hasps pivoted thereto at its opposite edges and which are provided with slots, and thumb-screws passing through the slots and into the door and casing, substantially as described.

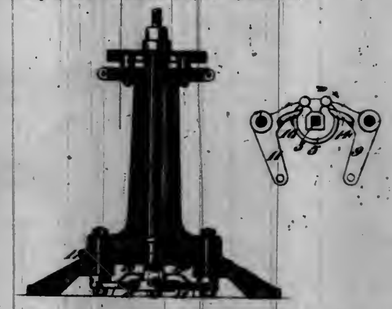
590,014. APPARATUS FOR HEATING AND CIRCULATING WATER. MICHAEL M. BROPHY, London, England. Filed Oct. 28, 1896. Serial No. 567,130. (No model.) Patented in England May 17, 1893, No. 9,900.



Claim.—1. In a heating system, the combination with a circulating system, of a steam-injector in said system, and a cooling device interposed between the injector and the return-pipe of said circulating system, whereby the circulating fluid is cooled before passing to the injector, substantially as described.

2. In a heating apparatus, the combination of an exhaust-injector, means for supplying the injector with exhaust-steam, an inlet-nozzle for water, an outlet-nozzle for the discharge of the steam and water, a system of circulating heating-pipes, a tank situated above the level of said inlet-nozzle, for receiving the return-water from said pipes, means for cooling the water and a pipe connecting the tank with the said inlet-nozzle for delivering the water to the injector, substantially as described.

590,015. SWITCH-STAND. HENRY ELLIOT, St. Louis, Mo. Filed July 6, 1897. Serial No. 643,848. (No model.)



Claim.—1. In a switch-stand, the combination of an operating-shaft, a disk secured to the shaft and provided with contact-points arranged at different elevations, and a pivoted lever provided with prongs arranged at different elevations, and adapted to be engaged by the said contact-points on the disk, substantially as set forth.

2. In a switch-stand, the combination of an operating-shaft, a disk secured to the shaft and provided with an upper and lower pair of contact-points, and pivoted levers provided with upper and lower prongs, substantially as and for the purpose set forth.

3. In a switch-stand, the combination of an operating-shaft, a disk secured to the shaft and provided with a notch or recess on one side, and a pair of pins or projections on the other side, said notch and pins forming contact-points, and a pair of pivoted levers each provided with an upper and lower prong adapted to be engaged respectively by the contact-points of the disk, substantially as set forth.

4. In a switch-stand, the combination of an operating-shaft, a disk secured to the shaft and having a recess in its lower face, and a pair of pins or projections on its upper face, and pivoted levers arranged on opposite sides of the disk; each lever being provided with a prong, the lower prong adapted to enter said recess in the disk, and the upper prong adapted to be engaged by one of said studs or projections, substantially as set forth.

590,016. FIRE-ESCAPE. ROBERT M. ELLIS, Nanaimo, Canada. Filed Oct. 10, 1896. Serial No. 608,491. (No model.)

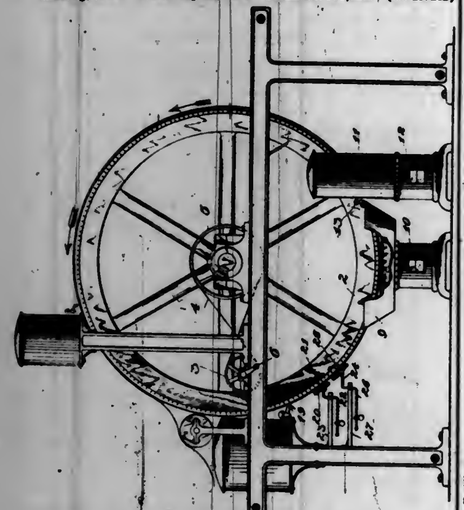


Claim.—1. The combination with the casing and the drum and its axis, of the ribbon wound upon the drum, the springs wound upon the axis in the opposite direction to the ribbon, and the crossed levers pivotally mounted on the casing between their ends and carrying rollers between which the ribbon passes, as set forth.

2. The combination with the casing and the drum and its axis, of the ribbon wound on the drum, the springs wound on the axis in the opposite direction to the ribbon, the levers pivotally mounted on the casing between their ends and carrying rollers, and having their ends crossed and the handles suspended from the outer ends of said levers, all substantially as shown and described.

3. The fire-escape herein described, comprising the casing, the drum mounted to revolve therein, a ribbon secured at one end to said drum and passed through a slot in the casing, two independent spring-ribbons fastened to the axis of the drum and wound in opposite directions to the first-mentioned ribbon, two independent forked levers fulcrumed upon opposite sides of the axial center of the drum, a roller carried in the forked end of each lever, said levers crossing each other and embracing the main ribbon, wires connected to the outer ends of the levers, and handles on the free ends of said wires, all substantially as herein shown and described.

590,017. APPARATUS FOR SHEETING WAX. THOMAS EVANS, Lansing, Iowa. Filed May 23, 1896. Serial No. 593,421. (No model.)



Claim.—1. A wax-sheeting apparatus having a continuous sheeting-surface, means for feeding liquid material continuously to the sheeting-surface, and removing devices for deflecting the completed portion of the sheet, and cooling devices disposed between the feeding and removing devices, and consisting of means for applying a cooling liquid, as water, to the exterior surface of the sheeted material, substantially as specified.

2. A wax-sheeting apparatus having a continuous sheeting surface adapted to receive continuous motion in a uniform direction, wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, and means between the sheet-removing and wax-feeding devices for cleansing and drying the surface, substantially as specified.

3. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a uniform direction, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, of absorbing and drying pads yieldingly supported in contact with the sheeting-surface between the sheet-removing and wax-feeding devices, substantially as specified.

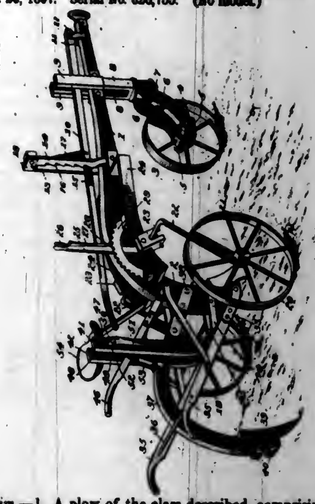
4. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a uniform direction, wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, of a spraying device to discharge water upon the sheeting-surface, and yieldingly-supported absorbing and drying pads arranged in contact with the surface, substantially as specified.

5. A wax-sheeting apparatus having a rotary carrying-wheel, a continuous sheeting-belt removably fitted upon said wheel and provided with terminal engaging means, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the surface of said belt, substantially as specified.

6. A wax-sheeting apparatus having a rotary carrying-wheel, a sheeting-belt removably fitted upon said wheel and consisting of a continuous strip of wood having a scored inner surface and means for connecting the extremities thereof, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the surface of said belt, substantially as specified.

7. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a uniform direction, of a wax-holding vat or receptacle, into the contents of which the sheeting-surface dips continuously, and wax-supplying devices to discharge continuously into said vat or receptacle, and including controlling devices whereby the supply may be regulated to equal the amount of wax removed by the sheeting-surface, to maintain the level of the surface of the wax in a uniform plane, and thereby insure uniformity of thickness in the resulting sheet of wax, substantially as specified.

590,018. PLOW. GEORGE W. GARST, McPherson, Kans. Filed Jan. 26, 1897. Serial No. 620,755. (No model.)

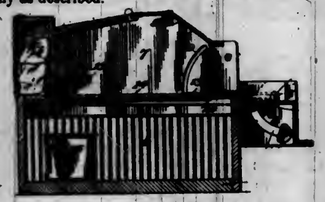


Claim.—1. A plow of the class described, comprising the beam 1, the integral curved standard 2, the pivoted auxiliary standard 37, its adjusting-lever 46 and the vertical guide-arms 41 42 removably secured to said standard 2, and means as described for adjustably clamping said auxiliary standard between said vertical guide-arms, as and for the purpose set forth.

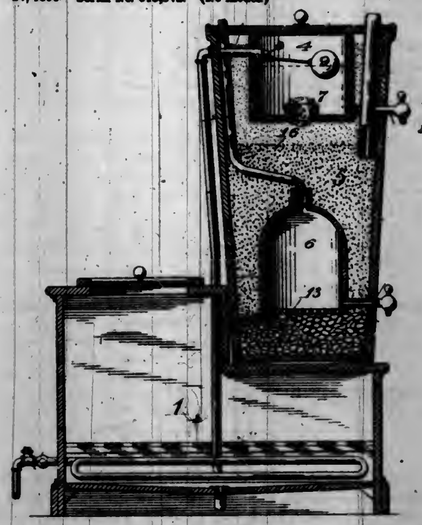
2. A plow comprising the beam, the integral standard and the detachable plow-point, in combination with the colter formed with the horizontal hubs mounted on the shaft 4, said shaft and hubs being journaled in the adjustable stationary sleeves 5 5 secured in the arms of the bracket 6, which in turn is secured upon the lower end of the shaft 7, secured to and vertically adjustable upon the plow-beam, as shown and described.

590,019. TRAP. EDWARD T. MOORE, Steelton, Pa., assignor of one-half to Nathaniel S. Fencil, same place. Filed Aug. 20, 1896. Serial No. 604,285. (No model.)

Claim.—In a trap, the combination with a base and end and side walls, of a receptacle 7 formed by upright longitudinal partitions, a platform pivoted near the rear end of said trap and extending between said partitions, arms upon the forward ends of said platform, a hinged door 13 near the forward end of said receptacle 7 adapted to overlap the forward end of said platform, and provided with loops engaging the said arms of said platform, a counterbalance-weight acting upon the forward ends of said arms of the platform, and a trigger-platform connected with a latch acting upon the said door, substantially as described.



590,020. FILTER. WILLIAM MYERS, Brooklyn, N. Y. Filed Nov. 27, 1896. Serial No. 613,572. (No model.)

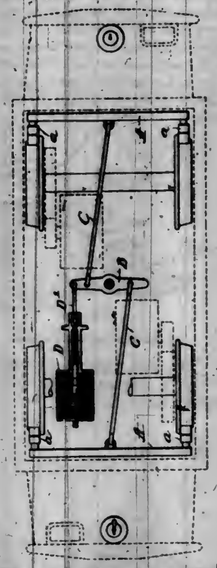


Claim.—A filter consisting of a casing having a receiving-chamber at its upper end, a collecting-chamber at its lower end, a vent leading from the upper end of said collecting-chamber, a filtering-chamber surrounding the said receiving and collecting chambers and communicating therewith, valved pipes or passages leading from the said receiving and collecting chambers through the side of said casing, and a pipe or passage leading from the upper end of said filtering-chamber toward the lower end of the same.

590,021. BRAKE MECHANISM FOR POWER-DRIVEN VEHICLES. JOHN R. PRICE, Brooklyn, N. Y., assignor of one-half to William H. Darling, same place. Filed May 12, 1897. Serial No. 636,163. (No model.)

Claim.—1. The combination with the brake-frame, shoes and brake-lever of a vehicle, of a power-actuated piston or rod connected with the brake-lever, an automatically-actuated clutch consisting of a pivoted eccentric friction-block that engages said rod, and holds it positively in any position into which it may be brought in the application of the shoes to the wheels, and means for at will tripping said clutch.

2. The combination of an electrically-propelled vehicle, having two electric motors mounted thereon, its brake-shoes, brake-frame and brake-lever, an electromagnetic brake device operatively connected with the brake-lever, an automatically-acting clutch or locking device for locking the shoes in any braking position to which they may be brought, a supplementary electromagnetic device for tripping said locking device to permit the retraction of the shoes, a controlling-switch and circuit connections, whereby the switch in one position connects the electromagnetic brake device in circuit with the source of electrical energy by which the motors are driven to thereby apply the brakes, and which in a second position connects one of the motors in closed circuit with the electromagnetic brake device and in a third position connects the second motor in closed circuit with the electromagnetic brake device.



3. The combination of an electrically-propelled vehicle, having two electric motors mounted thereon, its brake-shoes, brake-frame and brake-lever, an electromagnetic brake device operatively connected with the brake-lever, an automatically-acting clutch or locking device for locking the shoes in any braking position to which they may be brought, a supplementary electromagnetic device for tripping said locking device to permit the retraction of the shoes, a controlling-switch and circuit connections, whereby the switch in one position connects the electromagnetic brake device in circuit with the source of electrical energy by which the motors are driven to thereby apply the brakes, and which in a second position connects one of the motors in closed circuit with said device, and in a third position connects the second motor in closed circuit with said device, and which in the fourth position connects the supplementary electromagnetic device in circuit with the main source of electrical energy to thereby trip the locking device and permit the retraction of the brake-shoes.

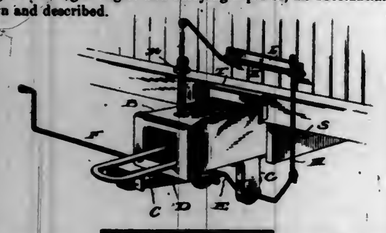
4. The combination with the brake-shoes, brake-frame and brake-lever of a vehicle, of an electromagnetic brake device operatively connected with the brake-lever, a clutch device automatically acting to lock the brake-shoes in any braking position into which they may be brought by the action of said brake device, a supplementary electromagnetic device having an armature operatively connected with said locking device, whereby it may be tripped on the energizing of the supplementary device and circuit connections, and means to at will direct a current through the electromagnetic brake device to apply the brakes to the wheels, and through the tripping device to release the clutch and permit the retraction of the shoes.

5. The combination of the movable lever, of the circuit-controlling switch, its actuating-shaft adapted to receive the key or handle, the cover or casing, and a spring-actuated collar surrounding the shaft and having a locking projection adapted to engage a recess in the inner face of the cover, substantially as and for the purpose set forth.

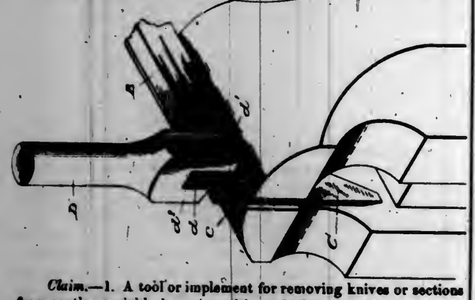
6. The combination with the shoes, brake-frame and brake-lever of a vehicle, an electric motor carried by the vehicle and deriving current from a main source for its actuation, of an electromagnetic brake device having an armature mounted upon a piston operatively connected with the brake-lever and having a coarse and fine wire coil, a switch-controlling device having contacts and circuit connections to in one position direct the current from the source of electrical energy that propels the car through the two coils to apply the brakes to the wheels, and which in another position connects the car-motor in closed circuit with the coarse-wire coil, so that the current that may then be developed by the motor may be utilized to operate the brakes.

590,022. CAR-COUPLING. ROBERT W. RIGGINS, Maury City, Tenn. Filed Apr. 20, 1897. Serial No. 634,434. (No model.)

Claim.—In a car-coupler, the combination with the draw-head, the longitudinally-slotted link-carrying plate C, designed to slide against the lower face of the draw-head, the brackets G mounted on the draw head, the crank-shaft journaled in said brackets the link D connecting the crank E with the forward end of the link-carrying member, the shaft K journaled in the hanger secured to the end of the car, the rod H connecting the bent ends of the shaft K and the said shaft carried in the said brackets G, one end of the said shaft being bent at right angles and carrying a pin M, all substantially as shown and described.



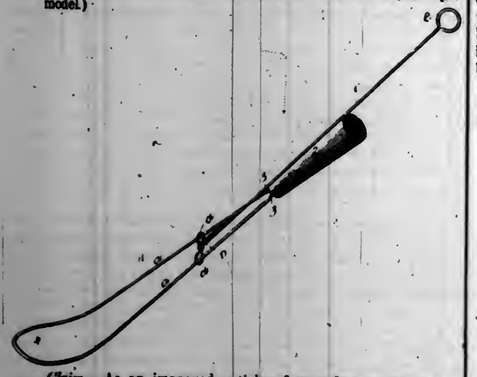
590,023. TOOL FOR REMOVING SECTIONS FROM SCYTHE-BARS, &c. CARL M. ROBINSON, Pawlet, Vt. Filed July 22, 1897. Serial No. 645,530. (No model.)



Claim.—1. A tool or implement for removing knives or sections from scythe or sickle bars comprising a body portion having at one end a recess and side portions d^1 d^2 one of said side portions being longer than the other, substantially as shown.

2. A tool or implement for removing knives or sections from scythe or sickle bars consisting of a body portion provided at one end with a depending part or guide, a transverse slot or recess of substantially the same width as the scythe or sickle bar and a depending part for engagement with the straight-edge of the knife or section, for the purpose set forth.

590,024. VETERINARY OBSTETRICAL INSTRUMENT. JOHN I. SARR, Marka, Kans. Filed Oct. 19, 1896. Serial No. 609,351. (No model.)



Claim.—As an improved article of manufacture, the spoon-shaped wire frame A, formed with the converging longitudinal sides *a a*, the parallel ends 3 3 which are secured in the smaller end of the longitudinal conical handle 2, in combination with a wire slide, C, adapted to draw the parts *a a* toward each other, the free end thereof formed with an integral eye, *e*, and at its opposite end with a transverse cross-head, comprising the guide-eyes, *d d*, encompassing the converging arms, *a a*, of the frame A, and having the free end of the wire after the cross-head is formed, turned backward parallel with and secured to the shank, substantially as shown and described.

590,025. MAIL-BAG-CRANE ATTACHMENT. HENRY R. SCHUYLER and DANIEL D. SCHUYLER, North Decatur, Ga. Filed Nov. 18, 1896. Serial No. 612,616. (No model.)



Claim.—1. In a mail-bag-crane attachment, the combination with a supporting-arm, of a fixed jaw pivoted on said arm to swing, a pivoted and spring-actuated jaw carried by the fixed jaw, and an operating-lever engaging the inner end of the movable jaw, substantially as and for the purpose set forth.

2. In a mail-bag attachment, the combination of a fixed and recessed jaw, a movable jaw, a spring bearing upon the inner end of the movable jaw, and a lever pivoted to the fixed jaw and engaging the movable jaw, substantially as and for the purpose set forth.

3. In a mail-bag-crane attachment, the combination with the casting having a fixed jaw, of the movable jaw pivoted within the casting and coacting with the fixed jaw, the coil-spring arranged within the casting and bearing upon the inner end of the movable jaw and the regulating-screw and plate, substantially as shown and described.

4. In a mail-bag-crane attachment, the combination with the supporting-arm, of the casting pivotally attached to the outer end thereof, the fixed jaw integral with the said casting, the movable jaw pivoted to the said casting and coacting with the fixed jaw, the coil-spring and regulating-screw and the operating-lever pivoted also to the casting and adapted to operate upon the inner end of the movable jaw for the purpose of opening the same, substantially as shown and described.

590,026. VIOLIN. GEORGE W. SWALLEY, Prineville, Oreg. Filed Mar. 10, 1897. Serial No. 626,712. (No model.)



Claim.—1. A violin comprising the body, neck, finger-board the rearwardly-projecting portion of the latter having its under side grooved or recessed, in connection with the usual sound-holes 3 and 4, and an additional sound-hole located under the rearwardly-projecting end of the finger-board, substantially as shown and described.

2. A violin comprising in part the body and neck, strengthened by a block the neck having a finger-board the rearwardly-projecting end of which is recessed on its under side, in connection with the usual sound-holes at the center of the body, and an additional sound-hole at the forward end of said body under the rearwardly-projecting portion of the neck, the block at the last-mentioned sound-hole being recessed in its upper side, substantially as shown and described.

590,027. BOTTLE. LOVELL ST. CLAIR TRAVIS, Kiona, Wash. Filed May 29, 1896. Serial No. 593,587. (No model.)



Claim.—As a new article of manufacture, a bottle consisting of a bottom, side and top portions, the upper part thereof forming a neck thicker at its lower end and gradually tapering at its upper portion, said neck having a lug or projection near its lower end formed integral therewith and provided with straight sides and bottom and rounded at its top for the purpose set forth, and a cap having a packing-disk in the upper portion thereof, and in its lower por

tion being provided with a curved groove F, leading into the straight groove G, for the purpose set forth.

590,028. RAIL-JOINT. JAMES WAYLAND, Newark, N. J. Filed May 20, 1897. Serial No. 638,669. (No model.)



Claim.—1. A bed-plate for a rail-joint provided with upturned integral webs at the sides, one of said webs having a double wall upset from the body of the plate and surrounded by the floor of the plate at one side and both ends, for the purpose described.

2. A bed-plate for a rail-joint provided with a strengthening side rib integral with the body of the plate formed of an arched web having double walls upset from the body of the plate and surrounded by the floor of the plate at one side and both ends.

3. A bed-plate for a rail-joint provided at one end with an arched web to form a support for the uninsulated rail end, said web being integral with the floor of the plate and surrounded by the same on all sides of its periphery.

4. A bed-plate for a rail-joint provided at one end with a plurality of arched webs to form a support for the uninsulated rail end, said webs being integral with the floor of the plate and surrounded by the same on all sides of their peripheries.

5. A bed-plate for a rail-joint provided at one end with a plurality of arched webs to form a support for the uninsulated rail end, said webs having between them a body of metal lying in the same plane as the floor of the plate.

6. A bed-plate for a rail-joint provided with upturned integral webs at its sides to lock the rail ends against lateral motion, and having at one end an arched web to support the uninsulated rail end, said web being integral with the floor of the plate and surrounded by the same on all sides of its periphery.

7. A rail-joint comprising coupling-blocks connecting the rail ends and a bed-plate bolted thereto spanning two cross-ties and having integral upturned side webs, one of which has double walls.

8. A rail-joint comprising coupling-blocks connecting the rail ends, and a bed-plate bolted thereto spanning two cross-ties, and having integral upturned side webs and an arched web at one end rising above the floor of the plate to form a seat for one rail end, and a shim of insulating material completely surrounding said arched web and supporting the insulated rail end.

9. A rail-joint comprising a bed-plate having a side strengthening-rib, a shim whose top surface is flush with the top of the rib, and a removable coupling-block bearing on the shim and rib.

590,029. SHEET-METAL CAN. FREDERICK WESTERBECK, St. Louis, Mo. Filed Dec. 26, 1896. Serial No. 617,015. (No model.)



Claim.—1. A sheet-metal can comprising a body, a cover, and a band adapted to be turned over the cover and which is beaded to the body so as to be held from vertical movement thereon without being soldered thereto; said band having its ends soldered together, and one end of which is provided with a tearing-tongue for disengaging said ends and thereby releasing the cover; substantially as set forth.

2. A sheet-metal can comprising a body formed with an outwardly-projecting annular bead, with a plain cylindrical portion surmounting the bead, with an annular groove located above the cylindrical portion and with a plain cylindrical portion surmounting the groove having an inturned curl, a cover seating on the inturned curl, and a cover-retaining band formed with a plain cylindrical portion having its lower edge seating on the bead of the body, with an annular bead fitting in the groove of the body and with a plain cylindrical portion located above its bead and having its upper edge extending above the body and adapted to be rolled over the edge of the cover; the cover-retaining band being soldered at its ends only; substantially as described.

3. A sheet-metal can comprising a body formed with an outwardly-projecting annular bead, with a plain cylindrical portion surmounting the bead, with an inwardly-projecting annular groove located above the cylindrical portion and with a plain cylindrical portion surmounting the groove having an inturned curl, a cover seating on the inturned curl, and a cover-retaining band formed with a plain cylindrical portion having its lower edge seating on the bead of the body, with an inwardly-projecting annular bead fitting in the groove of the body and with a plain cylindrical portion located above its bead and having its upper edge extending above the body and adapted to be rolled over the edge of the cover; the cover-retaining band being soldered at its ends only; substantially as described.

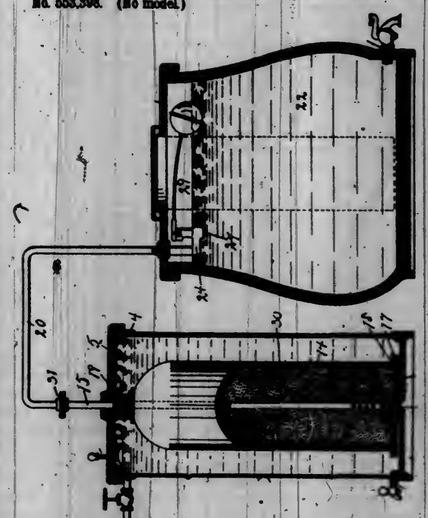
4. A sheet-metal can-cover having its edge curled inward so as to provide a horizontal flange, and a horizontal folded packing-strip fitting over the flange; substantially as described.

590,030. PNEUMATIC TIRE. WILLIAM W. WHITE, Brooklyn, N. Y. Filed Dec. 2, 1896. Serial No. 614,222. (No model.)



Claim.—A pneumatic tire formed in two sections which are united upon a line running vertically through the tire, the interior of said tire being hollow and circular, the exterior being semicircular, the circular portion fitting next to the rim and the flat portion forming the tread of the tire, a flat piece of tough fibrous material placed around in a groove formed in the tread-surface, so that said material lies flush with the outside portion of the tread, substantially, as and for the purpose described.

590,031. FILTER. MORTIMER H. ALLEN, Toledo, Ohio, assignor of one-half to Henry C. Ellis, same place. Filed June 20, 1895. Serial No. 553,398. (No model.)



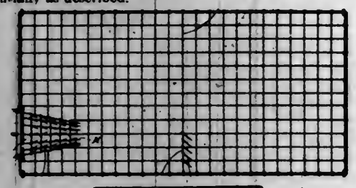
Claim.—1. In a filter, an outer casing having its bottom provided with an upward-projecting bearing, a cap screwed onto the upper portion of the casing and having its under surface provided with a conical recess, a plate on the said bearing, a filtering-tube supported on the plate, and flexible seals located respectively at the upper portion of the tube and engaging the conical recess, and between the tube and plate.

2. The water jacket, or casing, provided with a screw-cap, combined with a filtering-tube, open at its bottom and provided with an opening through its top, a plate for closing the end of the tube, the water-pipe extending up through the tube, and a compressible packing placed between the top of the tube and the screw-cap, whereby when the cap is screwed into place the tube is held in position by the packing, substantially as shown.

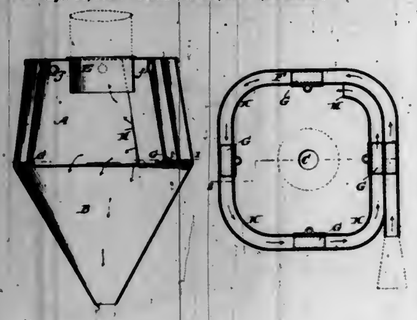
3. The water jacket or casing, provided with a raised projection upon its bottom, and a screw-cap for its top, a metallic plate provided with a recess in its bottom to receive the projection upon the bottom of the casing, and a socket upon its top, the water-pipe having the said plate screwed upon its lower end, combined with the filtering-tube, closed at its lower end by said metallic plate, and up through which tube the water-pipe extends, and a compressible packing placed between the top of the filtering-tube and the screw-cap, whereby the filtering-tube is centered and secured in position by the cap and packing, substantially as described.

590,032. ANIMAL-TRAP. THOMAS E. ANDERSON, Memphis, Tenn. Filed June 15, 1897. Serial No. 640,827. (No model.)

Claim.—In a device of the character described, a trap consisting of a wire frame, interwoven wires forming the walls of the trap, one end of said trap having a circular opening therethrough, a funnel-shaped entrance consisting of a series of wire rings each smaller than the one preceding, longitudinal wires secured to the rings, and spikes secured around each of said rings and projecting inwardly and rearwardly a stay-ring provided around the larger end of the funnel, and latch-hooks secured around the circular opening, said funnel being adapted to be fitted within said opening so that the stay-ring will be engaged by the latch-hooks in a manner to be readily removable, substantially as described.



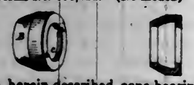
590,033. DUST-COLLECTOR. JOHN CHARLTON, Philadelphia, Pa. Filed Apr. 10, 1897. Serial No. 631,500. (No model.)



Claim.—1. In a dust-collector, the combination of a large upper chamber having an air-escape aperture at its top and terminating at the bottom in a funnel to lead off the materials collected, and provided with a spiral flue arranged about the walls of the upper chamber and into the outer end of which the air and materials are delivered and from the inner end of which they are delivered into the interior of the chamber, the said spiral flue extending completely around the upper chamber, and being composed of straight portions alternately arranged intermediate of curved portions whereby the friction to the passage of the materials through the flue is reduced to a minimum while maintaining the centrifugal action for separation, and a series of removable doors arranged at intervals in the lower part of the spiral flue for discharging the materials deposited therein directly into the funnel-shaped bottom.

2. In a dust-collector, the combination of the upper chamber having an aperture at its top and terminating at the bottom in a funnel to lead off the materials collected and provided with a spiral flue arranged about the walls of the upper chamber and into the outer end of which the air and materials are fed under pressure and from the inner end of which they are delivered into the interior of the upper chamber, the said spiral flue extending completely around the upper chamber and being composed of straight portions alternately arranged with intermediate curved portions whereby the friction to the passage of the materials through the flue is reduced to a minimum while maintaining the centrifugal action for separation, and a series of apertures opening from the upper part of the said spiral flue into the interior of the upper chamber.

590,034. CONE-BEARING. ROBERT G. CORNFORTH, Seymour, Conn., assignor of one-half to Frank H. Beecher, same place. Filed May 29, 1897. Serial No. 638,725. (No model.)



Claim.—1. The herein-described cone-bearing for cycles, made from sheet metal and comprising an annular body and a conical end tapering inward from one edge of said body, and a flange extending inward at right angles from the opposite edge of said body, substantially as described.

2. The herein-described cone-bearing for cycles, formed from sheet metal, comprising an annular body and a conical end, said body formed at its inner end with a flange turned inward at right angles thereto, and a lip projecting at right angles to said flange and parallel with said body, the internal surface of said lip corresponding in diameter to the diameter of the opening through the conical end, substantially as described.

590,035. HAND-SCOOP WEIGHING-SCALE. WILLIAM H. DAVIDSON, Boston, Mass. Filed May 22, 1897. Serial No. 637,753. (No model.)



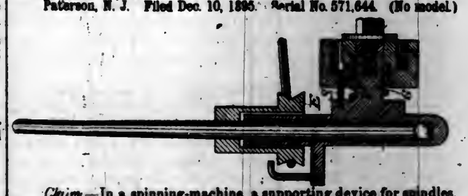
Claim.—A hand weighing-scoop consisting of a scoop rigidly fixed to a rod, the rod, weight-indicating marks on the rod, a notch or recess a' in the rod, a handle, suitable weight-shaft bearings in the handle, and a pocket to receive the weighing-shaft and its diameter greater than the weighing-shaft, a spring located within the handle, and contacting the weighing-shaft and an adjustable set-screw, the set-screw, in threaded engagement with the lower end of the handle, a spring-controlled locking device in efficient engagement with the interior surfaces of the handle and the weighing-shaft notch a', whereby by pressing the manipulating portion of the locking device the weighing-shaft is released, and locked, when the locking device is released, as and for the purpose described.

590,036. PROCESS OF MANUFACTURING LEATHER. CARL DREHER, Niederingelheim, Germany, assignor to C. H. Boehringer Sohn, same place. Filed Oct. 21, 1896. Serial No. 609,562. (No specimens.) Patented in Germany Apr. 9, 1897, No. 91,822.

Claim.—1. The herein-described improvement in the process of tanning skins, which consists in treating said skins in a bath containing a chrome compound, a mineral acid and lactic acid or salts thereof, substantially as and for the purpose herein described.

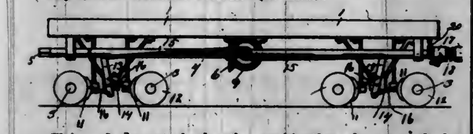
2. The herein-described improvement in the art of crome-tanning skins, which consists in treating said skins with chrome compounds and with lactic acid or its salts, substantially as and for the purpose described.

590,037. SPINDLE AND BOLSTER. WILLIAM H. DUNKERLEY, Paterson, N. J. Filed Dec. 10, 1895. Serial No. 571,644. (No model.)



Claim.—In a spinning-machine, a supporting device for spindles, consisting of a bolster having an angle-arm near the bottom thereof, integral therewith and extending at right angles therefrom in combination with a spindle-rail of a spinning-machine provided with an opening extending from one side to the other in which opening, said angle-arm is secured, a spiral spring coiled around said angle-arm between the bolster and the spindle-rail, the tension of which is adapted to compensate for the expansion or contraction of the band or belt which drives the spindle; a pin secured to the face of the bolster and projecting into a recess in the side of the frame-rail; said angle-arm being provided with a threaded hole in its end and a screw-bolt to screw into said threaded hole to secure the angle-arm in the spindle-rail substantially as shown and described and for the purposes specified.

590,038. CAR-BRAKE. WILLIAM R. RESICK, Sneden, Ohio. Filed July 6, 1897. Serial No. 643,646. (No model.)



Claim.—1. In a car-brake, the combination of a car, a shaft 4, provided with angular ends 5, coupling-heads 17, provided with the angular apertures 19, the spring 18, connected to the coupling-heads 17, transverse shafts 7, and 8, having wound thereon cables, levers 13, pivotally attached, the rods 16, connected to the levers and means for rotating the shaft-sections 4, substantially as and for the purpose specified.

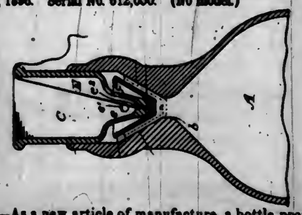
2. The combination of a car, the longitudinal shaft 4, cross or transverse shafts 7, and 8, cords or cables wound around the transverse shafts and connected to the pivoted levers 13, the pivoted levers 13, and means for operating the brake-bars and brake-shoes, coupling-heads 17, removably attached to the shaft-sections 4, a spring connected to two of the coupling-heads, and means for rotating the shaft-sections, substantially as and for the purpose specified.

590,039. MOLDING DEVICE. EDWIN FARIAN, St. Paul, Minn. Filed Jan. 7, 1897. Serial No. 618,220. (No model.)



Claim.—For the manufacture of cast-metal chains, means for forming cores in the several links to be connected into a chain, consisting of a suitable molding-table adapted to support a link in substantially horizontal position thereon, the pair of oppositely-disposed, similar, circular patterns working in a vertical plane through the top of said table, the dimensions and curvatures of said patterns corresponding to those of the ends of the links to be formed, and being so disposed as to project their adjacent ends upward through the link laid upon said table, the depending arms upon said patterns, the spring normally holding said arms drawn together so as to project the adjacent ends of the patterns upward, and the pivoted levers engaging said arms and adapted to withdraw said patterns from said link.

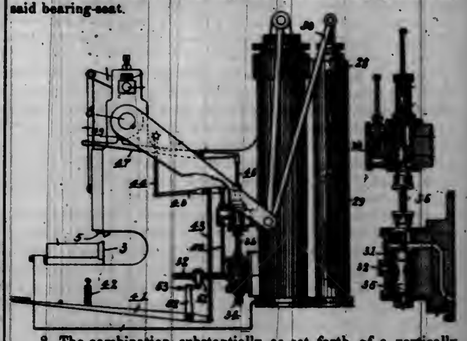
590,040. BOTTLE. HERBERT FLANDERS, Manchester, N. H. Filed Nov. 14, 1896. Serial No. 612,060. (No model.)



Claim.—As a new article of manufacture, a bottle provided with an interior contracted portion the top of which is conical, a conical shell or valve fitting the conical portion of said neck provided in its bottom with a centrally-located eye, a bushing rigidly secured within said neck above said valve having a hollow projection at its bottom provided with apertures in its side and a small perforation in its bottom, and a wire passing through the latter and attached to the eye of said valve, substantially for the purpose set forth.

590,041. SHEARING-MACHINE. GEORGE GUILD and CHARLES A. BERTSCH, Cambridge City, Ind., assignors to Bertsch & Co., same place. Filed Nov. 14, 1896. Serial No. 612,163. (No model.)

Claim.—1. The combination, substantially as set forth, of a link-arm having a tapering eye and having a bearing-surface at the exterior of the hub of the eye, a link straddling said arm at said hub and having a bearing-seat engaging said bearing-surface on the hub of the eye and having tapering eyes eccentric with the tapering eye in said link-arm, and a tapering pin engaging the eyes in the link and link-arm and holding said bearing-surface in close engagement with said bearing-seat.



2. The combination, substantially as set forth, of a vertically-moving gate, a vertically-moving holddown, an arm connected with said holddown, a shaft forming the fulcrum of said arm, vertically-sliding boxes for said shaft, a yielding load disposed over said boxes and tending to depress said fulcrum-shaft, and mechanism for actuating the gate and rocking said fulcrum-shaft.

3. The combination, substantially as set forth, of a vertically-sliding gate, a vertically-sliding holddown in front of said gate and having rounded extremities, and guides for said holddown engaging said rounded extremities, whereby one end of the holddown may move while the other end acts as a rocker in its guide.

4. In a shearing-machine, the combination, substantially as set forth, of a pair of gage-screws disposed at the rear of the shear-line, a nut on each of said screws, a gage secured at its ends to said nuts, an additional nut on each of said screws free from the first-mentioned nuts, and springs between the pair of nuts on each screw, whereby said gage is held rearwardly as far as permitted by the lost motion in the first-mentioned nuts.

5. In a shearing-machine, the combination, substantially as set forth, of a vertically-sliding gate, a main shaft connected therewith for actuating the gate, a vertically-sliding holddown, a shaft connected with the holddown, a holddown-cam clamped frictionally to the main shaft, and an arm on the holddown-shaft and engaging said cam, whereby said cam may slip on the main shaft in case of excessive resistance by the holddown.

6. The combination, substantially as set forth, of a housing, a gate sliding vertically therein, a double power-arm pivoted to and straddling said housing and connected with said gate at one extremity of said pivoted arm, a vertically-disposed cylinder at the rear of said housing and straddled by said double power-arm, and links extending upwardly from the opposite free ends of said power-arms and connected above said power-cylinder with the piston thereof.

7. The combination, substantially as set forth, of a housing, a gate sliding vertically therein, a rearwardly-extending power-arm connected with said gate, a power-cylinder and dash-pot cylinder disposed vertically at the rear of said housing, and links extending upwardly from the rear end of said power-arm and connected above said cylinders with the pistons thereof.

8. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected therewith, a valve controlling the flow of pressure medium to and from said cylinder, an auxiliary cylinder having its piston connected with said valve, an auxiliary valve, a treadle, a lever connected with the auxiliary valve, a link connecting said treadle with said lever, and a link connecting said power-arm with said lever, whereby the first-mentioned link may shift the auxiliary valve and then serve as a fulcrum-support while the second-mentioned link shifts the auxiliary valve in the opposite direction.

9. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected therewith, a valve controlling the flow of pressure medium to and from said cylinder, an auxiliary cylinder having its piston connected with said valve, an auxiliary valve, a treadle, a lever connected with the auxiliary valve, a link extending from said treadle to an adjustable pivot-point on said lever, and a link connecting said power-arm with said lever.

10. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected therewith, a valve for controlling the flow of pressure medium

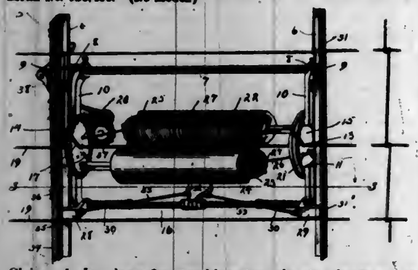
to and from said cylinder, a treadle, a link connected with the treadle, a valve-operating lever pivoted to said link, and a link connecting said lever with said power-arm.

11. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected therewith, a valve to control the flow of pressure medium to and from said cylinder, an auxiliary cylinder having its piston connected with said valve, an auxiliary valve, a treadle, valve-gear connecting said treadle with said auxiliary valve, and a hand-lever connected with said controlling-valve.

12. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected thereto, a valve for controlling the flow of pressure medium to and from said cylinder, an auxiliary cylinder, an auxiliary valve, a treadle, valve-gear connecting said treadle with said auxiliary valve, a cam connected with said power-arm, and connections from said cam to said controlling-valve whereby the exhaust from said power-cylinder is closed by the movement of the power-arm.

13. In a shearing-machine, the combination, substantially as set forth, of a pivoted power-arm, a power-cylinder having its piston connected therewith, a valve for controlling the flow of pressure medium to and from said power-cylinder, an auxiliary cylinder having its piston connected with said valve, springs to resist the terminal movement of said valve in either direction, an auxiliary valve, a treadle, and valve-gear connecting said treadle with said auxiliary valve.

590,042. DEVICE FOR ATTACHING STAY-WIRES TO WIRE FENCES. WILLIAM J. JACOBS, Bargersville, Ind., assignor to James M. Jacobs and Bennett Jacobs, Indianapolis, Ind. Filed Mar. 20, 1897. Serial No. 628,408. (No model.)



Claim.—1. In a loom for attaching stay-wires to wire fences, the combination with means for twisting the stay-wire about the fence-wire, of a cup carried by said twisting means and adapted to receive a coil of stay-wire, the arrangement being such that the stay-wire may be drawn from the interior of the coil, substantially as described.

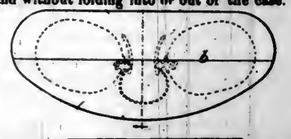
2. In a loom for attaching stay-wires to wire fences, the combination with the twisting-disks 14 and 15, provided with means for engaging the fence-wires, of a pair of cups 22 and 23, each adapted to receive a coil of wire, mounted between and secured to said disks, the arrangement being such that the wire may be withdrawn from the center of the coil, and means for rotating said disks and cups, substantially as described.

3. In a loom for attaching stay-wires to wire fences, the combination with the supporting-frame provided with suitable ways, of a bar mounted between said ways and provided with means for engaging said ways, a pair of side bars pivoted upon said bar, a pair of twisting-disks mounted so as to rotate upon said side bars and each provided with means for engaging the fence-wires, a pair of cups 22 and 23 mounted between and secured to said twisting-disks and each adapted to receive a coil of wire, and means for rotating said disks and cups about the fence-wire, substantially as described.

4. In a loom for attaching stay-wires to wire fences, the combination with the supporting-frame provided with suitable ways 6, of a bar mounted between said ways and provided with means for engaging said ways, a pair of side bars pivoted at their upper ends upon said bar and connected at their lower ends, a pair of twisting-disks mounted so as to rotate between the side bars and each provided with means for engaging the fence-wires, a pair of cups 22 and 23 mounted between and secured to said twisting-disks and each adapted to receive a coil of wire, means for rotating said disks and cups, and a catch carried by the pivoted portion of the loom and adapted to engage the supporting-frame, substantially as described.

590,043. EYEGLASS-CASE. JOSEPH Z. LE PAGE, New York, N. Y., assignor, by mesne assignments, to the American Optical Company, Southbridge, Mass. Filed Feb. 12, 1897. Serial No. 623,139. (No model.)

Claim.—An elongated eyeglass-case comprising a dished side or body, and a longitudinally-divided flat side, one section of the flat side being affixed to the dished side and forming a thumb-rest, while the other section constitutes a movable lid which is located beside and is hinged to the said thumb-rest by the flexible covering of the case, the said lid when opened permitting a pair of eyeglasses to be moved edgewise and without folding into or out of the case.

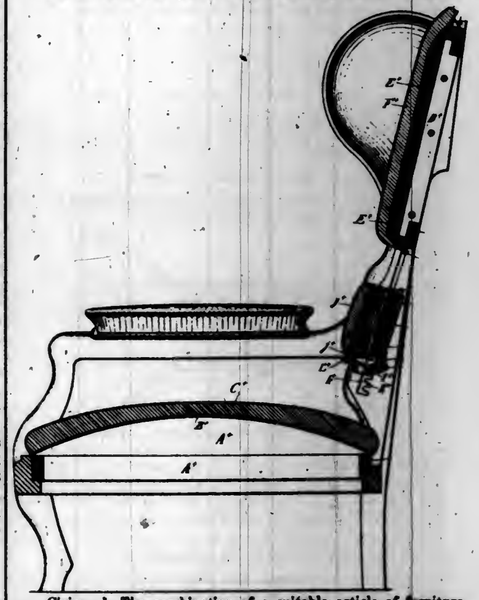


590,044. BICYCLE-LAMP. CHARLES MASCHMEYER, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed May 4, 1896. Serial No. 590,091. (No model.)



Claim.—The combination with a lamp-body, of a stem rigidly secured thereto, extending rearwardly therefrom in line with the horizontal axis thereof, and terminating at its rear end in a ball; a clip adapted to be applied to a bicycle-frame; a forwardly-opening, internally-threaded socket, rigidly connected with the clip, extending horizontally forward therefrom, and adapted to receive the said ball; and a clamp consisting of a ring loosely mounted upon the said stem and retained thereon by the said ball, an externally-threaded hub extending rearward from the said ring with which it is concentric, adapted to be entered into and received by the said socket and recessed at its end to engage with the ball which it forces into the bottom of the socket, and a laterally-extending handle connected with the ring for operating it, substantially as described.

590,045. ADJUSTABLE BACK. ARNAUD MAUCHAIN, Geneva, Switzerland. Filed Jan. 28, 1897. Serial No. 621,000. (No model.) Patented in France Apr. 8, 1895, No. 246,471; in Switzerland Sept. 6, 1895, No. 10,918; in Germany Sept. 11, 1895, No. 88,164; in Belgium Oct. 5, 1895, No. 117,739; in Italy Oct. 8, 1895, No. 39,981/223; in England Nov. 5, 1895, No. 20,919, and in Austria Jan. 28, 1896. No 44/356.

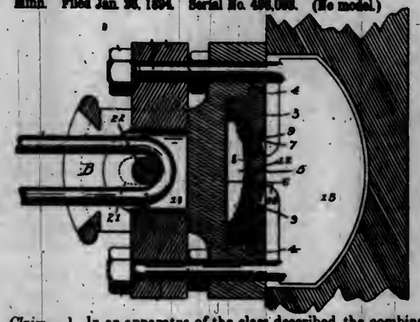


Claim.—1. The combination of a suitable article of furniture having a seat portion, with a fixed back provided with suitable springs, and a lumbar-back having springs of greater strength than the springs of the fixed back, substantially as set forth.

2. The combination of a suitable article of furniture provided with racks and a suitable seat portion, with a fixed back provided with suitable springs and a lumbar-back adjustable upon said racks and having springs of greater strength than the springs of the fixed back, substantially as set forth.

3. The combination of fixed racks, and a spring-seat with a fixed back comprising springs placed in the direction of the breadth of the back, and a movable cushion covering the back-springs, an adjustable lumbar-back comprising a rigid portion, flat springs mounted on the rigid portion of such lumbar-back and being stronger than the springs on the fixed back, a movable cushion covering the flat springs, a spring-actuated movable piece hinged to the rigid portion of the lumbar-back, and pins which engage the teeth of said racks, substantially as shown and described.

590,046. DYNAMOMETER. EDWIN H. MCHENRY, St. Paul, Minn. Filed Jan. 26, 1894. Serial No. 498,068. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the receptacle having an opening in its wall, the flexible diaphragm closing said opening, and the pressure-applying means bearing upon said diaphragm with unvarying pressure area within the limits of the predetermined maximum load.

2. In an apparatus of the class described, the combination of the fluid-pressure chamber having an opening through its side wall, the impervious sheet-metal lining for said chamber closing said opening, and constituting a flexible diaphragm, and the means for applying pressure to said diaphragm with unvarying pressure area within the limits of its maximum load.

3. In a fluid-pressure dynamometer, the combination with the flexible wall or diaphragm bearing upon the confined fluid, of means for applying pressure to said wall or diaphragm with unvarying area of bearing-contact thereon within the limit of maximum load for said apparatus.

4. In an apparatus of the class described, in combination, the chamber having an opening through its wall, the diaphragm covering said opening, and the pressure-plate loosely fitted in said opening and conforming in shape thereto, seated upon a diaphragm, said diaphragm having an exterior corrugation substantially semicircular in cross-section, and fitting into the space between the plate and wall of the opening.

5. In an apparatus of the class described, the combination of the fluid-pressure chamber having a circular opening, the plane-surfaced pressure-plate concentrically placed in said opening, the flexible diaphragm interposed between said chamber and said pressure-plate, and serving as a seat for said plate, the annular indentation or corrugation in said diaphragm closely fitting into the space between the wall of the opening and pressure-plate, and the pressure-indicating mechanism.

6. In an apparatus of the class described, the combination with the fluid-pressure chamber having a circular opening through its wall, of the impervious flexible sheet metal lining for said chamber closing said opening as a diaphragm, and the plane-surfaced pressure-plate fitting loosely within said opening seated upon said diaphragm.

7. In a fluid-pressure dynamometer, the combination with the fluid-chamber having an opening through its wall, of the flexible diaphragm closing said opening, the pressure-plate arranged in said opening with an intermediate space and seated upon said diaphragm, the diaphragm being formed with an outward bend substantially semicircular in cross-section filling said intermediate space, and said pressure-plate being plane-surfaced and with a sharp circumferential edge.

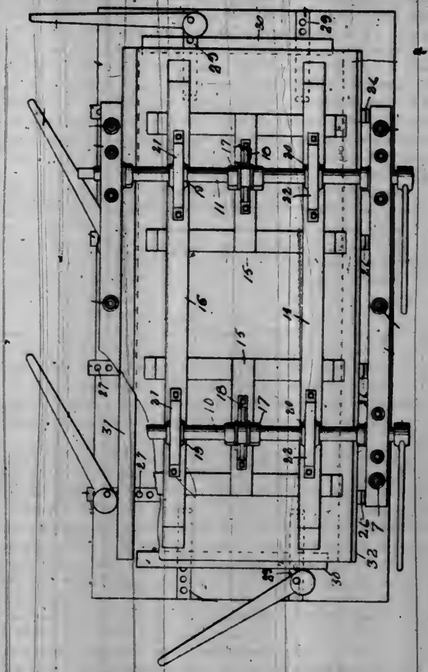
8. In an apparatus of the class described, the combination with the fluid-pressure chamber, having a circular opening, of the diaphragm bridging said opening, and the plane-surfaced pressure-plate arranged in said opening and seated upon the diaphragm, the diaphragm being formed with an annular outward bend or corrugation fitting in the space between the pressure-plate and wall of the opening.

9. In an apparatus of the class described, in combination with the fluid-pressure chamber having a circular opening, and its pressure-plate, the diaphragm closing the opening in the fluid-pressure chamber and serving as a seat for the pressure-plate and having an outward curve or bend intermediate of the pressure-plate and the wall of the opening.

10. In combination with a railway draw-bar, a coupling-pin, the draw-head having a chamber therein provided with a circular opening, the connected tube and indicator, the impervious sheet-metal lining for said chamber constituting a diaphragm to close said opening, the circular plane-surfaced pressure-plate arranged loosely in said opening and bearing upon said lining with unvarying area of contact within the limits of the predetermined maximum load, and the means for connecting the pressure-plate to the coupling-pin.

11. In combination with a draw-head having a pin-hole therethrough, and the link and pin, of the cross-bar passing through said draw-head and having a pin-hole therethrough, with its front wall slightly in the rear of the front wall in the pin-hole of the draw-head, the yoke connected to said cross-bar, the block interposed between said yoke and cross-bar having fluid-chamber therein with a circular opening through its rear wall, the pressure-indicator connected with said chamber, the impervious, flexible lining for said chamber, closing said opening, and the pressure-plate carried by said yoke and bearing upon said lining with unvarying contact area.

590,047. DOOR-CLAMP. CHARLES E. OVENSHIRE, Minneapolis, Minn. Filed July 20, 1896. Serial No. 599,906. (No model.)

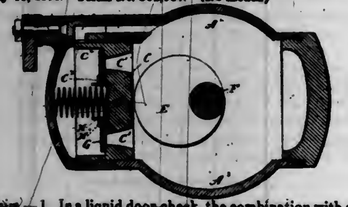


Claim.—1. The combination, in a door-clamp, with the base, of the bars arranged to slide in grooves upon the top thereof, and provided at one end with an upwardly-extending lug and at the opposite end with a series of holes, the pressing-bars upon the opposite ends of said sliding bars, and a cam-lever having a pin or lug to enter one of the holes in said sliding bars, and a face to engage the edge of said pressing-bars, substantially as described.

2. The combination, in a door-clamp, with the base, of the clamping mechanism arranged above the same, the transversely-sliding bars arranged upon said base, the pressing-bars upon either end of said sliding bars, the stationary bars provided at either end of said base, the short pressing-bars arranged upon said stationary bars, said stationary bars being provided with a series of holes, and cam-levers having a lug to enter one of said holes, and a face to engage the edge of said pressing-bars whereby the same may be forced into engagement with the overlapping edges of the metal on the ends of the door, substantially as described.

3. In a device of the class described, the combination, with the table or base having a flat upper surface, of the frame, the hangers secured thereto, the shafts mounted in bearings therein, and having projecting ends, means for rotating said shafts, the cams provided thereon, the movable clamping device supported by the shafts to be raised or lowered by the movement of the same, said clamping device being provided with a flat under surface to cover the surface of the door placed upon the base or table, the pressing-bars provided upon said table, and means for forcing the same into engagement with the edges of the door, substantially as described.

590,048. **LIQUID DOOR-CHECK.** ALBERT A. PAGE, East Haven, Conn., assignor to the Sargent & Company, New Haven, Conn. Filed May 18, 1896. Serial No. 591,907. (No model.)



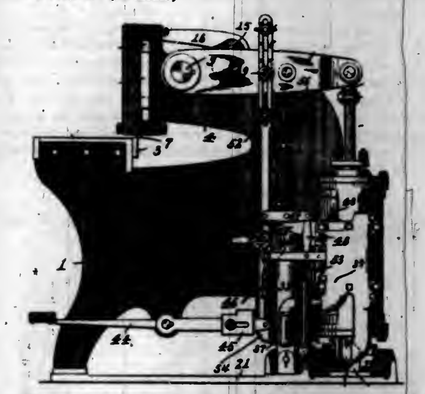
Claim.—1. In a liquid door-check, the combination with a spring-chamber, and a liquid-chamber arranged transversely thereto, of a mainspring located in the spring-chamber, a valved reciprocating plunger located in the outer end of the liquid-chamber which is provided with a by-pass connecting its outer end with its main or body portion to lead around the said plunger, a plunger-spring arranged to move the plunger inward in the opening movement of the door, a spindle connected with the mainspring, and means operated by the spindle, when the door is being opened, for positively moving the plunger outward against the tension of the plunger-spring and against the resistance of the liquid, but disconnected from the plunger which is moved, when the door is being opened, inward solely by the plunger-spring, substantially as described.

2. In a liquid door-check, the combination with a spring-chamber, of a liquid-chamber arranged transversely thereto, a mainspring located in the spring-chamber, a reciprocating plunger located in the outer end of the liquid-chamber, having its inner end formed with a central bearing-face, provided with one or more ports located eccentric to its center, and furnished with a valve which is applied to its outer end; a plunger-spring arranged to move the plunger inward in the opening movement of the door, a spindle connected with the mainspring, and a cam upon the spindle coacting with the said bearing-face of the plunger to positively move the same, when the door is being opened, outward in the liquid-chamber against the tension of the liquid and against the tension of the plunger-spring, but disconnected from the plunger which is moved inward, when the door is being opened, solely by the plunger-spring, substantially as described.

3. In a liquid door-check, the combination with a case having a spring-chamber, a liquid-chamber, and a diaphragm separating the said chambers and formed with a large, centrally-arranged circular bearing-opening; of a mainspring located in the spring-chamber, a spindle connected with the said mainspring, a large disk-shaped bearing located upon the spindle and fitting closely in the said circular bearing-opening of the diaphragm, a large cam also located upon the spindle at a right angle thereto and at a point below the said disk-shaped bearing which resists the lateral thrusts of the cam, a plunger located in the liquid-chamber and having its inner end constructed and arranged to be acted upon by the cam with which it has no positive connection, but which forces it outward, and a plunger-spring coacting with the plunger and constituting the sole means for moving the same inward toward the center of the liquid-chamber when the door is opened, substantially as described.

4. In a liquid door-check, the combination with a case having a spring-chamber, and a liquid-chamber which is arranged transversely to the said spring-chamber; of a mainspring located in the said spring-chamber, a reciprocating plunger located in the said liquid-chamber, constructed with ports which permit the fluid to pass from one side of it to the other, and formed in its outer end with a deep, circular chamber; a plate-valve located in the said chamber for opening and closing the said ports, a spring coacting with the plunger to move it inward in the liquid-chamber, and a spindle connected with the said mainspring and provided with a cam located in a plane at a right angle to its longitudinal axis, and coacting with the inner face of the plunger to move the same outward in the liquid chamber; and a regulating-valve mounted in the case and coacting with a port leading out of the outer end of the liquid-chamber and communicating with the main portion thereof.

590,049. **SHEARING-MACHINE.** FRANK J. ROTH, Cincinnati, Ohio, and CHARLES A. BERTSCH, Cambridge City, Ind.; said Roth assignor to said Bertsch. Filed July 30, 1895. Renewed March 1, 1897. Serial No. 625,690. (No model.)



Claim.—1. In a shearing-machine, the combination, substantially as set forth, of a gate, a rock-shaft having arms engaging the gate, a cam-arm on the opposite side of the rock-shaft, a shaft parallel with the rock-shaft, a holddown-bar, arms on said second shaft and connected with the holddown-bar, and an arm on said second shaft engaging said cam-arm.

2. In a shearing-machine, the combination with a slotted gate, holddown-bar and rock-shaft, of arms and cams carried by the rock-shaft, mechanism connecting the cams and holddown-bar, knuckles upon the ends of the arms and engaging the slots in the gate, blocks within the slots and springs connected at their opposite ends to the arms and gate, designed to compensate for lost motion and to exert a lifting force upon the gate, substantially as specified.

3. In a shearing-machine, the combination with a gate, rock-shaft and connecting mechanism, of an arm upon the rock-shaft and an oscillating power-cylinder and an oscillating cataract-cylinder having their axes parallel and their pistons connected to the arm upon the same side of the rock-shaft.

4. In a shearing-machine the combination with a gate, rock-shaft and connecting mechanism, of an arm upon the rock-shaft, an oscillating power-cylinder and an oscillating cataract-cylinder having their pistons connected to the arm upon the same side of its pivot, the piston of the cataract-cylinder being provided with an upwardly-opening valve

5. In a shearing-machine the combination with a gate and pivoted power-arm of an oscillatory cataract-cylinder having its axis of oscillation parallel with the axis of oscillation of the power-cylinder, and pistons within the cylinders connected to the power-arm upon the same side of its pivot.

6. In a shearing-machine the combination with a gate and power-arm, of a valve-controlled oscillating motor-cylinder, a valve-lever arranged to actuate the valves, adjustable mechanism operatively connecting the power-arm and valve-lever designed to regulate the stroke of the power-piston, a treadle and adjustable mechanism connecting the treadle and valve-lever.

7. In a shearing-machine the combination with a gate and power-arm of a valve-controlled oscillating power cylinder and piston secured to the power-arm, a valve-lever, a slotted rod connected therewith, a stud upon the power-arm and an adjustable stop upon the slotted rod.

8. In a shearing-machine the combination with a gate and power-arm provided with a stud of a valve-controlled oscillating power cylinder and piston connected to the power-arm, a valve-lever, a slotted rod connected to the valve-lever and engaging the stud on the power-arm and adjustable stops upon the slotted rod above and below the stud.

9. In a shearing-machine, the combination with a gate and valve-controlled motor-cylinder provided with a piston designed to actuate the gate, of a valve-lever and an automatically-actuated detent yielding under pressure but presenting sufficient resistance to prevent accidental movement of the valve-lever, substantially as specified.

10. In a shearing-machine the combination with an arm, oscillatory motor-cylinder, piston therein and valve-chest thereon, of an oscillatory cataract-cylinder having its axis of oscillation parallel to the axis of oscillation of the motor-cylinder, and having a piston connected to the power-arm between its pivot and power-piston and a supply pipe having a swivel connection.

590,050. **ELECTROMEDICAL EXERCISING APPARATUS.** WILLIAM A. WEBB, Brooklyn, N. Y. Filed June 2, 1897. Serial No. 639,104. (No model.)



Claim.—1. The combination in electromedical exercising apparatus, of a battery, a case containing a circuit-breaker, circuit connections for adapting said battery and case for suspension at the rear and front respectively of the person's body, and an exercising device in partial circuit with the circuit-breaker to be in closed circuit therewith when grasped, substantially as set forth.

2. The combination in electromedical exercising apparatus, of a case F containing a circuit-breaker and provided with a sliding cover F', a battery, and an exercising device in partial circuit with the circuit-breaker to be in closed circuit therewith when grasped, substantially as set forth.

3. The combination in an electromedical exercising apparatus, of a case F having a body provided with eccentric and tangential recesses f, f', an induction-coil and circuit-breaker located respectively therein, a sliding cover F' for the recess f', a battery, and an exercising device in partial circuit with the circuit-breaker to be in closed circuit therewith when grasped, substantially as herein set forth.

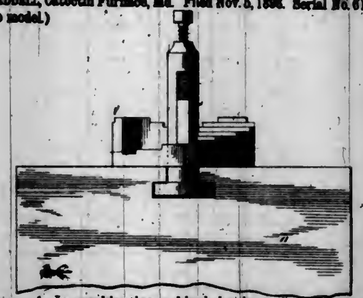
4. In electromedical exercising apparatus, the combination with a suitable battery, of an exercising device comprising a cylindrical handle in partial circuit with the battery to be in closed circuit therewith when grasped, and detachably carrying a weighted body, substantially as herein specified.

5. As an electromedical exercising apparatus, a pair of weights adapted to be held in the hands of the operator, provided with flexible insulated conductors leading to a source of electricity, the weights being hollow to receive additional weights to be stored within the main weights, all arranged for joint operation substantially as herein specified.

6. A dumb-bell or equivalent exercising-weight in six parts B, C C, D D and E, provided with apertures m and provisions P for allowing the introduction and retention of additional weights N at will, as herein specified.

7. In electromedical exercising apparatus, the casings F and J, with flexible connections I adapted to perform the double function of suspending the casings on the person and electrically connecting a battery and magnet, all substantially as herein specified.

590,051. **TOOL-SUPPORT BLOCK FOR LATHES.** CHARLES W. WENDELL, Catoctin Furnace, Md. Filed Nov. 5, 1896. Serial No. 611,165. (No model.)

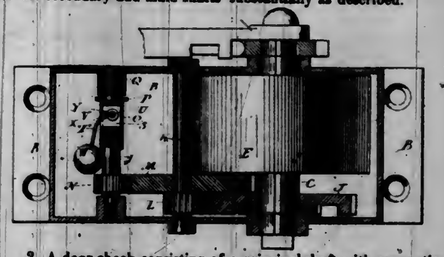


Claim.—1. In combination, a block having a flat lower surface and a central aperture, steps arranged in a spiral from each side of a groove in the upper surface and lugs formed at the outer corner of each step, as and for the purpose described.

2. In combination with a tool-post, a circular block having a hole in the center thereof for the passage of the tool-post, a groove for the accommodation of the tool, and two series of steps starting from said groove and proceeding upward, said steps having lugs formed thereon, substantially as and for the purpose set forth.

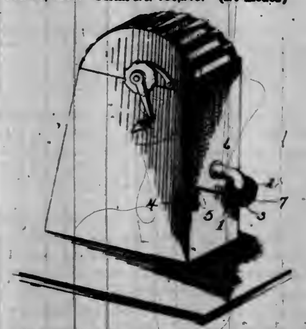
590,052. **DOOR-CHECK.** GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed July 5, 1892. Serial No. 438,943. (No model.)

Claim.—1. In a door-check, the combination with a main shaft connected with the door so as to be actuated in one direction or the other by the opening and closing movement thereof, of a secondary shaft, connection between the said main and secondary shafts whereby the actuation of the former communicates rapid rotary movement to the latter, a retarding device mounted upon the said secondary shaft so as to revolve therewith, and adapted to move outward under the centrifugal force developed by the rapid rotation thereof, and means stationarily located within the range of movement of the said device for coacting therewith to retard its revolution and hence that of the secondary and main shafts substantially as described.



2. A door-check, consisting of a principal shaft with connection therefrom to the door, and so that a corresponding rotative movement is imparted to the said principal shaft by the opening and closing movement of the door, a second shaft in gear connection with said principal shaft, and whereby the rotative movement imparted to the principal shaft will communicate rapid revolution to the said second shaft, a sleeve arranged on said second shaft, arranged to revolve therewith, but adapted for longitudinal movement thereon, an arm hung in said shaft so as to revolve therewith but so as to swing in substantially the plane of the axis of the shaft, and whereby the revolution of the shaft will by centrifugal force impart an outward swinging movement to said arm, the said arm in connection with said sleeve whereby the swinging movement of the arm will communicate to said sleeve a longitudinal movement upon the shaft, a stationary bearing-surface adapted to engage a corresponding surface of the said sleeve as the said sleeve is moved by said centrifugal force, substantially as and for the purpose described.

590,053. **STRAINER FOR PUMPS.** STEPHEN A. BROWNSWORTH, Toledo, Ohio, assignor of one-half to Solomon H. Calisch, same place. Filed Oct. 23, 1896. Serial No. 610,273. (No model.)



Claim.—In a strainer for pumps, a pump having a spout, eyes or staples secured thereto, a resilient wire strand bent to form a loop, one end 3 of the strand extending outwardly therefrom to form a handle, the opposite end 4' of the strand extending outwardly therefrom for some distance and bent downwardly at right angles to engage in the eyes or staples upon the pump, to suspend the strainer beneath the pump-spout, the resiliency of the end 4' allowing the loop to engage the spout when the strainer is in operation and to lower beneath the same when it is desired to revolve and remove the same.

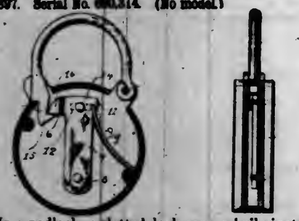
590,054. **NON-REFILLABLE BOTTLE.** JACOB M. DOOLITTLE, New Kensington, Pa. Filed Oct. 30, 1896. Serial No. 610,603. (No model.)

Claim.—In combination with a bottle having an annular recess formed in its neck producing an upper and lower shoulder, a guard composed of a head rounded on its top and having a flat bottom, said bottom being adapted to lie on the lower shoulder of the recess, a crown or covering for the head consisting of a convex plate embedded in the head, spurs formed with the crown or covering around its edge,

said spurs being adapted to engage the upper shoulder when the bottle is tilted, a stem formed with and depending from the head having an enlarged end with a weight inclosed therein, as and for the purpose described.

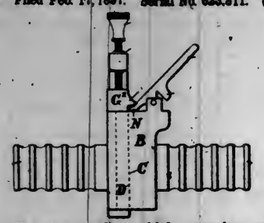


590,055. PADLOCK. HARRY S. DOWLING, Toledo, Ohio. Filed Jan. 23, 1897. Serial No. 620,514. (No model.)



Claim.—In a padlock, a slotted lock-case, a bail pivoted to the lock-case, having a catch, a spring-actuated pivoted bar within the lock-case provided with a projecting end to engage the catch, a movable projection pivoted upon the exterior of the lock-case, a pin secured in the movable projection, passing through the slot in the case, and connected with the pivoted bar within the lock-case.

590,056. COUPLING AND CLOSING PIPE. CARL RIEKE, New York, N. Y. Filed Feb. 17, 1897. Serial No. 623,811. (No model.)



Claim.—1. The pipe-coupling which comprises coupling-heads respectively provided with an inwardly-expanded transverse groove and a transverse tongue, in combination with means for locking the tongue in the groove, and means for withdrawing the tongue from the groove.

2. The pipe-coupling which comprises coupling-heads respectively provided with an inwardly-expanded transverse groove and a transverse tongue, one head having a withdrawing-shoulder, in combination with the instrumentality herein described as a withdrawing-lever pivoted to the other head, and acting on said shoulder in a direction lengthwise of the tongue and groove.

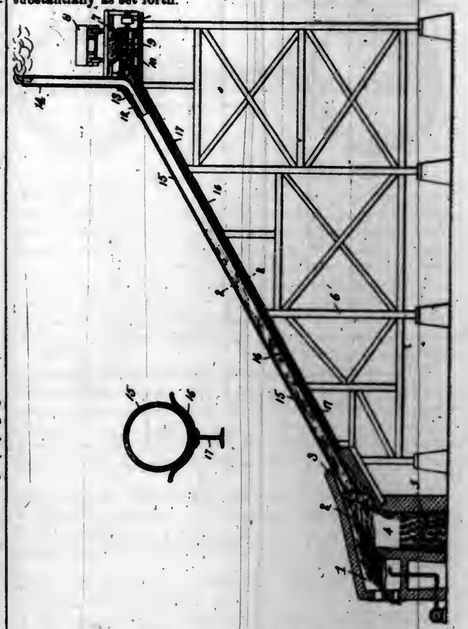
3. The pipe-coupling which comprises coupling-heads respectively provided with an inwardly-expanded, longitudinally-tapering transverse groove, and a longitudinally-tapering transverse tongue, in combination with the instrumentalities herein described as a nut attached to one head and a screw-bolt working in said nut to bear on a shoulder on the other head in a direction lengthwise of the tapering tongue and groove.

4. The pipe-coupling which comprises coupling-heads respectively provided with an inwardly-expanded, longitudinally-tapering transverse groove, and a longitudinally-tapering transverse tongue, in combination with the instrumentalities herein described as a nut connected to one head, and a screw-bolt working in said nut to bear on a locking-shoulder on the other head, and a withdrawing-lever pivoted to one head to bear on a withdrawing-shoulder on the other head.

590,057. METHOD OF CALCINING FRIABLE MATERIALS. WILLIAM H. FARNEY, Chicago, Ill. Filed Aug. 12, 1896. Serial No. 602,519. (No model.)

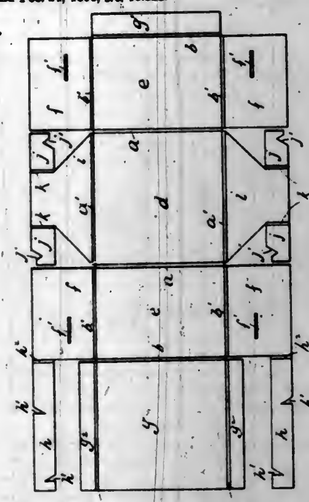
Claim.—1. The herein-described method for the purpose stated which consists in forming a tube open at both ends and projecting such tube into the presence of a current of heat and lengthwise of such current, whereby said tube will be at once treated by the heat and serve as a passage for said current, substantially as set forth.

2. The herein-described method for the purposes stated which consists in continuously forming a tube open at both ends and projecting such tube into the presence of a current of heat and in the opposite direction to such current and as fast as the tube is formed, substantially as set forth.



3. The herein-described method for the purposes stated consisting in continuously forming a tube open at both ends and projecting such tube in a downwardly-inclined direction into the presence of a current of heat and in the opposite direction to such current and as fast as the tube is formed, substantially as set forth.

590,058. FOLDING BOX. REGINALD H. FILMER, London, England. Filed July 13, 1896. Serial No. 599,030. (No model.) Patented in England Feb. 21, 1896, No. 10,825.

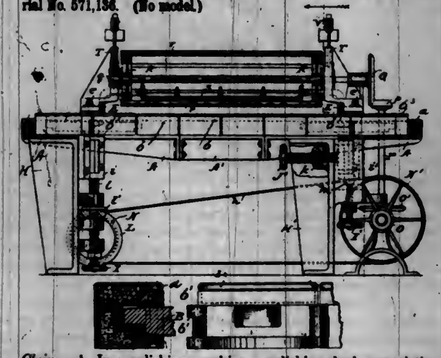


Claim.—1. A folding-box blank consisting of a bottom having projecting ends formed with notched flaps *j*, and sides having perforated extensions adapted to overlap to form the box ends, the perforations in the ends being of such size and shape and located at such position from the base-lines of the ends that the said flaps on the bottom projections may be folded up and passed through the said perforations and interlocked within the box, substantially as and for the purpose specified.

2. A folding-box body made of a single piece of cardboard or like material, scored bent or grooved, on the lines bounding the bottom *d*, sides *e* and end flaps *f* forming end continuations of the sides *e* and having locking-slots *f'* therein, locking-flaps *i* at the ends of the bottom *d*, supplemental creased and notched locking-flaps *j* at the upper ends of the flaps *i* which are passed through the slots *f'*, then bent toward each other and interlocked to secure the ends and thereby hold the body of the box securely together, substantially as herein shown and described.

3. A folding box made of a single piece of cardboard or like material, scored, bent or grooved, on the lines bounding the bottom *d*, sides *e* and end flaps *f* forming end continuations of the sides *e* and having locking-slots *f'* therein, locking-flaps *i* at the ends of the bottom *d*, supplemental locking-flaps *j* at the upper ends of the flaps *i* which are passed through the slots *f'*, then bent toward each other and interlocked to secure the ends, a lid formed of flaps *g g'*, one or both of which is provided with end flaps g^3, and a locking and holding flap *k* on each of two end flaps *f* which are folded over the lid and interlocked to form a combined fastening and holding means, substantially as herein shown and described.

590,059. POLISHING-MACHINE. HERMAN FLETCHER, Louisville, Ky., assignor to Elias R. Fletcher, same place. Filed Dec. 5, 1895. Serial No. 571,136. (No model.)



Claim.—1. In a polishing-machine a polishing device consisting of a series of polishing-sections removably secured on an endless chain and operated by a suitable mechanism for the purpose as described and specified.

2. In a polishing-machine a table and a polishing device consisting of a series of polishing-sections removably secured to an endless chain that is mounted transversely on a suitable table, and the means for driving the same, substantially as described.

3. In a polishing-machine a polishing device consisting of a series of removable bricks which are provided with removable flexible covers, and secured in receptacles or boxes provided with hinged joints or connections, adapted to constitute an endless-chain connection, in combination with sprocket-wheels for operating the same, substantially as described.

4. In a polishing-machine, a polishing device, consisting of a series of polishing-sections removably secured on an endless chain, in combination with sectional tables, for supporting said chains, and means for operating said polishing devices, as described and specified.

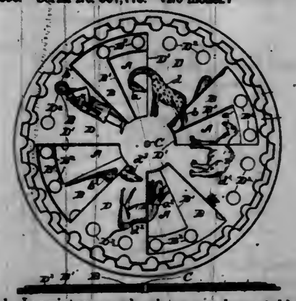
5. In a sectional polishing-machine, a polishing device, consisting of a series of removable polishing-sections, mounted on an endless chain, in combination with sprocket-wheels for actuating said chains, substantially as shown and described.

6 In a polishing-machine, a series of tables, each consisting of sections A, A, and having a detachable section A', thus forming a complete table, and a number of said tables tied together laterally, in combination with an endless polishing device situated on each table, and means for operating said polishing devices as described.

7. In a sectional polishing-machine, a polishing device consisting of a series of polishing-sections removably secured to an endless chain, in combination with a table provided with a guard-rail around each table, and a guide-rail for keeping said endless chain in alinement, and means for operating said chain as described and specified.

8. In a polishing-machine, a table consisting of sections A, A and a detachable section A' in combination with a polishing device consisting of polishing-sections mounted upon an endless sprocket-chain, sprocket-wheels for actuating said polishing device and adjustable bearings for supporting the sprocket-wheels and for taking up the wear in the chain, substantially as shown and described.

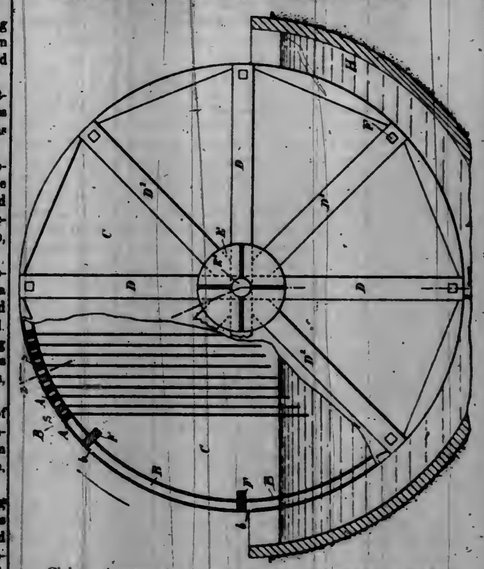
590,060. PICTURE-PUZZLE. HARRY C. FRENCH, Cleveland, Ohio, assignor to George Faulhaber and Oliver L. Menard, same place. Filed Oct. 3, 1896. Serial No. 607,773. (No model.)



Claim.—1. In a picture-puzzle, picture-cards rotatable independently of each other and having their axes coincident, and provided upon their faces with dissected pictures having constituent portions upon the different cards, respectively; and the card or cards that are forward of the most rearward picture-card being provided with a series of radially-arranged apertures and a series of circular apertured near the periphery of the disk, and the arrangement of apertures and the pictures' constituent members being such that a partial picture upon a card rearward of the most forward card, shall, upon turning the card or cards the extent required, appear at the rear of an aperture or apertures and complete a partial picture upon a visible portion of another card, substantially as set forth.

2. In a picture-toy, a plurality of independently rotatable disks or cards having their axes coincident, and being attached to a disk or card placed at their rear; all of said cards facing in the same direction and having pictures formed upon their faces; the central card and the forward card having radial apertures and provided with peripheral notches or finger-slots arranged at suitable intervals circumferentially of the cards; the forward card being diametrically smaller than the central card, and the central card being diametrically smaller than the rear card, substantially as set forth.

590,061. ROTARY DRUM FOR TANNING LEATHER. VALERY GALLIER, Longjumeau, France. Filed Apr. 30, 1896. Serial No. 589,842. (No model.) Patented in France Nov. 11, 1895, No. 251,592.



Claim.—A rotary leather-tanning drum comprising in combination two heads C D D' united by tie-braces F and furnished with exterior journals E' by which the drum is mounted in a tank, circular metal channel-plates B attached to the faces of said heads and divided by said braces F into a number of arc-shaped sections each of which has an opening *b*, bars A from which the skins may be suspended by their edges and the extremities of which enter through

the notches or openings *b* into the channels of the said channel-plates, and means for closing the said notches or openings when the bars are in place, all substantially as herein described.

590,062. TOPOPHONE. DAVID P. HEAP, U. S. ARMY. Filed Oct. 22, 1896. Serial No. 609,664. (No model.)

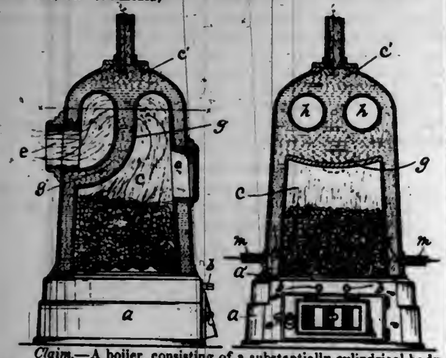


Claim.—1. A sound-locating instrument consisting of two acoustic receivers, whose mouths point in substantially opposite directions, said receivers having their inner ends provided with sound-conducting tubes having means for connecting each with an ear of the observer, substantially as described.

2. A sound-locating instrument consisting of two acoustic receivers, whose mouths point in substantially opposite directions, and whose inner ends are provided with sound-conducting tubes having means for connecting each with an ear of the observer, said receivers being provided with a sound-obstructing guard, substantially as described.

3. A sound-locating instrument consisting of two acoustic receivers whose mouths point in substantially opposite directions, each composed of non-sound-conducting walls, substantially as described.

590,063. HOT-WATER HEATER AND STEAM-GENERATOR. WEXTER C. HIGGINS, Norwich, Conn. Filed Oct. 31, 1896. Serial No. 610,782. (No model.)

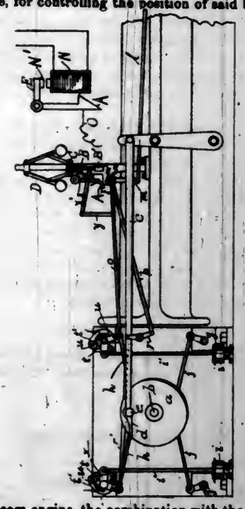


Claim.—A boiler, consisting of a substantially cylindrical body, having a dome and formed with an outer and an inner shell, which shells provide a thin water-chamber surrounding the fire-pot, a smoke-exit leading outward through said shells, a hollow partition or rear wall for the ascending column of water, extending upward and inward within the fire-box from a place in said inner shell contiguous to the lower end of said smoke-exit and forming the crown-sheet of the boiler, the top of said partition being formed to provide an opening for the products of combustion, said opening having a curved wall and being located beneath the outer wall of the dome and between the upper end of the water-chamber through said partition and the upper end of the water-chamber which surrounds the fire-pot, substantially as described, whereby said curved wall guides the descending cooler water directly from the dome to the upper end of the chamber which surrounds the fire-pot and prevents said cooler water from commingling with the ascending hotter water flowing into the dome from the upper end of said hollow partition.

590,064. RELEASING-GEAR FOR ENGINES. BURTON S. HUGHES, Covington, Ky. Filed Jan. 27, 1897. Serial No. 620,860. (No model.)

Claim.—1. In a steam-engine, the combination with the shaft thereof, of an eccentric, which is independent of the eccentric for opening the given exhaust and steam valves, mechanisms for automatically releasing and closing the steam-valves during the stroke of the piston, a curved link *m* adapted to be reciprocated by the said independent eccentric, a block adjustable upon said link, and different rods connecting said block, respectively to said mechanisms.

2. In a steam-engine, the combination with the shaft thereof, of an eccentric which is independent of the eccentric for opening the given exhaust and steam valves, mechanisms for automatically releasing and closing the steam-valves during the strokes of the piston, a curved link *m*, adapted to be reciprocated by the said eccentric, a block adjustable upon said link, different rods connecting said block respectively to said mechanisms, a system of levers connecting said block with the given governor of the steam-engine, and supported during its normal action by a hook *A* under the control of a spring *F*, and a tripping device for the hook, adapted to be pressed upon by the weight of the governor, the said spring being of such strength that the hook is released only when a predetermined portion of the weight of the governor acts on said releasing device.



3. In a steam-engine, the combination with the shaft thereof, of an eccentric which is independent of the eccentric for opening the given exhaust and steam valves, mechanisms for automatically releasing and closing the steam-valves during the stroke of the piston, a curved link *m* adapted to be reciprocated by the said independent eccentric, a block adjustable upon said link, different rods connecting said block respectively to said mechanisms, a governor operated by said engine, and controlling the position of said block, and means for throwing the block to the lowest position on the curved link, only when the governor is "dead."

4. In a steam-engine, the combination with the shaft thereof, of an eccentric which is independent of the eccentric for opening the given exhaust and steam valves, mechanisms for automatically releasing and closing the steam-valves during the strokes of the piston, a curved link *m*, adapted to be reciprocated by the said independent eccentric, a block adjustable upon said link, different rods connecting said block respectively to said mechanisms, a governor operated by said engine, for controlling the position of said block.

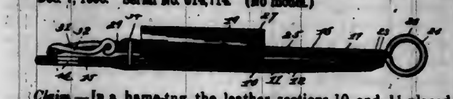
5. The combination with a steam-engine, of a reciprocating link *m*, curved as, and for the purpose described, and provided with a block movable thereon, releasing mechanisms for the steam-valves, and means for connecting said block to said mechanisms.

6. The combination with a steam-engine, of a reciprocating link *m*, curved as, and for the purpose described, and provided with a block movable thereon, releasing mechanisms for the steam-valves, different rods for connecting said block to said mechanisms, said mechanisms each consisting of a hook *t* for opening and releasing the steam-valves, and forming one arm of the bell-crank of which the other arm is *t'*, a lever *v* having a stationary pivot adapted to swing the said bell-crank to and fro, by its movements, and a cam *q* for moving the lever *v*, and controlled by one of the said rods.

7. Releasing-gear for a steam-engine, consisting of the combination with the valve-arm of a hook for opening the valve, a reciprocating cam, and a lever *v*, located between the cam and an extension from said hook.

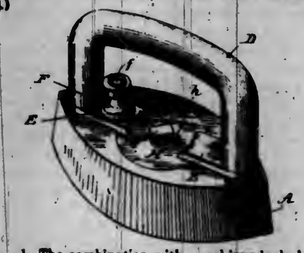
8. The combination with the movable collar C of a steam-engine governor, of a weighted pendulum, B, suspended from said collar, a lever *v'* pivoted to the pendulum, to a fulcrum-block *z*, and to a rod which determines the adjustment of cut-off of the steam-engine, a pivoted hook A, for holding up the fulcrum-block *z*, a projection E from said hook, lying in the path of the collar C, and a spring F pressing against said hook, against the action of the weight of the governor-balls upon the collar C, and of such strength as to cause the hook to retain the block *z*, against the action of the weight of the governor-balls upon the collar C except when the governor is substantially at rest.

590,065. HAME-TUG. WILLIAM D. JACKSON, Benton, Ill. Filed Dec. 7, 1896. Serial No. 614,714. (No model.)



Claim.—In a hame-tug, the leather sections 10 and 11 placed together side by side, the stiffening-strip 12, curved in cross-section, placed between said leather sections, suitable means of connecting said leather sections together whereby said stiffening-strip is entirely inclosed, the outer leather section 16 and the inner leather section 17 attached to said sections 10 and 11, the clip 24 having its shank inserted between said sections 16 and 17, a box-loop placed in position with said shank extending through said loop, the buckle 31, the strap 29 placed through said buckle and doubled upon itself and placed in position with the end of the shank of said clip 24 between the ends of said strap, and a rivet passing through said strap, through said shank and through said leather sections 10 and 11, substantially as specified.

590,066. SAD-IRON. GEORGE W. KENNEDY and JOHN B. MOORE, Philadelphia, Pa. Filed May 13, 1897. Serial No. 636,290. (No model.)



Claim.—1. The combination with a sad-iron body having in its flat upper face a circular recess and a pin mounted centrally in the said recess and having an oblique head at its upper projecting end, of a separable handle having inwardly-extending lugs E carrying a circular base-plate which is offset downwardly below the plane of said lugs and is adapted to seat revolubly within the said recess and have an edge-bearing therein, said plate having therein a slotted opening to receive the said pin, together with a supplemental locking device adapted to secure the parts against rotation when brought to register, substantially as specified.

2. A separable handle and iron, the iron having a circularly-recessed face B, pin *b* with head *b'* and one or more holes *d*, *d'*, and the handle having a disk-like base-plate H with central slot *h* and groove *m* and lugs E, in combination with an additional spring locking-pin *f* adapted to normally lock the handle-plate to the iron when the parts are brought into register; substantially as described.

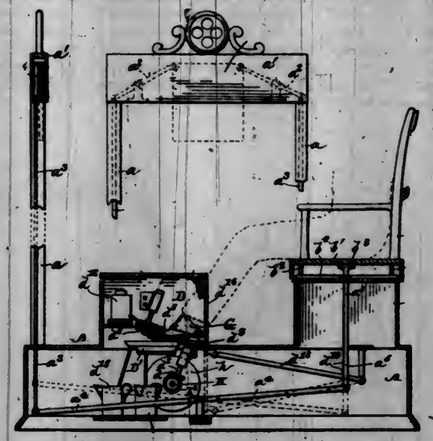
3. The combination with a sad-iron body having its upper face provided with a circular recess sunk therein, and a headed locking-pin mounted centrally in the said recess, of a separable handle having a circular base-plate adapted to seat rotatably within the said recess, said plate having a slotted opening to receive the locking-pin, and also having, upon its under side and in line with the said opening, a groove *m*, together with means for preventing rotation of the parts when brought to register, substantially as specified.

590,067. AUTOMATIC BOOT-POLISHER, PERFUMER, MIRROR, AND GUM-MACHINE. JOHN W. KIRBY, Scranton, Pa. Filed Jan. 29, 1897. Serial No. 621,157. (No model.)

Claim.—1. In a coin-controlled machine, the combination of a gum-delivering mechanism, a chair connected thereto, means for perfuming articles, cleaning and polishing shoes and presenting a mirror controlled by the operation of said chair, substantially as described.

2. In a coin-controlled machine the combination with a gum-delivering mechanism, of a chair comprising a base portion and a seat located above the same, a slide interposed between said seat and base portion, means for controlling the descent of the chair-seat connected with the gum-delivering mechanism and a perfuming, shoe-polishing and mirror-exposing devices connected with and actuated by the chair-seat, substantially as described.

3. In a coin-controlled machine, the combination with a gum-delivering device, of a chair comprising a base portion, a seat separate therefrom, depending legs upon said seat adapted to extend into apertures formed in the top of said base portion, a plate or slide interposed between the said base portion and the chair-seat and provided with apertures adapted to coincide with the apertures in the base portion, means connecting the plate with the gum-delivering mechanism whereby the plate is adapted to coincide with or to close the said openings in the base portion for enabling the seat of the chair to descend, substantially as described.



4. In a coin-controlled machine, the combination with a suitable base, of a shoe-polishing mechanism mounted therein consisting of foot-rests, sprocket-chains carrying the polishing means, means for supplying cleansing and polishing liquids to said chains and means for operating the said chains, a door adapted to close the said polishing mechanism, a chair adapted to operate said door and a gum-delivering mechanism adapted to permit the operation of the chair, substantially as described.

5. In a coin-controlled machine, the combination with a suitable base, of a shoe cleaning and polishing mechanism mounted therein consisting of sprocket-chains carrying polish-applying means, sprocket-wheels carrying said chains, gearing for rotating said sprocket-wheels, a mainspring for operating said gearing, a governor and means for supplying cleansing and polishing fluids to said chains, a door adapted to control the use of said polish device, a chair for operating said door and a gum-delivering mechanism for controlling the operation of the said chair, substantially as described.

6. In a coin-controlled machine, the combination with a chair mounted upon a suitable casing consisting of a base portion and a separate seat portion above the same, a vessel adapted to hold perfumery mounted in said base portion, a box or similar article mounted at the side of the chair and means interposed between the said base portion and the seat of the chair for ejecting perfumery from said vessel into the box upon the descent of the chair-seat, means for controlling the descent of the chair-seat and a gum-delivering mechanism operating said controlling means, substantially as described.

7. In a coin-controlled machine, the combination with a suitable frame of a mirror mounted thereon, levers for lowering and raising the said mirror, means connected to said mirror and extending into the base of said frame, a chair connected with said means and a gum-delivering mechanism adapted to control the operation of the chair whereby the mirror is adapted to be raised or lowered as desired, substantially as described.

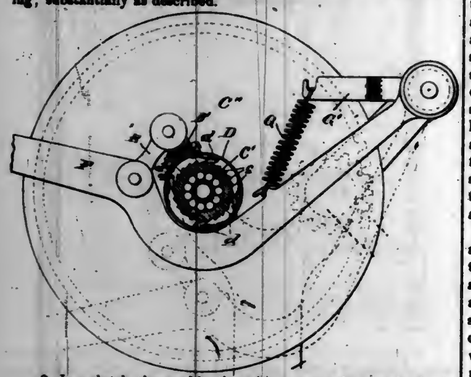
8. In a coin-controlled apparatus, the combination with a chair mounted upon a suitable frame, means for controlling the descent of the seat of the said chair, a gum-delivering mechanism connected with said means consisting of a casing carrying blocks of gum, a slide for ejecting the same, a spring for returning it to its normal position, another slide extending exteriorly of said casing and provided with an operating-handle and means for causing the latter slide to operate the former upon depositing a coin in the machine, substantially as described.

9. In a coin-controlled apparatus, the combination with a suitable casing, of a cleaning and polishing mechanism consisting of foot-rests, endless chains moving around the same, means for actuating said chains, a door or slide adapted to expose said mechanism to use, an alarm upon said door for indicating when the desired polishing has been performed, means upon one of said chains for operating the said alarm and a chair connected to said door and adapted to open or close the same and a gum-delivering mechanism adapted to control the operation of said chair, substantially as described.

590,068. CLUTCH. FRANCIS J. LYONS, St. Louis, Mo. Filed Jan. 15, 1897. Serial No. 619,283. (No model.)

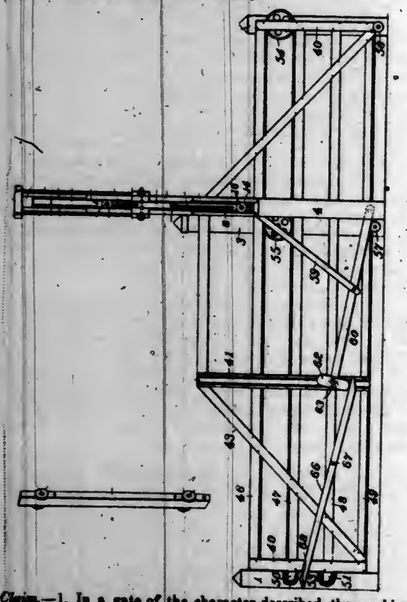
Claim.—1. In a clutch, the combination with a pinion, of a gear-

wheel, adapted to mesh with said pinion, a ratchet-and-pawl mechanism for imparting motion to said gear-wheel, said mechanism comprising ratchet-teeth formed on the hub of said gear-wheel, said hub being formed with bearing-shoulders on each side of the ratchet-teeth and within the line of said teeth, a divided housing mounted upon said bearing-shoulders, spring-pressed pawls in and carried by said housing which are adapted to engage the ratchet-teeth, and a spring-returned operating-lever having a linked connection with said housing; substantially as described.



2. In a clutch, the combination with a supporting-standard, of a shaft to be driven mounted therein, a pinion on said shaft, a power-lever fulcrumed on said standard, an internal gear mounted on said standard between the same and the lever and meshing with said pinion, ratchet-teeth formed on the hub of said internal gear on the side adjacent the lever, a bearing-shoulder on said hub on each side of the ratchet-teeth, an annular housing rotatively mounted on said bearing-shoulders and inclosing said ratchet-teeth, a spring-pressed pawl carried by said housing and adapted to engage said ratchet-teeth, and a link connection between said lever and housing, substantially as described.

590,069. GATE. ALEXANDER MASON, Rockford, Ill. Filed Nov. 16, 1896. Serial No. 612,260. (No model.)



Claim.—1. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, a main post, a slide, means for retaining said slide movably upon said main post, cross-pieces secured to said main post, main levers having fulcrums supported by said cross-pieces, suitable connections between said main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight adjustably fixed upon said arm and a roller or stud projecting from said arm and arranged to engage the guide-groove of said gate portion, substantially as described.

2. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, devices attached to said posts and adapted for preventing lateral swinging of said gate portion, a main post provided with a vertical opening, a slide, means for retaining said slide movably within said opening, cross-pieces secured to said main post, main levers having fulcrums supported by said cross-pieces, suitable connections between said main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight, means for adjustably fixing said weight upon said arm, a roller or stud projecting from said arm and arranged to engage the guide-groove of said gate portion, and devices constructed and arranged to latch said gate portion automatically, substantially as described.

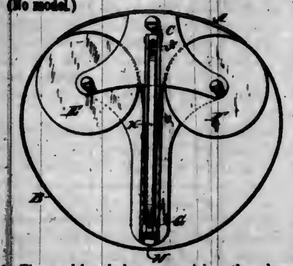
3. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, devices attached to said posts and adapted for preventing lateral swinging of said gate portion, a main post provided with a transverse vertical opening, a weighted slide, means for retaining said slide movably within said opening, cross-pieces secured to said main post, main levers having fulcrums supported by said cross-pieces, guides limiting lateral movement of said main levers, hand-rods pivoted to said main levers, suitable connections between said main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight adjustably fixed upon said arm, a roller or stud projecting from said arm and arranged to engage the guide-groove in said gate portion, and devices constructed and arranged to latch said gate portion automatically, substantially as described.

4. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, grooved rollers rotatively attached to said post and arranged to engage the bottom rail of said gate portion, a main post consisting of a base-post, parallel vertical side pieces and a head or cap, said side pieces having an interval between them and possessing rabbeted edges, a slide, rollers rotatively attached to said slide and adapted to engage the rabbets in said side pieces, cross-pieces secured to said main post, main levers having fulcrums supported by said cross-pieces, suitable connections between main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight adjustably fixed upon said arm, and a roller rotatively secured to said arm and arranged to engage the guide-groove of said gate portion, substantially as described.

5. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, grooved rollers rotatively attached to said post and arranged to engage the bottom rail of said gate portion, a main post consisting of a base-post, parallel vertical side pieces and a head or cap, said side pieces having an interval between them and possessing rabbeted edges, a slide, rollers rotatively attached to said slide and adapted to engage the rabbets in said side pieces, cross-pieces secured to said main post, main levers having fulcrums supported by said cross-pieces, guides limiting lateral movement of said main levers, hand-rods pivoted to said main levers, rope connections between main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight adjustably fixed upon said arm, a roller rotatively secured to said arm and arranged to engage the guide-groove of said gate portion, substantially as described.

6. In a gate of the character described, the combination of a suitably-braced gate portion having a vertical, T shaped guide-groove and horizontal rails, posts, grooved wheels rotatively borne by said posts and adapted to engage said rails and to support said gate portion, grooved rollers rotatively attached to said post and arranged to engage the bottom rail of said gate portion, a main post consisting of a base-post, parallel vertical side pieces and a grooved head or cap, said side pieces having an interval between them and possessing rabbeted edges, a weighted slide, rollers rotatively attached to said slide and adapted to engage the rabbets in said side pieces, cross-pieces secured to said main post, brace-rods engaging said grooved head and the ends of said cross-pieces, main levers having fulcrums supported by said cross-pieces, guides limiting lateral movement of said main levers, hand-rods pivoted to said main levers, rope connections between main levers and slide, a lever or arm pivoted to said main post, a rod pivotally attached to said slide and arm, a weight adjustably fixed upon said arm, a flanged roller rotatively secured to said arm and arranged to engage the guide-groove of said gate portion, and devices constructed and arranged to latch said gate automatically, substantially as described.

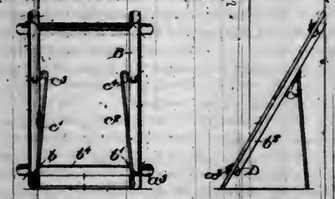
590,070. NECKBAND-RING FOR SHIRT IRONING-BOARDS. JAMES H. MOUNT, Jamesburg, N. J. Filed June 19, 1896. Serial No. 596,126. (No model.)



Claim.—1. The neckband-ring comprising the elements herein described as a rigid base to be fixed to the ironing-board, a pair of pulleys mounted on the base, an elastic ring section A, fixed to the base, an expanding ring section B, whose ends run inside the ends of the section A, and around and between the pulleys, and means for drawing the ends of the section B inward between the pulleys and locking them in such position.

2. The neckband-ring comprising the elements herein described as a base, having a rail, to be fixed to the ironing-board, a pair of pulleys mounted on the base, an elastic ring section A fixed to the base, an expanding ring section B, whose ends run inside the ends of the section A, around and between the pulleys, and inward along said base-rail, and a handled toggle-lever connecting the base with the traveling ends of the expanding ring section B for drawing said ends inward and locking them and contracting the ring.

590,071. PICTURE-FRAME. ERNST OSTENRIEDER, Jersey City, N. J., assignor to William Schimper & Co., Hoboken, N. J. Filed May 13, 1897. Serial No. 636,275. (No model.)



Claim.—1. The combination with a frame-front, of a frame-back secured thereto consisting of a single strip of metal bent to extend along the sides and across the bottom of the frame-front, substantially as set forth.

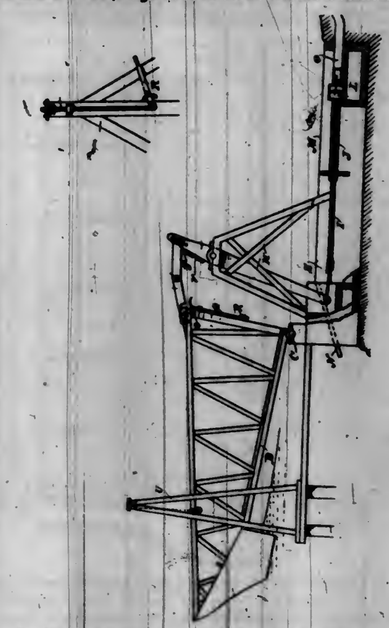
2. The combination with a frame-front, of a frame-back secured thereto consisting of a single strip of metal L shape in cross-section extending along the sides and across the bottom of the frame-front, substantially as set forth.

3. The combination with the frame-front and the supporting-brace, of a frame-back L shape in cross-section extending along the sides of the frame and hinge-straps struck from the rear faces of the said frame-back for receiving pintles on the supporting-brace for hinging it thereto, substantially as set forth.

590,072. WAVE-POWER PUMP. ORRIN W. PARKER, Oakland, Cal. Filed Oct. 8, 1896. Serial No. 608,230. (No model.)

Claim.—1. The combination, of a float, a horizontal frame extending therefrom and having journaled supports for the inner end, a vertical frame extending above the horizontal one and gradually converging and increasing in depth from the float to the inner end, a pump-cylinder with a plunger working therein, a lever fulcrumed between its ends, a jointed adjustable pitman between one end of said lever and the float-frame, said lever having its opposite end connected with the pump-plunger.

2. The combination of a float adapted to rise and fall by the movement of the waves, a horizontal truss-frame extending inwardly therefrom and having the inner end journaled so as to allow the float to rise and fall, vertically-disposed truss-frames having the outer ends connected with the float and main frame, said frames approaching each other and increasing in depth toward the inner end, pumps connected with the source of water supply and discharge, having plungers reciprocating therein, a lever connected with the pump-plungers at the lower end having the upper end connected with the upper part of the float-actuated frame by a jointed pitman, whereby motion is transmitted to the plungers and its action thereon is limited.



3. The combination of a float adapted to be moved by the rise and fall of the waves, a horizontal truss-frame extending therefrom toward the land, journals about which the inner end is turnable when the float rises and falls, truss-frames extending from the float, converging and increasing in height toward the inner end, a pin or trunnion fixed at the top of said frame, a pitman having different points of connection with said pin whereby the length may be regulated, a lever with which the upper end of the pitman connects, the lower end of said lever being connected with a group of pumps whereby the plungers thereof are reciprocated, and a reservoir or source of supply, and a discharge with which said pumps are connected.

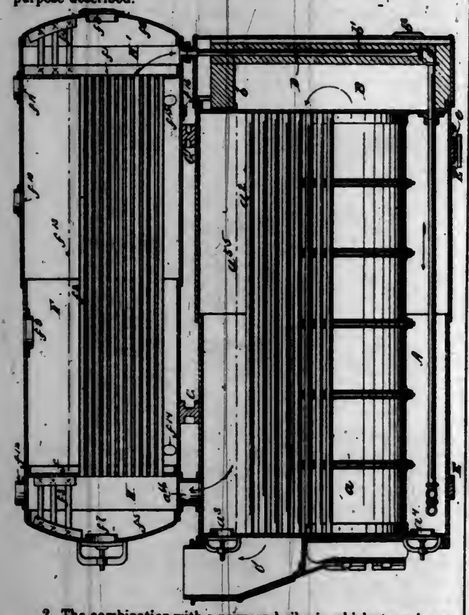
4. The combination of a float adapted to rise and fall by the movement of the waves, a truss-frame extending from the float inwardly toward the shore, horizontally-disposed journals about which the frame and float rise and fall, pumps connected with the source of supply and discharge, plungers reciprocating therein, a lever with the lower end of which the pump-plungers are connected to work in unison, a jointed adjustable pitman having one end connected with the upper end of said lever having the opposite end adapted to engage the pin upon the float-moved lever and a slide and lever-arm whereby the pitman may be raised and shifted to change its connection with the float-frame.

5. The combination of a float adapted to rise and fall by the movement of the waves, a truss-frame extending from the float inwardly toward the shore, horizontally-disposed journals about which the frame and float rise and fall, pumps connected with a source of supply, plungers reciprocating therein, a lever with the lower end of which the pump-plungers are connected, a jointed adjustable pitman connecting the pump-actuating lever with the reciprocating float-actuated frame, a lug upon the lever adapted to contact with the pitman and break the joint at the end of the stroke, and a slide carrying the lug and the pitman connection, and adjustable to or from the lever-fulcrum.

590,073. STEAM-BOILER. CARLTON C. PECK, Rochester, N. Y. Filed Aug. 28, 1896. Serial No. 603,951. (No model.)

Claim.—1. The combination with a primary boiler in which steam is generated by direct contact of water with metal surfaces exposed to the fire, of a secondary steam-generator constructed to receive steam directly from said primary boiler and to condense it in tubes

passing through water in a secondary generating-chamber, whereby the water in said secondary steam-generating chamber is heated wholly by steam from said primary boiler, together with means for returning the water of condensation from said secondary steam-generator to said primary boiler, substantially in the manner and for the purpose described.



2. The combination with a primary boiler in which steam is generated by direct contact of water with metallic surfaces exposed to the fire, of a secondary steam-generator the water-line in which is above that in said primary boiler, said secondary steam-generator being constructed to receive the steam directly from said primary boiler and to condense it in tubes passing through water in a secondary generating-chamber, whereby the water in said secondary steam-generating chamber is heated wholly by steam from said primary boiler, together with means for returning the water of condensation from said secondary steam-generator to the said primary boiler by gravity, substantially in the manner and for the purpose described.

3. The combination with a boiler in which steam is generated by direct contact of water with metal surfaces exposed to the fire, of a secondary steam-generator the water line in which is above that in the primary boiler, said secondary generator being provided with the compartment H, for receiving the steam from the primary boiler, with the condensing-tubes f, and generating-chamber F, with the compartment H', for receiving the condensation from the tubes f^3, and with pipe D, for conveying the water of condensation to the bottom of the primary boiler, substantially in the manner and for the purpose described.

4. The combination with a boiler in which steam is generated by direct contact of water with metal surfaces exposed to the fire, of a secondary steam-generator the water-line in which is above that in the primary boiler, said secondary steam-generator consisting of the compartment H, for receiving the steam from the primary boiler, of condensing-tubes f^3, passing through the generating-chamber F, and of the compartment H', for receiving the condensation from the tubes f^3, and returning the same to the primary boiler, substantially in the manner and for the purpose described.

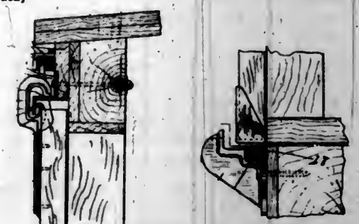
5. The combination with a primary boiler in which steam is generated by direct contact of water with metallic surfaces exposed to the fire, of a secondary steam-generator the water-line in which is above that in the primary boiler, said secondary steam-generator consisting of the steam-receiving compartment H, formed with a manhole f^7, the secondary generating-chamber F, the condensing-tubes f^3, passing through said secondary generating-chamber F, the condensation-receiving compartment H', formed with a manhole, and means for returning the water of condensation from said compartment H', to the primary boiler, substantially in the manner and for the purpose described.

6. The combination with a primary boiler in which steam is generated by direct contact of water with metallic surfaces exposed to the fire, of a secondary steam-generator the water-line in which is above that in the primary boiler, said secondary steam-generator consisting of the steam-receiving compartment H, the secondary generating-chamber F, formed with a manhole, the condensing-flues f^3, passing through said secondary condensing-chamber, the condensation-receiving compartment H', and means for returning the water of condensation from said compartment H', to the primary boiler, substantially in the manner and for the purpose described.

7. The combination with a primary boiler in which steam is generated by direct contact of water with metallic surfaces exposed to the fire, of the steam passage or neck a^{46}, the steam-receiving compartment H, provided with the manhole a^7, the secondary generating-chamber F, formed with a manhole f^7, the condensing-tubes f^3, passing through said secondary condensing-chamber, the condensation-receiving compartment H', provided with the manhole f^7, and the pipe D, for conveying the water of condensation from said chamber H', to the primary boiler substantially in the manner and for the purpose described.

8. The combination of an internally-fired shell-boiler A, having the combustion-chamber B, return-flues a^2, and steam-neck a^{46}, and a secondary steam-generator above said primary boiler, said secondary generator consisting of the steam-receiving compartment H, into which the steam-neck a^{46} opens, the secondary generating-chamber F, the condensing-flues f^3, passing through said secondary condensing-chamber, the compartment H', for receiving the water of condensation from said tubes f^3, and means for returning the water of condensation from said compartment H', to the primary boiler A, substantially in the manner and for the purpose described.

590,074. CAR-DOOR. HERMAN PRIES and JOHN W. MEYER, Michigan City, Ind. Filed June 3, 1897. Serial No. 639,320. (No model.)



Claim.—1. In a car, the combination with a car-door hanger and a guide-rail, and a lug on said hanger, of a plate mounted above said guide-rail and located in the path of said lug, provided with an inwardly-inclined inner face adapted to engage said lug and guide the same inwardly, whereby said door is caused to hug the side of the car-body, substantially as described.

2. In a car, the combination with a car-door hanger, a guide-rail upon which said hanger is laterally movable, and a lug upon said hanger, of a plate mounted above said guide-rail and located in the path of said lug, provided with an inwardly-inclined inner face adapted to engage said lug and guide the same inwardly, whereby said door is caused to hug the side of the car-body, substantially as described.

3. In a car, the combination with a door and a guide-rail above the same comprising a Z-bar one of whose flanges overlaps the upper edge of said door, of hangers on said door having upwardly-extending overhanging projections adapted to rest and slide upon the web of said Z-bar, a lug on one of said hangers, and guide-casting mounted in the path of said lug and adapted to engage the same to force said door inwardly into close contact with the side of the car-body, substantially as described.

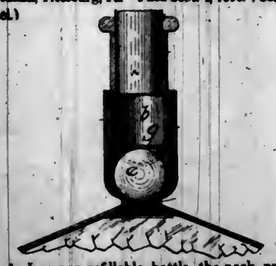
4. In a car, the combination with a door and a guide-rail above the same comprising a Z-bar one of whose flanges overlaps the upper edge of said door, of hangers on said door having upwardly-extending overhanging projections adapted to rest and slide upon the web of said Z-bar, a projection inwardly and below said overhanging projection adapted to engage the inner face of said overhanging flange of said Z-bar, a lug on one of said hangers, and a guide-casting mounted upon the car-body in the path of said lug and adapted to engage the same when said door approaches the forward limit of its movement to force said lug inwardly, whereby said door is forced into close contact with the side of the car-body when closed, substantially as described.

5. In a car, the combination with a door provided with a downwardly-extending guide-lug at its lower end, and hangers at its upper end, one of which is provided with an upwardly-extending guide-lug, of guide-castings located in the paths of said guide-lugs and adapted to engage the same to force said door into close contact with the side of the car-body when said door reaches the forward limit of its movement, substantially as described.

6. In a car, the combination with a door provided with a downwardly-extending guide-lug at its lower end, and hangers at its upper end, one of which is provided with an upwardly-extending guide-lug, of guide-castings located in the paths of said guide-lugs and adapted to engage the same to force said door into close contact with the side of the car-body when said door reaches the forward limit of its movement, and an outwardly-inclined lip situated in the path of said door and adapted to engage the forward end of the same to force it inwardly, substantially as described.

7. In a car, the combination with a door provided with a guide-lug at its lower end, hangers at its upper end, one of which is provided with a guide-lug, of a guide-rail upon which said hangers are adapted to slide and to move laterally, said guide-rail having an overhanging flange adapted to overlap the upper edge of said door, and guide-castings situated in the paths of said guide-lugs and adapted to engage the same and to cause said door to move laterally inwardly into close contact with the sides of the car-body as it reaches the forward limit of its movement, and a guide-casting situated in the path of said door and adapted to coact with said other guide-castings to cause said lateral inward movement of said door, substantially as described.

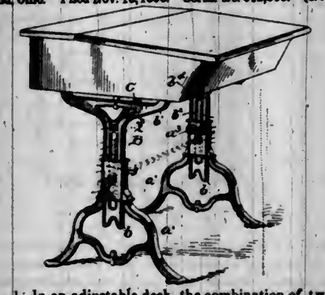
590,075. NON-REFILLABLE BOTTLE. JOHN SCHREIBER and JACOB HOLLER, Pittsburg, Pa. Filed Sept. 4, 1896. Serial No. 604,851. (No model.)



Claim.—1. In a non-refillable bottle, the neck provided with a contracted portion at each end and the enlarged portion between the ends, the upper end of the enlarged portion terminating in a shoulder combined with a compressible ball-valve, a curved spring which is embedded in the top of the ball, and a plate placed upon the top of the valve to protect it; the ends of the spring being turned outwardly so as to catch behind the shoulder, substantially as shown.

2. In a non-refillable bottle, the neck contracted at each end, and having an enlarged portion between the ends, combined with a compressible valve that is forced through the contracted upper end of the bottle into the enlarged portion, a curved metallic spring which is embedded in the valve at its center, and has its ends curved outwardly and upwardly, and a metallic plate that is placed upon the top of the ball between the prongs of the spring and centered in position thereby, substantially as described.

590,076. ADJUSTABLE SCHOOL-DESK. WILLIAM F. SPIETH, Cleveland, Ohio. Filed Nov. 16, 1896. Serial No. 612,393. (No model.)



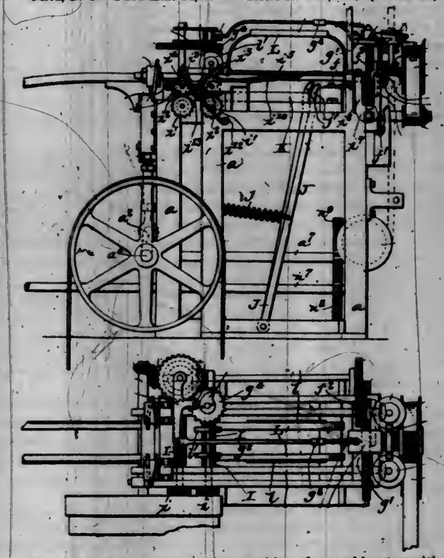
Claim.—1. In an adjustable desk, the combination of two floor-standards, each consisting of a housing and two diverging legs, said housings having transverse holes for the reception of an operating-shaft, with two desk-standards each consisting of a stem which is movable up and down through the corresponding housing, and has at its upper end diverging arms whereby it is adapted to be secured to a desk-body, each stem being substantially an I-beam having a longitudinal slot through its web and rack-teeth on one edge of the slot, and two set-screws screwing through said housing and bearing against the web of said I-beams between the flanges thereof and the said slot therein, substantially as described.

2. In an adjustable desk, the combination of two floor-standards, each consisting of two inclined legs and a vertical housing with which the upper ends are integrally connected, said housing having transverse holes for the passage of an operating-shaft, with the desk-standards, consisting of a stem and two diverging arms on the upper end of the stem, said stem having a vertical slot one wall of which is provided with rack-teeth, a brace secured to the upper end of each stem, and a desk secured to the said arms and braces, substantially as and for the purpose specified.

3. In an adjustable desk, the combination of the two floor-standards, each consisting of a vertical housing at its upper end, and two legs which project equally in front of and behind said housing, said housing having the holes through their side walls, with the desk-standards, each consisting of a vertical stem, and two arms for connection with the desk, the said stem having a transverse vertical slot and rack-teeth on one side of said slot, the standard being provided at its upper end with recesses on both sides to receive the foot of a brace, substantially as and for the purpose specified.

4. In an adjustable desk, the combination of two floor-standards, each consisting of a vertical housing, and two diverging legs, said housing having transverse holes through both side walls, and interior horizontal serrations on one side wall, and two set-screws which screw through the other side wall, with two desk-standards, each consisting of a stem and two diverging arms on its upper end, said stem having a transverse vertical slot with rack-teeth on one edge, and horizontal serrations on both side faces of the stem, substantially as and for the purpose specified.

590,077. MATCH-MAKING MACHINE. BERNARD T. STEBER, Utica, N. Y. Filed Mar. 11, 1897. Serial No. 627,014. (No model.)



Claim.—1. In a match-making machine, the combination with a reciprocating cutter for cutting match-splints, of a feeding mechanism for delivering blocks of wood to said cutter consisting of upper rolls and lower rolls, gear-wheels secured to the ends of said rolls whereby the upper and lower rolls are moved simultaneously, ratchet-wheels secured to the shafts of the upper rolls and ratchet-dog holders swinging loosely upon the feed-roll shafts, a link for connecting the said holders, and connections for reciprocating said link from a face-cam on a gear of the chain-feeding mechanism, substantially as described.

2. In a match-making machine, the combination with a reciprocating cutter, of feed-rolls for delivering blocks of wood to the said cutter, and independent pusher-levers adapted to push or force a series of independent lines of blocks of wood up to the feed-rolls, each lever being pivoted in the frame at one end, and adapted to engage a line of blocks at the other, and means tending to force said levers toward the feed-rolls, substantially as described.

3. In a match-making machine, the combination with a reciprocating splint-cutter of a carrier-chain, means for feeding said chain forward consisting of cams mounted upon horizontal shafts, feed-rolls for feeding blocks of wood to the splint-cutter, a gear-wheel upon one of said cam-shafts having a cam-surface upon one of its surfaces,

means for engaging said cam-surfaces connected with the feed-rolls whereby the rolls are adapted to be rotated as desired, substantially as described.

4. In a match-making machine, the combination with a reciprocating cutter, means for feeding blocks of wood to said cutter extending parallel with the length of the machine and with the line of movement of the carrier-chain, a carrier-chain adapted to receive match-splints, cams for opening said chain, a way formed upon said machine for guiding said carrier-chain, an arched frame forming a part of said way whereby the chain is adapted to be raised at a point above the feed mechanism, depressing-wheels to bring the chain into position even with the top of the bed again, whereby the action of feeding blocks to the machine is greatly facilitated, substantially as described.

5. In a match-making machine, the combination with a reciprocating cutter, of feed-rollers for delivering the blocks of wood to the said cutter and a series of pusher-levers pivotally mounted in the frame at one end and adapted to engage blocks of wood at the other end for pushing the same between the feed-rolls and springs for actuating said pusher-levers, substantially as described.

6. In a match-making machine, the combination with a reciprocating cutter and a carrier-chain, of cams for feeding the said chain forward, the said cams being mounted upon suitable shafts, feed-rolls for delivering the blocks of wood to said cutter, ratchets upon the shafts of said feed-rolls, dogs for engaging said ratchets, a U-shaped lever secured to the frame of the match-machine and connected to said dogs, a cam formed upon one face of the gear-wheel mounted upon one of the cam-shafts, said cam being adapted to engage one arm of the U-shaped lever whereby the dogs are actuated to move forward the feeding-rolls and a spring for retracting the said dogs, substantially as described.

7. A composition-vat for supplying igniting-heads to the matches comprising a tank for holding the said composition, a roller adapted to work in said vat for carrying composition to the match-splints, said roller being narrower than the said vat, and a reciprocating agitator adapted to scrape the bottom of the said tank and the bottom of the said roller, the said agitator extending beyond the sides of the roller for allowing the escape of the composition in the process of agitation, and means for operating the said agitator, substantially as described.

8. A composition-vat comprising in its construction a tank for holding composition, a roller adapted to operate in said composition, a reciprocating agitator interposed between the roller and the bottom of the tank for scraping the bottom of the tank and the bottom of the roller, the said agitator extending beyond the sides of the roller but not touching the sides of the tank whereby space is allowed for the escape of the composition at the sides of the roller and means for operating the said agitator, substantially as described.

9. In a match-machine, a composition-vat, a roller revolving in said vat, and an agitator which reciprocates at right angles to the axis of the roller and fitting between the roller and the bottom of the vat, the said agitator comprising blades which extend beyond the sides of the roller to allow for the escape of the material in the process of agitation, substantially as described.

10. In a match-machine, the combination with a carrier chain adapted to receive and carry match-splints, means for ejecting the completed matches from said chain comprising a platen, a cam for withdrawing the platen from proximity to the chain and a spring to force the platen against the splints to knock them out of said chain, substantially as described.

11. In a match-making machine, the combination with a splint-cutter, means for heating paraffining and providing the said splints with igniting-heads, of means for drying the same consisting of a frame mounted on vertical standards and having a series of horizontal shelves for supporting and guiding the carrier-chain rollers at the end of said shelves for assisting the chain forward in its travel, means for operating said rollers and means for delivering the completed matches, consisting of a platen adapted to be moved in one direction by a cam and a spring for actuating it in the opposite direction to force out the matches, substantially as described.

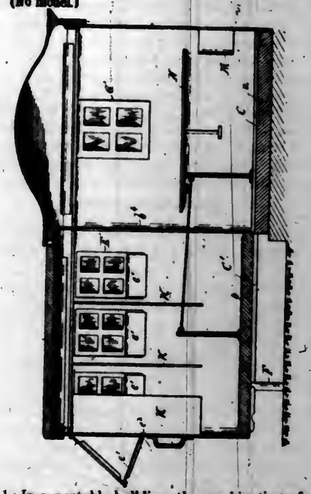
590,078. GAME APPARATUS. EDWARD H. TURNER, Minneapolis, Minn., assignor to Neal Farnham, William R. Keller, and Louise R. Turner, same place. Filed Dec. 21, 1896. Serial No. 616,433. (No model.)

Claim.—The herein-described game device, comprising a board having thereon a suitable map, with the names of towns or places, and designating numbers or characters for such towns or places, marked thereon, movable counters provided with designating numbers or characters, and a schedule or tariff-sheet having marked thereon the name of the product of each of said towns or places, the market price thereof at each town or place, the cost of transportation from the originating town or place to each of the other towns or places, and the designating numbers of such towns or places.

590,078.



590,079. PORTABLE BUILDING FOR ELECTION PURPOSES. JAMES H. VAN DORN, Cleveland, Ohio. Filed Jan. 26, 1895. Serial No. 536,178. (No model.)

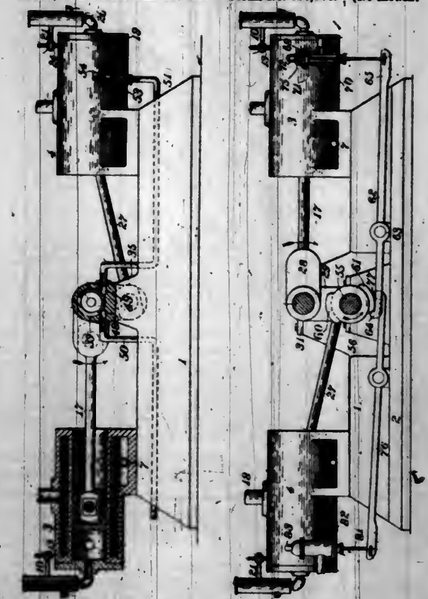


Claim.—1. In a portable building, the combination of an outer section having an opening in its rear wall, with an inner section adapted to move through said opening into and out of the outer section, track-rails laid on the floor of the outer section, and having projecting ends, hinged track-rails pivoted on horizontal pivots to said projecting ends and adapted to be swung into vertical position against the rear wall of the inner section, and means for securing said hinged track-rails to said rear wall, substantially as and for the purpose specified.

2. In a portable building, the combination of an outer section, and an inner section movable into and out of the outer section, with fixed track-rails secured to the floor of the outer section, and having projecting ends, hinged track-rails pivoted to said projecting ends, and longitudinally-bent legs having bifurcated ends which are pivoted to said hinged track-rails, substantially as and for the purpose specified.

3. In an election-booth, a window-sash hinged at its upper end to the booth, a desk-section hinged to the lower edge of the window-sash, said desk-section having grooves in its upper side near its edges, and slides adapted to enter said grooves and close the side openings produced by swinging the window-sash outward, substantially as and for the purpose specified.

590,080. EXPLOSIVE-GAS ENGINE. JAMES S. WALCH, Providence, R. I. Filed Jan. 23, 1897. Serial No. 620,371. (No model.)



Claim.—1. In an explosive-gas engine, the combination of a bed, a cylinder secured to said bed and provided with an inlet-port, a check-valve arranged to govern said inlet-port, an igniting device, said cylinder having an exhaust-port, an exhaust-valve arranged to govern said exhaust-port, a revoluble crank-shaft, a revoluble cam-shaft, gearing connecting said shafts, mechanism driven by said cam-shaft and constructed and placed to operate said exhaust-valve, a hollow rotary valve attached to one of said shafts and having a circumferential slot, a suitably-supported casing possessing an orifice and stuffing-box, said casing having a cylindrical bore adapted to receive said rotary valve, devices for closing said casing and for delivering mixed gases to said rotary valve interiorly, and a pipe connecting said check-valve and casing orifice, substantially as described.

2. In an explosive-gas engine, the combination of a bed, cylinders secured to said bed and provided with inlet-ports, check-valves arranged to govern said inlet-ports, igniting devices, said cylinders having exhaust-ports, exhaust-valves arranged to govern said exhaust-ports, a revoluble crank-shaft, a revoluble cam-shaft, gearing connecting said shafts, mechanism driven by said cam-shaft and constructed and placed to operate said exhaust-valves, a hollow rotary valve attached to said crank-shaft and having a circumferential slot, a suitably-supported casing possessing orifices and a stuffing-box, said casing having a cylindrical bore adapted to receive said rotary valve, devices for closing said casing and for delivering mixed gases to said rotary valve interiorly, gas cocks and piping adapted to regulate the quantities of gases supplied to said rotary valve, and pipes connecting said check-valves and casing-orifices, substantially as described.

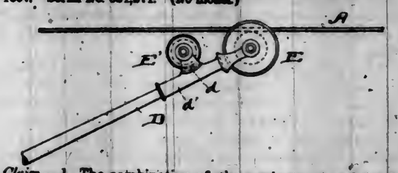
590,081. GREEN-CORN CUTTER AND SCRAPER. ELLEN H. WILSON, La Crosse, Wis. Filed June 2, 1897. Serial No. 639,116. (No model.)



Claim.—1. A green-corn cutter and scraper consisting of a suitable handle and blade secured therein, said blade having a relatively straight portion ending in a curved portion, the said curved portion of the blade having one edge sharpened and the remaining edge turned perpendicularly inwardly forming a scraper, substantially as described.

2. A green-corn cutter and scraper consisting of a suitable handle and blade secured therein, said blade having a relatively straight portion having a cutting edge, said straight portion ending in a curved portion, the said curved portion of the blade having one edge sharpened and the remaining edge turned perpendicularly inwardly forming a scraper, substantially as described.

590,082. TROLLEY AND CONDUCTOR FOR ELECTRIC RAILWAYS. THORSTEN VON ZWIEDENECK, Cleveland, Ohio. Filed Jan. 30, 1897. Serial No. 621,271. (No model.)

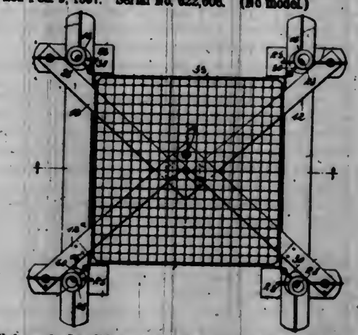


Claim.—1. The combination of the conductor A and the diverging conductors A' B, all held in the same approximately horizontal plane, except that at and near the point where said conductors would meet, they are turned out of their normal course whereby the trolley-path is interrupted and the trolley-arm allowed to ascend somewhat, combined with a trolley-arm and two grooved contact devices carried one in advance of the other by said trolley-arm, one of said contact devices being below the other when the trolley arm is in normal operative position, substantially as and for the purpose specified.

2. The combination of the conductor A and the diverging conductors A' B, all held in the same approximately horizontal plane, except that at and near the point where said conductors would meet, they are discontinued or elevated, combined with a trolley-arm and two grooved contact devices carried thereby, one being in advance of and below the other, when the trolley-arm is in the normal operative position, substantially as and for the purpose specified.

3. In a trolley, in combination, the arm D, the separable metal end *d'* furcated at its end and having the integral ears *d* projecting from its side, the wheel E journaled in said furcated end and the wheel E' journaled in said ears, substantially as described.

590,083. NET-HOLDER. SAMUEL A. ALLEN, Homer, Minn. Filed Feb. 9, 1897. Serial No. 622,603. (No model.)



Claim.—1. In a life-saving device, a support, tension devices carried by said support, a net, flexible connections between the net and tension devices, and means, whereby the said connections will be free to move in one direction but will be prevented from moving in the opposite direction, substantially as described.

2. In a life-saving device, a net, a support for the net, tension devices located in the said supports, a flexible connection between the tension devices and the net, and clutches arranged for engagement with the connection between the tension devices and the net, as and for the purpose set forth.

3. In a life-saving device, a net, tubular supports, friction-rollers located in the said supports, tension devices secured within the supports, a flexible connection between the net and the tension devices, which flexible connections are passed over said friction-rollers, and clutches located in the supports, each clutch comprising two members arranged to clear the connections between the tension devices and the net when the net is pressed downward, clamping said con-

sections when the weight in the net is counterbalanced by said tension devices, as and for the purpose specified.

4. In a life-saving device, a net, springs connected with the net, and clutches arranged to engage the connecting medium between the springs and the net, as and for the purpose set forth.

5. In a life-saving device, supports, springs carried by the supports, a net, flexible connections secured to the springs passed over guides and secured to the net, and a clutch for each flexible connection, said clutches permitting the connections to move in one direction only, substantially as described.

6. In a life-saving device, supports provided with guides at their upper ends, springs at the lower ends of the supports, a net, a flexible connection secured to each spring passed up over the guide at the upper end of the support and secured to the net, a clutch for each flexible connection, said clutches permitting the connections to move upwardly but preventing them from moving downwardly, and means for releasing the clutches from the connections, substantially as described.

7. In a life-saving device, tubular posts provided with guide-pulleys at their upper ends, springs secured in the posts at their lower ends, a net, ropes or chains secured to the springs passed up over the guide-pulleys and secured to the corners of the net, a two-part clutch engaging the ropes or chains to permit them to move in one direction, but preventing them from moving in the opposite direction, and means for operating one of the members of the clutch to release the ropes or chains, substantially as described.

8. In a life-saving device, a tension-controlled net, a locking device for the net, consisting of a clutch, said clutch comprising a lever having a toothed inner end, a pivoted gripping-arm having its inner end also toothed, the toothed surfaces of the gripping-arm and the lever facing one another, and a connecting-plate attached to the lever and pivotally connected with the gripping-arm, as and for the purpose set forth.

9. In a life-saving device, the combination, with a series of tubular supports having springs secured therein, and a clutch contained in each support, comprising two members facing each other, the opposing surfaces being provided with teeth, of a net, a flexible connection between the net and the spring in each support, the said connection being passed through the members of the clutch devices, and guide-rollers for the connections between the springs and the net, located above the said clutch devices, as and for the purpose specified.

10. In a life-saving device, the combination, with a base, tubular posts secured on the base, springs attached at one end in each of the said supports, and clutch devices located in said supports, each clutch device consisting of two opposing pivoted members having teeth formed at their opposite faces, one of the said members being a lever and the opposite member spring controlled, of a net, and flexible connections between the net and the springs in the said tubular supports, the said connections being passed between the members of the several clutch devices, as and for the purpose set forth.

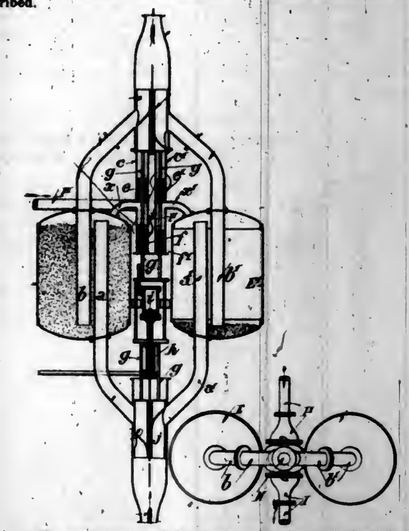
11. In a life-saving device, the combination with a folding base and tubular posts detachably connected with the base, springs attached at one end in each of said supports, and clutch devices located in said supports, each clutch device consisting of two opposing pivoted members having teeth formed at their opposite faces, one of the said members being a lever and the opposite member spring controlled, of a net, and flexible connections between the net and the springs in the said tubular supports, the said connections being passed between the members of the several clutch devices, as and for the purpose specified.

590,084. GRAIN-ELEVATOR. EMILE BLANCHARD, Paris, France. Filed May 23, 1896. Serial No. 592,551. (No model.) Patented in France Apr. 16, 1896, No. 256,612.

Claim.—1. A pneumatic elevator or transporter for grain and other material, comprising two receptacles or chambers adapted to receive the material, an inlet-pipe and an outlet-pipe for conveying the material to and from each receptacle, and a pneumatic apparatus for alternately exhausting the air from each of the receptacles and forcing it into said receptacles, substantially as described.

2. A pneumatic elevator or transporter for grain and other material, comprising two receptacles or chambers adapted to receive the material, an inlet-pipe and an outlet-pipe for conveying the material to and from each receptacle, and a pneumatic apparatus so connected to the two receptacles as to compress the air within one of them and at the same time exhaust the air from the other, substantially as described.

3. A pneumatic elevator or transporter for grain and other material, comprising two receptacles or chambers adapted to receive the material, an inlet-pipe and an outlet-pipe for conveying the material to and from each receptacle, a separate air-inlet and air-outlet for each receptacle, and a pneumatic apparatus connected to said air-inlets and air-outlets and arranged to alternately exhaust the air from said receptacles and compress it therein, substantially as described.



4. The combination of the two receptacles, and the inlet and outlet pipes for conveying the material to and from the said receptacles, with separate pipes for conveying air to and from the receptacles and adapted for connection with a pneumatic apparatus, substantially as described.

5. The combination of a receptacle, inlet and outlet pipes for conveying the material to the said receptacle, a suction-pump for exhausting the air from the receptacle, a compression-pump for forcing air into the receptacle, and a valve or distributing device for alternately connecting the receptacle to the suction-pump and to the compression-pump, substantially as described.

6. The combination of the two receptacles, and the inlet and outlet pipes for conveying the material to and from the said receptacles, with separate pipes for conveying air to and from the receptacles and adapted for connection with a pneumatic apparatus, and a valve or distributing device for connecting one receptacle with the air-suction pipe while the other receptacle is connected with the air-delivery pipe, substantially as described.

7. The combination of the receptacle, the inlet and outlet pipes for conveying the material to and from the said receptacle, the air-chambers or air-cylinders connected to said receptacle and adapted for connection respectively to an air-compressor and an exhauster, and a valve or distributing device for alternately connecting the receptacle with the said air-chambers, substantially as described.

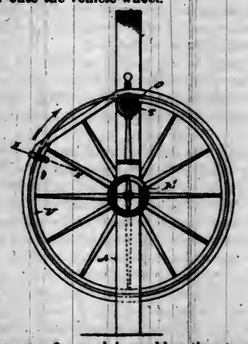
8. The combination of the receptacle, the inlet and outlet pipes for conveying the material to and from the said receptacle, an air-suction pipe and an air-delivery pipe likewise connected to the said receptacle, a valve or distributing device for alternately connecting the receptacle to the air-suction pipe and to the air-delivery pipe, and an actuating device, operated by fluid-pressure for moving said valve, substantially as described.

9. The combination of the receptacle, the inlet-pipe and the outlet-pipe for conveying the material to and from the said receptacle, the inlet-pipe and outlet-pipe for conveying air to and from said receptacle, connected valves arranged in said pipes, and mechanism for operating said valves, substantially as described.

10. The combination of the receptacle, the inlet-pipe and the outlet-pipe for conveying the material to and from the said receptacle, the inlet-pipe and outlet-pipe for conveying air to and from said receptacle, connected valves arranged in said pipes, a piston connected to said valves, a connection from the air-inlet pipe to one face of the piston, and a hydraulic-pressure apparatus connected to the other face of the piston, substantially as described.

590,085. DEVICE FOR APPLYING RUBBER TIRES TO WHEELS. THEODORE B. BLOOMER, Springfield, Ohio, assignor to the Victor Rubber Tire Company, same place. Filed Feb. 27, 1897. Serial No. 626,371. (No model.)
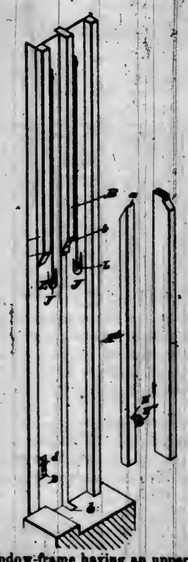
Claim.—1. In an apparatus for applying rubber tires to vehicle-wheels, the combination with a frame or fixed structure composed of uprights and a cross-piece, adjustable wheel-supports mounted in the uprights, and a wheel-guide mounted in one of the uprights, ways on the other upright, a slidable block in the ways, a screw-threaded shaft to adjust the block, and a pulley carried by the block alongside of the wheel-rim and adjustable from a point beneath the wheel-rim thence outward and adapted to draw outward on the rubber tire and to shift it laterally over onto the vehicle-wheel.



2. In an apparatus for applying rubber tires to vehicle-wheels, the combination with a frame or fixed structure consisting of uprights and a cross-piece, adjustable wheel-supports composed of threaded rods mounted in the uprights, an adjustable wheel-brace composed of threaded rods mounted in one of the uprights and having an inclined antifriction-roller, ways mounted on the other upright, a slidable block in said ways, a pulley secured by the block and inclined to the vehicle-wheel, and a threaded shaft to adjust the block.

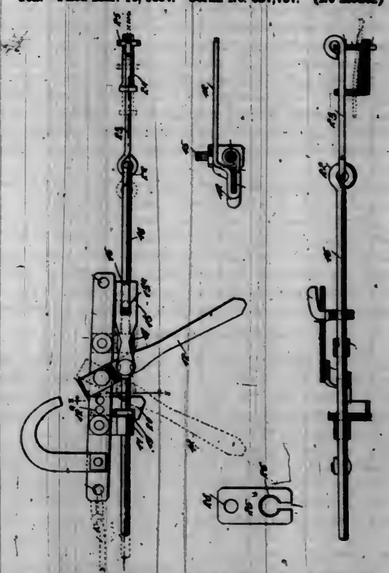
3. In an apparatus for applying rubber tires to vehicle-wheels, the combination with a frame or fixed structure, of wheel-supports, a tire-guiding mechanism carrying a pulley inclined to the vehicle-wheel when mounted on said supports, said mechanism and supports being relatively adjustable to bring said pulley substantially level with the flange of the channel-iron of the said wheel.

590,086. SASH HOLDING OR REMOVING DEVICE. RICHARD ROBERSON, Las Vegas, N. Mex. Filed Oct. 2, 1896. Serial No. 607,623. (No model.)



Claim.—A window-frame having an upper window-strip section rigidly secured to the frame and having a lower end beveled downwardly and outwardly, a plate secured to the window-frame below the upper strip-section and in vertical alinement therewith, the plate having a T-shaped slot, the head of which is uppermost, a lower window-strip section, the upper end of which is beveled upwardly and inwardly from the outer side of the strip so as to match with the beveled lower end of the upper strip-section, and a bolt with a head capable of entering the head or upper portion of the T-shaped slot in the plate, the bolt being carried by the lower strip-section and moving into the slot of the plate as the lower strip-section is placed in position, substantially as described.

590,087. WIRE-STRETCHER. WALTER X. BRANNON, Denton, Tex. Filed Mar. 16, 1897. Serial No. 627,787. (No model.)



Claim.—1. A device for stretching wire, consisting of a support, a draft-rod, a lever having shifting connection with the draft-rod, a check arranged to prevent the movement of the draft-rod in one direction, and means for connecting the wire to be stretched to the draft-rod, the said means comprising an angular clamping-arm and a keeper, both connected with the draft-rod, the said keeper being provided with an opening to receive the end of one of the members of the clamping-arm, substantially as shown and described.

2. A device for stretching wire, consisting of a body-bar adapted for attachment to a support, a draft-rod mounted to slide upon the said body-bar, a lever fulcrumed upon the body-bar, the said body-bar being provided with a series of apertures, whereby the lever may be shifted thereon, a link pivotally attached to the lever, a gripping-nut loosely carried by the said link and through which the draft-rod passes, a keeper carried by the draft-rod and a clamping-arm arranged to coact with the said keeper, as and for the purpose specified.

3. A device for stretching wire or for similar purposes, consisting of a body-bar adapted for attachment to a support, bearings connected with the said body-bar, a draft-rod held to slide in the said bearings, a lever fulcrumed on the said body-bar, a gripping-nut operated by the lever and receiving the draft-rod, a keeper and a clamping-arm arranged to coact with the keeper and both connected with the draft-rod, a check-nut adapted for engagement with the draft-rod and arranged to prevent its movement in one direction, and a keeper for the nut connected with the said body-bar, as and for the purpose specified.

4. The combination with a support, a lever fulcrumed on the support, a draft-rod mounted to slide on the support, and a keeper and clamping-arm coacting therewith carried by the draft-rod, of a link connected with the said lever, a gripping-nut loosely mounted on the draft-rod and having a loose connection with the link connected with the lever, a check-nut for the said draft-rod, and a keeper for the said check-nut connected with the said support, as and for the purpose specified.

5. The combination, with a support, a lever fulcrumed upon the support, a draft-rod mounted on the support, being capable of end movement, and a keeper and clamping-arm coacting therewith, carried by the draft-rod, of a link connected with the said lever, a gripping-nut loosely mounted on the draft-rod and having a loose connection with the link connected with the lever, a check-nut through which the draft-rod is passed, and a keeper for the said check-nut connected with the said support, the said check-nut and its keeper being located at the side of the lever opposite that from which the link is extended, as and for the purpose specified.

6. A device for stretching wire, comprising a support, a draft-rod capable of end movement and carried by said support, a link con-

nected with one end of the draft-rod, an angular clamping-arm having a vertical member fitted to slide upon the link, and a horizontal member beveled at its outer end, a keeper-block carried by the link and provided with an opening adapted to receive the beveled end of the clamping-arm, a lever fulcrumed upon the support, and a gripping-nut loosely mounted upon the draft-rod and having a loose connection with the said lever, as and for the purpose set forth.

7. The combination with a support, a draft-rod mounted on the support and capable of end movement, a lever fulcrumed upon the support, a link connected with the lever and provided with an opening, a gripping-nut through which the draft-rod passes, the said gripping-nut being provided with an angular head adapted to extend through the opening in the link, a check arranged to prevent the movement of the draft-rod in one direction, and means for connecting the wire to be stretched with the draft-rod, substantially as shown and described.

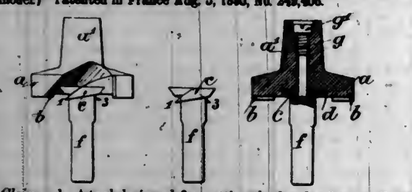
8. A device for stretching wire, consisting of a support, a draft-rod mounted to slide upon the support, a lever having shifting connection with the draft-rod, means for connecting the wire to be stretched with the draft-rod, a check arranged to prevent the movement of the draft-rod in one direction, the said check, comprising a nut loosely mounted on the draft-rod and a keeper-arm of angular formation attached to the support and having a recess in which the lower end of the nut is received, substantially as shown and described.

590,088. BLACK DISAZO DYE. CARL BÜLOW, Tubingen, Germany, assignor to the Badische Anilin und Soda Fabrik, Ludwigshafen, Germany. Filed May 24, 1897. Serial No. 637,913. (Specimens.) Patented in England May 4, 1891, No. 7,713; in France May 4, 1891, No. 213,232, and in Germany July 24, 1891, No. 91,855.

Claim.—1 The new black disazo dyes derived from the oxynaphthylamin-sulfo-acid ($NH_2.OH.SO_3H$—1.8.4) by combining one molecular proportion of this acid with two molecular proportions of diazo compound as hereinbefore explained, and which are destroyed by treatment with diazo-benzene-sulfo-acid in alkaline solution, and are soluble in pure sulfuric acid giving reddish-blue to bluish-green solutions, all substantially as described.

2. The specific black disazo dyestuff derived from the aforesaid oxynaphthylamin-sulfo-acid by combinin gone molecular proportion of this acid with one molecular proportion of diazo-benzene-sulfonic acid and with one molecular proportion of the diazo compound of alpha-naphthylamin and which is destroyed by diazo-benzene-sulfo-acid in alkaline solution, and which yields a reddish-blue solution in pure concentrated sulfuric acid which solution, on pouring into water, yields a blue flocculent precipitate and yields, on reduction in strong caustic alkaline solution, alpha-naphthylamin, which passes into the distillate on distilling with steam, all substantially as described.

590,089. TOOL FOR TRIMMING OFF TREENAILS. ALBERT COLLET, Paris, France. Filed Apr. 1, 1897. Serial No. 630,216. (No model.) Patented in France Aug. 5, 1896, No. 249,408.



Claim.—1. A tool designed for cutting the heads of treenails off on a level with the upper surface of the sleepers, into which the said treenails are screwed, and which is formed by a core or body *a*, having a square head *a'*, provided, on its under side with a rim *b*, on a level somewhat below the face of the said under side, and with a dovetail slot, in which engages frictionally a piece *c*, in fine steel specially used for tools, forming a blade or knife at its ends, and which is fixed to the body by means of a plain pointed screw *g*, the horizontal cutting edges 1 2 and 3 4 of the knives coming opposite the openings provided in the cast-iron or cast-steel body for the escape of the chips.

2. In a cutting-off tool, a cast-iron or cast-steel body *a*, with square head *a'*, provided, at its under side, with a rim *b*, on a level somewhat below the face of the said under side, a dovetail slot, and two openings through its entire thickness for the escape of the chips, substantially as described and for the purpose specified.

3. In a cutting-off tool, the combination, with a cast-iron or cast-steel body *a*, provided, on its under side, with a rim *b*, and a dovetail slot, of a piece *c*, in fine steel specially used for tools, forming a blade or knife at its ends, having openings for the escape of chips through it, and which engages frictionally in the dovetail slot in the body, and is fixed in place by means of a screw *g*, placed in line with the axis of the tool, substantially as described and for the purpose specified.

4. A cutting-tool having a body provided with two peripheral rims projecting downward from the lower face of the body, the said lower face of the body having a dovetailed groove run across the same between the rims, and a member held within said dovetailed groove, the member having a cutting edge, and a guide-rod projecting intermediately from the said member, the guide-rod being centrally located with reference to the body.

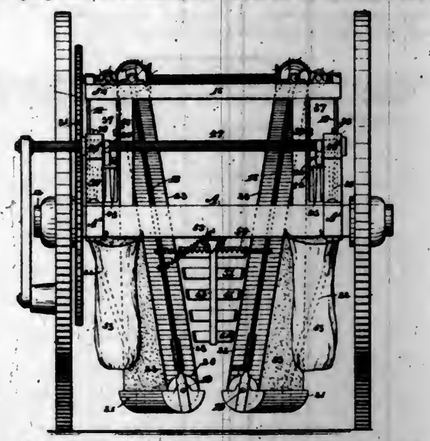
5. A cutting-tool having a body portion with a rim projecting from the lower face thereof, the rim being located at the periphery of the body, the body portion having a cutting edge located within the rim, and a guide-rod attached centrally to the lower face of the body.

6. A cutting-tool having a body portion with a head rising therefrom, and with a flange or rim run around the lower face of the body, the body having a groove run across said lower face, a member located within the groove and having a cutting edge, and a downwardly-extending guide-rod located centrally with reference to the body portion, and a screw held in the head of the body portion and engaging the said member to hold the same in place.

7. A tool having a body provided with a rim projecting downward from the lower face of the body, and a member removably held on said lower face, the member having a cutting edge and also having a guide-rod, the cutting edge being located inward from the rim, and the guide-rod being located centrally with reference to the body portion.

8. A tool having a body portion with a cutting edge on its lower face, the body portion having a rim projecting down from said lower face and outside of the cutting edge and the body portion also having means capable of engaging the work on which the tool is operated, such means holding the tool centrally with reference to said work so that the tool may turn around said center.

590,090. COTTON-PICKER. DAVID S. DRADERICK, Mammoth Spring, Ark. Filed June 18, 1896. Serial No. 596,005. (No model.)



Claim.—1. In a cotton picker or harvester, diverging picking-aprons, the space between them being widest at the top, and a spreader located between the aprons, having its sides tapered correspondingly to the taper of the aprons in an upward direction, as and for the purpose specified.

2. In a cotton-harvester, picking-aprons diverging upwardly from their lower portions, and a spreader located between said aprons, having its sides inclined in substantially the same direction as the faces of the aprons between which the said spreader is located, as and for the purpose specified.

3. In a cotton picker or harvester, picking-aprons diverging from their lower portions in an upwardly direction, the said aprons converging laterally from the front toward the rear, and a spreader located between the aprons, the lateral faces whereof diverge from the front to the rear, as and for the purpose specified.

4. In a cotton-harvester, two opposite picking-aprons converging from the front toward the rear, and a spreader located between the aprons, the lateral faces whereof diverge from the front to the rear, the forward end of the spreader being pointed, as and for the purpose specified.

5. In a cotton-harvester, two opposite picking-aprons converging from the front toward the rear, and a spreader located between the aprons, the lateral faces whereof diverge from the front to the rear, substantially as and for the purpose specified.

6. In a cotton-harvester, picking-aprons mounted to revolve, cleaning-rollers in engagement with the upper delivery-surfaces of the aprons, boxes arranged to receive the cotton from the cleaning-rollers, rakes mounted to reciprocate in the said boxes, supports located at the delivery-ends of the boxes, receptacles carried by the supports, said receptacles receiving the cotton from the boxes, driving devices for the aprons, and a spreader located between the aprons, having a pointed forward end and being adapted to guide cotton to the aprons, the rakes being operated from the ground-wheel of the aforesaid picker, as and for the purpose specified.

7. In a cotton-harvester, two oppositely-diverging picker-aprons, and a spreader located between the aprons, the side faces whereof diverge in substantially the same direction as the faces of the aprons between which the spreader is located, as and for the purpose specified.

8. In a cotton-harvester, two oppositely-arranged picking-aprons having their opposing faces inclined from the top downward and inward, the said aprons laterally converging from the front toward the rear, and a spreader located between the aprons, substantially V-shaped in cross-section and laterally diverging from the front to the rear of the machine, as and for the purpose specified.

9. In a machine for picking cotton, picking-aprons, roller-supports for the same located at the top and bottom of the frame of the machine at each side of the center, the space between the upper supports for the aprons being greater than that between the lower supports, the said rollers being provided with teeth and the aprons with openings to receive the said teeth, the lower sides of the aprons diverging from the rear toward the front, drive-shafts and gears, substantially as described, driven by the movement of the machine and arranged for driving the roller-supports for the picking-aprons, and a spreader located between the aprons, consisting of a series of members V-shaped in plan view, the diverging ends of the members being their rear ends, springs normally serving to hold the lower portion of the spreader and aprons in substantially near relation with each other, and dispensing devices arranged to receive the cotton from the said picking-aprons and deliver the cotton to the rear portion of the machine, as and for the purpose specified.

10. In a cotton-picker, the combination, with picking-aprons converging at their lower sides with respect to a vertical line drawn between them, the said aprons being outwardly and forwardly flared in a lateral direction, tension-controlled supports for the aprons, the tension devices controlling the movement of the picking-aprons to and from one another during the operation of picking, and a spreader located between the aprons, having its sides tapering from the top downward and inward, substantially as shown and described.

11. In a cotton picker or harvester, picker-aprons extending from the bottom to the top of the machine, being arranged to converge at their lower longitudinal portions and diverge at their upper longitudinal portions to and from a vertical line drawn longitudinally between them, and a spreader located between the aprons, having its sides tapered correspondingly to the taper of the aprons in an upward direction, the forward end of the spreader being pointed, producing a space between the forward portion of the spreader and the opposing faces of the aprons, the rear portion of the spreader at its sides being quite close to the sides of the aprons, as and for the purpose specified.

12. In a cotton-harvester two oppositely-diverging picker-aprons, the space between them being widest at the top, a spreader located between the aprons, having its sides tapered correspondingly to the taper of the aprons in an upward direction, cleaning-rollers supported in engagement with the upper surface of the aprons, and receptacles arranged to receive the cotton from the cleaning-rollers, whereby the cotton on any portion of a plant may be directed to the aprons and said cotton be rapidly harvested without injury to the plants, as and for the purpose specified.

590,091. SEWING-MACHINE ATTACHMENT. WILLIAM J. DIX, Milford, Mass., assignor of one-half to Willis B. Temple. Filed May 19, 1897. Serial No. 637,183. (No model.)



Claim.—1. A sewing-machine attachment for controlling boot straps and stays, the same consisting of a raceway and a guide free to be slid therein, the said guide having side walls to receive and position the side edges of the strap and stay to be presented to the boot or shoe to be stitched thereto, substantially as described.

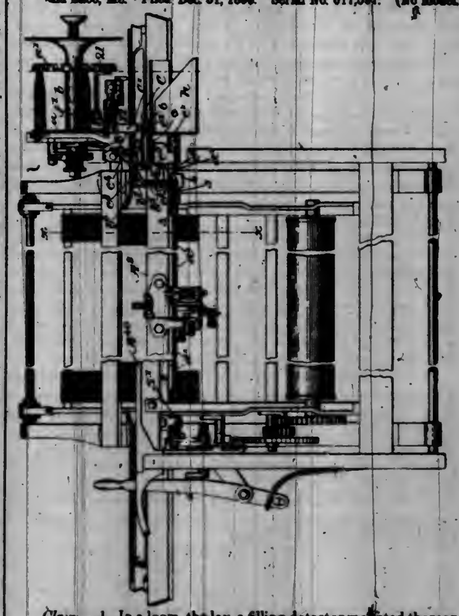
2. A sewing-machine attachment for controlling boot straps and stays, the same consisting of a raceway and a guide free to be slid therein, the said guide having side walls to receive and position the side edges of the strap and stay to be presented to the boot to be stitched thereto, and a feed-engaging strip which may be engaged by the usual feed device of a sewing-machine to thereby slide the guide in the raceway, substantially as described.

3. The raceway, a guide free to slide therein and having an elongated central slot, and a non-metallic feed-engaging strip stretched longitudinally through the central portion of the said slot leaving a space at each side of the said strip in which the needles may work, combined with a presser-foot adapted to enter the slot of said guide and bear on the said non-metallic strip during the feeding operation, substantially as set forth.

4. A sewing-machine attachment for controlling boot straps and stays, the same consisting of a raceway and a guide free to be slid therein, the said guide having side walls to receive and position the side edges of the strap and stay to be presented to the boot to be stitched thereto, and a non-metallic feed-engaging strip which may be engaged by the usual feed device of a sewing-machine to thereby slide the guide in the raceway, substantially as described.

5. A sewing-machine attachment for controlling boot straps and stays, the same consisting of a raceway and a guide free to be slid therein, the said guide having side walls to receive and position the side edges of the strap and stay to be presented to the boot to be stitched thereto, and a feed-engaging strip which may be engaged by the usual feed device of a sewing-machine to thereby slide the guide in the raceway and having a stop to limit the extent of outward movement of said guide, substantially as described.

590,092. LOOM. WILLIAM F. DRAPER and JAMES H. NORTHROP, Hopedale, Mass., assignors to the Northrop Loom Company, same place and Saco, Me. Filed Dec. 31, 1896. Serial No. 617,597. (No model.)



Claim.—1. In a loom, the lay, a filling-detector mounted thereon, and means controlled by movement of the lay to cause the detector to detect the presence or failure of the filling, combined with filling-supplying mechanism, and an actuator therefor, moved by or through said detector into operative position upon failure of the filling, substantially as described.

2. In a loom, the lay, a filling-detector mounted thereon, and means controlled by movement of the lay to cause the detector to detect the presence or failure of the filling, combined with a shuttle-feeler moved by or through the detector upon failure of the filling to feel for the shuttle, filling-supplying mechanism, and an actuator therefor controlled by the shuttle-feeler, substantially as described.

3. In a loom, the lay, a filling-detector mounted thereon, means to positively move it to detect the filling, a controlling device for said means, operated by movement of the lay, and a shuttle-feeler moved by or through the detector upon failure of the filling, to feel for the shuttle, combined with filling-supplying mechanism, and a normally inoperative actuating-buster therefor moved by the shuttle-

feeler into abnormal position when the shuttle is properly positioned, substantially as described.

4. In a loom, the lay, a center filling-detector, a shuttle-feeler, and a bunter, all mounted on the lay, means controlled by movement of the lay to positively actuate said detector to detect the presence or failure of the filling, connections between the detector and shuttle-feeler, and independent connections between the shuttle-feeler and bunter, combined with filling-supplying mechanism, said bunter being governed as to its position by the shuttle-feeler, substantially as described.

5. In a loom, the lay having a shuttle-box, a movable binder therefor provided with a stop, a shuttle-feeler and a filling-detector, both mounted on the lay, and means controlled by the detector to operate the shuttle-feeler upon failure of the filling, combined with filling-supplying mechanism, and a cooperating bunter moved into operative position by the shuttle-feeler, the binder-stop engaging the shuttle-feeler and preventing operation of the bunter when the shuttle is in the opposite shuttle-box, substantially as described.

6. In a loom, the lay, a filling-detector and an operating-shaft mounted thereon, means, operative upon failure of the filling and controlled by the detector, to rock said shaft a shuttle-feeler yieldingly mounted on said shaft, and a bunter moved into operative position by the shuttle-feeler when the shuttle is properly positioned, combined with a filling-supplying mechanism operated by the bunter, substantially as described.

7. In a loom, the lay having a shuttle-box, a filing-detector and a shuttle-feeler, both mounted on the lay, means controlled by the detector to operate the shuttle-feeler upon failure of the filling, an actuator to positively move said detector to detect the filling, and a controlling device for said actuator, operated by movement of the lay, substantially as described.

8. In a loom, the lay, a filling-detector and an operating-shaft, both mounted on the lay, means, operative upon failure of the filling and controlled by the detector, to rock said shaft, and a shuttle-feeler yieldingly connected with the operating-shaft, the feeler being held by an improperly-positioned shuttle from completing its movement with said shaft, substantially as described.

9. In a loom, the lay, a rock-shaft mounted thereon, a normally inoperative actuating-cam, connections between it and the rock-shaft, a pawl carrier mounted on and rocked by movement of the lay, a pawl on said carrier, a filling-detector, connections between it and the pawl to cause the latter to engage and operate the bunter-cam upon failure of the filling, and a spring-controlled shuttle-feeler mounted upon and adapted to be moved by the rock-shaft to feel for the shuttle, substantially as described.

10. In a loom, the lay, a center filling-detector and an operating-shaft thereon, means operated by movement of the lay and governed by the detector, to rock the shaft upon failure of the filling, and a shuttle-feeler arm yieldingly mounted on said operating shaft, combined with filling-supplying mechanism, and a normally inoperative actuating-bunter therefor, mounted on the lay and provided with a finger in the path of and to be moved by the feeler-arm when the shuttle is properly positioned, substantially as described.

11. In a loom, the lay, a center filling-detector and an operating-shaft thereon, means operated by movement of the lay and governed by the detector, to rock the shaft upon failure of the filling, and a shuttle-feeler arm yieldingly mounted on said operating-shaft, combined with filling-supplying mechanism, and a spring-controlled and normally inoperative actuating-bunter therefor, provided with a finger in the path of the feeler-arm, engagement of the feeler by an improperly-positioned shuttle causing the feeler-arm to yield on the operating-shaft and thereby fail to move the bunter into operative position, substantially as described.

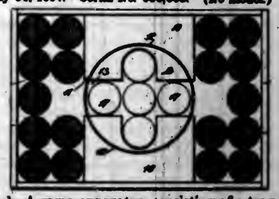
12. In a loom, the lay having a shuttle-box, a movable binder therefor provided with a feeler-stop, a shuttle-feeler and a filling-detector both mounted on the lay, an operating-shaft on the lay, to which said feeler is yieldingly connected, and means controlled by the detector to operate the shuttle-feeler upon failure of the filling, combined with filling-supplying mechanism, and a cooperating bunter having a finger to be engaged and moved by the feeler when the shuttle is properly positioned to move the bunter into operative position, the feeler-stop engaging the feeler and preventing movement thereof to actuate the bunter when the shuttle fails to enter the shuttle-box, substantially as described.

13. In a loom, the lay having a shuttle-box, a shuttle-feeler and a center filling-detector, both mounted on the lay, means, operated by movement of the lay and controlled by the detector, to actuate the shuttle-feeler upon failure of the filling, and a feeler-stop operative when the shuttle fails to enter the shuttle-box, combined with filling-supplying mechanism, and an actuator therefor moved by the shuttle-feeler into operative position when the shuttle is properly entered in the shuttle-box, substantially as described.

14. In a loom, filling-supplying mechanism, the lay having a slotted shuttle-box for the passage therethrough of a filling-carrier ejected from a shuttle, a rock-shaft on the lay, a chute on the rock-shaft below the shuttle-box, a filling-detector and connections between it and the rock-shaft to rock the latter upon failure of the filling and thereby swing the chute into operative position, substantially as described.

15. In a loom, the lay having a shuttle-box slotted for the passage therethrough of a filling-carrier ejected from a shuttle, a rock-shaft on the lay, a chute mounted on the rock-shaft, a filling-detector, and connections between it and the rock-shaft, to rock the latter upon failure of the filling, and thereby move the chute into position beneath and to conduct an ejected filling-carrier from the shuttle-box, combined with filling-supplying mechanism, and an actuating-bunter therefor moved into operative position by said rock-shaft, substantially as described.

590,093. GAME APPARATUS. DALLAS DU BOIS, Montclair, N. J. Filed May 31, 1897. Serial No. 639,093. (No model.)



Claim.—1. A game apparatus, consisting of a tray having a central partition dividing said tray into two compartments, and a turn-table located in the said partitions, the turn-table being provided with a cruciform groove or channel, one member whereof extends out to the edge of the turn-table, as and for the purpose specified.

2. A game apparatus consisting of a tray, partitions located in the said tray at each side of its center, dividing said tray into two end compartments, each partition having a segmental recess in its inner face, and a turn-table loosely placed in the recessed portions of the said partitions, the turn-table being provided with channels or grooves, one of which extends through to the margin of the turn-table, being adapted to register with the space between the partitions, as and for the purpose specified.

3. A game apparatus consisting of a tray, a partition secured in the bottom of said tray at each side of its center, the opposing faces of the partitions being provided with concaved recesses whereby the tray is provided with two end compartments, a turn-table mounted to revolve in the recessed portions of the partitions, having a cruciform groove or channel one member whereof extends out to the edge, and movable objects located in the end compartments, sufficient room being provided in each of the compartments for shifting the said objects, other movable objects being located in the channel or groove in the turn-table, the said movable objects being adapted to be differently colored or of different appearance, as and for the purpose specified.

590,094. HOSE-CLIP. JOHN T. DUNCAN, Toronto, Canada. Filed Dec. 16, 1896. Serial No. 615,902. (No model.)



Claim.—1. As a new article of manufacture, a hose-clip consisting of a split, tubular spring-band formed with inwardly-extending beads, the band being arranged to be opened up to permit of springing the band upon the hose, and upon releasing it, permit it to close by its resiliency and cause the said beads to press the flexible material of the hose into corresponding recesses on the device on which the hose is to be fastened, substantially as shown and described.

2. As a new article of manufacture, a hose-clip consisting of a split, tubular spring-band formed with inwardly-extending beads, and with apertures near the middle of the band and near the edges of the split, substantially as shown and described.

590,095. MEANS FOR CONNECTING PNEUMATIC TIRES TO WHEELS. THOMAS DUBB, London, England, assignor to the Self-Fixing Pneumatic Vehicle and Cycle Tyres Syndicate, Limited, same place. Filed Apr. 10, 1897. Serial No. 631,554. (No model.) Patented in England Jan. 15, 1896, No. 1,067.

Claim.—1. For connecting a pneumatic tire to a vehicle-wheel, a compound rim comprising an outer rim made in parts adapted to retain between them the base of a pneumatic tire, and an inner rim made in parts adapted to grip a wheel-rim between them, said inner and outer rims being adapted to be connected together so that lateral opening movement of the parts of the outer rim will cause lateral closing movement of the parts of the inner rim.

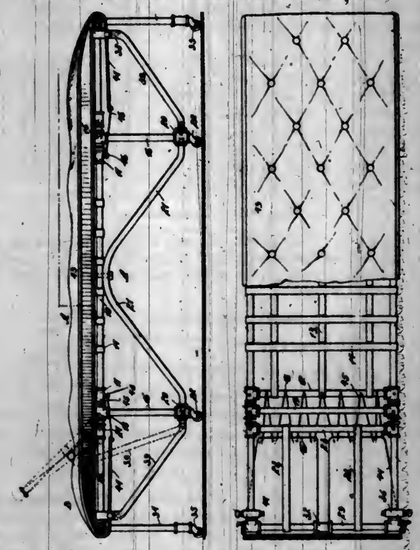


2. For connecting a pneumatic tire to a vehicle-wheel, a compound rim comprising an outer rim made in two annular parts arranged side by side and adapted to hold the edges of a tire-cover, and an inner rim of channel-section made in two annular parts arranged side by side and adapted when moved together to clamp a wheel-rim around which they are placed, each part of the outer rim being attached to that part of the inner rim that is on the opposite side of the compound rim substantially as described.

3. For connecting a pneumatic tire to a vehicle-wheel, a compound rim comprising an outer rim made in two main annular parts arranged side by side and adapted to hold the base of a pneumatic tire, and an inner rim of channel-section made in two main annular parts arranged side by side and having their adjacent edge portions crenelated and fitting one into the other and each connected to the oppositely-arranged part of the outer rim, substantially as herein described for the purpose specified.

4. For connecting a pneumatic tire to a vehicle-wheel, a compound rim comprising an outer rim made in two main annular parts 1, 1ª arranged side by side and having outwardly-hooked parts adapted to engage the edges of a tire-cover, and an inner rim made in two main annular parts 4, 4ª arranged side by side and having their adjacent edge portions crenelated and fitting one into the other and connected each to the oppositely-arranged part of the outer rim, substantially as described.

590,096. ADJUSTABLE COUCH. WILLIAM EDELEN, Brooklyn, N. Y. Filed May 19, 1897. Serial No. 637,214. (No model.)



Claim.—1. In a couch, the combination, with a body and its supports and sections pivotally attached to the body, of supports for the end sections, having sliding and frictional engagement therewith, and pivotally attached to the supports for the body, and auxiliary supports for the end sections, capable of being carried at an angle thereto or folded beneath said end sections.

2. The combination, with the body of a couch, sections pivotally attached to the ends of the same, and braces pivoted to the body and having frictional sliding engagement with the said end sections, of supports for the end sections, arranged to be carried at an angle thereto, or folded up beneath said sections, and locking devices whereby the supports may be held in adjusted position, as specified.

3. The combination, with the body of a couch and extension-sections pivoted thereto, of braces connected with the body and arranged to hold the extension-sections in various positions, and supports for the extension-sections, auxiliary to the braces, the said supports being arranged to occupy a position close to and beneath the extension-sections, or at a right angle thereto.

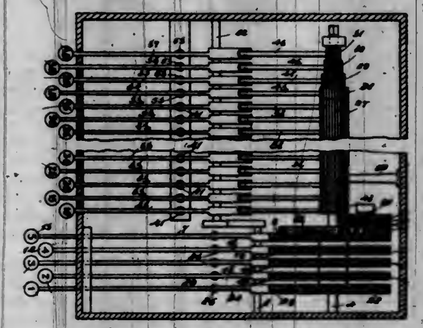
4. In a couch, the combination, with a body and a yielding bed therefor, of extension-sections pivoted to the end portions of the said body, braces pivoted to the supports for the body, and having sliding frictional engagement with the extensions at the side portions of the same, an end member of each extension being held to revolve, a support attached to the revolving member of each end or extension section, and a latch secured to a support for each of the revolving members of the extension-sections, the said members being provided with keepers for the reception of the said latches.

5. The combination with the body portion of a couch, of an end section pivoted thereto and having side bars, braces pivoted to the lower part of the body portion and extending upward at an angle, and clutches mounted to slide upon the side bars of the pivoted end section and pivoted to the upper ends of the braces, substantially as described.

6. The combination with the body portion of a couch, of an end section pivoted thereto and having side bars, braces pivoted to the lower part of the body portion and extending outward at an angle, and clutches mounted to slide upon the side bars of the pivoted end sections consisting of yokes or rings embracing the side bars to slide loosely thereon and pivoted at one side to the upper ends of the braces, substantially as described.

7. The combination with a couch having folding sections pivoted thereto, of a cross-bar pivoted to the outer edge thereof and having its ends slotted, a movable locking member adapted to engage said slots to lock the bar in different positions, and an auxiliary support carried by said cross-bar, substantially as described.

590,097. ADDING-MACHINE. WILLIAM J. EDWORTH, Erie, Pa., assignor of one-fourth to John W. Galbraith, same place. Filed Jan. 23, 1897. Serial No. 620,399. (No model.)



Claim.—1. The combination of a shaft, a plurality of ratchet-wheels fixed on the shaft, a lever for each ratchet-wheel, a pawl carried by each lever and respectively engaging the ratchet-wheels, the ratchet-wheels having teeth differently proportioned, whereby the shaft will be actuated differently upon the operation of each lever, and a registering device actuated by the shaft, substantially as described.

2. The combination of a shaft, a series of ratchet-disks fixed to the shaft, a lever for each ratchet-disk, a pawl carried by each lever and respectively engaging the ratchet-disks, the ratchet-disks being proportioned to turn the shaft different degrees of revolution, a registering device operated from the shaft, a series of differential gears fixed to the shaft, a lever for each gear, and a sector pivoted to each lever and respectively engaging the gears, substantially as described.

3. The combination of a shaft, a series of ratchet-disks fixed to the shaft, a lever for each ratchet-disk, a pawl pivoted to each lever and respectively engaging the ratchet-disks, the ratchet-disks being proportioned to turn the shaft different degrees of revolution, a registering device actuated by the shaft, a series of differential gears fixed to the shaft, and a sector engaging each gear, substantially as described.

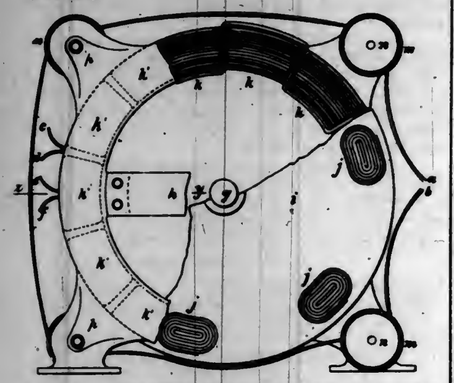
4. The combination of a series of differential gears turning on an axis common to all, a series of sectors respectively meshed with the differential gears and imparting operative movement to the gears whereby to turn the axis of the differential gears various revolutions according to the gear which is operated, and a registering device in connection with said axis and operated therefrom according to the revolution performed by said axis.

5. The combination of a shaft, a series of ratchet-disks fixed on the shaft and having each a number of teeth differing from the non-

bers of the other disks, levers respectively for the ratchet-disks, a pawl carried by each lever and respectively meshing with the ratchet-disks, a registering-wheel carried on the shaft, and a second registering-wheel mounted independently of the shaft and turned on the same.

6. The combination of a series of differential gears turning on an axis common to all, one of the gears being elongated with the axis, a plurality of sectors meshing with said elongated gear and serving to impart varying degrees of movement thereto, additional sectors respectively meshing with the remaining of the differential gears, and a registering device operated from the differential gears.

590,098. ALTERNATING-CURRENT GENERATOR. HENRY FAIRBANKS, St. Johnsbury, Vt. Filed Mar. 6, 1897. Serial No. 626,317. (No model.)



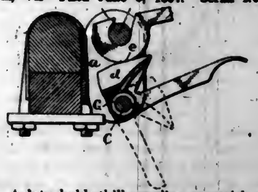
Claim.—1. A continuously-magnetized field-magnet, having its poles facing each other, each pole divided into two or more equal pole divisions, alternately right and left hand wound with generating-coils, separate inductor masses reaching nearly across between the poles, and each substantially of the size of the presenting end of one of the said pole divisions, and a non-magnetic carrier arranged in one position to present the said inductors fairly to all the right-hand-wound pole divisions, directing the magnetic flux through them, and in the next position to present these inductors to all the left-hand-wound divisions, directing this flux in the same way through them, whereby an alternating current is induced in the said generating-coils, as specified.

2. A field-magnet (or group of magnets) of which the resultant north pole is a cylindrical ring standing out toward and facing the similar resultant south pole, these poles divided at the presenting ends into pole divisions projecting like the teeth of crown-wheels, and wound alternately right and left with generating-coils, and between them a rotary, non-magnetic carrier, having separate inductor masses spaced in arc twice as far apart as adjacent pole divisions and moving close to the ends of the divisions of both poles, whereby the magnetic circuit is completed across in one position between the right-hand-wound divisions, and in the next position between those left-hand wound, and an alternating electric current is generated, substantially as specified.

3. A field-magnet of which the resultant north pole is a cylindrical ring standing out toward and facing the similar resultant south pole, these poles divided at the presenting ends into pole divisions projecting like the teeth of crown-wheels, and wound alternately right and left with generating-coils, and between them a rotary, non-magnetic carrier, having separate inductor masses arranged to move close to the ends of the divisions of both poles, the said generating-coils being connected into two or more circuits, and the pole divisions of each circuit being so spaced and arranged that all the right-hand-wound divisions of that circuit shall be fairly presented to the inductors in one position, and when the inductors have moved part of the breadth of one pole division, the right-hand-wound divisions of another circuit shall in like manner be fairly presented, whereby the induced electrical impulse in this latter circuit is part of a wave-length behind that in the first circuit, and the two currents differ in phase, as herein set forth.

4. The continuously-magnetized field, consisting of the coils *m*, *m*, wound upon the cores *n*, *n*, connecting at the ends through the extensions *p*, *p*, to the ring-poles *o*, *o'*, which carry the resultant pole extensions, divided into the pole divisions *k*, *k*, *k'*, *k'*, facing each other and right and left hand wound with the generator-coils, in combination with the carrier *i*, and inductor masses *j*, *j*, bridging across between the north and south pole divisions *k*, *k'*, *k*, *k'*, as herein described.

590,099. DETACHABLE THILL-COUPLING. WILLIAM C. FOX, Front Royal, Va. Filed June 3, 1897. Serial No. 639,294. (No model.)



Claim.—1. A detachable thill-coupling comprising a thill pivotal bolt, a thill detachable therefrom by a downward movement, and a supporting-lever situated below the thill, and having a supporting-surface engaging the thill practically in a vertical line below the thill and movable independently thereof, and an operating-arm, substantially as described.

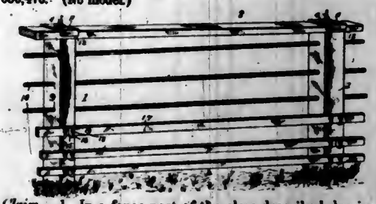
2. A detachable thill-coupling comprising a thill having an upwardly-opening eye, a draft-bolt therefor, and a supporting-lever intermediately pivoted practically in a vertical line below and movable independently of the thill, one end of the lever having a supporting-surface engaging the under side of the thill and the other end an operating-arm, substantially as described.

3. A detachable thill-coupling comprising a thill-bolt, a thill removable therefrom by a downward movement, a bell-crank-shaped lever pivotally supported in practically a vertical line below said movable independently of the thill, the upper and inner end of the lever having a supporting-surface engaging the under side of the thill, and the other end of the lever projecting outward and forming an operating-handle, substantially as described.

4. A thill-coupling comprising a thill-bolt, a thill having an upwardly-opening eye and removable from the bolt by a downward movement, a lever supported practically in a vertical line below the thill and having an upwardly-projecting eccentric supporting-surface at its inner end engaging the under side of the thill-supporting it and movable independently thereof, and a spring for normally holding the supporting-surface in engagement with the thill, substantially as described.

5. A detachable thill-coupling, comprising a thill having an open hook, a pivotal support therefor, a supporting-lever intermediately pivotally supported below said thill, the lever being essentially of a bell-crank shape, the outer end serving as an operating-handle, and a laterally-projecting eccentrically-formed locking-surface at the inner end of the lever, and a coil-spring surrounding the lever-pivot, one end of the spring engaging the lever and the other connected to the ears of the clip, substantially as described.

590,100. FENCE-POST. QUINTUS C. GRAFF, Greentown, Ind., assignor of three-fourths to Ulysses G. Mills and George W. Duke, Kokomo, and Julius Rosenheiner, Center, Ind. Filed May 14, 1897. Serial No. 636,476. (No model.)



Claim.—1. In a fence-post of the class described, having a concrete body and longitudinal brace-rods embedded therein, the combination of the central rod 3, embedded in the center of said post and having the elbow 5 upon its lower extremity and the threaded upper end projecting above said post with the nut 4, and the board-securers 6, having the eyes 13 and the straight portions 14, embedded within the post with said eyes 13 surrounding the rod 3, the integral forks 15, having the projecting upturned ends 16, extending outside the post, said upturned ends 16 being provided with the knobs 19, all as set forth.

2. The combination, with a concrete fence-post having longitudinal brace-rods 2, embedded therein, and having lateral openings 9 formed therein to receive horizontal wires 10, of the center rod 3, provided with the elbow 5 at its lower end to prevent its turning or lifting within the post and having its upper end threaded and projecting above the top of the post, with the clamping-plates 11, having the depending side flanges 12; the top rails 8, lap-jointed at their ends, and the nut 4, all as shown and described.

3. The combination in a concrete fence-post having the embedded brace-rods 2, the lateral openings 9, and the central embedded rod 3, of the board-securers 6, having the eyes 13 surrounding the central rod 3, and the straight portion 14 both embedded within the post, the integral fork ends 15 projecting from said post and integral with the upturned ends 16, the ends 16 having the knobs 19, whereby the staples 18 which surround the upturned ends 16 are prevented from slipping upwardly, with the staples 18 and the boards 17, all as set forth.

4. In combination in a fence-post of the character described, the post 1, having the lateral openings 9, and the longitudinal embedded brace-rods 2, the embedded central rod 3, having its upper end threaded and projecting above the post, and its lower end provided with the elbow 5; the clamping-plates 11, having the depending flanges 12; the board-securers 6, provided with the eyes 13 to receive the central rod 3, and having the straight portions 14, said eyes and straight portions embedded within the post and having the projecting angular forks 15 provided with the upturned ends 16, the ends 16 having the knobs 19, the staples 18 surrounding the upturned ends 16 below the knobs 19, the boards 17, the top rails 8, and the wires 10, all as set forth.

590,101. SHIP'S FORM. OTTO HARTWICH, Swinemünde, Germany. Filed Jan. 8, 1896. Serial No. 574,763. (No model.) Patented in Germany Sept. 27, 1895, No. 86,379; in England Dec. 2, 1895, No. 23,056; in France Dec. 14, 1895, No. 252,477; in Belgium Dec. 14, 1895, No. 118,554; in Norway Dec. 16, 1895, No. 4,839; in Austria Dec. 29, 1895, No. 45/5,139; in Italy Dec. 31, 1895, XXX, 40,385, and LXXIX, 225; in Finland Jan. 4, 1896, No. 604; in Hungary Jan. 7, 1896, No. 5,061; in Canada Feb. 20, 1896, No. 51,395; in Spain Apr. 11, 1896, No. 18,406; in Portugal June 20, 1896, No. 2,120, and in Denmark Jan. 14, 1897, No. 919.



Claim.—1. A ship's hull having a transversely-vaulted concave bottom with a keel extending longitudinally in said concavity, the hull when viewed in plan showing an outline which has its greatest width at or near the bow and decreases in width toward the stern, the hull being tapered at the stern and formed at the bow with a broad rounded projection located with its top surface approximately flush with the water-line and having a horizontal dividing edge, the hull further when viewed from the end or in cross-section, showing an outline which is contracted above the water-line and has rounded portions of greater width approximately level with the keel, substantially as described.

2. A ship provided at the bow with a broad forward projection located under the water-line and presenting a horizontal dividing edge, the hull having a transversely-vaulted concave bottom with the concavity extending forward to said projection, substantially as described.

590,102. PAPER BOX. JOSEPH C. HEWITT, Montclair, N. J. Filed Oct. 27, 1896. Serial No. 610,319. (No model.)



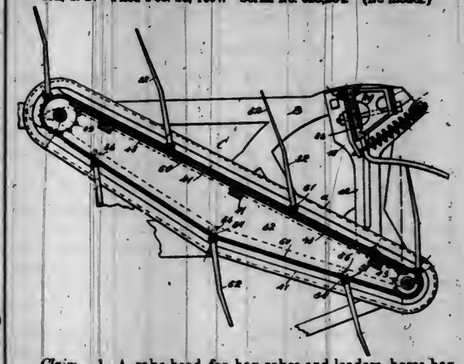
Claim.—1. A paper-box blank having four rectangular body or side sections lying side by side and adapted each to form a side of the box, two alternate side sections having flaps attached to the ends thereof and adapted to be folded over the box end, the side section lying between the two above side sections having end flaps adapted to fold over and completely cover the box end, and double tuck-flaps upon the outer ends of these end sections, one of said tuck-flaps being attached to the inner central portion thereof and the other tuck-flap surrounding the inner tuck-flap on its three outer sides and being attached to the end flap upon each side of the inner tuck-flap and folding on the same line therewith, substantially as described.

2. A paper-box blank having its side sections lying side by side and adapted each to form a side of the box, alternate side sections having flaps attached to the ends thereof and adapted to be folded over the box end, another side section having end flaps or sections adapted to fold over and extend across the box end, and double tuck-flaps upon the outer ends of these last end sections, one of said tuck-flaps being attached to the inner central portion thereof, and the other tuck-flap surrounding the inner tuck-flap on its three outer sides and being attached to the end flap upon each side of the inner tuck-flap and folding on the same line therewith, substantially as described.

3. A box formed of folded sections of paper or similar material and having an end section or flap folding upon the end edge of one side section and extending across the end of the box, and double tuck-flaps attached to the outer free edge of the end flap, the outer of these tuck-flap surrounding the other on its free sides, both tuck-flaps being separate from each other and attached to and folding upon the end section upon the same line, substantially as shown and described.

4. A box-blank formed of sections of paper or similar material and having an end section or flap adapted to fold upon the edge of one side section and to extend across the end of the box, and double tuck-flaps attached to the outer free edge of the end flap, the outer of these tuck-flaps surrounding the other on its free sides, both tuck-flaps being separate from each other and attached to and folding upon the end section upon the same line.

590,108. HAY RAKE AND LOADER. SAMUEL M. JONES, Madison, S. D. Filed Feb. 26, 1897. Serial No. 625,204. (No model.)



Claim.—1. A rake-head for hay rakes and loaders, horse hay-rakes and similar machines, consisting of end pieces, front and rear plates connecting the end pieces, truss-braces secured to the front and rear plates, and sockets located between the truss-braces and rake-teeth, the upper ends whereof are held in said sockets, the portions of the teeth contained in the head below the sockets being in engagement with the truss-braces, as and for the purpose specified.

2. A rake-head consisting of end pieces, front and rear bars or plates connecting the end pieces, braces extending from and attached to the front and rear plates or bars, sockets located between said braces, having downwardly-extending members, a space being formed between the body of the sockets and their downwardly-extending members and the braces for the reception of the shanks of the rake-teeth, as and for the purpose specified.

3. A rake-head consisting of end pieces, front and rear bars connecting the end pieces, braces connecting the front and rear bars, sockets located between said braces, having downward extensions, spaces being formed between the ends of the sockets and their extensions and the opposing surfaces of the braces, hangers secured to one of the connecting-bars for the end pieces of the head, guide-rods attached to said hangers, and springs located on the guide-rods, said guide-rods being located substantially in alinement with the spaces between the sockets and the braces, as and for the purpose specified.

4. A rake-head consisting of end pieces provided with spindles at their lower ends, front and rear bars connecting the end pieces, braces attached to the front and the rear bars, sockets formed between the braces, hangers attached to the front bar, extending below the same, rake-teeth secured in said sockets and engaging with the braces, guides attached to the hangers through which the rake-teeth pass, and tension devices carried by the guides, acting upon the rake-teeth, substantially as described.

5. A rake-head consisting of end pieces provided with spindles at their lower faces, front and rear bars connecting the end pieces, braces attached to the front and the rear bars, sockets formed between the braces, hangers attached to the front bar, extending below the same, rake-teeth secured in said sockets and engaging with the braces, guides attached to the hangers through which the rake-teeth pass, and tension devices carried by the guides, acting upon the rake-teeth, and a bar connecting the extreme rear portion of the end pieces of the head through which the guide-bars pass, said rearmost bar being engaged by the springs carried by the guide-bars, as and for the purpose specified.

6. In a hay rake and loader, the combination, with a frame consisting of side heads or boxes provided with interior angular endless channels, tracks being located within the said channels having their forward ends downwardly curved, and a flooring connecting said side heads or boxes, each side head or box having an outer channel communicating with the inner channel, of endless belts, cross-bars entering the exterior channels in the boxes, levers secured upon the

ends of the cross-bars, friction-rollers carried by the levers, adapted to travel in the aforesaid tracks, and picker-fingers secured to the said cross-bars, substantially as shown and described.

7. In a hay rake and loader, or similar machine, the combination, with a conveyer-frame consisting of side heads or boxes, each being provided with an interior angular groove forming a track, the forward end of the track being downwardly curved and the forward wall of the groove being recessed, each head or box being provided with an exterior channel communicating with the interior one, of endless carriers, cross-bars journaled upon the carriers, entering the exterior grooves in the heads or boxes, trip-levers secured upon the ends of the cross-bars, each lever having a head at one side of its center and a friction-roller at the opposite side of its center, the latter traveling on the track and the former being adapted for engagement with the recesses in the forward end wall of the box-grooves, and picker-fingers carried by said cross-bars, as and for the purpose specified.

590,104. COPY-HOLDER. FRANK JOHNS, Marion, Kans. Filed Mar. 18, 1897. Serial No. 628,171. (No model.)



Claim.—1. A copy-holder comprising two upright posts having means for supporting the copy before the operator, an indicator having frictional sliding contact thereon and extending in front of the copy, feed-rollers mounted upon the same base as the supporting-posts, means for giving them intermittent advancing rotation, and a band engaging the feed-roller and connected to the indicator-bar, substantially as described.

2. A copy-holder, comprising two upright posts having two horizontal bars at their upper ends, between which the copy is placed and by which the copy is held, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, means for giving them intermittent advancing rotation, and a band frictionally engaging the feed-rollers and connected to the indicator-bar, substantially as described.

3. A copy-holder, comprising two upright posts having two horizontal bars extending between said posts at the top, and between which the copy is placed and held, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, means for giving them intermittent advancing rotation, and a band frictionally engaging the feed-rollers and connected to the indicator-bar, substantially as described.

4. A copy-holder, comprising two upright posts having means for supporting the copy before the operator, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel attached to one of the feed-rollers, an operating-lever for rotating the same, a depression-key connected to said lever, and a band frictionally engaging the feed-rollers and connected to the indicator-bar, substantially as described.

5. A copy-holder, comprising two upright posts having two horizontal bars supported at the top of said posts and adapted to hold the copy between them, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel attached to one of the rollers, a lever engaging said ratchet-wheel to return the same, a depression-key connected to said lever, and a band frictionally engaging the feed-roller and connected to the indicator-bar, substantially as described.

6. A copy-holder, comprising two upright posts having two horizontal spring-held bars connecting their upper ends, between which bars the copy is held, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, means for giving them intermittent advancing rotation, and a band frictionally engaging the feed-roller and connected to the indicator-bar, substantially as described.

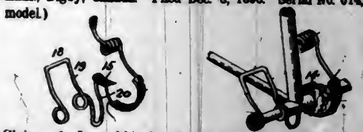
7. A copy-holder, comprising two upright posts having means for supporting the copy before the operator, an indicator having frictional sliding contact on said posts and extending in front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel fixed to one of the feed-rollers, a pawl-lever actuating the ratchet-wheel and having a toothed segment attached, a rack-bar mounted to reciprocate, and connections between the rack-bar and toothed segment, substantially as described.

8. A copy-holder, comprising two upright posts having two horizontal bars connecting their upper ends and adapted to receive the copy between them, an indicator having a frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel fixed to one of the feed-rollers, a reciprocating bar, means for connecting said bar with the ratchet-wheel to give it an intermittent advancing movement, and a band frictionally engaging the feed-roller and connected to the indicator-bar, substantially as described.

9. A copy-holder, comprising two upright posts having means for supporting the copy before the operator, an indicator having a frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel fixed to one of the feed-rollers, a pawl-lever actuating the ratchet-wheel and having a toothed segment attached, a rack-bar mounted to reciprocate and having a key or handle for engagement by the hand, a spring adapted to return the rack-bar, connections between the rack-bar and toothed segment, and a band frictionally engaging the feed-roller and connected to the indicator-bar, substantially as described.

10. A copy-holder, comprising two upright posts having means for supporting the copy before the operator, an indicator having frictional sliding contact on said posts and extending across the front of the copy, feed-rollers mounted upon the same base as the supporting-posts, a ratchet-wheel fixed to one of the feed-rollers, a pawl-lever actuating the ratchet-wheel and having a toothed segment attached, a rack-bar mounted to reciprocate and having a key or handle for engagement by the hand, a spring adapted to return the rack-bar, an adjustable stop for said rack-bar, connections between the rack-bar and toothed segment, and a band frictionally engaging the feed-roller and connected to the indicator-bar, substantially as described.

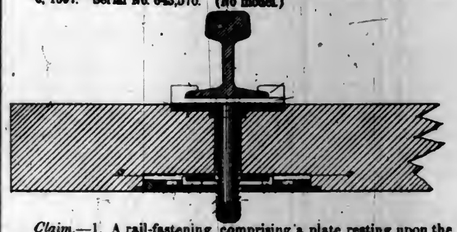
590,105. COMBINED BICYCLE STEP AND BRAKE. JAMES M. KEEN, Digby, Canada. Filed Dec. 8, 1896. Serial No. 614,914. (No model.)



Claim.—1. In a bicycle, the combination with the axle, the ratchet-wheel and collar, of the step pivotally connected with the rear axle and provided with a curved arm, the pawl pivoted thereto, the spring-arm pivotally connected with said pawl and with the rear fork of the bicycle-frame and the curved brake-shoe secured to said spring-arm, substantially as described.

2. In a bicycle the combination with the rear axle, the wheel, the ratchet-wheel and the collar, of the step consisting of the wire having one end looped around the outer end of the axle and then bent upwardly transversely and downwardly and bent around the axle and the opposite end bent downwardly inwardly and upwardly forming a curved arm, the pawl pivoted thereto, the arm connected at one end with said pawl and the other end formed with a spring-coil secured to the rear fork of the bicycle-frame, and the curved brake-shoe secured to said spring-arm, substantially as described.

590,106. RAIL-FASTENING. WALLACE C. KEEBLE, Trenton, N. J., assignor of one-half to Willis R. Doyle, same place. Filed July 6, 1897. Serial No. 643,570. (No model.)

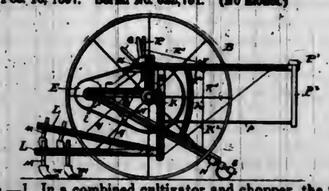


Claim.—1. A rail-fastening, comprising a plate resting upon the tie and having a pivot attached thereto and extending downward through the tie, said pivot having teeth upon opposite sides of its lower end, upwardly-projecting lugs upon said plate adapted to engage the rail-base when the plate is revolved, and spring-held slides beneath the tie adapted to engage the teeth of said pivot when the plate is turned to hold the rail-base, substantially as described.

2. A rail-fastening, comprising a plate resting upon the tie and having a pivot attached thereto and extending downward through the tie, said pivot having teeth upon opposite sides of its lower end, upwardly-projecting lugs upon said plate adapted to engage the rail-base when the plate is revolved, a plate secured beneath the tie, having a hole for said pivot, and spring-held slides mounted upon said plate and adapted to engage the pivot, substantially as described.

3. A rail-fastening, comprising a plate resting upon the tie and having upwardly-projecting lugs adapted to engage and release the rail-base when rotated relatively thereto, a pivot-bar fixed thereto and extending through the tie, said bar having its lower end beveled or formed as a wedge, the edge thereof extending across the direction of the rail, and having the sides at right angles to these bevels notched to form ratchet-teeth, a plate beneath the tie having a hole for said pivot-bar, and spring-held slides adapted to project across said opening and engage the teeth upon the bar, substantially as described.

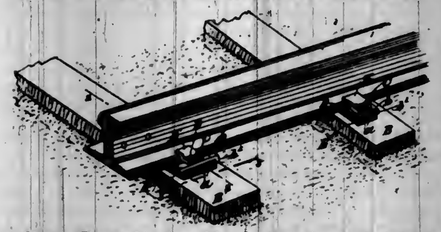
590,107. COTTON-CHOPPER. WILLIAM D. LATTA, Holliday, Tex. Filed Feb. 10, 1897. Serial No. 622,731. (No model.)



Claim.—1. In a combined cultivator and chopper, the frame H downwardly inclined toward the front and provided in its bearings with two shafts at right angles to each other, a bevel-gear to connect said shafts and a sprocket-pinion on the transverse shaft, in combination with a sprocket-wheel fast to a hub of one of the loose ground-wheels and connected by a chain with the said sprocket-pinion; whereby the chopper is revolved from a ground wheel by the train of mechanism specified.

2. In a combined cultivator and chopper, the combination with the connected frames H S, of the rod R', and shaft R², the latter having a crank-arm on one end and an arm connected by an end-pivoted rod with the frame H; whereby the chopper may be raised and lowered in the manner and for the purpose set forth.

590,108. RAILROAD-RAIL CHAIR. MAURICE LEWIS, West Grove, Pa. Filed May 26, 1897. Serial No. 638,543. (No model.)



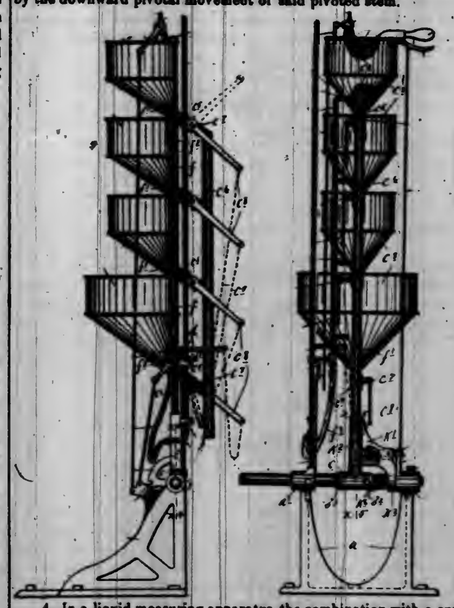
Claim.—The combination with a perforated cross-tie, bolts secured therein, and nuts on the threaded upper ends of said bolts, of a railroad-rail, a cushioned chair therefor, comprising a series of superposed, thin metallic sheets, a cap-piece therefor, and clamping-plates resting their heels on the cap-piece, and their toes upon the base-flange of the rail, said clamping-plates receiving the threaded ends of the bolts and being held in clamping condition by the nuts on said bolts, substantially as described.

590,109. LIQUID-MEASURING MACHINE. THOMAS R. MATHER, Minnewaukon, N. D. Filed July 10, 1896. Serial No. 598,701. (No model.)

Claim.—1. In a liquid-measuring apparatus, the combination with a supply-pipe provided with a liquid-discharge passage, of a series of measuring vessels mounted on a common pipe or hollow stem, the lower end of which stem is pivoted on said supply-pipe and provided with a port adapted for cooperation with the discharge-passage of said supply-pipe, substantially as described.

2. In a liquid-measuring apparatus, the combination with a supply-pipe provided with a liquid-discharge passage, of a series of measuring vessels mounted on and in communication with a common pipe or hollow stem, the lower end of which stem is pivoted on said supply-pipe and provided with a port which, in the horizontal position of the same, registers with the discharge-passage of said supply-pipe, substantially as described.

3. In a liquid-measuring apparatus, the combination with a supply-pipe provided with a liquid-discharge passage, of a hollow pipe or stem pivoted on said supply-pipe and provided with a port adapted to register with the discharge-passage of said supply-pipe in the horizontal position of said stem, a series of measuring vessels mounted on said stem and in communication therethrough, a series of branch discharge-pipes extending one from each of said vessels, valves in said branch pipes, and means for positively closing all of said valves by the downward pivotal movement of said pivoted stem.



4. In a liquid-measuring apparatus, the combination with a supply-pipe provided with a liquid-discharge passage, a stem or pipe pivoted on said supply-pipe and provided with a port which in the horizontal position of said stem is adapted to register with the discharge-passage of said supply-pipe, a series of measuring vessels mounted on and in communication through said stem, a common discharge-pipe, branch pipes extending from each of said vessels to said discharge-pipe, valves in said branch pipes provided with valve-arms, and flexible connections secured to said valve-arms and to a fixed support, substantially as described.

5. In a liquid-measuring apparatus, the combination with a supply-pipe provided with a discharge-passage, of a pipe or hollow stem pivoted on said supply-pipe and provided with a port which, in the horizontal position of said stem, registers with said supply-pipe discharge-passage, a series of measuring vessels mounted on and in communication with said stem, an air-vent pipe opening from each of said vessels, a valve in said vent-pipe, connections which automatically close said valve when said pivoted stem is turned upright, an air-inlet in the uppermost vessel, a valve in said air-inlet, and connections from said latter valve which automatically open the same when said hollow stem is turned into an upright position, substantially as described.

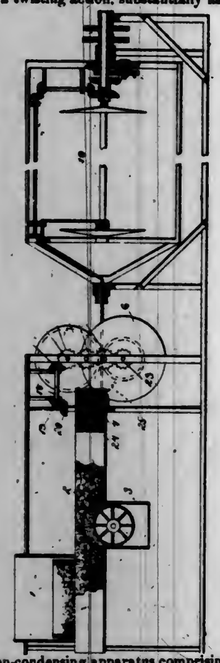
590,110. COTTON-BALING APPARATUS. CHARLES L. MELCHER, Swiss Alp, Tex. Filed July 23, 1896. Serial No. 600,804. (No model.)

Claim.—1. A cotton-lint-compressing apparatus comprising a lint-collecting trough or chamber, receiving collecting and compressing rollers situated at the outlet end of the trough or chamber which compress the cotton into a web, rollers situated outside of the said collecting and compressing rollers and journaled at right angles thereto between which the web is compressed edgewise into rope form, and a twisting mechanism situated beyond the last-named rollers receiving and twisting the cotton as it passes in rope form therefrom, substantially as described.

2. A cotton-lint compressing or condensing apparatus comprising a receiving and collecting chamber into which the lint is fed from the gin, collecting and compressing rollers situated at the outlet end of the chamber which collect the lint and compress it into web form, coacting peripherally-grooved rollers journaled at right angles to the collecting and compressing rollers and situated on a line drawn between them which receive the web and compress it into rope form, and a twisting apparatus receiving the rope form lint and compressing the same by twisting it, substantially as described.

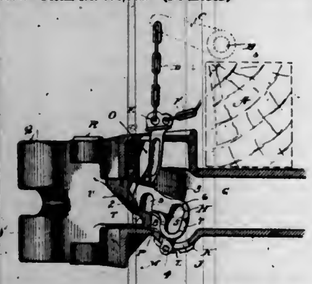
3. A cotton-lint-compressing apparatus comprising a collecting

flue or chamber into which the lint is fed from the gin, collecting and compressing rollers situated at the outlet end of the flue for compressing the cotton into web form, a blower situated between the gin and the rollers for drawing and forcing the lint to and against the collecting-rollers, rollers situated outside of the collecting and compressing rollers which receive and compress the web into a rope form, and a twisting apparatus receiving the rope-shaped lint and compressing it by a twisting action, substantially as described.



4. A cotton-condensing apparatus comprising a receiving-chamber for the lint, collecting and compressing rollers at the outlet end of the chamber which collect and compress the lint into a web shape, rollers situated outside of the said collecting and compressing rollers and journaled at right angles thereto, said rollers having peripheral grooves, one roller being a female and receiving the other a male roller, whereby the web-shaped cotton is compressed into rope form, and a twisting mechanism receiving the rope-shaped lint and compressing the same by a twisting action, substantially as described.

590,111. CAR-COUPLING. DANIEL W. MURPHY, Marion, Ohio, assignor to the Marion Car Coupler Company, same place. Filed Apr. 12, 1897. Serial No. 631,682. (No model.)



Claim.—1. In a car-coupler, the combination with a draw-head, of a locking-dog pivoted therein and for that purpose provided with recesses in its sides and trunnions on the draw-head fitting in said recesses.

2. In a car-coupler, the combination with a draw-head of a locking-dog pivotally mounted therein and having recesses in each side and an additional recess in one side, and trunnions on the draw-head for the opposite recesses and a third trunnion for the additional recess.

3. In a car-coupler, the combination with the draw-head, of a locking-dog pivoted therein, and having recesses in each side, an additional recess in one side, a cut-away place to give access to said recesses, and trunnions and a stud carried by the head and adapted to fit two of the recesses, and the stud adapted to fit the additional recess.

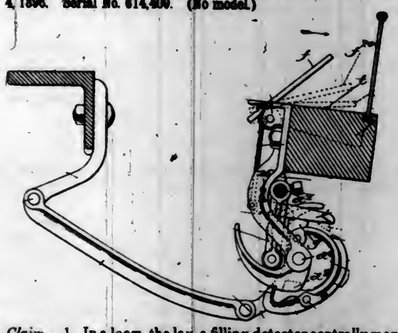
4. In a car-coupler, the combination with a draw-head, of a locking-dog therein, the head having a slot in the bottom wall and having trunnions, and the dog having recesses in its sides in which said trunnions fit and having also a shank extending through said slot, and a device to prevent upward withdrawal of the shank through the slot.

5. In a car-coupler, the combination with a draw-head, of a locking-dog consisting of a block of metal with recesses 5, 6, 9 and cut-away parts 7 and 8, and integral trunnions H and an integral stud I on the draw-head, the dog being insertible into the draw-head and adapted to be mounted upon said trunnions and to be additionally sustained by said stud.

6. In a car-coupler, the combination with a draw-head having trunnions, stops and a stud, of a locking-dog having opposite recesses which receive said trunnions and an additional recess for said stud and adapted to pivot on the trunnions and be limited by said stops.

7. In a car-coupler, the combination with a draw-head, a knuckle pivoted therein, the draw-head having trunnions, of a locking-dog having recesses in its opposite faces which receive said trunnions, a pin secured to the dog and extending out through the head, and means to actuate said pin.

590,112. LOOM. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed Dec. 4, 1896. Serial No. 614,409. (No model.)



Claim.—1. In a loom, the lay, a filling-detector centrally mounted thereon, means controlled by movement of the lay to cause said detector to detect the presence or failure of the filling; a bunter on the lay, and connections between it and the detector, to move said bunter into operative position upon failure of the filling, combined with take-up mechanism, controlling means therefor actuated by the bunter when in operative position, and an independent device actuated by the bunter when in normal position, to render said controlling means inoperative, substantially as described.

2. In a loom, the lay, a filling-detector thereon, and a bunter controlled by said detector, combined with take-up mechanism, including a ratchet-wheel and actuating-pawl, and controlling means therefor including a notched rocker-arm having a toe to engage the actuating-pawl, a swinging actuator eccentric to said rock-arm and provided with a pawl to engage the notches of the rocker-arms successively, and springs to return the rocker-arm and actuator to normal position, the actuator being swung in opposition to its spring by the bunter when in abnormal position due to failure of the filling, whereby the take-up is rendered inoperative during failure of the filling, substantially as described.

3. In a loom, the lay, a filling-detector thereon, means to positively move it to detect the filling, a controlling device for said means, operated by movement of the lay, and a bunter moved by or through said detector into operative position upon failure of the filling, combined with take-up mechanism, and controlling means therefor including a notched rocker-arm, and an actuator provided with a pawl to engage the notches thereof successively, said actuator being moved at each beat of the lay by engagement with the bunter when in operative position, substantially as described.

4. In a loom, the lay, a filling-detector mounted thereon, a bunter, and connections between it and the detector, combined with take-up mechanism, controlling means therefor, operated by the bunter when in operative position, to stop the take-up, and an independent device controlled by said bunter when in normal position to render the controlling means inoperative, substantially as described.

5. In a loom, the lay, a filling-detector mounted thereon and operative by movement of the lay to detect the filling, combined with take-up mechanism, normally-inoperative controlling means therefor to stop the take-up, a bunter controlled by the detector, to actuate said means upon failure of the filling, and a detent to maintain said means operative, the bunter when in normal position due to subsequent presence of the filling cooperating with the detent and releasing said controlling means substantially as described.

6. In a loom, the lay, a filling-detector thereon, and a bunter controlled as to its position by said detector, combined with take-up mechanism, means actuated by the bunter when in abnormal position due to failure of the filling, to stop the take-up, and independent means actuated by said bunter upon its return to normal position to release the take-up, substantially as described.

7. In a loom, the lay, a bunter thereon, means operative upon failure of the filling to move the bunter into abnormal position; take-up mechanism, including an actuating-pawl, a notched rocker-arm to render it inoperative, an actuator for said arm, adapted to be engaged and moved at each pick by the bunter when in abnormal position, a detent to engage successive notches of said arm at successive picks, and a releasing-dog on the detent, engaged by the bunter when returned to normal position, to thereby throw the take-up pawl into operation, substantially as described.

8. In a loom, the lay, a bunter thereon, means to control its position upon failure of the filling; take-up mechanism, and normally-inoperative controlling means therefor, said means including a device to throw the take-up out of operation when acted upon by the bunter, and a detent to maintain the take-up inoperative, said controlling means being rendered inoperative by the bunter when returned to normal position, releasing the detent, substantially as described.

9. In a loom, the lay, and a normally-inoperative bunter thereon and means to move it into operative position upon failure of the filling, combined with take-up mechanism, a device to render it inoperative, said device being actuated by the bunter in abnormal position, and a detent to maintain the said device operative, the bunter when in normal position acting to render the detent inoperative, substantially as described.

10. In a loom, the lay, a filling-detector mounted thereon, means to positively move it to detect the filling, a bunter, controlling means therefor, a pawl and its carrier, rocked at each beat of the lay, and a device controlled by the position of the detector, to move the pawl relatively to its carrier and thereby operate the bunter-controlling means when the filling fails, substantially as described.

11. In a loom, the lay, a rock-shaft mounted thereon and provided with a bunter, a normally-inoperative bunter-cam, connections between it and the rock-shaft, a pawl-carrier mounted on and rocked by movement of the lay, a pawl on said carrier, a filling-detector, and connections between it and the pawl to cause the latter to engage and operate the bunter-cam upon the failure of the filling, whereby the bunter is moved into operative position, substantially as described.

12. In a loom, the lay, a filling-detector pivotally mounted thereon, a carrier on and rocked by movement of the lay, a cam-arm pivoted on said carrier and normally resting against its periphery, a device controlled by the position of the detector and having a toe to be engaged by either the cam-arm or by the periphery of the carrier, engagement thereof with the cam-arm acting to lift the detector from the filling after detection thereof, substantially as described.

13. In a loom, the lay, a filling-detector and a bunter mounted thereon, a normally-inoperative bunter-cam, a pawl-carrier rocked by movement of the lay, a cam-actuating pawl pivoted on the carrier, and connections between the detector and pawl, to move the latter to engage and actuate the bunter-cam upon failure of the filling, substantially as described.

14. In a loom, the lay, a filling-detector and a bunter mounted thereon, a normally-inoperative bunter-cam, a pawl-carrier rocked by movement of the lay, a cam-actuating pawl pivoted thereon, having a cam extension normally adjacent the periphery of the pawl-carrier, a lever adapted to normally travel upon said extension, to lift the detector from the filling, and connections between said lever and the detector, whereby upon failure of the filling the said lever will move the pawl to engage and operate the bunter-cam, substantially as described.

15. In a loom, the lay, a spring-controlled filling-detector and a bunter mounted thereon, a bunter-cam, a pawl-carrier rocked by movement of the lay, a cam-actuating pawl pivoted thereon, a lifting-dog for the detector also mounted on said carrier, and connections between the detector and pawl, to move the latter into engagement with and to actuate the bunter-cam upon failure of the filling, the lifting-dog acting upon said connections on the backward stroke of the lay to lift the detector for the passage of the shuttle, substantially as described.

16. In a loom, a filling-detector, means to positively move it across the path of the filling, to detect presence or absence thereof, and independent means to give the detector an auxiliary movement away from the detected filling, to avoid stretching or crinkling the latter, substantially as described.

17. In a loom, the lay, a filling-detector mounted thereon, an actuating-spring to positively move said detector toward and to detect the filling, connections, including a lever, between the detector and its spring, and means controlled by movement of the lay to rock said lever and thereby quickly raise the detector from the detected filling, substantially as described.

18. In a loom, the lay, a rock-shaft thereon having a bunter and a rocker-arm, a normally loose bunter-cam in engagement with said arm, a filling-detector and means operative upon failure of the filling to rock the bunter-cam and move the bunter into operative position, substantially as described.

19. In a loom, the lay, take-up mechanism, a controlling-bunter and its rock-shaft, mounted on the lay, a filling-detector, a spring to move it toward and to detect the filling, a bunter-cam, actuating means therefor moved by the lay and operative upon failure of the filling, and a device operated by said means to quickly move the detector in opposition to its spring away from the filling after detection thereof, substantially as described.

20. In a loom, the lay, a filling-detector mounted thereon, a spring to move the detector across the path of the filling, means to raise the detector on the backward beat of the lay to permit the passage of the shuttle, and independent means to give a secondary lifting movement to the detector away from and after detection of the filling, substantially as described.

21. In a loom, a filling-detector, means to positively move it across the path of the filling, to detect presence or absence thereof, a stop to limit the throw of said detector, and means operated by the movement of the lay to give the detector an auxiliary movement away from the detected filling, to avoid stretching or crinkling the latter, substantially as described.

22. In a loom, the lay, a filling-detector and a bunter mounted thereon, and means actuated by movement of the lay and operative upon failure of the filling, to move the bunter into abnormal position, combined with stopping mechanism for the loom, and controlling means therefor, actuated by the bunter when in abnormal position, to stop the loom after failure of the filling for a predetermined number of picks, substantially as described.

23. In a loom, the lay, a filling-detector and a bunter mounted thereon, means actuated by movement of the lay and operative upon failure of the filling, to move the bunter into abnormal position, and stopping mechanism for the loom, combined with a knock-off arm for said mechanism, and step-by-step operating means for said arm, actuated by the bunter when in abnormal position, to stop the loom after failure of the filling for a predetermined number of picks, substantially as described.

590,113. DEVICE FOR USE OF BASE-BALL PITCHERS. EDWARD J. PRINDLE, Torrington, Conn. Filed Nov. 5, 1896. Serial No. 611,163. (No model.)



Claim.—1. A device for the use of base-ball players in pitching curved balls, said device having means whereby it may be secured upon the hand, and provided with a roughened surface adapted to engage with the covering of a ball, substantially as specified.

2. A device for the use of base-ball players in pitching curved balls, said device having means whereby it may be secured upon a finger of the hand, and provided with an aggregation of small points or projections which are designed to positively engage the covering of a ball, substantially as specified.

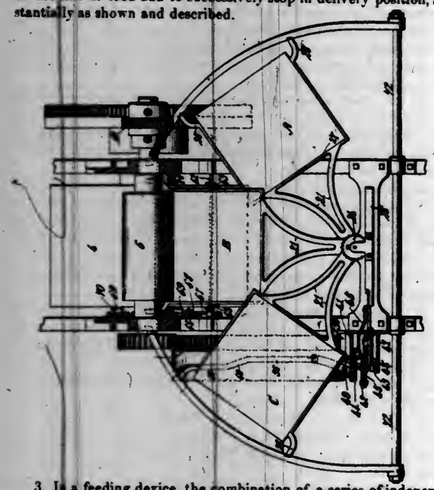
3. A device for the use of base-ball players in pitching curved balls, said device having means whereby it may be secured upon a finger of the hand, and having also a surface provided with a plurality of sharp points which are designed to positively engage the covering of a ball, substantially as specified.

4. A device for the use of ball-players in pitching curved balls, said device comprising a circular band of material having some elasticity and adapted to be slipped upon one of the fingers, said band being open at the back, and having at the opposite side an aggregation of metallic points or projections adapted to positivaly engage the covering of the ball, substantially as specified.

590,114. FEEDER ATTACHMENT FOR PRINTING-PRESSES. JUDAH T. ROBERTSON, New York, N. Y. Filed Dec. 23, 1895. Serial No. 573,065. (No model.)

Claim.—1. In a feeding device, the combination of a series of independently-movable feeders adapted to be successively presented in delivery position, at the same point, substantially as shown and described.

2. In a feeding device, the combination of a series of independently-movable feeders adapted to move transversely across the path of the line of feed and to successively stop in delivery position, substantially as shown and described.



3. In a feeding device, the combination of a series of independently-movable feeders adapted to successively deliver to the same point, each feeder adapted to remain at rest in position to receive during the delivery of the other feeders, substantially as shown and described.

4. A printing-press provided with independently-movable multiple feeder-boards adapted to be successively presented in delivery position at the same point, substantially as shown and described.

5. A printing-press provided with a series of independently-movable feeders adapted to be successively presented to the press at the same point in position to deliver, substantially as shown and described.

6. A printing-press provided with a series of independently-movable feeders adapted to be successively presented to the press in position to deliver, and means for accurately registering said feeders independently when in said position to deliver, substantially as shown and described.

7. A printing-press provided with a series of independently-movable feeders adapted to move transversely across the path of the line of feed to the press and to successively stop in position to deliver to said press, substantially as shown and described.

8. In a printing-press, the combination with a printing-couple, of a series of independently-movable feeder-boards, means for successively presenting the same to substantially the delivery position, and means for positioning the same independently to the proper delivery plane, substantially as shown and described.

9. A printing-press provided with a series of independently-movable feeders adapted to move transversely across the path of the line of feed to the press and to successively stop in position to deliver to said press, and means for successively positioning said feeders to the proper delivery plane, substantially as shown and described.

10. A printing-press provided with a series of independently-movable feeders adapted to move transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, substantially as shown and described.

11. A printing-press provided with a series of independently-movable feeders adapted to move transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, and means for successively positioning said feeders to the proper delivery plane, substantially as shown and described.

12. A printing-press provided with a series of independently-movable feeders adapted to move transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, means for successively positioning said feeders to the proper delivery plane, and means for accurately registering said feeders when in position to deliver, substantially as shown and described.

13. A printing-press provided with a series of independently-movable feeder-boards adapted to vibrate transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, substantially as shown and described.

14. A printing-press provided with a series of independently-movable feeders adapted to successively deliver to said press, at the same point, each feeder adapted to remain at rest in lying on position during the delivery of the other feeders, substantially as shown and described.

15. A printing-press provided with a series of feeder-boards adapted to vibrate transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, each feeder-board adapted to alternately remain at rest on each side of the delivery position during the delivery of the other feeder-boards, substantially as shown and described.

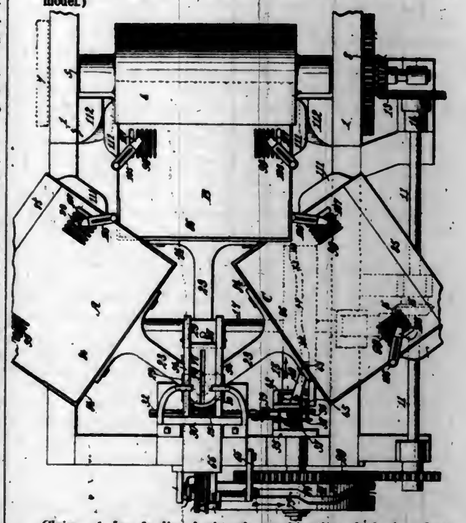
16. In a printing-press, the combination with a printing-couple, and a series of feeder-boards adapted to vibrate transversely in the arc of a circle across the path of the line of feed to the press and to successively stop in position to deliver to said press, of a series of racks for operating said feeder-boards, and a cam-wheel geared to the plate-cylinder and adapted to operate the racks and feeder-boards through intermediate mechanism, substantially as shown and described.

17. In a printing-press, the combination with a series of feeders adapted to successively deliver to said press, of a cam-wheel operated by the press mechanism and having differently-disposed races, and intermediate mechanism connecting the races of said cam-wheel independently with each feeder, substantially as shown and described.

18. In a printing-press, the combination with a series of feeder-boards, and mechanism for causing the same to successively deliver to the press, of claws secured to and projecting from each side of the delivery ends of said feeder-boards, and segmental supports having individual grooves for the claws of each feeder-board and adapted to receive and support the same during their travel to and from the delivery position, substantially as shown and described.

19. In a printing-press, the combination with a series of feeder-boards, and mechanism for causing the same to successively deliver to the press, of claws secured to and projecting from each side of the delivery ends of said feeder-boards, segmental supports having individual grooves for the claws of each feeder-board and adapted to receive and support the same during their travel to and from the delivery position, and means for adjusting said feeder-boards to the proper delivery plane when said feeder-boards are in the path of the line of delivery to the press, substantially as shown and described.

590,115. FEEDER FOR PRINTING-PRESSES. JUDAH T. ROBERTSON, New York, N. Y. Filed May 2, 1896. Serial No. 589,967. (No model.)



Claim.—1. In a feeding device, the combination of a feeder adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, said movements being in substantially the same plane, substantially as shown and described.

2. In a feeding device, the combination of a series of independently-movable feeders adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, substantially as shown and described.

3. In a feeding device, the combination of a series of independently-movable feeders adapted to vibrate transversely across the path

of the line of feed and to reciprocate into and away from the delivery position, substantially as shown and described.

4. In a feeding device, the combination of a series of independently-movable feeders adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, and means whereby but one of these movements at a time is permitted to each feeder, substantially as shown and described.

5. A printing-press provided with a series of feeder-boards adapted to move transversely across the path of the line of feed to the press and to reciprocate into and away from the delivery position, substantially as shown and described.

6. A printing-press provided with a series of feeder-boards adapted to vibrate across the path of the line of feed to the press and to reciprocate into and away from the delivery position, substantially as shown and described.

7. A printing-press provided with a series of feeder-boards adapted to have an independent movement transversely across the path of the line of feed to the press, and to reciprocate into and away from the delivery position, substantially as shown and described.

8. A printing-press provided with a series of feeder-boards adapted to have an independent movement transversely across the path of the line of feed to the press, and to reciprocate independently into and away from the delivery position, substantially as shown and described.

9. A printing-press provided with a series of feeder-boards adapted to move transversely across the path of the line of feed to the press and to reciprocate into and away from the delivery position, said movements being in substantially the same plane and means whereby but one of these movements at a time is permitted to each feeder, substantially as shown and described.

10. In a printing-press, the combination of a series of vibrating and reciprocating feeder-boards having their bearings mounted one above the other, and means for presenting the front ends of said feeder-boards successively to a single delivery-point, substantially as shown and described.

11. In a printing-press, the combination with a series of feeders adapted to deliver successively to said press, of cam-wheels adapted to impart to said feeders a transverse movement across the path of the line of feed to the press and a reciprocating movement into and away from the delivery position, substantially as shown and described.

12. In a printing-press, the combination with a series of feeders adapted to deliver successively to said press, of cam-wheels adapted to impart to said feeders an independent transverse movement across the path of the line of feed to the press, and an independent reciprocating movement into and away from the delivery position, substantially as shown and described.

13. In a printing-press, the combination with a series of feeder-boards, of a cam-wheel, levers connecting said cam-wheel with the feeder-boards whereby a reciprocating movement into and away from the delivery position is imparted to the latter from said cam-wheel, and intermediate mechanism between said levers and feeder-boards for imparting a longer reciprocation to the said feeder-boards than is given to said levers, substantially as shown and described.

14. In a printing-press, the combination with a series of feeder-boards adapted to reciprocate into and away from the delivery position, racks carried by said feeder-boards, racks fixed to the press-frame, a pinion for each feeder-board meshing with one of said feeder-board racks and one of the fixed racks, a rotating cam-wheel, and intermediate pivoted levers connected to said pinions and having their other ends engaged by said cam-wheel, all operating to impart a longer reciprocating movement to the feeder-boards than is imparted to said levers from the cam-wheel, substantially as shown and described.

15. In a printing-press, the combination with a series of feeder-boards adapted to deliver successively to said press, of cam-wheels operated by the press mechanism and having differently-disposed races in their peripheries, and levers connecting said cam-wheels with the feeder-boards, all operating to impart to said feeder-boards an alternate vibrating movement and a reciprocating movement with respect to the line of feed to the press, substantially as shown and described.

16. In a printing-press, the combination with a series of feeder-boards, of a series of guideways in which said feeder-boards are mounted, said guideways converging toward their front ends, and means for reciprocating said feeder-boards in said guideways, the whole operating to bring said feeder-boards to the same delivery-point when in their projected position, substantially as shown and described.

17. In a printing-press, the combination with a series of feeder-boards, arms fixed to said feeder-boards and projecting rearwardly therefrom, bearings on which said arms are mounted intermediate their length, and guideways in which said bearings are mounted, of cam-wheels and intermediate mechanism whereby an alternate and independent bodily reciprocating movement and a vibrating movement on said bearings are imparted to said arms and attached feeder-boards, substantially as shown and described.

18. In a printing-press, the combination with a series of feeder-boards, and means for reciprocating the same into and away from the delivery position, of guides fixed to the press-frame in proximity to the delivery position and adapted to engage with the sides of the feeder-boards as the latter approaches the delivery position to adjust the same both vertically and horizontally to the exact delivery position, substantially as shown and described.

19. In a printing-press, the combination with a series of feeder-boards having wings or projections fixed to the sides thereof near their front ends, and means for reciprocating said boards into and away from the delivery position, of guides fixed to the press-frame in proximity to the delivery position and adapted to engage with the wings or projections on the feeder-boards as the latter approach the delivery position to adjust the same both vertically and horizontally to the exact delivery position, substantially as shown and described.

20. In a feeder-board for printing-presses, the combination with the body of the board having a series of longitudinal slots thereon, of a cross-bar extending transversely of the board beneath the body of the same and adjustable longitudinally of the same, transverse shafts pivoted in bearings on said cross-bar beneath said slots, nuts carried by said shafts and adjustable longitudinally thereon, pin-points mounted in said nuts and adapted to normally project through the slots in the body of the board, springs engaged with said shafts and their bearings to exert a normal tension on the shafts in one direction, and stops on said shafts for limiting the rotation of the same in that direction, substantially as shown and described.

21. In a feeder-board for printing-presses, the combination with pin-points projecting through the body thereof, of resilient fingers mounted on the sides of the board and having apertures registering with said pin-points and adapted by manual pressure to force the paper, when passed therebetween, into engagement with said pin-points and to spring back to their normal position when pressure is removed therefrom, substantially as shown and described.

22. In a feeder-board for printing-presses, the combination with adjustable pin-points projecting through the body thereof, of adjustable resilient fingers mounted on the sides of the board and having apertures adapted to register with said pin-points and adapted by manual pressure to force the paper, when passed therebetween, into engagement with said pin-points and to spring back to their normal position when pressure is removed therefrom substantially as shown and described.

23. In a feeder-board for printing-presses, the combination with adjustable pin-points projecting through the body thereof, of fingers mounted on longitudinal adjustable bearings on the sides of the board and centrally slotted longitudinally to provide adjustable connections with their said bearings, the said fingers formed at their outer ends of transparent or semitransparent material having apertures therein adapted to register with the pin-points, substantially as shown and described.

24. In a feeding device, the combination of a feeder adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, said movements being in substantially the same plane, and means whereby but one of these movements at a time is permitted to said feeder, substantially as shown and described.

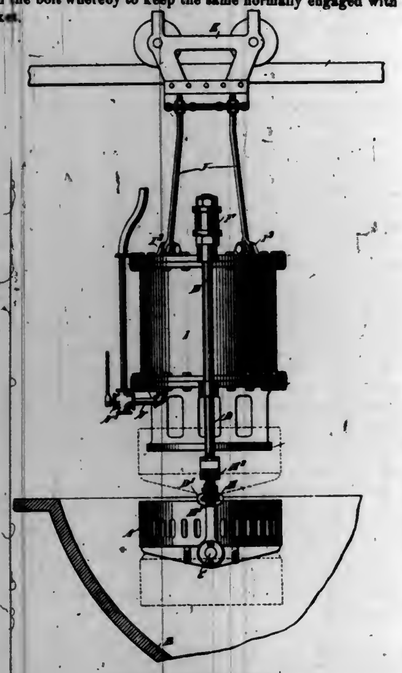
25. In a feeding device, the combination of a feeder adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, said movements being in substantially the same plane, and means whereby the same, while in its reciprocating movement, is automatically locked against its transverse movement, substantially as shown and described.

26. In a feeding device, the combination of a feeder adapted to move transversely across the path of the line of feed and to reciprocate into and away from the delivery position, said movements being in substantially the same plane, and means whereby the same, while in its transverse movement, is automatically locked against its reciprocating movement, substantially as shown and described.

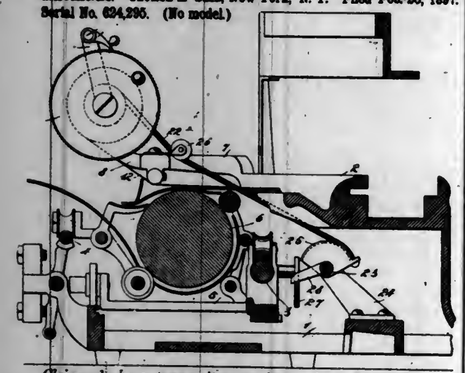
590,116. SKIM-PRESS. RUDOLF RUETSCHI, Argentine, Kans., assignor to the Consolidated Kansas City Smelting and Refining Company, Kansas City, Mo. Filed Sept. 13, 1896. Serial No. 606,196. (No model.)

Claim.—1. The combination of a cylinder, a piston moving in the cylinder, a piston-rod attached to the piston and movable through the upper head of the cylinder, a cross-head attached to the upper end of the piston-rod, and projecting beyond the sides of the cylinder, a rod held vertically movable at each side of the cylinder, the rods being respectively attached to the ends of the cross-head and projecting downward below the cylinder, a shaft held by the lower ends of the rods, a perforated basket rockably mounted on the shaft, a platen carried rigidly by the lower end of the cylinder against which platen the basket is moved as the rods reciprocate, and means for removably locking the basket in place.

3. The combination of two rods, a shaft held transversely between the rods, a basket pivotally mounted on the shaft, a bolt sliding transversely in one rod and capable of engaging the basket to hold the same horizontally on the shaft and a weighted lever fulcrumed to the rod that carries the bolt, the lever having connection with the bolt whereby to keep the same normally engaged with the basket.



590,117. RIBBON-FEED MECHANISM FOR TYPE-WRITING MACHINES. GEORGE A SEIB, New York, N. Y. Filed Feb. 20, 1897. Serial No. 624,295. (No model.)

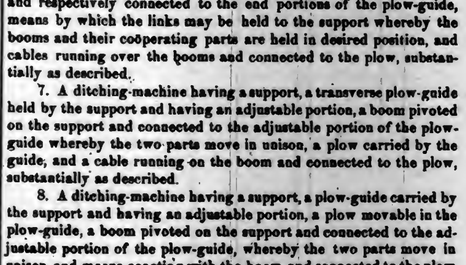


Claim.—1. In a type-writer, an impression-roller carriage, a rock-shaft operated by a longitudinal movement of the same, ribbon-wheels, an arm mounted to rotate independently of the ribbon-wheels, a dog carried by said arm for engagement with the ribbon-wheels, and a connection between the rock-shaft and the sleeve upon which said arm is mounted, substantially as specified.

2. In a type-writer, an impression-roller carriage, a rock-shaft, an inclined plate carried by the carriage, a finger extended from the rock-shaft and engaging on said plate, a stud extended from an arm on the frame of the machine, ribbon-wheels mounted to rotate independently on said stud, a sleeve mounted to rotate on said stud, an arm extended from the sleeve, a shaft extended from the arm, a dog mounted on said shaft to engage with the ribbon-wheels, and a flexible connection between the sleeve and rock-shaft, substantially as specified.

3. In a type-writer, an impression-roller carriage, an inclined plate carried by said carriage, a rock-shaft having a finger engaging the said plate, a segment on the rock-shaft, a stud extended from an arm on the frame of the machine, ribbon-wheels mounted to rotate independently on said stud and having flanges provided with ratchet-teeth, a sleeve mounted to rotate on the stud, an arm extended from said sleeve, a shaft extended from the arm, a dog mounted to swing on the shaft and adapted to engage with the ratchet-teeth of either one of the wheels, a grooved pulley on the sleeve, a flexible connection between said grooved pulley and the segment on the rock-shaft, and a spring for rotating the sleeve to its rearward position, substantially as specified.

590,118. DITCHING-MACHINE. DAVID K. SMITH, Pico Heights, Cal. Filed Jan. 14, 1897. Serial No. 619,250. (No model.)



Claim.—1. A ditching-machine having a support, a platform pivoted thereon and projecting upwardly therefrom, means for holding the platform in position with reference to the support, two booms pivoted to the platform and projecting oppositely therefrom, a plow-guide supported beneath the platform, the end portions of the plow-guide being adjustable, means respectively connecting the booms with the end portions of the plow-guide, a plow movable transversely in the guide and supported thereby, and means for moving the plow transversely in the guide, substantially as described.

2. A ditching-machine having a support, a transverse plow-guide carried by the support, the end portions of the plow-guide being adjustable vertically, a plow movable in the guide, and means for moving the plow, substantially as described.

3. A ditching-machine having a support, a plow-guide carried by the support, the end portions of the plow-guide being adjustable, and a plow movable transversely in the guide, substantially as described.

4. A ditching-machine having a support, a transversely-extending plow-guide carried by the support, a portion of the plow-guide being adjustable, and a plow movable in the plow-guide and following the trend of the same, whereby the cross-sectional form of the ditch is regulated, substantially as described.

5. A ditching-machine having a support, a transversely-extending plow-guide carried by the support, the end portions of the plow-guide being adjustable, a plow movable in the plow-guide, two booms pivoted on the support and connected with the end portions of the plow-guide whereby said end portions move in unison with the boom, and cables running on the booms and connected to the plow-guide whereby the plow may be moved in the guide, substantially as described.

6. A ditching-machine having a support, a plow-guide held by the support and extending transversely, the end portions of the plow-guide being adjustable vertically, a plow movable in the plow-guide and following the trend thereof, two booms pivoted on the support and projecting oppositely therefrom, a link connected to each boom and respectively connected to the end portions of the plow-guide, means by which the links may be held to the support whereby the booms and their cooperating parts are held in desired position, and cables running over the booms and connected to the plow, substantially as described.

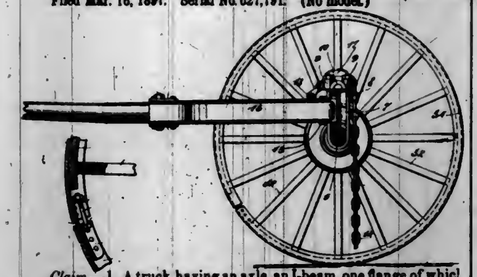
7. A ditching-machine having a support, a transverse plow-guide held by the support and having an adjustable portion, a boom pivoted on the support and connected to the adjustable portion of the plow-guide whereby the two parts move in unison, a plow carried by the guide, and a cable running on the boom and connected to the plow, substantially as described.

8. A ditching-machine having a support, a plow-guide carried by the support and having an adjustable portion, a plow movable in the plow-guide, a boom pivoted on the support and connected to the adjustable portion of the plow-guide, whereby the two parts move in unison, and means coacting with the boom and connected to the plow by which the plow may be moved, substantially as described.

9. The combination of a platform, two booms mounted on the platform on a pivot common to each boom, the booms projecting laterally opposite each other, means for adjusting the booms on their pivot, a plow located beneath the platform, and flexible connections

run over the booms and attached to the plow whereby the plow may be shifted laterally beneath the platform.

590,119. LOGGING-TRUCK. JOHN W. SMITH, Columbia, Fla. Filed Mar. 16, 1897. Serial No. 627,791. (No model.)



Claim.—1. A truck having an axle, an I-beam, one flange of which is held against the axle, a chain-block rested on the opposite flange of the I-beam, and a yoke encircling the axle and having its terminals connected with the chain-block, substantially as described.

2. A truck having an axle, an I-beam one flange of which is rested against the axle, a yoke embracing the axle and I-beam, a chain block rested on the I-beam and holding the ends of the yoke, and a pole attached to the web of the I-beam, substantially as described.

3. A logging-truck having an axle, an I-beam rested on the top of the axle, a yoke encircling the I-beam and axle, a chain-block rested on the upper edge of the I-beam and holding the ends of the yoke, a pole attached to the web of the I-beam, and two channel-irons attached to the web of the I-beam and to the pole and serving to brace the pole, substantially as described.

4. A wheel having a hub with an interior bore of uniform size, two cylindrical roller-boxes slidably fitted within the bore and one roller-box having its outer end engaged with one end of the hub, rollers carried by the roller-boxes, and a cap screwing on the outer end of the second roller-box whereby to hold the roller-boxes in place, substantially as described.

5. A wheel having a hub, two roller-boxes fitted within the hub and one roller-box having its outer end engaged with one end of the hub, means removably engaging the outer end of the remaining roller-box and engaging the corresponding end of the hub, and rollers held by the roller-boxes, substantially as described.

6. A truck having an axle, an I-beam one web of which is channel-shaped or curved to receive the axle, and means for holding the I-beam seated firmly on the axle.

7. A wheel having a hub, two roller-boxes held within the hub one of the roller-boxes engaging one end of the hub, means at the other end of the hub for engaging the other roller-box, rollers confined by the roller-boxes, and a guide-band encircling the rollers and interposed between the roller-boxes.

8. A wheel having a hub, two roller-boxes held within the hub, rollers inclosed by the roller-boxes, and a guide-band encircling the rollers and interposed between the roller-boxes.

9. A wheel having a felly, a tire encircling the felly, a bracket-plate attached to the tire and arranged with a space intervening the bracket-plate and tire, such bracket-plate being located adjacent to one end of the tire, a second plate attached to the contiguous end of the tire and having a part movable between the bracket-plate and the tire, and a bolt in connection with the two plates whereby to draw said plates together.

10. A truck having a straight axle, an integral I-beam having one of its flanges mounted and secured longitudinally on said axle, and a pole attached to the web of said I-beam between the flanges thereof.

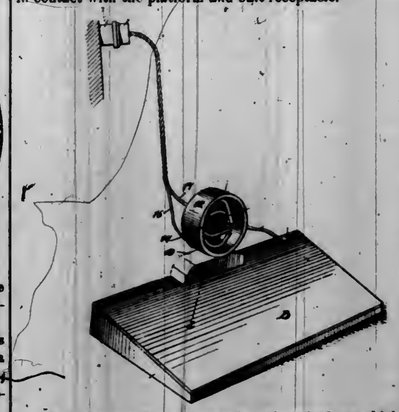
590,120. CONDUCTOR. JAMES SWINBURNE, London, England, assignor to the Sulphide Corporation, (Ashcroft's Process,) Limited, same place. Filed Feb. 11, 1897. Serial No. 622,984. (No model.)

Claim.—1. An electric conductor made of electrically-deposited zinc, compressed to increase its density and tenacity, substantially as described.

2. An electric conductor made of electrically-deposited metal, compressed to increase its density and tenacity, substantially as described.

590,121. ELECTRIC TRAP. GEORGE B. VAUGHAN, Kirkwood, Mo. Filed May 14, 1897. Serial No. 636,447. (No model.)

Claim.—1. An electrical trap, consisting of a platform which is a conductor of electricity, a bait-receptacle also a conductor of electricity, and an electric circuit, which includes a generator in connection with the platform and bait-receptacle, whereby a current of electricity will be caused to pass through the body of any creature brought in contact with the platform and bait-receptacle.



2. An electrical trap consisting of a platform which is a conductor of electricity, a casing of a non-electric conducting material, a bait receptacle which is a conductor of electricity located in the said casing, and an electric circuit which includes a generator, connected with the platform and bait-receptacle.

3. An electrical trap consisting of a base, a metal plate carried by the base, a casing which is a non-conductor of electricity, supported upon said metal plate, a bait-receptacle consisting of a series of claws constructed of a material which is a conductor of electricity, and an electric circuit, including a generator, connected with the metal plate and with the bait-receptacle.

4. The combination, with an open base, a plate which is a conductor of electricity, secured upon the upper surface of said base, and a casing constructed of a material which is a non-conductor of electricity, of a bait-receptacle, consisting of a series of metallic claws located in said casing, a portion of the bait-receptacle extending through a wall of said casing, and an electric circuit which includes a generator, one wire of said circuit being connected with the projecting portion of the bait-receptacle, and the other wire being connected with the metallic plate, whereby an open circuit may be maintained, closed by the body of any creature contacting with said metallic plate and with said bait-receptacle.

590,122. CIRCULAR LOOM. RUDOLPH WEHR, Nottingham, England. Filed July 23, 1896. Serial No. 556,918. (No model.)

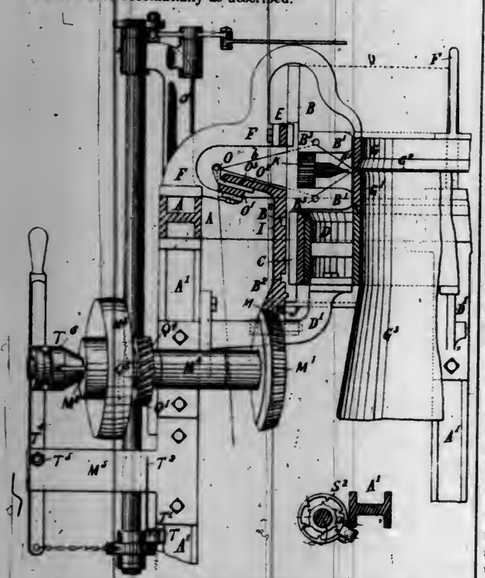
Claim.—1. In a circular loom, the combination with the shuttle, of jacks provided with extensions which carry and propel the shuttle, a ring or rings provided with recesses to receive and support the heads of the extensions, and a cam-ring formed with races for operating the propelling-jacks, the said jacks and cam-races being constructed so that the extensions of the former are distributed by the action of the latter above and below the shuttle during its passage so as to form a temporary race, and their position successively reversed so as to propel the shuttle by their action on its double inclined rear end; substantially as described.

2. In a circular loom, the combination with jacks provided with extensions for carrying and propelling the shuttles, and a cam-ring provided with a cam-groove for operating the said jacks, of rings arranged above and below the cloth-line provided with recesses for receiving and supporting the ends of the jack extensions, substantially as described.

3. In a circular loom, the combination with a cam-ring provided with a single cam-race alternating with a double cam-race, the single race opening out into a double race and the latter returning again into a single race, of shuttle-propelling jacks provided with extensions for carrying and operating the shuttle and with nibs to engage with the cam-race, and with recesses above the nibs on alternate jacks and below the nibs on the remaining jacks, and switches on the cam-ring to engage with the recesses in the jacks, as the nibs of the jacks leave the single race, substantially as described.

4. In a circular loom, the combination with the cam-ring provided with a single cam-race alternating with a double cam-race, the single race opening out into a double race and the latter returning again to a single race, of shuttle-propelling jacks provided with ex-

tensions for carrying and operating the shuttle and with nibs to engage with the cam-race, and with recesses above the nibs on alternate jacks and below the nibs on the remaining jacks, and fixed and adjustable switches on the cam-ring to engage with the recesses in the jacks, for moving the whole of said jacks into the lower position when the cam-ring is reversed, in order to admit of the removal of the shuttles; substantially as described.



5. In a circular loom, the combination with the warp-thread-operating jacks, and a cam-ring provided with a cam-race for operating the said jacks, of positively-operated take-up jacks arranged in the angle of the warp-threads, and a cam-ring secured to the warp-jack cam-ring, provided with a cam-race for operating the said take-up jacks; substantially as described.

6. In a circular loom, the combination with the externally-toothed wheel and means for imparting a constant rotary motion thereto, of an internally-toothed wheel surrounding the externally-toothed wheel, the starting and stopping mechanism, means for connecting said mechanism to the internally-toothed wheel, a ball or solid object which may be dropped between the two wheels, mechanism for holding and delivering the ball, weft-stop mechanism, and means for connecting the ball-holding mechanism to the weft-stop mechanism, substantially as described.

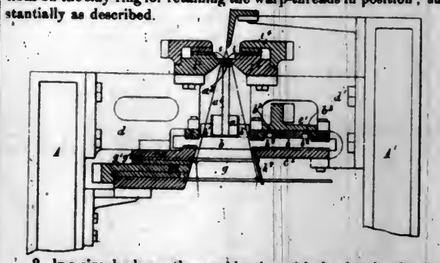
7. In a circular-loom, the combination with the externally and internally toothed wheels the former of which receives a constant rotary motion, the starting and stopping mechanism and means for connecting said mechanism to the internally-toothed wheel, of a box or chute, a lever for ejecting the ball or solid object, weft-stop mechanism and means for connecting said mechanism to the ejecting-lever substantially as described.

8. In a circular loom, a weft-stop mechanism consisting essentially of a rod the lower end of which is alternately inserted and withdrawn from the shed, a lever to which said rod is pivoted, means for reciprocating the lever, a fulcrum interposed between the two ends of the rod about which it is turned by an unbroken weft-thread, and a lever one end of which forms a striking part to engage with the upper end of the rod when the latter is not turned about its fulcrum by an unbroken weft-thread and means for connecting the other end of the lever to the stopping mechanism substantially as described.

9. In a circular loom the combination with a cam-ring provided with a single cam-race alternate with a double cam-race, the single race opening out into a double race, and the latter returning again into a single race, of a set of three or more switches to each single race, and warp-operating jacks each provided with a nib to engage with the cam-race, and a recess to engage with one of the switches in each set, for producing fancy or patterned fabrics; substantially as described.

590,128. CIRCULAR LOOM. RUDOLPH WEISS, Nottingham, England. Filed July 23, 1895. Serial No. 556,919. (No model.) Patented in England Jan. 17, 1891, No. 933; in France Apr 15, 1892, No. 220,954, and in Germany Apr. 26, 1893, No. 67,853.

Claim.—1. In a circular loom, the combination with the shuttle-propelling mechanism, of beating-up slides arranged on both sides of the warp-threads, slay-rings for carrying the slides, cam-rings provided with cam-races, for operating the slides, and teeth or projections on the slay-ring for retaining the warp-threads in position; substantially as described.



2. In a circular loom, the combination with the shuttle, the shuttle-propelling jacks, and cam-ring for operating said jacks, of a shuttle-thread plate, secured to and carried above the shuttle, extensions on the said plate, beating-up slides each having a notch which together form a groove to receive the shuttle-thread-plate extensions, slay-rings for carrying and cam-rings for operating the said slides, substantially as described.

3. In a circular loom, the combination with radial shuttle-propelling jacks, and a slay-ring for carrying the said jacks, of a cam-ring provided with two cam-races each race operating every alternate jack so as to move them successively across the path of the shuttle in reverse directions, cam-rings for operating the beating-up slides, brackets for connecting the said cam-ring to the jack-operating cam-ring, and an annular rack and pinion for imparting rotary motion to both cam-rings; substantially as described.

4. In a circular loom, radially-reciprocating jacks forming a shuttle propelling and shedding mechanism, each provided with two or more holes and a longitudinal slot, the holes forming a guide for two alternate threads, and the slot a passage for the thread between the two alternate threads which are operated by the other jack; substantially as described.

590,124. SELF-ADJUSTING INFLATABLE PESSARY. BENJAMIN P. WILSON, Reddick, Fla. Filed Nov. 21, 1896. Serial No. 612,996. (No model.)



Claim.—1. An annular pessary comprising parallel, yielding, inner and outer walls, the portion of the inner wall parallel with the outer wall being shorter than the latter and connected therewith by an inclined wall forming, in connection with the inner and outer walls, a seat or cup-shaped socket, substantially as described.

2. An annular pessary comprising parallel, yielding, outer and inner walls, the portion of the inner wall parallel with the outer wall being shorter than the latter and connected therewith by an inclined wall forming, in connection with the inner and outer walls a seat or cup-shaped socket, and an air-conduit by which the pessary may be inflated, substantially as described.

3. An annular pessary comprising parallel, yielding, inner and outer walls, the portion of the inner wall parallel with the outer wall being shorter than the latter and connected therewith by an inclined, thickened wall, forming, in connection with the inner and outer walls, a seat or cup-shaped socket, substantially as described.

590,125. SHADE-HOLDER FOR BICYCLES. CHARLES D. BALTZELL, St. Davids, Pa. Filed Feb. 9, 1897. Serial No. 622,617. (No model.)



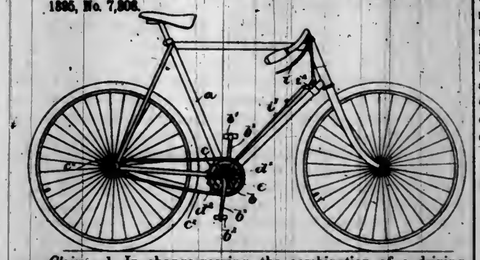
Claim.—1. The combination of the fixed section adapted to be secured to the frame of a bicycle, a frame movable in a vertical plane, a swiveled connection between said movable frame and the frame of the bicycle, means for securing the frame to the fixed section, a movable section carrying the shade and adapted to be secured to the frame and movable in a vertical plane at right angles to the movable frame, with means on the movable section for simultaneously releasing the movable section from the frame and the frame from the fixed section so that it can be adjusted to any position by one hand of a rider and locked after adjustment, substantially as described.

2. The combination of a segment secured to the frame of a bicycle, the handle-bar, a swiveled frame D mounted on the handle-bar, a sliding bolt thereon engaging with the segment, said frame having a vertical disk-section, a shade-carrying frame pivoted to the disk-section, a bolt to lock the shade-carrying frame to the disk and a bolt locking the swiveled frame to the segment, an operating-lever therefor on the carrying-frame, so that the two parts will be simultaneously operated, substantially as described.

3. The combination of the toothed segment secured to the frame of a bicycle, the handle-bar, a swiveled frame D mounted on the handle-bar, a sliding bolt carried thereby engaging with the teeth of the segment, a carrying-frame pivoted to the swiveled frame and a shade carried thereby, a lever pivoted to the carrying-frame a bolt for locking the carrying-frame to the swiveled frame, said lever being connected to the two bolts so as to withdraw them simultaneously, substantially as described.

4. The combination in a shade-holder, of the shade having cross-bars, a standard having an extension adapted to a socket on one of the cross-bars of the shade a connecting-bar pivoted to the standard and having an extension adapted to a socket in the other cross-bar of the shade, with means for fastening the connecting-bar to the standard whereby the shade is held in its extended position, substantially as described.

590,126. CHANGE-GEARING FOR BICYCLES. VICTOR BELANGER, Boston, Mass., assignor to William D. Hunt, same place. Filed Sept. 21, 1896. Serial No. 606,532. (No model.) Patented in England Apr. 18, 1895, No. 7,908.



Claim.—1. In change-gearing, the combination of a driving-pinion, an internal gear in mesh therewith, a support for said internal gear loosely mounted concentrically with the said driving-pinion and holding the internal gear eccentric thereto, a driven wheel concentric with the driving-pinion, permanently interlocked parts rotatively connecting the internal gear and the driven wheel with provisions for relative radial movement, and means for holding the internal-gear support stationary.

2. The combination of a shaft carrying a pinion affixed to it, an eccentric on the shaft, an internal gear mounted on the eccentric and meshing with the pinion, a wheel concentric with the shaft and independently rotatable respecting the same, the said internal gear and the said wheel having permanently interlocked parts rotatively connecting them, with provisions for relative radial movement, and a clutch device for holding the eccentric stationary, leaving the internal gear free to rotate upon it or establishing rotative connection between the eccentric and the wheel.

3. The combination of a shaft carrying a pinion affixed to it, an eccentric on the shaft, an internal gear mounted on the eccentric and meshing with the pinion and having a radial slotted arm, a wheel concentric with the shaft and independently rotatable respecting the same, said wheel having a roller-equipped pin engaging the slotted arm of the internal gear, and a clutch device for holding the eccentric stationary, leaving the internal gear free to rotate upon it, or establishing rotative connection between the eccentric and the wheel.

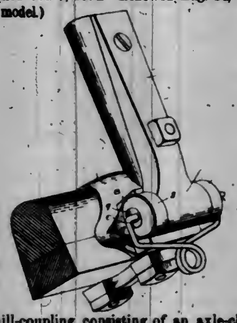
4. The combination of a shaft carrying a pinion affixed to it, an eccentric on the shaft, an internal gear mounted on the eccentric and meshing with the pinion, a wheel concentric with the shaft and independently rotatable respecting the same, the said internal gear and the said wheel having interlocking parts rotatively connecting them with provisions for relative radial movement, and a clutch-bar rotatively and pivotally connected with the eccentric and adapted to be interlocked with the wheel or with a fixture to permit or prevent rotation of the eccentric.

5. The combination of a shaft carrying a pinion affixed to it, an eccentric on the shaft, an internal gear mounted on the eccentric and meshing with the pinion, a wheel concentric with the shaft and independently rotatable respecting the same, the said internal gear and the said wheel having interlocking parts rotatively connecting them with provisions for relative radial movement, a clutch-bar carried by the eccentric in rotative engagement therewith and movable thereon to rotatively engage it with and disengage it from the wheel, and a sliding non-rotatable sleeve arranged to shut said clutch-bar under one direction of movement and disengage it from the wheel, said sleeve being constructed to interlock with the clutch-bar, for the purpose described.

6. In a bicycle, the combination of a crank-shaft carrying a driving-pinion affixed to it, an eccentric on the shaft, an internal gear on the eccentric and meshing with the pinion, a wheel concentric with the shaft and independently rotatable respecting the same, the said internal gear and the said wheel having interlocking parts rotatively connecting them with provisions for relative radial movement, and the wheel having an annular notched flange, a clutch-bar pivoted to the eccentric and rotatable therewith, said bar extending on both sides of the pivot and one of its arms being constructed for engagement associated with the other arm of said clutch-bar to impel the first-named arm into engagement with the wheel, and a sleeve on the shaft-bearing and engaged with the machine-frame to prevent its rotation, said sleeve being longitudinally movable to act against the spring-equipped arm of the clutch-bar and disengage its other arm from the wheel and being provided with a notch for engagement with said bar.

7. In a bicycle, the combination of a crank-shaft carrying a driving-pinion affixed to it, an eccentric on the shaft, an internal gear on the eccentric and meshing with the pinion, a wheel concentric with the shaft and independently rotatable respecting the same, the said internal gear and the said wheel having interlocking parts rotatively connecting them with provisions for relative radial movement, and the wheel having an annular notched flange, a clutch-bar pivoted to the eccentric and rotatable therewith, said bar extending on both sides of the pivot and one of its arms being constructed for engagement with the notches in the annular flange of the wheel, a spring impelling said arm into such engagement, a sleeve on the shaft-bearing and engaged with the machine-frame to prevent its rotation, said sleeve being longitudinally movable to act against the clutch-bar and disengage it from the wheel and being provided with a notch for engagement with said bar, and connections from the handle-bar for operating said sleeve.

590,127. THILL-COUPLING. NELSON M. BRINKERHOFF, Bloomville, Ohio. Filed Oct. 5, 1894. Renewed Aug. 14, 1897. Serial No. 648,324. (No model.)

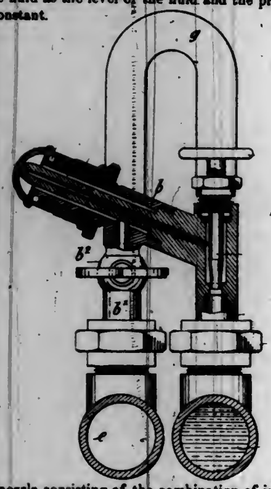


Claim.—A thill-coupling consisting of an axle-clip having two lugs provided with horizontally-alining perforations, a thill-eye fitting between said lugs, a bolt passing through said eye and lugs and serving to hold the eye in place, said bolt having a head in the shape of a plano-convex disk, in the convex face of which is formed a hemispheroidal recess or circular concavity, and a retaining-spring comprising a central coil and oppositely-extending upwardly-diverging arms one of which has a terminal loop embracing the shank of the bolt and bearing against one of the clip-lugs, the extremity of the other arm being bent abruptly inward and fitting within the concavity of the bolt-head, substantially as and for the purpose specified.

590,128. SPRAYING APPARATUS. ALFRED G. BROWNING, Flixton, England, assignor of one-half to William Wild Churchill, Manchester, England. Filed Feb. 6, 1897. Serial No. 622,342. (No model.)

Claim.—1. The combination of a spraying-nozzle or series of nozzles with means for supplying air under pressure from a suitable source and means for maintaining the fluid to be sprayed at a certain level in the supply-pipes, so that when once the delivery of the nozzle has been adjusted the spray will be perfectly maintained without drip-

ping of the fluid as the level of the fluid and the pressure of the air are kept constant.



2. The nozzle consisting of the combination of internal and external tubes, the regulating tap or taps in connection therewith, and the adjustable nozzle packed and sliding on the external tube so that the spray can be kept at a desired state of fineness, although the amount of fluid ejected from the nozzle may be varied.

590,129. VEGETABLE-CUTTER. OSCAR A. BULETTE, Chicago, Ill. Filed Mar. 31, 1897. Serial No. 630,132. (No model.)



Claim.—1. A cutter substantially as described comprising a holder and the blades within said holder and held at their ends thereto, said blades and holder being of unequal contractility whereby the blades will be tightened by said property within the holder substantially as described.

2. A cutter substantially as described comprising the holder, the blades within said holder and held at their ends thereto said holder and blades being coated with a protecting-plating and subsequently tempered, the holder and blades being formed of metals of unequal contractility when cooling whereby to prevent any buckling of the blades by reason of the tempering operation substantially as described.

3. The method of making cutters substantially as described consisting in securing the blades transversely in a ring-like holder of metal having a different degree of contraction under cold from said blades, coating said cutter with a protecting-plating and then tempering the cutter substantially as described.

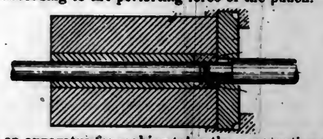
4. The method of making cutters consisting in securing the blades at their ends in a ring-like holder of metal having a different degree of contraction under cold from the said blades and subsequently tempering the cutter, the cooling serving to tighten the blades in the holder substantially as described.

5. A cutter comprising the ring-shaped holder having nicks, the blades fitted at their ends in said nicks and upset whereby they are held to the holder, the holder and blades being of metal of different contractility whereby the blades will by said property be tightened within the holder substantially as described.

590,130. MANUFACTURE OF TUBES, &c., AND APPARATUS THEREFOR. RUDOLF BUNGEROTH, Remscheid, Germany, assignor to the Deutsch-Oesterreichische Mannesmannröhren-Werke, Duesseldorf, Germany. Filed Apr. 3, 1896. Serial No. 586,074. (No model.)

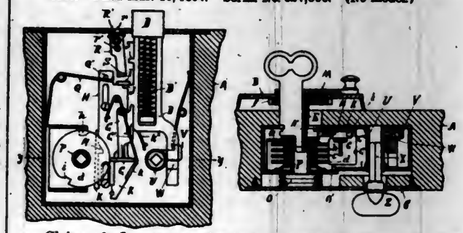
Claim.—1. In an apparatus for making tubes the combination of a mold, and a ram or punch working therein, with means for supporting the rear end of the body to be perforated, a movable anvil having its end of the same diameter as the punch and means for moving and yielding the said anvil according to the perforating force of the punch.

2. In an apparatus for making tubes, the combination of a mold, and a ram or punch working therein with a collar for supporting the rear end of the body to be perforated, means for supporting the said collar, a movable anvil having its end of the same diameter as the punch fitting in the collar, and means for moving and yielding the said anvil according to the perforting force of the punch.



3. In an apparatus for making tubes the combination of a mold, and a ram or punch working therein with a collar for supporting the said collar, a movable anvil having its end of the same diameter as the punch fitting in the said collar and means for moving and yielding the said anvil according to the perforating force of the punch.

590,131. COMBINATION-LOCK. HORACE D. CHIPMAN, Home City, Ohio. Filed Mar. 16, 1897. Serial No. 627,806. (No model.)



Claim.—1. In a permutation-lock, the combination with the bolt and a sliding-lock frame adapted to be engaged and actuated by a key, of a series of tumblers, a tumbler-frame detachably connected with the lock mechanism and having integral with said frame a sleeve upon which said tumblers are mounted, and a shaft loosely fitted into said sleeve and provided with a handle and a keyway, substantially as described.

2. In a permutation-lock, the combination with the bolt, a series of tumblers, and a sliding-lock frame, of a detachable tumbler-frame having integral therewith a sleeve on which said tumblers are mounted, dog mechanism pivoted on the said sliding-lock frame to engage the tumblers, and a shaft fitted into the tumbler-sleeve and provided with a crank-handle, substantially as described.

3. In combination with a permutation-lock having a series of tumblers mounted upon a shaft, the sliding-bolt frame, the dog pivoted thereon, and engaging with the setting-plate K, for raising the dog and passing it over the notches for automatically resetting the combination substantially as specified.

4. In a permutation-lock the combination of a series of tumblers mounted upon a shaft, a sliding-lock frame, a dog pivoted thereon, the resetting-plate K, the independent locking-bolt D and means for the engagement of the lock with the bolt, substantially as specified.

5. In a permutation-lock, the combination with the bolt and a sliding-lock frame, of a series of tumblers mounted upon a sleeve that is integral with a detachable tumbler-frame, and a detachable shaft fitted into said sleeve, and provided with a crank, substantially as described.

6. In a permutation-lock, the combination with the bolt and a sliding-lock frame adapted to be engaged and actuated by a key, of a series of tumblers, a dog pivoted to the sliding-lock frame to engage the said tumblers for actuating the lock through the same, and a tumbler-shaft provided with a keyway for insertion of a key to engage the sliding-lock frame and actuate the lock independent of the said tumblers, substantially as described.

7. In a permutation-lock, the combination with the series of tumblers, and a sleeve on which said tumblers are mounted, of the crank-shaft fitted into said sleeve and provided with a dial-plate having a series of deep and shallow notches, and a pivoted arm in frictional engagement with the periphery and notches of said dial-plate, substantially as described.

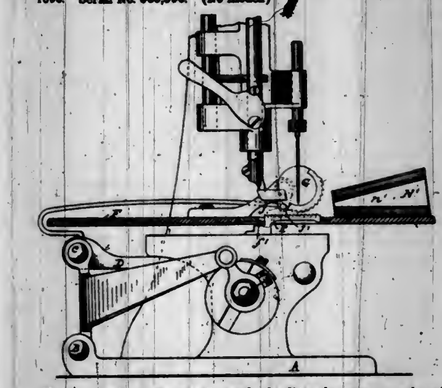
8. In a permutation-lock, having a series of tumblers operated by a crank-shaft engaging with a dog of the sliding-lock frame, a keyway formed in said shaft and a notch in the sliding-bolt mechanism adapted to engage with a key inserted in said keyway, substantially as specified.

9. In a permutation-lock, the combination with the bolt, the sliding-lock frame, and a dog pivoted to said lock-frame, of a tumbler-frame having a sleeve integral therewith, a series of tumblers mounted on said sleeve and provided with notches *h i* to be engaged by the dog on the sliding-lock frame, and a crank-shaft fitted in the said sleeve that supports the tumblers, substantially as described.

10. In a combination-lock having a series of tumblers operated on a shaft, a dog engaging with the notch of said tumbler and pivoted upon the sliding-bolt mechanism adapted to engage with the bolt D when the bolt is retracted and a locking-arm R for holding said bolt and dog in position for removing the tumblers, substantially as specified.

11. In a combination-lock having a series of notched tumblers mounted upon an operating-shaft, a sliding-lock frame, a dog pivoted upon said lock-frame, the lock-bolt D having a movement independent of said lock-frame, a tumbler U having an engagement with the lock-bolt D and means for operating said bolt independent of the tumbler-shaft, substantially as specified.

590,132. FEEDING DEVICE FOR SEWING-MACHINES. FRED W. COAN and WALTER S. EATON, Manchester, N. H. Filed Apr. 29, 1896. Serial No. 589,506. (No model.)
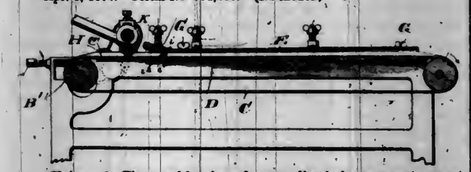


Claim.—1. As a means of evenly feeding the upper and under edges of button-stays or trousers-bands for machine-made underwear, a top feed comprising an externally-serrated segment of a cylinder, a shaft projecting eccentrically therefrom and mounted on the work-plate of said machine, a crank upon said shaft provided with an adjustablo crank-pin, and means for connecting said crank with the regular feed-operating mechanism of said machine.

2. As a means of evenly feeding the upper and under edges of bindings in machine-made garments, a top feed comprising an externally-serrated segment of a cylinder provided with a slot through which the needle works, a shaft projecting eccentrically from said feed, a crank on said shaft, and a rod connecting the shaft with the regular feed-operating mechanism of a sewing-machine.

3. A top feed for sewing-machines comprising a rotative segment of a cylinder externally serrated and having a slot through which the needle works, a shaft projecting eccentrically from said feed, a crank upon said shaft, a rod connecting the shaft with the regular feed-operating mechanism of a sewing-machine, and means for varying the rotative movement of the top feed with relation to the under feed.

590,133. MACHINE FOR WORKING AND SHAPING DOUGH. WILLIAM S. CORBY and CHARLES I. CORBY, Washington, D. C. Filed Apr. 8, 1897. Serial No. 631,285. (No model.)



Claim.—1. The combination of a traveling belt an opposing pressure-board provided with depending side flanges which are arranged adjacent to the belt and supports for said board, substantially as set forth.

2. The combination of a traveling belt, an opposing pressure board or device, provided with depending flanges at its sides, and a sustaining-table over which the belt moves, and upon which the side flanges of the pressure device are adapted to rest, substantially as set forth.

3. The combination of a traveling belt, an opposing pressure device, and a plurality of springs which hold the said pressure device toward the belt with a yielding force, and are arranged as described, whereby a greater pressure may be applied near one end of the belt than near the other, substantially as set forth.

4. The combination of a traveling belt, and an opposing spring-pressed pressure device, the pressure being less at the delivery than at the feed end of the device, substantially as set forth.

5. In a machine for working dough, the combination of a traveling belt, an opposing pressure-board, the adjusting devices G, by which the pressure-board may be positively adjusted toward or away from the belt, and the spring pressing devices which hold the board toward the belt with a yielding force, substantially as set forth.

6. The combination of a traveling belt, an opposing pressure device, and a curler at the forward end of the latter, substantially as set forth.

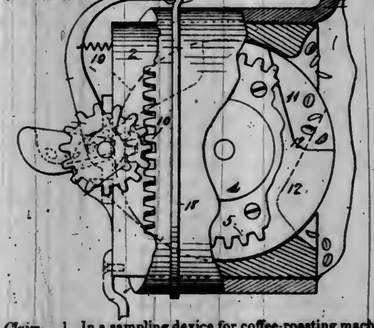
7. The combination of a traveling belt, an opposing surface, and a curler provided with a retarding-shoulder which engages with the material as it is fed between the belt and said opposing surface, substantially as set forth.

8. The combination of the traveling belt, a curler, a pressing device arranged above the belt and in front of the curler, and a spring which holds the curler toward the belt, substantially as set forth.

9. In a bread working and shaping machine, the combination of a traveling belt, an opposing pressure or resistance board, a curler at the front end of the pressure-board, and a pair of dough-shaping rollers in front of the curler, substantially as set forth.

10. The combination of a traveling belt C, devices for turning up the edges of the belt, and for maintaining such edges substantially at right angles to the main central portion thereof, and an opposing pressure-board arranged opposite to and substantially parallel with the central portion of the belt, substantially as set forth.

590,134. COFFEE-ROASTING MACHINE. EDWIN CRAWLEY, Jr., and WILLIAM T. JOHNSTON, Newport, Ky., assignors to the Potter-Parlin Company, New York, N. Y. Filed Sept. 30, 1896. Serial No. 607,472. (No model.)



Claim.—1. In a sampling device for coffee-roasting machines the combination with a hollow trunnion of a roasting-drum and a block arranged therein, of a rotatable disk arranged in the block and having a cavity or recess, and a tray carried by the block and adapted to receive the contents of the recess at each rotation of the disk.

2. In a sampling device for coffee-roasting machines the combination with a hollow trunnion of a roasting-drum and a block arranged therein, of a rotatable disk arranged in the block and having a cavity or recess, and a tray pivotally connected with the block and adapted to receive the contents of the recess at each rotation of the disk, said tray adapted to be tilted to cause the contents to be returned again into the recess.

3. In a sampling device for coffee-roasting machines the combination with a hollow trunnion of a roasting-drum and a block arranged therein, of a rotatable disk arranged in the block and having a cavity or recess, the bottom of which is inclined to form more or less of an angle as described, and a tray carried by the block adapted to receive the contents of the recess at each rotation of the disk.

4. The combination with the hollow trunnion of a coffee-roasting drum, of a block stationarily arranged therein, a rotatable disk within the block and having a peripheral recess or cavity whose bottom is inclined as described, and a tray carried by the block and adapted to receive the contents of the recess at each rotation of the drum.

5. The combination with the hollow trunnion of a coffee-roasting drum, of a block stationarily arranged therein, a rotatable disk within the block and having a peripheral recess or cavity, gearing between the said disk and the trunnion whereby the rotation of the latter effects simultaneous rotation of the disk, and a tray carried by

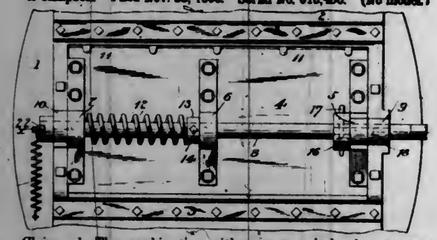
the block adapted to receive the contents of the recess at each rotation of the disk.

6. The combination with the hollow trunnion of a coffee-roasting drum having teeth on its outer face, of a block stationarily arranged within the trunnion, a disk rotatably arranged within the block, a gear-wheel carried by the disk, a shaft provided at one end with a gear-wheel gearing with the gear-wheel on the disk, and a second gear-wheel gearing with the teeth on the trunnion, and a tray carried by the block adapted to receive the contents of the recess at each rotation of the disk.

7. The combination with a hollow trunnion of a roasting-drum, of a block stationarily arranged therein, and a disk rotatably arranged within the block and adapted to receive samples of the roasting berries and discharge the same exteriorly of the trunnion, as specified.

8. The combination with a hollow trunnion of a roasting-drum, of a plate or disk rotatably arranged in a vertical plane and operating to receive at each rotation of the disk a sample of the roasting berries and discharge the same exteriorly of the trunnion.

590,135. **COFFEE-ROASTING MACHINE.** EDWIN CRAWLEY, Jr., and WILLIAM T. JOHNSTON, Newport, Ky., assignors to Potter, Parlin & Campbell. Filed Nov. 25, 1896. Serial No. 613,450. (No model.)



Claim.—1. The combination with a receptacle having an opening, of a door adapted to close said opening, a shaft adapted to effect the turning of said door and to be moved endwise independently of the door, and a locking device operated by the endwise movement of the shaft to lock the door temporarily in a closed position.

2. The combination with a receptacle having an opening, of a door adapted to close said opening, a shaft adapted to effect the turning of the said door and to be moved endwise independently of the door, and a locking device operated by the endwise movement of the shaft to lock the door temporarily in a closed and an open position.

3. The combination with a receptacle having an opening, of a door adapted to close said opening, bearings on said door, a shaft mounted and endwise movable in said bearings independently of the door, and means for locking the door to the shaft whereby rotation of the latter will effect the turning of the door.

4. The combination with a receptacle, having an opening, of a door adapted to close said opening, bearings on said door, one of said bearings being provided with a perforation, a shaft mounted and endwise movable in said bearings independently of the door, a sleeve secured to the shaft, and a pin carried by said sleeve and adapted to enter the perforation in the bearing.

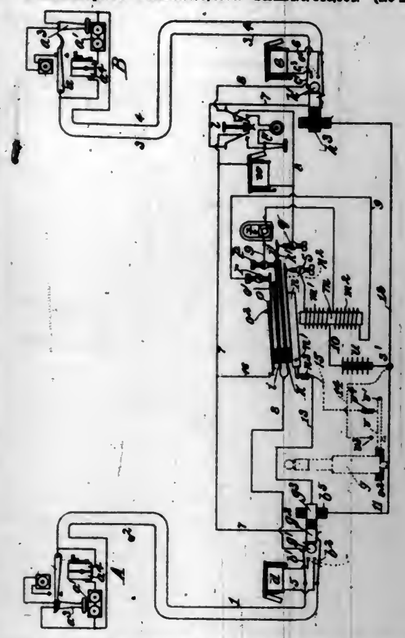
5. The combination with a receptacle having an opening, of a door adapted to close said opening, a shaft, bearings for the ends of said shaft, bearing-lugs on the door within which lugs said shaft is mounted and endwise movable independently of the door, one of the bearings for the ends of the shaft being provided with a recess, a sleeve on the shaft, and a pin on the sleeve removably engaging the said recess.

6. The combination with a receptacle having an opening, of a door adapted to close said opening, a shaft, bearings for the ends of said shaft, bearing-lugs on the door within which lugs said shaft is mounted and endwise movable independently of the door, one of the bearings for the ends of the shaft being provided with a plurality of recesses, a sleeve on the shaft, and a pin on the sleeve adapted to removably engage said recesses whereby to lock the door both in its closed and open positions.

7. The combination with a receptacle provided with an opening, of a door adapted to close said opening, a shaft, bearings for the ends of the shaft, bearing-lugs on the door within which lugs said shaft is mounted and endwise movable independently of the door, one of the bearings for the ends of the shaft being provided with a recess, a sleeve on the shaft, a pin on said sleeve removably engaging said recess, and a spring operating upon the shaft to hold the pin normally in engagement with the recess.

8. The combination with a receptacle having an opening, of a door adapted to close said opening, a shaft, bearings for the ends of said shaft, bearing-lugs on the door within which lugs said shaft is mounted and endwise movable independently of the door, one of the bearings for the ends of the shaft being provided with a recess, a sleeve on the shaft, a pin on the sleeve removably engaging said recess, an arm on the shaft, and a spring secured to the said arm and to the cylinder and adapted to effect the backward rotation of the shaft in the manner and for the purpose specified.

590,136. **TELEPHONE-EXCHANGE SYSTEM.** WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Nov. 3, 1896. Serial No. 610,901. (No model.)



Claim.—1. Two telephone-lines, each provided with a switch at the subscriber's station thereon, and at the central office switching devices for uniting said lines in combination with a signaling-generator adapted to be closed to the called-subscriber's line when the lines are united, an electromagnetic circuit-changing device provided with two windings or helices, one winding being connected with the generator-circuit and the other being connected in a local circuit containing two openings and a source of current, one of said openings being closed when the lines are connected together, the switch of the called subscriber when operated being adapted to reduce the resistance of the circuit containing the signaling-generator, to increase the current traversing the said coil connected with said generator, to operate the said electromagnetic circuit-changing device, to close the other opening of the local circuit, and immediately thereafter to open the connection between the generator and the coil or winding of the electromagnetic circuit-changing device connected therewith.

2. Two telephone-lines, each provided with a switch at the subscriber's station thereon, and at the central office switching devices for uniting said lines in combination with a signaling-generator adapted to be closed to the called-subscriber's line when the lines are united, an electromagnetic circuit-changing device provided with two windings or helices, one winding being connected with the generator-circuit and the other being connected in a local circuit containing two openings and a source of current, one of said openings being closed when the lines are connected together, the switch of the called subscriber when operated being adapted to reduce the resistance of the circuit containing the signaling-generator, to increase the current traversing the said coil connected with said generator, to operate the said electromagnetic circuit-changing device, to close the other opening of the local circuit, to open the connection between the generator and the coil or winding of the electromagnetic circuit-changing device connected therewith.

3. In a telephone-exchange system, a local circuit at the central office in combination with connecting apparatus for uniting lines together, and an electromagnetic circuit-changing device connected in said local circuit, said local circuit when not in active use containing

two openings, one of which is adapted to be closed by said connecting apparatus when in use, and means for closing the other opening in said local circuit to direct current through said local circuit and thereby lock the electromagnetic circuit-changing device in position during the time the said connecting apparatus remains in service.

4. In a telephone system, the combination with telephone-lines united at the central station, of an automatic telephone-switch and a signal device at each subscriber's station, a signaling-generator, means for including the generator in circuit with the signal device at the called-subscriber's station, an electromagnetic circuit-changing device provided with a single electromagnet, the called-subscriber's switch being adapted to change the circuit including the circuit-changing device to operate the same to remove the generator from line upon the removal of the telephone-receiver, substantially as described.

5. In a telephone system, the combination with two united telephone-lines, each leading from the exchange to a subscriber's station, of an automatic telephone-switch and a signal device at each subscriber's station, a signaling-generator, means for including the generator in circuit with the signal device at the called-subscriber's station, and an electromagnetic circuit-changing device provided with a single electromagnet, connected in a bridge of the telephone-circuit extending to the called-subscriber's station, the called-subscriber's switch being adapted to change the circuit condition of the circuit-changing device to operate the same to remove the generator from line upon the removal of the telephone-receiver, substantially as described.

6. In a telephone system, the combination with the united circuit of two telephone-lines, each provided with a signal device at the subscribers' stations thereof, of a signaling-generator, means for including the generator in circuit with the signal device at the called-subscriber's station, an electromagnetic circuit-changing device, switches at the subscribers' stations, each switch being adapted when its station is the called station to change the electrical condition of the circuit containing the circuit-changing device to operate the same to remove the generator from line, a local circuit which is adapted to be closed by said circuit-changing device through the electromagnet thereof when said device is thus actuated, and switching apparatus at the central office for uniting and disconnecting the telephone-lines, said switching apparatus being adapted to open said local circuit when manipulated or operated to break connection between two telephone-lines, substantially as described.

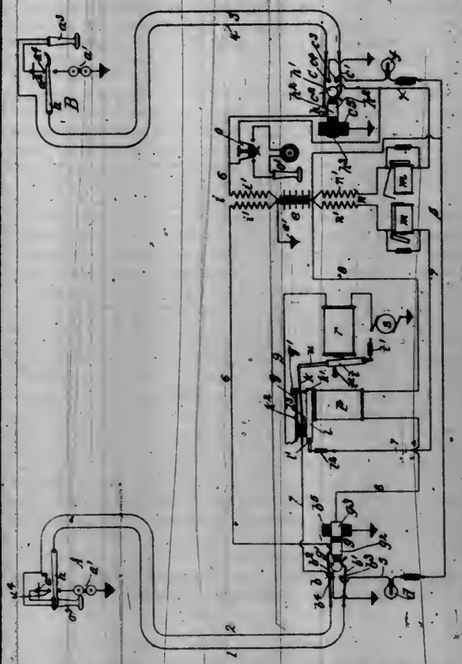
7. In a telephone system, the combination with the united circuit of two telephone-lines, each provided with a signal device at the subscribers' stations thereof, of a signaling-generator, means for including the generator in circuit with the signal device at the called-subscribers' station, an electromagnetic circuit-changing device, switches at the subscribers' stations, each switch being adapted when its station is the called station to change the electrical condition of the circuit containing the circuit-changing device to operate the same to remove the generator from line, a circuit which is adapted to be closed by said circuit-changing device through the electromagnet thereof when said device is thus actuated, and switching apparatus at the central office for uniting and disconnecting the telephone-lines, said switching apparatus being adapted to open said circuit including the circuit-changing device when manipulated or operated to break connection between two telephone-lines, substantially as described.

590,137. **TELEPHONE SYSTEM.** WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Sept. 28, 1896. Renewed Aug. 2, 1897. Serial No. 646,832. (No model.)

Claim.—1. In a telephone-exchange system the combination of line-wires leading from a central office to subscribers' stations, with calling apparatus at the subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with the subscribers' calling apparatus, means operated by the called subscriber's apparatus for removing said generator, and apparatus at the central office for exclusively controlling the operation of said electromagnet whereby its operation by substation apparatus is prevented and false signals obviated, substantially as described.

2. In a telephone-exchange system the combination of line-wires leading from a central office to subscribers' stations, with calling apparatus at the subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with the subscribers' calling apparatus, apparatus at the central office for exclusively controlling the operation of said electromagnet whereby its operation by the substation apparatus is prevented and false signals obviated, and a second electromagnet within the control of the called subscriber adapted to remove said generator, substantially as described.

3. In a telephone-exchange system the combination of line-wires leading from a central office to subscribers' stations, and plugs adapted to connect subscribers for conversation, with calling apparatus at the subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with said calling apparatus, means operated by the called subscriber's apparatus for removing said generator, a local circuit including said electromagnet at the central office, and means controlled by the connecting-plug for governing said local circuit, said electromagnet being thus independent of the substation apparatus, whereby false signals are prevented, substantially as described.



4. In a telephone-exchange system, the combination of line-wires leading from spring-jacks at a central office to subscribers' stations, and plugs adapted to connect subscribers for conversation, with calling apparatus at the subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with said calling apparatus, means operated by the called subscriber's apparatus for removing said generator, and a local circuit including said electromagnet at the central office, said spring-jacks and a connecting-plug being adapted to govern said local circuit, said electromagnet being thus independent of the substation apparatus, whereby false signals are prevented, substantially as described.

5. In a telephone-exchange system, the combination of line-wires leading from spring-jacks at a central office to subscribers' stations, and plugs adapted to connect subscribers for conversation with calling apparatus at the subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with said calling apparatus, a local circuit including said electromagnet at the central office, means controlled by a connecting-plug for governing said local circuit, said electromagnet being thus independent of the substation apparatus, whereby false signals are prevented, and a second electromagnet within the control of the called subscriber adapted to remove said generator, substantially as described.

6. In a telephone-exchange system, the combination of line-wires leading from a central office to subscribers' stations, a calling-generator, an electromagnet adapted to include said generator in circuit with the subscribers' calling apparatus, apparatus at the central office for exclusively controlling said electromagnet whereby its operation by the substation apparatus is prevented and false signals obviated, a second electromagnet within the control of the called subscriber's apparatus adapted to remove said generator, and an interlocking device between said electromagnets for governing the circuit including said calling-generator, substantially as described.

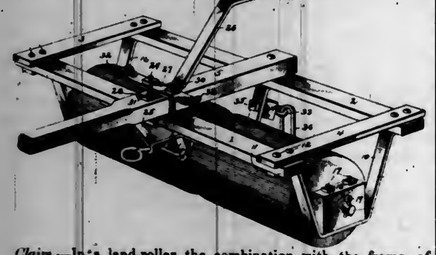
7. In a circuit-controlling device, the combination of an electromagnet *p* having an armature *l* with a spring *k* for governing a circuit, mounted upon said armature, switching apparatus for including said electromagnet in circuit with a source of electricity, an element, as *u* normally disposed within the path of said spring *k* which is adapted to be pressed upon said element by the armature upon which it is

mounted, a magnet r adapted to withdraw said element from the path of said spring, and switching apparatus for including electromagnet r in circuit with a source of electricity, substantially as described.

8. In a telephone-exchange system, the combination with two united telephone lines, each provided with a signal bell or device at the subscriber's station thereof, of a calling-generator, a calling-switch for including the generator in circuit with the signal-bell at the called subscriber's station, an electromagnetic circuit-controlling device adapted to operate said switch, a circuit including said circuit-controlling device independent of either of said telephone-lines, means for changing the condition of said circuit and thereby the operative condition of said circuit-controlling device to operate the calling-switch and maintain the generator in circuit with the signal-bell at the called subscriber's station, means for removing said generator from line, switches, one at each station, each switch being adapted when its station is the called station to control the means for removing the generator, and switching apparatus at the central office for connecting subscribers for conversation, substantially as described.

9. In a telephone-exchange system, the combination with two united telephone-lines, each terminating in line-switches at the exchange, of a connecting-plug and cord-circuit uniting the telephone-lines, each of which is provided with a signal bell or device at the subscriber's station thereof, a calling-generator, a calling-switch associated with the plug-and-cord circuit for including the generator in circuit with the signal-bell at the called subscriber's station, an electromagnetic circuit-controlling device also associated with said plug-and-cord circuit adapted to operate said switch, a circuit including said circuit-controlling device independent of either of said telephone-lines, means for changing the condition of said circuit and thereby the operative condition of said circuit-controlling device to operate the calling-switch and maintain the generator in circuit with the signal-bell at the called subscriber's station, means for removing said generator from line, and switches, one at each station, each switch being adapted when its station is the called station to control the means for removing the generator, the said telephone-lines being disassociated from the calling-switch and the electromagnet by the plug-and-cord circuit when connection between the lines is broken, substantially as described.

590,188. LAND-ROLLER. GEORGE W. DEWEESE, Troy, Ohio.
Filed May 10, 1897. Serial No. 635,887. (No model.)



Claim.—In a land-roller, the combination with the frame, of brackets depending therefrom provided with horizontal seats, bearing-blocks for the roller-shaft supported within said brackets on said seats, and a draft-rod secured to the front side of the central bracket and supported and braced by a bracket depending from the under side of the front frame-bar at right angles to the central shaft-supporting bracket.

590,139. INK PREPARATION. LOUIS R. DUNLAP, Arlington, Mass., assignor of one-half to Albert H. Spencer, Boston, Mass. Filed Nov. 24, 1894. Serial No. 529,787. (No specimens.)



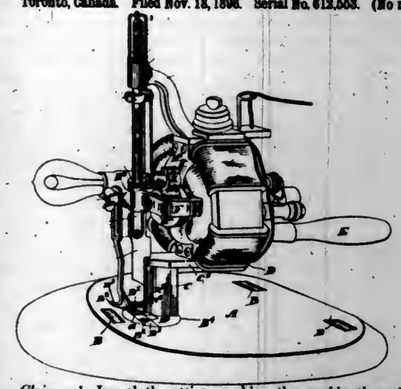
Claim.—1. An ink-producing compound in a dry form, in combination with an acid and an alkali intermixed therewith, also in a dry form, and adapted to produce effervescent action and liquid ink when the preparation is dissolved, substantially as set forth.

2. An ink-producing compound in a non-liquid form, in combination with an acid and an alkali intermixed therewith and adapted to produce effervescent action and liquid ink when the preparation is dissolved, substantially as set forth.

3. A portable dry-ink compound in the form of compressed disks or tablets, the same consisting of ink material proper in combination with an acid and an alkali intermixed therewith and adapted to produce effervescent action and liquid ink when the preparation is dissolved, substantially as set forth.

4. A portable dry-ink compound in the form of compressed disks or tablets consisting of ink material proper, a suitable gum or saccharine binder, and an acid and an alkali intermixed therewith and adapted to produce effervescent action and liquid ink when the preparation is dissolved, substantially as set forth.

590,140. CLOTH-CUTTING MACHINE. GEORGE P. EASTMAN, Toronto, Canada. Filed Nov. 18, 1896. Serial No. 612,553. (No model.)



Claim.—1. In a cloth-cutting machine, the combination with the base and stem extending upwardly therefrom and a suitable motor and guideways suitably supported, the armature-shaft, suitable bearings therefor, crank on the outer end, connecting-rod, knife-rod and knife having a lower beveled sharpened edge, a slot in the base into which such knife reciprocates and an adjustable guard secured at the top to the front of the lower guide for the knife-rod and depending therefrom said guard being provided at the bottom with lower wings extending on each side of the supporting-stem as and for the purpose specified.

2. In a cloth-cutting machine, the combination with the base and stem extending upwardly therefrom and a suitable motor and guideways suitably supported, the armature-shaft, suitable bearings therefor, crank on the outer end, connecting-rod, knife-rod and knife having a lower beveled sharpened edge a slot in the base into which such knife reciprocates, a slotted guard secured at the top to the front of the lower guide for the knife-rod and depending therefrom said guard being provided at the bottom with rear wings extending on each side of the supporting-stem and a pointer extending forwardly from the guard and forming part of the same and the binding-screw extending through the slot in said guard to hold said guard in position as and for the purpose specified.

3. In a cloth-cutting machine, the combination with the base and the stem extending upwardly therefrom, and a suitable motor and guideways suitably supported, the armature-shaft, suitable bearings therefor, a crank on the outer end, a connecting-rod, a knife-rod, and knife having a lower beveled sharpened edge, a slot in the base into which said knife reciprocates, an adjustable guard secured at the top in front of the lower guide for the knife-rod and provided at the bottom with a pointer extending forwardly from the guard and forming a part of the same and located entirely to one side of the cutting edge of the knife so as to leave a marked line on the cloth in clear view from the point to the cutting edge of the knife, substantially as described.

4. In combination in a cloth-cutting machine the base, the stem, the magnet-frame supported by the same, the field the cup-shaped armature, the armature-shaft, the front bearing therefor supported by the magnet-frame and extending within the armature, the rear bearing also supported by the magnet-frame and extending outwardly from the field, said armature being secured to one end of the shaft and extending inwardly within the field immediately to the outside of the inwardly-extending front bearing and the reciprocating knife operated by the armature, substantially as described.

590,141. TROLLEY-WIRE HANGER. JOHN F. FAULKNER and ROYER CAMPBELL, San Antonio, Tex. Filed Mar. 8, 1897. Serial No. 626,560. (No model.)

Claim.—1. In a trolley-clamp, the combination of a rigid jaw, having a slight dip to receive the wire; with a sliding jaw, having a lip at its outer end to engage the trolley-wire and adapted to slide upon the rigid jaw and means for holding the two jaws together and for holding the sliding jaw into contact with the wire and for clamping the wire between the two jaws, the entire structure being such that any rupture of the mechanism for holding the two jaws into contact with the trolley-wire, will cause the clamp to fall off from the trolley wire by reason of its own automatic separation, substantially as described.

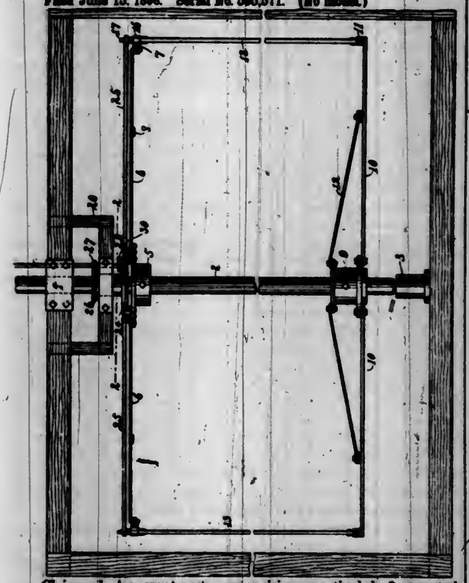


2. In a clamp for trolley-wires, a rigid jaw provided with a post, recessed and provided with a screw-threaded hole; in combination with a sliding jaw having a projection adapted to fit within a recess in the post of the rigid jaw and provided with a shoulder and a sleeve adapted to encircle the post on the rigid jaw and the projection or tenon on the sliding jaw, and abutting against the shoulder on the sliding jaw, substantially as and for the purposes described.

3. In a clamp for trolley-wires, a rigid jaw provided with a post recessed and provided with a screw-threaded hole; in combination with a sliding jaw having a projection adapted to fit within the recess in the post of the rigid jaw and provided with a shoulder and a sleeve longer than the post on the rigid jaw, and adapted to encircle the post on the rigid jaw and the projection or tenon on the sliding jaw, and abutting against the shoulder on the sliding jaw, substantially as and for the purposes specified.

4. In a clamp for trolley-wires, a rigid jaw, provided with a post recessed and provided with a screw-threaded hole; in combination with a sliding jaw having a projection adapted to fit within the recess in the post on the rigid jaw and provided with a shoulder and a sleeve adapted to encircle the post on the rigid jaw and the projection on the sliding jaw and abutting against the shoulder on the sliding jaw, the distance between the face of the shoulder and the upper end of the post being less than the distance between the bottom of the collar and the top of the collar, substantially as described, whereby the clamp of the insulator down upon the upper end of the collar will securely hold the wire, as described.

590,142. CURRENT-MOTOR. ASA B. FRANK, Boyden, Iowa. Filed June 15, 1896. Serial No. 595,571. (No model.)



Claim.—1. A current-motor, comprising a vertical shaft mounted to rotate, a wheel carried by said shaft and having spokes extending radially from said shaft near its upper and lower end and oscillating blades supported by said spokes, an eccentric disk surrounding the shaft, an eccentric ring engaging with said disk, an eccentric strap engaging with said ring, rods extending from said eccentric strap to crank-arms on the said blades, and means for connecting the said eccentric strap and wheel, whereby the said strap will rotate with the wheel, substantially as set forth.

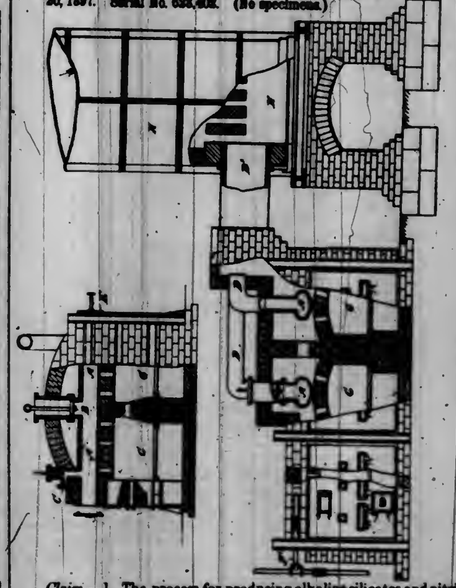
2. A current-motor, comprising a vertical shaft, a wheel carried by the shaft and provided with pivoted blades, an eccentric disk surrounding the shaft, an eccentric ring engaging the disk, an eccentric strap engaging the ring and connected with the wheel, connections between the said strap and blades, and means for rotating the said disk and ring in opposite directions, substantially as described.

3. A current-motor, comprising a frame, a vertical driving-shaft supported therein, a sleeve secured to said shaft near its upper portion within the frame, spokes extended radially from said sleeve, a peripheral ring secured to the outer ends of said spokes, a sleeve attached to the shaft near its lower end, spokes radiating therefrom, a peripheral ring secured to said spokes, blades supported by and adapted to oscillate with relation to said two rings, crank-arms on the upper extended ends of the upper journals of said blades, a sleeve surrounding the driving-shaft and supported by the frame, an eccentric disk on the lower end of said sleeve, an eccentric ring engaging with said disk, an eccentric strap engaging with said ring, rods extended from the strap to the crank-arms, and means for rotating the eccentric disk and the eccentric ring in opposite directions with relation to each other, substantially as specified.

4. A current-motor, comprising a vertical shaft, a blade-carrying wheel mounted to rotate therewith, a sleeve surrounding the upper portion of said shaft and having a gear-wheel on its upper end, an eccentric disk on the lower end of said sleeve, an eccentric ring engaging with said disk, a curved rack on the upper surface of said ring, an eccentric strap engaging with the ring and having antifriction-bearings thereon, connections between the said wheel-blades and the eccentric strap and a shaft having pinions to engage respectively with the gear on the sleeve and with the rack on the eccentric ring, substantially as specified.

5. A current-motor, comprising a frame, a vertical shaft supported therein, spokes radiating from said shaft and supporting blades, an eccentric surrounding the shaft, an eccentric strap thereon, rods connecting the eccentric strap and the said blades, a lug mounted on one of the spokes, and an arm extending from the eccentric strap and having a longitudinal slot with which said lug engages, whereby the rotation of the said shaft and spokes carried thereby will rotate the said eccentric strap, substantially as specified.

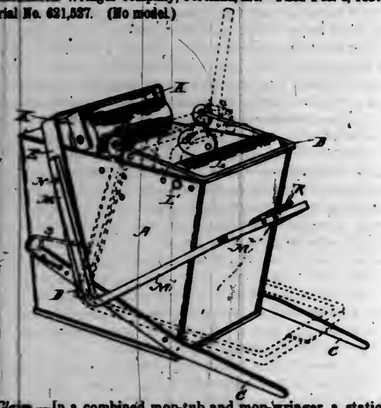
590,148. PROCESS OF MAKING ALKALINE SILICATES AND NITRIC ACID. WILLIAM GARROWAY, Glasgow, Scotland. Filed Mar. 20, 1897. Serial No. 628,402. (No specimens.)



Claim.—1. The process for producing alkaline silicates and nitric acid, consisting in heating silica and an alkaline nitrate with superheated steam, as hereinbefore described.

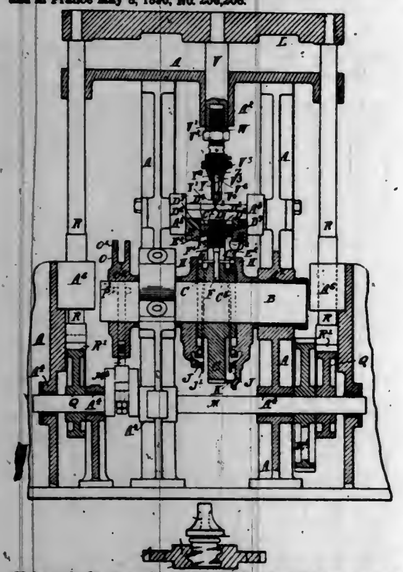
2. The process for producing caustic alkalies which consists in heating silica and an alkaline nitrate with superheated steam and acting on the resulting alkaline silicate, with lime.

590,144. COMBINED MOP-TUB AND MOP-WRINGER. CHARLES GUTTERA, Gardiner, Me., assignor, by mesne assignments, to the Massachusetts Wringer Company, Portland, Me. Filed Feb. 1, 1897. Serial No. 621,537. (No model.)



Claim.—In a combined mop-tub and mop-wringer a stationary roller attached to the tub, a moving roller adapted to form with the said stationary roller a wringer, a swinging hanger in which the said moving roller is pivotally hung, the said swinging hanger being pivoted upon pins D D, near the base of the tub, a bent spring-lever connected at its ends to the said swinging hanger near the upper parts of the same, as described and bearing against the said pins D D, whereby the entire lever is utilized as a spring, and the said pins, substantially as and for the purpose set forth.

590,145. MACHINE FOR MOLDING SCREW BOTTLE-STOPPERS OR OTHER ARTICLES FROM PLASTIC MATERIAL. CHRISTIAN H. GRAY, Silvertown, England. Filed Nov. 23, 1896. Serial No. 613,695. (No model.) Patented in England May 2, 1896, No. 9,353, and in France May 8, 1896, No. 256,206.



Claim.—1. In a machine for molding bottle-stoppers and the like, the combination of a mold comprising a perforated section, and a section composed of two parts supported to be brought together and separated, and a compressor operating in connection with said mold, substantially as described.

2. In a machine for molding bottle-stoppers and the like, the combination of a mold comprising a section adapted to form the shank of the stopper, and a section having a cavity to form the head of the stopper and being of two parts supported to be brought together and separated, and a compressor operating in connection with said mold, substantially as described.

3. In a machine for molding bottle-stoppers and the like, the combination of a mold comprising a section having a screw-threaded perforation to form the neck of the stopper, and another section having a cavity to form the head of the stopper, and being of two parts supported to be brought together and separated, and a compressor operating in connection with said mold, substantially as described.

4. In a machine for molding bottle-stoppers and the like, the combination of a mold carrier or turret, a mold carried thereby comprising a perforated section, and a section in two parts supported to be brought together and moved apart, means for separating said parts and again drawing them together, means for ejecting the molded article during the separation of these parts, and a compressor, substantially as described.

5. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-movable carrier or turret, a mold carried thereby comprising a section constructed to form the neck of the stopper, and another section constructed to form the head of the stopper, and being in two parts supported to be brought together and moved apart, means for separating said parts and again drawing them together, means for ejecting the stopper during the separation of these parts, and a compressor, substantially as described.

6. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-operating carrier or turret, a mold carried thereby comprising a section constructed to form the neck of the stopper, and another section constructed to form the head of the stopper, and being in two parts adapted to be brought together and moved apart, pressure devices operating upon said parts at one period of movement of the turret, means for separating said parts and again drawing them together, means for ejecting the molded stopper, and a compressor, substantially as described.

7. In a machine for molding bottle-stoppers and the like, the combination of a mold carrier or turret, a mold and compressor adapted to form a stopper having a head and a threaded neck, and means for unscrewing the completed stopper from the mold, substantially as described.

8. In a machine for molding bottle-stoppers and the like, the combination of a mold and a plunger adapted to form a stopper having a head and a threaded neck, means for grasping the stopper at the moment of completion, and means for rotating the mold while the stopper is so held whereby said stopper is ejected, substantially as shown and for the purpose described.

9. In a machine for molding bottle-stoppers and the like, the combination of a compressor, and a mold carrier or turret, a mold carried thereby comprising a section constructed to form the screw-threaded neck of a stopper, and another section constructed to form the head of the stopper, and being in two parts adapted to be drawn together and separated, means for separating these parts and again drawing them together, means for grasping the head of the stopper as soon as such separation takes place, and means for unscrewing the completed stopper from the first-named mold-section, and ejecting the stopper, substantially as described.

10. In a machine for molding bottle-stoppers and the like, the combination of a compressor and a mold carrier or turret, a mold carried by the latter comprising a section constructed to form the screw-threaded neck of a stopper, and another section constructed to form the head of the stopper and being in two parts adapted to be drawn together and separated, means for separating these parts and again drawing them together, a radially-moving device for grasping the head of the stopper as soon as such separation takes place, means for rotating the first-named mold-section to carry the stopper inwardly with the said radially-moving device, this device moving inwardly at the same speed as that at which the stopper is moved, but to a greater extent, substantially as described.

11. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-revolving mold carrier or turret, a plunger or compressor and means for operating the same at regular intervals, a series of molds carried by the turret, each comprising a section having a screw-threaded perforation, and another section having a cavity and being in two parts supported to be drawn together and separated, a cam for separating said parts and again drawing them together, a radially-movable rod operated to grasp the molded article immediately such separation takes place, and means for rotating the mold-section first named during the inward or return movement of said rod, substantially as described.

12. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-revolving mold carrier or turret, a plunger or compressor and means for operating the same at regular intervals, a series of molds carried by the turret, each comprising a section having a screw-threaded perforation, and another section having a cavity and being in two parts supported to be drawn together and separated, a stationary cam for separating said parts and again drawing them together, a series of radially-movable rods corresponding to the series of molds and operating successively to grasp the molded articles as the movable parts of each mold are separated,

and means for successively rotating the mold-sections first named at the same rate of speed as the return or inward movement of the said movable rods, substantially as described.

13. In a machine for molding bottle-stoppers, the combination of the revolving mold carrier or turret having radial openings or passages, a series of molds carried by said turret and each being constructed with the two-part section, as described, rods movable in and out of the said radial openings, and a cam for operating the same in succession, means for separating the movable parts of the mold-sections, the devices for successively rotating the one-part mold-section and a plunger or compressor, substantially as described.

14. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-revolving carrier or turret, and a plunger or compressor, a series of molds carried by the turret, each comprising a section having a screw-threaded opening and a toothed periphery, and another section in two parts adapted to be drawn together and separated, a cam for separating said parts and again drawing them together, movable devices for successively holding the molded articles after the separation of the movable parts of the mold-section takes place, and a rack with which the toothed sections of the molds successively engage, substantially as described

15. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-operating carrier or turret, a mold carried thereby comprising a section having a perforation, and another section having a cavity and being in two parts supported to be drawn together and moved apart, side bars and wedges for pressing said parts together at one point in the movement of the turret, means for separating the parts and again bringing them together, and a compressor or plunger and means for operating the same at regular intervals, substantially as described.

16. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-operating carrier or turret, a series of molds carried thereby each constructed to mold a stopper having a threaded neck, and each being movable or separable in part to release the completed stopper, means for successively separating the movable parts of the molds and after an interval again drawing them together, means for holding the stoppers during such intervals, and means for simultaneously unscrewing the stoppers from the molds in succession, substantially as described.

17. In a machine for molding bottle-stoppers and the like, the combination of an intermittently-operating carrier or turret, a series of molds carried thereby each being in two sections and one of the sections being in two parts adapted to be drawn together and moved apart, means for successively separating said parts and after an interval again drawing them together, and means for withdrawing the completed articles from the molds during said intervals, substantially as described.

18. In a machine for making bottle-stoppers and the like, the combination of an intermittently-operating carrier or turret, a series of molds carried thereby and comprising one section constructed to form the neck of the stopper, and another section for shaping the head of the stopper and composed of two parts adapted to be drawn together and moved apart, means for successively separating said parts and after an interval again drawing them together, means for withdrawing the completed stoppers from the molds during such intervals, and means for grasping and holding the head of each stopper during such withdrawal, substantially as described.

19. The combination with a mold provided with interior screw-threads, of a compressor adapted to coöperate with the mold, and devices for causing a relative rotation between the mold and the article molded to effect the discharge of the article from the mold, substantially as described.

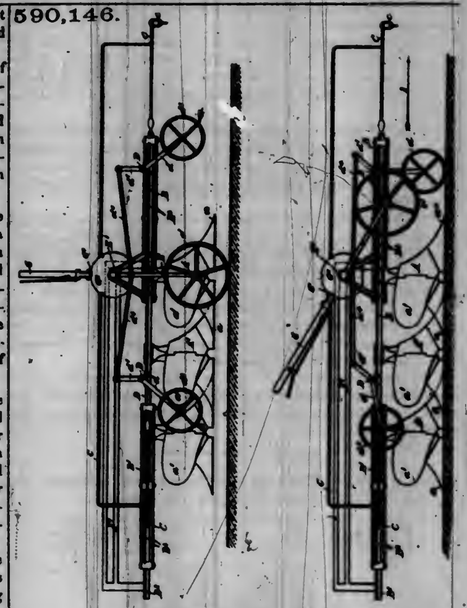
20. The combination with a reciprocating compressor, of a series of molds provided with interior screw-threads, means for moving the molds successively beneath the compressor and devices for causing a relative rotation between the mold and the article contained therein to effect the discharge of the latter from the mold, substantially as described.

21. The combination with a revolving mold-carrier having a series of molds around its periphery, and a plunger coöperating with the molds, of a reciprocating or movable table for operating the plunger, and a knife carried by the table and operating upon the faces of the molds, substantially as shown and described.

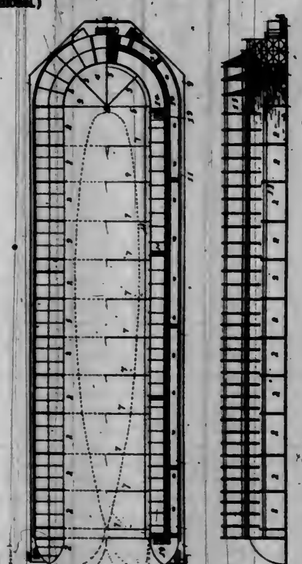
590,146. PLOW. WILLIAM H. C. GREAVES, Cradock, Cape Colony. Filed Dec. 26, 1896. Serial No. 617,044. (No model.)

Claim.—In reversible plows, the combination of a frame having parallel beams swingingly connected by radius-bars, said frame carrying double-ended plowshares having reversible moldboards with a guide C extending along the landside from one end of the frame to the other for the draft connections, substantially as and for the purpose described.

590,146.



590,147. FLOATING OR SUBMERGABLE DOCK. MANUEL GUASTAVINO, New York, N. Y. Filed Aug. 3, 1894. Serial No. 519,618. (No model.)



Claim.—1. A floating or submergeable dock, formed of tank-sections secured together and arranged to form a U-shaped structure having a clear open space between the arms thereof capable of receiving an entire vessel, the said arms extending parallel with each other along the sides of the vessel throughout its length, substantially as specified.

2. In a floating and submergeable dock, the combination of a U-shaped float formed of a series of water and air tight tank-sections, and a series of hydraulic lifts attached to the inner side of the U-shaped float and provided with devices for engaging the vessel contained by the U-shaped float, substantially as specified.

3. A floating and submergeable dock, formed of two series of air-tight tank-sections arranged parallel with each other, and an end series of tanks connecting the parallel series, one or more of the

end series comprising a compressed-air reservoir for operating engines, substantially as specified.

4. The combination, with a dock formed of a series of tank-sections and adapted to float on the surface or be submerged, of air-operated propeller-screws placed at the stern and sides of the dock, for propelling the dock longitudinally or laterally, substantially as specified.

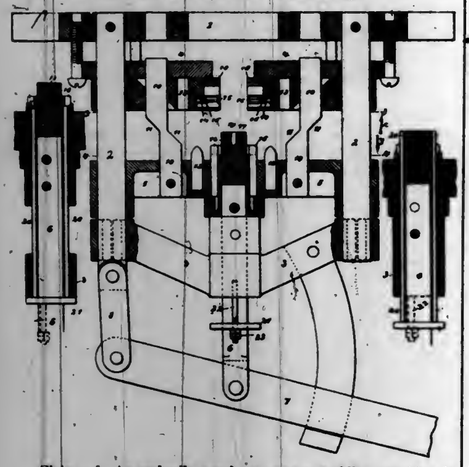
5. In a floating and submergeable dock, the combination with the tank-sections, of valves connected with the sections, pipes leading from the hydraulic accumulators and communicating with the valves, and mechanism for operating the valves simultaneously, substantially as specified.

6. The combination with the tank-sections, of valves connected with the sections and provided with valve-spindles having worm-wheels, shafts provided with movable worms engaging the worm-wheels, a motor for operating the shafts, and pipes leading from the valves to the hydraulic accumulators, substantially as specified.

7. A floating and submergeable dock, formed of air-tight tank-sections of approximately parabolic cross-section having the apex of the sections uppermost, secured to each other, forming a U-shaped rigid structure substantially as specified.

8. The combination, with a floating and submergeable dock, of a bar extending along the top thereof, parallel with and above the center line of the tank-sections for receiving the mooring-cables, substantially as specified.

590,148. CASTING-MACHINE. JOHN HALL, Philadelphia, Pa. Filed Dec. 9, 1895. Serial No. 571,575. (No model.)



Claim.—1. An umbrella notch or runner molding machine in which are combined laterally-separable matrices having therein transverse openings, the inner and outer walls of which are partly straight or at right angles to the line of movement of the matrices, and partly beveled or inclined at an angle other than a right angle to such movement, and a longitudinally-reciprocating cross-head carrying a mold-plunger and cam-bars, said cam-bars passing through the openings in the matrices and having sides partly straight or parallel with the direction of movement of the cross-head and partly beveled or inclined at an angle other than a right angle to such movement whereby as the cross-head is reciprocated the matrices will be caused to move from and toward each other and will be locked in both the advanced and retracted positions, substantially as specified.

2. An umbrella notch or runner molding machine in which are combined laterally-separable matrices having openings therein laterally beyond the molding-openings, and a longitudinally-reciprocating cross-head carrying a mold-plunger and having cam-bars for effecting the closing and separation of said matrices, and centering-pins one on each side of the plunger adapted to enter the openings in the matrices when the same are closed, substantially as specified.

3. An umbrella notch or runner molding machine in which are combined laterally-separable matrices each having a series of spaced ribbed sections formed therein, core-strips separating said ribbed sections one from another and a mold-plunger reciprocating in a plane at right angles to the movement of the matrices and having a projecting core-block for forming the bore of the notch or runner, the projecting portion of said core-block being free from contact with the inner edges of the core-strips, substantially as specified.

4. An umbrella notch or runner molding machine in which are combined separable matrices each having rib-sections with intervening slots and a reciprocating mold-plunger having a central projecting core-block and projecting core-strips, the latter being adapted to enter the slots between the rib-sections of the matrices, substantially as specified.

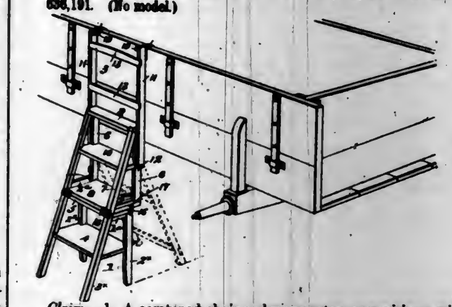
5. An umbrella notch or runner molding machine provided with laterally-separable matrices having end portions which unite to close the end of the mold when the matrices are in contact with each other, but having openings for the passage of the molten metal, in combination with a laterally-reciprocating mold-plunger having a central projecting core-block with channel therein for the passage of metal into the mold, said channel being adapted to register with the openings in the ends of the matrices, substantially as specified.

6. An umbrella notch or runner molding machine provided with laterally-separable matrices having end portions which unite to close the end of the mold when the matrices are in contact with each other, but having openings for the passage of the molten metal, in combination with a laterally-reciprocating mold-plunger having a central projecting core-block with channel therein for the passage of metal into the mold, said channel being adapted to register with the openings in the ends of the matrices, and being flared from the inner to the outer end, substantially as specified.

7. An umbrella notch or runner molding machine in which are combined separable matrices, the reciprocating mold-plunger, sliding ejector-pins guided in said plunger, and suitable stops therefor, whereby the movement of the ejector-pins with the mold-plunger in either direction is arrested before the said mold-plunger reaches the limit of its movement, substantially as specified.

8. An umbrella notch or runner molding machine in which are combined separable matrices, a reciprocating mold-plunger, ejector-pins guided in said plunger and having a flange or collar at the outer ends, a stop for arresting said flange or collar on the inward movement of the mold-plunger, and projecting studs having nuts for arresting the movement of the flange or collar on the outward movement of said mold-plunger, substantially as specified.

590,149. COMBINED WAGON-STEP AND CHAIR. HENRY G. HARRINGTON, Magnolia, Ark., assignor of two-thirds to Ben Lee Jean and Jabez D. Jameson, same place. Filed May 12, 1897. Serial No. 636,191. (No model.)



Claim.—1. A combined chair and wagon-step, comprising a middle and a lower section hinged together, said sections when swung upon each other forming a series of steps and when folded forming the body portion of a chair, an upper section hinged to said middle section, said upper section serving as a back for the chair or an extension for the steps, and interchangeable attaching devices capable of being attached to the middle and upper sections, as and for the purpose set forth.

2. A wagon-step, having the upper end of its rear supporting members provided with headed studs, an upper section hinged thereto, having cleats at the upper ends, said section being adapted to swing down to bring the cleats in a locked engagement with the lower end of the rear supporting-legs, said upper hinged section having headed studs, and the interchangeable hook members, all being arranged substantially in the manner shown and described.

3. A wagon-step, comprising a lower and a middle section hinged together, each having inclined legs adapted when the sections are swung upon each other to form the continuous inclined sides of the steps, and an upper section hinged to the middle section, adapted when swung down and closed against the lower section to lock the middle and lower sections from swinging open, and when swung up to form an extension of the step, as set forth.

4. A combined wagon-step and chair, comprising a lower and a middle section hinged together, each having vertical and inclined legs, and step portions, the middle section having headed studs, and being adapted when folded down to form the rear part of the chair, the hinged upper or back section, the interchangeable hooks, detachably secured to the said headed studs, having the hook ends held to engage the side arms of the back section and hold them from swinging backward, and means secured to the middle section to hold the said back section from swinging forward, all being arranged substantially as shown and described.

5. An improved combined wagon-step and chair, consisting of a lower and middle section, hinged together to form a step when folded up and a chair-body when folded down, said middle section having headed studs, under its seat portion and similar studs at its converged end, an upper section hinged to the middle section having cleats and headed studs at the upper ends, and the interchangeable hooks having key-slots, all being arranged substantially as shown and for the purposes described.

6. A combined chair and wagon-step, comprising a lower and a middle section hinged together to form a series of steps when extended and a chair when folded one upon the other, an upper section hinged to said middle section, and means for holding the said sections extended and folded, as and for the purpose set forth.

7. A device of the character described, comprising the lower, middle, and upper sections hinged together and forming a ladder when extended and a chair when folded, and interchangeable attaching devices arranged for connection with the said sections, as and for the purpose set forth.

8. A device of the class described, comprising the lower and middle sections hinged together, said sections when swung upon each other forming a series of steps and when folded forming the body portion of a chair, an upper section hinged to said middle section and serving as an extension of the steps and a back for the chair, and means by which both the upper and middle sections may be connected to a support and the upper section rigidly connected with the middle section, as and for the purpose set forth.

590,150. CAR-COUPLING. HENRY G. HARRINGTON, Magnolia, Ark., assignor of two-thirds to Ben Lee Jean and Jabez D. Jameson, same place. Filed May 19, 1897. Serial No. 637,234. (No model.)



Claim.—1. A draw-head for a car-coupling having a link-seat opening through the top of the draw-head and entirely housed within the draw-head, and adapted to receive and contain both ends of the link, and having a rigid link-core corresponding to the inner circumference of the link, and attached at its bottom only to the draw-head, said core having an overhang at its front end; in combination with a detachable link, and a coupling-bar having a hook or shoulder with a head fitting beneath the overhang of the said link-core substantially as and for the purpose described.

2. A draw-head for a car-coupling having a link-seat entirely housed within the draw-head with an incline or depression at the back end of said link-seat, and a central rigid core, a shouldered coupling-bar, and a depression-block arranged for vertical movement behind the link-core, with means for operating it to lift the link and uncouple the cars substantially as and for the purpose described.

3. A draw-head for a car-coupling having a link-seat opening through the top of the draw-head and entirely housed within the draw-head and adapted to receive and contain both ends of the link and having a rigid central core attached at its lower end only and provided with an overhang at its front end and a slot below it and also below the level of the link-seat; in combination with the detachable link, and the shouldered coupling-bar substantially as and for the purpose described.

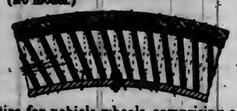
4. A car-coupling composed of a coupling-bar D with a shoulder *d* and V-shaped head or end, a draw-head having a link-seat opening on its upper surface and entirely housed within the same and adapted to receive both ends of the link, and provided with a central rigid core attached at its lower end only and provided with an overhanging front end and a slot below it and the link-seat, said slot and overhang conforming to the end of the coupling-bar, and a detachable link arranged in said link-seat to exert a draft strain on the core substantially as and for the purpose described.

590,151. SECONDARY BATTERY. GILBERT HART, Detroit, Mich. Filed Jan. 14, 1897. Serial No. 619,237. (No model.)

Claim.—An electrode for a secondary or storage battery, consisting of two similar sheets of metallic lead, each sheet having half-cells formed by walls integral with the said sheet, the side walls converging toward the latter from the open top of the trough to its bottom, the two plates being united with the half-cells registering, adjacent series of said cells being separated by plane vertical portions of the united sheets, which are united when the two plates are brought together, substantially as described.



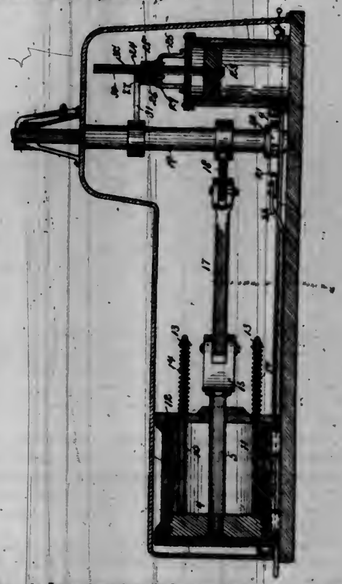
590,152. BICYCLE-TIRE. JOHN H. HAYES and HENRY K. NASH, De Ruyter, N. Y. Filed Nov. 13, 1895. Renewed July 20, 1897. Serial No. 645,289. (No model.)



Claim.—A tire for vehicle-wheels comprising a tubular-like or segment-shaped wrapper or shoe of annular form longitudinally, constructed of elastic material, a continuous spirally-coiled spring of a diameter readily fitting the interior of the shoe, the shoe suitably secured to the rim of a wheel, and the spring connected to the rim by eyebolts held in place by nuts bearing against the non-bearing face thereof, depressions in the tread of the spring lineal its periphery, and an annular band of corrugated form longitudinally, tightly fitting the spring at its depressed portions and lockingly retaining the helices of the spring from longitudinal displacement at their treads, all combined and operating substantially as described

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590,153. AUTOMATIC PNEUMATIC RAILROAD-SWITCH. JOHN H. JOHNSON, Raleigh, and NEILL A. MCKEITHEN, Aberdeen, N. C., administrator of Daniel J. McKeithen, deceased. Filed June 18, 1897. Serial No. 641,353. (No model.)



Claim.—1. In pneumatic switch-operating apparatus, the combination with a switch-staff and connections between the staff and switch-point of an air-compressing cylinder and piston, an air-receiving cylinder communicating by a suitable pipe with the compressing-cylinder, a piston within said receiving-cylinder having a piston-rod, a locking device for said switch-staff, and means for unlocking the switch-staff when the air in the receiving-cylinder escapes.

2. In pneumatic switch-operating apparatus, the combination with a switch-staff of an air-compressing cylinder, a piston within said cylinder provided with spring-retracting rods, a rod a connection between the piston and switch-staff, a rod for connecting the switch-staff and switch-point, a receiving-cylinder having a pipe connection

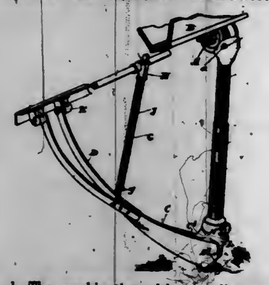
with the air-compressing cylinder, and a locking device adapted to be released by the piston-rod of the receiving-cylinder.

3. In pneumatic switch-operating apparatus, the combination with the air-compressing cylinder and piston, the latter operated by the turning of the switch-staff, of a connection from the switch-stand for throwing the switch-point, an air-receiving cylinder having a pipe connection with the air-compressing cylinder, an escape-valve for the receiving-cylinder, a piston in said receiving-cylinder having a slotted piston-rod adapted to release a locking device to permit the switch-staff to return to its normal position.

4. In pneumatic switch-operating apparatus, the combination with the air compressing and receiving cylinders connected by an air-pipe, of a piston within the compressing-cylinder provided with parallel rods extending beyond the cylinder and provided with coil-springs, connections for operating said piston and throwing the switch-point from the switch-staff, and releasing mechanism whereby the springs are permitted to retract said piston.

5. The combination with the compressing-cylinder and its piston, piston-rod and spring-operated rods, of the switch-staff connected by a cross-head and connecting-rod with said piston-rod, a connection for throwing the switch-point, and an air-receiving cylinder communicating with the compressing-cylinder by a valved connection and having an escape-valve, a device for locking the switch staff after the switch is thrown, and a catch adapted to be depressed by the downward movement of the piston of the air-receiving cylinder.

590,154. SEEDING-MACHINE. LYMAN M. JOHNS and WILLIAM F. JOHNSTON, Toronto, Canada, assignors to the Massey-Harris Company, same place. Filed July 20, 1896. Serial No. 599,773. (No model.)



Claim.—1. The combination with a seeding-machine having a seed-run and shoe, of a conveyer leading from said seed-run to said shoe, said conveyer being formed of telescopic sections, the detachable connection between the upper end of said conveyer and said run, and the positive connection between the lower end thereof and said shoe, said connection being freely detachable.

2. The combination with a seeding-machine having a seed-run and shoe, of a conveyer leading from said run to said shoe, said conveyer being formed of telescopic sections, the positive connection between the conveyer and shoe said connection being freely detachable and the pivotal detachable connection between the hopper and seed-run.

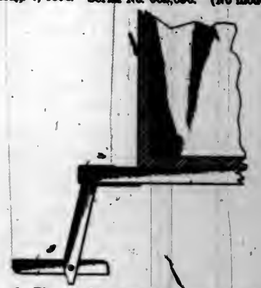
3. The combination with a seeding-machine having a seed-run and shoe, of a telescopic conveyer, a connection between the upper end thereof and said seed-run, a conveyer-socket secured between the sides of said shoe and interlocking devices carried by said conveyer and socket for detachably connecting the same, substantially as described.

4. In a seeding-machine a shoe or runner suitably supported, a conveyer-socket secured between the sides of the shoe at the rear end thereof, a tubular conveyer extending upwardly from such socket and a hook at the bottom rear end of the tubular conveyer and a suitable pin or projection with which it is designed to engage as and for the purpose specified.

5. In a seeding-machine a shoe or runner suitably supported, a conveyer-socket secured between the sides of the shoe at the rear end thereof, a U-shaped extension to such socket and pin extending through such U-shaped extension and the tubular conveyer having a hook formed at its rear bottom end, and the coacting pin extending through the U-shaped rearward extension as and for the purpose specified.

6. In a seeding-machine, a shoe or runner suitably supported, a conveyer-socket secured between the sides of the shoe at the rear end thereof, a U-shaped extension to such socket and pin extending through such U-shaped extension, the tubular conveyer, the thimble forming the extension thereof provided with an exterior intermediate flange and having the end abutting an annular shoulder in the top of the socket against which the end of the thimble abuts, and a hook on the thimble designed to grasp the pin extending through the U-shaped extension as and for the purpose specified.

590,155. WAGON-STEP. MARTHA J. LEATHERS, Dawson, Ill. Filed Aug. 7, 1896. Serial No. 602,056. (No model.)



Claim.—1. The combination with a wagon-body having a cross-beam, of a step, a locking-plate connected to the beam, links pivoted to the step and to the beam and adapted to abut on the locking-plate when the step is lowered, and means for holding the step folded against the wagon body.

2. The combination with a wagon-body, of a cross beam or piece therefor, stops connected to the bottom of the cross-piece and projecting out on opposite sides thereof, links pivoted to the end of the cross-beam, a step pivoted to the links, stops fastened to the step and adapted to come into engagement with the links, and means for holding the step and links folded against the wagon-body.

3. The combination with a wagon-body, of a cross-beam extending out from the side thereof, locking-stops connected to the projecting end of the cross-piece, a catch-plate connected to the top of the cross-piece, links pivoted to the cross-piece, a step to which the links are also pivoted, stops connected to the step, and a bail pivoted to the wagon-body and adapted for engagement with the step.

590,156. NUT-LOCK. ROBERT LOWE, Washington, Pa. Filed Feb. 6, 1897. Serial No. 622,321. (No model.)



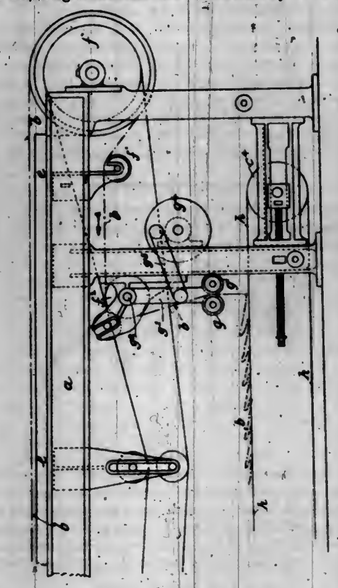
Claim.—The combination with a nut, of a bolt receiving the same and having the outer end of its threaded portion reduced to a non-circular shape and provided with a side notch, a cap fitting over the nut and provided with an opening receiving the reduced end of the bolt and fitting the same sufficiently to prevent it from rotating thereon, a lip mounted on the outer face of the cap at the opening thereof and arranged opposite the said notch, and a key interposed between the lip and the reduced portion of the bolt and arranged in the notch of the latter, substantially as described.

590,157. MACHINE FOR SPREADING WATERPROOFING MATERIAL UPON FABRICS. JOHN J. MANN, Paris, France. Filed Dec. 24, 1896. Serial No. 616,880. (No model.)

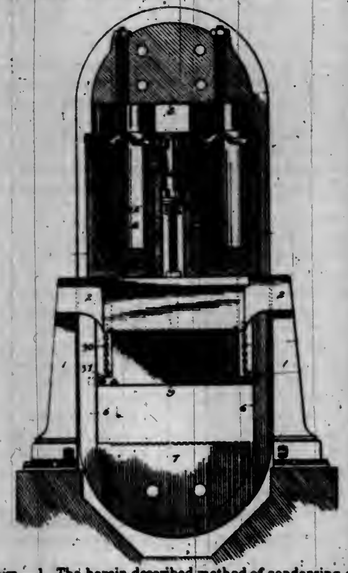
Claim.—1. The combination with apparatus for spreading waterproof material upon fabrics or for similar purposes, of mechanism whereby the fabric can be passed through the machine in an open length and mechanism whereby the fabric having been joined endless in the machine when the first end has once passed through can then be repassed through the machine as often as desired in this endless form, and finally, the ends being separated, wound upon a batch and removed in this form, substantially as set forth.

2. The combination in a machine for spreading waterproof material upon fabrics or for similar purposes, of mechanism for first passing the fabric through the machine in an open length, with mechanism consisting of apparatus for conveniently disposing of the long length of coated fabric and for so regulating the tension upon part of the fabric that the same can be joined endless, and passed again through the machine, and mechanism whereby the fabric having been sufficiently treated, the ends thereof can be separated and the fabric delivered by the machine in a portable condition, all substantially as described.

3. The combination in a machine for spreading waterproof material upon fabrics or for similar purposes, of tension-rollers and guide-rollers for passing the fabric through the machine in open length, additional guide-rollers for passing the fabrics when endless, batch-roller brackets and batch-rollers mounted therein, driving mechanism for said batch-rollers, with spreading and drying apparatus and mechanism for disposing of the slack fabric, substantially as set forth.



590,158. METHOD OF AND APPARATUS FOR COMPRESSING BALES. STONEWALL R. MONTGOMERY, Memphis, Tenn. Filed June 16, 1897. Serial No. 641,037. (No model.)



Claim.—1. The herein-described method of condensing a bale of cotton or other like fibrous material, the same consisting in compressing it in one direction, securing it in such compressed form, then turning it on edge, then confining it in the direction of its first compression, and finally compressing it in a direction transverse to the direction of first compression, and securing it in said final compressed form, as explained.

2. In combination with a compress, vertically-sliding plates for reducing the lateral dimensions of the platens and affording lateral support to a bale compressed between said platens, substantially as herein explained.

3. In combination with a compress, a vertically-sliding plate for confining a bale on one side, means cooperating with said plate for confining it on the opposite side, and the lifting-cylinder for controlling the position of said plate, substantially as herein explained.

4. In combination with the compress, the attaching connections for engaging the bale at one side while permitting the other side to drop to effect automatic turning of the bale on edge, substantially as herein explained.

5. In combination with a compress, the side plates working through slots in one of the platens, substantially as explained.

6. In combination with the platen of a compress, the side plates working in slots in said platen and tie-rods connecting said plates together, substantially as and for the purposes set forth.

7. In a compress, the combination of the press-platens, the confining-plates, and independent means for controlling the movements of the platens and the plates separately substantially as herein explained.

8. In a bale-press, the combination of the movable and fixed press-platens, the links for moving the one relatively to the other, the confining-plates mounted in the fixed platen and having means for moving them at will, extensions on said plates overlapping and bearing against the links, substantially as set forth.

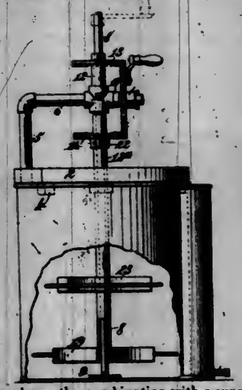
9. In a bale-press, the combination of the press-platens having suitable pressure appliances, the confining-plates perpendicular to the platens, lifting-cylinders controlling the position of said confining-plates, a hydraulic press supplying controlling pressure to the lifting-cylinder, and a steam-cylinder, containing a piston having connection with the piston of the press, to control movement of the latter, substantially as and for the purposes set forth.

590,159. PAPER BOX. MARK B. MORRIS and FRANK N. WILSON, Logansport, Ind. Filed Oct. 31, 1896. Serial No. 610,744. (No model.)



Claim.—The herein-described box, the same consisting of a back fold 1, a bottom fold 2, side folds 5 and 6, bottom flaps 3 and 4 carried by the side folds and adapted to overlap parallel with the plane of the bottom fold, front flaps 7 and 8 adapted to overlap in planes perpendicular to the bottom fold, a front fold 9 adapted to be arranged outside of the front flaps, a securing-flap 10 formed as an extension of the front fold and adapted to fold over the front flaps within the box, covering-flaps 11 and 12 adapted to overlap at the top of the box, a top fold 13 to overlap said covering-flaps, and a locking-flap 14 for insertion between the front edges of the covering-flaps and the front wall of the box, substantially as specified.

590,160. CHURN. JOHN S. MUHADEN, Lima, Ohio. Filed Feb. 1, 1897. Serial No. 621,532. (No model.)



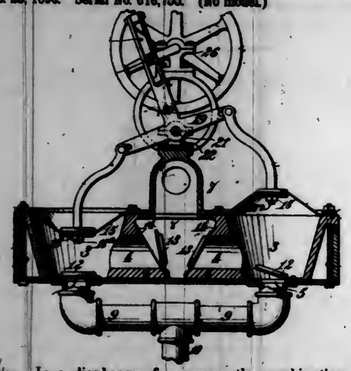
Claim.—1. In a churn, the combination with a support mounted on the churn-cover, of a four-way pipe-coupling fixed on said support,

a central shaft journaled in said coupling and carrying a dasher at its lower end, a short sleeve loosely arranged on said shaft above the coupling, a long sleeve arranged on the shaft below the coupling and resting at its lower end on the hub of the said dasher, a gear resting on said short sleeve and rigid on the shaft, a gear mounted on the long sleeve, a bearing projecting laterally from the four-way coupling, an intermediate gear journaled on said bearing and meshing with said gears, and a dasher fixed on the long sleeve, substantially as described.

2. In a churn, the combination with two tubular arms, and a right-angled pipe-coupling uniting said arms, one of the arms being rigidly mounted on the churn, of a four-way pipe-coupling mounted on the other arm, a churn shaft journaled in said four-way coupling, a short sleeve loosely arranged on the shaft above the four-way coupling, a long sleeve arranged on the shaft below the coupling, a gear resting on said short sleeve and rigid on the shaft, a gear mounted on the long sleeve, a bearing projecting laterally from the four-way coupling, an intermediate gear journaled on said bearing and meshing with said gears, and dashers fixed on said shaft and long sleeve, substantially as described.

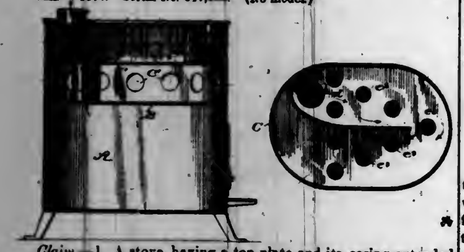
3. In a churn, the combination with a support mounted on the churn-cover, of a four-way pipe-coupling fixed on said support, a dasher-shaft journaled in said coupling and having a gear mounted thereon, a bearing projecting laterally from the four-way coupling, and a gear journaled on said bearing and meshing with the gear on the dasher-shaft, substantially as described.

590,161. FORCE-PUMP. ALBERT MUNDEN, Berkley, Va. Filed Dec. 23, 1896. Serial No. 616,755. (No model.)



Claim.—In a diaphragm force-pump, the combination with a base-plate having a vertical wall and two valved inlets, a suction-pipe, a branch pipe leading from said suction-pipe and communicating with said inlets at its opposite ends, of a top plate cast with suction and force cylinders extending entirely therethrough and communicating with the inlets in the base-plate, and with a central receiving-chamber and passages connecting said chamber and cylinders, flexible diaphragms covering the suction and force cylinders, rings fitting over said diaphragms and secured to the top plate, bolts removably securing said base-plate and top plate together, valves arranged in the water-receiving chamber to alternately open and close the passages connecting said chamber with the suction and force cylinders, and means for operating the diaphragms, substantially as described.

590,162. STOVE. WILLIAM S. NICOLSON, Salisbury, N. C. Filed Jan. 4, 1897. Serial No. 617,922. (No model.)



Claim.—1. A stove having a top plate and its casing extended above the same forming a drum-chamber, said casing being provided above said top with air-inlet openings the drum-section fitted in said drum-chamber and formed with upper and lower plates and having a smoke-flue section leading from the top plate of the stove into the space between the upper and lower plates of the drum-section, and the air-flues leading through the drum-chamber and opening at their lower ends into the space between said chamber and the top plate of the stove all substantially as shown and described.

2. In a stove substantially as described the combination of the stove-body having a top and the casing extended above said top forming a drum-chamber and provided with lateral air-inlet openings the drum-section having upper and lower plates and fitted in the drum-chamber with its lower plate above the lateral air-inlets the baffle-plate extended within the drum-section, the air-flues leading through said drum-section and the smoke-flue projecting from the body of the stove upward into the drum-section substantially as shown and described.

590,168. TOOL FOR CUTTING PLASTER CASTS. JAMES O. PEARSON, Rochester, N. Y. Filed May 7, 1897. Serial No. 635,610. (No model.)



Claim.—1. In a tool for cutting plaster casts, the combination with a frame, of a shaft journaled to rotate in the frame, a circular saw mounted on the shaft outside of the frame, and a guard secured to the frame and extending below the saw and in advance thereof, the front end of said guard being tapered and adapted to be inserted between the plaster cast and the flesh of the patient, substantially as described.

2. In a tool for cutting plaster casts, the combination with a frame, of a shaft journaled to rotate in the frame, a circular saw mounted on the shaft outside of the frame, and a guard secured to the frame and extending below and in advance of the saw, the front end of said guard being tapered and adapted to be inserted between the plaster cast and the flesh of the patient, said guard being provided with a groove in its upper face within which the lower portion of the saw rotates, substantially as described.

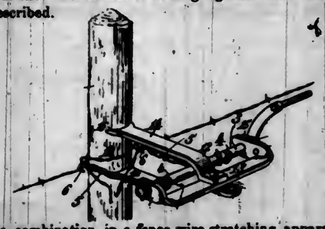
3. In a tool for cutting plaster casts, the combination with the frame, of a shaft journaled to rotate in said frame, a circular saw mounted on the shaft outside the frame, a guard secured to the frame, said guard being in the form of an angle-bar with its vertical arm secured to the frame and its foot portion extending beneath and in advance of the circular saw, the vertical arm being reduced in thickness at its lower portion to permit it to pass freely through the cut in the plaster cast formed by the saw, substantially as described.

4. In a tool for cutting plaster casts, the combination with the frame, a shaft journaled therein, a crank-handle secured to one end of the shaft and a saw mounted upon the other end of the shaft, of a guard secured to the frame and extending below the saw, said guard being adapted to be reversed and secured to the frame either in front or in the rear of the saw, substantially as described.

5. In a tool for cutting plaster casts, the combination with a frame provided with a handle, a shaft journaled in said frame, a crank-handle on one end of said shaft and a saw mounted on the opposite end of the shaft, of a guard secured to the frame, said guard being in the form of an angle-bar, the vertical arm of which is reduced in thickness near its lower end for the purpose specified, and the horizontal or foot portion of the guard tapering from its rear to its front end and being provided with a slot within which the lower portion of the saw rotates, substantially as described.

590,164. APPARATUS FOR STRETCHING FENCE-WIRES. JESSE N. PYEATT, Putnam, Tex. Filed June 29, 1897. Serial No. 643,321. (No model.)

Claim.—1. The combination, in a fence-wire-stretching apparatus, of a frame having a windlass, two chains connected at one end with the windlass and having hooks at the other end to engage a fence-wire at opposite sides of a fence-post to draw the wire around the post in a direction at right angles to the length of the wire, and angular arms rigidly secured, respectively, to the upper and lower sides of the windlass-frame and constructed with pointed extremities to penetrate the fence-post, and thereby support the apparatus on the post without the windlass-frame bearing against the same, substantially as described.



2. The combination, in a fence-wire-stretching apparatus, of a windlass-frame composed of a metallic plate having its end portions twisted and bent to provide side arms, a windlass journaled in said side arms, two independent chains connected at one end with the windlass and having hooks at the other end to engage a fence-wire at opposite sides of a fence-post to draw the wire around the post in a direction at right angles to the length of the wire, angular arms rigidly secured, respectively, to the center of the metallic frame-plate, and constructed with parallel members having pointed extremities to penetrate the fence-post and thereby support the windlass-frame without the latter bearing against the post, substantially as described.

3. The combination, in a fence-wire-stretching apparatus, of a windlass-frame composed of a metallic plate having its end portions twisted and bent to provide side arms, a windlass journaled in said side arms, two independent chains connected at one end with the windlass and having hooks at the other end to engage a fence-wire at opposite sides of a fence-post to draw the wire around the post in a direction at right angles to the length of the wire, angular arms rigidly secured, respectively, to the center of the metallic frame-plate, and constructed with parallel members having pointed extremities to penetrate the fence-post and thereby support the windlass-frame without the latter bearing against the post, one of said angular arms having a heel-piece constructed to engage a chain passing around a fence-post, substantially as and for the purposes described.

590,165. ADJUSTABLE FOLDING CABIN-TABLE. FRANK V. RAYMOND and ARTHUR R. OTWAY, Invercargill, New Zealand. Filed Oct. 1, 1896. Serial No. 607,573. (No model.) Patented in New Zealand Mar. 6, 1896, No. 8,342.



Claim.—A folding table, consisting of a bracket A', a swinging cylindrical rod E' pivoted at its inner end to the bracket and provided near its pivoted end with a rigid collar C' having a serrated face, a table-leaf D centrally journaled upon the rod to turn around the same and having its inner end provided with a serrated disk or plate C' to interlock with the serrated collar on the rod, and a thumb-nut G' arranged on the outer end of the pivoted swinging rod for shifting the table and causing its serrated disk or plate to interlock with the serrated collar, substantially as and for the purposes described.

590,166. TROLLEY-GUARD. HARVEY C. REED, Minneapolis, Minn. Filed Mar. 16, 1897. Serial No. 627,788. (No model.)

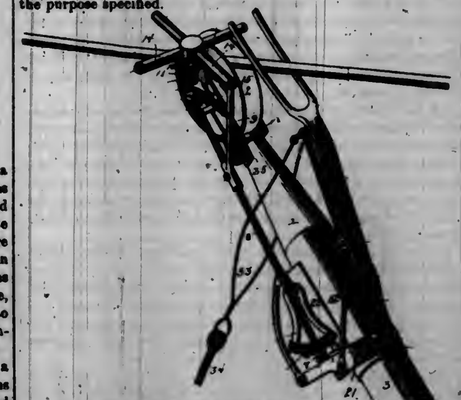
Claim.—1. The combination with a trolley, of a retainer rotatably mounted and having projecting parts or arms to extend across the trolley and retain the line-wire in engagement therewith, and adapted to turn to clear a line-support or like part, substantially as set forth.

2. The combination with a trolley, of a retainer having a series of arms and mounted to turn and have an arm projecting across the trolley, and sleeves or rollers mounted upon the arms, substantially as set forth.

3. The combination with a trolley, of a retainer rotatably mounted and having projecting parts or arms to extend across the trolley, and means for securing the retainer against rotation except when an arm or part thereof engages with a line-support, substantially as set forth.

4. The combination with a trolley, of a retainer rotatably mounted and having arms or projecting parts to extend across the path of the trolley, a spring-actuated part, and cam portions cooperating therewith to secure the retainer against rotation except by positive engagement of an arm or projecting part thereof with a line-support, substantially as set forth.

5. The combination with a trolley, of a rotatable retainer for holding the line-wire in place, a disk or plate having cam portions, and a spring-actuated arm cooperating with the said cam portions to hold the retainer from turning, substantially in the manner and for the purpose specified.



6. The combination with a trolley, of a rotatable retainer having arms or projecting parts to extend over the trolley, a disk secured to the axle of the retainer and having a plurality of cam portions, and a spring-actuated arm to cooperate with the said cam portions to normally hold the retainer against rotation, substantially as set forth for the purpose described.

7. The combination with a trolley, of a retainer comprising arms or projecting parts and having an axle, an arm having the said axle journaled thereto, a disk having cam portions to cooperate with the said arm to secure the retainer against rotation, and a spring for holding the said arm and disk in cooperative relation, substantially as specified.

8. The combination with a trolley, of a bracket, an arm having connection with the bracket, the outer portions of the bracket and arm normally tending to move apart by a spring action, a retainer having parts to extend over the trolley and provided with an axle journaled in the outer ends of the bracket and arm, and a disk secured to the axle of the retainer and having cam portions to cooperate with one of the supports to secure the retainer against rotation, substantially as specified.

9. In combination, a trolley, a shaft bearing a retainer to normally extend across the trolley, a guard, an actuating mechanism between the guard and shaft to turn the retainer aside upon depressing the guard, substantially in the manner set forth for the purpose specified.

10. In combination, a trolley, a shaft, a retainer having adjustable connection with the shaft and normally extending across the trolley, a guard, and actuating mechanism between the guard and shaft to turn the retainer aside upon depressing the guard, substantially as set forth.

11. In combination, a trolley, a shaft bearing a retainer for securing the line-wire to the trolley, a guard, and means substantially as set forth for transmitting motion from the guard to the shaft to turn the retainer aside upon depressing the guard, substantially as set forth.

12. In combination, a trolley, a shaft bearing a retainer, a pinion secured to the shaft, a toothed segment intermeshing with the pinion, and a guard for actuating the toothed segment and turning the retainer aside upon depressing the guard, substantially as set forth.

13. In combination, a trolley, a shaft bearing a retainer, a pinion secured to the shaft, a toothed segment intermeshing with the pinion, a lever having connection with the toothed segment, and a guard supported by the lever and adapted to actuate the said shaft and turn the retainer aside upon being depressed, substantially as set forth.

14. In combination, a trolley, a shaft bearing a retainer, a toothed segment, a pinion secured to the shaft and intermeshing with the segment, a lever, a link connecting the lever with the toothed segment, and a guard having connection with the lever for operating it upon being depressed for turning the retainer aside, substantially as set forth.

15. In combination, a trolley, a shaft bearing a retainer, a spring for normally holding the retainer in an operative position, and a guard operatively connected with the shaft for turning it and throwing the retainer to one side upon being depressed, the guard and retainer being returned to a normal position by the aforesaid spring, substantially as set forth.

16. In combination, a trolley, a lever, a guard having loose con-

section with the lever, braces interposed between the guard and lever, and means for relatively adjusting the braces for changing the position of the guard with reference to the trolley and lever, substantially as set forth.

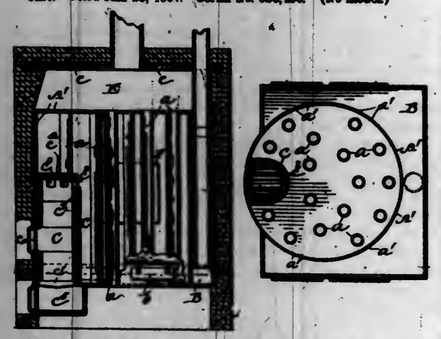
17. In a trolley, the combination of a lever, a guard, and means interposed between and having direct connection with the lever and guard for relatively adjusting them to each other and to the trolley, said means consisting of a threaded rod, a nut mounted upon the said rod and braces having loose connection with the said nut, substantially as set forth.

18. In a trolley, the combination of a lever fulcrumed intermediate of its ends to the trolley-support, a spring connecting one end of the lever with the said support, a guard having pivotal connection with the opposite end of the lever, a threaded rod journaled in bearings provided on the guard, a nut mounted upon the threaded rod, and braces interposed between the lever and nut for changing the position of the guard with relation to the lever and trolley, substantially as set forth.

19. In combination, a trolley, a shaft bearing a retainer, a lever, a toothed segment having connection with the lever, a pinion secured to the shaft and intermeshing with the segment, a guard supported by the said lever, a spring for normally maintaining the guard and retainer in operative position, and a wire loop having connection with the guard and adapted to have the pull cord or line applied thereto, substantially in the manner and for the purpose specified.

20. In combination, a trolley, a shaft, a bracket having adjustable connection with the shaft, a retainer journaled to the bracket and comprising a series of arms to extend across the trolley, means for securing the retainer against rotation except by positive engagement thereof with a line-support or like obstructing part, a lever, a toothed segment having connection with the lever, a pinion secured to the shaft and intermeshing with the segment, a guard supported by the said lever and adapted to have the pull-cord applied thereto, and a spring for normally maintaining the retainer and guard in working position and returning these parts to a normal position when released after being operated, substantially as set forth.

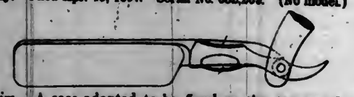
590,167. FURNACE OR HEATER. William H. Riley, Dayton, Ohio. Filed Jan. 23, 1897. Serial No. 620,496. (No model.)



Claim.—1. In a furnace, the combination of a shell, air-heating tubes extending through the same, a hollow base portion secured to the shell externally thereof, the said shell extending through the said base to its bottom and having openings in its sides to establish communication between the shell and the base, and a draft-flue connected with the shell and the said base, and means for causing the draft to pass directly to said flue from the shell or indirectly from the shell through the external base at will, substantially as described.

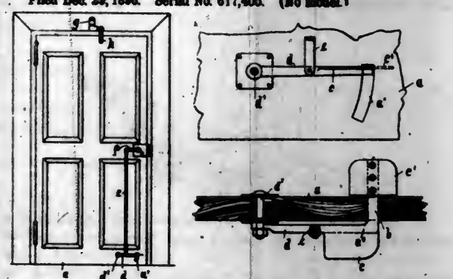
2. In a furnace the combination of a shell having air-heating tubes passing through the same, a fire-box within said shell, comprising an outer casing, a lining of fire-brick extending above the casing and provided with ports or apertures opening into the interior of the said shell and a top portion of fire-brick, and a draft-flue, substantially as described.

590,168. RAZOR. Ernst Scharff, Frankfort-on-the-Main, Germany. Filed Apr. 15, 1897. Serial No. 632,269. (No model.)



Claim.—A case adapted to be fixed on the tongue of a razor having upper and under finger-supporting surfaces broader than the thickness of the tongue substantially as described.

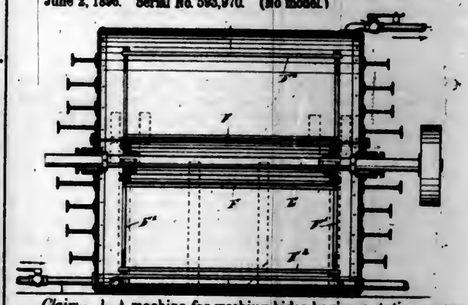
590,169. DOOR-OPENER. Karl Schiek, Stuttgart, Germany. Filed Dec. 29, 1896. Serial No. 617,405. (No model.)



Claim.—1. A door-opener consisting of a bar *b* extending through a slot in the lower part of the door, foot-plates *c c'* on said bar at either side of the door, a lever *d* to carry said bar and foot-plates said lever being pivotally attached to the door means for connecting the free end of said lever to the handle-lever of the door-lock and means for pushing the door open when the said foot-plates are depressed substantially as described.

2. The combination of a bar *b* extending through a slot in the lower part of the door, foot-plates *c c'* at either side of the door attached to said bar, a lever *d* to carry said bar and foot-plates, said lever being pivotally attached to the door, means for connecting the free end of said lever to the handle-lever of the door-lock and a spring attached to the said door and adapted to press against the door-frame in the manner and for the purpose substantially as described.

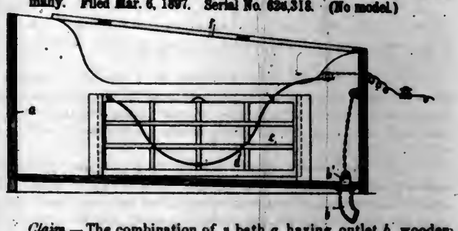
590,170. TANNING. Charles O. Shaw, Cheboygan, Mich. Filed June 2, 1896. Serial No. 593,970. (No model.)



Claim.—1. A machine for washing hides having a stationary exterior shell, a shaft revolubly mounted in the shell, a reel fixed on the shaft, the reel having cross-bars and heads, and a circular hub inclosed by the reel, the hub extending parallel with the shaft from one head to the other and being formed of separated slats through which liquid may freely circulate, substantially as described.

2. A machine for washing hides, the machine having a stationary and circular exterior shell provided with inlet and outlet orifices, a shaft revolubly mounted within and axially coincident to the shell, two spider heads fixed to the shaft, cross-bars extending from one head to the other, the head and cross-bars forming a reel, and a circular hub located within the reel and surrounding the shaft, the hub extending from one head to the other and being formed of separated slats so that liquid may pass freely through the hub, substantially as described.

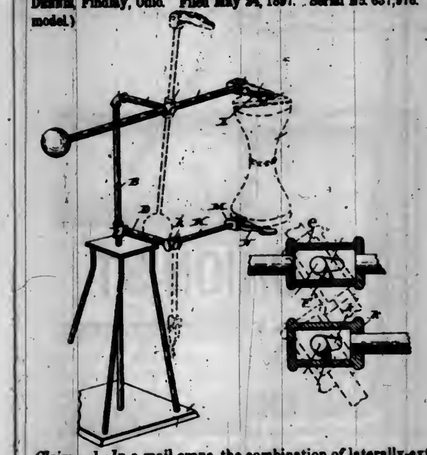
590,171. ELECTRIC BATH. Johann J. Stanger, Stuttgart, Germany. Filed Mar. 6, 1897. Serial No. 626,318. (No model.)



Claim.—The combination of a bath *a* having outlet *b*, wooden racks *c* arranged one at each side of said bath, electric connections

to said racks and bars or frame *f* arranged over said bath, a cloth to cover said bars in the manner and for the purpose substantially as described.

590,172. MAIL-CRANE. John C. Taylor and Jeremiah W. Denner, Findlay, Ohio. Filed May 24, 1897. Serial No. 637,976. (No model.)



Claim.—1. In a mail-crane, the combination of laterally-extending arms, bearings thereon provided with laterally-exteading lugs, and pouch-supporting arms formed with elougated openings adapted to pass over the bearings and lugs when alined therewith, the lugs holding the pouch-supporting arms in position on the bearings, substantially as shown and described.

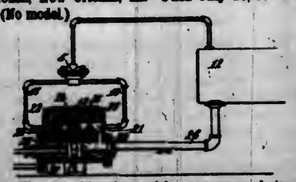
2. In a mail-crane, the combination with laterally-extending arms, and bearing-pins extended therefrom provided with lugs, of swinging pouch-supporting arms, and hollow connections on said arms provided with elongated openings through which the bearing-pins and lugs extend, the connections inclosing the lugs and held from displacement thereby, substantially as shown and described.

3. In a mail-crane, the combination with a pouch-supporting arm, and the bifurcated head thereon, of the tongue pivoted in the head, the elongated spring also pivoted in the head and extended outward over the tongue and adapted to turn therewith, the spring being bowed slightly within the head to engage the latter, whereby its outer end is held in constant engagement with the corresponding end of the tongue, substantially as shown and described.

4. In a mail-crane, the combination with a pouch-supporting arm and the bifurcated head thereon, of the tongue and the spring pivoted in the head, the spring being over the tongue, and the lugs on the tongue between which the spring extends whereby the spring is caused to turn with the tongue, substantially as shown and described.

5. The combination, in a mail-crane, with a pouch-supporting arm, of a tongue and a securing-spring pivoted thereto, the tongue being formed with lugs between which the spring extends, whereby the spring is caused to turn with the tongue, substantially as shown and described.

590,178. PUMP AND EQUALIZING-VALVE FOR PUMPS. Burghard Troese, New Orleans, La. Filed July 20, 1896. Serial No. 599,902. (No model.)



Claim.—1. The combination with a pump and its source of supply, of a valve to equalize the pressure in said pump and prevent hammering from accumulation of gases, the said valve consisting of a casing having an induction-chamber for connection with the supply for the pump, two eduction-chambers for connection with the highest part of the pump below its discharge-valves, the said eduction-chambers being on opposite sides of the induction-chamber and adapted to communicate therewith through ports, and a double check-valve automatically operated from the discharge end of the pump to control communication between the pump-supply and the pump through the said induction-chamber of the valve and one or the other of its said eduction-chambers, alternately, substantially as described.

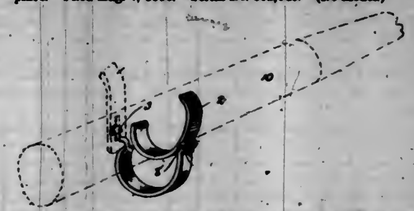
2. The combination with a pump and its inlet and discharge passages, of an equalizing-valve mechanism comprising an induction-chamber to connect with the highest part of a supply for the pump, two eduction-chambers connecting with the highest part of the pump below its discharge-valves at the suction end and discharge end, respectively, of said pump, and a double check-valve automatically operated from the discharge end of the pump to control communication between the pump-supply and the pump through the said induction-chamber of the valve mechanism and one or the other of its said eduction-chambers, alternately, substantially as described.

3. The combination with a pump, and a receiver from which the pump is supplied, of an equalizing-valve comprising an induction-chamber in communication with the highest part of said receiver, two eduction-chambers located on opposite sides of the induction-chamber and adapted to alternately communicate therewith through ports, pipes or passages that connect the said eduction-chambers with the highest part of the pump below its discharge valve or valves, and a double check-valve for the ports between the induction-chamber and eduction-chambers, the said check-valve being automatically operated from the discharge end of the pump to control communication between the upper part of said receiver and the highest part of the pump below its discharge valve or valves, substantially as described.

4. The combination with a pump having two chambers arranged for suction and discharge, alternately, each of said chambers being provided with an inlet-valve and a discharge-valve, of a receiver from which the said pump is supplied, and a double check-valve having its casing connected with the highest part of the said receiver and with the highest part of the pump-chambers below the discharge-valves of the pump and adapted to automatically control communication between said receiver and the said pump-chambers, alternately, substantially as described.

5. The combination with a pump and its inlet and discharge passages, and a receiver from which the pump is supplied, of an equalizing-valve comprising a valve-casing having an induction-chamber connected with the highest part of said receiver and two eduction-chambers connected with the highest part of the pump below its discharge-valves and provided with a double check-valve automatically controlling communication between the said receiver and pump through the said induction-chamber of the valve-casing and one or the other of its said eduction-chambers, alternately, substantially as described.

590,174. SHAFT-SUPPORT. Archibald M. Tippit, Niantic, Ill., assignor to William C. Jones, Smith H. Brock, and James I. Ford, same place. Filed Aug. 7, 1896. Serial No. 602,040. (No model.)



Claim.—The herein-described shaft-support, made up of two imperforate parts, one of which is generally circular in cross-section, is cut away at one point, and has an eye-hook formed integral with one end thereof by means of which it may be attached to a strap leading from the saddle or back-band of the harness, and has parallel oppositely-disposed ears upon its outer end, and the second metallic part being of substantially the same shape, having a lug formed upon the outside thereof at a point intermediate of its ends adapted to fit between said ears, and a pin or rod passing through said ears and said lug forming a pivotal connection between said parts, the lower end of said second part being adapted to rest upon the upper surface of the first part when the shaft is in place, and both parts when in their closed positions describing a circle and completely embracing said shaft, substantially as and for the purpose described.

590,175. PAPER-HOLDING DEVICE. Rufus A. Trussell, St. Louis, Mo., assignor to Bieber & Trussell Manufacturing Co., same place. Filed June 9, 1897. Serial No. 640,008. (No model.)

Claim.—1. In a paper-holding device, the combination of a base, a pair of spring-controlled paper-gripping bars, the gripping portion of one of which is arranged forward of the gripping portion of the other, said bars being arranged to be alternately moved toward and from said base, and means through which said bars may be alter-

nately moved, one toward said base and the other away from said base; substantially as described.

2. In a paper-holding device, the combination of a base, a pair of spring-controlled paper-gripping bars, the gripping portion of one of which is arranged forward of the gripping portion of the other, said bars being arranged to be alternately moved toward and from said base, and a lever through means of which said bars may be alternately moved one toward said base and the other away from said base; substantially as and for the purpose set forth.



3. In a paper-holding device, the combination of a base, a main bar, a spring adapted to throw said bar toward said base, a secondary bar located in the rear of said main bar, and a spring adapted to elevate said secondary bar, substantially as and for the purpose set forth.

4. In a paper-holding device, the combination of a base, a main bar, a spring adapted to throw said bar toward said base, a secondary bar located in the rear of said main bar, a spring adapted to elevate said secondary bar, and means for elevating said main bar, substantially as and for the purpose set forth.

5. In a paper-holding device, the combination of a base, a main bar, a spring adapted to throw said bar toward said base, a secondary bar located in the rear of said main bar, a spring adapted to elevate said secondary bar, and a lever arranged to elevate said main bar, substantially as and for the purpose set forth.

6. In a paper-holding device, the combination of a base, a main bar, a spring adapted to throw said bar toward said base, a secondary bar located in the rear of said main bar, a spring adapted to elevate said secondary bar, and a lever provided with a cam adapted to elevate said main bar, substantially as and for the purpose set forth.

7. In a paper-holding device, the combination of a base, a main bar pivotally connected to said base, a spring adapted to throw said main bar toward said base, a secondary bar pivotally connected to said base, a spring adapted to elevate said secondary bar, and a lever arranged to elevate said main bar and depress said secondary bar, substantially as and for the purpose set forth.

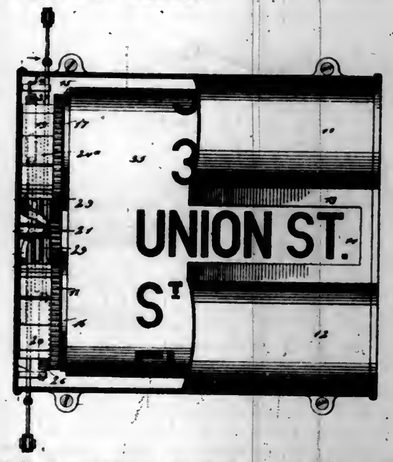
8. In a paper-holding device, the combination of a base, a main bar pivotally connected to said base, a spring adapted to throw said bar toward said base, a secondary bar pivotally connected to said base, a spring adapted to elevate said secondary bar, and a lever provided with a cam arranged to elevate said main bar and throw said secondary bar toward said base, substantially as and for the purpose set forth.

9. In a paper holding device, the combination of a base, a main bar pivotally connected to said base, a spring adapted to throw said bar toward said base, a secondary bar pivotally connected to said base, a spring adapted to elevate said secondary bar, a lever arranged to elevate said main bar and throw said secondary bar toward said base, and stops adapted to limit the extent of insertion of a sheet of paper beneath said main bar or both of said bars, substantially as and for the purpose set forth.

590,176. STATION-INDICATOR. GEORGE S. WEAVER, Albany, N. Y. Filed Dec. 28, 1893. Renewed Oct. 15, 1895. Serial No. 565,809. (No model.)

Claim.—1. In a station-indicator, the combination, with rollers and a belt or apron connecting the rollers and adapted to have produced thereon the names of stations or streets, of gears secured to the rollers, a transmitting-gear connecting with the rollers, ratchet-wheels attached to the rollers, spring-controlled draw-bars having reverse movement, dogs carried by the draw-bars and adapted for engagement one with each ratchet-wheel, the teeth of the ratchet-wheels facing in opposite directions, detents normally held in engagement with each ratchet-wheel, said detents being provided with releasing-arms, and a trip connection, substantially as shown and described, between the dogs acting upon one ratchet-wheel and the detents operating upon an opposing ratchet-wheel, substantially as and for the purpose specified.

2. In a station-indicator, the combination, with rollers and a belt or apron connected with the rollers and adapted to have produced thereon the names of stations or streets, of gears secured to the rollers, a transmitting-gear connecting the roller-gears, ratchet-wheels secured upon the rollers, draw-bars located adjacent to the rollers, dogs carried by the bars and adapted for engagement with the ratchet-wheels of the rollers, pawls engaging with the ratchet-wheels, and a trip connection, substantially as shown and described, between the dogs and the pawls, for disengaging the pawl from one ratchet-wheel when the dog operates upon the opposing ratchet-wheel, substantially as shown and described.



3. In a station-indicator, the combination, with rollers geared together and a belt or apron attached to both rollers and adapted to be rolled upon either, the said belt or apron having produced thereon information of a predetermined character, of a ratchet-wheel attached one to each roller, spring-controlled draw-bars located adjacent to the ratchet-wheels and adapted to have movement in opposite directions, a spring-controlled dog carried by each draw-bar, one dog being adapted for engagement with each of the ratchet-wheels, spring-controlled pawls normally in engagement one with each ratchet-wheel, and means for releasing the pawl from one ratchet-wheel when the opposite ratchet-wheel is operated upon by its dog, as and for the purpose set forth.

4. In a station-indicator, the combination with rollers geared together, and a display-apron connected with the rollers, of a ratchet-wheel on the end of each roller, a spring-controlled draw-bars adjacent to the ratchet-wheels, a spring-pressed dog carried by the draw-bar and adapted to engage one of the ratchet-wheels, a spring-pressed detent normally held in engagement with the other ratchet-wheel, and means for disengaging the detent from its ratchet-wheel when the dog operates upon its ratchet-wheel, substantially as described.

5. In a station-indicator, the combination with two rollers geared together, and a display apron or belt connected with the rollers, of a ratchet-wheel on the end of each roller, a spring-controlled draw-bar adjacent the ratchet-wheels, a spring-pressed dog carried by the draw-bar and adapted to engage one of the ratchet-wheels, a spring-pressed detent normally held in engagement with the other ratchet-wheel, and provided with a releasing-arm, and a stud on the draw-bar for engaging the releasing-arm of the detent to disengage the said detent from its ratchet-wheel at the time the dog engages its ratchet-wheel, substantially as described.

590,177. PROCESS OF PREPARING ONYX MARBLE FOR USE IN RELIEF-PRINTING. JOHN G. WEAVER, Salt Lake City, Utah, assignor to the Onyx Engraving and Embellishing Company, of Utah. Filed Dec. 26, 1896. Serial No. 617,065. (Specimens.)

Claim.—The herein-described process of preparing relief-printing plates from onyx marble, consisting in first applying the design to the smooth face of the stone with an ink composed of gum-elemi one ounce, mutton tallow three ounces, castile-soap two ounces, beeswax two ounces, lampblack one-half ounce and turpentine, then dusting over the design with equal parts of dragon's-blood and ground asphaltum in the form of powder, the said powder being applied in the several directions as described and successively fused and incorporated with the ink by a flame, then painting the ends and back of the stone with an acid-resisting varnish, then etching the exposed surface of the stone in a bath composed of water seventy parts, gum five parts, spirits of turpentine five parts, nitric acid fifteen parts, and sulfuric acid five parts, and finally removing the ink of the design and cleaning the stone substantially as herein described.

590,178. WATER-WHEEL. MOSES H. WHITE, Wenatchee, Wash., assignor of one-third to George T. Richardson, same place. Filed Aug. 20, 1896. Serial No. 603,396. (No model.)



Claim.—1. A water-wheel having its blades arranged at their inner ends parallel with the axis of rotation and twisted toward their outer ends to dispose the terminal edges diagonally to the axis of rotation, the intermediate portion of each blade being concaved on its operative face with the concavity contracted rearwardly to form a semi funnel-shaped surface, substantially as specified.

2. A water-wheel having its blades arranged at their inner ends parallel with the axis of rotation and twisted to dispose their outer terminal edges diagonally with relation to the axis of rotation, the intermediate portion of each blade having laterally-concaved front edges and forwardly-inclined rear edges, whereby the concavity of the blade is contracted rearwardly and inwardly, or toward the axis of the wheel, to form a semi funnel-shaped operative face, substantially as specified.

3. A water-wheel having its axis arranged diagonally with relation to the direction of an operating-current and provided with blades having rearwardly-contracted or semi funnel-shaped operative faces, the direction of contraction inclining inwardly or toward the axis of rotation, substantially as specified.

4. A water-wheel having cross-sectionally-flat blades or wings arranged at their inner ends parallel with the axis of rotation, having their body portions twisted to dispose their parallel edges diagonally with relation to the axis of rotation, having their operative faces concaved to form rearwardly-contracted or semi funnel-shaped surfaces and having their extremities deflected rearwardly upon lines approximately parallel with their terminal edges to form flat surfaces adapted, when the blades are in operative position, to be opposed approximately perpendicularly to the direction of the application of pressure thereto, substantially as specified.

590,179. MARKING-TAG. CHARLES WINKLER, Dallas, Tex. Filed Mar. 7, 1896. Serial No. 582,250. (No model.)

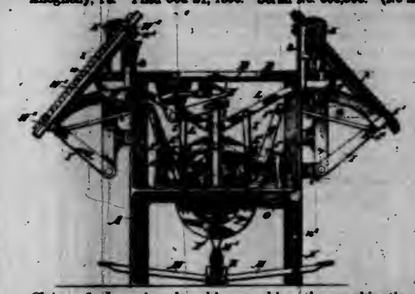


Claim.—1. A marking-tag to be secured at its four corners to the article to be labeled, having oppositely-disposed flaps formed by folding edge portions at opposite sides of the tag, and having the four corners cut away at the ends of the folds, providing notches to receive and retain in place the terminals of the fastenings which are received in the folds between the flaps and the body of the tag.

2. A marking-tag to be secured to an article at its four corners, having flaps at its four edges formed by folding edge portions of the tag, and having the ends of the flaps cut on a bevel to provide a miter-joint, and having the corners cut away, providing notches to receive and retain in place the terminals of the fastenings which are received in the folds between the flaps and the body of the tag.

3. The combination with a garment, fabric or article, of a tag having its opposite edge portions folded to form flaps, and having the corners of the folds cut away, and fastenings concealed in the folds formed between the body of the tag and the flaps and entering the notches formed by the cutting away of the corners of the folds, and holding the corners of the tag close against the article to which the tag is affixed, substantially as set forth.

590,180. CIGAR-BUNCHING MACHINE. WILLIAM YELLOWLEY, Allegheny, Pa. Filed Oct. 21, 1896. Serial No. 609,508. (No model.)



Claim.—1. In a cigar-bunching machine, the combination with the frame A, of brackets *a*, *a'* fastened thereto, levers L fulcrumed on the bracket *a*, rock-arms L' fulcrumed on the brackets *a'*, links *l'* connecting the rock-arms with the levers, a disk H having a cam-groove engaging with the free ends of the rock-arms, and rams engaged by the free ends of the levers, substantially as described.

2. The combination with a cigar-bunching machine, of a clutch controlling the main shaft, a spring holding said clutch normally closed, a treadle, and operative connections between said clutch and the bunch-rolling mechanism whereby said clutch is opened and the treadle is depressed at the completion of a bunch, substantially as described.

3. The combination with a cigar-bunching machine, of a clutch controlling the main shaft, a treadle for operating said clutch, an extension on one of the radius-arms provided with a notch, a rod connected with the treadle and adapted to be engaged with said notch, and means for disengaging said rod therefrom, substantially as described.

4. The combination with a cigar-bunching machine, of a clutch controlling the main shaft, a spring for closing said clutch, a treadle for opening said clutch, an extension on one of the radius-arms containing an arc-shaped slot having a notch on one side, a rod connected with the treadle and carrying a pin or roller engaging with said slot, and a spring acting to force the rod away from the notch, substantially as described.

5. In a cigar-bunching machine, a ram provided with a head made in two parts, each adapted to move transversely to the line of motion of the ram, substantially as described.

6. In a cigar-bunching machine, a ram provided with a head made in two parts $L' L^2$ jointed together on a bolt L^3, and having their upper outer corners chamfered off at L^4, substantially as described.

7. In a cigar-bunching machine, the combination with a rolling-apron, of a slotted T-shaped weight attached to one end thereof, and an adjustable stud engaging with the slot in said weight, substantially as described.

8. In a cigar-bunching machine, the combination with the rolling-apron S, the rolling-table S', and the socket S^2, of a plate T secured to said socket and having a slotted flange *t*, a T-shaped weight U attached to the apron and having a slot in the stem of the T, and a stud V adjustable vertically on the socket S^2 and passing through the slot in the weight, substantially as described.

9. In a cigar-bunching machine, an arm secured to the frame and having a sleeve, a rod adjustable lengthwise in said sleeve, and brackets adjustably mounted on said rod, and adapted to support a cigar-moldboard, substantially as described.

10. In a cigar-bunching machine, the combination with concentric feeding-rings, of a table supporting the same, guide-rollers bearing against the rings, and studs supporting said rollers and having eccentric-stems secured to said table, substantially as described.

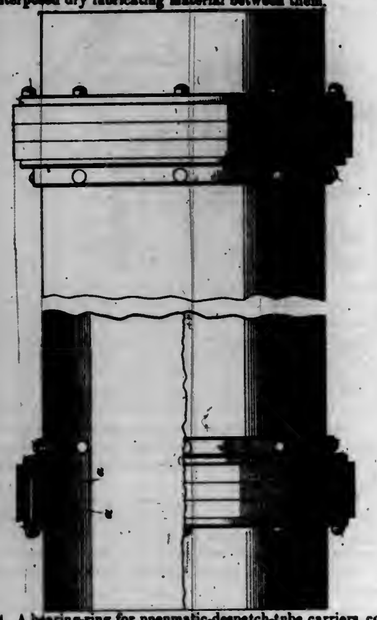
590,181. CARRIER FOR PNEUMATIC-DESPATCH TUBES. HENRY C. BATCHELLER, Brooklyn, N. Y., assignor to the United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Filed June 23, 1896. Serial No. 596,622. (No model.)

Claim.—1. A bearing-ring for pneumatic despatch-tube carriers consisting of a plurality of superimposed, textile, disk-like rings surrounding the carrier and clamped together, with a dry lubricant between the surfaces of the rings, the exterior edges of which rings form the face of the bearing-ring.

2. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a plurality of superimposed layers of cloth or textile material clamped together, and saturated with an oil which is allowed to dry, substantially as described.

3. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a series of superimposed cloth or textile disk-like rings clamped

together so that their exterior edges may form the face of the bearing-ring, said layers being impregnated with an oil or oils and having an interposed dry lubricating material between them.

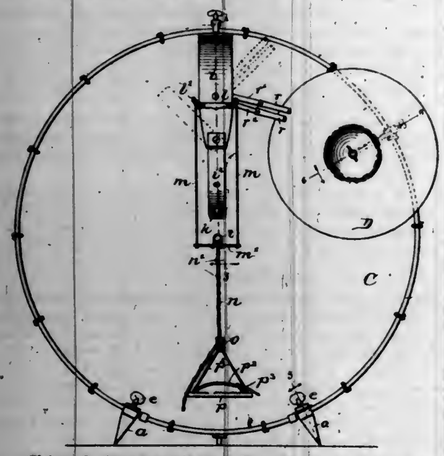


4. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a series of layers of cotton cloth impregnated by treating with linseed-oil and plumbago.

5. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a series of layers of cotton cloth impregnated by treating with linseed-oil and plumbago and having powdered plumbago placed between the layers of the cloth so as to penetrate the fiber thereof.

6. A bearing-ring for pneumatic-despatch-tube carriers, consisting of layers of cloth or other textile fabric clamped to each other, said layers having a dry lubricant introduced throughout their fibrous substance and held therein by means of a gummy substance.

590,182. ATTACHMENT FOR PLAYING BASS DRUMS AND CYMBALS. HARRY A. BOWER, Chelsea, Mass. Filed Oct. 22, 1896. Serial No. 609,673. (No model.)



Claim.—1. As a means for sounding a drum, a spring having a striker on one end, and flexible means connected to said spring between its ends and operated by the foot.

2. As a means for sounding a drum, a spring, means for securing one end of the spring to the drum, a striker on the other end of the spring, and flexible means adapted to be operated by the foot and connected to the spring between the ends thereof.

3. As a means for sounding a drum, a spring formed of a strip of sheet metal, a clamp for securing one end of the spring to the drum, a striker on the other end of the spring, and a strengthening-strip at the fastened end of the spring.

4. As a means for sounding a drum, a spring formed of a strip of sheet metal, means for securing one end of said spring, a striker secured on the free end of the spring and consisting of a strip of felt, and means under the control of the player and attached to said spring between its ends, to operate it.

5. As a means for sounding a drum, a spring formed of a strip of sheet metal and formed in two separate parts and pivoted together, means for fastening one end of the spring and a striker on the free end of the spring.

6. As a means for sounding a drum, a spring having one end secured to a stationary support, a striker on the free end of the spring, arms projecting outward from the spring between its ends, a foot-piece, and flexible means connecting the foot-piece with the said arms.

7. As a means for sounding a drum, a spring having one end secured to a stationary support, a striker on the free end of the spring, flexible means attached to the spring for operating it, and a detachable foot-piece having means for securing it temporarily to the foot, and means for attaching it to the flexible spring-operating means.

8. As a means for sounding a drum, a spring having one end secured to a stationary support, a striker on the free end of the spring, a cross-bar, a cord passing from each edge of the spring to the cross-bar, a flexible cord depending from the cross-bar, and having knots or enlargements, and a foot-piece having a hook for coacting with the knots or enlargements to secure the foot-piece to the depending cord.

9. As a means for sounding a cymbal, an arm consisting of a strip of spring metal provided with a striker on its free end and having its other end rigidly attached to a stationary support, means for operating said arm, and a vibrator mounted on said arm between the striker and the point of attachment of the arm, said vibrator being arranged to strike the cymbal when the arm is operated.

10. As a means for sounding a cymbal, an arm consisting of a strip of sheet metal, means for operating said arm, and a tube connected by a spring with the spring-arm.

11. As a means for sounding a cymbal, an arm consisting of a strip of sheet metal, means for operating said arm, and a pair of tubes each tube mounted on a spring secured to the spring-arm.

12. As a means for sounding a cymbal, an arm, means for operating said arm, and a vibrator mounted on a spring secured to said arm, said vibrator consisting of a metal tube.

13. As a means for sounding a drum or a cymbal, or both, an arm consisting of a spring, means for securing one end of the arm stationarily, a striker secured to the free end of the spring, and a vibrator secured to the said arm, said striker and said vibrator being each so connected to the spring-arm as to be moved into an inoperative position.

14. A spur for supporting a bass drum comprising a pointed finger having its upper end bent laterally into V form to embrace both sides of a drum-hoop, and having the upper portion doubled and provided with a threaded aperture, a bearing-plate arranged between said doubled portion and the hoop, and a set-screw passed through said threaded aperture and bearing against said plate.

590,183. PENHOLDER. EVERETT D. CHADWICK, Boston, Mass., assignor of one-half to Warren Eugene Ellis, Bradford, Mass. Original application filed Aug. 7, 1895, Serial No. 558,481. Divided and this application filed Aug. 29, 1896. Serial No. 604,310. (No model.)

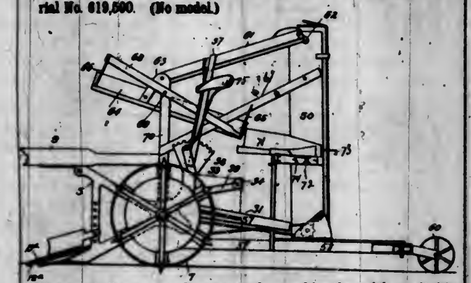


Claim.—1. In a penholder, a pen-holding tip consisting of a sheet of elastic material rolled into substantially cylindrical shape and forming thereby a plurality of free, concentric coils normally in contact with one another, the tip being thereby made practically rigid to external pressure, whereby it is adapted to be wedged into a hollow handle, all substantially as described.

2. In a penholder, in combination with a handle, a pen-holding tip consisting of a sheet of elastic material rolled into substantially cylindrical shape and forming thereby a plurality of free, concentric coils normally in contact with one another, the inner end of the said sheet being turned inward, away from the coil adjacent thereto, all substantially as described.

3. A penholder comprising an internally-tapering hollow handle formed of paper or equivalent semiyielding material, and a pen-holding tip wedged into one end of the said handle, and consisting of a sheet of elastic material rolled into substantially cylindrical shape and forming thereby a plurality of free, concentric coils normally in contact with one another, said coils being provided with means whereby they may be separated to admit a pen between them, all substantially as described.

590,184. POTATO-HARVESTER. WILLIAM CRATER, Denver, Colo., assignor of one-half to David Rediger. Filed Jan. 18, 1897. Serial No. 619,590. (No model.)



Claim.—1. In a potato-harvester, the combination with a suitable frame, the main shaft or axle, the driving-wheels and a plow or digger, of a toothed vine-cutter pivoted on a suitable support, a stationary guard having double fingers in which the cutter operates, and means for operating the cutter comprising a shaft 19 journaled in the frame, a gear connection between said shaft and one of the driving-wheels, an eccentric mounted on the shaft, a bell-crank lever fulcrumed on the frame, a pitman connecting the eccentric with one arm of the lever, and a connecting-rod leading from the other arm of the lever to the vine-cutter, an inclined screen located to the rear of the elevator, an upright elevator located to the rear of the screen, and means for operating said last-named elevator, comprising a gear 21 fast on the shaft 19 and carrying a series of cams provided with springs, a pulley 24 surrounding the cam portion of the gear and having offsets to engage the springs, a gear meshing with the gear 21 and also with an internal gear on one of the driving-wheels, and a suitable belt connecting the pulley 24 with the pulley of the upright elevator.

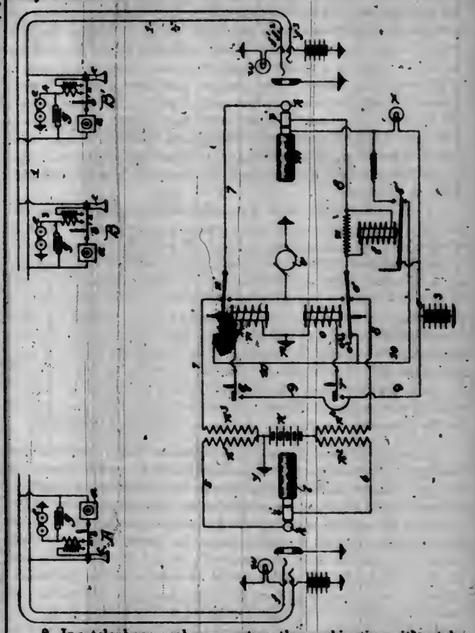
2. In a potato-harvester, the combination with a suitable frame, the main shaft or axle, driving-wheels, a plow or digger, an elevator to the rear of the plow, an inclined screen located to the rear of the elevator, an upright elevator located to the rear of the screen, and means for operating said last-named elevator comprising a shaft journaled in the frame, a gear 21 fast thereon and carrying a series of cams provided with springs, a pulley 24 surrounding the cam portion of the gear and having offsets to engage the springs, a gear meshing with the gear 21 and also with an internal gear on one of the driving-wheels, and a suitable belt connecting the pulley 24 with the pulley of the upright elevator.

3. In a potato-harvester, the combination of a suitable frame, a shaft or axle, driving-wheels, a plow or digger, an elevator located to the rear of the digger, a screen located to the rear of the elevator, an upright elevator located to the rear of the screen, short cranks attached to the upper shaft of the last-named elevator, an inclined chute whose upper extremity is attached to said cranks, an inclined movable frame suitably connected with the lower extremity of said chute, two screens of different mesh located in said frame and adapted to separate the larger from the smaller potatoes, and suitable sacking mechanism located at the lower extremities of the screens, substantially as described.

4. An elevator comprised of members 51ª formed from an integral rod or wire and comprising the horizontal part A, the vertical parts B the downward bends D and the outwardly-projecting parts C, and brackets E suitably connected to form buckets, said buckets being located at suitable intervals and mounted on the hooks C of any two members.

590,185. TELEPHONE-EXCHANGE SYSTEM. WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed July 2, 1897. Serial No. 643,190. (No model.)

Claim.—1. In a telephone-exchange system, the combination with a telephone-line having a switch and a signal-bell at the subscriber's station thereof, of a circuit independent of said telephone-line, an electromagnetic circuit-controlling device connected in said circuit, means governed by said switch for changing the electrical condition of said circuit, whereby the operative condition of the electromagnetic circuit-controlling device may be altered, switching apparatus at the central office for uniting and disconnecting telephone-lines, a calling-generator, and a calling-switch adapted to be operated by said circuit-controlling device to include the generator in circuit with the signal-bell at said station when the condition of said independent circuit is normal or unchanged by the operation of the switch at the subscriber's station, said switching apparatus being adapted to associate said calling-switch with the telephone-line upon being manipulated to connect subscribers for conversation, substantially as described.



2. In a telephone-exchange system, the combination with a telephone-line having a switch and a signal-bell at the subscriber's station thereof, of a circuit independent of said telephone-line, an electromagnetic circuit-controlling device connected in said circuit, means governed by said switch for changing the electrical condition of said circuit, whereby the operative condition of the electromagnetic circuit-controlling device may be altered, switching apparatus at the central office for uniting and disconnecting telephone-lines, a calling-generator, a calling-switch adapted to be operated by said circuit-controlling device to include the generator in circuit with the signal-bell at said station when the condition of said independent circuit is normal or unchanged by the operation of the switch at the subscriber's station, said switching apparatus being adapted to associate said calling-switch with the telephone-line upon being manipulated to connect subscribers for conversation, substantially as described.

3. In a telephone-exchange system, the combination with a telephone-line having a switch and a signal-bell at the subscriber's station thereof, of a circuit independent of said telephone-line, an electromagnetic circuit-controlling device connected in said circuit, an electromagnet in circuit with said switch and adapted to be operated thereby, said electromagnet being adapted to change the circuit condition of said circuit-controlling device, whereby the operative condition of the electromagnetic circuit-controlling device may be altered, switching apparatus at the central office for uniting and disconnecting telephone lines, said switching apparatus being adapted to electrically connect said telephone-line with said electromagnet when manipulated to connect subscribers for conversation, a calling-generator, and a switch adapted to be operated by said circuit-controlling device to include the generator in circuit with the signal-bell at said station when the condition of said independent circuit is unchanged by the operation of the switch at the subscriber's station, substantially as described.

4. In a telephone system, the combination with a telephone-line having a signal-bell and a switch at the subscriber's station thereof, of a calling-generator, an electromagnet, a calling-switch connected or adapted to be connected with said telephone-line and adapted to be controlled by the armature of said electromagnet, a circuit independent of said telephone line adapted to be closed through the electromagnet when its armature is actuated to operate the calling-switch whereby the generator is maintained upon the line, and means con-

trolled by the switch at the subscriber's station for removing the generator from line, substantially as described.

5. In a telephone system, the combination with a telephone-line having a signal-bell and a switch at the subscriber's station thereof, a calling-generator, an electromagnet, a second switch connected or adapted to be connected with said telephone-line and adapted to be actuated by said electromagnet to include said generator in circuit with the aforesaid bell, a key at the central office for closing circuit through said electromagnet to operate the latter switch to include the generator in circuit with said bell, means controlled by the electromagnet for also closing a circuit through the same when said magnet is energized, and a second electromagnet connected or adapted to be connected with the telephone-line and adapted to be operated upon the operation of the switch at the subscriber's station, the latter electromagnet being also adapted to change the condition of the circuit including the aforesaid electromagnet to release the switch controlled by the latter, whereby the generator is removed from line, substantially as described.

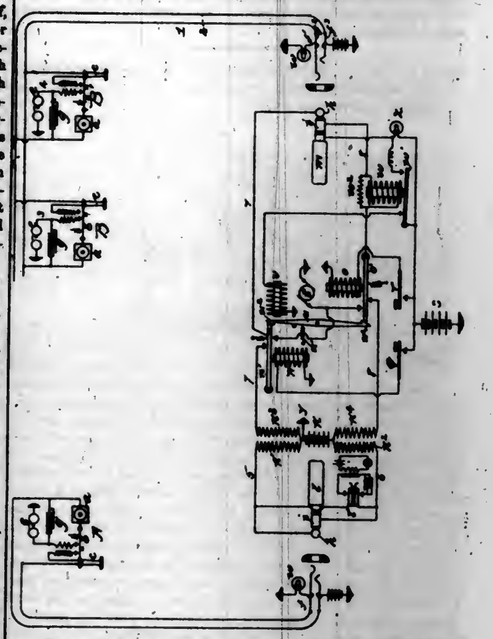
6. In a telephone system, the combination with a telephone-line having a switch and a signal-bell at the subscriber's station thereof, of switching apparatus at the central office for uniting and disconnecting telephone-lines, an electromagnet, means for including the same in circuit with a source of current, a switch adapted to be connected with said telephone-line and adapted to be actuated by said electromagnet, a calling-generator adapted to be connected with said telephone-line by said switch when thus operated, a second electromagnet also connected or adapted to be connected with said telephone-line and to be actuated upon the operation of the switch at the subscriber's station, and means operated by the latter electromagnet when actuated to deenergize the other electromagnet, whereby the generator is removed from line, substantially as described.

7. In a telephone system, the combination with a telephone-line having a switch and a call-bell at the subscriber's station thereof, of an electromagnet, a switch adapted to be operated thereby, a calling-generator, said switch being adapted to include said generator in circuit with the call-bell when operated by said electromagnet, a circuit for said electromagnet, a manually-operated switch adapted to close circuit through the same, terminals of a circuit also including said electromagnet adapted to be closed thereby upon its operation, whereby the electromagnet remains energized upon the release of said manual switch, and means controlled by the switch at the subscriber's station for opening or rendering ineffective the circuit through the electromagnet, whereby the same is deenergized and the switch operated thereby released to remove the generator from line, substantially as described.

8. In a telephone system, the combination with a telephone-line having a switch and a call-bell at the subscriber's station thereof, of an electromagnet, a calling-switch adapted to be operated thereby, a calling-generator, said switch being adapted to include said generator in circuit with the call-bell when operated by said electromagnet, a circuit for said electromagnet, a manually-operated switch adapted to close circuit through the same, terminals of a circuit also including said electromagnet adapted to be closed thereby upon its operation, whereby the electromagnet remains energized upon the release of said manual switch, a second electromagnet, a connecting-plug at the central office adapted to connect said generator-switch and the latter electromagnet with the telephone-line, the latter electromagnet being adapted to be operated by the switch at the subscriber's station, a switch controlled by the latter magnet adapted to open or render ineffective the circuit including the other electromagnet, whereby the generator-switch is released and the generator removed from line, substantially as described.

9. In a telephone system, the combination with a telephone-line, of a signal-bell and an automatic telephone-switch at the subscriber's station thereof, an electromagnet, a calling-switch adapted to be operated thereby, a second electromagnet, a connecting-plug adapted to connect said calling-switch and the latter electromagnet with the telephone-line, a calling-generator adapted to be included in circuit by the calling-switch when operated with the signal-bell at the subscriber's station, the circuit including said bell being of high resistance, a manual switch for closing circuit through the former electromagnet, terminals of a circuit also including said electromagnet adapted to be closed together by the same when energized, a switch controlled by the second electromagnet adapted when operated to open or render ineffective the circuit including the former electromagnet, a path of low resistance including said generator being adapted to be closed by the automatic telephone switch-hook at the subscriber's station upon the removal of the telephone therefrom, whereby the volume of current passing through the second electromagnet from the generator is increased, said electromagnet being thereby actuated to operate said switch, the former electromagnet being thereby deenergized and the calling-switch released to remove the generator from line, substantially as described.

590,186. TELEPHONE SYSTEM. WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed July 12, 1897. Serial No. 644,240. (No model.)



Claim.—1. In a telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each subscriber's station being provided with a signal-bell, of switching apparatus at the exchange for uniting subscribers' lines for conversation, a calling-generator, a calling-switch adapted upon being actuated to include the generator in circuit with the bell at the called-subscriber's station, a detent adapted to engage and maintain the calling-switch in the position to which it has been actuated, whereby the generator is maintained in circuit with the called-subscriber's bell, means for disengaging said detent and calling-switch, apparatus provided at each station, each apparatus being adapted when its station is the called station to operate said means to disengage the detent and switch, and means for restoring the calling-switch to its normal idle position when thus disengaged, substantially as described.

2. In a telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each subscriber's station being provided with a signal-bell, of switching apparatus at the exchange for uniting subscribers' lines for conversation, a calling-generator, a calling-switch adapted upon being actuated to include the generator in circuit with the bell at the called-subscriber's station, a detent adapted to engage and maintain the calling-switch in the position to which it has been actuated, whereby the generator is maintained in circuit with the called-subscriber's bell, an electromagnet for withdrawing the detent from engagement with the switch, and switches at the subscribers' stations, each switch being adapted when its station is the called station to operate said magnet, the calling-switch being adapted when thus disengaged from its detent to resume its normal idle position to remove the generator from line, substantially as described.

3. In a telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each subscriber's station being provided with a signal-bell, of switching apparatus at the exchange for uniting subscribers' lines for conversation, a calling-generator, a calling switch adapted upon being actuated to include the generator in circuit with the bell at the called-subscriber's station, a detent adapted to engage and maintain the calling-switch in the position to which it has been actuated whereby the generator is maintained in circuit with the called-subscriber's bell, an electromagnet adapted to actuate said switch, means for including said magnet in circuit with a source of current, a second electromagnet for withdrawing the detent from engagement with the switch, and switches at the subscribers' stations, each switch being adapted when its station is the called station to close circuit through the latter magnet, the calling-switch being adapted when thus disengaged from its detent to resume its normal idle position to remove the generator from line, substantially as described.

4. In a telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each subscriber's station being provided with a signal-bell, of switching apparatus at the exchange for uniting subscriber's lines for conversation, a calling-generator, a calling-switch adapted upon being actuated to include the generator in circuit with the bell at the called subscriber's station, a detent adapted to engage and maintain the calling-switch in the position to which it has been actuated, whereby the generator is maintained in circuit with the called-subscriber's bell, an electromagnet adapted to actuate said switch, an operator's key or switch adapted to close circuit through said magnet to operate the calling-switch, a second electromagnet for withdrawing the detent from engagement with the switch and switches at the subscribers' stations, each switch being adapted when its station is the called station to close circuit through the latter magnet, the calling-switch being adapted when thus disengaged from its detent to resume its normal idle position to remove the generator from line, substantially as described.

590,187. CAR-FENDER. MANUEL FERNANDES, Los Angeles, Cal. Filed Apr. 16, 1897. Serial No. 632,448. (No model.)



Claim.—1. In a car-fender, the combination set forth of a receiver; and a scoop pivotally secured to the front end of the receiver, having one member normally projecting forward to form an inclined receiving-platform, and having its other member projecting upward above the plane of the receiving-platform and arranged to form a tilting barrier at the front end of the receiver.

2. In a car-fender, the combination set forth of a receiver; and a tilting scoop pivoted to the front end of the receiver and having one member normally projecting forward to form an inclined receiving-platform and having its upper portion projecting above the plane of the platform and arranged to form a yielding barrier at the front end of the receiver, and to form a support for the body when such barrier is tilted downward into the receiver, and to thereby hold the other portion of the scoop rigidly in position to form a barrier at the front end of the receiver to hold the body therein.

3. In a car-fender, the combination set forth of a receiver; a tilting scoop pivotally secured in front of the receiver and having a forwardly-projecting nose forming an inclined receiving-platform and having its rear member projecting above the plane of the platform and arranged to yield to impact and to swing upon its pivot to tilt into the receiver the object struck.

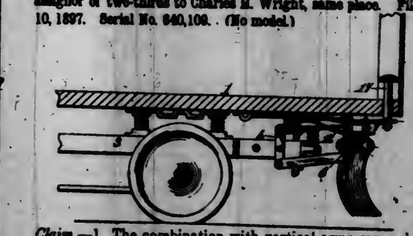
4. In a car-fender, the combination set forth of a receiver; a tilting scoop pivotally secured to the front end of the receiver and provided with a forwardly-projecting nose forming an inclined receiving-platform, and also provided with a member projecting upwardly above the plane of the platform and adapted to tilt the scoop to form a barrier to retain a body in the receiver.

590,188. UNDERTAKER'S SANITARY SHEET. WILLIAM A. GRIFFITH and SIDNEY LOVELL, Chicago, Ill. Filed Feb. 12, 1897. Serial No. 623,308. (No model.)



Claim.—As a new article of manufacture for the use of undertakers, a sanitary sheet of such form and size as to adapt it to cover the usual undertaker's cooling-board, and having a body portion of rubber or other material impervious to moisture, and a marginal tubular portion adapted to retain air under pressure and affording when inflated a continuous raised or thickened edge or margin, adapted to surround the body and to prevent the escape of liquids, said inflatable portion having an air-valve to allow inflation by a pump, bulb, or the lungs, and the body portion or sheet having a drainage-tube imperviously secured thereto, substantially as and for the purposes set forth.

590,189. CAR-FENDER. WILLIAM H. GRIFFITHS, Boston, Mass., assignor of two-thirds to Charles H. Wright, same place. Filed June 10, 1897. Serial No. 640,103. (No model.)

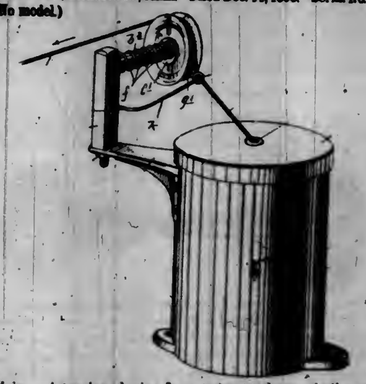


Claim.—1. The combination with vertical arms secured to the truck-frame of a car, of other vertical arms carrying a fender, links connecting said arms, and means for depressing said fender, substantially as described.

2. The combination with vertical arms secured to the truck-frame of a car, of other vertical arms pivotally linked thereto and carrying a hanger-bar, a series of spring-fingers the tail ends of which are seated in said hanger-bar, a coil-tube about which the spring-fingers are coiled and means for depressing said hanger-bar and connected parts substantially as described.

3. The combination with vertical arms secured to the truck-frame of a car, of other vertical arms pivotally linked thereto and carrying a hanger-bar, a series of spring-fingers the tail ends of which are seated in said hanger-bar, a coil-tube about which the spring-fingers are coiled, springs normally maintaining said hanger-bar and connected parts away from the track and means adapted to be operated by the motorman to depress the same toward the track, substantially as described.

590,190. TENSION DEVICE FOR TWINE-BINDERS. ERICK HALLSTROM, Montevideo, Minn. Filed Dec. 11, 1896. Serial No. 615,356. (No model.)



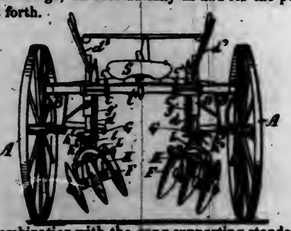
Claim.—A tension device for a twine-binder or similar mechanism, involving a rotary sheave made up of side pieces or guide-disks, pressed together and a series of serrated central disks set in zigzag order and secured between said side pieces, substantially as described.

590,191. DISK CULTIVATOR. WILFORD H. HOLSCLAW, Louisville, Ky., assignor to the B. F. Avery & Sons, same place. Filed Apr. 24, 1897. Serial No. 633,676. (No model.)

Claim.—1. A disk cultivator composed of an arched axle-bar, or frame, substantially such as is shown and described; and two gangs of disks, or cultivator implements, suspended, with their attachments, directly from, or by, said axle-bar, by means of supporting carriage-like devices, which are adjustable laterally on said axle-bar; the whole constructed, arranged, and operating in the manner and for the purpose hereinbefore set forth.

2. In a disk cultivator, the combination, with the beam C of the arched axle-bar, or frame, of two disk gangs supported by sliding carriage-like devices, adjustably mounted on the bar C, and through the medium of the vertical standard, or bar, adjustable endwise within the housings, which are pivotally connected with said carriage-like

devices; and means by which through the medium of ordinary hand-levers, the said standard-bars, to the lower ends of which the gangs are hung, may be raised and lowered, and held at different elevations, within said housings; all substantially as and for the purposes hereinbefore set forth.



3. In combination with the gang supporting standard-bar, capable only, of an up-and-down movement within the housing D, the journal-like device at the lower end of said standard-bar; the disk gang supported vertically thereby, but free to turn axially thereon; and the universal-joint coupling, which connects the casting L of the disk gang, to the rear end of the draft-bar E; all substantially as and for the purposes hereinbefore set forth.

4. In combination with the casting, or part of the disk gang, which is pendently supported by the lower end of the vertically-adjustable standard-bar d, and that is free to turn on the journal-like casting d' on said bar; and the rigidly-attached double-armed device, H; the sector-plate G, mounted on the rectangular portion d of the gang-supporting standard; the removable arm, or lever, h', adapted to be secured, at pleasure, to either one of the two arms of the part H; and suitable means for locking, or engaging, said arm h', with the teeth of the sector-plate G; all substantially as and for the purposes hereinbefore described.

5. The combination, with the disk-supporting casting L, mounted on the journal-like portion d' of the gang-supporting standard of the yoke-like, or arched, device K, in the lower portion of which is mounted the disk spindle, and the upper arched portion of which is adjustably secured to the lower curved portion, or base-plate of the casting L; all substantially as and for the purposes hereinbefore described.

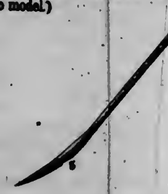
6. In combination with the disk gang, which is both vertically and laterally adjustable bodily, relatively to the axle-arch; the draft-bar E, connected at its rear end to said disk gang, by a universal-joint coupling, and also connected at its forward end to the draft device of the machine, by means of a universal-joint coupling; all substantially as and for the purposes hereinbefore set forth.

590,192. BELL DOOR-KNOB. EDWARD H. KINNAMAN and BENJAMIN F. FLOURES, Fort Collins, Colo. Filed May 5, 1897. Serial No. 635,132. (No model.)



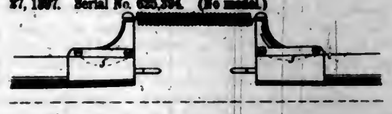
Claim.—In a bell door-knob the combination of a square hollow spindle having a slot in one end thereof and a ratchet mounted in and adapted to traverse the said slot, a spring engaging said ratchet, a platform secured in the lower portion of the bell, said platform having an aperture through which the said spindle passes and oppositely-disposed ears bent at right angles to the said platform, a cam pivotedly secured between the said ears, said cam supporting the clapper and held in engagement with the ratchet by a spring, a rod connecting the said ratchet with a push-button, substantially as shown and for the purpose set forth.

590,193. NEEDLE. ROBERT H. FOSET, Manor, Tex., assignor of one-half to W. B. Rector, same place. Filed June 1, 1897. Serial No. 639,089. (No model.)



Claim.—A needle provided with an incision or slot located near the point of the needle extending out to the exterior of the needle and having a cutting edge formed within the sides of said incision.

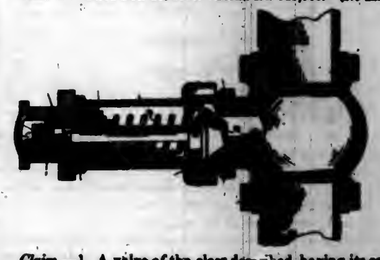
590,194. REIN-GUARD. GREGG TOLLIE, Carlyle, Wyo., assignor to Fred M. Baker, Rawlins, Wyo. Filed Feb. 8, 1896. Renewed Feb. 27, 1897. Serial No. 625,204. (No model.)



Claim.—1. The combination with the singletrees of the detachable standards connected with the inner ends thereof having peripheral grooves near the free ends and the spring connected therewith, substantially as described.

2. The combination with the whiffletrees and the detachable standards having their inner ends bent into a spring-loop formed with a lug, the set-screw passing therethrough and engaging with a correspondingly-threaded aperture in the standard and the free ends of the standards formed with peripheral grooves, of the coiled springs having their ends connected with said standards and seated in the said grooves, substantially as described.

590,195. SAFETY-VALVE. CHARLES S. WAYBRIGHT, Crabbottom, Va. Filed Dec. 16, 1896. Serial No. 615,908. (No model.)



Claim.—1. A valve of the class described, having its casing provided with lateral vents and a contiguous valve-seat, a normally-seated yielding valve controlling said vents, and a deflecting hood, open at one side, provided with an interior flange threaded exteriorly upon the casing contiguous to the plane of said vents and adapted to be reversed to extend either upwardly or downwardly thereover, said interior flange of the hood being of a thickness equal to the diameter of the vents, and the cylinder being threaded upon each side of the plane of the vents a distance equal to the thickness of said flange, to provide for arranging the flange upon either side of the plane of the vents, substantially as specified.

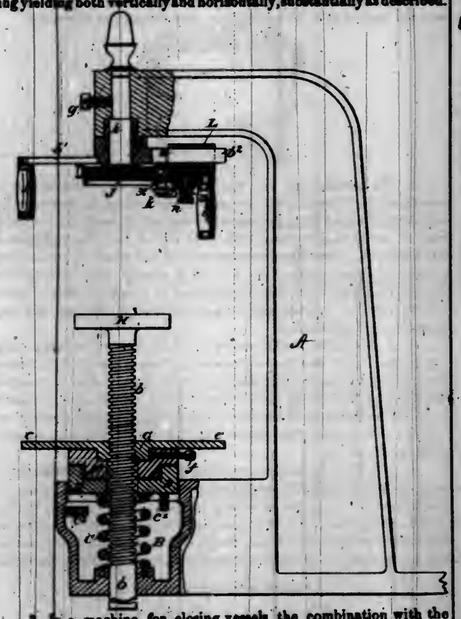
2. A valve of the class described, having its casing provided with lateral vents and a contiguous valve-seat, a normally-seated yielding valve controlling said vents, a head removably fitted in and coextensive with the casing and provided at the inner end of its bore with a threaded portion, a valve-stem guide adjustably fitted in the threaded portion of the bore of the head and provided at its outer extremity with a wrench-seat, said guide being provided with a collar of smaller diameter than the interior of the casing to engage the contiguous extremity of a valve-actuating spring, and a cap removably fitted in a counterbored and threaded portion of said head to normally conceal and give access to the wrench-seat of the guide, substantially as specified.

590,196. MACHINE FOR CLOSING JARS. ALFRED L. WEBER-THANNER, New York, N. Y., assignor to the Phœnix Cap Company, same place. Filed Feb. 18, 1897. Serial No. 624,084. (No model.)

Claim.—1. In a machine for closing jars or other vessels, the combination of the top and bottom holding-plates, and means for clamping the vessel between said plates, of a rowel, adapted to engage under a shoulder on the neck of the vessel rowel support or slide, carrier for the rowel-support rotatable about the axis of the vessel, and connections capable of yielding both horizontally and vertically for holding said rowel in operative position, substantially as described.

2. In a machine for closing jars or other vessels, the combination of top and bottom holding-plates, means for clamping the vessel between said plates, a carrier rotatable about the axis of one of said plates, a slide movable radially on said carrier, a rowel adapted to

engage under a shoulder on the neck of the vessel, a support for said rowel pivoted upon said slide so as to swing into or out of operative position, the connection between the rowel-support and slide being yielding both vertically and horizontally, substantially as described.



3. In a machine for closing vessels, the combination with the holding-plates, of a gage conforming to the outline of the vessel, a carrier rotatable about the axis of the vessel, a slide on said carrier movable radially of the vessel, a chain embracing and surrounding said gage and connected to said slide, and a rowel journaled in said slide, substantially as described.

4. In a machine for closing vessels, the combination with the holding-plates, of a gage conforming to the outline of the vessel, a rotatable carrier, a slide movable thereon radially of the vessel, a flexible band surrounding said gage for causing the slide as the carrier rotates to follow the outline of the gage, a rowel-support pivotally connected to said slide, and a rowel, substantially as described.

590,197. BUTTON. JOHN J. WITSIL, Cold Water, N. Y. Filed May 27, 1896. Serial No. 593,319. (No model.)

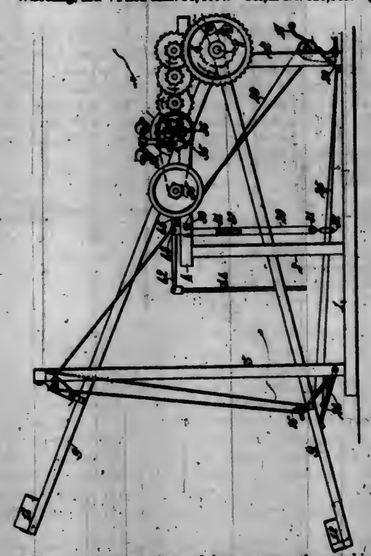


Claim.—1. A button or fastening device comprising a ring having a hook or loop formed at one side thereof, a plate or disk secured to said ring at one side of the same by means of teeth or projections formed thereon, which are bent or folded over the ring, said disk having longer teeth or projections at one side, another ring which is provided with a loop adapted to engage with the hook on the first-mentioned ring, the last-mentioned ring being adapted to be secured adjacent to the first-mentioned ring by folding said longer projections thereover substantially as shown and described.

2. A button or fastening device composed of a base-ring having formed at its outer side an outwardly and downwardly curved hook a disk or plate secured thereto, by means of teeth or projections formed thereon, another ring provided with a loop which connects with said hook and which ring is held in place adjacent to the base-ring by longer teeth or projections formed on said disk substantially as shown and described.

3. A button or fastening device for use in connection with the waistband of trousers, and for connecting suspenders therewith, comprising a base-ring having at its upper side an upwardly and downwardly curved hook and a disk or plate secured thereto by means of teeth or projections formed on said plate, another ring provided with a loop which connects with said hook and which is connected with the base-ring by means of longer projections formed on said disk, said hook being constructed to receive chains having segmental heads by which connection is made with the suspender, said chains or other devices being connected with the buckle by means of a segmental ring, substantially as shown and described.

590,198. GRAVITY AND LEVER MOTOR. JOHN R. WRIGHT, Wheeling, Mo. Filed Mar. 30, 1897. Serial No. 629,969. (No model.)



Claim.—1. In a gravity and lever motor, the combination of a frame supporting a power-shaft provided with ratchet-wheels weighted levers fulcrumed loosely on said shaft and carrying pawls to engage said ratchet-wheels for rotating the said shaft, independently-actuated winding-drums provided with ropes that connect with said levers to hoist the same, friction-brakes for the said drums, tripping mechanism arranged in the path of the said weighted levers whereby the descent of either weighted lever will trip and release the brake on the drum that connects with the other weighted lever, a counter-shaft geared with the said power-shaft on which the said weighted levers are fulcrumed, and means for taking power from said counter-shaft, substantially as described.

2. In a gravity and lever motor, the combination of a frame supporting a power-shaft and a counter-shaft, multiplying gears connecting said shafts, ratchet-wheels secured to the power-shaft, weighted levers fulcrumed loosely on the power-shaft and provided with pawls engaged with said ratchet-wheels to drive the power-shaft hoisting-drums adapted to be operated independently and provided with ropes that are connected with said weighted levers to elevate the same, friction-brakes for said drums, tripping mechanism connected with said brakes and actuated alternately by each weighted lever to trip and release the brake on the drum of the other weighted lever, weighted ropes connected with said drums and arranged to be wound thereon by the unwinding of the ropes that connect with the weighted levers, a band wheel or pulley driven from the counter-shaft, a pin-wheel carried on the counter-shaft, and a lever actuated from said pin-wheel and adapted to connect with a pump or other reciprocating machine, substantially as described.

3. In a gravity and lever motor, the combination of the frame, the power-shaft provided with ratchet-wheels, the weighted levers fulcrumed on said shaft and carrying pawls to engage said ratchet-wheels, hoisting-drums having ropes to elevate said weighted levers, brakes for said drums, tripping mechanism arranged in the path of the weighted levers and actuated therefrom to release said brakes, the counter-shaft geared with the power-shaft and driven therefrom, a brake on said counter-shaft, a band wheel or pulley driven from the counter-shaft, a pin-wheel carried on the counter-shaft, a pump-lever actuated from said pin-wheel, and a governor, substantially as described.

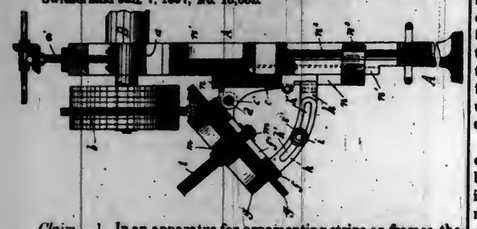
590,199. ELASTIC COVERED CORD. ALFRED M. ESSLER, Boston, Mass. Filed Mar. 10, 1897. Serial No. 626,726. (No model.)

[redacted]

Claim.—1. An elastic cord composed of an elastic core, portions of which are wound at intervals and covered with a tubular covering, substantially as described.

2. The herein-described elastic cord having portions tightly wound thereon at intervals to limit the elasticity of the cord, substantially as described.

590,200. APPARATUS FOR ORNAMENTING STRIPS OR FRAMES OF WOOD, &c. FRANZ A. BRABEC, Vienna, Austria-Hungary. Filed Dec. 19, 1896. Serial No. 616,283. (No model.) Patented in Hungary Sept. 19, 1896, No. 9,343; in Austria Sept. 30, 1896, No. 46/3,908; in Italy Nov. 2, 1896, No. 43,047/268; in England Nov. 5, 1896, No. 24,808; in Belgium Nov. 12, 1896, No. 124,730; in Germany Nov. 27, 1896, No. 19,835; in France Jan. 4, 1897, No. 262,766, and in Switzerland Jan. 7, 1897, No. 13,052.



Claim.—1. In an apparatus for ornamenting strips or frames, the combination with a pressing-roller *b* bearing on its periphery the design to be impressed on the blank, of a guide-roller arranged adjacent to the pressing-roller and comprising a disk *g* mounted rotatably on a bolt *m* and a ring *g'* resting on said disk and mounted on said bolt to rotate independently of the disk, the disk projecting beyond said ring and the face of the disk being at a right angle to the periphery of the ring, substantially as described and for the purpose specified.

2. In an apparatus for ornamenting strips or frames, the combination with a pressing-roller *b* bearing on its periphery the design to be impressed on the blank, of an adjustable table *f* arranged adjacent to the pressing-roller, a bolt *m* adjustably secured to said table and provided with an extension *f*, a guide-roller *g*, *g'*, rotatably mounted on said bolt and having an L-shaped periphery to receive and support the blank to be ornamented, and a support for said blank consisting of a rod S arranged on the said extension and provided with transverse arms S', S', against which the blank is adapted to rest, substantially as described.

590,201. TIRE. HARRY R. COLLINS, South Bethlehem, Pa. Filed June 23, 1897. Serial No. 641,959. (No model.)



Claim.—1. A vehicle-tire consisting of an elastic body or rim having a base portion provided with outwardly-inclined flanges or ribs on the inner surface thereof, and an annular centrally-disposed opening above said ribs, whereby the tire is adapted to be locked to a suitably-grooved rim and to afford a pneumatic effect without being subject to the defects and disadvantages of a pneumatic tire, substantially as described.

2. In a vehicle-wheel, the combination with the rim having outwardly-inclined circumferential grooves in the upper or outer surface thereof, and an intermediate circumferential rib having its sides bound by said grooves, of a cushion-tire consisting of an elastic body or ring having a base portion adapted to be seated upon said rim, and provided with ribs or flanges on its inner surface shaped to fit the grooves of the rim, and an annular opening extending therethrough above said ribs, whereby the two parts are adapted to be interlocked and secured together so as to prevent disconnection by pressure thereon in use while giving the effect of a pneumatic tire, substantially as described.

REISSUES.

11,629. CLOSURE FOR BOTTLES. ROBERT FLANIGAN, Baltimore, Md., assignor of five-eighths to J. S. Deterick, same place, and Frank L. Dyer, Washington, D. C. Filed May 3, 1897. Serial No. 634,942. Original No. 531,788, dated June 26, 1894.

Claim.—1. The combination with the bottle having the undercut near its mouth, of the integral metallic resilient cap having the downwardly-extending flange fitting around the bottle-mouth, and turned back upon itself at its lower edge to form a hollow bead, at all times approximately circular in cross-section, rounded on its inner surface, automatically cooperating with the undercut in the bottle, and the sealing-disk within the cap, substantially as described



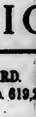
2. The combination with the bottle having the undercut near its mouth, of the integral metallic resilient cap having the downwardly-extending flange, fitting around the bottle-mouth with the inwardly-beaded lower edge automatically cooperating with the undercut on the bottle, the upwardly-extending edge of said beaded portion being turned out, into proximity to, but not in contact with the inner surface of the body of the flange, said bead at all times being approximately circular in cross-section, and the sealing-disk in said cap, substantially as described.

3. A closure for bottles consisting of the integral metallic resilient cap having the downwardly-extending flange formed with a hollow bead at its lower edge, the beaded portion formed with a rounded inner surface and being slitted vertically to provide for a greater range of elasticity, said bead at all times being approximately circular in cross-section, and the sealing-disk within said cap; substantially as described.

4. A closure for bottles consisting of the integral metallic resilient cap having the downwardly-extending flange with the inwardly-beaded lower edge, the upwardly-extending edge of said beaded portion being turned out into proximity to, but not in contact with, the surface of the body of the flange, and said bead at all times being approximately circular in cross-section, substantially as described.

DESIGNS.

27,686. EYEGLASS-GUARD. GEORGE BAUSCH, Syracuse, N. Y. Filed Jan. 14, 1897. Serial No. 619,251. Term of patent 7 years.



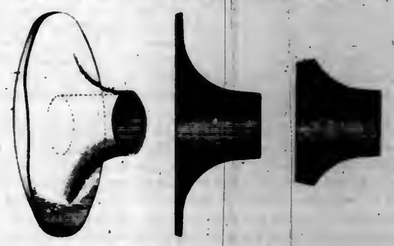
Claim.—The design for eyeglass guards substantially as herein shown and described.

27,687. DENTIST'S PLIERS. HENRY WESTON, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, same place. Filed June 7, 1897. Serial No. 639,761. Term of patent 14 years.



Claim.—The design for a pair of dentists' pliers, tweezers, &c., substantially as shown and described.

27,688. SHIELD FOR SYRINGES. ALBERT I. GRAY, St. Louis, Mo. Filed July 3, 1897. Serial No. 643,456. Term of patent 14 years.



Claim.—The design for a shield or pad for syringes herein shown and described.

27,639. RIVET. HELLEN M. BRAY, Boston, Mass. Filed Dec. 4, 1896. Serial No. 614,496. Term of patent 14 years.



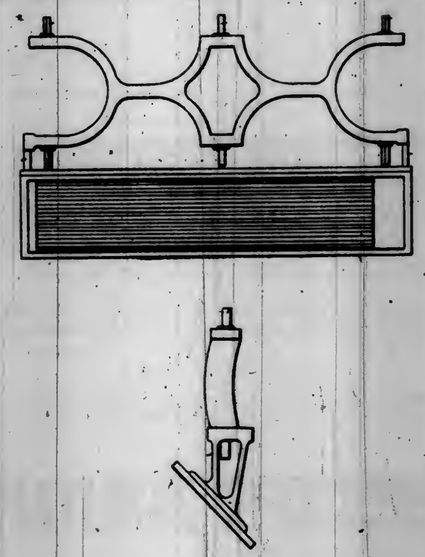
Claim.—The design for a rivet substantially as herein shown and described.

27,640. KNIFE-BLADE. JOHN ALMSTER, Los Angeles, Cal., assignor of one-half to Perry Whiting, same place. Filed June 17, 1897. Serial No. 641,201. Term of patent 14 years.



Claim.—The design for a knife-blade substantially as herein shown and described.

27,641. COMPUTING MEMBER FOR SCALES. ORANGE O. OSIAS, Dayton, Ohio. Filed July 19, 1897. Serial No. 645,180. Term of patent 14 years.



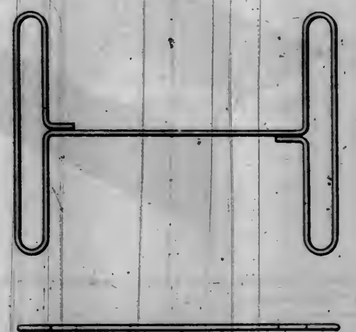
Claim.—The design for computing members for eyes-balance scales having the flat body with parallel horizontal rows of graduations, rearwardly-projecting end arms and rear member, as set forth.

27,642. PERCH-IRON. DAVID PERRY COOPER, Struthers, Ohio. Filed July 26, 1897. Serial No. 646,041. Term of patent 7 years.



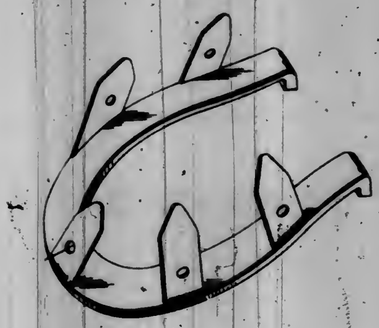
Claim.—The design for a perch-iron, substantially as herein shown and set forth.

27,643. WALL-TIE. WILH KNOX, Cleveland, Ohio, assignor to the Cleveland Wire Spring Company, same place. Filed July 22, 1897. Serial No. 645,600. Term of patent 7 years.



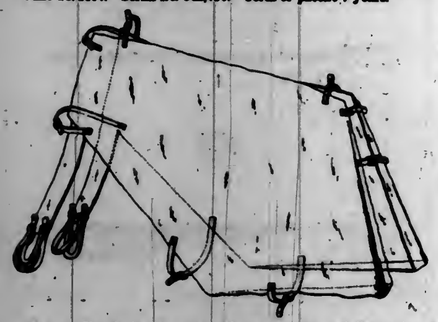
Claim.—The design for a wall-tie substantially as shown and described.

27,644. HORSESHOE. WILLIAM M. COOPER and JOHN WESLEY CATES, La Salle, Tex. Filed July 8, 1897. Serial No. 643,911. Term of patent 14 years.



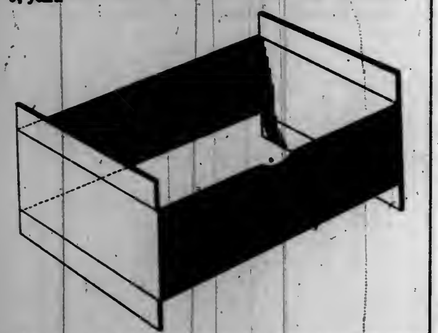
Claim.—The design for a horseshoe as herein shown and described.

27,645. BICYCLE-COVER. HERMAN MACK, Chicago, Ill. Filed June 26, 1897. Serial No. 642,750. Term of patent 7 years.



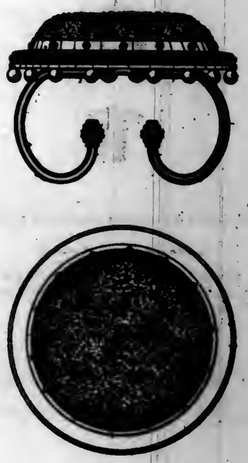
Claim.—The design for a bicycle-cover substantially as herein shown and described.

27,646. BINDER FOR PAPER BOXES. ALFRED A. FAXON, Philadelphia, Pa. Filed Mar. 15, 1897. Serial No. 627,705. Term of patent 14 years.



Claim.—The design for the binder of a paper box, substantially as described and shown.

27,647. FOOTSTOOL. SANFORD H. SNOW, Dayton, Ohio. Filed Apr. 15, 1897. Serial No. 632,222. Term of patent 7 years.



Claim.—The design for a footstool substantially as herein shown and described.

27,648. MAT-LINK. THOMAS J. LOVETT, Chicago, Ill. Filed June 21, 1897. Serial No. 641,714. Term of patent 14 years.



Claim.—The design for a mat link or section, as herein shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 14, 1897.

30,582. NEWSPAPERS. THE BROOKLYN DAILY EAGLE, Brooklyn, N. Y. Filed June 26, 1897.

EAGLE

Essential feature.—The word "EAGLE." Used since 1841.

30,583. WATCHES. JASON R. HOPKINS, Washington, D. C. Filed June 28, 1897.

SUN-DIAL

Essential feature.—The word "SUN-DIAL." Used since February, 1896.

30,584. CORSET-COVERS, DRAWERS, NIGHT-ROBES, SKIRTS, CHEMISES, AND DRESSING-SACKS. WHITALL MANUFACTURING COMPANY, Lowell, Mass. Filed July 8, 1897.

Chic

Essential feature.—The word "CHIC." Used since May, 1896.

30,585. SHIRTS, COLLARS, CUFFS, AND SHIRT-WAISTS. CAMPBELL & STEPHENS, Troy, N. Y. Filed Mar. 29, 1897.

Rensselaer

Essential feature.—The word "RENSSELAER" in script type, with the initial letter "R" extending in a paraph to the final letter. Used since January 14, 1897.

30,586. PRINTS. THE UNITED STATES PRINTING COMPANY, Cincinnati, Ohio. Filed Mar. 16, 1897.

NATURAL PROCESS

Essential feature.—The words "NATURAL PROCESS." Used since January 15, 1897.

30,587. WHEAT-FLOUR. BALLARD & BALLARD COMPANY, Louisville, Ky. Filed Mar. 3, 1897.

OLD HICKORY

Essential feature.—The words "OLD HICKORY." Used since December, 1868.

30,588. WHISKY. RAGSDALE & PIKE, Springfield, Tenn. Filed Apr. 10, 1897.



Essential feature.—A representation of a wild mountain scene in which is shown a precipitous pile of rocks at the right, down the side of which flows a small brook. The rocks are surmounted by a tree and the tree is surrounded with shrubbery. The central portion of the scene is a small barren plateau, the farther side of which is fringed with shrubbery. At the left side of the scene is a barren rock and at the farther side of the rock are some trees. Used since October 1, 1896.

30,589. WHISKY. WILLIAM WOLFF & Co., San Francisco, Cal. Filed June 17, 1897.



Essential feature.—The words "OLD GOVERNMENT" and a heart-shaped figure of a shield. Used since April 1, 1897.

80,540. LIQUORS, CORDIALS, AND WINES, INCLUDING MEDICATED PREPARATIONS. STEPHEN SMITH & Co., London, England. Filed May 22, 1897.



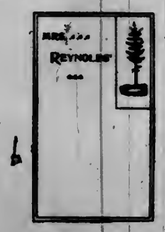
Essential feature.—A representation of a keystone with the word "KEYSTONE" imprinted thereon. Used since 1890.

80,541. MEDICATED CONFECTIONS. ANTONIO MÜLLER and ARTHUR MÜLLER, Charlottenburg, Germany. Filed Oct. 22, 1896.



Essential feature.—The words "DR. MÜLLER'S BONBONS" arranged in a circle around a wreath. Used since January 1, 1896.

80,542. COUGH-SYRUP. SARAH A. REYNOLDS, Port Huron, Mich. Filed Mar. 12, 1897.



Essential feature.—The words "MRS. REYNOLDS'" and a representation of a pine-tree, having a tuft of grass at its base, in the upper right-hand corner of the label. Used since January, 1897.

80,543. COUGH REMEDY. LEHMAN STERN, Middletown, N. Y. Filed July 7, 1897.

STERN'S



Cough Remedy.

Essential feature.—The words "STERN'S COUGH REMEDY" and a bust-portrait of the registrant. Used since January, 1896.

80,544. REMEDIES FOR CATARRH, COLDS, HEADACHE, SORE THROAT, ASTHMA, AND LOST SENSE OF SMELL. ALBERT B. H. PIESLER, Philadelphia, Pa. Filed July 12, 1897.

NEZ

Essential feature.—The French word "NEZ." Used since September 1, 1896.

80,545. REMEDIES FOR DISEASES OF THE RESPIRATORY ORGANS. HAHN BROS. & WHITE, Philadelphia, Pa. Filed Feb. 15, 1897.

CLEAR AS A BELL

Essential feature.—The words "CLEAR AS A BELL." Used since February 12, 1897.

80,546. APERIENT AND LAXATIVE COMPOUNDS. ARTHUR H. JONAS, New York, N. Y. Filed June 26, 1897.

BROMO-CARLSBAD

Essential feature.—The compound word "BROMO-CARLSBAD." Used since June 1, 1897.

80,547. REMEDIES FOR CONSTIPATION AND LIVER DISEASES. ANCHOR S CHEMICAL Co., Lebanon, Oreg. Filed Mar. 10, 1896.



Essential feature.—A representation of an anchor, around the stem of which is entwined the letter "S." Used since January 23, 1895.

80,548. REMEDIES FOR RHEUMATISM. FRANK HIBBET CLAUSSEN, Chicago, Ill. Filed May 5, 1897.



Essential feature.—The word "ROYAL" and a representation of a sick person reclining upon a couch and another person standing by the couch and handing the invalid a bottle of medicine. Used since December 15, 1896.

80,549. REMEDIES FOR VENEREAL DISEASES. MAX HAHNEWITZ, St. Louis, Mo. Filed June 1, 1897.



Essential feature.—Eight conventional representations of a ball arranged in an endless row, forming substantially a circle, and the words "PAINLESS SANTALWOOD COMPOUND" appearing within the circle described by the balls. Used since May 10, 1895.

80,550. MEDICINES. KOENIG MEDICINE COMPANY, Chicago, Ill. Filed June 23, 1897.



Essential feature.—A representation of Pastor Koenig's head. Used since October, 1894.

80,551. POWDERS FOR THE FEET. ALLEN S. OLMSTED, Le Roy, N. Y. Filed July 3, 1897.

FOOT-EASE.

Essential feature.—The compound word "FOOT-EASE." Used since July, 1895.

80,552. ROACH-POWDERS. JOHN M. FISHER, New York, N. Y. Filed Mar. 12, 1897.



Essential feature.—A representation of an hour-glass bearing the figure of a roach standing upon its hind legs, with the word "BEST" beneath. Used since July 4, 1890.

80,553. INSECT-DESTROYER. WALTER F. ASHE, Atlanta, Ga. Filed Apr. 26, 1897.

"SURESHOT"

Essential feature.—The word "SURESHOT." Used since December 4, 1896.

80,554. SOAP FOR CLEANSING AND DYEING. THE MAYPOLE COMPANY, LIMITED, London, England. Filed Feb. 16, 1897.



Essential feature.—A representation of two human hands in juxtaposition, with the thumbs pointing upward and fingers parallel thereto. Used since January 18, 1896.

80,555. LAUNDRY STARCH. B. B. DURKEE & Co., New York, N. Y. Filed Apr. 15, 1897.

INVISIBLE

Essential feature.—The word "INVISIBLE." Used since April 10, 1897.

80,556. LAUNDRY STARCH. JOHN NORTH, Toledo, Ohio. Filed July 3, 1897.

EASY

PROCESS



STARCH.

Essential feature.—A representation of a potato accompanied by the words "EASY PROCESS STARCH." Used since March 15, 1897.

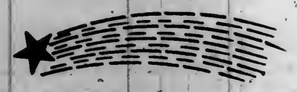
80,557. FLOOR-OILS. JOHN MACKENZIE, Troy, N. Y. Filed Jan. 16, 1897.



Essential feature.—A picture of a woman with a floor-oiler in the act of oiling the floor. Used since January 1, 1896.

30,558. ILLUMINATING-OILS. STANDARD OIL COMPANY OF NEW YORK, New York, N. Y. Filed Feb. 3, 1897.

COMET



Essential feature.—A comet, represented either by the word "COMET" or by a pictorial representation of a comet or by both word and picture. Used since 1876.

30,559. BATH-TUBS. WALTER ERNEST BOOTH, Detroit, Mich. Filed July 1, 1897.

"DUPLEX"

Essential feature.—The word "DUPLEX." Used since June 1, 1897.

30,560. BICYCLES AND OTHER CYCLES. WILLIAM MORGAN ROBBINS, New York, N. Y. Filed June 26, 1897.



Essential feature.—A representation of two cycle-wheels and the letters "BIRECO." Used since January 1, 1897.

PHOTO-LITH. WASHINGTON, D.C. THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BURGESS.

Decided September 3, 1897.

1. DIVISION—DISCRETION OF THE OFFICE IN REQUIRING DIVISION—COURTS HOLDING PATENTS INVALID.

It does not follow because the courts would not hold a patent invalid that it is the duty of the Patent Office to allow more than one invention to be claimed in the same application. Whether a given invention or improvement shall be embraced in one, two, or more patents is a matter about which some discretion must be left with the head of the Patent Office.

2. SAME—CLASSIFICATION.

The time arrived long since when a proper classification in the Patent Office, so as to facilitate examination and prevent mistakes in the granting of patents, requires that improvements on an old machine having a distinct status in the arts and classified separately in this Office should be presented in separate applications.

3. SAME—SAME—GUN-BARREL AND OTHER PARTS OF A GUN.

Claims for distinct and independent improvements on a gun, one set of the claims being for a gun-barrel or false muzzle, which falls within a different classification from the other claims, cannot remain in the same application.

ON petition.

AUTOMATIC GUN.

Application of Burgess filed February 25, 1896, No. 580,719.

Mr. W. A. Bartlett for the applicant.

BUTTERWORTH, *Commissioner:*

On January 7, 1897, this petitioner filed an application, Serial No. 223,693, for improvements in magazine-firearms, containing claims covering a gun-barrel or false muzzle and other parts of a gun mechanism. The claim for the gun-barrel was held to be for a separate and independent invention from that covered by the other claims, and the applicant was required to limit his application to one or the other invention. This requirement was complied with by removing from said application the claim for the gun-barrel and filing application Serial No. 422,785, February 25, 1892, for improvements in gun-barrels, with claims covering the subject-matter of the claim canceled from the original application. The original case became Patent No. 476,246, and the claims for the gun-barrel in the second application were allowed. This second application, however, was abandoned after filing, on February 25, 1896, the application on which this petition is taken. This last application contains, together with claims for other parts of a gun, claims for such a gun-barrel as was set forth in the two prior applications. The Examiner on considering this last case rejected the claims covering the gun-barrel on what was shown in Patent No. 476,246 and required division between these claims and other claims in the application, as in his opinion the two sets of claims covered independent inventions.

From this action of the Examiner this petition was taken, praying that the Examiner's requirement as to division be overruled and that he be instructed that patent to applicant (No. 476,246) is not a bar to the grant of claims for the gun-barrel.

The question as to whether petitioner's patent is an anticipation of the claims in the present case is one which the Commissioner should not pass upon prior to the action of the Examiners-in-Chief, and this prayer of the petition will be dismissed for this reason.

It remains, therefore, to consider the question as to whether the claims for the gun-barrel or false muzzle are for such an independent invention as should not be allowed in the same application with claims covering other improvements in the gun.

The Examiner's reason for requiring division is that a gun barrel or muzzle is an independent invention from other parts of the gun and so recognized by inventors, as shown by the following-cited patents: Roper, No. 79,861; Fry, No. 84,942; McKenzie, No. 122,187; Kerr, No. 157,008; Morris, No. 252,241; Bean, No. 380,975; Cory, No. 555,432, and the Office has also recognized this distinction and has separately classified gun-barrels in the subclass of "Gun-barrels, firearms."

I find on investigating the application under consideration that claims 5 and 6 cover a gun-barrel, while the remaining claims cover other parts of a gun. All the claims cover mere improvements on an old machine or apparatus—a gun. The object of that part of the gun covered by claims 5 and 6 is stated to be as follows:

> The barrel of the gun may be rifled, with twist-grooves, as at 1, and the muzzle-section in front of the rifling may be of enlarged diameter and provided with straight or longitudinal grooves, as indicated at 2, Fig. 1. Preferably the muzzle or extreme front will be drawn in or "choked." The object of the longitudinal grooves is to give a final direction to shot, should shot be fired from a rifle-barrel, as may sometimes be done. The tendency of a spiral rifling in a gun is to cause shot to fly wild or scatter, and this is overcome to some extent by longitudinal grooves extending back a little way from the extreme front or muzzle of the gun.

This part of the gun is entirely independent of the parts covered by the other claims and in no

way coacts with the other parts. The recent practice of the Office has been in a case where the different improvements are entirely independent of each other to allow them to be claimed in the same application, so long as it was thought that the courts would not declare void a patent issued covering separate inventions. This practice I do not approve. My opinion on this subject was expressed in the case of *ex parte Mefford*, (25 O. G., 881,) where the question was before me of allowing an applicant to embrace in the same application two claims relating to a sleeve of a particular construction for a gun-barrel, another claim for a combination of a peculiarly-formed breech-frame with the barrel of a gun, and another claim covering the combination of the breech-block. In that case it was stated:

From the decisions of the courts prior to this time it is clear that a patent containing them all would not for that reason be held invalid. (*Hogg* v. *Emerson*, 6 How., 437; *Barrett* v. *Hall*, 1 Mason C. C., 447; *Moody* v. *Fisk*, 2 Mason, 112; *Wyeth* v. *Stone*, 1 Story, 273.)

But it does not follow because the courts would not hold the patent invalid that it is the duty of the Patent Office to allow the application in its present form. In the case of *Bennett* v. *Fowler* (8 Wall. 445,) it is said:

"Whether a given invention or improvement shall be embraced in one, two, or more patents is a matter about which some discretion must be left with the head of the Patent Office."

In the case of *ex parte Sartell* (42 O. G., 295) it was also held that while a patent would not be declared void, but would be sustained in the courts, even though it might cover two independent inventions, yet the Commissioner in the proper administration of the Office was vested with the discretionary power to require division in certain cases. The rule for requiring division when improvements on an old device are recognized as being independent inventions and are so classified is stated in this case of Sartell to be that when a device has been made by the inventors themselves and by the manufacturing interests of the country a distinct subject of invention and manufacture, and so stands in a distinct class, applicants should not be permitted to claim this particular device in an application with other distinct and separate inventions.

In the case of *ex parte Stearns* (50 O. G., 1768) it was said:

When the machine or apparatus improved upon is old and no claims are made professing to cover its fundamental organization, the several specific improvements are to be grouped with reference to the several single functions which they mutually contribute to discharge, and it is not enough to justify joinder in the same application that they all relate to the same machine or apparatus and in various disconnected ways tend to improve it.

In speaking of the importance of a proper classification and line of division between separate and independent inventions I used this language in the case of *ex parte Mefford*, *supra:*

At the present time there are a great number of patents, and the roll is constantly increasing, thus entailing upon the examining corps a vast amount of labor. In order to systematize this work, and thereby lighten it as much as possible, it is necessary to divide it and subdivide it. But this classification cannot be perpetuated and kept well defined if two or more distinct and separate inventions belonging to different classes or subclasses are allowed to be embraced in one application. Such a course would also delay and increase the difficulty of examination, and be apt to render it uncertain. A clear and exact classification will facilitate business and tend to render an examination thorough; hence such a system will conduce to the benefit of inventors and the public as well as the Office. It is true there are some cases where distinct features are dependent upon each other for and mutually contribute toward the production of a single result, and to such the Office classification, when it obstructs, must give way.

In the case of *ex parte Fefel* (57 O. G., 409) it was also said:

That good reason exists in the classification of inventions, which is absolutely necessary in the Patent Office in order to do its work at all; for if such classification were not maintained, and if with regard to every application for patent it should be necessary to examine every one of the hundreds of thousands of patents already issued, the work of this Office would practically come to an end.

Tested by the above authorities, the claim for the gun barrel or muzzle should not be allowed to remain in this application with claims for other distinct and independent improvements unless there are presented good reasons for so doing, and in this the petitioner has failed. I think the time arrived long since when a proper classification in this Office, so as to facilitate examination and prevent mistakes in the granting of patents, requires that improvements on an old machine having a distinct status in the arts and trade and classified separately in this Office should be presented in separate applications.

As before stated, the case under consideration presents claims for distinct and independent improvements on an old device—a gun—one of the improvements being a gun-barrel or false muzzle, which falls within a different classification from the other claims. Therefore the two sets of claims cannot remain in the same application.

The requirement of division is sustained and the petition denied.

EX PARTE VAN ETTEN.

Decided July 19, 1897.

1. APPLICATIONS—RETURN OF PAPERS COMPRISING.

It is the settled practice of the Patent Office to refuse to return any of the papers of a complete application—that is, an application which comprises all necessary papers properly executed and on which the filing fee has been paid. Applications which do not comprise all papers necessary to a complete application properly executed may be returned where their return is necessary in order to enable the applicant to complete the papers, and this may be done whether the filing fee has been paid or not.

2. SAME.

There are good reasons why papers should not be returned. It must be presumed that in filing the papers the applicant contemplated and intended the completion of the application and its preparation for examination within the period fixed by statute. They must be taken to have been filed in good faith for the purpose of obtaining a patent on the invention set forth in them, as this is the only purpose for which applications can be filed or received by the Patent Office.

3. SAME.

It is a matter of grave doubt whether any paper or drawing relating to an application for patent, whether such application be complete or not, which has been filed in the Patent Office and has been stamped or otherwise marked by the Office with the date of its receipt should be returned. Certainly a paper or drawing so marked should not be returned except on satisfactory showing therefor being made, and in no case should it be returned without erasure or cancellation of the marking put upon it by the Office.

4. SAME—OPPORTUNITY FOR CHANGES IN DRAWING AND SPECIFICATION—CONTROVERSY AS TO DATE OF INVENTION AS SHOWN BY RECORDS OF THE PATENT OFFICE.

The receipt of the papers and drawing is acknowledged by the Office. To permit the papers so dated to pass out of the custody of the Office would offer opportunity for material changes in the drawing and specification and would give rise to endless controversy as to the date at which the invention set forth was actually shown by the records of the Patent Office.

ON petition.

REVERSIBLE BLACKBOARD.

Mr. S. C. Sweet for the applicant.

GREELEY, *Acting Commissioner:*

The petitioner on October 22, 1896, filed in this Office certain papers comprising a petition, together with a specification, drawing, and oath, asking that a patent be granted to him for certain improvements in reversible blackboards. This petition and accompanying papers comprised all the papers necessary to a complete application for patent. No fee accompanied these papers, and they could not therefore be filed as a complete application. They were, however, received by the Office and held to await the payment of the filing fee.

The filing fee has not yet been paid, and the petitioner has asked that the papers and drawing be returned to him. The return of these papers was refused by a letter dated May 20, 1897, signed by the Chief Clerk of this Office. The petitioner now asks that the holding of the Chief Clerk be reversed and the papers and drawing be returned.

The letter of the Chief Clerk above referred to states that—

inasmuch as the papers and drawing have been filed complete, no part of the same can be returned—

and reference is made in the letter to Rules 7 and 15 of the Rules of Practice then in force.

It is the settled practice of this Office to refuse to return any of the papers of a complete application—that is, an application which comprises all necessary papers properly executed and on which the filing fee has been paid. Applications which do not comprise all papers necessary to a complete application properly executed may be returned where their return is necessary in order to enable the applicant to complete the papers, and this may be done whether the filing fee has been paid or not.

But in this case the papers are correct in form and comprise all papers necessary to a complete application. Nothing remains for the applicant to do but to pay the filing fee. As the applicant is in possession of sufficient data to identify the application, he can pay the fee without seeing the papers. No reason appears for the return of these papers

On the contrary, there are good reasons why the papers should not be returned. It must be presumed that in filing these papers the petitioner contemplated and intended the completion of the application, and its preparation for examination within the period fixed by statute. They must be taken to have been filed in good faith for the purpose of obtaining a patent on the invention set forth in them, as this is the only purpose for which applications can be filed or received by this Office. They were so received by the Office, the papers were placed in the customary file-wrapper, on which was entered the date of filing of the papers, and the drawing was stamped with the date of its receipt by the Chief Clerk and the date of its inspection by the draftsman. The receipt of the papers and drawing was acknowledged by the Office. To permit the papers so dated to pass out of the custody of the Office would offer opportunity for material changes in the drawings and specification and would give rise to endless controversy as to the date at which the invention set forth was actually shown by the records of this Office.

It is a matter of grave doubt whether any paper or drawing relating to an application for patent, whether such application be complete or not, which has been filed in this Office and has been stamped or otherwise marked by the Office with the date of its receipt should be returned. Certainly a paper or drawing so marked should not be returned except on satisfactory showing therefor being made, and in no case should it be returned without erasure or cancellation of the marking put upon it by the Office.

In the present case not only is no satisfactory reason given for the return of the papers, but the papers have become, for certain purposes at least, a part of the records of the Office and have been allowed to remain a part of such records for many months. They cannot be permitted to pass out of the custody of the Office.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

HUNT *v.* ARCHIBALD *et al.*

Decided May 29, 1897.

HUNT—FIRECRACKER—INVALID.

Letters Patent No. 547,921, granted to Edmund S. Hunt October 15, 1895, for an improvement in firecrackers, in which the fuse is held in place by a portion of the tube forced in and down to form ridges extending toward the fuse and forming a rosette, with the fuse projecting from its center, *Held* to be void for want of novelty, in view of the prior state of the art.

STATEMENT OF THE CASE.

This was a suit in equity by Edmund S. Hunt against Thomas Archibald and others for alleged infringement of a patent relating to firecrackers. On final hearing.

Messrs. Maynadier & Mitchell for the complainant.

Mr. George O. G. Coale for the defendants.

COLT, *J.:*

This is a bill in equity brought for the infringement of Letters Patent No. 547,921, granted to the complainant October 15, 1895, for an improved firecracker. The specification describes the invention as follows:

My invention relates to closing the paper case or tube about the fuse or igniting device; and it consists in a firecracker in which the fuse is held in place by a portion of the tube forced in and down to form ridges, which extend toward the fuse and cause the portion bent in to form a rosette, with the fuse projecting from its center, as will be plain from the drawings, which show a rosette formed by crimping in the inner portion of the tube A along six radial lines *a*, these lines slanting upward and meeting at their inner ends about the fuse B.

The drawings show a tool for making a rosette, and the specification further declares that—

my invention is the fuse held firmly by a rosette formed by forcing a portion of the tube inwardly and downwardly to form radial tapering grooves deepest at their outer ends.

Figure 2 below is a perspective view of the Hunt firecracker with a portion cut away, and Fig. 5 is

a perspective view of the tool or crimper for securing the fuse in place.

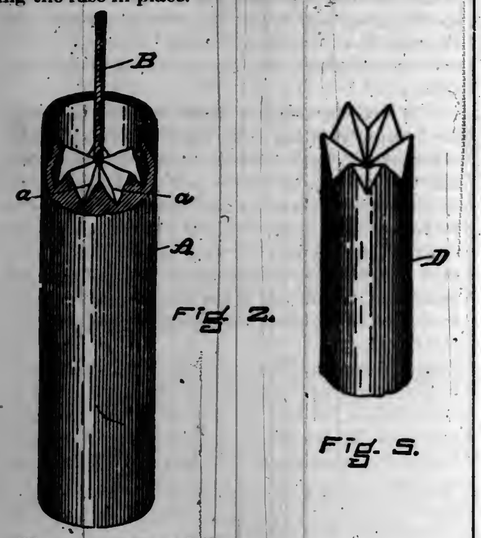


Fig. 2.

Fig. 3.

The claims are as follows:

1. Tube A, and fuse B, combined by means of the rosette formed of portions of the tube crimped in by radial tapering grooves; substantially as set forth.

2. Tube A with its outer portion cylindrical at and near the fuse end but with its inner portion at that end forced in to form a rosette as described, combined with fuse B extending through and held by that rosette; substantially as and for the purposes specified.

The defendants contend that the patent is void for want of patentable novelty, and this is the most serious question in the case. In a prior patent, granted to the complainant October 14, 1890, we find described the identical tool for crimping in portions of the tube of a firecracker in the form of a rosette with radial tapering grooves which is set out in the patent in suit, the only difference being that in the latter there is a central or axial hole in the tool for the insertion of the fuse. This earlier tool was designed to close the butt-end of the cracker. The Masten firecracker patent of July 7, 1885, describes an anvil with a hole through its center to hold the fuse during the operation of plugging. In this device a clay plug is used. In the old Brown cracker the fuse is retained in place by tamping or driving down the inner portion of the end of the tube—in other words, the fuse is held by a plug integral with the tube. We find, therefore, that at the date of the Hunt invention in suit the rosette-plug for closing the end of the tube was old, that a hole in the center of the tool to hold the fuse was old, and that the holding of the fuse by pressing down and around it the inner portion of the end of the tube was old.

Assuming that Hunt had before him his prior tool for making a rosette-plug, the old Brown cracker in which the fuse was firmly held by crushing down the layers of paper composing the inner portion of the tube, and the Masten anvil with a central or axial hole, it does not seem to me that there was any invention in the combination of the tube, fuse, and rosette-plug, which constitutes the patent in suit, or, to state the proposition in another form, there is no invention in the application of the old Hunt rosette-plug to the fuse end of a firecracker. Indeed, Hunt himself says that he made the first crackers like that described in the patent in suit with his old tool. His testimony on this point is:

I used the same tool that I used previously in making the cracker before. I placed the case over the mandrel; then I put my fuse in, and drove the choking-tool down upon it, and found that that closed the end of the case. The tool that I used for this occasion was a solid tool; a tool that I had.

In view of the prior state of the art the patent in suit is held to be void for want of patentable novelty.

Bill dismissed, with costs.

U. S. Circuit Court of Appeals—Third Circuit.

MITCHELL *v.* EWART MANUFACTURING COMPANY.

Decided June 1, 1897.

1. DODGE—CHAIN CABLES—VALID—INFRINGED.

Letters Patent No. 264,139, granted to James M. Dodge September 12, 1882, for an improvement in chain cables, consisting in inserting between the links of an ordinary chain cable metal blocks of such conformation as to seat the adjacent end portions of the end chain-links laterally in grooved channels in planes transverse to each other on its exterior, so as to prevent twisting of the metal, *Held* to be valid and infringed.

2. CONSTRUCTION OF CLAIMS—MATERIAL ADVANCE IN THE ART.

Where an invention consists of great merit and is a substantial advance over mechanical constructions heretofore used in the art to which it appertains, the claims of the patent should have such a construction as will give the patentee the full benefit of the mechanical advance which he has contributed to the mechanical arts and claimed.

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Before ACHESON, BUTLER, and BUFFINGTON, Judges.

Mr. Francis T. Chambers for the appellant.

Mr. Charles Howson for the appellee.

BUFFINGTON, *J.*:

The bill in this case was filed in the Circuit Court of the United States for the Eastern District of Pennsylvania by the Ewart Manufacturing Company against James H. Mitchell to enjoin the alleged infringement of the claims of Letters Patent No. 264,139, issued September 12, 1882, to James M. Dodge, for an improvement in chain cables. That court was of opinion Mitchell's device did so infringe, and decreed an injunction. (78 Fed. Rep., 485.) The respondent appealed from such decree, and the case is before us for review.

In our judgment the device shown by Dodge's patent was novel in character, disclosed an invention of very decided merit, and was a substantial advance over mechanical constructions theretofore used in the art to which it appertained, and the claims of the patent should have such a construction as will give the patentee the full benefit of the advance which he has contributed to the mechanical arts and claimed. A brief reference to such patent will disclose the substantial character of the invention. It pertains to that large and growing branch of appliances for carrying material in hoists, elevators, and kindred devices by means of bins

placed on drive-chains which are engaged and impelled by teeth on moving sprocket-wheels. The ordinary form of such drive-chain may be illustrated in a general way, though not in detail, by the chains used on bicycles. By the peculiar conformation of such chains they are not liable to twist, and so when used in connection with hoists, elevators, and the like are desirable, since the bins or conveyers will preserve their horizontal position and so retain their loads. Their construction, however, was relatively expensive. Chain cables were also used as drive-chains, and, while desirable as being the simplest, strongest, and most inexpensive in construction, they were open to three serious objections. First, the wear of the links was all centered on a single bearing-point at the link extremities; secondly, the ends and sides of the links were subjected to the wear of the sprocket-teeth, and, lastly, the liability of the chain to twist. Such twisting overturned the bins and misplaced the link relatively to interlocking with the sprocket-teeth. These serious objections prevented the satisfactory use of linked chains for drive-chain purposes. They were all recognized in the patent in suit and were designedly overcome by Dodge in a device the simplicity and effectiveness of which are striking. He took the ordinary chain cable of commerce with its simple construction and by the insertion of a new intermediate bearing not only retained its flexibility, but imparted to it, when used as a drive-chain, the non-torsional characteristics of the more cumbersome, expensive, but efficient type of the drive-chain of the old art. This was done by employing a cast-metal block (preferably of malleable iron) of such conformation that it seated the adjacent end portions of the two enchained links laterally in grooved channels in planes transverse to each other on its exterior.

FIG. 1.

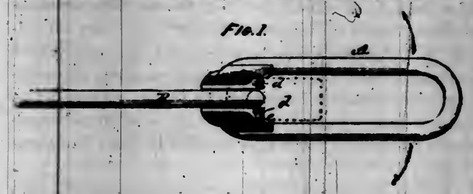


FIG. 2.



FIG. 3.



The result was an action of a possible scope akin to that of a universal joint so far as flexibility was concerned, but adapted for use in the more restricted sphere of a drive-chain where flexibility in one direction alone was needed. This block secured the non-torsional limitation, afforded a pintle-like link-bearing about equal in width to the space-opening of the links, and allowed the sprocket-tooth's engagement on the larger block-surface instead of the link end and side. The use of such an intervening block, apart from the points we have mentioned, was desirable because it could be made of a material or of a quality of metal better adapted to withstand the wear and friction of the sprocket-teeth than the material of chain cables, and also because the difference between its material and that of the link made the wear of the latter less than against a substance similar to itself, which was the case when the links bore on each other. As illustrating its use and function as a drive-chain the patentee says:

The adjacent ends of the links are held, it will be seen, in a given relationship laterally with each other and with the interposed block, so that there cannot possibly occur to the cable (while under tension or in a working condition) any of that twisting of the cable (or that oscillation of the links about an axial line coincident with a line running lengthwise through the center of the cable) which is inevitable in chain cables in which the links are articulated one directly on the other, as usual prior to my invention, and the chain with its block is necessarily retained in a given and proper relationship with the peripheral devices of the wheel on which it is run. This perfect avoidance of any such twisting of the cable and retention of the working parts of the chain and wheel in proper relationship enable me to use the cable with perfect success for all sorts of elevator and conveyer purposes, since the chain is thus rendered capable of carrying and maintaining always in perfect line and proper position any buckets, flights, or other attachments which may be applied to it. * * * The precise form of block shown, as well as that of the links illustrated, may of course be departed from without departing from my invention so long as the blocks and links be made and combined so as to effect the essential results explained.

Upon this device claims were allowed as follows:

1. In a chain cable, the combination, with the links of blocks interposed between the adjacent end portions of the links, the said blocks being adapted to afford bearing or working surfaces for the actions of the engaging devices of a chain-wheel, substantially as set forth.

2. In combination with the links of a chain cable, blocks interposed between the adjacent ends of the links and provided with grooves which afford pintle-like bearings for the said link ends, substantially as set forth.

3. In combination with two enchained links, a block having grooves arranged transversely to each other and operating to prevent any twisting movement of said links relatively, substantially as set forth.

The device has gone into very extensive use.

We now turn to the alleged infringement of Mitchell. In it we find a chain of which the alternate links are of the ordinary forged semicircular end type. With these links are alternately enchained closed links with rectangular ends. They are of peculiar construction. Each end of the link is formed of a separate cast cross-bar having perforated ears at each end, which perforations increase in size at the exterior face, so as to form seats, respectively, for nuts and hexagonal bolt-heads. A central semicircular groove on the cross-bar seats the enchained forged link and possesses the double function of forming with such link a pintle-like bearing and securing a non-torsional relation between them. At the same time the seating of the forged link in the groove removes such link from engagement and wear with the sprocket-tooth, which bears wholly on the metal cross end. The links' sides are bars provided at one end with hexagonal heads and at the other with screw-threads. These are passed through the end holes of the

cross-bars and secured by nuts, which latter, as well as the hexagonal heads, seat themselves as the chain is tightened in the corresponding depressions in the outer face of the cross-bars. This construction permits separation of the chain at any desired point and readjustment where wear on the bearings has lengthened the links and carried them out of proper relation to the sprocket-teeth. Does such structure embody the Dodge invention? A separation of it into its component elements and an analysis of its function will, to our mind, answer the question. Eliminating from present consideration the groove in the cross-bar of the rectangular links, respondent's structure is (without it) in substance and function a chain cable. It is a cable made of iron links, for the rectangular connections enchaining with and coupling the two forged links are none the less links because of their rectangular shape. It is a cable composed of alternate square and rounded links. Considered with reference to use as a drive-chain it has the desirable capacity in such a use of articulation, but the fatal one of twisting. The first quality is preserved and the second is prevented by the use of what, in connection with the peculiar conformation of the chain used, is a substantial equivalent of the Dodge grooved block. It will be noted that in the ordinary drive-chain vertical articulation alone is necessary. In other words, in using a chain cable as a drive-chain the block might be soldered to or made integral with the end of the horizontal link, and a single vertical groove in engagement with the vertical link would produce the desired function of a drive-chain. Such a construction the respondent's expert has, with a candor which does credit to his fairness, conceded would infringe the first and third claims of the patent. His language is:

I understand the chain—"Complainant's Exhibit Modified Chain"—to be composed of enchained wrought-iron links and interposed cast bearing-blocks like the links and blocks of the Dodge chain, but with the difference that in this modified chain each block is rigidly secured in the end of one of the wrought-iron links by casting Babbitt metal between the block and the end of the link, so that the block is rigidly held with reference to one link, and the adjacent link can turn in the groove of the block; the chain being thus made flexible only on one plane. I understand that chain to be a modified cable chain, as each link of the chain is that of the cable chain, and the links are enchained with each other as they are in cable chains, because, if the blocks were removed from this modified chain, a complete cable chain would be left. In my opinion, this chain would be within the first claim of the patent, as it appears to comply with every requirement expressed in that claim. I do not think it would be within the second claim, because each block is only provided with one groove, which affords a pintle-like bearing for one of the link ends, while the chain, as I understand it, calls for blocks provided with grooves which afford pintle-like bearings for the link ends. The block in this modified chain has grooves which are arranged transversely to each other, and which hold the two enchained links between which the block is arranged at right angles to each other, and so prevent any twisting movement of the links relatively; and it seems to me, therefore, that the chain would comply with the requirement of the third claim, although one of the grooves has been rendered inoperative with respect to that function of the groove of the patent which consists in affording a pintle-like bearing for the link end which rests in the groove. I do not think that this difference, simply, should take the chain outside of the third claim of the patent.

While the respondent's device is different in appearance, of seemingly different construction, and manufactured in a different way, yet when we go beneath these surface variations and measure it by the test of functional purpose and operation we find it is in substance, purpose, and operation the same mechanism. Where the block is soldered to the horizontal link end, that link as an articulating member has ceased to exist and simply serves as an additional band or brace to support the block. If the link was cut off and the block braced and restrained from horizontal articulation by nuts screwed to the ends of the side bars of the link, the same mechanical effect would be produced. It follows, therefore, that the nuts of the Mitchell device, in connection with the perforations of the vertically-grooved end bar or block and the side bars of the link, are in a chain cable used as a drive-chain identical in functional purpose with the solid positive connection of a horizontal block and groove. Such being the case—and we can see no escape from the step-by-step process of reasoning by which this conclusion is reached—we think infringement is shown. While the appellant has avoided a mere servile copy of form, he has appropriated the substance of the Dodge invention. That in doing so he has rendered inoperative the function on one groove will not suffice to relieve him from the charge of infringement. Every element of the first claim is found in his structure. He uses the elements of the second, modified in form to suit the peculiar conformation of his rectangular links, but identical in functional effects, to secure the pintle-like bearings, and those of the third to gain the non-torsional relation between the links. He gets the same result which Dodge first showed by substantially the same means and in substantially the same way.

We are of opinion the court below reached a just and proper conclusion, and its decree should be affirmed.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

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Payment of Fees.

(ORDER No. 1,147.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 3, 1897.

On and after September 15, 1897, fees intended for entry on the day of payment must be paid to the Financial Clerk before three o'clock p. m., in order that his accounts for the day may be balanced before the Office is closed.

BENJ. BUTTERWORTH,
Commissioner.

Issue of September 21, 1897.

Patents	357	No. 590,202 to No. 590,558, inclusive.
Designs	39	No. 27,649 to No. 27,687, inclusive.
Trade-Marks	21	No. 30,561 to No. 30,581, inclusive.
Labels	None.	
Prints	None.	
Reissues	1	No. 11,630.
Total issue	418	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1		New Hampshire	1	
Arizona Territory			New Jersey	20	2
Arkansas	4		New Mexico Territ'y		
California	15		New York	75	6
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Connecticut	17	1	North Dakota	2	
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Maine	4		Washington	1	
Maryland	3		West Virginia	2	
Massachusetts	36		Wisconsin	6	
Michigan	10		Wyoming		
Minnesota	12		U. S. Army		
Mississippi			U. S. Navy		
Missouri	5				
Montana			Total to citizens of the United States	361	19
Nebraska	3				
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Canada	2		Portugal		
Canary Islands			Queensland		
Cape Colony			Russia		
Chile, Republic of			Scotland	1	
China			South African Republic		
Cuba			Spain		
Denmark			Sweden	2	
England	16	1	Switzerland		
Finland			Venezuela		
France	1		Victoria		
Germany	7	1	West Australia		
Guatemala					
Hawaii					
Ireland			Total to citizens of foreign countries	35	2
Jamaica	1				

APPLICATIONS UNDER EXAMINATION.

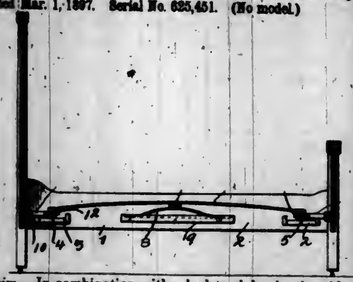
Condition at Close of Business September 14, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 16	Aug. 30	119
106	II. Farm Stock, Products, etc.	Aug. 14	Aug. 16	337
	Between one and two months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	July 15	Aug. 28	242
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 20	Aug. 21	240
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	July 21	Aug. 17	165
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Aug. 4	Aug. 16	159
248	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	July 31	Aug. 14	299
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	July 26	Aug. 11	288
215	XVII. Paper Manufactures and Printing.	July 14	Aug 10	223
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 23	Aug. 7	214
250	VIII. Furniture, Beds, Store Furniture, etc.	July 15	Aug. 5	458
	Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	July 6	Sept. 2	196
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 25	Aug. 27	236
102	XIX. Stoves and Furnaces	July 1	Aug. 23	394
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	June 28	Aug. 21	380
93	XXI. Textiles, etc	July 8	Aug. 18	201
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 18	Aug. 13	256
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 6	Aug. 12	168
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 2	Aug. 9	313
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 12	Aug. 4	206
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	July 6	July 29	281
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 8	July 22	492
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 19	July 15	342
246	I. Tillage and Fences	July 2	June 29	362
	Between three and four months.			
248	XVIII. Steam-Engineering, etc.	June 7	Sept. 3	367
253	X. Carriages and Wagons	June 12	Aug. 25	394
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	May 14	Aug. 17	391
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	May 15	Aug. 16	765
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 1	Aug. 3	223
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 24	Aug. 2	191
240	VII. Velocipedes	June 10	July 1	1265
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	June 28	356
	Between four and five months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 12	May 10	633
	Total number of applications awaiting action			11,161
	Between one and two months.			
	Designs	Aug. 9	Aug. 18	236
	Trade-Marks	Aug. 2	Aug. 24	146

PATENTS

GRANTED SEPTEMBER 21, 1897.

590,202. SPRING-MATTRESS. ISAAC ALTER, Lakeport, Cal. Filed Mar. 1, 1897. Serial No. 625,451. (No model.)



Claim.—In combination with a bedstead having its side boards provided at each end with cleat-blocks or supports, and at the center with grooved supports, a bed-spring comprising end bars adapted to rest upon said cleat-blocks, a center bar provided at each end with pendent extensible plate-springs adapted to rest upon and move in said guide-blocks, a series of longitudinally-extending spring-metal slats or strips connected with said bars, and a spring connected with each end bar and adapted to bear respectively against the head and foot boards of the bed and maintain the longitudinal spring-slats in proper position, substantially as described.

590,203. BALL-BEARING. GEORGE M. BEARD, Angola, Ind. Filed Mar. 29, 1897. Serial No. 629,751. (No model.)



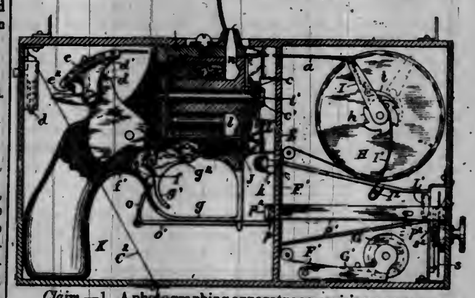
Claim.—1. A ball-bearing for bicycles and other like vehicles, comprising a ball-cage revolubly mounted upon each end of the crank shaft or axle, and having a peripheral raceway with opposite diverging sides adapted for a two-point bearing contact of antifriction-balls therein; a series of antifriction-balls mounted in said raceway having contact therewith at a single point only on each of said sides; a surmounted annular cone having an inner inclined side bearing upon said balls at a single point, and thereby cooperating with the raceway in forming a three-point bearing contact with said balls; a sleeve loosely mounted upon said axle midway between the said cages; and means for retaining said cages and cones upon said axle; all arranged substantially as described and shown.

2. A ball-bearing for bicycles and other like vehicles, comprising a ball-cage revolubly mounted upon each end of the crank shaft or axle, the annular raceways, of the cages provided with oppositely inclined or oblique sides adapted to form a two-point ball-bearing as described; a series of antifriction-balls mounted in said raceway; a sleeve slidably mounted upon the said shaft between said cages; an annular cone-cap having an inclined inner side and within each end of the hanger, and cooperating with the said ball-cage to form a three-point ball-bearing contact with the balls in said raceways; means for adjusting the bearings of said cones upon the balls in said raceways; the crank-shaft, and the hanger; all arranged as described and shown.

3. A ball-bearing for a two-part bicycle crank-shaft comprising a ball-cage revolubly mounted upon each end of the shaft within suitable recesses in the pedal crank-arms, and having an annular raceway with outwardly-divergent sides to form a two-point bearing for antifriction-balls in said raceway, and also having an inwardly-lateral projection upon the inner projecting side of said cage adapted to slidably engage with the inner side of the hanger; the hanger; a cone cap or collar slidably mounted within the said hanger upon the outer side of the cage and within the recess aforesaid, and adapted for a single-point bearing upon the balls in said cages; a series of antifriction-balls within the raceways; a sleeve slidably mounted upon the shaft between said cages; and means for adjusting the bearing of the cones upon the balls, in combination with the two-part crank-shaft; all arranged as described and shown.

4. A ball-bearing for a two-part bicycle crank-shaft, comprising a ball-cage revolubly mounted upon each end of the crank-shaft within suitable recesses in the pedal crank-arms, and whose annular raceway is provided with oppositely inclined or oblique sides adapted to form a two-point ball-bearing as described, and also having an inwardly-lateral projection upon the inner projecting side of said cage adapted to engage with the inner side of the outer end of the hanger; the hanger; a cone cap or collar slidably mounted within the said hanger upon the outer side of the cage and within the recess aforesaid, and adapted for a single-point bearing upon the balls within the cage; means for securing the ball-cages in position against lateral thrust upon the shaft between the said cages; a series of antifriction-balls within the raceways, as shown, and means for adjusting the bearing of the cones upon the balls, all arranged as described and shown.

590,204. ROLL-HOLDING FLASH-LIGHT CAMERA. JAMES E. BLACKMORE, Newark, N. J. Filed Mar. 23, 1897. Serial No. 628,891. (No model.)



Claim.—1. A photographing apparatus comprising a camera provided with a shutter, a chamber containing a charge of flash-light powder, and means connected with such shutter and chamber for simultaneously opening the shutter and exploding the powder, substantially as set forth.

2. A photographing apparatus comprising a camera provided with a movable film and a shutter for exposing the same, a chamber containing a charge of flash-light powder, a hammer for exploding the same, means connected with the hammer and film for actuating both simultaneously, and means connected with the said shutter and chamber for simultaneously exploding the powder and opening the shutter, substantially as set forth.

3. The combination, with a camera, of a pistol adapted to support the camera, and having connection with the shutter-stop to open the shutter when the pistol is fired, substantially as herein set forth.

4. The combination, with a camera having a film, a reel to wind the same, and mechanism for turning the reel, of a pistol adapted to support the camera, and having connection with the reel-turning mechanism to shift the film before the pistol is discharged, substantially as herein set forth.

5. The combination, with a camera having a film with a reel to wind the same, and a lever with pawl and ratchet for turning the reel, of a pistol attached to the camera and having its hammer connected with such lever, to shift the film when the hammer is cocked, as and for the purpose set forth.

6. A camera having a film, a reel to wind the same, with mech-

anism for rotating the reel, and a shutter with stop for holding the same, in combination with a pistol having a connection from the hammer to the reel-winding mechanism, and a connection from the hammer-detent of the pistol to the shutter-stop, whereby the film is shifted when the hammer is cocked, and the shutter is released when the pistol is fired, substantially as herein set forth.

7. The combination, with a camera having a film with a reel to wind the same and a ratchet for turning such reel, of a pistol adapted to support the camera, and having a segment attached to the side of the hammer, with cord connecting such segment with the ratchet mechanism for turning the reel, substantially as herein set forth.

8. The combination, with a camera having a film with a reel to wind the same and a ratchet for turning such reel, of a pistol adapted to support the camera, and having a detachable connection between its hammer and the ratchet mechanism for turning the reel, to permit the detachment of the pistol from the camera, substantially as herein set forth.

9. A camera having a film, a reel to wind the same with mechanism for rotating the reel, and a shutter with stop for holding the same, in combination with a pistol having a detachable connection from its hammer to the reel-winding mechanism, and a detachable connection from the hammer-detent of the pistol to the shutter-stop, as and for the purpose set forth.

10. The combination, with a camera, of a flash-light pistol having a rotary barrel containing a series of chambers, with lateral outlet from each chamber to discharge the flash laterally, substantially as herein set forth.

11. The combination, with a camera, of a flash-light pistol having a rotary barrel containing a series of chambers, with lateral outlet for each chamber, and a flaring nozzle upon the pistol-frame to register with such lateral outlets and spread the flash, substantially as herein set forth.

12. The combination, with a camera, of a flash-light pistol attached to the same, and an extension of the camera-box to conceal the said pistol, substantially as herein set forth.

13. The combination, with a camera, of a flash-light pistol attached to the same, and an extension of the camera-box to conceal the said pistol, with a door in such extension for exposing the handle of the pistol, substantially as herein set forth.

14. The combination, with a camera, of a flash-light pistol attached to the same, and an extension of the camera-box to conceal the said pistol, with the rear of such extension divided obliquely and hinged thereto for exposing the handle of the pistol, substantially as herein set forth.

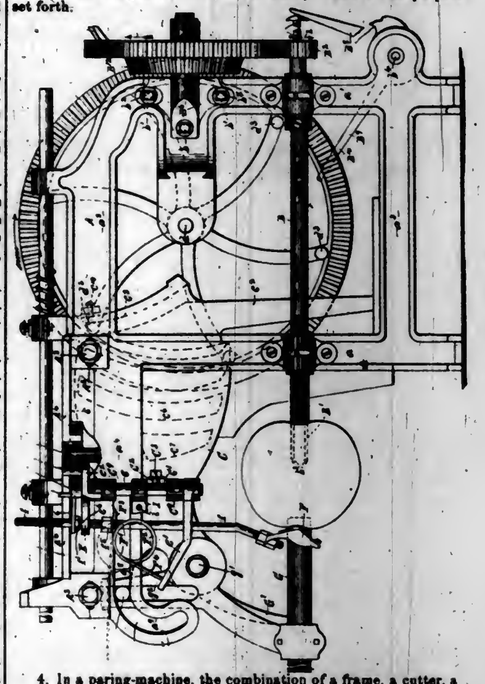
15. A flash-light pistol having a rotary barrel containing a series of chambers, a flaring nozzle upon the pistol-frame, and an outlet from each of said chambers adapted to register in turn with the flaring nozzle, to spread the flash when the charge in each of said chambers is exploded, substantially as herein set forth.

590,205. PARING AND CORING MACHINE. WILLIAM H. BOUTELL, Rochester, N. Y. Filed July 19, 1894. Serial No. 517,957. (No model.)

Claim.—1. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, and a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with the cams for feeding the carriage in one direction, and means for moving the carriage in the opposite direction during the partial revolution of the projections or pins when disengaged from the cams, substantially as and for the purpose described.

2. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other and having engaging faces of different curvature, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with said cams arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, substantially as and for the purpose specified.

3. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other and having engaging faces of different curvature, means for adjusting the position of one of said cams, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with said cams, arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, substantially as and for the purpose set forth.



4. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, an additional cam secured to the carriage and extending beneath the former cams, a rotary wheel, an eccentrically-arranged projection or pin secured to the wheel for engaging the additional cam and one of said series of cams, and additional eccentrically-arranged projections or pins secured to said wheel for engaging the remaining cams fixed to the carriage, substantially as set forth.

5. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with the cams arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, and a spring for limiting the movement of the carriage in one direction, substantially as and for the purpose specified.

6. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the frame, and a paring-cutter supported by the rocking head, substantially as and for the purpose described.

7. In a paring-machine, the combination of a frame provided with a series of recesses and having an engaging face extending lengthwise in a plane substantially coincident with the extremities of said recesses, said engaging face being provided with an inwardly-extending cut-out alined with one of said recesses, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, an intermediate tooth or projection of the rocking head being elongated and engaged with said bearing-face and the walls of its cut-out, and a paring-cutter supported by the rocking head, substantially as and for the purpose set forth.

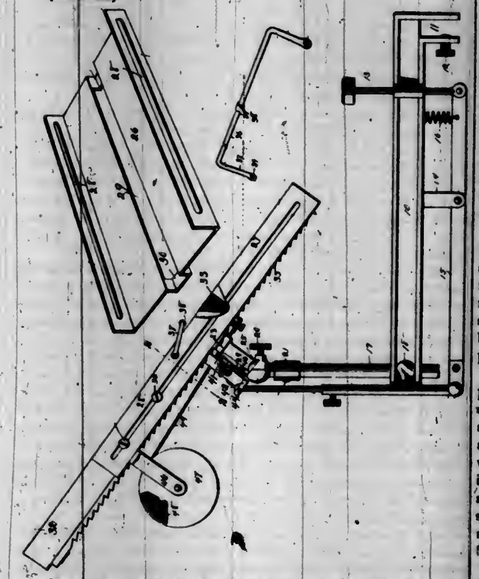
8. In a paring-machine, the combination of a frame, a bar adjustable lengthwise on the frame and provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, means for holding the bar in its adjusted position, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the bar, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the bar, and a paring-cutter supported by the rocking head, substantially as and for the purpose specified.

9. In a paring-machine, the combination of a frame, a carriage movable along the frame, a rocking head journaled in the carriage, and a paring-cutter supported by the head and rocking laterally independently of the head, and means, substantially as described, for intermittently preventing the cutter from rocking laterally independently of the head, substantially as and for the purpose described.

10. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being movable into and out of engagement with said face, a paring-cutter supported by the head and rocking laterally independently of the head, the cutter being provided with a shank having a shoulder as F⁹ for engaging said bearing-face, substantially as and for purpose set forth.

11. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, a carriage movable along the frame and provided with a laterally-extending adjustable arm, means for securing the arm in its adjusted position, a rocking head journaled in the arm and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the frame, and a paring-cutter supported by the rocking head, substantially as specified.

590,206. COPY-HOLDER AND LINE-INDICATOR. JAMES L. CALLAHAN, Des Moines, Iowa. Filed Mar. 1, 1897. Serial No. 625,636 (No model.)

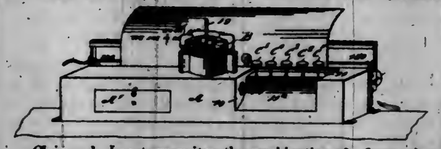


Claim.—1. A copy-holder, comprising a fixed plate, means for supporting the same in proper position, a movable plate slidingly mounted thereon, a rack fixed to the movable plate, mechanism for normally elevating the movable plate relative to the fixed plate, a line-indicator on the fixed plate to overlap the movable plate, and a duplex dog or its equivalent connected with the fixed plate to engage said rack, and means for operating said duplex dog, substantially as and for the purposes stated.

2. A copy-holder, comprising an arm, means for detachably connecting the same with the type-writer frame, an upright thereon, a fixed plate, and a universal joint for connecting the plate and said upright, means for securing the plate in any position, a movable plate slidingly mounted within the fixed plate, a rack on its under surface, means secured to the fixed plate to exert a yielding pressure on the movable plate tending to force it upwardly relative to the fixed plate, a line-indicator fixed to the fixed plate to overlap the movable plate, a duplex dog connected with the fixed plate to engage the rack on the movable plate, a key-bar slidingly mounted in the aforesaid arm, a lever fulcrumed to the arm and pivoted to said key-bar, a spring connecting the said lever and said arm, and means for connecting the opposite ends of the lever with the aforesaid duplex dog, arranged and combined to operate in the manner set forth, and for the purposes stated.

3. A copy-holding attachment for a type-writer, comprising an arm, means for detachably securing same to a type-writer frame, an upright adjustably fixed to the other end of said arm, a socket at its top, a set-screw to enter said socket, a flat plate, an arm fixed to the said plate and having a ball on its lower end to enter the said socket, a line-indicator substantially as shown, pivoted to the sides of the plate, a word-indicator slidingly mounted on the said line-indicator, a tension device substantially as shown and described, fixed to the plate, a movable plate slidingly mounted on the fixed plate and designed to hold a copy-book, a rack on its under surface, a strap connecting the movable plate with the said tension device, a key-bar slidingly mounted in the aforesaid arms, a lever fulcrumed to the aforesaid arms and connected at one end with said key-bar, a spring connected with the lever and with the arm, a duplex dog connected with the aforesaid plate and having laterally-projecting arms, and a rod for connecting the said arm with the said lever, all arranged and combined substantially in the manner set forth and for the purposes stated.

590,207. TYPE-WRITING MACHINE. MANUEL S. CARMONA, Mexico, Mexico. Filed Oct. 29, 1894. Serial No. 527,192. (No model.)



Claim.—1. In a type-writer, the combination of a frame pivoted on a perpendicular axis, a rotary wheel carried by said frame and provided with zones of type, the said wheel being capable of lateral movement with the frame, two operating-levers controlling the movement of the wheel, and type-keys operating the said levers, as and for the purpose set forth.

2. In a type-writer, the combination, with a type-wheel, of a spacing-lever adapted to enter depressions in the wheel, the said lever determining the space between the types and regulating said space in accordance with the width of the type, as and for the purpose set forth.

3. In a type-writer, the combination, with a type-wheel provided with zones of type, and depressed belts between the said zones, of a spacing-lever, means, substantially as described, for holding said lever normally from engagement with said wheel, printing-keys, and a connection between said keys and the said spacing-lever, whereby the said lever, upon the depression of the key, will provide for a spacing between the type equivalent to the width of the type, as and for the purpose specified.

4. In a type-writer, the combination, with a rotating type-wheel provided with zones of type, a spacing-lever regulating the distance at which the type shall be printed upon a predetermined object, of a series of keys of lesser number than the characters produced upon any one zone of the type-wheel, and a regulating-cradle provided with series of stops, each series being of a different graduation, printing-levers capable of operation from the said keys, the keys in operating the levers being adapted for engagement with sundry of the said stops, and a rotating mechanism operated upon by the levers and operating upon the said type-wheel, as and for the purpose set forth.

5. In a type-writer, a type-wheel, a series of keys considerably less in number than the number of type of the same character produced upon the wheel, a spacing-lever, printing-levers, a reciprocating frame operated from said levers and operating the spacing-lever, a cradle provided with series of stops differently graduated, operating-rods connected with the keys and adapted to operate upon the printing-levers, the downward movement of the said rods being controlled by the stops of the cradle, and means, substantially as shown and described, for governing the movement of the cradle relative to the

movement of the rods depressed by the said keys, substantially as shown and described.

6. In a type-writer or like machine, the combination of a frame movable toward and from the material to be written upon, a type-wheel journaled in said frame, keys for turning said type-wheel, a locking device for preventing the type-wheel from turning during the return movement of the keys, and mechanism actuated by the return movement of the keys, for moving the type-wheel frame toward the material to be written upon, substantially as described.

7. In a type-writer or like machine, a frame movable toward and from the material to be written upon, a type-wheel journaled in said frame, the shaft of the wheel having a screw-threaded portion, a nut held to slide on said screw-threaded portion, keys, an operative connection between the keys and the nut, and mechanism for moving the type-wheel frame toward the material to be written upon, substantially as described.

8. In a type-writer or like machine, a revoluble type-wheel, the shaft of said wheel having a screw-threaded portion, a nut mounted to slide on said shaft, keys, and an operative connection between the keys and the nut to turn the type-wheel, substantially as described.

9. In a type-writer or like machine, a revoluble type-wheel whose shaft is provided with a screw-threaded portion, a sprung-pressed sliding nut on said shaft, an actuating-lever engaging the nut, and keys operatively connected to the lever at different points thereof, substantially as described.

10. In a type-writer or like machine, a frame pivoted on a perpendicular axis and capable of swinging toward and from the material to be written upon, a type-wheel journaled in said frame, an actuating-lever for turning the type-wheel and provided with a projection, and a movable dog on the frame and arranged to engage the said projection to swing said frame toward the material to be written upon, substantially as described.

11. In a type-writer or like machine, a frame movable toward and from the material to be written upon, a type-wheel journaled in said frame, a shaft of the type-wheel having a screw-threaded portion, a nut mounted to slide on said shaft, an actuating-lever engaging the said nut to move it longitudinally of the shaft, and a dog secured to the nut and adapted to be engaged by the lever to move the type-wheel frame toward the material to be written upon, substantially as described.

12. In a type-writer or like machine, a type-form, an actuating-lever operatively connected with the type-form and fulcrumed on the machine, a second lever also fulcrumed on the machine, the free end of the first lever being pivotally connected to the second lever and at a point near the fulcrum thereof, and keys operatively connected to the levers, substantially as described.

13. In a type-writer or like machine, a type-form, an actuating-lever operatively connected therewith, keys all constructed to operate the said lever, and a movable frame controlled by the movements of the keys and provided with graduated stops in turn controlling the movement of the lever, substantially as described.

14. In a type-writer or like machine, a type-form, an actuating-lever operatively connected therewith, keys constructed to operate the said lever, a movable cradle provided with a plurality of series of graduated stops to control the movement of the lever, and an operative connection between the keys and the cradle to change the position of the cradle when a certain number of keys are operated simultaneously, substantially as described.

15. In a type-writer or like machine, a type-form, keys operatively connected therewith, a movable cradle provided with graduated stops and capable of longitudinal movement and means for releasing the levers whereby this longitudinal movement is accomplished, substantially as described.

16. In a type-writer or like machine, a type-form, keys operatively connected therewith, a rocking cradle provided with a plurality of series of graduated stops to control the movement of the keys, and an operative connection between the keys and the cradle to change the position of the cradle when a certain number of keys are operated simultaneously, substantially as described.

17. In a type-writer or like machine, a type-form, keys operatively connected therewith, a slidable spring-pressed cradle mounted to rock and provided with a plurality of series of graduated stops to control the movement of the keys, and an operative connection between the keys and the cradle to change the position of the cradle when a certain number of keys are operated simultaneously, substantially as described.

18. In a type-writer or like machine, a type-form, keys operatively connected therewith, a movable cradle provided with a plurality of series of graduated stops to control the movement of the keys, and a flexible connection located in the path of travel of the keys to be actuated thereby, and operatively connected to the cradle to change the position thereof when a certain number of keys are operated simultaneously, substantially as described.

19. In a type-writer or like machine, a type-form, an actuating-lever operatively connected therewith, a cord-pulley journaled on the lever and provided with a cam, keys for moving the lever, a rocking cradle having two series of graduated stops controlling the movement of the keys, a cord extending from the pulley across the paths of travel of the keys so as to be engaged thereby to rotate the pulley, and mechanism operated by the cam on the pulley, for changing the position of the cradle when a certain number of keys are operated simultaneously, substantially as described.

20. In a type-writer or like machine, a type-form, an actuating-lever operatively connected therewith, a series of movable trip-fingers secured to the said lever, a frame having a series of graduated stops adapted to be engaged by the trip-fingers, and keys arranged in operative relation to the lever and to the trip-fingers thereon to project the said fingers into engagement with the stops of the frame, substantially as described.

21. In a type-writer or like machine, a type-form, an actuating-lever operatively connected therewith, a series of movable trip-fingers secured to the said lever, a rocking cradle having two series of graduated stops, each series being adapted to be engaged by one end of the trip-fingers, keys arranged in operative relation to the lever and to the trip-fingers thereon to project the said fingers from the lever, and mechanism operated by the movement of the keys, for changing the position of the cradle when a certain number of keys are operated simultaneously, so as to bring either set of graduated stops into the path of travel of the projected trip-fingers, substantially as described.

22. In a type-writer, a type-wheel provided with a series of depressions corresponding in depth to the width of the characters, a paper-carriage and an actuated detent operating in the depressions of the type-wheel and controlling the carriage accordingly, substantially as described.

23. The combination with the type-wheel having a stepped surface, of a carriage, a spacing-lever arranged to engage the said stepped surface, and a pawl whose position is controlled by that of the spacing-lever, said pawl being arranged to engage the carriage, substantially as described.

24. The combination with the type-wheel having a stepped surface, of a carriage, a spacing-lever arranged to engage the said stepped surface, a movable frame carrying the said finger, a pawl carried by the said frame and adapted to engage the carriage, and another pawl also adapted to engage the carriage and whose position is controlled by that of the spacing-lever, substantially as described.

25. In a type-writer or like machine, a vertically-movable type-form provided with a plurality of series of characters, vertically-movable keys capable of moving the type-form horizontally and thereby producing the impression on the material to be written upon, and horizontally-movable keys operatively connected to the type-form capable of raising and lowering the same independent of its other operations, substantially as described.

26. In a type-writer or like machine, an automatic line-spacing mechanism comprising a cylinder mounted on the carriage and adapted for engagement with the material to be written upon, a lever mounted on the carriage and operatively connected to the cylinder to turn the same, a cam adjacent to the lever and capable of adjustment so as to limit the movements of the lever, and a stop secured to the machine and constructed to engage the said lever on the carriage to turn the said lever according to the adjustment of the cam, substantially as described.
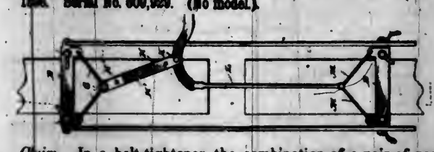
27. In a type-writer or like machine, an automatic line-spacing mechanism comprising a cylinder mounted on the carriage and adapted for engagement with the material to be written upon, a lever mounted on the carriage and operatively connected to the cylinder to turn the same, and a lever secured to the machine and having a fork at its free end, said end being extended into the path of travel of the lever on the carriage so that the fork will receive the lever on the carriage and operate the cylinder, substantially as described.

28. In a type-writer, the combination of a carriage, a feed-roller thereon, a lever operatively connected to the feed-roller and fulcrumed on the carriage, a disk rotatably mounted on the carriage and provided with peripheral notches and with an irregular cam, a pin rigid on the carriage and capable of locking with the notches of the disk, whereby the latter is held rigid, and a stop-lever rigid on the carriage, substantially as described.

29. In a type-writer, the combination with a casing, of a frame pivoted on a perpendicular axis and having a swinging end, a shaft revolubly mounted in said end and having a thread of steep pitch thereon, a type-form carried by the shaft, a nut operating on the threaded portion of the shaft and guided by the swinging frame, an operating-lever connected to the nut, and keys connected to the operating-lever, substantially as described.

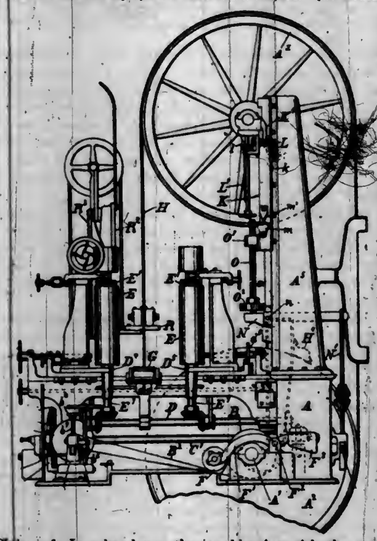
30. In a type-writer, the combination of a lever fulcrumed on the frame thereof, a second lever also fulcrumed on the frame, the free end of the first lever being pivotally connected to the second lever at a point near the fulcrum thereof, type mechanism operatively connected to the second lever, a key vertically movable on the two levers and having a bifurcated portion directly engaged with the first lever, a spring-trip carried by the second lever and operatively engaged with the key, and a graduated cradle controlling the operations of the keys by engagement with the trips, substantially as described.

590,208. BELT-TIGHTENER. WILLIAM L. CHIPLEY, La Monte, Mo., assignor of one-half to Joe R. Maupin, same place. Filed Oct. 24, 1896. Serial No. 609,929. (No model.)



Claim.—In a belt-tightener, the combination of a pair of parallel side rods slotted at one end, a clamp secured to one end of said rods, a second clamp having screw-threaded ends projecting through said slots, nuts on said rods to hold the clamp at any position in the slots, and means for drawing the clamps toward each other, substantially as set forth.

590,209. BAND-RESAWING-MACHINE. JOHN CONNELL, Rochester, N. Y. Filed July 9, 1895. Serial No. 555,431. (No model.)



Claim.—1. In a band-saw, the combination with the standard having the central guideway, and the guides at the sides, of the slide movable in the central guideway, the pulley-carrying frame pivoted to the slide, and loosely engaging the side guides, and the adjusting-screw connecting the slide and pulley-frame, whereby the slide is rigidly guided on the standard and the frame is held from forward movement on the standard, substantially as described.

2. In a band-saw, the combination with the standard having the guides, the slide thereon, the frame loosely engaging the guides and pivoted to the slide, and adjustable connections between the slide and frame, of the arbor, the pulley thereon, and bearings for said arbor adjustable on the frame to swing in a plane at right angles to the plane on which said frame swings on the slide, substantially as described.

3. In a band-saw, the combination with the standard, the slide movable thereon in rigid guides, the yoke-frame loosely engaging the guides and pivoted to the slide, and adjustable connections between the slide and yoke-frame, of the arbor and the pulley thereon, the bearings for the arbor, one pivoted to and the other sliding upon the yoke-frame, and adjusting devices between the yoke-frame and the bearing for the arbor for moving the arbor-bearing on its pivot, substantially as described.

4. In a band sawing-machine, the combination with the standard, the slide movable thereon in rigid guides, the yoke-frame loosely engaging the guides and pivoted to the slide, and the adjusting-screw between the yoke-frame and slide, of the arbor, the pulley thereon, the two bearings for the arbor, one pivoted to the yoke and the other sliding thereon and the adjusting-screw adjusting the sliding arbor-bearing relative to the yoke-frame, substantially as described.

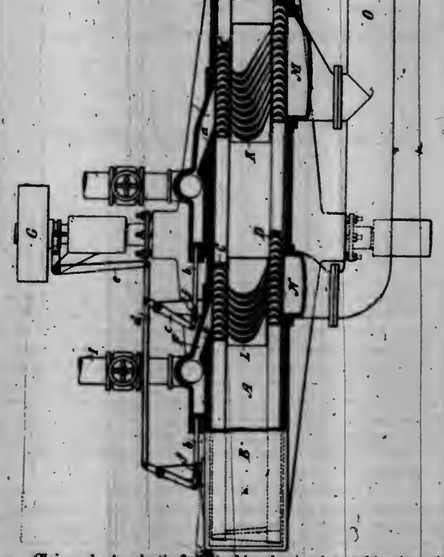
5. In a sawing-machine, the combination with the main frame, a work-support, feeding devices and a saw, of a back-guide roller beneath the work-support, an upwardly-projecting kerf-plate above said roller, a vertically-adjustable frame above the work-support and back of the saw, and a back-guide roller and a downwardly-projecting kerf-plate thereon, substantially as described.

6. In a sawing-machine, the combination with the main frame, a work-support, feeding devices and a saw, of an upwardly-projecting thin kerf-plate projecting upwardly in line with the saw, and an adjustable frame above the work-support having the downwardly-projecting kerf-plate in line with the saw, substantially as described.

7. In a sawing-machine, the combination with the feed devices, a shaft for operating them, the driven disk thereon having an operating edge, of a driving-belt pulley, a pulley and a driving-disk connected thereto and arranged with its face engaging the periphery of the driven disk, an adjustable frame carrying the driving-disk and its pulley, a belt connecting the driving-belt pulley and the pulley carrying the driving-disk, and a belt-tightener operating on said belt, substantially as described.

8. In a sawing-machine, the combination with the main frame, the vertical feed-rolls having the gears near their upper ends, and the universal joint connection at their lower ends, of the vertical driving-shaft arranged between the rolls, having the gear meshing with the gears on the feed-rolls, and the universal joint connection intermediate its driven portion and the gear, said connection being substantially in the plane of the universal connection at the lower end of the feed-rolls, substantially as described.

590,210. ELASTIC-FLUID TURBINE. CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Jan. 19, 1897. Serial No. 619,742. (No model.)



Claim.—1. An elastic-fluid turbine having in combination with the same wheel, two nozzles and two working passages through movable vanes, one nozzle and working passage being adapted to utilize the elastic fluid at a different ratio of expansion from the other nozzle and working passage, whereby the turbine may be used either as a condensing or non-condensing engine, substantially as set forth.

2. In an elastic-fluid turbine, the combination with a compound wheel (i. e., one having movable vanes upon which the fluid acts two or more times in succession), of two nozzles and two working passages including movable vanes, one nozzle and working passage adapted to utilize the elastic fluid at a different ratio of expansion from the other nozzle and working passage, substantially as set forth.

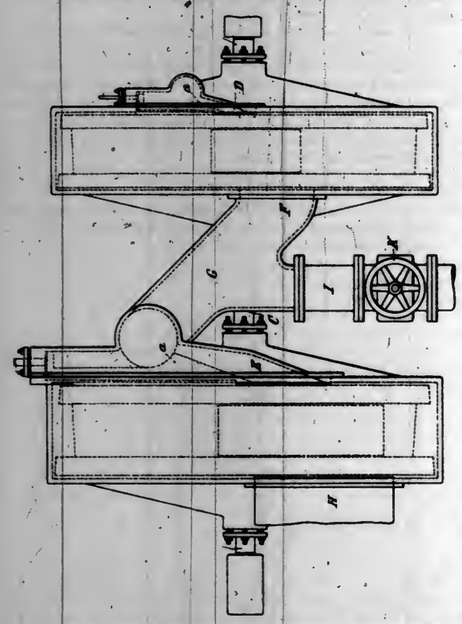
3. In an elastic-fluid turbine, the combination with a compound wheel having two sets of movable vanes, of two nozzles and two sta-

tionary intermediate passages, adapted to utilize the elastic fluid at different ratios of expansion, the difference in expansion of the intermediate passages being secured by expansion circumferentially, substantially as set forth.

4. In an elastic-fluid turbine, the combination with a wheel having movable vanes, of two nozzles and working passages, adapted to utilize the elastic fluid at different ratios of expansion, and means for varying the volume of fluid-jet in each working passage, without substantial change in its velocity, substantially as set forth.

5. In an elastic-fluid turbine, the combination with a wheel having two sets of movable vanes, of two adjustable expansion-nozzles and two adjustable intermediate stationary passages, one nozzle and intermediate passage adapted to utilize the fluid at a different ratio of expansion from the other nozzle and intermediate passage, substantially as set forth.

590,211. **ELASTIC-FLUID TURBINE.** CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Jan. 19, 1897. Serial No. 619,743. (No model.)



Claim.—1. An elastic-fluid turbine adapted to operate either as a condensing or a non-condensing engine, and having in combination a portion constructed to convert into *vis vive* the pressure of the elastic fluid from the initial pressure down to about atmospheric pressure, and to transform such *vis vive* into mechanical power; a second portion constructed to convert into *vis vive* the pressure of the elastic fluid from about atmospheric pressure to the pressure of a vacuum-exhaust, and to transform such *vis vive* into mechanical power; a conduit connecting the two portions in succession; and means for connecting said intermediate conduit with an atmospheric exhaust, substantially as set forth.

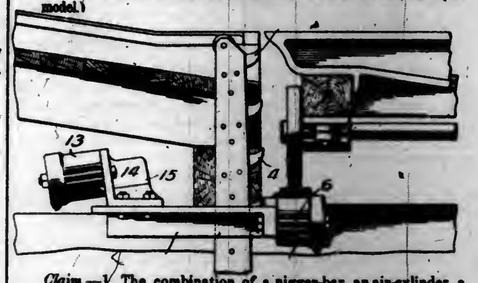
2. In an elastic-fluid turbine adapted to operate either as a condensing or a non-condensing engine, the combination of two portions connected in succession, one constructed to work between the initial pressure and atmospheric pressure, and the other constructed to work between atmospheric pressure and the pressure of a vacuum-exhaust, such portions being provided with delivery-nozzles having means for producing variations in the volume of the elastic fluid unaccompanied by substantial variations in its velocity, and a connectible atmospheric exhaust located between the two portions, substantially as set forth.

590,212. **COOKING UTENSIL.** MINNIE DARROW, Belleville, Ill. Filed Apr. 24, 1897. Serial No. 633,637. (No model.)



Claim.—In a cooking utensil, the combination of an outer vessel, an inner vessel having a foraminate portion and slots in the opposite sides thereof, and a supplemental semicircular vessel removably mounted in the inner vessel and having its angular edges engaging the slots thereof, substantially as and for the purposes specified.

590,213. **AIR-CUSHION FOR NIGGER-BARS.** WILLIAM R. DEAN, West Duluth, Minn. Filed Oct. 23, 1896. Serial No. 609,846. (No model.)



Claim.—1. The combination, of a nigger-bar, an air-cylinder, a piston arranged within the same in position to be encountered by said bar near the limit of its stroke, and said piston being provided with a longitudinally-yielding stem, for the purpose set forth.

2. The combination, of a nigger-bar, an air-cylinder, the piston arranged within the same, piston-stem, the yielding block between the end of said stem and said piston, and the outer end of said stem being in position to be encountered by said bar at or near the limit of its stroke, for the purpose set forth.

3. The combination, of a nigger-bar, an air-cylinder arranged near the limit of the movement of said bar, a piston, a spring arranged within said cylinder beneath said piston, the stem loosely pivoted to the outer end of said piston, the yielding block arranged between the end of said stem and said piston, and guides for said bar, for the purpose set forth.

4. The combination, of a floor-plate, the longitudinal slot therein, the nigger-bar arranged to move back and forth in said slot, the air-cushion secured to said floor-plate near the limit of the stroke of said bar, said air-cushion comprising a cylinder, the piston within the same, the arms loosely pivoted to said piston and extending into the path of said bar, and the stationary stops carried by said floor-plate in position to be engaged by the edges of said bar, for the purpose set forth.

5. The combination, of a nigger-bar, the inclined cylinder arranged in the path of the same, the piston arranged within said cylinder, a sliding block, a link loosely connecting said block and said piston, the yielding means arranged at the opposite end of said link, the spring within said cylinder beneath said piston, and said sliding block being in position to be encountered by said nigger-bar near the limit of its stroke, for the purpose set forth.

6. The combination, of a slotted floor-plate, a nigger-bar, an air-cylinder adjustably secured to said slotted plate, the piston arranged within said cylinder, a valve, the sliding block arranged in the path of said bar, pivotal connections between said block and said piston, and yielding means at either end of said connection, for the purpose set forth.

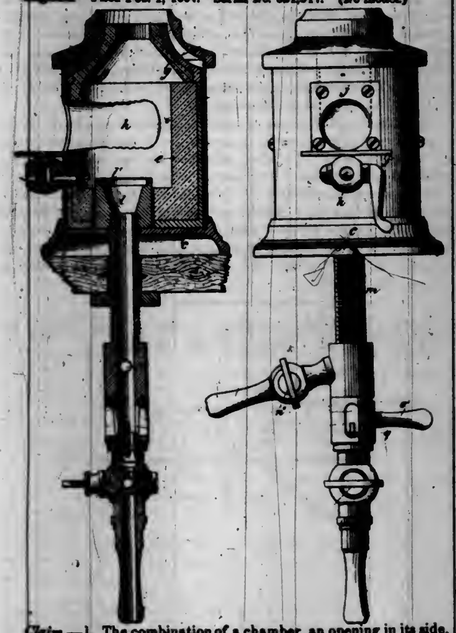
7. The combination, of a nigger-bar, an air-cylinder, the piston arranged within the same, the spring beneath said piston for holding the same near the open end of said cylinder, a valve for permitting the escape of air from said cylinder, means for closing said valve, the piston-stem arranged in the path of said bar, and a yielding connection between said stem and said piston, for the purpose set forth.

8. The combination, of a nigger-bar, the air-cylinder arranged in front of the same, the piston within said cylinder, the arms pivoted to said piston and extending into the path of the bar, the stops for limiting the movement of said bar, the spring within said cylinder for normally holding said piston near the open end thereof, a second air-cylinder arranged behind said nigger-bar, the piston within the same, the sliding block arranged to be encountered by said bar, a loosely-pivoted link connecting said block and said piston, and a spring within said cylinder beneath said piston for normally holding the same near the open end of said cylinder, for the purpose set forth.

9. In a device of the class described, the combination, with the nigger-bar, of a cylinder, the piston, the spring beneath the same, the piston-stem projecting into the path of said bar, and pivotal connections between said piston and said stem, for the purpose set forth.

10. In a device of the class described, the combination, with the reciprocating nigger-bar, of the cylinder and its piston, the arms loosely connected to said piston, and projecting into the path of said bar, and the inner end of said arms being beveled, for the purpose set forth.

590,214. **DENTAL FURNACE.** WILLIAM DALL, Glasgow, Scotland, assignor to the Dental Manufacturing Company, Limited, London, England. Filed Feb. 1, 1897. Serial No. 621,517. (No model.)



Claim.—1. The combination of a chamber, an opening in its side, a muffle projecting through the opening, a flange around the outside of the mouth of the muffle, and a plate holding the flange against the outside of the chamber.

2. The combination of a chamber, an opening in its side, a muffle projecting through the opening, a flange around the outside of the mouth of the muffle, a plate holding the flange against the outside of the chamber, and pins fixed to the rear of the muffle and entering the side of the chamber.

3. The combination of a casing, a lining of fire-clay, a slot in the casing and fire-clay, a muffle whose mouth fits the slot, a cover, a fire-clay lining to the cover, downward projections of the cover and fire-clay filling the slot above the muffle and a burner beneath the muffle.

4. The combination of a furnace, a burner in the furnace, a gas-supply pipe leading to the burner, an air-opening in the pipe, means for closing the opening, an air-blast pipe opening into the pipe between the air-openings and the burner, and means for shutting off the blast.

5. The combination of a chamber, a muffle projecting into it, a burner beneath the muffle, a pipe leading to the burner, openings admitting air into the pipe, means for closing them, an air-blast pipe opening into the pipe between the air-openings and the burner, means for shutting off the blast, and means for supplying gas to the pipe.

6. The combination of a chamber, a muffle projecting into it, a space round the sides and rear of the muffle, a burner beneath the muffle, a pipe leading to the burner, openings admitting air into the pipe, means for closing them, an air-blast pipe opening into the pipe between the air-openings and the burner, means for shutting off the blast, and means for supplying gas to the pipe.

7. The combination of a chamber, a muffle projecting into it, a space round the sides and rear of the muffle supports for the rear of the muffle, a burner beneath the muffle, a pipe leading to the burner, openings admitting air into the pipe, means for closing them, an air-blast pipe opening into the pipe between the openings and the burner, means for shutting off the blast and means for supplying gas to the pipe.

8. The combination of a casing, a lining of fire-clay, a slot in the casing and fire-clay, a muffle whose mouth fits the slot, a cover, a fire-clay lining to the cover, downward projections of the cover and fire-clay filling the slot above the muffle, a burner beneath the muffle, a pipe leading to the burner, an air-blast pipe connected to the pipe, means for cutting it off, openings admitting air into the pipe, means for closing them and means for supplying gas to the pipe.

9. The combination of a chamber, a muffle projecting into it, a burner beneath the muffle, a pipe leading to the burner, an air-blast pipe connected to the pipe, means for shutting off the blast openings admitting air into the first pipe, means for closing them and a three-way cock constructed and arranged to admit either a full supply or a partial supply of gas to the pipe or cut off the supply.

10. The combination of a chamber, a muffle projecting into it, a space round the sides and rear of the muffle, a burner beneath the muffle, a pipe leading to the burner, an air-blast pipe connected to the pipe, means for shutting off the blast, openings admitting air into the pipe, means for closing them and a three-way cock constructed and arranged to admit either a fully supply or a partial supply of gas to the pipe or cut off the supply.

11. The combination of a chamber, a muffle projecting into it, a space round the sides and rear of the muffle, supports for the rear of the muffle, a burner beneath the muffle, a pipe leading to the burner, an air-blast pipe connected to the pipe, means for shutting off the blast, openings admitting air into the pipe, means for closing them and a three-way cock constructed and arranged to admit either a full supply or a partial supply of gas to the pipe or cut off the supply.

12. The combination of a casing, a lining of fire-clay, a slot in the casing and fire-clay, a muffle whose mouth fits the slot, a cover, a fire-clay lining to the cover, downward projections of the cover and fire-clay filling the slot above the muffle, a burner beneath the muffle, a pipe leading to the burner, an air-blast pipe connected to the pipe, means for shutting off the blast, openings admitting air into the pipe, means for closing them and a three-way cock constructed and arranged to admit either a full supply or a partial supply of gas to the pipe or cut off the supply.

13. The combination of a chamber, a muffle projecting into it, a burner beneath the muffle, a gas-pipe leading to the burner, a three-way cock interposed in the main passage of said pipe, and a supplementary side passage communicating with the cock and with the pipe between the burner and the cock.

590,215. **SQUARE.** SYDNEY G. EDWARDS, Sheffield, England. Filed Nov. 10, 1896. Serial No. 611,632. (No model.) Patented in England Mar. 9, 1896, No. 5,338.

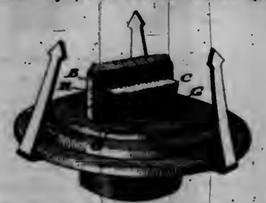


Claim.—1. In combination with the square slotted in one of its parts or members, the bearing-head extending through said slot having tongues or projections clamped over to hold the strip in place, substantially as described.

2. In combination with a square, slotted in one of its parts or members, the bearing-head passed half-way through the slot, and means for holding said bearing-head against displacement in the slot, substantially as described.

3. In combination with a square slotted in one of its parts or members, the bearing-head inserted in said slot, turned over tongues or projections on said head, and rivets securing said projections to the square, substantially as described.

590,216. **LAMP-EXTINGUISHER.** MANFRED FISCHBADER, Philadelphia, Pa. Filed May 4, 1897. Serial No. 635,013. (No model.)

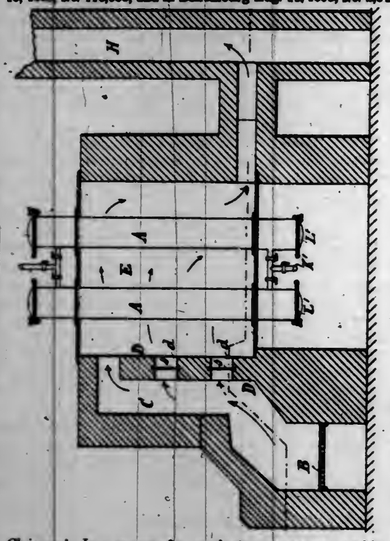


Claim.—1. A lamp-extinguisher consisting of a lamp-burner having an opening in the base thereof, a wick-tube having a slot in the side thereof and a deflected plate having a limb passing into said slot

and provided with a flange back of said slot and a limb axially held in said opening in the base.

2. A lamp-extinguisher consisting of a base with a tube thereon and provided with an opening adjacent to said base, a bent plate having a limb in a slot in the side of said tube and another limb in said opening in the base and provided with a flange or deflected end within said tube.

590,217. PROCESS OF MAKING CYANIDS. ADOLPH FRANK, Charlottenburg, and NIKODEM CARO, Berlin, Germany. Filed Nov. 5, 1895. Serial No. 568,063. (No specimens.) Patented in Belgium Aug. 10, 1895, No. 116,953, and in Luxemburg Aug. 11, 1895, No. 2,346.

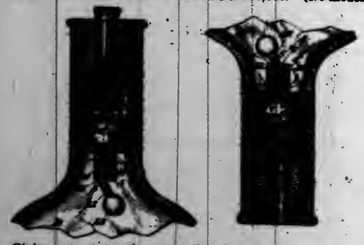


Claim.—1. In a process for producing cyanogen combinations, subjecting a described carbid of a suitable metal as a metal of the alkalies, to the action of heat and nitrogen in the presence of steam.

2. In a process for producing cyanogen combinations, subjecting a described carbid of a suitable metal, as a metal of the alkalies, to the action of heat and of nitrogen, in the presence of steam and of a described combination of a metal belonging to the series of metals of the alkalies and of the alkaline earths.

3. In a process for producing cyanogen combinations, subjecting a described carbid of a suitable metal, as a metal of the alkalies, to the action of heat and nitrogen in the presence of steam and of a ferriferous substance, substantially as described.

590,218. NON-REFILLABLE BOTTLE. WILLIAM E. GASTON, West Winsted, Conn., assignor of one-half to Fred K. Phillips, same place. Filed June 5, 1897. Serial No. 639,500. (No model.)



Claim.—1. A bottle comprehending a valve-seat; a valve; and a weighted valve-stem disposed in different planes and provided with valve-locking means for engaging a fixed part in the bottle.

2. A bottle comprehending a valve-seat; a valve; and a weighted valve-stem disposed in different planes and having a valve-locking shoulder for engaging a fixed part in the bottle.

3. A bottle comprehending a valve-seat; a valve; a weighted valve-stem disposed in different planes and constructed in two sizes, respectively, to form a valve-locking shoulder for engaging a fixed part in the bottle.

4. A bottle comprehending a valve-seat; an elastic valve; and a weighted valve-stem disposed in two different planes and provided with valve-locking means for engaging a fixed part in the bottle.

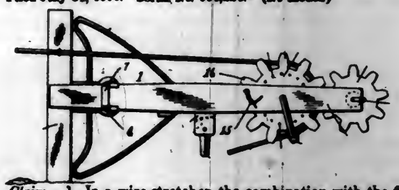
5. The combination of a bottle having a neck; a shell located in the neck and provided with a valve-seat; a valve situated in the shell; and a weighted valve-stem disposed in different planes and provided with valve-locking means for engaging the shell.

6. A bottle having a neck; a frusto-conical valve-shell furnished with a valve-seat and having at its inner end an opening whereby there is formed a flange; an elastic valve situated in the shell; and a weighted valve-stem disposed in two different planes and furnished with valve-locking means for engaging the flange.

7. A bottle of the class specified comprehending a neck; a frusto-conical casing or shell situated in the neck and having an annular flange at the inner end thereof; a semispherical valve in said shell or casing; a stem secured to said valve and disposed in two planes, one portion of the stem being of larger diameter than the other and having a weight; a keeper for the valve; and a bored plug situated in the neck and closed at its inner end.

8. A bottle of the class specified comprehending a neck having an annular shoulder therein; a recessed disk seated in the neck against said shoulder; a shell or casing having a valve seated therein and fitted in the recess of said disk, said shell having a valve-seat; a valve disposed in said shell, the stem of the valve being disposed in two planes and having a weight secured thereto; a keeper for the valve, having ports and also provided with a projection extending ontward therefrom; and a plug permanently sealed in the end of the neck and closed at its inner end, said closed end of the plug abutting against said projection.

590,219. WIRE-STRETCHER. SAMUEL A. GRUBB, Elmwood, Ill. Filed July 31, 1896. Serial No. 601,226. (No model.)

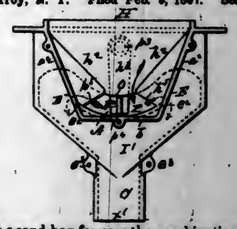


Claim.—1. In a wire-stretcher, the combination with the frame thereof and means for clamping the same to a fence-post, of a pair of clamping-wheels mounted to rotate in said frame and means for throwing said wheels out of gear with each other.

2. In a wire-stretcher, the combination with the frame thereof and means for clamping the said frame to a fence-post, of a pair of clamping gear-wheels mounted to rotate in said frame one of said wheels being provided with forked teeth and the other adapted to mesh therewith having its shaft pivotally mounted in said frame, whereby said wheels may be thrown into and out of gear with each other.

3. In a wire-stretcher, the combination with the frame thereof made up of a beam having bifurcated outer ends, and a clamp for securing said beam to the fence-post, of a pair of clamping gear-wheels mounted to rotate between the bifurcated ends of said beam, one of said wheels having forked teeth with milled or roughened outer edges and a series of notches or perforations in one side thereof adapted to be engaged by a pawl pivoted to said beam; and the other of said wheels having its shaft pivoted to one of the ends of said beam and adapted to be locked to the other end of said beam when the parts are in operative position, substantially as and for the purpose described.

590,220. SAND-BOX FOR CAR-TRACKS. ALBERT W. HAM, Lansingburg, N. Y., assignor to the Trojan Button Fastener Company, Incorporated, Troy, N. Y. Filed Feb. 9, 1897. Serial No. 622,596. (No model.)



Claim.—1. In a sand-box for cars the combination with a hopper having a downwardly and inwardly contracted area in part of its interior, opening out at its rear side into the interior of the hopper proper, of a paddle-chamber provided with a concave bottom, and arranged immediately beneath said contracted area to connect therewith at the bottom of the latter; a sand-distributing chamber arranged at the front of the hopper, and made to connect with said paddle-chamber over the upturned edges of the latter; a rock-shaft journaled in the sand-box near its top; a paddle attached to, and depending from said rock-shaft to be within said paddle-chamber, whereby as said rock-shaft is reciprocatingly rotated, said paddle will be vibratingly moved in said paddle-chamber, and by its movement carry sand over the upturned edges of the paddle-chamber bottom into the sand-distributing chamber to descend through the spout to the track substantially as shown and described.

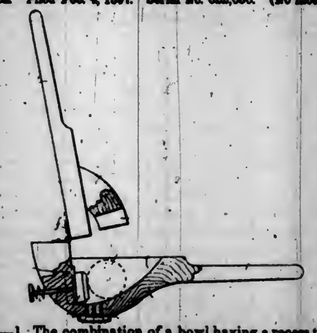
2. In a sand-box, the combination with a hopper, of a sand-delivery chamber arranged at the side of the hopper; a paddle-chamber arranged beneath the hopper, and provided with a concave bottom; a rock-shaft journaled in the top of the box; a paddle depending from said rock-shaft within said paddle-chamber, whereby as said shaft is reciprocatingly rotated said paddle will be vibrated in the paddle-chamber, and alternatingly carry a measure of sand over the upturned edges of the paddle-chamber bottom to enter the distributing-chamber and therefrom to descend by the spout to the car-track substantially as shown and described.

3. In a sand-box the combination with a hopper, of a sand-distributing chamber arranged at the side of the hopper, and provided with a spout at its lower end; a paddle-chamber constructed to receive sand from the hopper, and having a concave bottom; said paddle-chamber connecting with the sand-distributing chamber over the upturned edges of said paddle-chamber bottom; a rock-shaft journaled in the top of the sand-box; a paddle depending from said rock-shaft within said paddle-chamber whereby as said rock-shaft is reciprocatingly rotated said paddle will be vibrated, and alternatingly carry a measure of sand over each of the upturned ends of the paddle-chamber bottom to enter the distributing-chamber, and therefrom descend through the spout of the latter to the car-track substantially as shown and described.

4. The combination with the hopper H, having the interior areas A^3, and A^4, of the paddle-chamber A, having the concave bottom P, and the top opening O; the sand-distributing chamber D, arranged in front of the hopper, and provided with the spout C, and constructed to connect with the paddle-chamber over the upturned edges of the paddle-chamber bottom, and the paddle P^3, provided with means to be vibrated in said paddle-chamber, substantially as described.

5. The combination with the hopper H, having the interior areas A^3, and A^4, of the paddle-chamber A, having the concave bottom P, and top opening O; the sand-distributing chamber D, provided with the spout C, and connecting with the paddle-chamber over the upturned edges of the latter: the rock-shaft S; and the paddle P^3, provided with the agitator L, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

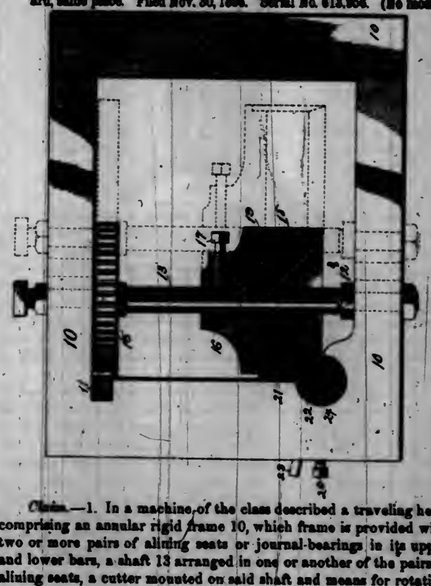
590,221. LEMON-SQUEEZER. WILLIAM J. HEATH, Kingston, Jamaica. Filed Feb. 4, 1897. Serial No. 622,030. (No model.)



Claim.—1. The combination of a bowl having a recess therein of segmental contour, and a series of apertures leading therefrom for discharging the juice of fruit, a stationary knife located within the said recess, a spring-actuated slotted plate in the rear of said knife, and a block hinged to the said bowl having a grooved plunger thereon for squeezing the fruit, said block and said bowl being supplied respectively with handles for operating the device, said handles having reduced outer portions, substantially as shown and described.

2. As a fruit-squeezer, the combination of a bowl having a recess therein, of a segmental contour, the said bowl having a series of perforations leading through the bottom thereof and communicating with the said aperture, and a removable screen depending from the bottom of the bowl under the perforations, and a stationary knife located within the said recess, and a spring-actuated plate for removing pulp, and a block hinged to the said bowl having a plunger thereon for squeezing the fruit, said block and bowl being supplied respectively with handles for operating the device, substantially as shown and described.

590,222. WOOD-TURNING LATHE. ARGUST HENDRON, Cedar Falls, Iowa, assignor to himself, John W. Philpot, and Jeffrey G. Packard, same place. Filed Nov. 30, 1896. Serial No. 613,954. (No model.)



Claim.—1. In a machine of the class described a traveling head comprising an annular rigid frame 10, which frame is provided with two or more pairs of alining seats or journal-bearings in its upper and lower bars, a shaft 13 arranged in one or another of the pairs of alining seats, a cutter mounted on said shaft and means for rotating said shaft.

2. In a machine of the class described a fixed rack, a rigid annular frame or head 10 provided with a bearing opening to its interior to receive and slidingly engage said rack, the teeth of the rack facing to the interior of the frame, a head 21 mounted rigidly in said frame 10, a tube 22 rigidly connected with the head 21 and extended to the rear of the frame 10, which head and tube are axially bored to receive a revolving stick to be operated upon, a roughing-knife 23 mounted at the initial end of the bore of the head to reduce the stick before its entrance thereto, a plurality of seats in the top bar of the frame 10, a plurality of seats in the bottom bar of the frame 10 the axes of the latter seats alining with the axes of the former seats, a shaft 13 mounted for rotation in one or the other of the upper seats in the frame, a step 12 mounted in one or the other of the lower seats of the frame and provided with a concave upper end to receive a convex lower end of the shaft 13 for rotation therein, a gear 15 rigidly connected with the shaft 13 and meshing with the rack 11, a hub 16 adjustably mounted upon the shaft 13 and shoulders in its periphery, an annular cutter 18 diametrically divided and mounted on the hub 16 beneath the shoulders thereof, the lower margin of the cutter 18 forming a continuous cutting edge extended to and intersecting the bore of the head 21 and tube 22.

590,223. ACETYLENE-GAS BURNER. LEONARD HEWITT, Rochester, N. Y., assignor to Henry E. Sheffer, same place. Filed July 2, 1897. Serial No. 643,230. (No model.)

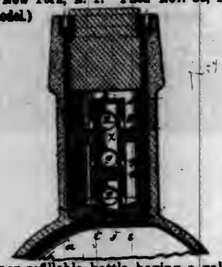


Claim.—1. The herein-described burner for acetylene gas, comprising a tube having a closed top, and an intermediate inclined wall provided with a series of jets projecting outward therefrom containing gas-passages opening at their points and adapted to project streams of gas outward at angles with the vertical, substantially as described.

2. The combination with the tube of an acetylene-gas burner, of a detachable cap, comprising a cylindrical portion fitting the open end of the tube, a closed top and an intermediate inclined wall having a series of jets projecting therefrom at an angle with the vertical

and having gas-passages at their points adapted to project streams of gas outward and upward, substantially as described.

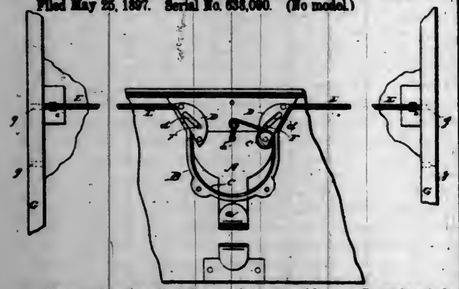
590,224. BOTTLE. FERDINAND CHRISTOPH VON HEYDEBRAND UND DER LASA, New York, N. Y. Filed Nov. 20, 1896. Serial No. 612,890. (No model.)



Claim.—1. A non-refillable bottle having a valve-section constructed of a single piece which is secured within the neck of the bottle, said section comprising an inner cylinder having a central chamber closed at top and bottom thereof and with lateral openings therein on different levels, partitions on different levels, said partitions extending outwardly from said inner cylinder and one of said partitions being located between the openings on different levels in the central chamber, a swinging weighted valve carried within the inner cylinder below the bottom of the central chamber, substantially as described.

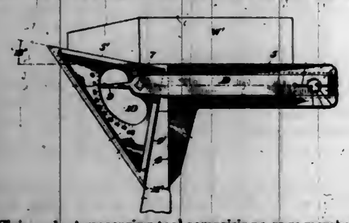
2. A non-refillable bottle having a valve-section constructed of a single piece, said section comprising an outer cylindrical body, an inner cylinder having a central chamber closed at top and bottom thereof and with lateral openings therein on different levels, partitions extending outwardly from said inner cylinder, one of said partitions extending between the openings on different levels in the central chamber, a swinging valve carried within the inner cylinder below the bottom of the central chamber, lateral openings in said inner cylinder between the lowermost partition and the bottom of the central chamber and means for securing the valve-section in place in the bottle-neck, substantially as described.

590,225. SASH-FASTENER. WILLIAM R. HILL, Bureka, S. D. Filed May 25, 1897. Serial No. 638,060. (No model.)



Claim.—The handled finger-plate A, guide-case B, spring C diagonally-slotted plates D D working on pivots F, and horizontal rods E, all combined and arranged on the sash substantially as shown, to move the said rods in or out of the holes *g* in the side pieces of the window as and for the purpose set forth.

590,226. BEVEL-PROTRACTOR. RICHARD T. HUNTINGTON, Hartford, Conn. Filed July 27, 1896. Serial No. 600,581. (No model.)



Claim.—1. A measuring-tool comprising a gage member or stock having a slideway formed in one face thereof and also having two rectangularly-disposed plane gage-faces, one of which is in parallelism with and extends the length of the slideway and the other of which intersects said slideway; a slide supported in the slideway; and a protractor pivotally carried by said slide and having two angularly-disposed conjugate gage-faces, one of which is settable in alinement with, or at the desired angle relatively to, the longitudinal gage-face of the stock, and the other of which is simultaneously settable in parallelism with, or at a corresponding angle relatively to, the other gage-face of the stock.

2. In a measuring-tool, in combination, a stock having a longitudinal gage-face extending throughout its length and a transverse gage-face and having a slideway formed in one side face thereof, with its longitudinal axis in parallelism with the longitudinal gage-face of the stock; a protractor-carrying slide supported in the slideway, with its side face flush with the side face of the stock; a protractor pivotally carried at the outer end of said slide and having two angularly-disposed conjugate gage-faces, one of which is located at a distance from the pivot of said protractor equal to the distance at which the longitudinal gage-face of the stock is located from the axis of the slideway, and one gage-face of the protractor being settable in alinement with, or at the desired angle relatively to, the longitudinal gage-face of the stock, and the other gage-face of said protractor being simultaneously settable in parallelism with, or at a corresponding angle relatively to, the other gage-face of the stock.

3. The combination, in a measuring-tool, of a gage member or stock having two relatively rectangular plane gage-faces the upper face extending the length of the stock; a slide adjustably mounted on said stock, with its outside face flush with the outside face of said stock; a protractor pivotally carried on the slide, with opposite side faces thereof flush with opposite side faces of said stock, respectively, and having two rectangularly-disposed conjugate gage-faces located in coöperative relation with the two gage-faces of said stock.

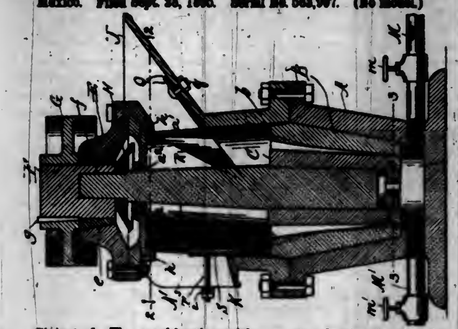
4. The combination, in a measuring-tool, with a gage member or stock having an upper plane surface extending throughout its length and constituting a gage-face and also having a projecting arm formed on its inner side and constituting a second gage-face located at right angles to the first gage-face; of a protractor pivotally connected to said stock, with its side faces in a plane coinciding with the plane of the side faces of said stock, and said protractor being provided with two relatively rectangular gage-faces in coöperative relation with the gage-faces of the stock.

5. A measuring-tool comprising a gage member or stock having a slideway formed in one face and extending from end to end thereof and also having two rectangularly-disposed plane gage-faces, one of which extends from end to end of the stock in parallelism with the slideway, and the other of which intersects said slideway; a slide supported in the slideway; a protractor pivotally carried by said slide and having two angularly-disposed conjugate gage-faces, one of which is settable in alinement with, or at a desired angle relatively to, the longitudinal gage-faces of the stock, and the other of which is simultaneously settable in parallelism with, or at a corresponding angle relatively to, the other gage-face of the stock; and means carried by the slide, for clamping the same against longitudinal movement with respect to the stock.

6. In a measuring-tool, in combination, a stock having a longitudinal slideway extending from end to end thereof and also having two conjugate gage-faces, one of which extends from end to end of the stock in parallelism with the slideway, and one of which intersects said slideway; a slide adjustably supported in said slideway, with its side face flush with the faces of the stock and having one end thereof slitted longitudinally and transversely recessed to form resilient arms; a clamping-cam seated in said recess and adapted on rotation to spread the resilient arms, to thereby hold the slide against longitudinal movement in the slideway, said cam having its face at all times flush with the outer face of the slide; and a protractor pivotally carried at the opposite end of said slide and having two rectangularly-disposed conjugate gage-faces, one of which is settable in alinement with, or at a desired angle relatively to, the longitudinal gage-face of the stock, and the other of which is simultaneously settable in parallelism with, or at a corresponding angle relatively to, the other gage-face of the stock.

7. In a measuring-tool, the combination, with a gage member of a stock, having a longitudinal dovetailed slideway in one face thereof, of a slide supported in said slideway, with its outer face flush with the face of the stock and having one end thereof slitted longitudinally and conically bored to form resilient walls having a cam-seat between said walls, whose inner end is of greater diameter than the outer end; a conical cam rotatably supported in said seat, with its small end flush with the outer face of the slide, whereby said cam is held in place, and whereby on a rotatable movement of said cam the resilient arms of the slide will be spread to engage and prevent a longitudinal movement of the slide; and a protractor pivotally carried at the outer end of said slide.

590,227. QUARTZ-PULVERIZER. WILLARD S. IRISH, Mexico, Mexico. Filed Sept. 28, 1895. Serial No. 563,997. (No model.)

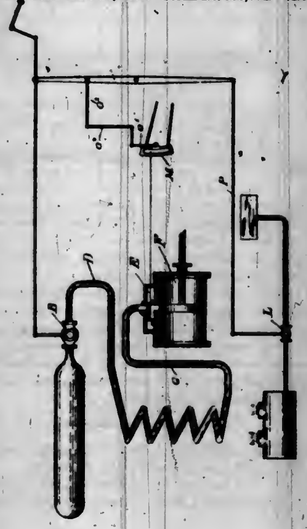


Claim.—1. The combination with a mortar having its chamber of decreasing diameter from top to bottom, its inner walls being vertically convexed and having their upper portions vertically ribbed, of a passage entering through its bottom, a duct leading to such passage, a grinding-head fitting loosely within the bottom of the mortar-chamber, a stem projecting upwardly from the head, a vertical shaft journaled above the mortar and in central alinement therewith, the stem being eccentrically journaled in the end of the shaft, and ore-service and discharge ways communicating with the mortar above the grinding-chamber, substantially as described and for the purpose specified.

2. The combination with the case A, A' of the lining B for the lower portion of the case and having its inner walls vertically convexed and vertically ribbed or fluted through their upper portions, a grinding-head C for coöperating with the inner surface of the lining B, a stem D projecting upwardly from the head, a vertical shaft F, in line with the center of the case, the stem D being set in an eccentric-socket in the end of the shaft F, a water-tube entering the bottom of the casing, a feed-hopper discharging into the upper portion of the case and a discharge-aperture in the wall of the case above the lining B, substantially as described and for the purpose specified.

3. In a quartz-mill the combination with a flaring mortar having a central aperture in its bottom and radiating recesses extending from such aperture toward the side walls of the mortar, of a grinding-head of approximately the same diameter as the bottom of the mortar and having a projection from its end to enter the aperture therein and lugs or ribs radiating from such projection and adapted to the radiating recesses, means for imparting a gyratory motion to the grinding-head, and a fluid-service pipe leading to the aperture in the bottom of the mortar.

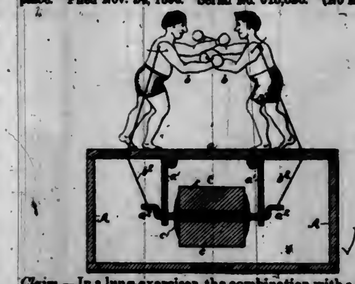
590,228. FLUID-PRESSURE MOTOR. WALTER H. KNIGHT, New Brighton, N. Y., assignor to the Compressed Air Power Company, New York, N. Y. Filed June 24, 1896. Serial No. 596,771. (No model.)



Claim.—1. The combination of a motor, suitable valve-controlling devices for the motor, a fluid-reservoir, a heater communicating with the reservoir and with the motor, a throttle-valve, a burner for the heater, and a hand-operated device for simultaneously controlling the valve-controlling devices, the throttle-valve and supply of fuel to the burner of the heater, substantially as set forth.

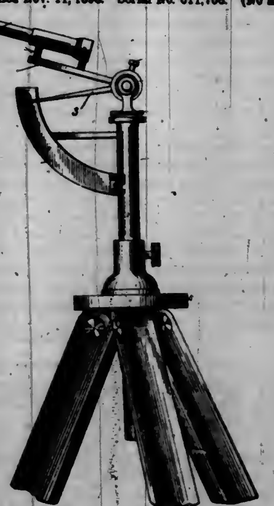
2. The combination of a motor having suitable valve-controlling devices, a compressed-air reservoir having a throttle-valve, a heating-coil communicating with the reservoir and the motor, a burner supported beneath the heating-coil, a fuel-reservoir, a pipe leading from the reservoir to the burner, a valve in said pipe, and a controlling-handle suitably connected with the motor-valve-controlling devices, the throttle and the fuel-valve, substantially as set forth.

590,229. TOY LUNG-TESTER. FREDERICK G. KOLLENBORN, Owensborough, Ky., assignor of one-half to James J. Sweeney, same place. Filed Nov. 24, 1896. Serial No. 613,390. (No model.)



Claim.—In a lung-exerciser, the combination with a closed casing having air-outlet perforations, of a mouthpiece for blowing air into said casing, a cover for said casing, pendent spaced brackets mounted on said cover, a shaft journaled in said brackets and having crank-bends at each end, a wind-wheel mounted on said shaft and adapted to be operated by the currents of air passing into the casing through the mouthpiece, a plurality of jointed figures mounted upon the top of the cover, and flexible cords connecting the respective crank-bends with the moving portions of said figures, whereby they are operated simultaneously upon the movement of the wind-wheel, substantially as described.

590,280. MEASURING INSTRUMENT. JAMES LA GRANGE, McGill, W. Va. Filed Nov. 11, 1896. Serial No. 611,768. (No model.)



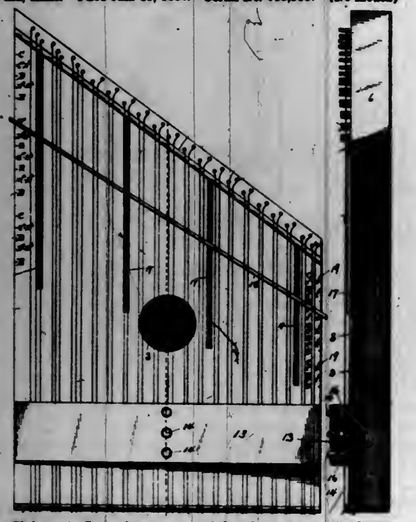
Claim.—1. In a measuring instrument, the combination with a vertically-adjustable standard, of a pivoted plate carried thereby, a pointer and a base-plate extending from the pivoted plate upon the same side of the standard at an angle with respect to each other, a telescope carried by the base-plate, a straight-edge, or site, extending from the pivoted plate and located in axial alinement with the telescope and a graded sector rigidly secured to the vertically-adjustable standard, and designed to be traversed by the pointer.

2. A measuring instrument comprising a standard, a plate pivoted upon said standard, a straight-edge carried by said plate, a base-plate carried by said pivoted plate, a telescope upon said base-plate in line with the straight-edge, a pointer upon said pivoted plate, and a scale along which the pointer is adapted to travel, substantially as described.

590,231. PYROTECHNIC COMPOUND. ERNST LEUMANN, Hanover, Germany. Filed Nov. 14, 1896. Serial No. 612,141. (No specimens.)

Claim.—A compound for Bengal lights, consisting of an alcoholic solution of shellac, a nitrate of a metal of the alkaline earths, pulverized aluminium, sulfur, an alkali chlorate, as chlorate of potash, and a binding agent, in or about in the proportions set forth.

590,232. MUSICAL INSTRUMENT. ROBERT G. MILLER, McDonald, Kans. Filed Jan. 15, 1897. Serial No. 619,335. (No model.)



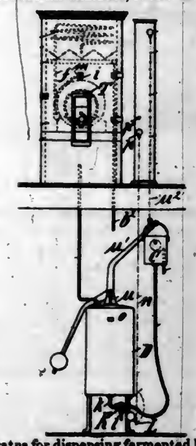
Claim.—1. In an instrument of the character set forth, the combination with the frame or sounding-board, having a series of strings strung longitudinally thereof, of a plurality of bars or strips on the upper surface of said frame located beneath said strings and a key-setting bar adapted to be shifted longitudinally of the instrument, bearing against the upper surface of said bars or strips and engaging the under surface of said strings, substantially as and for the purpose described.

2. In an instrument of the character set forth, the combination with the frame or sounding-board having a series of strings strung longitudinally thereof and provided with a series of graduations indicating different keys located at the sides of said instrument, of a plurality of bars or strips secured to the upper surface of said instrument and located beneath said strings and a flat, key-setting bar adapted to be shifted longitudinally of the instrument and to be brought opposite the graduations on the upper surface thereof, the said bar bearing against the upper surface of said strips and engaging the under surface of said strings, substantially as and for the purpose described.

590,233. HYDRAULIC PUMP FOR LIQUID-DISPENSERS. ADOLF MOLDENHAUER, Munich, Germany. Filed Sept. 24, 1895. Serial No. 563,470. (No model.) Patented in Germany Nov. 2, 1893, No. 77,995, and Nov. 24, 1894, No. 82,654.

Claim.—1. In an apparatus for dispensing liquids, the combination with an air-chamber having water inlet and outlet, a suitable valve or stop-cock for controlling the same, and a pipe leading from the air-space of said chamber, adapted to be connected with a holder for the liquid to be dispensed; of a two-armed lever above the air-chamber, a vessel on one and a balance-weight on the other arm of said lever, and a flexible pipe connecting said receptacle with the water-inlet of the air-chamber whereby the height of the vessel, and consequently the column of water relatively to the air-chamber can be varied, by varying the relative positions of the lever-arms, for the purpose set forth.

2. In an apparatus for dispensing liquids, the combination with an air-chamber having water inlet and outlet, a suitable valve or stop-cock for controlling the same, and a pipe leading from the air-space of said chamber adapted to be connected with a holder for the liquid to be dispensed; of a balance-lever above the air-space of the air-chamber, a receptacle for water on one and a balancing-weight on the other arm of said lever, said vessel in communication with a source of supply of water under pressure, means for automatically controlling such supply, and a flexible connection between the vessel and water-inlet for the air-chamber, substantially as and for the purpose set forth.



3. In apparatus for dispensing fermented liquids, the combination with a holder for the liquid to be dispensed, an air-chamber provided with a water-inlet and a water-outlet, a three-way cock controlling the same, and a pipe connecting the upper part of the chamber with the aforesaid holder; of a two-armed lever above said chamber, a vessel on one and a balance-weight on the other arm of said lever, means for varying the altitude of the vessel relatively to the air-chamber and a flexible pipe connecting the vessel with the aforesaid three-way cock, substantially as and for the purpose set forth.

4. In an apparatus for dispensing liquids, the combination with the air-compressor and a pipe for connecting the air-space thereof with a holder for the liquid to be dispensed of a two-armed lever fulcrumed in bearings on the compressor, a weight on one of said arms, a vessel on the other arm, a flexible pipe connecting the vessel with the compressor, and a locking device adapted to lock the lever against vibration on its fulcrum, for the purpose set forth.

590,234. SPRING-AXLE FOR VEHICLES. JAMES MCTURK and JOHN MCTURK, Crystal, Iowa. Filed Apr. 10, 1897. Serial No. 631,660. (No model.)

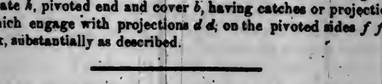


Claim.—1. In a wagon, the combination of the body-bolsters the divided axles, the end and central hangers fixed to said bolsters in which the axles are journaled, grooves formed in the ends of the axle fitting in the center hanger, set-screws fitting in said grooves, and suitable means for yieldingly connecting the axle with the body-bolsters, substantially as shown and described.

2. In a wagon, the combination of the body-bolsters the divided axles journaled thereto, arms fixed on each section of said axles and having projections at its upper end which are provided with openings, rods having one of their ends held between said projections, and their other ends passed through the body-bolster, and springs on said ends between the body-bolster and the free ends of the rods, substantially as shown and described.

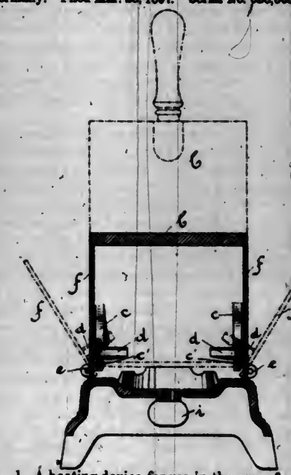
590,235. RUB-IRON. OLOF W. ORELL, St. Louis Park, Minn. Filed Feb. 1, 1897. Serial No. 621,560. (No model.)

Claim.—1. In a rub-iron for whiffletrees, the combination with the flat spring-metal plate having semicylindrical recesses at each end on the under side, the lugs formed with screw-holes and with recesses in the inner sides, of the roller, having a journal or stud at each end sprung into place and held in position by the resiliency of the said plate, substantially as described.



2. The combination with a whiffletree provided near the end with a curved recess, of the spring-metal plate, flat on its inner side and formed with semicylindrical recesses at the ends and tapering on its upper side, the lugs formed with recesses at the inner sides, the roller having a lug at each end journaled in said recesses, the screws at the ends of said plate and the set-screws at the center thereof, substantially as and for the purpose specified.

590,236. HEATING DEVICE USED IN MAKING OR RENOVATING HATS. ERNST A. OSWALD and CARL M. KIRCHHEIMER, Dresden, Germany. Filed Mar. 23, 1897. Serial No. 628,063. (No model.)

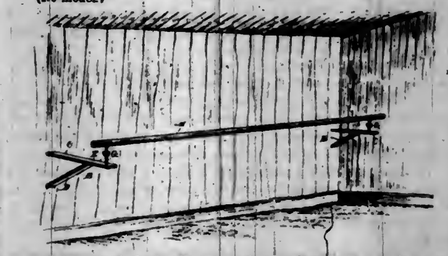


Claim.—1. A heating device for use in the manufacture or renovation of hats and the like, consisting of a box or receiver having pivoted sides and cover, a burner or heating device on its under side, and means for raising and lowering the sides when the cover is opened or closed, substantially as and for the purpose described.

2. A heating device of the character described, consisting of a base-plate, sides pivoted thereto, said sides provided with projections and a pivoted end and cover provided with the projections which engage with projections on the pivoted sides of the box, substantially as described.

3. A heating device of the character described consisting of a base-plate *h*, pivoted end and cover *b*, having catches or projections *c c'*, which engage with projections *d d*, on the pivoted sides *f f* of the box, substantially as described.

590,237. INSECT-GUARD FOR POULTRY-PERCHES. CORA A. POLSON, Winkler's Mills, Kans. Filed Mar. 13, 1897. Serial No. 627,311. (No model.)

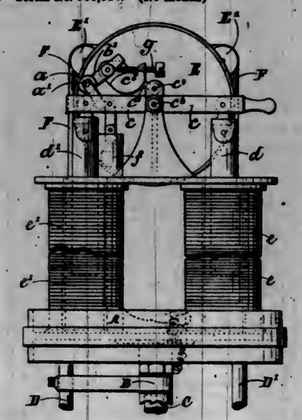


Claim.—1. A device for protecting poultry from parasites, consisting of the bracket or base, a bar or standard secured therein and carrying a chamber for the reception of oil or the like and having at its upper end the outwardly-branching or forked arms to receive a roost, and a bolt or locking-pin passing through said arms and the roost, for the purpose set forth.

2. The herein-described device for protecting poultry from parasites, consisting of a bracket or base, a bar or standard secured therein, and provided with a teat or projection H, and the lower screw-threaded portion F, to enter said base, a nut to secure said base or bracket against the teat or projection, the standard or bar being provided with the chamber for the reception of the liquid, the upper portion of said bar having the forked arms to receive the roost, and a bolt extending through the upper portion of said forked arms and roost for the purpose set forth.

3. The combination with a wall of a coop or other compartment, of a bracket secured thereto, an upwardly-extending bar or standard having the screw-threaded lower end secured within said bracket, and a teat or projection upon the bar above the same, a chamber surrounding a portion of the standard as shown, the standard being provided at its upper portion with the outwardly and upwardly extending forked arms, the roost resting in the fork, and a bolt passing through said forks and the roost for the purpose set forth.

590,238. ELECTRIC-ARC LAMP. WILLIAM B. RIDING, GEORGE P. BELL, and LLEWELLYN R. CODD, Birmingham, England. Filed May 28, 1896. Serial No. 593,507. (No model.)



Claim.—1. A brake mechanism for an electric-arc lamp comprising a friction-wheel, a set of toggle-levers, a pad carried at the joint of the toggle-levers, electromagnetic devices for operating the levers to cause the pad to clutch or engage with and leave the wheel, and connections between the wheel and the carbons.

2. The combination with the carbons of an electric-arc lamp of a friction-wheel connected with the carbons, a pad engaging said wheel, the toggle-levers *b b'*, a pad *a* arranged at the joint of the toggle-levers and bearing against the friction-wheel, a lever to which one of the toggle-levers is connected, a pivotal support for the other toggle-lever, and electromagnetic devices for operating the levers to cause the pad to engage with and disengage from the friction-wheel.

3. The combination with the carbons of an electric-arc lamp, of a friction-wheel, connections between the friction-wheel and the carbons, the toggle-levers *b b'*, a pad arranged at the joint of the toggle-levers and bearing on the inside of the annular flange or periphery of the wheel, a pivotal support for one of the toggle-levers, an electromagnetically-operated lever to which the other toggle-lever is connected, and a dash-pot connected with said lever.

590,239. PROCESS OF TREATING PHOSPHORIC IRON. AUGUSTE J. ROSSI, New York, N. Y., assignor of one-half to James MacNaughton, Albany, N. Y. Filed Sept. 19, 1895. Renewed Aug. 2, 1897. Serial No. 646,830. (No specimens.)

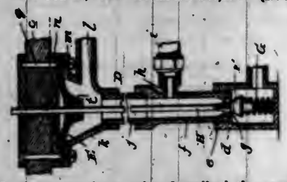
Claim.—1. The process of producing out of iron ores containing phosphorus in such quantities as to render them unfit for purposes of good foundry-pig a tough phosphoric pig-iron, well adapted to good foundry purposes and without the brittleness and weakness characteristic of ordinary phosphoric iron, and containing titanium and also substantially all the phosphorus which was in said ore, which consists in mixing and smelting together in a blast-furnace, such phosphoric ore together with titaniferous ore, all substantially as and for the purposes described.

2. The process of producing out of iron ores containing phosphorus in quantities exceeding say fifty-hundredths of one per cent.

of the weight of the ore, a tough phosphoric pig-iron, well adapted to good foundry purposes and without the brittleness and weakness characteristic of ordinary phosphoric iron, and containing titanium and also substantially all the phosphorus which was in said ore, which consists in mixing and smelting together in a blast-furnace, such phosphoric ore together with titaniferous ore, substantially as and for the purposes described.

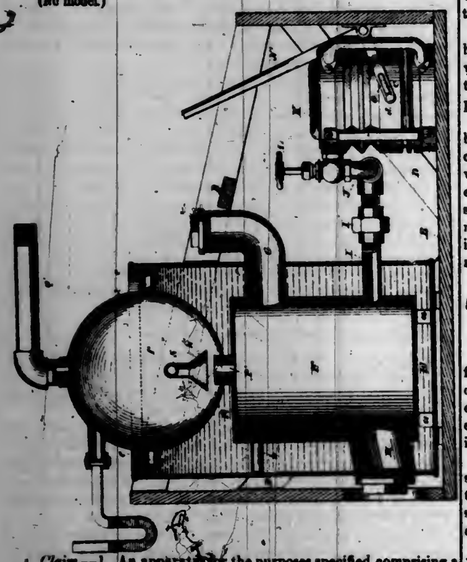
3. As an article of manufacture a tough phosphoric pig-iron free from the characteristic weakness and brittleness of ordinary phosphoric iron and well adapted to good foundry purposes, containing titanium, and also containing phosphorus in quantities not less than one and one-fourth per cent. of the weight of such pig-iron, all substantially as and for the purposes described.

590,240. WATER-CLOSET VALVE. JOSEPH H. SAVILL, Philadelphia, Pa. Filed Oct. 29, 1895. Serial No. 567,264. (No model.)



Claim.—In the water-closet valve described, the combination of a bowl or hopper, a vertically-movable seat C, arranged above the bowl or hopper, a valve-casing arranged beneath the vertically-movable seat C, and having the valve-seat *g*, and connection between the valve-casing and the bowl or hopper at a point above the valve-seat, the reciprocatory valve arranged below the valve-seat, the reciprocatory rod or stem connected to the valve and extending upwardly and adapted at its upper end to impinge against or be connected with the seat, a spring adapted to return the valve to and normally hold it against its seat, and the diaphragm E, of rubber secured to the valve-casing above the connection of the same with the bowl and having the central, vertical aperture *t*, receiving the valve rod or stem; the said aperture *t*, being of such diameter or size in comparison to the diameter or size of the rod or stem as to very tightly receive said rod and render it necessary to crowd the rod or stem through it, whereby the diaphragm will be fixed to the rod or stem by frictional contact and the elasticity of the crowded rubber so as to move with said rod in its up-and-down movements, substantially as and for the purpose set forth.

590,241. PLUMBER'S SMOKE-TEST APPARATUS. MILTON SCHNAIER, New York, N. Y. Filed July 14, 1896. Serial No. 599,154. (No model.)



Claim.—1. An apparatus for the purposes specified comprising a receptacle adapted to receive a smoke-producing agent, a receptacle adapted to receive the produced smoke, a water-jacket surrounding said receptacles, and means for forcing the produced smoke from its receptacle, substantially as specified.

2. An apparatus for the purposes specified comprising a receptacle adapted to receive a smoke-producing agent, a receptacle connected thereto adapted to receive the produced smoke, a smoke-outlet in said receptacle, means for indicating the production of smoke and the passage thereof through its receptacle, means for forcing the smoke from said receptacle, and means for indicating the pressure under which the smoke is forced from its receptacle, substantially as specified.

3. An apparatus for the purposes specified comprising a receptacle adapted to receive a smoke-producing agent, a receptacle adapted to receive the produced smoke disposed above the same and connected thereto, a smoke-outlet arranged therein, a water-jacket surrounding said receptacles, means secured to the smoke-receptacle for indicating the production of smoke and the passage thereof through said smoke-receptacle, means secured to said smoke-receptacle for indicating the pressure under which it is forced from its receptacle, and means for forcing the smoke from said receptacle, substantially as specified.

4. An apparatus for the purposes specified comprising a receptacle adapted to receive a smoke-producing agent, a receptacle adapted to receive the produced smoke disposed above the same, a smoke-outlet therein, a pipe connecting said receptacles, a water-jacket surrounding said receptacles, a smoke-indicator and a pressure-indicator connected to and communicating with said smoke-receptacle, and means for forcing the smoke from its receptacle through the outlet therein, substantially as specified.

5. An apparatus for the purposes specified comprising a fire-pot provided with an inlet and an outlet, a smoke-receptacle having an outlet therein and disposed above the fire-pot, a pipe connecting said fire-pot and smoke-receptacle, a water-jacket surrounding said fire-pot and smoke-receptacle, a smoke-indicating device, and a pressure-indicating device, both attached to and communicating with said smoke-receptacle, and bellows provided with valves and pipes connecting said bellows with the fire-pot, substantially as specified.

6. An apparatus for the purposes specified, comprising a fire-pot provided with an inlet and an outlet, plugs for sealing the same, a smoke-receptacle having a smoke-outlet therein and disposed above said fire-pot, a pipe connecting said fire-pot and smoke-receptacle, a water-jacket surrounding said fire-pot and smoke-receptacle, a smoke-indicator comprising a pipe secured to said smoke-receptacle and arranged partly within and partly without the same, and provided at its inner end with a flaring mouth or hood, a pipe secured to said smoke-receptacle projecting outwardly therefrom, and a transparent tube arranged intermediate the outwardly-projecting ends of the aforesaid pipes, a pressure-indicator comprising a pipe secured to the smoke-receptacle, and a trap secured to the projecting end of said pipe containing a liquid seal, and a pair of bellows provided with valves and pipes connecting said bellows with the fire-pot, substantially as specified.

7. In an apparatus for the purposes specified, the fire-pot in combination with a smoke-receptacle and a sectional pipe arranged partly within and partly without the smoke-receptacle, and provided within the receptacle with a hood, and without the receptacle with a transparent section, substantially as specified.

8. In an apparatus for the purposes specified the fire-pot in combination with a smoke-receptacle and pipes secured to and communicating with said receptacle, one of said pipes being disposed partly within and partly without the receptacle and provided at its inner end with a hood, and at its outer end with a packed nut, and a pipe secured to said receptacle projecting outwardly therefrom, a packed nut at its projecting end, and a glass tube secured by the packed nuts intermediate the projecting ends of the aforesaid pipes, substantially as specified.

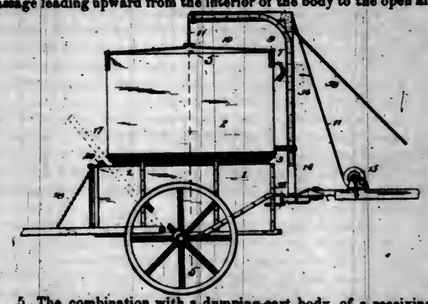
590,242. DUMPING-CART. FRED R. SMITH, Omaha, Nebr., assignor to the Cyclone Street Cleaner, same place. Filed Jan. 11, 1896. Serial No. 575,173. (No model.)

Claim.—1. The combination with a rigid projection from the frame of a street-sweeper, of a dump-cart, means for detachably securing said cart to said projection, a receiving-box resting upon and opening into the cart-body, a crane carried by said projection and extending over said receiving-box, and means for raising the receiving-box clear of the cart and holding it suspended from the crane.

2. The combination with a rigid projection from the frame of a street-sweeper, of a cross-bar centrally pivoted upon said projection to swing horizontally, a crane rigidly mounted upon said cross-bar to swing with it, and a dust-receiving box adjustably suspended from the crane-arm.

3. The combination with a rigid projection from a street-sweeper frame, of a cross-bar centrally pivoted upon said projection to swing horizontally and provided with devices adapted to engage projections upon a dump-cart and form a hinge-like connection therewith.

4. The combination with a dump-cart body of a dust-receiving box adapted to fit into the top of said body, an annular chamber formed within said box, closed above, opening below into said body, and provided with an opening to admit a dirt-laden air-blast, and a passage leading upward from the interior of the body to the open air.



5. The combination with a dumping-cart body, of a receiving-box riding thereon and provided with an inlet-tube near the top, and a chamber forming within the box a gradually-enlarging continuation of the tube and having at the end opposite said tube open communication with the space within said body.

6. The combination with a two-wheeled dump-cart, of thills pivoted upon the sides of the cart-body, a pivoted lever at the front of said body, stops adapted to be thrown out from the body over the thills when in normal position, bolts adapted to be thrown out from the body beneath the thills when in raised position, and devices connecting said lever to said stops and bolts to simultaneously actuate both as the lever is swung upon its pivot.

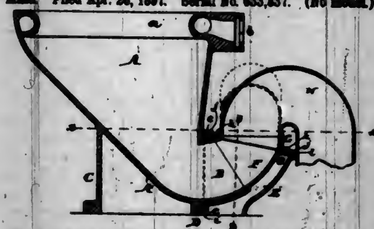
7. In a dumping-cart the combination of a lower box, a hopper mounted on it, a top box mounted on a hopper, an outer lining on said top box, an inner lining and the annular space between said outer and inner lining terminating in a stub-spout, all as and for the purpose set forth.

590,243. COMBINED FUNNEL, STRAINER, &c. PERRY C. SMITH, Indianapolis, Ind. Filed Jan. 14, 1897. Serial No. 619,209. (No model.)



Claim.—The combination, in an article adapted to be used as a funnel &c., of a bowl having a downwardly-projecting part, said part having an outer screw-faced surface, but a smooth inner surface, said screw-threaded part adapted to be screwed into a collar, and engaging with threads in said collar, said collar having the threads cut on its inner surface, but having a smooth outer surface, and said collar having at its bottom on the inner edge a projecting flange, and a cone-shaped part, having an extended flange on its outer and upper end, said cone-shaped part adapted to be inserted in said collar, the flange on the upper end thereof, resting on the flange in the lower end of the collar, and the threaded part of the bowl screwed into the collar, thereby forcing the flanges together, and firmly holding the same, substantially as shown and described.

590,244. WATER-CLOSET. JOHN H. STEVENS, Jr., Cambridge, Mass. Filed Apr. 26, 1897. Serial No. 633,837. (No model.)



Claim.—1. A water-closet bowl provided with means for flushing it, a discharge leading downward and outward therefrom, a vertical or nearly vertical flange or flat surface located intermediate between said bowl and the end of said discharge, and a jacket surrounding the outwardly-projecting portion of said discharge and open at top and bottom all formed in one piece of earthenware.

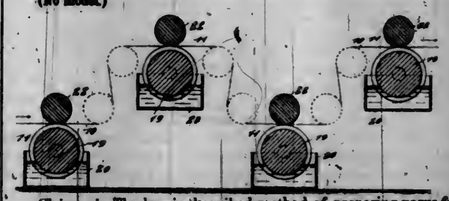
2. A water-closet bowl provided with means for flushing it, a discharge leading downward and outward therefrom, a vertical or nearly vertical flange or flat surface located intermediate between said bowl and the end of said discharge, an open-bottomed base beneath said bowl, and a jacket surrounding the outwardly-projecting portion of said discharge, and open at its top and bottom all formed in a single piece of earthenware.

3. In a water-closet the combination of a bowl provided with means for flushing it and a discharge leading downward and outward therefrom and forming part of a trap; a vertical or nearly vertical flange or annular flat surface surrounding said discharge at or near the limit of the downward dip thereof; and an open-ended base beneath said bowl, all formed in one piece of earthenware; and a metal discharge-pipe shaped to form the other part of said trap and provided with a flange to abut the earthenware flange; the nut-plates *c*, *c*, located within said base; and the bolts *d*, *d*, passing through both of said flanges and screwed into said plates.

4. The combination in a water-closet of a bowl provided with means for flushing it, and with a discharge leading downward and outward therefrom and forming a part of a trap; a vertical or nearly vertical flange or annular flat surface surrounding said discharge intermediate between its end and said bowl; the base C; all made in one piece of earthenware; and a metal discharge-pipe shaped to form the other part of said trap, and provided with a flange to abut the earthenware flange, and with the plate I to extend beneath said base; the nut-plates *c*, *c*, located on the side of the earthenware flange opposite to said metal discharge-pipe; and the bolts *d*, *d* passing through both of said flanges and screwed into said plates.

5. The combination in a water-closet of a bowl provided with means for flushing it, and with a discharge leading downward and outward therefrom, and forming part of a trap; a vertical or nearly vertical flange or flat annular surface surrounding said discharge intermediate between its end and the bowl; a supporting-base beneath said bowl; and a jacket at the rear of said flange surrounding the outwardly-projecting portion of said discharge, and open at its top and bottom, all formed in one piece of earthenware; the metal elbow-pipe F fitted to receive and inclose the outwardly-projecting portion of the discharge of the bowl, and provided with a flange *c*, to abut the flange of the bowl, and the flange *g* at its other end; the nut-plates *c*, *c* located on the side of said earthenware flange opposite to said elbow-pipe; the bolts *b*, *b* passing through the flange *c* and the earthenware flange, and screwed into the plates *c*, *c*; the flanged metal ring G bolted to the flange *g*; and the pipe H soldered to said ring G, said elbow-pipes F and H being shaped to form the other part of said trap.

590,245. PRINTING FABRICS. GEORGE STORM, Philadelphia, Pa., assignor to himself and George F. Tolley, same place, and James Magee II, Bloomsburg, Pa. Filed Sept. 14, 1894. Serial No. 522,990. (No model.)



Claim.—1. The herein-described method of preparing yarns for weaving color-pattern fabrics, which consists in subjecting the yarns, while held separated, to the action of a printing medium, then directing the printed yarns, while still held separated, from said printing medium to another of like nature—the yarns being thus carried through space, as distinguished from passing them over a guide-surface—then subjecting the separated yarns to the action of steam, and finally washing, and drying them, substantially as set forth.

2. The improved apparatus by which yarns are completely prepared for weaving into color-pattern fabrics, which consists of a series of sets of printing mechanisms between which the yarns pass free, each such mechanism comprising a rotatable pattern-transfer drum or roller and one or more guides or separators, which latter are placed adjacent to such drum a dry-steam box, a bath and a drier through which the yarns successively pass after leaving the last of the printing mechanisms, as shown and described.

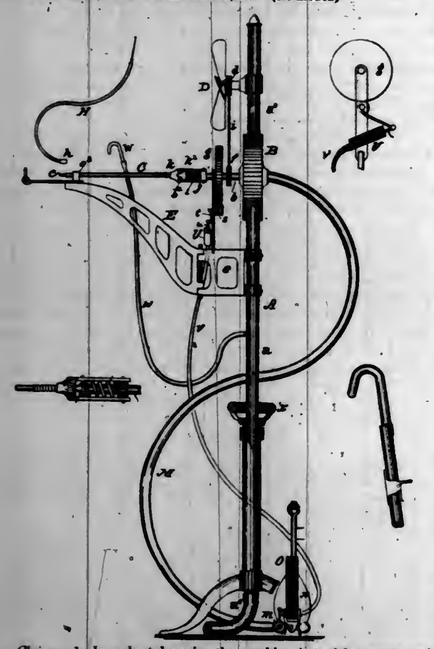
3. An improved apparatus for preparing yarns for weaving into color-pattern fabrics, the same comprising a series of sets of printing mechanisms with which the yarns contact only at a point of imprint or impression, a steam box, a bath and a drier, the yarns passing suc-

cessively from one to the other, whereby different portions receive different imprints, which are then fixed, washed and dried, as set forth.

4. The improved apparatus for printing warp-yarns for fabrics, the same consisting of a series of independent sets of mechanisms through which the yarns successively pass and from which they successively receive different color-imprints on different portions, each mechanism consisting of a rotatable type-bearing drum, 11, a rotatable bearing-roller, 22, for pressing the yarns upon the drum as they pass between them, a color-holding box arranged beneath the drum, and one or more rotatable yarn spacing and guiding rollers, having a series of combs or toothed guides, and arranged parallel to the color-printing drum and in the desired relation to the portion of the latter with which the yarns pass in contact, as shown and described.

5. In an apparatus for printing yarns for fabrics, the combination, with a series of printing drums, or rollers, of rotatable yarn-guides arranged intermediately of the latter and having a series of peripheral teeth between which the yarns are held spaced, the same being thus adapted to support the yarns without contact with any extended surface and to guide them from one drum to another, as shown and described.

590,246. DENTAL ENGINE. GUSTAF VALLEY, Johnstown, Pa. Filed Mar. 17, 1896. Serial No. 583,531. (No model.)



Claim.—1. In a dental engine the combination with a motor and an operating-spindle actuated thereby, of a rigid disk rotating therewith, an air-operated brake adapted to engage said disk, and a foot-operated air-pump connected with said air-brake, substantially as described.

2. In a dental engine the combination of a motor, an operating-spindle actuated thereby, a disk rigid with the motor-shaft, a cam pivoted in proximity to said disk, an air-cylinder having its piston-stem connected to said cam, an air-pump connecting with said cylinder, and treadle mechanism to actuate said pump, substantially as described.

3. In a dental engine the combination with a pressure-operated motor and a pressure-supply pipe therefor, of an operating-spindle actuated by said motor, a disk rigid with the motor-shaft, an air-brake adapted to engage said disk, a valve in the pressure-supply pipe, a treadle connected to the valve-stem and adapted to open or close the valve, and an air-pump operated by said treadle and communicating with said air-brake, substantially as described.

4. In a dental engine the combination with a pressure-operated motor and a pressure-supply pipe therefor, of an operating-spindle actuated by said motor, a disk rigid with the motor-shaft, a cam pivoted in proximity to said disk and having a projecting arm, an air-cylinder having its piston-stem connected to the arm on said cam, a valve in the pressure-supply pipe, a treadle connected to said valve-stem and adapted to open or close the valve, and an air-pump actuated by said treadle and having tubular connection to said air-cylinder, whereby the treadle can be used to cut off the pressure or to stop the motor without cutting off the pressure, substantially as described.

5. In a dental engine the combination with a pressure-operated motor and a pressure-supply pipe therefor, of a valve in the pressure-supply pipe, an arm attached to the valve-stem a pivoted treadle, and a link connecting the same with the valve-stem arm, whereby the lateral motion of the treadle will actuate the valve-stem and open or close the valve, substantially as described.

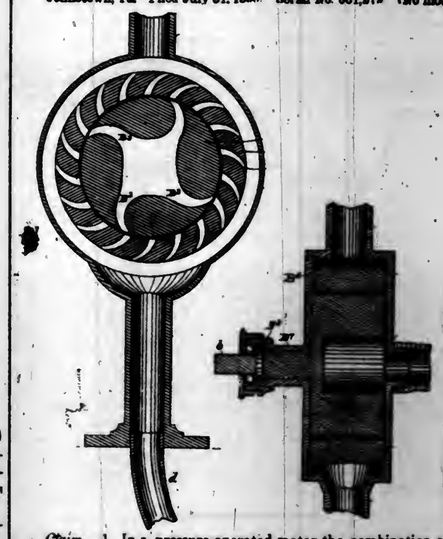
6. In a dental engine the combination with the motor-shaft having an enlarged conical or tapering end, a freely-sliding collar, and a spring between the two, of the operating-spindle having an enlarged base with conical recess to receive the shaft end, and a fork rigid with the spindle-base and pivotally connected to the sliding collar, substantially as described.

7. In a dental engine the combination of a hollow standard, a pressure-operated motor mounted thereon and exhausting therethrough, and a saliva-pump connected to the standard and operated by the exhaust, said pump having a siphon-shaped nozzle closed at the end and having an opening in one side, substantially as described.

8. In a dental engine the combination with the standard, motor and spindle, of a bracket secured to said standard and having a swinging extension, a bearing for the spindle on said extension, and a spring-support projecting from said extension for receiving the flexible tool-carrying tip, substantially as described.

9. The combination of a pressure-operated motor and a pressure-supply pipe therefor, a valve in the pressure-supply pipe, a treadle connected to the stem of said valve and adapted by its lateral movement to actuate the valve, an air-brake acting to stop the motor, and an air-pump mounted in gimbals and connected to the air-brake and actuated by said treadle, substantially as described.

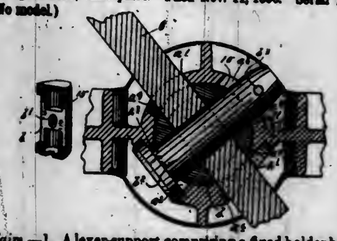
590,247. PRESSURE-OPERATED MOTOR. GUSTAF VALLEY, Johnstown, Pa. Filed July 31, 1896. Serial No. 601,279. (No model.)



Claim.—1. In a pressure-operated motor the combination of a hollow standard, a vertically-flattened discoid chamber supported thereon and communicating peripherally therewith, a ring secured in said chamber with an annular circumferential space between it and the chamber-wall and having curved ports extending radially through said ring and opening into said circumferential space, a disk substantially filling the interior of the ring and having a central space open on one side and channels curved in the opposite direction to those in said ring extending from said open space to the periphery of the disk, said ring and disk completely filling said chamber laterally, a pressure-supply communicating with an opening in said chamber opposite the open center of said disk, a stem or shaft rigid with said disk and extending through the opposite side of said chamber and having a bearing on said chamber-wall, substantially as described.

2. In a pressure-operated motor the combination of a disk centrally open on one side and having curved channels extending from said central opening to the periphery and opening thereon, a shaft extending from the opposite side of said disk, a ring closely surrounding said disk, and having reversely-curved ports extending radially through and discharging only on the periphery of said ring, a flat discoid case inclosing said ring with a circumferential space between them and having on one side an inlet-opening opposite the open center of said disk and a bearing for said shaft on its opposite side, said disk and ring completely filling said case laterally, a hollow standard on which said case is supported in a vertical position and with which it communicates peripherally at its bottom part, and an air-chamber above said case and communicating with it peripherally at its top, substantially as described.

590,248. LEVER-SUPPORT FOR INTERCHANGEABLE BRAKE-BEAMS. HENRY H. VAUGHAN, St. Paul, Minn., assignor of one-half to George Fuller, same place. Filed Nov. 11, 1896. Serial No. 611,757. (No model.)



Claim.—1. A lever-support comprising a fixed holder having two or more lever-passages and a fulcrum-block seated within said holder for rotary movement in respect thereto and having a lever-passage which may be brought into registration with any one of said lever-passages in the holder, with said parts so related that the strain applied by the lever will be transferred to the holder, through the fulcrum-block, substantially as described.

2. A lever-support comprising a fixed holder having two or more lever-passages, a fulcrum-block seated within said holder for rotary movement in respect thereto and having a lever-passage registrable with any of said lever-passages in said holder, and a fulcrum-pin passing through said block at right angles to the lever-passage thereof, with said parts so related that the strain from the lever will be transmitted by the block to the holder, substantially as described.

3. In a lever-support, the combination with a fixed holder having two or more lever-passages, of a rotary fulcrum-block concentric with said holder, having a lever-passage which may be brought into registration with any one of said passages in the holder, a fulcrum-pin, a hole for said pin in said block, at right angles to the lever-passage therein, and partial seats for said pin in the walls of said lever-passages in the holder, so arranged as to permit the pin to take an angular position in respect to a plane through the center of the lever-passage in the holder occupied thereby, substantially as described.

4. In a lever-support, the combination with a fixed holder having two or more lever-passages, of a rotary fulcrum-block concentric with said holder and having a single lever-passage which may be brought into registration with either passages of said holder, a fulcrum-pin, a pin-hole for the same in said block, at right angles to the lever-passage thereof, partial seats or bearing-surfaces in the walls of the lever-passages in said holder, for permitting the pin to take an angular position in respect to the center line or plane of the lever-passage occupied thereby, and a seat for the pin-head partially formed on the two walls of said passages, so as to be eccentric to the center line thereof, substantially as and for the purposes set forth.

5. In a lever-support, the combination with a fixed holder having two or more lever-passages, of a rotary fulcrum-block, within said holder and carried thereby, having a lever-passage which may be brought into registration with any desired passage in said holder, and means for preventing the endwise displacement of said block in respect to said holder, substantially as and for the purposes set forth.

6. The combination with a brake-beam, of a fixed lever-holder having two or more lever-passages, a rotary fulcrum-block, carried within said holder, having a lever-passage registrable with any lever-passage in the holder, and a pin passing through said block and lever, with said parts so related that the strain from the lever will be transmitted by the block to the holder, substantially as described.

7. In a brake-beam, the combination with the beam-body and the truss-rod, of a strut having two or more lever-passages, at the proper angles for interchangeable use in holding the brake-levers, a rotary fulcrum-block carried within said strut and having a lever-passage which may be brought into registration with either of said passages in the strut, whereby the beam is rendered interchangeable, substantially as described.

8. In a brake-beam, the combination with the beam-body and the truss-rod, of a strut having a pair of lever-passages, at the proper angles for interchangeable use in supporting the brake-levers at the proper working angles, of a rotary fulcrum-block carried within said strut having a lever-passage registrable with either of said passages in the strut, with said parts so related that the strain from the lever will be transmitted through said block to said strut and the beam, substantially as described.

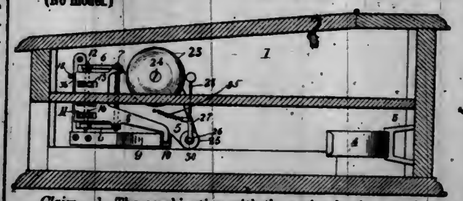
9. In a brake-beam, the combination with the beam-body and the truss-rod, of a strut having a pair of lever-passages properly disposed for supporting the brake-levers at the required working angles, of a fulcrum-block carried by said strut having a lever-passage which may be brought into registration with either of said passages in the strut, a pin-hole in said block, at right angles to the lever-passage thereof, a pin connecting the lever to said block and having its ends extending through the otherwise unoccupied lever-passage in the strut, and partial seats for said pin in the walls of the lever-passages in said strut, so arranged that the pin may pass through the holder while the lever stands at the required angle to the vertical plane, substantially as described.

10. The combination with a divided or two-part brake-beam strut, formed with a fulcrum-block seat having two or more lever-passages, of a fulcrum-block rotatively seated in the said seat and provided with a lever-passage which, by rotary movement of said block, may be alined with either of the said lever-passages in said seat, substantially as described.

11. The combination with a divided or double brake-beam strut having its body portion cored out, from its outer end, inward, to receive a fulcrum-block, of a fulcrum-block seated in said strut, and an annular rim or flange formed on the outer end wall of the strut, adapted, when partially separated from the strut, to be bent inward so as to overreach the end of the block and hold the same from endwise displacement, substantially as described.

12. In a brake-beam, the combination with the beam-body 10 and the truss-rod 11, of the double or divided strut 13, cored out as described, having the lever-passages a' and a^3, the fulcrum-block 15 seated in said strut having the lever-passage b and the pin-hole b', as described, the pin b^2 and the partial bearing-surfaces a^2 and a^4 for the shank of the pin and the partial bearing-surfaces a^5 and a^6 for the head of the pin on the walls of said lever-passages in said strut, all substantially as and for the purposes set forth.

590,249. COMBINED TILL-ALARM AND LOCK. HARRY M. WILLIAMS, Bloomington, Ill. Filed Apr. 22, 1896. Serial No. 588,595. (No model.)



Claim.—1. The combination with the casing having openings in its side wall and the drawer having a locking-shoulder, of a lever fulcrumed at the inner side of the casing, a series of keys pivoted in rear of the lever and having their outer ends extending through the openings in casing and their inner ends provided with hook-shaped shoulders engaging the edge of the lever, springs for holding the keys in their locked position, a spring-latch connected to the lever and adapted to engage the shoulder at the side of the drawer, and a key bearing at its inner end against the lever and adapted to oscillate the same when disconnected from the hook-shaped shoulders of the keys, substantially as specified.

2. The combination with the desk or casing and the removable drawer having an engaging shoulder at one side, of a lever arranged at the inner side of the casing and at one side of its fulcrum having a plurality of pairs of openings, a vertical shaft in rear of said openings, a plurality of pairs of key-levers arranged on the shaft, the outer ends of said key-levers projecting through the casing and the inner ends thereof projecting through the openings in the lever and said inner ends of each pair of key-levers terminating in oppositely-disposed hooks, springs for pressing all of said levers in the same direction, a liberating key-lever arranged on the shaft and having its inner end located adjacent to one edge of the locking-lever and terminating in a shoulder, and a spring-catch 39 engaging the locking-lever, as at 40, substantially as specified.

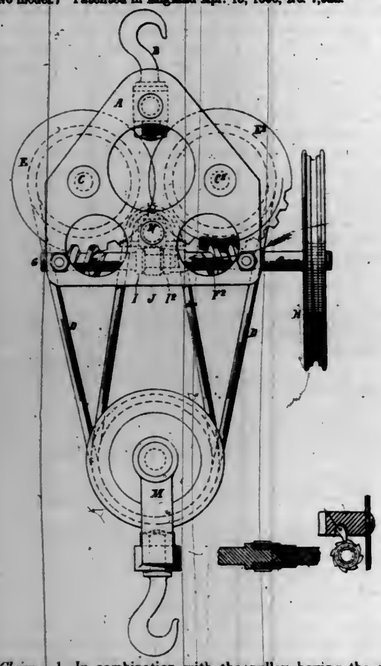
3. The combination with the casing and sliding drawer, the latter having a channel at its outer side, the gravity-latch 32 pivoted as at 31, the cam 33 and the stop arranged as shown, of the alarm-bell 23, the bell-crank 27 pivoted at its lower end as at 56 to the post 25, the bell hammer 28 extending from the bell-crank, the spring 35

for retracting said bell-crank and the pin 30 extending from the bell-crank in the path of the latch 32, substantially as specified.

4. The combination with the casing having openings in its side wall and the drawer having a locking-shoulder, of a lever fulcrumed at the inner side of the casing, a series of keys pivoted in rear of the lever and having their inner ends engaging the same, springs for holding the keys in their locked position, a liberating-lever adapted to oscillate the lever when disconnected from its keys, and means independent of the keys for locking said liberating-lever against movement, substantially as specified.

5. The combination with the casing having openings in its side wall, the sliding drawer having a shoulder, a casting secured to the casing and opposite the opening, a lever for engaging the shoulder, a series of keys pivoted in the casting and at their inner ends engaging the lever, a liberating-lever adapted to disengage the locking-lever with the keys when said liberating-lever is oscillated for the purpose, a safety-lever pivoted at one side of the casting and provided at one side with a hook for engaging the liberating-lever, and a headed stud at the outer end of the safety-lever moving in a slot in the casting, substantially as specified.

590,250. **PULLEY-BLOCK.** GEORGE T. WINYARD and JOSEPH BEDFORD, Sheffield, England. Filed Aug. 31, 1896. Serial No. 604,432. (No model.) Patented in England Apr. 15, 1896, No. 7,922.



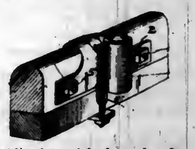
Claim.—1. In combination with the pulley having the spiral groove, the guide-rail P adjacent thereto, the guide for the rope resting on the said rail, and the projection O on the guide extending therefrom and fitting into the groove of the pulley, said projection having a segmental bearing edge to contact with the pulley and being of such width as to fit into one groove and extending around a limited part of the under surface thereof, substantially as described.

2. In a lifting-block having a winding-drum and a worm-wheel, a worm-shaft made in two parts, so connected as to permit longitudinal action while transmitting rotary motion, provided with a ratchet-wheel fixed loosely upon the shaft between the two parts, and so constructed that it is carried round by friction when the block is lifting, and held stationary when lowering, as hereinbefore described for the purpose specified.

3. In a lifting-block the combination of a winding-drum, a traveling link R, for supporting one end of the rope, or chain, a worm-wheel S carried by the link, a screw operated by the movement of the pulley, the connection between the screw and the pulley, means for supporting the screw and means for supporting the link, substantially as described.

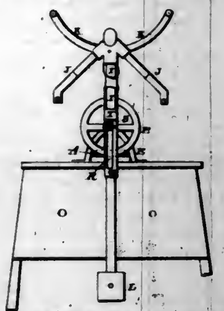
4. In combination, in a lifting pulley-block, a frame, a pulley therein, a movable support for holding one end of the rope or chain to the pulley-block and operating connections between the movable support and the pulley whereby the point of suspension of the end of the rope or chain is changed automatically as the rope is wound or unwound, substantially as described.

590,251. **BEARING FOR KING-BOLTS FOR VEHICLES.** TIMOTHY L. BOBART, Indianapolis, Ind. Filed Apr. 22, 1897. Serial No. 633,255. (No model.)



Claim.—The combination with the axle of a vehicle, of a king-bolt bearing consisting of a sleeve-like portion having wings extending out from its sides to be fastened to said axle, and a saddle-like extension on its upper side to engage the top of said axle, a recess being formed in the top of said extension and extending into an aperture between said sleeve and said axle, and a clip mounted in said recess and extending through said aperture, embracing said saddle-like portion and the axle, whereby said structure is firmly secured to the axle, substantially as set forth.

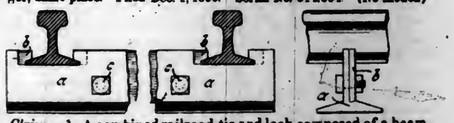
590,252. **WASHING-MACHINE MOTOR.** HENRY F. BRANNER, Davenport, Iowa. Filed Apr. 10, 1897. Serial No. 631,652. (No model.)



Claim.—1. In a washing-machine a suitable mechanism for operating the stirrer therein, combined with a suitable plate or casting secured to the outer end of the operating-shaft, a vertically-adjustable operating-lever which is clamped to the plate or casting, a rod which is clamped to the plates or castings and is provided with a series of handles at its upper end, the lever being clamped between the casting and the rod and means for clamping the parts together substantially as shown.

2. The body O, a mechanism for operating the stirrer, and the operating-shaft C, journaled upon the top of the body, combined with the plate or casting F, secured to the outer end of the shaft, the plate or casting G, clamped against the one F, and thumb-nut applied to the end of the shaft C; the weighted lever H, secured between the two plates or castings, the rod I clamped against the outer side of the plate or casting G, and which is provided with a series of arms at its upper end carrying handles, the arms being bent or curved so that the handles are out of line with each other substantially as described.

590,253. **COMBINED RAILROAD-TIE AND LOCK.** GEORGE A. BUTLER, Yonkers, N. Y., assignor of one-half to Charles Henry Riddenger, same place. Filed Dec. 1, 1896. Serial No. 614,064. (No model.)



Claim.—1. A combined railroad-tie and lock composed of a beam having a flat base and a vertically upward-projecting web, provided with slots conforming on one side with the shape of the foot of the rail and cut vertically downward on the opposite side, these slots being set apart correspondingly with the required gage of the track, a locking-plate provided with similar slots shaped oppositely to the slots of the beam and adapted to be inserted in the slide provided in the base alongside of the beam and secured thereto by bolts passing through corresponding holes in the tie and in the locking-plate.

2. The combination with a railroad-tie composed of a beam having a flat base and a vertically upward-projecting web, provided with slots conforming on one side with the shape of the foot of the rail and cut vertically downward on the opposite side, of a locking-plate provided with similar slots shaped oppositely to the slots of the beam and adapted to be inserted in the slide alongside of the beam and secured thereto by bolts passing through corresponding holes in the tie and in the locking-plate.

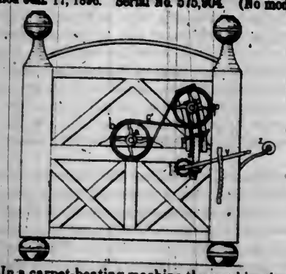
3. In a combined railroad-tie and lock the combination with a beam having a flat base and a vertically upward-projecting web, provided with slots conforming on one side with the shape of the foot of the rail and cut vertically downward on the opposite side, these slots being set apart correspondingly with the required gage of the track, a locking-plate provided with similar slots shaped oppositely to the slots of the beam and adapted to be inserted in the slide provided in the base alongside of the beam the tie and the locking-plate being provided with corresponding bolt-holes, of bolts having their threaded ends reduced in diameter and the shoulder thus formed slightly tapered and rounded for the purpose of drawing the opposite projections of the slots tightly upon the foot of the rails.

590,254. **ROPE-TIGHTENING LEVER.** DONALD J. CAMPBELL, Milwaukee, Wis. Filed Sept. 28, 1896. Serial No. 607,276. (No model.)



Claim.—In a rope-tightener, a base-plate having a segmental slot therein extending approximately from a vertical line drawn to the center on which the segmental slot is described, to a point at an angle from said line of about one hundred degrees, a lever fulcrumed to said plate concentric to the slot, a lug projecting from the lever into said segmental slot, and a rope-knotter attached to the lever at a suitable distance from its fulcrum, substantially as described.

590,255. **CARPET-CLEANER.** JOHN CHAPMAN, Aldrington, England. Filed Jan. 17, 1896. Serial No. 575,904. (No model.)



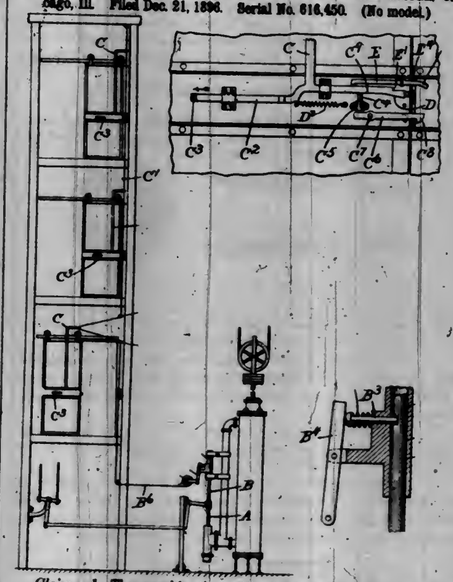
Claim.—In a carpet-beating machine the combination in a frame, of the shaft *o* and circular brush *r* mounted thereon, the ends of the shaft traversing curved guides *p'* attached to the ends of the frame, the upright bars *s*, the upper ends of which form journals for the brush-shaft, the racks *s'* at the lower ends of the bars *s*, the cog-wheels *t* by which the bars *s* are raised, the shaft *u* extending from one end of the machine to the other, and the lever *v* for rotating the shaft substantially as described.

590,256. **SEAT-CLAMP FOR BICYCLES.** EDWARD P. CHALFANT, Kenosha, Wis. Filed Nov. 16, 1896. Serial No. 612,377. (No model.)



Claim.—A seat-clamp made up of the two sheet-metal main portions, B, C, hinged together at the bottom and semicircular in shape, said portions being extended upward and perforated and then back upon themselves and again perforated in line with the first-mentioned perforations and having their ends concave outwardly and resting upon the upper portion of the semicircular main portions, B, C, the perforated clamping-jaws, D, D', adapted to oppose the concave ends and clamp the saddle-springs against the same and the clamping-bolt, E; substantially as described.

590,257. **ELEVATOR SAFETY DEVICE.** JAMES COOPER, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,450. (No model.)



Claim.—1. The combination with the motor mechanism of an elevator of a locking device adapted to lock said motor mechanism in an inoperative position, a connection between said locking device and the elevator-doors on the several floors, said connection being such that the locking device is operated before the door becomes unlocked.

2. The combination with an elevator mechanism of a safety device comprising a locking device associated with the motor mechanism of the elevator, and adapted to lock such mechanism in an inoperative position, a movable part associated with the elevator-door and adapted to control the door-latch, a connection between said movable part on the door and said locking device, said movable part connected with said door-latch in such a manner that it is free to move a short distance before operating said latch thereby operating said locking device before unlocking the door.

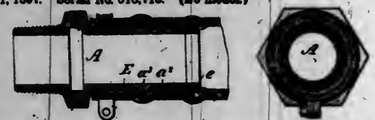
3. The combination with the driving mechanism of an elevator of a moving element by which said driving mechanism is controlled, a locking device for said moving element comprising two parts free to move with relation to each other, at all times when the driving mechanism is in motion, but which are adapted to be locked together when the driving mechanism is at rest, a movable part associated with the elevator-door and adapted to control the door-latch, said movable part connected with said locking device so as to oper-

ate the same when moved, a connection between said movable part and the door-latch, said connection being such that said movable part is free to move a predetermined distance before the latch is operated, such movement operating such locking device and locking the driving mechanism in an inoperative position before the door is unlocked.

4. The combination with a driving mechanism of an elevator of a moving element by which said driving mechanism is controlled, a locking device for said moving element, a movable part associated with the elevator-door and adapted to control the door-latch, said movable part connected with said locking device so as to operate the same when moved, a latch pivoted to said elevator-door and adapted to normally engage a holding device at the side of the elevator-shaft, a pin interposed between said latch and said movable part and adapted to engage a surface on said movable part, said surface being beveled a portion of its length so that said movable part may be moved for a predetermined distance before the beveled surface engages said pin.

5. The combination with a driving mechanism of an elevator of a movable element by which said driving mechanism is controlled, a locking device for said movable element, a movable part associated with the elevator-door and adapted to control the door-latch, said movable part connected with said locking device so as to operate the same when moved, a latch pivoted to said elevator-door and adapted to normally engage a holding device at the side of the elevator-shaft, a pin interposed between said latch and said movable part and adapted to engage a surface on said movable part, said surface beveled a portion of its length, so that said movable part may be moved for a predetermined distance before the beveled surface engages said pin, whereby the said movable element is locked before the elevator-door is unlocked, and a holding device associated with said movable part on the door and adapted to hold it in its retracted position while the door is open.

590,258. CONNECTING HOSE TO NIPPLES. CHARLES H. DALE, New York, N. Y., assignor to Jennie L. Dale, same place. Filed Jan. 11, 1897. Serial No. 618,713. (No model.)



Claim.—1. A hose-nipple, the end to which the hose is to be attached being provided with a yielding facing or cap piece of soft, yielding material interposed between the nozzle and hose to prevent injury by bending or abrasion, substantially as described.

2. A hose-nipple, the end to which the hose is to be attached being provided with a yielding facing or cap piece having a flange or transverse portion overlapping the end of the nipple, substantially as described.

3. A hose-nipple, the end to which the hose is to be attached being provided with a yielding facing or cap piece having an exterior circumferential rim, substantially as described.

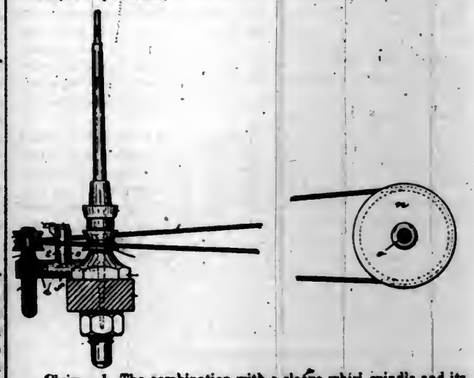
4. A hose-nipple, the end to which the hose is to be attached being provided with a yielding facing or cap piece having a flange or transverse portion overlapping the end of the nipple and having an exterior circumferential rim, substantially as described.

590,259. NON-REFILLABLE BOTTLE. WILLIAM C. FLANNERY, Washington, D. C., assignor of two-thirds to Fred R. Jekyll, Wichita, Kans., and William F. Fuqua, Baton Rouge, La. Filed Mar. 25, 1897. Serial No. 629,966. (No model.)



Claim.—In a non-refillable bottle, the annular recess in the neck thereof, a valve-box with a valve-protected opening in the bottom thereof, the perforations and annular projecting flange of the top of said valve-box, a disk with perforations and a projecting annular flange, a gasket of elastic material adapted to be held between the said flanges and between them and the recess in the neck, combined with a pendent stem secured to the fastening-disk described and having a spur at its free end, a hole in the top of the valve-box adapted to receive the said stem, and an engaging catch adapted to engage the spur of the stem and retain said stem securely in the said hole, all substantially as described.

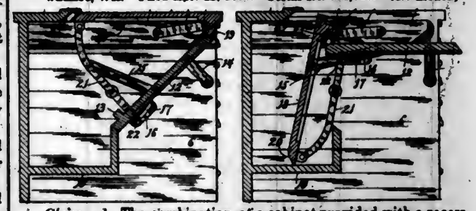
590,260. SPINDLE. ALFRED GARTNER, Paterson, N. J., assignor to the Draper Company, Portland, Me. Filed June 30, 1897. Serial No. 643,900. (No model.)



Claim.—1. The combination with a sleeve whirl spindle and its supporting-bolster, of a vertically-arranged tube carried by said bolster, a shaft mounted in said tube, an auxiliary wheel or pulley on said shaft, driving means at the opposite side of the spindle, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

2. The combination with a sleeve whirl spindle and its supporting-bolster and with the driving-means on one side of said spindle, of an arm projecting from the bolster on the opposite side of the spindle, an oil-cup carried by said arm and communicating with said bolster, a tube carried by said arm and containing step-and-bolster bearings and also communicating with said oil-cup, a shaft revolubly mounted in said tube, an auxiliary wheel or pulley carried by said shaft, and an endless belt passing over said driving means and auxiliary wheel or pulley and intermediately engaging said whirl of the spindle, substantially as and for the purposes described.

590,261. TYPE-WRITER CABINET. RUDOLPH C. HAASE, Milwaukee, Wis. Filed Apr. 12, 1897. Serial No. 631,819. (No model.)

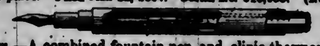


Claim.—1. The combination, of a cabinet provided with a recess therein, a swinging table, a plate secured to the edge of the table and having a curved slot therein, a swinging cover, and a medially-pivoted lever connected at one end to the cover, and having its opposite end provided with a pin or projection extending into the curved slot of the plate.

2. The combination of a cabinet provided with a recess therein, a swinging table, a plate secured to the edge of the table and having a curved slot therein, a swinging cover, and a medially-pivoted lever connected at one end to the cover and having its opposite end provided with a pin or projection extending into the curved slot of the plate, the pivot of the lever being so disposed that when the table is swung to a horizontal position, and the pin of the lever thereby brought to one end of the slot, said pin will be in a line, or approximately a line, with the pivot, whereby the table is locked in its horizontal position against being swung down by pressure applied at the rear.

3. The combination, of a cabinet provided with a recess therein, a swinging table, a plate secured to the edge of the table and having a curved slot therein, a swinging cover, and a medially-pivoted lever connected at one end to the cover and having its opposite end provided with a pin or projection extending into the curved slot of the plate, the circle described by said pin with the pivot of the medially-pivoted lever as a center being less than the arc of a circle described by the curved slot, whereby, when the cover is in a horizontal position, and the pin of the lever at the end of the slot, said cover is locked in its horizontal position against pressure applied to the rear thereof.

590,262. COMBINED THERMOMETER AND FOUNTAIN-PEN. AUGUSTUS P. HAPPEL, Chicago, Ill., assignor to the Crown Pen Company, same place. Filed Jan. 12, 1897. Serial No. 618,955. (No model.)



Claim.—A combined fountain-pen and clinic-thermometer having a casing, a receptacle lying within the casing, the receptacle having an enlarged end adapted to receive a cap to cover the end of the thermometer and to enable the thermometer to be removed at will, and means for removably securing the receptacle to one end of the casing, the means for securing the receptacle serving as a closure for the casing, so that the space between the casing and receptacle may serve as an ink-reservoir, substantially as described.

590,263. ELECTRIC MEASURING APPARATUS. JOHN C. HENRY, Denver, Colo. Filed July 3, 1897. Serial No. 643,343. (No model.)



Claim.—1. The combination with two electric motors driving a single vehicle, of two coils connected respectively to the circuits of the said two motors, and a magnetic indicating instrument acted on by both of said coils.

2. The combination with two electric motors driving a single vehicle, of two coils connected respectively in the circuits of the said two motors so as to be responsive to the currents therein, and a magnetic indicating instrument acted on by both of said coils.

3. The combination with two electric motors driving a single vehicle and having reversing connections, of two coils connected respectively to the circuits of the said two motors independently of said reversing connections, and a magnetic indicating instrument acted on by both of said coils.

4. The combination with an electric motor, of an indicating instrument having a coil connected in the circuit of said motor, and a switch having contacts making and breaking the circuit of said instrument-coil, and contacts making and breaking a short circuit around said coil, the short circuit being established before the circuit of said coil is broken.

5. The combination with two electric translating devices, of two coils connected respectively to the circuits of said devices, a magnetic indicating device acted on oppositely by said two coils and having two scales, one corresponding to the action of either coil acting alone, and the other to the action of the two coils acting differentially, the latter scale having larger divisions for equivalent current-indications.

6. The combination with an electric motor, of an alarm device having an electromagnet connected in circuit with said motor, and having an armature with means for retarding its movement, whereby a momentary abnormal current through the motor will not operate the alarm, but a continuance of such abnormal current will operate the same.

7. The combination with two motors driving a single vehicle, of two coils connected respectively in circuit with said two motors, a magnetic device acted on by both said coils, contacts controlled by said magnetic device, and an electromagnetic alarm device having a retarded movement and connected in circuit with said contacts, whereby a continuance of unbalanced condition of the two motors will cause an alarm.

8. The combination with two motors driving a single vehicle, of two coils connected respectively in the circuit of said two motors, a magnetic device acted on by both of said coils, contacts controlled by said magnetic device, and an electric alarm device placed in circuit with said contacts, whereby said alarm is responsive to an overload on the motor.

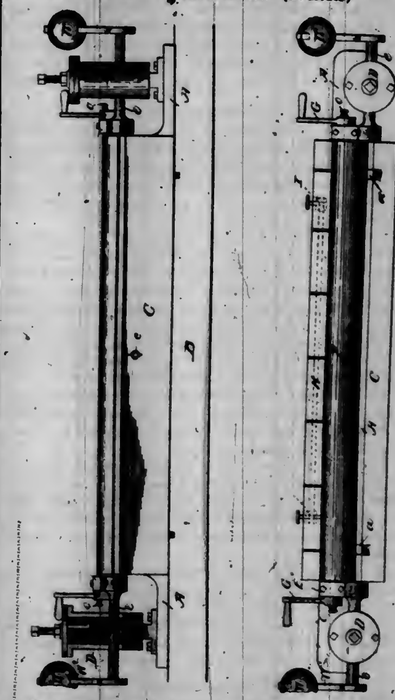
9. The combination with an electric motor, of a magnet placed in a shunt around the field-magnet of said motor, and alarm devices operated by the said magnet.

10. The combination with an electric motor, of a coil placed in a shunt around the field-magnet of said motor and magnetic indicating devices operated by said coil.

11. The combination with an electric motor, of a magnet placed in shunt around the field-magnet of said motor, and alarm devices operated by said magnet and having a retarded movement, substantially as and for the purpose set forth.

12. The combination with an electric motor, of a coil placed in a shunt around the field-magnet of said motor, a magnetic device operated by said coil, contacts controlled by said magnetic device, and an electric alarm connected in circuit with said contacts and having a retarded movement, substantially as and for the purpose set forth.

590,264. CORNICE-BRAKE AND FOLDER. DAVID IRONS, St. Louis, Mo., assignor of one-half to Edward W. Dieterle, same place. Filed Mar. 8, 1897. Serial No. 626,437. (No model.)



Claim.—1. The combination with a suitable stationary frame, of a folding-frame, and a clamp pivotally mounted on the folding-frame, the pivotal axis of said folding-frame being coincident with the upper meeting edges of the folding-frame and the stationary supporting-frame; substantially as described.

2. The combination with a stationary frame, of a folding-frame, pivotally mounted in suitable supports and cooperating with the stationary frame, a clamp pivotally mounted on the folding-frame, said clamp cooperating with the folding-frame and the stationary frame,

and a handle for operating said clamp and folding-frame; substantially as described.

3. The combination with the frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, and a stop-plate operating between the clamp and folding-frame; substantially as described.

4. The combination with the frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a stop-plate operating between the clamp and folding-frame, and means for adjusting said stop-plate relative to the axis of rotation of the folding-frame; substantially as described.

5. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, said folding-frame and clamp being formed with alining grooves in their contiguous faces, and a stop-plate operating between said clamp and folding-frame, said stop-plate being provided with ribs which coöperate with the grooves in the clamp and folding-frame; substantially as described.

6. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a stop-plate operating between the clamp and folding-frame, sprocket-wheels mounted in said stop-plate and connected by a suitable belt or chain, whereby they may be rotated in unison, and threaded stems secured to said sprocket-wheels, and operating in threaded openings in the folding-frame; substantially as described.

7. The combination with a suitable stationary frame, of a swinging folding-frame coöperating with the stationary frame, a clamp pivotally mounted on said folding-frame, said clamp coöperating with the folding and stationary frames, and means for locking said clamp in position against the metal to be operated upon; substantially as described.

8. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a handle for operating said clamp, and a lock in said handle for locking the clamp in position; substantially as described.

9. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a handle for operating said clamp and folding-frame, and a spring-pressed bolt mounted in said handle and coöperating with the folding-frame, for locking the clamp relative to the folding-frame; substantially as described.

10. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a handle for operating said clamp, and folding-frame, a spring-pressed bolt mounted in said handle, said bolt being adapted to coöperate with the folding-frame for locking the clamp relative to the folding-frame, or be withdrawn within the handle so as to be out of engagement with the folding-frame; substantially as described.

11. The combination with a suitable frame, of a folding-frame, pivotally mounted in suitable supports, a clamp pivotally mounted on said folding-frame, and weighted arms on the spindles of the folding-frame, the weights of which arms are adapted to pass beyond dead-center when the folding-frame is operated; substantially as described.

12. The combination with a suitable frame, of a swinging folding-frame, a clamp pivotally mounted on said folding-frame, a form mounted on the frame, and form-supports coöperating with said frame for holding the form in position; substantially as described.

13. The combination with the frame, of a form, and form-support comprising a grooved shank and a pivoted notched bar in said shank which coöperates with the frame of the machine to hold the form in place; substantially as described.

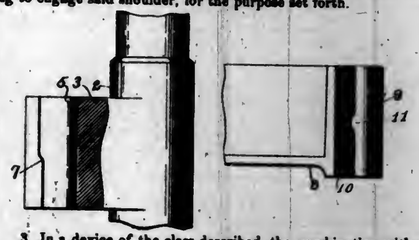
14. The combination with the frame, of a form, a form-support comprising a grooved shank and a spring-pressed notched locking-bar pivoted in the groove of said shank, a ring fitted in the frame around an opening for receiving the shank, said ring having a beveled edge to coöperate with the notched bar of the form-support; substantially as described.

15. The combination with a suitable frame, of a swinging folding-frame, having spindles at its ends, slotted cylinders through which said spindles pass, bearing-blocks in said cylinders, screws for holding said bearing-blocks in position, the pivotal axis of said folding-frame being coincident with the upper meeting edges of the folding-frame and the supporting-frame; substantially as described.

590,265. BEDSTEAD. AXEL R. JACOBSON, Minneapolis, Minn. Filed Jan. 28, 1897. Serial No. 621,009. (No model.)

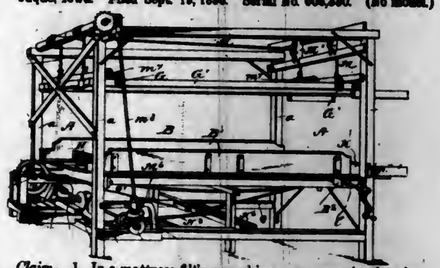
Claim.—1. In a bedstead, the combination with the corner-iron, provided with a socket, of the side rails having a tongue to enter said socket, said tongue being provided with a lug having an inclined surface in position to engage a shoulder also having an inclined surface provided on the inner surface of said socket, for the purpose set forth.

2. The combination, with the corner-iron having a laterally-projecting shoulder provided with a vertical socket, of a side rail having a tongue to fit into said socket, the latter being provided with a shoulder on its inner surface, and said tongue being provided with a lug to engage said shoulder, for the purpose set forth.



3. In a device of the class described, the combination with the part 2 having the projection 3 provided with the socket 5 and slot 6 leading thereto, of the angled bed-rail having a tongue 9 to slip into said socket, the shoulder 7, the recesses 10 provided in said tongue, and the lugs 11 to engage said shoulders, for the purpose set forth.

590,266. MATTRESS-FILLING MACHINE. JOHN KAPP, Dubuque, Iowa. Filed Sept. 19, 1896. Serial No. 606,380. (No model.)



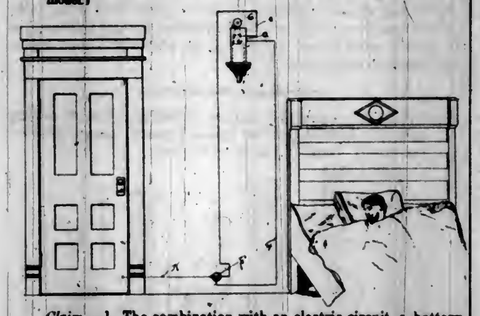
Claim.—1. In a mattress-filling machine, a compression-box having sides adjustable laterally to vary the width of the box, and a cover adapted to be raised and lowered and adjustable in width, and means for coupling the cover to the sides of the box for the purpose described, in combination with means for operating the cover comprising pulleys, a windlass-shaft supporting ropes secured at opposite ends to the cover and passing over the pulleys and windlass-shaft, a gear-wheel on said shaft, a shaft carrying at its upper end a worm meshing with said gear-wheel, a friction bevel-wheel at the lower end of the shaft, a rotatable driving-shaft and friction bevel-wheels thereon, and shifting devices adapted to bring either of the latter wheels into frictional engagement with the bevel-wheel on the lower end of the shaft carrying the worm.

2. In a mattress-filling machine, the combination with a compression-box, of a horizontally-reciprocating plunger operating therein, an endless chain connected with the plunger, transverse shafts carrying sprocket-wheels over which said chain passes, a rotatable driving-shaft, friction bevel-wheels on the driving-shaft, a longitudinally-arranged shaft, gearing between the latter shaft and one of the transverse shafts, a friction bevel-wheel on the said longitudinal shaft, and means for effecting frictional engagement between the bevel-wheel on the said longitudinal shaft and either of the bevel-wheels on the driving-shaft.

3. In a mattress-filling machine, the combination with a compression-box, of a horizontally-reciprocating plunger operating therein, an endless chain connected with the plunger, transverse shafts carrying sprocket-wheels over which said chain passes, a rotatable driving-shaft, friction bevel-wheels on the driving-shaft, a longitudinally-arranged shaft, gearing between the latter shaft and one of the transverse shafts, a friction bevel-wheel on the said longitudinal shaft, the arm, the eccentrically-arranged cylinder through which said longitudinal shaft passes, a transversely-movable shifting lever, a rod connected at one end with said lever, and a rod joining the opposite end of the rod with the arm.

4. In a mattress-filling machine, the combination with a compression-box, of a plunger adapted to reciprocate therein, an endless sprocket-chain secured to the plunger, transverse shafts carrying sprocket-wheels over which said chain passes, a rotatable driving-shaft, friction bevel-wheels on the driving-shaft, a longitudinally-arranged shaft, gearing between the latter shaft and one of the transverse shafts, a friction bevel-wheel on said transverse shaft, a transversely-movable lever having notches, connections between the lever and the adjustable bevel-wheels, a longitudinally-arranged movable rail carrying stops toward opposite ends, projections on the sprocket-chain adapted to strike the said stops to move the rail endwise as described rods secured at one end to the movable rail adapted to engage at the opposite end with the notches in the transversely-movable lever to alternately lock and release the said lever, and a catch-pin arranged between the adjacent ends of the rods and adapted to engage the notches, as described.

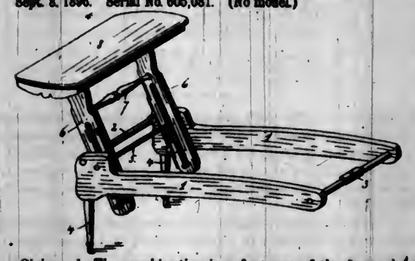
590,267. ELECTRIC ALARM. JOHN C. KENNOUTH, Spearfish, S. D., assignor of one-half to Frank H. Black, Rushville, Nebr. Filed Jan. 20, 1896. Renewed June 14, 1897. Serial No. 640,760. (No model.)



Claim.—1. The combination with an electric circuit, a battery, an electric bell and box inclosing the same, as described, of a plate *f*, posts D and E, a strong flat spring having one end secured to said plate and electrically connected to one of said posts, a contact-point electrically connected to the other of said posts, and against which said spring normally bears, a trigger having one end suitably secured to said plate and having a notch therein into which the end of said spring catches when it is moved and of engagement with said contact-point, and a snare-wire connected to the outer end of said trigger.

2. The combination with an electric circuit, of a plate *f*, posts D and E, a flat spring having one end secured to said plate and electrically connected to one of said posts, and from whence it extends across said plate to its opposite edge and is provided with a knob to pull its free end outward, a contact-point electrically connected to the other of said posts, against which said spring normally bears, a trigger having one end suitably secured to said plate near the free end of said spring having a notch therein in which said free end catches when said trigger is in proper position, and a snare-wire one end of which is connected to the free end of said trigger, as and for the purpose set forth.

590,268. FOOT-REST. CHARLES A. LEE, Canastota, N. Y. Filed Sept. 8, 1896. Serial No. 605,081. (No model.)

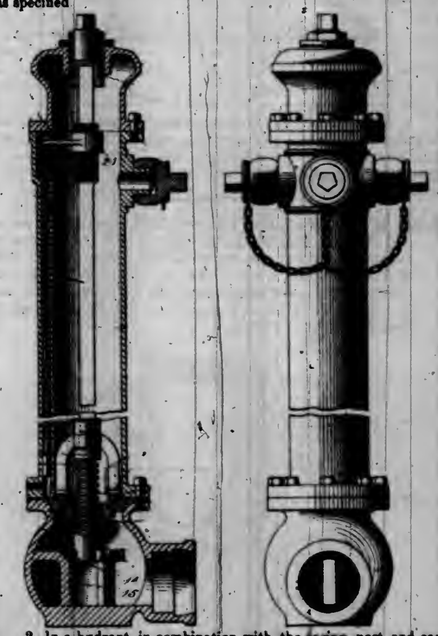


Claim.—1. The combination in a foot-rest of the frame having bar 2 with hooks 10, 10 and rod 5, the slotted arms 6 running on the bar 5 and provided with hooks 11, 11 adapted to engage the hooks 10, 10 and the stool-top 8 hinged on the ends of the arms 6, substantially as set forth.

2. The combination in a foot-rest of a frame having a cross-bar 2 with hooks 10, 10 and cross-rod 5 located with reference to bar 2 as shown, arms 6 having slot *x* and enlargement *x'* arranged as described, mounted on the cross-rod and provided with hooks 11, 11, and the stool-top hinged to the upper end of the arms.

590,269. FIRE-HYDRANT. GEORGE R. MARTIN, Hartford, Conn., assignor to The Pratt & Cady Company, same place. Filed Mar. 9, 1897. Serial No. 626,584. (No model.)

Claim.—1. In a hydrant, in combination with a casing, post and cap cast to shape of a base metal, a bushing of finer metal cast in the outlet end of the casing and provided with threads in its inner wall, a removable seat-ring with threads on its periphery screwed into the threads in the bushing, a yoke projecting upwardly from the seat-ring, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified



2. In a hydrant, in combination with the casing, post and cap, a removable seat-ring having screw-threads on its periphery and lugs projecting from its upper face, a yoke loosely held by the lugs, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified.

3. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a yoke loosely connected with the seat-ring, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified.

4. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a valve-screw loosely supported by a part connected with the seat-ring, a valve mounted upon the screw, a spindle for rotating the screw, a sleeve borne by a threaded part of the spindle, and a rod connected with the sleeve and adapted to close the drip-outlet as the spindle is rotated to open the valve and adapted to open the drip-outlet as the spindle is rotated to close the valve, substantially as specified.

5. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a valve-screw loosely supported by a part connected with the seat-ring, a valve mounted upon the screw, a spindle for rotating the screw, a sleeve borne by a threaded part of the spindle, a rod connected with the sleeve and adapted to close the drip-outlet as the spindle is rotated to open the valve and adapted to open the drip-outlet as the spindle is rotated to close the valve, and a spindle-arbor loosely connected with the upper end of the spindle and projecting through the cap, substantially as specified.

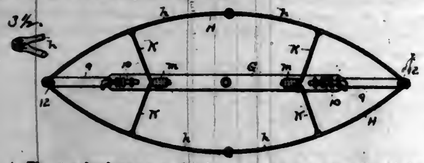
590,270. SHADE FOR BICYCLES. JAROSLAV MASEK and LADISLAV ČÁPEK, Cleveland, Ohio. Filed Sept. 21, 1896. Serial No. 606,461. (No model.)

Claim.—1. A shade for bicycles and like vehicles comprising a central longitudinal bar and extension-pieces hinged thereon, and a detachable elliptical frame stretched upon said bar and extension-pieces and means to support said shade, substantially as described.

2. The shade-standard and the vertical rod telescoped therein and the inclined brace clamped adjustably on said standard, in combination with the slotted supporting-piece engaged by said rod and diagonal brace, and the shade-frame pivotally and adjustably supported on said supporting-piece, substantially as described.

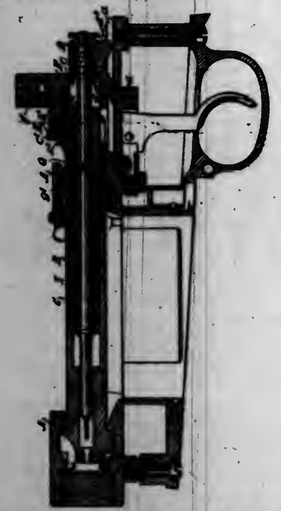
3. The shade-frame described consisting of the part G and the hinged extensions 9 and means to make said parts rigid, with each

other, said extensions having hooks 12, in combination with the foldable wire frame H engaged by the hooks 12 and braced laterally thereupon, substantially as described.



4. The standard-supports, the slotted supporting-piece E and the slidable rods 10 thereon, in combination with the horizontally-rotatable shade-frame on said supporting-piece and the wire frame H thereon, substantially as described.

590,271. SMALL LOCK FOR BOLT-GUNS. PAUL MAUSER, Oberndorf, Germany. Filed Dec. 2, 1895. Serial No. 570,770. (No model.) Patented in Belgium Nov. 9, 1895, No. 116,427; in France Nov. 11, 1895, No. 251,596; in England Nov. 13, 1895, No. 21,547; in Norway Nov. 21, 1895, No. 4,640; in Switzerland Dec. 9, 1895, No. 11,333; in Italy Dec. 31, 1895, No. 40,133/425; in Austria Feb. 5, 1896, No. 46/437, and in Spain Mar. 7, 1896, No. 18,284.



Claim.—1. An oscillatory and longitudinally-movable bolt having a fixed bolt-handle, a small lock rotatively coupled to the rear of the bolt and movable longitudinally therewith, a firing-pin carried by said bolt and coupled thereto by said small lock, and a receiver holding said small lock against turning when the bolt-handle is turned down, and freeing the small lock when said handle is turned up and moved back, in combination with automatic means locking said small lock against rotation when the bolt-handle is turned up and during its longitudinal movement, and automatically unlocking it at the end of such movement, and then permitting said handle to turn down, whereby during longitudinal movement the small lock cannot turn out of position.

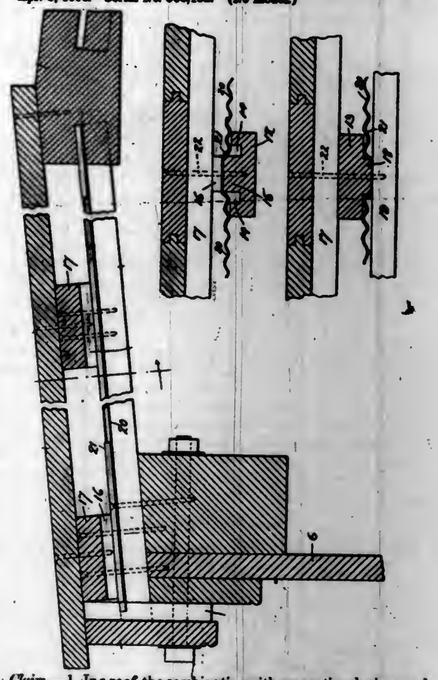
2. A receiver, a bolt having a fixed handle, and having oscillatory and longitudinal movements therein, a small lock secured to and moving longitudinally with said bolt at rear of its handle, engaging said receiver when moved forward, then prevented thereby from rotation, and free to rotate when moved back, and a firing-pin carried by said bolt, said bolt and small lock movable from a closed position in said receiver to an open position at rear thereof, and the one having a notch adjacent to the other, said handle turning down to lock the bolt in the closed position and turning up to free it and move it back, in combination with a catch carried by one of said parts and engaging the notch in the other of said parts when the handle is turned up and moved back, and then locking said small lock non-rotatively to the bolt, said catch having a portion engaging and moved by the receiver as said parts approach the forward position, and thereby disengaged from said notch, and then permitting said bolt-handle to oscillate.

3. A bolt having a notch b', and a small lock E swiveled thereto and having a socket e^3, a notch e^4 and a recess e^5, and a catch H consisting of a pin seated in said socket, engaging said notch b' in said bolt and having a stud h moving in said notch e^4, all combined and arranged substantially as and for the purpose set forth.

4. A receiver, and a bolt working therein and having an open rear end, in combination with a small lock E swiveled to and closing the rear end of said bolt, bearing at its under side on said receiver, and having a lateral projecting flange e near its front end, and surrounding the exposed end of said bolt, and constituting a gas-shield for deflecting rearwardly-escaping gases.

5. An oscillatory bolt having a locking-notch, and a small lock swiveled to said bolt, and a safety-lock carried by said small lock, and entering said notch at one position of the bolt, and thereby locking the bolt against oscillation, in combination with a safety-catch carried by said small lock, entering said notch when said bolt is moved to another position, and then locking the small lock against oscillation relatively to the bolt.

590,272. CAR-ROOF. JAMES J. MCCARTHY, Austin, Ill., assignor to the Chicago-Cleveland Car Roofing Company, Chicago, Ill. Filed Apr. 3, 1896. Serial No. 586,122. (No model.)



Claim.—1. In a roof, the combination with supporting devices, and roofing-plates at each side thereof, of intermediate plates connected to said supporting devices and projecting at each side thereof, and extending parallel with and fitting closely upon the roofing-plates, forming practically a continuation of the roofing-plates, substantially as described.

2. In a roof, the combination with rafters, and corrugated roofing-plates at each side thereof, of intermediate corrugated plates connected to the rafters and projecting at each side thereof, and extending parallel with and fitting closely upon the roofing-plates, forming practically a continuation of the roofing-plates, substantially as described.

3. In a roof, the combination with rafters, and roofing-plates at each side thereof, of intermediate plates projecting at each side of the rafters and extending substantially parallel with and fitting closely upon the roofing-plates, forming practically a continuation of the roofing-plates, substantially as described.

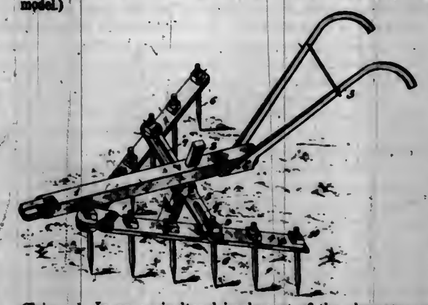
4. In a car-roof, the combination with rafters having gutters at each side, and roofing-plates at each side of said rafters, of intermediate plates projecting over said gutters and engaging the roofing-plates, substantially as described.

590,273. LETTER-CLIP. COLIN C. MCPHEE, Chatham, Canada. Filed Feb. 24, 1896. Serial No. 580,601. (No model.)

Claim.—In combination with a base-board A, and spring-plate B, having claws c, c bent downward to receive and hold papers, and also having lugs a, a, forming an angle with the claws c, c, the handle-bars d, d, pivoted to the said lugs a, a, and engaging with the roller F for the purpose of engaging the papers as they are offered and for feeding them beneath claws c, c, and also for holding all previously-inserted papers from dropping out during the insertion of the last paper, substantially as specified and set forth.



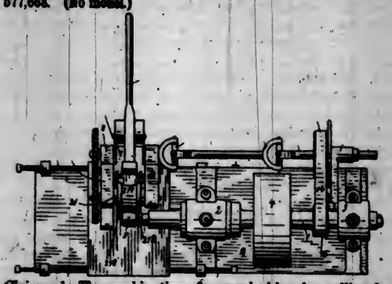
590,274. HARROW. WILLIAM D. PARKS and THOMAS S. KIRBY, Scottsborough, Ala. Filed May 27, 1897. Serial No. 638,438. (No model.)



Claim.—1. In an agricultural implement of the character set forth, the combination of toothed bars having pivotal connection at one end, a spreader or coupling-bar having adjustable connection at its ends with the toothed bars, whereby the latter may be separated or brought closer together at their rear or free ends, said coupling-bar having an intermediate portion bent or partially twisted and forming shoulders at each end of the inclined part formed thereby, and a plow-stock secured to the inclined portion of the coupling-bar and having the shoulders at the ends thereof embracing its sides, substantially as set forth for the purpose specified.

2. The herein-described harrow attachment, comprising bars having their front ends offset and overlapping, a spreader or coupling-bar having its end portions longitudinally slotted and its intermediate portion bent or partially twisted to provide an inclined part having shoulders at the ends thereof, and harrow-teeth at intervals in the length of the bars, the front harrow-tooth pivotally connecting the said bars and intermediate harrow-teeth adjustably connecting the coupling-bar with the frame or side bars, the said harrow-teeth having their attaching ends threaded and receiving nuts between which the bars are clamped, substantially as set forth.

590,275. MACHINE FOR FORMING BUSHING-FERRULES. CHARLES T. PRATT, Clayville, N. Y. Filed Feb. 1, 1896. Serial No. 577,662. (No model.)



Claim.—1. The combination of a mandrel-head, a rolling flanged cutter and an end presser adapted to operate against the end of the head, substantially as set forth.

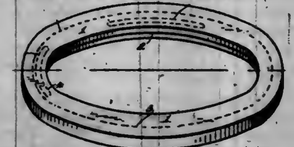
2. The combination in a ferrule-machine of a rotary mandrel-head, driving-mechanism a doubly-flanged roller-cutter, a cutter-driving mechanism and a movable carriage supporting the roller-cutter, substantially as set forth.

3. The combination in a ferrule-forming machine of a positive mandrel-head-driving mechanism, a rotary roller, roller-driving mechanism, a movable carriage carrying the roller and mechanism for operating the carriage to move the roller to and from the mandrel-head, substantially as set forth.

4. In a ferrule-forming machine the combination of a mandrel-head, mandrel-head-driving mechanism, a roller, a rocking tool-carriage carrying the roller-driving mechanism and a toggle-joint and lever for operating the tool-carriage, substantially as set forth.

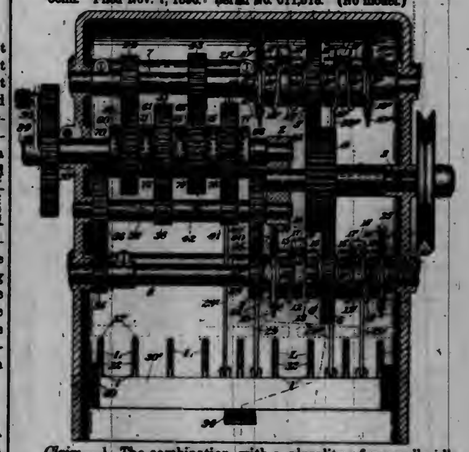
5. In a ferrule-forming machine the combination of a rotary mandrel-head, a flanged roller adapted to operate on the head, a movable carriage supporting the roller, and an end presser mounted on the carriage, substantially as set forth.

590,276. PACKING-GASKET. GEORGE H. RAYMOND, Bridgeport, Conn., assignor of one-half to George B. Perkins, same place. Filed July 10, 1896. Serial No. 598,946. (No model.)



Claim.—The herein-described improved packing-gasket provided with the longitudinal cut partially through the same adapted to admit short independent pieces of packing to compensate for uneven surfaces between which such gasket is adapted to be placed, for the purpose set forth.

590,277. ADDING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Nov. 7, 1896. Serial No. 611,318. (No model.)



Claim.—1. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements; of a plurality of individually-operative driving-element-controlling selectors, at least one of said selectors controlling a determined plurality of said driving elements, and each remaining selector controlling a determined number of said driving elements.

2. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements; of a plurality of keys controlling the rotation of said driving elements, at least one of said keys controlling a determined plurality of said driving elements, and each remaining key controlling a determined number of said driving elements.

3. The combination, with a plurality of independently orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements; of a plurality of individually-operative, driving-element-controlling selectors, at least one of said selectors controlling the orbital movements of a determined plurality of said driving elements, and each remaining selector controlling a determined number of said driving elements.

4. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements, of continuously-rotative main driving-means; a plurality of individually-operative coupling-selectors for selectively coupling said driving elements and said main driving means, at least one of said selectors

controlling the coupling of a determined plurality of said driving elements, and each remaining selector controlling the coupling of a determined number of said driving elements; and driven means operable by said driving elements.

5. The combination, with a plurality of independently orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements, of continuously-rotative main driving means; a plurality of individually-operative, frictionally-coupling selectors for selectively coupling said driving elements and said main driving means, at least one of said selectors controlling the coupling of a determined plurality of said driving elements, and each remaining selector controlling the coupling of a determined number of said driving elements; and driven means operable by said driving elements.

6. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements, of continuously-rotative main driving means; a plurality of individually-operative, coupling and uncoupling selectors for selectively coupling and uncoupling said driving elements and said main driving means, at least one of said selectors controlling the coupling and uncoupling of a determined plurality of said driving elements, and each remaining selector controlling the coupling and uncoupling of a determined number of said driving elements; and driven means operable by said driving elements.

7. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements, of continuously-rotative main driving means; a plurality of key-operated coupling-selectors for selectively coupling said driving elements and said main driving means, at least one of said selectors controlling the coupling of a determined plurality of said driving elements, and each remaining selector controlling the coupling of a determined number of said driving elements; and driven means operable by said driving elements.

8. The combination, with a plurality of normally idle, independently-rotatable driving elements having determined feed movements; of key-operated escapements for said respective driving elements, at least one key controlling a determined plurality of said driving elements, and each remaining key controlling a determined number of said driving elements; and driven means operable by said driving elements.

9. The combination, with a gear-train comprising a plurality of cooperative gears having a determined plurality of said gears selectively operable independently of one another and of others of said train; of a plurality of keys, at least one of said keys controlling a determined plurality of said independently-operable gears, and each remaining key controlling a determined number of such gears.

10. The combination, with a plurality of operatively-connected pairs of gears; of a plurality of independently-revoluble pinions connecting, respectively, the respective gears of each said pair, and each revoluble in the orbits of the gears of its pair and rotatable transversely to its orbital movement; a plurality of selectively-operative, pinion-revolving pinion-carriers; continuously-rotative main driving means; and a plurality of pinion-carrier-coupling selectors for intermittently coupling said pinion-carriers and said driving means during the rotation of the latter.

11. The combination, with a plurality of operatively-connected pairs of gears; of a plurality of independently-revoluble pinions connecting, respectively, the respective gears of each said pair, and each revoluble in the orbits of the gears of its pair and rotatable transversely to its orbital movement; a plurality of selectively-operative, pinion-revolving pinion-carriers; continuously-rotative main driving means; and a plurality of key-controlled coupling-selectors for intermittently coupling said pinion-carriers and said driving means during the rotation of the latter.

12. The combination, with a plurality of operatively-connected pairs of gears; of a plurality of independently-revoluble pinions connecting, respectively, the respective gears of each said pair, and each revoluble in the orbit of the gears of its pair and rotatable transversely to its orbital movement; a plurality of selectively-operative, pinion-revolving pinion-carriers; continuously-rotative main driving means; and a plurality of key-controlled coupling-selectors for intermittently coupling said pinion-carriers and said driving means during the rotation of the latter, at least one of said selectors controlling a determined plurality of said pinion-carriers, and each remaining selector controlling a determined number of said pinion-carriers.

13. The combination, with a plurality of universal bars and with driving means controlled thereby, of a plurality of keys, at least one of said keys controlling a determined plurality of said universal bars, and each remaining key controlling a determined number of universal bars.

14. The combination, with a plurality of universal bars and with driven means controlled thereby; of a plurality of key-levers, at least one of said key-levers controlling a determined plurality of said universal bars, and each remaining key-lever controlling a determined number of universal bars.

15. The combination, with a plurality of orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements; of driving-element-controlling universal bars, one for each driving element; and a plurality of key-levers, at least one of said key-levers controlling a determined plurality of said universal bars, and each remaining key-lever controlling a determined number of universal bars.

16. The combination, with a plurality of orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements; of continuously-rotative main driving means; universal-bar-operated coupling devices for coupling said respective driving elements and said main driving means; a plurality of universal bars, one for each of said driving elements; and a plurality of key-levers, at least one of said key-levers controlling a determined plurality of said universal bars, and each remaining key-lever controlling a determined number of universal bars.

17. The combination, with a plurality of orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements, of continuously-rotative main driving means; universal-bar-operated coupling and uncoupling devices for coupling and uncoupling said respective driving elements and said main driving means; a plurality of universal bars, one for each of said driving elements; and a plurality of key-levers, at least one of said key-levers controlling a determined plurality of said universal bars, and each remaining key-lever controlling a determined number of universal bars.

18. The combination, with a friction-clutch comprising a continuously-rotative driver and a frictionally-rotated driven member in frictional sliding contact with said driver, of an escapement controlling the rotation of said driven member.

19. The combination, with a friction-clutch comprising a continuously-rotative driver and a frictionally-rotated driven member in frictional sliding contact with said driver, of a key-operated escapement controlling the rotation of said driven member.

20. The combination of a rotary feed member and an escapement having cooperative frictionally-clutching stop-faces.

21. The combination of a rotary feed member and an escapement operative in corresponding planes and having cooperating frictionally-clutching stop-faces.

22. The combination with a rotary feed member having stop-faces, of an escapement having a pair of frictionally-clutching forks cooperative with the stop-faces of said feed member.

23. The combination with a rotary feed member having wedge-shaped stops; of an escapement having a pair of frictionally-clutching forks cooperative with the stops of said feed member, said forks having their holding-faces diverging toward said stops.

24. The combination with a continuously-rotative driver, of a divided friction-ring encircling said driver; and a resilient connector joining the divided ends of said friction-ring and normally tending to draw said ends together; and means for holding and releasing said friction-ring.

25. The combination with a continuously-rotative driver, of a divided friction-ring encircling said driver; a resilient connector joining the divided ends of said friction-ring and encircling said ring and normally tending to draw said ends together; and means for holding and releasing said friction-ring.

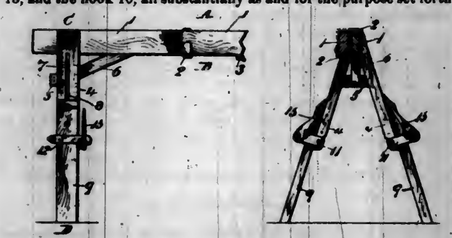
26. The combination, with a plurality of orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements; of a plurality of individually-operative, driving-element-controlling selectors, at least one of said selectors controlling a determined plurality of said driving elements, and each remaining selector controlling a determined number of said driving elements; a driven shaft operatively connected with the terminal driving element; and an indicating device operable by said driven shaft.

27. The combination, with a plurality of orbitally-movable, operatively-connected, orbital speed-accumulating rotary driving elements; of a plurality of individually-operative driving-element-controlling selectors, at least one of said selectors controlling a determined plurality of said driving elements, and each remaining selector controlling a determined number of said driving elements; a driven shaft; coupling devices for connecting said driven shaft to, and disconnecting it from, the terminal driving element; and an indicating device operable by said driven shaft.

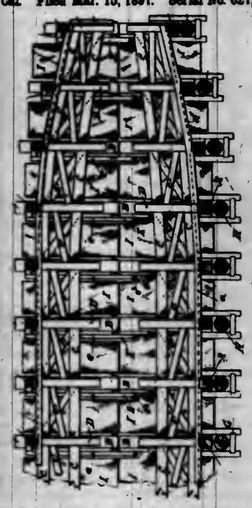
590,278. EXTENSIBLE TRESTLE. AARON RITTER, Hoopeston, Ill., assignor of one-half to Byron R. Cronkhite, Rossville, Ill. Filed Mar. 22, 1897. Serial No. 628,683. (No model.)

Claim.—1. In an extensible trestle, the combination of a supporting-beam, end supporting-legs extending diagonally from and secured to the ends of such beam, said legs having longitudinally-extending slots 7, the pins 8, the hooks 10, the extensible legs 9, and means whereby said extensible legs are clamped to said fixed legs, substantially as and for the purpose set forth.

2. In an extensible trestle, the combination with the end sections thereof composed of two beams placed side by side, the S-clips 2, and the stops 3, said beams each provided with the supporting-legs 4, having the longitudinally-extending slots 7 and the pins 8, of the extensible legs 9, the clamps 11, the cap 12, the clamping-lever 13, and the hook 10, all substantially as and for the purpose set forth.



590,279. LOG-RAFT CONSTRUCTION. HUGH R. ROBERTSON, Alameda, Cal. Filed Mar. 15, 1897. Serial No. 627,475. (No model.)



Claim.—1. In log-raft construction, a floating cradle, composed of separable sections, and means for holding said sections together while the raft is building, and releasing them, whereby they may separate, to launch the raft.

2. In log-raft construction, a floating cradle, composed of separable sections, each section comprising suitable horizontal pieces, uprights, and intervening inclined braces, to give shape or form to the raft, and means for holding said sections together while the raft is building, and releasing them, whereby they may separate, to launch the raft.

3. In log-raft construction, a floating cradle, composed of separable sections, and means for holding the sections together and steadying them, consisting of the tongue-plates on one section, and the sheath-sockets on the other section, into which the tongue-plates slidingly fit.

4. In log-raft construction, a floating cradle, composed of separable sections, and means for detachably locking said sections together, consisting of the pivoted locking-levers, on one section, having hook ends, the fixed pins in the other section, with which the hook ends of the levers engage, and the handles for operating the locking-levers.

5. In log-raft construction, a floating cradle, composed of separable sections, means for holding the sections together and steadying them, consisting of the tongue-plates on one section, and the sheath-sockets on the other section, into which the tongue-plates slidingly fit, and the means for detachably locking said sections together, consisting of the pivoted locking-levers, on one section, having hook ends, the fixed pins in the other section, with which the hook ends of the levers engage, and the handles for operating the locking-levers.

6. In log-raft construction, a floating cradle composed of separable sections, and provided with means for detachably holding or locking them together, each section comprising uprights, horizontal timbers, longitudinal stringers, and inclined braces to give form or shape to the raft.

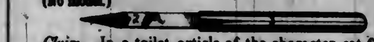
7. In log-raft construction, a floating cradle, composed of separable sections, provided with means for detachably holding or locking them together, one of said sections being free, and the other anchored by suitable means.

8. In log-raft construction, a floating cradle, composed of separable sections, provided with means for detachably holding or locking them together, one of said sections being free, and the other anchored by means of sliding boxes to fixed piles.

9. In log-raft construction, a cradle composed of a body portion, comprising separable sections, provided with means for detachably holding or locking them together, each section comprising suitable uprights, horizontal timbers and forming or shaping braces, and a float portion, in separate sections, corresponding to and adapted to support the sections of the body portion.

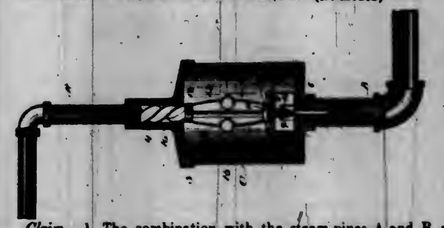
10. In log-raft construction, a cradle composed of a body portion, comprising separable sections, provided with means for detachably holding or locking them together, each section comprising suitable uprights, horizontal timbers and forming or shaping braces, and a float portion in separate sections corresponding to and adapted to support the sections of the body portions, said float portion being formed of timbers, in a plurality of layers, one layer lying crosswise of those adjacent.

590,280. COMBINED EAR AND TOOTH PICK. FREDERICK R. ROCKSTROH, San Francisco, Cal. Filed Feb. 15, 1897. Serial No. 623,545. (No model.)



Claim.—In a toilet article of the character set forth, a handle having an end portion open, flattened and split, and a blade removably fitted within the flattened end of the handle and having a bulged or expanded portion to be secured by a wedging action between the parts of the handle upon opposite sides of the split, substantially as set forth.

590,281. GOVERNOR-VALVE. JAMES H. RUNDLE, Santa Barbara, Cal. Filed Mar. 20, 1897. Serial No. 628,472. (No model.)



Claim.—1. The combination with the steam-pipes A and B, a suitable casing C interposed between said pipes, a shaft journaled in said casing provided with a governor, and a spiral, of a valve in the bottom of the casing and yoke mounted upon a fulcrum said yoke connected to the valve-seat, and to the free head or collar of the governor, substantially as shown and described.

2. In a valve-governor the combination with a steam-pipe, of a casing interposed therein, a shaft journaled in said casing having a governor mounted thereon and its upper portion provided with a spiral groove said spiral extending up into the inlet-pipe, a valve in the bottom of the casing, and a yoke fulcrumed in said casing connected to the valve-seat and to the free head or collar of the governor, a weight on said yoke, substantially as shown and described.

3. The combination with the steam-pipe of a casing interposed therein, a shaft mounted in said casing, said shaft provided with weighted governor-springs and a spiral groove secured upon the upper end of the shaft, and extending into the said steam-pipe, a valve in the bottom of the casing, a yoke adjustably fulcrumed in the said casing connected to the valve and governor, and a screw to adjust said fulcrum, substantially as shown and described.

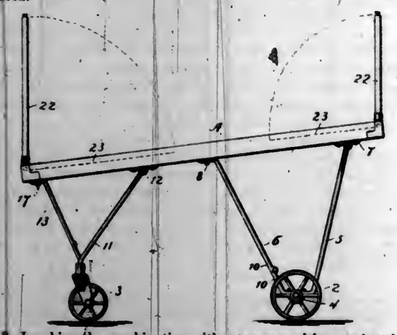
4. In a valve-governor the combination of a steam-pipe having a casing interposed therein, a shaft mounted in said casing provided with a governor and a spiral on its upper end extending from the casing into the steam-pipe, a valve in the bottom of the said casing provided with a sleeve projecting into the discharge-pipe, and connections between the said valve and governor, whereby the valve is opened and closed, substantially as shown and for the purpose set forth.

590,282. BIER. JAMES W. SUMNER, Cynthiana, Ky. Filed Sept. 11, 1895. Serial No. 562,205. (No model.)

Claim.—1. In a bier, the combination with a top comprising two sections having sliding connection with each other whereby it may be shortened or lengthened, and two pairs of trucks connected with

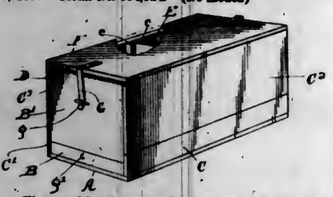
one of these sections, of a support having a sliding adjustable connection with the other section, substantially as set forth.

2. In a bier, the combination with a top comprising two sections having sliding adjustable connection with each other, and trucks connected with one of these sections, of an extensible support having a pivotal adjustable connection with the other section, substantially as set forth.



3. In a bier, the combination with a top comprising sections having sliding connection with each other whereby it may be lengthened and shortened, of two trucks of different heights connected with one section and constructed to fold thereunder, it comprising the hinged yokes 5 and 11 and jointed braces 6 and 13, an extensible support hinged to the other section, and a brace having sliding connection with the bier at one end and the support at the other end, substantially as set forth.

590,283. FOLDING PACKING-CASE. GEORGE SPARROW, Freeport, Ill., assignor of one-half to William Drake, Belvidere, Ill. Filed Apr. 20, 1897. Serial No. 634,324. (No model.)



Claim.—The combination with the bottom, A, having end stationary pieces, B, B, and stationary side pieces, C, C, of the folding ends, B', B', the folding sides, C^3 C^3, the chains, D, connecting the upper corners of the side pieces, the top, F, provided with transverse cleats, *f*, *f*, and the hasps and staples, G, *g*, adapted to connect the cover with the end pieces when raised.

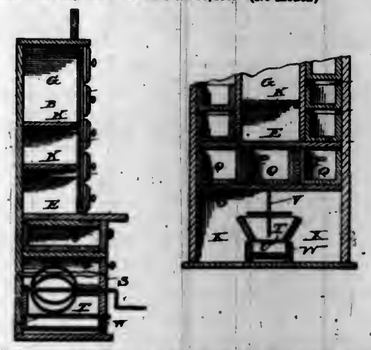
590,284. FIRE-SCREEN. HENRY A. STYER, Prescott, Ark. Filed Mar. 9, 1897. Serial No. 626,581. (No model.)



Claim.—1. In combination with the jambs of a fireplace, the hooks 2, secured in the jambs; the U-shaped parts 4, hinged on said hooks and having in their free ends the eyes 7; the U-shaped part 8, having the corner-eyes 15, working in eyes 7, and the terminal eyes 11, sliding on the parallel arms 10, of the part 9; part 9, having the corner-eyes 9^9, working in the eyes 7; and terminal eyes 12, sliding on the parallel arms 14, of the part 8, substantially as shown and described and for the purposes set forth.

2. In combination with the jambs of a fireplace, the hooks 2, secured in the jambs; the U-shaped parts 4, hinged on said hooks and having in their free ends the eyes 7; the U-shaped part 8, having the corner-eyes 15, working in eyes 7, and the terminal eyes 11, sliding on the parallel arms 10, of the part 9; part 9, having the corner-eyes 9^9, working in the eyes 7; and terminal eyes 12, sliding on the parallel arms 14, of the part 8; vertical and horizontal wires 13, 17 and 16, secured to eyes 15 and 11 of part 8, and eyes 12 and 9^9, of part 9, substantially as shown and described and for the purposes set forth.

590,285. KITCHEN-CABINET. GEORGE N. TAGUE, Boone, Iowa. Filed Mar. 30, 1897. Serial No. 628,480. (No model.)

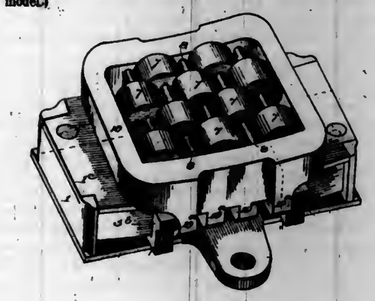


Claim.—1. A kitchen-cabinet consisting of the upper portion having the central vertical compartment provided with a series of shelves and having a door, the narrow vertical side compartments having a series of drawers arranged in two tiers, the transverse division-wall extending out to form a table or shelf, and the lower compartment having the drawers and the flour-hopper below the drawers adapted to swing outwardly and provided with an agitator and sieve.

2. A kitchen-cabinet comprising the upper portion and the lower portion, the series of drawers in the lower portion, the hinged wall in the lower portion beneath the said series of drawers and adapted to swing downwardly or outwardly, the hopper connected and carried by said wall, the sieve connected to the hopper, the rotary agitator arranged in said hopper, and the drawer under the hopper.

3. A kitchen-cabinet comprising the upper portion divided into three vertical compartments the central one of which has a series of shelves therein and a hinged door on the front thereof, and the side compartments having arranged therein each a series or tier of drawers, the bottom portion having a front hinged wall extending across the width thereof and adapted to swing outwardly, a flour-hopper secured on the back of said wall and having a sieve-bottom, an agitator journaled in the wall and back of the hopper, and a flour-receptacle under the flour-hopper to receive the sifted flour, and a division-wall between the top and bottom portions forming a bottom for the top portion, a top for the bottom portion and a table.

590,286. SIDE BEARING FOR RAILWAY-CARS. JOHN C. WARDE, St. Louis, Mo. Filed June 5, 1897. Serial No. 639,538. (No model.)



Claim.—1. In a side bearing for railway-cars the combination with a movable antifriction-bearing, of resilient means for restoring the bearing to its central position when relieved of its load, said means arranged parallel with the line of travel of the bearing; substantially as and for the purposes specified.

2. In a side bearing for railway-cars, the combination with a traveling antifriction-bearing, of resilient means for restoring the bearing to its central position, said means arranged below and parallel with the line of travel of the bearing; substantially as and for the purposes specified.

3. In a side bearing for railway-cars, the combination with a suitable frame provided with antifriction-rollers, of centering-springs arranged parallel with the plane of the carriage; substantially as and for the purposes specified.

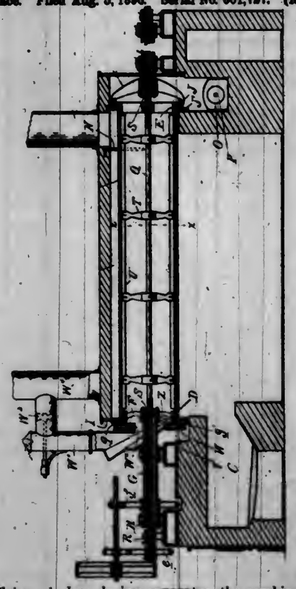
4. In a side bearing for railway-cars, the combination with a movable antifriction-roller bearing, of centering-springs arranged parallel with the travel of the bearing, and interposed yokes for connecting the springs with the movable bearing; substantially as and for the purposes specified.

5. In a side bearing for railway-cars, the combination with a movable antifriction-roller bearing, of a base or housing on which the bearing travels, and centering-springs arranged in the housing and connected with the movable bearing; substantially as and for the purposes specified.

6. In a side bearing for railway-cars, the combination with a movable antifriction-roller bearing, of a base or housing on which the bearing travels, centering-springs inclosed in the base or housing, and yokes, for connecting the springs with the movable antifriction-roller bearing; substantially as and for the purposes specified.

7. In a side bearing for railway-cars, the combination with a base or housing provided with a cover which constitutes the track-plate of the movable bearing, of an antifriction-roller bearing having a frame provided with lugs which take under and confine the bearing to the track-plate, and resilient centering means inclosed within the base or housing and connected with the frame of the movable antifriction-roller bearing; substantially as and for the purposes specified.

590,287. DRYING APPARATUS. JOHN WEBSTER, Detroit, Mich., assignor of two-thirds to Thomas S. Christie and Wm V. Moore, same place. Filed Aug. 5, 1896. Serial No. 601,737. (No model.)

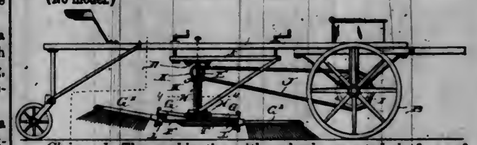


Claim.—1. In a drying apparatus, the combination of a revolving drying-cylinder mounted upon extended hollow trunnions journaled in self-adjusting bearings near the inner and outer ends of each trunnion, a stirring and lifting device within the cylinder mounted upon a shaft extending through the cylinder and its trunnions and journaled in self-adjusting boxes at the ends and in bush-boxes in the inner ends of the trunnions, and scraper-blades carried by the stirring device.

2. In a drying apparatus, a revolving drying-cylinder composed of an outer shell, a spider secured in the front end of the shell and provided with an extended hollow trunnion shouldered in self-adjusting bearings at its inner and outer ends, and a spider supporting the rear end of the shell and provided with an extended trunnion journaled in self-adjusting bearings at its inner and outer ends, and a slip-joint connection between said spider and the rear end of the drying-cylinder.

3. In a drying-cylinder, the combination of a revolving drying-cylinder, composed of an outer imperforate shell exposed to outside contact with the heated products of combustion from a furnace, a spider secured in the front end of the shell and provided with inwardly-curved arms and with a trunnion supporting the front end of the cylinder in suitable bearings, a spider supporting the rear end of the shell and provided with outwardly-curved arms and with a trunnion supporting the rear end of the cylinder, an apertured head in the front end of the cylinder, a stationary breech-plate, a feed-spout extending through said breech-plate into the cylinder, and the revolving stirring and lifting device in the cylinder.

590,288. STREET-SWEEPER. JAMES H. WIMPFAR, FRED R. SMITH, and SAMUEL Y. SAMSON, Omaha, Nebr., assignors to the Cyclone Street Cleaner, same place. Filed Jan. 7, 1896. Serial No. 574,856. (No model.)



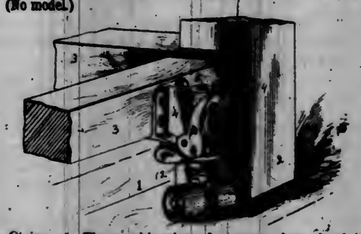
Claim.—1. The combination with a wheel-supported platform, of a second platform supported from the first by devices permitting universal adjustment of its plane with reference to the plane of the first, brush mechanism dependent from the second platform and arranged for rotation about a vertical axis, and means for imparting rotary movement to said mechanism.

2. The combination with a wheel-supported platform, of a second, normally stationary platform adjustably supported from the first by screw-threaded rods not in the same straight line, an approximately vertical dependent shaft rigidly fixed to the second platform, a brush-supporting, approximately horizontal track fixed to the lower end of said shaft, a series of radial brush-arms resting upon said track, and means for carrying the brush-arms bodily about said shaft.

3. The combination with a central rotary shaft, of a series of radial brush-arms rotating with the shaft and hinged to swing in vertical planes only, an approximately circular track arranged to support the hinged arms and provided with a segment depressed below the remainder and projecting beyond the general line of the circumference, rollers fixed to the arms, respectively, in position to run upon said track, rollers mounted upon said arms in position to pass over or under the widened segment only of the track, and means for at will guiding the rollers last named upon or under said widened portion.

4. The combination with a suitable wheel-supported platform, of a rotary vertical shaft supported thereby, brush-arms rotating with said shaft and hinged for vertical motion only, a track supporting said arms and having a depressed segment extending beyond the general peripheral line, rollers mounted upon said arms, respectively in position to run upon said track, rollers borne by said arms in position to pass along the projecting portion of the depressed segment, a section hinged to the end of said segment, and means for swinging the section into and out of the path of the rollers last named to guide them above or below said projecting portion.

590,289. CASTER. JAMES L. ZINK and CHARLES W. MECKENHOFER, Indianapolis, Ind. Filed Sept. 14, 1896. Serial No. 605,814. (No model.)



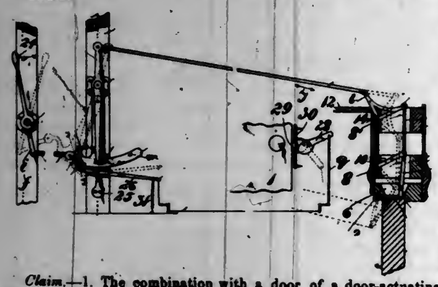
Claim.—1. The combination of a caster whose shank is provided with a shoulder at its lower end, the object to be supported by such caster in which the caster has limited vertical movement, an arm pivoted at one end to such object and having a beveled bearing-place

at the other end resting upon the shoulder of the caster, and a cam-lever pivoted to such object and bearing on the pivoted arm, substantially as shown and described.

2. The combination of a caster with a shank which is recessed between its ends and has a shoulder at its lower end, a socket in the object to be supported for such shank provided with a pin that extends into such recess, an arm pivoted at one end to the object to be supported and at the other end having a beveled bearing-place resting on the shoulder, and a cam-lever pivoted to the object to be supported and bearing on such pivoted arm, substantially as shown and described.

3. A caster comprising a frame adapted to be secured to the object to be supported having in it a vertical socket, a caster-shank that has limited movement in such vertical socket and a shoulder near its lower end, a lever pivoted to one end of such frame and provided at the free end with an opening through which the shank extends and with a beveled bearing-place resting upon the shoulder of the caster-shank and about its middle portion provided with a depression, and a cam-lever pivoted to such frame so as to engage the upper surface of the lever and when the object to be supported is elevated will pass a vertical line through its pivotal point and rest in the depression in such lever.

590,290. DOOR OPENER OR CLOSER. DOLVAN R. AKARD, San Francisco, Cal. Filed Oct. 29, 1896. Serial No. 610,500. (No model.)



Claim.—1. The combination with a door of a door-actuating lever, a link pivoted to the rear edge of the door and passing through an opening in the door-jamb, a bell-crank behind the wall or door-casing and connected to said link, and a connection between said actuating-lever and said bell-crank substantially as set forth.

2. The combination with a door, of a link pivoted to the back edge of the door and passing through an opening in the door-jamb, a bell-crank behind the wall or door-casing and connected to said link, an operating-lever connected to said bell-crank and an unlatching device interposed between said operating-lever and said bell-crank.

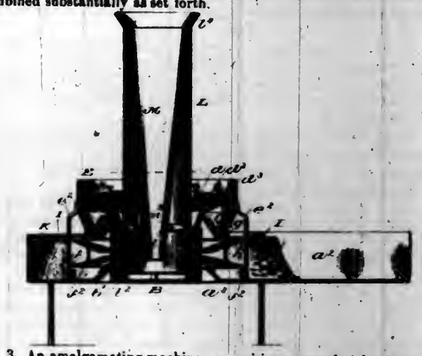
3. The combination with a door, of a door-actuating lever, an oscillating arm interposed between said lever and said door, a swinging member one end of which is pivoted to said arm while the other end is yieldingly connected thereto, said member being adapted to operate the latch of the door, and suitable connections between said door, arm, swinging member and actuating-lever for the purpose set forth.

4. In an article of the class described the combination with a door of an actuating-lever, an oscillating arm connected to said door, a secondary arm pivoted to said oscillating arm and connected to said lever and by means of which the latch of the door is operated, and means for limiting the movement of said secondary arm independent of said oscillating arm for the purpose set forth.

590,291. AMALGAMATING-MACHINE. ACHILLES ALLEN, Milton, Oreg., assignor of one-half to M. A. Baker and W. H. Bailey, same place. Filed Aug. 1, 1896. Serial No. 601,353. (No model.)

Claim.—1. An amalgamating-machine, consisting of a trough, A, suitably supported, so as to be slightly inclined, and having an outlet a^3; a central opening in such trough with an upwardly-projecting flange a^2; the trough or vat B, mounted over the opening in trough A; the plate or riffle C; the trap E; the circular plates or collars f, f^2; the cylinder L provided with a receiver M, and suitable sluices and supports therefor, for carrying off the refuse, the parts being combined substantially as set forth.

2 An amalgamating-machine, consisting of a trough A, suitably supported so as to be slightly inclined, and having an outlet a^3; a central opening in such trough with an upwardly-projecting flange a^2; the trough or vat B, mounted over the opening in trough A; the plate or riffle C; the trap E; the circular plates or collars f, f^2; the cylinder L provided with a receiver M; means for supporting a blanket around the trap E, for the purposes described; and suitable sluices and supports therefor, for carrying off the refuse, the parts being combined substantially as set forth.

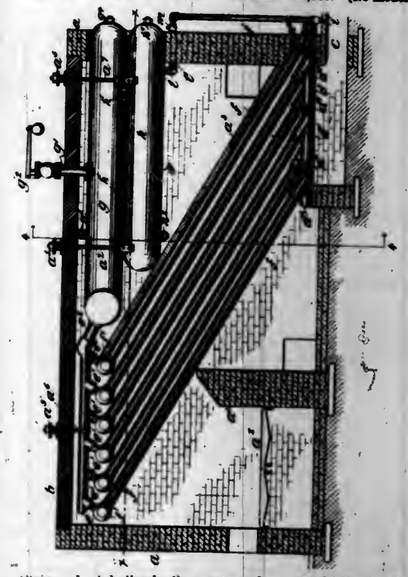


3. An amalgamating-machine, comprising a trough A having an outlet a^3, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, and a trap E beneath and surrounding said riffle, substantially as described.

4. An amalgamating-machine, comprising a trough A having an outlet a^3, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, a trap E beneath and surrounding said riffle, and supported independently of said receiver, and amalgamating-plates beneath said trap on which the overflow from said trap will impinge, substantially as described.

5. An amalgamating-machine, comprising a trough A having an outlet a^3, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, a trap E beneath and surrounding said riffle, amalgamating-plates beneath said trap, and a blanket suitably supported so as to surround said trap and descend to the trough and catch the float-gold, substantially as described.

590,292. SECTIONAL SAFETY-BOILER. JOHN F. ALLEN, New York, N. Y. Filed Feb. 8, 1897. Serial No. 622,585. (No model.)



Claim.—1. A boiler having water-tubes, a feed-inlet leading to the lower portions of the water-tubes, a steam-outlet, a return-conduit between the steam-outlet and the water-inlet, and means for checking a reverse circulation located in said return-conduit, substantially as set forth.

2. A boiler having water-tubes, a feed-inlet leading to the lower portions of the water-tubes, a steam-chamber and a steam-outlet, a return-conduit between the steam-chamber and water-inlet, and a check-valve located in said return-conduit for preventing a reverse circulation through said return-conduit, substantially as set forth.

3. A boiler having inclined water-tubes and longitudinally-arranged substantially horizontal lower headers receiving the lower ends of said water-tubes, said water-tubes being inclined at an oblique angle to said headers, substantially as set forth.

4. A boiler having inclined water-tubes, longitudinally-arranged substantially horizontal lower headers receiving the lower ends of such water-tubes, said water-tubes being inclined at an oblique angle to said lower headers, and substantially horizontal upper headers connected to the upper ends of said water-tubes, substantially as set forth.

5. A boiler having inclined water-tubes, lower headers receiving the lower ends of such water-tubes, substantially horizontal upper headers and connections substantially at right angles to said tubes joining the tubes to the upper headers, substantially as set forth.

6. A boiler having lower headers, inclined water-tubes extending upward from said lower headers, substantially horizontal upper headers for said tubes, flues for directing the heated gases downward toward the lower ends of said tubes, a water-reservoir located below the upper ends of said tubes, a connection from the upper headers to the water-reservoir having a steam-outlet therein, and a connection from the water-reservoir to the lower headers, substantially as set forth.

7. A boiler having lower headers, water-tubes extending upward from said lower headers, upper headers for said tubes, flues for directing the heated gases downward toward the lower ends of the tubes, a water-reservoir below the upper ends of said tubes, and a connection from said water-reservoir to the lower headers having a check-valve therein, said check-valve being arranged to close against the flow of water toward said reservoir, and a water-inlet connected to the lower headers in advance of said check-valve, substantially as set forth

8. A boiler having lower headers, water-tubes extending upward from said lower headers, upper headers for said tubes, flues for directing the heated gases downward toward the lower ends of said tubes, a steam-chamber connected to said upper headers, a water-reservoir below the upper ends of the tubes and connected to said chamber, and a connection from said water-reservoir to the lower headers having a check-valve therein, said check-valve being arranged to close against the flow of water toward said reservoir, and a water-inlet connected to the lower headers in advance of said check-valve, substantially as set forth.

9. A boiler having lower headers arranged in a substantially horizontal plane, inclined water-tubes extending upward from said lower headers, upper headers for said tubes, said upper headers being also arranged in a substantially horizontal plane, a steam-chamber connected to said upper headers, a water-reservoir connected to said steam-chamber, and a connection from said water-reservoir to the lower headers, substantially as set forth.

10. A boiler having substantially horizontal lower headers, inclined water-tubes extending upward from said lower headers, upper headers for said tubes, a steam-chamber connected to said upper headers, a water-reservoir below the upper ends of the tubes and connected to said steam-chamber, and a connection from said water-reservoir to the lower headers having a check-valve therein, said check-valve being arranged to close against the flow of water toward said reservoir, and a water-inlet connected to the lower headers in advance of said check-valve, substantially as set forth.

11. A boiler having longitudinally-arranged substantially horizontal lower headers, a feed-inlet and connections from said feed-inlet to the rear ends of the lower headers, water-tubes extending upward from said lower headers, and connections from the upper ends of said water-tubes to the feed-inlet, substantially as set forth.

12. A boiler having longitudinally-arranged substantially horizontal lower headers, a feed-inlet and connections from said feed-inlet to the rear ends of the lower headers, inclined water-tubes extending upwardly from said lower headers, longitudinally-arranged substantially horizontal upper headers connected to the upper ends of said tubes, a steam-chamber connected to the rear ends of said upper headers, a water-reservoir below the upper ends of said tubes and connected to the steam-chamber, and a connection from said water-reservoir to the feed-inlet, substantially as set forth.

13. A boiler having inclined water-tubes, upper headers arranged in a substantially horizontal plane for the upper ends of said tubes, a steam-chamber connected to the upper headers, a water-reservoir below the upper ends of the tubes and connected to the steam-chamber, and connections from said water-reservoir to the lower ends of the tubes, substantially as set forth.

14. A boiler having longitudinally-arranged substantially horizontal lower headers, a feed-inlet and connections from said feed-inlet to the rear ends of the lower headers, inclined water-tubes extending upwardly from said lower headers, longitudinally-arranged substantially horizontal upper headers, connections substantially at right angles to said tubes joining the tubes to the upper headers, a steam-chamber connected to the rear ends of said upper headers, a water-reservoir below the upper ends of said tubes and connected to the steam-chamber, a connection from said water-reservoir to the feed-inlet, and flues for directing the heated gases downwardly toward the lower ends of the tubes, substantially as set forth.

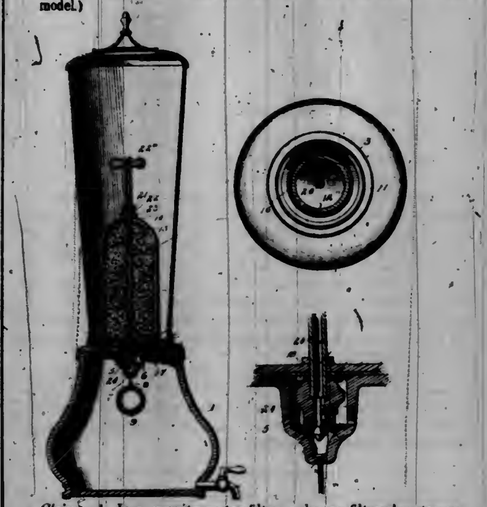
15. A boiler having longitudinally-arranged horizontal lower headers, a feed-inlet and connections from the feed-inlet to the rear ends of the lower headers, inclined water-tubes extending upwardly from said lower headers, longitudinally-arranged substantially horizontal upper headers, connections substantially at right angles to said tubes joining the tubes to the upper headers, a steam-chamber connected to the rear ends of said upper headers, a water-reservoir connected to the steam-chamber, and a connection from said water-reservoir to the feed-inlet, substantially as set forth.

16. A boiler having lower headers arranged in a substantially horizontal plane, with inclined lugs alternately arranged, inclined tubes extending upwardly from the inclined lugs, and upper headers connected to the inclined tubes, substantially as set forth.

17. A boiler having lower headers d, with lugs d' alternately arranged, the inclined tubes f extending upwardly from said lugs d', the globes f' at the upper ends of said tubes, the upper headers e having lugs e' alternately arranged, connections arranged substantially at right angles to the tubes from the globes to the lugs d', and the steam-drum g, connected to the upper headers, substantially as set forth.

18. A boiler having lower headers d, a cross-conduit connected to the rear ends of said lower headers and a conduit leading to said cross-conduit and having the feed-inlet, the inclined tubes f, said lower headers having lugs d' alternately arranged receiving the lower ends of said tubes, the globes f' at the upper ends of said tubes, the upper headers e having lugs e' alternately arranged, connections arranged substantially at right angles to the tubes from the globes to the lugs e', the steam-drum g connected to the upper headers, the water-drums h, h, connected to the steam-drum, and the conduit l, l, having a check-valve therein, and joined to the conduit leading to the cross-conduit and lower headers, said check-valve being arranged to close against the flow of water toward the water-reservoir, substantially as set forth.

590,293. GRAVITY-FILTER. MORTIMER H. ALLEN and HENRY C. ELLIS, Toledo, Ohio. Filed Nov. 30, 1896. Serial No. 613,978. (No model.)



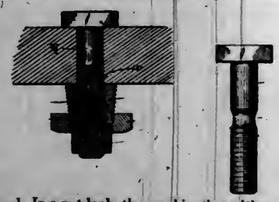
Claim.—1. In a gravity water-filter, a lower filtered-water receptacle, an upper reservoir-tank seated on top of said lower receptacle, a filtering-tube, having an upper closed end, supported within the reservoir-tank on the bottom thereof, a circulating-pipe arranged within the filtering-tube and having its lower end projected through the bottom of the tank, a valve-casing fitted to the lower projecting end of said pipe and communicating with the interior of the lower receptacle, and an automatically-controlled cut-off valve supported by the valve-casing, substantially as set forth.

2. In a gravity water-filter, a lower filtered-water receptacle having at the top thereof a pendent water trap or pocket having a discharge-port, an upper reservoir-tank seated on top of said receptacle, an inverted porous filtering-tube supported within the reservoir-tank on the bottom thereof, a circulating-pipe arranged within the filtering-tube and having its lower end projected through the bottom of the tank, and an automatically-operating cut-off valve device fitted on the lower projecting end of the circulating-pipe within said water trap or pocket, substantially as set forth.

3. In a gravity water-filter, a lower filtered-water receptacle, an upper reservoir-tank seated on top of said lower receptacle, an inverted porous filtering-tube supported within the reservoir-tank on the bottom thereof, a circulating-pipe arranged within the filtering-tube and having its lower end projected through the bottom of the tank, and an automatically-operating cut-off valve device fitted on the lower projecting end of the circulating-pipe, substantially as set forth.

4. In a gravity-filter, a lower filtered-water jar, a flanged cap-plate removably fitted on top of said jar and provided with a central depending water trap or pocket having a lateral discharge-port, an upper reservoir-tank removably seated at its lower closed end on top of the cap-plate, a bottom closure-plate fitted within the reservoir-tank on the bottom thereof and provided at its periphery with an annular seat-groove and with a central threaded opening, an inverted porous filtering-cup arranged within the tank with its lower edge fitting in the seat-groove of the said bottom closure-plate and provided with a central threaded opening in the closed top thereof, a vertical water-circulating pipe extending longitudinally through the filtering-tube and having threaded portions engaging in the threaded opening at the top of the filtering-tube and at the center of the bottom closure-plate, said pipe being provided at points within the tube with a plurality of openings and having its lower end extended below the bottom of the tank, a tubular valve-nut detachably threaded on the lower extremity of the circulating-pipe and arranged within said water trap or pocket, said nut being formed at its lower end with a valve-seat, a valve-stem supported for vertical movement in the valve-nut and carrying at its lower end a valve-plug working on the said seat, and a float-operated stem mounted to work within the lower end of the water trap or pocket in line with said valve-plug, substantially as specified.

590,294. NUT-LOCK. ULYSSES S. ARCHER, Lenoir City, Tenn. Filed Sept. 28, 1896. Serial No. 607,233. (No model.)



Claim.—1. In a nut-lock, the combination with a nut proper having a screw-threaded split portion, of screw-threads formed upon the outer surface of said nut, and running in an opposite direction from the threads arranged upon the interior of said nut, and a locking-nut applied upon the outer ends of the split portion of the nut proper and adapted to jam the threads and also to contract the split portion of the nut upon the bolt, substantially as described.

2. In a nut-lock, the combination with a screw-threaded bolt having an annular groove cut therein, of a split nut applied over said bolt, and a locking-nut applied over said split nut for compressing the split portions into the annular groove upon the bolt, substantially as described.

3. In a nut-lock, the combination with a nut proper, having a tapered screw-threaded split portion, of a locking-nut applied over said nut proper, and a wedge adapted to be applied between the split portions of the nut proper, and be jammed against the bolt by the locking-nut, substantially as described.

590,295. FELT BOOT. GEORGE H. BROCKMAN, Fort Jennings, Ohio. Filed May 26, 1896. Serial No. 593,145. (No model.)

Claim.—The herein-described combined shoe and stocking comprising the felted stocking 1, provided with a strap and buckle at its upper end, the leather shoe 2, consisting of the two side pieces 3, 3, stitched together at the toe and heel portions, and the leather sole 4 and heel 6 stitched thereto, the shoe being stitched along its upper edge to the stocking, and a line of stitching 7, extending transversely near the heel-breast line for securing the stocking to the sole and to prevent rumpling of the stocking, substantially as described.

590,295.

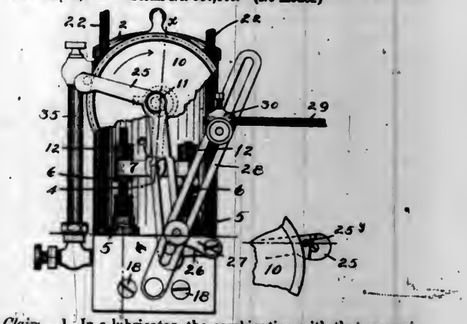


590,296. INDICATOR FOR CARS. WILLIAM F. BÜCHER, Philadelphia, Pa. Filed Oct. 10, 1896. Serial No. 608,464. (No model.)



Claim.—In an indicator, the combination with the hollow upright hangers provided at their lower ends with inwardly-extending hollow spindles, openings in said hollow hangers opposite the ends of said spindles, and removable plugs in said openings, of a rotatable casing that is rectangular in cross-section having two opposing sides provided with side lights, while the other opposing sides are closed, openings in the ends of said casing through which said hollow spindles pass, whereby said casing can rotate upon said spindles, electric lamps secured to the inner ends of the hollow spindles and having circuit-wires extending through the spindles and hangers, and a stationary reflector situated within said casing and in the rear of said lamps and provided with forwardly-extending end portions that are secured to said spindles between clamping-nuts thereon, and means for holding said casing rigid with relation to the hangers.

590,297. LUBRICATOR. JOHN BUCKLEY, Rochester, N. Y., assignor to the Rochester Automatic Lubricator Company, same place. Filed Jan. 2, 1897. Serial No. 617,819. (No model.)



Claim.—1. In a lubricator, the combination with the reservoir, the cylinder outside of the latter, having the inlet-passage leading from the cylinder, the check-valve therein, and the exit-passage having the check-valve therein, of the piston operating in the cylinder, the reciprocating cross-head having a constant stroke, and the relatively-adjustable stops between opposite sides of the head and the piston, whereby the stroke of the piston may be adjusted to any portion of that of the head, substantially as described.

2. In a lubricator, the combination with the reservoir, of the two cylinders outside of the reservoir, inlet and exit passages for the cylinders, and check-valves therein, the two pistons 4 operating in the cylinders, the reciprocating cross-head 7, and the relatively-adjustable stops on each of the pistons with which the cross-head engages, substantially as described.

3. In a lubricator, the combination with a reservoir, two pump-cylinders having supply and discharge passages and valves therein, of a reciprocating member, as a cross-head, two pistons operating in the cylinders having the collars and adjustable nuts thereon, cooperating with the member, whereby the stroke of the pistons may be independently regulated, substantially as described.

4. In a lubricator, the combination with a reservoir, two pump-cylinders having supply and discharge passages and valves therein, of the rotary cam, the pitman actuated thereby, the cross-head pivoted to the pitman, the two pistons operating in the cylinders and upon which the cross-head is guided, and adjustable connections between the pistons and cross-head for regulating the stroke of the former relative to the stroke of the latter, substantially as described.

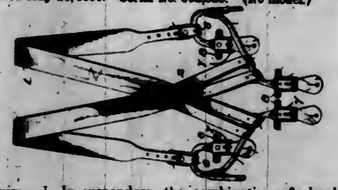
5. In a lubricator, the combination with the reservoir, the cylinder, and the piston operating therein, of an oil-passage communicating with the cylinder and having two diameters, the upper being the larger, a countersunk valve-seat at the lower end of the larger diameter, and a countersunk valve-seat at the lower end of the smaller diameter, and the large and small check-valves cooperating with said seats, both capable of introduction through the larger diameter, substantially as described.

6. In a lubricator, the combination with the reservoir, a pump-cylinder, inlet and discharge passages and valves therein, of the piston operating in the cylinder, the reciprocating member, as a cross-head, adjustable slip connections between the piston and reciprocating member for regulating the length of stroke of the former relative to the length of stroke of the latter, the cam-wheel actuating the member, an actuating device for the cam-wheel, as rod 29, and adjustable connections between said actuating device and the cam-wheel, whereby the speed of the cam-wheel may be adjusted relative to the speed of the actuating device, substantially as described.

7. In a lubricator, the combination with the reservoir, two pump-cylinders, inlet and discharge passages and valves therein, and pistons operating in the cylinders, of a rotary cam-wheel, a reciprocating member, as a cross-head, actuated from the cam-wheel, independent adjustable slip connections between each of the pistons and said member for regulating their stroke relative to the length of stroke of the member, actuating devices, as a rod 29, for rotating the cam-wheel, and adjustable connections between said actuating devices and the wheel, whereby the speed of the cam-wheel may be changed, substantially as described.

8. In a lubricator, the combination with a reservoir, a cylinder, inlet and discharge passages and valves therein, of a reciprocating member, as a cross-head, having the aperture, the piston operating in the cylinder and having tha collar, and the adjustable nut thereon for cooperating with opposite sides of the member, substantially as described.

590,298. SUSPENDERS. JOHN J. BURKE, San Francisco, Cal. Filed May 20, 1896. Serial No. 592,323. (No model.)

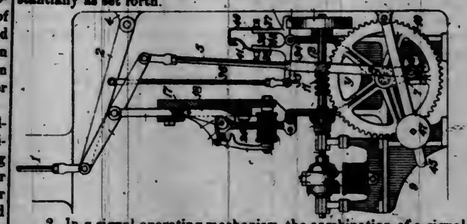


Claim.—1. In suspenders, the combination of shoulder-straps having loose connection at their rear and having terminal loops, side straps slidably mounted in the said terminal loops, cross-pieces and buckles at the extremities of the side straps, buttonhole-tabs removably and adjustably connected with the side straps by means of the buckles, and other buttonhole-tabs slidably mounted upon the side straps intermediate the extremities of the shoulder-straps, substantially as described.

2. A pair of suspenders comprising shoulder-straps having their rear ends split and forming strips which are interlaced, and having loops at the terminals of the interlacing-strips, loops adjustably connected with the front ends of the shoulder-straps, side straps loosely fitted in the loops at the extremities of the shoulder-straps and having guards and buckles at their extremities, buttonhole-tabs detachably connected with the extremities of the side straps, and a second set of buttonhole-tabs slidably fitted upon the side straps intermediate the terminals of the shoulder-straps, substantially as shown and described.

590,299. SIGNAL MECHANISM. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed Mar. 27, 1897. Serial No. 629,468. (No model.)

Claim.—1. In a signal-operating mechanism, the combination of a signal having a bias to danger position, an electric motor, an electrically-controlled connection between the motor and the signal, a circuit for the motor, a circuit-breaker included in said circuit and controlled by the magnet of the connection between the motor and signal, a mechanically-operated brake for the motor and a circuit-breaker operated by the brake and controlling the motor-circuit, substantially as set forth.



2. In a signal-operating mechanism, the combination of a signal having a bias to danger position, an electric motor, an electrically-controlled connection between the motor and signal and a motor-brake mechanically released by the signal, substantially as set forth.

3. In a signal-operating mechanism, the combination of a signal having a bias to danger position, an electric motor, an electrically-controlled connection between the motor and signal, a motor-brake mechanically released by the signal, and a make-and-break mechanism included in the motor-circuit and controlled by the brake, substantially as set forth.

4. In a signal apparatus, the combination of a signal having a bias to "danger," an electric motor for operating the signal, an electrically-controlled connection between the motor and signal, a brake for stopping the motor and adapted to be mechanically operated by the same motor after a predetermined movement of the latter, substantially as set forth.

5. In a signal apparatus, the combination of a signal having a bias to "danger," an electric motor for operating the signal, an electrically-controlled connection between the signal and motor, a brake for stopping the motor and adapted to be shifted to operative position by the motor on a predetermined movement of the latter and connections between the signal and brake, whereby the latter may be released on the movement of the signal to "danger," substantially as set forth.

6. In a signal-operating mechanism, the combination of a signal having a bias to danger position, an actuating-motor, an electrically-controlled connection between the motor and signal, a motor-brake and two independent mechanical connections from the signal-actuating devices, one to the motor and the other to the motor-brake, whereby the brake movements shall be governed by signal movements.

7. In a signal-operating mechanism, the combination of a signal having a bias to danger position, an electric motor, a slot mechanism for the connection between the motor and signal, and a weight adapted to be raised by the motor when operating to hook up the slot and to assist the motor when operating to shift the signal to "safety," substantially as set forth.

590,300. SIGNALING APPARATUS. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed Apr. 24, 1897. Serial No. 633,621. (No model.)

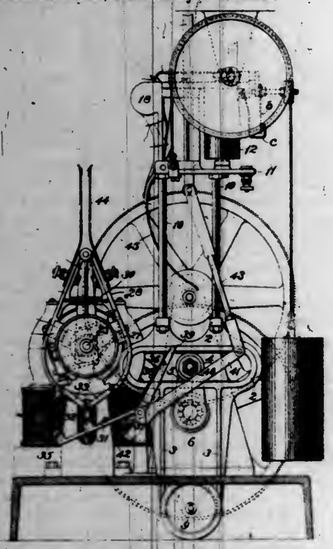
Claim.—1. In a signaling apparatus, the combination of a signal having a bias to "danger," an electric motor for operating the signal, and an electrically-controlled connection between the signal and motor, a brake for stopping the motor and adapted to be shifted to operative position by a motor-actuated part on a predetermined movement of the motor, said part being independent of the connections between the signal and the motor, and connections between signal and brake, whereby the latter may be released on a movement of the signal to "danger," substantially as set forth.

2. In a signal apparatus, the combination of a signal having a bias to "danger," an electric motor, electrically-controlled connections between the signal and motor, a brake, a spring-lever adapted to be shifted by the motor to apply the brake and a lever adapted to be shifted by the signal to release the brake, substantially as set forth.

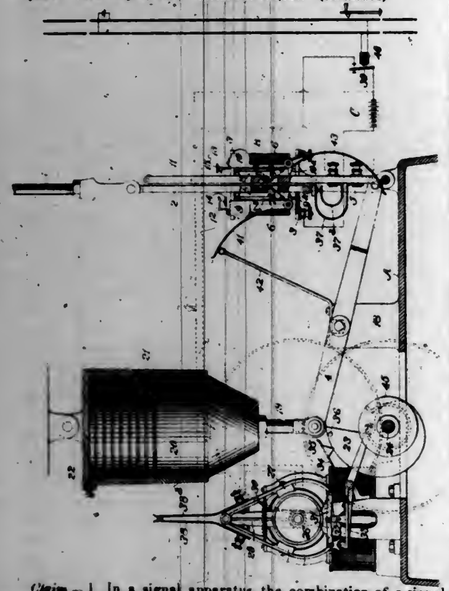
3. In a signal apparatus, the combination of a signal having a bias to "danger," an electric motor, electrically-controlled connections between the signal and motor, a make-and-break mechanism in the motor-circuit, a spring-lever adapted to be shifted by the motor to open the make-and-break mechanism and a separate lever adapted to be shifted by the signal to close the make-and-break mechanism, substantially as set forth.

4. In a signal apparatus, the combination of a signal having a bias to "danger," an electric motor, a slot mechanism connecting the motor and signal, a magnet having high and low resistance coils, a generator common to the magnet and motor, the high-resistance coil of the magnet being in a shunt around the motor, substantially as set forth.

5. The combination of a part or appliance connected to a track for controlling the movement of trains, an electric motor separably connected to such part or appliance, a magnet having high and low resistance coils for controlling such connection and a generator common to the magnet and motor, the high-resistance coil being in a shunt around the motor, substantially as set forth.



590,301. SIGNALING APPARATUS. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed May 3, 1897. Serial No. 634,827. (No model.)



Claim.—1. In a signal apparatus, the combination of a signal having a bias to "danger," a weight for shifting the signal to clear position, a separable clutch mechanism connecting the signal and weight, an electromagnet for holding the parts of the clutch mechanism in engagement, and means for raising the weight, substantially as set forth.

2. In a signal apparatus, the combination of a signal having a bias to "danger," a weight for shifting the signal to clear position, a separable clutch mechanism connecting the signal and weight, an electromagnet for holding the parts of the clutch mechanism in engagement, means for raising the weight and an electrically-controlled catch for holding the weight in its raised position, substantially as set forth.

3. In a signal apparatus, the combination of a signal having a bias to "danger," a movable frame provided with a catch adapted to engage the signal-rod, an electrically-controlled dog for shifting said catch, a weight for lifting said frame, and an electrically-controlled catch for holding the frame when lowered against the lifting action of the weight, substantially as set forth.

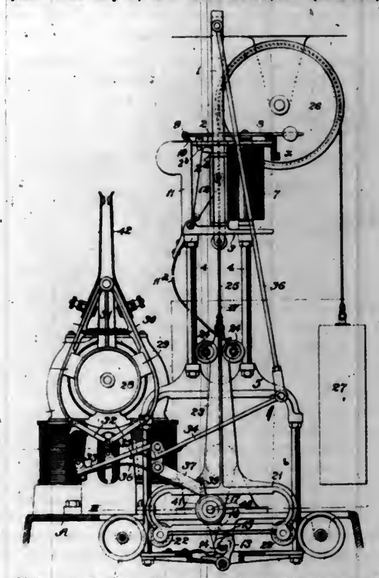
4. In a signal apparatus, the combination of a signal having a bias to "danger," a movable frame, a weight for raising said frame, a rod for holding the frame from upward movement by the action of the weight, catches for locking the signal-rod and the holding-rod to the frame and electrically-controlled dogs for shifting said catches, substantially as set forth.

5. In a signal apparatus, the combination of a signal having a bias to "danger," a weight for clearing said signal, an electrically-controlled connection between the signal and weight, an electric motor for raising the weight, brake mechanism for checking the rotation of the motor, and a lock for preventing an application of the brakes intermediate of the completion of the upward movement of the weight, substantially as set forth.

6. In a signal apparatus, the combination of a signal having a bias to "danger," a weight for clearing said signal, a separable connection between the weight and signal, two magnets one having a low and the other a high resistance for controlling such connection, an electric motor for raising the weight and a generator common to the magnets and motor, substantially as set forth.

7. In a signal apparatus, the combination of a signal having a bias to "danger," a weight for clearing the signal, a separable connection between the weight and signal, two magnets one having a low and the other a high resistance for controlling such connection, an electric motor for raising the weight, a generator common to the magnets and motor, a normally open shunt-circuit around the high-resistance magnet, and a circuit-closer operated by the armature of the low-resistance magnet for closing the shunt-circuit, substantially as set forth.

590,302. SIGNALING APPARATUS. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed May 29, 1897. Serial No. 638,701. (No model.)



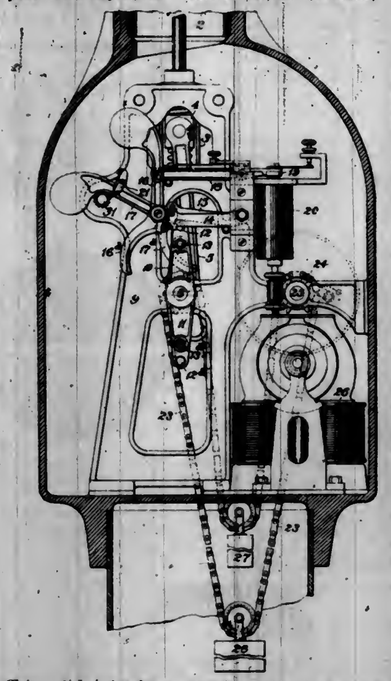
Claim.—1. In a signal apparatus, the combination of a movable signal-rod adapted to be connected to a signal, a movable frame provided with a catch adapted to engage the signal-rod, a magnet mounted on the frame for controlling said catch, a motor for raising said frame and means for supporting the frame in its raised position, said means being constructed and arranged to be shifted on initial movement of the motor to permit the frame to drop, substantially as set forth.

2. In a signal apparatus, the combination of a movable signal-rod adapted to be connected to a signal, a movable frame provided with a catch adapted to engage the signal-rod, a magnet mounted on the frame for controlling said catch, a motor for raising said frame, a weight for assisting to raising the frame, and connections from the weight to the motor so constructed as to render the latter effective to raise the weight after the clearing of the signal, substantially as set forth.

3. In a signaling apparatus, the combination of a signal having a bias to danger position, a signal-rod, a vertically-movable frame, a catch controlled by train movement for positively connecting or locking the signal-rod to the frame, a rotating cam constructed to raise and permit the dropping of the frame, and means controlled by the train movement for rotating said cam, substantially as set forth.

4. In a signal apparatus, the combination of a signal having a bias to danger position, a signal-rod, a vertically-movable frame, a catch connecting the signal-rod to the frame, a rotating cam constructed to raise and permit the dropping of the frame, a weight connected to the frame, a rotating cam for raising the weight and means controlled by train movements for rotating said cams, substantially as set forth.

590,303. SIGNALING APPARATUS. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed May 29, 1897. Serial No. 638,702. (No model.)



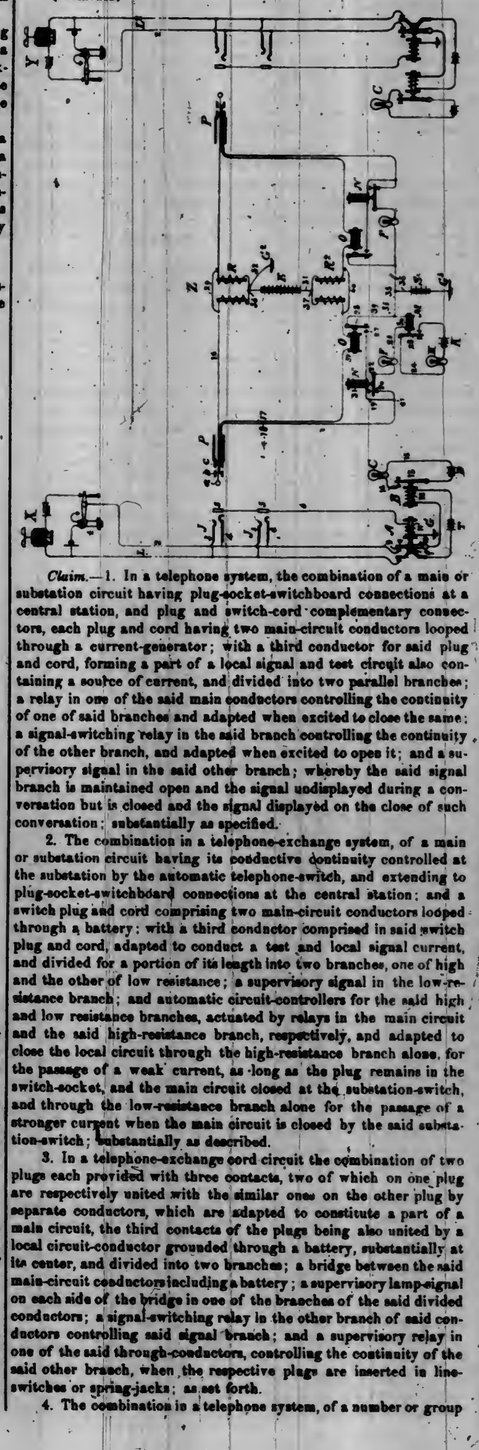
Claim.—1. In a signal apparatus, the combination of a crank connected to a signal, a weight for rotating the crank, mechanism for controlling the rotation of the crank, an electromagnet controlling such mechanism, and a motor operative regardless of the position or movement of the signal for raising the weight, substantially as set forth.

2. In a signal apparatus, the combination of a crank connected to a signal, a weight for rotating the crank, mechanism for controlling the rotation of the crank, an electromagnet controlling such mechanism, a motor for raising the weight and controlled by said magnet, substantially as set forth.

3. In a signal apparatus, the combination of a signal, a constantly-operative weight, connections between the weight and signal whereby the latter may be shifted to danger and clear positions by the weight, mechanism operated by train movements for controlling the descent of the weight, and a motor controlled by the movement of the weight for raising the weight, substantially as set forth.

4. In a signal apparatus, the combination of a signal, a constantly-operative weight, connections between the weight and signal, whereby the signal may be shifted to danger and clear positions by the weight, mechanism operative by train movements for controlling the descent of the weight, a motor for raising the weight and means controlled by the movement of the weight for starting and stopping the motor, substantially as set forth.

590,304. COMMON-BATTERY MULTIPLE SWITCHBOARD. HENRY M. CRANE, Boston, Mass., assignor to The American Bell Telephone Company, same place. Filed Aug. 9, 1897. Serial No. 647,578. (No model.)



Claim.—1. In a telephone system, the combination of a main or substation circuit having plug-socket-switchboard connections at a central station, and plug and switch-cord complementary connectors, each plug and cord having two main-circuit conductors looped through a current-generator; with a third conductor for said plug and cord, forming a part of a local signal and test circuit also containing a source of current, and divided into two parallel branches; a relay in one of the said main conductors controlling the continuity of one of said branches and adapted when excited to close the same; a signal-switching relay in the said branch controlling the continuity of the other branch, and adapted when excited to open it; and a supervisory signal in the said other branch; whereby the said signal branch is maintained open and the signal undisplayed during a conversation but is closed and the signal displayed on the close of such conversation; substantially as specified.

2. The combination in a telephone-exchange system, of a main or substation circuit having its conductive continuity controlled at the substation by the automatic telephone-switch, and extending to plug-socket-switchboard connections at the central station; and a switch plug and cord comprising two main-circuit conductors looped through a battery; with a third conductor comprised in said switch plug and cord, adapted to conduct a test and local signal current, and divided for a portion of its length into two branches, one of high and the other of low resistance; a supervisory signal in the low-resistance branch; and automatic circuit-controllers for the said high and low resistance branches, actuated by relays in the main circuit and the said high-resistance branch, respectively, and adapted to close the local circuit through the high-resistance branch alone, for the passage of a weak current, as long as the plug remains in the switch-socket, and the main circuit closed at the substation-switch, and through the low-resistance branch alone for the passage of a stronger current when the main circuit is closed by the said substation-switch; substantially as described.

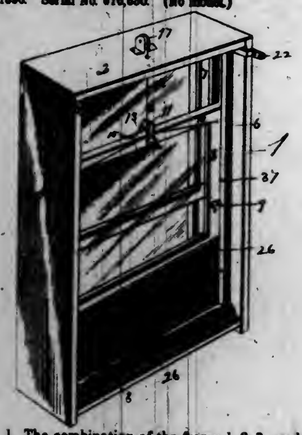
3. In a telephone-exchange cord circuit the combination of two plugs each provided with three contacts, two of which on one plug are respectively united with the similar ones on the other plug by separate conductors, which are adapted to constitute a part of a main circuit, the third contacts of the plugs being also united by a local circuit-conductor grounded through a battery, substantially at its center, and divided into two branches; a bridge between the said main-circuit conductors including a battery; a supervisory lamp-signal on each side of the bridge in one of the branches of the said divided conductors; a signal-switching relay in the other branch of said conductors controlling said signal branch; and a supervisory relay in one of the said through-conductors, controlling the continuity of the said other branch, when the respective plugs are inserted in line-switches or spring-jacks; as set forth.

4. The combination in a telephone system, of a number or group

of substation-circuits, each normally open at the substation and extending to switch connections upon the switchboard-sections at a central station; and a switch at the substation adapted to close the main circuit when the telephone is taken up for use, and open it again when replaced; with a switch-cord circuit having two main and one local circuit-conductors, the latter conductor being divided into two parallel branches, of different resistance, and grounded through a battery; a bridge between the two main conductors including a battery and repeating-coils; supervisory lamp-signals on each side of the bridge in the low-resistance branch of the said local circuit-conductor; an electromagnet in one of the main conductors, controlling the high-resistance branch and an electromagnet in the said branch controlling the low-resistance branch; whereby upon the insertion of the answering-plug into a spring-jack, a high-resistance test-circuit is established and the supervisory lamp-signal switched out, and upon the opening of the main circuit at the substation, a low-resistance test and signaling circuit is established and the supervisory lamp-signal lighted, as set forth

5. The combination of a substation-circuit provided with spring-jacks at the switchboard-sections, and adapted for the operation of automatic signals, current in the line from a central source being determined by the telephone-switch at the substation; a line lamp-signal; a controlling device therefor; and a circuit-controlling device and test-circuit; with a cord-circuit comprising three conductors, two of which are adapted to constitute a part of the main circuit, the third being divided into two branches and forming part of a local battery-circuit; a bridge between two of the conductors including a battery and repeating-coils; a supervisory lamp-signal and a relay-magnet on each side of the bridge in the respective branches of the said third local conductor; and a relay-magnet in one of the main-circuit cord-conductors; whereby upon the insertion of the answering-plug into a spring-jack a high-resistance test-circuit is established and the supervisory lamp-signal concealed, and upon the opening of the main circuit at the substation a low-resistance test-circuit is established and the supervisory lamp-signal lighted; as set forth.

590,805. WINDOW. JOSEPH C. DUNHAM, Norman, Okla. Filed Dec. 22, 1896. Serial No. 616,630. (No model.)



Claim.—1. The combination of the frame 1, 2, 3; sash 7 and 8; braces 10, supporting the upper corners and upper cross-pieces of said sash; windlass 11, secured to the lower sash 8; ratchet-wheel 12; dog 13; and arm 15; cord 16, secured to windlass 11, and passing over pulley 17, thence down and secured to the upper part of sash 7; locks 9, one secured to each sash and pins 37, secured to the window-frame, substantially as shown and described and for the purposes set forth.

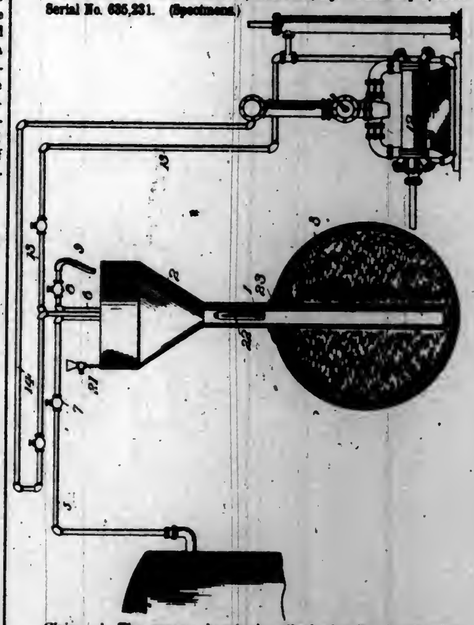
2. The combination of the frame 1, 2, 3; sash 7 and 8; braces 10, supporting the upper corners and upper cross-pieces of said sash; windlass 11, secured to the lower sash 8; ratchet-wheel 12; dog 13; and arm 15; cord 16, secured to windlass 11, and passing over pulley 17, thence down and secured to the upper part of sash 7; locks 9, one secured to each sash and pins 37, secured to the window-frame; and extension-arms 18, secured to the upper part of sash 7, substantially as shown and described and for the purposes set forth.

3. The combination of the frame 1, 2, 3; protectors 27 and 28, secured to said frame; sash 7 and 8, carrying the edges of the upper and lower gauze sheets 24 and 26, respectively; braces 10, supporting the upper corners and upper cross pieces of said sash; windlass 11, secured to the lower sash 8; ratchet-wheel 12; dog 13; and arm 15; cord 16, secured to windlass 11, and passing over pulleys 17, thence down and secured to the upper part of sash 7; locks 9, one secured to each sash, and pins 37, secured to the window-frame; extension-arms 18, secured to the upper sash, substantially as shown and described and for the purposes set forth.

4. In combination with a window, substantially as shown, having the pins 37; locks 9, consisting of the slide-plate 29, having the longitudinal slot 30, and end flanges 31 and 32; binding cross-plate 33; and cam 34, eccentrically pivoted over the binding-plate 33, and between the flanges 31 and 32, by a bolt 35, substantially as shown and described and for the purposes set forth.

5. The combination of the frame 1, 2, 3, having the pins 37; protectors 27 and 28, one secured to the upper and the other to the lower part of said frame; gauze sheets 24 and 26, secured to the sash and frame; locks 9, consisting of the slide-plate 29, having the longitudinal slot 30, and end flanges 31 and 32; windlass 11, as described, secured to the upper cross-piece of the lower sash; cord 16, one end secured to said windlass, the other passing over pulley 17, thence down and secured to the upper part of sash 7, substantially as shown and described and for the purposes set forth.

590,806. PROCESS OF AND APPARATUS FOR AGING LIQUORS ARTIFICIALLY. DAVID J. BELT, Louisville, Ky. Filed May 5, 1897. Serial No. 635,231. (Specimens.)



Claim.—1. The process herein described of aging or ripening liquor, while in an air-tight receptacle, consisting in subjecting the same to a high temperature to color it and then subjecting it to a temperature at or below the freezing-point of water to remove the rawness therefrom, substantially as described.

2. The process herein described of aging liquor, consisting in successively raising and lowering the temperature of the liquor under treatment to about 145° and 32° Fahrenheit, respectively, while said liquor is contained in an air-tight charred oak receptacle substantially as described.

3. The process herein described of aging liquor, consisting in raising to a high degree the temperature of a liquid column located within the receptacle containing the liquor to be treated, and in lowering the temperature of said column sufficiently to cause it to reduce that of the liquor under treatment to the freezing temperature of water, successively, substantially as described.

4. The process herein described of aging or ripening liquor artificially, consisting in raising to a high degree the temperature of a column of water located within the barrel containing the liquor to be treated, maintaining said temperature for a proper period, shutting off the heating medium, converting said water into brine, and subjecting said brine to the cooling action of a refrigerant gas to reduce the temperature of the liquor under treatment to or below the freezing temperature of water, substantially as shown and described.

5. The combination with a barrel, containing liquor to be aged, of means for successively raising and lowering the temperature of said liquor, said means consisting of a liquid-containing jacket, inserted in said barrel, and heating and cooling pipes inserted in said jacket and surrounded by the liquid therein, substantially as shown and described.

6. The combination with a barrel, containing liquor to be aged, of a liquid-containing jacket inserted in said barrel, said jacket having an open top and a closed bottom, and pipes for steam and refrigerant gas, inserted in said jacket and surrounded by the liquid therein, for successively raising and lowering the temperature of said liquid, substantially as shown and described.

7. The combination with a barrel, containing liquor to be aged, of a tube for containing brine inserted directly in said liquor, pipes to be surrounded by said brine for conveying a refrigerant gas through the same, and means for forcing said gas through said pipes, substantially as shown and described.

8. The combination with a barrel, containing liquor to be aged, of the herein-described apparatus for alternately raising and lowering the temperature of said liquor to a high degree and the freezing temperature of water, respectively, consisting of the liquid-containing jacket, inserted in said barrel and having an open top and a closed bottom, valved heating-pipes inserted in said jacket and surrounded by the liquid therein, a source of steam-supply connected with said pipes, valved pipes for a refrigerant gas, also extending into said jacket and surrounded by the liquid therein, a compressor connected with the latter pipes for forcing said gas therethrough, and the valved vent-pipe in said jacket, opening at one end in said barrel and at its other end in the atmosphere, substantially as shown and described.

590,807. FRAME-JOINT. EDWIN J. FIELEY, Syracuse, N. Y., assignor to the E. C. Stearns & Company, same place. Filed Jan. 9, 1897. Serial No. 618,633. (No model.)



Claim.—1. In combination with a crank-hanger tube perforated to receive the main frame members, an interior tube having flattened sides opposite said perforations and corresponding smaller perforations in said flattened sides to receive the reinforcements of said main frame members.

2. In combination with a crank-hanger tube perforated to receive the ends of the main post and of the lower tube of the diamond, an inner tube or brace rearwardly fitted to the interior of said crank-hanger tube and formed on its upper and forward portion with flattened sides, between which and the interior of the crank-hanger tube a space is left, said flattened sides being formed with perforations opposite said perforations in the crank-hanger tube, said latter perforations being smaller than the former, and of sufficient size to receive the reinforcing-pieces for the frame-tubes.

3. In combination with a bicycle crank-hanger tube, perforated to receive the main frame members, an inner tube or brace having flattened sides in which are formed perforations opposite said perforations in the crank-hanger tube, the main frame-tubes fitted snugly to said outer perforations and setting against the outer faces of said flattened sides, and reinforcing-pieces for the ends of said main tubes, extending inwardly through said perforations in said inner tube and flanged on their inner ends, substantially as described and shown.

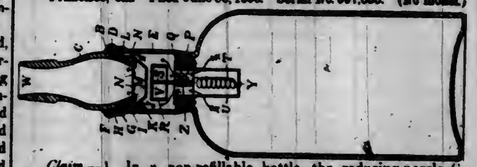
590,808. WIRE-STRETCHER. PETER PRAPPE, Mount Morris, Ill., assignor to the Chain-Stay Fence Company, same place. Filed June 25, 1897. Serial No. 642,312. (No model.)



Claim.—1. In a device of the class described, the combination with a shaft provided with a ratchet-disk and having a head with an annular series of segmental teeth, of an operating-lever detachably fulcrumed on one end of the shaft, and a pair of spring-actuated pawls arranged to engage the head of the shaft at opposite sides thereof and provided with curved recesses conforming to the configuration of the teeth, substantially as described.

2. In a device of the class described, the combination with a shaft provided with a ratchet-disk and having a head with teeth, of a lever detachably fulcrumed on the same, a pair of pawls engaging the head of the shaft and provided with journals extending through the lever, and a spring connecting the journals of the pawls and maintaining the latter in engagement with the head of the shaft, said spring also serving as the means for securing the pawls to the lever by retaining their journals in the perforations of the same, substantially as described.

590,809. NON-REFILLABLE BOTTLE. HUGO P. FREAR, San Francisco, Cal. Filed June 30, 1896. Serial No. 597,555. (No model.)



Claim.—1. In a non-refillable bottle, the reducing-nozzle C, flared at the outer end to receive a cork, inwardly curved or contracted at the bottom and provided with an outward-projecting flange G adapted to be fastened with cement in the main neck of the bottle, and a guard surrounding the inwardly-curved portion of the nozzle, substantially as set forth.

2. In a non-refillable bottle, the reducing-nozzle C, curved inward at its bottom and provided with its fastening-flange G, in combination therewith the guard-plate K also provided with a flange L, abutting against and held by the nozzle C on a suitable ledge in the main neck of the bottle, substantially as described.

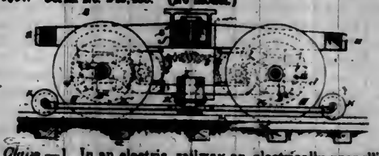
3. In a non-refillable bottle, the separate nozzle C adapted to fit in and be cemented to the main bottle-neck E, in combination therewith the flanged pan-formed guard K provided with perforations N, the latter extending above the bottom of the nozzle C so as to prevent the insertion of instruments from the top and below the guard K, in the manner substantially as described.

4. In a non-refillable bottle, the combination of the annular stopper P, at the bottom of the chamber J, the inverted cup-formed valve R, the flat valve-seat Q, the guiding-stem S, guide-bearing Z, and spring T, of such strength and tension as to support and close the valve R when the bottle is inverted and empty, but of insufficient strength to close the said valve when the cup V is subjected to the weight or pressure of the contained liquid in the bottle, substantially as specified.

5. In a non-refillable bottle, the reducing-nozzle C, having incurved bottom, and the guard-plate K, with flange L and perforations N, in combination with the annular stopper P, inverted cup-formed valve R, flat valve-seat Q, guiding-stem S, guide-bearing Z, and the spring T, of such strength and tension as to support and close the valve R when the bottle is inverted and empty, but of insufficient strength to close the said valve when the cup V is subjected to the weight or pressure of the contained liquid in the bottle, substantially as specified.

6. In a non-refillable bottle, the separate or attachable nozzle C, pan-shaped guard K, surrounding and overlapping the inner portion of the nozzle so as to prevent the insertion of instruments into the bottle inner annular valve-seat and stopper P, in combination with the inverted cup-formed valve R, the whole combined and operating in the manner substantially as described.

590,810. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor, by mesne assignments, to the Thomson-Houston Electric Company, Boston, Mass. Original application filed Oct. 27, 1896, Serial No. 217,248. Divided and this application filed Sept. 12, 1897. Serial No. 249,463. (No model.)



Claim.—1. In an electric railway an electrically-propelling vehicle having a frame supported upon the axles or axle-boxes independently of the springs supporting the car-body in combination with a horizontally-movable collector-arm hinged thereto, a collector-wheel journaled upon the free end of said arm, and a working conductor upon which said collector-wheel runs.

2. In an electric railway an electrically-propelled vehicle having a frame supported upon the axles or axle-boxes independently of the springs supporting the car-body in combination with a horizontally-movable collector-arm hinged thereto, a collector-wheel journaled upon the free end of said arm a spring to press said collector-wheel laterally against the conductor, and a working conductor upon which said collector-wheel runs.

3. In an electric railway, an electrically-propelled vehicle having a frame supported upon the axles or axle-boxes independently of the springs supporting the car-body in combination with a horizontally-movable collector-arm hinged thereto, a flanged collector-wheel journaled upon the free end of said arm, a spring to press said collector-wheel laterally against the conductor, a longitudinal stringer of wood, and a working conductor of angle-iron secured to said stringer upon which said collector-wheel runs.

4. In an electrical railway, the combination of a longitudinal insulating-stringer arranged parallel to the track, an angle-iron secured upon the upper edge thereof to form the working conductor, an electrically-propelled vehicle, two horizontally-movable arms hinged to the vehicle and pointing in opposite directions, flanged collector-wheels journaled upon the free ends of said arms and adapted to run upon the angle-iron conductor, and a suitable spring device to press said collector-wheels laterally upon the conductor.

5. In an electric railway, the combination of an electric conductor arranged parallel to the track, an electrically-propelled vehicle having a frame carried by the axles independent of the springs supporting the car-body and having a transverse portion extending between and parallel to the axles, an electric motor to propel the car, a current-collector consisting of a rearwardly-extending arm hinged at one end to the transverse portion of the independent frame and having a roller-contact at the other or free end making a traveling contact with the conductor, and an electric circuit on the car between the collector and motor.

6. In an electric railway, the combination of the rails, with two longitudinal stringers of insulating material arranged parallel to the rails and between them, and working conductors formed of angle-irons secured upon the adjacent upper edges of the stringers.

7. In an electric railway, the combination of the rails, with two longitudinal stringers of insulating material arranged parallel to the rails and between them and close to the rails to form guards to prevent the cars jumping the track, and working conductors formed of angle-irons secured upon the adjacent upper edges of the stringers or those edges farthest from the rails.

8. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, a laterally-movable arm connected to the vehicle, and a collector-wheel journaled on the arm and consisting of a metallic frame having a removable annular contact-rim.

9. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, a laterally-movable arm connected to the vehicle, a collector-wheel journaled on the arm and consisting of a metallic frame having a removable annular contact-rim, and clamping devices to clamp the contact-rim to the frame.

10. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, a laterally-movable arm connected to the vehicle, and a collector-wheel journaled on the arm and consisting of a metallic frame having a removable annular contact-rim, and a central clamping device to clamp the frame and rim together.

11. A collector-wheel for electric railways, consisting of a wheel-frame formed of two parts, a clamping-hub to secure said parts together, and a removable wearing contact-rim clamped in place between said frame parts in combination with a vehicle provided with an electric motor, an arm supporting the collector-wheel, a conductor from the wheel to the motor, and a line conductor against which the collector-wheel travels.

12. A collector-wheel for electric railways consisting of a wheel-frame made of two parts, a removable wearing contact-rim clamped between said wheel parts, a clamping-hub to secure said wheel parts together, in combination with a vehicle provided with an electric motor, an arm supporting the collector-wheel, a conductor from the wheel to the motor, and a line conductor against which the collector-wheel travels.

13. In a collector-wheel for an electric railway, the combination of the disk O, the flanged disk O′ having an offset or shoulder *o*, the flanged annular contact-rim P, and the clamping-hub parts *n n*′.

14. In an electric railway, the combination of the rails, longitudinal stringers of wood arranged adjacent to and independent of the rails, electric conductors secured to the stringers at a higher elevation than the rails, a traveling vehicle, an electric motor to propel the vehicle and rearwardly extending current-collecting devices carried by the axles independently of the springs supporting the car-body and moving with the vehicle and making a traveling contact with the conductors.

15. In a current-collector having a transverse journal the combination of the parts O O′, wearing flanged rim P, and a clamping-hub to clamp said parts O O′ together.

16. In an electric railway, the combination of a conductor extending along the railway, a traveling vehicle, an electric motor to propel the vehicle, a trailing contact having two faces arranged at an angle to each other one of which makes a rolling contact with the conductor and the other of which makes a sliding contact with the conductor, and a spring to press the face of the collector against the conductor to insure the pressure of the sliding contact.

17. In an electric railway, the combination of a conductor extending along the railway, a traveling vehicle, an electric motor to propel the vehicle, a contact device having two faces arranged at an angle to each other one of which is adapted to make a rolling contact with the conductor and the other a sliding contact therewith, a rigid arm jointed at one end to the vehicle and movable upon a vertical axis and carrying the contact device at its free end, and a spring acting upon the arm to press the contact device against the conductor.

18. In an electric railway, the combination of a conductor extending along the railway having horizontal and vertical faces, a traveling vehicle, an electric motor to propel the vehicle, a contact device having two faces arranged at an angle to each other one of which is adapted to make a rolling contact with the conductor and the other a sliding contact therewith, a rigid arm jointed at one end to the vehicle with provision for lateral motion and carrying the contact device at its free end, and a spring acting upon the arm to press the contact device laterally against the vertical-face conductor.

19. In an electric railway, the combination of a working conductor having a horizontal and a vertical face, a traveling electrically-propelled vehicle, a collector-wheel having a contact-flange carried by said vehicle and making contact with both faces of the conductor, and means to press the flange against one of the faces to create a surface contact.

20. In an electric railway the combination of a working conductor having a horizontal and a vertical face, a traveling electrically-propelled vehicle, a collector-wheel having a removable contact-flange, carried by said vehicle and making contact with one of the conductor-faces and a spring to press said contact-flange against the vertical face.

21. In an electric railway, the combination of a support of insulating material arranged along the railway, a conductor having a laterally-exposed contact-face, means for securing the conductor to the insulating-support arranged at a lower elevation than the contact-surface of said conductor, a traveling vehicle, and a laterally-movable contact supported by the conductor and pressed against the lateral face of the conductor by a spring.

22. In an electric railway, the combination of a support of insulating material arranged along the railway, a conductor having a laterally-exposed contact-face, means for securing the conductor to the insulating-support arranged at a lower elevation than the contact-surface of said conductor, a traveling vehicle, and a laterally-movable contact supported by the conductor and spring-pressed against the lateral face of the conductor.

23. In an electric railway a railway-track, a line-stringer of wood arranged parallel with said track, an angle-iron conductor arranged along one of the upper corners of the stringer, spikes driven in through the lower leg of the angle-iron and an electric-propelled vehicle, and a flanged collector-wheel adapted to run upon said conductor, and in which the flange is less depth than the distance from the top of the angle-iron to the spikes.

24. The combination of a railway, an electric conductor extending along said railway, a traveling vehicle, an electric motor to propel the vehicle a collector-arm connected intermediate of the axles of and extending rearward from the vehicle with freedom of lateral movement, and a contact device carried by the free end of said arm making contact with the conductor.

25. The combination of a railway, two electric conductors extending along said railway, a traveling vehicle, an electric motor to propel the vehicle and two independently-movable collecting-arms movable vertically and laterally carried by the vehicle and provided with contact devices for making contact respectively with the two conductors.

26. The combination of a railway, two electric conductors extending along said railway, a traveling vehicle, an electric motor to propel the vehicle and two independently-movable collecting-arms movable vertically and laterally carried by the vehicle and provided with contact devices for making contact respectively with the two conductors, and independent springs to force said contact devices against their respective conductors.

27. The combination of a railway, two electric conductors extending along said railway, a traveling vehicle, an electric motor to propel the vehicle and two independently-movable collecting-arms movable vertically and laterally carried by the vehicle on vertical axes and provided with grooved contact devices for making contact respectively with the two conductors.

28. The combination of a railway, two electric conductors extending along said railway, a traveling vehicle, an electric motor to propel the vehicle and two independently-movable collecting-arms movable vertically and laterally carried by the vehicle with freedom of both vertical and horizontal movement and provided with contact devices for making contact respectively with the two conductors.

29. The combination of a railway, two electric conductors arranged in substantially the same horizontal plane, a traveling vehicle, an electric motor to propel the vehicle and two collecting-arms movably connected at one end to the vehicle, axles independently of the vehicle-body and having the other ends free to move transversely to the conductors and each provided with a grooved collecting device moving in contact with the respective conductors.

30. The combination of a railway, two electric conductors arranged in substantially the same horizontal plane, a traveling vehicle, an electric motor to propel the vehicle two rearwardly-extending and substantially parallel collecting-arms movably connected at one end to the vehicle, axles independently of the vehicle-body and having the other ends free to move independently transversely to the conductors, and each provided with a collecting device moving in contact with the respective conductors, and means to force said contact devices against their respective conductors.

31. The combination of a railway, an electric conductor extending along said railway, a traveling vehicle, an electric motor to propel the vehicle a long collector-arm connected at one end to one place on the vehicle on a transverse axis, and having an angular end constituting a short arm close to the pivot-point, a contact-wheel having an annular recess between the flanges carried by said arm at the free end, and a spring acting upon the short arm close to the transverse axis to force said contact-wheel against the conductor.

32. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle having its body part supported on the axles by means of springs, an electric motor to propel the vehicle a long collector-arm carried by the axles independently of the vehicle-body and having one end free to swing vertically laterally and obliquely to the conductor, and a contact device carried by said free end of the collector-arm moving in contact with the conductor.

33. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle having its body part supported on the axles by means of springs, an electric motor to propel the vehicle a long collector-arm carried by the axles independently of the vehicle-body and having one end free to swing vertically laterally and obliquely to the conductor, and a contact device carried by said free end of the collector-arm moving in contact with the conductor, and means to force the contact device against the conductor.

34. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle having its body part supported on the axles by means of springs, an electric motor to propel the vehicle a long collector-arm carried by the axles independently of the vehicle-body and hinged on an axis transverse to the conductor and also having one end free to swing laterally and transversely to the conductor, and a contact device consisting of a wheel having an annular recess and flanges carried by said free end of the collector-arm moving in contact with the conductor, and means to force said contact-wheel against the conductor, which is received in its groove.

35. The combination of a railway, an electric conductor extending along the same, a traveling vehicle, an electric motor to propel the vehicle having its body supported on the axles by springs, a long collector-arm extending rearwardly and loosely connected at one end to the vehicle and supported by the axles independently of the vehicle-body with freedom of lateral movement at its other end, and a contact-wheel journaled on the free end of said arm on a transverse axis for making contact with the conductor.

36. The combination of a railway, an electric conductor arranged parallel to the railway, a traveling vehicle, an electric motor to propel the vehicle and a collector-arm pivoted to the vehicle with freedom of vertical and lateral movement and provided with a contact device making a traveling contact with the conductor, a spring to force the contact device toward the conductor, and means to adjust the tension of the spring.

37. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, an electric motor to propel the vehicle a bell-crank lever collector-arm having a long and short arm loosely pivoted or hinged to the vehicle so as to have vertical and lateral movement and carrying at the free end of its long arm a contact device making contact with the conductor, and a spring acting on its other or short arm to force the contact device against the conductor.

38. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, an electric motor to propel the vehicle a bell-crank lever collector-arm loosely pivoted or hinged so as to have both vertical and lateral movement to the vehicle and carrying at the free end of one of its arms a contact device consisting of a wheel having flanges between which the conductor is received, and a spring acting on its other arm to force the contact device against the conductor.

39. The combination of a railway, an electric conductor extending along the railway, a traveling vehicle, an electric motor to propel the vehicle a rearwardly-extending lever collecting-arm loosely pivoted or hinged to the vehicle so as to be capable of having lateral vertical and oblique motion and carrying at the free end of one of its arms a grooved contact device making contact with the conductor, and a spring having one end fixed relatively to the lever and the other end acting on its other arm to force the contact device against the conductor.

590,311. CLOTHES-HANGER. JOHN R. IRVINE, Brooklyn, N. Y. Filed Feb. 6, 1896. Serial No. 578,560. (Model.)



Claim.—A clothes-hanger consisting of an upper straight wire provided with an open suspending spiral eye at each end, slightly below and at right angles to the straight wire, the ends of the wire being extended downward and bent to form a link-shaped section, one terminal of the wire forming the connecting spiral eye, and connected to the other terminal, substantially as set forth.

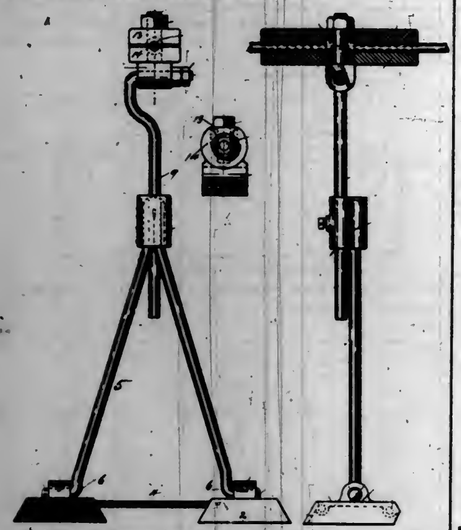
590,312. BREAD-CUTTER. GUSTAV A. J. JOETTEN and ERNEST J. MARCKIE, Chicago, Ill. Filed Jan. 9, 1897. Serial No. 618,616. (No model.)



Claim.—A bread-cutter comprising the base-board 1, the link 3 having its lower bifurcated end pivoted in the transversely-alined brackets 2 2 fixed to said board, the crescent-shaped arm 5, pivoted at one end to the free end of said link, the cutter-blade 8 rigidly fixed at its forward upper end to the opposite end of said arm 5, and provided with the transverse stud 12 and handle 10, and the spring 14 fixed at its lower end to the rear edge of said base-board, and having its upper bifurcated end pivoted to said stud 12, substantially as shown and described.

590,818. POWER-TRANSMITTING APPARATUS. SAMUEL M. JONES, Toledo, Ohio. Filed Oct. 28, 1896. Serial No. 610,268. (No model.)

Claim.—1. In a power-transmitting apparatus, a plurality of base-plates, downwardly-projecting flanges upon said base-plates, rods rigidly connecting said plates together in the same plane, in combination with a reciprocating connecting medium between the driving and driven mechanism, standards or legs forming a support for said connecting medium, pivotal connections between said plates and the lower ends of said supports or legs, and pivotal connections between said connecting medium and the upper ends of said legs or supports, substantially as and for the purpose specified.



2. In a power-transmitting apparatus, a reciprocating connecting medium between the driving and driven mechanisms consisting of a series of rods having heads upon their meeting ends, a coupling device consisting of a screw-bolt and plates adapted to clasp and clamp said meeting ends, as a sleeve, in combination with a support for said series of rods, and means, integral with said coupling mechanism, for pivotally connecting said coupling mechanism directly to said support, substantially as and for the purpose specified.

3. In an apparatus for the transmission of power, a series of connected, reciprocating rods, intermediate the driving and driven mechanism, couplings for the meeting ends of said rods, base-plates having projections on their under sides adapted to hold the plates against movement, legs pivotally supported upon said plates, an upright rod carried by and longitudinally movable upon said legs, means for adjusting the height of said upright rod, and pivotal connections between said upright rods and said rod-couplings, substantially as and for the purpose specified.

590,814. BEARING FOR SPINDLES. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,250. (No model.)

Claim.—1. In a spindle-support the combination with a bolster, of a step held by a driving fit within the bolster, and a loosely-held pintle supporting the step, substantially as described.

2. In a spindle-support the combination with a bolster, of a step movable along the bolster, a loosely-held pintle supporting the step free to tip laterally in all directions, and a loose connection between the step and pintle, substantially as described.

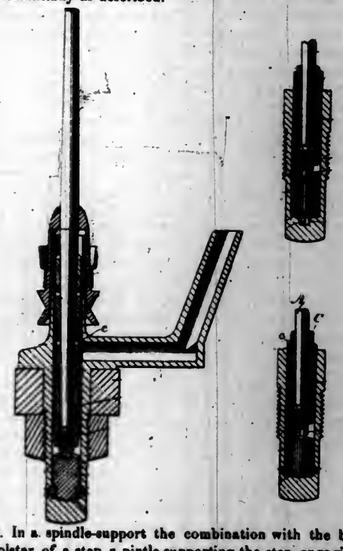
3. In a spindle-support the combination with a bolster, of a step held by a driving fit within the bolster, and a support for the step within the bolster-case, formed and arranged to support the step while the bolster is driven onto the same, substantially as described.

4. In a spindle-support the combination with the bolster-case and bolster, of a step carried by the bolster, a loosely-held pintle free to tip laterally in all directions supporting the step, connections between the pintle and bolster-case and the pintle and step whereby the bolster is restrained from rotation, substantially as described.

5. In a spindle-support, the combination with the bolster of a loosely-held pintle supporting the same and free to tip laterally in all directions, and means for restraining the pintle from rotation substantially as described.

6. In a spindle-support, the combination with the bolster-case and the bolster, of a loosely-held pintle supporting the bolster and free to tip laterally in all directions, said pintle being provided with a body portion fitted loosely to the bore of the bolster-case and arranged to limit the lateral movement of the pintle by contact with the bolster-case, substantially as described.

7. In a spindle-support, the combination with the bolster and a step movable along the bolster, of a pintle free to tip laterally in all directions supporting the step, and a cooperating tongue and recess upon the step and pintle, whereby the step is held in position upon the pintle without interfering with the lateral movement of the pintle, substantially as described.



8. In a spindle-support the combination with the bolster-case and bolster, of a step, a pintle supporting the step, engaging polygonal tongues and recesses upon the step, pintle and bolster-case, substantially as described.

9. In a spindle-support, the combination with a bolster, of a step within the bolster movable longitudinally along the bolster, and a pintle free to tip in all directions supporting the step, substantially as described.

10. In a spindle-support, the combination with a bolster, of a step movable longitudinally within the bolster, and a pintle supporting the step and restraining it from rotation, substantially as described.

11. In a spindle-support, the combination with a bolster having a step fitted within the same, of a loosely-held pintle supporting the step, and free to tip laterally in all directions, substantially as described.

590,815. BEARING FOR SPINDLES. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,251. (No model.)

Claim.—1. The combination with a spindle, its bolster and step, of means actuated by an increase of the friction developed between the spindle and its bolster, acting to adjust the relative longitudinal position of the bolster and step, and mechanism independent of the adjusting means to retain the bolster and step in their adjusted position, substantially as described.

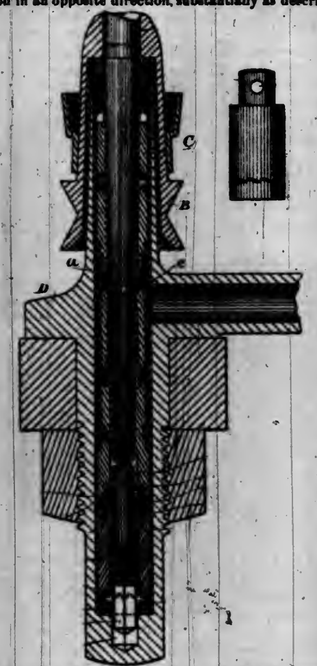
2. The combination with a spindle, its bolster and step, of automatic means for changing the relative longitudinal position of the bolster and step, and mechanism independent of the adjusting means controlled by the weight of supported parts for retaining the bolster and its step in their adjusted position, substantially as described.

3. The combination with a spindle, its bolster and step, of automatic means for effecting a relative movement of the step and bolster to raise the step relatively to the bolster, independent mechanism controlled by the weight of the supported parts to retain the bolster and step in their adjusted position, and actuated by a rotation of the bolster under the control of the operator for lowering the step relatively to the bolster, substantially as described.

4. The combination with the bolster and its support, of a threaded bearing in the support, a threaded pintle engaging said bearing, and connections between said bolster and its support, whereby a rotation of the bolster effects a longitudinal movement of the pintle within the support, substantially as described.

5. The combination with a bolster, and its support, of a movable pintle in the support, a recess formed in the base of the bolster, a boss formed on the top of the support, loosely fitted to said recess, and a loose pin connection between said boss and the bolster, substantially as described.

6. The combination with a bolster, of a support therefor arranged to rotate therewith, and a clutch mechanism connected with said support arranged to permit its rotation in one direction and to restrain its rotation in an opposite direction, substantially as described.



7. The combination with a bolster and a bolster-support upon which the lower end of the bolster rests, of a pintle arranged to reciprocate in the support, and connections between the support and pintle, whereby a rotation of the support effects a longitudinal movement of the pintle, substantially as described.

8. The combination with a bolster and its case, of a pintle sleeve below the bolster, a threaded bearing in said sleeve, a threaded pintle engaging said bearing and capable of longitudinal movement in the sleeve, and a recess in the bolster-case engaged by the lower portion of said pintle, arranged to restrain the pintle from rotation, substantially as described.

9. The combination with a spindle, its bolster and case, of a pintle supporting the spindle, a sleeve surrounding the pintle and free to turn thereon and a recess in the bottom of the bolster-case engaging the pintle and restraining it from rotation, substantially as described.

10. The combination with a bolster and a bolster-support upon which the lower end of the bolster rests, of a step-bearing pintle movable in said support, means to restrain the pintle from rotation, and means to rotate the support to impart a longitudinal movement to the pintle, substantially as described.

590,816. SPINDLE-SUPPORT. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,252. (No model.)

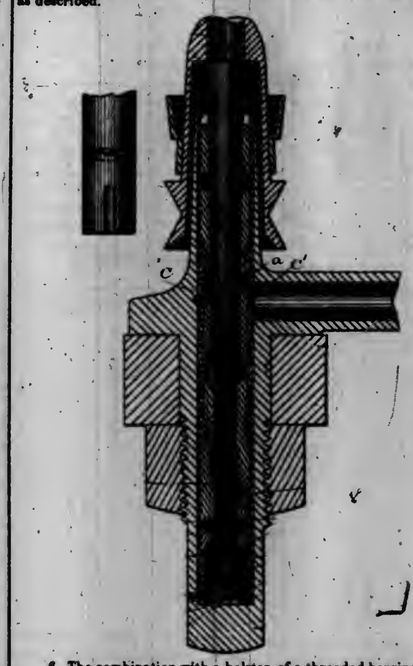
Claim.—1. The combination with a spindle, its bolster and step, of means for holding the bolster in a substantially fixed longitudinal position, and connections between the bolster and step whereby a rotation of the bolster while held in its substantially fixed longitudinal position effects a longitudinal movement of the step along the bolster, substantially as described.

2. The combination with a spindle, its bolster and step, of means for adjusting the relative longitudinal position of the bolster and step, and spring-controlled mechanism for retaining the bolster and step in their adjusted position, substantially as described.

3. The combination with the bolster and its support, of a rocker-washer interposed between the bolster and its support, and means to retain the rocker washer in position under the bolster, substantially as described.

4. The combination with the bolster and its support, of means to restrain the bolster-support from rotation, and interlocking connections between the bolster and its support, arranged to permit a rotation of the bolster in one direction and to restrain the bolster from rotation in an opposite direction, substantially as described.

5. The combination with the bolster, of a clutch mechanism arranged to permit a rotation of the bolster in one direction and to restrain the bolster from rotation in an opposite direction, substantially as described.



6. The combination with a bolster, of a threaded bearing formed in the base of the bolster, a threaded pintle engaging said bearing, a pintle-sleeve below the bolster, in which said pintle is free to reciprocate, and means for restraining said pintle from rotation, substantially as described.

7. The combination with a bolster, of a threaded bearing formed in the base of the bolster, a threaded pintle engaging said bearing, a pintle-sleeve below the bolster in which said pintle is free to reciprocate and a spring arranged to restrain the upward movement of said pintle, substantially as described.

8. The combination with a bolster and its support, of a threaded pintle engaging the bolster and free to reciprocate in the bolster-support, and means to restrain the pintle and support from rotation, substantially as described.

9. The combination with a bolster, of an inclined bearing therefor, arranged to permit the rotation of the bolster in one direction when sufficient force is applied thereto and to restrain it from rotation in the opposite direction, substantially as described.

10. The combination with a spindle and its bolster, of means for restraining the bolster from rotation in the direction of the spindle, and a suitably-placed spring arranged to control said restraining means, and to permit a rotation of the bolster with the spindle, by an increase of friction between the spindle and bolster, substantially as described.

590,817. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,253. (No model.)

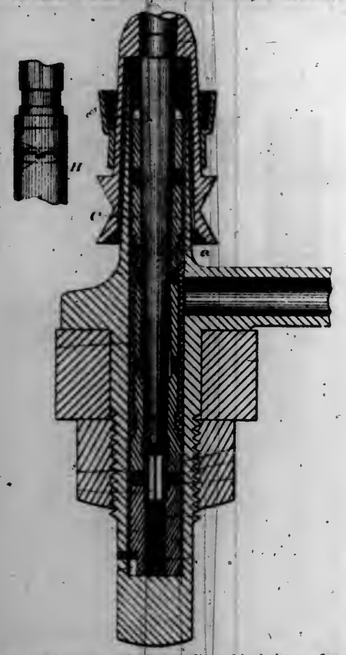
Claim.—1. The combination with a spindle and its bolster, of a clutch mechanism arranged to restrain the rotation of the bolster in the direction of rotation of the spindle and to permit its rotation in an opposite direction, substantially as described.

2. The combination with a bolster-case, bolster and bolster-support within the case, of a threaded bearing in the support, a threaded pintle engaging said bearing and projected into the bolster, and connections between the bolster and pintle, whereby a rotation of the bolster effects a longitudinal movement of the pintle, substantially as described.

3. The combination with a bolster and its support, of a pintle longitudinally movable in the support, and a rocker-washer surrounding the pintle between the bolster and its support, substantially as described.

4. The combination with the bolster and its support, of teeth formed upon the lower end of the bolster and notches formed upon

the top of the support, said teeth being arranged to engage with, but not to bottom in said notches, substantially as described.



5. The combination with the spindle and its bolster, of means for restraining the rotation of the bolster in the direction of rotation of the spindle arranged to permit its rotation in an opposite direction, and a step vertically adjustable within the bolster by the rotation of the bolster, substantially as described.

6. The combination with the bolster supported upon its bottom face, a step-pintle engaging said bolster, and arranged to be moved longitudinally within the bolster by a rotation of the bolster, of inclined teeth upon the bolster and engaging devices therefor arranged to permit a rotation of the bolster in one direction and restrain it from rotation in the opposite direction, substantially as described.

590,318. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,254. (No model.)

Claim.—1. The combination with a bolster-case having a closed bottom, of a bolster, a bolster-support within the case and means for vertically adjusting the bolster-support relatively to the step, without removal from the bolster-case, substantially as described.

2. The combination with a bolster, of a step-pintle, and a bolster-support carried by said pintle, substantially as described.

3. The combination with a bolster, of a step-pintle, and a bolster-support carried by and movable along said pintle, substantially as described.

4. The combination with a bolster-case and bolster, of a vertically-adjustable support for the bolster within the case, the bolster resting upon the bolster-support and arranged to adjust said bolster-support by a movement of the bolster, substantially as described.

5. The combination with a bolster, of a vertically-adjustable support therefor, a pintle carrying said support and means for adjusting said support along the pintle by movement of the bolster, substantially as described.

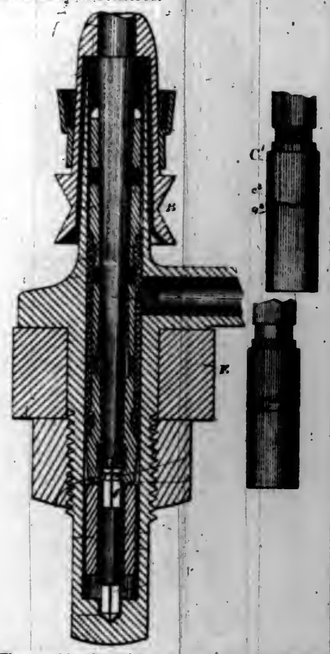
6. The combination with a bolster and its step, of a vertically-adjustable support for the bolster, and a rocking bearing between the bolster and its support, substantially as described.

7. The combination with a bolster, of a vertically-adjustable bolster-support, arranged to be adjusted by a vertical movement of the bolster, substantially as described.

8. The combination with a bolster-case having a closed bottom and a bolster within the case, of a vertically-adjustable bolster-support within the case, and means to restrain said support from rotation, substantially as described.

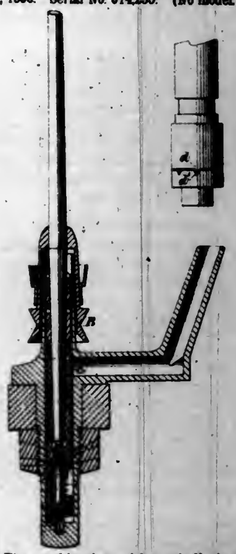
9. The combination with a bolster, of a bolster-support, a step-pintle fitted with a driving fit to said bolster-support, substantially as described.

10. The combination with a bolster and its case, of a step-pintle polygonal in section adjacent to its opposite ends, a recess in the bottom of the bolster-case engaged by the lower end of said pintle, and a recess in the base of the bolster engaging the upper end of said pintle, substantially as described.



11. The combination with a bolster-case, of a frictionally-supported bolster, a step, and means to change the relative vertical position of the bolster and step by a vertical movement of the bolster, substantially as described.

590,319. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,255. (No model.)



Claim.—1. The combination, with a spindle, its bolster and step, of means actuated by an increase of friction developed between the spindle and its bolster, acting to adjust the relative longitudinal posi-

tion of the bolster and step, and means for regulating the amount of friction required to effect such adjustment, substantially as described.

2. The combination, with a spindle, its bolster and step, of means actuated by an increase of friction developed between the spindle and its bolster, acting to adjust the relative longitudinal position of the bolster and step, mechanism for retaining the bolster and step in their adjusted position, and means for regulating the amount of friction required to effect such adjustment, substantially as described.

3. The combination with a spindle, its bolster and step, of a pintle upon which the step is formed and a spring-supported sleeve, upon said pintle, engaging the bolster to control its rotation, substantially as described.

4. The combination with a spindle, its bolster and step, a loose threaded connection between the bolster and step, spring-controlled means for controlling the rotation of the bolster, arranged to retain it after such rotation, in its adjusted position, substantially as described.

5. The combination with a spindle, its bolster and step, means for adjusting the relative longitudinal position of the bolster and step, a spring arranged to control said adjustment and means for retaining the bolster and step in their adjusted position, substantially as described.

6. The combination with a spindle, its bolster and step, mechanism for adjusting the relative longitudinal position of the bolster and step, a spring controlling said mechanism, and means for adjusting the tension of said spring, substantially as described.

7. The combination with a spindle, its bolster and step, a pintle upon which is formed the step, means to restrain said pintle from rotation, a spring-controlled clutch member movable along the pintle and engaging the bolster, and a threaded connection between the bolster and step, substantially as described.

8. The combination with a spindle, its bolster, and means for controlling the rotation of the bolster, of a pintle upon which is formed the step, and which supports the bolster and the means for controlling the rotation of the bolster, substantially as described.

9. The combination with a bolster, of a clutch member carried thereby having an inclined projection, a spring-controlled clutch member provided with notches arranged to be engaged by said projection, substantially as described.

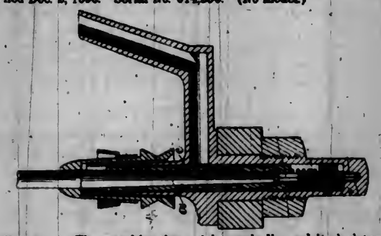
10. The combination with the bolster, of inclined elastically-supported bearings therefor, and means for supporting the bolster independent of said bearings, substantially as described.

11. The combination with a bolster, of a sliding clutch member controlling the rotation of the bolster, and a spring supporting said clutch member, substantially as described.

12. The combination with a bolster, of a sliding clutch member controlling the rotation of the bolster, and a spring supporting said clutch member, and means for adjusting said spring, substantially as described.

13. The combination with a bolster, and its case, of a threaded bearing in the base of the bolster, a threaded step-pintle loosely engaging said bearing, a recess in the bottom of the bolster-case engaged by the lower portion of said pintle, and acting to restrain it from rotation, substantially as described.

590,320. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,256. (No model.)



Claim.—1. The combination with a spindle and its bolster, of a spring arranged to hold the bolster to its fit on the spindle, and a vertically-adjustable support for the spring, substantially as described.

2. The combination with a spindle and its bolster, of a step-pintle along which the bolster is free to reciprocate, and which is provided with a threaded portion, a grooved block engaging the threaded portion of the pintle, and a spring interposed between the block and the bolster, substantially as described.

3. The combination with a spindle, its bolster, and bolster-case, of a step restrained from rotation but free to reciprocate in the bolster, a spring supporting the bolster, and a recess in the base of the bolster engaging the step to hold the bolster from rotation, substantially as described.

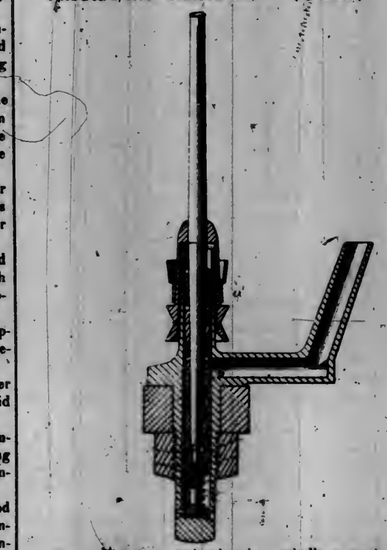
4. The combination with a spindle, its bolster and bolster-case of a spring supporting the bolster, a recess formed in the base of the bolster, a recess formed in the base of the bolster-case, a step-pintle along which the bolster is free to reciprocate engaging the recesses in the bolster and its case, and acting to restrain the bolster from rotation, substantially as described.

5. The combination with a spring-supported bolster provided with a recess in its base, of a step along which the bolster is free to reciprocate, said step engaging a recess in the base of the bolster to prevent rotation of the bolster, substantially as described.

6. The combination with a spring-supported bolster, of a loosely-held step-pintle free to tip laterally in all directions, projected into the bolster and supporting the spindle, substantially as described.

7. The combination with a bolster, of a spring supporting the bolster, a loosely-held step-pintle free to tip laterally in all directions, projected into the bolster and supporting the spindle, and a support for said spring carried by the pintle, substantially as described.

590,321. SPINDLE-SUPPORT. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,257. (No model.)



Claim.—1. The combination, in a spindle-support, comprising a bolster and step capable of a relative vertical movement, of a device for adjusting the relative vertical position of the step and bolster consisting of a rotating member, a member held from rotation, a threaded connection between said members, and a spring arranged to determine the effort required to rotate the rotating member and to hold the members in any adjusted position until such effort is applied, substantially as described.

2. The combination, in a spindle-support, comprising a bolster and step capable of a relative vertical movement, of a device for adjusting the relative vertical position of the step and bolster, consisting of a threaded pintle carrying the step, a threaded sleeve engaging the threaded portion of the pintle, a loose connection between said sleeve and bolster, a spring arranged to bear upon said sleeve and pintle, and means to restrain said pintle from rotation, substantially as described.

3. In a spindle-support the combination with a bolster case and a bolster having an aperture in its base, of a step carried by a vertical pintle projected into the aperture in the bolster, and a curved base for said pintle resting upon a fixed support, substantially as described.

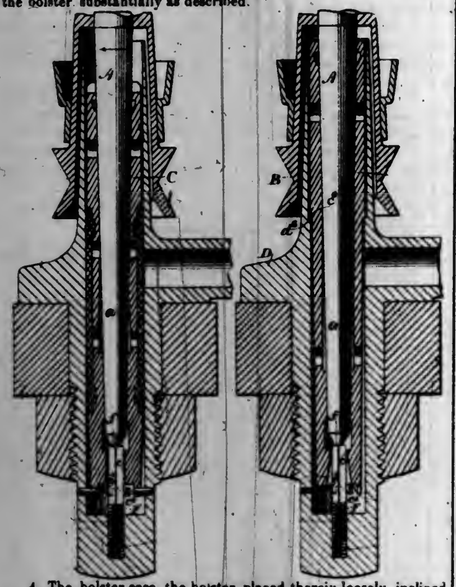
590,322. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,259. (No model.)

Claim.—1. The bolster-case, the bolster placed therein loosely, inclined teeth on the bottom of the bolster, fixed pins engaging said teeth, a vertically-movable pintle carrying the step upon which the spindle rests, mounted in a bearing in the bolster-case, and arranged to be moved vertically in said bearing, substantially as described.

2. The bolster-case, the bolster placed therein loosely, a vertically-movable pintle carrying the step upon which the spindle rests, mounted in a bearing in the bolster case, and arranged to be moved

vertically in said bearing by the rotation of the bolster without manually raising the bolster, substantially as described.

3. The bolster-case, the bolster placed therein loosely, and means for restraining the bolster from rotation, comprising a pin projecting from the bolster-case, and downwardly-extending inclined teeth, on the bolster substantially as described.



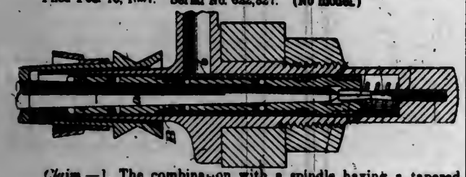
4. The bolster-case, the bolster placed therein loosely, inclined teeth upon the bolster, fixed pins in the bolster-case engaging the teeth on the bolster, arranged to permit a rotation of the bolster in one direction while said bolster maintains a substantially fixed longitudinal position, and to restrain its rotation in the opposite direction and a step arranged to be adjusted by a rotation of the bolster, substantially as described.

5. The bolster-case, the bolster placed therein loosely, means to restrain its rotation in one direction, and to permit its rotation in the opposite direction and a threaded step mounted in the bolster-case arranged to be adjusted by the rotation of the bolster, substantially as described.

6. The bolster-case, the bolster placed therein loosely supported at its base, and means to permit a rotation of the bolster in one direction and to restrain it from rotation in the opposite direction, the rotation of the bolster taking place while it remains in a substantially fixed longitudinal position, substantially as described.

7. The bolster-case, the bolster placed therein loosely, inclined teeth upon the bottom of the bolster, means to engage said teeth to support the bolster, and to permit its rotation in one direction without manually lifting the bolster, and to restrain its rotation in the opposite direction, substantially as described.

590,328. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Feb. 10, 1897. Serial No. 622,827. (No model.)



Claim.—1. The combination with a spindle having a tapered pintle, of a bolster the bore of which is correspondingly tapered, a bolster-case, a spring supporting the bolster within the case, and means actuated by a rotation of the bolster for adjusting the tension of the spring, substantially as described.

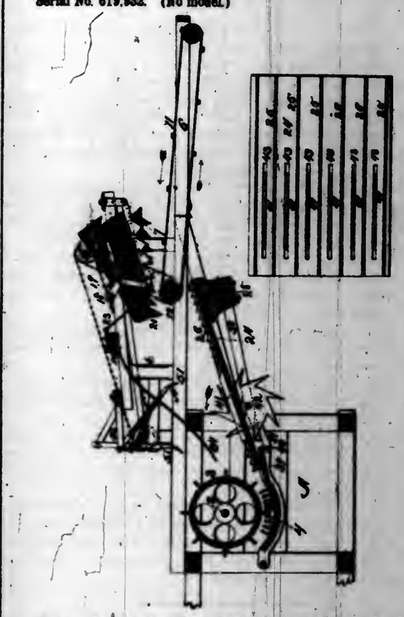
2. The combination with a spindle having a tapered pintle, of a bolster having a correspondingly-tapered bore, a step-pintle movable longitudinally within the bolster, a coiled spring surrounding the step-pintle and acting to hold the bolster to its fit on the spindle-pintle, and means for rotating the step-pintle to adjust the tension of the spring, substantially as described.

3. The combination with a spring-supported bolster, of an annular stop-groove around said bolster, a series of vertical grooves communicating with the annular stop-groove, and a fixed pin arranged to engage any of said vertical grooves, and to be brought by a vertical movement of the bolster into the annular stop-groove, substantially as described.

4. The combination with a spindle having a tapered pintle and a step upon which said pintle rests, of a bolster having a corresponding-tapered bore, means to hold said bolster to its fit on the spindle-pintle with a yielding pressure, and means to regulate said pressure by a relative rotation of the bolster and step, substantially as described.

5. The combination with a spindle having a tapered pintle, and a step upon which said pintle rests, of a bolster having a corresponding-tapered bore, means to hold said bolster to its fit on the spindle-pintle with a yielding pressure, and means to regulate said pressure, by a rotation of the bolster, substantially as described.

590,324. SAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. BENJAMIN J. KIRK, McDougall, N. Y. Filed Jan. 20, 1897. Serial No. 619,932. (No model.)



Claim.—In a band-cutting and feeding attachment for threshers, a feed-apron, swinging and adjustable band-cutters above said apron, swinging feed-bars provided with teeth, also above said apron and arranged in alternation with said knives, in combination with a reciprocating and oscillating feed-board, swinging feed-forks above it, and toothed feed-retarding wheels projecting above the feed-board and rotating in the direction of the feed toward the threshing mechanism.

590,325. ENVELOP-SEAL. FRANK W. LESLIE, Chicago, Ill., assignor of one-half to Samuel C. Kanter and Isaac M. Rice, same place. Filed Dec. 26, 1896. Serial No. 617,165. (No model.)



Claim.—1. The herein-described envelop-seal consisting of the combination of the disk B having the projecting lugs D thereon, the disk C having the recesses E therein, and the spring-fingers F which said lugs engage when they are forced down into said recesses, all substantially as shown and described.

2. The herein-described envelop-seal consisting of the combination of the disk B having the projecting lugs D thereon, the disk C having the recesses E therein, and the spring-fingers F, located at one side of said recesses E and extending over them, which said lugs engage when they are forced down into said recesses all substantially as shown and described.

590,326. MOLE-TRAP. MILES H. LOEHR, Palestine, Ind., assignor to Miles H. Loehr, same place. Filed June 3, 1897. Serial No. 639,281. (No model.)



Claim.—A mole-trap composed of a rectangular frame provided with flat supporting-feet and with a cross-bar, a spear-head, spears projecting downwardly therefrom, a shank secured to said spear-head and projecting upwardly through apertures in the cross-bar and frame, a cross-rod secured to the upper end of the shank and provided with arms S at the ends of the cross-rod, said arms being curved upward to support a weight, a lever pivoted to the frame to hold the spear-head in set position, and a crank-shaped trigger pivoted to the frame and having a rack-section with which the lower end of the lever engages, substantially as set forth.

590,327. FIREPROOFING. ROBERT W. LYLE, Perth Amboy, N. J. Filed May 4, 1897. Serial No. 635,072. (No model.)



Claim.—1. In a fireproof floor or ceiling, the combination with suitable supporting-beams, of a series of hollow lintels arranged transversely of and supported by the beams, the ends of said lintels being cut on a bias and each end portion provided with a transverse ventilating-groove.

2. In a fireproof floor or ceiling, the combination with suitable supporting-beams, of a series of hollow rectangular lintels each having an overhanging hollowarched head extending throughout its length, the ends of said lintels being cut on a bias, and supported by the beams.

3. In a fireproof floor or ceiling, the combination with suitable supporting-beams, of a series of hollow rectangular lintels each having an overhanging hollow arched head extending throughout its length, said lintels and heads being each provided with a transverse ventilating-groove.

590,328. CUSHION, PAD, &c. GEORGE MULLER, Mount Vernon, N. Y. Filed Apr. 21, 1897. Serial No. 633,132. (No model.)



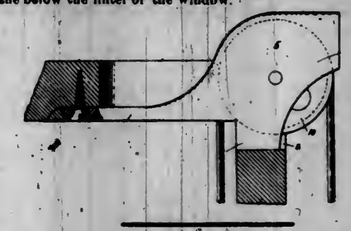
Claim.—1. A practically homogeneous mass of felted or compacted fibrous material having spiral wire springs screwed therein.

2. A practically homogeneous mass of felted or compacted fibrous material having spiral wire springs screwed therein, the ends of said springs being bent to prevent the withdrawal of the springs.

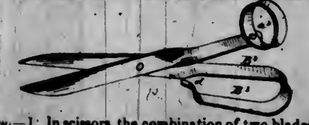
590,329. SASH-CORD GUIDE. ULYSSES G. MCQUEEN, Elizabeth, N. J. Filed June 10, 1897. Serial No. 640,232. (No model.)

Claim.—1. A pulley provided with a casing having an attaching extension adapted to be secured to the under face of the lintel of a window-frame, said casing extending above said extension to form a hood, and having a depending extension base or support in a plane below said attaching extension and a pulley mounted within the hood and projecting into the extension base or support so that the periphery thereof lies below the lintel.

2. The combination with a slotted lintel having a recessed under face and a notched pulley-stile, of a pulley-casing having an attaching extension adapted to be secured in said recessed under face of the lintel, said casing projecting above said attaching extension and having a depending extension base or support in a plane below said attaching extension adapted to be secured within the notch in the pulley-stile, and a pulley mounted in the casing and projecting into the extension base or support so that the periphery thereof lies in a plane below the lintel of the window.



590,330. SCISSORS OR SHEARS. STEPHEN A. HOLEN, McCrary, Ark. Filed June 3, 1897. Serial No. 639,837. (No model.)



Claim.—1. In scissors, the combination of two blades, each blade provided with a handle, a headed pin uniting said blades and a thumb-retainer a^4 in the form of a hook having one of its branches pivotally connected to the rear end of one of the handles, substantially as described.

2. In scissors, the combination of two blades connected by a pivot-pin, each blade provided with a handle and one of said handles provided with a hook substantially as described.

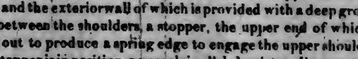
3. Scissors consisting of two strips of sheet metal of substantially uniform thickness throughout their lengths and pivotally connected, each strip having a quarter-twist formed therein in the rear of the pivot, the twisted portion on one strip being slightly inclined to the twisted portion on the second strip substantially as described.

590,331. NON-REFILLABLE BOTTLE. COOLIDGE C. PALMER, Norfolk, Va. Filed Dec. 19, 1896. Serial No. 616,246. (No model.)



Claim.—A non-refillable vessel having a neck, the interior wall of which is provided with a lateral recess to form upper and lower shoulders, and the exterior wall of which is provided with a deep groove arranged between the shoulders, a stopper, the upper end of which is shallowed out to produce a spring edge to engage the upper shoulders when the stopper is in position, a porcelain disk having a diameter corresponding to the interior diameter of the neck, and a packing of cement placed in the shallowed portion of the stopper and subserving the double function of holding the porcelain disk in place and of expanding and holding the spring edge of the stopper into engagement with the upper shoulder to prevent of its compression and withdrawal, substantially as set forth.

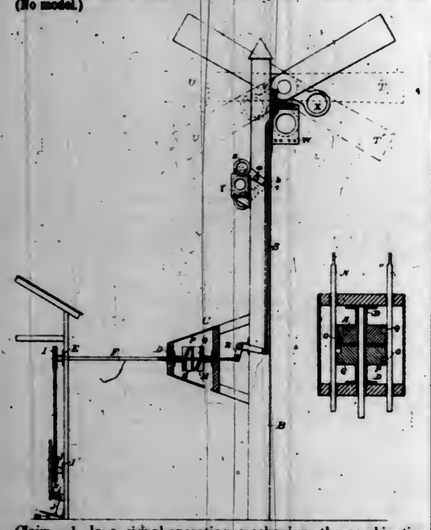
590,332. DOOR FOR GRAIN-CARS. WARREN D. PALMETIER, Lisbon, N. D. Filed Feb. 27, 1897. Serial No. 625,266. (No model.)



Claim.—The combination with a grain-car, the door-frame of which is provided with curved metallic battens, of a grain-door having angular castings, one portion of each of which is curved to conform to the battens, and the other portion of which is provided with

horisontal slots, and bolts and nuts for securing the castings to the ends of the door, substantially as set forth.

590,333. SWITCH OR SIGNAL MECHANISM. STEPHEN B. PAYNE, Youngstown, Ohio. Filed Mar. 15, 1897. Serial No. 627,616. (No model.)



Claim.—1. In a signal-operating mechanism, the combination with a revoluble shaft and a device for actuating the same, a cam mechanism operated by the shaft comprising a drum provided with two or more continuous and independent grooves, a plurality of signals, and intermediate connections between the grooved drum and each of said signals, whereby upon partial rotations of the drum, various position combinations of the signals are obtained, and upon the complete rotation of said drum the signals will be returned from their positions assumed in the various combinations to their initial position.

2. In a signal-operating mechanism, the combination with a revoluble drum provided with a plurality of continuous and independent grooves, mechanism for revolving said drum, a plurality of signals, and intermediate connections between the grooved drum and each of said signals.

3. In a two-way train-order and block signal operating mechanism, the combination with a revoluble shaft, of a hand-wheel connected to and adapted to operate the same, indicators, showing the various combinations of the signals arranged upon the wheel, a cam mechanism operated by the shaft, and intermediate connections between the cam mechanism and each of said signals.

4. In a switch or signal operating mechanism, the combination with a revoluble shaft, of a hand-wheel connected to and adapted to rotate the same, indicators showing the various combinations of the switches or signals arranged upon the wheel, a cam mechanism fixedly secured to the shaft, and intermediate connections between the cam mechanism and each of a plurality of switches or signals, substantially as described.

5. In a switch or signal operating mechanism, the combination with a revoluble shaft and an actuating device therefor adapted to rotate the same, a scroll-cam fixedly secured to the shaft, a bar mounted in proximity to the cam having a stud thereon adapted to engage said cam, a signal-pole and a signal mounted thereon, a signal-rod, a bell-crank lever connecting said signal-rod with the bar, a colored disk pivoted upon said signal-pole below the signal, and connections between the signal-rod and the disk, substantially as and for the purpose described.

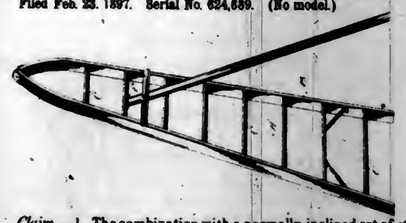
590,334. LOCK. JOHN J. PETERSON, Port Lavaca, Tex. Filed Dec. 29, 1896. Serial No. 617,348. (No model.)

Claim.—1. In a lock, the combination with a suitable casing, of a plurality of vertically-movable tumblers mounted therein, a sliding bolt also mounted in said casing, and provided with a protruding operating-handle and a plurality of notches along its upper edge, one of which is provided with a shallow notch or extension in which one of the tumblers operates to prevent the entire withdrawal of the bolt but at the same time permits of its being drawn into the casing, and a removable key having projections upon its upper edge adapted to lift the tumblers and also prevent its withdrawal from the casing while held in an elevated position by the tumblers engaging the top of the bolt; the construction and operation being such that when the bolt is drawn, the key as well as the bolt is locked in said casing against withdrawal, substantially as described.



2. In a lock, the combination with a suitable casing having key and bolt receiving grooves, of a sliding removable bolt mounted in said grooves and provided with a protruding operating-handle formed along its upper edge with a plurality of notches, vertical movable tumblers mounted in said casing, an inclined key-elevating guide located at the rear of the key-groove, and a key provided with tumbler-engaging projections and adapted to be forced into the casing and caused to rise to elevate the tumblers by engaging the inclined guide at the rear of the key-groove and riding up over the same, substantially as described.

590,335. STEP-LADDER. WALTER PRICE, National City, Cal. Filed Feb. 23, 1897. Serial No. 624,689. (No model.)



Claim.—1. The combination with a normally-inclined set of steps, of a support adapted to pass obliquely through said set between its steps and to grip it by biting against its opposite sides at points not exactly opposite, when force tends to lessen the angle made by the steps and support.

2. The combination with a normally-inclined set of steps, of a support resting against the front edge of a step, passing rearwardly downward through the set, and provided below the rear edge of said step with lateral projections adapted to rest against the rear edges of the side pieces of said set, substantially as set forth.

3. The combination with the normally-inclined set of steps, of the supporting-bar making an acute angle with the set and having its upper end resting against the front of the step next above it, and the cross-bar fixed to said bar in position to meet the rear edges of the side pieces of said set when the bar is in proper supporting position.

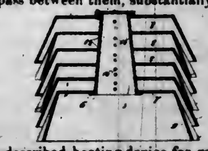
590,336. LEMONADE-SHAKER. NICHOLAS ROSSI, Emporia, Kans. Filed June 5, 1897. Serial No. 639,632. (No model.)



Claim.—A lemonade-shaker, comprising a suitable vessel formed with an annular interior depending flange adjacent to its upper or open end and a lower interior annular flange vertically extended, and an elastic lining in the vessel between the flanges and held thereby.

590,337. HEATING ATTACHMENT FOR ILLUMINATING-BURNERS. GEORGE E. RUST and JOHN J. PEELAN, Union Hill, N. J. Filed Jan. 5, 1897. Serial No. 618,052. (No model.)

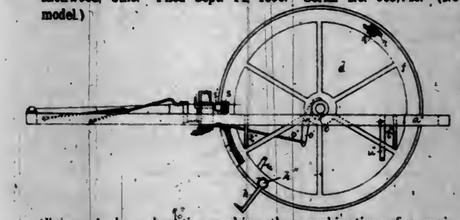
Claim.—1. The herein-described heating attachment for gas-burners and other illuminating devices, the same consisting of a central vertical tube which is perforated throughout its length, and a plurality of disks or plates mounted thereon, and separated by corresponding spaces, each of said disks or plates being provided with a depending rim or flange, and said depending rims or flanges being so formed as to overlap each other, while permitting air and products of combustion to pass between them, substantially as shown and described.



2. The herein-described heating device for gas and other burners, the same consisting of a central vertical perforated tube, a plurality of disks or plates mounted thereon and separated by corresponding spaces, said disks or plates being provided with depending flanges or rims which overlap each other, so as to form spaces between them, and said flanges or rims being vertically corrugated, substantially as shown and described.

3. The herein-described heating device for gas and other burners, the same consisting of a central vertical perforated tube, a plurality of disks or plates mounted thereon and separated by corresponding spaces, said disks or plates being provided with depending flanges or rims which overlap each other, so as to form spaces between them, and said flanges or rims being vertically corrugated, and a portion of the space between said flanges or rims being closed, substantially as shown and described.

590,338. MACHINE FOR MAKING HAY-TIES. JOHN A. SCHARF, Richwood, Ohio. Filed Sept. 14, 1896. Serial No. 605,746. (No model.)



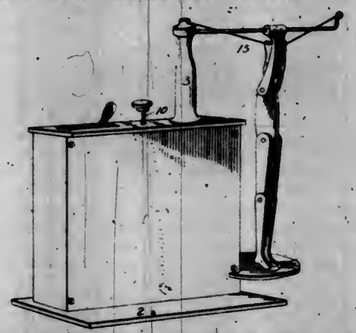
Claim.—1. In a hay-tie machine, the combination of a main frame composed of longitudinal and cross bars, and mounted thereon a main shaft carrying a main wheel provided with a flanged rim, a rack on said rim engaging with and operating a pinion mounted on an axis with its end pointed and bent at a right angle forming a twister, a looper for bending a wire around said twister forming a loop, cranks, rods, and cams on the main shaft for operating said looper, an arm on the main wheel with latch-catches and springs operating therewith to retain in proper position a finger for lifting the loop of the tie from the twister and drawing its proper length from the feed-spool, a shears on the rim of the main wheel operated by a strike on the main frame for cutting the tie at the proper point, a strike on the main frame for releasing the loop-lifter and allowing it to assume its normal position, a spring-guide for guiding the wire, a clamp in front of the twister with crank, rod, and cam on main shaft for operating said clamp, a tension-clamp at the end of the main frame with means for operating it from the main shaft by cam, rod, and crank, and a spring operating with said crank for keeping the wire in normal tension, substantially as shown and described for purposes stated.

2. In a hay-tie machine, the combination of a frame carrying a main wheel provided with flanged rim, a rack on said rim operating a pinion with a twister forming a part thereof, a looper for bending loop in tie and operated by cam, rods, and crank, an arm on the main wheel with latch-catches and springs operating therewith to retain in proper position a finger for lifting loop of tie from twister and drawing its proper length from feed-spool, the spring-guide for guiding the wire, the clamp in front of the twister, the tension-clamp at end of frame, cranks and rods connecting with levers operated by cams on main-wheel shaft for operating said clamps, substantially as shown and described for purposes stated.

3. In a machine for making hay-ties, the combination of a frame, and mounted thereon a main wheel in operative engagement with a shaft of form for twisting a loop, a shaft of form for bending said loop with means for operating the same, means for regulating the tension of the feed-wire, an arm on the main wheel of form for releasing the loop and drawing the tie to its proper length, means for holding said arm in its different operative positions, and a cutter attached to the main wheel with means for operating it in cutting the tie, substantially as shown and described.

4. In a machine for making hay-ties, the combination of a frame, and mounted thereon a main wheel in operative engagement with a bent shaft for twisting a loop, a bent shaft for bending said loop with means for operating said shaft, clamps for governing the tension of the feed-wire with means for operating said clamps, means for releasing the tie-loop from the twisting mechanism and cutting the wire tie when drawn to its proper length, substantially as shown and described.

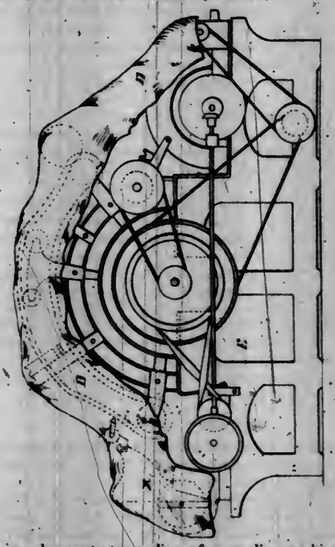
590,339. FIGURE TOY. ROBERT D. SHAFER, Fayette, Ohio. Filed May 26, 1897. Serial No. 638,581. (No model.)



Claim.—1. A combined dancing and performing toy, comprising the following essential elements, to wit: a casing provided with a hollow post having a horizontal bar, a jointed figure hung upon said horizontal bar, a lever pivoted in said casing, a cord or wire connected to the other end of said bar and to the pivoted figure and having its opposite end connected to the lever, a platform arranged below the jointed figure, a spring secured to said platform and to the casing, a knocker within said casing and connected thereto by a spring, and a push-rod connected with the flat spring and projecting upward through the top of the casing, substantially as described.

2. In a toy, the combination with a casing having a hollow post, a horizontal bar, a jointed figure hung upon said horizontal bar, a cord or wire connected to the outer upturned end of the horizontal bar and to the jointed figure, passed downwardly through the hollow post, and connected to a lever, substantially as set forth.

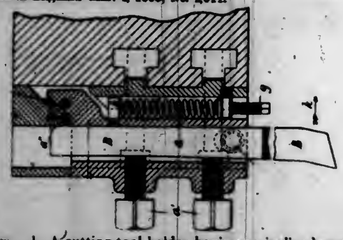
590,340. PROTECTING-COVER FOR CARDING-MACHINES. WILLIAM E. SHARPLES and FERNANDO J. SHELL, Fall River, Mass. Filed Jan. 15, 1897. Serial No. 619,333. (No model.)



Claim.—In a protector appliance for a carding-machine, the combination of a blanket or sheet long enough to cover the whole length of the machine, and wide enough to hang down a short distance at

each side, a case provided with brackets or feet to attach the case to the machine by, a horizontal shaft held in bearings in the ends of said case, an attaching connection made between said shaft and the protector-blanket at some distance from the back end, substantially as and for the purpose set forth.

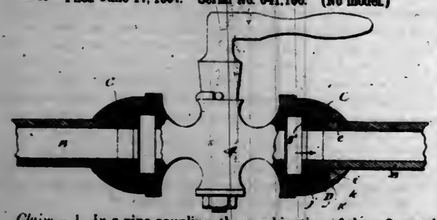
590,841. CUTTING-TOOL HOLDER. WILLIAM T. SMITH, Bolton, England. Filed Nov. 27, 1896. Serial No. 613,677. (No model.) Patented in England Mar. 4, 1896, No. 4,611.



Claim.—1. A cutting-tool holder having an inclined part, a ram upon which said holder is mounted and having a correspondingly-inclined part, a spring for securing the normal operative position of the holder on the ram, a tool for use in said holder and means for securing said tool in position thereon substantially as set forth.

2. A cutting-tool holder having an inclined part, a steel plate for protecting said part to which it is attached, a ram upon which said holder is mounted and having a correspondingly-inclined part to that on the holder, a steel plate for protecting said inclined part on the ram, a spring for securing the normal operative position of the holder, a tool for use in said holder and means for securing said tool in position thereon substantially as set forth.

590,842. PIPE-COUPLING. NATHANIEL R. SMITH, Jersey City, N. J. Filed June 17, 1897. Serial No. 641,166. (No model.)



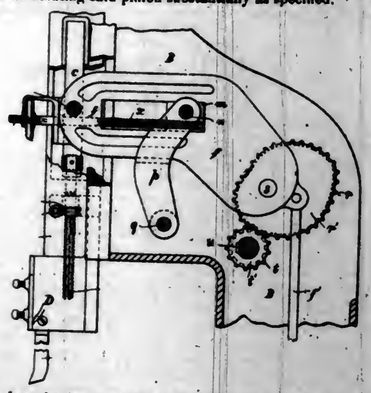
Claim.—1. In a pipe-coupling, the combination of the soft-metal pipe to be connected, having the external flange C, formed thereon and provided with the exterior bearing-surface *b*, square to the length of the pipe, and the interior bearing-surface c, a button or annulus of soft metal or other substance having the protuberance *i*, conforming in shape to the interior surface *c*, of the collar-flange C, and the peripheral flange with the square surface engaging the surface *b*, of the collar-flange and a connection or connecting-piece consisting of a screw-threaded thimble arranged on the soft-metal pipe and snugly engaging the collar-flange thereof and adapted to engage the complementary portion of a pipe, substantially as specified.

2. In a pipe-coupling, the combination of a threaded hard-metal pipe-section having a square end *g*, a soft-metal pipe-section having the fixed external collar-flange C, with the exterior bearing-surface *b*, square to the length of the pipe and the interior bearing-surface *c*, the soft-metal button or annulus having the flat side for engaging the square end of the hard-metal section, the protuberance *i*, conforming in shape to the interior surface *c*, of the collar-flange C, and the peripheral flange with the square surface engaging the surface *b*, of the collar-flange and a connection or connecting-piece consisting of the screw-threaded thimble arranged on the soft-metal pipe-section and engaging the collar-flange thereof and also engaging the threaded hard-metal pipe section, substantially as specified.

590,843. SLOTTING-MACHINE. WILLIAM T. SMITH and BEN WALMSLEY, Bolton, England. Filed Nov. 27, 1896. Serial No. 613,669. (No model.)

Claim.—1. In a slotting-machine a ram made to slide upon the framework, a lever for transmitting motion to said ram, a cam-wheel having a cam disk or flange secured to it, said wheel and disk being mounted on said lever, a pinion and disk or flange secured to it mounted on the frame and means for operating said pinion, in combination substantially as specified.

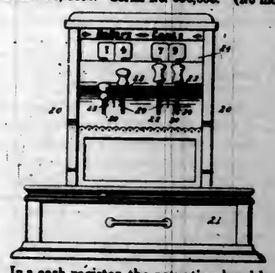
2. In a slotting-machine, the combination of a sliding ram, adjustable means for securing said ram to its operating-lever, said operating-lever, a cam-wheel carrying a cam-disk mounted on said lever, a pinion for transmitting motion to said cam-wheel and cam-disk, and means for rotating said pinion substantially as specified.



3. In a slotting-machine the combination with a sliding ram, an operating-lever therefor, means for securing the ram to the operating-lever, a link or lever-arm upon which the operating-lever is pivoted, the pivot being adjustable lengthwise of the lever, and means for transmitting motion to said operating-lever, substantially as specified.

4. In a slotting-machine the combination of a sliding ram and having a longitudinal slot, a lever for operating said ram, means for securing said lever to said ram, a link or lever for bearing the fulcrum-pin of said operating-lever, means for transmitting motion to the operating-lever, a sliding block mounted upon the pin carrying the operating-lever and movable in the slot of the lever, a regulating-screw for moving and holding said sliding block to adjust the same to obtain the desired movement of the ram, and means for transmitting motion to said screw, substantially as herein specified.

590,844. CASH-REGISTER. ELIJAH F. SPAULDING, Bound Brook, N. J. Filed Mar. 31, 1897. Serial No. 630,055. (No model.)



Claim.—1. In a cash-register, the actuating hand-lever, the rack adapted to be moved to position therefrom, and the registering-dial adapted to be operated by said rack, combined with a spring for indirectly moving said rack to operate said dial, and means connected with said actuating-lever and intermediate the same and said spring for releasing the latter to operate said rack after said lever has been moved to position; substantially as set forth.

2. In a cash-register, the actuating hand-lever, the rack adapted to be moved to a position therefrom, the registering-dial adapted to be rotated by said rack to an extent corresponding with the movement of said lever, and the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said rack, combined with the spring by which said rack is indirectly operated, and mechanism intermediate said actuating-lever and said spring for releasing the latter when said lever has been moved to position for the purpose of permitting said spring to operate said rack and through the latter the registering-dial and tablets; substantially as set forth.

3. In a cash-register, the actuating hand-lever, the plate connected to be moved to position therefrom, and the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, combined with the actuating-spring impelling the said plate to expose the proper tablet, and means intermediate said spring and plate for imparting the force of said spring when released to said plate; substantially as set forth.

4. In a cash-register, the actuating-lever, the plate connected to be moved to position therefrom, the registering-dial, and means intermediate said plate and dial whereby the latter is rotated from the former, combined with the actuating-spring impelling the said plate to action for the purpose of rotating said dial, and means intermediate said spring and plate for imparting the force of said spring when released to said plate; substantially as set forth.

5. In a cash-register, the actuating-lever, the plate connected to be moved to position therefrom, the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, the registering dial, and means intermediate said plate and dial whereby the latter is rotated from the former, combined with the actuating-spring impelling said plate to expose the proper tablet and actuate said dial, and means intermediate said spring and plate for imparting the force of the spring, when released, to said plate; substantially as set forth.

6. In a cash-register, the actuating hand-lever, the plate connected to be moved to position therefrom, and the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, combined with the actuating-spring impelling the said plate to expose the proper tablet, and means connected with said actuating-lever whereby from the latter said spring may be released; substantially as set forth.

7. In a cash-register, the actuating hand-lever, the plate connected to be moved to position therefrom, the registering-dial, and means intermediate said plate and dial whereby the latter is rotated from the former, combined with the actuating-spring impelling the said plate to action for the purpose of rotating said dial, and means connected with said actuating-lever whereby from the latter said spring may be released; substantially as set forth.

8. In a cash-register, the actuating hand-lever, the plate connected to be moved to position therefrom, the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, the registering-dial, and means intermediate said plate and dial whereby the latter is rotated from the former, combined with the actuating-spring impelling said plate to expose the proper tablet and actuate said dial, and means connected with said actuating-lever whereby from the latter said spring may be released; substantially as set forth.

9. In a cash-register, the series of actuating hand-levers, the series of plates independently connected to said levers to be moved to position therefrom, and the independent sets of tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plates, combined with the actuating-spring impelling the said plates to expose the proper tablets in accordance with the position at which said levers are arrested, and means intermediate said actuating-levers and said spring whereby the latter from any of said levers may be released to act upon said plates; substantially as set forth.

10. In a cash-register, the series of actuating hand-levers, the series of independent plates connected with said levers to be independently moved to position therefrom, the series of registering dials, and means intermediate said plates and dials whereby the latter may be rotated from the former, combined with the actuating-spring impelling said plates to action for the purpose of rotating said dials, and means intermediate the said actuating-levers and said spring whereby the latter may be released from any one of said levers; substantially as set forth.

11. In a cash-register, the series of actuating hand-levers, the series of independent plates connected with said levers and adapted to be moved to position therefrom, the independent sets of tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plates, the series of registering-dials, and means intermediate the said plates and dials whereby the latter may be rotated from the former, combined with the actuating-spring impelling said plates to expose the proper tablets and to rotate the proper dials, and mechanism intermediate said actuating-levers and spring whereby the latter may be released from any one of said levers; substantially as set forth.

12. In a cash-register, the actuating-lever, the sliding plate connected with and adapted to be moved to position by said lever and the lever-arm arranged to contact with said plate and to actuate the same, combined with the revoluble shaft carrying the arm to move the said lever-arm against said plate, means for actuating said shaft to effect the movement of said plate, and the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate; substantially as described.

13. In a cash-register, the actuating-lever, the sliding plate connected with and adapted to be moved to position by said lever, and the lever-arm arranged to contact with said plate and to actuate the same, combined with the revoluble shaft carrying the arm to move the said lever-arm against said plate, means for actuating said shaft to effect the movement of said plate, the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, and means for supporting the exposed tablet while said plate returns to its normal position; substantially as set forth.

14. In a cash-register, the actuating-lever, the sliding plate connected with and adapted to be moved to position by said lever, and the lever-arm arranged to contact with said plate and to actuate the same, combined with the revoluble shaft carrying the arm to move the said lever-arm against said plate, means for actuating said shaft to effect the movement of said plate, the tablets bearing numerals to be exposed and adapted to be moved to the exposed position by said plate, means for supporting the exposed tablet while said plate returns to its normal position, and means for removing the support from the exposed tablet to allow it to descend to its concealed position preparatory to the succeeding tablet to be exposed being moved to its exposed position; substantially as set forth.

15. In a cash-register, the actuating-lever, the sliding plate connected therewith and adapted to be moved to position thereby, and means for elevating said plate to expose the proper tablet, combined with the supporting-spring for the exposed tablet, the set of tablets having tablet-rods whose lower ends turn outward toward said spring, and means for revolving said shaft at the proper time to move said plate against the proper tablet-rod; substantially as set forth.

16. In a cash-register, the actuating-lever, the slide connected with the lower end thereof, and the vertically-movable plate guided upon the inner vertical portion of said slide, said plate having the upwardly-extending narrow portion adapted to be brought into alinement with the tablet-rods, combined with the set of tablets having downwardly-extending independent rods, the shelf formed upon the upper end of the inner portion of said slide, the spring secured upon said shelf and having its upper end turned inward toward said tablet-rods, the outward extensions at the lower end of the tablet-rods adapted to pass above and rest upon said spring under the action of said plate, and means substantially as described for actuating said plate to move upward against the proper tablet-rod denoted by the position at which said actuating-lever is arrested in its movement; substantially as set forth.

17. In a cash-register, the actuating-lever, the slide connected therewith and adapted to be moved therefrom, and the plate guided upon the inner portion of said slide and provided with the rack, combined with the registering-dial whose shaft carries the gear-wheel, the revoluble shaft carrying an arm from which said plate is moved to effect through its rack the rotation of said dial, and means for revolving said shaft; substantially as set forth.

18. In a cash-register, the actuating-lever, the slide connected with and adapted to be moved therefrom, the plate guided on said slide and having the rack, combined with the registering-dial whose shaft carries the gear-wheel, the revoluble shaft carrying the arm from which said plate is moved to effect through its rack and said gear-wheel the rotation of said dial, and means under the control of the actuating-lever for effecting the rotation of said shaft; substantially as set forth.

19. In a cash-register, the actuating-lever, the slide connected therewith and adapted to be moved thereby, the plate guided upon said slide and having the rack; and the registering-dial whose shaft carries the gear-wheel, combined with the revoluble shaft carrying the arm from which said plate is actuated to effect through its rack and said gear-wheel the rotation of said dial, means for locking said shaft against rotation, the spring for rotating said shaft, and means intermediate said lever and said spring whereby the latter from the former may be released to effect the rotation of said shaft; substantially as set forth.

20. In a cash-register, the actuating-lever, the slide connected therewith and adapted to be moved therefrom, the plate guided on said slide and having the rack, and means for moving said plate when it is desired to register, combined with the registering-dial, the shaft therefor, the gear-wheel on said shaft, the block swiveled on said shaft adjacent to said gear-wheel, and the auxiliary gear-wheel mounted on said block and engaging the gear-wheel on said shaft, the relation of the parts being such that when said plate is moved in one direction against said auxiliary gear-wheel, the latter will effect the rotation of the registering-dial and that when said rack is moved in an opposite direction against said auxiliary gear-wheel the latter will tilt said block and remain inoperative; substantially as set forth.

21. In a cash-register, the actuating-lever, the series of registering-dials, the shafts for said dials, and gearing for operating said shafts, combined with the pivoted arms 95 intermediate said dials and having the stop ends, the pawls pivoted to said arms adjacent to said ends, the gear-wheels on said shafts adjacent to said dials to be engaged by said pivoted pawls and said stop ends, and arms on said shafts for engaging the shank ends of said pivoted arms 95, whereby from one shaft each arm 95 may be actuated to engage the gear-wheel of the next succeeding shaft and rotate said shaft and its dial a definite distance; substantially as set forth.

22. In a cash-register, the actuating-lever having the segmental rack at its lower end, the slide having the rack in engagement with

and adapted to be moved by said segmental rack, the plate carried by said slide, the pivoted lever-arm whose free end is below said plate, the revoluble shaft having the arm engaging said pivoted arm, the registering mechanism adapted to be operated from said plate, and means for revolving said shaft to move said plate and thereby set the registering mechanism in motion; substantially as set forth.

25. In a cash-register, the actuating-lever having the segmental rack, the slide having the rack in engagement with said segmental rack and adapted to be moved therefrom, the plate having the graduated rack carried by said slide, and registering mechanism whose gear is adapted to be engaged by said rack on said plate, combined with pivoted lever adapted to throw said plate, the revoluble shaft having the arm in engagement with said pivoted lever, and means for revolving said shaft for the purpose of moving said plate to effect the rotation of the registering-dial; substantially as set forth.

24. In a cash-register, the series of actuating hand-levers, the sliding plates connected with said levers and adapted to be thereby moved into proper relation to effect when actuated the rotation of the register-dials, the rock-shaft having the arms in contact with said actuating-levers and adapted to be moved thereby after said levers have been moved to position, the revoluble shaft and means intermediate said revoluble shaft and said plates whereby the latter receive motion from the former, combined with means for locking said revoluble shaft against rotation, means connected with said rock-shafe for freeing said revoluble shaft, and means for effecting the operation of said revoluble shaft after the hand-levers have been moved to their desired positions; substantially as set forth.

25. In a cash-register, the series of actuating-levers, the plates connected therewith and adapted to be moved therefrom into proper relative position with the registering-dials, the rock-shaft having the arms adapted to be engaged by said actuating-levers for the purpose of rotating the rock-shaft, the plate suspended from said rock-shaft and forming a locking device, the pivoted arm carried by said plate, and the arm connected with said rock-shaft and engaging said pivoted arm for the purpose of moving said plate hung from the rock-shaft, combined with the revoluble shaft carrying the gear-wheel, crank-arm and series of cam-arms, the auxiliary gear-wheel in engagement with the gear-wheel on the revoluble shaft, the pivoted plate affording a bearing for said auxiliary gear-wheel, the rack carried by the cash-drawer for engagement with said auxiliary gear-wheel, and the spring operating to throw the drawer open and rotate said gear-wheels upon the release of the plate hung from the rock-shaft by the pressure of the hand actuating-levers; substantially as set forth.

26. In a cash-register, the series of hand actuating-levers, the plates connected therewith and adapted to be moved therefrom into proper operative relation to the registering mechanism, the rock-shaft having the arms to be engaged and moved by the depression of said hand-levers, the locking-plate hung from said rock-shaft, the arm connected with said rock-shaft and adapted to elevate said plate upon the turning of said shaft, and the revoluble shaft having the crank-arm, gear-wheel and series of radial cam-arms, the latter being adapted to effect the movement of said plates to operate the registering mechanism, combined with the auxiliary gear-wheel in engagement with the said gear-wheel on the revoluble shaft, the movable plate affording a bearing for said auxiliary gear-wheel, the rack and tramway on the cash-drawer for engagement with said auxiliary gear-wheel, and the spring pressing against said cash-drawer and adapted to throw the same open upon the release of said locking-plate from said crank-arm by the pressure of the hand actuating-levers against said rock-shaft; substantially as set forth.

27. In a cash-register, the actuating hand-levers, the plates connected therewith and adapted to be moved therefrom into proper operative relation to the registering mechanism, the rock-shaft having the arms in engagement with said actuating hand-levers, the locking-plate suspended from said rock-shaft, the arm carried by said rock-shaft for moving said locking-plate, and the revoluble shaft having the crank-arm, gear-wheel and series of radial cam-arms, the latter for operating said plates to actuate the registering mechanism, combined with the auxiliary gear-wheel in mesh with the gear-wheel on said revoluble shaft, the bearing-plate affording a bearing for said auxiliary gear-wheel, the gong-hammer pivoted to said bearing-plate in the path of said crank-arm, the rack engaging said auxiliary gear-wheel and carried by the cash-drawer, and the spring pressing against said cash-drawer to open the same and adapted upon the release of the locking-plate from the crank-arm to throw the drawer open and actuate said revoluble shaft and crank-arm to effect the proper registering and the sounding of the gong; substantially as set forth.

28. In a cash-register, the series of actuating hand-levers, the plates connected therewith and adapted to be moved therefrom into proper operative relation with the registering mechanism, the rock-shaft having the arms to be engaged by said hand-levers for moving said shaft, the locking-plate hung from said shaft and adapted to be moved therefrom, the locking-arm pivotally secured to said plate and extending below the same, and the revoluble shaft carrying the crank-arm, gear-wheel and series of radial cam-arms, the latter being adapted to actuate the said plates for operating the registering mechanism, combined with the spring for effecting the rotation of said revoluble shaft when released by the depression of said hand-levers; substantially as set forth.

29. In a cash-register, the actuating hand-levers formed in two sections, one section carrying the segmental racks and the other section being adapted to be depressed, the rock-shaft having the arms in engagement with said sections of the hand-levers which may be depressed, the slides having the racks in engagement with said segmental racks, the rack-plates guided upon said slides, the independent pivoted levers having one end below said rack-plates, and the revoluble shaft carrying the radial cam-arms adapted to move said levers and thereby elevate said rack-plates for operating the registering mechanism, combined with means intermediate said rock-shaft and said revoluble shaft for locking the latter against rotation and freeing the latter from restraint by the depression of the hand-levers against the arms of said rock-shaft, and the spring adapted when said revoluble shaft is released by the actuating hand-levers to revolve said shaft and its radial cam-arms; substantially as set forth.

30. In a cash-register, the actuating hand-lever, the tablets to be exposed, and the registering-dials, combined with means connected to be moved to position by said lever for effecting the exposure of the proper tablet and the rotation of said dial, and mechanism intermediate said means and the cash-drawer whereby on the opening of the latter said means will be actuated to expose the proper tablet and operate the registering-dial; substantially as set forth.

31. In a cash-register, the actuating hand-lever, the tablets to be exposed, and the registering-dials, combined with means connected to be moved to position by said lever for effecting the exposure of the proper tablet and the rotation of said dial, and mechanism intermediate said means and the cash-drawer whereby on the opening of the latter said means will be actuated to expose the proper tablet and operate the registering-dial, and means for opening said drawer from said hand-lever; substantially as set forth.

32. In a cash-register, the actuating hand-levers, and the rock-shaft having the arms and adapted to be moved by said levers or any of them, combined with the cash-drawer, the spring for opening said drawer, means resisting the expansion of said spring, and means intermediate said rock-shaft and said spring for releasing said spring on the movement of said shaft by said hand-levers or any of them; substantially as set forth.

33. In a cash-register, the series of actuating-levers, the sliding racks adapted to be moved to position therefrom, and the registering mechanism, combined with the pivoted levers adapted when moved to operate said racks to actuate the registering mechanism, the revoluble shaft having the arms to engage said pivoted levers and move said racks, and means for revolving said shaft; substantially as set forth.

34. In a cash-register, the series of actuating-levers, the sliding racks adapted to be moved to position therefrom, and the registering mechanism, combined with the pivoted levers adapted when moved to operate said racks to actuate the registering mechanism, the revoluble shaft having the arms to engage said pivoted levers and move said racks, and means for revolving said shaft from the cash-drawer; substantially as set forth.

35. In a cash-register, the series of actuating-levers, the sliding racks adapted to be moved to position therefrom, and the registering mechanism, combined with the pivoted levers adapted when moved to operate said racks to actuate the registering mechanism, the revoluble shaft having the arms to engage said pivoted levers and move said racks, the gear-wheel on said revoluble shaft, means for locking said gear-wheel against rotation, the auxiliary gear-wheel to engage the first-mentioned gear-wheel, the sliding rack to engage said auxiliary gear-wheel when moved in one direction, the spring for moving said sliding rack against said auxiliary gear-wheel, and means for releasing said first-mentioned gear-wheel when it is desired that the machine shall register; substantially as set forth.

36. In a cash-register, the actuating-levers, the plates connected therewith and adapted to be moved therefrom to proper operative position with relation to the registering mechanism and tablets to be exposed, the rock-shaft carrying the arms adapted to be engaged by said levers after the latter have reached their desired position, the locking-plate hung from said rock-shaft, and the revoluble shaft having the crank-arm, gear-wheel and radial cam-arms, the latter being adapted for actuating said plates to operate the registering mechanism and tablet mechanism, the auxiliary gear-wheel in engagement with the gear-wheel on said revoluble shaft, the plate swiveled on said revoluble shaft, and affording a bearing at its lower end for said auxiliary gear-wheel and at its upper end engaging said rock-shaft, the rack carried by the cash-drawer for engagement with said auxiliary gear-wheel, and the spring exerting a tension against said cash-drawer and through it and the intermediate mechanism against said crank-arm, said spring when said crank-arm is released by the movement of said locking-plate therefrom under the action of the actuating-levers being adapted to eject said cash-drawer and rotate said revoluble shaft to set in motion the cash-registering mechanism and tablet mechanism; substantially as set forth.

37. In a cash-register, the actuating-levers, the plates connected therewith and adapted to be moved therefrom into proper operative relation with the registering mechanism and tablet mechanism, the revoluble shaft from which said plates are operated to actuate the registering mechanism and tablet mechanism, combined with means under the control of said actuating-levers for freeing said revoluble shaft to rotate or lock it against rotation, and means for rotating said shaft when the same is freed by the movement of said actuating-levers; substantially as set forth.

590,845. JOINT-PACKING. WILLIAM M. STEWART, Troy, N. Y. Filed July 3, 1896. Serial No. 598,016. (No model.)



Claim.—As a new article of manufacture, a dried, gasket-packing for the joints of steam and hot-water pipes, and like purposes, the same consisting of a sheet of asbestos board, saturated or impregnated with an oil prepared in the manner described so that it will be soft enough when applied to conform closely to the surfaces, and which, as it hardens under the action of heat after it has been applied, remains pliable and retains its toughness, strength and tenacity.

590,846. MICA CHIMNEY FOR GAS-LAMPS. AARON P. STORRS, Owego, N. Y. Filed May 28, 1897. Serial No. 638,511. (No model.)



Claim.—1. In a mica chimney for lamps, the combination of an S-shaped side strip holding the edges of the mica sheet in its folds and having an aperture or apertures in each end thereof, with end strips binding the top and bottom edges of the mica sheet and having projecting lugs extending beyond the edges of such sheet said lugs being passed through said apertures and turned down upon said S-shaped strip, substantially as set forth.

2. In a mica chimney for lamps the combination of a strip binding one side of the mica sheet forming the chimney with an S-shaped side strip binding the opposite side of said sheet, said S-shaped strip having an aperture or apertures in each end thereof and being adapted to receive the first-named strip in its free fold, and end strips binding the top and bottom edges of the mica sheet and having projecting lugs extending beyond the edges of such sheet said lugs being passed through said apertures and turned down upon the said S-shaped strip, substantially as set forth.

3. In a mica chimney for lamps the combination of an S-shaped side strip C having apertures therein with end strips B having shoulders *b'* and lugs *b* at each end, substantially as set forth.

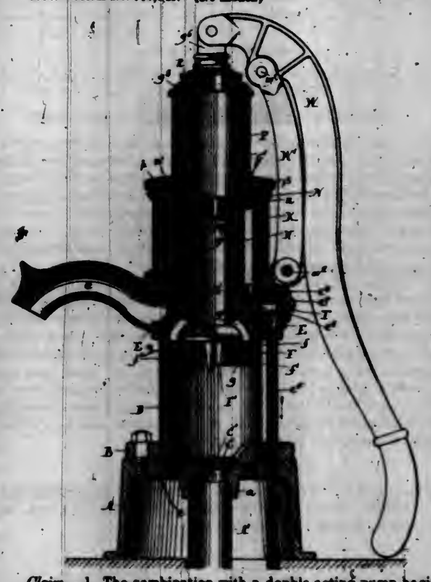
590,847. HAND-GUARD. NAPOLEON SYLVESTER, Biddeford, Me. Filed May 20, 1897. Serial No. 636,667. (No model.)



Claim.—1. In a hand-guard, the combination, with a sack for covering the hand, said sack being forked at its lower part forming a finger-stall at the rear and a thumb-stall in front, the base of the said thumb-stall extending the full width of the sack at the base of the finger-stall where the said stalls are united: of a removable holder formed of flexible material bent double and arranged in the fork of the said sack; and fastening devices temporarily securing the said holder to the sack, substantially as set forth.

2. In a hand-guard, a forked sack of flexible material, the lower rear portion of the sack being formed of two finger-stalls, and the lower front portion of the sack being formed of a thumb-stall the base of which extends the full width of the sack at the base of the finger-stalls where the said thumb and finger stalls are united, substantially as set forth.

590,848. PUMP. MORRIS D. TEMPLE, Chicago, Ill. Filed Oct. 5, 1896. Serial No. 607,843. (No model.)



Claim.—1. The combination with a double-acting pump having a lower water-cylinder and having an upper cylinder communicating at its bottom with said lower cylinder and having pistons for said upper and lower cylinders, of an air-chamber surrounding said upper cylinder and a piston for compressing the air within said air-chamber, suitable means for admitting air to said air-cylinder and for delivering air therefrom into the well, and suitable means for operating said several pistons, substantially as described.

2. The combination with a double-acting pump having a lower water-cylinder, and having an upper water-cylinder communicating at its bottom with said lower cylinder and having pistons for said upper and lower cylinders, of an air-chamber surrounding said upper cylinder, a piston for compressing the air within said cylinder, a movable trunk for operating said piston communicating at its bottom with said air-chamber, suitable passages for admitting air to said air-chamber and for delivering air therefrom to the well and means for operating said several pistons, substantially as described.

3. A double-acting pump comprising a water-cylinder, a trunk for said piston open at its top and bottom, an upper cylinder surrounding said trunk and communicating at its lower end with the water-cylinder, a piston for said upper cylinder, a supplemental trunk above said last-named piston and communicating with said first-mentioned trunk, an air-chamber surrounding said upper cylinder, a piston within said air-chamber, a movable trunk connected to said piston and surrounding said supplemental trunk, suitable air-passages leading to and from said air-chamber and suitable means for operating said several pistons, substantially as described.

4. A double-acting pump comprising a central body portion having an annular screw-threaded surface at its bottom and two annular screw-threaded surfaces of different diameters and arranged one within the other at its top, a water-cylinder engaging the annular threaded surface at the bottom of said central portion of the pump-body two cylinders of different diameters engaging the annular threaded surfaces at the top of said central portion of the pump-body, pistons within said several cylinders and suitable channels for admitting air to and delivering it from the air-chamber formed by the cylinders connected to the top of the central portion of the pump-body, substantially as described.

5. A double-acting pump comprising a lower water-cylinder D

having a piston therein, the trunk G and the supplemental trunk G′ connected together and to said piston, the cylinders H and K connected to the central portion of the pump-body, the pistons M and N arranged within said cylinders H and K, a trunk P connected to said piston N, suitable passages for the admission of air to and from the space between the cylinders H and K and a pipe c^4 for conducting the air down into the well or cistern, substantially as described.

590,849. SHOEMAKER'S LAST. THEMPSON THERRIEN, Holyoke, Mass., assignor to Dennis R. Sullivan, same place. Filed Jan. 4, 1897. Serial No. 617,998. (No model.)



Claim.—1. The within-described repairing-last for partially-turned shoes, comprising a curved segmental lasting-surface of the extent of and conforming to the sole of a shoe from the heel forward, a wall-surface joined to the base of the lasting-surface at approximately right angles thereto and forming a jog adapted to receive a shoe-heel below the lasting-surface, and a shank integral with the last and adapted to be combined with a jack or other supporting-base to hold the lasting-surface upright.

2. The last for repairing partially-turned shoes, comprising a curved segmental lasting-surface supplying a bearing for a shoe-sole, only from the heel forward, a wall at the rear end or base of the lasting-surface, depressed therefrom to receive the inner side of a shoe-heel, a shank provided with a socket in a faced end, and clamp-screw communicating therewith through the shank, and metal lap a segment of a cylinder provided with a post centrally arranged upon its top faced to the bottom of the shank, and provided with a dowel-pin for entering the shank and with the clamp-screw, forming a swivel-joint, as and for the purpose set forth.

590,850. TUCK-MARKING ATTACHMENT FOR SEWING-MACHINES. EDWIN J. TODD, New Haven, Conn. Filed Oct. 8, 1894. Serial No. 525,208. (No model.)

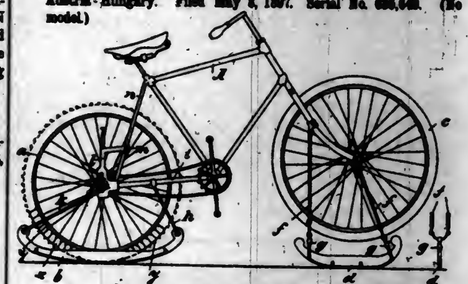


Claim.—1. The combination in a tuck-marking attachment, with the supporting-frame, and two sliding plates, of a guide carried by one of said plates and a marking device carried by the other, the said marking device comprising a plate having an upturned or vertically-arranged portion forming a guide-wall, the said plate at the upper edge of such guide-wall being extended laterally in a horizontal direction and then upwardly to form a second guide-wall located at one side and above the plane of the first guide-wall, the upper edge of the second guide-wall forming a marking edge, and a movable plate for engaging with the latter, substantially as and for the purpose set forth.

2. The combination in a tuck-marking attachment, with the supporting-frame, and two sliding plates, of a guide carried by one of said plates and a marking device carried by the other, the said marking device comprising a plate having an upturned or vertically-arranged portion forming a guide-wall, the said plate at the upper edge of such guide-wall being extended laterally in a horizontal direction and then upwardly to form a second guide-wall located at one side and above the plane of the first guide-wall, the said plate being also provided with a forwardly-extending guard-flange or projection located above the second and upper guide-wall, and a movable plate for engaging with the upper edge of the latter, which forms a marking edge, substantially as described and for the purpose set forth.

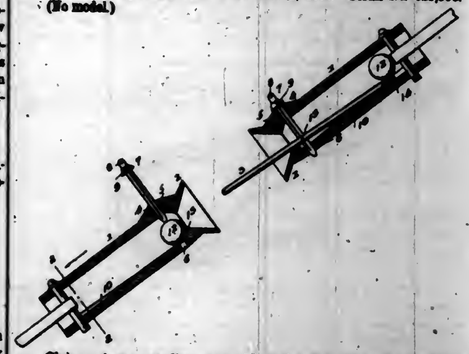
3. The combination in a tuck-marking attachment, with the supporting-frame, and two sliding plates, of a guide carried by one of said plates and a marking device carried by the other, the said marking device comprising a plate having an upturned or vertically-arranged portion forming a guide-wall, which plate is extended laterally from the upper edge of the latter in a horizontal direction, then upwardly to form a second vertical guide-wall, and then horizontally again, the latter portion having a part thereof cut away so that a part of the upper edge of said second guide-wall will form a marking edge, and a movable plate for engaging with the latter, substantially as described and for the purpose set forth.

590,851. ICE-VELOCIPEDE. FRANZ WOSSIDLO, Feldkirch, Austria-Hungary. Filed May 8, 1897. Serial No. 636,642. (No model.)



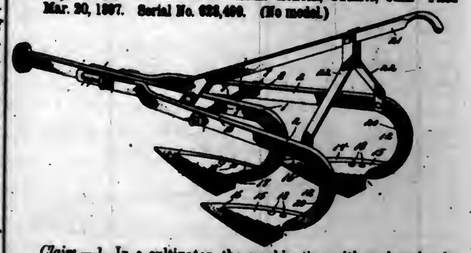
Claim.—In a velocipede in combination the front runner *d*, the flap *g* and the stays *f*, supporting the front steering-wheel, the hind runners *b*, the stays *k*, being fastened onto the tube *i* of the velocipede-frame, the stays *k* being fastened to a specially-provided-for frame, consisting of the angular piece *l*, clamped to the rear fork and bolted to the tubing of the cycle, the journal of the hind wheel *w*, sliding in the slit *v* and being under pressure of the spiral spring *t*, running through a tube or socket *r*, the two stays *s*, threading into the socket *z* and the hoop s^3 substantially as and for the purpose set forth.

590,852. CAR-COUPLING. LEON J. YARNELL and JOSEPH H. SCHMIDT, Deepwater, Tex. Filed Mar. 1, 1897. Serial No. 625,560. (No model.)



Claim.—A car-coupling comprising the draw-head 1, provided with the integral boss 4 having the vertical rectangular orifice 5, an alined orifice 6, a contiguous transverse shoulder 13, and the parallel forwardly-inclined rails 10 10 in the bottom of said draw-head, in combination with the rectangular coupling-pin 7, and the link 3 provided with the forwardly-projecting bevel-edged toe 14, substantially as shown and described.

590,853. CULTIVATOR. ELIAS ACKOM, Guthrie, Okla. Filed Mar. 20, 1897. Serial No. 628,409. (No model.)



Claim.—1. In a cultivator, the combination with a shovel substantially triangular in form and having an upwardly-bulging portion midway its width tapering forwardly from its rear end to a point, whereby a recess is formed in the under side of the shovel, and that part of the shovel around the upwardly-bulging portion being flat and in the same horizontal plane throughout its entire area, of a beam having its lower end seated in said recess, and means to secure the shovel to the beam, substantially as described.

2. In a cultivator, the combination with a shovel substantially

triangular in form and having an upwardly-bulging portion midway its width tapering forwardly from its rear end to a point, whereby a recess is formed in the under side of the shovel, and that part of the shovel around the upwardly-bulging portion being flat and in the same horizontal plane throughout its entire area, of a beam having its rear portion bent downwardly and forwardly and its end flattened and widened, said widened and flattened end being seated in the recess in the shovel and said beam being recessed at its upper edge to receive the rear edge of the shovel, and means to secure the shovel to the end of the beam, substantially as described.

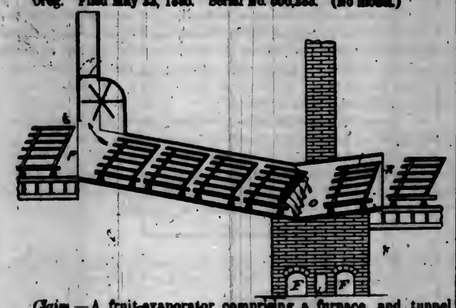
3. A cultivator-shovel substantially triangular in form and having an upwardly-bulging portion tapering forwardly from its rear end to a point, and that part of the shovel around the upwardly-bulging portion being flat and in the same horizontal plane throughout its entire area, substantially as described.

4. A cultivator-shovel substantially triangular in form and having an upwardly-bulging portion tapering forwardly from its rear end to a point, the side boundary-lines of said bulging portion being substantially equidistant throughout from the sides of the shovel, and that part of the shovel around the upwardly-bulging portion being flat and in the same horizontal plane throughout its entire area, substantially as described.

5. In a cultivator, the combination with the main beam, of two side beams, a bolt connecting the front ends of the side beams to the front portion of the main beam, a rod rigidly secured to the rear portion of the main beam with its ends extending through elongated openings in the side beams, adjusting-nuts on the ends of said rod, a spring interposed between the main beam and the inner faces of the side beams, whereby the side beams may be adjusted laterally relatively to the main beam, substantially as described.

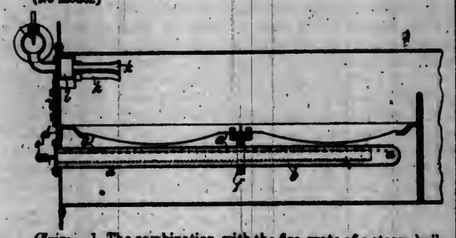
6. In a cultivator, the combination with the main beam, of two side beams, slotted wedges interposed between the opposing faces of the front ends of the beam and the main frame, a bolt passing through the front ends of the side beams, the slotted wedges and the front portion of the main beam, a rod connecting the rear portion of the main beam to the side beams, springs on said rod between the main beam and the inner faces of the side beam, and adjusting-nuts on said rod and the said bolt, substantially as described.

590,854. FRUIT-EVAPORATOR. WILLIAM K. ALLEN, Newberg, Oreg. Filed May 22, 1896. Serial No. 590,283. (No model.)



Claim.—A fruit-evaporator comprising a furnace, and tunnel connected therewith, and inclined in opposite directions upwardly from the top of said furnace, a series of cars substantially as described, adapted to travel in said tunnel, and a draft-flue connected to said tunnel and provided with a suction-fan and a valve, as and for the purpose set forth.

590,855. FORCED-DRAFT DEVICE FOR FURNACES. JOSEPH APSEY, London, England. Filed Dec. 26, 1896. Serial No. 617,095. (No model.)

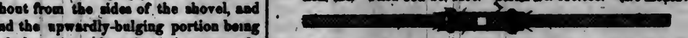


Claim.—1. The combination, with the fire-grate of a steam-boiler or other furnace, of a perforated casing extending beneath said fire-grate and closed at both ends, a tube extending within said casing from the outer nearly to the inner end thereof, and means, substantially such as above described, for forcing air into said tube, for the purposes above specified.

2. The combination of a perforated casing adapted to be secured beneath the fire-grate of a steam-boiler or other furnace, and a tube fixed within said casing and extending from the outer nearly to the inner end thereof, substantially as, and for the purposes, above specified.

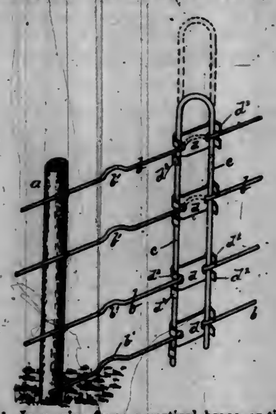
3. The combination, with the fire-grate of a steam-boiler or other furnace, of a perforated casing closed at both ends and extending beneath said fire-grate, a tube fixed within said casing and extending from the outer nearly to the inner end thereof, and a jet or injector nozzle at the outer end of said tube, substantially as, and for the purposes, above specified.

590,856. BELT-FASTENER. JULIEN BOUCHER, Greenville Junction, Me. Filed Oct. 26, 1896. Serial No. 610,085. (No model.)



Claim.—A belt-fastener comprising two plates, each plate having connecting-pins upon one end thereof and keyhole slots upon the opposite end, the keyhole-slots in the two plates extending in opposite directions and the pins of each plate engaging the slots of the other when the plates are in operative position.

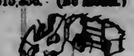
590,857. WIRE FENCE. ANDREW CHURCH and CHARLES A. CHURCH, Adrian, Mich. Filed July 23, 1896. Serial No. 600,245. (No model.)



Claim.—1. In a wire fence a vertical brace or tie having two legs, a horizontal wire having horizontal bends disposed between said two legs, a plate having at each end a pair of horizontally-extending prongs or fingers with spaces between the same, and a connecting portion a^3, the back side of said connecting portion being disposed within said horizontal bend, the horizontal wire passing through said spaces, and the front side of said prongs or fingers being clamped around said legs, substantially as and for the purpose specified.

2. A wire fence comprising posts, horizontal wires secured thereto, horizontal bends in said wires arranged in vertical rows, a vertical brace or tie having two legs, said horizontal bends being disposed between said legs, plates bifurcated at each end, each pair of prongs thus formed being disposed astride the horizontal wire, the connecting portion of the plate being disposed within said bend, and the pair of prongs at each end of the plate being clamped around one of the legs of the tie or brace.

590,858. BELT-PIN. BYRON G. CLARK, Boston, Mass. Filed Dec. 11, 1896. Serial No. 615,336. (No model.)



Claim.—1. A belt attachment comprising a belt-engaging clamp having stops formed to bear on the lower edge of a belt, upwardly-projecting extensions on said stops arranged to bear on the outer side of the belt, said clamp and extensions being separated by a space which is open at the upper ends of the extensions, whereby the clamp is adapted to engage a belt of any width, and spurs formed to engage the belt above its lower edge, and a skirt-engaging hook supported by said clamp.

2. A belt attachment comprising a belt-engaging clamp having steps formed to bear on the lower edge of a belt, and spurs formed to engage the belt above its lower edge, said steps having upwardly-projecting extensions serving as guards for the spurs, and a skirt-supporting hook supported by said clamp.

3. A belt-pin comprising a clamp adapted to grasp or engage the belt, and a movable clamp-locking device having means for engaging a skirt and adapted to be held in position to lock the clamp by the weight of the skirt.

4. A belt attachment comprising two hinged plates or members, one having a belt-engaging spur and the other a guard for said spur, a slide on one of said members having skirt-engaging hooks, and ears or detents on the other member arranged to be engaged by said slide.

5. A belt attachment comprising a sheet-metal plate having extensions bent upwardly at one side of the plate and forming hooked guards adapted to receive one edge of a belt, and offset ears or detents projecting from the opposite side of the plate; another sheet-metal plate hinged to the first-mentioned plate and provided with spurs coinciding with said guards, an opening formed to receive said detents, and guides at opposite sides of said opening; and a slide comprising parallel arms fitted to slide in said guides, hooks formed on said arms, and a cross-bar connecting the arms and adapted to engage said detents.

590,859. BURNER FOR INCANDESCENT GAS-LIGHTING.

WILLIAM R. CLAY, Farnworth, England. Filed May 27, 1896. Serial No. 593,267. (No model.)



Claim.—1. The combination with a burner for incandescent gas-lighting, of a gas-supply pipe wholly supporting said burner and coiled to provide resiliency and absorb vibration, substantially as described.

2. The combination with the parts forming an incandescent gas-burner of a spiral, or coiled resilient supply-pipe for supporting the other parts forming said burner, said supply-pipe being coiled around or arranged near the flame of the said burner substantially as and for the purposes specified.

3. The combination with an incandescent gas-burner of a fixed supporting-piece having a vertical series of hooks for holding the incandescent article or part of said burner substantially as herein specified.

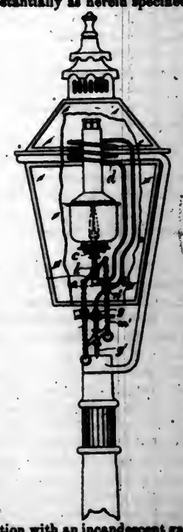
590,860. ATTACHMENT FOR INCANDESCENT GAS-BURNERS.

WILLIAM R. CLAY and BEN WALMSLEY, Bolton, England. Filed Jan. 28, 1897. Serial No. 620,380. (No model.)

Claim.—1. As an attachment for an incandescent gas-burner having the valve-operating lever as well as the burner supported by resilient bearings, a stop-piece formed so that it may be rigidly secured in position, chains or cords secured to the arms of the lever for operating the tap of said burner and hoops or other pieces secured to said chains or cords substantially as set forth.

2. In combination with an incandescent gas-burner and its valve-operating lever supported by resilient bearings, a stop-piece slotted to allow its adjustment, chains or cords secured to the lever-arms for operating the tap of said burner, and means secured on said chains or cords for arresting same by coming into contact with the stop-piece substantially as set forth.

3. In combination with two or more incandescent gas-burners and their valve-operating levers supported by resilient bearings, a stop-piece formed so that the cords or chains from the lever-arms of the taps on said burner may pass therethrough, said chains or cords and means secured on said chains or cords to come into contact with said stop-piece, substantially as herein specified.



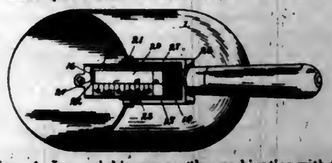
4. In combination with an incandescent gas-burner and its valve-operating lever supported by resilient bearings, a stop-piece arranged to prevent said burner from descending too far or moving in a lateral direction on its tap being opened or closed and chains secured to said tap for operating it substantially as herein specified.

5. In combination with an incandescent gas-burner and its valve-operating lever-arms supported by resilient bearings a lever arranged so that the cords or chains from the lever-arms of the tap on said burner may be secured thereto and a projecting piece or pieces rigidly fixed for arresting said lever at the extent of its path in each direction substantially as specified.

6. In combination with an incandescent gas-burner and its valve-operating lever supported by resilient bearings, a lever arranged so that the cords or chains from the tap-operating lever on said burner may be secured thereto, said cords or chains, and projecting pieces formed on the last-mentioned lever for arresting it at the extent of its path in both directions substantially as set forth.

590,861. WEIGHING-SCOOP.

CLAYTON D. COLLEY, Abingdon, Va. Filed Apr. 23, 1897. Serial No. 633,454. (No model.)



Claim.—1. In a weighing-scoop, the combination with the scoop, of a frame connected to the scoop to have vertical movement relatively thereto, weighing mechanism connected to the frame and scoop, a casing secured to said frame to inclose the weighing mechanism, a shank pivoted to the casing, and a handle fitted on the shank to have rotary movement thereon, substantially as described.

2. In a weighing-scoop, the combination with a scoop having an upwardly-extending standard, a frame fitting loosely over said standard, parallel links pivotally connected to the standard and the frame, a spring connected at one end to the frame and at its other end to the standard, a registering-hand pivoted to said frame, a link pivoted at one end to the said standard and at its other end to the registering-hand, a casing secured to the frame, and a handle pivotally connected to said casing, substantially as described.

3. In a weighing-scoop, the combination with a scoop having an upwardly-extending standard, a frame consisting of a bar bent at a right angle, its horizontal arm having an opening to fit loosely over the standard, a rod extending up from the rear end of said horizontal arm, parallel links pivotally connected at one end to the standard and at the other end to said rod, a spring connected at one end to the frame and at its other end to the standard, a registering-hand pivoted to said frame, a link pivoted at one end to the said standard and at its other end to the registering-hand, a casing secured to the frame, and a handle pivotally connected to said casing, substantially as described.

4. In a weighing-scoop, the combination with a scoop having an upwardly-extending standard, a frame fitting loosely over said standard, parallel links pivotally connected to the standard and the frame, an angle-lever pivoted at its bend to said frame, a coiled spring connected at its upper end to the horizontal arm of said lever and at its lower end to the upper end of the standard, a set-screw working in the casing to engage the vertical arm of the lever, a registering-hand pivoted to said frame, a link pivoted at one end to the said standard and at its other end to the registering-hand, a casing secured to the frame, and a handle pivotally connected to said casing, substantially as described.

5. In a weighing-scoop, the combination with a scoop having an upwardly-extending standard, a frame fitting loosely over said standard, parallel links pivotally connected to the standard and the frame, a spring connected at one end to the frame and at its other end to the standard, a registering-hand pivoted to said frame, a link pivoted at one end to the said standard and at its other end to the registering-hand, a casing secured to the frame, the upper face of said casing forming the arc of a circle with the pivot of the registering-hand for its center, a slot in said upper face through which the registering-hand projects, a scale upon said upper face, and a handle pivotally connected to said casing, substantially as described.

590,862. HAT-PIN.

BURTON H. COOK, Brooklyn, N. Y. Filed Oct. 6, 1896. Serial No. 607,908. (No model.)



Claim.—In hat-pins, the combination of an elongated pin, having a spiral portion, having at its outer diameter at one end an elongated straight-pointed shank extending from such portion outwardly, parallel with the axis thereof, and eccentric thereto, and having at its outer diameter at its other end, and diametrically opposite said shank, a short straight head end extending from said spiral outwardly parallel with and eccentric to the axis thereof, and a head fixed to and axially of said head end, substantially as and for the purpose set forth.

590,863. WRENCH.

ROBERT F. CROSIER, Primghar, Iowa. Filed June 19, 1897. Serial No. 641,495. (No model.)



Claim.—1. A wrench, comprising a handle, one end of which is wider than the other, and provided with two pivoted jaws, each of which is provided with a circular head through which the pivot pins or bolts pass, and a longitudinally-movable shaft mounted in said handle, and provided on the opposite sides of its outer end with teeth or projections which are adapted to operate in connection with corresponding teeth or projections formed on the circular heads of said jaws, and means for moving said shaft longitudinally of the handle, substantially as shown and described.

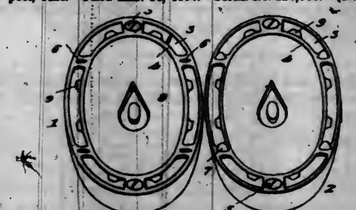
2. A wrench, comprising a handle, one end of which is wider than the other, and provided with two pivoted jaws, each of which is provided with a circular head through which the pivot pins or bolts pass, and a longitudinally-movable shaft mounted in said handle, and provided on the opposite sides of its outer end with teeth or projections which are adapted to operate in connection with corresponding teeth or projections formed on the circular heads of said jaws, and means for moving said shaft longitudinally of the handle, consisting of a wheel which is mounted thereon, and which projects through the sides of the handle, said wheel being screw-threaded interiorly, and said shaft being also screw-threaded, substantially as shown and described.

3. A wrench, comprising a handle, composed of a central longitudinal portion, and two side plates, said handle being wider at one end than at the other, and being also provided with two jaws which are pivoted between the wider ends of said side plates, said jaws being provided with circular heads through which the pivot pins or bolts pass, and said heads being provided with teeth or projections, and a longitudinally-movable shaft mounted in the central portion of the handle, and provided with teeth or projections on the opposite sides of the outer end thereof, and means for moving said shaft longitudinally of the handle, substantially as shown and described.

590,864. WITHDRAWN.

590,865. POTTER'S MOLD.

WILLIAM A. DENHAM, East Liverpool, Ohio. Filed Mar. 16, 1897. Serial No. 627,908. (No model.)



Claim.—1. A sectional mold for potters' use comprising the case 3, the parting-frame 4, and the detachable die 8, secured in said case by the parting-frame 4, substantially as and for the purpose set forth.

2. A potter's sectional mold comprising the integral cope forming a socket or case, an integral detachable die, and an integral frame provided with steady-pins 7 7 detachably secured to said cope and adapted to detachably secure said die in said cope, in combination with the counterpart integral detachable drag 1 comprising a socket or case, an integral detachable die, and an integral frame provided with conical recesses 6 6 detachably secured to said drag, and adapted to detachably secure said die in said drag, substantially as shown and described.

590,866. SELF-HIVING BEEHIVE.

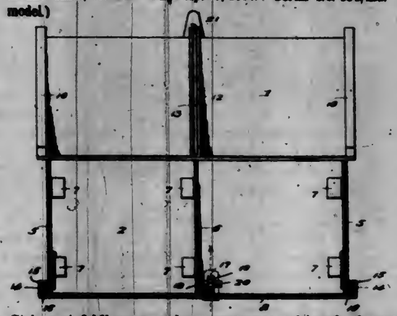
ALBERT DUNCAN, Dupont, Ga. Filed Nov. 15, 1895. Serial No. 569,092. (No model.)



Claim.—In a beehive, the hive-body provided with a central longitudinal partition dividing the interior of the body into separate compartments having front entrances, said partition being formed with a longitudinal slide-opening, extending inward from the front of the hive-body, a temporary imperforate closing-strip 5 adapted to be fitted over the entrance to the compartment forming the original brood-chamber, a perforate queen-excluding strip 10 fitted over the entrance to the other compartment which is originally empty, and a slide registering in the slide-opening of the partition 2 and formed with a transverse opening providing communication between the two compartments, said slide carrying a perforate queen-excluding strip covering the transverse opening of the slide and having a conical queen-trap, substantially as set forth.

590,867. FOLDING EGG OR BERRY CRATE.

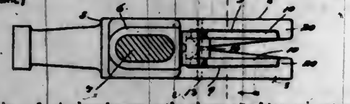
JOHN I. PERRIN, Mount Clare, W. Va. Filed Apr. 9, 1897. Serial No. 631,462. (No model.)



Claim.—A folding egg or berry crate, comprising the front 4, the parallel ends 5 5, hinged to said front and the back 2, hinged to said ends and provided with the vertical slot 19, in combination with the top or cover 1, hinged to the upper edge of said back 2, and provided

with the central transverse cleat 12, formed with the longitudinal groove 13, the bottom 8, hinged to the lower edge of said front 4, the hasp 17, fixed to said bottom and provided with the integral tongue 18, adapted to project inwardly through the slot 19, in said back 2, whereby the free edge of the bottom of the crate may be secured to said back from the inside thereof, the transverse cleats 14 14, fixed to the outer ends of said bottom, the spring-plates 15, fixed to the inner face of the ends 5 5, and provided with the short bolts 16, adapted to project through said end pieces and engage said cleats 14, and the central transverse partition 6, hinged to said bottom, and adapted to engage the groove 13, in the cleat 12, when said crate is set up, substantially as shown and described.

590,868. CLAW-HAMMER. ALONZO H. HARRIMAN and CHARLES B. RING, Orono, Me. Filed Mar. 30, 1897. Serial No. 629,934. (No model.)



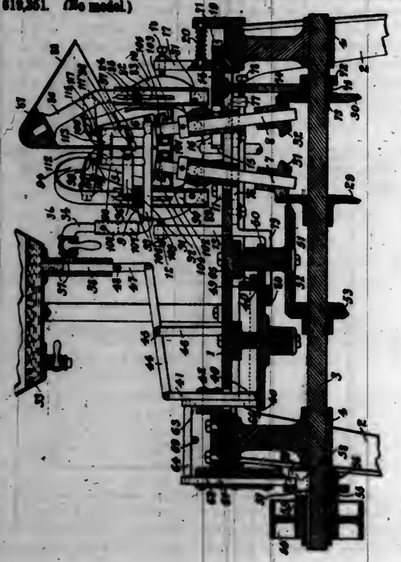
Claim.—1. A claw-hammer the claws of which are cut away on their inner surfaces and provided with supplemental pivoted jaws, said jaws being pivoted between said claws at their rear ends, and said jaws being provided in their upper sides with notches or recesses, and a spring which is secured to the socket of the hammer through which the handle is inserted, and which projects into said notches or recesses, said jaws being also separated at their pivoted ends by a block through which the pivot-pin passes, and the inner surfaces of said claws being curved inwardly and downwardly, and said jaws being correspondingly formed, substantially as shown and described.

2. The herein-described claw-hammer, comprising the combination with a hammer of claws 8 having cut-away portions 9; pivoted jaws 10; pivot-pin 13; a spring 15 adapted to engage notches 14 formed in said jaws; a triangular block 16, said claws being provided with recesses 17, and said jaws being provided with lugs or projections adapted to engage the same, the said jaws being inclined at 19, and the said claws being provided with shoulders 20, substantially as shown and described and for the purpose set forth.

590,869. LUBRICATING MATERIAL FOR MACHINERY-BEARINGS. JAMES W. HALEY, Milford, Me. Filed Jan. 20, 1897. Serial No. 621,227. (No model.)

Claim.—A compound of glass, lead, plumbago and antimony tempered as may be required with brass and aluminium substantially in the proportions and for the purposes set forth.

590,870. MACHINE FOR STIFFENING BRIMS OF HATS. LEWIS R. HEIL, Danbury, Conn. Filed Jan. 15, 1897. Serial No. 619,351. (No model.)



Claim.—1. In a machine for stiffening the brims of hats, the combination of means for conducting and applying the stiffening, a pair of rolls between which the hat is passed, devices for supporting the hat and for properly presenting the same to said rolls, means for revolving the rolls, automatically-controlled mechanism for stopping the rotation of the rolls, and instrumentalities automatically controlled and operated by said stop mechanism for separating the rolls immediately prior to the stopping of the rotation thereof, substantially as set forth.

2. In a machine for stiffening the brims of hats, the combination of the slide which carries the hat-supporting devices and one of the rolls, the power driving mechanism, automatic means for stopping the machine, and instrumentalities automatically controlled and operated by the stop mechanism for retracting said slide at a predetermined time, substantially as set forth.

3. In a machine for stiffening the brims of hats, the combination of the slide supported on the bed of the machine, the pair of rolls one of which is supported within a stationary part of the machine while the other one is supported by said slide, the hat-supporting devices carried by said slide, means—as a spring—for throwing said rolls and devices in normal position, means for revolving the rolls, automatically-operated mechanism for stopping the rotation of the rolls, and the slide-bar intermediate of said slide and stop mechanism and automatically operated by the latter to retract said slide and the parts carried thereby at a predetermined time, substantially as set forth.

4. The combination of the power-shaft, the slide supported on the bed of the machine, the shafts supported respectively by the stationary bed of the machine and by said slide, the rolls secured on the upper ends of said shafts, the bevel-gears on the lower ends of said shafts, the bevel-gears on the power-shaft meshing with the first-named gears one of these power-shaft gears being capable of sliding on its shaft, means for connecting this sliding gear to said slide, the hat-supporting devices carried by said slide, means for revolving the power-shaft, stop mechanism for arresting the movement of said shaft, a rotary cam for operating said stop mechanism, a spring for maintaining the normal position of said slide and the parts carried thereby, the slide-bar supported beneath the bed of the machine and abutted at one end against said slide, and means carried by said cam and operating against the other end of said bar to throw back the same and thereby effect the retraction of the slide and the parts carried thereby at a time prior to the stopping of the power-shaft, substantially as set forth.

5. In a machine for stiffening the brims of hats, the combination of the rolls between which the hat is passed, with devices for supporting the hat and for presenting the inner edge of the hat-body to said rolls in a vertical plane, and means for adjusting said devices in different horizontal planes without disturbing the vertical disposition of said edge, substantially as set forth.

6. The combination of the rolls between which the hat is passed, with hat-supporting devices and means for adjusting the latter in different horizontal planes and for presenting the inner edge of the hat-body to said rolls in a fixed vertical plane, substantially as set forth.

7. The combination of the slide, the bracket carried thereby, the vertically-disposed guide-plate secured to said bracket, the bar guided and capable of sliding within said plate and having an angular bent portion projecting from the upper part thereof, the tip-block supported on the extremity of such bent portion, and means for adjusting said bar in different horizontal planes, substantially as set forth.

8. In a machine for stiffening the brims of hats, the combination with means for supporting the hat-body and the rolls between which the hat is passed, of the vertically-adjustable bracket 96 having secured thereto the horizontal ledge for supporting the lower edge of the hat-body, the outer edge of such ledge being bent and curved and adapted to extend within the hat-body whereby the latter is properly guided between said rolls, substantially as set forth.

9. The combination of the rolls journaled within the brackets 9, 10, of the scrapers secured to the upper extremity of said brackets and extending in close proximity to the tops of the rolls, the extremities of such scrapers being bent and curved in opposite directions, substantially as set forth.

10. In a machine for stiffening the brims of hats and in which the hat is passed between vertically-disposed rolls, the drip-pan secured in position below such rolls and provided with perforated upwardly-extending thimbles through which the shafts of said rolls pass, and the sheds secured to the bottoms of said rolls and overhanging said thimbles, substantially as set forth.

11. In a machine for stiffening the brims of hats, the combination of the rolls between which the hat is passed, means for properly supporting and presenting the hat between said rolls, the pipes provided with suitable nozzles for applying the stiffening to said hat,

and means for adjusting said pipes toward and away from said rolls whereby the stiffening may be applied to said hat at points variably distant from said rolls, substantially as set forth.

12. The combination of the brackets, the rolls supported therein, devices for supporting the hat and for presenting the same between said rolls, the vertically-disposed pipe through which the stiffening is led, the horizontally-disposed pipe connected to said vertical pipe by a rolling joint, the vertical pipes leading from said horizontal pipe and provided at their upper extremities with nozzles which extend laterally toward each other and also having ears projecting upwardly, and the adjusting-screws passed through said ears and bearing against said brackets whereby said nozzles may be adjusted toward or away from said rolls, substantially as set forth.

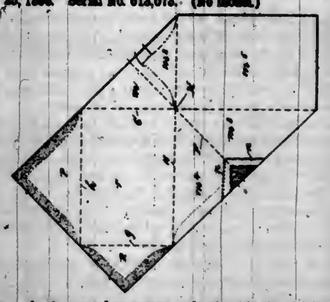
13. In a machine for stiffening the brims of hats, the combination of a pair of rolls for acting upon the hat after the stiffening is applied, means for supporting the hat with its inner edge in a fixed vertical plane, means for adjusting such support to different horizontal planes without disturbing said vertical plane, devices for applying the stiffening to said hat, means for adjusting said devices toward or away from said rolls, the combined support for the lower edge of the hat and curved guide for the inside of the hat, means for imparting revolution to said rolls, automatically-operated appliances for stopping the machine at predetermined times, and devices controlled and operated by said appliances for separating the rolls immediately prior to the stopping of the machine, substantially as set forth.

590,871. PLOW. NELSON JERRY, Maple Lake, Minn. Filed Jan. 20, 1897. Serial No. 619,931. (No model.)



Claim.—In a plow, the combination of the standard, the point, and the moldboard connected with the point, said moldboard being formed with an integral tapering projection curved upwardly and forwardly for completely turning the earth and preventing it dropping back of the plow into the furrow, substantially as shown and described.

590,872. ENVELOP. ALICE C. KIMBLEY, Lynn, Mass. Filed Nov. 23, 1896. Serial No. 613,073. (No model.)



Claim.—1. An envelop, composed of a blank which is oblong in form, and the sides of which are parallel, one side of which is longer than the other, one end thereof being straight, and the corners of the opposite end being cut away to form inclined edges, one of which is longer than the other so that when folded it will form a rectangular envelop between the back and the front of which is a triangular flap, which is gummed so as to be sealed to the contents of the envelop, substantially as shown and described.

2. An envelop, composed of a blank which is oblong in form and the sides of which are parallel, one side of which is longer than the other, one end thereof being straight, and the corners of the opposite end being cut away to form inclined edges, one of which is longer than the other, so that when folded it will form a rectangular envelop between the back and the front of which is a triangular flap which is gummed so as to be sealed to the contents of the envelop, the envelop also having folding ends and a folding flap, one of the ends being double, the envelop being closed by folding the said ends over and sealing them to the back thereof substantially as shown and described.

590,873. INTERIOR CONDUIT FOR BUILDINGS. HARRY G. OSBURN, Chicago, Ill. Filed Nov. 1, 1895. Serial No. 567,580. (No model.)

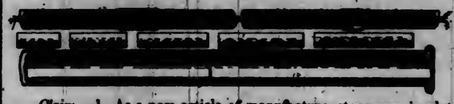


Claim.—1. In a cut-out or junction box, the combination with a box or casing formed of ceramic material, of metallic clips mounted thereon, and a fuse-block carrying plates adapted to engage said metallic clips, binding-screws being provided in connection with said plates to which the fuse-wire is adapted to be secured; substantially as described.

2. The combination with a box provided with an opening, of a metallic tube passing therethrough, and an insulating-tube extending into said tube and provided with an enlargement upon the end adapted to rest against the end of the metal tube to prevent the conductors from coming in contact with the end of the metal tubing, substantially as described.

3. In an interior conduit, the combination with a metallic casing or tube having an oval or elliptical cross-section, of insulating-tubes disposed within said casing for containing conducting-wires, substantially as described.

590,874. INTERIOR CONDUIT FOR ELECTRICAL CONDUCTORS. HARRY G. OSBURN, Chicago, Ill. Filed Mar. 23, 1896. Serial No. 584,463. (No model.)



Claim.—1. As a new article of manufacture, stoneware insulating-tubes formed in short lengths from clay suitable for the manufacture of such ware, the said clay containing large percentages of silica and alumina and being strongly compressed when being given tabulate form, the tubes thereafter being fired at a high temperature and thoroughly vitrified throughout, whereby high insulating properties and great structural strength are imparted to said tubes, substantially as described.

2. In an interior conduit, the combination with an external sheathing or casing, of short stoneware insulating-tubes disposed therein, end to end, the said tubes being formed of clay containing large percentages of silica and alumina suitable for the manufacture of such ware, the said clay being strongly compressed when given tubulate form and afterward fired at a high temperature until thoroughly vitrified throughout, whereby high insulating properties and great structural strength are imparted to said tubes, substantially as described.

3. In an interior conduit the combination with insulating-tubes of an outer casing or sheath inclosing said tubes the walls of said casing being formed to give them a spring-like action whereby the casing adapts itself to tubes slightly irregular in form or size, substantially as described.

4. In an interior conduit the combination with short lengths of insulating-tube of an inclosing sheath or casing in which said tubes are placed end to end, the walls of said casing being provided with inwardly-extending corrugations engaging said tubes whereby the same are centered and irregularity in the form of the tubes is compensated, substantially as described.

5. In an interior conduit, the combination with sheet-metal sheaths or casings provided with longitudinal corrugations and means for securing the same together end to end, of short insulating-tubes within said casings and resting end to end, substantially as described.

6. In an interior conduit, the combination with an elbow of insulating material, of a sheet metal sheath or casing for said elbow, said casing being made in two halves adapted to be secured together at the adjoining ends, substantially as and for the purpose set forth.

7. In an interior conduit the combination with short tubes adapted to contain electrical conductors of a casing or sheath for said tubes, the walls of which are provided with inwardly-extending depressions or corrugations whereby the tubes are centered within the casing and irregularity in their form compensated, substantially as described.

8. The combination in an interior conduit with a sheath or casing of tubes disposed within said casing and a covering or union for the ends of said tubes whereby the same are joined and moisture is excluded from their interior, substantially as described.

9. In a union for interior conduits, the combination with an in-

sulating-tube of circular cross-section at one end and oval or elliptical cross-section at the opposite end, of a sheet-metal sheath or casing inclosing said insulating-tube, said casing being of circular cross-section at one end and of oval or elliptical cross-section at the opposite end, substantially as described.

10. As a new article of manufacture, a corner-box, for interior wiring, having a body provided with plane faces to conform to the intersecting walls against which the box is to be placed, openings at the opposite corners for the passage of wires from conduits lying against the walls, and a removable cover for permitting access to the interior of the box; substantially as described.

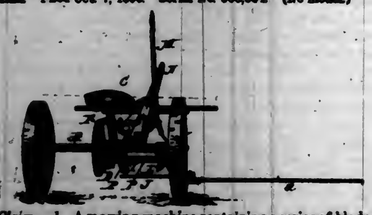
11. In a corner-box, the combination with a hollow body of insulating material having a removable cover and plane sides to conform to the intersecting walls, openings being provided at the opposite corners for the passage of the electrical conductors, of a sheet-metal casing inclosing said body of insulating material and provided at the corners with projecting sheet-metal tubes, adapted to rest against the walls, and conduits, the ends thereof resting within said projecting tubes and provided upon the interior with insulating-tubes adapted to abut against the body of insulating material within the casing, substantially as described.

12. In an interior conduit, the combination with a sheet-metal sheath or casing, of short insulating-tubes within said casing resting end to end, and a sleeve or wrapping surrounding the contiguous ends of adjoining insulating-tubes, substantially as described.

13. In an interior conduit the combination with a sheath or casing of short insulating-tubes within said casing and a union or sleeve provided within the casing joining the ends of the insulating-tubes whereby moisture is excluded from the conductors contained in said tubes, substantially as described.

14. In an interior conduit the combination with an insulating-tube and a casing therefor of another insulating-tube and casing differing from the former in cross-section and a union for the above adapted to join the same in a single conduit consisting of an insulating-tube and casing therefor the ends of which respectively conform to the ends of the tubes and casings of different cross-section, substantially as described.

590,875. MOWING-MACHINE. CLINTON A. PATTEN, Somerville, Mass. Filed Oct. 7, 1896. Serial No. 608,064. (No model.)



Claim.—1. A mowing-machine containing a series of blades made into a chain, each blade being connected to a blade-holder, having a concavity between its ends, and the blade-holders being pivotally connected together by links, combined with wheels embraced by the said chain, said wheels having sprocket-teeth to enter the spaces between the ends of adjacent blade-holders opposite said links, the convexed surfaces of said wheels lying between said teeth entering the concavities of the said blade-holders, substantially as described.

2. In a mowing-machine, an upper plate, a sprocket-wheel, a slide *c* carrying said sprocket-wheel, a foot at the opposite end of said plate, a sprocket-wheel on said foot, an endless chain of blades, carried by said sprocket-wheels and an eccentric cooperating with said slide to change the position of the sprocket-wheel on said upper plate to effect the easy removal of the chain from the machine, substantially as described.

3. In a mowing-machine, an upper plate and a lower plate, a sprocket-wheel on said upper plate, a foot, a sprocket-wheel on said foot, an endless chain of blades carried by said sprocket-wheels, and adjusting-screws between said under plate and said foot, the movement of said screws adjusting said under plate longitudinally with relation to said foot to compensate for wear of said chain, substantially as described.

4. In a mowing-machine, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, substantially as described.

5. In a mowing-machine, an endless chain of blades, sprocket-wheels to move said chain, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, substantially as described.

6. In a mowing-machine, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, and a locking device to retain the said plates closed, substantially as described.

7. In a mowing-machine, a series of blades, each connected to a blade-holder having its rear side concaved to leave two flat heels, and links joining said blade-holders, combined with two sprocket-wheels having teeth and convexities between said teeth, the teeth engaging the spaces between the ends of said blade-holders and opposite said links, the heels and concavities coming against the convexities of said sprocket-wheel, and an adjustable guide-bar *f'* against which the said heels travel, to operate, substantially as described.

8. In a mowing-machine, a finger-bar, a series of blades, an axle, wheels at each end thereof, and pawl-and-ratchet connections between said wheels and axles, the wheel nearest the said finger-bar being of greatest diameter, and gearing between said axle and said blades, whereby the smaller wheel farthest from the said series of blades is made the driver for said blades during straight-ahead work thus causing straight draft, substantially as described.

9. A mowing-machine containing a series of blades made into a chain, each blade being connected to a blade-holder having a concavity between its ends and having its ends rounded, said blade-holders being pivotally united together by means of links, combined with wheels embraced by the said chain, said wheels having sprocket-teeth to enter the spaces between the ends of adjacent blade-holders and opposite the said links, the convex surfaces of said wheel between said teeth entering the concavities of the said blade-holders to operate, substantially as described.

590,876. INHALER. GEORGE W. FICKIN, Eau Claire, Wis., assignor of one-half to William A. Kinnear, same place. Filed Mar. 10, 1896. Serial No. 582,647. (No model.)



Claim.—1. An inhaler provided with an exhalation-passage and having a medicine-chamber provided with an inhalation-passage leading therefrom to the interior of the inhaler, in combination with a valve located between the said passages and adapted to be operated automatically by respiration to alternately close and open said passages, substantially as and for the purpose described.

2. An inhaler provided with an internally-arranged tubular elbow forming the exhalation-passage, in combination with a medicine-chamber attached to the body of the inhaler, a valve-seat removably fitted in the inhaler in front of the medicine-chamber, and a valve located between the exhalation-passage and an opening in the valve-seat forming the inhalation-passage, said valve being adapted to be operated automatically by respiration to alternately open and close said passages, substantially as described.

3. In an inhaler, a medicine-chamber of approximately cylindrical form provided with end pieces, and having a peripheral inlet, and a central outlet in one of the end pieces, and having a spiral passage communicating at its ends with, respectively, the said inlet and outlet, and a spiral support for an absorbent material located in the said spiral passage, substantially as described.

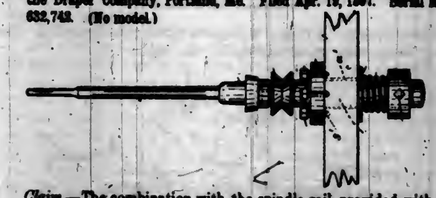
590,877. SPINDLE. CARL SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,741. (No model.)



Claim.—1. The combination with the spindle-rail, of a tube loosely mounted in said rail, a washer adjustably arranged on said tube and having its upper surface inclined, an intermediate washer surrounding said tube, and having its lower surface inclined and adapted to be engaged by the inclined upper surface of the adjustable washer, said intermediate washer being provided with diametrically opposite arranged grooves or recesses, a series of pins projecting downward from the spindle-rail and in engagement with said grooves or recesses of the intermediate washer, a spiral spring surrounding the tube and arranged between the spindle-rail and the said intermediate washer, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

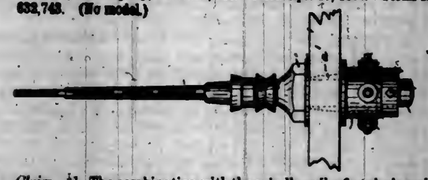
2. The combination with the spindle-rail, of a tube loosely mounted in said rail, a washer adjustably arranged on said tube and having its upper surface inclined, an intermediate ring or washer surrounding said tube and having its lower surface inclined, the diameter of the central opening of said intermediate ring being larger than the diameter of the tube, a spiral spring surrounding the tube and arranged between the spindle-rail and the said intermediate washer, means for preventing rotation of said intermediate washer, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

590,878. SPINDLE. CARL SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,742. (No model.)



Claim.—The combination with the spindle-rail, provided with a vertical bore or opening, of a tube penetrating said opening and loosely mounted on the spindle-rail, and provided with an annular flange above said rail, a ring or washer adjustably arranged on the lower portion of said tube, a spiral spring surrounding said tube and intermediately arranged between the spindle-rail and said washer, a series of set-screws penetrating the annular flange of said tube and bearing on the spindle-rail, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

590,879. SPINDLE. CARL SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,743. (No model.)



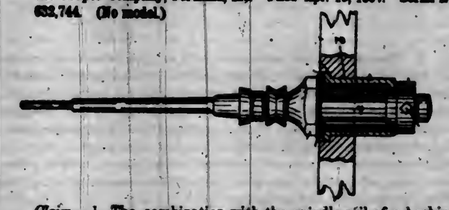
Claim.—1. The combination with the spindle-rail, of a tube loosely mounted in said rail, a bushing downwardly projecting from said rail and also penetrated by the tube, the internal diameter of said bushing being larger than the diameter of the tube, a series of spiral springs adjustably arranged in said bushing and bearing against said tube, a ring or collar adjustably arranged on the tube and adapted to engage the bushing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail, of a bushing downwardly projecting from said rail, said bushing and rail being provided with a central vertical hole or opening, a tube loosely mounted in said hole or opening, a series of spiral springs adjustably arranged in said bushing and bearing against the tube, a ring or collar adjustably arranged on the tube and below the bushing, and provided on its upper portion with an annular shoulder or flange adapted to engage the hole or opening in said bushing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

3. The combination with the spindle-rail, of a bushing downwardly projecting from said rail, said bushing and rail being penetrated by a vertical hole or opening, a tube loosely mounted in said hole or opening, a series of lugs horizontally projecting from said bushing, a set-screw adjustably arranged in each of said lugs, a spiral spring intermediately arranged between each set-screw and the tube, a ring or collar adjustably arranged on the tube and below the bushing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

4. The combination with the spindle-rail, of a bushing downwardly projecting from said rail, said bushing and rail being penetrated by a vertical hole or opening, a tube loosely mounted in said hole or opening, a series of lugs horizontally projecting from said bushing, a set-screw adjustably arranged in each of said lugs, a spiral spring intermediately arranged between each set-screw and the tube, a ring or collar adjustably arranged on the tube and below the bushing, and provided at its upper portion with an annular shoulder or flange adapted to engage the hole in said bushing, and a whirl-driven spindle in the tube, all said parts, substantially as and for the purposes described.

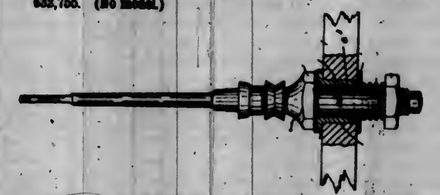
590,880. SPINDLE. CARL SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,744. (No model.)



Claim.—1. The combination with the spindle-rail of a bushing arranged in said rail and downwardly projecting therefrom and provided in its lower portion with an eccentrically-arranged opening, a tube penetrating said bushing and provided with an annular flange, an elastic washer between said annular flange and the top of said bushing, a collar adjustably arranged on said tube and provided in its upper portion with an annular eccentrically-arranged flange or shoulder, adapted to engage the eccentric hole in the bushing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail provided with a vertical hole or opening and in its upper portion with an annular groove or recess concentrically arranged with said opening, a bushing secured in said opening and provided with an annular flange resting in said annular groove or recess, and also provided in its lower portion with an eccentrically-arranged hole or opening, said tube penetrating said bushing and having its annular flange flexibly mounted on the annular flange of the bushing, a collar adjustably arranged on the tube and provided in its upper portion with an eccentrically-arranged flange or shoulder, adapted to engage the eccentrically-arranged hole or opening in said bushing, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

590,881. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed Apr. 19, 1897. Serial No. 632,755. (No model.)



Claim.—1. The combination with the spindle-rail provided with an inclined vertical hole or opening, of a bushing adjustably arranged in said inclined hole or opening and penetrated by a hole having its axis at an oblique angle to the axis of the outside of the bushing, a tube penetrating said hole in the bushing and flexibly mounted thereon, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

2. The combination with the spindle-rail provided with an inclined vertical hole or opening, a bushing adjustably arranged in said hole or opening and provided with a hole having its axis at an oblique angle to the axis of the outside of the bushing, a tube penetrating said hole in the bushing and provided with an annular flange resting on said bushing, a nut adjustably arranged on said tube, a spiral spring intermediate between the rail and said nut and surrounding the tube, and a whirl-driven spindle in said tube, all said parts, substantially as and for the purposes described.

590,882. SPINDLE. ADAM SCHEID, Harrison, N. J., assignor to the Draper Company, Portland, Me. Filed June 15, 1897. Serial No. 640,804. (No model.)

Claim.—1. The combination with the spindle-rail provided with a vertical hole or opening and in its top portion with an annular seat surrounding said hole or opening, of a tube loosely arranged in said

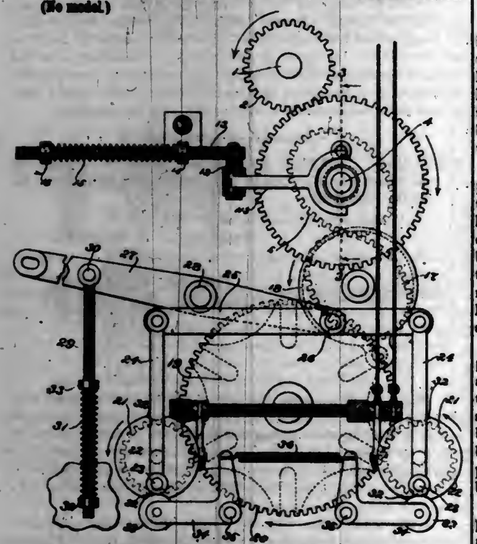
opening and provided with an annular enlargement resting on the said annular seat, a series of brackets projecting from the rail and arranged around said opening at uniform intervals, a set-screw adjustably arranged in each of said brackets and engaging the top portion of the enlargement on the tube, and a sleeve-whirl spindle in said tube, substantially as and for the purposes described.



2. The combination with the spindle-rail provided with a vertical hole or opening and in its top portion with an annular concave seat, of a tube penetrating said hole or opening, an annular enlargement on said tube and provided with a lower convex and an upper concave portion, the lower convex portion of said enlargement resting on the concave seat in the spindle-rail, a series of set-screws suitably supported on the spindle-rail and in engagement with the concave top portion of the enlargement, and a sleeve-whirl spindle in the tube, substantially as described.

3. The combination with the spindle-rail provided with a vertical hole or opening and in its top portion with an annular concave seat surrounding said opening, of a tube loosely arranged in said opening, an annular enlargement on said tube and having a lower convex and an upper concave portion, the lower convex portion resting in the annular concave seat in the spindle-rail, a series of brackets on said rail and arranged at uniform intervals around the opening, a set-screw adjustably arranged in each of said brackets and in engagement with the concave top portion of the enlargement, and a sleeve-whirl spindle in the tube, substantially as described.

590,883. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. HENRY BARNSLEY, Providence, R. I., assignor to the Knowles Loom Works, Worcester, Mass. Filed Feb. 4, 1897. Serial No. 621,911. (No model.)



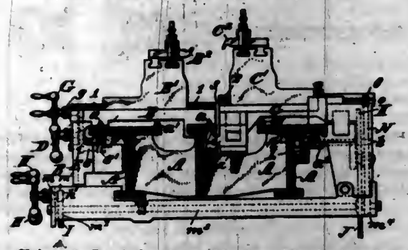
Claim.—1. The combination with a driving-shaft in a loom, a master-gear, and box-operating devices including pinions which are rotated by the said master-gear, a star-wheel for rotating said master-gear, a pin-wheel for engagement with the said star-wheel, and transmitting-gearing for driving said pin-wheel from the driving-shaft, the said gearing embracing elliptical wheels whereby the speed of the pin-wheel is decreased while the pin thereof is in a slot of the star-wheel in order to equalize the motion of the master-gear, substantially as set forth.

2. In combination, two rotatable parts, means to rotate one of such parts, motion-transmitting connections leading from the other of such parts, oppositely-placed movable clutch-keys carried by one of such parts and engaging with the other part, the yoke by which the clutch-keys are engaged and whereby they are shifted to occasion engagement of such keys with the latter part alternately as desired, devices to operate the said yoke and means to occasion disengagement of the engaged key after the desired movement of rotation has been communicated to the driven part, substantially as set forth.

3. In combination, two rotatable parts, means to rotate one of such parts, motion-transmitting connections leading from the other of such parts and engaging with the other part, the yoke by which the clutch-keys are engaged and whereby they are shifted to occasion engagement of such keys with the latter part alternately as desired, and means to occasion disengagement of the engaged key after the desired movement of rotation has been communicated to the driven part, the said yoke locking with the said keys at the ends of the successive movements to prevent overrunning of the driven part, substantially as described.

4. In combination, a moving toothed surface, a pinion 31 in engagement therewith, a shaft 37, sleeves 42 applied to the said shaft, keys 40, 40 applied to the said sleeves, a sliding yoke 43 to actuate the said keys, the said yoke having notches 431, 431, for cooperation with the said keys, means to move the said yoke, and yielding disengaging-arms 51, 51, for disengaging the keys from the pinion and causing them to enter the notches, substantially as set forth.

590,884. LATHE. WILLARD G. BENT, New York, N. Y. Filed June 4, 1896. Serial No. 594,200. (No model.)



Claim.—1. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cutting-tool, of a handle-carrier in the front of the lathe adapted to move laterally with the back tool-carriage, a handle mounted in the said handle-carrier, and means connecting the said handle with the back tool-carriage, whereby the movement of the handle will cause the back tool-carriage and the handle-carrier to move laterally between the head and tail stocks, substantially as set forth.

2. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cutting-tool, of a handle-carrier in the front of the lathe adapted to move laterally with the back tool-carriage, a handle mounted in said handle-carrier, a shaft for transmitting the motion of the handle to the back of the lathe, and connecting mechanism between the shaft and the handle and the shaft and the back tool-carriage, whereby the movement of the handle will cause the back tool-carriage and the handle-carrier to move laterally between the head and tail stocks, substantially as set forth.

3. In a lathe, the combination with a back tool-carriage, independent of the front tool-carriage and adapted to carry a cross-slide and a cutting-tool, of a handle-carrier in the front of the lathe adapted to move laterally with the back tool-carriage, a handle mounted in said handle-carrier and means connecting the said handle and the back cross-slide, whereby the movement of the handle will cause the back cross-slide to move toward or away from the vertical plane passing through the center of the lathe parallel to the front and back of the lathe, substantially as set forth.

4. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cross-slide and a cutting-tool, of a handle-carrier in the front of the lathe adapted to move laterally with the back tool-carriage, a handle mounted in said handle-carrier, a shaft for transmitting the motion of the handle to the back part of the lathe, and connecting mechanism between the shaft and the handle and between the shaft and the back cross-slide, whereby the movement of the handle will cause the back cross-slide to move toward or away from the vertical plane passing through the center of the lathe parallel to the front and back of the lathe, substantially as set forth.

5. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cross-slide and cutting-tool, of a handle-carrier in the front of the lathe adapted to move laterally with the back tool-carriage, handles mounted in said handle-carrier, and means connecting the handles with the back tool-carriage and the cross-slide, whereby the movement of one handle will cause the back tool-carriage and the handle-carrier to move laterally between the head and tail stocks, and the movement of the other handle will cause the back cross-slide to move toward or away from the vertical plane passing through the center of the lathe parallel to the front and back of the lathe, substantially as set forth.

6. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cross-slide and cutting-tool, of a handle-carrier in front of the lathe adapted to move laterally with the back tool-carriage, handles mounted in said handle-carrier, shafts for transmitting the motion of the handles to the back part of the lathe, mechanism connecting the handles to the shafts and mechanism connecting the shafts with the back tool-carriage and cross-slide, whereby the movement of one of the handles will cause the back tool-carriage and the handle-carrier to move laterally between the head and tail stocks, and the movement of the other handle will cause the back cross-slide to move toward or away from the vertical plane passing through the center of the lathe parallel to the front and back of the lathe, substantially as set forth.

7. In a lathe, the combination with a back tool-carriage adapted to carry a cutting-tool, inverted-V-shaped grooves on the under side of the bed of the lathe, and inverted-V-shaped projections forming part of the back tool-carriage adapted to slide within said grooves, whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

8. In a lathe, the combination of two tool-carriages independent of each other, each extending substantially to the vertical plane passing through the center of the lathe parallel to the front and back of the lathe, cross-slides upon said tool-carriages, a handle-carrier on the front of the lathe, handles mounted in the front of the lathe for moving the tool-carriages laterally between the head and tail stocks, and handles mounted in the front of the lathe for moving the cross-slides toward or away from the said central vertical plane of the lathe, and mechanism connecting said handles with the said tool-carriages and with the cross-slides respectively, all so arranged that said tool-carriages may be moved laterally between the head and tail stocks independently of each other, and the cross-slides may be moved independently of each other and up to the said central vertical plane of the lathe or away from it to the extreme front or back of the lathe, substantially as set forth.

9. The combination, in a lathe, of two tool-carriages independent of each other, each adapted to carry a cutting-tool and extending substantially to the vertical plane passing through the center of the lathe and parallel to the front and back of the lathe, and cross-slides upon which the tools are mounted, whereby the tools mounted upon said cross-slides may be moved up to the said central vertical plane of the lathe, inverted-V-shaped grooves on the under side of the bed of the lathe and inverted-V-shaped projections forming part of the back tool-carriage adapted to slide within said grooves whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

10. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cutting-tool, of a handle in the front part of the lathe for moving the back tool-carriage laterally between the head and tail stocks, and means connecting the back tool-carriage and the handle whereby the movement of the handle will cause the back tool-carriage to move laterally between the head and tail stocks, a portion of the back tool-carriage sliding under a part of the bed of the lathe whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

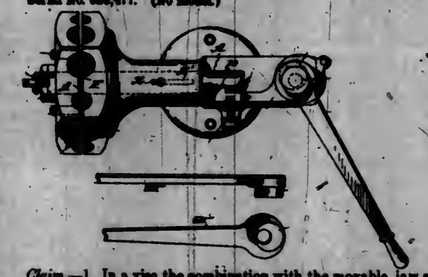
11. In a lathe, the combination with a back tool-carriage independent of the front tool-carriage and adapted to carry a cutting-tool, of a handle in the front part of the lathe for moving the back tool-carriage laterally between the head and tail stocks, and means connecting the back tool-carriage and the handle whereby the movement of the handle will cause the back tool-carriage to move laterally between the head and tail stocks, inverted-V-shaped grooves on the under side of the bed of the lathe and inverted-V-shaped projections forming part of the back tool-carriage adapted to slide within said grooves whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

12. In a lathe, the combination of two tool-carriages independent of each other, each extending substantially to the vertical plane passing through the center of the lathe and parallel to the front and back of the lathe, cross-slides upon the said tool-carriages, handles in the front part of the lathe for moving the tool-carriages laterally between the head and tail stocks and handles in the front part of the lathe for moving the cross-slides toward or away from the said central vertical plane of the lathe, and mechanism connecting said handles with the said tool-carriages and with the cross-slides respectively, all so arranged that said tool-carriages and cross-slides may be moved independently of one another between the head and tail stocks and up to and away from the said central vertical plane, inverted-V-shaped grooves on the under side of the bed of the lathe and inverted-V-shaped projections forming part of the back tool-carriage adapted to slide within said grooves whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

13. In a lathe, the combination of two tool-carriages independent of each other, each extending substantially to the vertical plane passing through the center of the lathe and parallel to the front and back of the lathe, cross-slides upon the said tool-carriages, handles in the front part of the lathe, moving at the same time and speed as the respective tool-carriages and adapted to move the tool-carriages laterally between the head and tail stocks and adapted to move the cross-slides toward or away from said central vertical plane of the lathe, and mechanism connecting said handles with the said tool-carriages and with the cross-slides respectively, all so arranged that said tool-carriages and cross-slides may be moved independently of one another between the head and tail stocks and up to and away from the said central vertical plane, inverted-V-shaped grooves on the under side of the bed of the lathe and inverted-V-shaped projections forming part of the back tool-carriage adapted to slide within said grooves whereby upward pressure upon the back cutting-tool is resisted, substantially as set forth.

14. In a lathe having two tool-carriages independent of each other, the combination with the back cross-slide of a rail upon which said cross-slide is adapted to slide, said rail having a flat under surface, and also having inclined surfaces, and a projection from the cross-slide having a flat upper surface adapted to take against the flat under surface of the said rail whereby upward pressure upon the back cutting-tool is resisted, and having inclined surfaces adapted to take against the inclined surfaces of the rail whereby the said abutting surfaces may be kept in contact with one another, substantially as set forth.

590,885. VISE. JOHN A. BLAKE, Watertown, N. Y., assignor to the Prentiss Vise Company, New York, N. Y. Filed Mar. 27, 1897. Serial No. 629,477. (No model.)



Claim.—1. In a vise the combination with the movable jaw and the notched bar or stem carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, and a latch mounted freely upon said eccentric hub and adapted to engage and operate the notched stem, substantially as and for the purposes hereinbefore set forth.

2. In a vise the combination with the movable jaw and the notched bar or stem carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, and a latch mounted freely upon said eccentric hub and adapted to engage and operate the notched stem, and provided with a pin or projection arranged in the path of the lever-handle, for the purpose of swinging the latch upon the eccentric out of engagement with the stem.

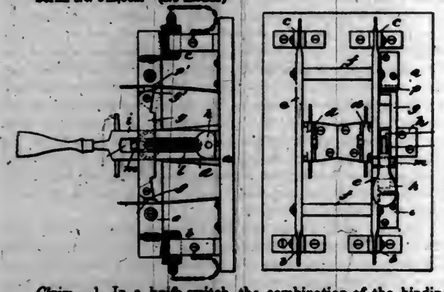
3. In a vise the combination with the movable jaw and the notched stem or bar carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, a latch adapted to engage said stem mounted freely upon said eccentric hub, and provided with a pin or projection arranged in the path of the lever-handle, so as to meet and engage the latter for the purpose of swinging the latch out of engagement with the stem, and a spring by which the latch is pressed in a direction to engage the stem, substantially as and for the purposes hereinbefore set forth.

4. In a vise and in combination—the stationary jaw; the movable jaw and longitudinally-movable stem for carrying the same; the spring for forcing said jaws apart; the lever-handle provided with a hub eccentrically pivoted to the vise-body; and the latch-spring pressed toward and adapted to engage the stem, mounted upon the eccentric hub of the lever-handle, and provided with a pin or projection arranged in the path of movement of the lever-handle—substantially as and for the purposes hereinbefore set forth.

5. In a vise, the combination with the longitudinally-movable stem, the lever-handle provided with a hub eccentrically pivoted to the vise-body, and the latch adapted to engage said stem, of the movable jaw mounted on and carried by said stem and longitudinally adjustable thereon, whereby the parts may be so adjusted that by the time the jaws of the vise close upon the work the longitudi-

nally-movable stem will be in position to be engaged by the latch, substantially as hereinbefore set forth.

590,886. ELECTRIC TRIP-KNIFE SWITCH. AUGUSTUS C. CAREY, Lake Pleasant, Mass. Filed May 24, 1895. Renewed June 29, 1897. Serial No. 642,882. (No model.)



Claim.—1. In a knife-switch, the combination of the binding-posts and standards, contact-posts arranged upon opposite sides of said standards, a tilting knife-carrier comprising bars centrally pivoted to said standards and adapted to engage said contact-posts alternately, a vibrating, pivoted tilting device for said knife-carrier, having a sliding spring connection with said knife-carrier, whereby it is returned to normal after actuating the knife-carrier, and independent stops also arranged upon opposite sides of said standards and adapted to automatically engage and lock said knife-carrier in either of its tilted positions, independently of the tilting device and its sliding spring connection, substantially as described.

2. In a knife-switch, the combination with the binding-posts and standards, contact-posts arranged upon opposite sides of said standards, a tilting knife-carrier comprising bars centrally pivoted to said standards and adapted to engage said contact-posts alternately, and a spring tilting device for said knife-carrier having a sliding connection therewith, of independent stops arranged upon opposite sides of said standards and adapted to automatically engage said knife-carrier and lock it in either of its tilted positions and also adapted to be automatically released by the tilting device after its spring has been put under tension, substantially as described.

3. In a knife-switch, the combination of contact-posts and a tilting knife-carrier, with a tilting device comprising a lever having a spring connection with the knife-carrier and provided with projecting fingers, and spring-stops provided with stop-lugs which engage angles on the knife carrier positively to support the knife-carrier in either of its tilted positions, substantially as described.

4. In a knife-switch, the combination with the binding posts and standards, contact-posts arranged upon opposite sides of said standards, and a tilting knife-carrier comprising bars centrally pivoted to said standards and adapted to engage said contact-posts alternately, of a tilting device for said knife-carrier constructed as a lever slotted longitudinally and having a cross-head arranged in said slot and resting and adapted to slide upon the knife-carrier, and a spring fixed at one end and having its other end connected to the cross-head, whereby the tilting device is returned to normal position after operation and its spring relieved of tension, substantially as described.

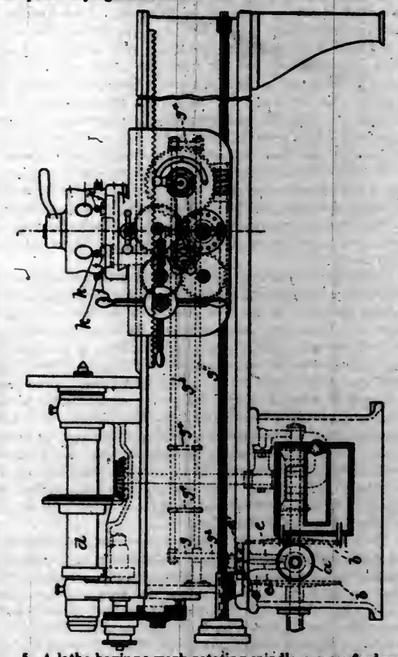
590,887. LATHE. EUGENE CHILDS, Boston, Mass., assignor to the Automatic Rapid Lathe Company, Saco, Me. Filed Feb. 15, 1897. Serial No. 623,494. (No model.)

Claim.—1. A lathe having a work-rotating spindle, a turret tool-holder, mechanism for varying the speed of the spindle, and means operated by the rotation of the said tool-holder for controlling the said mechanism.

2. A lathe having a work-rotating spindle, a turret tool-holder adapted to be rotated and having independently-adjustable operating devices, such as the rolls *j'*, mechanism for varying the speed of the spindle, and intermediate mechanism controlled by said operating devices to operate the said speed-varying mechanism.

3. A lathe having a work-rotating spindle, mechanism for varying the speed of said spindle, a tool-holding turret, a sliding carriage supporting said turret, a sleeve-bearing fixed to said carriage, a vertical shaft adapted to turn in said bearing, an arm carried on the upper end of said shaft and having upright guides adapted to be engaged by mechanism connected with the turret, an arm carried on the lower end of said shaft and provided with vertical rollers connected by a yoke, and intermediate mechanism whereby movement of the said arm operates the speed-changing mechanism.

4. A lathe having a work-rotating spindle, a revolubly-mounted turret tool-holder, sliding blocks mounted in guides in said tool-holder, adjusting devices for said blocks consisting of spindles revolubly mounted in cavities in the said tool-holder and having an enlarged screw-threaded portion adapted to engage a screw-threaded portion of the said blocks, rollers mounted on the lower portion of said blocks, mechanism for varying the speed of the spindle, and intermediate mechanism operated by the said rollers for controlling the said speed-varying mechanism.

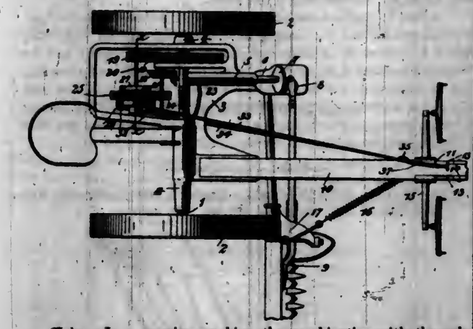


5. A lathe having a work-rotating spindle, a cross-feed carriage, a turret tool-holder mounted on said carriage, mechanism for varying the speed of said spindle, and means for controlling the said mechanism, the said means comprising a crank-arm having an elongated wrist extending lengthwise of the lathe-bed, a horizontal arm engaging the said wrist, a vertical sleeve-bearing for said arm, attached to the under side of the cross-feed carriage, and means operated by the tool-holding turret for oscillating the said arm and the said rock-shaft, and thereby operating the said speed-varying mechanism.

6. A lathe having a spindle, a cross-feed carriage a turret tool-holder mounted on said carriage, a mechanism for varying the speed of the said spindle, comprising reciprocating slides, hangers attached thereto, longitudinally-movable driving-shafts, friction-wheels attached thereto and carried by said hangers, the said wheels being adapted to rotate in contact with friction-disks, and a vertical shaft geared with the said disks, and with the work-rotating spindle; and means for controlling the said mechanism, comprising a crank-arm having a prolongation, the said prolongation being attached to one of the reciprocating slides, an elongated wrist for operating the said crank-arm, a horizontal arm adapted to oscillate the said wrist, the said arm being mounted on a vertical shaft which is journaled in a sleeve-bearing fixed to the under side of the cross-feed carriage, an arm fixed to the upper end of the said vertical shaft, and a series of rollers adapted to engage the said arm, the said rollers being fixed to radially-adjustable sliding blocks mounted in the tool-holding turret.

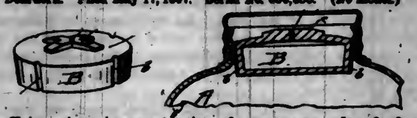
7. A lathe having a spindle, a cross-feed carriage, a turret tool-holder mounted on said carriage, a mechanism for varying the speed of said spindle, and means for controlling the said mechanism comprising the following parts: a crank-arm fixed to a rock-shaft extending longitudinally of the lathe-bed and journaled in bearings affixed thereto, the said crank having a prolongation extending below its axis and operatively connected with the speed-varying mechanism, an elongated wrist fixed to the said crank, a horizontal arm affixed to the lower end of a vertical shaft journaled in a sleeve-bearing which is attached to the under side of the cross-feed carriage, the said arm engaging the said wrist and being adapted to oscillate the said wrist and crank both by its own oscillation and by the movement of the cross-feed carriage, rollers attached to the said arm for the purpose of engaging the said rock-shaft, an arm fixed to the upper end of the said vertical shaft and adapted to oscillate in a horizontal plane beneath the turret, sliding blocks mounted in grooves in said turret and adapted to slide therein radially with the axis of said turret, rollers carried by said blocks, and adapted to enter and engage the said arm, and means for adjusting the said sliding blocks.

590,888. ATTACHMENT FOR MOWING-MACHINES. JOHN W. CYPHER, Benton, Ill. Filed Nov. 28, 1896. Serial No. 613,845. (No model.)



Claim.—In a mowing-machine, the combination with the axle and the cutter-bar, of a shaft 20 supported to rotate in the rear of the axle, a gear loosely mounted on the shaft, a second shaft 21 supported to rotate between the axle and the shaft 20, a pinion fast on the shaft 21 and meshing with said gear, a bevel-gear on the shaft 21, suitable connections between the bevel-gear and the cutter-bar whereby the latter is reciprocated when the former is turned, a disk loosely mounted on the shaft 20 adjacent to the gear, a ratchet-and-pawl mechanism between the disk and gear, oppositely-disposed wrist-pins on the disk, a vertically-extending bar pivoted to the tongue of the machine, rods connecting the respective wrist-pins with the upper and lower ends of said bar, a doubletree supported to have a limited movement longitudinally of the machine, a suitable connection between the doubletree and the lower end of the pivoted vertical bar, and springs to return the doubletree and rods to their normal positions, substantially as described.

590,889. FLOAT FOR FRUIT-CANS. GEORGE B. DEARDORFF and CLARENCE B. KRETTER, Canal Dover, Ohio; said Kretter assignor to said Deardorff. Filed May 17, 1897. Serial No. 636,855. (No model.)



Claim.—As an improved article of manufacture a float for fruit-cans formed hollow and provided with vertical grooves upon its periphery, and ridges or bars located upon the upper side thereof, and an opening leading into the hollow chamber of the float, substantially as and for the purpose specified.

590,890. APPARATUS FOR TANNING. EDWARD H. DEWSON, Quincy, Mass. Filed Apr. 22, 1897. Serial No. 633,208. (No model.)



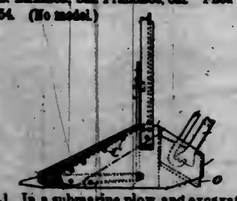
Claim.—An apparatus for quick tanning of hides &c., comprising a plurality of liquor-tight compartments, independent of and non-communicating with each other, and severally having a charging-hole and cover therefor, and adapted to contain tanning liquor and hides, the several compartments being assembled in a single plane around a common center of motion, and means to move said compartments in the same path of travel about said center, substantially as described.

590,891. RAIL-CLIMBING DEVICE FOR VEHICLE-WHEELS. CHARLES C. DUNTER, Los Angeles, Cal. Filed Nov. 24, 1896. Serial No. 613,216. (No model.)



Claim.—The device for facilitating the passage of the wheels of vehicles by causing them to mount upon the rails of street-railways, consisting of a triangular and curved-edge plate having the apex of the triangle situated toward the periphery of the felly and tire, the same being securely fastened to the fellies of vehicle-wheels and operating in the manner and for the purposes substantially as set forth.

590,892. SUBMARINE PLOW AND RIVER-MINING MACHINE. CHARLES B. EMERSON, San Francisco, Cal. Filed July 11, 1895. Serial No. 555,654. (No model.)



Claim.—1. In a submarine plow and excavator, the combination of a plow composed of a series of relatively rigid parallel plates, with a supplemental chamber carried by said plow and capable of vertical adjustment independent thereof, and a device for removing the spoil, as set forth.

2. In combination, an excavator constructed of a series of relatively rigid parallel plates forming excavating edges, with a plurality of bars or beaks fulcrumed longitudinally with said plates and projecting beyond the excavating edges thereof, said beaks being provided for oscillating movement independent of said parallel plates, and a device for removing the disintegrated spoil, as set forth.

3. In combination, an excavator composed of a series of relatively rigid plates assembled to work with a front feed, a rear supplemental and vertically-adjustable chamber adapted to receive the disintegrated spoil, and an ejector-pipe opening into said chamber, as set forth.

4. In combination, an excavator constructed and arranged to work with a front feed and rear delivery and a plurality of projecting oscillating beaks in conjunction with a series of hydraulic nozzles directed toward the projecting extremities of said beaks, and a device for removing the spoil as set forth.

5. In combination, an excavator constructed and arranged to work with a front feed, a vertically-adjustable chamber adapted to receive the disintegrated spoil, the bottom of said chamber being formed essentially of a series of parallel plates, and an ejector-pipe opening into said chamber as set forth.

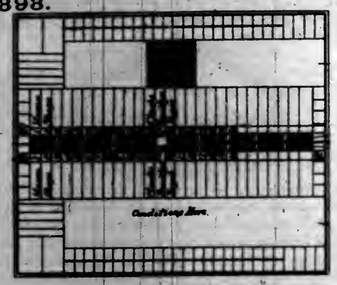
6. In combination, an excavator composed of a series of relatively rigid parallel plates forming excavating edges, and an independent vertically-adjustable chamber carried by the excavator for the reception of spoil passed between said parallel plates, a plurality of longitudinally-oscillating bars or beaks fulcrumed to said plates, and a series of hydraulic nozzles directed toward the forward extremities of said beaks, and a device for removing the spoil, as set forth.

7. In a submarine plow and excavator, the combination of a plow composed of a series of relatively rigid parallel plates, with a supplemental chamber carried by said plow and capable of vertical adjustment independent thereof, one or more creepers pivoted to said plow and capable of independent oscillation, and a device for removing the spoil, as set forth.

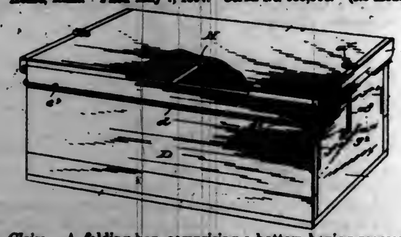
590,893. RAILROAD-TICKET. JAMES GILLESPIE, Chicago, Ill. Filed May 9, 1892. Renewed Feb. 17, 1897. Serial No. 623,207. (No model.)

Claim.—In a railroad-ticket, a fold-line perforated or imperforated, columns on each side thereof designating stations, the spaces between these columns and the fold-line being occupied by arbitrary symbols, letters or figures, each of such length that when a portion of the ticket is punched out opposite to the name of a station, a portion of the symbol will be punched out and a portion will remain, the portion punched out being omitted to match elsewhere in the column of symbols, as and for the purpose set forth.

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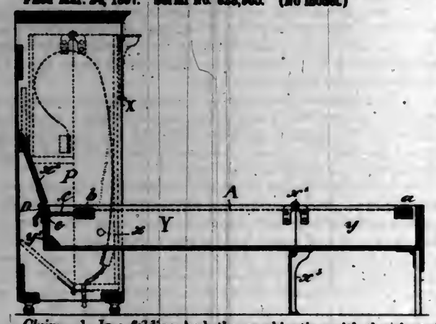


590,894. FOLDING BOX. GEORGE W. HART, National Military Home, Kans. Filed May 7, 1897. Serial No. 635,561. (No model.)



Claim.—A folding box comprising a bottom having recesses in its under side, a false bottom shorter than, and secured to the said bottom, sides secured to the bottom proper consisting each of two sections hinged together, ends also hinged to the bottom proper, a partition dividing the box into compartments, and a lid provided with cleats, in combination with stops carried by the lid and bearing against the inner sides of the ends, bails carried by the sides and having their ends engaging recesses in the ends, clamping-bolts passing through the lid and having toes engaging recesses in the ends and nuts screwed onto the ends of the bolts and bearing on the lid substantially as described.

590,895. FOLDING BED. JAMES P. HAYES, Mount Vernon, N. Y. Filed Mar. 24, 1897. Serial No. 628,905. (No model.)



Claim.—1. In a folding bed, the combination with the pivoted bed-frame and standard, and the flexible fabric for supporting the bedding secured at its foot end to the bed-frame, of the floating head-bar secured to the other, or head end of the said fabric, and the flexible connectors secured at one end to the said floating bar and at the other end to the head-rail, said connectors forming the sole means of connecting the floating bar to the standard and being of such length, substantially, as to permit the floating bar to fall to the bottom of the bed-frame when the flexible fabric is slackened, substantially as and for the purposes set forth.

2. In a folding bed, the combination with the pivoted bed-frame and standard, and the flexible fabric for supporting the bedding secured at its foot end to the bed-frame, of the floating head-bar secured to the other, or head end of the said fabric, and the flexible connectors secured at one end to the said floating bar and connected adjustably at the other end to the head-rail, whereby they may be shortened slightly for taking up slack in the fabric, said connectors being secured to the standard at a point substantially at the level of the distended flexible fabric and of such length as to allow the floating bar to fall to the bottom of the bed-frame when the fabric is slackened, substantially as set forth.

3. In a folding bed, the combination with the bed-frame, the standard in which it is pivotally mounted, the flexible supporting fabric for the bedding, the fixed foot-bar to which the said fabric is secured, at one end, the floating head-bar to which the other end of said fabric is secured, and the connectors *c*, of locking devices, one for each connector, mounted on the head-rail of the bed-frame and adapted to lock the said connectors detachably and adjustably to said head-rail, substantially as set forth.

4. In a folding bed, the combination with the bed-frame, the foot-bar *a*, fixed therein, the floating head-bar *b*, the flexible supporting fabric A, secured at its respective ends to said bars *a* and *b*, and the connecting-chains *c*, secured at one end to the bar *b*, and extending out through apertures in the head-rail of the bed-frame, of the locking-plates secured to the outer face of the said head-rail and having keyhole-apertures which engage the contracted bodies of the links of the respective chains, substantially as set forth.

590,896. ROCKING-CHAIR. THOMAS L. HOLT, Burlington, N. C. Filed Feb. 23, 1897. Serial No. 624,592. (No model.)



Claim.—1. A rocking-chair provided with a suitable seat, legs, and rockers rigidly secured thereto, that portion of the rockers in the rear of the rear legs being pivotally attached, in combination with means for raising said rear portion to a vertical position against the rear legs, substantially as set forth.

2. The combination in a rocking-chair of a seat, legs, and rockers rigidly secured together, with rear extensions pivoted to the rockers in the rear of the rear legs of the chair, means for raising these extensions to a vertical position behind the rear legs, and stops brought into position by the adjustment of the rocker extensions whereby the chair is supported in a non-rocking position, substantially as described.

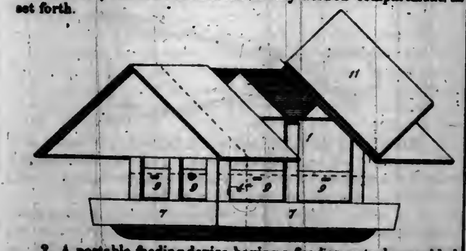
3. The combination in a rocking-chair of a rigid seat, rigid legs and rigid rockers secured thereto, extensions to the rear in line with the rockers, a plate rigidly secured to one of said extensions and pivotally secured to the rear end of one of the rockers and projecting some distance along the rocker when the extensions and rocker are in line, and means for raising said extensions and plate to a vertical position in the rear of the chair, whereby the extension of said plate becomes a stop to prevent the rocking of the chair and hold it in an upright position, substantially as set forth.

4. The combination in a rocking-chair of a rigid seat, rigid legs and rigid rockers, with pivoted extensions at the rear end of the rockers and toggle-levers pivoted at one end to the rear legs of the chair and at the other end to one of said rocker extensions and provided with a suitable handle, whereby said rocker extensions may be adjusted to a vertical position behind the chair, substantially as set forth.

5. The combination in a rocking-chair of a rigid seat, legs and rockers with extension-arms pivotally connected to the rear end of the rockers by means of plates rigidly secured to the rocker extensions and extending along the rocker some distance in front of the pivot, and a pair of toggle-levers connected together by a stop-hinge, one arm being pivotally connected to the rocker extensions and the other to the rear leg of the chair and extended to form a handle, substantially as set forth.

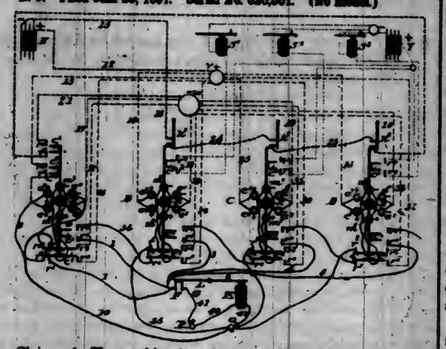
590,897. PORTABLE FEED-TROUGH. WILLIAM M. HORNBECK, Deer Creek, Ind. Filed Nov. 5, 1896. Serial No. 611,174. (No model.)

Claim.—1. A portable feeding device, having a central vertical longitudinal partition, said partition having lids or wings hinged to its upper edge, each wing being adapted to swing in opposite directions whereby the food is directed to any desired compartment, as set forth.



2. A portable feeding device having a food-receptacle provided with a conical floor-section, and a central vertical longitudinal partition, dividing the food-receptacle and having lids or wings hinged to its upper edge, each wing being adapted to swing in opposite directions, whereby the food is directed to any desired compartment.

590,898. ELECTRIC SIGNALING. SIMON DE JAHN, Paterson, N. J. Filed Jan. 23, 1897. Serial No. 620,501. (No model.)



Claim.—1. The combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, a source of electricity, a selecting device comprising two or more groups of magnets, contacts controlled thereby and a receiving device controlled by the contacts, substantially as described and for the purpose set forth.

2. The combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, a source of electricity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, contacts controlled thereby and a receiving device controlled by the contacts, substantially as described and for the purpose set forth.

3. The combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, a source of electricity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, each movable magnet being turned to one side or the other corresponding to the impulse of the respective polarities, contacts in the main-line circuit, a separate circuit in the selecting device, and contacts therein, a receiving device and contacts controlling it, all contacts controlled by the movable magnets, substantially as described and for the purposes set forth.

4. A system of transmitting electrical signals comprising a source of electricity, a main circuit, a transmitting device with means for sending a predetermined number of impulses of one polarity, followed by an impulse of the opposite polarity, a selecting device comprising two or more groups of magnets, contacts in the main circuit controlled thereby, a separate circuit in the selecting device and contacts therein, also controlled by said magnets, the magnets responding to the main or the separate circuit upon the automatical closing of the corresponding contacts, and a receiving device also controlled by the contacts, substantially as described.

5. A system of transmitting electrical signals comprising a source of electricity, a main circuit, a transmitting device with means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, the movable magnet placed opposite the stationary magnets, each movable magnet being turnable around an axis, contacts controlled by the movable magnets, to switch off the main current and close a separate current in the selecting device, to keep the movable magnets of each group successively in one position, other contacts, controlling a receiving device, also controlled by the movable magnets and operating when a movable magnet turns to the opposite position, and also contacts controlled by the movable magnets to stop the action of the main and separate currents on the magnets, substantially as described.

6. A system of transmitting electrical signals comprising a source of electricity, a transmitting device with means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, a main-line circuit, contacts therein controlling the action of the successive impulses from the transmitting device on the groups of magnets, a separate circuit in the selecting device and contacts therein controlling the action of this current in succession to the action of the main current, a receiving device controlled by contacts, and contacts controlling the action of the separate current on the magnets after the last impulse in the transmitting device, all contacts being reciprocally controlled by the movable magnets, substantially as described.

7. The combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a source of electricity, a main line, an electromagnet placed in the main-line circuit, a lever operated by said electromagnet, a contact-breaker attached to said lever controlling the duration of the impulses from the transmitting device, a selecting device comprising two or more groups of magnets, contacts controlled thereby and a receiving device controlled by the contacts, substantially as described and for the purpose set forth.

8. In a system of transmitting electric signals having a source of electricity, a main line, a selecting device comprising two or more groups of magnets, contacts controlled thereby and a receiving device controlled by the contacts, a transmitting device comprising two or more keys, each key having a certain number of contacts and a commutator, operated by the key, each contact causing an impulse of one polarity, except the last contact in each key, this one causing an impulse of the opposite polarity, substantially as described.

9. In a system of transmitting electrical signals having a transmitting device with means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line and a source of electricity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, the movable magnet placed opposite the stationary magnets, each movable magnet being turnable around an axis, contacts controlled by the movable magnets, to switch off the main current and close a separate current in the selecting device, to keep the movable magnets of each group successively in one position, other contacts, controlling a receiving device, also controlled by the movable magnets and operating when a movable magnet turns to the opposite position, and also contacts controlled by the movable magnets to stop the action of the main and separate currents on the magnets, substantially as described.

10. In a system of transmitting electrical signals, the combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, and a source of electricity, with a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, a ring attached to each movable magnet, contact-points fixed to said ring, a second stationary ring outside of the first-mentioned one, contact-points in said outside ring corresponding with the contact points of the inside ring, and a receiving device controlled by the contacts, substantially as described.

11. In a system of transmitting electric signals, the combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, a source of electricity, a selecting device comprising two or more groups of magnets, each group having two stationary magnets and one movable magnet, a ring attached to each movable magnet and a stationary ring outside of the first-mentioned ring, contact-points in the first-mentioned ring in the shape of little trolleys, little rails fixed on the inner surface of the outside ring, said rails being partially of metal, and partially of insulating matter, and a receiving device controlled by the contacts, substantially as described.

12. The combination of a transmitting device comprising means for sending a predetermined number of impulses of one polarity followed by an impulse of the opposite polarity, a main line, a source of electricity, a selecting device comprising two or more groups of

magnets, each group having stationary and movable magnets, contacts controlled thereby and a receiving device controlled by the contacts, substantially as described and for the purpose set forth.

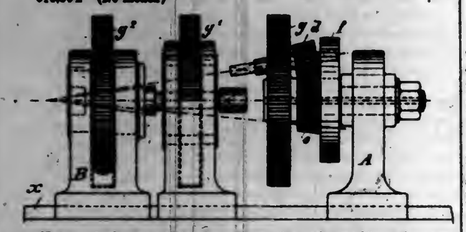
590,399. CAR-DOOR GUARD. HENRY T. KRIDER, Pine Bluff, Ark. Filed Oct. 17, 1896. Serial No. 609,226. (No model.)



Claim.—1. The combination with a car-door having its vertical edge beveled inwardly, of a guard-strip hinged to the outer edge of the door on a vertical axis and having its edge or face opposite to the edge of the door formed with a bevel to permit the outer swinging edge of the guard-strip to move inwardly beyond the plane of the inner surface of the door, and springs acting on the guard-strip to hold the same in either its operative or inoperative position, whereby the guard-strip is adapted to form a close joint between the door and the car-body irrespective of the lateral play which takes place between the car-body and the door, as set forth.

2. The combination with a car-door having its vertical edge beveled inwardly, of a guard-strip hinged to the outer edge of the door on a vertical axis and having its inner edge beveled to act conjointly with the bevel on the door and permit the outer swinging edge of the guard-strip to move inwardly beyond the plane of the inner surface of the door, a flexible strip 8 attached to the inner edge of the guard-strip and adapted to bind against the car-body when the door is closed, another flexible strip 9 attached to the outer hinged edge of the guard-strip and closing the space between the beveled faces of the guard-strip and the door, and springs secured to the hinges and acting against the guard-strip to hold the latter at the limit of its movement in either direction, as and for the purposes described.

590,400. MEANS FOR ROLLING WIRE AND ROUND BARS. GUSTAF LÜRMANN, Gunnebo, Sweden. Filed Oct. 28, 1896. Serial No. 610,364. (No model.)



Claim.—1. In a machine for rolling wire and round bars the combination of three conical, convergent rollers, a rotating disk, placed centrally to the space between said rollers, and provided with bearings for the spindles of the rollers, and a stationary cogged wheel, gearing with pinions on said spindles, substantially as and for the purpose set forth.

2. In a machine for rolling wire and round bars the combination with three conical, convergent rollers, a conically-bored rotating bushing, embracing said rollers and adjustable in longitudinal direction, a rotating disk, placed centrally to the space between the rollers and provided with bearings for the spindles of the rollers, and a stationary cogged wheel, gearing with pinions on said spindles, substantially as and for the purpose set forth.

3. In combination with the series of conical rollers, with means for making the same rotate about their own axes and to revolve about a common axis, a bushing having a conical bore to receive the said rollers and a support for said bushing, one of said parts *i. e.* the bushing or the rollers being movable toward and from the other part, substantially as described.

4. In combination the rollers with their spindles, the die *f* in which the spindles bear, the gear *g* carrying the spindles, means for rotating the gear *g*, the pinions on the spindles and the stationary gear engaging the pinions to rotate the rollers, substantially as described.

5. In combination the rollers with their spindles, the gear *g* carrying the spindles, means for rotating the spindles, the bushing through which the material passes, said bushing being located adjacent to the rollers to afford a bearing therefor, the gear *g* through which the spindles pass and means for rotating the gears *g* and *g'* in unison, substantially as described.

6. In combination the conical rollers, means for revolving the same about a common axis and for rotating them about their axes, a bushing receiving the ends of the rollers and means for rotating said bushing, substantially as described.

590,401. BEDCLOTHES-HOLDER. DAVID H. MORGAN, Columbus, Ga. Filed Jan. 6, 1897. Serial No. 618,148. (No model.)

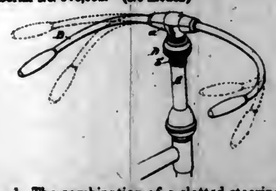


Claim.—1. A holder, consisting of a single piece of wire bent to form a central coil, arms depending from the coil and terminating in coils, the ends of the wire being pointed and bent toward each other at right angles to the terminal coils, as set forth.

2. A holder comprising a single piece of wire bent to form a central coil, arms depending from the coil and terminating in coils, the ends of the wire projecting toward each other from the said arms, as set forth.

3. A holder, comprising a single piece of wire bent to form a central coil, arms diverging from the said coil, and terminating in coils, a shoulder in each arm intermediate the central coil and the terminal coils, pointed ends projecting toward each other from and at right angles to the said terminal coils and an S-shaped keeper adapted to slide over the said shoulders to lock the arms in closed or clamped position, as set forth.

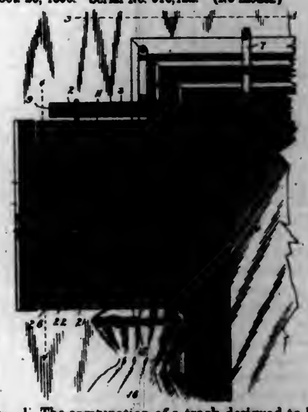
590,402. DETACHABLE AND ADJUSTABLE HANDLE-BAR FOR BICYCLES. GEORGE W. MOSIER, Philadelphia, Pa. Filed Dec. 3, 1895. Serial No. 570,952. (No model.)



Claim.—1. The combination of a slotted steering-bar having at the top a seat or saddle, a handle-bar adapted to said saddle but vertically removable therefrom, a depending stem connected to said handle-bar and projecting down into the steering-bar and having a lug projecting through the slot in the same, and a nut on said steering-bar for engaging with said slug, substantially as specified.

2. The combination of a slotted steering-bar, a handle-bar having a stem with projecting lug, and a nut on the steering-bar for engagement with said lug, said nut having an internal groove for the passage of the lug, substantially as specified.

590,408. FIRE-ESCAPE. WILLIAM S. PARNAM, Stillwater, Okla. Filed Oct. 26, 1896. Serial No. 610,122. (No model.)



Claim.—1. The combination of a track designed to be mounted at a window and comprising a substantially L-shaped portion having a transverse arm to extend through the window and a longitudinal arm extending from the inner end of the transverse arm and arranged parallel with the inner face of the wall, and a hinged outer portion having its joint arranged adjacent to the outer face of the wall and adapted to form a continuation of the transverse arm of the L-shaped portion and also to be folded against the outer face of the wall, and

a fire-escape mounted on the track, designed to be normally located within a house or other building and adapted to slide along the track, whereby it may be arranged on the exterior of the building, substantially as described.

2. The combination of a substantially L-shaped track composed of a transverse arm or portion extending through a window, and a longitudinal portion located within the building and arranged parallel with the inner face of the wall, hangers or brackets supporting the track, and a fire-escape suspended from the track and adapted to slide along the same, whereby it may be quickly transferred from the interior of a building to the exterior thereof, substantially as described.

3. In a fire-escape, the combination of a casing, a spring-controlled drum mounted in the casing, a rope or cable arranged on the drum, a governor comprising a horizontal casing closed at the bottom and open at the top, a wheel provided with horizontal spokes and having a vertical spindle removably journaled on the bottom of the casing, a removable cross-bar detachably secured to the casing and provided with a bearing for the upper end of the spindle, and brake-shoes mounted on the spokes of the wheel and engaging the casing, and gearing connecting the governor with the drum, substantially as described.

590,404. TYPE-WRITER ATTACHMENT. WILLIAM J. REDD, Minneapolis, Minn. Filed Apr. 7, 1896. Serial No. 586,494. (No model.)



Claim.—1. The combination, with the type-writer frame and its carriage, of the main scale, a movable auxiliary scale supported independently of said main scale, said auxiliary scale being provided upon its surface with a series of figures or characters and having a series of points extending across the face of said main scale, for the purpose set forth.

2. In a type-writer, the combination with the main scale, of the movable auxiliary scale, the rod whereon said auxiliary scale is movable, means for preventing said auxiliary scale from being moved by the jar of the machine, and a block adapted to engage said auxiliary scale, whereby the latter may be moved back and forth on said rod, for the purpose set forth.

3. The combination, with the type-writer frame and its carriage, of the main scale, the pointers slidably arranged adjacent thereto, and supported independently thereof, and an auxiliary scale provided on its surface with a series of figures or characters, and also slidably arranged and supported independently of said main scale, for the purpose set forth.

4. A type-writer attachment comprising brackets or arms adapted to be secured to the type-writer, a rod or bar connecting said brackets, pointers slidably arranged on said bar, the auxiliary scale, a second rod or wire connecting said brackets and arranged to bear upon the surface of said pointers and on the auxiliary scale, for the purpose set forth.

5. A type-writer attachment comprising a rod or bar, adapted to be supported upon the type-writer, an auxiliary scale slidably arranged upon said bar, said auxiliary scale being provided on its surface with a series of naughts and periods, and being also provided on its edge with a series of points or projections opposite the periods upon the surface of said auxiliary scale, for the purpose set forth.

6. The combination with the type-writer frame and its carriage, of the main scale, the series of pointers slidably arranged adjacent to said scale, said pointers being provided in their surface with a depression, for the purpose set forth.

7. An invoicing attachment for type-writers, comprising an auxiliary scale, supported independently of the main scale and provided upon its surface with a series of naughts or characters arranged in groups representing different denominations of figures, to permit the device to be set opposite the pointer to tabulate a column of figures, and to carry out the extension of the same into another column without moving the auxiliary scale from its original position, substantially as described.

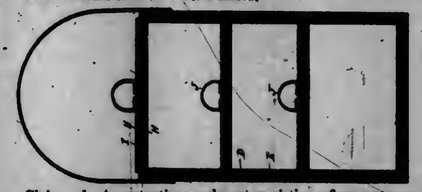
8. The combination, with the type-writer frame and its carriage, one provided with the fixed pointer and the other with the main scale, of the pointers slidable or movable with respect to said scale, the movable auxiliary scale, and means whereby said pointers and said auxiliary scale are together supported independently of said main scale, substantially as described.

590,405. FOUNTAIN-BRUSH. AUGUST L. SIEGHORTNER, Asbury Park, N. J., assignor to Berrang & Zacharias, same place. Filed Nov. 28, 1896. Serial No. 613,799. (No model.)

Claim.—A fountain-brush comprising the reservoir 1, provided with the externally-threaded neck 2, the mouth of which is closed by an integral diaphragm 3, provided with a central countersunk orifice forming a conical valve-seat 5, a loose ball-valve adapted to engage said seat 5, in combination with the internally-threaded screw-cap 7, provided with an integral diaphragm 8, an oval nipple 9, centrally secured to said diaphragm 8, and a series of bristles 10, secured in said cap 7 and encompassing the nipple 9, the whole constructed and arranged substantially as shown and described.



590,406. HEAT-RETAINING OR PROTECTING PACKAGE FOR FOODS, &c. SAMUEL H. STREET, New Haven, Conn. Filed Jan. 7, 1897. Serial No. 618,947. (No model.)

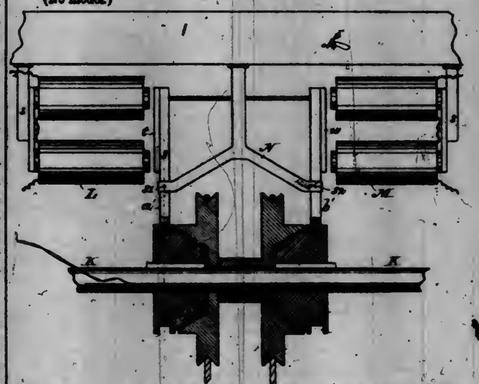


Claim.—1. A protecting-package consisting of an outer casing of waterproof material lined with protecting medium of animal wool interposed between sheets of asbestos paper, and a cover or disk of like material arranged to close the open end of said casing, the edges of the protecting medium in the cover or disk being exposed, substantially as described.

2. A protecting-package consisting of an outer casing of flexible waterproof material lined with a protecting medium of animal wool interposed between sheets of asbestos papers, and a cover or disk of like material arranged to close the open end of said casing, the edges of the protecting medium in the cover or disk being exposed, substantially as described.

3. A protecting-package consisting of an outer casing of waterproof material lined with protecting medium of animal wool interposed between sheets of asbestos paper, and two covers or disks adapted to fit the interior of said casing whereby compartments may be formed therein, the edges of the protecting medium in the cover or disk being exposed, whereby a close contact is formed between the edges of said cover or disk and the interior of said casing, substantially as described.

590,407. TEMPERATURE-REGULATING APPARATUS. HENRY R. WHITE, Arlington, Mass. Filed May 29, 1896. Serial No. 593,668. (No model.)



Claim.—1. In a heat-regulator, the combination of a driven shaft having two wheels or pulleys loosely mounted thereon, each provided with clutch mechanism, a second shaft having two wheels or pulleys fast thereon, connections between the loose wheels of the first shaft and the fast wheels of the second shaft so arranged that when one clutch is in operation the two shafts will revolve in the same direc-

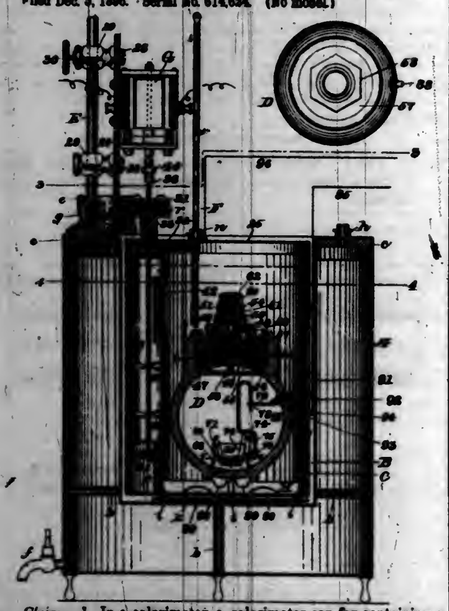
tion and when the other clutch is in operation they will revolve in opposite directions, mechanism for connecting the second shaft with a valve or damper to be operated, and a thermostat for controlling the operation of the clutches, substantially as described.

2. In a heat-regulator, the combination of a driven shaft having two wheels or pulleys loosely mounted thereon, each provided with clutch mechanism, a second shaft having two wheels or pulleys fast thereon, connections between the loose wheels of the first shaft and the fast wheels of the second shaft so arranged that when one clutch is in operation the two shafts will revolve in the same direction and when the other clutch is in operation they will revolve in opposite directions, mechanism for connecting the second shaft with a valve or damper to be operated, said mechanism consisting of a worm on said second shaft and a toothed wheel engaged by said worm and connected with a valve or damper, and a thermostat for controlling the operation of the clutches, substantially as described.

3. In a heat-regulator, the combination of a driven shaft having two wheels or pulleys loosely mounted thereon, a second shaft having two wheels or pulleys fast thereon, connections between the loose wheels of the first shaft and the fast wheels of the second shaft so arranged that when one clutch is in operation the two shafts will revolve in the same direction, and when the other clutch is in operation they will revolve in opposite directions, mechanism for connecting the second shaft with a valve or damper to be operated, two independent electric circuits and magnets included therein for controlling said clutch mechanisms, and a thermostat for closing said electric circuits, whereby the valve-actuating mechanism is operated to open and close the valve or damper, substantially as described.

4. In a valve-operating mechanism, the combination with a valve or damper, of a shaft carrying a toothed wheel and a sprocket-wheel, a weighted chain attached to said valve and passing over said sprocket-wheel, a shaft provided with a worm engaging said toothed wheel and having two pulleys fast thereon, a revolving shaft K having two loose pulleys each provided with an electrically-controlled clutch, said pulleys being connected with the two pulleys on the worm-shaft, one by means of a straight belt and the other by a crossed belt, whereby the worm-shaft may be rotated in opposite directions by the shaft K, a separate electric circuit and a magnet included therein for controlling each clutch, and a thermostat for closing said electric circuits, whereby the valve-actuating mechanism is operated to open or close the valve or damper, substantially as described.

590,408. CALORIMETER. HENRY J. WILLIAMS, Boston, Mass. Filed Dec. 4, 1896. Serial No. 614,634. (No model.)



Claim.—1. In a calorimeter, a calorimeter-can for containing a bomb or combustion-chamber, said can having on one side an auxiliary chamber open to its main portion or chamber, in combination with a stirrer or agitating device placed within said auxiliary chamber and arranged to produce a free circulation of the fluid within the main chamber to equalize the temperature of said fluid throughout its mass, substantially as described.

2. In a calorimeter, a calorimeter-can for containing the bomb or combustion-chamber, said can being provided with a removable cover, and having on one side an auxiliary chamber open to its main portion or chamber, in combination with a stirrer or agitating device placed within said auxiliary chamber and arranged to produce a free circulation of the fluid within the calorimeter-can to equalize the temperature of said fluid throughout its mass, substantially as described.

3. In a calorimeter, a calorimeter-can provided with a cover and having on one side an auxiliary chamber open to its main portion or chamber, in combination with a tubular casing fitting within said auxiliary chamber and communicating therewith at the top and bottom, said casing having mounted therein a central shaft carrying a stirrer or agitating device arranged to force the fluid through the tubular casing and discharge the same into the main chamber, and means for rotating said shaft, whereby a complete circulation of the fluid in the calorimeter-can is effected, said tubular casing with its shaft and agitator being made movable vertically on a suitable support, substantially as and for the purpose set forth.

4. A calorimeter comprising a vessel provided with a water-jacket having an opening at its top, a removable calorimeter-can of smaller diameter placed within said vessel and separated therefrom at the bottom by means of a rest of insulating or non-conducting material, a bomb or combustion-chamber placed within the calorimeter-can, the latter being provided with a cover and having on one side an auxiliary chamber open to its main portion or chamber, a tubular casing fitting within said auxiliary chamber and communicating therewith at the top and bottom and carrying a central shaft provided with a stirrer or agitating device arranged to produce a circulation of the fluid within the main chamber, and means for rotating said shaft, said tubular casing with its agitating mechanism being adjustably mounted on a vertical supporting-rod, whereby it may be raised or lowered and swung in the arc of a circle to enable it to be inserted within said auxiliary chamber or passed down through the opening in the top of the water-jacket to produce a circulation of the fluid in the latter or in the calorimeter-can, means for insulating the agitating device from the calorimeter-can whereby leakage of electric current or loss of heat by conduction is prevented, an electric circuit provided with an igniting-wire for kindling the combustible to be tested, and one or more thermometers in contact with the fluid, substantially as set forth.

5. In a calorimeter, a bomb or combustion-chamber for containing the combustible to be tested, said bomb having a threaded opening at its top provided with a shoulder, a soft-metal packing-ring on said shoulder, a lid resting on said soft-metal ring and provided with a central neck having a valved passage for the introduction of gas to the interior of the bomb or its discharge therefrom, and a closing-nut turning within the threaded opening of the bomb and encircling the neck of the lid and bearing on the surface of said lid at the foot of the neck, the area of the friction or bearing surface of the closing-nut in contact with the lid being less than that of the surface of the lid in contact with the soft-metal packing, whereby the nut can be rotated, without turning the lid upon the soft-metal packing-ring, substantially as described.

6. In a calorimeter, a bomb or combustion-chamber for containing the combustible to be tested, said bomb having a threaded opening at its top provided with a shoulder, a soft-metal packing-ring on said shoulder, a lid resting on said soft-metal ring and provided with a central neck having a valved passage for the introduction of gas to the interior of the bomb or its discharge therefrom, and a closing-nut turning within the threaded opening of the bomb and encircling the neck of the lid and bearing on the surface of said lid at the foot of the neck, the contacting bearing-surfaces of the closing-nut and lid being the one concave and the other convex, and the area of the friction or bearing surface of the closing-nut in contact with the lid being less than that of the surface of the lid in contact with the soft-metal packing, whereby the nut can be rotated without turning the lid upon the soft-metal packing-ring, substantially as and for the purpose set forth.

7. In a calorimeter, a calorimeter-can for containing the bomb or combustion-chamber, said calorimeter-can being provided on its interior surface with an insulated spring-contact connected with an electric circuit, in combination with the bomb or combustion-chamber having an outer insulated projection adapted to rest against said spring-contact when the bomb is placed within the calorimeter-can, said projection being electrically connected with the stand or device within the bomb for holding the combustible to be tested and igniting the same, said stand forming a portion of the electric circuit, substantially as described.

8. In a calorimeter, the combination with the bomb or combustion-chamber of a removable crucible-holding stand resting upon and in electrical connection with its floor or bottom and having a series of pointed rests for the crucible, and an electric igniting-wire passing into the latter, said stand having an upright portion insulated at its point of attachment to the base of said stand, and adapted when placed within the bomb to engage an insulated arm forming part of the electric circuit and projecting from the interior of said bomb, substantially as set forth.

9. In a calorimeter, the combination with the calorimeter-can having an auxiliary chamber on one side of the same and provided with a removable cover having a slotted projection fitting over said auxiliary chamber, of a tubular casing fitting within said auxiliary chamber and carrying a stirrer or agitating device, and provided with a block of insulating material located directly under said slotted projection to close the slot in the same, and fitting the top of the tubular casing, substantially as set forth.

10. In a calorimeter, a calorimeter-can provided with a removable cover and having on one side an auxiliary chamber open to its main portion or chamber, in combination with a stirrer or agitator composed of a vertical rotary shaft provided with an agitator and inclosed within a tubular casing adapted to be inserted within and withdrawn from said auxiliary chamber, said tubular casing being open at the bottom and provided near its top on the side facing the main chamber of the calorimeter-can with a discharge-outlet located beneath the level of the water in said can, substantially as described.

11. In a calorimeter, the combination with the calorimeter-can provided on one side with an auxiliary chamber opening into its main portion or chamber, a stirring device located within said auxiliary chamber, a bomb or combustion-chamber located within the calorimeter-can, and a rest interposed between the bomb and the bottom of the can, said rest being provided with notches to permit the fluid when set in motion by the stirrer to circulate freely around the bottom of the bomb, substantially as described.

12. In a calorimeter, the combination with the bomb, its lid provided with a central neck having a vertical passage, the nut 51, chamber 61, and the check-valve 54, of the gas-discharging device, comprising a tubular casing having a discharge-nozzle and a spindle with an operating thumb-screw for forcing it down upon the check-valve to open the same and allow the gas to escape into the tubular casing and out through the nozzle of the same, substantially as described.

590,409. MUZZLE FOR STOCK. FRANKLIN R. WINGROVE, Waxahachie, Tex. Filed Sept. 26, 1896. Serial No. 607,074. (No model.)



Claim.—1. In a muzzle, the combination of a nose-band or ring, spring-closed jaws or sections supported by the nose-band or ring, an operating-lever fulcrumed upon the nose-band or ring and having arms arranged in contact with the deflected members of the jaws or sections, and means for straining the free end of the lever upward as the muzzle is lowered, substantially as specified.

2. In a muzzle, the combination of a nose-band or ring, spring-closed jaws pivotally mounted upon the nose-band or ring and having arc-shaped or segmental bars or rods, an operating-lever fulcrumed upon the nose-band or ring and having arms arranged in sliding contact with said bars or rods of the jaws, and means for straining the free end of the lever upward as the muzzle is lowered, substantially as specified.

3. In a muzzle, the combination of a nose-band or ring, spring-closed jaws or sections pivotally mounted upon the nose-band or ring and having segmental bars or rods, a bifurcated operating-lever connected to the nose-band or ring upon opposite sides of the rear ends of the jaws or sections by means of spring-coils, the legs of the lever being arranged in sliding contact with the bars or rods of the jaws or sections, and means for straining the free end of the lever upward as the muzzle is lowered, substantially as specified.

4. In a muzzle, the combination of a nose-band or ring, spring-closed jaws or sections mounted upon the nose-band or ring and adapted to swing laterally at their intermediate points, a bifurcated operating-lever having the extremities of its arms connected to the nose-band or ring, said arms being arranged in sliding contact with bars or rods forming parts of the jaws or members whereby as the free end of the lever is swung upwardly the jaws or sections are swung laterally, cheek-straps connected to the sides of the nose-band or ring, a throat-latch adapted to encircle the neck of the animal to which the muzzle is applied and connected at its upper side to the cheek-straps by means of a crown-strap, and a flexible connection between the extremity of the operating-lever and the lowermost point of the throat-latch, substantially as specified.

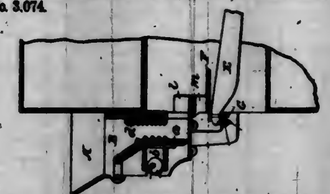
5. In a muzzle, the combination with a nose-band or ring, laterally-swinging spring-closed jaws or sections mounted upon the nose-band or ring, and means for spreading or opening the jaws as the muzzle is lowered, of a locking device for securing the jaws in their open position, to facilitate feeding without removing the muzzle substantially as specified.

6. In a muzzle, the combination of a nose-band or ring, laterally-swinging spring-closed jaws mounted upon the nose-band or ring, means for opening the jaws as the muzzle is lowered, and a locking device for securing the jaws in their open position, said locking device consisting of a toggle-lever or link having the outer extremities of its arms connected to the jaws and having the inner extremities of its arms pivotally connected and provided with shoulders to abut when the lever or link is extended, substantially as specified.

7. In a muzzle, the combination with swinging spring-closed jaws and means for supporting the same upon the nose of an animal, of an operating-lever mounted upon said supporting means and arranged in operative position with relation to bars or rods of the jaws or sections, and means, including a throat-latch and a flexible connection between the throat-latch and the free end of said lever, for elevating the free end of the lever, as the muzzle is lowered, to open the jaws, substantially as specified.

8. In a muzzle, the combination with swinging jaws and yielding means for holding the same normally closed, of jaw-opening devices, including a throat-latch, and connections between the throat-latch and said jaws, whereby as the muzzle is lowered the jaws are separated in opposition to the tension of the yielding means employed to hold the same normally closed, substantially as specified.

590,410. AUTOMATIC STOKING APPARATUS FOR STEAM-BOILERS. GEORGE CLAYDON, Addington, New Zealand. Filed Oct. 1, 1896. Serial No. 607,556. (No model.) Patented in New Zealand June 13, 1895, No. 7,631; in Victoria Aug. 5, 1895, No. 12,378; in New South Wales Aug. 7, 1895, No. 5,957, and in Queensland Aug. 8, 1895, No. 3,074.



Claim.—1. In an automatic feed apparatus for furnaces, the combination with a furnace provided with fire-bars, of a receptacle communicating with the furnace through a discharge-opening in its side at a point above the fire-bars, a stationary crushing-plate within the receptacle, a movable crushing-plate likewise contained within the receptacle, said plate being arranged opposite the discharge-opening and stationary plate, and means for reciprocating the movable plate vertically and laterally toward the discharge-opening, substantially as described.

2. In an automatic stoking apparatus for furnaces, the combination with the fire-bars, means for elevating and lowering one end of said bars, and adjustable devices for regulating the extent of such movement, substantially as described.

3. In an automatic feed apparatus for furnaces, the combination with a furnace provided with fire-bars, of a receptacle communicating with the furnace through a discharge-opening in its side at a point above the fire-bars, a stationary crushing-plate within the receptacle, a movable crushing-plate likewise contained in the receptacle, said plate being arranged opposite the discharge-opening and stationary plate, and means for moving the movable plate toward the stationary plate, and discharge-opening, substantially as described.

4. In an automatic stoking apparatus, the combination with a furnace, of the fire-bars mounted therein, an adjustable support for one end of said bars, and devices operating to elevate and lower said ends, substantially as described.

590,411. RIFLE ATTACHMENT FOR SHOTGUNS. HERMAN A. DARBE, Napa, Cal. Filed Oct. 31, 1896. Serial No. 610,849. (No model.)

Claim.—The combination of a cartridge adapted to fit the gun-barrel, a rifle-barrel open at both ends and having its rear end fitted into the rear end of the main cartridge, and adapted to receive a ball-cartridge, and the ejector-springs secured to the main cartridge and having their free ends in the path of and adapted to engage the rim or flange of the ball-cartridge, to start the empty shell thereof out of the rifle-barrel.



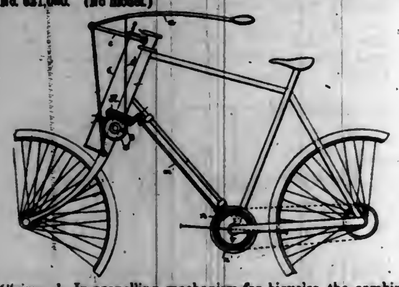
590,412. NUT-LOCK. LOUIS FLEISCHMAN, Des Moines, Iowa.
Filed Jan. 9, 1897. Serial No. 618,678. (No model.)



Claim.—1. An improved nut-lock, comprising a bolt having an angular central portion, and a screw-threaded end, a nut having an angular central opening, and a circular concentric screw-threaded opening at one end, a second nut internally screw-threaded, and having an annular screw-threaded flange to enter and engage the screw-threaded opening of the other nut, and means for locking the nuts together, substantially as and for the purposes stated.

2. An improved nut-lock comprising a bolt having an angular central portion and a screw-threaded end, a nut having an angular bore and a circular screw-threaded bore at one end thereof, a second nut internally screw-threaded and having one or more small bores on its inner face, an externally-screw-threaded annular projection on said nut and a spring-actuated pin in the first nut, substantially as and for the purposes stated.

590,418. PROPELLING MECHANISM FOR BICYCLES. WILHELM HAMBACHER, Wiesbaden, Germany. Filed Jan. 28, 1897. Serial No. 621,060. (No model.)



Claim.—1. In propelling mechanism for bicycles, the combination with fulcrumed handle-bars, of a double gear-wheel sleeved on the front fork, a gear-wheel located on the front fork and below said double gear-wheel and meshing with the lower series of teeth of the double gear-wheel, means for connecting said latter gear-wheel with the handles, for turning the latter, a shaft provided with a pinion meshing with the upper series of teeth of the double wheel, and means for transmitting motion from the said shaft to the driving-wheel, substantially as set forth.

2. In propelling mechanism for bicycles, the combination with fulcrumed handle-bars, of a double gear-wheel sleeved on the front fork, a gear-wheel located on the front fork and below said double gear-wheel and meshing with the lower series of teeth of the double wheel, and driven directly from the handle-bars, a pinion meshing with the upper series of teeth of the double wheel, and mounted on a shaft journaled in bearings of the main frame, a bevel gear-wheel on the rear end of said shaft, and an intermeshing bevel gear-wheel on the pedal-shaft of the foot driving mechanism, substantially as set forth.

3. In propelling mechanism for bicycles, the combination with the double bevel gear-wheel consisting of two suitably-mounted and independent sections each having a series of bevel-teeth, mechanism for rotating the wheel from the handle-bars, and means for transmitting motion from the double wheel to the driving-wheel of the bicycle, of a clutch mechanism for coupling the two sections of the double wheel together or for uncoupling them, substantially as set forth.

4. In propelling mechanism for bicycles, the combination with a double bevel gear-wheel consisting of two independent toothed sections mounted on the front fork and adapted to be interlocked, mechanism for rotating said double wheel from the handle-bars, and means for transmitting motion from the double wheel to the driving-wheel of the bicycle, of a clutch-ring for withdrawing the lower section from the upper section of the double wheel, and a rod connected with the clutch-ring and extending upward toward the handle-bars, substantially as set forth.

5. In propelling mechanism for bicycles, the combination with a double bevel gear-wheel formed of two independent toothed sections adapted to be coupled, mechanism for rotating said double wheel from the handle-bars, and means for transmitting motion from the double wheel to the driving-wheel of the bicycle, of a hand-operated rod, means for connecting the same with the lower section of the double wheel and a stop-pin operated by said rod, and adapted to lock the handle-bars in their intermediate position for the purpose of holding them there when the hand-power has been removed, substantially as set forth.

590,414. DOOR-BELL. IRENIAS M. HOFFMAN, Indianapolis, Ind.
Filed July 28, 1897. Serial No. 646,184. (No model.)



Claim.—1. The combination, in a bell, of the frame A, an adjustable bar B mounted thereon, a verge-wheel mounted on said bar, a lever also secured to the frame, a verge mounted on said lever and extending into the path of the verge-wheel, and a hammer the handle of which is connected to and operated by said verge, substantially as set forth.

2. The combination, in a bell, of a verge, a verge-wheel connected to and operating a hammer, and a lever in which said verge is mounted, said lever being pivoted to an adjacent portion of the frame and adapted to be swung on said pivot and thus carry the verge into or out of the path of the verge-wheel, whereby the bell can be shifted from operative to inoperative position by merely moving said lever, substantially as set forth.

3. The combination, in a bell, of a pivoted hammer the handle whereof terminates in a verge, suitable mountings for said verge, a verge-wheel, and a bar carrying said wheel which is adjustable toward and from the verge, substantially as shown and described.

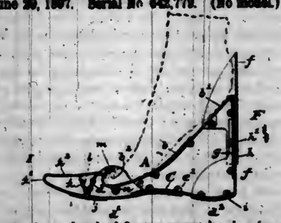
4. The combination, in a bell, of the bell-hammer, the verge whereby the same is operated, and a verge-wheel for operating said verge formed from sheet metal and provided with the arms *c* cut from the body thereof and extending out to one side and forming the shaft therefor, and a collar *C* surrounding said shaft and together therewith forming a socket for the operating shaft or bar, substantially as set forth.

590,415. CENTRAL-DRAFT LAMP. JOSEPH JAUCH, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Sept. 25, 1894. Serial No. 524,028. (No model.)



Claim.—In a central-draft lamp, the combination with a lamp-fount, of a draft-tube, a wick-carrier comprising two pivotal wick-jaws, a spring therefor, a wedge for spreading the jaws against the tension of the said spring so as to release the wick, a bearing-tube, an operating-button having its stem journaled in the said tube, a pinion mounted upon the said stem, and a draw-bar mounted for vertical reciprocation in the said bearing-tube and fount, and consisting of a long leg and a short leg, the lower end of the long leg extending downward into the fount, and being connected with the wick-jaws of the wick-carrier so as to be concentric with the pivot thereof, and having formed upon it a rack which is taken into by the said pinion, which through the said long leg of the draw-bar operates the wick-carrier not only for raising and lowering the wick, but also for drawing the wick-jaws against the said wedge for separating them to release the wick, and the said short leg of the draw-bar being of a length so that in the highest position of the draw-bar the lower end of the said leg will extend slightly below the upper end of the said bearing-tube into and out of which it must be sprung by bending the bar when the same is assembled with and removed from the lamp.

590,416. FOOT-SUPPORT. RICHARD T. JONES, Baltimore, Md.
Filed June 29, 1897. Serial No. 642,779. (No model.)



Claim.—1. A mechanical foot-support having in combination an inclined supporting-plate made in two pieces adjustable as to length; a foundation-plate also adjustable as to length; an upright heel-plate made in two pieces and adjustable as to height; and a toe part jointed at the front end of said foundation-plate.

2. A mechanical foot-support having in combination an inclined supporting-plate made in two pieces adjustable as to length and at the toe end turned up as at, b^3; a foundation-plate made in two pieces which are adjustable as to length, and which at its front where the ball-joint of the foot would ordinarily occur, is turned upward as at, *d*; and a toe-piece jointed to said turned-up part—said toe-piece extending forward from the joint curving upward, as at, b', and backward as at, b^4, with its end resting on said turned-up part.

3. A mechanical foot-support having in combination an upright heel-plate; an inclined supporting-plate made in two pieces adjustable as to length and the rear end contacting with said heel-plate; and a foundation-plate made in two pieces which are adjustable as to length.

4. A mechanical foot-support having in combination an inclined plate whose toe end is turned up; a foundation-plate having at the point where the ball of the foot would ordinarily occur an upturned part, *d*, which is attached to said turned-up toe end on the inclined plate; a toe-piece jointed in front of said upturned part on the foundation-plate; and opposite side plates, *m*, attached to the foundation-plate and projecting up curving toward each other and meeting the said turned-up toe end.

590,417. TABLE OR CABINET FOR SEWING-MACHINES. THEODOR KUNDTZ, Cleveland, Ohio. Filed June 1, 1897. Serial No. 638,954. (No model.)



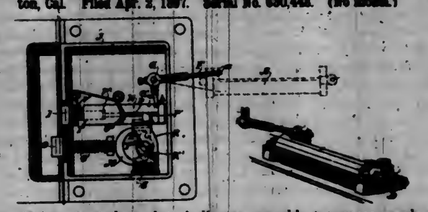
Claim.—1. In a table or cabinet of the character indicated, the combination with the top A having an opening therethrough, the vertically-tilting load-carrying leaf B horizontally hinged or pivoted to said top and arranged to occupy the opening in the top in its upwardly-tilted position, and the lifting-leaf C hinged horizontally and transversely of the cabinet at the left-hand end of the top; of a slide movable up and down below the top, a slideway for said slide, operative connection between said slide and the lifting-leaf, a lifting-lever having its free end operatively engaging the slide and having its opposite end fulcrumed to a member of the table or cabinet, and a roller resting upon said lever and supported from the load-carrying leaf, substantially as and for the purpose set forth.

2. In a table or cabinet of the character indicated, the combination with the top A provided with the opening *a*, the vertically-tilting load-carrying leaf B horizontally hinged or pivoted to the top, and the lifting-leaf C hinged horizontally to and transversely of the left-hand portion of said cabinet or table; of a slide D movable up and down below the rear portion of the aforesaid top, a slideway for said slide, operative connection between said slide and the lifting-leaf, a lever G arranged below and transversely of the left-hand end of the load-carrying leaf, and having its rear end operatively engaging the slide and suitably fulcrumed at its forward end to a member of the table or cabinet, and a roller or wheel resting upon said lever and supported from the aforesaid load-carrying leaf, substantially as and for the purpose set forth.

3. In a table or cabinet of the character indicated, the combination with the top A provided with the opening *a*, the vertically-tilting load-carrying leaf B horizontally hinged or pivoted to the top, and the lifting-leaf C hinged horizontally to and transversely of the left-hand portion of said cabinet or table; of a slide D movable up and down below the rear portion of the aforesaid top, a slideway for said slide, operative connection between said slide and the lifting-leaf, a lever G arranged below and transversely of the left-hand end of the load-carrying leaf, and having its rear end operatively engaging the slide and suitably fulcrumed at its forward end to a member of the table or cabinet, a roller or wheel resting upon said lever and supported from the aforesaid load-carrying leaf, and the bearing-surface of said lever having the trend required to form the rearwardly and downwardly extending incline *g* at or near the central portion of the lever, substantially as and for the purpose set forth.

4. In a table or cabinet of the character indicated, the combination with the top A having the opening *a*, the load-carrying leaf movable downwardly below and upwardly into said opening, and the lifting-leaf C hinged at C to the left-hand end of the top; of the slide D having an upwardly-extending arm *d*; the vertically-arranged slideway *d'* for said slide; the link *d''* horizontally pivoted at one end to the aforesaid arm, and horizontally pivoted, at its opposite end, to the lifting-leaf; a suitably-supported lever suitably arranged below and extending transversely of the left-hand end of the load-carrying leaf and operatively engaging the slide, and the roller *b* arranged to rest and move upon said lever and supported from the load-carrying leaf, substantially as shown, for the purpose specified.

590,418. DOOR-INDICATOR. ERNEST A. LAMSFORD, Washington, Cal. Filed Apr. 2, 1897. Serial No. 630,448. (No model.)



Claim.—1. A door-plate indicator movable to expose words of opposite meaning, a mechanism connected with the lock and actuated by the opening and closing of the door to change the position of the indicator.

2. A door-plate indicator having words of opposite meaning upon it, a plate through which either one or the other of said words may be exposed to view from the outside, a lever-arm by which said plate is movable, and mechanism connecting the interior knob of the door with the lever-arm whereby the opening or closing of the door from the inside actuates the indicator.

3. An indicator having words of opposite meaning imprinted upon it at different points, an opening in the door through which either one or the other of said words may be exposed, a lever-arm engaging the indicator, a mechanism connected with the interior knob-shank whereby the indicator is actuated when the door is closed from the inside to show that the room is occupied, and is again actuated when the door is opened and closed from the outside to show that it is unoccupied and a knob on the exterior of the door whereby the door may be opened and closed without changing the condition of the indicator.

4. An indicator having words of opposite meaning imprinted upon it, an opening in the door through which either one or the other of said words may be exposed at one time, a lever connected with the lock mechanism and actuated by the turning of the inside knob of the door, so that when the door is closed from the inside, the word "Occupied" is exposed, and when the person leaves the room and closes the door from the outside, the word "Unoccupied" will be exposed, and a spring-pressed pin pressing upon the movable indicator so as to hold it in either of the positions to which it may be set.

5. An indicator consisting of a cylindrical segment journaled upon a plate attached to the door and having an opening through which the surface of the cylinder is exposed, words of different meaning imprinted upon the cylinder in parallel lines so that the turning of the cylinder will expose one of said words and conceal the other, lugs connected with the cylinder and engaging a lever-arm connected with a spindle turnable within the lock of the door, a slidable bar actuated by the closing of the door, a connection with the spindle whereby the forcing of the bar back when the door is closed from the inside, turns the lever-arm and the indicator to show that the room is occupied.

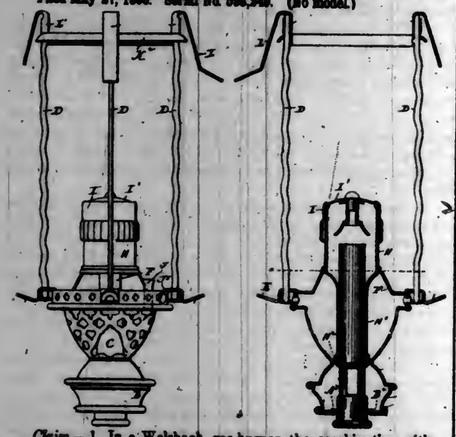
6. An indicator consisting of a cylindrical segment journaled upon a plate having a slot through which the surface of the cylinder is exposed, words of opposite meaning imprinted in parallel lines upon the cylinder so that one may be exposed and the other con-

cealed, a lever fixed upon a shaft journaled within the lock-casing and engaging lugs upon the segment so that the moving of the lever in one direction will rotate the segment and expose one of the words, and the movement in the opposite direction will turn the segment to expose the other word, a bar slidable within the lock-casing, having a pressure-plate adapted to engage the strike-plate of the door when closed whereby the bar is forced backward, an arm connecting said bar with the shaft of the lever by which the indicator is actuated and a latch adapted to hold the bar in its retracted position as long as the room is occupied.

7. The combination with a cylindrical segment journaled upon the door having words of opposite meaning imprinted in parallel lines thereon, and a slotted plate through which either of said words may be exposed, of a lever engaging said plate so as to turn it to expose either of said words, a bar slidable within the lock-casing having an engagement by which the lever is moved, a pressure-plate normally projecting through the side of the casing and slidable so as to be forced back by the contact of the pressure-plate with the strike-plate of the door-casing, said pressure-plate acting upon the sliding bar to force it back, a spring-catch adapted to engage said bar when thus forced back and retain it in said position whereby the indicator remains with a word exposed, a knob exterior to the door whereby the latter may be opened from the outside, a lug or cam upon the exterior-knob spindle, a lever fulcrumed in the sliding bar and engaged by a plate intermediate between said lever and the cam, whereby the pressure-plate is disengaged from the slide when the door is opened from the outside, and is then movable when the door is opened or closed without acting upon the sliding bar or indicator.

8. The combination with a door of a bar slidable within the lock-casing, an arm engaging said bar adapted to actuate a cylindrical segment, the surface of which is exposed through an opening in the door with words of opposite meaning imprinted thereon whereby one of said words may be exposed when the bar is retracted and the other when it is pressed forward, a presser-plate having a shank entering the end of the slidable bar, a stop-lever fulcrumed within the bar against which the shank of the presser-plate abuts whereby the closing of the door so that the presser-plate is forced back by the strike-plate upon the door-casing will force the sliding bar backwardly, a spring latch by which it is engaged and normally retained in this position while the door is closed and the room remains occupied, a cam fixed upon the inner-knob spindle and engaging the latching-plate so that when the knob is turned and the door opened, the sliding bar is disengaged, and a spring by which it is forced forward when the door is opened to change the position of the indicator-plate and show that the room is unoccupied.

590,419. **WELSBACH GAS-BURNER.** JOHN LIMB, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed May 27, 1896. Serial No. 593,240. (No model.)



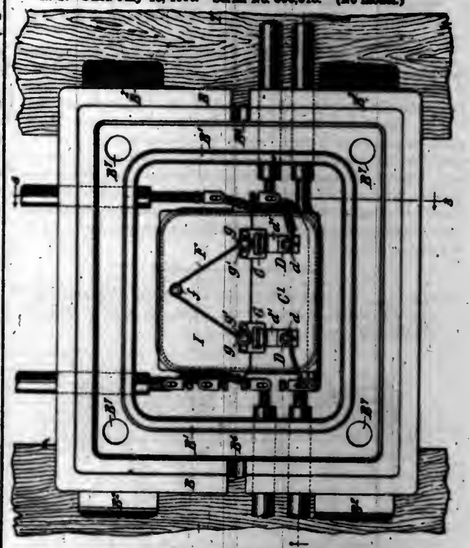
Claim.—1. In a Welsbach gas-burner, the combination with a bobèche-supporting arm constructed with a vertical bearing-opening and with an inwardly-turned, horizontally-arranged supporting-finger formed integral with and turned inward from the said arm, located below the said opening and containing a rivet-hole alined therewith; of an upright set down through the said bearing-opening and into the said rivet-hole in said finger to which its extreme lower end is riveted.

2. In a Welsbach gas-burner, a mantle-wire holder composed of a single piece of sheet metal bent to form a vertical socket, an interiorly-threaded, outwardly-projecting lateral shank, and two oppositely-projecting retaining-arms, located at the outer end of the said shank, and providing for the attachment of the holder to a part of the burner.

3. In a Welsbach gas-burner, the combination with the uprights thereof, the said uprights being constructed near their upper ends with inwardly-extending rivets, of a coupling-ring having a depending flange, applied to the upper ends of said uprights and having horizontal openings through which the said rivets extend inwardly, and the said ring also having a horizontal flange formed with horizontal openings through which the upper ends of the uprights extend, and shade-holders applied to the projecting upper ends of the uprights and extending downward and outward.

4. In a Welsbach gas-burner, a mantle-wire holder comprising a single piece of sheet metal bent to form a vertical socket, the upper end of which is made flaring, an interiorly-threaded outwardly-projecting lateral shank, and two oppositely-projecting retaining-arms located at the outer end of the said shank and providing for the attachment of the holder to a part of the burner, and a sheet-metal collar formed independently of the said holder, and clamped upon the shank thereof for reinforcing the same.

590,420. **ELECTRIC RAILWAY.** ROBERT LUNDELL, Brooklyn, N. Y., assignor to the Johnson-Lundell Electric Company, New York, N. Y. Filed July 18, 1896. Serial No. 599,613. (No model.)



Claim.—1. A switch-box provided with a mud-groove near its top, in combination with a cover provided with two downwardly-extending flanges, one of which is adapted to rest in the mud-groove and the other to surround the switching mechanism when the cover is located in position, substantially as described.

2. A hermetically-sealed switch-box which wholly incloses electromagnetic switching mechanism, in combination with an outer surrounding or protecting flange or bell-shaped portion adapted to act after the manner of a diving-bell, the circuit connections between the switching mechanism in the hermetically-sealed switch-box and the exterior conductors being located in the upper part of the bell-shaped portion, substantially as described.

3. A switch-box having a lid provided with a downwardly-extending flange or bell-shaped portion, in combination with a second inclosing box which wholly incloses all of the switching mechanism in a hermetically-sealed condition, the conductors entering the switch-inclosing box at points well within the downwardly-extending flange or bell-shaped portion, substantially as described.

4. In a system of electric conductors adapted to carry currents of high voltage, a cut-out device consisting of a fuse-block sustaining a detachable fuse connected to a pair of conducting-eyes, in combination with yielding lateral extensions operatively connected with the circuit and adapted to receive the eyes and make good electrical connection when the fuse-block is turned to normal position, substantially as described.

5. A fuse-block consisting of insulating material provided with means for detachably supporting a fuse and additional means for detachably securing the fuse in an electrical circuit, said additional means consisting of two pairs of yielding springs attached to the circuit and fixed conducting-eyes carried by the fuse-block, said parts being so arranged that when the fuse-block is tilted into one position it may be readily withdrawn, and when tilted in reverse position the eyes will form firm electrical contact between the fuse and adjacent circuit connections substantially as described.

6. A detachable fuse-block consisting of insulating material provided with a pair of flat conducting-eyes electrically connected to the ends of a detachable fuse, in combination with two pairs of yielding spring-arms adapted to receive the eyes and to form good electrical connection between said spring-arms and the fuse when the fuse-block is rotated into permanent position, substantially as described.

7. In an electric-railway system a switch-box inclosing all of the switching mechanism in a hermetically-sealed condition, in combination with a second or surrounding box provided with a diving-bell which is adapted to prevent the encroachment of water upon the hermetically-sealed box, substantially as described.

8. A hermetically-sealed switch-box made in two parts, one part of which incloses the switching mechanism and the other part incloses or wholly surrounds the switch-controlling magnet, and constitutes also a part of the magnetic circuit of said switching-magnet, substantially as described.

9. A hermetically-sealed switch-box made of iron and wholly inclosing a switch-operating solenoid-electromagnet, the core of which is operatively connected with an insulating-standard extending upward through said box and provided with conducting-arms carrying contacts adapted to contact with stationary switching-contacts secured in the upper part of the box, substantially as described.

10. An electromagnetic switch having a hollow plunger or a core carrying yielding contact devices, in combination with stationary contacts, the arrangement being such that the yielding contact devices prevent any partial rupture of the circuit after the magnet is once energized and permit the core to move upward under the yielding action of the contact devices a definite distance after electrical contact is once made, thereby avoiding chattering and arcing between the contacts, substantially as described.

11. The described means for preventing the absolute rupture of the circuit between a sectional trolley conductor or contact and its controlling switching mechanism by reason of a short circuit, the same consisting of automatic cut-out mechanism adapted to operate for a defined current, in combination with a permanent resistance in shunt-circuit to the cut-out mechanism adapted to connect the switch with the sectional trolley-conductor, substantially as described.

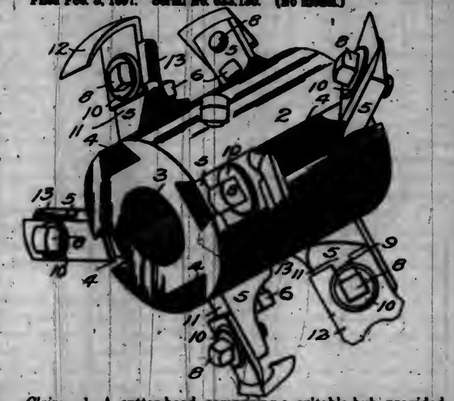
12. In an electric-railway system one or more electromagnetic switching devices adapted to automatically connect the current feeder or main with a sectional trolley conductor or contact, in combination with an automatic cut-out device adapted to rupture the circuit for abnormal currents and additional means for permitting a limited amount of current to flow after the circuit has thus been ruptured, substantially as described.

590,421. **INFLATABLE BALL.** EDWARD I. MANLEY, Chicopee Falls, Mass., assignor to the Overman Wheel Company, same place and Hartford, Conn. Filed Apr. 6, 1896. Serial No. 586,495. (No model.)



Claim.—In an inflatable ball, the combination with a bladder having an outwardly-projecting inflation-tube, of a case or cover constructed with an opening for the introduction and removal of the bladder, those portions of the cover between which the said opening is located being formed with lacing-holes for the reception of a lacing by means of which the opening is closed after the introduction of the bladder into the ball, and two supplemental closure-flaps located within the said opening, secured by their outer edges to the inner face of the said cover, and having their adjacent inner edges formed with notches to permit the inflation-tube of the bladder to pass outward between them into the pocket formed between them and the cover and provided with lacing-holes for the reception of a lacing by means of which the said flaps are drawn close together after which the inflation-tube is tucked into the said pocket, and the opening in the cover closed over it and laced up and whereby the bladder may be firmly secured in place prior to its inflation and prior to the closure of the opening in the case or cover.

590,422. **CUTTER-HEAD.** CHESTER MATTHEW, Beloit, Wis. Filed Feb. 8, 1897. Serial No. 622,126. (No model.)



Claim.—1. A cutter-head, comprising a suitable hub, provided in its surface with a series of dovetailed grooves extending parallel to the axis of the hub, radial knife-carriers fitting in said grooves and adjustable longitudinally thereof, said carriers being provided with knife-bearing surfaces arranged to form rear bearings for the knives, knives arranged upon said carriers, and means for adjustably securing said knives in position.

2. A cutter-head, comprising a suitable hub, provided in its surface with a series of dovetailed grooves extending longitudinally thereof, and parallel with its axis, radial knife-carriers provided with ends fitting in said grooves, and longitudinally adjustable therein, said knife-carriers being provided with knife-bearing surfaces arranged at different angles to the axis of the hub, and forming rear bearings for the knives, knives arranged upon said carriers and means for securing said knives in position.

3. A cutter-head, comprising a suitable hub, provided in its surface with a series of dovetailed grooves extending longitudinally thereof and parallel with its axis, interchangeable knife-carriers adjustably arranged in said grooves, said carriers being provided with knife-holding surfaces and with lips 13 arranged at the rear of said knife-holding surfaces, knives 12 arranged upon said knife-holding surfaces, and means for securing said knives in position.

590,428. **CEMENT-GRAVEL MILL AND CRUSHER.** JOHN M. RADEMAKER, San Francisco, Cal. Filed May 26, 1897. Serial No. 638,210. (No model.)



Claim.—1. An apparatus for crushing valuable material consisting of a cylinder composed of disks or heads at opposite ends, bars extending from end to end and fitting into radial slots in the heads, means for securing said bars in place and regulating the spaces between, consisting of wedge-plates fitting between the adjacent bars arranged in circles having outwardly-projecting lugs, and bands fitting in grooves or channels in said lugs adapted to clamp them in place.

2. An apparatus for crushing valuable material consisting of longitudinal parallel spaced bars arranged cylindrically having their ends fitting in radial grooves or channels in heads situated at opposite ends of the cylinder, separating wedge-plates by which the distance between the bars is retained intermediate between the heads, and bands by which said plates and the bars are removably secured in place, a feed-opening at one end of the cylinder, openings made around the opposite end adapted to discharge the uncrushed cobbles, bearing-rollers upon which the cylinder is rotatable, a trough or hopper inclosing the lower part of the cylinder adapted to receive the material passing through the bars having a discharge-passage at the lower end, means for rotating the cylinder, hammers hinged spirally upon opposite sides within the cylinder adapted to fall by gravitation as they pass up the rising sides beyond their fulcrum-points and to swing across the top and rest against the sides while passing through the lower arc whereby they operate automatically to crush the material passing through the cylinder.

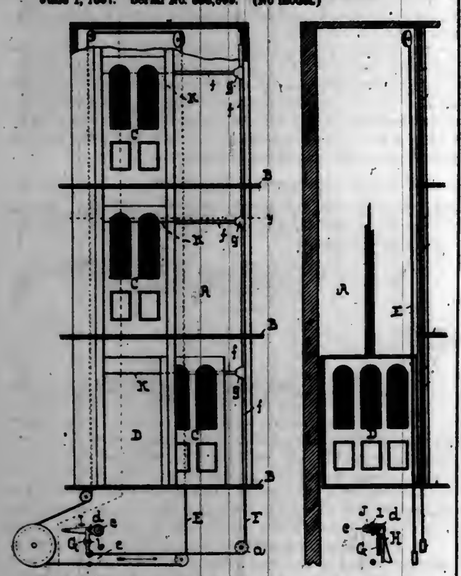
3. An apparatus for crushing cement-gravel consisting of the longitudinally-channeled cylinder having a feed-opening at one end and a discharge-opening for the larger rocks at the opposite end, bearing-rollers upon which the cylinder is mounted at an inclination, hammers spirally hinged upon opposite sides of the interior of the cylinder, a mechanism by which the cylinder is rotated upon its bearing-rollers whereby the hammers alternately fall upon the bottom automatically after passing over their fulcrum-points so as to pulverize the contained passing material within the cylinder, a water-pipe and spray for discharging water upon the material, said pipe having a protecting-hood, and a trough extending beneath the cylinder adapted to receive the crushed material, said trough having a discharge-opening at its lower end whereby the material may be collected.

4. An inclined rotary cylinder, the sides of which are formed with longitudinal channels or interspaced bars for the discharge of fine material, and a series of spirally-fulcrumed hammers extending from end to end within the cylinder so as to fall successively by gravitation as the cylinder revolves.

5. An inclined rotary cylinder, the sides of which are formed with longitudinal channels or interspaced bars for the discharge of fine material, a series of spirally-fulcrumed hammers extending from end to end within the cylinder, so as to fall successively by gravitation as the cylinder revolves, and an extension of smaller diameter at the lower end of the cylinder with side openings for the discharge of large material.

6. An inclined rotary cylinder, the sides of which are formed with longitudinal interspaced removable and reversible bars, a series of spirally-fulcrumed hammers extending from end to end within the cylinder so as to fall successively by gravitation as the cylinder revolves, an extension at the lower end of smaller diameter with peripheral openings for the discharge of large material, and an annular removable head at the upper end, with a central feed-opening.

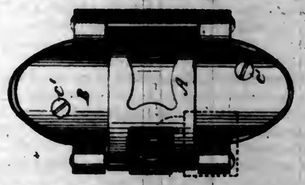
590,424. MEANS FOR PREVENTING ACCIDENTS IN ELEVATORS. ADOLPH A. ROTH and GEORGE C. HILTZ, Baltimore, Md. Filed June 1, 1897. Serial No. 638,869. (No model.)



Claim.—In combination with the check-rope of an elevator and a stop thereon, a swinging arm under spring-tension adapted when released to strike the said stop and suspend the upward movement of the elevator-cab, a trigger in engagement with the said arm to hold it in an inoperative position, a rope leading from the said trigger to the upper part of the building, and cords which are placed across the door-openings and attached to the said rope, substantially as specified.

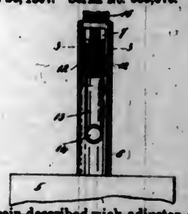
590,425. LOCKING DEVICE. WALTER J. SMART, South Orange, N. J. Filed July 21, 1896. Serial No. 600,080. (No model.)

Claim.—1. In a locking device, the combination of a hasp extending from one of the members or parts to be connected, and a curved tongue hinged to the free end of the hasp and which is adapted to embrace the remaining member or part and to be turned to a position in which it may be locked to the hasp, substantially as specified.



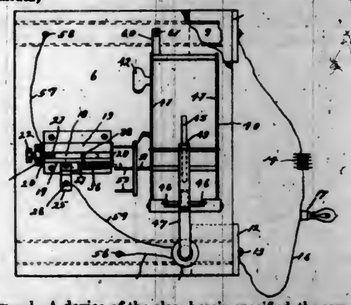
2. The combination with a wheel-receptacle, of a hasp having a hinged connection with a side extension thereof, and a curved tongue hinged to the free end of the hasp and being adapted to embrace a part on the other side extension of the receptacle, and to enter an opening in the hasp where it may be locked, substantially as specified.

590,426. WICK-ADJUSTER. ELMER D. TUTHILL, Mattituck, N. Y. Filed Apr. 26, 1897. Serial No. 633,578. (No model.)



Claim.—The herein-described wick-adjuster, comprising the combination with a lamp-reservoir or other vessel of a cylindrical wick-tube 6, the inner diameter of the upper end of which is greater than the diameter of the lower portion, said tube being provided with a rectangular oblong slot or opening 7, a vertically-movable wick-carrying tube 10, mounted in said tube 6, said wick-carrying tube being composed of spring metal and being opened at one side, tubular keepers 12 secured to the opposite side thereof and which projects through the slot or opening 7, a handle secured to said tubular keepers, said handle consisting of a spring-yoke 13, the central portion of which is provided with a ring or loop 14, and the ends of the sides of the yoke 13 being bent inwardly at 15, and passed through the said keeper 12, said wick-carrying tube being supported by the tube 10, and the inner diameter of the said tube 10, being the same as that of the lower portion of the said tube 6, substantially as and for the purpose described.

590,427. COIN-OPERATED ELECTRICAL APPARATUS. WEBB R. WHEELER, Lincoln, Nebr. Filed Mar. 16, 1897. Serial No. 627,838. (No model.)



Claim.—1. A device of the class herein specified, the same comprising a base-plate, a clockwork mechanism mounted thereon, an electromagnet mounted adjacent to said clockwork mechanism, an armature-lever pivotally supported above the clockwork mechanism, and adapted to operate to stop the balance-wheel thereof, a coin-chute mounted on said base-plate adjacent to the clockwork mechanism, a pin-wheel connected with said clockwork mechanism, and provided with pins which project in the direction of the coin-chute, a lever pivotally connected with the side of said coin-chute, and adapted to swing in the direction of said wheel, said clockwork mechanism, said magnet, and lever being in an open electric circuit which is adapted to be closed by a coin dropped into the coin-chute, and by which said armature-lever is operated, substantially as shown and described.

2. In an apparatus of the class herein described, the combination with a suitable base-support, of a clockwork mechanism mounted thereon, an electromagnet mounted adjacent to said clockwork mechanism, a pivoted armature-lever which is adapted to operate in connection with the balance-wheel of the clockwork mechanism, a coin-chute mounted on said support, a pin-wheel in connection with said clockwork mechanism, a lever suspended from said coin-chute, and adapted to swing in the direction of said pin-wheel, said lever being adapted to be operated by a coin, and said parts being in an open circuit which is adapted to be closed by said coin, substantially as shown and described.

3. In an apparatus of the class herein specified, the combination with a suitable base-support of a clockwork mechanism mounted thereon, an electromagnet mounted adjacent to said clockwork mechanism, a pivoted armature-lever which is adapted to operate in connection with the balance-wheel of the clockwork mechanism, a coin-chute mounted on said support, a pin-wheel in connection with said clockwork mechanism, a lever suspended from said coin chute, and adapted to swing in the direction of said pin-wheel, said lever being adapted to be operated by a coin, and said parts being in an open circuit which is adapted to be closed by said coin, said open circuit being provided with an incandescent lamp, substantially as shown and described.

4. In an apparatus of the class herein specified, the combination with a suitable support, of a clockwork mechanism mounted thereon, an electromagnet mounted adjacent to said clockwork mechanism, an armature lever supported above said clockwork mechanism, and adapted to operate in connection with the balance-wheel thereof, a pin-wheel mounted on a shaft which projects from said mechanism and which is operated thereby, a coin-chute mounted on said support adjacent to said pin-wheel, a lever pivotally connected with said coin-chute and adapted to swing in the direction of said pin-wheel, said lever being adapted to be operated by a coin, and said parts being in an open electric circuit which is adapted to be closed by said coin, substantially as shown and described.

5. In an apparatus of the class herein specified, the combination with a suitable support, of a clockwork mechanism mounted thereon, an electromagnet mounted adjacent to said clockwork mechanism, an armature-lever supported above said clockwork mechanism, and adapted to operate in connection with the balance-wheel thereof, a pin-wheel mounted on a shaft which projects from said mechanism, and which is operated thereby, a coin-chute mounted on said support adjacent to said pin-wheel, a lever pivotally connected with said coin-chute and adapted to swing in the direction of said pin-wheel, said lever being adapted to be operated by a coin, and said parts being in an open electric circuit which is adapted to be closed by said coin, and said support being provided with a supplemental bottom which is adapted to slide thereon, and which is provided with means for opening and closing said circuit, substantially as shown and described.

590,428. CARTRIDGE. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Apr. 23, 1894. Serial No. 508,595. (No model.)



Claim.—The combination with a tubular bullet having a circumferential annular indentation formed in it, and having its outer end made tapering and its rear end made substantially cylindrical; of a sheet-metal jacket having its ends turned inward into the rear and forward ends of the tubular bullet, and formed between its ends with a cannelure which takes into the said circumferential annular indentation formed in the bullet, whereby the jacket is secured thereto against endwise displacement; and a shell having the jacketed bullet inserted into its open end and its edge turned into the said cannelure of the jacket, substantially as set forth.

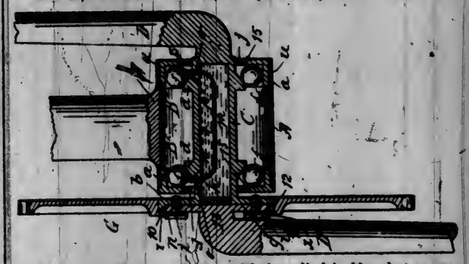
590,429. DRIP-COFFEE POT. AUGUST BUCKARD, Baltimore, Md. Filed May 18, 1896. Serial No. 592,019. (No model.)

Claim.—In a drip-coffee pot, the combination with a reservoir having an annular chamber removably secured in its upper end and provided with a sieve-bottom, of a removable convex bottom having openings in its lower edge, and a pipe having branches communicating with the space between the true and false bottoms of the reservoir, said pipe extending upwardly and having secured thereto above the bottom of the sieve a removable pipe provided with radial branches, the construction and arrangement being such that each branch of the pipe shall aid the other in clearing it of obstructions by producing, through the medium of the current passing through the clear pipe, a partial vacuum in the obstructed pipe above the obstruction, and rendering operative the underpressure, substantially as set forth.

590,429.



590,430. CRANK-SHAFT AND SPROCKET-WHEEL CONNECTION THEREFOR. WILLIAM CHARTERS, Springfield, Mass. Filed Feb. 11, 1897. Serial No. 622,901. (No model.)



Claim.—1. The combination with the cylindrical bracket or support having ball-cases, of the cone-provided crank-shaft, equipped at one end with a crank, and having its other end formed with the cup-flange, and the second crank provided at its inner inturned end with the circular flange, set in said cup-flange of the crank-shaft, the sprocket-wheel having its apertured middle portion fitted about the crank-shaft cup-flange and having the inwardly-projecting portions which overlie the face of said circular crank-flange, the screws which pass through said inwardly-projecting portions of the sprocket-wheel, and both the crank and crank-shaft flanges, and the balls, substantially as described.

2. The combination with the cylindrical bracket or support having ball-cases, of the crank-shaft, having the cones, equipped at one end with a crank, having its other end formed with the cup-flange, and having the chamber, opening to said cup-flanged end with perforations leading through the wall of said chamber, and the second crank having its inner end inturned and provided with the circular flange which is set in and removably screw-connected with said cup-flange of the crank-shaft, and the balls, substantially as described.

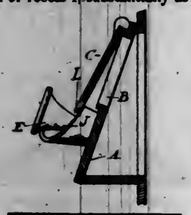
3 The combination with the crank-shaft having the cup-flange *b* with the seats *x* of the crank D^4 having on its inturned end the flange *g*, provided with the paired lugs 11, 11; the sprocket-wheel having the projections *n n* adapted to have engagement in said seats *x* and between said lugs 11, 11, and means for confining the sprocket-wheel and flanged parts together, substantially as described.

4. The combination with the crank-shaft having the cup-flange *b*, of the crank D^5 having on its inturned end the flange *g* constructed to screw into the cup-flange and provided with the paired lugs or lips 11, 11, the sprocket-wheel having the projections *n n* engaging between said lips 11, and means for confining the sprocket-wheel against disengagement, substantially as described.

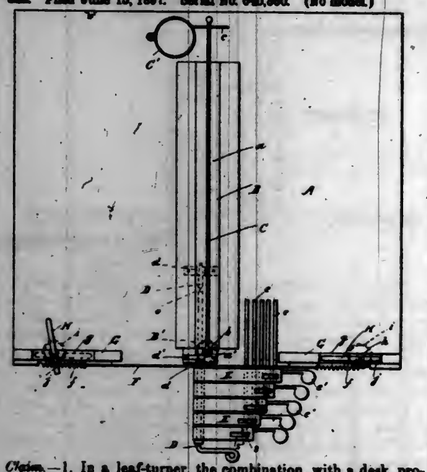
590,431. DAMPER FOR STOVES. GEORGE W. COPE, Detroit, Mich., assignor to Fred Sattler, Belleville, Ill. Filed Mar. 11, 1897. Serial No. 626,962. (No model.)

Claim.—1. In a damper-operating device, the combination with a support and a hinged damper having a projection thereon opposite its hinged edge, of means for operating the damper, comprising a truncated conical body having a helical flange thereon arranged to project and work below the damper projection, a handle on the body, and a means for pivotally securing the operator on the support, substantially as described.

2. The combination with a hinged damper and the support therefor having thereon a stationary stud or pin adjacent the damper, and an operating device for the damper comprising a hollow spindle rotatively mounted on said stud or pin, and provided with a helical flange adapted to engage a projection on the damper and also provided with a notch or recess I, a hollow handle portion also rotatively mounted on said stud or pin and provided with a projection fitting in said notch or recess, and a bolt or screw secured in said stud or pin and provided with means engaging an internal shoulder on the handle portion for holding the latter on the stud and the projection in the notch or recess I, substantially as described.



590,432. MUSIC-TURNER. WILLIAM J. CURRY, Nanaimo, Canada. Filed June 15, 1897. Serial No. 640,860. (No model.)



Claim.—1. In a leaf-turner, the combination, with a desk provided at its lower part with a long notch *g* and a cross-notch *h*, of a clip provided with a stem which is journaled in a hole at the bottom of the said cross-notch, and a spring secured to the said stem behind the desk, and permitting the clip to engage with either notch, substantially as set forth.

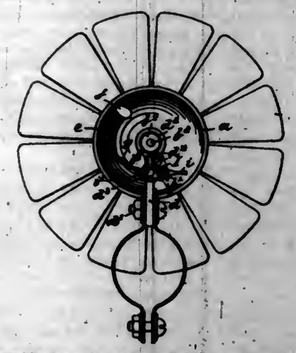
2. In a leaf-turner, the combination, with a desk, of a curved plate secured to the middle of the desk and projecting above its surface, a rod C provided with an eye at its lower end, a pin engaging with the said eye and slidable in a hole in the desk, a spring secured to the pin behind the desk, and a spring secured to the upper part of the desk and provided with a bent end portion for the upper portion of the rod C to engage with, substantially as set forth.

3. In a leaf-turner, the combination, with a desk provided with bearings *d*, of a rod slidable vertically in the said bearings, a spring secured to the desk and pressing on the rod so that it is hindered from sliding, and turning-arms journaled on the said rod, substantially as set forth.

4. In a leaf-turner, the combination, with a desk, and a vertical rod supported thereby; of turning-arms pivoted on the said rod and provided with forked turning-rods projecting vertically from their end portions, a flexible cord extending across the said turning-rods, and springs connecting the ends of the said cord with the desk, substantially as set forth.

590,433. BICYCLE-BELL. JAMES G. DUNTON and THOMAS V. LILLY, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,696. (No model.)

Claim.—1. The combination, of a bell, a clapper or hammer actuated by a tongue or projection, a rotatable shaft mounted in ball-bearings and provided with a wind-wheel and a pin for actuating said lug or projection, and a pivotal locking device adapted to engage said tongue or projection, substantially as and for the purposes described.

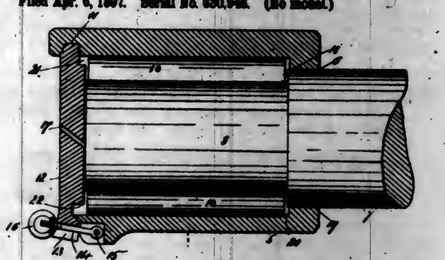


2. The combination of a bell, a clapper or hammer having an arm connected with a shaft provided with an angular tongue or projection, a sleeve provided with a ball-bearing socket at one end, a bracket with a complemental ball-bearing socket and on which bracket said sleeve is mounted, a coned-end rotatable shaft mounted in said sleeve and bracket, and carrying pins, one adapted to engage said tongue or projection and the other carrying a wind-wheel, a pivotal locking device provided with a recessed projection and a thumb-piece, and said device adapted to engage said tongue or projection, substantially as and for the purposes described.

3. The combination with a wind-wheel mounted on a rotatable shaft, of a bell and its actuating mechanism for periodically sounding said bell through the rotation of said shaft and a locking device for throwing the bell hammer or clapper out of range of said bell to permit of the rotation of said shaft by said wind-wheel without the sounding of said bell, substantially as and for the purposes described.

4. The combination with a wind-wheel mounted on a rotatable shaft provided with a pin, of a bell and a hammer or clapper having a retracting-spring connected therewith and a tongue and a locking device provided with a finger-piece, and an angular projection adapted to engage said tongue, substantially as and for the purposes described.

590,434. JOURNAL-BOX. FREDERICK H. GARNER, Brooklyn, N. Y. Filed Apr. 6, 1897. Serial No. 630,946. (No model.)

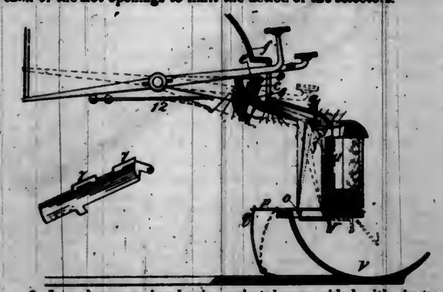


Claim.—The combination of a journal-box 5, and axle 7, said journal-box having an annular flange 19, provided with a central circular opening through which the said axle is adapted to pass, said box having a recess 11 in the upper inner side of the outer end thereof, said axle having a reduced extension thereby forming an annular shoulder 18, the vertical surface of which is on a plane within the said annular flange 19, whereby an annular recess 20 is formed, a cap or cover 12 adapted to engage said recess 11, and means for holding the same in place said cap or cover being cut away adjacent to the outer edge thereof, whereby an annular recess 21 is formed, a plurality of rollers mounted upon said extension of the axle within said journal-box, and adapted to bear at the ends thereof upon the shoulder of said axle and upon the said end plate 12, whereby the said rollers are held in longitudinal position by the said shoulder on the axle and a portion of the said end plate adjacent to the cut-away portion, substantially as and for the purpose described.

590,435. AUTOMATIC CHANGE-MAKER. GEORGE W. HOLLINSWORTH, Cincinnati, Ohio. Filed Nov. 16, 1896. Serial No. 591,896. (No model.)

Claim.—1. In a change-maker having coin-tubes the combination therewith of a set of keys a transverse bar operated by the keys, a set of selectors attached to said bar with projections arranged slightly above said bar to first engage the keys; and trips which upon movement of the bar engage the ejector-slides.

2. In a change-maker having coin-tubes provided with ejector-slides and receiving slot-openings, the combination therewith of a set of keys, a set of slide-selectors operated by the keys and arm across each of the slot openings to limit the action of the selectors.



3. In a change-maker having coin-tubes provided with ejector-slides and receiving coin-slots, the combination therewith of a set of keys a set of slide-selectors operated by the keys an arm across each of the slots and mechanism to communicate the action of one of the slot-arms to the slot-arm of the next higher denomination.

4. In a change-maker having coin-tubes with receiving-slots and ejector-slides, keys and selectors for the proper discharge of coins the combination therewith of a set of arms one across the receiving-slot of each tube, a jointed shaft to which the slot-arms are attached to prevent discharge from one or more of the tubes.

5. In a change-maker having coin-tubes with ejector-slides and receiving coin-slots the combination therewith of a jointed shaft or rods each with cams operating the next and each section of said shaft having an arm in the coin-slots, bell-cranks connected with each slide and pivoted eccentrically on the several sections of the shaft and key-operated trips engaging the slides through the bell-cranks as and for the purpose described.

6. In a change-maker having coin-tubes provided with ejector-slides and receiving-slots, a set of key-operated trips and selectors, the combination therewith of shiftable arms attached to the ejector-slides and engaging the trips, and a second set of arms in the receiving-slots and attached to the slide-arms to shift the latter from normally engaging with the trips for the purpose described.

7. In a change-maker with coin-tubes provided with ejector-slides and coin-slots also keys, trips and arms operating the ejector-slides the combination therewith of a shiftable five-cent trip, a shiftable five-cent arm engaging the trip and ejector-slide; and a ten-cent-receiving arm; also an arm attached to said receiving-arm and also attached to the shiftable five-cent arm to shift the position of the latter relative to the normal and temporary position of said trip or any simple mechanism to reverse the action of the five-cent trip when a dime is received.

8. In a change-maker having coin-tubes with receiving-slots and ejector-slides the combination therewith of a set of key-operated trips, shiftable slide-arms engaging the trips and arms or other mechanism in the slot-openings to shift the slide-arms, a sectional shaft to which the slot-arms are attached, cams attached to each section of the shaft to operate the next section so as to shift the slide-arms of greater nominal value, and mechanism attached to the ten-cent-slot arm to reverse the action of the five-cent trip, all substantially as described.

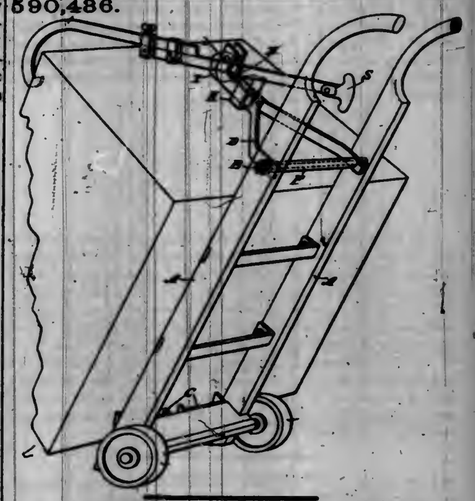
590,436. TRUCK. PHILIP J. MARVEL and JOSEPH H. MARVEL, Atlantic City, N. J. Filed Mar. 6, 1896. Renewed Apr. 3, 1897. Serial No. 630,669. (No model.)

Claim.—1. The combination with a truck, substantially as illustrated, of a swinging arm pivoted at its lower end, a disk eccentrically pivoted to the upper end of said arm, a grapple carried by said disk, and means for preventing said disk from turning upon its pivot, all substantially as and for the purposes set forth.

2. The combination with a truck, substantially as illustrated, of a swinging arm pivoted at its lower end, a disk eccentrically pivoted to the upper end of said arm, a slot in said disk, a grapple the arm of which passes through said slot, teeth upon the periphery of said disk, and a pawl pivoted to said arm adapted to engage said teeth, all substantially as and for the purposes set forth.

3. The combination with a truck substantially as illustrated of an arm or upright carried by said truck, a disk eccentrically pivoted to the upper end of said arm, a grapple carried by said disk, and means for preventing said disk from turning upon its pivot when the grapple is in use.

590,486.



590,487. TRUCK. JOSEPH H. MARVEL and WILLIAM H. PIERSON, Atlantic City, N. J. Filed Jan. 16, 1896. Serial No. 575,663. (No model.)



Claim.—1. The combination with a truck, substantially as illustrated, of a swinging arm pivoted at its lower end, a hook or grapple carried by the upper end of said arm and capable of being vertically rocked thereon, and means whereby said grapple will be locked to said arm and prevented from rocking when said grapple is in operation.

2. The combination with a truck, substantially as illustrated, of a swinging arm pivoted at its lower end, a grapple pivoted to the upper part of said arm, and a sliding dog carried by the inner end of said grapple adapted to engage said swinging arm to prevent said grapple from turning upon its pivot, substantially as and for the purposes set forth.

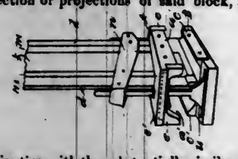
3. The combination with a truck of a swinging arm pivoted at its lower end, an arm forming a grapple pivotally carried by the upper end of said swinging arm, means for locking said grapple to said swinging arm, and catches carried by the sides of said truck adapted to be thrown into or out of operative position substantially as described.

590,488. CABLE-CAR GRIP. THOMAS MILLER, New York, N. Y. Filed May 13, 1897. Serial No. 636,407. (No model.)

Claim.—1. The combination with one of the jaws of a cable-grip, of a block *e* secured substantially at each end of the gripping-surface of said jaw and provided with lugs *w* extending beyond and situated outside of said gripping-surface, said jaw being provided with a depression to receive the block, substantially as described.

2. The combination with one of the jaws of a cable-grip, of a block *e* riveted substantially at each end of the gripping-surface of

said jaw and provided on its outer face with lugs *e* extending beyond and situated outside of said gripping-surface and on its opposite face with a projection or projections, said jaw being provided with a depression or depressions corresponding with and adapted to receive the projection or projections of said block, substantially as described.



3. The combination with the substantially similar jaws of a cable-grip, of grooved oppositely-arranged dies carried upon the opposing faces of said jaws and terminating short of the ends thereof, and a block *e* secured in the unoccupied space of the lower surface at each end of said upper jaw and provided with downwardly-extending lugs arranged outside of the gripping-surfaces of said dies and projecting beneath said gripping-surfaces, substantially as described.

4. In a cable-grip, the detachable guide-block *e* provided with suitable corner-shoulders as *h*, arranged to fit the transverse depressions in the ends of the jaw A so as to take up the lateral thrust or strain, and suitable bolts for holding the said blocks in place, substantially as described.

590,439. BICYCLE-SEAT. CHARLES B. MCDONALD, Chicago, Ill. Filed Aug. 24, 1896. Serial No. 603,751. (No model.)



Claim.—1. In a bicycle, the seat A, approximately semicircular in outline and comprising the bottom portion A', having the forwardly-projecting pommel A^2, and the upwardly-extending flange A^3 arranged around the rear and sides of the seat and tapering downward toward the body of the seat as it approaches the front, said flanges terminating some distance in rear of the pommel portion, a spring-bracket mounted transversely of the bicycle and consisting of outwardly-extending arms having their outer ends bent upward near the side edges of the seat, and a pivotal connection between the bent ends of the bracket-arms and side flanges of the seat, the said bent portions of the bracket-arms lying close to the under side of the seat and acting as stops to limit the forward and backward tilting of the latter, substantially as described.

2. In a bicycle, the seat A, approximately semicircular in outline and comprising the bottom portion A' having the forwardly-projecting pommel A^2, and the upwardly-extending flange A^3 arranged around the rear and sides of the seat and tapering downward toward the body of the seat as it approaches the front, said flanges terminating some distance in rear of the pommel portion, a spring-bracket mounted transversely of the bicycle and consisting of outwardly-extending arms having their outer ends bent upward near the side edges of the seat, a pivotal connection between the bent ends of the bracket-arms and side flanges of the seat, the said bent portions of the bracket-arms lying close to the under side of the seat and acting as stops to limit the forward and backward tilting of the latter, and a looped spring-wire having its ends twisted around the bracket and its looped portion extending backward and upward, and acting upon the under side of the seat-body in rear of its point of pivotal connection with the bracket to normally hold the seat in its forward-tilted position, substantially as described.

3. In a bicycle, a seat, a spring-bracket mounted transversely of the bicycle and consisting of outwardly-extending arms having their outer ends bent upward near the side edges of the seat, and a pivotal connection between the bent ends of the bracket-arms and the sides of the seat, the bent portions of said bracket-arms lying close to the under side of the seat and acting as stops to limit the forward and backward tilting of the seat.

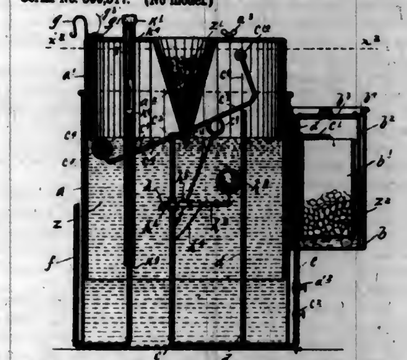
590,440. PUNCTURE-BURNING DEVICE. JOHN E. NEWTON, Minneapolis, Minn., assignor of two-fifths to Oliver J. H. Martin, same place. Filed Jan. 11, 1897. Serial No. 618,743. (No model.)

Claim.—1. The combination with a hand-operated air-pump serving also as a handle, of a puncture-burning attachment involving, a lamp, a projecting burning rod or finger, and a blowpipe securable at its receiving end to the delivery portion of said pump, said parts being so related that the blast from said blowpipe will blow the flame from said lamp against said burning rod or finger, substantially as described.



2. The combination with the pump involving the cylinder 1 and piston 3 4 the stem 3 of which terminates in screw-threads 5, of the puncture-burning attachment involving the lamp *a b*, the burning-finger *f* and the blowpipe *g* provided with the socket *g'* removably securable to said screw-threads 5, said parts being related and operating substantially as described.

590,441. ACETYLENE-GAS GENERATOR. DELBERT J. REYNOLDS, Winnebago, Minn., assignor, by mesne assignments, to the Walmsley, Fuller & Company, Chicago, Ill. Filed July 17, 1896. Serial No. 599,517. (No model.)



Claim.—1. The combination with an expansible gasometer, of a generating-chamber, a dipper movable into and out of a body of liquid by the movement of said gasometer, and a liquid-conveying pipe or connection between said dipper and said generating-chamber, substantially as described.

2. The combination with a pair of telescoping tank-sections, of a generating-chamber, a liquid-conveying pipe leading from said tank to said generating-chamber, and a dipper movable into and out of the liquid in said tank and having a hollow stem which is pivoted to and communicating with said liquid-conveying pipe, within said tank, and is operated by the movement of the movable tank-section, substantially as described.

3. The combination with a pair of telescoping tank-sections, of a generating-chamber exterior thereof, a liquid-conveying pipe extending from said tank to said generating-chamber, a dipper having a hollow stem pivoted to and communicating with said liquid-conveying pipe, and an extended arm projecting from the stem of said dipper and cooperating with the movable tank-section to throw said dipper into and out of the liquid of said tank, substantially as described.

4. The combination with a pair of telescoping tank-sections, of a generating-chamber exterior thereof, a liquid-conveying pipe extending from said tank to said generating-chamber, a dipper having a hollow stem pivoted to and communicating with said liquid-conveying pipe, and an extended arm projecting from the stem of said dipper and provided with a yielding or spring-mounted end adapted for cooperation with the movable tank-sections, substantially as described.

5. The combination with the telescoping tank-sections, of the generating-chamber exterior of the same, the water-conveying pipe *c* extending from said tank to said generating-chamber, and the pivoted lever pivoted to the upper tank end of said pipe *c*, comprising the pivoted T-head c^3, dipper and dipper-arm c^3, c^4, and spring-arm c^7, c^8 c^9, and the flexible connection c^{11}, for limiting the upward movement of said spring-arm, substantially as described.

6. In a gas apparatus, the combination with the sections of an expansible gasometer or tank, of an alarm device operated by an extreme inward movement of the movable tank-section, to indicate when one of the gas-producing substances has been exhausted or rendered unavailable for generating purposes, substantially as described.

7. In a gas apparatus, the combination with a pair of telescoping tank-sections, of an electric circuit, the broken terminals of which are connected to contact-pieces secured one to each of the tank-sections and adapted to be engaged by an extreme inward movement of the movable tank-section, and an electrically-operated sounding device in said electric circuit for indicating when one of the gas-producing substances has been exhausted.

8. The combination with an expansible gasometer, of a generating-chamber, a water-conveying passage between said gasometer and generating-chamber, a valve in said passage, and means operated by an extreme contracted movement of said gasometer to open said valve and flood said generating-chamber, substantially as described.

9. The combination with an expansible gasometer or storage-tank, of a generating-chamber exterior thereof but in communication therewith through a gas pipe or passage, and also through a water-pipe which has a valved opening below the water-level of said tank, a valve-controller normally holding the valve of said passage closed but adapted to be actuated by an extreme downward movement of the movable section of said tank to open said passage, substantially as described.

10. The combination with an expansible gasometer or storage-tank, of a generating-chamber exterior thereof but in communication therewith through a gas pipe or passage, and also through a water-pipe which has a valve-opening below the water-level of said tank, a lever on said valve-stem, an air-bulb or float on the free end of said lever, and a striking surface or projection carried by the movable section of said tank, adapted to engage said lever, substantially as described.

11. The combination with a generator and storage tank or holder, of a feed device regulating the water-flow into said generator and controlled by said storage tank, a flooding device, involving a communicating passage between said generator and holder, a valve normally closing said passage, a float tending to hold said valve closed, and a part moved by the pressure of the generated gas, arranged to open said valve, against the action of said float, by an extreme movement of said part caused by the stopping of the automatic generating action at the complete or nearly complete exhaustion of one of the gas-producing substances, substantially as described.

590,442. DEVICE FOR FORMING SEAMLESS TOOTH-CROWNS. LAMBIE S. SKIFF, Salem, Oreg., assignor to Joseph F. Twist, San Francisco, Cal. Filed Oct. 22, 1896. Serial No. 609,713. (No model.)



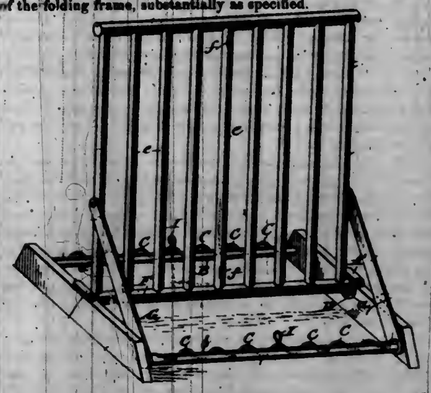
Claim.—An apparatus for the formation of seamless tooth-crowns consisting of a mandrel having a facsimile of the natural tooth formed on its end, a die formed in the line of the grain and plane of the meeting faces of two united wooden blocks, the bottom of the die pressed into exact conformity with the facsimile of the tooth at the end of the mandrel, and means for guiding and clamping the die-blocks together as set forth.

590,443. FOLDING BICYCLE-RACK. ABNER F. TEMPLE, Muskegon, Mich. Filed July 31, 1896. Serial No. 601,222. (No model.)

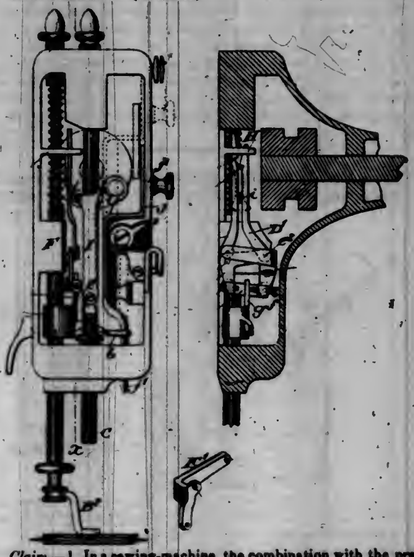
Claim.—1. In a folding bicycle-rack, the combination with the side bars formed with recesses in their inner sides, the curved springs seated in said recesses having their ends turned outwardly, and the parallel end rods connecting said side bars, provided with wheel-holding projections, of the folding frame consisting of the parallel bars between which bicycle-wheels are adapted to engage, the connecting-bars and the links pivotally connected with said folding frame and one of the rods connecting said side bars, substantially as described.

2. In a folding bicycle-rack, the combination with the side bars having recesses in their inner sides, the curved springs seated in said recesses with outwardly-turned ends, the connecting-rods formed with longitudinal slots in their upper sides, and the corrugated wires seated in said slots forming a series of wheel-holding projections, of the folding frame comprising a series of vertical bars, a top connecting-bar, a bottom connecting-bar having its ends embraced by said springs, the pivoted turn-buttons and the links pivotally connected with the outer vertical bars of said frame and with one of the slotted rods, substantially as described.

3. In a folding bicycle-rack of the character described, the combination with the side bars and the folding frame, of the rods connecting said side bars, formed with longitudinal slots in the upper sides, the corrugated wires or bars seated in said slots forming upwardly-extending wheel-holding projections, the wire loops secured to said wires adapted to engage with slots in one of the vertical bars of the folding frame, substantially as specified.



590,444. BOTTONHOLE ATTACHMENT FOR SEWING-MACHINES. ERWIN J. TEUF, New Haven, Conn. Filed July 31, 1888. Serial No. 281,509. (No model.)



Claim.—1. In a sewing-machine, the combination with the presser-bar, a vibrating device engaging with said presser-bar or part thereof to operate the same and vibrate the foot carried thereby, vertically-arranged operating-levers connected with said vibrating device and operated by an arm or device carried by the needle-bar, means for moving said arm or device to or from operative position for engagement with said levers, and a cloth-holder for connection with said vibrating presser-foot, substantially as described and for the purpose set forth.

2. In a sewing-machine, the combination with the presser-bar, a vibrating device engaging with said presser-bar or part thereof to operate the same and vibrate the foot carried thereby, means whereby the distance of vibration of said foot may be regulated or adjusted, vertically-arranged operating-levers connected with said vibrating device and a movable arm carried by the needle-bar for operating said levers, and a cloth-holder having connection with said vibrating presser-foot, substantially as described and for the purpose set forth.

3. In a sewing-machine, the combination with the presser-bar having an arm or projection thereon, a vibrating device engaging with said arm or projection to operate the presser-bar and vibrate its foot, operating-levers having connection with said vibrating device, a movable arm or device carried by the needle-bar, means for

moving said movable arm into or from position for engaging said operating-levers, and a cloth-holder connected with and operated by the vibrating presser-foot, substantially as described and for the purpose set forth.

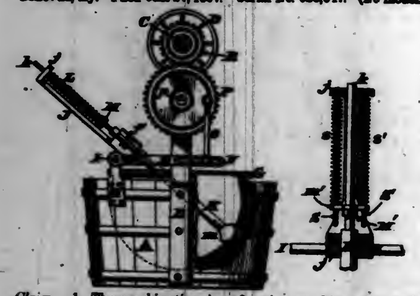
4. In a sewing-machine, the combination with the presser-bar, a vibrating device for engaging with said presser-bar or part thereof to operate the same and vibrate the foot carried thereby, vertically-arranged operating-levers connected with said vibrating device, a movable device carried by the needle-bar for engaging with and operating said levers, means for moving the same into or from position for operating said levers, a device for locking the presser-bar from rotary movement, and a cloth-holder, substantially as described and for the purpose set forth.

5. In a sewing-machine, the combination with the presser-bar provided with an arm or extension projecting therefrom, a vibrating device engaging with said presser-bar or part thereof to operate the same and vibrate its lower extension or foot, operating-levers connected with said device, a movable device carried by the needle-bar adjustably held in position for engaging with and operating said levers, a sliding device for releasing said movable device from its operating position and engaging with the said arm or extension of the presser-bar, and a cloth-holder, substantially as described and for the purpose set forth.

6. In a sewing-machine, the combination with the presser-bar, a vibrating device for operating said presser-bar to vibrate its foot, operating-levers connected with said vibrating presser-bar, a pivoted arm carried by the needle-bar for engaging with and operating said levers, a spring for elastically holding said pivoted arm from operative position, a sliding device for moving said arm into operative position, and a cloth-holder for connection with the presser bar or foot, substantially as described and for the purpose set forth.

7. In a sewing-machine, the combination with the presser-bar, of means for operating the same to impart a vibrating movement to the foot or device carried thereby, operated by an arm or device carried by the needle-bar, means for holding said device carried by the needle-bar in, and away from, operative position for engaging with said presser-bar-operating means, and a cloth-holder for connection with the presser-foot, substantially as described and for the purpose set forth.

590,445. ICE-CREAM FREEZER. THEODORE WOERNER, Sr., Bellevue, Ky. Filed Jan. 27, 1897. Serial No. 620,847. (No model.)



Claim.—1. The combination, in a freezing-machine, of a stationary outer receptacle; a cream vessel revolving therein; a vibrating stirrer mounted angularly upon said outer receptacle, and capable of automatically shifting longitudinally, so as to keep its lower end in yielding contact with the interior of said cream vessel, and devices that operate said vessel and stirrer from a common driving-shaft, all as herein described, and for the purpose stated.

2. The tub A provided with standards B, B', and H, H': the shaft C journaled in the standards B B', and furnished with wheels *e* R; the freezing vessel G, revolving within said tub and secured to a shaft F, having a bevel-wheel *f* engaged with the bevel-wheel *e;* the rock-shaft I journaled in the standards H H', and carrying the stock J *j j';* the automatically longitudinally-shiftable stirrer K *k*, fitted to said stock; the lever N fastened to said rock-shaft I, and slotted longitudinally at *n;* and the rod O connecting said lever to a wheel P, driven by the wheel R of shaft C, all as herein described, and for the purpose stated.

590,446. BRAKE MECHANISM. BENJAMIN WOLHAUPTER, Morgan Park, Ill. Filed Dec. 22, 1892. Serial No. 454,412. (No model.)

Claim.—1. In a brake mechanism the combination with the brake-levers and the connection-rods, and a lifting-lever arranged to lift the car-body, of a lever beyond the last brake-lever of the system and to which said last brake-lever and the lifting-lever are connected, substantially as described.

2. In a brake mechanism the combination with the brake-lever, the connecting brake-rods and a lever arranged to lift the car-body and forming a fulcrum for the brake-lever of an extra lever located between said brake-lever and the lifting-lever and forming the connection for the two, substantially as described.



3. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a lever arranged to lift the car-body of an extra lever fulcrumed to a stationary portion to which said brake-lever and the lifting-lever are connected, substantially as described.

4. In a brake mechanism the combination with the brake-lever and the lifting-lever of an extra lever to which both the brake-lever and lifting-lever are connected the leverage length of the arms of said extra lever being adjustable or variable, substantially as described.

5. In a brake mechanism the combination with the brake-lever and the lifting-lever arranged to lift the car-body, of an extra lever adjustably fulcrumed to a stationary portion, both the brake-lever and the lifting-lever connected to said extra lever, substantially as described.

6. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a lifting-lever arranged to lift the car-body of an extra lever fulcrumed to a stationary portion, one end of said lever connected to the brake-lever, and the lifting-lever engaged to said extra lever at a point between its fulcrum and the connection with the brake-lever, substantially as described.

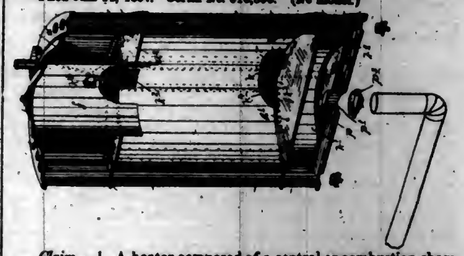
7. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a bell-crank lever arranged to pry the car and truck apart, of an extra lever connected with the brake-lever and engaged directly to the power-arm of said bell-crank lever, substantially as described.

8. In a brake mechanism the combination with the mechanism arranged to set the brakes of a bell-crank lever located in said braking mechanism, the weight-arm of said bell-crank lever adapted to bear directly upon the inverted-U-shaped piece which bears upon the truck-bolster, substantially as described.

9. In a brake mechanism the combination with the mechanism arranged to set the brakes of a bell-crank lever located in said braking mechanism, said bell-crank lever fulcrumed in a block secured to and supported by the car-transom and adapted to bear directly on a piece extending from the truck-transom, substantially as described.

10. In a brake mechanism the combination with the block K on the car-transom of the lever J fulcrumed in said block by the projections *k* entering recesses *k'* in the block, the weight-arm of said lever bearing on a piece extending to the truck-transom, substantially as described.

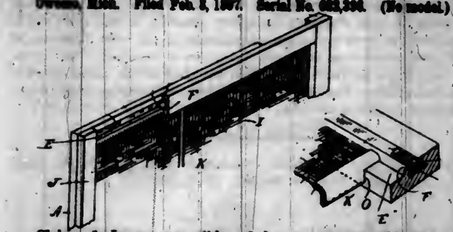
590,447. HEATER. CHARLES W. ALDRICH, Minneapolis, Minn. Filed Jan. 11, 1897. Serial No. 618,999. (No model.)



Claim.—1. A heater composed of a central or combustion chamber and top and bottom radiating-chambers, with the flues for the products of combustion, disposed to pass the same first downward into the bottom radiator, thence completely around the same, thence upward to the top radiator, thence completely around the top radiator and out to the chimney-flue, substantially as described.

2. The combination with a heater and a fresh-air intake or supply pipe of air circulating and heating tubes within said heater, some of which open below and above into the room, and certain of which are provided with means interchangeably and independently usable for drawing their supply of air either from said intake or from the room, at will, substantially as described.

590,448. EXTENSIBLE WINDOW-SCREEN. ALVIN M. BENTLEY, Owosso, Mich. Filed Feb. 8, 1897. Serial No. 622,396. (No model.)

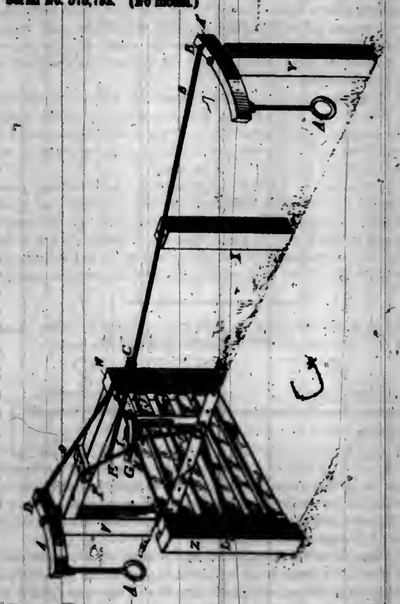


Claim.—1. In an extensible window-screen, two three-sided wooden frames slidingly secured together by means of interlocking devices on the parallel bars of the frame, having securing-slots in their inner faces for the cross-bars, a connection between the end of the bars of each of said frames consisting of a metallic bar formed by bending a doubled sheet-metal blank into an angle-bar, the wire screen secured within said bar, and said bar secured in the frames by engaging one member of the angle in slots in the inner faces of the frame-bars, the other member lying along the inside face thereof.

2. In an extensible window-screen, having two three-sided wooden frames slidingly secured together, of connecting-bars to form the fourth side of such frames, made of doubled sheet metal bent into angle shape, the wire-cloth having its edge bent within said bar, the rails of the frames having gains on their inner edges, and securing-slots at an angle thereto, the ends of the angle-bars having one member engaging in the slots, and the other member lying in the gains of the rails for the purpose described.

3. In an extensible window-screen having two three-sided wooden frames slidingly secured together by means of interlocking devices on the parallel bars, of said parallel bars having securing-slots in their inner faces for the inner cross-bars, having a longitudinal groove undercut on one side only, a marginal gain E and an intermediate bead F between, of blocks having a V-shaped groove cut in one face only, fitting in the groove in each bar, of connecting-bars for the outer end of the wire-cloth extending between the bars, in the shape of angle-bars and formed of doubled sheet metal, with the wire-cloth within, one member of the angle-bar being engaged in a slot in the inner faces of the sliding bars of the frame and the other member thereof lying in the gain in the side bars, substantially as described.

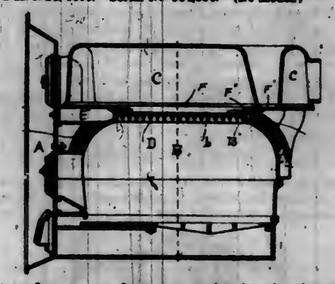
590,449. FARM-GATE. ANDREW J. BROWN and JOHN K. DRAKE, Franklin, Ind.; said Brown assignor to said Drake. Filed Jan. 16, 1896. Serial No. 575,782. (No model.)



Claim.—The combination with a gate provided with an angular latch-rod L, K terminating above the gate in curve I and carrying also a curved lever G pivoted to a projecting bar M, of the connecting-rod F pivoted at one end in a slot near the free end of curved lever N and at the other upon a support between posts V and W, operating-levers A, A, and rods B, D, all arranged and cooperating substantially as shown above

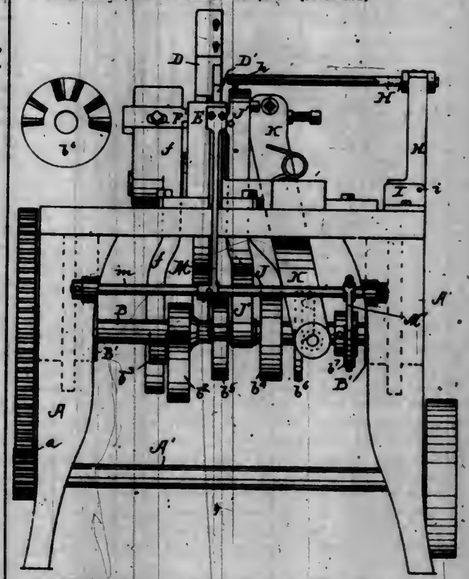
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590,450. FURNACE OR STOVE. STEPHEN T. BAYOR, Toledo, Ohio. Filed Mar. 21, 1896. Serial No. 584,350. (No model.)



Claim.—In a stove or furnace, a combustion-chamber, a radiator-chamber in communication therewith, an outer rib and an inner rib extending upwardly and downwardly from the casing comprising the combustion-chamber and the radiator-chamber, respectively, said ribs when in communication forming an air-chamber surrounding the contracted opening between the radiator-chamber and the combustion-chamber, the outer ribs being in vertical alinement and in engagement with each other, the inner ribs being in vertical alinement and slightly apart, a passage communicating with the outside of the furnace and the air-chamber, and vertical ribs extending outwardly from the exterior of the shell of the combustion-chamber and extending from a point substantially centrally of the same and connected with the outer upwardly-extending rib which forms the air-space to act as a support for the rib.

590,451. TOE-CALK MACHINE. EUGENE CHILDS and WILLIAM SAMPSON, Boston, Mass., assignors to Franklin W. Pitcher, same place. Filed Jan. 31, 1896. Serial No. 577,499. (No model.)



Claim.—1. In a toe-calk machine, the recessed anvil-block, having a calk-forming ledge, and the cutter and reversible anvil for cutting and forging, secured to said block, in combination with a clamp for holding flat the heated end of the bar, movable dies for forming a spur upon its forward end, and a cutting-die for severing the calk, substantially as set forth.

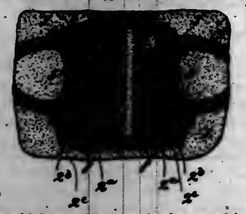
2. In a toe-calk machine, the anvil-block, the clamp serving to hold the heated bar thereon, the spur-forging dies and the cutter.

in combination with a movable support for the hot end of the bar before and after the calk is severed, such support being withdrawn out of the way of the pincers when required, substantially as set forth.

3. In a toe-calk machine, the anvil-block, the clamp and bar-support, and the forging-dies and cutters, in combination with an adjustable pivoted stop consisting of a normally vertical standard pivoted to the frame, an adjustable horizontal arm extending from said standard toward the dies, and a vertical finger depending from said arm to engage the end of the stock, substantially as set forth.

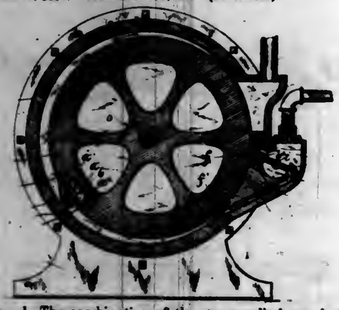
4. In a toe-calk machine, the anvil, stop, clamp, forging-dies and cutters, in combination with a push-off mechanism, comprising the reciprocating rods L working through and near the anvil-block, the retracting-spring L' surrounding said rods, the standard *l* serving to support said rods and control said spring, and with the vibrating lever M *m* M' and its cam *b'* serving to give a quick stroke to the push-off rods, the stop N limiting the rearward movement of the lever, substantially as set forth.

590,452. MOLD FOR CASTING CAR-WHEELS. JAMES CONNOLLY, St. Louis, Mo., assignor to the Missouri Car and Foundry Company, same place. Filed Feb. 1, 1897. Serial No. 621,585. (No model.)



Claim.—A mold for casting car-wheels comprising a central core 2, formed with a vertical portion having a gate 7, and with a conical base 2^a having runners 8, and projections 2^b located over the runners, extending beyond and overhanging the wall of the base to lessen the space between the base of the core and the mold and thus decrease the thickness of the sprue connections between the sprue and the casting whereby the said sprue connections are weakened; substantially as described.

590,453. ROTARY ENGINE. RILEY H. COON, Canastota, N. Y. Filed Feb. 8, 1897. Serial No. 622,480. (No model.)



Claim.—1. The combination of the steam-cylinder and the piston-cylinder pivoted at its center eccentric in said steam-cylinder and disposed with one point of the peripheries of said cylinders in contact with each other, a piston pivoted to the periphery of the piston-cylinder, the exhaust-port at one side of the point of contact of the cylinders, a steam-chest provided with an annular valve-chamber having two steam-ports communicating with the steam-cylinder at different distances from the opposite side of the aforesaid point of contact, a shaft pivoted central in said valve-chamber, two valves fixed to said shaft and traversing respectively the two steam-ports, the steam-pipe communicating with the aforesaid valve-chamber, a crank on the end of the valve-shaft, an eccentric receiving motion from the piston-cylinder, and a rod transmitting motion from said eccentric to the aforesaid crank as set forth.

2. The combination of the steam-cylinder, piston-cylinder pivoted at its center eccentric in said steam-cylinder and disposed with one point of the peripheries of the two cylinders in contact with each other, and the piston pivoted to the periphery of the piston-cylinder, the exhaust-port at one side of the point of contact of the two cylinders, a steam-chest provided with an annular valve-chamber having two steam-ports in different parts of the periphery thereof and communicating with the steam-cylinder at different distances from the opposite side of the aforesaid point of contact, a shaft pivoted in opposite ends and central of the said valve-chamber, the steam-pipe leading to said chamber, two valves attached to said shaft and in positions to cause the steam-port adjacent to the point of contact of the two cylinders to be opened in advance of the other of said ports, a centrifugal governor actuated by the shaft of the piston-cylinder, and mechanism transmitting motion from said governor to the aforesaid valve-shaft as set forth.

590,454. NUT-LOCK. CHARLES P. ELLIS, Franklin, Pa. Filed Dec. 1, 1896. Serial No. 614,040. (No model.)



Claim.—1 A nut-lock consisting of an angled plate carried and retained upon nuts having a reduced cylindrical portion, adapted to engage said nuts laterally, and a removable wedge for retaining it in engagement therewith.

2. In a nut-lock, the combination of nuts 5, screwed upon bolts 4 into contact with washers 6, the angled plate 8 carried upon the reduced portion of said nuts, and the filler-block 10 inserted between said angled plate 8 and washers 6.

590,455. SEAT-POST FOR BICYCLES. ANDREW C. GOODENOUGH, Rochester, N. Y., assignor to Florence E. Goodenough, same place. Filed Sept. 2, 1896. Serial No. 604,642. (No model.)



Claim.—1. A seat-post for a bicycle, formed with a drum, a seat-arm formed with a drum, and connectors for said drums, in combination with springs in said drums, pressed by the connectors, and controlling-screws for said springs, held by said drums, substantially as specified.

2. A seat-post for a bicycle, formed with a drum, a seat-arm formed with a drum, and connectors for said drums, in combination with springs in said drums pressed by the connectors, and controlling adjusting-screws for said springs, held by said drums, said springs each being formed with a return-bend at the middle and reverse sections or parts at either side of said return-bend, substantially as shown and described.

3. A seat-post for a bicycle, provided with a movable seat-arm, and a seat for the seat-arm, the post being formed with a spring-holding drum, in combination with a spring in said drum pressed by said seat-arm, and a controlling-screw for said spring, held by said post, substantially as shown and described.

4. A seat-post for a bicycle, formed with a hollow drum, a seat-arm formed with a hollow drum, and connectors for the ends of said drums, said connectors having heads adapted to occupy the respective spaces in said drums, in combination with springs in the drums, held by said connectors, and controlling-screws for the springs, held by the respective drums, substantially as and for the purpose specified.

590,456. RAILWAY CROSS-TIE. ORVILLE M. KNOX, Oneida, N. Y. Filed Jan. 13, 1897. Serial No. 619,006. (No model.)

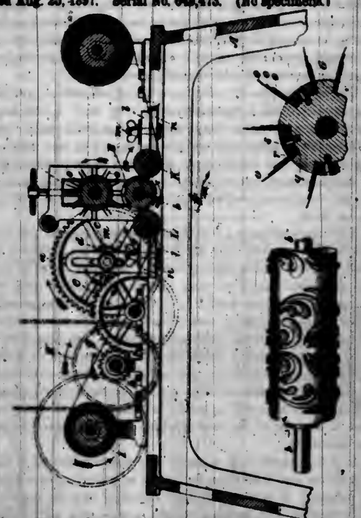


Claim.—1. A metallic railway cross-tie composed of a rolled steel or iron bar of inverted-T shape in cross-section, and separate stay-plates secured to the under side of said bar at opposite sides of the vertical web thereof and extending across the ends and part way the length of the bar as set forth.

2. The improved metallic railway cross-tie consisting of a rolled steel bar of inverted-T shape in cross-section from end to end thereof, and separate L-shaped stay-plates disposed at the end of said bars and vertically at opposite sides of the vertical web thereof, each of said stay-plates being fastened with one of its walls to the side of the

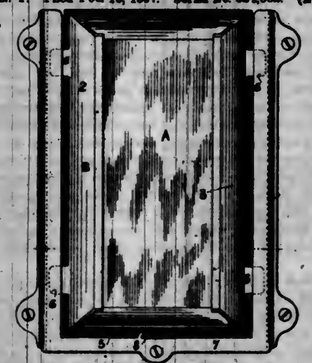
said web and extending with its other wall laterally from the web and abutting against the under side of the horizontal portion of the bar as set forth and shown.

590,457. METHOD OF ORNAMENTING OR DECORATING FABRICS. JOHN LANCASTER and CHARLES WITTKOP, New York, N. Y. Filed Aug. 25, 1897. Serial No. 649,473. (No specimens.)



Claim.—The herein-described method of decorating completed fabrics which consists in displacing the weft-threads laterally in the plane of a completed fabric, and thereupon bringing the displaced portion of fabric against a plain portion of fabric so that the threads of the plain and displaced portions cross each other and then calendering the two layers of fabric, whereby the displaced portion will produce upon the plain portion a figure corresponding to the configuration of the displaced portion.

590,458. SALT-HOLDER FOR CATTLE. HENRY A. LEE, Brooklyn, N. Y. Filed Feb. 18, 1897. Serial No. 624,002. (No model.)



Claim.—1. The salt-holder for cattle composed of a rectangular frame open at the back to receive the block or brick of salt and having sides that fit or retain the salt, and integral bars at the top and bottom connecting the sides of the frame at the back portions whereby the cross-bars are not in the way of the tongue of the animal in licking the salt, substantially as set forth.

2. The salt-holder for cattle composed of a rectangular frame open at the back to receive the block or brick of salt and having sides that fit or retain the salt, and integral bars at the top and bottom connecting the sides of the frame at the back portions whereby the integral bars are not in the way of the tongue of the animal in licking the salt, there being projections or flanges at the edges in combination with vertical slides adapted to being secured to the wall or partition and into which the frame and block of salt are slid from the top downward, substantially as set forth.

3. The salt-holder formed of an open frame for receiving the brick or block of salt from the back, the sides of the frame being inclined toward each other and corresponding to the trapezoidal shape of the block or brick, the top and bottom bars of the frame connecting the sides and being at the rear portions of the frame so as to be out of the way of the tongue of the animal in licking the salt, and vertical slides for receiving the frame and holding the same in position, substantially as set forth.

590,459. REFRIGERATING-PIPE COVERING. ROBERT W. LYLE, Philadelphia, Pa., assignor to the Marsden Company, Camden, N. J. Filed Oct. 24, 1895. Renewed Feb. 20, 1897. Serial No. 624,469. (No model.)



Claim.—1. An insulating-covering for refrigerating and similar pipes, consisting of a sheet or layer of hair felt completely enveloped or inclosed by a thin layer or coating of asphaltic material, substantially as and for the purposes set forth.

2. An insulating-covering for brine and similar refrigerating pipes, consisting of a sheet or layer of hair felt completely enveloped or inclosed by a thin layer or coating of pliable, elastic, waterproofing material and backed with a layer of fibrous textile material, substantially as and for the purposes set forth.

590,460. DENTAL APPLIANCE. CHARLES F. C. MERLIS, New York, N. Y. Filed June 11, 1897. Serial No. 640,285. (No model.)



Claim.—1. The combination with an adjustable standard and a plate to take a bearing beneath the chin, of a double bow-frame and curved plates connected therewith, said frame being adapted to engage the adjustable standard and with its plates to occupy a position in the mouth at each side of the teeth to hold away from the teeth the cheek and tongue, substantially as set forth.

2. The combination with an adjustable standard and a plate pivotally connected therewith and adapted to come beneath the chin, of a double bow-frame having downwardly-curved portions, an upwardly-curved portion at the back and an upwardly-curved portion at the front having adjacent and slightly-diverging portions adapted to engage the adjustable standard and opposite plates secured to the double bow-frame and conforming thereto at their lower edges and curved outwardly at their upper free edges, the one to come against and press outward the cheek and the other to extend over the edge of the tongue to keep the cheek and the tongue from contact with or proximity to the teeth operated upon, substantially as set forth.

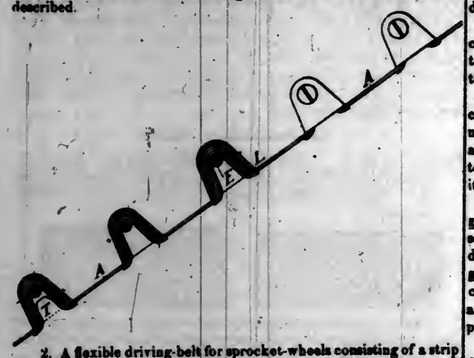
3. The combination with the double bow-frame and the opposite outwardly-curved plates connected therewith, of a sleeve to receive and engage the end of the frame, a rod to which the sleeve is connected, a tube receiving the rod and in which the same is vertically movable, a plate pivoted to the base of the rod and adapted to swing, and a means for connecting the rod and the sleeve in the desired position of adjustment, substantially as set forth.

4. The combination with the double bow-frame and the opposite outwardly-curved plates connected therewith, of a sleeve to receive and engage the end of the frame, a rod to which the sleeve is connected, a tube receiving the rod and in which the same is vertically movable, a plate pivoted to the base of the rod and adapted to swing, and a spring-actuated pawl pivoted to the tube and adapted to engage teeth made in the vertically-movable rod, and a means for connecting the rod and the sleeve in the desired position of adjustment, substantially as set forth.

590,461. DRIVING-BELT FOR SPROCKET-WHEELS. ERNEST A. PARKER, London, England. Filed May 12, 1897. Serial No. 636,128. (No model.)

Claim.—1. A flexible driving-belt for sprocket-wheels, consisting of a strip of metal provided with corrugations arranged to be entered by the sprocket wheel teeth, outer sockets or caps covering the cor-

rugations, and means for securing the same in place; substantially as described.



2. A flexible driving-belt for sprocket-wheels consisting of a strip of metal having corrugations, lining-pieces in said corrugations, outer sockets or caps covering the corrugations, and means for securing the lining-pieces and caps in place, substantially as described.

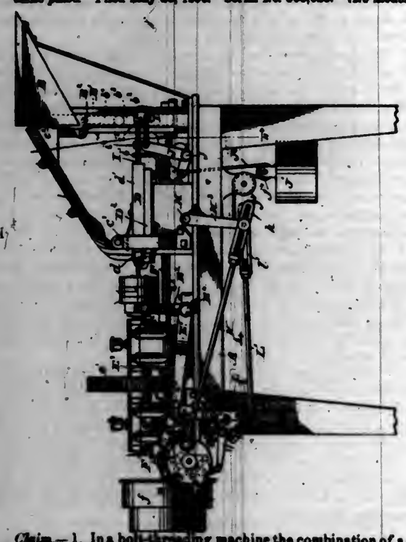
3. A flexible driving-belt for sprocket-wheels, consisting of a strip or ribbon of elastic metal having corrugations, lining-pieces in said corrugations, and outer sockets or caps covering the corrugations, the lining-pieces and caps being secured by screw-pins; substantially as described.

590,462. WIRE FENCE. SILAS PECK, Naples, N. Y. Filed Mar. 12, 1897. Serial No. 627,233. (No model.)



Claim.—In a wire fence the combination with the horizontal wire and the vertical stay or slat of a rigid wire loop or fastener having inclined hooked ends such rigid loop extending in contact with the side of the vertical stay or slat opposite to the horizontal wire and being removably and adjustably engaged with the horizontal wire by means of its inclined hooked ends so as to maintain a permanent and uniform grip upon the stay or slat during varying degrees of tension of the horizontal wire produced by changes in temperature.

590,468. AUTOMATIC BOLT-THREADING MACHINE. JAMES A. PLEFFER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed May 26, 1896. Serial No. 593,025. (No model.)



Claim.—1. In a bolt-threading machine the combination of a die-carrying chuck, bolt-moving devices adapted to be moved longitudinally to and from said chuck with a magazine-hopper provided with means for separating one or more bolts at intervals and a chute adapted to receive the bolts thus separated and deliver them to the said bolt-moving devices one by one, the said bolt-moving device adapted to shut off the surplus number of bolts in the bottom of said chute when moved longitudinally toward said chuck, substantially as described.

2. The combination in a bolt-threading machine of a die-carrying chuck with a bolt-gripping device and a weight suitably connected to said device whereby the said weight moves said device toward the said chuck, substantially as described.

3. The combination in a bolt-threading machine of a die-carrying chuck with a bolt-gripping device, a suspended weight suitably connected thereto whereby the said device is moved forward and means adapted to be moved at intervals and connected to said device and to said weight-suspending devices whereby the said device is given its retrograde movement, substantially as described.

4. The combination of a die-carrying chuck and its suitable bolt-gripping devices, with a constantly-revolving shaft, a clutching-disk secured thereto and a disk adapted to be engaged to said clutching-disk at intervals, a suspended weight connected to said moving bolt-gripping devices and adapted to move the same toward the said chuck and a pitman connected to said intermittently-moving disk and to said weight-suspending devices, substantially as and for the purpose set forth.

5. The combination in a bolt-threading machine of a bolt-carrying carriage having a recess into which the bolt to be operated upon is deposited, suitable bolt-gripping devices adapted to grip said bolt when so deposited and a pivoted shuttle adapted to hold the said bolt in a proper position until it is grasped by the said gripping devices, and to fall away from and behind said bolt during the operation of cutting the thread thereon, substantially as described.

6. In a bolt-threading machine the combination of a carriage having a recess into which the bolt to be operated upon is deposited, a plate sliding upon said carriage and carrying bolt-gripping jaws, said sliding plate adapted to be moved forwardly to grip the said bolt, and to then move the said carriage forwardly with it, substantially as described.

7. In a bolt-threading machine the combination of a carriage having a recess into which the bolt to be operated upon is deposited, a plate adapted to slide upon said carriage and having vise-jaws mounted thereon, a suspended weight and means connecting said weight to said sliding plate, the said plate adapted to be first moved to grasp the bolt and then carry the said carriage with it, substantially as described.

8. In a bolt-threading machine the combination of a carriage having a recess into which the bolt to be operated upon is deposited, a plate adapted to slide upon said carriage and having vise-jaws mounted thereon, a suspended weight and means under control of an intermittently-moved part adapted, when the bolt is threaded, to move the said plate rearwardly to release said bolt and then to move the carriage back to its receiving position, substantially as described.

9. In a bolt-threading machine the combination of a carriage having a recess into which the bolt to be operated upon is deposited, a plate adapted to slide upon said carriage and having vise-jaws mounted thereon, a suspended weight, means under control of an intermittently-moved part adapted, when the bolt is threaded, to move the said plate rearwardly to release said bolt and then to move the carriage back to its receiving position, and a stop to limit the forward movement of said sliding plate, substantially as described.

10. In a bolt-threading machine the combination with a die-carrying chuck of suitable bolt-gripping devices, with means for moving said bolt-gripping devices toward said chuck and an intermittently-moved part adapted to be held from movement during the cutting of the thread and means under the control of the moving carriage to trip said part into engagement with a constantly-revolving shaft and to open the die-carrying chuck, said intermittently-moved means adapted to close the said die-carrying chuck, substantially as described.

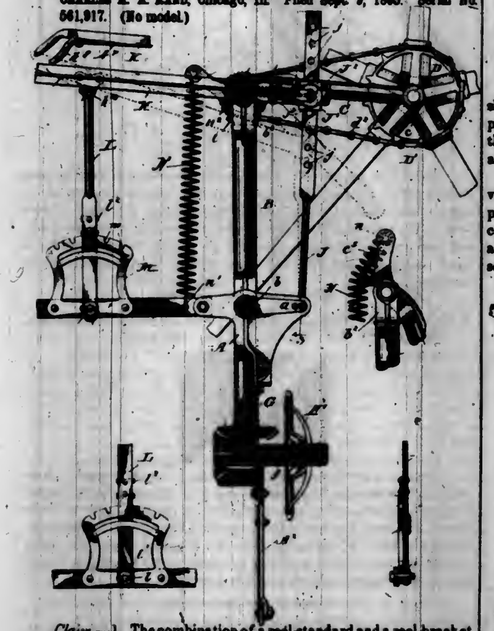
11. In a bolt-threading machine the combination of a die-carrying chuck with a sliding carriage adapted to present the bolt to be operated upon to said chuck, suitable gripping devices mounted upon said carriage and means for operating said gripping devices and moving said carriage toward said chuck, an intermittently-moved part, means under the control of the sliding carriage for tripping said part into engagement with a constantly-rotating shaft and means connected to said intermittently-moved part and to said carriage whereby the movement of said part releases the threaded bolt and moves the said carriage back to its receiving position, substantially as described.

12. In a bolt-threading machine the combination of a die-carrying chuck with a sliding carriage adapted to present the bolt to be operated upon to said chuck, suitable gripping devices mounted upon said carriage and means for operating said gripping devices and moving said carriage toward said chuck, an intermittently-moved part, means under the control of the sliding carriage for tripping said part into engagement with a constantly-rotating shaft, means connected to said intermittently-moved part and to said carriage whereby the movement of said part releases the threaded bolt and moves the said carriage back to its receiving position, and a stop to prevent the said intermittently-moved part from rotating backward when disengaged from said shaft, substantially as described.

13. The combination of a die-carrying chuck and a carriage upon which the bolt to be operated upon is deposited, gripping devices mounted upon said carriage, an intermittently-moved part and means connecting said part to said chuck whereby said chuck is closed as the bolt to be operated upon is being presented thereto, means for holding said chuck in its closed position and means for opening it quickly to release the threaded bolt, substantially as described.

14. In a bolt-threading machine the combination of the carriage adapted to receive the bolt to be operated upon, suitable gripping devices mounted upon said carriage and adapted to grip the stem of said bolt, a rock-shaft having an arm and means for rocking said shaft whereby the said arm presses upon the head of said bolt during the operation of cutting a thread thereon and moves away therefrom during the retrograde movement of the carriage, substantially as described.

590,464. REEL-SUPPORTING DEVICE FOR HARVESTERS. CHARLES A. A. RAND, Chicago, Ill. Filed Sept. 9, 1895. Serial No. 561,917. (No model.)



Claim.—1. The combination of a reel-standard and a reel-bracket pivoted thereto and projecting forwardly therefrom, a radius-bar pivoted upon the harvester-frame and adjustably connected to said bracket, a post pivoted to the rear of said standard upon the harvester-frame and adapted to be swung upon its pivot and locked in various positions of adjustment, and the lever fulcrumed upon the said post and pivotally attached to said bracket at a point forward of the pivotal axis of said bracket whereby the leverages are such that the reel is given sufficient scope of vertical adjustment by a limited movement of the adjustment-lever, substantially as described.

2. The combination of a pivoted reel-standard and reel-bracket pivoted thereto, a radius-rod pivoted upon the harvester-frame and adjustably secured to said bracket by a latch-pin, a post pivoted upon the harvester-frame and adapted to be swung upon its pivot and locked in various positions of adjustment, an adjustment-lever fulcrumed upon said post and pivotally attached to said bracket, a latch-pin-controlling mechanism mounted on said lever whereby the reel can be raised and lowered or moved fore and aft by the use of one lever, substantially as described.

3. The combination of a pivoted reel-standard and reel-bracket pivoted thereto, a radius-rod pivoted upon the harvester-frame and adjustably attached to said bracket by a latch-pin, a post pivoted to the said harvester-frame by a slotted connection and adapted to be swung upon its pivot when moved vertically a limited distance, a latch attached to said post, a quadrant engaged by said latch and an adjustment-lever fulcrumed upon said post, a latch-pin-controlling mechanism mounted upon said lever whereby the reel is raised or lowered or moved fore and aft as desired, substantially as described.

4. The combination of a reel-standard and a reel-bracket pivoted thereto and suitably held in its various positions of vertical adjustment, a lever-support having a latch pivoted upon the harvester-frame and connected by a pivot that will allow it to have a longitudinal movement, the said support adapted to be swung upon its pivot and locked in various positions of fore-and-aft adjustment, a quadrant adapted to be normally engaged by said latch and to be disengaged therefrom by the longitudinal movement of said support, a lever fulcrumed upon said post and a radius-rod connected to said post by a universal joint and to a convenient point upon the harvester-frame by a loose joint, said radius-rod extending at substantially a right angle to said post whereby the said post is permitted to swing upon its pivot and to be moved vertically, substantially as described.

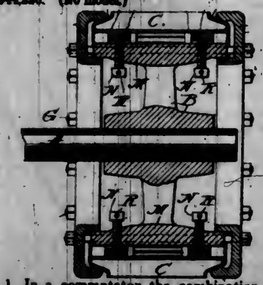
590,465. MOISTENING DEVICE. HENRY D. SAYLOR and FLORENCE KESSER, Pottstown, Pa. Filed July 10, 1897. Serial No. 644,050. (No model.)



Claim.—1. A moistening device comprising a body portion, a slotted cover, plates depending from said cover provided with pointed projections, and a web extending between the slots and passed through the latter and engaged by the projections, substantially as and for the purpose set forth.

2. A moistening device comprising a body portion, a cover provided with transverse slots and intermediate perforations, plates depending from said cover and carrying pointed projections, and a web covering said perforations and passed at its ends through the slots and engaged by the projections, substantially as and for the purpose set forth.

590,466. COMMUTATOR AND MEANS FOR ASSEMBLING SAME. SIDNEY H. SHORT, Cleveland, Ohio. Filed July 12, 1897. Serial No. 644,296. (No model.)



Claim.—1. In a commutator, the combination with a hub or spider, a commutator-cylinder mounted thereon, and an expansible ring interposed between said commutator-cylinder and said hub, as and for the purpose set forth

2. In a commutator, a hub or spider, a commutator-cylinder mounted thereon, a split ring interposed between said commutator-cylinder and said hub or spider, and means for expanding said split ring, as and for the purpose set forth.

3. In a commutator, a hub or spider, a commutator-cylinder mounted thereon, a split ring interposed between said hub or spider and said commutator cylinder, and set-screws passed through said hub or spider and impinging against said split ring, as and for the purpose set forth.

4. In a commutator, a hub or spider, a commutator-cylinder mounted thereon, a diagonally-split ring interposed between the hub and the commutator-cylinder and a diagonally-split ring of insulation interposed between the split ring and the commutator-cylinder, as and for the purpose set forth.

5. The combination with a hub or spider and a commutator-cylinder, of a diagonally-split holder-ring and a diagonally-split insulation-ring, the slot in the insulation-ring being of smaller extent than that through the holder-ring, as and for the purpose set forth.

6. The combination with a hub or spider having a grooved periphery, of a commutator-cylinder mounted thereon, clamping-heads for said cylinder and securing-bolts for said heads, said bolts arranged to be received in the grooves in said periphery, as and for the purpose set forth.

7 The combination with a hub or spider, having grooves in its

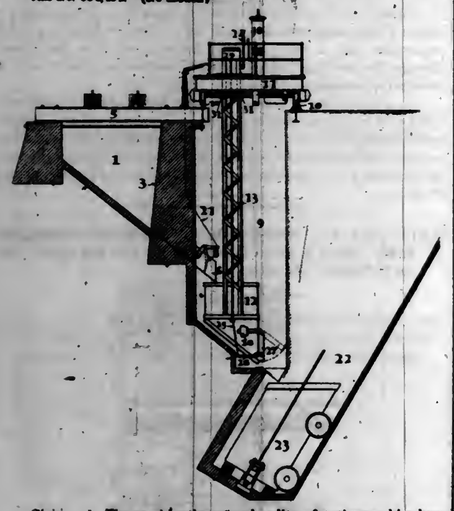
outer periphery, of a commutator-cylinder mounted thereon, clamping-heads for said cylinder, securing-bolts for said heads, said bolts arranged in said grooves, and a holder-ring interposed between said hub or spider and commutator-cylinder, as and for the purpose set forth.

8. In a commutator, a commutator-cylinder, a supporting-hub therefor, said hub provided with a peripheral flange and an expansive ring interposed between the outer surface of said peripheral flange and the inner surface of said commutator-cylinder, as and for the purpose set forth.

9. In a commutator, a commutator-cylinder, a peripherally-flanged supporting-hub therefor, an expansive ring interposed between said flange and commutator-cylinder, set-screws tapped through said flange and impinging against the inner surface of said split ring, as and for the purpose set forth.

10. In a commutator, a commutator-cylinder, a peripherally-flanged supporting-hub therefor, an expansive ring interposed between said flange and commutator-cylinder, set-screws tapped through said flange and impinging against the inner surface of said split ring, and means for locking said set-nuts in adjusted position, as and for the purpose set forth.

590,467. STOCK DISTRIBUTING AND COLLECTING APPARATUS. MAXIMILIAN M. SUPPES, Elyria, Ohio. Filed Apr. 29, 1897. Serial No. 634,451. (No model.)



Claim.—1. The combination of a plurality of stationary bins having discharge-chutes, a stock-carrier movable along a suitable track contiguous to said bins, a weighing mechanism carried by said stock-carrier, a vessel supported by said weighing mechanism and passing, in its travel, beneath said chutes.

2. The combination with a plurality of bins, each of which has a plurality of discharge-chutes with normally-closed doors, of means for opening said doors and a car carrying a vessel which, in its travel, passes beneath said doors.

3. A stock-carrier comprising the combination of a truck and means for propelling the same, framework extending downward therefrom and supported by a suitable weighing mechanism, and a stock-collecting vessel carried by said framework.

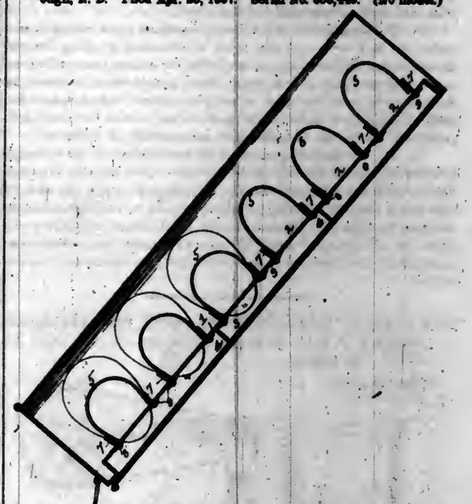
4. In a stock-carrier, in combination, a suitable truck, means for propelling the same, a framework extending below the truck a vessel having a discharging-door, mechanism for normally locking the door with connections extending to the car-platform affording means for releasing said mechanism.

5. A stock-carrier comprising a truck having a platform adapted to carry an operator, a weighing mechanism upon said platform and a frame extending downward therefrom and supporting a stock-collecting vessel, and a lever upon said platform having connections to the door of said vessel for opening the same.

6. The combination of a plurality of stock-bins having discharging-chutes and doors normally closing the same, and a stock-carrier adapted to travel beside said bins, with operating-levers for opening said doors located contiguous to the line of travel of said stock-carrier.

7. A stock-bin and a vertically-pivoted lever for opening the door thereof, in combination with a movable stock-carrier having a platform which, in its travel, passes beneath the end of said lever.

590,468. EGG TRAY OR CARRIER. ANTON B. VALE, Hillsborough, N. D. Filed Apr. 23, 1897. Serial No. 633,449. (No model.)



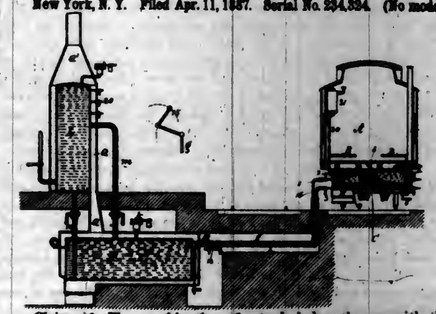
Claim.—In an egg tray or holder, the combination with the base formed with a number of holes with opposite integral tongues, of the spring-clamps located above said holes, consisting of a piece of wire bent at the center to form a loop, and bent into coils near the ends, and said ends passed through holes in the base and bent inwardly at right angles and the tongues bent over thereupon, substantially as described.

590,469. WINDOW-SCREEN. OTTO VOLLRATH, Bucyrus, Ohio. Filed Aug. 21, 1896. Serial No. 603,534. (No model.)



Claim.—A window-screen adapted to fit in the opposite sash-grooves of a window-frame comprising two correspondingly-shaped trapezoidal parts each of less width than the opening in the window-frame; the long diagonal side of one part having two tongues providing a channel between them and the diagonal side of the other part having two rabbets providing a central tongue adapted to fit and slide in the channel; substantially as described.

590,470. CAR-HEATING APPARATUS. WILLIAM C. BAKER, New York, N. Y. Filed Apr. 11, 1887. Serial No. 234,334. (No model.)



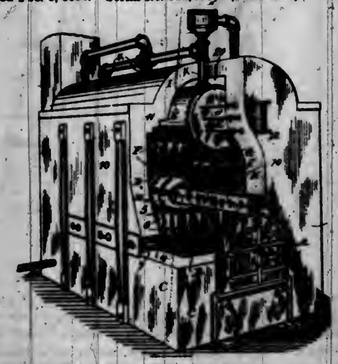
Claim.—1. The combination of a tank below the car with the heating pipes or radiators in the car and a coil within the tank connected to and forming a continuation of the radiator-pipes in the car, pipes and cocks and a stationary boiler for supplying heat into the tank and a fire-box connected with the tank for heating the water therein by fire heat whenever necessary, substantially as set forth.

2. The combination in a car-heater of a tank below the car, pipes or radiators within the car, a coil within the tank connected with and forming a continuation of the radiators in the car, pipes and cocks, and a stationary boiler for supplying heat into the tank when the train is at rest, and a second coil within the tank and a supply-pipe by which a heated fluid from another vehicle can be admitted whenever necessary, substantially as set forth.

3. The combination with a car and the system of heating-pipes within the car containing liquid that is circulated by heat, of a vessel surrounding a portion of the pipe of the circulating system and containing a liquid, a steam-pipe and connections for steam from the locomotive for heating the liquid in the said vessel, substantially as set forth.

4. The combination of a vehicle having a compartment, a system of pipes containing a liquid that is circulated by heat within said compartment, a tank containing a heat-absorber which is in operative contact with the said circulating system, a heater for the absorber and connections through which heat for the heater may be supplied from another vehicle, and pipes for connecting the tank with a stationary heating apparatus, substantially as set forth.

590,471. STEAM-BOILER. WILLIAM C. BAKER, New York, N. Y. Filed Feb. 8, 1897. Serial No. 622,461. (No model.)



Claim.—1. The boiler-sections each formed with an upper and a lower tube connected by intermediate vertical tubes that are largest at the top and open into the upper tube and smallest at the bottom and open into the lower tube, the same being cast integral and the lower tube having a removable cap at one end and the upper tube having a return-bend in combination with a boiler above the boiler-sections and intermediate coupling connections between the return-bends and the boiler, and return-pipes between the boiler and one end of the lower pipe in each boiler-section, substantially as set forth.

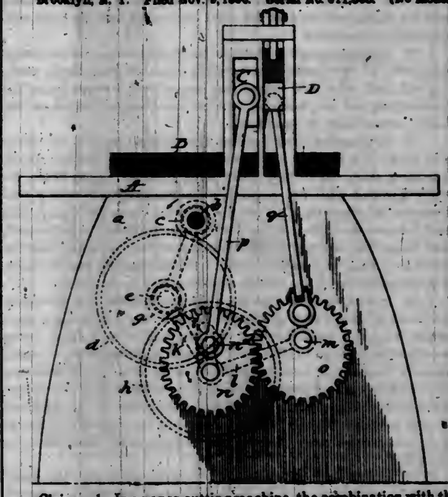
2. The combination with a boiler, of a row of tubular boiler-sections below the boiler, each boiler-section having an upper and a lower tube and intermediate vertical tapering tubes, a return-bend and coupling connection between the upper tube of the section and the boiler and return circulating-pipes between the boiler and the back end of the lower tube in each boiler-section, substantially as set forth.

3. The combination with a boiler, of a row of tubular boiler-sections below the boiler, each boiler-section having an upper and a lower tube and intermediate vertical tapering tubes, a return-bend and coupling connection between the upper tube of the section and the boiler and return circulating-pipes between the boiler and the back end of the lower tube in each boiler-section, a partition of refractory material above the upper tubes of the boiler-sections and below the boiler to confine the products of combustion around the tubes of the boiler-sections and allow them to pass away at the back end and return under the boiler, substantially as set forth.

4. The combination with the steam-boiler and the inclosure for the fire-chamber and flues, of an arch over the boiler inclosing an upper flue, grate-bars below the fire-chamber, boiler-sections crossing through the fire-chamber, each boiler-section having a lower tube and an upper tube and vertical tapering connecting-tubes and coupling connections between the sections and the boiler, return circulating water-pipes and a partition above the upper tubes of the boiler-sections and separating the fire-chamber from the flue below the boiler which contains the coupling connections and the return circulating-pipes, substantially as set forth.

5. The combination with the steam-boiler and the inclosure for the fire-chamber and flues, of an arch over the boiler inclosing an upper flue, grate-bars below the fire-chamber, boiler-sections crossing through the fire-chamber, each boiler-section having a lower tube and an upper tube and vertical tapering connecting-tubes and coupling connections between the sections and the boiler, return circulating water-pipes and a partition above the upper tubes of the boiler-sections and separating the fire-chamber from the flue below the boiler which contains the coupling connections and the return circulating-pipes, a flue between the back walls receiving the products of combustion from the flue over the boiler and superheating-sections similar to the boiler-sections and standing in reverse positions within the vertical flue, and steam-pipes connecting with such superheaters, substantially as set forth.

590,472. PAPER-CUTTING MACHINE. FREDERICK A. BURRY, Brooklyn, N. Y. Filed Nov. 9, 1896. Serial No. 611,565. (No model.)



Claim.—1. In a paper-cutting machine, the combination with the clamp and knife, of two rotating devices, one of which is actuated by the other, a clamp-rod pivotally connected at one end to one of said devices and at the other end to the clamp, and a knife-rod pivotally connected at one end to the other of said actuating devices and at the other end to the knife, for the purpose set forth.

2. In a paper-cutting machine, the combination with the clamp and knife, of a rotatable knife-shaft fixedly journaled in the frame, a rotatable clamp-shaft movably journaled in the frame, one of said shafts being actuated by the other, a clamp-rod pivoted to and reciprocated by a device upon the clamp-shaft and connected with the clamp, and a knife-rod pivoted to and reciprocated by a device upon the knife-shaft and connected with the knife, whereby a single revolution of each of said shafts will accomplish the lowering and raising of said clamp and knife, substantially as described.

3. In a paper-cutting machine, the combination with the clamp and knife, of a rotatable clamp-actuating device, a rotatable knife-actuating device, and two rods respectively connected with the clamp and knife and pivoted to the respective actuating devices, the said actuating devices being adapted to operate without reversal of direction of movement, substantially as described.

4. In a paper-cutting machine, the combination with the clamp-shaft, clamp and knife, of a clamp-rod pivoted to a device upon the clamp-shaft at one end and to the clamp at the other end, a rotatable knife-actuating device, and a knife-rod pivoted at one end to the said actuating device and at the other end to the knife, said devices being adapted to continue the clamping, cutting and releasing of the paper without reversal of direction of movement of said clamp-shaft, or knife-actuating device, and to accomplish all of said operations by one revolution of said clamp-shaft, substantially as described.

5. In a paper-cutting machine, the combination with the clamp and knife, of a rotating clamp-operating device, a rotating knife-operating device, and two rods respectively pivoted at one end to the clamp and knife and at the other end to the respective operating devices, the rotation of said devices being contemporaneous, substantially as described.

6. In a paper-cutting machine, the combination with the clamp and knife, of a rotating clamp-operating device, a rotating knife-operating device, and two rods respectively pivoted at one end to the clamp and knife and at the other end to the respective operating devices, the rotation of either of said operating devices being controlled by the other, substantially as described.

7. In a paper-cutting machine, the combination with the clamp and knife, of two gear-wheels meshing with each other and respectively connected directly with the clamp and knife by a clamp-rod and a knife-rod, and means for rotating one of said wheels, substantially as described.

8. In a paper-cutting machine, the combination with the clamp and knife, of a gear-wheel mounted on a shaft fixedly journaled in the frame, a second gear-wheel meshing with said first-named wheel and adapted to oscillate about the same, a clamp-rod connecting one of said gear-wheels directly with the clamp, a knife-rod connecting the other wheel directly with the knife, and means for rotating one of said wheels, substantially as described.

9. In a paper-cutting machine, the combination with the clamp and knife, of two rotating elliptical gear-wheels meshing with each other, and connections respectively between one of the gear-wheels and the clamp and between the other gear-wheel and the knife, substantially as described.

10. In a paper-cutting machine, the combination with the clamp and knife, of two rotating eccentrically-mounted gear-wheels meshing with each other, and connections respectively between one of the gear-wheels and the clamp and between the other gear-wheel and the knife, substantially as described.

11. In a paper-cutting machine, the combination with the clamp and knife, of a rotating knife-operating shaft and a rotating clamp-operating shaft, one of said shafts being actuated by the other, devices mounted upon the respective shafts, connections respectively between the clamp and the device mounted upon the clamp-shaft and between the knife and the device mounted upon the knife-shaft, and means whereby one of said shafts is permitted to move about the other as an axis, the rotation of said shafts being continuous throughout the operation of the machine, substantially as described.

12. In a paper-cutting machine, the combination with the clamp and knife, of gear-wheels meshing with each other and mounted upon shafts journaled to each other by links, one of said shafts being mounted in bearings fixed in the frame and the other being mounted in movable bearings, connections between said clamp and knife and the respective gear-wheels, a power-driven shaft mounted in bearings fixed in the frame, a shaft journaled to said power-driven shaft and to said movable shaft by links, and devices for transferring power from said power-driven shaft to said movable shaft, substantially as described.

13. In a paper-cutting machine, the combination with the clamp and knife, of two shafts respectively actuating said clamp and knife and rotating each other, said shafts being journaled to each other by links, one of them being mounted in bearings fixed in the frame and the other being movable, a power-driven shaft mounted in bearings fixed in the frame, a shaft journaled to said power-driven shaft and to said movable shaft by links and devices for transferring power from said power-driven shaft to said movable shaft, substantially as described.

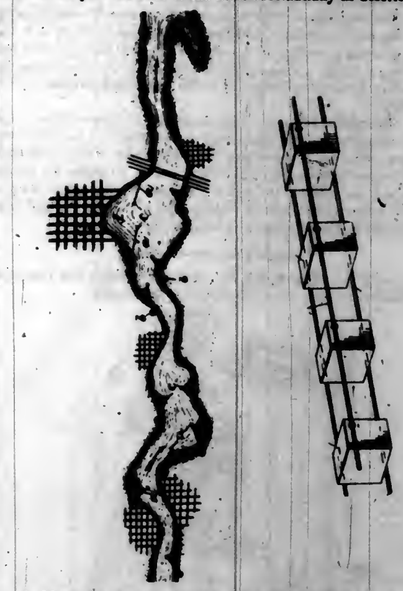
14. In a paper-cutting machine, the combination with the clamp and knife, of eccentrically-mounted elliptical gear-wheels meshing with each other and mounted upon shafts journaled to each other by links, one of said shafts being fixed in the frame and the other being movable, connections between said clamp and knife and the long and short ends respectively of said gear-wheels, a power-driven shaft fixed in the frame, a shaft journaled to said power-driven shaft and to said movable shafts by links and gear-wheel connections between said power-driven shaft and said movable shaft, substantially as described.

15. In a paper-cutting machine, the combination with the clamp and knife, of eccentrically-mounted elliptical gear-wheels meshing with each other and mounted upon shafts journaled to each other by links, one of said shafts being fixed in the frame and the other being movable, connections between said clamp and knife and said gear-wheels respectively, a power-driven shaft fixed in the frame, a shaft journaled to said power-driven shaft and to said movable shaft by links, and means whereby the rotation of said power-driven shaft will operate said movable shaft, substantially as described.

590,473. MEANS FOR PREVENTING FLOATING MASSES OF PLANTS MOVING UPSTREAM IN RIVERS, &c. CHARLES BRAINERD, Grafton, Ill. Filed Apr. 3, 1897. Serial No. 630,644. (No model.)

Claim.—1. Means for preventing floating masses of plants moving upstream comprising floating jetties or obstructions, each secured or anchored at the inner end and extending outwardly and inclined downstream and secured or anchored at the outer end and formed of longitudinal rods or wires secured to float-blocks, so that said rods or wires extend a short distance only beneath the surface of the water sufficient to prevent passage of the masses of floating plants and yet without retarding the free flow of the water, substantially as described.

2. Means for preventing masses of floating plants entering and accumulating in harbors or inlets in streams or bodies of water which consists in extending floating jetties or obstructions outwardly from opposite sides of the mouth of the harbor so as to deflect the masses of plants therefrom whether moving up or down stream, said obstructions floating on the surface of the water and extending down a distance sufficient to prevent passage of said masses beneath them yet without retarding the free flow of the water, the obstructions being so arranged that said masses will slide along longitudinally thereof and past the ends of the same substantially as described.



3. Means for clearing sluggish tide-water streams of masses of floating plants which comprises obstructions floating on the surface of the water and arranged to extend such a distance below the surface of the water as to prevent said masses passing under the obstructions, and yet not retard free flow of water beneath the obstructions, said obstructions anchored or otherwise moored at their ends and extending outwardly into the stream and inclined toward the outlet of the stream to permit free outward passage of the said masses with the wind or tide, and prevent upward passage of the said masses with the wind or tide, substantially as described.

4. The herein-described means for assisting streams or rivers in clearing themselves of masses of floating plants, which consists in forming pockets along the sides of the stream to catch and hold said masses against movement upstream with the tide or wind, and permit free passage of said masses downstream, said pockets formed by floating obstructions properly secured and extending outwardly from the shores toward the channel and permitting free passage of the water beneath them and arranged to catch and hold said masses floating on the surface of the water in one direction, and to permit said masses when moving in the opposite direction to slide along and past the ends of the obstructions, substantially as described.

590,474. VALVE FOR INFLATING PNEUMATIC TIRES. WARWICK BROOKES, Manchester, England. Filed Aug. 7, 1896. Serial No. 602,064. (No model.)



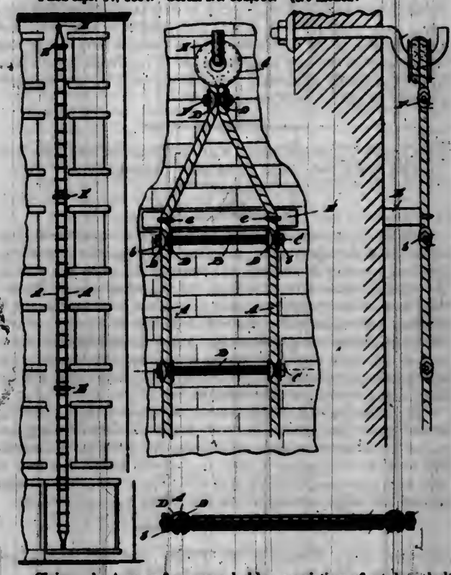
Claim.—1. A valve for pneumatic tires for wheels made of elastic material with one end flattened, and if preferred, twisted also, and the other end tubular and provided with a suitably-broad flange by which it is fixed to the inflatable part of the tire, the flattened end of the valve, as well as part of the open end being inside the inflatable part of the tire, with a spigot held in place in and closing the outer end of the valve, substantially as and for the purpose set forth.

2. A valve of elastic tubular material fixed to the inflatable part of the wheel-tire, the end inside the said tire being closed by flattening, and if preferred by twisting also, and the outer end being open and projecting from the inflatable part of the tire, in combination with an undilatable tubular socket, and means cooperating with the undilatable socket for compressing the tubular end of the valve against the undilatable socket to form a secondary air-tight closure of the open end of the valve, substantially as hereinbefore described.

3. The valve *a*, *a'*, *a*^{3} the inflatable part *b* of the tire, the socket fixed to the rim and surrounding the projecting part *a* and spigot *c* substantially as hereinbefore described and illustrated.

4. The valve *a a' a*^{3} the inflatable part *b* of the tire the socket fixed to the rim and surrounding the projecting part *a*, spigot *c* and cap *d'*, substantially as hereinbefore described and illustrated.

590,475. ROPE LADDER. WILLIAM P. BUCKLEY, Oxford, N. Y. Filed Apr. 17, 1897. Serial No. 633,580. (No model.)



Claim.—1. A rung for a rope ladder, consisting of a tube, a bolt passing therethrough and through the rope, and concaved washers placed about said bolt and next to the rope and on each side thereof, substantially as described.

2. A rope ladder, having at one end an eye or thimble about which the rope is passed, a bolt passing through the body of each run of the rope next the thimble, and concaved washers upon each end of the bolt outside of and embracing the ropes, substantially as described.

3. A rope ladder, comprising two side cords, rungs therefor consisting of a tube, a bolt passing therethrough and through the rope, and concaved washers placed about said bolt and next to the rope, and blocks projecting from one side of the ladder at intervals, serving to hold the ladder out from the wall, substantially as described.

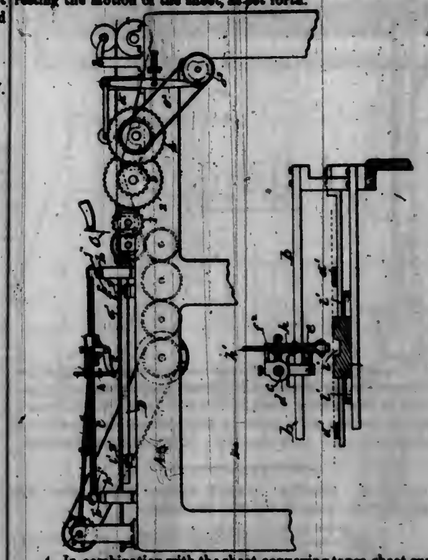
4. A rope ladder, having at one end an eye or thimble about which the rope is passed, a bolt for securing the two sides of the rope close to the thimble, rungs connecting the two sides at intervals, consisting of a tube placed between the two sides of the rope, a bolt passing therethrough and through the ropes, and concaved washers about the bolt and on each side of the ropes, substantially as described.

590,476. PAPER-REGISTERING MECHANISM. TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed Sept. 2, 1896. Serial No. 604,635. (No model.)

Claim.—1. In combination with the sheet-conveying tapes, longitudinal sheet-supporting bars provided with longitudinal grooves in their tops, combined sheet stopping and registering gages over said bars and moving vertically to and from the grooves thereof to depress the sheet therein and arrest the movement of the sheet by contact of said gages with the edges of the slits made in the sheet for that purpose.

2. In combination with the sheet-conveying tapes, sheet-supporting bars provided with grooves in their tops, combined sheet stopping and registering gages over said bars and moving vertically to and from the same, and tongues on said gages depressing the sheet in the grooves of said bars and thereby entering slits made in the sheet for that purpose and causing the motion of the sheet to be arrested by contact of the edges of the slits with the said gages, as set forth.

3. In combination with the sheet-conveying tapes, sheet-supporting bars provided with grooves in their tops, oscillatory arms moving in vertical planes to and from said bars and by depressing into the grooves thereof the sheet in transit opening the slits made in the paper for that purpose and by contact with the edges of the slit arresting the motion of the sheet, as set forth.



4. In combination with the sheet-conveying tapes, sheet-supporting bars provided with grooves in their tops, oscillatory arms pivoted to swing in vertical planes to and from said bars, tongues on said arms depressing the sheet into the grooves of the aforesaid bars and entering into the slits made in the sheet for that purpose, said tongues opening the slits and guiding the rear edges of the slits to contact with the arms and thereby arresting the motion of the sheet and registering the same.

5. In combination with the sheet-conveying tapes, sheet-supporting bars provided with longitudinal grooves in their tops, bars disposed parallel over said supporting-bars, arms supported longitudinally adjustable on said upper bars to operate on sheets of different lengths, said arms moving to and from the grooves of the sheet-supporting bars and by contact with the edges of the slits in the sheet arresting the movement of said sheet, as set forth.

6. In combination with the sheet-conveying tapes, sheet-supporting bars disposed laterally adjustable at opposite sides of the longitudinal central line of the paper-passage and provided with longitudinal grooves in their tops, stationary parallel bars extending horizontally across the machine, longitudinal bars secured at their ends laterally adjustable on the aforesaid cross-bars, sleeves mounted longitudinally adjustable on said longitudinal bars, arms pivoted to said sleeves to swing to and from the grooves of the aforesaid sheet-supporting bars, and reciprocating pitmen actuating said arms and adjustable in their lengths to conform to the adjustment of the aforesaid sleeves, as set forth.

590,477. STARTER'S GATE FOR RACE-TRACKS. MARTIN H. DILL, Louisville, Ky. Filed June 26, 1896. Serial No. 596,571. (No model.)

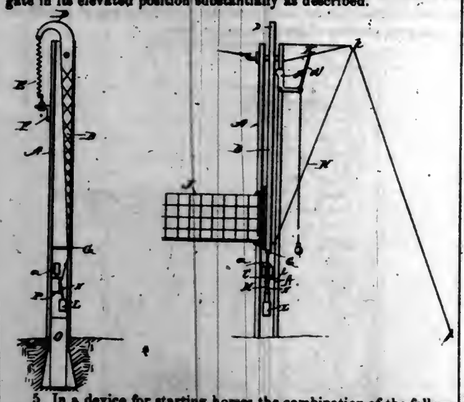
Claim.—1. In a device for starting horses, the combination of two divided posts with a pair of arms pivoted therein, curved above their pivoted connections, and springs secured to brackets on said posts: the other end of said springs being connected to eyes at the curved ends of said arms, substantially as described.

2. In a device for starting horses the combination of two divided posts having arms pivotally connected between the parts of said posts, their curved upper ends being secured to tension-springs and their lower ends secured by an electrically-operated releasing-catch G, for the purposes as shown and described.

3. In a device for starting horses the combination of two divided posts with a pair of arms pivoted therein carrying a gate, said arms being curved above their pivoted connections, and springs secured to the brackets on said posts, which have nuts for adjusting the tension of said springs: the other ends of said springs being connected to eyes at the curved ends of said arms substantially as described.

4. In a device for starting horses the combination of two divided posts with a pair of arms carrying a gate pivoted therein, an electrically-operated catch G, and a spring for elevating said gate when

released from said catch G, and a catch *d* for holding said arms and gate in its elevated position substantially as described.



5. In a device for starting horses the combination of the following elements viz: divided posts A, pivotally-supported arms B, a gate J secured to said arms, a catch G for holding said arms and gate in a depressed position and a releasing device consisting of members K, M, short arm *i*, catch *l* and armature *l'*, substantially as described.

590,478. TOASTER. JAMES F. ELLIOTT, Manson, Iowa. Filed Apr. 22, 1897. Serial No. 633,307. (No model.)



Claim.—A toaster comprising a toasting-basket, having a crank-shaft projecting laterally from one side edge, a handled rod at one side of the basket, the rod having a coil near its forward end forming a bearing, the rod being continued beyond said coil, then return bent and given a second coil to form a second bearing, the two bearings being at one side of the basket and receiving the crank-shaft, and an operating-rod engaging the crank-arm of the crank-shaft and extending rearwardly to an engagement with the handled rod, substantially as described.

590,479. CHAIN-LINK. WILLIAM H. GRIFFITH, New York, N. Y. Filed Apr. 12, 1897. Serial No. 631,794. (No model.)
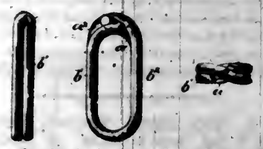


Claim.—1. A chain-link composed of a single piece of wire bent about its middle to form an offset with end loops on each side, both said loops having their locking ends bent into complete eyes, and the eye of each loop embracing both the offset middle portion of the wire and also the extreme end of the eye of the other loop, both being interlocked in a symmetrical and reciprocal manner whereby the pull on each eye is made to constrict and more tightly hold the extreme end of the other eye substantially as and for the purpose described.

2. A chain-link composed of a single piece of wire bent about its middle to form an offset with end loops on each side in planes at right angles to each other, both said loops having their locking ends bent into complete eyes, and the eye of each loop embracing both the offset middle portion of the wire and also the extreme end of the eye of the other loop, both being interlocked in a symmetrical and reciprocal manner, whereby the pull on each eye is made to constrict and more tightly hold the extreme end of the other eye substantially as and for the purpose described.

590,480. CHAIN-LINK. WILLIAM H. GRIFFITH, New York, N. Y. Filed July 2, 1897. Serial No. 643,194. (No model.)

Claim.—1. A link made of a single piece of wire bent to form two coinciding loops arranged side by side and parallel to each other the middle portion of the wire being arranged oblique to the loops, and the free ends of the wire being extended past each other within the oblique middle portion substantially as and for the purpose described.



2. A link made of a single piece of wire bent to form two coinciding loops arranged side by side and parallel to each other, the middle portion of the wire being arranged oblique to the loops, and the free ends of the wire being arranged to cross each other within the oblique middle portion and form a fork or seat for the same substantially as and for the purpose described.

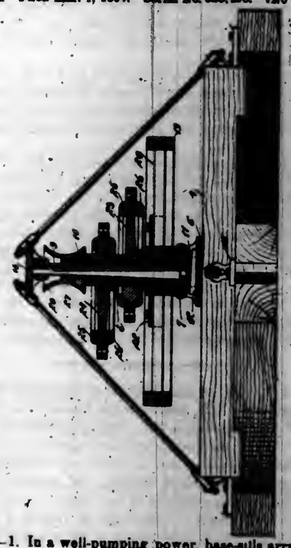
590,481. CHAIN-LINK. WILLIAM H. GRIFFITH, New York, N. Y. Filed July 3, 1897. Serial No. 643,432. (No model.)



Claim.—1. A link made of a single piece of wire bent to form two loops of the figure-eight pattern, with the opposite sides of the two loops running continuously the one into the other and forming the middle portion of the wire, and with the other sides of the two loops formed into double eyes each having two convolutions, one of said convolutions embracing the middle portion of the wire, and the other convolution being bent at right angles to the first convolution around the shank portion of the leg of the loop bearing such eyes, forming a double symmetrical knot at the center of the link, substantially as and for the purpose described.

2. A link made of a single piece of wire bent to form two loops of the figure-eight pattern, the end portions of the wire being connected to the middle portion with double eyes arranged symmetrically with two thicknesses of wire lying side by side in each fork of each loop, and a single thickness of wire lying in the external angles between the loops, substantially as and for the purpose described.

590,482. WELL-PUMPING POWER. GEORGE W. GRIMM, Bluffton, Ind. Filed Mar. 1, 1897. Serial No. 625,490. (No model.)



Claim.—1. In a well-pumping power, base-sills arranged in the form of a triangle, a base-beam supported thereon, a post extended upward from said base-beam, a cap-piece on the upper end of said post, brackets secured to the base-sills, sleeves on said brackets, brace-rods extended through said sleeves and also through sockets in the cap-piece, and eccentrics mounted to rotate around the post, substantially as specified.

2. A well-pumping power, comprising a base consisting of sills connected together in the form of a triangle, a base-beam mounted thereon, a base-plate on the base-beam, a post extended up from the base-plate, a cap on the upper end of the post, sockets on said cap, brackets secured to the base-sills, sleeves on said brackets, brace-rods extended through said sleeves and through the sockets and having screw-threaded portions, nuts on said screw-threaded portions, and pump-rod-actuating mechanism mounted to rotate around the post, substantially as specified.

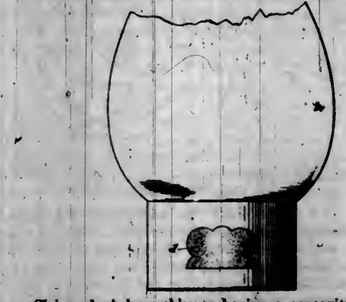
3. A well-pumping power, comprising a base, a base-plate having an annular channel in its upper surface, a post extended upward from the base-plate, means for adjusting the post vertically with relation to the base-plate, a sleeve mounted to rotate on the post, a power-wheel attached to the sleeve, an eccentric secured to the sleeve, and ring-plates on said eccentric and with which pump-actuating rods or lines are to be engaged, substantially as specified.

4. A well-pumping power, comprising a base, a base-plate thereon, a tapered post extended upward from the base-plate, a wedge-shaped key movable through an opening in the base-plate and through an opening in the lower end of the post, whereby said post may be adjusted vertically, a sleeve mounted to rotate on the post, bearing-balls between the lower end of said sleeve and the upper portion of the base-plate, a power-wheel mounted on the sleeve, pump-rod-actuating mechanism mounted on the sleeve, and a drum mounted to rotate around the post, the said drum having a cup portion to receive oil, substantially as specified.

5. A well-pumping power, comprising a base, a base-plate thereon, having a crown portion provided with an annular channel in its upper surface and also having a transverse opening through said crown portion, a longitudinally-tapered post having a reduced lower end loosely engaging in an opening in the base-plate, the said reduced lower end also having a transverse opening, a wedge-shaped key engaging through said openings, a sleeve mounted to rotate on the post, and pump rod or line actuating mechanism connected to said sleeve, substantially as specified.

6. In a pump-actuating power, a rotary sleeve, pump-rod-actuating devices on said sleeve, and a drum also mounted on said sleeve and having an annular flange on its lower side engaging in an annular depression in the top of the sleeve, and the upper portion of said drum being formed as a cup, substantially as specified.

590,483. LAMP-CHIMNEY. HERBERT R. HILL, Herkimer, Kans. Filed Feb. 24, 1897. Serial No. 624,887. (No model.)



Claim.—1. A lamp-chimney having a concavity bounded by a roughened surface, and a pad seated within the concavity and held in place by gluing it against said roughened surface, substantially as described.

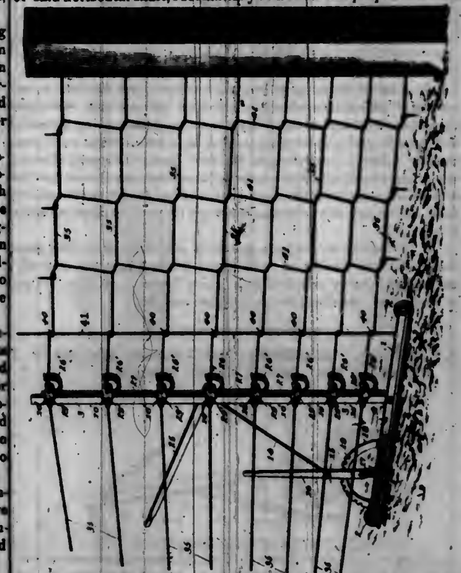
2. A lamp-chimney having a concavity, the bottom of which is roughened, and a pad seated within the concavity and cemented to the roughened bottom thereof, substantially as described.

3. A lamp-chimney having a cavity in its outer surface, the bottom of the cavity being roughened so that an adhesive substance may be effectively applied thereto.

590,484. WIRE-FENCE-WEAVING MACHINE. WESLEY A. HOLMES, Cadiz, Ohio. Filed Feb. 12, 1897. Serial No. 623,171. (No model.)

Claim.—1. A fence-weaving machine, comprising a vertical standard, brackets fixed to said standard, a transverse horizontal shaft journaled in said brackets and formed with an integral oscillating hook having a spirally and inwardly curved finger extending diagonally across the rotary path of said hook, and means substantially as described for imparting an oscillating motion to said shaft, as and for the purpose set forth.

2. A fence-weaving machine, comprising a vertical standard, brackets secured in said standard, a transverse horizontal shaft journaled in said brackets and having a projecting end formed with an integral oscillating hook arranged approximately at a right angle to said shaft and terminating in a spirally and inwardly curved finger extending diagonally across the rotary path of said hook, and having its heel provided with an integral spiral flange, and a short integral spiral flange arranged parallel therewith on the contiguous end of said horizontal shaft, substantially as and for the purpose set forth.



3. A wire-fence-weaving machine, comprising the vertical standard 3, the brackets 5 and 10, the latter formed with an integral diagonal arm 32, in combination with the horizontal shaft 9 journaled in said brackets, one end of which projects through said bracket 10 and is provided with an integral oscillating hook 29, arranged approximately at a right angle to said shaft, and terminating in a spirally and inwardly curved finger 30 extending diagonally across the path of said hook, and having its heel formed with an integral spiral flange 31, and a similar flange formed on the contiguous end of the shaft 9, substantially as and for the purpose set forth.

4. In a wire-fence-weaving machine, a rotary hook adapted to engage the horizontal fence-wire and form an open loop, and simultaneously close a previously-formed loop, substantially as and for the purpose set forth.

5. A wire-fence-weaving machine, comprising a rotary hook adapted to engage a horizontal fence-wire and form a consecutive series of open loops in said fence-wire, for the reception of a series of vertical stay-wires, and means substantially as described for simultaneously closing the last previously-formed loop, to secure the stay-wire in place therein, in the act of forming a new loop, substantially as and for the purpose set forth.

590,485. STREET-RAILWAY TRANSFER-TICKET. FREDERICK MITCHELL, Rochester, N. Y. Filed Apr. 13, 1897. Serial No. 632,080. (No model.)



Claim.—A transfer-ticket, having printed upon its face, a dial, said dial having figures arranged concentric therein so as to indicate the fractions of the hour, a column formed to the right of the ticket, and subdivided by vertical lines, the names of the street or transfer-point being printed within this column, the word "From" placed above the space formed by these lines, the letters "A. M." and "P. M." placed above said spaces, and the word "To" placed above the extreme right-hand space, substantially as and for the purpose set forth.

590,486. SCREW-THREAD GAGE. BURNHAM R. SAWYER, Athol, Mass. Filed Oct. 20, 1896. Serial No. 609,477. (No model.)

Claim.—1. A screw-thread gage-blade, having a pointed and tapered head with gage-teeth formed on opposite edges of it at an acute angle to the longitudinal center of the blade, said gage-teeth being of uniform size and angle for each pitch, and the shank of the

blade being reduced or of less width than the head, substantially as shown and described.



2. A screw-thread gage composed of two outer case-leaves, and a series of gage-blades which are arranged between said leaves, and all pivoted together at the center, each gage-blade being provided with an enlarged, pointed, and tapered head whose edges have gage-teeth of uniform size and angle for each pitch, and arranged at an acute angle to longitudinal center of the blade, as shown and described, whereby when the gage is opened and the toothed heads exposed at one end, their opposite heads are similarly exposed, as specified.

3. The screw-thread gage composed of a series of toothed gage-blades and two outside, or case, leaves, pivoted together centrally, and the said leaves provided with guard-flanges extending inward, as shown and described, for the purpose specified.

590,487. CAR-FENDER. JOHN D. SCHMIDT, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,261. (No model.)



Claim.—1. In a car-fender, a front and rear section connected by a centrally-pivoted bar, connecting-bars on each side thereof composed of two bars having expanded eyes at one end and with the body of one bar passing through the eye of the other, substantially as described.

2. In a car-fender, the combination of a pilot-fender provided with wheels and adapted to run upon the track, with a central bar connecting the pilot to the car and pivoted at each end to the car and pilot, and telescopic or extensible bars extending from the pilot to the car on each side of the center, substantially as described.

3. In a car-fender, the combination of a pilot-fender provided with wheels and adapted to run upon the track, with a central bar connecting the pilot to the car and pivoted at each end to the car and pilot, telescopic or extensible bars extending from the pilot to the car on each side of the central bar, and spring connections from each side of the pilot to the rear and adapted to hold the pilot straight, substantially as described.

4. In a car-fender, the combination of a pilot-fender provided with wheels and adapted to run upon the track, with a central bar connecting the pilot to the car and pivoted at each end to the car and pilot, telescopic or extensible bars extending from the pilot to the car on each side of the central bar, and consisting of two bars each having an expanded eye at one end and with the body of one bar passing through the eye of the other bar, substantially as described.

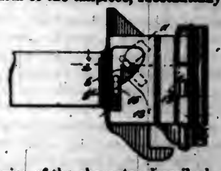
5. A car-fender, provided with wheels adapted to run on the rails, and having a central pivotal connection at its rear to the car, whereby the fender may work independently of the car, and vertical bearing-plates attached to the fender and car at each side, substantially as described.

6. A hinge for the attachment of car-fenders, consisting of a horizontal plate having two separated ears turned upward in the form of a hook, a bar pivoted between said ears and with its upper end bent forward and its lower end weighted so as to throw said hook forward, and a plate forming the other leaf of the hinge, adapted to pass between the said separated ears, and having a pin projecting on each side thereof and engaging said ears, substantially as described.

590,488. CAR-COUPLING. THOMAS H. SMITH, Bowie, Tex. Filed Apr. 30, 1897. Serial No. 634,516. (No model.)

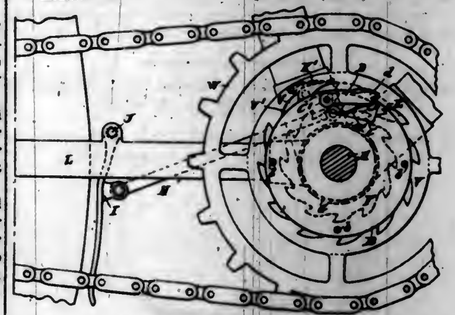
Claim.—1. The combination with a draw-head recessed from the front, and having spaced ears thereon at one side, of a pivoted knuckle-block having a tailpiece adapted to swing into the recess, a depending lug on the lower ear, having an incline thereon located forward of the knuckle-pivot, the knuckle-block having a depending inclined formation on the lower side of the coupling-limb thereon, which inclined formation is adapted to traverse the incline on the draw-head and cause the knuckle-block to swing open by its gravity, substantially as described.

2. The combination with a draw-head recessed from the front, spaced ears on one side of the said draw-head, and a knuckle-block having a tailpiece between the ears and extending laterally in the recess, said tailpiece having an arm extended toward an aperture in the side of the draw-head behind the ears thereon, of a tripping-shaft rockable transversely in the draw-head recess and projecting through the aperture in its side wall, a gravity-block projecting forwardly from the tripping-arm and secured thereon, the gravity-block being adapted to lock the knuckle-block when the latter is closed, and to release said knuckle-block when the tripping-shaft is lifted and imposed on the arm of the tailpiece, substantially as described.



3. In a device of the character described, a knuckle-block having a tailpiece extended in the same direction as the coupling-limb of said knuckle-block, and provided with a limb extended toward an aperture in the side wall of the draw-head, and a gravity-block rockable with the transverse tripping-shaft that extends through said aperture, the limb on the tailpiece being concaved on the top edge to receive the tripping-shaft when said shaft is raised and moved forwardly, substantially as described.

590,489. BICYCLE-BRAKE. CHARLES J. STARBIRD and CARL J. PIHL, Brooklyn, N. Y. Filed Aug. 18, 1896. Serial No. 602,969. (No model.)



Claim.—1. In a bicycle-brake, the combination of a brake, a toothed ring mounted to oscillate about the crank-axle, and a link connecting said ring and brake, with a dog mounted to rotate with the crank and adapted to engage the teeth on said ring, a spring normally holding said dog out of engagement with the ring, and a spring of less force adapted to throw the same into engagement therewith, and means for disengaging the crank from the driving-gear and for neutralizing the action of the stronger of said springs actuated by back-pedaling, substantially as described.

2. In a bicycle-brake, the combination with a brake, a toothed ring mounted to oscillate about the crank-axle, and a link connecting said ring and brake, with a ratchet driving-gear comprising a spring-held dog, revolving with the crank, a spring-held dog also revolving with the crank and adapted to engage the toothed ring operating the brake when the crank is rotated backward, said driving and brake-operating dogs being engaged with each other, the springs thereof being opposed in direction of action and the spring of the driving-dog being the stronger, substantially as described.

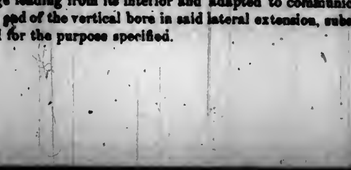
3. In a bicycle-brake, the combination with a pivoted brake-lever adapted to engage the bicycle-wheel, a ring mounted to rotate upon the crank-axle hanger and having ratchet-teeth upon its periphery, and a link connected with said ring and brake-lever, of a disk mounted upon the crank-axle and the main sprocket-wheel mounted to rotate upon said disk, means for connecting said disk and sprocket-wheel when the disk is given a forward rotation, and for disconnection by a relative backward rotation, and means operated in the same manner for connecting said disk with the toothed ring which operates the brake-lever, substantially as described.

4. In a bicycle-brake, the combination with a pivoted brake-lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, and a link connecting said ring and lever, of a disk fixed upon the crank-axle, the main sprocket-wheel mounted to rotate upon said disk and having ratchet-teeth thereon, a dog upon said disk adapted to engage said ratchet-teeth, a dog pivoted upon said disk and adapted to engage the teeth upon the toothed ring, and means operated by a relative backward rotation by the disk in the sprocket-wheel, to engage said last-named dog with the toothed ring, substantially as described.

5. In a bicycle-brake, the combination of a pivoted lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, a link connecting the same with the brake-lever, a disk mounted upon the crank-axle and having a recess upon one edge thereof, a dog in said recess having a side projecting pin, a spring adapted to hold the dog outwardly, the main sprocket-wheel mounted to rotate upon said disk and having ratchet-teeth upon its inner surface, a dog mounted upon said disk and adapted to be engaged by the side projecting pin upon the other dog, and a spring for pressing the same inwardly, substantially as described.

6. In a bicycle-brake, the combination of a pivoted lever adapted to engage the bicycle-wheel, a toothed ring mounted to rotate upon the crank-axle hanger, a link connecting the same with the brake-lever, a disk mounted upon the crank-axle and having a recess upon one edge thereof, a dog in said recess having a side projecting pin, a spring adapted to hold the dog outwardly, the main sprocket-wheel mounted to rotate upon said disk and having ratchet-teeth upon its inner surface, a dog mounted upon said disk and adapted to be engaged by the side projecting pin upon the other dog, a spring for pressing the same inwardly, and a spring adapted to engage the toothed ring to return the same, substantially as described.

590,490. CULVERT. JAMES THOMAS and WILLIAM R. THOMAS, Catasauqua, Pa. Filed Dec. 14, 1896. Serial No. 615,717. (No model.)



Claim.—1. A metallic culvert constructed of segmental metal sections corrugated on their inner and outer surfaces and having radial abutting ends and bolting-flanges, the end of foot sections being provided with bracing-flanges which widen out at their lower ends to form a broad bearing and bracing-support to receive the end thrust of the culvert, substantially as described.

2. A metallic culvert constructed of intermediate metal segmental sections corrugated on their inner and outer surfaces, and having radial abutting ends and bolting-flanges and end or foot corrugated sections provided with bolting-flanges and broad integral flanges forming base-plates resting directly upon broad-topped foundations, said sections also having integral bracing side flanges connecting the base-plates with the upper bolting-flanges for strengthening the same, substantially as described.

3. A metallic culvert constructed of intermediate corrugated metal sections having radial abutting ends, bolting end and side flanges, and base or foot sections, having bolting flanges, broad flanges forming base-plates resting directly upon broad-topped foundations, strengthening side flanges connecting the base-plates and the radial bolting-flanges and integral toe projections, adapted to overhang the inner edge of a suitable foundation for bracing and holding the culvert in position, substantially as described.

4. A metallic culvert constructed of segmental metal sections corrugated on their inner and outer surfaces and having radial abutting ends and bolting-flanges, the end of the foot-sections being provided with integral toe projections, directly engaging and overhanging the inner edges of broad-topped foundations, &c. for bracing and holding the culvert in position without further securing means, substantially as described.

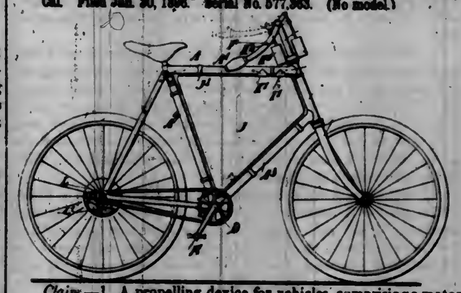
590,491. MEASURING-FAUCET. BENJAMIN F. BEARD, Pine Bluff, Ark., assignor of two-thirds to Alphonse Brewster and O. F. Brewster, same place. Filed May 21, 1897. Serial No. 637,585. (No model.)

Claim.—1. The combination with a faucet having a lateral extension intermediate its ends provided with a horizontal bore, and a key fitted in said faucet to intersect its longitudinal bore and establish communication with said horizontal bore in the extension and the longitudinal bore of the faucet on either side of the key, said extension having also a vertical bore extending through it and intersecting its horizontal bore, combined with a measuring-faucet pivotally connected at one end on said extension and provided with a passage leading from its interior and adapted to communicate with either end of the vertical bore in said lateral extension, substantially as and for the purpose specified.

2. The combination with a faucet having a lateral extension intermediate its ends and provided with a horizontal bore opening out of the side opposite the said extension and extending longitudinally into said extension and intersecting the longitudinal bore of the faucet, said extension having a vertical bore extending through it and intersecting its horizontal bore, and a key seated in said horizontal bore in the faucet and having a longitudinally-extending bore communicating with the horizontal bore in the extension, said key having also a side opening communicating with its longitudinal bore and adapted to be registered with the longitudinal bore of the faucet on either side of the key, combined with a sleeve fitted on the side extension to turn thereon and inclosing the vertical bore therein, a measuring vessel attached to the sleeve and provided with a passage leading from its interior and adapted to communicate with either end of the vertical bore in said extension, substantially as and for the purpose specified.



590,492. PROPELLING DEVICE FOR BICYCLES. WILLIS G. CALDERWOOD, Minneapolis, Minn., and DAVID W. EDWARDS, Los Angeles, Cal. Filed Jan. 30, 1896. Serial No. 577,363. (No model.)



Claim.—1. A propelling device for vehicles, comprising a motor connected with the driving-gear of the vehicle, a compressed-air reservoir held in the frame of the vehicle, the said reservoir furnishing compressed air to said motor for driving the same, a pump connected with said reservoir for filling the same with compressed air, and a handle-bar for steering the said vehicle, the said handle-bar being axially pivoted, whereby it may be swung up and down and connected with the pump to operate the same, substantially as shown and described.

2. The combination with a bicycle or like vehicle having its frame provided with tubular portions, of a propelling device, comprising a motor connected with the driving-gear of the vehicle, a compressed-air reservoir carried by the vehicle, and connected by means of the tubular frame parts with said motor, whereby the compressed-air passes from the reservoir to the motor, means for controlling the passage of air from the reservoir to the motor, a pump connected with said reservoir for filling the same with compressed air, and a handle-bar for steering the said vehicle, the said handle-bar being mounted to turn in suitable bearings, whereby it may have an up-and-down movement, the plunger of said pump being connected with and adapted to be actuated from the handle-bar, substantially as described.

3. A propelling device for bicycles, comprising a motor connected with the driving-gear of the vehicle, a compressed-air reservoir held in the vehicle-frame and furnishing compressed air for driving said motor, the said reservoir being provided with a valve-controlled outlet, a pump connected with said reservoir for filling the same with compressed air, a handle-bar mounted to swing up and down and connected with the plunger-rod of the said pump for actuating the same, and mechanism connected with the outlet-valve of the reservoir for manipulating the same, the said mechanism being under the control of the rider, substantially as specified.

4. The combination with a bicycle provided with a frame having tubular parts, of a propelling device for said bicycle, comprising a motor connected with the driving-gear of the bicycle, a compressed-air reservoir held in the bicycle-frame and having an inlet for the air, a valved outlet-pipe connecting said reservoir with the tubular parts of the frame to carry the compressed air to the said motor, a pump connected with the inlet of said reservoir for filling the same with compressed air, a handle-bar connected with the handle-bar stem for steering said vehicle, the said handle-bar being mounted to swing up and down in bearings on said stem, a connection between said handle-bar and the plunger rod or rods of the pump to actuate the same, and mechanism connected with the outlet-valve of the reservoir for manipulating the same, the said mechanism being under the control of the rider, substantially as specified.

5. The combination with a bicycle, of a motor connected with the driving-gear for the bicycle, a compressed-air reservoir held in the bicycle-frame and furnishing compressed air for driving said motor, a pump for supplying said reservoir with compressed air, a slide-valve for controlling the outlet from said reservoir and provided with a transversely-extending stem passing through a stuffing-box in the side of the reservoir, and a vertically-disposed shaft provided with a handle and under the control of the operator, the said shaft having a crank-arm connected with the stem of the said slide-valve, substantially as shown and described.

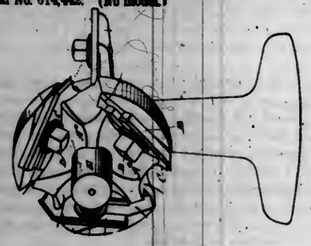
6. The combination with a bicycle, of a motor connected with the driving-gear for the bicycle, a compressed-air reservoir held in the bicycle-frame below the upper brace, the said upper brace being made hollow and provided with a partition near its forward end, an inlet-pipe provided with a valve and connecting the forward end of the upper brace with the said reservoir, a valved outlet-pipe connecting the interior of the reservoir with the upper brace at the rear of the said partition, the rear portion of said upper brace being connected through the hollow frame parts with the said motor, a handle-bar stem having its lower hollow portion connected by a port with the forward portion of the upper brace, a pump operated from the handle-bar, a discharge-pipe connecting the pump-cylinder with the hollow portion of the handle-bar stem, and a mechanism for manipulating the valve in the outlet of said reservoir, substantially as set forth.

7. The combination with a handle-bar, and the stem in which said handle-bar is mounted to turn, of a locking device for locking the said handle-bar in any desired position on the stem, the said device, comprising clutch-teeth on the said stem, a clutch-sleeve mounted to slide on said handle-bar and adapted to engage said clutch-teeth, and a collar adjustable on the handle-bar and adapted to be locked thereto, the said collar being operatively connected with the said clutch-sleeve, substantially as described.

8. The combination with the handle-bar, and the stem in which said handle-bar is mounted to turn, of a device for fastening said handle-bar to said stem, said device, comprising a clutch-sleeve fitted to slide on said handle-bar, and adapted to engage clutch-teeth on the said stem, a shifting lever for said sleeve, a rod connected with said lever, and a collar having spring-catches and adjustably held on the said handle-bar, said collar being adapted to push said rod, substantially as shown and described.

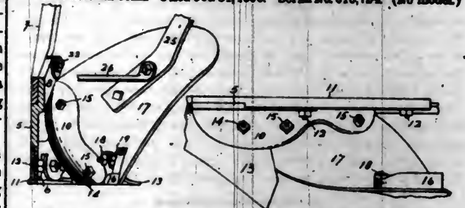
9. The combination with the handle-bar, and the stem in which said handle-bar is mounted to turn, of a device for fastening said handle-bar to the stem, said device comprising a clutch-sleeve fitted to slide on said handle-bar and adapted to engage clutch-teeth on the said stem, a bracket adjustably held on the handle-bar, a shifting lever for said sleeve fulcrumed on said bracket, a rod pivotally connected with said shifting lever and provided with collars at its outer end, and a collar having spring-catches and adjustably held on the said handle-bar, the said collar being provided with a bearing arranged between the collars on the said rod and adapted to push said rod, substantially as described.

590,493. CUTTER-HEAD. GEORGE A. ESSIGH, Defiance, Ohio, assignor to The Defiance Machine Works, same place. Filed Dec. 4, 1896. Serial No. 614,442. (No model.)



Claim.—A cutter-head consisting of two circular plates, each circular plate having a peripheral concave portion or groove, the chord of which is disposed angularly with reference to the axis of the plate, the plate also having a second groove run through the face thereof which is opposite the face to which the first-named groove is adjacent, the second groove describing a chord of the circle described by the plate and the second groove running diagonally through the thickness of the plate so that one end of the groove will lead up to the concave peripheral portion of the plate, and a knife held against one wall of the second-named groove and having its cutting edge projected to the concave peripheral portion of the plate, said cutting edge being curved in conformity with the curve of the concave portion.

590,494. PLOW. HENNING A. FRIDEN and ANDREW SWANSON, New Britain, Conn. Filed Oct. 31, 1896. Serial No. 610,734. (No model.)

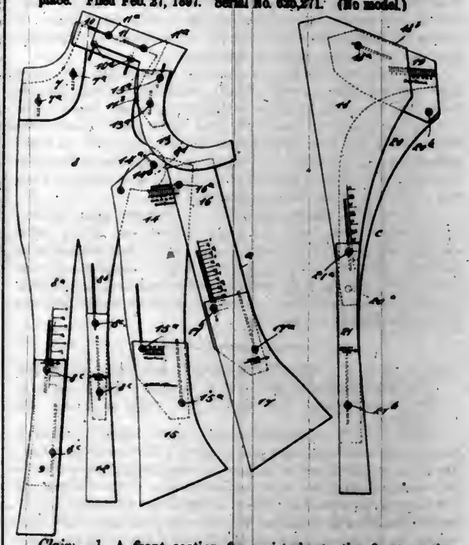


Claim.—1. A plow comprising the frame forming the main portion of the landside and also the share and moldboard flange, the landside-shoe secured to said frame, the share and moldboard secured to said flange, the continuous metal plow-beam and handle-arm bolted to the rabbeted upper edge of said frame, a companion metal handle-arm and cross-braces, substantially as described.

2. A plow having a bent-up sheet-steel moldboard and the moldboard-shoe 16 bolted upon the inner side of the moldboard-heel and slotted at one end for vertical adjustment thereon, substantially as described.

3. A plow having a cast-metal frame with rabbeted ears at its lower edge, a rabbeted upper edge, and the moldboard and share flange 10 at its forward end, a steel shoe secured to the rabbeted ears at the lower edge of said frame, a share abutting against said shoe and extending over a portion of said flange 10 to which it is bolted, the sheet-metal moldboard also bolted to said flange 10, a plow-beam, handle-arms, and cross-braces, substantially as described.

590,495. ADJUSTABLE GARMENT-PATTERN. ARRAN O. HANCOCK, New Orleans, La., assignor of one-half to James M. Lane, same place. Filed Feb. 27, 1897. Serial No. 625,271. (No model.)



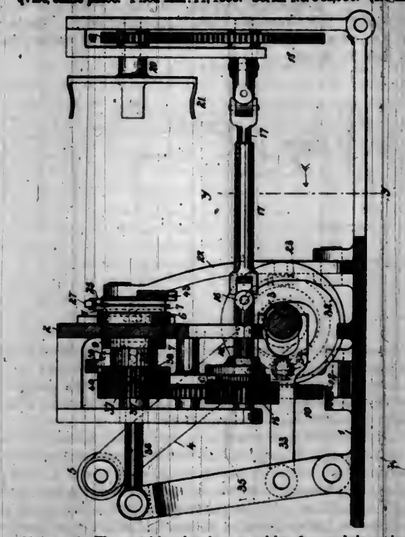
Claim.—1. A front section for waist-charts, the front section having a main templet 8, a templet 10 slidably connected with the upper portion of the templet 8 and movable in a vertical line transversely with reference to the templet 10, a templet 11 parallel with

the templet 10 and slidably connected therewith, the templet 11 being movable longitudinally on the templet 10 and having a downwardly-extended arc-shaped projection 11^b and an arc-shaped templet 13, the upper portion of which is slidably connected with the projection 11^b and the lower portion of which is extended downward and rearward upon the armhole of the waist.

2. A back section for waist-charts, the back section having four templets 18, 19, 20 and 21, the templet 19 being slidably connected with the upper portion of the templet 18 and projected forwardly from the templet 18, the templet 20 being pivoted to the forward extremity of the templet 19 and curved downward and rearward and having sliding connection with the lower extremity of the templet 18 and being extended below said templet 18, and the templet 21 being extended from the lower portion of the templet 18 downward beyond the templet 20 and having sliding connection with the templets 18 and 20 so as to move vertically thereon.

3. An upper sleeve-section for waist-charts, the said section having five templets, 30, 31, 32, 33 and 34, the templet 33 being slidably connected with the upper portion of the templet 34 so as to move approximately vertically thereon and the templet 31 being slidably connected with the templet 33 so as to move transversely on the templet 33, the templet 31 being extended vertically, the templet 32 being located at the rear portion of the templet 34 and running vertically above and below the same and having sliding connection therewith so as to move diagonally on the templet 34, and the templet 30 being located rearward of the templet 31 and at the upper portion of the templet 32 and having sliding connection on said templet 32.

590,496. MACHINE FOR WIRING CORKED BOTTLES. JOHANNES KARLSSON, Stockholm, Sweden, assignor of one-half to Victor Lindqvist, same place. Filed Mar. 11, 1895. Serial No. 541,350. (No model.)



Claim.—1. The combination in a machine for applying wire to a corked bottle, of a socket, means for supplying and holding one end of the wire and for winding the wire around the socket, means for carrying the wire centrally across the end of the socket, means for slipping the coil of wire off from the socket onto the bottle-neck and for pulling up and tightening the wire around said neck, means for forcing the cork and bottle-neck with the wire thereon out of the socket, and means for twisting the ends of the wires together over the cork, substantially as specified.

2. The combination in a machine for applying wire to a corked bottle, of a socket, means for rotating the same, means for supplying the wire and connecting one end of a wire to the socket so that the wire may be wound around the socket by the rotation of the same, means for carrying the wire across the end of the socket, means for holding and rotating the bottle after the cork and bottle-neck have been inserted into the socket, means for shedding the coil of wire from around the socket upon the neck of the bottle, and means for drawing up the wire and for twisting the ends together and cutting off the wire, substantially as set forth.

3. The combination with the sliding cylindrical socket and means for supporting the socket and rotating it in its support, of an arm for carrying the wire, means for holding the wire to the socket while the socket is being rotated, means for moving the arm to carry the wire across the socket, means for supporting and rotating the bottle after the cork and neck have been thrust into the socket, means for drawing up the wire around the neck of the bottle and for holding the wire while the parts thereof are being twisted together, and means for cutting off the wire and restoring the parts to their normal position, substantially as set forth.

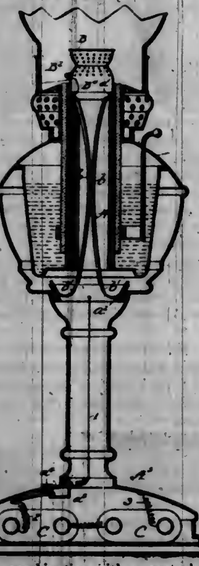
4. A tubular sliding socket 7 and means for supporting and rotating the same in its support, a spring upon the socket for engaging the wire previous to the rotation of the socket, means for supplying the wire, and a pair of pincers and means for moving the same to draw up the wire around the neck of the bottle after the coil of wire has been shed off the socket upon the neck of the bottle, substantially as set forth.

5. The combination with the socket and means for supporting and rotating the same and for supplying the wire, of a piston movable in the socket for driving out the bottle, and a pair of shears within the socket and means for opening and closing the same and cutting off the wire after it has been twisted, substantially as set forth.

6. The combination with the socket and means for supplying the wire, of a lever 22 and tongs or jaws 25, and 27, and guides for actuating the tongs or jaws for drawing up the wire around the neck of the bottle and carrying the wire over the cork for the two parts to be twisted together, and means for holding and rotating the bottle to twist the wire, substantially as set forth.

7. The combination in a machine for supplying wire to corked bottles, of an arm through which the wire is supplied, a socket around which a coil of wire is applied and led across the socket, a bar and tongs for grasping the wire, means for receiving and holding the bottle, a crank and connecting mechanism therefrom for rotating the bottle, for moving the wire-carrying arms and pincers, and for actuating the socket, substantially as set forth.

590,497. ELECTRICAL IGNITING DEVICE FOR LAMPS. SVEND M. METER, Brooklyn, N. Y., assignor to William H. Seidel and Henry M. Brigham, same place. Filed Apr. 27, 1896. Serial No. 547,426. (No model.)



Claim.—1. The combination with a central-draft oil-lamp of a high-resistance electrical conductor located adjacent to the upper end of the wick-tube and attached to and supported by the air-distributer.

2. The combination with a central-draft oil-lamp of a high-resistance electrical conductor located adjacent to the upper end of the wick-tube, one end of such electrical conductor being electrically connected to the air-distributer and the other end passing through the insulating material into the interior of the air-distributer and connected with an electrical lead insulated from the said thimble.

3. The combination with a central-draft oil-lamp of an electrical conductor located adjacent to the upper end of the wick-tube and attached to and supported by the air-distributer and removable therewith from the lamp.

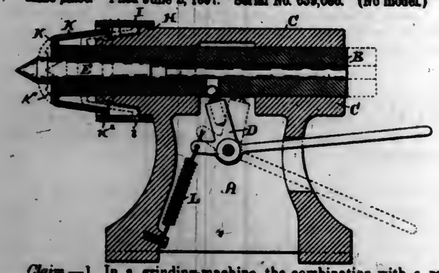
4. The combination with a central-draft oil-lamp of an electrical conductor located adjacent to the upper end of the wick-tube and

supported by the air-distributer, one end of such conductor being in electrical connection with such air-distributer and the other insulated therefrom, an electrical conductor extending up through the inner wick-tube of the lamp and means for automatically making the connection between the insulated end of such electrical conductor and the conductor in the inner wick-tube when the air-distributer is placed in position in the lamp.

5. The combination with a central-draft oil-lamp of an electrical conductor located adjacent to the upper end of the wick-tube, one end of such conductor being electrically in connection with the air-distributer located at the upper end of the wick-tube and the other end passing through the air-distributer and down through the interior of the inner wick-tube and electrically connected to one pole of the battery, the other pole of which is electrically connected to the body of the lamp.

6. In a central-draft oil-lamp the combination of a high-resistance electrical conductor located adjacent to the upper end of the wick, one end of which is electrically in contact with the air-distributer and the other end of which passes through insulating material inserted in the air-distributer and a metal band securely fastened to the said air-distributer but insulated therefrom and spring-fingers which automatically complete the electrical connection between the said ring and the insulated ring in the body of the lamp when the fount of the lamp is placed in position in the lamp.

590,498. GRINDING-MACHINE. CHARLES H. NORTON, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed June 2, 1897. Serial No. 639,066. (No model.)



Claim.—1. In a grinding-machine, the combination with a reciprocating part of the machine and the end of the fixed part beyond which the reciprocating part moves, of a tapering surface provided with a groove, a sleeve, overhanging the tapering part and groove, on the fixed part of the machine, and a guard secured to the reciprocating part of the machine and in sliding contact with the sleeve, whereby the surface of the reciprocating part is protected against water and grit, as described.

2. In a grinding-machine, the combination with the arbor B, the center E, and head of a foot-rest, of the sleeve I, and the guard K having a sliding contact with the interior of the sleeve, whereby the projecting end of the arbor is protected and inclosed, as and for the purpose described.

590,499. RECEPTACLE FOR INKING-PADS. WILLIAM C. ROBINSON, Big Stone Gap, Va., assignor of one-half to John M. Goodloe and Henry C. McDowell, Jr., same place. Filed July 1, 1897. Serial No. 643,163. (No model.)



Claim.—1. In combination with a pad having a composition base, a box or receptacle having vertical sides to inclose said base and a bottom located above the lower edge of the side flange, said bottom having an aperture therein of such an area that the composition base of the pad at its center may be forced below said aperture, for the purpose set forth.

2. In combination with a canceling-pad having a composition base and an absorbent surface attached thereto, of a box having vertical sides, a bottom secured above the lower edge of said side and a central aperture, the bottom being bent upwardly surrounding the aperture, substantially as shown and for the purpose set forth.

3. In combination with an inking-pad consisting of a roller composition and an ink-absorbent surface, of a box or receptacle having sides, the height of which is substantially the same as the thickness of the roller composition, a circumferential rim below the sides, a base or bottom portion above the said rim having the central portion cut away, said base being bent to provide an upwardly-projecting portion which connects with a downwardly-projecting portion, substantially as shown and for the purpose set forth.

590,500. CATTLE-GUARD. FRANK C. SEYMOUR, Chicago, Ill. Filed Jan. 22, 1895. Serial No. 535,752. (No model.)



Claim.—1. In a surface cattle-guard, a section composed of side rails provided at their top edges with teeth or serrations and cross-bars extending between and secured to the side rails and provided with teeth or serrations at both their top and bottom edges respectively.

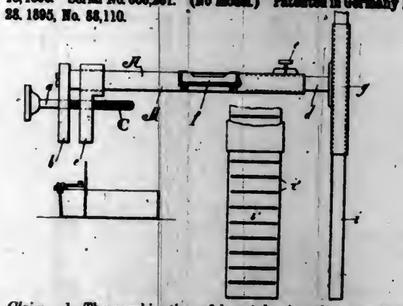
2. A surface cattle-guard, comprising side rails A A' running substantially parallel with the track and provided at their top edges with laterally-projecting teeth *a*, *a'*, and cross-bars B having teeth C at their top edges and teeth D at their lower or bottom edges.

3. A cattle-guard comprising side rails and cross-bars having teeth or serrations at their top edges and provided with a crimp near such top edges and substantially at the base of the teeth.

4. A cattle-guard comprising longitudinal side rails running substantially parallel with the track and bars extending substantially crosswise of the track and between the side rails, the bars comprising a body portion and toothed or serrated flanges extending at an angle from the upper and lower edges of the body portion.

5. A cattle-guard comprising longitudinal side rails and cross-bars extending between the side rails and having teeth or serrations at both their top and bottom edges.

590,501. APPARATUS FOR MEASURING CONTENTS OF COOLING-VATS. ADOLF STARKENSTEIN, Charlottenburg, Germany. Filed Sept. 13, 1896. Serial No. 606,261. (No model.) Patented in Germany Dec. 23, 1895, No. 88,110.



Claim.—1. The combination of bar A having clamps *a*, *b*, *c*, on one end, an adjustable tang *d* fitted on its other end; and a level *f* on its side; with the vertical guide *g* on tang *d*, and the spring *h* in said guide, and the rule *i* having frets *i'* sliding in said guide, all substantially as and for the purpose set forth.

2. The herein-described device for determining the height of the level of the liquid in cooling-vats for breweries, consisting of the bar A provided with a level *f*, and clamping-screw *c*, and a movable clamping-foot *e* adapted to secure the instrument on the side of the cooling-vat; with the guide *g* adjustably mounted on bar A, and the measuring-rule *i*, all adapted to be attached to a vat so that it is possible to effect at a determined place the first measurement and also repeated measurements, substantially as and for the purpose described.

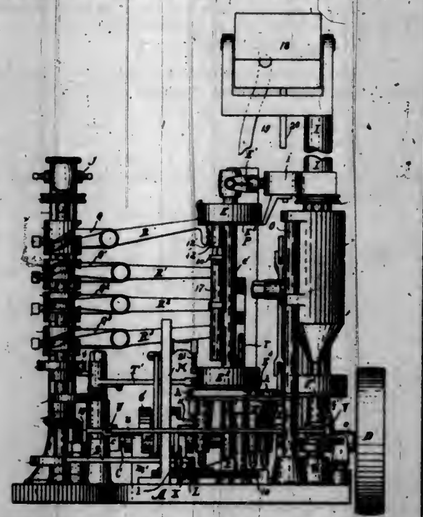
590,502. CAPSULE-FILLING MACHINE. LOUIS STARKENSTEIN, Detroit, Mich., assignor to the United States Capsule Company, of New Jersey. Filed Oct. 29, 1896. Serial No. 610,457. (No model.)

Claim.—1. The combination, in a machine for automatically filling gelatin capsules with medicine, of capsule-feeding mechanism, mechanism for unjoining a capsule, mechanism for filling the capsule with medicine, and capsule-joining mechanism, substantially as set forth.

2. In a machine for automatically filling gelatin capsules the combination with a reversing mechanism of selecting mechanism located at a distance from the reversing mechanism greater than the length of the cap, and less than the length of the capsule.

3. In a machine for automatically filling gelatin capsules an unjoining mechanism consisting of two members, one of which has formed therein an aperture of two diameters, and the other of which has formed therein a compressible receptacle, means for moving said first member away from said second member, and means for simultaneously compressing the receptacle in said second member.

4. In a machine for automatically filling gelatin capsules the combination with capsule-feeding mechanism, of appliances for removing the cap from the body of a capsule, means for carrying the body to mechanism for filling said body with medicine, and means for replacing said cap on said body, substantially as set forth.



5. In a machine for automatically filling gelatin capsules the combination with an unjoining and joining mechanism, consisting of two members, one adapted to hold the cap and the other adapted to hold the body of a capsule, of means for moving said two members in unison, appliances for moving the cap member away from and transversely of the body member, a measuring-receptacle for medicine, means for causing said medicine-receptacle to register with the body of the capsule and for discharging said medicine into said capsule, means for moving the cap member transversely of and back to the body member, and means for pushing the body of the capsule into the cap, and then ejecting the joined capsule.

6. In a machine for automatically filling gelatin capsules, the combination with a conduit for delivering empty capsules successively to the machine, of a selecting mechanism having an aperture large enough to receive the body of the capsule, and too small to receive the cap, and mechanism for reversing capsules presented to the selecting mechanism cap end first, substantially as set forth.

7. In a machine for automatically filling gelatin capsules, the combination of a selecting mechanism arranged in the line of the capsule-delivery and having an aperture to receive the capsule, means for contracting the aperture at the moment of selection to a diameter less than that of the cap and greater than that of the body and subsequently expanding said aperture to a diameter greater than that of the cap, and mechanism for reversing capsules presented to the selecting mechanism cap end first, substantially as described.

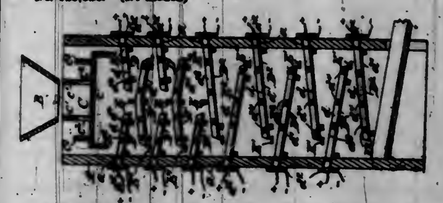
8. In a machine for automatically filling gelatin capsules, the combination of capsule feeding and selecting mechanism, mechanism for reversing capsules presented to the selecting mechanism cap end first, unjoining and joining mechanism, and filling mechanism timed to operate between the unjoining and joining operations, substantially as described.

590,503. PNEUMATIC TIRE. GEORGE C. TAYLOR, Helsby, England. Filed May 20, 1897. Serial No. 636,706. (No model.)



Claim.—An armoring for pneumatic tires consisting of a sheet of thin steel or other suitably elastic and non-puncturable metal folded or bent back upon itself in a zigzag manner so as to form a folded strip with overlapping edges which permit it to stretch the said metal sheet being subsequently curved to fit the tire and applied thereto in any of the ways herein described.

590,504. ART OF AND APPARATUS FOR AMALGAMATING. WILLIAM A. TRACHSEL, New York, N. Y. Filed Mar. 3, 1897. Serial No. 625,999. (No model.)

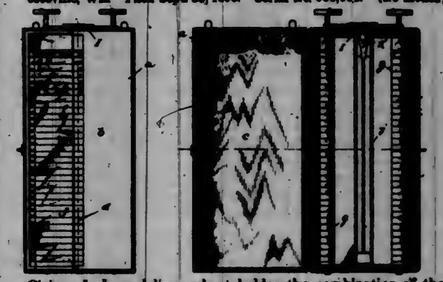


Claim.—1. An amalgamating apparatus provided with an inclined amalgamated bottom plate, riffle-forming electrodes disposed transversely upon and across said plate and insulated therefrom, whereby the material operated upon falls over the upper edges of said electrodes upon said amalgamating-plate, and an electric circuit having one side connected to the plate and the other to the series of riffle-forming electrodes; substantially as described.

2. An amalgamating apparatus having an inclined amalgamating-plate, stop-bars of insulating material disposed transversely upon said plate, electrodes set in said stop-bars, whereby the material operated upon falls over said electrodes upon said amalgamating-plate and an electric circuit having one side connected to said amalgamating-plate and the other side connected to said electrodes, substantially as shown and described.

3. The improvement in the art of amalgamating, which consists in mixing with water the material to be treated, passing the mingled water and material in a continuous stream over a series of electrodes, the negative electrodes of said series having amalgamated working faces and subjecting the water and material, in passage, to the action of electric currents of different degrees of strength at successive electrodes.

590,505. MILK-SHEET HOLDER. CHARLES H. THORNTON, Fayetteville, Wis. Filed Sept. 26, 1896. Serial No. 606,921. (No model.)



Claim.—1. In a delivery-sheet holder the combination of the casing, the rotatable rollers, an account-sheet carried by said rollers, date-columns on said sheet, a slot in said casing registering with said date-columns, a patrons' list on the face of said casing adjacent said slot and a transparent covering for said list substantially as described.

2. A delivery-sheet holder composed of the casing, rollers therein, operating-handles therefor, an account-sheet carried by said rollers, a series of dated columns on said sheet, a slot in the front of said casing, a flat bar or plate behind said account-sheet pressing it to said slot, a receptacle adjacent said slot on the front of said casing, a patrons' list therein and a transparent cover over said list, substantially as described.

3. A delivery-sheet holder composed of the casing, the front and rear portions thereof being hinged, a series of rollers therein, an account-sheet carried by said rollers, a series of dated columns on said sheet, a slot in the front of said casing, a flat bar or plate adapted to hold said account-sheet against the front portion of the casing and covering said slot, a protected patrons' list corresponding with said account-sheet adjacent said slot, operating-handles for said rollers and a spring connecting said rollers at the top, preventing rotation and holding said account-sheet in the desired position, substantially as described.

590,506. COLLAR-BUTTON. ALEXANDER WATSON, Boston, Mass. Filed Aug. 19, 1896. Serial No. 603,186. (No model.)

Claim.—1. In a collar-button, the combination with a shoe, a shank, and a head, of an enlargement formed on the shank, and a supplemental head slidable on the shank provided with a collar adapted to receive the enlargement and lock therewith.

2. In a collar-button, the combination with a shoe, a shank, and a head, of an enlargement formed on the shank adjacent the shoe, and a supplemental head slidable on the shank and which is provided with a notched or split collar or socket adapted to receive the enlargement and lock therewith.



590,507. THILL-COUPLING. JAMES R. M. WINBURN, Gainesville, Ga. Filed May 18, 1897. Serial No. 637,047. (No model.)



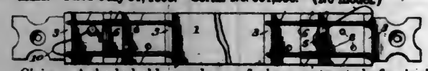
Claim.—1. A thill-coupling, comprising an axle clip-iron, a shaft having its iron terminating in an undercut head having a seat to engage the upper face of the iron, a straddle-member bail pivotally held on the clip-iron, adapted to swing over the shaft-iron and a lock device held on the shaft-iron to engage such bail and hold it to its locking position as specified.

2. As an improvement in antirattler thill-couplings, the combination with the axle clip-iron, the shaft-iron adapted to be pivotally held and movable laterally thereon, a bail for holding the shaft-iron down on the clip-iron, said bail having endwise movement on the said clip-iron when at an unlocked position, a locking means carried on the shaft-iron to engage such bail and hold it in a locked engagement with such shaft-iron, and from endwise movement on said clip-iron, and the shaft-iron in a locked engagement with the clip-iron, substantially as shown and for the purposes described.

3. As an improvement in thill-couplings, the combination with the clip-iron having transverse corrugations on its under face and the shaft-iron having a socket on its under face to engage the upper face of the clip-iron, of a bail having eye portions movable laterally on the clip-iron when the bail is in an unlocked position, said bail being held on the said iron to swing over the end of the shaft-iron, and a lock device carried on the shaft adapted to engage the bail and pull same up, whereby to cause its eyes to engage the transverse corrugations and thereby lock the shaft from endwise movement on the clip-iron as set forth.

4. The combination with the U-shaped axle clip-iron, its shaft-engaging member having transverse grooves or corrugations and the bail having eye portions engaging the corrugated member of such clip, of the shaft-iron having a head provided with a socket to seat on the smooth face of the clip-iron, a flat spring held on such shaft-iron, a cam-lever pivotally held in the free end of the spring having a lock-lug, a cam portion at its pivotal end, said lug adapted to engage the cross-bar of the clip-iron bail and lock it in engagement with the shaft-iron and with the corrugated face of the clip-iron, as specified.

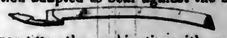
590,508. SHADE-BRACKET HOLDER. PEDRO AUGUTO, Boston, Mass. Filed July 31, 1896. Serial No. 601,280. (No model.)



Claim.—A shade-holder made up of a bar constructed of a single non-extensible strip of wood or metal, adapted to be secured to the top of a window-frame, and provided with a series of openings or perforations near its outer ends, plates arranged in pairs secured to the front surface of said bar, longitudinally-extending rods having inturned ends which project through said plates and said bar, shade-supporting brackets having imperforate bases and grooves in the upper surfaces thereof fitting beneath said rods, and pins adapted to be inserted through openings or perforations in said bar for limiting the outward movement of said brackets, substantially as and for the purpose described.

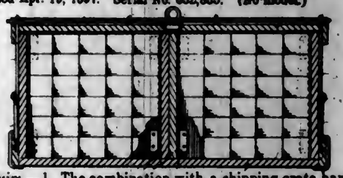
590,509. COMBINED STOVE-LID AND PAN LIFTER. JOHN A. BLOMBERG, Burdick, Kans. Filed Aug. 29, 1896. Serial No. 604,254. (No model.)

Claim.—1. In a pan-lifter, the combination with a pan, of an ear connected to the same, which is provided with an outwardly-extending portion having a substantially square opening therein, and a handle which is provided with front and rear shoulders defining between them a portion of approximately the same size and shape as the opening aforesaid and adapted to fit therein and a forwardly-projecting reduced portion adapted to bear against the bottom of the ear.



2. In a pan-lifter, the combination with a pan, of an ear connected thereto which is provided with a horizontally-extending portion having a substantially square opening therein, and a handle provided with front and rear shoulders defining between them a portion of approximately the same size as the opening and adapted to fit therein and an outer reduced end provided with a cut-away portion and a shoulder adapted to serve as a catch to prevent detachment of the handle from the ear.

590,510. SHIPPING-CRATE. JOHN BOWTA, Jr., Burgin, Ky. Filed Apr. 19, 1897. Serial No. 632,835. (No model.)

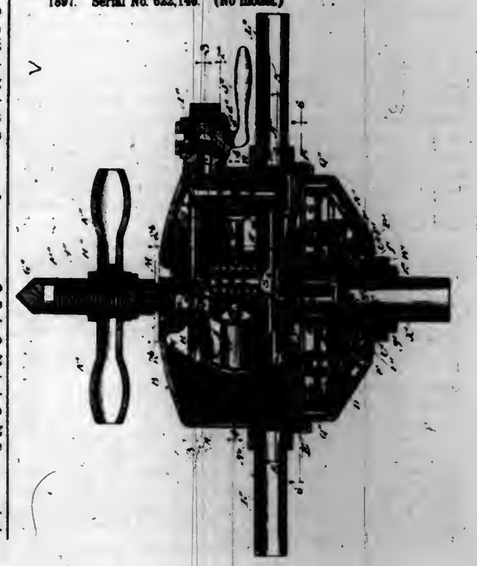


Claim.—1. The combination with a shipping-crate having a top provided with a cavity and end slots, of means for locking the top comprising the standards fixed to the bottom of the crate, the links on the standards, and the locking-bar having a coil or loop forming a hand-ring and adapted to engage said cavity, as set forth.

2. A shipping-crate comprising the top and bottom tray portions, the top portion having a cavity, and slots through its ends, a locking-bar slidably secured to the said top, and having a hand-ring to engage the cavity and lock the bar to the top, the compartments between said trays, and the standards and links secured together and to the bottom of the tray and adapted to pass through the said slots to be engaged by the said bar to lock the crate in either folded or unfolded condition, as set forth.

3. A shipping-crate comprising a top tray having a cavity and end slots, a locking-bar slidably secured to the top of the tray, and having a portion adapted to engage the said cavity and to fix the bar to the top, a bottom tray secured to the top tray, the links loose on the standards and adapted to hang inside the crate, and the partition held by said two trays and locked by said bar, standards, and links in either set-up or folded position.

590,511. ENGINE. JOSEPH BOYER, St. Louis, Mo. Filed Feb. 5, 1897. Serial No. 622,146. (No model.)



Claim.—1. In an engine, the combination of a rotary frame, a plurality of cylinders carried thereby and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and valves at the outer ends of said cylinders for controlling the admission and exhaust of the motive fluid to and from their outer ends behind their pistons.

2. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and means controlled by the oscillations of the cylinders upon their pivotal supports to admit the motive fluid to and exhaust it from the cylinders through said supports.

3. In an engine, the combination of a rotary frame, a plurality of cylinders mounted thereon upon pivots fixed in said frame and having their piston-rods connected to a fixed eccentric or crank pin, said pivots constituting valves and being provided with inlet and exhaust ports alternately opened and closed by the oscillations of the cylinders upon them, to admit the motive fluid to and exhaust it from the cylinders.

4. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and inlet and exhaust ports at the outer ends of said cylinders which are opened and closed by the oscillations of the cylinders upon their pivotal supports, to admit the motive fluid to and exhaust it from their outer ends behind their pistons.

5. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and means for admitting the motive fluid to and exhausting it from the outer ends of the cylinders through their pivotal supports.

6. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and means controlled by the oscillations of the cylinders upon their pivotal supports to admit the motive fluid to and exhaust it from their outer ends through said supports.

7. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and valves within the pivotal supports of the cylinders for controlling the admission and exhaust of the motive fluid to and from the outer ends of the cylinders behind their pistons.

8. In an engine, the combination of a rotary frame, a plurality of cylinders pivotally mounted thereon at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and valves within the pivotal supports of the cylinders for controlling the admission and exhaust of the motive fluid to and from the outer ends of the cylinders behind their pistons, the inlet and exhaust ports of said valves being opened and closed by the oscillations of the cylinders.

9. In an engine, the combination of a rotary frame, a plurality of cylinders mounted at their outer ends upon pivots fixed in said frame and having their piston-rods connected to a fixed eccentric or crank pin, said pivots constituting valves for controlling the admission and exhaust of the motive fluid to and from the outer ends of the cylinders behind their pistons.

10. In an engine, the combination of a rotary frame, a plurality of cylinders mounted at their outer ends upon pivots fixed in said frame and having their piston-rods connected to a fixed eccentric or crank pin, said pivots being provided with inlet and exhaust ports opened and closed by the oscillations of the cylinders upon them, to admit and exhaust the motive fluid to and from the outer ends of the cylinders behind their pistons.

11. In an engine, the combination of a rotary frame, a plurality of cylinders mounted at their outer ends upon pivots fixed in the rotary frame and having their piston-rods connected to a fixed eccentric or crank pin, each of said pivots consisting of an internally-bored post or tube containing a live-air chamber and an exhaust-chamber, and ports intermediate said chambers and the outer end of the piston-chamber in the cylinder and opened and closed by the oscillation of the cylinder, for the purpose described.

12. In an engine, the combination of a rotary frame, a plurality of cylinders mounted at their outer ends upon pivots fixed in the rotary frame and having their piston-rods connected to a fixed eccentric or crank pin, each of said pivots being provided with a longitudinal inlet-port and a longitudinal exhaust-port, out of line with each other, and the cylinder-head being provided with a cooperating port brought into register with the first-mentioned ports alternately by the oscillations of the cylinder upon the pivot.

13. In an engine, the combination of a rotary frame, a plurality of cylinders mounted at their outer ends upon pivots fixed in the rotary frame and having their piston-rods connected to a fixed eccentric or crank pin, each of said pivots consisting of an internally-bored post or tube containing a live-air chamber and an exhaust-chamber, an inlet-port opening into the live-air chamber and an exhaust-port, opening into the exhaust-chamber, out of longitudinal line with each other, and the cylinder-head being provided with a cooperating port brought into register with the first-mentioned ports alternately by the oscillation of the cylinder upon the pivot, for the purpose described.

14. In an engine, the combination of a rotary frame, a plurality of pivots fixed in said frame, a plurality of cylinders having heads at their outer ends provided with sleeves surrounding and fitting said pivots and having their piston-rods connected to a fixed eccentric or crank pin, and inlet and exhaust ports in said pivots and cylinder-heads which are opened and closed by the oscillations of the cylinders upon said pivots, for the purpose described.

15. In an engine, the combination of a rotary frame, a plurality of pivots fixed in said frame and each consisting of an internally-bored post or tube having a live-air chamber and an exhaust-chamber, and an inlet and an exhaust port opening into said chambers respectively, and a plurality of cylinders having their piston-rods connected to a fixed eccentric or crank pin having heads at their outer ends provided with sleeves surrounding and fitting said tubular pivots and provided with ports to cooperate with the inlet and exhaust ports of the pivots in the manner and for the purpose described.

16. The combination of the valve R provided with the chambers B′ and B″ and the ports C′ and C″, and a cylinder having a head P provided with a sleeve Q surrounding the valve R and adapted to oscillate upon the same as a pivot, said head P being provided with the diametrical slot D′ constituting a port to cooperate with the ports C′ and C″ of the valve R as the cylinder oscillates upon said valve.

17. The combination of the valve R provided with the chambers B′ and B″ and the ports C′ and C″, and having upon its exterior the grooves E′ and E″ forming continuations of the ports C′ and C″, respectively, and the cylinder having a head P provided with a sleeve Q surrounding and fitting the valve R, and also having a diametrical slot D′ adapted to cooperate with the ports and grooves in the valve R in the manner described.

18. In an engine of the character described, the combination of a rotary frame carrying at one end a central hollow shaft and provided with radial passages communicating at their inner ends with the bore of said shaft, a plurality of cylinders carried by said rotary frame, and valves located at the outer ends of the radial passages in said frame for admitting the motive fluid to and exhausting it from the outer ends of the cylinders and causing it to pass, in one direction or the other, through said passages in the rotary frame and the internal bore of the shaft carried thereby.

19. In an engine of the character described, the combination of a rotary frame carrying at one end a hollow central shaft and provided with radial passages communicating at their inner ends with the bore of said shaft, a plurality of pivots fixed in said rotary frame at the outer ends of said radial passages and each provided with an inlet and an exhaust passage, one of which communicates with one of the radial passages in the rotary frame, and a plurality of cylinders mounted at their outer ends upon said pivots and provided with ports cooperating with the inlet and exhaust ports of the pivots, for the purpose described.

20. In an engine of the character described, the combination of a rotary frame carrying at one end a central hollow shaft and provided with radial passages communicating at their inner ends with the bore of said shaft, a plurality of pivots fixed in said rotary frame at the outer ends of the respective radial passages, and each consisting of a tube provided with an inlet and an exhaust chamber, one of which chambers communicates with one of the radial passages in the rotary frame, and each pivot being also provided with inlet and exhaust ports communicating with said chambers, respectively, and a plurality of cylinders mounted at their outer ends upon said pivots and provided with ports cooperating with the inlet and exhaust ports of the pivots, for the purpose described.

21. In an engine of the character described, the combination of the rotary frame I carrying the hollow central shaft K and provided with the radial passages e communicating at their inner ends with the bore of the shaft K, the tubular pivots R secured in the frame I at the outer ends of the passages e and provided with the chambers B′ and B″ and with the ports C′ and C″, the chambers B″ communicating with the outer ends of the respective passages e, and the cylinders provided with heads P having the sleeves Q surrounding and fitting the pivots R, and having also the ports D′ to cooperate with the ports C′ and C″ of the pivots R as the cylinders oscillate upon the latter.

22. In an engine of the character described, the combination of a rotary frame composed of two opposing plates suitably secured together, one of said plates having a bearing upon a fixed crank-shaft and the other having secured to it a central hollow shaft supported in suitable bearings, and being provided with radial passages com-

municating at their inner ends with the bore of such shaft, a plurality of pivots secured at their opposite ends in the opposing plates of said rotary frame at the outer ends of the radial passages, and each provided with an inlet and an exhaust port, one of which communicates with the radial passage, and a plurality of cylinders mounted at their outer ends upon said pivots between the opposite plates of the rotary frame and having the inner ends of their piston-rods connected to the eccentric-pin of the fixed crank-shaft, and having their heads provided with ports to cooperate with the inlet and exhaust ports of the pivots.

23. In an engine of the character described, the combination of the fixed crank-shaft J, the rotary frame composed of the plates H and I, the former having a bearing upon the shaft J and the latter having fixed in it the central hollow shaft K and provided with the radial passages o communicating at their inner ends with the bore of said shaft, the tubular valves R secured at their opposite ends in the plates H I at the outer ends of the passages o and each provided with the chambers B′ and B″ and the ports C′ and C″, the chambers B″ communicating at their lower ends with the radial passages o, the cylinders provided with heads P having the sleeves Q surrounding the valves R, and having also the ports D′ to cooperate with the ports C′ and C″ of said valves, and the pistons S in said cylinders having their rods T connected at their inner ends to the eccentric-pin L of the fixed crank-shaft J.

24. In an engine of the character described, the combination of the fixed crank-shaft J, the rotary frame composed of the plates H I, the former having a bearing upon the shaft J and the latter having fixed in it the central hollow shaft K and being provided with the radial passages o communicating at their inner ends with the bore of said shaft, the tubular valves R fixed at their opposite ends in the plates H I at the outer end of the radial passages o and each provided with the chambers B′ and B″ and the ports C′ and C″, said chambers B′ communicating at their lower ends with the passages o by means of circumferential grooves and ports n in the valve R, the hollow flanged screws Y screwed into the upper ends of the valves R and serving to secure the latter to the plate H without obstructing the entrance to the chambers B′ of the valves, the flanged screws Z screwed into the lower ends of the valves R and serving to secure the latter to the plate I and to close the lower ends of the chambers B″, the cylinders provided with heads P having the sleeves Q surrounding the valves R and provided with ports D′ to cooperate with the ports C′ and C″ of the valves, and the pistons S within the cylinders having the inner ends of their rods T connected to the eccentric-pin L of the fixed crank-shaft J.

25. In an engine of the character described, the combination of the fixed crank-shaft J provided with the groove *d* and the hole *g* communicating with said groove, of the rotary cylinder-carrying plate H having the large central opening surrounding the shaft J and carrying the cylinders having their piston-rods connected to the eccentric-pin L of the shaft J, the ring *e* fitting in said opening and provided with the groove corresponding to the groove *d*, the balls *f* fitting in the track formed by the groove *d* and the groove in the ring *e*, the extra ball for closing the passage between the hole *g* and the groove *d* in the shaft J, and means for holding said extra ball in place.

26. In an engine of the character described, the combination, with the fixed eccentric pivot L, of the rotary frame carrying the cylinders having their piston-rods T provided with straps surrounding said pivot, the rings V fitting within said straps and each having a V-shaped groove upon its inner surface, and the balls W interposed between said rings and the pivot L and confined in the grooves in the rings.

27. In an engine of the character described, the combination of the rotary plate or frame I having the radial passages o, and the hollow shaft K secured in said frame with its bore communicating with the passages o, for the purpose described.

28. In an engine of the character described, the rotary frame composed of the plates H and I secured together at the outer ends of their respective arms by posts or tubes constituting pivots for the cylinders and valves to control the admission and exhaust of the motive fluid to and from the outer ends of the cylinders.

29. In an engine of the character described, the rotary frame composed of the plates H and I secured together at their outer ends by the posts or tubes constituting pivots for the cylinders and valves for controlling the admission and exhaust of the motive fluid to and from the outer ends of the cylinders, the plate H of said frame having a bearing upon a fixed shaft J, and the plate I thereof having secured in it the hollow shaft K affording the bearing for the latter plate, and being provided with the radial passages o communicating at their inner ends with the internal bore of the shaft K and at their outer ends with the valve-pivots upon which the cylinders are mounted.

30. The combination of the fixed crank-shaft J having the eccentric-pin L, the rotary frame composed of the plates H and I secured together by the posts or tubes R constituting both pivots and valves for the cylinders, the plate H having a bearing upon the fixed shaft J, and the plate I having secured in it the hollow shaft K affording a bearing for it, and being also provided with the radial passages o communicating at their inner ends with the internal bore of the shaft K and at their outer ends with the valves R, the cylinders having the heads P provided with the sleeves Q surrounding the valves R, and the pistons S within said cylinders having their rods T connected at their inner ends to the eccentric-pin L of the fixed shaft J.

31. In an engine, the combination of a live-air chamber to which the motive fluid under pressure is admitted, a rotary frame within said chamber, a plurality of cylinders carried by said frame and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and valves controlling the passage of the motive fluid from the live-air chamber to the outer ends of the cylinders and its exhaust therefrom.

32. In an engine, the combination of a live-air chamber to which the motive fluid under pressure is admitted, a rotary frame within said chamber, a plurality of cylinders carried by said frame and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and valves at the outer ends of the cylinders controlling inlet and exhaust ports for admitting the motive fluid to and exhausting it from the outer ends of the cylinders, said inlet-ports communicating with the interior of the live-air chamber and the exhaust-ports communicating with exhaust-passages in the rotary frame.

33. In an engine, the combination of a live-air chamber to which the motive fluid under pressure is admitted, a rotary frame mounted in said chamber, a plurality of cylinders pivotally supported upon said frame and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and inlet and exhaust ports opened and closed alternately by the oscillation of the cylinders upon their pivotal supports, to admit the motive fluid to and exhaust it from the outer ends of the cylinders, said inlet-ports communicating with the interior of the live-air chamber and the exhaust-ports communicating with exhaust-passages in the rotary frame.

34. In an engine, the combination of a live-air chamber, a rotary frame mounted in said chamber, a plurality of cylinders pivotally supported upon said frame at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and inlet and exhaust ports at the outer ends of the cylinders for admitting the motive fluid to and exhausting it from the outer ends of the cylinders through their pivotal supports, said inlet-ports communicating with the interior of the live-air chamber and said exhaust-ports communicating with an exhaust-passage at the axis of the rotary frame.

35. In an engine, the combination of a live-air chamber, a rotary frame mounted therein, a plurality of cylinders pivotally supported upon said frame at their outer ends and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and inlet and exhaust ports opened and closed alternately by the oscillations of the cylinders upon their pivotal supports to admit the motive fluid to and exhaust it from the outer ends of the cylinders, said inlet-ports communicating with the interior of the live-air chamber and said exhaust-ports communicating with an exhaust-passage at the axis of the rotary frame.

36. In an engine, the combination of a live-air chamber, a rotary frame mounted therein and provided with a plurality of radial exhaust-passages communicating at their inner ends with an exhaust-passage in an axial shaft carried by the rotary frame and extending through the wall of the live-air chamber, a plurality of cylinders carried by the rotary frame and having their piston-rods connected to a fixed pivot eccentric to the axis of said frame, and valves controlling inlet and exhaust ports for admitting the motive fluid to and exhausting it from the outer ends of the cylinders, said inlet-ports communicating with the interior of the live-air chamber and said exhaust-ports communicating with the radial exhaust-passages in the rotary frame.

37. In an engine, the combination of a live-air chamber, a rotary frame mounted therein and provided with a plurality of radial exhaust-passages communicating at their inner ends with an exhaust-passage in an axial shaft carried by the rotary frame and extending through the wall of the live-air chamber, a plurality of cylinders pivotally supported upon the rotary frame at the outer ends of its radial exhaust-passages and having their piston-rods connected to a fixed pivot eccentric to the axis of said frame, and inlet and exhaust ports opened and closed alternately by the oscillations of the cylinders upon their pivotal supports, to admit motive fluid to and exhaust it from the outer ends of the cylinders, said inlet-ports communicating with the interior of the live-air chamber and said exhaust-ports communicating with the radial exhaust-passages in the rotary frame.

38. In an engine, the combination of a live-air chamber, a rotary frame mounted therein and provided with a plurality of radial exhaust-passages communicating at their inner ends with an exhaust-passage in a central shaft carried by the frame and extending through the wall of the live-air chamber, a plurality of pivots fixed in the rotary frame at the outer ends of its radial exhaust-passages and

each provided with an exhaust chamber or passage communicating with one of the radial exhaust-passages, and with a live-air chamber or passage communicating with the interior of the live-air chamber, and a plurality of cylinders mounted upon said pivots and having their piston-rods connected to a fixed pivot eccentric to the axis of the frame, and provided with ports alternately placed in communication with the live-air and exhaust chambers of the pivots by the oscillations of the cylinders, to admit the motive fluid to and exhaust it from the outer ends of the cylinders.

39. In an engine, the combination of a live-air chamber, a rotary frame mounted therein and provided with a plurality of radial exhaust-passages communicating at their inner ends with an exhaust-passage in a central shaft carried by the frame and extending through the wall of the live-air chamber, a plurality of tubular pivots fixed in the rotary frame at the outer ends of its radial exhaust-passages and each having its internal bore separated into an exhaust-chamber communicating with one of the radial exhaust-passages and a live-air chamber communicating with the interior of the main live-air chamber, and each provided with an inlet-port opening through its wall into its live-air chamber and an exhaust-port opening through its wall into its exhaust-chamber, and a plurality of cylinders mounted at their outer ends upon said tubular pivots and having their piston-rods connected to a fixed pivot eccentric to the axis of the rotary frame, the heads of said cylinders being provided with ports cooperating with the inlet and exhaust ports of the tubular pivots at the oscillations of the cylinders, to admit the motive fluid to and exhaust it from the outer ends of the cylinders.

40. In an engine, the combination of a live-air chamber, a crank-shaft fixed centrally in one end of the wall of said chamber and provided with an eccentric crank-pin, a rotary frame mounted in said chamber and having a bearing at one end upon said fixed crank-shaft and provided at its opposite end with an axial shaft extending through the wall of the live-air chamber and containing an exhaust-passage communicating with radial exhaust-passages in the rotary frame, a plurality of cylinders pivotally supported upon the rotary frame at the outer ends of said radial exhaust-passages and having their piston-rods connected to the eccentric-pin of the fixed crank-shaft, and inlet and exhaust ports opened and closed alternately by the oscillations of the cylinders upon their pivotal supports, to admit the motive fluid to and exhaust it from the outer ends of the cylinders, said inlet-ports communicating with the live-air chamber and said exhaust-ports communicating with the radial exhaust-passages in the rotary frame.

41. The combination of a chamber to which motive fluid under pressure is admitted, a shaft or member extending through the wall of said chamber and rotating relatively thereto, and provided with a projecting annular shoulder or flange, and a washer surrounding said shaft and seated partly upon said shoulder and partly upon the wall of said chamber and held to its seat by the pressure of the motive fluid, to form an air-tight joint between the relatively-moving parts.

42. The combination of the live-air chamber, the rotary shaft K extending through the wall C thereof and provided with the sleeve *k* having the projecting annular flange, and the washer *m* surrounding the shaft K and seated partly upon the wall C of the live-air chamber and partly upon the flange of the sleeve *k*, and held to its seat by the pressure of the motive fluid, for the purpose described.

43. The combination of the live-air chamber, the rotary shaft K extending through the wall C thereof, the sleeve *k* surrounding said shaft and having the projecting annular flange, the ring *j* located in an annular seat in the wall C around the shaft K and sleeve *k*, the balls *l* interposed between the sleeve *k* and ring *j*, the washer *m* surrounding the shaft K and seated partly upon the wall C of the live-air chamber and partly upon the flange of the sleeve *k*, and held to its seat by the pressure of the motive fluid, for the purpose described.

44. The combination of the casing A, the crank-shaft J secured in fixed position in the cap B of said casing and having the eccentric crank-pin L, the rotary frame within the casing A, composed of the plate H having the bearing upon the shaft J, and the plate I having secured to it the hollow shaft K, extending through and having a bearing in the lower end wall of diaphragm C of the casing, said plate I being provided with the radial passages o communicating at their inner ends with the internal bore of the shaft K, the tubular valves R secured at their opposite ends in the plates H and I of the rotary frame and each provided with a chamber B′ communicating with the interior of the casing A and with a chamber B″ communicating with one of the radial passages o in the plate I, and with a port C′ opening into the chamber B′ and a port C″ opening into the chamber B″, the cylinders having their heads P provided with sleeves Q surrounding the valves R and with ports D′ to cooperate with the ports C′ and C″ of the valve; and the pistons S within the cylinders having the inner ends of their rods T provided with straps surrounding and having a bearing upon the pin L of the fixed crank-shaft J.

45. In a rotary pneumatic drill the combination, with an engine embodying a rotary frame and a plurality of cylinders mounted upon and driving the same, and the axial shaft driven thereby, of a fixed circular rack concentric to said shaft, a pinion fast upon the shaft, a rotary chuck-holding member carrying two gears on opposite sides of the pinion and meshing therewith and with the fixed circular rack, and means for removably securing different styles of chucks in said chuck-holding member.

46. In a rotary pneumatic drill, the combination, with the central shaft driven by the motor or engine, of a fixed circular rack concentric to said shaft, a pinion fast upon the shaft, a rotary chuck-holding member carrying two gears on opposite sides of the pinion and meshing therewith and with the fixed circular rack, said chuck-holding member being provided with a depending extension concentric with its axis, adapted to receive within it and hold from independent rotation a chuck or tool holder provided with an enlargement or head at its upper end, and a nut fitting within the lower end of said extension to removably hold the chuck in place.

47. In a rotary pneumatic drill, the combination, with the central shaft driven by the motor or engine, of a fixed circular rack concentric to said shaft, a pinion fast upon the shaft, a rotary chuck-holding member carrying two gears on opposite sides of the pinion and meshing therewith and with the fixed circular rack, said chuck-holding member being provided with a cylindrical depending extension concentric with its axis and adapted to receive within it a cylindrical chuck or tool holder provided with an enlargement or head at its upper end, a keyway and key intermediate said chuck and cylindrical extension for preventing independent rotation of them, and a nut fitting in the lower end of said cylindrical extension and cooperating with the enlargement or head of the chuck to hold the latter in place.

48. In a rotary pneumatic drill, the combination, with the central shaft driven by the motor or engine, of a fixed circular rack concentric to said shaft, a pinion fast upon said shaft, a rotary chuck-holding member carrying two gears on opposite sides of said pinion and meshing therewith and with the fixed circular rack, said chuck-holding member being provided with a cylindrical depending extension, a bushing or ring surrounding said cylindrical extension and fixed in the casing of the machine, and provided with an internal annular flange or ring whose upper and lower surfaces afford tracks for ball-bearings, a series of balls interposed between the upper side of said flange and the under side of the rotary chuck-holding member, a nut screwed upon the cylindrical extension of said member beneath the flange of the fixed ring, and a second series of balls confined between said nut and the under side of said flange to receive the end thrust of the machine.

49. In a rotary pneumatic drill, the combination, with the engine-shaft K, of the fixed circular rack Q″ concentric to said shaft, the pinion L′ fast upon said shaft, the rotary frame or cross-head N′, having the cylindrical depending extension S′, the gears M′ M″ mounted upon the cross-head N′ at opposite sides of the pinion L′ and meshing with said pinion and with the rack Q″, the bushing P′ fixed in the casing D around said extension S′ and provided with the internal flange or ring Q′, the ring T′ fitting around the extension S′ at the under side of the frame N′, the balls R′ interposed between said ring and the upper side of the flange Q′ of the bushing P′, the flanged ring or nut U′ screwed upon the extension S′ and having a beveled upper edge fitting within the bushing P′, and the balls V′ confined between the same and the under side of the flange Q′ of the fixed bushing P′, for the purpose described.

50. In a rotary pneumatic drill, the combination, with the engine-shaft K, of a fixed circular rack Q″ concentric to said shaft, the pinion L′ fast upon the shaft, the rotary frame or cross-head N′ having the cylindrical depending extension S′ exteriorly and interiorly threaded at or near its lower end and provided with an interior projection Z′ near its upper end adapted to cooperate with a vertical groove or keyway in the chuck to be inserted within said extension, the gears M′ M″ carried by the frame N′ on opposite sides of the pinion L′ and meshing with said pinion and with the rack Q″, the bushing P′ fixed in a circular opening around the extension S′ and provided with the internal flange or ring Q′, the ring T′ fitting around the extension S′ at the under side of the frame N′, the balls R′ interposed between said ring and the upper surface of the flange Q′ of the fixed bushing P′, the flanged ring or nut U′ screwed upon the exterior of the extension S′ and having a beveled upper edge fitting within the bushing P′, the balls V′ interposed between the upper edge of said ring and the under surface of the flange Q′, the lock-nut W′ screwed upon the extension S′ below the ring U′, to hold the latter in place, and the nut Z″ screwed into the lower end of the extension S′, to hold the removable chuck in place.

51. In a rotary pneumatic drill, the combination of the casing A having the upper cap B and the removable lower cap D and separated into two chambers by the diaphragm C, the engine located in the upper chamber and driving the central shaft K projecting through the diaphragm C into the lower chamber, the fixed circular rack Q″ secured in the cap D concentric to the shaft K, the pinion L′ fast upon said shaft, the rotary chuck-holding member N′ having the depending cylindrical extension S′ journaled in the lower cap D″, and the

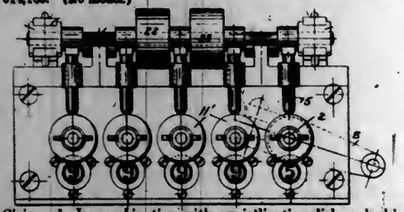
gears M' M" mounted upon said rotary member on opposite sides of the pinion L' and meshing with said pinion and with the fixed circular rack Q".

52. The herein-described cylinder, composed of the wrought-steel shell O and the head P, made of cast-bronze and provided with a circular groove in which is fitted the end of the shell O, the outer wall of said groove being spun over upon the outer surface of the shell to form an air-tight joint and furnish the sole means for securing the shell and head together, substantially as described.

53. The herein described cylinder, composed of the cylindrical shell O and the head P, the shell O being thickened at one end or provided with a beveled flange, as at a', and the head P being provided with a circular groove b' in which is fitted the thickened or flanged end of the shell O, and the outer wall of which groove is spun down over the thickened end of the shell O, substantially as described.

54. The combination of the tubular valve R, the cylinder composed of the cylindrical shell O and head P, the latter being provided with the sleeve Q surrounding the valve R and with the diametrical port D' cooperating with the ports in the valve R, and having the circular groove b' in which is fitted the end of the shell O and the outer wall of which groove is spun over upon the outer surface of said shell, and the cup-shaped piston S fitting within the shell O and having the piston T rigidly secured to it at one end and connected at its opposite end to the crank-pin L, substantially as described.

590,512. INDICATOR WITH AUTOMATIC STOPPING MECHANISM. WILLIAM P. BRAUN, Chicago, Ill. Filed Dec. 2, 1896. Serial No. 614,185. (No model.)



Claim.—1. In combination with an indicating-disk, a locking-sleeve adjustable in relation to the disk and arranged to be rigidly connected thereto, said sleeve carrying a stop device and a locking device arranged to act in connection therewith, substantially as described.

2. In combination, the indicating-disk, with means for operating the same, the clutch-jaw connected rigidly thereto and having teeth and with numbers to correspond with those of the disk, a locking-sleeve having teeth to engage the teeth of the clutch-jaw, said sleeve having an opening, means to permit the sleeve to be adjusted and to hold the same when adjusted, a locking-pin adapted to fall into the opening in the sleeve when it registers therewith and means for guiding the locking-pin.

3. In combination with the indicating-disk, with its adjustable perforated sleeve, the locking-pin adapted to fall into the opening, the lever, the sliding connection between the lever and the pin and connections leading from the lever, substantially as described.

4. In combination with the series of indicating-disks, with their adjustable locking-sleeves, the series of pins, the cross-rod on which the series of pins are held, the weights, the levers, the sliding connections between the levers and the cross-rod and carrying mechanism between the disks, substantially as described.

5. In combination the series of indicating-disks, the series of adjustable sleeves having openings or stops, the cross-rod having a series of pins to engage the stops, said rod with the pins being movable vertically toward the sleeves and means for movably supporting the cross-rod, substantially as described.

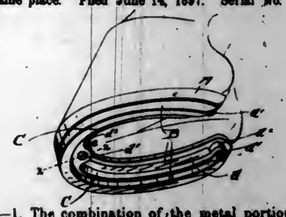
6. In combination the series of indicating-disks, the adjustable sleeves connected therewith having stops, the series of stop-pins, the cross-rod carrying the same, and the pivoted levers carrying the cross-rod, substantially as described.

7. In combination, the series of indicating-disks, the casing inclosing the same, the shafts for the disks projecting outside of and to the front of the casing, the series of adjustable stop-sleeves on the front ends of the shafts, means for connecting the sleeves rigidly with the disks, a vertically-movable cross-rod, the supporting means therefor at the top of the casing and the series of pendent pins extending down in front of the casing to engage the stop-sleeves, substantially as described.

8. In combination, the indicating-disks, the shaft, the clutch-jaw fixed thereon, the top sleeve engaging the clutch and adjustable about the shaft, said sleeve having a stop, and means acting in conjunction therewith, substantially as described.

9. In combination, the series of indicating-disks, with their shafts, the series of clutches having teeth which are numbered, said clutches being on the shafts, and a series of sleeves loose on the shafts and adapted to be set in connection with the clutch-jaws and a series of stops, substantially as described.

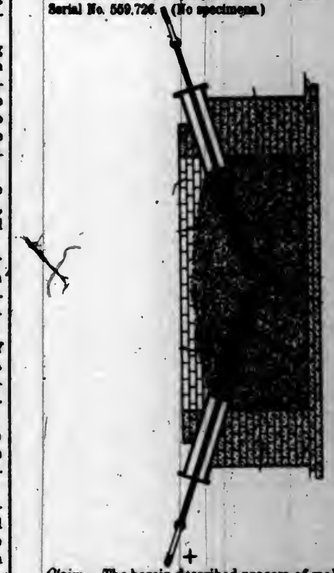
590,513. CUSHIONED HORSESHOE. CHARLES E. BURROUGHS, Canton, Ohio, assignor of two-thirds to Joseph A. Reed and Alfred M. True, same place. Filed June 14, 1897. Serial No. 640,691. (No model.)



Claim.—1. The combination of the metal portion A, provided with the nail-apertures *a* located through said metal portion near its outer edge, and the screw-threaded apertures *b* located at the toe and heels respectively, and the downwardly-projecting curved flange *c*, the elastic tread B provided with the flange *d* located upon the under side of the body A and against the curved flange *c*, the binding-bar C, located upon the under side of the flange *d* and against the downward-projecting portion of said tread, and the retaining-screws *d'* extended through the bar C and into the bosses d^2, substantially as and for the purpose specified.

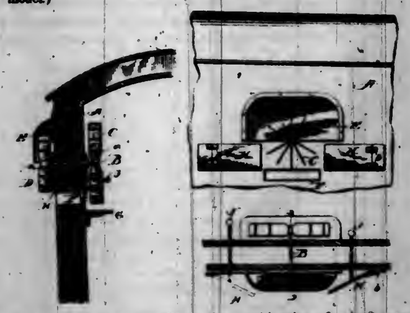
2. The combination of the metal portion A, provided with the nail-apertures *a* located through said metal portion near its outer edge, and the screw-threaded apertures located at the toe and heels respectively, and the downwardly-projecting clamping-flange *c*, the elastic tread B provided with the flange *d*, located upon the under side of the body A and in contact with the flange *c*, the binding-bar C located upon the under side of the flange *d*, and the retaining-screws *d'*, substantially as and for the purpose specified.

590,514. PROCESS OF PRODUCING METALLIC CARBIDS. ALFRED H. COWLES, Cleveland, Ohio, assignor, by mesne assignments, to the Electro Gas Company, of West Virginia. Filed Aug. 19, 1896. Serial No. 602,726. (No specimens.)



Claim.—The herein described process of making calcium carbid, which consists in causing a current to pass between electrodes laterally projecting into a mass of intimately-commingled calcium oxid and carbon of such extent that a material proportion thereof will remain undecomposed by the passage of the current, and in gradually separating the electrodes as the material between them is reduced so as to produce between the electrodes a body of the carbid surrounded by an undecomposed mass of the mixture, substantially as described.

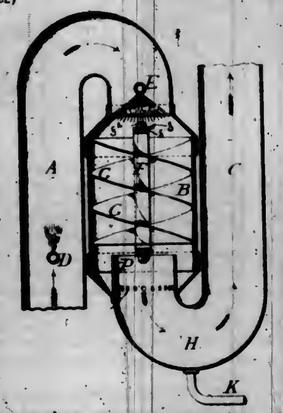
590,515. VENTILATING CARS OR VESSELS. ALVIN M. CURTIS, Springfield, Mass. Filed May 22, 1896. Serial No. 592,679. (No model.)



Claim.—1. In a car-ventilator the combination of a shaft extending through and journaled in a car-wall, said shaft carrying similar fan-wheels mounted upon its interior and exterior ends, an air-inlet passage beneath the exterior fan, and a deflector-shelf beneath the interior fan, said interior fan having arms longer than those of the exterior fan, substantially as shown and described.

2. In a car-ventilator such as described, the combination of a shaft extending through and journaled in a car-wall, said shaft provided with similar fan-wheels mounted upon its interior and exterior ends, the exterior fan having its upper portion covered by a hood E, and panels or plates H secured by hinges *b* on each side of the lower portion of the said fan, with rods for operating the same extending inside the car, substantially as shown and for the purpose set forth.

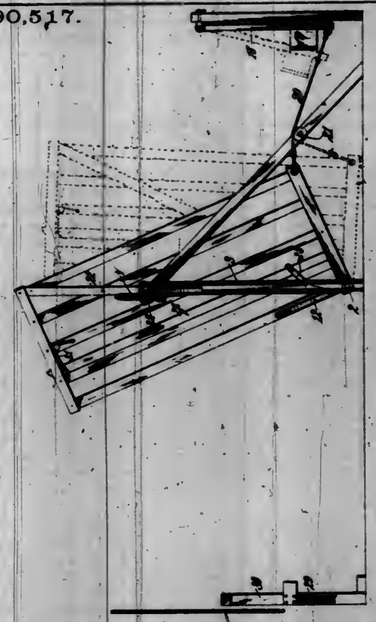
590,516. APPARATUS FOR CLEARING SMOKE. EDWARD E. DULIER, Richmond, England. Filed Jan. 11, 1897. Serial No. 618,874. (No model.)



Claim.—A smoke-clearing apparatus, consisting of an ascending limb provided with a steam-nozzle, a descending limb connected at its upper end with the ascending limb, an ascending limb having a drain at its base and connected with the said descending limb, a water-nozzle delivering water into the descending limb, fixed helical blades by which the smoke, steam and water are forced to travel in a helical path and the heavier particles are driven by centrifugal action against the wall of the descending limb, and means for withdrawing the deposits from the lower end of the limb containing the fixed helical blades, substantially as and for the purposes described.

590,517. GATE. STUART M. D. FREED, Fishersville, Va. Filed Jan. 7, 1897. Serial No. 618,300. (No model.)

Claim.—The combination with a gate pivoted at the lower corner of one end, and pivoted overhead levers connected with the gate in proximity to the pivoted end thereof, of a post having an arm pivoted at one end thereto and provided at the other end portion with a balance-weight, a cable connecting the weight-carrying arm with the upper portion of the pivoted end of the gate, and a cable-support which deflects the cable when the gate is swung open and serves to change the descending motion of the weight into an ascending motion, substantially as and for the purposes described.



590,518. COIN-CONTROLLED APPARATUS. OLIVER S. GARRETSON, Buffalo, N. Y. Filed May 21, 1896. Serial No. 592,456. (No model.)



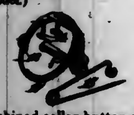
Claim.—1. In a coin-controlled apparatus, a coin-carrier consisting of a rotatable disk transversely slotted to receive a coin and provided on its periphery with cam-surfaces terminating in stops, in combination with a detent to engage the stops to hold the disk initially against rotation, and upon the insertion of a coin and the turning of the disk, to prevent backward movement of the disk until the same shall have made a complete rotation, a coin-receptacle adjacent to the coin-carrier or disk to receive the coins when released by the carrier, a bottom in the receptacle normally preventing removal of the coins, and a plunger for releasing the bottom through the medium of a column of coins, substantially as described.

2. In a coin-controlled apparatus, the combination with a pair of feed-rollers, of a coin-carrier carried by the shaft of one of the rollers and consisting of a disk transversely slotted to receive a coin and provided on its periphery with cam-surfaces terminating in stops, in combination with a detent to engage the stops to hold the disk initially against rotation, and upon the insertion of a coin and the turning of the disk to prevent backward movement of the disk until the same shall have made a complete rotation, substantially as described.

3. A coin-controlled apparatus comprising the following elements: a web of paper bearing information, two feed-rollers in contact with the paper, means for turning one of the rollers, a coin-carrier mounted on the shaft of one of the rollers and consisting of a disk transversely slotted to receive a coin and provided on its periphery with cam-surfaces terminating in stops, a detent having two members for engaging the stops and operating, initially, to prevent rotation of the carrier until the insertion of a coin and the turning of the disk, and thereafter to prevent backward rotation of the carrier until the coin is discharged, a coin-receptacle adjacent to the coin-carrier or disk to receive the coins when released by the carrier, a bottom in the receptacle normally preventing removal of the coin, and a plunger for releasing the bottom through the medium of a column of coins, substantially as described.

590,517.

590,519. COMBINED COLLAR-BUTTON AND NECKTIE-FASTENER. VICTOR H. GEISLER, Chicago, Ill. Filed Mar. 20, 1897. Serial No. 628,504. (No model.)



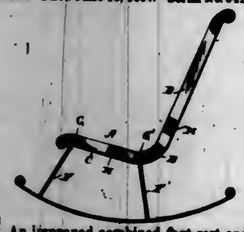
Claim.—1. In a combined collar-button and necktie-fastener, the combination with a button-head provided with a shank, of an angular frame hinged to the button-head and constructed to engage the end of said shank, a spring-lock carried by the button-head, and a fastener mounted on the free end of the angular frame, substantially as described.

2. The combination with a button-head provided with a rigid shank, of an angular frame hinged to one edge of the button-head and provided with a loop at its end, a cam-lug on the hinged frame, and a spring lying against the flange on each side of the hinge to engage said cam-lug when the hinged frame is closed to engage its loop with the end of the shank, substantially as described.

3. The combination with a button-head provided with a flange and a slot, of an angular frame hinged in a notch in said flange, a spring secured rigidly at one end to the button-head and pressing against the flange with its free end lying in said slot, a button secured to the free end of the spring, a cam-lug on the hinged frame having a cam-face to receive the spring when the frame is closed, and keepers for the spring on each side of said cam-lug, substantially as described.

4. The combination with a button-head having a rigid shank, of an angular frame hinged at one end in a notch in a flange on the button and having an eye or loop at the other end to receive the end of said shank, a spring having one end rigidly secured to the button and its main portion pressing against the flange on each side of the hinge, its free end being movable in a slot in said button-head and having a rigidly-attached button outside the latter, and keepers mounted on the button-head on both sides of a cam-lug on the hinge, substantially as described.

590,520. COMBINED CHAIR AND FOOT-REST. AUGUST HARTZ, Cincinnati, Ohio. Filed June 16, 1897. Serial No. 641,066. (No model.)



Claim.—1. An improved combined foot-rest and rocking-chair, comprising the rigidly-united back and seat portions disposed at an angle to each other, rockers, and standards raised therefrom adapted to variably connect with the back and seat portions, whereby the inclinations of the latter may be varied, substantially as shown and described.

2. An improved combined foot-rest and rocking-chair, comprising the rigidly-united back and seat portions disposed at an angle to each other and each portion provided on its under side with a plurality of sockets, rockers, and two standards projected upward from each rocker, the forward standard of each rocker being adapted to engage a seat-portion socket and the rear standard adapted to engage a back-portion socket, substantially as shown and described.

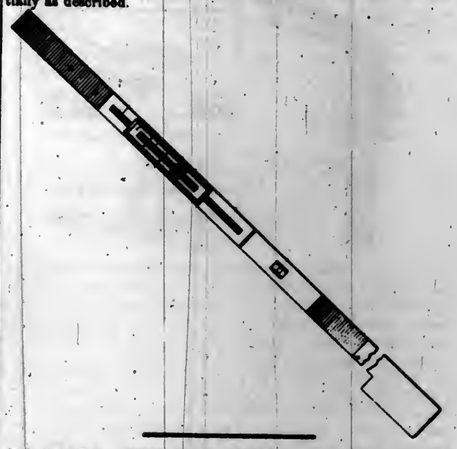
3. The combination with angular side rails A outlining seat C and back D of the chair, the under sides of the seat and back portions of the rails being formed with apertures, of rockers, and standards secured thereto and at their upper ends adapted to enter the rail-apertures, substantially as shown and described.

590,521. KEY TOUCH-REGULATOR FOR MUSICAL INSTRUMENTS. WILLIAM HAY, Scranton, Pa. Filed May 1, 1897. Serial No. 634,747. (No model.)

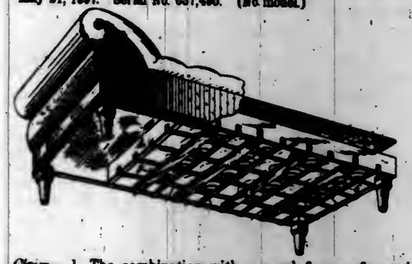
Claim.—1. A key touch-regulator consisting of a substantially rectangular weight having a longitudinal slot, and a scale upon one side of said weight, substantially as described.

2. In a key touch-regulator the combination with the key having a longitudinal groove, of a substantially rectangular slotted weight having guide-pins engaging said groove, and an adjustable screw or bolt passing through said slot and groove into the key, substantially as described.

3. In a key touch-regulator the combination with the key having a groove, of a rectangular weight having a longitudinal slot and guide-pins to engage said groove, a set-screw passing through said slot and groove into the piano-key, and suitable insulating material interposed between said weight and the key and set-screw, substantially as described.



590,522. COUCH-BOTTOM. JOHN HEALY, New York, N. Y. Filed May 31, 1897. Serial No. 637,495. (No model.)



Claim.—1. The combination with a couch-frame, of a spring-bottom therefor consisting of a top, a series of spiral conical springs supporting said top and extending to substantially the edge thereof, and a series of longitudinal and transverse metallic strips supporting said springs, the free ends of the same passing beneath the lower edge of the couch-frame and bent upward against the outer side of said couch-frame and attached thereto.
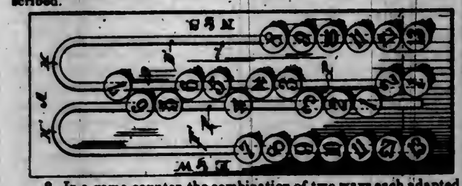
2. The combination with a couch-frame, of a spring-bottom therefor consisting of a top, a series of springs supporting said top, and a series of longitudinal and transverse metallic strips supporting said springs, the free ends of the same passing beneath the lower edge of the couch-frame and bent upward against the outer side of said couch-frame and attached thereto.

3. The combination with a couch-frame, and a spring-bottom consisting of a top surface therefor, spiral springs engaged with said top, and longitudinal and transverse metallic strips having the lower ends of said springs connected thereto at their intersecting points, the free ends of said strips being fastened to said couch-frame, of a series of transverse strengthening-slats fastened to the couch-frame and located beneath the spring-bottom at points intermediate the lower ends of the spiral springs thereof.

4. The combination with a couch-frame, and a spring-bottom consisting of a top surface therefor, spiral springs engaged with said top, and longitudinal and transverse metallic strips having the lower ends of said springs connected thereto at their intersecting points, the free ends of said strips being fastened to said couch-frame, of a series of transverse strengthening-slats located beneath the spring-bottom at points intermediate the lower ends of the spiral springs thereof, and angle-irons supporting said slats and attached to the couch frame.

590,523. GAME-COUNTER. LEWIS W. HEATH, Grand Rapids, Mich. Filed May 27, 1897. Serial No. 638,404. (No model.)

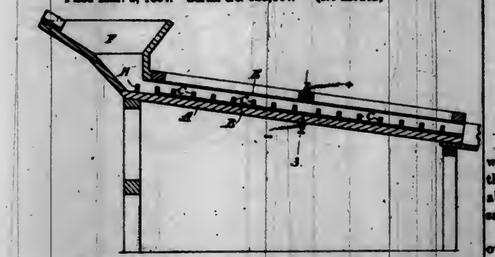
Claim.—1. In a game-counter, the combination of two ways for receiving and retaining the movable counters, a portion of one way lying parallel to a portion of the other way and so near thereto as to prevent a counter in the adjacent portion of one way from passing a counter in the adjacent portion of the other way, substantially as described.



2. In a game-counter, the combination of two ways each adapted to hold a certain number of counters, and each containing two parallel portions, one portion adapted to receive all the counters in its way at the beginning of the game, and each way having a portion parallel to a corresponding portion of the other way, a partition between the parallel portions of the two ways, counters adapted to move in the ways, but of sufficient size to prevent said counters from passing each other in the adjacent parallel portions of the two ways, substantially as and for the purpose described.

3. In a game-counter, the combination of two ways for receiving and retaining two series of counters, a series of counters for each way, numbered respectively from "1" to "13," a portion of the way for one of the series lying parallel with a portion of the way for the other series of counters and in such relation thereto that the counters of one series cannot pass the counters of the other series, and the number of the last counter moved into the adjacent way showing the number of tricks won, substantially as described.

590,524. APPARATUS FOR EXTRACTING PRECIOUS METALS FROM BLACK SAND, &c. CHARLES A. HITCHCOCK, San Francisco, Cal. Filed Mar. 3, 1897. Serial No. 625,907. (No model.)



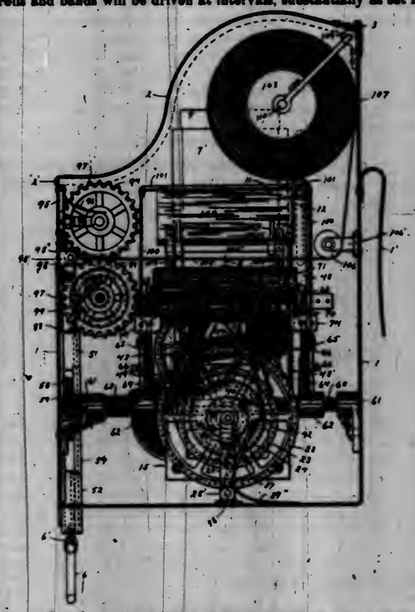
Claim.—An amalgamator comprising an inclined table, having longitudinal side bars, an amalgamated electrode-forming plate resting on said table between the side bars, and provided on its upper face with a series of riffle-bars, an upper electrode resting on said side bars and forming a cover overlying the lower electrode through its length and spaced above its riffled bars, the said riffle-bars being adapted to cause the rapidly-descending current to splash upwardly against the upper electrode, or form a cataract, and said cover being adapted to prevent the immediate escape of the gases generated by the electric current, and connections from the electrodes to a source of electricity; substantially as described.

590,525. TIME-RECORDER AND TRANSFER-STAMP. ERICK JACKSON, Duluth, Minn. Filed Mar. 31, 1896. Serial No. 585,612. (No model.)

Claim.—1. In a device for printing and issuing transfers, the combination of two or more character-bearing endless bands, rotating rolls carrying said bands, toothed wheels mounted on concentric sleeves and rotating with the said rolls, a clockwork mechanism, a continuously-driven wheel operated by said clockwork, and connections between said wheel and the aforesaid toothed wheels, so that the said toothed wheels and band-carrying wheels may be rotated intermittently, substantially as set forth.

2. In a device for printing and issuing transfers, the combination of two or more character-bearing endless bands, rotating rolls carrying said bands, toothed wheels mounted on concentric sleeves and rotating with the said rolls, a clockwork mechanism, a continuously-driven toothed wheel operated by said clockwork, a pawl engaging with said continuously-driven wheel, and a second pawl carried on the first pawl engaging one of the aforesaid toothed wheels, whereby the said toothed wheels and band-carrying wheels will be driven at intervals, substantially as set forth.

3. In a device for printing and issuing transfers, the combination of two or more character-bearing endless bands, rotating rolls carrying said bands, two toothed wheels mounted on concentric sleeves and rotating with the said rolls, a clockwork mechanism, a continuously-driven toothed wheel operated by said clockwork, two connected pawls engaging with said continuously-driven wheel and one of the aforesaid toothed wheels, a stop upon said continuously-driven wheel, and a pawl engaging with said stop and the second of the aforesaid toothed wheels, whereby the said toothed wheels, band-rolls and bands will be driven at intervals, substantially as set forth.



4. In a device for printing and issuing transfers, the combination with the type and inking-pad, of an inking roll or rolls adjacent thereto, and adapted to pass over said pad and type, a shield mounted above said roll and carried thereby, and cam-pieces 73 movable with said roll, substantially as set forth.

5. In a device for printing and issuing transfers, the combination of a manually-operated slide mounted within ways, a movable dog, printing and inking mechanism operated by the movements of said dog, a recess or stop within said ways, and a lever pivoted to said slide and adapted to engage with the said dog, and be released by engaging with the said recess or stop, substantially as set forth.

6. In a device for printing and issuing transfers, the combination of a manually-operated slide, inking and printing mechanism operated thereby, feed-rolls mounted adjacent to said slide, a hook 83 connected to one of said feed-rolls, and a stop 51ª carried by said slide and engaging said hook after the slide has been moved to effect the inking and printing, substantially as set forth.

7. In a device for printing and issuing transfers, the combination of a manually-operated slide, feed-rolls mounted adjacent to said slide, a flexible band attached to one of said feed-rolls at one end and having a hook 83 at the other end, a stop carried by said slide for engaging with the hook, and an inking and printing mechanism operated by said slide, substantially as set forth.

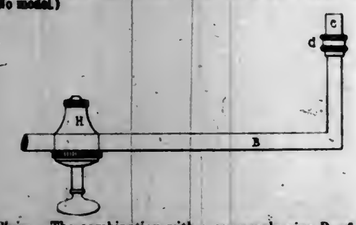
8. In a device for printing and issuing transfers, the combination of the type, a platen mounted above the type and movable toward and away from the same for forcing a transfer-strip into contact with the type, an inking-pad adjacent to the type, an inking-carriage movable from said pad over the type, an oscillating shaft below the type, two arms carried by said shaft, a connection between the inking-carriage and one of said arms for moving the inking-carriage, a connection between the platen and the other of said arms for moving the platen, a segment mounted upon said shaft, a manually-operated slide adjacent to said segment, and connections between said slide and segment for oscillating said shaft, substantially as set forth.

9. In a device for printing and issuing transfers, the combination of the type, a platen mounted above the type and movable toward and away from the same for forcing a transfer-strip into contact with the type, an inking-pad adjacent to the type, an inking-carriage movable from said pad over the type, an oscillating shaft below the type, two arms carried by said shaft, a connection between the inking-carriage and one of said arms for moving the inking-carriage, a connection between the platen and the other of said arms for moving the platen, a segment mounted upon said shaft, a manually-operated slide

adjacent to said segment, and a strap connecting said slide and segment for oscillating said shaft, substantially as set forth.

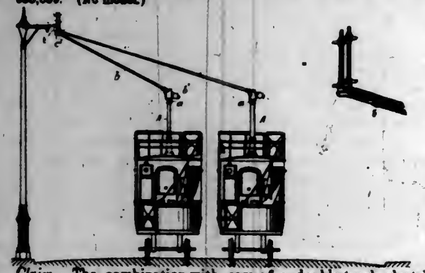
10. In a device for printing and issuing transfers, the combination of the type, a platen mounted above the type and movable toward and away from the same for forcing a transfer-strip into contact with the type, an inking-pad adjacent to the type, an inking-carriage movable from said pad over the type, an oscillating shaft below the type, two arms carried by said shaft, a connection between the inking-carriage and one of said arms for moving the inking-carriage, a connection between the platen and the other of said arms for moving the platen, a segment mounted upon said shaft, a manually-operated slide adjacent to said segment, a dog mounted adjacent to said slide, and a strap connecting said dog and segment for oscillating said shaft, substantially as set forth.

590,526. GAS-BURNER FOR LIGHTING. VINCENT JARRE and ELIE J. USANNAZ, Paris, France. Filed Mar. 3, 1897. Serial No. 625,861. (No model.)



Claim.—The combination with a gas-supply pipe B, of the central burner-body A screwed into said supply-pipe, having an enlarged externally-screw-threaded portion between its extremities and provided at its outer end with channels *a'* and a continuous annular groove *a* communicating with the interior of the body, a cap C fitted over the upper end of the burner-body and resting against the enlarged screw-threaded portion thereof, and a screw-nut D engaging the lower end of said cap, and having screw-threaded engagement with the enlarged screw-threaded portion of the burner-body, substantially as shown and described.

590,527. TROLLEY FOR ELECTRIC RAILWAYS. WILLIAM R. KENWAY, Birmingham, England. Filed May 4, 1897. Serial No. 636,089. (No model.)

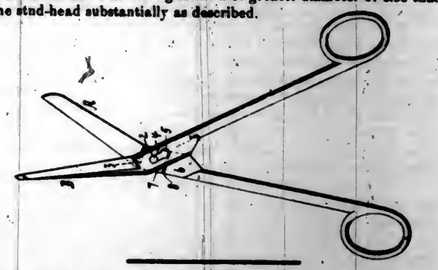


Claim.—The combination with cars of a double-track electric railway, and a single overhead electric conducting-wire, of an inclined arm adjustably supported on each car and carrying at its outer end a vertical rod or contact-maker provided with rotatable disks or buttons at top and bottom, the contact-maker on the arm of the car most distant from the overhead wire being adapted to pass with a sliding or rolling motion over the contact-maker on the arm of the other car, when two cars are passing, and pressure mechanism for preserving substantially continuous contact of the contact-maker with the side of the overhead wire, substantially as shown and described.

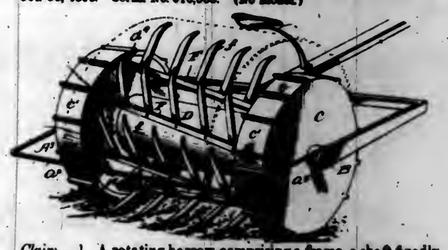
590,528. SURGEON'S SCISSORS. FRIEDRICH A. KOCH, Brooklyn, N. Y. Filed May 13, 1897. Serial No. 636,314. (No model.)

Claim.—1. The blades or jaws A and B one of which is provided with a depression and a headed tapered stud at said depressed part, and the other with a slot comprising a narrow portion and enlargements, said narrow portion being of such width as to enable the slotted blade to be slipped back and forth when resting in the depression of the other blade at the narrower part of the stud-body, and one of said enlargements having shoulders adapted to lock against the upper or wider part of the stud-body when the slotted blade is raised out of said depression, the other enlargement being of sufficient size to pass by the head of the stud substantially as described.

2. The blades or jaws A and B one of which is provided with a transverse depression and with inclined or beveled edges leading from the depression to the inner face of said blade, and a headed tapered stud at said depressed part, the other blade being provided with a slot comprising a narrow portion and enlargements, said narrow portion being of such width as to enable the slotted blade to be slipped back and forth when resting in said depression at the narrower stud part but to be jammed or locked against slipping when said slotted blade is raised out of the depression, one of said enlargements being of smaller diameter than the other so as not to slip over the stud-head while the other enlargement is of greater diameter or size than the stud-head substantially as described.



590,529. HARROW. PATRICK MCLAUGHLIN, Dover, N. H. Filed Oct. 30, 1896. Serial No. 610,583. (No model.)



Claim.—1. A rotating harrow comprising a frame, a shaft fixedly mounted in said frame, wheels rotatably mounted upon said shaft, a drum rotatably mounted upon said shaft, plates fixed upon said shaft in proximity to the wheels, gears upon said wheels, gears upon said plates in mesh with the gears upon the wheels, gears upon the drum in mesh with the gears upon the plates, and harrow-teeth carried by the drum, substantially as described.

2. In a rotating harrow or the like, disks, means for rotating said disks, plates upon the inner sides of said disks, said plates being provided with notches, bars provided with slots in their ends, harrow-teeth carried by said bars, and bolts fitting in said slots adapted to engage the notches in the plates upon the disks, substantially as described.

3. In a rotating harrow or the like, a shaft, a drum rotatable on said shaft, harrow-teeth carried by said drum, a collar rotatable upon the shaft adjacent to the drum, ratchets upon the side of the collar next to the drum, pawls upon said drum adapted to be engaged by the ratchet, a rotatable drum, means for rotating the same, and harrow-teeth carried by said drum, and means for imparting movement to the collar, substantially as described.

4. In a rotating harrow or the like, a shaft, a drum fitting over said shaft and rotatable thereon, lugs extending from the end of said drum, a disk having openings therein corresponding to the lugs, a spring member having arms and a loop in its center adapted to fit over one of said lugs and be held in place between the end of the drum and the disk, pawls extending through the disk and attached to the ends of the spring, a ratchet-plate rotatable about the shaft and adapted to engage the pawls through the disk, and means for transmitting motion to the ratchet-plate, substantially as described.

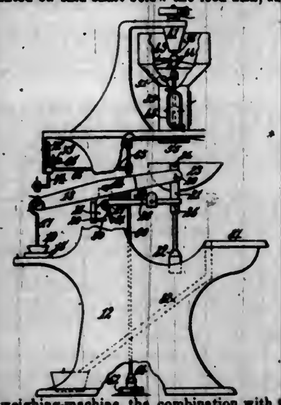
590,530. AUTOMATIC WEIGHING AND PACKAGE-FILLING MACHINE. HENRY RICHARDSON, Lichfield, England. Filed Oct. 24, 1895. Serial No. 566,767. (No model.)

Claim.—1. In a weighing-machine, the combination with the feed-hopper and measuring-tube, a vertical rotary shaft mounted in said hopper and tube and supported only from the top, and sluice-gates for controlling the outlet from said tube, of a regulating-disk vertically adjustable on said shaft, substantially as described.

2. In a weighing-machine, the combination with the measuring-tube, and vertical rotary shaft therein, of a regulating-disk adjustable on said shaft, and a spiral stirrer carried on the lower end of said

shaft and adapted to exert, in its revolutions, a lifting action on the material in the measuring-tube below said disk, to prevent arching and clogging, substantially as described.

3. In a weighing-machine, the combination with the feed-hopper and measuring-tube, and the vertical rotary shaft mounted in said hopper and tube, of a feed-disk carried on said shaft at a point within the hopper and the stirrers and vertically-adjustable regulating-disk mounted on said shaft below the feed-disk, substantially as described.



4. In a weighing-machine, the combination with the feed-hopper and measuring-tube, a vertical rotary shaft in said hopper and tube, and sluice-gates controlling the outlet from the measuring-tube, of feed devices located on said shaft within the hopper, a vertically-adjustable regulating-disk carried on said shaft within the measuring-tube, and a spiral stirrer attached to the lower end of said shaft at the outlet from the measuring-tube, substantially as described.

5. In a weighing-machine, the combination of the feed-hopper, the measuring-tube leading from said hopper and provided with a door and a glazed window, a vertical rotary shaft centrally mounted in said hopper and tube, feed devices and stirrers carried by said shaft, a vertically-adjustable regulating-disk mounted on said shaft within the measuring-tube, and sluice-gates for controlling the discharge from said measuring-tube, substantially as described.

6. In a weighing-machine, the combination with feed mechanism, a weighing-beam, and sluice-gates for controlling the discharge from the feed mechanism to a receptacle supported from the weigh-beam, of a vertical shaft through which the sluice-gates are operated, a spring connected with said shaft for normally actuating it in a direction to close the sluice-gates, a foot-lever for actuating said shaft in a direction to open the sluice-gates, a lever carried by said shaft and having one arm provided with an upstanding pin or projection and another arm provided with a horizontally-projecting and adjustable pin or screw, a catch-lever adapted to engage said adjustable pin or screw and hold the sluice-gates open at a dribble, and tripping mechanism comprising an overbalancing-lever adapted to be set by the upstanding pin or projection on the lever carried by said shaft and having a tail part to be actuated from the weigh-beam to cause the lifting of the catch-lever and release of the sluice-gates to permit a full cut-off, substantially as described.

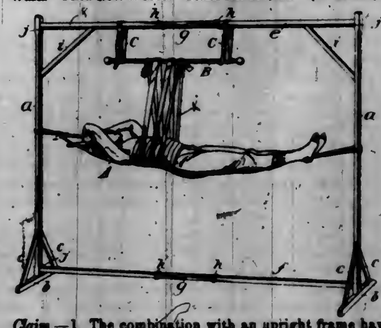
7. In a weighing-machine, the combination with feed mechanism, the sluice-gates, and automatically-actuated catch mechanism for arresting the closing of the sluice-gates at a point to permit only a dribble feed, of a lever actuated through the sluice-operating mechanism and carrying an adjustable pin or screw adapted to be engaged by the said catch mechanism and capable of adjustment to regulate the volume of the dribble, substantially as described.

8. In a weighing-machine, the combination with feed mechanism, the sluice-gates actuated through a vertical shaft, and a weighing-beam provided with a pin or projection, of a catch-lever for arresting the closing of the sluice-gates at a point to permit only a dribble feed, a lever carried by the sluice-actuating shaft and having an arm provided with an adjustable pin or screw to engage the said catch-lever and regulate the volume of the dribble and another lever-arm provided with an upstanding pin, and an overbalancing-lever provided with a pin to be engaged to set the said overbalancing-lever which is also provided with an arm to set the catch-lever and with a tail to be engaged by the pin or projection on the weigh-beam and cause the tripping of the catch-lever, substantially as described.

9. In a weighing-machine, the combination with feed mechanism, and a weighing-beam, of a cradle or frame suspended from one end of the weigh-beam, a package-filling funnel pivotally supported in said cradle and a pivotally-supported bottom or holder for the bag placed on said funnel, substantially as described.

10. In a weighing-machine, the combination of the feed mechanism, the sluice-gates, catch mechanism for holding the sluice-gates open at an adjustably-regulated dribble, the weighing-beam, devices actuated from the weighing-beam to automatically trip the catch mechanism and close the sluice-gates at completion of the weighing, an adjustably-weighted compensating lever having a tailpiece at one end and arranged at its other end to exert a force on the weighing-beam until the weighing is nearly completed, the weight on said lever being arranged with a preponderating portion above the level of the lever-fulcrum whereby the center of gravity of said weight will be shifted outward with the downward-swinging movement of the lever to exert an accelerating action for the tripping of the catch mechanism and closing of the sluice-gates, and a stop for the tailpiece of said lever to prevent further action of the said lever on the weighing-beam and leave said beam in a free horizontal position at completion of the weighing, substantially as described.

590,531. FRACTURE APPARATUS. THOMAS W. SLOAN, Seattle, Wash. Filed Nov. 1, 1895. Serial No. 567,782. (No model.)



Claim.—1. The combination with an upright frame having two uprights and a horizontal rail, of a hammock swung between said uprights, a horizontal bar suspended from said rail, and bands depending from said bar and passing around the hammock, substantially as described.

2. The combination with an upright frame having two uprights *a*, *a*, connected together by two horizontal rails each consisting of two matched and overlapping bars *e* and *f* detachably fastened together by bands *h*, *h*, a horizontal bar B suspended from the upper rail by straps C, C, a hammock A swung between said uprights, and bands K depending from the said bar and passing around the hammock, substantially as described.

590,532. UNIVERSAL CONNECTION. FRANK H. STEVENS, Seneca Falls, N. Y. Filed Oct. 26, 1896. Serial No. 610,089. (No model.)



Claim.—A tubular body, combined with a flanged screw-threaded nut that is placed thereon, the body being provided with means upon both sides of the nut for swiveling it in position, and which body is made to extend through the nut, substantially as shown and described.

590,533. SPRING-MOTOR. PASCHAL A. TARBOX, Joliet, Ill. Filed Oct. 30, 1896. Serial No. 610,554. (No model.)



Claim.—1. In the herein-described motor the spring-head comprising the hollow spindle provided with the face offsets, the disk-heads sleeved on the end portions of said spindle; the cross-rods connecting said disks adjacent their periphery; the pawl-case extending at the side of one of said disks; pawls arranged in said case and adapted to engage the teeth of a ratchet-wheel on the shaft upon

which said head is mounted; a chain winding-wheel fixed on one end of said spindle; the multiple spiral springs, consecutively hooked, at their inner end, on the offsets of said spindle, and looped consecutively, at their outer end, about said cross-rods; and the spring-dividing disks sleeved on said spindle, substantially as set forth.

2. In the herein-described motor; in combination with the spring-heads and their chain-geared winding mechanism; the shaft supporting the drive-wheels of said gear; the ratchet-wheel fixed on said shaft; the bell-crank lever sleeved on said shaft and provided with the pawl arranged to engage said ratchet-wheel; the motor countershaft; the eccentric fixed on said shaft and provided with a strap detachably connected with said bell-crank lever, substantially as and for the purpose specified.

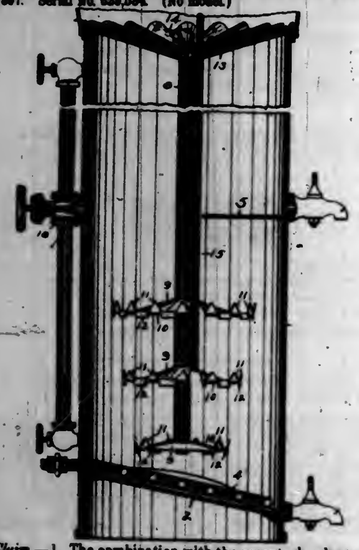
590,534. VARIABLE NOZZLE. DON B. ADAMS, Chicago, Ill., assignor to the Globe Nozzle Company, Charleston, W. Va. Filed Apr. 3, 1897. Serial No. 630,664. (No model.)



Claim.—1. In a variable nozzle the combination of a solid rubber sphere having a discharge-passage through its center, inclosed in an approximately spherical end, surmounted by a hemispherical cap having several perforations of different sizes, the cap pivoted on two pins at its base permitting it to partially rotate to expose either of the perforations to the line of discharge or to cut off at will as and for the purpose above specified.

2. In a variable nozzle the combination of a hollow globular end surmounted by a hemispherical cap variously perforated for discharge-orifices of different size pivoted on two pins, said globular end inclosing a solid sphere of rubber with a discharge-passage through its center forming an automatic packing against the cap and the walls and joints of the globular end, and pipe end, the exits of the nozzle opened and closed by means of the partial rotation of the cap as and for the purpose specified.

590,535. OIL-FILTER. WILLIAM G. ARBUCKLE, Rochester, N. Y., assignor of one-half to George W. Palmer, same place. Filed Mar. 27, 1897. Serial No. 629,594. (No model.)



Claim.—1. The combination with the receptacle adapted to contain two superposed fluids of different specific gravity, of a discharge-aperture at the level of the heavier fluid, and a horizontal sectional diaphragm or partition in the receptacle arranged at the lower edge of said aperture, substantially as described.

2. In an oil-filter of the class described, the combination of the receptacle, an oil-conducting tube leading to the lower portion of the receptacle, and a diaphragm beneath which the oil is introduced having the upwardly-extending pointed projections.

3. In an oil-filter of the class described, the combination with a receptacle, an oil-supplying tube opening into the lower portion of the receptacle, of a plurality of diaphragms beneath which the tube opens, the upper ones successively larger than the lower ones, and each having the upwardly-extending pointed projections.

4. The combination of the receptacle, the oil-supplying tube and the diaphragm beneath which the tube opens provided at the edge with the upwardly-extending pointed projections and the downwardly-extending projections below them.

5. The combination of the receptacle, the oil-supply tube and the diaphragm beneath which the tube opens having the upwardly-projecting edge and the projections thereon extending in opposite directions.

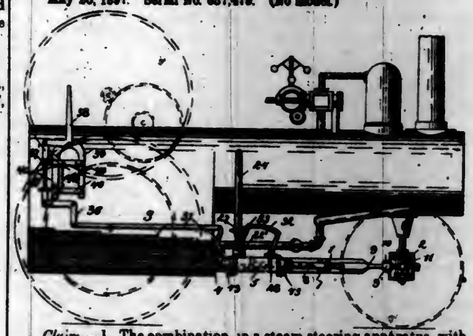
6. In an oil-filter of the class described, and as a means for forming the oil into drops, a plate beneath which the oil is introduced having its edge slightly elevated and provided with the projections extending in opposite directions, substantially as described.

7. In an oil-filter, the combination with the receptacle, of the vertically-extending supply-tube open at the bottom, and a dished disk thereon having at the edge alternate upwardly and downwardly extending projections, substantially as described.

8. In an oil-filter, the combination with the receptacle, of the vertically-extending supply-tube open at the bottom, a plurality of dished disks supported on said tube successively increasing in diameter from the bottom, and each having the upwardly-turned periphery provided with alternate upwardly and downwardly extending projections, substantially as described.

9. In an oil-filter, the combination with the receptacle, the oil-tube having the funnel at the top, the foraminous corrugated disk, and the cover of textile material, of a plurality of dished disks on the tube having the projections at the edge extending in opposite directions, said disks increasing in diameter successively from the bottom toward the top, substantially as described.

590,536. STEAM STEERING APPARATUS. BAILY BOLING, Salem, Ind., assignor of one-half to Richard J. Wilson, same place. Filed May 20, 1897. Serial No. 637,479. (No model.)



Claim.—1. The combination, in a steam steering apparatus, with the oppositely-operating valves, and the arm carried by the stem of each valve, of a rock-shaft, and links extended therefrom and adapted to engage with opposite sides of the respective valve-arms, whereby the valves are operated alternately upon the opposite reciprocations of the shaft, substantially as shown and described.

2. The combination, in a steam steering apparatus, with the oppositely-operating valves, and the slotted arms carried by the stems thereof, of a rock-shaft, links extended therefrom through the slotted valve arms, and pins on the respective links on opposite sides of the slotted arms, whereby the valves are alternately actuated upon opposite reciprocations of the rock-shaft, substantially as shown and described.

3. An operating mechanism for a steam steering apparatus, including an operating-lever, a link connected thereto which in turn is operatively connected with a steering apparatus, the link being capable of longitudinal reciprocation, and devices for holding the link normally in a fixed or given position with the operating-lever in like position, substantially as shown and described.

4. An operating mechanism for a steam steering apparatus, including an operating-lever, a link connected thereto which in turn is operatively connected to a steering apparatus, the link having longitudinal reciprocation, two swinging arms adapted to positively engage the link, stops for holding the arms separated from each other, and a contractible spring connecting the arms and holding them normally in engagement with said stops, with the link and operating-lever normally in a given position, substantially as shown and described..

5. The combination with a valve-casing having aligned connections with a steam-supply and a cylinder, of a rotatable valve in the casing formed with an elongated depression to connect the supply and the cylinder, the casing being formed with an exhaust-port, and the valve formed with an auxiliary depression communicating with but extending at an angle to said elongated depression for uniting the cylinder connection and the exhaust, substantially as shown and described.

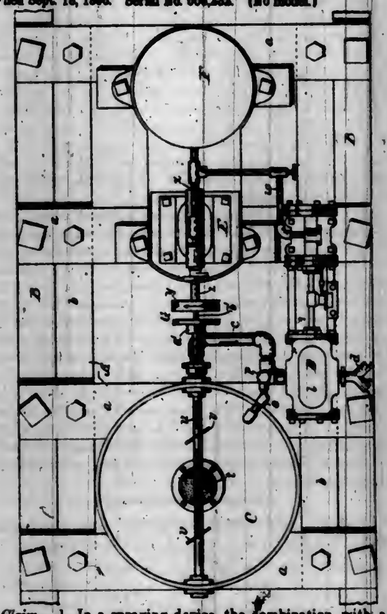
6. In a steam steering apparatus, the combination of two cylinders and pistons therefor, a normally-closed inlet-valve for each cylinder, an arm extended from each valve-stem, a rock-shaft, and links loosely connecting the shaft and valve-arms, one link actuating one valve-arm and the other link passing loosely over the other valve-stem at each oscillation of the rock-shaft, substantially as shown and described.

7. The combination of reach 1, longitudinally-slotted bracket 8 secured thereto, cross-head 7, and oppositely-extended angle-irons 7' secured to the cross-head and extending through the slotted bracket and embracing the inner side thereof, substantially as shown and described.

8. The combination with the axle, the reach having a yoke at its end embracing the axle, and a vibratory mounting for the axle within the yoke, substantially as shown and described.

9. The combination of the front axle, the reach having a yoke embracing the axle, a frame within the yoke pivotally mounted, a cuff embracing the axle within the frame, said cuff being centered at its top within the frame, and rounded on its under side to turn in the similarly-formed bottom of the frame, substantially as shown and described.

590,537. SPRAYING-MACHINE. JOHN BUCKLEY, Rochester, N. Y., assignor to the Rochester Machine Tool Works, same place. Filed Sept. 18, 1896. Serial No. 606,232. (No model.)

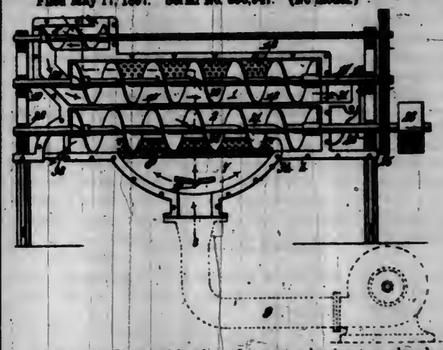


Claim.—1. In a spraying device, the combination, with a support, of a steam-generator and a tank thereon, an engine between the generator and the tank, an agitator in the tank, the shaft of which is in a line with the shaft of the engine, a clutch for connecting said shafts, and a steam-pump connected with the generator and with the tank, substantially as set forth.

2. In a spraying device, the combination, with a support, of a steam-generator, a tank, an agitator therein, an engine connected therewith, a pump, a branch pipe connecting the engine and the pump with the generator, two pipes leading from the pump to the tank, and a discharge-pipe leading from the pump, substantially as set forth.

3. In a spraying device, the combination with a tank for holding the spraying liquid, the opposite sides thereof being provided with bearings, of a shaft in said bearings, said shaft being provided with blades upon the opposite sides thereof, said blades being inclined to the axis of the shaft, a motor for said shaft, a pump, and a conduit leading from the tank intermediate the position of said blades upon the shaft, and connecting with the pump, substantially as set forth.

590,538. COAL-SEPARATING MACHINE. MORGAN DAVIS, Jr., Scranton, Pa., assignor of one-half to Charles D. Sanderson, Throop, Pa. Filed May 17, 1897. Serial No. 636,947. (No model.)



Claim.—1. The combination of a casing having two chambers, and a contracted intervening passage-way by which the two chambers communicate along their length, one of the chambers having an air-inlet and the other an air-outlet, conveyers arranged in the chambers and operating to move the substances within the chambers longitudinally thereof, and means for forcing air through said air inlet and outlet for the purpose of holding the substance of less specific gravity in suspension in one of the chambers while the substance of greater specific gravity descends through the contracted passage-way into the other chamber, substantially as and for the purposes described.

2. The combination of a casing having two substantially horizontal chambers, and an intervening longitudinal slot by which the two chambers communicate along their length, one chamber having air-inlet perforations in its lower side and the other air-outlet perforations in its upper side, conveyers arranged in the chambers and operating to move the substances within the chambers longitudinally thereof, and an air-blast apparatus communicating with the perforations in the under side of the lower chamber for the purpose of holding the substance of less specific gravity in suspension in the upper chamber, while the substance of greater specific gravity descends through the longitudinal slot into the lower chamber, substantially as and for the purposes described.

3. The combination of a casing having two substantially horizontal chambers, and a longitudinal slot by which the two chambers communicate along their length, one of the chambers having an air-inlet and the other an air-outlet, means for varying the width of the slot, conveyers arranged in the chambers and operating to move the substances within the chambers longitudinally thereof in opposite directions, and an air-blast apparatus communicating with the air-inlet for forcing air through the two chambers, substantially as and for the purposes described.

4. The combination of a casing having two substantially horizontal chambers, and an intervening longitudinal slot by which the two chambers communicate along their length, the lower chamber having air-inlet orifices and an air-distributing chamber at its bottom portion, and the upper chamber having air-outlet orifices in its top portion, conveyers arranged in the chambers and operating to move the substances within the chambers longitudinally thereof, and means for forcing air through the said air inlet and outlet orifices, substantially as and for the purposes described.

5. The combination, in a coal-separating machine, of a slate-chamber having air-inlet perforations in its bottom portion, an air-distributing chamber below the air-inlet perforations, a coal-chamber superimposed on the slate-chamber and having air-outlet perforations in its top portion, a dividing-wall having a longitudinal contracted passage-way through which slate and shale pass from the coal-chamber into the slate-chamber, conveyers, arranged, respectively, in said chambers, and operating to move the coal and the slate in opposite directions therein, and an air-blast apparatus connected with the air-distributing chamber, substantially as and for the purposes described.

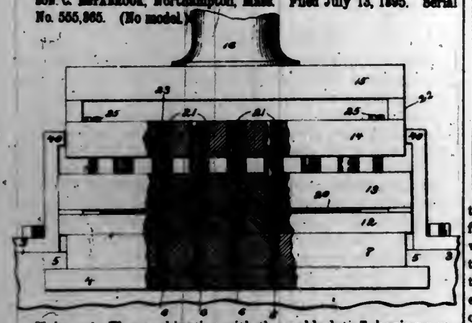
6. The combination, in a coal-separating machine, of a casing having two chambers and a contracted intervening passage-way by which the two chambers communicate along their length, one of the chambers having an air-inlet and the other an air-outlet, conveyers arranged in the chambers and operating to move the coal and the slate longitudinally in said chambers, an air-distributing chamber located under the said air-inlet, and means for forcing air into said air-distributing chamber upwardly through the air-inlet and the air-outlet, substantially as and for the purposes described

7. The combination, in a coal-separating machine, of a slate-chamber having an air-inlet in its bottom portion, an air-distributing chamber located below said air-inlet and provided with internal air-

distributers, a coal-chamber superimposed on the slate-chamber, having an air-outlet in its top portion and communicating with the slate-chamber along the length thereof, conveyers arranged, respectively, in the said chambers and operating to move the coal and slate longitudinally in the chambers, and an air-blast apparatus connected with the air-distributing chamber, substantially as and for the purposes described.

8. The combination, in a coal-separating machine, of a slate-chamber having an air-inlet in its bottom portion, an air-distributing chamber below said air-inlet, a coal-chamber superimposed on the slate-chamber, having an air-outlet in its top portion and communicating with the slate-chamber along the length thereof, conveyers arranged, respectively, in said chambers, a force-feed device for feeding the coal to the coal-chamber, and an air-blast apparatus connected with the air-distributing chamber, substantially as and for the purposes described.

590,539. **DEVICE FOR WORKING PLASTIC MATERIAL.** ALANSON C. BEARDSLEE, Northampton, Mass. Filed July 13, 1895. Serial No. 555,865. (No model.)



Claim.—1. The combination with the mold-plate 7, having a series of molds or dies, and also having a series of pins 6 at the centers of the said molds or dies, of a plate 12 having a series of holes registering with said molds and pins, a series of hollow punches which coact with the said holes and pins 6, whereby to form a series of washers and simultaneously therewith assemble them in connection with the said molds or dies in readiness for the molding operation, and a second mold-plate 30 having eyelet-holes 31 and constructed to cooperate with the mold-plate 7 in effecting the molding after the washers have been assembled upon the plate, as described.

2. The combination with the mold-plate 7 having a series of molds or dies, and also having a series of pins 6 at the centers of the said molds or dies, of the heater-plate 28 having holes therein to receive the projecting ends of the said pins, whereby to soften the washers of plastic material on said pins prior to effecting the molding operation, and the mold-plate 30 having eyelet-holes 31 and adapted to cooperate with the mold-plate 7 in effecting the molding after the washers have been softened by the application of the heater-plate, as described.

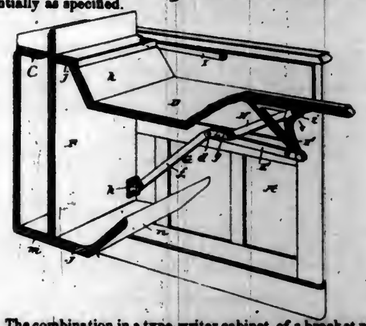
3. The combination with a mold-plate constructed to receive the plastic material which is to be molded, of a removable heater-plate for application to the plastic material on the said mold-plate, and a second mold-plate whereby to effect the molding after the removal of the said heater-plate, as described.

4. The combination with the mold-plate 7 having a series of molds or dies, of punching devices operating to form a series of washers and simultaneously therewith assemble them in connection with the said molds or dies in readiness for the molding operation, and a second mold-plate 30 having holes 31 and cooperating with the mold-plate 7 in effecting the molding after the washers have been assembled in connection with the latter, substantially as described.

590,540. **TYPE-WRITER CABINET.** MICHAEL FOLEY, Herkimer, N. Y., assignor to the Standard Furniture Company, same place. Filed Apr. 28, 1897. Serial No. 634,261. (No model.)

Claim.—1. In a type-writer cabinet, the combination of a machine-shelf pivotally connected with the side wall of the cabinet, a lid, a lever fulcrumed at an intermediate point of its length on the side wall of the cabinet and having a long arm pivotally connected with the lid, and a link connected with the shelf and pivotally connected with the lever, in advance of the fulcrum-point thereof; the whole being so arranged that when the shelf is raised to its horizontal position, the pivotal connection of the lever to the link and the fulcrum-point of said lever will rest in the same or approximately the same horizontal plane with the former in advance of the latter, substantially as specified.

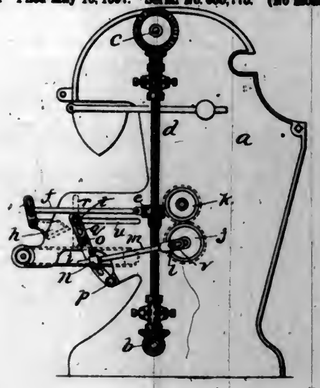
2. The combination in a type-writer cabinet, of a bracket pivoted to the wall of the cabinet, the shelf secured to the bracket, the lever fulcrumed in the wall of the cabinet at a point below the shelf when raised and having the long and short arms disposed at an angle to each other, the lid pivotally connected, adjacent to its rear edge to the long arm of the lever, and the link pivotally connected at one end to the short arm of the lever and at its outer end to the bracket, the whole being so arranged that when the shelf is raised to its horizontal position, the pivotal connection of the lever to the link and the fulcrum-point of said lever will rest in the same or approximately the same horizontal plane with the former in advance of the latter, substantially as specified.



3. The combination in a type-writer cabinet, of a bracket pivoted to the wall of the cabinet, the shelf secured to the bracket, the lever fulcrumed in the wall of the cabinet at a point below the shelf when raised and having the long and short arms disposed at an angle to each other, the lid pivotally connected, adjacent to its rear edge, to the long arm of the lever, the link I, pivotally connected at one end to the lid adjacent to the forward edge of the same and at its other end to the wall of the cabinet, and the link H, pivotally connected at one end to the short arm of the lever and at its opposite end to the bracket, the whole being so arranged that when the shelf is raised to its horizontal position, the pivotal connection of the lever to the link H, and the fulcrum-point of said lever will rest in the same or approximately the same plane with the former in advance of the latter, substantially as specified.

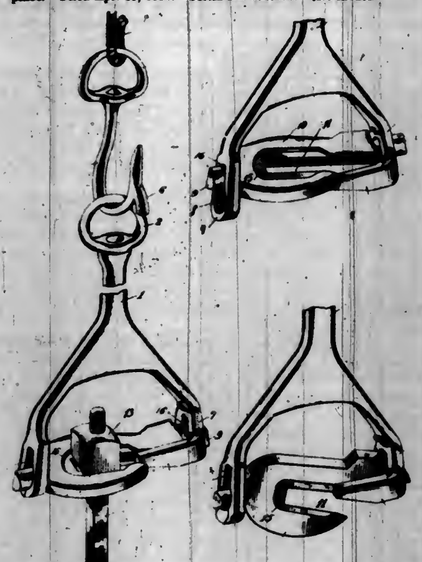
4. In a type-writer cabinet, the combination of a bracket pivotally connected with a wall of the cabinet and having a straight edge and being increased in width from its pivotal point to said straight edge, the swinging shelf mounted upon and connected to the straight edge of the bracket and arranged above the pivotal connection thereof, the lever fulcrumed upon the wall of the cabinet at a point below the shelf when raised and having the long arm and the short arm disposed at an angle to the long arm, the lid pivotally connected adjacent to its rear edge to the long arm of the lever and the link H, pivotally connected at one end to the short arm of the lever and at its outer end to the bracket and adapted to cross said bracket when the shelf is raised, the whole being so arranged that when the shelf is raised to its horizontal position, the pivotal connection of the lever to the link H, and the fulcrum-point of said lever will rest in the same or approximately the same horizontal plane with the former in advance of the latter, substantially as specified.

590,541. **CARD-FEEDING MACHINE.** JACOB F. GEE, Franklin, Mass. Filed May 10, 1897. Serial No. 635,775. (No model.)



Claim.—In a card-feeding machine the combination, with the pusher and patter, of the wheel and its wrist-pin, the pusher bar or rod provided with the slot *v* in which the wrist-pin loosely operates with a lost-motion effect at both the extreme limits of its movements, and opperative connections, as set forth, between the said rod or bar and the pusher.

590,542. **SUCKER-ROD ELEVATOR.** FRANK R. GOSNELL, Postoria, Ohio, assignor of one-half to John M. Wasson and Frank Ross, same place. Filed Apr. 15, 1897. Serial No. 632,297. (No model.)

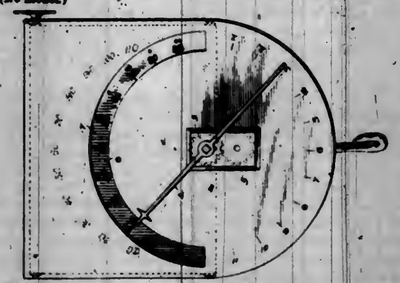


Claim.—1. A sucker-rod elevator having a forked stem, and a wrench-head provided with cross-sectionally flattened trunnions fitted in bearings in the prongs of the stem said bearings having upward extensions to snugly receive the trunnions and lock the stem against swinging movement, substantially as specified.

2. A sucker-rod elevator having a forked stem, provided in the extremities of its prongs with alined bearings having upward angular extensions, and a wrench-head having trunnions fitted in said bearings and elongated vertically in section to fit in said extensions when the stem is depressed, to lock the latter against swinging movement, substantially as specified.

3. A sucker-rod elevator having a wrench-head, a swinging stem loosely mounted upon the wrench-head and having a limited independent linear movement, and locking devices, for holding the stem in an upright position, the same having interlocking members carried respectively by the stem and wrench-head for engagement and disengagement, respectively, by linear movements of the stem in opposite directions, substantially as specified.

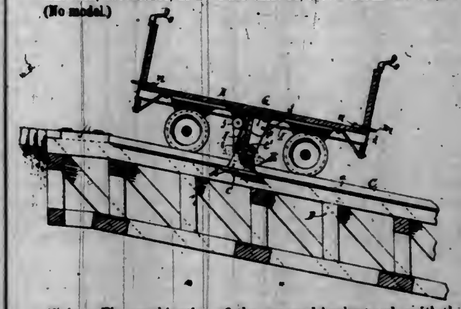
590,543. **SPRING-BALANCE COMPUTING-SCALE.** WILLIAM A. HALLENBECK, Binghamton, N. Y. Filed Jan. 2, 1897. Serial No. 617,696. (No model.)



Claim.—1. In combination in a computing-scale, a pivoted pointer, a dial having a horizontal slot therein concentric with the pivot of said pointer, and a vertically-movable apron having a plurality of rows of figures thereon, each of said rows being curved on a radius corresponding to the radius of the curve of said slot, substantially as described.

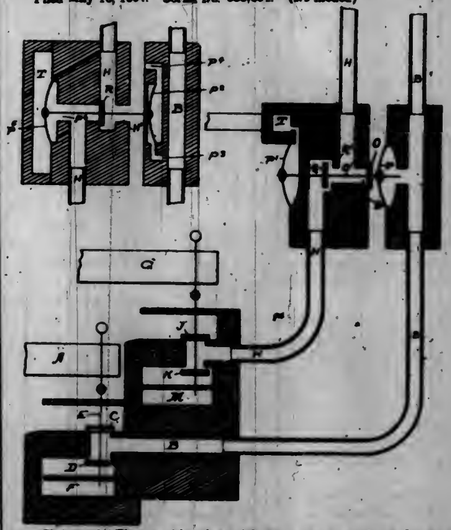
2. In combination in a computing-scale, a pointer, a dial having series of figures of increasing denominations arranged in an arc of a circle concentric with the pivot of said pointer, said figures denoting the weight in pounds, said dial having a slot therein diametrically opposite to said figures, and an apron having a series of figures of increasing denominations indicated thereon adapted to aline with said slot said figures denoting the computed cost in cents, the latter figures starting at a point diametrically opposite the starting of the former figures and increasing in an opposite direction thereto, substantially as described.

590,544. **SAFETY-BRAKE FOR INCLINED RAILWAYS.** GEO. HANCOCK, Providence, R. I. Filed Mar. 31, 1897. Serial No. 630,174. (No model.)



Claim.—The combination of the grooved brake-track, with the car, and the brake-shoe provided with the lateral flanges at its lower end which engage with the brake-track at opposite sides of the groove, the slotted brake-shoe holder attached to the car, means for holding the brake-shoe in the slotted holder, and means adapted for raising the brake-shoe into contact with the under side of the grooved brake-track, and also for raising the brake-shoe to a position above the track out of the groove, substantially as described.

590,545. **PNEUMATIC COUPLER.** FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed May 10, 1897. Serial No. 635,851. (No model.)



Claim.—1. The combination with the motor supply-channels of two different notes or pipes adapted to be sounded together, one of said channels having an opening to the outer air in its side through which its motor may be exhausted, of a valve controlling said opening, and a motor in communication with the other channel and acting to close said valve, substantially as specified.

2. The combination with the motor supply-channels of two different notes or pipes adapted to be sounded together, said channels

having no air communication with each other, and one of them having an opening to the outer air in its side through which its motor may be exhausted, of a valve controlling said opening, and a motor in communication with the other channel and acting to close said valve, substantially as specified.

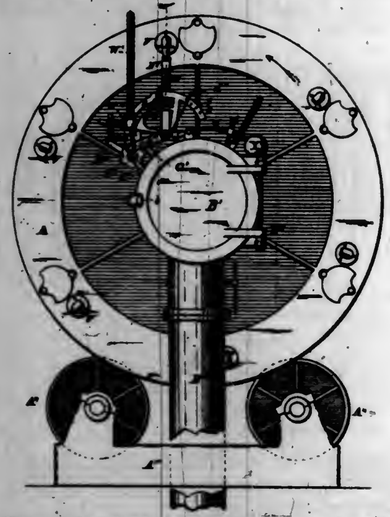
3. The combination with the motor supply-channels of two different notes or pipes adapted to be sounded together, one of said channels having an opening to the outer air in its side through which its motor may be exhausted, of valve devices located in said channel and acting both to control said opening and to shut off the escape of air from the source of supply of said channel when said opening is uncovered, and a motor in communication with the other supply-channel and acting to control said valve devices, substantially as specified.

4. The combination with the motor supply-channels of two different notes or pipes adapted to be sounded together, said channels having no air communication with each other, and one of them having an opening to the outer air in its side through which its motor may be exhausted, of valve devices located in said channel and acting both to control said opening and to shut off the escape of air from the source of supply of said channel when said opening is uncovered, and a motor in communication with the other supply-channel and acting to control said valve devices, substantially as specified.

5. The combination with the motor supply-channel B, and the motor supply-channel H, the latter having an opening to the outer air in its side and also having an offset, as shown, of valve devices acting to control said opening and also acting to close said offset and prevent loss of air from the source of supply, and a motor controlled by channel B connected to said valve devices and serving to retain them normally in position to close said opening, substantially as specified.

6. The combination with the motor supply-channels of two different notes or pipes adapted to be sounded together, one of said channels having an opening to the outer air in its side through which its motor may be exhausted and also having an offset as shown, of valve devices located in said channel and acting both to control said opening and to close said offset when the opening is uncovered, and a motor in communication with the other supply-channel and acting to control said valve devices, substantially as specified.

590,546. SPRINKLING DEVICE FOR PNEUMATIC MALTING-MACHINES. WILLIAM HEINER and GEORGE J. MEYER, Buffalo, N. Y. Filed Jan. 6, 1897. Serial No. 618,160. (No model.)



Claim.—1. In a pneumatic malting apparatus, the combination, with the malting-drum, of sprinkling-pipes located therein, connections, such as goosenecks located on the head thereof, and means substantially as described, for automatically connecting a water-supply pipe with said connections for intermittent sprinkling as specified.

2. In a pneumatic malting apparatus, a malting-drum, sprinkling-pipes located therein, connections attached to the end of said drum, a water-supply pipe, means, substantially as described, for automatically connecting the water-supply pipe with said connections, means for automatically turning on and shutting off the water-supply, and means for automatically disconnecting the water-supply pipe from the connections, as specified.

3. In a pneumatic malting apparatus, a malting-drum, a series of connections, such as goosenecks on the head of said drum, a swinging pipe, means for automatically connecting said swinging pipe alternately with each connection, means for automatically turning on and shutting off the water in the swinging pipe, means for automatically disconnecting said swinging pipe from the connections, and means, substantially as described, for intermittently connecting the swinging arm with said connections at predetermined intervals, as stated.

4. In a pneumatic malting apparatus, a movable water-supply pipe, means for automatically connecting it with, and connections on the said drum, and means for changing the intervals between the various sprinklings, as specified.

5. In a pneumatic malting apparatus, a malting-drum, sprinkling-pipes located therein, a series of connections on the head of said drum, a water-supply, a hollow swinging arm, means for automatically connecting it with the said connections, means for automatically disconnecting the arm and connections, and a controlling-valve adapted to automatically open and close the water-supply while the swinging arm is in motion, as specified.

6. In a pneumatic malting apparatus, a revolving drum, sprinkling-pipes located therein, goosenecks on the end of said drum, a water supply pipe, a hollow swinging arm, means for automatically engaging said swinging arm with the goosenecks, a controlling-valve on said swinging arm adapted to open and close the water-supply while the swinging arm is in engagement with the goosenecks, and means substantially as described, for automatically opening and closing said controlling-valve, as specified.

7. In a pneumatic malting apparatus, a revolving drum, a series of goosenecks on the head thereof, a water-supply pipe, a hollow swinging arm connected with said water-supply pipe, means for automatically engaging said swinging arm with said goosenecks, and means substantially as described, for keeping the end of said hollow arm under even pressure against said goose necks, as specified.

8. In a pneumatic malting apparatus, means, substantially as described, for changing the duration of the sprinkling, in combination with a water-supply pipe and a swinging arm connecting said water-supply pipe with the sprinkling-pipe within the drum, as stated.

9. In a pneumatic malting apparatus, a revolving drum, an engaging pin on said drum, and means for intermittently connecting the water-supply with the sprinkling device, consisting of a series of notched, revolving disks, a ratchet-and-pawl device for intermittently revolving said disks, dogs engaging with said disks in the said notches, a swinging arm, a catch on said swinging arm, goosenecks on the head of said drum, and a suitable water-supply, as specified.

10. In a pneumatic malting apparatus, the device for changing the interval between the sprinklings and engaging and disconnecting the water-supply, consisting of an engaging pin on the head of the malting-drum, means for intermittently rotating a series of disks, a series of dogs journaled upon a suitable shaft, lifting-cams above said dogs, a lever on said shaft, a swinging arm, a catch thereon, and a connecting-rod connecting said catch with said lever, as and for the purpose stated.

11. In a pneumatic malting apparatus, the combination, with a revolving drum, sprinkling-pipes therein, a device for automatically opening and closing the supply-controlling valve, consisting of a quadrant, a curved opening therein, inclines in said curved opening, a dog in said opening, a slide carrying said dog, a swinging arm carrying said slide, a valve-casing on the end of said swinging arm, a valve in said casing, and suitable connection between said slide and valve, as stated.

12. In an automatically-operating, intermittently-acting sprinkling device for pneumatic malting-drums the device for timing the duration of the sprinkling, consisting, in combination with a quadrant having a curved opening therein, inclines in said curved opening, a pivoted cam-lever, an incline on said cam-lever by means of which the distance between the said inclines may be varied, by moving said lever, and a dog operating in said curved opening and connected with the controlling-valve, as stated.

13. In a device for automatically and intermittently sprinkling the contents of pneumatic malting-drums, the mechanism for automatically timing the duration of the sprinkling, consisting of a quadrant having a curved opening provided with an enlargement at its end, a hollow swinging arm, means for connecting said arm with the water-supply pipe, a valve-casing, a controlling-valve therein, a slide upon the face of the swinging arm connected with said valve, an oblong dog pivoted on said slide, the pivot being near one end of the oblong dog, an incline in said curved opening adapted to pull down said dog to open the valve, a movable incline adapted to engage the long end of the dog to throw the same over, as specified.

14. In a sprinkling device for pneumatic malting-drums the combination, with the water-supply pipe, of means for movably connecting the water-supply pipe with the hollow swinging arm, consisting of a T, a hollow link connected therewith on one end, a socket at the other end of said link, a pipe connected with said socket and a hollow swinging arm on the other end of said pipe, as specified.

15. In an automatically and intermittently operating sprinkling device for pneumatic malting-drums, the means for connecting and disconnecting the swinging arm from the goosenecks consisting, essentially, of a swinging arm, a catch on the upper end thereof, a connecting-rod connected at one end with said catch and a pivot at the other opposite end, said pivot being located below and to one side of the center of revolution of said swinging arm whereby said catch is projected from and retracted by the swinging of said arm, as described.

16. In an automatically and intermittently operating sprinkling device for pneumatic malting-drums, the means for keeping the swinging arm in contact with the goosenecks, consisting of said swinging arm, levers pivoted in suitable standards, a pipe connected with the swinging arm and passing through said levers, links on the ends of said levers, a U-shaped lever connected with said links, an arm on said U-shaped lever and a weight on said arm, as specified.

17. In an automatically and intermittently operating sprinkling device for pneumatic malting-drums the means for varying the limit of movement of the lever sustaining the swinging arm, consisting of a lever having a curved arm, a dog upon said arm to limit the downward movement of the arm, and a curved base such as the pipe B, to stop the downward movement of the dog, as stated.

18. In a device for changing the interval of sprinkling in pneumatic malting-drums, the combination, with a series of lifting-cams having handles as described and being journaled upon a shaft fixed within arms, as stated, a cross-bar, hinged to one of the said arms at one end, a lock at the other end, a stud in one of said arms having a notch wherewith engages the bolt of said lock, and lifting-cams having handles, as and for the object set forth.

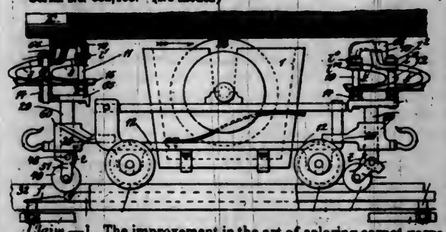
19. In a pneumatic malting apparatus, the means for locking the cam-lever to the quadrant, consisting of a plate upon said quadrant and provided with indicating-marks, notches in the edge of said plate, a pivoted cam-lever, a lock at the end of said lever adapted to lock in said notches, an extension on said lever having an opening through which the said marks may be observed, as stated.

20. In a sprinkling device for pneumatic malting-drums, the device for actuating the curved lever, consisting of a notched disk, a dog, a lifting-cam, an oblong projection on said lifting-cam, a handle thereon, a shaft upon which said lifting-cam is journaled, arms receiving said shaft, a shaft to which said arms are affixed, and suitable standards to receive said shafts, as specified.

21. In a sprinkling device for pneumatic malting-drums the device for automatically actuating the curved lever consisting, essentially, of a notched, revolving disk, a dog, a projection on said dog adapted to engage with the notches in said disk, a shaft upon which the dog is journaled, a lever on the end of said shaft, and means for connecting said dog with said shaft, as and for the purpose stated.

22. In a sprinkling device for pneumatic malting-drums, the combination, with the dogs, of the lifting-cams, indicating-plates on said lifting-cams, and separating-plates between said dogs and adapted to cover the indicator-plates, as and for the object set forth.

590,547. METHOD OF AND APPARATUS FOR COLORING YARNS. CHARLES L. HORACK, Brooklyn, N. Y. Filed Apr. 15, 1897. Serial No. 632,195. (No model.)

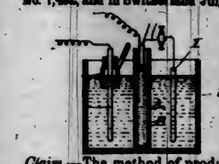


Claim.—1. The improvement in the art of coloring carpet-yarns, which consists in successively printing streaks of color of given widths upon the yarn side by side, subjecting the entire width of the color-streak in course of application to a rubbing action and simultaneously subjecting approximately one-half of the width of the adjoining streak previously printed to such action while also spreading color from the streak in course of application over the adjoining unprinted portion of the yarn on its other side to the extent of substantially one-half of the width of a streak and there rubbing it into the yarn simultaneously, and then printing a streak upon the adjoining unprinted portion of yarn upon which coloring-matter has been so spread from the streak in course of application, substantially as set forth.

2. In an apparatus for coloring yarns, the combination with a yarn-drum, a color-carriage and a color-wheel, a spreading device, a movable support for it in the rear of the color-wheel, and a rail on which said support rides, such rail being provided with a slope adapted to conduct the support toward the drum, such slope becoming more abrupt where it approaches the drum, substantially as set forth.

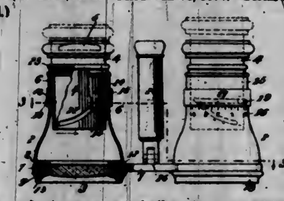
3. In an apparatus for coloring yarns, the combination with the drum, the color-carriage and the color-wheel, of a spreader mounted on said carriage and adjusted to travel in the rear of the color-wheel, means adapted to conduct the operative portion of said spreader in a direction substantially at right angles away from the drum, and mechanism for continuously confining the spreader out of operative contact with the yarn while traveling along the drum in either direction, said mechanism being adapted to be actuated during said travel of the spreader away from the drum, substantially as set forth.

590,548. PROCESS OF PRODUCING HYDRATES OR OTHER SALTS OF ALKALINE METALS. CHARLES KELLNER, Hallein, Austria-Hungary. Original application filed Nov. 12, 1892, Serial No. 451,791. Divided and this application filed July 7, 1896. Serial No. 598,307. (No specimens.) Patented in Germany Aug. 17, 1892, Nos. 70,007 and 73,224; in France, Sept. 26, 1892, No. 224,557; in Belgium Sept. 26, 1892, No. 101,508; in England Sept. 26, 1892, No. 18,169; in Sweden Sept. 26, 1892, No. 4,949; in Norway Sept. 26, 1892, No. 3,045; in Italy Sept. 30, 1892, XXVII, 33,735, and LXIV, 341; in Austria-Hungary Dec. 28, 1892, No. 47,196 and No. 71,540; in Russia May 28, 1894, No. 7,492, and in Switzerland July 14, 1895, No. 11,585.



Claim.—The method of producing hydrates or other salts of the alkaline metals, which consists in forming at one point, a given quantity of amalgam by electrolysis of a solution of a suitable salt in presence of a mercury cathode, and simultaneously oxidizing a substantially equivalent quantity of the alkaline metal contained in said amalgam at another point, by constituting the latter the anode (zinc pole) of a galvanic cell containing a liquid reagent and a cathode electronegative to the amalgam and short-circuited therewith.

590,549. OPERA-GLASS. WALTER G. KING and BURNHAM W. KING, New York, N. Y. Filed Jan. 21, 1897. Serial No. 620,090. (No model.)



Claim.—1. An opera or similar glass comprising a pair of lens-tubes for the ocular lenses, a pair of main barrels secured to a yoke for holding the objective lenses, and independent focusing mechanism connected in each of said barrels for adjusting the said lens-tubes; substantially as described.

2. An opera or similar glass comprising a pair of lens-tubes for the ocular lenses, a pair of main tubes or barrels for the objective lenses secured to a yoke, an independent exterior focusing device applied to each of the main barrels, and connected within the said barrels to the ocular-lens tubes; substantially as described.

3. An opera or similar glass comprising a pair of lens-tubes for the ocular lenses, a pair of main barrels for the objective lenses, and an independent rotary ring applied to the exterior of each of the said main barrels and connected to the ocular-lens tubes for adjusting them, substantially as described.

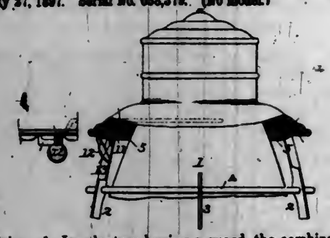
4. In an opera, or similar glass, the main barrels for the objective lenses provided with bearings at one end reaching to a point below the adjusting mechanism, tubes held to slide in said bearings, independent adjusting or focusing mechanism applied to said sliding tubes within said bearings, and exterior means for focusing the lenses; substantially as described.

5. In an opera, or similar glass, the main barrels 2, provided with focusing-rings 15, having studs 19 which reach through slots in the said barrels, in combination with the tubes 4, formed with vertical and diagonal slots 20, 22, and a fixed stud 21, which reaches into the said diagonal slot 22; substantially as described.

6. In an opera or similar glass, the main barrels 2, 2, provided with tubes 4, 4, and with means for adjusting said tubes and detachably connected to a yoke, in combination with detents 10, 12, or similar means for determining and maintaining the proper relative position of the barrels 2, 2 in the yoke and to each other; substantially as described.

7. In an opera or similar glass the main barrels secured to a single yoke, and independent means for focusing the lenses, in combination with a handle hinged to said yoke between the main barrels; substantially as described.

590,550. LANTERN. CHARLES I. MITCHELL, Chicago, Ill. Filed May 27, 1897. Serial No. 638,378. (No model.)



Claim.—1. In a lantern having a guard, the combination of an upper flanged metallic guard-ring, and a hinged cap, the said ring and its flange being bent to form a round pintle, substantially as described.

2. In a lantern having a guard, the combination of an upper flanged metallic guard-ring, a hinged cap, and a locking device, the said ring and flange being bent to form a round pintle for the hinge, and a projecting lip for the locking device, substantially as described.

590,551. WARP STOP-MOTION FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 22, 1897. Serial No. 637,670. (No model.)



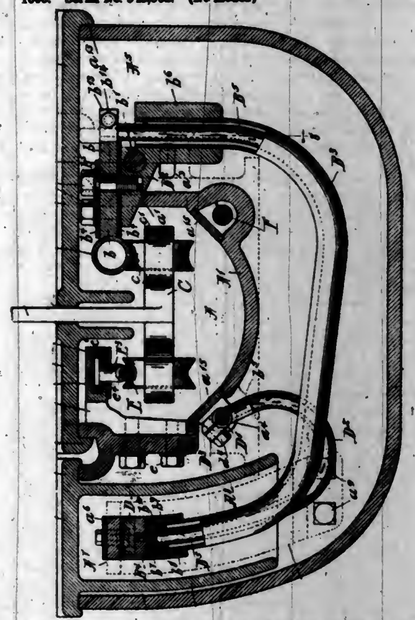
Claim.—1. In a warp stop-motion for looms, a vibrator rock-shaft having an attached ear, two yieldingly-connected arms having hubs loosely mounted on the rock-shaft, a spring to draw said arms together to engage opposite sides of the ear, a sleeve fulcrumed in alinement with the shaft, provided with an arm having an ear interposed between said spring-connected arms, and means to uniformly rock the sleeve, whereby the connected arms will be rocked in unison to correspondingly move the rock-shaft, substantially as described.

2. In a warp stop-motion for looms, a vibrator rock-shaft having an attached ear, two yieldingly-connected rocking members fulcrumed in alinement with the longitudinal axis of said rock-shaft, to normally engage opposite sides of the ear thereof, and an actuator to normally swing said members in unison and through its ear rock the shaft, stoppage of the latter holding one member while its fellow member is moved by and in unison with the actuator, substantially as described.

3. In a loom, a series of warp-stop-motion-actuating detectors movable into operative position by breakage or undue slackness of the warp-threads, a rock-shaft having an attached vibrator to engage and be held by a dropped detector, an ear on the rock-shaft, two yieldingly-connected arms loosely mounted on the said shaft, to engage opposite sides of the ear thereof, and a reciprocating actuator to normally swing said members in unison and thereby rock the shaft, stoppage of the vibrator holding one member and permitting the other member to continue its movement in unison with the actuator, substantially as described.

4. In a loom, a series of vertically-reciprocating warp-stop-motion-actuating detectors serving as heddles movable into operative position by breakage or undue slackness of the warp-threads, a rock-shaft having an attached vibrator, an ear on said shaft, two spring-connected arms mounted to rock on the shaft and to engage opposite sides of the ear, a sleeve loosely mounted on the shaft, having an arm provided with an ear to enter between said arms, and means to rock said sleeve and its arm, whereby said spring-connected arms will be normally swung in unison to rock the shaft, the connecting-spring yielding upon stoppage of the vibrator by a dropped detector, to prevent undue pressure upon the latter, substantially as described.

590,552. ELECTRIC RAILWAY. JOHN A. ROCHE and JOHN C. BLEY, Chicago, Ill.; said Bley assignor to said Roche. Filed Apr. 13, 1896. Serial No. 585,582. (No model.)



Claim.—1. The combination with a movable conductor-section of supporting-arms for the same, comprising pivotally-supported brackets and metal arms permanently attached to the conductor-section and secured to said brackets by insulating connections, and contact devices for connecting the conductor-sections with the supply-wire embracing stationary and movable contact-pieces, rigid arms attached to the said brackets and carrying the movable contact-pieces and insulated conductors attached to the metal arms of the conductor-section and extending along the said rigid arm to the said movable contact-piece, substantially as described.

2. The combination with a slotted conduit, of a conductor-section and supporting-arms for the same, comprising brackets pivoted to the side wall of the conduit and metal arms permanently secured to the conductor-section and attached to the said brackets by insulated connections, substantially as described.

3. The combination with a slotted conduit of a conductor-section pivotally supported within the conduit, a stationary contact-piece connected with a supply-conductor, a movable contact-piece and connections between said movable contact-piece and the said conductor-section, said conduit being provided with a removable cover located over the contact-pieces and provided with integral downwardly-opening air-pockets, substantially as described.

4. The combination with a slotted conduit, of a sectional conductor comprising a series of oscillatory conductor-sections, arms on said sections extending around and beneath the conduit and provided with contact-pieces at their free ends, exterior chambers on the conduit inclosing said arms, inverted cups inserted in the said chambers and forming downwardly-opening air-pockets into which the free ends of the arms project, brackets secured to the walls of the chambers and projecting upwardly into said cups, contact-plates secured to said brackets above the ends of the arms and adapted for contact therewith, and a supply-wire connected with said contact-plates, substantially as described.

5. The combination with a slotted conduit, of a sectional conductor composed of a series of oscillatory conductor-sections, projecting arms on said sections extending around and beneath the conduit and provided with contact-plates at their free ends, exterior chambers on the conduit inclosing said arms, contact-plates located in the upper end of said chambers in proximity to the arms, a supply-conductor located in the conduit, the bottom of the conduit being cut away to expose the wire where it passes through the chambers, and insulated connecting-wires leading from the contact-plates and secured to the exposed portions of the supply-wire, substantially as described.

6. The combination with a slotted conduit, of a series of oscillatory conductor-sections, a plurality of rigidly-attached arms, oscillatory brackets supporting said arms and sections and insulated therefrom, hollow arms secured to said brackets and extending beneath the conduit, contact-pieces on the extremities of said arms, insulated conductors leading from said contact-pieces through the hollow arms and connected with the arms of the conductor-sections, stationary contact-pieces located superjacent to the contact-pieces on the arms and a supply-conductor connected with said stationary contact-pieces, substantially as described.

7. The combination with a sectional conductor having separately-movable insulated sections, and a supply-conductor, of supporting-arms for the sectional conductor comprising pivotally-supported brackets, metal arms permanently attached to the conductor-sections and secured to said brackets by insulating connections, stationary contact-pieces connected with the supply-conductor, tubular arms attached to said brackets and carrying movable contact-pieces at their free ends and insulated conductors attached to the said arms on the conductor-sections and extending through said hollow arms to the movable contact-pieces, substantially as described.

8. The combination with a sectional conductor having separately-movable insulated sections, and a supply-conductor, of supporting-arms for the conductor-sections comprising pivotally-supported brackets, metal arms permanently attached to the conductor-sections and secured to said brackets by insulating connections, stationary contact-plates connected with the supply-conductor, tubular arms attached to said brackets and carrying movable contact-pieces at their free ends and insulated conductors attached to the said arms on the conductor-sections and extending through said hollow arms to the movable contact-pieces, said movable and stationary contact-pieces being located at the side of the sectional conductor opposite that at which the said pivoted brackets are located and said hollow arms extending from the brackets beneath the conductor to the contact-pieces, substantially as described.

9. The combination with a sectional conductor having separately-movable insulated sections, and a supply-conductor, of supporting-arms for the conductor-sections comprising pivotally-supported brackets, metal arms permanently attached to the conductor-sections and secured to said brackets by insulating connections, stationary contact-pieces connected with the supply-conductor, tubular arms attached to said brackets and carrying movable contact-pieces at their free ends, insulated conductors attached to the said arms on the conductor sections and extending through said hollow arms to the movable contact-pieces, and a slotted conduit within which the said conductor is located; said movable and stationary contact-pieces being located outside of the conduit at the side thereof remote from the said pivoted brackets, and the hollow arms being arranged to extend thereto by passing beneath the conduit, substantially as described.

590,553. HOOF-PAD. WILLIAM T. ROLLINS, Boston, Mass., assignor of one-half to Jesse R. Henderson, Everett, and Herbert C. Gifford and Charles R. Bowler, Somerville, Mass. Filed June 24, 1897. Serial No. 642,168. (No model.)

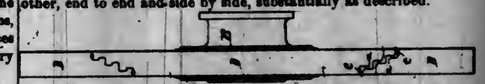


Claim.—1. A hoof-protecting attachment comprising an elastic pad or frog formed to bear on the bottom of the hoof, a forked rod having its forked portion embedded in the pad, the body of said rod extending forward from the pad far enough to pass through the toe portion of the hoof, a nut engaged with said rod and adapted to bear in the front surface of the hoof, and a cross-bar engaged with the ends of the forks of the rod and projecting from the edges of the pad in position to be inserted between the bottom of the hoof and the heel portions of the shoe, the said cross-bar and the forked rod forming a frame which surrounds but does not pass through the portion of the pad under the frontal bone of the hoof, so that the elasticity of said portion is not impaired by the said frame.

2. A hoof-protecting attachment comprising an elastic pad, a threaded rod extending forward from the pad and adapted to pass through an orifice formed in the toe portion of the hoof, and a nut engaged with said rod and having a toe-weight-supporting arm formed to bear on the front surface of the hoof.

590,554. CONSTRUCTION OF BALANCE-WHEELS. JOHN W. SARGENT, Providence, R. I. Filed Nov. 6, 1896. Serial No. 611,294. (No model.)

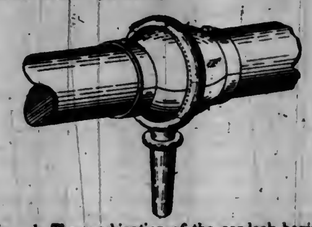
Claim.—1. In a balance-wheel, the rim-segments provided with the laterally-projecting hook-shoulders arranged at one side of each segment, and adapted for lateral interlocked engagement with each other, end to end and side by side, substantially as described.



2. In a balance-wheel, the combination of the rim-segments provided with the laterally-projecting hook-shoulders arranged at one side of each segment, and adapted for lateral interlocked engagement with each other, end to end and side by side, with the keys adapted to prevent lateral unlocking movement, substantially as described.

3. In a balance-wheel, the combination of the rim-segments provided with the laterally projecting hook-shoulders arranged at one side of each segment, and adapted for lateral interlocked engagement with each other, end to end and side by side, with the keys, and the transverse bolts adapted to hold the segments firmly together in their interlocked condition, substantially as described.

590,555. CAR-LOCK. ANDREW SMITH, Traverse City, Mich., assignor of one-half to John F. Donahue, Chicago, Ill. Filed Jan. 12, 1897. Serial No. 619,013. (No model.)



Claim.—1. The combination of the car-lock having inwardly-projecting lugs on its opposite sides and beneath the transverse center thereof, the circumferentially-grooved sleeve adapted to rotate within the lock and to oscillate upon the lugs but held by the lugs from longitudinal movement, the sleeve being adapted to embrace the car to which it is secured, substantially as shown and described.

2. The combination of the car-lock, the vertically-elongated lugs projected inward from opposite sides of the same, and beneath the transverse center of the lock, the sleeve adapted to rotate within the lock and to oscillate upon said lugs, but held from longitudinal displacement by the lugs, the sleeve being adapted to embrace the car to which it is secured, substantially as shown and described.

3. The combination of the closed car-lock, the pintle-lugs upon its opposite inner sides beneath the transverse center of the lock, the sleeve adapted to fit snugly within the closed lock and grooved circumferentially to turn upon said lugs and also divided longitudinally, whereby with one section of the sleeve within the lock and embracing both pintle-lugs, the other sleeve-section may be adjusted to position, the sleeve when thus positioned being adapted to be secured around the car, substantially as shown and described.

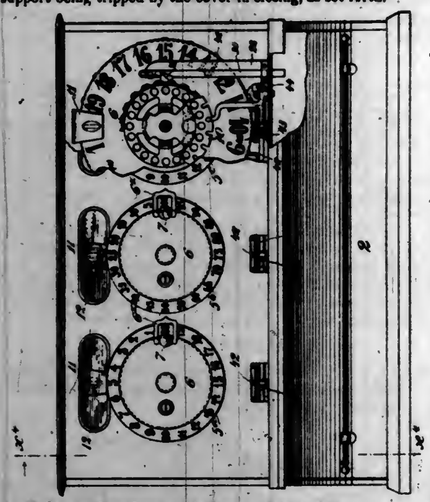
4. The combination of the lock, the quadrilateral lugs on opposite sides thereof, the circumferentially-grooved sleeve embracing the car and adapted to turn within the lock upon said lugs, substantially as shown and described.

590,556. CASH REGISTER AND INDICATOR. ELMER S. SMITH, Bound Brook, N. J., assignor to the Handy Standard Cash Register Company, Newark, N. J. Filed Aug. 22, 1896. Serial No. 603,561. (No model.)

Claim.—1. In a cash register and indicator of the type herein shown, the combination with a plurality of substantially like indicating and registering mechanisms set in a single casing and having a till and till-cover in common, of the said till-cover provided with a locking-shoulder and a spring to throw it open, a rock-shaft 17, provided with a locking-arm 14 and operating-arms 14×, pendent bolts 16, engaging the several arms, means for lifting said bolts at each operation of the mechanism, whereby the till-cover is unlocked by either of the several mechanisms in the casing, and means, comprising an arm 35 on said rock-shaft and a key adapted to be inserted through a keyhole in the register-casing, for operating said arm and releasing the till-cover independently of the indicating and registering mechanisms.

2. In a cash register and indicator of the type herein shown, the combination with the till-cover provided with a locking-shoulder, the hinged locking-arm 14, adapted to engage said shoulder when the till is closed, and lifters for lifting and dropping said arms at each operation of the machine, of an automatically-operated support for

said arm which holds it elevated until the till-cover is closed, said support being tripped by the cover in closing, as set forth.



3. In a cash register and indicator of the type herein shown, the combination with the till-cover provided with a locking-shoulder, the hinged locking-arm 14, adapted to engage said shoulder when the till is closed, and lifters for lifting and dropping said arms at each operation of the machine, of an automatically-operated support for said arm which holds it elevated until the till-cover is closed, said supporting device comprising a rocker 18, adapted to take under the locking-arm, the spring 19, which automatically sets the rocker in the supporting position when the arm is lifted, and the pendent trip, 21, on the rocker adapted to engage the till-cover when the latter is closed and rotate the rocker back to its normal position.

4. In a cash register and indicator of the type herein shown, the combination with the casing, the till therein, the till-cover pivotally mounted therein, and the operating-spring of said cover, of the dash-pot 4, mounted in the casing back of the till, the piston 4^{x}, provided with a stem 4^{a}, fulcrumed on the till-cover, the end 4^{b} of said stem being held up to the cover by a spring 4^{c}, and the said spring, whereby the piston, when it enters the dash-pot, is adapted to adjust itself thereto.

5. In a cash register and indicator of the type herein shown, having a plurality of substantially like indicating and registering mechanisms, each having a tilting, locking-frame, 13, a tumbler 9, an auxiliary tumbler 26, a shutter 11, carried by said auxiliary tumbler, and a latch connecting the tumblers 9 and 26 of each mechanism, of a rock-shaft 23, extending through all of the mechanisms, arms 24 on said shaft, each arm having a part which takes behind one of the tilting frames 13, a bridge 29, hinged to each arm 24, and adapted when elevated to bridge the space between said arm and the tumbler-latch, whereby said bridge frees the auxiliary tumbler when the frame 13 is pressed back, means for elevating and supporting said bridges when the till-cover is closed, and means for releasing said bridges and allowing them to fall when the frames 13 are pressed back.

6. In a cash register and indicator of the type herein shown having a plurality of indicating and registering mechanisms in a common casing, each of which has a tilting frame 13, of means for locking all of said mechanisms against operation by a single lock, said means comprising a rock-shaft 23, arms 24 on said shaft which bear on the rear faces of the respective frames 13, a lock 38, on the casing, having a bolt 39, and a lever 41, between said bolt and one of the arms 24, one of the arms of said lever taking behind the arm 24, and the other being arranged in the path of the bolt 39, in such relation that when said bolt is protruded it resists the backward movement of the frame 13.

7. The combination with the casing having a keyhole 36, of a spring-actuated till-cover in the casing, a rock-shaft 17, a locking-arm 14, on said shaft, adapted to lock the till-cover when closed, an arm 35 on the shaft 17 adjacent to the keyhole, and a key adapted to act on said arm 35 and rock the shaft 17.

590,557. BICYCLE-CRANK PEDAL. JOHN F. WILKINSON, Pepperell, Mass., assignor, by direct and mesne assignments, of five-eighths to Ruth Brown, New Ipswich, N. H., and R. G. Davis, Boston, Mass. Filed June 1, 1896. Serial No. 593,710. (No model.)

Claim.—A crank-pedal, comprising in its construction a crank-arm and wrist-pin, a pedal, and a clutch to prevent the pedal from rotating in one direction about the wrist-pin, and an elastic arm attached to the front portion of the pedal, and extending to the rear of the wrist-pin, and above the plane of the rear portion of the pedal, the said wrist-pin extending through the pedal near the rear thereof, and the clutch being adapted to grip at any point of rotation.



590,558. BALL-COCK. FRANK JEWETT, Hartford, Conn., assignor to Owen H. Jones, same place. Filed Feb. 26, 1897. Serial No. 625,152. (No model.)

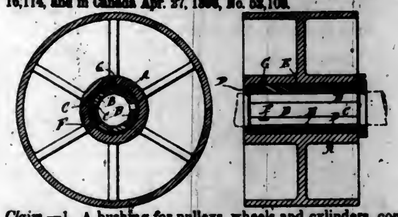


Claim.—1. In a valve, in combination, a valve-shell, a valve with its spindle projecting beyond the shell, a float-lever supported on the shell and with its inner end loosely engaging the valve-spindle, a rocking fulcrum located adjacent to the spindle, and guide-supports beyond the fulcrum, all substantially as described.

2. In a valve, in combination, a valve-shell, a valve with its spindle projecting beyond the shell, a float-lever supported on the shell and with its inner end loosely connected with the valve-spindle, a rocking fulcrum located adjacent to the spindle, guide-supports beyond the fulcrum, a curved guide-slot located in the float-lever, and a pin projecting into said slot, all substantially as described.

REISSUES.

11,680. BEARING. JOHN W. SHEARD and JOHN DOWN, Blackpool, England, assignors of one seventy-seventh to William Bowker, Waltham, Mass. Filed May 20, 1897. Serial No. 637,445. Original No. 575,855, dated Jan. 26, 1897. Patented in England Aug. 24, 1894, No. 16,114, and in Canada Apr. 27, 1896, No. 53,109.



Claim.—1. A bushing for pulleys, wheels and cylinders, consisting of a series of segmental strips, each free and independent of the others and adapted to be held endwise in place, but so as to be free to rotate about the shaft or other body against which they bear, with means for so confining said strips, substantially as herein described.

2. A bushing for pulleys, wheels and cylinders consisting of a series of segmental strips, each free and independent of the others and having smooth adjacent edges adapted to come in free contact with the edge of the adjoining strips, and all held endwise in place and free to be rotated about the shaft or other body against which they bear, with means for so confining said strips, substantially as described.

3. A bushing for pulleys, wheels, and cylinders, consisting of a series of segmental strips all substantially uniform in cross-section and adapted to freely rotate about the shaft or other body against which they bear, and each strip having smooth adjacent edges adapted to come in free contact with the edges of the adjoining strips and being of such transverse width that the combined circumferential width of the series will not completely surround said shaft, and means for retaining the strips endwise against longitudinal displacement, substantially as shown and described.

4. A bushing for pulleys, wheels, and cylinders, consisting of a series of segmental strips all substantially uniform in cross-section and adapted to freely rotate about the shaft or other body against which they bear, and each strip having smooth adjacent edges adapted to come in free contact with the edges of the adjoining strips, and being of such transverse width that the combined circumferential width of the series will not completely surround said shaft, there being longitudinal recesses C C for the lubricant, and means for retaining the strips endwise against longitudinal displacement, substantially as shown and described.

5. A bushing for pulleys, wheels, and cylinders, consisting of a series of segmental strips all substantially uniform in cross-section and each having smooth adjacent edges bearing against the edges of the adjoining strips, two of such strips having the adjacent outer and inner longitudinal corner edges beveled to form recesses C, C, extending longitudinally between such two strips, there being an inlet-opening F formed in the edge of and extending through another strip, and a band E encircling such strips, the whole in the form of a circle and adapted to be arranged within an encircling pulley-hub formed with a centripetal projection or shoulder D, against which the ends of the strips abut and also having a lubricating-passage with which the recesses C C and opening F communicate, for the purpose set forth.

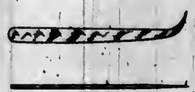
DESIGNS.

27,649. HAT-PIN. MARY A. E. HACKETT, New York, N. Y. Filed Aug. 13, 1897. Serial No. 648,175. Term of patent 14 years.



Claim.—The design for a hat-pin herein shown and described.

27,650. TOOTHPICK. FERDINAND J. KALLENBACH, Brooklyn, N. Y. Filed Aug. 4, 1897. Serial No. 647,132. Term of patent 14 years.



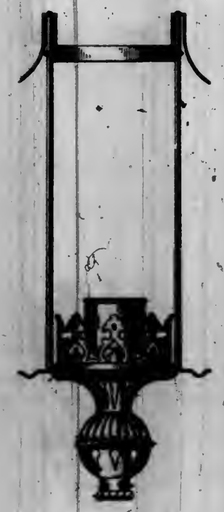
Claim.—The design for a toothpick, substantially as herein shown and described.

27,651. EWER. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Aug. 7, 1897. Serial No. 647,501. Term of patent 3½ years.



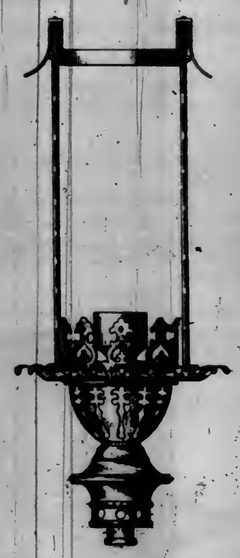
Claim.—The design for a ewer substantially as shown and described.

27,652. GAS-BURNER FIXTURE. ERNST LINDNER, New York, N. Y. Filed Apr. 29, 1897. Serial No. 634,475. Term of patent 7 years.



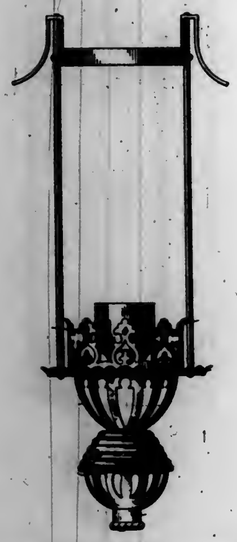
Claim.—The design for an incandescent-gas-burner fixture, substantially as shown.

27,653. GAS-BURNER FIXTURE. ERNST LINDNER, New York, N. Y. Filed Apr. 29, 1897. Serial No. 634,476. Term of patent 7 years.



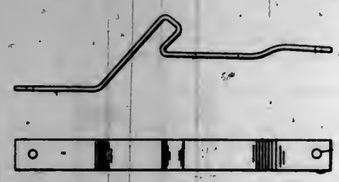
Claim.—The design for an incandescent-gas-burner fixture, substantially as shown.

27,654. GAS-BURNER FIXTURE. ERNST LINDNER, New York, N. Y. Filed Apr. 29, 1897. Serial No. 634,477. Term of patent 7 years.



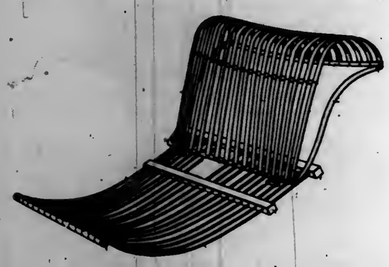
Claim.—The design for an incandescent-gas-burner fixture substantially as shown.

27,655. GUARD FOR RAILROAD-FROGS, &c. GEORGE C. LUCAS, Cleveland, Ohio. Filed June 9, 1897. Serial No. 640,075. Term of patent 3½ years.



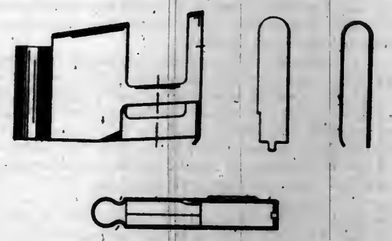
Claim.—The design for a railway foot-guard, substantially as shown and described.

27,656. GUARD OR CUSHION FOR STREET-CARS. ALBERT C. WOODWORTH, Providence, R. I., assignor to the Consolidated Car Fender Company, same place. Filed Mar. 10, 1896. Serial No. 582,656. Term of patent 14 years.



Claim.—The design for a guard or cushion substantially as shown and described.

27,657. CARTRIDGE PACKET OR HOLDER. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 10, 1897. Serial No. 647,756. Term of patent 14 years.



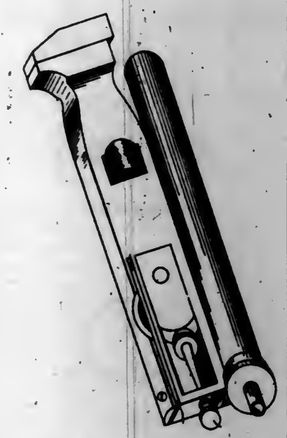
Claim.—The design for a cartridge-packet, as herein described and shown in the accompanying illustrations.

27,658. BRUSH. WALDEMAR JESUIT, Fisherville, Mass. Filed Aug. 11, 1897. Serial No. 647,920. Term of patent 7 years.



Claim.—The design for brushes, substantially as herein shown and described.

27,659. BICYCLE-TOOL. JOSEPH FISHER, Brooklyn, N. Y., assignor, by direct and mesne assignments, to Thomas W. Thompson and Charles H. Woeltje, same place. Filed Mar. 30, 1897. Serial No. 629,964. Term of patent 3½ years.



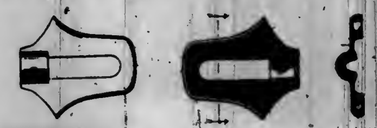
Claim.—The design for a bicycle-tool herein shown and described.

27,660. HANDLE-BAR FOR CYCLES. RUDOLPH A. ARENHUETE, Meriden, Conn. Filed Aug. 4, 1897. Serial No. 647,130. Term of patent 7 years.



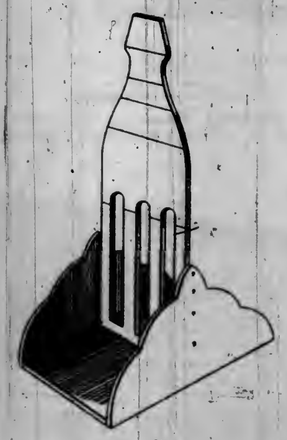
Claim.—The design for a handle-bar as herein shown and described.

27,661. COVERING-PLATE. LEVI M. DEVORE, Freeport, Ill. Filed Aug. 6, 1897. Serial No. 647,380. Term of patent 7 years.



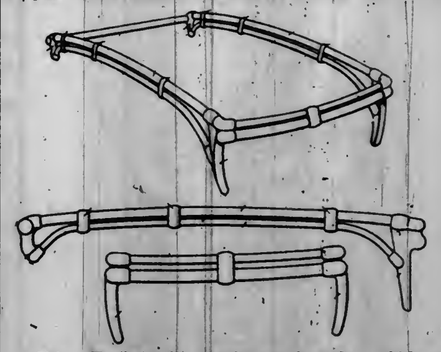
Claim.—The design for an ornamental covering-plate for the fork ends of bicycles herein shown and described.

27,662. BICYCLE-RACK. ADELBERT G. BLETHEN and WILLIAM J. EVANS, Minneapolis, Minn. Filed Aug. 14, 1897. Serial No. 648,230. Term of patent 3½ years.



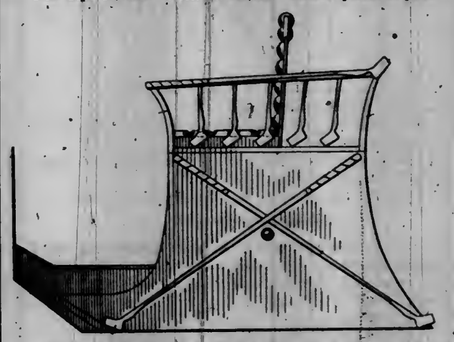
Claim.—The design for the bicycle-rack herein shown and described.

27,663. RUNNING-GEAR FRAME. HIRAM PERCY MAXIM, Hartford, Conn. Filed Aug. 6, 1897. Serial No. 647,379. Term of patent 14 years.



Claim.—The design for a running-gear frame for a vehicle, substantially as shown and described.

27,664. VEHICLE-BODY. JEROME STIVERS, New Rochelle, N. Y. Filed Sept. 14, 1896. Serial No. 605,832. Term of patent 14 years.



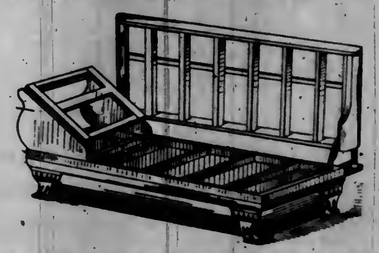
Claim.—The design for a vehicle-body substantially as shown and described

27,665. CRUTCH OR CHAIR TIP. CHARLES J. BAILEY, Newton, Mass. Filed Aug. 2, 1897. Serial No. 646,831. Term of patent 7 years.



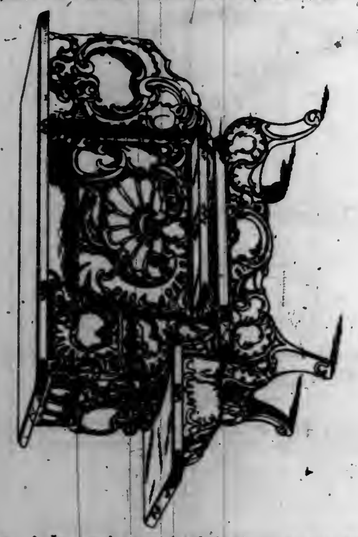
Claim.—The design for a crutch or chair tip, substantially as herein shown and described.

27,666. FRAME FOR BED-LOUNGES. LEON G. BELOUP, San Francisco, Cal., assignor to the Bernhard Mattress Company, same place. Filed July 6, 1897. Serial No. 643,660. Term of patent 7 years.



Claim.—The design for a bed-lounge frame, as herein shown and described.

27,667. COOK-STOVE. GEORGE W. COPE and WILLIAM L. BERTRAM, Detroit, Mich., assignors to C. Emrich, Columbus, Ohio. Filed Aug. 11, 1897. Serial No. 647,927. Term of patent 7 years.



Claim.—1. In a cook-stove the design for oven-door substantially as herein described and shown.

2. In a cook-stove the design for water-tank, substantially as herein described and shown.

3. In a cook-stove the design for skirt, substantially as herein described and shown.

4. The design for cook-stove herein described and shown.

27,668. HEATING-STOVE. THOMAS R. KENNEDY and JOHN F. HEMPER, Rochester, N. Y., assignors to the Cooperative Foundry Company, same place. Filed Aug. 12, 1897. Serial No. 648,053. Term of patent 7 years.



Claim.—1. In a design for a stove, the design for the base, substantially as shown and described.

2. In a design for a stove, the design for the top base-section B, substantially as shown and described.

3. In a design for a stove, the design for the ash-pit section, substantially as shown and described.

4. In a design for a stove, the design for the ash-pit door, substantially as shown and described.

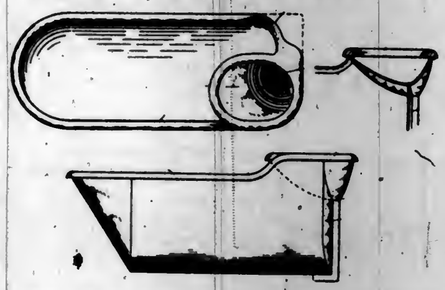
5. In a design for a stove, the design for the central or body section, embodying the front and side doors, substantially as shown and described.

6. In a design for a stove, the design for the top section G, substantially as shown and described.

7. In a design for a stove, the design for the cover H, substantially as shown and described.

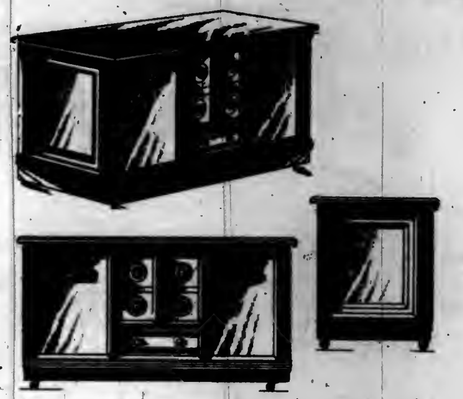
8. The design for stoves substantially as herein shown and described.

27,669. BATH-TUB. DAVID D. BUICK, Detroit, Mich. Filed Aug. 11, 1897. Serial No. 647,936. Term of patent 14 years.



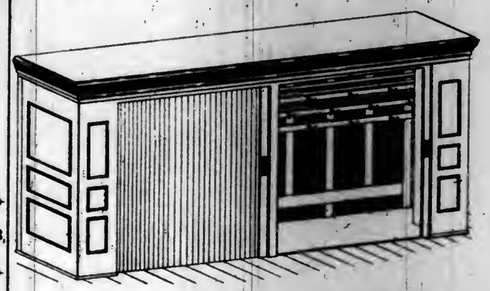
Claim.—The design for a bath-tub herein shown and described.

27,670. KITCHEN-CABINET. JOHN F. G. FERGUSON, Bowie, Tex. Filed Aug. 9, 1897. Serial No. 647,639. Term of patent 14 years.



Claim.—The design for a kitchen-cabinet, herein shown and described.

27,671. WARDROBE. FREDERICK R. POLLARD, New York, N. Y. Filed June 4, 1897. Serial No. 639,475. Term of patent 14 years.



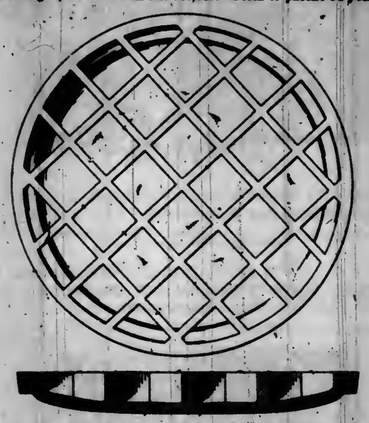
Claim.—The design for a wardrobe, substantially as herein shown and described.

27,672. WARDROBE. FREDERICK R. POLLARD, New York, N. Y. Filed June 26, 1897. Serial No. 642,949. Term of patent 7 years.



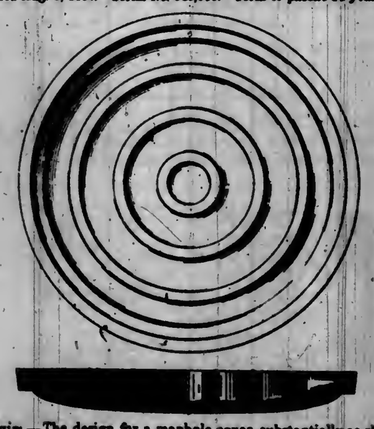
Claim.—The design for wardrobes substantially as herein shown and described.

27,673. MANHOLE-COVER. THOMAS P. GERBER, Philadelphia, Pa. Filed Aug. 3, 1897. Serial No. 646,962. Term of patent 14 years.



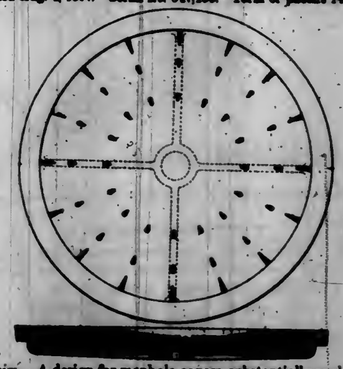
Claim.—The design for a manhole-cover, substantially as shown and described.

27,674. MANHOLE-COVER. THOMAS P. GERBER, Philadelphia, Pa. Filed Aug. 3, 1897. Serial No. 646,963. Term of patent 14 years.



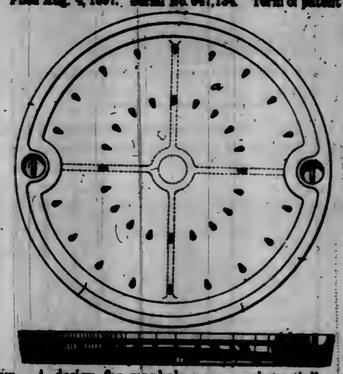
Claim.—The design for a manhole-cover, substantially as shown and described.

27,675. MANHOLE-COVER. THOMAS P. GERBER, Philadelphia, Pa. Filed Aug. 4, 1897. Serial No. 647,133. Term of patent 14 years.



Claim.—A design for manhole-covers, substantially as shown and described.

27,676. MANHOLE-COVER. THOMAS P. GERBER, Philadelphia, Pa. Filed Aug. 4, 1897. Serial No. 647,134. Term of patent 14 years.



Claim.—A design for manhole-covers, substantially as herein shown and described.

27,677. PRISM-LIGHT. JOHN MILTON BURR, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 5, 1897. Serial No. 647,265. Term of patent 14 years.



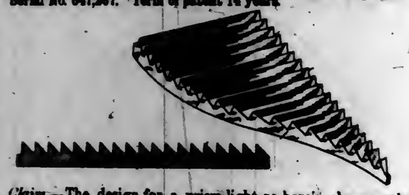
Claim.—The design for a prism-light as herein shown and described.

27,678. PRISM-LIGHT. JOHN MILTON BURR, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 5, 1897. Serial No. 647,266. Term of patent 14 years.



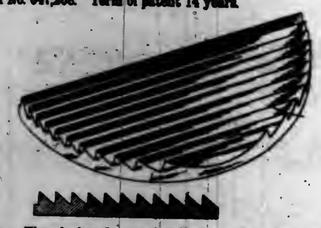
Claim.—The design for a prism-light as herein shown and described.

27,679. PRISM-LIGHT. JOHN MINTON BUSH, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 5, 1897. Serial No. 647,367. Term of patent 14 years.



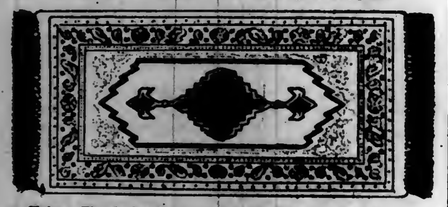
Claim.—The design for a prism-light as herein shown and described.

27,680. PRISM-LIGHT. JOHN MINTON BUSH, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 5, 1897. Serial No. 647,368. Term of patent 14 years.



Claim.—The design for a prism-light as herein shown and described.

27,681. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa. Filed Aug. 13, 1897. Serial No. 648,174. Term of patent 3½ years.



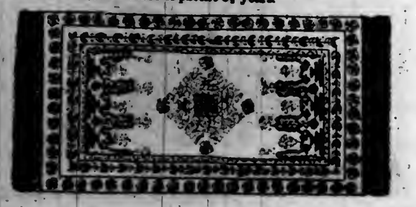
Claim.—The design for a rug, substantially as set forth.

27,682. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place. Filed Aug. 13, 1897. Serial No. 648,177. Term of patent 3½ years.



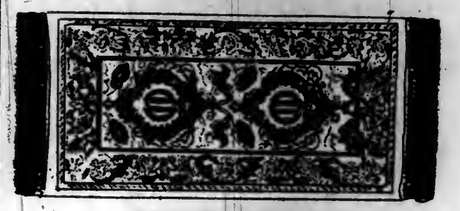
Claim.—The design for a rug, substantially as shown and described.

27,683. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place. Filed Aug. 13, 1897. Serial No. 648,178. Term of patent 3½ years.



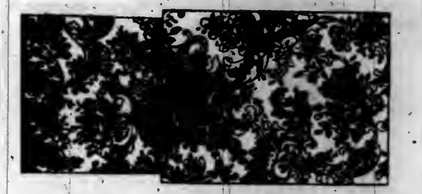
Claim.—The design for a rug substantially as set forth.

27,684. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place. Filed Aug. 13, 1897. Serial No. 648,179. Term of patent 3½ years.



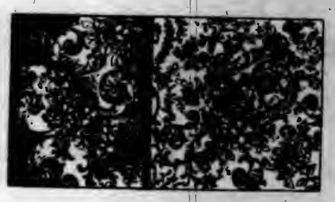
Claim.—The design substantially as set forth.

27,685. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Aug. 5, 1897. Serial No. 647,363. Term of patent 3½ years.



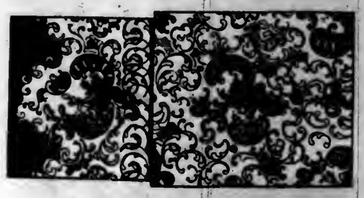
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,686. CARPET. NELSON SANFORD STEWART, Amsterdam, N. Y., assignor to Stephen Sanford & Sons, same place. Filed Aug. 5, 1897. Serial No. 647,364. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

27,687. CARPET. WALLACE MELVILLE COX, New York, N. Y., assignor to Stephen Sanford & Sons, Amsterdam, N. Y. Filed Aug. 5, 1897. Serial No. 647,362. Term of patent 3½ years.



Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

TRADE-MARKS

REGISTERED SEPTEMBER 21, 1897.

30,561. WATCHES. THE WATERBURY WATCH COMPANY, Waterbury, Conn. Filed Aug. 18, 1897.

CAVOUR

Essential feature.—The word "CAVOUR." Used since July 1, 1897.

30,562. ARTICLES USED BY CATHOLICS FOR FAMILY DEVOTIONS AND RELIGIOUS CEREMONIES. THE HOMAN SILVER PLATE COMPANY, Cincinnati, Ohio, and Chicago, Ill. Filed July 24, 1897.

SICK-CALL OUTFIT.

Essential feature.—The words "SICK CALL OUTFIT," associated with a representation of a Maltese cross. Used since July 12, 1897.

30,563. LEAD AND COLORED PENCILS, COPYING-PENCILS, SLATE-PENCILS, AND PENCILS WITH MOVABLE LEADS. BLEISTIFTFABRIK, VORMALS JOHANN FABER, AKTIEN-GESELLSCHAFT, Nuremberg, Germany. Filed Aug. 27, 1897.

Capital

Essential feature.—The word "CAPITAL." Used since 1896.

30,564. CONSECUTIVE-VIEW OR MOVING-PICTURE APPARATUS. AMERICAN MUTOSCOPE COMPANY, New York, N. Y. Filed Aug. 18, 1897.

BIOCRAPH

Essential feature.—The word "BIOGRAPH." Used since October 12, 1896.

30,565. ARTIFICIAL GUM USED IN DENTISTRY. THE INDIA RUBBER COMB COMPANY, New York, N. Y. Filed Aug. 20, 1897.

FLEXOR

Essential feature.—The word "FLEXOR." Used since March 15, 1897.

30,566. SOAPS, PERFUMES, POWDERS, AND LIQUIDS. COLGATE & CO., New York, N. Y. Filed Aug. 17, 1897.

VIORIS

Essential feature.—The word "VIORIS." Used since August 2, 1897.

30,567. LAUNDRY SOAP. GLOBE REFINING COMPANY, Louisville, Ky. Filed July 20, 1897.

COTTO

Essential feature.—The word "COTTO." Used since June 1, 1897.

30,568. SOAP. THE PROCTER & GAMBLE COMPANY, Cincinnati, Ohio. Filed Aug. 6, 1897.

AMBER

Essential feature.—The word "AMBER" and the ornamental scrollwork and the fanciful delineation composing a large parallelogram. Used since March 29, 1897.

30,569. SOAP. RETAIL MERCHANTS ASSOCIATION OF NEW JERSEY, Paterson, N. J. Filed Aug. 6, 1897.

UTOPIA

Essential feature.—The word "UTOPIA." Used since December 1, 1896.

80,570. LINIMENTS. LEVI L. BRIGHTON, Hutchinson, Kans. Filed Dec. 21, 1896.

LEONARD'S
MEXICAN
LINIMENT



Essential feature.—The words "LEONARD'S MEXICAN LINIMENT" and a picture of Mr. Leonard. Used since June 1, 1896.

80,571. LINIMENTS. EDWARD H. MOLLIGAN, Corning, N. Y. Filed July 9, 1897.

CYCLONE

Essential feature.—The word "CYCLONE." Used since June 1, 1895.

80,572. SAW-SETS, BENCH-STOPS, PUNCHES, SEAL-PRESSES, CUTTING-NIPPERS, AND SIMILAR HARDWARE SPECIALTIES. THE ESTATE OF CHARLES MORRILL, New York, N. Y. Filed June 21, 1897.



Essential feature.—A monogram of the letters "C M" between two circular figures crossed at right angles by vertical and horizontal lines. Used since February 24, 1880.

80,573. STEAM TRAPS AND PUMPS. A. A. GRIFFING IRON COMPANY, Jersey City, N. J. Filed July 3, 1897.

TRADE MARK
GRAVITY.
A. A. GRIFFING IRON COMPANY.

Essential feature.—The word "GRAVITY" inclosed by a diamond-shaped figure, with the word "TRADE-MARK" above and the address "A. A. GRIFFING IRON COMPANY" below. Used since June 15, 1897.

80,574. BICYCLE-SADDLES. THE BUNKER SADDLE COMPANY, Chicago, Ill. Filed Aug. 23, 1897.

RUBBER NECK

Essential feature.—The words "RUBBER NECK." Used since February 15, 1897.

80,575. BICYCLES, TANDEMS, AND ARTICLES ACCESSORY THERETO. GEO. H. COLKET & CO., Philadelphia, Pa. Filed Aug. 3, 1897.

ROBIN HOOD

Essential feature.—The words "ROBIN HOOD." Used since January 1, 1897.

80,576. BICYCLES, TANDEMS, AND ARTICLES ACCESSORY THERETO. GEO. H. COLKET & CO., Philadelphia, Pa. Filed Aug. 3, 1897.

MAID MARIAN

Essential feature.—The words "MAID MARIAN." Used since January 1, 1897.

80,577. BICYCLES, TANDEMS, AND ARTICLES ACCESSORY THERETO. GEO. H. COLKET & CO., Philadelphia, Pa. Filed Aug. 3, 1897.

CENTAUR

Essential feature.—The word "CENTAUR." Used since January 1, 1896.

80,578. BICYCLES, VELOCIPEDES, AND ARTICLES ACCESSORY THERETO. THE LOSIER MANUFACTURING COMPANY, Toledo, Ohio. Filed July 16, 1897.



Essential feature.—A representation of two shield-like figures, the connecting-bars, the cross-bar, and the fanciful letter "W." Used since October 21, 1896.

80,579. BICYCLES. CHARLES R. WALBRIDGE and HARRY WALBRIDGE, Buffalo, N. Y. Filed Aug. 17, 1897.

Sentinel

Essential feature.—The word "SENTINEL." Used since January 15, 1897.

80,580. WAGONS. DEERE & COMPANY, Moline and Decatur, Ill., Council Bluffs, Des Moines, and Keokuk, Iowa, Kansas City and St. Louis, Mo., Minneapolis, Minn., and San Francisco, Cal. Filed Aug. 19, 1897.

JOHN DEERE

Essential feature.—The name "JOHN DEERE." Used since 1847.

80,581. TABLE-MUSTARD. J. & J. COLMAN, LIMITED, London, England. Filed Aug. 9, 1897.



Essential feature.—The words "COLMAN'S MIXED MUSTARD" and a representation of a bull's head. Used since 1896.

THE HORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE NICHOLS.

Decided June 15, 1897.

1. ASSIGNMENT—REGULAR ON ITS FACE—ABSOLUTE ASSIGNMENT.

This Office has no means to determine whether agreements in regard to an assignment have been fulfilled, and therefore an assignment regular on its face and regularly recorded in the Office must be considered an absolute assignment until canceled by the written consent of both parties or by the decree of a competent court. The Office must follow the record, since it has no means to determine disputed questions of title.

2. ISSUING PATENTS—OFFICE GOVERNED BY LEGAL TITLE TO INVENTION.

The question that should govern the Patent Office in issuing patents is who on the record possesses the *legal* title to the invention, and the patent should issue accordingly, provided the requirements of the Office in such case have been complied with.

ON protest.

BICYCLE.

Applications of Marion L. Nichols filed, respectively, September 17, 1895, No. 562,749; February 24, 1896, No. 580,386; (renewed) April 15, 1897, No. 632,339, and April 15, 1897, No. 632,340.

Mr. Marion L. Nichols pro se.

Messrs. Redding, Kiddle & Greeley and *Mr. C. S. Sturtevant* for the Pope Manufacturing Company, assignee.

GREELEY, *Acting Commissioner:*

This is a protest by the applicant against the issue of patents on the above-entitled applications to the Pope Manufacturing Company as assignees and a request that they be issued to him, M. L. Nichols, as inventor.

There are on record in the Office assignments of the above applications from Nichols to the Howard & Nichols Cycle Manufacturing Company and from that company to the Pope Manufacturing Company. Each of these assignments contains a request that the patent issue to the assignee.

In regard to the first assignment it is stated in the brief for applicant that assignments of the above-entitled applications were made—

transferring all rights to the Howard & Nichols Cycle Manufacturing Company, for one dollar and other valuable considerations, such other considerations being an agreement to issue to the petitioner a large amount of stock. Only a portion of said stock was issued, and, therefore, the consideration for the transfer were not completed and the title could not be held to have passed to the assignee.

This Office has no means to determine whether any agreements in regard to an assignment have been fulfilled, and therefore an assignment regular on its face and regularly recorded in the Office must be considered an absolute assignment until canceled by the written consent of both parties or by the decree of a competent court. The Office must follow the record, since it has no means to determine disputed questions of title, and in the present case the assignment to the Howard & Nichols Cycle Manufacturing Company must be held valid for the purpose under consideration.

Aside from alleging the failure of the Howard & Nichols Company to comply with the agreements, it is alleged that for the purpose of defrauding applicant of his rights, presumably as a stockholder and creditor of that company, an assignment was made by the president of the company transferring all rights in said inventions to the Pope Manufacturing Company on certain conditions specified. It is alleged that a license given the Howard & Nichols Company as one of the conditions of the assignment specifying that no machines shall be sold for less than one hundred and fifty dollars practically makes it impossible to manufacture and sell any machines and clearly shows fraud.

In regard to these allegations bearing on the question of fraud the applicant says:

As these facts can only be presented and proven in a court of equity, they can only now be presented in the nature of *ex parte* affidavits, but these should be considered sufficient for the Commissioner to exercise the powers vested in him and issue the patent to the inventor.

The assignments are regular in form and show that the legal title is in the Pope Manufacturing Company whatever equitable rights the petitioner may have which could be presented and proven in a court of equity. In a similar case it was held by Commissioner Thatcher (see *ex parte Edison*, C. D., 1875, 42) that the only question that can be decided by the Commissioner is, who on the record possesses the *legal* title to these inventions, and that he must issue the patent accordingly if the requirements of the Office in such cases provided have been complied with, and in *ex parte Paine* (13 O. G., 408) it was held by Acting Commissioner Doolittle that—

it would appear to be simply the duty of the Office in issuing patents, in view of certain assignments and requests made therein, to consider the language of the assignments, and if an intelligible direction can be derived therefrom to give it force. It is neither the duty nor within the power of the Office to reform or cancel assignments, or make decrees on the equitable rights of parties based upon extraneous or *ex parte* proof.

I am clearly of the opinion that in the present case the record showing the legal title should be followed.

The protest is dismissed.

EX PARTE CHILLINGSWORTH.

Decided July 9, 1897.

ASSIGNMENT—APPLICATION NOT IDENTIFIED—POWER OF ATTORNEY—REQUEST TO ISSUE PATENT.

A request that a power of attorney given by an alleged assignee be approved and that a patent issue to said assignee denied, as the assignment fails to fully identify the application and to specifically request the issue of the patent to the assignee.

ON petition.

METHOD OF FORMING SOCKETS ON TUBES.

Application of Rudolf Chillingsworth filed August 4, 1896, No. 601,628.

Messrs. Richards & Co. for the applicant.

Messrs. L. W. Serrell & Son for the petitioner.

GREELEY, *Acting Commissioner:*

This is a request that a power of attorney given by the Standard Weldless Tube and Cycle Components, Limited, alleged assignee in the above-entitled case, be approved and entered in the case. It is also asked that the assignment referred to, which is recorded in this Office, be entered on the file-wrapper and the patent issued to the assignee.

The assignment referred to does not identify this application in any manner, but purports to be an assignment for all countries except Germany of the invention embodied in British patent No. 8,050 of 1895. It is alleged that this British patent covers the same invention as is covered by the present application, and that therefore it is apparent that this application is included in the assignment.

The question as to the identity of inventions is one which requires a judicial determination and which cannot be passed upon in recording assignments, since in the performance of these duties the Commissioner acts merely in a ministerial capacity.

Reference is also made to the fact that the oath to the present application states that the invention has been patented in Great Britain, No. 8,050 of 1895, thus indicating that the applicant regards the inventions as the same. This connecting link cannot, however, be considered sufficient identification under the rule, since it is dependent on evidence outside of the assignment itself.

The rule requires that the application be fully identified in the assignment and that the assignment specifically request the issue of the patent on that application to the assignee. (*Ex parte Lorentz*, 59 O. G., 158.)

The alleged assignee is neither entitled to receive the patent nor to be represented by an attorney in the prosecution of this case.

The request is denied.

EX PARTE PARKER.

Decided July 7, 1897.

DESIGN—DRAWING.

A drawing of a design case should disclose the entire design, not merely a part thereof.

ON petition.

DESIGN FOR A FLYING TARGET.

Application of Henry F. Parker for design filed February 26, 1897, No. 625,220.

Mr. Henry F. Parker pro se.

GREELEY, *Acting Commissioner:*

This is a petition taken from the action of the Primary Examiner requiring a new drawing in the above-entitled application.

The Examiner has indicated that the claim is allowable, but refuses to pass the case to issue until a new drawing disclosing the entire design instead of merely a part of it has been filed.

I agree with the Examiner that the entire design should be illustrated, and therefore the petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Eastern District of Wisconsin.

MICHIGAN STOVE COMPANY *v.* FULLER-WARREN COMPANY.

Decided June 22, 1896.

1. KEEP—STOVES—VALIDITY—INFRINGEMENT.

Letters Patent No. 368,770, granted to William J. Keep August 23, 1887, for an improvement in stoves, the main features of which are the drawing inwardly of the wall of the stove over the fire-pot, putting mica in the inturned wall to permit the passage of heat and light rays, and placing a reflector over the stove in a position to catch and reflect the light, *Held* to be valid and infringed as to claims 2 and 5, but not infringed as to claim 3, which covers a more limited structure.

2. DESIGN PATENT—KEEP AND WIPFLER—INFRINGEMENT.

Claims 2, 3, and 4 of Design Patent No. 18,190, granted to William J. Keep and Charles Wipfler March 21, 1888, for a heating-stove, are not infringed by defendant's stove, which in its appearance, either generally or in detail, does not so far resemble the complainant's design as to deceive purchasers or dealers, but, on the contrary, seems to be well distinguished in form and ornamentation.

STATEMENT OF THE CASE.

This was a suit in equity by the Michigan Stove Company against the Fuller-Warren Company for alleged infringement of certain patents for improvements in stoves.

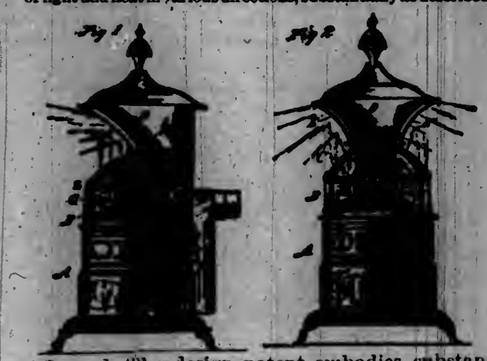
The bill alleges infringement of two Letters Patent owned by the complainant—first, mechanical patent, No. 368,770, for an improvement in stoves, granted to William J. Keep August 23, 1887, and, second, design patent, No. 18,190, for a heating-stove, granted to William J. Keep and Charles Wipfler March 21, 1888.

First. Of the mechanical patent infringement is alleged of the second, third, and fifth claims, which read as follows:

2. The combination, in a stove, of a vertical section, as A B, inclosing the fire-pot, an inturned section, C, arranged over the fire-pot, a reflector, E, arranged above said inturned section, and mica interposed between the fire and reflector, substantially as described.

3. The combination, in a stove, of a vertical section, an inturned section, C, having mica-filled openings, an overhanging section, D, and a reflector set in front of said overhanging section, and with a space between the two, substantially as described.

5. The combination, in a stove, of a vertical section, an inturned section, C, having openings filled with mica, and multiple reflectors, as E' E', arranged to diffuse and spread the rays of light and heat in various directions, substantially as described.



Second. The design patent embodies substantially the same mechanical combinations covered by the foregoing patent, and infringement is alleged of the three following claims:

2. In a design for a stove, an overhanging top, 3, having an inturned concave recess in front above the cover, as shown.

3. In a design for a stove, the substantially cylindrical fire-pot section, comprising the three mica sections, the lower one flaring, the upper one of sector shape, and the intermediate one substantially straight, as shown.

4. In a design for a stove, the rail ornamented at its ends with rosettes arranged at an oblique angle to the length of the rail, as shown.

The defenses to both patents allege non-infringement and invalidity. Numerous prior patents are introduced to show the prior state of the art and want of novelty, and it is especially urged that the second and fifth claims of the mechanical patent are mere aggregations of old devices and that the third claim is not infringed.

Mr. George H. Lothrop for the complainant.

Messrs. Davenport & Hollister for the defendant.

SEAMAN, *J.*, (after stating the facts as above:)

In the mechanical patent, No. 368,770, invention is asserted generally upon the following features: in drawing inwardly the wall of the stove over the fire-pot, putting mica in the inturned wall to permit the passage of heat and light rays, and placing a reflector over the fire in position to catch and reflect the light-rays. These features are all clearly set forth in the Letters Patent, especially in the second and fifth claims. The defendant contends that each of the elements entering into these claims is an old and well-known feature of stove structure, and the evidence of prior patents introduced on its behalf supports that contention. An inturned section above the fire-pot and mica-filled openings appear in several prior patents, notably in the drawings which accompany the following: No. 107,597, for a magazine-stove, issued to A. C. Corse September 20, 1870; No. 129,534, to A. C. Corse, July 16, 1872, for a base-burning stove; No. 8,567, to Philip Rollhaus, Jr., August 6, 1875, for a design for a fireplace-heater. Reflectors in various forms are a common structure and appear in several exhibit patents, although none is shown of strictly analogous use. The expert on behalf of the defendant places much stress on the above-mentioned Corse patents as anticipatory of all the essential features of the patent in question; but they clearly have no reflector and, in my opinion, do not suggest this combination. The main defense, however, against the second and fifth claims is that they do not present a patentable combination, but are mere aggregations of old elements of stove structure. It is clear that if—

the result in this case is a mere aggregation of the several functions of the different elements of the combination, each performing its function in the old way—

there is nothing upon which to base a claim to invention. (*Richards* v. *Elevator Co.*, on rehearing, 78 O. G., 1710; 159 U. S., 477, 487; 16 Sup. Ct., 53.) Whether these claims fall within such definition was the inquiry which seemed to me upon the argument to present the main, if not the only, difficulty in the case. In *Webster Loom Co.* v. *Higgins* (21 O. G., 2031; 105 U. S., 580, 591) Mr. Justice Bradley, speaking for the Court, says:

It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention.

The testimony shows that the result obtained by this combination was beneficial in that it gave an illuminating effect which made the stoves attractive and gave them great popularity in the trade, and it is my opinion that this effect is new as the joint product of the inturned mica-filled section and the reflector. As stated by the complainant's expert:

It is necessary in a coal-burning stove of this kind, particularly when hard coal is used, that the space above the fire-pot be inclosed, so that the chimney will draw the air through the fuel instead of over it. It is therefore necessary that the inturned section, if it permits light and heat rays to pass through it, must have mica placed in the openings of this inturned section, in order that it may be closed, and at the same time transparent to light and heat rays. The inturned section, having mica in it, therefore coöperates with the section inclosing the fire-pot and with the reflector above the inturned section, because it permits the heat and light rays to pass from the fire-pot to the reflector through the inturned section, and still maintains a closed space above the fire-pot. The mica interposed between the fire-pot and reflector serves also to prevent the smoke and dust from the fire-pot coming in contact with the reflector and obscuring its bright surface, so that the inturned section filled with mica coöperates with the fire-pot and the reflector to prevent the former from destroying the latter.

Although the mica and the reflector each performs its old function, it is not in the old way, for they are so positioned that they coöperate and obtain a result which is joint and not individual. This distinction is the same noted by Judge Acheson in *Stutz* v. *Armstrong*, (28 O. G., 367; 20 Fed. Rep., 843, 847,) that—

it is sufficient if all the devices coöperate with respect to the work to be done, and in furtherance thereof, although each device may perform its own particular function only.

In this view the device meets the requirements for a patentable combination, namely—

while every element remains a unit, retaining its own individuality and identity as a complete and operative means, the combination embodies an entirely new idea of means, and thus becomes another unit, whose essential attributes depend on the coöperative union of the elements of which it is composed. (1 Rob. on Pats. sec. 155.)

The testimony regarding the popularity of the structure thus obtained is well worthy of consideration to overcome any doubt which may arise because the device comes close to the line of these definitions, and I do not think this testimony should be excluded as not strictly in rebuttal under the objection interposed by the defendant. The infringement of the second and fifth claims appears to be clearly established, and the complainant is entitled to an injunction thereupon.

The other allegations of infringement are unsup-

ported by the evidence. The third claim of the mechanical patent makes the provision of an air-space between the reflector and the overhanging section D the distinguishing element, and this is neither employed in the defendant's stove nor is there any equivalent for it. This omission avoids infringement. The defendant's stove does not conflict with the design patent, if that is assumed to be valid. In its appearance, either generally or in detail, it does not so far resemble the complainant's design as to deceive purchasers or dealers, but, on the contrary, seems to be well distinguished in form and ornamentation.

No proof is furnished under section 4900, Revised Statutes, and there can be no decree for damages or profits as the case now stands. Decree may be prepared for entry in accordance with the views above indicated.

ON rehearing, May 19, 1897.

Messrs. Banning & Banning for the complainant.

Mr. Nelson Davenport for the defendant.

SEAMAN, *J.*:

Rehearing was granted in this case for the production of further and newly-discovered evidence upon the issue of anticipation. This evidence on behalf of the defendant presents two devices, first, a fireplace-heater called the "New Golden Sun," purporting to have been manufactured by James Spear at Philadelphia, put upon the market about 1883, and exhibited in a catalogue dated in 1884; second, a stove called the "Standard Base Burner," manufactured by the Magee Furnace Company, of Boston, and claimed to have been placed upon the market in 1876.

The Spear device is the only one which seems to me to be entitled to serious consideration. The testimony relating to the Magee stove shows an original construction in which the upper mica section was slightly curved or inturned, and above this a section or ring which would be capable of use as a reflector to some extent if properly plated or polished for that object. No exhibit stove is produced by the defendant of this form; but it is asserted by some of the witnesses that this ring was polished and served as a reflector, and one witness states that a stove which was made for exhibition at the Philadelphia Centennial had the ring-section nickel-plated. This construction was abandoned after the first season, and the testimony is too indefinite to establish actual provision for use of the feature of reflection which is dominant in the complainant's device. If the feature was present in any degree, it was as a mere incident and not so far developed or recognized as to anticipate the patent in suit, and, on the other hand, the complainant produced a stove of that make, which was identified as one of those named by the defendant's witness as made and sold by the Magee Company and of the pattern referred to, in which the under side of the ring was unpolished, and it was conceded that it could not serve as a reflector.

The Spear fireplace device, called the "New Golden Sun," has an arched border or frame, nickel-plated, which serves to reflect the rays of light and heat to a certain extent at the sides, although not at the top. The only witness upon this point is the designer and manufacturer, James Spear, who gives an enthusiastic description of the "dazzling glow" which was produced. A cut of it is shown in his catalogue of 1884, and the feature of reflection is referred to in the context, but there is no provision of an inturned mica section and reflector serving in any manner to reflect the rays of light and heat from the upper surface of the fire-pot, which is the distinguishing feature of the complainant's device and gives it the large measure of success shown in this record. While there is incidental use of the feature of reflection, there was, in my opinion, no such recognition of its benefits as should appear to constitute anticipation in view of the success obtained by the complainant's device. The question of patentable invention is close, but the new testimony is not sufficient, in my view of the case as a whole, to disturb the opinion heretofore reached.

Decree will be entered in favor of the complainant according to the former opinion.

U. S. Circuit Court—District of New Jersey.

PAUL BOYTON COMPANY *v.* MORRIS CHUTE COMPANY, *et al.*

Decided July 26, 1897.

1. NEWBURG—COASTER OR INCLINED PLEASURE-RAILWAY—ANTICIPATED—INVALID.

Letters Patent No. 411,255, granted September 17, 1889, to John P. Newburg, for improvements in coasters or inclined pleasure-railways consisting of an inclined plane erected adjacent to and terminating in a body of water and a boat-shaped car or toboggan having runners and guides and spray-deflectors, which will not only slide down the inclined plane, but float and be propelled by momentum upon the water at the foot of the inclined plane, *Held* to be anticipated and invalid.

2. PATENTABILITY—COMBINATION OF OLD ELEMENTS—AGGREGATION.

A combination of old elements in order to be patentable all the parts must so act that each qualifies every other. It is not enough that these independent parts are conveniently associated in one machine if each performs the same function it did before they were united. They must be so connected that the new result is due to their coöperative action. (*Bunching Machine Co.* v. *Williams*, 44 Fed. Rep., 191, and cases there cited; *Green* v. *American Soda Fountain Company*, 78 Fed. Rep., 119.)

Messrs. Dyrenforth & Dyrenforth for the complainant.

Messrs. Strawbridge & Taylor for the defendants.

KIRKPATRICK, *J.*:

This suit was brought for the infringement of the complainant's two patents, No. 411,255, dated September 17, 1889, and No. 419,860, dated January 21, 1890. During the progress of the suit the charge of infringement as to Patent No. 419,860 was withdrawn, so that the only matters for the consideration of the court are those connected with Patent No. 411,255.

The invention sought to be protected by this patent, which was taken out by John P. Newburg and is held by the complainant by assignment, is

stated in the specification to relate to improvements in coasters or inclined pleasure-railways, and what is claimed to be new is set out as follows:

1. In an inclined pleasure-railway, in combination with an inclined way and track which is located or erected near a body of water, a boat-shaped car or toboggan adapted, when it reaches the foot of the incline, to enter and float forwardly on the water, substantially as described.
2. In combination with an inclined railway which is located with its foot near a body of water, a boat-shaped car or toboggan adapted to move downwardly over said inclined railway and entering the water at its foot to float thereon and be propelled forwardly thereon by the momentum derived from its descent over the inclined railway, substantially as described.
3. In combination with the inclined railway having rails E, the boat-shaped car or toboggan having runners and guide-plates extending below said runners on its bottom, substantially as described.
4. In combination with the boat-shaped car or toboggan, the spray-deflectors fixed to its sides, substantially as described.
5. In combination with the boat-shaped car or toboggan, the spray-deflectors and the convoluted plates fixed thereto, substantially as described.
6. In combination with an inclined railway which may be located near a body of water, a boat-shaped car or toboggan having runners J, guard-plates K, and spray-deflectors I, substantially as described.

It is claimed for Newburg that he conceived and disclosed to the world a new amusement known as "shooting the chutes." The agencies by which the amusement is afforded consist of an inclined plane erected adjacent to and terminating in a body of water and a boat-shaped car or toboggan having runners and guides and spray-deflectors, which shall not only slide down the inclined plane, but float and be propelled by momentum upon the water at the foot of the inclined plane.

It appears from the record that Randall A. Harrington on January 24, 1888, filed an application for and on June 19, 1888, obtained a patent, No. 384,843, for an inclined railway and water-tobogganing apparatus in which a wheel-toboggan slide or inclined railway was so combined with a lake or other body of water that the momentum acquired by the car in its run down the railway should serve to carry it a considerable distance on the surface of the water. This would have been in clear anticipation of claims 1 and 2 of the complainant's patent had it not been shown that prior to the date of filing Harrington's application and as early as the summer of 1887 Newburg had put into practical use his idea of a water-toboggan. It will be noticed that the Harrington patent includes no claim of patentable novelty in placing the inclined plane near by or adjacent to a body of water, as does the complainant's patent.

Inventions which afford amusement and diversion are classed among patentable subjects, but only the mechanical agencies employed can be patented, so that while the adaptation of certain mechanical agencies may be the means of bringing great pleasure to many and large profits to those first in the field, unless the agencies are new either in themselves or in combination or a new result attained by the coöperation of the agencies they will not be protected by law or a monopoly of their use granted.

Inclined pleasure-railways of the roller-coaster and toboggan-slide type were in use long before Newburg made application for his patent, and that he knew of their existence is evidenced by the fact that in the specification of his patent (page 1, line 9) he says that his invention relates to improvements in coasters or inclined pleasure-railways. In his opinion the novelty of his invention consisted in locating his inclined railway near a lake or other suitable body of water and adopting a car or boat shaped toboggan, which, descending the railway by gravity, should acquire a momentum that, when it entered and floated upon the water, should propel it forwardly. The boat-shaped car was intended to descend the inclined railway by gravity, as did the roller-coasters known to the prior art, and upon reaching the bottom of the railway was to be propelled forward by its acquired momentum, as in the case of toboggans sliding over ice. What Newburg sought to secure by his patent he has set forth in his claims, which may be considered separately. Claims 1 and 2, which have been hereinbefore set out at length, contain the same elements. Claim 2 differs from claim 1 in that it states that the car or toboggan on entering the water is—

propelled forwardly thereon by the momentum derived from its descent over the inclined railway.

Taken together they will be found to include, in combination, an inclined railway located near a body of water and a boat-shaped car or toboggan adapted to move downwardly over the railway and when it enters the water to float thereon and be propelled forwardly by the momentum derived from its descent. These elements are the same as those employed in the launching of ships. There is the inclined railway located near the body of water and terminating therein and the boat or ship to be launched, which by the force of gravity slides down the inclined plane and is adapted to float upon the water and move forwardly thereon by its acquired momentum. If from claim 1 the word "pleasure" be omitted and in claim 2 the word "ship" be substituted for "boat-shaped toboggan," we have a structure practically identical in arrangement and operation with that used in the launching of vessels. But it is said that if these claims 1 and 2 with a broad interpretation of their terms may be held to describe only the ancient art of launching ships then the court should give them a more limited construction by which the boat-shaped toboggans of the claims shall be boat-shaped toboggans of such form that when they shoot from the incline to the surface of the water they shall not ship water or splash the passengers, and so read into the claims elements not specified therein. The complainant admits that there is no description in the claims of the patent nor in the specification of a boat-shaped toboggan which, when used in the manner described in the patent, the occupant thereof shall not be splashed, but insists that these elements are clearly implied and that there is nothing to the contrary. The duty imposed upon the patentee by the statute is to—

particularly point out and distinctively claim the part, improvement or combination which he claims as his discovery,

and—

if he fail to state this fully and correctly his remedy for the omission is by surrender and reissue. (*Delaware Boat & Ice Co.* v. *Packer*, 24 O. G., 1273.)

In the case of *White et al.* v. *Dunbar et al.* (26 O. G., 353; 119 U. S., 47) the Court says:

The claim is a statutory requirement prescribed for the very purpose of making the patentee define precisely what his invention is, and it is unjust to the public as well as an evasion of the law to construe it in any manner different from the plain import of its words.

The duty of the court is to construe the claims according to the plain meaning of their words, and—

if the claims are susceptible of two interpretations that one should be chosen which upholds and vitalizes the patent, (*Consolidated Fastener Co.* v. *Columbian Fastener Co.*, Fed. Rep. 795;)

but this cannot be held to include the formulation of claims by reading into or adding to them elements or restrictions which are not therein set out and not referred to in the specification except by implication. Being unable to read into claims 1 and 2 of the patent the elements or restrictions asked for, I am of the opinion that, as set out in the patent, they are, in view of the prior state of the art, void for want of patentable novelty.

Claim 3 of the patent relates to the means by which the boat-shaped toboggan, equipped with runners, is adapted to run on rails, with guide-plates on the bottom of said runners extended below the same to prevent derailment. These runners and guard-plates are stated in the patent to be the equivalents of flanged wheels, well known to the prior art. Reference has been made by the defendants to the Stoddard and Terwilliger patent, No. 314,626, and dated March 31, 1885, and Staples patent, No. 334,094, dated January 12, 1886, which show devices the substantial equivalents of the elements contained in this claim.

The Alexander patent, No. 277,625, dated May 15, 1883, and the Floyd patent, No. 367,286, dated July 26, 1887, show toboggans running on inclined ways with wheels or runners adapted to prevent lateral motion of the toboggan and consequent derailment. Claim 3 of complainant's patent makes no mention of a body of water, but refers merely to the inclined railway and the boat-shaped toboggan, equipped in such manner as to avoid derailment in its descent along the track. The devices described perform no new function in pleasure-railways and are but the mechanical equivalents of flanged wheels and other devices set out in the prior patents referred to.

Claim 4 is for the combination of the boat-shaped toboggan with spray-deflectors fixed at its sides. The spray-deflectors do not become operative until the boat enters the water and is in the patent stated to be a preferable device to deflect the spray or water outwardly by the rapid movement of the boat and prevent its striking the occupant.

The form of the flat boat referred to in the patent is such as to accomplish the same purpose and yet would not be within the terms of the patent. Devices to prevent the splashing of occupants of boats moving swiftly through the water were known before the date of the Newburg patent, and examples of construction to equip the sides of boats with outwardly-inclined dashboards which are the equivalents of spray-deflectors are shown in Patent No. 282,853, issued to M. F. Davis, dated August 7, 1883, and No. 239,872, to Charles T. Sonial, dated April 5, 1881, and others to which reference has been made.

I find no patentable novelty, in view of the prior state of the art, in attaching these old and well-known devices for deflecting outward the waves through which the boat rides, and so protecting its occupants from being splashed with spray, to the boat-shaped toboggan of the complainant.

Claim 6 is for the combination of an inclined railway, which may be located near a body of water, a boat-shaped car or toboggan having runners J, guard-plates K, and spray-deflectors I. We have seen that all of these elements are old in the art and that they are not of themselves possessed of any patentable novelty. Do they combine in operation and by their joint effort produce a new effect?

A combination of old devices in order to be patentable must contain, first, a novel assemblage of parts exhibiting invention; second, the coöperation of these parts producing a new result. (*Hoffman* v. *Young*, 18 O. G., 794; 2 Fed. Rep., 74.)

The learned judge in the opinion above quoted defines clearly the meaning of coöperation:

The courts do not mean merely acting together or simultaneously but unitedly to a common end, a unitary result. Each and every part must have its sub-function to perform and each must have a certain relation to or dependence upon the other.

What relation to or dependence upon the inclined railway do the spray-deflectors bear? The near-by body of water does not affect the action of the guard-plates, nor is the action of any element in the combination in any way dependent upon that of any other. The guard-plates K and the runners perform the same functions as when used in other apparatus in which boats and cars and toboggans run upon inclined ways. The boat-shaped toboggan is drawn down the inclined railway by force of gravity, as boats have been so drawn when launched since the early days, the guard-plates and runners keep the boat upon the track or rails until it is launched upon the water, and the spray-deflectors throw outward the water through which the boat rides. Each acts independently of the other and each performs the same function that it did before they were united.

A combination of old elements in order to be patentable all the parts must so act that each qualifies every other. It is not enough that these independent parts are conveniently associated in one machine if each performs the same function it did before they were united. They must be so connected that the new result is due to their coöperative action. (*Bunching Machine Co.* v. *Williams*, 44 Fed. Rep., 191, and cases there cited; *Green* v. *American Soda Fountain Company*, 78 O. G., 1105; 78 Fed. Rep., 119.)

Claim 6 does not comply with the requirements of setting out a patentable combination, and must therefore be held to be invalid.

On the whole case, for the reasons given, the bill should be dismissed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 80—No. 13. TUESDAY, SEPTEMBER 28, 1897. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 22, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that the order of June 20, 1895, disbarring W. H. Sherrod, of Columbia, Tenn., from practice before the Department and its Bureaus has this day been revoked.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(a) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(b) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(c) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(d) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(e) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(f) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

Issue of September 28, 1897.

Patents	391—No. 590,559 to No 590,949, inclusive.
Designs	24—No. 27,688 to No. 27,711, inclusive.
Trade-Marks	16—No. 30,582 to No. 30,597, inclusive.
Labels	None.
Prints	None.
Reissues	None.
Total issue	431

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1		New Hampshire	2	
Arizona Territory			New Jersey	17	
Arkansas	2		New Mexico Territ'y		
California	18	1	New York	50	4
Colorado	2		North Carolina		
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Idaho	2		Rhode Island	6	
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Indiana	11		Tennessee	5	
Iowa	14		Texas	1	
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Louisiana	2		Virginia	2	
Maine	2	1	Washington		
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Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
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Cuba			South Australia		
Denmark			Straits Settlements		
Egypt			Sweden		
England	5		Switzerland		
Finland			Victoria		
France	6		West Australia		
Germany	5	1			
India	1				
Ireland	1		Total to citizens of foreign countries	25	1
Japan					

APPLICATIONS UNDER EXAMINATION.

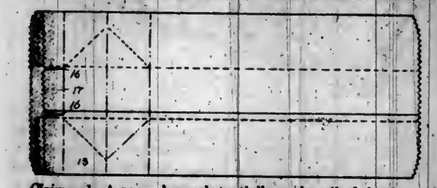
Condition at Close of Business September 21, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Aug. 23	Aug. 27	130
	Between one and two months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 2	Sept. 4	194
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 16	Sept. 3	133
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243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 2	Aug. 17	308
106	II. Farm Stock, Products, etc.	Aug. 17	Aug. 16	344
268	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	July 30	Aug. 11	274
	Between two and three months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 1	Sept. 10	275
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	Between one and two months.			
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PATENTS

GRANTED SEPTEMBER 28, 1897.

590,559. SQUARE-BOTTOM PAPER BAG. DANIEL APPEL, Cleveland, Ohio. Filed June 19, 1896. Serial No. 596,121. (No model.)



Claim.—1. A paper bag substantially as described, having a rib transversely of its side plies in the bottom of the bag inward from the edge thereof and diagonal brace-lines from the ends of this rib to the center of the plies, substantially as described.

2. The bag described, having a rib at its bottom on each plicated side back from the edge proper of the bottom and shorter than the said edge, and converging brace-lines between the ends of said ribs terminating in the center of the plies, substantially as described.

3. A paper bag having temporary folding bottom lines on its four sides over which the four sides of the bag spread and unfold the bottom on new lines parallel with the square of the bag when the bag is filled, substantially as described.

4. A square-bottom bag having the broad sides of the bottom folded one across the other in opposite directions and one of the plicated side plies at each side folded in between said broad sides, substantially as described.

5. The bag having the under lap of the bottom slitted and the plies of each side turned to substantially a triangle at their juncture and folded through said slits over the under lap, and the outer lap folded over all, substantially as described.

6. The bag-bottom described having its shorter lap at the bottom slitted from the intersection of the side plies, and the said side plies turned to a substantially triangular shape at their intersection and folded back through said slits, and the longer lap folded and pasted over all, substantially as described.

7. In paper bags, a bag having a square bottom formed on temporary lines across the broad sides of the bottom and the plies on both sides folded to form ribs retired about one-fourth the depth of the plies from the edge of the bag, whereby temporary unfolding-lines are produced on all sides of the bag, substantially as described.

8. A paper bag having a temporary flat square bottom of less dimensions than the square of the bag in cross-section, and transverse ribs in the plicated sides contracting the four sides of the bottom on temporary lines, substantially as described.

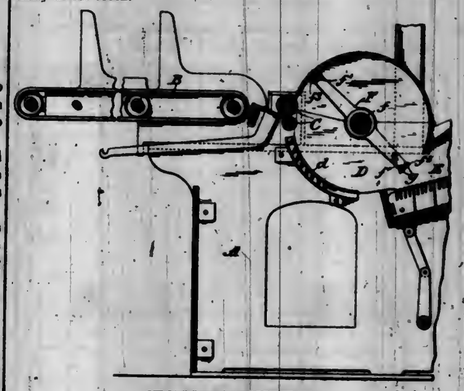
9. In square-bottom paper bags, a bag having a temporarily-formed bottom of less size than the full bag in cross-section, and having the corners of said temporary bottom creased at an angle to its sides, whereby the opening of the bottom on full lines is facilitated, substantially as described.

10. A paper bag having outside ribs at its bottom extending transversely across the plicated sides thereof and retired from the outer edge of the bag, substantially as described.

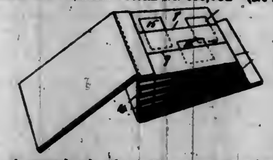
590,560. BEATER FOR MACHINES FOR OPENING COTTON. ABEL T. ATHERTON, Warwick, R. I. Filed Feb. 6, 1897. Serial No. 622,272. (No model.)

Claim.—1. A beater for machines for opening cotton and other materials, consisting of a supporting-shaft, blades provided with operative edges the angles formed by the intersection of whose sides are less than right angles, arms for securing the blades to and supporting them from the said shaft, and longitudinal rows of conical pins or teeth projecting outwardly from the face of such blades, substantially as set forth.

2. The combination, with the feed-rolls of a machine for opening cotton or other materials, and means whereby such cotton or other material is supplied thereto, of a beater of the class described constructed with a supporting-shaft, blades provided with operative edges the angles formed by the intersection of whose sides are less than right angles, arms for securing the blades to and supporting them from the said shaft, and longitudinal rows of conical pins or teeth projecting outwardly from the face of such blades, substantially as set forth.



590,561. SCRAP-BOOK OR FILE, &c. GEORGE C. BAKER, Albany, N. Y. Filed Oct. 22, 1896. Serial No. 609,744. (No model.)



Claim.—A scrap-book, file or file-casing, the same consisting of a plurality of leaves, said leaves being formed from a sheet of paper by first folding said sheet longitudinally and upwardly, and then folding the upwardly-directed fold downwardly, and then again folding the downwardly-directed portion upwardly, and then folding the upper portion of the sheet downwardly, these separate folds being of such width that the sheet when so folded, will be of three thicknesses at the middle, and of two thicknesses at the upper and lower edges, and said sheet being then folded transversely so as to form the leaves, and said leaves being bound together, substantially as shown and described.

590,562. PIPE OR ROD WRENCH. THOMAS J. BAKER, Findlay, Ohio, assignor of two-thirds to C. A. Risser and H. C. Turner, same place. Filed Jan. 11, 1897. Serial No. 618,784. (No model.)

Claim.—1. In a pipe and rod wrench, the lever A provided with the point L and the concave face O, the concave jaw hinged by the reduced portion J in the face O, the jaw C hinged to the jaw B and having its outer side smooth and convex and its inner side toothed and concave, its free end being bifurcated to straddle the reduced portion J of the jaw B, the point L being adapted to engage said smooth convex side of the jaw C, substantially as described.

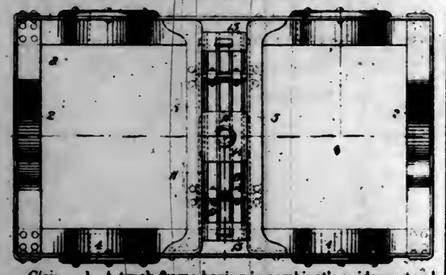
2. In a pipe and rod wrench, the lever A having the concave face O ending in the point L, the jaw B hinged by a reduced portion J to the face O, the jaw C, convex and smooth on its outer side and con-

cave on the side facing the jaw B, the free end of the jaw C being bifurcated at I and adapted to straddle the portion J of the jaw B and to be engaged on its smooth outer surface by the point I, of the lever A, substantially as specified.



3. In a pipe and rod wrench, the lever A having the point I, the jaw C hinged thereto by means of a jaw B, the jaw C being concave toward the jaw B, its outer surface being smooth and convex and its free end being bifurcated to straddle a reduced portion of the jaw B and engaged upon its convex side by the point I, of the lever A, substantially as described.

590,563. CAR-TRUCK. RICHARD BENSON, New Galilee, Pa. Filed Feb. 13, 1897. Serial No. 623,212. (No model.)



Claim.—1. A truck-frame having in combination sides and ends formed of angle bars or plates overlapping each other at the corners of the frame, beams arranged transverse of the frame intermediate of the ends, and pedestals detachably connected by rivets or bolts to the sides, substantially as set forth.

2. A truck-frame having in combination sides and ends formed of angle bars or plates overlapping each other at the corners of the frame, the sides being provided with concave seats, and pedestals having their upper ends convex to fit said seats, and provided with flanges overlapping the side bars and detachably connected thereto by rivets or bolts, substantially as set forth.

3. A truck-frame having in combination sides and ends formed of angle bars or plates overlapping each other at the corners of the frame, one of the end bars being downwardly bent or depressed along its middle portion, substantially as set forth.

4. A bolster for car-trucks, consisting of a series of three or more plates suitably spaced by interposed blocks arranged at intervals and secured together, in combination with a center bearing secured to the edges of the plates, substantially as set forth.

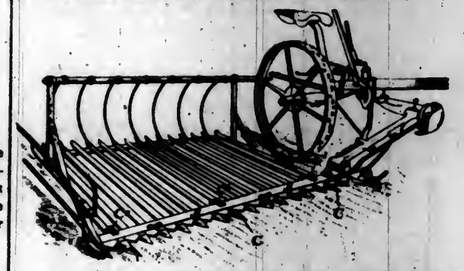
5. A bolster for car-trucks consisting of a series of plates suitably spaced and secured together, the portions of the bolster intermediate of the ends and middle portion being depressed or U-shaped, in combination with links having their ends connected, respectively, to the truck-frame and to the bolster, substantially as set forth.

590,564. SOLE. IRVING B. BOOTH, Rochester, N. Y., assignor to the Union Welt Insole Company, same place. Filed Feb. 6, 1897. Serial No. 622,909. (No model.)

Claim.—1. An insole having the edge separated to form two flaps and having a guide-strip sewed to the surface of the insole parallel to and so far from the edge thereof as to permit one of said flaps to be turned up from the other flap, whereby a fixed abutment is formed for the channel-guide of an inseaming-machine without cutting a channel into the insole, and a shoulder is formed on the edge of the insole to which the upper is drawn, substantially as described.

2. An insole split inwardly from the edge to form two flaps and a guide-strip sewed to the surface of the insole parallel to and so far from the edge thereof as to permit one of said flaps to be turned up from the other flap, whereby a fixed abutment is formed for the channel-guide of an inseaming-machine without cutting a channel into the insole, and a shoulder is formed on the edge of the insole to which the upper is drawn, substantially as described.

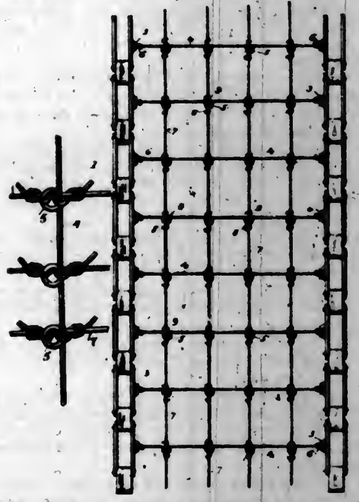
590,565. DEVICE FOR CONNECTING BUNCHING ATTACHMENTS TO MOWING-MACHINES. CHARLES T. BOYER, Indianapolis, Ind., assignor to the American Buncher Manufacturing Company, same place. Filed May 22, 1897. Serial No. 637,726. (No model.)



Claim.—1. The combination, with the finger-bar and fingers of a mowing-machine, and a bunching attachment adapted to be connected thereto, of an attaching device composed of a sheath-like structure adapted to slip over and engage the ends of the fingers on said finger-bar, and a hook adapted to be placed on the shank thereof and be there secured behind the finger-bar and the front bar of said bunching attachment, substantially as shown and described.

2. As a new article of manufacture, a device for connecting bunching attachments to mowing-machines, composed of a sheath-like structure adapted to fit over the fingers of the mowing-machine, and a hook adapted to engage and hold the front bar of the bunching attachment, substantially as set forth.

590,566. CARRIER. FRANK BUTLER and JAMES K. STAMBURY, Fayette, Iowa. Filed Nov. 21, 1896. Serial No. 613,089. (No model.)

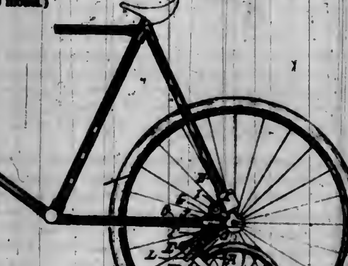


Claim.—1. In a carrier, the combination with cross-stays bent into eyes, of lengthwise or longitudinal stays hooked into the free portion of the eye of one cross-stay and hooked into the eye of the next adjoining cross-stay, but around the crossed portion of said eye.

2. In a carrier, the combination with sprocket-chains whose links are provided with eyes, of cross-stays hooked through said eyes and also bent into intermediate eyes, and lengthwise or longitudinal stays hooked through the eyes of adjoining cross-stays.

590,567. COFFEE-ROASTING MACHINE. EDWIN CRAWLEY, Jr., and WILLIAM T. JOHNSTON, Newport, Ky., assignors to the Potter-Palmer Company, New York, N. Y. Filed Nov. 25, 1896. Renewed Aug. 26, 1897. Serial No. 649,654. (No model.)

Claim.—1. A sampling device for coffee-roasting machines consisting in the combination with a block adapted to be arranged within a hollow trunnion of a roasting-drum and having reversely-inclined passages which incline from one face of the block toward the other face thereof, and merge into each other at one end, of a tray pivotally connected with the block and adapted to receive samples from one of the passages and to be tilted to deliver such samples into the other passage.



2. A sampling device for coffee-roasting machines consisting in the combination with a block adapted to be arranged within a hollow trunnion of a roasting-drum, and having reversely-inclined passages which incline from one face of the block toward the other face thereof, and merge into each other at one end, the inner end of one passage terminating in a different vertical transverse plane from the inner end of the other passage, of a tray pivotally connected with the block and adapted to receive samples from one of the passages and to be tilted to deliver such samples into the other passage.

3. The combination with a hollow trunnion of a coffee-roasting drum, of a block held stationary therein, said block having reversely-inclined passages which incline from the inner face of the block toward the outer face thereof and merge into each other at the outer end, a tray pivotally connected with the block and normally lying across the outer end of one of the passages to receive samples of berries as described, and an arm on the tray adapted to be operated by the trunnion at a point in its rotation to cause the tray to tilt and discharge its contents into the other passage.

4. The combination with a hollow trunnion of a coffee-roasting drum, of a block held stationary therein, said block having reversely-inclined passages which incline from the inner face of the block toward the outer face thereof, and merge into each other at the center, a tray pivotally connected with the block and normally closing the outer end of one of the passages to receive samples of the berries as described, an upwardly-extending arm on the tray, a roller carried by the arm and bearing against the outer face of the trunnion, said face being of a cam shape whereby to permit of the tilting of the tray, for the purpose specified.

5. A sampling device for coffee-roasting machines consisting in the combination with a block adapted to be arranged within a hollow trunnion of a roasting-drum, and having reversely-inclined passages which incline from one face of the block toward the other face thereof, and merge into each other at one end, a tray pivotally connected with the block and adapted to receive samples from one of the passages and to be tilted to deliver such samples into the other passage, and a regulating-slide for the passage discharging into the tray.

590,568. SELF-BALANCING BICYCLE ATTACHMENT. JAMES B. ERWIN, Milwaukee, Wis. Filed Apr. 15, 1896. Serial No. 587,647. (No model.)

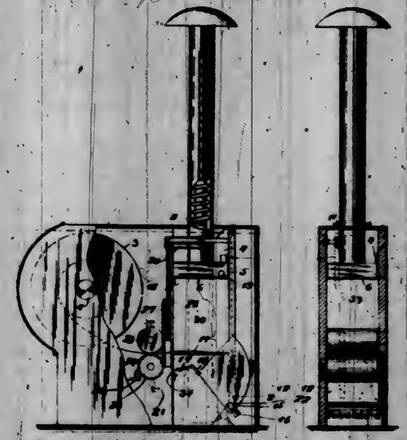
Claim.—1. In a self-balancing bicycle, the combination with the respective side bars of a bicycle-frame of a wheel-supporting arm; a trunnion or pivotal support attached to the outer end of said arm; a swinging arm pivoted at its upper end to each of said pivotal supports; supporting side wheels having journal-bearings in the free ends of each of said swinging arms; a spring or elastic bearing located between said swinging arms and a stationary part of said supporting-arms, said swinging arms being adapted to turn upon their pivotal supports and said springs or elastic bearings being adapted to resist the rocking or lateral movement of the bicycle, and to yieldingly support the same in a vertical position, substantially as and for the purpose specified.

2. In a self-balancing bicycle the combination of the arms F, F rigidly affixed to the frame-bars of the bicycle; swinging arms D attached pivotally to said arms F; supporting side wheels A having journal or axial bearings in said swinging arms; springs or yielding bearings L interposed between said swinging arms D and said stationary bearing-lugs O and adjustable tension-screws N, said screws N having screw-threaded bearings in said lugs O and adapted to bear at their lower ends against said tension-springs, whereby the resistance of said tension-springs may be adjusted to correspond with the load or lateral pressure thereon, substantially as and for the purpose specified.

3. In a self-balancing bicycle, the combination with the arms F, F each rigidly affixed at one end to the frame-bars of the bicycle; swinging arms D attached pivotally to said side arms F; supporting side wheels A having axial or journal bearings in said swinging arms, said swinging arms D being formed in two separate parts, one of which parts is provided with a cylindrical shank B' and the other with a socket C for the reception of said shank B'; and a set-screw D' adapted to impinge upon and lock said shank at any desired point of adjustment, substantially as and for the purpose specified.

4. In a self-balancing bicycle, the combination of the arms F, F rigidly affixed to the frame-bars of the bicycle; swinging arms D pivotally attached to said arms F; supporting side wheels A having journal-bearings on said swinging arms; spring or yielding bearings L interposed between said swinging arms D and stationary bearing-lugs O; adjustable tension-screws N, having screw-threaded bearings in said lugs O and adapted to bear at their lower ends against said tension-springs; and arm-supporting springs R, said springs R being attached at one end to said swinging arms D, and at their other ends to the stationary lugs O, all substantially as and for the purpose specified.

590,569. MACHINE FOR AFFIXING POSTAGE-STAMPS. WALTER FORWARD, San Diego, Cal., assignor to John F. Forward, same place. Filed Sept. 11, 1896. Serial No. 605,510. (No model.)



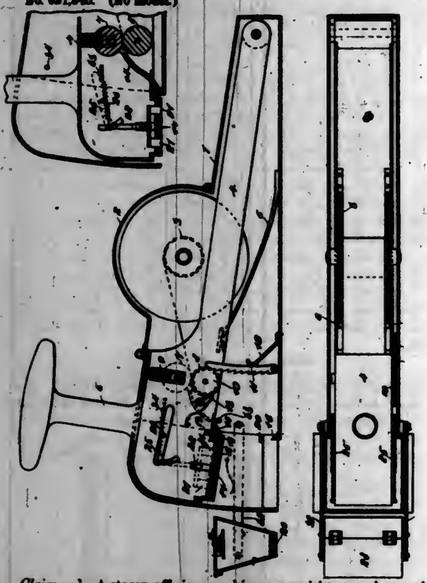
Claim.—1. A stamp-affixing machine, comprising a casing, a plunger-casing arranged therein, a plunger operating in the plunger-casing, a perforated table having hinge connection with a wall of the plunger-casing below the normal position of the plunger and operated by the plunger, a swinging moistener, means for swinging the moistener, feed-rollers, and means for operating the feed-rollers to place a stamp on the hinged table during the downward movement of the plunger, but before the plunger reaches the table, substantially as specified.

2. A stamp-affixing machine, comprising a casing, a plunger operating therein, a perforated swinging table arranged in the line of movement of the plunger to be operated by contact with the plunger and adapted to receive a stamp on its upper side, a finger on the plunger for holding the table in its open position when the plunger is in its lowermost position, means for feeding stamps onto the table, a moistener-carrier having pivotal connection with opposite side walls

of the casing, a moistening-fount mounted to swing in the carrier, and a pin on the plunger for moving the carrier in one direction, substantially as specified.

3. A stamp-affixing machine, comprising a casing, a plunger movable therein, a perforated swinging table in the casing, feed-rollers, a ratchet-wheel on one of the feed-rollers, a spring-pressed dog engaging with the ratchet-wheel, a rack also engaging with the ratchet-wheel, a rod extended upward from the rack, an arm extended from the plunger-shank and having an opening through which the rod loosely passes, a head on the rod above the arm, a projection on the head of the rod, and a lever pivoted to the plunger-shank having one end provided with a notch to receive the projection from the head of the rod and its opposite end engaged in a slot in the casing, the said slot having an offset between its ends, substantially as specified.

590,570. STAMP-AFFIXER. WALTER FORWARD, San Diego, Cal., assignor to John F. Forward, same place. Filed Jan. 30, 1897. Serial No. 621,240. (No model.)



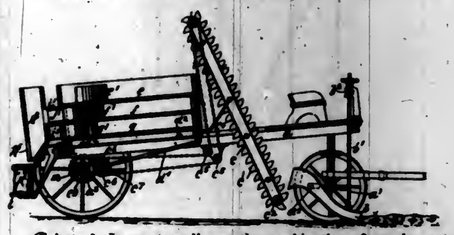
Claim.—1. A stamp-affixing machine, comprising a casing, a pivoted plunger-arm in said casing, a reel in the casing, feed-rollers carried by the plunger-arm, a ratchet-toothed wheel on the journal of one of said feed-rollers, a spring-pressed rack engaging with said wheel, angle-pieces pivotally connected to the head portion of the plunger-arm, a guide leading from the feed-rollers to said angle-pieces, means for swinging the angle-pieces outward with relation to the head portion of the plunger-arm, and a moistener forward of the casing, substantially as specified.

2. A machine for affixing stamps to mail-matter, comprising a casing, a plunger-arm of box-like construction pivoted in said casing, a reel mounted in the casing, feed-rollers mounted in the plunger-arm, angle-pieces pivotally connected to the head portion of the plunger-arm and adapted to swing underneath the same, pins extended inward from the casing and designed to be engaged by fingers extended outward from the angle-pieces, whereby said angle-pieces may be swung outward, a cutter carried by the plunger-arm, a cutter fixed to the bottom wall of the casing, and a moistener having a swinging engagement with the casing, substantially as specified.

3. A stamp-affixing machine, comprising a casing, a plunger-arm pivotally mounted therein, a reel mounted in the casing, feed-rollers carried by the plunger-arm, a yielding material secured to the lower side of the head portion of the plunger-arm, angle-pieces pivotally connected to said head portion of the plunger-arm and designed to swing underneath the same, an ejector movable through openings in the head portion of the plunger-arm, and means for causing such movement of the ejector, substantially as specified.

4. A stamp-affixing machine, comprising a casing, a plunger-arm pivotally mounted therein, a reel removably mounted in the casing, springs for moving the plunger-arm upward, an ejector movable through the lower portion of the plunger-arm, fulcrumed levers having link connections with said ejector, pins for rocking said levers upon the downward movement of the plunger-arm, pins for rocking the levers upon an upward movement of the plunger-arm, feed-rollers carried by the plunger-arm, means for operating said feed-rollers upon a downward movement of the plunger-arm, and a receptacle for moistening liquid, having swinging connection with the casing, substantially as specified.

590,571. POTATO-DIGGER. CARL HARTMANN, Brooklyn, N. Y., assignor of one-half to Elizabeth Sleeh, Elmsville, N. Y. Filed May 19, 1897. Serial No. 637,299. (No model.)



Claim.—1. In a potato-digger, the combination of a reciprocating sieve-box with a number of inclosed differently-meshed sieves to form a series of horizontal chambers, a fixed delivery-hopper having a series of compartments, and extensible couplings that connect the chambers of the sieve-box with the compartments of the hopper, substantially as specified.

2. In a potato-digger, the combination of a reciprocating sieve-box with a number of inclosed differently-meshed sieves to form a series of horizontal chambers, a delivery-hopper having a series of compartments, and a series of obliquely-placed telescoping tubes that connect the chambers of the sieve-box with the compartments of the hopper, substantially as specified.

3. In a potato-digger, the combination of a reciprocating sieve-box with a number of inclosed differently-meshed screens having rear delivery-guides arranged to deliver in different vertical planes, a delivery-hopper having a series of compartments, and a series of obliquely-placed telescoping tubes that connect the chambers of the sieve-box with the compartments of the hopper, substantially as specified.

590,572. SPRING-HINGE. WILLIAM K. HENRY, New Britain, Conn. Filed Feb. 26, 1897. Serial No. 625,006. (No model.)

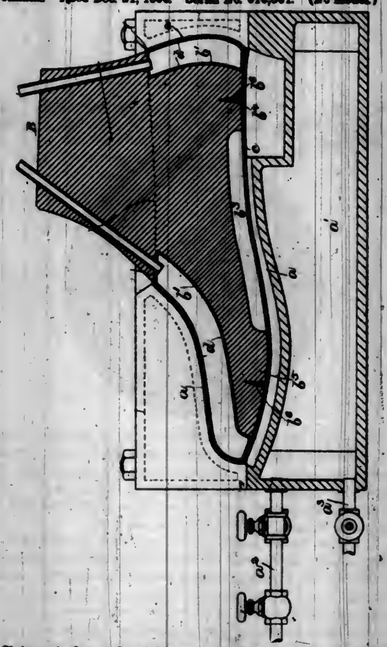


Claim.—1. A hinge embodying two attaching-leaves one of which carries a spring-barrel consisting of two rotative sections; chains attached to the respective barrel-sections and extending oppositely therefrom; a pair of reversely-oscillatory plates; and pintles passing through ears on the attaching-leaves and oscillatory plates, respectively, each of said pintles passing through one link of each of the chains.

2. A hinge embodying two attaching-leaves one of which carries a spring-barrel having a series of elongated slots in its opposite ends wide at the middle; a pair of chains having headed pins at the inner ends thereof seated in the elongated slots, said chains extending oppositely from the spring-barrel; a pair of reversely-oscillatory plates; and pintles passing through ears on the attaching-leaves and oscillatory plates, respectively, each of said pintles passing through one link of each of the chains.

3. A hinge embodying two attaching-leaves; a spring-barrel constructed of two sections, one of which consists of a semicylindrical shell having in its end a series of elongated slots and the other of which consists of a disk having a projecting hub and also having a series of elongated slots; a spindle on one of the attaching-leaves, passing through the two sections of the drum; a spring secured to the respective barrel-sections; a pair of chains having headed pins at the inner ends thereof seated in said elongated slots and extending oppositely from the spring-barrel; a pair of reversely-oscillatory plates; and pintles passing through ears on the attaching-leaves and oscillatory plates, respectively, each of said pintles projecting through one link of each of the chains.

590,573. VULCANIZING-MOLD. CHARLES L. HIGGIN, Montreal, Canada. Filed Dec. 21, 1896. Serial No. 616,381. (No model.)



Claim.—1. In a vulcanizing apparatus, the combination with the outer mold, of an inner mold, comprising an interior rigid backing portion and an exterior inflatable portion, substantially as described.

2. In a vulcanizing apparatus the combination with the outer mold, of an inner mold comprising a rigid backing-block and an inflatable foot portion, substantially as described.

3. In a vulcanizing-mold, the combination with an outer mold, of an inner mold comprising the rigid last-shaped backing-block cut away around the foot portion as described, and an inflatable bag in said cut away portion, substantially as described.

4. In a vulcanizing-mold, the combination of an outer mold, of an inflatable inner mold, and the sole-plate secured thereto, substantially as described.

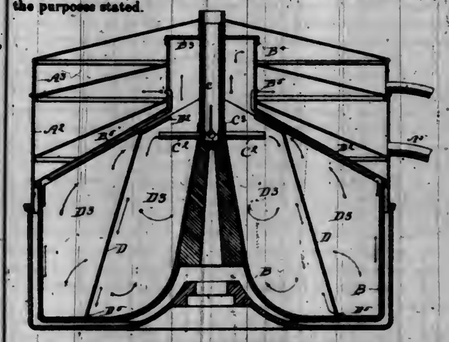
5. In a vulcanizing-mold, the combination with an outer mold, of an inner mold comprising an inflatable portion and a rigid portion, a sole-plate, and pressure-blocks on said rigid portion arranged to bear on the fore part and heel of said sole-plate, substantially as described.

6. In a vulcanizing-mold the combination of an outer mold, of an inflatable inner mold comprising a rigid backing-block, an inflatable foot portion, and a sole-plate secured to the backing-block, substantially as described.
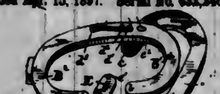
590,574. CENTRIFUGAL CREAM-SEPARATOR. CLAUS HORNEMEIER, Waverly, Iowa. Filed Dec. 17, 1896. Serial No. 616,005. (No model.)

Claim.—1. In a centrifugal cream-separator, the combination of a separating-bowl, a tube formed on or fixed to the central bottom portion to project upwardly therefrom and to admit milk to the interior of the bowl, a bell-shaped partition open at its upper and lower ends and contained wholly within the liquid-space of the separating-bowl, a sleeve detachably secured to said tube, and means for connecting the sleeve and the bell-shaped partition so that the partition is firmly supported in position within the separating-bowl.

2. In a centrifugal cream-separator, the combination of a separating-bowl, a tube formed on or fixed to the central bottom portion to project upwardly therefrom and to admit milk to the interior of the bowl, a shoulder on said tube, a sleeve designed to be placed on said tube with its lower end resting on said shoulder, means for holding the sleeve downwardly upon said shoulder, a series of radial blades fixed to the said sleeve to approximately fill the liquid-space of the separating-bowl, and a bowl-shaped partition fixed to or supported by said radial blades, substantially in the manner set forth and for the purpose stated.

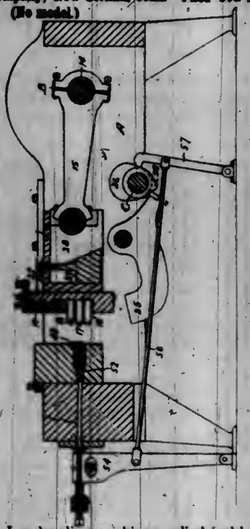


590,575. DETACHABLE COUPLING-LINK. ROSS HOLCOMBE, Decatur, Ga. Filed Apr. 15, 1897. Serial No. 632,946. (No model.)



Claim.—A coupling-link comprising two interlocking C-shaped portions, the ends of each being correspondingly sprung slightly apart, one being reversed upon and pivotally secured to the other, a securing device to lock the links together, and a lip upon the end of one link portion, and a lug upon the end of the other portion to engage said lip, when the links are in a closed position, substantially as described and set forth.

590,576. MACHINE FOR HEADING POINTED BLANKS. HORACE K. JONES, Hartford, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Oct. 12, 1895. Serial No. 565,483. (No model.)



Claim.—1. In a heading-machine a cylindrical knock-out pin of a diameter that fits and fills the smallest cylindrical die-cavity, of the heading-die, said knock-out pin having an acute-angled conical anvil-seat extending inwardly from its periphery substantially as described and for the purpose specified.

2. In a heading-machine, a cylindrical knock-out pin having an acute-angled conical anvil-seat extending inwardly from its periphery,

and a heading-punch, substantially as described and for the purpose specified.

3. The combination of the solid heading-die having a cavity therethrough a portion of said cavity being cylindrical, a cylindrical knock-out pin fitted to reciprocate longitudinally in the cylindrical portion of said die-cavity and having an acute-angled conical seat extending inwardly from its periphery and acting to shape the end of an acute-angled conically-pointed blank, substantially as described.

4. The combination of a heading-punch, a heading-die having a cavity therethrough a portion of which is cylindrical, a cylindrical knock-out pin fitted to reciprocate longitudinally in the cylindrical portion of said die-cavity and having an acute-angled conical recess in its anvil end said recess extending to the periphery of said knock-out pin and forming a thin, acute-angled edge within the cylindrical portion of said die, substantially as described.

5. In a machine for heading pointed blanks, the combination of a heading-punch, a solid die having a die-cavity therethrough, a portion of which is cylindrical, a cylindrical knock-out pin fitted thereto and having in its anvil end an acute-angled conical recess that extends to its periphery and terminates in the thin circular edge with an acute angle, and a solid backing for said pin to hold the pointed end of the blank in place under the pressure of the heading-punch substantially as described.

6. The combination of a feeding mechanism, the cutting-off and pointing dies, a heading die arranged to one side of the said cutting-off and pointing dies, and means for carrying the several blanks bodily in a lateral direction from the said cutting-off and pointing dies to the said heading-die, substantially as described and for the purpose specified.

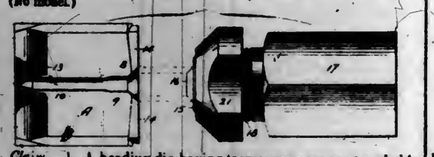
7. The combination of the cutting-off and pointing dies, the carrier, the heading-die, and the knock-out pin having the conically-recessed anvil, substantially as described and for the purpose specified.

8. In a heading-machine having two or more heading-punches, the combination of a point-forming and cutting-off die, the solid heading-die, the first heading-punch recessed for receiving the end of the blank to be headed, and a carrier for transferring said blank from the point-forming to the heading die, substantially as described and for the purpose specified.

9. In a machine for heading pointed blanks, the combination of a feeding mechanism, the point-forming, cutting and swaging dies, with a solid heading-die and a reciprocating carrier arranged to move from a position in front of said point-forming, cutting and swaging die to a position in front of the said solid heading-die, substantially as described and for the purpose specified.

10. In a machine for heading blanks, the combination of a feeding mechanism with the mechanism for cutting off the blanks, a heading-die, and a carrier arranged to seize the wire before cutting off and after cutting off to carry the severed blanks to a position in front of the heading-die, substantially as described and for the purpose specified.

590,577. DIE FOR HEADING SCREW-BLANKS. HORACE K. JOHNS, Hartford, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Jan. 10, 1896. Serial No. 574,973. (No model.)



Claim.—1. A heading-die having transverse grooves at each side of and opening into its head-forming cavity and a heading-punch having a slot-forming blade, the width of which blade corresponds with the diameter of the head-forming cavity, substantially as described and for the purpose specified.

2. A heading-punch transversely slotted at its front end, a separately-formed slot-forming blade seated in said slot, and means for holding said blade to its seat, substantially as described and for the purpose specified.

3. A heading-die having transverse grooves at each side of and opening into its head-forming cavity, and a heading-punch having a slot-forming blade and a shank with flat faces for locating the blade relatively to said grooves in the die, substantially as described and for the purpose specified.

590,578. BOTTLE-SEALING DEVICE. LEWIS KALLINS, Baltimore, Md. Filed Jan. 27, 1897. Serial No. 620,573. (No model.)

Claim.—A bottle having a lip with an inclined, beveled or rounded exterior surface, and a flexible sealing-cap the annular wall of which immediately below the crown thereof has an inclination, bevel or curvature different from that of the exterior of the lip of the bottle so as to form an annular space immediately below the upper edge of the lip, but which annular wall at its lower edge is in contact with and clamps the bottle-head, combined with an annular compressible gasket which is inclosed within and entirely fills the said space, substantially as specified.



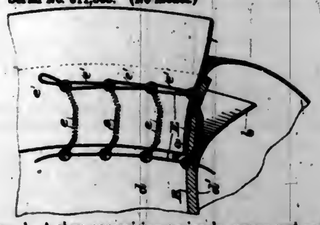
590,579. WAITING-STAND FOR DINING-TABLES. JOHN P. KEATING, Newton, Mass. Filed June 12, 1897. Serial No. 640,473. (No model.)



Claim.—1. The herein-described improved serving or waiting stand, comprising a base; the vertical standard B provided with the annular shoulders B'; the frames or spiders each consisting of the vertically-bored hub C and the substantially radial arms C'; and the network surfaces D provided with the downwardly-extending circular edges or fringes D', substantially as set forth.

2. The herein-described improved serving or waiting stand, comprising a base; the vertical standard B provided with the annular shoulders B'; the frames or spiders each consisting of the vertically-bored hub C and the substantially radial arms C' provided at their outer ends with holes or sockets for receiving cruets or similar vessels; and the network surfaces D stretched horizontally upon and supported by said frame or spider, substantially as described.

590,580. SHOE. ALBERT LEACH, Brockton, Mass. Filed Nov. 12, 1896. Serial No. 611,863. (No model.)



Claim.—1. A shoe comprising an insole, upper and welt, united by a line of stitches, formed by a series of loops forced through the inner sole, from its under face adjacent the edges of the upper and welt, and thence through the insole, upper and welt, from the upper face of said insole, the loops being interlocked upon the welt, substantially as described.

2. A shoe comprising an insole, upper and welt united by a line of stitches each of which passes twice through the insole, and each comprising transverse bars or threads upon the inner surface of the insole and parallel longitudinal bars or threads upon the surface of the welt, substantially as described.

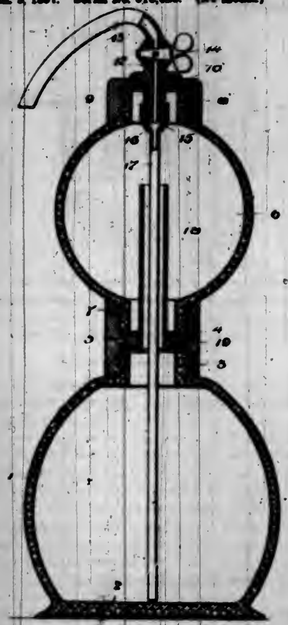
590,581. ROTARY ENGINE. BENJAMIN M. LOWE, Dobson, Ky. Filed Sept. 29, 1896. Serial No. 607,294. (No model.)

Claim.—1. In a rotary engine, the combination of a revolving cylinder provided on diametrically opposite sides with chambers a stationary elliptical eccentric within the cylinder provided with induction and eduction ports, sliding abutments mounted within said chambers, arms connecting with the abutments and having projections engaging elliptical grooves in the ends of the eccentric, and adjustable packing-plates mounted upon the interior faces of the cylinder-heads, and provided with recesses to receive the arms of the sliding abutments.



2. In a rotary engine the combination with the cylinder, of a piston, sliding abutments controlled by elliptical track-arms seated within recesses in said abutments, and provided with approximately elliptical projections for engaging the said tracks, and a plate seated within a recess in said abutments to which said arms are secured, as and for the purpose set forth.

590,582. SELTZOGENE. DAVID MCALLISTER, Allegheny, Pa. Filed Jan. 9, 1897. Serial No. 618,623. (No model.)



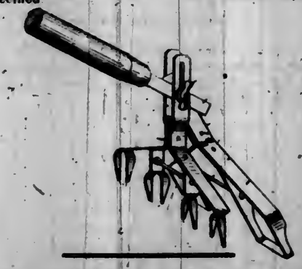
Claim.—A portable gasogene, comprising a water-receptacle provided with an integral externally-threaded neck, a cylindrical internally-threaded sleeve 4 provided with an internal annular flange 5, a gas-generating chamber removably secured to said water-receptacle, in combination with the removable screw-cap 9, the gooseneck 13 provided with the cock 14, and having a threaded nipple 12 by means of which said gooseneck is detachably secured to said cap, and the tube 17 removably secured to the lower end of said nipple by the internally-threaded sleeve 15, substantially as shown and described.

590,583. HAND GARDEN-TOOL. GEORGE W. MCCRAM, Singer, Md. Filed Apr. 5, 1897. Serial No. 630,670. (No model.)

Claim.—1. In a garden-tool, a handle having a head at its end, combined with a crust-cutter and an open-hand hoe which are pivoted together and to the said handle, substantially as specified.

2. In a garden-tool, a handle combined with a crust-cutter, and an open-hand hoe both of which are pivoted to the said handle and adjustable in angle of inclination one with the other, substantially as specified.

3. In a garden-tool, the combination of a crust-cutter, and an open-hand hoe in sections with means to effect the lateral adjustment of the said sections, the crust-cutter and hoe being pivoted to a handle and adjustable in angle of inclination one with the other, substantially as specified.



590,584. RANGE-BOILER. THOMAS J. MCKNOWN, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,695. (No model.)

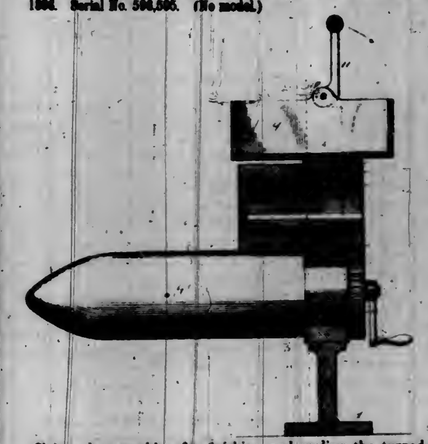


Claim.—1. The combination in a boiler having an enlarged mouth or opening at one end, of a holding-plate, G, having radially-projecting lugs, *g*, adapted to openings, *d'*, in the edges of the enlarged mouth for adjusting and locking the holding-plate in position, a cover, C, adapted to be seated on an inner flange, *c*, and locking-screw, I passing through said holding-plate and impinging upon the cover, substantially as described.

2. The combination in a boiler, of the shell, A, the head, B, having opening, *b*, therein, a flange, *c*, a groove, *c*, having lateral openings, *c'*, a cover, C, adapted to be seated on the flange, *c*, a holding-plate, G, having radially-projecting lugs, *g*, adapted to the openings, *c'*, in the groove, *c*, and a locking-screw, I passing through said holding-plate adapted to impinge upon the cover, substantially as described.

3. The combination of the shell, A, the head, B, having opening, *b*, therein, a flange, *c*, a groove, *c*, formed in the wall of said opening, a cover, C, seated on the flange, *c*, a holding-plate, G, having lugs, *g*, adapted to the groove, *c*, a locking-screw, I, passing through said holding-plate and impinging upon the rear wall of the cover, and loops, *k*, also formed on the rear face of said cover, substantially as specified.

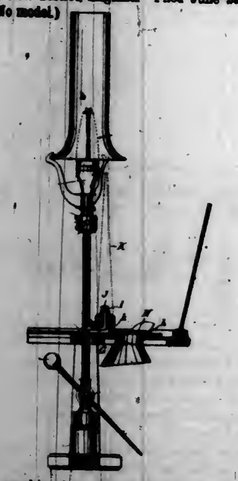
590,585. MACHINE FOR FINISHING BOTTOM ENDS OF TROUSERS-LEGS. LEOPOLD NEWMAN, Braddock, Pa. Filed June 22, 1896. Serial No. 596,595. (No model.)



Claim.—In a machine for finishing and sealing the turned-up ends of trousers-legs, the combination, with the base, the parallel uprights or standards, the half-round boxes forming bearings for the solid and hollow rollers, located between said uprights and formed with end flanges, engaging with the sides of the uprights, and the solid pointed roller and the hollow roller journaled in said bearings and formed with peripheral grooves, with which the said boxes or bearings engage, of the intermeshing cog-wheels secured to said rollers, the gas-pipe extending into the said hollow roller, the water-receptacle located above the hollow roller, the lugs at the upper end thereof, the transverse shaft journaled in said lugs, the cams and cam-

levers secured thereto, and the handle connecting the free ends of said levers, substantially as described.

590,586. INCANDESCENT GAS-LAMP FOR STREET USE. ANTONIE C. HIERNEYER, Deventer, Netherlands, assignor to Ernest Edwin Probert, New Barnet, England. Filed June 29, 1897. Serial No. 642,783. (No model.)



Claim.—1. The combination and arrangement of parts for incandescent gas lamps and burners consisting in a lever or part secured to the plug of the valve to the main burner, and which is actuated by inserting an igniter within the lantern or casing of such lamp, the act of inserting such igniter also opening a gas-passage to an auxiliary burner which is ignited by the lamp within such igniter, while the withdrawal of the igniter causes the closing of the supply of gas to the auxiliary burner while leaving the supply to the main burner open, all substantially as and for the purpose specified.

2. The improved arrangement of parts for igniting incandescent gas lamps and burners consisting in a lever connected to the plug of the valve in the gas-supply pipe of same, and which lever is actuated by the action of inserting an igniter within the lantern or casing of the lamp, and of a hinged plate serving to lift a valve from its seat on a supply-pipe delivering gas to an auxiliary burner the upper end of which terminates near the incandescent burner, and also of a second hinged plate serving to close the opening through which the igniter is inserted, when such igniter is withdrawn.

590,587. HOISTING-ENGINE. ALSON B. NORRIS, Cambridge, Mass., assignor to the Rawson & Morrison Manufacturing Company, same place. Filed Apr. 3, 1897. Serial No. 630,563. (No model.)

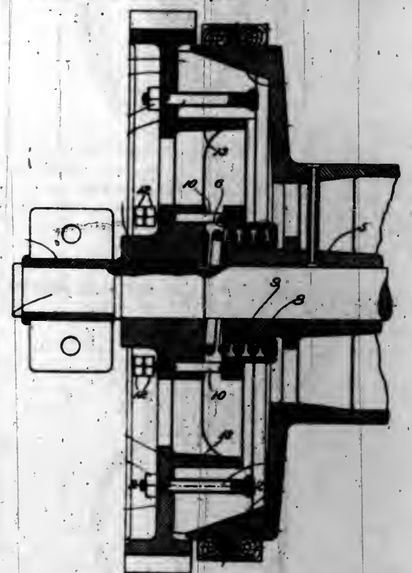
Claim.—1. In combination, a shaft, a friction member fast thereon, a check-plate loose thereon, a spring concentric with the said shaft and confined between said fast member and said check-plate, bolts connecting said fast member and said check-plate to limit the recoil of said spring, whereby said shaft, fast member, check-plate and spring rotate together, and a loose friction member adapted to be shifted into engagement with said fast friction member and to be disengaged therefrom by said spring.

2. In combination, engaging members constituting a clutch, a spring tending to separate the same, a shaft on which the same are mounted, and a check-plate also mounted on said shaft, confining said spring and channeled to receive said spring, the channeled portion and spring therein overlapping the hub or sleeve of one of said engaging members, whereby the hubs or bearings of said members on said shaft may be brought close together.

3. In combination, a shaft, engaging members constituting a clutch mounted thereon, and a spring concentric with the said shaft interposed between the said members and having operative engagement therewith and serving for disengaging the same, the said spring overlapping the hub or sleeve of one of said members on said shaft, whereby the hubs or bearings of said members on said shaft may be brought closer together than the length of said spring.

4. In combination, a disk, a flange thereon, blocks arranged around said disk on said flange, and bolts passing through said disk and formed with restraint bevel faces engaging restraint bevel faces on the adjacent ends of said blocks and operating to draw said blocks together when turned up.

5. In combination, a hoisting-drum, a rock-shaft operated by a treadle, a rocker-arm on said shaft having two pins, and a band-brake passing around said drum and having the first end thereof slotted and attached to the first of said pins, and the second end thereof passed through the slot in the first end and attached to the second of said pins, the contact of the said first end with the said second pin, in the release of the brake, operating to automatically stop the said treadle at a predetermined point.



6. In combination, a disk, a circular series of blocks carried thereby constituting a friction-surface, and means connecting contiguous blocks to each other and adjustable to enable the proximate ends thereof to be drawn toward each other as required.

590,588. PRESS. GEORGE L. PEABODY, Pittsburg, Pa. Filed June 30, 1896. Renewed July 20, 1897. Serial No. 646,414. (No model.)

Claim.—1. In a press, the combination of a reciprocating plunger, a compressing-box or mold open at both ends, stationary cutting-blades arranged on opposite sides of the box at the charging end thereof, blades attached to the plunger, and a retaining-plunger for holding the material in the box or mold during the return movement of the main plunger, substantially as set forth.

2. In a press, the combination of a main plunger, a retaining-plunger, means for holding the retaining-plunger stationary, a box or mold open at both ends, catches arranged at the upper end of the box or mold and means for shifting the catches, substantially as set forth.

3. In a press, the combination of a main plunger, a retaining-plunger, means operative by the main plunger for holding the retaining-plunger stationary, a box or mold open at both ends, catches arranged at the upper end of the box or mold and means for operating the catches, substantially as set forth.

4. In a press, the combination of a main plunger, a retaining-plunger, means for holding the retaining-plunger stationary, a box or mold, catches arranged at the upper end of the box or mold and means operative by the main plunger for shifting the catches, substantially as set forth.

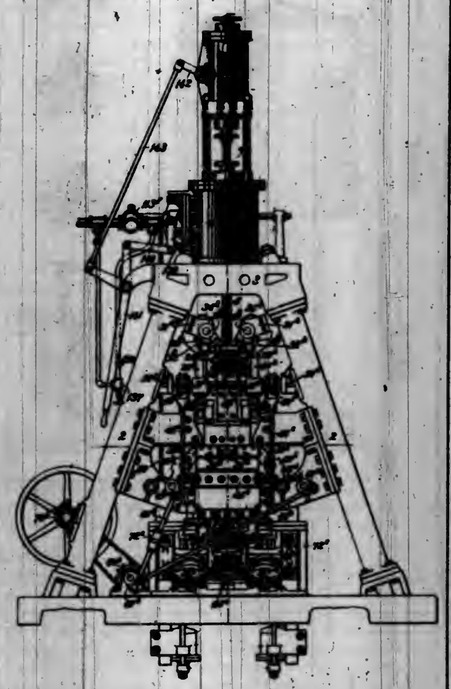
5. In a press, the combination of a main plunger, a retaining-plunger, a cross-head connected to the retaining-plunger, a spring arranged between the cross-head and the main plunger, cams and connections from the cams to the main plunger whereby the cams are moved inwardly over the cross-head during the downward movement of the main plunger, and are forced outwardly during the upward movement of the latter, substantially as set forth.

6. In a press, the combination of a plunger, a box or mold, catches for retaining the material in the box or mold, springs for shifting the catches inwardly, levers connected to the catches, and cams operated by the plunger for shifting the levers and catches outwardly during the downward movement of the plunger, substantially as set forth.

7. In a press, the combination of a plunger, a box or mold open at both ends, two side walls of the box or mold being provided with

movable sections and means for shifting said sections and locking them in closed position, substantially as set forth.

8. In a press, the combination of a plunger, a box or mold open at both ends, and provided on opposite sides with movable sections, arms secured to shafts and having a link connection to the movable sections and means for simultaneously rotating the arms to shift the sections to and from closed position, substantially as set forth.



9. In a press, the combination of a stationary box or mold having open ends, a plunger for forcing the material into the box or mold, and supports for yieldingly preventing the onward movement of the block or bale through the box or mold, whereby the material is subjected to compression during its passage through the box or mold, substantially as set forth.

10. In a press, the combination of a plunger, a box or mold having open ends, yielding supports for resisting the onward movement of the material being pressed through the box or mold, and means for withdrawing said supports on a predetermined movement of such material through the box, substantially as set forth.

11. In a press, the combination of a plunger, automatic means for operating the plunger, a box or mold open at both ends, yielding supports for resisting the onward movement of the material through the box and mechanism operative on a predetermined movement of the material being pressed through the box for stopping the plunger, substantially as set forth.

12. In a press, the combination of a plunger, automatic means for operating the plunger, a box or mold open at both ends, mechanism operative to stop the plunger on a predetermined movement of the material being pressed through the box and to start the plunger on a further movement of such material, substantially as set forth.

13. In a press, the combination of a plunger, a box or mold open at both ends, tongues projecting into the path of movement of the material being pressed, and springs arranged to present a gradually-increasing resistance to the movement of the tongues when shifted by the material, substantially as set forth.

14. In a press, the combination of a plunger, a box or mold open at both ends, tongues projecting into the path of movement of the bale or block, springs arranged to present a gradually-increasing resistance to the movement of the tongues during a portion of their travel and to shift the tongues in the direction of the movement of the bale or block after a further movement of the tongues, and springs arranged to resist the secondary action of the first springs, substantially as set forth.

15. In a press, the combination of a plunger, a box or mold open at both ends, tongues projecting into the path of movement of the bale or block, springs arranged to present a gradually-increasing resistance to the movement of the tongues during a portion of their travel and to shift the tongues in the direction of movement of the bale or block after a further movement of the tongues, springs arranged to resist the secondary action of the first springs, and means for withdrawing the tongues from the path of movement during conjoint operation of both springs, substantially as set forth.

16. In a press, the combination of a plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the mold, a lever having an adjustable connection with the tongue and means operative by the block for shifting the lever, whereby the tongue is withdrawn from the box or mold, substantially as set forth.

17. In a press, the combination of a plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the box or mold, a lever having an adjustable connection with the tongue, a pivotally-mounted dog having a pivotal connection to the lever, and provided with toes and a finger attached to the block and adapted to engage the toes on the dog, substantially as set forth.

18. In a press, the combination of a plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the box or mold, a bar or rod having a pivotal connection to the block, a pivotal support for the bar or rod constructed to permit of a longitudinal, as well as a rocking movement of the bar or rod and a spring arranged to resist the longitudinal movement of the bar or rod, substantially as set forth.

19. In a press, the combination of a plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the box or mold, a bar or rod having a pivotal connection to the block, a pivotal support for the bar or rod normally holding the latter at an angle less than a right angle to the path of movement of the block and constructed to permit of a longitudinal, as well as a rocking movement of the bar or rod, a spring arranged to resist the longitudinal movement of the bar or rod, and a spring arranged to impart an initial upward movement to the block, substantially as set forth.

20. In a press, the combination of a plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the box or mold, a shaft, a bar or rod passing through the shaft and having a pivotal connection to the block, the shaft being arranged so that in the normal position of the parts the bar will be at an angle less than a right angle to the path of movement of the block, a spring arranged to resist the longitudinal movement of bar or rod through the shaft, an arm secured on the shaft and a spring arranged in the path of movement of said arm, substantially as set forth.

21. In a press, the combination of a plunger, automatic means for operating the plunger, a box or mold open at both ends, a movable block, a tongue mounted on the block and projecting into the box or mold, a shaft connection from the movable block to the shaft whereby the latter is rotated by the block when shifted, an arm secured to the shaft, a pawl pivotally mounted on the shaft, an arm loosely mounted on the shaft, connections from the arm to the mechanism operating the plunger, the loosely-mounted arm being held in engagement with the pawl by such connections and a trip for shifting the pawl out of engagement with the loose arm, substantially as set forth.

590,589. ELECTRIC TROLLEY DEVICE. ANTOINE B. DU PONT, Detroit, Mich., assignor to the Steel Motor Company, Johnstown, Pa. Filed Jan. 15, 1897. Serial No. 619,384. (No model.)

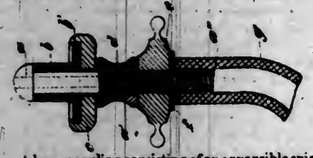


Claim.—1. In an electric trolley device, the combination with a transverse shaft and a contact-wheel surrounding said shaft, of a carriage carrying the contact-wheel, adapted to move along said shaft, and adapted to turn partially about said shaft.

2. A contact-making carriage for electric trolley devices comprising, the combination of a tubular bearing, a contact-wheel mounted thereon, sides secured to the said bearings, and rollers secured between the sides.

3. In an electric trolley device, the combination with a shaft carried in proximity to the conductor, of a contact-wheel and a carriage resting upon said shaft in a position of stable equilibrium and supporting the wheel about the said shaft.

590,590. HOSE-COUPLING. CHARLES PREVET, Paris, France. Filed June 2, 1897. Serial No. 639,090. (No model.)



Claim.—A hose-coupling consisting of an expansible spigot formed of a mushroom-headed tubular screw-threaded stem communicating with the hose attached thereto, a flanged india-rubber sleeve *b b'* confined between the head *a* and a cap *c* loose on the stem and recessed to receive the flange *b'* and a nut *e* screwing on said stem and acting to compress the rubber sleeve longitudinally and expand it diametrically so as to cause it to fit tightly in the bore of the nozzle or socket of the cock or pipe to which it is to be connected and also compress its flange *b'* against the end of the nozzle or socket substantially as specified.

590,591. PARCEL-FASTENING DEVICE. JAMES R. PURDY, New York, N. Y. Filed Feb. 9, 1897. Serial No. 622,662. (No model.)



Claim.—1. A parcel-fastener, comprising a button having a convex and grooved under surface and T-shaped slots therein, and a string engaging with said slots, substantially as shown and described.

2. A parcel-fastener, comprising a button having a flat upper surface and a convex lower surface, said button having a groove in its lower surface and approximately T-shaped slots extended therethrough, the longitudinal portions of the slots communicating with the groove in the lower surface of the button, substantially as shown and described.

3. As a parcel-fastener, the combination of a button having a convex under surface and T-shaped slots extended therethrough and grooves formed upon the under surface thereof, and a string engaging with the said slots, substantially as shown and described.

4. The combination with a folding box having a Y-shaped slot in the lid thereof, of a fastener comprising a knotted string engaging with the said Y-shaped slot, and a button having T-shaped slots therethrough and a groove upon the under surface thereof, substantially as shown and described.

590,592. APPARATUS FOR GENERATING ACETYLENE GAS. HOWARD L. PYLE, LOUIS LICHTENSTEIN, and JOHN C. REESE, Wilmington, Del. Filed Jan. 26, 1897. Serial No. 620,758. (No model.)

Claim.—1. An apparatus for automatically producing acetylene gas, consisting of a generator, a three-function valve connected therewith by a gas-pipe and a water-pipe, a gasometer also connected with said valve for receiving the gas under pressure, and an excess-reservoir for receiving the gas generated after the gasometer is cut out, as specified.

2. In combination with a gasometer of the character described, a generator, a three-function valve, and an excess-reservoir, all arranged substantially as and for the purpose set forth.

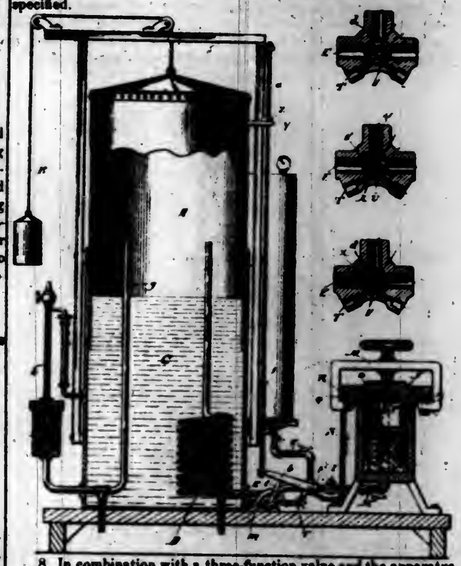
3. The herein-described combination of a generator, a three-function valve connected therewith by a gas-pipe and a water-pipe; a mechanism depending upon the movements of the gasometer for controlling the valve, and an excess-reservoir, all arranged substantially as and for the purpose set forth.

4. In combination with a generator, gasometer and excess-reservoir, of a three-function valve depending upon the movements of the gasometer for its operation, and so arranged as to control the inflow of water to the generator, and the outflow of gas therefrom, substantially as and for the purpose set forth.

5. A three-function valve having a plug seated therein, in which a water-port, a gas-port, and an extension-port are formed, substantially as and for the purpose set forth.

6. In combination with a three-function valve, a generator to which said valve is connected by a gas-pipe and a water-pipe, said generator having a chamber therein, a cover for closing the same, means for holding said cover in place, and a passage-way through said cover for conveying the water to the chamber, substantially as and for the purpose set forth.

7. In combination, a generator, a three-function valve, an excess-chamber, and a gasometer, the latter being so constructed as to bring about the movements of the valve by the pressure of gas therein, as specified.

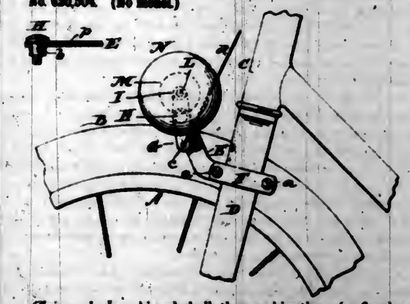


8. In combination with a three-function valve and the apparatus connected thereto, of a lever for operating said valve, and a drop-lever for determining the second position of said valve, substantially as shown and described.

9. In combination with a suitable gasometer and a storage-reservoir, a generator consisting of a receptacle C, a cover adapted to be secured thereto so that it may be readily removed therefrom, said cover having a waterway formed therein leading from the exterior to the interior of the tank, a water-pipe so connected with the reservoir as to register with said waterway when the cover is closed in place, and means for holding said cover, substantially as and for the purpose set forth.

10. In combination with a three-function valve, a generator consisting of a receptacle, a cover fitted thereto and adapted to be removed therefrom, said cover having a waterway formed therein, a pipe 8 leading from one function of the valve to a boss having a hole therein which registers with the waterway in the cover, means for packing the joint between said hole and waterway, and a gas-pipe leading from the receptacle to the valve, said gas-pipe having a check-valve therein, substantially as and for the purpose set forth.

590,598. BICYCLE-BELL. WILLIAM G. RANKIN, Providence, R. I., assignor to Zenas W. Bliss, Cranston, R. I. Filed Jan. 25, 1897. Serial No. 620,504. (No model.)

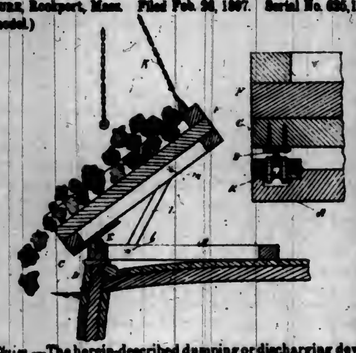


Claim.—1. In a bicycle-bell, the combination of a fixed support having a journal or bearing, a shaft rotatably mounted in said journal or bearing and having a gong fastened at one end thereof and a friction-roller fastened at the other end thereof, which roller is rotatable while in contact with the tire of a bicycle-wheel, when in motion, together with a striking device, mounted on a fixed support and adapted to strike at intervals upon said gong, substantially as described.

2. In a bicycle-bell, the combination of a fixed support having a journal or bearing, a rotatable gong fastened upon a shaft mounted in said journal or bearing, a friction-roller fastened to said shaft and rotatable therewith by its frictional contact with a bicycle-wheel which is in motion, a striking device mounted upon a fixed support, and projections from the gong adapted to be brought into contact with the striking device by the rotation of the gong, substantially as specified.

3. The improved bicycle-bell herein described consisting of a bent arm E, with a clamp F secured thereto, adapted to hold said arm upon a bicycle-frame, a supporting screw or stud H at the end of said arm, a lever-arm G mounted midway upon said screw or stud, a spiral spring fastened at one end to said lever-arm and at its other end to said bent arm, a tube or sleeve I across the end of the lever-arm G, a disk or plate J, fastened to said lever-arm and sleeve and having an inwardly-bent tongue, a clapper K flexibly supported by said tongue, a rotatable shaft L mounted in said sleeve or tube, a friction-roller M fastened to the shaft at its outer end and a gong N fastened by a central hub to the shaft at its inner end and provided with lips or projections *n*, *n*, adapted to strike against said clapper by the revolution of the gong, substantially as set forth.

590,594. DUMPING OR DISCHARGING DEVICE. FRANK SCRIPTURE, Rockport, Mass. Filed Feb. 26, 1897. Serial No. 625,126. (No model.)



Claim.—The herein-described dumping or discharging device consisting of in combination a stationary base, wheels or rollers journaled at the forward end thereof, a portable dumping-box links pivotally connected to said base and dumping-box or its frame, and means substantially as described for hoisting and dumping the load as and for the purpose set forth.

590,595. DRAWERS. JEREMIAH A. SHRIVER, New York, N. Y. Filed Mar. 26, 1897. Serial No. 629,205. (No model.)



Claim.—1. In a pair of drawers, the combination with inelastic sections of an elastic insertion B interposed between two of the sections and located in the crotch of the garment and having a gusset *b* extending upward from the crotch of the said garment to the front opening or placket F of the said garment, the upper edge of the said insertion forming the lower edge of the said front opening and bands or edges D bounding the said front opening F and having their lower ends lapping upon and secured to the said gusset *b*, whereby a strongly-made elastic crotch and front opening is provided.

2. An undergarment containing elastic insertions BC meeting at an angle and overlapping each other in the crotch of the garment, the edges *a a* of the overlapping portion of section B being disconnected from the overlapped portion C, an elastic insertion or gusset *b* extending upward from the middle of the crotch of the garment to the lower part of the front opening of the garment and secured thereto and forming the lower edge thereof, substantially as described.

590,596. DRAWERS. JEREMIAH A. SHRIVER, New York, N. Y. Filed Apr. 10, 1897. Serial No. 632,794. (No model.)

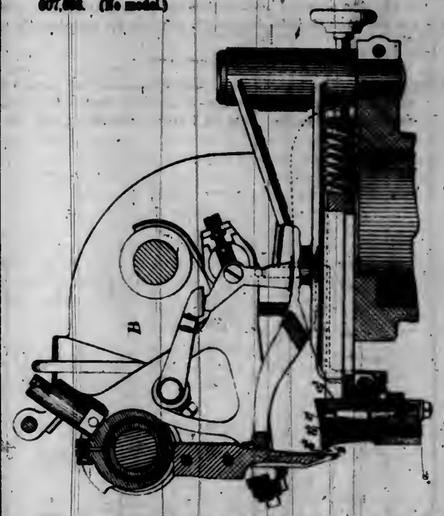
Claim.—1. A pair of drawers comprising in their structure an inelastic waist-piece, a divided front, inelastic leg portions, and a plurality of elastic insertions let into the front of the upper part of the said drawers on either side of the division in the front below the waist-piece of the drawers and adapted to cover the abdomen of a wearer so as to snugly fit the said abdomen at different periods of its distention.



2. A pair of drawers comprising in their structure an inelastic waist-piece, an inelastic divided front portion, and a plurality of insertions of elastic ribbed fabric let into the upper portion of the inelastic front of the drawers, below the waist-piece one on each side of the division and having their ribs running diagonally with respect to the waist-piece, the said elastic insertions being adapted to cover the abdomen of a wearer so as to snugly fit the same during different periods of its distention.

3. In a pair of drawers, the combination of inelastic front and rear sections, an inelastic waist-piece and a divided front and a plurality of insertions of elastic fabric of a triangular shape let into the upper portions of the front sections of the drawers below the waist-piece and on either side of the division in the front.

590,597. ROUGH-ROUNDING AND CHANNELING MACHINE. ALBERT R. SMITH, Worcester, Mass. Filed Oct. 2, 1896. Serial No. 607,693. (No model.)



Claim.—1. In a rough-rounding and channeling machine, a channel-knife carrier comprising a supporting-spindle, a rotary sole-rest mounted on the spindle, and a knife-clamp on said spindle above the rest, substantially as described.

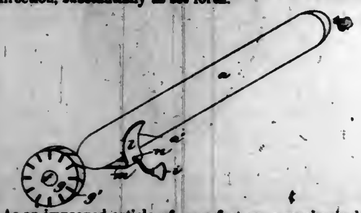
2. In a rough-rounding and channeling machine, a channel-knife carrier comprising a supporting-spindle, a rotary sole-rest mounted on the spindle, and a knife-clamp on said spindle above the rest comprising fixed and movable clamping members and a screw for actuating said movable member, substantially as described.

3. In a rough-rounding and channeling machine, the combination with the supporting-spindle, a sole-rest mounted on said spindle, of a knife-clamp carried by said spindle above the sole-rest and guide for the sole on said knife-clamp, substantially as described.

590,598. MECHANICAL ERASER. EDGAR C. SMITH and ALFRED J. SMITH, West Superior, Wis. Filed Jan. 12, 1897. Serial No. 619,007. (No model.)

Claim.—1. As an improved article of manufacture, a mechanical eraser comprising a casing *a*, a spindle *c* therein, a slotted rotary eraser *g* outside of the casing and connected to said spindle, and means for rotating said spindle first in one direction and then in the other, substantially as set forth.

2. As an improved article of manufacture, a mechanical eraser comprising a casing *a*, a spindle *c* therein, a rotary eraser *g* outside of the casing and connected to said spindle, a cord for rotating the spindle in one direction, and a spring for rotating the spindle in the other direction, substantially as set forth.



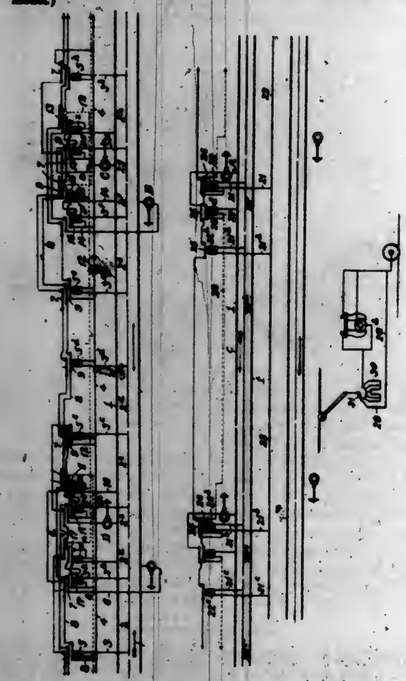
3. As an improved article of manufacture, a mechanical eraser comprising a casing *a*, a spindle *c* therein, a rotary eraser *g* outside of the casing but connected to said spindle, a cord *h* wound around said spindle for rotating the same in one direction, a spiral spring *j* surrounding the spindle, for rotating the same in the other direction, and a thumb-piece *l* on the casing, substantially as set forth.

4. As a new article of manufacture, an improved mechanical eraser comprising a casing *a*, a spindle *c* therein, a rotary eraser *g* outside of the casing but connected to said spindle, a cord *h* wound around said spindle for rotating the same in one direction, a spiral spring *j* surrounding the spindle, for rotating the same in the other direction, a thumb-piece *l* an extension *m* on the casing, substantially as set forth.

5. As a new article of manufacture, an eraser, cylindrical in form and provided with diametrical slots therein, substantially as set forth.

6. As a new article of manufacture, an eraser, cylindrical in form and provided with inclined diametrical slots therein, substantially as set forth.

590,599. SIGNALING FOR ELECTRIC RAILWAYS. JACOB B. STRAUSS, Wilkinsburg, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Jan. 2, 1897. Serial No. 617,727. (No model.)



Claim.—1. In a system of signaling for electric railways, the combination of the main feed-wire, a return-conductor, a trolley-wire extending along the block to be protected, one or more branch or feed wires forming a permanent connection between the main feed-wire and the trolley-wire, a magnet forming a portion of the branch or feed wire, a signal and a circuit controlling said signal and including as a part thereof the armature of said magnet, substantially as set forth.

2. In a system of signaling for electric railways, the combination of a main feed wire, a return-conductor, a trolley-wire extending along the block to be protected and divided into two or more sections, each section having a permanent connection to the main feed-wire, magnets forming portions of the connections between the feed and trolley wires, a signal and a circuit controlling said signal, and including as parts thereof the armatures of said magnets, substantially as set forth.

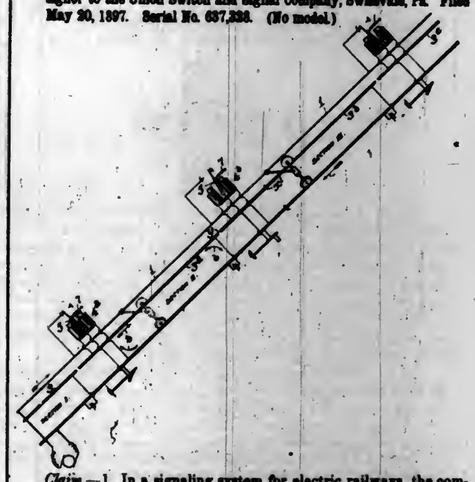
3. In a system of signaling for electric railways, the combination of a main feed-wire, a return-conductor, a trolley-wire extending along the block to be protected and divided into two or more sections, each section being connected to the main feed-wire, a signal, a circuit controlling the signal, controlling-magnet forming parts of the connections between the feed-wire and trolley-wire, locking-magnets having a normally-closed and a normally open circuit, the armatures of the locking and controlling magnets forming parts of the normally-closed circuit, and a circuit-breaker included in the signal-circuit and controlled by the locking-magnet, substantially as set forth.

4. In a system of signaling for electric railways, the combination of a main feed-wire, a return-conductor, a trolley-wire extending along the track and divided into two or more sections, each section being connected to the main feed-wire, a signal, a circuit controlling the signal, a make-and-break mechanism in the signal-circuit, a controlling-magnet forming part of the connection between the feed-wire and the trolley-wire section at the entrance of the block and adapted to open the make-and-break mechanism, and a controlling-magnet forming part of the connection between the feed-wire and the trolley-wire section at the exit end of the block and adapted to close the make-and-break mechanism, substantially as set forth.

5. In a system of signaling for electric railways, the combination of a main feed-wire, a return-conductor, a trolley-wire extending along the track and divided into a series of two or more sections, two or more branch or feed wires having permanent connections to the main feed-wire and the trolley-wire sections, magnets forming parts of the branch or feed wires, a signal, a circuit controlling said signal and make-and-break mechanisms included in the signal-circuit and adapted to be operated by the magnets, substantially as set forth.

6. In a system of signaling for electric railways, the combination of a main feed-wire, a return-conductor, a trolley extending along the track, a branch or feed wire forming a permanent connection between the main feed-wire and the trolley-wire, a magnet forming part of the branch wire, a signal, a circuit controlling said signal a make-and-break mechanism included in the signal-circuit and adapted to be operated by the magnet, a motor, a shunt-circuit around the motor and a switch for turning the current from the motor to the shunt-circuit, substantially as set forth.

590,600. SIGNALING. JACOB B. STRAUSS, Wilkinsburg, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed May 30, 1897. Serial No. 637,238. (No model.)



Claim.—1. In a signaling system for electric railways, the combination of a trolley-wire, a series of two or more track-sections, one line of rails of each section being adapted to serve as a return-conductor for the motor-current, polarized relays having their poles connected to the rails of each section, batteries having their poles so connected to the rails of the sections that the currents therefrom will produce in the relays an opposite polarity to that produced by the motor-current, and signal-circuits having make-and-break mechanisms controlled by the polarized relays, substantially as set forth.

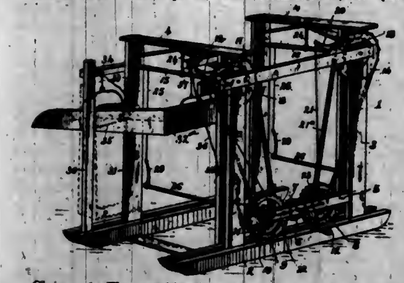
2. In a signaling system for electric railways, the combination of a trolley-wire, a series of two or more track-sections, one line of rails of one section being connected to the opposite line of rails of the adjoining sections, such connected line of rails serving as a return-conductor for the motor-current, polarized relays having their poles connected to the rails of each section, batteries having their poles so connected to the rails of each section that the currents therefrom will produce, in the relays, a polarity opposite to that produced by the motor-current, and signal-circuits having make-and-break mechanisms controlled by the relays, substantially as set forth.

3. In a signaling system for electric railways, the combination of a trolley-wire, a series of track-sections, a return-conductor, resistances connecting one line of rails of each section to the return-conductor, storage batteries connecting the other line of rails of each section to the return-conductor, polarized relays having their poles connected to the rails of the several sections and signal-circuits having make-and-break mechanisms controlled by the relays, substantially as set forth.

4. In a signaling system for electric railways, the combination of a trolley-wire, a series of track-sections, a return-conductor electrically connected to one line of rails of one section and to the opposite lines of rails of adjoining sections, resistances arranged in the connections between the return-conductor and said lines of rails, storage batteries having their poles connected to the return-conductor and the other line of rails of each section, polarized relays connected to the rails of each section and signal-circuits having make-and-break mechanisms controlled by said relays, substantially as set forth.

5. In a signaling system for electric railways, the combination of a track-section, one line of rails of the section being connected to one pole of the generator, a trolley-wire connected to the opposite pole of the generator, a branch from a generator-circuit forming a signal-circuit, a make-and-break mechanism included in the signal-circuit, a polarized relay connected to the rails of the section and adapted to control the make-and-break mechanism in the signal-circuit, and a battery so connected with the rails of the section that the current therefrom will produce in the relay a polarity the reverse of that produced by the current from the generator, substantially as set forth.

590,601. APPARATUS FOR DUMPING WAGONS. OTHO C. TABER, Holton, Kans. Filed Apr. 17, 1897. Serial No. 633,635. (No model.)



Claim.—1. The combination with a frame, of two shafts journaled in the opposite ends thereof, means for rotating said shafts yokes suspended from said shafts and arranged to support a wagon body, and a chute arranged transversely to one end of said frame in the plane traversed by the tail end of the wagon when the latter is raised and lowered, said chute being pivotally suspended at its discharge end from the said frame and means for raising and lowering the other end of the chute, substantially as described.

2. The combination with the frame, of two shafts journaled in the opposite ends thereof, means for rotating said shafts and detachably-jointed yokes suspended from said shafts each of said yokes consisting of a rod 26 and a side arm 27 formed integrally with one another and a side arm 29 having a lower hooked end detachably engaging the perforated end of the rod 26, substantially as described.

3. The combination with the frame, of two shafts journaled in the opposite ends thereof, means for rotating said shafts and detachably-jointed yokes suspended from said shafts each of said yokes consisting of a rod 26 and a side arm 27 formed integrally with one another and a side arm 29 having a lower hooked end detachably engaging the perforated end of the rod 26, said side arms 27 and 29 being inwardly curved or bowed to bear against and support the sides of the wagon-body, substantially as described.

4. The combination with a frame of two shafts journaled in the opposite ends thereof, yokes suspended from said shafts and arranged to support a wagon-body means for rotating said shafts to elevate the yokes, a chute arranged transversely to one end of said frame in the plane traversed by the tail end of the wagon when the latter is raised and lowered, a rod attached to the chute near one end and arranged to travel in vertical grooves formed in one side of the frame, and forming a pivot about which the chute may be oscillated, means for adjustably suspending the said end of the chute, and means for raising and lowering the opposite end of the chute, substantially as described.

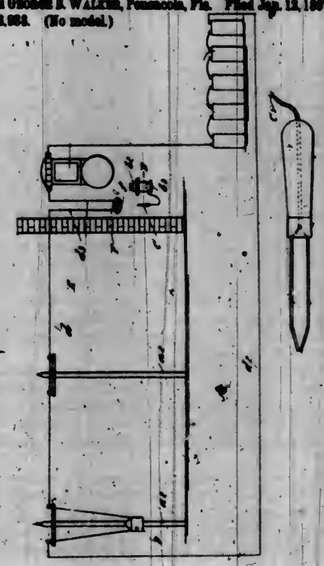
5. The combination with a frame, of two shafts journaled in the opposite ends thereof, means for rotating said shafts, cables wound about said shafts and provided with means for attachment to a wagon-body, of a chute arranged transversely to one end of said frame, means for adjustably pivoting one end of said chute to the frame, and means for raising and lowering the other end of said chute, substantially as described.

590,602. WAGON-JACK. ISAAC L. THOMPSON, Dayton, Ill. Filed July 15, 1896. Serial No. 599,207. (No model.)



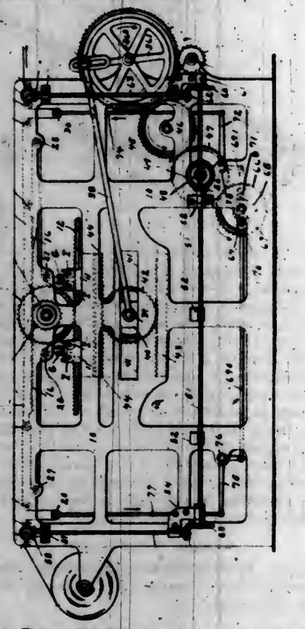
Claim.—In a device of the character set forth, the combination with an upright or standard, of a vertical reciprocable lifting-bar acting in engagement therewith having teeth along one edge thereof, a cog-wheel mounted in said upright adapted to engage the teeth on said lifting-bar, an operating-lever fulcrumed in said upright, a spring-actuated dog thereon which is normally held in engagement with the teeth of said cog-wheel, a dog for preventing the backward movement of said cog-wheel, a release-rod having a handle or finger-piece formed thereon integral with the main portion of said rod slidingly mounted along one side of said operating-lever and attached directly to said pawl, and a second release-lever having a handle or finger-piece formed integral therewith, the said release-lever being slidingly mounted upon the opposite side of said operating-lever to that on which the other release-lever is mounted and connected directly to the dog for preventing the backward movement of said cog-wheel, substantially as and for the purpose described.

590,608. ELECTRIC FIRE-ALARM SYSTEM. JOHN L. WALKER and GEORGE B. WALKER, Pensacola, Fla. Filed Jan. 13, 1897. Serial No. 618,693. (No model.)



Claim.—In a continuous-circuit system the combination of the main station and sub or signal stations, of an alarm at the main station located in the continuous circuit, a telephone at the main station having means for bringing it into the continuous circuit without a break therein, a telephone located at the substation normally out of the continuous circuit and means for bringing it into the continuous circuit and at the same time signaling at the main station, consisting of a pair of spring-arms in contact with each other and located in the continuous circuit, and a plug connected with the telephone formed with a wedge-shaped non-conducting head which is adapted to part the springs to break the circuit and thereby signal at the main station, and with a metal contact-point for again closing the circuit and bringing the telephone into the continuous circuit, substantially as shown and described.

590,604. PRINTING-MACHINE. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed Aug. 24, 1896. Renewed Mar. 13, 1897. Serial No. 626,227. (No model.)



Claim.—1. The combination in a web-printing machine of a reciprocating bed, an oscillating cylinder coacting therewith, means for continuously feeding the web into and out of the press, a web-shifting mechanism, and a compensating mechanism for moving the web in harmony with the bed, substantially as described.

2. The combination in a web-printing machine of a reciprocating bed, an oscillating cylinder coacting therewith, suitable web-guides, means for continuously feeding the web into the press, means for controlling the web so that during impression the same will move forward and backward with the bed, and a suitable delivery mechanism, substantially as described.

3. The combination in a web-perfecting printing-press of two reciprocating beds, an oscillating cylinder coacting with each bed, suitable web-guides, means for feeding the web continuously into the machine, means for moving the web forward or backward in harmony with the beds during impression, so that the beds will print on both forward and backward strokes, and a delivery mechanism for the web, substantially as described.

4. The combination in a web-printing press of a stationary oscillating impression-cylinder, a traveling form-bed coöperating therewith, a web-compensating device consisting of two loopers connected to move together in the same direction around which the web is looped in opposite directions, and a web-feeding device, substantially as described.

5. The combination in a web-printing press of a stationary, oscillating impression-cylinder, a traveling form-bed coöperating therewith, a web-compensating device consisting of two connected horizontally-moving loopers around which the web is looped in opposite directions, means whereby these loopers will be moved oppositely to the bed at one-half the speed thereof, and a suitable web-feeding mechanism, substantially as described.

6. The combination in a web-printing press of a stationary, oscillating impression-cylinder, a traveling form-bed coöperating therewith, a web-compensating device consisting of a frame mounted in the printing-press framework to move parallel with the bed, two loopers mounted in said frame around which the web is looped in opposite directions, means for moving said frame, and a web-feeding device, substantially as described.

7. The combination in a web-printing press of a stationary, oscillating impression-cylinder, a traveling form-bed coöperating therewith, a web-compensating device consisting of two connected, synchronously-moving loopers around which the web is looped in opposite directions, and a web-feeding device for properly feeding the web, consisting of means for synchronously feeding the web into and out of the press and for respacing the web, substantially as described.

8. The combination in a web-printing press of an oscillating impression-cylinder, a reciprocating form-bed coacting therewith, a suitable web-compensating device, means for continuously feeding the web into and out of the press, looping feeding-in and feeding-out rollers, said looping-rollers being mounted in arms, bell-crank levers connected to said arms, a rotating cam or cams, and connections from the rotating cam or cams to the bell-crank levers, substantially as described.

9. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting therewith each impression-cylinder, a web-compensating device adapted to move the web to compensate for the movement of the form-beds, and a suitable web-feeding device, including means for continuously feeding the web into the press and for continuously delivering the web from the press substantially as described.

10. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, said form-beds moving in opposite directions, a web-compensating device for moving the web to compensate for the movement of the beds, a suitable web-feeding device adapted to respace the proper length of web through the press when the printing members are out of impression; means for continuously feeding the web into the press and means for continuously delivering the web from the press substantially as described.

11. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each cylinder, a web-compensating mechanism and a web-feeding device arranged to respace and shift the web as the beds reverse in either direction, whereby two perfected sheets will be printed for each reciprocation of the beds, substantially as described.

12. The combination in a web-perfecting printing-press of two oscillating impression-cylinders arranged one over the other, a horizontally-reciprocating form-bed coacting with each impression-cylinder and printing on both forward and backward strokes, suitable web-guides, means for manipulating the web so that the same will run in harmony with the beds during the printing operation, and a web-feeding device arranged to respace and shift the web forward as the beds reverse in either direction, whereby two perfected sheets will be printed for each reciprocation of the beds, substantially as described.

13. The combination in a web-perfecting printing-press of two oscillating impression-cylinders arranged one over the other, a reciprocating form-bed coacting with each cylinder, a web-compensating and a web-feeding device arranged to respace and shift the web as the beds reverse in either direction, whereby two perfected sheets will be printed for each reciprocation of the beds, substantially as described.

14. The combination in a web-printing press of two oscillating impression-cylinders arranged one over the other, a reciprocating form-bed coacting with each cylinder, means for continuously feeding the web into the machine, a web-manipulating mechanism arranged to move the web in harmony with the beds as they move forward or backward, and a suitable delivery mechanism arranged to respace or shift the web as the beds reverse in either direction, the whole so arranged that two perfected printed sheets will be printed for each complete reciprocation of the beds, substantially as described.

15. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, a suitable web-compensating device, and a web-feeding device consisting of means for continuously feeding the web into and out of the press, and of two looping-rollers adapted to respace or shift the web through the press around the impression-cylinders when the printing members are out of impression, substantially as described.

16. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each cylinder a web-compensating device consisting of looping devices, one arranged in the path of the web before the same passes to the first impression-cylinder, and the other arranged in the path of the web after the same passes from the second impression-cylinder, and a suitable web-feeding device, substantially as described.

17. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, a web-compensating device consisting of web-looping devices arranged to form oppositely-arranged loops in the web before the same passes to the first impression-cylinder, and after the same passes from the second impression-cylinder, and a suitable web-feeding device, substantially as described.

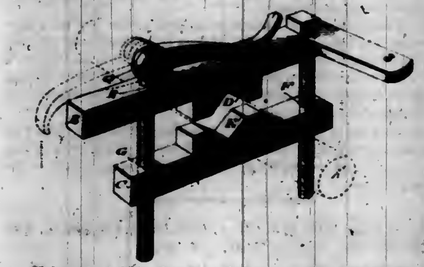
18. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, a web-compensating device consisting of devices adapted to form a loop in the web before the same passes to the first impression-cylinder, and a loop in the web after the same passes from the second impression-cylinder, means for moving said looping devices at one-half the speed of the form-beds, and a web-feeding device, substantially as described.

19. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, a looping-frame actuated from one of said impression-cylinders at one-half the speed of the form-bed, said looping-frame carrying devices adapted to form a loop in the web both before the same passes to the first impression-cylinder, and after the same passes from the second impression-cylinder, and a web-feeding device, substantially as described.

20. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, a horizontally-moving web-looping device adapted to move the web to compensate for the movement of the traveling form-beds, and a web-feeding device adapted both to feed the web continuously into and out of the press and to respace the web around the impression-cylinders when the printing members are out of impression, substantially as described.

21. The combination in a web-printing press of two oscillating impression-cylinders, a reciprocating form-bed coacting with each of said impression-cylinders, continuously-running rollers for feeding the web into and out of the press, looping-rollers for respacing the web around the impression-cylinders when the printing members are out of impression, and horizontally-moving web-compensating devices adapted to move the web to compensate for the movement of the form-beds substantially as described.

590,605. LATHE-DOG. GEORGE R. G. WEBB, Philadelphia, Pa. Filed Dec. 13, 1895. Serial No. 572,021. (No model.)

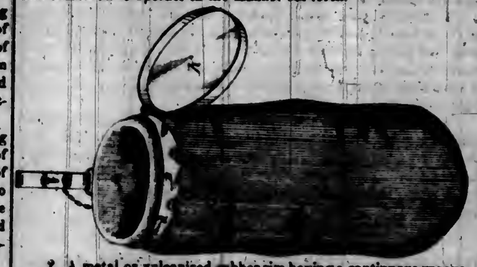


Claim.—1. A lathe-dog formed of two sections, bolts freely passing through openings in one of said sections, and engaging in threaded openings in the other section, a cam-lever pivotally attached to one of said bolts, and adapted to bear against one of said sections, and an arm extending at substantially a right angle from one of said sections.

2. A lathe-dog formed of two sections, each provided with a gripping-jaw, bolts freely passing through openings in one of said sections and engaging in threaded openings in the other section, a cam-lever pivoted to a head on one of said bolts and adapted to bear against one of said sections, an arm extending at substantially a right angle from one of said sections, and said gripping-jaws being intermediate of said bolts.

590,606. WATER-TIGHT BAG. ELLA B. YOUNG, Red Oak, Iowa. Filed Feb. 13, 1897. Serial No. 623,243. (No model.)

Claim.—1. A bag adapted to be closed water-tight by means of a rigid cover, comprising a bag made of flexible waterproof material and open at one end, a rigid rim fitted to the open top of the bag and the top edge portion of the bag doubled over the top edge portion of the rim and bound thereto by means of a wire, an arched bar and screw-bearer hinged to the outside of the rim to extend across a cover, a loop hinged to the rim to engage the free end of the bar, a screw fitted in a screw-threaded perforation in the arched bar, and a cover fitted to the top of the bag and the rigid rim, all arranged and combined to operate in the manner set forth.



2. A metal or vulcanized-rubber rim having a continuous groove around its outside surface, a flexible bag having an open end extended upward through the rim, and then doubled downward over the top edge of the rim and the said groove and fastened to the rim by means of a wire, an arched screw-bearer hinged to one side of the rim and a loop to the other side to engage the free end of said screw-bearer, a screw extended through the said screw-bearer, and a cover fitted to the top of the bag and rigid rim attached thereto, substantially as shown and described for the purposes stated.

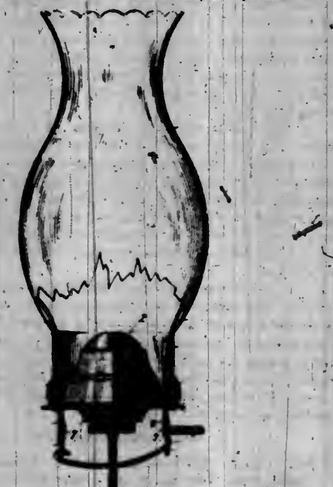
590,607. CEMENT-INJECTOR FOR PNEUMATIC TIRES. ROBERT W. YOUNG, Austin, Ill., assignor to the Morgan & Wright, Chicago, Ill. Filed Mar. 9, 1897. Serial No. 626,625. (No model.)



Claim.—1. A cement-injector for pneumatic tires, comprising an internally-threaded cup having a discharge-nozzle, and a reversible plunger which is threaded for a portion of its length along one of its end portions and unthreaded along its remaining end portion, the latter being provided with a needle which forms a point for the nozzle when the plunger is screwed into the cup to an extent to cause the end of its unthreaded portion to abut against the bottom end of the cup, substantially as and for the purpose described.

2. A cement-injector comprising an internally-threaded cup having a discharge-nozzle, and a reversible plunger which is threaded for a portion of its length and along one of its end portions provided at the end of its opposite unthreaded end portion with a needle, the unthreaded end portion of the plunger being flattened and adapted for service, substantially as described.

590,608. LAMP-CHIMNEY HOLDER. RALPH E. ALFREY, Weston, W. Va. Filed Jan. 27, 1897. Serial No. 620,998. (No model.)



Claim.—1. A holder for chimneys, consisting of holders applied to the burner at opposite points and having projecting shank portions to be brought together for spreading the upper ends of the holders

for securing the chimney in place, and a lock consisting of a curved wire adapted to be engaged at its opposite ends with the projecting shank portions of the holders to secure the latter when their upper ends are spread, substantially as and for the purpose set forth.

2. A holder for a burner having a perforate gallery, consisting of a wire bent to provide a shank portion and approximately parallel arms, and having kinks or offsets formed in the arms adjacent to the base portions, whereby the holder is pivotally supported and retained in place when thrust through suitable openings in the gallery, substantially as set forth.

3. The combination with a burner, of oppositely-disposed holders applied thereto and having projecting shank portions, and a lock consisting of a curved wire having one end constructed to engage with the shank of a holder and having its opposite end bent to provide a finger-hold and to make positive engagement with the shank of the opposite holder, substantially as specified.

590,609. BICYCLE SUPPORT AND LOCK. GEORGE L. CAMPBELL, Kinsman, Ohio. Filed Aug. 16, 1896. Serial No. 602,720. (No model.)



Claim.—1. A combined support and lock for bicycles, comprising a lever, a supporting-rod pivoted so as to be folded, a connecting-link between said lever and rod, and a locking device mounted on said lever and adapted to be moved toward and away from the wheel and to be placed in engagement therewith, substantially as described.

2. The combination with a bicycle, of a lever pivoted to the frame thereof and having a reduced portion near its free end, a locking device mounted on such reduced portion and adapted to turn thereon, a sleeve mounted on the same portion, and means for adjusting and holding said sleeve, substantially as and for the purpose described.

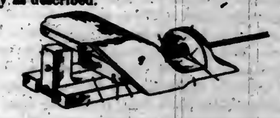
3. The combination with a bicycle, of a bracket secured to the lower end of one of the fork sides and having a disk-shaped portion provided with a segmental slot, a supporting-rod pivoted to said bracket concentric to said slot, an operating-lever, a link interposed between said lever and rod and connected to the latter by a pivot which enters and works within the said slot, and a locking device mounted on the lever to turn thereon and adapted to lock the lever, when elevated, to the frame and, when depressed, to the wheel, substantially as described.

4. The combination with a bicycle, of a pivot-block secured thereto on a horizontal axis and having oppositely-projecting trunnions, an operating-lever fulcrumed on said block on the axis at right angles to the pivot of said block, cranks secured to said trunnions, supporting-rods pivotally connected to the machine-frame, connecting-links between said lever and rods, and a locking device mounted on the lever to turn thereon, and adapted to lock the lever, when elevated, to the frame and, when depressed, to the wheel, substantially as described.

5. A bicycle-lock comprising a pair of cross-jaws pivoted together at a point intermediate of their length, a rack-bar pivotally connected at one end to one of the jaws in rear of the pivot, the opposing jaw being slotted for the passage of said bar and provided with a projection to engage the teeth of the bar, a spring-actuated plunger in the slotted jaw to hold the bar in engagement with the projection, and a removable locking device in the projecting end of the rack-bar, substantially as described.

590,610. HAY-LOADER COUPLING. PATRICK H. CONNER, Monticello, Iowa. Filed Jan. 20, 1897. Serial No. 619,963. (No model.)

Claim.—The combination in a coupling to connect hay-loaders to wagons, of a base-plate secured to the loader and provided with a bifurcated front end and an upwardly and forwardly projecting extension, a bell-crank-shaped hook fulcrumed between the arms of the bifurcated front end to swing in a vertical direction, a spring-actuated block slidably supported on the base-plate and adapted to engage one arm of said hook and hold it in a horizontal position and the other arm in a vertical position to engage a clevis on the wagon, stops on said forwardly-projecting arms of the base-plate to limit the forward movement of said block, and a cord connected to the sliding block and extending to the upper portion of the loader, by means of which the block may be moved out of engagement with the hook, substantially as described.



590,611. LUBRICATOR. GEORGE H. DAVIS, Dubuque, Iowa, assignor of twelve twenty-fifths to L. L. Lightcap, same place. Filed Nov. 2, 1896. Serial No. 611,594. (No model.)



Claim.—1. A lubricator for pulleys, operated by centrifugal force, consisting of a cup within the pulley for holding the lubricant, a fulcrum, a lever pivoted to the fulcrum and adapted to come in contact with the cup, whereby the lubricant is forced upon the shaft of the pulley, and a weight attached to said lever, for the purposes shown.

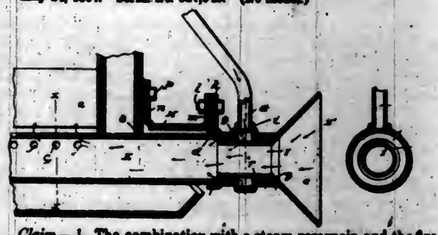
2. A lubricant for pulleys consisting of a cup secured in a pulley, a fulcrum, a lever, pivoted to the fulcrum, and adapted to press upon the cup and a weight of varying resistance adjustably attached to said lever, whereby the feed of the lubricant is controlled by the rapidity of the travel of the pulley, for the purposes shown.

3. A lubricator for pulleys, consisting of a cup secured in the pulley, a cover for said cup, a fulcrum secured around the cup, a lever pivoted to the fulcrum and adapted to press upon said cover and a weight adjustably secured upon one arm of the lever to be operated, as and for the purposes shown.

4. A lubricator for loose pulleys consisting of a cup secured in the hub of the pulley, a cover for said cup telescoping upon said cup and provided with an air-hole through said cover near its bottom, a valve on the inner side of the cover, and a weighted lever adapted to press upon said cover to force the lubricant upon the shaft of the pulley when the pulley is in motion.

5. A lubricant for loose pulleys consisting of a cup B, with funnel *h*, cover D, fulcrum *c*, and lever G, pivoted to said fulcrum having arms *g*, and A, and weight H, all combined to operate as and for the purposes shown.

590,612. HOT-AIR BLAST. JAMES H. EVANS, Americus, Ga. Filed May 24, 1897. Serial No. 637,943. (No model.)



Claim.—1. The combination with a steam-reservoir, and the fire-chamber of a furnace; of the perforated pipe arranged in said chamber below the grate-bars and having its outer end threaded, the bell-mouthed receiver having the tubular portion threaded at its inner end to receive said pipe and also having the attaching-flange, and the internal annular groove to form a steam-chamber, the ring arranged in the tubular portion of the receiver, and reduced externally as shown, so as to form the steam-passage, the blowpipe connecting said steam-chamber with the steam-reservoir, and the bracket connecting the receiver with the furnace, substantially as specified.

2. In a device of the character described, the combination with the perforated pipe threaded at its outer end; of the bell-mouthed receiver having the annular groove or recess to form the steam-chamber, the ring arranged in the tubular portion of the receiver and forming one wall of the circular steam-passage, and a blowpipe adapted to be connected to the steam-chamber, substantially as specified.

590,613. AUTOMATIC TELESCOPE-GRIP OR BICYCLE LOCK. WILBUR F. GARRETT, Centreville, Iowa. Filed Nov. 21, 1896. Serial No. 613,085. (No model.)



Claim.—1. The combination with a suitable lock-case provided with an opening for the passage of a strap or chain, of a latch pivotally mounted within the lock-case, and a thumb-slide operating across said latch in a plane at right angles to the movement thereof, said slide having a knob working through a slot in the lock-case, substantially as and for the purpose described.

2. The combination with a lock-case, of an interiorly-arranged latch fulcrumed intermediate its ends, and a slide movable across said latch and in a plane substantially at right angles to the plane of movement of said latch, substantially as and for the purpose described.

3. The combination with a lock-case, of a latch fulcrumed intermediate its ends therein, and a slide operating in a plane at right angles to the movement of the latch, said slide embodying an inclined flange which bears against the latch on one side of its fulcrum, substantially as and for the purpose described.

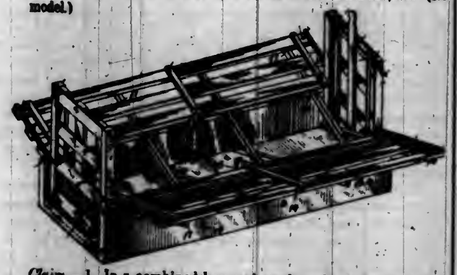
4. The combination with a lock-case, of a latch pivotally mounted therein and fulcrumed intermediate its ends, and a slide operating across the latch in a plane substantially at right angles to the movement of the latch, said slide being provided with spaced flanges having their edges reversely inclined and bearing against the latch on opposite sides of its fulcrum, substantially as and for the purpose described.

5. The combination with a lock-case, and an intermediate web or plate located therein and provided with an aperture, of a latch fulcrumed intermediate its ends within the case and working at its point or tongue through said web, and a slide working across the latch and provided with flanges having reversely-inclined edges bearing against the latch on opposite sides of its fulcrum, substantially as and for the purpose described.

6. The combination with a lock-case, of a latch fulcrumed intermediate its ends therein, a slide operating across said latch and having reversely-inclined bearing portions which contact with the latch on opposite sides of its fulcrum, means whereby said slide may be moved in one direction, and a spring for returning said slide to its normal position, substantially as and for the purpose described.

7. The combination in a lock, of a latch pivoted intermediate its ends, a finger-slide operating across the plane of movement of said latch and adapted to rock the same on its pivot, a lock-bolt movable across the plane and into engagement with said slide, and a tumbler for engaging and holding said lock-bolt, all arranged for joint operation, substantially as and for the purpose described.

590,614. COMBINED HAY AND STOCK RACK. JOHN P. HANSEN, Cedar Falls, Iowa. Filed Mar. 27, 1897. Serial No. 629,535. (No model.)



Claim.—1. In a combined hay and stock rack, the combination of a box or body, the rack sides permanently hinged to the sides of the box or body at points above the upper edges thereof and adapted to be arranged in a vertical or in an inclined position, and the oppositely-inclined transversely-disposed detachable braces crossing each other at the center of the box or body and resting against the upper edges of the sides thereof and having their lower ends interlocked with the opposite sides of the same at the bottom thereof, said braces being constructed separate from the rack sides and extending entirely across the same at the lower face thereof to form a continuous bearing or support, substantially as described.

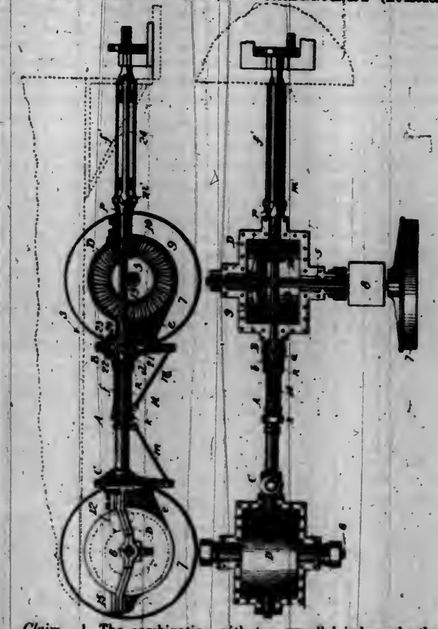
2. In a combined hay and stock rack, the combination with a box or body provided at its corners with standards, the hinged rack sides adapted to be arranged in a vertical or an inclined position, and means for supporting the same in such positions, of the front and rear end gates arranged between the standards, one of the end gates being composed of two sections hinged together and arranged one above the other, the lower section being adapted to swing upward to provide a passage for stock, said end gates being secured to the standards by the means employed for securing the rack sides in a vertical position, substantially as described.

590,615. STOCK-FOUNTAIN. JOHN W. HERRON, Cedar Rapids, Iowa. Filed May 27, 1896. Serial No. 593,290. (No model.)



Claim.—In a stock-fountain, a cylindrical reservoir having an exterior trough, openings communicating with such trough, and provided at one end with a set-in head forming a filling-basin and having an inlet-opening 4, a pair of oppositely-located clips 6 fitted to said head at opposite sides of the opening therein, a U-shaped yoke 5 arranged exterior to said head over the inlet-opening and secured at its extremities under said clips, a valve-plate 8 carrying a packing-disk and having an arm extension 7 pivoted at its extremity to one of said clips 6, and a set-screw 10 mounted in said yoke and adapted to impinge against the valve-plate when the same lies over the inlet-opening, substantially as set forth.

590,616. COUPLING DRIVING-SHAFTS. HENRY A. HOUSE, Bridgeport, Conn. Filed Mar. 19, 1895. Serial No. 542,404. (No model.)



Claim.—1. The combination with two parallel independently-movable shafts or axles, of gears thereon, an intermediate shaft in

section, gears on the sections engaging with the gears on the axles, couplings connecting the sections of the intermediate shaft whereby the said sections may be swung in an angular relation upon a horizontal plane, swinging bearings on which the couplings are supported and means for preventing the shaft-sections assuming angular relation with respect to each other in a vertical plane, substantially as described.

2. The combination of independently-movable shafts or axles, connected sectional shaft and gears, universal couplings, and casings swinging upon the axles inclosing the gears, and provided with boxes inclosing the couplings, an intermediate extensible tube inclosing the intermediate section of the sectional shaft and jointedly connected with the said boxes, substantially as set forth.

3. The combination with the independently-movable axles, sectional shaft and gears, of a casing D inclosing the gears of one axle and having bearings for one of the shaft-sections, an elongated box connected with the casing and receiving the end of said shaft-section and an extensible tube receiving the intermediate shaft-section, and having a terminal cylindrical end bearing fitting the interior of the box, substantially as set forth.

4. The combination with the casing D and coupled shaft-sections 13, 14, of a tube *f* having a cylindrical end bearing elongated vertically, and a box connected with the casing D and adapted to receive the said end bearing, substantially as set forth.

5. The combination with two parallel independently-movable shafts or axles, of gears thereon, an intermediate shaft in section, gears on the sections engaging with the gears on the axles, couplings connecting the sections of the intermediate shaft whereby the said sections may be swung in an angular relation upon a horizontal plane, swinging bearings on which the couplings are supported, means for preventing the shaft-sections assuming angular relation in a vertical plane with respect to each other, and means whereby elongation and contraction of the intermediate shaft is permitted, substantially as described.

6. A coupling for driving-shafts, comprising two or more movable shafts or axles, a sectional power-shaft connected with said shafts or axles to drive the same, couplings between the sections of the power-shaft whereby elongation and contraction of said shaft is permitted, swinging bearings for the power-shaft, a rigid closed casing surrounding the power-shaft, and devices connected to the casing and to the swinging bearings adapted to expand and contract to conform to the elongation and contraction of said shaft, all of the parts between the shafts or axles being arranged in the same plane, substantially as described.

7. The combination with two independently-movable shafts or axles, of bevel-gears thereon, an intermediate shaft in sections, bearings for said sections, pinions on the sections engaging the gears on the independently-movable shafts, universal couplings connecting the intermediate shaft-sections whereby elongation and contraction of said shaft is permitted, a rigid tube surrounding the intermediate shaft-sections and flexible connections between the tube and the section-bearings adapted to expand and contract to conform to the elongation and contraction of the said shaft, substantially as described.

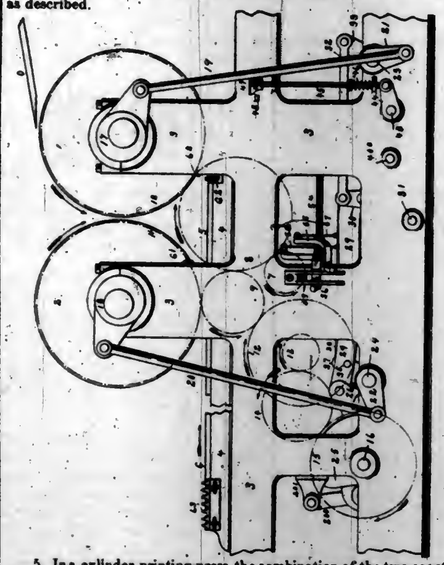
590,617. REGISTERING AND TRIPPING MECHANISM FOR PRINTING-PRESSES. WINFIELD S. HUSON, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, New York, N. Y. Filed Apr. 28, 1892. Serial No. 431,094. (No model.)

Claim.—1. In a cylinder printing-press, the combination of the two independently-driven coacting impression-cylinders, the gears of which do not mesh, each cylinder having a segment, which segments are adapted to mesh with each other, the meeting teeth of the segments being eased off, as described, the reciprocating form-bed carrying racks adapted to coact with the segments of the cylinders to form starting mechanisms, and means for suspending the vertical movement of either or both of the cylinders without affecting the mesh of the segments, substantially as described.

2. In a cylinder printing-press, the combination of two coacting impression cylinders having intermeshing registering segments thereon, means for raising and lowering the impression-cylinders, means whereby one cylinder may be suspended from printing or tripped, and held in this position, and means for tripping or untripping the vertical operation of the other cylinder, the segments being eased off, as described, whereby the segments may properly mesh in the various positions of the cylinders, substantially as described.

3. In a cylinder printing-press, the combination of two impression-cylinders, mechanism for raising and lowering said impression-cylinders, means for suspending or tripping the action of the raising and lowering mechanism, and means whereby when the raising and lowering mechanism is again set into operation, the same cylinder will always act first no matter at what period of operation the raising and lowering mechanism is thrown into operation, substantially as described.

4. In a cylinder printing-press, the combination of the first and the second impression-cylinders, means for alternately raising and lowering said cylinders, means for suspending or tripping the action of the raising and lowering mechanism of both cylinders, and means whereby when the raising and lowering mechanism is again thrown into operation, the same cylinder will always act first, substantially as described.



5. In a cylinder printing-press, the combination of the two coacting impression-cylinders, means for raising and lowering the same, operating mechanism for the same, consisting of a reciprocating bar for actuating the raising and lowering mechanism of one cylinder, a bar pivoted to said reciprocating bar for actuating the raising and lowering mechanism of the other impression-cylinder, a tripping mechanism arranged to act on said bars, and a connection as block 51 between the bars, arranged so that when the reciprocating bar is lifted, the bar pivoted thereto will also be lifted, substantially as described.

6. In a cylinder printing-press, the combination of the two coacting impression-cylinders, means for raising and lowering said cylinders, means for suspending the vertical movement of one cylinder without affecting the action of the other, and means whereby the same cylinder will always act first when both cylinders are again brought into operation, substantially as described.

7. In a perfecting double-cylinder printing-press, the combination of the two impression-cylinders 1 and 2, means for raising and lowering said impression-cylinders to give the impressions, a tripping mechanism adapted to suspend the action of either or both of said impression-cylinders, and connections whereby when the machine is started again in its operation, the first impression-cylinder to which sheets are fed will be first started in operation before the second impression-cylinder, substantially as described.

8. In a double-cylinder printing-machine, the combination of the two coacting impression-cylinders 1 and 2, means for raising and lowering the same, the connecting-bar 29, means for reciprocating the same, the connecting-bar 34 pivoted to the bar 29, connections from these bars to raise and lower the impression-cylinders, means for throwing either of the connecting-bars 29 or 34 out of operation, and a member as 40 arranged so that the same can be thrown into the path of the connecting-bars, so that the same will disconnect either or both bars, as they happen to be in operation, substantially as described.

9. In a double-cylinder printing-machine, the combination of the two coacting impression-cylinders 1 and 2, means for raising and lowering the same, the connecting-bars 29 and 34, means for reciprocating said bars, connections from said bars to the means for raising and lowering the impression-cylinders, and means, as block 51, for connecting and disconnecting said connecting-rods, so that they may act together or independently, substantially as described.

10. In a double-cylinder printing-machine, the combination of the two coacting impression-cylinders, means for raising and lowering the same, the two reciprocating connecting-bars, detachable connections between said bars, and the means for raising and lowering the impression-cylinders, and a member as 40 adapted to be interposed in the path of said bars to detach the same, said bars having a connection as block 51 arranged between the same, substantially as described.

11. In a double-cylinder printing-machine, the combination of the two coacting impression-cylinders, means for raising and lowering the same, the two connecting-bars 29 and 34, and detachable connections from the same to the means for raising and lowering the impression-cylinders, a block as 51 for connecting said connecting-bars, and a lever for raising one of said bars, and through the block 51 both of said bars, whereby both of said bars may be disconnected from the means to raise and lower the impression-cylinders, substantially as described.

590,618. DOUBLE COLLAR-BUTTON. HERVEY Z. KIMBALL, Brooklyn, N. Y. Filed Nov. 24, 1896. Serial No. 613,246. (No model.)



Claim.—1. In combination with the shank of a collar-button, a section of a disk secured thereto, and a similar section pivoted to the first-named disk, as and for the purpose described.

2. In combination with the shank of a collar-button, a section of a disk secured thereto, a similarly-formed section secured to the first-named disk and means for retaining the section last named in a closed position, as and for the purpose described.

3. In combination, a yoke A, a shank B projecting from the center thereof, a section C carried by said shank, a section E pivoted to the first-named section, and two buttons projecting from the ends of the yoke in an opposite direction from the shank B, as shown and described.

4. In a collar-button, a semicircular section of a disk secured to the end of the shank of said button, a similarly-formed section secured to one corner of the first-named section, a detent formed on one of said sections adapted to engage a depression in the other, as and for the purpose described.

5. In combination, a yoke, a shank projecting from the center thereof, a section of a disk carried by said shank, a similar section pivoted at one corner to the first-named section, a detent formed on one section adapted to engage a depression in the other, and two buttons projecting from the ends of the yoke on the opposite side from the shank, substantially as described.

590,619. WRENCH. JOHN W. LIND, Boston, Mass., assignor of one-half to John J. Morris, same place. Filed May 21, 1897. Serial No. 637,571. (No model.)



Claim.—The combination of a stationary jaw having its shank formed with slots, a movable jaw having pins projecting therefrom which are adapted to move within said slots, the stationary jaw formed with a series of teeth upon its edge, and a spring-rod secured at one end to the movable jaw and adapted to engage the teeth by the contraction of the hand of the operator, substantially as set forth.

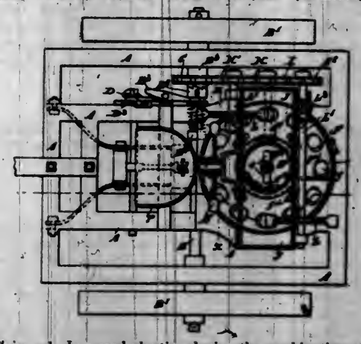
590,620. DISH-PAN. ALFRED F. MORGAN, Belding, Mich., assignor of one-half to Lenord G. Crothers, same place. Filed Jan. 21, 1897. Serial No. 620,108. (No model.)



Claim.—1. The combination with a dish-pan having a vertical transverse partition, of a removable pocket open at both ends and having a hook to loosely fit over the partition, and a spring-hook to fit over the edge and frictionally engage the outer surface of the dish-pan, substantially as described.

2. A dish-pan having a vertical transverse partition to provide separate washing and draining compartments, combined with a perforated concaved false bottom supported in the draining-compartment above its bottom, and a pocket open at both ends removably supported above the false bottom and cooperating therewith to support knives, forks, spoons, &c., in a vertical position to be rinsed and drained, substantially as described.

590,621. POTATO-PLANTER. MILLARD F. MYERS, Greenville, Ohio. Filed Sept. 30, 1896. Serial No. 607,432. (No model.)



Claim.—1. In a seed-planting device, the combination of a hopper, a disk rotated beneath the hopper and having seed-pockets therein, said disk being located so as to carry the seed-pockets outside the hopper before dropping the seed, with a brush-wheel mounted in a slot in the hopper-wall over the exit of the seed-pockets therefrom and so that it will revolve with its lower edge passing inwardly therein, substantially as described.

2. In a seed-planting device, the combination of a hopper, and a seed-delivering device consisting of a series of seed-pockets and means for moving them across the bottom of the hopper and beneath the wall thereof, said hopper having a slot in its side wall above the exit of the seed-pockets therefrom, with a brush-wheel mounted in said slot and revolving so that its under side passes inwardly close to the seed-pockets, substantially as described.

3. In a seed-planting device, the combination of a hopper, two disks adjustable by rotation on each other and provided with a series of seed-pockets having opposite portions of the walls thereof formed on each disk, said disks forming a portion of the bottom of the hopper and carrying the seed-pockets outside the same before dropping the seed, with a wheel having paddles or brushes on its periphery and mounted on the hopper-wall with its periphery above the point of exit of the seed-pockets therefrom, substantially as described.

4. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom, a central shaft therein carrying stirring-fingers, with a rotary disk having seed-pockets therein and being mounted upon the said shaft, and pocket-filling chambers supplied from said chute, substantially as shown and described.

5. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom and having a discharge-opening at the bottom, a central shaft therein carrying stirring-fingers, and pocket-filling chambers supplied from said chute, with a rotary disk mounted upon said shaft and forming the bottom of said pocket-filling chambers, said disk being composed of two plates adjustable upon each other and having a series of pockets therein having opposite portions of the walls thereof formed on each disk, substantially as shown and described.

6. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom, a discharge-opening at the bottom thereof, and a sliding gate to close the same, a central shaft therein carrying stirring-fingers, with a rotary disk having seed-pockets therein and being mounted upon the said shaft, and pocket-filling chambers supplied from said chute, substantially as shown and described.

7. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom and having a discharge-opening at the bottom, a central shaft therein carrying stirring-fingers, pocket-filling chambers supplied from said chute, with a rotary disk mounted upon said shaft and forming the bottom of said pocket-filling chambers, said disk having seed-pockets therein, and rotating paddle or brush wheels mounted to turn into said pocket-filling chambers and over the said pockets, substantially as shown and described.

8. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom and having a discharge-opening at the bottom, a central shaft therein carrying stirring-fingers, pocket-filling chambers supplied from said chute, with a rotary disk mounted upon said shaft and forming the bottom of said pocket-filling chambers, a bevel-gear upon the said shaft, a bevel-pinion meshing therewith, and a sprocket-wheel upon the same shaft as the bevel-pinion, and a sprocket-chain connecting the same with the machine-supporting axle, substantially as shown and described.

9. In a seed-planter, the combination of a hopper, a circular feed-chute leading therefrom and having a discharge-opening at the bottom, a central shaft therein carrying stirring-fingers, pocket-filling chambers supplied from said chute, with a rotary disk mounted upon said shaft and forming the bottom of said pocket-filling chambers, paddle or brush wheels mounted to rotate inward over the exits of the seed-pockets from the filling-chambers, a bevel-gear connection from the shaft of the seed-dropping disk to a horizontal shaft, sprocket-wheels upon said shaft and upon the paddle-wheel shafts and a chain connecting the same with the machine-supporting axle, substantially as shown and described.

590,622. SAFETY-PIN. EDWARD MCCONNELL, Richmond, Va., assignor to Simond Kaufman and Morris P. Pheiser, New York, N. Y. Filed Jan. 30, 1897. Serial No. 621,314. (No model.)



Claim.—1. A safety-pin composed of a single wire substantially as described, having its guard-coil tapered outwardly and a body-coil having its outer end also tapered outwardly, and the pin springing from the smallest end of the body-coil and bent backwardly toward the guard-coil, all substantially as and for the purposes described.

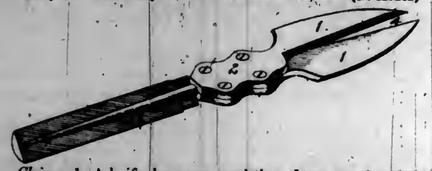
2. As an improved article of manufacture, a safety-pin constructed of a single piece of wire, this wire being formed into a spring guard-coil at one end, said guard-coil being tapered outwardly substantially as described, the wire being also formed into a long spring body-coil of less diameter than the larger end of guard-coil and setting up close against the larger end of the guard-coil whereby a crescent-shaped opening for the engagement of the point of the securing-pin is formed; the outer end of said body-coil being tapered substantially as described, and the securing-pin springing from the smallest end of the body-coil, all substantially as and for the purpose set forth.

590,628. SWAP-HOOK. HAKAN OLSON, Soperville, Ill., assignor of one-half to Nels Petter Carlson, same place. Filed Sept. 15, 1896. Serial No. 605,937. (No model.)



Claim.—The combination with the triangular-shaped plate having its sides turned inwardly, forming flanges, and the end of said plate turned or curved upwardly and slotted forming two lugs, of the catch pivotally connected with said lugs formed with a shoulder at the inner end, the spring secured to said plate with its free end bearing on said shoulder, the tapering strap, the triangular-shaped strengthening-plate, the tubular rivet of soft metal passing through said strap and plates and the washers, substantially as described.

590,624. KNIFE-SHARPENER. JOSEPH PAQUET, Poughkeepsie, N. Y., assignor of two-thirds to Charles Valentine and Charles Guth, same place. Filed May 10, 1897. Serial No. 635,912. (No model.)



Claim.—1. A knife-sharpener consisting of two tapering blades, each of which is beveled on one side to form a knife-edge, and each of which is provided at its rear end with an enlarged plate portion integral therewith and from the central longitudinal line of which the knife-edge of the blade extends at an obtuse angle, and means to secure the plate portions firmly together with the flat side of the blades opposing each other, and with their knife-edges diverging toward the front end of the sharpener, substantially as described.

2. A knife-sharpener consisting of two blades, the knife-edges of which cross each other, and each blade having an integral plate portion at its rear end, each of said plate portions having a groove in its inner face, which grooves are adapted to register to form a shank-receiving socket, and one of said plate portions having a series of threaded openings and the other a similar series of countersunk openings which register with the said threaded openings, screws secured in said openings to clamp the plate portions together, and a shank clamped in said socket, substantially as described.

3. A knife-sharpener consisting of two tapering blades each of which is beveled on one side to form a knife-edge, and each of which is provided at its rear end with an enlarged plate portion integral therewith, and from the central longitudinal line of which the knife-edge of the blade extends at an obtuse angle, each plate portion having a groove extending centrally and longitudinally thereof on its inner face, said grooves, when registered, forming a shank-receiving socket, and means to secure the plate portions firmly together with the flat side of the blades opposing each other and with the shank clamped in its socket, substantially as described.

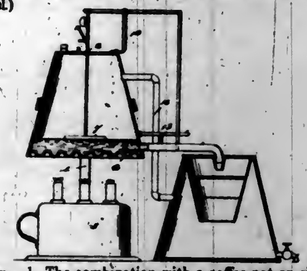
4. A knife-sharpener consisting of two blades the knife-edges of which cross each other each blade having an integral plate portion at its rear end, each of said plate portions having a groove in its inner face, which grooves are adapted to register to form a shank-receiving socket, and means to clamp the plate portions together with the shank between them, substantially as described.

590,625. FRACTURE APPARATUS. NAZARETH PAQUETTE, Petersburg, Mich. Filed Jan. 26, 1897. Serial No. 620,761. (No model.)



Claim.—In a device of the class described, the combination of two parallel rods each consisting of a series of detachable and longitudinally adjustable sections, a cross-bar connecting the opposite sections of the rods at one end, a strap connecting the adjoining sections of the rods at the opposite ends, a pad consisting of a socket-piece detachably connected with the terminal sections of one of said rods, and a removable curved plate secured thereto and provided with padding, a winding-drum adjoining the connecting cross-bar and provided with a pin or projection, an attaching-strap for engagement with the limb provided with openings adapted to be engaged by said pin, and a series of straps provided with pads for holding the limb in position, said straps being adapted for attachment thereto by means of the attaching devices which adjustably connect the sections of the two parallel rods of the device together, substantially as described.

590,626. COFFEE-POT AND BOILER APPLIANCE. FORESTER PARDO, Plaquemine, La. Filed Mar. 16, 1897. Serial No. 627,773. (No model.)



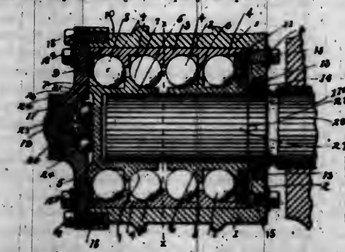
Claim.—1. The combination with a coffee-pot or similar receptacle, of a boiler connected to the upper end thereof by a valve pipe or spout, a lamp or heating device located below the boiler, a float located within said boiler and connected to the valve by interposed levers and rods, and a pipe connecting the upper end of the boiler to the upper end of the pot, substantially as shown and for the purpose set forth.

2. The combination with a drip-coffee pot or similar receptacle, of a boiler connected thereto by a valved pipe or spout, a float located within the boiler and connected to the valve by the intervention of levers and rods, the connection at one point providing an elongated slot, a bell attached to one of the connecting-rods and operated when the float reaches the limit of its downward movement, and a steam-outlet pipe extending from the boiler and communicating with the coffee-pot, substantially as shown and for the purpose set forth.

590,627. BALL-BEARING. THOMAS J. REID, Washington Court-House, Ohio. Filed Aug. 14, 1896. Serial No. 602,737. (No model.)

Claim.—1. In a ball-bearing journal-box the combination with the external boxing-case, an internal casing therein, raceways in said internal casing, a spindle, a sleeve surrounding said spindle and ball-races in said sleeve, of a cap-plate 16 on the outer end of said boxing, a central adjusting-screw 19 threaded therein, a screw 20 threaded in said screw 19, a cone bearing-ring about said screw 20, a bearing-disk 21 and balls 24 between said disk and bearing-ring, said disk having a contact with the outer end of said sleeve, substantially as and for the purpose specified.

2. In a ball-bearing journal-box the combination with an external casing, an internal casing having raceways therein, a sleeve, and raceways in said sleeve and balls in said raceways, of an outer end cap 16, rings 9 and 11 connected with the end portions of said internal casing and set-screws 18 and 15 having an adjustable bearing against said rings 9 and 11 and against the ends of said internal casing, substantially as and for the purpose specified.



3. In a ball-bearing journal-box the combination with the external casing, an internal casing connected therewith, said internal casing having ball-raceways formed at intervals therein, of a sleeve having ball-raceways in its periphery, said casing and sleeve-raceways having ball-bearing surfaces arranged diagonally opposite each other, balls within said raceways, and retaining-rings having as described threaded engagements with the ends of the ball-cage, substantially as and for the purpose specified.

4. In a ball-bearing journal-box the combination with the external casing 1, inner casing 3 and ball-races in said inner casing, ball-bearing surfaces in said races on those sides thereof which are toward the center of the length of the boxing, of separated sleeve-sections 5 and 6, ball-bearing races therein, bearing-surfaces in said races diagonally opposite the bearing-surfaces in said inner casing, retaining-rings detachably connected with the ends of the internal casing, a cap on the outer end of the boxing and set-screws adjustably supported in said cap and the inner end of the boxing, said set-screws having their inner ends bearing against said retaining-rings, substantially as and for the purpose specified.

590,628. NUT-LOCK. WALTER J. REYNOLDS, Davisville, R. I. Filed Apr. 10, 1896. Serial No. 587,042. (No model.)



Claim.—A nut-lock comprising a stationary unyielding locking-plate having its entire inner face flat, and designed to fit solidly against a fish-plate or similar supporting-surface, and provided with a bolt-receiving opening, and a series of solid unyielding lugs projecting outwardly from the locking-plate and arranged around the bolt-receiving opening to form a nut-receiving socket, the projections being triangular in side elevation to provide reversely-arranged and long gradual bevels on the upper surface of the projections, and oblong in plan view with straight inner faces extending upwardly at a right angle to the face of the plate, and the inner faces of the oppositely-arranged projections being parallel to each other, whereby a nut may be forced by a wrench over the inclined upper surface of the projections in either direction but will lock against accidental displacement by the engagement of the parallel straight inner edges of the opposite projections with the opposite sides of the nut, substantially as described.

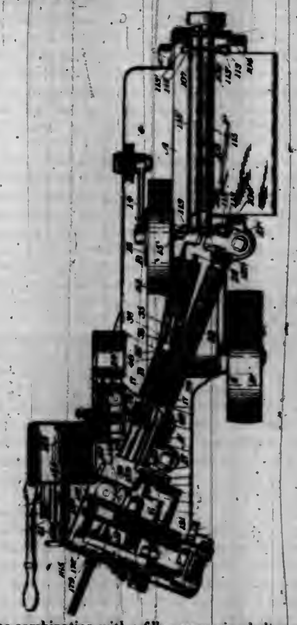
590,629. CIGARETTE-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 5, 1896. Serial No. 604,992. (No model.)

Claim.—1. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; and means for moving one of said rolls toward and from the other.

2. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; and means for moving one of said rolls toward and from the other, substantially in parallelism with the belt.

3. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls in opposite directions; and means for moving one of said rolls toward and from the other.

4. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; and means for moving said rolls toward and from each other.



5. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt and disposed in the line of movement thereof; means for rotating said rolls; and means for moving said rolls toward and from each other.

6. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; and means for oscillating said rolls toward and from each other.

7. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; means for moving said rolls toward and from each other; and filler-feeding means above said rolls for delivering loose filler material between the rolls and onto the belt.

8. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of coacting rolls coöperative with said belt; means for rotating said rolls; means for moving said rolls toward and from each other; and an inclined feed-board above said rolls, for delivering loose filler material between the rolls and onto the belt.

9. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of rotary rolls coöperative with said belt; a pair of meshing pinions secured, respectively, to said respective rolls; a spring between said rolls, for holding the latter separated; and a cam-wheel for moving said rolls simultaneously toward each other.

10. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of rotary rolls coöperative with said belt; a pair of meshing pinions secured, respectively, to said respective rolls; a pair of rock-arms carrying said rolls; an idle-gear mounted on one of said rock-arms concentric with the axis thereof and meshing with the pinion on the roll carried by said rock-arm; a spring between said rock-arms, for holding said rolls separated; a cam-wheel between said rock-arms, for simultaneously moving said rolls toward each other; and a pinion concentric with said cam-wheel and in mesh with said idle-gear.

11. The combination with a filler-conveying belt movable lengthwise of the rolls, of a pair of rotary rolls coöperative with said belt; a pair of meshing gears secured, respectively, to said respective rolls; a cam-shaft operative with said rolls; a pair of cam-wheels at opposite ends, respectively, of said cam-shaft, for simultaneously moving said rolls toward each other; springs between said rolls at opposite ends thereof, for holding the rolls separated; and driving connections between the cam-shaft and one of said pinions.

12. The combination, with means for shaping and wrapping a continuous filler-rod, said means including separate filler-conveying and wrapper-conveying belts, of means for advancing the filler-con-

veying belt at a high rate, and the wrapper-conveying belt at a lower rate, of speed.

13. The combination, with means for shaping and wrapping a continuous filler-rod, said means including a filler-conveying and a separate wrapper-conveying belt having its carrying-surface below that of the filler-conveying belt; of means for actuating said belts.

14. The combination, with means for shaping and wrapping a continuous filler-rod, said means including a filler-conveying and a separate wrapper-conveying belt having its carrying-run parallel to, and in juxtaposition with, the filler-conveying belt and having its carrying-surface below that of the latter belt; of means for actuating said belts.

15. The combination, with means for shaping and spirally wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having transverse openings and wrapper-winding means coöperative with said belt and adapted to wind the wrapper spirally around the filler-rod and located over the belt in the rear of the point at which the winding is effected, of an exhaust apparatus coöperative with the wrapper-carrying portion of said belt at a point immediately in the rear of that at which the wrapper begins to wind around the filler-rod and adapted to maintain the wrapper in engagement with the belt.

16. The combination, with means for shaping and spirally wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having a circuit of transverse openings therethrough and wrapper-winding means coöperative with said belt and adapted to wind the wrapper spirally around the filler-rod and located over the belt in the rear of the point at which the winding is effected, of an exhaust apparatus coöperative with the upper run of the belt at a point immediately in the rear of that at which the wrapper begins to wind around the filler-rod and adapted to maintain the wrapper in engagement with said run.

17. The combination, with wrapper-carrying means, of means for shaping and spirally wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having a plurality of circuits of perforations and wrapper-winding means coöperative with said belt and adapted to wind the wrapper spirally around the filler-rod and located over the belt in the rear of the point at which the winding is effected; and an exhaust apparatus coöperative with the upper run of the belt at a point immediately in the rear of that at which the wrapper begins to wind around the filler-rod and adapted to maintain the wrapper in engagement with said run.

18. The combination, with means for shaping and wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having transverse openings therethrough; of a gravitating wrapper-reel and an exhaust apparatus, both coöperative with the upper run of the belt and adapted, respectively, to press and to draw the wrapper against the upper run of the belt to maintain the wrapper in engagement with said run.

19. The combination, with wrapper-carrying means, of means for shaping and spirally wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having transverse openings therethrough and wrapper-winding means coöperative with said belt and adapted to wind the wrapper spirally around the filler-rod and located over the belt in the rear of the point at which the winding is effected; and a suction-box supporting the upper run of the belt and having openings communicating with those in said belt at a point immediately in the rear of that at which the wrapper begins to wind around the filler-rod, for maintaining the wrapper in engagement with said run.

20. The combination, with wrapper-carrying means, of means for shaping and spirally wrapping a continuous filler-rod, said means including an endless wrapper-conveying belt having transverse openings therethrough and wrapper-winding means coöperative with said belt and adapted to wind the wrapper spirally around the filler-rod and located over the belt in the rear of the point at which the winding is effected; and a suction box supporting the upper run of the belt and having guides for preventing lateral movement of said run and also having openings communicating with those in said belt at a point immediately in the rear of that at which the wrapper begins to wind around the filler-rod, for maintaining the wrapper in engagement with said run.

21. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of former-rolls disposed obliquely to said belts; wrapper-feeding means; and a wrapper-guide between said rolls and belts and disposed obliquely across said belts.

22. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of former-rolls disposed obliquely to said belts; wrapper-feeding means; and a wrapper-guide between said rolls and belts and disposed obliquely across said belts and having its receiving end located substantially at the point where the wrapper is applied to the filler.

23. The combination with a wrapper-conveying belt, of a filler-conveying belt having its carrying-run in juxtaposition with the carrying-run of the wrapper-conveying belt and also having the end of its carrying-run in the rear of that of the wrapper-conveying belt; former-rolls disposed obliquely to said belts; wrapper-feeding means; and a wrapper-guide between said rolls and belts and disposed obliquely across said belts at the end of the carrying-run of the filler-conveying belt.

24. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of former-rolls disposed obliquely to said belts; filler-feeding means; and a filler-shaper between said rolls and belts and disposed obliquely across said belts.

25. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of former-rolls disposed obliquely to said belts; wrapper-feeding means; and a combined filler-shaper and wrapper-guide between said rolls and belts and disposed obliquely across said belts.

26. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of former-rolls disposed obliquely to said belts; wrapper-feeding means; and a combined filler-shaper and wrapper-guide between said rolls and belts and disposed obliquely across said belts and having a receiving edge in contact with said belts and a curved shaper extending from said receiving edge to one of the former-rolls.

27. The combination, with a filler-conveying belt movable lengthwise of the former-rolls, of a former device coöperative with said belt and embodying a carrier and a pair of coacting rotary former-rolls mounted on said carrier, one of which rolls is shiftable toward and from said belt.

28. The combination, with a filler-conveying belt movable lengthwise of the former-rolls, of an oscillatory former device coöperative with said belt and embodying a carrier and a pair of coacting rotary former-rolls mounted on said carrier, one of which rolls is oscillatory toward and from said belt.

29. The combination, with a filler-conveying belt movable lengthwise of the former-rolls, of an oscillatory former device coöperative with said belt and embodying a carrier and a pair of coacting rotary former-rolls mounted on said carrier, one of which rolls is oscillatory toward and from said belt, and the other of which rolls has its axis coincident with the axis of oscillation of the former device.

30. The combination, with a filler-conveying belt movable lengthwise of the former-rolls, of a former device coöperative with said belt and embodying a carrier and a pair of coacting rotary former-rolls mounted on said carrier, one of which rolls is shiftable toward and from said belt; and a catch for holding said shiftable roll in its working position.

31. The combination, with a filler-conveying belt movable lengthwise of the former-rolls, of a former device coöperative with said belt and embodying a carrier and a pair of coacting rotary former-rolls mounted on said carrier, one of which rolls is shiftable toward and from said belt; and a pair of catches at opposite ends of said shiftable former-rolls, for holding the latter in its working position.

32. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and a presser device between said rolls and the belt and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

33. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and a presser-roll between said former-rolls and the belt and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

34. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and a presser-roll between said former-rolls and the belt and having a flared end adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

35. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and a presser device between said rolls and the belt and movable toward and from one of said rolls and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

36. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and a vibratory presser device between said rolls and the belt and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

37. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt, one of said rolls having a reduced portion forming an opening between the rolls; and a vibratory presser device working in said opening and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

38. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt, one of said rolls having a reduced portion forming an opening between the rolls; a rock-arm working in said opening; and a presser-roll carried by said rock-arm between the former-rolls and the belt and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler.

39. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt, one of said rolls having a reduced portion forming an opening between the rolls; a presser device working in said opening and adapted to press the inner edge of the wrapper against the filler during the winding of the wrapper around the filler; and a cam-wheel and spring for vibrating said presser device toward and from one of the former-rolls.

40. The combination with an endless belt, of filler-feeding means; wrapper-feeding means; coacting former-rolls disposed obliquely to the belt; and paste-applying means having a discharge-nozzle substantially at the meeting-point of the edges of the wrapper.

41. The combination with a wrapper-conveying belt, of filler-feeding means; wrapper-feeding means; a paste-reservoir; and paste-feeding mechanism yieldingly connected with said paste-reservoir and having a discharge-nozzle for applying paste to the outer edge of the wrapper.

42. The combination with a wrapper-conveying belt of filler-feeding means; wrapper-feeding means; a paste-reservoir; and paste-feeding mechanism yieldingly connected with said paste-reservoir and adjustable toward and from the wrapper to bring its discharge-nozzle into position for applying paste to the outer edge of said wrapper.

43. The combination, with a wrapper-feeding belt, of filler-feeding means; wrapper-feeding means; paste-feeding mechanism embodying a discharge-nozzle, for applying paste to the outer edge of the wrapper, and a rotary toothed feeder immersed in the paste and operative for forcing the paste through said discharge-nozzle; a driver for said feeder; and means for coupling and uncoupling said feeder and driver.

44. The combination, with a wrapper-feeding belt, of filler-feeding means; wrapper-feeding means; a paste-reservoir; paste-feeding mechanism embodying a discharge-nozzle, for applying paste to the outer edge of the wrapper, and a rotary toothed feeder immersed in the paste and operative for forcing the paste through said discharge-nozzle; a driver mounted on said feeder; and a coupling member splined on said feeder and shiftable into and out of engagement with the driver.

45. The combination with a plurality of former-rolls divergent from a determined point in one direction and parallel from said point in the opposite direction, of filler-feeding means; wrapper-feeding means; and filler-conveying and wrapper-conveying belts having their carrying-runs side by side, the former running obliquely beneath the divergent rolls and the latter obliquely beneath the parallel rolls.

46. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of filler-feeding means; wrapper-feeding means; a former-roll extending obliquely across both of said belts; a second former-roll extending across the wrapper-conveying belt only, in parallelism with said first-mentioned roll; and a third former-roll extending from the receiving end of the second roll across the filler-conveying belt obliquely to the first-mentioned roll.

47. The combination with an oscillatory former device embodying a plurality of former-rolls divergent from a determined point in one direction and parallel from said point in the opposite direction, of filler-feeding means; wrapper-feeding means; and filler-conveying and wrapper-conveying belts having their carrying-runs side by side, the former running obliquely beneath the divergent rolls and the latter obliquely beneath the parallel rolls.

48. The combination with an endless belt, of filler-feeding means; and coacting, longitudinally-grooved rotary former-rolls coöperating with said belt, and disposed obliquely thereto.

49. The combination with filler-conveying and wrapper-conveying belts having their carrying-runs side by side, of a main driver carrying said filler-conveying belt; a driven shaft carrying the wrapper-conveying belt; a reducing-gear train between said driver and the driven shaft, for advancing the wrapper-conveying belt at a slower speed than the filler-conveying belt; a second driven shaft having its axis parallel with those of the driver and the first driven shaft; reducing-gearing between said driven shafts; a pair of worm-gears on the second driven shaft; a pair of coacting former-rolls disposed obliquely to the belts and coöperative therewith; and worm-gears carried by said former-rolls and meshing with the worm-gears on the second shaft, for rotating said former-rolls in the same direction.

50. The combination with filler-feeding and wrapper-feeding means, of filler-forming and wrapper-applying means coöperative therewith for forming a continuous cigarette and rotating the same at a determined rate of speed; and winding mechanism for receiving the finished continuous cigarette and accelerating the rotation thereof.

51. The combination with filler-feeding and wrapper-feeding means, of filler-forming and wrapper-applying means coöperative therewith for forming a continuous cigarette and advancing the same at a determined rate of speed; and actuating means for receiving the finished continuous cigarette and accelerating the advance thereof.

52. The combination with filler-feeding and wrapper-feeding means, of filler-forming and wrapper-applying means coöperative therewith for forming a continuous cigarette and rotating and advancing the same at determined rates of speed; and winding mechanism for receiving the finished continuous cigarette and accelerating the rotation and the advance thereof.

53. The combination with filler-feeding and wrapper-feeding means, of filler-forming and wrapper-applying means coöperative therewith for forming a continuous cigarette and advancing the same at a determined rate of speed; and a plurality of rotary feed rolls surrounding and engaging the finished continuous cigarette, and operative for accelerating the advance thereof.

54. The combination with filler-feeding and wrapper-feeding means, of filler-forming and wrapper-applying means coöperative therewith for forming a continuous cigarette and rotating and advancing the same at determined rates of speed; and orbitally-revoluble rotary feed-rolls surrounding and engaging the finished continuous cigarette, for accelerating the rotation and the advance thereof.

55. The combination with filler-feeding and wrapper-feeding means, of a former device coöperative therewith for forming a continuous cigarette and rotating the same at a determined rate of speed; a rotary carrier encircling the finished continuous cigarette; feed-rolls supported on said carrier and surrounding and engaging the continuous cigarette; and a gear-train connecting the rotary carrier with the former device, for revolving the feed-rolls to accelerate the rotation of the continuous cigarette.

56. The combination with filler-feeding and wrapper-feeding means, of a former device coöperative therewith for forming a continuous cigarette and rotating and advancing the same at determined rates of speed; a rotary carrier encircling the finished continuous cigarette; feed-rolls supported on said carrier and surrounding and engaging the continuous cigarette; and a gear-train connecting the rotary carrier and the feed-rolls with the former device, for revolving and rotating said feed-rolls to accelerate the rotation and the advance of the continuous cigarette.

57. The combination with filler-feeding and wrapper-feeding means, of a former device coöperating therewith for forming a continuous cigarette and rotating and advancing the same at determined rates of speed; a rotary carrier encircling the finished cigarette; a spiral crown-gear concentric with said rotary carrier; feed-rolls supported on said carrier and surrounding and engaging the continuous cigarette; pinions carried by said rolls and in mesh with said crown-gear; and a gear-train connecting the crown-gear and the rotary carrier with the former device, for rotating said crown-gear at a slower rate of speed than the rotary carrier and for revolving and rotating the feed rolls to accelerate the rotation and the advance of the continuous cigarette.

58. The combination with filler-feeding and wrapper-feeding means, of a former device coöperative therewith for forming a continuous cigarette and rotating and advancing the same at determined rates of speed; a rotary carrier encircling the finished continuous cigarette; a spiral crown-gear concentric with, and supported by, the rotary carrier; feed-rolls supported on said carrier and surrounding and engaging the continuous cigarette; pinions carried by said rolls and in mesh with said crown-gear; and a gear-train connecting the crown-gear and the rotary carrier with the former device, for rotating said crown-gear at a slower rate of speed than the rotary carrier and for revolving and rotating the feed-rolls to accelerate the rotation and the advance of the continuous cigarette.

590,630. APPARATUS FOR CRISPING OR FOLDING CLOTH.

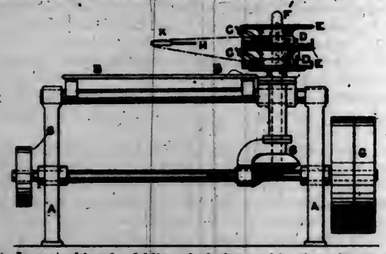
HUGH R. ROSS, Belfast, Ireland. Filed Oct. 23, 1896. Serial No. 609,849. (No model.)

Claim.—1. A machine for crisping or folding cloth longitudinally, comprising two endless clip-chains of tentering-clips, placed upon the same axis or axial plane, each engaging one selvage of the cloth, and coöperating to lay the two selvages together, substantially as described.

2. A machine for crisping or folding cloth longitudinally comprising two endless chains of clips arranged on the same axis, each to engage one selvage of the cloth, and lay one selvage upon the other, a pivoted lever to enter between the folds of the cloth and straighten out the two plies as they fold together, and rollers to deliver the cloth in a folded state, substantially as described.

3. In a machine for folding cloth longitudinally the combination with a pivoted horizontal lever H to straighten out the folds of the

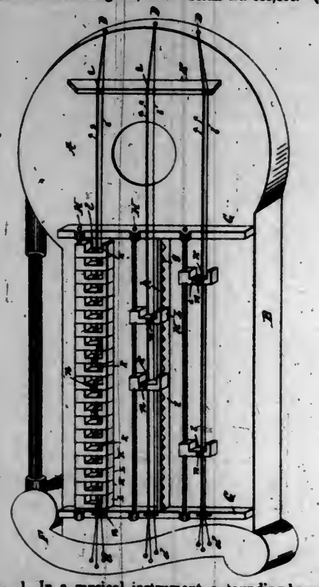
cloth, a spring M to hold the free end of the pivoted lever H pressed against the cloth, and rollers P by which the cloth is delivered from the machine, of two sets of tentering-clips placed at the same side of the machine one above the other, each to engage one selvage of the cloth and draw them together, substantially as described.



4. In a machine for folding cloth the combination of two sets of tentering-clips working from the same vertical axis in two horizontal planes to receive and lay the edges of the cloth together, the vertical spindles F F' and the disks D and E which support the chain of clips C, the horizontal pivoted lever H which passes into the fold of the cloth and stretches it out, the curved piece K on the side of the lever H which bears against the cloth the spring M which holds the free end of the lever in position the movable adjustable bracket N upon which the lever H is pivoted the guide-arm O the table B and the rollers P which draw the folded cloth forward substantially as described.

5. In a machine for folding cloth longitudinally the combination with two sets of tentering-clips placed at one side of the machine to lay the selvages together, a pivoted horizontal lever to stretch the cloth and a pair of rollers to draw the cloth forward of two radial brackets T T' pivoted upon a pillar U to support the beam of cloth S, the pillar U, the journals *s* and the adjusting-screw *t'* substantially as described and shown.

590,631. MUSICAL INSTRUMENT. WILLIAM SCHNEIDER, Dubuque, Iowa. Filed Aug. 25, 1896. Serial No. 603,890. (No model.)

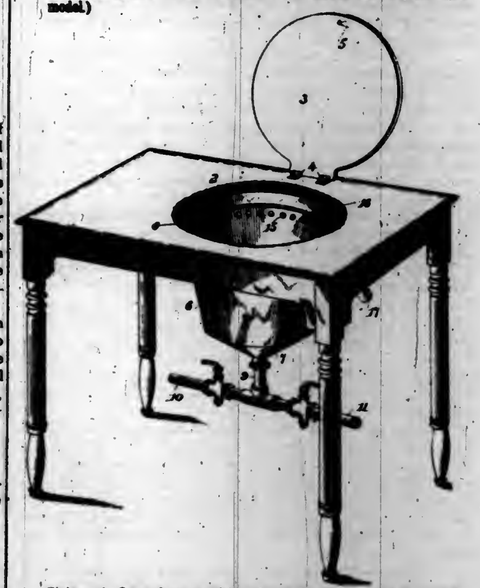


Claim.—1. In a musical instrument, a sounding-board, strings stretched above it, rods extending parallel with the strings, and keys pivoted upon said rods, combined with rests for the free ends of the keys, and which rests extend parallel with the strings and rods, and are provided with notches, and a flexible upper surface for holding the keys normally out of contact with the strings, substantially as described.

2. A musical instrument provided with groups of parallel strings, two sets of pivoted keys for each group of strings to operate in connection therewith, and rods on which the said keys are pivoted, combined with notched rests for the free ends of the keys, rubber covers which are stretched above said rests and support the free ends of the keys normally above the strings, the two sets of keys being notched in their lower edges where they span the strings, substantially as set forth.

3. A musical instrument consisting of a sounding-board strings *a*, and *b*, keys K, and L, pivoted to said sounding-board, said keys having recesses *k*, rest I, with notches *g*, and rubber *h*, as and for the purposes shown.

590,682. PHOTOGRAPHIC-PRINT WASHER. FRANK SHURR, Huntingburg, Ind. Filed Feb. 19, 1896. Serial No. 579,909. (No model.)



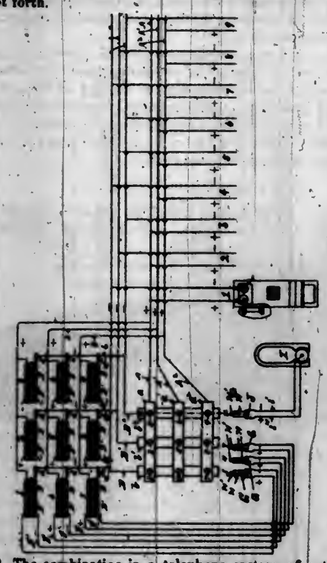
Claim.—1. In a photographic print and negative washer, a wash vessel having an overflow connection at the top and provided with a dished conical bottom having a combined water-supply and drain pipe connection at its apex, and a downwardly-dished false bottom fitted within the vessel above the main bottom thereof and provided with a multiplicity of jet-openings whose sides are disposed at an angle to the vertical center of the vessel, the central one of said openings being larger than the other of said openings, substantially as set forth.

2. In a photographic print and negative washer, a wash vessel provided near its upper edge with an annular series of overflow-openings and with a downwardly-dished conical bottom having a combined water-supply and drain pipe connection at its apex, a downwardly-dished false bottom fitted within the vessel above the main bottom thereof and provided with a multiplicity of jet-openings and with a downwardly-convergent series of radially-disposed reinforce-ribs, and an annular gutter-rim fitted exteriorly on the wash vessel near its upper edge to receive the overflow from said overflow-openings, substantially as set forth.

3. In a photographic print and negative washer, a wash vessel having a water-inlet opening at the bottom and an overflow connection at the top, and a false bottom arranged within the vessel above the water-inlet opening and provided with a multiplicity of jet-openings and a converging series of radially-disposed reinforce-ribs, substantially as set forth.

590,683. TELEPHONE SYSTEM AND TELEPHONE-EXCHANGE MECHANISM. HARLEY P. SNOW, Erie, Pa. Filed Sept. 19, 1896. Serial No. 606,235. (No model.)

Claim.—1. The combination in a telephone system, of a telephone-exchange switchboard, a series of two or more outgoing line-wires, each of which is connected with an insulated bar on the switchboard, a like series of two or more return line-wires, located substantially parallel to said series of outgoing line-wires, each connected with another insulated bar on said switchboard, a series of branch wires from each outgoing line-wire, each of which connects said line-wire with a telephone-station, and a like series of branch wires from each return line-wire, each of which connects with one of the series of telephone-stations installed on said lines, substantially as set forth.



2. The combination in a telephone system, of a telephone-exchange switchboard, a series of two or more outgoing line-wires, each of which is connected with an insulated bar on said switchboard, a series of like number of return line-wires, each of which is connected with one of another series of insulated bars on said switchboard, a series of induction-coils equal in number to the multiple of the outgoing and return line-wires, a series of which coils corresponding in number with the number of outgoing line-wires, being connected with each outgoing line-wire, and a series of said coils like in number being connected with each return line-wire, substantially as and for the purpose set forth.

3. In a telephone system, the combination of an exchange-switchboard, a series of outgoing line-wires, a series of return line-wires, each outgoing line-wire being paired with each of the return line-wires so as to form a circuit therewith, a series of induction-coils, one in circuit with each of said pairs of wires, and a switch-plug connected with the secondary of each of said induction-coils, substantially as and for the purpose set forth.

4. The combination in a telephone system, comprising exchange-switchboard mechanism, of a series of outgoing line-wires and a series of return line-wires, a series of telephone stations connected from said outgoing to said return line-wires, a series of induction-coils, the primary coils of which are connected in groups with each outgoing line-wire and in other groups with each return line-wire, switch mechanism by means whereof said primary coils may be cut out of circuit with the outgoing or return line-wires when desired, and connecting-wires from the secondary coil of each of said induction-coils to a switchboard-plug, adapted to connect two bars on the switchboard and the outgoing and return line-wires connected therewith in circuit with the secondary coil of the induction-coil connected with such switchboard-plug, substantially as and for the purpose set forth.

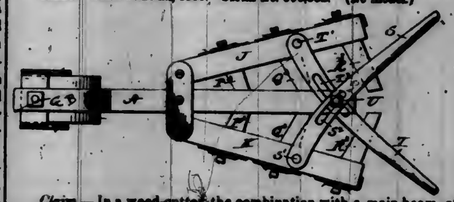
5. In a telephone-exchange mechanism, the combination of a switchboard comprising insulated bars adapted to connect outgoing and return line-wires in circuit, a series of outgoing main line wires, a series of return line-wires each of which is so connected with each outgoing line-wire so as to form a circuit therewith, a series of induction-coils equal in number to the multiple of the outgoing and return line-wires, connections between each outgoing main line-wire and a number of said induction-coils equal to the number of outgoing main line-wires, and a like connection between each return line-wire and a like number of said induction-coils as are connected with each outgoing line-wire, switch-plugs adapted to complete circuits between the outgoing and return line-wires of the system through the switchboard-bars, and connections between said plugs and the secondary of each induction-coil, substantially as and for the purpose set forth.

6. The combination in a telephone system, of a telephone-exchange switchboard, a series of outgoing line-wires connected with insulated bars thereon, and a series of return line-wires connected with other insulated bars thereon, a series of branch wires from each outgoing line-wire, each of which connects with a telephone-station, a series of branch wires from each return line-wire, each of which connects with one of said telephone-stations, a branch wire from each of said outgoing line-wires connecting with the primary coils of a series of induction-coils, a branch wire from each of said return-wires connecting with the primary coils of a series of the same induction-coils, connecting-wires from the secondary coils of each of said induction-coils to switchboard-plugs, substantially as and for the purpose set forth.

7. The combination in a telephone-exchange system, of a switch-board, a number of insulated bars thereon, a like number of outgoing line-wires, each connected with one of said insulated bars, a like number of induction-coils, one of which is connected with each outgoing line-wire, a like number of other insulated bars on said switchboard, a like number of return line-wires, each of which connects with one of said insulated bars and also with one of said induction-coils, switches adapted to cut said induction-coils out of circuit, conductors from the secondary coil of each of said induction-coils, and a switch-plug on each of said conductors adapted to connect two of the switchboard-bars in circuit with such secondary coil, substantially as and for the purpose set forth.

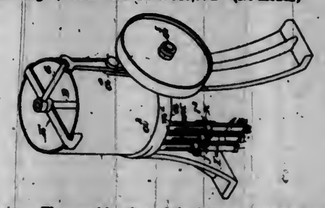
8. The combination in a telephone-switchboard mechanism, of a series of bars insulated from each other adapted to be connected to outgoing line-wires, a series of bars crossing said first-named bars and insulated therefrom and from each other adapted to be connected with return line-wires, induction-coils connected with said outgoing and return line-wires, switch-plugs connecting with the secondary coils of said induction-coils adapted to be inserted in said switch-plug openings, whereby any one of said outgoing and any one of said return line-wires may be connected in circuit through said switchboard-bars with the secondary coil of any one of said induction-coils, substantially as and for the purpose set forth.

590,684. WEED-CUTTER. ROBBIE V. STIRK, Bruneau Valley, Idaho. Filed June 22, 1896. Serial No. 596,532. (No model.)



Claim.—In a weed-cutter, the combination with a main beam, of auxiliary beams connected to said main beam and diverging rearwardly, and L-shaped cutters connected to the auxiliary beams one behind the other and the cutters carried by the respective beams being so disposed that the lower horizontal portions of the cutters of each beam converge rearwardly in relation to the cutters of the other beam.

590,685. MACHINE FOR MEASURING PILLS. EDWAR W. STURTEVANT, Lowell, Mass., assignor to Charles I. Hood, same place. Filed Aug. 3, 1894. Serial No. 519,304. (No model.)

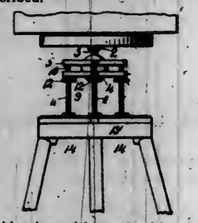


Claim.—The combination of the hopper, provided with a bottom having holes, the false bottom, having a reciprocating rotary motion therein and provided with holes, discharge-tubes leading from the holes of said hopper and each provided with connected upper and lower valves, each adapted to open when the other is being closed, and a spring, to close normally said lower valve, as and for the purpose specified.

590,686. ATTACHMENT FOR PHOTOGRAPHERS' TRIPODS. ALBERT F. WALTER, Chatsworth, Ill. Filed Mar. 10, 1897. Serial No. 626,732. (No model.)

Claim.—1. The combination of a bed having a screw-collar attached to the under side thereof, a pherical head or ball having an upwardly-extending screw-shank engaging said collar, a pair of plates adjacently arranged with an open space between them, the upper

plate being stationary and the lower plate adjustable, and each provided with central openings with reversely-concaved walls to clamp against said head or ball, screw-standards engaging the corners of said plates and stationarily secured at their upper ends to the upper plate and over which the lower plate is freely movable, said standards having their upper portions enlarged and unscrewthreaded, and clamping-disks engaging the screw-threaded portions of the standards and adapted to bear against the under sides of the lower plate, substantially as described.



2. The combination with a tripod-head, of a stationary plate mounted thereover, a lower movable plate under said stationary plate, a spherical head or ball adapted to be engaged and held by said plates, and screw-standards with upper enlarged unscrewthreaded ends secured to the stationary plate and over which said lower plate is freely movable, and clamping devices engaging said screw-standards, substantially as described.

3. The combination with a tripod-head of an upper stationary plate, screw-standards fixed to the corners of said plate, a lower adjustable plate freely movable over said standards, a clear space being formed between said plates, each plate being provided with an opening, and a spherical head or ball mounted between and adapted to be clamped by said plates, substantially as described.

590,687. DUMPING DEVICE. WILLIAM WITTIG, Voss, N. D. Filed Apr. 8, 1897. Serial No. 631,301. (No model.)



Claim.—1. The combination of tiltable supports, a cranked shaft operatively connected to said tiltable supports, and a power mechanism connected to said cranked shaft to rotate the same; said cranked shaft arranged to hold the tiltable supports in locked positions either when they are raised or lowered, as and for the purposes described.

2. The combination with tiltable supports, of a cranked shaft having slidable connections with said supports and arranged to lock the same either when raised or lowered, a power mechanism geared to said shaft, and a friction brake device connected with said power mechanism to control the tiltable supports through said power mechanism and the cranked shaft, as and for the purposes described.

3. The combination with a suitable framing, and with tiltable supports thereon, of elongated bracket-plates carried by said tiltable supports, a double-cranked shaft journaled on the framing and having its cranks slidably fitted in said bracket-plates, which serve to limit the play of said cranks and coact therewith to lock the shaft and the tiltable supports, and a power mechanism connected to said shaft, as and for the purposes described.

4. The combination with tiltable supports, of a crank-shaft operatively connected therewith, a power-shaft geared to the crank-shaft, a friction brake-disk mounted on said power-shaft, and a brake-band fitted to said brake-disk, whereby the descent of the tiltable supports, and the load thereon, may be controlled to ease the shock or jar on the operating elements of the dumping device, as set forth.

5. A dumping device comprising a pivoted support, a rotative shaft having a crank loosely engaging said support and adapted to move the same, means for turning the shaft to raise the support, and a stop carried by the support to stop said crank against movement and hold the support against movement when in its raised position, said stop being arranged to be engaged by the crank when the crank is moved past a vertical line extending through the axis of the shaft, substantially as set forth.

6. A dumping device comprising a pivoted support, a rotative crank-shaft having slotted engagement with said support, and means for operating the shaft, the slot with which the crank engages being of such a length that the end thereof is engaged by the crank when the support has been raised to hold said support against being lowered, substantially as set forth.

7. A dumping device comprising a pivoted support, a rotative shaft provided with a crank having slotted engagement with the support, a stop to be engaged by the crank to hold the support against movement when in its raised position, and means to operate said shaft, substantially as set forth.

8. A dumping device comprising a pivoted support, a rotative shaft provided with a crank having slotted engagement with the support, a stop carried by the support to be engaged by the crank to hold the crank against movement when the support is in its raised position, a shaft arranged above the support and geared to the first-mentioned shaft, a crank-disk on the shaft, and a brake to engage said crank-disk, substantially as set forth.

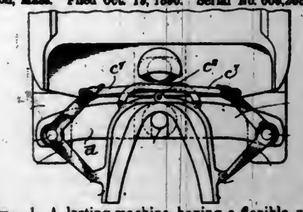
590,688. AUTOGRAPHIC REGISTER. CARL R. BRUNTEL, Des Moines, Iowa. Filed Dec. 26, 1896. Serial No. 617,136. (No model.)



Claim.—1. An improved manifold autographic register, comprising a suitable frame having an opening in its top, a platform beneath said opening, axles to hold two or more series of narrow strips of paper mounted in said frame, an axle to hold a wide roll of paper mounted in the frame, two independent sets of rollers to receive said series of narrow strips between them, mechanism for operating the rollers on one side to advance the series of narrow strips on said side, two rollers to admit said broad strip between them and mechanism for advancing the series of narrow strips on the opposite side and also said broad strip synchronously, for the purposes stated.

2. An improved manifold autographic register, comprising a suitable frame having an opening in its top, a platform beneath said opening, axles for supporting two series of narrow strips of paper mounted in said frame, an axle for supporting a wide roll of paper mounted in the frame, two independent sets of rollers at the rear end of the said platform adapted to admit said narrow strips, a cog-wheel loosely mounted on the outer ends of each under roller, a spring-actuated pawl thereon, a ratchet-wheel engaged by said pawl and fixed to the end of the roller, two rollers beyond said rollers to admit the broad strip between them, a loose cog-wheel bearing a spring-actuated pawl on one end of the under roller and a ratchet fixed to the axle thereof, a segmental cog-wheel mounted in the frame at one side, in mesh with the cog-wheel on the under roller of one of the narrow sets of rollers and having an outwardly-projecting handle, a spring for normally returning said segmental cog-wheel, a like segmental cog-wheel on the opposite side of the machine-frame in mesh with the cog-wheel on the remaining narrow rollers and the cog-wheel on the broad roller and a spring for normally holding it elevated, for the purposes stated.

590,689. LASTING-MACHINE. FRED P. BULLARD, Brockton, and WILLIAM S. HANN, Newton, Mass., assignors to Augustus Seaver, Boston, Mass. Filed Oct. 19, 1896. Serial No. 609,248. (No model.)

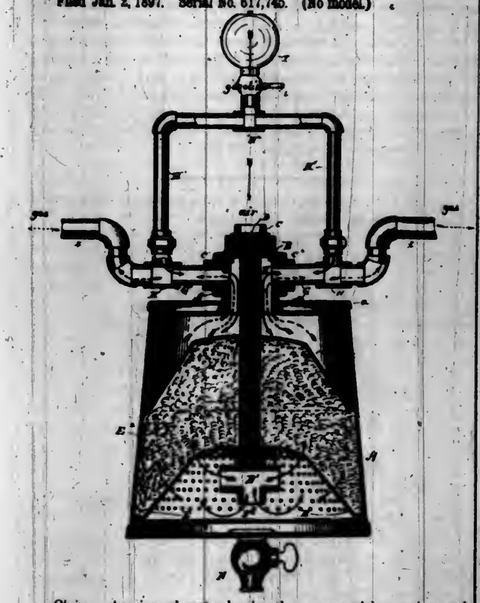


Claim.—1. A lasting-machine having a flexible upper-pressing strap, arms supporting said strap, equalizing connections between said arms, and a rocking bar supporting said strap, arms, and equalizing connections, said bar having a central pivotal support located under the central portion of the strap.

2. A lasting-machine having a flexible upper-pressing strap, arms supporting said strap, levers pivoted to the outer portions of the arms and to a suitable support, and links connecting the outer portions of said levers and the inner portions of the arms.

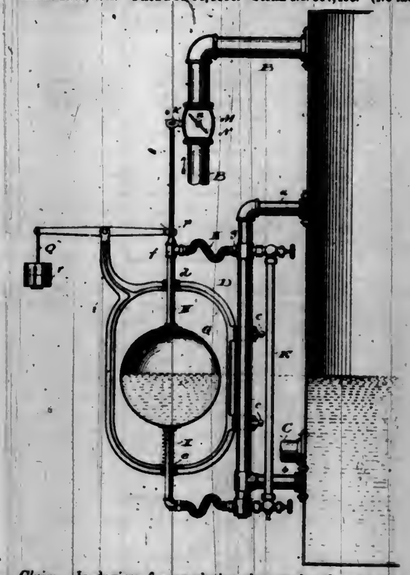
3. A lasting-machine having a flexible upper-pressing strap, two strap-supporting arms on the outer sides of the strap, levers pivoted to the outer portions of the arms, links connecting the levers with the arms, and a rocking bar to the ends of which said levers are pivoted, said bar having a central pivotal support.

590,640. CARBURETER. DANIEL J. BYRNE, Washington, D. C. Filed Jan. 2, 1897. Serial No. 617,745. (No model.)



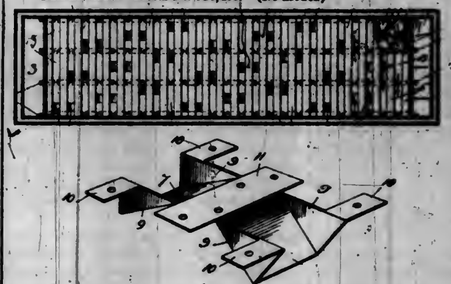
Claim.—An air-carbureter having the cover *a* with tapering neck *a'*, a four-way tube fitting in said neck, bushings in said four-way tube, air-tube D, the pipes G G' and the pipe H' jointed by three-way tubes to the pipes G G' and the tank I, all combined and arranged as shown and for the purpose set forth.

590,641. WATER-SUPPLY REGULATOR. JAMES E. CRAWLEY, Milwaukee, Wis. Filed Dec. 30, 1896. Serial No. 617,468. (No model.)



Claim.—In devices for regulating the supply of water to a tank or receptacle, the combination of said tank and its inlet and outlet pipes, of a valve located in the inlet-pipe, a vertical pipe having free communication with the interior of the tank, a water-gage in free communication with said vertical pipe, a frame secured to said vertical pipe and having smooth-bored bearings in its top and bottom, a vertically-movable hollow water-holder having vertical pipes projecting from its top and bottom in free communication with its interior and passing through the said smooth-bored bearings in said frame, flexible hose connecting said pipes with the first-named vertical pipe whereby there is free communication between the interior of the holder and tank and so that the water-level in said holder, vertical pipe, water-gage and tank is always equal, a direct connection between one of the vertical pipes projecting from the holder and the valve in the inlet-pipe of the tank, and means for overcoming the weight of the said holder when the water-level therein becomes reduced below a predetermined height.

590,642. CAR-VENTILATOR. JOHN M. DALY, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,405. (No model.)



Claim.—1. A car-ventilator having in combination a longitudinal air-passage provided with end openings for the admission of air thereto and openings throughout its length for the discharge of the air into the body of the car; deflectors arranged in said passage and being disposed in lines extending diagonally across such passage whereby the current escaping one deflector will be caught by the next farther along the passage, said deflectors being of less width individually than said passage but the sum of their widths being substantially equal to the width of said passage, substantially as set forth.

2. A car-ventilator having in combination a false floor constituting an air-passage having openings leading upwardly into the body of the car, and deflectors arranged in said passage under said openings and being substantially equal to the dimensions thereof so as to completely underlie said openings, substantially as set forth.

3. A car-ventilator having in combination a longitudinal passage having end openings for the admission of air thereto and discharge-openings disposed at intervals throughout its length and an open-sided channel extending horizontally from said discharge-openings and over and across said passage, and deflectors arranged under said discharge openings, substantially as set forth.

4. A car-ventilator having in combination a false floor provided with transverse slats arranged with spaces between them, a deflector secured to one of said slats and having its opposite ends inclined downwardly and oppositely and each secured to an adjacent one of said slats, substantially as set forth.

5. A car-ventilator having in combination a false floor provided with transverse slats arranged with a space between them, deflectors extending downwardly from said slats and having the side portions 9, and plates extending from said side portions and closing the under side of the space between said slats, substantially as set forth.

6. A car-ventilator having in combination a false floor provided with slats arranged with a space between them, deflectors secured to one of said slats at its intermediate point and having its opposite ends inclined downwardly on each side of said slat and being provided with ears 10 each secured to the under side of one of the adjacent slats, substantially as set forth.

7. A car-ventilator having in combination a longitudinal air-space provided with end openings for the admission of air thereto and discharge-openings throughout its length for letting the air into the body of the car, and a deflector inclining downwardly into said passage from one side of said discharge-opening and having a side member extending upwardly to a diagonally opposite side of said discharge-opening, substantially as set forth.

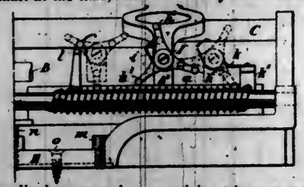
8. As a new and useful article of manufacture a deflector for car-ventilators having opposite ends inclined downwardly and provided with one or more upwardly-extending side flanges, and means whereby said flanges may be secured to a suitable support, substantially as set forth.

590,643. PHONOGRAPH. THOMAS L. DENNIS, Jr., Brooklyn, N. Y. Filed Apr. 1, 1897. Serial No. 630,264. (No model.)

Claim.—1. In a phonograph, a rotatable tripper combined with the diaphragm-carrier, and a stationary stop, with which such tripper engages and is rotated to effect the elevation of the carrier at the

completion of its forward travel, substantially as and for the purposes set forth.

2. In combination, with the diaphragm-carrier having a rotatable tripper, a screw-shaft for returning the carrier, and means substantially as described for compelling the tripper to rotate and engage with the shaft at the time, and substantially in the manner, set forth.



3. The diaphragm-carrier, a revolving tripper mounted thereon, a stationary stop having a spring for turning the tripper, and a threaded shaft for engaging an arm of said tripper and moving the same, the parts being combined substantially as shown and described.

4. In combination, with the revolving tripper mounted on an arm of the diaphragm-carrier, a resistance-spring also mounted on said arm and arranged to bear against a pin or projection on the tripper to limit its movement, substantially in the manner and for the purposes set forth.

5. The revolving tripper having the pins or projections, a resistance-spring for bearing against either of the pins, and a stop against which the spring is borne to release the pin, combined and arranged for operation substantially as described and for the purposes set forth.

6. In a phonograph, a feeding-screw, feeding-nut, diaphragm-carrier, an automatically-operating switching and tripping mechanism applied on said carrier, and revolving threaded shaft for engaging the tripper and retracting the diaphragm-carrier, combined and arranged substantially as set forth.

7. In a phonograph, the combination with the diaphragm-carrier, an automatic tripping and switching device applied thereon, and the revolving shaft for carrying the tripper backward, of means substantially as described for automatically disengaging the tripper from the said shaft, thereby lowering the diaphragm-carrier and bringing the feeding mechanism into action, substantially as and for the purposes set forth.

590,644. WEATHER-STRIP. JAMES H. ELLER, Canton, Ohio. Filed Jan. 25, 1897. Serial No. 620,629. (No model.)



Claim.—1. The combination of the cap 2, secured to the door, the corrugated weather-strip 6, having attached to the ends thereof the adjustable parts 4, said parts provided with the tangs 7, and the corrugated portions 5, the center plate 10, connected to the strip 6, and said ends and plate pivotally attached to the sections 3, and 13, substantially as and for the purpose specified.

2. The combination of the adjustable ends 4, the hinge-sections 3, provided with the bent or curved projections 12, and the hinged center plate 10, connected to the weather-strip, and a cap located above the weather-strip, substantially as and for the purpose specified.

590,645. WINDOW-SASH ATTACHMENT. GEROLT GIBSON, St. Louis, Mo. Filed Feb. 12, 1897. Serial No. 623,063. (No model.)

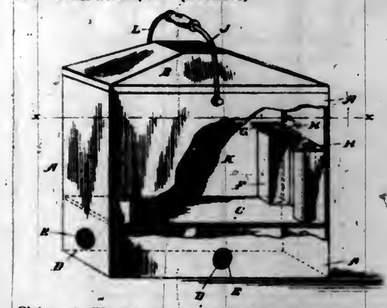


Claim.—1. A window-sash attachment consisting of a housing having two studs therein and a spring bowed outwardly beyond said housing and having loops at its ends hooking over said studs, said studs being respectively located far enough from the ends of the housing to permit endwise movement of the spring and said loops being long enough to allow necessary play without altering their operative relation to said studs, all substantially as and for the purpose set forth.

2. A window-sash attachment consisting of a housing, a spring therein bowed outwardly beyond said housing, and stops in said housing arranged to allow the ends of said spring to separate but to limit their approach, substantially as and for the purpose set forth.

3. A window-sash having a socket in its edge and a spring in said socket, said spring being bowed outwardly beyond the face of the sash in position to bear against the stop or parting-strip and having loops at its ends adapted to hook over studs arranged transversely in said socket therefor, said loops being long enough to allow necessary play without altering their operative relation to said studs, substantially as and for the purpose set forth.

590,646. RAT-TRAP. OLEY P. HILL, Cuprus, Ill. Filed July 13, 1897. Serial No. 644,396. (No model.)



Claim.—1. The box A provided with the elevated bottom C and vertical tubes F communicating through the said bottom with the interior of said box and surmounted with a platform G, substantially as shown and for the purpose described.

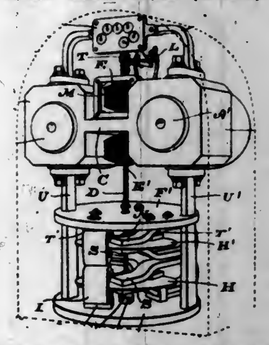
2. In a trap, the combination of a box or inclosure A, a bottom C seated therein a slight distance from the base thereof, openings E formed in said box below the said bottom, one or more tubes F seated vertically on the bottom C and communicating through the latter with the space beneath said bottom and the whole having a metallic lining, substantially as shown and for the purpose described.

590,647. NUT-LOCK. WALTER JOHNSON, Liverpool, Pa. Filed Mar. 25, 1897. Serial No. 629,166. (No model.)



Claim.—A nut-lock consisting of three sections B C D, the two end ones internally threaded and having externally-threaded projections *b d* screwing into right and left threads of the locking-sleeve C, whereby the latter may lock the sections B D on the bolt in the manner described.

590,648. RECORDING-WATTMETER. WILLIAM H. PRATT, Lynn, Mass., assignor to the General Electric Company, of New York. Filed May 15, 1897. Serial No. 636,663. (No model.)



Claim.—1. In a recording-meter, the combination of an astatic motor mechanism, comprising more than a single armature-winding,

or section of winding which respectively act under the influence of magnetism in opposite directions to rotate the shaft in the same direction, and a damping mechanism.

2. In a recording-meter, a motor mechanism having more than a single winding, or section of winding, arranged so that the influence of any external magnetism acting upon said armature-sections in the same direction will tend to create a torque in opposite directions, thereby rendering the meter astatic, as described.

3. In a recording electric meter, the combination of a motor mechanism, a recording mechanism, and an astatic magnetic damping mechanism having parts which are acted upon differentially by stray or external fields, so as to preserve a constant magnetic drag substantially uninfluenced by stray fields, as described.

4. In an electric recording-meter, the combination of an astatic motor mechanism affording a torque proportional to the energy metered uninfluenced by stray fields, and an astatic magnetic damping mechanism affording a drag constantly proportional to the velocity, as set forth.

5. In an electric recording-wattmeter, the combination of a double-U-shaped field-exciting conductor, and an armature wound with two sections located respectively in or near the bends of the field-conductor, said armature-sections having a single commutator, as set forth.

6. In a recording-wattmeter, the combination of a field-magnet circuit, an armature divided into two parts and forming an astatic motor mechanism for driving the meter, and an astatic damping device consisting of a pair of disks made of conducting material, each disk moving in a separate magnetic field.

7. In a recording-wattmeter, the combination of a field-magnet circuit, with an armature divided into two parts, the parts being so arranged that both are acted upon by the field magnetism to produce rotation in one direction, but are acted upon differentially by any external magnetism.

8. In a recording-wattmeter, the combination of a field-magnet conductor, an armature divided into two parts, one part being located above the conductor, and the other below, the coils on both parts being so arranged that they are influenced by the field to produce rotation in the same direction, and a recording mechanism.

9. In a recording-wattmeter, the combination of a field-coil, an armature divided into two parts, each part being acted upon by a magnetic flux differing in its direction, each part of the armature being so arranged that both tend to rotate in the same direction under the inductive action of the field-coil, but are acted upon differentially by any external magnetism.

10. In a recording-wattmeter, the combination of a field-coil, a rotating armature divided into two parts and so arranged that both parts tend to revolve in the same direction under the influence of the field-magnet, but act differentially under the influence of external or stray magnetism, and a damping device comprising two disks of conducting material revolving in a magnetic field, the arrangement of disks and magnets being such that they act differentially under the influence of external magnetism.

11. In a recording-wattmeter, the combination of a field-coil, an armature, and a damping device consisting of two disks of conducting material moving within a magnetic field, the arrangement of disks and magnets being such that external magnetism will weaken one of the magnets and consequently the effect upon its disk, and strengthen another of the magnets and increase the effect upon its disk, thus balancing the total damping effect.

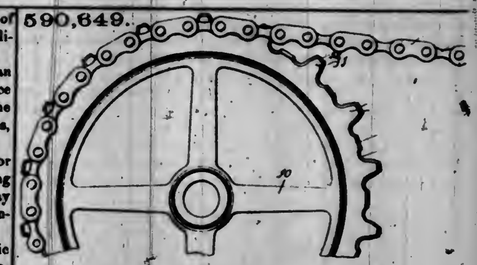
12. In a recording-wattmeter, the combination of a field-conductor, an armature divided into two parts and situated respectively above and below the conductor and partially surrounded by it, a single commutator for the armature, a base supported by depending pieces from the field-conductor, an auxiliary base, a set of magnets supported by each base, and copper disks secured to the armature-shaft and revolving in the magnetic fields.

13. In a recording-wattmeter, the combination of a field-coil, a main and auxiliary base, magnets supported by the bases, and arranged with their like poles adjacent, clamps in which the magnets are adjustable, and copper disks revolving in the magnetic fields.

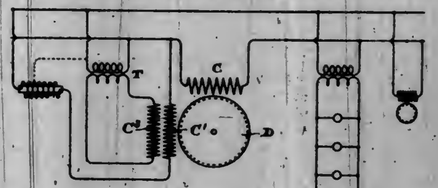
590,649. SPROCKET WHEEL AND CHAIN. MATHIAS J. RIEVE, Jr., Keokuk, Iowa. Filed Mar. 22, 1897. Serial No. 628,748. (No model.)

Claim.—A sprocket-gearing comprising a wheel having cycloidal teeth, and a segmental transverse groove at each side of every tooth, and also having the entire periphery of the wheel, the grooves, and the teeth tapered outwardly along a central line, and a roller-chain having two rollers to enter each of interdental spaces of the sprocket-wheel, and also having each roller concaved to accurately fit the surface of the sprocket-wheel, said rollers being arranged to lie in the segmental transverse grooves, all arranged and combined substantially in the manner set forth and for the purposes stated.

590,649.



590,650. ALTERNATING-CURRENT METER. ROBERT SHARP, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Mar. 12, 1897. Serial No. 627,183. (No model.)



Claim.—1. In an induction-meter the combination of a current-coil, a potential coil, a transformer whose primary is coupled across the circuit-mains, and a third coil in the secondary circuit of the transformer, all said coils being in inductive relation to the rotating armature, substantially as described.

2. The combination in an induction-meter of a current-coil, a potential coil in a shunt-circuit of high self-induction, and a third coil connected across the mains inductively through a transformer, said potential coils cooperating to establish a magnetomotive force, substantially ninety degrees from the magnetomotive force of the current-coil when the circuit is non-inductive, as described.

3. The combination in an alternating-current induction-meter of a current-coil, a potential coil in a shunt-circuit of high self-induction, lagging the current therein somewhat less than ninety degrees from the current in the series-coil, a third potential coil superimposed upon said first-named potential coil, and a transformer whose primary is connected across the consumption-circuit and secondary to said third coil, the volts and phase of the currents in said potential circuits being so chosen that their action upon the armature is equivalent to that of a simple potential coil carrying current ninety degrees dephased from the current in the third coil.

590,651. PASSAGE-TICKET. CALVIN N. SOUTHER, Chicago, Ill. Filed May 6, 1896. Serial No. 590,648. (No model.)

Claim.—1. A passage-ticket consisting of an agent's coupon bearing a contract, a part, B, representing passage, and a purchaser's coupon, each of said parts bearing the same number and the agent's coupon and the part, B, having space for denoting identification, substantially as described.

2. A passage-ticket consisting of an agent's coupon bearing a contract, a part, B, representing passage, and a purchaser's coupon, each of said three parts bearing the same number and the agent's coupon and part, B, having space for signature, substantially as described.

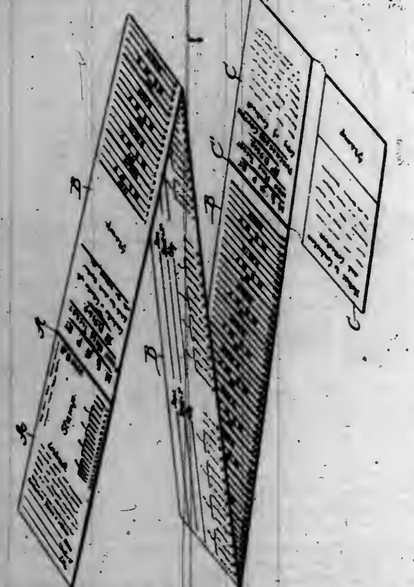
3. A passage-ticket consisting of an agent's coupon, a part, B, representing passage, and a purchaser's coupon, each of said three parts bearing the same number, and the agent's coupon and the part, B, having provision for signatures and for denoting personal appearance, substantially as described.

4. A passage-ticket consisting of an agent's coupon, a part, B, representing passage, and a purchaser's coupon, the agent's coupon bearing a contract and said coupon and the part, B, having provision for signature, designation of residence or place of business and personal appearance, substantially as described.

5. A passage-ticket consisting of an agent's coupon, a part, B, representing passage, and a book-form purchaser's coupon, the agent's coupon bearing a contract and said coupon and the part, B, having provision for signatures and for denoting personal appearance, substantially as described.

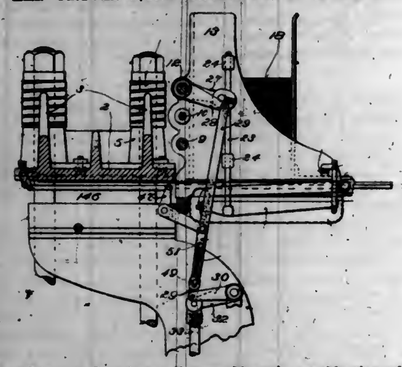
6. A passage-ticket consisting of an agent's coupon, a part, B, representing passage, and a purchaser's coupon, the agent's coupon bearing a contract and said coupon and the part, B, having provision for signatures and for denoting personal appearance, and the agent's

coupon, the part, B, and the purchaser's coupon having each the same number or other designation to facilitate the assemblage of these parts when separated, substantially as described.



7. A passage-ticket consisting of an agent's coupon, a part, B, representing passage, and a purchaser's coupon, the agent's coupon bearing a contract and said coupon and the part, B, having provision for signature, designation of residence or place of business, and personal appearance, and the agent's coupon, the part, B, and the purchaser's coupon having each the same number or other designation to facilitate the assemblage of these parts when separated, substantially as described.

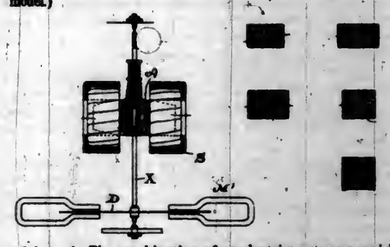
590,652. PAPER-BOX MACHINE. EUGENE H. TAYLOR, Lynn, Mass. Filed June 22, 1896. Serial No. 596,390. (No model.)



Claim.—1. In a box-ending machine, the combination with a hopper for the box-end blanks having two upright side pieces movable toward and from each other on guides, of a right and left hand screw-shaft having threaded connection with said side pieces, pasting devices for the edges of the said blanks, supports for said pasting devices connected with the side pieces of the hopper, a rock-shaft, arms on said rock-shaft connected to said supports, means to slide said arms along on said rock-shaft in unison with the adjustment of the side pieces, and means to actuate the said rock-shaft, substantially as set forth.

2. In a box-ending machine, the combination with a carrier which carries the box-end blanks into position, of a rock-shaft having stops thereon which check the forward movement of the blanks, and operating mechanism for said rock-shaft, including a spring which permits lost motion and a yielding action to the stops when the end blank is moved forward too far, and which moves the blank back to proper position when the carrier recedes, the turning of the rock-shaft also moving the stops out of the path of the box when the box descends after the end is attached, substantially as described.

590,653. SHIELDING DEVICE FOR ELECTRIC METERS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed May 21, 1897. Serial No. 637,492. (No model.)



Claim.—1. The combination of an electric meter comprising, as part of its motor mechanism, a field coil or coils in circuit with the load, and a damping-magnet with a shield of copper or like highly-conducting metal forming a closed circuit or circuits within which currents are induced upon any sudden change in the magnetic field due to the field-coils, said shield being so arranged as to shield the damping-magnets from the effect of such changes in the magnetic field of the meter, as set forth.

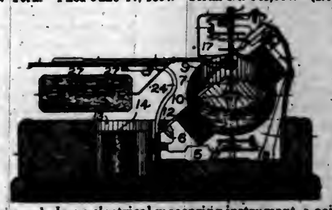
2. The combination in an electric meter of an armature, field or load coils, a magnetic damping mechanism, and a copper or like shield forming the seat of induced currents surrounding the field coil or coils, as set forth.

3. The combination of an electric wattmeter having armature wound with shunt-coils, a series field coil or coils, permanent magnets within the field of which revolves a disk of copper or like metal forming a magnetic damper, and a sheath of copper or like non-magnetic but highly-conducting metal inclosing more or less completely the field coil or coils of the meter, as set forth.

4. In an electric meter, the combination of a field-magnet, an armature, a magnetic damping mechanism, and means for producing a current in opposition to that flowing in the field-magnet for preventing a sudden increase in magnetic effect upon the passage of currents of abnormal magnitude through the field-circuit.

5. In a recording-wattmeter, the combination of a moving armature, stationary field-coils, a shield of good conducting material surrounding each of the field-coils, a disk carried by the armature-shaft, and magnets for damping the rotation of the armature.

590,654. ELECTRIC MEASURING INSTRUMENT. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed June 17, 1897. Serial No. 641,097. (No model.)

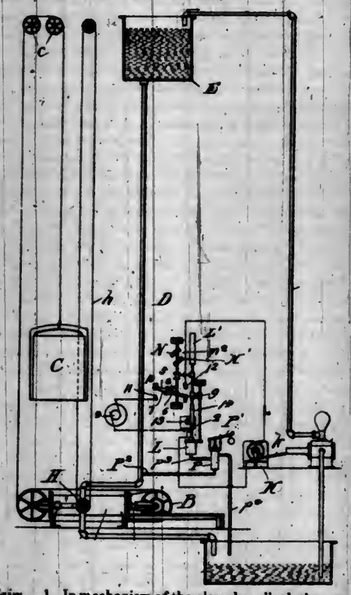


Claim.—1. In an electrical measuring instrument, a coil mounted at an angle on a shaft, a second coil mounted at an angle to the first coil and its shaft and encircling the same, the said coil being in series with the first coil, an indicator and scale for reading the movements of the shaft and movable coil, and means for returning the instrument to zero and opposing the movements of the movable coil under the action of the current in said coils.

2. In an electrical measuring instrument, a coil mounted at an angle on a shaft, a second coil mounted at an angle to the first coil and its shaft and encircling the same, the said coil being in series with the first coil, a high resistance in series with said coils, an indicator and scale for reading the movements of the shaft and movable coil, and means for returning the instrument to zero, and opposing the movements of the movable coil under the action of the current in said coils

3. In an electrical measuring instrument, a coil mounted at an angle on a shaft, a second coil mounted at an angle to the first coil and its shaft and encircling the same, the said coil being in series with the first coil, a high resistance in series with said coils, an indicator and scale for reading the movements of the shaft and movable coil, a damper and means for returning the instrument to zero and opposing the movements of the movable coil under the action of the current in said coils.

590,655. ELEVATOR. GARRETT V. BARNES, Topeka, Kans., assignor of two-fifths to David A. Mulvane, same place. Filed Dec. 22 1896. Serial No. 616,570. (No model.)



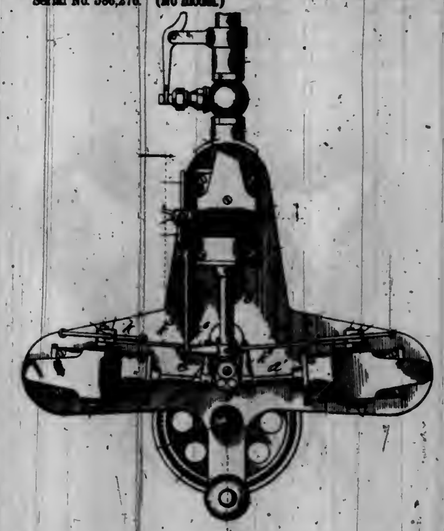
Claim.—1. In mechanism of the class described, the combination of an elevator or similar mechanism, a cylinder provided with a movable piston for operating the elevator, a tank for holding the liquid, a pressure-supply pipe connecting the supply-tank with the operating-cylinder to furnish it a supply of liquid under pressure, an electrically-actuated pump for supplying liquid to the supply-tank, an electric circuit embracing the motor of the pump a source of electric energy and switch, a governing-cylinder connected by means of a pipe with the pressure-supply pipe of the operating-cylinder, a vertically-weighted movable piston in such governing-cylinder, a switch-rod arranged parallel therewith and adapted to be operated by means of the weighted governing piston-rod, and means connecting the switch-rod with the switch-lever to automatically open and close the electric circuit and thereby control the actions of the pump, substantially as described.

2. In mechanism of the class described, the combination of an elevator or similar mechanism, a cylinder provided with a movable piston for operating the elevator, a tank for holding the liquid, a pressure-supply pipe connecting the supply-tank with the operating-cylinder to furnish it a supply of liquid under pressure, an electrically-actuated pump for supplying liquid to the supply-tank, an electric circuit embracing the motor of the pump a source of electric energy and a switch, a governing-cylinder connected by means of a pipe with the pressure-supply pipe of the operating-cylinder, a vertically-weighted movable piston in such governing-cylinder, a switch-rod arranged parallel therewith and adapted to be operated by means of the weighted governing piston-rod, means connecting the switch-rod with the switch-lever to automatically open and close the electric circuit and thereby control the actions of the pump, and a weighted valve arranged on the pipe intermediate the pressure-supply pipe and the governing-cylinder and adapted to be operated by pressure in such cylinder and to open and close such pipe and admit pressure to or exhaust pressure from the governing-cylinder, substantially as described.

3. In mechanism of the class described, the combination of an elevator or similar mechanism, a cylinder provided with a movable piston for operating the elevator, a tank for holding a supply of liquid, a pressure-supply pipe connecting the supply-tank with the operating-cylinder to furnish such cylinder a supply of liquid under pressure, an electrically-actuated pump for furnishing a supply of liquid to the supply-tank, an electric circuit embracing the motor of the pump a source of electric energy a rheostat intermediate the same and a switch, a governing-cylinder connected with the pressure-supply pipe, a movable piston in such cylinder provided with a weighted piston-rod arranged in vertical position, a switch-rod arranged parallel therewith and connected with a lever of the electric switch, means arranged on the governing piston-rod to operate the switch-rod operate the switch-lever and open and close the electric circuit by the movements thereof, and means connecting the weighted governing piston-rod with the rheostat, whereby current is gradually turned on to the motor and turned off therefrom, substantially as described.

4. In mechanism of the class described, the combination of an elevator or similar mechanism, a cylinder provided with a movable piston for operating the elevator, a tank for holding a supply of liquid, a pipe connecting the supply-tank with the operating-cylinder to furnish such cylinder a supply of liquid under pressure, an electrically-actuated pump for furnishing a supply of liquid to the supply-tank, an electric circuit embracing the motor of the pump a source of electric energy a rheostat intermediate the same and a switch, a governing-cylinder connected with the pressure-supply pipe, a movable piston in such cylinder provided with a weighted piston-rod arranged in vertical position, a switch-rod arranged parallel therewith and connected with a lever of the electric switch, means arranged on the governing piston rod to operate the switch-rod and thereby the lever and open and close the electric circuit, means connecting the weighted governing piston-rod with the rheostat, whereby current is gradually turned on to the motor and turned off therefrom, and a weighted piston-valve arranged on the pipe between the governing-cylinder and the pressure-supply pipe and adapted to be operated by the pressure in such pipe to open and close the communication with the governing-piston and to admit and exhaust pressure therefrom, substantially as described.

590,656. ENGINE. FRANCIS M. COMSTOCK, Topeka, Kans., assignor to the Comstock Motor Company, same place. Filed Apr. 6, 1896. Serial No. 586,276. (No model.)



Claim.—1. In a multiple engine, the combination of a frame or base portion, three oscillating cylinders pivotally secured thereto, one of which is of larger diameter than the other two and secured to the frame or base portion at a right angle to the other two cylinders, a rotatable crank-shaft mounted in the frame or base portion, and reciprocating piston-rods connected with the crank-shaft, substantially as described.

2. In a multiple engine, the combination of a frame or base portion, three oscillating cylinders pivoted thereto, one of which has a larger diametrical bore and arranged substantially at right angles to the other two, a crank-shaft rotatably mounted in the frame or base portion, reciprocating pistons in the cylinders, and piston-rods connected with such pistons and extending out of the cylinders and connected with the crank-shaft so that the outer end of one of such rods travels in a path eccentric to the other two, substantially as described.

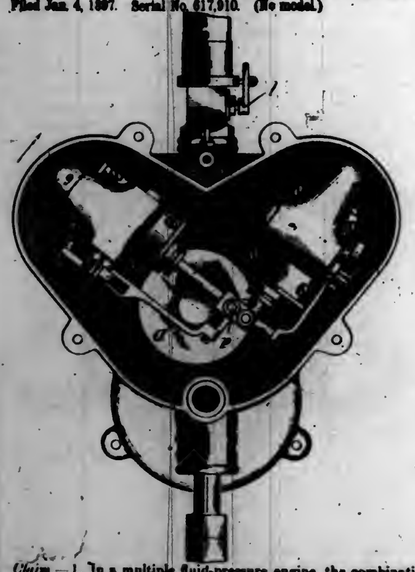
3. In a multiple engine, the combination of a frame or base portion, three oscillating cylinders pivoted thereto, one of which has a

larger diametrical bore and is arranged substantially at right angles with the other two, a crank-shaft rotatably mounted in the frame or base portion, reciprocating pistons in such cylinders, and piston rods on the pistons and secured to the crank-shaft the outer end of the piston-rod of the larger piston travels in a path eccentric to the other two while the piston-rods of the two smaller pistons make a relatively larger movement, substantially as described.

4. In a fluid-pressure engine, the combination of a frame or base portion, a cylinder thereon having inlet and exhaust passages, a reciprocating piston and rod in the cylinder portion, cylindrical balanced valve or valves in the inlet and exhaust passages of the cylinder portion, a valve-rod for vibrating such valve or valves provided with an arm at its outer end, a segmental vibrating valve tappet or lever arranged to move with the piston and contact the valve-arm to close the proper inlet and exhaust passage, open the proper exhaust-passage and partly open the inlet-passage of the cylinder during one motion of the piston and completely open such last-named inlet during the opposite movement of the piston, substantially as described.

5. In a fluid-pressure engine, the combination of a frame or base portion provided with a cylinder having inlet and exhaust passages leading to each end, a reciprocating piston and rod mounted thereon, a cylindrical balanced valve or valves in such passages to close or open the same, a valve-rod for operating such valve or valves, an actuating-arm on its outer free end, and a segmental vibrating tappet arranged to be vibrated by the movements of the piston-rod having one portion arranged to contact the valve-arm and operate the valve to close the proper exhaust and inlet passages, open the proper exhaust, partly open the proper inlet-passage during one movement of the piston, and a second or cam portion arranged to contact the opposite portion of the valve-arm and completely open the last-named inlet-passage, substantially as described.

590,657. FLUID-PRESSURE ENGINE. FRANCIS M. COMSTOCK, Topeka, Kans., assignor to the Comstock Motor Company, same place. Filed Jan. 4, 1897. Serial No. 617,910. (No model.)



Claim.—1. In a multiple fluid-pressure engine, the combination of a frame portion, two oscillating cylinders pivotally secured thereto substantially at right angles to each other, a crank-shaft rotatably mounted in the frame, and a piston-rod in each of the cylinders secured to the crank-shaft in eccentric relation with each other and in line with the movement of one of the piston-rods, substantially as described.

2. In a fluid-pressure engine, the combination of a cylinder provided with independent inlet and exhaust passages the inlet-passage being provided with two sets of openings into the cylinder near each end of the cylinder, a reciprocating piston movably mounted in the cylinder portion and arranged during its movements to cover and uncover one set of the inlet-openings in the cylinder so that fluid-pressure by means of the piston is gradually fed into the cylinder, and valve mechanism to open and close the inlet and exhaust passages, substantially as described.

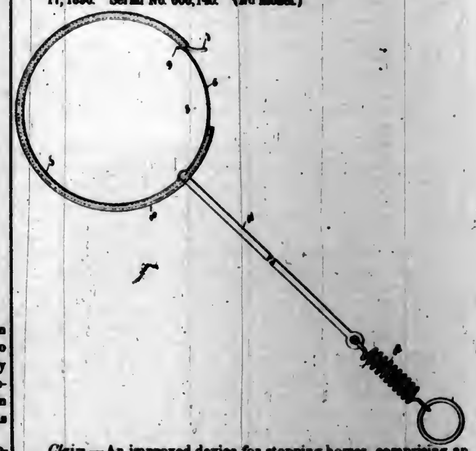
3. In a fluid-pressure engine, the combination of a cylinder provided with independent inlet and exhaust passages entering the cylinder at or near each end thereof the inlet-passages opening into the cylinder in two sets of openings located at different positions longitudinally on the cylinder the openings nearest the heads of the cylinder being of smaller area than the ones remote therefrom, a piston movably mounted in such cylinder and adapted to cover and uncover the set of openings remote from the cylinder-heads so that pressure is gradually fed into the cylinder, and valve mechanism for opening and closing the inlet and exhaust passages, substantially as described.

4. In a fluid-pressure engine, the combination of a cylinder provided with independent inlet and exhaust passages and openings, a piston movably mounted in the cylinder to cover and uncover one set of openings, independent rotary exhaust and inlet valve mechanism located transversely in the cylinder-frame to open and close the inlet and exhaust passages, and mechanism arranged to operate such valves by the movement of the piston to close the inlet and open the exhaust on one side of the piston and completely open the inlet-valve and completely close the exhaust-valve on the opposite side of the piston during one motion of the piston, substantially as described.

5. In a fluid-pressure engine, the combination of a cylinder provided with independent inlet and exhaust passages, such inlet-passages being provided with two sets of openings at or near each end of the cylinder, a piston movably mounted in the cylinder to cover and uncover one set of openings and gradually feed fluid-pressure into the cylinder, rotary exhaust and inlet valve mechanism located transversely in the cylinder-frame to open and close the inlet and exhaust passages, and mechanism arranged to operate such valves by the movement of the piston to close the inlet and open the exhaust on one side of the piston and completely open the inlet-valve and completely close the exhaust-valve on the opposite side of the piston during one motion of the piston, substantially as described.

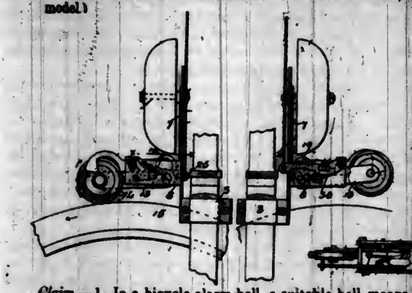
6. In a fluid-pressure engine, the combination of a cylinder provided with inlet and exhaust passages, a piston movably mounted in said cylinder, rotary inlet and exhaust valve mechanism located transversely in such engine-frame to open and close the inlet and exhaust passages, two cam-shaped lever-arms oppositely arranged to operate such valves, and a double vibrating cam-shaped lever connected with the piston-rod to operate the cam-shaped levers so that the valve mechanism is gradually operated to close the inlet and open the exhaust passages on one side of the piston and completely open the inlet and close the exhaust passages on the opposite side of the piston during one motion of the piston-rod and reverse such valve arrangements during the opposite motion of the piston, substantially as described.

590,658. MEANS FOR CHECKING OR STOPPING HORSES. HERMANN DALWIGK, West Hoboken, N. J., assignor of one-fourth to Andrew J. Meier and Alvin O. Arnold, New York, N. Y. Filed Sept. 17, 1896. Serial No. 606,140. (No model.)



Claim.—An improved device for stopping horses, comprising an open ring 5, composed of spring-steel provided with an opening 6, one end being curved outwardly as shown at 7, a spring 8 secured to the other end and projecting across said opening, and having the end curved inwardly at 9, said ring being provided with a covering 10 composed of suitable material, said ring being also provided with a handle 11 composed of steel, and provided at the outer end with a spiral spring secured to which is a ring 13, substantially as shown and for the purpose set forth.

590,659. BICYCLE-BELL. PAUL PLOEGE and GEORGE P. MCDONNELL, St. Louis, Mo. Filed Jan. 15, 1897. Serial No. 619,265. (No model.)



Claim.—1. In a bicycle alarm-bell, a suitable bell, means for securing the same to the frame of the machine, a roller-carrying arm, a frame to which said arm is pivoted, a hammer-lever carried by the frame, a spring for simultaneously keeping the roller normally in engagement with the tire of the wheel, and the hammer normally in contact with the bell, a pin projecting from the side of the roller and adapted during the travel of the machine to intermittently trip the hammer-lever, whereby the spring controlling the same successively brings the hammer forcibly against the bell, thus sounding an alarm, substantially as set forth.

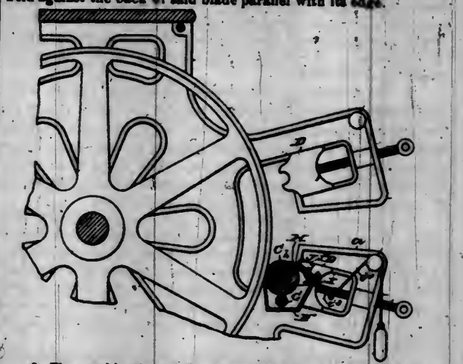
2. In a bicycle alarm-bell, a suitable bell, means for securing the same to the frame of the machine, a roller-carrying arm, a frame to which said arm is pivoted, a hammer-lever carried by the frame, a spring for simultaneously keeping the contact-roller normally in engagement with the tire of the wheel, and the hammer normally in engagement or contact with the bell, means carried by the roller for intermittently tripping the hammer-lever during the travel of the machine, whereby the spring controlling the same successively brings the hammer forcibly against the bell, and means for disengaging the roller from the tire, substantially as set forth.

3. In a bicycle alarm-bell, a suitable bell, means for securing the same to the frame of the machine, a roller-carrying arm, a frame to which said arm is pivoted, a hammer-lever carried by the frame, a spring for simultaneously keeping the contact-roller normally in engagement with the tire of the wheel, and the hammer in contact with the bell, means carried by the roller for intermittently tripping the hammer-lever during the travel of the machine, means for disengaging the roller from the tire, and suitable guideways or slits formed in the frame for the guiding of the hammer-lever and roller-carrying arm in their movements, substantially as set forth.

4. In a bicycle alarm-bell, a suitable bell, means for securing the same to the machine-frame, a frame located in proximity to the bell, a hammer-lever pivoted to one of the lateral walls of the frame along the inner surface of said wall and adjacent to the outer terminal wall of said frame, a hammer carried by the inner arm of the lever, a roller-carrying arm pivoted along the inner surface of the opposite lateral wall of the frame and adjacent to the inner terminal wall of said frame, a pin carried by the hammer-lever and located at a point between the pivotal point of the lever and the hammer, a pin located on the roller-carrying arm at a point removed from the pivotal point of said roller carrying arm, a spring having a medial coil and oppositely-extending arms, the free ends of the arms being respectively secured to the pin carried by the roller-carrying arm and the pin carried by the hammer-lever whereby the hammer is normally kept in engagement with the bell, and the roller carried by the roller-carrying arm in engagement with the tire of the wheel, and means carried by the roller for intermittently tripping or oscillating the hammer-lever, the parts operating substantially as and for the purpose set forth.

5. In a bicycle alarm-bell, a suitable bell, means for securing the same to the frame of the machine, a roller-carrying arm, a frame to which said arm is pivoted, a hammer-lever carried by the frame, a spring for simultaneously keeping the contact-roller normally in engagement with the tire of the wheel, and the hammer in contact with the bell, a pin carried by the roller along the side thereof, a straight edge forming one end of the hammer-lever along which the pin intermittently rides during the travel of the machine, a disengaging-lever pivoted to the frame, means for controlling the end of the lever, a slot formed in the disengaging-lever, and a pin carried by the roller-carrying arm and operating within the slot whereby upon movement of the free end of the disengaging-lever the roller is disengaged from the tire, substantially as set forth.

590,660. DOCTOR FOR FABRIC-PRINTING MACHINES. HIRAM H. GRIMM, Lowell, Mass., assignor of one-half to Thomas Walsh, same place. Filed July 1, 1897. Serial No. 643,000. (No model.)



Claim.—1. The combination of the doctor-blade, the doctor-shear and a reinforce or straight-edge, supported by said shear and held against the back of said blade parallel with its edge.

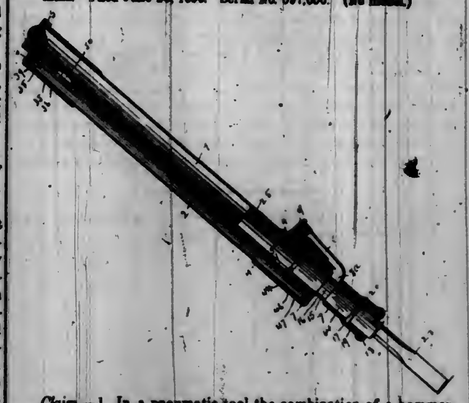
2. The combination of the doctor-blade and its bevel, the doctor-shear and a reinforce or straight-edge, supported by said shear and held against the back of said blade parallel with its edge, said reinforce having a bevel edge arranged in the same plane with the bevel of said doctor-blade.

3. The combination of the doctor-blade, the doctor-shear, a reinforce or straight-edge, and spring-arms supported upon said shear to hold said reinforce in contact with the face of said doctor-blade.

4. The combination of the doctor-blade, the doctor-shear, a reinforce or straight-edge, and spring-arms supported upon said shear to hold said reinforce in contact with the face of said doctor-blade, said spring-arms being provided on their backs with round-pointed projections and said reinforce being provided on its face with bowl-like depressions to receive said projections.

5. The combination of the doctor-blade, the doctor-shear, a reinforce or straight-edge, spring-arms arranged to press upon the face of said reinforce and having slots and screws, arranged in said slots and secured in said shear.

590,661. PNEUMATIC TOOL. FRANK E. HANSCOM, Worcester, Mass. Filed June 26, 1896. Serial No. 597,056. (No model.)



Claim.—1. In a pneumatic tool the combination of a hammer-cylinder, a sliding tool-holding socket held in said cylinder and an air-passage leading from a source of air-supply to said cylinder and arranged to be opened and closed by the sliding movement of said socket, substantially as described.

2. In a pneumatic tool the combination of a hammer-cylinder, a sliding socket held in said cylinder and having a neck forming an annular chamber, said annular chamber constituting a part of an air-passage leading from an air-supply to said hammer-cylinder, whereby said air-passage is opened or closed by the sliding of said socket, substantially as described.

3. The combination with a hammer-cylinder and a reciprocating hammer, of an air-supply passage, a tool-holding socket held in said cylinder and capable of a sliding motion in said cylinder and having an air-passage which is brought into alinement with said supply-passage by the pressure against the end of the tool held in said socket, substantially as described.

4. The combination with a hammer-cylinder and a reciprocating hammer contained therein, and a valve-cylinder of an air-supply passage, a sleeve 14 sliding in said cylinder and adapted to hold a tool, said sleeve having an air-passage adapted to communicate with said supply-passage and said valve-cylinder, means for applying pressure to said sleeve to slide the same and close said supply-passage, substantially as described.

5. The combination with a hammer-cylinder of a sleeve held in said hammer-cylinder and adapted to receive the shank of a tool, an intermediate sliding block held in said sleeve, and a reciprocating hammer contained in said hammer-cylinder, and having a reduced section adapted to enter said sleeve and deliver a blow upon said intermediate block said reduced section fitting said sleeve, whereby an air-cushion is formed beneath the end of said hammer.

6. The combination of a hammer-cylinder, a reciprocating hammer, a valve-cylinder, an air-passage leading to said valve-cylinder, a sleeve capable of a sliding motion in said hammer-cylinder and adapted to hold a tool, means for forcing said sleeve toward the end of said hammer-cylinder, whereby said air-passage is closed, and a tool held in said sleeve, whereby said sleeve is pushed inwardly by a pressure against said tool, and the air-passage opened, substantially as described.

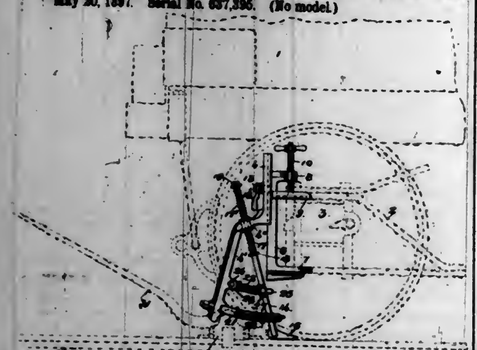
7. The combination with a hammer-cylinder and a reciprocating hammer contained therein, of a valve-cylinder having an air-passage by which air under pressure is supplied to the central section of said valve-cylinder, valves arranged at each end of said valve-cylinder and communicating with said hammer-cylinder on opposite sides of said hammer, a valve-stem connecting said valves whereby said valves are operated synchronously and means whereby said valve-stem is actuated by the reciprocating movement of said hammer, substantially as described.

8. The combination with a hammer-cylinder and a reciprocating hammer held therein, of a valve-cylinder communicating at its ends with the ends of said hammer-cylinder, valves contained in the ends of said valve-cylinder whereby the openings between said cylinders are alternately opened, or closed, a valve-stem uniting said valves, an air-supply whereby air under pressure is supplied to the central portion of said valve-cylinder, means whereby said valve-stem is operatively connected with said hammer, and means whereby the air-supply to said valve-cylinder is controlled, substantially as described.

9. The combination of a hammer-cylinder, a valve-cylinder communicating at its ends with said hammer-cylinder, valves at the ends of said valve-cylinder, a valve-stem uniting said valves, a reciprocating hammer, means by which said valve-stem is rocked by the reciprocating motion of said hammer, an air-passage connecting said valve-cylinder with an air-supply, and means for controlling the area of said air-passage, substantially as described.

10. The combination with a hammer-cylinder and a reciprocating hammer contained therein, of a socket 14 capable of a limited sliding movement and adapted to receive the shank of a tool, a closed annular chamber 19 surrounding said socket, and a flange 20 projecting from said socket and inclosed in said annular chamber, whereby an air-cushion is formed to receive the force of a blow imparted to said socket by the reciprocating hammer, substantially as described.

590,662. CAR-CHUCK. PETER H. JACOBUS, Millstadt, Ill. Filed May 20, 1897. Serial No. 637,396. (No model.)



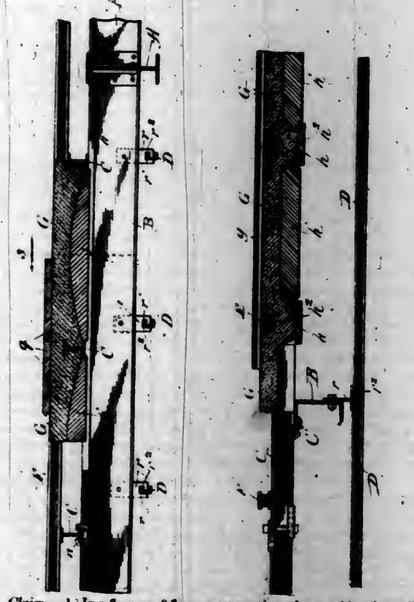
Claim.—1. In a car-chuck, a suitable arm or frame adapted to be temporarily secured to the car, a chuck-carrying arm yieldingly carried thereby, a guide for said arm and a chuck or block carried by the chuck-carrying arm and adapted to be automatically interposed and normally held in proximity to and between the rail and wheel during the motion of the car, substantially as set forth.

2. In a car-chuck, a suitable frame or arm adapted to be temporarily secured to the car, a chuck-carrying arm yieldingly carried thereby, a guide for said arm, means for automatically bringing the chuck or block carried by the chuck-carrying arm into engagement with the wheel and rail, and means for temporarily retracting the same out of engagement, substantially as set forth.

3. In a car-chuck, a suitable arm or frame, an adjustable bracket carried thereby and adapted to be clamped in proximity to the wheel of the car, a chuck-carrying arm loosely mounted on the frame, a chuck or block carried at the lower end of the said arm, a spring for normally forcing the chuck into engagement with the wheel of the car, means for guiding the chuck-carrying arm to and from the car-wheel, and yielding connections between the frame and chuck-carrying arm for permitting the latter to yield under all conditions of the road passed over by the car, substantially as set forth.

4. A car-chuck comprising a suitable frame, an adjustable bracket carried thereby and adapted to secure the frame to the car, a chuck-carrying arm passing loosely through the frame, a spring coiled about the arm having one end bearing against the under surface of the frame and the opposite end connected to the arm, a second spring encircling the outer projecting end of the arm and having one end bearing against the outer surface of the frame and the opposite end connected to the arm, the said springs being located on opposite sides of the opening of the frame through which the chuck-carrying arm loosely passes, a lower slotted guide-bar carried by the frame for guiding the lower end of the chuck-carrying arm, a stem pivotally secured to the frame in proximity to the guide bar, said stem passing loosely through an opening of the chuck-carrying arm, a spring encircling the stem and having one end bearing against the base of the stem and the opposite end cooperating with the chuck-carrying arm for forcing the latter normally in proximity to the car-wheel, and a chuck, wedge or block carried at the lower end of the chuck-carrying arm, the parts operating substantially as and for the purpose set forth.

590,663. FIREPROOF FLOOR AND CEILING CONSTRUCTION. CHARLES F. T. KANDELER, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,754. (No model.)



Claim.—1. In a fireproof-floor construction, the combination with joists of floor-bars extending across and resting on the joists, a sheeting comprising boards *h* and arches *h'*, having beveled ends at which they rest on said boards and a filling of concrete extending between and over the floor-bars, substantially as described.

2. In a fireproof-floor construction, the combination with joists of floor-bars extending across and resting on the joists, floor-strips extending across and resting on and fastened to the floor-bars, and a monolithic filling of concrete extending between and over the floor-bars and embedding the floor-strips, substantially as described.

3. A fireproof-floor construction comprising, in combination, floor-beams, joists supported by the floor-beams, floor-bars extending across and resting on the joists, floor-strips extending across and resting on and fastened to the floor-bars, and a monolithic filling of concrete extending between and over the floor-bars and embedding the floor-strips, substantially as described.

4. In a fireproof-floor construction, the combination with joists of floor-bars extending across and resting on the joists, floor-strips extending across the floor-bars and a filling of concrete extending between and over the floor-bars and embedding said strips and arched underneath between thickened portions extending along the floor strips, substantially as described.

5. In a fireproof-floor construction, the combination with joists, of floor-bars extending across and resting on the joists, floor-strips extending across and resting on and fastened to the floor-bars, and a fireproof covering extending between and underneath the floor-strips, substantially as described.

6. In a fireproof-floor construction, the combination with joists B of floor-bars C extending across and resting on the joists and clips C' fastening the floor-bars to the joists, each clip comprising a link *n* embracing a floor-bar across its base-flange and an undulatory bar *n'* having two or more bends passing through the part *n* and bearing at its opposite ends respectively against the floor-bar and flange of the joist, said bends in the bar preventing it from dropping out of the part *n*, substantially as described.

7. In a fireproof-floor construction, the combination with the joists of floor-bars extending across and resting thereon, said floor-bars having the perpendicular ends of adjacent sections straight throughout and spaced apart a distance greater than the width of the bolt to pass between them, fish-plates crossing the ends of adjacent sections of a floor-bar to splice them and a bolt passing between said ends and connecting the fish-plates, substantially as described.

8. In a fireproof-floor construction, the combination with the I-shaped bars C extending across and resting on the joists, of channel metal fish-plates *p* and *p'* crossing the ends of adjacent sections of a floor-bar along the top and base flanges thereof to splice the sections, and a bolt p^3 passing between said ends and connecting the fish-plates, substantially as described.

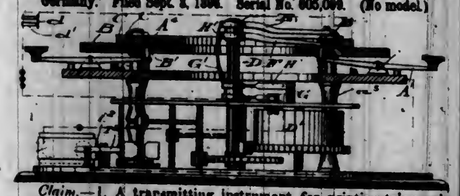
9. In a fireproof floor and ceiling construction, the combination with a ceiling-strip of fish-plates crossing the perpendicular ends of adjacent sections of said strips to splice them at opposite sides thereof, said ends being straight throughout and spaced apart a distance greater than the width of the bolt to be passed between them and a bolt passing between said ends and connecting the fish-plates, substantially as described.

10. In a fireproof floor and ceiling construction, the combination with a ceiling-strip D having a reëntrant side of fish-plates *o* and *o'* crossing the perpendicular ends of adjacent sections of said strip to splice them at opposite sides thereof, said ends being straight throughout and spaced apart a distance greater than the width of the bolt to be passed between them, and the fish-plate *o'* conforming to the reëntrant side of the ceiling-strip, and a bolt o^3 passing between said ends and connecting the fish-plates, substantially as described.

11. In a fireproof floor and ceiling construction, the combination with floor-beams, joists and a suspended ceiling, of diagonal lateral bracing above the ceiling, substantially as described.

12. In a fireproof floor and ceiling construction, the combination of floor-beams, joists, floor-bars resting on the joists, a suspended ceiling below the floor, and diagonal lateral bracing below the floor-bars and above the ceiling, substantially as described.

590,664. PRINTING-TELEGRAPH. REINHOLD KÜHLER, Berlin, Germany. Filed Sept. 8, 1896. Serial No. 605,089. (No model.)



Claim.—1. A transmitting instrument for printing-telegraphs, comprising a base and clockwork, a metallic key-supporting ring supported thereon, of a metallic contact-ring provided with interrupting insulations and insulated from the key-supporting ring, a contact-arm revoluble thereon by the clockwork and connected with the main circuit and a key for closing a local circuit and causing the arrest of the said clockwork and arm to control the local circuit and the synchronously-operated mechanism of a corresponding receiving instrument, substantially as described.

2. A transmitting instrument for printing-telegraphs, comprising a base, a contact-ring thereon provided with interruptions, a revoluble contact-arm adapted to place any one of the contact-points of said ring in circuit, a corresponding independent and synchronously-revoluble interruption-arm and key-levers each carrying pins for arresting the rotation of said interruption-arm and arranged in a circle beneath said arms for controlling the motor-circuit of the synchronously-operating mechanism of a corresponding receiving instrument, substantially as described.

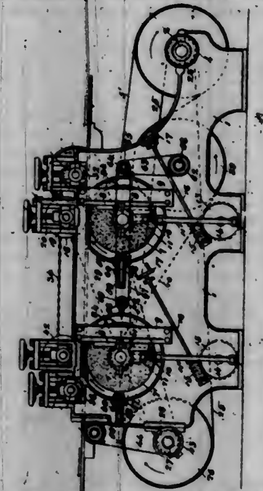
3. A transmitting instrument for printing-telegraphs, comprising a base and operating-clockwork, two commonly-revoluble contact-arms, a main circuit, a contact-ring provided with interruptions adapted to one of said arms to effect closings of the main circuit, key-levers, a local circuit connected with said clockwork and closed by said key-levers for arresting said clockwork to prolong the length of the main current to insure the proper action of the printing device of the receiving instrument, substantially as described.

4. A transmitting-instrument for printing-telegraphs, comprising a base, a contact-ring provided with interruptions, a revoluble contact-arm adapted to place any one of the contact-points of said ring in the main circuit with a receiving instrument, a metallic key-contact ring provided with interruptions and keys adapted to close a local circuit connecting two of the contact-points of said key-contact ring, and adapted to be closed by said keys to arrest the movement of the said revoluble arm of the main circuit, substantially as described.

5. The combination with a receiving instrument for printing-telegraphs, of a pendulum, an electromagnet, an armature, a synchronously-revoluble type-wheel and impression-lever embraced in a local circuit, and a lever-arm on the said armature provided with a tooth to engage with the swinging end of the pendulum, substantially as described.

6. In a printing-telegraph instrument, the combination with the clockwork for operating the same adapted to be placed in an electric circuit of an electromagnet, an armature carrying a detent-lever having a beveled tooth, a pendulum connected at its pivotal end with the contact, of one pole of the circuit and having a tooth to normally maintain contact with the tooth of the detent-lever, a pivoted contact-lever connected with the other pole of said circuit and adapted to swing and close the contact with said pendulum during the prolonged interval of said current, substantially as described.

590,665. WOOD SANDING AND POLISHING MACHINE. DANIEL J. LATTIMORE, St. Louis, Mo., assignor of one-half to Clarence M. Lattimore, same place. Filed Oct. 26, 1896. Serial No. 610,141. (No model.)



Claim.—1. In a wood-sanding machine, a suitable frame, a series of mineral sanding-cylinders of progressively-increasing fineness of grain mounted on said frame, a polishing device adapted to operate on the wood at the termination of the sanding operation, means for actuating the sanding-cylinders and polishing device, a presser-roller located on the frame in position to cooperate with each sanding-cylinder, feeding devices in connection with the sanding-cylinders and polishing device, means for adjusting the relative positions of the cylinders and presser-rollers in proportion as the sanding-surfaces of the cylinders wear away, and suitable devices for cleansing the peripheries of the cylinders of foreign accumulations, substantially as set forth.

2. In a wood sanding and polishing machine, a suitable revolving sandstone sanding-cylinder, a brush for removing the dirt and sawdust particles from the periphery thereof, and means for removing the resinous accumulations from the surface of said cylinder, substantially as set forth.

3. In a wood sanding and polishing machine, a polishing-roller comprising a series of sections built up of alternate strips of metal and leather secured together, a band encircling the ends of the sections when assembled, a terminal-clamping plate or disk having a circular offset or ledge adapted to be inserted into the circular opening formed between the edges of the assembled sections, a shaft passed through the clamping-plates, and a binding-nut carried at each end of the shaft and adapted to be firmly forced against the outer surfaces of the clamping-plates, substantially as set forth.

4. In a wood sanding and polishing machine, a suitable sanding-cylinder, a frame in which the same is mounted, a slot or receptacle formed in the frame adjacent to the periphery of the cylinder, a yoke slidingly mounted in said receptacle, arms forming a part of said yoke, a brush mounted between the ends of said arms and adapted to press against the periphery of the cylinder, and bolts for securing the yoke in place after the latter has once been adjusted, substantially as set forth.

590,666. CHECK SORTER OR SEPARATOR. JOHN M. MAGRAR, Clarksville, Texas. Filed May 4 1897. Serial No. 635,040. (No model.)



Claim.—1. In a device of the character described, the combination of the casing, a pair of removable rods on opposite sides thereof, and a division-plate strung on said removable rods, having projecting portions on its ends; with a pair of laterally-movable rods arranged to normally overlie the projecting portions of the division-plate so as to retain it in an upright position, substantially as described.

2. A device for holding papers, comprising a casing, a follower, a series of partitions or division-plates, rods extending longitudinally through the casing for guiding the division-plates and follower in their movements therein and laterally-movable guide and retaining rods or bolts adapted to fit over a portion of the division-plates to assist in retaining said plates in an upright position, and to be moved to one side of the division-plates to permit said plates to be removed without withdrawing the retaining-rods from the casing, substantially as described.

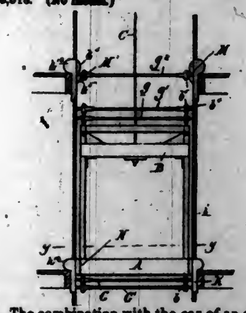
3. A device of the character described, comprising a casing, a pair of rods arranged on opposite sides of the casing at or near the upper portion thereof, a follower and a series of partitions or division-plates slidingly held on said rods, and a pair of laterally-movable guide and retaining rods or bolts adapted to fit over a portion of the division-plates to assist in retaining said plates in an upright position and to be moved to one side of the division-plates to permit said partitions or plates to be removed without withdrawing the retaining-rods from the casing, substantially as described.

4. A sorter or file for checks and the like, comprising a casing provided with longitudinally-extending grooves at or near the bottom of the casing and on opposite sides thereof, and with openings or slots forming a continuation of said grooves, division-plates or partitions arranged in the casing, a pair of rods arranged on opposite sides of said casing at or near the upper portion thereof, and a second pair of rods having their ends arranged in the openings in the casing so as to adapt said bolts to be moved laterally and engage notches in the edges of the division-plates to assist in retaining said plates in an upright position, or to be moved into the longitudinal grooves in the casing to permit the partitions or plates to be removed without withdrawing the retaining-rods from the casing, said latter rods having one of their ends hooked and adapted to engage the casing, and their other ends provided with suitable nuts so as to secure the rods in the casing or permit them to be shifted laterally, substantially as described.

5. In a device for holding papers, a metallic partition or division plate having a guide wire or rod held therein by bending over the upper edge thereof, and provided with a projecting portion above the wire whose ends are folded over at an incline so as to retain an indicating card or slip therein against upward movement, while the rod or wire retains and prevents downward movement of the card, substantially as described.

6. A device for holding papers, comprising a casing provided with one or more longitudinally-extending strips arranged in the bottom of said casing upon which the checks or other articles may rest so as to be supported above said bottom, a pair of rods arranged on opposite sides of the casing at or near the upper portion thereof, a follower slidingly held on the rods, means for securing said follower in various adjustments, a series of partitions or division-plates also slidingly held on said rods, and a pair of laterally-movable guide and retaining rods or bolts adapted to fit over a portion of the partitions to assist in retaining said partitions in an upright position and to be moved to one side of the partitions to permit said partitions to be removed without withdrawing the retaining-rods from the casing, substantially as described.

590,667. ELEVATOR ATTACHMENT. HUGO MATTULLATH, New York, N. Y., assignor to the Anderson Safety Elevator Company, Limited, Detroit, Mich. Filed Feb. 6, 1896. Renewed Feb. 13, 1897. Serial No. 623,318. (No model.)



Claim.—1. The combination with the car of an elevator, a series of traveling platforms located below the car, and independent cables and counterweights for each platform secured to brackets on said platform, of tubular guideways in which the counterweights are inclosed and sheaves supported on top thereof, said tubular guideways being supported within the hatch-opening in proximity to opposite sides of the car, and grouped in relation to the brackets to form interstices for the brackets and cables, substantially as described.

2. The combination with the car of an elevator, a series of platforms and counterweights attached to cables for supporting the platform in traveling contact below the car, of tubular guideways inclosing the counterweights and carrying the sheaves for the cables on top thereof, brackets on the platforms projecting into the interstices between the guideways and having the cables attached thereto, and stops for the brackets at the hatch-openings, substantially as described.

3. The combination with the car of an elevator, a series of platforms and counterweights attached to cables for supporting the platforms in traveling contact below the car, of a vertical guideway for each counterweight provided on top with a sheave for the cable of the counterweight, said guideway being made of sections of pipe independently supported to provide for expansion and contraction, substantially as described.

4. The combination with the car of an elevator, a series of platforms and counterweights attached to cables for supporting the platforms in traveling contact below the car, of brackets on the platforms to which the cables are attached, guideways inclosing the counterweights and arranged in groups with the brackets on opposite sides of the car to form suitable interstices for guiding the brackets, and a sheave for each cable inclosed in a casing connected to the top of each guideway, substantially as described.

5. The combination with the car of an elevator, a series of platforms and counterweights attached to cables, passing over sheaves for supporting the platforms in traveling contact with the under side of the car, of brackets on the platforms to which said cables are attached, vertical guideways inclosing the counterweights and arranged in groups with said brackets on opposite sides of the platform near the corners thereof to form interstices for the brackets and cables, stops for the brackets secured to the guideways, and coöperating elastic buffers on the brackets and stops, substantially as described.

6. The combination with the car of an elevator, a series of platforms and counterweights attached to cables passing over sheaves for supporting the platforms in traveling contact with the under side of the car, of brackets on the platforms carrying the cables, stops located in the hatch-openings to coöperate with said brackets, latches located in the hatch-openings and adapted to engage with and support one of the platforms and projections on the platforms and car coöperating with the latches to automatically latch and unlatch the platforms, substantially as described.

7. The combination with the car, of a series of platforms supported in traveling contact with the under side of the car and provided with brackets, stops located in the hatch-openings to coöperate with the brackets, latches located in the hatch-openings, each provided with a supporting-shoulder and a cam-shaped projection on the face of the latch-bar and rollers journaled between projecting lugs on the traveling platforms adapted to coöperate with said latch-bars to latch and unlatch the platforms in the movement of the car.

8. The combination with the car, of a series of platforms supported on top of the car, and a like series of platforms below the car, and cables, sheaves and counterweights supporting them in traveling contact with the car, of vertical guide-rails for said platforms located near the corners within the elevator-shaft, guide-rollers on the platforms engaging upon said guide-rails and guiding the platforms independently of the car, latches located in the hatch-openings and provided with a supporting-shoulder and a cam-face projection above said shoulder, and rollers on the platforms adapted to coöperate with said latches, substantially as described.

9. The combination with the elevator-car, of the platform below the same, the supporting-latches for one of said platforms at each floor having pivoted latch-bars formed with a supporting-shoulder and inclined faces above and below the same, antifriction-rollers carried between ears on the sides of the platforms in line with the latch-bars and adapted to coöperate therewith to latch and unlatch the platforms in the movement of the car and corresponding projections as N in the sides of the platform of the car, substantially as described.

10. The combination with the elevator-car, of the platforms, counterweights attached to cables for carrying the platforms below the car, brackets secured upon opposite sides of the platforms and attached to the cables, guideways inclosing the counterweights and forming between them guideways for said brackets, means in the space between the elevator-hatchway and the car and forming supports for the platforms, and stops for said brackets secured to the guideways to form cross-braces for the same, substantially as described.

11. The combination with the elevator-car of the platforms below the car, counterweights for holding the platforms in traveling contact with the car and the tubular guideways extending through the openings in the floors and supporting-sheaves for the cables and inclosing the counterweights, substantially as described.

12. The combination with the car, of a platform below the car, cables attached to the platform and carrying counterweights, tubular guideways, supported in the hatchways and inclosing the counterweights and the casing i' on top of each guideway and provided with the sheave k and guide-pulley k^3 inclosed in said casing, substantially as described.

13. The combination with the car and a traveling platform below the car, of the cables f^4 attached to the platforms, the tubular guideways i supported in sections within the hatchways and provided with sheaves k and guide-pulleys k^3 for the cables, and the counterweights L' inclosed in said guideways and elastically connected to the cables, substantially as described.

14. The combination with the car and the platforms carried by the car of supporting-latches therefor in the hatchways, each consisting of a casing l^2 having means for supporting it in the hatch-opening, a pivoted latch-bar k, and actuating-spring l^3 and a stud l^5 provided with the adjusting-nut l^6 in the free end of the latch-bar, substantially as described.

590,668. ADJUSTABLE LETTER AND FIGURE FOR INSCRIBING MONUMENTS. PATRICK S. MCGEE, Dodgeville, Mass. Filed Jan. 11, 1897. Serial No. 618,578. (No model.)



Claim.—1. In a monument, the combination of a name-plate B provided with a slot a, a case C extending from the rear face of said name-plate back of said slot, a letter-block D adjustable in said slot and extending into the case and having a perforation, with the filling material E in said case, capable when solidified to hold said block and pin in position, substantially as shown and described.

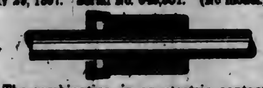
2. In a monument, the combination of a name-plate B provided with a slot a, a case C extending from the rear face of said name-plate back of said slot, a letter-block D' adjustable in said slot and having a rearward extension reaching into said case, a fastening-bar F in said case engageable with the rear extension of said block, means within the case adapted to draw the letter-block into firm contact with the name-plate, and a filling material capable when solidified to hold said block in position, substantially as shown and described.

590,669. HORSE-COLLAR PAD. SYLVIA R. PARSONS, South Bend, Ind. Filed May 17, 1897. Serial No. 636,914. (No model.)

Claim.—In a horse-collar pad, the combination of a main or pad portion formed of leather or similar material and adapted to flex or expand laterally, independent wear-plates secured one to each side of the pad portion to form rigid points of support and not interfere with the flexibility of the pad portion, and an arch portion formed of metal pivotally secured to the independent wear-plates so as to permit longitudinal movements of the same without moving the pad portion or preventing the flexibility of the same, substantially as described.



590,670. ELECTRIC-ARC LAMP. ALFRED POULSEN, Buffalo, N. Y. Filed July 29, 1897. Serial No. 646,351. (No model.)



Claim.—The combination, in an electric contact for sliding or rotating rods in arc-lamps, consisting of a barrel with cover, having rings of packing, and containing small particles of a good conducting material, this being the recipient of the current, surrounds the rod to which the current shall be conveyed, substantially as described.

590,671. COMBINED PLOW AND HARROW. JAMES RIFE, Shelbyburg, Iowa. Filed Aug. 7, 1896. Serial No. 602,056. (No model.)



Claim.—1. The combination with a plow, of a frame hinged thereto, a wheel journaled in said frame and adapted to travel in the furrow, a controlling-lever, a rack with which the controlling-lever engages, a sleeve slidable on said lever, means for raising and lowering said lever and a harrow-beam provided with teeth and connected to the sleeve.

2. The combination with a plow, of a frame hinged thereto, a wheel journaled in the frame, a rack connected to the frame, a controlling-lever adapted to engage with said rack, a sleeve slidable on the controlling-lever, a bracket connected to the controlling-lever, a harrow-beam provided with teeth and connected to the sleeve, a pull-rod connected to the beam and slidable through the bracket, and locking mechanism for said pull-rod.

3. The combination with a plow, of a frame hinged thereto, a wheel journaled in the frame, a rack connected to the frame and provided with a slot, a controlling-lever movable in the slot and provided with mechanism adapted for engagement with the rack, a bracket connected to the lever and provided with an eye, a spring-pressed locking-bolt slidable in said bracket, a sleeve slidable on the lever and provided with pintles, a pull-bar having a series of recesses slidable in the eye, said recesses being adapted for engagement with the locking-bolt, a harrow-beam provided with teeth, said harrow-beam being hinged on the pintle of the sleeve, and a brace connecting the free end of the harrow-beam with the plow.

590,672. ADJUSTABLE HANDLE-BAR. AL BURT SIMONS, Buffalo, N. Y. Filed May 18, 1897. Serial No. 637,052. (No model.)



Claim.—1. The combination with a supporting lug or barrel, of a handle-bar adjustably seated in said lug and provided within the

same with an annular groove or recess, a locking plate or cap arranged on the upper side of the lug and bearing against the handle-bar, and a clamping-bolt confined or anchored at its lower end and extending upwardly through the groove or recess of the handle-bar and through said locking-plate, substantially as set forth.

2. The combination with a handle-bar lug or barrel provided in its top with an opening and on its under side with a depending stem adapted to enter a steering-head, of a handle-bar adjustably seated in said lug and provided within the same with a transverse groove or recess, a locking plate or cap arranged in the opening of the lug and bearing against the handle-bar, a wedge arranged in the stem of the lug and adapted to expand the same against the surrounding steering-head, and a clamping-bolt connected with said wedge and extending upwardly through the stem, the groove of the handle-bar and said locking plate or cap, substantially as set forth.

3. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove forming an axial neck or reduced portion, a locking-plate arranged in the opening of the lug, and a clamping-bolt confined at its lower end and extending upwardly through the groove of the handle-bar and through said locking-plate and having an offset portion whereby the bolt clears said axial neck, substantially as set forth.

4. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove forming an axial neck or reduced portion, a locking-plate arranged in the opening of the lug, a split clamping-bolt confined at its lower end and having its branches arranged on opposite sides of said axial neck and extending upwardly through said locking-plate, and a screw-nut applied to the projecting ends of said branches, and bearing upon said locking-plate, substantially as set forth.

5. The combination with a handle bar lug or barrel provided in its wall with an opening, of a handle-bar seated adjustably in the lug, a locking plate arranged in the opening of the lug and bearing against the handle-bar, a clamping device for said plate, and a spring whereby said plate is automatically raised out of engagement with the handle-bar upon releasing the plate, substantially as set forth.

6. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove, a clamping-plate arranged in the opening of the lug and bearing against the handle-bar, a clamping-bolt confined at its lower end and extending upwardly through the groove of the handle-bar and said locking-plate, and provided below the plate with an offset or shoulder, and a spring applied to the bolt between its offset and the locking-plate, substantially as set forth.

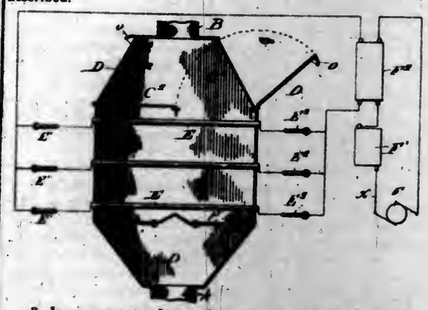
7. The combination with a supporting-lug having an opening in its top, and an adjustable handle-bar seated therein and composed of two sections, of a coupling connecting said sections and consisting of a pair of cylindrical heads secured to the ends of the sections and connected by an axial neck, leaving an annular groove between the heads, a locking-plate arranged in the opening of the lug, and a clamping-bolt confined at its lower end and extending upwardly through said groove and said locking-plate and having an offset whereby it clears said axial neck, substantially as set forth.

8. The combination with a cylindrical supporting-lug having an internal screw-thread and provided in its top with an opening, of a handle-bar seated in said lug and composed of two sections, a coupling for said sections consisting of a pair of cylindrical heads having external screw-threads engaging with said lug and an axial neck connecting said heads, a locking-plate arranged in the opening of said lug and provided on its under side with screw-threads engaging with the threads of said coupling, and a clamping-bolt confined at its lower end and extending upwardly around said axial neck and through said locking-plate, substantially as set forth.

590,673. PROCESS OF AND APPARATUS FOR ELECTRICALLY TREATING ORES. FRANCIS H. SMITH, Chicago, Ill. Filed July 13, 1894. Serial No. 517,449. (No model.)

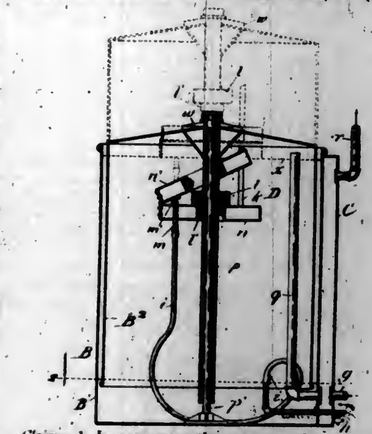
Claim.—1. The method of electrically treating ore to purify it preparatory to smelting, which consists in subjecting it under confinement against the access of atmospheric air to the action of superheated air and subjecting it to the action of a purifying-gas, such as hydrogen, and during the periods of such subjection, heating the said ore by subjecting it conductively to the action of an electric current, substantially as described.

2. The method of electrically treating ore to purify it preparatory to smelting, which consists in confining the ore and embedding therein unbroken resistance-conductors in an electric circuit to heat the ore by contact with the electrically-heated conductors and by the resistance the ore presents to the current shunted through it, and introducing into said ore while under such electric subjection, superheated air and a purifying-gas, such as hydrogen, substantially as described.



3. In an apparatus for treating ore, a receptacle A provided with doors D having connected with them hinged sections of a perforated diaphragm C² normally forming in the receptacle an upper gas-chamber D², a sectional screen-diaphragm C' in the lower part of the receptacle forming therein a gas-chamber D', a discharge-outlet A from the lower gas-chamber, a covered inlet-pipe B leading into the upper gas-chamber, a pressure-valve for the escape of the gases from the receptacle, valve-controlled pipes C and C' leading into the lower gas-chamber, series of electric conducting-rods E extending across the receptacle to be embedded in the ore, and an electric-current generator having the rods interposed in its circuit, substantially as described.

590,674. APPARATUS FOR GENERATING ACETYLENE GAS. AXEL A. STROM, Austin, Ill., assignor to the Walmsley & Company, Chicago, Ill. Filed June 14, 1897. Serial No. 640,736. (No model.)



Claim.—1. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder having a body provided with a tubular passage coupled to said water-pipe connection, substantially as described.

2. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device on said guide having a body provided with a tubular passage coupled to said water-pipe connection, substantially as described.

3. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder having a body provided with a tubular passage connected by a flexible tube in said water-pipe connection, substantially as described.

4. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device on said guide having a body provided with a tubular passage connected by a flexible tube in said water-pipe connection, and a weight carried by said guide above said body, substantially as described.

5. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder comprising two bodies hinged together, one having a tubular passage coupled to said water-pipe connection and the other carrying a cover for the open end of said passage, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

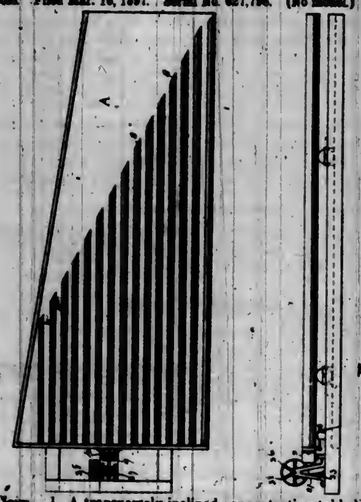
6. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device comprising two bodies hinged together and surrounding said guide, one of said bodies having a tubular passage coupled with said water-pipe connection and the other carrying a cover for the open end of said passage, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

7. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a float-valve device in said holder comprising two bodies hinged together, one having a tubular passage and the other carrying a cover for the open end of said passage, a flexible tube connecting the tubular passage in said water-pipe connection, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

8. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, and a telescoping guide in said holder extending between its fixed and movable sections, of a float-valve device comprising two annular bodies hinged together and surrounding said guide, one of said bodies having a tubular passage and the other carrying a cover for the open end of said passage, a flexible tube connecting the tubular passage in said water-pipe connection, and means for separating said bodies by the fall of the movable section of said gas-holder, substantially as and for the purpose set forth.

9. In a gas-generating apparatus, the combination with a gas-holder and a generator intercommunicating through a water-pipe connection, of a telescoping guide in said holder extending between its fixed and movable sections, a weight *l* carried by said guide, and a float-valve device D comprising the annular bodies *n* and *n'* hinged together and surrounding said guide, the body *n* having a tube *m* extending through it and connected by a flexible tube *i* in said water-pipe connection and the body *n'* carrying a cap *m'*, and a stop *k* for the body *n'*, the whole being constructed and arranged to operate substantially as described.

590,675. ORE-CONCENTRATOR. ARTHUR R. WILFLEY, Denver, Colo. Filed Mar. 16, 1897. Serial No. 627,798. (No model.)



Claim.—1. A transversely-inclined concentrating-table having a movement whose tendency is to carry the material longitudinally forward toward the tail or foot of the table, said table being provided with a number of riffles extending longitudinally a portion of the distance from its head toward its foot, said riffles varying in length for the purpose specified, the table having a smooth, plain, or unriffled portion extending from the extremities of the riffles toward the tail of the table, whereby the material as it leaves the riffles is subjected to the action of the water on the smooth portion of the table and the final separation of the mineral from the gangue effected.

2. A transversely-inclined concentrating-table having a number of longitudinal riffles extending a portion of the table's length from the head toward the foot, said riffles being of unequal length, the uppermost being the shortest while the other riffles increase in length from the upper edge to the lower edge of the table, the table having a plain or unriffled portion lying at the extremities of the riffles and adapted to receive the material caught by the riffles.

3. The combination of a transversely-inclined concentrating-table having a number of longitudinal riffles of unequal length extending from the head toward the tail of the table, said riffles increasing in length from the upper toward the lower edge of the table, said table being provided with a plain or unriffled portion at the extremities of the riffles, and means for imparting to the table a longitudinally-reciprocating movement comprising a toggle, an operating-pitman, and a lever, one link of the toggle engaging one arm of the lever, while the other arm of the lever is connected with the head of the table.

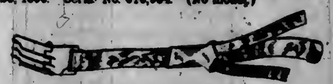
4. The combination of a transversely-inclined concentrating-table having a number of longitudinal riffles extending from the head toward the foot of the table, the table being provided with a plain or unriffled portion located at the extremities of the riffles, and means for imparting to the table a longitudinal reciprocating movement comprising a toggle-joint, an operating-pitman and a lever, one link of the toggle engaging one arm of the lever, while the other arm of the lever is connected with the table and provided with an adjustable roller adapted to engage a keeper carried by the table.

5. The combination of a transversely-inclined concentrating-table having a series of longitudinal riffles extending from the head toward the foot of the table, the table being provided with a plain or unriffled portion extending from the riffle extremities to the foot of the table, and means for imparting to the table a longitudinally-reciprocating movement, said means comprising a toggle-joint, an operating-pitman, and a lever, one link of the toggle engaging one arm of the lever, while the other arm of the lever is connected with the table and provided with an adjustable roller, said roller being mounted on a block adjustably attached to the lever.

6. The combination of a transversely-inclined concentrating-table having a number of longitudinal riffles extending from the head toward the tail of the table, the table being provided with a plain or unriffled portion located at the extremities of the riffles, and means for imparting to the table a longitudinally-reciprocating movement comprising a toggle-joint, an operating-pitman, and a lever, one link of the toggle engaging one arm of the lever, while the other arm of the lever is connected with the table and provided with a vertical slot, and a block held in place by a bolt passing through the slot and carrying an antifrictional roller engaging a keeper on the table.

7. The combination of a transversely-inclined concentrating-table having a series of riffles extending longitudinally from the head toward the tail of the table, said riffles being of unequal length, the uppermost being the shortest and the riffles increasing in length from the upper to the lower edge of the table, the table being provided with a plain or unriffled portion of suitable area located at the extremities of the riffles, means for feeding the material to the upper portion of the table's head, means for discharging water on the upper edge of the table, and suitable means for imparting to the table a longitudinally-reciprocating movement of a character adapted to move the material from the head toward the tail of the table.

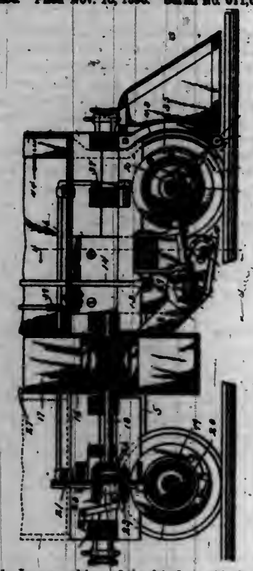
590,676. HOSE-SUPPORTER. ORIN BAGLEY, Sutton, N. H. Filed Dec. 26, 1896. Serial No. 616,964. (No model.)



Claim.—1. In a hose-supporter, a clamp for stockings comprising a bail or lever, a pair of frames one sliding upon the other, the free end of one being pivotally connected to eyes at the side of said bail and the other to transverse extensions formed below the eyes of said bail, and a spring-actuated lever attached to the latter frame and adapted to engage the lower end of the sliding frame by a movement of said bail or lever, substantially for the purpose set forth.

2. As a corset attachment for hose-supporters, a pair of hinged plates the lower of which is provided with an opening for connecting the strap of a hose-support, and one or more prongs or pins rigidly attached to the upper plate and projecting slightly below its hinged portion, the points of said pins being curved toward and away from the lower plate which must be moved at an angle to enable said pins to engage a corset.

590,677. FLANGER. WILLIAM H. BOHNENKAMP and WILLIAM J. LINDSEY, La Grande, Oreg.; said Lindsey assignor to William Ericson, same place. Filed Nov. 10, 1896. Serial No. 611,659. (No model.)



Claim.—1. In a machine of the kind specified, the combination with the body and running-gear, of rotatable cutters situated inwardly of the wheels thereof, fan-casings in the rear of each of said cutters, fans in said casings, a large fan-casing communicating with each of said first-mentioned fan-casings, a large fan in said fan-casing, and means for rotating said cutters and fans.

2. In a device of the kind specified, the combination with a body and running gear, of rotatable cutters situated inwardly of the wheels thereof, fan-casings in the rear of said rotatable cutters, fans within said casings, a large fan-casing communicating with each of said first-mentioned casings, a large fan within said large fan-casing, rotatable cutters situated on the outside of said wheels, and means for rotating said fans and cutters.

3. In a device of the kind specified, the combination with a body and running-gear, of rotatable cutters situated inwardly of the wheels thereof, fan-casings situated in the rear of each of said cutters, fans within said casings, a large fan-casing communicating with each of said first-mentioned fan-casings, a large fan within said large fan-casing, rotatable cutters situated on the outside of said walls, deflecting-plates situated in the rear of said cutters that are on the outside of said wheels, and means for rotating said fans and cutters.

4. In a device of the kind specified, the combination with a body and running-gear, of rotatable cutters mounted in upright guides upon said body, devices for raising and lowering said cutters, fan-casings in the rear of each of said cutters, fans within said fan-casings, a large fan-casing communicating with each of said first-mentioned fan-casings, a large fan within said large fan-casing, and means for rotating said fans and cutters.

5. In a device of the kind specified, the combination with the body and running-gear, said body having depending handles provided with upright guide-slots, of rotatable cutters mounted in bearing-blocks situated within said guide-slots, fan-casings situated in the rear of each of said cutters, movable shoes at the lower end of said fan-casings which are flexibly connected to said fan-casings at one end, while at their other end they are connected with the rotatable cutters to move bodily with the latter, fans in each of said fan-casings, a large fan-casing communicating with each of said first-mentioned fan-casings, a large fan in said large fan-casing, means for raising and lowering said guide-blocks, and means for rotating said fans and cutters.

6. In a device of the kind specified, the combination with the body and running-gear, of rotatable cutters and fans, means for rotating said cutters and fans, clutches situated between the source of power and said cutters and fans to control the gearing operating the same, said clutches being connected together to move in unison and devices for operating said clutches, substantially as described.

7. In a device of the kind specified, the combination with the body and running-gear, of rotatable cutters, fan-casings situated adjacent to said cutters, fans within said fan-casings, means for operating said cutters and fans, a large fan-casing communicating with said first-mentioned fan-casing, a large fan within said large fan-casing, means for operating said large fan, and devices to cause said large fan to rotate in opposite directions.

8. In a machine of the kind specified, the combination with the body and running-gear, of rotatable cutters, fan-casings in the rear of each of said cutters, fans in each of said casings, a large fan-casing communicating with each of said first-mentioned fan-casings, a large fan in said large casing, rotatable brushes situated in front of the wheels of the running-gear, and means for operating said fans, cutters and brushes.

590,678. CAR-SEAL. OSCAR DELOSS and BENJAMIN F. DU LOSS, Gainford, Iowa, assignors of one-half to John F. Grote, West Side, and John P. Lacey, Oakaloosa, Iowa. Filed Jan. 23, 1897. Serial No. 620,419. (No model.)



Claim.—The improved car-seal herein described, comprising the band 1 provided at one end with a hook 5', and at the other end with a rearwardly-projecting hook 3' and a socket formed by two oppositely-disposed ears 2, 2', and having its mouth facing the contiguous end of the band, said ears being bent at right angles and diagonally to the band and inwardly upon each other to form the side and top walls of the socket, said walls converging from the mouth of the socket to the rear end thereof, and having their rear ends resting upon the band, and auxiliary means for connecting the rear ends of the ears to the band to close the contracted rear end of the socket, substantially as described.

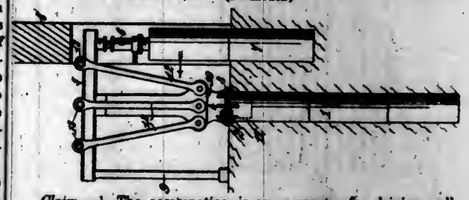
590,679. RAIL-JOINT. JOHN H. FOWLER, Huntingdon, Pa. Filed Nov. 7, 1896. Serial No. 611,390. (No model.)



Claim.—1. In a rail-joint, the combination with rail-sections, of locking-plates located on opposite sides of the rails, one of said plates being provided with arms having openings, which arms pass through the rail-sections and the other locking-plate, and the other locking-plate being provided with a longitudinally extending groove, and a wedge lying in the groove and passed through the openings in the arms.

2. In a rail-joint, the combination with rail-sections notched at their ends and also at their outer edges, of locking-plates located on opposite sides of the sections and provided with lugs which are received in the notches, and means for securing the locking-plates.

590,680. MEANS FOR SINKING WALL OR OTHER SUPPORTING COLUMNS. RICHARD S. GILLESPIE, New York, N. Y. Filed July 3, 1896. Serial No. 598,012. (No model.)



Claim.—1. The combination, in an apparatus for driving wall-supports, of a tubular pressure-resisting column driven into the earth, a support connected with the upper end of said tubular column, a horizontally-arranged beam mounted upon said support and extended to serve as an abutment for a hydraulic jack or ram to drive wall-supporting columns perpendicularly into the earth, and connections between said support and said beam for holding the latter against the upward pressure of the jack or ram while driving a wall-supporting column, substantially as described.

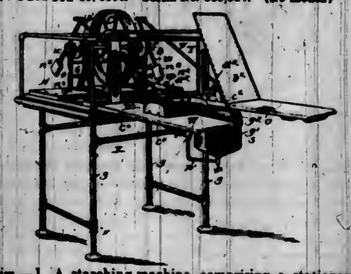
2. An apparatus for driving or sinking columns perpendicularly into the earth, consisting of a pressure-resisting column buried in the earth, a secondary column surmounting the same, a horizontally-arranged beam or beams supported by the secondary column and extended to constitute an abutment for a hydraulic or other jack designed to drive a column into the earth, and means for holding the beam or beams upon the secondary column against the upward pressure of the jack while driving a column, substantially as described.

3. An apparatus for driving or sinking columns perpendicularly into the earth, consisting of a pressure-resisting column buried in the earth, a secondary column surmounting the same, a horizontally-arranged beam, one or more, supported by the secondary column and extended to constitute an abutment for a hydraulic or other jack designed to drive a column into the earth, and coupling-links connected with the secondary column and engaging the beam or beams to hold the same against the pressure of the jack while driving a column, substantially as described.

4. An apparatus for driving or sinking columns perpendicularly into the earth, consisting of a pressure-resisting column buried in the earth, a horizontally-arranged beam, one or more, surmounting and sustained by the pressure-resisting column and extended to serve as an abutment for a hydraulic or other jack designed to drive a column into the earth, and coupling-links which engage the horizontally-arranged beam or beams and hold the same against the upward pressure of the jack while driving a column, substantially as described.

5. The combination, in an apparatus for driving or sinking columns perpendicularly into the earth, of a pressure-resisting column buried in the earth, a secondary column rotatably mounted on the upper end portion of the buried column, a horizontally-arranged beam, one or more, supported by the rotatable column and serving as an abutment for a hydraulic jack or ram designed to drive wall-supporting or other columns into the earth, and suitable means for holding the beam or beams against the upward pressure of the jack or ram while driving the columns.

590,681. STARCHING-MACHINE. EDWIN HAMILTON, La Crosse, Wis. Filed Oct. 19, 1896. Serial No. 609,337. (No model.)



Claim.—1. A starching-machine, comprising a stationary platform, a continuously-rotating shaft journaled in standards fixed on said platform, and provided with a fixed friction driving-disk, a shaft carrying a friction-driven disk contiguous to said driving-disk and provided with a crank-bar connected to a driving-arm having a starching-roller at the outer end thereof, a shifting lever connected at one end to said driven disk, in combination with a horizontally-reciprocating table, provided with a slot arranged at an inclination to the path of said table and engaging the free end of said shifting lever, substantially as and for the purpose set forth.

2. A starching-machine, comprising a stationary horizontal platform provided with limit-pins a^4, a continuously-rotating shaft journaled in standards fixed on said platform and provided with fixed friction driving-disks on its outer ends, shafts carrying friction-driven disks contiguous to said fixed driving-disks, crank-bars secured to said friction-driven disks, and driven thereby, driving-arms connected at one end to said crank-bars, a casing secured to the outer ends of said driving-arms having one or more starching rollers journaled in said casing and a shifting lever connected at one end to said friction-driven disks, in combination with a pair of horizontally-reciprocating starching-tables, having longitudinal limit-slots F F and inclined slots E E engaging the lower ends of said shifting levers and the limit-pins a^4, substantially as shown and described.

590,682. COTTON-GIN. JOHN H. HESTERS, Thornton, Tex., assignor of one-third to C. Edward Appler, Atlanta, Ga. Filed May 1, 1897. Serial No. 634,089. (No model.)

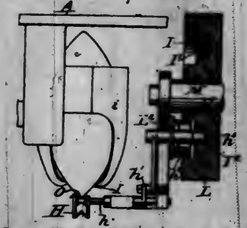
Claim.—1. A cotton-gin of the class described, the fan-shaft 10 comprising the segmental spiders 20, the curved fan-blades 21 21 removably secured between the divided arms of said spiders, the longitudinal plates 27, and the flexible strips 25, provided with the transverse slots 26 adjustably secured between the outer ends of said blades and plates 27 by the bolts 28, substantially as and for the purpose set forth.



2. The fan-shaft 10, the spiders 20 comprising the segmental members 22 22, each of which is formed with a pair of radial arms 23 23', curved in the same direction, the correspondingly-curved sheet-metal fan-blades 21, removably secured between said arms by the set-screws 24 24, in combination with the longitudinal plates 27 and the flexible strips 25, provided with the open-ended slots 32, the longitudinal parallel indentations 29 and the transverse slots 26, and adjustably secured between said blades and plates 27 by the bolts 28, substantially as and for the purpose set forth.

3. The fan-shaft, the spiders 20 comprising the counterpart segmental members 22, each of which is formed with a pair of radial arms 23 23', the curved sheet-metal fan-blades 21 21 secured between said arms by the set-screws 24, and having their outer ends formed with an integral longitudinal lip 30, in combination with the longitudinal plates 27 having their outer ends formed with a longitudinal lip 31, and the flexible strips 25, provided with the open-ended slots 32 and the transverse slots 26, and adjustably secured between said blades and plates by the bolts 28, substantially as and for the purpose set forth.

590,688. SEWING-MACHINE. FREDERIC O. JERRAM, London, England. Filed July 13, 1895. Serial No. 555,878. (No model.)



Claim.—1. In combination for the purpose of imparting to the looper an independent oscillatory movement on its axis, a rotary carrier N in which the axis of the looper is mounted, a fixed cam L having two cam-grooves l' l^2, a swinging frame L^2 pivoted to the carrier and having two cam-rollers mounted thereon adapted to work in the cam-groove l', a crank k' with cam-roller mounted thereon and adapted to work in the cam-groove l^2, and links or arms for coupling the aforesaid swinging frame and crank with a crank on the axis of the looper, substantially as described.

2. In a lock-stitch sewing-machine, the combination of the reel-holder, the rotary looper, and means carried by the looper for lifting the reel-holder from its supports as the looper passes around it.

3. In a lock-stitch sewing-machine, the combination of the reel-holder, the rotary looper eccentric thereto, and means carried by said looper for lifting the reel-holder from its supports as the looper passes around it.

590,684. CIGAR OR CIGARETTE HOLDER FOR BLOWING SMOKE RINGS. CARL LÖFFLER, Stuttgart, Germany. Filed Sept. 22, 1896. Serial No. 606,660. (Model.)



Claim.—A cigar or cigarette holder for forming rings or wreaths of smoke comprising a stem *a* provided with an aperture going through its whole length, said aperture being enlarged at the end opposite the mouthpiece, the conical socket *d* projecting laterally therefrom to receive the cigar or cigarette, the hollow device *b* provided with an enlarged middle part and a contracted free end, said hollow device *b* which is to be inserted within the enlarged part of the opening of stem *a*, being provided at the part to be inserted in stem *a* with a conical inwardly-bent projection *b'*, and the freely-

movable valve-disk *c* located between the shoulder *a'* of stem *a* and the projection *b* substantially as described and for the purpose specified.

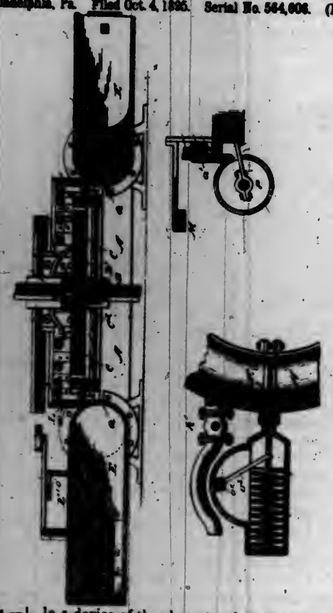
590,685. COMBINED SPRING-PEDAL AND TOE-CLIP. MARMADUKE MATTHEWS, Bracondale, Canada, assignor of one-half to Agnes Jardine, same place. Filed Oct. 24, 1895. Serial No. 566,406. (No model.) Patented in England Oct. 23, 1895, No. 20,289.



Claim.—1. In a pedal and in combination with the spindle thereof, two plates, each having a flange on one end and a gripping-piece on its forward end comprising an upturned portion bent to face the said flange, the said plates being secured one on each side of the said spindle, substantially as described.

2. In a pedal and in combination with the spindle thereof, two plates, each having a flange on one end and a toe-clip on the other end, the said plates being secured one on each side of said spindle with the toe-clip of one plate opposite the flange of the other, substantially as described.

590,686. PNEUMATIC MOTIVE POWER. LOUIS H. MAYER, Philadelphia, Pa. Filed Oct. 4, 1895. Serial No. 564,606. (No model.)



Claim.—1. In a device of the character described, gates for dividing the main tube into sections, consisting of an incasement divided into chambers the forward one being of larger dimensions than the rear one, said chambers being separated by an air-tight partition, the forward chamber provided with a reciprocating movable gate having a rearward plate from the center of which extends a piston-rod extending through stuffing-box of the partition that divides the chambers of the incasement and thence passes rearwardly and is connected by a nut-bolt to a disk-head the periphery of which conforms to the inner surface of the smaller chamber, in combination with branch pipes, having inlets within said chamber, at opposite sides of the disk-head of the piston, the branch pipes being connected to a main exhaust-tube, and means for opening and closing said branch pipes, whereby as air is exhausted from either surface of the piston-head disk, the gate connected to the piston will reciprocate within the incasement, as and for the purpose intended, substantially as described.

2. In a pneumatic motive device of the character described, a main slotted tube, a piston adjusted to travel within said main tube, and having a grip-arm extending outwardly through the slot of the tube connected to gear-wheel of mechanism outside of the tube, said grip-arm having an upturned branch, to the outer end of which is connected a bar for opening and closing valves of pipes connected to the main tube, said upturned branch of the grip-arm supplied with bent colter, all in combination with slot-valve gates having outwardly-extending friction-rollers, one above the other, which the colter, as the piston traverses the main tube, will cause to consecutively open and close said slot, substantially as described.

3. In a pneumatic motive device of the character described, a tube with a slot extending lengthwise thereof, the tube at one side of said slot having an outwardly-extending flange, the tube at the opposite side of the slot provided with an uprising back plate, in combination with slot-valves adapted to slide in alinement with said back plate and when actuated to close the slot, and rest upon the tube-flange at side of the slot, said slot-valves being each provided with two friction-rollers, one above the other in vertical alinement, and bent colter extending from grip-arm of a piston moved within the tube by exhaust of air therefrom, the upturned bent portion of the colter as it progresses, by engagement with the upper friction-roller extending from the valve-gate lifts said valve-gate outwardly from the tube-slot and the downwardly-bent portion of the colter when brought into engagement with lower friction-roller extending from the valve-gate forces it within the tube-slot and closes it, substantially as described.

590,687. CONNECTION FOR BICYCLES. MAURICE B. PRESSEY, Cambridge, Mass. Filed Apr. 5, 1897. Serial No. 630,808. (No model.)



Claim.—1. Means for connecting the heads of two partially-dismembered bicycles, consisting of a connecting-head, means at the opposite end of said connecting-head for securing the same to the heads of the two bicycles, respectively, a front fork having bearings in the connecting-head and carrying a front wheel, and connections for transmitting motion from the handle-bars to the front wheel for steering the machine, substantially as described.

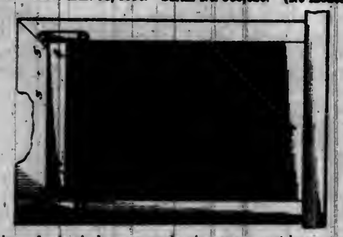
2. Means for connecting the heads of two partly-dismembered bicycles, consisting of a connecting-head, adjustable means at opposite ends of said connecting-head for securing the same to the heads of the bicycles respectively, at the proper level, a front fork having bearings in the connecting-head and carrying a front wheel, and connections for transmitting motion from the handle-bars to the front wheel for steering the machine, substantially as described.

3. The combination with two partly-dismembered bicycles, of a bar for connecting the same at the rear, a connecting-head for joining said bicycles at their forward ends, a front wheel mounted on said connecting-head and means for turning said wheel from the handle-bars to guide the machine, substantially as described.

4. A connecting-head for joining the heads of two partly-dismembered bicycles to form a tricycle, said head comprising a central sleeve or casing, a fork for the front wheel having its stem projecting into and bearing in said sleeve or casing, a pinion on said stem within the sleeve, two end casings connected to opposite sides of the sleeve by hollow arms and upon which the head-tubings respectively of the two machines are supported, handle-bar shafts projecting upwardly from said casings respectively into the head-tubings of the machines, teeth on said shafts within the end casings, and rack-bars sliding in the hollow arms engaging at one end the teeth on the handle-bar shafts and at the other the pinion on the stem of the front fork, substantially as described.

5. The combination with two partly-dismembered bicycles, of a connecting-head for joining the heads thereof, consisting of a central bearing-sleeve, a fork for the front wheel having a stem-bearing in said sleeve, a pinion on said stem within the sleeve, two end casings connected to opposite sides of the central sleeve by hollow arms, annular caps adjustably secured in the upper ends of the end casings, and against which the head-tubing of the bicycles rest, handle-bar shafts projecting upwardly from the end casings into the head-tubing of the bicycles respectively, and having bearings in said tubing and end casings, teeth on said shafts within the end casings, and bars sliding within the arms, sleeve and casings and carrying racks engaging with the teeth on the handle-bar shafts and pinion of the front-fork stem, substantially as described.

590,688. WINDOW-SCREEN. WILLIAM SCOTT, Leavenworth, Kans. Filed Mar. 31, 1896. Serial No. 585,639. (No model.)



Claim.—1. A window-screen having upper and lower transverse bars, a flexible screen terminally attached to said bars, vertically-yielding means for supporting the upper bar and attaching the same movably to a window-frame, whereby said upper bar is normally held elevated and is adapted to yield downwardly when strained, and securing devices for detachably fastening the lower bar in its normal position with relation to the window-frame, the screen being held taut by the said supporting devices of the upper bar, and the securing devices being adapted to be disengaged to release the lower bar without dismounting the upper bar, substantially as specified.

2. A window-screen having upper and lower transverse bars, a flexible screen terminally attached to said bars, securing devices for detachably fastening the lower bar at the bottom of a window-frame, and yielding means, including guides, for supporting the upper bar upon the window-frame and maintaining the same in an elevated position to insure the tautness of the screen, substantially as specified.

3. A window-screen having upper and lower transverse strips or bars, twin brackets adapted to be secured to a window-frame and provided with parallel-sided vertical recesses to receive the extremities of the upper strip or bar, a flexible screen terminally attached to said strips or bars, springs arranged at opposite ends of the upper strip or bar and bearing terminally against the under side of said strip or bar and the lower end of the recess of the contiguous bracket, whereby yielding upward pressure is applied to the upper strip or bar to maintain the screen in a taut condition, and means for detachably securing the lower strip or bar to the window-frame and adapted to be disengaged therefrom without dismounting the upper strip or bar, substantially as specified.

4. In a window-screen, the combination of upper and lower strips or bars, a flexible screen terminally attached to said strips or bars, yielding means for mounting and guiding the upper strip or bar upon a window-frame and exerting a normal upward pressure thereon, and means for detachably securing the lower strip or bar to the window-frame, said means including a fixed stud or projection on the window-frame, an intermediately-pivoted lever adapted at one end to engage said stud, and a retaining-pin carried by the lower strip or bar for engagement by the opposite end of the lever to hold the latter in its adjusted position, substantially as specified.

590,689. TIE-PLATE. DAVID SERVIS, Ithaca, N. Y. Filed Dec. 23, 1896. Serial No. 616,714. (No model.)



Claim.—1. A tie-plate having a flat rail-bearing surface provided with spike-openings and curved side portions adapted to be driven laterally into the tie in the act of seating the rail, as described.

2. A tie-plate having a flat or substantially flat rail-bearing portion, and curved portions on each side of the rail-bearing surface, to engage with the tie, the plate being of such thickness that the weight of a passing train or the seating of a rail will cause the edges of the plate to sink into the tie, at an angle to the dead-weight line, so that when seated these two edges will constitute a dovetail union with the tie, as described.

3. A tie-plate of resilient material and uniform thickness provided with unobstructed ends and whose sides, as embedded in the material of the tie are at substantially obtuse angles to the rail-bearing portion of the tie plate.

4. A resilient curved tie-plate whose edges are adapted to seat themselves at an obtuse angle to the rail-bearing portion of the tie-plate, when driven into the tie.

5. A resilient tie-plate, the material of which is of substantially uniform thickness, having unobstructed ends and curved longitudinally, a central rail-bearing portion and curved sides, the longitudinal edges sharpened so as to readily enter the tie.

6. A resilient tie-plate of uniform thickness, having unobstructed ends and a curved portion between the rail-bearing portion and each edge said edges adapted to be embedded into the tie in the act of seating the rail.

590,690. TUBULAR FRAMEWORK FOR CONCRETE-IRON CONSTRUCTION. JOSEPH S. SMALL, Piqua, Ohio. Filed Sept. 28, 1896. Serial No. 606,696. (No model.)



Claim.—1. In a building or other structure constructed of concrete or like hard plastic material, the combination therewith of the floor portion having the internal longitudinal tube A, pillars having an internal longitudinal tube A, the arch having an internal longitudinal tube A, the concrete brace H, provided with an internal longitudinal tube A' passing through an air-chamber between the floor and arch, the anchoring of the arch-tube to the vertical tube of the pillar, as well as connections of all the tubes, by means of a coupler B, comprising a sleeve and pins, substantially as shown and described.

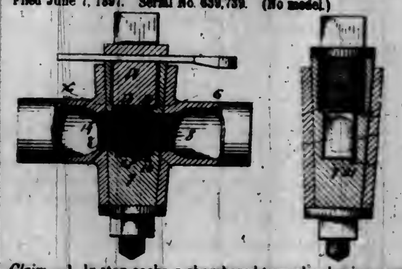
2. The combination therewith in a building or any structure, constructed of concrete or like hard plastic material; of a frame formed of tubes A, carrying hangers D formed with ends *d* to support wire-netting or laths: semicircular-shaped supports E having elongated openings to receive ends *d*, so as to support metallic arches G; substantially as and for the purposes shown and described.

3. In a building or other structure constructed of concrete or other like hard plastic substance; the combination therewith of a tubular frame, carrying hangers to support the perforated laths or netting; said hangers provided also with supports for supporting the metallic arches, all substantially as described.

4. In a building or other structure constructed of concrete or like hard plastic substance, of pillars provided with an internal longitudinal tube, an arch having an internal longitudinal tube, a brace constructed of concrete, or equivalent material, said brace having an internal tubular brace, the latter passing through an air-chamber between the floor and the arch, and connecting the arch with the floor or other portions of the structure, substantially as shown and described.

5. In a structure composed of hard plastic material, the combination therewith of a tubular frame; carrying hangers supporting perforated laths or netting; supports to support the arches; an arch provided with a tubular brace extending longitudinally throughout its center and connecting said arch with the floor or other part of the structure; the couplers of the tubes instead of screw-threaded ends: consisting of a sleeve and pins; substantially as shown and described.

590,691. STOP-COCK. WILLIAM L. STEVENSON, Sardis, Ohio. Filed June 7, 1897. Serial No. 639,739. (No model.)



Claim.—1. In stop-cocks, a chambered turn-plug having a valve-seat and valve-bearings at each of two opposite sides of the chamber, and a valve provided with pivots and a spring to fit either of

the bearings, the two faces of the valve being fitted to the two valve-seats, respectively.

2. In stop-cocks, a chambered turn-plug having a passage transversely through it, and a valve-seat and bearing within the chamber at each end of the passage, the plug having an enlarged opening and a shoulder above the said chamber, and a stud-pin fixed in the shoulder; a disk fitted to rest upon the shoulder and perforated as a bearing for a valve, also perforated or notched to engage the said stud-pin, and a valve having trunnions to pivotally engage the above-named bearings, substantially as described.

3. In stop-cocks, a chambered turn-plug having a passage transversely through it, and a valve-seat and bearing at each end of the passage; a valve having pivots and fitted to engage either of the seats; a stud-pin fixed in the plug, and a disk notched or perforated to invertibly engage both the said stud and one of the valve-pivots, substantially as described, whereby the disk is fitted to serve as one bearing for the valve, whether the valve be located at one or the other of its seats.

4. In stop-cocks, a body portion, a chambered plug fitted to turn in the body and having two valve-seats within the chamber; a valve fitted to engage either seat; a disk fitted to serve as one bearing for the valve in either of its positions in the plug, and a cap above the disk, substantially as described.

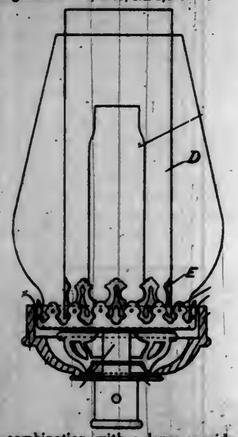
590,692. BUTTON. REUBEN M. TENCH, Turin, Ga. Filed Sept. 17, 1896. Serial No. 606,132. (No model.)



Claim.—1. A button, made in two parts pivoted one to the other, both having flattened portions which unitedly constitute the head of the button, shanks extending downwardly therefrom, and outwardly-extending arms at the lower ends of said shanks, the said arms extending in diametrically opposite directions when the button is in its closed position, substantially as and for the purpose described.

2. A button, made in two parts, each being the counterpart of the other, both formed with flattened portions which unitedly constitute the head of the button, shanks extending downwardly therefrom, and arms extending outwardly from the lower ends of said shanks, the two parts of said button being pivoted to each other at the juncture of said shanks and said outwardly-extending arms, substantially as and for the purpose described.

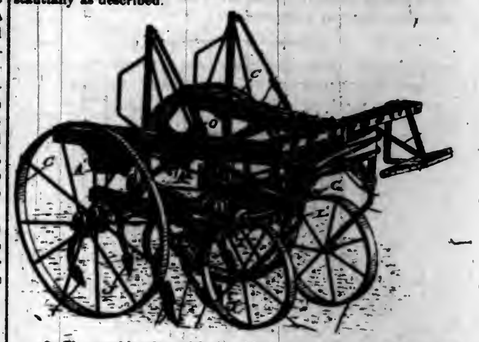
590,693. INCANDESCENT GAS-BURNER. JOSEPH WARBY, Birmingham, England. Filed Dec. 5, 1896. Serial No. 614,549. (No model.) Patented in England Jan. 26, 1893, No. 2,075.



Claim.—The combination, with a lamp provided with a lamp-chimney, of a cup-shaped attachment secured to the lamp below the chimney and forming with portions of the lamp an annular orifice through which all the air must pass and thereby be brought in contact with the heated portions of the lamp before entering the said chimney, substantially as set forth.

590,694. CULTIVATOR. ELIA B. WILLIAMS, LEVI WILLIAMS, and EDWIN B. HARVEY, Elwood, Ind. Filed Feb. 20, 1896. Renewed June 19, 1897. Serial No. 641,459. (No model.)

Claim.—1. The combination with the side bars, the seat supported therefrom, and the crank-axle, and the wheels, of the arched beam at the front of the side bars, the pivoted draft appliance and the pivotally-mounted caster-wheels at the front of the side bars, and the plow-beams supported by the rear end of said arched beam, substantially as described.



2. The combination with the side bars, and the crank-axle and the wheels, of the arched beam at the front of the side bars, the pivoted draft appliance and the pivotally-mounted caster-wheels at the front of the side bars, and the plow-beams supported by the rear end of said arched beam, the said plow-beams being pivotally mounted and provided with means for adjusting the same, substantially as described.

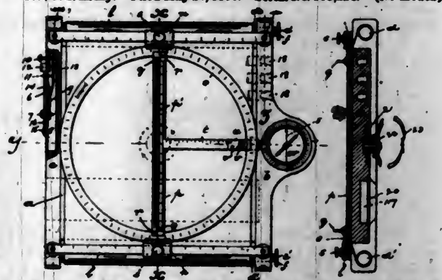
3. The combination with the side bars, the plows, the crank-axle and its wheels, of the draft appliance pivotally mounted on the front connecting-bar of said side bars, the independently-mounted caster-wheels, and the arched beam to the rear of said caster-wheels whereby the latter may turn at a right angle to the side bars, substantially as described.

590,695. BICYCLE CRANK-SHAFT. JOHN S. ALCORN, Waltham, Mass., assignor of one-half to R. A. Goodell, same place. Filed Nov. 24, 1896. Serial No. 613,245. (No model.)



Claim.—A bicycle crank-shaft comprising a body portion having longitudinal clutch members projecting from its ends, and bolt-receiving cavities extending inwardly therefrom, said cavities having internal screw-threads at their inner ends; separable cranks having clutch members formed to engage the clutch members of the body portion, and bolt-orifices arranged to coincide with the cavities of the body portion; and independent bolts having screw-threads at their inner ends engaging the internal threads of the cavities, and enlargements at their outer ends engaging the cranks, the hubs of the cranks being in alinement with the ends of the body portion so as to form a substantially flush external surface.

590,696. RAPID-FIELD-SKETCHING CASE. MATTHEW A. BATSON, U. S. Army. Filed May 27, 1896. Serial No. 593,231. (No model.)



Claim.—1. The improved sketching-board herein described, in which is combined with the board having rollers at opposite edges, a sliding protractor movable in a direction parallel with the axes of said rollers and a ruler held by said protractor and adapted to be turned thereon, substantially as set forth.

2. In a sketching-board, the combination with the board *a*, rollers at opposite ends and a circular protractor sliding on said board, of a ruler having sights and adapted to turn within said protractor, substantially as set forth.

3. In a field-sketching case or board, the combination with the board having paper-carrying rollers, friction-brakes for preventing said rollers from rotating, of bars or rods *l*, *l*, circular protractor *e*, ruler *p*, and means for operating said ruler, all substantially as set forth.

4. In a field-sketching case, the combination with the board having paper-carrying rollers at its opposite sides a protractor movable in a direction at right angles to the direction of movement of the paper on said rollers and a ruler adapted to be turned on a center concentric with the center of the protractor, substantially as set forth.

5. In a field-sketching case, the combination with the board having a plain surface on which the drawings or sketches may be made and mountings providing means for moving the paper in a given direction, of a sliding protractor which is movable in a direction at right angles to the direction of movement of the paper, and a ruler adapted to be turned within the circumference of said protractor and having sights *g*, *g*, substantially as set forth.

6. In a field-sketching case or board, the combination with the board *a*, of bars or rods *l*, a sliding protractor carried by said bars or rods and a longitudinally-slotted ruler adapted to be turned within the protractor, the slot of which ruler extends or lies across the center of turning of said ruler, said parts being arranged and operating substantially as set forth.

7. In a field-sketching case or board, the combination with the board *a*, of bars or rods, *l*, immovable and fast upon said board, a sliding protractor carried by said rods and guided over the face of the board by said rods, and a longitudinally-slotted ruler, the upper surface of which, on opposite sides of the slot, inclines down toward said slot, and means for movably holding the paper at right angles to the guiding-bars, substantially as set forth.

8. In a field-sketching board, the combination with the board *a*, of a circular protractor having graduation marks, a ruler and adjustable compass carried by said board and having graduated circular surfaces corresponding with those of the protractor and adapted to operate, substantially as set forth.

9. In a field-sketching board, the combination with the board *a*, of a circular plate having a ruler adapted to turn in said plate, and a compass adjustably arranged on said board and adapted to be fastened to said board to facilitate the placing of said board in the same relation to the points of the compass as at previous stations, substantially as set forth.

10. In a field-sketching board, the combination with the board *a*, of a protractor, a ruler adapted to turn in said protractor, and a compass and means for adjusting and clamping said compass upon the sketching-board, to hold said compass in fixed relation to said board while the surveyor is traveling from station to station, substantially as set forth.

11. In a field-sketching case, the combination with the board having on the upper face thereof a protractor and ruler each having graduation-marks, and at the side edge thereof having graduation-marks indicating degrees and a pivoted pendulum having a weight and vernier at its opposite ends, of a paper-carrier and means for holding said paper smoothly upon the board, substantially as set forth.

12. In a field-sketching case, the combination with the board having degree graduation-marks at the edge, of a pendulum pivoted at said edge and having a vernier, and a clamp for holding said pendulum in a degree-indicating position, substantially as set forth.

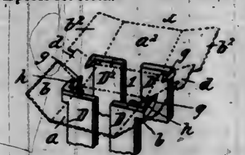
13. In a field-sketching case or board, the combination with the board having projecting head and foot pieces providing journal-bearings, rollers arranged between said projecting head and foot pieces, brakes for holding said rollers against rotation, rods *l l*, sliding protractor, and a ruler having sights, all arranged and combined, substantially as set forth.

14. In a field-sketching case, the combination with the board *a*, having a paper-carrier at opposite edges, a protractor and ruler at the front, of a female screw at the rear and a strap swiveled upon a male screw adapted to enter into said female screw, substantially as set forth.

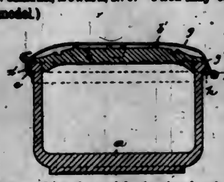
590,697. PAPER-BOX MACHINE. ALFRED BURNS, Springfield, Mass. Filed Jan. 20, 1897. Serial No. 621,125. (No model.)

Claim.—1. In a paper-box machine, the combination with the plunger, of the folding box or throat the walls of which are constituted by the end followers, and the upright opposing plates, arranged at right angles to the ends of the followers, which have the flap-turning projections *g g* at their upper corners, and the supplemental flap-turning lips *h h* mounted above one side pair of the projections *g g*, and each having a length less than that of the adjacent projection *g*, substantially as and for the purpose set forth.

2. In a paper-box machine, the combination with the plunger, of the folding box or throat the walls of which are constituted by the end followers, and the upright opposing plates, arranged at right angles to the ends of the followers, which have the flap-turning projections *g g*, and the supplemental flap-turning lips *h h*, each having a length less than that of the projection *g*, and each being detachably supported and confined on the projection *g*, substantially as described and for the purposes set forth.
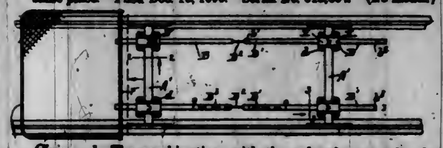


590,698. JAR FOR PRESERVING BUTTER OR OTHER ARTICLES. JOHN J. CARTER, Newark, N. J. Filed May 6, 1896. Serial No. 590,327. (No model.)



Claim.—1. The combination with the jar having the flange *a'*, and a cover, of a band *c*, and a tongue loosely attached at one end to said band, at one side of the jar, and at its opposite end having a tongue adapted to enter beneath the said flange, said tongue being free to slide in either direction on said flange to or from holding relation to the cover of the jar, substantially as set forth.

2. The combination with the jar having the flange *a'*, and a cover for closing said jar, of a band having ears to receive the bail and tongue, a bail and a tongue loosely pivoted at one end in one of said ears and adapted to extend across the cover to hold the same in place and at its opposite end being bent or turned on itself to enter beneath the flange, the bent end being free of attachments and adapted to slide in either direction from holding relation to said flange, substantially as set forth.

590,699. CAR-FENDER. WILLIAM GLIMP, Lancaster, Pa., assignor to Daniel B. Good, John J. Stewart, and Joseph Sondheimer, same place. Filed Dec. 16, 1896. Serial No. 615,904. (No model.)



Claim.—1. The combination, with the axle of a car, of a clamp on said axle, a collar in a channel in the clamp, a beam, jaws on the collar and embracing the beam, and a supporting connection between said beam and the jaws, for the purpose specified.

2. The combination, with the axle of a car, of a clamp on said axle, a collar in a channel in the clamp and divided transversely into sections, hinged together at one end, jaws on the free ends of said sections, and a beam supported by said jaws, for the purpose specified.

3. The combination, with the axle of a car, of a clamp on said axle and divided into sections, ears on the meeting edge of one of said sections and registering with similar ears on the meeting edge of the other section, bolts passing through said ears, whereby said sections are clamped on the axle, a collar in a channel in the clamp-sections, said collar being divided into sections hinged together at one end, jaws on the free ends of the collar-sections, and a beam supported by said jaws, for the purpose specified.

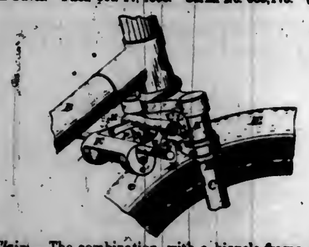
4. The combination, with a double-truck car, of a beam divided transversely into sections, a supporting connection between an axle of each of said trucks and the beam, a device uniting the inner ends of the beam-sections, a pivoted connection between said device and one of said beam-sections, and a longitudinally-movable connection between said device and the other beam-section, for the purpose specified.

5. The combination, with a double-truck car, of a beam divided transversely into sections, a pivoted and a longitudinally-movable connection between the inner ends of the beam-sections, a clamp on

as axle of each of said trucks, a collar in a channel of each of the clamps, jaws on each collar embracing one of the beam-sections, and a supporting connection between the beam-sections and said jaws, for the purpose specified.

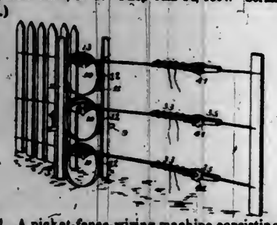
6. The combination, with a double-truck car, of a beam divided transversely into sections, a device uniting the inner ends of the beam-sections, a pivoted connection between said device and one of said beam-sections, a longitudinally-movable connection between said device and the other beam-section, a clamp on an axle of each of said trucks, a collar in a channel in each of said clamps and divided transversely into sections, hinged together at one end, jaws on the free ends of said sections, and supporting connections between the jaws and said beam-sections, substantially as and for the purpose specified.

590,700. BICYCLE-BRAKE. ERSKINE DAVIS and CLARENCE K. DAVIS, Indianapolis, Ind.; said ERSKINE DAVIS assignor to said Clarence K. Davis. Filed Oct. 17, 1896. Serial No. 608,173. (No model.)



Claim.—The combination, with a bicycle-frame, and the wheel of a bicycle, of a casing secured to said frame, said casing being cylindrical in form and having closed ends and a closed upper portion, a spindle mounted in the ends of said casing, and a roller of elastic material, as rubber, having an annular recess with outwardly flaring or tapering sides following the contour of the bicycle-tire in section, and being mounted on said spindle snugly between the ends of the casing and in close proximity to the bicycle-tire, said roller also fitting at its terminal upper portions snugly against the upper portion of the casing, substantially as described.

590,701. PICKET-FENCE-WIRING MACHINE. THOMAS B. FERGUSON, Jr., New York, N. Y. Filed Jan. 14, 1897. Serial No. 619,179. (No model.)



Claim.—1. A picket-fence-wiring machine consisting of uprights or handle-bars, guide-rings secured between the handle-bars, twister-heads movably mounted on said guide-rings and composed of two detachably-connected members provided with slots having outwardly-directed outlets, and additional slots in the lower central portion thereof.

2. A picket-fence-wiring machine consisting of uprights or handle-bars, guide-rings secured between the handle-bars, twister-heads movably mounted on said guide-rings and composed of two detachably-connected members provided with slots having outwardly-directed outlets, and additional slots in the lower central portion thereof, said members having reinforced portions on their inner faces to strengthen the same.

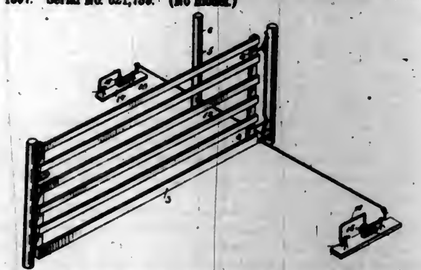
3. A picket-fence-wiring machine consisting of uprights or handle-bars, guide-rings secured between the handle-bars, twister-heads movably mounted on said guide-rings and composed of two detachably-connected members provided with slots having outwardly-directed outlets, and additional slots in the lower portion thereof, said members having reinforced portions on their inner faces to strengthen the same, one of said members having a segmental flange extending from one end thereof to the other, to be used as a knocker for the picket.

4. A picket-fence-wiring machine consisting of uprights or handle-bars, guide-rings secured between the handle-bars, twister-heads movably mounted on said guide-rings and composed of two detachably-connected members provided with slots having outwardly-directed outlets, and additional slots in the lower central portion thereof, said members having reinforced portions on their inner faces to strengthen the same, one of said members having a segmental flange extending from one end thereof to the other, and a vertical reinforcing-rib on the outer face of said member below said flange.

5. A picket-fence-wiring machine consisting of uprights or handle-bars, guide-rings secured between the handle-bars, twister-heads movably mounted on said guide-rings and composed of two detachably-connected members provided with slots having outwardly-directed outlets, and additional slots in the lower central portion thereof, said members having reinforced portions on their inner faces to strengthen the same, one of said members having a segmental flange extending from one end thereof to the other, and a vertical reinforcing-rib on the outer face of said member below said flange, together with a central upper stud on the other member to prevent the upper portion of the members from impinging against the edges of the guide-ring.

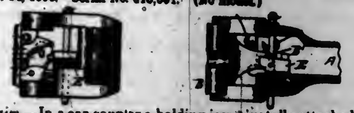
6. A wire-tightener of the character described, consisting of a shank from each side of which extends a row of headed projections or knobs adapted to spread the wire, the opposite end of said shank being bifurcated or yoke-shaped and having formed in the extremity thereof a transverse slot for the introduction of the anchor-wire, said slot extending the entire width of the extremity or end, means for tightening the anchor-wire, and means for retaining it in a tightened condition.

590,702. DEVICE FOR OPENING OR CLOSING GATES. FRANCIS G. GIBBONS and ANTHONY J. GIBBONS, Lewisburg, Pa. Filed Feb 3, 1897. Serial No. 621,739. (No model.)



Claim.—The combination with a gate and latch post, of a gate, a short bracket near the upper end of said gate, a long bracket near the lower end of said gate, a hinge-rod pivoted upon the gate-post and provided with oppositely-extending cranks that are pivoted to the said brackets, oppositely-extending crank-arms at the lower end of said hinge-rod, rods connected with said crank-arms and extending on opposite sides of the gate and connected with crank-shafts, stops upon said crank-shafts, and pivoted levers having one end situated between said stops and provided with counterbalancing-weights.

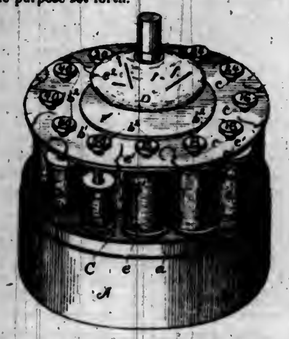
590,703. CAR-COUPLING. JOHN GOSTYN, Boston, Mass. Filed Dec. 14, 1896. Serial No. 615,691. (No model.)



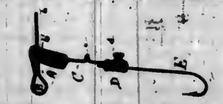
Claim.—In a car-coupler a holding-jaw pivotally attached to the draw-bar and having a rearward end adapted to engage with projections on a laterally-swinging latch and throw it out of its position, said laterally-swinging latch adapted to engage with and hold the locking-block up out of its locking position, said locking-block adapted to fall before the rear end of the holding-jaw and lock it, also having a projection adapted to come in contact with a bent lever and through it throw the holding-jaw open, the said bent lever adapted to be operated by the projection on the locking-block and to open the holding-jaw, substantially as and for the purpose set forth.

590,704. WORK-BOX. EMELIA J. JOHANSON, Chicago, Ill. Filed July 5, 1895. Renewed Aug. 16, 1897. Serial No. 643,449. (No model.)

Claim.—In a work-box, the combination with a base, a disk carried thereby, a tubular wall rising from the disk and forming a central compartment, spool-holding devices around the latter, and a cup-shaped cover adapted to entirely surround the spool-holding devices and fit upon the base; of a flat cover for the compartment having a socket in its upper face, a pincushion of a size to fit within said compartment and having a tube through its center, and a needle-case also of a size to fit within said compartment and adapted to pass down through the tube in the pincushion and fit into said socket, as and for the purpose set forth.



590,705. FISH-HOOK. JOSEPH T. KILLEBREW, Louisville, Ky. Filed Apr. 4, 1896. Serial No. 586,173. (No model.)



Claim.—1. As a new article of manufacture, a fish-hook holder consisting of a single piece of wire with a coiled body portion A, a hanger-loop B, a hooked portion *c* and an engaging collar D adapted to hold a fish-hook as E, all substantially as specified and shown.

2. As a new article of manufacture a fish-hook holder comprising a coiled barrel portion A, a loop B with projecting stem *b*, a stem C with a hooked portion *c* and a holding-collar D with set-screw *d*, all constructed substantially as specified.

3. As a new article of manufacture, a fish-hook holder comprising a coiled barrel portion A, a loop B with stem *b*, a stem C with hooked portion *c* and a hook extending therefrom, all substantially as specified.

4. As a new article of manufacture, a fish-hook holder, comprising the barrel portion A, loop B with stem *b* tension-loop *b'* and stem C with hooked portion *c*, all substantially as specified.

590,706. AWNING-VENTILATOR. HARRY J. LENTZ and ALEXANDER J. ROBINSON, Philadelphia, Pa. Filed May 18, 1897. Serial No. 637,054. (No model.)



Claim.—1. An awning-ventilator consisting of frames which are connected with each other angularly, one frame being adapted to be connected with the walls of the opening in the awning and the other to overhang said opening, the overhanging part being of greater width than the other part, so as to overlap the latter.

2. An awning-ventilator consisting of a two-part frame provided with a brace connecting portions of said frame between the sides thereof.

3. A frame for an awning-ventilator consisting of two parts angularly connected with each other, one portion being adapted to be secured to the walls of an opening in the awning, and the other extending angularly outward, and to cover and overhang said opening and a brace connecting said parts between the sides thereof.

590,707. FILTER. THEODORE LINER, New York, N. Y. Filed Mar. 2, 1897. Serial No. 626,694. (No model.)

Claim.—1. In a filter, the casing adapted to be connected with the supply-pipe, and the main tube within said casing and having the inlet for filtered water thereto and the inlet for unfiltered water thereto, combined with the filtering media carried by said tube and covering the said inlet for filtered water to the said tube, and the delivery-tube within said main tube and separating the outlet-passage for filtered water from the outlet-passage for unfiltered water; substantially as set forth.

2. In a filter, the casing adapted to be connected with the supply-pipe, and the tube within said casing and having the inlet for filtered water thereto and the inlet for unfiltered water thereto, combined with the filtering media carried by said tube and covering the said inlet for filtered water to the said tube, the delivery-tube within said main tube and separating the outlet-passage for filtered water from the outlet-passage for unfiltered water, and the spring-scraper flexed against said filtering media; substantially as set forth.

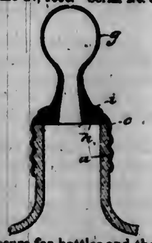


3. In a filter, the casing adapted to be connected with the supply-pipe and having the internally threaded flange at its lower end and the cap at its upper end, and the revoluble tube adapted to be inserted upward into said casing through said flange and having the flange or wheel integral therewith and by which it may be revolved, the inlet for unfiltered water, the inlet for filtered water and the threaded portion to engage said internally-threaded flange, combined with the packing-disk on said tube above the inlet for unfiltered water, the filtering media on said tube above said packing-disk and covering said inlet for filtered water, and means for separating the outlet-passage for filtered water from the outlet-passage for unfiltered water; substantially as set forth.

4. In a filter, the casing adapted to be connected with the supply-pipe, and the tube revoluble therein, said tube having the wheel T, threaded portion L, openings M, shoulder N, ribs H and openings P, combined with the packing-disk O on said ribs and shoulder, and the filtering media K on said tube above said disk; substantially as set forth.

5. In a filter, the casing having the cap at its upper end and the threaded flange at its lower end, and the tube threaded to engage said flange and adapted to be inserted upward into said casing through said flange and having separated inlets thereto for filtered and unfiltered water, combined with the filtering media adapted to be inserted downward upon said tube from the upper end of said casing and covering said inlet for filtered water, and means for separating the outlet-passage for filtered water from the outlet-passage for unfiltered water; substantially as set forth.

590,708. NURSING BOTTLE AND NIPPLE. HENRY MEIER, New York, N. Y. Filed June 27, 1896. Serial No. 597,112. (No model.)

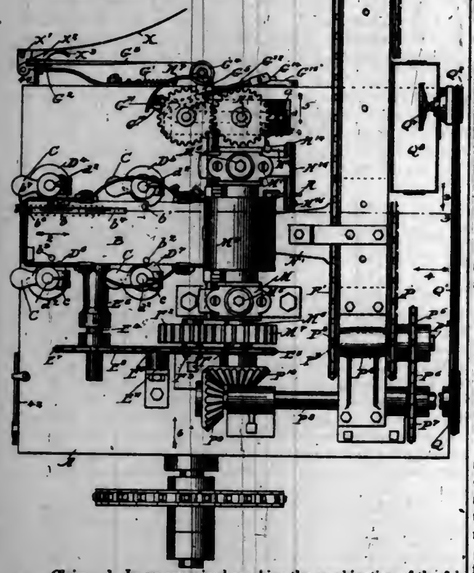


Claim.—1. In a closure for bottles and the like, the combination of a nipple having two flanges at its lower portion of self-expanding material such as rubber, a cap *c* entered into the space between the flanges of the nipple, the said cap *c* being of rigid material, all combined with a bottle-neck, and means for securing the said rigid cap upon the bottle-neck so as to compress the lower self-expanding flange of the nipple between the bottle-neck and the rigid cap.

2. In a closure for bottles and the like, the combination of a nipple having two flanges at its lower portion of self-expanding material such as rubber, a threaded cap *c* entered into the space between the flanges of the nipple, the said threaded cap *c* being of rigid material, all combined with a threaded bottle-neck, the said thread on the bottle-neck being engaged by the thread on the rigid cap, whereby the rigid cap can be screwed down hard on the bottle-neck so as to compress the lowermost self-expanding flange between the top of the bottle-neck and the rigid cap.

3. A nipple for forming a bottle-closure comprising a nipple proper *g* provided with a plurality of flanges at its lower portion, the said flanges being of self-expanding material such as rubber and united by an intervening collapsible annular portion.

590,709. SHEET-TIN-OPERATING MACHINE. WILLIAM B. PAGE and ARCHIBALD E. HOPKINS, Dixon, Ill. Filed Jan. 8, 1897. Serial No. 618,447. (No model.)



Claim.—1. In an organized machine the combination of the following mechanism to wit: mechanism for shaping a strip of solder to fit the end of a can-body blank; mechanism for feeding the blank to the strip and mechanism for engaging the strip of solder to the end of the blank, substantially as described.

2. In an organized machine the combination of the following mechanism to wit: mechanism for shaping a strip of solder to fit the end of a can-body blank; mechanism for engaging the strip to the end of the blank and mechanism for fluxing the strip after it is engaged to the blank, substantially as described.

3. In an organized machine the combination of the following mechanism to wit: mechanism for shaping a strip of solder to fit the end of a can-body blank; mechanism for separating a single blank from a series of blanks and carrying it to the strip of solder; mechanism for engaging the strip of solder to the blank and mechanism for fluxing the solder after it is engaged to the blank, substantially as described.

4. In an organized machine the combination of the following mechanism to wit: mechanism for shaping a strip of solder to fit a can-body blank; mechanism for separating a single blank from a series of blanks and carrying it to a strip of solder and mechanism for engaging the strip of solder to the blank, substantially as described.

5. In an automatic feed mechanism for a can-body blank the combination with a hopper having a bottom plate and a stack of blanks therein, of separator mechanism adapted to enter the hopper above the bottom thereof and separate the lower blank from the balance of the stack and independent mechanism for carrying said single lower blank from under the stack, substantially as described.

6. In an automatic feed mechanism of the class described the combination with a hopper and a stack of blanks therein, of a separating-knife adapted to periodically enter the hopper and separate the lower blank from the balance of the stack and independent mechanism for carrying said single lower blank from under the stack, substantially as described.

7. In an automatic feed mechanism of the class described, the combination with a hopper and a stack of blanks therein, of a separating-knife adapted to periodically enter the hopper at substantially one corner thereof and separate the lower blank from the balance of the stack at such point, and mechanism for engaging said lower blank substantially at the corner thereof and carry said lower blank from under the stack, substantially as described.

8. In an automatic feed mechanism of the class described the combination with a hopper and a stack of blanks therein, of a series of separating-knives adapted to periodically enter said hopper at different points and lift the bulk of the stack leaving at least one blank below the knives and means for engaging the lower blank and carrying it from under the stack, substantially as described.

9. In a machine of the class described the combination with a hopper and a stack of blanks therein, of a series of rotary knives having flanges adapted to periodically enter said hopper at different points and lift the bulk of the stack leaving at least one blank below the knives and means for carrying the lower blank from under the stack, substantially as described.

10. In a machine of the class described the combination with a hopper and a stack of blanks therein, of a series of rotary knives each having a flange adapted to periodically enter the hopper and lift the bulk of the stack, some of the knives adapted to enter the stack at such an elevation as to leave more than one blank below the knife and the knife at one corner adapted to leave but a single blank below it and means for carrying the lower blank from under the stack, substantially as described.

11. In a machine of the class described the combination with a hopper and a stack of blanks therein, of a series of rotary knives each having a flange adapted to periodically enter the hopper and lift the bulk of the stack leaving at least one blank below the knives and a reciprocating pusher-block adapted to engage the lower blank and carry it from under the stack, substantially as described.

12. In a machine of the class described the combination with a hopper and a stack of blanks therein, of a series of knives each adapted to enter the hopper and lift the bulk of the stack, some of the knives adapted to enter the stack at such an elevation as to leave more than one blank below them while the knife at one corner is adapted to leave but a single blank below it and a reciprocating pusher-block adapted to engage the lower blank and carry it from under the stack, substantially as described.

13. In a solder-forming mechanism the combination of a pair of solder-forming rolls having their peripheries shaped to bend a strip of solder into the desired shape in cross-section said rolls constituting at once the mechanism for feeding and the mechanism for forming the solder-strip, and a receiving-tube for the single strip, beyond the roll, substantially as described.

14. In a solder-forming mechanism the combination of solder-forming rolls between which the solder is passed the peripheries of said rolls shaped to give the desired cross-section shape to the strip of solder by bending the latter and a receiving-tube beyond the rolls shaped to correspond in cross-section to the shape of the strip of solder, substantially as described.

15. In a solder-forming mechanism the combination of solder-forming rolls for shaping the solder into the desired shape in cross-section, a receiving tube beyond the rolls shaped in cross-section to correspond to the shape of the solder and a cutting-knife adapted to cut off the desired length of solder within the tube, substantially as described.

16. The combination with the solder-feeding rolls, of a tube for receiving said solder-strip, said tube shaped in cross-section to correspond with the cross-section of the solder-strip, said tube made in two longitudinal parts, substantially as described.

17. The combination of rolls constituting both the solder feeding and forming rolls, a tube beyond said rolls shaped in cross-section to correspond with the cross-section of the solder-strip after it is formed said tube made in two longitudinal parts, substantially as described.

18. The combination with the solder-forming rolls adapted to form the strip into a V shape in cross-section, of a receiving-tube beyond the rolls into which the solder is fed, said tube also V-shaped in cross-section, said tube having a flaring mouth opening from the base of the V shape and a slot extending from the point of the V shape, substantially as described.

19. The combination with the solder-forming rolls, of a receiving-tube beyond the rolls and a cutting-knife adapted to enter said tube at an oblique angle to the strip therein, substantially as described.

20. The combination with mechanism for feeding a strip of solder, of a reciprocating cutting-knife mounted on a bell-crank lever said knife extending at an angle from the arm of the lever on which it is mounted, substantially as described.

21. The combination with a pair of rolls constituting the mechanism for giving the solder the desired shape by bending and constituting also the feeding-rolls for the solder, mechanism for giving said rolls an intermittent motion and a knife for cutting said solder after it leaves the forming-rolls, substantially as described.

22. The combination of mechanism for giving the solder-strip the desired shape in cross-section, mechanism for holding the strip after it is formed until engaged by the blank mechanism for feeding the blank to the strip and mechanism for engaging the blank and strip together, substantially as described.

23. The combination of mechanism for shaping the solder-strip, mechanism for holding the solder until engaged by the blank mechanism for feeding the blank to the strip and a pair of rolls between which the solder and blank are passed to engage them together, substantially as described.

24. The combination of a pair of rolls for shaping the solder, a receiving-tube for the solder beyond the rolls adapted to hold the solder until engaged by the blank and a pair of rolls beyond the tube between which the solder and blank are passed and by which they are engaged together, substantially as described.

25. The combination of forming-rolls for shaping the solder, an intermittent feed for driving said solder, means for holding the solder until engaged by the blank, hemming-rolls for engaging the solder to the blank and mechanism beyond said rolls adapted to be engaged by the blank as it leaves the hemming-rolls, said latter-named mechanism connected with the intermittent feed mechanism whereby the solder will be fed only when a hemmed blank is leaving the hemming-rolls, substantially as described.

26. The combination of rolls for feeding the solder, a reciprocating pawl for driving said rolls, hemming-rolls for engaging the solder to the blank and mechanism beyond said hemming-rolls adapted to be engaged by the blank as it leaves the hemming-rolls and mechanism for engaging said pawl to prevent its operating the feeding-rolls, said latter mechanism connected with the mechanism beyond the hemming-rolls, substantially as described.

27. The combination with mechanism for feeding the solder-strip and mechanism for engaging the solder and blank together, of an arm beyond said latter mechanism adapted to be engaged by the finished blank, said arm connected with mechanism adjacent to the solder-feed mechanism and adapted when lifted by the blank to render the solder-feed mechanism operative but when disengaged by the finished blank to render the solder-feed mechanism inoperative, substantially as described.

28. The combination of the solder-strip-feeding rolls, a reciprocating pawl for operating said rolls, a tilting arm adapted to engage said pawl and render it inoperative, the blank-hemming rolls for engaging the strip of solder to the blank and an arm beyond said hemming-rolls adapted to be engaged by the blank as it leaves the hemming-rolls, said latter arm connected with the tilting arm and adapted when engaged by the blank to move the tilting arm away from the pawl and thus permit the latter to operate the solder-feeding rolls, substantially as described.

29. The combination with the solder-feeding rolls, of a frame in which said rolls are mounted, said frame pivotally engaged to the main frame, substantially as described.

30. The combination of the solder-feeding rolls and a reciprocating pawl for intermittently driving the same, said rolls and pawl mounted in a frame pivoted to the main frame, substantially as described.

31. The combination of the solder-feeding rolls and mechanism for driving the same intermittently, all mounted in a frame pivoted to the main frame, of a lever for actuating said driving mechanism said lever connected with the driving mechanism by a pitman and the pitman connected with the lever and with the driving mechanism by universal joints, substantially as described.

32. The combination of the solder-feeding rolls and mechanism for driving the same intermittently, all mounted in a frame pivoted to the main frame, of a lever for actuating said driving mechanism said lever connected with the driving mechanism by a pitman and the pitman connected with the lever and with the driving mechanism by ball-and-socket joints, substantially as described.

33. The combination with the solder-feeding mechanism, of a two-part lever for operating the same connected with said feeding mechanism by a pitman, said lever being extensible longitudinally, substantially as described.

34. The combination with the hemming-rolls for engaging the solder to the blank, of carrier mechanism adapted to engage the blank as it leaves the rolls and fluxing mechanism adjacent to the carrier for fluxing the blank as it is carried along by the carrier, substantially as described.

35. The combination with mechanism for carrying the blank, of fluxing rolls or disks between which the blank is passed, one of said disks having its shaft pivotally mounted so that it may be tilted away from the other disk, substantially as described.

36. The combination with the blank-hemming rolls for engaging the solder and the blank together, of a carrier mechanism adapted to engage the blank as it leaves the hemming-rolls and an oscillating arm for moving the blanks laterally with respect to the carrying mechanism, substantially as described.

37. The combination with a can-body-forming machine and the shaft of the automatic blank-feeding mechanism, of clutch mechanism between the main driving-shaft and the shaft of said feed mechanism, intermediate connections between said can-body-forming machine and said clutch mechanism and means on the can-body-forming machine for affecting the clutch mechanism through said intermediate connections, to throw the feed mechanism out of operation while permitting the operation of the can-body-forming machine, substantially as described

38. The combination with a rotary part, of a can-body-forming machine and the shaft of the automatic blank-feeding mechanism, of clutch mechanism between the main driving-shaft and the shaft of said feed mechanism, one or more projections on the said rotary part of the can-body machine and intermediate connections between said projections and said clutch mechanism whereby each projection will affect the clutch mechanism and cause the shaft of the feed mechanism to cease for a predetermined number of revolutions, substantially as described.

39. The combination with the shaft, of driven mechanism and the main driving-shaft, of an arm on the former shaft and an arm driven from the main driving-shaft, said latter arm carrying a pin adapted to engage the arm on the shaft of the driven mechanism and means for withdrawing said pin to escape said arm when desired, substantially as described.

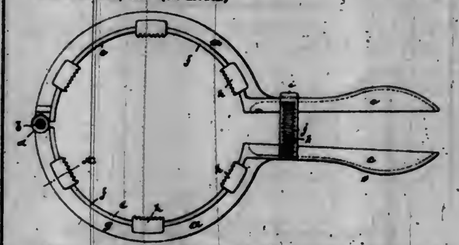
40. The combination with the shaft, of driven mechanism and the main driving-shaft, of an arm on the former shaft and an arm driven from the main driving-shaft, said latter carrying a pin adapted to engage the arm on the shaft, of driven mechanism and a lever connected with said pin for withdrawing it, said lever operated by a sliding collar on the shaft, of driven mechanism and a lever pivoted to the frame of the machine for moving said collar, substantially as described.

41. The combination with the shaft, of driven mechanism and the main driving-shaft, of an arm on the shaft of the driven mechanism provided with a spring-impelled pin having a beveled end, an arm driven from the main driving-shaft carrying also a pin adapted to engage the first-named pin in its revolutions and means for withdrawing the last-named pin when desired, substantially as described.

42. A clutch mechanism consisting of a shaft, a driven pulley, a flange thereon, a movable sleeve on the shaft adjacent to the flange, said sleeve provided with a flange having its face parallel with the face of said driven-pulley flange, a series of bolts extending through the outer edge of the sleeve-flange and provided with mechanism for engaging the opposite side of the driven-pulley flange, a series of levers one for each bolt engaging both the sleeve-flange and the end of the bolt whereby when the levers are tilted they will move the bolts with respect to the sleeve-flange and clamp the driven-pulley flange against the sleeve-flange, substantially as described.

43. A clutch mechanism consisting of the shaft 1, driven-pulley flange 4, sleeve 6, sleeve-flange 7, ring 10, bolts 9 extending through said sleeve-flange 7 and engaging the ring 10, spring 11, lever 17 having heads 18 which engage the bolts, adjustable nuts 20 and means for tilting the levers 17, substantially as described.

590,710. FRUIT-JAR HOLDER. EPHRAIM K. SHEPPARD, Pittstown, and WILLIAM S. SHEPPARD, Newark, N. J. Filed Apr. 9, 1897. Serial No. 631,403. (No model.)



Claim.—1. The combination with the hinged sections or castings provided with handles at one end and hinged at the other, one of said handles being provided with a loop *i*, formed integral therewith for limiting and guiding the movements of the other section or casting, substantially as set forth.

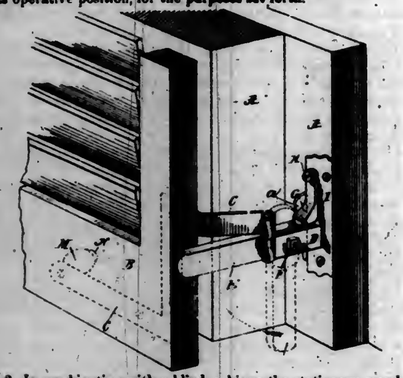
2. The combination with the sections *a*, *a*, hinged as at *b*, and provided with semicircular oppositely-flanged portions *c*, which are cushioned as at *h*, the cushions inclosing the flanges, the said semicircular portions having integral handles *e*, *e*, and means for limiting the opening movements of said handles, of a spring normally holding the said sections in their open position, substantially as set forth.

3. The improved fruit-jar holder comprising two castings having coinciding oppositely-extending semicircular portions with vertical flanges *f*, and strengthening-ribs *g*, handles *e*, *e*, and a loop cast upon one of said handles and inclosing the other and limiting its movements and cushions *h*, *h*, comprising pieces of molded rubber which inclose said flanges *f*, substantially as set forth.

590,711. BLIND-FASTENING DEVICE. HARVEY SPENCER, Jr., New York, N. Y. Filed Oct. 24, 1896. Serial No. 609,966. (No model.)

Claim.—1. In combination with a blind a hinge the members

whereof are located in different horizontal planes, a lever or brace pivotally connected to the bracket of the lower member one end of which is adapted to be swung outwardly and upwardly into engagement with the rear edge of the blind, and the other into engagement with a laterally-bearing surface, and a device to sustain the said lever in its operative position, for the purposes set forth.

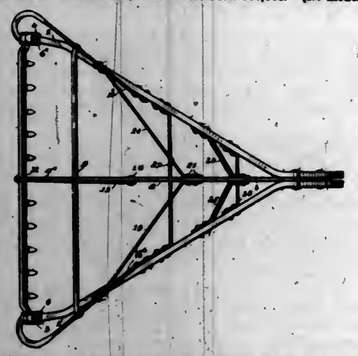


2. In combination with a blind, a hinge the stationary member whereof is provided with a base-plate and bracket projecting therefrom, a bar or brace pivoted to said bracket, and provided with a cam-shaped surface whereby it is given a lateral thrust, when in operative position, thus exerting pressure upon the blind, for the purposes set forth.

3. A blind-fastening device, comprising a lever or brace pivoted at or near one end to the stationary member of the hinge, said stationary member itself having an inclined surface adapted to engage with the lever as it approaches the horizontal position, thus relieving the pivot of strain, and crowding the lever against the blind, and means to maintain the lever in said horizontal position, for the purposes set forth.

4. A blind-fastening device comprising a base-plate, a bracket projecting at right angles therefrom, a lever or brace pivoted to the bracket, an inclined surface on the base-plate, adapted to engage with its rear end, and a cam-shaped surface on the lever, outside of the pivot, whereby the lever is braced laterally, and strain removed from its pivot, and a latch to maintain the lever in said operative position, for the purposes set forth.

590,712. OYSTER-DREDGE. ABRAHAM H. VAN SCIVER, Bridgeport, Conn. Filed Oct. 5, 1896. Serial No. 607,868. (No model.)



Claim.—1. An improvement in dredges, of the character described, with the side frames, of a longitudinal central brace elevated above the plane of such side frames, one end of such brace attached to the blade and the opposite end merging, with the side frames to form the head of the dredge, as described.

2. An improvement in dredges, of the character described, of side frames each made of a single bar of metal, a longitudinal central brace elevated above the plane of such side frames, and also made of a single piece of metal, one end of such frames and central brace attached to the blade and the opposite ends connected together to form the head, an angular brace running from the blade and connecting with the central brace, intermediate of its ends to further strengthen the blade, as described.

3. An improvement in dredges, of the character described, of the side frames, a longitudinal central brace elevated above the said frames, connected to the blade and merging, with the end of such frames, to form the head, side bows having one of their ends attached to the blade and their opposite ends intermediately of the length of such frames, lateral braces connecting such bows with said central brace, and lateral braces connecting such central brace with the side frames, substantially as shown.

590,718. BALL-BEARING. GEORGE T. WARWICK, Newark, N. J. Filed Oct. 10, 1896. Serial No. 608,519. (No model.)



Claim.—1. The combination with a hub or barrel, of ball-cases removably provided in the ends thereof, a catch device operating between the hub and one of the ball-cases for detachably confining the said ball-cases against rotation in the hub, and a tube connected to one of the ball-cases and having a screw engagement with the other ball-case, substantially as described.

2. The combination with a hub or barrel of the removable annular ball-cases in the ends thereof, having outward extensions or flange-like portions to overlie the ends of the hub and one thereof having a series of recesses in said extension, of a spring-catch mounted on the end portion of the hub, and adapted to engage in said recesses, and the locking-tube connected to one of the ball-cases and having a screw engagement with the other, substantially as described.

3. The combination with the hub having in its end portion a longitudinal socket, a bar movable therein and having a laterally-extended knob, a spring for throwing the bar outward, and the ball-case fitted in the end of the hub and having the flange provided with the series of recesses in which said bar engages, substantially as described.

4. The combination with a hub or barrel, of a sprocket-wheel having an interlocking engagement with the end thereof, and an annular part constructed to form a ball-case, located within the central part of the sprocket wheel, and having a portion thereof removably fitted in the end of the hub, a tube united to said ball-case, and extended endwise through the hub, and a second ball-case, fitted to be movable endwise and also rotatably within the other end of the hub, screw-engaging said tube, and having a portion thereof located externally of the hub, and means, coacting with said external portion of the second ball-case for locking it, at pleasure, against being turned, substantially as and for the purposes set forth.

5. The combination with the hub, and a ball-case fitted in the end of the hub, and a sprocket-wheel united to said ball-case, said sprocket-wheel and adjacent portion of the hub being provided, the one with longitudinal lugs or studs and the other with endwise-extending sockets, in which said lugs may engage, of the tube connected to the said ball-case, and a second ball-case which is rotatably fitted and endwise movable in the other end of the hub and which screw-engages said tube, substantially as described.

6. A ball-case having an annular raceway for the balls with its annular mouth of less width than the diameter of the balls, and having adjacent said raceway an annular groove with a niche leading transversely therefrom into the raceway, in combination with a spring-ring adapted to be sprung into said groove and having a laterally-extended lip adapted to lie in said niche, substantially as described.

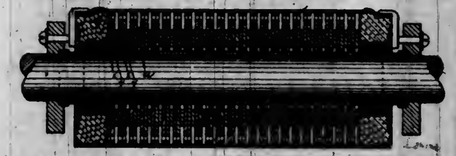
7. In a ball-bearing mechanism, the combination with a hub or barrel, and the ball-case and balls, of the shaft or axle having an externally-threaded portion, a longitudinal bore, a transverse slot, the collar, the rod, the pin transversely passed through the collar, said slot and through the rod, and means for confining the rod against endwise movement in the shaft, and the cone screw-threaded on the shaft and limited by said collar, substantially as described.

8. In a ball-bearing, the combination with a shaft or axle externally threaded and having a longitudinal bore opening to its one end and provided with a slot transversely intersecting the said bore, of a rod movable in said bore and having a transverse member extended outwardly through said slot and supporting a part externally of the axle which constitutes a shoulder or stop, the cone adapted to screw against said stop, and means for confining the rod against endwise movement.

9. In a ball-bearing, the combination with the axle externally screw-threaded, axially bored and having the transverse slot, of the collar, the cross-pin and the rod in the bore engaged by the pin, and a nut threading on the end portion of the rod and seating against the end of the shaft, substantially as described.

10. A ball-case having an annular raceway for the balls, with its mouth of less width than the diameter of the balls, and having a niche leading transversely into said raceway, in combination with a ring adapted to lie within the ball-case and having a lip to lie within said niche, and the balls, substantially as described.

590,714. BUFFING OR POLISHING DEVICE. HAROLD A. WEBSTER, Haverhill, Mass., assignor to G. H. P. Flagg, trustee, Boston, Mass. Filed Mar. 9, 1896. Serial No. 582,314. (No model.) Patented in England June 13, 1896, No. 13,116; in France June 18, 1896, No. 257,339, and in Canada July 27, 1897, No. 56,807.



Claim.—1. In a buffing or polishing device, the combination of a series of disks or rings of collapsible material; means for supporting and retaining the same spaced apart, said disks or rings projecting sufficiently far from each other and from their means of support, and being sufficiently pliable and small in cross-section, to be held extended by centrifugal force and to collapse when pressure is brought to bear thereon; and an abrading band or material supported upon said disks, substantially as described.

2. An appliance of the character specified, comprising a rotary hub, a cushion composed of limp annular sections surrounding the hub and separated at their bearing edges, a flexible cover supported by said bearing edges, and means for securing the end portions of the cover to the hub.

3. An appliance of the character specified, comprising a rotary hub, and a cushion composed of annular sections surrounding the hub and weakened at their marginal portions.

4. An appliance of the character specified, comprising a rotary hub, a cushion composed of a series of limp annular sections mounted to turn loosely thereon and separated at their bearing edges.

5. In an appliance of the character specified, a cushion-section composed of an annular disk having a limp outer margin, and a spacing-piece secured to the disk within the margin.

590,715. PNEUMATIC TIRE. CHARLES K. WELCH, Coventry, England. Filed Jan. 27, 1897. Serial No. 620,881. (No model.)



Claim.—1. In a wheel the combination with concentric rigid rings the inner being exteriorly and the outer interiorly grooved or provided with side flanges, of an air tube or chamber interposed between the two rings, and side rings of flexible non-expansible material having inner and outer edges reinforced in the manner described, and contained in the grooves of the rigid rings and held in engagement with the flanges or sides thereof by the action of air-pressure in the tube confined by said flexible rings, as set forth.

2. In a wheel, the combination of an inner rigid flanged ring, two flexible side rings having inextensible inner edges and incompressible outer edges, and an outer rigid flanged ring the latter being constructed with shoulders forming seats for the incompressible edges of the flexible rings, and with a groove to permit of the said incompressible edges being placed eccentric to the flanges of the outer rigid ring to allow of the withdrawal of the said edges through the inturned flanges of the rigid ring, and an annular air-tube inclosed by the said rings, substantially as described.

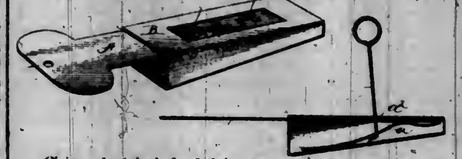
3. In a wheel, the combination of an inner rigid flanged ring, two flexible side rings having inextensible inner edges and incompressible outer edges, and an outer rigid flanged ring the latter being constructed with a groove to allow of the incompressible edges of the flexible rings being placed eccentric to the flanges of the outer rigid ring, a removable filling for said groove to maintain the said incompressible edges concentric with the flanges of the outer rigid ring, and an annular air-tube inclosed by the said rings, substantially as and for the purposes specified.

4. In a wheel, the combination with two concentric rigid rings, the inner being exteriorly and the outer interiorly grooved or formed with side flanges, of an air-tube between the two rings, two side rings of flexible non-expansible material, and inextensible cores in their inner edges and non-compressible cores in their outer edges, the cored edges being contained in the grooves of the rigid rings and held in contact with the flanges thereof by the inflation of the air-tube, as set forth.

5. In a wheel, the combination with two concentric rigid rings, the inner being exteriorly and the outer interiorly grooved or formed with side flanges, of an air-tube between the two rings, and two side rings of flexible material reinforced at their inner and outer edges and composed of layers of closely-packed threads arranged to cross each other obliquely, the reinforced edges of said side rings being contained in the grooves of the rigid rings and held in contact with the flanges thereof by the inflation of the air-tube, as set forth.

6. The combination of a pair of tram-car wheels each having an inner and an outer rigid flanged ring, and two flexible side rings inclosing an annular air-chamber, said flexible rings having inextensible inner edges and incompressible outer edges inclosed by the flanges of the rigid rings, and a rigid connection between the outer rigid rings of the two wheels to maintain a constant gage, substantially as described.

590,716. SEAL-LOCK. JOSEPH G. BARBOR, East Berkeley, Cal. Filed Feb. 3, 1897. Serial No. 621,900. (No model.)



Claim.—1. A lock for freight-cars, comprising a casing with a rectangular opening or aperture in its top face and a transverse slot in its front end, in combination with a latch having a spring-tongue, and a seal, card or label, with suitable marks, interposed between the top face of the latch and the under side of the top of the casing, and means for releasing the latch, substantially as set forth.

2. A lock for freight-cars, comprising a casing with a rectangular opening or aperture in its top face and a transverse slot in its front end, in combination with a latch having a spring-tongue formed by being bent upon itself and provided with holes through the body of the latch and the spring-tongue; a seal, card or label with suitable marks, interposed between the top of the latch and the under side of the top of the casing, and a key or hook for defacing the seal, and engaging the tongue to release the latch, so that the latch and casing may be separated, substantially as set forth.

590,717. FLOOR-SLEEVE AND CEILING-PLATE. ALLAN J. BEATON, Southington, Conn., assignor to the Beaton & Bradley Company, same place. Filed May 15, 1896. Serial No. 591,631. (No model.)



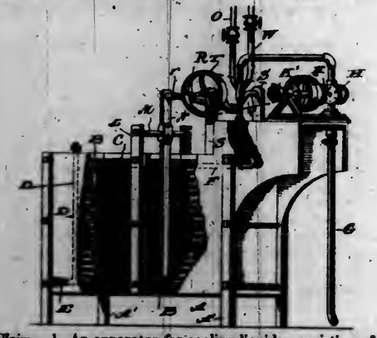
Claim.—1. The combination of a floor-sleeve having at its lower end the wings 9 and their outwardly-extended lugs 10 with two separable companion parts of a ceiling-plate having their ends fitted to abut against each other, each part having on the outside of its inner rim the circumferentially-extended spring lugs adapted to receive the said wings 9 between said lugs and inner rim of the said companion parts, substantially as described.

2. The combination of a floor-sleeve, having the wings 9 and their outwardly-extended lugs 10 at the lower end of said sleeve, and a ceiling-plate provided with spring-lugs secured by one end to said

plate, whereby the body of said lugs extends outside of the wings 9 at a point above the lugs 10 of said wings, substantially as described.

3. A floor-sleeve comprising an outer sleeve having turned from its lower end the inwardly-projecting circumferential flange the ends of which flange are separated by a break or space, the inner diameter of said flange being less than the internal diameter of the body of said outer sleeve, and an inner sleeve having a series of external projections adapted to pass through said break or space and to extend upwardly inside of the outer sleeve which is large enough to readily receive and let said projections pass at all points above the said flange, substantially as described and for the purpose specified.

590,718. COOLING APPARATUS. JAMES T. BENTLEY, Circleville, Ohio. Filed Nov. 27, 1896. Serial No. 613,594. (No model.)



Claim.—1. An apparatus for cooling liquids, consisting of a receptacle; coil of pipe contained therein, netting contained about the inner circumference of the coil and a reciprocating agitator working in the space within the coil; means for operating the same, substantially as shown and described.

2. In a cooling apparatus, the combination with the cooling-receptacle, coil of pipe located therein, the agitator N, mounted on a shaft M, a pitman connected to the upper end of the said agitator, and a crank-shaft for operating the said pitman, substantially as shown and described.

3. In a cooling apparatus, the combination with the cooling-receptacle, coil of pipe located therein, standards L secured to the outside of the casing, shaft M mounted in the upper ends of the said standards, agitator N journaled on the said shaft M, with its free end extended down to nearly the bottom of the space within the cooling-receptacle, the pitman R connected to the upper end of the agitator, means for operating the same, of the supply-pipes and pumps leading to the coil and the outlet-pipes connected to the lower end of the coil, substantially as shown and described.

590,719. LAST-BLOCK FASTENER. FRANCIS E BENTON, Stoughton, Mass. Filed Apr. 9, 1897. Serial No. 631,416. (No model.)



Claim.—1. In a last-block fastener, the bearing-block *a* having a hole through it, and a pin *b* having a head, a reduced shoulder *b'* beneath it, and a reduced stem *b²* beneath said shoulder, and a spring *c* encircling said shoulder and stem between the head and bearing-block, said spring being large enough to encircle said shoulder *b'*, and said shoulder being long enough to strike upon the bearing block, when said spring is compressed, substantially as described.

2. In a last-block fastener, a bearing-block having a hole through it and adapted to be driven into a hole in the last, and having at its lower end a guideway a^4, a pin *b* having a stem which passes through a hole in said bearing-block, a washer on said stem contained in said guideway which is made of suitable shape and size to follow along said guideway and serve as a guide for the lower end of the pin, and a spring encircling said stem between the bearing-block and head of the pin, substantially as described.

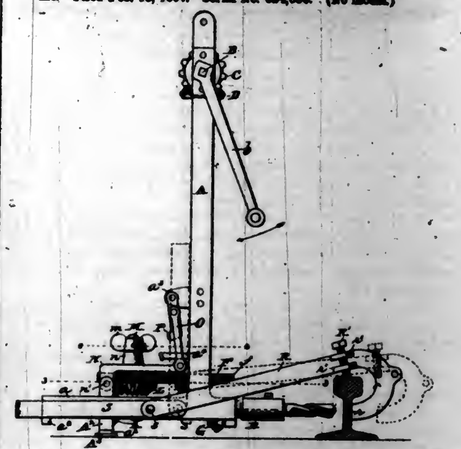
3. In a last-block fastener, a bearing-block having a hole through it and having an upwardly-projecting flaring flange or rim a^3, and a pin *b* having a head, a reduced shoulder *b'* beneath it, and a reduced stem b^2 beneath said shoulder, and a spring *c* encircling said stem and shoulder and interposed between the head of the pin and the bearing-block, substantially as described.

590,720. BRUSH. ALANSON C. BEARDSLEE, Northampton, Mass., assignor to the Florence Manufacturing Company, same place. Filed Apr. 3, 1896. Serial No. 586,045. (No model.)



Claim.—A brush comprising a bristle-block of plastic cementing material having the inner ends of tufts of bristles embedded therein and surrounded thereby, and agglutinating material capable of being made fluent by heat uniting the individual bristles of the tufts and blended with the cementing material, substantially as described.

590,721. DRILLING-MACHINE. FRANKLIN FARRING, St. Joseph, Mo. Filed Feb. 13, 1897. Serial No. 624,099. (No model.)



Claim.—1. In a drilling-machine, a longitudinally-movable drill-shaft and feed-screw, a nut meshing with said screw and rotatably mounted, a bevel-gear secured to the nut, a driving-shaft geared to the drill-shaft, and intermediate back gearing between said shaft and the bevel-gear on the nut, substantially as described.

2. In a drilling-machine, a longitudinally-movable drill-shaft and feed-screw, a gear splined to said shaft, a rotatable nut meshing with the feed-screw and provided with a gear, two shafts geared respectively to said gears, intermeshing spur-gears connecting said two shafts, and having a different number of teeth, and means for disengaging said spur gears without disconnecting the shafts from the gears on the drill-shaft and nut, substantially as described.

3. In a drilling-machine, a longitudinally-movable drill-shaft and feed-screw, a gear splined to said shaft, a rotatable nut meshing with said screw and provided with a gear, two shafts geared respectively to said gears, intermediate gearing connecting said shafts, means for disengaging said intermediate gearing, and means for locking the nut when said gearing is disengaged, substantially as described.

4. In a drilling-machine a longitudinally-movable drill-shaft and feed-screw, a gear splined on said shaft, a rotatable nut meshing with said screw, and provided with a gear, two normally parallel shafts geared respectively to said gears, intermeshing spur-gears on said shafts, means for disengaging said spur-gears, and a stationary arm to engage with and lock one of said spur-gears when disengaged, substantially as described.

5. In a drilling-machine, a drill-shaft, feed-screw and rotatable feed-nut, a driving-shaft geared to the drill-shaft, a hinged frame, a short shaft journaled in said frame and geared to the nut, spur-gears connecting said driving-shaft and short shaft, and a stationary arm having one or more teeth to engage with the spur-gear on the short shaft when the hinged frame is tilted, substantially as described.

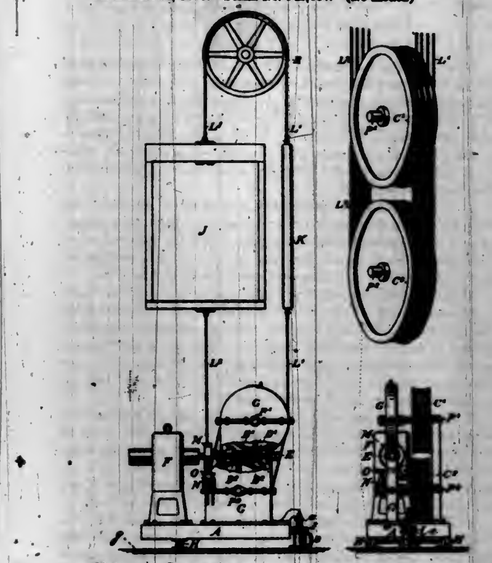
6. In a drilling-machine, a drill-shaft, feed-screw and rotatable feed-nut, a driving-shaft geared to the drill-shaft, a hinged frame, a lever for lifting said frame, links connecting the lever with the frame, a short shaft journaled in said frame and geared to the feed-nut, and intermeshing separable spur-gears on the driving-shaft and short shaft, substantially as described.

7. In a drilling-machine, the combination with the drill-shaft, the feed-screw and the rotatable feed-nut, of a driving-shaft geared to the drill-shaft, a short shaft geared to the nut, separable intermeshing spur-gears on the driving-shaft and short shaft, said gears having

a different number of teeth, a frame hinged on a line intersecting the pitch-lines of the gear on the nut and the gear on the short shaft, and carrying said short shaft, a thumb-piece on the short shaft, an arm carrying teeth, and a lever connected with the hinged frame to lift the same, substantially as described.

8. In a drilling-machine, the combination with a frame having cross-bars, of a rotatable feed-nut having a tubular extension, a pivot-stud at the end of said extension having a bearing in and projecting through one of said cross-bars, a thrust-bearing block for said stud, and adjusting-screws connecting said block with said cross-bar, substantially as described.

590,722. ELEVATOR-GEARING. COPRAN I. HALL, San Francisco, Cal., assignor to the Cahill & Hall Elevator Company, of California. Filed Mar. 21, 1895. Serial No. 542,697. (No model.)



Claim.—1. In an elevator, a cage, counterweight, suspending ropes, an idle or balancing pulley over which the ropes pass, and in combination therewith, impelling-ropes attached to the cage, driving-drums to drive said cage, tangent-wheels with which said pulleys are provided, and the drive-shaft with which the tangent-wheels engage.

2. In an elevator, impelling-drums, an idle-pulley, a cage, motor, impelling-ropes and tangent-wheels, and in combination therewith, a movable main frame suspended in part by the tension of the impelling-ropes, substantially as described.

3. In an elevator, a cage, motor, driving-drums, an idle pulley, and impelling-ropes passing over said pulley, the tangent-wheels, a movable and partially-suspended base-frame, a hydraulic cylinder to regulate or control the movements of the main frame, all connected and operating substantially as described.
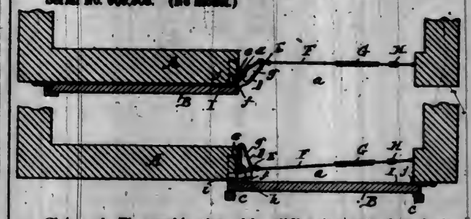
590,723. ANIMAL-TRAP. WILLIAM B. HARBAN, Stockton, Cal. Filed Jan. 23, 1897. Serial No. 620,716. (No model.)



Claim.—1. In an animal-trap the combination with a suitable inclosure of the funnel-shaped inclosure C, I, the parallelepipedon-shaped inclosure B rigidly attached to the apex end of the inclosure C, the trap-doors D, pivotally attached to the wire H, the staples G comprehending the wires H and rigidly attached to the doors D, the weights E suitably attached to the outer sides of such doors D, and the wire F adapted to engage with the doors D, all arranged and operating substantially as and for the purposes shown and described.

2. In an animal-trap the combination with a suitable inclosure A of the funnel-shaped inclosure C, I, rigidly attached to the sides of the end of the inclosure A, the parallelepipedon-shaped inclosure B rigidly attached to the apex end of the inclosure C, the trap-doors D, pivotally attached to the wire H, the staples G adapted to comprehend the wires H, and rigidly attached to the doors D, the weights E suitably attached to the outer sides of such doors D, the wire F adapted to engage with the doors D, the door J pivotally attached to the bottom wire of the rear end of the inclosure A, the double wire L rigidly attached to the door J, and the lock-wire O attached to the frame of the inclosure A, all arranged and operating substantially as and for the purposes shown and described.

590,724. FIRE-DOOR. ALBERT J. IVES, Aurora, Ill., assignor to the Wilcox Manufacturing Company, same place. Filed Oct. 19, 1896. Serial No. 609,208. (No model.)



Claim.—1. The combination with a sliding door, of a slotted, pivoted lever adapted to engage and hold said door, a connection so secured at one end to said lever that it may move in the slot in said lever and secured at its opposite end to a suitable support, and a tension device for said connection whereby the lever is held in position to retain the door in its open position or allow it to be closed, substantially as specified.

2. The combination with a sliding door, of a pivoted lever adapted to engage and hold said door, a chain or similar connection movably attached to said lever and to a suitable support, a tension device for the connection whereby the lever is held in position to retain the door in its open position or allow it to be closed, and a fusible attaching device for holding said connection in operative position, substantially as specified.

3. The combination with a sliding door, of a slotted pivoted lever adapted to engage and hold said door, a yoke movable on said slotted lever, a connection secured at one end to said yoke and at its opposite end to a suitable support, and a tension device for said connection whereby the lever is held in position to retain the door in its open position or allow it to be closed, substantially as specified.

4. The combination with a sliding door, of a pivoted lever adapted to engage and hold said door, a chain or similar connection movably attached to said lever and to a suitable support, and a tension device for said connection whereby the lever is held in position to retain the door in its open position or allow it to be closed, substantially as specified.

5. The combination of a sliding door, with the lever D, connection F, spring G, and fusible link H, substantially as specified.

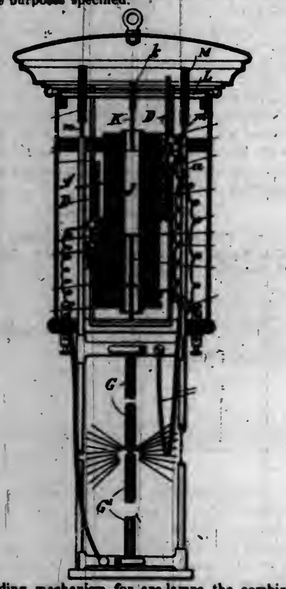
6. The combination with a sliding door and the plate I attached thereto and provided with a projection *j*, of the lever D having the projection *j'* and the arm A arranged to be engaged by the projection *j* when the door is opened to cause the projection *j'* to engage the edge of the door, the connection F, spring G, and fusible link H, substantially as specified.

590,725. ELECTRIC-ARC LAMP. HENRY LEITNER, London, England. Filed Apr. 16, 1897. Serial No. 632,442. (No model.)

Claim.—1. In an improved feeding mechanism for arc lamps, the combination with a series and shunt coil constructed from a number of independent sections and contact-bars insulated from each other and connected to each of the said sections, of an iron core in the said coils, a frame connected to the said core and brushes on the frame for each coil, these brushes bearing on the contact-bars leading the current through corresponding sections, and connections to the carbons causing them to move with the core, substantially as described and for the purposes specified.

2. In feeding mechanism for arc-lamps, the combination of a series and shunt coil, each coil wound in independent sections, and two sets of contact-bars one for each coil, each contact-bar being connected to a section of the coil to which it belongs, an iron core within the said coils, a frame to which the core is attached and two sets of brushes one set for each coil, bearing on the contact-bars, with a spindle having a drum or wheel a connection from the core pass-

ing over the said drum, and two drums or wheels on the same spindle connected respectively to the upper and lower carbons, substantially as and for the purposes specified.



3. In feeding mechanism for arc-lamps, the combination of a series and shunt coil one above the other, each coil being wound in a series of independent sections, and two sets of contact-bars one to each coil, each contact-bar being insulated from the next and connected to one of the said contacts with a central iron core placed within the said coils, a frame extending on each side of the coils carrying the core, two sets of brushes carried by the sides of the frame bearing on the contact-bars leading the current through a constant number of sections, and connections from the core to the carbons causing them to move with the core and frame, substantially as and for the purposes specified.

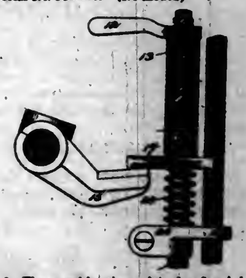
4. In feeding mechanism for arc-lamps the combination of a series and shunt coil placed one above the other each coil wound in a number of independent sections, two sets of contact-bars one for each coil each contact-bar being connected to a section, a central iron core, a frame carrying the core extending on each side of the coil, and two sets of brushes on the frame, bearing on the contact-bars, with a spindle at the top of the lamp, a drum at the center of the said spindle, a connection passing over the said drum to the core, side drums or wheels on the same spindle and connections, wound in opposite directions on these wheels, passing to the carbon-holders causing them to move with the core and frame substantially as described and shown and for the purposes specified.

5. In feeding mechanism for arc-lamps, the combination with a series and a shunt coil, each coil wound in a number of independent sections, and a set of contact-bars for each coil connected independently to the sections, of an iron core, a frame carrying the core, two sets of brushes, adapted to bear on the contact-bars, short-circuiting all the sections except those in the gap between the brushes, electrical connections to the brushes and to the end of the coils, and connections from the core to the carbons, substantially as and for the purposes specified.

6. In feeding mechanism for arc-lamps, the combination of a series and shunt coil placed side by side and wound in independent sections, and a set of contact-bars for each coil, each bar connected to a section, with a central iron core in each coil, a frame connected to each core, brushes on each frame bearing on the contact-bars and connections from the cores to the carbons, substantially as described and shown and for the purposes specified.

7. In feeding mechanism for arc-lamps the combination with a series and a shunt coil wound in a series of independent sections and placed side by side, a set of contact-bars for each coil each bar connected to a section, of a frame fitted to each coil, a core carried by each frame, two brushes on the frame situated at the lower ends of the cores a spindle carrying drums or wheels, connections from the cores passing over the wheels in opposite directions, and connections to the upper and lower carbons, substantially as described and shown in Fig. 4 and for the purposes specified.

590,726. PRESSER-FOOT-LIFTING MECHANISM FOR SEWING-MACHINES. FRANK W. MERRICK, Boston, Mass. Filed Mar. 16, 1896. Serial No. 583,476. (No model.)



Claim.—1. The combination with the fixed head of a sewing-machine, the presser-foot, and the presser-bar, of a collar or sleeve constituting a movable bearing for the presser-bar, the said movable bearing being fitted to the said head with capacity to move vertically therein, lifting mechanism operating to lift said bearing and presser-bar, and means of adjustment acting in connection with said collar or sleeve whereby to vary the lift of the presser-bar and presser-foot, substantially as described.

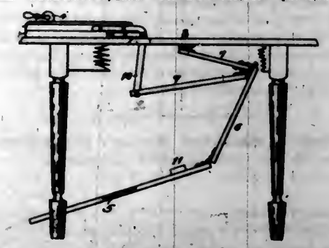
2. In combination, a presser-bar, a projection movably connected with the presser-bar, a lifting device to engage said projection, and an adjusting device to vary the height of said projection on the presser-bar, the said adjusting device having a toothed retainer to prevent loss of adjustment, substantially as described.

3. The combination with the fixed head of a sewing-machine, the presser-foot and the presser-bar of a collar or sleeve constituting a movable bearing for the presser-bar the said movable bearing being fitted to the said head with capacity to move vertically thereon, a nut on said bar engaging said bearing to vertically adjust the same relatively to said bar, and lifting mechanism to engage said bearing to lift the presser-bar, substantially as set forth.

4. The combination with the presser-foot and presser-bar of a sewing-machine, of a movable bearing for the presser-bar, a nut on said presser-bar engaging said movable bearing to adjust the same relatively to the said presser-bar, a spring to hold said bearing in engagement with said nut and lifting mechanism cooperating with said bearing to lift the presser bar and foot, substantially as set forth.

5. The combination with the presser-foot and presser-bar of a sewing-machine of a movable bearing for the presser-bar, said movable bearing having serrations on the upper end thereof, a nut on said presser-bar having serrations thereon engaging the serrations on said movable bearing, a spring which operates to hold said movable bearing in contact with said nut and lifting mechanism for engaging said bearing to lift the presser-bar and presser-foot, substantially as set forth.

590,727. COPYING-MACHINE. FRANKLIN T. MILLER, Newton, Mass. Filed Nov. 24, 1896. Serial No. 613,243. (No model.)



Claim.—1. In a duplicating-machine, a swinging frame, a treadle, and mechanism connecting said treadle with the frame for raising the latter by depressing the treadle, said mechanism acting to continuously diminish the lifting force transmitted from the treadle to the frame as said treadle is depressed, for the purpose set forth.

2. In a duplicating-machine, a swinging frame, arranged to fall by its own weight, in combination with mechanism for raising the same, said parts being counterbalanced in such manner that the frame has between its extreme positions a balanced position of stable equilibrium in which it is partly raised, for the purpose set forth.

3. In a duplicating-machine, in combination with a swinging frame and with a treadle, the rods 6 and 7 pivoted to each other, and to the treadle and to a fixed support respectively, and the rod 9 pivoted to one of the aforesaid rods and connected to the hinged frame

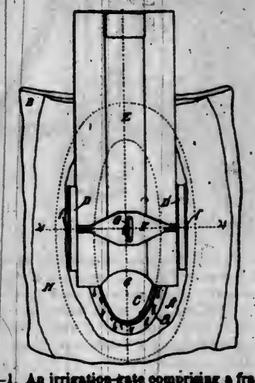
to operate the same, said parts being so proportioned that when the treadle is depressed the rods 6 and 7 are substantially in alinement with each other, all substantially as described.

4. In a duplicating-machine, in combination, a swinging frame, the toggle-linkage comprising the rods 6, 7 and 9, and a treadle, said parts being connected together substantially as described, and counterbalanced in such manner that said frame has a balanced position of stable equilibrium in which it is partly raised, all substantially as described.

5. In a duplicating-machine, a swinging frame, a treadle, and mechanism connecting said treadle with the frame for operating the latter, said mechanism acting positively in both directions, and also acting to gradually diminish the velocity of the frame as said frame approaches the limit of its upward movement, for the purpose set forth.

6. In a duplicating-machine, in combination, a swinging frame, a treadle, and mechanism connecting said treadle with the frame for operating the latter, and acting to gradually diminish the velocity of the frame as it approaches the extreme positions of its movement, for the purpose set forth.

590,728. IRRIGATION-GATE. JAMES MOFFATT, Rialto, Cal. Filed Feb. 11, 1897. Serial No. 623,001. (No model.)



Claim.—1. An irrigation-gate comprising a frame adapted to be fastened to the side of a stand-pipe and provided with an oval discharge-opening and with two projecting slide-guides and bridge-retainers arranged on opposite sides of the discharge-opening, respectively; a slide having an arched notch in its lower end and arranged to slide between the guides; a bridge extending between and held by the bridge-retainers; and means for forcing the slide away from the bridge to clamp the slide against the face of the frame.

2. An irrigation-gate comprising a frame adapted to be fastened to the side of a stand-pipe and provided with an oval discharge-opening and with two projecting slide-guides and bridge-retainers arranged on opposite sides of the discharge-opening respectively; a slide having an arched notch in its end and arranged to slide between the guides; a bridge extending between and held by the bridge-retainers; and a screw screwing through the bridge to engage the slide.

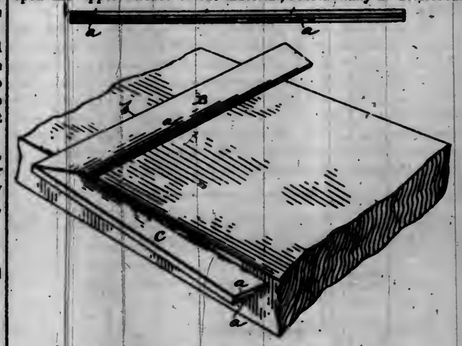
3. An irrigation-gate comprising a frame adapted to be fastened to the side of a stand-pipe and provided with a discharge-opening and with two projecting slide-guides and bridge-retainers arranged on opposite sides of the discharge-opening respectively; a slide arranged to slide between the guides; a bridge extending between and held by the bridge-retainers; and means for forcing the slide away from the bridge to clamp and slide against the face of the frame.

4. An irrigation-gate comprising a frame adapted to be fastened to the side of a stand-pipe and provided with a discharge-opening and with two projecting slide-guides and bridge-retainers arranged on opposite sides of the discharge-opening respectively and each having a hole to receive an end of the bridge; a slide arranged to slide between the guides; a bridge extending between the bridge-retainers and having its ends inserted in the holes in such retainers respectively; and means for forcing the slide away from the bridge to clamp the slide against the face of the frame.

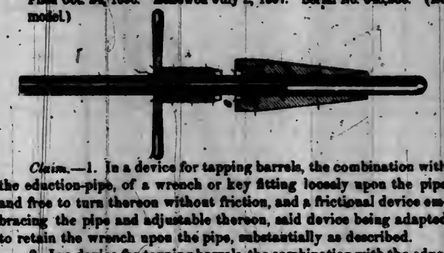
5. The combination of a frame with oval opening, and a gate with arched notch in the end and means for holding the gate in position with relation to the opening substantially as set forth.

590,729. CARPENTER'S SQUARE. FOLKE F. NORDEN, Willow Grove, Pa. Filed Oct. 5, 1896. Serial No. 607,958. (No model.)

Claim.—A carpenter's square consisting of two limbs forming a right angle, one or both of said limbs being constructed upon a uniform taper transverse of the width of the same, that is, the thickest portion being at the outer edge and decreasing uniformly in thickness to its inner edge, whereby one limb can be placed along the edge of a piece of material being operated upon and allowed to drop slightly, and both edges of the under surface of the other limb will rest flatly upon the upper surface of the material, substantially as described.



590,730. BARREL-TAPPING WRENCH. CHARLES R. SWINGLE and CHARLES FRANTZ, Lancaster, Pa.; said Frantz assignor to said Swingle; said Swingle assignor of one-half to John Harrington, same place. Filed Oct. 24, 1896. Renewed July 2, 1897. Serial No. 643,230. (No model.)



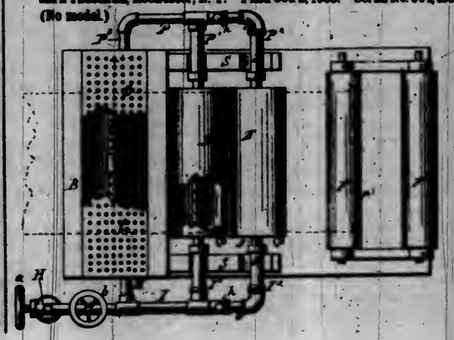
Claim.—1. In a device for tapping barrels, the combination with the eduction-pipe, of a wrench or key fitting loosely upon the pipe and free to turn thereon without friction, and a frictional device embracing the pipe and adjustable thereon, said device being adapted to retain the wrench upon the pipe, substantially as described.

2. In a device for tapping barrels, the combination with the eduction-pipe, of a contractile sleeve upon said pipe adapted to slide frictionally thereon, a tap-wrench fitting loosely over said sleeve and pipe, and means for retaining the wrench upon the sleeve, whereby the sleeve prevents the wrench from slipping off of the pipe, substantially as described.

3. In a device for tapping beer-barrels, the combination with the eduction-pipe, of a wrench fitting loosely upon said pipe, said wrench being provided with handles, a body with a cylindrical opening and inwardly-turned flanges at each end of said opening, and a contractile sleeve within the cylindrical opening of the wrench and adapted to grip the pipe frictionally, substantially as described.

4. A beer-tap wrench having a body with a cylindrical opening and an inwardly-turned flange at each end thereof, and a tabular rubber sleeve within the opening and adapted to grasp the eduction-pipe frictionally, substantially as described.

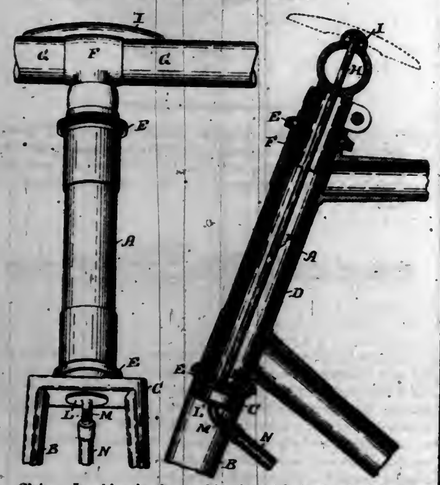
590,731. CLOTH SPONGING AND FINISHING MACHINE. JOSEPH TURNBULL, Rochester, N. Y. Filed Oct. 2, 1895. Serial No. 564,455. (No model.)



Claim.— 1. In a cloth-sponging machine, the combination with the adjustable roller E provided with the hollow journal *f*, of the branch pipe I^3 the hollow thimble *d* screwed on one of its ends and forming a bearing for the journal, the nipple *g* attached at the opposite end of the branch pipe and provided with a straight tubular end that enters the end of the main pipe I, and the set-screw A, the whole so arranged that the roller can turn and can be set fast at any adjustment forward or back, as herein shown and described.

2. In a cloth-sponging machine, the combination, with the perforated steam-chest B, and hollow rollers D E, of the two pipes I and P located respectively on opposite sides of the machine, the branch pipe P^3 connecting the main pipe P with the end of the steam-chest, the two sets of branch pipes $I' I^3$ and $P' P^3$ on the opposite side of the machine and the pipes *f* R extending through the hollow rollers and connecting the two main pipes, whereby a circuit is maintained and the steam that is carried through the rollers is discharged into the steam-chest, as herein shown and described.

590,782. BICYCLE. WILLIAM TURNER, Providence, R. I. Filed Apr. 21, 1897. Serial No. 633,180. (No model.)



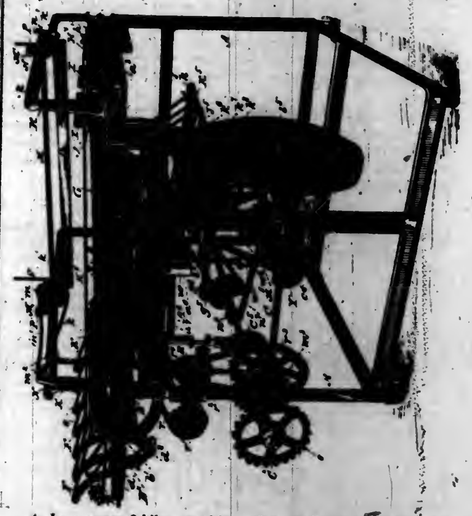
Claim.—In a bicycle, the combination with the head of the bicycle-frame, of the spindle-tube D, the cap L secured in the crown of the fork and provided with the tube M, the perforated bracket F, and the pump rod H provided at one end with a handle and at the other with the cup-piston K; whereby an air-pump is permanently connected with and forms part of the head of the bicycle-frame, as described.

590,783. AUTOMATIC NEWSPAPER FOLDING AND ADDRESSING MACHINE. CYRUS H. WALLS, Taylorville, Ill. Filed May 17, 1893. Serial No. 474,571. (No model.)

Claim.—1. A newspaper folding and addressing machine comprising a feed or receiving table, a main folding-platform centrally slotted, feed-tapes passing over such platform from the receiving-table, a reciprocating folder-blade operating over and through the slotted platform, a rotary addressing-wheel, an intermittently-operating arm, an intermittently-operating fly-shaft, a series of folder-rolls arranged in pairs, transversely to each other and to successively receive and fold the paper, folding-blades, operating to double up the paper between the folder-rolls, endless tapes connecting the several folder-rolls, the tapes of the last set passing over the fly-shaft, and intermediate gear mechanism between the feed-tables, the tapes, folder-rolls, printing-plunger and fly-shaft and folding-blades, all arranged substantially as shown and for the purposes described.

2. In a newspaper-folding machine, the combination with the main folding-platform, guide-rolls at the outer end thereof, arms extended from the feed side of said main frame, the main feed-cylinder B, journaled therein and the endless tapes passed over such cylinder and guide-rolls, of an outwardly-extending frame composed of side arms *d'* connected at their outer ends by a bar d^1, hung at their inner ends on the cylinder-shaft, the means for holding such arms to their adjusted positions, the vertically-extending arms F adjustably held on the bar d^2 having guide-rolls in their upper ends and the endless tapes passed over such outer guides and the feed-cylinder all arranged substantially as shown and for the purposes described.

3. In a newspaper-folding machine, the combination with the centrally-divided main platform G, the supplement-platform L and the reciprocating folder-blade and first-fold rolls arranged substantially as described, of the stop S, having a front beveled face arranged parallel with the discharge edge of the supplement-platform, said stop having a rear pivotal support whereby its front face can be adjusted to change the angle of its bevel portion with the platform L and means for holding it to its adjusted positions, as and for the purposes set forth.



4. In a paper-folding machine substantially as described, the combination with the main frame, the standards K, the rotary shaft M, the main drive-shaft C geared with the shaft M, the slotted platform G and the first-fold rolls Q Q', of the folder-blade O, the swinging arms N N, pivoted to the standards K, the link connections n n between the arms and the ends of blade O, the crank members M' on shaft M and crank members P on the arms N, said cranks connected and arranged substantially as shown and for the purposes described.

5. In a paper-folding machine, in combination, a feed-table, a main folding-platform centrally slotted, tapes operating over it to feed the paper thereon, from the feed-table, a primary set of supplemental tables, arranged over the main platform one at each side of the slot, endless tapes on such supplemental tables arranged to feed the sheets toward the said slot and at right angles to the main sheet-feed, a secondary supplement-table over one of the primary tables, transverse stops at the inner ends of each of the supplemental tables, a pair of folding-rolls under the slotway in the main platform, a folder-blade vertically movable between the stops and the ends of said table and through the slotted platform, between the rolls, whereby it will draw the ends of the supplement-sheets down between the rolls as the main sheet is doubled up between them all substantially as shown and described.

6. In a paper-folding machine the combination with the paper-folding rolls, the drive-shafts C and $C^\times$, a fly-shaft gear mechanism for effecting an intermittent rocking motion thereto, operated by shaft C, feed-tapes extending from the last-fold rolls to such shaft, a continuously-rotating addressing-wheel, operated from the main shaft $C^\times$ and an intermittently-operated presser-arm operated by the drive-shaft C all arranged substantially as shown and described.

7. The combination with the main drive-shaft C, the folding-rolls arranged substantially as shown, the fly-shaft, the intermediate operating mechanism between such shaft and shaft C, of an addressing-wheel, the feed-tapes from the last rolls arranged to pass over the fly-shaft, the paper supports or rests P^2 P^3, the spring-actuated presser or printing-arm Q^4, and a cam mechanism for elevating such arm Q^4, and the intermediate gear connections between the said cam and the drive-shaft C, all arranged substantially in the manner shown and described.

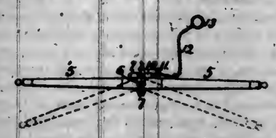
590,784. ATTACHMENT FOR WHEELS. ALBERT H. CROSS, Babcock, Wis. Filed Nov. 11, 1896. Serial No. 611,779. (No model.)

Claim.—1. In a device of the class described, the combination with a wheel having a flat rim provided with inner and outer series of perforations, of an attachment consisting of a ring or band arranged on the rim of the wheel and provided with a series of perforations adapted to register with either of the series of perforations of the rim of the wheel, and a vertically-disposed annular flange extending from the outer edge of the ring or band, and fastening devices passing through perforations of the ring or band and rim, and securing the attachment to the wheel, said fastening devices being adapted to be arranged in the inner or the outer series of perforations to vary the tread of the wheel, substantially as described.



2. In a device of the class described, the combination of an axle and wheel journaled thereon, an attachment secured to the wheel and provided with a flange, and a scraper clipped to the axle extending rearward therefrom and having a curved outer portion disposed transversely of the periphery of the wheel, the outer terminal of the scraper being bent downward, substantially as described.

590,785. HORSE-DETACHER. GEORGE H. DAVIS, Richmond, Va., assignor of one-half to William H. Cullingworth, same place. Filed Mar. 10, 1897. Serial No. 626,778. (No model.)



Claim.—1. The combination in a singletree, of two arms hinged together at their front side and inner ends, and provided with a draw-bolt hole in the joint to the rear of the hinge; lugs upon the rear side of the arms near the joint, and a latch-bolt fitted to slide through the lugs parallel with the arms, across the joint and to project its free end beyond the retaining-lug; the said latch-bolt being provided with a lateral arm, substantially as described.

2. The combination in a singletree, of two arms hinged together at the front side and having a draw-bolt hole in their joint at the rear of the hinge; a latch-bolt attached to the singletree near its center for securing the joint, and a cord attached to the bolt and adapted to be held in the carriage, substantially as described, whereby the singletree may be further bent to aid in freeing the traces after the singletree has been bent free from the draw-bolt.

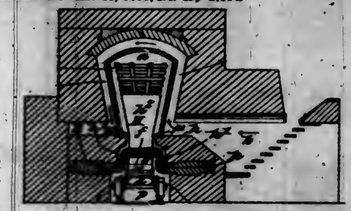
590,786. STOP MECHANISM FOR ENGINE-LATHES. ERNEST EARLE, Worcester, Mass. Filed June 1, 1897. Serial No. 638,872. (No model.)



Claim.—1. The combination with the shaft or feed-rod and the supporting-box having the bearings thereon; of the tubular slide having the clutch-sleeve thereon, the worm-sleeve extending over said clutch-sleeve and carrying the inwardly-toothed clutch-ring, the spring pressing outward on said slide, and the adjustable collar adapted for contact with said slide, substantially as set forth.

2. The combination, with the carriage-apron in an engine-lathe, its feed-rod, and worm-gear that operates the feed mechanism; of the support-box attached to the apron and having bearings through which the feed-rod passes, the tubular endwise-movable slide and clutch-sleeve splined to rotate with said rod, the worm arranged on a worm-sleeve rotatively loose on said rod, and carrying the clutch-ring, said worm-sleeve and clutch-ring supported against endwise displacement, the expansion-spring acting to normally engage the clutch, and the collar adjustably held on said feed-rod, for the purposes set forth.

590,787. MUFFLE-FURNACE FOR TREATING GLASS OR POTTERY WARE. ADOLF HELBIG, Bodenbach, Austria-Hungary. Filed Feb. 11, 1896. Serial No. 578,809. (No model.) Patented in France May 20, 1895, No. 247,554; in England May 21, 1895, No. 10,087, and in Austria June 11, 1895, No. 45/2,104.



Claim.—1. A circular kiln provided with a charging and discharging aperture or hiatus, an unobstructed gallery having its terminals at said hiatus, and a circularly-movable sole for said gallery, a portion of the latter diametrically opposite the aforesaid hiatus constructed in the form of a muffle, whose lateral walls converge to said sole, said muffle portion extending toward and being nearer to the entrance than the outlet of the gallery; in combination with a source of heat outside of the kiln-walls and suitable flues encompassing the muffle portion of the gallery to conduct the products of combustion around the muffle portion in the direction of the gallery-entrance without entering any portion of the gallery, for the purpose set forth.

2. A circular kiln provided with a charging and discharging aperture or hiatus, an unobstructed gallery having its terminals at said hiatus, and a circularly-movable sole for said gallery, a portion of the latter diametrically opposite the aforesaid hiatus constructed in the form of a muffle, whose lateral walls converge to said sole, said muffle portion extending toward and being nearer to the entrance than the outlet of the gallery; in combination with a source of heat outside of the kiln-walls and suitable flues encompassing the muffle portion of the gallery to conduct the products of combustion around the muffle portion in the direction of the gallery-entrance and finally to the atmosphere without entering any portion of the gallery, said flues having their intake and outlet above the kiln-sole, for the purpose set forth.

3. A circular gallery-kiln provided with a charging and discharging aperture or hiatus, an unobstructed gallery having its terminals in said hiatus, and a circularly-movable sole for said gallery, a portion of the latter, diametrically opposite the aforesaid hiatus constructed in the form of a muffle whose lateral walls converge to said sole, said muffle portion extending toward and being nearer to the entrance than the outlet of the gallery; in combination with a source of heat outside of the kiln-walls, and suitable flues to conduct the products of combustion first around the portion of the muffle farthest from, then around the portion nearest to the gallery-entrance and finally to the atmosphere without entering any portion of said gallery, said flues having their intake and outlet above the gallery-sole, and means for preventing heat passing from the gallery beneath its sole, for the purpose set forth.

4. A circular kiln provided with a charging and discharging aperture or hiatus, an unobstructed gallery having its terminals at said hiatus, a circularly-movable sole for the gallery, and a wheeled carriage for said sole, a portion of said gallery diametrically opposite the aforesaid hiatus constructed in the form of a muffle having lateral walls converging to the sole, said muffle portion extending toward and being nearer to the entrance than the outlet of the gallery, and supports for the goods corresponding in form to the cross-sectional form of said muffle and adapted to support such goods within the wider part thereof; in combination with a source of heat outside of the gallery-walls, and suitable flues to conduct the products of combustion first around a portion of the muffle farthest from, and then around a portion nearer to the gallery-entrance without passing through any portion of the gallery, thence directly to the atmosphere, said flues having their intake and outlet above the furnace-sole, and means for preventing heat passing from the gallery beneath its sole, substantially as and for the purpose set forth.

5. In a kiln such as described, a sole composed of segments of a refractory material arranged to form a continuous ring, a carriage therefor, hollow columnar supports and base-plates for the latter also of refractory material interposed between the sole and carriage, for the purpose set forth.

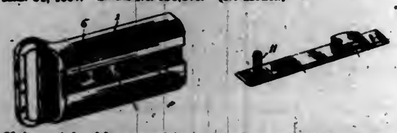
6. In a kiln such as described, the combination with a revolubie sole of refractory material, of supports for the goods consisting of L-shaped segments whose bases when assembled will form a continuous ring, for the purpose set forth.

7. In a kiln such as described, the combination with the sole, of supports for the goods consisting of L-shaped segments whose bases when assembled will form a continuous ring, the vertical members

of said supports being wedge-shaped in cross-section, for the purpose set forth

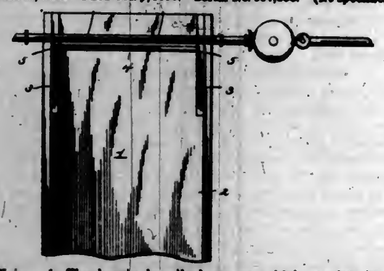
8. In a kiln such as described, the combination with the sole, of supports for the goods consisting of L-shaped segments whose bases when assembled will form a continuous ring, the vertical members of said supports being wedge-shaped in cross-section and in elevation of substantially the same form as the cross-sectional form of the kiln-gallery, for the purpose set forth.

590,738. BUCKLE. JOHN R. HILL, Centre Harbor, N. H. Filed Mar. 31, 1897. Serial No. 630,170. (No model.)



Claim.—A buckle comprising a box-loop provided with means for attachment therewith of a strap and having a longitudinal channel or groove in its outer face, and having a rectangular slot near one end of the channel and an oblong opening near the opposite end thereof, and having a corresponding oblong opening in the rear or opposite side or wall of the box-loop, in transverse alinement with the first-mentioned oblong opening, a pin or cross-bar extending across the rectangular slot, and a latch-bar snugly fitting within the channel or groove and coming flush with the outer side of the box-loop and having its rear portion thickened and longitudinally slotted to receive the aforesaid pin, upon which it slides and turns, and provided near its free end with a stud to project across the space of the box-loop and operate in the oblong openings and having its opposite or heel end entering the aforesaid channel in the rear of the said pin or cross-bar, substantially as and for the purpose set forth.

590,739. PROCESS OF SEPARATING ORES. BRUCE F. HOUSE, Denver, Colo. Filed Oct. 5, 1896. Serial No. 607,833. (No specimens.)



Claim.—1. The herein-described process which consists in admitting ammoniated air below the surface of water or pulp for the purpose of precipitating the ore held therein, in the manner and for the purpose herein set forth.

2. The herein-described process of separating ores from arsenic which consists in bringing said ores and arsenic in the presence of ammoniated air, in the manner and for the purpose herein set forth.

3. The herein-described process of precipitating ores held in suspension by air-bubbles, which consists in bringing said ores into the presence of ammoniated air, in the manner and for the purpose herein set forth.

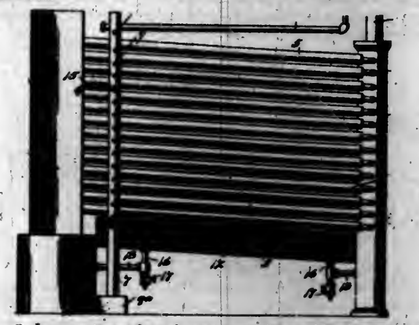
4. The herein-described process which consists in forcing ammoniated air into a stream of water or pulp in which ores are held in suspension, in the manner and for the purpose herein set forth

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590,740. CONDENSER FOR EXHAUST-STEAM. CHARLES A. JOHNSON, Alexandria, Minn. Filed May 11, 1897. Serial No. 636,054. (No model.)

Claim.—1. In a condenser for exhaust-steam, the combination of a vertical stand-pipe into which the exhaust-steam is delivered, a series of horizontal tubes flexibly connected at one end to the stand-pipe and free at their other ends, means to elevate the free ends to vary the inclination of the tubes, means to spray cold water over the tubes, and a suitable receiver for the water of condensation, substantially as described.

2. In a condenser for exhaust-steam, the combination of a vertical stand-pipe into which the exhaust-steam is delivered, a series of curved pipe-sections tapped into the stand-pipe on opposite sides, a collar or reducer on the end of each pipe-section, two vertical series of horizontal tubes connected respectively to the collars or reducers on the opposite sides of the stand-pipe, means to adjustably support the outer free ends of the tubes, perforated pipes above the tubes to spray cold water upon them, a trough arranged below the tubes to receive the water sprayed over them, and a receiver for the water of condensation and the water collected in the trough, substantially as described.



3. In a condenser for exhaust-steam, the combination of a vertical stand-pipe into which the exhaust-steam is delivered, two vertical series of horizontal tubes connected at one end to the stand-pipe and arranged parallel to each other, a pair of standards between which the outer ends of the tubes extend, cross-bars connecting the standards and serving to support and space apart the tubes in the series, means to adjust the standards vertically, means to spray cold water on the tubes, and a receiver for the water of condensation, substantially as described.

4. In a condenser for exhaust-steam, the combination of a vertical stand-pipe into which the exhaust-steam is delivered, a series of horizontal tubes flexibly connected at one end to the stand-pipe and their outer ends being free and open, a vessel arranged below the outer ends of said tubes to receive the water of condensation, a vertical casing arranged in front of the open ends of the tubes, means to vertically adjust the free ends of the tubes, and means to spray cold water on the tubes, substantially as described.

5. In a condenser for exhaust-steam, the combination of a vertical stand-pipe into which the exhaust-steam is delivered, a series of horizontal tubes connected at one end to the stand-pipe and their other ends being open, means to adjustably support the open ends of the tubes, a vessel to receive the water of condensation from the open ends of the tubes, means to spray cold water on the tubes, a trough supported below the tubes to receive the water sprayed on them, means to adjust the inclination of the trough, and a pipe at each end of the trough connecting, respectively, with the said vessel and the stand-pipe, substantially as described.

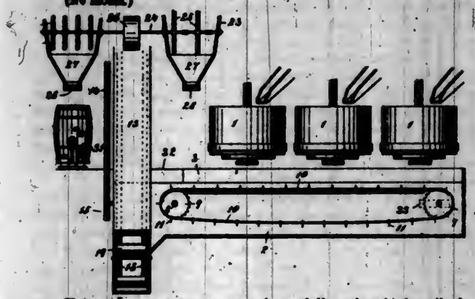
590,741. NON-REFILLABLE BOTTLE. ELMER E. KERR, Bradford, Pa. Filed Dec. 5, 1896. Serial No. 614,563. (No model.)



Claim.—1. A bottle provided with the cylindrical neck 1, external annular recess 2 and internal shoulder 3, in combination with the serrated disk valve 5, the ball 7 and the cylindrical block 8 having edge serrations 9, and semicircular recess 11, the hood 10, encompassing said cylindrical neck 1, and provided with the internal recess 14 registering with the recess 2 in the neck, and the expansible ring 16 formed with internal and external alternate sections 18 20 concentrically arranged to engage the recesses 2 and 14, substantially as and for the purpose set forth.

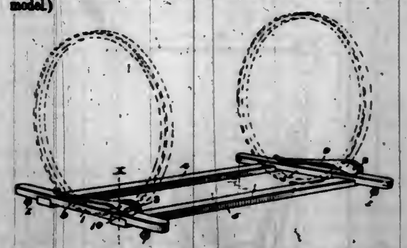
2. A bottle formed with the cylindrical neck 1, having the external annular horizontal recess 2, the internal annular horizontal shoulder 3 formed at the bottom of the enlarged cylindrical chamber 4 in combination with the serrated-edge disk valve 5, seated on the shoulder 3 and adapted to close the passage-way in the neck between said chamber 4 and the bottle proper, the ball 7 located in said chamber 4 and engaging said valve by gravity, the cylindrical block 8 formed with the vertically-serrated edge 9 and the semicircular recess 11 adapted to receive the ball when the bottle is inverted; the cylindrical hood 10 having the internal horizontal recess 14 located in the same plane and contiguous to the recess 2 in the neck, and the expansible steel sealing-ring 16 adapted to alternately engage the intermediate walls of the recesses 2 and 14, substantially as shown and described.

590,742. SUGAR CONVEYER, ELEVATOR, AND BIN. MAURICE M. HEARNS, St. Patrick, La. Filed Jan. 26, 1897. Serial No. 620,846. (No model.)



Claim.—In a sugar-conveyer substantially as herein described, a series of feeders delivering into a trough, an endless chain within the trough, scraper-blades secured thereto, and means for operating the same: combined with a well communicating with one end of the trough and a casing communicating with the well, an elevator within the casing, a pair of discharge-chutes connected to and communicating with the upper end of the casing, and a tilting platform on which the elevator discharges, said platform being pivoted at its center across the mouth of the chutes, eyes at the opposite ends of the platform, and ropes connected with said eyes for tilting the platform to open and close each chute alternately, agitators in the chutes, and a cut-off slide across the discharge end of the same, as and for the purpose set forth.

590,743. TRUCK FOR SUPPORTING VEHICLES. LOUIS P. POMEROY, Yarmouthville, Me. Filed Apr. 21, 1897. Serial No. 633,300. (No model.)



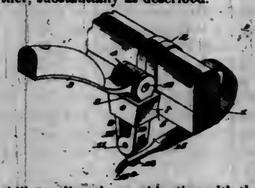
Claim.—1. In a device of the character set forth, the combination of a pair of end bars mounted on casters, and side bars connecting the same, one of the latter being adjustable, substantially as and for the purposes specified.

2. In a device of the character set forth, the combination of a pair of end bars mounted on casters and having openings therein near one end, a stationary side bar and a movable side bar having posts extending upwardly through said openings with apertured heads, and clamping-levers engaging the apertured heads of said posts, substantially as and for the purposes specified.

590,744. THILL-COUPLING. RICHARD HABY, Harrisburg, Pa., assignor to D. L. Bouton and Jas. H. W. Howard, same place. Filed Jan. 22, 1897. Serial No. 620,262. (No model.)

Claim.—1. The combination in a thill-coupling, of the base-plate having a tapering socket, the clevis having tapering jaws adapted to fit the socket and inwardly-projecting journals at the upper end of said jaws, and the spring connected with the base and arranged to draw the clevis into the tapering socket, substantially as described.

2. The combination in a thill-coupling, of the base adapted to be connected with an axle, the socket in the forward part of the base having inclined side walls, the clevis consisting of a pair of inclined arms hinged together at their lower ends and provided with inwardly-projecting journals at their upper ends, the hook upon the lower end of the clevis and the spring arranged to constantly draw the clevis into the socket in the base-plate whereby the journals are urged toward each other, substantially as described.

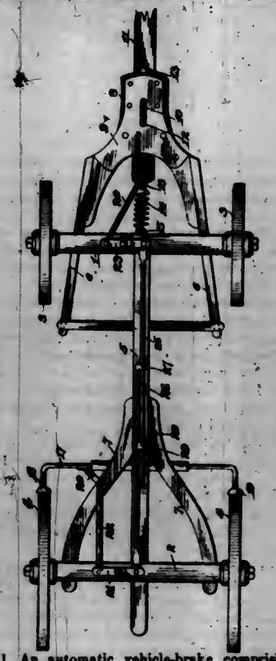


3. In a thill-coupling the combination with the thill-iron having a tapered opening in its eye, of the hinged clevis having tapered journals adapted to fit said opening, means for pressing the journals of the clevis constantly into the thill-eye consisting of the tapered socket in which the clevis rests and the spring for drawing the clevis into the socket, and means for connecting the clevis to an axle, substantially as described.

4. In a thill-coupling the combination of the base-plate, adapted to be attached to an axle, the box-shaped extension upon said base-plate having a socket with inclined side walls, the clevis fitting said socket and provided with inwardly-projecting tapered journals, the thill-iron having an eye with a correspondingly-tapered opening, and a spring arranged to draw the clevis into the tapered socket in the base whereby the journals are constantly pressed into the thill-eye, substantially as described.

5. In a thill coupling, the combination with the base-plate having the box-shaped extension, the socket in said extension having inclined side walls, the clevis consisting of two correspondingly-inclined arms hinged together at their lower ends, journals upon the inner faces of said arms adapted to fit in the thill-eye, a screw passing through the journals and thill-eye, and means for continually drawing the clevis into the socket to compensate for wear and prevent rattling, substantially as described.

590,745. WAGON-BRAKE. WILLIAM J. SMITHSON, Watonga, Okla. Filed Nov. 12, 1896. Serial No. 611,810. (No model.)



Claim.—1. An automatic vehicle-brake comprising a brake proper, a tongue or pole slidable longitudinally in relation to the run-

ning-gear of the vehicle, operative connections between the tongue and the brake whereby the latter is applied when the tongue moves backwardly, and a coil-spring connected to the running-gear and to the tongue, said spring constantly exerting a tendency to draw the tongue backward and apply the brake.

2. In an automatic brake for vehicles, the combination with front bounds having plates provided with slots, of a pole or tongue slidable backward and forward between said plates and provided with the pin which moves in the slots, levers pivoted to the front and rear axles of the running-gear, a brake-beam, a pitman connecting the same with one arm of the rear lever, a pitman connecting one arm of the front lever with the pole, a connecting-rod formed in two sections connected to the remaining arms of the front and rear levers, and slidable relatively to each other, a clamp for holding said sections together, and a close-coil spring having one end connected to the front axle and the other end connected to the pole, said spring constantly exerting a tendency to draw the pole backward and cause an application of the brake.

590,746. BOTTLE-WASHER. GEORGE J. STEIN, Mount Carmel, Pa. Filed Nov. 23, 1896. Serial No. 613,136. (No model.)



Claim.—1. In a bottle-washing machine, a tubular shaft, means for rotating said shaft, a cleaning-brush carried thereby, and a water-supply pipe communicating with said shaft, in combination with a valve for opening and closing said supply-pipe, a cam having a feather-and-spline connection with the valve-stem, a mouthpiece slidably mounted on said shaft, and a frame or extension connected to said mouthpiece and operating upon said cam for turning the valve, substantially as and for the purpose described.

2. In a bottle-washing machine, a tubular shaft, a brush carried thereby, and means for rotating said shaft, in combination with a water-supply pipe communicating with said shaft, a spring-actuated valve for closing said pipe, a cam adjustably mounted on the stem of said valve, a mouthpiece slidably mounted on said shaft, and a frame or extension on said mouthpiece adapted to operate upon said cam for opening the valve and admitting water to said shaft, substantially as and for the purpose described.

3. In a bottle-washing machine, the combination with a revolving tubular shaft, and a cleaning-brush carried thereby, of a slide-frame, a valve operated by said frame for admitting water to said shaft or shutting off the same, a hollow guide on which said slide-frame moves and a spring inclosed within said guide and operating upon said slide-frame for returning the latter to its normal position, substantially as described.

4. In a bottle-washing machine, the water-supply pipe, in combination with a plug-valve controlling said pipe and provided with an extended stem, a cam adjustably mounted on said stem, a cam-lever for binding said cam at any desired point on the valve-stem, and a slide-frame movable longitudinally of the machine and adapted to operate on said cam for turning the valve-stem, substantially as and for the purpose described.

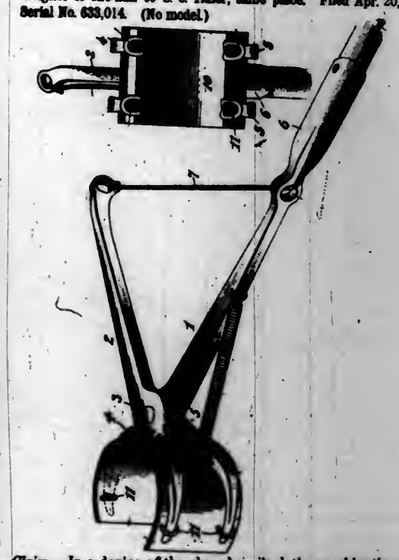
5. In a bottle-washing machine, the combination with a longitudinal guide, and the main driving-shaft extending parallel therewith and having a tubular portion as described, of a water-supply pipe communicating with said shaft, a valve controlling said pipe and having a stem extending parallel to the driving-shaft, a slide-frame carrying a mouthpiece and slidably mounted on said guide and driving-shaft and valve-stem, and a cam on the valve-stem adapted to cooperate with the portion of the slide-frame for opening and closing the valve, substantially as described.

6. In a bottle-washing machine, the combination with a tubular shaft, and a cleaning-brush carried thereby, of a water-supply pipe, a valve-casing connected thereto, a plug-valve mounted therein and provided with a stop cooperating with the corresponding stop in the valve-casing for limiting the turning of the valve in one direction, a spring for holding said valve closed, a cam mounted on the valve-stem, and a longitudinally-slidable frame adapted to be actuated by pressure on the bottle and to coact with said cam for partially rotating the valve-stem and opening the valve, thereby admitting water to said shaft, substantially as described.

7. In a bottle-washing machine, a tubular shaft closed at one end and provided adjacent thereto with a plurality of lateral waterways and carrying at its other end the cleaning-brush, and operating means for rotating said shaft, in combination with a casing in which the shaft is snugly mounted, and a water-supply pipe communicating therewith, the arrangement being such that the flow of water to the shaft is interrupted at rapid intervals, substantially as and for the purpose described.

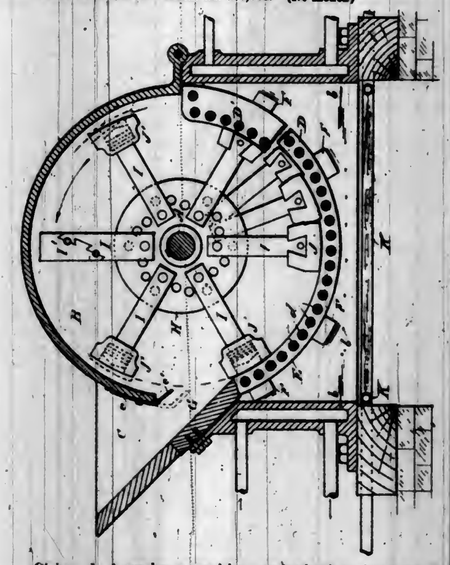
8. In a bottle-washing machine, the combination with a water-supply pipe, and a valve rotatably mounted in a casing communicating with said pipe and provided with a longitudinally-grooved stem, of a slide-frame movable longitudinally of the machine and of said valve-stem, and a shiftable cam mounted on said valve stem and comprising a cam-finger for engagement with said slide-frame, a feather pivotally mounted on said cam and entering the groove in the valve-stem, a spring for holding said feather out of frictional engagement with said stem, and a cam-lever for forcing said feather into engagement with the stem, whereby the cam may be adjusted to any point on the valve-stem and held, substantially as and for the purpose described.

590,747. HOG-CATCHER. WASHINGTON B. TIDLER, Cicero, Ind., assignor of one-half to S. C. Tidler, same place. Filed Apr. 20, 1897. Serial No. 633,014. (No model.)



Claim.—In a device of the class described, the combination of a pair of bars or members pivoted together and provided with jaws adapted for engaging the leg of an animal, said jaws being forked or bifurcated, a flexible shield arranged within and forming a lining for the jaws and provided at its ends with exteriorly-arranged eyes or loops detachably receiving the prongs, whereby the shield is removably mounted on the jaws, said shield being adapted to reduce the size of the opening between the jaws to adapt the latter for engaging smaller animals, and means for holding the jaws normally open and for operating them, substantially as described.

590,748. CRUSHER. MILTON F. WILLIAMS and EDWARD H. FRICKEY, St. Louis, Mo., assignors, by direct and mesne assignments, to the Williams Patent Crusher and Pulverizer Company, same place. Filed Dec. 23, 1896. Serial No. 616,721. (No model.)



Claim.—1. A crusher comprising a casing having a hopper-opening, a rotary shaft, and hammer-supports thereon, hammers pivotally mounted in said supports, an adjustable dead-plate inclined downward toward the hammers in their acting position to draw the material in, and with its inner edge directly adjacent to the path of the hammers, and a concave cage coacting with said dead-plate to crush said material.

2. A crusher comprising a casing, a rotary shaft, a hammer-support on said shaft, having separate points of attachment for the hammers and hammers adjustably pivoted separately and independently to said hammer-support to vary the reach of said hammers.

3. A crusher comprising a casing, a rotary shaft, a hammer-support consisting of a perforated plate having sets of holes arranged in series increasing in radial distance, and hammers adjustably pivoted in said holes.

4. In a crusher, the combination with a rotary shaft, a set of pivoted hammers and a dead-plate, of a hammer-support mounted on the shaft, consisting of a disk plate having sets of holes arranged in circumferentially-diverging lines, increasing in radial distance, for the adjustable pivot location of said hammers.

5. A rotary crusher comprising pivoted hammers, including shank-bars adapted to be pivoted at their inner ends and provided with lateral projections at their outer ends, together with heads having sockets or recesses matching with said lateral projections, rotary hammer-supports for said hammers, and adjunctive devices adapted to operate therewith.

6. A crusher comprising a casing, a rotary shaft, a hammer-support secured on said shaft, hammers pivoted to said hammer-support, and consisting individually of a bar having a projection at its outer end, a head having a radial socket forming a shoulder and slidingly mounted on said bar, and one or more interposed pieces between said shoulder and projection adjustably limiting the outward movement of the head on the bar under centrifugal action, and opposing devices cooperating with said hammers.

7. In a crusher, the combination with a rotary shaft, a series of hammer-supports carried thereby, a series of hammers pivotally mounted in said supports and adjustable to vary the distance of their outer ends from the center of said shaft, a casing, a removable concave, and supports therefor, whereby concaves of different radii may be used with said hammers.

8. In a rotary crusher, an improved hammer consisting of a shank-bar having lateral projections, a slidable head having a hole for the shank-bar and matching shoulders for said projections, and yielding pieces separating the opposing projections and shoulders substantially as described.

9. In a crusher, a rotary hammer comprising a bar provided with a projection near its outer end, a head slidingly mounted on said bar by a socket-eye having a shoulder at said socket's inner end, and one or more interposed pieces within said socket between the opposing parts of the bar and head, allowing an adjustment of the limit of outward movement on the head of the bar.

10. A crusher comprising a casing, a rotary shaft, a hammer-support, a series of hammers pivoted to said support at variable distances of the pivot-point from the center, and provided with heads radially adjustable, a dead-plate in said casing opposing said hammers, and a cage consisting of parallel bars concentric with the shaft and adjacent to said dead-plate, substantially as described.

11. The combination with a casing, a rotary shaft, perforated disks mounted on said shaft and provided with holes at increasing radial distances from the center, swinging hammers each consisting of a shank-bar provided with a socket-head adjustably mounted thereon, and pivoted in said holes in the perforated plates by removable pivots, a dead-plate and a barred cage mounted in the casing and coacting with said hammers, substantially as described.

12. In a rotary crusher, the combination with a rotary shaft and hammer-supports thereon, of hammers including shank-bars adapted to be pivoted at one end to said supports and provided with projections on the outer ends, and heads having sockets or recesses matching said projections in either reversed position of one with respect to the other, a casing, and means coacting with said hammers.

590,749. SWIVEL. HARLEN ZEA, Milwaukee, Wis. Filed Aug. 3, 1896. Serial No. 602,139. (No model.)



Claim.—1. In a swivel, the combination of a cap having a central opening, and having the walls of the opening flaring outwardly, forming a bell-mouth, and a cup rotatively fitted to the smaller or inner end of the cap and adapted to receive the knotted end of a rope or line, substantially as described for the purpose specified.

2. In a swivel, the combination of a base, a cap adapted to be positively secured to the base and having a bell-mouth, and a cup supported by the cap and adapted to receive the knotted end of a rope or line, substantially as and for the purpose specified.

3. In a swivel, the combination of a base having a flange, a bell-mouthed cap having a rim to form a snug joint with the flange of the base, means for connecting the cap to the base, and a cup supported by the cap and adapted to turn freely thereon and receive the knotted end of a rope or line, substantially as set forth.

4. In a swivel, the combination of a base having a tubular extension, a bell-mouthed cap adapted to be secured to the base, and a cup located within the tubular extension of the base and supported by the cap, substantially as set forth.

5. In a swivel, the combination of a base having a tubular extension provided at its outer end with an inner flange, a bell-mouthed cap constructed to be secured to the base, and a cup having an outer bead and located within the tubular extension and held therein by the inner flange, and supported by the cap and adapted to turn freely thereon, substantially as set forth.

6. The herein-described swivel, comprising a base having a series of openings, inner and outer flanges, and a tubular extension formed with an inner flange, a bell-mouthed cap having a rim to form a snug joint with the outer flange of the base, and having a boss forming a screw-thread connection with the tubular extension of the base, and having a nipple, and a cup having an outer bead and a thimble, the latter snugly fitting within the nipple of the cap and located within the tubular extension of the base, substantially as shown for the purpose described.

590,750. SAFETY-FUSE FOR ELECTRICAL DEVICES. DAVID J. CARTWRIGHT, Boston, Mass., assignor to the Electrical Safety Company, same place. Filed Apr. 19, 1897. Serial No. 633,788. (No model.)



Claim.—1. The combination, substantially as set forth, of an air-tight tube or case inclosing the entire fusible metal and tightly closed at each end by inflexible material, a coherent filling at each end of the tube or case of a different material from the fuse-wire and act-

ing to conduct away from that part of the fuse-wire which passes through the filling the heat produced by the passage of the current through the fuse-wire at that part and to absorb the gases and other substances generated when the fuse-wire melts, a definite air-space between the fillings; and a fuse-wire passing through the fillings and the air-space.

2. The combination, substantially as set forth, of an air-tight tube or case inclosing the entire fusible metal and tightly closed at each end by inflexible material, a filling of asbestos at each end of the tube or case, a definite air-space between the fillings, and a fuse-wire passing through the fillings and the air-space.

3. The combination, substantially as set forth, of an air-tight tube or case inclosing the entire fusible metal tightly closed at each end by inflexible material, transverse inflexible partitions dividing the tube or case into sections of a definite length and perforated solely where the fuse-wire passes through the partition, a fuse-wire passing through the tube or case and partitions, a filling at each end of the tube or case of a different material from the fuse-wire and acting to conduct away from that part of the fuse-wire which passes through the filling the heat produced by the passage of the current through the fuse-wire at that part and to absorb the gases and other substances generated when the fuse-wire melts, and a definite air-space between the end sections.

4. The combination, substantially as set forth, of an air-tight tube or case inclosing the entire fusible metal and tightly closed at each end by inflexible material, transverse, inflexible movable partitions dividing the tube or case into sections of a definite length and perforated solely where the fuse-wire passes through the partition, a fuse-wire passing through the tube or case and partitions, a filling at each end of the tube or case of different material from the fuse-wire and acting to conduct away from that part of the fuse-wire which passes through the filling the heat produced by the passage of the current through the fuse-wire at that part and to absorb the gases and other substances generated when the fuse-wire melts, and a definite air-space between the end sections.

5. The combination, substantially as set forth, of a tube or case, a fuse-wire passing through said tube or case, a rod extending transversely through the case and normally held by said fuse-wire when said fuse-wire is unbroken and a spring acting when the fuse-wire is broken to cause the projection of the rod.

6. The combination, substantially as set forth, of a tube or case, a fuse-wire passing through said tube or case, a transverse partition in said tube or case through which partition the fuse-wire passes, a movable device normally held in position by the fuse-wire when said fuse-wire is unbroken, means acting when the fuse-wire is broken to move the device to cover the perforation in the partition through which the fuse-wire passes, and means operated by the movement of the covering device to give an indication that the fuse-wire is broken.

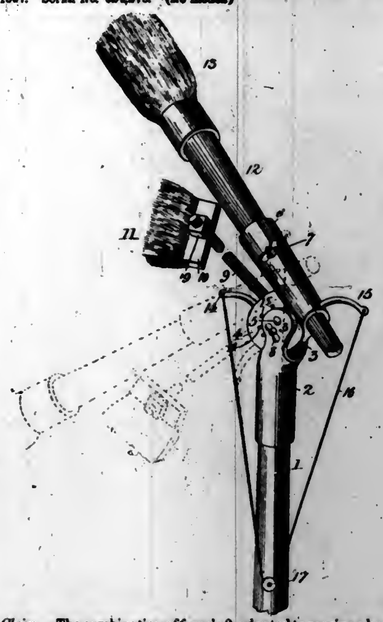
7. The combination, substantially as set forth, of a tube or case, a fuse-wire passing through said tube or case, a transverse partition in said tube or case through which partition the fuse-wire passes, a movable device adjacent to the inner surface of the partition and through which device the fuse-wire passes and normally held in position by the fuse-wire when said fuse-wire is unbroken, and moving when the wire is broken adjacent to the inner surface of the partition to cover the perforation in the partition through which the fuse-wire passes, a perforated recess in this device tapered toward the partition and surrounding the fuse-wire.

8. The combination, substantially as set forth, of a tube or case, a fuse-wire passing through said tube or case, a transverse partition in said tube or case through which partition the fuse-wire passes, a block of insulated material perforated for the passage of the fuse-wire and adjacent to the inside surface of the partition and transversely movable, a covered transverse tube for the movement of said block, a spring acting to move said block transversely when the wire is broken in the space adjacent to the inner surface of the partition, and a device attached to the block and projecting from the tube or case, when the block moves on the rupture of the fuse-wire.

9. The combination, substantially as set forth, with an air-tight tube or case inclosing the entire fusible metal and tightly closed at each end by an inflexible material, an insulated metallic terminal for the fuse-wire and projecting respectively from each end of the tube or case and extending within the same, supports for the terminals, means for preventing the contact of the case with the supports, ferrules or caps on each end of the tube or case and insulated from the adjacent terminals.

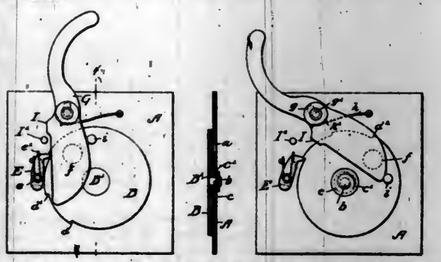
10. The combination, substantially as set forth, with an air-tight tube or case inclosing the entire fusible metal and tightly closed at each end by an inflexible material, an insulated metallic terminal for the fuse-wire and projecting respectively from each end of the tube or case and extending within the same, supports for the terminals, an insulating-boss on the outside of each end of the tube or case for preventing the contact of the case with the supports, ferrules or caps on each end of the case and insulated from the adjacent terminals.

590,751. ATTACHMENT FOR BRUSH-HANDLES. ABRAHAM B. CLARKE and THOMAS ARMSTRONG, Philadelphia, Pa. Filed Feb. 19, 1897. Serial No. 624,275. (No model.)



Claim.—The combination of ferrule 2, adapted to receive a handle, 1, and provided with ears, 3, 3 and set-screw, 8; lug, 4, pivoted between said ears and provided with an arm, adapted to receive and hold a brush; side arms, 14, 15, set upon opposite sides of the movable part of the attachment and adapted to be actuated by a cord, 16; the respective ends of which may be attached to them, all arranged and operating, substantially as and for the purposes described.

590,752. PHOTOGRAPHIC-CAMERA SHUTTER. WILLIAM F. COOK, Ivy Mills, Pa. Filed Nov. 7, 1896. Serial No. 611,354. (No model.)



Claim.—1. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pivoted pawl adapted to engage said teeth, and a lever having a broad face adapted at times to cover the exposure-openings, said lever being so arranged as to set the shield when moved in one direction and when moved in the opposite direction to release the pawl and permit the operation of the shutter.

2. The combination in a camera-shutter, of a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pivoted pawl adapted to engage said teeth, a broad-faced lever adapted to engage said pawl, a fixed stop for said lever, said lever being adjustable and adapted to make contact at different points with the said stop and pawl to permit a partial or complete movement of the latter and so govern the extent of movement of the shield.

3. A camera-shutter having in combination, a base-plate provided with an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage said teeth, means for setting the shield, an adjustable slotted lever adapted to operate on the pawl, a projection on said lever, and a fixed stop with which said projection may be moved into contact to limit the movement of the pawl.

4. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage said teeth, means for setting the shield, a pin *g* on the base-plate, a slotted lever G mounted on said pin, a projection I on said lever, and a fixed stop I′ on the base-plate adapted to be engaged by said projection.

5. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage said teeth, a pin on said shield, a lever having a broad face adapted to act on said pin to set the shield and upon the pawl to release the same.

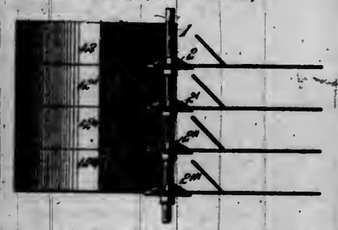
6. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage said teeth, means for setting and releasing said shield, a spring tending to keep the shield in its normal position, and an adjustable carrier for one end of said spring arranged in such manner as to permit of the adjustment of the tension of the spring to alter the speed of travel of the shutter.

7. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage the said teeth, means for releasing the pawl, a stop-disk having projecting pins thereon, and an adjustable arm adapted to engage said pins.

8. A camera-shutter comprising a base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure-opening, teeth in the edge of said shield, a pawl adapted to engage said teeth, means for releasing the pawl, a stop-disk, pins thereon, a lever S adapted to engage said pins, and a guide for said lever.

9. The combination of the base-plate having an exposure-opening, a rotatable shield having an opening which may be moved across the exposure, a pivoted stop-disk operatively connected to and movable with the shield, means for rotating the stop-disk, and an adjustable lever for limiting the movement of said stop-disk, substantially as specified.

590,753. WINDMILL. JOSEPH P. F. FLAIG, St. Louis, Mo. Filed Mar. 6, 1896. Serial No. 582,130. (No model.)



Claim.—1. A horizontal windmill comprising a wheel having sails, arranged in series and in tiers and hinge connection between the tiers, each consisting of lugs 20, arms 19, cross-bar 19*, vertical rods 24, and the hinge-rods; substantially as described.

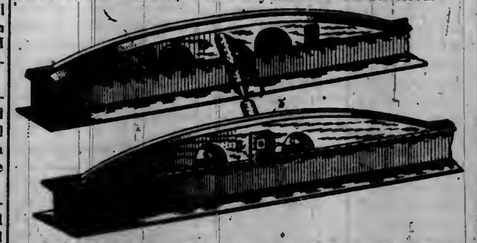
2. A horizontal windmill comprising a wheel having sails, a vertical shaft having arms on which the sails are hinged, a cone secured to the shaft, and rocking levers pivoted to the cone and means whereby the opposite sails are alternately raised and lowered; substantially as described.

3. The combination of horizontally-revolving sails, the opening of which is controlled by connecting them to a sleeve riding on the central shaft of the mill, a rack attached to said sleeve, a governor controlled by the revolution of said shaft, and a pinion controlled by said governor and adapted to control the movement of said rack, substantially as described.

4. The combination of a belt-shifter controlled by a governor, a shaft carrying fixed and movable pulleys and controlling a pinion, a rack which said pinion engages, sails controlled by the movement of said rack, and a means whereby said shifter throws a belt on or off said fixed pulley, adapted to control the windmill, substantially as described.

590,754. HOSE-BRIDGE. FRANK P. GERSTNER, Allegheny, Pa. Filed Jan. 27, 1897. Serial No. 620,973. (No model.)

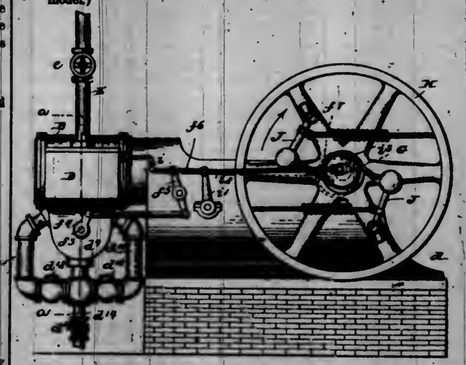
Claim.—1. In a hose-bridge, the bridge-sections adapted to rest on the rails, said bridge-sections having their faces inclined toward each end, clips carried by said bridge-sections to engage the underneath face of the rail-flange, a brace-rod connecting the two bridge-sections, said bridge-sections being also provided with cut-away portions to receive the hose, substantially as shown and described.



2. In a hose-bridge, the bridge-sections thereof, said bridge sections having their upper faces, inclined toward each end, clips carried by said bridge-sections, a brace-rod connecting the bridge-sections, said rod carrying a sleeve abutting the inner face of the bridge-sections, and clips secured on the outer ends of said rod to engage the rail, substantially as shown and described.

3. In a hose-bridge, the bridge-sections provided with cut away portions to receive the hose, clips secured on said bridge-sections, a brace-rod connecting said bridge-sections, said rod carrying a sleeve abutting against the inner face of the bridge-sections, clips carried on the outer ends of said rod to engage the rail, and a collar secured on said sleeve, said collar carrying downwardly-curved arms engaging the paving and forming a center brace for the bridge, substantially as shown and described.

590,755. STEAM-ENGINE. WILKINSON T. GIBLING, Philadelphia, Pa., assignor to himself, John J. Torpey, Robert Cunningham, and Oscar D. McClellan. Filed Oct. 24, 1896. Serial No. 609,893. (No model.)



Claim.—1. In a steam-engine, the combination, with the steam-cylinder and a piston, of a chamber having communication with said cylinder, valve mechanism for regulating the admission of live steam to said chamber, and valve mechanism for regulating the admission of exhaust-steam from the cylinder to said chamber and for permitting the commingled steam to enter the cylinder at predetermined intervals, substantially as described.

2. In a steam-engine, the combination, with the steam-cylinder and the piston, of a plurality of chambers having communication with said cylinder, valve mechanism for regulating the admission of live steam to said chambers in succession, and valve mechanism for regulating the admission of exhaust-steam thereto in succession and for permitting the commingled steam in the respective chambers to enter the steam-cylinder at predetermined intervals, substantially as described.

3. In a steam-engine, the combination, with the steam-cylinder and the piston, of two chambers, a valve for regulating the admission of live steam thereto at predetermined intervals, a valve for controlling communication between said chambers and the steam-passages to the cylinder, a pipe to which the exhaust-steam is directed from said cylinder, connections between said pipe and the respective chambers, and check-valves in said connections, substantially as described.

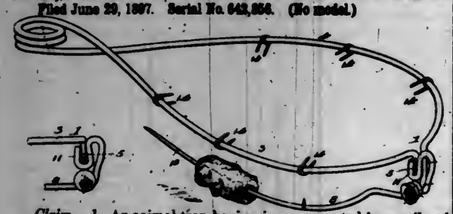
4. In a steam-engine, the combination, with the steam-cylinder

and the piston, of the steam-chest comprising the primary chamber into which the steam-pipe extends, the mixing-chambers having communication with said primary chamber, the valve-chamber having communication with the said mixing-chambers and with the steam-cylinder, and valve mechanism for controlling such communications, substantially as described.

5. In a steam-engine, the combination, with the steam-cylinder and the piston, of the chamber into which the steam-pipe extends, the slide-valve therein, means for actuating said valve, the mixing-chambers having communication with the first-named chamber, a valve-chamber having communication with said mixing-chambers and with the respective steam-passages to the cylinder, a rotary valve in said valve-chamber, and means for operating said valve, substantially as described.

6. In a steam-engine, the combination, with the steam-cylinder, of the steam-chest comprising the relatively-arranged chambers, such as 1, 2, 3 and 4, the valve for regulating the admission of steam from chamber 1 to chambers 2 and 3 in alternate succession, the valve in chamber 4 for controlling the communication between said chambers 2 and 3 and the steam-passages to the cylinder, a pipe to which the exhaust-steam is directed from the cylinder by said latter valve, branch pipes leading from said pipe to the respective chambers 2 and 3, and check-valves in said branch pipes, substantially as described.

590,756. ANIMAL-TRAP. JACOB W. GREEN, Trenton, Mo. Filed June 29, 1897. Serial No. 642,856. (No model.)



Claim.—1. An animal-trap having jaws connected by a coil and arranged in different planes to move one past the other under the impelling influence of the spring, a post carried by one jaw at its free end, a locking-nib carried by the free end of the other jaw, and a trigger mounted on said post and arranged to engage operatively with said locking-nib, as and for the purposes described.

2. An animal-trap comprising the jaws connected by a coil and arranged in different planes to move past one another, barbs on the opposing faces of the jaws and arranged in such relation to the jaws as to insure the desired play or movement thereof, a post carried by one jaw, a locking-nib on the free end of the other jaw, and a trigger mounted on said post and having a detent with which the locking-nib is adapted to engage, as and for the purposes described.

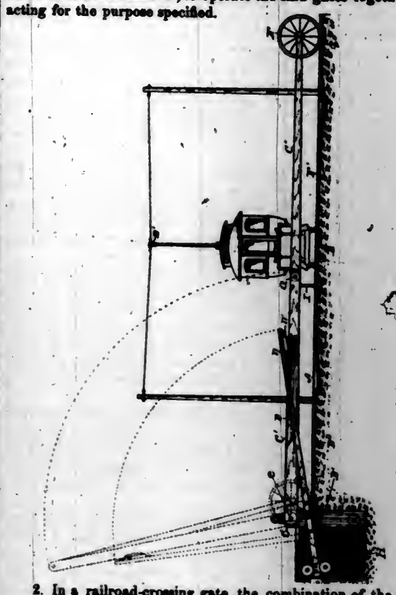
3. In an animal-trap, the combination with a jaw bent to form a post, and another jaw provided with a locking-nib, of a wire trigger coiled to form an eye, an angular detent, and an extended bait-arm, said trigger being pivotally attached by fitting its eye on the post and arranged to have its detent engage with the locking-nib of one of the jaws, substantially as described.

4. An animal-trap comprising two jaws, one having a post, and the other an angular locking-nib, and a trigger pivoted on said post and having a loop-shaped detent into which the locking-nib may fit when the jaws are opened to adjust said nib against the post, substantially as described.

5. An animal-trap formed of wire to produce the coil and the curved jaws, said jaws adjacent to the coil being bent to cross each other, and one jaw provided with a post and the other with a locking-nib, combined with a trigger having a loop-shaped detent, substantially as described.

590,757. RAILROAD-CROSSING GATE. LEVI HARRER, Kalamazoo, Mich., assignor of two-thirds to Horace B. Peck and Oscar M. Allen, same place. Filed Mar. 26, 1896. Serial No. 584,833. (No model.)

Claim.—1. In a railroad-crossing gate the combination of the pairs of supporting-posts C, on each side of the railway-track; arms C', C', pivoted to each of said posts; supports I, at the outer ends of the arms C'; transverse pins *n*, connecting the arms C', of each pair together; arms or bars C'', C'', pivoted to the outer ends of the arms C'; carrying-wheels F, at the outer ends of the arms C''; a rock-shaft D', supported on the post C, and extending under the railway-track; arms D, secured to said rock-shaft D', and extending outwardly in the direction of said gates and rearwardly into pits H, where they are weighted to counterbalance the gates; elongated loops *n'*, on said arms to engage the pins *n*, to actuate the said gates; and an operating-lever G, secured to the rock-shaft D', to operate the said gates together all coacting for the purpose specified.



2. In a railroad-crossing gate, the combination of the pairs of supporting-posts C, at each side of the railway-track; arms C', C', pivoted to each of said posts; supports I, at the outer ends of the arms C'; transverse pins *n*, connecting the arms C', of each pair together; arms or bars C'', C'', pivoted to the outer ends of arms C'; carrying-wheels F, at the outer ends of the arms C''; a rock-shaft D', supported on the posts C, and extending under the railway-track; arms D, secured to the rock-shaft D', and extending outwardly in the direction of said gates and rearwardly into the pits H, where they are weighted to counterbalance the gates; elongated loops *n'*, on said arms to engage the pins *n*, to actuate the said gates and an operating-lever G, secured to the rock-shaft G' to operate the said gates together all coacting for the purpose specified.

3. In a railroad-crossing gate the combination of a pair of supporting-posts C; arms C', C', pivoted to said posts; supports I, at the outer ends of arms C' transverse pin *n*, connecting the arms C', together; arms or bars C'' C'', pivoted to the outer ends of the arms C'; carrying-wheel F, at the outer end of the arms C'', a rock-shaft D', supported on the posts C; arm D, secured to said rock-shaft D', and extending outwardly in the direction of said gate and rearwardly into pit H, where it is weighted to counterbalance the gate; elongated loop *n'*, on said arm to engage the pin *n*, to actuate the said gate and an operating-lever G, secured to the rock-shaft D', to operate the said gate all coacting for the purpose specified.

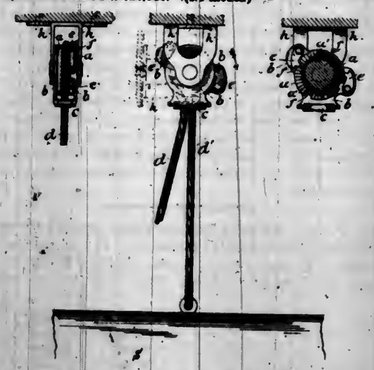
4. In a railroad-crossing gate the combination of a pair of supporting-posts C; arms C', C', pivoted to said posts; a support I, at the outer end of arms C'; arms or bars C'' C'', pivoted to the arms C', C'; the carrying-wheel F, at the outer ends of arms C''; and means for actuating said arms C'', C'', to fold the gate together for the purpose specified.

5. In a railway-crossing gate the combination of a suitable support at one side of the highway; a gate pivoted to said support having a flexible joint intermediate of its length; and a carrying-wheel at the outer end of said gate so that when the gate is opened it will fold upon itself and the carrying-wheel will support the same as specified.

6. In a railway-crossing gate the combination of a suitable support on one side of the highway; a gate pivoted to said support having a joint intermediate of its length; a carrying-wheel at the outer end of the said gate; and a track for said wheel; coacting so that when the gate is opened it will fold upon itself and the carrying-wheel will support the same as specified.

7. In a railroad-crossing gate the combination of suitable supports at each side of the track; gates pivoted thereto; a rock-shaft carried on said supports and extending underneath the track; arms projecting from said rock-shaft in the direction of said gate; counterbalanced weights on said arms; a connection between said arms and the gate to lift the gate; and a lever connected to said rock-shaft to actuate both gates together as specified.

590,758. PULLEY. EDMUND F. HARTSHORN, Newark, N. J., assignor to the Stewart Hartshorn Company, Harrison, N. J. Filed Mar. 17, 1897. Serial No. 627,916. (No model.)



Claim.—1. In a grip-pulley, in combination, a wheel adapted to grip and hold the cord; a frame inclosing the wheel and having an opening for the cord, whereby the cord is made to closely hug the periphery of the wheel; and a pawl mounted in position to engage with the wheel, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion, and held out of engagement by a rapid motion of the wheel, substantially as described.

2. In a grip-pulley, in combination, a wheel adapted to grip and hold the cord; a frame arranged to be attached in position, a second frame journaled in the fixed frame so as to turn therein, and inclosing the wheel and having an opening for the cord whereby the cord is made to closely hug the periphery of the wheel; and a pawl mounted in position to engage with the wheel, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion, and held out of engagement by a rapid motion of the wheel, substantially as described.

3. In a grip-pulley, in combination, a wheel adapted to grip and hold the cord; a frame arranged to be attached in position; a second frame journaled in the fixed frame so as to turn therein, and inclosing the wheel and having an opening for the cord whereby the cord is made to closely hug the periphery of the wheel; and a pawl mounted on the movable frame in position to engage with the wheel, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion and held out of engagement by a rapid motion of the wheel, substantially as described.

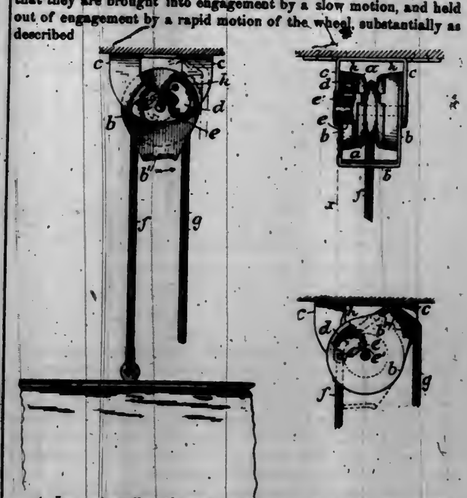
4. In a grip-pulley, in combination, the wheel *a* adapted to grip and hold the cord, and provided with notches for engagement with the pawl; frame *b* arranged to be attached in position; frame *b* journaled in the frame *b*, and having the opening *c* for the cord whereby the cord is made to closely hug the periphery of the wheel; and the pawl *e* mounted on the frame *b* and arranged to engage with the notches on the wheel as set forth, substantially as described.

590,759. PULLEY. EDMUND F. HARTSHORN, Newark, N. J., assignor to the Stewart Hartshorn Company, of New Jersey. Filed May 3, 1897. Serial No. 635,635. (No model.)

Claim.—1. In a grip-pulley, in combination, a wheel journaled in a fixed support; a movable frame, provided with a cross-piece arranged and adapted to grip the cord when moved with the wheel; and a pawl mounted on the frame in position to engage with the wheel, whereby the wheel and frame are locked and move together, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion, and held out of engagement by a rapid motion of the wheel, substantially as described.

2. In a grip-pulley, in combination, a wheel journaled in a fixed support, a frame journaled in the support and provided with a cross-piece arranged and adapted to grip the cord against the support when turning with the wheel; and a pawl mounted on the frame in position to engage with the wheel, whereby the frame and wheel are locked and move together, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion, and held out of engagement by a rapid motion of the wheel, substantially as described.

3. In a grip-pulley, in combination, a fixed support holding the wheel, a wheel journaled therein, a frame journaled in the casing so as to turn independent of the wheel and provided with a cross-piece arranged and adapted to press and confine the cord against the top of the casing; and a pawl mounted on the frame in position to engage with the wheel, whereby the frame and wheel are locked and move together, the arrangement of the pawl and wheel being such that they are brought into engagement by a slow motion, and held out of engagement by a rapid motion of the wheel, substantially as described



4. In a grip-pulley, in combination, the support *c*, wheel *a* journaled therein; frame *b* journaled in the support *c*, and having the cross-piece *b'*; pawl *d* mounted on the frame, and notched hub *e* secured to the wheel *a*, the pawl being arranged to engage with the notched hub under a slow revolution of the wheel, whereby the frame and wheel are locked and turn together to grip the cord; or to be held out of engagement with the hub by a rapid revolution of the wheel, substantially as described.

590,760. DRIVER OR DRAWER FOR DRAFTSMEN'S TACKS. CHARLES F. HEATH, Rutland, Vt. Filed Jan. 21, 1897. Serial No. 620,061. (No model.)



Claim.—1. As an improved article of manufacture, a tack driving and drawing tool having a convex base and a sharpened and slitted extremity, and a loop-like handle which extends in the form of a loop from the slitted extremity to the opposite end whereby pressure may be applied directly over the tack for driving it, substantially as set forth.

2. As an improved article of manufacture, a tack driving and drawing tool, having a convex, rocker-like base, one end of which is sharpened and slitted as described, and a loop-like handle, a part of which extends over said slit and forms the roof-plate of a pocket which receives the head of the tack, substantially as set forth.

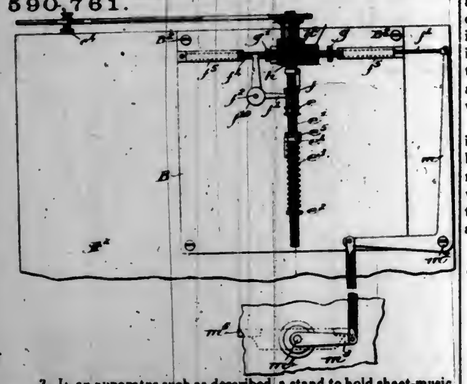
3. A tool for driving and drawing tacks, comprising a single flat strip of metal bent into a loop-like contour and forming the handle *a*, and convex base *b*, and having a slit *d* in the end *c* of the base, a roof-plate *e* over said slit, and a shoulder *f*, which forms a pocket *g*, to receive the tack-head, substantially as set forth.

590,761. LEAF-TURNING APPARATUS. CHARLES R. HILL, Waltham, Mass. Filed May 19, 1897. Serial No. 637,162. (No model.)

Claim.—1. In a leaf-turning apparatus, a support for the leaves to be turned, a carrier having a magnet adapted to engage an armature applied to each leaf to be turned, means to move said carrier to engage said armature and cause it to turn over the leaf, and a sliding pin to effect the release of the armature attached to said leaf from the said magnet, substantially as described.

2. In an apparatus such as described, a stand to hold sheet-music and the like the leaves of which are to be turned, a vibrating toothed carrier provided with means to engage a leaf to be turned, a toothed wheel in engagement with the teeth of the carrier, a sliding shaft on which the said wheel is mounted, a pinion fixed on said shaft, and a sliding rack to engage said pinion to rotate said shaft at the desired time in one and then in an opposite direction, substantially as described.

590,761.



3. In an apparatus such as described, a stand to hold sheet-music and the like, the leaves of which are to be turned, a vibrating toothed carrier provided with means to engage a leaf to be turned, a toothed wheel in engagement with the teeth of the carrier, a shaft on which the said wheel is frictionally mounted, means to rotate said shaft at the desired time in one and then in an opposite direction, and means to raise and lower said shaft and its attached carrier for engaging the leaf to be turned, substantially as described.

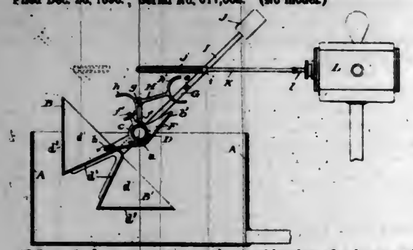
4. The shaft *e* provided with a frictionally-held toothed gear, and having an attached pinion, and a toothed magnet-carrier combined with a toothed sliding block and means to reciprocate said block, substantially as described.

5. The shaft *e* provided with a toothed gear, and having an attached pinion and a collar *f*, means to normally depress said shaft, a toothed block engaging said pinion, a rod carrying said block, a lever having one of its ends located to cooperate with said collar, the other end of said lever engaging the said rod, and means to slide said rod, it in its movements rotating said shaft and also sliding it vertically during a portion of its said rotation, substantially as described.

6. In an apparatus of the class described, a movable carrier, provided with a split pin or rod, combined with a magnet having a sleeve fitted to said rod, substantially as described.

7. In an apparatus of the class described, a movable carrier, and a connected hollow magnet, combined with a sliding spring-pressed pin, to operate, substantially as described.

590,762. WATER-MOTOR. CLARENCE M. KEMP, Baltimore, Md. Filed Dec. 26, 1896. Serial No. 617,002. (No model.)



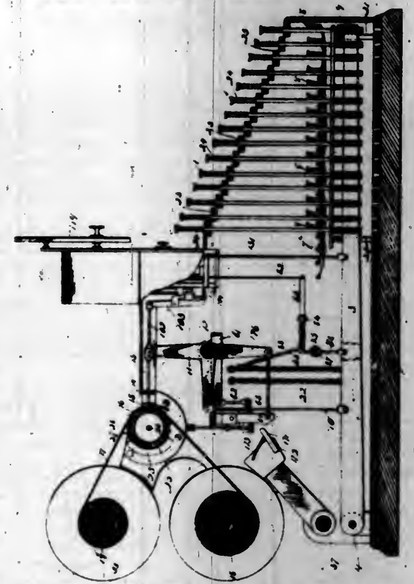
Claim.—1. In a water-motor, the combination of a hanger pivoted and having ends pendent below said pivot to which two water-buckets are attached; an open-top chute pivoted above the two buckets so as to oscillate and discharge water alternately in that one of the two buckets which is elevated: and an oscillatory chute-shifter which is independently pivoted and coacts between the said bucket-hanger and chute, as set forth.

2. In a water-motor, the combination of a hanger pivoted and having ends pendent below said pivot; two valveless water-buckets rigidly attached to said pendent hanger ends—each of said buckets having two ends and two sides which also form the bottom, said sides forming an approximate V shape in cross-section; an oscillatory chute above the two buckets and which discharges water alternately in that one of the two buckets which is elevated; and means to tilt the said chute so that one side of the chute will be tilted down at the time that the corresponding bucket is tilted up, as set forth.

3. In a water-motor, the combination of a hanger pivoted and having ends pendent below said pivot to which two water-buckets are attached; an oscillatory chute above the two buckets and which discharges water alternately in that one of the two buckets which is elevated; an arm rigidly connected with the hanger and projecting upward above the motor and carrying a weight; and an oscillatory chute-shifter pivoted independently of the hanger and chute and one end of which is actuated by the movement of the said hanger while the other end causes the chute to tilt, as set forth.

4. In a water-motor, the combination of a water-receiver having a delivery-opening in its bottom; a pivoted hanger carrying water-buckets which are below the water-receiver; and an oscillatory chute movable independent of the water-buckets and which discharges water alternately into that one of the buckets which is elevated—the pivot of both the hanger and chute having the same center or axis, as set forth.

590,768. MACHINE FOR PREPARING PERFORATED RECORD-STRIPS OF TYPE-FORMING MACHINES. TOLBERT LANSTON, Washington, D. C., assignor to the Lanston Monotype Machine Company, same place. Filed Nov. 30, 1894. Serial No. 530,448. (No model.)



Claim.—1. The combination of a series of keys, a series of key-levers upon which the keys directly operate, a second series of key-levers, a series of connections for communicating the motion of the keys to the said second series of key-levers and two series of punches operated respectively from the two series of key-levers: substantially as described.

2. The combination of a series of keys arranged in rows with reference to the body width, set way, of the characters they represent, a series of key-levers arranged beneath said rows of keys, each adapted to be operated by any key in its particular row, a second series of key-levers arranged alongside the first-mentioned series of key-levers, a series of transverse bails extending across the first-mentioned series of key-levers and communicating the motion of the keys to the second series of key-levers, and a series of punches for each series of key-levers: substantially as described.

3. The combination of a series of finger-keys, arranged in longitudinal and transverse rows, a series of long key-levers one for each longitudinal row of keys, a series of shorter key-levers arranged alongside the series of long key-levers in alternation therewith, a series of transverse bails, one for each transverse row of keys, for communicating the motion of all the keys in such transverse row to one of the shorter key-levers, and a series of punches for each series of key-levers: substantially as described.

4. The combination of the series of long key-levers, the series of shorter key-levers arranged in alternation with the first-mentioned series of levers and having the vertical projections or fingers, the transverse bails extending across the longer key-levers and above the projections or fingers of the shorter levers, and the series of finger-keys, bearing upon the series of long key-levers and having lateral projections bearing upon the transverse bails; substantially as described for the purpose specified.

5. The combination of the hollow stationary cylinder, the shaft 26 passing longitudinally through said cylinder, the toothed feed-disks secured to said shaft at opposite ends of the cylinder, the motor device applied to one end of said shaft, the ratchet-wheel on the opposite end of said shaft and the escapement-pawls cooperating with said ratchet-wheels and deriving motion from the key-levers; substantially as described.

6. The combination of a series of keys representing the various characters, &c., used in printing, a register or counter for indicating the number of justifying-type designated for a given line, and a justification-indicator operated by the keys and having a dial and pointer for indicating the appropriate justifying-fraction to be added to the ascertained number of justifying-type; substantially as described.

7. The combination of a series of keys representing the various characters in a font of type, a line-scale mechanism operated from the keys for indicating to the operator the filling up of the line and showing as the end of the line is neared how much space remains to be filled by justification, a register or counter operated by the keys representing the justifying-type for indicating the number of justifying-type designated for a given line, and a justification-indicator operated by the keys and having a dial and pointer for indicating the appropriate justifying-fraction to be added to the ascertained number of justifying-type, substantially as described.

8. The combination with a keyboard provided with a series of keys representing the various characters, spaces, &c., in a font of type, another series of keys representing justifying-fractions that may be added to the normal width of the justifying-type for a line, a units mechanism, which is advanced upon the operation of each key representing a character, space, &c., as many units of measurement as the character, space, &c., designated by that particular key will occupy, set way, in the line, a register or counter for registering the number of justifying type, such, for instance, as space-type, designated for the particular line, a justification-indicator operated by the units mechanism for showing the number of units of measurement remaining in the line as the end of the latter is neared and indicating the justifying-fraction to be added to the justifying-type for the line, and two sets of punches, one operated by the keys representing the characters, &c., and the other by the justifying-keys, for recording the operations of said keys; substantially as described.

9. The combination with a keyboard provided with a series of keys representing the various characters, &c., in a font of type arranged in rows with reference to the body width, set way, of the characters for which they stand, another series of keys representing justifying-fractions that may be added to the normal width of the justifying-type for a line, a units mechanism which is advanced upon the operation of each key representing a character, space, &c., as many units of measurement as the character, space, &c., designated by that particular key will occupy, set way, in the line, a register or counter for registering the number of justifying-type, such for instance, as space-type, designated for the particular line, a justification-indicator operated by the units mechanism for showing the number of units of measurement remaining in the line as the end of the latter is neared and indicating the justifying-fraction to be added to the justifying-type for the line, and two sets of punches, one operated by the keys representing the characters, &c., and the other by the justifying-keys, for recording the operations of said keys; substantially as described.

10. The combination with a keyboard provided with a series of keys representing the various characters, spaces, &c., in a font of type, another series of keys representing justifying-fractions that may be added to the normal width of the justifying-type for a line, a units mechanism which is advanced upon the operation of each key representing a character, space, &c., as many units of measurement as the character, space, &c., designated by that particular key will occupy, set way, in the line, a line-scale mechanism for warning the operator that the end of the line is being approached, a register or counter for registering the number of justifying-type, such for instance as space-type, designated for the particular line, a justification-indicator operated by the units mechanism for showing the number of units of measurement remaining in the line as the end of the latter is neared and indicating the justifying-fraction to be added to the indicated justifying-type for the line, and two sets of punches, one operated by the keys representing the characters, &c., and the other by the justifying-keys, for recording the operations of said keys; substantially as described.

11. The combination with the units-wheel and its motor of the swinging arm mounted on the units-wheel shaft, the toothed block movable longitudinally of said arm, the pivoted lever having a curved recess or raceway in which the toothed block is free to move, and the keys and connections for vibrating the pivoted lever; substantially as described.

12. The combination with the units-wheel and its motor, the swinging arm mounted on the units-wheel shaft, the toothed block movable longitudinally of said arm, the swinging lever having a recess or guide for the toothed block, the pawl or detent which holds the units-wheel normally in check and the connection between the hinged lever and said pawl or detent; substantially as described.

13. The combination with the units-wheel and its motor, the swinging arm, toothed block, the pivoted lever having the recess or guide in which the toothed block slides, the detent or pawl engaging the ratchet-wheel and connected to the pivoted lever, the keys and the distance-determining stops projected in the plane of the swinging arm by the operation of the keys; substantially as described.

14. The combination with the units-wheel, the swinging arm mounted upon the units-wheel shaft, the toothed block, the pivoted lever, by which the toothed block is supported and guided, the ratchet-teeth on the pivoted lever and the pawl carried by the swinging arm, whereby rebound of the swinging arm when it strikes a distance-determining stop is prevented; substantially as described.

15. The combination with the keys, the pivoted lever of the units-wheel mechanism and connections between the keys and said pivoted lever for operating the latter upon the depression of any key, the units-wheel, the swinging arm mounted upon the units-wheel shaft, the toothed block carried and guided by the pivoted lever and adjustably connected to the swinging arm, the pawl or detent for the units-wheel and the means for operating it, the dial of the justifying-indicator divided radially into spaces representing units of measurement and the hand or pointer cooperating with said dial driven from the units-wheel shaft; substantially as described.

16. The dial of the justification-indicator divided radially into spaces each of which represents a unit of measurement and the hand or pointer driven from the units-wheel shaft cooperating with said dial, the radial spaces of the dial being divided up and having numbers applied to it representing the justifying-fractions and the hand or pointer having also numbers applied to it representing the various numbers of justifying-type that may be designated for a given line, substantially as described and for the purpose specified.

17. The combination with the space-key, its lever and punch, of the counting or registering mechanism consisting of the sliding rack bearing numbers as described, the vibrating pawl-carrier and pawl carried thereby for engaging the teeth of said rack-bar, the rods and levers for operating said pawl-carrier from the space-key bar and the stop-pawl for preventing overthrow of the rack-bar: substantially as described.

18. The combination with the rack-bar of the space counting or registering mechanism, of the spring-pressed pawl 135, rod 147, bell-crank lever 146, rod 145, arm 143 on rock-shaft 144, of the resetting mechanism: substantially as described.

19. The combination with the units-wheel, the pawl or detent 79 in engagement therewith, the rod 98 having a slot at its upper end into which projects a pin on the pawl, the rod 149, connected to the arm 179 of the pawl, and the arm 150 on shaft 144 of the resetting mechanism; substantially as described and for the purpose specified.

20. The combination of the units-wheel and the mechanism for winding the motor which propels the same, of the pins 160 projecting laterally from the sides of the units-wheel, of the pawl-arm 161, arm 164, spring 165, pin 168, stop 169, and arm 167 on the rock-shaft 144 of the resetting mechanism, whereby the units-wheel is arrested at the proper point if overthrown by the too rapid winding of its motor; substantially as described.

21. The means for punching the galley-feed perforation in the record-strip consisting of the arm 170 on the hand-lever shaft, spring-pressed pawl 171, stop 172, swinging arm 174, rod 175, bell-crank lever 11^b and punch 13^a; substantially as described.

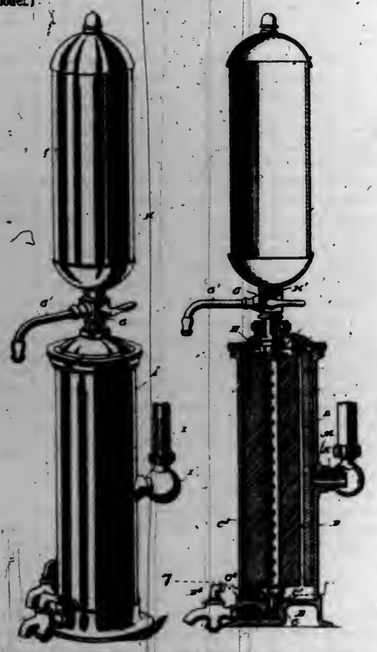
22. The combination in a record-strip-preparing mechanism, of a series of record-producing devices for recording successive characters and spaces, an indicator for indicating the number of justifying-type and a justification-indicator for indicating the necessary variations in the width of said justifying-type to complete a line.

23. The combination in a record-strip-preparing mechanism, of two series of record-producing devices, the one pertaining to character-spaces, and the other, to variations in width of selected justifying type; an indicator controlled by said series of character-designating devices, for indicating the aggregate space occupied by the designated characters; an indicator showing the number of the designated justifying-type; and a justification-indicator actuated by the character-designating devices to indicate which of the series of devices controlling variations in width of selected type is to be actuated to produce a justified record-strip; substantially as described.

24. The combination in a record-strip-preparing mechanism of the following elements, to wit: a series of type-designating punches; a series of justification designating punches; a series of keys controlling said punches; an indicator responding to the action of the keys controlling the justifying-type to indicate the number of the latter; and a justifying-indicator responsive to the keys controlling the type-designating punches, and operating to indicate which of the series of justification-punches is to be operated to produce a record-strip for a justified line; substantially as described

25. The combination in a record-strip-preparing mechanism of the following elements, to wit: a series of type-designating punches, a series of justification-designating punches; keys controlling both series of punches; an indicator responding to the keys of the type-designating punches to indicate the aggregate length of the line as registered; an indicator responding to the action of the keys controlling such of the type-designating punches as are assigned to justification; and a justifying-indicator responding to the keys controlling the type-designating punches and operating to indicate the appropriate justification-designating punch or punches to produce the record for a justified line, substantially as described.

590,764. FILTER. WILLIAM B. LINDSAY and WILLIAM E. TONNER, Steubenville, Ohio. Filed May 21, 1897. Serial No. 637,577. (No model.)



Claim.—1. In a filter, the combination with the casing of the inner filtering-cylinder arranged eccentrically within said casing, the detachable cover, the cleaner arranged between the casing and filtering-cylinder, the supply-pipe and the tubular piston located in said supply-pipe and provided with the discharge-opening, the filtering-cylinder having the pipe leading from each end, substantially as shown and described.

2. In a filter, the combination with the casing having a base provided with a plurality of passages each passage being provided with a draw-off cock, the filtering-cylinder arranged eccentrically within the casing and provided with a tube seated within the opening therein and communicating with one of the passage-ways of the base, a detachable cap, means for securing the same, the cleaner having the tubular piston attached thereto and the supply-pipe leading into the casing, substantially as shown and described.

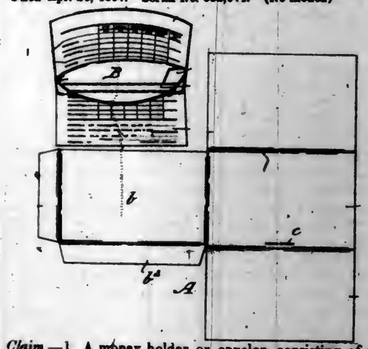
3. In a filter, the combination with the casing having a base constructed as described, of the revolving filtering-cylinder arranged within the casing and having a tube extending entirely through said filtering-cylinder, a draw-off cock connected to the upper and lower ends of said tube, and the reservoir detachably connected to the upper end of said tube, substantially as shown and described.

4. In a filter, the combination with the outer case and the filtering-cylinder arranged as described and the cleaner arranged between the casing and filtering-cylinder, and the reservoir attached to the upper end of the tube passing into the filtering-cylinder, substantially as shown and described.

5. In a filter, the combination with the casing having the base provided with a plurality of passage-ways each having a draw-off cock connected thereto, the filtering-cylinder arranged eccentrically within the case, the cleaner arranged between the case and filtering-cylinder, the tubular piston having an aperture therein, the plate provided with the clamping-lugs, the guide-pins, the detachable top and guide-lugs, the clamping-ring, all arranged and adapted to operate substantially as shown and described.

6. In a filter, the combination with the casing having a base constructed as described, and the filtering-cylinder arranged therein, the cleaner constructed as described and arranged between the filtering-cylinder and the casing, said cleaner having a tubular piston connected therewith, said tubular piston being arranged in the supply-pipe leading into the casing, the tube extending from the filtering-cylinder, the detachable cap and means for securing the same and the revolving cylinder arranged upon the upper end of said tube, the draw-off cock, the discharge-spout, all arranged and adapted to operate substantially as shown and described.

590,765. ENVELOP. EDWIN L. MILLER, South Bethlehem, Pa. Filed Apr. 20, 1897. Serial No. 632,971. (No model.)

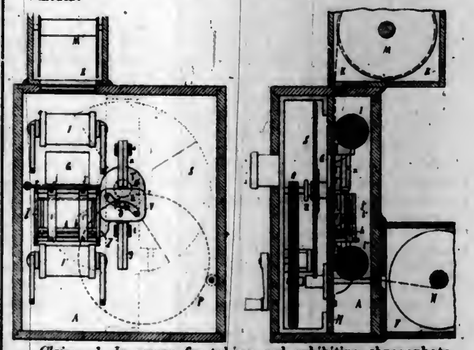


Claim.—1. A money holder or envelop, consisting of two end folding flaps, an intermediate portion integral with and joining the end flaps and a strip formed integral with one side of the intermediate portion and united to the other side and to the bottom edge of said intermediate portion to form a pocket upon which the end flaps are adapted to fold, substantially as and for the purposes described.

2. A money holder or envelop, consisting of two end folding flaps, an intermediate portion integral with and joining the end flaps, a strip formed integral with one side of the intermediate portion and united to the other side and to the bottom edge of said intermediate portion to form a pocket upon which the end flaps are adapted to fold, and a flexible band united to the intermediate portion and adapted to be passed around the flaps to lock the same upon the pocket, substantially as and for the purposes described.

3. A blank for a money holder or envelop consisting of an intermediate rectangular portion, two end folding flaps formed integral therewith, and an oblong strip formed integral with one side of the intermediate portion, said oblong strip having tapering flaps adapted to secure the strip to the intermediate portion to form an internal pocket upon which the end flaps are adapted to fold, substantially as and for the purposes described.

590,766. KINETOGRAPHIC CAMERA. FRANÇOIS MORAND, Aix-les-Bains, France. Filed Feb. 16, 1897. Serial No. 623,753. (No model.)



Claim.—1. In means for taking and exhibiting chronophotographs, the combination with means for guiding a pellicle of guides *l* each having connected grooves *l'* *l²* with a rod *k* having its ends engaging in the grooves of the guides *l*, springs *i* *i'* and *j* *j'* for transferring the rod from each groove to the other, pins on said rod *k* for engaging the pellicle while said rod *k* is in the grooves which are nearer the pellicle and means for reciprocating the rod in direction of the movement of the pellicle for the purpose set forth.

2. The combination of a rotary shaft, a crank-pin O, a plate V with slot *u* for engagement of said pin, means for rectilinear guiding of said plate, an arm *b* on said plate, perforated nipples *d* *e*, pins *f* *g* loose in said nipples, a rod *k* carrying said pins and means for approaching said rod *k* to the arm prior to movement of the latter in one direction, and withdrawing it therefrom prior to movement thereof in the reverse direction for the purpose set forth.

3. The combination with a window and means for causing a pellicle to pass across said window, of a screen adapted to revolve in a center laterally of the window the said screen having a sector-shaped recess and having the remainder composed of transparent colored sectors, the sum of the colors of which with equal quantity and radiation are equivalent to white light.

590,767. COMBINED SPRING-BAR AND BODY-LOOP. MICHAEL J. MCNAMARA and CHARLES GUSSETT, Cincinnati, Ohio. Filed Apr. 26, 1897. Serial No. 633,890. (No model.)



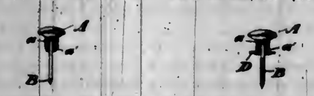
Claim.—1. In a combined spring-bar and body-loop the combination of the upper plate of the spring-bar having its ends curved to fit over the heads of the body-loops and perforated lugs upon opposite sides to receive coupling-bolts, the lower plate of said bar having downwardly-turned ends perforated to receive pins projecting inwardly from the loop-heads, the body-loops having perforated heads to pass between the lugs extending down from the top leaf of the spring-bar, inwardly-projecting pins to enter perforations in the angular ends of the lower leaf of said bar, and the bolts for coupling the spring-bar and loops, substantially as shown and described.

2. The combination substantially as hereinbefore set forth, of the spring-bar having the ends of its upper leaf curved to pass over the head of the body-loops, downwardly-projecting perforated lugs upon each side of the curved ends to receive said head, the lower leaf of the spring-bar having angular perforated ends between the lugs of the upper bar, the body-loops to fit between said downwardly-projecting lugs axially perforated to register with the perforations in said lugs and having upwardly-projecting and inwardly-projecting pins to enter respectively the perforations in the upper and lower leaf of the spring-bar, and the bolts for coupling the spring-bar and loops together.

3. The combination as hereinbefore set forth of the spring-bar having its upper leaf curved at the ends, provided with downwardly-projecting lugs to receive the head of the body-loops and perforated between the lugs, the lower plate having its end extending between the lugs of the upper plate, the body-loop adapted to fit between the lugs of the upper spring-bar plate, notched on the ends to receive the curved ends of said upper spring-plate and having upwardly-projecting pins to enter the perforations in said curved ends, and the bolts coupling the parts together.

4. The combination as hereinbefore set forth of the spring-bar having the ends of its upper plate curved and formed with downwardly-projecting lugs to receive the coupling-head of the body-loop, one of said lugs being notched on the under side, the lower plate having angular ends to pass between the lugs of the upper plate, the body-loops having heads to pass between the lugs of the spring-bar and a projecting lug to enter the notch in one of said lugs, and the bolts to couple the body-loop and spring-bar.

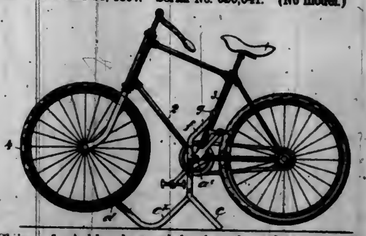
590,768. CARRIAGE-CURTAIN KNOB. FRED A. NEIDER, Augusta, Ky. Filed Sept. 14, 1894. Serial No. 522,988. (No model.)



Claim.—1. The combination of the curtain-knob, having head and neck formed from a single piece of wrought metal, said neck being axially bored, the shank held in said bore by compressing the end of said neck upon it, and a washer held at the lower end of said neck by upsetting the metal against the under side of said washer, substantially as shown and described.

2. The hereinbefore-described carriage-curtain knob, consisting of the head and neck, A, *a*, stamped or formed up of a single piece of wrought metal, having the neck axially perforated, the shank, B, loosely fitting said perforation and said neck having its lower end compressed upon the shank, forming the bevel, *a'*, the washer centrally perforated to pass over the beveled end of said neck, the lower end passing through the perforation and being upset against the under side of said washer, as a new article of manufacture.

590,769. BICYCLE-STAND. FILLMORE A. PEARSONS, Rutland, Vt. Filed Jan. 21, 1897. Serial No. 620,041. (No model.)



Claim.—1. A bicycle-stand having three legs, *c*, *c* and *c*×, the latter prolonged and upwardly turned and provided with a fork *d*, an upright stem *a* supported on said legs, a longitudinal crotch *e* at the top of said stem, a transverse crotch *i* back of the crotch *e*, to receive the crank-shaft hanger of a bicycle, and an upright *f*, on the stem provided with a keeper *g*, substantially as set forth.

2. A bicycle-stand consisting of three pieces, A, B and C, secured detachably together to form the stem *a*, said pieces being shaped and bent, as described, to form the three legs of the stand, the fork *d*, the crotch *e*, the transverse crotch *i*, and the elevated keeper *g*, all relatively situated substantially as set forth.

3. A bicycle-stand consisting of three flat pieces, A, B and C, placed together to form the stem *a*, and secured by bolts *b*, said pieces forming the three legs *c*, *c*, *c*×, the crotches *e* and *i*, and the keeper *g*, substantially as set forth.

590,770. PNEUMATIC-DESPATCH-TUBE SWITCH. CHARLES F. PIKE, Philadelphia, Pa. Filed May 31, 1895. Serial No. 551,315. (No model.)



Claim.—1. In a pneumatic-despatch-tube system having main and branch tubes, a switch at the junction of said tubes, an actuating device for both positively setting and resetting said switch appliances in the main and branch tubes actuated by a passing carrier controlling said actuating device for setting and resetting the switch, substantially as set forth

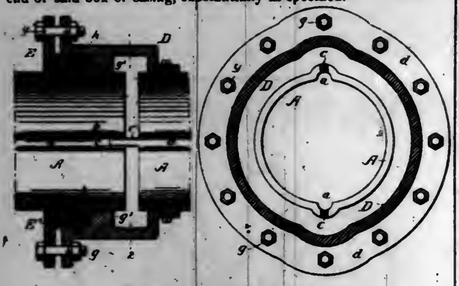
2. In a pneumatic-despatch-tube system having main and branch tubes provided with track rails or grooves, an air-tight box joining said tubes at their junction, a switch rail or groove in said box, an actuating device for both positively setting and resetting said switch, appliances in advance of and beyond said switch operated by a passing carrier for controlling said actuated device for both positively setting and resetting said switch, substantially as set forth.

590,771. EXPANSION-JOINT FOR PNEUMATIC-DESPATCH TUBES. CHARLES F. PIKE, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,689. (No model.)

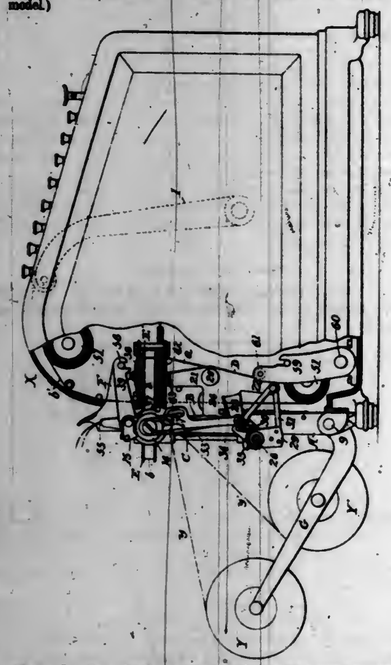
Claim.—1. An expansion-joint for pneumatic-despatch-tube systems comprising adjacent tube-sections having trackways or guides for the support and guidance of a wheeled carrier, the trackway or guide at the end of one section being recessed or cut away for a portion of its width, and the trackway of the opposite section being extended in the form of a contracted tongue adapted to enter the recess in the trackway or guide of the first section, substantially as specified.

2. An expansion-joint for pneumatic-despatch tubes comprising adjacent tube-sections, A, A', each having guiding-tracks, *a*, for the support and guidance of the carrier, there being a recess, *b*, formed

at the end of the section, A, in line with but of less width than the trackway, *a*, a tongue, *c*, projecting from the end of the tube-section, A', in line with and forming a continuation of the trackway, the said tongue being adapted to enter the recess, *b*, a box or casing secured to the section, A', gasket, *h*, a gland, E, for confining such gasket in position and securing-bolts, *g*, for securing said gland to the flanged end of said box or casing, substantially as specified.



590,772. DEVICE FOR DUPLICATE PRINTING. WILLIAM H. PIKE, Jr., St. Louis, Mo., assignor to the American Arithmometer Company, same place. Filed Mar. 23, 1897. Serial No. 628,573. (No model.)



Claim.—1. In a duplicate-printing device, the combination with a platen and movable type, of means for feeding two superposed sheets between the platen and type, a ribbon passing between the sheets, devices for feeding the ribbon mechanically transversely to the direction in which the sheets are fed, a second ribbon interposed between the type and outer sheet, and means for feeding the same, substantially as described.

2. The combination with the main frame, type, printing-ribbon and its feeding devices, of a printing-frame detachably mounted upon the main frame, a platen movable upon the printing-frame, means for carrying two superposed strips between the platen and type, a second printing-ribbon, and means for feeding the same between the superposed strips, substantially as described.

3. The combination with type and their actuating devices, of a frame carrying superposed strips of paper, a printing-ribbon extending transversely between the strips, means for feeding the ribbon, a platen, and mechanism for moving it into contact with the strips and for moving it out of contact with said strips to permit the separation thereof while the printing-ribbon is being fed, substantially as described.

4. The combination with type and their actuating devices, of a frame carrying superposed strips of paper and feeding mechanism therefor, a printing-ribbon extending transversely between the strips, means for feeding the same, devices for maintaining the ribbon taut, a platen, and mechanism for moving it into contact with the strips, and for moving it out of contact with said strips to permit the separation thereof while the printing-ribbon is being fed, substantially as described.

5. The combination with a frame provided with separated bearings, of a movable platen adapted to be carried to and from the bearings, means for feeding superposed sheets of paper intermediate the bearings and platen, a ribbon extending between the superposed sheets, means for feeding the ribbon, movable type, and actuating devices for the type, substantially as described.

6. The combination of a platen, type, means for feeding superposed sheets between the platen and type, a ribbon passing between the sheets, means for feeding the ribbon intermittently and transversely to the direction in which the sheets are fed, and means for carrying the platen away from the sheets during the feeding of the ribbon, and for holding it in contact with the sheets during the movement of the type, substantially as described.

7. The combination with a platen and type, of means for feeding a sheet between the type and platen, a ribbon interposed between the type and sheet, two rolls for carrying the ribbon, mechanism for positively rotating one of the rolls in one direction, and simultaneously operating devices for frictionally driving the other roll in the opposite direction, substantially as described.

8. The combination of a platen, type, and ribbon-rolls E, E', of shafts for said rolls, friction connections between one of the rolls and its shaft, and means for turning the other shafts and roll in different directions, substantially as described.

9. The combination of a platen, type, and ribbon-rolls E, E', of shafts for said rolls, friction connections between one of the shafts and its roll, and driving devices for turning said shaft in one direction, and devices for turning the other shaft in either direction, substantially as described.

10. The combination of ribbon-spools, shafts supporting the same, a vibrating arm, a pawl having a yielding bearing and ratchet-wheel adapted to be engaged by the pawl in either position to rotate one of the shafts in either direction accordingly as the pawl assumes either position, friction connections between the other spool and its shaft, and means for turning the latter shaft in one direction, substantially as described.

11. The combination of a platen, type movable to and from the platen, means for feeding superposed sheets between the type and platen, devices for moving the platen to and from the type, a ribbon arranged between the sheets, and mechanism for feeding the ribbon, substantially as described.

12. The combination of a movable platen, type movable to and from the platen, means for feeding superposed sheets between the type and platen, a printing-ribbon extending transversely between the superposed sheets, mechanical means for intermittently feeding the ribbon, and separated presser-bars against which the sheets are pressed by the platen during the printing operation, substantially as described.

13. The combination of a movable platen, type movable to and from the platen, superposed sheets, and means for feeding the same between the platen and type, a printing-ribbon, means for feeding the same transversely to the direction in which the sheets are fed, and devices for maintaining the ribbon taut during the feeding operation, substantially as described.

14. The combination of a platen, type, supports for two superposed strips of paper, and means for feeding the strips between the platen and type, a printing-ribbon passing between the strips, and positively and intermittently actuated means for feeding the printing-ribbon in a direction transverse to the line in which the strips are fed, substantially as described.

15. The combination with a platen and type, of means for feeding a sheet between the type and platen, a ribbon interposed between the type and sheet, two rolls for carrying the ribbon, a shaft upon which one of said rolls is loosely mounted, frictional connections between the shaft and its roll, means for rotating the shaft, and mechanism for positively rotating the other roll, substantially as described.

16. The combination with the main frame, type, printing-ribbon and its feeding devices, of a printing-frame pivotally mounted upon the main frame, a platen movable upon the printing-frame, means for carrying two superposed strips between the platen and type, a second printing-ribbon extending transversely between the superposed strips, and means for feeding the same, substantially as described.

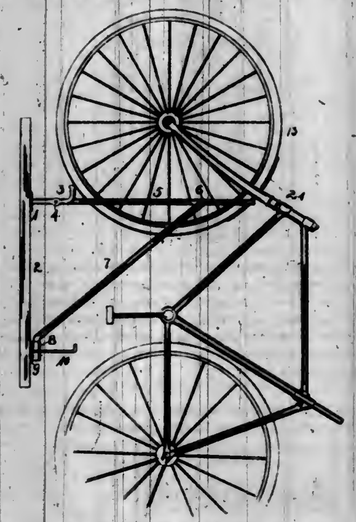
17. The combination of a ribbon, feeding devices therefor, means for reversing the action of the feeding devices, and mechanism for automatically shifting the reversing means under unusual tension upon the ribbon, substantially as described.

18. The combination with a platen and type, of means for feeding a sheet between the same, a printing-ribbon interposed between the type and sheet, and automatically-actuated devices for causing the ribbon to be fed first in one direction and then in the opposite direction, substantially as described.

19. The combination with a frame carrying type and their operating mechanism, of a second frame adapted to swing into and out of printing position, means for locking it in the latter position, and a platen and ribbon-feeding devices carried upon said second frame, substantially as described.

20. The combination with the main frame and type, of a printing-frame mounted upon the main frame to be moved with respect thereto, a movable platen mounted upon the printing-frame, mechanism for moving the type to and from the platen, and mechanism for moving the platen to and from the type, substantially as described.

590,773. BICYCLE-HANGER. ABRAHAM B. PRUDEN, Brooklyn, N. Y., assignor to Benjamin Blum, New York, N. Y. Filed Apr. 14, 1896. Serial No. 587,540. (No model.)



Claim.—1. In a bicycle-hanger, a folding wheel-holder, extending horizontally from a vertical support and arranged to receive the rear portion of the front wheel of a bicycle and to sustain the same in a half-inverted position by the wheel alone, substantially as shown and described.

2. A wheel-hanger in which is comprised a folding wheel-holder arranged to receive the rear portion of the front wheel of a bicycle, and a bifurcated prop-piece connected to the wheel-holder to support the same and to hold the bicycle in a half-inverted position by the wheel alone, substantially as shown and described.

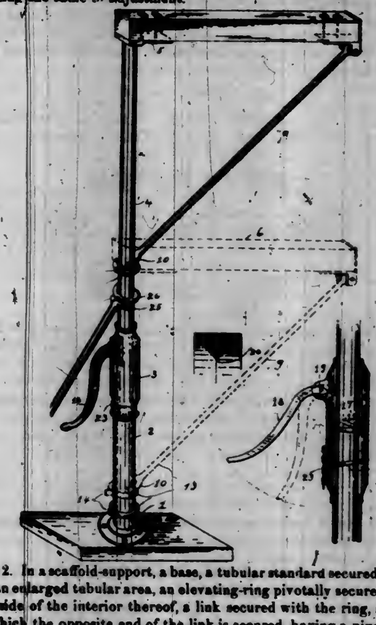
3. A bicycle-hanger in which is comprised a fixed bracket; a wheel-holder hinged thereto; a bracket hinged to the wheel-holder, and a socket for the reception of the lower extremity of the said bracket, substantially as shown and described.

4. In a bicycle-hanger, a holder arranged to be held at right angles to a vertical support, and sustain a bicycle in a half-inverted position by the wheel alone, or be folded upward or downward when not in use, substantially as shown and described.

5. In a device of the character herein specified a fixed bracket-piece bearing hooks; an oblong wheel-holder hinged to the fixed bracket-piece; a prop-piece pivoted to the wheel-holder, and a fixed plate provided with a hook and lamp-bracket and a socket for the reception of the lower extremity of the prop-piece, the whole combined and arranged to operate, substantially as shown and described.

590,774. EXTENSIBLE SUPPORT FOR SCAFFOLDING. GEORGE J. REXROTH, Napoleon, Ohio. Filed Jan. 22, 1897. Serial No. 620,205. (No model.)

Claim.—1. In a scaffold-support, a portable base, a tubular standard fixedly secured thereon, a standard vertically adjustable within the tubular standard having a scaffold-support at right angles, a brace connected with the scaffold-support pivotal and adjustable to rest upon the telescopic standard or the fixed standard with means for holding the same in adjustment.



2. In a scaffold-support, a base, a tubular standard secured thereon, an enlarged tubular area, an elevating-ring pivotally secured upon one side of the interior thereof, a link secured with the ring, a lever in which the opposite end of the link is secured, having a pivotal relation with the enlarged portion of the tube 3, and a holding-ring pivoted within the shell having a flexible medium by which to raise the same, the elevating and holding rings being formed with an annular biting edge respectively.

3. In a scaffolding, a fixed tubular base portion, a telescopic portion, an adjustable ring upon the fixed and telescopic portions, a scaffold-beam secured at right angles to the telescopic section having a pivoted brace provided with a bifurcated end and means for adjusting the telescopic portion to cause the bifurcated end of the brace to rest upon either ring as desired.

4. In a scaffold-support, a fixed section and a section telescopically arranged therein with a brace adapted to extend from the base of the fixed section and be supported with relation to the telescopic section, and a ring adjustable upon the telescopic section adapted to rest against the end of the brace and be secured to the telescopic section.

590,775. DUST-COLLECTOR FOR BROOMS. ALBERT A. SAWYER, Chicago, Ill. Filed Jan. 16, 1897. Serial No. 619,469. (No model.)



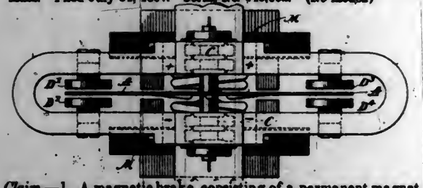
Claim.—As an improved article of manufacture, a dust-collector for brooms consisting of a detachable frame or clasp adapted to embrace the body of the broom and provided with flaps or strands of absorbent material adapted to hang loosely against the body of the broom when in use, substantially as described.

590,776. REMOVABLE PLOW-POINT. JAMES SUTTON, Tuckerman, Ark., assignor of one-half to Crawford West, same place. Filed May 3, 1897. Serial No. 634,832. (No model.)



Claim.—The combination with the shovel of a plow provided with a recess, the upper end of which tapers, of a plow-point having a correspondingly-tapered shank, said shovel and plow-point being provided with registering apertures, the apertures of the point having notches, bolts adapted to be passed through said apertures and provided with ribs adapted to said notches, and nuts screwed upon the ends of the bolt, substantially as set forth.

590,777. MAGNETIC BRAKE. WILLIAM STANLEY, Pittsfield, Mass. Filed July 31, 1897. Serial No. 646,602. (No model.)



Claim.—1. A magnetic brake, consisting of a permanent magnet having a stationary body portion, a metallic disk rotating in the field thereof, said magnet having polar projections, adjustable in a direction vertical to the plane of said disk, substantially as described

2. A magnetic braking device, the combination of a permanent magnet having a stationary body portion, means for varying the air-gap between its polar projections, and a metallic disk lying in the field between said poles and free to revolve therein, substantially as described.

3. In a magnetic braking device the combination of a metallic disk free to revolve, and a permanent magnet producing a field within which said disk lies, said magnet having polar projections independently adjustable toward and away from the plane of said disk, substantially as described.

4. The combination of a permanent magnet having consequent poles, a metallic disk magnetically supported by the flux from said consequent poles, intermediate projections from said magnet forming intermediate poles at a considerable distance from the supporting-shaft of said disk, and acting upon said disk to retard its motion, substantially as described.

5. The combination of a permanent magnet, having consequent poles, a metallic disk magnetically supported by the flux from said consequent poles, intermediate projections from said magnet forming intermediate poles at a considerable distance from the supporting-shaft of said disk, said intermediate projections being adjustable in a direction vertical to the plane of said disk, substantially as described.

590,778. REVERSIBLE STREET-CAR. JOHN J. THOMPSON, Poughkeepsie, N. Y. Filed Mar. 31, 1897. Serial No. 630,126. (No model.)

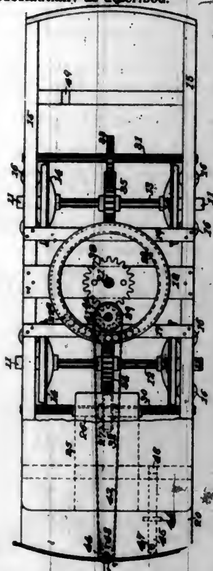
Claim.—1. The combination with a motor-shaft mounted on the car-body and with a pair of auxiliary shafts and the two axles supported and mounted for rotation in the truck and in substantial parallelism with one another, means for rotating one of said axles from the motor-shaft, the king-bolt mounted concentrical to the axles and means for rotating the body of the car on the truck for the purpose set forth.

2. In a truck, the combination of two axles and two auxiliary shafts, all mounted in the truck and in substantial parallelism with one another, a king-bolt upon which the car-body is rotatably mounted, mechanism to rotate the body of the car upon the king-bolt, and mechanism whereby motion may be communicated to one of the auxiliary shafts and to the axle, substantially as described.

3. In a truck, the combination of two axles, and two auxiliary shafts, all mounted in the truck and in substantial parallelism with one another, a king-bolt upon which the car-body is rotatably mounted, mechanisms to rotate the body of the car upon the king-bolt, and mechanism whereby motion may be communicated to one of the auxiliary shafts and to the axle, substantially as described, and means to unlock and lock the car-body to the truck, all combined and operating substantially as described.

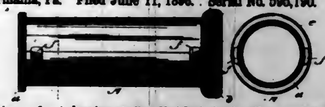
4. The combination of a pivotally-mounted car body and truck, a motor mounted upon one end of the car, means consisting of the auxiliary shaft and its gear, to transmit the power to the axle, the king-bolt upon which the car rotates, and means to rotate the body of the car on said king-bolt, consisting of the center gear, pinion, sprocket wheels and chain, all combined and operating substantially as described.

5. The combination of a pivotally-mounted car body and truck, a motor mounted upon one end of the car, means consisting of the auxiliary shaft and its gear, to transmit the power to the axle, the king-bolt upon which the car rotates, and means to rotate the body of the car on said king-bolt, consisting of the center gear, pinion, sprocket wheels and chain, all combined and operating substantially as described, and means for unlocking and locking the car-body to the truck, all substantially as described.



6. The combination of a pivotally-mounted car body and truck, a motor mounted upon one end of said car-body, means to transmit the rotary motion of the motor-shaft to the auxiliary shaft and to the axle, the king-bolt on which the car-body is pivotally mounted, the ball-bearing between the car-body and the truck, and means substantially as described, to unlock and lock the car-body to the truck, substantially as set forth.

590,779. DRAIN. CHARLES TRAUB and JOHN W. HELFRECHT, Germania, Pa. Filed June 11, 1896. Serial No. 595,190. (No model.)



Claim.—1. A horizontally-divided drain-tile comprising the upper and lower sections each having at one end an external solid tongue and at the other end provided with an enlarged bead, the internal diameter of which is greater than the radius of the section, and said bead having a deep tongue-receiving groove lying outside of the passage through the tile, the lower section further provided with the spaced upwardly extending lugs *f*, *f'*, said lugs *f* arranged within the external tongue for a distance equal to half the width of the grooved bead, and the lugs *f'* lying close up to the bead, for the purposes described, substantially as set forth.

2. The lower drain-sections interlocked endwise together and provided with the upwardly-extending lugs *f*, *f'*, the adjacent pairs of which on the interlocked ends of said sections are spaced apart equal to the width of the joints between upper sections, in combination with upper sections interlocked endwise together by tongue and grooved-bead joints which are fitted between said pairs of adjacent lugs, for the purposes described, substantially as set forth.

590,780. LAWN-SPRINKLER. CHARLES L. TRAVIS, Minneapolis, Minn. Filed Aug. 5, 1895. Serial No. 558,206. (No model.)

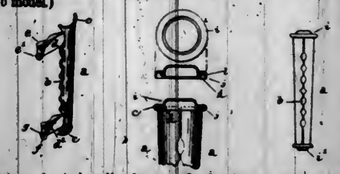


Claim.—1. The combination with a base comprising a flat plate having an upturned forward end, a nozzle or sprinkler arranged upon said base, and a pipe leading from said nozzle to the upturned end of the base and adapted to have a hose coupled thereto, substantially as described.

2. The combination with the base having the upturned forward end, the elbow 3 having a threaded upper end and a coupling 8, the nozzle 4 screwed upon the upper end of the elbow 3, the pipe 7 extending from the elbow 3 through the upturned end of the base and provided upon its end with a union-coupling for the purpose set forth.

3. The combination, with the toboggan-like base, of the sprinkler or nozzle attachment provided thereon, the hose attachment therefor, the upwardly-extending bar adapted to support the base and the nozzle when inverted, substantially as described.

590,781. HANDLE FOR SHEET-METAL VESSELS. CHARLES L. WAGANDT, Baltimore, Md. Filed June 21, 1897. Serial No. 641,552. (No model.)



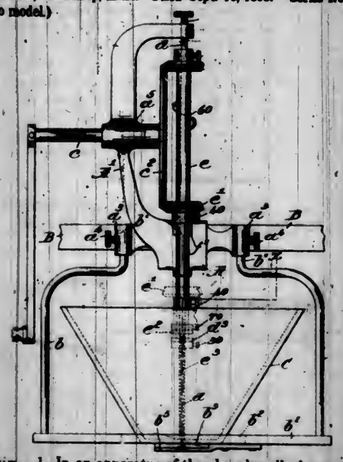
Claim.—1. A handle for vessels, having a sheet-metal hand-grasp part composed of two half-cylindric parts each provided with two lateral arms—said half-cylindric part and arms stamped up in one piece and the lateral arms on one half-cylindric part coinciding with those on the other part and forming two finished arms; and two disks each taking over one of the ends of said hand-grasp parts and fastening them together.

2. A handle for vessels, having a sheet-metal hand-grasp part composed of two half-cylindric parts provided with outward flanges, *c*, on their ends; and two disks each having a rim-flange, an annular shoulder inside of the said flange, and an annular groove between the rim-flange and said shoulder, one of said disks being on each end of the said half cylindric parts with the rim-flange of the disk closed inward and on the said outward flange

3. A sheet-metal handle for vessels, composed of two half-cylindric parts provided on their longitudinal edges with notches, and at their ends with outward flanges; two disks each having a rim-flange which is closed inward and locks on said outward flanges, and lateral arms for attachment to a vessel.

4. The combination of a vessel; a lid for the vessel having one part of a hinge; a sheet-metal handle composed of two half-cylindric parts each provided with a lateral arm attached to the vessel—said arm having a top horizontal flange; and hinge-ears secured to a clip which grips said top horizontal flange—said hinge-ears cooperating with the other part of the hinge on the lid, as set forth.

590,782. MIXING APPARATUS FOR CAKE, &c. ALEXANDER WERNER, Winthrop, Mass. Filed Sept. 16, 1896. Serial No. 562,635. (No model.)



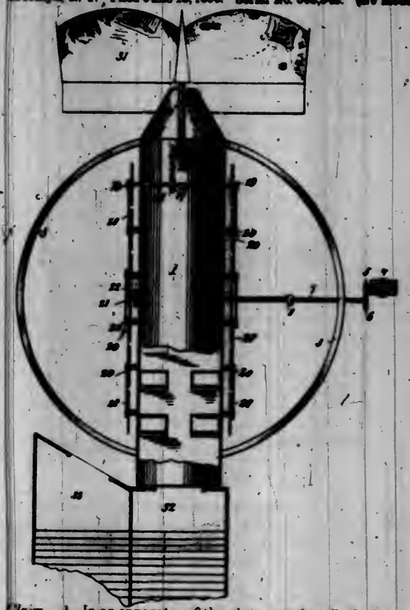
Claim.—1. In an apparatus of the class described, a supporting-bracket, a stirrup attached thereto having an opening in its bottom, a closure for said opening, a bearing on said bracket, a vessel to rest on the stirrup, and a bearing therein, detachable stirring mechanism adapted to be supported in said bearings, and means mounted on the bracket to rotate the stirring mechanism, substantially as described.

2. In an apparatus of the class described, a bracket, an actuating-shaft therein, a depending support to sustain the vessel to receive the material, stirring mechanism, bodily removable from the bracket and vessel, including blades adapted to be oppositely rotated in said vessel, supporting-bearings for the said mechanism when in use and an auxiliary bearing adapted to sustain the said mechanism upon removal of the vessel, and connections between the actuating-shaft and stirring mechanism, substantially as described.

3. In an apparatus of the class described, a bodily removable stirring mechanism comprising a shaft, a surrounding sleeve, a gear and a stirrer-blade secured to each, and an adjustable connection between the sleeve and its gear, combined with an independent actuating-shaft, gearing connecting it and the sleeve and shaft-gears, to rotate the stirrer-blades, means to govern the direction of rotation of the stirrer-blades relatively each to the other, and to insure rotation in the same or opposite directions, and bearings for the shaft of the stirring mechanism, substantially as described.

4. In an apparatus of the class described, a bracket having an adjustable bearing and an auxiliary supporting-bearing, a vessel to receive the material and having a bearing in the bottom thereof, and actuating mechanism carried by the bracket, combined with bodily-removable stirring mechanism, comprising a plurality of stirrer-blades, and a shaft and a surrounding sleeve, to which the blades are attached, the shaft being supported between the adjustable bearing and the bearing in the vessel when in use and adapted to be supported between the adjustable bearing and the auxiliary bearing upon removal of the vessel, substantially as described.

590,788. AMUSEMENT APPARATUS. FIRST G. WILLIAMS, Brooklyn, N. Y. Filed June 15, 1896. Serial No. 595,843. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a car mounted upon a vertical axis, of means for moving the same about said axis, and a circular undulating track for tilting the car bodily, substantially as specified.

2. In an apparatus of the character described, the combination with a car, of means for moving the same about a vertical axis, and a circular track on which said car rests at its forward and rear ends, substantially as specified.

3. In an apparatus of the character described, the combination with a car, of means for moving the same about a vertical axis, of an undulating circular track upon which said car rests at its forward and rear ends, substantially as specified.

4. In an apparatus of the character described, the combination with a car movable about a vertical axis, of a circular undulating track, eccentric rollers supporting said car upon the track and means for rotating the car, substantially as specified.

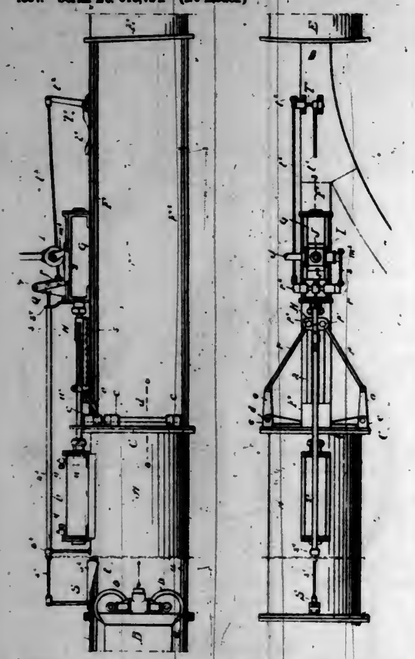
5. In an apparatus of the character described, the combination with a car movable about a vertical axis, of a blower upon the car and operated in connection therewith, substantially as specified.

6. In an apparatus of the character described, the combination with a car movable about a vertical axis, of a blower upon the car and communicating with one end thereof, and operating means for said car and blower, substantially as specified.

7. An apparatus of the character described, comprising an elongated car arranged in a horizontal position and movable about a vertical axis, a circular undulating track for tilting the car bodily, one or more window-openings in the opposite sides of the car, and a moving part arranged outside of and in juxtaposition to said window opening or openings, substantially as specified.

8. An apparatus of the character described, comprising an elongated car movable about a vertical axis and provided with window-openings at its sides, rotatable disks in juxtaposition to said windows, a circular track, rollers thereon arranged to support said car, said rollers being eccentric for giving a jarring movement to the car, and means for rotating the car and said disks, substantially as specified.

590,784. GATE-OPERATING DEVICE FOR PNEUMATIC-DESPATCH TUBES. CHARLES B ALLEN, Burlington, N. J. Filed Jan. 11, 1897. Serial No. 618,734. (No model.)

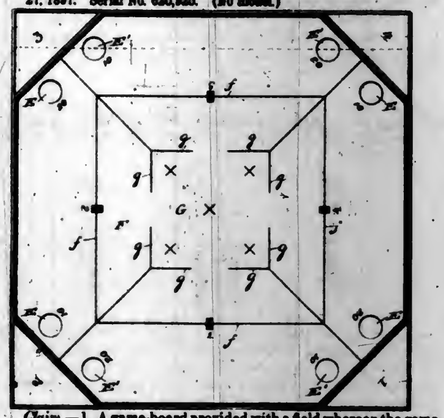


Claim.—1. The combination of the tube, A, pivoted doors, D, D', having overlapping meeting edges, levers, *o*, connected to the door-pivots, a pressure-cylinder, C, having entrance and escape ports, a valve for governing the admission of steam or air to the cylinder, a guided cross-head, H, rods, *p*, connecting the cross-head to the levers, *o*, a piston-rod, *g*, extending between the cross-head and the piston, G, a trip-lever, S, having one arm, s^2, extending into the tube, and mechanism connecting said lever to the valve, substantially as specified.

2. The combination of the tube, doors for closing the same, a pressure-cylinder, a piston therein operatively connected to the doors, a cylinder or dash-pot, U, a piston, *u*, therein connected to and traveling with the piston of the pressure-cylinder, a valve for governing the admission of steam or air to the pressure-cylinder, a trip-lever extending into the tube and mechanism connecting said trip-lever to the valve, substantially as specified.

3. The combination of the tube, doors for closing the same, an opening trip-lever extending into the tube, guiding-tracks beyond the end of the tube, a closing trip-lever carried by one of said guiding-tracks, a pressure-cylinder, a piston therein operatively connected to the doors, a valve-casing, a rotative valve therein for governing the admission of steam or air to the cylinder, a rock-shaft, *g*, arms, *r*, *r'*, r^3, carried thereby, an arm, s^2, carried by the valve-spindle, a link, *s*, connecting the arms, *r*, and r^3, a rod, *s'*, connecting the opening trip-lever to the arm, *r'*, and a rod, r^4, connecting the closing trip-lever to the arm, r^3, substantially as specified.

590,785. GAME-BOARD. NICHOLAS W. BARNETT, Pleasanton, Kans., assignor of one-half to Edgar F. Carson, same place. Filed Jan. 27, 1897. Serial No. 620,925. (No model.)

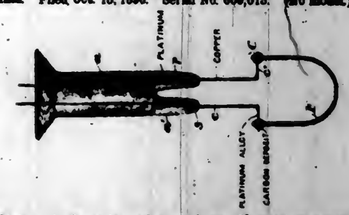


Claim.—1. A game-board provided with a field whereon the game is played, of octagonal outline, each alternate side of said field of the same length and the intermediate sides each of the same length but shorter than the other sides, said field surrounded with a cushioned wall, each of four equal sides of said field at points equidistant from the center of said field and adjacent to said wall, provided with two pockets, said pockets the same distance apart in each of the four sides and at the same distance from the ends of said sides, substantially as shown and described.

2. A game-board having a field of octagonal outline surrounded by a cushioned wall and provided with two pockets along each of four alternate sides of said field and at equal distances from the ends of said sides, a cross in the center of said board in the center of a square indicated thereon, and a cross in each corner of said square to indicate the points where the pieces which are played upon are to be placed, and a square outlined at equal distances from the central square to indicate the place from which the play is made and a rectangular area marked on said outline on each side thereof equidistant from the corners thereof, substantially as shown and described.

3. A game-board of quadrangular outline, each of its sides of the same length, a wall surrounding its margins and each of the four corners of its face provided with triangular inclosures of the same area, the field on said board whereon the game is played of octagonal outline, each alternate side formed of the same length and said field inclosed with a cushioned wall, the walls facing the hypotenuse of the triangular inclosures forming four of the walls surrounding the field, two pockets each in the face of the field in front of the wall of each of said triangular inclosures, a cross marked in the center of the field and in the center of a square indicated thereon and a cross in each corner of said square to indicate the points on said field whereon the pieces are placed to be played upon, a square outline marked equidistant from the center of said field from which to play on the pieces thereon, substantially as shown and described.

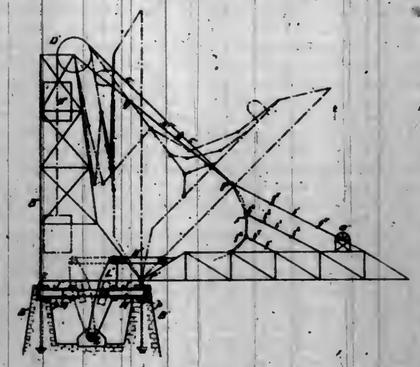
590,786. INCANDESCENT LAMP. JAMES BRADLEY, Boston, Mass. Filed Oct. 15, 1896. Serial No. 609,013. (No model.)



Claim.—1. In an incandescent lamp, filament-supports, and tips therefor between the ends of said supports and the filament, and consisting of an alloy of platinum and a baser metal, substantially as described.

2. In an incandescent lamp, platinum leading-in wires, copper filament-supports attached thereto, and electroconductive and heat-resisting tips for said supports composed of a platinum alloy, substantially as described.

590,787. DRAWBRIDGE. THOMAS R. BROWN, New York, N. Y. Filed Sept. 18, 1896. Serial No. 606,196. (No model.)



Claim.—1. The combination with a hinged bridge, a counterweight, and a cable connected with the counterweight, of means for connecting said cable operatively with the bridge, which means are provided with a number of points arranged in a curve such that the perpendicular distance between the hinge of the bridge and the line of pull of the cable varies during the movement of the bridge proportionally to the variation of the lever-arm of the center of gravity of said bridge, substantially as described.

2. The combination in a hinged-bridge-operating device, of a counterweight, a cable therefrom operatively connected with said bridge, a plurality of links from said cable to said bridge, and flexible tensional devices from said links to said bridge adapted to cooperate with the tension of the cable in holding the pivots of said links on a curve such that the perpendicular distance between the hinge of the bridge and the tangents to said curve varies in the same proportion as the lever-arm of the center of gravity of the bridge varies during movement of the bridge, substantially as described.

3. The combination with a hinged bridge, of a counterweight, a cable therefrom to the bridge, and a suspender adapted to support said bridge in its lower position and composed of a plurality of folding links, substantially as described.

4. The combination in a lift-bridge-operating device, of a counterweight W, a cable C from said counterweight adapted to lift said bridge and carried around a point above the bridge, links and tensional devices connecting the end of said cable to said bridge, and a suspender S adapted to sustain the bridge when in the lower position, substantially as described.

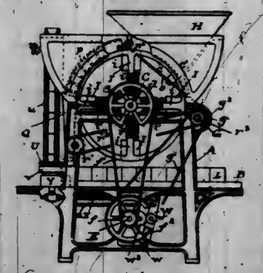
5. The combination in a lift-bridge-operating device, of a counterweight W, a cable C from said counterweight adapted to lift said bridge and carried around a point above the bridge, links and tensional devices connecting the end of said cable to said bridge, and a suspender S adapted to sustain the bridge when in the lower position, and said suspender S formed of a plurality of hinged links adapted to fold as the bridge rises, substantially as described.

6. The combination with a lift-bridge, a counterweight, and a cable from the counterweight to the bridge for lifting the same, of a buffer-frame near the end of the bridge and adapted when the bridge is in the upper position to exert tension on the cable against the counterweight, whereby the counterweight is enabled to limit the backward motion of the bridge, substantially as described.

7. The combination with a hinged bridge, a counterweight, and a cable connected with the counterweight, of a motor for moving said bridge adapted to hold the bridge in any position, and means for connecting said cable operatively with said bridge, which means are provided with a number of points arranged in a curve such that the perpendicular distance between the hinge of the bridge and the line of pull of the cable varies during the movement of the bridge proportionally to the variation of the lever-arm of the center of gravity of said bridge, substantially as described.

590,788. CAN-FILLING MACHINE. CHARLES S. BOOKLIN, Baltimore, Md. Filed May 20, 1896. Serial No. 592,266. (No model.)

Claim.—1. In a machine for filling cans, the combination of a bottomless hopper; a wheel having a rim serving as a bottom for the hopper; measuring receptacles opening through the wheel-rim and each provided with a follower-bottom; and a slide-bar, s^2, at the terminal point where the hopper and wheel-rim adjoin and movable crosswise of the wheel-rim to remove any excess of material and retain such excess within the hopper.



2. The combination of a hopper; a wheel having measuring-receptacles with follower-bottoms and a cross-rod connected with said follower; an adjusting-plate provided with faces having a graduated stepped rim to engage the said cross-rods and thereby set the said follower-bottoms so that the receptacles may have a greater or less capacity; and a cam to move said bottoms out gradually.

3. The combination of a hopper; a wheel having a plurality of arms each provided with a slot and carrying a rim which serves as a bottom for said hopper; a number of measuring-receptacles opening through said rim and each provided with a follower-bottom having an attached cross-rod whose ends project through the said slots in the wheel-arms; and an adjusting plate provided with irregular faces equal in number to said measuring-receptacles—said faces having graduated stepped rims, and each face in position to engage the projecting end of a different cross-rod to limit the retraction of said follower-bottoms so that the receptacle may have a greater or less capacity.

4. In a machine for filling cans, the combination of a hopper; a stationary shaft; a wheel revolving on said shaft and having a plurality of arms each provided with a slot and carrying a rim which serves as a bottom for said hopper; a number of measuring-receptacles opening through said rim and each provided with a bottom follower having an attached cross-rod whose ends project through the slots in the wheel-arms; and two cams one on each end of the stationary shaft and acting on the said projecting ends of the cross-rods, as set forth.

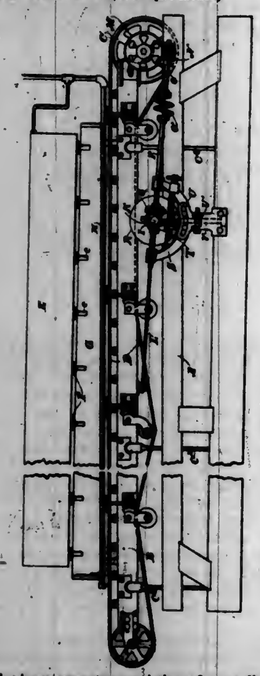
5. In a machine for filling cans, the combination of a bottomless hopper; a wheel whose rim serves as a bottom for the hopper and provided with measuring-receptacles opening through the rim; a drive-shaft and connections between the same and the wheel to revolve the latter; a slide-bar, s^2, at the terminal point where the hopper and wheel-rim adjoin and movable crosswise of the wheel-rim to remove any excess of material and retain such excess within the hopper; a cam on the drive-shaft; and a lever connecting between the cam and said slide-bar to impart motion to the latter.

6. The combination of a hopper; a conduit leading to the can to be filled; a wheel provided with measuring-receptacles which are filled as they pass the hopper and discharge their contents into the said conduit; a collar on the exterior side of the conduit; and a serrated or toothed disk which revolves and taps against the collar and vibrates the conduit.

7. The combination of a frame carrying at one side a hopper; a conduit at the opposite side leading to the can to be filled; a wheel between the hopper and conduit and revolving in a direction toward the latter, said wheel provided with a rim which serves as a bottom for the hopper and having measuring-receptacles with bottoms, which are movable through the whole length of the receptacle; means to move said bottoms out gradually and discharge the contents onto the declining side of the wheel-rim leading to the conduit; and a cover, *p*, for the wheel-rim between the hopper and conduit and provided with pins, p^3, which project toward the wheel-rim to separate and loosen the material that is being measured.

8. In a can-filling machine, the combination of a bottomless hopper; a conduit whose lower part is vertical and delivers to the can to be filled, and whose upper part is bottomless and curves from the said vertical part toward the hopper; a wheel between the hopper and conduit and revoluble in a direction toward the latter, said wheel having a rim which serves as a bottom for the hopper and also as a bottom for the curved part of the conduit and provided with measuring-receptacles opening through the rim; a follower-bottom in each receptacle and movable through the whole of its length; and means to move said bottoms out gradually and discharge the contents onto the declining side of the wheel-rim, as set forth.

590,789. CONCENTRATOR. GEORGE GATES, Jackson, Cal. Filed Jan. 2, 1897. Serial No. 617,696. (No model.)



Claim.—1. A concentrator consisting of an endless belt having parallel and endless grooves or channels formed upon its surface and upwardly-turned edge flanges, supporting and driving drums around which the belt passes and through which motion is communicated to it, said drums being journaled so that one edge of the belt is slightly lower than the other, a feed trough or hopper extending parallel with the upper edge of the belt having openings in the bottom through which the pulp is delivered from the hopper, valves controlling said openings and having openings through them coincident with and smaller than the openings in the hopper, and an inclined board supported from the oscillating frame for distributing the pulp upon the higher edge of the belt.

2. In a concentrator, an endless belt having its surface formed with endless parallel longitudinal grooves or channels and edge flanges upon the belt, supporting and driving drums with means whereby the belt is gradually advanced over them, said drums being journaled so that one edge of the belt is higher than the other, a supply-hopper independently supported parallel with and above the higher edge of the belt having holes in the bottom through which the pulp is delivered, pivotally-secured valves having depending tubes with openings or passages through them coincident with and smaller than the openings in the hopper, a distributer consisting of an inclined surface supported from the belt-frame and partaking of its longitudinally-oscillating motion, whereby the pulp is distributed into the higher of the parallel grooves or channels and is gradually worked over the intervening ridges diagonally from one side of the belt to the other, a controlled water-supply consisting of a perforated pipe extending along one side of the belt whereby the material which is deposited in the lowermost of the channels may be washed off over the lower end of the belt while the heavier and valuable particles deposited in the uppermost of the series of channels are carried over the upper end of the belt.

3. In a concentrator consisting of an endless belt passing over drums upon a longitudinally-oscillating frame having a worm-wheel and screw by the rotation of which the belt is caused to travel over its supporting-drums, a shaft in line but out of contact with the worm or screw shaft having an elastic spiral spring connecting the two so that power may be transmitted from one to the other, a fulcrumed segment carrying boxes in which the driving-shaft is journaled, a roller movable longitudinally upon a feather on the shaft and an actuating-screw therefor, a disk fixed upon the main transverse power-shaft with its face parallel with the line of travel of the roller whereby the latter may be brought into contact with any portion of the surface of the disk from the center to the periphery so as to increase the speed at which the belt and connected parts travel and means for moving the segment to disengage the roller from the face of the disk.

4. A concentrator consisting of an endless belt passing around supporting driving-drums which are journaled upon a longitudinally-oscillating frame, a worm-wheel and a worm and worm-shaft supported by said frame through which power is transmitted to rotate the drums and cause the belt to travel around them, a shaft journaled upon a movable segment in line with and out of contact with the worm-shaft having an intermediate spiral-spring connection whereby power is transmitted while allowing the worm-shaft to reciprocate while the power-shaft rotates without reciprocation, a roller slidable upon a feather upon said power-shaft, a disk fixed upon the main driving-shaft at right angles with the roller so that the roller may be brought into contact with the face of the disk at points between the center and periphery thereof, a bell-crank lever upon which the shaft and roller-carrying segment is fixed, a screw whereby said lever may be tilted to move the segment and disengage the roller from the face of the disk, means for moving the roller along its shaft while out of contact with the disk, the bell-crank-lever-actuating screw being moved to again throw it into contact with the disk when it has been moved to the desired point.

5. In a concentrator, an endless belt passing around supporting and driving drums journaled upon a longitudinally-oscillating frame, a worm-gear and screw supported in said frame through which motion is transmitted to propel the belt, a power-shaft journaled upon an adjustable segment in line and out of contact with the screw-shaft, a spiral-spring connection between the ends of said shafts whereby the longitudinal oscillation of one is permitted independent of the other, means for adjusting the power-shaft with relation to the screw-shaft to compensate for raising and lowering the belt-carrying frame, consisting of a segmental slotted support for the shaft and means for turning it so as to change the angle of the power-shaft and maintain it approximately in line with the screw-shaft.

590,790. INK-FOUNTAIN FOR PRINTING-PRESSES. CLEMENS E. KAYSER, Oakland, Cal. Filed July 16, 1897. Serial No. 644,791. (No model.)



Claim.—1. The combination with an ink-fountain and a roller journaled to carry the ink therefrom, of a blade one edge of which is retained essentially in contact with the roller, tapering bars adapted to support the edge of the blade, means for moving the bars with relation to each other so as to increase or decrease the thickness, and correspondingly move the blade with reference to the roller.

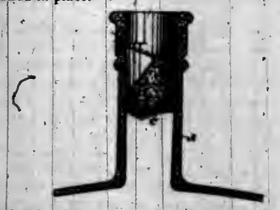
2. An ink-fountain having a roller journaled and adapted to carry ink therefrom, superposed bars extending longitudinally beneath the roller and tapered from end to end, means for moving these bars with relation to each other so as to increase or decrease the thickness, and a blade having the rear edge fixed within the fountain, and the front edge resting upon the adjusting-bars and adapted to act as a scraper to regulate the amount of ink delivered from the fountain by the roller.

3. An ink-fountain having a roller journaled with relation thereto and adapted to transfer ink from the fountain, a scraping-blade having its front edge formed to contact with the roller and the rear edge fixed within the rear portion of the fountain, inclined or wedge-shaped bars extending longitudinally beneath the edge of the blade, a means for moving one of the bars whereby the other is raised or depressed and the edge of the blade correspondingly moved nearer to or farther from the roller, and independently-acting screws extending upward through the bars with the ends pressing against the blade whereby portions of the blade may be adjusted independently of the general adjustment produced by the bars.

4. An ink-fountain having a roller journaled and adapted to carry ink therefrom, superposed bars extending longitudinally beneath the roller and tapered from end to end, means for moving these bars with relation to each other so as to increase or decrease the thickness, a blade having the rear edge fixed with relation to the fountain and the front edge resting upon the adjusting-bars and adapted to act as a scraper to regulate the amount of ink delivered, and means for producing an independent vertical adjustment of the regulating-bars

590,791. BOTTLE-STOPPER. CHARLES J. MALONE, Sacramento, Cal. Filed May 17, 1897. Serial No. 636,874. (No model.)

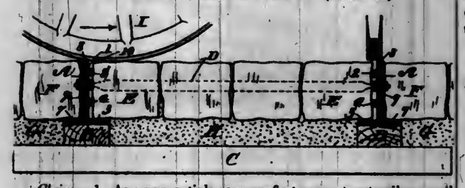
Claim.—1. A bottle having a neck formed with an interior shoulder which extends around one of its sides only, a yielding cork or stopper having the outer end beveled or inclined and adapted to fit into the neck of the bottle below the shoulder, an exterior glass stopper having the inner end beveled to fit the outer end of the yielding stopper and having a shoulder formed about one of its sides to engage the shoulder in the interior of the neck whereby the outer stopper is locked in place.



2. A bottle, the neck of which has an interior shoulder at one side, a yielding stopper adapted to fit the neck of the bottle below the shoulder having an inclined or beveled outer end, a rigid stopper having a shoulder projecting from one side and adapted to engage the shoulder within the bottle-neck and the inner end beveled to fit and coincide with the beveled end of the yielding stopper whereby the latter will yield to allow the shoulder of the rigid exterior stopper to pass and interlock with the shoulder of the bottle-neck.

3. A bottle having an interior locking-groove or shoulder extending only partially around it, a yielding and a rigid stopper adapted to be introduced successively into the bottle-neck, the two having beveled or inclined meeting faces, the rigid exterior stopper having a shoulder partially encircling one side and adapted to engage and lock with the corresponding shoulder of the bottle-neck, and a diagonal groove or channel made upon the exterior of the bottle-neck to provide a frangible line of breakage when the bottle is to be opened.

590,792. STREET-RAILWAY. WILLIAM PIERPOINT, Yonkers, N. Y. Filed June 1, 1897. Serial No. 638,949. (No model.)



Claim.—1. As a new article of manufacture, a street-railway rail having a suitable tread and a rabbet at the top, flush sides adapted for the close abutment of the pavement, and a base projecting beyond the sides.

2. As a new article of manufacture, a street-railway rail of inverted-T shape in cross-section, having its base-flanges projecting beyond the tread and rabbet of the rail, adapted for the reception of the paving-blocks in proximity to the tread and over and upon said flanges.

3. As a new article of manufacture, a street-railway rail having a projecting bottom flange, and having a side surface flush with the top of the rail, forming a vertical abutment for the paving-blocks.

4. As a new article of manufacture, a street-railway rail having a bottom flange, and having one or more ribs on one side of its vertical portion projecting beyond the tread of the rail, adapted to support the paving-blocks but separate them slightly from said tread.

5. In a street-railway, the combination of a rail having a suitable tread, a vertical abutment below and projecting beyond the tread, and a bottom flange projecting beyond said abutment, and paving-blocks resting on said flange and against said abutment and rising above the same opposite the tread, forming between said blocks and said tread, a narrow groove of less width than the tires of vehicle-wheels for the purpose set forth.

6. In a street-railway, the combination of a rail having a suitable tread, a vertical abutment below and projecting beyond the tread, and a bottom flange projecting beyond said abutment, and paving-blocks resting on said flange and against said abutment and rising above the same opposite the tread to a level slightly below the tread, forming a narrow groove for the passage of the flanges of the car-wheels, the pavement edge of said groove being protected by the more prominent edge of the rail, as set forth.

590,793. CORK-RETAINER FOR BOTTLES. MARTIN O. REHFUSS, Philadelphia, Pa., assignor to the Universal Food and Liquid Improving Company, of West Virginia. Filed July 26, 1896. Serial No. 600,435. (No model.)

Claim.—1. In a cork-retainer, a cap having recesses in the top thereof, a ridge rising from said top between said recesses and adapted to receive the plunger of a corking-machine, and depending spurs, said ridge and spurs being integral with said cap.



2. In a cork-retainer, a cap having recesses in its top, and a ridge rising from said top between said recesses and adapted to receive the plunger of a corking-machine, said ridge having a corkscrew-opening therein.

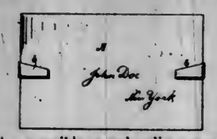
3. A cork-retainer, consisting of a ring, provided with eyes on its opposite sides, a plurality of bails, having journals in said eyes, a cap having a plurality of recesses in its top extending across the latter, projecting spurs at the edges of said cap and a ridge located intermediate said recesses and adapted to receive the plunger of a corking-machine.

590,794. AUTOMATIC CAR-SWITCHER. HENRIK H. ROCHE, Kingston, Canada. Filed Mar. 17, 1897. Serial No. 628,044. (No model.)



Claim.—A switch-operating apparatus consisting of a lever fulcrumed on a car-platform, a rotary catch mounted on the platform adjacent to the end of the lever, a spring attached to said catch and holding it normally in position to lock the said lever, an arm depending from said lever, a second lever fulcrumed beneath the car and attached to the said depending arm, a bracket swiveled in said second lever, and a flanged wheel journaled in said bracket and adapted to engage a guide-flange between the track-rails.

590,795. REVERSIBLE MERCHANDISE-ENVELOP. FRANCIS VAN VOST ELSETH, San Francisco, Cal. Filed June 11, 1897. Serial No. 640,299. (No model.) Patented in England Mar. 9, 1897, No. 6,200; in Germany Mar. 9, 1897, No. 36,974, and in France Mar. 9, 1897, No. 262,426.



Claim.—1. A reversible merchandise-envelop having flaps adapted to be bent in either direction, to utilize, at different times, the obverse and reverse sides of the envelop, the closing-flap being provided with a stiffening-strip in such position that when said flap is closed down, the stiffening-strip will lie in, approximately, the median line or plane of the envelop, whereby the whole envelop is stiffened, said strip extending throughout the length of the envelop, and having flexible or pliant projecting ends, adapted to be bent around the ends of the envelop, whereby said envelop is fastened.

2. A reversible merchandise-envelop having flaps adapted to be bent in either direction, to utilize, at different times, the obverse and reverse sides of the envelop, the closing-flap being made of a double thickness and having secured between its folds, at its free edge, a stiffening-strip, said flap having such a width that when closed down, the stiffening-strip will lie in, approximately, the median lengthwise line or plane of said envelop, whereby the whole envelop is stiffened, said strip extending throughout the length of the envelop and having flexible or pliant ends, adapted to be bent around the ends of the envelop, whereby said envelop is fastened.

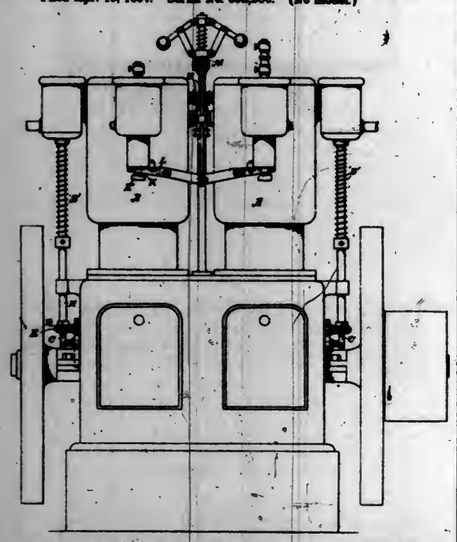
3. A reversible merchandise-envelop having flaps adapted to be bent in either direction, to utilize, at different times, the obverse and reverse sides of the envelop, the closing-flap being provided with a stiffening-strip in such position thereon, that when said flap is closed down, the stiffening-strip will lie in, approximately, the median line or plane of said envelop, whereby the whole envelop is stiffened, said strip extending throughout the length of the envelop and having flexible or pliant projecting ends narrowed from the general width of the body of the strip, and adapted to be bent around the ends of the envelop, whereby said envelop is fastened.

4. A reversible merchandise-envelop having flaps adapted to be bent in either direction, to utilize, at different times, the obverse and

reverse sides of the envelop, the closing-flap being made of a double thickness and having secured between its folds, at its free edge, a stiffening-strip, said flap having such a width that when closed down, the stiffening-strip will lie in, approximately, the median lengthwise line or plane of said envelop, whereby the whole envelop is stiffened, said strip extending throughout the length of the envelop, and having flexible or pliant projecting ends narrowed from the general width of the body of the strip, and adapted to be bent around the ends of the envelop, whereby said envelop is fastened.

5. A reversible merchandise-envelop having flaps adapted to be bent in either direction, to utilize, at different times, the obverse and reverse sides of the envelop, the closing-flap being provided with a stiffening-strip in such position that when the flap is closed down, the stiffening-strip will lie in, approximately, the median line or plane of said envelop, whereby the whole envelop is stiffened, said strip being covered or wrapped, with the edges of the wrapping material projecting beyond the edge of the strip and adhering, and said strip extending throughout the length of the envelop and having flexible or pliant projecting ends, adapted to be bent around the ends of the envelop, whereby said envelop is fastened.

590,796. GAS-ENGINE. ARNOLD J. TACKLE, Oakland, Cal. Filed Apr. 15, 1897. Serial No. 632,286. (No model.)



Claim.—1. In a gas-engine, an igniting device consisting of a collar fitted to the side of the cylinder, having a flanged inner end and a threaded outer end projecting beyond the exterior wall of said cylinder, an exterior housing having internal threads by which it is directly secured to the projecting end of the collar, a stem slidable through the collar, having an integral enlarged head of globular form, a spring in the housing and surrounding the stem, a second collar fitted to the side of the cylinder at right angles with the first-named collar, a rotatable shaft mounted in said sleeve and intersecting the line of movement of the stem, and having a flat wiping-plate rigid with it and adapted to contact with the curved surface of the globular head whereby any wear on the end of the plate will tend to make it conform to the curved shape of the head to insure a perfect contact.

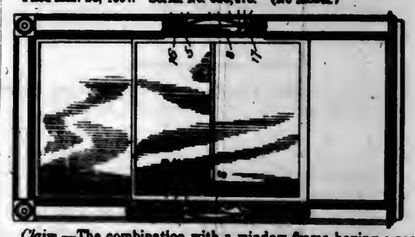
2. In a gas-engine, independent inlet-valves and exhaust-valves, a governor and intermediate mechanism whereby the opening of the inlet-valves is regulated, said intermediate mechanism consisting of wedge-shaped slides, connections between said slides and substantially in line therewith, and extending inwardly toward each other and jointly connected to the vertically-movable part of the governor, whereby they are moved in guides at right angles with the movement of the valve-stems and the amount of said movement is controlled.

3. In a gas-engine, inlet-valves with valve-stems movable in the line of travel of the valves and springs by which the valves are normally closed, heads upon the outer ends of the valve-stems with inclined contact inner faces, beveled slotted plates slidable in guides on the valve-casing at right angles with the line of travel of the valve-stems with the inclined sides movable upon the inclined contact-faces of the valve-stems, a governor having a part movable at right angles with the travel of the inclined sides, and intermediate connections extending inwardly substantially in line with the plates and connected directly with said movable part of the governor whereby motion is transmitted from the governor to the slides and the opening of the valves is controlled.

4. In a gas-engine, inlet-valves with stems and springs by which the valves are normally closed, heads upon the outer ends of the stems, wedge-shaped slides movable in contact with said heads at right angles with the line of movement of the valve-stems and connections with a governor whose speed is dependent upon that of the engine whereby the slides are moved to increase or decrease the opening of the valve, the valve-stems having rectangular or flattened sections and the slides slotted so that these flattened sections pass through the slots, and the valve-stems and heads are prevented from turning.

5. In a gas-engine having independent inlet and exhaust valves, springs by which the exhaust-valves are normally closed, and means for actuating each of said valves comprising a longitudinally centrally slotted lever fulcrumed at one end and extending transversely to the lower end of the valve-stem, a cam actuated from the engine-shaft and adapted to engage the free end of the lever so as to move the lever at suitable intervals, an antifriction-roller-bearing pin extending across the slot in the lever, said pin having a screw-threaded hole in the center, screw-threads on the lower end of the valve-stem, fitting said pin whereby the latter is adjustably connected with the lever, and is prevented from transverse movement by the movements of the lever.

590,797. SASH-HOLDER. HARRY A. WAAS, Philadelphia, Pa. Filed Mar. 20, 1897. Serial No. 628,478. (No model.)



Claim.—The combination with a window-frame having a recess in its side, and a window-sash having a corrugated spring secured to its side edge, of a slidable block fitted in the said recess and having a corrugated face adapted to engage the corrugated spring and provided with flanges at its upper and lower ends, a spring secured in the recess and bearing on the back of the block, and guard-strips secured across the ends of the recess and adapted to be engaged by the flanges on the block to retain the block in the recess.

590,798. MAGNIFYING-GLASS. ANTON WAGNER, Philadelphia, Pa. Filed Nov. 25, 1896. Serial No. 613,266. (No model.)



Claim.—1. A magnifying-glass consisting of a head formed of two cylinders detachably connected at their inner ends, lenses in the outer ends of said cylinders, and a spring holding said lenses in place.

2. A head formed of tubes or cylinders, and a spring within said cylinders, and a collar adapted to embrace the latter, and hold them against the separating action of said spring.

3. A head formed of separate tubes or cylinders, a spring within said cylinders for retaining lenses therein, and a collar engaging said cylinders and retaining the same against separation.

4. A magnifying-glass having a head formed of separate cylinders, means for retaining said cylinders together, lenses in said cylinders and a spring for holding said lenses in place.

5. A magnifying-glass having a head formed of cylinders provided with flanges, lenses in the outer ends of said cylinders, a spring for holding said lenses in place and a sectional collar embracing said flanges.

590,799. MANUFACTURE OF METALLIC TOOTH-CROWNS. LOUIS L. WHITE, San Francisco, Cal., assignor to the L. L. White Tooth Crown Company, same place. Filed June 1, 1897. Serial No. 638,904. (No model.)

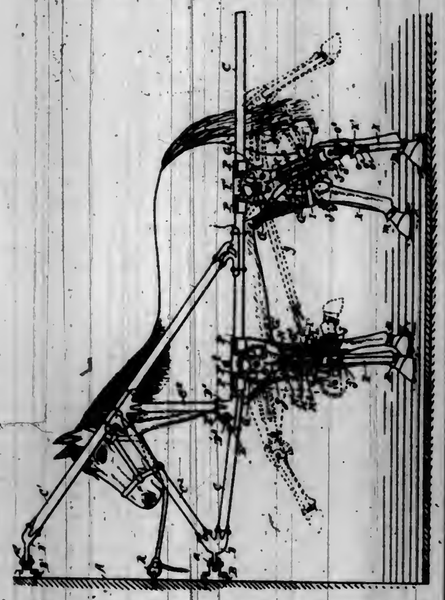
Claim.—1. The herein-described process of fitting an attachment for metallic tooth-crowns and forming a contour for the same, consisting in first fitting a metallic band to the root of the tooth to be crowned, filling the band so fitted with wax, impressing the face of the occluding tooth into the wax, removing the band and wax from the root and shaping the wax to the desired contour of the tooth.



2. The herein-described process of forming a mold for shaping metallic tooth-crowns, consisting in first fitting a metallic band to the root of the tooth to be subsequently crowned, forming the cervical and opposite margins to fit the festoon of the gum, and to allow the occluding tooth to close with relation to it respectively, filling the band so fitted with wax, then closing the mouth and forming an impression of the occluding tooth within the wax, removing the band and wax and giving the latter the contour desired for the tooth-crown, and casting a mold of plaster about the band and waxen form.

3. The herein-described method of manufacturing metallic tooth-crowns, consisting in first fitting a band upon the root of the tooth to be crowned, filling the band with wax, forming an impression of the occluding tooth therein by pressing the tooth upon it, removing the band, giving the wax a contour of the desired tooth, filling the cervical margin of the band with a waxen extension, forming a mold of plaster-of-paris about the waxen impression and the band together, removing the wax from the band, replacing the latter in the plaster mold, forming a cast of fusible alloy within the mold and band and subsequently fitting the metallic crown or shell over the shape thus formed.

590,800. HORSESHOEING APPARATUS. GEORGE BARTON, Kennesaw, Ind. Filed Jan. 4, 1897. Serial No. 617,956. (No model.)



Claim.—1. In an apparatus for shoeing horses the combination of a supporting-frame, a box arranged to be adjustable along on said frame, a compound arm pivotally attached to said box and adapted to assume the positions of the animal's leg, means for securing said lever in its several positions, means for securing the different parts of said lever to the leg of the animal and the means for adjusting the length of said arms, all arranged to operate substantially as and for the purpose set forth.

2. In an apparatus for shoeing horses the combination of a supporting-frame adapted to be pivoted to a proper support, boxes arranged on the horizontal bars of said frame and adapted to be adjustable thereon, an arm pivotally attached to said box having its upper end terminate in a toothed segment, pawls adapted to engage the teeth of said segment, the means for adjusting the length of said arm, a toothed segment pivotally attached to the lower end of said arm, a pawl for engaging the teeth of said segment, an arm pivotally attached to said last-named segment but in a transverse direction to the pivot of said segment, and the means for attaching said arms to the leg of the animal all arranged to operate substantially as and for the purpose set forth.

3. In an apparatus for shoeing horses, the combination of a supporting-frame adapted to be pivoted to a proper support, a cross-bar for adjustably connecting the two parts of said frame immediately in front of the horse, sliding boxes on the horizontal bars of said frame, an arm pivotally connected to said sliding box and having its upper end terminate in a toothed segment, and adjustable as to length; pawls attached to said box and adapted to engage the teeth of said segment, a segment pivotally attached to the lower end of said arm, a pawl for engaging said last-named toothed segment, an arm pivotally connected to said last-named toothed segment transversely to the pivot of said segment, an arm pivotally attached to said last-named arm and having its upper end terminate in a toothed segment, and having a transverse joint between its ends, and having a laterally-extending arm for engaging the hock-joint of the horse, and the means for attaching said parts to the horse's leg, all arranged to operate substantially as and for the purpose set forth.

4. In an apparatus for shoeing horses, the combination of supporting-frame portion adapted to be pivoted to a proper support, a cross-bar for connecting the horizontal bars of said frame and holding said bars connected at a point substantially opposite the breast of a horse when placed between said bars, sliding boxes on said frame-bars, arms pivotally attached to said boxes, the pivotal points of said arms being arranged opposite and corresponding to the joints of the horse's leg, and adapted to assume the different positions of the horse's leg, the means for locking said arms with the supporting-frame to hold the horse's leg in any desired position, and the means for securing said arms to the limb of the animal all arranged to operate substantially as and for the purpose set forth.

5. In an apparatus for shoeing horses the combination of the frame comprising the horizontal bars C C, and braces C', C², C³ and pivotally attached to a suitable support and having the cross connecting-bar E for adjustably connecting the two parts of said frame, the adjustable boxes F² having the pawls P, P, arm G² having a toothed segmental head G, arm G² and the means for adjustably connecting said arms, toothed segment J pivotally connected to the lower end of arm G², arm K pivotally connected to said segment J transversely to the pivot of said segment, pawl L, segment O pivotally connected to arm K by a universal joint, and having the laterally-extending arm for engaging the hock-joint of a horse, keeper K', pawl P' and the means for securing the said arms to the limb of an animal all arranged to operate substantially as and for the purpose set forth.

6. In an apparatus for shoeing horses the combination of the arms G², G³, curved arm I having the ratchet-teeth I', latch T having the catch V and latch W and the curved lever S having its rear end provided with a hook for engaging catch V all arranged to operate substantially as and for the purpose set forth.

7. In an apparatus for shoeing horses the combination of the arms G², G³, K and segment J, toothed segment O pivotally connected to arm K by a universal joint, and having the laterally-extending arm O⁴ for engaging the hock-joint of a horse, and the means for securing said arms to the leg of a horse, all arranged to operate substantially as and for the purpose set forth.

590,801. PROCESS OF TREATING REBELLIOUS ORES. WILFRED L. BROWN, San Francisco, Cal. Filed Nov. 25, 1895. Serial No. 570,023. (No specimens.)



Claim.—1. The process of treating ores finely divided and mixed with water, which consists in adding a suitable compound to said ores and water, which compound contains an element which has a chemical affinity for the base constituents of the ore, then passing an electric current through said material to unite the said element chemically with the base constituents and to liberate the precious metals, then circulating the material over an amalgamated surface which is not in the electrical circuit and finally returning the material again through the field of electrolytic action.

2. The process of extracting valuable precious metals from ores in which they are associated with base metals, which consists, essentially, in liberating the precious metals from their base constituents in the presence of an electric current, then passing the material over an amalgamated surface not in the electric circuit and finally passing the material back through the field of electrolytic action.

590,802. HAT-FASTENER. ANNIE J. CARLSON, St. Louis, Mo. Filed Apr. 19, 1897. Serial No. 632,573. (No model.)



Claim.—1. In a hat-fastener, combs consisting of portions rolled into tubes and forming bearings, teeth projecting from said bearings, and ears projecting from said bearings; means of pivotally attaching said combs to the lower edge of the crown of the hat and upon opposite sides, coil-springs mounted in the center of the crown, wires hinged to said ears and attached to said springs and wires attached to said springs and extending outwardly through the crown of the hat, substantially as specified.

2. In a hat-fastener, combs pivotally attached to the lower edge of the crown of the hat and upon opposite sides; each of said combs consisting of a bearing, teeth projecting from said bearing, and ears projecting from said bearing; retractile springs mounted in the center of the crown of the hat, wires hinged to said ears and attached to said springs and wires attached to said springs and extending outwardly through the crown of the hat, substantially as specified.

3. In a hat-fastener, a wire extending around the lower edge of the crown of the hat and secured in position, combs pivotally attached to said wire, retractile springs mounted in the center of the crown of the hat, wires hinged to said combs and attached to said springs and wires attached to said springs and extending outwardly through the crown of the hat, substantially as specified.

590,803. BICYCLE-LOCK. FREDERICK A. CLARRY, Toronto, Canada. Filed Feb. 15, 1897. Serial No. 623,563. (No model.) Patented in Canada Feb. 12, 1897, No. 54,969.



Claim.—1. The combination with the axle of a bicycle or like vehicle, provided with one or more sockets or keepers, of a lock comprising a casing, a spring-controlled bolt adapted to engage said socket or keeper, and a movable cap, and means for holding the bolt retracted, said means being released by said cap.

2. In a bicycle, the combination of an axle having a socket, or a plurality of sockets, a lock comprising a casing, a bolt adapted to enter the socket and arrest the revolution of the wheel, a trip-dog to engage the bolt, and hold it in its withdrawn position, a movable cap for releasing the bolt and a series of tumblers to prevent the withdrawal of the bolt except by the operating-key, substantially as specified.

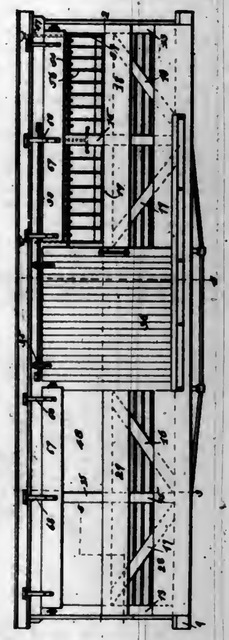
3. In a bicycle the combination of an axle having a socket, or a plurality of sockets, a lock comprising a casing, a bolt adapted to enter the socket and arrest the revolution of the wheel, a trip-dog to engage the bolt and hold it in its withdrawn position, a movable cap for the casing adapted to engage the trip-dog, a series of tumblers to prevent the withdrawal of the bolt except by the operating-key, and an elastic washer to hold the trip-dog in engagement with the bolt, substantially as specified.

4. A bicycle-lock consisting of a case, a movable bolt within the case, a trip-dog to hold the bolt in its withdrawn position, a spring to shoot the bolt when released from the trip-dog, a cap for the casing, a cam carried by the cap, adapted to engage the trip-dog and release it from the bolt, substantially as specified.

5. A bicycle-lock consisting of a case, a movable bolt within the case, a trip-dog to hold the bolt in its withdrawn position, a spring to shoot the bolt when released from the trip-dog, a cap for the casing, a cam carried by the cap adapted to engage the trip-dog and release it from the bolt, an elastic washer to hold the trip-dog in engagement with the bolt, and tumblers to prevent the withdrawal of the bolt except on the insertion of the operating-key, substantially as specified.

590,804. COMBINATION FREIGHT-CAR. STEPHEN DUNN, New Franklin, Mo. Filed Feb. 23, 1897. Serial No. 624,064. (No model.)

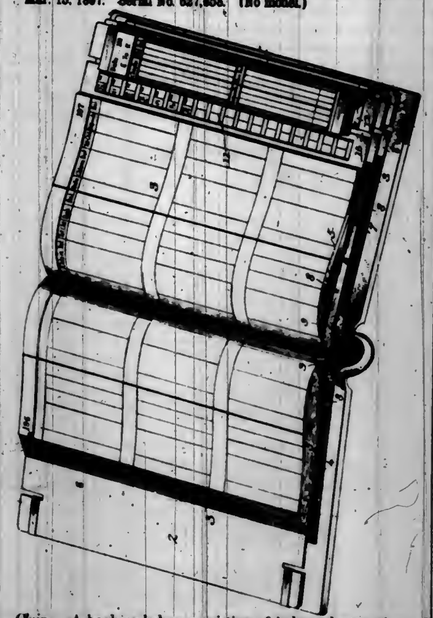
Claim.—1. In a transformable car, the timbers 46 inserted in vertical positions in the corners of the car, the folding doors 48 hinged to the timbers 46 and to swing in horizontal planes, said folding doors being constructed to fold up and swing into the ends of the car when their use is not desired, the grates 53 hinged to the timbers supporting the roof of the car and consisting of the horizontal rods 54 and 55 connected together by the vertical rods 56, and the vertical rods 57 forming the end pieces of the grates and serving as hinges, the water-troughs 59 attached to the inner sides of said grates, the rods 60, placed parallel with the rods 54, the rods 61 connecting the said rods 60 with the rods 54 thus forming a grate or hay-rack, and the chains 62 attached to the upper ends of said rods 57 and to the free ends of the side ones of the rods 61, said chains being detachable as required to allow the hay-racks to swing downwardly when it is desired to fold the grates 53 into the top of the car, substantially as specified.



2. In a transformable car, the timbers 46 inserted in vertical positions in the corners of the car, the folding doors 48 hinged to the timbers 46 and to swing in horizontal planes, said folding doors being constructed to fold up and swing into the ends of the car when their use is not desired, the grates 53 hinged to the timbers supporting the roof of the car; said grates consisting of the horizontal rods 54 and 55, the vertical rods 56 connecting said rods 54 and 55 at points intermediate of their ends, and the vertical rods 57 connecting the ends of said rods 54 and 55 and extending upwardly and hinged to the frame of the car; the water-troughs 59 attached to the inner sides of said grates, a tank mounted in the roof of the car, and pipes leading from said tank downwardly into position to discharge water into said water-troughs 59, substantially as specified.

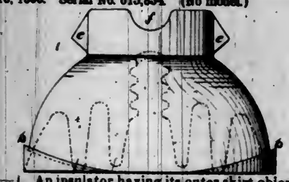
3. In a transformable car, the timbers 46 inserted in vertical positions in the corners of the car, the folding doors 48 hinged to the timbers 46 and to swing in horizontal planes, said folding doors being constructed to fold up and swing into the ends of the car when their use is not desired, the grates 53 hinged to the timbers supporting the roof of the car and consisting of the horizontal rods 54 and 55 connected together at points intermediate of their ends by the vertical rods 56, and the vertical rods 57 connecting the ends of said rods 54 and 55 and forming the end pieces of the grates and serving as hinges, the water-troughs 59 attached to the inner sides of said grates, the rods 60, placed parallel with the rods 54, the rods 61 connecting the rods 60 with the rods 54 thus forming a grate or hay-rack, the chains 62 attached to the upper ends of said rods 57 and to the free ends of the rods 61, said chains being detachable as required to allow the hay-racks to swing downwardly when it is desired to fold the grates 53 into the top of the car, the doors 67, the strap-hinges 68 connecting said doors to the eaves of the car-roof, said hinges being constructed to swing the door to a position on top of the roof when the door is open and to a position at the side of the hay-rack when the hay-rack is in position for use, substantially as specified.

590,805. BOOK. JOSEPH D. HAGAR, Chattanooga, Tenn. Filed Mar. 15, 1897. Serial No. 627,858. (No model.)



Claim.—A book or ledger consisting of independent sections of leaves, said sections being separated by stiff partitions projecting beyond the limits of the leaves of the book, each partition having near its outer edge an index, combined with pads, or their described equivalent, formed of sheets or leaves, each of which is adapted to receive a calculation or summary of entries, memoranda, balances, &c., a pad being removably attached to the outer edge of each of said partitions, substantially as set forth.

590,806. INSULATOR. FRED M. LOCKE, Victor, N. Y. Filed Dec. 16, 1896. Serial No. 615,834. (No model.)



Claim.—1. An insulator having its outer skirt oblong, and means for conducting the moisture toward its lateral extremities.

2. An insulator having a skirt constructed oblong, and means for conducting the moisture toward its lateral extremities, its top being provided with tie-wire, lugs, or bosses.

3. An insulator which is as broad or broader than it is high, and which is provided with semicircular troughs or grooves *d* extending around the periphery of the skirt, and inclining toward the points of the skirt having the greatest breadth, substantially as specified.

4. An insulator which is oval or oblong in shape, and which is as broad or broader than it is high, and which is provided with semicircular troughs or grooves *d*, extending around the periphery of the skirt and inclining toward the points of the skirt which have the greatest breadth, substantially as shown.

5. An insulator having a spread greater than its height and shaped so as to be somewhat elliptical, and provided with a groove or trough upon its periphery so as to discharge the water at the ends of the longest diameter, substantially as described.

6. An insulator having a spread greater than its height, and having its skirt provided with means for conducting the moisture toward its lateral extremities, substantially as shown.

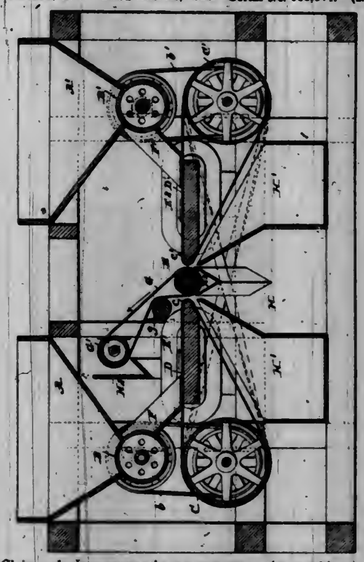
590,807. DETACHABLE FASTENER FOR DRESS-SHIELDS. GRACE HOSKINS, Brooklyn, N. Y. Filed Nov. 5, 1896. Serial No. 611,152. (No model.)

Claim.—1. A fastener for dress-shields, the same being composed of wire presenting a straight body portion wrapped from what is to constitute its extremities by coiled portions to form two cooperating springs, one end of each of said springs presenting an arm, said arms being shaped to present holding-prongs which, under the normal action of said spring-coils, will grasp and hold the arm-eye of a dress and thereby retain the shield in place, substantially as described.



2. A fastener for dress-shields, composed of wire and comprising a body portion having loops *b*, *b'*, the portions of said wire being wrapped about the body portion to form two spring-coils, the adjacent ends of the coils being laterally extended and oppositely bent toward each other at their extremities to form holding-prongs, substantially as described.

590,808. MAGNETIC ORE-SEPARATOR. LEWIS G. ROWAND, Camden, N. J. Filed Dec. 22, 1896. Serial No. 616,671. (No model.)



Claim.—1. In a magnetic ore-separator, the combination of an electric machine, a conveyer-belt traveling within and beyond the magnetic field of said electric machine, a receptacle beneath said conveyer within vertical lines through the horizontal limits of the magnetic field, and a receptacle beneath said conveyer beyond the magnetic field of said electric machine.

2. In a magnetic ore-separator, the combination of an electric machine, a conveyer-belt traveling within and beyond the magnetic field of said electric machine, a receptacle beneath said conveyer within vertical lines through the horizontal limits of the magnetic field, and a receptacle beneath said conveyer beyond the magnetic field of said electric machine, and connection between the shaft of the electric machine and the driving-pulley for said conveyer.

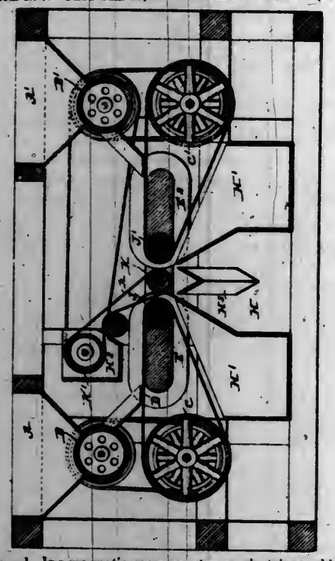
3. In a magnetic ore-separator, in combination, an electric machine, conveyer-belts each traveling partially within and beyond the magnetic field of said electric machine, a receptacle beneath said conveyers within vertical lines through the horizontal limits of the magnetic field, and a receptacle beneath each conveyer beyond the magnetic field of the electric machine.

4. In a magnetic ore-separator, in combination, an electric machine, conveyer-belts each traveling partially within and beyond the magnetic field of said electric machine, a receptacle beneath said conveyers within vertical lines through the horizontal limits of the magnetic field, a receptacle beneath each conveyer beyond the magnetic field of the electric machine, and a conveyer extending from the armature to a point beyond the magnetic field of the electric machine, and receptacles beneath said conveyer, one within, the other beyond said magnetic fields.

5. In a magnetic ore-separator, in combination, an electric machine, conveyer-belts each traveling partially within and beyond the magnetic field of said electric machine, a receptacle beneath said

conveyers within vertical lines through the horizontal limits of the magnetic field of the electric machine, and receptacles beneath said conveyers beyond the magnetic field of the electric machine, and connection between the armature-shaft and the driving-pulleys of said conveyers.

590,809. MAGNETIC ORE-SEPARATOR. LEWIS G. ROWAND, Camden, N. J. Filed Jan. 22, 1897. Serial No. 620,218. (No model.)



Claim.—1. In a magnetic ore-separator, an electric machine having double armatures, conveyer-belts each extending within and beyond the magnetic field of the electric machine, there being a space beneath said conveyers within vertical lines through the horizontal limits of the magnetic field and a receptacle beneath each conveyer beyond the magnetic field.

2. In a magnetic ore-separator, an electric machine having double armatures, conveyer-belts each extending within and beyond the magnetic field of the electric machine, there being a space beneath said conveyers within vertical lines through the horizontal limits of the magnetic field and a receptacle beneath each conveyer beyond the magnetic field, and connection between one armature and the driving-pulley of one conveyer, and between the other armature and the driving-pulley of the other conveyer.

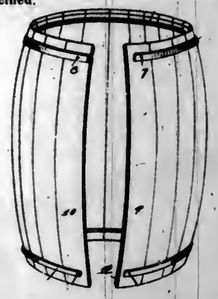
3. In a magnetic ore-separator, an electric machine having double armatures, conveyer-belts each extending within and beyond the magnetic field of the electric machine, there being a space beneath said conveyers within vertical lines through the horizontal limits of the magnetic field and a receptacle beneath each conveyer beyond the magnetic field, and a magnetic metal piece between the two armatures of the electric machines.

4. In a magnetic ore-separator, an electric machine having double armatures, conveyer-belts each extending within and beyond the magnetic field of the electric machine, a receptacle beneath each conveyer within the magnetic field, there being a space beneath said conveyers within vertical lines through the horizontal limits of the magnetic field, a magnetic metal roller between the armatures, a conveyer extending from said roller to a point without the magnetic fields, a receptacle beneath said conveyer within the magnetic fields, and a receptacle beneath said conveyer beyond the magnetic field.

590,810. KNOCKDOWN BARREL. FREDERICK W. C. SCHÄPERKÖTTER, St. Louis, Mo. Filed Mar. 29, 1897. Serial No. 629,843. (No model.)

Claim.—1. As an article of manufacture, a barrel consisting of a series of staves tapered from their centers toward both ends, said staves being assembled in a circle with the edges of their centers in contact and having the edges of their ends drawn together and pieces of band-iron attached to the ends of one of said staves and extending around said staves to the stave adjacent the first-mentioned stave and attached to the last-mentioned stave as required to allow the barrel to open on its side and form a temporary binding to hold the staves in their relative position, substantially as specified.

2. In a knockdown barrel, a series of staves tapered both ways from their centers, assembled in a circle with the edges of their centers in contact and having the edges of their ends drawn together and bands attached to the ends of one of said staves and extending horizontally around the staves to the stave adjacent the first-mentioned stave and attached to said last-mentioned stave as required to allow the barrel to open on its side and as required to hold the staves in their relative position until the barrel is set up for use, substantially as specified.



590,811. INTERIORLY-LINED PIPE. EDWARD C. STORROW, Boston, Mass. Filed Dec. 22, 1896. Serial No. 616,621. (No model.)



Claim.—Two sections *a*, *b*, of interiorly-lined pipe, and a coupling union, or fitting, and one or more interior joint-protecting thimbles *d* for the connecting-joints, which project into the interiorly-lined sections *a*, *b*, and are held in engagement with the lining thereof, to form a tight joint, and which assist in holding said lining in place, substantially as described.

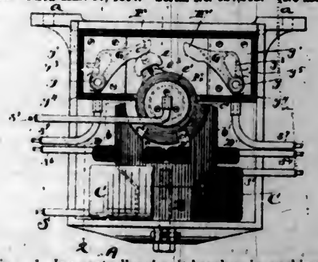
590,812. CARPET-FASTENER. ARTHUR B. WILCOX, Meriden, Conn. Filed May 18, 1897. Serial No. 637,106. (No model.)



Claim.—1. The herein-described carpet-fastener, composed of a floor member formed from sheet metal, and having a finger in one corner, and a perforated arm in the opposite corner, a locking member formed from a single piece of wire, and comprising a locking-arm at right angles to the stem, which is engaged by the arm and finger of said floor member, substantially as described.

2. In a carpet-fastener, the combination with a floor member formed from sheet metal and comprising a retaining-finger in one corner, and a perforated lug turned upward and inward from said plate, and transversely bowed, of a locking member comprising a stem and a locking-arm extending at right angles thereto, a shoulder between said arm and stem for engagement with the perforated arm of the floor member, substantially as described.

590,818. CONTROLLER CIRCUIT-BREAKER. THORSTEN VON ZWEIGBERGK, Cleveland, Ohio, assignor to the Walker Company, same place. Filed Mar. 15, 1897. Serial No. 627,592. (No model.)



Claim.—1. In a controller circuit-breaker, in combination, a magnetic switch, a controller having plates and contact-fingers adapted

to govern the current through the motor, and plates and contact-fingers adapted to govern the current through said switch, said last-mentioned plates and contact-fingers being adapted to be separated by the movement of the controller at a different time from that when the first-mentioned plates and contact-fingers are separated by said movement, whereby a shunt is established through the magnetic switch around the motor-governing contact about to be broken, which shunt continues until after said contact is broken and is then itself broken by the movement of the controller, substantially as described.

2. The combination with a motor and a magnetic switch, of a controller having coöperating contact members consisting of a series of contact-fingers and a series of contact-plates, there being provision for relative movement between said two series, conductors leading from one series to the magnet of the switch, to the contact-points of the switch and to the motor, whereby some of said contact members are adapted to govern the motor, others to govern the magnetic switch, and others to properly complete a shunt-circuit through contacts established by said switch, substantially as described.

3. The combination of a controller having contact fingers and plates adapted to come into different relations, a motor, a circuit-breaker including a magnet and armature, and a circuit extending from the controller through the magnet of the circuit-breaker and back to the controller, and then dividing and extending to the motor by two paths, one of which includes a movable part consisting of or operated by the armature of the circuit-breaker, said controller being adapted in its movement to open first the direct path to the motor, and then to electrically open the path through the circuit-breaker by means of the movement of the armature caused by an electric change in the magnet, substantially as described.

4. The combination of an electrically-operatable circuit-breaker with a controller having a series of contact-fingers and contact-plates of various lengths adapted to be engaged thereby, some of said contact-plates governing a motor and others of them the circuit-breaker, the relative length of the motor-governing plates and the circuit-breaker-governing plates being such that in the movement of the controller the motor-plate fingers and the circuit-breaker-plate fingers leave their respective plates alternately, substantially as described.

5. The combination with an electrically-operated circuit-breaker, of a controller having a series of contact-fingers arranged in a row, and a series of contact-plates secured to a body which is adapted to come into different relative positions with the contact-fingers, some of said contact-plates governing the machine to be controlled, and some the circuit-breaker, the former plates being so placed that each of their contact-fingers engage with but one plate and the several contact-fingers are adapted to leave the several plates one at a time, and the latter plates being so placed that one circuit-breaker-governing contact-finger is adapted to contact successively with at least as many plates as there are machine-controlling plates, substantially as described.

6. In a magnetic switch, a magnet-core having continuously-wound field-coils surrounding it and two pole-pieces projecting from it, armature-coils surrounding the two pole-pieces in opposite directions, and an armature oscillatably journaled in suitable relation to the pole-pieces, substantially as described.

7. In a magnetic switch, a magnet-core having continuously-wound field-coils surrounding it, and two pole-pieces projecting from it, armature-coils surrounding the two pole-pieces in opposite directions, and an armature oscillatably journaled in suitable relation to the pole-pieces, combined with a controller adapted to govern a machine by breaking contacts and adapted to change the direction of a current through the armature-coils at times which are intermediate of the governing breaks, substantially as described.

8. The combination of a circuit-breaker including two contact-pieces, an armature, and coils adapted to electrically draw the armature into contact with either contact-piece by a reversal of the current through the coils, and a controller adapted to govern a machine and cause a reversal of the current through the coils, substantially as described.

9. The combination with a controller consisting of coöperating contact members, of a circuit-breaker, including two contact-pieces, an armature, and coils adapted to electrically draw the armature into contact with either contact-piece by a reversal of the current through the coils, and conductors leading from said armature, from said contact-pieces and from said coils to contact members of the controller, whereby said controller is adapted to govern a machine, to reverse the direction of current through said coils and to complete a circuit through said armature, substantially as described.

10. The combination with a circuit-breaker of a controller having the plates U', U^2, and U^3, and the corresponding contact-fingers T', T^2, and T^3 for governing a motor, and the plates U^4, u, u', u^2 and U^5, u^3, u^4, u^5, and the corresponding contact-fingers T^4 and T^5 for governing the circuit-breaker, substantially as described.

11. The combination with a controller of a circuit-breaker interposed in a shunt-circuit around said controller, said controller having the plates U', U^2, and U^3, and the corresponding contact-fingers T', T^2, and T^3 for governing a motor, and the connected plates u^3 and U^{10} and U^5 and U^9 for completing the circuit through the circuit-breaker, and means for governing the movement of the circuit-breaker, substantially as described.

12. The combination with a circuit-breaker of a controller adapted to govern a motor and having the plates U^4, u, u', and u^2 and U^5, u^3, u^4, u^5 and the corresponding contact-fingers T^4 and T^5 for governing the circuit-breaker, substantially as described.

13. The combination with a circuit-breaker adapted to be operated by a reversal of current, of a controller adapted to govern a motor, and having the plates U^3 and the plates U^4, u, u', u^2 and U^5, u^3, u^4, u^5, said plates U^3 being electrically connected with the alternate plates U^4, u', u^2, and u^5, and said plates u, u^3, U^5 and u^4 being electrically connected together, and contact-fingers T^4 and T^5, said fingers being terminals of a circuit through the circuit-breaker, which circuit by a reversal of the current through it operates the circuit-breaker, substantially as described.

14. In a magnetic switch, in combination, the magnet-core B, the field-coil C, the pole-pieces *b* and *b'*, the armature-coils D and D', the armature E carrying the knob *e*, contact-pieces with which said knob is adapted to contact in either extreme position of the armature, and conductors connected with the contact-pieces and the knob, substantially as described.

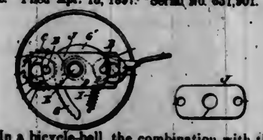
15. In a magnetic switch, in combination, an oscillatable armature carrying the knob *e*, the spring-pressed shoes F and F' with either of which said knob is adapted to contact, means for electrically oscillating the armature, and electric stops for electrically limiting the movement of the armature and providing it with a definite extreme position against movement in either direction while said armature is mechanically free to move in either direction, substantially as described.

16. In a magnetic switch, in combination, the box A, the core B and the boss e^4, the stud *e'* extending from said boss, and the pole-pieces *b* and *b'* extending from said core, coils C and D and D', and the armature E oscillatably journaled on the said stud *e'* and adapted to make and break an electric circuit, substantially as described.

17. In a magnetic switch, in combination, the box A, the core B and the boss e^4 formed integral with the walls of said box and extending inward at substantially right angles to the same, pole-pieces extending from said core, a stud *e'* extending from said boss, an armature mounted on said stud, and having a rounded end adapted to stand close to the face of the pole-pieces, and means for electrically energizing said pole-pieces, substantially as described.

18. In a magnetic switch, in combination, pole-pieces *b* and *b'* having concave faces, an oscillatable armature having a rounded end and suitably journaled with reference to said pole-pieces, means for stopping the oscillation of said armature in either direction, and thus providing an extreme position, contact-pieces with which said armature contacts in either extreme position, conductors leading from said armature and contact-pieces, and means for electrically energizing the pole-pieces and thereby making or breaking a circuit through the armature and a contact-piece, substantially as described.

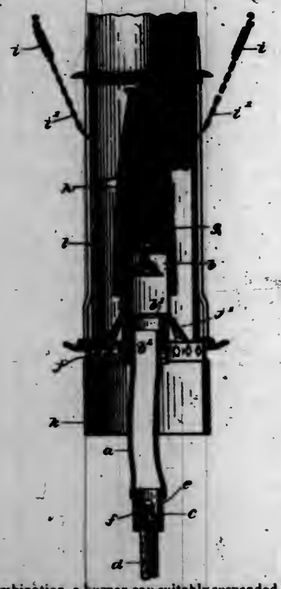
590,814. BICYCLE-BELL. IRVIN H. ABELL and GEORGE W. GOFF, East Hampton, Conn., assignors to the East Hampton Bell Company, same place. Filed Apr. 13, 1897. Serial No. 631,901. (No model.)



Claim.—In a bicycle-bell, the combination with the base, gong, and gong-stud thereof, of a carrier-plate mounted upon the gong-stud so as to rotate thereupon as upon a center, means for rotating the said carrier, pins rigidly mounted in the carrier and extending upward therefrom, pear-shaped strikers having pear-shaped openings applied over the said pins, upon which they have rebounding and swinging movement, and formed at their outer ends with integral striking-lugs which rise above their upper faces and which weight their outer ends and increase the area of their striking-surfaces and a plate-spring having perforations formed in its ends to pass over the said pins and having a central perforation to pass over the stud, and placed under tension by the engagement with it of the inner end of the hub of the gong, the ends of the said spring coacting with the inner edges of the said striking-lugs to limit the swinging movement of the strikers.

590,815. WELSBACH OR OTHER LIGHT. GEORGE B. BARROWS and WILLIAM B. BARROWS, Philadelphia, Pa. Filed July 8, 1896. Serial No. 598,375. (No model.)

Claim.—1. In combination, a burner-cap suspended by antivibration connections, a base, inlets for admitting air near the base, and a flexible tube interposed between the base and cap and operating both as a Bunsen tube and as a flexible gas connection, substantially as described.



2. In combination, a burner-cap suitably suspended by antivibration connections, a sleeve depending from said cap, a base, inlets for admitting air near the base, and a flexible tube interposed between the sleeve and base and adapted for operation both as a Bunsen tube and a flexible gas connection, substantially as described.

3. In combination a mantle or hood, a mantle-carrier, elastic supports for said mantle or hood, and a weight connected with said carrier and sustained by said supports, substantially as described.

4. In combination an antivibration incandescent or Welsbach burner, and a weight applied to said burner, substantially as described.

5. In combination a mantle or hood, a mantle-carrier, elastic supports for said mantle or hood, flexible gas connections, and a weight connected with said carrier and sustained by said supports, substantially as described.

6. In combination a gallery provided with a burner-cap and a mantle or hood, elastic supports for said gallery, a weight applied to said gallery, a sleeve depending from said burner-cap, a base, and a flexible Bunsen tube applied to said base and fitted to said sleeve, substantially as described.

590,816. RAIL-JOINT. JESSE BRADLE, Shickshinny, Pa. Filed July 10, 1896. Serial No. 598,706. (No model.)



Claim.—1. A joint for the meeting ends of railway-rails or beams having flanges adapted to engage the web of the rail or beam, portions for supporting the base of the same, said supporting portions being bent to form interlocking members, one of said members being bent in one direction, and the other member being bent in the opposite direction, and walls formed by the bending of said interlocking members with which they are adapted to engage.

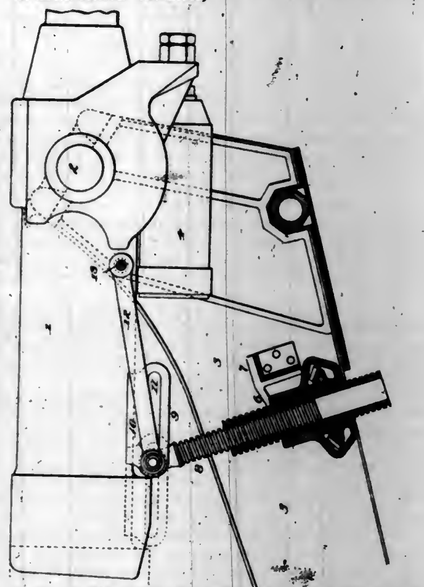
2. A joint for the meeting ends of railway-rails or beams having interlocking members, portions adapted to support the base of the rails or beams and flanges for engaging the web of the same formed integral with the interlocking members, and walls having faces inclined from end to end of the joint formed by the bending of said interlocking members and with which they are adapted to engage, the interlocking member of one section of the joint engaging the wall of the opposite section and vice versa.

3. A joint for the meeting ends of railway-rails or beams, having wedge-shaped interlocking members, flanges to engage the web of the rail or beam and portions upon which the base of the same may rest formed integral with the interlocking members, and webs connecting the portions supporting the base of the rail or beam and the interlocking members whereby a wedge-shaped space is formed in each interlocking section of the joint adapted to receive the wedge-shaped interlocking members, whose inclined faces engage the inclined faces of the connecting-web.

4. An interlocking-joint for the meeting ends of railway-rails or beams having flanges to engage the web of the rails or beams and the base of the same, each section of the joint having a wedge-shaped interlocking member, and webs connecting the interlocking members with the flanges of the joint-sections and forming wedge-shaped spaces for the reception of said members, the sections of the joint when fitted together leaving a space between the side walls of the interlocking parts allowing for longitudinal adjustment of the joint to lock it to the rails.

5. The combination in a joint for the meeting ends of railway-rails or beams, of the flanges A and B adapted to webs of the rails or beams, portions supporting the base of the rails and interlocking members A', B' formed integral with said flanges, said interlocking members having inclined faces and webs also inclined from end to end adapted to engage one with the other, with bolts for securing the joint to the rails, one of the joint-sections having elongated openings in its flange to allow for longitudinal adjustment without removing said bolts.

590,817. ELEVATING-GEAR ATTACHMENT. WILLIAM H. BEVANS, Washington, D. C. Filed Aug. 3, 1896. Renewed Aug. 21, 1897. Serial No. 649,074. (No model.)



Claim.—1. The combination with a gun and its carriage, of elevating-gear having direct connection with a part fixed to and moving with the gun and means connecting the gear, at its connection with the gun, with the gun-carriage, so that in whatever position the elevating-gear may be, the gun will be free to recoil within the carriage without thereby affecting either its angle of elevation or the initial position of the elevating-gear.

2. The combination, with a gun-carriage and a gun adapted to recoil within the latter, of an elevating-gear, connected directly to the trail-cheeks of the carriage back of the gun-trunnions and to a slotted part fixed to the body of the gun at its breech, for operation in the way described.

3. In operating guns and in combination with a gun carriage and a gun adapted to recoil within the carriage, an elevating-gear having a direct pivotal connection with a slotted fixed projection of the gun and in advance of such connection a fixed pivotal connection with the carriage

4. In operating guns and in combination with an elevating-gear the adjusting member whereof has a fixed connection with the body

of the carriage and a direct connection with the gun, a guideway for such direct connection fixed to the gun whereby the latter is free to move back and forth over and upon the said elevating-gear, in the way described.

5. In operating guns, and in combination with the gun and its carriage or mounting and an elevating-gear a fixed connection between the elevating-gear thereof and the body of the carriage and a direct connection with the gun, a guideway for such direct connection consisting of slotted brackets fixed to the gun and a pivoting-bolt passing through said slots and connecting the elevating-gear with the said carriage connections and with the gun.

6. In operating guns and in combination with an elevating-gear, brackets fixed to the gun in the length thereof and having horizontal slots, a pivoting-bolt passing through said slots and an eye in the head of the adjusting member of said gear, and a bar or rod on each side of the gun connecting said pivoting-bolt and having fixed pivoting connection with the carriage between the recoil-slide trunnions and the said brackets for operation in the way described.

7. In combination with a gun and its carriage or mounting and elevating-gear pivotally mounted in the carriage, a device for directly connecting the said gear with the gun and with the carriage consisting of a slotted guideway on the gun, a pivotal connection for said guideway and gear, and bars or rods connecting said guideway pivotal connection with the carriage arranged approximately at right angles to the axis of the elevating member of the gear

8. In operating guns, the combination with the gun and the main body of the carriage, of elevating-gear and a guideway connecting the gear with the gun, and consisting of a slotted projection secured longitudinally to the breech of the gun, and bars or rods arranged to connect the gear to the guideway and to the body of the carriage in advance of the guideway.

9. In gun mechanism and in combination with the gun and a carriage or mounting therefor, an adjusting-gear for vertical sighting of the gun having a sliding connection with a part fixed to and moving with the gun, said connection holding the gun from vertical movement in firing while allowing it to slide freely longitudinally and means for pivotally connecting the said gear at its holding connection with the gun and to the cheeks of the trail, whereby the gun is free to slide directly upon its gear connection without changing its initial position.

10. In operating ordnance, a gun having a fixed external breech attachment, and a carriage, in combination with elevating-gear having a sliding connection with the said attachment of the gun and separate side-parts connecting said gear and gun connection with the carriage, the said gun and gear connection being adapted to hold the gun from vertical movement and to allow the said fixed breech attachment to slide upon the gear.

590,818. LOCK. CHARLES J. BLACKBURN, Bethany, Mo. Filed Aug. 25, 1896. Serial No. 603,894. (No model.)



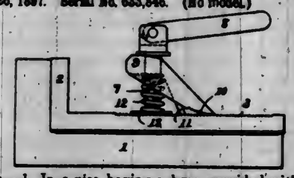
Claim.—A combined lock and catch consisting of a suitable casing; a bolt provided with an extended shank terminating in a catch; a shaft seated in said shank and catch and adapted to have a longitudinal movement therein, the hook on said shaft being adapted to hold said catch in engagement with its keeper, substantially as described and for the purpose set forth.

590,819. SCHOOL-DESK ATTACHMENT. GEORGE W. BOYD, Scipio, Ind. Filed Feb. 23, 1897. Serial No. 624,619. (No model.)



Claim.—As an improved desk attachment, the combination with the desk, of the slate-frame hinged at its lower end to the front edge of the desk, said frame being disposed at one end of the desk and having a book supporting ledge at the lower end, a guide or loop 7 secured to the desk, a pendent rack member pivoted to the slate-frame having a spring 8 for normally holding it in contact with the guide, and a handle member 9, and a laterally-adjustable book-clamp secured to the other end of the frame, said clamp consisting of a single spring-wire member having a central upturned U-shaped loop, spring-coils 12, slide members 13 and stops 15 the slate-frame having eyes 14 to receive said members 13, all being arranged substantially as shown and for the purposes described.

590,820. VISE. RICHARD A. BREUL, Bridgeport, Conn. Filed Apr. 26, 1897. Serial No. 633,846. (No model.)



Claim.—1. In a vise having a base provided with a fixed jaw and ratchet-teeth, the combination therewith of a rocking loose jaw, inclined toward the fixed jaw and means to force the face of said loose jaw both downward and toward the fixed jaw.

2. A vise consisting of the base having a solid jaw, a loose slidable inclined and swinging jaw having a segmental row of teeth engaging corresponding teeth on the base of the vise and means for forcing said movable jaw downward in a course toward said fixed jaw.

3. In a vise of the class described, the combination of a base having a fixed jaw and ratchet-teeth, a loose jaw provided with a loose convex resting-surface, containing a series of teeth for engagement with corresponding teeth on the surface of the base aforesaid, said jaw being held to the base, and operated by a screw passing through it, a slot in the base and a nut under the same substantially as described.

4. A vise having a base provided with a fixed jaw, a loose rocking jaw inclining from the base toward the solid jaw, means to hold and retain said loose jaw in any desired position on the base, a screw for forcing its operative face simultaneously toward the fixed jaw and base of the vise, substantially as described.

5. A vise having a base provided with a fixed jaw, a movable loose jaw inclining upward and toward the fixed jaw, and adapted to be forced toward said fixed jaw by means of a screw provided with a nut sliding in the base and held in balance and against the head of said screw by a spring, substantially as described.

590,821. HARVESTING-MACHINE. THEODORE H. BROWN, Viroqua, Wis. Filed Nov. 14, 1895. Serial No. 568,941. (No model.)



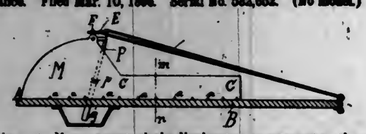
Claim.—1. In a harvesting-machine, the combination with the frame having extensions with cogged segments, and the apron-frame having similar segments, of the shaft, the pinions mounted thereon engaging with said segments, and the links pivoted to the frames concentric with said segments, substantially as described.

2. In a harvesting-machine, the combination with the frame having extensions with cogged segments and the apron-frame having similar segments, of the shaft, the pinions mounted thereon engaging with said segments and links pivoted to the frames concentric with said segments, substantially as described.

3. In a harvesting-machine, the combination with the frame having extensions with cogged segments, the apron-frame having similar segments, the shaft, the pinions mounted thereon, engaging with said segments and the links pivoted to the frame concentric with the segments, and means connected with said shaft and with the outer end of said frame, for elevating and lowering said end by the rotation of said shaft, substantially as described.

4. In a harvesting-machine of the character described, the combination with the frame, of the cogged rim having a V-shaped track, the grooved wheel, the cog-wheel and pinion, of the annular Z-shaped ring secured to said rim at each edge, and the stationary semicircular plates having their edges bent and engaging with said rings, substantially as described.

590,822. PYROTECHNIC SIGNAL. CHARLES BRUNOT, Paris, France. Filed Mar. 10, 1896. Serial No. 582,662. (No model.)



Claim.—1. For a pyrotechnic-display toy or apparatus, the combination with a rack provided with teeth and adapted to be employed as a projecting medium, of a ribbon comprised of suitable combustible paper coiled spirally upon a suitable core not attached to said rack, and of a projecting ribbon coiled with the first ribbon and near the end thereof, and adapted to catch in the teeth of the rack whereby, by the throwing out of the serpentine coil its ribbon is caused to unwind, substantially as described.

2. For a pyrotechnic-display toy or apparatus the combination with a bar adapted to act as a base for, or medium of projection, of a spirally-coiled combustible ribbon adapted to be uncoiled, when, having been placed upon the aforesaid bar, one end of the said ribbon being held fast thereto, the coil is projected and unwound by a rapid jerk of the bar, substantially as described.

3. For a pyrotechnic-display toy or apparatus the combination with a bar adapted to act as a base for, or medium of projection, said bar being provided with teeth, notches or other means of rough friction, of a spirally-coiled combustible ribbon adapted to be uncoiled, when, having been placed upon the aforesaid bar, one end of the said ribbon being held fast thereto, the coil is projected and unwound by a rapid jerk of the bar, substantially as described.

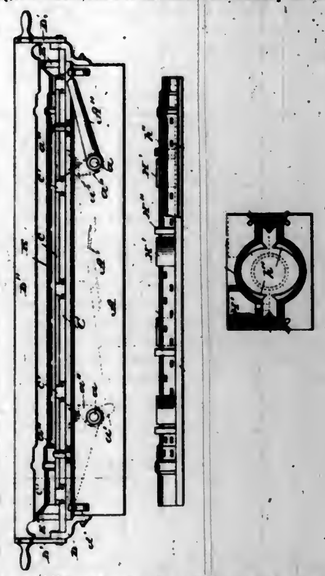
4. For a pyrotechnic-display toy or apparatus, the combination with a rack provided with teeth and adapted to form a base of projection, of suitable mechanism for imparting a projecting impulse and a spirally-wound combustible ribbon adapted to be projected from said base by the projecting mechanism, whereby the spiral coil is simultaneously projected and unwound, substantially as described.

590,823. APPARATUS FOR MANUFACTURING SOIL-PIPES. ROBERT CAMPBELL, Gadsden, Ala., assignor of one-half to William H. Weller, same place. Filed Feb. 4, 1897. Serial No. 622,030. (No model.)

Claim.—1. In a molding apparatus, the combination with a pattern-frame having upwardly-projecting pins, a movable bed-plate with guide-lugs, a pattern carried by a pattern-support, of sand-strips which engage with the bed-plate and lugs thereof, a casing or section of a flask having side flanges with guide-openings through which the projecting pins of the pattern-frame pass, and means for connecting to the casing the sand-strips for the purpose set forth.

2. In a molding apparatus for forming green-sand molds in which the article is cast, the combination with the molding and compressing means substantially as shown, of a cope having a raised portion above the pattern and side flanges, said raised portion and side flanges having vent-holes, a series of transverse braces with straight upper edges and a series of gate-pockets the upper edges of which are disposed so as to be below the upper edges of the transverse braces for the purpose set forth.

3. In an apparatus for preparing green-sand molds, the combination with a vertically-movable pattern-support, a press-head supported so as to be swung in and out of line therewith, a pattern carried by the pattern-support, a sand-strike connected to the pattern-support and movable manually over the pattern, sand-strips carried by a bed-plate, the sections of the flask having a series of transverse braces with straight upper edges, and means for connecting the sand-strips to the edges of the section of the flask substantially as shown.



4. In a molding apparatus, the combination of a vertically-movable frame, a pattern carried thereby, a press-head mounted so as to be swung in or out of line with the pattern-support, a hopper mounted above the pattern-support and a sand-sifter above the hopper to provide means for delivering sand upon the pattern; together with a compression-casing which forms a part of a flask, said compression-casing having transverse braces for engagement with the press-head and projecting portions upon the edges thereof together with sand-strips which are carried by the bed-plate of the pattern-support and means for connecting the aforesaid sand-strips to the compression-casing, substantially as shown and for the purpose set forth.

5. In combination with a pattern-frame having a movable bed-plate, and a fixed pattern-support, of a sand-strike carried by the frame, arms for guiding the same over the pattern, said arms being connected to the support to permit the strike being moved below and to one side of the bed-plate, substantially as shown.

6. In combination with a suitably-supported pattern-frame, a pattern carried thereby and provided with guides, of a sand-strike connected to the frame so as to be movable, pivotally and laterally, with respect to the pattern, and brackets attached to the frame to support the strike, substantially as shown.

7. The combination with a pattern-frame and pattern supported thereon, of a horizontally-slotted bracket; strike-holders which engage with said bracket and a strike pivotally carried by the holders, substantially as shown.

8. In combination with a frame having a fixed pattern-support, plates with horizontal slots secured to the end of the frame, and side projecting brackets, of a strike carried by holders which engage with the slots in the plates, substantially as shown and for the purpose set forth.

9. In a molding-machine, the combination of a fixed pattern-support, of a movable bed-plate provided with an opening for the pattern and having at intervals upwardly-projecting lugs, together with sand-strips carried by the bed-plate to one side of the pattern so that the outer edges thereof, will abut against the projecting lugs, substantially as shown.

10. In combination with a flask or compression-casing provided with side flanges having perforations therein, of set-screws carried loosely by said flanges together with sand-strips having threaded apertures with which the set-screws engage for the purpose set forth.

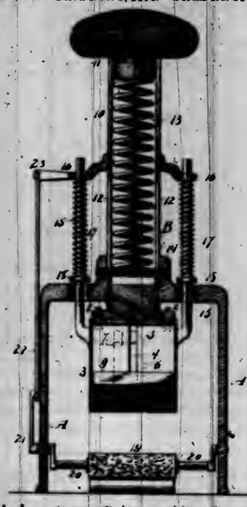
11. The combination with a compression-flask having a gate-pocket of a gate-pin constructed as shown, said pin having a tubular and longitudinally-tapered lower section, and an upper section which carries a spring-dowel for engagement with the bore of the lower section of the pin.

12. In an apparatus for molding soil-pipe, the combination with

compressing mechanism upon which a pattern frame and pattern are mounted, of a hopper and sieve positioned above the same, a press-head movable in and out of line with the pattern-frame, together with a sand-strike carried by the pattern-frame, a flask or compression-casing adapted to engage with the press head, and means carried by the pattern-frame to raise the compression casing or flask and mold from the pattern, the parts being organized substantially as shown.

13. A cope or part of a compression-casing having a central convex portion and side flanges, each part having a series of vent-holes, a series of transverse braces with straight upper edges and gate-pockets between the braces, the upper edges of which are below the upper edges of the braces, the side flanges having depending portions on their under sides which form shoulders and means for connecting thereto sand-strips, having shoulders and beveled inner ends, the inner sides of the convex portions having sand-ribs which project on a line with the shoulders on the lower edge of the under sides of the casing, substantially as shown.

590,824. STAMP-AFFIXING MACHINE. WILLIAM A. CARNEY, Santa Paula, Cal. Filed Nov. 5, 1896. Serial No. 611,096. (No model.)



Claim.—1. In a stamp-affixing machine, the combination with a frame or body portion, and a spring-actuated plunger sliding up and down therein, of a removable stamp-magazine, devices for detachably connecting it to the plunger and springs connected with the magazine for retaining it yieldingly in position relative to the plunger when the latter operates to slide in the magazine.

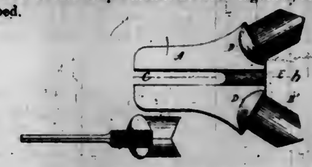
2. In a stamp-affixing machine, the combination with a frame or body portion, and a plunger having projections thereon, of a stamp-magazine having vertical slots out through which the projections extend and through which they slide, and spring-actuated latches normally closing the slots in the magazine and projecting beneath the stamps, said catches inclined at their upper edges whereby they are caused to open or swing aside as the projections on the plunger engage them.

3. In a stamp-affixing machine, the combination with a frame or body portion, and a plunger operating therein, of a stamp-magazine detachably connected with the plunger and in which the plunger slides, said magazine having rods which pass loosely through a collar on the plunger-rod, and springs which bear on the collar.

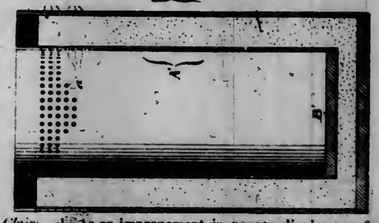
4. In a stamp-affixing machine, the combination with a frame or body portion, a plunger, a stamp-magazine suspended on the plunger, said magazine having rods which extend loosely through a collar on the plunger, and springs surrounding these rods and bearing downwardly upon the rods and upwardly upon the collar, of a rocking stamp moistener, and means extending from the collar to the moistener to rock the latter over as the plunger is depressed.

590,825. FITTING FOR CYCLES. ROBERT G. CORNFORTH, Seymour, Conn., assignor of one-half to Frank H. Beecher, same place. Filed Apr. 3, 1897. Serial No. 630,551. (No model.)

Claim.—The herein-described fitting for cycles, consisting of a plate, tubular screw-bearing and tubular frame-supports formed from a single strip of sheet metal, sections of each member formed at opposite ends of said strip which is doubled together, substantially as described.



590,826. POROUS DIAPHRAGM FOR ELECTROLYTIC APPARATUS. JAMES D. DARLING, Philadelphia, Pa., assignor to John Harrison, Thomas S. Harrison, and George L. Harrison, same place. Filed Oct. 21, 1896. Serial No. 609,535. (No model.)

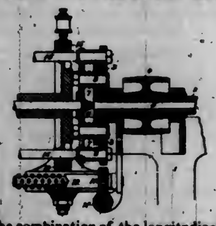


Claim.—1. As an improvement in porous diaphragms for electrolytic apparatus, the combination, with a support, of a granular filling consisting principally of a vitrified oxid or oxids, substantially resistant to combination or fluxing by a fused hydroxid or other above-specified compound under the conditions of electrolysis, substantially as set forth.

2. As an improvement in porous diaphragms for electrolytic apparatus, the combination, with a support, of a granular filling consisting principally of vitrified magnesia, substantially as set forth.

3. As an improvement in porous diaphragms for electrolytic apparatus, the combination, of a pair of cylindrical, perforated supports, arranged with an interspace between them; bases for said supports; an intermediate granular filling consisting principally of vitrified magnesia arranged in the interspace between said supports; and an annular top of cement above said filling, substantially as set forth.

590,827. TWISTING-MACHINE. EDMUND DAWES and ROBERT DAWES, Philadelphia, Pa. Filed Jan. 23, 1896. Serial No. 576,597. (No model.)



Claim.—1. The combination of the longitudinal rod of the winding-flier, the traverse-frame, a thin guide-ring engaging with a groove in said traverse frame and having inwardly-projecting lugs, and a shoe extending longitudinally from said thin guide-ring and having a bearing on the longitudinal rod of the flier, said shoe having projecting lugs secured to those of the guide-ring, substantially as specified.

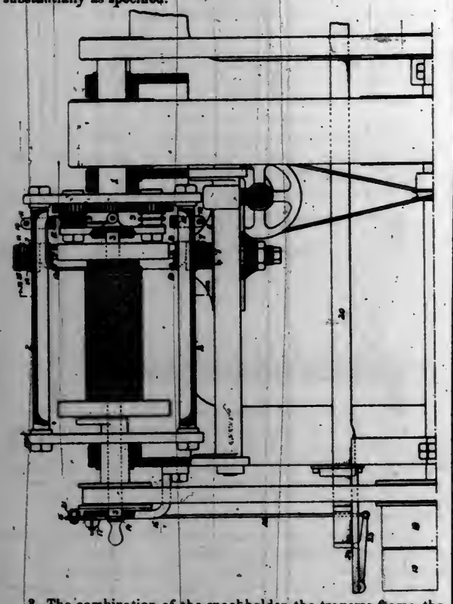
2. The combination of a longitudinal rod of the winding-flier, the traverse-frame, a ring adapted to a groove in said traverse-frame, a shoe engaging with the flier-rod, and a hollow bolt serving as a means of securing said shoe to the guide-ring, and as a guide for the rope, cord, or strand which is being formed, substantially as specified.

590,828. TWISTING AND WINDING MACHINE. ROBERT DAWES, Philadelphia, Pa., assignor of two-thirds to Edmund Dawes, same place, and Edward H. Haskell, Boston, Mass. Filed Dec. 26, 1896. Serial No. 617,041. (No model.)

Claim.—1. The combination in a winding-machine, of a spool-holder, the flier having a bar with recess in its inner side, and a shoe sliding along the inner side of said bar, and having a curved lip for directing the rope or cord from the recessed bar of the flier onto the spool, substantially as specified.

2. The combination in a winding-machine, of a spool-holder, a

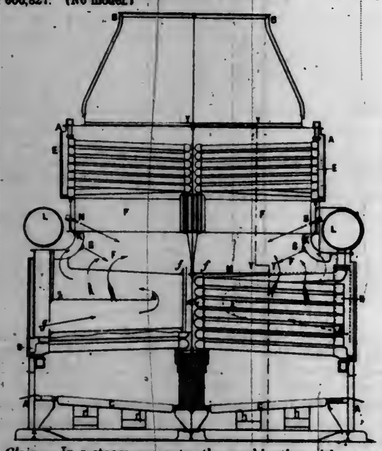
flier having a bar with recess on its inner side, a traversé-frame having a shoe with curved lip for directing the rope or cord toward the spool, and a bearing-block for receiving the cord or rope from the draft-capstan and directing it through the grooved bar to the shoe, substantially as specified.



3. The combination of the spool-holder, the traverse-frame, the ring adapted to a groove or recess therein, the longitudinal bar of the flier recessed on the inner side, a shoe secured to the traverse-ring and engaging said bar, said shoe having a curved or rounded lip, and a block secured to the flier-bar and serving to direct the rope or cord to the shoe on the traverse-ring, substantially as specified.

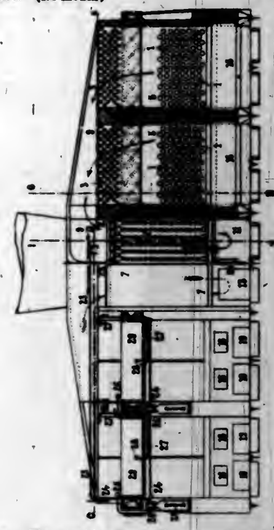
4. The combination of the recessed annular traverse-frame, the flier-frame, and the ring rotating therewith and adapted to the recess of the annular traverse-frame, said ring having lateral flanges extending completely around the same close to the inner face of the annular traverse-frame, substantially as specified.

590,829. STEAM-GENERATOR. LOUIS MARIE GABRIEL DELAUNAY-BELLEVILLE, Paris, France. Filed Sept. 24, 1896. Serial No. 606,827. (No model.)



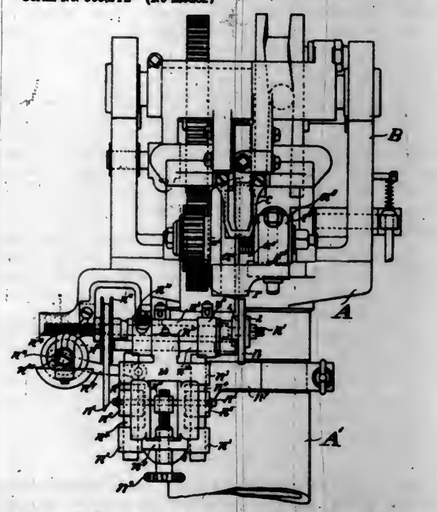
Claim.—In a steam-generator the combination with economizer-tubes E, located at the upper part of the generator, of generator-tubes D, above the fire-chamber, a mixing and combustion chamber F between the economizer-tubes and the generator-tubes, vertical hot-air pipes G having apertures *g* for the entrance of outside air, said pipes being near the front portions of the generator-tubes, and means for forcing air from the exterior into the mixing and combustion chamber, under pressure, and for heating said air on its way to said chamber, substantially as described.

590,830. FEED-WATER HEATER. LOUIS MARIE GABRIEL DELAUNAY-BELLEVILLE, Paris, France. Filed Feb. 20, 1897. Serial No. 624,365. (No model.)



Claim.—The combination with a plurality of boilers and boiler-furnaces, and a smoke-flue common to all of them, of two sets of feed-water heaters or economizers, one set being arranged over the boilers and the other set in the smoke-flue, and an auxiliary or supplemental gas-combustion chamber interposed between the two sets of feed-water heaters or economizers, substantially as described.

590,831. WELT-SEAM-TRIMMING MACHINE. ZACHARY T. FRENCH and WILLIAM C. MEYER, Boston, Mass. Filed May 27, 1896. Serial No. 593,244. (No model.)



Claim.—1. In a welt-seam-trimming machine, a grinding-wheel, its shaft, a supporting-frame for said shaft having a bearing in which it is free to rotate, a frame constructed and arranged to receive and support said shaft-supporting frame having rods upon which said

shaft-supporting frame is free to slide in the direction of the length of the shaft, means for rotating said shaft, and means for moving its supporting-frame back and forth, to thereby rotate the grinding-wheel and cause it to automatically travel back and forth across the beveled cutting edge of the trimming-knife, substantially as described.

2. In a welt-seam-trimming machine, a grinding-wheel, its shaft, a supporting-frame for said shaft having a bearing in which it is free to rotate, a frame constructed and arranged to receive and support said shaft-supporting frame having rods upon which said shaft-supporting frame is free to slide in the direction of the length of the shaft, means for vertically adjusting said frame, means for rotating said shaft, and means for moving its supporting-frame back and forth, to thereby rotate the grinding-wheel and cause it to automatically travel back and forth across the beveled cutting edge of the trimming-knife, substantially as described.

3. In a welt-seam-trimming machine, a grinding-wheel, its shaft, a supporting frame for said shaft having horizontal holes through it, a frame having horizontal rods upon which said shaft-supporting frame slides, a belt-pulley n^{13}, fixed to said shaft, a worm n^{14}, formed on or secured to said shaft, worm-wheel n^{15}, bearings therefor attached to the shaft-supporting frame, a crank-pin on said worm-wheel, a link n^{17}, connected at one end with said crank-pin and at the other end with a fixed point, whereby said grinding-wheel is rotated and moved back and forth beneath and across the beveled cutting edge of the trimming-knife, substantially as described.

4. In a welt-seam-trimming machine, a grinding-wheel, its shaft, a supporting-frame for said shaft having a bearing in which it is free to rotate, a frame constructed and arranged to receive and support said shaft-supporting frame having rods upon which said shaft-supporting frame is free to slide in the direction of the length of the shaft, a clamp-like ring embracing the column of the machine, having vertical rods upon which said frame is vertically adjustable, means for rotating said shaft, and means for moving its supporting-frame back and forth, to thereby rotate the grinding-wheel and cause it to automatically travel back and forth across the beveled cutting edge of the trimming-knife, substantially as described.

5. In a welt-seam-trimming machine, a crown-knife having a flaring flange and two work-supports as *c* and *r*, located a short distance apart to receive the welt-seam between them, said knife working in and across said space, the work-support *r* being located in front of said knife and made adjustable in and out, substantially as described.

6. In a welt-seam-trimming machine, a crown-knife, having a flaring flange and two work-supports as *c* and *r*, located a short distance apart to receive a welt-seam between them, said knife working across said space, the work-support *r* being adjustable in a vertical line toward and from the work-support *c*, substantially as described.

590,832. INSULATOR. FRED R. GRIMM and JOHN H. NIEBLER, Quincy, Ill. Filed Jan. 4, 1897. Serial No. 617,940. (No model.)



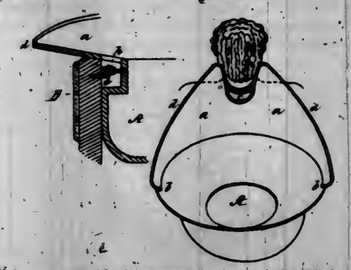
Claim.—1. An insulator provided in its top with a transverse sigmoidal wire-receiving groove having downwardly-convergent side walls formed with a plurality of upright channels, substantially as set forth.

2. An insulator provided in the top thereof with a deep vertical sigmoidal wire-receiving groove having downwardly-convergent side walls converging in a direction toward the vertical center of the insulator-body, substantially as set forth.

3. An insulator provided in the top thereof with a vertical transverse wire-receiving groove having a sigmoidal curvature and downwardly-convergent side walls, the vertex or base of the grooves declining in opposite directions toward the ends thereof, substantially as set forth.

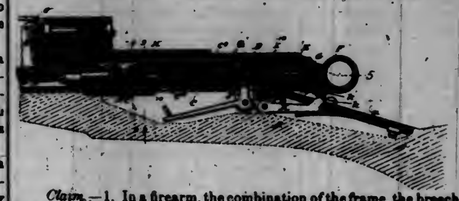
4. An insulator provided in the top thereof with a deep vertical sigmoidal wire-receiving groove having downwardly-convergent side walls formed with a plurality of upright channels, the vertex of the groove declining in opposite directions, and the central portion of one of the walls being rounded and projected above the plane of the top edge of the opposite wall, substantially as set forth.

590,833. PORTABLE SHAMPOOING-BASIN. JAMES H. HAINES, Tampa, Fla., assignor, by direct and mesne assignments, of nine-sixteenths to Charles Griffin and Jerry M. Certain, same place. Filed June 12, 1896. Serial No. 595,207. (No model.)



Claim.—A portable shampooing-basin consisting of a bowl A having inclined guide-wings *a a* with upturned flanges *d d*, whose lower terminals *b b* project inside the line of the upper edge of the bowl, the top of the outside of the front of the latter being cut away and provided with screw-eyes *h h* and the lower, outside of the front of the bowl having a projecting flat surface to form a bearing against and in combination with the back of a chair having pintles *e e* to register with the screw-eyes *h h*, constructed and arranged to operate substantially as described.

590,834. MAGAZINE BOLT-GUN. JOSEPH HANSON, Crystal Falls, Mich., assignor of three-fourths to A. M. Daring and S. J. Murphy, trustees. Filed Nov. 6, 1896. Serial No. 611,291. (No model.)



Claim.—1. In a firearm, the combination of the frame, the breech-bolt mounted on the frame and having a limited rotary movement and provided at its rear end with a flange having cut-out portions, the guide-piece having hook members to pass through the cut-out portions of the flange and engage the latter, the firing-pin, and the cocking-head, substantially as described.

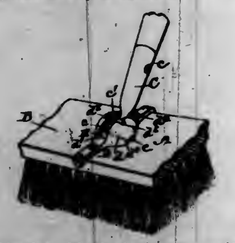
2. In a firearm as described, the combination with the frame and the receiver, said frame having a slotway c^3 and a seat c^4 at the rear end, of the bolt D, held for a limited rotary movement in the receiver, and having a handle D′ and a flange *d* on its rear end having cut-out portions *d′*, the guide-piece E having hook members *e* to pass through the cut-out portions *d′* and engage with the flange *d*, the cocking-head F and the firing-pin all arranged substantially as shown and for the purposes described.

3. The combination with the frame, having a bolt-receiving bore, and an enlarged or cartridge-receiving chamber, said chamber having a shell-passage in the top, and a slideway above the bore, said slideway having its front inclined, of the breech-bolt, the cocking-head guide and the firing-pin, the extractor held to slide on the slideway and having its front end projected downward to engage the incline of the slideway, said extractor being secured at the rear end to the guide, and an ejector device operated by the backward movement of the bolt to force the shell up out of the cartridge-chamber as set forth.

4. In a breech-loading firearm, the combination with the receiver, a slideway thereover having an inclined forward face, the cartridge-chamber having a shell-passage in the top, and an ejector device operating from below, of the breech-bolt, the cocking-head and the firing-pin, a detachable guide-piece carried on the rear end of the bolt, a dust guard slidable over the cartridge-chamber secured to the said guide-piece, and a shell-extractor secured to the guide-piece movable on the slideway having at its forward end a hook to engage the shell, and an inclined portion adapted to engage the incline of the slideway to disengage the extractor from the shell, all being arranged as shown and for the purposes described.

590,835. SLIP-JOINT FOR SCRUB-BRUSHES. AUGUSTUS HARTZO and CHARLES E. SHECKLER, Catasauqua, Pa. Filed Mar. 19, 1897. Serial No. 628,342. (No model.)

Claim.—1. A slip-joint for scrubbing-brushes comprising in its construction a housing provided with a central upwardly-extending hollow portion having a longitudinal slot and transverse notches, in combination with a ferrule or handle-receiving socket provided at its lower end with an elongated concaved portion, adapted to be passed through the transverse notches so as to engage the under side of the housing, substantially as described.



2. In combination with the back of a scrubbing-brush, a slip-joint comprising in its construction a housing provided with a central upwardly-extending hollow portion having a longitudinal slot and transverse notches, a ferrule or handle-receiving socket provided at its lower end with an elongated concaved portion adapted to be passed through the transverse notches so as to engage the under side of the housing, and a semispherical bearing portion arranged beneath the central hollow portion of the housing with a space between the same to admit of the free movement of the concaved portion of the lower end of the handle-receiving socket and means for securing the housing to the back of the brush, the construction and arrangement being such that the handle-receiving socket can be removed from the housing without the handle being turned into an approximately horizontal position and the concaved portion passed through the transverse notches, substantially as described.

3. In combination with the back of a scrubbing-brush a slip-joint comprising in its construction a housing provided with a central upwardly-extending hollow portion having a longitudinal slot, upper transverse notches and lower transverse notches, end extensions having downwardly-extending flanges or shoulders which fit over the edges of the back of the brush, a ferrule or handle-receiving socket provided at its lower end with an elongated concaved portion adapted to be passed through the upper transverse notches so as to engage the under side of the housing, and a semispherical bearing portion having lugs which rest in the lower transverse notches and arranged beneath the central hollow portion of the housing with a space between the same to admit of the free movement of the concaved portion on the lower end of the handle-receiving socket and means for securing the housing to the back of the brush, substantially as described.

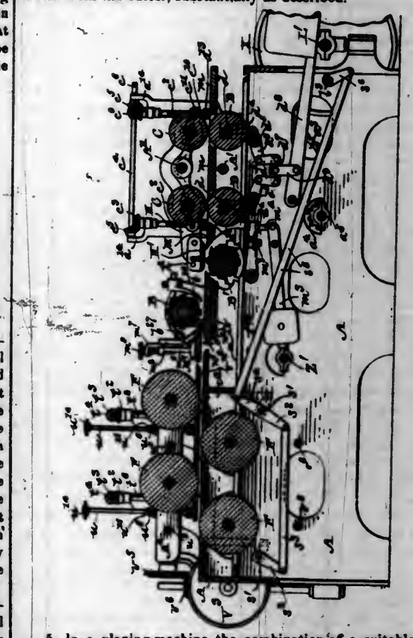
590,836. DOUBLE PLANER AND SANDER. ELI B. HAYES, Oshkosh, Wis. Filed July 17, 1896. Serial No. 599,540. (No model.)

Claim.—1. In a planing-machine organized to plane both sides of lumber at one operation, the combination with a suitable frame, of a lower planer, lower feeding-rollers capable of vertical movement, shafts mounted in said machine parallel with the said feed-rollers, links connecting said rollers with said shafts and a weighted lever connected to said links whereby said rollers are adapted to be held against the lumber under yielding pressure and to have a movement parallel with said shafts, an upper planer and upper adjustable feed-rollers normally rigid against vertical movement, substantially as described.

2. In a planing-machine the combination with a suitable frame, of upper and lower planers, upper feed-rollers and lower feed-rollers, lower sanding-rollers, a frame mounted above the lower sanding-rollers, upper sanding-rollers mounted in said frame, an upper pressure-plate below said rollers also mounted upon said frame and means for adjusting the upper rollers and the said pressure-plate simultaneously by hand, substantially as described.

3. In a planing-machine, the combination with a suitable frame, of upper and lower planers, upper feeding-rollers, lower feeding-rollers vertically movable under tension, an upper chip-breaker movable under tension and pivoted to one side of the said cutter whereby the same is adapted to recede from the cutter upon being pressed upwardly, a chip-breaker for the lower cutter pivotally mounted in the frame below the cutter whereby upon pressing said chip-breaker downwardly its edge is caused to recede from the cutter, substantially as described.

4. In a planing-machine the combination with a suitable frame, of upper and lower planers, upper feeding-rollers, lower feeding-rollers vertically movable under tension and a chip-breaker for the lower cutter pivotally mounted in the frame below said cutter whereby upon pressing said chip-breaker downwardly its edge is caused to recede from the cutter, substantially as described.



5. In a planing-machine the combination of a suitable frame, upper and lower planers, an upper chip-breaker for the upper planer, and a lower chip-breaker pivotally mounted below the lower cutter, a shaft parallel with the said chip-breaker mounted in the frame, weighted levers keyed to said shaft and connected to said chip-breaker whereby the same is adapted to have a movement always parallel with the said shaft, upper and lower feed-rollers and means for adjusting the same, substantially as described.

6. In a planing-machine the combination with a suitable frame, of feeding-rollers, upper and lower planers, a pressure-plate below the upper planer comprising a base, a plurality of surface strips detachably applied thereto whereby its width may be varied at will and means for raising and adjusting the outer strips up or down to accommodate various forms of material to be planed, substantially as described.

7. In a planing-machine the combination with a suitable frame of feeding-rollers, upper and lower planers, chip-breakers for each planer pivotally mounted in the frame in such a manner as to cause the same to recede from the planers upon pressure, a shaft mounted in the frame below the lower chip-breaker, weighted levers keyed to the said shaft upon each side of the machine and connected to said lower chip-breaker whereby the same is adapted to have a movement parallel with the said shaft throughout, substantially as described.

8. In a planing and sanding machine the combination with feeding-rollers, and planers, of sanding cylinders, each comprising a hollow cylinder having a longitudinal slot, through which the edges of the sanding-paper may be slipped, tightening-clamps comprising pivoted jaws within said cylinder, links connected to said jaws and means for moving said links to cause said jaws to clamp and pull the paper to tighten it about the cylinder, substantially as described.

9. In a planing and sanding machine the combination with feeding-rollers and planers, of sanding-cylinders, a divided frame surrounding the same and adapted to rest upon and form a part of the frame proper when the machine is in use and links and a lever connected thereto for raising and lowering a portion of the frame at will to permit access to the cylinders for repairs or for applying a new sanding-paper covering, substantially as described.

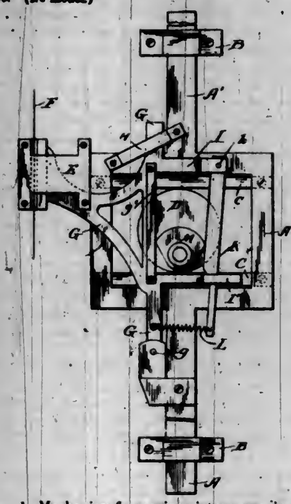
10. In a planing and sanding machine the combination with feeding-rollers and planers, of lower sanding-cylinders mounted on vertical slides, means for adjusting said slides, simultaneously, an auxiliary frame above the frame proper, upper sanding-rollers mounted therein, an upper pressure-plate adjustably mounted in said auxiliary frame and means for adjusting said pressure-plate and upper sanding-rollers simultaneously, substantially as described.

11. In a planing and sanding machine the combination with feeding-rollers and planers, of lower sanding-cylinders, means for adjusting the same vertically, a vertically-movable frame, upper sanding-rollers mounted in the same, a pressure-plate also mounted upon said movable frame and independent adjusting-screws for raising and lowering the pressure-plate at different points or the whole of the same independently of the movable frame, substantially as described.

12. A sanding-cylinder for a planing and sanding machine comprising a hollow cylinder having a longitudinal slot through which the edges of the sanding-papers may be slipped, a tightening-clamp provided with pivoted jaws within said cylinder, operating-links connected to said jaws and means for moving said links for causing the jaws to clamp and pull said paper to tighten it about the cylinder, substantially as described

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590,887. MEANS FOR GUIDING KINETOSCOPIC FILMS, &c. LOUIS R. HENRIET, Newark, N. J. Filed Apr. 19, 1897. Serial No. 632,856. (No model.)



Claim.—1. Mechanism for moving picture-carrying strips or films consisting of a main frame, suitably guided and reciprocated by a cam, and of a second frame pivoted to the first and oscillated by a second cam on the same shaft, which carries the first cam, the reciprocating frame carrying a box with one side forming a jaw supporting the film, the second or reciprocating frame carrying a jaw adapted to move within said box against the side supporting the film and thereby clamping the film and forcing the same to follow in the motion, substantially as described and for the purpose set forth.

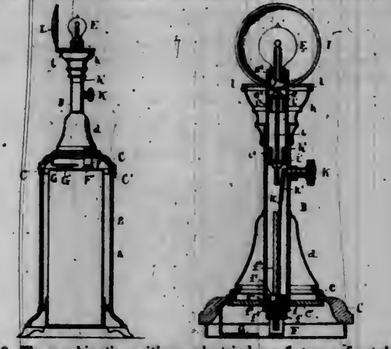
2. A mechanism for moving picture-carrying strips or film, consisting of a main frame, suitably guided and reciprocated by a cam and of a second frame pivoted to the first and oscillated by a second cam, said second frame having a pivoted arm provided with a spring at its free end whereby there are formed surfaces for the reaction of the second cam, by which said second frame is oscillated, substantially as described and for the purpose set forth.

3. Mechanism for moving picture-carrying strips or films consisting of a main frame, suitably guided and reciprocated by a cam, and of a second frame pivoted to the first and oscillated by a second cam, the reciprocating frame carrying a box with one side forming a jaw supporting the film, said jaw being provided with depressions or notches corresponding to the perforations at the edges of the film, the second or oscillating frame carrying a jaw adapted to move within the said box against the side supporting the film and being provided with points or teeth adapted to engage the perforations of the film and the depressions in the opposite jaw, substantially as described.

590,888. INCANDESCENT-ELECTRIC-LAMP FIXTURE. BENJAMIN B. HOFFMAN, New York, N. Y., assignor to James H. Hoffman, same place. Filed Feb. 6, 1897. Serial No. 622,372. (No model.)

Claim.—1. The combination with an electric-lamp fixture having a hollow base, of a battery within the base a cover for said base upon which is mounted the lamp-supporting stem or arm and which stem or arm forms one side of the lamp-circuit, two insulated metal rods within said stem, one for making contact with one of the lamp-terminals and the other for making contact with one of the battery-terminals, and a circuit-controller for making contact between said rods, substantially as set forth.

2. The combination of an electric-lamp fixture having a hollow base, a battery within the base having two contact-terminals, a cover for said base having a tubular lamp-supporting stem or arm mounted thereon and forming one side of the lamp-circuit, a spring-metal contact carried by said cover adapted to made contact with one terminal of the battery, a conductor within said lamp-stem but insulated therefrom and having a spring-metal contact on the exterior of the stem adapted to make contact with the other terminal of the battery, and a socket for the lamp mechanically and electrically connected with the stem and with which one terminal of the lamp makes contact, and an insulated contact within the socket with which the other terminal of the lamp makes contact, substantially as set forth.

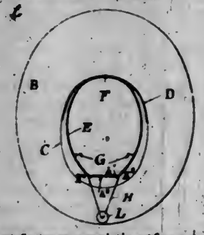


3. The combination with an electric-lamp fixture, of a tubular lamp-supporting stem or arm, one end of said tube constituting a lamp-socket and having a bent blade or finger for engaging a collar on the lamp to hold the lamp in place, an insulated metal rod within one end of the tube and projecting into the socket and with which one of the lamp-terminals is adapted to make contact, an insulated metal rod within the other end of said tube adapted to make contact with a circuit-terminal, a spring contact-maker carried by one of said rods, and a key for controlling said contact-maker, substantially as set forth.

4. The combination with an electric-lamp fixture, of a tubular lamp-supporting stem or arm made in two parts and adapted to be screwed together, one part constituting a lamp-socket having means for engaging a collar on the lamp to hold the lamp in place, and an insulated rod with which one of the lamp-terminals is adapted to make contact, and which rod extends into the second section of the stem; an insulated metal rod in said section of the stem adapted to make contact with a circuit-terminal, a spring contact-maker carried by said rod adapted to make contact with the rod in the socket portion of the stem, and a key for controlling said contact-maker, substantially as set forth.

5. The combination with an electric-lamp fixture, of a tubular lamp-supporting stem or arm, one end of said tube, constituting a lamp-socket and having means for engaging a collar on the lamp to hold the lamp in place, an insulated metal rod within one end of the tube and projecting into the socket and with which one of the lamp-terminals is adapted to make contact, an insulated metal rod within the other end of said tube adapted to make contact with a circuit-terminal, a spring contact-maker carried by one of said rods, a key for controlling said contact-maker, and a reflector carried by two arms adapted to surround the lamp-stem and hold the reflector in position, substantially as set forth.

590,889. HAT-FASTENER. ERNST HUNDHAUSEN, San Francisco, Cal., assignor of one-half to August F. Meyer, same place. Filed Jan. 23, 1897. Serial No. 620,468. (No model.)

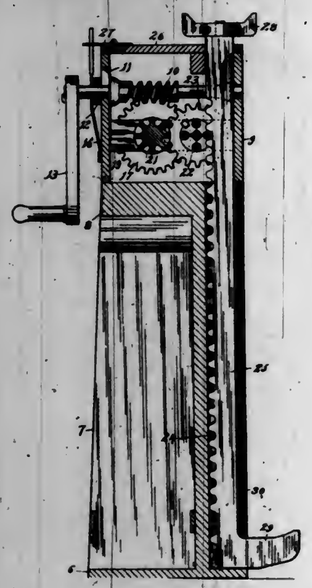


Claim.—1. A hat-fastener, consisting of a spring having the shape of a horseshoe, and which is secured at its center to the inside of the hat-

crown, combined with a hat, to which the spring is secured a string, which is fastened to the free ends of the spring, and suitable means attached to the hat, and over which the string is made to catch when it is drawn outwardly, so as to compress the ends of the strip, and make them catch against the hair, substantially as set forth.

2. A hat-fastener composed of a hat, to which the strip is secured at its center a band placed inside the hat-crown, a strip secured to said band so its ends may be free to move toward and away from each other, pins projected inwardly from the sides of said strip, a string controlling the movements of the free ends of the strip, and a button over which said string may be passed when pulled out, substantially as described.

590,840. LIFTING DEVICE. TOMASZ B. JACHIMIAK and JOSEF KENDZIERSKI, Sobieski, Wis. Filed Apr. 10, 1897. Serial No. 631,527. (No model.)

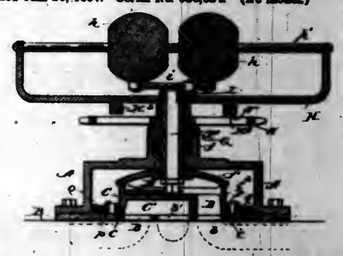


Claim.—1. The combination, of a frame, a lever pivoted to the outer face of one of the side pieces of the frame, a worm-wheel within the casing, a worm-shaft having one end journaled in the frame, and its opposite end passing through an elongated slot in the frame and journaled in the pivoted lever, and an inwardly-springing spring-arm provided with an inwardly-extending lug, said lug adapted normally to engage the lever so as to maintain said lever in a position to hold the worm-shaft in engagement with the worm-wheel, and said lug when released from the lever adapted to permit said lever to be turned so as to disengage the worm-shaft from the worm-wheel, the parts being held in disengaged position by permitting the inwardly-extending lug of the spring-arm to engage the lever at a point other than its first point of engagement.

2. The combination of a casing, a lever pivoted to the outer side of said casing, a worm-wheel within the casing, a worm-shaft journaled in the casing, said shaft extending through an elongated opening in the casing and through an opening in the lever, a spring-arm adapted to engage the lever so as to hold the worm-shaft in engagement with the worm wheel, and when disengaged from the lever to permit of the raising of, and to support, the shaft out of mesh with the worm-wheel, a cover for the casing, and a catch secured to the cover and projecting therefrom, said catch provided with an opening through which the upper end of the spring-arm is adapted to pass.

3. The combination, of a frame, a worm shaft mounted therein and provided on its outer end with an operating-handle, a worm-wheel adapted to be engaged by the worm-shaft, a shrouded pinion on a common axis with the worm-wheel, a shaft having a lantern-wheel mounted thereon, the end heads of said wheel formed or provided with cogs thereabout adapted to mesh with the bars or spindles of the shrouded pinion, and a rack-bar, so arranged as to adapt its teeth to engage with the bars or spindles of the lantern-wheel, and to be moved vertically thereby.

590,841. CUT-OFF VALVE. CHARLES S. KELLOGG, Austin, Ill. Filed Jan. 26, 1897. Serial No. 620,824. (No model.)



Claim.—1. In a steam-engine valve, the combination with the steam-chest, the rotary valve seated in said steam-chest and having entrance and exhaust passages therethrough and the cut-off movably seated on the upper surface of the valve, of a tubular valve-stem extending through the walls of the steam-chest, connections between said valve stem and valve extending outside of the cut-off, whereby an unobstructed space is left for the cut-off, and a cut-off stem passing through the valve-stem and connected at its inner end with the cut-off; substantially as described.

2. In a steam-engine valve, the combination with the steam-chest, the rotary valve seated therein and having the entrance and exhaust passages therethrough, and the cut-off seated in an annular bearing within the periphery of the top of the valve to control the entrance-passage, of a tubular valve-stem passing through the wall of the steam-chest, transversely-extending arms on said valve-stem, connections between the ends of said arm and periphery of the valve whereby an unobstructed space is left for the cut-off and a cut-off stem extending through the valve-stem and connected with the cut-off at a point coincident with the axis of the valve; substantially as described.

3. In a steam-engine valve, the combination with the steam-chest and the rotary valve seated therein and having the exhaust-passage therethrough and the entrance-passage therethrough, provided with a series of partitions or webs dividing said passage into cells, of a segmental cut-off seating on the top of the valve and adapted to close one or more of said cells, and valve and cut-off stems arranged concentrically, connected with said valve and cut-off respectively, and passing through the wall of the steam-chest; substantially as described.

4. In a steam-engine, the combination with the steam-chest, the rotary valve seated in an annular seat therein and having the exhaust-passage therethrough and the entrance-passage therethrough with a series of partitions or webs dividing said entrance-passage into cells and also having the annular raised periphery, of a segmental cut-off seated on said valve within the raised periphery thereof, a tubular valve-stem having transverse arms engaging the raised periphery of the valve and a cut-off stem passing through the valve-stem and engaging the central portion of the cut-off; substantially as described.

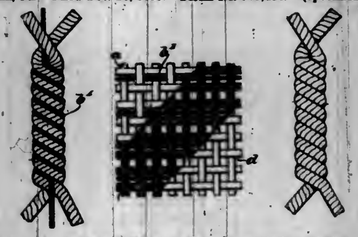
5. In a valve for steam-engines, the combination with the rotary valve having the exhaust-passage therethrough and the entrance-passage having a series of partitions or webs therein forming cells, said cells having pressure-relief openings therein and a segmental cut off adapted to work over said entrance-passage to reduce the number of cells through which pressure may pass; substantially as described.

6. In a valve for steam-engines, the combination with the steam-chest having the entrance and exhaust ports, therein, the rotary valve having the exhaust-passage therethrough and the entrance-passage therethrough, provided with a series of partitions or webs forming cells, with pressure-relief ports opening into said cells at the side of the valve, of a cut-off working on the valve to reduce the number of cells through which live steam may pass and plates cooperating with the sides of the valve opposite the ports in the steam-chest for closing the pressure-relief ports at these points; substantially as described.

7. In a valve for steam-engines, the combination with the steam-chest, a rotary valve and rotary cut-off located within said chest, and the concentric valve-stem and cut-off stem extending through the wall of said chest, of the governor-base mounted on the valve-stem, the cross-head mounted on the cut-off stem, the outwardly-moving weights or balls carried by the governor-base and links connecting said weights or balls and the cut-off cross-heads; substantially as described.

8. In a steam-engine valve, the combination with the steam-chest, the rotary valve in said steam-chest and the rotary cut-off cooperating with the passage through said valve of the concentric cut-off and valve-stems extending through the walls of the steam-chest, the governor-base mounted on said valve-stem, the governor mounted on said base and connected with the cut-off stem, a governor-driving gear and a loose connection between said governor-driving gear adapted to permit said governor to move a half-revolution independently of the driving-gear; substantially as described.

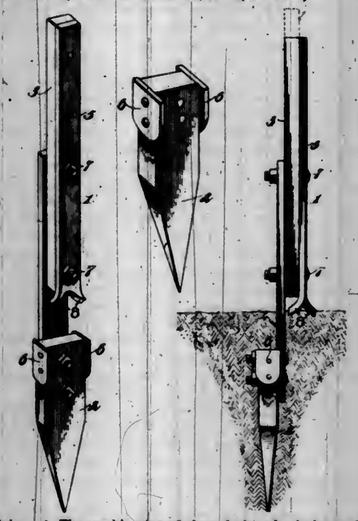
590,842. WATERPROOF CLOTH AND PROCESS OF MAKING SAME. ARTHUR L. KENNEDY, Burlington, Vt., assignor, by mesne assignments, to the Marsden Company, Camden, N. J., and Philadelphia, Pa. Filed Dec. 26, 1895. Serial No. 573,416. (Specimens.)



Claim.—1. An improved manufacture consisting of the within-described textured waterproof article having its face portions composed of natural fibers and its inner portions composed of threads or strands impregnated with a salt of cellulose, whereby ordinary unglazed or uncoated and nappy faces are presented, substantially as described

2. The described process which consists in entwining or interlacing regular or ordinary threads along with extra strands or fibers of undissolved soluable salt of cellulose to form a textured article, and then subjecting the textured article to a solvent of the salt of cellulose to dissolve the extra strands or fibers and cause the dissolved salt to impregnate the regular or ordinary threads, substantially as described.

590,843. FENCE-POST. THOMAS W. LARRABEE, Carrollton, Ind. Filed June 22, 1897. Serial No. 641,795. (No model.)



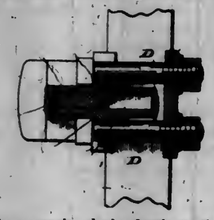
Claim.—1. The combination of a base designed to be located below the surface of the ground, a wooden post located above the surface of the ground, the metal coupling-bar located at one side of the post and connecting the same and the base, a space being left between the adjacent ends of the base and the post, and an attachment-bar located at the opposite side of the post and having its lower end forked to receive the bottom wire of a fence, whereby the latter is held close to the ground, substantially as described.

2. The combination of a tapering base designed to be located below the surface of the ground and provided at its top with flanges located at its opposite edges and projecting from opposite sides of it, a fence-post proper located above the base and designed to be arranged above the surface of the ground, a coupling-bar arranged at one side of the post and secured to the same and to the base, and an attachment-bar secured to the other side of the post, substantially as described.

3. The combination of a wooden base designed to be arranged below the surface of the ground, a wooden post located above the surface of the ground, the metal coupling-bar connecting the post and the base and arranged at one side of the former, and the attachment-bar located at the other side of the post, substantially as described.

4. A fence-post provided at one side with a fork disposed transversely of the line of the fence, and located at the surface of the ground in position to receive the bottom wire of the fence and to be closed by the ground, whereby the fence is held down to the same and is prevented from becoming accidentally disengaged from the fork, substantially as described.

590,844. CLAMP FOR CULTIVATOR-TEETH. EUGENE C. LESTER, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed June 21, 1897. Serial No. 641,692. (No model.)

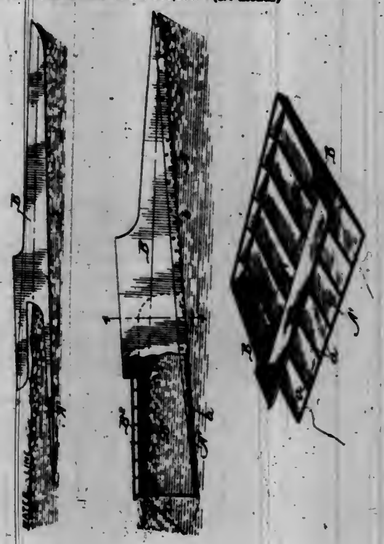


Claim.—1. As a securing device for the teeth of cultivators, the clamp or casting having a portion provided with a vertical slot to receive a tooth, a spacing portion having horizontal faces adapted to lie between parallel bars, said clamp being provided on each side with a seat for a securing-bolt, intermediate the front and rear faces of the clamp, and the securing-bolts, substantially as described.

2. As a securing device for the teeth of cultivators the clamp or casting having at top and bottom the strengthening-flanges, a web on each side connecting said flanges, recessed to receive the body of a securing-bolt, and the securing-bolts, substantially as described.

3. As a securing device for the teeth of cultivators, consisting of the clamp or casting having at top and bottom the strengthening-flanges, a web on each side connecting said flanges, said webs being each recessed to receive the body of a securing-bolt, the said flanges being but little farther separated than the width of the bolt-head whereby the bolts are held from turning, the securing-bolts and the bolt-plate, substantially as described.

590,845. BOAT. FRANCIS E. MILLS, Washington, D. C. Filed July 9, 1896. Serial No. 598,550. (No model.)



Claim.—1. A boat or water-craft having its front portion made buoyant and the rear portion made as a submergeable tail arranged to bear flatwise upon the water, the said rear and front portions being rigidly connected together with a continuous bottom line, substantially as and for the purpose described.

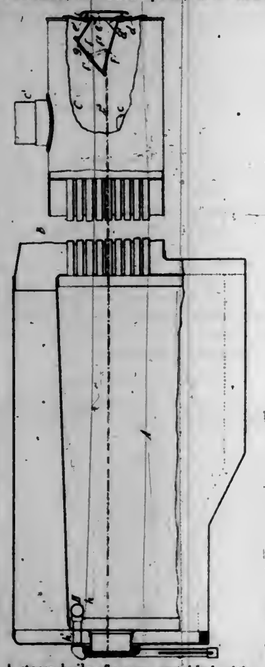
2. A boat or water-craft having at the lower part of its rear end a tail substantially horizontal in cross-section, and having an overhanging rear deck with side pieces extending to the rear end of the tail and provided with a hinged door or flap forming a back water-check, substantially as and for the purpose described.

3. A boat or water-craft having a flat bottom provided at its rear end with a tail substantially horizontal in cross-section, and provided also with downwardly-projecting vertical blades or fins along the edges of its bottom, substantially as and for the purpose described.

4. A boat or water-craft having a flat bottom extended beyond the stern in the form of a tail substantially horizontal in cross-section, said boat being of greater dimension transversely to the line of the boat's motion than it is parallel to the line of its motion, substantially as and for the purpose described.

5. A boat or water-craft having its bottom substantially horizontal in cross-section and having its buoyant-hull portion or hold terminating some distance in advance of the rear end of its said bottom, said rear end being open to the water and submergeable, substantially as and for the purpose described.

590,846. STEAM-BOILER FURNACE. JOHN MILTON, Washington, D. C., assignor of one-fourth to Luther H. Potterfield and George F. Bamich, Lovettsville, Va. Filed Apr. 27, 1897. Serial No. 634,110. (No model.)



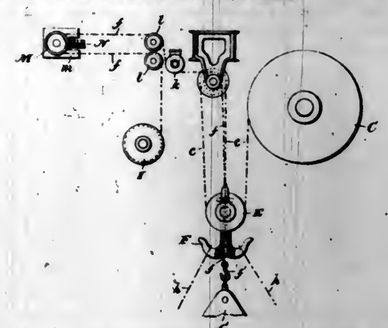
Claim.—1. A steam-boiler furnace provided with a valved air-inlet adjacent to the stack, and means substantially as described for automatically controlling said inlet coincidently with the manipulation of the stoking-door.

2. In a steam-boiler furnace, a chamber interposed between the boiler-flues and the stack and provided with an air-inlet normally closed by a valve, and a connection between said valve and the stoking-door whereby the manipulation of the latter controls the said inlet, substantially as described.

3. In a steam-boiler furnace, a chamber interposed between the boiler-flues and the stack and provided with an air-inlet, an air flue leading from said inlet and provided with a valve, the furnace-door, and lever-and-rod connection between said door and valve, substantially as and for the purpose set forth.

4. In a steam-boiler furnace, a chamber interposed between the boiler-flues and the stack and provided with an air-inlet normally closed by a valve operatively connected with the stoking-door, and a valve carried by and normally closing an opening in the aforesaid valve adapted to be actuated by external air-pressure, substantially as and for the purpose set forth.

590,847. OVERHEAD TRAVELING CRANE. WILLIAM H. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and John R. Morgan, same place. Filed June 15, 1893. Serial No. 477,674. (No model.)



Claim.—1. The combination with a main hoisting-drum and an auxiliary drum, each carrying a chain, of a sheave around which the auxiliary chain passes, a screw for moving said sheave and a motor for actuating the screw, substantially as set forth.

2. The combination with a main drum, a chain therefor and an auxiliary drum, of sheaves mounted on stationary bearings, a sheave mounted on a movable bearing, a chain carried by the auxiliary drum and passing around said sheaves, and means for moving the sheave on the movable bearing toward and away from the sheaves on the stationary bearings, substantially as set forth.

3. In an overhead traveling crane, the combination with two drums and a chain carried by each, the said drums being geared to move in unison, of tongs consisting essentially of a frame and two bell-crank levers pivoted thereto, one of said chains being connected with the levers and the other with the frame, and means for shortening the chain connected to the frame.

4. The combination with a drum, a chain carried thereby, a chain-block on said chain, and tongs consisting of two levers, and a frame, the levers being pivoted to the frame and connected to the chain-block, of a second drum, a chain carried thereon the latter being connected to the frame of the tongs, and means for shortening said latter chain, substantially as set forth.

5. In combination with a hoisting-cable, an auxiliary cable, and means for winding and unwinding equal lengths of both cables, of a screw-shaft, means for rotating same, and a screw-threaded device mounted on said shaft and adapted to be moved lengthwise the shaft as the latter is rotated, the said device engaging the auxiliary cable for shortening same without interference with the hoisting-cable.

6. In combination with a hoisting-drum, a hoisting-cable carried by the drum and arranged to wind on or off thereof, a screw-shaft, means for rotating said shaft, a female-threaded device carried by the shaft and adapted to be moved lengthwise thereof by the rotation of the shaft and an auxiliary cable arranged to wind and unwind simultaneously with the hoisting-cable, the said auxiliary cable being connected with the screw-threaded device carried by the screw-shaft, substantially as and for the purpose set forth.

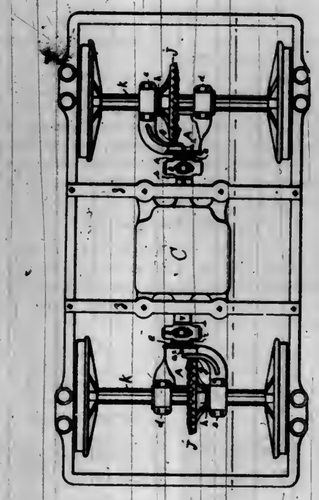
7. In combination with a hoisting-drum, a hoisting-cable thereon, a carrying device carried by the hoisting-cable, a trip for the carrying device and a take-up for actuating the trip, the said take-up consisting of a threaded shaft, and a threaded device mounted on said shaft and engaging the trip and adapted to be moved back and forth by rotation of the shaft.

8. The combination with tongs, a hoisting-chain, a hoisting drum over which said chain passes, an opening-chain, a separate winding drum over which the opening-chain passes, and means for drawing or slackening the intermediate portion of the opening-chain.

9. The combination of tongs, a hoisting-chain, a hoisting-drum over which said chain passes, an opening-chain, a separate winding-drum over which the opening-chain passes, a sheave over which the intermediate portion of the opening-chain passes, and mechanism arranged to move said sheave so as to draw or slacken the opening-chain.

590,848. MOTOR-CAR. GEORGE K. MUNRO, Jr., Detroit, Mich. Filed Mar. 25, 1897. Serial No. 629,271. (No model.)

Claim.—1. In combination with a car-truck, a motor mounted thereon, driving-gear mounted on the car-axle, a shaft to the motor and a shaft for the driving-gear normally in alinement with the motor-shaft, a coupling between the two shafts consisting of a forked terminal for each shaft, a ring, a swivel engagement between the ring and one of the said forks, swivel-pins engaging the other of said forks and provided with rectangular extensions that engage in rectangular holes in said ring, each rectangular hole being slightly larger in the direction of the longitudinal axis of the shaft than the pin which engages in it whereby the coupling is adapted to allow universal flection and variation of axial length of the compound shaft, substantially as described.



2. In combination with a car-truck, a motor, gearing mounted on each of the two axles of the car-truck, a motor-shaft, shafts for the gearing on each of the two axles both being in axial alinement with the motor shaft, a coupling between the motor-shaft and each gearing-shaft comprising a ring held by swivel-pins to forks terminating said shafts and adapted to allow universal flection and variation of axial length of the compound shaft, substantially as described.

3. In a driving-gear for cars, the combination of a shrouded motor-wheel on the axle, a shrouded pinion carried in a casting borne by the axle, roller-bearings carried in boxes adapted to have end movement and provided with ball-bearing end contacts between said boxes and the motor-wheel face, substantially as described.

4. In a driving mechanism for cars, in combination with the car truck and motor mounted thereon, driving-gear sustained by the axle, a motor-shaft and a driving-gear shaft in axial alinement and united by a coupling adapted to have a universal flection, a bearing-arm attached to one of said shafts and engaging the other with spring connection, substantially as described.

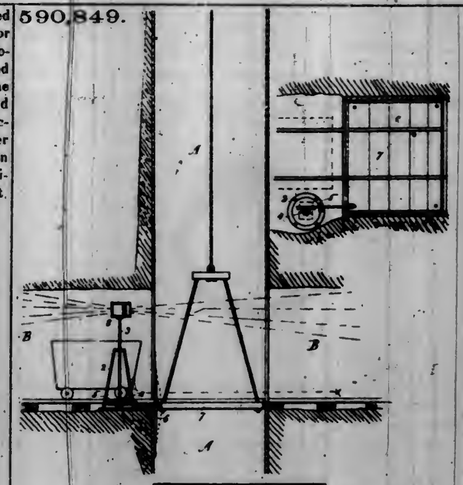
5. In a driving mechanism for cars, in combination with the car-truck and motor mounted thereon, driving-gear sustained by the axle, a motor-shaft and a driving-gear shaft in axial alinement and united by a coupling adapted to have universal flection, a bearing-arm attached to one of said shafts and engaging the other with double spring connection, substantially as described.

6. In a driving mechanism for cars, the combination of intermeshing shrouded gears and means for producing end thrust on the gears and thereby bringing the shrouds into engagement, substantially as described.

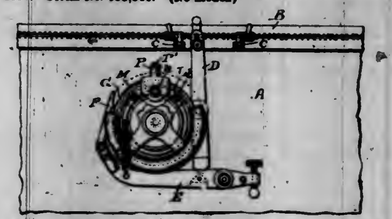
590,849. DANGER-SIGNAL. JAMES MCCONAHEY and CHARLES H. MCCORMICK, Victor, Colo. Filed May 24, 1897. Serial No. 637,859. (No model.)

Claim.—In a danger-signal, of the character described, the combination with the stand, the rotatable stem, the lantern, and the pinion at the lower end of said stem, of the rack-bar engaging with said pinion, the curved spring to which said rack-bar is secured and the vertically-movable elevator-cage adapted to contact with said rack-bar and actuate the same to turn the stem and lantern substantially as specified

590,849.



590,850. MICROMETRIC ADJUSTMENT FOR GRINDING-MACHINES. CHARLES H. NORTON, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed May 6, 1897. Serial No. 635,369. (No model.)



Claim.—1. In the micrometric feed of a grinding or similar machine, the combination with the disk secured to the screw-spindle and having a gear and peripheral ratchet-teeth, of a carriage provided with a slide extending over the ratchet-teeth, a spindle journaled in the carriage, a pinion on the spindle engaging with the gear on the disk, a ratchet-gear, a spring-pressed pawl engaging with the ratchet-gear, and a milled head on the spindle; whereby the carriage and slide may be moved on the disk and the spring-pressed pawl raised at predetermined intervals, as described.

2. In a micrometer-feed, the combination with the screw-spindle H, the disk G having peripheral ratchet-teeth, an annular gear, and an annular groove provided with the T-shaped slide K, of the carriage L secured to the T-shaped slide K, the spindle N journaled in the carriage, the pinion N', the ratchet-gear N² and the milled head n on the spindle, and the spring-pressed pawl P; whereby on moving the carriage a predetermined distance the spring-pressed pawl is raised and lowered, as described.

590,851. THREAD FASTENING AND CUTTING DEVICE FOR SPOOLS. ZENAS R. CROCKER, Damariscotta, Me., assignor, by direct and mesne assignments, of one-half to Waldron H. Rand, William B. Rand, and Thomas Watson, Boston, Mass. Filed Dec. 29, 1896. Serial No. 617,307. (No model.)



Claim.—The combination with a spool of the clamping and severing device applied thereto comprising the body portion 2 lying against the flat end of the spool and having a slit 9 therein located at a distance from the edge of the head of the spool, and also having the clamp 3 overlying the edge of the said head of the spool, the said clamp serving to compress the thread against the said edge and thereby operating to hold the thread, the thread being carried into the said slit in order to effect the severance of the same and

being exposed on the said body portion intermediate the clamp and the slit to furnish an end to be seized for the purpose of drawing a fresh length off the spool, substantially as described.

590,852. ELECTRICAL TRANSFORMER. WILLIAM D. PACKARD and JAMES W. PACKARD, Warren, Ohio. Filed May 5, 1897. Serial No. 635,263. (No model.)



Claim.—1. In an electrical converter, core-plates composed of strips of magnetic metal bent to form corners between the portions thereof, as set forth.

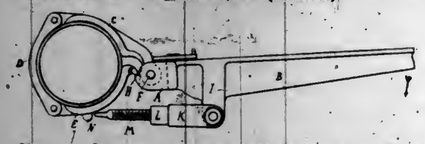
2. In an electrical converter, core-plates composed each of inner and outer portions and end pieces, all formed from one strip of magnetic metal, as set forth.

3. In an electrical converter, core-plates composed each of inner and outer portions and end pieces, all formed from one strip of magnetic metal which is bent at right angles at a plurality of its corners, as set forth.

4. In an electrical converter, core-plates composed each of inner and outer portions and end pieces, all formed from one strip of magnetic metal which is bent at right angles at two or more of its corners, as set forth.

5. A core-plate for electrical converters consisting of a strip of magnetic metal forming an inner portion, which strip is bent at right angles to form an end piece, then again bent at right angles to form an outer portion parallel with the inner portion, and then again bent to form a second end piece, as set forth.

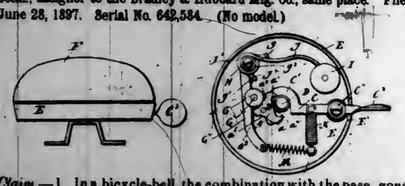
590,853. PIPE-WRENCH. HOMER PARMELEE, Philadelphia, Pa. Filed Feb. 24, 1897. Serial No. 624,872. (No model.)



Claim.—1. In a pipe wrench, in combination with lever B, provided at one end with fulcrum-piece A; chain C, D, E, composed of links of suitable shape, hinged to the fulcrum-piece A; an outwardly-projecting lip G on the free end of the end link E of the chain, said lip being adapted to engage with transverse shoulder H on fulcrum-piece A; and an adjustable stop attached to lever B and engaging with end link E, and adapted to receive any strain over and above that required to cause the chain to grip the pipe, substantially as set forth.

2. In a pipe-wrench, in combination with lever B, fulcrum-piece A; chain C, D, E, lug I, attached to or formed on lever B, link K provided with nut L, and hinged to lug I, and rod M screwed into nut L and adapted to impinge on lug N on the end link E of the chain C, D, E, for the purpose specified.

590,854. BICYCLE-BELL. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed June 28, 1897. Serial No. 642,584. (No model.)

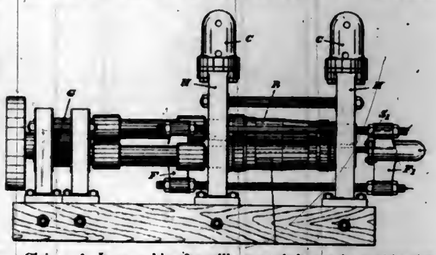


Claim.—1. In a bicycle-bell, the combination with the base, gong-post and gong thereof, of an operating-lever, a spring for returning the same to its normal position after its initial operation which is against the tension of the spring, a pivotal dog carried by the said lever and coacting with the gong-post which forms a point of purchase for its operation, a spring-actuated vibrating lever with which the said dog coacts, and a striker yieldingly carried by the said vibrating lever which is pushed outward in one direction by the dog, and suddenly drawn inward in the opposite direction by its spring, with the effect of causing the striker to impinge against the gong.

2. In a bicycle-bell, the combination with the base, gong-post and gong thereof, of an operating-lever, a spring for returning the same to its normal position after its initial operation which is against the tension of the said spring, a pivotal dog carried by the said lever and formed with two teeth respectively coacting with the opposite faces of the gong-post which constitutes a point of purchase for the operation of the dog, which is also formed with an outwardly-projecting nose; a spring-actuated vibrating lever carrying an antifriction-roller with which the nose of the dog engages, a yielding carrier attached to the said vibrating lever, and a striker connected with the said carrier.

3. In a bicycle-bell, the combination with the base, gong-post and gong thereof, of a pivotal operating-lever having its inner end shaped in the form of a hook to clear the gong-post, a spring for returning the said lever to its normal position after its initial operation which is against the tension of the said spring, a pivotal dog carried by the said lever, having two teeth which coact with the said gong-post, and also having an outwardly-projecting lug or nose, a spring-actuated vibrating lever with which the nose of the dog engages to push it outward against the tension of its spring, a carrier secured to the butt-end of the said vibrating lever, formed from a single piece of wire, and comprising a long yielding arm, a coil, and a short arm, and a striker secured to the yielding arm of the carrier.

590,855. MACHINE FOR ROLLING RAILWAY-CAR AXLES OR SIMILAR BARS. FRED A. PHELPS, Jr., Johnstown, Pa., assignor of two-thirds to T. C. Du Pont, same place, and Merle J. Wightman, Scranton, Pa. Filed Mar. 20, 1896. Serial No. 584,068. (No model.)



Claim.—1. In a machine for rolling metal shapes, in combination, three rolls grouped about a common center, means for rotating said rolls, means for moving one of said rolls toward and away from the remaining rolls, a frame at each end of said rolls, said frames being connected together, and means for controllably compressing the blank from the ends thereof, all substantially as set forth.

2. In a machine for rolling metal shapes, in combination, a plurality of rolls grouped about a common center, means for rotating said rolls, a movable frame at each end of said rolls, said frames being connected together, a stop in one frame, between the ends of the rolls, and a longitudinally-movable plunger in the other frame in alinement with said stop.

3. In a machine for rolling metal shapes, in combination, a plurality of tapered rolls, grouped about a common center, means for rotating said rolls and means for moving one of said rolls toward and away from the remaining rolls, a stop between one of the ends of said rolls, a longitudinally-movable plunger between the other of the ends of said rolls, said plunger and stop being in alinement with each other, and means for imparting longitudinal movement to said plunger.

4. In a machine for rolling metal shapes, in combination, a plurality of rolls having axes which converge slightly at one end of said rolls, a frame at each end of said rolls, said frames being connected together, a stop in one frame between the ends of the rolls and a longitudinally-movable plunger in the other frame in alinement with said stop, and means for imparting longitudinal movement to said plunger.

590,856. STEM WINDING AND SETTING WATCH. WILSON E. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Dec. 8, 1894. Serial No. 531,221. (No model.)

Claim.—1. In a stem-winding and stem-setting watch, the combination with a longitudinally-movable and rotatable stem, of a setting-pinion rigidly secured to the inner end thereof, a winding-pinion loosely mounted upon the said stem, with which it is coupled for rotation when the stem is moved longitudinally outward, an intermediate winding-pinion placed against the outer face of the back movement-plate, mounted upon a stud projecting outwardly therefrom, and constantly in mesh with the said winding-pinion: an inner intermediate setting-pinion placed against the inner face of the front movement-plate and mounted upon a shaft passing through the said plate near the edge thereof, and projecting beyond its outer face; an outer intermediate setting-pinion secured to the projecting outer end of the said shaft, and bearing against the outer face of the said front movement-plate, a dial-wheel into which the pinion last-mentioned meshes, a dial-pinion, a spring coacting with the said stem to force the same outward and maintain it normally in that position, and means interposed between the case and the watch-movement proper for holding the winding-pinion against displacement when the stem is pushed inward against the tension of the said spring.



2. In a stem-winding and stem-setting watch, the combination with a longitudinally-movable and rotatable stem, of a setting-pinion rigidly secured to the inner end thereof, a winding-pinion loosely mounted upon the said stem with which it is coupled for rotation when the stem is moved longitudinally outward, an intermediate winding-pinion with which the winding-pinion mounted on the stem is always in mesh, an intermediate setting-pinion into which the setting-pinion carried by the stem is meshed when the stem is pushed inward, a spring coacting with the said stem to force the same outward and maintain it in that position, and a spring engaging with the inner face of the winding-pinion for holding the same against displacement when the stem is pushed inward against the tension of the spring first mentioned, and arranged to clear the said stem, the inward longitudinal movement whereof it does not restrain, substantially as described.

3. In a stem-winding and stem-setting watch, the combination with a longitudinally-movable and rotatable stem, of a setting-pinion rigidly secured to the inner end thereof, a winding-pinion loosely mounted upon the said stem with which it is coupled for rotation when the stem is moved longitudinally outward, an intermediate winding-pinion with which the winding-pinion mounted on the stem is always in mesh, an intermediate setting-pinion into which the setting-pinion carried by the stem is meshed when the stem is pushed inward, a spring coacting with the said stem to force the same outward and maintain it in that position, another spring consisting of a shank which is attached to the watchcase, and a ring-like free end smaller in external diameter than the winding-pinion, and larger in internal diameter than the setting-pinion which is thus allowed to bear against the inner face of the winding-pinion, whereby the said spring is adapted to hold the winding-pinion in place without affecting the action of the stem, or the spring coacting therewith, substantially as described.

4. In a stem-winding and stem-setting watch, the combination with a watchcase, the front of which is constructed with a flange having a clearance-slot located adjacent to the pendant of the case, of a longitudinally-movable and rotatable stem mounted in the said pendant, a setting-pinion secured to the inner end of the stem, a winding-pinion interposed between the said setting-pinion and the case, and loosely mounted upon the stem with which it is coupled for rotation when in its outward position, an intermediate winding-pinion with which the winding-pinion loosely mounted on the stem is always in mesh, an inner intermediate setting-pinion into which the said setting-pinion carried by the stem is meshed when the stem is pushed inward, and an outer intermediate setting-pinion which is located in the clearance-space of the case, the said space also clearing the winding-pinion loosely mounted on the stem, substantially as set forth.

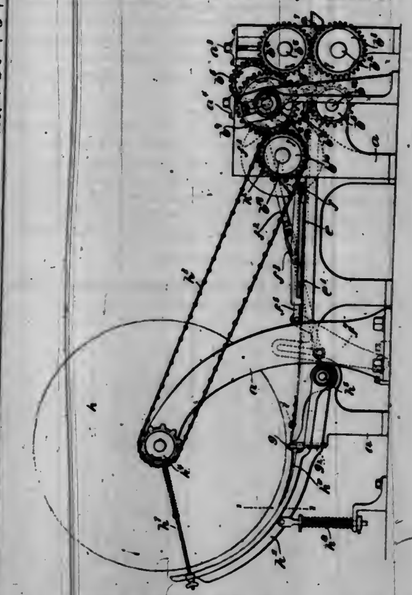
590,857. MACHINE FOR MAKING STORAGE-BATTERY PLUGS. CARROLL POTTER, Philadelphia, Pa. Filed Oct. 26, 1896. Serial No. 610,076. (No model.)

Claim.—1. In combination a circular coiler, a second coiler conforming to a portion of the periphery of the circular coiler, devices for yieldingly supporting the last-mentioned coiler, means for rotating the circular coiler continuously in one direction in contact with the periphery of a plug, and devices for directing one end of the tape or ribbon onto one of said coilers, substantially as described.

2. A machine for making storage-battery plugs which comprises parallel coilers between which a tape or ribbon is wound and caused to travel, operating means for said coilers, and a guide or roll for directing one end of the tape or ribbon onto one of said coilers, substantially as described.

3. A machine for making storage-battery plugs comprising substantially parallel coilers between which a tape is wound and caused to travel along, a kinking guide or roller, a reciprocating feed-pawl, a table, and means for actuating said parts, substantially as described.

4. A machine for making storage-battery plugs comprising substantially parallel coilers between which plugs travel along and roll out, a kinking guide or roll, a feed-pawl and its table, a cutter, and means for actuating said parts, substantially as described.



5. A machine for making storage-battery plugs comprising two substantially parallel coilers between which a tape travels along and escapes in the form of a consolidated plug, a kinking guide or roller, a feed-pawl and its table, a cutter, feed-rolls for feeding a tape or ribbon to the cutter, and means for actuating said parts, substantially as described.

6. A machine for making storage-battery plugs comprising coilers between which a tape is wound, a kinking guide or roller, a feed-pawl and its table, a cutter, feed-rolls for feeding the tape or ribbon to the cutter, crimping-rolls, and means for actuating said parts, substantially as described.

7. In combination a movable coiler, a second coiler provided with a working face disposed substantially parallel with the working face of said movable coiler and having surface movement in respect thereto, and a yieldingly-supported kinking guide or roll whereby a tape or ribbon is rolled upon itself and caused to travel along and out from between said coilers, substantially as described.

8. In combination, a coiler having surface motion, a second coiler adapted to press upon the opposite side of a coil formed between the two, a kinking roll or guide, and a yielding tongue on the second coiler adapted to engage a tape or ribbon from the kinking roll or guide, substantially as described.

9. In combination a circular coiler, means for driving it, a second coiler conforming to a portion of the periphery of the circular coiler, devices for yieldingly supporting the last-mentioned coiler, a kinking guide or roll, and feed-rolls driven from the first-mentioned coiler, substantially as described

590,858. BOX FOR BOTTLED BEVERAGES. WILLIAM H. PRICE, Washington, D. C., assignor of one-half to Benjamin Bevan, same place. Filed Apr. 23, 1897. Serial No. 633,459. (No model.)



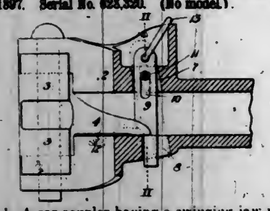
Claim.—1. In a box for bottled beverages, a cover made in two sections adapted to disappear within and on opposite sides of the box, each of said sections having a hook on each end, and studs se-

cured in the ends of the box with which the hooks are adapted to engage, whereby the sections are given hinged connection with the box when in use.

2. In a box for bottled beverages, a cover made in two sections adapted to disappear within and on opposite sides of the box, each of said sections having hinged connection with the box only when in position to serve as a cover, and cleats secured at the ends of the box forming supports for the sections when in place as a cover, the ends of the cleats serving as guides for the sections during their operation to open and close the box.

3. In a box for bottled beverages having a bottle-rack within it, a cover made in two sections adapted to disappear within and on opposite sides of the box and rest on said rack, each of said sections having hinged connection with the box only when in position to serve as a cover and being formed with a series of concave recesses in its inner surface, said recesses being so located that when the section is within the box they will be in line with and extend above the cells of the rack, all substantially as described and for the purposes stated.

590,859. **CAR-COUPLING.** WILLIAM REESE, Carnegie, Pa. Filed Mar. 19, 1897. Serial No. 628,320. (No model.)



Claim.—1. A car-coupler having a swinging jaw provided with an extended tailpiece rounded on its outer end, a locking-bolt vertically mounted in the path of the swinging tailpiece, longitudinal upper and lower slots in the draw-head with clearance for movement of the locking-bolt, a transverse elongated slot through the locking-bolt, a supporting-pin passing through the slot and the draw-head, and an inwardly downwardly beveled shoulder on the front face of the locking-bolt, substantially as set forth.

2. In a car-coupler provided with a swinging jaw having an extended tailpiece rounded on its outer end: a vertical locking-bolt located in the path of the tailpiece mounted in a longitudinal slot through the upper and lower sides of the draw-head the lower slot being lengthened for clearance, provided with a transverse elongated slot, a supporting-pin passing through the slot and the draw-head, and an inwardly-beveled shoulder on the front face of the locking-bolt, substantially as set forth.

3. In a car-coupler provided with a swinging jaw having an extended tailpiece rounded on its outer end; a vertical locking-bolt located in the path of the tailpiece mounted in a longitudinal slot through the upper and lower sides of the draw-head, the lower slot being lengthened for clearance, provided with a transverse elongated slot, a supporting-pin passing through the slot and the draw-head, and an inwardly-beveled shoulder on the front face of the locking-bolt, and means for raising and tipping backwardly the locking-bolt, substantially as set forth.

590,860. **HINGE.** REUBEN ROWE, Dover, N. J. Filed Apr. 15, 1897. Serial No. 632,220. (No model.)



Claim.—1. The herein-described hinge, comprising a single piece of spring metal bent upon itself to form a rear bowed portion and forward parallel arms, and means intermediate of said bowed portion and said arms whereby the latter are made to clasp one of the bars of a gate, as set forth.

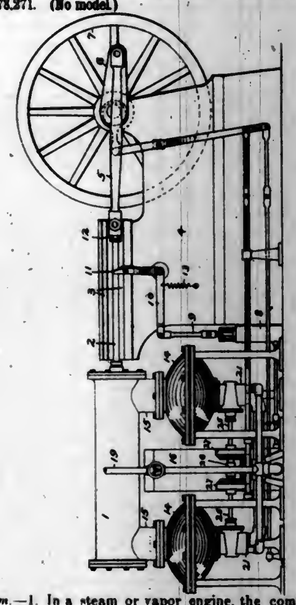
2. The herein-described hinge, comprising a member having two parallel spring-arms having their ends bent or curved in opposite directions and adapted to clasp one of the bars of a gate, means for holding said arms normally apart, and a nutted bolt passed through said spring arms in rear of said curved or bent ends, substantially as set forth.

3. The herein-described hinge, comprising a member having a rear bowed portion and forward parallel arms having bent ends adapted to embrace or clasp one of the bars of a gate, and a nutted bolt passed through said arms intermediate of said bowed portion and said ends, substantially as set forth.

4. The herein-described improved hinge, comprising a member having a rear bowed portion and forward parallel arms provided with angular portions having their ends bent or curved in opposite directions and adapted to embrace or clasp one of the bars of a gate, and a nutted bolt passed through coincident holes or openings in the parallel portions of said arms and intermediate of said bowed portion and said angular portions, whereby said angular ends may be brought together, substantially as set forth.

5. The combination with a gate having its posts formed of T-bars, flat bands or bars connecting the tongues of said T-bars, of hinges having rear bowed portions and forward spring-arms provided with bent ends adapted to clasp one of said T-bars, and a nutted bolt passed through said spring arms intermediate of said bent ends and said bowed portion and adapted to bring said ends together, substantially as set forth.

590,861. **STEAM-ENGINE.** MELVIN L. SEVERY, Boston, Mass., assignor to Francis Doane, Norwood, Mass. Filed Feb. 6, 1896. Serial No. 578,271. (No model.)



Claim.—1. In a steam or vapor engine, the combination, substantially as described, of two parallel chambers, each divided into two parts by a vertical partition, a steam or vapor supply pipe connected to one part and an exhaust-pipe connected to the other part; a horizontal cock extending through the chamber, two ways in said cock set at right angles to one another, one for the steam and the other for the exhaust; a shaft for each cock, each shaft in the same line and each carrying a beveled gear-wheel having the bevels opposite to one another; a spring in each wheel connecting the wheel to the shaft, the springs being turned in opposite directions; means for rotating these wheels in one direction by the movement of the piston and means for releasing the said wheels by the movement of the piston in the other direction to release said wheels step by step, so that they will alternately operate to open and close the induction and exhaust ports.

2. The combination, substantially as described, of the two-way cock having the ways at right angles to one another and in different planes; two parallel toothed wheels fixed on the shaft of the cock and set quartering, and each having four teeth; means for rotating said shaft; two pivoted levers each engaging at one end with one of the parallel toothed wheels and each having its other end in a different plane; a spring for each lever acting to return the same to a vertical position; a reciprocating rod; the pairs of beveled fingers on the rod, said fingers being alternately set in one of the parallel planes in which are the ends of the pivoted levers.

3. The combination, substantially as described, of the reciprocating rod having the rack-bar on the end thereof; a horizontal toothed

wheel gearing with said rack-bar; a ratchet and pawl connecting this toothed wheel with its shaft; the said shaft; a horizontal beveled wheel fixed on said shaft; two vertical beveled wheels meshing with said horizontal beveled wheel and mounted loosely on two independent shafts; spiral springs connecting said vertical beveled wheels with their shafts; valves on one end of each of said shafts; and means for imparting a step-by-step rotary motion to said valves.

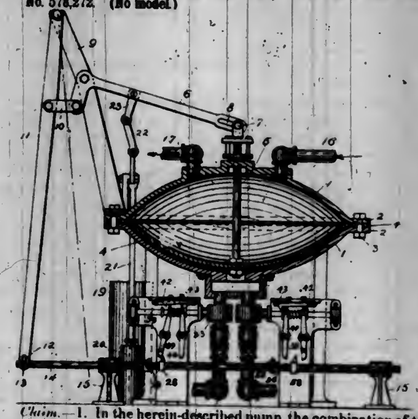
4. In a steam or vapor engine, the combination of the valve-shafts arranged end to end oppositely and in the same line; parallel toothed wheels on each shaft; parallel pivoted levers under the toothed wheels and having their lower ends in different vertical planes; a horizontal reciprocating rod; eight adjustable beveled fingers on said rod arranged in sets of two pairs each, one set for one valve and the other set for the other valve, the fingers being alternately placed in one of the parallel planes of the lower ends of the levers and the set of fingers on one side having the straight side of pair of fingers adjacent and the set of fingers on the other side having the beveled side of each pair adjacent.

5. In a steam or vapor engine, the combination of the cylinder 1 and piston 1^a therein; the diaphragm-chamber 14 and diaphragm 14^b; valve-chamber 21; valve 23 and valve-shaft 25; toothed wheels 47 48, and spring gear-wheel 27 on said shaft; shaft 36; gear-wheel 37 fixed to shaft 36 and meshing with gear-wheel 27; gear-wheel 35; rack-bar 34 engaging gear-wheel 35; levers 43 44 engaging the toothed wheels 47 48; reciprocating rod 38; and the fingers 54 55 56 57; all arranged and operating substantially as shown and described.

6. The combination of valve-chamber 21; valve 23; shaft 25; toothed wheels 47 48, and spring gear-wheel 27 on said shaft; shaft 36; gear-wheel 37 fixed to shaft 36 and meshing with gear-wheel 27; gear-wheel 35; rack-bar 34 engaging gear-wheel 35; levers 43 44 engaging the toothed wheels 47 48; reciprocating rod 38; and the fingers 54 55 56 57; all arranged and operating substantially as shown and described.

7. The combination of valve shaft 25; toothed wheels 47 48; lever 70 loosely mounted on shaft 25; pawl 71 on lever 70 and adapted to be engaged by the teeth of wheels 47 48; pivoted link 72; and a cushion for lever 70; all arranged and operating substantially as shown and described.

590,862. **POWER-PUMP.** MELVIN L. SEVERY, Boston, Mass., assignor to Francis Doane, Norwood, Mass. Filed Feb. 6, 1896. Serial No. 578,272. (No model.)



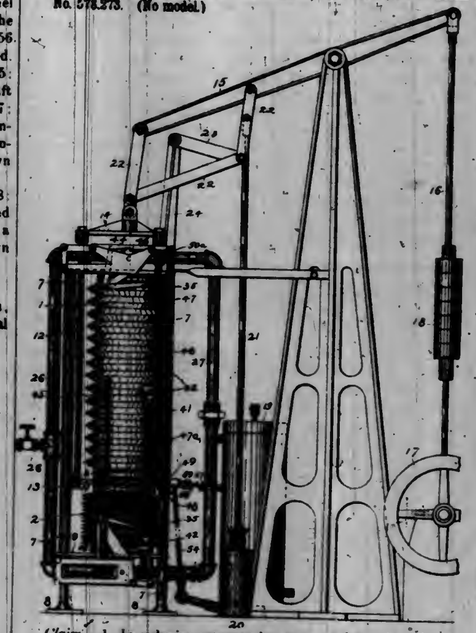
Claim.—1. In the herein-described pump, the combination of the diaphragm-chamber 1 and diaphragm 4; the rod 5 connected with the diaphragm; bell-crank lever 6; lever 11; link 10 connecting levers 6 and 11; the reciprocating rod 14 connected with lever 11; beveled fingers 28 and spring-finger 29, both on rod 14; the pivoted levers 39 40; rod 36; fixed collars 37 37^a on rod 36; loose collars 38 38^a, each connected respectively with levers 39 40; spring 41 between the loose collars; spring-levers 42 43; pins 46 46 on said levers; the valve-casing connected with chamber 1 and composed of an outer chamber 33 and an inner chamber 32 having valve-seats 34 34; valves 35 35 on rod 36; plate 47; spring 48 between the plate and one of said valves; and the air-cushion 49 having its piston attached to rod 36; substantially as shown and described.

2. The combination of the reciprocating rod 14; beveled finger 28 and spring-finger 29, both on said rod; the pivoted levers 39 40; rod 36; fixed collars 37 37^a on rod 36; loose collars 38 38^a connected respectively with levers 39 40; spring 41 between loose collars 38 38^a; spring-levers 42 43; and pins 46 46 on levers 42 43; substantially as shown and described.

3. The combination of the rod 5; bell-crank lever 6; lever 11; link 10 connecting levers 6 and 11; reciprocating rod 14 connected with lever 11; beveled finger 28 and spring-finger 29, both on said rod; the pivoted levers 39 40; rod 36; fixed collars 37 37^a on rod 36; loose collars 38 38^a connected respectively with levers 39 40; spring 41 between loose collars 38 38^a; spring-levers 42 43; and pins 46 46 on levers 42 43; substantially as shown and described.

4. The combination of the rod 5; bell-crank lever 6; lever 11; link 10 connecting levers 6 and 11; reciprocating rod 14 connected with lever 11; beveled finger 28 and spring-finger 29, both on said rod; the pivoted levers 39 and 40; rod 36; fixed collars 37 37^a on rod 36; loose collars 38 38^a connected respectively with levers 39 40; spring 41 between the loose collars; spring-levers 42 43; pins 46 46 on levers 42 43; the valve-casing composed of an outer chamber 33 and the inner chamber 32 having valve-seats 34 34; valves 35 35 on rod 36; the plate 47; spring 48 between the plate and one of the valves; and air-cushion 49 having its piston attached to rod 36; substantially as shown and described.

590,863. **STEAM-ENGINE.** MELVIN L. SEVERY, Boston, Mass., assignor to Francis Doane, Norwood, Mass. Filed Feb. 6, 1896. Serial No. 578,273. (No model.)



Claim.—1. In a device actuated by steam, vapor or hot air, one or more receivers or cylinders each consisting of a partially-collapsible chamber provided with a displacement plug or plugs substantially filling the chamber when in its most contracted state, induction and eduction pipes communicating with said chamber and means for converting the motion of the chamber in its expansion and contraction into useful work, substantially as described.

2. In a device actuated by steam, vapor or hot air, one or more receivers or cylinders each consisting of a partially-collapsible chamber of some flexible material, waterproof, steam and air tight and of low heat conductivity and preferably of low heat capacity, a displacement-plug in each chamber substantially filling the same when in its most contracted state, induction and eduction pipes communicating with said chamber, and means for converting into useful work the movement of the chamber in its expansion and contraction.

3. In a steam or vapor engine, the combination substantially as described of expansible cylindrical closed chambers made of some flexible material, waterproof, steam and air tight, and of low heat conductivity, and preferably of low heat capacity, said chambers being arranged end to end and connected together by a plate attached to the connection between the chambers and reciprocating as the chambers alternately contract and expand; means for converting this reciprocating motion as may be desired; steam or vapor and exhaust valves and valve-chambers connected to the end of each expansible chamber opposite to the connection between the same; steam or vapor and exhaust pipes connected to these valve-chambers, means

for communication between the expansible chambers and the valve-chambers, and mechanism operating by the reciprocation of the plate attached to the connection between the cylinders to open and close the steam and exhaust valves at the opposite ends of the expansible chambers so that steam is alternately admitted into one chamber and exhausted from the other.

4. In a steam or vapor engine, the combination substantially as described of two longitudinally-expansible cylindrical closed chambers made of soft vulcanized rubber fabric, said chambers being arranged end to end and connected together, a plate attached to the connection between the chambers and reciprocating as the chambers alternately contract and expand; means for converting this reciprocatory motion as may be desired; steam or vapor induction and exhaust valve-chambers connected to the end of each expansible chamber opposite to the connection between the same; induction and exhaust pipes connected to these valve-chambers, means for communication between the expansible chambers and the valve-chambers and mechanism operated by the reciprocation of the plate attached to the connection between the cylinders to open and close the steam or vapor and exhaust valves at opposite ends of the expansible chambers so that steam or vapor is alternately admitted into one chamber and exhausted from the other.

5. In a steam or vapor engine, the combination substantially as described with two steam or vapor cylinders made of some flexible material, waterproof and air and steam tight, and of low heat conductivity, and preferably of low heat capacity, arranged end to end and connected together; of a series of rings arranged at equal distances apart and secured to the inside of each of the cylinders.

6. In a steam or vapor engine, the combination substantially as described of two vertical longitudinally-expansible steam-cylinders arranged end to end and connected together; two plates, one attached by an air and steam tight connection to the top of one cylinder and the other by a similar connection to the bottom of the other cylinder; rods extending from the upper plate and secured to the lower plate, and a suitable base-plate; the rods inclosing the cylinder, two rods being opposite to each other; a plate attached to the connection between the cylinders and reciprocating as the cylinders alternately expand and contract; vertical rods, each attached to an opposite side of the plate; a guide on each rod sliding on the adjacent stationary vertical rod; a cross-piece above the cylinder and connecting the reciprocating rods and a connection between this cross-piece and the working beam of the engine.

7. The combination substantially as described of the two expansible steam or vapor cylinders arranged end to end, and a closed cylinder at the junction of the cylinders and having the ends of the cylinders attached thereto by an air and steam tight connection and projecting within the lower cylinder.

8. In a steam-engine of the class described, the combination, substantially as set forth, with the upper expansible steam-cylinder, of a plate covering the upper end of said cylinder and a displacement-plug attached to the bottom of said plate and extending within said cylinder.

9. The combination substantially as described of a steam or vapor cylinder, a device having a reciprocating movement as the steam or vapor is admitted alternately in the opposite sides of this device; two pairs of valve-chambers, one pair at one end of the cylinder, the other pair at the other end; pipes respectively connecting the steam-pipe with a valve-chamber at each end of the cylinder, both valve-chambers being on the same side of the cylinder; pipes respectively connecting the condenser with a valve chamber at one end of the steam-cylinder, both chambers being in the same side of the cylinder and each opposite a steam-valve cylinder; pipes respectively connecting the exhaust and steam valve chambers of each steam-cylinder with the same valves in each chamber; mechanism operating each valve to open and close the same; mechanism on the opposite sides of the cylinder and operated by the movement of the reciprocating device to alternately open and close the steam and exhaust valves on the opposite sides of this device.

10. In a steam-engine, the combination substantially as described, of two longitudinally-expansible cylinders connected together end to end, the upper cylinder attached to a fixed horizontal plate and the lower cylinder attached to a fixed horizontal plate; a boss-plate; two pairs of valve-chambers, one pair supported on the upper horizontal plate and the other pair attached to the under side of the lower plate; pipes respectively connecting the steam-pipe with an upper valve-chamber and a lower valve-chamber, both of said valve-chambers being on the same side of the cylinder; pipes respectively connecting the condenser with an upper valve-chamber and with a lower valve-chamber, both of said chambers being on the same side of the steam-cylinder and each opposite a steam-valve chamber; valves in each chamber; mechanism for operating each valve; a plate attached to the connection between the two steam-cylinders and reciprocating as these cylinders alternately expand and contract; mechanism on the opposite sides of the cylinders and operated by this plate and each acting on the reciprocating movement of the plate to operate the valve mechanism; pipes connecting respectively the exhaust and steam valve chambers of each steam-cylinder with the same.

11. The combination substantially as described with a steam-cylinder of a valve-chamber fixed at the end of the same and communicating with the end of the cylinder and with the steam-pipe or exhaust-pipe; a rotary valve formed of two parallel plates placed between the entrance of the steam-cylinder and the entrance of the steam or condenser pipe and each plate furnished with sector-shaped openings at equal distances apart and of equal size, the openings in one plate registering with the openings in the other plate and one plate fixed to the walls of the valve-chamber and the other to a rotating arbor, and mechanism acted upon by a reciprocatory piston-head to suddenly open the valve on the movement of the piston-head in one direction and to close it suddenly in the movement of the piston-head in the other direction.

12. The combination substantially as described of the plate 32^a; rotating arbor 31 mounted on the same, the perforated valve-plate 29 fixed on the arbor and having an even number of equidistant sectoral openings of equal size; the wheel 33 loose on the arbor; the cord 34 on said wheel, the springs 36 and 43; the ratchet-wheel 37 having twice the number of teeth as the openings in the valve fixed in the arbor; the dog 38 connecting the ratchet-wheel with the wheel on the arbor; the toothed parallel wheels 39 and 40, each having half the number of teeth as the ratchet-wheel fixed on the arbor and having the teeth of one alternating with the teeth of the other; the bell-crank lever 35 having one arm attached to the cord; the holding-pawl 44 bearing against a tooth of one of the parallel wheels; the holding-pawl 46 bearing against a tooth of the other parallel wheel; a rod 47 connected to the end of this pawl and reciprocating piston-head; rods 41 and 43 attached to this piston-head, one striking one arm of the bell-crank lever to operate the same as the piston makes its strokes in one direction and the other rod acting to strike the pawl and disengage its end from the toothed wheel as the piston-head further moves in the same direction; a collar 48 on the rod 47 acted upon by the piston-head as it completes its stroke in either direction whereby the rod is moved to disengage the end of the attached lever from the tooth of that of the parallel wheels with which it engages.

13. The combination substantially as described of a reciprocating piston-head, a plate attached to said piston-head, rods 41 and 45 at right angles to this plate and attached to the same near their centers, the bell crank lever opposite each end of the rod, the holding-pawls 44 opposite each end of the rod 45, the rod 41 acting to move the bell-crank lever as the piston-head moves, and a rod 45 acting to strike the holding-pawl as the reciprocating piston-head moves further in the same direction.

14. The combination, substantially as described, of the bell-crank levers 35; the cord; spring; loose wheel; grooved wheel; ratchet-wheel; spring-dog and rotating valve-arbor operated by said bell-crank lever; the reciprocating plate 11, the rod 41 attached thereto; the pivoted catches 42 on said rod, each catch moving the corresponding bell-crank lever as the rod moves in one direction but passing the bell-crank lever as the rod moves in the other direction.

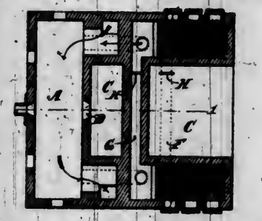
15. The combination, substantially as described, with the arbor of the rotating valve, of the rotating ratchet-wheel 40 fixed on said arbor; the plate 32^a supporting said arbor; the rod 47; the hub 50 on said rod; the projection 49 attached to the connection between the steam-cylinders; the plate 6 forming the top of the upper cylinder; the spring 50 between said plate and said hub; and the pawl 46 pivoted to said plate 32^a and actuated by said rod.

16. The combination substantially as described of the reciprocating piston-head, two opposite holding-pawls 46 and 46^a, two rods moving longitudinally at right angles to the plane of the piston-head, one attached to one pawl and the other to the other pawl, and a boss 49 on one rod adapted to be struck by the lug on the piston-head to move the rod as the piston-head moves in the other direction.

17. The combination substantially as described of the cylinder 3 having a reciprocating movement, the depressed top of the same, a pipe 52 extending upward through said depressed top and a sleeve on the end of this pipe, a flexible pipe 54 extending from this sleeve to the condenser-pump, the puppet-valve 55 in the pipe, and closing the pipe, a stem 56 to this valve extending through the sleeve, a spiral spring 59 on this stem between the end of the sleeve and a hub in the stem, a pivoted lever 58 having one end bearing against the stem and a projection 57 in the condenser-pipe striking this lever to force in the stem and open the valve when the reciprocating cylinder reaches the end of one stroke.

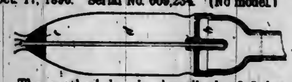
590,864. REGENERATIVE GAS-FURNACE. FREDERICK SIEMENS, Dresden, Germany. Filed Feb. 26, 1897. Serial No. 625,228. (No model.)

Claim.—1. In a regenerative gas-furnace, the combination with the furnace-chamber having a tap-hole in its front wall and a door in its rear wall in line with said tap-hole, of two connected gas-producers respectively arranged behind and opening into the opposite ends of the furnace-chamber and having a free space between them to afford access to said door, substantially as described.



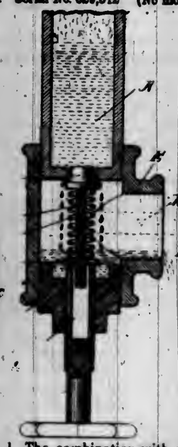
2. In a regenerative gas-furnace, the combination with the furnace-chamber, of two gas-producers each having an upper and lower chamber, said producers being respectively arranged behind and opening into the opposite ends of the furnace-chamber and having a free space between them, and valved flues connecting the upper and lower chambers of said producers, substantially as described.

590,865. METHOD OF MOUNTING INCANDESCENT MANTLES ON GAS-BURNERS. WILHELM H. A. SIEVERTS, Hamburg, Germany. Filed Oct. 17, 1896. Serial No. 609,234. (No model.)



Claim.—The method herein described of fixing incandescing mantles to gas burners, consisting in exposing the mantle while on the burner to the action of an oxyhydrogen-gas flame directed radially inward against the mantle, whereby the mantle is contracted and fixed on the burner, substantially as described.

590,866. STEAM-TRAP. JOHN SPITZMILLER, Poplar Bluff, Mo., assignor of one-half to Horace D. Williams, same place. Filed Mar. 27, 1897. Serial No. 629,512. (No model.)

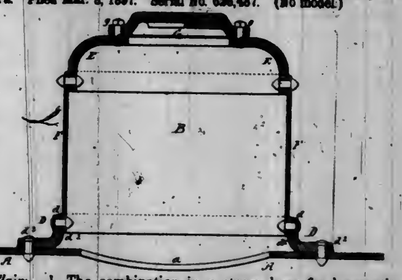


Claim.—1. The combination with a pipe A forming a reception for water of condensation, of a coupling arranged on the end of said pipe, a plug in said coupling opposite the pipe A, a rod threaded through said plug and extending into said coupling, a valve closing an opening in the pipe A, and a spring interposed between said threaded rod and valve; substantially as described.

2. In a steam-trap, the combination with a suitable receptacle for collecting the water of condensation, of a valve which closes an opening in the bottom of said receptacle, a stem on said valve, a spring surrounding said stem, a follower strung on the stem, a hollow threaded rod for regulating the compression of the spring and a coupling in which said hollow threaded rod is mounted; substantially as described.

3. In a steam-trap, the combination with a suitable receptacle in the form of a pipe for collecting the water of condensation, of a valve for closing an opening in the bottom of said receptacle, a stem on said valve, a spring surrounding said stem, a follower which bears against one end of said spring, a hollow, threaded rod for adjusting the compression of the spring, the hollow in said rod receiving the valve-stem and a T-coupling mounted on the end of said pipe, in which coupling the hollow threaded rod is mounted, the water of condensation passing beyond the valve from the pipe, finding an exit through the side opening in the T-coupling; substantially as described.

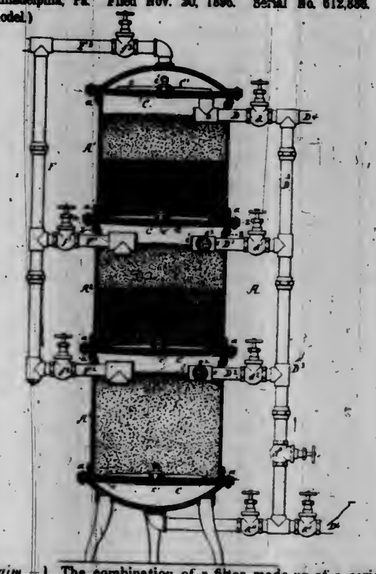
590,867. STEAM-DOME. SAMUEL M. VAUCLAIN, Philadelphia, Pa. Filed Mar. 8, 1897. Serial No. 626,457. (No model.)



Claim.—1. The combination in a steam-dome for locomotive-boilers, of the pressed-steel base-ring having a base-flange and a vertical flange, a pressed-steel crown-ring and a cylindrical central section having a welded joint and of an even height throughout, said central section being secured to the vertical flange of the base-ring and to the flange of the crown-ring, substantially as described.

2. The combination of the base-ring having a flaring base-flange of the contour of the boiler-shell and having a planed under surface and a vertical flange, the upper edge of which is straight, said flange being bored, a central section resting within the bored portion of the base-ring, with a crown secured to the central section, substantially as described.

590,868. FILTER. LOUIS WAGNER, Jr., and ROBERT T. WEAVER, Philadelphia, Pa. Filed Nov. 30, 1896. Serial No. 613,886. (No model.)



Claim.—1. The combination of a filter made up of a series of sections, each section separated from the other by a perforated plate, filtering material within each section, a valved inlet for each section and a valved outlet at the top of each section, a discharge-pipe at the bottom of the filter, the filter being so arranged that the surface of the filtering material in either section can be cleansed without disturbing the filtering material and any one of the sections can be cleansed without disturbing the other sections, substantially as described.

2. The combination in a water-filter, of the sections A^1, A^2, A^3, a perforated plate and a gauze plate separating the sections, the said gauze plate being clamped between the sections forming a packing.

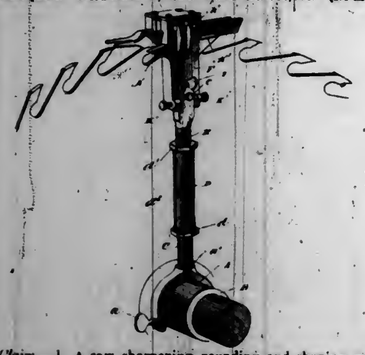
a vertical pipe D^3, branches D, D', D^2 extending from the pipe into the upper portion of the several sections, valves in the several branches, a pipe F having branches F', F^2 extending into the upper portions of the chambers A^2, A^2, valves in said branches, a branch F^2 communicating with the top of the filter and a pipe communicating with the bottom of the filter, substantially as and for the purpose set forth.

3. The combination in a water-filter, made up of sections, one or more of the sections having filtering material mounted on perforated plates leaving a space between the filtering material of one section and the perforated plate above it, an inlet-pipe on a line with the filtering material in said section and an outlet-pipe also on a line with the filtering material so that when the valves of the two pipes are opened the water will pass through the upper portion of the filtering-chamber over the surface of filtering material and escape through the outlet-pipe without disturbing the main body of the filtering material, substantially as described.

4. The combination of a water-filter made up of sections, perforated plates separating the sections and supporting the filtering material of each section, a limited amount of filtering material in each section so as to form a space between the filtering material and the perforated plate above it, an inlet-pipe having an opening at one side, an outlet-pipe on the opposite side of the filter so that when the two pipes are open the water will enter the filter through the side opening and circulate over the surface of the filtering material and remove any sediment therefrom and carry it to the waste-pipe, substantially as described.

5. The combination in a sectional water-filter, of the series of sections mounted one above the other each section having a body, flanges at top and bottom, means for securing the flanges together, wire-gauze mounted between the said sections and forming the gaskets therefor, perforated plates supporting the said wire-gauze, filtering material in each section, perforated plates and wire-gauze at the top and bottom of the filter, an inlet-pipe communicating with the top of each section and with the bottom of the filter, valves in said pipe, an outlet-pipe for filtered water communicating with the bottom of said pipe, a valve for said outlet-pipe, a waste-pipe communicating with the top of the several sections and a valve for the said pipe so that the water will percolate through the entire series of filtering material whereby any one of the sections can be cleansed, substantially as described.

590,869. SAW SHAPING AND SHARPENING DEVICE. W. ASHER WILCOX, Rich Hill, Mo., assignor of one-half to William T. Marsh, same place. Filed Sept. 13, 1896. Serial No. 606,276. (No model.)

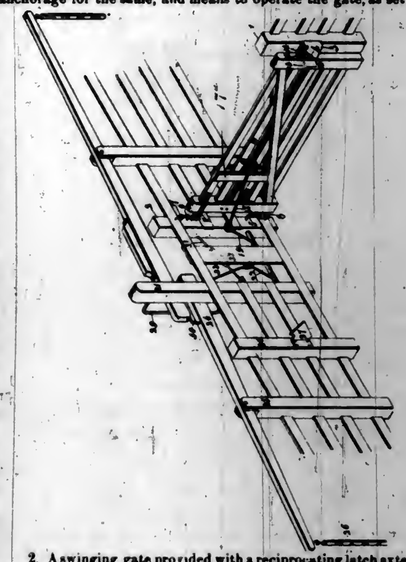


Claim.—1. A saw sharpening, rounding and shaping machine, consisting of the head portion provided with the side and central pieces, the central pieces being wedge-shaped as shown, the inclined fileways between the side and central pieces, the guide or gage extensions or shoulders, the clamping-screws for binding the head portion and saw, and means for supporting the head portion upon the saw, substantially as shown and described.

2. A saw shaping, rounding and sharpening machine, consisting of the head portion having the side and central blocks or pieces, the central block or piece being wedge-shaped as shown, so as to be adjustable, the inclined fileways between the side and central blocks or pieces, the guide or gage extensions or shoulders, and means for supporting the head portion above the saw, substantially as shown and described.

590,870. SWINGING GATE. WILLIE D. WILSON, Sidney, Ill. Filed Dec. 17, 1896. Serial No. 616,096. (No model.)

Claim.—1. A swinging gate provided with a reciprocating latch extending through the entire gate-frame, having its front part curved upward to form a latch, and its rear part curved downward and forward to limit the forward movement of the latch and afford a secure anchorage for the same, and means to operate the gate, as set forth



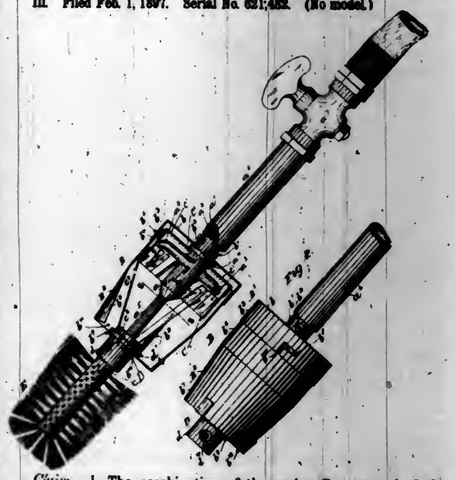
2. A swinging gate provided with a reciprocating latch extending through the entire gate, and having a loop in its body part, a stop at the rear of the loop, a link connecting the loop and a crank-arm, and means to operate said gate.

3. A swinging gate, having a reciprocating latch composed of a single rod twisted to form a loop in its body part, said latch extending through the entire gate-frame, and curved downward and forward at its rear end, a stop at the rear of said loop to limit the movement of the latch and open the gate, and means to operate the same, as set forth.

4. A swinging gate having a reciprocating latch provided with a loop, a stop on said gate against which the loop strikes to open the gate and means connected with the loop to operate the gate, as set forth.

5. A vertically-adjustable swinging gate provided with a collar and a retaining-hook and a gate-post having a staple and a graduated inclined holder having seats, all arranged and combined as set forth.

590,871. BRUSH. CHARLES ABRELL and EDWARD BURJES, Alton, Ill. Filed Feb. 1, 1897. Serial No. 621,482. (No model.)

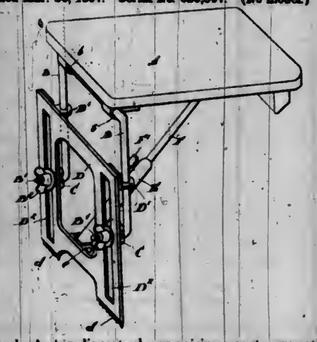


Claim.—1. The combination of the casing B composed of the part B', having the slot b^4, and the part B^2, having the pin b^5 for se-

curing said parts together; a water-wheel within the casing; a tubular water-inlet leading into the casing through its inner end, and having a shoulder c^4; a bearing b^3, having a circular opening b^{10}; means for attaching said bearing to the casing; a holder D rotating within said opening b^{10}; means for attaching said holder to the water-wheel; a ring encircling said water-inlet, and resting against said shoulder c^4; and means for attaching said ring to said wheel substantially as described.

2. The combination of a casing, a water-wheel C having inwardly-projecting buckets c; a water-inlet; a ring encircling said inlet, spokes connecting the wheel C to said ring; a brush-holder D; spokes c^2 connecting the wheel C to said holder; the bearing b^3 for said holder, having the opening b^{10}; and a brush having one end in said holder substantially as described.

590,872. SHINGLING-STOOL. WILLIAM H. ALLEN, Griggsville, Ill. Filed Mar. 26, 1897. Serial No. 629,397. (No model.)



Claim.—1. A shingling-stool, comprising a seat, supporting-arms attached to one edge thereof, and detachable feet having sockets for the lower ends of the supporting-arms, substantially as described.

2. A shingling-stool, comprising a seat, supporting-arms attached to one edge thereof and adjustable to any angle, and detachable feet for the lower ends of the supporting-arms, substantially as described.

3. A shingling-stool, comprising a seat, supporting-arms pivoted to one edge thereof, so as to adjust themselves to any angle, and detachable feet for the lower ends of said arms, provided with means for engaging the roof, substantially as described.

4. A shingling-stool, comprising a seat, supporting-arms attached to one edge thereof, a bar attachable to the lower ends of the supporting-arms, and feet pivoted thereon, substantially as described.

5. A shingling-stool, comprising a seat, supporting arms attached to one edge thereof, a bar attachable to the lower ends of the supporting-arms, and feet pivoted thereon, the said feet being faced with an adhering material, substantially as shown and described.

6. A shingling-stool, comprising a seat, hinged supporting-arms attached to one edge thereof, and a telescopic brace adjustable in length and attached to the opposite edge of the seat and to the lower ends of the supporting-arms, substantially as described.

7. A shingling-stool, comprising a seat, hinged supporting-arms attached to one edge thereof, detachable feet for the lower ends of said arms, and a telescopic brace adjustable in length and attached to the opposite edge of the seat and to the lower ends of the supporting-arms, substantially as described.

8. A shingling-stool, comprising a seat, hinged supporting-arms attached to one edge thereof, a bar detachably connected with the lower ends of the supporting-arms, feet pivoted thereto, and a brace of adjustable length connected with the lower ends of said arms and the upper edge of the seat, substantially as described.

9. A shingling-stool, comprising a seat, hinged supporting-arms attached to one edge thereof, a bar detachably connected with the lower ends of the supporting-arms, feet pivoted thereto having a facing of an adhering material, and a brace of adjustable length connected with the lower ends of said arms and the upper edge of the seat, substantially as shown and described.

10. A shingling-stool, comprising a seat, hinged supporting arms attached to one edge thereof and adjustable in length, and a brace adjustable in length attached to the opposite edge of the seat and the lower ends of the supporting-arms, substantially as described.

11. A shingling-stool comprising a seat, hinged supporting-arms of adjustable length attached to one edge thereof, detachable feet for the lower ends of said arms, and a brace of adjustable length attached to the lower ends of said arms and to the upper edge of the seat, substantially as described

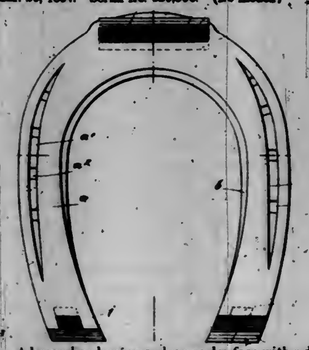
12. A shingling-stool, comprising a seat, hinged supporting-arms formed of two members adjustable one upon the other, a bar detachably connected with the lower ends of the supporting-arms, feet pivoted thereto, and a brace formed of two members adjustable one upon the other and connected to the lower ends of the supporting-arms and to the upper edge of the seat, substantially as described.

590,873. HINGE. WILLIAM B. ARNOLD, Abington, Mass. Original application filed June 22, 1896, Serial No. 596,367. Divided and this application filed May 10, 1897. Serial No. 635,764. (No model.)



Claim.—As an article of manufacture, a hinge having two leaves intermediately bent back on themselves, and overlapped around a central hinge-pintle, the opposite portions of each of said leaves being pinched together adjacent the pintle and said leaves having lateral enlargements formed in said pinched-together portions, removed from the pintle, and projecting outwardly from the leaves, substantially as described.

590,874. HORSESHOE. GEORGE T. BERRYHILL, Alpena, Mich. Filed Mar. 26, 1897. Serial No. 629,390. (No model.)



Claim.—A horseshoe having a plane under face with a diagonally-disposed recess, the recess opening at said plane face of the shoe, the shoe also having a downwardly-extending abutment projected from the said plane face of the shoe and having its inner face in alinement with one wall of the recess in the shoe, and a calk the upper portion of which is projected into the recess in the shoe and the lower portion of which projects downwardly with one face lying snugly against the diagonal face of the abutment.

590,875. NON-REFILLABLE BOTTLE. ATMARAM A. BHIDE, Bombay, India. Filed July 23, 1896. Serial No. 600,224. (No model.)



Claim.—1. A bottle having its upper end formed with an outer and an inner wall integrally united with each other and spaced apart forming an annular chamber, the upper portion of said inner and outer walls constituting the neck of the bottle, the said inner wall near its upper end being perforated, whereby when liquid is poured from the bottle a portion of the liquid will pass into the said annular

chamber through the said perforations, the said annular chamber being adapted to contain a medium which by its changed condition when acted upon by liquid passing from the bottle into the said annular chamber will indicate abstraction of some of the liquid from the bottle, substantially as described.

2. A bottle having an annular chamber extending from the upper end a predetermined distance downward, the said chamber being adapted to receive a fugitive medium, the inner wall of the said chamber being perforated near the upper end, a cork or the like adapted to fit in the neck of the bottle and to close said perforations when in position, the said perforations establishing communication between the interior of the bottle and the said chamber, whereby when the cork is removed and the liquid is poured from said bottle, a portion of the liquid contents will pass through the perforations into the said annular chamber to act on the fugitive material contained therein, substantially as described.

3. The combination with a bottle having its upper or neck portion formed with a double wall constituting an annular chamber, the inner wall of said chamber being provided with a series of perforations adapted to establish communication between the interior of the bottle and the said chamber, and a cork or the like held in the neck of the bottle and adapted to close said perforations, of a written or imprinted medium in the said chamber which will change color or be obliterated when acted on by the liquid contained in the bottle, a portion of the contents of the bottle passing into the said chamber through the perforations when the contents is poured from the bottle, substantially as described.

4. The combination with a bottle having its upper or neck portion formed with a double wall constituting an annular chamber, the inner wall of said chamber being provided with a series of perforations, and a cork or the like held in the neck of the bottle and adapted to close said perforations, the said perforations when the cork is removed establishing communication between the interior of the bottle and the said chamber, whereby when the liquid contents of the bottle is decanted a portion of said contents will pass through said perforations into the said annular chamber, of a written or imprinted medium and a dissolvable medium placed in the said annular chamber, and respectively changed in condition when saturated by the liquid passing from the bottle into the said chamber, substantially as described.

590,876. **SPOOL-HOLDER.** GEORGE H. BLISS, Jr., Watsonville, Cal. Filed Oct. 24, 1896. Serial No. 609,870. (No model.)

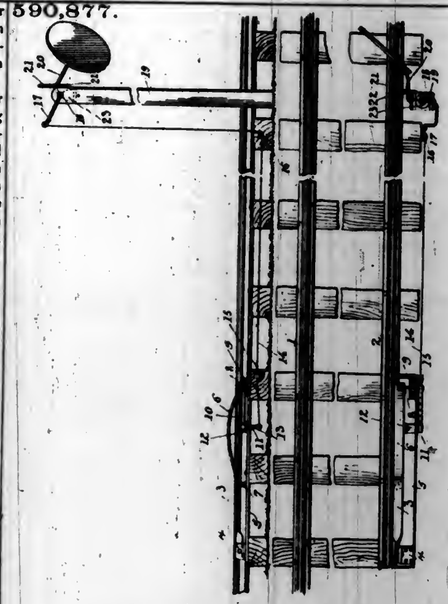


Claim.—A spool-holder, consisting of a spool holding member and a pin member, the former consisting of a spring-wire bent into substantially a rectangular figure and so that the ends of the wire are upon one side of the rectangle and separated from each other, the central portion of the wire on the opposite side of the rectangle being bent outwardly or away from the rectangle forming a rectangular loop which occupies the central portion of this side, the outer ends of the side bars of this loop being bent back upon themselves to form two pivot-eyes, the pin member consisting of a double-pointed pin or staple the loop end of which is bent back upon itself and the connecting central portion whereof passes through the pivot-eyes on the holder and lies parallel with the corresponding portion of the loop of the holder, substantially as described.

590,877. **DANGER-SIGNAL FOR RAILWAY-CROSSINGS.** OSCAR P. BONNER, Crawfordville, Ga. Filed July 8, 1897. Serial No. 643,851. (No model.)

Claim.—An automatic railway-crossing signal, comprising the lever 3, fulcrumed on the bracket 4, fixed to the plate 5, and having its curved portion 6 projecting into the path of the car-wheels, the spring 7 arranged to project said lever into the path of the car-wheels, the pin 8 fixed in the free end of said lever and extending through the guide-bracket 9, the bell-crank lever 11 having its horizontal arm pivoted to said pin, in combination with the shaft 18, formed with a crank-arm 17, connected to the vertical arm of said bell-crank lever by a flexible rod, an alarm-bell mounted on said shaft, and a signal-vane mounted on an approximately horizontal arm of the shaft, and a guide-bracket 22 adapted to limit the motion of the horizontal arm of said shaft, substantially as shown and described.

590,877.



590,878. **RAIL-JOINT SUPPORT.** WOODLEY BRUGLER, Columbia, N. J., assignor to himself and Michael W. Weller, same place, and John Irvin Miller, Portland, Pa. Filed Mar. 9, 1897. Serial No. 626,594. (No model.)



Claim.—1. The combination in a rail-joint, of the ties, the rails, the bearing-plate resting on the ties and engaging the rail-bases both at the ties and between them, and an arch located between the ties and engaging the lower surface of the bearing-plate, said arch having its support exclusively upon the ground, and engaging the ties with its ends to hold it against longitudinal movement, substantially as described.

2. In a railway-rail joint, the combination, with the rails and the fish-plates, of a bearing-plate located under the rails at their joints and under the fish-plates, ties supporting the bearing plate, and an arch having bearing against the ties and likewise engaging with the bearing-plate between the ties, substantially as shown and described.

3. The combination, with abutting railway-rails, a connecting-plate for the joint of the rails, and ties adapted to support the rails, of a bearing-plate interposed between the ties and the bottom of the rails and their connecting-plates, an arch located between the ties, having a center and upper end engagement with the bottom of the bearing-plate, and a connection between the lower end portions of the arch, as and for the purpose specified.

4. The combination, with abutting railway-rails, their fish-plates, and ties supporting the rails and their fish-plates, of a bearing-plate located between the ties and the rails and their fish-plates, having engagement with all of said objects, a supporting-arch located between the ties, having upright end sections engaging with the ties, panels between the crown and end sections of the arch, engaging in connection with the crown of the arch with the under face of the bearing-plate, and a tie-bar connecting the lower end portions of the arch, as and for the purpose specified.

590,879. **CAR-BRAKE.** WILLIAM H. CARTER, Chicago, Ill. Filed Mar. 17, 1897. Serial No. 627,915. (No model.)

Claim.—1. A friction-clutch for car-brakes comprising the disk having hubs, the collars, the segmental shoes adapted to bear on the periphery of the disk, the radial bolts secured to the collars and extending through the shoes and the springs surrounding the bolts between the collars and the shoes; substantially as and for the purpose set forth.

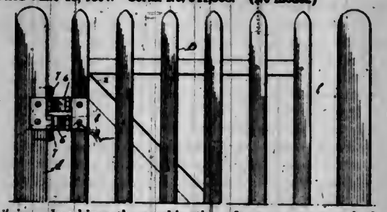


2. A frictional device for application to the axle of a car, a combination of a disk 4 having a notched collar 10 for fixing the disk on said axle, collars or spiders loose upon the hub of the disk, shoes carried by said collars or spiders bearing upon said disk, and means for forcing the shoes against the disk at will, substantially as herein described.

3. In a friction device for car-brakes the combination of the axle, the disk fixed on the axle, shoes constructed to bear upon the periphery of said disk, the collar or spider for holding said shoes, mounted loosely upon the hub of the disk and having arms to which the respective shoes are connected, and a winding-cable or equivalent flexible connection passing around the shoes and adapted to press them into engagement with the disk and to hold them against rotation substantially as set forth.

4. In a friction device for car-brakes, the combination of the disk fixed on the axle, the peripheral shoes bearing upon said disk, the supporting spider constructed to be loosely mounted upon the hub of the disk, and having arms to which the shoes are connected, and springs interposed between the spider and the shoes, to hold them normally away from the disk, substantially as set forth.

590,880. **GATE-HINGE.** GEORGE H. CHOATE, Hailey, Idaho. Filed June 16, 1897. Serial No. 641,303. (No model.)



Claim.—In a hinge the combination of two arms, one end of each arm being hinged to a support, and a spring actuating the hinge, the arms being normally crossed one above the other, and the spring serving to hold the arms in said position, the remaining ends of the arms being adapted to be hinged to a second support.

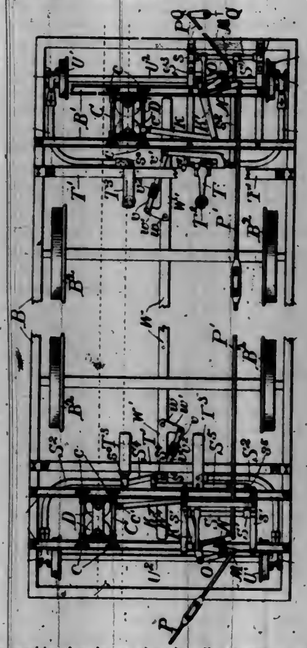
590,881. **ELECTRIC RAILWAY.** JOHN W. DARLEY, Jr., Baltimore, Md. Filed Jan. 13, 1896. Serial No. 575,286. (No model.) Patented in France Jan. 9, 1896, No. 253,078, and in England Jan. 17, 1896, No. 1,196.

Claim.—1. The combination with the wheels U' and the boxes U, of the magnet-carriages, and magnets carried thereby, and a system of levers connecting said boxes with the magnet-carriages, whereby the position of the said magnets is adjusted automatically whenever the car goes around a curve, substantially as described.

2. The combination in an electric-railway system having an interrupted conductor with armatures adapted to connect the segments of said conductor with a source of electricity, of a car-truck carrying magnets adapted to operate said armatures, and means controlled by the car for automatically adjusting the position of the said magnets in curved portions of the track, substantially as described.

3. The combination in an electric-railway system, of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor and connected thereto by leading-in wires with pivoted armatures adapted to complete or break the circuit through said leading-in wires, magnets carried by the car, and adapted to operate said armatures, and either close or open the circuits, and means operated by the car for automatically adjusting the positions of said magnets in curved portions of the track, substantially as described.

4. The combination in an electric-railway system, of an interrupted conductor, running along the track, a working conductor approximately parallel to the interrupted conductor, and connected thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, magnets carried by the car and adapted to operate said armatures and either close or open the circuits, wheels mounted on axles having journal-bearings near the ends of the car, hubs having a lateral play operated by said wheels, and a system of levers operated by said hubs, and adapted to automatically adjust the position of said magnets relative to said amatures, substantially as described.



5. The combination in an electric-railway system, of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor, and connected thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, magnets carried by the car and adapted to operate said armatures and either close or open the circuit, wheels mounted on an axle having journal-bearings near the end of the car, hubs having a lateral play operated by said wheels, and a system of levers operated by said hubs, and adapted to automatically adjust the position of said magnets relative to said armatures, the said levers being pivoted near the longitudinal axis of the car, and being bent outward toward said hubs, substantially as described.

6. The combination in an electric-railway system of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor, and connected thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, magnets carried by the car and adapted to operate said armatures and either close or open the circuit, wheels mounted on an axle having journal-bearings near the end of the car, hubs having a lateral play operated by said wheels, and a system of levers operated by said hubs, and adapted to automatically adjust the position of said magnets relative to said armature, the said levers being pivoted near the longitudinal axis of the car, and being bent outward toward said hubs, and springs pressing said levers downward to hold said wheels firmly on the track, substantially as described.

7. The combination in an electric-railway system of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor and connected thereto by leading-in wires with pivoted armatures adapted to complete or break the circuit through said leading-in wires, laterally-movable wheeled magnet-carriages mounted on the car-truck, with magnets carried by said carriages and adapted to operate said armatures and either close or open the circuit, and means operated by the car for automatically adjusting the positions of said magnets in curved portions of the track, substantially as described.

8 The combination in an electric-railway system of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor, and connected

thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, laterally-movable wheeled magnet-carriages mounted on the car-truck, with magnets carried by said carriages and adapted to operate said armatures and either close or open the circuit, wheels mounted on an axle having journal-bearings near the end of the car, hubs having a lateral play operated by said wheels and a system of levers operated by said hubs and adapted to automatically adjust the position of said magnets relative to said armatures, substantially as described.

9. The combination in an electric-railway system, of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor, and connected thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, laterally-movable wheeled magnet-carriages mounted on the car-truck, with magnets carried by said carriages and adapted to operate said armatures and either close or open the circuit, wheels mounted on an axle having journal-bearings near the end of the car, hubs having a lateral play operated by said wheels and a system of levers operated by said hubs, and adapted to automatically adjust the position of said magnet-carriages relative to said armatures, the said levers being pivoted near the longitudinal axis of the car, and being bent outward toward said hubs, substantially as described.

10. The combination in an electric-railway system, of an interrupted conductor running along the track, a working conductor approximately parallel to the interrupted conductor, and connected thereto by leading-in wires with pivoted armatures adapted to make and break circuits through said leading-in wires, laterally-movable wheeled magnet-carriages mounted on the car-truck, with magnets carried by said carriages and adapted to operate said armature and either close or open the circuit, wheels mounted on an axle having journal-bearings near the end of the car, hubs having a lateral play operated by said wheels and a system of levers operated by said hubs and adapted to automatically adjust the position of said magnet-carriages relative to said armatures, the said levers being pivoted near the longitudinal axis of the car, and being bent outward toward said hubs, and springs pressing said levers downward to hold said wheels firmly on the track, substantially as described.

11. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for shifting said magnets laterally, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

12. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for simultaneously shifting said magnets laterally, and for altering the direction of the current for reversing the motor, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

13. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for shifting said magnets laterally, means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

14. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for simultaneously shifting said magnets laterally, and for altering the direction of the current for reversing the motor, means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

15. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for shifting said magnets laterally, comprising a shaft Q' with hand-lever for turning the same, and a system of levers operated by said shaft and connected to the said magnets, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

16. In an electric railway, the combination with the car-truck and laterally-movable magnets carried thereby, of means operated by hand for shifting said magnets laterally, comprising a shaft Q' with hand-lever for turning the same, and a system of levers operated by said shaft and connected to the said magnets, means for simultaneously altering the direction of the current for reversing the motor, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

17. In an electric railway, the combination with the car-truck, of a laterally-movable carriage carried thereby, and magnets on the said carriage, means operated by hand for shifting said magnet-carriage laterally, means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

18. In an electric railway, the combination with the car-truck of a laterally-movable carriage with magnets carried thereby, means operated by hand for simultaneously shifting said magnet-carriage laterally, and for altering the direction of the current for reversing the motor, means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

19. In an electric railway, the combination with the car-truck of a laterally-movable carriage with magnets carried thereby, of means operated by hand for shifting said magnet-carriage laterally, comprising a shaft Q' with hand-lever for turning the same, and a system of levers operated by said shaft and connected to said magnet-carriage, means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

20. In an electric railway, the combination with the car-truck of a laterally-movable carriage with magnets carried thereby, of means operated by hand for simultaneously shifting said magnet-carriage laterally, comprising a shaft Q' with hand-lever for turning the same, and a system of levers operated by said shaft and connected to said magnet-carriage, means for altering the direction of the current for reversing the motor, comprising a reversing-drum with contacts carried thereby, and gearing connecting said drum with said shaft Q', means for locking said hand shifting apparatus, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

21. In an electric railroad provided with a sectional conductor and armatures operating as switches along the roadway for cutting the conductor-sections into and out of circuit, of two traveling electromagnets, one closing and the other opening the switches, and means for shifting the magnets laterally, substantially as described.

22. In an electric railroad provided with a sectional conductor and armatures operating as switches along the roadway for cutting the conductor-sections into and out of circuit, of two traveling electromagnets, one for closing and the other for opening the switches and means for shifting the magnets in opposite directions to operate the switches in the same order when the direction of travel is reversed, substantially as described.

23. In an electric railroad provided with a sectional conductor and armatures acting as switches along the roadway for cutting the conductor-sections into and out of circuit, of two traveling electromagnets, one for closing and the other for opening the switches, and a system of links and levers for shifting the magnets laterally, substantially as described.

24. In an electric railroad provided with a sectional conductor and armatures acting as switches along the roadway, for cutting the conductor-sections into and out of circuit, of two traveling electromagnets, one for closing and the other for opening the switches, guide or pilot wheels, for each magnet, traveling on the tracks, and a system of links and levers between each magnet and the respective pilot-wheels for maintaining the magnets in alinement with the switches on curves, substantially as described.

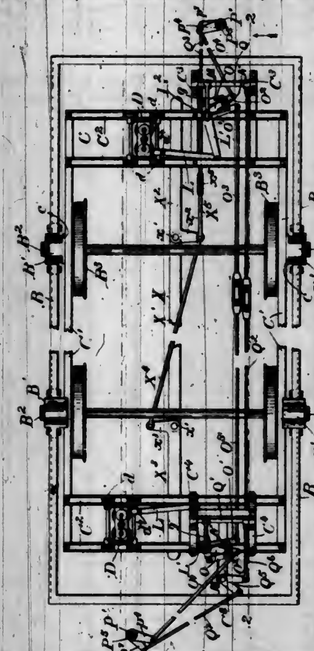
25. In an electric railroad provided with a sectional conductor and armatures acting as switches along the roadway for cutting the conductor-sections into and out of circuit, two traveling electromagnets, and operating mechanism for each magnet for shifting it laterally relative to its support, consisting of two levers, one fulcrumed on the other and connected to the magnet, and the other lever being under the control of the motorman, and pilot or guide wheels running on the traffic-rails and connected to the first named lever, substantially as described.

590,882. ELECTRIC RAILWAY. JOHN W. DARLEY, Jr., Baltimore, Md., assignor of one-half to Michael Holzman, Philip Hamburger, and Leon Hamburger, same place. Filed Aug. 1, 1896. Serial No. 601,404. (No model.)

Claim.—1. In an electric railway, the combination with the truck, of a magnet-frame provided with grooved tracks at each end thereof mounted independently of said truck, magnets suspended from rollers traveling in said grooved tracks with means for moving said magnets laterally, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

2. In an electric railway, the combination with the truck, of a magnet-frame provided with tracks at each end thereof mounted independent of said truck, magnets suspended from rollers traveling on said tracks, with means for moving said magnets laterally, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

3. In an electric railway, the combination with the truck, of a magnet-frame provided with grooved tracks at each end thereof mounted independent of said truck, magnet-carriages mounted on rollers traveling in said grooved tracks, magnets mounted on said carriages, with means for moving said magnet-carriages laterally, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.



4. In an electric railway, the combination with the truck, of a magnet-frame provided with tracks at each end thereof mounted independent of said truck, wheeled magnet-carriages mounted on said tracks, with means for moving said magnet-carriages laterally, and means operated by said magnets for completing the electric circuit through the motor on the car, substantially as described.

5. A current-collecting shoe for use on electric railways comprising a central portion yieldingly connected to the truck, and end portions pivotally connected to said central portion, and provided with lateral arms oppositely disposed, a bar connecting said arms, and means for moving said bar and thus swinging said end portions laterally about their pivots, substantially as described.

6. In an electric railway, the combination with the car-truck and frame mounted thereon and laterally-movable magnets carried by said frame, of a collecting-shoe composed of a plurality of parts pivoted together also carried by said truck, means for shifting said magnets laterally, and for swinging parts of said shoe in the same direction that the magnets are moved, and means operated by said magnets and said shoe for completing the electric circuit through the motor on the car, substantially as described.

7. In an electric railway, the combination with the car-truck and frame mounted thereon and laterally-movable magnets carried by said frame, of a collecting-shoe composed of a plurality of parts pivoted together also carried by said truck, means operated by hand for simultaneously shifting said magnets laterally, and for swinging parts of said shoe in the same direction that the magnets are moved, and means operated by said magnets and said shoe for completing the electric circuit through the motor on the car, substantially as described.

8. In an electric railway, the combination with the car-truck and frame mounted thereon and laterally-movable magnets carried by said frame, of a long collecting-shoe placed near the longitudinal center of the car and composed of a plurality of parts pivoted together with arms oppositely disposed on the pivoted end pieces, and a bar connecting said arms, means operated by hand for simultaneously shifting said magnets laterally and for swinging the end pieces of said shoe in the same direction that the magnets are moved, and means operated by said magnets and said shoe for completing the electric circuit through the motor on the car, substantially as described.

9. In an electric railway, the combination with the car-truck and frame mounted thereon and laterally-movable magnets carried by said frame, of a long collecting-shoe placed near the longitudinal center of the car and composed of a plurality of parts pivoted together with arms oppositely disposed on the pivoted end pieces, a rigid bar connecting said arms, and a hand-crank and system of levers for simultaneously shifting said magnets laterally, and for swinging parts of said shoe in the same direction that the magnets are moved, and means operated by said magnets and said shoe for completing the electric circuit through the motor on the car, substantially as described.

10. In an electromagnet for use on electric-railway cars, the combination with a movable core, and means for returning the said core to the normal position, of a shoe made of diamagnetic material connected to the end of said core, substantially as described.

11. In an electromagnet for use on electric-railway cars, the combination with a movable core, and means for returning the said core to the normal position, of a diamagnetic shoe curved at both ends and connected to the end of said core, substantially as described.

12. In an electromagnet for use on railway-cars, the combination with a vertically-movable core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material suspended from the end of said core, substantially as described.

13. In an electromagnet for use on railway-cars, the combination with a vertically-movable core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material and having the ends curved upward suspended from the end of said core, substantially as described.

14. In an electromagnet for use on electric-railway cars, the combination with a movable core, guides for said core, and a spring for returning the said core to the normal position, of a shoe made of diamagnetic material loosely connected to the end of said core, substantially as described.

15. In an electromagnet for use on electric-railway cars, the combination with a movable core, guides for said core, and a spring for returning the said core to the normal position, of a diamagnetic shoe curved at both ends and loosely connected to the end of said core, substantially as described.

16. In an electromagnet for use on railway-cars, the combination with a vertically-movable core, rollers for guiding said core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material suspended from the end of said core, substantially as described.

17. In an electromagnet for use on railway-cars, the combination with a vertically-movable core, rollers for guiding said core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material and having the ends curved upward suspended from the end of said core, substantially as described.

18. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, of a movable core, means for returning the said core to the normal position, and a shoe made of diamagnetic material connected to the end of said core, substantially as described.

19. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, of a movable core, means for returning the said core to the normal position, and a diamagnetic shoe curved at both ends and connected to the end of said core, substantially as described.

20. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, a vertically-movable core, and a spring carried by said carriage and normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material suspended from the end of said core, substantially as described.

21. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, a vertically-movable core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material and having the ends curved upward suspended from the end of said core, substantially as described.

22. In an electromagnet for use on electric-railway cars, the combination with a plurality of movable core-pieces, guides for said core-pieces, and springs for returning the said core-pieces to the normal position, of a shoe made of diamagnetic material loosely connected to the end of each of said core-pieces, substantially as described.

23. In an electromagnet for use on electric-railway cars, the combination with a plurality of movable core-pieces, guides for said core-pieces, and springs for returning the said core-pieces to the normal position, of a diamagnetic shoe curved at both ends and loosely connected to the end of each of said core-pieces, substantially as described.

24. In an electromagnet for use on railway-cars, the combination with a plurality of vertically-movable core-pieces, rollers for guiding said core-pieces, and springs normally supporting the weight of said core-pieces and the parts connected thereto, of a shoe made of dia-

magnetic material suspended from the end of each of said core-pieces, substantially as described.

25. In an electromagnet for use on railway-cars, the combination with a plurality of vertically-movable core-pieces, rollers for guiding said core-pieces, and springs normally supporting the weight of said core-pieces and the parts connected thereto, of a shoe made of diamagnetic material and having the ends curved upward, suspended from the end of each of said core-pieces, substantially as described.

26. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, of a plurality of movable core-pieces, means for returning the said core-pieces to the normal position, and a shoe made of diamagnetic material connected to the end of each of said core-pieces, substantially as described.

27. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, of a plurality of movable core-pieces, means for returning the said core-pieces to the normal position, and a diamagnetic shoe curved at both ends and connected to the end of each of said core-pieces, substantially as described.

28. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, a plurality of vertically-movable core-pieces, and springs carried by said carriage and normally supporting the weight of said core-pieces and the parts connected thereto, of a shoe made of diamagnetic material suspended from the end of said core-pieces, substantially as described.

29. In an electric-railway system of the character described, the combination with a laterally-movable magnet-carriage, and a magnet carried thereby, a plurality of vertically-movable core-pieces, and springs normally supporting the weight of said core-pieces and the parts connected thereto, of a shoe made of diamagnetic material and having the ends curved upward suspended from the end of said core-pieces, substantially as described.

30. In an electric-railway system of the character described, the combination with a truck and a truck mounted thereon and a laterally-movable magnet-carriage carried by said truck, and a magnet carried by said carriage, of a movable core, means for returning the said core to the normal position, a shoe made of diamagnetic material connected to the end of said core, a pivoted armature mounted near the track and adapted to be controlled by said magnet, and magnetic material placed on either side of said armature to attract said core, substantially as described.

31. In an electric-railway system of the character described, the combination with a truck and a truck mounted thereon and a laterally-movable magnet-carriage mounted on said frame, and a magnet carried by said carriage, of a longitudinally-movable core, means for returning the said core to the normal position, a diamagnetic shoe curved at both ends and connected to the end of said core, a pivoted armature mounted near the track and adapted to be controlled by said magnet, and magnetic material placed on either side of said armature to attract said core, substantially as described.

32. In an electric-railway system of the character described, the combination with a truck and a truck mounted thereon and a laterally-movable magnet-carriage mounted on said frame, and a magnet carried by said carriage, a vertically-movable core, and a spring carried by said carriage and normally supporting the weight of said core and the parts connected thereto, a shoe made of diamagnetic material suspended from the end of said core, a pivoted armature mounted near the track and adapted to be controlled by said magnet, a box inclosing said armature, and arms of magnetic material extending longitudinally from said box, substantially as described.

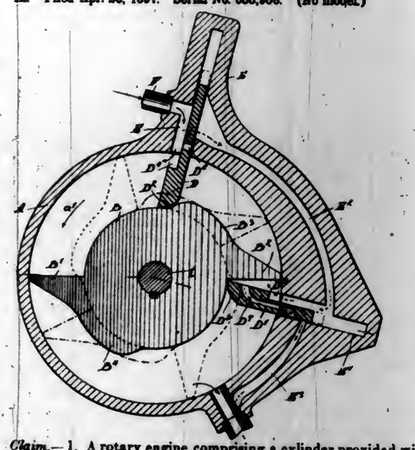
33. In an electric-railway system of the character described, the combination with a truck and a truck mounted thereon and a laterally-movable magnet-carriage carried by said frame, and a magnet mounted in said carriage, a vertically-movable core, and a spring normally supporting the weight of said core and the parts connected thereto, of a shoe made of diamagnetic material and having the end curved upward suspended from the end of said core, a pivoted armature mounted near the track and adapted to be controlled by said magnet, a box inclosing said armature, and arms of magnetic material extending longitudinally from said box, substantially as described.

34. In an electric-railway system of the character described, a pivoted armature, a box containing the said armature and arms of magnetic material projecting from said box, substantially as described.

35. In an electric-railway system of the character described, the combination with a magnet carried by the car and provided with a movable core, of a pivoted armature adapted to be controlled by said movable core, and masses of magnetic material placed in the line of travel of said magnet to draw down said core and thus bring it in closer proximity to said armature, substantially as described.

36. In an electric-railway system of the character described the combination with a magnet carried by the car and provided with a movable core, of a pivoted armature adapted to be controlled by said movable core, a box inclosing said armature and arms of magnetic material integral with or attached to said box and placed in the line of travel of said magnet, to draw down said core and thus bring it in closer proximity to said armature, substantially as described.

590,883. ROTARY ENGINE. OLIVER C. FITTS, Carpentersville, Ill. Filed Apr. 26, 1897. Serial No. 633,958. (No model.)



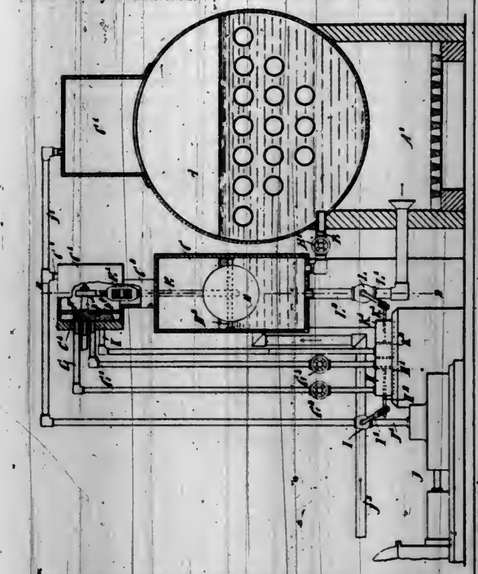
Claim.—1. A rotary engine comprising a cylinder provided with valve-chests connected with each other and with a steam-supply, a piston mounted to turn in the said cylinder and having piston-heads, and abutment-valves fitted to slide in the said valve-chest and in and out of the said cylinder, one of the valves being provided with a port adapted to register with the connection leading to the other valve-chest, to admit steam to the latter after the first valve has moved into a cut-off position, substantially as shown and described.

2. A rotary engine comprising a cylinder provided with valve-chests connected with each other and with a steam-supply, a piston mounted to turn in the said cylinder and having piston-heads, and abutment-valves fitted to slide in the said valve-chest and in and out of the said cylinder, one of the valves being provided with a port adapted to register with the connection leading to the other valve-chest, to admit steam to the latter after the first valve has moved into a cut-off position, the other abutment-valve being also provided with a port for connecting the interior of the cylinder with the exhaust, substantially as shown and described.

3. A rotary engine comprising a cylinder provided with valve-chests standing approximately at right angles one to the other, one of the chests being connected with a steam-supply and the other with the exhaust, the chests being also connected with each other, a piston mounted to turn and having diametrically oppositely arranged piston-heads terminating at their inclined backs with offsets on the peripheral surfaces of the piston, and abutment-valves fitted to slide in the said valve-chests and in and out of the said cylinders, each of the valves having a cut-out portion for admitting steam to the cylinder, and one of the valves having a port for establishing connection between this valve-chest and a connection leading to the other valve-chest, the other abutment-valve being provided with a port for connecting the interior of the cylinder with the exhaust, substantially as shown and described.

590,884. FEEDER AND SAFETY ATTACHMENT FOR BOILERS. WALTER A. GARRIGUS and ROBERT GOLLING, Lenoir City, Tenn. Filed July 20, 1896. Serial No. 599,782. (No model.)

Claim.—1. In a device of the class described, the combination with a boiler, a feed-water pump, and a steam-supply-pipe leading from the steam compartment or dome of the boiler to the pump and provided with a valve having a lever at one end, of a vessel communicating with the boiler, a steam-chest above the vessel and communicating with the steam-supply pipe, a pipe connecting the steam-chest and vessel, a cylinder, a piston in the cylinder and having its stem loosely connected with the lever of the valve in the supply-pipe, pipes leading from the steam-chest to opposite ends of the cylinder, a slide-valve fitted to slide on a valve-seat arranged on one side of the steam-chest over the ends of the pipe leading to the cylinder and provided with a pin projecting therefrom, a pivoted lever in the vessel, a float on one end of the lever, and an adjustable connection between the pin of the valve and the other end of the said lever, substantially as described.

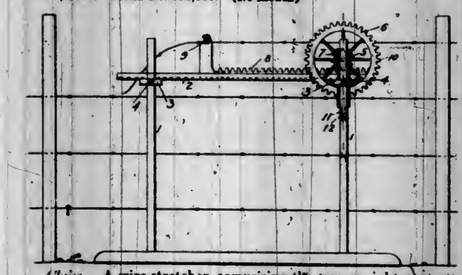


2. A device of the class described, comprising a vessel having a steam-chest and in communication with the steam and water compartments of the boiler, a float-controlled valve in said steam-chest, a cylinder containing a piston, and a pipe connecting said vessel with the fire-box of the boiler, said pipe containing a valve adapted to be opened by said piston, substantially as shown and described.

3. A device of the class described, comprising a vessel having a steam-chest and in communication with the steam and water compartments of the boiler, a float-controlled valve in said steam-chest, a cylinder containing a piston, a pipe connecting the cylinder with the steam-chest and a pipe connecting said vessel with the fire-box of the boiler, said pipe containing a valve adapted to be opened by said piston, substantially as shown and described.

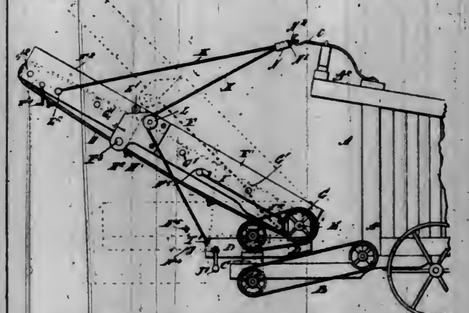
4. In a device of the class described, the combination with a boiler, a feed-pump and a valve supply-pipe connecting the pump and boiler, a cylinder, a piston having its stem connected with the valve of the supply-pipe, a vessel connected by pipes with the boiler and fire-box, a steam-chest connected with the vessel and the supply-pipe, valved pipes connecting the cylinder with the steam-chest, a valve in the pipe leading from the vessel to the fire-box, a second cylinder, a piston in said cylinder and having its stem connected with the valve in the pipe leading from the vessel to the fire-box, a pipe connecting the steam-chest with the said second cylinder, a slide-valve in the steam-chest and controlling the admission of steam to the pipes leading therefrom, a float in the vessel and a connection between the float and slide valve, substantially as herein shown and described.

590,885. WIRE-STRETCHER. WILLIS H. GRAFFORD, Nebo, Ill., assignor of one-half to Thomas J. Scranton, same place. Filed May 14, 1897. Serial No. 636,595. (No model.)



Claim.—A wire-stretcher comprising the two upright posts attached to a base, the track 2 vertically adjustable on said posts, a rack-bar mounted to slide on said track and having a wire-clamp on a stud rising from one end thereof, the pinion and gear for sliding the rack-bar, and a sliding bolt mounted in the frame and designed to engage the teeth of the operating-wheel for holding the same against rotation, substantially as described.

590,886. STACKER FOR THRESHING-MACHINES. WILLIAM HART, New Bedford, Ill. Filed Feb. 10, 1897. Serial No. 622,744. (No model.)



Claim.—1. A stacker, comprising a turn-table, an apron-shaft journaled on the said turn-table, an apron-frame hung on the said shaft and made in two sections hinged together, one section being adapted to be held in an inclined fixed position relative to the turn-table, an equalization-beam hung on a support attached to the separator-frame, a windlass journaled on the turn-table, and ropes connected with the said windlass and the outermost section of the apron-frame, the said ropes passing over pulleys held on the said sections and on the said equalization-beam, substantially as shown and described.

2. The combination of a turn-table, an apron-frame hung on the turn-table so as to swing vertically, the apron-frame comprising inner and outer sections having a hinge connection, ropes at the sides of the apron-frame for raising and lowering the frame-sections, an equalizing-bar supported above the apron-frame, pulleys on the equalizing-bar, pulleys on the inner section of the apron-frame, pulleys on the outer section of the apron-frame adjacent to the inner end and means for winding the ropes, said ropes being connected with the said outer section and passing over the pulleys on the equalizing-bar, and over the pulleys on the said inner frame-section, the pulleys on the said outer section serving to engage and guide the adjacent runs of the ropes when the said outer frame-section is being raised and lowered, substantially as described.

3. In a stacker, the combination of an apron-frame, comprising two sections having hinged connection, the outer section being adapted to be lowered from a position in line with the inner section, ropes connected with the outer section and capable of raising the same, overhead guides, above the apron-frame for guiding the ropes, guides located on the inner section of the apron-frame and over which the ropes also pass, and additional guides for the ropes, said additional guides being located at the inner end of the outer section and serving to engage the ropes when the outer section is being lowered.

590,887. HYDRAULIC OR PNEUMATIC TUNNELING-SHIELD. CORNELIUS G. HASTINGS, Chicago, Ill. Filed Dec. 23, 1896. Serial No. 616,821. (No model.)



Claim.—1. A tunneling-shield, having an inwardly and rearwardly extended annular flange at its front end, cutters on said flange, and a number of partitions in the rear portion of the shield forming walls of communicating chambers, substantially as specified.

2. A tunneling-shield, having a bell-shaped annular flange in its front end, radial cutters thereon, a cylinder extended from said flange to a bulkhead at the rear end of the shield, and scaffold-supports movable in said cylinder, substantially as specified.

3. A tunneling-shell, comprising two sections, the forward one of which has a bell-shaped flange provided with cutters, and the rear one of which has a working chamber and surrounding chambers, and

jacks in said outer chambers, and the air and water pipes, substantially as specified.

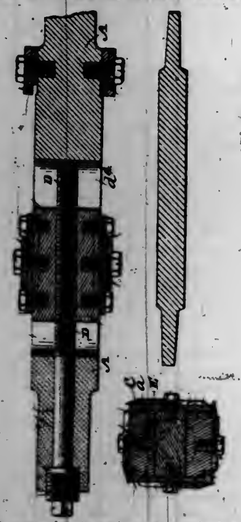
4. A tunneling-shield having a bell-shaped end and provided with radially-arranged cutters thereon, and with partitions within the shield forming braces and working chambers therein, substantially as described.

5. A tunneling-shield, comprising a front section having cutters at its front end and a bulkhead at its rear end, and a rear section having partitions forming braces and working chambers, substantially as described.

6. A tunneling-shield, comprising a front section having cutters at its forward end, a rear section having a plurality of chambers, a hood removably mounted on the rear end of said rear section, brackets or chairs arranged in said hood, a crane beam or arm mounted to rotate on the rear wall of said rear section, and a target in the center of said crane beam or arm, substantially as specified.

7. In a tunneling-shield, the combination with the body of the shield having guideways on its inner surface, of bars sliding in said guideways and provided with feet or legs at their outer ends, substantially as and for the purpose set forth.

590,888. CUTTER-HEAD FOR PLANING-MACHINES. ELI B. HAYES, Oshkosh, Wis. Filed July 17, 1896. Serial No. 599,541. (No model.)



Claim.—1. A cutter-head or planer for a planing-machine comprising a shaft forming a core, fixed knives and movable knives secured upon the same and a rotatable screw lying in the axis of said shaft and a diametrical block connecting the screw to said movable knives for moving them longitudinally thereon, substantially as described.

2. A cutter-head or planer for a planing-machine comprising a shaft forming a core provided with a central longitudinal slot, a block adapted to be adjusted in said slot longitudinally thereof, the said block extending entirely through said shaft laterally, knife-carrying plates secured to the opposite edges of said block and knives mounted upon said plates, and said shaft, substantially as described.

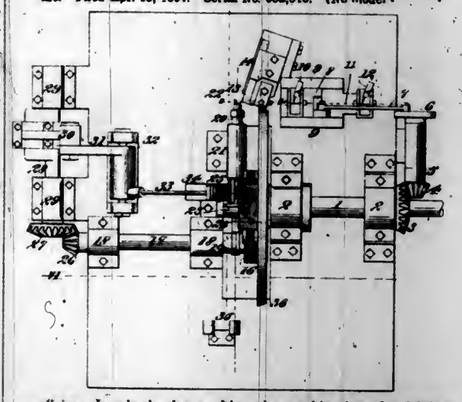
3. A cutter-head or planer for a planing-machine comprising a shaft forming a core, a rotatable screw lying in the axis of said shaft, adjustable knife-carrying plates connected to said screw so as to be adjusted longitudinally of said core and provided with grooves having inclined bottom surfaces, said shaft also having grooves provided with inclined bottom surfaces and knives mounted in the grooves of said plates and shafts whereby they are inclined laterally so as to present an inclined cutting edge to the lumber being operated upon, substantially as described.

4. A cutter-head or planer for a planing-machine comprising a shaft forming a core, a rotatable screw lying in the axis of the said shaft, slides connected to said screw so as to be moved longitudinally of the core upon the rotation of said screw and knives mounted upon said slides, whereby knives on opposite sides of the shaft may be adjusted simultaneously and at one operation substantially as described.

5. A cutter-head for a planing-machine comprising a shaft consisting of an integral core and journals, knives secured to said core, a screw passing through a journal and having its axis parallel with the axis of said shaft and means connecting said screw with some of the knives for adjusting them, substantially as described.

6. A cutter-head or planer for a planing-machine comprising a shaft forming a core and journals integral therewith, knives secured to said core, a screw passing through one of said journals and having its axis parallel with the axis of said shaft, means for adjusting said screw at the end of said journal and means connecting the screw with the knives for adjusting them, substantially as described.

590,889. BARB-WIRE MACHINE. CHARLES F. HIPPER, St. Louis, Mo. Filed Apr. 15, 1897. Serial No. 632,315. (No model.)



Claim.—In a barb-wire machine, the combination of a driving-shaft, a barb-forming spindle, mechanism whereby both rotary and longitudinal movement is imparted to said spindle by said shaft, a fixed cutter, a disk secured to said shaft and revolved thereby as the shaft imparts to said spindle its respective movements, and a cutter secured to said disks for cooperating with said fixed cutter to sever the wire after the barb has been formed by said spindle, substantially as set forth.

590,890. SAFETY-ENVELOP. JAMES A. HOLLY, Pine Bluff, Ark. Filed Mar. 16, 1897. Serial No. 627,814. (No model.)



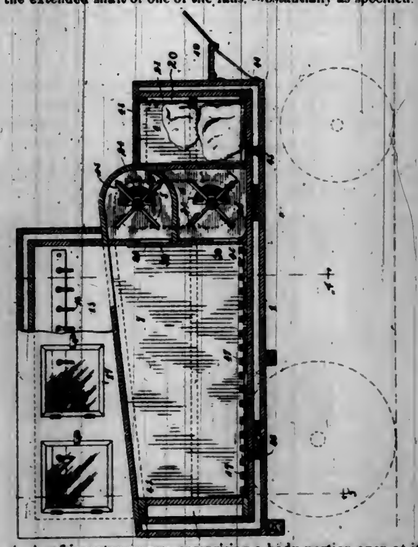
Claim.—An envelop consisting of a rectangular strip, the sides of one body-flap being provided with rows of perforations along its sides and the sealing-flap of the other body-flap being provided with a row of perforations, and weak paper disks provided with a soluble coloring-matter contrasting with the color of the envelop, said disks pasted over the perforations and to the opposite flap, substantially as shown and described.

590,891. REFRIGERATOR MEAT-WAGON. HENRY J. KELLY, Carnegie, Pa. Filed Apr. 7, 1896. Serial No. 586,509. (No model.)

Claim.—1. A refrigerator-wagon, comprising a body portion having a meat-chamber, meat-chests supported on top of the body portion, doors for openings in the inner fronts of said meat-chests, upper and lower air-chambers forward of the meat-chamber and communicating therewith, and an ice-chest forward of the air-chambers and communicating therewith and also having air-passages communicating with air-passages at the sides of the meat-chamber, substantially as specified.

2. A refrigerator-wagon, comprising a body portion having an ice-chest and rotary fans, a band-wheel secured to one of the wheels of the wagon, a pulley mounted on a shaft supported on the body portion and adapted to rotate with said shaft but to move longitudinally thereof, a band connection between the band-wheel on the wagon-wheel and said pulley, another pulley on said shaft, a pulley on the extended shaft of one of the fans, a band connection between said last two named pulleys, and a band connection between the two fans, substantially as specified.

3. A refrigerator-wagon, comprising a meat-chamber, an ice-chest located in the front portion of the wagon-body, air-chambers also located in the front portion of the wagon-body, air-circulating fans in said air-chambers, pulleys mounted on a shaft supported by the body portion of the wagon and operated by a band connection with a band-wheel on one of the wheels of the wagon, means for allowing a vertical movement of said pulleys relatively to the band-wheel, and a connection between one of said pulleys and the pulley on the extended shaft of one of the fans, substantially as specified.



4. A refrigerator-wagon, comprising a body portion open at its top and having a meat-chamber, the outer walls of which are spaced from the sides of the wagon-body, a lining for said chamber spaced from the outer wall of the chamber to form air-passages, a lattice in the rear portion of the chamber having an air-space rearward of it communicating with said air-passages, an ice-chest, circulating-fans for forcing air through the meat-chamber and through the air-passages, strips secured longitudinally on the upper side of the body portion, meat-chests secured on said strips at opposite sides of the body portion and having a space between them and door-closed openings, a cover for the opening in the top of the meat-chamber, and means for imparting rotary motion to the fans, substantially as specified.

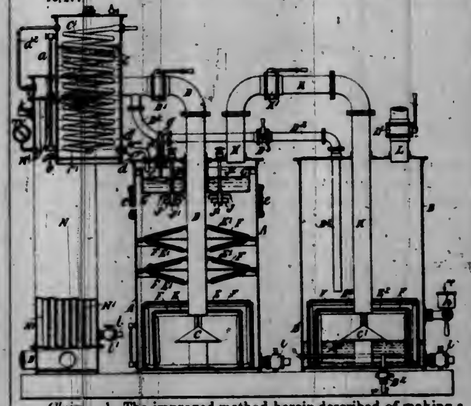
5. A refrigerator-wagon having a body portion provided with a provision-chest located at one end of the body portion, an ice-chest located at the opposite end of the body portion, an air-chamber interposed between the ice-chest and provision-chest, the said chests and chamber running entirely across the body portion, and the air-chamber being in communication with the ice and provision chests, a fan located in the air-chamber and forcing the air from the ice-chest through the air-chamber and into the provision-chest, two auxiliary provision-chests, the bottoms of which open into the top of the main provision-chest, the auxiliary chests being superposed on the main chest and having a space between them, and doors at the inner sides of the auxiliary chests, the doors opening into the space between said chests, substantially as described.

590,892. AUTOMATIC REGULATING DEVICE FOR GAS-BURNERS. CHARLES W. KNIGHT, New York, N. Y. Filed Oct. 26, 1896. Serial No. 610,113. (No model.)



Claim.—The herein-described gas-regulating device, consisting of a tubular casing, a perforated plate mounted therein, and provided centrally with a depending tubular extension, a conical valve mounted above said plate and resting thereon, the apex of which is directed upwardly, said valve being provided in its under surface with a conical chamber, and a central depending rod or pin which passes through said plate, and the tubular extension connected therewith, and said valve being also provided in its upper side with radial grooves which communicate with notches or recesses formed in the base or perimeter thereof, and said tubular casing being provided with a tubular plug which is secured therein above the valve, at the lower end of which is formed an annular valve-seat, and said plug being provided with a casing which is mounted thereon, said casing being circular in cross-section, and being provided centrally with a perforated partition or diaphragm, and at the upper end thereof with a diaphragm of wire-gauze, and the walls of the casing being packed or lined with asbestos and plaster-of-paris combined, substantially as shown and described.

590,893. METHOD OF AND APPARATUS FOR MANUFACTURING GAS. JOHN H. LADD, London, England. Filed July 13, 1895. Serial No. 555,866. (No model.) Patented in England May 27, 1895, No. 10,477.



Claim.—1. The improved method herein described of making a fixed gas from air, hydrocarbon and water, said method consisting in carbureting hot air with a hot hydrocarbon vapor and charging the carbureted air with vapor of water below the steam-generating point.

2. The improved method herein described of making a fixed gas from air, hydrocarbon and water, said method consisting in directing a hot-air blast against and past hot particles of hydrocarbon and then directing the hot carbureted air against and past particles of water below the steam-generating point.

3. As a new article of manufacture, a fixed gas made from air, hydrocarbon, and water by hot carburization of hot air and charging the carbureted air with vapor of water below the steam-generating point.

4. In an apparatus for the manufacture of gas which consists of atmospheric air, hydrocarbon and the vapor of water the combination with the carbureting-chamber A and the water-chamber B connected therewith, of an air-heater N connected with the air-inlet pipe D of said carbureting-chamber, a distributing-tank G in the upper part of said carbureting-chamber, having separately controlled discharge-pipes J', an oil-reservoir C, provided with means for heating the oil therein, a pipe d provided with a controlling valve or cock d' connecting said reservoir with said distributing-tank, and a heater B' in the lower part of said water-chamber, substantially as and for the purposes above specified.

5. In an apparatus for the manufacture of gas which consists of atmospheric air, hydrocarbon and the vapor of water, the combination with the carbureting-chamber A and the water-chamber B, of an air-heater N connected with the air-inlet pipe D of said carbureting-chamber, a distributing-tank G in the upper part of said carbureting-chamber, an oil-reservoir C, a pipe d provided with a controlling valve or cock d' connecting said reservoir with said distributing-tank, a pipe d^2 connecting the air-space of said heater with the upper part of said reservoir, and means for heating said reservoir, substantially as and for the purposes specified.

6. In an apparatus for making gas which consists of atmospheric air, hydrocarbon and the vapor of water, the combination, with the screens or domes of absorbent porous material and the distributing-tank for the liquid hydrocarbon arranged above the same in the carbureting-chamber, of the conical or dished screens of absorbent porous material arranged one above another in said chamber between said domes and the distributing-tank, every alternate conical or dished screen being inverted, substantially as and for the purposes set forth.

7. In an apparatus for the manufacture of gas which consists of atmospheric air, hydrocarbon and the vapor of water, the combination with a carbureting-chamber having a screen of absorbent porous material arranged therein; and a water-chamber connected there-

with and also provided internally with a screen of absorbent porous material; of an air-heater connected with the air-inlet pipe of said carbureting-chamber; a sprinkling-distributer in the upper part of said carbureting-chamber for sprinkling the oil upon said screens; an oil-reservoir exterior to the carbureting-chamber and provided with means for heating the oil therein; and a pipe provided with a controlling valve or cock connecting said reservoir with said distributer; and a pressure-forming apparatus which produces pressure in the air-carbureting and water chambers.

590,894. BICYCLE HANDLE-BAR. JOSEPH H. LA FAVE, Toledo, Ohio. Filed Mar. 1, 1897. Serial No. 626,642. (No model.)



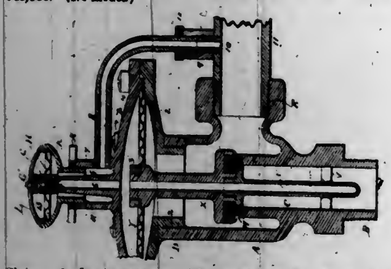
Claim.—1. In an adjustable handle-bar for bicycles and other velocipedes, the combination of a stem having a tubular head provided with indentations at one end, a handle-bar proper extending through the tubular head of the stem, a sleeve arranged on the handle-bar proper and also extending through the stem-head and having exterior threads and also having an enlargement; said enlargement being provided in its inner side with an annular recess to receive the indented end of the stem-head, a pin connecting the sleeve to the handle-bar proper and extending into the recess in the enlargement of the sleeve and adapted to engage the indentations of the stem-head, and a nut mounted on the threaded portion of the sleeve, substantially as specified.

2. In an adjustable handle-bar for bicycles and other velocipedes, the combination of a stem having a tubular head provided with indentations at one end, a handle-bar proper extending through the tubular head of the stem, a sleeve arranged on the handle-bar proper and also extending through the stem-head and having exterior threads and also having an enlargement; said enlargement being provided in its inner side with an annular recess to receive the indented end of the stem-head, a diametrically-disposed pin arranged in the same plane as the recess in the enlargement and extending through the handle-bar proper and also extending through the annular recess of the sleeve enlargement to the periphery thereof so as to engage two indentations of the stem-head, and a nut mounted on the threaded portion of the sleeve, substantially as specified.

3. In an adjustable handle-bar, the combination of a handle-bar proper, a sleeve secured on the handle-bar proper and having exterior threads and also having an enlargement provided in its inner side with an annular recess, a stem having a head receiving the handle-bar proper and the sleeve thereon and provided at one end with indentations; said indented end being adapted to take into said annular recess, means in the annular recess of the sleeve for engaging the indentations of the head, and a nut mounted on the threaded portion of the sleeve, substantially as specified.

4. In an adjustable handle-bar, the combination of a stem provided with a tubular head having indentations at one end; a handle-bar proper arranged in said tubular head, a sleeve mounted on the handle-bar proper and also arranged in the tubular head and having exterior threads, a pin, for engaging the indentations of the tubular head, extending through the sleeve and into the handle-bar proper so as to connect the sleeve and bar, and a nut mounted on the threaded portion of the sleeve, substantially as specified.

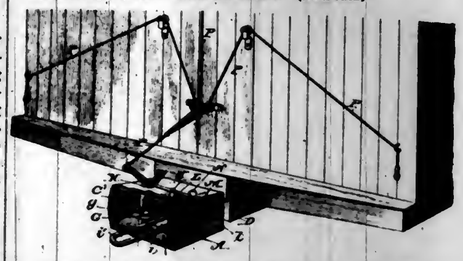
590,895. STEAM-TRAP. FREDERICK LANPLOUGH, Glen Ridge, N. J. Filed Sept. 25, 1895. Renewed Aug. 13, 1897. Serial No. 648,160. (No model.)



Claim.—1. In a steam-trap, the combination with the body A, having the internal passage C, of the casing Z, mounted on the body A and formed with a central tubular extension 7, having an internal nozzle 5, an expansion-chamber 15, mounted on said tubular extension, a diaphragm H, fitted within said chamber 15, and carrying a valve F, to close and open the end of nozzle 5, a diaphragm Y, fitted to the chamber or casing Z, and a tubular stem U X carried by said diaphragm, and provided with a valve to close and open communication between passage C and trap-outlet E, and a by-pass pipe 8, leading from the extension 7, to the outlet E, substantially as described.

2. In a steam-trap, the combination with an expansion-chamber having a diaphragm and an attached valve adapted under expansion to close an outlet for water of condensation, of a second chamber containing a diaphragm so arranged as to be acted upon by accumulation of steam-pressure and connecting with a valve which is also adapted and arranged to close a similar outlet, substantially as described.

590,896. CAR-COUPLING. GASTON C. LEWIS, Crescent City, Fla. Filed May 18, 1897. Serial No. 637,076. (No model.)



Claim.—1. A coupling comprising the draw-head having a link-mortise, the link having an outer loop i^1 and an inner loop i^2, a spring for retracting said link from position for use, and a pin operating in the inner loop for the purpose of keeping the link extended in position for use, substantially as described.

2. A draw-head having a longitudinal channel, a link retractable in said channel, a spring for retracting the said link and means independent of the meeting draw-head for holding said link extended against the action of the spring in position for use, substantially as described.

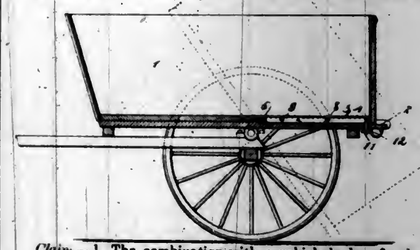
3. A car-coupling comprising the draw-head, the coupling-pin, the spring-bar held at one end to the draw-head and engaging the pin at its other end and the tilting device pivoted on said spring-bar and adapted to lift the pin, substantially as described.

4. A car-coupling comprising the draw-head, having the two link-mortises provided in one mortise with a coupling-link and in the other mortise with a coupling-pin, the spring for retracting the link and the pin for holding said link in operative position, the wall between the mortises being provided with a link-seat inclining off to the pin-mortise, the spring-bar for operating the coupling-pin, and the double-armed tilting pin-releasing device pivoted on the spring-bar and arranged when tilted to release the coupling-pin, substantially as described.

5. A car-coupling comprising the draw-head, the coupling-pin, the spring-bar held at one end to the draw-head and engaging at its other end with the pin and the screw for adjusting the tension of said spring-bar, substantially as described.

6. In a car-coupling the combination of the draw-head having a dovetail socket, the coupling-pin, the pin-actuating spring-bar having a dovetail head fitting the socket in the draw-head and the set-screw for adjusting the tension of said spring-bar, substantially as described.

590,897. COAL-CARRYING VEHICLE. THEODOR MERT, Brooklyn, N. Y. Filed Feb. 24, 1897. Serial No. 624,777. (No model.)



Claim.—1. The combination with a vehicle-body, of a bottom therefor, having a depressed portion in its rear end, a screen in the depressed portion, bars connecting the ends thereof, hooks on the inner end bar, and eyes on the bottom of the vehicle-body with which said hooks engage, and pivoted legs for supporting the screen in an elevated position, substantially as specified.

2. A vehicle having the bottom of its body depressed for a portion of its length, a screen hinged in said depressed portion and normally on a line with the main portion of the bottom, and devices substantially as described for holding said screen in an elevated and in its normal position, as set forth.

3. In a vehicle for carrying coal, the combination with the body thereof, of a bottom for said body having a depressed portion in its rear end, a screen in said depressed portion, bars connecting the ends thereof, the forward end bar having a hinged connection with the bottom of the body, a finger attached to the outer end bar and adapted to pass through an opening in the said bottom, a pin passing through said finger and by which said screen is locked on a line with the main portion of the bottom, strengthening-rods for said screen, and legs pivoted to one of said rods and by which the screen is held elevated, as specified.

590,898. INKING-PAD. JONATHAN H. MELVEN, St. Louis, Mo. Filed Dec. 3, 1896. Serial No. 614,309. (No model.)



Claim.—1. An inking-pad, consisting of a base-plate having an opening in its center and an upwardly-extending flange or collar surrounding said opening, a block located upon the base-plate and provided with an opening receiving the central flange of the base-plate, the said opening in the block being of greater diameter than that of the said flange or collar, whereby a space is formed for the reception of ink, an absorbent pad located on the said block and provided with apertures, a cover for the absorbent pad, and a cover arranged to close the opening in the base-plate, as and for the purpose specified.

2. An inking-pad consisting of a base having an opening in its center and channels connected with the opening, inclined in direction of said opening and being depressed at the opening, an absorbent pad located on the said base provided with central apertures, a series of apertures having corresponding arrangement to the arrangement of the channels in the base, a cover for the absorbent material, and a cover for the opening in the base, as and for the purpose specified.

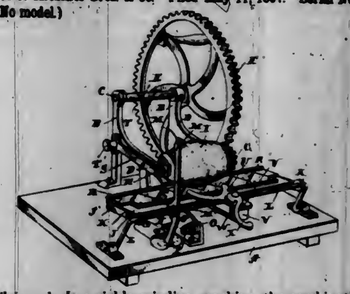
3. An inking-pad consisting of a base having an opening in its center and inclined channels connected with the opening, said channels being depressed at said opening, an absorbent body located on the base, provided with central apertures and series of apertures having corresponding arrangement to the arrangement of the channels in the base, a cover for the opening in the base, and series of covers placed one over the other, said series of covers being carried over the absorbent body, and a fastening device whereby all the covers are held at their margins in engagement with the absorbent body, the body being removable from the base and the covers removable from the body, as and for the purpose set forth.

4. In an inking-pad, the combination, with a base having a flange near its margin and an opening within the flange surrounded by a collar, and a cap detachably secured to the said collar, closing the opening in the base, of a block located upon the base, provided with an opening in which the collar of the base is loosely entered together with channels in its upper face connecting with the opening therein, being depressed at said opening, an apertured body of an absorbent material located on the block, the apertures corresponding in location to the location of the openings in the block and the location of said channels, as and for the purpose specified.

5. In an inking-pad, the combination, with a base having a flange near its margin, and an opening within the flange surrounded by a collar, and a cap detachably secured to the said collar, closing the opening in the base, of a block located upon the base and provided with an opening receiving the collar of the base, together with channels in its upper face inclined downwardly to the opening, an apertured body located upon the said block, the apertures corresponding in location to the opening and grooves or channels in the block, and covers of a material permitting of the outward passage of ink, covering the aforesaid apertured body, and means for securing the said covers in place, substantially as shown and described.

6. An inking-pad, consisting of a base-plate having an opening in its center and provided with an upwardly-extending threaded flange surrounding said opening; a block located upon the base-plate and provided with an opening receiving the central flange of the base-plate, the said opening in the block being of greater diameter than that of the said flange, whereby a space is formed for the reception of ink, the said block being provided in its upper surface with grooves radiating from the central opening, an absorbent pad located on the said block and provided with apertures corresponding in location to the location of the opening in the block and the location of the grooves in the top of the block, a cover for the absorbent pad, and a cap arranged to close the opening in the base-plate, as and for the purpose set forth.

590,899. SICKLE-GRINDING MACHINE. CHARLES MESSNER, WILLIAM MESSNER, and AUGUST MESSNER, Huntingburg, Ind., assignors to Messner Bros. & Co. Filed May 11, 1897. Serial No. 636,096. (No model.)



Claim.—1. In a sickle-grinding machine, the combination with the sickle-supporting table, of a clamping-plate having cam-surfaces on its upper side, a bolt extended through the plate, a lever mounted to turn on the bolt and formed with cam-surfaces on its under side to engage the corresponding surfaces of the plate when securing the sickle-bar to the table, substantially as shown and described.

2. In a sickle-grinding machine, the combination of a grinder, a horizontally-swinging support, a sickle-supporting table mounted to swing vertically and also to move longitudinally on the support, the table being formed with a notch, and a loosely-fulcrumed lever operatively connected to the support for swinging the same, the lever extending into the notch of the table for adjusting the same longitudinally, substantially as shown and described.

3. In a sickle-grinding machine, the combination of a grinder, a vertically-swinging sickle-supporting table movable toward and away from the grinder, and a depending guard in line with the grinder and adapted to depress the advance edge of the table in moving to position beneath the grinder, substantially as shown and described.

4. A sickle-grinding machine, comprising the grinder, an oscillating support, an operating-lever adapted to embrace the support and a sickle-supporting table mounted to swing vertically on the support, substantially as shown and described.

5. A sickle-grinding machine, comprising a grinder, an oscillating table adapted to move longitudinally, and a loosely-fulcrumed lever adapted to oscillate the table toward and away from the grinder and also adjust it longitudinally, substantially as shown and described.

6. The combination, with the sickle-supporting table, of the angular bracket secured thereto and extended therefrom and provided on its upper end with a nib, the clamping-plate adapted to overhang the table and formed with a slot where it embraces the nib of the bracket, the bolt extended through the bracket and the slot of the plate, and the cam-lever on the bolt above the plate and adapted to clamp the plate to the table and bracket, substantially as shown and described.

7. A sickle-grinding machine, comprising a grinder, a vertically and horizontally swinging sickle-table, and a guard arranged in the plane of the grinder and overhanging the table and adapted to depress the same in passing to grinding position beneath the grinder, thus preventing the sickle-points from coming in contact with the grinder, substantially as shown and described.

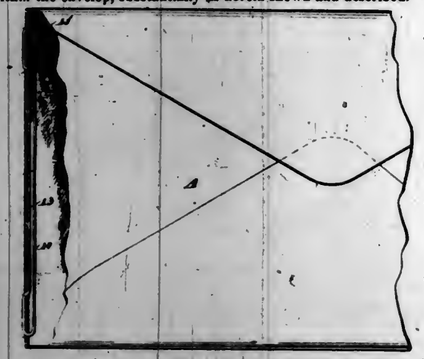
8. A sickle-grinding machine, comprising a grinder, a vertically and horizontally swinging sickle-table, a strip projecting from the top surface thereof, and an overhanging guard adapted to engage the strip and depress the table when moving to operative position, for the purpose substantially as herein shown and described.

9. A sickle-grinding machine, comprising a grinder, a grinder-support, a vertically and horizontally swinging sickle-table, a strip projecting above the top edge of the table, a guard pivoted between its ends to the grinder-support and at one end overhanging the table and adapted to depress the same by engagement with the strip as the table is moved to operative position for the purpose, described, the opposite end of the guard being slotted, and a set-screw extended through the slotted end and into the grinder-support for holding the guard in proper adjustment, substantially as specified.

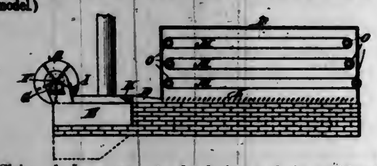
590,900. ENVELOP. FRANK E. MUHR, New York, N. Y. Filed Oct. 15, 1896. Serial No. 565,734. (No model.)

Claim.—The combination with an envelop, of a strand within the envelop and having one end passed from the interior of the envelop out through one edge of the same adjacent to the end thereof

and then back again into the interior to form a loop lying on the exterior of said edge, the said end of the strand being then extended along the interior of the envelop adjacent to the opposite end of said edge and passed out through the same and back again to the interior to form a second loop lying on the exterior of said edge, the ends of the strand being then secured together within the envelop forming an endless strand, the whole of which except the loops lie within the envelop, substantially as herein shown and described.



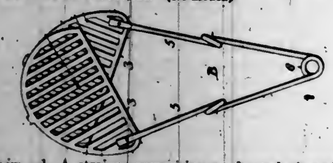
590,901. WOOL-DRYING APPARATUS. JOHN MCCREATH, Invercargill, New Zealand. Filed Oct. 1, 1896. Serial No. 607,582. (No model.)



Claim.—1. In an apparatus for drying wool, the combination of a drying-box, a series of endless foraminous belts therein, rolls carrying each belt in an opposite direction to the movement of the adjacent belt, the arrangement being such as to enable the wool to pass from any one of said belts to the one next below, and the lowermost belt being carried at its delivery end through the end wall of the drying-box, a plurality of upwardly and rearwardly inclined ripples arranged in the bottom of the drying-box, a heater, an air-forcing mechanism for forcing air from said heater into said drying-box beneath the ripples, and a flue leading from the combustion-chamber of the heater beneath the drying-chamber, substantially as described.

2. In apparatus for drying wool, the combination with a drying-box, of a furnace arranged near one end thereof, suction-pipes forming the sides of said furnace and opening into the atmosphere at their ends adjacent to the drying-box, a fan blower connected to the opposite ends of said suction-pipes, a heater-chamber forming the top of the furnace and connected at one end with the discharge of said fan-blower, and a flaring delivery-pipe leading from the opposite end of said chamber to the bottom of the drying-box, substantially as described.

590,902. STRAINER. LOUIS E. HEARING, Wallingford, Conn., assignor of one-half to MAX Schweitzer, Bridgeport, Conn. Filed Mar. 13, 1897. Serial No. 627,328. (No model.)



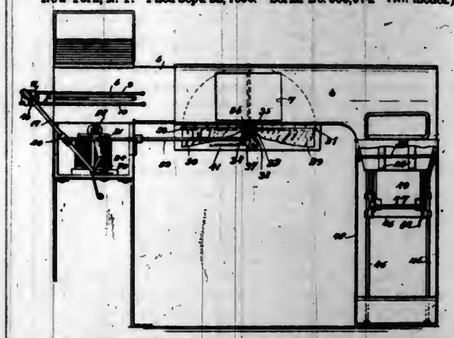
Claim.—1. A strainer comprising perforated pivoted sections each having a curved edge and means for normally spreading the sections and permitting their movement relative to each other to contact the strainer, substantially as described.

2. A strainer comprising perforated pivotally-connected sections each having an edge which conforms to arcs of two or more circles of different diameters and means for moving the sections relative to each other, substantially as described.

3. A strainer comprising perforated pivotally-connected sections each having a curved edge, the said sections being movable relative to each other, a spring for spreading the strainer, and a stop for limiting the spreading of the strainer, substantially as described.

4. A strainer comprising perforated eccentrically-pivoted sections each having a curved edge and spring-actuated arms pivotally connected to the sections, substantially as described.

590,903. LANTERN-SLIDE-MOVING DEVICE. HUGO NEWMAN, New York, N. Y. Filed Sept. 22, 1896. Serial No. 606,674. (No model.)



Claim.—1. A lantern-slide-moving device, comprising a magazine, a longitudinally-adjustable guideway provided with an opening and communicating with said magazine, and means for moving a lantern-slide from said magazine into the guideway, substantially as specified.

2. A lantern-slide-moving device, comprising a magazine, a longitudinally-adjustable guideway communicating therewith and having an opening through which lantern-slides are disclosed, a closure for said opening, means for moving the slides from the magazine into said guideway, and means for operating said closure, substantially as specified.

3. A lantern-slide-moving device, comprising a magazine, a lateral guideway communicating with the forward portion of said magazine and formed in sections, whereby it is longitudinally adjustable, one of said sections being provided with an opening for the disclosure of lantern-slides, and means for moving a lantern-slide from said magazine into the guideway, substantially as specified.

4. A lantern-slide-moving device, comprising a magazine, a guideway communicating therewith and having an opening through which lantern-slides are disclosed, a closure for said opening, a spring-pressed shifting finger adapted to extend through a slot-opening in the wall of said magazine, means for moving the said shifting finger to carry the slides from the magazine into said guideway, and means for operating said closure, substantially as specified.

5. A lantern-slide-moving device comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and provided with an opening for the disclosure of slides, the said guideway being formed in telescopic sections, whereby the length of the guideway may be adjusted, a spring-pressed shifting finger adapted to extend through the slot-opening in the wall of the magazine and engage a lantern-slide, and means for moving said shifting finger to carry a lantern-slide from said magazine into the guideway, substantially as specified.

6. A lantern-slide-moving device, comprising a magazine, a guideway for lantern-slides communicating therewith and having an opening through which the slides may be disclosed, a pivoted and spring pressed shifting finger adapted to extend through a slot-opening in the front wall of the magazine, a lever for moving said shifting finger, and means for operating the lever, substantially as specified.

7. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and having an opening for the disclosure of slides, a plate movable across the front wheel of the magazine, a shifting finger pivotally connected to said plate and adapted to engage its inner end with the edge of a slide, a lever loosely engaging with the outer end of said finger, and an electric motor for operating said lever, substantially as specified.

8. A lantern-slide-moving device, comprising a magazine for lantern-slides, a guideway communicating with said magazine and having an opening for the disclosure of lantern-slides, guides arranged on the front wall of the magazine, a plate movable on said guides, a shifting finger pivotally connected with said plate and adapted to pass through a slot-opening in the front wall of the magazine to engage with the slide, a lever loosely engaging with the outer end of said finger, a crank connecting with said lever, an electromagnet, an armature coacting therewith, a connection between said armature and the crank of the lever, and electric connections whereby the electromagnet may be controlled from a distance, substantially as specified.

9. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and having an opening for the disclosure of slides, guides arranged on the front wall of the magazine and extending beyond the side thereof, a shifting device movable on said guides and adapted to pass through the slot-opening in the front wall of the magazine, a lever for operating the said shifting device, the said lever normally holding the shifting device on the extended portion of the said guides at the side of the magazine, means for operating said lever, a closure for the opening in the guideway, and means for operating said closure on the initial movement of the said lever and before the engagement of the shifting device with a slide in the magazine, substantially as specified.

10. A lantern-slide-moving device, comprising a magazine for lantern-slides, a guideway communicating with said magazine and having an opening for the disclosure of a slide, a closure for the said opening in the guideway, a push-rod for operating said closure, a swinging lever with which said push-rod has a sliding connection, and means carried by said lever to shift a slide from the magazine into said guideway, substantially as specified.

11. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway for lantern-slides communicating with said magazine and having an opening for the disclosure of a slide, intermeshing pinions below said opening, rods extended from the shafts of said pinions, a flexible material connected at one edge to said rods and at the other edge to the guideway, a segment-gear meshing with one of the pinions, a finger on the shaft of said segment-gear, a push-rod engaging with said finger, a swinging lever with which said push-rod has a sliding connection, and means carried by said swinging lever to shift a slide from the magazine into the guideway, substantially as specified.

12. A lantern-slide-moving device, comprising a magazine, a guideway for slides communicating therewith, means for shifting a slide from the magazine into the guideway, a receiver for slides and with which an open end of said guideway communicates and lowering mechanism in the receiver operated by the weight of a slide, substantially as specified.

13. In a lantern-slide-moving device, the combination with a magazine for slides, a guideway leading therefrom, and means for shifting slides from the magazine to the guideway, of a receiver with which an open end of said guideway communicates, a vertically-movable carriage in said receiver adapted to be moved downward by the weight of a slide, and means for moving said carriage upward after discharging a slide, substantially as specified.

14. In a lantern-slide-moving device, the combination with a magazine, a guideway and a shifting device, of a receiver, with the interior of which the guideway communicates, guide-rods extended vertically in said receiver, a plate movable on said guide-rods, a table pivotally connected to the plate, a spring for supporting said table in a substantially horizontal position, a swinging yoke carried by the plate, and a trip-rod for swinging said yoke upward to disengage it from a slide, substantially as specified.

15. In a lantern-slide moving device, the combination with a magazine, a guideway and a shifting device, of a receiver, with the interior of which the guideway communicates, guide-rods extended vertically in said receiver, a plate movable on said guide-rods, a spring extended from said plate to a connection with the upper wall of the receiver, a tilting table carried by said plate, a spring extended from the plate to a plate extended upward from the tilting table, rods extended upward from the plate on the guide-rods, a yoke having a swinging connection with said rods, and a rod having pivotal connection with said yoke and extended through a guide to a point below the lower edge of the plate on the guide-rod, substantially as specified.

590,904. HAT-FASTENER. DENNIS O'BRIEN, Brooklyn, N. Y. Filed June 23, 1897. Serial No. 641,872. (No model.)

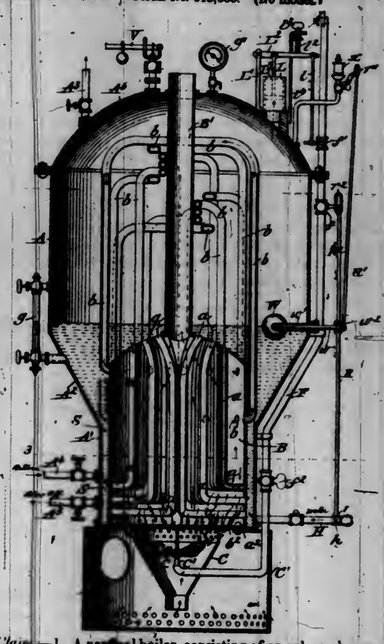


Claim.—1. A hat or bonnet fastener, comprising a hair-pin, a spring-pressed clamping-plate mounted to swing thereon, and a fastening device adapted to be attached to a hat or bonnet and engaged with the clamping-plate, substantially as specified.

2. A hat-fastener comprising a hair-pin having a plate-like head portion, a clamping-plate having swinging connection with said head portion, a hook pivotally connected to the clamping-plate, and a loop having an elastic tape for attaching it to a hat, substantially as specified.

3. A hat-fastener, comprising a hair-pin, a spring-pressed clamping-plate mounted to swing thereon, the said plate being shorter than the hair-pin, a hook pivotally connected to the plate, a loop for engaging with the hook, and an elastic tape for connecting the loop to a hat, substantially as specified.

590,905. STEAM-BOILER. JOHN H. PARSONS, Wilmington, Del. Filed Dec. 16, 1896. Serial No. 615,853. (No model.)



Claim.—1. A vertical boiler, consisting of an enlarged upper portion, a contracted lower portion, and tapering walls connecting said upper and lower portions, a fire-box of uniform diameter projecting vertically upward through the lower portion into the tapering portion and leaving a restricted or narrow annular space between the fire-box and the walls of the lower portion of the boiler, and an upwardly-expanding space between the fire-box and the tapering walls of the boiler, said annular space being connected with the upper expanded space in the boiler by circulating-tubes passing through the fire-box, substantially as described.

2. A vertical boiler, consisting of an enlarged upper portion, a contracted lower portion, and tapering walls connecting said upper and lower portions, a fire-box of uniform diameter projecting vertically upward through the lower portion into the tapering portion and leaving a restricted or narrow annular space between the fire-box and the walls of the lower portion of the boiler, an upwardly-expanding space between the fire-box and the tapering walls of the boiler, and a series of water-circulating flues connected with said annular space near its lower part and passing upward through the heating-chamber and connecting with the upper portion of the boiler through the top of said chamber, substantially as described.

3. The combination in a boiler, of a fire-box or heating-chamber projecting vertically into the boiler, superheating-flues in the steam-dome of the boiler each flue having its two ends in open communication with the interior of the fire-box or heating-chamber, but in different horizontal planes, substantially as described.

4. A steam-boiler having a fluid-fuel supply, combined with positive means for controlling said fluid-supply, automatically-operating means controlled by pressure in the boiler regulating the flow of fuel to the burner and independent means automatically cutting off the fuel-supply when the water reaches a predetermined level in the boiler, substantially as described.

5. In a steam-boiler heated by fluid fuel, the combination of automatic devices regulating the supply of water to the boiler, with automatic devices cutting off the supply of fuel, the regulating devices being rendered operative at different levels of the water in the

boiler, and automatic devices controlled by steam-pressure for regulating the flow of fuel, substantially as described.

6. In a steam-boiler heated by fluid fuel, the combination of a fuel-conduit having two valves or cocks therein with an automatic device controlling each cock, the operation of one of said devices being dependent upon the steam-pressure and the operation of the other being dependent upon the water-level in the boiler, substantially as described.

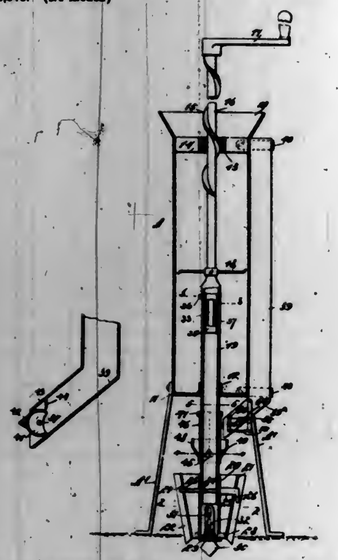
7. In a steam-boiler using fluid fuel, a rod having crank-arms at each end one of said arms being within and one without the boiler, a float connected to the inner arm, and link-rods governing valves in the fuel and water supply pipes, connected to the outer arm, substantially as described.

8. In a steam-generator, the combination of a gas-burner having an air-mixing chamber separate from the combustion-space, and pipes from the combustion-space passing within the steam-space of the generator.

9. In a steam-generator, the combination of a gas-burner having an air-mixing chamber separate from the combustion-space, pipes from the combustion-space passing within the steam-space of the generator, and with an air-heating chamber within which such steam-space is located.

10. In a steam-generator, the combination of a gas-burner having an air-mixing chamber separate from the combustion-space, pipes from the combustion-space passing within the steam-space of the generator and with an air-heating chamber within which such steam-space is located, and means for the admission and removal of air from such air heating chamber.

590,906. HAND FERTILIZER-DISTRIBUTER AND PLANTER. JAMES L. PEDE, Sackett's Harbor, N. Y. Filed May 13, 1897. Serial No. 636,373. (No model.)



Claim.—1. A receptacle for fertilizing material and the like, a shaft held to rotate in the receptacle, a portion of said shaft being tubular, a feed for the shaft, means, substantially as described, for establishing communication between the tubular portion of the shaft and the said receptacle, and a drill carried by the lower portion of the shaft, for the purpose described.

2. The combination, with a receptacle, and a shaft having a screw-feed and a lower tubular section, the shaft being mounted to turn in the said receptacle and extend out therefrom, the upper portion of the tubular section having a valved opening, of a drill carried by the lower portion of the shaft, and a pulverizer also carried by the shaft, being located adjacent to the drill.

3. The combination, with a receptacle, a shaft held to revolve in said receptacle, extending beyond the ends thereof, the lower portion of the shaft being tubular, and means for turning the shaft and for feeding the shaft in a longitudinal direction, of a drill carried by the lower portion of the tubular section of the shaft, and having play in said shaft, a conical pulverizer also carried by the tubular section of the shaft, independent of the drill yet surrounding the same, and a means for establishing communication between the tubular section of the shaft and the interior of the said receptacle, for the purpose specified.

4 The combination, with a receptacle and a screw-shaft held to turn in said receptacle, the lower portion of the shaft being tubular, said tubular portion of the shaft within the receptacle having openings provided with cut-offs, of a drill, an apertured support for the said drill, the said support being mounted in the lower portion of the tubular portion of the shaft and capable of movement therein, and a pulverizer carried by the shaft adjacent to the drill.

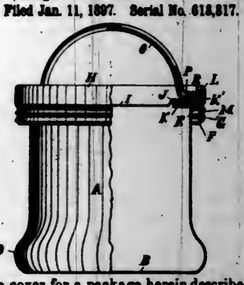
5. The combination, with a receptacle, a screw-shaft held to turn in said receptacle, the lower portion of the shaft being tubular, the said tubular section of the shaft within the receptacle having openings provided with cut-offs, and an agitator carried by said shaft, of a drill, a support for said drill, said support being mounted in the lower portion of the tubular section of the shaft, and capable of movement therein, a pulverizer carried by the shaft adjacent to the drill, a seedbox, a basin receiving the seed from the box and communicating with the interior of the tubular section of the shaft, and a trip carried by said shaft, arranged for engagement with the seed-discharging cup, for the purpose specified.

6 The combination, with a receptacle, a shaft, means for turning said shaft and for raising and lowering the same, the lower portion of the shaft being tubular and provided with openings, of a sectional sleeve having openings corresponding to the openings in the shaft, said sleeve being removably attached to the shaft, a basin carried by the sleeve below the openings in the same, a seedbox, and a tension-controlled seed-distributing cup located in the box, said cup being tripped in one direction by the movement of the shaft, for the purpose specified.

7. In a hand-planter, a support, a shaft held to turn in said support, means for raising and lowering said shaft, a drill carried by the shaft, and a pulverizer secured to the shaft, surrounding said drill.

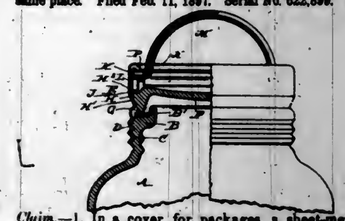
8. In a hand-planter, a screw-shaft having a tubular section, a drill loosely mounted upon the tubular section of the shaft, and a pulverizer shaped substantially as an inverted cone attached to the shaft, the lower portion of the pulverizer surrounding the said drill, for the purpose specified.

590,907. CLOSURE FOR PACKAGES. GURDON PENDLETON, Jr., Carbondale, Pa., assignor to the Pendleton Manufacturing Company, same place. Filed Jan. 11, 1897. Serial No. 618,817. (No model.)



Claim.—The cover for a package herein described as consisting of sheet metal formed with an upward-projecting peripheral fold, the outer ply of which depends below the cover, and forms the rotative body-coupler and the upper part of which fold is bent inward to form a lip, and with pairs of shoulders P, and provided with a bail held beneath said lip and between the pairs of shoulders P, to rotate the cover and couple the same to the body.

590,908. CLOSURE FOR PACKAGES. GURDON PENDLETON, Jr., Carbondale, Pa., assignor to the Pendleton Manufacturing Company, same place. Filed Feb. 11, 1897. Serial No. 622,899. (No model.)



Claim.—1. In a cover for packages, a sheet-metal cover-cap formed with an annular downholding-shoulder L, an annular upholding-shoulder around its side wall, and a rotative body-coupler therebelow, in combination with a rotatable cover-plate held loosely between the annular downholding and upholding shoulders, but inseparably retained in the cover-cap thereby.

2. A sheet-metal cover-cap formed with a closed top, an annular downholding-shoulder L depressed below said top an annular upholding-shoulder and a rotative body-coupler therebelow, in combination with a rotatable cover-plate inclosed within the cover-cap and held loosely between the annular downholding and upholding shoulders, but inseparably retained in the cover-cap thereby.

3. A sheet-metal cover-cap formed with an annular downholding-shoulder L and an upward-projecting fold K surrounding the shoulder L, the outer ply of the fold K being formed with an annular upholding-shoulder and a rotative body-coupler, in combination with a rotatable cover-plate held between the downholding-shoulder L and the upholding-shoulder.

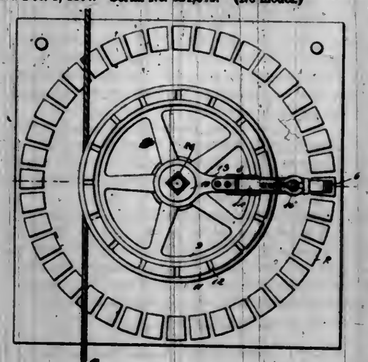
4. A sheet-metal cover-cap formed with an annular downholding-shoulder L, an annular upward-projecting ridge N, interrupted at opposite points to form bail-sockets O, and an upward-projecting peripheral fold K, the outer ply of which forms the body coupler and the top of which fold is bent inward as a lip P over the bail-sockets O, to retain the ends of a bail therein.

590,909. BROOM-HANDLE. DAVID S. PERRY, Urbana, Ohio. Filed May 21, 1897. Serial No. 637,496. (No model.)



Claim.—As an improved article of manufacture, the improved broom-handle composed of the wooden stock or handle proper, having a lengthwise groove, and the fibrous covering which is closely attached throughout the length of the stick by an adhesive substance, and whose side edges are embedded and held in the groove as shown and described.

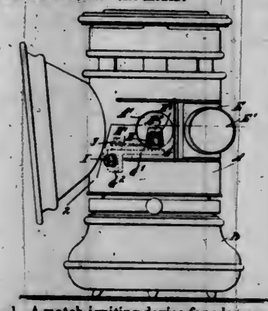
590,910. RHEOSTAT. THOMAS M. PERRY, Kennett Square, Pa. Filed Feb. 3, 1897. Serial No. 621,875. (No model.)



Claim.—1. A rheostat, comprising a circular row of contact-plates, a bolt extended from the base of the rheostat, a sleeve removably attached to said bolt, a contact-arm mounted to rotate on the sleeve, a sleeve on said contact-arm surrounding the first-named sleeve, a peripherally-grooved wheel mounted to rotate on the second-named sleeve, an arm attached to said second-named sleeve at the outer side of the wheel, a spring-actuated dog carried by said arm and adapted to engage in any one of a series of notches formed on the outer surface of the wheel, and means for drawing said dog out of engagement with the notch as said arm is rotated relatively to the wheel, substantially as specified.

2. A rheostat, comprising a base, a series of contact-plates arranged thereon, a threaded rod extended from the center of said base, an interiorly-threaded sleeve engaging the said rod, a contact-arm mounted to rotate on said sleeve, the said contact-arm consisting of two sections removably clamped together, a peripherally-grooved wheel mounted to rotate on a sleeve extended from the hub of the contact-arm, the said sleeve surrounding the first-named sleeve, a setting-arm attached to the sleeve extended from the hub of the contact-arm at the outer side of the grooved wheel, a spring-plate attached to said setting-arm, a dog attached to the spring-plate and extended through an opening in the arm, to engage in any one of a series of notches formed in the outer surface of the grooved wheel, and a rocking finger on the setting-arm, engaged by the forwardly-extended portion of the spring-plate, substantially as specified.

590,911. IGNITING DEVICE FOR BICYCLE-LAMPS. WILL RAPPL and CHARLES G. KNOERRER, New York, N. Y. Filed June 2, 1897. Serial No. 639,153. (No model.)



Claim.—1. A match-igniting device for a lamp comprising a fixed jaw and a movable jaw, and supporting-arms for the jaws extended transversely of an opening through the lamp-casing, the said opening being extended beyond the end of the jaws, the opening or outlet between said jaws being in an opposite direction to the line of the supporting-arms whereby a match, after ignition, may be moved to one side, out of the jaws, before removal from the casing, substantially as specified.

2. An igniting device for bicycle-lamps, comprising a fixed and a yielding jaw arranged one above the other, and formed with sidewise-extending supporting-arms for attachment to the lamp-casing, to permit of pushing a match laterally between the jaws, igniting the match-head and lighting the wick of the lamp, and to allow of pushing the match sidewise in an opposite direction to the said arms, to move the burned match out of engagement with the jaws and out of possible contact with the supporting-arms after ignition has taken place, the yielding jaw being formed at its front end with an upwardly-extending curved flange, formed with a recess for guiding the match-head between the jaws, substantially as shown and described.

590,912. VEHICLE-AXLE NUT. HENRY M. SCARRITT, Chicago, Ill. Filed Feb. 10, 1897. Serial No. 622,847. (No model.)



Claim.—A nut extension having a straight portion and reversely-inclined portions forming a swell, said extension being provided with plain, check and compression threads, and being radially split to form spring-jaws, and a nut adapted to said threads and provided with an annular chamber of greater area than the bore of the nut, to receive the inner ends of said jaws when released from compression, substantially as set forth.

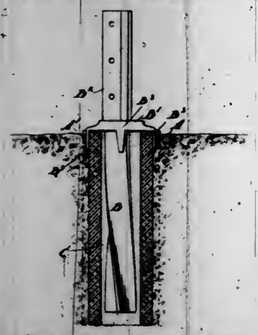
590,913. SNAP-HOOK. WILLIAM H. SHARP, Fremont, Mich. Filed May 20, 1896. Serial No. 593,565. (No model.)

Claim.—1. A snap-hook, comprising two members pivotally connected with each other and formed at their front ends into hooks curved in opposite directions and flattened at their adjacent faces whereby they are adapted to rest one against the other to form an eye, and a spring for normally holding the members in closed position, one of said members having a widened portion extending rearwardly from the pivot-point and formed at the rear end with an eye, the other member being formed at its rear end into a flattened finger-piece extending rearwardly from the pivot-point over the widened rear part of the other member, whereby the hook ends may be readily separated by pressing the finger-piece laterally against the tension of the spring, substantially as shown and described.



2. In a snap-hook, the combination with a member formed at its front end into a hook and having its rear end flattened and formed with an eye, of a second member pivoted to the first member and having its front end formed into a hook adapted to fit against and form an eye with the hook of the first member, the said second member having a handle portion extending rearwardly from the pivot-point and arranged over the rear flattened portion of the first member, the said handle member having its end formed into a vertically-disposed finger-piece having roughened sides, whereby the hook ends of said member can be readily separated, each of said members having a recess on its inner surface, and a spring arranged in said recess and having a coiled portion surrounding the pivot, the ends of the said spring being secured one to each of the said members, substantially as shown and described.

590,914. FENCE-POST. CHARLES SEUR, Newberry, Ind. Filed July 1, 1897. Serial No. 643,066. (No model.)



Claim.—1. A fence-post comprising a tubular base formed with recesses on the outside, and a standard having a twisted foot extending into the said base, the standard being provided with a flange having arms engaging the face of the base at the said recesses, to securely hold the standard in place on the said base, substantially as shown and described.

2. A fence-post comprising a standard having a twisted foot and a flange at the upper end of the said foot, a base formed with a central aperture for the passage of the said foot, and a plastic material for filling the opening in the said base and for engaging the twists of the said foot, to lock the foot in place, substantially as shown and described.

590,915. EXTENSION-TABLE. CHRIS H. SMITH, Elgin, Ill., assignor of one-half to William Horace Gilbert, same place. Filed Mar. 16, 1897. Serial No. 627,796. (No model.)



Claim.—1. The combination of a support, two bars pivoted thereon, a block carried by each support and having a dog, a table-leaf, and two additional bars pivoted to the table-leaf, the additional bars being respectively pivoted to the first-named bars and having their free ends capable of respectively engaging the dogs on the blocks, substantially as described.

2. The combination of a support, a dog carried by the support, a bar pivoted to the support, a table-leaf, and a second bar pivoted to the table-leaf and pivoted to the first-named bar, the said second bar being capable of engaging the dog on the support, substantially as described.

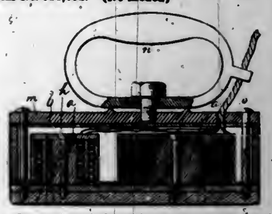
3. In an extension-table, the combination of a stationary section having two guideways, two pairs of sliding bars or rails respectively running in the guideways, a table-leaf for each pair of sliding bars or rails, two bars pivoted to each other and respectively pivoted to one table-leaf and to one pair of sliding bars or rails, whereby said table-leaf may be held in the upper or lower position, a second table-leaf, and a diagonally-slotted plate carried by the second table-leaf and engaging a projection on the second pair of sliding bars or rails, substantially as described.

4. An extension-table having a stationary section with a top, and with two side plates projecting downwardly therefrom, each side plate having two horizontal corrugations, the corrugations having two horizontal guideways, two bars secured to the inner face of each side plate and respectively below the corrugations therein, a sliding rail rested on each bar, the rails being arranged in two horizontally-alined pairs, the members of each pair of rails being rigidly joined with each other, an extension-leaf carried by each pair of sliding rails, and means in connection with each extension-leaf, by which they may be raised or lowered according to the position of the sliding rails, substantially as described.

5. An extension-table having a main portion, an extension-section movable on the main portion, a curtain attached to the main portion and extension-section, and a spring-pressed roll on which the curtain is wound, the roll winding the curtain as the extension-section of the table moves into the main portion, and the curtain closing the space between the two sections when the sections are extended.

6. An extension-table having a main portion with a rigid unbroken top, two pairs of rails or bars slidably held by the main portion and beneath the top, the said pairs of bars respectively moving in guideways one above the other, extension-leaves respectively carried on the pairs of rails or bars, and means for mounting said extension-leaves whereby they may be raised and lowered on the said bars or rails so as to lie level with the top of the main portion of the table or below the plane of said top.

590,916. ELECTRIC HEATER. RICHARD A. L. SNYDER, Pittsburg, Pa., and AUGUST F. THINKHOUSE, Detroit, Mich., assignors to the American Electrical Heater Company, Detroit, Mich. Filed Dec. 22, 1896. Serial No. 616,652. (No model.)



Claim.—1. In an electric heating apparatus, a metallic part to be heated; a metallic core; layers of resistance-wire arranged on the core and insulated therefrom; a metallic strip, between the said layers of resistance-wire and insulated therefrom, said strip in metallic contact with the part to be heated.

2. In an electric heating apparatus, a metallic plate, to be heated; a metallic core attached thereto; an insulated layer of resistance-wire arranged on the core; a metallic shell in metallic contact with said plate, a layer of insulated resistance-wire arranged on the metallic shell.

3. In an electric heating apparatus, the combination of an outer casing, a heating-coil arranged within said casing; said casing composed of separate parts consisting of the heating-plate, side portions and top; poor heat-conducting material separating the side portions from the heating-plate and poor heat-conducting material separating the side portions and said top, substantially as described.

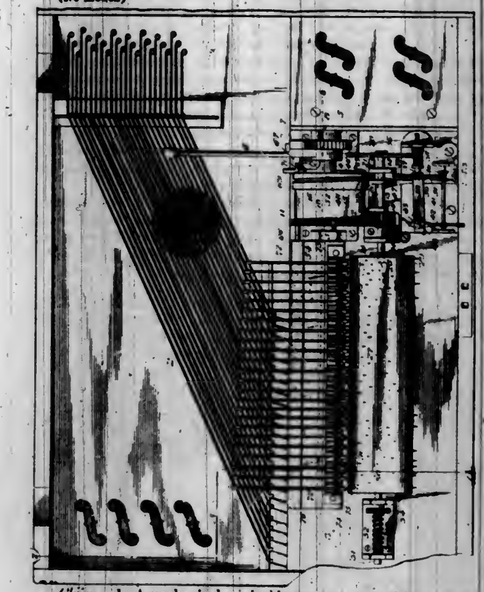
590,917. WIRE FENCE. NATHAN STEELE, Columbus, Ohio. Filed Nov. 17, 1896. Serial No. 612,464. (No model.)

Claim.—1. The herein-described wire fence, which comprises the combination of a series of wires, each being bent into a series of loops or links, the links of the succeeding wires being passed through the links of the preceding ones, and additional fastening-wires bound around the locked portions of the respective sets of links.



2. The herein-described wire fence, which comprises the combination of a series of individual wires, each of which is bent into a series of links, the links of the succeeding wire being passed through those of the preceding wire so that said links are interlocked, and the ends of the individual wires being twisted around the links of the preceding wires, and separate binding or fastening wires which are wrapped around the interlocked portions of the links.

590,918. MECHANICAL MUSICAL INSTRUMENT. LOUIS STOCKER, Knoxville, Tenn. Filed Apr. 29, 1897. Serial No. 634,469. (No model.)



Claim.—1. A mechanical musical instrument, comprising a series of musical strings, a rotating cylinder provided with a series of arbitrarily-arranged radial pins, a carriage adapted to travel to and from said cylinder, and a series of hammer-arms fulcrumed on said carriage, and having their inner ends projecting into the path of said pins, and their outer hammer-heads arranged vertically above said strings, substantially as and for the purpose set forth.

2. A mechanical musical instrument, comprising a series of musical strings, a rotating cylinder provided with radial pins, a traveling carriage, a series of hammer-arms mounted on said carriage and adapted to be projected into and withdrawn from the path of said pins on the cylinder, a spring-actuated train of gearing, and means substantially as described for imparting a rotary movement to said cylinder and a reciprocating movement to said carriage, as and for the purpose set forth.

3. A mechanical musical instrument, comprising the barrel 10 provided with the spiral groove 16, the ends of which communicate with the diagonal groove 17, the bar 18 mounted contiguous to said barrel, and provided with a pin 22 projecting into said grooves, the cylinder 27, and intermediate means whereby said barrel imparts a rotary and an end movement to said cylinder, substantially as shown and described.

590,919. BICYCLE-LAMP. HARRY W. STUBBS, Brooklyn, N. Y. Filed Feb. 11, 1897. Serial No. 622,896. (No model.)



Claim.—1. A bicycle-lamp, comprising a fount having a burner, and a recess in the back of the fount, and a folding casing hinged to the said fount and adapted to be folded into the said recess, substantially as shown and described.

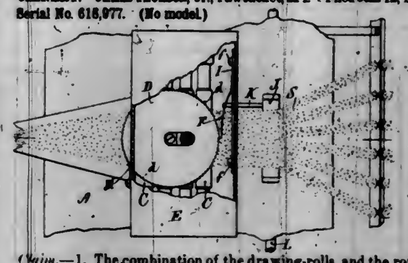
2. A bicycle-lamp, provided with a folding casing having a continuous bottom and a continuous top, sides made in parts hinged together and hinged to the said top and bottom, a back forming a reflector and engaging the said sides, top and bottom of the casing, and a front comprising a frame and a lens, and engaging the said sides, top and bottom of the casing, the front and the back serving to hold the parts in an extended position, substantially as shown and described.

3. A bicycle-lamp, comprising a fount having a wick-tube and wick-raising device, a bail hinged to the said fount, and a lamp-casing pivotally connected with the said bail and made in parts adapted to be folded one upon the other, the bottom of the casing having an opening for the passage of the upper end of the said wick-tube, substantially as shown and described.

4. A bicycle-lamp, comprising a fount having a wick-tube and wick-raising device, a bail hinged to the said fount, and a lamp-casing pivotally connected with the said bail and made in parts adapted to be folded one upon the other, the bottom of the casing having an opening for the passage of the upper end of the said wick-tube, and means substantially as described, for locking the said casing to the said wick-tube, as set forth.

5. A bicycle-lamp, comprising a fount having a wick-tube and wick-raising device, a bail hinged to the said fount, and a lamp-casing pivotally connected with the said bail and made in parts adapted to be folded one upon the other, the bottom of the casing having an opening for the passage of the upper end of the said wick-tube, and a perforated hood held on the top of the said casing directly above the said wick-tube, substantially as shown and described.

590,920. CLEARER FOR DRAWING-ROLLS OF COTTON MACHINERY. JAMES THOMSON, Jr., Pawtucket, R. I. Filed Jan. 12, 1897. Serial No. 618,977. (No model.)



Claim.—1. The combination of the drawing-rolls, and the rotary clearing-disk bearing upon the rolls, with ratchet means for imparting rotary movement to the clearing-disk, substantially as described.

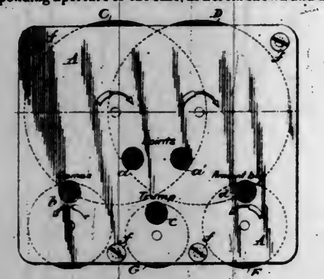
2. The combination of the drawing rolls, and the rotary clearing-disk arranged to bear upon the rolls, with a movable frame or cover for supporting the disk, and reciprocated means for imparting rotary movement to the disk, substantially as described.

3. A rotary clearing-disk, provided at its bearing side with a waste-collecting covering, and having a circularly-arranged series of engaging teeth as a means for imparting rotary movement to the disk, substantially as described.

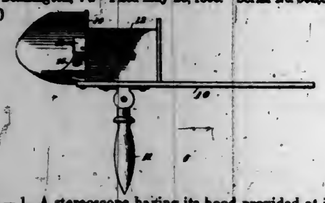
590,921. GAME-COUNTER. HENRY H. TURNER, Rochester, N. Y., assignor of one-half to Thomas L. Turner, same place. Filed Apr. 10, 1897. Serial No. 631,657. (No model.)

Claim.—In a game counter, the combination of a case having two apertures therein, and two overlapping revoluble disks C D located in the case, each having a series of consecutive numbers, the first disk from figure "1" up and the second in continuation of the first, said series of numbers registering with the apertures in the case, each disk having, also, a blank space between the first and last number of the series, the inner disk being imperforate, and the outer one provided with an aperture that registers with one of the apertures of the case and with the numbers on the inner disk, the whole so arranged that

the points of the game are first registered on the outer disk and then continued on the inner one, and during the movement of one disk the blank space between the terminal numbers of the other disk closes the corresponding aperture of the case, as herein shown and described.



590,922. STEREOSCOPE-FRAME. HERBERT S. WALBRIDGE, North Bennington, Vt. Filed May 20, 1896. Serial No. 593,304. (No model.)



Claim.—1. A stereoscope having its hood provided at its lower portion with curved extensions having inclined front edges and extending upwardly between the lenses into contact with each other and secured to the end wall of the hood, whereby the lower portion of the hood will be closed to effectually exclude the light and a partition formed between the lenses, as and for the purpose set forth.

2. In a stereoscope, the combination with the hood having its lower side open from front to rear, of a substantially inverted V-shaped bridge-piece arranged in the open side of the hood and extending up between the lenses of the rear wall of the hood and secured thereto, said bridge-piece consisting of two curved pieces having inclined front edges and secured to the hood and to each other, substantially as herein shown and described.

590,928. FRUIT-PICKER. CHARLES H. WALD and JACOB W. WALD, Dalmatia, Pa. Filed Mar. 10, 1897. Serial No. 626,845. (No model.)



Claim.—A fruit-picker having a frame, a knife pivoted on the frame, a pole for supporting the frame, a chute connected to the lower surface of the frame, and open at its lower end, a gathering-cord passing through eyelets in the lower end of the chute, and extending through keepers along the pole to within reach of the operator for closing the end of the chute and holding it up to the pole out of the way, substantially as described.

590,924. WINDOW-CLEANING CHAIR OR PLATFORM. THOS. WELCH, New York, N. Y. Filed May 20, 1897. Serial No. 637,458. (No model.)



Claim.—1. The combination with a window chair or platform, of a chambered extension thereon, a tube mounted to rotate in the extension, the said tube having threaded portions at its ends, rods having threads engaging the screw-threads of the tube, and shoes on the outer ends of the rods, the said shoes being recessed to receive the parting-beads of a window-casing, substantially as specified.

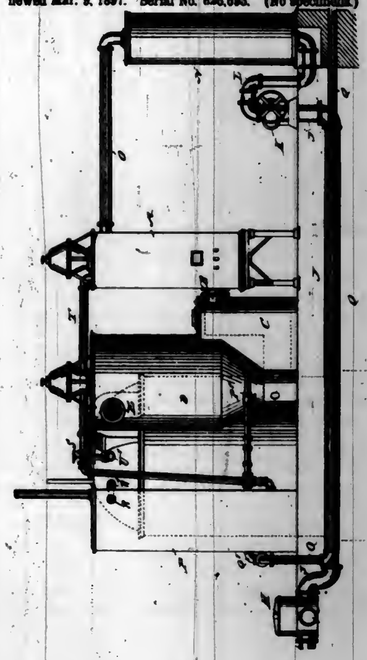
2. The combination with a window chair or platform, of a chambered extension thereon, a tube mounted to rotate in the extension, a nut on the tube and projected through top and bottom openings in the extension, means for preventing longitudinal movement of the tube relatively to the extension, screw-rods operated by the tube and shoes on the outer ends of the rods, substantially as specified.

3. The combination with a window chair or platform, of a chambered extension thereon, a tube mounted to rotate in the extension, screw-threaded rods operated by the tube, shoes on the outer ends of said rods and guide-rods extended from the shoes through holes in end plates on the extension, substantially as specified.

4. The combination with a window chair or platform, of laterally-movable rods, shoes on said rods for engaging a window-casing, adjustable clamps for engaging the inner side of a window-casing, and guide-bars for the clamps, substantially as specified.

5. The combination with a window chair or platform, of clamps pivotally connected thereto, each clamp consisting of two sections, a screw for adjusting one section longitudinally with relation to the other section, and guide-rods for the adjustable section, substantially as specified.

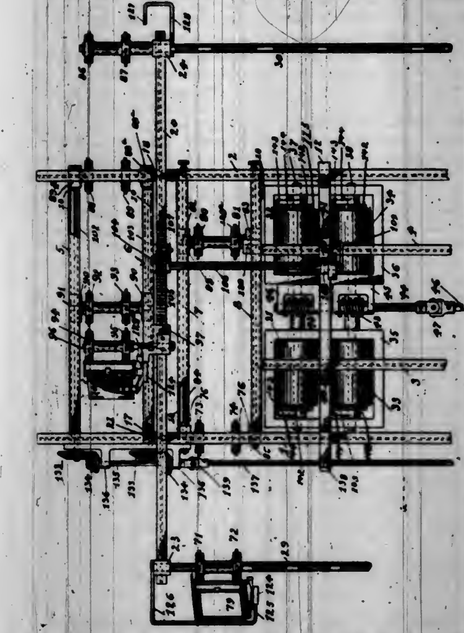
590,925. CONTINUOUS PROCESS OF REDUCING IRON SPONGE. GUSTAF M. WESTMAN, Hackettstown, N. J. Filed Nov. 30, 1894. Renewed Mar. 9, 1897. Serial No. 626,693. (No specimens.)



Claim.—1. The herein-described process for reducing iron ore to form sponge, which consists in taking gases from the top of the reducing-furnace, heating said gases by passing them through a previously-heated regenerator, then passing the reheated gases down through a body of incandescent coke; next, newly forming another independent body of gases, by independently admitting atmospheric air into and through incandescent coke; and mingling the two bodies of gases thus produced in the presence of incandescent coke, and conducting the mixture into the reducing-furnace directly to return the degree of heat necessary to the reduction of the ore, as specified.

2. The herein-described process for reducing iron ore to form sponge, which consists in taking gases from the top of the reducing-furnace, heating said gases by passing them through a previously-heated regenerator, introducing oil into the regenerator, where it is converted into gas and mingles with the gases, then passing the reheated gases down through a body of incandescent coke; next, newly forming another independent body of gases by independently admitting atmospheric air into and through incandescent coke, and mingling the two bodies of gases thus produced in the presence of incandescent coke, and conducting the mixture into the reducing-furnace directly to return the degree of heat necessary to the reduction of the ore, as specified.

590,926. EXCAVATING-MACHINE. MILTON A. WHEATON, San Francisco, Cal. Filed Mar. 31, 1897. Serial No. 630,157. (No model.)



Claim.—1. An excavating-machine that travels constantly forward lengthwise with the excavation which it is making while at work, and having cutting devices that move crosswise of the excavation during the forward travel of the machine without reciprocating or intermittent movements and which excavate the soil starting substantially from points along the center line of excavation and carry and deposit it alongside of the excavation to form a side wall in one continuous operation, the same being constructed and operating substantially in the manner herein set forth and described.

2. In a land-excavator for the construction of canals, ditches, trenches or similar works, the combination with a movable main frame, of excavating-buckets arranged to cut transverse of the machine outward starting substantially from its center and to convey and deposit the excavated material alongside of the excavation so as to form an embankment thereof, and of mechanism for imparting longitudinal movement to the machine and imparting transverse movement to the excavating-buckets during the longitudinal movement of the machine, substantially as herein shown and described.

3. In a land-excavator, the combination with the main frame, of the laterally-traveling mechanism, a series of excavating-buckets secured to and carried by said mechanism, said buckets cutting the soil during the travel thereof crosswise of the machine starting at a point at or near the center line of the cut and conveying the same and delivering it at the sides thereof, and of mechanism for imparting longitudinal movement to the machine and driving the laterally-traveling mechanism carrying the excavating-buckets during the longitudinal movement of the machine, substantially as shown and described.

4. The combination in a forwardly-traveling land-excavating machine, of laterally-traveling excavating devices for cutting the soil during the forward travel of the machine and delivering the same at the sides of the cut during the movement of the machine in one direction, and of mechanism for imparting motion to the machine and the laterally-traveling devices, substantially as herein shown and described.

5. In a forwardly-traveling excavating-machine, the combination with the main frame, of devices for imparting vertical adjustment to said frame, the laterally-traveling excavating devices which cut the soil and convey and deliver the same at either side of the machine, and of mechanism for imparting longitudinal movement to the machine and operating the laterally-traveling excavating devices, substantially as herein shown and described.

6. The combination with a forwardly-traveling land-excavating machine, of the endless-chain carrier traveling transverse of the machine, of mechanism for imparting longitudinal motion to the machine and transverse movement to the endless-chain carrier, and a series of cutting devices secured to and carried by the endless-chain carrier, said devices working outwardly from and cutting the soil crosswise of the machine starting from at or near the center of the excavation being made and conveying and depositing the excavated material alongside of the excavation so as to form an embankment thereof, substantially as herein shown and described.

7. In a land-excavating machine, the combination with the main frame, of mechanism for imparting forward movement thereto, of the front and rear endless-chain carriers arranged transverse of the machine, of mechanism for driving the chain carriers in opposite directions during the forward movement of the machine, and of a series of cutting-buckets secured to and carried by each of the endless carriers, said buckets cutting the soil and conveying and delivering the same at each side of the machine, substantially as herein shown and described.

8. In a land-excavating machine, the combination with the main frame, of laterally-traveling cutting devices arranged to work outward from and to cut the soil crosswise of the machine starting from a point at or near the center of the excavation being made and carry and deposit the excavated material alongside of the excavation so as to form an embankment thereof, and of mechanism for imparting forward and lateral movement to the cutting devices, substantially as herein shown and described.

9. In a land-excavating machine, the combination with the laterally-traveling cutting devices arranged to cut in advance of and crosswise of the machine and to convey and deposit the material being removed alongside of the excavation so as to form an embankment thereto, of adjusting devices for regulating or shifting the cutting devices to either side of the center of the machine, and of mechanism for imparting longitudinal and lateral movement to the cutting devices, substantially as herein shown and described.

10. In a forwardly-traveling land-excavating machine, the combination with the main frame, of laterally-traveling cutting devices arranged to cut in advance and crosswise of the machine, and to convey and deposit the excavated material alongside of the excavation so as to form an embankment thereof, of devices for imparting a vertical adjustment to said cutting devices to regulate the cutting depth thereof and a lateral adjustment for throwing the cutting devices to either side of the machine center, and of mechanism for imparting longitudinal movement to the machine and lateral movement to the cutting devices during the longitudinal movement of the machine, substantially as herein shown and described.

11. The combination in a land-excavator, of the main frame composed of a series of longitudinal beams, the screw-rods for adjustably connecting the said beams, the truck-frame upon which the main frame is mounted, and of the screw-posts for giving adjustment to the main frame, substantially as herein shown and described.

12. In a forwardly-traveling land-excavating machine, the combination with the main frame, of the endless traveling chain carriers arranged to travel crosswise of the machine, of mechanism for imparting longitudinal travel to the machine and driving the endless-chain carriers in opposite directions transverse of the machine, a series of cutting-buckets secured to each of the endless-chain carriers, each bucket arranged to cut the soil in advance of the preceding one and remove the cut soil to the sides of the machine, a hinged bottom to each bucket, and of devices for automatically locking and releasing the hinged bottom of the buckets during the travel of the endless carriers, substantially as herein shown and described.

13. In a forwardly-traveling land-excavating machine, the combination with laterally-traveling devices arranged to cut outwardly

from the machine toward the sides of the excavation being made during the movement of the machine in one direction and to deliver the soil to form side walls to the cut, of mechanism for imparting forward motion to the machine and lateral movement to the cutting devices during the forward movement of the machine, substantially as herein shown and described.

14. In a forwardly-traveling excavating-machine, the combination with the endless carriers arranged transverse of the machine, one in advance of the other, the cutting-buckets secured upon and carried by the endless carriers, each bucket arranged to cut in advance of the preceding one, the hinged bottom for the bucket, the oscillatory cross-rod carrying a catch which engages the end of the hinged bottom, a trip-cam for releasing or locking the hinged bottom by throwing the catch out of or into engagement therewith, the bell-crank lever for holding the hinged bottom closed while being locked, devices with which the trip-cam and the bell-crank lever engage, during the travel of the endless carriers, in order to release or lock the hinged bottoms of the cutting-buckets, and of mechanism for imparting forward travel to the machine and driving the transverse endless traveling carriers in opposite directions, substantially as herein shown and described.

15. A forwardly-traveling land-excavating machine provided with transverse traveling devices which cut the soil from the inside of the excavation being made to the outer walls thereof and convey and deliver the cut soil to the sides of the ditch or canal, so as to form embankments thereof during the traveling movement of the machine in the one direction, substantially as herein shown and described.

16. In an excavating-machine, the combination with a frame, of excavating means working outwardly transversely of the machine which convey and deposit the excavated material alongside of the excavation being made so as to form an embankment thereof starting from at or near the center of the excavation being made, and connected mechanism for simultaneously moving the machine and actuating said excavating and delivering means during the movement of the machine, substantially as herein shown and described.

17. In a forwardly-traveling excavating-machine, the combination with the main frame, of the endless traveling chain carriers arranged transverse of the machine, a series of skew-shaped cutting-buckets secured to and carried by said carriers, the inclination of pitch being toward the front of the machine, so that each bucket will cut in advance of the preceding one, the hinged bottoms for the buckets, devices for automatically releasing and locking the same during the movement of the endless traveling carriers, and of mechanism for imparting forward motion to the machine and driving the endless traveling carriers in opposite directions, substantially as herein shown and described.

18. In a forwardly-traveling land-excavating machine, the combination with the laterally-traveling endless-chain carrier, of a series of cutting-buckets for cutting and removing the soil crosswise of the machine, a cross-rod securing each bucket to the laterally-traveling carrier at its forward end, a link connection between the rear end of the buckets and the said carrier, a hinged bottom to the buckets, devices for automatically releasing and locking the same during the travel of the endless carrier, a cutting-blade attached to the front bottom edge of the buckets and a cutting-blade fastened to the front side edge thereof, the toe of said blade extending upwardly higher than the bucket, substantially as herein shown and described.

19. In a forwardly-traveling land-excavator, the combination with the main frame of the machine, of the posts or uprights secured thereto, the cross-beams connected to said uprights or posts, the slide bearing-boxes mounted upon said cross-beams, the longitudinal drive-shafts working in said bearing-boxes, connection between said drive-shafts and the mechanism for driving the machine forward, the sprocket-wheels secured to the forward end of the drive-shafts, the chain carriers working at right angles to the machine and over said sprocket-wheels, and sprocket-wheels working in bearing-boxes located within channel-iron cross-beams secured to the main frame, a series of cutting-buckets secured to and carried by each of the chain carriers, which buckets cut the soil and convey and deposit the same to the sides of the machine, and of devices for automatically dumping the buckets, substantially as herein shown and described.

20. In a land-excavating machine, the combination with the oppositely laterally traveling endless carriers, of the cutting-buckets secured thereto and arranged to cut crosswise of the machine, one in advance of the others, the sprocket-wheels over which the carriers travel, devices for adjusting the laterally-traveling carriers, the idler-wheels for the forward carrier carried by a slide-block, and of the rack-and-pinion mechanism for laterally adjusting the slide-block carrying the idler-wheels to tighten or loosen the forward carrier, substantially as herein shown and described.

21. In a land-excavating machine, the combination with the main frame, of the front cross-beam, the slide-block carrying the idler-wheels for the front endless laterally-traveling carrier, mounted upon said cross-beam, the rack-plate carried thereby, a rack-pinion engaging the rack-plate for imparting lateral movement to the slide-block, a shaft for rotating the rack-pinion, said shaft working through the brackets attached to the cross-beam and an adjustable screw-post, and a friction-clutch for locking the operating-shaft of the rack-pinion, substantially as herein shown and described.

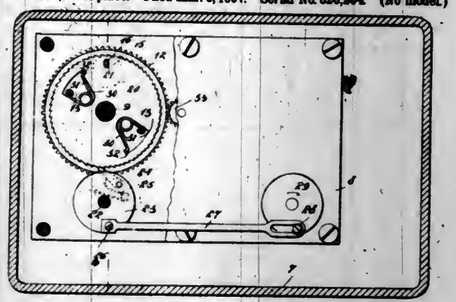
22. In a land-excavating machine, the combination with the main frame, of the forward channel-iron cross-beams attached thereto, the fixed and slide bearing-blocks located within the cross-beams, the screw-rods extending through the fixed and slide bearing-boxes, and of mechanism for operating the screw-rods to move the slide bearing-blocks toward or from the center of the machine, substantially as herein shown and described.

23. In a land-excavating machine, the combination with the main frame, of the forward channel-iron cross-beams attached thereto, the fixed and slide bearing-blocks located within the said cross-beams, the screw-rods extending through the fixed and slide bearing-blocks, the bevel-gears mounted upon the outer ends of said rods, the bevel-pinions, mounted upon a short longitudinal shaft, meshing with the said gears, a longitudinal shaft for operating the bevel-pinions, and of a universal-joint connection between said shaft and the bevel-pinion shaft, substantially as herein shown and described.

24. In a land-excavating machine, the combination with the main frame, of the truck-frames for supporting the main frame, the rollers secured within the truck-frames, the worms mounted upon the axles of the rollers, the worm-pinions secured upon the drive-shaft for the rollers, the belt-wheel shaft, the universal-joint connections between the drive-shaft and the belt-wheel shaft, the adjustable steering-wheel for supporting the rear end of the machine, and of mechanism for driving the belt-wheel shaft from the engine, the motion of which is transmitted to the drive-shaft so as to impart forward motion to the machine, substantially as herein shown and described.

25. In an excavating-machine, the combination with a series of cutting devices, of mechanism connected therewith for conveying the buckets transverse of the machine, each bucket being arranged to cut outwardly from the machine in advance of the preceding one from the inside of the excavation to the outer wall thereof and to convey and deposit the cut material alongside of the cut or excavation to form side embankment, and of connected mechanism for simultaneously advancing the machine along the work being excavated and actuating the cutting devices.

590,927. MECHANICAL MOVEMENT FOR TIME-LOCKS. ELSY R. WILLIAMS, St. Joseph, Mo., assignor of one-half to Willard E. Burnett, same place. Filed Mar. 6, 1897. Serial No. 626,364. (No model.)



Claim.—1. The combination with the spring of a clock mechanism, of a wheel mounted adjacent to the spring, a pin carried by the wheel and engaging the spring, a second pin carried by the wheel, a ratchet-disk having a longitudinal slot in which the second pin extends, a wheel mounted adjacent to the ratchet-wheel, a pawl carried by the last-named wheel and engaging the ratchet-wheel, a link pivoted to the last-named wheel, and a crank-disk with which the link is connected, substantially as described.

2. The combination with the spring of a clock mechanism, of a ratchet-disk mounted adjacent to the spring, means engaging the spring and ratchet-disk and transmitting movement between the two, a disk pivotally mounted adjacent to the ratchet-disk, a pawl carried by the last-named disk and engaging the ratchet-disk, a link pivoted to the disk which carries the pawl, and a crank-disk in connection with the link, substantially as described.

3. A mechanical movement for time-locks, having a wheel capable of being turned upon the fracture of the spring of the time-lock, a ratchet-disk in connection with the wheel and turned thereby, a second disk pivotally mounted adjacent to the ratchet disk, and a pawl carried by the second disk and engaging the ratchet-disk, substantially as described.

4. The combination with the spring of a time-lock, of a wheel mounted adjacent to said spring and turned by the undue expansion of the spring, a disk in connection with or turned by the wheel, a spring pressing the disk to hold the disk and wheel in normal position, a second disk mounted adjacent to the ratchet-disk, and a pawl carried by the second disk and engaging the ratchet-disk, substantially as described.

5. The combination with the spring of a time-lock, of a wheel mounted adjacent thereto and turned thereby upon the undue expansion of the spring, a gear-wheel in connection with and turned by the first-named wheel, and a spring pressing the gear-wheel to hold the two wheels in normal position, substantially as described.

6. The combination with the spring of a time-lock, of a wheel mounted adjacent to the spring and turned upon the undue expansion of the spring, a pin fixed to the wheel, a gear-wheel having a slot receiving the pin, and a spring pressing the gear-wheel to hold the two wheels in normal position, substantially as described.

7. The combination with the spring of a clock mechanism, of a wheel in connection with and turned by the undue expansion of the spring, and a gear in connection with the wheel and moved upon the movement of the wheel, substantially as described.

8. The combination with a helical spring and a barrel therefor, of a plate carried by the barrel and having an indentation in its face, a wheel mounted to turn within the indentation, a pin carried by the wheel and projecting into the barrel to engage the spring, a second pin carried by the wheel, a gear-wheel mounted adjacent to the plate of the barrel and having a slot receiving the second pin of the first-named wheel, and a spring attached to the said plate of the barrel and pressing the gear-wheel to hold the gear-wheel and the first-named wheel in normal position, substantially as described.

9. The combination with the casing and frame of a time-lock, of a time-lock spring mounted therein, means in connection with the spring for actuating the bolt of the lock, and driven upon the fracture thereof, a crank-disk capable of being connected with the time-lock mechanism, and a link connected to the said bolt-actuating mechanism and having slotted connection with the crank disk, substantially as described.

10. The combination with the casing and frame of a time-lock, of a spring mounted therein, means for actuating the bolt of the lock, and driven upon the fracture of the spring, and a crank-disk capable of being connected with the time-lock mechanism and having slotted connection with said bolt-actuating means, substantially as described.

11. The combination with a barrel, and its spring, of a wheel carried by the barrel and provided with pins projecting from its opposite sides, one of the said pins projecting into the barrel, a ratchet-wheel on the arbor of the barrel and with which the other pin of the said wheel engages, and a pivoted disk carrying a pawl engaging the ratchet-wheel and adapted to be connected with the time-lock mechanism, substantially as described.

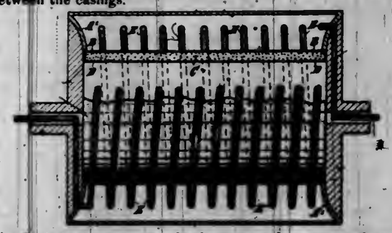
12. The combination with a barrel having a recessed and slotted disk at one end, and the spring in the said barrel, of a wheel mounted in the said recess and provided with a pin projecting from each side, one of the said pins projecting through the slot of the disk into the barrel, a ratchet-wheel on the arbor of the barrel and provided with a slot through which the other pin of the wheel projects, and a pivoted disk provided with a spring-pawl engaging the ratchet-wheel, said disk being adapted to be connected with the time-lock mechanism, substantially as described.

13. The combination with a barrel provided with a disk at one end having a recess in one side and a curved slot, and a spring in the barrel, of a wheel mounted in the recess of the disk and provided with a pin projecting from each side, one of the pins projecting through the slot of the said disk, a ratchet-wheel loosely mounted on the arbor of the barrel and connected by a spring with said barrel, said ratchet-wheel being provided with a longitudinal slot, through which the other pin of the said wheel projects, and a pivoted disk adapted to be connected with the time-lock mechanism and carrying a spring-pawl engaging the ratchet-wheel, substantially as described.

14. The combination with a barrel having a recessed and slotted disk at one end, and the spring in the barrel, of a wheel mounted in the recess of the said disk and provided with a pin on each side, one pin projecting through the slot of the disk into the barrel, a ratchet-wheel on the arbor of the barrel and provided with a slot through which the other pin of the said wheel projects and with two approximately quadrantal-shaped openings, springs in said openings, said springs having one end secured to the disk of the barrel, and a pivoted disk adapted to be connected with the time-lock mechanism and provided with a spring-pawl engaging the ratchet-wheel, substantially as described.

590,928. WEB-DRYING CYLINDER. FRIEDRICH WIPPERMANN, Stotzheim, Germany. Filed Apr. 22, 1897. Serial No. 633,356. (No model.)

Claim.—1. A drying apparatus having two casings arranged one within the other, heads connecting the casings, and a heating-coil run between the casings.



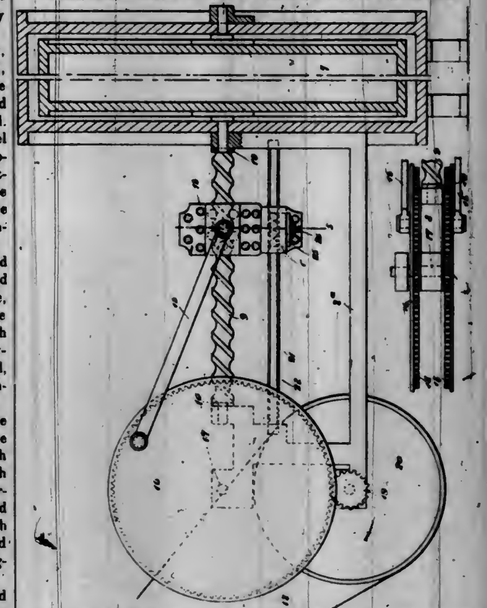
2. A drying apparatus having two casings arranged one within the other and connected by heads, and a heat-conveying apparatus extending between the casings.

3. A drying apparatus consisting in two casings arranged one within the other, heads for the cylinder, the heads having orifices therein, and a heating-coil extending through the orifices of the heads and wound between the casings.

4. A heating apparatus having two casings arranged one within the other, the inner side being of non-conducting material, heads for the casings, and heating devices extending between the casings.

5. A heating apparatus consisting in two casings arranged one within the other, the inner casing being of non-conducting material, the apparatus also having two heads with orificed central portions, and a heating-coil extending through the orifices of the head and wound between the two casings of the cylinder.

590,929. MECHANICAL MOVEMENT. JOHN H. YOUNGER, Butte, Mont. Filed Oct. 19, 1896. Serial No. 609,350. (No model.)



Claim.—1. The combination of a rigid guide-bar having grooves in its side edges, a rotary shaft having a spiral groove running throughout its length, a cross-head formed in two sections and provided with passages respectively receiving the shaft and the guide-bar, an antifriction-ball arranged within the passage receiving the shaft and projecting into the groove of the shaft, blocks located within the second passage and having lateral movement within the passage and toward and from the guide-bar, an antifriction-ball held by each block, the said balls projecting into the grooves of the guide-bar, and a wedge pressing each block toward the guide-bar, substantially as described.

2. The combination of a revoluble shaft having a spiral groove, a stationary guide-bar held parallel with the shaft, a cross-head having two openings respectively receiving the shaft and guide-bar, and

as antifriction-ball held within the cross-head and projecting into the groove of the shaft whereby, upon the reciprocation of the cross-head, an alternating rotary movement is transmitted to the shaft, substantially as described.

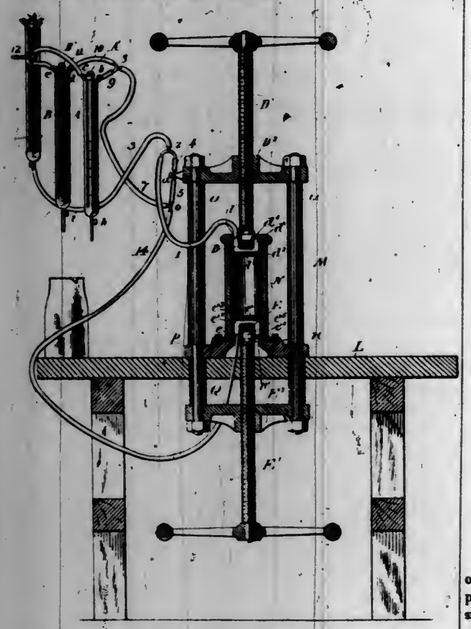
590,930. SECONDARY BATTERY. MÉRY DE CONTADES, Paris, France. Filed Feb. 9, 1897. Serial No. 622,641. (No model.) Patented in France Aug. 11, 1896. No. 258,825.

[redacted]

Claim.—1. In a secondary battery, a non-conducting porous envelop or casing inclosing an electrode and composed of two sheets, connected at their meeting edges by expansible joints, permitting the casing to adjust itself to changes in shape of the electrode, said casing being provided with a holding band or bands of expansible material, substantially as described.

2. The combination with a battery-plate, of an inclosing casing of non-conducting material having expansible joints, and a holding-band or armor of expansible conducting material surrounding and united to said casing, and provided exteriorly with cells filled with active material, substantially as described.

590,931. PROCESS OF AND APPARATUS FOR MAKING SMOKELESS POWDERS. FRANCIS G. DU PONT, Wilmington, Del. Filed June 9, 1897. Serial No. 639,965. (No model.)



Claim.—1. The herein-described process of displacing liquids in guncotton, which consists in compressing wet guncotton, and displacing by percolation with pressure the water remaining in the guncotton by a liquid not a solvent of guncotton, such as ethyl alcohol, the guncotton being held under pressure during the percolation process, substantially as described.

2. The herein-described process of manufacturing smokeless powder, which consists in displacing the water in wet guncotton with alcohol by percolation with pressure, and mixing with the alcoholized guncotton a solvent, such as ether, used in colloidizing the guncotton, substantially as described.

3. The herein-described process of manufacturing smokeless powder, which consists in displacing the water in wet guncotton with alcohol by percolation with pressure, and mixing with the alcoholized guncotton a solvent which, with the alcohol, will colloidize the guncotton, substantially as described.

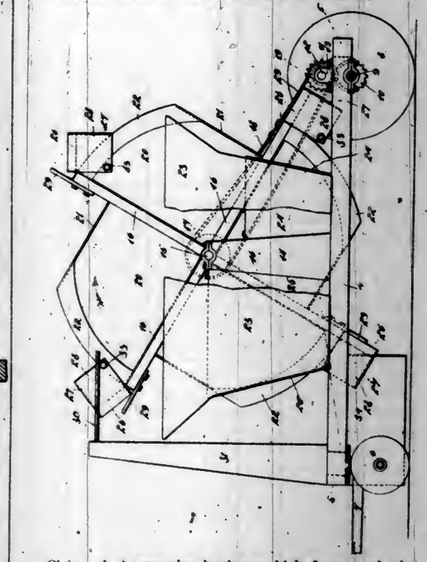
4. The herein-described process of manufacturing smokeless powder, which consists in displacing the water in wet guncotton with alcohol by percolation with pressure, and mixing ether with the alcoholized guncotton, substantially as described.

5. The herein-described process of manufacturing smokeless powder, which consists in compressing wet guncotton until it has reached a condition of equal porosity throughout, displacing by percolation with pressure the liquid in the guncotton by alcohol, compressing the guncotton till only the desired quantity of alcohol remains therein, and mixing sufficient ether with the alcoholized guncotton to gelatinize the mass, substantially as described.

6. In a press, the combination with a cylinder, of movable pressure-blocks constituting the ends of said cylinder, said blocks being formed to permit the passage of liquids therethrough, one of said blocks being removable from said cylinder and the other of said blocks being capable of reciprocation within said cylinder, thereby providing for the discharge from said cylinder of the condensed cakes of explosive, an air-exhaust conduit, and connection between said pressure-blocks and said exhaust-conduit, substantially as described.

7. In a press, the combination with a cylinder, of movable pressure-blocks forming the ends of said cylinder, said pressure-blocks being interiorly chambered, having perforations leading from said chambered portions to the inner faces thereof, and passages leading from said chambered portions to the outer faces thereof, one of said pressure-blocks being removable, screws for operating said blocks, an air exhaust conduit, and connection between said pressure-blocks and said exhaust-conduit, substantially as described.

590,932. SNOW-PLOW. HENRY V. GUERTIN, Worcester, Mass. Filed Mar. 22, 1897. Serial No. 628,590. (No model.)



Claim.—1. A snow-plow having a vehicle-frame, a wheel mounted on the frame, a diagonal chute carried by the wheel, and a bucket pivotally mounted at the outer end of the chute and receiving the snow and delivering the same into the chute.

2. A snow-plow having a vehicle-frame, a wheel revolubly mounted on the frame, the wheel having a blade running radially, a diagonal chute carried on the blade, and a bucket pivoted to the blade at the outer end of the chute and lifting the snow into the chute, which in turn discharges the snow at one side of the machine.

3. A snow-plow having a vehicle-frame, a wheel mounted on the frame, the wheel having a blade running radially, a chute carried diagonally on the blade, a bucket pivotally mounted at the outer end of the blade and lifting the snow and delivering the same into the chute, and a funnel carried at one side of the machine and in which the chute delivers the snow.

4. The combination of a revolubly-mounted wheel, a chute on the wheel, a bucket pivoted at the outer end of the chute and receiving the snow, and means for tilting the bucket as the bucket rises, whereby to dump the bucket into the chute.

5. The combination of a vehicle-frame, a wheel revolubly mounted on the frame, a chute carried by the wheel, a bucket pivotally carried at the outer end of the chute, and a stationary arm with which the bucket engages, whereby to dump the bucket into the chute.

6. The combination of a frame, a wheel revolubly mounted thereon and having a diagonal chute, a bucket pivotally mounted on the wheel at the outer end of the chute, and a member held stationary by the frame and engaged by the bucket as the same rises with the wheel whereby to dump the contents of the bucket into the chute.

7. The combination with a frame of a wheel mounted thereon and having a chute, a bucket pivoted on the wheel at the outer end of the chute, and a member carried by the frame and engaged by the bucket whereby to dump the contents of the bucket into the chute as the bucket rises with the wheel.

8. The combination of a vehicle, a wheel mounted thereon, a chute carried by the wheel, the chute running inward on the wheel and being disposed diagonally, and having its discharge end at the center of the wheel, and a bucket at the outer end of the wheel, the bucket serving to lift the snow into the chute, and the chute serving to convey the snow inward to the center of the wheel and then discharge the snow from one side of the wheel.

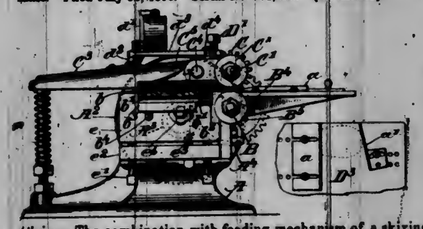
590,933. SNAP-HOOK. THEODORE A. LUNDERS, Frohna, Mo., assignor of one-half to Henry G. Palisch, same place. Filed Oct. 1, 1896. Renewed Aug. 17, 1897. Serial No. 648,583. (No model.)



Claim.—1. In a snap-hook, the combination with the snap and hook members pivotally connected as described, of the forwardly-projecting locking-arm having an opening near the forward end, and the locking-pin passed transversely through the hook member, having a beveled point at one end, a head at the opposite end, and a spring surrounding the body of the pin within the hook, substantially as shown and described.

2. In a snap-hook, the combination with the main or body portion, having an eye or loop at one end, a hook at the opposite end, and the shoulder and lug adjacent to the rear end, the snap member U-shaped in cross-section, the pivotal bolt and the coil-spring, said coil-spring being arranged upon the lug on the body, and resting between the sides of the snap member, the forwardly-projecting arm carried by the snap member, said locking-arm having an opening near the forward end, the locking-pin passed transversely through the hook, and having the beveled point square, the collar, the head and the surrounding spring all arranged and adapted to operate, substantially as shown and described.

590,934. SKIVING-MACHINE. JAMES H. MOULTON, Haverhill, Mass., assignor to Frank F. Stanley, principal trustee, Swampscott, Mass. Filed July 30, 1896. Serial No. 601,028. (No model.)



Claim.—The combination with feeding mechanism of a skiving-machine, of a blade or knife, a holder therefor, a seat to receive said holder, a plate to which said seat is secured, a horizontal rib on the frame of the machine, and independent adjusting means at opposite ends of said rib engaging said plate, substantially as described.

590,935. FRUIT-GATHERER. OLOF A. NORLUND, Cedar Run, Pa., assignor of one-half to George A. Gamble, same place. Filed May 17, 1897. Serial No. 636,909. (No model.)

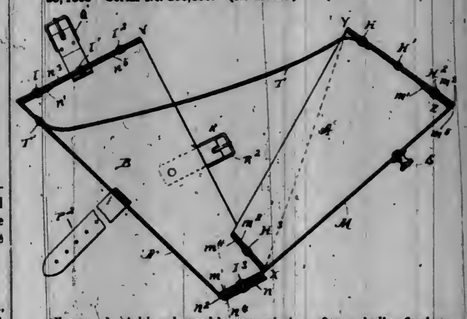
Claim.—1. In a fruit-gatherer, the combination of a handle, a pair of semicircular jaws pivoted together at one end and having their other ends crossed and pivotally connected to the upper end of the handle, arms extending from the crossed ends of the jaws and being integral therewith, pulleys journaled in the ends of said arms, springs connected to the handle and arms to normally hold the jaws open, a cord secured to one of the arms and working over the pulleys to close the jaws, and a flexible conveyer connected directly to the jaws, substantially as described.

2. In a fruit-gatherer, the combination of a handle, an arm secured at its upper end, a stud projecting from the arm, a pin secured in the stud, a pair of semicircular jaws pivotally connected together at one end and having their other ends crossed and pivoted on the said pin, arms integral with the crossed ends of the jaws, a pulley journaled in the end of each arm, an operating-cord connected to one arm and working over the said pulleys, a reversely-coiled spring seated on the said stud and connected to the said arms, and a conveyer connected to the jaws, substantially as described.



3. In a fruit-gatherer and pruning-shears, the combination of a handle, an arm secured at its upper end, a stud projecting from the arm, a pin secured in the stud, a pair of semicircular jaws pivotally connected together at one end and having their other ends crossed and pivoted on the said pin, arms integral with the crossed ends of the jaws, a pulley journaled in the end of each arm, an operating-cord connected to one arm and working over the said pulleys, a reversely-coiled spring seated on the said stud and connected to the said arms, substantially as and for the purpose specified.

590,936. BICYCLE TOOL-BAG. FRANK C. PERKINS, Chicago, Ill., assignor to the Chicago Razor Strop Company, same place. Filed Aug. 23, 1895. Serial No. 560,199. (No model.)



Claim.—1. A bicycle tool-bag consisting of two shells of substantially equal dimensions, diminishing in depth toward their lower ends, and each having an open inner side, one of said shells being hinged at its lower end to the lower open portion of the adjacent shell, so as to have a telescopic connection therewith, and means for attaching one of said shells to the frame of a bicycle, substantially as described.

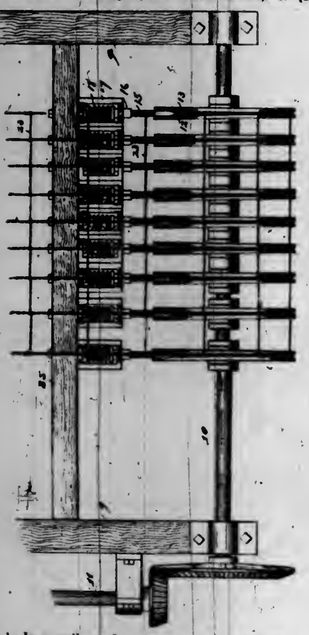
2. A bicycle tool-bag consisting of two shells of substantially equal depth, and each having an open inner side, one of said shells being provided at its lower portion with a flap made integral with its body, said flap being secured within the bottom portion of one of said shells and serving as a hinge connection between the two shells, the parts being so arranged that one telescopes within the other, a strap secured within the two shells to limit their outward opening movement, and means for attaching one of the shells to the frame of a bicycle, substantially as described.

3. A bicycle tool-bag consisting of two shells, each shell constructed from a single blank, comprising a back portion, M, side flaps, M' and M^2, and end flaps, m, m', m^2, m^3, m^4 and m^5, the flap, m serving as a hinge by which the inner shell is hinged, at its lower end, within the outer shell, and adapted to swing downward and outward to open said tool-bag.

4. A bicycle tool-bag consisting of two independent shells of substantially equal dimensions and diminishing in depth toward the bottom and each having an open inner side, one of said shells being provided at its bottom with a flap made integral with its body, said flap being secured to the bottom portion of the adjacent shell and serving as a hinge connection between the two shells, the parts being so arranged that one telescopes within the other and the open side of the movable shell closing toward the rear wall of the stationary shell, substantially as described.

5. A bicycle tool-bag consisting of two counterpart shells of substantially equal dimensions and diminishing in depth toward the bottom and each having an open inner side, means for attaching one of said shells to the frame of a bicycle, the other shell being hinged at its lower end to the lower open portion of the stationary shell so as to have a telescoping connection therewith, the open inner side of the movable shell closing toward the rear wall of the stationary shell, and means for limiting the swinging open of the said movable shell, substantially as described.

590,937. PULL-OUT FOR WIRE-WEAVING MACHINES. GEO. H. SHELLABERGER, De Kalb, Ill., assignor, by mesne assignments, to the De Kalb Fence Company and the I. L. Ellwood Manufacturing Company, same place. Filed July 13, 1896. Serial No. 598,953. (No model.)



Claim.—1. In a pull-out for wire-weaving machines, a pair of rotatable clamping-disks adapted for the separation of their proximate faces on one side of their axis of rotation, and an opening device operating between said faces at the peripheries of the disks, substantially as and for the purpose described.

2. In a pull-out mechanism for wire weaving machines, the combination with a rotatable shaft, of a pair of clamping-disks mounted upon and secured to rotate with said shaft, and one or both disks capable of a slight rocking movement whereby the proximate faces of said clamp-disks may be separated upon one side of their axis and clamped at the opposite point, substantially as described.

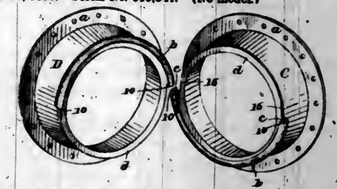
3. In a pull-out mechanism for wire-weaving machines, the combination with a rotatable shaft, of clamping-disks arranged in pairs mounted upon said shaft and adapted for separation at their peripheries, the inner edges whereof are beveled, and wedge-shaped opening devices operating between the peripheries of the disk clamps, substantially as described.

4. In a pull-out mechanism for wire-weaving machines, the combination with a series of clamping-disks arranged in pairs and capable of separation at their peripheries, and a series of yieldingly-mounted opening devices having wedge shaped edges adapted to enter between the edges of the disks, substantially as described.

5. In a pull-out mechanism for wire-weaving machines, the combination with a rotatable shaft, of a pair of clamping-disks mounted thereon and capable of a slight rocking movement on the shaft; said disks having the inner edges of their peripheries beveled, one of said disks being provided with a shoulder or flange to form a seat for the strand to be clamped, and an opening device adapted to enter between the edges of said disks whereby to separate them, substantially as described.

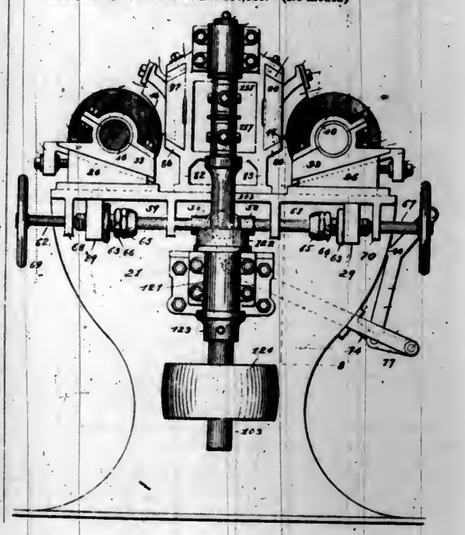
6. In a pull-out mechanism for wire-weaving machines, the combination with clamping-disks arranged in pairs, one of said disks having its periphery beveled and recessed to provide a shoulder, and the other of said disks having its edge also beveled and provided with a flange overhanging the shoulder, each pair of disks being mounted so as to rock upon the support, and wedge-shaped opening devices, one for each pair of disks, and whereby their proximate faces may be separated, substantially as described.

590,938. LOCK-JOINT PIPE AND COLLAR COUPLING FOR STOVES OR FURNACES. HOWARD A. TINKHAM, Norton, Mass. Filed Jan. 15, 1897. Serial No. 619,341. (No model.)



Claim.—The here-indescribed interlocking coupling, comprising two tubular members, the adjacent or abutting ends of which are each provided with an inwardly-grooved overhanging flange extending half-way around its periphery, the other half of said periphery having a semicircular lip or tongue for engaging the semicircular groove of the overhanging flange of the opposing member when said members are put together by a sliding movement of one upon the other, the lip or tongue of one member being cut away on its outer edge, as shown at 15, 15, to reduce its width adjacent to the shoulders 10 and thus permit the shoulders formed by the ends of the grooved flanges of the two members to lie flush or nearly so with each other, substantially as described.

590,939. FLOURING-MACHINE. HUGH M. WHITNEY, St. Louis, Mo., assignor to the Whitney Manufacturing Company, same place. Filed Jan. 4, 1897. Serial No. 617,969. (No model.)



Claim.—1. In a grinding-machine, a suitable frame having dovetailed recesses in its sides, concave-carriers slidingly mounted in said dovetailed recesses, concaves detachably connected to and carried by said concave-carriers, pitman-rods attached to corresponding ends of said concave-carriers and extending back of said concave-carriers to the opposite end of the machine, and means of operating said pitman-rods whereby said concave-carriers are reciprocated, substantially as specified.

2. In a grinding-machine, a suitable frame having dovetailed recesses in its sides, concave-carriers slidingly mounted in said dovetailed recesses, concaves detachably connected to and carried by said concave-carriers, pitman-rods attached to corresponding ends of said concave-carriers and extending back of said concave-carriers to the opposite end of the machine, a double-crank shaft mounted in vertical bearings at said opposite end of the machine, to the cranks of which the free ends of said pitman-rods are attached, and means of rotating said crank-shaft, thus operating said pitman-rods and reciprocating said concaves, substantially as specified.

3. In a flouring-machine, grinding-rollers mounted in adjustable bearings whereby said rollers may be adjusted in any desired direction, an eccentric-shaft mounted in a position parallel with said grinding-rollers, connections between said adjustable bearings and said eccentric-shaft, and means of rotating said eccentric-shaft whereby said bearings are operated simultaneously to move said rollers into and out of their operative positions, substantially as specified.

4. In a flouring-machine, grinding-rollers mounted in adjustable bearings whereby said grinding-rollers may be adjusted in any desired direction; each of said bearings consisting of a block mounted to slide in a horizontal position and having an inclined upper face, a second block mounted to slide upon said inclined face and carrying the bearings in which said grinding-rollers operate, an arm projecting downwardly from one end of said second block and having a bifurcated lower end, a bolt operating in said bifurcated lower end and screw-seated in the first-mentioned block, shoulders upon said bolt upon opposite sides of said arm whereby the manipulation of said bolt will slide said second block upon said inclined face, a vertical transversely-elongated aperture formed in said second block, a bolt extending upwardly from the first-mentioned block through said aperture, and a nut upon the upper end of said bolt and engaging said second block whereby said blocks may be locked together in the desired positions relative to each other, substantially as specified.

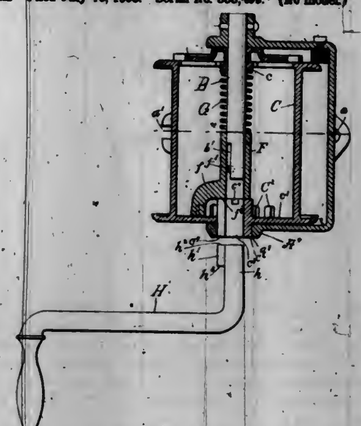
5. In a flouring-machine, grinding-rollers mounted in adjustable bearings whereby said grinding-rollers may be adjusted in any desired direction; each of said bearings consisting of a block mounted to slide in a horizontal position and having an inclined upper face, a second block mounted to slide upon said inclined face and carrying the bearings in which said grinding-rollers operate, means of sliding said second block upon said inclined face and holding said block in the desired position relative to said first block, a horizontal plate supporting said first-mentioned block, a vertical transversely-elongated aperture through said plate and under said block, a third block slidingly mounted under said plate, a bolt connecting said first-mentioned block with the last mentioned block and means of sliding said last-mentioned block, substantially as specified.

6. In a flouring-machine, grinding-rollers mounted in adjustable bearings whereby said grinding-rollers may be adjusted in any desired direction; each of said bearings consisting of a block mounted to slide in a horizontal position and having an inclined upper face, a second block mounted to slide upon said inclined face and carrying the bearings in which said grinding-rollers operate, means of sliding said second block upon said inclined face and holding said block in the desired position relative to said first block, a horizontal plate supporting said first-mentioned block, a vertical transversely-elongated aperture through said plate and under said block, a third block slidingly mounted under said plate, a bolt connecting said first-mentioned block with the last-mentioned block, a rod screw-seated in a horizontal position through said last-mentioned block, means of operating said rod, and means of holding said rod from endwise motion, substantially as specified.

7. In a flouring-machine, the combination with a vertical shaft, having a bore formed through its upper end and openings leading from said bore to the bearing portions of said shaft, of a rod to be inserted in said bore, absorbent packing on said rod, and a cap on the lower end of said rod to hold said packing in position, substantially as specified.

8. In a flouring-machine, grinding-rollers mounted in adjustable bearings whereby said grinding-rollers may be adjusted in any desired direction; each of said bearings consisting of a block mounted to slide in a horizontal position and having an inclined upper face, a second block mounted to slide upon said inclined face and carrying the bearings in which said grinding-rollers operate, means of sliding said second block upon said inclined face and holding said block in the desired position relative to said first block, a horizontal plate supporting said first-mentioned block, a vertical transversely-elongated aperture through said plate and under said block, a third block slidingly mounted under said plate, a bolt connecting said first-mentioned block with the last-mentioned block, a rod screw-seated in a horizontal position through said last-mentioned block; an eccentric-shaft mounted in position parallel with the grinding-rollers, eccentrics mounted upon and carried by said eccentric-shaft, bearings engaging said eccentrics, rods attached to said bearings, ball-and-socket joints connecting said rods with the first-mentioned rods which are screw-seated through said last-mentioned blocks, thus forming connections between said adjustable bearings, and means of rotating said eccentric-shaft whereby said bearings are operated simultaneously to move said rollers into and out of their operative positions, substantially as specified.

590,940. WINDLASS. FREDERICK H. AYER, Downer's Grove, Ill. Filed July 10, 1895. Serial No. 555,499. (No model.)



Claim.—1. In a windlass, the combination of a supporting-frame, a drum-spindle, a hollow winding-drum mounted upon said spindle, a non-rotatable detent mounted to slide endwise upon the spindle within the drum and adapted to engage the interior of one end of the drum, a spring arranged to normally force said detent into engagement and a crank-handle adapted to be inserted in the end of the drum and to simultaneously disengage the detent from the drum and itself positively engage the latter.

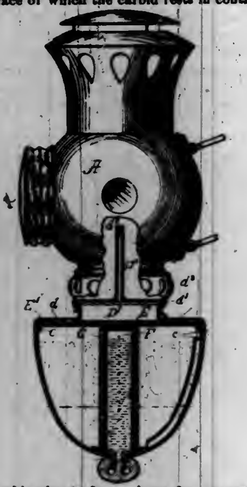
2. In a windlass the combination of a supporting-frame, a drum-spindle, a hollow winding-drum mounted upon said spindle, a non-rotatable detent mounted to slide endwise upon said spindle and provided with an arm adapted to engage with a series of notches in the end of the drum arranged concentrically with the axis of the latter, a crank adapted to enter the end of the drum, and force back the detent out of engagement with the winding-drum, a spline upon the shank of the crank adapted to engage with a corresponding notch in the end of the drum when said shank is moved outwardly toward that end through which it is entered, and a spring tending to normally force the detent into engagement with the drum and also through the medium of said detent to force the shank into engagement with the drum when in position within the latter.

3. In a windlass, the combination of a supporting-frame, a winding-drum and handle, an inaccessible locking device within the drum for locking the latter from rotation, a series of ratchet-notches arranged concentrically with the axis of rotation of the drum, said ratchet-notches being of undercut form, and a pawl adapted to co-operate with said ratchet-notches to prevent the turning of the drum in one direction, the relation of the inaccessible locking device to said ratchet-notches being such that when the drum is locked the pawl will be prevented from being disengaged from the ratchet.

590,941. LAMP FOR GENERATING AND BURNING ACETYLENE GAS. CHARLES W. BECK, Chicago, Ill. Filed July 27, 1896. Serial No. 600,613. (No model.)

Claim.—1. In a lamp the combination of a gas-generating chamber, a gas-jet communicating therewith, a liquid-receptacle smaller in cross-section than the interior of the generating-chamber and arranged to project freely within the latter, so as to be exposed to the contents of the generating-chamber at its sides, pores in the side wall of the liquid-receptacle, and a compact absorbent body covering said porous wall, constructed to permit a slow seepage of the liquid therethrough.

2. In a lamp, the combination of a gas-generating chamber, a gas-jet communicating therewith, a liquid-receptacle of less capacity than the generating-chamber and centrally disposed within the latter, the walls of said liquid-chamber being perforated throughout its height, and a tubular wick surrounding said liquid-receptacle, with the outer surface of which the carbid rests in contact.



3. The combination to form a lamp for generating and burning acetylene gas, of a compartment to hold carbid, ascending conduits in said chamber extending from points within the body of carbid upwardly above the surface thereof, to direct the gas, and a communicating compartment to hold the slaking agent separated from the carbid compartment by a perforated wall, provided with a porous covering.

4. The combination to form a self-contained lamp-fount for generating and burning acetylene gas, of an exterior compartment to hold the carbid, a central compartment to hold the slaking agent, means to cause the escape of said agents into the carbid, a gas-chamber above said compartments and a filter interposed between the gas-chamber and said compartments.

5. The combination to form a lamp, of the fount for the reception of carbid, the ascending tubular ribs along the internal wall thereof, perforated for the admission of gas, the central tube or compartment for the reception of the slaking agent, the porous envelop therefor, the gas-chamber, and the burner.

6. The combination of the fount, the fluid-tube shouldered and screw-threaded at its foot and having an inlet along the axis of the screw-threaded extension, and the nut with its insetting plug.

7. The combination of the fount, the removable fluid-tube, and the outsetting wing near the foot of said tube.

8. The combination with the fount and the removable fluid-tube, of the removable cap and the filtering-diaphragm removable with said cap.

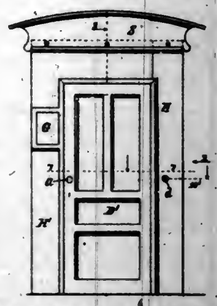
9. The combination to form a lamp for generating and burning acetylene gas, of a receptacle to hold the slaking agent, a generating-compartment to hold carbid, a gas-jet communicating with the generating-compartment and means for controlling the flow of liquid to the carbid comprising an elongated support arranged to project within the mass of carbid and a wick or covering of absorbent material upon said support, freely exposed to the carbid, said wick being supplied with liquid from the liquid-receptacle.

590,942. BOOTH FOR VOTING-MACHINES. JOHN BOHA, Rochester, N. Y., assignor to the National Voting Machine Company, same place. Filed June 28, 1897. Serial No. 642,693. (No model.)

Claim.—1. A booth for a voting-machine, having an apartment to be occupied by the voter, and another apartment for containing the voting-machine, with a partition between the apartments formed with a doorway through it, and a door to close said doorway, a fastener to hold the door in its closed position, and means to unfasten the door from outside of the walls of the booth, substantially as specified.

2. A booth for a voting-machine, having an interior partition with a doorway through said partition, and a doorway through an outer wall of the booth, and a door held by the booth adapted to close either of said doorways, substantially as and for the purpose set forth.

3. A booth for a voting-machine, having an apartment to be occupied by the voter, and another apartment for containing the voting-machine, with a partition between the apartments formed with a doorway through it, and a doorway through the adjacent outer wall of the booth, and a door held by the booth adapted to close either of said doorways, and a window opening into the apartment occupied by the voter, substantially as described.



4. A booth for voting-machines, having an apartment to be occupied by the voter, and another apartment for containing the voting-machine, with a partition between the apartments formed with a doorway through it, and a doorway leading from without into the apartment occupied by the voter, and a door adapted to close either of said doorways, and a door leading from without into the apartment containing the voting-machine, substantially as shown and described.

5. A booth for voting-machines, having an interior partition, and a doorway through said partition and through the outer wall of the booth, and a door adapted to close either of said doorways, and means for holding the door between said doorways, substantially as shown and described.

6. A booth for voting-machines, having an interior partition, and a doorway through said partition and through the outer wall of the booth, and a door adapted to close either of said doorways, and means for holding the door between said doorways and for releasing the door from outside of the walls of the booth, substantially as described.

7. A booth for a voting-machine, having a door, and a lever for operating the voting-machine, and connectors for said door and lever whereby when the door is swung the lever will be turned upon its fulcrum, substantially as and for the purpose set forth.

8. A booth for a voting-machine, having an interior partition, and a doorway or opening through said partition and through the adjacent outer wall of the booth, and a door adapted to close either of said openings, and a lever for operating the voting-machine, and connectors for said door and lever whereby when the door is moved to close one of said openings the lever will be turned in one direction, and when moved to close the other of said openings the lever will be moved in the opposite direction, substantially as specified.

9. A booth for a voting-machine, having an interior partition, and an opening through said partition and through the outer wall of the booth, and a door adapted to close either of said openings, and a lever for operating the voting-machine, and connectors for said door and lever whereby when the door is moved to close one of said openings the lever will be turned in one direction, and when moved to close the other of said openings the lever will be moved in the opposite direction, and means for causing the door to act upon the lever only while swinging through a part of the distance between said openings, substantially as and for the purpose specified.

10. A booth for a voting-machine, having an interior partition, and a door adapted to swing against said partition and also against an outer wall of the booth, and mechanism connected with the door for operating said voting-machine, and means for causing the door to actuate said mechanism during the latter part only of its swinging motion in either direction, substantially as shown and described.

11. A booth for voting-machines, having an interior partition and a door adapted to swing against said partition and also against the outer wall of the booth, a sliding bolt upon the door for locking it against the partition, a bolt through the wall of the booth, the inner end of which is provided with a catch and an extended part upon the sliding bolt for engaging with the catch, substantially as set forth.

12. A booth for voting-machines, having an interior slotted partition and a door adapted to swing against said partition and also against the outer wall of the booth, a sliding bolt upon the door, one end of which is adapted to engage with the partition and the other end is provided with an extended part, adapted to extend through the slot of the partition, a spring-actuated bolt through the wall of the booth, the inner end of which is provided with a pin adapted to engage with the extended part of the sliding bolt, whereby the sliding bolt is unlocked from the partition when the other bolt is drawn out, substantially as set forth.

13. A booth for voting-machines, having an interior partition and a door adapted to swing against said partition and also against the outer wall of the booth, a slotted guide upon the wall of the booth adjacent to the hinge of the door, a bar pivotally secured to the door, the free end of which is notched and adapted to slide through the guide, a bolt through the wall of the booth, the inner end of which is adapted to engage with the notched portion of the bar and prevent the swinging of the door from the partition to the outer wall of the booth, and means connected with the door for operating the voting mechanism only after the bar has been released from the bolt, substantially as set forth.

14. A booth for voting-machines, having an interior partition and a door adapted to swing against the partition and also against the outer wall of the partition, a sliding bolt upon the door, one end of which is adapted to engage with the partition and the opposite end is provided with an extended part, a notched bar pivotally secured to the door, a bolt through the wall of the booth, the inner end of which is adapted to engage with the bar and with the extended part, and means for connecting the end door with the voting mechanism, substantially as set forth.

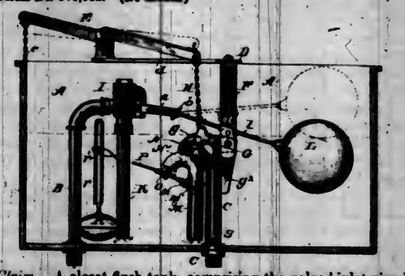
590,943. CIRCULAR DOOR FOR SAFES. WILLIAM CORRY, Cincinnati, Ohio, assignor to the Hall's Safe Company, same place. Filed June 1, 1897. Serial No. 638,676. (No model.)



Claim.—1. In a round door for safes the combination of the outer plate interiorly recessed and screw-threaded, the inner rabbeted and interiorly-screw-threaded rings and the circular plates or disks to lock the said rings and outer plate together, substantially as shown and described.

2. The combination of the interiorly-recessed outer plate, the inner rabbeted peripheral rings, the circular disks locked to said outer plate and rings by screw-threaded connection, and the bolts to prevent the parts from turning, substantially as hereinbefore set forth.

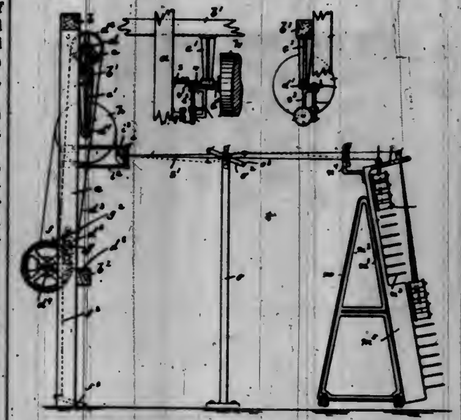
590,944. WATER-CLOSET TANK. BEVERLY CROWELL, Asbury Park, N. J., assignor of one-half to Claude James Wiseman, same place, and Charles Holland Kidder, Ridgefield Park, N. J. Filed Feb. 19, 1896. Serial No. 579,932. (No model.)



Claim.—A closet flush-tank, comprising the valved inlet-pipe B, the float lever *l* in operative connection with said valved inlet-pipe B and adapted to open said pipe upon the rising of the float, the bell-crank lever G, having an arm *g*, projecting into the path of said float-lever *l*, and an arm *g'*, the chain pull-lever E and the chain H connecting one end of said lever E to the arm *g'* on the bell-crank lever G, in combination with an automatic flushing apparatus, as and for the purpose set forth.

590,945. WARPING-FRAME. HENRY EASTWOOD, Lake View, N. J., assignor to Eastwood & White, same place. Filed May 18, 1897. Serial No. 637,072. (No model.)

Claim.—1. The combination with the frame, of a receiving-beam revolubly mounted in said frame, an indicator-drum also mounted in said frame and parallel with the receiving-beam, a creel-frame in rear of said frame, guide-reeds carried respectively by the first-mentioned frame and said creel-frame, a reed intermediately arranged between said last-mentioned reeds, and a tension device fulcrumed on said intermediate reed and consisting of two parallel arms adapted to engage the warp-threads passing from the creel-frame to the receiving-beam at opposite sides of said intermediate reed, substantially as described.



2. In a machine of the character described, the combination with a series of standards, a series of stepped frames carried by said standards, a series of parallel slats or strips connecting said series of stepped frames, spindles or bobbin-supporting means mounted on said slats and at right angles thereto, the spindles on the lower series of slats being in a plane different to the spindles on the upper series of slats and in rear thereof, and a reed extending rearwardly from the top portion of the stepped frames and substantially parallel with the spindles or bobbin-supporting means, and two guide-rods above said reeds and in the planes of their respective bobbin-supporting means substantially as described.

3. In a machine of the character described, the combination with the frame, of the receiving-beam revolubly mounted in said frame, a gear-wheel suitably connected with the receiving-beam, a pinion meshing with said gear-wheel, a shaft supporting said pinion, a bracket-frame suitably supporting said shaft, a fixed and loose pulley on said shaft, a spring-controlled belt-shifter slidingly arranged in the bracket-frame, a fulcrumed pawl engaging the gear-wheel, a cord connected with said pawl and secured to the belt-shifter, a fulcrumed treadle-lever operating said cord, and an endless belt adapted to engage the fixed or loose pulley respectively, all said parts, substantially as and for the purposes described.

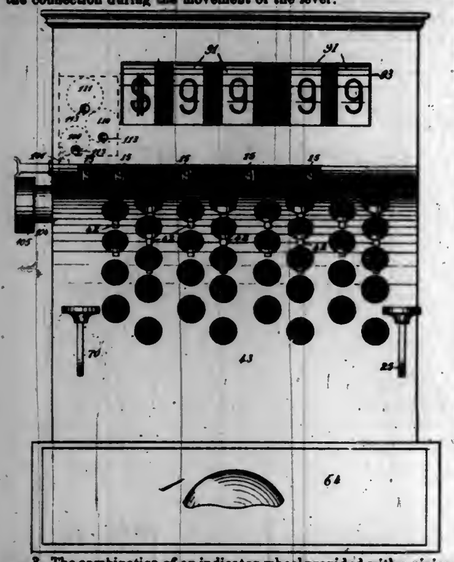
4. The combination with an indicator-drum in a machine of the character described, of a shaft supporting said drum, a frame furnishing the bearings for said shaft a worm-wheel on said shaft, a pin-carrying gear-wheel meshing with said worm, a gong operated by said pin-carrying gear-wheel, a shaft supporting said gear-wheel and provided with a worm, and at right angles to the drum-supporting shaft a second gear-wheel meshing with the last-mentioned worm and provided with a pin and at right angles to the first-mentioned pin-carrying gear-wheel, and a second gong adapted to be operated by said last-mentioned pin, all said parts, substantially as and for the purposes described.

590,946. CASH REGISTER AND INDICATOR. EDWARD R. HEBB, New York, N. Y., assignor to the Century Machine Company, same place. Filed Oct. 19, 1896. Serial No. 609,365. (No model.)

Claim.—1. The combination with the indicator-wheel and its actuating gear and spring, of an oscillatory shaft and means thereon for moving the actuating-gear in opposition to its spring, a hand-lever having a laterally-projecting pin, a connecting-rod coupled with an arm of said shaft, a spring-pressed hook pivoted on said connecting-rod and adapted to swing into and out of engagement with the pin on the hand-lever, and a cam arranged to throw the hook out of engagement with the pin during the movement of the lever, whereby the shaft, after having been rocked to move the actuating-gear is permitted to return to normal position.

2. The combination with the indicator-wheel and its actuating gear and spring, of an oscillatory shaft, means on said shaft for moving the gear in opposition to its spring, a hand-lever, means for hold-

ing and releasing the same, a separable connection between said hand-lever and an arm of said shaft, and means for automatically breaking the connection during the movement of the lever.



3. The combination of an indicator-wheel provided with a pinion at the side thereof, a spring-actuated gear in mesh with the pinion, a second pinion also in mesh with said gear, a double-faced traveling rack in mesh with the second pinion, a stationary rack, a traveling gear between the stationary rack and the traveling rack, and means for limiting the range of movement of said traveling gear, the whole operating to limit the movement of the indicator-wheel.

4. The combination with the indicator-wheel and the spring-actuated gear for driving the same, of a stationary rack, a traveling rack, a pinion between the traveling rack and the spring-actuated gear, a traveling gear between the stationary and movable racks, and means for limiting the movement of the traveling gear.

5. The combination with the indicator-wheel and the gear for driving the same, a swinging arm, gear connections between said arm and the indicator-wheel, a detent to engage and hold the arm in its forward position, push-pins arranged to operate the detent and release the arm, and means for locking the push-pins and the arm together to limit the swinging movement of the latter.

6. The combination of a spring-actuated indicator-wheel, a swinging arm geared therewith by traveling connections, means for holding and for releasing said arm, and means for determining the movement thereof.

7. The combination of a spring-actuated indicator-wheel, a swinging arm geared therewith and moved thereby, and a series of longitudinally-movable finger-keys having substantially uniform ranges of movement arranged to engage the arm at varying distances from its pivot for varying the throw of the arm and the angular movement of the indicator-wheel.

8. The combination of a register-wheel, a pinion loosely mounted at the side thereof, a spring-actuated gear in mesh with said pinion, a clutch between the pinion and register-wheel arranged to cause the latter to rotate with the former in a forward direction and to permit independent backward rotation of the pinion, a reciprocating rack in mesh with said pinion, a stationary rack parallel to the reciprocating rack, a traveling gear between said racks, and means for limiting the movement of the traveling gear.

9. The combination of rotary registering and indicating mechanisms, means for actuating the same, a swinging arm connected with, and moved by, the actuating mechanism through intermediate connections, a series of numbered push-pins or keys arranged at varying distances from the pivotal point of said swinging arm, means for connecting the arm with said pins to limit the movement thereof, and means for holding and releasing the arm.

10. The combination of rotary registering and indicating mechanisms, means for actuating the same, a swinging arm connected with the actuating mechanism by intermediate gearing, a series of push-pins or keys arranged at varying distances from the pivotal point of said swinging arm and having hooks at their ends, a detent connected with said arm to engage said hooks, and means for disengaging said detent.

11. The combination of rotary registering and indicating mechanisms, means for actuating the same, a pivoted swinging arm connected with, and operated by, said actuating means through intermediate gearing, a series of push-pins or keys arranged at varying distances from the pivotal point of said arm and provided with hooked inner ends, a detent on said arm to engage said hooked ends, a detent for holding said arm, and cams on the pins for operating the last-named detent to release the arm.

12. The combination of rotary registering and indicating mechanisms, means for actuating the same, a pivoted swinging arm connected with, and operated by, said actuating means, a detent for holding said arm, and a push-pin provided with a cam for disengaging the detent and releasing the arm.

13. The combination of rotary registering and indicating mechanisms, means for actuating the same, a swinging arm connected with the actuating means, a spring-actuated detent for engaging and holding said arm, a series of push-pins or keys each having a cam for operating said detent to release the arm, and a second detent carried by the arm to engage the operated pin and limit the movement of said arm.

14. In a register and indicator the combination of a series of longitudinally-movable keys provided with longitudinally-extending arms, a ball-chamber with openings for the reception of said arms, a series of balls in said chamber, the length of the latter being such that the entrance thereinto of one of said arms will fill the chamber and prevent the operation of a second key, a swinging arm with means thereon for engaging and interlocking with the operated key to limit the movement of the arm, and registering and indicating mechanisms controlled by said arm, the several keys being arranged and adapted to arrest the movement of the arm at different points in the range of its movement.

15. The combination of a resettable indicating mechanism, a hand-lever for resetting the same after operation, and means for automatically engaging and holding said lever at the end of its operative movement, a release-lever and intermediate devices unlocking the resetting-lever, and devices under the control of the resetting-lever for automatically locking the release-lever after operation, the arrangement being such that each of said levers is unlocked by the other, and such as to require alternate operation of the two to restore them to operative condition.

16. The combination with a resettable indicating mechanism, of a pivoted swinging arm geared therewith, a detent on said arm, push-pins adapted to engage and interlock with said detent, a rotatable shaft and devices operated thereby to operate said detent and release the push-pins.

17. In a register the combination of primary and secondary register-wheels, that is to say, wheels of different orders, the primary wheel having a projection thereon and the secondary wheel a ratchet at the side thereof, and a carrying or transferring mechanism comprising a lever having two arms standing in different planes of movement, one of said arms carrying a pawl to engage the ratchet of the secondary wheel, and the other standing normally in the path of the projection of the primary wheel and adapted to be operated thereby to retract the pawl and lever, and means for operating said lever to advance the secondary wheel.

18. The combination of primary and secondary register-wheels, the first having a projection thereon and the second a ratchet, of a carrying or transferring mechanism comprising a three-armed lever, one arm standing normally in the path of the projection on the primary wheel, the second arm carrying a pawl adapted to act upon the ratchet of the secondary wheel, and a rotatable shaft carrying a cam adapted to operate the third arm of said lever, the arrangement being such that the projection on the primary wheel will operate the lever and retract the pawl, and such that the said cam will restore the lever to normal position and cause the pawl to advance the secondary wheel.

19. The combination with the registering and indicating mechanisms, and with the driving-gear therefor, of a resetting mechanism comprehending a rotatable shaft, a vibrating lever, means for holding and releasing said lever, a rack connected with said lever, a pinion loose on said shaft, and a clutch mechanism arranged to permit independent rotation of the pinion in one direction but not in the other.

20. In a register the combination with the wheel of highest order, and with the shaft on which it is loosely mounted, of a longitudinally-movable key for turning said wheel mounted on the projecting end of the shaft and adapted to be moved into and out of engagement with the wheel, and a reciprocating bolt adapted to lock said key in inoperative position.

21. In a register the combination with the wheel of highest order, of a longitudinally-movable and rotatable key for turning the same, a spring for normally holding said key out of action, a telltale mechanism, and a reciprocating bolt arranged and adapted to lock the said key in inoperative position when moved in one direction and to operate the telltale mechanism when moved in the opposite direction.

22. The combination of an indicator, a movable screen for hiding and exposing the same, a swinging or vibrating lever, and a separable connection between the lever and the screen, whereby the lever is adapted to move in one direction independently of the screen.

23. The combination of an indicator, a spring-pressed screen for hiding and disclosing the same, a hand-lever, a push-bar positively connected with said hand-lever for moving the screen in opposition to its spring, and a separable connection between the screen and lever whereby the latter is permitted to move in one direction independently of the screen and whereby the push-bar is moved positively in both directions.

24. In a cash register and indicator the combination with the actuating and controlling mechanisms, of a detent for holding the actuating mechanism out of action, keys arranged and adapted to operate said detent to release the actuating mechanism, and a resetting lever or key, and devices controlled thereby for locking the detent against the operation of the keys.

25. In a cash register and indicator the combination with the registering and indicating mechanisms, and with the actuating mechanism therefor, of a detent for holding the actuating mechanism out of action, means for operating the detent to throw it out of action, a pivoted dog for locking the detent in active position, and a pivoted lever for operating said dog to throw it into and out of action.

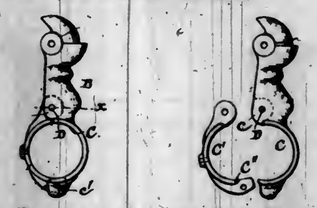
26. The combination with the registering and indicating mechanisms and with the actuating mechanism therefor, of a swinging arm provided with a detent, movable keys adapted to engage said detent and limit the movement of the arm, a second detent arranged and adapted to hold the arm and to be thrown out of action by the keys after the latter become engaged with the first-named detent, a dog for locking said second detent in engagement with the arm, and a lever for throwing the said dog into and out of action.

27. In a cash-register the combination of an alarm-bell, a bell-hammer having a lever-arm, an oscillatory shaft having an arm arranged to engage the lever-arm of the bell-hammer to operate the latter, and a release mechanism comprehending a hand-lever for operating the same, said lever being coupled with an arm of said oscillatory shaft, whereby the release mechanism and the bell-hammer are operated simultaneously.

28. In a cash-register the combination of a sliding drawer or till, means for locking and unlocking the same, the unlocking means comprehending a hand-lever, a lever pivoted on the base of the machine in position to lock and unlock said hand-lever, and a spring to throw said locking-lever into action, the locking-lever being adapted to be thrown out of action by the drawer when the latter is closed.

29. In a cash-register the combination of a sliding drawer, means for automatically engaging and holding the drawer in closed position, means for releasing the drawer comprehending a hand-lever, a pivoted lever arranged to lock and unlock said hand-lever, and a spring for throwing it into action when the drawer is open, the said locking-lever having an arm projecting into the path of the drawer to be operated by the latter to unlock the hand-lever when the drawer is closed.

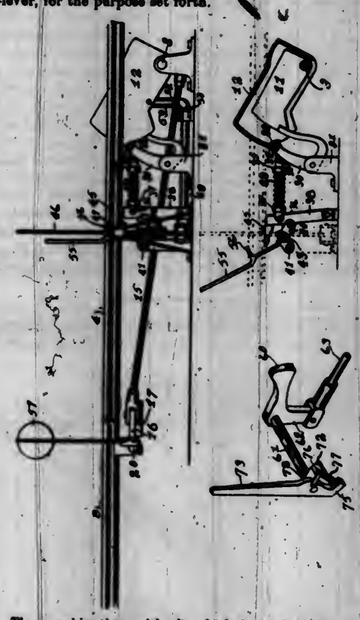
590,947. CASKET-HANDLE. ADELBERT R. KRUM, Oshkosh, Wis., assignor of one-half to Daniel C. Buckstaff, same place. Filed Mar. 11, 1897. Serial No. 627,004. (No model.)



Claim.—In a casket-handle the combination with a bar, of arms having eyes or sockets to surround the bar, the sockets being formed of an integral portion of said arms and a pivoted portion, the upper end of said pivoted portion being pivoted to the integral portion and means for securing the lower end thereof to the lower end of the said integral portion below the bar, substantially as described.

590,948. AUTOMATIC RAILROAD-SWITCH. ADELBERT G. LAWRENCE, Motley, Minn. Filed Jan. 4, 1897. Serial No. 617,949. (No model.)

Claim.—1. The combination, with the main and side tracks, of the switch points or rails, the shields located between the pairs of rails of the main and side tracks, the shafts whereon they are journaled, the levers secured upon said shafts and arranged within said shields, the latch-lever 30 engaging said lever and said shield and adapted to be disengaged from said lever by the initial movement of the shield, and means preventing the accidental operation of said latch-lever, for the purpose set forth.



2. The combination, with the shaft 3, of the lever 11 secured thereto, the shield 12 mounted loosely upon said shaft and inclosing said lever, the latch-lever 30 arranged to engage and lock the lever 11 and adapted to be moved out of engagement with said lever by the initial movement of said shield, and means preventing the accidental operation of said latch-lever.

3. The combination, with the shaft 3, of the lever 11 secured thereto, the shield 12 mounted loosely upon said shaft and inclosing said lever, the latch-lever 30 arranged to engage and lock said lever and to be disengaged therefrom by the initial movement of said shield, a spring engaging said latch-lever, and means for relieving the tension of said spring.

4. The combination, with the shaft 3 and means connected with said shaft for moving the switch-points, of the levers 11 secured to said shaft, one of said levers being arranged to be raised as the other is depressed, shields 12 mounted loosely upon said shafts and inclosing said levers, latch-levers 30 arranged to engage and lock said levers in their elevated positions, said latch-levers being arranged to be disengaged from said levers by the initial movements of the shields, and adjustable means for exerting pressure upon said latch-levers, for the purpose set forth.

5. The combination, with the movable shield and the lever inclosed therein, of the latch-lever engaging said shield and lever, the spring 39 engaging said latch-lever, the upright 38 engaging said spring, the shaft 41 and the toggle 43, 44 arranged between said shaft and said upright, whereby the tension of said spring and the pressure exerted by it upon said latch-lever may be increased or decreased at will, for the purpose set forth.

6. The combination, with the shields arranged between the rails of the main and side tracks, the levers inclosed by said shield, means connected with said levers for operating the switch-points, the latches for said levers, springs connected with said latches, means for relieving the tension of said springs upon said latches, and a hand operating means for moving the switch-points, for the purpose set forth.

7. The combination, with the shields and operating-levers arranged between the rails of the main and side tracks, the latch-levers engaging said shields and levers, the springs engaging said latch-levers, the shaft 41, and means connected with said shaft for relieving the tension of said springs, the locking-lever 55 arranged upon said shaft 41, the hand operating switch-lever 46, and means connecting said lever with the switch-operating mechanism, said lever being arranged to be locked in position by the locking-lever 55, for the purpose set forth.

8. The combination with the operating-shafts 3 and means connecting said shafts with the movable switch-points, of the levers

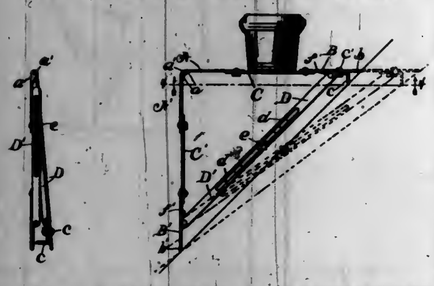
mounted upon said shafts, the shields inclosing said levers, the latch-levers 30 engaging said shields and levers, the shafts 49' provided with arms 52' engaging slotted links upon said shields, crank-arms 64 upon the shaft 49', and means adapted to be operated by an incoming train for moving said crank-arms, for the purpose set forth.

9. The combination, with the operating-levers and inclosing shields, of the shafts 49', arms upon said shafts engaging slotted links upon said shields, the depressible levers 60 arranged outside of the track in position to be operated by an incoming train, and means connecting said levers with said shafts 49', for the purpose set forth.

10. The combination, with the operating-levers and the inclosing shields, of the latch-levers 30, adjustable springs connected with said latch-levers, means for operating said shields and levers at a distant point either by hand or by an incoming train, and means connected with said hand operating mechanism for relieving the tension of said springs upon said latch-lever, for the purpose set forth.

11. The combination, with the switch-moving mechanism of the depressible lever 60 connected therewith, the shaft 61 provided with the lug 72, the operating-lever 73 provided with the lugs 78 and 75, the spring 77, and means for locking said lever, for the purpose set forth.

590,949. ADJUSTABLE ROOF-JACK. REINHART WILKEN, Sterling, Ill. Filed June 16, 1897. Serial No. 641,055. (No model.)



Claim.—1. In a folding roof-jack the combination of an adjustable top A B, a hinge *a'* adjustable standards A' B' adjustable braces D D', an adjustable cross-bar or drag *c* provided with prongs *i*, *i*, *i* as and for the purpose specified.

2. In a folding roof-jack, the combination of an adjustable top A, B, lugs *a*, *a*, bolt *a'*, standards A' B' points *b* and *b'*, a cross-bar *c* provided with prongs, bolt *c'*, adjustable braces D and D' with slots *d* and *d''* bolt and nut *e* and lugs *f*, *f'*, as and for the purpose specified.

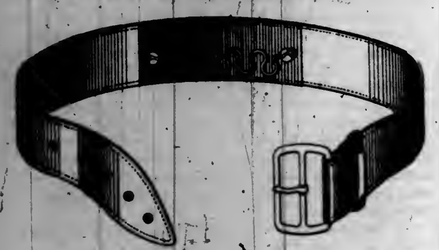
DESIGNS.

27,688. BODY-PLATE FOR BUCKLES. ALBERT D. FIELD, Waterbury, Conn. Filed June 16, 1897. Serial No. 641,069. Term of patent 7 years.



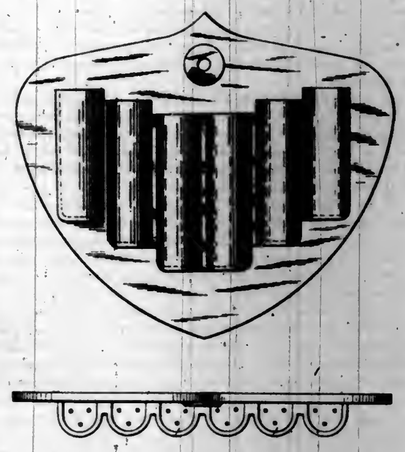
Claim.—The design for a body-plate for buckles, substantially as herein shown and described.

27,689. BELT. LOUIS SAUDERS, Brooklyn, N. Y. Filed June 21, 1897. Serial No. 641,730. Term of patent 7 years.



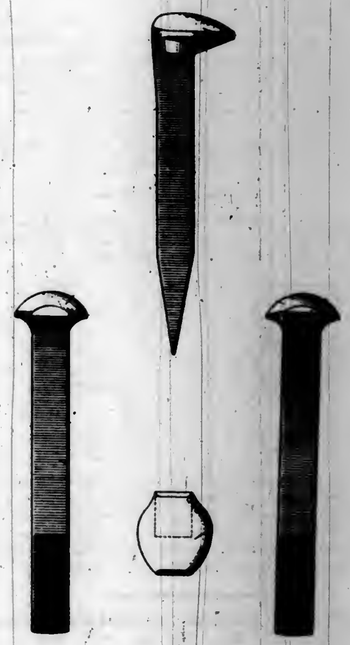
Claim.—The design for a belt herein shown and described.

27,690. TOOTH-BRUSH HOLDER. ALFRED A. WAITE, Wilmington, Del. Filed July 24, 1897. Serial No. 645,864. Term of patent 3½ years.



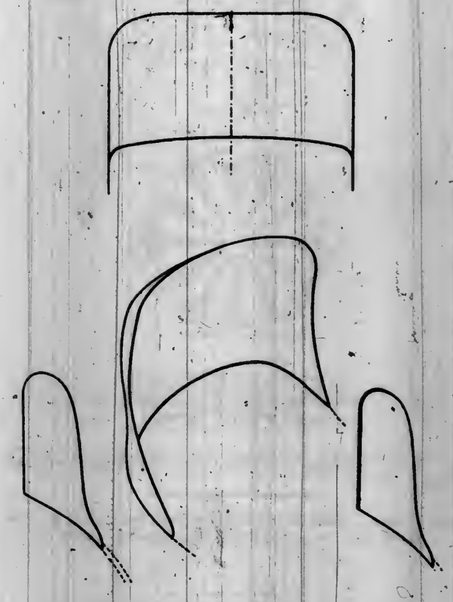
Claim.—The design for a tooth-brush holder as herein shown and described.

27,691. SPIKE. JOSEPH T. RICHARDS, Philadelphia, Pa. Filed Feb. 6, 1897. Serial No. 622,364. Term of patent 14 years.



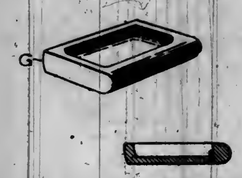
Claim.—The design for a spike substantially as described and shown.

27,692. DASH FOR VEHICLES. HAROLD H. BAKER, Hartford, Conn. Filed Aug. 6, 1897. Serial No. 647,282. Term of patent 14 years.



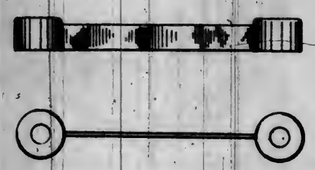
Claim.—The design for a dash for vehicles, substantially as shown and described.

27,698. WING FOR AIR-BLASTS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed June 30, 1897. Serial No. 643,098. Term of patent 14 years.



Claim.—The design for a wing for an air-blast, substantially as described and shown.

27,694. COUPLING FOR BATTERY-PLATES. ARTHUR C. ROSSIER, Oakland, Cal. Filed June 3, 1896. Serial No. 594,047. Term of patent 3½ years.



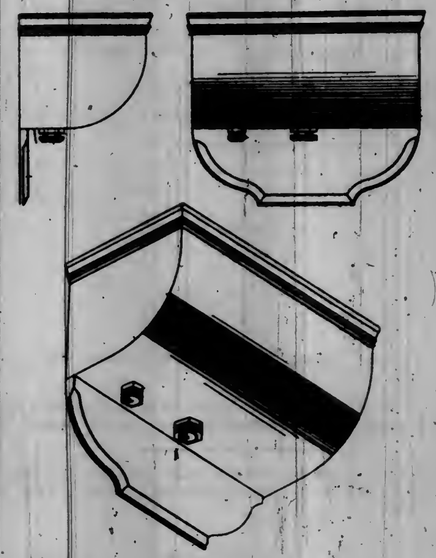
Claim.—The design for a coupler for battery-plates herein shown and described.

27,695. SASH-HOLDER. JOHN R. MINOTT, Aurora, Ill. Filed May 4, 1897. Serial No. 635,063. Term of patent 14 years.



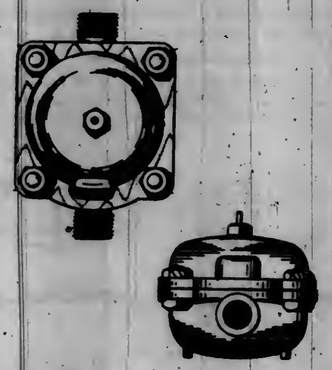
Claim.—The design for a sash-holder, substantially as herein set forth.

27,696. FLUSHING-TANK. JAMES D. WILSON, St. Louis, Mo. Filed Dec. 26, 1896. Serial No. 617,103. Term of patent 14 years.



Claim.—The design for a flushing-tank, substantially as shown and described.

27,697. WATER-METER CASE. GEORGE B. RASBERY, Buffalo, N. Y. Filed July 14, 1897. Serial No. 644,580. Term of patent 14 years.



Claim.—The design for a water-meter case substantially as herein shown and described.

27,698. CASING FOR PUMPS. JOHN WILSON BROWN, Jr., Philadelphia, Pa., assignor to The Enterprise Manufacturing Company of Pennsylvania, same place. Filed Mar. 15, 1897. Serial No. 627,696. Term of patent 14 years.



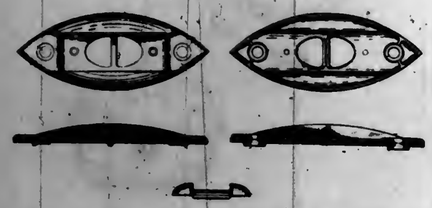
Claim.—The design for the casing of a pump, as described and shown in the accompanying drawing.

27,699. LINK FOR CLOTHES-LINES. MYERS OLIVER, Ruthville, Texas. Filed Oct. 28, 1896. Serial No. 610,296. Term of patent 7 years.



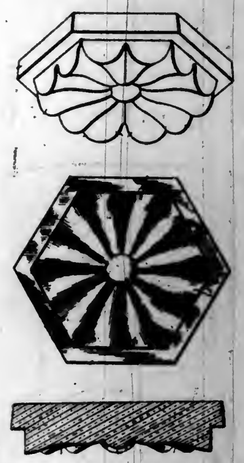
Claim.—The design for a link for pinless clothes-lines, substantially as herein shown and described.

27,700. SAD-IRON TOP PLATE. JAMES W. CONCHAR, Dubuque, Iowa, assignor to the Schrieber & Conchar Manufacturing Company, same place. Filed June 17, 1897. Serial No. 641,204. Term of patent 14 years.



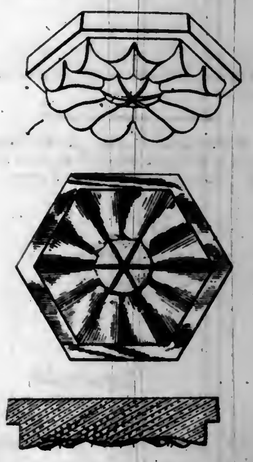
Claim.—The design for a sad-iron top plate, substantially as described herein and illustrated in the drawings.

27,701. GLASS OR LENS. JACOB MARX, New York, N. Y. Filed May 28, 1897. Serial No. 638,639. Term of patent 14 years.



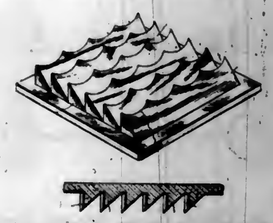
Claim.—The design for a glass or lens, substantially as herein set forth.

27,702. GLASS OR LENS. JACOB MARX, New York, N. Y. Filed May 28, 1897. Serial No. 638,640. Term of patent 14 years.



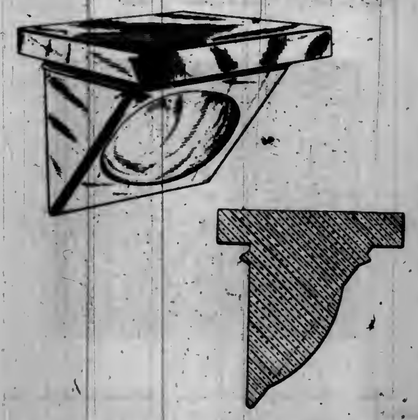
Claim.—The design for a glass or lens, substantially as herein set forth.

27,703. LENS. JACOB JACOBS, Brooklyn, N. Y. Filed May 3, 1897. Serial No. 635,752. Term of patent 14 years.



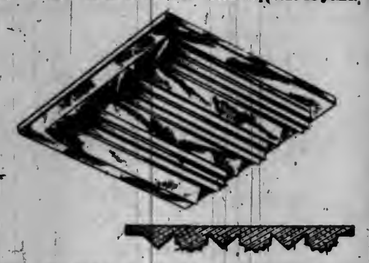
Claim.—The design for a lens, substantially as set forth.

27,704. GLASS OR LIGHT. JACOB JACOBS, Brooklyn, N. Y. Filed May 21, 1897. Serial No. 637,605. Term of patent 14 years.



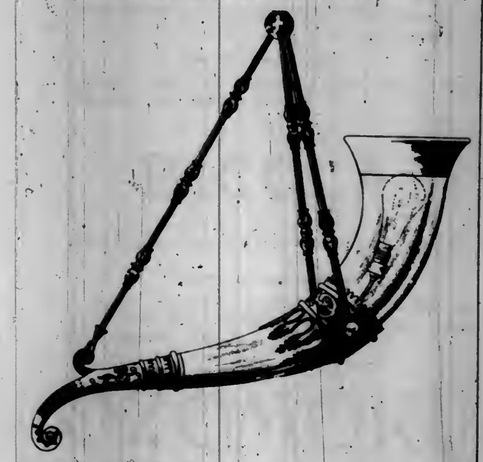
Claim.—The design for a glass or light, substantially as set forth.

27,705. GLASS OR LIGHT. JACOB JACOBS, Brooklyn, N. Y. Filed May 21, 1897. Serial No. 637,606. Term of patent 14 years.



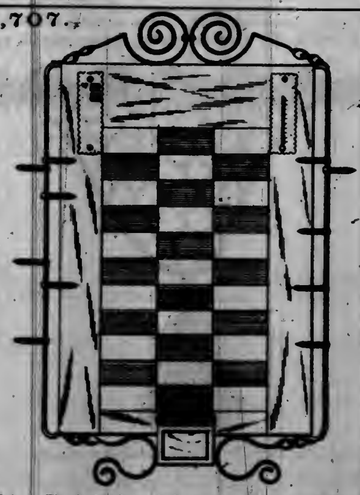
Claim.—The design for a glass or light, substantially as set forth.

27,706. CHANDELIER. JAMES BEMBLEY, Brooklyn, N. Y. Filed July 17, 1897. Serial No. 644,990. Term of patent 7 years.



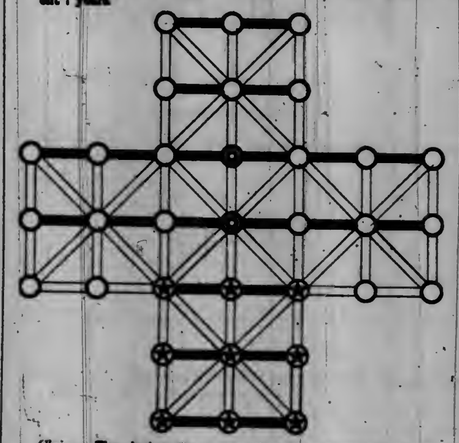
Claim.—The design for a chandelier as herein shown and described.

27,707. INDICATOR-BOARD. FREDERICK J. SCHLOER, Trenton, N. J. Filed July 24, 1897. Serial No. 645,866. Term of patent 7 years.



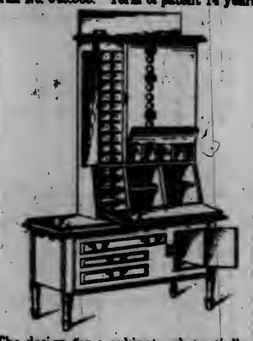
Claim.—The design for an indicator-board substantially as shown.

27,708. GAME-BOARD. MORRIS L. KLAUBER and AUGUST W. MAYR, Chicago, Ill. Filed Mar. 15, 1897. Serial No. 627,704. Term of patent 7 years.



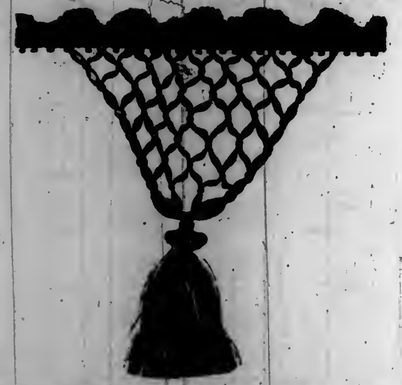
Claim.—The design for a game-board, substantially as herein shown and described.

27,709. CABINET. JASPER C. DEAL, Sam, Ga. Filed June 12, 1897. Serial No. 640,585. Term of patent 14 years.



Claim.—The design for a cabinet, substantially as herein shown and described.

27,710. LACE-HEADING. JOSEPH A. FILBE, New York, N. Y. Filed June 26, 1897. Serial No. 642,782. Term of patent 3½ years.



Claim.—The design for a lace-heading, as herein shown and described.

27,711. WOVEN FABRIC. HOWARD M. BRYOS, Brooklyn, N. Y., assignor to A. A. Vantine & Co., New York, N. Y. Filed July 31, 1897. Serial No. 646,710. Term of patent 3½ years.



Claim.—The design for a woven fabric herein shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 28, 1897.

30,582. SEED-PEAS. D. LANDRETH & SONS, Philadelphia and Bristol, Pa. Filed Apr. 16, 1897.

LANDRETHS



EXTRA EARLY PEAS

Essential feature.—A representation of a cluster of pea-pods, together with the words "LANDRETH'S" and "EXTRA EARLY PEAS." Used since 1883.

30,583. BITTERS. NATHANIEL DEXTER & BRO., Portland, Me. Filed Aug. 27, 1897.

Dr. RABcAin's

Life, Blood,

Consumption

BITTERS.

Essential feature.—The words "DR. RABRAIN'S LIFE, BLOOD, CONSUMPTION BITTERS." Used since August 1, 1897.

30,584. TONICS FOR BRAIN AND BLOOD. THOMAS J. TURNER, Philadelphia, Pa. Filed Aug. 25, 1897.

BICOLA

Essential feature.—The word "BICOLA." Used since January 5, 1897.

30,585. EMULSION OF COD-LIVER OIL WITH HYPOPHOSPHITES, LIME AND SODA, AND GUAICAL. CHARLES H. WHITMAN, Los Angeles, Cal. Filed Aug. 5, 1897.

OZOMORU

Essential feature.—The word "OZOMORU." Used since March 1, 1897.

30,586. REMEDIES FOR DISEASES OF THE DIGESTIVE ORGANS. THOMAS J. TURNER, Philadelphia, Pa. Filed Aug. 26, 1897.

TURNER'S LITTLE LIVER TURNERS

Essential feature.—The words "TURNER'S LITTLE LIVE TURNERS." Used since January 5, 1897.

30,587. REMEDY FOR USE AS A FEBRIFUGE, ANODYNE, AND ANTIPYRETIC. THE MURRAY DRUG COMPANY, Columbia, S. C. Filed July 31, 1897.

PYROCTIN

Essential feature.—The word "PYROCTIN." Used since May 1, 1896.

30,588. REMEDY FOR FEMALE COMPLAINTS. MAUDE METZNER, Chicago, Ill. Filed July 29, 1897.



Essential feature.—The word "FRUITCURA." Used since January, 1892.

30,589. COMPOUNDS FOR FEMALE DISEASES. BENEDICT HARM, New York, N. Y. Filed July 26, 1897.

DARDAMA

Essential feature.—The word "DARDAMA." Used since July 15, 1897.

30,590. REMEDIES FOR THE TREATMENT OF THE SKIN, EYE, AND EAR AND NERVOUS AND HEART TROUBLES AND FEMALE COMPLAINTS. HARRIET ALICE JACKSON, New York, N. Y. Filed Aug. 10, 1897.

PREMIER

Essential feature.—The word "PREMIER." Used since March 10, 1897.

80,591. PILLS OR TABLETS. HERB MEDICINE CO., Springfield, Ohio. Filed Aug. 10, 1897.

Kidneoids

Essential feature.—The word "KIDNEOIDS." Used since April 5, 1897.

80,592. PILLS OR TABLETS. HERB MEDICINE CO., Springfield, Ohio. Filed Aug. 10, 1897.

Liverlax

Essential feature.—The word "LIVERLAX." Used since April 5, 1897.

80,593. POWDERS, PASTES, SALVES, AND PILLS. APOTHEKER LEUWIS SELL & Co., Munich, Germany. Filed July 26, 1897.

ANTIARTHRIN

Essential feature.—The word "ANTIARTHRIN." Used since January 26, 1895.

80,594. OINTMENTS. THOMAS J. TURNER, Philadelphia, Pa. Filed Aug. 25, 1897.

TARZINA

Essential feature.—The word "TARZINA." Used since January 5, 1897.

80,595. MEDICINAL PLASTERS. NAPOLEON C. BROWER, Amsterdam, N. Y. Filed Aug. 23, 1897.

A B C

Essential feature.—The letters-symbol "A B C." Used since April 5, 1894.

80,596. MEDICINAL PLASTERS. J. W. CAMPION & Co., Philadelphia, Pa. Filed Aug. 17, 1897.

WISHART'S

PINE TREE

TAR PLASTER.

Essential feature.—The words "WISHART'S PINE TREE TAR PLASTER." Used since June 11, 1897.

80,597. ANTISEPTIC MEDICINAL PREPARATION. HENRY S CLARK, New York, N. Y. Filed Aug. 19, 1897.

BENSOLYPTUS

Essential feature.—The word "BENSOLYPTUS." Used since May 1, 1897.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

Erratum.

OFFICIAL GAZETTE, Vol. 80, No. 6, August 10, 1897, page 987, the names of counsel for appellant and appellee are transposed.

Mr. Frederick H. Betts should appear for the Thomson-Houston Electric Company, and Mr. Charles E. Mitchell for the Hoosick Railway Company.

COMMISSIONER'S DECISIONS.

EX PARTE HIGGINS.

Decided July 7, 1897.

REJECTION UNDER OLD RULES 65 AND 68—RECONSIDERATION UNDER NEW RULES.

Where a case was rejected on August 15, 1895, under Rule 68, then in force, not on references, but on the ground that there had been intentional and unreasonable delays in prosecution, and such rejection made final under Rule 65, *Held* that as these rules have been revoked and there has been no final rejection on references the action under said Rule 65 is set aside and the case opened for reconsideration.

ON petition.

AQUEOUS CARBON-INKS.

Application of Charles M. Higgins filed February 1, 1881, No. 25,147.

Mr. T. J. Robertson for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition asking that the Examiner be instructed to waive certain formal objections to the case and to act on the merits, and if the rejection of the claims be insisted upon to specifically point out the pertinency of the references.

It appears that this case was rejected on August 15, 1895, under Rule 68 then in force, on the ground that there had been intentional and unreasonable delays in the prosecution, and on March 12, 1896, this action was made final under Rule 65 then in force. Prior to the time when the question of delay was raised the case had received numerous actions on the merits and the claims had been rejected on references. The last rejection on references was dated March 15, 1895. This action did not purport to be a final rejection of the claims, and it appears, therefore, that the only final action on the claims was given under Rules 68 and 65 of the Rules of Practice then in force.

The rules referred to have been revoked and a new set of rules adopted containing no provisions corresponding to those under which the final action was given, and therefore that action has no force and effect.

The rejection on references has not been made final, and therefore the applicant is entitled to a reconsideration and to have the pertinency of the references pointed out.

In regard to the formal objections I see no reason for overruling the Examiner's action.

To the extent above noted the petition is granted.

EX PARTE MCCOY.

Decided July 9, 1897.

ADDITIONAL OATH—DELAY IN FILING APPLICATION—OATH BY ASSIGNEE AS TO PUBLIC USE AND SALE INSUFFICIENT—CONSTRUCTION OF STATUTE.

When an application is not filed in the Office until an unreasonable time after the execution of the oath and the assignee makes affidavit that to his knowledge the invention had not been in public use or on sale in the United States for more than two years prior to the date of the filing of the application and that the inventor refuses to execute an additional oath, *Held* that said affidavit cannot be considered as a compliance with the rule which requires an additional oath when the application is not filed within a reasonable time after the execution of the original oath, since neither the statutes nor the rules make any provision for the making of an oath to an application by any party other than the inventor so long as the inventor is alive. The reason which makes it necessary that the inventor make the original oath apply with equal force to an additional oath when required.

ON petition.

LUBRICATORS.

Application of Elijah McCoy filed April 4, 1896, No. 586,241.

Messrs. Parker & Burton for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition from the action of the Primary Examiner requiring an additional oath in the above-entitled application.

The original oath was executed September 1, 1894, and reexecuted November 3, 1894; but the application was not filed in the Office until April 4, 1896, seventeen months after the second execution.

This application was assigned to Clarence B. Hodges about the time that the oath was originally executed, and the delay in filing the application is chargeable to him. An affidavit by him was filed at the same time that this application was filed stating that to his knowledge no specimen of the invention had on September 1, 1894, or prior thereto, been in public use or on sale in the United States, and also stating that the inventor refused to execute an additional oath.

The question for consideration is as to whether this affidavit can be considered a compliance with the rule which requires an additional oath where

the application is not filed within a reasonable time after the execution of the original oath.

In regard to this question it is noted that neither the statutes nor the rules make any provision for the filing of an oath to an application by any party other than the inventor so long as the inventor is alive. (*Ex parte Stevens*, 59 O. G., 299.) Since such an oath is not warranted by the statutes or the Rules of Practice, it has no force or effect, for, as stated in numerous court decisions, an applicant's right to a patent is dependent entirely upon the statute, and it is only upon a compliance with the terms prescribed that he can obtain protection.

The petitioner contends that since the affidavits together set forth all the facts that the rule requires they are sufficient; but I cannot agree with this, since the rule and the statutes not only set forth what facts shall be stated, but prescribe who shall swear to these facts. The reason which makes it necessary that the inventor make the original oath apply with equal force to an additional oath when required.

For the reasons given the affidavit by the assignee cannot be considered a compliance with the rule.

The delay of seventeen months between the execution of the oath and the filing of the application is unreasonble and was so regarded by the assignee when he filed the application, as is evidenced by the affidavits filed by him.

The petition is denied.

EX PARTE BARNES.

Decided September 16, 1897.

REFERENCES—APPLYING AND EXPLAINING REFERENCES BY THE EXAMINER BEFORE FINAL ACTION.

On petition that the references be explained and their pertinency pointed out as clearly and fully as would be done in the Examiner's answer to appeal, should appeal be taken, *Held* that an applicant is entitled before the case is closed before the Examiner to an explanation of the references and their bearing on the claims rejected as full and clear as any explanation that would be considered necessary to be made at any subsequent stage in the progress of the case.

ON petition.

NON-REFILLABLE BOTTLE.

Application of George J. Barnes filed December 15, 1896, No. 615,764.

Mr. Joseph L. Atkins for the applicant.

GREELEY, *Acting Commissioner:*

While the petition is not correct in form, being in the form of an appeal, it was made clear at the hearing that what the applicant desires is a statement from the Examiner of the grounds of the rejection in which the references shall be explained and their pertinency pointed out as clearly and fully as would be done in the Examiner's answer to appeal, should appeal be taken. It is further desired by the petitioner that after such statement is furnished him he should be permitted to make such amendment.

It is stated on behalf of the petitioner that it sometimes happens that not until appeal is taken and the Examiner has filed his answer is the true meaning of the references and their bearing on the claims made clear to the applicants, and as amendments are not then admissible of course the applicant is put to considerable trouble and expense to secure claims which avoid the references and which might have been secured with little trouble and without the necessity of appeal had the position taken by the Examiner been understood.

There is no doubt that an applicant is entitled before the case is closed before the Examiner to an explanation of the references and their bearing on the claims rejected as full and clear as any explanation that would be considered necessary to be made at any subsequent stage in the progress of the case.

Full explanation of the Examiner's understanding of the references and their bearing on the claims before him not only facilitates the bringing out of whatever of patentable subject-matter may be contained in an application, but also enables the Examiner to bring to a close his consideration of an application containing nothing patentable in comparatively few actions. It tends to lessen the number of appeals taken and makes the matter of answering an appeal little more than a matter of copying one or more Office letters already in the record.

To the extent that the applicant be furnished with as full an explanation of the grounds of the Examiner's decision as would be furnished in answer to an appeal the petition is granted.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

WESTERN ELECTRIC COMPANY *v.* WESTERN TELEPHONE CONSTRUCTION COMPANY *et al.*

Decided February 10, 1897.

WATSON—TELEPHONE-SWITCHES—VOID.

Letters Patent No. 270,522, granted January 9, 1883, to the American Bell Telephone Company as assignee of Thomas A. Watson, for an improvement in telephone-switches, is void in view of the prior state of the art, as it involves only several expedients in arranging a subscriber's outfit.

STATEMENT OF THE CASE.

This was a suit in equity by the Western Electric Company against the Western Telephone Construction Company, James E. Keelyn, Madison B. Kennedy, and Isador Baumgartl for alleged infringement of a patent for an improved telephone-switch. On final hearing.

Messrs. Barton & Brown for the complainant.

Mr. Francis W. Parker for the defendants.

SHOWALTER, *J.:*

The complainant sues for the infringement of Letters Patent of the United States No. 270,522, issued January 9, 1883, to the American Bell Telephone Company, assignee of the applicant, one Thomas A. Watson. As stated in the specification, the subject-matter of the invention is "an improvement in telephone-switches." I quote further from the specification:

The invention consists in the use of a single lever, in connection with a telephone, and a call-circuit and proper contact-points, in such manner that a movement of the lever in one direction disconnects the call-circuit from the main line, brings in the hand-telephone and secondary circuit of the transmitter, and at the same time completes the primary local circuit of the transmitter, while a movement of the lever in the other direction cuts

out the hand-telephone and secondary circuit of the transmitter and restores the call-circuit.

Fig. 1.

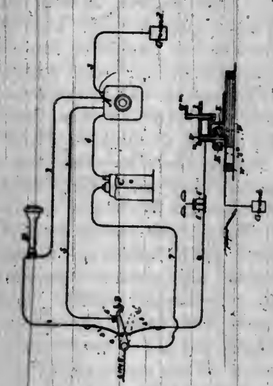


Fig. 2.

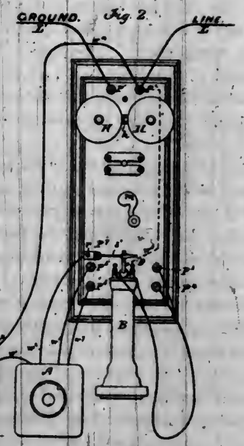


Fig. 3.

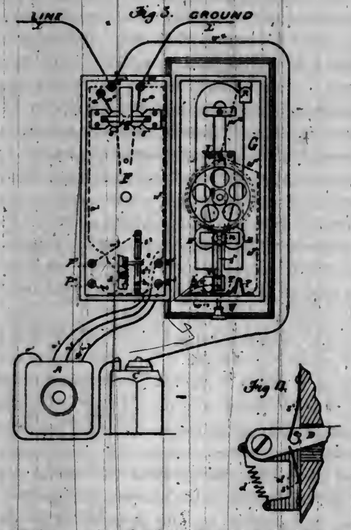


Fig. 4.

The invention consists, further, in making the lever operating as a switch, as aforesaid, in the form of a hook supporting the hand-telephone and combining therewith a spring in such manner that taking the hand-telephone from the hook causes the lever automatically to disconnect the call-circuit, bring in the hand-telephone and secondary circuit of the transmitter, and complete the local primary circuit, while hanging the hand-telephone upon the hook causes the lever to automatically cut out the hand-telephone and secondary circuit of the transmitter and restore the call-circuit.

The patent contains eight claims, and it is insisted that each claim is valid and has been infringed. The fourth claim is as follows:

4. In combination with a magneto-generator, a main-line telephone-circuit and a shunt-circuit passing through the magneto-generator, the push-button U to break the shunt-circuit, substantially as described.

As shown by the specification and diagrams, when a signal-call is sent to the office of a subscriber the current passing over the main line, coming to the stud *t'* in the instrument, passes around the magneto-generator through the contact-point T. When a subscriber desires to signal, he breaks the contact at T by means of a push-button, and the current is then sent through the call-circuit by means of the magneto-generator, its coils being then in line. If the generator were operated without breaking the contact at T, I suppose there would be a short circuit around the magneto-generator from the point T through the coils of the magneto-generator to *t*, thence by wire w^{15} to T. By pressing the push-button U the current generated by the magneto-generator is necessarily sent through the line. The function of the press-button U is thus to bring the coils of the magneto-generator into line when the subscriber desires to signal a distant station and to leave these coils out of line, and so get rid of the resistance which would otherwise be offered by them, when a signal is sent to his office. The expedient here shown, as I understand from the evidence, is common and well known to electricians. In the patent, for instance, to T. A. Edison, No. 203,017, the secondary coil is short-circuited when the instrument at the subscriber's office is in condition to receive a signal. If this long coil were left in circuit, the resistance would be too great. It is therefore shut out of the circuit when the instrument is not in use and is in condition for receiving a signal. The movement of the handle S away from the point 2, where it ordinarily rests, breaks the short circuit in the Edison patent and brings the secondary coil into line. In that patent the secondary coil, acted on inductively by the primary oil, is used in the place of a magneto-generator. By throwing the handle S to the contact-point 3 a subscriber gives the signal when he wants to communicate with a distant station. The breaking of the short circuit, when the magneto-generator is to be used, in the patent in suit is accomplished substantially in the same way in the Edison patent, and the same purpose is in view in both cases—namely, to keep the long wires of the magneto-generator in the one case and of the secondary coil in the other out of the circuit, in order to get rid of the increased resistance.

In view of the evidence here and of the patents introduced I see no novelty in the combination of the fourth claim, nor, for substantially the same reasons, is there any novelty in the fifth claim. I

may add also, as respects the fifth claim, that it is rather an aggregation than a patentable combination. The push-button in connection with the call-circuit serves to bring into line and shut out of line the magneto-generator, but the switch-lever and its contacts serve to combine the three circuits—the call-circuit, the local circuit, and the telephone-circuit—that is, to break the call-circuit and put it out of use when the other two circuits are in use. These three circuits are made and broken by means of the switch-lever; but the push-button has nothing to do with the operation of that lever. No modified result follows from any combination of the push-button in the call-circuit with the switch-lever. When the subscriber wishes to give a signal at a distant station, he does not touch the switch-lever or hook, nor when a signal is sent to him from a distant station is the switch-lever or hook in that operation manipulated in any way at either station. The switch-lever, so far as the signal or call circuit is concerned, is simply part of the circuit. That circuit could be used merely for signaling purposes independently of the rest of the machine. For that purpose the switch-lever or hook has no function whatever, as already said, except as a mere part of the circuit. The function of the shunt-circuit, push-button, and magneto-generator is limited to the call-circuit, and the hook or switch-lever serves no function as a hook or switch-lever in connection with the push-button, the magneto-generator, and the shunt-circuit. The claim, therefore, joining the switch-lever with its contact-points, (whereby, according to the position of the switch-lever, it completes either the call-circuit or the telephone-circuit,) with the magneto-generator, the shunt-circuit, and the push-button in the call-circuit is an aggregation rather than a patentable combination. But at all events my opinion is that there is no novelty in either the fourth or the fifth claim in view of the evidence shown in the record.

The first claim is in words following:

1. In combination with suitable contact-points and springs electrically connected with the call-circuit and the primary and secondary circuits of the transmitter, the latter circuit including the hand-telephone, a lever electrically connected with the main line in a telephone-circuit, substantially as described, to bring in the hand-telephone and transmitter and break the call-circuit, or to cut out the hand-telephone and transmitter and establish the call-circuit, accordingly as the lever is moved in one direction or the other.

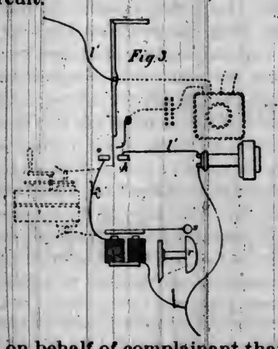
The second and third claims show in addition to what is set forth in the first the hook and the spring by which it is thrown up when relieved of the weight of the hand-telephone. The sixth, seventh, and eighth claims are apparently covered by the first, second, and third.

On the showing of the drawings and specification when a subscriber is not using his telephone it hangs on a movable hook, which is the end of the lever. The hook then rests in such a position that the call-circuit is complete. By removing the weight of the telephone from the hook a spring throws the hook up and by means of two contact-points two electrical circuits are established—one the local and the other the circuit to line. The function of the local circuit is to create the electrical current in the telephone-circuit by induction. This special use of a local current in connection with a transmitter for inducing the current in the main line is not of itself claimed in this patent. The patentee Watson was not the inventor of the same. What he does in the patent in suit is to utilize these two currents in connection with the call-circuit. Prior to the times when a separate transmitter was made use of the telephone was used both as a receiver and as a transmitter and instead of the three circuits there were only the call-circuit and the telephone-circuit. While the art was in this condition patent No. 209,595 was issued to the same T. A. Watson and patent No. 215,837 to one H. Roseveldt. In the last-named patent there was a spring S, fixed horizontally, with one end swinging between two contact-points. On a hook attached to this spring the telephone was suspended. Its weight kept the end of the spring on the lower contact-point. When it was taken up for use, the end of the spring, being relieved of its weight, passed to the other contact-point and the call-circuit was completed. The signal being given and the weight of the telephone at the remote station being then taken from the spring the call-circuit was broken and the telephone-circuit was established.

Instead of the spring S a lever pivoted at the fulcrum and with a coiled spring to antagonize the weight of the telephone might have been made use of in such a way that when the telephone was hung up one end of such lever would be pulled down to the contact-point A and when the telephone was taken down for use the spring would throw the lever end away from the contact-point A to the contact-point B. It may also be suggested in connection with the device of the Roseveldt patent that either the line for the call-circuit or that for the telephone-circuit might by means of a local circuit have been supplied with current by induction, and two contacts above or two below might have been made use of in connection with the lever already suggested to break and complete these circuits as required. In other words, the patent to Roseveldt shows a switch S, swinging between contact-points, whereby the subscriber himself by taking up the telephone for use unconsciously causes said switch to leave one contact-point and pass to another. For this switch S, as suggested, a lever might have been substituted and another contact-point might have been added. The idea of using the weight of the telephone to keep the instrument in readiness for a signal and of making all necessary connections by simply taking down the telephone for use in answer to the signal is found in the Roseveldt patent.

In Patent No. 209,592 a lever was suspended vertically on a pivot, with its lower end swinging between two contact-points. From its upper end horizontal arms were extended, and between these the telephone, when not in use, was hung. The weight of the telephone kept the lower end of the lever in connection with the contact-point, whereby the call-circuit to the subscriber's office was completed when the telephone at a distant station

was taken down. When the telephone at the subscriber's office was lifted from its position for use, the lower half of the lever by means of a spring was thrown toward the other contact-point, and by that means first a signal was made at the distant station, and then, the telephone being also taken down at the latter station, the telephone-circuit was established. In the patent in suit a separate transmitter involving a local circuit in connection with a telephone-circuit is made use of. Instead of the two contact-points of Patent No. 209,592 three contact-points are required, and when the lever swings from the call-circuit by means of the two contact-points both the local circuit and the transmitter-circuit are completed. The witness Bain has made a diagram in connection with Fig. 3 of the Patent No. 209,592, whereby he has added the two contact-points and has arranged the three circuits, including the magneto-generator with its push-button, in the call-circuit.



It is said on behalf of complainant that the ends of the wires of the secondary coil of the transmitter were left in the air. It is obvious that by bringing these two wires down below the telephone in that figure, cutting the telephone-wire, and inserting their ends the secondary coil of the transmitter is brought into line with the telephone, and in my judgment Fig. 3, as amended by the witness Bain, shows all of the elements of claim 1 of the patent.

In view of the state of the art, as indicated in this record, and which I deem it needless to further enlarge upon, my judgment is that there is no novelty or invention in any one of the eight claims, nothing more than the use of clever mechanical expedients in arranging a subscriber's outfit.

The bill is therefore dismissed for want of equity.

U. S. Circuit Court—Northern District of California.

BOWERS *v.* PACIFIC COAST DREDGING AND RECLAMATION COMPANY *et al.*

Decided June 7, 1897.

1. BOWERS—DREDGING-MACHINE—VALIDITY—INFRINGEMENT—PRELIMINARY INJUNCTION.
Letters Patent No. 318,859, granted May 26, 1885, to Alphonzo B. Bowers, for a dredging-machine, *Held* valid and infringed on a motion for preliminary injunction.

2. PRELIMINARY INJUNCTION—VALIDITY OF PATENT—RULE OF LAW APPLICABLE.
The rule of law which applies to the issuance of a preliminary injunction where the validity of a patent has been repeatedly sustained by prior adjudications, and especially after a long, arduous, and expensive litigation, is that the only question open in a subsequent suit against another defendant is that of infringement. The consideration of other defenses is postponed to the final hearing. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, 54 Fed. Rep., 678, and cases there cited.)

3. SAME—SAME—EXCEPTION TO THE RULE.
The only exception to this general rule appears to be where the new evidence is of such conclusive character that if it had been introduced in the former case it probably would have led to a different conclusion; but the burden of establishing this rests on the defendant, and every reasonable doubt must be resolved against him. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, *supra*, and cases there cited.) See also *Edison Electric Light Co.* v. *Electric Manufg. Co.*, (57 Fed. Rep., 616; affirmed on appeal, 10 C. C. A., 100; 61 Fed. Rep., 834.) The same rule has been followed in this circuit. (*Norton* v. *Con Co.*, 65 O. G., 442; 57 Fed. Rep., 929; *Earl* v. *Southern Pacific Co.*, 75 Fed. Rep., 609.)

STATEMENT OF THE CASE.

This was a bill in equity for infringement of Letters Patent Nos. 318,859 and 318,860. Motion for a preliminary injunction.

Mr. John H. Miller for the complainant.
Mr. R. Percy Wright for the defendants.

MORROW, *J.:*

This was a bill in equity brought by A. B. Bowers against the Pacific Coast Dredging and Reclamation Company and John Hackett to restrain the defendants, their agents, and employees from infringing United States Letters Patent No. 318,859 and No. 318,860, granted in 1885 to the complainant, Alphonzo B. Bowers, for certain inventions, respectively, in a dredging-machine and in the art of dredging. It is objected on the part of the defendants that complainant's patents, alleged to have been infringed, have been anticipated by prior devices, and evidence in support of that contention has been introduced. The motion is directed chiefly to Letters Patent No. 318,859, which will be found fully and clearly described in the opinion of Judge McKenna in the case of *Bowers* v. *Von Schmidt*, (63 Fed. Rep., 572.) The complainant in his affidavit for a preliminary injunction deposes, among other things, that a certain dredging-machine operated by the defendants is—a direct and palpable infringement upon claims 2, 9, 11, 12, 16, 22, and 26 of Letters Patent No. 318,859, sued on in this case.

The motion is, however, directed specifically against the infringement of claim 16, which is as follows:

16. A dredge-boat and oscillating section of a conduit-discharge flexibly joined to a non-oscillating section, to allow said boat to feed forward and said oscillating section to swing upon the flexible joint connecting said oscillating and non-oscillating sections.

The validity of Letters Patent No. 318,859 has been heretofore adjudicated upon. (*Bowers* v. *Von Schmidt*, 63 Fed. Rep., 572; affirmed on appeal, 25 C. C. A., 323; 80 Fed. Rep., 121; *Bowers Dredging Co.* v. *New York Dredging Co.*, 77 Fed. Rep., 980.) The rule of law which applies to the issuance of a preliminary injunction where the validity of a patent has been repeatedly sustained by prior adjudications, and especially after a long, arduous, and expensive litigation, is that the only question open in a subsequent suit against another defendant is

that of infringement. The consideration of other defenses is postponed to the final hearing. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, 54 Fed. Rep., 678, and cases there cited.) The only exception to this general rule appears to be where the new evidence is of such conclusive character that if it had been introduced in the former case it probably would have led to a different conclusion; but the burden of establishing this rests on the defendant, and every reasonable doubt must be resolved against him. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, *supra*, and cases there cited.) See also *Edison Electric Light Co.* v. *Electric Manufg. Co.*, (57 Fed. Rep., 616; affirmed on appeal, 10 C. C. A., 106; 61 Fed. Rep., 834.) The same rule has been followed in this circuit. (*Norton* v. *Can Co.*, 65 O. G., 442; 57 Fed. Rep., 929; *Earl* v. *Southern Pacific Co.*, 75 Fed. Rep., 609.)

Such being the rule on motions for preliminary injunctions, we next inquire whether the evidence produced by the defendants is sufficient to come within the exception. The new evidence upon which the defendants rely is substantially that certain prior patents now offered in evidence either anticipate the Bowers patents or so far modify them by construction that there is no infringement on the part of the defendants.

The chief devices which, it is claimed, anticipate the Bowers patent are, first, the English patent of Schwartzkopff, No. 350 of 1856; second, the English patent of Bodmer, No. 907 of 1858, and the American patent of Atkinson, No. 38,544 of 1863. It is contended that they anticipate the Bowers patents, and particularly claim 16 of Patent No. 318,859, heretofore described. The evidence produced to support this contention does not convince me that the devices claimed to have been anticipatory of complainant's patents were, in fact, such. It would serve no useful purpose to enter into a minute discussion upon the subject. The time of the court will not permit, and it can be reserved just as well until the case is determined upon a complete and final hearing. The burden of proof is upon the defendants to establish the fact of anticipation beyond a reasonable doubt.

As was well said by Judge Jenkins in *Electric Manufg. Co.* v. *Edison Electric Light Co.*, (10 C. C. A., 106; 61 Fed. Rep., 834:)

> When the patent has been strenuously contested, and its validity determined by a competent tribunal, we think a strong presumption arises in favor of the patent, which imposes upon the contestant the burden of attack. Of course, such prior adjudication does not conclude the question of right, even as to the defenses passed upon, except as between the parties and privies. Such a judgment is not within the principle of *res adjudicata*. It is effective, however, to impress upon the patent such additional presumption of validity that demands of a contestant a quantum and force of evidence, beyond that passed upon in prior adjudication, sufficient to convince the court of the probability that, had such further evidence been presented and considered upon the former hearing, a different result would have been reached. In other words, in such a case the patentee may rightfully rest upon his patented right, confirmed to him by solemn adjudication of a competent judicial tribunal. He who attacks that right must overcome the legal presumption of right in the patentee.

With respect to the defense of anticipation, the same learned judge said:

> In the consideration of such new defense of anticipation, regard should be had to the rule that such a defense is an affirmative one; that the burden of proof is upon him who asserts it; and that the grant of Letters Patent is *prima facie* evidence that the patentee is the first inventor of the device described therein, and of its novelty. (*Coffin* v. *Ogden*, 5 O. G., 270; 18 Wall., 120; *Smith* v. *Vulcanite Co.*, 11 O. G., 246; 93 U. S., 486; *Lehnbeuter* v. *Holthaus*, 21 O. G., 1783; 105 U. S., 94; *Cantrell* v. *Wallick*, 35 O. G., 871; 117 U. S., 689; 6 Sup. Ct., 970; *Barbed-Wire Patent*, 58 O. G., 1555; 143 U. S., 275; 12 Sup. Ct., 443, 450.) The propriety of this rule is enforced by the consideration that an adjudication in the case of a patent is not only a judgment *inter partes*, but is a judicial construction of a grant by the Government, and, in a broad sense, deals with and determines the rights of the public. A patent is *sui generis*. By it, the public, through its authorized representatives, grants a monopoly for a term of years, in consideration of the surrender of the invention to public use upon expiration of the term. When, upon judicial contest, a competent court has sanctioned the grant and determined the right thereunder, the monopoly thereby granted ought not to be permitted to be invaded except upon a clear showing that the decision invoked in its favor was wrong. It is true that the prior adjudication does not deal with the supposed new defense, and does not affect the merits of that defense upon final hearing; but the fact that it was not presented, especially where the existence of the claim was known to and considered by counsel, is a circumstance to be considered by the court in passing judgment upon the merits upon the hearing for an interlocutory injunction.

This reasoning is persuasive upon the court with reference to the application of complainant for a preliminary injunction to protect his rights under his patents. I am not satisfied beyond a reasonable doubt, from the evidence thus far presented, that the various devices produced by defendants were, in fact, anticipatory of complainant's patents, and the fact that these devices were not called to the attention of the court in the *Von Schmidt Case*, for the reason, as stated, that in that controversy each party claimed to be the first inventor, is not, in my judgment, sufficient to justify this court in determining, at this stage of the proceedings, that the Bowers patents have been anticipated. It may be that upon a full and final hearing upon the merits the defendants will be able to satisfactorily explain and establish the anticipation of some of the devices for dredging introduced by them, but for the present purpose, upon this application for a preliminary injunction, I must yield to the convincing authority of the repeated adjudications upholding the validity of the Bowers patents involved in this suit. The Letters Patent were issued in 1885. His rights under these patents are therefore fast running and will soon expire. Manifestly it is of the highest importance, after so much litigation and when the adjudications have thus far been all in favor of the validity of the patents, that complainant's rights thereunder should be fully and effectually protected from further infringement. This can only be done by granting the injunction prayed for.

It is further objected that the Bowers patent is void because it was issued on a renewal application and was made to contain claims which were not allowed originally. The same point, however, was passed upon in the *Von Schmidt Case* adversely to the contention.

That the defendants have infringed is satisfactorily established by the affidavits, and I so find. With reference to the use by the defendants of the dredging-boat called the *Oakland*, the same dredger was involved in the case of *Bowers Dredging Co.* v. *New York Dredging Co.*, *supra*, and Judge Hanford in granting the motion for a preliminary injunction said with respect to the infringing operations of the dredger *Oakland:*

> The Circuit Court of Appeals gave to the Bowers patent a broad construction, and held machinery constructed according to the specifications of the Von Schmidt patents to be infringements. In comparing the different machines, it is very difficult for me to find infringements in the Von Schmidt machine, and not in the dredger *Oakland*.

The motion for a preliminary injunction will be granted upon the complainant giving a bond in the sum of $10,000, and it is so ordered.

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COMMISSIONER OF PATENTS

AND OF

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IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—JULY-SEPTEMBER, 1897.

VOL. 80 O G—3

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONMENT.

DELAY IN APPLYING FOR PATENT—REASONABLE DILIGENCE—STANDARD OF PROOF OF.

Delay in applying for a patent after an invention is made will not constitute abandonment where the inventor has used reasonable diligence to perfect the invention and avail himself of its benefits, and there is no general standard by which such diligence is to be established; but it must be reasonable under all the circumstances of the particular case. The character of the invention; the health, the means, the liberty of the inventor; his occupation upon kindred or subordinate inventions—are proper subjects for consideration. Such reasonable diligence does not involve uninterrupted effort nor the concentration of his entire energies upon the single enterprise.

[*Von Schmidt *v.* Bowers, 347.

ADJUDICATED PATENTS.

(See Injunction, 3, 4.)

AGENT.

(See Decree; Injunction, 2.)

AGGREGATIONS.

(See Construction of Specifications and Patents, 3, 4.)

AMENDMENTS.

(See Applications, 1; Construction of Rules; Interference, 8; New Matter; Rehearing, 2.)

ANALOGOUS DEVICES.

(See Infringement, 5; Particular Patents, 10.)

ANTICIPATION.

(See Construction of Specifications and Patents, 17; Defense; Particular Patents, 8, 14, 17, 18.)

APPEAL.

(See Injunction, 1.)

APPEALED CASES.

(See Applications, 1; Rehearing, 2.)

REOPENING CASE.

Applicants insisting upon broad claims only and appealing such claims have no vested right in a further examination if they fail to prevail on the appeal.

[*Ex parte* Snow, 1271.

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Rehearing, 2.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See New Matter; Rejected Claims.)

APPLICATIONS.

(See Delay in Filing Application; Division of Application; Oath.)

1. CLAIMS TO BE INCLUDED.

An applicant should present his whole case at one time by both broad and narrow claims. It is not considered good practice to allow an applicant to present broad claims, try them through all the tribunals of the Office, and when such broad claims are refused go back to the Examiner and present narrow claims.

[*Ex parte* Snow, 1271.

2. CHANGED AFTER BEING SWORN TO—STRUCK FROM THE FILES.

Where it appeared that the sheets of the specification were removed from the cords or ribbons connecting the same to the other papers of the application, and over the ends of which the seal of an officer before whom the oath was taken was affixed, and another specification was substituted, *Held* that there was a violation of Rule 31 and an offense against the notice published in the OFFICIAL GAZETTE, Vol. 79, page 1369, and the application was ordered stricken from the files of the Office.

[*Ex parte* Altmann, 1475.

3. RETURN OF PAPERS COMPRISING.

It is the settled practice of the Patent Office to refuse to return any of the papers of a complete application—that is, an application which comprises all necessary papers properly executed and on which the filing fee has been paid. Applications which do not comprise all papers necessary to a complete application properly executed may be returned where their return is necessary in order to enable the applicant to complete the papers, and this may be done whether the filing fee has been paid or not.

[*Ex parte* Van Etten, 1760.

4. SAME.

There are good reasons why papers should not be returned. It must be presumed that in filing the papers the applicant contemplated and intended the completion of the application and its preparation for examination within the period fixed by statute. They must be taken to have been filed in good faith for the purpose of obtaining a patent on the invention set forth in them, as this is the only purpose for which applications can be filed or received by the Patent Office. [Id.

5. SAME—AFTER RECEIVING OFFICE STAMP.

It is a matter of grave doubt whether any paper or drawing relating to an application for patent, whether such application be complete or not, which has been filed in the Patent Office and has been stamped or otherwise marked by the Office with the date of its receipt should be returned. Certainly a paper or drawing so marked should not be returned except on satisfactory showing therefor being made, and in no case should it be returned without erasure or cancellation of the marking put upon it by the Office. [Id.

6. SAME—OPPORTUNITY FOR CHANGES IN DRAWING AND SPECIFICATION—CONTROVERSY AS TO DATE OF INVENTION AS SHOWN BY RECORDS OF THE PATENT OFFICE.

The receipt of the papers and drawing is acknowledged by the Office. To permit the papers so dated to pass out of the custody of the Office would offer opportunity for material changes in the drawing and specification and would give rise to endless controversy as to the date at which the invention set forth was actually shown by the records of the Patent Office. [Id.

APPLICATIONS BY EMPLOYEES OF THE PATENT OFFICE.

1. CONSTRUCTION OF SECTION 480, REVISED STATUTES.

The obvious purpose and intent of Congress, as expressed by section 480, Revised Statutes, was and is to prevent persons employed in the Patent Office from improperly utilizing their knowledge of the inventions of others, acquired as a result of their official connection with the Patent Office, and from utilizing the opportunities they have, as a result of their employment, to become rivals or competitors of inventors whose applications they have before them for examination, or in any wise to take undue advantage of the knowledge they have acquired of pending applications in their capacity of Examiners or officials.

[*Ex parte* McElroy, 1123.

2. SAME.
The reason of the statute which prohibits an officer or an employee of the Patent Office from acquiring either directly or indirectly *any interest* in a patent issued would seem by fair intendment to prohibit him from filing an application for the interest he is not permitted to acquire. The application is the evidence of an inchoate right to a patent, and the ownership becomes complete when the patent is issued. [Id.

3. SAME.
To construe the statute to allow an employee of the Patent Office to file an application would obviously permit, if in fact it did not encourage, the very mischief the statute was clearly intended to prevent, as Examiners might make some slight improvement or modification in inventions covered by applications pending before them for examination and file an application, change or modify it from time to time, negotiate the sale of the whole or a part interest in the invention or application or the patent to be predicated thereon, and resign and prosecute the case and take a patent whenever such course seemed to offer greater pecuniary advantages than to remain in the Office, and thus the Office might become freighted with applications filed by Examiners or other employees in contravention of the spirit, if not the strict letter, of the statute, and thus become a prolific source of scandal. [Id.

4. SAME—STRIKING APPLICATION FROM THE FILES—RETURNING FEE.
An application filed by an employee of the Patent Office ordered to be stricken from the files and the fee returned, as under section 480, Revised Statutes, it is not competent for an inventor to file an application for a patent while he is such an employee. He may file his application, however, after he has severed his connection with the Office. [Id.

APPLICATIONS STRICKEN FROM THE FILES OF THE PATENT OFFICE.

(See Applications, 2; Applications by Employees of the Patent Office, 4.)

ASSIGNEES.

(See Oath.)

ASSIGNMENT BY ATTORNEY.

(See Assignments, 2.)

ASSIGNMENTS.

(See Grant of Patent.)

1. REGULAR ON ITS FACE—ABSOLUTE ASSIGNMENT.
This Office has no means to determine whether agreements in regard to an assignment have been fulfilled, and therefore an assignment regular on its face and regularly recorded in the Office must be considered an absolute assignment until canceled by the written consent of both parties or by the decree of a competent court. The Office must follow the record, since it has no means to determine disputed questions of title.
[*Ex parte* Nichols, 1891.

2. APPLICATION NOT IDENTIFIED—POWER OF ATTORNEY—REQUEST TO ISSUE PATENT.
A request that a power of attorney given by an alleged assignee be approved and that a patent issue to said assignee denied, as the assignment fails to fully identify the application and to specifically request the issue of the patent to the assignee.
[*Ex parte* Chillingsworth, 1892.

ATTORNEYS.

(See Assignments, 2; Power of Attorney.)

ATTORNEYS' DELAY.

(See Delay in Filing Application.)

BURDEN OF PROOF.

(See Injunction, 4; Interference, 6.)

CERTIFICATE OF DEPOSIT IN PAYMENT OF FINAL FEES.

(See Final Fee.)

CHANGE OF MATERIAL.

(See Construction of Specifications and Patents, 13.)

CHANGE OF STRUCTURE.

(See Construction of Specifications and Patents, 8; Invention, 1; Particular Patents, 4, 8, 9, 10.)

CIRCUIT COURTS.

(See Decree; Injunction, 1.)

CLAIMS.

(See Appealed Cases; Applications, 1; Rehearing, 2.)

CLASSIFICATION OF INVENTIONS.

(See Division of Applications, 2, 3.)

COMBINATIONS.

(See Construction of Specifications and Patents, 4, 16, 19; Infringement, 1, 3, 4.)

CONSTRUCTION OF CLAIMS.

(See Construction of Specifications and Patents, 2, 3, 4, 5, 6, 18; Designs, 1.)

CONSTRUCTION OF RULES.

(See Applications, 2; Final Fee; Interference, 1, 2, 3; Oath; Rejected Cases, 1, 2.)

RETROSPECTIVE EFFECT OF RULES CHANGING PROCEDURE—AMENDMENT TO APPLICATION.
It is a well-settled principle of law that alterations of procedure or practice are always retrospective unless there be some good reason against it. In this case it seems that justice and equity demand that the applicant should have two years from the last official action in which to prosecute his case.
[*Ex parte* Macmaster, 1475.

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Abandonment; Defense, 1; Designs, 1, 2, 3; Infringement, 7; Invention; Particular Patents.)

1. SCOPE OF CLAIMS—PIONEER INVENTION.
The Bowers patents disclose and cover inventions of a pioneer character, standing at the head of the art, and their claims are entitled to a broad and liberal construction.
[*Von Schmidt *v.* Bowers, 347.

2. CLAIMS CONSTRUED—NOT FUNCTIONAL.
Said claims are not functional in form, nor are they claims for results, nor are they limited to any particular form of construction of the elements which make up the combinations, but they are broad generic claims, without any limitation as to the form of construction of the particular elements; and all subsequent machines which employ substantially the same means to accomplish the same result are infringements, notwithstanding the subsequent machine may contain improvements in separate mechanism which go to make up the machine. [*Id.

3. SAME—NOT FOR AGGREGATIONS.
The Bowers claims are not mere aggregations, because the result produced is the product of the combination in which each element affects the action of all the others, and all of the elements cooperate in the one result of severing by the forward and side action of the machine the material in place where it is not wanted and depositing it in another place where it is wanted. [*Id.

4. COMBINATION—AGGREGATION.
No combination of elements that so operate can be regarded as a mere aggregation, for each one has a direct influence upon the action of each of the others, the result necessarily being the product of the combination itself and not a mere aggregate of several results each the complete product of one of the combined elements. (*Hailes* v. *Van Wormer*, 5 O. G., 89; 20 Wall., 353; *Royer* v. *Roth*, 49 O. G., 1967; 132 U. S., 201; 10 Sup. Ct., 58; *Keckendorfer* v. *Faber*, 10 O. G., 71; 92 U. S., 347; *Beecher Manufg. Co.* v. *Atwater Manufg. Co.*, 31 O. G., 306; 114 U. S., 524; 5 Sup. Ct., 1007.) [*Id.

5. CONSTRUCTION OF TECHNICAL TERMS.
The terms "inward delivery" in a claim for an excavator have direct reference to the mechanism itself, and cannot properly be limited to the description or effect of such mechanism. The clear meaning of a claim to "an excavator having inward delivery" or "with inward delivery through itself" is an excavator so constructed as to produce an inward delivery.
[*Id.

6. PIONEER INVENTION—JOINDER OF GENERIC AND SPECIFIC CLAIMS IN SAME PATENT.
A pioneer inventor is entitled in his patent to a generic claim, under which will be included every species of the genus, and in addition thereto he is entitled in the same patent to make specific claims for one or more species of the genus. [*Id.

7. INFRINGEMENT—DEFECT IN ORIGINAL MACHINE.
The fact that the first machine built by a patentee whose patent is sued on was not successful in operation is unimportant and no reason for denying him relief, especially where his subsequent machines have proved successful in practice.
[*Id.

8. PROCESS—FUNCTION OF MACHINE—MANUAL OPERATION.
Where, except for the described functions of a machine, there is nothing stated in a claim save the manual transposition or turning of the articles undergoing operation, so that a fresh part may be treated, such transposition, superadded to the function of the machine, does not make the process which the patent law contemplates.
[*Gindorff *et al.* *v.* Deering & Co. *et al.*, 653.

9. TWO PATENTS—EARLIER PATENT FOR IMPROVEMENTS—VALIDITY.
Where a patent for mere improvements was granted during the pendency of an earlier application for the broad invention, *Held* that a patent subsequently granted on the earlier application is not invalid, though the elements covered by its claims were shown and described but not claimed in the earlier patent. (Cases of *Suffolk* v. *Hayden*, 3 Wall., 315, and *Barbed Wire Patent*, 58 O. G., 1555; 143 U. S., 280, discussed.)
[*Thomson-Houston Electric Company *v.* Ohio Brass Company *et al.*, 654.

10. SAME—SAME—EXTENSION OF MONOPOLY—INFRINGEMENT—DAMAGES.
Where a patent for an improvement issues while the application for the broad invention is pending in the Patent Office, *Held* that the monopoly in the broad invention is not extended. The patent for the improvement expires in seventeen years. After that any one may use the improvement without infringing the patent issued upon it. If he uses the improvement without a license to use the main invention, he is liable for the infringement, not of the patent for the improvement, but of the patent for the main invention, and in estimating the damages for the same the value of the main invention, and not that of the improvement, would be the basis for estimating the damages. [*Id.

11. SAME—SAME—SAME—PATENTS ISSUING TO DIFFERENT OR SAME PARTIES.
It can make no difference in considering this question whether the patent for the improvement issues to the patentee of the main invention or to another. The right of the public to use the improvement when the patent on it expires is exactly the same whether the patentees of the two inventions are the same or not, because in each case the improvement can only be used with the license of the patentee of the main invention. [*Id.

12. PATENT CONSTRUED.
Reissue Patent No. 11,282, dated November 15, 1892, to George F. Russell, for an improvement in pulp-digesters, held to cover a digester having a structural lining composed of materials possessing plastic, adhesive, cohesive, and acid-resisting characteristics and not to be limited to a lining of hydraulic cement or any other particular cementitious ingredient.
[*American Sulphite Pulp Company *v.* Howland Falls Pulp Company, 515.

13. SAME.
The law applicable to the patent distinguished from that in the *Incandescent Lamp Patent*, (73 O. G., 1289; 159 U. S., 465.) In the latter Sawyer and Mann did not limit themselves to a particular material, or even to a class; but the patentee limits himself to a class of material, and, still further, within that class to a material possessing the required acid-resisting qualities. [*Id.

14. PIONEER INVENTOR—TO WHAT ENTITLED.
A pioneer inventor is entitled to a patent covering his adaptation of the forces in matter which he has discovered and the compositions with which he has successfully experimented and such as would naturally develop in the growth of the art without invention, as well as those which he has described.
[*Id.

15. TWO PATENTS FOR SAME INVENTION—SCOPE OF CLAIMS—SECOND PATENT VOID.
Where two patents are intended to and do secure to the patentee the same general inventions, differing only in the scope of the claims, the second patent is inseparably involved in the matter embraced in the first patent and is void. (Citing *Miller* v. *Mfg. Co.*, 66 O. G., 845; 151 U. S., 198.)
[*Thomson-Houston Electric Company *v.* Hoosick Railway Company, 967.

16. INVENTION—CONGREGATION OF DEVICES—NEW LOCATION—DOUBLE USE.
The circumstance that the same congregation of devices has never been assembled in a new location is not controlling and is often of little value in determining the question of patentable novelty. Their assemblage may be nothing but another instance of a double use, and when they require special adaptation to the new arrangement and occasion it still remains to inquire whether this has required invention.
[*Dunbar & *al.* *v.* Eastern Elevating Company *et al.*, 1127.

17. PAPER PATENT—PRESUMPTION OF OPERATIVENESS AND UTILITY—ANTICIPATION AND INFRINGEMENT.
The grant of a patent raises a presumption of operativeness and of some utility, and if prior, even though it be a mere paper patent, it may anticipate, provided it sufficiently discloses the principle of the alleged invention. Such prior patent may be relevant also to show that another device is not an infringement of such alleged invention, but is merely an improvement upon the prior patent or an application thereof to a new purpose. (*Pickering* v. *McCullough*, 21 O. G., 73; 104 U. S., 319; *Dashiell* v. *Grosvenor*, 75 O. G., 507; 162 U. S., 432.)
[*Universal Winding Company *v.* Willimantic Linen Company, 1273.

18. CONSTRUCTION OF CLAIMS—MATERIAL ADVANCE IN THE ART.
Where an invention consists of great merit and is a substantial advance over mechanical constructions heretofore used in the art to which it appertains, the claims of the patent should have such a construction as will give the patentee the full benefit of the mechanical advance which he has contributed to the mechanical arts and claimed.
[*Mitchell *v.* Ewart Manufacturing Company, 1702.

19. PATENTABILITY—COMBINATION OF OLD ELEMENTS—AGGREGATION.
A combination of old elements in order to be patentable all the parts must so act that each qualifies every other. It is not enough that these independent parts are conveniently associated in one machine if each performs the same function it did before they were united. They must be so connected that the new result is due to their cooperative action. (*Bunching Machine Co.* v. *Williams*, 44 Fed. Rep., 191, and cases there cited; *Green* v. *American Soda Fountain Company*, 78 Fed. Rep., 119.)
[*Paul Boyton Company *v.* Morris Chute Company *et al.*, 1894.

CONSTRUCTION OF STATUTES.

(See Applications by Employees of the Patent Office.)

COSTS OF SUIT.

(See Suits for Infringement.)

DECISIONS OF THE COURTS.

(See Division of Application, 1.)

DECISIONS OF THE EXAMINERS-IN-CHIEF.

(See Interference, 3, 4, 5.)

DECISIONS OF THE LOWER COURTS.

(See Injunction, 1.)

DECREE.

(See Trade-Marks, 3.)

INFRINGEMENT—EFFECT OF DECREE IN ANOTHER CIRCUIT.
A decree of a circuit court in one circuit enjoining infringement and unfair competition is not conclusive in a suit by the same party in another circuit against an agent of the principal where such decree is merely interlocutory and still subject to the control or modification of the court.
[*Walter Baker & Company, Limited, *v.* Sanders *et al.*, 1476.

DEFENSE.

(See Injunction, 3.)

1. INTERFERING PATENTS—ANTICIPATION—TIME OF.
The defense of anticipation to be successful must be established as of a date anterior to the patented invention, not merely prior to the application for or date of the patent.
[*Von Schmidt *v.* Bowers, 347.

2. SAME—SAME—EARLY DRAWINGS AND MODELS.
As against the defense of anticipation the patentee may show the fact of invention by drawings, sketches, models, or any other competent proof. [*Id.

DELAY.

(See Attorneys' Delay; Practice in the Patent Office.)

DELAY IN BRINGING SUIT.

(See Infringement, 6.)

INFRINGEMENT—LACHES—DISAGREEMENT BETWEEN OWNERS OF PATENT.
After fourteen years of quiet and unmolested enjoyment of a patented device it is too late to ask a user to turn over his entire profits upon the theory that it was impossible to proceed sooner because of disagreements between the owners of which the user had no notice. Besides, the excuse cannot be maintained as matter of law. The complainant could have proceeded without the cooperation of the other owners. If they refused to be complainants, he could have made them defendants. (*Onderdonk* v. *Fanning*, 4 Fed. Rep., 149.)
[*Richardson *v.* D. M. Osborne & Company, 812.

DELAY IN FILING APPLICATION.

(See Abandonment; Oath.)

OTHER ENGAGEMENTS OF ATTORNEY.
M's application, except the claims, was prepared in February, 1894, but he delayed filing until October, 1894, and in the meantime, in July, 1894, C filed his application. *Held* that the sole excuse of the delay—that M's attorney was too busy with other engagements to take up his case—was insufficient to defeat C's right to a patent.
[McCormick *v.* Cleal, 1614.

DELAY IN REDUCTION TO PRACTICE.

(See Interference, 7.)

DESIGNS.

(See Infringement, 5; Particular Patents, 10, 13.)

1. INTERPRETATION OF CLAIM—DRAWINGS AND DESCRIPTION.
A claim reading "In a design for a carpet, the body, A, substantially as shown" refers to the description as well as the drawing.
[*Whittall *v.* Lowell Manufacturing Company, 809.

2. INTERPRETATION OF DRAWINGS—SHADES.
Black and white drawings illustrating the designs in a design patent are to be considered as forms, into which may be filled a great variety of arrangements or effects of color or shades without affecting the patented design. [*Id.

3. DRAWINGS OF DESIGNS.
The essentials of a design are what cannot be changed without destroying its characteristic appearance, and where shading shown in the drawings may be reversed or removed without such effect it must be considered as but one of many permissible ways of treating the design, and therefore as an unnecessary addition to the conventional black and white outline drawing, which neither restricts nor enlarges the scope of the design. [*Id.

4. TWO DISTINCT ARTICLES—DIVISION.
Where applicant presents two distinct articles of manufacture—a cradle-supporting frame and a cradle-body—and claims them as such, *Held* that the application should be restricted to one or the other of these two designs. (*Ex parte Patitz*, C. D., 1883, 101; 25 O. G., 980; and *ex parte Brower*, C. D., 1873, 151, followed.)
[*Ex parte* Haggard, 1126.

5. DRAWING.
A drawing of a design case should disclose the entire design, not merely a part thereof.
[*Ex parte* Parker, 1892.

DILIGENCE.

(See Abandonment; Delay in Filing Application; Interference, 7; Practice in the Patent Office.)

DIVISION OF APPLICATION.

(See Designs, 4.)

1. DISCRETION OF THE OFFICE IN REQUIRING DIVISION—COURTS HOLDING PATENTS INVALID.
It does not follow because the courts would not hold a patent invalid that it is the duty of the Patent Office to allow more than one invention to be claimed in the same application. Whether a given invention or improvement shall be embraced in one, two, or more patents is a matter about which some discretion must be left with the head of the Patent Office.
[*Ex parte* Burgess, 1759.

2. CLASSIFICATION.
The time arrived long since when a proper classification in the Patent Office, so as to facilitate examination and prevent mistakes in the granting of patents, requires that improvements on an old machine having a distinct status in the arts and classified separately in this Office should be presented in separate applications. [Id.

3. SAME—GUN-BARREL AND OTHER PARTS OF A GUN.
Claims for distinct and independent improvements on a gun, one set of the claims being for a gun-barrel or false muzzle, which falls within a different classification from the other claims, cannot remain in the same application.
[Id.

DRAWINGS.

(See Applications, 5; Defense, 2; Designs, 2, 3, 5.)

EMPLOYEE OF THE PATENT OFFICE.

(See Applications by Employees of the Patent Office.)

EVIDENCE.

(See Defense, 2.)

EXAMINATION OF APPLICATIONS.

(See Appealed Cases; Applications, 1; Rejected Cases, 3; Rejected Claims.)

EXAMINERS.

(See Appealed Cases; Applications, 1; Applications by Employees of the Patent Office; Interference, 2, 3, 4; Rejected Cases, 3; Rejected Claims.)

EXAMINERS-IN-CHIEF.

(See Interference, 2; New Matter; Rejected Claims.)

EX PARTE CASES.

(See Interference, 4, 5.)

EXPERIMENTAL DEVICES.

(See Construction of Specifications and Patents, 7.)

EXPIRATION OF PATENTS.

(See Construction of Specifications and Patents, 10, 11.)

FEES.

(See Applications, 3; Final Fee.)

FILES OF THE OFFICE.

(See Applications, 3, 4, 5, 6.)

FINAL FEE.

CERTIFICATE OF DEPOSIT—TIME OF FORWARDING TO PATENT OFFICE.
Rule 207 of Rules of Practice, approved June 18, 1897, which requires that a certificate of deposit shall, in case of payment of a final fee, be deposited in the mail for transmission to the Patent Office within six months from the allowance of the application, should not be held to apply to certificates of deposit issued prior to the approval of the rule, provided they are forwarded to the Patent Office within a reasonable time after the publishing of said rule. Certificates forwarded more than thirty days after the date of this decision will not be received.
[*Ex parte* Griffith, 1126.

FORMER DECISIONS AFFIRMED.

(See Injunction, 3, 4.)

FORMER DECISIONS CONSTRUED.

(See Construction of Specifications and Patents, 9, 13, 15, 17, 19; Particular Patents, 7.)

FORMER DECISIONS REVERSED.

(See Particular Patents, 5.)

FRAUD.

(See Trade-Marks, 3, 5.)

FUNCTIONS.

(See Construction of Specifications and Patents, 2, 8, 19.)

GENERIC CLAIMS.

(See Construction of Specifications and Patents, 2, 6.)

GRANT OF PATENT.

(See Assignments, 2; Construction of Specifications and Patents, 17.)

ISSUING PATENTS—OFFICE GOVERNED BY LEGAL TITLE TO INVENTION.
The question that should govern the Patent Office in issuing patents is who on the record possesses the *legal* title to the invention, and the patent should issue accordingly, provided the requirements of the Office in such case have been complied with.
[*Ex parte* Nichols, 1891.

IMPROVEMENTS.

(See Construction of Specifications and Patents, 2, 9, 10, 11, 17; Particular Patents, 17.)

INFRINGEMENT.

(See Construction of Specifications and Patents, 2, 7, 10, 17; Decree; Delay in Bringing Suit; Injunction, 2, 3; Particular Patents, 1, 2, 3, 4, 6, 9, 10, 13, 16, 17, 18; Practice in the Patent Office; Trade-Marks, 3, 4, 5.)

1. CONTRIBUTORY INFRINGEMENT—SUPPLYING ELEMENT OF A COMBINATION.
Where one makes and sells one element of a combination covered by a patent, with the intention and for the purpose of bringing about its use in such a combination, he is guilty of contributory infringement and is equally liable to the patentee with him who in fact organizes the complete combination.
[*Thomson-Houston Electric Company *v.* Ohio Brass Company *et al.*, 654.

2. SAME—SAME—INTENT OF PARTY SUPPLYING ELEMENT—INJUNCTION.
Where a party makes a device which is adapted to be used only in a patented combination and is offering said device for sale to the public, he is legally presumed to intend the natural consequences of his act, and it is therefore *Held* that he intended that the device made should be used in the patented combination, and an injunction will be granted. [*Id.

3. SAME—SAME—SAME—EFFECTIVE MODE OF PREVENTING INFRINGEMENT.
Many of the most valuable patents are combinations of nonpatentable elements, and the only effective mode of preventing infringement is by suits against those who by furnishing the parts which distinguish the combination make it possible for others to assemble and use the combination and who by advertisement of the sale of such parts and otherwise intentionally solicit and promote such invasions of the patentee's rights. [*Id.

4. SAME—SAME—LIABILITY.
A party may furnish parts for repairing and renewing a patented combination; but when he does so he must ascertain, if he would escape liability for infringement, that the one buying and using them for this purpose has a license, express or implied, to do so. [*Id.

5. DESIGNS.
A design which imitates the figures of a patented design in their characteristic and important features and produces the same general appearance infringes, though the imitative figures are much smaller than those of the patent.
[*Whittall *v.* Lowell Manufacturing Company, 809.

6. SUIT FOR INFRINGEMENT DISMISSED—GROSS LACHES.
An action for infringement of Letters Patent No. 181,664, issued August 29, 1876, to Thaddeus Fowler, for an improvement in grain-bundling machines, dismissed on the ground of gross laches in bringing suit.
[*Richardson *v.* D. M. Osborne & Company, 812.

7. INVENTION.
Claims 1, 2, 3, and 4 of Letters Patent No. 480,157, granted August 2, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for an apparatus for winding cops, involve invention; but claims 1, 2, and 3 are not infringed, because the defendant's device neither contains the combination of elements nor uses the second source of motion specifically claimed, and claim 4 is not infringed, because in view of the art said claim cannot be sustained if so construed as to embrace unequal cone-pulleys as an equivalent of the means therein claimed.
[*Universal Winding Company *v.* Willimantic Linen Company, 1273.

INJUNCTION.

(See Infringement, 2; Trade-Marks, 5.)

1. PRELIMINARY INJUNCTION—APPEAL—WEIGHT OF DECISION OF LOWER COURT.
On an appeal from an order granting a preliminary injunction the case is ordinarily to be treated in the appellate court from the standpoint from which it was viewed by the circuit court, and the decision on the merits by a circuit court of another circuit sustaining the patent is therefore usually of controlling weight in the appellate court, as it should be in the court below.
[*Thomson-Houston Electric Company *v.* Ohio Brass Company *et al.*, 654.

2. SUIT AGAINST AGENT OF NON-RESIDENT.
The fact that defendant is selling alleged infringing goods as agent for a non-resident is no ground for refusing an injunction, though he may not be liable for profits which his principal takes, as injunction operates upon the individual, and in a proper case the individual will be restrained from manufacture, preparation, and sale which infringe upon another's rights, whether he be principal or merely agent.
[*Walter Baker & Company, Limited, *v.* Sanders *et al.*, 1476.

3. PRELIMINARY INJUNCTION—VALIDITY OF PATENT—RULE OF LAW APPLICABLE.
The rule of law which applies to the issuance of a preliminary injunction where the validity of a patent has been repeatedly sustained by prior adjudications, and especially after a long, arduous, and expensive litigation, is that the only question open in a subsequent suit against another defendant is that of infringement. The consideration of other defenses is postponed to the final hearing. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, 54 Fed. Rep., 678, and cases there cited.)
[*Bowers *v.* Pacific Coast Dredging and Reclamation Company *et al.*, 2041.

4. SAME—SAME—EXCEPTION TO THE RULE.
The only exception to this general rule appears to be where the new evidence is of such conclusive character that if it had been introduced in the former case it probably would have led to a different conclusion; but the burden of establishing this rests on the defendant, and every reasonable doubt must be resolved against him. (*Edison Electric Light Co.* v. *Beacon Vacuum Pump & Electrical Co.*, *supra*, and cases there cited.) See also *Edison Electric Light Co.* v. *Electric Manufg. Co.*, (57 Fed. Rep., 616; affirmed on appeal, 10 C. C. A., 106; 61 Fed. Rep., 834.) The same rule has been followed in this circuit. (*Norton* v. *Can Co.*, 65 O. G., 442; 57 Fed. Rep., 929; *Earl* v. *Southern Pacific Co.*, 75 Fed. Rep., 600.) [*Id.

INOPERATIVENESS.

(See Rejected Claims.)

INTERFERENCE.

1. Motion to Dissolve—Ex Parte and Inter Partes Question.
Rule 122 provides for motions to dissolve an interference on the ground of non-patentability, although this question had been favorably decided in an *ex parte* proceeding by the Examiner or one of the appellate tribunals. On a motion to dissolve the question is considered and decided *de novo inter partes*.
[Painter *v.* Hall, 1124.

2. Same—Weight to be Given to Decision of Examiners-in-Chief.
In an *inter partes* case the Examiner is not precluded by the decision of the Examiners-in-Chief in an *ex parte* case, although said decision should be very persuasive, though not conclusive. To hold otherwise would be to deprive a party of his rights and benefits under Rule 122. [Id.

3. Same—Same.
The Primary Examiner may not, as a matter of course, ignore the decision of the higher tribunals simply because the question is before him in a proceeding *inter partes*, whereas it was before the appellate tribunal in a proceeding *ex parte*. It is not to be presumed nor would it be tolerable for a Primary Examiner to disregard the decision of the appellate tribunal where the decision of the higher tribunal is binding under the settled rules of decision. [Id.

4. Same—Same—Scope of Examiner's Decision.
The Primary Examiner in his decision in an *inter partes* proceeding should state the reasons why in his opinion the decision of the higher tribunal in the *ex parte* case should not be followed in the *inter partes* proceeding. [Id.

5. Same—Question of Patentability—Res Adjudicata.
The question of patentability decided *ex parte* cannot be said to be *res adjudicata* when raised *inter partes*. To make the matter *res adjudicata*, there must be concurrence of four conditions—identity in the thing sued for, of a cause of action, of the parties to the action, and of the quality in the persons. In the matter under consideration the identity of parties is lacking. [Id.

6. Burden of Proof—Testimony, Rejecting for Insufficiency—Truthful Intent of Witnesses.
Testimony which should be rejected for insufficiency cannot be used in favor of a party on whom is the burden of proof to defeat another party, although the truthful intent of the witnesses may not be doubted. It is incumbent upon the party on whom is the burden of proof to produce such clear and direct evidence as will satisfactorily prove his case.
[McCormick *v.* Cleal, 1614.

7. Priority of Invention—Reduction to Practice—Reasonable Diligence—Excuses for Delay.
Whether reasonable diligence is exercised in reducing an invention to practice is a question to be determined in view of all the circumstances of the case. While the law is indulgent to the inventor and saves him from the consequences of delays which he could not avoid, it gives him no option as to the diligent pursuit of his reduction according to his actual abilities, but holds him strictly to the rule, as justice and the public interest require. No difficulties in reducing to practice will excuse delay, unless they relate to matters or circumstances beyond the control of the inventor, such as sickness, poverty, or other involuntary disability not having the consent of the claimant. [Id.

8. Right to Make a Claim—Opposition by Party Prior to Declaration of Interference.
Where it appears that after a declaration of an interference, including H and L's application, P filed certain claims some of which are identical with those of H and L and if allowed to P would make him a party to a branch interference in which H and L are involved, and that said branch interference is suspended pending the determination of P's right to the claims, a petition by H and L that they be heard in opposition to P in all proceedings relative to said claims denied, as it is contrary to the established practice to allow a party to be heard on this question prior to the declaration of the interference.
[*Ex parte* Hutin and Leblanc, 1618.

INTER PARTES CASES.

(See Interference, 1, 2, 3, 4, 5.)

INVENTION.

(See Construction of Specifications and Patents, 1, 3, 4, 8, 13, 16, 19; Infringement, 7; Particular Patents, 4, 12; Patentability; Utility.)

1. Patents—Adaptation to New Use.
Where the disintegration and shredding of clay had been accomplished by means of bars running across the face of rollers, *Held* that no invention was involved in adapting a mill for grinding or grating apples to the purpose of disintegrating and shredding clay, where the only change required was the substitution of bars of steel running across the face of the roller, parallel with the axis, in place of rows of thick steel knives.
[*Potts & Co. *v.* Creager *et al.*, 186.

2. Mechanical Skill.
Though a chuck at first sight seems to present nothing beyond a simple duplication of an old chuck, the fact that the single chuck was used for many years, while a need was felt for something to do the work which the double chuck now performs, and the further fact that defendants as soon as they heard of the improvement adopted it, are sufficient to establish original conception on the part of the inventor and not mere skill.
[*Gindorff *et al.* *v.* Deering & Co. *et al.*, 653.

INVENTION DESCRIBED BUT NOT CLAIMED.

(See Construction of Specifications and Patents, 9.)

JOINDER OF SUIT.

(See Suits for Infringement.)

LACHES.

(See Delay in Bringing Suit; Infringement, 6.)

LACHES OF ATTORNEY.

(See Attorneys' Delay; Delay in Filing Application.)

LIABILITY.

(See Infringement, 4; Injunction, 2.)

LICENSES.

(See Construction of Specifications and Patents, 11.)

MACHINE AND PRODUCT.

(See Construction of Specifications and Patents, 3.)

MACHINES.

(See Construction of Specifications and Patents, 2, 7.)

MECHANICAL SKILL.

(See Construction of Specifications and Patents, 8, 16; Invention; Particular Patents, 5, 8, 12, 22.)

MODEL.

(See Defense, 2; Rejected Claims.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 1.)

NEW MATTER.

Public Use—Date of Claim—Appeal to the Examiners-in-Chief.
The question as to whether a claim for a device different from that originally claimed may be introduced into a case more than two years after the device covered by the later claim has been in public use is a question of new matter which goes to the merits and is appealable in the first instance to the Examiners-in-Chief.
[Casler *et al.* *v.* Edison, 966.

OATH.

(See Applications, 2.)

Additional Oath—Delay in Filing Application—Oath by Assignee as to Public Use and Sale Insufficient—Construction of Statute.
When an application is not filed in the Office until an unreasonable time after the execution of the oath and the assignee makes affidavit that to his knowledge the invention had not been in public use or on sale in the United States for more than two years prior to the date of the filing of the application and that the inventor refuses to execute an additional oath, *Held* that said affidavit cannot be considered as a compliance with the rule which requires an additional oath when the application is not filed within a reasonable time after the execution of the original oath, since neither the statutes nor the rules make any provision for the making of an oath to an application by any party other than the inventor so long as the inventor is alive. The reason which makes it necessary that the inventor make the original oath apply with equal force to an additional oath when required.
[*Ex parte* McCoy, 2037.

OFFICIAL RECORDS.

(See Applications, 3, 4, 5, 6.)

OFFICIAL STAMP.

(See Applications, 5.)

OLD ELEMENTS.

(See Construction of Specifications and Patents, 9, 16, 19.)

OPERATIVENESS.

(See Construction of Specifications and Patents, 17.)

PARTIAL USE.

(See Infringement, 1, 2, 3, 4, 7.)

PARTICULAR PATENTS.

(See Construction of Specifications and Patents, 1, 3, 12; Infringement, 6, 7.)

1. Bowers—Dredging-Machine—No. 318,859—Valid—Infringed.
Claims 10, 16, 25, 53, and 59 of Letters Patent No. 318,859, granted May 26, 1885, to Alphonzo B. Bowers, for improvements in hydraulic dredging-machines, construed and *Held* valid and infringed by machines constructed under the Von Schmidt patents, Nos. 277,177, 300,333, and 306,368. (*Bowers* v. *Von Schmidt*, 63 Fed. Rep., 572, affirmed.)
[*Von Schmidt *v.* Bowers, 347.

2. Same—Hydraulic Dredging Apparatus—No. 355,251—Same—Same.
Claims 13, 17, and 18 of Letters Patent No. 355,251, granted December 28, 1886, to Alphonzo B. Bowers, for improvements in hydraulic dredging apparatus, construed and *Held* valid and infringed by machines constructed under the Von Schmidt patents, Nos. 277,177, 300,333, and 306,368. (*Bowers* v. *Von Schmidt*, 63 Fed. Rep., 572, affirmed.) [*Id.

3. Same—Dredging-Machine—No. 318,859—Validity—Infringement—Preliminary Injunction.
Letters Patent No. 318,859, granted May 26, 1885, to Alphonzo B. Bowers, for a dredging-machine, *Held* valid and infringed on a motion for preliminary injunction.
[*Bowers *v.* Pacific Coast Dredging and Reclamation Company *et al.*, 2041.

4. Dodge—Chain Cable—No. 264,139—Valid—Infringed.
Letters Patent No. 264,139, granted to James M. Dodge, September 12, 1882, for an improvement in chain cables, consisting in inserting between the links of an ordinary chain cable metal blocks of such conformation as to seat the adjacent end portions of the end chain-links laterally in grooved channels in planes transverse to each other on its exterior, so as to prevent twisting of the metal, *Held* to be valid and infringed.
[*Mitchell *v.* Ewart Manufacturing Company, 1762.

5. Dunbar—Portable Elevator—Reissue No. 10,521—Invalid.
Reissued Letters Patent No. 10,521, granted September 16, 1884, to Robert Dunbar, for a portable elevator adapted for use, in connection with an ordinary grain-elevator, for unloading grain from vessels, *Held* to be void for want of novelty, the improvement being within the range of ordinary mechanical skill. (76 O. G., 788, reversed.)
[*Dunbar *et al.* *v.* Eastern Elevating Company *et al.*, 1127.

6. Gindorff—Method of and Machine for Serrating Sickle-Sections—No. 524,965—Valid.
Letters Patent No. 524,965, granted to Matthew Gindorff, August 21, 1894, for a method of and machine for serrating sickle-sections, examined and as to claim 1 thereof *Held* valid and infringed.
[*Gindorff *et al.* *v.* Deering & Co. *et al.*, 653.

7. Same—Same—Same—Void.
Letters Patent No. 524,965, granted to Matthew Gindorff, August 21, 1894, for a method of and machine for serrating sickle-sections, examined and as to claims 4 and 5 thereof *Held* void for lack of patentability, in view of *Risdon Iron and Locomotive Works* v. *Medart*, (71 O. G., 751; 158 U. S., 68.) [*Id.

8. Hunt—Fire-Cracker—No. 547,921—Invalid.
Letters Patent No. 547,921, granted to Edmond S. Hunt, October 15, 1895, for an improvement in fire-crackers, in which the fuse is held in place by a portion of the tube forced in and down to form ridges extending toward the fuse and forming a rosette, with the fuse projecting from its center, *Held* to be void for want of novelty, in view of the prior state of the art.
[*Hunt *v.* Archibald *et al.*, 1761.

9. Keep—Stove—No. 368,770—Validity—Infringement.
Letters Patent No. 368,770, granted to William J. Keep, August 23, 1887, for an improvement in stoves, the main features of which are the drawing inwardly of the wall of the stove over the fire-pot, putting mica in the inturned wall to permit the passage of heat and light rays, and placing a reflector over the stove in a position to catch and reflect the light, *Held* to be valid and infringed as to claims 2 and 5, but not infringed as to claim 3, which covers a more limited structure.
[*Michigan Stove Company *v.* Fuller-Warren Company, 1892.

10. Keep and Wipfler—Heating-Stove—Design No. 18,190—Infringement.
Claims 2, 3, and 4 of Design Patent No. 18,190, granted to William J. Keep and Charles Wipfler, March 21, 1888, for a heating-stove, are not infringed by defendant's stove, which in its appearance, either generally or in detail, does not so far resemble the complainant's design as to deceive purchasers or dealers, but, on the contrary, seems to be well distinguished in form and ornamentation. [*Id.

11. Laraway—Mechanism for Preventing a Molded Barrel-Body from Shrinking—No. 339,064—Not Infringed.
Letters Patent No. 339,064, granted March 30, 1886, to George W. Laraway, for an improvement in mechanism for preventing a molded barrel-body from shrinking in diameter at either end while being dried, *Held* to be for a doubtful invention and when properly construed not infringed.
[*Keyes *v.* United Indurated Fibre Company, 522.

12. Munson—Manufacture of Boxes from Paper, Cardboard, Etc.—No. 259,416—Invalid—Mechanical Skill.
Letters Patent No. 259,416, granted June 13, 1882, to Edward B. Munson and Harvey S. Munson, for an improvement in the manufacture of paper boxes, construed and *Held* to be invalid, as the changes over the prior art were of that order of mechanical detail which is far removed from inventive skill.
[*National Folding Box and Paper Company *v.* Stecher Lithographic Company *et al.*, 813.

13. Neil—Carpet—Design No. 24,021—Infringed.
Design Letters Patent No. 24,021, granted February 12, 1895, to John B. Neil, for a carpet-body, construed and *Held* infringed.
[*Whittall *v.* Lowell Manufacturing Company, 809.

14. Newburg—Coaster—No. 411,255—Anticipated—Invalid.
Letters Patent No. 411,255, granted September 17, 1889, to John P. Newburg, for improvements in coasters or inclined pleasure-railways consisting of an inclined plane erected adjacent to and terminating in a body of water and a boat-shaped car or toboggan having runners and guides and spray-deflectors, which will not only slide down the inclined plane, but float and be propelled by momentum upon the water at the foot of the inclined plane, *Held* to be anticipated and invalid.
[*Paul Boyton Company *v.* Morris Chute Company *et al.*, 1804.

15. Potts—Clay-Disintegrator—Nos. 322,393 and 368,898—Void.
Letters Patent No. 322,393, granted July 14, 1885, and No. 368,898, granted August 23, 1887, both to C. and A. Potts, examined and in view of the prior art *Held* void for want of novelty.
[*Potts & Co. *v.* Creager *et al.*, 186.

16. Russell—Pulp-Digester—Reissue No. 11,282—Valid and Infringed.
Reissue Patent No. 11,282, dated November 15, 1892, to George F. Russell, for improvements in pulp-digesters, consisting of an outer shell and a continuous lining of cement, examined and *Held* to be valid and infringed.
[*American Sulphite Pulp Company *v.* Howland Falls Pulp Company, 515.

17. Van Depoele—Suspended Switch and Traveling Contact for Electric Railways—No. 397,451—Validity—Prior Patent.
Letters Patent No. 424,695, granted April 1, 1890, to Charles J. Van Depoele, for improvements in suspended switches for electric railways, is not invalid because of the prior issuance of Patent No. 397,451, for certain improvements on the broad invention covered by the first-named patent, the application for which was filed more than a year before that of Patent No. 397,451.
[*Thomson-Houston Electric Company *v.* Ohio Brass Company *et al.*, 654.

18. Same—Traveling Contact for Electric Railways—No. 495,443—Same.
Letters Patent No. 495,443, granted April 11, 1893, to Charles J. Van Depoele, for improvements in suspended switches and traveling contacts for electric railways, not held invalid upon an appeal from a preliminary injunction heard upon affidavits and without a full review of the art because of the prior issuance to the same inventor of Patent No. 424,695, covering inventions of a similar character. [*Id.

19. Same—Traveling Contact for Electric Railways—No. 495,443—Void—Claimed in Prior Patent to Same Inventor.
Claims 6, 7, 8, 12, and 16 of Letters Patent No. 495,443 granted April 11, 1893, to the administrators of Charles J. Van Depoele, for a traveling contact for electric railways, construed and *Held* to be void because the invention covered thereby had been previously claimed by the same inventor in Letters Patent No. 424,695, dated April 1, 1890.
[*Thomson-Houston Electric Company *v.* Hoosick Railway Company, 967.

20. WARDWELL—METHOD OF WINDING COPS OR BALLS—No. 480,158—INVALID.
Letters Patent No. 480,158, granted August 2, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for a method of winding cops, construed and *Held*, in view of the state of the prior art, to cover no patentable novelty.
[*Universal Winding Company *v.* Willimantic Linen Company, 1273.

21. SAME—COP—No. 486,745—VOID.
Letters Patent No. 486,745, granted November 22, 1892, to Joseph R. Leeson, assignee of Simon W. Wardwell, Jr., for a cop, *Held* to be void by reason of lack of patentable novelty.
[*Id.

22. WATSON—TELEPHONE-SWITCH—No. 270,522—VOID.
Letters Patent No. 270,522, granted January 9, 1883, to the American Bell Telephone Company as assignee of Thomas A. Watson, for an improvement in telephone-switches, is void in view of the prior state of the art, as it involves only several expedients in arranging a subscriber's outfit.
[*Western Electric Company *v.* Western Telephone Construction Company *et al.*, 2038.

PARTIES TO SUIT.

(See Delay in Bringing Suit; Infringement, 1, 2, 3, 4; Suits for Infringement.)

PATENTABILITY.

(See Interference, 5; Utility.)

DEGREE OF UTILITY.
The degree of utility of a device is unimportant in determining whether a device be patentable. If the invention is not frivolous or prejudicial to the public and has any degree of usefulness, no matter how slight the practical utility, then within the meaning of the law it is useful and may be patented.
[*Ex parte* Sanche, 185.

PATENTS.

(See Assignments, 2; Construction of Specifications and Patents, 17, 18; Grant of Patent.)

PATENTS TO DIFFERENT PARTIES.

(See Construction of Specifications and Patents, 17.)

PAYMENT OF FEES.

(See Final Fees.)

PIONEER INVENTION.

(See Construction of Specifications and Patents, 1, 14.)

POWER OF ATTORNEY.

COUPLED WITH INTEREST—REVOCATION.
A power of attorney coupled with a promise to pay to the attorney ten per cent. of all money received for the invention does not give him such an interest in the invention as to render the said power of attorney irrevocable, since, although such power was given for valuable consideration, the interest which the attorney has in the invention exists *in futuro* and is an equitable, not a legal, interest.
[*Ex parte* Firsching, 1272.

PRACTICE IN THE COURTS.

(See Decree; Defense; Delay in Bringing Suit; Injunction, 1, 3, 4; Suits for Infringement.)

PRACTICE IN THE PATENT OFFICE.

(See Appealed Cases; Applications, 2; Designs, 4; Division of Application; Grant of Patent; Interference; New Matter; Oath; Rehearing; Rejected Cases.)

PRACTICE OF THE OFFICE SHOULD BE STABLE—RULE STARE DECISIS.
Where the practice of the Office is settled, it should be followed, unless there are very good reasons for changing it. The rule *stare decisis* must prevail in the Patent Office as in the courts.
[McCormick *v.* Cleal, 1614.

PRIOR ADJUDICATION.

(See Injunction, 1, 2.)

PRIOR PATENTS.

(See Construction of Specifications and Patents, 9, 10, 11, 15, 17; Particular Patents, 17, 18, 19.)

PRIORITY OF INVENTION.

(See Delay in Filing Application.)

PROCESS.

(See Construction of Specifications and Patents, 8.)

PROCESS AND PRODUCT.

(See Construction of Specifications and Patents, 14.)

PUBLIC APPRECIATION AS EVIDENCE OF INVENTION.

(See Construction of Specifications and Patents, 18; Invention, 2.)

PUBLIC USE AND SALE.

(See New Matter; Oath.)

RECONSIDERATION UNDER AMENDED RULES.

(See Rejected Cases, 2.)

RECORD OF ASSIGNMENT.

(See Assignments, 1.)

REDUCTION TO PRACTICE.

(See Interference, 7.)

REFERENCE.

(See Rejected Cases, 3.)

REHEARING.

1. PETITIONS FOR, CONDEMNED.
While there are undoubtedly cases in which, from their great importance or the novel or doubtful character of the questions involved, rehearing may well be had and may properly be sought, yet it should be understood that the court always seeks in the first instance to bring the best judgment which it possesses, aided by all the lights which counsel give it in their briefs and arguments, to bear upon the causes submitted to it for its determination. If in such determination it commits error, the mistake is one of judgment, to which all human action is liable; but it is expedient in the interests of justice that the determination when made should have the element of stability. (Quoting *Hien* v. *Pungs*, 78 O. G., 484.)
[*Ex parte* Atwater, 965.

2. REOPENING CASE—AMENDMENT PRESENTING NARROW CLAIMS AFTER APPEAL ON BROAD CLAIMS.
Where on appeal only broad claims were presented, which were refused, *Held* that the case should not be reopened to admit narrow claims.
[*Ex parte* Snow, 1271.

REISSUE.

(See Particular Patents, 5, 16.)

REJECTED CASES.

1. REOPENING CASE—OLD RULE 65—AMENDMENT TO RULE.
Where the claims of an application were rejected under old Rule 65 and no action was taken until several months after the six months' limit of appeal under Rule 134, *Held* that as the rules had been amended to permit applicants two years within which to prosecute their cases no showing is required as to why amendment was not earlier presented.
[*Ex parte* Macmaster, 1475.

2. REJECTION UNDER OLD RULES 65 AND 68—RECONSIDERATION UNDER NEW RULES.
Where a case was rejected on August 15, 1895, under Rule 68, then in force, not on references, but on the ground that there had been intentional and unreasonable delays in prosecution, and such rejection made final under Rule 65, *Held* that as these rules have been revoked and there has been no final rejection on references the action under said Rule 65 is set aside and the case opened for reconsideration.
[*Ex parte* Higgins, 2037.

3. REFERENCES—APPLYING AND EXPLAINING REFERENCES BY THE EXAMINER BEFORE FINAL ACTION.
On petition that the references be explained and their pertinency pointed out as clearly and fully as would be done in the Examiner's answer to appeal, should appeal be taken, *Held* that an applicant is entitled before the case is closed before the Examiner to an explanation of the references and their bearing on the claims rejected as full and clear as any explanation that would be considered necessary to be made at any subsequent stage in the progress of the case.
[*Ex parte* McCoy, 2037.

REJECTED CLAIMS.

(See Appealed Cases; Applications, 1; Rehearing, 2.)

INOPERATIVENESS—OVERCOMING REJECTION BY WORKING MODEL—APPEAL TO EXAMINERS-IN-CHIEF.
A petition taken from the action of the Examiner rejecting claims on the ground of inoperativeness of the device and suggesting a model as a possible way in which the operativeness might be established, although the structure of the apparatus was understood, was dismissed, holding that, the claims being rejected, the applicant may either show to the Examiner that the apparatus is operative or appeal to the Examiners-in-Chief.
[*Ex parte* Beach, 1476.

REOPENING OF REJECTED CASES.

(See Appealed Cases; Applications, 1; Rehearing, 2; Rejected Cases, 1.)

REPAYMENT OF FEES.

(See Applications by Employees of the Patent Office, 4.)

RES ADJUDICATA.

(See Interference, 5.)

RETROSPECTIVE EFFECT OF RULES.

(See Construction of Rules.)

RETURN OF PAPERS FORMING PART OF AN APPLICATION.

(See Applications, 3, 4, 5, 6.)

REVOCATION OF POWER OF ATTORNEY.

(See Power of Attorney.)

RULES OF PRACTICE OF THE PATENT OFFICE.

(See Construction of Rules.)

SKETCHES.

(See Defense, 2.)

SPECIFIC CLAIMS.

(See Construction of Specifications and Patents, 6.)

SPECIFICATIONS.

(See Applications, 2, 6.)

STARE DECISIS.

(See Practice in the Patent Office.)

SUBSEQUENT PATENTS.

(See Construction of Specifications and Patents, 9, 10, 11, 15, 17.)

SUITS AGAINST NON-RESIDENTS.

(See Injunction, 2.)

SUITS FOR INFRINGEMENT.

(See Decree; Delay in Bringing Suit; Infringement, 3, 4, 6; Injunction, 2.)

1. JOINDER OF SUITS ON DIFFERENT PATENTS—RULES AS TO COSTS.
The joinder in one suit of claims for infringement of two patents relating to the same subject-matter is in the interest of the public as well as of private litigants and should not be discouraged by too stringent rules as to costs or otherwise.
[*Green *v.* City of Lynn, 1480.

2. APPORTIONMENT OF COSTS.
Where two patents relating to the same subject-matter were sued on in the same suit and a decree was entered for complainant on one of them and for defendant in respect to the other, the costs disbursed in regard to the patent adjudged against the complainant were not, under the circumstances, adjudged in favor of either party.
[*Id.

TECHNICAL TERMS.

(See Construction of Specifications and Patents, 5.)

TESTIMONY.

(See Interference, 6.)

TITLE TO PATENT.

(See Grant of Patent.)

TRADE-MARKS.

1. "GYRATOR"—NOT REGISTRABLE.
The word "Gyrator," if applied to bolting-machines having a gyratory motion, is used descriptively, or if applied to other bolting-machines it is used deceptively, and in either case it should not be registered as a trade-mark.
[*Ex parte* Wolf, 1271.

2. COINED WORDS—DESCRIPTIVE—NOT REGISTRABLE.
Where a word is formed by joining or combining English, Latin, or other words the meaning of which is understood, and said new word is descriptive of the goods to which it is applied, it should not be registered as a trade-mark.
[Id.

3. "BAKER'S CHOCOLATE"—SAME NAME—DIFFERENT MANUFACTURERS.
Where by long use the words "Baker's Chocolate" have come to indicate to purchasers of ordinary intelligence complainant's goods, *Held* that a subsequent manufacturer should not be allowed to use his surname, Baker, whether his given name or initials are prefixed or not, so as to indicate upon labels or advertisements that the goods he sells are "Baker's Chocolate."
[*Walter Baker & Company, Limited, *v.* Sanders *et al.*, 1476.

4. USE OF ONE'S OWN NAME—DISTINGUISHING GOODS FROM OTHERS'.
A manufacturer entering into competition with another manufacturer of the same name who has an old and established business is bound to distinguish his goods from those of the latter, so as to prevent confusion in the mind of the purchaser as to what goods he is buying.
[*Id.

5. SAME—SAME.

The doctrine is well settled that equity will direct how a man shall use his name in his purpose to denote his own individuality. He will not be allowed to so use it as to work an injury to another having the same name, nor to perpetrate a fraud upon the public. [*Id.

USE AND SALE OF PATENTED ARTICLES.

(See Infringement, 2, 3, 4; Injunction, 2; Trade-Marks, 4, 5.)

UTILITY.

(See Patentability.)

PATENT OFFICE ARBITRARILY DETERMINING—THEORY.

The degree of utility is not a question for the Patent Office to arbitrarily determine. The mere assertion of theorists that they do not believe that a device possesses utility cannot prevail against the evidence of reliable witnesses who have by tests demonstrated that it does possess such utility as is claimed for it.

[*Ex parte* Sanche, 185.

VALID PATENTS.

(See Particular Patents, 1, 2, 3, 4, 6, 9, 16, 17, 18.)

VALIDITY OF PATENT.

(See Defense; Infringement, 7; Particular Patents, 11, 13.)

VOID PATENTS.

(See Construction of Specifications and Patents, 15; Particular Patents, 5, 7, 8, 12, 14, 15, 19, 20, 21, 22.)

WITNESSES.

(See Interference, 6.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING SEPTEMBER 30, 1897.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, and Prints follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
A. A. Griffing Iron Company. (See Waggoner, Edward P., assignor.)						
Abbé, Max F., Brooklyn, N. Y. Grinding-mill	587,688	Aug. 10	711	170	80	817
Abbey, Edward O., Oswego Center, N. Y. Extension-table	587,381	Aug. 3	177	44	80	699
Abbott, Benjamin J., assignor to C. H. Durphy, Chicago, Ill. Horse-nail machine	587,029	July 27	2525	593, 594, 595, 596, 597	80	550
Abbott, George L., assignor of one-half to C. F. Houghton, Corning, N. Y. Bottle-stopper lock	588,211	Aug. 17	1644	378	80	1002
Abbott, Nathaniel B. (See Muslar, Nelson, assignor.)						
Abbott, William, and D. E. Hughes, Espy, Pa. Spark-deflector for smoke-stacks	590,012	Sept. 14	1034	243	80	1089
Abell, Irvin H., and G. W. Goff, assignors to East Hampton Bell Company, East Hampton, Conn. Bicycle-bell	590,814	Sept. 28	2451	582	80	1981
Abelt, Richard C. (See Rediske and Abelt.)						
Abernethy, Harry M., Beaver Falls, Pa. Switch-stand	587,689	Aug. 10	712	170	80	817
Abernethy, Robert S., assignor of one-half to J. E. Coulter, Connellys Springs, N. C. Bicycle propulsion	589,952	Sept. 14	908	218	80	1665
Abraham, William, Fairchild, Wis. Antirattling thill-coupling	587,355	Aug. 3	136	32	80	690
Abrell, Charles, and E. Burjes, Alton, Ill. Brush	590,871	Sept. 28	2549	609	80	2000
Abt, Mathew, New York, N. Y. Valve	587,632	Aug. 3	623	150	80	780
Acetylene House Lighting Company. (See Dolan, Edward J., assignor.)						
Achenbach, Friedrich, Frankfort-on-the-Main, Germany. Sterilizing and packing bandaging material	585,645	July 6	1	1	80	3
Ackerman, Charles H., Waupun, Wis. Ice-cream freezer	586,538	July 20	1655	386	80	365
Ackley, Charles S. (See Terry, Coleman A., assignor.)						
Ackley, George D., Fort Worth, Tex. Water-closet cistern	589,680	Sept. 7	454	108	80	1568
Ackors, Elias, Guthrie, Okla. Ter. Cultivator	590,353	Sept. 21	1640	386	80	1818
Acme Fumigator Company. (See Cock, Lewis W., assignor.)						
Acme Fumigator Company. (See Hill, John W., assignor.)						
Actien-Gesellschaft für Fein Mechanic, vormals Jetter & Scheerer. (See Scheerer, Wilhelm, assignor.)						
Adams, Abraham L., Bridgeport, Conn. Penholder	589,918	Sept. 14	858	204	80	1656
Adams, Benjamin H. (See Cleary, William B., assignor.)						
Adams, Don B., Chicago, Ill., assignor to Globe Nozzle Company, Charleston, W. Va. Variable nozzle	590,534	Sept. 21	1942	460	80	1874
Adams, Franklin P., *et al.* (See Prenzel, Adam H., assignor.)						
Adams, Harry C., New York, N. Y. Fastener for stair-carpets	587,633	Aug. 3	624	150	80	780
Adams, James F., Hubert, Ga. Cinder-shield	588,739	Aug. 24	2611	601	80	1201
Adams, James F., Hubert, Ga. Barrel-head	588,763	Aug. 24	2649	611	80	1209
Adams, James R., Bevier, Mo. Pen-extractor	588,308	Aug. 17	1821	420	80	1033
Adams, John Q., Marseilles, Ill. Corn-sheller	587,906	Aug. 10	1107	255, 256	80	887
Adams, Joseph, Kalamazoo, Mich. Car-window	587,030	July 27	2531	597	80	551
Adams, Lewis T., Whitman, Mass. Machine for marking shoe-linings	588,786	Aug. 24	2680	620	80	1215
Adams, Robert N., Dunedin, New Zealand. Paper-trimming machine	585,998	July 6	741	166	80	145
Adams, Stephen J., Pittsburg, Pa. Method of and apparatus for making sand molds	586,751	July 20	2014	468, 469	80	432
Adams, Stephen J., Pittsburg, Pa. Method of and apparatus for forming sand molds	587,031	July 27	2532	597	80	551
Adams, Thomas E., Cleveland, Ohio. Electric-arc lamp	589,996	Sept. 14	989	235, 236	80	1680
Adams & Westlake Company. (See Hamm, William S., assignor.)						
Adcock, George, Loughborough, England. Folding portable cycle-support	589,919	Sept. 14	859	204	80	1656
Addis, Sarah A., Neodesha, Kans. Storm-door and screen combined	587,382	Aug. 3	178	44	80	699
Adeney, Walter E., and W. K. Parry, Dublin, Ireland. Purifying sewage	589,460	Sept. 7	96		80	1500
Adler, Alfred C., Somerville, Mass. Rotary hand-stamp	587,253	July 27	2045	592	80	630
Aeolian Company. (See Pain, Robert W., assignor.)						
Aglot, Emile, Marseilles, France. Method of and apparatus for measuring ingredients in compounds	587,254	July 27	2047	593	80	630
Agnew, Lee A., Chicago, Ill. Machine for wrapping, folding, and addressing newspapers, &c	586,327	July 13	1273	290, 291, 292, 293	80	263
Agobian, George, New York, N. Y. Pulley-block	588,309	Aug. 17	1821	420	80	1033
Aikman, David, St. Lambert, assignor of two-fifths to T. Doucet, Montreal, Canada. Centrifugal drier	587,202	Aug. 3	1	1	80	665
Ajax Metal Company. (See Thompson, Samuel B., assignor.)						
Akard, Dolvan B., San Francisco, Cal. Door opener or closer	586,375	July 13	1356	312, 313	80	278
Akard, Dolvan B., San Francisco, Cal. Door opener or closer	590,200	Sept. 21	1525	362	80	1796
Akeson, Anders, assignor of one-half to W. V. Lawton, Providence, R. I. Evacuating device	589,775	Sept. 7	605	141	80	1597
Albrecht, Alfred, Wells Bridge, N. Y. Wagon-wrench	589,400	Sept. 7	1	1	80	1483
Albrecht, Hermann, and J. R. Bitner, assignors to Johnston & Jennings Company, Cleveland, Ohio. Baling-press	588,938	Aug. 31	2041	668	80	1281

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Alcorn, John S., assignor of one-half to B. A. Goodell, Waltham, Mass. Bicycle crank-shaft	590,605	Sept. 28	2241	531	80	1942
Alden, Charles S., assignor to Alden & Nicholson, Rochester, N. Y. Closure for jars	589,151	Aug. 31	3329	782	80	1355
Alden & Nicholson. (See Alden, Charles S., assignor.)						
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Aldrich, Albert E., assignor of one-tenth to F. M. Flenner, Lexington, Ky. Apparatus for manufacturing gas	586,923	July 20	2322	547, 548	80	490
Aldrich, Charles W., Minneapolis, Minn. Heater	590,447	Sept. 21	1796	422	80	1846
Alexander, Edward B., Chicago, Ill. Hat-fastener	589,888	Sept. 14	806	190	80	1646
Alexander, Hans, Berlin, Germany, assignor to L. Potthoff, Long Island City, N. Y. Coating metals by electrolysis. (Reissue)	11,624	Aug. 3	708	------	80	797
Alexander, Theophilus W., Burlington, Iowa. Extension step-ladder	589,326	Aug. 31	3764	877	80	1444
Alexandrescu, Mihail, Bucharest, Roumania. Reaping-machine	588,850	Aug. 24	2798	650, 651	80	1236
Alfred, Ralph E., Weston, W. Va. Lamp-chimney holder	590,608	Sept. 28	2081	493	80	1913
Alger, Israel F., Fitchburg, Mass. Bicycle	589,920	Sept. 14	860	205	80	1656
Alguire, Barney, *et al.* (See Cryderman, James E., assignor.)						
Allen, Achilles, assignor of one-half to M. A. Baker and W. H. Bailey, Milton, Oreg. Amalgamating-machine	590,291	Sept. 21	1527	362	80	1796
Allen, C. L. (See Farrow, Stephen E., assignor.)						
Allen, Charles B., Burlington, N. J. Gate-operating device for pneumatic-despatch tubes	590,784	Sept. 28	2402	571	80	1972
Allen, Christopher C., Cleveland, Ohio. Vessel-loading apparatus	586,151	July 13	994	224	80	211
Allen, Columbus H., *et al.* (See Grunow, Frank A. L., assignor.)						
Allen, George V., London, England. Apparatus for signaling on railways	585,999	July 6	744	166	80	146
Allen, James B. (See Mathews, Augustus, assignor.)						
Allen, James S., Halsey, Nebr. Telegraph-switch	585,731	July 6	140	33	80	31
Allen, John F., New York, N. Y. Sectional safety-boiler	590,292	Sept. 21	1529	362, 363	80	1796
Allen, Maurice, Brooklyn, assignor to J. F. Ebert, New York, N. Y. Brush	586,411	July 13	1419	327	80	291
Allen, Mortimer H., assignor of one-half to H. C. Ellis, Toledo, Ohio. Filter	590,081	Sept. 14	1058	250	80	1693
Allen, Mortimer H., and H. C. Ellis, Toledo, Ohio. Gravity-filter	590,293	Sept. 21	1534	363	80	1797
Allen, Oscar M., *et al.* (See Harris, Levi, assignor.)						
Allen, William H., Griggsville, Ill. Shingling-stool	590,872	Sept. 28	2550	609	80	2001
Allen, William K., Newberg, Oreg. Fruit-evaporator	590,354	Sept. 21	1641	386, 387	80	1819
Allen, William P. (See Krotz and Allen.)						
Allen, William P. (See Krotz, Allen, and Kelly.)						
Allenson, John, assignor to St. Paul Foundry Company, St. Paul, Minn. Apparatus for forming molds for castings	587,356	Aug. 3	137	33	80	691
Alley, Frederick L., and E. E. Winkley, Lynn, Mass. Shoe-sewing machine	587,778	Aug. 10	874	205, 206	80	848
Alley, Stephen, Glasgow, Scotland. Steam-boiler	587,667	Aug. 3	673	160, 161	80	790
Alling, Calvin P., Cambridge, assignor of one-half to J. H. Fazel, Wichita, Kans. Grain-harvesting machine	589,380	Aug. 31	3853	900, 901	80	1461
Alling, Samuel A., Homer, Minn. Net-holder	590,068	Sept. 14	1145	271	80	1709
Alston, John S., Atlantic City, N. J. Puzzle	587,112	July 27	2676	630	80	578
Alsup, Jefferson D. (See Burnham and Alsup.)						
Alter, Isaac, Lakeport, Cal. Spring-mattress	590,202	Sept. 21	1369	323	80	1767
Althans, W. J. (See Hassett, William R., assignor.)						
Althausse, Guido, Dusseldorf, Germany. Apparatus for manufacturing car-wheels	587,141	July 27	2752	646	80	592
Althoff, Henry, Melrose, Ill. Wrench	589,681	Sept. 7	456	109	80	1569
Altizer, Jesse P., Chicago, Ill. Elevator-stop	589,682	Sept. 7	457	109	80	1569
Altman, George G., New York, N. Y. Apparatus for teaching arithmetic, &c.	588,371	Aug. 17	1918	445	80	1052
Altman, Josephine, Uniontown, Pa. Curtain-hanger	586,152	July 13	995	224	80	211
Altstaedter, Morris, New York, N. Y. Bottle-closure	588,939	Aug. 31	2943	688	80	1281
Alves, Malcolm A., London, England. Reservoir attachment for pens	589,401	Sept. 7	2	1	80	1483
Alvord, Elmer S., assignor of one-half to W. H. Barnum, Danbury, Conn. Machine for stiffening hat-brims	588,372	Aug. 17	1920	446	80	1053
Ambler, George A., Newark, N. J. Nailing-machine	586,153	July 13	997	225	80	211
Ambler, George A., Newark, N. J. Nailing-machine	586,154	July 13	1000	225, 226	80	212
Amendt, Fredrick, Port Washington, Ohio. Wheat steamer and heater	586,111	July 13	983	209	80	198
Ament, Joseph H., *et al.* (See Ettinger, Flavius J., assignor.)						
Ament, Theodore, *et al.* (See Ettinger, Flavius J., assignor.)						
American Arithmometer Company. (See Pike, William H., Jr., assignor.)						
American Bell Telephone Company. (See Crane, Henry M., assignor.)						
American Bell Telephone Company. (See Hayes, Hammond V., assignor.)						
American Bell Telephone Company. (See Hayes and Wales, assignors.)						
American Bell Telephone Company. (See O'Connell, Joseph J., assignor.)						
American Bell Telephone Company. (See Thompson, George K., assignor.)						
American Bell Telephone Company. (See Williams, Arthur S., assignor.)						
American Box Machine Company. (See Morrison, Augustus H., assignor.)						
American Brake Beam Company. (See Langer, Gotthold, assignor.)						
American Buncher Manufacturing Company. (See Boyer, Charles T., assignor.)						
American Buncher Manufacturing Company. (See Wilcox, Samuel H., assignor.)						
American Camera Manufacturing Company. (See Blair and Waterman, assignors.)						
American Clay-Working Machinery Company. (See Ingraham, Henry C., assignor.)						
American Egg Case Company. (See Herr, Henry C., assignor.)						
American Electric Meter Company. (See Marks, William D., assignor.)						
American Electric Meter Company. (See Marks and Green, assignors.)						
American Electric Train and Switch Signal Company. (See Grant, Charles W., assignor.)						
American Electric Vehicle Company. (See Knudsen, Karsten, assignor.)						
American Electrical Heater Company. (See Snyder and Tinnerholm, assignors.)						
American Faucet Company. (See Norton, Mason S., assignor.)						
American Filter and Ice Plants Manufacturing Company. (See Kunzel, Charles A., Jr., assignor.)						
American Graphophone Company. (See Macdonald, Thomas H., assignor.)						
American Lamp and Brass Company. (See Ginder, William H., assignor.)						
American Match Company. (See Levé, Marcus S., assignor.)						
American Metallic Cushion Company. (See Cowley, James T., assignor.)						
American Optical Company. (See Le Page, Joseph Z., assignor.)						
American Ship Windlass Company. (See Whitney, Edwin H., assignor.)						
American Silex Company. (See Bleco, John H., assignor.)						
American Sugar Refining Company. (See Donner, John O., assignor.)						
Ames, Helen A., Brookline, Mass. Invalid's bed	585,646	July 6	2	1	80	3

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ames, William L., and T. Gray, Terre Haute, Ind. Piston for rotary pumps, blowers, &c.	587,907	Aug. 10	1110	256	80	887
Ameye, Camille, Yseghem, Belgium. Gasifying apparatus for wines	588,547	Aug. 24	2943	521	80	1181
Ammerman, William M., and E. J. Toof, New Haven, Conn., assignors to said Toof. Sewing-machine	587,908	Aug. 10	1111	256	80	887
Amsler, Walter O., Pittsburg, Pa., assignor to Schaffer & Budenberg, New York, N. Y. Work-registering instrument	587,203	Aug. 3	3	1, 2	80	665
Anchor Buggy Co. (See Uckotter, Herman H., assignor.)						
Anchor Supply Company. (See Hagan, Louis T., assignor.)						
Andersen, Andrew A., Altoona, Pa. Electrical signaling apparatus	586,891	July 20	2251	528	80	476
Anderson, Benjamin B., Belmore, Ohio. Apparatus for sharpening and dressing drill-bits	587,909	Aug. 10	1113	256	80	888
Anderson, Charles O., Butte, Mont. Ice-velocipede	586,412	July 13	1421	327	80	291
Anderson, Chris, Leeds, England. Apparatus for working electric tramways	586,652	July 20	1856	431, 432	80	402
Anderson, Edward F., Gloster, Miss. Hand fertilizer-distributer	588,045	Aug. 10	1348	313	80	932
Anderson, James W., Fuller, Miss. Animal-trap	587,255	July 27	2950	698	80	631
Anderson, Lars, assignor to A. Blomfeldt and O. Rapp, Chicago, Ill. Gasolene-torch	586,785	July 20	2066	481	80	441
Anderson, Martin E., De Kalb, Ill. Wheel for bicycles	587,357	Aug. 3	138	33	80	691
Anderson Safety Elevator Company. (See Mattullath, Hugo, assignor.)						
Anderson, Svante, Chicago, Ill. Mouthpiece for preventing snoring	587,358	Aug. 3	139	33	80	691
Anderson, Thomas E., Memphis, Tenn. Animal-trap	590,032	Sept. 14	1060	250	80	1693
Anderson, Thomas J. (See Blum and Anderson.)						
Anderson, William N., San Rafael, Cal. Can-opener	587,419	Aug. 3	235	58	80	710
André, Emile M. D., Méru, France. Printing-telegraph	588,046	Aug. 10	1349	313, 314	80	933
Andreas, Chauncey T., Bayfield, Wis. Stove	589,681	Sept. 7	377	92	80	1553
Angell, Edwin E., Somerville, Mass. Apparatus for branding checks	588,940	Aug. 31	2944	688, 689	80	1281
Angerer, Victor, assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Railway-switch	586,892	July 20	2253	528	80	477
Animarium Company. (See Sanche, Hercules, assignor.)						
Ankrum, Wilbert E. (See Wright, Percival, and Ankrum.)						
Anspach, Charles H., Cedar Grove, Ind. Brake mechanism for binders and mowers	588,941	Aug. 31	2946	689	80	1282
Anthon, Johann, Flensburg, Germany. Apparatus for manufacturing wooden casks, barrels, &c	585,810	July 6	282	66	80	58
Anthony, Edwin A., Dighton, Mass. Adjustable lathe-dog	589,889	Sept. 14	807	190	80	1646
Antoine, Ernest, Besançon, France. Winding-indicator for watches	588,373	Aug. 17	1925	446, 447	80	1054
Apel, Peter, *et al.* (See Peiffer, John, assignor.)						
Appel, Daniel, Cleveland, Ohio. Square-bottom paper bag	590,559	Sept. 28	1999	471, 472	80	1899
Appleby, Alfred, Birmingham, England. Drive-chain for cycles	586,472	July 13	1523	357	80	310
Appleby, Alfred, Birmingham, England. Drive-chain for cycles	589,683	Sept. 7	458	109	80	1569
Appleby, John F., assignor, by mesne assignments, to D. Kelly, Chicago, Ill. Self-binding harvester	587,668	Aug. 3	674	161, 162	80	790
Appleby, William L. G., assignor of one-fourth to H. W. Bennett, Germantown, Md. Mail catching and delivering apparatus	588,810	Aug. 17	1823	421	80	1034
Appler, C. Edward. (See Heffner, John H., assignor.)						
Apsey, Joseph, London, England. Forced-draft device for furnaces	590,355	Sept. 21	1643	387	80	1819
Arbuckle, Matthew, Indianapolis, Ind. Fountain-brush	588,047	Aug. 10	1354	314, 315	80	933
Arbuckle, William G., assignor of one-half to G. W. Palmer, Rochester, N. Y. Oil-filter	590,535	Sept. 21	1943	460	80	1874
Archbold, Ellen G., New York, N. Y. Hand-grip	587,634	Aug. 3	625	150	80	780
Archer, Marmer D. (See Harvey and Archer.)						
Archer, Ulysses S., Lenoir City, Tenn. Nut-lock	590,294	Sept. 21	1536	364	80	1798
Archibald, Alba D., Covington, Ky. Means for propelling and steering barges	587,256	July 27	2951	698	80	631
Arendt, Max. (See Trobach, Konrad, assignor.)						
Argerbright, Daniel, Troy, Ohio. Photographic-print washer	586,280	July 13	1194	273	80	248
Arlington, Frank L., Claremore, assignor of one-third to H. and G. Miller, Little Rock, Ark. Permutation-padlock	586,943	July 20	2354	555	80	496
Armat, Thomas. (See Jenkins and Armat.)						
Armstrong, Albert W., Columbus, Nebr. Pump	585,901	July 6	457	110	80	90
Armstrong, Thomas. (See Clarke and Armstrong.)						
Armstrong, Thomas L., Philadelphia, Pa. Drilling apparatus	589,110	Aug. 31	3244	763	80	1338
Arnold, Alvin O., *et al.* (See Dalwigk, Hermann, assignor.)						
Arnold, Clarence W., Philadelphia, Pa. Fringe-knotting machine	586,413	July 13	1422	327, 328, 329	80	292
Arnold, Collins, Albany, N. Y. Night-robe	587,910	Aug. 10	1114	257	80	888
Arnold, John T. (See Roney, Churchill, and Arnold.)						
Arnold, John W., Otsego, Mich. Fire-alarm	588,942	Aug. 31	2948	690	80	1282
Arnold, William B., Abington, Mass. Hinge	590,873	Sept. 28	2552	609	80	2001
Arnold, William T., assignor to Chicago Electric Protective Company, Chicago, Ill. Burglar-alarm system	587,669	Aug. 3	675	162	80	790
Arnot, M. C., *et al.* (See Gallagher, John C., assignor.)						
Ash, James T., *et al.* (See Jensen, Jens C., assignor.)						
Ashby, George, Hamilton, Canada. Insulator for wires	588,048	Aug. 10	1353	315	80	933
Ashley, Aden J., assignor of one-half to J. L. Hontz, Chicago, Ill. Adjustable sash-lock	587,294	Aug. 3	8	2, 3	80	666
Ashley, Frank M., Hawthorne, N. J. Brake system	587,690	Aug. 10	713	171	80	817
Ashley, Frank M., Hawthorne, N. J. Brake system	587,691	Aug. 10	715	171	80	818
Ashley, Frank M., Hawthorne, N. J. Brake system	587,911	Aug. 10	1115	257	80	888
Ashton, Thomas R. R., North Deniliquin, New South Wales. Magazine bolt-gun	589,684	Sept. 7	460	109, 110	80	1570
Ashworth, Richard J., assignor to Waterbury Manufacturing Company, Waterbury, Conn. Match-box	589,921	Sept. 14	861	205	80	1657
Askew, John, Leamington, Canada. Hinge-roller gate	588,374	Aug. 17	1927	447	80	1054
Askins, Joseph, Ridgefield, N. J. Hose-nozzle	586,955	July 27	2391	564	80	525
Asheton, William, Baltimore, Md. Manifolding-book	589,632	Sept. 7	379	93	80	1553
Atherton, Abel T., Warwick, R. I. Machine for working fibrous materials	587,085	July 27	2626	620	80	568
Atherton, Abel T., Warwick, R. I. Beater for machines for opening cotton	590,560	Sept. 28	2001	472	80	1899
Atherton, Robert. (See Birchall, Thomas, assignor.)						
Atherton, Stillman M. (See Smith and Atherton.)						
Atkins, Elias C., Indianapolis, Ind. Bedding-plow	588,787	Aug. 24	2683	620	80	1215
Atwell, Horace, West Bridgewater, Mass. Horseshoe	589,804	Sept. 14	661	154	80	1621
Atwood, Horace, Arden, N. Y. Apparatus for pasteurizing milk	586,831	July 20	2140	500	80	454
Atwood, Irving H., Amesbury, Mass. Bicycle-lantern	586,000	July 6	745	166	80	146

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Lamp for cycles	586,348	July 13	1311	300	80	271
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Bicycle-lamp support	586,349	July 13	1313	300	80	271
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Bicycle-lamp support	587,912	Aug. 10	1117	257	80	889
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Lamp-burner	588,788	Aug. 24	2685	621	80	1216
Augsburger, Max. (See McAdams, James, assignor.)						
Augusto, Peoro, Boston, Mass. Shade-bracket holder	590,508	Sept. 21	1800	449	80	1864
Austin, Albert W., Toronto, Canada. System of water-supply	586,653	July 20	1858	432	80	403
Austin, Albert W., Toronto, Canada. Pumping-engine	586,654	July 20	1859	432	80	403
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, John T., Detroit, Mich. Pneumatic action and coupler for organs	585,946	July 6	544	127, 128	80	106
Automatic Can Machinery Company. (See Malmfelt, Bennet J., assignor.)						
Automatic Rapid Lathe Company. (See Childs, Eugene, assignor.)						
Avara, Theresa D., Rushing's Store, Miss. Burglar-guard	590,013	Sept. 14	1035	244	80	1689
Avery, Charles H., Binghamton, N. Y. Wrench	588,049	Aug. 10	1355	315	80	933
Avery, George C., Louisville, Ky. Hoisting and conveying machine	586,350	July 13	1315	300	80	271
Axthelm, Ernst, Pittsburg, Pa. Shutter-fastener	588,375	Aug. 17	1928	447	80	1054
Ayer, Frederick H., Downer's Grove, Ill. Windlass	590,940	Sept. 28	2071	537	80	2025
Ayers, James C., San Francisco, Cal. Refrigerator	589,922	Sept. 14	862	205	80	1657
Ayres, Paul, Rockville Centre, N. Y. Fresh-air inlet for sanitary ventilation	589,923	Sept. 14	864	206	80	1657
B. F. Avery & Sons. (See Holsclaw, Wilford H., assignor.)						
Babb, Fannie E. (See Steinert and Babb.)						
Babington, Robert H. (See Westmoreland and Babington.)						
Bach, Philipp, Berlin, assignor to Bier-Siphon-Actien-Gesellschaft, Cassel, Germany. Apparatus for dispensing liquids by pressure of gas	587,635	Aug. 3	626	151	80	780
Bacon, Frank E., Portland, Me. Manifold-copying device	588,311	Aug. 17	1825	421	80	1034
Badgley, Norman E., Lockport, N. Y. Bicycle tool-bag	589,402	Sept. 7	3	1	80	1483
Badische Anilin und Soda Fabrik. (See Bülow, Carl, assignor.)						
Baehre, George W., North Tonawanda, N. Y. Rotary track-cleaning device	588,711	Aug. 24	2547	589	80	1189
Bagley, Orin, Sutton, N. H. Rein-fastening	589,997	Sept. 14	994	236	80	1681
Bagley, Orin, Sutton, N. H. Hose-supporter	590,676	Sept. 28	2212	524	80	1937
Bagot, Charles F. A. H., London, England. Valve for use with pneumatic tires, &c	586,752	July 20	2017	469	80	432
Bailey, Arthur R., Cleveland, Ohio. Type-writer	587,288	July 27	3009	705	80	642
Bailey, Charles A., assignor to J. & E. Stevens Company, Cromwell, Conn. Combination-lock	589,827	Aug. 31	3766	878	80	1445
Bailey, Charles J., Newton, Mass. Bicycle-tire	588,724	Aug. 24	2565	593	80	1192
Bailey, J. S. (See Mohr, William H., assignor.)						
Bailey, Leonard C. (See Richey, Charles V., assignor.)						
Bailey, Sterling L. (See Egan, Charles E., assignor.)						
Bailey, W. F., *et al.* (See Dix, Dwight R., assignor.)						
Bailey, W. H., *et al.* (See Allen, Achilles, assignor.)						
Baillie, Ellis H., *et al.* (See Sherman, Willis D., assignor.)						
Baily, James, *et al.* (See Markley, John A., assignor.)						
Bain, Nathaniel M., Portland, Oreg. Can-soldering machine	588,806	Aug. 24	2724	632	80	1222
Bainbridge, Albert E., *et al.* (See Pullen, Leon W., assignor.)						
Baker, Albert, assignor of one-half to W. S. Huise, Fort Wayne, Ind. Packing and storing vessel	587,050	July 27	2563	605	80	557
Baker & Bros., W. B. (See Baker, William B., assignor.)						
Baker, Charles E., Bloomdale, Ohio. Railway-crossing	588,780	Aug. 24	2686	621	80	1216
Baker, Darius C., assignor of three-fourths to J. Priest, C. E. Bird, and C. Hanchett, Saugatuck, Mich. Pruning implement	588,943	Aug. 31	2949	690, 691	80	1282
Baker, David F., Vernonia, Oreg. Automatic gate	585,881	July 6	416	100	80	83
Baker, Edward J., Hackensack, N. J. Bicycle-lock	589,491	Sept. 7	143	32	80	1508
Baker, Francis R., assignor to G. W. Herbert and W. K. Ingham, Birmingham, England. Receptacle for holding tobacco-ashes	589,152	Aug. 31	3390	782, 783	80	1355
Baker, Fred M. (See Tolmie, George, assignor.)						
Baker, George C., Albany, N. Y. Scrap-book or file, &c	590,561	Sept. 28	2003	472	80	1899
Baker, Hubert L., and F. W. Wright, Reed City, Mich. Roll-grinding machine	587,383	Aug. 3	170	44	80	699
Baker, M. A., *et al.* (See Allen, Achilles, assignor.)						
Baker, Richard, Terre Haute, Ind. Lifting-jack	588,212	Aug. 17	1645	378	80	1002
Baker, Thomas J., assignor of two-thirds to C. A. Risser and N. G. Turner, Findlay, Ohio. Pipe or rod wrench	590,562	Sept. 28	2004	473	80	1899
Baker, William C., New York, N. Y. Car-heating apparatus	590,470	Sept. 21	1828	432	80	1852
Baker, William C., New York, N. Y. Steam-boiler	590,471	Sept. 21	1830	432, 433	80	1853
Baker, William B., assignor to W. B. Baker & Bros., Newport News, Va. Combined beer tap, cooler, and pump	589,237	Aug. 31	3468	813	80	1382
Balbach, Edward, Jr., Newark, N. J. Electrolytic apparatus	588,524	Aug. 17	2197	510	80	1104
Baldwin, Jabin B., *et al.* (See Dreisbach, William I., assignor.)						
Baldwin, Melvin B., Elgin, Ill. Antiseptic pocket-cuspidor	587,542	Aug. 3	465	109	80	751
Bales, Emmor. (See Lamb and Bales.)						
Ball, Albert, assignor to Sullivan Machinery Company, Claremont, N. H. Machine for bundling wood	586,944	July 20	2355	555, 556, 557, 558	80	496
Ball, John, Jeanesville, Pa. Pocket-knife	587,602	Aug. 10	716	171	80	818
Ballam, De Lacy E., Brooklyn, assignor to E. B. Schlesinger, New York, N. Y. Butter-mold	585,811	July 6	283	66	80	58
Ballard, Frank W., Allentown, N. Y. Cleaner for oil-well tubing	586,001	July 6	747	167	80	146
Ballew, Charles H., assignor to C. Hoefer, Higginsville, Mo. Razor hone and strop	589,805	Sept. 14	662	154	80	1621
Baltzell, Charles D., St. Davids, Pa. Shade-holder for bicycles	590,125	Sept. 14	1237	293	80	1726
Bancroft, Clinton L., Brown's, Nev. Voting-machine	586,828	July 13	1283	293, 294	80	265
Bancroft, Sidney, Brooklyn, assignor to himself, and J. H. Dalley, New York, N. Y. Eliminator or water-separator	589,492	Sept. 7	144	32	80	1509
Banfield & Co., Wallace. (See Banfield, William, assignor.)						
Banfield, William, Irondale, Ohio, assignor to W. Banfield & Co., Pittsburg, Pa. Coating metals	589,381	Aug. 31	3861	901	80	1462
Banker, Arthur L. and G. A., Pittsburg, Pa. Bicycle-stand	588,376	Aug. 17	1929	447, 448	80	1054
Banker, George A. (See Banker, Arthur L. and G. A.)						
Banks, Walter F., assignor to National Electrical Manufacturing Company, Milford, Conn. Signal-receiving apparatus	587,608	Aug. 10	718	171, 172	80	818

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Banks, Walter F., assignor to National Electrical Manufacturing Company, Milford, Conn. Switchboard apparatus	588,258	Aug. 17	1730	397, 398	80	1018
Bannatyne, Archibald, assignor to Waterbury Clock Company, Waterbury, Conn. Alarm-clock	588,809	Aug. 24	2726	632	80	1222
Banner, Thomas N., Hobe Sound, Fla. Door for poultry-houses	589,111	Aug. 31	3246	763	80	1326
Bar, Bernard, Baltimore, Md. Package for powdered material	587,517	Aug. 3	421	99	80	741
Barber Asphalt Paving Company. (See King, Walter G., assignor.)						
Barber, John C., St. Paul, Minn. Car-truck	588,810	Aug. 24	2726	633	80	1222
Barber, William H., Abilene, Kans. Varnish-can	588,121	Aug. 17	1493	344	80	973
Barber, William M., Somerville, assignor of one-half to Smith & Anthony Company, Boston, Mass. Radiator	588,312	Aug. 17	1826	421	80	1035
Barberie, Louis, Brooklyn, N. Y. Blacking-brush and dauber	587,636	Aug. 3	629	151	80	781
Barcus, George, Rensselaer, Ind. Horseshoeing apparatus	590,800	Sept. 28	2429	576, 577	80	1977
Bard, Cephas, Ventura, Cal. Syringe cut-off	589,806	Sept. 14	663	154	80	1621
Bardons, George C., and J. G. Oliver, Cleveland, Ohio. Friction-clutch	586,832	July 20	2142	500	80	455
Bardsley, Henry, Providence, R. I., assignor to Knowles Loom Works, Worcester, Mass. Lend-motion for loom-dobbles	586,753	July 20	2019	469	80	433
Bardsley, Henry, Providence, R. I., assignor to Knowles Loom Works, Worcester, Mass. Shuttle-box-operating mechanism for looms	590,388	Sept. 21	1683	396, 397	80	1826
Barker, Captain H., Wallville, Ind. Ter. Windmill	589,807	Sept. 14	664	155	80	1621
Barker, Delbert L., Providence, R. I. Artesian or tube well	587,779	Aug. 10	877	206	80	848
Barker, Francis, Ilkley, England. Time-recorder	589,924	Sept. 14	865	206, 207	80	1657
Barker, Frederick W., Dunellen, N. J., and V. Cruser, Brooklyn, N. Y. Sprocket-chain	586,956	July 27	2392	564	80	525
Barker, Wells T., Nashville, Mich. Bicycle	586,002	July 6	747	167	80	147
Barlow-Massicks, Thomas G., Massicks, Ariz. Ter. Ore-separating apparatus	585,732	July 6	242	33	80	31
Barlow-Massicks, Thomas G., Massicks, Ariz. Ter. Amalgamator and concentrator	585,812	July 6	284	66	80	59
Barlow, Peleg C., Buckhannon, W. Va. Churn-dasher	586,754	July 20	2021	469	80	433
Barnard, Heman A., assignor to Barnard & Leas Manufacturing Company, Moline, Ill. Rice-hulling machine	586,090	July 13	899	202	80	193
Barnard, John M., and J. P. Ruppert, Moscow Mills, Md. Curtain-fixture	589,633	Sept. 7	381	93	80	1554
Barnard & Leas Manufacturing Company. (See Barnard, Heman A., assignor.)						
Barnes, Albert, Honolulu, Hawaii. Fender or guard for cars	589,153	Aug. 31	3331	783	80	1355
Barnes, Alden, Barnes, Ill. Bonus-determining device	589,154	Aug. 31	3332	783	80	1356
Barnes, Garrett V., assignor of two-fifths to D. A. Mulvane, Topeka, Kans. Elevator	590,655	Sept. 28	2166	512, 513	80	1929
Barnes, George, *et al.* (See Wetmore, Ernest L. P., assignor.)						
Barnes, Henry J., Boston, Mass. Humidifier	588,944	Aug. 31	2950	691	80	1283
Barnes, Joshua B., Springfield, Ill. Locomotive feed-water heater	588,377	Aug. 17	1931	448	80	1054
Barnett, Nicholas W., assignor of one-half to E. F. Carson, Pleasanton, Kans. Game-board	590,785	Sept. 28	2404	571	80	1973
Barney, Frank P., Chartley, Mass. Self-closing gas-burner	585,902	July 6	458	110	80	90
Barnickle, Frank E., Lawrence, Mass. Hair-crimper	587,142	July 27	2753	646	80	592
Barnum, Fred C., Morrison, Ill. Photographic-negative washer	586,303	July 13	1225	279	80	254
Barnum, Grace, Arcade, N. Y. Fastener for hat-trimmings	588,851	Aug. 24	2799	651	80	1237
Barnum, William H. (See Alvord, Elmer S., assignor.)						
Barr, James M., assignor of one-half to C. E. S. Phillips, London, England. Telegraph-cable	586,755	July 20	2022	470	80	433
Barr, John H., and J. F. Johnson, Kansas City, assignors of one-third to W. E. Harvey, Rosedale, Kans. Hydraulic gold-separator	587,780	Aug. 10	880	206	80	849
Barr, Paul A., Philadelphia, Pa. Support for bicycles	589,925	Sept. 14	870	207	80	1658
Barreiras, Enrique S. (See Steinbrenner, Andrew G., assignor.)						
Barron, Joseph G., East Berkeley, Cal. Seal-lock	590,716	Sept. 28	2282	539	80	1949
Barrow, Reuben R., Marl, Ala. Wrench	586,473	July 13	1525	357	80	310
Barrow, Thomas E., assignor to Mansfield Cash and Package Carrier Company, Mansfield, Ohio. Store-service apparatus	589,238	Aug. 31	3470	814	80	1382
Barrows, George S. and W. E., Philadelphia, Pa. Welsbach or other light	590,815	Sept. 28	2452	582	80	1981
Barrows, Gertrude W. (See Barrows, John F., assignor.)						
Barrows, John F., assignor to G. W. Barrows, Saginaw, Mich. Cabinet	587,169	July 27	2805	658	80	602
Barrows, William E. (See Barrows, George S. and W. E.)						
Barry, John, and M. L. Shaughnessy, Lenox, Iowa. Veterinary obstetrical instrument	585,947	July 6	546	128	80	105
Bartelle, Nicholas, North Baltimore, Ohio. Table	587,518	Aug. 3	423	99	80	742
Barthels, Henry, Mishicott, Wis. Windmill-regulator	588,548	Aug. 24	2245	521, 522	80	1131
Barthelemy, Aristide L. and L. J., New Orleans, La. Filter	586,474	July 13	1525	357	80	310
Barthelemy, Louis J. (See Barthelemy, Aristide L. and L. J.)						
Barthels, Emil, *et al.* (See Navarein, Amedée, assignor.)						
Bartlett, Charles H., New Portland, Me. Arbor and attachment for holding articles to be polished and finished	587,170	July 27	2806	658	80	602
Bartlett, Edward C., Lorain, Ohio. Non-refillable bottle	587,295	Aug. 3	9	3	80	666
Barton, Elliott L., Wellington, New Zealand. Velocipede	589,328	Aug. 31	3768	878	80	1445
Bascom, Julia F., South Milwaukee, Wis. Pneumatic shoe-sole	586,155	July 13	1004	227	80	213
Bash, Charles, Boston, assignor, by mesne assignments, to F. E. Huntress, Somerville, Mass. Headlight	586,584	July 20	1740	405	80	361
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Window-light	586,211	July 13	1094	247	80	230
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prismatic canopy	586,212	July 13	1094	247	80	230
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism light and plate	586,213	July 13	1095	247	80	230
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Ornamental prismatic glass	586,216	July 13	1099	249	80	231
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Light-diffusing device	586,217	July 13	1100	249	80	231
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting prism-lights	586,218	July 13	1101	249	80	231
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	586,219	July 13	1102	249	80	232
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	586,220	July 13	1103	250	80	232
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prismatic light	586,221	July 13	1105	250	80	232
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prismatic window-plate	586,222	July 13	1106	250	80	233
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Adjustable prism-canopy	586,223	July 13	1107	251	80	233
Basquin, Olin H., Chicago, Ill., assignor, by mesne assignments, to Luxfer Prism Patents Company, of West Virginia. Vault-light	586,214	July 13	1096	248	80	230

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Basquin, Olin H., Chicago, Ill.; assignor to Luxfer Prism Patents Company, of West Virginia. Testing device	586,215	July 13	1098	248	80	231
Bass, William L., Brooklyn, N. Y. Parlor-game apparatus	588,811	Aug. 24	2730	633, 634	80	1223
Bassus, Conrad F. von, Munich, Germany. Harmonium	589,066	Aug. 31	3156	743	80	1322
Batcheller, Birney C., Brooklyn, N. Y. Electropneumatic circuit-closer	585,647	July 6	5	1, 2	80	4
Batcheller, Birney C., Brooklyn, N. Y., assignor to United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Carrier for pneumatic-despatch tubes	590,181	Sept. 14	1329	315	80	1745
Batdorff, Watson, assignor to Berger Manufacturing Company, Canton, Ohio. Tubular or hurricane lantern	588,945	Aug. 31	2951	691	80	1283
Bate, Charles. (See Holland, Newman H., assignor.)						
Bateman, Samuel. (See Wood and Wilkinson, assignors.)						
Bates, Albert J., Joliet, Ill., assignor to Columbia Wire Company, of Illinois. Wire-barbing machine	586,945	July 20	2364	558, 559	80	408
Bates, Edward C., assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Whistle for buoys	585,882	July 6	419	100, 101	80	83
Bates, Edwin G., New York, N. Y. Numbering-machine	587,913	Aug. 10	1118	257, 258	80	889
Bates, William O., and W. J. Hutchins, Joliet, Ill. Electric bale-tie machine	587,296	Aug. 3	10	3	80	667
Batson, Matthew A., U. S Army. Rapid-field-sketching case	590,696	Sept. 28	2242	531	80	1942
Baty, George. (See Stalker and Baty.)						
Bauer, Julius. (See Miller and Bauer.)						
Baughan, Milton C., assignor to the Baughan Tobacco Stemming Machine Company, Richmond, Va. Tobacco-stemming machine	589,685	Sept. 7	462	110, 111	80	1570
Baughan Tobacco Stemming Machine Company. (See Baughan, Milton C., assignor.)						
Baum, Joseph. (See Warren, Christopher C., assignor.)						
Baumann, Charles, Oakland, Cal. Threshold	588,626	Aug. 24	2382	550	80	1160
Bausch, Edward, Rochester, N. Y. Microscope attachment	588,689	Aug. 24	2506	578	80	1161
Bausch, Edward, assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Prism-gage	587,637	Aug. 3	630	151	80	781
Bausch & Lomb Optical Company. (See Bausch, Edward, assignor.)						
Bayless, Benjamin S., assignor of one-half to S. S. Jay, Aberdeen, Md. Mail-bag	586,720	July 20	1950	456, 457	80	422
Beach, Edward W., Elgin, Ill., assignor to De Laval Separator Company, of New Jersey. Centrifugal separator	587,171	July 27	2307	650	80	602
Beadle, Jesse, Shickshinny, Pa. Rail-joint	590,816	Sept. 28	2454	582	80	1982
Beal, Francis R., Northville, Mich. Adjustable school-desk	586,156	July 13	1005	227	80	213
Beall, William L., assignor to Gale Manufacturing Company, Albion, Mich. Corn-planter	587,604	Aug. 10	710	172	80	818
Beall, William L., assignor to Gale Manufacturing Company, Albion, Mich. Check-row planter	588,313	Aug. 17	1827	422	80	1035
Bean, Joseph A., and W. L. Cook, Mahwah, assignors of one-third to J. S. Garison, Ramsey's, N. J. Line-holder	588,378	Aug. 17	1933	449	80	1055
Beard, Benjamin F., assignor of two-thirds to A. and O. F. Brewster, Pine Bluff, Ark. Measuring-faucet	590,491	Sept. 21	1863	441	80	1859
Beard, George M., Angola, Ind. Ball-bearing	590,208	Sept. 21	1370	323	80	1767
Beard, James R., Harrisburg, Ark. Car-coupling	589,591	Sept. 7	310	75	80	1540
Beard, William T., deceased, Boise, Idaho; J. Maloney, administrator. Expanding reamer	589,067	Aug. 31	3158	743	80	1323
Beaton, Allan J., assignor to Beaton & Bradley Company, Southington, Conn. Floor-sleeve and ceiling-plate	590,717	Sept. 28	2283	540	80	1949
Beaton & Bradley Company. (See Beaton, Allan J., assignor.)						
Beatty, Edward D., Louisville, Ky. Plumb and level attachment for rulers	588,852	Aug. 24	2800	651	80	1237
Becherel, Charles F. J. B., assignor to Compagnie du Gaz Nouveau, Paris, France. Apparatus for producing acetylene gas	587,914	Aug. 10	1121	258	80	889
Bechtel, Carl E., Des Moines, Iowa. Autographic register	590,638	Sept. 28	2140	506, 507	80	1924
Beck, Charles W., Chicago, Ill. Lamp for generating and burning acetylene gas	590,941	Sept. 28	2672	637	80	2025
Beck, Daniel A. (See Milner and Beck.)						
Beck, George W., Hamilton, Tex. Sash-holder	587,915	Aug. 10	1124	258	80	890
Beck, Leopold. (See Faerber, Beck, and Wundt.)						
Beck, William W., Sebastopol, Cal. Telephone attachment	586,530	July 20	1657	386	80	365
Becker, Beda, Eupen, Germany. Apparatus for treating gold and silver ores	588,740	Aug. 24	2612	602	80	1201
Becker, Francis L., New York, N. Y. Upright-pianoforte action	587,543	Aug. 3	466	110	80	751
Beckert, William, Reserve, Pa. Dumping-wagon	585,948	July 6	547	128	80	106
Beckman, Charles E., Brisbane, Queensland. Velocipede	587,051	July 27	2567	606	80	558
Beckman, John E., assignor of one-half to J. F. Berrick, Buffalo, N. Y. Apparatus for cooling waste water	586,281	July 13	1196	273	80	248
Beckwith, Arthur K., assignor to F. E. Lee, Dowagiac, Mich. Swinging stove-top	589,686	Sept. 7	466	112	80	1571
Beckwith, Willard P., Milwaukee, Wis. Cement sidewalk	586,540	July 20	1658	387	80	365
Bedford, Joseph. (See Winnard and Bedford.)						
Beebe, George W., Brooklyn, N. Y. Device for launching life or other boats	586,927	July 20	2390	549	80	491
Beebe, Nathan S., Springfield, and A. A. Bourgeois, Long Meadow, Mass.; said Bourgeois assignor to said Beebe. Mechanical stoker for furnaces	586,265	July 13	1171	268	80	244
Beecher, Frank H. (See Cornforth, Robert G., assignor.)						
Beede, Neal M., Schenectady, N. Y., assignor to General Electric Company, of New York. Brush-holder	586,957	July 27	2394	564	80	525
Beekly, Israel B., assignor of one-half to J. F. Flory, Greenville, Ohio. Wire-tightener	588,213	Aug. 17	1646	379	80	1002
Beeman, Joseph S., Melbourne, Victoria. Machine for manufacturing mouthpieces for cigarettes	587,172	July 27	2309	650	80	608
Beer Flushing Machine Company. (See Daggett, Charles I., assignor.)						
Beeson, Richard, New Galilee, Pa. Car-truck	590,563	Sept. 28	2006	473	80	1900
Behrens, Charles P., Lindenhurst, N. Y. Sealing device for bottles	586,376	July 13	1357	313	80	279
Bélanger, Victor, assignor to W. D. Hunt, Boston, Mass. Change-gearing for bicycles	590,126	Sept. 14	1288	293, 294	80	1727
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Window	586,224	July 13	1108	251	80	233
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Framing prism-lights	586,225	July 13	1110	252	80	233
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Combined prism and ornamental glass	586,226	July 13	1110	252	80	233
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting prism-lights and ornamental glass	586,227	July 13	1112	252	80	234
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting prism-lights	586,228	July 13	1112	252	80	234
Belcher, Henry F., New York, N. Y., assignor to Luxfer Prism Patents Company, Chicago, Ill. Framing prism lights or tiles	586,229	July 13	1113	253	80	234

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Belk, Harry C., *et al.* (See Hoskins, Alvis J., assignor.)						
Belknap, Mary M., Eagle, Pa. Combined cupboard and sink	587,113	July 27	2677	630, 631	80	579
Belknap Motor Company. (See Chapman, William H., assignor.)						
Bell, Chester L., El Paso, Tex. Means for opening or closing elevator-doors	587,420	Aug. 3	236	58	80	711
Bell, Frank, Tunbridge Wells, England. Operator's seat	588,525	Aug. 17	2199	511	80	1105
Bell, Joseph, Troutdale, Oreg. Pipe-wrench	587,916	Aug. 10	1125	259	80	890
Bell, Robert, and L. Hall, South Shields, England. Automatic reservoir or fountain inkstand	586,958	July 27	2395	564	80	525
Bell Telephone Company of Missouri. (See Dean, William W., assignor.)						
Bell, William R., assignor of one-half to E. C. Dempsey, T. H. Benedict, and J. R. Booth, Danbury, Conn. Crank-hanger for bicycles	587,384	Aug. 3	181	45	80	700
Bellamy, Charles R., Liverpool, England. Street gas-lamp	588,879	Aug. 17	1934	449	80	1055
Bellis, Thomas K. (See Hewett, Thomas, assignor.)						
Beloin, Onesime C., Riverside, R. I. Folding table	586,112	July 13	935	210	80	200
Beloud, Léon G., assignor to J. Hoey, San Francisco, Cal. Bed-lounge	586,959	July 27	2396	565	80	526
Belt, Arthur R., *et al.* (See Sobinski, Charles O., assignor.)						
Benedict, Lewis. (See Leiger, George F., assignor.)						
Benedict, Theodore H., *et al.* (See Bell, William R., assignor.)						
Benét, Laurence V., and H. A. Mercié, Paris, France, assignors to Hotchkiss Ordnance Company, Limited, London, England. Gas-operated gun	588,380	Aug. 17	1935	450	80	1056
Benfield, Frank, Burke, Tex. Cultivator	586,655	July 20	1860	432	80	403
Benford, William H., Lamar, Mo. Pencil-holder	586,585	July 20	1742	405	80	381
Bengert, John F., Brooklyn, N. Y. Bicycle-holder	587,917	Aug. 10	1126	259	80	890
Benjamin, Darius C., Jackson, Minn., assignor of one-half to J. E. Benjamin, Hubbel, Nebr. Nut-lock	588,314	Aug. 17	1829	422	80	1035
Benjamin, Joseph E. (See Benjamin, Darius C., assignor.)						
Bennett, Edward E. (See Norman and Bennett.)						
Bennett, Edward E., Lincoln, Nebr. Adjustable table	589,461	Sept. 7	97	21	80	1500
Bennett, Frederick M., New York, N. Y., assignor of one-half to A. A. Berle. Electric car-lighting system	589,112	Aug. 31	3247	763	80	1339
Bennett, George H., New York, N. Y. Paper-fastener	586,003	July 6	749	167	80	147
Bennett, Horace W. (See Appleby, William L. G., assignor.)						
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Lever-locking mechanism for lever-guns	588,315	Aug. 17	1830	423	80	1035
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Locking means for operating-levers of firearms	589,201	Aug. 31	3400	798	80	1368
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Lever-locking means for firearms	589,687	Sept. 7	467	112	80	1571
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Cartridge	590,428	Sept. 21	1766	414	80	1841
Benson, James C., Alcony, Ohio. Grain cleaner and separator	586,756	July 20	2024	470	80	433
Bent, George W., Hyde Park, Mass. Bed	589,239	Aug. 31	3472	814	80	1382
Bentley, Alvin M., Owosso, Mich. Extensible window-screen	590,448	Sept. 21	1798	422	80	1847
Bentley, James T., Circleville, Ohio. Cooling apparatus	590,718	Sept. 28	2285	540	80	1950
Bentley, Robert J., and G. H. Schiek, Joliet, Ill. Printing device	588,853	Aug. 24	2801	651	80	1237
Bentley, Solomon P., assignor of one-half to M. Lehrer, Springfield, Minn. Station-indicator	589,522	Sept. 7	198	45, 46	80	1519
Benton, Alfred, Sr., East Pierre, S. D. Car-coupling	589,493	Sept. 7	146	32	80	1509
Benton, Charles E., New Bedford, Mass. Transportation chest or trunk for bicycles, &c.	588,050	Aug. 10	1356	315, 316	80	933
Benton, Francis E., Stoughton, Mass. Car strap or handhold	588,893	Aug. 24	2866	608	80	1240
Benton, Francis E., Stoughton, Mass. Last-block fastener	590,719	Sept. 28	2286	540	80	1950
Berg, John, Chicago, Ill. Tapering attachment for lathes	587,385	Aug. 3	188	45	80	700
Berg, Rudolf, Pittsburg, Pa. Feed-water regulator	589,113	Aug. 31	3249	764	80	1339
Berger Manufacturing Company. (See Batdorff, Watson, assignor.)						
Berger Manufacturing Company. (See Wock, John, assignor.)						
Bergman, Charles E., Everett, Wash. Fluid-pressure steering-gear	588,946	Aug. 31	2952	691, 692	80	1283
Bergmann, Sigmund, New York, and E. Lavens, Brooklyn, assignors to General Incandescent Arc Light Company, New York, N. Y. Electric-arc lamp	587,421	Aug. 3	238	58, 59	80	711
Berle, Adolph A. (See Bennett, Frederick M., assignor.)						
Bernadou, John B., U. S. Navy. Smokeless powder and making same	586,586	July 20	1743	.....	80	381
Bernardin, Alfred L., Evansville, Ind. Bottle-cap and fastener	587,275	July 27	2991	701	80	688
Berner, Wladimir F., St. Petersburg, Russia. Apparatus for manufacturing or producing metals from their ores	587,062	July 27	2569	606, 607	80	558
Bernheimer, Irving S., *et al.* (See Rank, George R., assignor.)						
Bernstein, Alexander, Boston, Mass. Preparing food articles from milk	589,155	Aug. 31	3335	.....	80	1356
Berrang & Zacharias. (See Seighortner, August L., assignor.)						
Berreyesa, Santiago, assignor of one-fourth to M. C. Dujmovich, Phœnix, Ariz. Ter. Wagon-brake	586,083	July 6	876	197	80	171
Berrick, John F. (See Beckman, John E., assignor.)						
Berron, Joseph, Jackman, Me. Leaf-turner	587,053	July 27	2577	607	80	559
Berry, John S., assignor of two-thirds to W. Quinn and M. Dowler, Tyler, Tex. Gate-hinge	587,173	July 27	2810	659, 660	80	608
Berryhill, George T., Alpena, Mich. Horseshoe	590,874	Sept. 28	2553	610	80	2001
Bertoncini, Ferdinando. (See Ghezzi and Bertoncini.)						
Bertram, David N., Edinburgh, Scotland. Pulp-strainer	589,329	Aug. 31	3769	878, 879	80	1445
Bertrand, Joseph E., Boston, Mass. Wax-thread sewing-machine	589,403	Sept. 7	4	1, 2	80	1483
Bertsch, Charles A. (See Guild and Bertsch.)						
Bertsch, Charles A. (See Roth and Bertsch.)						
Bertsch & Co. (See Guild and Bertsch, assignors.)						
Bessey, Frederick A., Brooklyn, N. Y. Paper-cutting machine	590,472	Sept. 21	1832	433	80	1853
Bessonette, Charles L., assignor of one-half C. W. White, Waco, Tex. Gin-feed for roller-compresses	588,812	Aug. 24	2732	634	80	1223
Best, Daniel, Kansas City, Mo. Water-gage	587,297	Aug. 3	43	4	80	607
Best, Daniel, San Leandro, Cal. Carbureter	588,381	Aug. 17	1941	450	80	1056
Best, Daniel, San Leandro, Cal. Carbureter	589,634	Sept. 7	382	93, 94	80	1554
Bethke, Bernhard. (See Bethke, Reinhold and B.)						
Bethke, Reinhold and B., Milwaukee, Wis. Life-boat	585,903	July 6	459	110, 111	80	91
Bettini, Gianni, New York, N. Y. Acetylene-gas lamp	589,404	Sept. 7	6	2	80	1484
Betts, Charles L., Brooklyn, assignor to R. E. Dietz Company, New York, N. Y. Lamp	589,953	Sept. 14	910	218	80	1666
Betts, Charles W., Wallace, Idaho. Tobacco container and pipe	588,259	Aug. 17	1732	393	80	1018

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Betts, Leonard J., *et al.* (See Crandall, Jesse A., assignor.)						
Betty, Thomas H., Manchester, Va. Tobacco gum or retainer	586,414	July 13	1426	329, 330	80	292
Bevan, Benjamin. (See Price, William H., assignor.)						
Bevan, Henry C., and W. R. James, Blaina, England. Pneumatic or cushion wheel for velocipedes	587,174	July 27	2811	660	80	603
Bevan, Morgan. (See Roberts, William, assignor.)						
Bevans, William H., Washington, D. C. Elevating-gear attachment	590,817	Sept. 28	2455	583	80	1992
Beverley, William S., *et al.* (See Robinson and Palmer, assignors.)						
Bezer, Henry, New Rochelle, N. Y. Railway signaling system	585,733	July 6	144	33	80	31
Bezer, Henry, New Rochelle, N. Y. Compensating device for wires, &c.	586,587	July 20	1746	405	80	361
Bhise, Atmaram A., Bombay, India. Non-refillable bottle	590,875	Sept. 28	2554	610	80	2001
Bible, Martha E., New York, N. Y. Broiler or toaster	587,470	Aug. 3	335	79	80	727
Bibus, Emil, München-Gladbach, Germany. Rotation-pump	589,462	Sept. 7	98	22	80	1500
Bickel, Cora M. (See Bickel, John F., assignor.)						
Bickel, John F., assignor to C. M. Bickel, Racine, Wis. Bar for bolster-springs	588,214	Aug. 17	1647	379	80	1002
Bickford, Frank H., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	589,114	Aug. 31	3252	764, 765	80	1340
Biddenger, Charles H. (See Butler, George A., assignor.)						
Biddle, Horace, Trenton, N. J. Basin attachment for bath-tubs	586,415	July 13	1428	330	80	293
Bidwell, George L., Warren Papermills, N. J., and S. C. Reynolds, Comstocks Bridge, Conn. Paper-making machine	587,918	Aug. 10	1128	260	80	891
Bier-Siphon-Actien-Gesellschaft. (See Bach, Philipp, assignor.)						
Bierer, George W., Allegheny, assignor of one-half to J. R. Bowers, Pittsburg, Pa. Apparatus for pouring molten iron or steel	588,549	Aug. 24	2247	522	80	1132
Biette, Henry C., Toronto, Canada. Autographic register	587,422	Aug. 3	239	59	80	711
Bigelow, Benjamin F. (See Pierce and Bigelow.)						
Bigelow, Charles H., Litchfield, Minn. Adding-machine	588,260	Aug. 17	1734	398	80	1018
Bigelow, Frank A. (See Lewis, Timothy A., assignor.)						
Bigley, George W., Minneapolis, Minn. Barrel, &c.	589,494	Sept. 7	148	33	80	1509
Billing, Frederick, and W. E. Partridge, Birmingham, England. Frame-joint	587,695	Aug. 10	723	173	80	819
Billings, Charles E., Hartford, Conn. Cigar-tip cutter	589,405	Sept. 7	8	2	80	1484
Billings, Ida M., Chicago, Ill. Horseshoe	589,803	Sept. 7	654	152	80	1607
Billings, Luther G., Clifton, N. Y. Changeable gearing	588,316	Aug. 17	1832	423, 424	80	1036
Billings, William J., and M. Mauer, New York, N. Y. Outlet-box for gas-pipes and electrical conduits	589,115	Aug. 31	3255	765	80	1340
Billingsley, Omer, East Cape Girardeau, Ill. Corn-row marker	589,808	Sept. 14	666	155	80	1622
Billington, Horace W., Jersey City, N. J. Horseshoe-pad	587,919	Aug. 10	1131	261	80	891
Billmire, Martin M., Ashton, Ill. Rod or bolt wrench	590,004	July 6	750	167	80	147
Bills, Horatio S., assignor to J. H. Mitchell, Ionia, Mich. Air-pump	587,698	Aug. 3	631	152	80	781
Binckley, George S., assignor to Union Iron Works, San Francisco, Cal. Brake-wheel for hoisting-engines	588,261	Aug. 17	1735	399	80	1018
Binckley, George S., assignor to Union Iron Works, San Francisco, Cal. Hand-lever	589,890	Sept. 14	809	190	80	1646
Bingham, Eli B., Wellston, Ohio. Copy-holder for type-writing machines	589,330	Aug. 31	3772	879	80	1446
Binkerd, Aaron T., Allegheny, Pa. Carpenter's combination-gage	589,688	Sept. 7	469	112	80	1571
Binns, William C., Chicago, Ill. Cycle-hub	589,954	Sept. 14	911	218	80	1666
Birch, John H. (See Foley and Birch.)						
Birchall, Thomas, assignor to R. Atherton, Paterson, N. J. Shuttle-box motion for looms	587,086	July 27	2628	621	80	568
Birchall, Thomas, assignor to R. Atherton, Paterson, N. J. Shuttle-box-operating mechanism for looms	587,087	July 27	2630	621	80	569
Bird, Charles E., *et al.* (See Baker, Darius C., assignor.)						
Bird, Frederick J. (See Quin, Frederick W., assignor.)						
Birmingham, John P., Lexington, assignor of one-half to J. Kolp, Buena Vista, Va. Nut-lock	589,689	Sept. 7	470	112	80	1572
Birnie, Alfred, Springfield, Mass. Paper-box machine	590,697	Sept. 28	2246	532	80	1943
Bisbee, William H., Des Moines, Iowa. Adjustable support for window-shades	587,276	July 27	2994	702	80	639
Bishop, James D., New York, N. Y. Electrical conductor	588,382	Aug. 17	1943	451	80	1057
Bishop, Peter, Fulda, Ohio. Pick	587,920	Aug. 10	1132	261	80	891
Bissell, Torrance E., Prescott, Canada, and G. R. Thomson, Gouverneur, N. Y. Disk harrow	588,383	Aug. 17	1944	451	80	1057
Bissinger, Albert E., *et al.* (See Young, Albert, assignor.)						
Bitner, John R. (See Albrecht and Bitner.)						
Bittner, Franz, New York, N. Y. Cut-off apparatus for marine engines	586,893	July 20	2254	529	80	477
Bittner, Gottlieb G., Allegheny, Pa. Car-brake for inclined railways	588,122	Aug. 17	1494	344	80	973
Bixby, Willard G., New York, N. Y. Lathe	590,384	Sept. 21	1686	397	80	1826
Black, Charles N., New Haven, Conn. Automatic cut-out	585,904	July 6	460	111	80	91
Black, Charles N., New Haven, Conn. Apparatus for generating constant electric currents	587,921	Aug. 10	1133	261, 262	80	892
Black, David W., assignor to B. Masseth, Butler, Pa. Packer for deep wells	588,384	Aug. 17	1946	451	80	1058
Black, David W., assignor to B. Masseth, Butler, Pa. Deep-well packer	588,385	Aug. 17	1949	452	80	1058
Black, Edith F., San Antonio, Cal. Attachment for writing-pads	589,955	Sept. 14	912	219	80	1666
Black, Frank H. (See Kenmouth, John C., assignor.)						
Black, John F., assignor of one-half to A. M. Smith, Montreal, Canada. Bicycle construction	589,240	Aug. 31	3473	814	80	1383
Black, John L., St. Louis, Mo. Car-brake	585,648	July 6	7	2	80	4
Black, John Q., Lone Rock, Wis. Seat for vehicles	587,175	July 27	2813	660	80	608
Black, Stephen S., Pasadena, Cal. Cooking utensil	586,005	July 6	750	168	80	147
Blackburn, Charles J., Bethany, Mo. Lock	590,818	Sept. 28	2457	583	80	1993
Blackmore, James E., Newark, N. J. Roll-holding flash-light camera	590,204	Sept. 21	1872	324	80	1767
Blackwood, James F. (See Roberts, Blackwood, and Cahill.)						
Blair, John, Brooklyn, N. Y. Fountain-pen	587,092	July 27	2585	598	80	552
Blair, Thomas H., Northborough, Mass., and S. E. Waterman, Pawtucket, R. I., assignors, by mesne assignments, to American Camera Manufacturing Company, Northborough, Mass. Method of and apparatus for making photographic films	588,790	Aug. 24	2688	621, 622	80	1216
Blaisdell, Philo C., Bradford, Pa. Pneumatic press	586,946	July 20	2309	560	80	499
Blaisdell, William S., Victoria, Fla. Planting implement	588,386	Aug. 17	1951	452	80	1058
Blake, Ira G., Worcester, Mass. Time-lock	588,627	Aug. 24	2398	550, 551	80	1160
Blake, John A., Watertown, assignor to Prentiss Vise Company, New York, N. Y. Vise	590,385	Sept. 21	1690	398	80	1827
Blakeslee, Russell C. (See Morgan and Blakeslee.)						
Blanchard, Emile, Paris, France. Grain-elevator	590,084	Sept. 14	1148	271, 272	80	1710
Blanchard, Isaac M., New Albany, Ohio. Corn-harvester	586,960	July 27	2398	565, 566	80	526

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Blank, Henry, *et al.* (See Froelich, Christopher, assignor.)						
Blank, Henry F., Quincy, Ill., assignor of one-third to J. T. Prigmore, Alma, Mo. Bicycle	588,628	Aug. 24	2396	551	80	1160
Blankenship, George W., *et al.* (See Graham, Charles M., assignor.)						
Blankenship, John R., Houston, Mo. Suspender attachment	587,922	Aug. 10	1136	262	80	892
Blase, William O. (See Lynch, Jerry J., assignor.)						
Bleoo, John H., Brooklyn, assignor to American Silex Company, New York, N. Y. Raceway for electrical conductors	586,282	July 13	1197	273	80	249
Bley, John C. (See Roche and Bley.)						
Bliss, George H., Jr., Watsonville, Cal. Spool-holder	590,876	Sept. 28	2556	610	80	2002
Bliss, Henry H., Washington, D. C. Mining-machine	588,051	Aug. 10	1358	316	80	984
Bliss, William L., Egremont, Mass. Hoof-cutting tool	589,809	Sept. 14	666	155	80	1622
Bliss, William P., Aurora Springs, Mo. Churn-motor	585,837	July 6	344	80	80	69
Bliss, William P., Aurora Springs, Mo. Non-refillable bottle	586,947	Aug. 31	2959	698	80	1264
Bliss, Zenas W. (See Rankin, William G., assignor.)						
Block, Julius H., Moscow, Russia. Piano	589,331	Aug. 31	3773	879	80	1446
Bloede, Victor G., Catonsville, Md. Dyeing	588,387	Aug. 17	1952	.....	80	1059
Bloede, Victor G., Catonsville, Md. Dyeing anilin-black	588,388	Aug. 17	1953	.....	80	1059
Blomfeldt, Axel, *et al.* (See Anderson, Lars, assignor.)						
Blomfeldt, Axel, Chicago, Ill. Folding-machine	589,008	Aug. 31	3159	744, 745	80	1333
Blomberg, John A., Burdick, Kans. Combined stove-lid and pan lifter	590,509	Sept. 21	1890	449	80	1864
Bloom, Hiram S., Bayard, W. Va. Saw-handle	585,734	July 6	148	34	80	32
Bloom, Samuel S., York, Pa. Artificial teeth	589,332	Aug. 31	3775	880	80	1447
Bloomfield, John W. (See Crane and Bloomfield.)						
Blosser, Theodore B., assignor to Victor Rubber Tire Company, Springfield, Ohio. Device for applying rubber tires to wheels	590,085	Sept. 14	1151	273	80	1710
Blount, John G., Everett, and F. P. Robinson, assignors, by mesne assignments, to Pinkham Manufacturing Company, Boston, Mass. Machine for making smocking	588,099	Aug. 10	1437	333, 334	80	948
Blue, John F. (See Delane and Blue.)						
Blum, Albert, Cincinnati, Ohio. Car-step	587,073	July 27	2607	617	80	565
Blum, Benjamin. (See Pruden, Abraham B., assignor.)						
Blum, David, Paris, France. Safety-closure for bottles	589,920	Sept. 14	871	207, 208	80	1658
Blum, Joseph, and T. J. Anderson, Freeport, Ill. Vehicle-spring	588,813	Aug. 24	2786	635	80	1224
Blum, Sylvain, assignor of three-fourths to H. Eldridge, D. J. Clark, Galveston, and S. Lazarus, Sherman, Tex. Composition of matter for manufacturing calcium carbid	589,592	Sept. 7	312	.....	80	1541
Blun, Emil L., assignor of one-half to Goldschmidt, Bachrach & Co., New York, N. Y. Glove	586,588	July 20	1748	406	80	362
Blundell's London Copper and Brass Works. (See Ives, Henry, assignor.)						
Bly, Leon, assignor of one-third to E. E. Johnson, Decatur, Ill. Igniter for explosive-engines	588,629	Aug. 24	2397	551	80	1161
Bobsien, Ernst, and S. L. Prager, Mount Vernon, N. Y. Electric program-clock	587,143	July 27	2754	646	80	592
Boehringer & Soehne, C. F. (See Fischer, Emil, assignor.)						
Boehringer Sohn, C. H. (See Dreher, Carl, assignor.)						
Boekel, Julius. (See Boekel, William and J.)						
Boekel, William and J., Philadelphia, Pa. Overhead shower	588,202	Aug. 17	1737	399	80	1019
Boelsterli, Johann, Neuhausen, Switzerland. Process of and apparatus for electrolyzing fused salts	589,523	Sept. 7	200	46	80	1580
Boemmel, Arthur, Baltimore, Md. Fire-escape	588,389	Aug. 17	1954	452	80	1059
Boerger, Alois, New York, N. Y. Rowing-gear	587,639	Aug. 3	633	152	80	782
Bogle, Walter S. (See Notter, Charles H., assignor.)						
Bohnenkamp, William H., and W. J. Lindsey, said Lindsey assignor to W. Ericson, La Grande, Oreg. Flanger	590,677	Sept. 28	2213	524, 525	80	1986
Bohrisch, Richard, Las Vegas, N. Mex. Ter. Sash holding or removing device	590,666	Sept. 14	1152	273	80	1711
Boisvert, William R., Levis, Canada. Ruler	586,157	July 13	1006	227	80	213
Bokop, Henry D., Defiance, Ohio. Receptacle for merchandise in transit	587,923	Aug. 10	1137	262	80	892
Boland, Thomas F., and H. C. Hubbell, assignors to H. H. Fulton, Elmira, N. Y. Primary battery for bicycle-lamps	586,416	July 13	1428	330	80	293
Boling, Baily, assignor of one-half to R. J. Wilson, Salem, Ind. Steam steering apparatus	590,536	Sept. 21	1944	460	80	1874
Bolles, Charles M., Dallas, Tex. Electric-arc-light reflector	586,998	July 27	2442	577	80	535
Bolton, James R., *et al.* (See Kean, Helen A., assignor.)						
Boma, John, assignor to National Voting Machine Company, Rochester, N. Y. Booth for voting-machines	590,942	Sept. 28	2674	637, 638	80	2026
Bomm, William H., Westwood, N. J. Fastening device	589,333	Aug. 31	3776	880	80	1447
Bond, Fred W., *et al.* (See Stump, Ira E., assignor.)						
Bond, John, La Grange, Cal. Combined match-safe and cigar-cutter	587,781	Aug. 10	883	207	80	849
Bondurant, Edward A., Lynchburg, Va. Toy	587,423	Aug. 3	243	59	80	712
Bone, Scott C., *et al.* (See Clouse, Joseph N., assignor.)						
Bonham, Edwin, Greenwich, assignor of one-half to W. W. Robbins, Bridgeton, N. J. Bicycle-carrier	586,266	July 13	1172	268	80	244
Bonheim, Frank, Atchison, Kans. Box	585,905	July 6	464	111	80	91
Bonin, William E., Bakerstown, Pa. Pumping-regulator	587,350	Aug. 3	140	34	80	691
Bonine, Robert A., Altoona, Pa. Lock	587,424	Aug. 3	244	60	80	712
Bonner, John H., assignor of one-half to D. W. King, Lockport, Tenn. Cotton-chopper	589,810	Sept. 14	667	155, 156	80	1622
Bonner, Oscar P., Crawfordsville, Ga. Danger-signal for railway-crossings	590,877	Sept. 28	2556	610	80	2002
Bonsack, James A., Philadelphia, Pa., assignor to Bonsack Machine Company, Salem, Va. Cigarette-machine	589,116	Aug. 31	3256	765, 766, 767, 768, 769	80	1340
Bonsack Machine Company. (See Bonsack, James A., assignor.)						
Bonsack Machine Company. (See Carper, Kent H., assignor.)						
Bonsack Machine Company. (See Strouse, Demetrius B., assignor.)						
Bonta, John, Jr., Burgin, Ky. Shipping-crate	590,510	Sept. 21	1891	450	80	1864
Boom, Herman, New York, N. Y. Car-fender	589,156	Aug. 31	3336	783	80	1356
Boone, Ralph. (See Glennie and Boone.)						
Boos, George F., assignor to St. Mary's Machine Company, St. Mary's, Ohio. Stop-motion for governors	589,635	Sept. 7	384	94	80	1554
Booth, David O., and C. E. Davisson, Mount Clare, W. Va. Lock	586,757	July 20	2026	470	80	438
Booth, Irving E., assignor to Union Welt Insole Company, Rochester, N. Y. Sole	590,564	Sept. 28	2007	473	80	1900
Booth, John, assignor of one-half to C. D. Wood, Central Falls, R. I. Twister ring-traveler	586,230	July 13	1115	253	80	235
Bootil, John R., *et al.* (See Bell, William R., assignor.)						
Borie, Louis J., San Francisco, Cal. Apparatus for handling pulp in wine-making	588,215	Aug. 17	1648	379	80	1003
Bornand, Joseph. (See Bourquin, Gustave, assignor.)						
Borrowe, George W., Bodie, Cal., and G. H. Winslow, Pittsburg, Pa. Cam	586,417	July 13	1430	330	80	293

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Borton, Joseph H., trustee. (See Risley, Isaac, assignor.)						
Bosart, Timothy L., Indianapolis, Ind. Means for securing vehicle-irons to axles	585,735	July 6	149	34	80	32
Bosart, Timothy L., Indianapolis, Ind. Bearing for king-bolts for vehicles	590,251	Sept. 21	1462	344	80	1784
Boss, Martin P., San Francisco, Cal. Cartridge	588,764	Aug. 24	2051	612	80	1209
Bossard, John, Dubuque, Iowa. Electrodepositing device	586,894	July 20	2256	529 530	80	477
Bossard, John, Dubuque, Iowa. Electrodepositing device	587,782	Aug. 10	885	207	80	849
Bossinger, William F., Lewistown, Pa. Milk-pail	586,377	July 13	1359	313	80	279
Bostedo, Louis G., Chicago, Ill. Pneumatic-despatch apparatus	588,948	Aug. 31	2960	693	80	1284
Boston Fast Color Eyelet Company. (See Kempshall, Eleazer, assignor.)						
Boston Woven Hose and Rubber Company. (See Cowen, Robert, assignor.)						
Boston Woven Hose and Rubber Company. (See De Wolf, John O., assignor.)						
Boswell, George G. F., assignor to V. E. Fithian, Indianapolis, Ind. Adjustable curtain	588,390	Aug. 17	1955	452	80	1059
Bosworth, Charles B., Everett, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Pressure-gage tester	585,883	July 6	421	101	80	84
Bosworth, Charles B., Everett, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Safety-valve	585,884	July 6	423	101	80	84
Bosworth, Percy B., Fort Wayne, Ind. Commutator-truing device	586,514	July 13	1592	372	80	328
Bott, Anton, Danville, Ill. Hose-covering	586,113	July 13	936	210	80	200
Bott, Peter, Jr., Clinton, Iowa. Wood-sawing machine	587,176	July 27	2814	660 661	80	603
Botz, Charles J., Sedalia, Mo. Type-setting and line-casting machine	589,636	Sept. 7	385	94	80	1554
Boucher, Anthelme E. W., Prilly, Switzerland. Apparatus for electrolysis	587,696	Aug. 10	724	173	80	819
Boucher, Julien, Greenville Junction, Me. Belt-fastener	590,356	Sept. 21	1645	387	80	1819
Boudreaux, Ernest A. (See Lombas, Joseph A., assignor.)						
Boulger, Thomas P., Lowell, Mass. Heel-protector	585,859	July 6	381	89	80	75
Bouma, Joute L., Wanari, S. D. Horse-detacher	587,924	Aug. 10	1138	262	80	892
Bourgeois, Abraham A. (See Beebe and Bourgeois.)						
Bourke, Alphege, assignor of two-thirds to A. J. Seifert and F. J. Wilken, Valparaiso, Ind. Bottle	588,216	Aug. 17	1650	380	80	1008
Bourquin, Gustave. (See Loeb, Rudolf, assignor.)						
Bourquin, Gustave, Merchantville, N. J., assignor of one-half to J. Bornand, New York, N. Y. Musical box	587,925	Aug. 10	1140	263	80	893
Boutell, William H., Rochester, N. Y. Paring and coring machine	590,205	Sept. 21	1574	324 325	80	1768
Bouton, D. L., *et al.* (See Raby, Richard, assignor.)						
Bouton, Georges. (See Dion, Bouton, and Chaplet.)						
Bovee, David W., Waterloo, Iowa. Grinding-mill	587,177	July 27	2815	661	80	604
Bovet, Armand de, Paris, France. Magnetic clutch	586,006	July 6	752	168	80	147
Bowen, George W., Auburn, N. Y. Lubricator	585,736	July 6	150	34	80	32
Bowen, William S., Philadelphia, Pa. Fender for street-cars	587,178	July 27	2816	661	80	604
Bower, Harry A., Chelsea, Mass. Attachment for playing bass drums and cymbals	590,182	Sept. 14	1831	315 316	80	1746
Bowers, John R. (See Bierer, George W., assignor.)						
Bowker, William. (See Sheard and Done, assignors.) (Reissue.)						
Bowler, Charles E., *et al.* (See Rollins, William T., assignor.)						
Bowles, George C. (See Hopkins and Bowles.)						
Bowman, George T., Philadelphia, Pa. Bobbin holder or clamp	589,690	Sept. 7	471	113	80	1572
Boyce, Eugene H. (See McLaren and Boyce.)						
Boyd, George W., Scipio, Ind. School-desk attachment	590,819	Sept. 28	2458	588	80	1983
Boyd, J. H. (See Moomaw, Henry E., assignor.)						
Boyer, Charles T., assignor to American Buncher Manufacturing Company, Indianapolis, Ind. Bunching attachment for mowing-machines	586,114	July 13	936	210	80	200
Boyer, Charles T., assignor to American Buncher Manufacturing Company, Indianapolis, Ind. Device for connecting bunching attachments to mowing-machines	590,565	Sept. 28	2009	473	80	1900
Boyer, John H., assignor of one-half to J. E. Williams, Philadelphia, Pa. Switch-iron	588,263	Aug. 17	1738	399 400	80	1019
Boyer, John L., Piqua, Ohio. Union garment	589,241	Aug. 31	3475	814	80	1383
Boyer, Joseph, St. Louis, Mo. Engine	590,511	Sept. 21	1892	450 451	80	1864
Boyneburgk, Frederick A. von, Avalon, N. J. Hopper for granular material	587,640	Aug. 3	634	152	80	782
Boynton, Edward S., Brooklyn, N. Y., assignor to Boynton Soap Process Company, of New York. Soap	586,231	July 13	1116		80	235
Boynton Soap Process Company. (See Boynton, Edward S., assignor.)						
Boyte, Albert W., and W. B. Houston, Monroe, N. C. Sash-raiser	589,601	Sept. 7	472	113	80	1572
Brace, Charles C. (See Einfeldt and Brace.)						
Bracher, George S. (See Cragin, William D., assignor.)						
Brachhausen, Gustav A., Rahway, N. J. Mechanical musical instrument	585,737	July 6	152	34, 35	80	33
Brackney, Lawson E., assignor of one-fourth to J. E. Byers, Butler, Pa. Means for coupling or uncoupling oil-well tools	586,527	July 13	1634	379 380	80	332
Braddock, Warren L., Amesbury, Mass. Lamp-chimney holder	587,471	Aug. 3	836	80	80	727
Bradford, Henry B. (See Sellers, Bradford, and Coppage.)						
Bradley, Charles S., Avon, N. Y., assignor to General Electric Company, of New York. Electric condenser	587,114	July 27	2678	631	80	579
Bradley, Charles S., Avon, N. Y., assignor to General Electric Company, of New York. Transmission of energy by alternating currents	589,556	Sept. 7	245	60	80	1528
Bradley, Charles S., Avon, N. Y., assignor to General Electric Company, of New York. Lightning-arrester	589,557	Sept. 7	247	60	80	1528
Bradley, Charles W., Rochester, N. Y. Trap for refrigerator-cars	589,998	Sept. 14	995	237	80	1681
Bradley, Clifford R., G. B. Pilkington, and I. G. Platt, deceased, Waterbury, Conn.; L. A. Platt, administrator; said Bradley and Pilkington assignors to said I. G. Platt. Clasp	588,674	Aug. 24	2490	574	80	1178
Bradley & Hubbard Mfg. Co. (See Jauch, Joseph, assignor.)						
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley, James, Boston, Mass. Incandescent lamp	590,786	Sept. 28	2406	572	80	1972
Bradley, Richard S., Houston, Tex. Safety-razor	586,589	July 20	1749	406	80	382
Bradley, William J., Jersey City, N. J. Brake-valve	586,158	July 13	1006	227 228	80	213
Bradshaw, Lewis S., Buffalo, N. Y. Window	589,242	Aug. 31	3476	815	80	1383
Bradshaw, Silas S., Brooklyn, assignor of one-half to C. Lyons, Jr., New York, N. Y. Railway-car window	588,543	Aug. 17	2232	518	80	1112
Bradt, Charles E., *et al.* (See Pringle, Eugene, assignor.)						
Bradt, Charles E., *et al.* (See Reynolds, Walter S., assignor.)						
Bradt, Samuel E., *et al.* (See Reynolds, Walter S., assignor.)						
Brainerd, Charles, Grafton, Ill. Means for preventing floating masses of plants moving upstream in rivers, &c	590,473	Sept. 21	1835	434	80	1854

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Braly, André and L., Paris, France. Means for preventing fraudulent refilling of bottles, &c	589,406	Sept. 7	10	3	80	1484
Braly, Louis. (See Braley, André and L.)						
Brammer, Henry F., Davenport, Iowa. Washing-machine motor	590,252	Sept. 21	1463	345	80	1784
Brandenburg, Albert F., Dayton, Ohio. Storm-apron for carriages	589,069	Aug. 31	3162	745	80	1323
Brandenburg, Edward A., Tipton, Iowa. Gate	588,544	Aug. 17	2233	518 519	80	1112
Brandenburg, Franz, Lendersdorf, Germany. Calcining or roasting furnace	588,949	Aug. 31	2661	693 694	80	1285
Brannagan, John J., Mount Pleasant, Pa. Grinding-machine	589,407	Sept. 7	11	3	80	1484
Brannan, Edward I., Richmond, Va. Circle-cycle	589,408	Sept. 7	12	3, 4	80	1485
Brannon, Walter Z., Brazos, Tex. Wire-stretcher	590,087	Sept. 14	1153	273	80	1711
Branson Machine Company. (See Cook, Stephen S., assignor.)						
Brash, Albert W., Newark, S. D. Elevator-bucket	587,697	Aug. 10	725	173	80	820
Braun, Leopold, *et al.* (See Higgins, John H., assignor.)						
Braun, William F., Chicago, Ill. Indicator with automatic stopping mechanism	590,512	Sept. 21	1907	451	80	1868
Brausil, Franz A., Vienna, Austria-Hungary. Apparatus for ornamenting strips or frames of wood, &c	590,200	Sept. 14	1362	322	80	1752
Bray, Mellen N. (See Lizotte, Joseph, assignor.)						
Brazelton, Bird H., Chicago, Ill. Bicycle-propelled boat	587,074	July 27	2608	617	80	565
Breach, James J., Boston, Mass. Machine for cutting out boot or shoe soles	589,409	Sept. 7	14	4, 5, 6	80	1485
Breakspear, William H., O. Spannaus, and C. Weisbecker, New York, N. Y. Autographic register	587,567	Aug. 3	508	120 121	80	758
Brehmer, Lillian E. (See Dernell and Brehmer, assignors.)						
Brehmer, Phillip H. (See Dernell and Brehmer.)						
Breithaupt, William H., New York, N. Y. Drawbridge	587,926	Aug. 10	1141	263	80	893
Brennan, John R., Philadelphia, Pa. Game apparatus	588,264	Aug. 17	1739	400	80	1019
Brennan, Patrick J., *et al.* (See Lamb and Chapman, assignors.)						
Brennecke, Alfred, Springfield, Mass. Toy	589,410	Sept. 7	22	6	80	1485
Brenton, Charles H., Coal Bluff, Ind. Wagon-jack	586,091	July 13	901	202	80	193
Brenton, William, St. German, England. Sickle for mowing or reaping machines	589,157	Aug. 31	3337	784	80	1356
Bresel, Abraham N., Rochester, N. Y. Tailor's pressing-machine	588,317	Aug. 17	1835	424	80	1036
Breul, Richard A., Bridgeport, Conn. Vise	590,820	Sept. 28	2459	584	80	1963
Brewer, Hugo, Duisburg, Germany. Treating zinc-sulfid ores	586,159	July 13	1008	.....	80	213
Brewster, Alphonse, *et al.* (See Beard, Benjamin F., assignor.)						
Brewster, John W., Union Cross-Roads, Tenn. Alarm-clock	588,550	Aug. 24	2248	522	80	1132
Brewster, O. F., *et al.* (See Beard, Benjamin F., assignor.)						
Bridgeport Brass Company. (See Rhind, Frank, assignor.)						
Brigel, Leo A., assignor to Bucket Pump Company, Cincinnati, Ohio. Platform for wells or cisterns	589,411	Sept. 7	23	6	80	1486
Briggs, Richard, Melvin, Mich. Spark-arrester	587,425	Aug. 3	845	60	80	712
Brigham, Albert H., Whitman, Mass. Apparatus for heading nails or tacks	589,495	Sept. 7	149	33	80	1510
Brigham, Henry M., *et al.* (See Meyer, Svend M., assignor.)						
Bright, William, assignor of one-half to W. H. Schock, Plateau, Utah. Oven-thermometer	586,329	July 13	1388	294	80	266
Brightwood Box Machinery Company. (See Taylor, Charles F., assignor.)						
Brill, George M. and J. A., Philadelphia, Pa. Electric-motor-car truck	588,391	Aug. 17	1957	453	80	1060
Brill, John A. (See Brill, George M. and J. A.)						
Brill, John A., Philadelphia, Pa. Car-truck	586,987	July 27	2443	578	80	535
Bringham, Friend J., Chicago, Ill. Knife for splitting leather	587,783	Aug. 10	886	207	80	849
Bringham, Friend J., Chicago, Ill. Knife for splitting leather	587,784	Aug. 10	886	208	80	850
Brinkerhoff, Nelson M., Bloomville, Ohio. Thill-coupling	590,127	Sept. 14	1240	294	80	1727
Brinkmann, Heinrich, Munich, Germany. Shifting or reversing gear	585,649	July 6	9	2, 3	80	4
Brison, John C. (See Pyle, Lichtenstein, and Brison.)						
Bristow, William G., Medicine Lodge, Kans. Method of and means for molding plastic material	589,637	Sept. 7	386	95	80	1555
British Tube Company. (See Wootton and Hewitt, assignors.)						
Brittain, Frank M., London, England. Ruler	585,738	July 6	154	35	80	33
Broadbooks, Peter, Batavia, N. Y. Drill-frame	588,712	Aug. 24	2549	589	80	1189
Brodbeck, Adolf, Chicago, Ill. Air-car	586,590	July 20	1750	406	80	382
Brodbeck, William P., Gallatin, Mo. Bicycle attachment	588,551	Aug. 24	2249	522	80	1132
Brock, Smith H., *et al.* (See Tippit, Archibald M., assignor.)						
Brockman, George H., Fort Jennings, Ohio. Felt boot	590,295	Sept. 21	1537	364	80	1798
Brodie Electric Company. (See Smith, Ferrin, and Clough, assignors.)						
Bromiley, William I. (See Dobson and Bromiley.)						
Bromley, William H. (See Denney and Bromley.)						
Bronk, William R. (See Mead, Charles W., assignor.)						
Bronson, Louis B., and J. Parmenter, Belvidere, Ill. Belt	587,396	Aug. 3	184	45	80	700
Brooke, Homer, Jersey City, N. J., assignor of three-eighths to J. C. Grout, Brooklyn, N. Y. Apparatus for manufacturing articles of glass	588,318	Aug. 17	1838	425	80	1037
Brooke, Homer, Jersey City, N. J., assignor of three-eighths to J. C. Grout, Brooklyn, N. Y. Molding glass	588,319	Aug. 17	1840	425	80	1037
Brooke, Martha G., *et al.* (See Clouse, Joseph N., assignor.)						
Brookes, Warwick, Manchester, England. Valve for inflating pneumatic tires	590,474	Sept. 21	1837	434	80	1854
Brooks, Byron A., Brooklyn, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	586,351	July 13	1317	301	80	271
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal and tag	588,100	Aug. 10	1439	334	80	949
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	588,392	Aug. 17	1962	453	80	1061
Brooks, James W., *et al.*, trustees. (See Casgrain, Louis A., assignor.)						
Brooks, James W., *et al.*, trustees. (See Glidden, Charles W., assignor.)						
Brooks, James W., *et al.*, trustees. (See Pope, Joseph H., assignor.)						
Brooks, James W., *et al.*, trustees. (See Raymond, Freeborn F., 2d, assignor.)						
Brooks, John, *et al.*, trustees. (See Glidden, Charles W., assignor.)						
Brooks, John, *et al.*, trustees. (See Pope, Joseph H., assignor.)						
Brooks, John, *et al.*, trustees. (See Raymond, Freeborn F., 2d, assignor.)						
Brooks, John B., assignor to J. B. Brooks & Company, Limited, Birmingham, England. Cycle-saddle	589,243	Aug. 31	3477	815 816	80	1383
Brooks, John J., Athens, Ohio. Wire-stretcher	588,741	Aug. 24	2615	602	80	1201
Brooks, Thomas W., San Francisco, Cal. Grouping and mounting air-valves	589,927	Sept. 14	873	208	80	1658
Brophy, Michael M., London, England. Apparatus for heating and circulating water	590,014	Sept. 14	1096	244	80	1689
Brothers, William, Rawtenstall, England. Furnace	586,630	Aug. 24	2400	532	80	1161
Broughton, John S., assignor of one-half to P. Hitchcock, Cleveland, Ohio. Machine for putting nuts on bolts	587,785	Aug. 10	887	208	80	850

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brown, Alvin, Aurora, Ill. Street-sweeper	589,602	Sept. 7	473	113, 114	80	1572
Brown, Andrew J., and J. K. Drake, Franklin, Ind.; said Brown assignor to said Drake. Farm-gate	590,449	Sept. 21	1799	422	80	1847
Brown, Benjamin S., New York, N. Y. Fire-extinguisher	589,202	Aug. 31	3402	798	80	1308
Brown, Benson E. (See Hibbard, William L. and Z. M., assignors.)						
Brown, Bruce, *et al.* (See Dix, Dwight R., assignor.)						
Brown, Charles E., Rome, N. Y. Valve	587,786	Aug. 10	890	208	80	850
Brown, Charles F., trustee. (See Reeve, Sidney A., assignor.)						
Brown, Charles H., Boston, Mass. Safety device for envelops	589,158	Aug. 31	3338	784	80	1357
Brown, Charles M., Ocala, Fla. Wrapper for fruits or vegetables	588,690	Aug. 24	2508	578	80	1182
Brown, Daniel V., *et al.* (See Hermance, Robert, assignor.)						
Brown, Edwin F., Somerville, N. J. Ice-cutting apparatus	588,303	Aug. 17	1963	453, 454	80	1061
Brown, Frank E., Concord, N. H. Window frame and sash	585,949	July 6	349	129	80	106
Brown, George W., Williamsburg, Pa. Liquid vessel	586,833	July 20	2144	501	80	455
Brown, Harold P., New York, N. Y. Apparatus for detecting electrolysis of underground pipes and locating transmission losses	587,608	Aug. 10	726	174	80	830
Brown, Harold P., New York, N. Y. Electric-motor car	589,543	Sept. 7	223	53, 54, 55, 56	80	1524
Brown, Homer L., Hawthorn, Fla. Bottle	587,426	Aug. 3	246	60	80	712
Brown, Horace F., Chicago, Ill. Treating ores by chlorination	589,999	Sept. 14	996	237, 238	80	1681
Brown, Horace P., San Francisco, Cal. Duplicating pad or sheet	589,372	Aug. 31	3338	897	80	1458
Brown, Hugh, Ann Arbor, Mich. Holder for calendars	588,631	Aug. 24	2401	553	80	1102
Brown, Hugh H., Crandall, Fla. Match-safe	586,541	July 20	1659	387	80	366
Brown, James A., Mitchell, S. D. Hydrant	586,092	July 13	902	202	80	193
Brown, James E., and E. E. Pettit, Waukesha, Wis. Railway draft appliance	586,160	July 13	1010	228	80	214
Brown, James H., Eau Claire, Wis. Valve	586,721	July 20	1960	457	80	422
Brown, John H., Malta, Ill. Combination fence-tool	589,524	Sept. 7	201	46	80	1520
Brown, John H., assignor of one-half to R. M. Brown, New York, N. Y. Breakdown firearm	585,860	July 6	382	89	80	76
Brown, Joseph N. (See Brown, Louis J., assignor.)						
Brown, Lewis A., St. Louis, Mo. Seal	586,007	July 6	753	168	80	148
Brown, Lewis O., Toledo, Ohio. Washboard	589,070	Aug. 31	3164	745	80	1323
Brown, Lorenzo W. (See Burgett and Brown.)						
Brown, Louis E., Hartwell, assignor to W. Rodenbeck, Elmwood Place, Ohio. Milk jar and tester combined	589,382	Aug. 31	3362	901	80	1463
Brown, Louis J., assignor to J. N. Brown, Muskegon, Mich. Clothes-pin	587,927	Aug. 10	1143	264	80	893
Brown, Perry, Wilmington, Del. Tank-car	588,742	Aug. 24	2616	603	80	1202
Brown, Philip, Jr., Haverstraw, N. Y. Blind-fastener	589,811	Sept. 14	669	156	80	1622
Brown, Philip, Jr., Haverstraw, N. Y. Tobacco-pipe	589,928	Sept. 14	874	208	80	1658
Brown, Philip C., Brooklyn, N. Y. Non-fillable bottle	589,956	Sept. 14	913	219	80	1666
Brown, Philip C., assignor of fifty-three one-hundredths to J. I. Irwin, Columbus, Ind. Car-coupling	586,528	July 13	1636	380	80	332
Brown, Robert M. (See Brown, John H., assignor.)						
Brown, Ruth, *et al.* (See Wilkinson, John F., assignor.)						
Brown & Sharpe Manufacturing Company. (See Holly, Edgar P., assignor.)						
Brown & Sharpe Manufacturing Company. (See Norton, Charles H., assignor.)						
Brown & Sharpe Manufacturing Company. (See Tucker, Zechariah R., assignor.)						
Brown & Sharpe Manufacturing Company. (See Worsley, Samuel L., assignor.)						
Brown, Theodore H., Viroqua, Wis. Harvesting-machine	590,821	Sept. 28	2460	584	80	1983
Brown, Thomas E., New York, N. Y. Drawbridge	590,787	Sept. 28	2407	572	80	1978
Brown, Thomas S., Poughkeepsie, N. Y. Sprocket-gear	588,950	Aug. 31	2962	694	80	1285
Brown, Walter R. (See Dunstan, George B., assignor.)						
Brown, Wilfred L., San Francisco, Cal. Treating rebellious ores	590,801	Sept. 28	2481	577	80	1977
Brown, William A., De Sotoville, Ala. Cotton-seed mill	587,041	Aug. 3	635	153	80	782
Brown, William M., Johnstown, Pa. Auxiliary electric contact	589,412	Sept. 7	25	6	80	1486
Brown, William M., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Electric contact-box	587,642	Aug. 3	637	153	80	783
Browne, Thomas R., Altoona, Pa. Oil-burner	588,691	Aug. 24	2500	578	80	1182
Browne, Walram S., Brooklyn, N. Y. Electrically-actuated switch mechanism	586,702	July 20	1928	450	80	416
Browne, William F., New York, N. Y. Process of and apparatus for making gas	586,988	July 27	2446	578	80	536
Brownell, Frank A., Rochester, N. Y., assignor to Eastman Kodak Company, of New York. Tripod	588,552	Aug. 24	2250	523	80	1132
Browning, Alfred G., Flixton, assignor of one-half to W. W. Churchill, Manchester, England. Spraying apparatus	590,128	Sept. 14	1212	294	80	1727
Brownsworth, Stephen A., assignor of one-half to S. H. Calisch, Toledo, Ohio. Strainer for pumps	590,053	Sept. 14	1091	258	80	1699
Brubaker, Frank G., New York, N. Y. Car-step	588,123	Aug. 17	1495	344	80	973
Brugler, Woodley, assignor to himself and M. W. Weller, Columbia, N. J., and J. I. Miller, Portland, Pa. Rail-joint support	590,878	Sept. 28	2557	611	80	2008
Brulé, Emery, Neillsville, Wis. Vehicle-spoke	586,542	July 20	1660	387	80	366
Brundage, Howard D., Newburg, N. Y. Bicycle-support	585,739	July 6	154	35	80	33
Bruner, Preston M., St. Louis, Mo. Illuminating area-spanning pavement	588,725	Aug. 24	2567	593	80	1193
Bruning, Henry C., Jr., Toledo, Ohio. Metal wheel	585,950	July 6	351	129	80	107
Brunot, Charles, Paris, France. Pyrotechnic signal	590,822	Sept. 28	2461	584	80	1981
Brusstar, Henry, Baltimore, Md. Rudder and support	585,650	July 6	10	3	80	5
Bryan, Dempsey T., Rocky Mount, N. C. Back-band buckle	586,008	July 6	756	168	80	148
Bryan, James H., Hutchinson, Kans. Portable automatic fire-escape	588,894	Aug. 24	2967	668	80	1249
Bryan, John W., Quincy, assignor of one-half to W. B. Venters, Richlands, N. C. Combined car and brake-pipe coupling	588,052	Aug. 10	1360	316	80	934
Bryant, Charles A., Wakefield, Mass., assignor to Consolidated Safety Pin Company, Bloomfield, N. J. Glazier's point	586,989	July 27	2449	579	80	537
Bryce, Stephen T., Toledo, Ohio. Furnace or stove	590,450	Sept. 21	1800	423	80	1847
Buchanan, Isaac W. P., Lebanon, Tenn. Lawn-sprinkler	586,161	July 13	1012	228	80	214
Bücher, William F., Philadelphia, Pa. Indicator for cars	590,296	Sept. 21	1538	364	80	1798
Bucket Pump Company. (See Brigel, Leo A., assignor.)						
Buckeye Iron and Brass Works. (See Hubbell, Joseph H., assignor.)						
Buckingham, Roswell H., Evanston, assignor to C. H. Evans, trustee, Chicago, Ill. Gas-meter	588,632	Aug. 24	2403	553	80	1102
Buckingham Routh & Company. (See Hohenstein, Archie G., assignor.)						
Buckler, Frederick W. (See Nottingham, Edwin I., assignor.)						
Buckler, Leon T., Philadelphia, Pa. Adjustable speed-gearing for bicycles	587,787	Aug. 10	892	209	80	851

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Buckley, John, assignor to Rochester Automatic Lubricator Company, Rochester, N. Y. Lubricator	590,297	Sept. 21	1539	364, 365	80	1798
Buckley, John, assignor to Rochester Machine Tool Works, Rochester, N. Y. Spraying-machine	590,537	Sept. 21	1947	461	80	1975
Buckley, William P., Oxford, N. Y. Rope ladder	590,475	Sept. 21	1838	434	80	1855
Bucklin, Charles S., Baltimore, Md. Can-filling machine	590,788	Sept. 28	2410	572, 573	80	1973
Bucklin, Charles S., assignor to J. and M. W. Bucklin, Baltimore, Md. Embroidery-hoop	586,947	July 20	2370	560	80	499
Bucklin, Josephine, *et al.* (See Bucklin, Charles S., assignor.)						
Bucklin, Mary W., *et al.* (See Bucklin, Charles S., assignor.)						
Buckpitt, Frederick G., Joliet, Ill. Air-brake coupling	590,357	Sept. 14	914	219	80	1667
Buckstaff, Daniel C. (See Krum, Adelbert R., assignor.)						
Budd Doble Combination Rubber Tire Company. (See Lovett, Thomas J., assignor.)						
Buell, Harry J., assignor to L. A. Centlivre, Fort Wayne, Ind. Gear-case for bicycles	588,124	Aug. 17	1496	344, 345	80	973
Buell, Harry J., assigner to L. A. Centlivre, Fort Wayne, Ind. Gear-case for bicycles	588,394	Aug. 17	1964	454	80	1061
Buescher Manufacturing Company. (See Young, Henry L., assignor.)						
Bufford, George W., Brooklyn, N. Y. Chain for sprocket-wheels	589,203	Aug. 31	3405	799	80	1369
Buford, Edward P., *et al.* (See Williams, Robert H., assignor.)						
Buford, Frank, *et al.* (See Williams, Robert H., assignor.)						
Bulette, Oscar A., Chicago, Ill. Vegetable-cutter	590,129	Sept. 14	1243	295	80	1728
Bull, George F. (See Ridings, Bull, and Codd.)						
Bullard, Ezekiel W., assignor to A. G. Williams, Barre, Mass. Fly-exterminator	589,776	Sept. 7	607	141	80	1597
Bullard, Fred P., Brockton, and W. S. Hamm, Newton, assignors to A. Seaver, Boston, Mass. Lasting-machine	590,639	Sept. 28	2142	507	80	1924
Bullard, Herbert A., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Connection for electric switches	586,543	July 20	1660	387	80	366
Bullock, Edwin R. (See Smith and Bullock.)						
Bulock, Charles O. (See Warner, Bulock, and McLauchlin.)						
Bülow, Carl, Tubingen, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	590,088	Sept. 14	1155		80	1712
Bundren, Isaac N., New Cambria, Mo. Pressing device	588,125	Aug. 17	1498	345	80	974
Bunge, Wilhelm, Lubeck, Germany. Sifting-machine	590,029	Sept. 14	875	208	80	1668
Bungeroth, Rudolf, Remscheid, assignor to Deutsch-Oesterreichische Mannesmann-röhren-Werke, Dusseldorf, Germany. Manufacture of tubes, &c., and apparatus therefor	590,130	Sept. 14	1244	295	80	1728
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Water-elevator	587,768	Aug. 10	893	209	80	851
Burbank, Walter C., New York, N. Y. Bicycle attachment	586,591	July 20	1751	406	80	382
Burbidge, Thomas, London, England. Bottle-stopper	589,544	Sept. 7	230	56	80	1525
Burch, Cecil, New Southgate, England. Hair-crimper	586,009	July 6	757	169	80	148
Burckard, August, Baltimore, Md. Drip-coffee pot	590,429	Sept. 21	1768	415	80	1841
Burden, Henry, Troy, N. Y. Car-fender	587,789	Aug. 10	895	209	80	851
Burdick, Leo J., Sturgis, Mich. Cyclometer	588,726	Aug. 24	2569	593	80	1193
Burdick, Leo J., Sturgis, Mich., Cyclometer or registering-machine	588,727	Aug. 24	2572	594	80	1194
Burfeind, Joachim H., Salt Lake City, Utah. Treatment of gold and silver ores	587,179	July 27	2817	661	80	604
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Gas-engine	585,651	July 6	11	3	80	5
Burgess, Andrew, Buffalo, N. Y. Magazine-firearm	589,117	Aug. 31	3267	769	80	1341
Burgess, Andrew, Buffalo, N. Y. Automatic magazine-firearm	589,118	Aug. 31	3269	769, 770	80	1342
Burgess, Andrew, Buffalo, N. Y. Gas-operated firearm	589,119	Aug. 31	3273	770	80	1343
Burgess, Andrew, Buffalo, N. Y. Gas-operated firearm	589,120	Aug. 31	3277	770, 771	80	1344
Burgess, George D. (See Rand, Silas J., assignor.)						
Burgett, Harvey H., and L. W. Brown, Rockford, Ill. Wood-bending machine	588,743	Aug. 24	2619	603, 604	80	1203
Burgett, Isaac, Middleburg, Nebr. Hook for singletrees	588,126	Aug. 17	1502	345	80	975
Burghardt, Gebrüder. (See Lanhoffer, Emil, assignor.)						
Burjes, Edward. (See Abrell and Burjes.)						
Burke, John J., San Francisco, Cal. Suspenders	590,298	Sept. 21	1541	365	80	1799
Burkholder, Abraham W., Pleasant Hall, Pa. Wagon-brake	587,180	July 27	2818	602	80	604
Burkholder, John H. (See Sechrist, George B., assignor.)						
Burland, Arthur E., assignor to J. R. Drexel, Newport, R. I. Automatic switch	587,277	July 27	2995	702	80	639
Burland, William H., Punta Gorda, Fla. Gumming apparatus	586,010	July 6	757	169	80	148
Burleigh, Harry W., Franklin, N. H. Gate for railway-crossings	586,502	July 20	1752	407	80	383
Burnett, Charles H., assignee. (See Samuels, Izak, assignor.)						
Burnett, Willard E. (See Williams, Elzy R., assignor.)						
Burnham, Franklin P., and J. D. Alsup, Chicago, Ill. Crank-hanger for bicycles	589,496	Sept. 7	150	33	80	1510
Burridge, Lee S., assignor to Century Machine Company, New York, N. Y. Type-writing machine	585,638	July 6	345	80, 81	80	69
Burridge, Lee S., assignor to Century Machine Company, New York, N. Y. Stapling-machine	586,515	July 13	1505	372	80	324
Burros, Joseph, *et al.* (See Harrison and Kilberg, assignors.)						
Burroughs, Charles E., assignor of two-thirds to J. A. Reed and A. M. True, Canton, Ohio. Cushioned horseshoe	590,513	Sept. 21	1908	452	80	1808
Burroughs, Charles F. (See Ward, David R., assignor.)						
Burrow, Joseph B., St. John, Wash. Bottle-stopper	587,790	Aug. 10	896	210	80	851
Burrows, Frank L., Cranston, assignor to C. A. Wilkinson, Warwick, and D. Wilcox, Providence, R. I. Holder for adjustable guards for eyeglasses	585,813	July 6	286	66	80	59
Burson, A. C., *et al.* (See Watts, Theodore T., assignor.)						
Burson, Agnes, Negley, Ohio. Preserving and shipping vessel	587,699	Aug. 10	729	174	80	830
Burson, Samuel K., *et al.* (See Watts, Theodore T., assignor.)						
Burt, Horace R., Austin, Tex. Device for covering and protecting contents of drawers	589,159	Aug. 31	3339	784	80	1357
Burton, Charles S., Oak Park, Ill. Locomotive smoke-stack	589,812	Sept. 14	671	156	80	1622
Burton, George D., Boston, Mass. Electrolytic heating apparatus	587,568	Aug. 3	511	121	80	759
Busch, Adolph, and G. Sanders, Paterson, N. J. Composition for purifying water	589,638	Sept. 7	380		80	1555
Busch, August A., and A. Miller, St. Louis, Mo. Table	587,181	July 27	2820	662	80	605
Busell Lasting Machine Company. (See Preston, Albert F., assignor.)						
Butch, J. W., *et al.* (See Smith, George R., assignor.)						
Butcher, Edwin, Worcester, Mass. Heddle for Jacquard looms	587,472	Aug. 3	337	80	80	727
Butler, Edward T., Bellefontaine, Ohio. Cloth-measuring machine	589,160	Aug. 31	3340	784	80	1357
Butler, Eli T., Philadelphia, Pa. Grain-steamer	589,334	Aug. 31	3777	890	80	1447
Butler, Frank, and J. K. Stansbury, Fayette, Iowa. Carrier	590,566	Sept. 28	2009	474	80	1900
Butler, George A., assignor of one-half to C. H. Biddenger, Yonkers, N. Y. Combined railway-tie and lock	590,253	Sept. 21	1464	345	80	1784
Butler, James H., Somerville, and L. B. Cobb, Everett, assignors to Chandler Adjustable Chair and Desk Company, Boston, Mass. Desk	587,473	Aug. 3	339	80	80	727

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Button, Benjamin G., Aurora, Ill. Envelop	586,115	July 13	938	211	80	200
Butz, Walter D., Norristown, Pa. Nursing-bottle	586,011	July 6	759	169	80	149
Buxton, Charles W. (See O'Donovan, Michael, assignor.)						
Bycraft, William J., Ashtabula, Ohio. Lantern	587,791	Aug. 10	897	210	80	852
Byers, John E. (See Brackney, Lawson E., assignor.)						
Byrne, Daniel J., Washington, D. C. Carbureter	590,640	Sept. 28	2143	507	80	1925
Cade, John T. (See Daves, William, assignor.)						
Cadwell, Eugene B., Jamestown, N. Y. Telephone-booth	587,700	Aug. 10	732	174	80	821
Cady, Richard, Los Angeles, Cal. Railway-switch	586,951	Aug. 31	2904	694	80	1285
Caemmerer, Erasmus, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Mounting for commutators of dynamo-electric machines	590,000	Sept. 14	1000	238	80	1082
Cahill & Hall Elevator Company. (See Hall, Cofran I., assignor.)						
Cahill, James P. (See Roberts, Blackwood, and Cahill.)						
Calderwood, Willis G., Minneapolis, Minn., and D. W. Edwards, Los Angeles, Cal. Propelling device for bicycles	590,492	Sept. 21	1864	441	80	1859
Caldwell, Frank E., *et al.* (See Crandall, Jesse A., assignor.)						
Caldwell, Robert, Auckland, New Zealand. Gas-engine governor	589,335	Aug. 31	3778	880, 881, 882	80	1447
Caldwell, Robert L., assignor to Walker Company, Cleveland, Ohio. Electric railway	587,792	Aug. 10	898	210	80	852
California Optical Company. (See Fennimore, Watson D., assignor.)						
Calisch, Solomon H. (See Brownsworth, Stephen A., assignor.)						
Callanan, James L., Des Moines, Iowa. Copy-holder and line-indicator	590,206	Sept. 21	1379	326	80	1769
Callender, Charles A., and E. W. Parno, Greene, Iowa. Rotary steam-engine	586,895	July 20	2260	530, 531	80	478
Camden Iron Works. (See Matton, Frederick V., assignor.)						
Campbell, Albert, Shade Gap, Pa. Clothes-line holder	585,951	July 6	551	129	80	107
Campbell, Charles M. (See Steward, Willard G., assignor.)						
Campbell, Charles M. (See Steward and Frost, assignors.)						
Campbell, Donald J., Milwaukee, Wis. Rope-tightening lever	590,254	Sept. 21	1465	345	80	1785
Campbell, Ezra, Dayton, Wash. Gripper for job-printing presses	586,895	Aug. 24	2868	668	80	1249
Campbell, George L., Kinsman, Ohio. Bicycle support and lock	590,609	Sept. 28	2083	493	80	1914
Campbell, Harry E., and T. E. Murray, Albany, N. Y. Fly-wheel	589,558	Sept. 7	248	60	80	1528
Campbell, Henry C., assignor of two-thirds to M. C. Campbell and F. W. Dyer, New York, N. Y. Hose-coupling	589,813	Sept. 14	674	156	80	1023
Campbell, James A., Lenox, Mass. Extension car-step	586,012	July 6	760	169	80	149
Campbell, Jeremiah, Chelsea, Mass. Steam-shovel	586,093	July 13	903	203	80	194
Campbell, Matilda C., *et al.* (See Campbell, Henry C., assignor.)						
Campbell, Pardon A., Pollasky, Cal. Bottle	586,475	July 13	1527	357	80	311
Campbell Printing Press and Manufacturing Company. (See Huson, Winfield S., assignor.)						
Campbell Printing Press and Manufacturing Company. (See Wood, Henry A. W., assignor.)						
Campbell, Robert, assignor of one-half to W. H. Weller, Gadsden, Ala. Apparatus for manufacturing soil-pipes	590,823	Sept. 28	2464	585	80	1964
Campbell, Royer. (See Faulkner and Campbell.)						
Canales, Frank W., Portland, Me., assignor to Canales Trolley Company, Boston, Mass. Trolley	589,693	Sept. 7	475	114	80	1573
Canales Trolley Company. (See Canales, Frank W., assignor.)						
Candy, Charles C., Chicopee, Mass., assignor to Lamb Manufacturing Company, of New Jersey. Handle-bar for bicycles	589,413	Sept. 7	26	7	80	1486
Canfield, Anna D., Cedar Grove, N. J. Knife-cleaner	589,639	Sept. 7	390	95	80	1555
Cannon, J. H., *et al.* (See Marshall, Elbridge, assignor.)						
Cant, Edwin H., Honolulu, Hawaii. Cartridge-loading implement	586,013	July 6	761	170	80	149
Cantoré, Frank, assignor of one-half to M. Russo, Boston, Mass. Extinguishing fires	589,244	Aug. 31	3478	816	80	1384
Čápek, Ladislav. (See Mašek and Čápek.)						
Capewell, George J., Hartford, Conn. Machine for forming tubes	589,694	Sept. 7	476	114, 115, 400, 401, 402, 403, 404	80	1573
Carassale, Victor, Paris, France. Apparatus for automatically filling boxes with matches	588,265	Aug. 17	1740		80	1019
Carens, James F. (See Woodman, George F., assignor.)						
Carey, Augustus C., Lake Pleasant, Mass. Electric trip-knife switch	590,386	Sept. 21	1092	306	80	1898
Carey, Ranaldo V., Millbury, Mass. Fire-hose-cleaning mechanism	589,559	Sept. 7	250	61	80	1528
Cargill, William W., *et al.* (See Johnston, Louis, assignor.)						
Carlson, Annie J., St. Louis, Mo. Hat-fastener	590,802	Sept. 28	2433	577	80	1978
Carlson, Charles F., Honolulu, Hawaii. Bicycle-fastener	589,396	Aug. 31	3779	882	80	1447
Carlson, Frank, assignor of one-half to J. C. Mishler, Duluth, Minn. Pan or plate lifter	587,701	Aug. 10	733	174	80	821
Carlson, Frank, assignor of one-half to C. M. Johanson, Duluth, Minn. Corset-fastener	588,217	Aug. 17	1651	390	80	1003
Carlson, Frank A., Gainesville, Tex. Sleeve-tablet	588,553	Aug. 24	2251	523	80	1133
Carlson, John W. (See Rosenholz and Carlson.)						
Carlson, Nels P. (See Olson, Håkan, assignor.)						
Carlton, William F. (See Locke, Harry W., assignor.)						
Carmany, Charles A., Ephrata, Pa. Adjustable support for incandescent electric lights	586,378	July 13	1360	314	80	279
Carmona, Manuel S., Mexico, Mexico. Type-writing machine	590,207	Sept. 21	1381	326, 327	80	1769
Carnahan, Charles, Youngsville, La. Controller for turn-plows	589,337	Aug. 31	3780	882	80	1448
Carnegie Steel Company. (See Keiser, Henry B. A., assignor.)						
Carney, Bernard M., McKeesport, Pa. Flush-tank for water-closets	586,884	July 20	2145	501	80	455
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	587,702	Aug. 10	734	175, 176, 177	80	822
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash register and recorder	588,127	Aug. 17	1503	346, 347	80	975
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	589,245	Aug. 31	3479	816, 817	80	1384
Carney, William A., Santa Paula, Cal. Stamp-affixing machine	590,824	Sept. 28	2467	585	80	1965
Caro, Nikodem. (See Frank and Caro.)						
Carnrick, John, New York, N. Y. Protonuclein and method of preparing same	587,278	July 27	2005	.....	80	639
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Virginia S., *et al.* (See Clouse, Joseph N., assignor.)						
Carper, Kent H., assignor to Bonsack Machine Company, Salem, Va. Continuous-cigarette machine	589,121	Aug. 31	3279	771	80	1344
Carr, Benjamin F., Chicago, Ill. Pianoforte-action	585,740	July 6	155	35	80	34

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Carr, Lee, Minco, Ind. Ter. Hopple	589,071	Aug. 31	3165	746	80	1324
Carraine, Eugene, assignor of one-half to G. D. Sligo, Philadelphia, Pa. Passe-partout	589,695	Sept. 7	480	115	80	1574
Carrier, Arthur, Bay City, Mich. Saw-stretching machine	589,814	Sept. 14	675	157	80	1623
Carroll, Elbert H., assignor to Morgan Construction Company, Worcester, Mass. Piston-rod support	587,360	Aug. 3	141	34	80	691
Carroll, James E., London, England. Boiler feed-water heating and purifying apparatus	585,814	July 6	287	67	80	59
Carroll, William P. F., Portland, Me. Window for locomotive-cabs	586,896	July 20	2263	531	80	479
Carson, Edgar F. (See Barnett, Nicholas W., assignor.)						
Carstens, Paul M. E., Duluth, Minn. Stringed musical instrument	589,414	Sept. 7	27	7	80	1467
Carter, Amos E., Taylor, Iowa. Combination-canister	586,758	July 20	2028	471	80	434
Carter, Cyrus C., Neelyville, Ill. Wire fence	588,896	Aug. 24	2869	668	80	1249
Carter, John J., Newark, N. J. Jar for preserving butter or other articles	590,698	Sept. 28	2248	532	80	1943
Carter, John S., Buffalo, N. Y. Press for making veneer doors, &c	585,906	July 6	465	112	80	92
Carter, William H., Chicago, Ill. Car-brake	590,879	Sept. 28	2558	611	80	2002
Cartier, Jacob, Biddeford, Me. Combined fish and animal trap	589,640	Sept. 7	391	95	80	1556
Cartwright, David J., assignor to Electrical Safety Company, Boston, Mass. Safety-fuse for electrical devices	590,750	Sept. 28	2335	552, 553	80	1959
Casaday, William L., South Bend, Ind. Swivel or hillside plow	589,072	Aug. 31	3167	746	80	1324
Case, A. Wells, *et al.* (See Waterhouse, Addison G., assignor.)						
Case, Charles H. (See Gray and Case.)						
Case, Edward N., Chicago, Ill. Alarm-padlock	589,930	Sept. 14	877	209	80	1659
Case, Frank E. (See McKelvey, Stewart D., assignor.)						
Case, Frank E., Canton, Ohio. Cabinet	589,403	Sept. 7	99	22	80	1500
Case, Lawrence W., *et al.* (See Waterhouse, Addison G., assignor.)						
Casey, John J. (See Pries and Casey.)						
Casgrain, Louis A., Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Work-support for boots or shoes	587,144	July 27	2756	647	80	593
Cash, Arthur W., Worcester, Mass. Combined high-pressure throttle and reducing valve	587,670	Aug. 3	679	163	80	791
Cass, Arthur T. (See Simond, Walter A., assignor.)						
Cassel, Reuben Z., and G. M. Finckel, Columbus, Ohio. Car-signal	586,418	July 13	1434	331	80	293
Cassella & Co., Leopold. (See Weinberg, Arthur, assignor.)						
Casselman, Judson P., Nebraska City, Nebr. Garden-hose reel	588,897	Aug. 24	2870	669	80	1249
Catchpole, Alfred, Geneva, N. Y. Steam and hot-water boiler	588,952	Aug. 31	2965	694, 695	80	1286
Catley, Robert H. (See Hugill, Overton, and Catley.)						
Caufiel, Solomon R., Johnstown, Pa. Overhead-trolley system for electric railways	588,053	Aug. 10	1361	316, 317	80	934
Caverley, William L., Haw Creek, Mo. Gravel-colter attachment for road-graders	588,554	Aug. 24	2252	523	80	1133
Celluloid Company. (See Stevens, John H., assignor.)						
Centlivre, Louis A. (See Buell, Harry J., assignor.)						
Century Machine Company. (See Burridge, Lee S., assignor.)						
Century Machine Company. (See Hess, Edward B., assignor.)						
Certain, Jerry M., *et al.* (See Haines, James H., assignor.)						
Chadwick, Everett D., Boston, assignor of one-half to W. E. Ellis, Bradford, Mass. Pen-holder	590,183	Sept. 14	1334	316	80	1746
Chaffe, William H., New Orleans, La. Rotary-disk plow	589,931	Sept. 14	877	209	80	1659
Chain Stay Fence Company. (See Frantz, Peter, assignor.)						
Chalfant, Edward P., Kenosha, Wis. Seat-clamp for bicycles	590,256	Sept. 21	1467	346	80	1785
Challenge Wind Mill and Feed Mill Company. (See Phillips, Thomas L., assignor.)						
Chalmot, Guillaume de, Leaksville, N. C., assignor to Willson Laboratory Company, New York, N. Y. Electric furnace	587,182	July 27	2821	662, 663	80	605
Chalmot, Guillaume de, Leaksville, N. C., assignor to Willson Laboratory Company, New York, N. Y. Treatment of phosphates	588,966	Aug. 17	1745	405	80	1020
Chalmot, Guillaume de, Leaksville, N. C., assignor to Willson Laboratory Company, New York, N. Y. Electric furnace	588,967	Aug. 17	1747	405	80	1021
Chalmot, Guillaume de, Leaksville, N. C., assignor to Willson Laboratory Company, New York, N. Y. Silicon alloy	589,415	Sept. 7	28	.....	80	1487
Chamberlain, Frank R., Newton, Mass., assignor to Newton Rubber Works, of West Virginia. Pneumatic tire	586,352	July 13	1320	302	80	272
Chamberlain, Henry J. (See Robinson, Chamberlain, and Smith.)						
Chamberlain, Horace P., Buffalo, N. Y. Filter-press plate	586,593	July 20	1759	407, 408	80	384
Chambers, Alexander, Newtown, Pa. Fruit-cleaner	588,854	Aug. 24	2802	652	80	1237
Chamblin, William B., Round Hill, Va. Hoe	587,088	July 27	2682	621	80	570
Chameroy, Bernard H., Le Vesinet, France. Elastic tire	587,544	Aug. 3	470	110	80	752
Chandler Adjustable Chair and Desk Company. (See Butler and Cobb, assignors.)						
Chandler, Albert F., Swampscott, Mass. Welt-trimmer	587,279	July 27	2998	702	80	639
Chandler, Alfred D., Fall River, Mass. Yarn-separator for spinning-machines	589,932	Sept. 14	879	209, 210	80	1659
Chaney, James, Lebanon, Mo. Gate	587,183	July 27	2825	663	80	606
Chapin, Herbert L. (See Meisel and Chapin.)						
Chaplet, Frédéric. (See Dion, Bouton, and Chaplet.)						
Chaplet, Frédéric, Laval, France. Hard body for rifling chromated steel	589,161	Aug. 31	3341	785	80	1357
Chaplin, Edwin D., Cambridge, and H. G. Halloran, Boston, Mass. Electrically-operated loom	588,101	Aug. 10	1442	335	80	949
Chaplin, Frederick J., Birmingham, England. Brush for dynamos	589,162	Aug. 31	3342	785	80	1357
Chapman, James E. (See Lamb and Chapman.)						
Chapman, John, Aldrington, England. Carpet-cleaner	590,255	Sept. 21	1466	346	80	1785
Chapman, William A., Yellville, Ark. Blowpipe-lamp	589,815	Sept. 14	677	157	80	1624
Chapman, William H., assignor to Belknap Motor Company, Portland, Me. Electric regulator for dynamos	589,073	Aug. 31	3169	746	80	1324
Charageat, Emile, Paris, France. Umbrella	589,933	Sept. 14	880	210	80	1660
Charles Hegewald Company. (See Hegewald, Arthur F., assignor.)						
Charles Parker Company. (See Griswold, Lewis F., assignor.)						
Charlton, John, Philadelphia, Pa. Dust-collector	590,033	Sept. 14	1061	250	80	1694
Charter, James A., Beloit, Wis. Gas-engine	585,252	July 6	13	4	80	5
Charters, William, Springfield, Mass. Crank-shaft and sprocket-wheel connection therefor	590,430	Sept. 21	1769	415	80	1841
Chase, Cornwell P., Minneapolis, Minn. Permutation-padlock	587,709	Aug. 10	756	177	80	826
Chase, Sherwood M., Columbus, Ohio. Pump	588,218	Aug. 17	1652	380	80	1003
Chater, William, Denver, Colo., assignor of one-half to D. Rediger. Potato-harvester	590,184	Sept. 14	1335	316, 317	80	1747
Chesney, Cummings C., assignor of one-half to J. F. Kelly, Pittsfield, Mass. Lightning-arrester	588,320	Aug. 17	1841	425, 426	80	1037
Chesney, Oliver M., Topeka, Kans., assignor to Mansfield Manufacturing Company, Arapahoe county, Colo. Paper-bag fastener	587,928	Aug. 10	1143	264	80	894

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Chevalier, Pierre A., Unionville, N. Y. Bicycle-lock	587,798	Aug. 10	901	211	80	852
Chicago-Cleveland Car Roofing Company. (See McCarthy, James J., assignor.)						
Chicago Edison Company. (See Tailleur, George, assignor.)						
Chicago Electric Protective Company. (See Arnold, William T., assignor.)						
Chicago Electric Wire Company of Delaware. (See Cobb, Henry B., assignor.)						
Chicago Razor Strop Company. (See Perkins, Frank C., assignor.)						
Childs, Eugene, Boston, Mass., assignor to Automatic Rapid Lathe Company, Saco, Me. Lathe	590,387	Sept. 21	1698	398, 399	80	1828
Childs, Eugene, and W. Sangster, assignors to F. W. Pitcher, Boston, Mass. Toe-calk machine	590,451	Sept. 21	1801	423, 424	80	1847
Chipley, William L., assignor of one-half to J. E. Maupin, La Monte, Mo. Belt-tightener	590,208	Sept. 21	1392	328	80	1770
Chipman, Horace D., Home City, Ohio. Combination-lock	590,131	Sept. 14	1246	206	80	1728
Chittenden, Niles S., *et al.* (See Pleins, Rudolph C., assignor.)						
Choate, George H., Hailey, Idaho. Gate-hinge	590,880	Sept. 28	2559	611	80	2003
Choquette, Michelle, Kankakee, Ill. Bicycle-tire armor	589,163	Aug. 31	3343	785	80	1357
Christie, Thomas S., *et al.* (See Webster, John, assignor.)						
Christopher, Calvin F. and C. K., Spartanburg, S. C. Ready calculator	588,128	Aug. 17	1517	347	80	978
Christopher, Colonel K. (See Christopher, Calvin F. and C. K.)						
Christy, Thomas J., St. Louis, Mo. Drive-chain	587,387	Aug. 3	184	46	80	700
Church, Andrew and C. A., Adrian, Mich. Wire fence	590,357	Sept. 21	1645	388	80	1819
Church, Charles A. (See Church, Andrew and C. A.)						
Church, Eugene, assignor to International Novelty Company, Tacoma, Wash. Bicycle-rest	589,464	Sept. 7	101	22	80	1501
Church, William L., New York, N. Y. Grate	588,395	Aug. 17	1906	454	80	1002
Churchill, William W. (See Browning, Alfred G., assignor.)						
Churchill, William W. (See Roney, Churchill, and Arnold.)						
Clapp, Otis A., *et al.* (See Murphy, John F., assignor.)						
Claret, Jean, and O. Vuilleumier, Paris, France. Electric-railway system	588,396	Aug. 17	1908	454, 455, 456	80	1002
Clark, Andrew J., Oakland, Cal. Automatic governor for air-brake-cylinder pressure	587,643	Aug. 3	638	153	80	783
Clark, Byron G., Boston, Mass. Belt-pin	590,358	Sept. 21	1646	388	80	1819
Clark, Daniel J., *et al.* (See Blum, Sylvain, assignor.)						
Clark, Fred D. (See Warren and Clark.) (Reissue.)						
Clark, George H., Boston, Mass., assignor, by mesne assignments, to Morley Finishing Machine Company, of Maine. Shaping or treeing machine for boots or shoes	589,606	Sept. 7	481	115	80	1574
Clark, George H., Boston, Mass., assignor, by mesne assignments, to Morley Finishing Machine Company, of Maine. Treeing-machine for boots or shoes	589,607	Sept. 7	485	116	80	1575
Clark, Jeremiah. (See Cockerille, Henry C., assignor.)						
Clark, John A., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Sheave	589,560	Sept. 7	251	61	80	1529
Clark, John C., Atlanta, Ga. Pulverizing-machine	586,835	July 20	2146	501, 502	80	455
Clark, Louie H., Fond du Lac, Wis. Fire-kindler	588,633	Aug. 24	2407	554	80	1163
Clark, Robert M., Newton, Mass. Tool for shaping ends of paper tubes, &c	586,703	July 20	1930	450	80	416
Clark, Robert M., Newton, Mass. Paper case or tube	586,704	July 20	1931	450	80	417
Clark, Robert V., Tiffin, Ohio. Fence-stay	589,593	Sept. 7	313	76	80	1541
Clarke, Abraham B., and T. Armstrong, Philadelphia, Pa. Attachment for brush-handles	590,751	Sept. 28	2339	553	80	1960
Clarke, Arthur R., assignor to Clarke Safety Milk Cabinet Company, Chicago, Ill. Milk-cabinet	589,984	Sept. 14	882	210, 211	80	1660
Clarke Safety Milk Cabinet Company. (See Clarke, Arthur R., assignor.)						
Clarry, Frederick A., Toronto, Canada. Bicycle-lock	590,803	Sept. 28	2433	577	80	1978
Claus, Joseph A. (See Ludlam and Claus.)						
Clause, John J., assignor to F. Rudolph, Chicago, Ill. Printing-machine	585,907	July 6	467	112, 113	80	92
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	586,735	July 20	1968	462, 463	80	428
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	587,929	Aug. 10	1145	364, 365	80	894
Clay, Joseph D., Harrisburg, Pa. Piano-stool	585,839	July 6	351	81	80	70
Clay, William R., Farnworth, England. Burner for incandescent gas-lighting	590,359	Sept. 21	1648	388, 389	80	1820
Clay, William R., and B. Walmsley, Bolton, England. Attachment for incandescent gas-burners	590,360	Sept. 21	1649	389, 390	80	1820
Claydon, George, Addington, New Zealand. Automatic stoking apparatus for steam-boilers	590,410	Sept. 21	1736	408	80	1835
Clayton, Edwin J., Philadelphia, Pa. Window-shade attachment	586,722	July 20	1961	457	80	422
Clayton, James, Brooklyn, N. Y. Valve for air or gas compressors, &c	589,704	Aug. 10	757	178	80	826
Cleal, Joseph P., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	587,298	Aug. 3	16	4, 5, 6	80	668
Cleal, Joseph P., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	589,246	Aug. 31	3489	817, 818, 819	80	1387
Cleary, William B., Elizabeth, N. J., assignor of one-half to B. H. Adams, Yonkers, N. Y. Necktie-holder	586,370	July 13	1302	314	80	279
Cleek, James D., and C. Humphrey, St. Paul, Va. Dumping-car	588,953	Aug. 31	2968	696	80	1296
Clements, John, London, England. Speed-indicating bell	586,544	July 20	1661	398	80	306
Clench, Frederick, and T. S. King, Chesterfield, England. Spring-tire for wheels	587,794	Aug. 10	905	211	80	853
Cleveland, George E., Freedom, assignor of one-half to J. P. Miller, Washingtonborough, Pa. Machine for finishing glassware	589,816	Sept. 14	678	157	80	1624
Cleveland Punch and Shear Works Company. (See Doolittle, John F., assignor.)						
Cleveland, William B., Cleveland, Ohio. Electric rail-bond	588,791	Aug. 24	2692	623	80	1217
Cliff, Edward. (See Joughins, George R., assignor.)						
Cliff, Edward, Newark, N. J. Hose-reel	585,861	July 6	384	89, 90	80	76
Climax Gas Engine Company. (See Jacobson, Charles, assignor.)						
Clinch, Robert, Combination, Mont. Miner's folding candlestick	589,504	Sept. 7	314	76	80	1541
Cline, George H., Dickson, Tenn. Bedstead-lock	586,948	July 20	2371	560	80	499
Cline, Jeremiah, Oppenheim, N. Y. Hoisting device	585,906	July 6	470	113	80	93
Cline, William, assignor to D. D. Good, J. J. Stewart, and J. Sondheimer, Lancaster, Pa. Car-fender	590,099	Sept. 28	2249	532	80	1943
Closson, David B., assignor to Rice & Hutchins, Incorporated, Boston, Mass. Shoe	587,705	Aug. 10	758	178	80	826
Cloud, John W., Chicago, Ill. Car-bolster	588,555	Aug. 24	2354	523, 524	80	1133
Clough, Albert L. (See Smith, Ferrin, and Clough.)						
Clough, Joseph E., Rockland, Del. Combination tape-rule and circle-marker	588,129	Aug. 17	1519	348	80	979

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clouse, Joseph N., St. Louis, Mo., assignor to H. R. Wade, G. H. Cray, S. C. Wynn, R. A. Wade, Toledo, Ohio, A. C. Norris, A. Ridenour, J. King, V. S. Carpenter, W. A. Holcomb, M. G. Brooke, and S. C. Bone, Washington, D. C. Street letter-box	590,074	Aug. 31	3172	747	80	1325
Clowe, Edward T., Woodland, Cal. Carpenter's level	585,653	July 6	16	4	80	6
Coan, Fred W., and W. S. Eaton, Manchester, N. H. Feeding device for sewing-machines	587,706	Aug. 10	759	178	80	827
Coan, Fred W., and W. S. Eaton, Manchester, N. H. Tension device for sewing-machine binders	587,707	Aug. 10	760	179	80	827
Coan, Fred W., and W. S. Eaton, Manchester, N. H. Feeding device for sewing-machines	590,182	Sept. 14	1248	296	80	1729
Coates, George H., Worcester, Mass. Hair-clipper	588,954	Aug. 31	2969	696	80	1296
Coates, George W., and A. J. Schutz, Schutz Mills, Ill. Non-refillable bottle	589,184	Aug. 31	3344	785	80	1357
Coates, Ray G., Pasadena, Cal. Box-couch	586,476	July 13	1528	358	80	312
Cobb, Edward S., San Francisco, Cal. Hydraulic apparatus	587,427	Aug. 3	248	60	80	715
Cobb, Henry B., Wilmington, Del., assignor to Chicago Electric Wire Company of Delaware, of Delaware. Rubber hose	587,545	Aug. 3	471	110	80	752
Cobb, Leander B. (See Butler and Cobb.)						
Cobb, Lyman H., Portland, Me. Handle-bar for bicycles	586,162	July 13	1015	228	80	215
Cobb, Lyman H., assignor to Lovell Cycle and Ether Motor Company, Portland, Me. Dust-proof ball-bearing for bicycles	589,204	Aug. 31	3407	799	80	1309
Cobenzl, Albert, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Gray dye	588,397	Aug. 17	1974	.....	80	1002
Cocking, Thomas. (See Crider, Heird, and Cocking.)						
Cochran, Charles S., *et al.* (See Gardiner, Robert M., assignor.)						
Cock, Lewis W., San Marcos, Tex., assignor to Acme Fumigator Company, Chicago, Ill. Fumigator	586,759	July 20	2039	471, 472	80	434
Cockerille, Henry C., assignor of one-half to J. Clark, Lowell, Mass. Let-off for looms	590,001	Sept. 14	1001	238	80	1682
Codd, Llewellyn B. (See Ridings, Bull, and Codd.)						
Cody, Miles S., Stockton, Cal. Mail-bag catcher	587,115	July 27	2679	631	80	579
Coe, Charles E., assignor to C. H. Sawyer, St. Louis, Mo. Combined whiffletree clip and hook	589,122	Aug. 31	3280	771	80	1344
Coffee, John C., Decatur, Ind. Thill-support	587,644	Aug. 3	641	153	80	783
Coffin, Frank, Cambridge, Mass. Indicator for lathes or planers	587,930	Aug. 10	1148	266	80	894
Coffin, Joseph F., Mobile, Ala. Air-brake for railway-cars	586,836	July 20	2149	502	80	456
Coghlan, William A., Santa Rosa, Cal. Bottle-stopper	589,608	Sept. 7	488	116	80	1575
Cohen, Julius, New York, N. Y. Preparing smoking-tobacco	587,184	July 27	2826	663	80	606
Colby, Charles T., assignor of one-half to J. L. Powell, Los Angeles, Cal. Machine for cutting butter	588,814	Aug. 24	2738	635	80	1224
Cole, Alexander, Bridgeton, assignor of one-half to H. A. Shaw, Millville, N. J. Fruit-picking ladder	588,130	Aug. 17	1521	348	80	979
Cole, Charles L., Bushnell, Ill. Corn-popper	589,817	Sept. 14	680	158	80	1624
Cole, George W., Asbury Park, N. J. Fluid handling and utilizing device	586,288	July 13	1199	274	80	249
Cole, William F., Worcester, Mass. Mechanism for operating valves of hydraulic elevators	586,990	July 27	2450	579, 580	80	537
Coleman, Clyde, assignor of two-thirds to A. L. Deane and J. W. Donnell, Chicago, Ill. Burglar-alarm	587,931	Aug. 10	1150	266	80	895
Coleman, Clyde, assignor of two-thirds to A. L. Deane and J. W. Donnell, Chicago, Ill. Electric burglar-alarm. (Reissue)	11,626	Aug. 17	2236	520	80	1113
Coleman, Bertram D., *et al.* (See Czepull, Julius J., assignor.)						
Coleman, Edward R., *et al.* (See Czepull, Julius J., assignor.)						
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Signal mechanism	590,299	Sept. 21	1543	365	80	1799
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling apparatus	590,300	Sept. 21	1546	366	80	1799
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling apparatus	590,301	Sept. 21	1549	367	80	1800
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling apparatus	590,302	Sept. 21	1552	368	80	1800
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling apparatus	590,303	Sept. 21	1554	368, 369	80	1801
Collet, Albert, Paris, France. Internal-thread cutter	586,419	July 13	1433	331	80	294
Collet, Albert, Paris, France. Tool for screwing treenails	587,645	Aug. 3	642	154	80	784
Collet, Albert, Paris, France. Tool for trimming off treenails	590,089	Sept. 14	1157	273	80	1712
Colley, Clayton D., Abingdon, Va. Weighing-scoop	590,361	Sept. 21	1651	390	80	1820
Colley, Simeon, Sr., and Simeon, Jr., Springfield, Ohio. Starting mechanism for gas-engines	585,932	July 6	553	129	80	107
Collinge, James, Hill Place, England. Lamp-chimney	589,416	Sept. 7	29	7	80	1487
Collings, Edward Z. (See Doughty and Collings.)						
Collins, Edward C., assignor to Taunton Locomotive Manufacturing Company, Taunton, Mass. Sand-box for electric cars or snow-plows	586,014	July 6	766	170	80	150
Collins, Edward C., assignor to Taunton Locomotive Manufacturing Company, Taunton, Mass. Track-sanding device for street-railway cars	589,417	Sept. 7	30	7	80	1487
Collins, George J. S., Chicago, Ill. Roller-bearing	585,909	July 6	471	114	80	93
Collins, Harry R., South Bethlehem, Pa. Tire	590,201	Sept. 14	1364	322	80	1752
Collins, Thomas, and E. L. Hartmann, Bainbridge, N. Y. Cream-separator	589,641	Sept. 7	393	96	80	1556
Collins, William. (See Jevons and Collins.)						
Colton, James E. (See Keith and Colton.)						
Columbia Wire Company. (See Bates, Albert J., assignor.)						
Compagnie du Gaz Nouveau. (See Becherel, Charles F. J. B., assignor.)						
Compin, Jules, Montargis, France. Spring-seat	586,837	July 20	2150	502	80	456
Compressed Air Power Company. (See Knight, Walter H., assignor.)						
Coura, William, Philadelphia, Pa. Nut-lock	589,545	Sept. 7	231	56	80	1525
Comstock, Francis M., assignor to Comstock Motor Company, Topeka, Kans. Engine	590,656	Sept. 28	2169	513, 514	80	1929
Comstock, Francis M., assignor to Comstock Motor Company, Topeka, Kans. Fluid-pressure engine	590,657	Sept. 28	2172	514, 515	80	1930
Comstock Motor Company. (See Comstock, Francis M., assignor.)						
Conard, Henry W., Wymore, Nebr. Pneumatic grip for bicycles	587,388	Aug. 3	185	46	80	701
Condon, John, *et al.* (See Sherman, Richard E., assignor.)						
Cone, Cæsar. (See Garsed, Edward T., assignor.)						
Conety, Annis E., Gracedale, Pa. Lady's work-box	587,708	Aug. 10	762	179	80	827
Conibe, Orlando F., Boston, Mass. Gas or vapor cock	587,428	Aug. 3	250	61	80	715
Conkle, Henry C., Wayne, Pa. Pin	588,675	Aug. 24	2491	574	80	1176
Conklin, Edward, Clannahon, Ill. Door check and tightener	589,418	Sept. 7	32	8	80	1487
Connell John, Rochester, N. Y. Band resawing-machine	590,209	Sept. 21	1393	329	80	1771
Conner, Patrick H., Monticello, Iowa. Hay-loader coupling	590,610	Sept. 28	2065	498	80	1914
Connees, Walter K., Oakland, Cal. Air-brake slack-adjuster	587,519	Aug. 3	494	100	80	742

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Connett, Mathew F., Jr., assignor to E. E. Cord, Memphis, Tenn. Combined desk-ruler and scale	589,642	Sept. 7	395	96	80	1557
Connolly, James, assignor to Missouri Car and Foundry Company, St. Louis, Mo. Mold for casting car-wheels	590,452	Sept. 21	1803	424	80	1848
Connor, Thomas, Holyoke, Mass. Sifting attachment for ash-chutes	587,932	Aug. 10	1153	267	80	895
Conoley, Malcom C., Liberty Hill, Tex. Plow attachment for planters	589,419	Sept. 7	33	8	80	1488
Conselyea, Ira W., Newark, N. J. Propelling mechanism for bicycles	588,955	Aug. 31	2971	696	80	1287
Consolidated Car-Heating Company. (See McElroy, James F., assignor.)						
Consolidated Fastener Company. (See Dowse, William B. H., assignor.)						
Consolidated Kansas City Smelting and Refining Company. (See Ruetschi, Rudolph, assignor.)						
Consolidated Safety Pin Company. (See Bryant, Charles A., assignor.)						
Consolidated Sterling Incandescent Gas Lamp Company. (See Henkle, Leonard, assignor.)						
Constant, Boston S., Bloomington, Ill. Grain feeder and conveyer	588,815	Aug. 24	2739	635	80	1224
Contades, Méry de, Paris, France. Secondary battery	590,930	Sept. 28	2652	633	80	2022
Continuous Rail Joint Company of America. (See Thompson, Abraham W., assignor.)						
Converse, Lyman P., Chicago, Ill. Trousers-clamp for bicycle-riders	587,280	July 27	2008	702	80	640
Conway, Patrick, assignor, by mesne assignments, of one-half to J. Neterer, New Whatcom, Wash. Clapboard-machine	585,741	July 6	156	36	80	34
Cook, Burton H., Brooklyn, N. Y. Hat-pin	590,302	Sept. 21	1658	390	80	1821
Cook, Byron H., Butte, Mont. Button	588,956	Aug. 31	2973	697	80	1287
Cook, Herman A. (See Knout and Cook.)						
Cook, John A. (See Fish, Isaac H., assignor.)						
Cook, Leroy, Worcester, Mass. Wire-swaging machine	586,080	July 20	1897	441 442	80	410
Cook, Stephen S., assignor to Branson Machine Company, Philadelphia, Pa. Knitting-machine	588,308	Aug. 17	1974	456 457	80	1062
Cook, William F., Ivy Mills, Pa. Photographic-camera shutter	590,752	Sept. 28	2340	553	80	1960
Cook, William L. (See Bean and Cook.)						
Cook, William W., Bancroft, Iowa. Desk	586,330	July 13	1290	294	80	266
Coom, Charles S., Philadelphia, Pa. Combination sawing and planing device	589,699	Sept. 7	489	117	80	1575
Coombs, Frank J., assignor of one-half to M. T. Small, H. A. Stanley, B. A. Hilton, and W. Vanderveer, Columbia Falls, Mont. Bicycle-brake	587,185	July 27	2827	663 664	80	606
Coon, Riley H., Canastota, N. Y. Rotary engine	590,453	Sept. 21	1803	424	80	1848
Coons, Valintine F., and L. C. S. Frick, Buffalo, N. Y. Horseshoe	586,304	July 13	1226	280	80	254
Cooper, Henry, Bristol, England. Bicycle-frame	589,205	Aug. 31	3408	799	80	1309
Cooper, James, Chicago, Ill. Elevator safety device	590,257	Sept. 21	1468	346	80	1785
Cooper, James A. (See Steilmer, William, assignor.)						
Cooper, William, Auburndale, Mass., assignor to Johnson Company, Lorain, Ohio. Rail-joint	589,247	Aug. 31	3499	820	80	1388
Cope, George W., Detroit, Mich., assignor to F. Sattler, Belleville, Ill. Damper for stoves	590,431	Sept. 21	1770	415	80	1841
Copeland, Henry M. (See Copeland, James and H. M.)						
Copeland, James and H. M., Brunswick Line, New Zealand. Sprocket-wheel clutch	589,338	Aug. 31	3782	882 883	80	1448
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Steering-head for velocipedes	586,786	July 20	2068	481	80	441
Coppage, Benjamin D. (See Sellers, Bradford, and Coppage.)						
Corby, Charles I. (See Corby, William S. and C. I.)						
Corby, William S. and C. I., Washington, D. C. Machine for working and shaping dough	590,133	Sept. 14	1249	296 297	80	1729
Cord, Edward E. (See Connett, Mathew F., Jr., assignor.)						
Cordes, John F., Chicago, Ill. Metallic order-blank and receipt holder	586,504	July 20	1760	408	80	384
Cornell, George V., Bound Brook, N. J. Sash-fastener	587,682	Aug. 3	701	168	80	796
Cornforth, Robert G., assignor of one-half to F. H. Beecher, Seymour, Conn. Rear-fork end for bicycles	587,933	Aug. 10	1154	267	80	896
Cornforth, Robert G., assignor of one-half to F. H. Beecher, Seymour, Conn. Cone-bearing	590,034	Sept. 14	1062	251	80	1694
Cornforth, Robert G., assignor of one-half to F. H. Beecher, Seymour, Conn. Fitting for cycles	590,825	Sept. 28	2469	585	80	1985
Corrillean, Harry B., Elkton, Md. Incubator	587,646	Aug. 3	643	154	80	784
Corry, William, assignor to Hall's Safe Company, Cincinnati, Ohio. Circular door for safes	590,943	Sept. 28	2678	638	80	2027
Cortright, Moses I., assignor to W. King, Port Byron, N. Y. Water-motor	588,102	Aug. 10	1448	336	80	950
Corwin, William S. (See Tucker and Corwin.)						
Côté, Majarique, and A. Vuillier, Millis, Mass. Bicycle	587,116	July 27	2082	632	80	579
Cothias, Alpha F., Ivry-sur-Seine, France. Alloy	589,935	Sept. 14	885		80	1660
Cothias, Francis A., Ivry-Port, France. Alloy	589,004	July 13	904		80	194
Cothias, Francis A., Ivry-Port, France. Alloy	589,005	July 13	905		80	194
Cothias, Francis A., Ivry-Port, France. Alloy	589,116	July 13	939		80	240
Cothias, Francis A., Ivry-Port, France. Alloy	590,163	July 13	1015		80	215
Couch, John C., Brownwood, Tex. Hay-press	587,709	Aug. 10	763	179	80	827
Coulter, J. E. (See Abernethy, Robert S., assignor.)						
Coulter, John T., Morse, Kans. Hedge-trimming attachment for mowing-machines	590,420	Sept. 7	34	8	80	1488
Coupal, Peter A. (See Gordon, William, assignor.)						
Coursey, Netter R., Blossom, Tex. Attachment for ginning-machines	589,339	Aug. 31	3783	883	80	1448
Courtenay, John I. (See King, Frank, assignor.)						
Cousins, Robert J. (See Flower and Cousins.)						
Coutant, Benoni L., assignor of one-half to S. C. Rowe, McKinley, Tenn. Wire-and-picket-fence machine	589,165	Aug. 31	3345	786	80	1358
Coward, William H., Erith, England. Crushing and grinding mill	589,248	Aug. 31	3499	820 821	80	1388
Cowdrey, Charles H., Fitchburg, Mass. Machine for shaping wooden rims	586,380	July 13	1364	314	80	280
Cowen, Robert, Cambridge, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Receptacle for plastic or other materials	588,545	Aug. 17	2234	519	80	1112
Cowles, Alfred H., Cleveland, Ohio, assignor, by mesne assignments, to Electro Gas Company, of West Virginia. Producing metallic carbids	590,514	Sept. 21	1909	452	80	1868
Cowles, Burton S., assignor of one-fourth to S. L. Geer, Norwich, Conn. Valve-operating mechanism	589,709	Sept. 7	490	117	80	1575
Cowles, William B., Cleveland, Ohio. Hydraulic system for closing water-tight bulk-heads on board ships, &c.	589,958	Sept. 14	915	220	80	1667
Cowley, James T., Lowell, Mass., assignor, by mesne assignments, to American Metallic Cushion Company, of West Virginia. Pillow or cushion	588,957	Aug. 31	2974	697	80	1287
Cox, Frank P. (See Denno, John W., assignor.)						
Cox, George W., Stuart, Iowa. Electric fire-engine	588,399	Aug. 17	1977	457 458	80	1008

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Cox, John H., assignor to J. F. Pease Furnace Company, Syracuse, N. Y. Counterbalance for dampers	587,033	July 27	2536	598	80	552
Cox, William R., Virden, Ill. Lifting-jack	589,701	Sept. 7	491	117	80	1575
Craddock, Thomas F., *et al.* (See Robinson and Donald, assignors.)						
Cragin, William D., New York, N. Y., assignor to G. S. Bracher, Rahway, N. J. Machine for making oil-cloth	589,497	Sept. 7	152	33, 34	80	1510
Craig, John A. (See Ferrar, James C. W., assignor.)						
Cramphin, Allen W. (See Cramphin, James H. and A. W.)						
Cramphin, James H. and A. W., Lincoln, Nebr. Fruit-picking machine	587,647	Aug. 3	645	154	80	784
Crandall, Jesse A., assignor of one-half to F. E. Caldwell, Brooklyn, N. Y. Combined baby-carriage and wheel-chair	586,760	July 20	2031	472	80	434
Crandall, Jesse A., assignor of two-thirds to L. J. Betts and F. E. Caldwell, Brooklyn, N. Y. Parasol-holder for baby-carriages	588,958	Aug. 31	2976	697	80	1288
Crane & Co. (See Crane and Bloomfield, assignors.)						
Crane Company. (See Doolittle, William W., assignor.)						
Crane Company. (See Hayden, James T. and G. W., assignors.)						
Crane Elevator Company. (See Reynolds, George H., assignor.)						
Crane, Frank M. (See Edinger and Crane.)						
Crane, George W., and J. W. Bloomfield, assignors to Crane & Co., Topeka, Kans. Book-back protector	587,380	Aug. 3	186	46	80	701
Crane, Henry M., assignor to American Bell Telephone Company, Boston, Mass. Common-battery multiple switchboard	590,308	Sept. 21	1556	360	80	1801
Crane, Walter E., Hartford, Conn. Printing-machine	587,934	Aug. 10	1155	267 268	80	896
Crane, Walter E., Hartford, Conn. Pointing-machine	590,002	Sept. 14	1004	238 239	80	1682
Crapp, John B., Tallapoosa, Ga. Scraper	588,959	Aug. 31	2977	698	80	1288
Craton, Charles T., Byrd, Ga. Plow	586,545	July 20	1663	388	80	367
Cravath, James R., assignor to Cravath Manufacturing Company, Chicago, Ill. Excessive-current recorder	586,723	July 20	1963	457	80	423
Cravath Manufacturing Company. (See Cravath, James R., assignor.)						
Crawford, Carl H., Chicago, Ill. Carpet-fastener	587,935	Aug. 10	1165	269	80	898
Crawford, James A., and T. E. Crow, Dallas, Tex. Trolley wheel for electric cars	589,702	Sept. 7	493	118	80	1576
Crawford, John A., Allegheny, Pa. Smoke-consumer	586,477	July 13	1330	358	80	311
Crawley, Edwin, Jr., and W. T. Johnston, Newport, Ky., assignors to Potter-Parlin Company, New York, N. Y. Coffee-roasting machine	590,134	Sept. 14	1252	297	80	1729
Crawley, Edwin, Jr., and W. T. Johnston, Newport, Ky., assignors to Potter-Parlin Company, New York, N. Y. Coffee-roasting machine	590,567	Sept. 28	2010	474	80	1900
Crawley, Edwin, Jr., and W. T. Johnston, Newport, Ky., assignors to Potter, Parlin & Campbell. Coffee-roasting machine	590,135	Sept. 14	1254	297	80	1730
Crawley, James E., Milwaukee, Wis. Water-supply regulator	590,641	Sept. 28	2143	508	80	1925
Crawley, James E., assignor of one-half to T. L. McGregor, Milwaukee, Wis. Feed-water heater and purifier	585,928	July 6	516	122	80	100
Cray, George H., *et al.* (See Clouse, Joseph N., assignor.)						
Crea, James E. and W. H., Allegheny, Pa. Ice-cream disher	586,807	July 20	2101	490	80	447
Crea, William H. (See Crea, James E. and W. H.)						
Crepar, Thomas M., Grand Rapids, Minn. Air-ship	588,556	Aug. 24	2235	524	80	1153
Creque, Frank J., and F. R. Moore, Cuyahoga Falls, Ohio. Combined scrub-brush and soap-holder	586,305	July 13	1227	280	80	254
Creveling, Clem, *et al.* (See Sherman, Richard E., assignor.)						
Crider, David W., York, Pa., S. C. Heird, Catonsville, and T. Cocking, Towson, Md., assignors to National Hedge and Wire Fence Company, York, Pa. Combined hedge and wire fence	588,400	Aug. 17	1979	458	80	1063
Crisp, John C., and J. C. Smith, Elyria, Ohio. Bicycle-support	585,010	July 6	474	114	80	93
Crockford, Alfred H., Dartford, England. Pneumatic tire	587,075	July 27	2610	617 618	80	566
Crompton & Knowles Loom Works. (See Clark, John A., assignor.)						
Crompton & Knowles Loom Works. (See Wattie, William, assignor.)						
Cronkhite, Byron E. (See Ritter, Aaron, assignor.)						
Crooke, John J., New York, N. Y. Treating copper sulfids	589,959	Sept. 14	918	220	80	1667
Crooks, Frank B. (See Crooks, Robert S. and F. B.)						
Crooks, Robert S. and F. B., San Francisco, Cal. Game apparatus	587,281	July 27	2009	703	80	640
Croom, Wiley G., assignor of one-half to J. R. Jackson, Vicksburg, Miss. Swinging reclining-chair	586,787	July 20	2069	481 482	80	441
Crosbie, Robert F., Primghar, Iowa. Wrench	590,363	Sept. 21	1655	390	80	1821
Crosby, Oliver, St. Paul, Minn. Locomotive-crane	587,299	Aug. 3	32	6	80	671
Crosby, Oliver, St. Paul, Minn. Pawl and ratchet	587,300	Aug. 3	34	7	80	672
Crosby, Lester D., and J. F. Healy, Windsor, Conn. Trick toy	587,795	Aug. 10	906	211	80	853
Crosby Steam Gage and Valve Company. (See Bates, Edward C., assignor.)						
Crosby Steam Gage and Valve Company. (See Bosworth, Charles B., assignor.)						
Cross, Albert N., Babcock, Wis. Attachment for wheels	590,734	Sept. 28	2312	547	80	1954
Cross, William E., Philadelphia, Pa. Bedstead-securing device	589,960	Sept. 14	925	220	80	1668
Crossley, Harry C. (See Herrick and Crossley.)						
Crossley, James M., Brewton, Ala. Trousers-pocket	587,474	Aug. 3	340	81	80	728
Crothers, Lenord G. (See Morgan, Alfred F., assignor.)						
Crotty, Maurice F., Poughkeepsie, N. Y. Combined brake-shoe and wheel-guard	587,648	Aug. 3	646	154	80	784
Crow, Thomas E. (See Crawford and Crow.)						
Crowell, Beverly, assignor of one-half to C. J. Wiseman, Asbury Park, and C. H. Kidder, Ridgefield Park, N. J. Water-closet tank	590,944	Sept. 28	2679	638	80	2027
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Folding and wrapping machine	587,475	Aug. 3	341	81, 82	80	728
Crowell, Melvin E., Indianapolis, Ind. Clamp-bracket	588,401	Aug. 17	1981	458	80	1064
Crown Pen Company. (See Hafner, Augustus C., assignor.)						
Crownover, John B., Maxville, Ark. Fertilizer-distributer	589,546	Sept. 7	232	57	80	1525
Crump, William E., assignor of one-half to J. T. J. Martin, Sealy, Tex. Bicycle-alarm	586,420	July 13	1434	331	80	294
Crumpler, Charles, Clinton, N. C. Wrench	587,186	July 27	2830	664	80	607
Cruser, Van Dyke. (See Barker and Cruser.)						
Cruze, John, Knoxville, Tenn. Furnace	587,796	Aug. 10	906	211 212	80	853
Cryderman, James E., assignor of two-thirds to B. Alguire, Troy, and C. Johnson, River Falls, Wis. Thill-coupling	585,654	July 6	16	5	80	6
Cuendet, Emile L., New York, N. Y. Feed mechanism for mechanical musical instruments	590,421	Sept. 7	35	8	80	1488
Cullen, John T., Clinton, Iowa. Manhole and cover	588,402	Aug. 17	1983	459	80	1064
Cullingworth, William H. (See Davis, George H., assignor.)						
Cummings, Edwin B., Indianapolis, Ind. Voting-machine	585,742	July 6	157	36, 37	80	34

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Cummings, Edwin B., Indianapolis, Ind. Voting-machine	585,743	July 6	161	37,38	80	35
Cunningham, Robert, *et al.* (See Girling, Wilkinson T., assignor.)						
Curley, Thomas, Waltham, Mass. Drive-gear	586,901	July 27	2459	580	80	537
Curry, Amy M. (See Curry, William H. and A. M.)						
Curry, Edward T., and C. M. Slinker, Pierce, Ky. Rotary harrow	586,595	July 20	1761	408	80	394
Curry, Joseph E., New Orleans, La. Race-horse starter	589,818	Sept. 14	662	158	80	1625
Curry, William H. and A. M., Pioneer, Tex. Insect-proof roller or pedestal	589,405	Sept. 7	102	22	80	1501
Curry, William J., Nanaimo, Canada. Music-turner	590,432	Sept. 21	1771	415	80	1849
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	589,422	Sept. 7	36	9,10	80	1438
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	589,466	Sept. 7	103	23	80	1501
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	590,210	Sept. 21	1397	329	80	1771
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	590,211	Sept. 21	1398	330	80	1772
Curtis Company. (See Curtis, Charles G., assignor.)						
Cushing, Alvin M., Springfield, Mass. Ventilating cars or vessels	590,515	Sept. 21	1910	452	80	1869
Cushing, M. C. (See Fogg, Jason T., assignor.)						
Cushing, Samuel W., assignor to R. S. Gardner, Derby, Conn. Device for suspending draperies	589,703	Sept. 7	498	118	80	1576
Cushman, Abe L., assignor of one-half to B. A. Kimball, Concord, N. H. Armature for induction-motors	588,602	Aug. 24	2511	579	80	1182
Cushman, Fred F., Boston, Mass. Automatic-cut-off gas-burner	590,008	Sept. 14	1018	240	80	1685
Cyclone Street Cleaner. (See Smith, Fred R., assignor.)						
Cyclone Street Cleaner. (See Winspear, Smith, and Sansom, assignors.)						
Cypher, John W., Benton, Ill. Attachment for mowing-machines	590,388	Sept. 21	1696	400	80	1829
Czepull, Julius J., Lancaster, assignor of one-half to B. D. and E. R. Coleman, Lebanon, Pa. Composition for massing fine iron ore and making same	588,792	Aug. 24	2668	.....	80	1217
D. M. Osborne & Company. (See Sharp, Charles S., assignor.)						
Daesch, Minnie, Belleville, Ill. Cooking utensil	590,212	Sept. 21	1399	330	80	1772
Daggett, Charles L., New York, N. Y., assignor to Beer Flushing Machine Company, of New York. Flushing apparatus	587,986	Aug. 10	1166	269	80	808
Daintree, Frederick, Richmond, England. Safety-lamp	589,936	Sept. 14	886	211	80	1660
Dale, Charles H., assignor to J. L. Dale, New York, N. Y. Connecting hose to nipples	590,258	Sept. 21	1471	347	80	1786
Dale, James A., *et al.* (See Rawhouser, George A., assignor.)						
Dale, Jennie L. (See Dale, Charles H., assignor.)						
Dale, William F., Bowmanville, Canada. Hame-tug	586,015	July 6	767	171	80	150
Dall, William, Glasgow, Scotland, assignor to Dental Manufacturing Company, Limited, London, England. Dental furnace	590,214	Sept. 21	1408	331	80	1773
Dalley, John H. (See Bancroft, Sidney, assignor.)						
Dalsing, Benjamin, *et al.* (See Evertsen, Ellert, assignor.)						
Dalwigk, Hermann, West Hoboken, N. J., assignor of one-fourth to A. J. Meter and A. O. Arnold, New York, N. Y. Means for checking or stopping horses	590,658	Sept. 28	2173	516	80	1930
Daly, John M., Chicago, Ill. Car-ventilator	590,642	Sept. 28	2145	508	80	1925
Damour, Ferdinand, Bolckow, Mo. Self-propelled vehicle	588,054	Aug. 10	1366	317	80	935
Dana, Frederick I., assignor to Thomas Phillips Company, Providence, R. I. Expansible pulley	588,898	Aug. 24	2870	669	80	1250
Dana, William H., Chicago, Ill. Combined stand and ironing-table	586,306	July 13	1228	280 281	80	255
Daniels, Reuben M., Appleton City, Mo. Dish-cleaner	588,219	Aug. 17	1653	380	80	1003
Danielson, Bernhard J., Milwaukee, Wis. Storm or screen frame	590,004	Sept. 14	1020	240	80	1686
Danielson, Charles J., *et al.* (See Parmley, Lemuel D., assignor.)						
Dannenbrink, August, *et al.* (See Sletcher, Frederick, assignor.)						
Dannenbrink, Henry, *et al.* (See Sletcher, Frederick, assignor.)						
Darby, Ion. (See Darby and Punchard.)						
Darby, Walter and I., and J. H. Punchard, London, England. Burning liquid hydrocarbons for producing incandescent oil-burners	589,819	Sept. 14	663	158 159	80	1625
Darley, John W., Jr., Baltimore, Md. Electric railway	590,881	Sept. 28	2560	611 612	80	2003
Darley, John W., Jr., assignor of one-half to M. Holzman, P. and L. Hamburger, Baltimore, Md. Electric railway	590,882	Sept. 28	2565	612 613 614	80	2004
Darling, A. M., *et al.*, trustees. (See Hanson, Joseph, assignor.)						
Darling, Daniel W., Worcester, Mass. Stone-dressing machine	588,634	Aug. 24	2408	554	80	1163
Darling, Henry I. (See Delaney, Mark, assignor.)						
Darling, James D., assignor to J., T. S., and G. L. Harrison, Philadelphia, Pa. Porous diaphragm for electrolytic apparatus	590,826	Sept. 28	2469	586	80	1985
Darling, William H. (See Price, John R., assignor.)						
Darlington, Frederick. (See Stanley and Darlington.)						
Darms, Herman A., Napa, Cal. Rifle attachment for shotguns	590,411	Sept. 21	1737	408	80	1835
Darré, Anton W., assignor to C. Mortensen, Copenhagen, Denmark. Machine for cutting cardboard obliquely	589,075	Aug. 31	3175	747	80	1325
Davenport, Joseph, Massillon, assignor of one-fourth to G. D. Saxton, Canton, Ohio. Rotary steam-engine	588,131	Aug. 17	1522	348	80	979
Daves, William, Jersey City, assignor to J. T. Cade, Arcola, N. J. Detector-bar for railway-rails	586,788	July 20	2070	482	80	442
Davidson, Frank B. (See Howe and Davidson.)						
Davidson, Thomas, West Conshohocken, Pa. Gate	586,016	July 6	768	171	80	150
Davidson, William H., Boston, Mass. Hand-scoop weighing-scale	590,035	Sept. 14	1063	251	80	1694
Davies, Charles W. T., assignor to Hand-Tied Tie Company, San Francisco, Cal. Necktie	586,284	July 13	1200	274	80	249
Davies, Frederick C., administrator. (See Mills, Henry.)						
Davies, Thomas W., assignor to R. W. Hill and G. G. Kenney, St. Louis, Mo. Match-box	587,287	July 27	3008	705	80	641
Davis, Albert, *et al.* (See Young, Albert, assignor.)						
Davis, Albert F., Rutland, Vt. Mill	586,381	July 13	1366	315	80	802
Davis, Albert G., Washington, D. C. Regulating electric motors	587,937	Aug. 10	1168	269 270	80	898
Davis, Charles A., *et al.* (See Sobinski, Charles O., assignor.)						
Davis, Charles E., assignor to Independent Electric Company, Chicago, Ill. Mining-machine. (Reissue)	11,625	Aug. 10	1488	343	80	958
Davis, Clarence K. (See Davis, Emerson and C. K.)						
Davis, Edwin F., West Caton, assignor of one-half to Q. W. Wellington, Corning, N. Y. Electrocution-chair	587,649	Aug. 3	647	155	80	784
Davis, Emerson and C. K., Indianapolis, Ind.; said Emerson Davis assignor to C. K. Davis. Bicycle-brake	590,700	Sept. 28	2250	532	80	1944
Davis, George E., assignor of twelve twenty-fifths to L. L. Lightcap, Dubuque, Iowa. Lubricator	590,611	Sept. 28	2086	494	80	1914
Davis, George H., assignor of one-half to W. H. Cullingworth, Richmond, Va. Horse-detacher	590,735	Sept. 28	2313	547	80	1955
Davis, Isaac, London, England. Metallic wheel	589,961	Sept. 14	926	221	80	1668

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Davis, Michael F., Portland, Me. Oar	588,220	Aug. 17	1654	381	80	1004
Davis, Michael J., Flint, Mich. Graining-tool	589,467	Sept. 7	104	23	780	1501
Davis, Morgan, Jr., Scranton, assignor of one-half to C. D. Sanderson, Throop, Pa. Coal-separating machine	590,588	Sept. 21	1948	461	80	1875
Davis, Nathan H., Philadelphia, Pa. Axle-box lid	588,960	Aug. 31	2979	698	80	1298
Davis, R. G., *et al.* (See Wilkinson, John F., assignor.)						
Davis, Warren B., Brooklyn, N. Y. Needle-guard for sewing-machines	586,898	July 20	2151	502	80	457
Davis, William J., assignor to C. Farquhar and G. M. Dorrance, Jr., New York, N. Y. Fastening and tightening device for trunk-straps	588,268	Aug. 17	1750	405	80	1021
Davis, William W., St. Louis, Mo. Telephone system	586,529	July 13	1638	380 381	80	333
Davison, Albert, Belvidere, Ill. Wire-stretcher	588,403	Aug. 17	1964	459	80	1064
Davison, Albert, Belvidere, Ill. Bag-tie	588,955	Aug. 24	2804	652	80	1237
Davison Bottle Seal Company. (See Davison, Charles W., assignor.)						
Davison, Charles W., Minneapolis, Minn., assignor, by mesne assignments, to Davison Bottle Seal Company, of Minnesota. Seal for bottles	588,269	Aug. 17	1732	406	80	1021
Davisson, Claude E. (See Booth and Davisson.)						
Dawes, Edmund, *et al.* (See Dawes, Robert, assignor.)						
Dawes, Edmund and R., Philadelphia, Pa. Twisting-machine	590,827	Sept. 28	2471	586	80	1985
Dawes, Robert. (See Dawes, Edmund and R.)						
Dawes, Robert, Philadelphia, Pa. Fastening for handle-bars of bicycles	587,988	Aug. 10	1174	271	80	899
Dawes, Robert, assignor of two-thirds to E. Dawes, Philadelphia, Pa., and E. H. Haskell, Boston, Mass. Spinning or twisting and drawing machine	587,650	Aug. 3	648	155	80	785
Dawes, Robert, assignor of two-thirds to E. Dawes, Philadelphia, Pa., and E. H. Haskell, Boston, Mass. Twisting and winding machine	590,828	Sept. 28	2472	586	80	1985
Dawnay, George R., London, England. Tile for permanent centering to fireproof floors	587,797	Aug. 10	908	212	80	853
Day, Charles M., Brooklyn, N. Y. Rotary pulverizing-mill	587,501	Aug. 3	389	92	80	736
Day, Maxwell W., Schenectady, N. Y., assignor to General Electric Company, of New York. Elevator-controller	589,891	Sept. 14	810	191	80	1647
Dayton Manufacturing Company. (See Kinsey, Isaac, assignor.)						
De Armon, Thomas, Dayton, Ohio. Oil-cake former	586,353	July 13	1321	302	80	272
De Bauw, Jean F., Brussels, Belgium. Electric meter	587,798	Aug. 10	909	212 213	80	854
De Haven & Co. (See Roe, John A., assignor.)						
De Kalb Fence Company. (See Shellaberger, Michael M., assignor.)						
De Kalb Fence Company, *et al.* (See Shellaberger, George H., assignor.)						
De la Harpe, Charles, Basle, Switzerland, assignor to L. Durand, Huguenin & Co., Basle, Switzerland, St. Fons, France, and Hüningen, Germany. Blue dye	585,934	July 6	525	.....	80	102
De Laval Separator Company. (See Beach, Edward W., assignor.)						
De Lisle, Thomas C., San Francisco, Cal. Hand-measurer for gloves	587,940	Aug. 10	1176	271	80	900
De Long, Benjamin F. (See Delong, Osker and De Long, B. F.)						
De Long, Ella. (See Tousey and De Long.)						
De Mers, Armand J., Batavia, N. Y. Bicycle stand or rack	589,643	Sept. 7	396	96	80	1557
De Quillfeldt, Charles, Amityville, N. Y. Bottle-stopper	588,009	Aug. 10	1292	299	80	922
De Soto, Hernando, Dresden, Germany. Stick or umbrella holder	588,498	Aug. 17	2152	499	80	1095
De Vis, Edwin C. J., *et al.* (See Robinson and Donald, assignors.)						
De Voe, Friend F., Lima, Ohio. Quick-action wrench	589,166	Aug. 31	3346	786	80	1358
De Witt, Charles, Baltimore, Md. Bottle-stopper	589,704	Sept. 7	494	118	80	1576
De Witt, George W., San Ardo, Cal. Gang-plow	587,521	Aug. 3	428	100	80	743
De Wolf, John O., Cambridge, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Apparatus for repairing pneumatic tires	588,546	Aug. 17	2235	519	80	1112
Deaderick, David S., Mammoth Spring, Ark. Cotton-picker	590,090	Sept. 14	1158	274	80	1712
Dean, Henry T. (See Schweinfurth, John G., assignor.)						
Dean, William E., West Duluth, Minn. Air-cushion for nigger-bars	590,213	Sept. 21	1400	330	80	1772
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone-exchange system	590,136	Sept. 14	1255	297	80	1730
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone system	590,137	Sept. 14	1259	298	80	1731
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone-exchange system	590,185	Sept. 14	1338	317	80	1747
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone system	590,186	Sept. 14	1341	317	80	1748
Deane, Albert L., *et al.* (See Coleman, Clyde, assignor.)						
Deane, Albert L., *et al.* (See Coleman, Clyde, assignor.) (Reissue.)						
Deardorff, George B., and C. E. Kreiter, Canal Dover, Ohio; said Kreiter assignor to said Deardorff. Float for fruit-cans	590,389	Sept. 21	1697	400	80	1829
Deborde, Julius, Hanover, Germany. Tire for velocipedes	585,929	July 6	517	122	80	100
Dechant, Calvin M., Reading, Pa. Foot-rest for registers	588,693	Aug. 24	2513	579	80	1182
Dechant, William A., East Liverpool, Ohio. Potter's mold	590,365	Sept. 21	1656	391	80	1821
Decker, Edward P., Brooklyn, N. Y. Recording speed-indicator	586,961	July 27	2400	566	80	526
Decker, William L., Worcester, Mass., assignor to J. A. Mead, Rutland, Vt. Chain adjustment for bicycles	587,710	Aug. 10	764	180	80	827
Decker, William L., Worcester, Mass., assignor to J. A. Mead, Rutland, Vt. Saddle-support for bicycles	587,711	Aug. 10	765	180	80	828
Decker, William M., Kingston, N. Y. Nursing-nipple	587,939	Aug. 10	1175	271	80	900
Dederick, Ezra, Milwaukee, Wis. Bicycle	586,596	July 20	1763	409	80	385
Dederick, Peter K., Loudonville, N. Y. Bale-band machine	586,331	July 13	1291	295	80	266
Dederick, Peter K., Loudonville, N. Y. Baling-press	586,332	July 13	1292	295	80	266
Dederick, Peter K., Loudonville, N. Y. Adjustable bale-tie	586,839	July 20	2152	503	80	457
Dederick, Peter K., Loudonville, N. Y. Straightening and cutting attachment for bale-band machines	587,520	Aug. 3	426	100	80	742
Dedicke, Carl E. T., Dolgeville, assignor to A. Doige & Son, New York, N. Y. Machine for buffing or finishing felt	588,055	Aug. 10	1367	317 318	80	935
Deering Harvester Company. (See Peck, Ezra A., assignor.)						
Deering Harvester Company. (See Plopper, James A., assignor.)						
Deering Harvester Company. (See Wright, Edgar A., assignor.)						
Defianco Machine Works. (See Ensign, George A., assignor.)						
Degelman, William C., Allegheny, assignor to Victor Manufacturing Company, Pittsburg, Pa. Device for supporting bath-tubs when applying enamel	588,404	Aug. 17	1965	459	80	1065
Dehn, John, Chicago, Ill. Book	587,076	July 27	2611	618	80	566
Delmel, Francis. (See Freeland, Alfred A., assignor.)						
Delseroth, George, Albany, N. Y. Covered pan for culinary purposes	586,705	July 20	1932	405	80	417
Deitch, Charles J. (See Martin, James, assignor.)						
Delane, John, Jr., and J. F. Blue, Terre Haute, Ind. Switch-mate	587,712	Aug. 10	766	180	80	828
Delaney, James G. (See Miller and Delaney.)						
Delaney, Mark, Union Hill, assignor to himself, and H. I. Darling, Jersey City, N. J. Cover for washtubs or like receptacles	586,421	July 13	1436	332	80	294

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Delaunay-Belleville, Louis M. G., Paris, France. Steam-generator	590,220	Sept. 28	2474	587	80	1986
Delaunay-Belleville, Louis M. G., Paris, France. Feed-water heater	590,890	Sept. 28	2475	587, 588, 589	80	1986
Delong, Osker, and B. F. De Long, Gainford, assignors of one-half to J. F. Grote, West Side, and J. F. Lacey, Oskaloosa, Iowa. Car-seal	590,678	Sept. 28	2216	525	80	1988
Delorieux, John. (See Toulouse and Delorieux.)						
Demarest, Ephraim B., New York, N. Y. Apparatus for raising or lowering heavy weights or building materials	587,301	Aug. 3	35	7	80	672
Dement, Genevieve, executrix. (See Gerstle, Albert M.)						
Demorest, Richard W., *et al.* (See McDonald, John D., assignor.)						
Demoulin, Jean, Liege, Belgium. Apparatus for purifying water	589,937	Sept. 14	887	211, 212	80	1661
Dempsey, Eugene C., *et al.* (See Bell, William R., assignor.)						
Dempster, James. (See Tyler and Dempster.)						
Demuth & Co., William. (See Frost, Kilbourn, and Woolson, assignors.)						
Denere, Peter, Chicago, Ill. Miter board or block	586,096	July 13	906	208	80	194
Denere, Peter, Chicago, Ill. Floor-plane	586,164	July 13	1015	229	80	215
Denio Smoke Consumer Company. (See Denio, William L., assignor.)						
Denio, William L., Rochester, N. Y., assignor to Denio Smoke Consumer Company. Smoke-consuming device	588,405	Aug. 17	1987	460, 461	80	1065
Denison, William C., Albuquerque, N. Mex. Ter. Shading-pen	587,476	Aug. 3	349	82	80	729
Denmead, John W. (See Palmer and Denmead.)						
Dennett, Herbert E., Boston, Mass. Artificial tooth and making same	589,383	Aug. 31	3863	902	80	1463
Denney, Harmer, New York, and W. H. Bromley, New Brighton, N. Y. Pump	586,354	July 13	1324	303	80	273
Dennis, Jeremiah W. (See Taylor and Dennis.)						
Dennis, Thomas L., Jr., Brooklyn, N. Y. Phonograph	590,643	Sept. 28	2147	508	80	1925
Denny, John W., Boston, assignor to F. P. Cox, Malden, Mass. Fastening for boots, shoes, corsets, &c	585,655	July 6	18	5	80	6
Dental Manufacturing Company. (See Dall, William, assignor.)						
Denzi, Isaac F. (See Lambert, Alonzo, assignor.)						
Deplanty, Charles F., and E. E. Wilson, assignors of one-fourth to L. McNeal, Coffeyville, Kans. Adjustable stay for doors	588,902	Aug. 31	2963	701	80	1289
Dernell, Frank H., and P. H. Brehmer; said Brehmer assignor to L. E. Brehmer, Rutland, Vt. Detachable pedal for musical instruments	589,644	Sept. 7	397	96, 97	80	1557
Deterick, J. S., *et al.* (See Flanigan, Robert, assignor.) (Reissue.)						
Dettmar, Michael, St. Louis, Mo. Car-fender	588,816	Aug. 24	2741	635, 636	80	1225
Deutsch-Oesterreichische Mannesmannröhren-Werke. (See Bungeroth, Rudolf, assignor.)						
Devlin, Lawrence K., Havre, Mont. Electric-railway system	586,422	July 13	1437	332	80	204
Devlin, Thomas, *et al.* (See Finnegan, John, assignor.)						
Devold, William, St. Mary's, Kans. Insect-destroyer	587,420	Aug. 3	252	61	80	714
Deweese, George W., Troy, Ohio. Land-roller	590,138	Sept. 14	1262	298	80	1732
Dewhurst, Algernon, Skipton, England. Machine for winding thread	586,423	July 13	1440	332, 333, 334	80	205
Dewson, Edward H., Quincy, Mass. Apparatus for tanning	590,390	Sept. 21	1698	400	80	1829
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter, Freeman D., Winfield, N. Y. Reed-organ	588,718	Aug. 24	2550	590	80	1189
Dexter, Talbot C., Pearl River, N. Y. Collating-machine	588,635	Aug. 24	2411	555, 556	80	1164
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Header-up device for paper-folding machines	588,694	Aug. 24	2513	579, 580	80	1183
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Paper-registering mechanism	590,476	Sept. 21	1840	495	80	1855
Dial, Wilbur F. (See Dimond and Dial.)						
Diamond, Franklin E., *et al.* (See Grigg, William E., assignor.)						
Diamond Match Company. (See Wright, Jacob P., assignor.)						
Diamond, Samuel S., *et al.* (See Grigg, William E., assignor.)						
Dickason, Jonathan, Agosta, Ohio. Nut-lock	586,546	July 20	1664	388	80	367
Dickerson, Edward N. (See Raders, Joseph F., assignor.)						
Dickerson, Henry J., Niagara Falls, N. Y. Pulp-screen	585,656	July 6	19	5, 6	80	6
Dickinson, Francke W., *et al.* (See Walkins, Louis E., assignor.)						
Dickinson, Isaac H. (See Webster, George, assignor.)						
Dicks, William, assignor to Spaulding Machine Screw Company, Buffalo, N. Y. Velocipede-fitting	589,498	Sept. 7	153	34	80	1511
Dickson, John, St. Paul, Minn. Adjustable handle-bar for bicycles	586,307	July 13	1229	281	80	255
Dickson, John F., Trenton, N. J. Removable covering for handles	585,657	July 6	20	6	80	7
Diebold, Theodore, New York, assignor of one-half to E. E. Moore, Brooklyn, N. Y. Closure for bottles, jars, &c	586,017	July 6	769	171	80	151
Diephaus, Henry. (See Dietz, Diephaus, and Grapy.)						
Diesbach, Frederick. (See Roth, Albert J., assignor.)						
Dieterle, Edward W. (See Irons, David, assignor.)						
Dietz, Alanson F., Altamont, N. Y. Harness-tug support	588,406	Aug. 17	1991	461	80	1065
Dietz, Charles, H. Diephaus, Cincinnati, Ohio, and E. Grapy, Lawrenceburg, Ind. Washing-machine	588,118	Aug. 10	1484	342	80	957
Dill, Martin H., Louisville, Ky. Starter's gate for rack-tracks	590,477	Sept. 21	1842	495	80	1855
Dill, Thomas C., assignor to T. C. Dill Machine Company, Philadelphia, Pa. Apparatus for dyeing	586,117	July 13	940	211, 212	80	201
Dillberg, Gustaf, and P. Rabbidge, Sydney, New South Wales. Telephone system	586,993	July 27	2455	580	80	538
Dillenburg, Mathias, Chicago, Ill. Coupling	587,546	Aug. 3	473	110	80	752
Dimond, George H., and W. F. Dial, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Friction driving-pulley for sewing-machines	588,963	Aug. 31	2964	701	80	1289
Dinsmore, George F., Boston, Mass. Transmitting heat	589,340	Aug. 31	3784	884	80	1448
Dion, Albert de, G. Bouton, and F. Chaplet, Paris, France. Differential gearing	588,856	Aug. 24	2805	652	80	1237
Dirkes, Frank A., New York, N. Y. Holder for globes or shades	589,547	Sept. 7	233	57	80	1526
Diss, Charles, Brooklyn, N. Y. Air-pump for pneumatic tires	586,736	July 20	1966	463	80	428
Dittman, John F., Pittsburg, Pa. Rotary shears	586,808	July 20	2102	490	80	447
Dix, Dwight R., assignor, by mesne assignments, to M. R. Dix, W. F. Bailey, and B. Brown, Eau Claire, Wis. Butter-mold	586,580	July 13	1640	382	80	333
Dix, Martha R., *et al.* (See Dix, Dwight R., assignor.)						
Dix, William J., Milford, Mass., assignor of one-half to W. B. Temple. Sewing-machine attachment	590,091	Sept. 14	1161	274	80	1713
Dixon, James Q., San Francisco, Cal. Composition of matter and method of applying same	587,799	Aug. 10	913		80	854
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, New York, N. Y. Steam heating apparatus	586,761	July 20	2032	472, 473	80	434

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Doak, Henry M., Jr., Nashville, Tenn. Switch device	588,478	July 13	1532	359	80	312
Doane, Francis. (See Severy, Melvin L., assignor.)						
Dobbins, Timothy C., Telluride, Colo. Electrical cigar-lighter	589,938	Sept. 14	889	212	80	1661
Dobson & Barlow. (See Dobson and Bromiley, assignors.)						
Dobson, Benjamin A., and W. I. Bromiley, assignors to Dobson & Barlow, Limited, Bolton, England. Cover for carding-engines	588,132	Aug. 17	1524	348, 349	80	979
Dobson, Robert L., Detroit, Mich. Cover-support, box-opener, hammer, and stamp-eraser	588,407	Aug. 17	1992	461	80	1066
Docking, Harry R., *et al.* (See Greengrass, Francis W., assignor.)						
Dodd, Henry V., London, England. Combined cutter and reel or spool for thread	589,341	Aug. 31	3786	884	80	1449
Doddridge, James M., Milton, Ind. Bunching attachment for mowing-machines	588,321	Aug. 17	1842	426	80	1038
Dodge, Frederick B. (See Whittlesey and Dodge.)						
Dodge, James M., assignor to Link-Belt Engineering Company, Philadelphia, Pa. Automatic feed-spout for conveyers	588,899	Aug. 24	2372	669, 670	80	1250
Dodge, James M., assignor to Link-Belt Engineering Company, Philadelphia, Pa. Chute for feeding conveyers	588,900	Aug. 24	2873	670	80	1250
Dodge, Kerr, Philadelphia, Pa. Adjusting mechanism for feed-chutes for conveyers	588,901	Aug. 24	2874	670, 671	80	1251
Dolg, David. (See Dolg, William and D.)						
Dolg, William and D., London, England. Pneumatic spring for velocipedes	589,820	Sept. 14	686	150	80	1625
Dolan, Edward J., Philadelphia, Pa., assignor, by mesne assignments, to Acetylene House Lighting Company, of West Virginia. Tip for acetylene-gas burners	589,342	Aug. 31	3787	884	80	1449
Dole, Charles P., assignor of one-half to C. R. Heneage, Duluth, Minn. Clam-shell hoisting or dredging apparatus	586,536	July 13	1648	384	80	334
Dolen, Thomas F., Rochester, N. Y. Transom-sash pivot	585,840	July 6	352	81	80	70
Dolge, Alfred, Dolgeville, N. Y. Machine for making piano-hammers	586,018	July 6	770	171, 172	80	151
Dolge, Charles. (See Knout and Cook, assignors.)						
Dolge & Son, Alfred. (See Dedicke, Carl E. T., assignor.)						
Dolge & Son, Alfred. (See Millet, John W., assignor.)						
Doll, Horace H., Philadelphia, Pa. Car-fender	587,430	Aug. 3	253	61	80	714
Donald, David. (See Robinson and Donald.)						
Donaldson, Fred H. (See Owen, Williams, and Donaldson.)						
Donat, Gustavo. (See Plunkett and Donat.)						
Done, John. (See Sheard and Done.) (Reissue.)						
Donnell, James W., *et al.* (See Coleman, Clyde, assignor.)						
Donnell, James W., *et al.* (See Coleman, Clyde, assignor.) (Reissue.)						
Donner, John O., Ramsay, N. J., assignor to American Sugar Refining Company, New York, N. Y. Apparatus for decarbonizing bone-black	585,658	July 6	21	6, 7	80	7
Donner, John O., Ramsay, N. J., assignor to American Sugar Refining Company, New York, N. Y. Machine for packing cube-sugar	587,800	Aug. 10	914	213	80	854
Donnlug, George W., Brooklyn, N. Y. Car-fender	587,187	July 27	2830	664	80	607
Donohue, John F. (See Smith, Andrew, assignor.)						
Donovan, James, Brockville, Canada. Car-axle lubricator	587,188	July 27	2832	664	80	607
Doolittle, Irwin P., Redlands, Cal. Hook and eye	587,189	July 27	2833	665	80	607
Doolittle, Jacob M., New Kensington, Pa. Non-refillable bottle	590,054	Sept. 14	1092	258	80	1699
Doolittle, John F., assignor to Cleveland Punch and Shear Works Company, Cleveland, Ohio. Bending-machine	589,167	Aug. 31	3347	786, 787	80	1358
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Machining castings	587,477	Aug. 3	350	83	80	729
Doran, John P., Bonduel, Wis. Engine	587,361	Aug. 3	142	34, 35	80	692
Dorchester, Edward G., Geneva, N. Y. Speed-indicating and distance-measuring mechanism	587,302	Aug. 3	37	7, 8, 9	80	672
Dornan, Peter E., New York, N. Y. Folding bed or crib	586,333	July 13	1294	296	80	247
Dornseif, Jacob W., and O. Y. Moser, Worden, Ill. Unicycle	589,249	Aug. 31	3502	821	80	1388
Dörr, Carl T., and M. Stühler, Cologne, Germany, assignors to said Dörr. Means for automatically operating bulkhead-doors	588,793	Aug. 24	2694	623	80	1217
Dorr, George W., Chicago, Ill. Bicycle-tire	589,939	Sept. 14	889	212	80	1661
Dorrance, George M., Jr., *et al.* (See Davis, William J., assignor.)						
Dorscheil, Lucas D. (See Moehn, John N., assignor.)						
Dosh, Harry S., assignor to G. F. Obrecht and G. Scheihing, Baltimore, Md. Electric igniter for gas-engines	586,479	July 13	1533	350	80	312
Doty, Harry A., New Haven, Conn. Type-writer ribbon	587,941	Aug. 10	1178	272	80	900
Doucet, Theodore. (See Aikman, David, assignor.)						
Dougall, George M., Prescott, Ariz. Ter. Clamp	587,[illegible]	July 27	2537	598	80	552
Dougall, William G. (See Montague and Dougall.)						
Dougherty, James J., Philadelphia, Pa. Combined automatic fender and brake	586,166	July 13	1018	229	80	215
Dougherty, John J., Paterson, N. J. Ornamental screen for ladies' bicycle-saddles	586,165	July 13	1017	229	80	215
Doughty, John S., Haddonfield, and E. Z. Collings, Laurel Springs, N. J. Guard for bicycle-tires	588,221	Aug. 17	1655	381	80	1004
Douglas, Frank H. (See Nicholson, Charles, assignor.)						
Douglas, George W., assignor to Market Street Railway Company, San Francisco, Cal. Bicycle-holder	586,681	July 20	1899	442	80	411
Dover, Horace W., Northampton, England. Apparatus for manufacturing cycle-gear cases	586,840	July 20	2154	503	80	457
Dowler, Morris, *et al.* (See Berry, John S., assignor.)						
Dowling, Harry S., Toledo, Ohio. Padlock	590,055	Sept. 14	1093	258	80	1700
Downing, William C., Chicago, Ill. Ticket-punch and numbering and dating device	588,322	Aug. 17	1844	426, 427, 428	80	1038
Downs, George A., *et al.* (See Fowler, Edward C., assignor.)						
Dowse, William B. H., Newton, Mass., assignor to Consolidated Fastener Company, Portland, Me. Fastener	586,118	July 13	944	213	80	201
Doyle, Dennis J. (See Smith and Doyle.)						
Doyle, George G., Ogden, Utah. Stock and die	589,645	Sept. 7	400	97	80	1558
Doyle, Willis R. (See Kemble, Wallace C., assignor.)						
Draher, John, Waterbury, assignor to Warner Brothers Company, Bridgeport, Conn. Blanking or studding machine	589,595	Sept. 7	315	76, 77, 78	80	1541
Drake, John K. (See Brown and Drake.)						
Drake, William. (See Sparrow, George, assignor.)						
Draper Company. (See Draper, George O., assignor.)						
Draper Company. (See Gartner, Alfred, assignor.)						
Draper Company. (See Ludlam and Claus, assignors.)						
Draper Company. (See Northrop, James H., assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper Company. (See Scheid, Adam, assignor.)						
Draper Company. (See Scheid, Carl, assignor.)						
Draper Company. (See Sykes, Thomas, assignor.)						
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp stop-motion for looms	587,651	Aug. 3	650	155	80	755

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Spinning-ring	588,817	Aug. 24	2742	636	80	1225
Draper, William B. (See Page, Warren B., assignor.)						
Draper, William F., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Loom	587,632	Aug. 3	652	156	80	786
Draper, William F., and J. H. Northrop, Hopedale, assignors to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Loom	590,092	Sept. 14	1163	275	80	1713
Draullette, Edmond, Paris, France. Cock with driving parts entirely isolated from liquids	588,765	Aug. 24	2651	612	80	1209
Drawe, Jennie, assignor of seven-twentieths to J. Drawe and W. Perrin, Marine City, Mich. Invalid-rest	586,531	July 13	1642	382	80	333
Drawe, John, *et al.* (See Drawe, Jennie, assignor.)						
Dreher, Carl, assignor to C. H. Boehringer Sohn, Niederingelheim, Germany. Manufacturing leather	590,036	Sept. 14	1064	.....	80	1694
Dreisbach, Sarah K., *et al.* (See Dreisbach, William I., assignor.)						
Dreisbach, William I., assignor to J. B. Baldwin, D. S. Mahaffey, and S. K. Dreisbach, Williamsport, Pa. Pneumatic tire	588,557	Aug. 24	2257	524	80	1134
Dressler, Charles E., New York, N. Y. Gas-stove	585,815	July 6	288	67	80	59
Drew, Henry P., New York, N. Y. Swing-joint for gas-fixtures	586,841	July 20	2155	503	80	457
Drexel, John R. (See Burland, Arthur E., assignor.)						
Drop Seat Cycle Company. (See Heyl, Henry R., assignor.)						
Du Bois, Dallas, Montclair, N. J. Game apparatus	590,093	Sept. 14	1167	275	80	1714
Du Bois, Julian. (See Hull and Du Bois.)						
Du Perow, Mortimer, Washington, D. C. Electric signaling apparatus	587,433	Aug. 3	202	64	80	715
Du Pont, Antoine B., Detroit, Mich., assignor to Steel Motor Company, Johnstown, Pa. Electric trolley device	590,589	Sept. 28	2051	485	80	1907
Du Pont, Francis G., Wilmington, Del. Process of and apparatus for making smokeless powder	590,931	Sept. 28	2053	633	80	2022
Du Pont, T. C., *et al.* (See Phelps, Fred A., Jr., assignor.)						
Dubbelde, John J. (See Dubbelde, Jurgen, assignor.)						
Dubbelde, Jurgen, assignor of one-half to J. J. Dubbelde, Baltimore, Md. Lock-hinge	586,355	July 13	1325	303	80	273
Dubrow, John H., assignor to W. U. Masters, Cleveland, Ohio. Incandescent burner	589,343	Aug. 31	3789	884	80	1449
Duck, Albert G., Waynesburg, Ohio. Musical instrument	587,089	July 27	2633	621	80	570
Dudley, Frank H., Jay, Me. Device for preventing rolls of paper from slipping on winders	586,167	July 13	1021	230	80	216
Dudley, W. W., *et al.* (See Houck, Thomas J., assignor.)						
Duehring, Carl H., Hoboken, N. J., assignor to D. B. Frager, New York, N. Y. Coffee-roaster	585,659	July 6	24	7	80	7
Duffield, Thomas C., Baltimore, Md., assignor of one-half to J. Pease, Brooklyn, N. Y. Tool for forming heads of bottles	586,532	July 13	1643	382	80	334
Duffus, William. (See Omick, William K., assignor.)						
Duffy, Alexander M., Cortland, N. Y. Feed-water purifier	588,323	Aug. 17	1849	428	80	1039
Dugger, Jesse T., Chattanooga, Tenn. Hernial truss	588,964	Aug. 31	2986	701	80	1290
Dujmovich, Matteo C. (See Berreyesa, Santiago, assignor.)						
Duke, George W., *et al.* (See Grant, Quinties C., assignor.)						
Duke, John F., London, England. Manufacture of mantels for incandescent gas-lamps	586,994	July 27	2456	561	80	538
Dukes, Harry S., St. Louis, Mo. Type-writing machine	587,431	Aug. 3	253	62, 63	80	714
Dukes, Harry S., St. Louis, Mo. Type-writing machine	587,432	Aug. 3	260	63	80	715
Dulier, Edward Z., Richmond, England. Apparatus for clearing smoke	590,516	Sept. 21	1911	462	80	1905
Dulin, William, Chanute, Kans. Churn-dasher	588,408	Aug. 17	1998	461	80	1066
Dumas, Harry M., Detroit Mich. Electric burglar-alarm	588,695	Aug. 24	2515	580	80	1183
Dumas, Victor, Jr., and A. Knapp, Jr., Java, N. Y. Thill-coupling	585,660	July 6	25	7	80	7
Duncan, Albert, Dupont, Ga. Self-hiving beehive	590,366	Sept. 21	1657	391	80	1821
Duncan, Charles E., Old Hundred, N. C. Rotary engine	589,076	Aug. 31	3177	748	80	1325
Duncan, John T., Toronto, Canada. Hose-clip	590,094	Sept. 14	1168	276	80	1714
Dunham, Benjamin F., Brockton, Mass. Skiving-machine	586,308	July 13	1231	281	80	255
Dunham, Joseph C., Norman, Okla. Ter. Window	590,305	Sept. 21	1559	370	80	1802
Dunkerley, William H., Paterson, N. J. Spindle and bolster	590,037	Sept. 14	1065	251	80	1694
Dunlap, Louis E., Arlington, assignor of one-half to A. H. Spencer, Boston, Mass. Ink preparation	590,139	Sept. 14	1263	298	80	1732
Dunlap, William A., Pittsburg, Pa. Horn	586,356	July 13	1326	303	80	273
Dunlap, William A., Pittsburg, Pa. Horn	586,357	July 13	1327	303	80	273
Dunn, Mulford M. (See Eaton, Howard F., assignor.)						
Dunn, Sola B., Chicago, Ill. Means for healing punctures in pneumatic tires	585,661	July 6	26	7	80	8
Dunn, Stephen, New Franklin, Mo. Combination freight-car	590,804	Sept. 28	2435	578	80	1978
Dunn, Temple H., *et al.* (See Dunn, William R., assignor.)						
Dunn, Thomas, assignor to Self-Fixing Pneumatic Vehicle and Cycle Tyres Syndicate, Limited, London, England. Means for connecting pneumatic tires to wheels	590,095	Sept. 14	1169	276	80	1714
Dunn, William R., assignor to himself, J. T. Hollcroft, T. H. Dunn, L. Harrison, and A. N. Peckinpaugh, Alton, Ind. Computing-scale	588,536	Aug. 17	2200	511	80	1105
Dunn, William R., assignor to himself, J. T. Hollcroft, T. H. Dunn, L. Harrison, and A. N. Peckenpaugh, Alton, Ind. Computing scale-beam	588,857	Aug. 24	2806	653	80	1238
Dunning, Virgil R., Mankato, Minn. Lock	589,940	Sept. 14	800	212	80	1061
Dunstan, George B., assignor to W. R. Brown, Minneapolis, Minn. Cooking attachment for stoves	588,696	Aug. 24	2518	581	80	1183
Dunton, James G., and T. V. Lilly, Philadelphia, Pa. Bicycle-bell	590,433	Sept. 21	1772	416	80	1842
Dupont, Philippe D., assignor of one-half to J. Gauthier, St. Johnsbury, Vt. Tire-setting machine	587,035	July 27	2589	599	80	532
Dupree, E. A., *et al.* (See Marshall, Elbridge, assignor.)						
Durack, John J., *et al.* (See Lamb and Chapman, assignors.)						
Durand, Emilia. (See Durand, Louis, assignor.)						
Durand, Huguenin & Co., L. (See De la Harpe, Charles, assignor.)						
Durand, Louis, New York, N. Y., assignor to E. Durand, Schraalenburg, N. J. Machine for kneading dough	589,250	Aug. 31	3504	822	80	1389
Durey, Arthur, and L. Schreiner, assignors to themselves and A. Elkan, Paris, France. Bicycle	589,941	Sept. 14	802	213	80	1602
Durfee, Charles C., Los Angeles, Cal. Rail-climbing device for vehicle-wheels	590,391	Sept. 21	1699	400	80	1829
Durfee, George B., Fall River, Mass. Sparrow-guard	588,133	Aug. 17	1525	349	80	980
Durkin, Daniel, Woonsocket, R. I., assignor to Northrop Loom Company, Saco, Me., and Hopedale, Mass. Picker mechanism for looms	587,653	Aug. 3	653	156	80	786
Durnford, Charles D., London, England. Gun-barrel	587,801	Aug. 10	916	213	80	854
Durphy, Charles H. (See Abbott, Benjamin J., assignor.)						
Duryea, Charles E., Peoria, Ill., and J. F. Duryea, assignors to Duryea Motor Wagon Company, Springfield, Mass. Motor-vehicle	588,103	Aug. 10	1449	336	80	950
Duryea, James F. (See Duryea, Charles E. and J. F.)						
Duryea, James F., assignor to Duryea Motor Wagon Company, Springfield, Mass. Motor-carriage	586,084	July 6	877	198 199	80	171
Duryea Motor Wagon Company. (See Duryea, Charles E. and J. F., assignors.)						
Duryea Motor Wagon Company. (See Duryea, James F., assignor.)						
Dutton, Chauncey N., New York, N. Y. Trolley-pole	586,809	July 20	2103	491	80	447
Dutton, Chauncey N., New York, N. Y. Propelling mechanism for vessels	586,810	July 20	2105	491 492	80	448
Dutton, Chauncey N., New York, N. Y. Electrical conductor	586,811	July 20	2106	492	80	448
Dutton, Chauncey N., New York, N. Y. Steam-engine	586,812	July 20	2110	493	80	448
Dutton, Edward K., Harrogate, England. Apparatus for transmitting rotary motion	587,713	Aug. 10	767	181	80	828
Dutton, Edward K., Harrogate, England. Road-locomotive	587,714	Aug. 10	769	181 182	80	828
Dwight, Charles J. (See Gerhard, George L., assignor.)						
Dwyer, Michael J., Cambridge, Mass. Bicycle training-machine	589,705	Sept. 7	495	118	80	1576
Dye, George F., and E. C. O'Neill, Valparaiso, Ind. Bottle	586,494	July 13	1446	335	80	295
Dyer, Frank L., *et al.* (See Flanigan, Robert, assignor.) (Reissue.)						
Dyer, Frederick W., *et al.* (See Campbell, Henry C., assignor.)						
Dyer, John T. (See Lewis, Harry A., assignor.)						
E. C. Stearns & Company. (See Finley, Edwin J., assignor.)						
E. & H. T. Anthony & Company. (See Esmond, William V., assignor.)						
E. & H. T. Anthony & Company. (See Farrand, William C., assignor.)						
E. Ingraham Company. (See Ingraham, William S., assignor.)						
E. J. Brooks & Company. (See Brooks, Edward J., assignor.)						
E. T. Burrowes Company. (See Vincent, Pywell, assignor.)						
Eagar, Joseph D., Chattanooga, Tenn. Book	590,805	Sept. 28	2486	578	80	1979
Eagle Lock Company. (See Judson, Charles W., assignor.)						
Eamich, George F., *et al.* (See Milton, John, assignor.)						
Earhart, John S., and C. Miller, Millersville, Ill. Planter	587,190	July 27	2835	665	80	607
Earl, Edwin T., Oakland, Cal. Ventilator for refrigerator-cars	588,134	Aug. 17	1525	349	80	980
Earle, Enoch, Worcester, Mass. Stop mechanism for engine-lathes	590,736	Sept. 28	2314	548	80	1955
East Hampton Bell Company. (See Able and Goff, assignors.)						
Eastman, George P., Toronto, Canada. Cloth-cutting machine	590,140	Sept. 14	1264	298 299	80	1732
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Eastwood, Benjamin. (See Risk, Robert J., assignor.)						
Eastwood, Benjamin. (See Schaum, Otto W., assignor.)						
Eastwood, Henry, assignor to Eastwood & White, Lake View, N. J. Warping-frame	590,945	Sept. 28	2080	639	80	2027
Eastwood & White. (See Eastwood, Henry, assignor.)						
Eastwood Wire Manufacturing Company. (See Smith, Charles, assignor.)						
Eaton, Benjamin V., Brooklyn, N. Y. Fountain-pen	586,547	July 20	1665	389	80	367
Eaton, Harry L., Manlius, N. Y. Hub for vehicle-wheels	586,548	July 20	1669	389	80	368
Eaton, Howard F., Cambridge, assignor to M. M. Dunn, Boston, Mass. Municipal signal system	588,905	Aug. 31	2987	702	80	1290
Eaton, Joseph S. (See Meats and Eaton.)						
Eaton, Walter S. (See Coan and Eaton.)						
Eaton, William S., Sag Harbor, N. Y. Engraving	588,558	Aug. 24	2250	525	80	1134
Eaves, Elam, Derby, and A. J. Tonge, Bolton, England. Rope-gripper for cable-railways	586,702	July 20	2035	473	80	435
Ebeling, Felix, Hanover, Germany. Swinging candle-holder	589,821	Sept. 14	687	159	80	1626
Eberhart, William A., Asbury Park, N. J. Flushing apparatus for water-closets, &c.	589,423	Sept. 7	38	10	80	1489
Ebersol, Cyrus P., Keokuk, Iowa. Hitching-post	586,480	July 13	1534	359	80	312
Ebert, John F. (See Allen, Maurice, assignor.)						
Eby, Hiram R., Mastersonville, Pa. Nut-lock	589,596	Sept. 7	318	79	80	1542
Ecaubert, Frederic, Brooklyn, N. Y. Brake for bicycles or vehicles	588,270	Aug. 17	1758	406	80	1022
Eccleston, Jay J. (See Eccleston, S Spencer, assignor.)						
Eccleston, S Spencer, assignor of one-half to J. J. Eccleston, Syracuse, N. Y. Ticket-holder	589,344	Aug. 31	3790	885	80	1449
Echols, Frank G., Hartford, Conn. Screw-cutting tool	588,056	Aug. 10	1369	318	80	936
Echols, Frank G., assignor to Pratt & Whitney Company, Hartford, Conn. Tool-holder	588,222	Aug. 17	1657	381	80	1004
Eck, Joseph P., Muncie, Ind. Furnace-charging mechanism	587,942	Aug. 10	1179	272 273	80	900
Eckert, Adam E., assignor of one-half to A. H. Fangboner, Yonkers, N. Y. Compensating attachment for semaphore-signals	587,145	July 27	2758	647	80	593
Eckstein, Francis X., Sturgis, Mich. Split pulley	586,119	July 13	945	213	80	202
Economic Machine Company. (See Womersley and Keating, assignors.)						
Eddishaw, Henry, G. E. Knowles, and J. E. Eddishaw, Philadelphia, Pa. Needle-dial for knitting-machines	588,559	Aug. 24	2262	525	80	1134
Eddishaw, John E. (See Eddishaw, Knowles, and Eddishaw.)						
Edeler, William, Brooklyn, N. Y. Adjustable couch	590,096	Sept. 14	1170	276	80	1715
Edge Moor Iron Company. (See Sellers, Bradford, and Coppage, assignors.)						
Edinger, John C., and F. M. Crane, Newark, N. J. Bale-tie	586,692	July 20	1900	442	80	411
Edison, Thomas A., Llewellyn Park, N. J. Kinetographic camera	589,168	Aug. 31	3348	787	80	1358
Edmonds, Thomas H., Washington, D. C. Separating-screen	586,724	July 20	1965	458	80	423
Edward Miller & Company. (See Homan, William C., assignor.)						
Edward Miller & Company. (See Maschmeyer, Charles, assignor.)						
Edward Miller & Company. (See Williams, Frank T., assignor.)						
Edwards, David W. (See Calderwood and Edwards.)						
Edwards, Sydney G., Sheffield, England. Square	590,215	Sept. 21	1404	331	80	1773
Edwards, Victor E. (See Morgan and Edwards.)						
Edwards, Victor E., assignor to Morgan Construction Company, Worcester, Mass. Shears for cutting metal bars while in motion	587,302	Aug. 3	145	35	80	692
Edwards, Victor E., assignor to Morgan Construction Company, Worcester, Mass. Apparatus for controlling metal-cutting shears	587,363	Aug. 3	146	36	80	693
Edwards, William W., Rockford, Ill. Ore stamp-mill	587,390	Aug. 3	187	47	80	701
Egan, Charles E., assignor, by mesne assignments, of one-half to S. L. Bailey, Chicago, Ill. Switchboard for central telephone-stations	585,602	July 6	28	8	80	8
Egan, Charles E., assignor to S. L. Bailey, Chicago, Ill. Switchboard	586,285	July 13	1201	274	80	249
Eggleston, Alonzo, Rochester, Ill. Whip-lock	589,992	Sept. 14	928	222	80	1669
Ehmann, Frederick, Newark, N. J. Canopy attachment for bicycles	587,569	Aug. 3	512	121	80	750
Eibee, Carl, New York, N. Y. Coupling and closing pipe	590,056	Sept. 14	1094	259	80	1700
Eickemeyer, Carl, Yonkers, N. Y. Machine for paring curled edges of hat-brims	587,943	Aug. 10	1183	273 274	80	901
Eickemeyer, Carl, Yonkers, N. Y. Machine for setting curled edges of hat-brims	587,944	Aug. 10	1187	274 275	80	902
Eickemeyer, Rudolf, deceased, Yonkers, N. Y.; R. Eickemeyer, Jr., executor. Electric locomotive	588,104	Aug. 10	1451	339	80	950
Eickemeyer, Rudolf, deceased, Yonkers, N. Y.; R. Eickemeyer, Jr., executor. Electric locomotive	588,105	Aug. 10	1456	338	80	951

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Eickershoff, John H., Cincinnati, Ohio. Bicycle or other vehicle	588,697	Aug. 24	2519	581, 588	80	1184
Eickershoff, John H., Cincinnati, Ohio. Bicycle	588,698	Aug. 24	2521	582, 583	80	1184
Eighmie, George D., New York, N. Y. Shirt	586,425	July 13	1447	335	80	206
Eighmie, George D., New York, N. Y. Shirt	586,426	July 13	1448	335	80	206
Eighmie, George D., New York, N. Y. Shirt	586,427	July 13	1449	335	80	206
Eighmie, George D., New York, N. Y. Shirt	589,777	Sept. 7	608	141	80	1506
Eighmie, George D., New York, N. Y. Shirt	589,778	Sept. 7	606	142	80	1506
Eighmy, Annis B., Clifton Springs, N. Y. Cooker	589,646	Sept. 7	400	97	80	1558
Einfeldt, Charles M., and C. C. Brace, Denver, Colo. Device for preventing writer's cramp	588,902	Aug. 24	2876	671	80	1251
Ekenberg, Martin, assignor of one-half to Firm of L. Monten, Stockholm, Sweden. Making perfumes	588,766	Aug. 24	2653	.....	80	1210
Elbreg, Henry H., Indianapolis, Ind. Dental and surgical chair	589,499	Sept. 7	154	34	80	1511
Elbridge, Hilliary, *et al.* (See Blum, Sylvain, assignor.)						
Electric Car Company of America. (See Hunter, Rudolph M., assignor.)						
Electrical Safety Company. (See Cartwright, David J., assignor.)						
Electro Chemical Storage Battery Company. (See Hubbard, Albert S., assignor.)						
Electro Chemical Storage Battery Co. (See Woltereck, Herman C., assignor.)						
Electro Gas Company. (See Cowles, Alfred H., assignor.)						
Electro Gas Company. (See Mackusick, Elmer F., assignor.)						
Electro-Metallurgical Company. (See Wallace, Roger W., assignor.)						
Elektrizitats Aktien-Gesellschaft, vormals Schuckert & Co. (See Nerz, Fidelis, assignor.)						
Elgin National Watch Company. (See Gabriel, William A., assignor.)						
Elgin Silver Plate Company. (See Zauche, Oscar, assignor.)						
Elkan, Albert. (See Durey and Schréiner, assignors.)						
Elkjer, John P., Pennock, Minn. Whiffletree-hook	589,077	Aug. 31	3179	748	80	1326
Ellenbecker, Theodor, Forestville, Wis. Folding egg-crate	586,725	July 20	1966	458	80	423
Eller, James H., Canton, Ohio. Weather-strip	590,644	Sept. 28	2150	509	80	1926
Elliffrits, William S. (See Maier, William J., assignor.)						
Ellingson, Minnie D., *et al.* (See Parmley, Lemuel D., assignor.)						
Elliot, Henry, St. Louis, Mo. Switch-stand	590,015	Sept. 14	1038	244	80	1689
Elliott, Crawford, New York, N. Y. Key-action for type-writing machines	588,135	Aug. 17	1327	349, 350	80	980
Elliott, James F., Manson, Iowa. Toaster	590,478	Sept. 21	1844	436	80	1856
Elliott, Sterling, assignor to G. H. Williams, Newton, F. W. Whitcher, Boston, Mass., and H. C. Noble, New Britain, Conn. Holder for bicycles	587,945	Aug. 10	1180	275, 276	80	902
Ellis, Charles P., Franklin, Pa. Nut-lock	590,454	Sept. 21	1805	425	80	1848
Ellis, Frederick A., London, England. Alloy	587,303	Aug. 3	42	.....	80	674
Ellis, Harvey G., *et al.* (See Hermance, Robert, assignor.)						
Ellis, Henry C. (See Allen, Mortimer H., assignor.)						
Ellis, Henry C. (See Allen and Ellis.)						
Ellis, Robert M., Nanaimo, Canada. Fire-escape	590,016	Sept. 14	1039	245	80	1690
Ellis, Thomas, Lacon, Ill. Globe-mounting	587,304	Aug. 3	43	10	80	674
Ellis, Warren E. (See Chadwick, Everett D., assignor.)						
Ellison, Luther C., Buck Hill, Ga. Fertilizer-distributer	586,019	July 6	778	172	80	151
Elmore, John O. S., Kapurthala, India. Apparatus for refining metals by electrolysis	589,251	Aug. 31	3505	822	80	1380
Elmore, John O. S., Kapurthala, India. Apparatus for refining metals by electrolysis	589,252	Aug. 31	3506	823	80	1380
Elwood, Jefferson U., assignor to himself and D. P. Smith, McKeesport, Pa. Track-brake	588,858	Aug. 24	2810	653	80	1238
Ely, Edward O. (See Vinton, John H., assignor.)						
Emerson, Charles B., San Francisco, Cal. Submarine plow and river-mining machine	590,392	Sept. 21	1700	401	80	1820
Emerson, Cora V., and J. A. Hilcken, Brooklyn, N. Y. Puzzle	586,168	July 13	1022	230	80	216
Emerson Electric Manufacturing Company. (See Parker and Meston, assignors.)						
Emerson, Mary A., Waltham, Mass. Paraffin vessel	588,324	Aug. 17	1850	428	80	1039
Emery, Charles B., Boston, Mass. Vehicle-washing device	589,345	Aug. 31	3702	885	80	1450
Emery, Charles E., Brooklyn, N. Y. Apparatus for lubricating journals under pressure	588,699	Aug. 24	2524	583	80	1184
Empire Self Lighting Oil Lamp Company. (See Van Hoevenbergh, Henry, assignor.)						
Ems, Edward T., Philadelphia, Pa. Morocco-glassing machine	589,123	Aug. 31	3281	771, 772	80	1344
Engberg, Carl, St. Joseph, Mich. Ankle-brace for skates	589,253	Aug. 31	3507	823	80	1380
Enghien, Alphonse D. d'. (See Enghien, Charles D. d', A. D., L. D., and S. D.)						
Enghien, Charles D. d', A. D., L. D., and S. D., Hennuyeres, Belgium. Kiln for baking or firing earthenware	586,160	July 13	1023	230, 231	80	216
Enghien, Leon D. d'. (See Enghien, Charles D. d', A. D., L. D., and S. D.)						
Enghien, Silvain D. d'. (See Enghien, Charles D. d', A. D., L. D., and S. D.)						
English, George F., *et al.* (See English, Samuel W., assignor.)						
English, Samuel W., assignor of two-thirds to G. F. English, Clayton, N. J., and E. S. Harrington, Philadelphia, Pa. Screw	586,232	July 13	1117	253	80	235
Engstrom, Charles F., St. Charles, Ill. Advertising-card	588,696	Aug. 24	2415	556	80	1164
Enholm, Oscar A., assignor of one-half to F. W. Lohr, New York, N. Y. Telephone-transmitter	587,654	Aug. 3	654	156	80	786
Ennis, John W., Pocomoke City, Md. Display-rack	587,946	Aug. 10	1192	276	80	908
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Cutter-head	590,493	Sept. 21	1867	441, 442	80	1860
Ensworth, William J., assignor of one-fourth to J. W. Galbraith, Erie, Pa. Adding-machine	588,409	Aug. 17	1994	462	80	1066
Ensworth, William J., assignor of one-fourth to J. W. Galbraith, Erie, Pa. Adding-machine	590,097	Sept. 14	1172	277	80	1715
Eophone Company. (See Thorne, Levi E., assignor.)						
Ericson, William. (See Bohnenkamp and Lindsey, assignors.)						
Erikson, John, Providence, R. I. Electrical gas-alarm	586,819	July 20	2112	493	80	449
Ernst, Victor H., Jersey City, N. J. Steam-generator	587,083	Aug. 3	702	168	80	796
Errington, Franklin A., Edgewater, N. Y. Automatic extensible and collapsible adjustable tap	587,715	Aug. 10	771	182	80	889
Erselius, Louis, Leipsic, Germany. Saddle	586,481	July 13	1536	359	80	313
Ervin, George M., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway-switch	588,410	Aug. 17	1997	462	80	1067
Erwin, James R., Milwaukee, Wis. Self-balancing bicycle attachment	590,568	Sept. 28	2012	474	80	1901
Eschemann, William. (See Taylor and Eschemann.)						
Esmond, William V., assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic developing-tray	586,962	July 27	2401	567	80	527
Espinasse, Adolphe, Paris, France. Grinding-machine	588,637	Aug. 24	2416	556, 557	80	1165
Essex, William C., and A. Reame, Hull, England. Machine for opening oysters	589,548	Sept. 7	295	57	80	1526
Essick, William B., Snodes, Ohio. Car-brake	590,098	Sept. 14	1066	251	80	1695

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Estabrook, Alanson C., Northampton, Mass. Assembling and transferring device for use in molding coverings upon heads of tacks	587,117	July 27	2083	633	80	580
Estabrook, Alanson C., Northampton, Mass. Device for working plastic material	590,539	Sept. 21	1951	462	80	1876
Estabrook, Alanson C., assignor to Florence Manufacturing Company, Northampton, Mass. Brush	590,720	Sept. 28	2287	540	80	1950
Estell, Samuel F., Chicago, Ill. Puzzle	589,822	Sept. 14	698	159	80	1626
Etly, David J., Louisville, Ky. Process of and apparatus for aging liquors artificially	590,306	Sept. 21	1561	370	80	1802
Ettinger, Flavius J., Spring Valley, Ill., assignor of one-half to T. and J. H. Ament, Worthington, Iowa. Bridle	586,080	July 6	774	172	80	152
Eustice, David O. (See Friedrich and Eustice.)						
Euston, Alexander, St. Louis, Mo. Apparatus for treating oleaginous seeds	587,802	Aug. 10	917	213	80	854
Evans, Arad W., Washington, D. C. Clasp	588,560	Aug. 24	2264	526	80	1134
Evans, C. H., trustee. (See Buckingham, Roswell H., assignor.)						
Evans, Clarence A., Upland, Pa. Voting-booth and registering device	587,547	Aug. 3	475	111	80	753
Evans, Hattie E., Kincardine, Canada. Cord or twine cutter	587,716	Aug. 10	775	182	80	829
Evans, Henry, Wauzeka, Wis. Mechanical motor	585,953	July 6	554	130	80	107
Evans, Howell, Blocton, Ala. Nut-lock	589,424	Sept. 7	40	10	80	1489
Evans, Ira T., Clive, Iowa. Drag-harrow	586,549	July 20	1671	389	80	369
Evans, James H., Americus, Ga. Hot-air blast	590,612	Sept. 28	2087	494	80	1914
Evans, John W., assignor of one-half to H. B. Newton, Haverhill, Mass. Jack-screw	587,146	July 27	2760	648	80	594
Evans, Samuel J., Elkhorn, W. Va. Water-registering device	586,428	July 13	1450	336	80	206
Evans, Thomas, Lansing, Iowa. Apparatus for sheeting wax	590,017	Sept. 14	1040	245	80	1690
Evans, William, Philadelphia, Pa. Machine for treating hides, skins, or leather	587,717	Aug. 10	775	182, 183	80	830
Evertsen, Ellert, assignor of three-fourths to H. T. Thams, H. Freels, and B. Dalsing, Chicago, Ill. Valve	589,124	Aug. 31	3283	772	80	1345
Ewer, Spencer, Brockport, N. Y. Portable urinal	587,903	Aug. 10	918	214	80	855
Eye, Jacob. (See Raney and Eye.)						
Eyles, Arthur H., Pelhamville, N. Y. Carbonizing-machine	588,136	Aug. 17	1529	350	80	980
F. B. Fargo & Company. (See Lusted, George, assignor.)						
Fabian, Edwin, St. Paul, Minn. Molding device	590,039	Sept. 14	1068	252	80	1695
Faerber, Francis, L. Beck, and M. Wundt, New York, N. Y. Sliding and swinging window	588,700	Aug. 24	2527	583, 584	80	1185
Fahrmeier, Henry, and A. H. Warren; said Warren assignor to D. Hoefer, Higginsville, Mo. Automatic furnace-door	589,468	Sept. 7	105	24	80	1502
Fahrney, William H., Chicago, Ill. Calcining friable materials	590,057	Sept. 14	1095	259	80	1700
Fahy, William C., Philadelphia, Pa. Elevator-controller lock	588,106	Aug. 10	1461	338, 339	80	951
Fairbairn, William, Calabogie, Canada. Envelop-opener	586,170	July 13	1028	231	80	216
Fairbanks, Henry. (See Sleeper, Frank H., assignor.)						
Fairbanks, Henry, St. Johnsbury, Vt. Alternating-current generator	590,088	Sept. 14	1174	277	80	1716
Faires, George E. (See Matthews, Francis E., assignor.)						
Fairfield, Walter B., Douglass, Mass. Harmonica	588,107	Aug. 10	1466	339	80	953
Fairhurst, Alfred, Lexington, Ky. Lock	588,561	Aug. 24	2265	526	80	1135
Fairley, Samuel G., Wilkinsburg, Pa. Gondola car	589,647	Sept. 7	402	97	80	1558
Faizey, William T., Astley, Abbots, assignor to R. Nicholas and E. Trevor, Bridgenorth, England. Vehicle-wheel	587,191	July 27	2837	665	80	608
Falk, Herman W., Milwaukee, Wis., assignor to Falk Manufacturing Company, of Wisconsin. Portable melting-furnace	587,718	Aug. 10	777	183, 184	80	830
Falk Manufacturing Company. (See Falk, Herman W., assignor.)						
Falkowski, Frank, Port Richmond, N. Y. Stove	589,823	Sept. 14	689	160	80	1626
Fanders, Henry D., Leadville, Colo. Tobacco-pipe	587,947	Aug. 10	1194	276	80	908
Fangboner, Albert H. (See Eckert, Adam E., assignor.)						
Fanning, Franklin, St. Joseph, Mo. Drilling-machine	590,721	Sept. 28	2289	541	80	1950
Farbwerke, vormals Meister, Lucius & Brüning. (See Cobenzl, Albert, assignor.)						
Farley, Samuel P. (See Graham, Samuel A., assignor.)						
Farmer, Julius M., assignor to G. Podoll, H. W. Theis, C. J. Fox, and D. H. May, Milwaukee, Wis. Tire for vehicle-wheels	588,562	Aug. 24	2266	526	80	1135
Farnham, Edward W., assignor of one-half to C. M. Higginson, Chicago, Ill. Bracket for use with curtain-fixtures, &c.	587,684	Aug. 3	708	168	80	796
Farnham, Frank G., White Mills, Pa. Razor-strop	586,021	July 6	776	173	80	152
Farnham, Neal, *et al.* (See Turner, Edward H., assignor.)						
Farquhar, Cosmo, *et al.* (See Davis, William J., assignor.)						
Farrand, William C., assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic vignetter	586,963	July 27	2402	567	80	527
Farrell, John, E. Gorman, and E. Purcell, Philadelphia, Pa. Draft hood and regulator for locomotives	586,429	July 13	1454	336	80	207
Farrow, Stephen E., assignor of one-half to C. L. Allen, Beaver Meadows, Pa. Storm-front for vehicles	586,763	July 20	2036	473	80	435
Farthing, David J., Butler, Tenn. Fodder-loader	585,744	July 6	170	38	80	36
Farwell, Frank M., St. Paul, Minn. Hydrant	587,964	Aug. 3	151	36	80	698
Faught, Luther R., Philadelphia, Pa. Mine-car running-gear	588,325	Aug. 17	1851	428, 429	80	1039
Faught, Luther R., Philadelphia, Pa. Mine-car running-gear	588,326	Aug. 17	1854	429	80	1040
Faulhaber, George, *et al.* (See French, Harry C., assignor.)						
Faulkner, John F., and R. Campbell, San Antonio, Tex. Trolley-wire hanger	590,141	Sept. 14	1266	299	80	1732
Fauver, Addis E., Nockenut, Tex. Adjustable pipe-wrench	586,597	July 20	1764	409	80	385
Fawcett, William, Brooklyn, N. Y. Harness shaft-tug	586,490	July 13	1456	336	80	207
Fazel, John H. (See Alling, Calvin P., assignor.)						
Feerrar, James C. W., assignor of one-half to J. A. Craig, Johnsonburg, Pa. Hand-truck	587,719	Aug. 10	779	184	80	830
Fehling, Wilhelm, Vietz, Germany. Foot-rest and guard	586,022	July 6	778	173	80	152
Feldman, Charles O., and M. J. Konold, Pittsburg, Pa. Pen-extractor holder	586,949	July 20	2372	561	80	499
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	586,964	July 27	2404	567, 568	80	527
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	586,965	July 27	2406	568	80	528
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	586,966	July 27	2407	569	80	528
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	586,967	July 27	2409	569, 570	80	528
Feltner, John F. E., assignor of one-half to J. Monson, Leadville, Colo. Street-railway switch	588,966	Aug. 31	2089	702	80	1391
Fencil, Nathaniel S. (See Moore, Edward T., assignor.)						
Fennimore, Watson D., assignor to California Optical Company, San Francisco, Cal. Eye-glass-holder and cord attachment	587,192	July 27	2838	666	80	608

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ferdig, George L., Toledo, Ohio. Sink	589,648	Sept. 7	402	98	80	1558
Ferdy, Paul S., San Francisco, Cal. Mustache-shaper	587,108	July 27	2839	666	80	608
Ferguson, Robert G., Lakewood, N. J. Washing-machine	586,814	July 20	2114	493 494	80	449
Ferguson, Thomas B., Jr., New York, N. Y. Picket-fence-wiring machine	590,701	Sept. 28	2252	533	80	1944
Ferguson, William J., Baltimore, assignor of one-half to G. O. Gillingham, Mount Washington, Md. Thimble	585,930	July 6	518	122	80	101
Fergusson, Henry A., and A. J. Kline, Jersey City, N. J. Belt-shifter	588,967	Aug. 31	2991	703	80	1291
Fernandez, Manuel, Los Angeles, Cal. Car-fender	590,187	Sept. 14	1343	317	80	1749
Ferrel, John, Zanesville, Ohio. Vehicle-brake	588,968	Aug. 31	2992	703	80	1291
Ferren, John L., Mount Clare, W. Va. Folding egg and berry crate	590,367	Sept. 21	1658	391 392	80	1821
Ferrin, Arthur W. (See Smith, Ferrin, and Clough.)						
Field, John S., and W. J. Shedd, Chicago, Ill. Ice-tool	589,254	Aug. 31	3509	823	80	1390
Field, John S., and W. J. Shedd, Chicago, Ill. Scraper for removing snow, &c	589,255	Aug. 31	3510	823 824	80	1391
Field, Robert. (See Siddle and Field.)						
Field, Stephen D., Stockbridge, Mass., assignor, by mesne assignments, to General Electric Company, of New York. Electric-railway system	587,720	Aug. 10	781	184 185	80	831
Filiatreault, Wilfrid, assignor of one-half to H. M. Meehan, Chicago, Ill. Guard-gate for swing-bridges	587,685	Aug. 3	704	169	80	796
Filmer, Reginald H., London, England. Folding box	587,804	Aug. 10	919	214	80	855
Filmer, Reginald H., London, England. Folding box	590,058	Sept. 14	1097	259 260	80	1700
Filter, Richard A., *et al.* (See Koll, Henry F., assignor.)						
Finagin, George T., St. Louis, Mo. Ventilating system for buildings	588,909	Aug. 31	2993	703	80	1291
Finckel, George M. (See Cassel and Finckel.)						
Fink, Charles E. (See Moore and Fink.)						
Fink, James A., Russell Springs, Kans. Pump	588,918	Aug. 24	2909	681	80	1258
Finkelstein, Isidor, *et al.* (See Harrison and Kilberg, assignors.)						
Finlayson, Alexander W., Detroit, Mich. Pipe-coupling	588,411	Aug. 17	1997	462	80	1007
Finley, Edwin J., assignor to E. C. Stearns & Company, Syracuse, N. Y. Frame-joint	590,307	Sept. 21	1564	370	80	1808
Finley, Jefferson L., Denison, assignor of two-thirds to W. E. Kuhlhoff, Fort Worth, Tex., and D. W. McCallum, St. Louis, Mo. Railway-car	588,563	Aug. 24	2266	526	80	1135
Finnegan, John, assignor to T. Devlin and L. J. McGrath, Philadelphia, Pa. Sausage-stuffer press	589,824	Sept. 14	601	160	80	1626
Finnerty, Michael F., assignor of one-half to C. O. Stumpf, Brooklyn, N. Y. Switch	587,655	Aug. 3	655	156 157	80	787
Firm Carl Zeiss. (See König, Albert, assignor.)						
Fischer, Emil, Berlin, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Obtaining xanthin derivatives	586,327	Aug. 17	1856	.....	80	1040
Fischer, Emil, Berlin, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Trimethylbenzyl-uric acid and making same	588,412	Aug. 17	1998	.....	80	1067
Fischer, Paul. (See Theurer and Fischer.)						
Fischer, William E., Boston, Mass. Channel-flap turner	588,970	Aug. 31	2994	704	80	1292
Fischhaber, Manfred, Philadelphia, Pa. Lamp-extinguisher	590,216	Sept. 21	1405	331	80	1773
Fish, Isaac H., assignor of one-half to J. A. Cook, Brockton, Mass. Box-toe blank	588,636	Aug. 24	2418	557	80	1165
Fishbaugh, Rufus H., Markle, Ind. Door-shade	586,656	July 20	1861	433	80	403
Fisher, Charles, San Francisco, Cal. Supporter for gentlemen's trousers-leggings	587,434	Aug. 3	263	64	80	716
Fisher, Frank. (See Hartman, John H., assignor.)						
Fisher, Henry J. (See Thornley, William, assignor.)						
Fisher, Howell T., Pottsville, Pa. Razor-guard	588,564	Aug. 24	2269	527	80	1136
Fisher, John C., Wilkinsburg, Pa. Flushing-tank	586,924	July 20	2326	518	80	490
Fisher, Lawrence A., Derry Station, Pa. Mail-sack-delivering apparatus	587,721	Aug. 10	785	185	80	831
Fisher, Léonide E., Montoursville, Pa. Fan attachment for sewing-machines	589,706	Sept. 7	497	119	80	1577
Fithian, Valentia E. (See Boswell, George G. F., assignor.)						
Fitts, Oliver C., Carpentersville, Ill. Rotary engine	590,883	Sept. 28	2573	614	80	2106
Fitz, Amos G., Auburn, Me. Machine for shaping heels of lasts	588,971	Aug. 31	2999	704	80	1293
Fitz Gerald, William T., Washington, D. C. Pocket cigarette-making device	587,570	Aug. 3	514	121	80	759
Fitzgerald, Gerald T., assignor of two-thirds to D. F. Sweeney and L. A. Marks, Springfield, Mass. Bottle	588,418	Aug. 17	1999	463	80	1067
Flagg, Ernst, New York, N. Y. Boudoir-car	585,954	July 6	556	130 131	80	108
Flagg, G. H. P., trustee. (See Webster, Harold A., assignor.)						
Flaherty, Thomas P., Coventry, Conn. Beating-engine	586,382	July 13	1368	315	80	280
Flaig, Joseph P. F., St. Louis, Mo. Windmill	590,753	Sept. 28	2343	554 555	80	1961
Flanders, Herbert, Manchester, N. H. Bottle	590,040	Sept. 14	1069	252	80	1695
Flanigan, Robert, assignor of five-eighths to J. S. Deterick, Baltimore, Md., and F. L. Dyer, Washington, D. C. Closure for bottles. (Reissue)	11,629	Sept. 14	1365	322	80	1752
Flannery, William C., Washington, D. C., assignor of two-thirds to F. R. Jekyll, Wichita, Kans., and W. F. Fuqua, Baton Rouge, La. Non-refillable bottle	590,259	Sept. 21	1472	347	80	1786
Fleer, Frank H. (See Reagan, James, assignor.)						
Fleischman, Louis, Des Moines, Iowa. Nut-lock	590,412	Sept. 21	1738	408	80	1836
Fleming, John B., Frisco, Utah. Steam-boiler	586,431	July 13	1456	337	80	297
Fleming, William B., Detroit, Mich. Electric attachment for musical instruments	585,663	July 6	30	8	80	8
Flenner, Frank M. (See Aldrich, Albert E., assignor.)						
Fletcher, Anna, *et al.* (See Fletcher, George H., assignor.)						
Fletcher, Charles R., Boston, Mass. Process of and apparatus for electrorefining copper or other metals	586,171	July 13	1029	232	80	217
Fletcher, Eliza B. (See Fletcher, Herman, assignor.)						
Fletcher, George H., assignor of three-fourths to J. Lawson and A. Fletcher, New York, N. Y. Weighing and dumping vehicle	589,707	Sept. 7	498	119	80	1577
Fletcher, Herman, assignor to E. B. Fletcher, Louisville, Ky. Polishing-machine	590,059	Sept. 14	1099	260 261	80	1701
Fletcher, John, Bristol, England. Appliance for use in soldering artificial teeth to mouth-plates	586,023	July 6	779	173	80	153
Fletcher, Theodore, St. Louis, Mo. Trolley-hanger	587,805	Aug. 10	920	214	80	855
Flicek, Edward, assignor of one-half to J. Flicek, Chicago, Ill. Shoulder-brace	586,842	July 20	2157	504	80	458
Flicek, John. (See Flicek, Edward, assignor.)						
Flindall, John, Chicago, Ill. Air compressing and cooling apparatus	585,955	July 6	558	131	80	108
Flint, Edmund E., Tonawanda, N. Y. Stove-grate	588,859	Aug. 24	2812	654	80	1239
Flint, Herbert L., Cambridge, Mass. Coupling	589,708	Sept. 7	502	120	80	1577
Flint, Herbert L., Cambridge, and G. W. Gregory, Boston, Mass. Bicycle crank-shaft	589,709	Sept. 7	502	120	80	1578
Flodman, Gustaf F., Stockholm, Sweden. Diaphragm-pump	589,078	Aug. 31	3180	748 749	80	1396

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Flora, Ellsworth E., Chicago, Ill. Magazine-camera	589,346	Aug. 31	3793	885	80	1450
Florence Manufacturing Company. (See Estabrook, Alanson C., assignor.)						
Flory, John F. (See Beekly, Israel B., assignor.)						
Flouers, Benjamin F. (See Kinnaman and Flouers.)						
Flower, John W., and R. J. Cousins, Shaftesbury, England. Corking-machine	588,414	Aug. 17	2001	463 464	80	1067
Floyd, George G., Sedalia, Mo. Car-truck	586,482	July 13	1536	360	80	313
Floyd, George G., Sedalia, Mo. Car-truck	587,948	Aug. 10	1195	277	80	903
Flucks, Paul, assignor of one-half to G. Langer, St. Louis, Mo. Horseless carriage	589,710	Sept. 7	504	120 121	80	1578
Flucks, Paul, and G. P. McDonnell, St. Louis, Mo. Bicycle-bell	590,659	Sept. 28	2176	516	80	1931
Flynn, Peter H., New York, N. Y. Picture-frame attachment	586,120	July 13	946	213	80	202
Fodrea, Ormond C. (See Fralick and Fodrea.)						
Fodrea, Pennington P. (See Fralick and Fodrea, assignors.)						
Fogg, Jason T., Garland, assignor to M. C. Cushing, Skowhegan, Me. Checkrein-loop	587,282	July 27	3001	703	80	640
Foley, James S., and J. H. Birch, West Bromwich, England. Bicycle-bell	588,860	Aug. 24	2813	654	80	1239
Foley, Michael, assignor to Standard Furniture Company, Herkimer, N. Y. Type-writer cabinet	590,540	Sept. 21	1955	462	80	1876
Folsom, Elmer, and E. H. Packard, Bloomington, Ill. Traveler for kite-strings	589,373	Aug. 31	3539	827	80	1459
Foltz, Jacob L., Moville, Iowa. Trough for meat-blocks	588,057	Aug. 10	1371	318	80	993
Fooks, Isaac N., Georgetown, Del. Underwaist	586,726	July 20	1967	458	80	423
Foos Manufacturing Company. (See Winchell, James F., assignor.)						
Foote, Frederick H., Chicago, Ill. Blast-furnace	587,522	Aug. 3	499	101	80	743
Foote, John G., Kennett Square, Pa. Air-pump for bicycles	589,711	Sept. 7	507	121	80	1579
Foran & Abendroth Manufacturing Co. (See Foran, John, assignor.)						
Foran, John, assignor to Foran & Abendroth Manufacturing Co., Flemington, N. J. Sink draining-board and support	587,949	Aug. 10	1199	277	80	904
Ford, James I., *et al.* (See Tippit, Archibald M., assignor.)						
Ford, W. F., *et al.* (See Rausheck, John E., assignor.)						
Forde, Thomas J., Geneva, Ohio. Means for fastening vines to trellises	587,365	Aug. 3	152	37	80	694
Förste, Carl F., Leipsic, Germany. Paper-feeding device	588,058	Aug. 10	1372	318 319	80	993
Forster, Isaac, Newburg, N. Y. Shutter bower and lock	586,172	July 13	1030	232	80	217
Fort Wayne Novelty Company. (See Poulson, Britton, assignor.)						
Fortescue, George, Lyndhurst, N. J. Match-safe	589,206	Aug. 31	3403	799	80	1370
Forward, John F. (See Forward, Walter, assignor.)						
Forward, Walter, assignor to J. F. Forward, San Diego, Cal. Machine for affixing post-age-stamps	590,569	Sept. 28	2013	474	80	1901
Forward, Walter, assignor to J. F. Forward, San Diego, Cal. Stamp-affixer	590,570	Sept. 28	2015	475	80	1902
Foster Brothers Manufacturing Company. (See Foster, William S., assignor.)						
Foster, Chauncey E. (See Hastings and Foster.)						
Foster, Frank A., Norwich, Conn. Drive-chain	587,950	Aug. 10	1200	278	80	904
Foster, George E., assignor of one-half to G. W. Kimble, Placerville, Cal. Governor-valve	588,415	Aug. 17	2005	464	80	1068
Foster, George S., Buda, Ill. Revolving blotter	586,815	July 20	2115	494	80	449
Foster, John M., Elizabeth, N. J. Pressure-regulator. (Reissue)	11,621	July 20	2385	563	80	502
Foster, William S., assignor to Foster Brothers Manufacturing Company, Utica, N. Y. Bedstead	586,550	July 20	1674	390	80	369
Fouquier, Paul J., San Francisco, Cal. Device for applying remedies	589,712	Sept. 7	508	121	80	1579
Fourcher, Victor. (See Oetjen and Fourcher.)						
Fournier, Arthur, Irish Bend, La. Hay-rake	589,384	Aug. 31	3864	902	80	1468
Fowler, Adelia N., administratrix. (See Fowler, Herbert E.)						
Fowler, Allen. (See Green, Thompson, and Fowler.)						
Fowler, Edward C., assignor of three-fourths to G. A. Downs, Forestville, and W. E. Simonds, Canton, Conn. Nail-puller	588,744	Aug. 24	2620	604	80	1208
Fowler, Herbert E., deceased; A. N. Fowler, Naugatuck, Conn., administratrix. Pipe-bending machine	588,223	Aug. 17	1662	382	80	1005
Fowler, John H., Huntingdon, Pa. Rail-joint	590,679	Sept. 28	2217	526	80	1938
Fox, Charles J., *et al.* (See Farmer, Julius M., assignor.)						
Fox, John H., New York, N. Y. Power-driver for bicycles	587,806	Aug. 10	921	215	80	855
Fox, William C., Front Royal, Va. Detachable thill-coupling	590,099	Sept. 14	1176	277	80	1716
Frahm, Hans, Benson, Nebr. Fire-escape	586,173	July 13	1031	232	80	217
Fraley, John P., assignor to L. O. Smith, Philadelphia, Pa. Silk or thread package	586,121	July 13	947	214	80	202
Fralick, Charles E., and O. C. Fodrea; said Fralick assignor to P. P. Fodrea, Grand Island, Nebr. Foot-power attachment for job-printing presses	587,951	Aug. 10	1201	278	80	905
Frambach, William F., Cherokee, Iowa. Fanning-mill	588,972	Aug. 31	3000	704 705	80	1293
Frame, Asa B., Boyden, Iowa. Current-motor	590,142	Sept. 14	1267	299 300	80	1733
Francisco, Charles F., San Diego, Cal. Buckle	587,571	Aug. 3	517	122	80	760
Frank, Adolph, Charlottenburg, and N. Caro, Berlin, Germany. Making cyanids	590,217	Sept. 21	1406	332	80	1774
Frank, Leo. (See Stevens, Alfred H., assignor.)						
Franklin Manufacturing Company. (See Johnston, Edward B., assignor.)						
Frantz, Charles. (See Swingle and Frantz.)						
Frantz, Peter, assignor to Chain Stay Fence Company, Mount Morris, Ill. Wire-stretcher	590,308	Sept. 21	1565	371	80	1803
Franz, Oscar, Muskau, Germany. Apparatus for mixing liquids with gases	587,952	Aug. 10	1202	278 279	80	905
Fraser, David B. (See Duehring, Carl H., assignor.)						
Fraser, David B., New York, N. Y. Coffee-roaster	587,090	July 27	2634	622	80	570
Fraser, George H. (See Weikly, James N., assignor.)						
Fraser, Thomas A., *et al.* (See Thompson, Frank, assignor.)						
Frasher, Frank, Ironton, Ohio. Stove-ventilator	586,174	July 13	1033	232	80	217
Frazer, Samuel W., Brooklyn, N. Y. Fountain-pen	589,561	Sept. 7	252	61	80	1529
Frazier, Oliver B. (See Howard and Frazier.)						
Frear, Hugo P., San Francisco, Cal. Non-refillable bottle	590,309	Sept. 21	1566	371	80	1803
Freasier, Joseph L., St. Louis, Mo. Sand-band	588,818	Aug. 24	2743	636	80	1225
Fréchette, Isaïe, Montreal, Canada. Machine for making continuous lengths of wire nails	588,137	Aug. 17	1530	350 351 352	80	961
Frederick, Edward P., St. Louis, Mo. Cable-strand	586,706	July 20	1933	451	80	417
Frederickson, Christian. (See Nedland and Frederickson.)						
Freed, Stuart H. D., Fishersville, Va. Gate	590,517	Sept. 21	1912	453	80	1869
Freedman, Marres, Trenton, N. J. Operating mechanism for sewing or other machines	588,973	Aug. 31	3002	705	80	1293
Freeland, Alfred A., assignor of one-half to F. Deimel, New York, N. Y. Smoke-consuming apparatus	589,169	Aug. 31	3351	788	80	1359
Freels, Hugo, *et al.* (See Evertsen, Ellert, assignor.)						
Freeman, Albert A., assignor of one-half to J. H. Scott, Philadelphia, Pa. Return-ball	589,500	Sept. 7	156	35	80	1511

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Freeman, Charles C., Dixfield, Me. Device for feeding blanks, &c	589,385	Aug. 31	3866	902	80	1463
Freeman, Francis I., Pittsburg, Pa. Annealing plant	589,567	Sept. 7	319	79, 80	80	1542
Freeman, Herbert H., Pierre, S. D. Latch	587,572	Aug. 3	518	122	80	760
Freese, August H., Boston, Mass. Spring bed-bottom	589,942	Sept. 14	898	218	80	1662
Freese, Francis J., Lowell, Mass., assignor of one-half to J. A. Rafter, Montreal, Canada Tire	590,764	July 20	2037	474	80	435
French, Charles E., *et al.* (See Moore, George H., assignor.)						
French, David W., Hoboken, N. J. Pipe-cutter and branch connection	587,091	July 27	2634	022, 023	80	570
French, David W., Hoboken, N. J. Means for inserting valves in pipes or mains	587,092	July 27	2639	022, 023, 024	80	571
French, David W., Union Hill, N. J. Pipe-cutter	587,093	July 27	2644	024	80	572
French, Eugene O., North Norway, Me. Barrel-cleaner	585,841	July 6	353	82	80	70
French, Frederick R., Niagara Falls, N. Y. Hydraulic-pressure regulator	586,506	July 20	1765	409	80	385
French, Harry C., assignor to G. Faulhaber and O. L. Menard, Cleveland, Ohio. Picture-puzzle	590,000	Sept. 14	1101	261	80	1701
French, James A. (See White, William H., assignor.)						
French, Zachary T., and W. C. Meyer, Boston, Mass. Welt-seam-trimming machine	590,881	Sept. 28	2477	589	80	1986
Frerichs, Frederick W. A., St. Louis, Mo. Manufacturing acetanilid	586,551	July 20	1675	390	80	369
Frerichs, Frederick W. A., St. Louis, Mo. Purifying ammonia	586,950	July 20	2373	561	80	500
Freudenberg, Moise, Paris, France, assignor to R. W. Wallace, London, England. Automatic telephone system	587,435	Aug. 3	264	64, 65	80	716
Frey, Amos, Wauseon, Ohio. Animal-trap	587,548	Aug. 3	477	111	80	753
Frick, Louis C. S. (See Coons and Frick.)						
Frickey, Edward H. (See Williams and Frickey.)						
Fridén, Henning A., and A. Swanson, New Britain, Conn. Plow	590,494	Sept. 21	1868	412	80	1860
Friedmann, Louis, Vienna, Austria-Hungary. Injector	588,676	Aug. 24	2491	575	80	1178
Friedrich, Albert B., and D. O. Eustice, Livingston, Wis. Means for securing tires to vehicle-wheels	586,765	July 20	2038	474	80	436
Friesen, Isebrand C., Inman, Kans. Antifriction-drawer	588,505	Aug. 24	2270	527	80	1136
Fries, John W., Salem, N. C. Printing-roll	587,953	Aug. 10	1208	279	80	905
Frisbee, Gideon, Philadelphia, Pa. Feed-supply regulator for pulverizers, &c	587,686	Aug. 3	706	169	80	797
Froelich, Christopher, Brooklyn, assignor of one-half to H. Blank, New York, and E. Imhauser, Ronkonkoma, N. Y. Hinge	589,903	Sept 14	929	222	80	1669
Fröhlich, Hugo, Bellefontaine, Ohio. Latch	588,639	Aug. 24	2420	557	80	1165
Frost, Ellis F. (See Steward and Frost.)						
Frost, Henry S., C. S. Kilbourn, and J. B. Woolson, Watertown, Conn., assignors, by mesne assignments, to W. Demuth & Co., New York, N. Y. Pipe-holder	588,974	Aug. 31	3003	705	80	1294
Frothingham, Daniel D., Salem, Mass. Bicycle tool-bag	588,059	Aug. 10	1375	319	80	937
Fruit, John P., Russellville, Ky. Windmill	588,060	Aug. 10	1376	319	80	937
Fry, Danniel J., assignor of one-half to A. W. Vinton, Morehead, Ky. Overshoe	588,919	Aug. 24	2911	681	80	1256
Fuelling, John L., Peoria, Ill. Photometer	589,649	Sept. 7	404	98	80	1558
Fulkerson, James L., Kansas City, Mo. Electric piano	589,347	Aug. 31	3796	885	80	1450
Fuller, Albert. (See Hiering and Fuller.)						
Fuller, George. (See Vaughan, Henry H., assignor.)						
Fuller, William E., New Haven, Conn. Device for holding curling-irons to be attached to gas-burners	587,118	July 27	2685	632	80	580
Fullmer, Charles P., assignor of one-half to W. H. Magill, Benton, Pa. Separator for grain, &c	587,549	Aug. 3	478	112	80	754
Fulton, H. H. (See Boland and Hubbell, assignors.)						
Fultz, Jacob, Indianapolis, Ind. Non-refillable bottle	589,207	Aug. 31	3410	800	80	1370
Fuqua, William F., *et al.* (See Flannery, William C., assignor.)						
Furby, George W., Lockwood, Mo. Neck-yoke center	587,807	Aug. 10	923	215	80	856
Furness, E. T., *et al.* (See Scales, William S., assignor.)						
Fynn, Valere A., Erith, England. Dynamo-electric machine	587,573	Aug. 3	519	122, 123	80	760
G. F. Harvey Company. (See Harvey, Leon J., assignor.)						
Gäbel, Richard, Dresden, Germany. Gas-burner	586,175	July 13	1084	233	80	218
Gabriel, Darneville H., Cypremort, La. Nut-lock	586,024	July 6	780	174	80	153
Gabriel, William A., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Repeating watch	587,574	Aug. 3	522	123, 124, 125, 126	80	761
Gaines, Margaret C., *et al.* (See Pollard, William B., assignor.)						
Gaitley, John E., Troy, N. Y. Stove-grid-le lifter	588,819	Aug. 24	2744	636	80	1226
Galbraith, L. W. (See Mearns, Andrew, assignor.)						
Galbraith, John W. (See Ensworth, William J. assignor.)						
Galbraith, Robert M., Pine Bluff, Ark. Draft-gearing for engine-tenders	587,523	Aug. 3	431	101	80	743
Gale, Francis G., Waterville, Canada. Wire mattress and frame therefor	585,664	July 6	32	8	80	9
Gale, Francis G., Waterville, Canada. Wire mattress and frame therefor	585,665	July 6	34	8	80	9
Gale, Francis G., Waterville, Canada. Bedstead and mattress-frame therefor	585,666	July 6	37	9	80	10
Gale, Georgiana C. (See Gale, Henry A., assignor.)						
Gale, Henry A., assignor to G. C. Gale, Hartford, Conn. Box corner-fitting	586,122	July 13	948	214	80	202
Gale Manufacturing Company. (See Beall, William L., assignor.)						
Gale Manufacturing Company. (See Lester, Eugene C., assignor.)						
Gale Manufacturing Company. (See Roby, George L., assignor.)						
Gallagher, John C., assignor of two-thirds to D. W. Payne and M. C. Arnot, Elmira, N. Y. Process of and apparatus for generating acetylene gas	589,713	Sept. 7	509	121, 122	80	1579
Galley, Felix, assignor of one-fourth to A. Tavel, Nashville, Tenn. Soft-tread horse-shoe	587,722	Aug. 10	786	185	80	831
Gallien, Valery, Longjumeau, France. Rotary drum for tanning leather	590,061	Sept. 14	1103	261	80	1701
Gallond, Joseph. (See Grant, Frank S., assignor.)						
Gamble, George A. (See Norlund, Olof A., assignor.)						
Gandy, Nathaniel O., Chester, Pa. Stool	587,391	Aug. 3	188	47	80	701
Ganehn, Solomon, Philadelphia, Pa. Making oxysalts of lead from lead sulfate and lead chlorid	587,808	Aug. 10	924		80	856
Garbutt, Frank A., Los Angeles, Cal. Oil-well pump	586,707	July 20	1933	451	80	417
Garchey, Louis A., Paris, France. Manufacture of objects of imitation stone	587,809	Aug. 10	926		80	856
Gard, William E., Brooklyn, N. Y., assignor to Meriden Bronze Company, Meriden, Conn. Bicycle-bell	588,820	Aug. 24	2745	637	80	1226
Gardiner, Robert M., assignor of two-thirds to C. S. Cochran and H. E. Ralston, Hamilton, Canada. Combined grocer's package, grater, slicer, mouse and fly trap	586,025	July 6	781	174	80	153
Gardner, Omar N., Jamestown, N. Y. Hoisting, conveying, and dumping apparatus	589,964	Sept. 14	930	222, 223	80	1669
Gardner, Perry G., assignor of seven-sixteenths to H. V. S. Negus, Bound Brook, N. J. Tire-securing device	587,523	Aug. 10	787	185	80	831

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gardner, Robert S. (See Cushing, Samuel W., assignor.)						
Garels, John G., Philadelphia, Pa. Folding box, satchel, valise, trunk, &c	589,208	Aug. 31	3411	800	80	1370
Garis, Cornelius W., Easton, Pa. Fastening device	589,525	Sept. 7	208	47	80	1520
Garlson, John S. (See Bean and Cook, assignors.)						
Garland, S. L. (See McKenzie, George A., assignor.)						
Garretson, Oliver S., Buffalo, N. Y. Coin-controlled apparatus	590,518	Sept. 21	1914	453	80	1809
Garrett, Warren, *et al.* (See Waer, Luis M., assignor.)						
Garrett, Wilbur F., Centreville, Iowa. Automatic telescope-grip or bicycle-lock	590,613	Sept. 28	2069	494	80	1915
Garrigus, Walter A., and R. Golling, Lenoir City, Tenn. Feeder and safety attachment for boilers	590,884	Sept. 28	2575	614	80	2006
Garroway, William, Glasgow, Scotland. Making alkaline silicates and nitric acid	590,143	Sept. 14	1999	300	80	1733
Garsed, Edward T., assignor of one-half to C. Cone, Greensborough, N. C. Machine for wrapping warp-chains	587,194	July 27	2840	606	80	608
Garst, Dudley. (See Garst, Stephen H., D., and P. A.)						
Garst, George W., McPherson, Kans. Plow	590,018	Sept. 14	1043	245, 246	80	1690
Garst, Percy A. (See Garst, Stephen H., D., and P. A.)						
Garst, Stephen H., D., and P. A., Greenville, Ohio. Blower for pneumatic straw-stackers	588,416	Aug. 17	2006	465	80	1068
Garstang, William, and M. Rickert, Indianapolis, Ind. Revolving extension passenger-car step	588,417	Aug. 17	2007	465	80	1068
Gartner, Alfred, Paterson, N. J., assignor to Draper Company, Portland, Me. Spindle	586,789	July 20	2072	482	80	442
Gartner, Alfred, Paterson, N. J., assignor to Draper Company, Portland, Me. Magneto-spindle	586,790	July 20	2073	482	80	442
Gartner, Alfred, Paterson, N. J., assignor to Draper Company, Portland, Me. Spindle	586,791	July 20	2074	483	80	443
Gartner, Alfred, Paterson, N. J., assignor to Draper Company, Portland, Me. Spindle	590,360	Sept. 21	1472	347	80	1786
Garver, Charles, Fort Wayne, assignor of one-third to R. H. Garver, Sheldon, Ind. Wagon-brake	588,640	Aug. 24	2420	558	80	1165
Garver, Richard H. (See Garver, Charles, assignor.)						
Gary, Charles H., Chicago, Ill. Bicycle-wheel	588,975	Aug. 31	3004	706	80	1294
Gaskill, Henry S., assignor of one-half to J. J. Larmour, Battle Creek, Mich. Bag-lock	586,762	July 20	2075	483	80	443
Gaskins, John H., Portsmouth, Va. Sewing-machine attachment	588,677	Aug. 24	2403	575	80	1179
Gasseld, Fredrick H., Brooklyn, N. Y. Journal-b x	590,434	Sept. 21	1774	416	80	1842
Gaston, William E., assignor of one-half to F. K. Phillips, West Winsted, Conn. Non-refillable bottle	590,218	Sept. 21	1407	332	80	1774
Gates, George, Jackson, Cal. Concentrator	590,789	Sept. 28	2413	573	80	1974
Gates, Jacob F., Pittsburg, Pa. Holder	587,724	Aug. 10	788	186	80	832
Gates, Julian H., Hartford, Conn. Combined belt and gun-case	586,533	July 13	1644	383	80	334
Gatewood, William G., Des Arc, Ark. Lap-ring	588,976	Aug. 31	3005	706	80	1294
Gathmann, Louis, Chicago, Ill., assignor to G. W. McMullen, Picton, Canada. Ship's compass	587,954	Aug. 10	1205	279	80	905
Gauhe, Ernest, Ober-Lahnstein, Germany. Mixing-drum	586,483	July 13	1539	360, 361	80	313
Gauthier, Joseph. (See Dupont, Philippe D., assignor.)						
Gavin, John H., and J. McGuire, assignors to L. Wolff Manufacturing Company, Chicago, Ill. Water-closet	588,224	Aug. 17	1665	382	80	1006
Gaylord, Chancy A., Bassett, Iowa. Whiffletree	585,745	July 6	172	38	80	36
Gaynor, Peter F., Greenbush, N. Y. Beer-pipe cleaner	588,418	Aug. 17	2009	466	80	1069
Geb, Jacob F., Franklin, Mass. Card-feeding machine	590,541	Sept. 21	1957	462	80	1876
Geer, Harvey M. (See Hodge and Geer.)						
Geer, Sidney L. (See Cowles, Burton S., assignor.)						
Geiger, Francis C., Parkersburg, W. Va. Cupboard	588,138	Aug. 17	1533	352	80	981
Geiger, Frederick, Philadelphia, Pa. Electrotherapeutic apparatus	587,436	Aug. 3	276	66	80	717
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Brush-holder	585,746	July 6	174	39	80	37
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Form for winding coils for dynamo-electric machines	586,995	July 27	2457	581	80	538
Geisler, Victor H., Chicago, Ill. Combined collar-button and necktie-fastener	590,519	Sept. 21	1916	453	80	1870
Gem Fastener Co. (See Zwiesler, August, assignor.)						
General Electric Company. (See Beede, Neal M., assignor.)						
General Electric Company. (See Bradley, Charles S., assignor.)						
General Electric Company. (See Day, Maxwell W., assignor.)						
General Electric Company. (See Field, Stephen D., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Hunter, Rudolph M., assignor.)						
General Electric Company. (See Lemp, Hermann, assignor.)						
General Electric Company. (See Macdonald, Alexander F., assignor.)						
General Electric Company. (See Parker, Lee H., assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Pratt, William H., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Shand, Robert, assignor.)						
General Electric Company. (See Sperry, Elmer A., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Wirt, Herbert C., assignor.)						
General Gas Company. (See Stuart, Ernest B., assignor.)						
General Incandescent Arc Light Company. (See Bergmann and Lavens, assignors.)						
Geneva Optical Company. (See Smith, Fred H., assignor.)						
George, Elias, Cherry Ridge, La. Cotton-chopper	585,747	July 6	175	39	80	37
George Frost Company. (See Phelps, George H., assignor.)						
George M. Clark & Company. (See Harvey and Munzner, assignors.)						
George Washington Lighting Company. (See Washington, George, assignor.)						
Gephart, George W., Franklin, Ohio. Game-board	589,825	Sept. 14	992	161	80	1627
Gerhard, George L., assignor of one-half to C. J. Dwight, Reading, Pa. Hand seed-sower	589,386	Aug. 31	3867	902	80	1463
Gerlach, Joseph H. (See Haddock, Worcester, assignor.)						
Germer, Edward G., Erie, Pa. Combined fire-pot and grate for stoves	587,366	Aug. 3	153	37	80	694
Gerstle, Albert M., deceased; G. Dement, executrix, Chicago, Ill. Convertible pool and billiard table	588,961	Aug. 31	2979	698	80	1289
Gerstner, Frank P., Allegheny, Pa. Hose-bridge	589,754	Sept. 28	2345	535	80	1951
Geyer, William M., Norristown, Pa. Puzzle	586,681	July 20	1901	413	80	411
Ghezzi, Romeo, and F. Bertoncini, New York, N. Y. Billiard-cue	587,195	July 27	2840	606	80	609
Gibboney, John W., Lynn, Mass., assignor of one-half to T. J. Johnston, Schenectady, N. Y. Telephony	587,119	July 27	2683	632, 633	80	580
Gibboney, John W., Lynn, Mass., assignor of one-half to T. J. Johnston, Schenectady, N. Y. Telephony	587,120	July 27	2691	633	80	581

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gibbons, Alfred R., Shelbina, Mo. Potato-digging machine	587,725	Aug. 10	789	186	80	832
Gibbons, Anthony J. (See Gibbons, Francis G. and A. J.)						
Gibbons, Francis G. and A. J., Lewisburg, Pa. Device for opening or closing gates	590,702	Sept. 28	2254	583	80	1944
Gibbons, H. W., *et al.* (See Johnston, James B., assignor.)						
Gibbs, Charles E. (See Ka Vear and Gibbs.)						
Gibbs, William E., Westfield, Mass. Mucilage-stamp	587,726	Aug. 10	792	186	80	833
Gibbs, William G., Gulgong, New South Wales. Spring-wheel for bicycles	587,196	July 27	2841	667	80	609
Gibson, Charles R., Woodsville, N. H. Bottle and stopper therefor	587,955	Aug. 10	1200	280	80	905
Gibson, Gerolt, St. Louis, Mo. Window-sash attachment	590,645	Sept. 28	2151	509	80	1926
Gibson, John H., Lawrence, Tenn. Portable quilting-frame	589,526	Sept. 7	203	47	80	1630
Giesler, Franklin B., Milwaukee, Wis. Steam-boiler furnace	587,121	July 27	2697	633	80	581
Giesy, Edward H., assignor to A. M. Stearns, Wyoming, and H. H. Giesy, Lancaster, Ohio. Refrigerator	588,139	Aug. 17	1534	352 353	80	981
Giesy, Henry H., *et al.* (See Giesy, Edward H., assignor.)						
Gifford, Charles, Gardiner, assignor, by mesne assignments, to Massachusetts Wringer Company, Portland, Me. Combined mop-tub and mop-wringer	590,144	Sept. 14	1270	300	80	1734
Gifford, Herbert C., *et al.* (See Rollins, William T., assignor.)						
Gilbert, Edgar T., Rochester, N. Y. Attachment for shoes	588,977	Aug. 31	3006	706	80	1294
Gilbert, Frank H., Ridgefield, Wash. Sack-holder	586,481	July 13	1541	361	80	314
Gilbert, Justin, Victoria, Canada. Type-writer	590,387	Aug. 31	3008	908	80	1463
Gilbert, William H. (See Smith, Chris N., assignor.)						
Giles, Edward W., Baltimore, Md. Water-pipe system	589,650	Sept. 7	405	98	80	1559
Gill, Jonas S., Flora, Ill. Kitchen-cabinet	585,842	July 6	355	82	80	71
Gillen, William T., Jersey City, N. J. Rope-fastener	588,903	Aug. 24	2877	671	80	1251
Gillespie, James, Chicago, Ill. Railway-ticket	590,393	Sept. 21	1702	401	80	1820
Gillespie, Richard S., New York, N. Y. Means for sinking wall or other supporting columns	590,680	Sept. 28	2218	526	80	1938
Gillingham, George O. (See Ferguson, William J., assignor.)						
Gillis, Harry A. (See Kitzmiller and Gillis.)						
Gilroy, Nicholas, New York, N. Y. Lemon-juice extractor	587,197	July 27	2843	667	80	609
Gilroy, Nicholas, New York, N. Y. Vessel-scraper	587,198	July 27	2844	667	80	609
Ginder, William H., assignor to American Lamp and Brass Company, Trenton, N. J. Raising mechanism for center-draft-lamp wicks	586,140	Aug. 17	1537	353	80	982
Ginley, Arthur H., assignor of one-half to M. C. Sinclair, Grand Rapids, Mich. Knock-down furniture	585,667	July 6	38	9	80	10
Girard, Alexander F. (See Herbelin, Alfred, assignor.)						
Girard, Ferdinand, Paris, France. Cigarette-machine	586,599	July 20	1768	410 411	80	386
Girardeau, W. M. (See Teate, Thomas A., assignor.)						
Girling, Wilkinson T., Philadelphia, Pa., assignor to himself, J. J. Torpey, R. Cunningham, and O. D. McClellan. Steam-engine	590,755	Sept. 28	2346	556	80	1961
Giroux, Alfred, East Providence, R. I., assignor to W. F. Grubb, Boston, Mass. Loom	586,233	July 13	1118	254	80	235
Girvin, Kelly, Brooklyn, N. Y. Carpet-cleaner	585,843	July 6	357	83	80	71
Glanz, Henry, Louisville, Ky. Lubricator	588,566	Aug. 24	2271	527	80	1136
Glasgow, Arthur G. (See Humphreys and Glasgow.)						
Glasgow, Arthur G., London, England, assignor to himself, and A. C. Humphreys, New York, N. Y. Feed-water heater for gas-making apparatus	586,908	July 27	2412	570	80	529
Glatz, Joseph, Brooklyn, and O. Lugo, New York, N. Y., assignors to International Mambrino Chemical Company, Washington, D. C. Refining glycerides and producing glycerin therefrom	585,844	July 6	359	83	80	72
Glauber, Joseph H., Cleveland, Ohio. Liquid shut-off	586,996	July 27	2459	581	80	539
Glazier, George W., Salem, Mass. Metal base for poles	589,079	Aug. 31	3181	749	80	1326
Gleason & Bailey Manufacturing Company. (See McCoy, Alonzo B., assignor.)						
Gleason, Duane N., Brooklyn, N. Y. Cycle-wheel	586,600	July 20	1771	412	80	387
Glenn, Amariah J., Spruce, Pa. Car-coupling	589,734	Sept. 7	512	122	80	1580
Glenn, Coulter E. (See Glenn, Harvey S. and C. E.)						
Glenn, Harvey S. and C. E., New Brighton, Pa. Well-drilling machine	585,668	July 6	39	9	80	10
Glennie, George, and R. Boone, San Francisco, Cal. Safety-guard and fender for cars	587,524	Aug. 3	433	101	80	744
Glidden, Charles W., deceased; J. E. Glidden, Lawrence, administrator, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Heel-attaching machine	589,501	Sept. 7	157	35, 36	80	1511
Glidden, John E., administrator. (See Glidden, Charles W.)						
Globe-Iron Works. (See Ross, Gilbert M., assignor.)						
Globe Nozzle Company. (See Adams, Don B., assignor.)						
Glover, Isaac N., Annover, Ark. Hand-car	586,601	July 20	1773	412	80	387
Gockel, Thomas R. (See Raywood and Gockel.)						
Godfrey, James, Pittsburg, Pa. Attachment for bicycle-handles	586,807	July 20	2264	531	80	479
Goehring, Henry, Philadelphia, Pa. Combined pressure and vacuum valve	587,094	July 27	2646	625	80	573
Goettel, John, Boston, Mass. Car-coupling	590,703	Sept. 28	2255	538	80	1944
Goff, George W. (See Abell and Goff.)						
Goff, Jesse D. (See Slatton, John L., assignor.)						
Goldbaum, Joseph J., Tucson, Ariz. Ter. Folding egg-crate	586,843	July 20	2158	504	80	458
Goldberg, Aaron, *et al.* (See Harrison and Kilberg, assignors.)						
Goldman, Samuel S., St. Louis, Mo. Rotary insect-proof display-rack	589,425	Sept. 7	41	11	80	1489
Goldschmidt, Bachrach & Co. (See Blun, Emil L., assignor.)						
Golling, Robert. (See Garrigus and Golling.)						
Gonne, Charles M., Goring, England. Holdback	589,826	Sept. 14	693	161	80	1627
Gonorovsky, Joseph, New York, N. Y. Non-refillable jar or bottle	589,905	Sept. 14	935	223	80	1671
Good, Daniel D., *et al.* (See Cline, William, assignor.)						
Goodale, Alfred M. (See Ryon, Eppa H., assignor.)						
Goodchild, Edward A., Thompson Falls, Mont. Fastening device for envelops	585,816	July 6	289	67	80	60
Goodell, B. A. (See Alcorn, John S., assignor.)						
Goodenough, Andrew C., assignor to F. E. Goodenough, Rochester, N. Y. Seat-post for bicycles	590,453	Sept. 21	1806	425	80	1848
Goodenough, Florence E. (See Goodenough, Andrew C., assignor.)						
Goodloe, John M., *et al.* (See Robinson, William C., assignor.)						
Goodloe, William T., *et al.* (See Robinson and Palmer, assignors.)						
Goodman, Louis. (See Saxton, Lionel D., assignor.)						
Goodman, Mark, J. J. and W. R. Rawlings, London, England. Handle-protector for velocipedes	587,956	Aug. 10	1208	280	80	876
Goodrich, Clarence L., assignor to W. W. Tucker, Hartford, Conn. Attachment for securing saddles of velocipedes to their supports	588,271	Aug. 17	1754	406	80	1022
Goodspeed, William, Bloomfield, Iowa. Slide-valve	587,367	Aug. 3	154	37	80	694
Goodwillie, Edgar N. (See Holbrook and Goodwillie.)						
Goodwin, George H., Waterbury, Conn. Convertible wagon	589,715	Sept. 7	514	123	80	1580

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Goodwin, Levi H., Cincinnati, Ohio. Bed-cover controller	590,005	Sept. 14	1022	240	80	1686
Goodwin, Mark D., Philadelphia, Pa. Wheel for vehicles	586,267	July 13	1173	269	80	244
Gord, Axel, Grant Park, Ill. Brick machinery	588,567	Aug. 24	2272	527	80	1136
Gordon, George H., *et al.* (See Johnston, Louis, assignor.)	589,892	Sept. 14	813	191	80	1647
Gordon, Horace S., Dayton, Ohio. Bottle-wrapper machine	585,748	July 6	176	39, 40	80	37
Gordon-Mitchell Gas Lamp Company. (See Gordon and Swift, assignors.)						
Gordon, Thomas, and W. R. Swift, assignors to Gordon-Mitchell Gas Lamp Company, New York, N. Y. Lamp having regenerative burner	585,817	July 6	290	68	80	60
Gordon, Thomas, Philadelphia, Pa., and W. R. Swift, New York, N. Y. Regenerative burner	588,272	Aug. 17	1756	406	80	1022
Gordon, William, assignor of one-half to P. A. Coupal, Boston, Mass. Machine for indenting boot or shoe soles	588,978	Aug. 31	3007	707	80	1294
Görges, Johannes H. F. (See Hoffmann and Görges.)						
Gorman, Edward. (See Farrell, Gorman, and Purcell.)						
Gormly, Robert W., Troy, N. Y. Knitting-machine	587,957	Aug. 10	1209	280	80	906
Gorter, Henry H., San Francisco, Cal. Universal joint for coupling pipes	586,176	July 13	1085	253	80	218
Gosnell, Frank R., assignor of one-half to J. M. Wasson and F. Ross, Fostoria, Ohio. Sucker-rod elevator	590,542	Sept. 21	1958	463	80	1877
Goss Printing Press Company. (See Goss, Samuel G., assignor.)						
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Delivery device for printing-presses	586,728	Aug. 24	2575	594	80	1194
Gossman, Joseph B., Hartford, Conn. Trunk-cot	588,979	Aug. 31	3009	707	80	1295
Gossman, Joseph B., Hartford, Conn. Ash-sifter	588,980	Aug. 31	3011	707	80	1295
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, Edwin F., Machias, Me. Vest pencil-holder	585,669	July 6	41	10	80	11
Gould, Frank D., Port Richmond, N. Y. Tooth-cleaner	589,209	Aug. 31	3412	800	80	1370
Gower, Sarah, Arcanum, Ohio. Invalid-chair	586,432	July 13	1458	337	80	298
Graber, Ellis, and L. Hepworth, Tunbridge Wells, England. Ruling-machine	589,827	Sept. 14	694	161 162 163 164	80	1627
Graffin, George W., Allentown, Pa. Valve	586,433	July 13	1459	338	80	298
Grafford, Willis H., assignor of one-half to T. J. Scranton, Nebo, Ill. Wire-stretcher	590,865	Sept. 28	2577	615	80	2007
Graham, Charles M., assignor of one-half to J. W. Orr and G. W. Blankenship, Jonesville, Va. Fencing device	587,810	Aug. 10	927	215	80	856
Graham, Elias, and J. Jacquart, Brocton, Ill. Apparatus for preparing ends of stove-pipes for joining	586,334	July 13	1296	296	80	267
Graham, James A., and J. A. McGee, Lorain, Ohio. Car-coupling	588,821	Aug. 24	2746	637	80	1226
Graham, Jerome B., Syracuse, N. Y. Fence	589,943	Sept. 14	895	214	80	1663
Graham, Samuel A., assignor of one-third to S. P. Farley, Boston, Pa. Potato-cutter	586,844	July 20	2159	504	80	458
Gram, Ernst W., Las Vegas, N. Mex. Ter. Bicycle-support	587,811	Aug. 10	928	216	80	856
Grandmaison, Joseph, assignor of one-half to F. D. Mayo, Lynn, Mass. Rock-drill engine	587,575	Aug. 3	529	126	80	702
Grandy, Edward F., Everett, Mass. Lasting-machine	588,568	Aug. 24	2274	528	80	1137
Grandy, Edward F., Everett, Mass. Lasting-machine	588,569	Aug. 24	2276	529	80	1137
Granger, Karle H., South Weymouth, Mass. Handle for tools and bicycle handle-bars	588,794	Aug. 24	2696	624	80	1218
Grant, Charles W., Concord, assignor to American Electric Train and Switch Signal Company, Boston, Mass. Railway-signal	589,170	Aug. 31	3353	788 789	80	1559
Grant, Frank S., assignor to J. Gallond, Waterbury, Conn. Bottle-seal	587,190	July 27	2844	667	80	610
Grant, Horace E., Pittsburg, Pa. Quick-action triple-valve device	588,419	Aug. 17	2011	466	80	1069
Grant, James W., assignor to Warner Brothers Company, Bridgeport, Conn. Metal blanking and studding machine	589,506	Sept. 7	321	80, 81	80	1542
Grant, John C., London, England. Tire-cover for vehicle-wheels	589,426	Sept. 7	42	11	80	1490
Grant, John H., Short Hills, N. J. Paper-clip	587,812	Aug. 10	929	216	80	856
Grant, Quintiles C., Greentown, assignor of three-fourths to U. G. Mills and G. W. Duke, Kokomo, and J. Rosenheiner, Center, Ind. Fence-post	590,100	Sept. 14	1178	277	80	1716
Grant, Robert R. T., Westville, Conn. Lace-fastener	588,961	Aug. 31	3013	707	80	1295
Grapes, John E., assignor to S. V. Lang, Clarksburg, W. Va. Clothes-pin	586,177	July 13	1036	233	80	218
Grappotte, George A., Watertown, N. Y. Whiffletree-hook	588,328	Aug. 17	1857	429	80	1040
Grapy, Edward. (See Dietz, Diephaus, and Grapy.)						
Graves, James O., Pride's Crossing, Mass. Pencil-sharpener	585,670	July 6	41	10	80	11
Graves, John W., Cordele, Ga. Fountain marking-pen	589,716	Sept. 7	515	122	80	1580
Gray, Christian H., Silverton, England. Machine for molding screw bottle-stoppers or other articles from plastic material	590,145	Sept. 14	1271	300 301 302	80	1734
Gray, Edward A., assignor to A. N. Russel and R. C. Shepard, Collinwood, Ohio. Leg-shield	589,562	Sept. 7	253	61	80	1529
Gray European Telautograph Company. (See McPherson, Leon O., assignor.)						
Gray, George F. and H. N., San Francisco, Cal. Concrete arch and fireproof construction	585,911	July 6	474	114	80	98
Gray, Harding F., Passaic, N. J., assignor to International Electric Transit Company, New York, N. Y. Electric telpher towing system	586,516	July 13	1599	372 373 374	80	324
Gray, Harry N. (See Gray, George F. and H. N.)						
Gray, John, and C. H. Case, South Manchester, Conn. Making insulating material	589,256	Aug. 31	3512	.....	80	1891
Gray National Telautograph Company. (See Tiffany, George S., assignor.)						
Gray, Richard, Bloomington, Ill. Metal arch for culverts	587,392	Aug. 3	189	47, 48	80	702
Gray, Thomas. (See Ames and Gray.)						
Gray, William H., Falconer, N. Y. Scaffold	588,982	Aug. 31	3014	708 709	80	1296
Greaves, William H. G., Cradock, Cape Colony. Plow	590,146	Sept. 14	1276	302	80	1735
Green, Ara, assignor to Ritchie, Green & Co., Glasgow, Scotland. Screw-cutting machine	587,727	Aug. 10	794	187	80	833
Green, Charles M., Cleveland, Ohio. Dynamo-electric machine	587,576	Aug. 3	531	127	80	763
Green, George R. (See Marks and Green.)						
Green, Hiram E., assignor of one-half to T. Walsh, Lowell, Mass. Doctor for fabric-printing machines	590,660	Sept. 28	2178	516	80	1931
Green, John J., deceased, Toledo, Ohio; H. J. Weller, administrator. Pneumatic straw-stacker	588,983	Aug. 31	3017	709	80	1296
Green, Pleasant N., J. H. Thompson, and A. Fowler, Union City, Tenn. Churn	589,717	Sept. 7	517	123	80	1580
Green, Robert D., Simpson, Pa. Automatic car-coupling	588,420	Aug. 17	2014	466	80	1070
Green, Thomas L., Indianapolis, Ind. Machine for icing cakes	589,718	Sept. 7	519	123	80	1581
Green, Thomas W., Philadelphia, Pa. Rotary blower	588,329	Aug. 17	1858	429	80	1040
Green, William H., Streator, Ill. Rake-cleaner	588,330	Aug. 17	1859	430	80	1040
Greenberg, Edward, Arlington Heights, Ill. Potato-digger	587,305	Aug. 3	44	10	80	674
Greene, B. C. (See Walker, Joseph, assignor.)						
Greene, Benjamin F., Sheridan, Pa. Electric-arc lamp	588,822	Aug. 24	2748	637	80	1226

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Greene, Edwin R., Providence, R. I. Piston-faucet	586,434	July 13	1461	338	80	299
Greene, Ellis D., Barry, Ill. Spring-wheel for vehicles	586,026	July 6	782	174	80	153
Greene, Jacob W., Trenton, Mo. Animal-trap	590,756	Sept. 28	2348	556	80	1962
Greenfield, Edwin T., Brooklyn, assignor to Interior Conduit and Insulation Company, New York, N. Y. Armored electrical conduit	585,863	July 6	389	91	80	77
Greenfield, Edwin T., assignor to Interior Conduit and Insulation Company, New York, N. Y. Armored electrical conduit	585,864	July 6	390	91	80	77
Greenfield, Edwin T., assignor of one-half to C. J. Kintner, New York, N. Y. Safety-pin	587,305	Aug. 3	45	11	80	674
Greenfield, William, San Francisco, Cal. Safety-razor	589,060	Aug. 31	3182	749	80	1326
Greengard, Morris D., St. Louis, Mo Shade-holder	588,570	Aug. 24	2278	529	80	1137
Greengard, Morris D., St. Louis, Mo. Shade-holder	588,571	Aug. 24	2280	529	80	1138
Greengard, Morris D., St. Louis, Mo. Shade-holder	588,964	Aug. 31	3018	709	80	1296
Greengrass, Francis W., Epsom, assignor to S. Reynolds and H. R. Docking, Croydon, England. Safety appliance for steam-boilers	589,944	Sept. 14	897	214	80	1663
Greeno, H. S., *et al.* (See Megquier, George H., assignor.)						
Gregg, William H., St. Louis, Mo. Vehicle-fender	585,862	July 6	388	90	80	77
Gregory, George W. (See Flint and Gregory.)						
Gregory, William B., Washington, D. C. Tire	588,823	Aug. 24	2749	637 638	80	1226
Greist, John M., New Haven, Conn. Sewing-machine ruffler	587,257	July 27	2953	694	80	631
Greist, John M., New Haven, Conn. Sewing-machine-attachment holder	587,258	July 27	2955	694	80	631
Grell, Frederick W., assignor to India Rubber Comb Company, College Point, N. Y. Machine for manufacturing combs	585,818	July 6	292	68, 69	80	60
Grey, Henry, Duluth, Minn. Apparatus for rolling metallic beams, columns, girders, &c.	587,958	Aug. 10	1210	281 282	80	906
Gridley, Wilmer D., Brooklyn, N. Y. Flower-pot support	585,981	July 6	519	123	80	101
Griebov, Abraham R., Baltimore, Md. Dynamo-electric machine or electric motor	586,234	July 13	1121	255	80	235
Grieves, Andrew, Allegheny, Pa. Emergency car brake and fender	588,824	Aug. 24	2750	638	80	1227
Griffin, Charles, *et al.* (See Haines, James H., assignor.)						
Griffin, George W., Franklin, N. H. Hack-saw	589,719	Sept. 7	523	123	80	1581
Griffin, Richard, Holyoke, Mass. Carding-engine	587,813	Aug. 10	930	216	80	856
Griffin, Michael H., Burlington, assignor of one-half to W. B. Webber, Hamilton, Canada. Clothes-wringer	585,749	July 6	179	40	80	38
Griffith, David C. B., Bedford, England. Scale weighing-machine	589,061	Aug. 31	3184	749 750	80	1327
Griffith, Isaac C., assignor to himself and F. Speed, Vicksburg, Miss. Balanced slide-valve	588,119	Aug. 10	1485	348	80	957
Griffith, Jacob K., Latrobe, and J. Slattery, Philadelphia, Pa. Metal-mold	587,728	Aug. 10	705	187 188	80	833
Griffith, John C., Everett, Pa. Envelop	588,985	Aug. 31	3020	710	80	1297
Griffith, William A., and S. Lovell, Chicago, Ill. Undertaker's sanitary sheet	590,188	Sept. 14	1346	318	80	1749
Griffith, William H., New York, N. Y. Chain-link	590,479	Sept. 21	1845	436	80	1856
Griffith, William H., New York, N. Y. Chain-link	590,480	Sept. 21	1846	436	80	1856
Griffith, William H., New York, N. Y. Chain-link	590,481	Sept. 21	1847	436	80	1856
Griffiths, James A., Philadelphia, Pa. Carbonic-acid reservoir	586,684	July 20	1903	443	80	411
Griffiths, William H., Medford, Mass. Interlocking cone-pulley	589,980	Sept. 14	977	229	80	1677
Griffiths, William H., assignor of two-thirds to C. H. Wright, Boston, Mass. Car-fender	590,180	Sept. 14	1347	318	80	1749
Griffitt, Emanuel, Trion Factory, Ga. Wheel	587,307	Aug. 3	46	11	80	674
Grigg, William E., assignor of two-thirds to S. S. and F. E. Diamond, Woburn, Ill. Mop-wringer	588,141	Aug. 17	1539	354	80	982
Grimes, Benjamin F. C., Walnut Grove, Miss. Scrubbing-brush	589,171	Aug. 31	3356	789	80	1360
Grimes, George W., Bluffton, Ind. Oil or water well operating power	586,027	July 6	783	174	80	153
Grimes, George W., Bluffton, Ind. Well-pumping power	587,525	Aug. 3	435	102	80	744
Grimes, George W., Bluffton, Ind. Well-pumping power	590,482	Sept. 21	1848	437	80	1856
Grimm, Fred B., and J. H. Nessler, Quincy, Ill. Insulator	590,832	Sept. 28	2479	590	80	1987
Griswold, Lewis F., assignor to Charles Parker Company, Meriden, Conn. Central-draft lamp	586,028	July 6	784	175	80	154
Groat, Elias, San Luis Obispo, Cal. Car-fender	589,651	Sept. 7	407	99	80	1559
Groat, George H., Brooklyn, N. Y. Picture-hanger	589,945	Sept. 14	896	214	80	1663
Groeninger, John A., St. Louis, Mo. Syringe	586,657	July 20	1862	433	80	403
Gross, George M., Chicago, Ill. Sheet-metal seam or joint	586,658	July 20	1863	433	80	403
Grote, John F., *et al.* (See Delong, Osker, and B. F. De Long, assignors.)						
Groupe, Andrew V., Philadelphia, Pa. Braiding-machine	588,421	Aug. 17	2015	467	80	1070
Grout, John C. (See Brooke, Homer, assignor.)						
Grout, John C., Brooklyn, N. Y. Bicycle-saddle	586,997	July 27	2461	582	80	539
Grubb, Samuel A., Elmwood, Ill. Wire-stretcher	590,219	Sept. 21	1410	332	80	1774
Grubb, William F. (See Giroux, Alfred, assignor.)						
Gräber, Carl, Schwerte, Germany. Mechanical or drop hammer	588,422	Aug. 17	2017	468	80	1071
Grubman, Leo, New York, N. Y. Kinetographic camera	587,729	Aug. 10	797	188	80	834
Grunow, Frank A. L., assignor of one-half to C. H. Allen and A. D. Riffel, New Orleans, La. Propelling device for ships	589,946	Sept. 14	899	215	80	1663
Grunow, William, Jr., Bridgeport, Conn., assignor of one-half to J. A. McElroy, New York, N. Y. Electromagnetic third-rail system	586,845	July 20	2160	505	80	458
Guastavino, Manuel, New York, N. Y. Floating or submergeable dock	590,147	Sept. 14	1278	304 305	80	1735
Guenzel, Edward B., Tracy, Iowa. Marker-attachment for planters	589,502	Sept. 7	162	36	80	1513
Guenzel, Ernst J., Milwaukee, Wis. Hat-support for theater-seats	589,469	Sept. 7	107	24	80	1502
Guerard, Robert G., New Orleans, La. Closure for barrels	585,178	July 13	1037	234	80	218
Guerne, George E., Santa Rosa, Cal. Harrow for race-courses	586,737	July 20	1994	464	80	428
Guertin, Henry V., Worcester, Mass. Snow-plow	590,932	Sept. 28	2657	633	80	2022
Gühring, Theodore, New York, N. Y. Heating apparatus for gas-burners	585,932	July 6	522	123	80	101
Guider, Charles E., Baltimore, Md. Wheel	589,652	Sept. 7	408	99	80	1559
Guilbert, John M., Philadelphia, Pa. Paper box	588,423	Aug. 17	2019	468 469	80	1071
Guild, George, and C. A. Bertsch, assignors to Bertsch & Co., Cambridge City, Ind. Shearing-machine	590,041	Sept. 14	1009	252 253	80	1695
Guimond, Cyrille. (See Manny, Emilien A., assignor.)						
Guldlin, Olaf N., Fort Wayne, Ind. Gate-valve	585,912	July 6	476	115	80	94
Gulliksen, Charles, Grand Forks, N. D. Telemeter	589,527	Sept. 7	204	47	80	1521
Gunderson, Nels C., *et al.* (See Steinfeldt, Adolph, assignor.)						
Gunn, James A. (See Wyman, Albert O., assignor.)						
Gunning, James F. (See Gunning, John and J. F.)						
Gunning, John and J. F., Amesbury, Mass. Tool	586,123	July 13	949	214	80	208
Gurley, Frank, High Point, N. C. Winding-indicator for timepieces	588,331	Aug. 17	1860	430	80	1041
Gurney, Edwin H., and H. D. Larned, Chagrin Falls, Ohio. Carpet-stretcher	586,659	July 20	1864	433	80	404
Gussett, Charles. (See McNamara and Gussett.)						
Gustafson, August M., assignor of one-half to A. Nelson, Gile, Wis, Car-coupling	589,828	Sept. 14	699	164	80	1629

Alphabetical list of patentees, July to September, inclusive—Continued.

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Gutermuth, Henry C., Nine Mile, Ind. Farm-gate	585,750	July 6	180	41	80	38
Guth, Charles, *et al.* (See Paquet, Joseph, assignor.)						
Guyn, Joshua F., Rowlandsville, Md. Flower-pot	586,485	July 13	1542	361	80	314
H. B. Smith Company. (See Scott, Robert, assignor.)						
Haas, John, Chicago, Ill. Pneumatic water-elevator	588,825	Aug. 24	2752	638	80	1227
Haase, Henry, Philadelphia, Pa., assignor to Hensel Colladay Company, of Pennsylvania. Garment-edging	589,720	Sept. 7	594	124	80	1582
Haase, Rudolph C., Wilwaukee, Wis. Type-writer cabinet	590,261	Sept. 21	1473	347	80	1796
Hastaja, Epraham, Rosburg, Wash. Net-leader	587,308	Aug. 3	47	11	80	674
Habich, Fredrick, Grand Forks, N. D. Water-jacketed flue	587,309	Aug. 3	49	12	80	675
Hackett, John C., St. Louis, Mo. Lifting-jack	587,730	Aug. 10	790	188	80	834
Haddock, Worcester, assignor to J. H. Gerlach, Chicago, Ill. Letter and bill file	587,393	Aug. 3	191	48	80	702
Hadley, Edwin A., Scotia, Nebr. Tension device	588,424	Aug. 17	2020	469	80	1071
Hadra, William J., Cumberland, Md. Non-refillable bottle	587,577	Aug. 3	534	128	80	793
Haegelin, Richard A., St. Joseph, Mo. Sash-lock	589,653	Sept. 7	409	99	80	1559
Haenichen, Adolph, assignor of one-third to C. Saal, Jr., Paterson, N. J. Ash-sifter	588,745	Aug. 24	2621	604	80	1203
Haeske, Charles, South Bend, Ind. Dumping-cart	587,200	July 27	2846	668	80	610
Hafner, Augustus P., assignor to Crown Pen Company, Chicago, Ill. Combined thermometer and fountain-pen	590,262	Sept. 21	1745	348	80	1787
Hagan, Louis T., Winchester, Ky., assignor, by mesne assignments, to Anchor Supply Company, Evansville, Ind. Awning	589,257	Aug. 31	3513	824	80	1391
Hagen, Claude L., New York, N. Y. Fastening attachment for stage-scenery	586,486	July 13	1543	361	80	314
Haggen, Andrew J., Eagle Grove, Iowa. Sectional folding boat	588,996	Aug. 31	3021	810	80	1297
Haglock, William H., Sterling, Ill. Trace	590,006	Sept. 14	1023	240	80	1686
Haigh, Charlton. (See Reilly and Haigh.)						
Haiman, Elias, Cleveland, Ohio. Plow or cultivator	585,751	July 6	182	41	80	38
Haines, James H., assignor of nine-sixteenths to C. Griffin and J. M. Certain, Tampa, Fla. Portable shampooing-basin	590,883	Sept. 28	2480	590	80	1987
Hainsworth, John S., London, England. Automatic vehicle-brake	588,425	Aug. 17	2021	469 470	80	1072
Haish Manufacturing Company. (See Salisbury, Charles H., assignor.)						
Hake, Gustavus. (See Jermain, Peter, assignor.)						
Hale, Frederick M., and J. B. Reavil, London, England. Shell-fuse	588,861	Aug. 24	2814	654	80	1239
Hale, George C., Kansas City, Mo. Ice-creeper appliance for horseshoes	586,487	July 13	1544	362	80	314
Hale, George C., Kansas City, Mo. Ice-creeper appliance for horseshoes	586,488	July 13	1546	362	80	315
Hale, Johnson, *et al.* (See Roach, Henry B., assignor.)						
Haley, James W., Milford, Me. Lubricating material for machinery-bearings	590,309	Sept. 21	1660		80	1822
Hall, Alfred, Chicago, Ill. Automatic gas-pressure regulator	586,089	July 6	894	201	80	174
Hall, Benjamin, Nevada City, Cal. Reverberatory smelting and refining furnace	589,210	Aug. 31	3413	800 801	80	1370
Hall, Charles, New York, N. Y. Screw-wrench	586,788	July 20	1996	464	80	429
Hall, Cofran I., San Francisco, Cal., assignor to Cahill & Hall Elevator Company, of California. Elevator-gearing	590,722	Sept. 28	2201	541 542	80	1951
Hall, Edward S., New York, N. Y. Vehicle-brake	589,779	Sept. 7	609	142	80	1598
Hall, Frank D., Syracuse, N. Y. Electric switch	586,020	July 6	787	175	80	154
Hall, John, Philadelphia, Pa. Casting-machine	590,148	Sept. 14	1281	305	80	1736
Hall, Louis H. (See Moscheles, Robert, assignor.)						
Hall, Louisa. (See Bell and Hall.)						
Hall, Osborn B., Malden, Mass. Nipple-holder	587,478	Aug. 3	352	83	80	730
Hall, Peter C., assignor of one-half to R. Wirt, Battle Creek, Mich. Windmill	588,143	Aug. 17	1540	354	80	983
Hallahan, Michael, New York, N. Y. Horseshoe-pad	586,030	July 6	789	176	80	155
Hallenbeck, William A., Binghamton, N. Y. Spring-balance computing-scale	590,543	Sept. 21	1960	463	80	1877
Hallidie, Andrew S., San Francisco, Cal. Mechanical feeder for ropeway-carriers	589,654	Sept. 7	410	99 100	80	1559
Halliwell, Thomas, Eccles, England. Apparatus for dyeing, &c	585,752	July 6	183	41, 42	80	39
Hallman, George. (See Vredenburg, Frank, assignor.)						
Hallock, Daniel Y., Southold, N. Y. Convertible potato-digger and plow	588,826	Aug. 24	2753	639	80	1227
Hallopeter, Henry K., Danville, Pa. Nut-lock	586,660	July 20	1865	434	80	404
Halloran, Henry G. (See Chaplin and Halloran.)						
Hall's Safe Company. (See Corry, William, assignor.)						
Hallstrom, Erick, Montevideo, Minn. Tension device for twine-binders	590,190	Sept. 14	1348	318	80	1749
Halsey, William, Jr., Afton, N. J. Window-screen	585,671	July 6	42	10	80	11
Ham, Albert W., Lansingburg, assignor to Trojan Button Fastener Company, Troy, N. Y. Sand-box for car-tracks	590,220	Sept. 21	1411	333	80	1774
Hamblin, Stephen M., assignor to Mason Machine Works, Taunton, Mass. Lever-screw for spinning-frames	588,278	Aug. 17	1757	407	80	1023
Hamburger, Anthony G., Baltimore, Md. Coal-bin	587,959	Aug. 10	1217	282	80	907
Hamburger, Leon, *et al.* (See Darley, John W., Jr., assignor.)						
Hamburger, Philip, *et al.* (See Darley, John W., Jr., assignor.)						
Hamilton, Edwin, La Crosse, Wis. Starching-machine	590,681	Sept. 28	2220	526	80	1939
Hamilton, Samuel R., Farmersville, Tex. Folding car-step	587,479	Aug. 3	353	84	80	730
Hamlin, Charles S., Los Angeles, Cal. Pipe-truing lathe	585,865	July 6	391	91	80	77
Hamlin, Charles S., Los Angeles, Cal. Sheet-metal pipe	586,179	July 13	1038	234	80	218
Hamlin, Charles S., Los Angeles, Cal. Sheet-metal flume	586,180	July 13	1040	234	80	218
Hamm, William S. (See Bullard and Hamm.)						
Hamm, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Bicycle-lamp	588,904	Aug. 24	2878	671 672	80	1232
Hammacher, Siegfried, Berlin, Germany. Active material for electrodes of electric accumulators	588,905	Aug. 24	2880		80	1232
Hammacher, Wilhelm, Wiesbaden, Germany. Propelling mechanism for bicycles	590,413	Sept. 21	1738	408 409	80	1836
Hammer, John H., Allegheny, Pa. Spectacle-case	586,816	July 20	2116	494	80	450
Hammer, John H., Allegheny, Pa. Egg-crate	586,846	July 20	2163	505 506	80	459
Hammer, John H., Allegheny, Pa. Muzzle attachment for cannons	587,731	Aug. 10	801	189	80	834
Hammer, John H., Allegheny, Pa. Automatic dumping-truck	587,960	Aug. 10	1218	283	80	908
Hammer, John H., Allegheny, Pa. Hoisting device	588,827	Aug. 24	2756	639	80	1228
Hammer, Lee, Bridgewater, Va. Harvester	588,902	Aug. 24	2817	655	80	1240
Hammond, William A., and R. W. Taylor, St. Louis, Mo. Tombstone or monument	589,722	Sept. 7	595	124	80	1582
Hammond, William E., Meriden, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Bicycle-bell	587,578	Aug. 3	536	128	80	794
Hanauer, Edward W., Philadelphia, Pa. Trousers-guard	586,286	July 13	1202	274	80	250
Hanchett, Cary *et al.* (See Baker, Darius C., assignor.)						
Hancock, Abram O., assignor of one-half to J. M. Lane, New Orleans, La. Adjustable garment-pattern	590,495	Sept. 21	1869	442 443	80	1860
Hancock, Frederick, Burslem, and C. B. Winzer, Shelton, England. Pottery muffle or kiln	588,967	Aug. 31	3023	810	80	1297

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hancock, George, Providence, R. I. Safety-brake for inclined railways	590,544	Sept. 21	1961	463	80	1877
Hancock Inspirator Company. (See Park, William R., assignor.)						
Hancock Inspirator Company. (See Park and Williston, assignors.)						
Hancock, Warren H., Epping, Ga. Car-axle box	585,753	July 6	186	43	80	39
Hand-Tied Tie Company. (See Davies, Charles W. T., assignor.)						
Handly, Thomas F., Allegheny, Pa. Ice-cream disher and mold	586,181	July 13	1042	234	80	219
Handy Standard Cash Register Company. (See Smith, Elmer S., assignor.)						
Haney, Charles A., Pittsburg, Pa. Arc-light holder	586,435	July 13	1462	338	80	299
Hanke, Gustave, assignor of two-thirds to C. Leckband and A. C. Savage, Adair, Iowa. Wire-stretcher	589,082	Aug. 31	3187	750	80	1327
Hanlon, John A., Brooklyn, N. Y. Street-sweeper	585,988	July 6	523	122 124	80	101
Hannaford, William S., Pasadena, Cal. Tobacco-pipe	589,258	Aug. 31	3514	824	80	1391
Hannah, William G., Taunton, Mass. Marine-engine governor	589,172	Aug. 31	3357	789	80	1360
Hannigan, Lucy A., Paterson, N. J. Dust-pan	586,356	July 13	1327	304	80	274
Hano, Philip. (See Turck, Frederick M., assignor.)						
Hansbury, Peter R., New York, N. Y. Apparatus for melting and removing snow	586,124	July 13	951	214	80	203
Hanscom, Adelbert P., Medford, Mass., assignor to Q & C Company, Portland, Me. Machine for sawing off bars or strips of metal	586,847	July 20	2164	506 507	80	459
Hansen, John P., Cedar Falls, Iowa. Combined hay and stock rack	590,614	Sept. 28	2090	494 495	80	1915
Hanson, Joseph, Crystal Falls, Mich., assignor of three-fourths to A. M. Darling and S. J. Murphy, trustees. Magazine bolt-gun	590,834	Sept. 28	2481	590	80	1987
Hanson & Van Winkle Company. (See Topp, Henry C., assignor.)						
Harbaugh, A. G., *et al.* (See Roche, David, assignor.)						
Hard, John W., Tacoma, Wash. Dental instrument	586,727	July 20	1970	458	80	424
Hardaway, Robert E., Austin, Tex. Windmill	588,572	Aug. 24	2283	529 530	80	1138
Harder, Ulrich, St. Louis, Mo. Storm-mask	587,687	Aug. 3	707	109	80	797
Hardie, James G., Jr., and J. F. Post, Canton, N. Y.; said Post assignor and said Hardie assignor of one-half to R. A. Hart, A. R. Henry, and H. Lindsay, Battle Creek, Mich. Voting-machine	587,129	July 27	2718	637	80	585
Harding, Fred D., Baldwin, Me. Washing-machine	589,427	Sept. 7	43	11	80	1490
Harding, Thomas, assignor of one-half to J. H. Henry, San José, Cal. Wave-motor	588,641	Aug. 24	2421	558	80	1166
Hariman, John C., Belleville, N. J. Mold for vulcanizing atomizer or syringe bulbs, &c.	587,961	Aug. 10	1219	283	80	908
Harily, Rodney D., Lorain, Ohio. Nut-lock	589,599	Sept. 7	325	81	80	1543
Harford, Frederick G., Pataha City, Wash. Current water-motor	587,814	Aug. 10	932	216 217	80	857
Hargan, William B., Stockton, Cal. Animal-trap	590,723	Sept. 28	2293	542	80	1951
Haring, Peter P., Goliad, Tex. Cotton-picking machine	587,201	July 27	2847	668 669	80	610
Harley, Edward M., Edinburgh, Scotland. Lamp for cycles, &c	585,885	July 6	424	101 102	80	84
Harloe, William E., High View, W. Va. Gauntlet	588,426	Aug. 17	2022	470	80	1072
Harmelink, Gerrit, Newkirk, Iowa. Controlling-lever and grip	587,782	Aug. 10	801	189	80	834
Harmer, George W., assignor to P. B. Risley, Pleasantville, N. J. Storm-protector	586,908	July 27	2463	582	80	539
Harper, Thomas R., Wheeling, Mo. Ventilator	587,259	July 27	2957	694	80	632
Harper, Warren. (See Roulliot, Victor, assignor.)						
Harpole, Andrew J., Union City, Tenn. Automatic car-brake	586,489	July 13	1549	362	80	315
Harriman, Alonzo H., and C. B. Ring, Orono, Me. Claw-hammer	590,368	Sept. 21	1659	392	80	1822
Harrington, Edwin S., *et al.* (See English, Samuel W., assignor.)						
Harrington, Henry G., assignor of two-thirds to B. L. Jean and J. D. Jameson, Magnolia, Ark. Combined wagon-step and chair	590,149	Sept. 14	1283	305	80	1736
Harrington, Henry G., assignor of two-thirds to B. L. Jean and J. D. Jameson, Magnolia, Ark. Car-coupling	590,150	Sept. 14	1285	305	80	1737
Harrington, John. (See Swingle and Frantz, assignors.)						
Harrington, Theodore, Southbridge, Mass. Undercheck device for horses	586,999	July 27	2464	582	80	539
Harrington, Samuel H., Philadelphia, Pa. Toy	588,988	Aug. 31	3024	711	80	1298
Harrington, Walter E. (See Weiss, William F., assignor.)						
Harris, Alfred F. and C. G., and W. H. Smiley, Niles, Ohio; said Alfred F. Harris and said Smiley assignors to said C. G. Harris. Printing-machine	586,898	July 20	2264	531 532	80	479
Harris Automatic Press Company. (See Harris, Charles G., assignor.)						
Harris, Benjamin E., San Francisco, Cal. Starting-gate	587,285	July 27	3006	704	80	641
Harris, Benjamin G. (See Howard, Zenas F., assignor.)						
Harris, Charles E., Ellwood City, Pa., assignor of one-half to W. J. Harris, Mount Pleasant, Ohio. Switch-operating mechanism	589,655	Sept. 7	413	100	80	1560
Harris, Charles G. (See Harris and Smiley.)						
Harris, Charles G., assignor to Harris Automatic Press Company, Niles, Ohio. Device for feeding printing-presses	586,490	July 13	1552	363	80	315
Harris, Charles R., Williamsport, Pa. Bicycle	588,274	Aug. 17	1758	407	80	1023
Harris, Charles R., Chicago, Ill. Artificial fish-bait	588,729	Aug. 24	2578	595	80	1195
Harris, Henry R., assignor of one-half to H. W. Smith, Reelfoot, Tenn. Nut-lock	589,966	Sept. 14	936	223	80	1671
Harris, Levi, assignor of two-thirds to H. B. Peck and O. M. Allen, Kalamazoo, Mich. Railway-crossing gate	590,757	Sept. 28	2350	557	80	1902
Harris, Marion E., Toledo, Ohio. Face-steamer	588,989	Aug. 31	3026	711	80	1298
Harris, Samuel, assignor to Steel Motor Company, Johnstown, Pa. Electric controller	587,733	Aug. 10	802	189	80	834
Harris, Samuel, assignor to Steel Motor Company, Johnstown, Pa. Electric trolley device	588,144	Aug. 17	1542	354	80	963
Harris, Samuel, assignor to Steel Motor Company, Johnstown, Pa. Electric trolley device and conductor construction therefor	588,145	Aug. 17	1543	355	80	963
Harris, Thomas F. (See Sawyer and Harris.)						
Harris, Wilbur J. (See Harris, Charles E., assignor.)						
Harrison, Edward M. (See Harrison, William S. and E. M.)						
Harrison, George L., *et al.* (See Darling, James D., assignor.)						
Harrison, Isaac, and A. M. Kilberg; said Kilberg assignor of one-twelfth to A. Goldberg, J. Burros, and I. Finkelstein, Scranton, Pa. Gas-burner tip	586,182	July 13	1042	235	80	219
Harrison, John, *et al.* (See Darling, James D., assignor.)						
Harrison, Joseph R., Chicopee, Mass. Skate	585,806	July 6	392	91	80	78
Harrison, Lycurgus, *et al.* (See Dunn, William R., assignor.)						
Harrison, Thomas S., *et al.* (See Darling, James D., assignor.)						
Harrison, William S. and E. M., Chicago, Ill. Central-office switchboard system	587,502	Aug. 3	392	93	80	735
Harry, Simon J., Washington, D. C. Hub-attaching device	588,863	Aug. 24	2220	655	80	1241
Hart, Albert J. (See Hart, Loren D. and A. J.)						
Hart, Frederick, Poughkeepsie, N. Y. Folding-machine	589,083	Aug. 31	3189	750 751	80	1328
Hart, George W., National Military Home, Kans. Folding box	590,394	Sept. 21	1703	401	80	1830

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hart, Gilbert, Detroit, Mich. Secondary battery	590,151	Sept. 14	1287	305	80	1737
Hart, Henry C., assignor to Henry C. Hart Manufacturing Company, Detroit, Mich. Gas-engine	588,061	Aug. 10	1377	320	80	987
Hart, Henry C., assignor to Henry C. Hart Manufacturing Company, Detroit, Mich. Gas-engine	588,062	Aug. 10	1379	320	80	987
Hart, John W., assignor of one-half to J. McBrine, Guthrie, Okla. Ter. Ice-cream freezer	585,754	July 6	187	43	80	39
Hart, Loren D. and A. J., Nora Springs, Iowa. Washing-machine	589,084	Aug. 31	3194	751	80	1328
Hart, Russell A., *et al.* (See Hardie and Post, assignors.)						
Hart, Russell A., Battle Creek, Mich. Voting-machine	586,031	July 6	789	176 177	80	155
Hart, William, New Bedford, Ill. Stacker for threshing-machines	590,686	Sept. 28	2577	615	80	2007
Harte, August, Cincinnati, Ohio. Combined chair and foot-rest	590,520	Sept. 21	1917	454	80	1870
Harteg, Augustus, and C. E. Sheckler, Catasauqua, Pa. Slip-joint for scrub-brushes	590,335	Sept. 28	2483	591	80	1967
Hartford Machine Screw Company. (See Witherell, George E., assignor.)						
Harthan, Frank E., Worcester, Mass. Pneumatic tool	590,661	Sept. 28	2179	516 517	80	1931
Hartigan, Joseph F. (See Hudson and Hartigan.)						
Hartley, Robert A., Brantford, Canada. Whip-socket	586,491	July 13	1554	363	80	316
Hartman, Frederick J., Washington, D. C. Stringed instrument	586,032	July 6	792	177	80	155
Hartman, John H., assignor to F. Fisher, Germantown, N. Y. Nut-lock	587,962	Aug. 10	1220	283	80	908
Hartman, Maria C., Wilmington, Del. Skirt	586,033	July 6	794	177	80	156
Hartman, Maria C., Wilmington, Del. Bustle	586,034	July 6	795	178	80	156
Hartmann, Alfred. (See Hartmann and Reinhard.)						
Hartmann, Carl, Brooklyn, assignor of one-half to E. Shoch, Blissville, N. Y. Potato-digger	590,571	Sept. 28	2017	475	80	1902
Hartmann, Ernest L. (See Collins and Hartmann.)						
Hartmann, Rudolf and A., and G. F. Reinhard, Jersey City, N. J. Bicycle-alarm	588,573	Aug. 24	2285	530	80	1139
Hartness, James, Springfield, Vt. Attachment for turret-lathes	587,480	Aug. 3	354	84, 85	80	730
Hartshorn, Edmund F., Newark, assignor to Stewart Hartshorn Company, Harrison, N. J. Pulley	590,758	Sept. 28	2352	557	80	1903
Hartshorn, Edmund F., Newark, assignor to Stewart Hartshorn Company, Harrison, N. J. Pulley	590,759	Sept. 28	2353	558	80	1903
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Making plate-glass	588,574	Aug. 24	2287	530	80	1139
Hartwick, Otto, Swinemünde, Germany. Ship's form	590,101	Sept. 14	1179	278	80	1717
Harvey, Charles H., and M. D. Archer, Philadelphia, Pa. Monkey-wrench	588,906	Aug. 24	2282	672	80	1232
Harvey, Cyrus E., Waterloo, Canada. Fire-escape	589,428	Sept. 7	46	11	80	1490
Harvey, Edwin B. (See Williams and Harvey.)						
Harvey, John G., and C. Munzmer, assignors to George M. Clark & Company, Chicago, Ill. Vapor stove and burner	587,036	July 27	2540	599	80	553
Harvey, Leon J., assignor to G. F. Harvey Company, Saratoga Springs, N. Y. Suppository-mold	588,990	Aug. 31	3027	711	80	1298
Harvey, William E. (See Barr and Johnson, assignors.)						
Haselwander, Fritz, assignor to A. Kolbe, Frankfort-on-the-Main, Germany. Compensating device for engines	585,755	July 6	188	44	80	40
Hasenauer, Fredrick W. (See Roth, Charles F., assignor.)						
Haskell, Edward H., *et al.* (See Dawes, Robert, assignor.)						
Haskins, Charles D., Brooklyn, N. Y., assignor to Western Electric Company, Chicago, Ill. Multiple-series system of electrical distribution	589,429	Sept. 7	47	12	80	1491
Haskins, Charles D., Brooklyn, N. Y., assignor to Western Electric Company, Chicago, Ill. System of electrical distribution	589,430	Sept. 7	49	12	80	1491
Haslam, Alfred S., Derby, England. Apparatus for cooling air	586,766	July 20	2039	474	80	436
Hassett, William R., St. Louis, Mo., assignor to W. J. Althans, New York, N. Y. Wood-graining machine	586,035	July 6	796	178	80	156
Hastings, Charles S., New Haven, Conn. Erecting-prism	586,708	July 20	1936	451	80	417
Hastings, Cornelius G., Chicago, Ill. Hydraulic or pneumatic tunneling-shield	590,887	Sept. 28	2579	615	80	2007
Hastings, William H., and C. E. Foster, Minneapolis, Minn. Grain-washer	586,125	July 13	952	215	80	203
Haswell Chair and Manufacturing Company. (See Haswell, George I., assignor.)						
Haswell, George I., assignor to Haswell Chair and Manufacturing Company, Fort Wayne, Ind. Combined reclining and folding chair	588,108	Aug. 10	1468	340	80	954
Hatfield, Rodolph. (See Martindale, Benjamin F. and F. B., assignors.)						
Hatfield, Thomas J., Dublin, Ind. Trace-holder	586,767	July 20	2040	475	80	436
Hatmaker, James R. (See White, George, assignor.) (Reissue.)						
Haug, John, Norristown, Pa. Ship construction	586,436	July 13	1464	330	80	299
Haugh, Benjamin F., Indianapolis, and G. H. Vincett, Anderson, Ind. Car-coupling	586,183	July 13	1044	235	80	219
Hausmann, Otto, San Antonio, Tex. Folding crate	587,481	Aug. 3	356	85	80	731
Havecotte, John H., Navasota, Tex. Fire-screen	588,146	Aug. 17	1544	355	80	984
Hauman, Georg, Berlin, Wis. Inkstand	586,492	July 13	1555	363	80	316
Hawk, Nathaniel H., Blue Ridge, Tex. Hay-press	587,000	July 27	2465	582	80	540
Hawkins, Edwin N. (See Sloan, Edward D., assignor.)						
Hawley, Charles G., Minneapolis, Minn. Acetylene-gas lamp	586,517	July 13	1607	374	80	326
Hawley, Eugene W., St. Louis, Mo., assignor to T. B. Peddle & Co., Newark, N. J. Hat-carrier	589,829	Sept. 14	701	164	80	1629
Hay, Nelson N., Battle Creek, Mich. Hot-air and vapor bed	586,036	July 6	799	178 179	80	156
Hay, William, Scranton, Pa. Key touch-regulator for musical instruments	590,521	Sept. 21	1918	454	80	1870
Hayball, William, Jr., Detroit, Mich. Bicycle-support	586,817	July 20	2117	494	80	450
Hayden, George W. (See Hayden, James T. and G. W.)						
Hayden, James T. and G. W., Oak Park, assignors to Crane Company, Chicago, Ill. Air-brake triple valve	587,054	July 27	2577	608	80	559
Hayes, E. B., *et al.* (See Pine, Wilber J., assignor.)						
Hayes, Eli B., Oshkosh, Wis. Double planer and sander	590,836	Sept. 28	2485	591 592 593	80	1988
Hayes, Eli B., Oshkosh, Wis. Cutter-head for planing-machines	590,888	Sept. 28	2581	616	80	2008
Hayes, George, New York, N. Y. Bicycle-wheel	588,332	Aug. 17	1861	430	80	1041
Hayes, Hammond V., Cambridge, assignor to American Bell Telephone Company, Boston, Mass. Telephone-switchboard	586,685	July 20	1903	443 444	80	411
Hayes, Hammond V., Cambridge, and T. C. Wales, Jr., Newton, assignors to American Bell Telephone Company, Boston, Mass. Telephonic measured-service system	589,431	Sept. 7	51	12	80	1492
Hayes, James P., Mount Vernon, N. Y. Folding bed	590,395	Sept. 21	1704	401	80	1830
Hayes, John H., and H. K. Nash, De Ruyter, N. Y. Bicycle-tire	590,152	Sept. 14	1288	306	80	1737
Hayes, Lewis S., Cortland, N. Y. Rotary steam-engine	587,909	July 27	2849	609	80	611
Hayes, S. V. R., *et al.* (See Pine, Wilber J., assignor.)						
Haygood, John F., Watkinsville, Ga. Mustache-protector	586,208	July 13	1174	269	80	244
Haynes, Charles F., Boston, Mass. Arm-rest for school-chairs, &c	585,918	July 6	477	115	80	94

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Haynes, Daniel J., and V. Lapham, Chicago, Ill. Extension-table	589,388	Aug. 31	3870	903	80	1464
Haynes, J. B., *et al.* (See Rausheck, John E., assignor.)						
Hazard, Eugene L., Chicago, Ill. State-room for vessels	587,482	Aug. 3	357	85	80	731
Hazen, James W. (See O'Connor, William P., assignor.)						
Headland, Henry W., London, England. Secondary battery	589,830	Sept. 14	702	164, 165	80	1629
Healy, John, New York, N. Y. Couch-bottom	590,522	Sept. 21	1919	454	80	1870
Healy, John F. (See Crosby and Healy.)						
Heap, David P., U. S. Army. Topophone	590,062	Sept. 14	1104	262	80	1702
Hearn, John, Hudson, N. Y. Mechanism for feeding carding-engines	587,815	Aug. 10	933	217	80	857
Heath, Amasa C., and F. H. White, Easton, Mass. Machine for making heel-rands	587,283	July 27	3002	703, 704	80	640
Heath, Chancy F., Thompsonville, Mich. Bedclothing-retainer	588,427	Aug. 17	2023	470	80	1072
Heath, Charles F., Rutland, Vt. Driver or drawer for draftsmen's tacks	590,760	Sept. 28	2355	558	80	1963
Heath, Frederick H., and J. R. Nagell, Tacoma, Wash. Bottle-seal	588,575	Aug. 24	2288	530	80	1139
Heath, Lewis W., Grand Rapids, Mich. Game-counter	590,523	Sept. 21	1921	454	80	1870
Heath, Robert F. S., Camden, N. J., assignor of forty-nine one-hundredths to H. D. Hughes, Strafford, Pa. Electric furnace	586,686	July 20	1907	444	80	412
Heath, Robert F. S., Camden, N. J., assignor of forty-nine one-hundredths to H. D. Hughes, Strafford, Pa. Electric furnace	586,687	July 20	1908	444	80	412
Heath, Robert F. S., Camden, N. J., assignor of forty-nine one-hundredths to H. D. Hughes, Stratford, Pa. Composition for manufacturing calcium carbids	589,967	Sept. 14	937		80	1671
Heath, Thomas T., Loveland, Ohio. Typographic machine	587,816	Aug. 10	934	217, 218, 219, 220	80	857
Heath, Thomas T., Loveland, Ohio. Matrix	589,470	Sept. 7	108	24	80	1502
Heath, William J., Kingston, Jamaica. Lemon-squeezer	590,221	Sept. 21	1414	333	80	1775
Heaton, Joseph, Brunswick, assignor of one-half to E. Thomas, Topsham, Me. Apparatus for compelling flow of gas by means of currents of liquids	587,203	July 27	2852	669, 670	80	611
Heck, Louis, Newark, N. J., assignor to W. J. Newton, New York, N. Y. Flush switch	588,428	Aug. 17	2024	471	80	1072
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Pneumatic coupler	590,545	Sept. 21	1961	468	80	1877
Heffley, William H., St. Paul, Kans. Pneumatic car-window	589,631	Sept. 14	705	165	80	1629
Heffner, John H., Thornton, Tex., assignor of one-third to C. E. Appler, Atlanta, Ga. Cotton-gin	590,662	Sept. 28	2222	527	80	1939
Hegewald, Arthur F., assignor to Charles Hegewald Company, New Albany, Ind. Manhole	589,528	Sept. 7	204	48	80	1521
Heidelburg, Frederick, Marshall, Tex. Combination truss-rod and corner-brace for cars	589,432	Sept. 7	57	13	80	1492
Heideman, Albert L., Elgin, Ill. Beer-pump	587,963	Aug. 10	1221	284	80	908
Heim, Lewis R., Danbury, Conn. Machine for stiffening brims of hats	590,370	Sept. 21	1660	392, 393	80	1822
Hein, Frank X., Buffalo, N. Y. Bicycle-rack	587,147	July 27	2761	648	80	594
Heinemann, Emil D., assignor to Titan Manufacturing Company, Chicago, Ill. Lace-fastener	586,818	July 20	2118	495	80	450
Heird, Samuel C. (See Crider, Heird, and Cocking.)						
Heiser, William, and G. J. Meyer, Buffalo, N. Y. Sprinkling device for pneumatic malting-machines	590,546	Sept 21	1963	464, 465	80	1878
Heisley, Frank S. (See Ralph, Linton N., assignor.)						
Heiss, Frank A., Port Jervis, N. Y. Type-writing machine	588,746	Aug. 24	2022	605	80	1203
Helfrecht, John W. (See Traub and Helfrecht.)						
Helmer, Simon K., Aspen, Colo. Seat or bench	589,529	Sept. 7	205	48	80	1521
Hemingray, Ralph G., Muncie, Ind. Glass-press	588,795	Aug. 24	2097	624	80	1218
Helmuth, Frederick C., Long Island City, assignor of one-sixth to C. Leffler, Brooklyn, N. Y. Package folding or wrapping machine	586,899	July 20	2268	532, 533, 534, 535	80	480
Helzel, Adolf, Bodenbach, Austria-Hungary. Muffle-furnace for treating glass or pottery ware	590,737	Sept. 28	2315	548	80	1955
Hemmelwright, John R., Springdale, Pa. Key-fastener	586,383	July 13	1370	315	80	281
Henderson, David A., Fond du Lac, Wis. Pipe-wrench	588,991	Aug. 31	2028	712	80	1298
Henderson, Jesse E., *et al.* (See Rollins, William T., assignor.)						
Hendrich, August, assignor to himself, J. W. Philpot, and J. G. Packard, Cedar Falls, Iowa. Wood-turning lathe	590,222	Sept. 21	1415	334	80	1775
Hendricks, Charles P., Somerset, Va. Fastener for window-lights	589,600	Sept. 7	326	81	80	1543
Heneage, Charles R. (See Doie, Charles P., assignor.)						
Heninger, William H., Omega, Ill. Washing-machine	588,147	Aug. 17	1545	356	80	984
Henlon, Wakeman B., *et al.* (See Johnson, Edward E., assignor.)						
Henke, Frederick E., Lindenhurst, N. Y. Toy	589,173	Aug. 31	3358	789	80	1361
Henkle, Leonard, Rochester, N. Y., assignor, by mesne assignments, to Consolidated Sterling Incandescent Gas Lamp Company, of New Jersey. Gas-burner	586,085	July 6	882	199	80	172
Henkle, Leonard, assignor to H. E. Shaffer, Rochester, N. Y. Acetylene-gas burner	590,223	Sept. 21	1416	334	80	1775
Henneberg, Henry W., Chicago, Ill. Bicycle	587,550	Aug. 3	491	113	80	754
Hennessey, Thomas J. (See Porter and Hennessey.)						
Hennessy, W. J. (See Trumbull, Frank H., assignor.)						
Henriet, Louis E., Newark, N. J. Means for guiding kinetoscopic films, &c	590,837	Sept. 28	2491	593	80	1969
Henry, Archibald R., *et al.* (See Hardie and Post, assignors.)						
Henry C. Hart Manufacturing Company. (See Hart, Henry C., assignor.)						
Henry, Harry E., Pittsburg, Pa. Brush	587,964	Aug. 10	1222	284	80	909
Henry, Jacob B., Boston, Mass. Upright piano	586,184	July 13	1045	235	80	219
Henry, James H. (See Harding, Thomas, assignor.)						
Henry, John C., Denver, Colo. Electric measuring apparatus	590,263	Sept. 21	1476	348	80	1787
Henry L. Wilson's Sons Company. (See Salmon, Howard, assignor.)						
Henry, William K., New Britain, Conn. Spring-hinge	590,572	Sept. 28	2018	476	80	1902
Hensel Colladay Company. (See Haase, Henry, assignor.)						
Hensel, Gustav. (See Raacke and Hensel.)						
Hensel, Otto A., Pittsburg, Pa. Rawhide tire and making same	587,671	Aug. 3	681	163	80	793
Henshall, Anna K., executrix. (See Henshall, Samuel.)						
Henshall, Samuel, Philadelphia, Pa. Machine for sewing looped fabrics	586,518	July 13	1609	375	80	327
Henshall, Samuel, deceased, Philadelphia, Pa.; A. K. Henshall, executrix. Machine for uniting knit fabrics	589,723	Sept. 7	526	124	80	1583
Hensinger, A. D., *et al.* (See Johnson, John H., assignor.)						
Henton, John M., Lead, S. D. Door-spring	589,656	Sept. 7	415	100, 101	80	1561
Hepworth, Lewis. (See Graber and Hepworth.)						
Herbelin, Alfred, assignor of one-half to A. F. Girard, Waco, Tex. Knee-protector	588,907	Aug. 24	2883	672	80	1259

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Herbert, George W., *et al.* (See Baker, Francis R., assignor.)						
Herbst, Julius, Milwaukee, Wis. Expansible cover for shoe-stretchers	587,965	Aug. 10	1223	284	80	909
Hercht, Pauline G., Bogota, N. J. Trousers	587,310	Aug. 3	51	12	80	675
Herdman, Frank E., Winnetka, Ill. Regulating admission of currents to motors	587,311	Aug. 3	53	12, 13	80	675
Hermance, Richard M., Poughkeepsie, N. Y. Heater	589,065	Aug. 31	3195	752	80	1320
Hermance, Robert, Fort Ann, assignor of two-thirds to H. G. Ellis and D. V. Brown, Glens Falls, N. Y. Tubular lantern	587,579	Aug. 3	537	128	80	764
Herold, Rudolph, Jr. (See Schumacher, Reinhard, assignor.)						
Herr, Henry C., assignor to American Egg Case Company, Port Huron, Mich. Means for making cell-cases	586,519	July 13	1611	375, 376, 377	80	327
Herrick, William H., and H. C. Crossley, Ironton, Ohio. Kitchen-cabinet	586,185	July 13	1045	235, 236	80	219
Herrington, Lawrence E., Elmira, N. Y. Car-brake	589,908	Sept. 14	937	224	80	1621
Herron, John W., Coon Rapids, Iowa. Stock-fountain	590,615	Sept. 28	2091	495	80	1915
Hersee, Alfred T., Boston, Mass. Flooring	590,900	July 20	2274	536	80	481
Hersey Manufacturing Company. (See Hood, Freeman W., assignor.)						
Hershey, Samuel, near Allendale, Ill. Crosscut-saw	587,817	Aug. 10	948	220	80	859
Hertert, Emile M. (See Seiter, John W., assignor.)						
Hertzler, John F. (See Hinman and Hertzler.)						
Hervey, John, Kansas City, Kans. Feed-water heater and water-heating system	587,055	July 27	2579	608	80	559
Heslop, Arthur P., Anaconda, Mont. Pneumatic conveyer	588,908	Aug. 24	2884	672, 673	80	1252
Heslop, John J. S. (See Penning and Heslop.)						
Hess, Abbie M., and S., Mulholland, San Francisco, Cal. Heating and cooking attachment for oil, gas, or vapor stoves	586,037	July 6	801	179	80	157
Hess, E. (See Leatherman, David W., assignor.)						
Hess, Edward B., assignor to Century Machine Company, New York, N. Y. Cash register and indicator	590,946	Sept. 28	2682	639, 640	80	2027
Hess, Jacob M., McKeesport, Pa. Turn-table	589,764	Sept. 7	527	125	80	1582
Heston, William, assignor to Homestead Manufacturing Company, Limited, Homestead, Pa. Fruit-jar	586,126	July 13	956	215	80	208
Hetherington, Frederick A., Indianapolis, Ind. Portable paving plant	585,867	July 6	394	92, 93	80	78
Heuberger, Conrad J. (See Stuckey and Heuberger.)						
Heuermann, John, Oak Park, Ill. Grading and scraping machine	588,992	Aug. 31	3029	712	80	1299
Hewens, Alfred, London, England. Manhole-closure	588,063	Aug. 10	1382	321	80	938
Hewett, Thomas, assignor of one-half to T. K. Bellis, London, England. Chain-gearing	588,064	Aug. 10	1384	322	80	938
Hewitt, Benjamin. (See Wootton and Hewitt.)						
Hewitt, Douglas S., assignor of one-half to I. Moore, Toronto, Canada. Lead-pencil	586,186	July 13	1047	236	80	220
Hewitt, Joseph C., Montclair, N. J. Paper box	590,102	Sept. 14	1181	278	80	1717
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Lightning-arrester	587,818	Aug. 10	950	220	80	859
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Automatic switch for surface-contact railways	589,898	Sept. 14	814	192	80	1647
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Surface-contact railway	589,899	Sept. 14	818	192	80	1648
Hewlett, Richard T., London, England. Clothes-brush	588,148	Aug. 17	1546	356	80	984
Heydebrand und der Lasa, Ferdinand C. von, New York, N. Y. Bottle	590,224	Sept. 21	1417	334	80	1776
Heyl, Henry R., assignor to Drop Seat Cycle Company, Limited. Philadelphia, Pa. Saddle-support for bicycles	587,672	Aug. 3	683	164	80	792
Heyward, Julius H., Greenville, S. C. Type-writer desk	585,914	July 6	478	115, 116	80	94
Heyward, Louisa G., Hardeeville, S. C. Step for cars	587,095	July 27	2647	625	80	573
Heywood Brothers & Wakefield Company. (See Watkins, Edward G., assignor.)						
Heywood Brothers & Wakefield Company. (See Watkins, Gardner A., assignor.)						
Hibbard, Henry A., Evergreen, Pa. Automatic wagon-brake	586,969	July 27	2413	570, 571	80	529
Hibbard, William L. and Z. M., assignors of one-third to B. E. Brown, Detroit, Mich. Car-brake	586,951	July 20	2375	561	80	500
Hibbard, Zebina M. (See Hibbard, William L. and Z. M.)						
Hicks, Bohn C., Chicago, Ill. Handle-bar for velocipedes	586,493	July 13	1550	364	80	316
Hicks, Bohn C., Chicago, Ill. Velocipede	586,494	July 13	1557	364	80	316
Hicks, Edward D., New York, N. Y. Detachable pencil	586,495	July 13	1558	364	80	317
Hicks, Frank O., *et al.* (See Roach, Henry B., assignor.)						
Hicks, George F., *et al.* (See Roach, Henry B., assignor.)						
Hicks, Isaac, *et al.* (See Murphy, Thomas L., assignor.)						
Hicks, James J., London, England. Clinical thermometer	588,796	Aug. 24	2699	624	80	1218
Hiering, Christian, Clinton, assignor to J. E. Mergott Company, Irvington, N. J. Pocket-book or bag frame	588,333	Aug. 17	1802	431	80	1041
Hiering, Christian, and A. Fuller, Irvington, N. J., assignors to J. E. Mergott Company, of New Jersey. Bag or purse frame	588,334	Aug. 17	1864	431	80	1042
Hiers, Charles C., Connersville, assignor to Indiana Manufacturing Company, Indianapolis, Ind. Pneumatic straw-stacker	589,125	Aug. 31	3285	772, 773	80	1345
Higgins, Charles L., Montreal, Canada. Vulcanizing-mold	590,573	Sept. 28	2020	476	80	1903
Higgins, Cyrus L., Bellevue, Mich. Clutch mechanism	590,007	Sept. 14	1024	241	80	1686
Higgins, John H., assignor of two-thirds to L. Braun and R. A. McCauley, Baltimore, Md. Glass-making furnace	587,673	Aug. 3	686	164	80	793
Higgins, Werter C., Norwich, Conn. Hot-water heater and steam-generator	590,063	Sept. 14	1100	263	80	1702
Higginson, C. M. (See Farnham, Edward W., assignor.)						
Higham, Joseph, Wigan, England. Clutch for sewing-machines	588,275	Aug. 17	1759	407	80	1023
Hilcken, John A. (See Emerson and Hilcken.)						
Hilcken, John A., Brooklyn, N. Y. Ice chest or box	587,819	Aug. 10	952	221	80	859
Hilcken, Odelia, Wood Haven, N. Y. Device for cleaning windows	589,969	Sept. 14	939	224	80	1671
Hilgartner, George H., assignor of one-half to W. H. Walker, Richmond, Va. Cigarette-machine	588,909	Aug. 24	2887	673, 674, 675, 676, 677	80	1253
Hill, Charles R., Waltham, Mass. Leaf-turning apparatus	590,761	Sept. 28	2356	558	80	1963
Hill, Clement V. (See La Barre and Hill.)						
Hill, David and J. S., Washington, N. C. Drying-kiln	589,835	Sept. 14	820	193	80	1648
Hill, Henry D. (See Hill, William P. and H. D.)						
Hill, Herbert R., Herkimer, Kans. Lamp-chimney	590,483	Sept. 21	1850	437	80	1857
Hill, James S. (See Hill, David and J. S.)						
Hill, John E., Centre Harbor, N. H. Buckle	590,738	Sept. 28	2318	548	80	1956

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hill, John W., assignor to Acme Fumigator Company, Chicago, Ill. Fumigator	586,768	July 20	2041	475, 476	80	496
Hill, Lebbeus, Lynn, Mass. Boot or shoe	587,483	Aug. 3	359	85	80	731
Hill, Mary W., Philadelphia, Pa. Ash-sieve	588,335	Aug. 17	1867	481	80	1042
Hill, Oley P., Capron, Ill. Rat-trap	590,646	Sept. 28	2151	509	80	1926
Hill, Robert W., *et al.* (See Davies, Thomas W., assignor.)						
Hill, Thomas, River Falls, Wis. Cycle	589,348	Aug. 31	3797	886, 887	80	1451
Hill, William E., Eureka, S. D. Sash-fastener	590,225	Sept. 21	1419	335	80	1776
Hill, William P. and H. D., St. Louis, Mo. Elevator	586,187	July 13	1048	236, 237	80	220
Hillard, Oscar A., Boston, Mass. Dissolving-key for stereopticons	588,429	Aug. 17	2027	471	80	1073
Hilton, Benmore A., *et al.* (See Coombs, Frank J., assignor.)						
Hilton, Dawson B., Brooklyn, N. Y. Metal lath	588,576	Aug. 24	2289	531	80	1140
Hiltz, George C. (See Roth and Hiltz.)						
Himus, George H., Cambridge, England. Check-till	587,820	Aug. 10	953	221	80	860
Hinckley, Howard, assignor to Trenton Indicator Bolt and Lock Company, Trenton, N. J. Door-indicator	588,149	Aug. 17	1547	356	80	984
Hindmarsh, Percy J., Topeka, Kans. Pneumatic seat-support	588,998	Aug. 31	3032	712	80	1209
Hingher, William G., New York, N. Y. Advertising device	587,122	July 27	2699	634	80	582
Hinkle, William A., Forsyth, Ill. Straw-stacker	588,910	Aug. 24	2894	677	80	1254
Hinman, Nelson M., and J. F. Hertzler, Lawrence, Kans. Combined lantern and torch	585,756	July 6	190	44	80	40
Hinrichs, Christian W., St. Louis, Mo. Meat-cutting machine	588,828	Aug. 24	2756	639, 640	80	1228
Hinson Manufacturing Company. (See Reagan, Paul M., assignor.)						
Hintze, Charles F., St. Louis, Mo. Barb-wire machine	590,889	Sept. 28	2582	616	80	2008
Hirschberg, Solomon C., New York, N. Y. Combination nose-gage	589,549	Sept. 7	236	57	80	1526
Hirst, Ellen, administratrix. (See Hirst, Robert B.)						
Hirst, Robert B., deceased, Brooklyn, N. Y.; E. Hirst, administratrix. Starting-box for electric motors	589,433	Sept. 7	58	13	80	1493
Hirt, Louis J., Brookline, Mass. Valve	588,490	Aug. 17	2028	471	80	1073
Hitchcock, Charles A., San Francisco, Cal. Apparatus for extracting precious metals from black sand, &c	590,524	Sept. 21	1922	455	80	1871
Hitchcock, Paul. (See Broughton, John S., assignor.)						
Hixon, Frank P., *et al.* (See Johnston, Louis, assignor.)						
Hoadley, Joseph H., New York, N. Y. Air-motor	586,127	July 13	957	215	80	204
Hoadley, Joseph H., New York, N. Y. Fluid-pressure motor	586,384	July 13	1371	316	80	281
Hoadley, Joseph H., New York, N. Y. Charging apparatus for fluid-pressure motors	587,037	July 27	2541	599	80	553
Hoadley, Joseph H., New York, and W. H. Knight, New Brighton, N. Y. Stop-valve	586,235	July 13	1124	255	80	236
Hoag, William, Ridgeway, N. Y. Ball-bearing	586,709	July 20	2043	476	80	437
Hobbs, J. W. (See Ross, William, assignor.)						
Hobbs, John E., North Berwick, and B. M. Wentworth, Berwick, Me.; said Wentworth assignor to said Hobbs. Attachable sleigh-runner	586,848	July 20	2167	507	80	459
Hoberg, Frank H., Green Bay, Wis. Toilet-paper holder	586,128	July 13	958	216	80	204
Hobson, Henry D., *et al.* (See Hoyt, Daniel, assignor.)						
Hobson, Russell B., New York, N. Y. Furnace-door	586,552	July 20	1677	390	80	369
Hochriem, Gustav. (See Paupa, Joseph, assignor.)						
Hodge, William F., North Adams, Mass., and H. M. Geer, Ballston Spa, N. Y. Stuffing-box for valves	589,725	Sept. 7	527	125	80	1583
Hodgkins, Edward F., assignor to S. W. Winslow, trustee, Beverly, Mass. Pad for buffing-machines	587,038	July 27	2542	600	80	553
Hodgson, Edward S., Jr., Springfield, Ill. Permutation-padlock	587,821	Aug. 10	954	221	80	860
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoefer, Charles. (See Ballew, Charles H., assignor.)						
Hoefer, Daniel. (See Fahrmeier and Warren, assignors.)						
Hoeft, Herman W., La Crosse, Wis. Bicycle	588,109	Aug. 10	1470	340	80	954
Hoeft, Herman W., La Crosse, Wis. Wrench	588,110	Aug. 10	1471	340	80	954
Hoerlein, Phillip, Toledo, Ohio. Boiler-tube cleaner	589,126	Aug. 31	3288	773	80	1346
Hoey, John. (See Beloud, Léon G., assignor.)						
Hoff, John A., St. Louis, Mo., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Quick-action triple valve	586,336	Aug. 17	1868	481	80	1042
Hoff, William R., Rider, Md. Chicken-coop	587,551	Aug. 3	482	113	80	754
Hoffman, Benjamin B., assignor to J. H. Hoffman, New York, N. Y. Incandescent-electric-lamp fixture	590,838	Sept. 28	2493	593	80	1989
Hoffman, Edward C., Cleveland, Ohio. Hinge	588,642	Aug. 24	2422	558	80	1186
Hoffman, Frederick, assignor to R. Hoffman, Paragould, Ark. Coin-operated telephone	589,726	Sept. 7	529	125	80	1583
Hoffman, Irenias M., Indianapolis, Ind. Door-bell	590,414	Sept. 21	1741	409	80	1836
Hoffman, James H. (See Hoffman, Benjamin B., assignor.)						
Hoffman, Rosa. (See Hoffman, Frederick, assignor.)						
Hoffmann, Ernst W. G. C., Charlottenburg, and J. H. F. Görges, Berlin, Germany, assignors to Siemens & Halske Electric Company of America, Chicago, Ill. Automatic electrical regulating device	587,822	Aug. 10	956	221, 222	80	860
Hoffmann-La Roche & Co., F. (See Schaerges, Carl F. M., assignor.)						
Hoffmann, Otto, Manchester, England. Humidifying apparatus	588,643	Aug. 24	2423	559	80	1166
Hohenstein, Archie G., assignor of two-thirds to Buckingham Routh & Company, New Haven, Conn. Steam-generator	587,148	July 27	2762	648, 649	80	594
Hohner, Jacob, assignor to M. Hohner, Trossingen, Germany. Mouth-harmonica	588,920	Aug. 24	2912	681	80	1258
Hohnsbehn, Claus, Waverly, Iowa. Centrifugal cream-separator	590,574	Sept. 28	2022	476	80	1908
Holbrook, Edward F., and E. N. Goodwillie, Chicago, Ill. Appliance for closing doors	587,823	Aug. 10	959	222	80	861
Holcomb, Lafayette, Fort Logan, Colo. Thimble	587,123	July 27	2700	635	80	582
Holcomb, Willard A., *et al.* (See Clouse, Joseph N., assignor.)						
Holcombe, Ross, Decatur, Ga. Detachable coupling-link	590,575	Sept. 28	2023	476	80	1903
Holden, Edward P., Chicago, Ill. Machine for operating on sheet-metal vessels	586,661	July 20	1866	434, 435	80	404
Holden, George C., Wayne, Pa. Mail-bag lock	587,526	Aug. 3	437	102	80	745
Holey, John W. (See Scott and Holey.)						
Holland, Newman H., assignor of one-half to C. Bate, Montreal, Canada. Switchboard-annunciator	587,204	July 27	2354	670	80	612
Hollcroft, John T., *et al.* (See Dunn, William R., assignor.)						
Hollenbeck, Jacob A., Rockford, Ill. Water-heater	588,431	Aug. 17	2029	471, 472	80	1073
Holler, Jacob. (See Schreiber and Holler.)						
Hollingsworth, George W., Cincinnati, Ohio. Automatic change-maker	590,435	Sept. 21	1775	416, 417	80	1842

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Holly, Edgar P., Hartford, Conn. Boiler feed-water feeding and heating apparatus	588,952	July 20	2877	561, 562	80	500
Holly, Edgar P., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Water-return system for steam-generators	587,290	July 27	3014	706	80	643
Holly, Edgar P., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Water-return system for steam-generators	587,291	July 27	3018	706	80	643
Holly, James A., Pine Bluff, Ark. Safety-envelop	590,890	Sept. 28	2583	616	80	2008
Holm, Charles W., Troy, Ohio. Device for applying stay-wires to wire fences	588,005	Aug. 10	1395	332	80	939
Holmberg, Charles, Brooklyn, N. Y. Self-heating soldering-iron	589,970	Sept. 14	940	224	80	1671
Holmes, Booth & Haydens. (See Jenkins, Nicholas, assignor.)						
Holmes, Isabella, New Orleans, La. Strainer for cisterns	586,602	July 20	1868	435	80	405
Holmes, Milton B., Montour Falls, N. Y. Guard for trousers	588,432	Aug. 17	2031	472	80	1073
Holmes, Wesley A., Cadiz, Ohio. Wire-fence-weaving machine	590,484	Sept. 21	1850	437, 438	80	1857
Holroyd, John. (See Wordsworth, Wiseman, and Holroyd.)						
Holsclaw, Wilford H., assignor to B. F. Avery & Sons, Louisville, Ky. Disk cultivator	590,191	Sept. 14	1849	318, 319	80	1749
Holst, Johan W., Amsterdam, Netherlands. Kinematographic lantern or apparatus	587,527	Aug. 3	439	102, 103	80	745
Holst, Lodewyk J. R., Amsterdam, Netherlands. Photographic finder	587,056	July 27	2580	608, 609	80	560
Holst, Lodewyk J. R., Amsterdam, Netherlands. Photographic camera	589,349	Aug. 31	3305	887, 888	80	1452
Holt, Albert A., Fitchburg, Mass. Vehicle running-gear	589,127	Aug. 31	3288	773	80	1346
Holt, Thomas L., Burlington, N. C. Rocking-chair	590,396	Sept. 21	1706	402	80	1830
Holt, William B., Ayres, Mo. Vise	586,359	July 13	1328	304	80	274
Holzhauser, Ludwig J., Etna Mills, Cal. Water-wheel	589,350	Aug. 31	3306	888	80	1452
Holzman, Michael, *et al.* (See Darley, John W., Jr., assignor.)						
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp-burner	586,209	July 13	1175	269	80	245
Homestead Manufacturing Company. (See Heston, William, assignor.)						
Hontz, Jesse L. (See Ashley, Aden J., assignor.)						
Honzik, Rudolf. (See Schlimp and Honzik.)						
Hood, Charles I. (See Sturtevant, Zophar W., assignor.)						
Hood, Ernest K. (See Reeves and Hood.)						
Hood, Freeman W., Newton, assignor to Hersey Manufacturing Company, Boston, Mass. Water-meter	585,757	July 6	191	44	80	40
Hook, George W., London, England. Electrical signaling device for use on pneumatic conveyer-tubes	589,832	Sept. 14	796	165, 166	80	1630
Hooper, Charles, Port Norfolk, Va. Bicycle-tire	589,434	Sept. 7	60	13	80	1493
Hoopes, Charles, assignor of one-half to M. Hoopes, Conshohocken, Pa. Ventilating device for cooking utensils	589,727	Sept. 7	531	126	80	1583
Hoopes, Morris. (See Hoopes, Charles, assignor.)						
Hope, William J., Clayton, Miss. Bottle and stopper	586,038	July 6	802	179	80	157
Hopkins, Archibald E. (See Page and Hopkins.)						
Hopkins, Florence M., Detroit, Mich., and G. C. Bowles, Niagara Falls, N. Y. Bookcase attachment	587,580	Aug. 3	539	120	80	764
Hopkins, James R., and R. S. Wright, Somerville, Mass. Helmet	586,039	July 6	803	179	80	157
Hopkinson & Co., J. (See Hopkinson and Lowis, assignors.)						
Hopkinson, Joseph, and J. Lowis assignors to J. Hopkinson & Co., Limited, Hudderfield, England. Water-gage	589,259	Aug. 31	3516	824, 825	80	1392
Hopper, Charles S. (See Hoyt, Nelson, assignor.)						
Hopper, William H., Philadelphia, Pa., and S. Milsted, Hammonton, N. J. Gas-meter casing	586,086	July 6	883	190	80	172
Horack, Charles L., Brooklyn, N. Y. Method of and apparatus for coloring yarns	590,547	Sept. 21	1970	465	80	1879
Horan, James, Bridgeport, Conn. Flower-support	587,581	Aug. 3	540	120	80	764
Horcheler, Solomon J., Rochester, N. Y. Door or window-sash	588,527	Aug. 17	2201	511, 512	80	1105
Horlick, William, Racine, Wis. Preparing edible tablets	585,758	July 6	192	———	80	40
Hornbeck, William M., Deer Creek, Ind. Portable feed-trough	590,897	Sept. 21	1707	402	80	1830
Horton Basket Machine Company. (See Horton, Emmet, assignor.)						
Horton, Emmet, Dundee, N. Y., assignor to Horton Basket Machine Company, Washington, D. C. Basket-making machine	587,734	Aug. 10	804	189, 190	80	835
Hoshor, Joseph C., Brockport, N. Y. Belt-coupling	587,906	Aug. 10	1225	284	80	909
Hoskins, Alvis J., assignor to F. N. Schafer and H. C. Belk, Alton, Ill. Cigar-vending machine	589,471	Sept. 7	109	24, 25	80	1502
Hössly, Louis, assignor to H. Thorens, Ste. Croix, Switzerland. Musical box	588,433	Aug. 17	2031	472, 473	80	1073
Hot Air Washing Machine Co. (See Rylander, William P., assignor.)						
Hotchkiss Ordnance Company. (See Benét and Mercié, assignors.)						
Houck, Thomas J., Baltimore, Md., assignor of one-half to W. W. Dudley and L. T. Michener, Washington, D. C., and H. J. Truesdell, New York, N. Y. Registering device	588,150	Aug. 17	1548	356, 357	80	984
Houghton, Arthur A., Corning, N. Y. Process of and apparatus for manufacturing glass tubing	586,188	July 13	1052	237	80	220
Houghton, Charles F. (See Abbott, George L., assignor.)						
Houghton, Stephen C., San Francisco, Cal. Telephone attachment	586,793	July 20	2076	483	80	443
Houghton, Stephen C., San Francisco, Cal. Circuit-closer	587,260	July 27	2958	694	80	632
Houghton, Stephen C., San Francisco, Cal. Lock	588,747	Aug. 24	2927	695	80	1204
House, Bruce F., Denver, Colo. Separating ores	590,730	Sept. 28	2319	549	80	1956
House, Henry A., Bridgeport, Conn. Coupling driving-shafts	590,616	Sept. 28	2098	495	80	1915
Houston, Walter B. (See Boyte and Houston.)						
Howard, Charles D., assignor to Howard Furnace Company, Syracuse, N. Y. Furnace	586,129	July 13	959	216	80	204
Howard Furnace Company. (See Howard, Charles D., assignor.)						
Howard, James, and O. B. Frazier, Elwood, Ind. Belt-tightener	587,205	July 27	2856	670	80	612
Howard, James H. W., *et al.* (See Raby, Richard, assignor.)						
Howard, Lyman D., Columbus, Ohio. Car-unloading apparatus	587,206	July 27	2857	671	80	613
Howard, Michael E., Indianapolis, Ind. Can-capping machine	588,337	Aug. 17	1870	432	80	1043
Howard, Thomas R., Wilkinsburg, Pa. Barrel-head	589,780	Sept. 7	612	142	80	1506
Howard, Zenas F., assignor of one-half to B. G. Harris, Sealy, Tex. Wire-stretcher	588,921	Aug. 24	2913	692	80	1258
Howe, George M., Buffalo, N. Y. Game apparatus	586,437	July 13	1465	339	80	299
Howe, Homer W. (See Howe and Davidson.)						
Howe, Warren B., Chicago, Ill. Pasting-machine	588,434	Aug. 17	2034	473, 474	80	1074
Howe, Warren B. and H. W., and F. B. Davidson, Chicago, Ill. Blanks or cartons	587,967	Aug. 10	1226	285	80	909
Howell, George B., Philadelphia, Pa. Pump water-closet	589,001	Sept. 7	327	82	80	1543
Hoxie, William D., Brooklyn, N. Y. Pneumatic attachment for cleaning steam-generators	585,956	July 6	562	131, 132	80	109

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hoyt, Daniel, South Norwalk, Conn., assignor, by mesne assignments, to himself, H. D. Hobson, Brooklyn, N. Y., and W. F. Oakman, East Orange, N. J. Anchor	588,767	Aug. 24	2654	612	80	1210
Hoyt, Frank, Petoskey, Mich. Can-opener	588,911	Aug. 24	2695	677	80	1254
Hoyt, Frank C. (See Hoyt, George B. and F. C.)						
Hoyt, Frank C., Cleveland, Ohio. Spring-balance computing-scale	590,602	Sept. 7	332	82	80	1544
Hoyt, George B. and F. C., Cleveland, Ohio. Spring-balance computing-scale	588,748	Aug. 24	2628	606	80	1205
Hoyt, Harry C., Stamford, Conn. Faucet	589,472	Sept. 7	111	25	80	1502
Hoyt, James T., New York, N. Y. Cabinet or paper-case	586,066	Aug. 10	1387	322	80	939
Hoyt, M. B. (See Reed, Nathan F., assignor.)						
Hoyt, Nelson, assignor of one-half to C. S. Hopper, Philadelphia, Pa. Mud-guard for bicycles	588,922	Aug. 24	2014	682	80	1259
Hubbard, Albert S., assignor to Electro-Chemical Storage Battery Company, New York, N. Y. Automatic switch for charging or discharging secondary batteries	589,128	Aug. 31	3290	774	80	1346
Hubbard & Co. (See Hubbard, Hiram W., assignor.)						
Hubbard, Hiram W., Painted Post, N. Y., assignor to Hubbard & Co., Philadelphia, Pa. Flue-cleaner	589,086	Aug. 31	3197	752	80	1329
Hubbard, Richard W., Ashtabula, Ohio. Hinge	586,663	July 20	1869	435	80	405
Hubbell, Charles W., *et al.* (See Johnson, Edward E., assignor.)						
Hubbell, Harry C. (See Boland and Hubbell.)						
Hubbell, Joseph H., assignor to Buckeye Iron and Brass Works, Dayton, Ohio. Oil-press box	589,389	Aug. 31	3873	904	80	1464
Hubbell, Myron R., Wolcott, Vt. Weighing and computing scale	586,553	July 20	1677	391	80	370
Huber, Alexander, Cologne, Germany. Suspension-trolley and railway	588,714	Aug. 24	2552	590	80	1190
Huber, Andrew, Greenville, Ohio. Wire or cable tightener	588,994	Aug. 31	3033	713	80	1300
Huber, Edward. (See Shurz, Benjamin F., assignor.)						
Huber, Edward, Marion, Ohio. Traction-engine clutch mechanism	586,664	July 20	1871	435, 436	80	405
Huber, Edward, and J. W. Miller, Marion, Ohio. Pneumatic straw-stacker	586,728	July 20	1971	459	80	424
Huber, Sigmund V., Youngstown, Ohio. Apparatus for boshing bars, &c	585,868	July 6	308	93	80	79
Huber, Sigmund V., Youngstown, Ohio. Catcher's table for rolling-mills	585,869	July 6	309	94	80	79
Huber, Sigmund V., Youngstown, Ohio. Feed-table for rolling-mills	588,225	Aug. 17	1667	382, 383	80	1006
Hudson, William A., Washington, D. C. Process of making cigarettes and apparatus therefor	587,824	Aug. 10	960	222, 223	80	861
Hudson, William A., Washington, D. C. Making cigarettes	587,826	Aug. 10	967	224	80	862
Hudson, William A., Washington, D. C. Cigarette	587,827	Aug. 10	968	224, 225	80	862
Hudson, William A., Washington, D. C., assignor to Lorentz Cigarette Machine Company, of New York. Cigarette-machine	587,825	Aug. 10	963	223, 224	80	861
Hudson, William A., and J. F. Hartigan, Washington, D. C. Continuous-cigarette machine	587,828	Aug. 10	971	225, 226, 227	80	862
Hughes, Burton S., Covington, Ky. Releasing-gear for engines	590,064	Sept. 14	1108	262, 263	80	1702
Hughes, Daniel E. (See Abbott and Hughes.)						
Hughes, Edward C. (See Robbins, Arthur C., assignor.)						
Hughes, Henry D. (See Heath, Robert F. S., assignor.)						
Hughes, John A., Honolulu, Hawaii. Dumping-car	587,207	July 27	2859	672	80	613
Hugill, Arthur M., J. Overton, and R. H. Catley, Liverpool, England. Evaporating apparatus	585,819	July 6	294	69	80	61
Hulback, Oliver, St. Paul, Minn. Molasses-pitcher	589,833	Sept. 14	707	166	80	1630
Hulbert Bas Relief Company. (See Hulbert, Duran F., assignor.)						
Hulbert Brothers & Co. (See Mallett, Francis W., assignor.)						
Hulbert, Duran F., assignor to Hulbert Bas Relief Company, St. Louis, Mo. Embossing photographs	589,260	Aug. 31	3517	825	80	1392
Hulin, Léon P., Modane, France. Electrolytic decomposition of solutions	586,236	July 13	1126	255, 256	80	236
Hulin, Léon P., Modane, France. Treating alloys for manufacturing electrodes	587,829	Aug. 10	976	227	80	863
Hulin, Léon P., Modane, France. Process of and apparatus for manufacturing metallic peroxids and caustic alkalies	587,830	Aug. 10	978	228	80	863
Hull, Herbert H., Cleveland, Ohio. Mechanism for wiring edges of covers or analogous articles	588,749	Aug. 24	2630	606	80	1205
Hull, Samuel P., Poughkeepsie, and J. Du Bois, Albany, N. Y. Connector for electrical conducting-wires	586,665	July 20	1872	436	80	406
Hulse, William S. (See Baker, Albert, assignor.)						
Humbach, Peter H., St. Louis, Mo. Brush or mop holder	589,351	Aug. 31	3808	889	80	1452
Humme, Frederick A., Christy Park, assignor of two-thirds to D. J. Kreimeier, Pittsburg, Pa. Joint for railway-rails	586,309	July 13	1233	282	80	256
Hummers, Bernhard, Winfield, assignor to H. G. Thompson, New York, N. Y. Folding gate	589,508	Sept. 7	163	36	80	1513
Humphreville, Frank H., Lancaster, Pa. Luminous fountain	586,310	July 13	1234	282	80	256
Humphrey, Charles. (See Cleek and Humphrey.)						
Humphreys, Alexander C. (See Glasgow, Arthur G., assignor.)						
Humphreys, Alexander C., Philadelphia, Pa., and A. G. Glasgow, New York, N. Y. Method of and apparatus for manufacturing carbureted water-gas	586,970	July 27	2415	571	80	530
Humphreys, George E., Ilion, N. Y. Sprocket-and-chain gearing	588,577	Aug. 24	2290	531	80	1140
Hundhausen, Ernest, assignor of one-half to A. F. Meyer, San Francisco, Cal. Hat-fastener	590,899	Sept. 28	2494	593	80	1989
Hundhausen, Johannes, Hamm, Germany. Cylinder drier	589,352	Aug. 31	3809	889	80	1453
Hunke, Ludwig, Iserlohn, Germany. Catholic prayer-book	585,672	July 6	43	11	80	11
Hunt, Andrew M. (See Meredith and Hunt.)						
Hunt, Charles W., West New Brighton, N. Y. Clutch mechanism	587,208	July 27	2862	672	80	614
Hunt, Charles W., West New Brighton, N. Y. Measuring apparatus for coal, &c	587,552	Aug. 3	483	114	80	754
Hunt, David. (See Rivett, Edward, assignor.)						
Hunt, George A., and W. C. Trussell; said Hunt assignor to said Trussell and said Trussell assignor of one-fourth to C. E. Tingley and H. H. Newcomb, Boston, Mass. Station-indicator	586,087	July 6	884	200	80	172
Hunt, Henry M., Indianapolis, Ind. Steam-engine piston	587,394	Aug. 3	193	48	80	702
Hunt, Ludovic E., Somerset, Ky. Mail-pouch crane	585,673	July 6	44	11	80	11
Hunt, Nathaniel F. T., Braintree, Mass. Non-refilling bottle	589,435	Sept. 7	61	13	80	1493
Hunt, William D. (See Bélanger, Victor, assignor.)						
Hunter, Henry H., Berkeley Springs, W. Va., and E. G. Pendleton, Washington, D. C. Folding bicycle-support	586,902	July 20	2278	537	80	481
Hunter, James T. and W. J., New York, N. Y. Secondary-cable mechanism	586,901	July 20	2275	536	80	481
Hunter, Rudolph M., Philadelphia, Pa. Current-collecting device for electric railways	588,111	Aug. 10	1472	341	80	954
Hunter, Rudolph M., Philadelphia, Pa. Carousel	589,390	Aug. 31	3875	904	80	1465

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hunter, Rudolph M., Philadelphia, Pa., assignor to General Electric Company, of New York. Electric railway	587,674	Aug. 3	686	164	80	793
Hunter, Rudolph M., assignor to Electric Car Company of America, Philadelphia, Pa. Electric railway	588,528	Aug. 17	2203	512	80	1105
Hunter, Rudolph M., Philadelphia, Pa., assignor, by mesne assignments, to Thomson-Houston Electric Company, Boston, Mass. Electric railway	590,310	Sept. 21	1568	371	80	1808
Hunter, Victor E., assignor of one-half to J. D. Oliger, Clebourne, Tex. Rail-bond for electric railways	588,435	Aug. 17	2030	474	80	1075
Hunter, William J. (See Hunter, James T. and W. J.)						
Huntington, Richard T., Hartford, Conn. Bevel-protractor	590,226	Sept. 21	1419	335	80	1776
Huntress, Franklin E. (See Bash, Charles, assignor.)						
Hurley, Daniel J. (See Schlager, Frank W., assignor.)						
Hurst, Harris P., Summit, Miss. Breech-loading ordnance	585,957	July 6	563	132	80	109
Hurter, Ferdinand, assignor to United Alkali Company, Limited, Liverpool, England. Apparatus for manufacturing chlorate of potash by electrolysis	587,437	Aug. 3	278	66	80	717
Huse, Leon C., Laconia, N. H. Fashioning mechanism for knitting-machines	589,174	Aug. 31	3359	790	80	1361
Huson, Winfield S., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Registering and tripping mechanism for printing-presses	590,617	Sept. 28	2095	496, 497	80	1916
Hussey, Samuel J., *et al.* (See Oliger, Ernest A., assignor.)						
Hussong, Earl L., and G. B. Robson, Terre Haute, Ind. Bicycle support and rest	587,089	July 27	2545	600	80	553
Hutchins, William J. (See Bates and Hutchins.)						
Hyatt, Frederick H., *et al.* (See Weston, Thomas I., assignor.)						
Hyatt, John W., Newark, assignor to Hyatt Roller Bearing Company, Harrison, N. J. Apparatus for making helical spring-rollers	587,582	Aug. 3	541	129, 130	80	765
Hyatt Roller Bearing Company. (See Hyatt, John W., assignor.)						
Hyatt Roller Bearing Company. (See Tellefsen and Lockwood, assignors.)						
Hydro Smelting and Refining Company. (See Trapp, Matilda L., assignor.)						
Hysore, Alphenas V., assignor of two-thirds to S. P. Mayo and W. J. Whitehurst, Richmond, Va. Apparatus for treating tobacco	585,759	July 6	194	44, 45	80	40
I. L. Ellwood Manufacturing Company. (See Scarles, Benjamin, assignor.)						
I. L. Ellwood Manufacturing Company *et al.* (See Shellaberger, George H., assignor.)						
Ibel, Justus H., Andover, assignor of one-half to A. Torrey, Weymouth, Mass. Carpet-beating machine	588,678	Aug. 24	2494	575	80	1179
Ibelli, Beniamino, New York, N. Y. Combination-tool	586,849	July 20	2169	507	80	460
Ide, Alfred. (See Ide, Samuel, assignor.)						
Ide, Samuel, assignor of one-half to A. Ide, Medina, N. Y. Truss	588,578	Aug. 24	2291	531	80	1140
Ihlder, John D., Yonkers, assignor to Otis Brothers & Company, New York, N. Y. Electric motor for elevators	585,760	July 6	196	45	80	41
Ill, Henry. (See Neuberth, George E., assignor.)						
Illingworth, John, Newark, N. J. Rolling-machine for finishing shafts or rods of metal	587,395	Aug. 3	195	49	80	708
Imhauser, Elizabeth, *et al.* (See Froelich, Christopher, assignor.)						
Independent Electric Company. (See Davis, Charles E., assignor.) (Reissue.)						
India Rubber Comb Company. (See Grell, Frederick W., assignor.)						
Indiana Manufacturing Company. (See Hiers, Charles C., assignor.)						
Ingersoll, Marcia M. (See Ingersoll, Richmond H., assignor.)						
Ingersoll, Richmond H., assignor to M. M. Ingersoll, Biddeford, Me. Thread-selecting device for machines for drawing in warp-threads	590,008	Sept. 14	1027	241, 242	80	1687
Ingersoll-Sergeant Drill Company. (See Sergeant, Henry C., assignor.)						
Ingham, Wilfred K., *et al.* (See Baker, Francis R., assignor.)						
Ingle, James, London, England. Branding-machine	589,087	Aug. 31	3199	752	80	1329
Inglis, Mortimer. (See Kohler, Nicholas, assignor.)						
Ingraham, Henry C., Beverly, N. J., assignor to American Clay-Working Machinery Company, Bucyrus, Ohio. Feed-regulator for clay-working machinery	588,715	Aug. 24	2554	590	80	1190
Ingraham, William S., assignor to E. Ingraham Company, Bristol, Conn. Clock-case	589,436	Sept. 7	63	14	80	1496
Ingram, Richard, Roanoke Va. Car-brake	586,496	July 13	1559	364, 365	80	317
Inman, Edward R., Janesville, Wis. Cooking utensil	587,528	Aug. 3	440	108	80	745
Inman, Horace, Amsterdam, N. Y. Box-covering machine	585,820	July 6	296	70, 71	80	61
Innes, Reginald H., Philadelphia, Pa. Plate-holder for hats	585,761	July 6	199	45	80	41
Inshaw, John G., Birmingham, England. Mechanism for joining sections of cycle-tubes	586,488	July 13	1465	339, 340	80	909
Interior Conduit and Insulation Company. (See Greenfield, Edwin T., assignor.)						
Interior Conduit and Insulation Company. (See Lundell, Robert, assignor.)						
International Electric Transit Company. (See Gray, Harding F., assignor.)						
International Mambrino Chemical Company. (See Glatz and Lugo, assignors.)						
International Novelty Company. (See Church, Eugene, assignor.)						
International Railroad Appliance Company. (See Orcutt, Edward L., assignor.)						
Irby, Addie M., Vernon Hill, Va. Bicycle-step	586,335	July 13	1297	206	80	267
Irby, Dabney G., Irby, Ga. Cotton or corn stalk chopper	587,209	July 27	2864	672	80	614
Irigoyen, Ismael, Chihuahua, Mexico. Seeder	587,508	Aug. 3	397	93, 94	80	736
Irons, David, assignor of one-half to E. W. Dieterle, St. Louis, Mo. Cornice-brake and folder	590,264	Sept. 21	1479	349	80	1787
Irvine, John E., Brooklyn, N. Y. Clothes-hanger	590,311	Sept. 21	1573	371	80	1805
Irving, William. (See Watt, John, assignor.)						
Irving, William, Chicago, Ill. Water-purifier for steam-boilers	586,794	July 20	2078	484	80	443
Irwin, Charles E., Peabody, Kans. Watering-tank	588,716	Aug. 24	2556	590	80	1190
Irwin, Joseph I. (See Brown, Philip C., assignor.)						
Irwin, Thomas D., Oil City, Pa. Strainer	587,498	Aug. 3	279	66	80	718
Isaacson, Olof. (See Olson and Isaacson.)						
Isbell, John L., Berlin, Conn. Hanger for paint-pails	589,088	Aug. 31	3200	752	80	1330
Isbell, Robert H., Woodlawn, N. Y. Compound rotary engine	586,497	July 13	1561	365	80	318
Isham, Delbert P., Brecksville, Ohio. Eaves-trough hanger	588,151	Aug. 17	1554	358	80	985
Isham, Willard S., Mexico, Mexico. Quartz-pulverizer	590,227	Sept. 21	1422	335	80	1777
Ives, Albert J., assignor to Wilcox Manufacturing Company, Aurora, Ill. Fire-door	590,724	Sept. 28	2294	542	80	1951
Ives, Henry, assignor to Blundell's London Copper and Brass Works, Limited, London, England. Ship's water-closet	587,735	Aug. 10	807	190	80	836
Ives, Hobart B. (See Johnston, William F., assignor.)						
Ives, John C., Waterbury, Conn. Name-plate	587,312	Aug. 3	56	13	80	677
Ivins, Ellwood, Philadelphia, Pa. Joint-piece for electrical conductors	586,430	July 13	1466	340	80	909
J. B. Brooks & Company. (See Brooks, John B., assignor.)						
J. E. Mergott Company. (See Hiering, Christian, assignor.)						
J. E. Mergott Company. (See Hiering and Fuller, assignors.)						
J. & E. Stevens Company. (See Bailey, Charles A., assignor.)						
J. F. Pease Furnace Company. (See Cox, John H., assignor.)						
Jaccard, Paul C., St. Croix, Switzerland. Musical box	587,831	Aug. 10	980	228	80	864

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Jachimiak, Tomasz B., and J. Kendzierski, Sobieski, Wis. Lifting device	590,840	Sept. 28	2495	594	80	1990
Jack, George, Edinburgh, Scotland. Music-binder	589,504	Sept. 7	164	36	80	1513
Jackson, Arthur S., Montreal, Canada. Label for bottles	587,368	Aug. 3	156	38	80	694
Jackson, Erick, Duluth, Minn. Time-recorder and transfer-stamp	590,525	Sept. 21	1924	455, 456	80	1871
Jackson, J. R. (See Croom, Wiley G., assignor.)						
Jackson, John L. (See Rybesg, Charles J., assignor.)						
Jackson, Peter H., San Francisco, Cal. Sidewalk hatchway and door mechanism	587,210	July 27	2866	673	80	615
Jackson, William D., Benton, Ill. Hame-tug	590,065	Sept. 14	1111	263	80	1708
Jackson, William E. M., Indianapolis, Ind. Conduit electric railway	586,602	July 20	1774	412	80	387
Jacobs, Arthur L., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Stud-cutting machine	585,762	July 6	200	45, 46	80	41
Jacobs, Arthur L., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Stud-boring machine	585,763	July 6	202	46, 47	80	42
Jacobs, Arthur L., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Stud-turning machine	585,764	July 6	205	48	80	43
Jacobs, Bennett, *et al.* (See Jacobs, William J., assignor.)						
Jacobs, James M., *et al.* (See Jacobs, William J., assignor.)						
Jacobs, Jehu, Henley, Cal. Endless-belt concentrator	586,311	July 13	1237	282	80	256
Jacobs, William J., Bargersville, assignor to J. M. and B. Jacobs, Indianapolis, Ind. Device for attaching stay-wires to wire fences	590,042	Sept. 14	1073	253	80	1696
Jacobson, Axel E., Minneapolis, Minn. Bedstead	590,265	Sept. 21	1481	349	80	1788
Jacobson, Charles, assignor to Climax Gas Engine Company, Brooklyn, N. Y. Gas-engine	586,312	July 13	1239	283, 284	80	256
Jacobus, Peter H., Millstadt, Ill. Car-chuck	590,662	Sept. 28	2183	517	80	1932
Jacquart, Jacob. (See Graham and Jacquart.)						
Jacques, James, Lowell, Mass. Pneumatic-despatch tube	589,781	Sept. 7	613	142, 143	80	1509
Jaffray, David S., Chicago, Ill. Horseshoe	589,129	Aug. 31	3291	774	80	1346
Jagar, Simon de, Paterson, N. J. Electric signaling	590,398	Sept. 21	1708	402, 403	80	1881
Jahn, Frederick G., Brooklyn, N. Y., assignor, by mesne assignments, to D. Settle, receiver of the International Postal Supply Company, of New York. Printing-die	587,261	July 27	2959	695	80	632
Jahn, John W., Pittsburg, Pa. Scissors	587,908	Aug. 10	1226	285	80	909
James, Napoleon, and F. Rust, Allegheny, Pa. Sheet-metal-working machine	588,436	Aug. 17	2040	474, 475	80	1075
James, Thomas S., London, England. Crank	589,728	Sept. 7	531	126	80	1584
James, Warren W., Evergreen, Colo. Pump	587,124	July 27	2701	635	80	583
James, Will S. (See Lane and James.)						
James, William R. (See Bevan and James.)						
Jameson, Jabez D., *et al.* (See Harrington, Henry G., assignor.)						
Janney, George C., assignor to M. H. Janney, Muncie, Ind. Corn-husker and stalk-cutter	589,782	Sept. 7	615	143, 144	80	1509
Janney, Mary H. (See Janney, George C., assignor.)						
Jansohn, Joseph F., and E. R. Minhinnick, Cleveland, Ohio. Wrench	587,529	Aug. 3	442	103	80	745
Jarboe, Joseph N., Philadelphia, Pa. Christmas-tree holder	589,896	Sept. 14	821	193	80	1648
Jardine, Agnes. (See Matthews, Marmaduke, assignor.)						
Jarre, Vincent, and E. J. Usannaz, Paris, France. Gas-burner for lighting	590,526	Sept. 21	1928	456	80	1872
Jauch, Joseph, assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Central-draft lamp	590,415	Sept. 21	1742	409	80	1886
Jarves, Deming, Detroit, Mich. Retort	587,057	July 27	2582	609	80	560
Jassen, Bern, Irvington, N. J. Plow and seed-planter	586,360	July 13	1230	304	80	274
Jay, Samuel S. (See Bayless, Benjamin S., assignor.)						
Jean, Ben L., *et al.* (See Harrington, Henry G., assignor.)						
Jeffers, James A., *et al.* (See Stump, Ira E., assignor.)						
Jeffery, George, Portland, Oreg. China-kiln	585,765	July 6	200	49	80	44
Jeffery, Louis, London, England. Panoramic camera	586,097	July 13	908	204	80	194
Jeffrey, Joseph A. (See Sheldrick, David J., assignor.)						
Jeffrey, Joseph A. (See Wilson, William W., assignor.)						
Jekyll, Fred R., *et al.* (See Flannery, William C., assignor.)						
Jencks, Samuel M., Madison, S. D. Hay rake and loader	590,108	Sept. 14	1182	278, 279	80	1717
Jenkins, Charles, Boston, Mass. Straightway valve	587,439	Aug. 3	280	66	80	718
Jenkins, Charles F., Richmond, Ind., and T. Armat, Washington, D. C. Phantoscope	586,953	July 20	2379	562	80	501
Jenkins, Nicholas, Waterbury, Conn., assignor to Holmes, Booth & Haydens, New York, N. Y. Lamp-support	587,001	July 27	2467	583	80	540
Jenkins, Thomas W., Philadelphia, Pa. Electrically-operated locking device for elevators	587,002	July 27	2468	583	80	540
Jenkinson, Samuel, London England Reed-organ	588,087	Aug. 10	1388	322, 323	80	989
Jenks, Henry F., Pawtucket, R. I. Drinking-fountain	586,313	July 13	1242	284	80	257
Jensen, Edward F. (See Prudden and Jensen.)						
Jensen, Hans, New York, N. Y. Tent	589,563	Sept. 7	254	62	80	1529
Jensen, Hans, New York, N. Y. Knockdown stool	589,947	Sept. 14	900	215	80	1664
Jensen, Henry J., Brooklyn, N. Y. Mechanical movement for propelling vehicles	589,353	Aug. 31	3810	899, 900	80	1453
Jensen, Jens C., assignor of thirteen-sixteenths to F. Nielsen and J. T. Ash, Pentwater, Mich. Water-gage cock	587,262	July 27	2963	695	80	633
Jermain, Peter, School Hill, assignor of one-half to G. Hake, Manitowoc county, Wis. Invalid-bed	587,726	Aug. 10	809	191	80	836
Jerome, Charles C., Chicago, Ill. Molding device	586,336	July 13	1238	297	80	268
Jerome, Charles C., Chicago, Ill. Device for regulating gait of horses	589,564	Sept. 7	255	62	80	1529
Jerram, Frederic O., London, England. Sewing-machine	590,683	Sept. 28	2224	527	80	1939
Jerry, Nelson, Maple Lake, Minn. Plow	590,371	Sept. 21	1666	391	80	1823
Jerstrum, Herbert, assignor to H. A. Streeter, Chicago, Ill. Cigar-bunching machine	588,912	Aug. 24	2806	678, 679	80	1254
Jesbera, Anthony N. (See Zwick, Joseph, assignor.)						
Jessup, William H., Poughkeepsie, N. Y. Folding mechanism for printing-presses	586,903	July 20	2280	537	80	483
Jetley, Gustave. (See Jetley, Victor and G.)						
Jetley, Victor and G., London, England. Combined multiple boring or drilling machine with means for driving rods, bars, or tubes into holes drilled	586,608	July 20	1777	413	80	388
Jevons, Samuel, and W. Collins, Birmingham, England. Bell	589,897	Sept. 14	823	193, 194	80	1649
Jewell, Ira H., Chicago, Ill. Apparatus for cleaning filters	587,909	Aug. 10	1229	285	80	910
Jewett, Erastus W., Swanton, Vt. Garment-supporting loop	587,832	Aug. 10	961	228	80	864
Jewett, Frank, assignor to O. H. Jones, Hartford, Conn. Ball-cock	590,558	Sept. 21	1994	470	80	1889

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Jewett, George M., *et al.* (See Walkins, Louis E., assignor.)						
Jobson, Walter, Liverpool, Pa. Nut-lock	590,647	Sept. 28	2153	509	80	1926
Joetten, Gustav A. J., and E. J. Marckie, Chicago, Ill. Bread-cutter	590,312	Sept. 21	1573	372	80	1805
Joffriaud, Joseph, San Francisco, Cal. Plucking instrument	585,958	July 6	565	132	80	109
Johanus, John C. (See Kelso and Johanus.)						
Johanson, Carl M. (See Carlson, Frank, assignor.)						
Johanson, Emelia J., Chicago, Ill. Work-box	590,704	Sept. 28	2256	534	80	1944
John R. Williams Company. (See Williams, John R., assignor.)						
Johns, George W., London, England. Venetian blind	589,834	Sept. 14	708	166	80	1630
Johns, Jacob R., Denver, Pa. Pneumatic tire	585,870	July 6	401	94	80	80
Johns, Norman A. (See Paddock, James N., assignor.)						
Johnson, Albert, South Bend, Ind. Street-sprinkler machine	588,437	Aug. 17	2043	476	80	1075
Johnson, Charles A., Alexandria, Minn. Condenser for exhaust-steam	590,740	Sept. 28	2320	549	80	1956
Johnson, Charles B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Charles E. (See Norling and Johnson.)						
Johnson, Claude M., Lexington, Ky. Non-refillable bottle	587,003	July 27	2469	583	80	540
Johnson Company. (See Brown, William M., assignor.)						
Johnson Company. (See Cooper, William, assignor.)						
Johnson Company. (See Ervin, George M., assignor.)						
Johnson Company. (See Kress, Carl F., Jr., assignor.)						
Johnson Company. (See Moxham, Arthur J., assignor.)						
Johnson, Curtis, *et al.* (See Cryderman, James E., assignor.)						
Johnson, Edward E., assignor to W. B. Henion and C. W. Hubbell, Chicago, Ill. Pump	588,995	Aug. 31	3034	713	80	1300
Johnson, Edward H., *et al.* (See Pollard, William B., assignor.)						
Johnson, Elbert E. (See Bly, Leon, assignor.)						
Johnson, Frank B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Frank P., Danville, Pa. Lifting-jack	588,579	Aug. 24	2292	531	80	1140
Johnson, George E., Los Angeles, Cal. Trolley-wire hanger	588,923	Aug. 24	2915	682	80	1259
Johnson, George F., Hartford, Conn. Bottle-stopper	589,505	Sept. 7	165	37	80	1513
Johnson, Hans G., Waukon, Iowa. Pocket match-box	587,040	July 27	2546	600	80	554
Johnson, James F. (See Barr and Johnson.)						
Johnson, James W., assignor to R. N. Philips, Chattanooga, Tenn. Duplicate-whist table	589,089	Aug. 31	3201	753	80	1330
Johnson, James W., and R. Whitaker, assignors to Neverslip Manufacturing Company, New Brunswick, N. J. Wrench	588,438	Aug. 17	2044	476	80	1076
Johnson, John H., assignor of two-thirds to S. A. Lentz and A. D. Hensinger, Allentown, Pa. Rail-joint	589,175	Aug. 31	3363	790	80	1361
Johnson, John H., Raleigh, and D. J. McKeithen, deceased; N. A. McKeithen, Aberdeen, N. C., administrator. Automatic pneumatic railway-switch	590,153	Sept. 14	1289	306	80	1737
Johnson, Jonathan, Lowell, Mass. Gas-stove	587,318	Aug. 3	57	13	80	677
Johnson, Jonathan, Lowell, Mass. Gas-stove	587,583	Aug. 3	545	130, 131	80	766
Johnson, Lena, Key West, Fla. Chair	588,829	Aug. 24	2761	640	80	1228
Johnson, Louis K., and A. A. Low, assignors to Alden Type Machine Company, Brooklyn, N. Y. Type-setting apparatus	586,237	July 13	1131	257	80	236
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-setting appliance	586,287	July 13	1203	275	80	250
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-font	588,906	Aug. 31	3036	713	80	1300
Johnston, Louis, assignor of three-fourths to W. W. Cargill, F. P. Hixon, and G. H. Gordon, La Crosse, Wis. Operator's switch for telephone-exchanges	585,915	July 6	482	116	80	95
Johnson-Lundell Electric Company. (See Lundell, Robert, assignor.)						
Johnson, Olof R., Escanaba, Mich. Work-holder	588,439	Aug. 17	2045	476, 477	80	1076
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-holding clip	587,584	Aug. 3	546	131	80	766
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-clip	587,970	Aug. 10	1231	285	80	910
Johnson, Thomas R. H., Washington, Pa. Car-fender	588,226	Aug. 17	1669	383, 384	80	1006
Johnson, William J., Newton, assignor to National Manufacturing Company, Worcester, Mass. Egg-beater	588,112	Aug. 10	1478	341	80	956
Johnston, Allen, Ottumwa, Iowa. Process of and apparatus for manufacturing polishing-wheels	588,068	Aug. 10	1389	323	80	989
Johnston, Edgar D., and W. W. Wainwright, assignors to P. H. & F. M. Roots Company, Connersville, Ind. Journal-box	588,529	Aug. 17	2209	513	80	1107
Johnston, Edward B., Franklin, Pa., assignor to Franklin Manufacturing Company, Limited. Packing for journal-boxes	587,971	Aug. 10	1233	286	80	910
Johnston, George. (See Ward, Albert M., assignor.)						
Johnston, James, Bradford, Pa. Fish plate and means for holding same	589,729	Sept. 7	533	126	80	1584
Johnston, James B., assignor of one-half to H. W. Gibbons and C. H. Schell, Pueblo, Colo. Fence-post	589,898	Sept. 14	824	194	80	1649
Johnston & Jennings Company. (See Albrecht and Bitner, assignors.)						
Johnston, Rowan, Calgary, Canada. Envelop	588,679	Aug. 24	2495	575	80	1179
Johnston, Thomas J. (See Gibboney, John W., assignor.)						
Johnston, William F. (See Jones and Johnston.)						
Johnston, William F., Philadelphia, Pa., assignor to H. B. Ives, New Haven, Conn. Adjustable window-stop fastener	587,585	Aug. 3	548	131	80	766
Johnston, William T. (See Crawley and Johnston.)						
Jones, Albert B., New York, N. Y. Necktie-fastener	588,864	Aug. 24	2821	656	80	1241
Jones, Clarence R., Alton Bay, N. H. Culinary utensil	588,440	Aug. 17	2047	477	80	1076
Jones, De Witt C., *et al.* (See Pleins, Rudolph C., assignor.)						
Jones, Evan, Creston, Iowa. Sanding attachment for locomotives	587,504	Aug. 3	398	94	80	737
Jones, Frank, Marion, Kans. Copy-holder	590,104	Sept. 14	1186	279	80	1718
Jones, Frederick J. and G. W., King's Heath, assignors to Tyre Puncture Curing Syndicate, Limited, London, England. Means for closing leaks in pneumatic tires	587,211	July 27	2868	673	80	615
Jones, George H., New York, N. Y. Mosaic work	586,795	July 20	2079	484, 485	80	443
Jones, Gwendolin W. (See Jones, Frederick J. and G. W.)						
Jones, Harry F., Camden, N. J. Handpiece for dental engines	585,845	July 6	363	83, 84	80	72
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Machine for heading pointed blanks	590,576	Sept. 28	2024	477, 478	80	1903
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Die for heading screw-blanks	590,577	Sept. 28	2027	478	80	1904
Jones, Levi J., East Norwalk, Conn. Rotary flue-cleaner	588,830	Aug. 24	2762	640	80	1229
Jones, Lyman M., and W. F. Johnston, assignors to Massey-Harris Company, Toronto, Canada. Seeding-machine	590,154	Sept. 14	1290	306	80	1738

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jones, Owen H. (See Jewett, Frank, assignor.)						
Jones, Richard T., Baltimore, Md. Foot-support	590,416	Sept. 21	1744	409, 410	80	1337
Jones, Reuben, Kirkwood, Ga. Plow	589,374	Aug. 31	3841	397, 398	80	1459
Jones, Samuel H., Scranton, Pa. Faucet-filter	585,674	July 6	45	11	80	11
Jones, Samuel M., Toledo, Ohio. Power-transmitting apparatus	590,313	Sept. 21	1574	372	80	1305
Jones, Walter P., Carlins, Va. Incubator and brooder	586,088	July 6	885	300, 301	80	173
Jones, William C., *et al.* (See Tippit, Archibald M., assignor.)						
Jones, William H., Mount Cory, Ohio. Swinging gate	589,739	Sept. 7	535	127	80	1584
Jones, William J., McKeesport, Pa. Adjustable wrench	587,972	Aug. 10	1294	286	80	911
Jordan, Frank C., Wadsworth, Ohio. Electric alarm and call-bell	588,997	Aug. 31	3037	714	80	1300
Jordan, James G., Des Moines, Iowa. Attachment for pens	588,865	Aug. 24	2822	656	80	1241
Josephs, Adolf, Scranton, assignor of two fifty-fifths to M. Rosenbluth, Wilkes-Barré, Pa. Lock-nut for spindles	587,737	Aug. 10	810	191	80	836
Josephs, John. (See Rudy, Benjamin F., assignor.)						
Joughins, George R., Berkley, Va., assignor of one-half to E. Cliff, Newark, N. J. Railway-car-truck frame	586,580	Aug. 24	2294	532	80	1140
Judge, James, New York, N. Y. Bicycle-support	586,040	July 6	804	180	80	157
Judge, John C., Fall River, Mass. Spinning-frame	589,176	Aug. 31	3364	790	80	1361
Judson, Charles W., assignor to Eagle Lock Company, Terryville, Conn. Permutation-lock	587,586	Aug. 3	549	131	80	766
Jungbluth, Johann, Cologne, Germany. Manufacturing artificial stone for street-pavements	587,484	Aug. 3	361	.....	80	731
Ka Vear, John W., and C. E. Gibbs, North Decatur, Ga. Nut-lock	588,338	Aug. 17	1871	432	80	1043
Kahn & Bros., F. & L. (See Kahn and Longfellow, assignors.)						
Kahn & Bros., F. & L. (See Kiefer, Kahn, and Osterberger, assignors.)						
Kahn & Bros., F. & L. (See Moore, Harry V., assignor.)						
Kahn, Lazard. (See Kiefer, Kahn, and Osterberger.)						
Kahn, Lazard, and M. Longfellow, assignors to F. & L. Kahn & Bros., Hamilton, Ohio. Rod-polishing accessory	587,973	Aug. 10	1235	286	80	911
Kaim, Heinrich, Kirchheim, Germany. Piano-action	586,270	July 13	1176	269	80	245
Kalle & Co. (See Rosenberg, Ignaz, assignor.)						
Kalle & Co. (See Rosenberg and Krecke, assignors.)						
Kalling, Lewis, Baltimore, Md. Bottle-sealing device	590,578	Sept. 28	2028	478	80	1904
Kalvalage, John H., New Orleans, La. Mail-bag catcher and deliverer	586,130	July 13	960	216, 217	80	204
Kandeler, Charles F. T., Chicago, Ill. Fireproof floor and ceiling construction	590,663	Sept. 28	2185	518	80	1932
Kane, Andrew C., Peoria, Ill. Thill-coupling	587,440	Aug. 3	282	67	80	718
Kane, Maurice, Chicago, Ill. Grain-binder	586,131	July 13	962	217	80	205
Kane, Maurice, Austin, Ill. Bundle-carrier for harvesting-machines	587,833	Aug. 10	982	228, 229	80	864
Kane, Maurice, Austin, Ill. Bundle-carrier for harvesting-machines	589,657	Sept. 7	417	101	80	1561
Kane, Thomas, trustee. (See Pennington, Edward J., assignor.)						
Kann, William L., Allegheny, Pa. Applying abrasive materials	588,441	Aug. 17	2048	477	80	1076
Kanter, Samuel C., *et al.* (See Leslie, Frank W., assignor.)						
Kapp, John, Dubuque, Iowa. Mattress-filling machine	590,266	Sept. 21	1482	350	80	1788
Karlsson, Johannes, assignor of one-half to V. Lönnqvist, Stockholm, Sweden. Machine for wiring corked bottles	590,496	Sept. 21	1872	443, 444	80	1861
Karst, Bernard W., assignor of one-half to G. E. Miller, Harlansburg, Ind. Match box or safe	589,835	Sept. 14	709	166	80	1630
Katzki, Albert, Erie, Pa. Wrench	588,069	Aug. 10	1391	324	80	940
Kaufman, Moses. (See Whitehead, Thomas P., assignor.)						
Kaufman, Simond, *et al.* (See McConnell, Edward, assignor.)						
Kawecky, Frantz, New York, N. Y. Window-chair	589,177	Aug. 31	3366	790	80	1361
Kay, Joseph W. (See Lambert, Frank, assignor.)						
Kayser, Clemens E., Oakland, Cal. Ink-fountain for printing-presses	590,790	Sept. 28	2415	573	80	1974
Kean, Helen A., assignor of five-eighths to W. H. Minor and J. R. Bolton, New Haven, Conn. Folding bedstead and frame	585,846	July 6	364	84	80	73
Kearney & Foot Company. (See Turner, James, assignor.)						
Keating, Edward, *et al.* (See Smith, Frederick G., assignor.)						
Keating, Jeremiah. (See Womersley and Keating.)						
Keating, John P., Newton, Mass. Waiting-stand for dining-tables	590,579	Sept. 28	2029	478, 479	80	1904
Keating, Robert M. (See Palmiter, Samuel, assignor.)						
Keating, Thomas B. (See Pomfret and Keating.)						
Keeler, Miner S., Middleville, Mich. Bedstead	588,442	Aug. 17	2049	477	80	1077
Keen, James M., Digby, Canada. Combined bicycle step and brake	590,105	Sept. 14	1189	279	80	1718
Keeney, William M., Jacksborough, Tenn. Fastening for railway-tracks	587,212	July 27	2800	673	80	615
Keiser, Andrew, Pittsburg, Pa. Railway-switch detector or indicator	586,041	July 6	805	180	80	157
Keiser, Florenz. (See Saylor and Keiser.)						
Keiser, Henry B. A., Braddock, Pa., assignor to Carnegie Steel Company, Limited. Ingot-tongs	588,070	Aug. 10	1392	324	80	940
Keith, Alexander E. (See Strowger and Keith.)						
Keith, Elmer L., and J. E. Colton, Mount Vernon, Iowa. Lock-jaw wrench	587,974	Aug. 10	1236	286	80	911
Keith, Frederick M., Boston, Mass. Refrigerator-door	586,098	July 13	908	204	80	195
Keith Lasting Machine Company. (See Keith, Thomas K., assignor.)						
Keith, Thomas K., Boston, Mass., assignor to Keith Lasting Machine Company, Kittery, Me. Sewing-machine for lasting boots or shoes	585,675	July 6	46	11, 12	80	11
Kellermann, Charles H. (See Spruce and Kellermann.)						
Kellett, William F., Chicago, Ill. Nose-bag	589,899	Sept. 14	825	194	80	1649
Kelley, Benjamin F., Brooklyn, N. Y. Feed-water heater and purifier	586,498	July 13	1564	365, 366	80	318
Kellner, Carl, Vienna, Austria-Hungary. Apparatus for electrolytical decomposition of salt solutions	585,959	July 6	566	133	80	110
Kellner, Carl, Vienna, Austria-Hungary. Method of and apparatus for effecting electrolysis	586,729	July 20	1972	459, 460	80	424
Kellner, Carl, Vienna, Austria-Hungary. Electrolytic process and apparatus therefor	588,276	Aug. 17	1760	407	80	1023
Kellner, Charles, Hallein, Austria-Hungary. Producing hydrates or other salts of alkaline metals	590,548	Sept. 21	1974	465	80	1879
Kellogg, Charles S., Austin, Ill. Cut-off valve	590,841	Sept. 28	2497	594	80	1990
Kellogg, Milo G., Chicago, Ill. Telephone-exchange	587,004	July 27	2472	584	80	541
Kelly, David. (See Appleby, John F., assignor.)						
Kelly, Edward. (See McNamara, Martin, assignor.)						
Kelly, F. H., *et al.* (See Roche, David, assignor.)						
Kelly, Henry, Lennoxville, Canada. Foot-guard	587,485	Aug. 3	362	86	80	731

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kelly, Henry J., Carnegie, Pa. Refrigerator meat-wagon	590,891	Sept. 28	2584	617	80	2008
Kelly, James S., Mount Iron, Minn. Hammer	589,178	Aug. 31	3367	791	80	1362
Kelly, John F. (See Chesney, Cummings C., assignor.)						
Kelly, Oliver S. (See Krotz and Allen, assignors.)						
Kelly, Oliver S. (See Krotz, Allen, and Kelly.)						
Kelman, John H., Pittsfield, Mass. Flexibly-insulated conductor	586,554	July 20	1680	391	80	370
Kelman, John H., Pittsfield, Mass. Method of and apparatus for applying japan	586,555	July 20	1682	391, 392	80	370
Kelman, Justus L., Maroa, Ill. Attachment for stringed musical instruments	589,658	Sept. 7	419	101, 102	80	1502
Kelsey, Wilbur F. (See Peterson and Kelsey.)						
Kelso, Charles L., and J. C. Johanus, Rock Rapids, Iowa. Planter attachment	587,975	Aug. 10	1238	287	80	911
Kelso, William H., Butte, Mont. Miner's pick	588,339	Aug. 17	1872	432	80	1044
Kemble, Wallace C., assignor of one-half to W. R. Doyle, Trenton, N. J. Rail-fastening	590,106	Sept. 14	1190	280	80	1718
Kemp, Clarence M., Baltimore, Md. Water-motor	590,729	Sept. 28	2358	559	80	1964
Kemp, John C., Tipton, Ind. Pulp-grating machine	588,340	Aug. 17	1873	433	80	1044
Kemper, Charles, Brussels, Belgium. Bottle and stopper for aerated drinks	586,971	July 27	2418	571	80	530
Kemper, George A., Newberne, W. Va. Pruning-shears	586,850	July 20	2170	508	80	460
Kempshall, Eleazer, Newton, assignor to T. King, trustee, Boston, Mass. Eyelet	586,770	July 20	2044	476	80	437
Kempshall, Eleazer, Newton, assignor to T. King, trustee, Boston, Mass. Tipped lacing	586,771	July 20	2045	476	80	437
Kempshall, Eleazer, Newton, assignor to Boston Fast Color Eyelet Company, Boston, Mass. Lacing-hook	586,772	July 20	2046	477	80	437
Kendall, John B., Washington, D. C. Cartridge	588,443	Aug. 17	2050	478	80	1077
Kendig, Benjamin F., Elizabeth, N. J. Bookbinder's tape	586,070	July 6	847	189	80	165
Kendrick, James K., Germantown, Cal. Railway danger-signaling	585,676	July 6	49	12	80	12
Kendzierski, Josef. (See Jachimiak and Kendzierski.)						
Kenmouth, John C., Spearfish, S. D., assignor of one-half to F. H. Black, Rushville, Nebr. Electric alarm	590,267	Sept. 21	1485	350	80	1789
Kenevel, Jeannott W., Chicago, Ill., assignor of one-half to J. H. Mead, Brooklyn, N. Y. Means for manufacturing carbids	588,866	Aug. 24	2824	656, 657	80	1241
Kenna, Thomas M., New Haven, Conn. Trolley-truck	587,738	Aug. 10	811	191, 192	80	837
Kennedy, Albert H., Rockport, Ind. Water-meter	587,125	July 27	2703	635	80	583
Kennedy, Arthur L., Burlington, Vt., assignor to Marsden Company, Philadelphia, Pa. Waterproof material	587,096	July 27	2648	.....	80	573
Kennedy, Arthur L., Burlington, Vt., assignor, by mesne assignments, to Marsden Company, Camden, N. J., and Philadelphia, Pa. Composition of matter and article treated therewith	587,097	July 27	2648	.....	80	573
Kennedy, Arthur L., Burlington, Vt., assignor, by mesne assignments, to Marsden Company, Camden, N. J., and Philadelphia, Pa. Waterproof cloth and making same	590,842	Sept. 28	2490	595	80	1991
Kennedy, David S., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	586,337	July 13	1299	297	80	208
Kennedy, George W., and J. B. Moery, Philadelphia, Pa. Sad-iron	590,066	Sept. 14	1112	263	80	1703
Kennedy, Jeremiah J., Philadelphia, Pa. Garbage-incinerating apparatus	588,998	Aug. 31	3040	714, 715	80	1300
Kennedy, John E., Montreal, Canada. Shoe-sole	588,768	Aug. 24	2656	612	80	1210
Kennedy, John E., Montreal, Canada. Shoe	588,769	Aug. 24	2657	613	80	1210
Kennedy, Thomas C., assignor of one-half to A. Newsalt, Dayton, Ohio. Equalizer for cars	587,834	Aug. 10	964	220	80	865
Kennedy, Walter, Pittsburg, Pa. Bleeder-valve	586,773	July 20	2047	477	80	437
Kenney, Alphonso E., Boston, Mass. Bed-lock	586,042	July 6	806	180	80	158
Kenney, George G., *et al.* (See Davies, Thomas W., assignor.)						
Kenney, John M. (See Sueppel and Kenney.)						
Kennison, Herbert W., assignor to Somerset Novelty Manufacturing Company, New Portland, Me. Garment-hanger	590,972	July 27	2419	572	80	530
Kennon, Charles W., Tampa, Fla. Protected pile	587,077	July 27	2613	618	80	566
Kent, Huxhum P., Providence, R. I. Device for manufacturing watch-rim centers	585,821	July 6	302	71	80	69
Kenway, William E., Birmingham, England. Trolley for electric railways	590,527	Sept. 21	1929	457	80	1872
Kenworthy, Truman C., Oskaloosa, Iowa. Bookbinding	586,604	July 20	1780	413	80	366
Kenyon, Dexter E., *et al.* (See Sherman, Richard E., assignor.)						
Kephart, Henry A., Troy, Ohio. Portable knockdown booth	590,971	Sept. 14	941	224, 225	80	1672
Kephart, William H., Knoxville, Tenn. Drawers-support	588,750	Aug. 24	2632	606	80	1205
Kepler, Orlando S., Patterson, Pa. Track-gage	587,739	Aug. 10	813	192	80	837
Kernek, Henry E. (See Kernek, Julius G. and H. E.)						
Kernek, Julius G. and H. E., Poplar Bluff, Mo. Wagon-standard	586,440	July 13	1467	340	80	300
Kerns, Elmer E., Bradford, Pa. Non-refillable bottle	590,741	Sept. 28	2322	549	80	1956
Kertell, Charles P., San Mateo, Cal. Combined cup and can	589,391	Aug. 31	3390	905	80	1466
Ketcham, Daniel W., U. S. Army. Automatic cut-off for gas-burners	586,490	July 13	1566	366	80	318
Ketner, Frank W., Hudson, N. Y. Dental-engine attachment	588,444	Aug. 17	2051	478	80	1077
Kidd, William A., Buffalo, N. Y. Direct-acting engine	585,960	July 6	568	133	80	110
Kidder, Charles H., *et al.* (See Crowell, Beverly, assignor.)						
Kidder Press Manufacturing Company. (See Meisel, Francis, assignor.)						
Kidder Press Manufacturing Company. (See Meisel and Chapin, assignors.)						
Kidder, Wellington P., Boston, Mass. Key-action for type-writing machines	585,706	July 6	210	49	80	44
Kiefer, Frank A., L. Kahn, and H. Osterberger, assignors to F. & L. Kahn & Bros., Hamilton, Ohio. Stove	585,677	July 6	50	12	80	12
Kikow, Heinrich, Berlin, Germany. Regulating contrivance for gas heating-burners	588,227	Aug. 17	1671	384	80	1007
Kilberg, Albert M. (See Harrison and Kilberg.)						
Kilbourn, Charles S. (See Frost, Kilbourn, and Woolson.)						
Kilburn, John, Belmont, Mass. Bearing for spindles	590,314	Sept. 21	1576	373	80	1806
Kilburn, John, Belmont, Mass. Bearing for spindles	590,315	Sept. 21	1577	373	80	1806
Kilburn, John, Belmont, Mass. Spindle-support	590,316	Sept. 21	1580	373	80	1807
Kilburn, John, Belmont, Mass. Spindle-bearing	590,317	Sept. 21	1582	373	80	1807
Kilburn, John, Belmont, Mass. Spindle-bearing	590,318	Sept. 21	1584	374	80	1808
Kilburn, John, Belmont, Mass. Spindle-bearing	590,319	Sept. 21	1587	374	80	1808
Kilburn, John, Belmont, Mass. Spindle-bearing	590,320	Sept. 21	1589	374	80	1809
Kilburn, John, Belmont, Mass. Spindle-support	590,321	Sept. 21	1591	374, 375	80	1809
Kilburn, John, Belmont, Mass. Spindle-bearing	590,322	Sept. 21	1593	375	80	1809
Kilburn, John, Belmont, Mass. Spindle-bearing	590,323	Sept. 21	1595	375	80	1810
Kilgore, Frederick O., Minneapolis, Minn. Loading or unloading machine	588,277	Aug. 17	1702	408	80	1024
Killeen, John T., Luzerne, Pa. Machine for canceling stamps and affixing postmarks to letters	588,152	Aug. 17	1555	358	80	985
Killmeier, Joseph T., Louisville, Ky. Fish-hook	590,705	Sept. 28	2257	534	80	1945

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Kilmer Bale Tie Company. (See Lehberger, George, assignor.)						
Kimball, Benjamin A. (See Cushman, Abe L., assignor.)						
Kimball, Charles B., assignor of one-third to J. H. Murray, Haverhill, Mass. Leather-blacking machine	589,506	Sept. 7	166	37	80	1513
Kimball, Hervey Z., Brooklyn, N. Y. Double collar-button	590,618	Sept. 28	2100	497	80	1917
Kimble, George W. (See Foster, George E., assignor.)						
Kinch, David B., Pittsburg, Pa. Mouthpiece attachment for tobacco-pipes	586,043	July 6	807	180	80	158
Kinder, Arthur H., Boston, Mass. Thread-cutting mechanism for sewing-machines	588,153	Aug. 17	1556	358, 359	80	965
Kime, Benjamin J., McDougall, N. Y. Band-cutter and feeder for threshing-machines	590,324	Sept. 21	1596	375, 376	80	1810
King, Burnham W. (See King, Walter G. and B. W.)						
King, Charles K., Mansfield, Ohio. Trolley-wire hanger and splicer	587,740	Aug. 10	815	192	80	838
King, D. W. (See Bonner, John H., assignor.)						
King, Elton J., Fort Wayne, Ind. Electric meter	588,999	Aug. 31	3045	715, 716	80	1301
King, Frank, assignor to J. I. Courtenay, London, England. Electric storage or secondary battery	586,044	July 6	808	181	80	158
King, George W., Marion, Ohio. Excavator	586,099	July 13	910	204, 205	80	195
King, George W., Marion, Ohio. Excavator	589,565	Sept. 7	256	62, 63	80	1530
King, Hubert, Philadelphia, Pa. Mop or broom holder	586,298	July 13	1133	258	80	237
King, James L. O., Fair Play, S. C. Combined planter, fertilizer-distributer, and cultivator	585,916	July 6	484	116, 117	80	95
King, Juliet, *et al.* (See Clouse, Joseph N., assignor.)						
King, Lewis J., Monmouth, Kans. Combined hat-rack and case	587,741	Aug. 10	817	192	80	838
King, Robert W., Toronto, Canada. Temperature-regulator	589,603	Sept. 7	333	83	80	1545
King, Sandy, and M. Myers, Mexia, Tex. Hitching device	585,678	July 6	52	13	80	13
King, Theophilus, trustee. (See Kempshall, Eleazer, assignor.)						
King, Thomas S. (See Clench and King.)						
King, Walter G., Buffalo, N. Y., assignor to Barber Asphalt Paving Company, Washington, D. C., and New York, N. Y. Automatic oiling device for road-rollers	588,445	Aug. 17	2052	478	80	1077
King, Walter G. and B. W., New York, N. Y. Opera-glass	590,549	Sept. 21	1977	466	80	1879
King, Warren D. (See Martin and King.)						
Kipg, Wells. (See Cortright, Moses I., assignor.)						
Kingsbury, Harry T., Keene, N. H. Rim-spacing machine	586,441	July 13	1468	340, 341	80	800
Kingsland, George. (See Swinnerton, James F., assignor.)						
Kingsland, Lawrence D., *et al.*, trustees. (See Price, Albert, assignor.)						
Kinnaman, Edward H., and B. F. Flouers, Fort Collins, Colo. Bell door-knob	590,192	Sept. 14	1353	319	80	1750
Kinnear, William A. (See Pickin, George W., assignor.)						
Kinney, Richard R. (See Lilly and Kinney.)						
Kinsey, Isaac, assignor to Dayton Manufacturing Company, Dayton, Ohio. Oven	589,090	Aug. 31	3202	753	80	1330
Kinsley, Alice C., Lynn, Mass. Envelop	590,372	Sept. 21	1666	393	80	1923
Kintner, Charles J. (See Greenfield, Edwin T., assignor.)						
Kipp, Burton E., Philadelphia, Pa. Desk-lid support	588,228	Aug. 17	1672	384, 385	80	1007
Kirby, John, Jr., Dayton, Ohio, assignor to United States Headlight Company, Utica, N. Y. Dash electric headlight	586,774	July 20	2048	477	80	437
Kirby, John, Jr., Dayton, Ohio, assignor to United States Headlight Company, Utica, N. Y. Electric headlight	589,130	Aug. 31	3293	775	80	1346
Kirby, John, Jr., Dayton, Ohio, assignor to United States Head-Light Company, Utica, N. Y. Dash electric headlight	589,783	Sept. 7	618	144	80	1600
Kirby, John W., Scranton, Pa. Automatic boot-polisher, perfumer, mirror, and gum-machine	590,007	Sept. 14	1114	264	80	1703
Kirby, Thomas S. (See Parks and Kirby.)						
Kirchgessner, Carl M. (See Osswald and Kirchgessner.)						
Kirker, James M., Louisville, Ky. Trolley-guard	586,556	July 20	1685	392	80	371
Kirkman, William H., Berkeley, assignor to H. E. Poehlman, San Francisco, Cal. Pulley-locking device	587,976	Aug. 10	1239	287	80	911
Kirkpatrick, Augustus W., Greenville, Tenn. Automatic advertising apparatus	586,500	July 13	1508	366	80	319
Kirkpatrick, William P., Arrowsmith, Ill. Loom	586,904	July 20	2283	537, 538	80	482
Kirstein, Henry E., Rochester, N. Y. Spectacle-frame	589,437	Sept. 7	64	14	80	1498
Kitts Manufacturing Company. (See Pelton, Charles H., assignor.)						
Kitzmiller, George M., and H. A. Gillis, Roanoke, Va. Type-writer scale	587,587	Aug. 3	551	132	80	766
Klauder, Charles L., *et al.* (See Pullen, Leon W., assignor.)						
Klein, John M., Chicago, Ill. Wire-clamp	588,446	Aug. 17	2053	479	80	1078
Klein, Sophie, Allegheny, Pa. Folding box	586,819	July 20	2120	495	80	450
Kline, Alexander J. (See Fergusson and Kline.)						
Kling, Herman, Larned, Kans. Tree-irrigator	588,278	Aug. 17	1765	408	80	1024
Knapp, Adam, Jr. (See Dumas and Knapp.)						
Knapp, Charles E., Brooklyn, N. Y. Molding for edges of stairs	586,739	July 20	1997	464	80	429
Knapp, Clayton L., assignor to C. J. Knapp, New York, N. Y. Burglar-alarm	587,977	Aug. 10	1240	287	80	912
Knapp, Coralie J. (See Knapp, Clayton L., assignor.)						
Knepper, Charles L., Tocsin, Ind. Water-bicycle	586,851	July 20	2171	508	80	460
Knickerbacker, John, Troy, N. Y. Indicator for valves	586,740	July 20	1997	464	80	429
Knight, Alfred J., Boston, Mass. Fire-extinguisher	589,990	Sept. 14	978	233	80	1677
Knight, Charles W., New York, N. Y. Automatic regulating device for gas-burners	590,892	Sept. 28	2586	618	80	2009
Knight, George H., Lynn, Mass. Pencil	588,867	Aug. 24	2826	657	80	1242
Knight, Walter H. (See Hoadley and Knight.)						
Knight, Walter H., New Brighton, N. Y. Air-compressor	586,100	July 13	915	205	80	196
Knight, Walter H., New Brighton, N. Y. Controller for fluid-pressure motors	586,605	July 20	1781	414	80	389
Knight, Walter H., New Brighton, N. Y. Fluid-pressure engine	589,354	Aug. 31	3812	890	80	1453
Knight, Walter H., New Brighton, N. Y. Fluid-pressure motor	589,355	Aug. 31	3814	890	80	1454
Knight, Walter H., New Brighton, assignor to Compressed Air Power Company, New York, N. Y. Fluid-pressure motor	590,228	Sept. 21	1424	335	80	1777
Knight, Walter H., Newton, and W. B. Potter, Lynn, Mass. Regulating apparatus for electrically-driven mechanism	587,441	Aug. 3	282	67, 68	80	718
Knight, Walter H., Newton, and W. B. Potter, Lynn, Mass. Regulating electrically-driven mechanism	587,442	Aug. 3	285	69, 70	80	719
Knight, William H. H., Washington, D. C. Mechanical movement	586,447	Aug. 17	2054	479	80	1078
Knoerzer, Charles G. (See Rafel and Knoerzer.)						
Knott, Jacob, Paterson, N. J. Dyeing-horse	585,935	July 6	526	124	80	102
Knout, John P., and H. A. Cook; said Cook assignor to C. Dolge, Dolgeville, N. Y. Music-leaf turner	587,742	Aug. 10	818	193	80	838

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Knowles, George E. (See Eddishaw, Knowles, and Eddishaw.)						
Knowles Loom Works. (See Bardsley, Henry, assignor.)						
Knowles Loom Works. (See Stafford, George W., assignor.)						
Knowles, Manleus Lowell, Mass. Liquid-holder and wringer	588,239	July 13	1134	258	80	237
Knowles, Sam, Gibbsville, Wis. Belt-coupling	586,338	July 13	1300	297	80	308
Knowles, Samuel E., Alameda, Cal. Rubber-dam clamp	587,058	July 27	2583	609	80	560
Knowlton, Charles H., Boston, Mass. Attachment for radiators	586,045	July 6	809	181	80	158
Knowlton, Gerry E., Boone, Iowa. Automatic windmill	589,530	Sept. 7	207	48	80	1321
Knox, Orville M., Oneida, N. Y. Railway cross-tie	590,456	Sept. 21	1807	425	80	1848
Knudsen, Karsten, assignor to American Electric Vehicle Company, Chicago, Ill. Circuit-controller for electric vehicles	586,606	July 20	1783	414	80	389
Koch, Friedrich A., Brooklyn, N. Y. Surgeon's scissors	590,528	Sept. 21	1931	457	80	1872
Koch, George E., Rutherford, N. J., and C. Rehm, Brooklyn, N. Y. Flagstaff-holder for bicycles	589,261	Aug. 31	3518	825	80	1392
Koch, Hans, Bible Grove, Ill. Mechanical movement	586,978	July 27	2421	572	80	531
Kock, Wilhelm, Cincinnati, Ohio. Safe	586,930	July 20	2334	550	80	492
Koenig, Joseph, Jr., Quincy, Ill. Fifth-wheel	588,544	Aug. 24	2426	559	80	1166
Koffinke, Carl, Hopedale, Mass. Thread-guide	587,096	July 27	2649	625	80	573
Kohler, Nicholas, assignor of one-half to M. Inglis, Paterson, N. J. Car-fender	585,871	July 6	402	94, 95	80	80
Kohn, Edwin D., *et al.* (See Rank, George R., assignor.)						
Kohn, Harry D., *et al.* (See Rank, George R., assignor.)						
Kohn, Samuel, Chicago, Ill. Bicycle-tire	585,679	July 6	53	13	80	13
Kolar, Antonin R., assignor to K. A. Wills, Clinton, Iowa. Combination-knife	589,892	Aug. 31	3881	905	80	1466
Kolbe, Adolf. (See Haselwander, Fritz, assignor.)						
Koll, Ernst, Milwaukee, Wis. Wood column	589,896	Sept. 14	710	167	80	1630
Koll, Henry F., assignor of two-thirds to R. A. Filter, South Omaha, and T. Wolf, Douglas county, Nebr. Bung	586,101	July 13	916	205	80	196
Kollenberg, Frederick G., assignor of one-half to J. J. Sweeney, Owensborough, Ky. Toy lung-tester	590,229	Sept. 21	1425	336	80	1777
Kolp, Josiah. (See Birmingham, John P., assignor.)						
König, Albert, assignor to Firm Carl Zeiss, Jena, Germany. Double-image micrometer	587,443	Aug. 3	289	70	80	719
Konold, Matthew J. (See Feldman and Konold.)						
Kops, Daniel, New York, N. Y. Corset-advertising form	587,553	Aug. 3	484	114	80	754
Krabal, Frank, Pittsburg, Pa. Trolley	588,448	Aug. 17	2057	479	80	1078
Krack, William W., Louisville, Ky. Oil-can and funnel	589,659	Sept. 7	421	102	80	1502
Kraft, Edward, Medera, Pa. Malt-turning machine	587,444	Aug. 3	292	70, 71	80	720
Kraft, William, Baltimore, Md. Electrical keg-register	588,797	Aug. 24	2700	625	80	1218
Kramer, Cornelius. (See Samuelson, John, assignor.)						
Krastin, August, Cleveland, Ohio. Pressure-regulator	588,118	Aug. 10	1479	341	80	956
Krause, William, Adams, Mass. Device for removing clothes from boiling water	586,607	July 20	1785	414	80	390
Krebs, Clifton E., *et al.* (See Ohlgart, George P., assignor.)						
Krebs, Henrik J., Wilmington, Del. Distilling apparatus	589,000	Aug. 31	3047	717	80	1302
Krecke, Friedrich. (See Rosenberg and Krecke.)						
Kreider, John L., Indian Grove, Mo. Automatic gate	589,837	Sept. 14	711	167	80	1631
Kreimeier, David J. (See Humme, Frederick A., assignor.)						
Kreiter, Clarence E. (See Deardorff and Kreiter.)						
Kress, Carl F., Jr., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway-switch	588,581	Aug. 24	2296	532	80	1141
Kretschmann, Hugo, Berlin, Germany. Petroleum-burner	588,449	Aug. 17	2059	480	80	1079
Kreuziger, John H., Milwaukee, Wis. Folding box	587,814	Aug. 3	58	14	80	677
Krider, Henry T., Pine Bluff, Ark. Car-door guard	590,309	Sept. 21	1714	403	80	1832
Kron, John W., New Philadelphia, Ohio. Spittoon	586,189	July 13	1054	237	80	221
Krotz, Alvard S., Springfield, Ohio, assignor to W. S. Lucas, Chicago, Ill. Water-tube steam-boiler	585,690	July 6	55	13	80	13
Krotz, Alvaro S., Springfield, Ohio, and W. P. Allen, Chicago, Ill., assignors of one-third to O. S. Kelly, Springfield, Ohio. Underground system for electric railways	586,852	July 20	2172	508, 509	80	461
Krotz, Alvaro S., Springfield, Ohio, W. P. Allen, Chicago, Ill., and O. S. Kelly, Springfield, Ohio. Conduit	587,213	July 27	2870	673, 674	80	615
Krotz, Alvaro S., Springfield, Ohio, W. P. Allen, Chicago, Ill., and O. S. Kelly, Springfield, Ohio. Trolley	587,214	July 27	2871	674	80	616
Krüger, Edward H., Elizabeth City, N. C. Shingle-sawing machine	587,215	July 27	2872	674	80	616
Krüger, Wilhelm, Berlin, Germany. Beer-siphon	586,190	July 13	1054	238	80	221
Krum, Adelbert R., assignor of one-half to D. C. Buckstaff, Oshkosh, Wis. Casket-handle	590,947	Sept. 28	2690	640	80	2020
Krummel, Louis C. (See Rudolphi, Frank, assignor.)						
Kruschke, Herman O., Auroraville, Wis. Plow	589,179	Aug. 31	3367	791	80	1302
Krutsch, Willis W., Coffeyville, Kans. Buggy-top attachment	586,271	July 13	1177	270	80	245
Kübler, Reinhold, Berlin, Germany. Printing-telegraph	590,664	Sept. 28	2187	518, 519	80	1933
Kuersten, Hugo R., assignor of one-fourth to P. Pause, Chicago, Ill. Potato-harvester	588,562	Aug. 24	2207	532	80	1141
Kuhlhoff, William E., *et al.* (See Finley, Jefferson L., assignor.)						
Kuhnhold, Carls, and W. Steup, Allegheny, Pa. Chimney-top	587,976	Aug. 10	1242	287	80	912
Kundtz, Theodor, Cleveland, Ohio. Table or cabinet for sewing-machines	588,796	Aug. 24	2701	625	80	1219
Kundtz, Theodor, Cleveland, Ohio. Table or cabinet for sewing-machines	590,417	Sept. 21	1746	410	80	1837
Kunze, George W., Bryant, Wash. Jointer for circular saws	586,442	July 13	1470	341	80	301
Kunzel, Charles A., Jr., Hoboken, N. J., assignor to American Filter and Ice Plants Manufacturing Company. Filter	586,709	July 20	1998	451	80	418
Kyle, David M., Chicago, Ill. Lawn-mower	587,005	July 27	2477	584	80	542
L. L. White Tooth Crown Company. (See White, Louis L., assignor.)						
L. Wolff Manufacturing Company. (See Gavin and McGuire, assignors.)						
La Barre, George B., and C. V. Hill, Trenton, N. J. Stand for bicycles	586,741	July 20	1998	465	80	429
La Fave, Joseph H., Toledo, Ohio. Bicycle handle-bar	590,894	Sept. 28	2592	618	80	2010
La Force, Hippolyte J., Paris, France. Pneumatic tire	588,680	Aug. 24	2496	576	80	1179
La Grange, James, McGill, W. Va. Measuring instrument	590,230	Sept. 21	1426	336	80	1777
La Société des Générateurs à Vaporisation Instantanée, (Système Leon Serpollet.) (See Serpollet, Leon, assignor.)						
Labatt, Charles P., Los Angeles, Cal. Mechanical motor for bicycles or other purposes	586,443	July 13	1471	341, 342	80	301
Lacey, John F., *et al.* (See Delong, Osker, and B. F. De Long, assignors.)						
Ladd, John H., London, England. Method of and apparatus for manufacturing gas	590,893	Sept. 28	2588	618	80	2009
Lade, Otto, Merrill, Mich. Plow-clevis	588,583	Aug. 24	2298	533	80	1142
Lagarigne, Amédée, Le Mans, France. Shutter-worker	585,847	July 6	366	84	80	73
Lahmann, Otto. (See Medger, Carl F., assignor.)						
Lahue, Moses M. (See Sawyer and Lahue.)						
Lale, Oscar R., Shawnee, Okla. Ter. Speed-regulator for windmills	587,445	Aug. 3	294	71	80	720
Lamb, Edward M., and E. Bales, Clayton, Mich. Feeding mechanism	588,450	Aug. 17	2060	480	80	1079

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lamb, Edward M., and E. Bales, Clayton, Mich. Machine for making toothpicks	588,645	Aug. 24	2428	559, 560	80	1167
Lamb, George B., Waterbury, Conn., assignor, by mesne assignments, to Waterbury Machine Company. Wire-drawing machine	588,071	Aug. 10	1898	324	80	940
Lamb, James D., and J. E. Chapman, assignors of one-fourth to J. J. Durack, Montreal, and P. J. Brennan, Ottawa, Canada. Street-car fender	587,315	Aug. 3	59	14	80	677
Lamb, Jesse M., Dalton, Ind. Educational appliance	589,180	Aug. 31	3369	791, 792	80	1362
Lamb Manufacturing Company. (See Candy, Charles C., assignor.)						
Lamb Manufacturing Company. (See Sackett, Jasper L., assignor.)						
Lambert, Albert S., assignor, by mesne assignments, to Practical Closure Company, Bridgeton, N. J. Can-closure	587,486	Aug. 3	363	86	80	73
Lambert, Alonzo, Brooklyn, assignor of one-third to I. F. Denzi, Corona, N. Y. Window-screen	587,743	Aug. 10	819	193	80	688
Lambert, Frank, assignor of one-half to J. W. Kay, Brooklyn, N. Y. Meter	588,64o	Aug. 24	2431	560	80	1167
Lambert, Frank, assignor of one-half to J. W. Kay, Brooklyn, N. Y. Mechanism for operating registering devices of meters	588,924	Aug. 24	2916	682	80	1259
Lambert, Seraphim. (See Niggli and Lambert.)						
Lamb'kin, Charles H., Mount Vernon, N. Y. Nut-wrench	587,006	July 27	2478	584	80	542
Lamme, Benjamin G., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Direct-current generator	588,279	Aug. 17	1767	409	80	1024
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Coil for electrical machines and making same	589,888	Sept. 14	712	167	80	1631
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Armature for electrical generators and motors	589,889	Sept. 14	714	167	80	1631
Lamplough, Frederick, Glen Ridge, N. J. Steam-trap	590,895	Sept. 28	2594	619	80	2010
Lancaster, Charles F., Petoskey, Mich. Bicycle-pedal	586,608	July 20	1786	415	80	390
Lancaster, John, and C. Witteck, New York, N. Y. Ornamenting or decorating fabrics	590,457	Sept. 21	1808	426	80	1849
Lance, William H. J., London, England. Railway-signal	586,609	July 20	1786	415	80	390
Landau, John, Jr., Brooklyn, N. Y. Car-fender	589,660	Sept. 7	422	102	80	1502
Landau, Leopold, Paris, France. Cork	587,885	Aug. 10	986	229	80	803
Landers, Frary & Clark. (See Smith, Charles F., assignor.).						
Landers, Frary & Clark. (See Wood, Hubert K., assignor.)						
Landes, Carl K., *et al.* (See McCall, William W., assignor.)						
Lane, Frederick G., Philadelphia, Pa. Cape for gossamers	586,122	July 13	964	217	80	205
Lane, George, Haverford, Pa. Hod	587,816	Aug. 3	61	14	80	678
Lane, James M. (See Hancock, Abram O., assignor.)						
Lane, Jefferson D., Bend, and W. S. James, Waco, Tex. Baling-press	586,191	July 13	1055	238	80	221
Lane, Jesse. (See Wick, John, assignor.)						
Lane, Mary E. B., Transit, Ohio. Puzzle	586,339	July 13	1300	297	80	208
Laney, Thomas G., Lima, Ohio. Pumping-jack for oil-wells	586,501	July 13	1570	367	80	319
Laney, Thomas G., Lima, Ohio. Pumping-jack for oil-well pumps	586,502	July 13	1572	367	80	319
Lang, Arthur S., Salem, Mass. Bicycle-support	585,917	July 6	486	117	80	96
Lang, Sarah V. (See Grapes, John H., assignor.)						
Langer, Gotthold. (See Flucks, Paul, assignor.)						
Langer, Gotthold, St. Louis, Mo., assignor to American Brake Beam Company, Chicago, Ill. Machine for forming nut-locks	587,149	July 27	2764	649, 650	80	594
Langer, Gotthold, St. Louis, Mo., assignor of three-fourths to C. J. Rauch, Memphis, Tenn., J. Schmelzer, Centralia, Ill., and J. B. Niermann, St. Louis, Mo. Motor-vehicle	589,001	Aug. 31	3050	718	80	1302
Langford, Ernest A., Washington, Cal. Door-indicator	590,418	Sept. 21	1747	410	80	1837
Langschmidt, Henry W., Brooklyn, and R. F. Le Brocq, assignors of one-third to J. P. Niemann, New York, N. Y. Station-indicator for tramway or other cars	588,701	Aug. 24	2529	584, 585	80	1185
Lanhoffer, Emil, assignor of one-half to Gebrüder Burghardt, Mulhausen, Germany. Electrical transmission of power	588,831	Aug. 24	2764	640, 641, 642	80	1229
Lanston Monotype Machine Company. (See Lanston, Tolbert, assignor.)						
Lanston, Tolbert, assignor to Lanston Monotype Machine Company, Washington, D. C. Machine for preparing perforated record-strips of type-forming machines	590,763	Sept. 28	2360	559, 560, 561, 562, 563	80	1904
Lanyon, Dick N., Chicago, Ill. Tilework	587,263	July 27	2965	695, 696	80	633
Lantz, William B., Gloucester, Mass. Rope-hauling machine. (Reissue)	11,628	Sept. 7	656	153	80	1608
Lanz, Charles, Pittsburg, Pa. Bolt-machine	589,438	Sept. 7	65	14	80	1494
Lanz, Karl, Augsburg, Germany. Carton envelop or paper box	587,896	Aug. 10	988	230	80	805
Lapham, Charles C., Lapham, N. Y. Thill-coupling	588,280	Aug. 17	1769	409	80	1025
Lapham, Valentine. (See Haynes and Lapham.)						
Larder, William. (See Perkins, Frank P., assignor.)						
Larmore, Charles H., Plattsburg, N. Y. Ventilating-fan	586,046	July 6	810	181	80	158
Larmour, James J. (See Gaskill, Henry S., assignor.)						
Larned, Hiram D. (See Gurney and Larned.)						
Larrabee, Thomas W., Carrollton, Ind. Fence-post	590,843	Sept. 28	2500	595	80	1991
Larson, August, Chicago, Ill. Stone-jointer	587,588	Aug. 3	553	132, 133	80	767
Larwill, Alfred L., and F. E. Small, Brooklyn, N. Y. Oil-burner	585,822	July 6	304	71, 72	80	62
Larzelere, Washington I., Cincinnati, Ohio. Lantern and illuminated sign for street-cars	586,775	July 20	2051	478	80	438
Last, Frank B., Landore, and J. R. Wright, Gowerton, England. Manufacturing steel	586,047	July 6	811	181	80	158
Latimer, Frank, Huntley, Ill. Velocipede	587,837	Aug. 10	988	230	80	805
Latimer, James B., Broome's Island, Md. Ax	588,073	Aug. 10	1394	324	80	941
Latta, Charles, St. Louis, Mo. Device for teaching time in music	585,681	July 6	57	14	80	14
Latta, William D., Holliday, Tex. Cotton-chopper	590,107	Sept. 14	1191	280	80	1719
Lattimore, Clarence M. (See Lattimore, Daniel J., assignor.)						
Lattimore, Daniel J., assignor of one-half to C. M. Lattimore, St. Louis, Mo. Wood sanding and polishing machine	590,665	Sept. 28	2190	519, 520	80	1933
Latulip, Frederick, Syracuse, assignor of one-half to J. L. Sherwood, Fayetteville, N. Y. Die for saddle-seats	585,682	July 6	58	14	80	14
Laube, Godfried, Huron, S. D. Stove	589,473	Sept. 7	112	25	80	1503
Laughlin, Alexander, Sewickley, and J. Reuleaux, Wilkinsburg, Pa., said Reuleaux assignor to said Laughlin. Heating-furnace	588,702	Aug. 24	2534	585, 586	80	1186
Laughlin, Alexander W., Odessa, Mo. Checkrein-hook	588,341	Aug. 17	1874	433	80	1044
Laval, Carl G. P. de, Stockholm, Sweden. Differential-pressure-reducing apparatus	587,150	July 27	2766	651	80	595
Lavens, Erwin. (See Bergmann and Lavens.)						
Lavercombe, Frederick A., assignor to S. Lavercombe, St. Louis, Mo. Adjustable light	587,151	July 27	2768	651	80	595
Lavercombe, Sophia. (See Lavercombe, Frederick A., assignor.)						
Law, Jonathan A., Philadelphia, Pa. Bag-fastener	588,717	Aug. 24	2557	591	80	1191

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lawrence, Adelbert G., Motley, Minn. Automatic railway-switch	590,948	Sept. 28	2691	641	80	2029
Lawrence, Edwin F. (See Lawrence, John H., assignor.)						
Lawrence, John H., Sterling, Ill., assignor of one-half to E. F. Lawrence. Strap-hinge	588,925	Aug. 24	2918	683	80	1259
Lawrence, Joseph B., Salem, N. J. Wire-holder	587,216	July 27	2874	675	80	616
Lawson, Albert W., assignor of three-fourths to V. M. Stepp and C. G. Waters, Hatchechubbee, Ala. Nut-lock	586,905	July 20	2290	539	80	483
Lawson, James, *et al.* (See Fletcher, George H., assignor.)						
Lawton, Burton L. (See Wilcox and Lawton.)						
Lawton, John E., Swampscott, Mass., assignor, by mesne assignments, to Morley Finishing Machine Company, of Maine. Boot or shoe tree	589,731	Sept. 7	537	127	80	1585
Lawton, John E., Swampscott, Mass., assignor, by mesne assignments, to Morley Finishing Machine Company, of Maine. Machine for shaping boots or shoes	589,732	Sept. 7	538	128	80	1585
Lawton, Walter V. (See Akeson, Anders, assignor.)						
Lazarus, Sam, *et al.* (See Blum, Sylvain, assignor.)						
Le Blois, Leopold, and G. Piceni, Elbeuf, France. Process of and apparatus for dyeing. (Reissue)	11,630	July 13	1651	385	80	335
Le Brocq, Richard F. (See Langschmidt and Le Brocq.)						
Le Coultre, Benjamin, Sentier, Switzerland. Repeating mechanism for watches	588,981	Aug. 17	1770	409	80	1025
Le Page, Joseph Z., New York, N. Y., assignor, by mesne assignments, to American Optical Company, Southbridge, Mass. Eyeglass-case	590,043	Sept. 14	1074	253	80	1606
Leach, Albert, Brockton, Mass. Shoe	590,580	Sept. 28	2030	479	80	1904
Leach, Thomas. (See Stafford, Charles S., assignor.)						
Learoyd, Samuel, Huddersfield, England. Appliance for easing boots or shoes	588,703	Aug. 24	2535	586	80	1186
Leary, Philip F., Fall River, Mass. Steam-packing	588,061	Aug. 24	2497	576	80	1180
Leatherman, David W., Milford, assignor of one-third to E. Hess, Syracuse, Ind. Folding berry-box	589,849	Sept. 14	715	168	80	1631
Leathers, Martha J., Dawson, Ill. Wagon-step	590,155	Sept. 14	1292	306	80	1738
Leavitt, Albert, Medford, Mass. Culinary vessel	587,152	July 27	2770	651	80	596
Leavitt, Harry W., Hammond, Ill. Lubricator	587,264	July 27	2967	696	80	633
Leckband, Christ, *et al.* (See Hanke, Gustave, assignor.)						
Ledwon, John, Buffalo, N. Y. Scrubbing and mopping machine	588,584	Aug. 24	2299	533, 534	80	1142
Lee, Charles A., Canastota, N. Y. Combination chair and foot-rest	586,610	July 20	1788	415	80	390
Lee, Charles A., Canastota, N. Y. Foot-rest	590,208	Sept. 21	1487	351	80	1789
Lee, Fred E. (See Beckwith, Arthur K., assignor.)						
Lee, Henry A., Brooklyn, N. Y. Salt-holder for cattle	590,458	Sept. 21	1810	426	80	1849
Lee, Henry M. (See Remsen, Timothy A., assignor.)						
Lee, Jacob M., Houston, Tex. Stock-guard	588,868	Aug. 24	2827	657	80	1242
Lee, James E., Chicago, Ill. Throw-off for printing-presses	586,931	July 20	2335	550	80	492
Lee, James L., Chicago, Ill. Printer's block	586,557	July 20	1696	393	80	371
Lee, William F., Jackson, Ga. Ball-bearing	587,446	Aug. 3	295	71	80	730
Leede, Julius, Minneapolis, Minn. Gas apparatus	588,154	Aug. 17	1559	359	80	986
Leede, Julius, Minneapolis, Minn. Hydrocarbon-burner	588,155	Aug. 17	1560	360	80	986
Lefebre, Edward A., Jr., Brooklyn, N. Y. Shawl-strap and luggage-carrier	586,048	July 6	812	182	80	159
Lefebvre, Marie E., Quebec, Canada. Illuminated picture	587,007	July 27	2479	585	80	542
Leffler, Charles. (See Helmuth, Frederick C., assignor.)						
Lehberger, George, Joliet, assignor to Kilmer Bale Tie Company, Chicago, Ill. Machine for forming hooked heads on wire bale-ties	585,823	July 6	307	72	80	62
Lehmann, Richard, assignor of one-half to J. A. Quell, Brooklyn, N. Y. Ash-sifter	589,841	Sept. 14	716	168	80	1632
Lehmkuhl, Edward, Wahoo, Nebr. Continuous balance-book	589,900	Sept. 14	825	194	80	1649
Lehr, John F. and W. J., Baltimore, Md. Candlestick	586,385	July 13	1372	316	80	281
Lehr, William J. (See Lehr, John F. and W. J.)						
Lehrer, Michael. (See Bentley, Solomon P., assignor.)						
Leiger, George F., assignor to himself and L. Benedict, Chicago, Ill. Pneumatic sheet separating and feeding machine	588,451	Aug. 17	2061	480, 481, 482	80	1079
Leiger, George F., assignor to himself and L. Benedict, Chicago, Ill. Automatic stopping device for paper-feeding machines	588,452	Aug. 17	2069	482	80	1080
Leineweber, Herman, Chicago, Ill. Pump for pneumatic tires, &c	587,979	Aug. 10	1243	288	80	912
Leitelt, Hermann, Grand Rapids, Mich. Ball-bearing	589,474	Sept. 7	114	26	80	1503
Leitner, Henry, Niederschönhausen, Germany. Manufacturing electrodes for secondary batteries	589,842	Sept. 14	717	168	80	1632
Leitner, Henry, London, England. Electric-arc lamp	590,725	Sept. 28	2296	543	80	1951
Lemieux, Alexandre, Montreal, Canada. Antirefilling bottle	589,604	Sept. 7	336	83	80	1545
Lemoine, George, Pawtucket, R. I. Seed-cotton elevator and cleaner	586,906	July 20	2291	539	80	484
Lemp, Hermann, Lynn, Mass., assignor to General Electric Company, of New York. Circuit-breaker	587,838	Aug. 10	989	230	80	806
Lentz, Harry J., and A. J. Robinson, Philadelphia, Pa. Awning-ventilator	590,706	Sept. 28	2258	534	80	1945
Lentz, Ludwig, Covington, Ky. Oven for vapor or gas stoves	589,972	Sept. 14	944	225	80	1672
Lentz, Silas A., *et al.* (See Johnson, John H., assignor.)						
Lenzner, Franklin. (See Pinney and Lenzner.)						
Leonard, Harry W., East Orange, N. J. Method of and means for supporting and insulating electric conductors	586,133	July 13	965	218	80	205
Lerch, Andrew J., Lancaster, Pa. Automatic attachment for molding-machines	585,886	July 6	425	102	80	85
Lerch, Harry A., Baltimore, Md. Bicycle-saddle	589,661	Sept. 7	424	102	80	1502
Leslie, Frank W., assignor of one-half to S. C. Kanter and I. M. Rice, Chicago, Ill. Envelop-seal	590,325	Sept. 21	1598	376	80	1810
Lesperance, Alexander. (See Worrall and Lesperance.)						
Lester, Eugene C., assignor to Gale Manufacturing Company, Albion, Mich. Clamp for cultivator-teeth	590,844	Sept. 28	2502	595	80	1991
Leuschner, Oswald, Brooklyn, N. Y. Guide-post	587,744	Aug. 10	821	193	80	688
Leusmann, Ernst, Hanover, Germany. Pyrotechnic compound	590,231	Sept. 21	1426		80	1778
Levé, Marcus S., Fruitvale, assignor to American Match Company, San Francisco, Cal. Machine for making and framing match-splints	587,130	July 27	2717	638, 639, 640	80	585
Levi, Harry, Philadelphia, Pa. Preserving-siphon	587,099	July 27	2651	625	80	574
Lewi, William G., Albany, N. Y. Tramway-switch	585,767	July 6	211	49, 50	80	44
Lewis, Alfred. (See Mobbs and Lewis.)						
Lewis, Everett C., Woonsocket, R. I., assignor, by mesne assignments, to J. T. Underwood, Brooklyn, N. Y. Type-writer attachment	585,918	July 6	488	117, 118	80	96
Lewis, Gaston C., Crescent City, Fla. Car-coupling	590,896	Sept. 28	2595	619	80	2010
Lewis, Harry A., assignor of three-fifths to J. T. Dyer, Norristown, Pa. Fuse-holder and electric cut-out	587,217	July 27	2875	675	80	616
Lewis, Harry S., assignor to Morgan & Wright, Chicago, Ill. Device for drawing air-tubes into tire-casings	586,838	July 20	2176	509	80	461
Lewis, Jacob A., and W. G. Spiegel, New York, N. Y. Tire for vehicle-wheels	589,662	Sept. 7	425	103	80	1503

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Lewis, Lynn R., Cortland, N. Y. Milk-cooler	587,369	Aug. 3	156	38	80	695
Lewis, Maurice, West Grove, Pa. Railway-rail chair	590,108	Sept. 14	1192	281	80	1719
Lewis, Meyer H. (See Lurye and Lewis.)						
Lewis, Theodore J., Philadelphia, and A. A. Stevenson, assignors to Standard Steel Works, Burnham, Pa. Car-wheel	589,356	Aug. 31	3815	895	80	1464
Lewis, Timothy A., assignor of one-half to F. A. Bigelow, La Crosse, Wis. Uterine dilator	586,776	July 20	2052	478	80	439
Lewis, Walter, and E. L. Raborg, Philadelphia, Pa. Brush-bridle retainer	587,317	Aug. 3	62	14	80	678
Lewis, Wilfred, and J. T. Ramsden, assignors to William Sellers & Company, Incorporated, Philadelphia, Pa. Spacing mechanism	588,799	Aug. 24	2703	625 626	80	1219
Lewis, William H., Princeton, Ind. Shoe-horn	588,156	Aug. 17	1562	360	80	986
Lewis, William H., Huntington, N. Y. Photographer's drying-rack	589,843	Sept. 14	719	168	80	1632
Leyner, John G., Denver, Colo. Pneumatic water-elevator	585,683	July 6	59	14	80	14
Libe, John C., Philadelphia, Pa. Dusting-brush	589,550	Sept. 7	236	56	80	1526
Lichtenstein, Louis. (See Pyle, Lichtenstein, and Brison.)						
Lightcap, L. L. (See Davis, George E., assignor.)						
Lighthouse, John C., Rochester, N. Y. Bicycle-tire	589,733	Sept. 7	540	128	80	1585
Likins, Nelson, assignor of two-fifths to F. R. Salisbury and W. E. Satterlee, Minneapolis, Minn. Acetylene-gas generator	589,991	Sept. 14	980	234	80	1678
Lilly, Bernard, and R. R. Kinney, Coldwater, Mich. Bellows attachment for rocking-chairs	587,008	July 27	2480	585	80	542
Lilly, Mayfield A., Bristol, England. Velocipede	587,318	Aug. 3	63	15	80	678
Lilly, Thomas V. (See Dunton and Lilly.)						
Lincoln, Benjamin M., and A. Summerfield, Boston, Mass. Coat-hanger	589,901	Sept. 14	826	195	80	1649
Lincoln, George E., assignor to C. J. Orchard and J. C. Oswald, Brooklyn, N. Y. Printers' adjustable furniture	587,745	Aug. 10	821	193	80	889
Lind, Carl G., Philadelphia, Pa. Car-coupling	587,218	July 27	2876	675	80	617
Lind, Emile, Kansas City, Mo. Pitchfork	587,980	Aug. 10	1246	288	80	913
Lind, John W., assignor of one-half to J. J. Morris, Boston, Mass. Wrench	590,619	Sept. 28	2102	497	80	1917
Lindemann, Ottocar, Hasserode, Germany. Controlling and registering scale	587,100	July 27	2652	626	80	574
Linden, Charles von der, assignor to himself and W. R. C. Clark, Rhinebeck, N. Y. Corking apparatus	587,981	Aug. 10	1247	288	80	913
Linden, John, Chicago, Ill. Car-truck	589,002	Aug. 31	3053	719	80	1303
Linders, Olof, Stockholm, Sweden. Centrifugal separator	585,936	July 6	527	124	80	102
Lindquist, Charles J., Webster, S. D. Dehorning implement	587,589	Aug. 3	554	133	80	767
Lindroth, Carl O., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Condenser	588,585	Aug. 24	2902	534	80	1143
Lindroth, Carl O., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Condenser	588,586	Aug. 24	2903	534	80	1143
Lindsay, Harmon *et al.* (See Hardie and Post, assignors.)						
Lindsay, Joseph, Dublin, Ireland. Carriage-wheel	588,682	Aug. 24	2498	576	80	1180
Lindsay, Thomas, Capitola, Cal. Lead-line controller for fishing-nets	587,839	Aug. 10	991	231	80	866
Lindsay, William B., and W. E. Tonner, Steubenville, Ohio. Filter	590,764	Sept. 28	2374	563 564	80	1966
Lindsey, William J. (See Bohnenkamp and Lindsey.)						
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Nipple for hot-water bags	589,734	Sept. 7	541	128	80	1586
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Weisbach gas-burner	590,419	Sept. 21	1750	411	80	1738
Link-Belt Engineering Company. (See Dodge, James M., assignor.)						
Link, John, Newport, Ky. Frost-jacket for fire-plugs	589,357	Aug. 31	3816	891	80	1454
Linke, Theodore, New York, N. Y. Filter	590,707	Sept. 28	2259	534	80	1945
Lippincott, Alpheus C., assignor to J. L. Robertson, New York, N. Y. Reducing mechanism for steam-engine indicators	589,358	Aug. 31	3817	891	80	1454
Lippold, William A., Cumberland, Md. Clothes-wringer	588,453	Aug. 17	2071	483	80	1061
Lippy, David, Mansfield, Ohio. Double-acting force-pump	585,961	July 6	570	133	80	110
Lissauer, Richard, Berlin, Germany. Producing leather-like substances	586,907	July 20	2298		80	484
Lister, John, Leslie, Scotland, assignor to New Paper-Makers' Engineering and Dandy-Roll Patents Company, Limited, London, England. Dandy-roll for paper-making machines	589,131	Aug. 31	3295	775	80	1347
Liston, Matthew, and L. Wilson, Ward, Colo. Automatic dump for hoisting-buckets	587,590	Aug. 3	556	133	80	767
Little, Orton C., assignor to O. C. Little & M. M. Schoetz Pulley Coating Company, Menasha, Wis. Sample-plate	586,386	July 13	1373	316	80	282
Littlefield, Francis L., Portland, Me. Receptacle for viscous substances	586,049	July 6	814	182	80	159
Littlejohn, John, Aurora, Ill. Bag-holder	588,073	Aug. 10	1395	325	80	941
Livingston, Andrew W., San José, Cal. Can	588,800	Aug. 24	2707	627	80	1219
Lizotte, Joseph, Quincy, assignor of one-half to M. N. Bray, Boston, Mass. Reversing mechanism	587,319	Aug. 3	64	15	80	678
Lloyd, Marshall B., assignor to White Manufacturing Company, Minneapolis, Minn. Washboard	585,824	July 6	310	73	80	63
Lloyd, Thomas H., Canton, Ohio. Curtain-fixture	588,454	Aug. 17	2072	483	80	1061
Locke, Fred M., Victor, N. Y. Insulator	590,806	Sept. 28	2439	579	80	1979
Locke, Harry W., assignor to W. F. Carlton, Rochester, N. Y. Magazine-camera	589,475	Sept. 7	114	26	80	1503
Locke, Joseph D., Benan, Iowa. Washing-machine	587,447	Aug. 3	296	71, 72	80	721
Locke, Warren E., Somerville, Mass. Package for laundered or other articles	588,587	Aug. 24	2305	534	80	1143
Lockhart, James L., Bellefontaine, Ohio. Machine for removing incrustation from boiler-tubes	589,551	Sept. 7	237	58	80	1526
Lockwood, Charles S. (See Tellefsen and Lockwood.)						
Loeb, Rudolf, Camden, assignor of one-half to G. Bourquin, Merchantville, N. J. Knife sharpener and burnisher	586,361	July 13	1332	305	80	274
Loeffler, Henry, Brooklyn, N. Y. Lamp attachment for sewing-machines	586,340	July 13	1301	298	80	268
Loehr, Miles E. (See Loehr, Miner N., assignor.)						
Loehr, Miner N., assignor to M. E. Loehr, Palestine, Ind. Mole-trap	590,326	Sept. 21	1590	376	80	1811
Loesewitz, Johannes, Witten, Germany. Dust-guard for axle-boxes of vehicles	589,211	Aug. 31	3415	801	80	1371
Lofberg, John S., and A. McIntosh, La Prairie, Minn. Oar-lock	588,455	Aug. 17	2073	483	80	1061
Löffler, Carl, Stuttgart, Germany. Cigar or cigarette holder for blowing smoke rings	590,684	Sept. 28	2225	527	80	1939
Logan, Crawford D., assignor of one-half to D. K. Sams, Coal Hill, Ark. Combination-lock	588,229	Aug. 17	1675	395	80	1007
Loger, David E., Ocheyedan, Iowa. Rubbish-conveyer attachment for harvesters	589,439	Sept. 7	67	15	80	1494
Lohr, Frederick W. (See Enholm, Oscar A., assignor.)						
Loisel, Louis J. M., Tergnier, assignor to Michelin & Co., Clermont-Ferrand, France. Pneumatic tire	587,009	July 27	2481	585	80	543
Lombard, Frank, Hartford, Conn. Belt-shifter	587,041	July 27	2548	600	80	554
Lombard, Frank, and W. L. Maynard, Hartford, Conn. Shelf-bracket	587,101	July 27	2654	626	80	574
Lombard, Nathaniel, Boston, Mass., assignor to Lombard Water Wheel Governor Company, Boston, Mass., and Portland, Me. Attachment for speed-governors	587,675	Aug. 3	688	165	80	798

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Lombard Water Wheel Governor Company. (See Lombard, Nathaniel, assignor.)						
Lombas, Joseph A., assignor of one-half to P. R. Melancon, Lockport, La. Machine for agitating sugar	586,444	July 13	1473	342	80	301
Lombas, Joseph A., Lockport, assignor of one-half to E. A. Boudreaux, Cypre Mort Landing, La. Machine for filtering cane-juice	588,074	Aug. 10	1396	325	80	941
Lonergan, James E., Waterbury, Conn. Speed-indicator and holder therefor	587,530	Aug. 3	443	104	80	746
Long, Burgess M., Dekoven, Ky. Rotary engine	590,581	Sept. 28	2032	479	80	1904
Longfellow, Martin. (See Kahn and Longfellow.)						
Loomis, Edgar W., Elgin, Ill. Wagon or other vehicle	585,768	July 6	213	50	80	45
Loomis, Harry T., assignor to National Casket Company, Oneida, N. Y. Burial-casket	586,071	July 6	848	189	80	165
Loomis, Henry. (See Pelham, Walter O., assignor.)						
Loop, W. H., Cohoes, N. Y., and W. J. Melkleham, Denver, Colo. Drip-pan for gasolene-stoves	587,448	Aug. 3	208	72	80	721
Lord, Frederic W., Boston, Mass. Electric-lighting system	588,683	Aug. 24	2499	576	80	1180
Lorentz Cigarette Machine Company. (See Hudson, William A., assignor.)						
Louden, William, Fairfield, Iowa. Hay-carrier	589,902	Sept. 14	827	195	80	1650
Louis, Michael A. W., Cincinnati, Ohio. Window-ventilator	588,157	Aug. 17	1563	360	80	987
Lönnqvist, Victor. (See Karlsson, Johannes, assignor.)						
Lovell Cycle and Ether Motor Company. (See Cobb, Lyman H., assignor.)						
Lovell, Sidney. (See Griffith and Lovell.)						
Lovett, Thomas J., Chicago, Ill., assignor to Budd Doble Combination Rubber Tire Company, of New York. Cushion-tire	588,342	Aug. 17	1875	433	80	1044
Lovett, Thomas J., Chicago, Ill., assignor to Budd Doble Combination Rubber Tire Company, of New York. Tire	588,343	Aug. 17	1877	434	80	1045
Low, Abbot A. (See Johnson and Low.)						
Lowe, Robert, Washington, Pa. Nut-lock	590,156	Sept. 14	1293	307	80	1738
Lowe, Wilhelm O. A., Liverpool, England. Furnace	586,050	July 6	814	182	80	159
Lowes, Mathew W., Marine City, Mich. Elastic horseshoe	586,558	July 20	1686	392	80	371
Lowis, John. (See Hopkinson and Lowis.)						
Lownes, Phineas W., Huntsville, Ala. Pipe-wrench	588,781	Aug. 24	2633	607	80	1206
Lownes, Phineas W., Huntsville, Ala. Permutation-lock	589,844	Sept. 14	720	169	80	1632
Lowry, Albert, Dillon, Mont. Sash-holder	589,350	Aug. 31	3819	891	80	1455
Loye, Lillian G., Minneapolis, Minn. Baby-carriage	585,769	July 6	214	50	80	45
Lozano, Charles L., Washington, D. C. Cashier's and salesman's check-book	586,925	July 20	2327	549	80	491
Lucas, Henry M. (See Swasey and Lucas.)						
Lucas, Walter S. (See Krotz, Alvaro S., assignor.)						
Ludlam, Annabella E. G., administratrix. (See Ludlam and Claus.)						
Ludlam, John O., and J. L. McKittrick, Canton, Ohio. Brick or tile cutting machine	586,192	July 13	1057	238	80	222
Ludlam, Joseph S., deceased, (A. E. G. Ludlam, administratrix,) and J. A. Claus, Lowell, Mass., assignors, by mesne assignments, to Draper Company, Portland, Me., and Hopedale, Mass. Loom-temple	586,288	July 13	1204	275	80	250
Luecders, Theodore A., assignor of one-half to H. G. Palisch, Frohna, Mo. Snap-hook	590,933	Sept. 28	2659	634	80	2023
Lugo, Orazio. (See Glatz and Lugo.)						
Lugrin, Henry A., Brooklyn, assignor to A. Wittnauer, New York, N. Y. Stop-watch	588,344	Aug. 17	1879	434	80	1045
Lugrin, Horatio N. H., Worcester, Mass., assignor to Lugrin Light Shaft Company, Portland, Me. Apparatus for lighting interiors of buildings	585,770	July 6	216	50	80	45
Lugrin Light Shaft Company. (See Lugrin, Horatio N. H., assignor.)						
Lumley, William, Chicago. Letter or bill file	586,134	July 13	971	216	80	206
Lumsden, James, Aberdeen, Scotland. Window	585,771	July 6	217	51	80	45
Lundell, Robert, Brooklyn, assignor of two-thirds to Interior Conduit and Insulation Company, New York, N. Y. Brush-holder for dynamo-electric machines	585,872	July 6	403	95	80	80
Lundell, Robert, Brooklyn, assignor of two-thirds to Interior Conduit and Insulation Company, New York, N. Y. Electric motor or dynamo-electric machine	587,531	Aug. 3	445	104	80	746
Lundell, Robert, Brooklyn, assignor to Johnson-Lundell Electric Company, New York, N. Y. Electric railway	590,420	Sept. 21	1752	411	80	1838
Lundgard, Anton M., Council Bluffs, Iowa. Overalls	586,102	July 13	917	206	80	197
Lürmann, Gustaf, Gunnebo, Sweden. Means for rolling wire and round bars	590,400	Sept. 21	1716	403 404	80	1832
Lurye, Henry I., and M. H. Lewis, assignors of one-half to S. and J. Schwarz, New York, N. Y. Device for insuring closing of windows, &c	587,591	Aug. 3	557	134	80	768
Lussier, Frank X., San José, Cal. Horse-checking device	589,181	Aug. 31	3370	792	80	1362
Lusted, George, assignor to F. B. Fargo & Company, Lake Mills, Wis. Butter printer or molder	586,387	July 13	1374	316 317	80	282
Luther, Benjamin G., Worcester, Mass. Swing sawing and grooving machine	589,003	Aug. 31	3054	719	80	1303
Luther, Benjamin G., Worcester, Mass. Swing sawing-machine	589,004	Aug. 31	3055	719	80	1304
Luxfer Prism Patents Company. (See Basquin, Olin H., assignor.)						
Luxfer Prism Patents Company. (See Belcher, Henry F., assignor.)						
Luxfer Prism Patents Company. (See Soper, Frank C., assignor.)						
Luxfer Prism Patents Company. (See Winslow, William H., assignor.)						
Lyle, Robert W., Perth Amboy, N. J. Fireproofing	590,327	Sept. 21	1599	377	80	1811
Lyman, Henry C. (See Sherwood, Charles H., assignor.)						
Lyman, William L., Eagle Pass, Tex. Compound for closing punctures in pneumatic tires	587,982	Aug. 10	1248	288	80	913
Lynch, Jerry J., assignor of two-fifths to W. O. Blase, Wilkes-Barré, Pa. Attachment for pipes, cigar-holders, and cigarette-holders	588,809	Aug. 24	2828	657	80	1242
Lyon, Gustave F., Paris, France. Chromatic timbal	586,503	July 13	1575	367	80	320
Lyon, Nelson. (See Scopes, Edward J., assignor.)						
Lyon, Whitney, New York, N. Y. Tool for distributing linotype	588,770	Aug. 24	2658	613	80	1210
Lyons, Charles, Jr. (See Bradshaw, Silas S., assignor.)						
Lyons, Francis J., St. Louis, Mo. Clutch	590,068	Sept. 14	1117	264	80	1703
Lyons, Joseph H., Cleveland, Ohio. Stop and waste cock	586,710	July 20	1939	452	80	418
Lyons, Mary, New York, N. Y. Trunk	587,592	Aug. 3	559	134	80	768
Lysle, Robert W., Philadelphia, Pa. Sectional pipe-covering	589,903	Sept. 14	830	195	80	1651
Lysle, Robert W., Philadelphia, Pa., assignor to Marsden Company, Camden, N. J. Refrigerating-pipe covering	590,459	Sept. 21	1611	427	80	1849
MacAlpine, Archie, Williscroft, Canada. Draft attachment for vehicles	587,078	July 27	2615	618	80	566
MacCallum, William, Magog, Canada. Dinner-kettle	589,360	Aug. 31	3820	892	80	1455
MacKean, James A. D. (See MacKean, William M., J. A. D., and N. M.)						
MacKean, Norman M. (See MacKean, William M., J. A. D., and N. M.)						
MacKean, William M., J. A. D., and N. M., Paisley, Scotland. Degerming maize or other cereals	587,676	Aug. 3	690	165	80	794
MacKenzie, George W., Beaver, Pa. Electropneumatic alarm	587,998	Aug. 10	1276	295	80	919
MacKenzie, George W., Beaver, Pa. Safety-lock for elevators	588,568	Aug. 24	2306	535	80	1143
MacNaughton, James. (See Rossi, Auguste J., assignor.)						
Macaulay, Jos. J. (See McRae, William T., assignor.)						
Macauley, Alvan, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	587,042	July 27	2550	601 602	80	554

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Macauley, Alvan, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	589,476	Sept. 7	119	26,27	80	1504
Macdonald, Alexander F., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric controller	585,772	July 6	219	51	80	46
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Speed-regulator for motors	587,265	July 27	2968	606	80	634
Machepy, Hubert. (See Winczg and Machepy.)						
Mackintosh, Frederick, Schenectady, N. Y. Cyclometer attachment for bicycles	587,010	July 27	2484	585	80	543
Mackusick, Elmer F., New York, N. Y., assignor to Electro Gas Company, of West Virginia. Generating gas from carbids	588,230	Aug. 17	1676	.....	80	1008
Macmahon, Francis E., and A. J. Postans, London, England. Driving-gear for velocipedes	588,684	Aug. 24	2500	577	80	1180
Macrae, John M., Clarksville, Tenn. Check sorter or separator	590,666	Sept. 28	2198	520	80	1934
Macy, Amanda, Macy, S. D. Coffee or tea pot	589,005	Aug. 31	3056	719	80	1304
Maes, Arnold. (See Maes, Henry and A.)						
Maes, Henry and A., Marion, Wis. Washtub stand	587,219	July 27	2878	675	80	617
Magee, James, II, *et al.* (See Stokes, George, assignor.)						
Magill, William H. (See Fullmer, Charles P., assignor.)						
Maglin, Joseph D., New York, N. Y. Calking-machine	585,848	July 6	367	85	80	73
Maguire, Albert B., Stratford, Canada. Step-ladder	586,341	July 13	1302	298	80	209
Mahaffey, Delas S., *et al.* (See Dreisbach, William I., assignor.)						
Maher, John N., Franklin, Pa. Oil-well pumping-rigging	587,220	July 27	2879	676	80	617
Mahler, William, New York, N. Y. Incandescent-lighting substance	588,685	Aug. 24	2501	.....	80	1181
Maier, William J., Wheeling, W. Va., assignor of one-half to W. S. Ellifrits, Martin's Ferry, Ohio. Roughing attachment for horseshoes	588,937	Aug. 24	2937	687	80	1263
Maisonville, Francis E., assignor of one-half to J. A. Traut, New Britain, Conn. Meat-tenderer	589,477	Sept. 7	121	27	80	1505
Majert, Wilhelm, Grunau, Germany. Making ammoniacal casein	586,854	July 20	2177	.....	80	461
Majert, Wilhelm, Falkenberg, Germany. Extracting gold from gold ores	587,079	July 27	2616	.....	80	566
Malberg, Jean B. P. W. de, Rheims, France. Incandescent gas-burner	585,919	July 6	491	118	80	96
Mallett, Francis W., assignor to himself and Hulbert Brothers & Co., New York, N. Y. Bicycle	586,611	July 20	1790	415	80	391
Mallett, John P., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Coil for electrical machines	589,845	Sept. 14	721	169	80	1682
Malmfelt, Bennet J., New York, N. Y., assignor, by mesne assignments, to Automatic Can Machinery Company, Westfield, N. J. Machine for testing sheet-metal cans	586,072	July 6	848	189, 190	80	166
Malone, Charles J., Sacramento, Cal. Bottle-stopper	590,791	Sept. 28	2417	574	80	1974
Maloney, John, administrator. (See Beard, William T.)						
Mandt, Targe G., assignor to T. G. Mandt Vehicle Company, Stoughton, Wis. Elliptic spring	586,777	July 20	2053	478	80	439
Manhattan Brass Company. (See White, James H., assignor.)						
Manhattan Typewriter Company. (See Price, John B., assignor.)						
Manhes, Pierre, assignor of one-half to Société Anonyme de Métallurgie du Cuivre, Procédés pre. Manhes, Lyons, France. Treating nickel	586,289	July 13	1205	.....	80	250
Manigold, Fred J. (See Manigold, Julius, assignor.)						
Manigold, Julius, assignor of one-half to F. J. Manigold, Dexter, N. Y. Mechanical movement	586,445	July 13	1474	342	80	301
Manley, Edward I., Chicopee Falls, Mass., assignor to Overman Wheel Company, Chicopee Falls, Mass., and Hartford, Conn. Inflatable ball	590,421	Sept. 21	1756	412	80	1839
Mann, Alexander S., St. Louis, Mo. Toy gun or catapult	588,870	Aug. 24	3829	658	80	1242
Mann, Charles, deceased; M. Mann, New York, N. Y., administratrix. Automatic photographic apparatus	587,221	July 27	2880	676, 677, 678	80	618
Mann, John J., Paris, France. Machine for spreading waterproofing material upon fabrics	590,157	Sept. 14	1294	307	80	1738
Mann, Margarita, administratrix. (See Mann, Charles.)						
Mann, William B., Baltimore, Md. Bicycle tire	587,656	Aug. 3	657	157	80	787
Manning, Alvoid O., Orange, Mass. Scaffolding-jack	588,345	Aug. 17	1990	434	80	1045
Manning, Edward S., Des Moines, Iowa. Signal-lantern	587,153	July 27	2771	652	80	596
Manning, Esther, New York, N. Y. Dress-skirt lifter	586,446	July 13	1475	343	80	302
Manning, James H., Omaha, Nebr. Sandpapering or analogous machine	589,006	Aug. 31	3057	720	80	1304
Manny, Emilien A., assignor of one-half to C. Guimond, Beauharnois, Canada. Hot-water furnace	586,974	July 27	2423	572, 573	80	531
Mansfield Cash and Package Carrier Company. (See Barrow, Thomas E., assignor.)						
Mansfield Manufacturing Company. (See Chesney, Oliver M., assignor.)						
Maranville, Harvey F., Akron, Ohio. Oil-can	589,735	Sept. 7	542	128, 129	80	1586
March, Alonzo A., Florence, Kans. Axle-skein	589,605	Sept. 7	337	83	80	1545
Marckle, Ernest J. (See Joetten and Marckle.)						
Marconi, Guglielmo, London, England. Transmitting electrical signals	586,193	July 13	1058	239	80	222
Marcsch, Otto, Berlin, Germany. Preparing medicated confectionery	586,504	July 13	1576	.....	80	321
Mariner, Hetherly S., Amesbury, Mass. Trap	589,183	Aug. 31	3373	793	80	1363
Marion Car Coupler Company. (See Murphy, Daniel W., assignor.)						
Markel, Lizzie S., Columbus, Ohio. Puzzle	589,132	Aug. 31	3290	775	80	1347
Markert, George J., St. Louis, Mo. Door-stop	587,131	July 27	2732	640	80	588
Market Street Railway Company. (See Douglas, George W., assignor.)						
Markham, Byron, Helena, Mont. Bolster-plate	586,135	July 13	973	219	80	207
Markhoff, Harmann, Sr., Detroit, Mich. Machine for forming turnbuckles	589,182	Aug. 31	3372	792	80	1363
Markley, John A., Clifton Forge, Va., assignor of eleven-twentieths to J. Baily and J. B. Worth, Wilmington, Del. Compensator for railway-signals	589,606	Sept. 7	339	88	80	1546
Markoe, John A., assignor to L. J. Markoe, White Bear, Minn. Mechanical voting-machine	587,222	July 27	2890	678, 679, 680	80	619
Markoe, Lorenzo J. (See Markoe, John A., assignor.)						
Marks, L. A., *et al.* (See Fitzgerald, Gerald T., assignor.)						
Marks, William D., assignor to American Electric Meter Company, Philadelphia, Pa. Electrical meter	586,559	July 20	1689	393	80	371
Marks, William D., and G. R. Green, assignors to American Electric Meter Company, Philadelphia, Pa. Electric meter	586,560	July 20	1692	393	80	372
Marlow, Thomas F., Gadsden, Ala. Cotton-gin feeder	586,778	July 20	2054	479	80	439
Marmon, Daniel W., assignor to Nordyke & Marmon Company, Indianapolis, Ind. Dust-collector	586,742	July 20	2000	465, 466	80	430
Marsden Company. (See Kennedy, Arthur L., assignor.)						
Marsden Company. (See Lysle, Robert W., assignor.)						
Marsellis, Ford, Peralta, assignor of one-half to W. W. Slater, Oakland, Cal. Electric connection between railway-rails	588,771	Aug. 24	2659	613	80	1211

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Marsh, Andrew F., North Plainfield, N. J., assignor of one-half to S. P. Marsh, East Stroudsburg, Pa. Overshoe	588,158	Aug. 17	1565	360	80	987
Marsh, John A., St. Louis, Mo. Dynamo brush-holder	589,904	Sept. 14	831	196	80	1651
Marsh, Samuel P. (See Marsh, Andrew F., assignor.)						
Marsh, William T. (See Wilcox, W. Asher, assignor.)						
Marshall, Edward S., St. Louis, Mo., assignor to Missouri Railway Equipment Company, East St. Louis, Ill. Side bearing	587,132	July 27	2733	640	80	589
Marshall, Edward S., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Truck end casting	587,266	July 27	2970	696, 697	80	634
Marshall, Elbridge, assignor of nine-tenths to E. Stein, J. H. Cannon, D. M. Moore, E. A. Dupree, J. H., C. A., and W. L. McEwen, Garnett, Kans. Lightning-rod	589,566	Sept. 7	263	63	80	1531
Marshall, Norman, Boston, Mass. Electric cut-out	588,686	Aug. 24	2502	577	80	1181
Marshall, William L., Port Perry, Canada. Harrow	587,011	July 27	2485	586	80	543
Martin, Charles B., Brooklyn, N. Y. Grip for cable-railways	585,873	July 6	404	95	80	80
Martin, Charles W., Chicago, Ill. Hand-stamp	589,007	Aug. 31	3060	721	80	1304
Martin, George E., assignor to Pratt & Cady Company, Hartford, Conn. Gate-valve	585,684	July 6	62	15	80	15
Martin, George E., assignor to Pratt & Cady Company, Hartford, Conn. Sealed gate-valve	589,008	Aug. 31	3061	721	80	1305
Martin, George E., assignor to Pratt & Cady Company, Hartford, Conn. Fire-hydrant	590,209	Sept. 21	1488	351	80	1789
Martin, Harold G., Providence, R. I. Bicycle-bell	586,954	July 20	2383	563	80	502
Martin, James, Deming, N. Mex. Ter. Bit-tongs	587,677	Aug. 3	692	166	80	794
Martin, James, assignor of one-half to C. J. Deitch, Elkhart, Ind. Panel-door	587,963	Aug. 10	1249	289	80	914
Martin, John H., Kansas City, Mo., assignor of nine-twentieths to J. W. McDaniels, Bonner Springs, Kans. Apparatus for manufacturing ice	587,840	Aug. 10	992	231, 232	80	806
Martin, John T. J. (See Crump, William E., assignor.)						
Martin, Oliver J. H. (See Newton, John E., assignor.)						
Martin, Theodore, Wallaceburg, Canada. Sash-holder	589,361	Aug. 31	3821	892	80	1455
Martin, Warren W., and W. D. King, Eddyville, Ky. Plow or cultivator	585,685	July 6	64	15	80	15
Martindale, Benjamin F. and F. B., assignors of one-half to R. Hatfield, Wichita, Kans. Reversible-screw mechanical power	585,825	July 6	311	73	80	63
Martindale, Franklin B. (See Martindale, Benjamin F. and F. B.)						
Martindale, John H., Russell, Pa. Self-measuring storage-tank	586,855	July 20	2177	510	80	462
Martindale, John H., Russell, Pa. Fruit-picker	589,009	Aug. 31	3062	721	80	1305
Marvel, Joseph H. (See Marvel, Philip J. and J. H.)						
Marvel, Joseph H., and W. H. Peirsol, Atlantic City, N. J. Truck	590,437	Sept. 21	1779	418	80	1843
Marvel, Philip J. and J. H., Atlantic City, N. J. Truck	590,436	Sept. 21	1778	417	80	1843
Maschmeyer, Charles, assignor to Edward Miller & Company, Meriden, Conn. Bicycle-lamp	590,044	Sept. 14	1075	253	80	1606
Mašek, Jaroslav, and L. Čápek, Cleveland, Ohio. Shade for bicycles	590,270	Sept. 21	1490	351	80	1789
Mason, Alexander, Rockford, Ill. Gate	590,069	Sept. 14	1119	265	80	1704
Mason Machine Works. (See Hamblin, Stephen M., assignor.)						
Mason Machine Works. (See Meats and Eaton, assignors.)						
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Limiting and retaining device for operating-bars of breech-loaders	586,856	July 20	2180	510, 641	80	462
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Automatic machine for burnishing tubes for paper-shell cartridges	587,188	July 27	2735	642, 643, 627	80	589
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Automatic machine for wadding and cupping paper cartridge-shells	588,801	Aug. 24	2709	628, 629	80	1220
Massachusetts Wringer Company. (See Gifford, Charles, assignor.)						
Masseth, Benjamin. (See Black, David W., assignor.)						
Massey-Harris Company. (See Jones and Johnston, assignors.)						
Masters, Willis U. (See Dubrow, John H., assignor.)						
Mather, Thomas E., Minnewaukon, N. D. Liquid-measuring machine	590,109	Sept. 14	1193	281	80	1719
Mather, William, and D. P. Smith, Manchester, England. Stentering-machine regulator	586,051	July 6	816	182	80	159
Mathews, Augustus, Pawtucket, assignor to himself, and J. B. Allen, Providence, R. I. Rocking swing	589,262	Aug. 31	3519	825, 826	80	1392
Mathews, William S., *et al.* (See Robinson and Palmer, assignors.)						
Mathewson, Jeremiah E., Sheffield, England, assignor to B. C. and R. A. Tilghman, Philadelphia, Pa. Spring for pump-valves	588,456	Aug. 17	2074	483	80	1061
Mathewson, Jeremiah E., Sheffield, England, assignor to B. C. and R. A. Tilghman, Philadelphia, Pa., Apparatus for separating dust from air	588,457	Aug. 17	2075	484	80	1061
Mathewson, Nathan F., Providence, R. I. Harness-buckle	586,240	July 13	1185	258	80	237
Mathias, Edward. (See Soltwedel and Mathias.)						
Mathis, Jordan P., Bentley, Miss. Churn	589,736	Sept. 7	544	129	80	1586
Matitsch, August, Vienna, Austria-Hungary. Lace-making machine	586,136	July 13	974	219	80	207
Matthes, Percy E., Philadelphia, Pa. Leak-stopper for pneumatic tires	586,820	July 20	2120	495	80	450
Matthews, Ambrose T., Worcester, Mass. Fork-crown for bicycles	587,984	Aug. 10	1250	289	80	914
Matthews, Charles, Jr., Chicago, Ill. Acetylene-gas generator	586,194	July 13	1005	239, 240	80	224
Matthews, Francis E., assignor of one-half to G. E. Faires, Glouster, Ohio. Combined scrubbing-brush and mop holder	586,857	July 20	2181	510	80	463
Matthews, Marmaduke, assignor of one-half to A. Jardine, Bracondale, Canada. Combined spring-pedal and toe-clip	590,685	Sept. 28	2226	528	80	1940
Matthews, Thomas A., Nashville, Tenn. Folding chair	588,159	Aug. 17	1565	361	80	987
Mattison, Christen, Beloit, Wis. Cutter-head	590,422	Sept. 21	1757	412	80	1839
Mattison, James D., New York, N. Y. Wagon-wheel hub	587,841	Aug. 10	997	232	80	897
Mattison, James D., New York, N. Y. Machine for turning slender work	589,905	Sept. 14	834	196	80	1652
Matton, Frederick V., assignor to Camden Iron Works, Camden, N. J. Four-way reverse-valve	588,458	Aug. 17	2076	484	80	1062
Mattullath, Hugo, New York, N. Y., assignor to Anderson Safety Elevator Company, Limited, Detroit, Mich. Cover for closing elevator hatch-openings	589,567	Sept. 7	265	64	80	1532
Mattullath, Hugo, New York, N. Y., assignor to Anderson Safety Elevator Company, Limited, Detroit, Mich. Elevator attachment	590,667	Sept. 28	2196	521	80	1934
Matz, Joseph. (See Slider, William T., assignor.)						
Mauchain, Armand, Geneva, Switzerland. Adjustable back	590,045	Sept. 14	1076	254	80	1606
Mauer, Mathias. (See Billings and Mauer.)						
Maupin, Joe E. (See Chipley, William L., assignor.)						
Maul, Christian, Brockport, N. Y. Spading-harrow	586,505	July 13	1577	368	80	321
Maus, Theodore J. P., St. Louis, Mo. Bag-fastener	588,802	Aug. 24	2715	630	80	1230
Mauser, Paul, Oberndorf, Germany. Small lock for bolt-guns	590,271	Sept. 21	1491	352	80	1790
Maust, Jacob H. (See Skiles and Maust.)						
Maves, Christ. (See Maves, William F. and C.)						
Maves, William F. and C., Davenport, Iowa. Potato-digger	589,846	Sept. 14	722	169	80	1633
Mavis, Charles F., Gale, Mich. Attachment for harrows for cutting thistles	585,902	July 6	572	133	80	111

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Maxim, Hiram S., assignor to Maxim Nordenfelt Guns and Ammunition Company, Limited, London, England. Gas-operated gun	586,802	July 13	1333	305 306	80	275
Maxim-Nordenfelt Guns and Ammunition Company. (See Maxim, Hiram S., assignor.)						
Maxwell, Wyeth & Co. (See Russ, John D., assignor.)						
May, Delbert H., *et al.* (See Farmer, Julius M., assignor.)						
Maybin, Edward, New Orleans, La. Retailing-case	588,075	Aug. 10	1397	325	80	941
Mayer, Louis H., Philadelphia, Pa. Pneumatic motive power	590,686	Sept. 28	2227	528 529	80	1940
Maynard, William L. (See Lombard and Maynard.)						
Mayo, Clarence E., New Haven, Conn. Fan attachment	588,282	Aug. 17	1772	410	80	1025
Mayo, David C., Richmond, Va. Tobacco-stem drier	588,459	Aug. 17	2078	484 485	80	1062
Mayo, Frederick D. (See Grandmaison, Joseph, assignor.)						
Mayo, S. P., *et al.* (See Hysore, Alphenas V., assignor.)						
Mayr, Walter A., Chicago, Ill. Curtain-stretcher	589,263	Aug. 31	3520	826	80	1393
McAdams, James, New York, assignor of one-half to M. Augsburger, Brooklyn, N. Y. Means for sinking caissons in the ground	587,126	July 27	2704	635	80	583
McAllen, Arthur J. (See Pierce and McAllen.)						
McAllister, David, Allegheny, Pa. Seltzogene	590,582	Sept. 28	2083	480	80	1905
McBerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Calling appliance for telephone-switchboards	587,080	July 27	2617	619	80	567
McBerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Telephone-exchange apparatus	587,081	July 27	2619	619	80	567
McBride, George H., Charleston, S. C. Spring-bed	585,691	July 6	71	17	80	17
McBride, Peter, Brooklyn, N. Y. Sash-holder	589,849	Sept. 14	729	170	80	1633
McBrine, John. (See Hart, John W., assignor.)						
McCall, Arthur S. (See McCall, Thomas D. and A. S.)						
McCall, Thomas D. and A. S., Minneapolis, Minn. Bicycle	587,992	Aug. 10	1267	202 203	80	917
McCall, William W., assignor to C. K. Landes and C. T. McDaniel, Kansas City, Mo. Tie-holder and collar-brace	585,775	July 6	226	53	80	47
McCallum, Daniel W., *et al.* (See Finley, Jefferson L., assignor.)						
McCarthy, James J., Austin, assignor to Chicago-Cleveland Car Roofing Company, Chicago, Ill. Car-roof	590,272	Sept. 21	1495	353	80	1790
McCarthy, Louis, Boston, Mass. Electric-light fixture	586,317	July 13	1256	288	80	260
McCauley, Reuben A., *et al.* (See Higgins, John H., assignor.)						
McClellan, Oscar D., *et al.* (See Girling, Wilkinson T., assignor.)						
McCollough, William A., Pasadena, Cal. Gearing	586,614	July 20	1798	417	80	392
McComas, George W., Singer, Md. Hand garden-tool	590,583	Sept. 28	2034	480	80	1905
McConayhy, James, and C. H. McCormick, Victor, Colo. Danger-signal	590,849	Sept. 28	2510	598	80	1998
McConechy, James, Glasgow, Scotland. Cycle-tire	586,500	July 13	1582	369	80	322
McConnell, Edward, Richmond, Va., assignor to S. Kaufman and M. F. Pfaelzer, New York, N. Y. Safety-pin	590,622	Sept. 28	2106	498	80	1918
McConnell, Jacob Y. (See Vauclain and McConnell.)						
McConnell, Minta J., Smithville, Ga. Safety-envelop	589,609	Sept. 7	344	84	80	1546
McConnell, Niven, Munhall, Pa. Manufacture of steel ingots	587,105	July 27	2060	.....	80	576
McConnell, Rinaldo, *et al.* (See McDonald, John D., assignor.)						
McCormick, Charles H. (See McConayhy and McCormick.)						
McCormick, Harry W., Centralia, Wash. Combined gage and stop for boring-machines	587,993	Aug. 10	1269	293	80	917
McCormick Harvesting Machine Company. (See Pridmore, Henry E., assignor.)						
McCormick Harvesting Machine Company. (See Pridmore, John W., assignor.)						
McCormick, Michael, San Francisco, Cal. Surgical appliance	587,994	Aug. 10	1270	294	80	917
McCoskey, Allen B., Gering, Nebr. Lifting or irrigating pump	589,532	Sept. 7	210	50	80	1522
McCoy, Alonzo B., Burlington, N. J., assignor to Gleason & Bailey Manufacturing Company, Limited, of New York. Harness-hanger	585,776	July 6	227	53	80	47
McCoy, Richard, Riverton, Va. Car	586,450	July 13	1480	344 345	80	303
McCoy, Robert F., Chicago, Ill. Velocipede handle-bar	588,166	Aug. 17	1574	363	80	989
McCoy, William H., assignor to Miller's Falls Company, Miller's Falls, Mass. Angle-borer	586,053	July 6	817	183	80	160
McCreath, John, Invercargill, New Zealand. Wool-drying apparatus	590,901	Sept. 28	2601	620	80	2012
McCreery, Joseph, Toledo, Ohio. Air cooling, cleansing, and ventilating device	586,363	July 13	1336	306 307	80	275
McCreery, Joseph, Toledo, Ohio. Ventilating and heating apparatus	586,364	July 13	1338	307	80	276
McCreery, Joseph, Toledo, Ohio. Air cooling, cleansing, and ventilating device	586,365	July 13	1339	308	80	276
McDaniel, Charles R., Ridgewood, Mo. Railway-gate	589,533	Sept. 7	211	50	80	1522
McDaniel, Charles T., *et al.* (See McCall, William W., assignor.)						
McDaniel, Joseph D., Chicago, Ill. Imitating onyx, &c.	587,284	July 27	3005	.....	80	641
McDaniels, John W. (See Martin, John H., assignor.)						
McDermott, Francis R. (See Michael, Jacob C., assignor.)						
McDonald, Charles B., Chicago, Ill. Bicycle-seat	590,439	Sept. 21	1782	419	80	1844
McDonald, Frank, Portland, Me. Electrically-operated valve	586,861	July 20	2186	512	80	464
McDonald, James R. (See Smith, Harry W., assignor.)						
McDonald, James S., Jr., Chicago, Ill. Temporary binder	587,044	July 27	2556	602	80	555
McDonald, John D., assignor of two-thirds to R. W. Demorest, Sudbury, and R. McConnell, Maltawa, Canada. Smelting-furnace	586,910	July 20	2296	540	80	485
McDonnell, George P. (See Flucks and McDonnell.)						
McDonough, Frank, Eau Claire, Wis. Feed mechanism for band-saw resawing-machines	589,014	Aug. 31	3072	724 725	80	1307
McDonough, Patrick J., and T. E. Shelly, Bellaire, Ohio. Method of and apparatus for making articles of glassware	586,388	July 13	1377	317	80	282
McDougal, Simon E., Page, W. Va. Shipping-crate	587,995	Aug. 10	1272	294	80	918
McDowell, Henry C. (See Shindelbower, George W., assignor.)						
McDowell, Henry C., Jr., *et al.* (See Robinson, William C., assignor.)						
McDowell, William R., Philadelphia, Pa. Railway-tie and fastening	586,103	July 13	918	206	80	197
McElliott, George M., Philadelphia, Pa. Combination mechanical tool	586,798	July 20	2085	486	80	444
McElroy, James F., Albany, N. Y. Storage-heater	586,932	July 20	2338	550 551	80	493
McElroy, James F., Albany, N. Y. Electric switch	586,933	July 20	2340	551 552	80	493
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Electric heater	586,615	July 20	1798	417 418	80	392
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Valve for car-heating systems	586,616	July 20	1800	418	80	393
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Float-trap	586,617	July 20	1801	418 419	80	393
McElroy, Jesse R., Southmayd, Tex. Wire-stretching and staple-pulling device	586,862	July 20	2188	512	80	464

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McElroy, Joseph A. (See Grunow, William, Jr., assignor.)						
McEndree, William, Minden, Iowa. Mail-box	585,777	July 6	229	53	80	48
McEwen, C. A., *et al.* (See Marshall, Elbridge, assignor.)						
McEwen, J. H., *et al.* (See Marshall, Elbridge, assignor.)						
McEwen, W. L., *et al.* (See Marshall, Elbridge, assignor.)						
McFarland, John W., Gloucester, Mass. Reefing-strap for fishing-seines	587,208	July 27	2974	698	80	635
McGee, James A. (See Graham and McGee.)						
McGee, John C. (See Millward and McGee.)						
McGee, Patrick S., Dodgeville, Mass. Adjustable letter and figure for inscribing monuments	590,668	Sept. 28	2199	522	80	1935
McGlehan, Isaac S., New York, N. Y. Bicycle-tire	587,996	Aug. 10	1274	294	80	918
McGlehan, Isaac S., New York, N. Y. Armored pneumatic tire	587,997	Aug. 10	1275	295	80	918
McGill, James P., Chicago, Ill. Electrical body appliance	589,015	Aug. 31	3078	725	80	1308
McGlashan, Thomas, Minneapolis, Minn. Padlock	586,104	July 13	919	206	80	197
McGrane, John J., Long Island City, N. Y. Acetylene-gas-generating apparatus	587,553	Aug. 3	449	105	80	747
McGrath, Louis J., *et al.* (See Finnegan, John, assignor.)						
McGregor, Thomas L. (See Crawley, James E., assignor.)						
McGuire, John. (See Gavin and McGuire.)						
McGuire, Oscar G. (See Taylor, Benjamin H., assignor.)						
McHenry, Edwin H., St. Paul, Minn. Dynamometer	590,046	Sept. 14	1077	254	80	1697
McIntosh, Adam, Albany, N. Y. Air-brake alarm-cock	589,265	Aug. 31	3522	826	80	1393
McIntosh, Angus. (See Lofberg and McIntosh.)						
McIntyre, Alexander F., Ottawa, Canada. Ticket or label cabinet	589,016	Aug. 31	3080	726	80	1308
McIntyre, John T., *et al.* (See Taylor, Samuell W., assignor.)						
McKay, Levy T., Barnesville, Ala. Cotton-chopper	586,140	July 13	982	220	80	208
McKee, Adam, Union, N. J. Hose-fitting	589,216	Aug. 31	3420	802	80	1372
McKeithen, Neill A., administrator. (See Johnson and McKeithen.)						
McKellar, Angus, Salt Lake City, Utah. Concentrator and amalgamator	586,451	July 13	1482	345 346	80	303
McKelvey, Stewart D., assignor to F. E. Case, Canton, Ohio. Head-rest	587,223	July 27	2900	680	80	622
McKelvey, Stewart D., assignor to F. E. Case, Canton, Ohio. Head-rest pad	587,224	July 27	2901	681	80	622
McKenzie, Donald, *et al.* (See Moore, George H., assignor.)						
McKenzie, George A., West Bay City, assignor to S. L. Garland, Bay City, Mich. Vise	587,749	Aug. 10	828	195	80	840
McKeone, Thomas J., Philadelphia, Pa. Range-boiler	590,584	Sept. 28	2035	480	80	1905
McKinstry, Charles R., Mercersburg, Pa. Milk-pail	587,323	Aug. 3	76	18	80	680
McKirdy, C. H. (See Otis, Charles H., assignor.)						
McKittrick, John L. (See Ludlam and McKittrick.)						
McKnight, Thomas R., assignor to Western Wheeled Scraper Company, Aurora, Ill. Road-scraper	588,753	Aug. 24	2635	608 609	80	1206
McLaren, John R., Jr., and E. H. Boyce, Burlington, Vt. Machine-inclosing cabinet	589,975	Sept. 14	950	227 228	80	1673
McLauchlin, Alexander E. (See Warner, Bulock, and McLauchlin.)						
McLaughlin, James, Ovid, Mich. Fifth-wheel for vehicles	586,911	July 20	2299	541	80	485
McLaughlin, James, Chicago, Ill. Electric-arc lamp	587,750	Aug. 10	830	195 196	80	840
McLaughlin, Patrick, Dover, N. H. Harrow	590,520	Sept. 21	1932	457 458	80	1873
McLean, Edwin D., Marissa, Ill. Downdraft stove or furnace. (Reissue)	11,623	July 27	3023	707	80	644
McLennon, Charles, Spring Gulch, Colo. Attachment for car-steps	585,602	July 6	71	17	80	17
McLeod, Angus and J. H., Marietta, Kans. Automatic grain-weigher	587,680	Aug. 3	608	167	80	795
McLeod, John H. (See McLeod, Angus and J. H.)						
McLeod, Nelson, Cannington, Canada. Machine for raising or lowering electric lights	585,778	July 6	230	54	80	48
McLure, Charles D., *et al.*, trustees. (See Price, Albert, assignor.)						
McMichael, John M., McDonald, Pa. Boiler-cleaner	587,900	Aug. 10	1278	295	80	919
McMullen, George W. (See Gathmann, Louis, assignor.)						
McMurtrie, John, Montreal, Canada. Combined cork and extractor therefor	587,751	Aug. 10	834	196	80	841
McNall, Frank E., Minneapolis, Minn. Combined thresher and separator	588,903	Aug. 24	2716	630 631	80	1220
McNamara, Martin, assignor of one-half to E. Kelly, New York, N. Y. Elevator-slipper	588,651	Aug. 24	2442	563	80	1169
McNamara, Michael J., and C. Gussett, Cincinnati, Ohio. Combined spring-bar and body-loop	590,767	Sept. 28	2378	564	80	1967
McNeal, Lewis. (See Deplanty and Wilson, assignors.)						
McNutt, Cornelius C., Jr., Warren, assignor to Youngstown Iron and Steel Roofing Company, Youngstown, Ohio. Press for sheet metal	585,923	July 6	499	120	80	98
McPhaill, Robert, assignor of one-half to J. F. Schramm and W. Seidel, Brenham, Tex. Stovepipe	589,610	Sept. 7	344	84	80	1547
McPhee, Colin C., Chatham, Canada. Letter-clip	590,273	Sept. 21	1497	353	80	1790
McPherson, Leon O., Highland Park, assignor to Gray European Telautograph Company, Chicago, Ill. Telautograph	587,013	July 27	2488	586 587	80	544
McPherson, Thomas G., Cleveland, Ohio. Hat-fastener	586,200	July 13	1078	243	80	226
McQueen, Ulysses G., Elizabeth, N. J. Sash-cord guide	590,329	Sept. 21	1601	377	80	1811
McRae, William T., assignor of one-half to J. J. Macaulay, Philadelphia, Pa. Automatic box-making machine	585,887	July 6	426	103 104	80	85
McTernen, Andrew, assignor to Tyer Rubber Company, Andover, Mass. Syringe-nozzle	589,017	Aug. 31	3080	726	80	1308
McTurk, James and J., Crystal, Iowa. Spring-axle for vehicles	590,234	Sept. 21	1431	337	80	1778
McTurk, John. (See McTurk, James and J.)						
McWade, James, New York, N. Y. Planetarium	589,552	Sept. 7	239	58, 59	80	1527
McWhirter, William H., Algoma, Miss. Animal-trap	588,167	Aug. 17	1575	363	80	989
Mead, Charles W., New Baltimore, assignor of two-fifths to W. R. Bronk, New York, N. Y. Puzzle	589,507	Sept. 7	168	37	80	1514
Mead, Charles W., New Baltimore, assignor of two-fifths to W. R. Bronk, New York, N. Y. Puzzle	589,508	Sept. 7	168	38	80	1514
Mead, John A. (See Decker, William L., assignor.)						
Mead, Josiah H. (See Kenevel, Jeannott W., assignor.)						
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Mealey, Johnston, Howard Lake, Minn. Hame-tug attachment	586,589	Aug. 24	2307	535	80	1144
Mealey, Johnston, Howard Lake, Minn. Bridle blinder-buckle	588,590	Aug. 24	2309	535	80	1144
Meany, Richard B., Union, N. J. Means for closing gas-mains	587,102	July 27	2655	626	80	575
Mearns, Andrew, assignor to L. W. Galbraith, Maysville, Ky. Churn	586,908	July 20	2294	539	80	484
Meats, John T., and J. S. Eaton, assignors to Mason Machine Works, Taunton, Mass. Carding-engine	587,267	July 27	2972	697	80	635
Medger, Carl F., Weisser Hirsch, Germany, assignor to O. Lahmann, New York, N. Y. Sanitary shoe	586,137	July 13	979	220	80	208
Meehan, Henry M. (See Filiatreault, Wilfrid, assignor.)						
Meeres, Michael, New York, N. Y. Drinking-fountain	588,772	Aug. 24	2080	614	80	1211

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Meggenhofen, Charles W. (See Zink and Meggenhofen.)						
Mequier, George H., Chicago, assignor of one-half to L. Van Tucker, A. and L. M. Morse, and H. S. Greeno, Cook county, Ill. Railway ticket or pass	588,114	Aug. 10	1480	341	80	956
Mehlig, Charles F. C., New York, N. Y. Dental appliance	590,460	Sept. 21	1812	427	80	1849
Meht, Theodor, Brooklyn, N. Y. Coal-carrying vehicle	590,897	Sept. 28	2596	619	80	2010
Meier, Edward D., *et al.*, trustees. (See Price, Albert, assignor.)						
Meier, Henry, New York, N. Y. Nursing bottle and nipple	590,706	Sept. 28	2262	535	80	1945
Meikleham, William J. (See Loop and Meikleham.)						
Meincke, Carsten, Elizabeth, N. J. Ice-cream cabinet	589,568	Sept. 7	206	64	80	1532
Meisel, Francis, assignor to Kidder Press Manufacturing Company, Boston, Mass. Machine for cutting paper into sheets	588,283	Aug. 17	1774	410, 411	80	1026
Meisel, Francis, Boston, and H. L. Chapin, Chelsea, assignors to Kidder Press Manufacturing Company, Boston, Mass. Printing-machine	588,284	Aug. 17	1777	411, 412	80	1026
Melancon, Phlegie R. (See Lombas, Joseph A., assignor.)						
Melcher, Charles L., Swiss Alp, Tex. Cotton-baling apparatus	590,110	Sept. 14	1196	281, 282	80	1719
Mellin, Carl J., assignor to Richmond Locomotive and Machine Works, Richmond, Va. Overpass-valve for locomotive-engines	587,505	Aug. 3	400	94, 95	80	737
Mellin, Carl J., assignor to Richmond Locomotive and Machine Works, Richmond, Va. Emergency-valve device for compound engines	589,184	Aug. 31	3374	798	80	1363
Mellinger, Benjamin, assignor of one-half to S. T. Mellinger, Topeka, Kans. Hay-rake	586,447	July 13	1476	343	80	302
Mellinger, Samuel T. (See Mellinger, Benjamin, assignor.)						
Melven, Jonathan H., St. Louis, Mo. Inking-pad	590,896	Sept. 28	2597	619	80	2011
Melvin, William, Philadelphia, Pa. Bicycle-lock	589,440	Sept. 7	68	15	80	1494
Membery, Lavinia F. (See Stevens, Edward G., assignor.)						
Menard, Oliver L., *et al.* (See French, Harry C., assignor.)						
Mench, Samuel B., assignor to J. T. Pearson, Philadelphia, Pa. Bicycle rack or holder	586,506	July 13	1579	368	80	321
Menck, Carl H., Grand Island, Nebr. Word-counter for type-writing machines	586,730	July 20	1976	460	80	425
Mengis, Morris C., Sheepshead Bay, N. Y. Roll for type-writers	589,663	Sept. 7	426	103	80	1563
Menkin, Solomon, Philadelphia, Pa. Button-making machine	586,821	July 20	2121	495, 496	80	451
Menzies, Stewart, San Francisco, Cal. Ballast-log for vessels	589,133	Aug. 31	3296	775	80	1347
Menzies, William, Broughty Ferry, Scotland. Pneumatic tire	589,185	Aug. 31	3376	798	80	1364
Mercié, Henri A. (See Benét and Mercié.)						
Mercier, Edward, Springfield, Mass. Foot-rest for bicycles	585,963	July 6	573	134	80	131
Mercier, Léo, Brooklyn, N. Y. Car-fender	588,160	Aug. 17	1567	361	80	987
Merck, Firm of E. (See Reinert, Emil, assignor.)						
Meredith, Wynn, and A. M. Hunt, San Francisco, Cal. Means for operating generators and storage batteries in conjunction	589,186	Aug. 31	3377	798	80	1364
Mergenthaler Linotype Company. (See Kennedy, David S., assignor.)						
Meriden Bronze Company. (See Gard, William E., assignor.)						
Mérigeault, Désiré C., Verdun, France. Chainless cycle or automobile car	589,906	Sept. 14	837	197	80	1632
Merriam, Horace A., San Francisco, Cal. Evaporator	589,091	Aug. 31	3205	753	80	1331
Merrick, Frank W., Boston, Mass. Presser-foot-lifting mechanism for sewing-machines	590,726	Sept. 28	2299	543, 544	80	1952
Merrick, Samuel G., Philadelphia, Pa., assignor to United Smoke and Vapor Condensing Company, Camden, N. J. Vapor-condenser	587,842	Aug. 10	999	232	80	867
Merrill, Harry S., Los Angeles, Cal. Flat-form rotary printing-press	588,231	Aug. 17	1677	385	80	1008
Merrill, William, assignor of one-half to S. S. Mitts, Saginaw, Mich. Key-seat-cutting machine	589,010	Aug. 31	3064	721, 722	80	1305
Merrill, William, assignor of one-half to S. S. Mitts, Saginaw, Mich. Key-seat-cutting machine	589,011	Aug. 31	3067	723	80	1306
Mertsheimer, Fred B. (See Mertsheimer, Frederick, assignor.)						
Mertsheimer, Frederick, assignor to F. B. Mertsheimer, Kansas City, Mo. Track-sanding device	587,108	July 27	2656	627	80	575
Meserve, George W., Boston, Mass. Blind-hinge	585,826	July 6	312	73, 74	80	63
Meskill, James, Parma, assignor of one-half to M. Meskill, Newark, N. Y. Holdback attachment for vehicles	585,827	July 6	314	74	80	63
Meskill, Michael. (See Meskill, James, assignor.)						
Messinger, William T., Boston, Mass. Injector	587,843	Aug. 10	1000	233	80	867
Mesta, George, Pittsburg, Pa. Apparatus for pickling or washing metal	586,858	July 20	2182	510, 511	80	463
Meston, Charles R. (See Parker and Meston.)						
Meter, Andrew J., *et al.* (See Dalwigk, Hermann, assignor.)						
Metzger, Hermann, Chicago, Ill. Apparatus for drawing beer	587,844	Aug. 10	1007	233	80	868
Meumann, Hermann G., Bessemer, Ala. Velocipede	589,531	Sept. 7	208	49	80	1521
Meunier, Joseph. (See Puyvallée and Meunier.)						
Meves, Gustav N., Davenport, Iowa. Wheelbarrow	587,985	Aug. 10	1251	289, 290	80	914
Meyer, August F. (See Hundhausen, Ernest, assignor.)						
Meyer, August H. (See Williams and Meyer.)						
Meyer, Carl, Rhens-on-the-Rhine, Germany. Bottle-stopper	588,285	Aug. 17	1779	412	80	1027
Meyer, George J. (See Heiser and Meyer.)						
Meyer, John W. (See Pries and Meyer.)						
Meyer, Robert, Buffalo, N. Y. Fire-grate	587,320	Aug. 3	66	15	80	679
Meyer, Svend M., assignor to W. H. Seidel and H. M. Brigham, Brooklyn, N. Y. Electrical igniting device for lamps	590,497	Sept. 21	1874	444, 445	80	1861
Meyer, William C. (See French and Meyer.)						
Meyerhoff, Solomon K., Philadelphia, Pa. Collar	586,448	July 13	1478	343, 344	80	302
Meyers, Charles S., Sharpsburg, Pa. Car-fender	586,449	July 13	1478	344	80	302
Meyers, Nicholas, assignor to P. C. Meyers, Buffalo, N. Y. Wood-turning machine	589,092	Aug. 31	3206	751, 755	80	1331
Meyers, Peter C. (See Meyers, Nicholas, assignor.)						
Meysenburg, Otto W., *et al.* (See Thompson, Frank, assignor.)						
Michael, Jacob C., Newark, N. J., assignor, by mesne assignments, to F. R. McDermott, Brooklyn, N. Y. Nipple	589,212	Aug. 31	3416	801	80	1371
Michaelson, Charles J., Charleston, W. Va. Rocking-chair	586,859	July 20	2184	511	80	463
Michelin & Co. (See Loisel, Louis J. M., assignor.)						
Michell, O. E., *et al.* (See Scales, William S., assignor.)						
Michener, L. T., *et al.* (See Houck, Thomas J., assignor.)						
Michie, James C., assignor of one-fourth to T. S. Watson, Waldrop, Va. Wheel	589,784	Sept. 7	622	144	80	1600
Middleton, Arthur R. (See White and Middleton.)						
Middleton, Frank L., administrator. (See Wootton and Hewitt.)						
Middleton, George W., Appling, Ga. Chimney-sweeper	589,012	Aug. 31	3070	724	80	1306
Middleton, Harry N., Philadelphia, Pa. Exhauster-hood	587,370	Aug. 3	157	38	80	695

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Miehle Printing Press and Manufacturing Company. (See Miehle, Robert, assignor.)						
Miehle, Robert, assignor, by mesne assignments, to Miehle Printing Press and Manufacturing Company, Chicago, Ill. Sheet-delivery apparatus for printing-presses	585,920	July 6	402	118, 119	80	97
Miehle, Robert, assignor to Miehle Printing Press and Manufacturing Company, Chicago, Ill. Sheet carrying and piling or feeding mechanism	586,073	July 6	854	190, 191	80	167
Miesse, Jacob B., Noblesville, Ind. Gate	589,134	Aug. 31	3298	776	80	1348
Miessner, August. (See Miessner, Charles, W. and A.)						
Miessner Bros. & Co. (See Miessner, Charles, W. and A., assignors.)						
Miessner, Charles, W. and A., Huntingburg, Ind., assignors to Miessner Bros. & Co. Sickle-grinding machine	590,899	Sept. 28	2599	620	80	2011
Miessner, William. (See Miessner, Charles, W. and A.)						
Miles, John S., Dayton, Ohio. Pipe-coupling	589,962	Aug. 31	3822	802	80	1455
Millen, George, San Antonio, Tex. Nut-lock	589,013	Aug. 31	3071	724	80	1306
Millen, Thomas, New York, N. Y. Cable-car grip	590,438	Sept. 21	1780	418	80	1843
Miller, Adeline J., Brooklyn, N. Y. Combination pencil and tape-measure	589,847	Sept. 14	724	169	80	1633
Miller, Adolph. (See Busch and Miller.)						
Miller, Alexander M., Alderson, W. Va. Still attachment for stoves or ranges	585,686	July 6	65	15	80	15
Miller, Alexander T., deceased; G. H. Wilson, administrator, assignor of one-half to M. Rooney, Quincy, Ill. Eyeless or other button fastener	585,904	July 6	726	162, 163	80	143
Miller, Charles. (See Earhart and Miller.)						
Miller, Charles A. and F. J., Birmingham, England. Cycle-lamp socket	586,507	July 13	1580	369	80	321
Miller, Clinton H. (See Miller, William S. and C. H.)						
Miller, Edwin L., South Bethlehem, Pa. Envelop	590,705	Sept. 28	2276	564	80	1966
Miller, Franklin T., Newton, Mass. Copying-machine	590,727	Sept. 28	2300	544	80	1952
Miller, Frederick J. (See Miller, Charles A. and F. J.)						
Miller, George, *et al.* (See Arlington, Frank L., assignor.)						
Miller, George E. (See Karst, Bernard W., assignor.)						
Miller, George W., Meriden, Conn. Pocket-knife	589,737	Sept. 7	545	129	80	1586
Miller, George W., Meriden, Conn. Pocket-knife	589,738	Sept. 7	546	129	80	1586
Miller, Henry, *et al.* (See Arlington, Frank L., assignor.)						
Miller, Henry C., and J. Bauer, Milwaukee, Wis. Temporary binder	587,986	Aug. 10	1253	290	80	914
Miller, Henry H., Lakeside, Ohio. Bottle-washer	589,135	Aug. 31	3299	776	80	1348
Miller, Jacob W. (See Huber and Miller.)						
Miller, James L., assignor of one-half to R. K. Parkhurst, Fairfield, Ill. Pruning implement	589,739	Sept. 7	548	130	80	1587
Miller, James M., Richland, Ind. Land-roller	586,900	July 20	2205	540	80	484
Miller, John H., Weilersville, Ohio. Railway-lamp elevator	586,814	July 13	1243	284	80	267
Miller, John I., *et al.* (See Brugler, Woodley, assignor.)						
Miller, Josiah, Mansfield, Ohio. Car-coupling	589,963	Aug. 31	3823	803	80	1455
Miller, Julius P. (See Cleveland, George E., assignor.)						
Miller, Robert A., Menominee, assignor of one-half to C. H. Treiber, Norway, Mich. Mining-lamp	589,441	Sept. 7	69	15	80	1494
Miller, Robert G., McDonald, Kans. Musical instrument	590,232	Sept. 21	1427	336	80	1778
Miller, Stephen K., Newtown, Ohio. Railway-tie	589,604	Sept. 7	427	103	80	1563
Miller, Thomas S., Burlington, Iowa. Bicycle-brake	587,104	July 27	2658	627	80	575
Miller, Thomas S., South Orange, N. J., and J. G. Delaney, New York, N. Y. Conveying apparatus	585,964	July 6	574	134	80	111
Miller, Wallace C., Bruce, S. D. Book-holder	589,973	Sept. 14	945	226	80	1672
Miller, William S. and C. H., Philadelphia, Pa. Bicycle-lamp	588,460	Aug. 17	2080	485	80	1062
Miller, Willis I. (See Sullivan, Josiah L., assignor.)						
Miller's Falls Company. (See McCoy, William H., assignor.)						
Millet, John W., Dolgeville, assignor to A. Dolge & Son, New York, N. Y. Fulling-machine	586,052	July 6	816	183	80	159
Mills, Francis A., and J. Mundell, Philadelphia, Pa. Last	588,718	Aug. 24	2558	591	80	1101
Mills, Francis E., Washington, D. C. Boat	590,845	Sept. 28	2503	595	80	1991
Mills, George, Riga, Mich. Means for aerating and refrigerating liquids	587,987	Aug. 10	1256	290	80	915
Mills, Henry, deceased; F. C. Davies, Toronto, Canada, administrator. Fish-hook	586,992	July 27	2454	580	80	587
Mills, John A., Gainesville, Tex. Fishing-tool for oil-wells	589,607	Sept. 7	341	84	80	1546
Mills, Ulysses G., *et al.* (See Grant, Quinties C., assignor.)						
Mills, William, Elizabeth, N. J., assignor to New York Carbon Works, New York, N. Y. Electric battery	588,591	Aug. 24	2310	535, 536	80	1144
Mills, William, Elizabeth, N. J., assignor to New York Carbon Works, New York, N. Y. Electric battery	588,592	Aug. 24	2312	536	80	1145
Milne, Annie. (See Wood, George, assignor.)						
Milner, Lewis E., and D. A. Beck, Johnsonburg, Pa. Nut-lock	585,773	July 6	223	52	80	46
Milner, William G., Belleville, N. J. Valve	585,687	July 6	66	16	80	16
Milnes, John C., Kansas City, Mo. End-gate	589,665	Sept. 7	428	103	80	1563
Milsted, Stephen. (See Hopper and Milsted.)						
Milton, John, Washington, D. C., assignor of one-fourth to L. H. Potterfield and G. F. Eamich, Lovettsville, Va. Steam-boiler furnace	590,846	Sept. 28	2505	596	80	1992
Milward, Frank W., and J. C. McGee, Boston, Mass. Pipe-cleaner	589,740	Sept. 7	550	130	80	1587
Minhinnick, Edwin R. (See Jansohn and Minhinnick.)						
Minnemeyer, Edward G., Chicago, Ill. Hammer	587,154	July 27	2773	652, 653	80	596
Minnemeyer, Edward G., Chicago, Ill. Hammer	587,155	July 27	2775	653	80	597
Minor, Waldo H., *et al.* (See Kean, Helen A., assignor.)						
Minott, John E., Aurora, Ill. Door-stop	589,264	Aug. 31	3321	826	80	1393
Minzesheimer, Ben, New York, N. Y. Spark-arrester	589,218	Aug. 31	3417	801, 802	80	1371
Miomandre, Jules G. D. de. (See Vauchey and Miomandre.)						
Miranda, Abraham R., Boston, Mass. Vaporizer	587,371	Aug. 3	158	38, 39	80	695
Mireault, Arthur, Fort William, Canada. Nut-lock	588,346	Aug. 17	1881	434	80	1045
Mishler, Joseph C. (See Carlson, Frank, assignor.)						
Mishler, Phares M., Hagerstown, Md. Wire-fence machine	587,043	July 27	2555	602	80	555
Missouri Car and Foundry Company. (See Connolly, James, assignor.)						
Missouri Railway Equipment Company. (See Marshall, Edward S., assignor.)						
Mitchell, Charlie I., Chicago, Ill. Lantern	590,550	Sept. 21	1978	496	80	1890
Mitchell, Frank H., Chicago, Ill. Umbrella or parasol	588,773	Aug. 24	2661	614	80	1211
Mitchell, John, Alston, England. Combination chair or stool	587,845	Aug. 10	1009	233	80	868
Mitchell, John H. (See Bills, Horatio S., assignor.)						
Mitchell, William D. (See Smart, Walter J., assignor.)						
Mitchell, Willis, Malden, Mass. Soldering-iron	585,688	July 6	67	16	80	16
Mitsch, Peter. Chicago, Ill. Differential screw-drill	589,848	Sept. 14	725	170	80	1633
Mitts, Sylvanis S. (See Merrill, William, assignor.)						
Mobbs, Harry W., and A. Lewis, Kettering, England. Tree for boots or shoes	589,666	Sept. 7	429	104	80	1563
Mochrie, Robert, Lowell, Mass. Beaming-machine	587,396	Aug. 3	197	49	80	704

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mock, Charles F., Louisville, Ky. Sheet-metal hame. (Reissue)	11,627	Aug. 24	2038	687	80	1264
Mock, James C., Wilkinsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Switch-box	587,746	Aug. 10	823	194	80	839
Modersitzki, Ernst, St. Louis, Mo. Ship	587,286	July 27	3007	704, 705	80	641
Moehn, John N., Milwaukee, assignor of one-half to L. D. Dorschell, Chilton, Wis. Toilet-paper cabinet	587,554	Aug. 3	485	114	80	755
Moeller, George J., Jr., Stratmann, Mo. Machine for exterminating insects	588,752	Aug. 24	2634	607	80	1206
Moery, John B. (See Kennedy and Moery.)						
Moffat, John J., Birmingham, England. Fireproof floor, ceiling, wall, &c	587,059	July 27	2585	609	80	561
Moffatt, James, Rialto, Cal. Irrigation-gate	590,728	Sept. 28	2302	544	80	1953
Moffitt, Edward R., San Francisco, Cal. Electrical igniter for gas-engines	589,509	Sept. 7	169	38	80	1514
Mohr, Bernard, London, England. Treating sulfid ore	588,076	Aug. 10	1399	.....	80	942
Mohr, William H., assignor of one-half to I. S. Bailey, Plantsville, Conn. Bit-holder	589,608	Sept. 7	343	84	80	1546
Moldenhauer, Adolf, Munich, Germany. Hydraulic pump for liquid-dispensers	590,233	Sept. 21	1428	337	80	1778
Monroe, Chalmers L., Geneva, W. Va. Churn	586,731	July 20	1977	460	80	425
Monroe, Orin P., MacClure Settlement, N. Y. Cooking utensil	586,195	July 13	1070	240	80	225
Monson, John. (See Feltner, John F. E., assignor.)						
Montague, Wilfred W., and W. G. Dougall, San Francisco, Cal. Dinner-pail heater	589,667	Sept. 7	430	104	80	1564
Monten, Firm of Lars. (See Ekenberg, Martin, assignor.)						
Montgomery, Stonewall R., Memphis, Tenn. Method of and apparatus for compressing bales	590,158	Sept. 14	1295	307, 308	80	1739
Montross, Levi H., Camden, N. J. Metallic shingle	588,161	Aug. 17	1568	361	80	988
Moomaw, Henry E., assignor of one-fourth to J. H. Boyd, Salem, Va. Flexible extension-table	586,196	July 13	1070	240	80	225
Mooney, Timothy, Fall River, Mass., assignor to Northrop Loom Company, Saco, Me., and Hopedale, Mass. Picker check-strap	586,796	July 20	2082	485	80	444
Moore, A. A. (See Pipher, William E. A., assignor.)						
Moore, D. M., *et al.* (See Marshall, Elbridge, assignor.)						
Moore, Edgar E. (See Diebold, Theodore, assignor.)						
Moore, Edward T., assignor of one-half to N. S. Fencil, Steelton, Pa. Trap	590,019	Sept. 14	1044	246	80	1690
Moore, Frank R. (See Creque and Moore.)						
Moore, George, Boston, Mass. Sash for windows	587,846	Aug. 10	1009	234	80	869
Moore, George B., Springfield, Mass. Ball-float	588,461	Aug. 17	2082	485	80	1083
Moore, George H., assignor of seven-twelfths to D. McKenzie and C. E. French, Cleveland, Ohio, and J. Van Horn, Jersey City, N. J. Refining petroleum	586,320	July 13	1619	377	80	329
Moore, Harry V., assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Mold for hollow articles	585,680	July 6	69	16	80	16
Moore, Harry V., assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Ash-box-molding apparatus	586,241	July 13	1186	258, 259	80	237
Moore, Homer B., Chillicothe, Mo. Reel for dress-facings, ribbons, &c	588,102	Aug. 17	1560	362	80	988
Moore, Isaac. (See Hewitt, Douglas S., assignor.)						
Moore, John, York, England. Pneumatic hammer	589,214	Aug. 31	3418	802	80	1371
Moore, John H., Hye, Tex. Animal-poke	586,743	July 20	2003	466	80	430
Moore, Loring A., Brooklyn, N. Y. Automatic switch for railways	589,093	Aug. 31	3214	755	80	1332
Moore, Miles F., and C. E. Fink, Harrisburg, Pa. Ground-lever switch	589,187	Aug. 31	3378	794	80	1364
Moore, William M., Empire, Colo. Concentrating-machine	588,332	Aug. 24	2768	642	80	1229
Moore, William V., *et al.* (See Webster, John, assignor.)						
Moorman, Albert, St. Paul, Minn. Plate-glass show-case	588,647	Aug. 24	2435	560	80	1168
Moorman, Henry G., Elizabeth, Pa. Safe	586,521	July 13	1621	377, 378	80	329
Moran, Owen, New York, N. Y. Telephone-transmitter	587,503	Aug. 3	561	135	80	768
Morand, François, Aix-les-Bains, France. Kinetographic camera	590,766	Sept. 28	2377	564	80	1966
Morath, Jacob J. A., Clayton, Mo. Tire-heater	586,612	July 20	1794	416	80	391
Morehouse, Alexander P., Cedar Bluffs, assignor of one-half to J. Sievers, Jr., Ames, Nebr. Hub-shield	588,163	Aug. 17	1570	362	80	988
Morency, David C., Levis, Canada. Apparatus for generating acetylene gas	588,598	Aug. 24	2313	536	80	1145
Morgan, Alfred, Geneva, Switzerland. Apparatus for projecting liquids under pressure	587,532	Aug. 3	447	105	80	746
Morgan, Alfred F., assignor of one-half to L. G. Crothers, Belding, Mich. Dish-pan	590,620	Sept. 28	2102	497, 498	80	1917
Morgan, Charles H., assignor to Morgan Construction Company, Worcester, Mass. Rolling-mill	586,732	July 20	1979	460	80	426
Morgan, Charles H., and V. E. Edwards, assignors to Morgan Construction Company, Worcester, Mass. Die-hammering machine	587,372	Aug. 3	159	39, 40	80	695
Morgan Construction Company. (See Carroll, Elbert H., assignor.)						
Morgan Construction Company. (See Edwards, Victor E., assignor.)						
Morgan Construction Company. (See Morgan, Charles H., assignor.)						
Morgan Construction Company. (See Morgan and Edwards, assignors.)						
Morgan, David E., Columbus, Ga. Bedclothes-holder	590,401	Sept. 21	1717	404	80	1832
Morgan, Decatur, Washington, D. C. Sculling and propelling machine	589,974	Sept. 14	946	226	80	1672
Morgan, Frank E., West Haven, and R. C. Blakeslee, Torrington, Conn. Prepayment vending apparatus	587,989	Aug. 10	1259	291	80	915
Morgan, Henry W., Rochester, N. Y. Nailing-machine	586,711	July 20	1940	452, 453	80	418
Morgan, Henry W., Rochester, N. Y. Nailing-machine	587,321	Aug. 3	69	16, 17	80	679
Morgan, John R., *et al.* (See Morgan, Thomas R., Sr., assignor.)						
Morgan, John R., *et al.* (See Morgan, William H., assignor.)						
Morgan, Reuben D., Cleveland, Ohio. Sash-fastener	587,988	Aug. 10	1258	291	80	915
Morgan, Thomas R., Sr., *et al.* (See Morgan, William H., assignor.)						
Morgan, Thomas R., Sr., assignor of three-fourths to T. R., Jr., J. R., and W. H. Morgan, Alliance, Ohio. Riveter	586,197	July 13	1072	241	80	225
Morgan, Thomas R., Sr., assignor of three-fourths to T. R., Jr., J. R., and W. H. Morgan, Alliance, Ohio. Hydraulic riveter	586,198	July 13	1074	241, 242	80	226
Morgan, William H., *et al.* (See Morgan, Thomas R., Sr., assignor.)						
Morgan, William H., assignor of three-fourths to T. R. Morgan, Sr. and Jr., and J. R. Morgan, Alliance, Ohio. Overhead traveling crane	590,847	Sept. 28	2506	596, 597, 598	80	1992
Morgan & Wright. (See Lewis, Harry S., assignor.)						
Morgan & Wright. (See Young, Ernest W., assignor.)						
Morgenthaler, Edward W., Paola, Kans. Trunk	585,774	July 6	223	52, 53	80	46
Morlan, James H., Kansas City, Kans. Box attachment	589,188	Aug. 31	3379	794	80	1364
Morley Finishing Machine Company. (See Clark, George H., assignor.)						
Morley Finishing Machine Company. (See Lawton, John E., assignor.)						
Morley Finishing Machine Company. (See Noyes, Bernice J., assignor.)						
Morris, Charles E., Rector, Ark. Gate-operator	587,847	Aug. 10	1010	234	80	869
Morris, Henry, Walkerville, Canada. Guard-rail clamp	588,164	Aug. 17	1571	362	80	988

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Morris, John J. (See Lind, John W., assignor.)						
Morris, Mark B., and F. N. Wilson, Logansport, Ind. Paper box	590,159	Sept. 14	1298	308	80	1739
Morrison, Augustus H., assignor to American Box Machine Company, Amsterdam, N. Y. Box-covering machine	585,921	July 6	496	119	80	97
Morrison, George, Chicago, Ill. Saw-filing device	586,508	July 13	1581	360	80	321
Morrison, Harry, London, England. Chain-driving wheel	587,848	Aug. 10	1011	234	80	869
Morrow, Alexander P., Elmira, N. Y. Means for fastening spokes to vehicle-wheels	586,138	July 13	980	220	80	208
Morrow, John T., Great Falls, Mont. Pump for acids or other liquids	586,698	July 20	1909	445	80	412
Morse, Amasa, *et al.* (See Megquier, George H., assignor.)						
Morse, Arthur J., Torrington, assignor to Morse-Keefer Cycle Supply Company, Salisbury, Conn. Swaging-machine	588,648	Aug. 24	2436	561, 562	80	1168
Morse, Arthur J., assignor to Morse-Keefer Cycle Supply Company, Salisbury, Conn. Swaging-machine	588,649	Aug. 24	2439	562	80	1168
Morse, Burton C., Chicago, Ill., assignor to Morse Supply Company. Pulley-covering	588,232	Aug. 17	1679	386	80	1008
Morse, Everett F., Trumansburg, N. Y. Coupling for drive-chains	588,704	Aug. 24	2537	586	80	1187
Morse, Frederic A., Pawtucket, R. I. Automatic liquid-indicator	588,650	Aug. 24	2441	562	80	1169
Morse-Keefer Cycle Supply Company. (See Morse, Arthur J., assignor.)						
Morse, Louisa M., *et al.* (See Megquier, George H., assignor.)						
Morse, Orville M., Jackson, Mich. Separating-machine	587,990	Aug. 10	1262	291, 292	80	916
Morse Supply Company. (See Morse, Burton C., assignor.)						
Morse, William F., assignor to T. J. Thurber, Rochester, N. Y. Carrier	587,849	Aug. 10	1012	234, 235	80	869
Mortensen, Carl. (See Darré, Anton W., assignor.)						
Morton, Ephraim S., Brockton, Mass. Wire-nail machine	588,402	Aug. 17	2083	485, 486	80	1083
Morton, William. (See Roberts and Morton.)						
Moscheles, Robert, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Gas-incandescent	588,077	Aug. 10	1400	.....	80	942
Moscheles, Robert, Berlin, Germany, assignor to L. H. Hall, Philadelphia, Pa. Gas-incandescent	590,393	Aug. 31	3382	.....	80	1466
Moser, Fred J., Kane, Pa. Pumping-jack for wells	586,960	July 20	2185	511	80	464
Moser, Louis, assignor of one-half to M. Sniderman, San Francisco, Cal. Compartment cooking apparatus	585,922	July 6	498	119	80	97
Moser, Obadiah Y. (See Dornseif and Moser.)						
Mosher, John A., Chicago, Ill. Rail-bond	587,134	July 27	2741	643	80	590
Mosher, Orin B., Joliet, Ill. Fluid-pressure brake mechanism	586,561	July 20	1695	394	80	373
Mosier, George W., Philadelphia, Pa. Detachable and adjustable handle-bar for bicycles	590,402	Sept. 21	1718	404	80	1832
Moss, George A., San Francisco, Cal. Glove attachment	586,139	July 13	981	220	80	208
Moss, Lincoln, New York, N. Y. Railway-car	589,215	Aug. 31	3419	802	80	1372
Moss, Oscar S., Syracuse, N. Y. Carbon-holder for electric lights	588,233	Aug. 17	1680	386	80	1008
Motter, Harry L., York, Pa. Index	587,322	Aug. 3	72	18	80	680
Moulton, James N., Haverhill, assignor to F. F. Stanley, trustee, Swampscott, Mass. Skiving-machine	590,934	Sept. 28	2060	534	80	2023
Mount, James H., Jamesburg, N. J. Neckband-ring for shirt-ironing boards	590,070	Sept. 14	1122	265	80	1705
Moussette, Oliver J., Brooklyn, N. Y. Non-refillable bottle	589,741	Sept. 7	551	130	80	1587
Moxham, Arthur J., assignor to Johnson Company, Lorain, Ohio. Electric contact	587,594	Aug. 3	562	135	80	769
Moxley, Johnathan E., *et al.* (See Volland, Conrad P., assignor.)						
Moyer, Charles F., Millersburg, Pa. Window-shutter fastener	588,463	Aug. 17	2085	486	80	1083
Moyer, Jesse H., Temple, Tex. Tongue-bar-supporting clamp	588,687	Aug. 24	2504	577	80	1181
Moylan, Alexander M., Muscogee, Fla. Envelop	588,078	Aug. 10	1401	325	80	942
Mozier, Albert M., Cleveland, Ohio. Indicating and delivering special orders to moving trains	589,975	Sept. 14	948	226, 227	80	1673
Mueller, Hieronymus, Decatur, Ill. Basin-clamp	589,136	Aug. 31	3401	776	80	1349
Mueller, Philip, Decatur, Ill. Igniter for explosive-engines	587,747	Aug. 10	824	194	80	839
Muir, Hugh, Chicago, Ill. Adjustable handle-bar for bicycles	585,690	July 6	70	17	80	16
Mulholland, Sarah. (See Hess and Mulholland.)						
Mullane, Patrick, Moline, Ill. Collar-fastener	587,850	Aug. 10	1015	235	80	870
Mullen, James A., New York, N. Y. Filter	589,189	Aug. 31	3380	794	80	1365
Muller, Ernst J., Butte, Mont. Adjustable bearing	589,137	Aug. 31	3302	776, 777	80	1349
Müller, Franz, Berlin, Germany. Pendent mi[illegible]elephone	586,689	July 20	1910	445	80	413
Muller, George, Mount Vernon, N. Y. 'Cushio[illegible], &c	590,328	Sept. 21	1600	377	80	1811
Müller, Harry O., assignor to J. E. Reyburn, Fi[illegible]elphia, Pa. Fluid-pressure brake	585,828	July 6	315	74	80	63
Müller, Wendelin, Newark, N. J. Fire-escape	589,569	Sept. 7	208	64	80	1532
Mulvane, David A. (See Barnes, Garrett V., assignor.)						
Mumaugh, John S., Lima, Ohio. Churn	590,160	Sept. 14,	1299	308	80	1739
Mundell, James. (See Mills and Mundell.)						
Munden, Albert, Berkley, Va. Force-pump	590,161	Sept. 14	1300	309	80	1740
Muudt, Paul, Lincoln, Ill. Steam-engine	587,595	Aug. 3	563	135	80	769
Munger, Andrew J., Antwerp, Ohio. Wire basket	585,342	July 13	1303	208	80	369
Munn, Frank E., New York, N. Y. Envelop	590,900	Sept. 28	2601	620	80	2011
Munro, George K., Jr., Detroit, Mich. Motor-car	590,648	Sept. 28	2509	598	80	1992
Munsing, George D., assignor of one-half to H. A. Munsing, Minneapolis, Minn. Knitting-machine	586,315	July 13	1246	284, 285, 286, 287	80	258
Munsing, Henry A. (See Munsing, George D., assignor.)						
Munson, Corydon W., Toledo, Ohio. Railway-switch-point-controlling apparatus	590,797	July 20	2083	485	80	444
Munson, Harvey S., New Haven, Conn. Box	588,871	Aug. 24	2830	658, 659	80	1242
Munzner, Charles. (See Harvey and Munzner.)						
Murchie, Sylvanus T., assignor to Western Paper Bag Company, Batavia, Ill. Paper-bag machine	587,135	July 27	2742	643	80	590
Murday, Thomas J. (See Staveley, Parsons, and Murday.)						
Murdock, Thomas J., assignor of one-half to J. Roney, Woonsocket, R. I. Bobbin and thread holder	587,748	Aug. 10	826	195	80	840
Murdock, William N., Boston, Mass. Epicyclic tire	588,872	Aug. 24	2831	659	80	1243
Murphy, Daniel J., *et al.* (See Murphy, Thomas L., assignor.)						
Murphy, Daniel W., assignor to Marion Car Coupler Company, Marion, Ohio. Car-coupling	590,111	Sept. 14	1198	282	80	1720
Murphy, James, *et al.* (See Murphy, John F., assignor.)						
Murphy, John, Buffalo, N. Y. Boat-detaching device	586,310	July 13	1254	287	80	260
Murphy, John, Brooklyn, N. Y. Hose	587,679	Aug. 3	697	167	80	795
Murphy, John F., assignor of two-thirds to O. A. Clapp and J. Murphy, Adrian, Mich. Vehicle-brake	587,596	Aug. 3	504	135, 136	80	769

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Murphy, John F., assignor of three-fourths to O. A. Clapp and J. Murphy, Adrian, Mich. Gate	588,165	Aug. 17	1572	363	80	988
Murphy, S. J., *et al.*, trustees. (See Hanson, Joseph, assignor.)						
Murphy, Thomas, Detroit, Mich. Self-feeding furnace	587,678	Aug. 3	692	166	80	794
Murphy, Thomas L., assignor of two-thirds to D. J. Murphy, New York, and I. Hicks, Brooklyn, N. Y. Pneumatic-tire pump	586,199	July 13	1077	242	80	236
Murphy, Timothy W., Washington, D. C. Nut and bolt lock	587,012	July 27	2487	586	80	543
Murray, Dougal & Co. (See Rogers, Charles L., assignor.)						
Murray, James H. (See Kimball, Charles B., assignor.)						
Murray, Thomas E. (See Campbell and Murray.)						
Muslar, Nelson, West Boylston, Mass., assignor to N. B. Abbott, Brooklyn, N. Y. Machine for feeding stoppers automatically to bottles	586,618	July 20	1795	416	80	392
Mutschler, Albert, and J. A. Robertson, Rochester, N. Y. Photographic-plate holder	587,991	Aug. 10	1965	292	80	917
Mutschler, Frederick, Rochester, N. Y. Street-railway transfer-ticket	590,485	Sept. 21	1853	439	80	1857
Myaer, Ole L., Star Prairie, Wis. Safety trace-eye	588,347	Aug. 17	1683	435	80	1045
Myers, Cornelius H., and H. C. Rose, South Bend, Ind. Static machine	589,742	Sept. 7	552	130 131	80	1587
Myers, Marshall. (See King and Myers.)						
Myers, Millard F., Greenville, Ohio. Potato-planter	590,621	Sept. 28	2103	498	80	1917
Myers, William, Brooklyn, N. Y. Filter	590,020	Sept. 14	1045	246	80	1691
Myers, William S. (See Polhamus and Myers.)						
Nagel, John D., Bushnell, Ill. Wheat-steamer	588,079	Aug. 10	1402	326	80	942
Nagell, John R. (See Heath and Nagell.)						
Napier, John C. (See Vaughn, Archer, assignor.)						
Naregang, John J., Leesport, Pa. Bicycle	589,743	Sept. 7	553	131	80	1588
Nash, Henry K. (See Hayes and Nash.)						
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Meter-register	587,100	July 27	2661	627 628	80	576
Nathan, Alexander, New York, N. Y. Electrical alarm for cars	587,534	Aug. 3	450	105	80	747
National Cash Register Company. (See Bickford, Frank H., assignor.)						
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Cleal, Joseph P., assignor.)						
National Cash Register Company. (See Macauley, Alvan, assignor.)						
National Casket Company. (See Loomis, Harry T., assignor.)						
National Electrical Manufacturing Company. (See Banks, Walter F., assignor.)						
National Hedge and Wire Fence Company. (See Crider, Heird, and Cocking, assignors.)						
National Key-Opening Can Company. (See Zimmerman, John, assignor.)						
National Manufacturing Company. (See Johnson, William J., assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
National Voting Machine Company. (See Boma, John, assignor.)						
Nauman, George. (See Renz, Herman F., assignor.)						
Navarein, Amedée, Paris, France, assignor to T. Pfister and E. Barthels, London, England. Cloisonné-work for windows, &c	587,225	July 27	2002	681	80	622
Neames, Maurice M., St. Patrick, La. Sugar conveyer, elevator, and bin	590,742	Sept. 28	2323	549 550	80	1957
Nearing, Louis E., Wallingford, assignor of one-half to M. Schweizer, Bridgeport, Conn. Strainer	590,902	Sept. 28	2003	621	80	2012
Necker, Carl, Berlin, Germany. Machine for sewing sweat-bands in hats	585,874	July 6	406	96, 97	80	81
Nedland, Bernt T., and C. Fredrickson, Westby, Wis. Bicycle change-gear	589,266	Aug. 31	3523	827	80	1394
Negus, Horatio V. S. (See Gardner, Perry G., assignor.)						
Nelder, Fred A., Augusta, Ky. Carriage-curtain knob	590,768	Sept. 28	2330	565	80	1957
Neidhardt, Henry, Brooklyn, N. Y. Saw-set	589,267	Aug. 31	3525	827	80	1394
Neller, William E., *et al.* (See Turner, Edward H., assignor.)						
Nelson, Andrew. (See Gustafson, August M., assignor.)						
Nelson, Edward, Jersey City, N. J. Puzzle	588,705	Aug. 24	2539	587	80	1187
Nelson, George W., Five Forks, Pa. Combined fish-trap and boat	586,803	July 20	2190	512 513	80	465
Nelson, Jonas P. L., Philadelphia, Pa. Desk	589,018	Aug. 31	3061	726	80	1308
Nelson, S. B., *et al.* (See Steinfeldt, Adolph, assignor.)						
Nerz, Fidelis, assignor to Elektrizitats Aktien-Gesellschaft, vormals Schuckert & Co., Nuremberg, Germany. Protective device for dispersing-lenses of light-projectors	586,799	July 20	2096	486	80	444
Nessler, John H. (See Grimm and Nessler.)						
Neterer, Jere. (See Conway, Patrick, assignor.)						
Neuberth, George E., assignor to H. Ill, Newark, N. J. Caster	589,217	Aug. 31	3429	803	80	1372
Neuberth, George E., assignor to H. Ill, Newark, N. J. Caster	589,850	Sept. 14	729	170	80	1633
Neudorff, Fredreck. (See Proctor and Neudorff.)						
Neuendorff, John B., San Antonio, Tex. Trousers-protector	586,866	July 20	1873	436	80	406
Neumeyer, Horace F., Macungie, Pa., and J. F. Young, Niagara Falls, N. Y. Waste-valve for water and steam piping systems	586,779	July 20	2056	479	80	439
Neverslip Manufacturing Company. (See Johnson and Whitaker, assignors.)						
New England Weighing Machine Company. (See Nickerson, William E., assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New Paper-Makers' Engineering and Dandy-Roll Patents Company. (See Lister, John, assignor.)						
New York Carbon Works. (See Mills, William, assignor.)						
New York Woven Wire Mattress Company. (See Ryan and Weber, assignors.)						
Newcomb, Harry H., *et al.* (See Hunt and Trussell, assignors.)						
Newell, Moses A. (See Reynolds, Stephen A. D., assignor.)						
Newman, Hugo, New York, N. Y. Lantern-slide-moving device	590,903	Sept. 28	2004	621	80	2012
Newman, Jacob, and L. Weinberg, Petersburg, Va. Trunk attachment	588,234	Aug. 17	1680	366	80	1008
Newman, Leopold, Braddock, Pa. Machine for finishing bottom ends of trousers-legs	590,585	Sept. 28	2087	481	80	1905
Newsalt, Adolph. (See Kennedy, Thomas C., assignor.)						
Newton, H. B. (See Evans, John W., assignor.)						
Newton, John E., assignor of two-fifths to O. J. H. Martin, Minneapolis, Minn. Puncture-burning device	590,440	Sept. 21	1763	419	80	1844
Newton, Louis H., *et al.* (See Ostrander, Willis H., assignor.)						
Newton Rubber Works. (See Chamberlain, Frank R., assignor.)						
Newton, William J. (See Heck, Louis, assignor.)						
Nicholas, Richard, *et al.* (See Falzey, William T., assignor.)						
Nichols, Edwin C., Topeka, Kans. Apparatus for compressing air	589,190	Aug. 31	3381	794 795	80	1365
Nichols, Marion L., Westfield, N. J., assignor, by mesne assignments, to Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Bicycle-gearing	586,141	July 13	969	221	80	206
Nichols, Marion L., Westfield, N. J., assignor, by mesne assignments, to Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Bicycle-brake	586,142	July 13	984	221	80	209

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Nicholson, Charles, Brooklyn, N. Y., assignor of one-half to F. H. Douglas, Newark, N. J. Music-leaf turner	589,851	Sept. 14	730	170 171	80	1634
Nickel, Adam, New York, N. Y. Piano-action	585,829	July 6	318	75	80	64
Nickel, Adam, New York, N. Y. Damper-action for grand pianos	588,594	Aug. 24	2314	536 537	80	1146
Nickerson, William E., Cambridge, assignor to New England Weighing Machine Company, Boston, Mass. Apparatus for filling packages	586,168	Aug. 17	1576	364 365	80	989
Nicolson, William S., Salisbury, N. C. Stove	590,162	Sept. 14	1002	309	80	1740
Niedner, Charles H., Malden, Mass. Heddle-frame	585,880	July 6	319	75	80	65
Nielsen, Fred, *et al.* (See Jensen, Jens C., assignor.)						
Nielsen, Jens C., Viborg, S. D. Liquid-sterilizer	587,851	Aug. 10	1016	235	80	870
Niemann, James P. (See Langschmidt and Le Brocq, assignors.)						
Niermann, Joseph B., *et al.* (See Langer, Gotthold, assignor.)						
Niermeyer, Antonie C., Deventer, Netherlands, assignor to E. E. Probert, New Barnet, England. Incandescent gas-lamp for street use	590,586	Sept. 28	2038	481	80	1906
Niggli, Augustin, Bözingen, and S. Lambert, Grenchen, Switzerland. Screw-cutting machine	585,849	July 6	308	85, 86	80	73
Nisbet, James A., Hamburg, Mich. Jaw for steel traps	588,169	Aug. 17	1584	366	80	991
Nisbet, William W., St. Louis, Mo. Foot-rest for bicycles	588,873	Aug. 24	2335	659 660	80	1243
Noah, William T., Durham, N. C. Spindle-driving mechanism	588,235	Aug. 17	1662	387	80	1009
Noble, Harry S., and C. M. Tussing, St. Mary's, Ohio. Wrench	589,668	Sept. 7	451	104	80	1564
Noble, Henry A., assignor to W. T. Wilson, Philadelphia, Pa. Machine for making coiled paper tubes	586,054	July 6	318	183 184	80	160
Noble, Howard C., *et al.* (See Elliott, Sterling, assignor.)						
Nolan, John H., Boston, Mass. Combined cane and umbrella	588,595	Aug. 24	2315	537	80	1146
Nold, Henry K., Benton Harbor, Mich. Vibrating or gyrating device	587,156	July 27	2776	653	80	597
Nolen, Stephen A., McCrory, Ark. Scissors or shears	590,330	Sept. 21	1602	377	80	1811
Noll, Joseph, Buffalo, N. Y. Safety-trap	586,618	July 20	1808	419	80	393
Norsconk, Micheal F., Milton, Pa. Car-truck	587,060	July 27	2586	610	80	561
Nordberg, Bruno V., and A. Uihlein, Milwaukee, Wis. Bottle-washer	587,397	Aug. 3	198	50	80	704
Norden, Folke F., Willow Grove, Pa. Carpenter's square	590,729	Sept. 28	2303	544	80	1953
Nordyke & Marmon Company. (See Marmon, Daniel W., assignor.)						
Norelius, John E., El Campo, Tex. Bicycle-support	586,619	July 20	1804	419	80	394
Norling, Jacob, and C. E. Johnson, Chicago, assignors to G. B. Robbins, Hinsdale, Ill. Ventilator for refrigerator-cars	585,779	July 6	231	54	80	48
Norlund, Olof A., assignor of one-half to G. A. Gamble, Cedar Run, Pa. Fruit-gatherer	590,935	Sept. 28	2061	634	80	2023
Norman, Christian G., New York, N. Y. Non-refillable bottle	585,668	July 6	432	104	80	86
Norman, Laurance F., Newton, and E. E. Bennett, Boston, Mass. Shoe	586,452	July 13	1484	346	80	303
Normand, Alexander, Klerksdorp, South African Republic. Pocket-knife	586,453	July 13	1485	346	80	303
Normand, Françoise E. (See Normand, Jacques A., F. E., and M. E.)						
Normand, Jacques A., F. E., and M. E., Havre, France. Steam-generator	588,464	Aug. 17	2086	486 487	80	1084
Normand, Marie E. (See Normand, Jacques A., F. E., and M. E.)						
Norris, Alice C., *et al.* (See Clouse, Joseph N., assignor.)						
Norris, Almon E., assignor to Rawson & Morrison Manufacturing Company, Cambridge, Mass. Hoisting-engine	590,587	Sept. 28	2039	482	80	1906
Norris, William M., Princeton, N. J. Coloring leather	588,000	Aug. 10	1278		80	919
Norris, William M., Princeton, N. J. Tawing or tanning hides or skins	588,874	Aug. 24	2336		80	1243
North, William B., Sikeston, Mo. Combined ink-well and penholder	590,143	July 13	985	221	80	209
Northern, Lewis J., Highland, Kans. Mowing and reaping machine	589,611	Sept. 7	346	85	80	1547
Northey, John P., Toronto, Canada. Wheel	589,191	Aug. 31	3368	795	80	1306
Northrop, James H. (See Draper and Northrop.)						
Northrop, James H., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Loom	590,112	Sept. 14	1200	282 283	80	1720
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp stop-motion for looms	590,551	Sept. 21	1986	466	80	1860
Northrop Loom Company. (See Draper, William F., assignor.)						
Northrop Loom Company. (See Draper and Northrop, assignors.)						
Northrop Loom Company. (See Durkin, Daniel, assignor.)						
Northrop Loom Company. (See Mooney, Timothy, assignor.)						
Northrop Loom Company. (See Northrop, James H., assignor.)						
Norton, Charles H., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Grinding-machine	590,496	Sept. 21	1876	445	80	1862
Norton, Charles H., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Micrometric adjustment for grinding-machines	590,850	Sept. 28	2511	599	80	1993
Norton, Edward, Lumberton, Miss. Rail-joint	588,596	Aug. 24	2317	537	80	1146
Norton, Mason S., assignor to American Faucet Company, San Francisco, Cal. Bushing and faucet for barrels	587,157	July 27	2777	653	80	597
Notter, Charles H., assignor of one-half to W. S. Bogle, Chicago, Ill. Conveyer	585,698	July 6	72	18	80	12
Nottingham, Edwin I., assignor to F. W. Buckler, Washington, D. C. Receptacle for matches, &c	587,209	July 27	2976	698	80	635
Nourse, Earl B., Clinton, Ind. Ink-well	589,977	Sept. 14	953	228	80	1673
Nourse, Frank P., Alexandria, Ind. Device for measuring liquids	587,597	Aug. 3	506	126	80	770
Noyes, Bernice J., Boston, Mass., assignor, by mesne assignments, to Morley Finishing Machine Company, of Maine. Shaping or treeing machine	589,744	Sept. 7	554	131	80	1588
Noyes, Edward P., Winchester, Mass. Cutting-off mechanism	587,598	Aug. 3	567	136 137	80	770
Noyes, La Verne W., Chicago, Ill. Machine for making spiral riveted pipe	588,236	Aug. 17	1634	387 388	80	1009
Nuhring, Charles, Cincinnati, Ohio. Fire-extinguishing apparatus	586,105	July 13	921	206	80	197
O. C. Little & M. M. Schoetz Pulley Coating Company. (See Little, Orton C., assignor.)						
O'Brien, Dennis, Brooklyn, N. Y. Hat-fastener	590,904	Sept. 28	2007	622	80	2013
O'Brien, John T., Bridgeport, Conn. Electric bell	587,002	July 27	2589	611	80	561
O'Brien, Maurice, Fresno, Cal. Shield for pneumatic tires	589,019	Aug. 31	3062	726	80	1308
O'Callaghan, John T., London, England. Manufacture of germ-flour	589,978	Sept. 14	954		80	1674
O'Connell, Joseph J., Chicago, Ill., assignor to American Bell Telephone Company, Boston, Mass. Telephone trunk-circuit	587,226	July 27	2003	681	80	623
O'Connor, Edmund. (See Riley and O'Connor.)						
O'Connor, William P., assignor to J. W. Hazen, Cambridge, Mass. Shelf for bakers' ovens	587,398	Aug. 3	201	51	80	704
O'Dell, Jacob A., Philadelphia, Pa. Non-puncturable bicycle-tire	587,227	July 27	2006	681	80	623
O'Donnell, Terence, Kansas City, Mo. Coin holder and register	587,590	Aug. 3	570	137 138	80	770
O'Donovan, Michael, Boston, assignor of one-half to C. W. Buxton, Waverly, Mass. Device for indicating escape of gas	589,745	Sept. 7	558	131	80	1588
O'Hara, Matthew J. M., Wilmington, Mass. Electric-railway switch	587,752	Aug. 10	836	196	80	841

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
O'Neal, Salathiel L., Philippi, W. Va. Drafting and plotting instrument	586,975	July 27	2421	573	80	531
O'Neill, Edward C. (See Dye and O'Neill.)						
O'Neill, James D., Hanover, Canada. Currycomb	587,451	Aug. 3	306	74	80	722
Oakes, Francis J. (See Stiff, George, assignor.)						
Oakman, William F., *et al.* (See Hoyt, Daniel, assignor.)						
Oberjohann, Henry, Toledo, Ohio. Lock for cistern-covers	586,800	July 20	2066	487	80	444
Oberläuter, Hugo F., Leipsic, Germany. Automatic ball-coupling for railway-wagons	587,061	July 27	2588	610	80	561
Obrecht, George F., *et al.* (See Doan, Harry S., assignor.)						
Ocumpaugh, Charles H., Rochester, N. Y. Pneumatic door-check	589,992	Sept. 14	992	234	80	1678
Odlum, Thomas, Richmond, Va. Welding compound	589,218	Aug. 31	3423	.....	80	1372
Oehrlein, Casper, St. Paul, Minn. Potato-digger	589,020	Aug. 31	3063	727	80	1300
Oetjen, Theodore F., and V. Fourcher, Augusta, Ga. Knob-locking device	589,021	Aug. 31	3065	727	80	1300
Ofer, Nicholas, Dale, Ind. Churn	588,286	Aug. 17	1781	413	80	1027
Ogden, James H., assignor to Perfect Cigar Shaper Company, Philadelphia, Pa. Cigar-shaper	587,600	Aug. 3	573	138	80	771
Ogden, John W., Plainfield, N. J. Gas apparatus	589,219	Aug. 31	3424	803 804	80	1373
Ogden, Sarah K., Fort Scott, Kans. Flour-sifter	586,106	July 13	922	207	80	197
Ogilvy, David J., Cincinnati, Ohio. Making printing-ink	587,852	Aug. 10	1017	.....	80	870
Ohlgart, George P., assignor of two-thirds to H. R. Oliver and C. E. Krebs, Baltimore, Md. Bicycle	589,394	Aug. 31	3383	905	80	1466
Ohliger, Ernest A., assignor of three-fourths to S. J. Hussey, F. H. Whipple, Hartford, and T. M. Smith, West Hartford, Conn. Folding bed	587,853	Aug. 10	1017	235 236	80	871
Ohlson, Olof, Waltham, Mass. Stem winding and setting watch	587,158	July 27	2779	654	80	597
Olán, Johan W. T., New York, N. Y. Gas-exhausting apparatus	585,831	July 6	320	75	80	65
Olán, Johan W. T., New York, N. Y. Manufacture of incandescent lamps	586,055	July 6	820	184	80	160
Oldenbusch, Ernst, Jersey City, assignor to W. Schimper & Co., Hoboken, N. J. Picture-frame	590,071	Sept. 14	1123	266	80	1705
Oldham, Ida L., Wichita, Kans. Fastening device for skirts, belts, and waists	587,449	Aug. 3	299	72	80	721
Oliger, Jacob D. (See Hunter, Victor E., assignor.)						
Oliver, Herbert R., *et al.* (See Ohlgart, George P., assignor.)						
Oliver, John G. (See Bardons and Oliver.)						
Olson, Håkan, assignor of one-half to N. P. Carlson, Soperville, Ill. Snap-hook	590,623	Sept. 28	2107	499	80	1918
Olson, John, Two Harbors, Minn. Fluid-pressure railway-brake	587,450	Aug. 3	299	72 73 74	80	721
Olson, John P., and O. Isaacson, Assaria, Kans. Band-cutter and feeder	589,534	Sept. 7	212	51	80	1522
Olson, Peter. (See Peterson, August W., assignor.)						
Olson, Peter, Field, Canada. Adjustable gage-bar for railways	589,268	Aug. 31	3326	828	80	1394
Omick, William K., assignor of one-half to W. Duffus, Pontiac, Mich. Air-brake	588,918	Aug. 24	2900	679	80	1256
Oncken, Gustavus A., Hamburg, Germany. Injector	586,201	July 13	1079	243	80	227
Oney, Robert T., Charleston, W. Va. Trolley-bicycle	588,465	Aug. 17	2091	487	80	1084
Onyx Engraving and Embellishing Company. (See Weaver, John G., assignor.)						
Orchard, Cuthbert J., *et al.* (See Lincoln, George E., assignor.)						
Orcutt, Edward L., Somerville, Mass., assignor to International Railroad Appliance Company, Kittery, Me. Electric safety appliance for railways	589,660	Sept. 7	432	104	80	1564
Orell, Olof W., St. Louis Park, Minn. Rub-iron	590,235	Sept. 21	1432	337	80	1778
Orford, Henry, assignor to Queen & Company, Incorporated, Philadelphia, Pa. Hemoglobinometer	585,694	July 6	73	18	80	17
Ormerod, Jacob, London, England. Carbureter	589,094	Aug. 31	3215	756	80	1332
Orr, James P., Pittsburg, Pa. Spectacles	586,074	July 6	859	191	80	168
Orr, James W., *et al.* (See Graham, Charles M., assignor.)						
Orton, Lewis W., Cloud Chief, Okla. Ter. Wire-fence tool	587,228	July 27	2008	682	80	623
Osborn, Harmon R., Granville, N. Y. Artificial bait	586,620	July 20	1806	419	80	304
Osburn, Harry G., Chicago, Ill. Interior conduit for buildings	590,373	Sept. 21	1668	393 394	80	1823
Osburn, Harry G., Chicago, Ill. Interior conduit for electrical conductors	590,374	Sept. 21	1669	394	80	1823
Osgood, Zenas B., Damariscotta, Me., assignor of one-half to W. H. and W. B. Rand and T. Watson, Boston, Mass. Thread fastening and cutting device for spools	590,851	Sept. 28	2512	599	80	1993
Osmond, Frederick J., Moseley, England. Chain-adjusting device	586,912	July 20	2300	541	80	485
Osswald, Ernest A., and C. M. Kirchgessner, Dresden, Germany. Heating device used in making or renovating hats	590,236	Sept. 21	1433	338	80	1779
Ostendorff, William, Union Hill, N. J. Horse-detacher and wagon-brake	589,612	Sept. 7	347	85	80	1547
Osterberger, Henry. (See Kiefer, Kahn, and Osterberger.)						
Ostermann, Joseph, Philadelphia, Pa. Bicycle-bell	585,780	July 6	233	54	80	48
Ostrander, Willis H., Boston, Mass., assignor to himself, A. Rasines, and L. H. Newton, New York, N. Y. Combined speed-indicator and cyclometer	589,670	Sept. 7	437	105	80	1565
Oswald, J. Clyde, *et al.* (See Lincoln, George E., assignor.)						
Otis Brothers & Company. (See Ihlder, John D., assignor.)						
Otis, Charles H., Orange, assignor of one-half to C. H. McKirdy, New Britain, Conn. Holder for incandescent lamps	588,348	Aug. 17	1884	435	80	1046
Otte, August, Herington, Kans. Calk for horseshoes	587,399	Aug. 3	302	51	80	704
Otway, Arthur E. (See Raymond and Otway.)						
Ovens, James, Brooklyn, N. Y. Printing-machine	589,613	Sept. 7	348	85	80	1547
Ovenshire, Charles E., Minneapolis, Minn. Door-clamp	590,047	Sept. 14	1079	255	80	1697
Overbey, Hugh L. T., Summerville, Ga. Post-hole digger	588,353	Aug. 24	2770	642	80	1230
Overman Wheel Comany. (See Manley, Edward I., assignor.)						
Overpeck, Lucien C., Hamilton, Ohio. Photographic-background carrier	588,597	Aug. 24	2318	537	80	1146
Overton, John. (See Hugill, Overton, and Catley.)						
Øvrejorde, Erick L., Fairfax, assignor of one-half to O. S. Quammen, Montevideo, Minn. Watchmaker's tool	586,502	July 20	1697	394	80	373
Owen, Edward H., C. N. Williams, and F. H. Donaldson, Garvanza, Cal. Electric signaling apparatus and circuit	589,746	Sept. 7	560	132	80	1589
Owen, Edward H., C. N. Williams, and F. H. Donaldson, Garvanza, Cal. Annunciator system	589,747	Sept. 7	563	132	80	1589
Owen, Frederick D., Washington, D. C. Rear-driving safety-bicycle	589,852	Sept. 14	733	171	80	1634
Owen, John, Pittsburg, Pa. Hose-bridge	587,150	July 27	2781	654	80	598
Owens, Michael J., assignor to Toledo Glass Company, Toledo, Ohio. Glass-blower's mold	588,026	Aug. 24	2019	483	80	1260
Ownby, James M. (See Rook, William N., assignor.)						
Oxley, Eustace, Washington, D. C. Electric switch	586,075	July 6	860	191	80	168
Oxley, Eustace, Washington, D. C. Method of and apparatus for multiple rate-metering for electric currents	588,170	Aug. 17	1584	366 367	80	901
Oyen, Henry. (See Weigert and Oyen.)						
P. H. & F. M. Roots Company. (See Johnston and Wainwright, assignors.)						
Pabst Brewing Company. (See Theurer, Jacob F., assignor.)						
Pabst Brewing Company. (See Theurer and Fischer, assignors.)						
Pace, Augustus G., New York, N. Y. Combustion-engine	588,466	Aug. 17	2093	487	80	1084

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Packard, Eugene H. (See Folsom and Packard.)						
Packard, Granville F., Fort Wayne, Ind. Child's cradle	587,014	July 27	2495	587 588	80	545
Packard, Granville F., Fort Wayne, Ind. Electric meter	587,015	July 27	2498	588	80	545
Packard, James W. (See Packard, William D. and J. W.)						
Packard, Jeffrey G., *et al.* (See Hendrich, August, assignor.)						
Packard, William D. and J. W., Warren, Ohio. Electrical transformer	590,852	Sept. 28	2514	599	80	1994
Packham, Frank R., assignor to Superior Drill Company, Springfield, Ohio. Furrow-opening device for seeding-machines	586,107	July 13	925	207	80	198
Packwood, S. T. (See Taylor, Isaac B., assignor.)						
Paddock, James N., Atlantic Highlands, N. J., assignor, by mesne assignments, to N. A. Johns, Huntington, Vt. Hydraulic engine	586,202	July 13	1061	248	80	227
Page, Albert A. (See Sargent and Page.)						
Page, Albert A., East Haven, assignor to Sargent & Company, New Haven, Conn. Plane	585,889	July 6	433	105	80	86
Page, Albert A., East Haven, assignor to Sargent & Company, New Haven, Conn. Liquid door-check	590,048	Sept. 14	1081	256	80	1698
Page, Warren B., Newton, assignor of one-third to W. B. Draper, Malden, Mass. Glove-fastener	586,928	July 20	2332	549	80	491
Page, William B., and A. E. Hopkins, Dixon, Ill. Sheet-tin-operating machine	590,709	Sept. 28	2262	535 536 537	80	1946
Pain, Robert W., assignor to Aeolian Company, New York, N. Y. Electropneumatic musical instrument	589,535	Sept. 7	213	51	80	1522
Paine, Charles H., U. S. Army. Billiard-cue-tip sharpener	587,016	July 27	2561	588	80	546
Painter, Gwynne E., assignor to W. A. Pleasants, Baltimore, Md. Fly-fan	588,754	Aug. 24	2038	509	80	1207
Paisley, John W., East Randolph, N. Y. Car-coupling	587,329	July 27	2909	662	80	694
Palica, Frank J., Racine, Wis. Telescopic trunk	587,487	Aug. 3	364	90	80	739
Palica, Frank J., Racine, Wis. Trunk	587,488	Aug. 3	367	87	80	738
Palisch, Henry G. (See Lueders, Theodore A., assignor.)						
Palmer, Charles H., and J. W. Denmead, Akron, Ohio. Rubber tire	589,022	Aug. 31	3067	727	80	1309
Palmer, Charles H., and J. W. Denmead, Akron, Ohio. Strip printing and perforating machine	589,570	Sept. 7	268	64, 65	80	1532
Palmer, Coolidge C., Norfolk, Va. Non-refillable bottle	590,331	Sept. 21	1603	378	80	1811
Palmer, Fremont D., Norwich, assignor of one-half to R. T. Palmer, Jr., New London, Conn. Child's crib	588,001	Aug. 10	1280	295	80	919
Palmer, George W. (See Arbuckle, William G., assignor.)						
Palmer, Isaac E., Middletown, Conn. Loom for cross-weaving	587,324	Aug. 3	77	18, 19	80	680
Palmer, Isaac E., Middletown, Conn. Clamp for tentering-machines	587,753	Aug. 10	838	197	80	842
Palmer, Isaac E., Middletown, Conn. Clamp for tentering-machines	587,754	Aug. 10	839	197	80	842
Palmer, Julian A., Hillsdale, Mich. Railway-switch	586,208	July 13	1062	244	80	227
Palmer, Reuben T., Jr. (See Palmer, Fremont D., assignor.)						
Palmer, Theodore J., Hackensack, N. J. Music-pulpit	589,748	Sept. 7	565	132	80	1590
Palmer, William S. (See Robinson and Palmer.)						
Palmetier, Warren D., Lisbon, N. D. Door for grain-cars	590,332	Sept. 21	1604	378	80	1811
Palmiter, Samuel, Jamestown, N. Y., assignor to R. M. Keating, Springfield, Mass. Bicycle handle-bar	589,671	Sept. 7	439	105	80	1565
Pan Confection Company. (See Rosback, Fredrick P., assignor.)						
Pancoast, Richard M., Camden, N. J. Ice scraper or shaver	587,230	July 27	2910	662	80	624
Panoulias, Panagiotis, New York, N. Y. Machine for dipping chocolate drops	588,349	Aug. 17	1885	435	80	1045
Panter, Judson C., Chicago, Ill. Penholder	586,242	July 13	1138	259	80	236
Paquet, Joseph, assignor of two-thirds to C. Valentine and C. Guth, Poughkeepsie, N. Y. Knife-sharpener	590,624	Sept. 28	2108	499	80	1918
Paquette, Nazareth, Petersburg, Mich. Fracture apparatus	590,625	Sept. 28	2109	499	80	1918
Parcelle, Albert L., Boston, Mass. Speed-indicator	586,318	July 13	1258	288	80	261
Pardo, Forester, Plaquemine, La. Coffee-pot and boiler appliance	590,696	Sept. 28	2110	500	80	1918
Parish & Bingham Company. (See Parish, Neff E., assignor.)						
Parish, Neff E., assignor to Parish & Bingham Company, Cleveland, Ohio. Mechanism for making bicycle-crank hangers	588,804	Aug. 24	2730	631	80	1221
Park, William R., Taunton, assignor to Hancock Inspirator Company, Boston, Mass. Apparatus for supplying oil to boilers	587,854	Aug. 10	1020	236	80	871
Park, William R., Taunton, and B. T. Williston, Somerville, assignors to Hancock Inspirator Company, Boston, Mass. Valve	587,855	Aug. 10	1023	236	80	872
Parke, Lyman C. (See Simmons, John P., assignor.)						
Parker, Benjamin F., North Yakima, Wash. Railway cattle-guard	588,171	Aug. 17	1583	367	80	991
Parker, Charles E., Duluth, Minn. Trunk-lock	588,237	Aug. 17	1666	388 389	80	1011
Parker, Ernest A., London, England. Driving-belt for sprocket-wheels	590,461	Sept. 21	1813	427	80	1849
Parker, George W., Grand Rapids, Mich. Treating gypsum-rock to imitate marble	588,287	Aug. 17	1781	413	80	1027
Parker, Herbert L., and C. R. Meston, assignors to Emerson Electric Manufacturing Company, St. Louis, Mo. Window-blower	587,373	Aug. 3	102	40	80	696
Parker, James N., Elkhart, Ind. Wire-stretcher	588,002	Aug. 10	1281	296	80	919
Parker, John E., Bayonne, N. J. Electromagnetic and mechanical brake	585,937	July 6	529	125	80	103
Parker, Lee H., Schenectady, N. Y., assignor to General Electric Company, of New York. Surface-contact electric railway	589,785	Sept. 7	623	145	80	1601
Parker, Orrin W., Oakland, Cal. Wave-power pump	590,072	Sept. 14	1124	266	80	1705
Parker, Thaddeus T., Wheatland, Oreg. Clothes-line support	589,023	Aug. 31	3068	728	80	1309
Parker, Theron N., Brooklyn, N. Y. Stake for plants or flowers	587,231	July 27	2913	663	80	624
Parker, William D., assignor to E. H. White, Meriden, Conn. Automatic combination-piano	587,270	July 27	2978	698 699	80	636
Parkes, William N., Brooklyn, N. Y. Sewing-machine	589,979	Sept. 14	955	224 229	80	1674
Parkhurst, Reuben K. (See Miller, James L., assignor.)						
Parkinson, Thomas J., Pittsburg, Pa. Portable seal-press	588,927	Aug. 24	2021	484	80	1200
Parks, William D., and T. S. Kirby, Scottsborough, Ala. Harrow	590,274	Sept. 21	1498	353	80	1791
Parman, William S., Stillwater, Okla. Ter. Fire-escape	590,408	Sept. 21	1719	404 405	80	1832
Parmelee, Homer, Philadelphia, Pa. Pipe-wrench	590,653	Sept. 28	2515	599	80	1994
Parmenter, John. (See Bronson and Parmenter.)						
Parmley, Lemuel D., Waynesborough, Pa., assignor of two-thirds to C. J. Danielson and M. D. Ellingson, Hamlet, Ind. Pneumatic straw-stacker	589,853	Sept. 14	735	171	80	1634
Parno, Emil W. (See Callender and Parno.)						
Parry, William K. (See Adeney and Parry.)						
Parsons, Albert L., Winnipeg, Canada. Controlling-lever	588,598	Aug. 24	2330	538	80	1147
Parsons, Calvin W., Scranton, Pa. Crane	586,454	July 13	1486	346 347 348 349	80	304

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Parsons, Calvin W., Scranton, Pa. Coal-grading machine	586,510	July 13	1583	370	80	322
Parsons, Francis F., assignor to A. and H. Schiffer, Paterson, N. J. Means for transmitting motion	586,563	July 20	1698	394	80	373
Parsons, Isaac H. (See Staveley, Parsons, and Murday.)						
Parsons, John H., Wilmington, Del. Steam-boiler	590,905	Sept. 28	2608	622	80	2013
Parsons, Seneca B., South Bend, Ind. Horse-collar pad	590,060	Sept. 28	2300	529	80	1995
Partridge, William E. (See Billing and Partridge.)						
Patent Purchase Company. (See Robinson, Wade, assignor.)						
Patrick, Andrew H., Booneville, Miss. Level	585,830	July 6	371	86	80	74
Patten, Francis J., New York, N. Y. Electric furnace	586,622	July 20	2124	496	80	451
Patten, Francis J., New York, N. Y. Electromagnetic motor	586,623	July 20	2125	497	80	451
Patten, Francis J., New York, N. Y. Electric furnace	586,624	July 20	2127	497	80	452
Patten, Hartwell, Hartford, Conn. Table-leveling device	587,499	Aug. 3	370	87	80	732
Patten, James S., Baltimore, Md. Car-axle lubricator	586,372	July 13	1178	270	80	245
Patten, James S., Baltimore, Md. Car-axle lubricator	586,564	July 20	1699	394 395	80	373
Patterson, George M., Providence, R. I. Railway-switch-operating device	588,467	Aug. 17	2096	488	80	1085
Patterson, George W., Rutherford, N. J. Fastening device for shoe-laces	589,571	Sept. 7	270	65	80	1388
Patton, Julia I., administratrix. (See Patton, Richard T.)						
Patton, Richard T., deceased, Savannah, Ga.; J. I. Patton, administratrix. Slate	586,913	July 20	2308	542	80	486
Patton, Thomas W., Bristol, Pa. Cycle-stand	587,856	Aug. 10	1094	237	80	872
Paulsen, Julius, Neuenkirchen, Germany. Baby-carriage	587,755	Aug. 10	840	197	80	842
Paul, Charles A., Orlando, Okla. Ter. Plane	586,712	July 20	1943	453	80	419
Paupa, Joseph, Chicago, Ill., assignor of one-half to G. Hochriem, New Orleans, La. Nickel-in-the-slot-machine attachment	586,690	July 20	1911	445	80	413
Pause, Paul. (See Kuersten, Hugo R., assignor.)						
Paxton, James L., South Omaha, Nebr. Stock-pen	587,325	Aug. 3	81	20	80	681
Paxton, Sherman H., Rockford, Ill. Hot-water heater	588,003	Aug. 10	1283	296 297	80	920
Payne, David W., *et al.* (See Gallagher, John C., assignor.)						
Payne, Stephen R., Youngstown, Ohio. Switch or signal mechanism	590,333	Sept. 21	1604	378	80	1812
Payne, Walter S., Bailey, Ind. Ter. Harrow attachment for plows	588,875	Aug. 24	2338	660	80	1243
Peabody, George L., Pittsburg, Pa. Press	590,588	Sept. 28	2042	482 483 484 485	80	1906
Peace, Edwin, Coatesville, Pa. Rail-joint and nut-lock therefor	586,380	July 13	1378	317	80	283
Pearsall, Howard D., London, England. Hydraulic apparatus for raising or forcing water, &c	587,068	July 27	2590	611	80	562
Pearson, James O., Rochester, N. Y. Tool for cutting plaster casts	590,163	Sept. 14	1302	309	80	1740
Pearson, Joseph T. (See Mench, Samuel B., assignor.)						
Pearsons, Fillmore A., Rutland, Vt. Bicycle-stand	590,799	Sept. 28	2361	565	80	1967
Pease, Jacob. (See Duffield, Thomas C., assignor.)						
Pease, Theodore C., Cherokee, Kans. Cut-off conveyer for flour-sifting machines	588,408	Aug. 17	2098	488 489	80	1085
Peck, Cassius C., Rochester, N. Y. Steam-boiler	590,073	Sept. 14	1126	266	80	1705
Peck, Ezra A., assignor to Deering Harvester Company, Chicago, Ill. Harvester	588,599	Aug. 24	2321	538	80	1147
Peck, Horace B., *et al.* (See Harris, Levi, assignor.)						
Peck, John W., Canton, Ill. Safe	588,238	Aug. 17	1998	389	80	1012
Peck, Silsbe, Naples, N. Y. Wire fence	590,462	Sept. 21	1814	427	80	1850
Peckinpaugh, Abraham N., *et al.* (See Dunn, William R., assignor.)						
Pedder, John, Pittsburg, Pa. Manufacture of combined metal bodies	586,319	July 13	1260	288	80	261
Peddie & Co., T. B. (See Hawley, Eugene W., assignor.)						
Pede, James L., Sackett's Harbor, N. Y. Hand fertilizer-distributer and planter	590,906	Sept. 28	2610	622	80	2014
Peden, George. (See Rodgers and Peden.)						
Pedersen, Johannes T., Woodside, N. Y. Driving mechanism for cycles	587,601	Aug. 3	574	139	80	771
Pederson, Petter C. N., West Superior, Wis. Mechanical movement	585,851	July 6	372	87	80	74
Peiffer, John, assignor of three-fourths to P. Apel, J. and N. J. Toussaint, Dubuque, Iowa. Automatic car-coupling	586,144	July 13	987	222	80	209
Peirsol, William H. (See Marvel and Peirsol.)						
Peirson, Ernest V., Newark, N. Y. Device for inflating pneumatic tires	585,924	July 6	501	120	80	98
Pelham, Walter O., assignor of one-half to H. Loomis, Denison, Tex. Releasing device for brakes of drive-wheels	586,455	July 13	1402	349	80	304
Pelton, Charles H., Springfield, Ohio. Gearing for grain-drills	588,239	Aug. 17	1699	389	80	1012
Pelton, Charles H., Springfield, Ohio, assignor to Kitts Manufacturing Company, Milton, Ind. Grain-drill	588,240	Aug. 17	1700	390	80	1013
Pelton, George M., Belmont, N. Y. Log-turner	588,600	Aug. 24	2324	538	80	1148
Pelton, George M., Belmont, N. Y. Log rolling and turning machine	588,652	Aug. 24	2445	568	80	1170
Pelton, George M., Belmont, N. Y. Band-saw mill	588,653	Aug. 24	2447	568 504	80	1170
Pendleton, Edward G. (See Hunter and Pendleton.)						
Pendleton, Gurdon, Jr., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Closure for packages	590,907	Sept. 28	2613	623	80	2014
Pendleton, Gurdon, Jr., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Closure for packages	590,908	Sept. 28	2614	623	80	2014
Pendleton Manufacturing Company. (See Pendleton, Gurdon, Jr., assignor.)						
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Bicycle-bell	589,220	Aug. 31	2427	804	80	1373
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Bicycle-bell	590,854	Sept. 28	2515	600	80	1994
Pennepacker, Lewis H., Philadelphia, Pa. Padlock	588,654	Aug. 24	2448	564	80	1171
Penner, John H., Lawrenceville, Ill. Fence	587,002	Aug. 3	577	139	80	771
Penney, Richard, National Military Home, Ohio. Electric alarm	588,004	Aug. 10	1284	297	80	920
Pennie, John, Albany, N. Y. Railway-track structure	588,080	Aug. 10	1403	326	80	942
Penning, Charles H., and J. J. S. Heslop, Sunderland, England. Machine for threading rods or the like	587,400	Aug. 3	204	51	80	705
Pennington, Edward J., Racine, Wis., assignor to T. Kane, trustee, Chicago, Ill. Igniter for explosive-engines	586,511	July 13	1587	370 371	80	322
Pennsylvania Globe Gas Light Company. (See Silnack, Victor H., assignor.)						
Pentecost, William A., Worcester, Mass. Carriage-wheel	588,081	Aug. 10	1405	326	80	942
Percival, Orin L. (See Wright, Percival, and Ankrum.)						
Perfect Cigar Shaper Company. (See Ogden, James H., assignor.)						
Perfect Letter Opener Company. (See Wilcox, Edward M., assignor.)						
Perkins, Charles G., and J. Tregoning, assignors to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Fusible cut-out	586,505	July 20	1703	395	80	374
Perkins Electric Switch Manufacturing Company. (See Perkins and Tregoning, assignors.)						
Perkins, Frank C., assignor to Chicago Razor Strop Company, Chicago, Ill. Bicycle tool-bag	590,996	Sept. 28	2662	634	80	2023

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Perkins, Frank P., assignor of one-half to W. Larder, Brooklyn, N. Y. Exercising device	588,350	Aug. 17	1888	436	80	1046
Perkins, George B. (See Raymond, George N., assignor.)						
Perkins, Willis J., Grand Rapids, Mich. Dado-cutter and tenoning-machine	588,088	Aug. 10	1406	326 327	80	943
Perley, Cyrus J. (See Sawyer and Perley.)						
Perret, Frank A., Brooklyn, N. Y., assignor to H. Stone, Brenham, Tex. Electric motor	586,895	July 20	2129	497 498	80	452
Perrin, William, *et al.* (See Drawe, Jennie, assignor.)						
Perry, David S., Urbana, Ohio. Broom-handle	590,909	Sept. 28	2616	624	80	2015
Perry, John C., Joliet, Ill. Wire fence	588,774	Aug. 24	2362	514	80	1211
Peterhansl, Frank, Brooklyn, N. Y., and G. H. Rothmann, Rutherford, N. J. Prison cell, vault, &c	588,834	Aug. 24	2771	642 643	80	1230
Peters, Charles, London, England. Coin-freed apparatus	587,326	Aug. 3	82	20	80	661
Peters, Georganna T., administratrix. (See Thomas, George C.)						
Peters, Henry C., North Middletown, Ky. Bow	586,713	July 20	1944	454	80	419
Peters, Henry L., Surbiton, England. Machine for exhibiting movable advertisements	588,172	Aug. 17	1589	367	80	998
Petersen, Peter. (See Williams, Horace S., assignor.)						
Peterson, August W., assignor of one-third to P. Olson, Melrose Park, Ill. Automatic cradle	585,852	July 6	373	87	80	74
Peterson, George M., deceased, Salem, Oreg.; M. A. Peterson, administratrix. Prune-grader	585,695	July 6	75	18, 19	80	18
Peterson, Jacob H., Des Moines, Iowa. Elastic wheel	586,506	July 20	1705	395	80	374
Peterson, John A., and W. F. Kelsey, Marseilles, France. Advertising-clock	586,906	July 13	1340	308	80	276
Peterson, John J., Port Lavaca, Tex. Lock	590,334	Sept. 21	1607	379	80	1812
Peterson, Marcus D., Long Lake, Minn. Combination whip-socket and rein-holder	586,744	July 20	2004	466	80	431
Peterson, Martha A., administratrix. (See Peterson, George M.)						
Peterson, Michael W., Elliott, Ill. Dumping box or bucket	589,749	Sept. 7	566	132	80	1590
Peterson, Samuel M., Kent, Minn. Grain-elevator	587,271	July 27	2981	699 700	80	686
Petett, Lewis L., Catskill, N. Y. Pneumatic seat-cushion	588,268	Aug. 17	1782	413	80	1027
Petgen, Charles J., Pittsburg, Pa. Lock	586,780	July 20	2059	479	80	440
Petraeus, Carl V., assignor to O. H. Picher, Joplin, Mo. Smelting galena	588,289	Aug. 17	1788	.....	80	1034
Pettit, Emmett E. (See Brown and Pettit.)						
Peugnet, Maurice B., Cambridge, Mass. Connection for bicycles	590,087	Sept. 28	2231	529	80	1940
Pfaelzer, Morris F., *et al.* (See McConnell, Edward, assignor.)						
Pfister, Theophil, *et al.* (See Navarein, Amedée, assignor.)						
Pflieger, John H., Johnstown, Pa. Combined washbench and step-ladder	589,192	Aug. 31	2389	795	80	1366
Phelan, John J. (See Rust and Phelan.)						
Phelps, Fred A., Jr., assignor of two-thirds to T. C. Du Pont, Johnstown, and M. J. Wightman, Scranton, Pa. Machine for rolling railway-car axles or similar bars	590,855	Sept. 28	2517	600 601	80	1994
Phelps, George H., Newton, assignor to George Frost Company, Boston, Mass. Garment-supporter	585,781	July 6	234	55	80	49
Pherson, Anthony, Rochester, N. Y. Combination alarm-clock and lamp	587,064	July 27	2591	611 612	80	562
Philadelphia Textile Machinery Company. (See Proctor, Josiah K., assignor.)						
Philbrick, George E., Manchester, N. H. Knitting-machine needle	589,024	Aug. 31	2089	728	80	1309
Philips, Robert N. (See Johnson, James W., assignor.)						
Phillips, Charles E. S. (See Barr, James M., assignor.)						
Phillips, Darius T., Chicago, Ill. Corn-harvester	587,535	Aug. 3	451	105 106	80	747
Phillips, Darius T., Chicago, Ill. Bottle-stopper	588,775	Aug. 24	2363	614	80	1211
Phillips, Emanuel W., Norwich, Conn. Sash-cord fastener	588,780	Aug. 24	2580	595	80	1195
Phillips, Fred K. (See Gaston, William E., assignor.)						
Phillips, Hannah R., New York, N. Y. Butter-dish	585,782	July 6	235	55	80	49
Phillips, John L., Leavenworth, Kans. Safety-pin	588,776	Aug. 24	2365	615	80	1212
Phillips, Joseph, Washington, Pa. Device for truing rolls	589,572	Sept. 7	271	65	80	1533
Phillips, Thomas L., Aurora, assignor to Challenge Wind Mill and Feed Mill Company, Batavia, Ill. Feed-grinding mill	587,555	Aug. 3	486	114 115	80	755
Philpot, John W., *et al.* (See Hendrich, August, assignor.)						
Phinney, Charles H., Boston, Mass. Watchman's electric time-recorder	589,510	Sept. 7	170	38	80	1514
Phinney, Oliver, Cairo, N. Y. Cultivator-truck	589,198	Aug. 31	3890	796	80	1366
Phoenix Cap Company. (See Weissenthanner, Alfred L., assignor.)						
Piatt, William M., West Liberty, Ohio. Shock binding and ejecting mechanism for corn-harvesters	588,460	Aug. 17	2100	489	80	1086
Picard, Eusebe, assignor of one-half to M. Ruel, Holyoke, Mass. Sanding apparatus	585,938	July 6	530	125	80	108
Piccioni, Giuseppe, Montefiore, Italy. Lock	587,603	Aug. 3	578	139	80	771
Piceni, Gaëtan. (See Le Blois and Piceni.) (Reissue.)						
Piché, Siméon, assignor of two-thirds to T. Piché, Ste. Anne de la Perade, and F. X. O. Trudel, St. Prosper, Canada. Butter-box	589,948	Sept. 14	901	215 216	80	1664
Piché, Telesphore, *et al.* (See Piché, Siméon, assignor.)						
Picher, Oliver H. (See Petraeus, Carl V., assignor.)						
Pickering, Barton, Dayton, Ohio. Water-motor	588,470	Aug. 17	2104	489 490	80	1087
Pickett, Edward F., Buffalo, N. Y. Valve for bicycles, &c	586,534	July 13	1646	383	80	334
Pickett, Rufus S., New Haven, Conn. Book-mark	589,907	Sept. 14	539	197	80	1652
Pickin, George W., assignor of one-half to W. A. Kinnear, Eau Claire, Wis. Inhaler	590,376	Sept. 21	1675	395	80	1894
Pieper, Alphonse F. (See Pieper, Oscar H. and A. F.)						
Pieper, Oscar H. and A. F., Rochester, N. Y. Rheostat	586,864	July 20	2191	512	80	465
Pierce, Charles W., *et al.* (See Thompson, Herschel G., assignor.)						
Pierce, Clarence S., *et al.* (See Thompson, Herschel G., assignor.)						
Pierce, George M., Madison, Wis. Smoke-stack	588,351	Aug. 17	1888	436	80	1046
Pierce, Otis S., Pawtucket, and A. J. McAllen, Central Falls, R. I. Warp-beam brake for looms	586,745	July 20	2004	466	80	431
Pierce, William O., and B. F. Bigelow, Gridley, Cal. Water-distilling apparatus	587,506	Aug. 3	401	95	80	737
Pierpoint, William, Yonkers, N. Y. Street-railway	590,792	Sept. 28	2418	574	80	1975
Pihl, Carl J. (See Staberg and Pihl.)						
Pike, Charles F., Philadelphia, Pa. Pneumatic-despatch-tube switch	590,770	Sept. 28	2362	565	80	1967
Pike, Charles F., Philadelphia, Pa. Expansion-joint for pneumatic-despatch tubes	590,771	Sept. 28	2363	565	80	1967
Pike, Edward. (See Wheeler, Albert H., assignor.)						
Pike, William H., Jr., assignor to American Arithmometer Company, St. Louis, Mo. Device for duplicate printing	590,772	Sept. 28	2364	566 567	80	1968
Pilkington, George B. (See Bradley, Pilkington, and Platt.)						
Pimbley, Joseph, Bolton, assignor of one-half to W. A. Rothwell, Walkden, England. Feed-water heater	590,364	Aug. 31	2825	803	80	1456
Pinchard, Jean B., San Francisco, Cal. Means for propelling ships, &c	586,390	July 13	1360	317	80	288

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Pine, Arthur F., *et al.* (See Pine, Wilber J., assignor.)						
Pine, James, Lansingburg, N. Y. Mowing-machine	586,621	July 20	1807	420, 421	80	394
Pine, Wilber J., assignor of one-half to E. B. Hayes, Oshkosh, S. V. R. Hayes, Milwaukee, and A. F. Pine, Omro, Wis. Bicycle	589,750	Sept. 7	567	133	80	1590
Pinkham Manufacturing Company. (See Blount and Robinson, assignors.)						
Pinney, Henry L., and F. Lenzner, Cass City, Mich. Book-supporter	586,391	July 13	1381	318	80	283
Pipher, William E. A., assignor of one-third to A. A. Moore, Parkers Landing, Pa., Clevis	589,478	Sept. 7	123	27	80	1505
Pitcher, Franklin W. (See Childs and Sangster, assignors.)						
Pitkin, Stephen H., assignor to Webster, Camp & Lane Machine Company, Akron, Ohio. Winding-reel for hoisting-engines	586,529	July 13	1023	378	80	329
Pitrat, Julius E., Gallipolis, Ohio. Computing-scale	589,365	Aug. 31	3696	893	80	1456
Pitt, Henry H., Low Fell, England. Apparatus for manufacturing pressed-glass articles	588,173	Aug. 17	1591	367, 368	80	992
Pitz, Henry W., Philadelphia, Pa. Purse	587,160	July 27	2782	654	80	598
Place, Willard A., Kansas City, Kans. Spring-hinge	589,854	Sept. 14	737	172	80	1635
Placet, Paul E., Paris, France. Brasquing of crucibles or lining of furnaces	589,221	Aug. 31	3498	.....	80	1373
Plasten, John R., Brooklyn, N. Y. Capsule	587,327	Aug. 3	84	20	80	682
Platt, Irving G. (See Bradley, Pilkington, and Platt.)						
Platt, Lewis A., administrator. (See Bradley, Pilkington, and Platt.)						
Player, John, Topeka, Kans. Brake-beam	589,269	Aug. 31	3527	828	80	1304
Player, John, Topeka, Kans. Brake-beam	589,270	Aug. 31	3528	828	80	1305
Player, John, Topeka, Kans. Car-truck	589,271	Aug. 31	3529	828, 829	80	1305
Player, John H., Coventry, England. Machine for assembling parts of wheels	585,696	July 6	77	10	80	18
Pleasants, William A. (See Painter, Gwynne E., assignor.)						
Pleins, Rudolph C., assignor of five-eighths to D. C. Jones and N. S. Chittenden, St. Paul, Minn. Combination lacing hook and eyelet	589,395	Aug. 31	3684	905	80	1466
Plopper, James A., assignor to Deering Harvester Company, Chicago, Ill. Nut-tapping machine	589,442	Sept. 7	70	15, 16	80	1494
Plopper, James A., assignor to Deering Harvester Company, Chicago, Ill. Automatic bolt-threading machine	590,463	Sept. 21	1815	428, 429	80	1850
Plume & Atwood Manufacturing Company. (See Atwood, Lewis J., assignor.)						
Plumley, Raymond L., assignor to Trump Brothers Machine Company, Wilmington, Del. Overseam for sewed articles	585,939	July 6	581	125	80	108
Plunkett, Joseph C., and G. Donat, London, England. Valve applicable to vessels containing compressed gas	589,479	Sept. 7	124	27	80	1505
Pneumatic Tyre Company. (See Welch, Charles K., assignor.)						
Podoll, Gustav, *et al.* (See Farmer, Julius M., assignor.)						
Poehlman, Anna, South Bend, Ind. Washboard	585,925	July 6	504	120	80	99
Poehlman, H. E. (See Kirkman, William H., assignor.)						
Pöhn, Edmund, Berlin, Germany. Shoe-fastening	588,083	Aug. 10	1406	327	80	943
Poindexter, William M., Washington, D. C. Composite column or other structural support	588,290	Aug. 17	1784	413, 414	80	1027
Polhamus, Ezra, and W. S. Myers, Ashland, Ky. Station-indicator	588,835	Aug. 24	2772	643	80	1231
Polk, Caleb C., assignor to Polk's Italian Harp Piano Company, Valparaiso, Ind. Piano attachment	589,751	Sept. 7	569	133	80	1591
Polk's Italian Harp Piano Company. (See Polk, Caleb C., assignor.)						
Pollard, Celia B., *et al.* (See Pollard, William B., assignor.)						
Pollard, James E., Roanoke, Va. Diving outfit	587,604	Aug. 3	579	140	80	772
Pollard, Walter S., *et al.* (See Pollard, William B., assignor.)						
Pollard, William B., assignor to C. B. Pollard, E. H. Johnson, M. C. Gaines, and W. S. Pollard, Hot Springs, Ark. Ice-pick	585,697	July 6	78	19	80	18
Pollak, Armin, Richmond, Va. Mouthpiece for cigars	586,343	July 13	1304	298	80	289
Polley, Lucy F., Watertown, S. D. Slate-sprinkler	588,731	Aug. 24	2581	595	80	1195
Polson, Cora A., Winkler's Mills, Kans. Insect-guard for poultry-perches	590,287	Sept. 21	1434	338	80	1779
Polson, James T. (See Polson, Sidney M., J. T., and J. A.)						
Polson, John A. (See Polson, Sidney M., J. T., and J. A.)						
Polson, Sidney M., J. T., and J. A., Laclede, Mo. Mechanical movement	589,614	Sept. 7	351	86	80	1548
Polson, William, Fabyans, N. H. Cap for bottles	589,366	Aug. 31	3627	894	80	1456
Pomeroy, Louis P., Yarmouthville, Me. Truck for supporting vehicles	590,743	Sept. 28	2324	550	80	1957
Pomfret, William C., and T. B. Keating, Utica, N. Y., assignors to Utica Extinguisher Company. Hand chemical fire-extinguisher	588,005	Aug. 10	1284	297	80	990
Pond, Goldsbury H., Ashburnham, Mass. Buoyant propeller	586,914	July 20	2304	542	80	486
Pond, Goldsbury H., Ashburnham, Mass. Buoyant propeller	586,915	July 20	2305	543	80	486
Pond, Goldsbury H., Ashburnham, Mass. Buoyant propeller	586,916	July 20	2306	543	80	486
Pond, Goldsbury H., Ashburnham, Mass. Process of and apparatus for electrochemical treatment of straw or other fibrous materials	588,084	Aug. 10	1409	328	80	944
Pond, Goldsbury H., Ashburnham, Mass. Method of and apparatus for electrochemical treatment of fibrous material	588,085	Aug. 10	1410	328	80	944
Pool, James P., Brooklyn, N. Y. Stove	588,755	Aug. 24	2640	609	80	1207
Pope, James B., San Bernardino, Cal. Adjustable distributing-weir	585,875	July 6	402	97, 98	80	81
Pope, Joseph H., Brockton, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Heeling-machine	588,986	Aug. 24	2985	687	80	1263
Pope Manufacturing Company. (See Copeland, James S., assignor.)						
Pope Manufacturing Company. (See Jacobs, Arthur I., assignor.)						
Pope Manufacturing Company. (See Nichols, Marion L., assignor.)						
Porteous, William, Elmwood Place, Ohio. Sand-molding machine	587,605	Aug. 3	581	140, 141	80	772
Porter, Daniel R., Chelsea, Mass. Horseshoe-guard	589,095	Aug. 31	3216	756	80	1333
Porter, Henry C., Chicago, Ill. Induction-coil for medical apparatus	586,622	July 20	1813	422	80	395
Porter, Henry K., Chelsea, Mass. Bicycle-stand	588,291	Aug. 17	1786	414	80	1038
Porter, John H., and T. J. Hennessey, Jackson, Mich. Oiling device	587,272	July 27	2988	701	80	638
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Clock	587,136	July 27	2743	644	80	591
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Stem winding and setting watch	590,856	Sept. 28	2519	601	80	1994
Portheim, Emil von, Prague, Austria-Hungary. Dyeing black	586,865	July 20	2198	.....	80	465
Portsmouth Structural Steel and Iron Company. (See York, Raymond D., assignor.)						
Posey, Robert H., assignor of one-half to W. B. Rector, Manor, Tex. Needle	590,198	Sept. 14	1354	319	80	1750
Post, John F. (See Hardie and Post.)						
Post, Mary E., Philadelphia, Pa. Convertible car	586,243	July 13	1139	259	80	298
Postans, Arthur J. (See Macmahon and Postans.)						
Potter, Carroll, Philadelphia, Pa. Machine for making storage-battery plugs	590,857	Sept. 28	2521	601, 602	80	1995
Potter, Charles W., Montclair, N. J. Balance-arm for power grooming and clipping machines	588,706	Aug. 24	2540	567, 568	80	1187

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Potter, John A., Cleveland, Ohio. Feed-table for rolling-mills	586,366	July 20	2194	513, 514	80	466
Potter, Joseph L., Indianapolis, Ind. Excavating and conveying machine	588,006	Aug. 10	1285	297, 298	80	990
Potter, Parlin & Campbell. (See Crawley and Johnston, assignors.)						
Potter-Parlin Company. (See Crawley and Johnston, assignors.)						
Potter, William B. (See Knight and Potter.)						
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric-railway system	589,786	Sept. 7	625	145	80	1601
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric railway	589,787	Sept. 7	628	146	80	1602
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric-railway system	589,788	Sept. 7	630	146	80	1602
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric railway	589,789	Sept. 7	632	146	80	1602
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric railway	589,790	Sept. 7	633	147	80	1603
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Surface-contact railway system	589,791	Sept. 7	635	147	80	1603
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Closed-conduit electric railway	589,792	Sept. 7	637	147	80	1603
Potterfield, Luther H., *et al.* (See Milton, John, assignor.)						
Potthoff, Louis. (See Alexander, Hans, assignor.) (Reissue.)						
Poulsen, Alfred, Buffalo, N. Y. Electric-arc lamp	590,670	Sept. 28	2201	522	80	1935
Poulson, Britton, Fort Wayne, Ind., assignor to Fort Wayne Novelty Company. Bunching-machine	588,007	Aug. 10	1287	298	80	991
Powell, Edward. (See Powell, John G., assignor.)						
Powell, Edwin A., Melbourne, Victoria. Apparatus for forming blind-rollers	587,490	Aug. 3	370	68	80	733
Powell, John G., assignor to himself and E. Powell, Philadelphia, Pa. Machine for sewing looped fabrics	589,511	Sept. 7	173	38, 39, 40	80	1515
Powell, Joseph L. (See Colby, Charles T., assignor.)						
Powell, Lonnie, Beaver Crossing, Nebr. Currycomb	588,352	Aug. 17	1889	496	80	1047
Practical Closure Company. (See Lambert, Albert S., assignor.)						
Prager, Anton, Chicago, Ill. Bicycle	586,367	July 13	1342	308	80	276
Prager, Sigmund L. (See Bobsien and Prager.)						
Pratt & Cady Company. (See Martin, George E., assignor.)						
Pratt, Charles T., Clayville, N. Y. Machine for forming bushing-ferrules	590,275	Sept. 21	1499	354	80	1791
Pratt, George T., New Haven, Conn. Automatic switch	585,890	July 6	434	105	80	86
Pratt, Nathaniel L., Blissfield, Mich. Tension device for grain-binders	589,222	Aug. 31	3429	804	80	1373
Pratt & Whitney Company. (See Echols, Frank G., assignor.)						
Pratt, William H., Lynn, Mass., assignor to General Electric Company, of New York. Recording-wattmeter	590,648	Sept. 28	2153	510	80	1926
Praunegger, Ferdinand, Graz, Austria-Hungary. Folding knife, fork, or spoon	588,174	Aug. 17	1593	368	80	992
Prentice, George G., New York, N. Y. Double-turreted chucking-lathe	589,138	Aug. 31	3305	777, 778	80	1350
Prentiss Vise Company. (See Blake, John A., assignor.)						
Prenzel, Adam H., assignor of three-fourths to F. P. Adams, Adamsdale, and K. V. Zuber, Reading, Pa. Shoe-sewing machine	589,908	Sept. 14	889	198, 199, 200, 201	80	1653
Prenzel, Adam H., Landingville, assignor of three-fourths to F. P. Adams, Adamsdale, and K. V. Zuber, Reading, Pa. Shoe-sewing machine	589,949	Sept. 14	902	216, 217	80	1664
Prescott, Charles A., Victoria, Canada. Tidal motor	589,367	Aug. 31	3628	894, 895	80	1456
Presnall, Lindley M., Hazelton, Kans. Buggy-axle	589,480	Sept. 7	125	28	80	1505
Preston, Albert F., Boston, Mass., assignor to Busell Lasting Machine Company, Nashua, N. H. Lasting-pincers	585,940	July 6	532	126	80	103
Prevet, Charles, Paris, France. Hose-coupling	590,590	Sept. 28	2052	486	80	1908
Pribyl, Francis J., Hazleton, Pa. Fountain-pen	589,368	Aug. 31	3630	895	80	1457
Price, Albert, assignor to C. D. McLure, L. D. Kingsland, and E. D. Meier, trustees, St. Louis, Mo. Machine for treating ramie	589,369	Aug. 31	3631	895	80	1457
Price, Benjamin, Baltimore, Md. Heating apparatus	588,601	Aug. 24	2326	539	80	1148
Price, John B., Wollaston, Mass., assignor to Manhattan Typewriter Company, of New Jersey. Type-writing machine	585,783	July 6	236	55	80	49
Price, John R., assignor of one-half to W. H. Darling, Brooklyn, N. Y. Brake mechanism for power-driven vehicles	590,021	Sept. 14	1046	247	80	1691
Price, John W., Attica, Ohio. Range-finder for field-glasses	586,667	July 20	1875	436	80	406
Price, Walter, National City, Cal. Step-ladder	590,335	Sept. 21	1608	379	80	1812
Price, William H., assignor of one-half to B. Bevan, Washington, D. C. Box for bottled beverages	590,858	Sept. 28	2554	602	80	1995
Pridmore, Henry E., Chicago, Ill., assignor to McCormick Harvesting Machine Company. Mowing-machine	586,302	July 13	1333	318, 319, 320	80	283
Pridmore, John W., Chicago, Ill., assignor to McCormick Harvesting Machine Company. Corn-harvester	585,698	July 6	79	20	80	18
Pridmore, John W., Chicago, Ill., assignor to McCormick Harvesting Machine Company. Bundle-carrier for corn-harvesters	588,008	Aug. 10	1290	299	80	991
Pries, Herman, and J. J. Casey, Michigan City, Ind. Truck-bolster	588,777	Aug. 24	2066	615, 616	80	1212
Pries, Herman, and J. W. Meyer, Michigan City, Ind. Car-door	590,074	Sept. 14	1129	267	80	1706
Priest, Edwin, Bath-on-the-Hudson, N. Y. Tool for redressing crank-pins of locomotive-wheels	586,244	July 13	1140	259, 260	80	298
Priest, John, *et al.* (See Baker, Darius C., assignor.)						
Prigmore, James T. (See Blank, Henry F., assignor.)						
Primm, John Q., Loyd, Ill. Gate	585,754	July 6	240	55	80	50
Prindle, Edward J., Torrington, Conn. Device for use of base-ball pitchers	590,173	Sept. 14	1307	283	80	1721
Pringle, Eugene, Gloversville, N. Y., assignor to M. D. Shipman and C. E. Bradt, De Kalb, Ill. Machine for setting buttons or eyelets	585,822	July 6	324	76, 77	80	66
Prinz, William H., assignor to Saladin Pneumatic Malting Construction Company, Chicago, Ill. Malt-house	587,151	July 27	2783	654, 655	80	598
Pritchard, Joseph A., South Mills, N. C. Planter	586,867	July 20	2196	514	80	466
Probert, Ernest E. (See Niermeyer, Antonie C., assignor.)						
Proctor, Josiah K., assignor to Philadelphia Textile Machinery Company, Philadelphia, Pa. Apparatus for ordering tobacco	588,530	Aug. 17	2211	513, 514	80	1108
Proctor, Lewis S., and F. Neudorff, Sheffield, Ala. Wood-sawing machine	589,793	Sept. 7	638	148	80	1603

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Propst, Edward L., Charlotte, N. C. Hitching device	589,953	Sept. 14	737	172	80	1635
Protheroe, Evelyn E., Brodhead, Ky. Roller-mill belt-feed	587,606	Aug. 3	585	142	80	772
Prouty, Theodore C., assignor to T. C. Prouty Company, Midland, Mich. Door-hanger	587,491	Aug. 3	371	88	80	733
Prouty, Theodore C., assignor to T. C. Prouty Company, Midland, Mich. Door-hanger	587,492	Aug. 3	373	88	80	733
Prudden, De Witt C., and E. F. Jensen, Kansas City, Mo.; said Prudden assignor to said Jensen. Eyeglasses	588,175	Aug. 17	1595	369	80	993
Pruden, Abraham B., Brooklyn, assignor to B. Blum, New York, N. Y. Bicycle-hanger	590,773	Sept. 28	2387	567	80	1969
Prudhomme, Samuel. (See Stephens and Prudhomme.)						
Pullen, Leon W., Camden, N. J., assignor of thirteen-sixtieths to C. L. Klauder and A. E. Bainbridge, Philadelphia, Pa. Reversible primary battery	585,699	July 6	81	20	80	19
Pullman, Herbert S., assignor to Scovill Manufacturing Company, Waterbury, Conn. Bicycle-bell	587,187	July 27	2745	644	80	591
Pullman, Herbert S., assignor to Scovill Manufacturing Company, Waterbury, Conn. Bicycle-bell	589,752	Sept. 7	570	133	80	1591
Punchard, John H. (See Darby and Punchard.)						
Purcell, Edward. (See Earrell, Gorman, and Purcell.)						
Purdy, James E., New York, N. Y. Parcel-fastening device	590,591	Sept. 28	2052	486	80	1908
Purnell, Richard H., Rosedale, Miss. Plow	589,085	Aug. 31	3089	728	80	1310
Purvis, William B., Philadelphia, Pa. Electrical railway system	588,176	Aug. 17	1597	369	80	993
Pusey, Thomas M., Kennett Square, Pa. Rheostat	590,910	Sept. 28	2616	624	80	2015
Putnam, John P., Boston, Mass. Water-closet	588,292	Aug. 17	1788	414	80	1028
Putnam, Virginia B., Mount Morris, N. Y. Stamp-holder	585,700	July 6	83	21	80	19
Puyvallée, Georges D., and J. A. Meunier, Paris, France. Arrangement for notifying and recording way-signals on locomotives	589,272	Aug. 31	3530	829	80	1395
Pyeatt, Jessie N., Putnam, Tex. Apparatus for stretching fence-wires	590,164	Sept. 14	1304	309	80	1740
Pyle, Howard L., L. Lichtenstein, and J. C. Brison, Wilmington, Del. Apparatus for generating acetylene gas	590,592	Sept. 28	2053	486 487	80	1908
Pynten, Lars H., Baltic, S. D. Mortise and marking gage	586,393	July 13	1388	320	80	284
Q & C Company. (See Hanscom, Adelbert P., assignor.)						
Quammen, O. S. (See Ovrejorde, Erick L., assignor.)						
Quast, Charles, Marion, Ohio. Gas-engine	588,876	Aug. 24	2839	660	80	1244
Quast, Charles, Marion, Ohio. Traction-engine	588,877	Aug. 24	2840	660 661	80	1244
Queen & Company. (See Orford, Henry, assignor.)						
Quell, John A. (See Lehmann, Richard, assignor.)						
Quigley, Hugh L., Jennings, Mo. Horse-collar fastener	586,056	July 6	829	185	80	162
Quigley, Hugh A., Milford, N. H. Morocco-leather-dressing machine	588,471	Aug. 17	2107	490	80	1087
Quimby, Charles L., Philadelphia, Pa. Valve-registering device	588,010	Aug. 10	1293	299	80	923
Quin, Frederick W., assignor of one-half to F. J. Bird, Sydney, New South Wales. Cycle-driving mechanism	586,057	July 6	831	185	80	162
Quinby, Harris H., South Omaha, Nebr. Ratchet-brace	587,232	July 27	2914	663	80	625
Quinn, James, Montreal, Canada. Fare-box	588,778	Aug. 24	2068	616	80	1212
Quinn, William, *et al.* (See Berry, John S., assignor.)						
Quirk, Michael W., Jr., Milwaukee, Wis. Combined press and preserving-receptacle	589,998	Sept. 14	983	234	80	1679
Quisenberry, William, Fordsville, Ky. Car-coupling	587,452	Aug. 3	307	74	80	722
R. E. Deitz Company. (See Betts, Charles L., assignor.)						
Raacke, Otto, and G. Hensel, St. Louis, Mo. Electric signal device for elevators	587,507	Aug. 3	402	96	80	737
Raasch, Ferdinand, Milwaukee, Wis. Bridge-gate	585,701	July 6	83	21	80	19
Rabbeth, Francis J., Boston, Mass. Subcaliber ammunition	587,857	Aug. 10	1025	237	80	872
Rabbidge, Parnell. (See Dillberg and Rabbidge.)						
Rabitz, Hans, Berlin, Germany. System of anchoring earthworks	589,856	Sept. 14	739	172	80	1635
Raborg, Edward L. (See Lewis and Raborg.)						
Raby, Richard, assignor to D. L. Bouton and J. H. W. Howard, Harrisburg, Pa. Thill-coupling	590,744	Sept. 28	2325	550	80	1957
Radcliff, William, Philadelphia, Pa. Boiler	586,934	July 20	2342	552	80	498
Rademaker, John M., San Francisco, Cal. Cement-gravel mill and crusher	590,423	Sept. 21	1758	413	80	1639
Rader, Gustave, New York, N. Y. Fireproof floor	587,556	Aug. 3	487	115	80	755
Rader, Jacob T. (See Rader, John D. and J. T.)						
Rader, John D. and J. T., Clyde, Ohio. Strop	587,328	Aug. 3	85	21	80	682
Raders, Joseph F., Flushing, assignor to himself, and E. N. Dickerson, New York, N. Y. Non-centrifugal governor and speed-indicator	588,655	Aug. 24	2450	564 565	80	1171
Raders, Joseph F., Flushing, assignor to himself, and E. N. Dickerson, New York, N. Y. Non-centrifugal governor and speed-indicator	588,656	Aug. 24	2455	565	80	1172
Rafel, Will, and C. G. Knoerzer, New York, N. Y. Igniting device for bicycle-lamps	590,911	Sept. 28	2617	624	80	2015
Rafter, John A. (See Freese, Francis J., assignor.)						
Ragsdale, William A., Greenville, Miss. Cotton-seed-delinting machine	589,857	Sept. 14	740	173	80	1635
Raher, Michael S. (See Robinson and Raher.)						
Raines, Antonio, *et al.* (See Ostrander, Willis H., assignor.)						
Rait, George B., assignor to K. F. Rait, Boyden, Iowa. Locomotive-headlight	588,878	Aug. 24	2844	661	80	1244
Rait, Katherine F. (See Rait, George B., assignor.)						
Raky, Anton, Rupprechtsau, Germany. Boring apparatus for deep borings with oscillating beams	587,065	July 27	2592	612	80	562
Raley, Sylvester B. and T. M., Abilene, Tex. Washing-machine	589,194	Aug. 31	3392	796	80	1366
Raley, Timothy M. (See Raley, Sylvester B. and T. M.)						
Ralph, Linton N., assignor of one-half to F. S. Heisley, Pittsburg, Pa. Non-refillable bottle	585,965	July 6	577	134	80	112
Ralston, Henry E., *et al.* (See Gardiner, Robert M., assignor.)						
Ralston, John, Slippery Rock, Pa. Animal-holding apparatus	589,615	Sept. 7	352	86	80	1548
Ralston, Samuel H., Perth, Canada. Forging solid-metal car-wheels	587,401	Aug. 3	206	52	80	705
Ramsden, John T. (See Lewis and Ramsden.)						
Rand, Charles A. A., Chicago, Ill. Reel-supporting device for harvesters	590,464	Sept. 21	1819	430	80	1851
Rand, James H., North Tonawanda, N. Y. File for deposit-slips	586,691	July 20	1912	445	80	413
Rand, Silas J., assignor of one-half to G. D. Burgess, Boston, Mass. Vent-trap	587,681	Aug. 3	700	167	80	795
Rand, Waldron H., *et al.* (See Osgood, Zenas B., assignor.)						
Rand, William B., *et al.* (See Osgood, Zenas B., assignor.)						
Randolph, Frederick E., Leslie, Mich. Fence-post	589,980	Sept. 14	963	229	80	1675
Raney, Alfred H., and J. Eye, Aurora, Ill. Cake-turner	589,753	Sept. 7	571	134	80	1591
Rank, George R., Allegany, N. Y., assignor to I. S. Bernheimer, E. D. and H. D. Kohn, Chicago, Ill. Leather-cutting tool	588,928	Aug. 24	2022	684	80	1260
Rank, Lewis D., Williamsport, Pa. Buckle	586,746	July 20	2006	467	80	431
Rankin, Ernest, London, England. Machine for ripping cigarettes	587,858	Aug. 10	1028	237 238	80	872
Rankin, William G., Providence, assignor to Z. W. Bliss, Cranston, R. I. Bicycle-bell	590,598	Sept. 28	2056	487	80	1908
Rapp, Oscar, *et al.* (See Anderson, Lars, assignor.)						
Rathbun, James B., Trenton, N. Y. Rider's shoe	589,443	Sept. 7	73	16	80	1495
Rauch, Charles J., *et al.* (See Langer, Gotthold, assignor.)						
Rauhoff, John M., Chicago, Ill., assignor of one-half to J. Saunders, Marietta, Ga. Tool	588,879	Aug. 24	2845	662	80	1245

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rausheck, John E., assignor of one-half to J. B. Haynes and W. F. Ford, Linden, Tex. Planter	589,096	Aug. 31	3217	756	80	1333
Raussen, August, Covington, Ky. Sewing-machine presser-foot and embroidering attachment	587,233	July 27	2915	663	80	625
Rawhouser, George A., assignor of two-thirds to J. A. Dale and L. B. Wampler, York, Pa. Oil-can	586,781	July 20	2060	480	80	440
Rawlings, John J. (See Goodman and Rawlings.)						
Rawlings, William R. (See Goodman and Rawlings.)						
Rawson & Morrison Manufact ring Company. (See Norris, Almon E., assignor.)						
Ray, John B. (See Steel, Harry L., assignor.)						
Ray, Lloyd P., Seattle, Wash. Dust-pan	587,607	Aug. 3	586	142	80	773
Ray, Richard, Starke, Fla. Sunshade-hat	588,241	Aug. 17	1703	390 391	80	1013
Raymond, Alfred A., assignor of one-fourth to A. Root, Omaha, Nebr. Pile-core	589,026	Aug. 31	3090	728	80	1310
Raymond, Emma I. (See Raymond, Lewis H., assignor.)						
Raymond, François, Woodhaven, assignor of one-half to W. F. Wyckoff, Jamaica, N. Y. Drill	588,929	Aug. 24	2023	684	80	1260
Raymond, Frank V., and A. E. Otway, Invercargill, New Zealand. Adjustable folding cabin-table	590,165	Sept. 14	1305	310	80	1741
Raymond, Freeborn F., 2d, Newton, Mass. Fastener for gloves	586,692	July 20	1913	446	80	413
Raymond, Freeborn F., 2d, Newton, Mass. Buttonhole-sewing machine	588,358	Aug. 17	1890	437 438	80	1047
Raymond, Freeborn F., 2d, Newton, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Heel-attaching machine	589,396	Aug. 31	3885	906	80	1467
Raymond, George N., assignor of one-half to G. B. Perkins, Bridgeport, Conn. Packing-gasket	590,276	Sept. 21	1500	354	80	1791
Raymond, George W., Warrenton, Oreg. Needle and needle-filling machine	588,836	Aug. 24	2775	645	80	1231
Raymond, John C., Brooklyn, N. Y. Bicycle	588,472	Aug. 17	2108	490	80	1088
Raymond, Lewis H., assignor to E. I. Raymond, Brooklyn, N. Y. Life-raft	589,139	Aug. 31	3308	778	80	1350
Raywood, William R., and T. R. Gockel, Covington, Ky. Wall-tie	589,461	Sept. 7	196	28	80	1505
Reagan, Harry C., Jr., Philadelphia, Pa. Application of solar heat to thermo-batteries	588,177	Aug. 17	1598	369	80	993
Reagan, James, assignor of one-half to F. H. Fleer, Philadelphia, Pa. Fire-bridge for boiler-furnaces	589,909	Sept. 14	848	201	80	1654
Reagan, Paul M., assignor to Hinson Manufacturing Company, Chicago, Ill. Car-coupling	589,140	Aug. 31	3309	778	80	1350
Reame, Albert. (See Essex and Reame.)						
Reamer, William S., Oswego, Kans. Burner-wick and flame regulator	585,702	July 6	84	22	80	20
Reardon, Dennis J., Newport, R. I. Bicycle-balancer	587,859	Aug. 10	1030	238	80	873
Reardon, Matthew, Moravia, N. Y. Nut-lock	587,557	Aug. 3	488	115	80	755
Reardon, Patrick H., Yonkers, N. Y. Corn-holder	586,058	July 6	832	185	80	162
Reardon, William A., Port Leyden, N. Y. Work-trestle	589,573	Sept. 7	273	66	80	1538
Reavil, John B. (See Hale and Reavil.)						
Rector, W. B. (See Posey, Robert H., assignor.)						
Redfield, Charles T., Glen Haven, N. Y. Sash-lock	588,473	Aug. 17	2109	491	80	1088
Rediger, David. (See Chater, William, assignor.)						
Rediske, Herman T., and R. C. Abelt, Milwaukee, Wis. Woodworking-machine	587,756	Aug. 10	840	197 198	80	842
Redlinger, Michael, Freeport, Ill. Cork-extractor	589,574	Sept. 7	274	66	80	1534
Redmon, Frederick A., assignor to B. L. Ryder, San Francisco, Cal. Explosive-engine	586,826	July 20	2133	498	80	453
Redmon, Frederick A., San Francisco, Cal., assignor of one-half to W. R. Smedberg. Lemon-squeezer	587,900	Aug. 10	1031	238	80	873
Redwine, Thomas J., Cherokee, Ala. Neckband-adjuster	589,754	Sept. 7	572	134	80	1591
Reed, George W., Erie, Pa. Try and center square	587,453	Aug. 3	308	74	80	722
Reed, Harvey C., Minneapolis, Minn. Trolley-guard	590,166	Sept. 14	1306	310	80	1741
Reed, James W. (See Reed, Van A. and J. W.)						
Reed, Joseph A., *et al.* (See Burroughs, Charles E., assignor.)						
Reed, Nathan F., Centerville, assignor of one-half to M. B. Hoyt, Stowe, Vt. Whiffletree-hook	588,474	Aug. 17	2110	491	80	1088
Reed, Van A. and J. W., Elizabeth, Pa. Folding package-carrier	587,558	Aug. 3	489	116	80	755
Reed, William M., Bellaire, Ohio. Scale-scraping device	589,370	Aug. 31	3833	896	80	1457
Reedy, Edward E., Port Carbon, Pa. Egg-beater	585,708	July 6	85	22	80	20
Reese, Joseph K., Roanoke, Va. Lubricator	586,714	July 20	1945	454	80	419
Reese, Thomas, Jr. (See Roseberry, Abraham S., assignor.)						
Reese, William, Carnegie, Pa. Car-coupling	590,859	Sept. 28	2525	602	80	1996
Reese, William S., Natrona, Pa. Hoisting and tripping apparatus	588,756	Aug. 24	2641	609	80	1207
Reeve, Sidney A., Boston, assignor to C. F. Brown, trustee, Reading, Mass. Apparatus for utilizing liquid or gaseous fuel for power	588,178	Aug. 17	1600	370	80	994
Reeve, Sidney A., Worcester, assignor to C. F. Brown, trustee, Reading, Mass. Heat engine	588,208	Aug. 17	1790	415	80	1029
Reeves, Frederick W., St. Paul, Minn. Reciprocating rotary steam-engine	587,402	Aug. 3	207	52, 53	80	705
Reeves, John M., Plymouth, Pa. Car-brake	586,904	July 13	1084	244	80	228
Reeves, Milton O., and E. K. Hood, assignors to Reeves Pulley Company, Columbus, Ind. Speed-varying mechanism	587,403	Aug. 3	209	53	80	705
Reeves, Milton O., and E. K. Hood, assignors to Reeves Pulley Company, Columbus, Ind. Variable-speed counter-shaft	588,354	Aug. 17	1895	438 439	80	1048
Reeves Pulley Company. (See Reeves and Hood, assignors.)						
Regester, Collins D., administrator. (See Regester, Samuel B.)						
Regester, Samuel B., deceased; C. D. Regester, Lansdowne, Pa., administrator. Bed-fastening	588,475	Aug. 17	2111	491	80	1088
Rehfuss, Martin O., Philadelphia, Pa., assignor to Universal Food and Liquid Improving Company, of West Virginia. Cork-retainer for bottles	590,798	Sept. 28	2419	574	80	1975
Rehm, Carl. (See Koch and Rehm.)						
Reid, John M. (See Swick and Reid.)						
Reid, Samuel, Jersey City, N. J., and E. G. Tremaine, Brooklyn, assignors to Reid Tobacco Machinery Company, New York, N. Y. Machine for stripping or stemming tobacco-leaves	589,961	Sept. 14	964	230	80	1675
Reid, Thomas J., Washington Court-House, Ohio. Ball-bearing	590,627	Sept. 28	2111	500	80	1918
Reid Tobacco Machinery Company. (See Reid and Tremaine, assignors.)						
Reifgraber, Joseph J., St. Louis, Mo. Automatic bottle-locker	586,698	July 20	1915	446	80	413
Reilley, Terence F., New York, N. Y. Sander	588,355	Aug. 17	1896	439	80	1048
Reilly, William, Salford, and C. Halgh, Manchester, England. Two-speed driving-gear for bicycles	588,657	Aug. 24	2458	565	80	1173
Reinach, Charles. (See Reinach, Henry, assignor.)						
Reinach, Henry, assignor of one-half to C. Reinach, Chicago, Ill. Check-valve	588,779	Aug. 24	2068	616	80	1212
Reinert, Emil, Stuttgart, assignor to Firm of E. Merck, Darmstadt, Germany. Animal extract	586,623	July 20	1815		80	305

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Reinhard, George F. (See Hartmann and Reinhard.)						
Reiser, Vincent, and T. Sutcliffe, Bradford, England. Stopper or cover for bottles, jars, or similar vessels	589,097	Aug. 31	3219	756	80	1333
Reisert, Michael E., Hennef, Germany. Automatic weighing apparatus	585,785	July 6	241	56	80	50
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Brush-holder	589,794	Sept. 7	641	149	80	1604
Rembert, Henry, Galveston, Tex. Stop attachment for cotton-gins	586,894	July 13	1390	320	80	265
Remer, Jared R. de, assignor of one-half to L. Schwarz, Glenwood Springs, Colo. Hydraulic motor	586,059	July 6	883	185 186	80	169
Remsen, Timothy A., Brooklyn, assignor to H. M. Lee, New York, N. Y. Car-fender	586,290	July 13	1207	275	80	251
Renk, Peter, Leipsic, Germany. Attachment for citherns	587,454	Aug. 3	309	75	80	723
Renner, Charles. (See Weiss, Engelbert, assignor.)						
Reno, William J., Minneapolis, Minn. Type-writer attachment	590,404	Sept. 21	1721	405	80	1833
Renz, Herman F., assignor of one-half to G. Nauman, Canton, Ohio. Rotary steam-engine	586,694	July 20	1917	446 447	80	414
Reuleaux, Josef. (See Laughlin and Reuleaux.)						
Reuter, Jakob, Fullerton, Kans. Hardening copper	587,861	Aug. 10	1092	.....	80	873
Reuter, Nickolas, Chicago, Ill. Feeding and watering device	587,320	Aug. 3	86	21	80	022
Rexroth, George J., Napoleon, Ohio. Extensible support for scaffolding	590,774	Sept. 28	2389	568	80	1969
Rexroth, John J., assignor to himself and L. M. Shaw, Chicago, Ill. Adjustable bicycle handle-bar	588,242	Aug. 17	1706	391	80	1014
Reyburn, John E. (See Müller, Harry O., assignor.)						
Reynolds, Delbert J., Winnebago, Minn., assignor, by mesne assignments, to Walmsley, Fuller & Company, Chicago, Ill. Acetylene-gas generator	590,441	Sept. 21	1784	419	80	1844
Reynolds, George H., assignor to Crane Elevator Company, Chicago, Ill. Elevator	587,506	Aug. 3	404	95, 96	80	736
Reynolds, Samuel C. (See Bidwell and Reynolds.)						
Reynolds, Stanley, *et al.* (See Greengrass, Francis W., assignor.)						
Reynolds, Stephen A. D., Girard, assignor of one-half to M. A. Newell, Virden, Ill. Harness attachment	589,536	Sept. 7	216	51	80	1523
Reynolds, Walter J., Davisville, R. I. Nut-lock	590,628	Sept. 28	2114	500	80	1919
Reynolds, Walter S., assignor to M. D. Shipman, C. E. and S. E. Bradt, De Kalb, Ill. Wagon body and gear	587,86..	Aug. 10	1083	239	80	873
Reynolds, William H., New Haven, Conn. Order-indicator	588,805	Aug. 24	2721	631	80	1221
Reznick, Oscar, Philadelphia, Pa. Luggage-carrier	585,833	July 6	333	77	80	67
Rheubottom, Frank C., Union City, Mich. Grave-vault	588,066	Aug. 10	1412	328	80	944
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Incandescent burner	586,060	July 6	885	186	80	168
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp-burner	586,061	July 6	886	186	80	168
Rhind, Frank, assignor to Bridgeport Brass Company, Bridgeport, Conn. Electric gas-lighter	586,537	July 13	1350	384	80	335
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Acetylene-gas-generating lamp	589,098	Aug. 31	3220	757	80	1333
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Acetylene-gas-generating lamp	589,099	Aug. 31	3221	757	80	1334
Rhinehart, Garret D., New York, N. Y. Apparatus for carbonating liquids	589,871	Aug. 31	3835	896	80	1458
Rhodes, Harry A., Denver, Colo. Separating gold and silver or other precious metals from their ores	588,476	Aug. 17	2112	.....	80	1068
Rhodes, Robert E., Atlanta, Ga. Hair-straightener	589,397	Aug. 31	3386	903	80	1467
Rhodes, Wesley, Philadelphia, Pa. Ammunition-hoist for ships	587,330	Aug. 3	88	21 22 23	80	682
Ribyn, Mathias J., Jr., Keokuk, Iowa. Sprocket wheel and chain	590,649	Sept. 28	2156	510	80	1927
Rice, Benjamin P., Petersburg, Ky. Gate	588,732	Aug. 24	2582	595 596	80	1196
Rice, Harvey. (See Rice, Walter P. and H.)						
Rice, Henry H., Cheshire, assignor to Turner Heater Company, Bristol, Conn. Hot-air furnace	586,062	July 6	836	186	80	168
Rice & Hutchins. (See Closson, David B., assignor.)						
Rice, Isaac M., *et al.* (See Leslie, Frank W., assignor.)						
Rice, Lewis C., assignor of one-half to William Ellison & Sons Manufacturing Company, St. Louis, Mo. Dynamo-electric machine	588,602	Aug. 24	2330	539	80	1149
Rice, Walter P. and H., Cleveland, Ohio. Machine for cleaning and assorting fruits	589,141	Aug. 31	3312	778	80	1351
Rice, William B., Modesto, Cal. Car-coupling	589,027	Aug. 31	3091	729	80	1310
Richards, Francis H., Hartford, Conn. Weighing-machine	585,966	July 6	578	135 136	80	112
Richards, Francis H., Hartford, Conn. Weighing-machine	585,967	July 6	584	136 137	80	113
Richards, Francis H., Hartford, Conn. Weighing-machine	585,968	July 6	594	137 138 139	80	115
Richards, Francis H., Hartford, Conn. Weighing-machine	585,969	July 6	606	139 140	80	119
Richards, Francis H., Hartford, Conn. Weighing-machine	585,970	July 6	611	140 141	80	120
Richards, Francis H., Hartford, Conn. Weighing-machine	585,971	July 6	614	141 142	80	120
Richards, Francis H., Hartford, Conn. Weighing-machine	585,972	July 6	620	143	80	121
Richards, Francis H., Hartford, Conn. Weighing-machine	585,973	July 6	624	144 145	80	122
Richards, Francis H., Hartford, Conn. Weighing-machine	585,974	July 6	632	145	80	123
Richards, Francis H., Hartford, Conn. Weighing-machine	585,975	July 6	637	146	80	124
Richards, Francis H., Hartford, Conn. Weighing-machine	585,976	July 6	640	146 147	80	124
Richards, Francis H., Hartford, Conn. Weighing-machine	585,977	July 6	647	147 148 149	80	125
Richards, Francis H., Hartford, Conn. Weighing-machine	585,978	July 6	656	149 150	80	127
Richards, Francis H., Hartford, Conn. Automatic weighing-machine	585,979	July 6	663	151	80	129
Richards, Francis H., Hartford, Conn. Weighing-machine	585,980	July 6	668	152	80	130
Richards, Francis H., Hartford, Conn. Weighing apparatus	585,981	July 6	674	153	80	131
Richards, Francis H., Hartford, Conn. Weighing-machine	585,982	July 6	678	154 155	80	132
Richards, Francis H., Hartford, Conn. Automatic weighing-machine	585,983	July 6	693	156 157	80	136

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Richards, Francis H., Hartford, Conn. Weighing-machine	585,984	July 6	700	157 158	80	136
Richards, Francis H., Hartford, Conn. Weighing-machine	585,985	July 6	705	158 159	80	139
Richards, Francis H., Hartford, Conn. Weighing-machine	585,986	July 6	713	159 160	80	140
Richards, Francis H., Hartford, Conn. Weighing-machine	589,273	Aug. 31	3532	829 830	80	1395
Richards, Francis H., Hartford, Conn. Weighing-machine	589,274	Aug. 31	3540	830 831	80	1397
Richards, Francis H., Hartford, Conn. Automatic weighing-machine	589,275	Aug. 31	3547	831 832	80	1398
Richards, Francis H., Hartford, Conn. Weighing-machine	589,276	Aug. 31	3554	833 834	80	1399
Richards, Francis H., Hartford, Conn. Automatic weighing-machine	589,277	Aug. 31	3559	835	80	1400
Richards, Francis H., Hartford, Conn. Weighing-machine	589,278	Aug. 31	3566	836	80	1402
Richards, Francis H., Hartford, Conn. Weighing-machine	589,279	Aug. 31	3572	836 837	80	1403
Richards, Francis H., Hartford, Conn. Weighing-machine	589,280	Aug. 31	3580	838 839	80	1404
Richards, Francis H., Hartford, Conn. Weighing-machine	589,281	Aug. 31	3584	839 840	80	1405
Richards, Francis H., Hartford, Conn. Weighing-machine	589,282	Aug. 31	3591	840 841 842	80	1407
Richards, Francis H., Hartford, Conn. Weighing-machine	589,283	Aug. 31	3599	842 843	80	1408
Richards, Francis H., Hartford, Conn. Weighing-machine	589,284	Aug. 31	3606	843 844 845	80	1409
Richards, Francis H., Hartford, Conn. Weighing-machine	589,285	Aug. 31	3612	846 847	80	1411
Richards, Francis H., Hartford, Conn. Automatic weighing-machine	589,286	Aug. 31	3623	847 848	80	1415
Richards, Francis H., Hartford, Conn. Weighing and bagging machine	589,287	Aug. 31	1628	848 849	80	1415
Richards, Francis H., Hartford, Conn. Weighing-machine	589,288	Aug. 31	3633	849 850	80	1416
Richards, Francis H., Hartford, Conn. Weighing-machine	589,289	Aug. 31	3641	851 852	80	1418
Richards, Francis H., Hartford, Conn. Weighing-machine	589,290	Aug. 31	3644	852 853	80	1419
Richards, Francis H., Hartford, Conn. Weighing-machine	589,291	Aug. 31	3655	854 855	80	1421
Richards, Francis H., Hartford, Conn. Weighing-machine	589,292	Aug. 31	3660	855 856	80	1422
Richards, Francis H., Hartford, Conn. Weighing-machine	589,293	Aug. 31	3667	856 857	80	1424
Richards, Francis H., Hartford, Conn. Coin-controlled weighing and dispensing apparatus	589,294	Aug. 31	3671	857 858	80	1424
Richards, Francis H., Hartford, Conn. Weighing and bagging machine	589,295	Aug. 31	3677	858 859 860	80	1426
Richards, Francis H., Hartford, Conn. Weighing and bagging apparatus	589,296	Aug. 31	3683	860 861	80	1427
Richards, Francis H., Hartford, Conn. Weighing-machine	589,297	Aug. 31	3688	861 862	80	1428
Richards, Francis H., Hartford, Conn. Weighing-machine	589,298	Aug. 31	3693	862 863 864	80	1430
Richards, Francis H., Hartford, Conn. Weighing-machine	589,299	Aug. 31	3706	864 865	80	1433
Richards, Francis H., Hartford, Conn. Weighing-machine	589,300	Aug. 31	3711	865 866	80	1434
Richards, Francis H., Hartford, Conn. Weighing and packing apparatus	589,301	Aug. 31	3718	866 867 868	80	1435
Richards, Francis H., Hartford, Conn. Weighing-machine	589,302	Aug. 31	3727	868 869	80	1437
Richards, Francis H., Hartford, Conn. Adding-machine	590,277	Sept. 21	1501	355 356	80	1791
Richards, Francis H., Hartford, Conn. Cigarette-machine	590,629	Sept. 28	2114	500 501 502 503	80	1919
Richards, Marcius C., Aurora, Ill. Grass collector or gatherer	589,028	Aug. 31	3008	729	80	1310
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	586,273	July 13	1182	271	80	246
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	586,274	July 13	1183	271	80	246
Richardson, Charles J., Adrian, Mich. Ironing-machine	589,575	Sept. 7	276	66, 67	80	1534
Richardson, George T. (See White, Moses H., assignor.)						
Richardson, Henry, Lichfield, England. Automatic weighing and package-filling machine	590,580	Sept. 21	1984	458	80	1872
Richardson, John M., Daingerfield, Tex. Tool-holder	589,308	Aug. 31	3735	899	80	1439
Richardson, John R., assignor of one-third to W. F. Waddell, Madera, Cal. Roller-bearing	588,837	Aug. 24	2777	644	80	1229
Richardson, Robert R., assignor of two-thirds to R. R. Richardson and W. H. Stemme, Portland, Oreg. Rein-holder	586,063	July 6	838	187	80	164
Richardson, Russell R., *et al.* (See Richardson, Robert R., assignor.)						
Richey, Charles V., assignor of one-half to L. C. Bailey, Washington, D. C. Railway-switch	587,657	Aug. 3	659	157	80	787
Richey, James N., Carmichael's, Pa. Ladder	587,008	Aug. 3	598	142	80	773
Richmond Locomotive and Machine Works. (See Mellin, Carl J., assignor.)						
Richter, Herman, Jr., Jersey City, N. J., assignor of one-half to H. G. Veith, New York, N. Y. Drill	586,064	July 6	839	187	80	164

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Rickard, William J., Philadelphia, Pa. Electrical indicator for valves	588,860	Aug. 24	2847	662	80	1245
Rickert, Alphenus F., Scranton, Pa. Recutting-tool for valve-seats	586,395	July 13	1393	321	80	285
Rickert, George, Hazlebrook, Pa. Dynamite-heater	589,089	Aug. 31	3098	729	80	1310
Rickert, Mason. (See Garstang and Rickert.)						
Rickey, Joseph M., Cleveland, Ohio. Seed-sowing machine	587,374	Aug. 3	164	40	80	696
Rickey, Walter J., Danbury, Conn, assignor to T. & B. Tool Company, Danbury, Conn., and Portland, Me. Lubricating twist-drill	589,576	Sept. 7	378	67	80	1534
Riddell, John, Schenectady, N. Y. Path delineating, recording, and measuring machine	589,080	Aug. 31	3094	729 730	80	1311
Ridenour, Annie, *et al.* (See Clouse, Joseph N., assignor.)						
Rideout, George E., Boston, Mass. Coat-hanger	586,456	July 13	1408	350	80	304
Ridings, William R., G. F. Bull, and L. B. Codd, Birmingham, England. Electric-arc lamp	590,288	Sept. 21	1435	338	80	1779
Riecker, Charles E., assignor to Stanley Rule and Level Company, New Britain, Conn. Rule-joint	588,294	Aug. 17	1796	415	80	1029
Rife, James, Shellsburg, Iowa. Combined plow and harrow	590,671	Sept. 28	2201	523	80	1935
Riffel, Alphonso D., *et al.* (See Grunow, Frank A. L., assignor.)						
Rigby, Walter, New York, N. Y. Ring for ring-twisting frames	588,190	Aug. 10	1467	343	80	958
Riggin, Henry H., Altoona, Pa. Valve	588,015	Aug. 10	1308	301	80	924
Riggins, Robert W., Maury City, Tenn. Car-coupling	590,022	Sept. 14	1049	247	80	1691
Riley, Elizabeth, Newport, R. I. Non-refillable bottle	588,008	Aug. 24	2332	539	80	1150
Riley, Herbert J., Hackensack, N. J. Lantern-slide carrier	586,945	July 13	1143	260	80	288
Riley, James, New York, N. Y. Removable sink-strainer	587,559	Aug. 3	490	116	80	756
Riley, Joseph H., and E. O'Connor, Bury, England. Cloth-folding machine	587,017	July 27	2508	589	80	546
Riley, William H., Dayton, Ohio. Furnace or heater	590,167	Sept. 14	1209	310	80	1742
Rimmelin, Edward H., Galveston, Tex. Folding cot or bedstead	589,428	Sept. 7	127	28	80	1506
Ring, Charles B. (See Harriman and Ring.)						
Ring, Lewis J., Stanton, Iowa. Mower	589,616	Sept. 7	353	86	80	1548
Risk, Robert J., assignor to B. Eastwood, Paterson, N. J. Indicator for winding and warping machines	586,906	July 13	1394	321	80	285
Risley, Isaac, New York, N. Y., assignor, by mesne assignments, to J. H. Borton, trustee, Atlantic City, N. J. Machine for justifying typographic impressions	588,087	Aug. 10	1413	328 329 330	80	944
Risley, Peter B. (See Harmer, George W., assignor.)						
Risser, C. A., *et al.* (See Baker, Thomas J., assignor.)						
Ritchie, Green & Co. (See Green, Ara, assignor.)						
Rittenhouse, Frank, Norristown, Pa. Brake for vehicles	589,755	Sept. 7	573	134 135	80	1591
Ritter, Aaron, Hoopeston, assignor of one-half to B. E. Cronkhite, Rossville, Ill. Extensible trestle	590,278	Sept. 21	1510	357	80	1792
Ritter, Sophus, Copenhagen, Denmark. Photographic camera	589,304	Aug. 31	3736	870	80	1439
Rittman, Christian A., Sandusky, Ohio. Chalking device	587,863	Aug. 10	1034	239	80	873
Rivett, Edward, assignor of one-half to D. Hunt, Boston, Mass. Ball-turning machine	586,801	July 20	2097	487	80	445
Roach, Henry B., Paris, assignor of one-half to G. F. and F. O. Hicks and J. Hale, Lamar county, Tex. Washing-machine	588,604	Aug. 24	2333	540	80	1150
Robards, Edward, Stilesville, Ind. Oil-can	588,011	Aug. 10	1295	300	80	922
Robards, Edward, Stilesville, Ind. Cutter for cigar-wrappers	588,477	Aug. 17	2114	491	80	1068
Robbins, Arthur C., assignor to E. C. Hughes, San Francisco, Cal. Signal-box	589,617	Sept. 7	354	86	80	1549
Robbins, Arthur C., assignor to E. C. Hughes, San Francisco, Cal. Electric switch and cut-out for telephone-boxes	589,618	Sept. 7	355	87	80	1549
Robbins, Arthur C., assignor to E. C. Hughes, San Francisco, Cal. Telephone-transmitter for signal-boxes	589,619	Sept. 7	356	87	80	1549
Robbins, Edward E., Coldwater, Kans. Can-opener	588,248	Aug. 17	1708	398	80	1014
Robbins, George B. (See Norling and Johnson, assignors.)						
Robbins, John S. (See Spalding and Robbins.)						
Robbins, Richard B., Adrian, Mich. Corn-harvesting machine	585,786	July 6	243	56	80	50
Robbins, William, Leipsic, Ohio. Wire-fence stay	586,715	July 20	1947	454	80	420
Robbins, William W. (See Bonham, Edwin, assignor.)						
Roberts, Arthur, Milwaukee, Wis. Shoulder-brace for bicycles	588,881	Aug. 24	2848	662	80	1245
Roberts, Benjamin S., Winson Green, and W. Morton, Birmingham, England. Adjusting means for cycle-chains	586,624	July 20	1816	422	80	305
Roberts, Charles C., and L. S. Stoddard, Ansonia, Conn. Apparatus for coating sheet-metal plates	588,478	Aug. 17	2115	492	80	1069
Roberts, Edward A., Cleveland, Ohio. Curtain-fixture	588,244	Aug. 17	1709	398	80	1014
Roberts, Edward M., Atlanta, Ga., J. F. Blackwood, and J. P. Cahill, Charleston, S. C. Wick-puller	585,787	July 6	245	57	80	51
Roberts, George I., New Rochelle, N. Y. Steam-separator	587,560	Aug. 3	491	116	80	756
Roberts, George C., assignor to Troy Laundry Machinery Company, Limited, Chicago, Ill. Hydrocarbon-burner	588,658	Aug. 24	2460	565 566	80	1173
Roberts, Grace, Brooklyn, N. Y. Detachable fastener for dress-shields	590,807	Sept. 28	2440	579	80	1979
Roberts, Isaiah L., Niagara Falls, N. Y. Process of and apparatus for manufacturing metallic carbids	587,138	July 27	2746	644	80	591
Roberts, Isaiah L., Brooklyn, N. Y. Process of and apparatus for making metallic carbids	587,509	Aug. 3	406	96	80	738
Roberts, Isaiah L., Brooklyn, N. Y. Process of and apparatus for making metallic carbids	588,012	Aug. 10	1296	300	80	923
Roberts, James K. (See Stratton and Roberts.)						
Roberts, John S., Granbury, Tex. Jack for turning fly-wheels of engines, &c	589,081	Aug. 31	3098	730	80	1311
Roberts, Percy A., Adelaide, South Australia. Envelop	586,925	July 20	1817	422	80	305
Roberts, Thomas, Bolton, England. Bottle-filling machine	586,747	July 20	2007	467 468	80	431
Roberts, William, assignor of one-half to M. Bevan, Plymouth, Pa. Pneumatic foot	589,537	Sept. 7	216	52	80	1523
Robertson, Hugh R., Alameda, Cal. Log-raft construction	590,279	Sept. 21	1511	357	80	1793
Robertson, James L. (See Lippincott, Alpheus C., assignor.)						
Robertson, John A. (See Mutschler and Robertson.)						
Robertson, Judah T., New York, N. Y. Feeder attachment for printing-presses	590,114	Sept. 14	1207	284	80	1721
Robertson, Judah T., New York, N. Y. Feeder for printing-presses	590,115	Sept. 14	1213	285 286	80	1722
Robertson, William P., St. Louis, Mo. Water-filter	589,223	Aug. 31	2431	604	80	1374
Robinson, Alexander J. (See Lentz and Robinson.)						
Robinson, Arthur W., Milwaukee, Wis. Chain bucket	588,531	Aug. 17	2212	514	80	1108
Robinson, Arthur W., Milwaukee, Wis. Placer-mining dredge	589,858	Sept. 14	743	173 174	80	1636
Robinson, Carl N., Pawlet, Vt. Tool for removing sections from scythe bars, &c	590,023	Sept. 14	1050	248	80	1692
Robinson, Charles W., Saginaw, Mich. Lock for fifth-wheels of wagons	585,788	July 6	246	57	80	51
Robinson, Claude H., Anniston, Ala. Machine for wrapping cotton samples	586,065	July 6	841	187	80	164

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Robinson & Co., John T. (See Robinson, Chamberlain, and Smith, assignors.)						
Robinson, Edwin, Zanesville, Ohio. Apparatus for manufacturing glassware	588,013	Aug. 10	1296	300	80	923
Robinson, Fred P. (See Blount and Robinson.)						
Robinson, James, Leeds, and D. Donald, Penryn, England, assignors of three-fourths to E. C. J. De Vis, Cleveland, Ohio, and T. F. Craddock, London, England. Water-gage for steam-boilers	588,605	Aug. 24	2335	540	80	1150
Robinson, John T., H. J. Chamberlain, Hyde Park, and D. M. Smith, Boston, assignors to J. T. Robinson & Co., Hyde Park, Mass. Quadruple scorer	589,577	Sept. 7	380	67, 68	80	1535
Robinson, Wade, New York, N. Y., assignor to Patent Purchase Company, of New York. Coin-holder	587,018	July 27	2508	589	80	546
Robinson, William, and M. S. Raher, Dubois, Pa. Car-ventilating wind-wheel	589,195	Aug. 31	3396	796 797	80	1367
Robinson, William C., assignor of one-half to J. M. Goodloe and H. C. McDowell, Jr., Big Stone Gap, Va. Receptacle for inking-pads	590,499	Sept. 21	1877	445	80	1968
Robinson, William C., and W. S. Palmer, assignors to themselves, W. S. Mathews, W. T. Goodloe, and W. S. Beverley, Big Stone Gap, Va. Car-coupling	587,658	Aug. 3	660	158	80	788
Robson, George B. (See Hussong and Robson.)						
Roby, George L., assignor to Gale Manufacturing Company, Albion, Mich. Cultivator	587,066	July 27	2508	612 613	80	568
Roby, George L., assignor to Gale Manufacturing Company, Albion, Mich. Cultivator	587,067	July 27	2505	613 614	80	568
Roche, David, assignor of seven-eighths to F. H. Kelly, T. M. Warner, and A. G. Harbaugh, Cleveland, Ohio. Ball-turning lathe	588,914	Aug. 24	2902	660	80	1256
Roche, David, assignor of seven-eighths to F. H. Kelly, T. M. Warner, and A. G. Harbaugh, Cleveland, Ohio. Ball-grinding machine	588,915	Aug. 24	2903	660	80	1256
Roche, Herrick H., Kingston, Canada. Automatic car-switcher	590,794	Sept. 28	2420	574	80	1975
Roche, John A., and J. C. Bley, Chicago, Ill.; said Bley assignor to said Roche. Electric railway	590,552	Sept. 21	1962	575 466 467	80	1980
Rochester Automatic Lubricator Company. (See Buckley, John, assignor.)						
Rochester Machine Tool Works. (See Buckley, John, assignor.)						
Rock, Peter J., Superior, Wis. Snap-hook	586,397	July 13	1395	321	80	286
Rockstroh, Frederick E., San Francisco, Cal. Combined ear and tooth pick	590,280	Sept. 21	1513	358	80	1793
Rockwell, Edward D., Bristol, Conn. Bicycle-brake	588,088	Aug. 10	1419	330	80	945
Rodenbeck, William. (See Brown, Lewis E., assignor.)						
Rodenhausen, William, Philadelphia, Pa. Singletree coupling-clamp	585,987	July 6	719	161	80	142
Rodenhausen, William, Philadelphia, Pa. Dumping-wagon	588,882	Aug. 24	2849	662 663	80	1246
Rodgers, Alfred, and G. Peden, Johnstown, Pa. Bottle	587,234	July 27	2916	684	80	695
Roe, John A., Sewickley, assignor to De Haven & Co., Limited, Allegheny, Pa. Gas-stove	588,532	Aug. 17	2213	514	80	1108
Roedel, Auguste, New York, N. Y. Electric herb pad	588,479	Aug. 17	2117	492	80a	1069
Roelker, Hugo B., New York, N. Y. Compressed-air refrigerating-machine	589,020	Sept. 7	357	87, 88	80	1549
Rogers, Charles L., assignor to Murray, Dougal & Co., Limited, Milton, Pa. Refrigerator-tank car	588,099	Aug. 10	1490	330	80	945
Rogers, Winfield S., Cincinnati, Ohio. Planetary gearing	588,356	Aug. 17	1997	439	80	1048
Rohlin, John, assignor of one-half to A. E. Shaw, Eureka, Kans. Rail-joint	587,235	July 27	2917	684	80	695
Roland, Henry, Hazleton, Pa. Padlock	587,600	Aug. 3	589	142	80	773
Roland, William W., Emigsville, Pa. Berry-bucket	588,980	Aug. 24	2924	684	80	1261
Rollins, William T., Boston, assignor of one-half to J. E. Henderson, Everett, H. C. Gifford, and C. E. Bowler, Somerville, Mass. Hoof-pad	590,553	Sept. 21	1966	467	80	1981
Roney, John. (See Murdock, Thomas J., assignor.)						
Roney, William R., Boston, Mass., W. W. Churchill, New York, N. Y., and J. T. Arnold, Chicago, Ill., assignors to Westinghouse, Church, Kerr & Company, Orange, N. J. Bar-actuating device	586,976	July 27	2497	574	80	532
Rook, William H., Jr., Summit, assignor to Taplin, Rice & Co., Akron, Ohio. Crock-press	586,291	July 13	1308	276	80	251
Rook, William N., assignor of one-third to J. M. Ownby, Union City, Tenn. Seed-dropping attachment	586,457	July 13	1404	350	80	304
Rooney, Eugene H., Milwaukee, Wis. Drafting-tool	586,626	July 20	1818	423	80	306
Rooney, John, Detroit, Mich. Wash-out valve for steam-boilers	586,368	July 13	1343	309	80	277
Rooney, Michael. (See Miller, Alexander T., assignor.)						
Root, Arminta. (See Raymond, Alfred A., assignor.)						
Root, Edward R., New Hartford, Conn. Pocket-stool	586,320	July 13	1263	288	80	251
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Cop-skewer for loom-shuttles	588,179	Aug. 17	1608	370	80	904
Rosback, Fredrick P., assignor to Pan Confection Company, Chicago, Ill. Machine for cutting lozenges	585,789	July 6	247	57, 58	80	51
Rose, Didriks R., San Francisco, Cal. Ship's-port ventilator	588,480	Aug. 17	2118	492	80	1069
Rose, Henry C. (See Myers and Rose.)						
Rose, Israel M., Philadelphia, Pa. Bicycle-lamp	588,115	Aug. 10	1481	342	80	957
Rose, William, Gainsborough, England, assignor to Wright's Automatic Tobacco Packing Machine Company, Lynchburg, Va. Machine for making up tobacco or other similar material in packets	586,076	July 6	861	192 193 194 195	80	168
Roseberry, Abraham S., Brooklyn, N. Y., assignor of one-half to T. Reese, Jr., Newark, N. J. Combined equalizing stop and check valve	589,142	Aug. 31	3313	779	80	1351
Rosebrook, Emma O. (See Rosebrook, Frank, assignor.)						
Rosebrook, Frank, assignor to E. O. Rosebrook, Chicago, Ill. Distilling and aerating apparatus	587,162	July 27	2785	635	80	599
Rosenberg, Ignaz, assignor to Kalle & Co., Biebrich, Germany. Bluish-scarlet dye	588,180	Aug. 17	1604	.....	80	904
Rosenberg, Ignaz, assignor to Kalle & Co., Biebrich, Germany. Reddish-violet dye	588,181	Aug. 17	1605	.....	80	904
Rosenberg, Ignaz, assignor to Kalle & Co., Biebrich, Germany. Mixed substantive dye	588,182	Aug. 17	1606	.....	80	905
Rosenberg, Ignaz, assignor to Kalle & Co., Biebrich, Germany. Brown substantive dye	588,183	Aug. 17	1608	.....	80	905
Rosenberg, Ignaz, and F. Krecke, assignors to Kalle & Co., Biebrich, Germany. Naphthylenediamin-sulfo-acid and making it	587,757	Aug. 10	842	.....	80	842
Rosenbluth, Max. (See Josepha, Adolf, assignor.)						
Rosenheiner, Julius, *et al.* (See Grant, Quintien C., assignor.)						
Rosenholz, Carl, and J. W. Carlson, Wardner, Idaho. Bicycle-bell	586,344	July 13	1305	299	80	909
Rosenstiehl, Daniel A., assignor to Société Anonyme des Matières Colorantes et Produits Chimiques de St. Denis, Paris, France. Preserving foods	589,756	Sept. 7	575	.....	80	1592
Rosenthal, August, Milwaukee, Wis. Separating and husking rollers	588,184	Aug. 17	1609	370	80	905
Rosenthal, Sigmund A., London, England. Active material for secondary-battery plates	586,027	July 20	1821	.....	80	306
Ross, Benedict J., Louisville, Ky. Power-converting mechanism	588,481	Aug. 17	2120	493	80	1069
Ross, Frank, *et al.* (See Gosnell, Frank R., assignor.)						
Ross, Gilbert M., San Andreas, assignor to Globe Iron Works, Stockton, Cal. Stamp-mill	588,806	Aug. 24	2722	632	80	1221

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ross, Hugh R., Belfast, Ireland. Apparatus for crisping or folding cloth	590,630	Sept. 28	2127	503, 504	80	1021
Ross, James D., Olive, Ky. Lock	586,628	July 20	1821	423	80	396
Ross, William, assignor of one-half to J. W. Hobbs, Willard, Tex. Device for facilitating making and sharpening molding-bits	588,185	Aug. 17	1611	370	80	995
Rossi, Auguste J., New York, assignor of one-half to J. MacNaughton, Albany, N. Y. Treating phosphoric iron	590,239	Sept. 21	1436		80	1779
Rossi, Nicholas, Emporia, Kans. Popcorn-popper	588,186	Aug. 17	1612	371	80	995
Rossi, Nicholas, Emporia, Kans. Peanut-roaster	589,483	Sept. 7	120	29	80	1506
Rossi, Nicholas, Emporia, Kans. Lemonade-shaker	590,336	Sept. 21	1609	379	80	1812
Pote, John F., Reading, Pa. Vegetable-cutter	588,606	Aug. 24	2337	541	80	1151
Roth, Albert J., assignor of one-half to F. Diesbach, Hamilton, Ohio. Curtain-fixture	586,935	July 20	2344	552	80	494
Roth, August A., and G. C. Hiltz, Baltimore, Md. Means for preventing accidents in elevators	590,424	Sept. 21	1761	413	80	1840
Roth, Charles F., assignor of two-fifths to F. W. Hasenauer, Ironton, Ohio. Shoe-nail	586,936	July 20	2345	553	80	494
Roth, Frank J., Cincinnati, Ohio, and C. A. Bertsch, Cambridge City, Ind.; said Roth assignor to said Bertsch. Shearing-machine	590,049	Sept. 14	1083	256	80	1698
Roth, Victor R. (See Roth, William L. and V. R.)						
Roth, William L., Washington, D. C., and V. R. Roth, Philadelphia, Pa. Non-refillable bottle	588,295	Aug. 17	1798	415	80	1029
Rothmann, George H. (See Peterhansl and Rothmann.)						
Rothwell, William A. (See Pimbley, Joseph, assignor.)						
Rouillot, Victor, assignor of one-half to W. Harper, Philadelphia, Pa. Bottle	587,331	Aug. 3	92	23	80	663
Rous, Joseph, Paris, France. Kinetographic camera	588,014	Aug. 10	1300	301	80	928
Rousseau, Onésime, Detroit, Mich. Toy	589,962	Sept. 14	966	230, 231	80	1675
Routh, Oswald R., Jersey City, N. J. Guiding device for bridles, headstalls, &c	589,859	Sept. 14	744	178	80	1636
Rowand, Lewis G., Camden, N. J. Magnetic ore-separator	590,808	Sept. 28	2441	579, 580	80	1979
Rowand, Lewis G., Camden, N. J. Magnetic ore-separator	590,809	Sept. 28	2443	581	80	1980
Rowe, Reuben, Dover, N. J. Bolt or wire cutter	588,187	Aug. 17	1613	371	80	996
Rowe, Reuben, Dover, N. J. Faucet	588,357	Aug. 17	1809	429	80	1049
Rowe, Reuben, Dover, N. J. Hinge	590,860	Sept. 28	2526	603	80	1996
Rowe, Sandford C. (See Coutant, Benoni L., assignor.)						
Rowe, William A., Hoboken, N. J. Clothes-line support	589,963	Sept. 14	968	231	80	1676
Rowse, Theron A., Bucyrus, Ohio. Husking-glove	587,045	July 27	2557	603	80	556
Roy, David W., Tucson, Ariz. Ter. Reversing-valve for engines	588,533	Aug. 17	2215	515	80	1109
Royer, Samuel, Terre Haute, Ind. Automatic tilting gate	585,790	July 6	249	58	80	51
Royle, Vernon, Paterson, N. J. Machine for punching and stacking jacquard-cards	585,876	July 6	411	98	80	82
Rudolf, Heinrich, Berlin, Germany. Insulator	587,273	July 27	2989	701	80	638
Rudolph, Franklin. (See Clause, John J., assignor.)						
Rudolphi, Frank, assignor to himself and L. C. Krummel, Chicago, Ill. Grinding and polishing machine	589,398	Aug. 31	3887	907	80	1467
Rudomin, David, New York, N. Y. Bicycle-support	587,236	July 27	2918	684	80	625
Rudy, Benjamin F., assignor of one-half to J. Josephs, Bound Brook, N. J. Plow attachment	585,791	July 6	250	58	80	52
Rue, Boss, Alliance, Ohio. Ditching-jack	587,274	July 27	2990	701	80	638
Ruebekam, Charles A., assignor to L. E. Woodard, Owosso, Mich. Burial-casket	588,482	Aug. 17	2120	493	80	1090
Ruel, Maxime. (See Picard, Eusebe, assignor.)						
Ruetschi, Rudolph, Argentine, Kans., assignor to Consolidated Kansas City Smelting and Refining Company, Kansas City, Mo. Skim-press	590,116	Sept. 14	1220	286, 287	80	1723
Rundel, Thomas J., *et al.* (See Smith, Lewis J., assignor.)						
Rundel, W. S., *et al.* (See Smith, Lewis J., assignor.)						
Rundle, James N., Santa Barbara, Cal. Governor-valve	590,281	Sept. 21	1513	358	80	1796
Runk, John B., Lamesa, Cal. Water-regulator	586,308	July 13	1396	321, 322	80	286
Ruppel, Henry, Cleveland, Ohio. Oil-radiator	588,780	Aug. 24	2669	616	80	1212
Ruppert, Jacob P. (See Barnard and Ruppert.)						
Rusden, Ethelbert A., Hartford, Conn. Mangle	586,908	July 20	2198	515	80	467
Rushmore, Samuel W., Brooklyn, N. Y. Multipolar dynamo-electric machine	587,163	July 27	2787	655, 656	80	599
Rushmore, Samuel W., Brooklyn, N. Y. Dynamo-electric machine	587,164	July 27	2791	656	80	600
Russ, John D., Rahway, N. J., assignor to Maxwell, Wyeth & Co., Brooklyn, N. Y. Gas-engine	586,321	July 13	1264	289	80	202
Russel, Adelbert A., *et al.* (See Gray, Edward A., assignor.)						
Russell, Charles, Sharon Hill, and A. C. Welchans, Lancaster, Pa.; said Russell assignor to said Welchans. Safety device for elevators	587,610	Aug. 3	590	143	80	773
Russell & Erwin Manufacturing Company. (See Hammond, William E., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, Henry T., Chicago, Ill. Burning apparatus for liquid fuel	585,792	July 6	251	59	80	52
Russell, James W., Newton, Iowa. Grain-separator	589,621	Sept. 7	360	88	80	1550
Russo, Michele. (See Cantoré, Frank, assignor.)						
Rust, Frank. (See James and Rust.)						
Rust, George E., and J. J. Phelan, Union Hill, N. J. Heating attachment for illuminating-burners	590,337	Sept. 21	1610	370	80	1813
Ruth, Linford F., Connellsville, Pa. Mattress	585,834	July 6	334	77	80	67
Rutledge, James F., Minneapolis, Minn. Door-lock	587,659	Aug. 3	662	158	80	786
Ryan, James B., and E. R. Weber, assignors to New York Woven Wire Mattress Company, New York, N. Y. Bed-slat	587,864	Aug. 10	1035	239	80	873
Ryberg, Charles J., assignor to himself and J. L. Jackson, Chicago, Ill. Cash-register	588,733	Aug. 24	2583	596, 597	80	1196
Ryder, Andrew V., Scio, Ohio. Harrow	585,941	July 6	534	126	80	104
Ryder, Arthur H., New York, N. Y. Desk-light	589,032	Aug. 31	3099	730	80	1312
Ryder, Bainbridge L. (See Redmon, Frederick A., assignor.)						
Ryder, Lafayette, Woodland, Cal. Washing-machine	587,510	Aug. 3	408	96	80	739
Ryder, Malcolm P., Westfield, N. J. Electric lamp for vehicles	586,399	July 13	1397	322	80	286
Rylander, William P., assignor to Hot Air Washing Machine Co., Temple, Tex. Clothes-pounder	589,399	Aug. 31	3888	907	80	1467
Ryon, Eppa H., assignor of one-half to A. M. Goodale, Waltham, Mass. Lappet-loom	587,865	Aug. 10	1037	240	80	874
Ryon, Eppa H., assignor of one-half to A. M. Goodale, Waltham, Mass. Roving stop-motion	589,033	Aug. 31	3101	731	80	1312
Saal, Christian, Jr. (See Haenichen, Adolph, assignor.)						
Saario, John K., Brooklyn, N. Y. Flower-holder	588,659	Aug. 24	2462	566	80	1173
Sabel, Friedrich W., Coblentz, Germany. Engraving-machine	587,332	Aug. 3	93	23, 24	80	663
Sabin, Chauncey R., St. Louis, Mo. Automatic liquid measure and register	587,333	Aug. 3	94	24, 25	80	663

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Sachs, Edward, Dayton, Ohio. Packing and display card	588,245	Aug. 17	1709	392	80	1014
Sack, Ernest, Gardenville, Md. Refrigerator	588,781	Aug. 24	2670	617	80	1213
Sackett, Charles E., Fall River, Mass. Envelop	587,660	Aug. 3	664	158	80	788
Sackett, Charles E., Danbury, Conn. Machine for opening skins	589,444	Sept. 7	74	16, 17	80	1495
Sackett, Jasper L., Chicopee, assignor to Lamb Manufacturing Company, Chicopee Falls, Mass. Bicycle-brake	587,611	Aug. 3	591	143	80	774
Sadorus, Samuel S., Sarilda, Idaho. Reaping or mowing machine	585,704	July 6	86	22	80	20
Sadtler, John P. B., Baltimore, Md. Water-heating boiler	588,016	Aug. 10	1304	302	80	924
Saegmuller, George N. (See Searle and Saegmuller.)						
Safety Car Heating and Lighting Company. (See Dixon, Robert M., assignor.)						
Sagar, Alfred P. (See Sagar, William, Sr., A. P., and W., Jr.)						
Sagar, William, Sr., A. P., and W., Jr., Colne, England. Apparatus for extracting oil	587,139	July 27	2749	644, 645	80	592
Sagen, Andrew K., La Crosse, Wis. Self-closing inkstand	588,668	July 20	1875	437	80	408
Saladin Pneumatic Malting Construction Company. (See Prinz, William H., assignor.)						
Salisbury, Charles H., assignor to Haish Manufacturing Company, De Kalb, Ill. Wire-fence stretcher	586,802	July 20	2092	488	80	445
Salisbury, F. R., *et al.* (See Likins, Nelson, assignor.)						
Sallady, Obediah, Los Angeles, Cal. Fumigator	588,090	Aug. 10	1421	331	80	945
Salmon, Howard, Philadelphia, Pa., assignor to Henry L. Wilson's Sons Company, of New Jersey. Paper-bag machine	588,782	Aug. 24	2671	617, 618	80	1213
Salom, Pedro G., Philadelphia, Pa. Making litharge or protoxid of lead from lead ore	588,668	Aug. 24	2651	603	80	1246
Sams, D. K. (See Logan, Crawford D., assignor.)						
Sams, Walter, Warrensburg, assignor to W. E. Sams and F. B. Wadell, Clinton, Mo. Burner for compound blowpipes or brazers	586,066	July 6	342	187	80	164
Sams, William E., *et al.* (See Sams, Walter, assignor.)						
Samuels, Izak, New York, N. Y., assignor to C. H. Burnett, assignee of Samuels Dynamic Accumulator Company. Secondary battery	585,853	July 6	374	87	80	74
Samuelson, John, assignor of one-half to C. Kramer, San Francisco, Cal. Rope grip and take-up	589,224	Aug. 31	3432	805	80	1374
Sanche, Hercules, New Orleans, La., assignor to Animarium Company, New York, N. Y. Apparatus for treating diseases	587,237	July 27	2920	684, 685	80	625
Sanche, Hercules, Detroit, Mich., assignor to Animarium Company, New York, N. Y. Apparatus for producing thermal results	587,612	Aug. 3	593	143	80	774
Sanche, Hercules, Detroit, Mich., assignor to Animarium Company, New York, N. Y. Therapeutic apparatus	588,091	Aug. 10	1423	331	80	946
Sanche, Hercules, Detroit, Mich., assignor to Animarium Company, New York, N. Y. Apparatus for treatment of diseases	588,483	Aug. 17	2122	493	80	1090
Sanders, Gerhard. (See Busch and Sanders.)						
Sanderson, Charles D. (See Davis, Morgan, Jr., assignor.)						
Sandham, David J. (See Steel, Charles F., assignor.)						
Sandow, Eugen, London, England. Exercising-machine	588,017	Aug. 10	1305	302	80	924
Sandrowski, Karl L., Berlin, Germany. Depurator	588,092	Aug. 10	1425	331	80	946
Sangster, William. (See Childs and Sangster.)						
Sansom, Samuel Y. (See Winspear, Smith, and Sansom.)						
Sare, John L., Narka, Kans. Veterinary obstetrical instrument	590,024	Sept. 14	1051	248	80	1692
Sargent Company. (See Sargent, William D., assignor.)						
Sargent & Company. (See Page Albert A., assignor.)						
Sargent & Company. (See Sargent and Page, assignors.)						
Sargent & Company. (See Stadtmuller, Henry R., assignor.)						
Sargent & Company. (See Wright, Granville W., assignor.)						
Sargent, Henry B., New Haven, and A. A. Page, East Haven, assignors to Sargent & Company, New Haven, Conn. Screw-machine	589,143	Aug. 31	3316	779	80	1358
Sargent, Henry B., New Haven, and A. A. Page, East Haven, assignors to Sargent & Company, New Haven, Conn. Screw-machine	589,144	Aug. 31	3318	779, 780	80	1359
Sargent, John W., Providence, R. I. Construction of balance-wheels	590,554	Sept. 21	1987	468	80	1891
Sargent, William D., Chicago, Ill. Brake-shoe	587,661	Aug. 3	666	158, 159	80	789
Sargent, William D., assignor to Sargent Company, Chicago, Ill. Brake-shoe	587,493	Aug. 3	375	89	80	733
Sarter, John G., Fort Logan, Mont. Tire-tightener	587,238	July 27	2922	685	80	626
Satterlee, W. E., *et al.* (See Likins, Nelson, assignor.)						
Sattler, Fred. (See Cope, George W., assignor.)						
Sauer, Hugo H., New York, N. Y. Pipe-wrench	588,484	Aug. 17	2123	494	80	1090
Saunders, James. (See Rauhoff, John M., assignor.)						
Sauze, James, Walla Walla, Wash. Combined purse, parcel-carrier, and belt-buckle	586,909	July 13	1344	309	80	270
Savage, A. C., *et al.* (See Hanke, Gustave, assignor.)						
Savage, Fordyce A., and M. G. Wade, Dowagiac, Mich. Belt-applying device	588,836	Aug. 24	2778	644	80	1233
Savill, Joseph H., Philadelphia, Pa. Water-closet valve	590,240	Sept. 21	1439	339	80	1780
Sawyer, Albert A., Chicago, Ill. Dust-collector for brooms	590,775	Sept. 28	2390	568	80	1909
Sawyer, Burnside E., Athol, Mass. Screw-thread gage	590,486	Sept. 21	1854	439	80	1857
Sawyer, C. H. (See Coe, Charles E., assignor.)						
Sawyer, Charles J., and T. F. Harris, Anniston, Ala. Shoe-stool	588,607	Aug. 24	2340	541	80	1151
Sawyer, Howard D., Revere, assignor to D. W. Wormwood, Chelsea, Mass. Cooking and heating stove	588,664	Aug. 24	2651	603	80	1246
Sawyer, Orren A., and M. M. Lahue, Lowell, Mass.; said Sawyer assignor to said Lahue. Picker-strap for looms	585,877	July 6	412	99	80	82
Sawyer, Parker W., and C. J. Perley, Gray, Me. Railway-signal	588,358	Aug. 17	1900	440	80	1049
Sawyer, Samuel C., Shibboleth, Kans. Pump	587,455	Aug. 3	310	75	80	723
Saxton, Frank H., Bristol, Conn. Saw-table gage	586,695	July 20	1920	447	80	414
Saxton, George D. (See Davenport, Joseph, assignor.)						
Saxton, Lionel D., Philadelphia, Pa., assignor to L. Goodman, New York, N. Y. Soft-tread horseshoe	586,696	July 20	1921	447	80	414
Saylor, Henry D., and F. Keiser, Pottstown, Pa. Moistening device	590,465	Sept. 21	1822	430	80	1851
Scales, Edward W., Covington, Ky. Shears-bolt	586,067	July 6	343	188	80	165
Scales, William S., Everett, assignor to E. T. Furness, O. E. Michell, and J. Seligman, Boston, Mass. Speed-indicator	588,931	Aug. 24	2025	685	80	1261
Scarles, Benjamin, assignor to I. L. Ellwood Manufacturing Company, De Kalb, Ill. Wire fencing	586,869	July 20	2200	515	80	467
Scarritt, Henry M., Chicago, Ill. Vehicle-axle nut	590,912	Sept. 28	2619	624	80	2015
Schadewald, Harry M., Philadelphia, Pa. Bearing for loom picker-sticks	588,660	Aug. 24	2462	566	80	1173
Schaedel, Hermann F., Cleveland, Ohio. Incandescent electric lamp	586,273	July 13	1184	271	80	246
Schaefer & Schlegel. (See Warner, Louis P., assignor.)						
Schaerges, Carl F. M., assignor to B. Hoffman-La Roche & Co., Basle, Switzerland. Thyroid compound	585,926	July 6	505		80	99
Schafer, Frank N., *et al.* (See Hoskins, Alvis J., assignor.)						
Schaffer & Budenberg. (See Amsler, Walter O., assignor.)						
Schlperkötter, Frederick W. C., St. Louis, Mo. Knockdown barrel	590,810	Sept. 28	2444	581	80	1980

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scharf, John A., Richwood, Ohio. Machine for making hay-ties	590,338	Sept. 21	1611	280	80	1813
Scharff, Ernst, Frankfort-on-the-Main, Germany. Razor	590,168	Sept. 14	1311	311	80	1742
Schaum, Otto W., Philadelphia, Pa., assignor to B. Eastwood, Paterson, N. J. Beaming attachment	585,878	July 6	413	99	80	82
Scheerer, Wilhelm, assignor to Actien-Gesellschaft für Fein Mechanic, vormals Jetter & Scheerer, Tuttlingen, Germany. Canterizing apparatus	589,484	Sept. 7	131	29	80	1506
Scheid, Adam, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,381	Sept. 21	1661	396	80	1825
Scheid, Adam, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,382	Sept. 21	1662	396	80	1825
Scheid, Carl, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,377	Sept. 21	1677	395	80	1824
Scheid, Carl, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,378	Sept. 21	1678	395	80	1825
Scheid, Carl, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,379	Sept. 21	1679	395	80	1825
Scheid, Carl, Harrison, N. J., assignor to Draper Company, Portland, Me. Spindle	590,380	Sept. 21	1680	396	80	1825
Schelling, George, *et al.* (See Dosh, Harry S., assignor.)						
Scheli, Charles H., *et al.* (See Johnston, James B., assignor.)						
Schellhammer, William O., Conway Springs, Kans. Hame-tug	589,084	Aug. 31	3108	731	80	1312
Schenk, Bernhard von, Heidelberg, Germany. Making polysulfids	586,567	July 20	1706	.....	80	375
Scherrer, Adolphe, New York, N. Y. Ice-velocipede	588,485	Aug. 17	2124	494	80	1091
Schiek, George H. (See Bentley and Schiek.)						
Schiek, Karl, Stuttgart, Germany. Door-opener	590,169	Sept. 14	1311	311	80	1742
Schies, John, Anderson, Ind. Jar and sealing device for same	587,239	July 27	2023	685	80	626
Schiffer, Alfred, *et al.* (See Parsons, Francis F., assignor.)						
Schiffer, Herman, *et al.* (See Parsons, Francis F., assignor.)						
Schiller, John G., Washington, D. C. Pneumatic tire	588,018	Aug. 10	1906	302	80	925
Schilling, Charles R. (See Schraubstadter and Schilling.)						
Schillinger, Gustav A., Chicago, Ill. Arch center	586,870	July 20	2201	515	80	467
Schimper & Co., William. (See Oldenbusch, Ernst, assignor.)						
Schirmer, Richard C., Philadelphia, Pa. Legato attachment for pianos	590,100	Aug. 31	2223	757	80	1334
Schirmer, Theodor F., Dayton, Ohio. Autographic register	588,359	Aug. 17	1901	440	80	1049
Schlabach, William F., Wadsworth, Ohio. Nut-lock	589,984	Sept. 14	970	231	80	1676
Schlager, Frank W., assignor of one-half to D. J. Hurley, New Haven, Conn. Combined barrel vent and bushing	587,613	Aug. 3	594	144	80	774
Schlesinger, Elias B. (See Ballam, De Lacy E., assignor.)						
Schlimp, Carl, Vienna, Austria-Hungary, and R. Honzik, Bucharest, Roumania. Kiln	588,885	Aug. 24	2353	664	80	1246
Schmeer, Henry, Syracuse, N. Y. Cardboard box	586,827	July 20	2135	498 499	80	453
Schmelzer, John, *et al.* (See Langer, Gotthold, assignor.)						
Schmid, Henry, Buffalo, N. Y. Rubber-tread horseshoe	588,734	Aug. 24	2593	597	80	1197
Schmidt, Herman, assignor of one-half to W. G. St. George, Brooklyn, N. Y. Car platform and step	585,798	July 6	354	59	80	52
Schmidt, John D., New York, N. Y. Car-fender	590,487	Sept. 21	1855	439	80	1858
Schmidt, Joseph H. (See Yarnell and Schmidt.)						
Schmidt, Wilhelm, Ballenstädt, Germany. Combined steam-engine and steam-generator	585,705	July 6	87	22,23	80	20
Schmitt, Phillip, Parker, S. D. Fender for traction-engines	588,871	July 20	2202	516	80	467
Schmitt, Wallie, Nashville, Tenn. Open grate	589,985	Sept. 14	971	231	80	1676
Schnaier, Milton, New York, N. Y. Plumber's smoke-test apparatus	590,241	Sept. 21	1441	339	80	1780
Schnee, William G., Pueblo, Colo. Bicycle-saddle	586,246	July 13	1144	261	80	239
Schneider, Hippolyte, Pittsburg, Pa. Bicycle or tricycle attachment	589,305	Aug. 31	3788	870	80	1440
Schneider, Jacob M., *et al.* (See Stump, Ira E., assignor.)						
Schneider, William, Dubuque, Iowa. Musical instrument	590,631	Sept. 28	2128	504	80	1922
Schneller, August. (See Van der Sleen and Schneller.)						
Schock, W. H. (See Bright, William, assignor.)						
Schoen, Paul, Glens Falls, N. Y. Binding attachment for sewing-machines	588,019	Aug. 10	1907	303	80	925
Schoenleber, Conrad, Bridgeport, Conn. Billiard-cue trimmer and tip-fastener	589,225	Aug. 31	3433	805	80	1374
Schofield, James D., Dallas, Tex. Planter	588,486	Aug. 17	2125	494	80	1091
Scholes, William, Paterson, N. J. Pipe-cutter	589,101	Aug. 31	3224	758	80	1334
Schomberg, Henry, Los Gatos, Cal. Wave and swell motor	587,511	Aug. 3	409	97	80	739
Schönland, William F., Manchester, N. H. Sausage linking or twisting machine	589,578	Sept. 7	287	68, 69	80	1536
Schoonjans, Guillaume, assignor to Société Anonyme pour l'Exploitation des Apparells Economiques à Gaz Système Schoonjans, Brussels, Belgium. Gas heating apparatus	589,306	Aug. 31	3739	870	80	1440
Schoyen, Emil, Mankato, Minn. Fountain	587,404	Aug. 3	211	54	80	706
Schramm, J. F., *et al.* (See McPhaill, Robert, assignor.)						
Schraubstadter, Carl, Jr., and C. R. Schilling, assignors to Western Engravers' Supply Company, St. Louis, Mo. Machine for dressing printers' blocks	586,917	July 20	2206	543	80	487
Schreiber, John, and J. Holler, Pittsburg, Pa. Non-refillable bottle	590,075	Sept. 14	1131	267	80	1707
Schréiner, Louis. (See Durey and Schréiner.)						
Schroeder, Carl P. R., Harrison, N. J. Locking means for bicycles	589,861	Sept. 14	747	175	80	1637
Schroeder, George G., Washington, D. C. Mop holder and wringer	588,534	Aug. 17	2216	515	80	1109
Schroeder, William S., Chicago, assignor of one-half to C. A. Schroyer, Oak Park, Ill. Gondola car	589,860	Sept. 14	746	174	80	1636
Schroyer, Charles A. (See Schroeder, William S., assignor.)						
Schulte, Henry J., Los Angeles, Cal. Apparatus for spraying liquids	587,602	Aug. 3	668	159	80	780
Schulz, Louis M., Edgerton, Kans. Rein-holder	589,022	Sept. 7	302	89	80	1550
Schumacher, Charles C., and A. G. Zamel, Chicago, Ill. Electric meter	589,672	Sept. 7	440	105	80	1565
Schumacher, Reinhard, assignor of one-half to R. Herold, Jr., San Francisco, Cal. Music-holder	589,802	Sept. 14	749	175	80	1637
Schumann, John G., Pittsburg, Pa. Car-brake	585,988	July 6	721	161	80	142
Schurter, Daniel D. (See Schurter, Henry R. and D. D.)						
Schurter, Henry R. and D. D., North Decatur, Ga. Mail-bag-crane attachment	590,025	Sept. 14	1051	248	80	1692
Schuster, William, Pittsburg, Pa. Blower and exhauster	588,735	Aug. 24	2594	598	80	1197
Schutte, Louis, Philadelphia, Pa. Condenser for pumps	586,508	July 20	1707	396	80	375
Schutz, Albert J. (See Coates and Schutz.)						
Schwab, Rudolph J., Milwaukee, Wis. Packing-joint for heaters	585,706	July 6	89	23	80	20
Schwarz, Joseph, *et al.* (See Lurye and Lewis, assignors.)						
Schwarz, Louis. (See Remer, Jared R. de, assignor.)						
Schwarz, Simon, *et al.* (See Lurye and Lewis, assignors.)						
Schwedtmann, Ferdinand, St. Louis, Mo. Joint or splice for electric wires or cables and making same	585,707	July 6	90	23	80	21
Schwehr, Albert, Sandusky, Ohio. Bicycle-tire	590,400	July 13	1401	322	80	297
Schweinfurth, John G., assignor of one-half to H. T. Dean, Birmingham, Ala. Puzzle	588,116	Aug. 10	1482	342	80	957
Schweitzer, Henry, Freemansburg, Pa. Nut-lock	588,661	Aug. 24	2463	566	80	1174
Schweizer, Max. (See Nearing, Louis E., assignor.)						
Scopes, Edward J., assignor to N. Lyon, Albany, N. Y. Egg-beater	589,795	Sept. 7	643	149	80	1605
Scott, Anna, *et al.* (See Scott, Lydia A., assignor.)						
Scott, Fannie, *et al.* (See Scott, Lydia A., assignor.)						
Scott, George H., Worcester, Mass. Electric rail-bond	589,485	Sept. 7	132	29	80	1507
Scott, George W., Peoria, Ill. Non-refillable bottle	589,065	Aug. 31	3104	731	80	1313

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scott, Isabella. (See Scott and Holey, assignors.)						
Scott, John H. (See Freeman, Albert A., assignor.)						
Scott, John R., and G. W. Spink, East Oakland, Cal. Sewing-machine ripping attachment	586,292	July 13	1210	276	80	251
Scott, Lydia A., assignor to A. and F. Scott, Great Bend, Kans. Hat-pin	589,145	Aug. 31	3290	780	80	1358
Scott, Robert, Glenside, Pa., assignor to H. B. Smith Company, of Massachusetts. Air-box for radiators	585,708	July 6	91	23, 24	80	21
Scott, Theodore N., Washington, D. C. Lock	587,456	Aug. 3	312	75	80	723
Scott, Walter, Plainfield, N. J. Sheet-delivery mechanism for printing-presses	586,716	July 20	1948	455	80	430
Scott, Walter, Plainfield, N. J. Printing-press	588,487	Aug. 17	2129	495	80	1092
Scott, William, Leavenworth, Kans. Window-screen	590,668	Sept. 28	2282	529	80	1941
Scott, William, and J. W. Holey, assignors to L. Scott, Leavenworth, Kans. Box-closure	585,709	July 6	93	24	80	21
Scott, William A., Newcastle, Colo. Sewing-machine attachment	586,872	July 20	2202	516	80	467
Scott, William A., Quincy, Fla. Hoe	589,963	Sept. 14	750	175	80	1637
Scovill Manufacturing Company. (See Linen, John, assignor.)						
Scovill Manufacturing Company. (See Pullman, Herbert S., assignor.)						
Scranton, Thomas J. (See Grafford, Willis H., assignor.)						
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Signal for telephone-switchboards	587,405	Aug. 3	213	54	80	706
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Apparatus for telephone-switchboards	587,406	Aug. 3	215	54	80	707
Scripture, Frank, Rockport, Mass. Dumping or discharging device	590,594	Sept. 28	2057	487	80	1909
Scriven, Jeremiah A., New York, N. Y. Drawers	590,595	Sept. 28	2059	488	80	1909
Scriven, Jeremiah A., New York, N. Y. Drawers	590,596	Sept. 28	2059	488	80	1909
Seaman, Alonzo D., Milwaukee, Wis. Carving-machine	588,662	Aug. 24	2464	567	80	1174
Searle, George M., and G. N. Saegmuller, Washington, D. C. Range-finder	588,093	Aug. 10	1428	331 332	80	946
Searle, George M., and G. N. Saegmuller, Washington, D. C. Range-finder	588,094	Aug. 10	1428	332	80	946
Seaver, Augustus. (See Bullard and Hamm, assignors.)						
Sechrist, George B., Shenandoah, assignor of one-half to J. H. Burkholder, Ashland, Ohio. Fence-stay-fastening tongs	586,927	July 20	1922	445	80	415
Seck, Heinrich, Dresden, Germany. Middlings-purifier	587,240	July 27	2024	686	80	626
Secor, George D., South Bend, Ind. Feeder for carding-machines	586,458	July 13	1496	350	80	305
Seeley, Coles A., Bridgeport, Conn., assignor to Warner Brothers Company, of Connecticut. Machine for applying tips	589,579	Sept. 7	288	69	80	1536
Seeley, Coles A., assignor to Warner Brothers Company, Bridgeport, Conn. Machine for putting tips on ends of covered wires or steels	589,580	Sept. 7	291	70	80	1536
Seelinger, Philipp, Lambrecht, Germany. Joinery	586,276	July 13	1186	271	80	247
Seffer, Hubert, Houston, Tex. Hoodwink	589,307	Aug. 31	3740	870	80	1440
Segschneider, Gustav, Yonkers, N. Y. Machine for curling hat-brims	588,020	Aug. 10	1909	303	80	925
Seib, George A., New York, N. Y. Ribbon-feed mechanism for type-writing machines	590,117	Sept. 14	1222	287	80	1704
Seiberling, John F., Akron, Ohio. Elastic horseshoe	587,758	Aug. 10	844	198	80	843
Seide, David, Hartford, Conn. Electric hair-singer	589,445	Sept. 7	75	17	80	1496
Seidel, Gotthelf M., Easthampton, Mass. Picture-frame	587,241	July 27	2027	687	80	626
Seidel, W., *et al.* (See McPhaill, Robert, assignor.)						
Seidel, William H., *et al.* (See Meyer, Svend M., assignor.)						
Seidenspiner, Alois, Brooklyn, N. Y. Combined cigar and cigarette holder	589,023	Sept. 7	303	89	80	1550
Seifert, August J., *et al.* (See Bourke, Alphege, assignor.)						
Seimer, John B. (See Stallings, Francis J., assignor.)						
Seiter, John W., assignor of one-half to E. M. Hertert, Harlan, Iowa. Glass-cutting apparatus	589,308	Aug. 31	3741	871	80	1440
Self-Fixing Pneumatic Vehicle and Cycle Tyres Syndicate. (See Dunn, Thomas, assignor.)						
Selg, Otto, Brooklyn, N. Y. Bottle-stopper	587,759	Aug. 10	845	198	80	843
Sellgman, Joseph, *et al.* (See Scales, William S., assignor.)						
Sell, George W., Jr., Johnstown, Pa. Trolley	588,488	Aug. 17	2132	495	80	1092
Sell, Otto, assignor of one-fourth to R. A. Sorensen, Modesto, Cal. Music-leaf holder	586,937	July 20	2346	553	80	494
Sellers, William, Philadelphia, Pa., H. B. Bradford, and B. D. Coppage, Wilmington, assignors to Edge Moor Iron Company, Edge Moor, Del. Water-tube boiler	588,639	Aug. 24	2779	644 645 646	80	1238
Selts, William A., Jersey Shore, Pa. Fastener for envelops	586,277	July 13	1187	272	80	247
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Device for operating feed of rock-drilling and channeling machines	589,864	Sept. 14	753	175	80	1637
Serpollet, Leon, assignor to La Société des Générateurs à Vaporisation Instantanée, (Système Leon Serpollet,) Paris, France. Steam-engine	587,760	Aug. 10	845	198 199	80	843
Servis, David, Ithaca, N. Y. Tie-plate	590,689	Sept. 28	2234	530	80	1941
Settle, De Forest, receiver. (See Jahn, Frederick G., assignor.)						
Severy, Melvin L., Boston, assignor of nine-twentieths to F. Doane, Norwood, Mass. Steam-engine	590,861	Sept. 28	2537	603 604	80	1996
Severy, Melvin L., Boston, assignor of nine-twentieths to F. Doane, Norwood, Mass. Power-pump	590,862	Sept. 28	2531	604	80	1997
Severy, Melvin L., Boston, assignor of nine-twentieths to F. Doane, Norwood, Mass. Steam-engine	590,863	Sept. 28	2534	604 605	80	1997
Sevier, Samuel G., Oenaville, Tex. Plow	587,512	Aug. 3	411	97	80	740
Seymour, Charles E., Lake Geneva, Wis. Centrifugal muller-mill	589,036	Aug. 31	3107	731 732 733	80	1313
Seymour, Frank C., Chicago, Ill. Cattle-guard	590,500	Sept. 21	1878	445	80	1802
Shadbolt, William O., Brooklyn, N. Y. Dumping-wagon	587,866	Aug. 10	1042	240 241	80	874
Shafer, Robert D., Fayette, Ohio. Figure toy	590,339	Sept. 21	1613	380	80	1813
Shaffer, Henry E. (See Henkle, Leonard, assignor.)						
Shallenberger, David S., assigner to Steel Motor Company, Johnstown, Pa. Electric contact device	588,188	Aug. 17	1615	371	80	996
Shallenberger, Herbert B., Rochester, Pa. Switch for electric circuits	589,865	Sept. 14	752	176	80	1638
Shand, Robert, Lynn, Mass., assignor to General Electric Company, of New York. Alternating-current meter	590,650	Sept. 28	2157	510	80	1927
Shanks, James W. (See Shanks, Leo and J. W.)						
Shanks, Leo and J. W., Alta, Iowa. Corn-shock loader	587,662	July 27	2021	619 199	80	567
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Horse-rake	587,761	Aug. 10	848	200	80	844
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Horse-rake	587,762	Aug. 10	849	200	80	844
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Harrow	589,037	Aug. 31	3113	733	80	1314
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Hay-tedder	589,796	Sept. 7	644	149	80	1605
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Disk harrow	589,797	Sept. 7	645	150 151	80	1605
Sharp, Francis M., Fulton, Ky. Horse-tail controller	587,763	Aug. 10	851	200	80	844
Sharp, William H., Fremont, Mich. Snap-hook	590,913	Sept. 28	2619	625	80	2015

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Sharpe, George E., Steubenville, Ohio. Gas-burner	587,334	Aug. 3	97	25	80	684
Sharples, William E., and F. J. Snell, Fall River, Mass. Protecting-cover for carding-machines	590,340	Sept. 21	1614	381	80	1818
Shaughnessy, Micheal L. (See Barry and Shaughnessy.)						
Shaver, Frederick H., Cedar Rapids, Iowa. Carbureter	587,867	Aug. 10	1044	241	80	875
Shaw, A. E. (See Rohlin, John, assignor.)						
Shaw, Charles O., Cheboygan, Mich. Tanning	590,170	Sept. 14	1312	311	80	1742
Shaw, Levi M. (See Rexroth, John J., assignor.)						
Shaw, Lewis A. (See Cole, Alexander, assignor.)						
Shay, William, Ansonia, Conn. Testing-machine	589,986	Sept. 14	972	232	80	1676
Sheard, John W., and J. Done, Blackpool, England, assignor of one seventy-seventh to W. Bowker, Waltham, Mass. Bearing. (Reissue)	11,630	Sept. 21	1995	470	80	1882
Sheckler, Charles E. (See Harteg and Sheckler.)						
Shedd, William J. (See Field and Shedd.)						
Shedlock, Alfred, Jersey City, N. J. Air-compressor	586,669	July 20	1876	437	80	406
Sheffy, Jay K., Chicago, Ill. Pipe-wrench	589,088	Aug. 31	3114	733	80	1314
Sheidrick, David J., assignor to J. A. Jeffrey, Columbus, Ohio. Sprocket-wheel	585,710	July 6	95	24	80	22
Shellaberger, George H., assignor, by mesne assignments, to De Kalb Fence Company and I. L. Ellwood Manufacturing Company, De Kalb, Ill. Pull-out for wire-weaving machines	590,987	Sept. 28	2664	635	80	2024
Shellaberger, Michael M., Beaver Falls, Pa., assignor to De Kalb Fence Company, De Kalb, Ill. Visible strip for wire fences	586,068	July 6	844	188	80	165
Shelly, Thomas E. (See McDonough and Shelly.)						
Shepard, Edward, White Sulphur Springs, Mont. Hammer	587,942	July 27	2929	697	80	627
Shepard, George B., Ogdensburg, N. Y. Rotary motor	586,717	July 20	1953	455, 456	80	421
Shepard, George B., Ogdensburg, N. Y. Rotary motor	586,733	July 20	1960	461	80	426
Shepard, Ralph C., *et al.* (See Gray, Edward A., assignor.)						
Shepard, Wendell L., Waterbury, Conn. Cyclometer	589,910	Sept. 14	849	201	80	1654
Shephard, Henry W., Brooklyn, N. Y. Shoe attachment	587,335	Aug. 3	99	25	80	684
Shepherd, Benjamin F., Mendon, Ill. Oil-can	587,457	Aug. 3	315	75	80	723
Shepherd, Horton H., Fairland, Ind. Ter. Traction-engine	586,873	July 20	2204	516, 517	80	467
Sheppard, Ephraim K., Pittstown, and W. S. Sheppard, Newark, N. J. Fruit-jar holder	590,710	Sept. 28	2270	537	80	1947
Sheppard, William S. (See Sheppard, Ephraim K. and W. S.)						
Sherman, George W., Lynbrook, N. Y. Musical instrument	587,561	Aug. 3	493	116	80	756
Sherman, Richard E., assignor of three-fourths to J. Condon, D. E. Kenyon, and C. Creveling, Chicago, Ill. Horse-starter	586,929	July 20	2333	550	80	491
Sherman, Willis D., assignor of three-fourths to C. B. Johnson, J. J. Wilson, E. H. Balllie, and F. B. Johnson, Brooklyn, N. Y. Machine for making pipe	586,569	July 20	1710	396, 397, 398	80	375
Sherrerd, Morris R., Newark, N. J. Valve	587,107	July 27	2062	626	80	576
Sherrerd, Morris R., Newark, N. J. Means for inserting valves in pipes or mains	587,108	July 27	2066	625, 630	80	576
Sherrin, Henrietta H. (See Sherrin, John V. and H. H.)						
Sherrin, John V. and H. H., London, England. Accumulator-battery	588,189	Aug. 17	1616	371	80	996
Sherwood, Charles H., Utica, assignor of one-half to H. C. Lyman, Sherburne, N. Y. Railway-switch	586,570	July 20	1715	398, 399	80	376
Sherwood, John L. (See Latulip, Frederick, assignor.)						
Sherwood, Matthew M., Scranton, Pa. Fifth-wheel for wagons	586,670	July 20	1878	437	80	406
Shields, William J., New Wilmington, Pa. Combination volt-graduator	588,246	Aug. 17	1710	392	80	1014
Shindelbower, George W., assignor of one-third to H. C. McDowell, Lexington, Ky. Lock rail-joint	589,757	Sept. 7	576	135	80	1502
Shipman, Madison D., *et al.* (See Pringle, Eugene, assignor.)						
Shipman, Madison D., *et al.* (See Reynolds, Walter S., assignor.)						
Shirk, William S., Anderson, Ind. Type-writing machine	588,608	Aug. 24	2341	541, 542, 543	80	1151
Shoch, Elizabeth. (See Hartmann, Carl, assignor.)						
Shoe, William W., Wallingford, Pa. Bicycle-saddle	589,581	Sept. 7	292	71	80	1537
Shoemaker, Clinton C. and G. E., Freeport, Ill. Brooder	587,494	Aug. 3	378	89, 90	80	734
Shoemaker, George E. (See Shoemaker, Clinton C. and G. E.)						
Shope, James E., Dunbar, Pa. Rail-chair	588,360	Aug. 17	1905	441	80	1050
Short, Franc M., Cleveland Ohio. Telegraphy	587,396	Aug. 3	101	26	80	684
Short, Sidney H., Cleveland, Ohio. Wire for armature-windings	587,764	Aug. 10	852	201	80	845
Short, Sidney H., Cleveland, Ohio. Armature for dynamo-electric machines	587,765	Aug. 10	853	201	80	845
Short, Sidney H., Cleveland, Ohio. Commutator and lead	587,866	Aug. 10	1046	241, 242	80	875
Short, Sidney H., Cleveland, Ohio. Field-magnet for dynamo-electric machines	587,869	Aug. 10	1048	242	80	876
Short, Sidney H., Cleveland, Ohio. Trolley	587,870	Aug. 10	1050	242	80	876
Short, Sidney H., Cleveland, Ohio. Armature	587,871	Aug. 10	1052	243	80	877
Short, Sidney H., Cleveland, Ohio. Means for controlling electric motors	588,021	Aug. 10	1311	304	80	925
Short, Sidney H., Cleveland, Ohio. Magnetic switch-lock	588,489	Aug. 17	2133	496	80	1093
Short, Sidney H., Cleveland, Ohio. Brush-holder support for electric generators or motors	588,490	Aug. 17	2134	496	80	1093
Short, Sidney H., Cleveland, Ohio. Multipolar dynamo, motor, or rotary transformer	588,491	Aug. 17	2135	496	80	1093
Short, Sidney H., Cleveland, Ohio. Underrunning trolley for electric railways	589,624	Sept. 7	304	80	80	1551
Short, Sidney H., Cleveland, Ohio. Commutator and means for assembling same	590,466	Sept. 21	1822	431	80	1851
Shuh, Charles, Newberry, Ind. Fence-post	590,914	Sept. 28	2630	605	80	2016
Shuman, Charles, St. Louis, Mo. Neck-yoke coupling	587,513	Aug. 3	413	97	80	740
Shurig, Frank, Huntingburg, Ind. Photographic-print washer	590,632	Sept. 28	2130	504, 505	80	1922
Shurz, Benjamin F., assignor of one-third to E. Huber, Marion, Ohio. Cycle	588,361	Aug. 17	1905	441	80	1050
Sibley, Edward L., Bennington, Vt. Garment-rack	586,977	July 27	2490	574	80	532
Siddle, Charles W., and R. Field, Huddersfield, England. Steam-generator	587,375	Aug. 3	165	40, 41	80	696
Sieber & Trussell Manufacturing Co. (See Trussell, Emory A., assignor.)						
Siemens, Frederick, Dresden, Germany. Regenerative gas-furnace	590,864	Sept. 28	2589	606	80	1998
Siemens & Halske Electric Company of America. (See Caemmerer, Erasmus, assignor.)						
Siemens & Halske Electric Company of America. (See Hoffmann and Görges, assignors.)						
Sieghortner, August L., assignor to Berrang & Zacharias, Asbury Park, N. J. Fountain-brush	590,405	Sept. 21	1722	405	80	1883
Sievers, John, Jr. (See Morehouse, Alexander P., assignor.)						
Sievers, John, Jr., Ames, Nebr. Hunting-decoy	586,145	July 13	988	222	80	209
Sieverts, Wilhelm H. A., Hamburg, Germany. Mounting incandescent mantles on gas-burners	590,865	Sept. 28	2540	606	80	1999

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Silver, William, Tamworth, New South Wales. Railway-axle lubricator	588,247	Aug. 17	1712	393	80	1015
Simmonds, Thomas H., London, England. Steering-gear for velocipedes	587,872	Aug. 10	1054	243	80	877
Simmons, Edward. (See Wolcott, Amos A., assignor.)						
Simmons, Elbert O., Englevale, N. D. Combination garden-tool	588,757	Aug. 24	2643	610	80	1208
Simmons, Freeman W., Cleveland, Ohio. Chimney-cowl	588,492	Aug. 17	2138	496	80	1094
Simmons, John P., San Francisco, Cal. Hydraulic mining-giant	586,998	July 20	2347	553	80	494
Simmons, John P., assignor to L. C. Parke, San Francisco, Cal. Can-casing machine	589,226	Aug. 31	3435	805	80	1375
Simmons, John P., assignor to L. C. Parke, San Francisco, Cal. Can-labeling machine	589,673	Sept. 7	441	106	80	1566
Simmons, Leo, Washington, D. C. Valve or faucet	589,102	Aug. 31	3225	758	80	1334
Simond, Walter A., assignor to A. T. Cass, Tilton, N. H. Can-opener	586,874	July 20	2205	518	80	468
Simonds, David K., Manchester, Vt. Weight-indicating device	588,719	Aug. 24	2559	601	80	1191
Simonds, William E., *et al.* (See Fowler, Edward C., assignor.)						
Simonis, William J., Carey, Ohio. Pedal bicycle-support	586,629	July 20	1823	423	80	396
Simons, Al B., Buffalo, N. Y. Adjustable handle-bar	590,672	Sept. 28	2203	523	80	1985
Simonson, Flavel, Sterling, Ill. Acetylene-gas generator	588,535	Aug. 17	2218	515, 516	80	1109
Simpson, Henry D., Derby, England. Tire-inflater in cycle-framework	588,840	Aug. 24	2784	646	80	1233
Sinclair, Henry A., Brooklyn, assignor to Tucker Electrical Construction Company, New York, N. Y. Fuse-block	588,536	Aug. 17	2221	516	80	1110
Sinclair, Jeremiah C., Elmore, Ohio. Type-writing machine	588,493	Aug. 17	2140	497	80	1094
Sinclair, Malcolm C. (See Ginley, Arthur H., assignor.)						
Singewald, Charles A., Baltimore, Md. Hood for stoves	587,766	Aug. 10	856	202	80	845
Singleton, George, Dover, N. J. Horseshoe	588,062	Aug. 10	1313	304	80	926
Sisson, Frank, Wallloomsack, N. Y. Scraper	587,873	Aug. 10	1055	243	80	877
Sites, Frank B., Defiance, Ohio. Crate-machine	586,671	July 20	1879	437, 438	80	407
Skaar, Ed, Kenyon, Minn. Automatic wagon-brake	589,512	Sept. 7	178	41	80	1515
Skanks, Stephen C., Toronto, Canada. Sleeping-car-berth register	587,165	July 27	2796	556, 557	80	600
Skidmore, William J., Watonga, Okla. Ter. Wagon-brake	590,745	Sept. 28	2326	550	80	1957
Skiff, Lansing S., Salem, Oreg., assignor to J. F. Twist, San Francisco, Cal. Device for forming seamless tooth-crowns	590,442	Sept. 21	1788	420	80	1845
Skiles, Benjamin F., and J. H. Maust, Allegheny, Pa. Nut-lock	589,309	Aug. 31	3742	671	80	1440
Slater, William W. (See Marsellis, Ford, assignor.)						
Slattery, John. (See Griffith and Slattery.)						
Slatton, John L., Newark, assignor of one-half to J. D. Goff, Sparta, Tenn. Combined harvester and separator	586,788	July 20	2061	480	80	440
Sleeman, George. (See Steele, James, assignor.)						
Sleeper, Elmina R., South Orange, N. J. Nursery-chair	588,707	Aug. 24	2542	598	80	1188
Sleeper, Frank H., assignor of one-half to H. Fairbanks, St. Johnsbury, Vt. Alternating-current generator	589,674	Sept. 7	445	106	80	1567
Sleeth, Francis V., San Francisco, Cal. Reversible merchandise-envelop	590,795	Sept. 28	2421	575	80	1975
Slentz, John E., Gettysburg, Pa. Damper	586,571	July 20	1718	399	80	377
Sletcher, Frederick, San Francisco, assignor of one-half to A. and H. Dannenbrink, Gilta, Cal. Gold-washing pan	585,989	July 6	721	161	80	142
Slider, William T., assignor of one-third to J. Matz, Indianapolis, Ind. Bridge for fire-hose	586,205	July 13	1096	245	80	228
Sligo, George D. (See Carraine, Eugene, assignor.)						
Slinack, Victor H., Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Hydrocarbon incandescent burner	589,446	Sept. 7	77	17	80	1496
Slinker, Claude M. (See Curry and Slinker.)						
Sloan, Edward D., assignor of one-half to E. N. Hawkins, Gillett, Colo. Barrel-filter	587,874	Aug. 10	1056	243, 244	80	877
Sloan, Thomas W., Seattle, Wash. Fracture apparatus	590,531	Sept. 21	1988	459	80	1873
Sloan, William J., East Liverpool, Ohio. Finger-nail trimmer	587,243	July 27	2930	667	80	627
Slocum, Benjamin A., Attleborough, Mass. Holder or support for window-shade rollers	586,906	July 20	1923	448	80	415
Small, Frank E. (See Larwill and Small.)						
Small, Joseph S., Piqua, Ohio. Tubular framework for concrete-iron construction	590,590	Sept. 28	2235	530	80	1941
Small, Milton T., *et al.* (See Coombs, Frank J., assignor.)						
Smart, Walter J., South Orange, N. J. Locking device	590,425	Sept. 21	1762	413	80	1840
Smart, Walter J., South Orange, assignor of one-half to W. D. Mitchell, Bayonne, N. J. Lamp	587,875	Aug. 10	1058	244	80	878
Smead Furnace and Foundry Company. (See Smead, Isaac D., assignor.)						
Smead, Isaac D., assignor to Smead Furnace and Foundry Company, Toledo, Ohio. Automatic flushing-latrine	588,699	Aug. 24	2351	543	80	1153
Smedberg, William R. (See Redmon, Frederick A., assignor.)						
Smiley, William H. (See Harris and Smiley.)						
Smiser, James W., Cynthiana, Ky. Bier	590,262	Sept. 21	1515	358	80	1793
Smith, Abraham L., New York, N. Y. Shears-sharpener	585,942	July 6	535	120	80	104
Smith, Albert E., Worcester, Mass. Rough-rounding and channeling machine	590,597	Sept. 28	2060	488	80	1909
Smith, Albert U. (See Smith, Edmond C. and A. U.)						
Smith, Albert W., Washington, D. C. Dynamo or motor	586,459	July 13	1499	351	80	305
Smith, Alfred, Christchurch, New Zealand. Combined measuring and cost-indicating apparatus	589,810	Aug. 31	3743	871, 872	80	1440
Smith, Alfred J. (See Smith, Edgar C. and A. J.)						
Smith, Alfred M. (See Black, John F., assignor.)						
Smith, Alvia B., Middlebury, Vt. Calk-sharpener and hoof-trimmer	589,866	Sept. 14	753	176	80	1638
Smith, Andrew, Travers City, Mich., assignor of one-half to J. F. Donohue, Chicago, Ill. Oar-lock	590,535	Sept. 21	1968	468	80	1881
Smith & Anthony Company. (See Barber, William M., assignor.)						
Smith, Benjamin, Paisley, Scotland. Shuttle-box-operating mechanism for looms	588,494	Aug. 17	2142	497, 498	80	1094
Smith, Caroline E., Brooklyn, N. Y. Key and door fastener	588,758	Aug. 24	2643	610	80	1208
Smith, Charles, assignor to Eastwood Wire Manufacturing Company, Belleville, N. J. Reducing pressure-valve	585,711	July 6	96	24, 25	80	22
Smith, Charles C., Exeter, Nebr. Index	586,875	July 20	2207	518	80	468
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Egg-beater	588,663	Aug. 24	2466	568	80	1174
Smith, Charles L. (See Stanton, Joseph W., assignor.)						
Smith, Charles S., Milwaukee, Wis. Fitting for bicycles	587,337	Aug. 3	104	26	80	685
Smith, Charles S., Milwaukee, Wis. Fork-crown cover-plate for bicycles	588,190	Aug. 17	1617	372	80	997
Smith, Chris N., assignor of one-half to W. H. Gilbert, Elgin, Ill. Extension-table	590,915	Sept. 28	2021	625	80	2016
Smith, David K., Pico Heights, Cal. Ditching-machine	590,118	Sept. 14	1223	287	80	1734
Smith, David P. (See Mather and Smith.)						
Smith, Desbrow M. (See Robinson, Chamberlain, and Smith.)						
Smith, Duane P. (See Elwood, Jefferson U., assignor.)						
Smith, Edgar C. and A. J., West Superior, Wis. Mechanical eraser	590,508	Sept. 28	2062	489	80	1909

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Edmond C. and A. U., Saugatuck, Conn. Automatic computing-scale	586,876	July 20	2208	518, 519	80	468
Smith, Edward C., New York, N. Y., assignor, by mesne assignments, to Smokeless Combustion Company, of West Virginia. Pulverizing and feeding fuel to furnaces	587,127	July 27	2706	636	80	583
Smith, Elmer S., Bound Brook, assignor to Handy Standard Cash Register Company, Newark, N. J. Cash register and indicator	590,556	Sept. 21	1989	468, 469	80	1881
Smith, Ephraim, Boston, Mass. Speed-controlling apparatus for lathes	585,712	July 6	99	25	80	22
Smith, Ezra W. (See Stansbury and Smith.)						
Smith, Fred H., assignor to Geneva Optical Company, Chicago, Ill. Portable kit	585,713	July 6	101	25, 26	80	23
Smith, Fred R. (See Winspear, Smith, and Sansom.)						
Smith, Fred R., assignor to Cyclone Street Cleaner, Omaha, Nebr. Dumping-cart	590,242	Sept. 21	1443	339, 340	80	1780
Smith, Fredrick G., assignor of five-eighths to B. Stock and E. Keating, Cincinnati, Ohio. Bicycle guide and lantern-bracket	588,495	Aug. 17	2146	499	80	1094
Smith, George A., Chicago, Ill. Cushion-tire	588,302	Aug. 17	1907	442	80	1050
Smith, George J., and S. M. Atherton, Burlington, Vt. Cleanable refrigerator	588,664	Aug. 24	2467	568	80	1174
Smith, George R., assignor of two-thirds to J. W. Butch and J. A. Wight, Shelbyville, Ky. Harness	586,978	July 27	2431	574, 575	80	533
Smith, Harry W. (See Harris, Henry R., assignor.)						
Smith, Harry W., assignor of one-half to J. R. McDonald, Paragould, Ark. Adjustable colter and scraper for cotton-cultivators	589,311	Aug. 31	3745	872	80	1441
Smith, Herbert W., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Electric switch	587,458	Aug. 3	316	76	80	724
Smith, James C. (See Crisp and Smith.)						
Smith, John E., Stafford, Conn. Speed-changing mechanism for lathes, drills, or similar machines	586,293	July 13	1211	276	80	251
Smith, John H., Johannesburg, South African Republic. Rock-drill	589,911	Sept. 14	851	201	80	1654
Smith, John W., Columbia, Fla. Logging-truck	590,119	Sept. 14	1324	288	80	1725
Smith, Joseph B., A. W. Ferrin, and A. L. Clough, assignors to Brodie Electric Company, Manchester, N. H. Electric switch	589,582	Sept. 7	294	71	80	1537
Smith, Josephine, Jacksonville, Ill. Pin or hook for draperies	588,886	Aug. 24	2655	664	80	1247
Smith, Leighal A., New Bern, N. C. Wrench	589,312	Aug. 31	3746	872	80	1441
Smith, Leonard O. (See Fraley, John P., assignor.)						
Smith, Lewis J., Surprise, assignor of one-half to T. J. Rundel, New York, and W. S. Rundel, Greenville, N. Y. Loose pulley	587,338	Aug. 3	105	26	80	685
Smith, Nathaniel E., Jersey City, N. J. Pipe-coupling	590,342	Sept. 21	1616	382	80	1814
Smith, Perry C., Indianapolis, Ind. Combined funnel, strainer, &c	590,243	Sept. 21	1445	340	80	1781
Smith, Robert R., New Hartford, Conn. Sail	587,046	July 27	2558	603	80	556
Smith, Robert W., Astwood Bank, England. Steering-lock for safety-bicycles	588,665	Aug. 24	2472	568, 569	80	1175
Smith, Thomas H., Bowle, Tex. Car-coupling	590,488	Sept. 21	1857	440	80	1858
Smith, Thomas M., *et al.* (See Ohliger, Ernest A., assignor.)						
Smith, Thomas W., East St. Louis, Ill. Machine for sharpening wheat-grinding rolls	588,496	Aug. 17	2148	499	80	1095
Smith, Walter W., and D. J. Doyle, Brooklyn, N. Y. Clothes-line hanger	589,867	Sept. 14	755	176	80	1638
Smith, Willard A., Providence, R. I. Barrel-filler	586,077	July 6	999	195	80	169
Smith, William A., Trinidad, Colo. Dumping-car	589,313	Aug. 31	3747	872, 873	80	1441
Smith, William B., New York, N. Y. Axle-box bearing	589,625	Sept. 7	366	90	80	1551
Smith, William D., Denver, Colo. Bicycle-brake	588,023	Aug. 10	1814	304	80	926
Smith, William J., Victoria, Canada. Speed-recorder	588,946	Aug. 17	1713	393	80	1015
Smith, William T., Bolton, England. Cutting-tool holder	590,341	Sept. 21	1615	381, 382	80	1814
Smith, William T., and B. Walmsley, Bolton, England. Slotting-machine	590,343	Sept. 21	1618	382	80	1814
Smith, Winfield S., and E. R. Bullock, Pawtucket, R. I. Box-covering machine	588,887	Aug. 24	2856	664, 665, 666	80	1247
Smithson, Alberto, Dracut, Mass. Cash register and indicator	586,401	July 13	1401	323	80	287
Smock, Benjamin D. B., Wickatunk, N. J. Trap	589,802	Sept. 7	653	152	80	1607
Smokeless Combustion Company. (See Smith, Edward C., assignor.)						
Snediker, William E., Jersey City, N. J. Vise	586,370	July 13	1845	309, 310	80	277
Snell, Fernando J. (See Sharples and Snell.)						
Snell, William T., Calumet, Mich. Condenser for steam-engines	588,497	Aug. 17	2150	499	80	1095
Sniderman, Max. (See Moser, Louis, assignor.)						
Snow, Harlen P., Erie, Pa. Telephone system and telephone-exchange mechanism	590,633	Sept. 28	2131	505	80	1922
Snow, William C., Penn Yan, N. Y. Packing and storing vessel	587,876	Aug. 10	1060	244	80	678
Snow, William D., New Milford, N. J. Tire	587,244	July 27	2931	687	80	627
Snyder, Andrew F., Chicago, Ill. Belt-tightener	587,877	Aug. 10	1062	244	80	678
Snyder, Frank E., Massillon, Ohio. Rain-water cut-off	586,572	July 20	1719	400	80	377
Snyder, George B. (See Stewart, William L., assignor.)						
Snyder, George O., Grand Ledge, Mich. Pump for tubular wells	586,206	July 13	1067	245	80	228
Snyder, Jacob J., East Florence, Ala. Wheelbarrow	588,095	Aug. 10	1429	332	80	947
Snyder, Richard A. L., Pittsburg, Pa., and A. F. Tinnerholm, assignors to American Electrical Heater Company, Detroit, Mich. Electric heater	590,916	Sept. 28	2623	626	80	2016
Snyder, William D., Austin, Ill. Folding bedstead	587,495	Aug. 3	381	90	80	734
Sobinski, Charles O., assignor to C. A. Davis and A. R. Belt, St. Louis, Mo. Roll-paper cutter	586,672	July 20	1884	438	80	407
Société Anonyme de Métallurgie du Cuivre, Procédés pre. Manhes. (See Manhes, Pierre, assignor.)						
Société Anonyme des Matières Colorantes et Produits Chimiques de St. Dennis. (See Rosenstiehl, Daniel A., assignor.)						
Société Anonyme pour l'Exploitation des Appareils Economiques à Gaz Systéme Schoonjans. (See Schoonjans, Guillaume, assignor.)						
Soden, Francis H., Chicago, Ill. Process of and apparatus for electrically treating ores	590,673	Sept. 28	2206	523	80	1936
Soderberg, Alfred A., assignor of one-half to H. Svenson, Worcester, Mass. Marine merry-go-round	586,609	July 20	1924	448, 449	80	415
Solignac, Louis E., Paris, France. Steam-boiler	589,227	Aug. 31	3436	806	80	1375
Sollers, Joseph P., Baltimore, Md. Scissors-sharpener	589,620	Sept. 7	367	90	80	1551
Solomin, Wladimir, Odessa, Russia. Apparatus for burning naphtha, &c	588,191	Aug. 17	1618	372, 373	80	997
Soltwedel, John, and E. Mathias, Whiting, Ind. Spittoon	586,207	July 13	1088	245	80	229
Somerset Novelty Manufacturing Company. (See Kennison, Herbert W., assignor.)						
Sondheimer, Joseph, *et al.* (See Cline, William, assignor.)						
Soper, Frank C., Chicago, Ill., assignor, by mesne assignments, to Luxfer Prism Patents Company, of West Virginia. Prismatic glass	586,247	July 13	1145	261	80	239

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Soper, Frank C., Chicago, Ill., assignor to Luxfer Prism Patents Company, of West Virginia. Vault-light	586,248	July 13	1147	261	80	239
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Window-light	586,249	July 13	1148	261	80	239
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Skylight	586,250	July 13	1149	262	80	239
Soper, Frank C., assignor to Luxfer Prism Patepts Company, Chicago, Ill. Device for lighting basements	586,251	July 13	1149	262	80	240
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Basement-light	586,252	July 13	1150	262	80	240
Sorensen, Rasmus A. (See Sell, Otto, assignor.)						
South, Philip T., Bethel, Ohio. Folding table-bed	585,794	July 6	256	59	80	52
Southard, Abraham M., Denver, Colo. Hand rock-drill	585,795	July 6	257	60	80	53
Souther, Calvin N., Chicago, Ill. Passage-ticket	590,654	Sept. 28	2158	510, 511	80	1927
Southern Massachusetts Telephone Company. (See Waters, Benjamin E., assignor.)						
Southwark Foundry and Machine Company. (See Lindroth, Carl O., assignor.)						
Southwell, Anna, Milwaukee, Wis. Curtain-fixture	588,084	Aug. 10	1315	305	80	926
Southwick, Charles A., assignor of one-half to H. A. Southwick, Peabody, Mass. Machine for glazing and pebbling leather	589,163	Aug. 31	3227	758	80	1335
Southwick, Horace A. (See Southwick, Charles A., assignor.)						
Spacke, Fred W., Indianapolis, Ind. Governor for gas-engines	589,583	Sept. 7	296	72	80	1537
Spaet, Joseph F. A., Moline, Ill. Book-support	585,714	July 6	102	26	80	23
Spalding, George, and J. S. Robbins, Stockton, Cal. Rotary plow	587,459	Aug. 3	317	76	80	724
Spannaus, Otto. (See Breakspear, Spannaus, and Weisbecker.)						
Sparks, Charles F., Alton, Ill. Steam-engine	586,877	July 20	2209	519	80	468
Sparrow, George, Freeport, assignor of one-half to W. Drake, Belvidere, Ill. Folding packing-case	590,283	Sept. 21	1516	359	80	1794
Spaulding, Elijah F., Bound Brook, N. J. Cash-register	590,344	Sept. 21	1619	383	80	1814
Spaulding Machine Screw Company. (See Dicks, William, assignor.)						
Spears, Ralph R., Wheeling, W. Va. Machine for reaming axle-boxes	585,715	July 6	105	26, 27	80	23
Speed, Frederic. (See Griffith, Isaac C., assignor.)						
Speer, Catharine M., Port Gibson, Miss. Sunshade	587,460	Aug. 3	320	77	80	724
Spencer, Albert H. (See Dunlap, Louis E., assignor.)						
Spencer, Harvey, Jr., New York, N. Y. Blind-fastening device	590,711	Sept. 28	2271	537	80	1947
Spencer, Ira H., assignor to Spencer Motor Company, Hartford, Conn. Air-compressor	588,206	Aug. 17	1799	416	80	1090
Spencer Motor Company. (See Spencer, Ira H., assignor.)						
Spencer, Thomas, Philadelphia, Pa. Electric-arc lamp	588,610	Aug. 24	2352	543	80	1154
Spencer, Willie R., Vancouver, Canada. Shading-pen	586,979	July 27	2433	575	80	533
Sperry, Elmer A., Cleveland, Ohio, assignor, by mesne assignments, to General Electric Company, of New York. Power-transmitting device	587,019	July 27	2504	589	80	547
Spery, Charles F., Decatur, Ill. Automatic grinding-machine	588,249	Aug. 17	1714	393	80	1015
Spiegel, William G. (See Lewis and Spiegel.)						
Spieth, William F., Cleveland, Ohio. Adjustable school-desk	590,076	Sept. 14	1132	267	80	1707
Spink, George W. (See Scott and Spink.)						
Spitzmiller, John, assignor of one-half to H. D. Williams, Poplar Bluff, Mo. Steam-trap	590,866	Sept. 28	2541	606	80	1999
Spooner, Daniel, Independence, Mo. Sewer-pipe and earthenware manufacturing machine	589,104	Aug. 31	3229	759	80	1335
Sprague, Hiram H., Leavenworth, Kans. Furnace-door-operating device	588,025	Aug. 10	1316	305	80	926
Springer, Amos C., San Francisco, Cal. Endless-belt ore-concentrator	589,627	Sept. 7	368	90, 91	80	1551
Springer Separator Company. (See Springer, Thomas H., assignor.)						
Springer, Thomas H., Philadelphia, Pa., assignor to Springer Separator Company, of Pennsylvania. Step-bearing	588,117	Aug. 10	1483	342	80	957
Springer, William L., Chicago, Ill. Scuttle-cover	589,314	Aug. 31	3748	873	80	1441
Springfield, James H., Platteville, Colo. Bottle and stopper therefor	588,499	Aug. 17	2153	500	80	1096
Springston, Thomas H., Pasco, W. Va. Pruning implement	589,987	Sept. 14	974	232	80	1677
Spruce, James, and C. H. Kellermann, Kenosha, Wis. Bicycle-frame	589,868	Sept. 14	756	177	80	1639
Spurlock, John W., Ty Ty, Ga. Spring-caster	586,460	July 13	1504	352	80	306
St. George, William G. (See Schmidt, Herman, assignor.)						
St. Mary's Machine Company. (See Boos, George F., assignor.)						
St. Paul Foundry Company. (See Allenson, John, assignor.)						
Staberg, Charles J., and C. J. Pihl, Brooklyn, N. Y. Bicycle-brake	590,489	Sept. 21	1860	440	80	1856
Stackhouse, Thomas H., Philadelphia, Pa., assignor to Wyckoff, Seamans & Benedict, of New York. Type-writing machine	587,020	July 27	2505	589, 590	80	547
Stadtmuller, Henry R., Whitneyville, assignor to Sargent & Company, New Haven, Conn. Master-key pin-lock	588,026	Aug. 10	1317	305	80	927
Staecker, Adolf, Charlottenburg, Germany. Apparatus for measuring contents of cooling-vats	590,501	Sept. 21	1870	446	80	1862
Stafford, Charles S., assignor of one-third to T. Leach, San Francisco, Cal. Advertising-vehicle	588,783	Aug. 24	2675	618, 619	80	1214
Stafford, George W., Providence, R. I., assignor to Knowles Loom Works, Worcester, Mass. Lingo for looms	586,822	July 13	1267	289	80	202
Staib, Gustav, Tomkinsville, N. Y. Store-service apparatus	589,758	Sept. 7	578	135	80	1592
Stalker, Robert, Heaton Norris, and G. Baty, Stockport, assignors of one-third to A. Turner, Denton, England. Apparatus for manufacturing felt hats	585,796	July 6	261	60	80	53
Stallings, Francis J., Effingham, Ill., assignor of one-half to J. B. Selmer. Saw filing and setting machine	585,891	July 6	437	105, 106	80	87
Stallings, George V., Strawn, Tex. Bottle	589,196	Aug. 31	3394	697	80	1357
Standard Furniture Company. (See Foley, Michael, assignor.)						
Standard Steel Works. (See Lewis and Stevenson, assignors.)						
Stanger, Johann J., Stuttgart, Germany. Electric bath	590,171	Sept. 14	1314	312	80	1742
Stanley Electric Manufacturing Company. (See Bullard, Herbert A., assignor.)						
Stanley Electric Manufacturing Company. (See Smith, Herbert W., assignor.)						
Stanley, Frank, Liberty, Ind. Pneumatic straw-stacker	590,146	Aug. 31	3321	780	80	1353
Stanley, Frank R., trustee. (See Moulton, James N., assignor.)						
Stanley, Frank F., *et al.*, trustees. (See Casgrain, Louis A., assignor.)						
Stanley, Henry A., *et al.* (See Coombe, Frank J., assignor.)						
Stanley, Henry F., New Orleans, La. Car ventilation	586,939	July 20	2348	553	80	495
Stanley, William, Pittsfield, Mass. Magnetic brake	590,777	Sept. 28	2392	568	80	1970
Stanley, William, and F. Darlington, Pittsfield, Mass. Means for supporting rotating shafts	588,666	Aug. 24	2473	569	80	1175
Stanley Rule and Level Company. (See Riecker, Charles E., assignor.)						
Stansbury, George F., Weedsport, and E. W. Smith, Albany, N. Y. Sash-fastener	587,878	Aug. 10	1062	245	80	679
Stansbury, James E. (See Butler and Stansbury.)						
Stanton, Joseph W., West Springfield, assignor of one-half to C. L. Smith, Springfield, Mass. Folding and extensible piano-stool	588,932	Aug. 24	2329	685	80	1203
Stark, Paul, Markneukirchen, Germany. Harp	586,573	July 20	1730	400	80	377

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stark, William H., Toledo, Ohio. Draft-rigging for cars	587,376	Aug. 3	167	41, 42	80	697
Starkenstein, Louis, Detroit, Mich., assignor to United States Capsule Company, of New Jersey. Capsule-filling machine	590,502	Sept. 21	1880	446, 447, 448	80	1862
Stauber, Joseph, Brookville, Kans. Hat-fastener	586,630	July 20	1884	423	80	397
Stauffer, Daniel M., East Petersburg, Pa. Shutter bower and fastener	589,039	Aug. 31	3116	733	80	1315
Stauffer, Jesse A., McKeesport, Pa. Combined snow plow, shovel, and sweeper	588,363	Aug. 17	1909	442	80	1051
Staveley, Alwyn W., I. H. Parsons, and T. J. Murday, Leicester, England. Electricity-meter	585,892	July 6	440	106, 107	80	87
Stead, John E., Middlesbrough, England. Phosphate and making same	589,197	Aug. 31	3396	-----	80	1307
Stearns, Alfred M., *et al.* (See Giesy, Edward H., assignor.)						
Stearns & Co., E. C. (See Warner, Warren E., assignor.)						
Stearns, William F., Cambridge, Mass. Bicycle-lock	589,869	Sept. 14	760	177	80	1639
Stebbins, Charles W., Hartford, Conn. Corn-holder	587,339	Aug. 3	106	26	80	685
Steber, Bernard T., Utica, N. Y. Match-making machine	587,461	Aug. 3	321	77	80	724
Steber, Bernard T., Utica, N. Y. Match-machine	589,315	Aug. 31	3749	873, 874	80	1442
Steber, Bernard T., Utica, N. Y. Match-making machine	590,077	Sept. 14	1133	268	80	1707
Stebinger, Eugene, Portland, Oreg. Scale-indicator	586,631	July 20	1825	424	80	397
Stedwell, George H., Hackensack, N. J. Garment-binding	587,879	Aug. 10	1063	245	80	879
Steel, Charles F., assignor of one-half to D. J. Sandham, Philadelphia, Pa. Ownership-indicating device	588,587	Aug. 17	2223	516	80	1110
Steel, Harry L., Dayton, assignor of one-half to J. B. Ray, Lafayette, Ind. Harness attachment	589,040	Aug. 31	3117	734	80	1315
Steel Motor Company. (See Du Pont, Antoine B., assignor.)						
Steel Motor Company. (See Harris, Samuel, assignor.)						
Steel Motor Company. (See Shallenberger, David S., assignor.)						
Steel Storage and Elevator Construction Company. (See Weber, Frederick J., assignor.)						
Steele, Charley F., and A. J. White, Sandy Lake, Pa. Bicycle-brake	588,538	Aug. 17	2225	517	80	1110
Steele, Clarence M., Statesville, N. C. Brick-die	586,461	July 13	1305	352	80	306
Steele, Cornelius W. (See Tubbs and Steele.)						
Steele, James, assignor to G. Sleeman, Guelph, Canada. Fender for street-cars	587,880	Aug. 10	1065	245	80	879
Steele, Nathan, Columbus, Ohio. Wire fence	590,917	Sept. 28	2024	626	80	2016
Steen, Samuel P., Jr., Philadelphia, Pa. Punching and eyeleting machine	585,835	July 6	336	78	80	67
Steeves, John W., and G. A. Stewart, Elliott, Md. Automatic oyster or clam tongs	588,539	Aug. 17	2227	517	80	1111
Steffens, George W., Boston, Mass. Closing-piece for bottles, &c.	588,784	Aug. 24	2677	619	80	1214
Stein, Ed, *et al.* (See Marshall, Elbridge, assignor.)						
Stein, George J., Mount Carmel, Pa. Bottle-washer	590,746	Sept. 28	2227	551	80	1958
Stein, Peter, Chicago, Ill. Bicycle-handle	586,371	July 13	1246	310	80	277
Steinberg, Henry W., Jr., Walla Walla, Wash. Insulator	586,372	July 13	1247	310	80	278
Steinbrenner, Andrew G., assignor of one-fifth to E. S. Barreiras, St. Louis, Mo. Car-door	588,500	Aug. 17	2154	500, 501	80	1096
Steinert, George R., and F. E. Babb, New York, N. Y. Curtain-pole ring	589,375	Aug. 31	3843	868	80	1459
Steinert, Morris, New Haven, Conn. Piano-action	585,716	July 6	111	27	80	25
Steinert, Morris, New Haven, Conn. Piano-action	585,717	July 6	113	27	80	25
Steinfeldt, Adolph, assignor of one-half to S. B. Nelson and N. C. Gunderson, Luverne, Minn. Ball-bearing hinge	586,146	July 13	990	223	80	210
Steinmetz, Charles P., Lynn, Mass., assignor to General Electric Company, of New York, Operating alternating motors	587,340	Aug. 3	107	27	80	686
Steinthal, Martin, New York, N. Y. Cloth-sample binder	587,881	Aug. 10	1067	245	80	880
Stellner, William, assignor of one-half to J. A. Cooper, Melbourne, Victoria. Marine screw-propeller	587,245	July 27	2932	688	80	627
Stemme, William H., *et al.* (See Richardson, Robert R., assignor.)						
Stenstrom, Ernest and O. W., Boston, Mass. Gas-fixture	587,109	July 27	2673	629	80	578
Stenstrom, Otto W. (See Stenstrom, Ernest and O. W.)						
Stephens, John N., and S. Prudhomme, Crystal Falls, Mich. Wrench	589,228	Aug. 31	3437	806	80	1375
Stephenson, Charles H., Lynn, Mass. Bicycle parcel-carrier	586,294	July 13	1213	277	80	259
Stephenson, William, Morris, Canada. Seed-drill disk-shoe	588,027	Aug. 10	1319	305, 306	80	927
Stepp, Vester M., *et al.* (See Lawson, Albert W., assignor.)						
Stern, Emanuel, Baltimore, Md. Shirt-bosom	589,912	Sept. 14	862	202	80	1654
Stern, Joseph, New Orleans, La. Garment-clasp	588,841	Aug. 24	2785	647	80	1233
Stern Manufacturing Company. (See Stern, Philip K., assignor.)						
Stern, Philip K., assignor to Stern Manufacturing Company, St. Louis, Mo. Roll-holding camera	588,611	Aug. 24	2354	543, 544	80	1154
Sterné, Emile, Paris, France. Apparatus for charging bottles or other vessels with gases by means of capsules or containers charged with liquefied or compressed gases	586,632	July 20	1828	424	80	397
Sterné, Emile, Paris, France. Apparatus for filling and closing metal capsules	586,633	July 20	1829	425	80	397
Sternkopf, Henry, Jr., East St. Louis, Ill. Bung-starter	586,323	July 13	1267	289	80	262
Steup, William. (See Kuhnhold and Steup.)						
Steurer, John A., New York, N. Y. Bicycle-valve	588,364	Aug. 17	1911	443	80	1051
Stevens, Alfred H., Philadelphia, Pa., assignor of one-half to L. Frank, New York, N. Y. Lighting implement for cigars	585,893	July 6	443	107	80	88
Stevens, Edward G., Boston, Mass., assignor to L. F. Membery, New York, N. Y. Foot-form	587,341	Aug. 3	113	28	80	686
Stevens, Frank N., Seneca Falls, N. Y. Universal connection	590,532	Sept. 21	1939	459	80	1873
Stevens, George M., Cambridge, Mass. Bell-striking mechanism	585,718	July 6	115	28	80	26
Stevens, John H., Jr., Cambridge, Mass. Water-closet	590,244	Sept. 21	1446	340	80	1781
Stevens, John H., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Pyroxylin compound	589,870	Sept. 14	761	-----	80	1639
Stevens, Lawrence M., Shaw, Miss. Doubletree	586,462	July 13	1306	352	80	307
Stevenson, Archy A. (See Lewis and Stevenson.)						
Stevenson, Thomas F., Brooklyn, N. Y. Nail-puller	589,041	Aug. 31	3117	734	80	1315
Stevenson, William L., Sardis, Ohio. Stop-cock	590,691	Sept. 28	2237	530	80	1941
Steward, Willard G., assignor to C. M. Campbell, Washington, D. C. Corset-stiffener	588,028	Aug. 10	1320	306	80	927
Steward, Willard G., and E. F. Frost, assignors to C. M. Campbell, Washington, D. C. Kinetoscope	588,916	Aug. 24	2905	690	80	1257
Stewardson, Samuel C., Santa Anna, Tex. Lubricated bullet	587,342	Aug. 3	114	28	80	687
Stewart, Benjamin F., Chicago, Ill. Butt-adjuster for grain-binders	586,634	July 20	1830	425	80	397
Stewart, George A. (See Steeves and Stewart.)						
Stewart Hartshorn Company. (See Hartshorn, Edmund F., assignor.)						
Stewart, John J., *et al.* (See Cline, William, assignor.)						
Stewart, William F., St. Louis, Mo. Water-filter	586,345	July 13	1305	299	80	269
Stewart, William L., assignor of one-half to G. B. Snyder, Wilmerding, Pa. Inkstand	586,878	July 20	2212	519	80	469
Stewart, William M., Troy, N. Y. Joint-packing	590,345	Sept. 21	1630	384	80	1817
Stewart, William W., Brooklyn, N. Y. Fountain-pen	588,708	Aug. 24	2542	588	80	1188
Stewart, William W., Brooklyn, N. Y. Fountain-pen	588,709	Aug. 24	2544	588	80	1188

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stickney, Charles W., Ketchum, Idaho. Process of and apparatus for roasting ores	587,008	July 27	2597	614	80	563
Stiff, George, assignor of one-half to F. J. Oakes, Long Island City, N. Y. Evaporator	589,553	Sept. 7	241	59	80	1527
Still, William J., Toronto, Canada. Storage battery	589,049	Aug. 31	3119	734	80	1315
Stillman, Herbert L., Charlestown, R. I. Railway-joint	586,078	July 6	871	196	80	169
Stilwell-Bierce & Smith-Valle Company. (See Stilwell, Edwin R., assignor.)						
Stilwell, Edwin R., Dayton, Ohio, assignor to Stilwell-Bierce & Smith-Valle Company, of New Jersey. Duplex-water-wheel register-gate	588,501	Aug. 17	2158	501	80	1097
Stilwell, Edwin R., Dayton, Ohio, assignor to Stilwell-Bierce & Smith-Valle Company, of New Jersey. Duplex-water-wheel cylinder-gate	588,502	Aug. 17	2159	501	80	1097
Stimson, Charles W., New York, N. Y. Loop for garment-supporters	586,108	July 13	926	207	80	198
Stimson, Charles W., New York, N. Y. Loop for garment-supporters	586,109	July 13	928	208	80	198
Stine, Eugene V., Bruneau Valley, Idaho. Weed-cutter	590,634	Sept. 28	2135	505	80	1923
Stitzel, Frederick, Louisville, Ky. Expressing-press	586,673	July 20	1885	439	80	406
Stock, Bernard, *et al.* (See Smith, Fredrick G., assignor.)						
Stocker, Louis, Knoxville, Tenn. Mechanical musical instrument	590,916	Sept. 28	2025	626, 627	80	2017
Stocker, Rudolf, London, England. Adjustable spanner	588,365	Aug. 17	1912	443	80	1051
Stockman, John H., Oscoda, and L. A. Thornton, Au Sable, Mich. Clothes-line prop	589,538	Sept. 7	217	52	80	1523
Stoddard, Lewis S. (See Roberts and Stoddard.)						
Stodder, Lee H., New York, N. Y. Rendering textile pneumatic tires puncture-proof	586,926	July 20	2329	-----	80	491
Stokes, George, assignor to himself, G. F. Tolley, Philadelphia, and J. Magee II, Bloomsburg, Pa. Printing fabrics	590,945	Sept. 21	1448	341	80	1781
Stoll, Albert A., Louisville, Ky. Combined water-pillow and douche	587,767	Aug. 10	858	202	80	845
Stoll, William F., Pocahontas, Va. Bicycle	587,059	July 27	2601	615	80	564
Stolistorff, August, Chicago, Ill. Branding-machine	587,562	Aug. 3	494	117	80	756
Stone, Charles E., Amesbury, Mass. Door-securer	587,496	Aug. 3	382	90	80	734
Stone, Heber. (See Perret, Frank A., assignor.)						
Stone, John H., Toronto, Canada. Bottle-stopper	586,960	July 27	2433	575	80	538
Stone, Umphry M., McGregor, Tex. Cutting attachment for plows	585,797	July 6	262	61	80	54
Storm, Frederick H., Preston, Iowa. Seeder attachment for harrows	589,628	Sept. 7	372	91	80	1359
Stormer, Henrik C. F., Christiania, Norway. Amalgam-washing apparatus	586,635	July 20	1835	426	80	398
Storrow, Edward C., Boston, Mass. Interiorly-lined pipe	590,811	Sept. 28	2445	581	80	1960
Storrs, Aaron P., Oswego, N. Y. Mica chimney for gas-lamps	590,346	Sept. 21	1632	384	80	1718
Stout, Wirt. (See Talbott, Asa B., assignor.)						
Stowe, Bernard A., Cleveland, Ohio. Electric-arc lamp	586,208	July 13	1089	246	80	229
Strack, Nickolas, Oconto, Wis. Covered bake-pan	589,229	Aug. 31	3438	806	80	1375
Stram, Charlie J., Waterman, Ill. Electric-wire holder	587,614	Aug. 3	595	144	80	774
Strang, Augustus E., Salem, Oregon. Bedstead	589,316	Aug. 31	3752	874	80	1442
Strange, Benjamin. (See Westmoreland and Strange.)						
Strasser, Sylvester H., Columbus, Ohio. Game apparatus	589,447	Sept. 7	79	17	80	1496
Strattan, George W. (See Wallis and Strattan.)						
Stratton, Ira, and J. K. Roberts, Beattyville, Ky. Centering-tool	589,872	Sept. 14	765	178	80	1639
Straube, Leopold P., Chicago, Ill. Non-fillable bottle	589,871	Sept. 14	764	177	80	1639
Straubel, Frederick L. G., Green Bay, Wis. Drawer or file-box	586,512	July 13	1590	371	80	323
Straus, Alexander, assignor to A. Straus, New York, N. Y. Pneumatic tire	588,612	Aug. 24	2961	544	80	1155
Straus, Annie. (See Straus, Alexander, assignor.)						
Street, Samuel H., New Haven, Conn. Heat-retaining or protecting package for foods, &c.	590,406	Sept. 21	1723	406	80	1833
Streeter, Herbert A. (See Jerstrum, Herbert, assignor.)						
Streit, Charles F., Avondale, Ohio. Hinge for water-closet seats and covers	588,720	Aug. 24	2560	591	80	1191
Stretch, Joseph, East Orange, N. J. Back-support	590,674	July 20	1888	439	80	408
Strickler, Eber H., Sioux City, Iowa. Sad-iron	587,407	Aug. 3	217	55	80	707
Strickler, Joseph A., Salem, Va. Tree-protector	588,029	Aug. 10	1323	306	80	927
Stroh, Abraham, Freeland, Pa. Grate-bar and shaker therefor	589,229	Sept. 7	375	91, 92	80	1553
Strom, Axel A., Austin, assignor to Walmsley & Company, Chicago, Ill. Apparatus for generating acetylene gas	590,674	Sept. 28	2208	523	80	1936
Strong, George S., New York, N. Y. Electric furnace	587,343	Aug. 3	115	28	80	687
Strong, Preston W., Brooklyn, N. Y. Safety-razor	589,513	Sept. 7	180	41	80	1516
Strong, Samuel D., Homer, Mich. Poultry feeding and watering device	589,230	Aug. 31	3439	806	80	1376
Strouse, Demetrius B., assignor to Bonsack Machine Company, Salem, Va. Mechanism for disposing and arranging cigarettes as delivered from cigarette-machines	589,873	Sept. 14	767	178, 179	80	1640
Strowger, Almon B., and A. E. Keith, Chicago, Ill. Multiple cut-out for telephone systems	589,796	Sept. 7	648	151	80	1606
Struble, Jacob B., Wilkinsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling for electric railways	590,599	Sept. 28	2063	489	80	1910
Struble, Jacob B., Wilkinsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Signaling	590,600	Sept. 28	2066	489	80	1910
Stuart, Charles H., Newark, N. Y. Ripping attachment for sewing-machines	587,615	Aug. 3	596	144	80	775
Stuart, Ernest B., assignor to General Gas Company, Chicago, Ill. Compound for separating oxygen and making same	588,613	Aug. 24	2362	544	80	1155
Stuart, Ernest B., assignor to General Gas Company, Chicago, Ill. Manganate and producing same	588,614	Aug. 24	2367	545	80	1156
Stuart, Ernest B., assignor to General Gas Company, Chicago, Ill. Process of and compound for separating oxygen	588,615	Aug. 24	2368	545	80	1156
Stuart, Ernest B., assignor to General Gas Company, Chicago, Ill. Oxygen-separating compound and making same	588,616	Aug. 24	2370	545	80	1156
Stuart, Ernest B., assignor to General Gas Company, Chicago, Ill. Obtaining oxygen and nitrogen from air	588,617	Aug. 24	2374	545	80	1156
Stuart, Frank H., St. Johnsbury, Vt. Sand-box	587,462	Aug. 3	323	78	80	725
Stuart, Harve R. (See Stuart, John E. and H. R.)						
Stuart, John E. and H. R., Newark, N. Y. Slicer	589,514	Sept. 7	183	41, 42	80	1516
Stuart, Robert J., New Hamburg, N. Y. Coat-holder	587,246	July 27	2933	688	80	628
Stuart, Robert J., New Hamburg, N. Y. Coat-holder	587,616	Aug. 3	597	144	80	775
Stubbers, Joseph, Covington, Ky. Gas-burner	586,748	July 20	2008	468	80	431
Stuckel, William C., Chicago, Ill. Steam-boiler	586,879	July 20	2213	520	80	469
Stuckey, William H., and C. J. Heuberger, Lykens, Ohio. Oscillating steam-engine	586,060	July 6	845	188	80	165
Stühler, Martin. (See Dörr and Stühler.)						
Stump, Ira E., assignor of three-fourths to J. M. Schneider, F. W. Bond, and J. A. Jeffers, Canton, Ohio. Carpet-sweeper	587,617	Aug. 3	599	145	80	775
Stumpf, C. Otto. (See Finnerty, Michael F., assignor.)						
Stupakoff, Simon H., Pittsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Detector-rail	588,503	Aug. 17	2160	502	80	1097
Sturges, Harry W., Brooklyn, N. Y. Bicycle-lamp	590,919	Sept. 28	2027	627	80	2017
Sturges, Lee, Chicago, Ill. Bicycle or other velocipede	586,880	July 20	2213	520	80	469
Sturges, Lee, Chicago, Ill. Fork for bicycles	589,147	Aug. 31	3323	781	80	1353
Sturgis, James L., and J. T. Taylor, Monroe City, Mo. Riding-harrow	588,198	Aug. 17	1620	373	80	997

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sturtevant, Thomas J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Framingham, Mass. Crushing-machine	588,618	Aug. 24	2379	546	80	1157
Sturtevant, Zophar W., assignor to C. I. Hood, Lowell, Mass. Machine for measuring pills	590,635	Sept. 28	2186	505	80	1923
Sueppel, George A., and J. M. Kenney, Keokuk, Iowa. Garment-supporter	589,317	Aug. 31	3753	874	80	1442
Sullivan, Daniel F. (See White and Sullivan.)						
Sullivan, Dennis E. (See Therrien, Telesphor, assignor.)						
Sullivan, John F., Florence, Colo. Door-holder	588,619	Aug. 24	2381	546	80	1158
Sullivan, John J., Red Jacket, Mich. Extension mining-post	587,463	Aug. 3	394	78	80	735
Sullivan, Josiah L., assignor to W. I. Miller, Columbus, Ohio. Faucet	586,079	July 6	871	196	80	170
Sullivan Machinery Company. (See Ball, Albert, assignor.)						
Sullivan, Mary. (See White and Sullivan, assignors.)						
Sullivan, Thomas F., New York, N. Y. Jar-top	586,636	July 20	1836	426	80	399
Sullivan, Timothy J., Bowling Green, Ky. Device for forming staves	589,759	Sept. 7	579	135 196	80	1593
Sully, James, New York, N. Y. Galvanic battery	585,854	July 6	375	87	80	75
Sully, James, New York, N. Y. Galvanic battery	585,855	July 6	377	88	80	75
Sulman, Henry L., London, England. Recovering precious metals from their solutions	587,408	Aug. 3	219	55	80	707
Sulphide Corporation. (See Swinburne, James, assignor.)						
Sulzer-Vogt Machine Company. (See Wilson, Robert, assignor.)						
Summerfield, Abraham. (See Lincoln and Summerfield.)						
Superior Drill Company. (See Packham, Frank R., assignor.)						
Suppes, Maximilian M., Elyria, Ohio. Stock distributing and collecting apparatus	590,467	Sept. 21	1695	431	80	1852
Sutcliffe, Tom. (See Reiser and Sutcliffe.)						
Sutherland, Herbert, Fair Grove, Mo. Wagon-jack	588,504	Aug. 17	2162	502	80	1097
Sutton, James, assignor of one-half to C. West, Tuckerman, Ark. Removable plow-point	590,776	Sept. 28	2391	568	80	1909
Sutton, Thomas J., New York, N. Y. Burglar-alarm	587,377	Aug. 3	169	42	80	697
Sutton, William M., Tonawanda, N. Y. Bicycle	585,719	July 6	117	28	80	26
Sveblius, Henry M., Chicago, Ill. Railway-rail joint	586,253	July 13	1151	263	80	240
Svensen, Enoch, Minneapolis, Minn. Storm-window fastener	589,448	Sept. 7	80	18	80	1497
Svenson, Hilmer. (See Soderberg, Alfred A., assignor.)						
Swafford, Henry C., Kalkaska, Mich. Washing-machine	586,637	July 20	1837	426	80	399
Swalley, George W., Prineville, Oreg. Violin	590,026	Sept. 14	1053	248	80	1662
Swan, Henry A., Glens Falls, N. Y. Broom-holder	588,080	Aug. 10	1324	307	80	927
Swan, James, Seymour, Conn. Ferrule for tool-handles	589,043	Aug. 31	3120	734	80	1316
Swanson, Andrew. (See Fridén and Swanson.)						
Swanson, John N., Chicago, Ill. Underground irrigation	585,856	July 6	378	88	80	75
Swart, Philip F., Brockport, N. Y. Barrel truck and stand	586,638	July 20	1838	427	80	399
Swartzbaugh, John H., Tiffin, Ohio. Spark-arrester	588,096	Aug. 10	1481	333	80	947
Swasey, Ambrose, *et al.* (See Swasey and Lucas, assignors.)						
Swasey, Ambrose, and H. M. Lucas, assignors to A. Swasey and W. R. Warner, Cleveland, Ohio. Feed mechanism for screw-machines	585,894	July 6	444	107	80	88
Sweeney, Dennis F., *et al.* (See Fitzgerald, Gerald T., assignor.)						
Sweeney, Dennis J., Brooklyn, N. Y. Bottle	589,044	Aug. 31	3122	735	80	1316
Sweeney, James J. (See Kollenberg, Frederick G., assignor.)						
Sweet, David C., Springfield, Mass. Car-wheel-grinding machine	585,836	July 6	342	79	80	68
Swenson, Magnus, Chicago, Ill. Cotton-press	587,618	Aug. 3	600	145	80	776
Swett, Arthur H., Chicago, Ill. Staple-fastener	589,584	Sept. 7	300	72	80	1536
Swick, Clarence E., and J. M. Reid, Springwater, Oreg. Ratchet-wrench	587,464	Aug. 3	326	78	80	725
Swift, William R. (See Gordon and Swift.)						
Swinburne, James, assignor to Sulphide Corporation, (Ashcroft's Process,) Limited, London, England. Conductor	590,120	Sept. 14	1226	288	80	1725
Swingle, Charles E., and C. Frantz; said Frantz assignor to said Swingle; said Swingle assignor of one-half to J. Harrington, Luzerne, Pa. Barrel-tapping wrench	590,730	Sept. 28	2304	545	80	1953
Swinherton, James F., assignor, by mesne assignments, to G. Kingsland, St. Louis, Mo. Roller baling-press	586,574	July 20	1721	401	80	377
Sykes, Henry A., Prescott, Ark. Fire-screen	590,284	Sept. 21	1517	359	80	1794
Sykes, Thomas, Philadelphia, Pa., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom-temple	589,585	Sept. 7	301	72	80	1538
Sylvestre, Napoleon, Biddeford, Me. Hand-guard	590,347	Sept. 21	1633	384	80	1817
Syndicaat tot Exploitatie der Patenten C. C. Van der Valk. (See Van der Valk, Christiaem C., assignor.)						
T. & B. Tool Company. (See Rickey, Walter J., assignor.)						
T. C. Dill Machine Company. (See Dill, Thomas C., assignor.)						
T. C. Prouty Company. (See Prouty, Theodore C., assignor.)						
T. G. Mandt Vehicle Company. (See Mandt, Targe G., assignor.)						
Tabb, Lyle C., Bluefield, W. Va. Portable shelving	589,318	Aug. 31	3754	875	80	1442
Tabbert, Wilhlem. (See Tabbert, William H. H. and W.)						
Tabbert, William H. H. and W., St. Ansgar, Iowa. Car-coupling	589,539	Sept. 7	218	52	80	1523
Taber, Otis G., Holton, Kans. Apparatus for dumping wagons	590,601	Sept. 28	2067	489	80	1911
Tackle, Arnold J., Oakland, Cal. Gas-engine	590,796	Sept. 28	2424	575	80	1976
Taft, George W., Kennett Square, Pa. Sweeping-machine	588,250	Aug. 17	1716	394	80	1015
Tague, George N., Boone, Iowa. Kitchen-cabinet	590,285	Sept. 21	1518	359	80	1794
Tailleur, George, assignor to Chicago Edison Company, Chicago, Ill. Electrical junction-box	589,760	Sept. 7	581	136	80	1593
Talbott, Asa B., Craigmoor, assignor of one-half to W. Stout, Mount Clare, W. Va. Churn-motor	588,193	Aug. 17	1622	373	80	998
Tauszky, Henry, New York, N. Y. Apparatus for separating and assorting yeast	587,619	Aug. 3	602	145	80	776
Taplin, Clarence A., assignor to Taplin Manufacturing Company, Forestville, Conn. Window-stop adjuster	586,147	July 13	900	223	80	210
Taplin Manufacturing Company. (See Taplin, Clarence A., assignor.)						
Taplin, Rice & Co. (See Book, William H., assignor.)						
Tarbox, Paschal A., Joliet, Ill. Spring-motor	590,533	Sept. 21	1940	459	80	1873
Tarnke, Helmuth G., Hamburg, Germany. Canvas-stretcher	587,882	Aug. 10	1068	246	80	680
Tatge, Christopher, Pierce, Nebr. Wash for trees, &c	588,031	Aug. 10	1325		80	928
Taubert, Albert, New York, N. Y. Bracket	586,861	July 20	2215	530	80	470
Taunton Locomotive Manufacturing Company. (See Collins, Edward C., assignor.)						
Tavel, Albert. (See Galley, Felix, assignor.)						
Taylor, Arthur M., Niles, Mich. Lightning-arrester for switchboards	586,575	July 20	1723	402	80	378
Taylor, Benjamin H., assignor of one-half to O. G. McGuire, Rosedale, Miss. Slide-valve	585,798	July 6	263	61	80	54
Taylor, Charles F., Holyoke, assignor to Brightwood Box Machinery Company, Springfield, Mass. Paper-box machine	586,803	July 20	2094	488 489	80	446
Taylor, Edwin F., West Chester, Pa. Electric-arc lamp	587,465	Aug. 3	327	78	80	725
Taylor, Eugene H., Lynn, Mass. Paper-box machine	590,652	Sept. 28	2161	511 512	80	1928

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Taylor, George, *et al.* (See Taylor, Samuell W., assignor.)						
Taylor, George, Dallas, Tex. Acetylene-gas generator	589,799	Sept. 7	650	152	80	1606
Taylor, George C., Halsby, England. Pneumatic tire	590,503	Sept. 21	1863	448	80	1863
Taylor, Henry, Jr., *et al.* (See Taylor, Samuell W., assignor.)						
Taylor, Hiram, Salem, Ohio. Land-roller	588,194	Aug. 17	1624	373 374	80	998
Taylor, Hiram, assignor of one-half to J. F. Tescher, Salem, Ohio. Fence-post	588,195	Aug. 17	1625	374	80	998
Taylor, Isaac B., assignor of one-half to S. T. Packwood, Ellensburg, Wash. Animal-guard	587,466	Aug. 3	329	79	80	736
Taylor, James A., *et al.* (See Taylor, Samuell W., assignor.)						
Taylor, James A., and W. Eschemann, London, England. Autoharp	588,366	Aug. 17	1913	443	80	1051
Taylor, James T. (See Sturgis and Taylor.)						
Taylor, John C., and J. W. Dennis, Findlay, Ohio. Mail-crane	590,172	Sept. 14	1314	312	80	1743
Taylor, John E., Chelsea, Mass. Lubricator	587,409	Aug. 3	222	55	80	708
Taylor, Joseph W., Chicago, Ill. Combined bicycle pump and wrench	587,514	Aug. 3	415	98	80	741
Taylor, Robert W. (See Hammond and Taylor.)						
Taylor, Samuell W., assignor of one-half to G. H., Jr., and J. A. Taylor and J. T. McIntyre, Baltimore, Md. Antifriction-axle for vehicles	588,092	Aug. 10	1326	307	80	928
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Bolt-lock for communicating doors	586,675	July 20	1988	440	80	408
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Padlock	586,676	July 20	1990	440	80	409
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Cylinder-lock	588,196	Aug. 17	1626	374	80	998
Taylor, William, Union City, Tenn. Seed-distributer	588,367	Aug. 17	1914	443 444	80	1052
Teate, Thomas A., Lloyd, assignor of one-half to W. M. Girardeau, Monticello, Fla. Brake for sewing-machines	586,576	July 20	1725	402	80	378
Teegarden, Thomas E., Chicago, Ill. Amalgamating apparatus	586,324	July 13	1268	289 290	80	263
Teetor, Charles N. (See Teetor, Zachariah and C. N.)						
Teetor, Zachariah and C. N., Hagerstown, Ind. Machine for straightening tubing or shafting	585,790	July 6	118	28, 29	80	26
Tellefsen, Theodore J., and C. S. Lockwood, Newark, N. J., assignors to Hyatt Roller Bearing Company, of New Jersey. Oil retainer and distributer for hollow rolls of roller-bearings	588,067	Aug. 24	2475	569	80	1176
Teitzrow, Robert, Sherville, Ind. Washing-machine	585,721	July 6	190	20	80	26
Temple, Ansel F., Muskegon, Mich. Folding bicycle-rack	585,722	July 6	121	29	80	27
Temple, Ansel F., Muskegon, Mich. Bicycle-frame	586,639	July 20	1839	427	80	399
Temple, Ansel F., Muskegon, Mich. Bicycle handle-bar	589,045	Aug. 31	3123	735	80	1316
Temple, Ansel F., Muskegon, Mich. Bicycle-frame	589,950	Sept. 14	906	217	80	1665
Temple, Ansel F., Muskegon, Mich. Folding bicycle-rack	590,443	Sept. 21	1760	420	80	1845
Temple, John A., Shamokin, Pa. Nut-lock	587,110	July 27	2674	630	80	578
Temple, Morris D., Chicago, Ill. Pump	590,348	Sept. 21	1634	385	80	1817
Temple, Willis B. (See Dix, William J., assignor.)						
Templin, Mark B., Calla, Ohio. T-square	587,021	July 27	2510	591	80	547
Tench, Reuben M., Turin, Ga. Button	590,692	Sept. 28	2238	530	80	1942
Terpening, Charles W., Utah, Ill. Gate	587,563	Aug. 3	497	117 118	80	757
Terry, Coleman A., Kingston, assignor of one-half to C. S. Ackley, Brooklyn, N. Y. Wrench	589,046	Aug. 31	3125	735 736	80	1316
Terry, Ernest D., New York, N. Y. Bicycle-lamp bracket	586,295	July 13	1215	277	80	252
Terry, Owen, Tuscola, Ill. Folding coop or crate	588,368	Aug. 17	1915	444	80	1052
Terver, Pierre, Paris, France. Pedal for velocipedes	587,536	Aug. 3	456	107	80	749
Tescher, John F. (See Taylor, Hiram, assignor.)						
Teuscher, Joseph, Rochester, N. Y. Cloth sponging and finishing machine	590,731	Sept. 28	2306	545	80	1953
Thacher, William A., New York, N. Y. Art of and apparatus for amalgamating	590,504	Sept. 21	1864	448	80	1863
Thams, Harold T., *et al.* (See Evertson, Elert, assignor.)						
Theis, Henry W., *et al.* (See Farmer, Julius M., assignor.)						
Theremin, Bernhard, Leipsic, Germany. Elastic handhold for vehicles	589,874	Sept. 14	771	179	80	1640
Therrien, Telesphor, assignor to D. E. Sullivan, Holyoke, Mass. Shoemaker's last	590,349	Sept. 21	1636	385	80	1818
Theurer, Jacob F., assignor to Pabst Brewing Company, Milwaukee, Wis. Bung-branding machine	589,231	Aug. 31	3442	807	80	1376
Theurer, Jacob F., and P. Fischer, assignors to Pabst Brewing Company, Milwaukee, Wis. Method of and apparatus for producing air-free carbonic-acid gas	586,523	July 13	1624	378	80	330
Thielscher, Hermann and P., Brieg, Germany. Skate	587,768	Aug. 10	859	202 203	80	845
Thielscher, Paul. (See Thielscher, Hermann and P.)						
Thoens, Burchard, New Orleans, La. Pump and equalizing-valve for pumps	590,173	Sept. 14	1315	312	80	1743
Thoma, Julius L., Kansas City, Mo. Electric motor	587,769	Aug. 10	862	203	80	846
Thomas, Eddy T., New York, N. Y. Electrically-operated ship-cleaning device	588,933	Aug. 24	2930	685	80	1202
Thomas, Etta M., Adair, Ill. Wardrobe-trunk	588,721	Aug. 24	2561	602	80	1191
Thomas, Eugene. (See Heaton, Joseph, assignor.)						
Thomas, George C., deceased, Mayfair, Ill.; G. T. Peters, administratrix. Telescope-bag	586,296	July 13	1216	277	80	252
Thomas, James and W. R., Catasauqua, Pa. Culvert	590,400	Sept. 21	1862	440	80	1859
Thomas, Nicholas, Burlington, Wis. Swing	587,022	July 27	2514	591	80	548
Thomas Phillips Company. (See Dana, Frederick I., assignor.)						
Thomas, Thomas, New Haven, Conn. Combined drill and oyster dredge	589,047	Aug. 31	3126	736	80	1317
Thomas, Will J., Gloversville, N. Y. Fruit-gatherer	588,197	Aug. 17	1627	374	80	999
Thomas, William R. (See Thomas, James and W. R.)						
Thompson, Abraham W., Newark, N. J., assignor to Continuous Rail Joint Company of America, of New Jersey. Railway-rail joint	588,807	Aug. 24	2723	632	80	1222
Thompson, Albert R., Indianapolis, Ind. Tuyer-iron for forges	589,761	Sept. 7	584	137	80	1594
Thompson, Andrew, New York, N. Y. Pencil-box	589,762	Sept. 7	586	137	80	1594
Thompson, Charles, Grantham, England. Conveyer	588,297	Aug. 17	1805	417	80	1031
Thompson, Ella Y., Grayson, Ky. Hand and arm support for piano-players	585,799	July 6	264	61	80	54
Thompson, Frank, assignor to himself, F. A. Fraser, and O. W. Meyenburg, Chicago, Ill. Refrigerator-car	587,497	Aug. 3	383	90, 91	80	734
Thompson, George K., Malden, assignor to American Bell Telephone Company, Boston, Mass. Telephone central-station signaling-circuit	587,467	Aug. 3	330	79	80	726
Thompson, George L., Chicago, Ill. Towel-rack, &c	586,090	July 6	872	196	80	170
Thompson, Herbert G. (See Hummers, Bernhard, assignor.)						
Thompson, Herschel G., assignor of one-half to C. W. and C. S. Pierce, Union City, Ohio. Wheeled cultivator	588,033	Aug. 10	1327	307 308	80	928
Thompson, Isom L., Dayton, Ill. Wagon-jack	590,602	Sept. 28	2060	490	80	1011

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Thompson, James H. (See Green, Thompson, and Fowler.)						
Thompson, James K., Kansas City, Mo. Roll-paper holder and printing-machine	587,247	July 27	2034	688	80	628
Thompson, James S., Taylorstown, Pa. Pumping apparatus for wells	586,524	July 13	1628	379	80	331
Thompson, James S., Taylorstown, Pa. Pumping apparatus for wells	586,525	July 13	1632	379	80	331
Thompson, John J., Poughkeepsie, N. Y. Reversible street-car	590,778	Sept. 28	2303	569	80	1970
Thompson, Robert. (See Thompson, William H. and R.)						
Thompson, Samuel B., Baltimore, Md., assignor to Ajax Metal Company, Philadelphia, Pa. Trolley-wheel fork	587,047	July 27	2559	603	80	556
Thompson, Sydney. (See Thompson, Thomas C. and S.)						
Thompson, Thomas C. and S., Manchester, England. Punching and eyeleting machine	587,023	July 27	2517	591	80	549
Thompson, William H., Wabash, Ind. Renovator	586,882	July 20	2217	521	80	470
Thompson, William H and R., London, England. Lubricator	589,449	Sept. 7	81	18	80	1497
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Rectifier	587,024	July 27	2518	592	80	549
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Device for examining jewels by Roentgen rays	587,883	Aug. 10	1069	246	80	880
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Shielding device for electric meters	590,653	Sept. 28	2164	512	80	1928
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric measuring instrument	590,654	Sept. 28	2165	512	80	1928
Thomson, George R. (See Bissell and Thomson.)						
Thomson, Herbert G., New York, N. Y. Anchor for fence-posts	589,763	Sept. 7	587	137	80	1504
Thomson-Houston Electric Company. (See Hunter, Rudolph M., assignor.)						
Thomson, James, Jr., Pawtucket, R. I. Clearer for drawing-rolls of cotton machinery	590,920	Sept. 28	2620	627	80	2017
Thomson, Judson L., Waltham, Mass. Setting-tool for harness-work	588,369	Aug. 17	1916	444	80	1052
Thomson, Judson L., Waltham, Mass. Hand riveting-tool	588,370	Aug. 17	1917	445	80	1052
Thomson, Judson L., Waltham, Mass. Guide-anvil	588,505	Aug. 17	2163	502	80	1098
Thomson, McLeod W., Altoona, Pa. Rail splice-bar	586,804	July 20	2097	489	80	446
Thomson, William, Largs, Scotland. Recording instrument	588,251	Aug. 17	1719	394	80	1016
Thomson, William B., Detroit, Mich. Apparatus for filling boxes	587,083	July 27	2622	620	80	567
Thorens, Hermann. (See Hössly, Louis, assignor.)						
Thornburgh Coupler Attachments Company. (See Thornburgh, William, assignor.)						
Thornburgh, William, Cleveland, Ohio, assignor, by mesne assignments, to Thornburgh Coupler Attachments Company, Limited, Detroit, Mich. Draft apparatus for railway-cars	588,722	Aug. 24	2562	592	80	1192
Thorne, Levi E., Brooklyn, assignor to Eophone Company, New York, N. Y. Screen for eophones or sound-receiving instruments	588,034	Aug. 10	1331	308	80	929
Thornley, William, Marrickville, New South Wales, assignor to H. J. Fisher, Birmingham, England. Lamp or lantern	588,506	Aug. 17	2164	503	80	1098
Thornton, Charles H., Fayetteville, Wis. Milk-sheet holder	590,505	Sept. 21	1886	448	80	1863
Thornton, Lyman A. (See Stockman and Thornton.)						
Thuirer, Henry, Spencer, Iowa. Car-coupling	589,875	Sept. 14	771	179	80	1640
Thum, William, Newark, N. J. Electrolytic apparatus	588,035	Aug. 10	1332	308 309	80	929
Thurber, Thomas J. (See Morse, William F., assignor.)						
Tidler, S. C. (See Tidler, Washington E., assignor.)						
Tidler, Washington E., assignor of one-half to S. C. Tidler, Cicero, Ind. Hog-catcher	590,747	Sept. 28	2330	551	80	1958
Tiffany, George S., Highland Park, Ill., assignor to Gray National Telautograph Company, Richmond, Va. Telautograph	587,663	Aug. 3	669	159	80	789
Tilghman, Benjamin C., *et al.* (See Mathewson, Jeremiah E., assignor.)						
Tilghman, Richard A., *et al.* (See Mathewson, Jeremiah E., assignor.)						
Timme, Charles A., New York, N. Y. Electric dental furnace	589,048	Aug. 31	3128	736	80	1317
Timms, Henry C., Malta, Ohio. Egg-tester	588,736	Aug. 24	2597	599	80	1198
Timms, James, Columbus, Ohio. Annealing-furnace	586,883	July 20	2218	521 522	80	471
Timms, James, Columbus, Ohio. Car-coupling	587,070	July 27	2602	615 616	80	564
Timms, James, Columbus, Ohio. Brake-beam	587,071	July 27	2605	616	80	565
Tindall, Henry. (See Van der Sleen and Schneller, assignors.)						
Tingley, Charles E., *et al.* (See Hunt and Trussell, assignors.)						
Tinkham, Howard A., Norton, Mass. Lock-joint pipe and collar coupling for stoves or furnaces	590,938	Sept. 28	2665	635	80	2024
Tinnerholm, August F. (See Snyder and Tinnerholm.)						
Tinsley, George W., Columbus, Ind. Hose-nozzle	587,344	Aug. 3	117	28	80	687
Tippit, Archibald M., assignor to W. C. Jones, S. H. Brock, and J. I. Ford, Niantic, Ill. Shaft-support	590,174	Sept. 14	1317	313	80	1743
Titan Manufacturing Company. (See Heinemann, Emil D., assignor.)						
Titus, Benjamin J., Detroit, Mich. Automatic switching device for street-railway cars	588,036	Aug. 10	1334	309 310	80	930
Toale, Patrick P., Charleston, S. C. Lumber-drying apparatus	585,895	July 6	445	108	80	88
Tobey, Henry A., Toledo, Ohio. Cable-head for electric wires	586,463	July 13	1506	352 355	80	307
Tobey, Henry A., Toledo, Ohio. Cable-head for electric wires	586,464	July 13	1509	353	80	307
Tobias, George P., Panora, Iowa. Salt-lick	586,148	July 13	991	223	80	210
Todd, James, Allegheny, Pa. Manufacture of varnish-gum	587,345	Aug. 3	119		80	688
Toepfer, Peter G., Milwaukee, Wis. Malt-kiln	588,507	Aug. 17	2165	503	80	1098
Toledo Glass Company. (See Owens, Michael J., assignor.)						
Tolley, George F., *et al.* (See Stokes, George, assignor.)						
Tolmie, George, Carbon, assignor to F. M. Baker, Rawlins, Wyo. Rein-guard	590,194	Sept. 14	1354	319	80	1750
Tonge, Alfred J. (See Eaves and Tonge.)						
Tonner, William E. (See Lindsay and Tonner.)						
Toof, Edwin J. (See Ammerman and Toof.)						
Toof, Edwin J., New Haven, Conn. Sewing-machine	587,620	Aug. 3	603	145 146	80	776
Toof, Edwin J., New Haven, Conn. Tuck-marking attachment for sewing-machines	590,350	Sept. 21	1637	385	80	1818
Toof, Edwin J., New Haven, Conn. Buttonhole attachment for sewing-machines	590,444	Sept. 21	1790	420 421	80	1845
Tooley, Alfred W., Bedford, England. Feed-bag	587,468	Aug. 3	333	79	80	726
Topp, Henry C., Newark, N. J., assignor to the Hanson & Van Winkle Company, of New Jersey. Brush	587,048	July 27	2560	604	80	556
Tornberg, Knut, Stockholm, Sweden. Velocimeter	587,498	Aug. 3	385	91	80	735
Torpey, John J., *et al.* (See Girling, Wilkinson T., assignor.)						
Torrey, Alexis. (See Ibel, Justus H., assignor.)						
Toulouse, Bernard, and J. Delorieux, San Francisco, Cal. Apparatus for crushing, pressing, and conveying fruit to receiving-tanks	585,900	July 6	266	61, 62	80	54
Tousey, Sinclair, and E. De Long, New York, N. Y. Stamp-affixing machine	587,621	Aug. 3	605	146	80	776

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Toussaint, John, *et al.* (See Peiffer, John, assignor.)						
Toussaint, N. J., *et al.* (See Peiffer, John, assignor.)						
Towler, James A., Leeds, England. Valve-gear for pumping-engines	588,508	Aug. 17	2166	503	80	1098
Towler, James A., Leeds, England. Valve-gear for pumping-engines	588,842	Aug. 24	2786	647	80	1233
Towler, John P., Bloomfield, Nebr. Burglar-alarm	589,540	Sept. 7	218	52	80	1523
Townsend, Henry E., Gettysburg, S. D. Bridge for musical instruments	587,884	Aug. 10	1070	246	80	880
Tracy, John J., Hartford, Conn. Electric-line insulator	586,700	July 20	1926	449	80	415
Trainer, Ernst, Dortmund, Germany. Enamel	589,554	Sept. 7	243		80	1527
Trapp, Edward A., New York, N. Y. Air-brake mechanism	585,927	July 6	506	121	80	99
Trapp, Matilda L., assignor to Hydro Smelting and Refining Company, Tacoma, Wash. Smelting and refining furnace	587,622	Aug. 3	609	147	80	777
Traub, Charles, and J. W. Helfrecht, Germania, Pa. Drain	590,779	Sept. 28	2395	569	80	1970
Traut, Justus A. (See Maisonville, Francis E., assignor.)						
Travis, Charles L., Minneapolis, Minn. Lawn-sprinkler	590,780	Sept. 28	2397	569	80	1970
Travis, Lavell S., Kiona, Wash. Bottle	590,027	Sept. 14	1054	249	80	1062
Travis, William F., Canastota, N. Y. Temporary cartridge-holder	586,209	July 13	1091	246	80	226
Treat, Albert R., Los Angeles, Cal. Nail-holding attachment for hammers	587,623	Aug. 3	612	147	80	778
Tredway, Louis D., St. Louis, Mo. Trousers protector and adjuster	586,402	July 13	1404	323	80	287
Tregoning, John. (See Perkins and Tregoning.)						
Tregurtha, Thomas. (See Wynne and Tregurtha.)						
Treiber, Charles H. (See Miller, Robert A., assignor.)						
Tremaine, Edward G. (See Reid and Tremaine.)						
Trengrove Lever Motion Company. (See Trengrove, William H., assignor.)						
Trengrove, William H., assignor to Trengrove Lever Motion Company, Limited, Christchurch, New Zealand. Driving mechanism for cycles	588,196	Aug. 17	1628	375	80	999
Trentham Engineering Company. (See Trewhella, William, assignor.)						
Trenton Indicator Bolt and Lock Company. (See Hinckley, Howard, assignor.)						
Tresenreuter, Gustav, Berlin, Germany. Apparatus for producing carbonic acid	588,037	Aug. 10	1337	310	80	930
Trettin, Paul, Berlin, Germany. Steam-boiler	585,723	July 6	122	29, 30	80	27
Trevor, Ernest, *et al.* (See Faizey, William T., assignor.)						
Trewhella, William, assignor to Trentham Engineering Company, Limited, Trentham, Victoria. Hot-air motor	588,509	Aug. 17	2167	503 504	80	1099
Tripp, Ira B., Aurora, Ill. Wrench	587,624	Aug. 3	614	148	80	778
Tripp, James, New York, N. Y. Sewing-machine	585,724	July 6	124	30	80	27
Tripp, Seth D., Lynn, Mass. Edge-finishing machine	587,378	Aug. 3	171	42	80	698
Tripp, William J., New York, N. Y. Roller-bearing for car-journals	587,248	July 27	2037	589	80	528
Trisdorfer, August, New York, N. Y. Dress-stay	586,823	July 20	2136	499	80	454
Trist, Nicholas B., Pittsburg, Pa. Furnace	587,515	Aug. 3	416	98	80	741
Trobach, Konrad, Pankow, assignor to M. Arendt, Berlin, Germany. Manufacture of mantles for incandescent gas-lights	589,376	Aug. 31	3844	808	80	1460
Trojan Button Fastener Company. (See Ham, Albert W., assignor.)						
Troup, Charles, Wataeka, Ill. Railway-switch	586,918	July 20	2309	544	80	487
Troup, David S. (See Troup, Edward L., assignor.)						
Troup, Edward L., assignor of one-half to D. S. Troup, Deshler, Ohio. Plow-point	585,990	July 6	723	161	80	142
Troy Laundry Machinery Company. (See Roberts, George C., assignor.)						
Trudel, François X. O., *et al.* (See Piché, Siméon, assignor.)						
True, Alfred M., *et al.* (See Burroughs, Charles E., assignor.)						
True, David, Amesbury, Mass. Oil-can	589,515	Sept. 7	186	42	80	1517
Truesdell, H. J., *et al.* (See Houck, Thomas J., assignor.)						
Trump Brothers Machine Company. (See Plumley, Raymond L., assignor.)						
Trumbull, Frank H., assignor of one-half to W. J. Hennessy, Palmyra, N. Y. Water-cooler for refrigerators	589,377	Aug. 31	3845	808	80	1460
Trussell, Emory A., assignor to Sieber & Trussell Manufacturing Co., St. Louis, Mo. Paper-holding device	590,175	Sept. 14	1318	313	80	1743
Trussell, Wilbert C. (See Hunt and Trussell.)						
Tryon, James E., Detroit, Mich. Automatic switch mechanism	587,625	Aug. 3	614	148	80	778
Tubbs, Nelson J., and C. W. Steele, Knoxville, Tenn. Churn-dasher	589,951	Sept. 14	907	218	80	1665
Tucker, Benjamin W., and W. S. Corwin, Newark, N. J. Elevator	587,049	July 27	2561	604 605	80	556
Tucker Electrical Construction Company. (See Sinclair, Henry A., assignor.)						
Tucker, William W. (See Goodrich, Clarence L., assignor.)						
Tucker, Zechariah R., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Supporting-arbor	586,210	July 13	1092	246	80	229
Tudor, Henry, Boston, Mass. Bicycle-pedal	588,038	Aug. 10	1338	310	80	930
Turati, Vittorio, Milan, Italy. Printing-machine	586,465	July 13	1510	353 354	80	307
Turck, Frederick M., assignor to P. Hano, New York, N. Y. Manifold memorandum-book and carbon-sheet holder therefor	586,640	July 20	1841	428	80	399
Turck, Jacob, Litchfield, Minn. Milk-pail	586,884	July 20	2219	522	80	471
Turnbaugh, Isaac N., Panaca, Nev. Washing-machine	589,319	Aug. 31	3758	875	80	1443
Turner, Arnold. (See Stalker and Baty, assignors.)						
Turner, Caleb R., assignor to K. E. Turner, Brooklyn, N. Y. Meat-shaver	586,403	July 13	1405	323	80	288
Turner, Edward H., assignor to N. Farnham, W. E. Neller, and L. E. Turner, Minneapolis, Minn. Game apparatus	590,078	Sept. 14	1157	268	80	1708
Turner, Ephraim M., Fort Worth, Tex. Frame for trunks, valises, &c	588,199	Aug. 17	1629	375	80	999
Turner, Ernest F., Adelaide, South Australia. Treating argentiferous sulfid ores	587,128	July 27	2709	636	80	584
Turner Heater Company. (See Rice, Henry H., assignor.)						
Turner, Henry H., assignor of one-half to T. L. Turner, Rochester, N. Y. Game-counter	590,921	Sept. 28	2630	628	80	2017
Turner, James, Paterson, N. J., assignor to Kearney & Foot Company, New York, N. Y. File-cutting machine	587,885	Aug. 10	1071	246 247	80	880
Turner, James, Paterson, N. J., assignor to Kearney & Foot Company, New York, N. Y. File-cutting machine	589,282	Aug. 31	3444	808	80	1372
Turner, John H., Richmond, Ind. Rotary meter	587,346	Aug. 3	121	29	80	688
Turner, Joseph E., Kansas City, Mo. Hygienic pipe	588,149	July 13	992	223	80	210
Turner, Kate E. (See Turner, Caleb R., assignor.)						
Turner, Louise E., *et al.* (See Turner, Edward H., assignor.)						
Turner, N. G., *et al.* (See Baker, Thomas J., assignor.)						
Turner, Thomas G., New York, N. Y. Means for locking elevator-controllers	588,540	Aug. 17	2228	517	80	1111
Turner, Thomas L. (See Turner, Henry H., assignor.)						
Turner, William, Providence, R. I. Bicycle	590,732	Sept. 28	2307	545	80	1954
Tussing, Charley M. (See Noble and Tussing.)						
Tuthill, Elmer D., Mattituck, N. Y. Wick-adjuster	590,496	Sept. 21	1762	414	80	1840
Tutthill, Stephen J., Oakland, assignor to Tutthill Water Wheel Company, San Francisco, Cal. Governor	589,378	Aug. 31	3846	899	80	1460
Tutthill Water Wheel Company. (See Tutthill, Stephen J., assignor.)						
Twamley, James, Grand Forks, N. D. Gas-retort bench	586,466	July 13	1515	355	80	308

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Twitchell, Selden, Philadelphia, Pa. Apparatus for carbonating liquids	586,577	July 20	1726	402	80	378
Twist, Joseph F. (See Skiff, Lansing S., assignor.)						
Tyberg, Oluf, Brooklyn, assignor to Tyberg Typewriter Company, New York, N. Y. Type-writing machine	589,233	Aug. 31	3445	808 809 810 811	80	1377
Tyberg, Oluf, Brooklyn, assignor to Tyberg Typewriter Company, New York, N. Y. Type-writing machine	589,234	Aug. 31	3460	811 812	80	1380
Tyberg Typewriter Company. (See Tyberg, Oluf, assignor.)						
Tyer Rubber Company. (See McTernen, Andrew, assignor.)						
Tyler, Alfred H., London, England. Railway-crossing	588,737	Aug. 24	2598	599	80	1198
Tyler, Charles E., and J. Dempster, Halifax, Canada. Bristle-washing machine	586,404	July 13	1407	324	80	286
Tynes, Minor E., Dallas, Tex. Braiding attachment for sewing-machines	589,764	Sept. 7	588	137	80	1504
Tyre Puncture Curing Syndicate. (See Jones, Frederick J. and G. W., assignors.)						
Tyrrell, Harry M., Coffeyville, Kans. Grain-car door	589,198	Aug. 31	3397	797	80	1367
Uckotter, Herman H., assignor to Anchor Buggy Co., Cincinnati, Ohio. Vehicle-spring coupling	589,876	Sept. 14	772	180	80	1641
Uihlein, Alfred. (See Nordberg and Uihlein.)						
Ulrich, John, and C. Wittke, Columbus, Ohio. Mechanism for converting reciprocating motion into rotary motion	586,829	July 20	2137	499 500	80	454
Underwood, Charles W., Jeanerette, La. Car-loading apparatus	586,641	July 20	1843	428 429	80	400
Underwood, John T. (See Lewis, Everett C., assignor.)						
Union Iron Works. (See Binckley, George S., assignor.)						
Union Switch and Signal Company. (See Coleman, John P., assignor.)						
Union Switch and Signal Company. (See Mock, James C., assignor.)						
Union Switch and Signal Company. (See Struble, Jacob B., assignor.)						
Union Switch and Signal Company. (See Stupakoff, Simon H., assignor.)						
Union Welt Insole Company. (See Booth, Irving E., assignor.)						
United Alkali Company. (See Hurter, Ferdinand, assignor.)						
United Gas Improvement Company. (See White, Charles E., assignor.)						
United Smoke and Vapor Condensing Company. (See Merrick, Samuel G., assignor.)						
United States Capsule Company. (See Starkenstein, Louis, assignor.)						
United States Headlight Company. (See Kirby, John, Jr., assignor.)						
United States Mail Package and General Pneumatic Delivery Company. (See Batcheller, Birney C., assignor.)						
United States Voting-Machine Company. (See Wilson, George, assignor.)						
Universal Food and Liquid Improving Company. (See Rehfuss, Martin O., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., Jr., assignor.)						
Upson, George D. (See Upson, James W. and G. D.)						
Upson, James W. and G. D., Cleveland; said James W. Upson assignor to said G. D. Upson; said G. D. Upson assignor of one-half to W. S. Upson, Mansfield, Ohio. Saddle for bicycles or velocipedes	588,089	Aug. 10	1839	311	80	930
Upson, Wilbur S. (See Upson, James W. and G. D., assignors.)						
Uptegraff, Walter D., Pittsburg, Pa. Packing-case	585,879	July 6	415	99	80	82
Usannaz, Elie J. (See Jarre and Usannaz.)						
Uster, John, Paterson, N. J. Swimming apparatus	587,499	Aug. 3	387	91	80	735
Utica Extinguisher Company. (See Pomfret and Keating, assignors.)						
Vaag, Anton B., Hillsborough, N. D. Egg tray or carrier	590,468	Sept. 21	1896	431 432	80	1852
Vale, Stephen W., Annandale, New South Wales. Concentrating-machine	588,934	Aug. 24	2031	685 686	80	1202
Valentine, Charles, *et al.* (See Paquet, Joseph, assignor.)						
Valentine, Charles W., Lafayette, Ind. Tobacco-pipe	586,734	July 20	1967	462	80	427
Valley, Gustaf, Johnstown, Pa. Dental engine	590,946	Sept. 21	1451	349	80	1782
Valley, Gustaf, Johnstown, Pa. Pressure-operated motor	590,947	Sept. 21	1453	349	80	1782
Van der Sleen, Nicolaas, and A. Schneller, Alfen-Oudshoorn, assignors to H. Tindall, Amsterdam, Netherlands. Apparatus for causing chemical changes in gases	587,770	Aug. 10	863	204	80	846
Van der Valk, Christiaem C., Haarlem, assignor to Syndicaat tot Exploitatie der Patenten C. C. Van der Valk, The Hague, Netherlands. Electrically-operated railway-barrier	586,578	July 20	1727	408	80	379
Van der Valk, Christiaem C., Haarlem, assignor to Syndicaat tot Exploitatie der Patenten C. C. Van der Valk, Hague, Netherlands. Date and time stamping apparatus for tickets	588,668	Aug. 24	2477	570 571	80	1176
Van Dorn, James H., Cleveland, Ohio. Portable building for election purposes	590,079	Sept. 14	1139	269	80	1708
Van Dorn, William T., Chicago, Ill. Draw-bar for railway-cars	586,701	July 20	1927	449	80	416
Van Horn, Alberto T., Boston, Mass., assignor to Van Horn Manufacturing and Process Company, of New Hampshire. Quartz-milling machine	589,586	Sept. 7	801	73	80	1538
Van Horn, John, *et al.* (See Moore, George H., assignor.)						
Van Horn Manufacturing and Process Company. (See Van Horn, Alberto T., assignor.)						
Van Hoevenbergh, Henry, New York, N. Y., assignor to Empire Self Lighting Oil Lamp Company, of New Jersey. Electric wick-lighting device	588,669	Aug. 24	2479	571	80	1176
Van Kannel Revolving Door Company. (See Van Kannel, Theophilus, assignor.)						
Van Kannel, Theophilus, assignor to Van Kannel Revolving Door Company, New York, N. Y. Storm-door structure	588,620	Aug. 24	2382	546 547	80	1158
Van Kannel, Theophilus, assignor to Van Kannel Revolving Door Company, New York, N. Y. Storm-door structure	588,888	Aug. 24	2860	666	80	1247
Van Norman, Charles E., Springfield, Mass. Combined lathe and milling-machine	587,537	Aug. 3	457	107 108	80	749
Van Norman, Charles E., Springfield, Mass. Milling-machine	588,510	Aug. 17	2169	504	80	1009
Van Praag, Leonidas A., New York, N. Y. Glove-cutting die	586,579	July 20	1732	403	80	379
Van Solver, Abraham H., Bridgeport, Conn. Oyster-dredge	590,712	Sept. 28	2273	538	80	1948
Van Slyke, John C., Cumberland, Iowa. Blowpipe	588,200	Aug. 17	1631	375	80	1000
Van Tucker, Lee, *et al.* (See Megquier, George H., assignor.)						
Van Voorhis, Lemert C., Salt Lake City, Utah. Duplex penholder	586,254	July 13	1152	268	80	240
Van Wagenen, Anthony, Sioux City, Iowa. Transmitter	588,511	Aug. 17	2171	505	80	1100
Vance, Ida E., Louisville, Ky. Puzzle	585,801	July 6	270	62	80	55
Vandegrift Manufacturing Company. (See Vandegrift, Theodore F., assignor.)						
Vandegrift, Theodore F., assignor to Vandegrift Manufacturing Company, Shelbyville, Ind. Nut-wrench	589,765	Sept. 7	589	138	80	1504
Vanderman, William, Willimantic, Conn. Sheet-metal tool-chest	586,297	July 13	1217	277 278	80	252
Vanderpoole, Maurice, Weare, N. H. Match-box	586,940	July 20	2350	554	80	495
Vandeveer, William, *et al.* (See Coombs, Frank J., assignor.)						
Vaniman, Daniel, McPherson, Kans. Fence-post	589,320	Aug. 31	3757	875	80	1443
Vater, Wilhelm, Mannheim, Germany. Apparatus for drying macaroni	586,542	July 20	1847	429	80	400
Vauchey, Pierre, and J. G. D. de Miomandre, Marseilles, France. Apparatus for extracting oil	588,299	Aug. 17	1810	417	80	1031

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Vauclain, Samuel M., Philadelphia, Pa. Steam-dome	590,867	Sept. 28	2542	607	80	1999
Vauclain, Samuel M., Philadelphia, and J. Y. McConnell, Darby, Pa. Combined rack and adhesion locomotive	586,405	July 13	1409	324 325	80	289
Vaughan, George B., Kirkwood, Mo. Electric trap	590,121	Sept. 14	1227	288	80	1725
Vaughan, Henry H., St. Paul, Minn. Lever-support for interchangeable brake-beams	585,725	July 6	126	31	80	28
Vaughan, Henry H., St. Paul, Minn. Motor	589,105	Aug. 31	3234	759 760	80	1336
Vaughan, Henry H., assignor of one-half to G. Fuller, St. Paul, Minn. Lever-support for interchangeable brake-beams	590,248	Sept. 21	1454	342 343	80	1783
Vaughn, Archer, Carrollton, assignor of one-half to J. C. Napier, St. Louis, Mo. Tailor's measure	586,406	July 13	1411	325	80	289
Vaughn, James R., Walnut Shade, Tenn. Table	585,802	July 6	271	62, 63	80	55
Vaught, James C. H., Belgrade, Mont. Sickle	588,843	Aug. 24	2767	647	80	1234
Vedder, Herman, Schenectady, N. Y. Clothes-line tightener	589,877	Sept. 14	774	180	80	1641
Veith, Friedrich, Offenbach-on-the-Main, Germany. Valve apparatus	589,878	Sept. 14	775	180	80	1641
Veith, Hugo G. (See Richter, Herman, Jr., assignor.)						
Vélez, Miguel, New York, N. Y. Range gas generator	589,486	Sept. 7	133	30	80	1507
Venters, Wayne B. (See Bryan, John W., assignor.)						
Verrue, Ernest J., San Francisco, Cal. Water-heater	588,300	Aug. 17	1811	418	80	1031
Verstraete, Edmond, St. Louis, Mo. Purifying water by alternating electric currents	586,643	July 20	1848	429	80	401
Victor Manufacturing Company. (See Degelman, William C., assignor.)						
Victor Rubber Tire Company. (See Bloeser, Theodore B., assignor.)						
Viert, Albert, Chicago, Ill. Rudder	588,512	Aug. 17	2176	505	80	1101
Ville, Jules, Montpellier, France. Red dye	589,766	Sept. 7	590		80	1595
Vincent, Pywell, assignor to E. T. Burrowes Company, Portland, Me. Shade and curtain holding device	585,991	July 6	723	168	80	142
Vincett, George H. (See Haugh and Vincett.)						
Vinton, A. W. (See Fry, Danniel J., assignor.)						
Vinton, John H., assignor of two-thirds to E. O. Ely, Boston, Mass. Antifriction hub or wheel bearing	586,535	July 13	1446	333	80	334
Vital, Desider von, Philadelphia, Pa. Belt-fastener	587,025	July 27	2280	502	80	549
Vivion, David R., Columbia, Mo. Corn-planter	589,321	Aug. 31	3758	876	80	1443
Vodicka, Gustav, New York, N. Y. Bottle-stopper	586,981	July 27	2434	575	80	532
Voelker Light Company. (See Voelker, William L., assignor.)						
Voelker, William L., Elizabeth, N. J., assignor to Voelker Light Company, of New Jersey. Manufacturing filaments and mantles for incandescent gas-lighting	587,026	July 27	2321	502	80	549
Voelker, William L., Elizabeth, N. J., assignor to Voelker Light Company, of New Jersey. Making filaments for incandescing mantles	588,040	Aug. 10	1342	311	80	931
Voelmy, Henri, New York, N. Y. Wave-motor	589,675	Sept. 7	448	106 107	80	1567
Vogel, Thomas, Iowa Park, Tex. Door-saddle	586,467	July 13	1376	355	80	308
Vogt, Axel S., Altoona, Pa. Truck-frame for railway-cars	587,886	Aug. 10	1078	247	80	861
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Master-key pin-lock	587,564	Aug. 3	499	118	80	757
Volland, Conrad P., assignor to J. E. Moxley and J. Weikart, Baltimore, Md. Hair-cutting machine	586,596	July 13	1633	379	80	333
Vollmer, Fred, Chester, N. Y. Adjustable bicycle-handle	587,626	Aug. 3	615	148	80	778
Vollrath, Otto, Bucyrus, Ohio. Window-screen	590,469	Sept. 21	1897	432	80	1852
Voltz, Charles. (See Waechter, Aloise, assignor.)						
Volz, John R., New York, N. Y. Bandage-cutting machine	588,844	Aug. 24	2787	647 648	80	1234
Voorhies, Catharine, Elmira, N. Y. Bed-pan	586,749	July 20	2010	468	80	432
Vosburgh, Cornelius S., Union City, Conn., assignor to S. D. Zeh, Hillsdale, N. Y. Apparatus for extracting oil	587,410	Aug. 3	223	55	80	708
Vredenburg, Frank, assignor of one-third to G. Hallman, Sterling, Colo. Yeast	587,771	Aug. 10	866		80	847
Vreeland, Teunis V. P., Wichita, Kans. Windmill	587,887	Aug. 10	1076	248	80	861
Vuilleumier, Olivier. (See Claret and Vuilleumier.)						
Vuillier, Aimé. (See Côté and Vuillier.)						
Vuillier, Aimé L., Brooklyn, N. Y. Dust-pan	586,919	July 20	2311	544	80	498
Vuncanon, James B., Asheborough, N. C. Cutter-head and knife	588,041	Aug. 10	1343	311	80	931
W. W. Kimball Company. (See Hedgeland, Frederick W., assignor.)						
Waas, Harry A., Philadelphia, Pa. Sash-holder	590,797	Sept. 28	2426	576	80	1976
Wabnitz, William E., Louisville, Ky. Portable fire-escape	588,889	Aug. 24	2863	667	80	1248
Waddell, Wilbur F. (See Richardson, John R., assignor.)						
Wade, Harry R., *et al.* (See Clouse, Joseph N., assignor.)						
Wade, Milan G. (See Savage and Wade.)						
Wade, Rosa A., *et al.* (See Clouse, Joseph N., assignor.)						
Waechter, Aloise, assignor to C. Voltz, Strasburg, Germany. Sweep or shaping saw-machine	588,901	Aug. 17	1639	376	80	1000
Wadell, Frank B., *et al.* (See Sams, Walter, assignor.)						
Waer, Luis M., assignor of seven-tenths to A. G. Woolley, Tucson, Ariz. Ter., W. Garrett and R. Woolley, San Antonio, Tex. Ore-concentrator	588,232	Aug. 17	1730	395	80	1016
Wagandt, Charles L., Baltimore, Md. Handle for sheet-metal vessels	590,781	Sept. 28	2397	570	80	1971
Waggoner, Edward P., Syracuse, N. Y., assignor to A. A. Griffing Iron Company, Jersey City, N. J. Generator	585,808	July 6	272	63, 64	80	55
Waggoner, Edward P., Syracuse, N. Y., assignor to A. A. Griffing Iron Company, Jersey City, N. J. Generator	587,289	July 27	2012	705 706	80	642
Waggoner, William R., Art. Ind. Anchor for check-row wires	587,588	Aug. 3	459	106	80	749
Wagner, Anton, Philadelphia, Pa. Magnifying-glass	590,798	Sept. 28	2427	576	80	1976
Wagner, Lee A., Marshall, Mo. Barrel-truck	588,253	Aug. 17	1732	395	80	1016
Wagoner, Charles F., Eagle Lake, Minn. Sled-propeller	589,487	Sept. 7	137	31	80	1507
Wahlberg, Andrew F., Brooklyn, N. Y. Support for shade-rollers	588,710	Aug. 24	2546	589	80	1189
Wainwright, William W. (See Johnston and Wainwright.)						
Wait, Henry H. (See Warner and Wait.)						
Waite, Thomas, Cramer's Hill, N. J. Pipe-coupling	587,347	Aug. 3	122	29	80	668
Wakefield, John F., Green Bay, Wis. Steam-boiler	586,677	July 20	1891	440	80	409
Walbridge, Herbert S., North Bennington, Vt. Stereoscope-frame	590,922	Sept. 28	2631	628	80	2018
Walch, James S., Providence, R. I. Explosive-gas engine	590,080	Sept. 14	1141	269 270	80	1709
Wald, Charles H. and J. W., Dalmatia, Pa. Fruit-picker	590,923	Sept. 28	2632	628	80	2018
Wald, Jacob W. (See Wald, Charles H. and J. W.)						
Wale, John, Nebraska City, Nebr. Hand-sled	586,644	July 20	1849	429	80	401
Wales, Thomas C., Jr. (See Hayes and Wales.)						
Walker, Adoniram J., Dalton, Mass. Hub-attaching device	587,411	Aug. 3	222	56	80	709
Walker, Albert H., trustee. (See Clausseu, Edward E., assignor.)						
Walker, Albert H., Brooklyn, N. Y. Indicator	588,254	Aug. 17	1723	395	80	1017

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Walker, Albert J., Jacksonville, Fla. Horseshoe	585,992	July 6	725	162	80	142
Walker, Alexander W., Boston, Mass. Polo-stick	590,373	July 13	1348	310	80	278
Walker, Alfred B., Cincinnati, Ohio, assignor to I. N. Walker, Indianapolis, Ind. Process of and apparatus for manufacturing white-lead pigments	588,042	Aug. 10	1344	311, 312	80	931
Walker, Benjamin P., Thomasville, Ga. Grave-platform	587,888	Aug. 10	1077	243	80	889
Walker Company. (See Caldwell, Robert L., assignor.)						
Walker Company. (See Zweigbergk, Thorsten von, assignor.)						
Walker, Danniel Q., Utica, N. Y. Car-replacer	586,962	July 27	2435	576	80	533
Walker, George B. (See Walker, John L. and G. B.)						
Walker, Ivan N. (See Walker, Alfred B., assignor.)						
Walker, James C., Waco, Tex. Resuscitating apparatus	587,801	Aug. 10	1061	249, 250	80	882
Walker, Jennie, Brooklyn, N. Y. Clasp	589,450	Sept. 7	82	18	80	1497
Walker, John L. and G. B., Pensacola, Fla. Electric fire-alarm system	590,603	Sept. 28	2070	490	80	1911
Walker, Joseph, Clark's Green, assignor to B. C. Greene, Scranton, Pa. Nut-lock	587,889	Aug. 10	1079	245	80	889
Walker, Samuel, Brooklyn, N. Y. Mirror attachment for theater-chairs	588,845	Aug. 24	2789	649	80	1234
Walker, William H. (See Hilgartner, George H., assignor.)						
Walkins, Louis E., assignor of one-half to F. W. Dickinson, Springfield, Mass. Electric-railway system	588,097	Aug. 10	1432	333	80	947
Walkins, Louis E., assignor of three-fourths to F. W. Dickinson, Springfield, Mass., and G. M. Jewett, Glenville, Md. Current-conducting rail for electric railways	588,541	Aug. 17	2230	517	80	1111
Wall, Edwin, Portland, Oreg. Toaster or broiler	585,880	July 6	415	100	80	82
Wallace, Franklin M., North Bend, Nebr. Seed-drill and cultivator	589,879	Sept. 14	776	180, 181	80	1641
Wallace, Roger W. (See Freudenberg, Moise, assignor.)						
Wallace, Roger W., assignor to Electro-Metallurgical Company, Limited, London, England. Crucible and making same	585,993	July 6	725	.....	80	142
Wallace, William, Colorado Springs, Colo. Insecticide	587,469	Aug. 3	335	.....	80	737
Wallerich, Nicholas, Fort Worth, Tex. Brake and coasting sprocket-wheel for velocipedes	589,149	Aug. 31	3326	782	80	1354
Wallingford, William A., Bloomington, Ind. Washing-machine	586,580	July 20	1734	403	80	379
Wallis, John M., and G. W. Strattan, Altoona, Pa. Device for handling locomotive-ashes	586,581	July 20	1735	404	80	380
Wallis, Mounteney, Philadelphia, Pa. Adjustable detachable bicycle-handle	586,468	July 13	1517	355	80	309
Walls, Cyrus N., Taylorville, Ill. Automatic newspaper folding and addressing machine	590,733	Sept. 28	2308	546, 547	80	1954
Walmsley, Ben. (See Clay and Walmsley.)						
Walmsley, Ben. (See Smith and Walmsley.)						
Walmsley & Company. (See Strom, Axel A., assignor.)						
Walmsley, Fuller & Company. (See Reynolds, Delbert J., assignor.)						
Walsh, Edward, Jr. (See Hartung, Charles C., assignor.)						
Walsh, Hiram H., Passaic, N. J. Brick-drier	588,621	Aug. 24	2386	547, 548	80	1158
Walsh, James F., Orlando, Fla. Clasp	589,880	Sept. 14	779	189	80	1642
Walsh, James J., Paris, Tex. Electric-arc lamp	585,726	July 6	129	31	80	28
Walsh, John G., New York, N. Y. Handle-bar for bicycles	586,678	July 20	1804	441	80	409
Walsh, Thomas. (See Green, Hiram E., assignor.)						
Walter, Albert F., Chatsworth, Ill. Attachment for photographers' tripods	590,636	Sept. 28	2137	506	80	1923
Walter, Mathias, Paterson, N. J. Process of and apparatus for cleaning and polishing loom-reeds	587,802	Aug. 10	1085	250	80	883
Walters, Samuel, Warren, Pa. Railway hose-coupling	587,111	July 27	2675	630	80	578
Walther, Joseph, Aurora, Nebr. Hot-water heater	585,727	July 6	130	31	80	29
Walton, George O., Easton, Pa. Key-ring	586,407	July 13	1413	325	80	290
Wampler, Lewis B., *et al.* (See Rawhouser, George A., assignor.)						
Wandler, Julius L., Brooklyn, N. Y. Oil-lantern	588,728	July 6	132	32	80	29
Wands, John C., St. Louis, Mo. Side bearing for railway-cars	590,286	Sept. 21	1519	359, 360	80	1794
Wanner, Louis, Jr., and R. T. Weaver, Philadelphia, Pa. Filter	590,868	Sept. 28	2543	607, 608	80	1999
Ward, Albert M., assignor to G. Johnston, Detroit, Mich. Eyeglasses	588,723	Aug. 24	2564	592	80	1197
Ward, David R., assignor of one-half to C. F. Burroughs, Newark, N. J. Blower or exhauster	588,513	Aug. 17	2177	505	80	1101
Ward, Henry W., Chicago, Ill. Weather-strip	587,893	Aug. 10	1086	250	80	883
Warden, William F., Akron, Ohio. Oil-filter	587,348	Aug. 3	123	29	80	668
Wardwell, Frank A., Methuen, Mass. Picker for looms	586,298	July 13	1219	278	80	253
Wardwell, Simon W., Jr., Boston, Mass., assignor to Universal Winding Company, Portland, Me. Cop-winding machine	589,587	Sept. 7	803	73, 74	80	1539
Ware, Daniel B., Athens, Mich. Bed attachment	588,622	Aug. 24	2388	548	80	1159
Warfel, George M., Springfield, Ohio. Lawn-sweeper	586,513	July 13	1591	371	80	323
Warner Brothers Company. (See Draher, John, assignor.)						
Warner Brothers Company. (See Grant, James W., assignor.)						
Warner Brothers Company. (See Seeley, Coles A., assignor.)						
Warner, Ernest P., and H. H. Wait, assignors to Western Electric Company, Chicago, Ill. Dynamo-electric machine	587,379	Aug. 3	174	43	80	668
Warner, Lincoln G., Philadelphia, Pa. Puzzle	588,688	Aug. 24	2505	578	80	1181
Warner, Louis P., assignor to Schaefer & Schlegel, Rochester, N. Y. Fabric and apparatus for making same	587,349	Aug. 3	124	30	80	668
Warner, Milton R., Manchester, C. O. Bulock, and A. E. McLauchlin, York Haven, Pa. Apparatus for suspending, raising, and lowering electric lamps	589,881	Sept. 14	779	182	80	1642
Warner, Philipp, Buffalo, N. Y. Noodle-machine	589,049	Aug. 31	3129	737	80	1317
Warner, T. M., *et al.* (See Roche, David, assignor.)						
Warner, Warren E., Rochester, assignor to E. C. Stearns & Co., Syracuse, N. Y. Bookholder	586,081	July 6	874	197	80	170
Warner, Worcester R., *et al.* (See Swasey and Lucas, assignors.)						
Warnock, Amos W., Dorchester, Mass. Match-box	589,050	Aug. 31	3131	737	80	1317
Warren, Alonzo H. (See Fahrmeier and Warren.)						
Warren, Christopher C., Hookston, assignor of one-half to J. Batim, Meridian, Miss. Baletie	588,514	Aug. 17	2179	505	80	1101
Warren, Edward K., Three Oaks, Mich. Woven stiffening fabric	588,301	Aug. 17	1813	418	80	1032
Warren, Edward K., Three Oaks, Mich. Woven stiffening fabric	588,302	Aug. 17	1814	418	80	1032
Warren, George W., and F. D. Clark, Prattsburg, N. Y. Trellis. (Reissue)	11,622	July 20	2386	563	80	503
Warren, Herbert C., Hartford, Conn. Machine for generating gear-teeth	588,738	Aug. 24	2599	599, 600, 601	80	1199
Warren, Ray L., North East, Md. Spectacle-case	589,676	Sept. 7	449	107	80	1567
Warry, Joseph, Birmingham, England. Incandescent gas-burner	590,693	Sept. 28	2239	531	80	1948
Warwick, George T., Newark, N. J. Ball-bearing	590,715	Sept. 28	2275	538	80	1948

Alphabetical list of patentees, July to September, inclusive—Continued.

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Washington, George, Brussels, Belgium, assignor to George Washington Lighting Company, Jersey City, N. J. Lamp	589,051	Aug. 31	3132	737	80	1315
Wasson, John M., *et al.* (See Gosnell, Frank R., assignor.)						
Waterbury Clock Company. (See Hannatyne, Archibald, assignor.)						
Waterbury Machine Company. (See Lamb, George B., assignor.)						
Waterbury Manufacturing Company. (See Ashworth, Richard J., assignor.)						
Waterhouse, Addison G., Hartford, assignor of one-half to A. W. and L. W. Case, Highland Park, Conn. Process of and apparatus for distilling liquids	585,943	July 6	536	126, 127	80	104
Waterman, Stukeley E. (See Blair and Waterman.)						
Waters, Benjamin E., Brockton, assignor of one-half to Southern Massachusetts Telephone Company, New Bedford, Mass. Counting and signaling apparatus	588,670	Aug. 24	2481	571	80	1176
Waters, Charles G., *et al.* (See Lawson, Albert W., assignor.)						
Watkins, Edward G., assignor, by mesne assignments, to Heywood Brothers & Wakefield Company, Gardner, Mass. Needle for weaving cane fabrics	588,515	Aug. 17	2179	506	80	1101
Watkins, Gardner A., assignor, by mesne assignments, to Heywood Brothers & Wakefield Company, Gardner, Mass. Machine for splitting cane	588,516	Aug. 17	2180	506, 507	80	1101
Watkins, Gardner A., assignor, by mesne assignments, to Heywood Brothers & Wakefield Company, Gardner, Mass. Cementing device	588,517	Aug. 17	2183	507	80	1102
Watson, Alexander, Boston, Mass. Collar-button	590,506	Sept. 21	1887	440	80	1803
Watson, Charles R., Stanwood, Mich. Track-clutch	587,772	Aug. 10	867	204	80	847
Watson, Harrison F., Erie, Pa. Tube or hose	588,785	Aug. 24	2679	619	80	1214
Watson, Thomas, *et al.* (See Osgood, Zenas B., assignor.)						
Watson, Thomas S. (See Michie, James C., assignor.)						
Watt, John, Birkenhead, England, assignor to W. Irving, Chicago, Ill. Apparatus for removing sediment from steam-boilers	586,805	July 20	2098	489	80	446
Wattie, William, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Multiplier mechanism for looms	586,574	July 13	1349	311, 312	80	278
Watts, Theodore T., assignor of one-half to A. C. and S. K. Burson, Lysander, Ohio. Axle-lubricator	589,451	Sept. 7	83	18	80	1497
Watts, William T., Collinsville, Ala. Broom-head	589,052	Aug. 31	3133	738	80	1318
Waybright, Charles S., Crabbottom, Va. Safety-valve	590,195	Sept. 14	1355	320	80	1750
Wayland, James, Newark, N. J. Rail-joint	590,028	Sept. 14	1055	249	80	1639
Wear, Gustav, Philadelphia, Pa. Stopper for bottles or similar vessels	587,350	Aug. 3	127	31	80	669
Weathers, James, Indianapolis, Ind. Sash-fastener	588,202	Aug. 17	1633	376	80	1000
Weaver, George S., Albany, N. Y. Station-indicator	590,176	Sept. 14	1320	313, 314	80	1744
Weaver, Harry B., Macungie, Pa. Atomizer	587,890	Aug. 10	1080	249	80	889
Weaver Jacquard and Electric Shuttle Company. (See Weaver, William, assignor.)						
Weaver, John G., Salt Lake City, Utah, assignor to Onyx Engraving and Embellishing Company, of Utah. Preparing onyx marble for use in relief-printing	590,177	Sept. 14	1323	.....	80	1744
Weaver, Robert T. (See Wanner and Weaver.)						
Weaver, William, assignor to Weaver Jacquard and Electric Shuttle Company, Norwalk, Conn. Loom	589,913	Sept. 14	852	202	80	1654
Webb, Edward L., Higganum, Conn. Push-bar	589,767	Sept. 7	501	128	80	1595
Webb, William A., Brooklyn, N. Y. Electromedical exercising apparatus	590,050	Sept. 14	1086	257	80	1660
Webber, Alexander, Winthrop, Mass. Mixing apparatus for cake, &c.	590,782	Sept. 28	2390	570	80	1971
Webber, Stebbins S., La Porte, Ind. Sheet-flue range	589,882	Sept. 14	782	182	80	1642
Webber, Walter B. (See Griffin, Michael H., assignor.)						
Weber, Edwin R. (See Ryan and Weber.)						
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Feeder for grain-transfer systems	585,804	July 6	276	64	80	57
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Ash-conveying apparatus	588,518	Aug. 17	2185	507, 508	80	1102
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Grain-transfer apparatus	589,106	Aug. 31	3237	760	80	1336
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Car-unloader	589,516	Sept. 7	187	42, 43	80	1517
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Swivel for pneumatic grain-pipes	589,800	Sept. 7	652	152	80	1607
Webster, Camp & Lane Machine Company. (See Pitkin, Stephen H., assignor.)						
Webster, George, Christiana, assignor of one-half to I. H. Dickinson, Quarryville, Pa. Dehorning implement	586,806	July 20	2099	490	80	447
Webster, Harold A., Haverhill, assignor to G. H. P. Flagg, trustee, Boston, Mass. Buffing or polishing device	590,714	Sept. 28	2278	538	80	1949
Webster, Helen L., Wellesley, Mass. Spool-support for sewing-machines	589,053	Aug. 31	3134	738	80	1318
Webster, John, assignor of two-thirds to T. S. Christie and W. V. Moore, Detroit, Mich. Drying apparatus	590,287	Sept. 21	1521	360, 361	80	1795
Weckman, John S., Canton, Ohio. Harrow	589,517	Sept. 7	188	43	80	1517
Weddell, Charles W., Catoctin Furnace, Md. Tool-support block for lathes	590,051	Sept. 14	1086	257	80	1660
Weed, Alfred, Anderson, Ind. File and handle	586,588	July 20	1737	404	80	380
Weigert, Joseph A., and H. Oyen, Philadelphia, Pa. Combined plumb and level	586,082	July 6	875	197	80	170
Weikart, John, *et al.* (See Velland, Conrad P., assignor.)						
Weikly, James N., Jersey City, N. J., assignor to G. H. Fraser, Brooklyn, N. Y. Car-fender	585,729	July 6	133	32	80	29
Weinberg, Arthur, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Developing azo colors	588,303	Aug. 17	1634	.....	80	1000
Weinberg, Louis. (See Newman and Weinberg.)						
Weinrich, Moriz, St. Louis, Mo. Revivifying bone-black	586,278	July 13	1188	272	80	247
Weis, George E., Reading, Pa. Street-car sign	586,583	July 20	1738	404	80	380
Weisbecker, Charles. (See Breakspear, Spannaus, and Weisbecker.)						
Weismantel, William, New York, N. Y. Elevator clutch and brake	586,685	July 20	2220	522	80	471
Weiss, Engelbert, assignor of one-half to C. Renner, Milwaukee, Wis. Grate for stoves or ranges	586,886	July 20	2221	522	80	471
Weiss, Joseph, Heidenheim-on-the-Brenz, Germany. Printing and mercerizing cotton	586,750	July 20	2011	.....	80	432
Weiss, Rudolph, Nottingham, England. Circular loom	590,122	Sept. 14	1228	288, 289, 290	80	1725
Weiss, Rudolph, Nottingham, England. Circular loom	590,123	Sept. 14	1233	290, 291, 292	80	1726
Weiss, William F., Stockton, assignor to W. E. Harrington, Camden, N. J. Traveling contact for electric railways	590,452	Sept. 7	85	19	80	1498
Weissenthanner, Alfred L., assignor to Phoenix Cap Company, New York, N. Y. Machine for closing jars	590,196	Sept. 14	1356	320	80	1750
Weitzel, John A., Lancaster, Pa. Toy	590,535	Sept. 7	244	56	80	1527
Welch, Charles H., Aberdeen, Miss. Car-door closure	586,469	July 13	1518	355	80	309

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Welch, Charles K., Coventry, England. Pneumatic tire	590,715	Sept. 28	2279	539	80	1949
Welch, Charles K., Coventry, England, assignor to Pneumatic Tyre Company, Limited, Dublin, Ireland. Vehicle-wheel	589,235	Aug. 31	3464	812	80	1331
Welch, Thomas, New York, N. Y. Window-cleaning chair or platform	590,924	Sept. 28	2633	629	80	2018
Welchans, Albert C. (See Russell and Welchans.)						
Welker, George M., Bryan, Ohio. Shelf	588,519	Aug. 17	2186	508	80	1103
Weller, Henry J., administrator. (See Green, John J.)						
Weller, Michael W., *et al.* (See Brugler, Woodley, assignor.)						
Weller, William H. (See Campbell, Robert, assignor.)						
Wellington, Charles A., Lexington, Mass. Window and casing for cars, &c	589,453	Sept. 7	86	19	80	1498
Wellington, Quincy W. (See Davis, Edwin F., assignor.)						
Wellman, Charles H. (See Wellman, Samuel T. and C. H.)						
Wellman, Harlan P., Ashland, Ky. Electric-railway system	586,920	July 20	2312	544, 545	80	488
Wellman, Samuel T. and C. H., Cleveland, Ohio. Charging-box for furnace-charging apparatus	589,768	Sept. 7	502	126	80	1505
Wellman, Samuel T. and C. H., Cleveland, Ohio. Port end for metallurgical furnaces	589,769	Sept. 7	503	139	80	1505
Wentworth, Barton M. (See Hobbs and Wentworth.)						
Werner, Friedrich H., Velpke, Germany. Manufacturing beet-root syrup	588,623	Aug. 24	2389	548	80	1159
Wesley, John M., Peale, Pa. Latch for mine-car doors	587,412	Aug. 3	206	56	80	709
West, Charles H., Kearney, Nebr. Dry-oil-gas burner	588,520	Aug. 17	2187	508	80	1103
West, Crawford. (See Sutton, James, assignor.)						
West, Ephraim K., Syracuse, N. Y. Curtain-pole	587,166	July 27	2799	657	80	601
West, James W., De Long, Ill. Animal-trap	587,894	Aug. 10	1068	250	80	868
Westerbeck, Frederick, St. Louis, Mo. Sheet-metal can	590,029	Sept. 14	1056	249	80	1603
Western Electric Company. (See Haskins, Charles D., assignor.)						
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Warner and Wait, assignors.)						
Western Engravers' Supply Company. (See Schraubstadter and Schilling, assignors.)						
Western Paper Bag Company. (See Murchie, Sylvanus T., assignor.)						
Western Wheeled Scraper Company. (See McKnight, Thomas R., assignor.)						
Westinghouse Air Brake Company. (See Hoff, John A., assignor.)						
Westinghouse, Church, Kerr & Company. (See Roney, Churchill, and Arnold, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Mallett, John P., assignor.)						
Westman, Gustaf M., New York, N. Y. Separating precious metals from their ores	588,204	Aug. 17	1636	.....	80	1000
Westman, Gustaf M., Hackettstown, N. J. Continuous process of reducing iron sponge	590,925	Sept. 28	2634	629	80	2018
Westmoreland, Benjiman F., and R. H. Babington, Franklinton, La. Vehicle-axle sleeve	588,759	Aug. 24	2644	610	80	1208
Westmoreland, Joseph M., and B. Strange, Ada, Tex. Railway cattle-gate	588,308	Aug. 17	1815	418, 419	80	1032
Weston, Buckley, deceased; R. Whitley, Paterson, N. J., administrator. Tension device for loom-shuttles	587,352	Aug. 3	131	31	80	689
Weston, Grace M. G. (See Weston, Walter H. and G. M. G.)						
Weston, Thomas L., Weston, assignor of one-half to F. H. Hyatt and L. T. Wilds, Columbia, S. C. Self-stopping funnel	587,249	July 27	2988	629	80	629
Weston, Walter H. and G. M. G., Winthrop, Mass., assignors to said G. M. G. Weston. Attachment for chamber vessels	588,304	Aug. 17	1816	419	80	1032
Westphal, Robert, South Bend, Ind. Disinfecting apparatus	589,054	Aug. 31	3186	738	80	1319
Wetmore, Edwin A., *et al.* (See Wetmore, Ernest L. P., assignor.)						
Wetmore, Ernest L. P., assignor of one-half to G. Barnes and E. A. Wetmore, Marquette, Mich. Incandescent-electric-lamp support	588,890	Aug. 24	2364	667	80	1248
Wetrems, Adolphe. (See Zur-Muhlen and Wetrems.)						
Wharton, William, Jr., Philadelphia, Pa. Amusement apparatus	586,718	July 20	1957	456	80	421
Wharton, William, Jr., Philadelphia, Pa. Amusement apparatus	586,983	July 27	2487	576	80	534
Wheaton, Milton A., San Francisco, Cal. Excavating-machine	590,926	Sept. 28	2636	629, 630, 631	80	2019
Wheeler, Albert H., assignor of one-half to E. Pike, Warwick, R. I. Combined brake and fender	588,255	Aug. 17	1724	395, 396	80	1017
Wheeler, Fred F., Athol, Mass. Thill-coupling	590,010	Sept. 14	1031	243	80	1668
Wheeler, Webb B., Lincoln, Nebr. Coin-operated electrical apparatus	590,427	Sept. 21	1763	414	80	1840
Wheeler & Wilson Manufacturing Company. (See Dimond and Dial, assignors.)						
Whipkey, Sanford M., Barronvale, Pa. Money-changing machine	587,250	July 27	2989	689, 690, 691	80	629
Whipple, Frank H., *et al.* (See Ohliger, Ernest A., assignor.)						
Whitaker, George, London, England. Apparatus for pressing trousers, &c	586,887	July 20	2228	523	80	472
Whitaker, Richard. (See Johnson and Whitaker.)						
Whitcher, Frank W. (See Williams, George H., assignor.)						
Whitcher, Frank W., *et al.* (See Elliott, Sterling, assignor.)						
White, Abie M., Tilmon, Tex. Joiner's floor-clamp	589,518	Sept. 7	190	43	80	1518
White, Albert, and D. F. Sullivan; said Sullivan assignor to M. Sullivan, Lowell, Mass. Stop-motion for circular-knitting machines	587,351	Aug. 3	128	31	80	689
White, Albert, and D. F. Sullivan; said Sullivan assignor to M. Sullivan, Lowell, Mass. Stop-motion for circular-knitting machines	588,760	Aug. 24	2645	610	80	1208
White, Albert, and D. F. Sullivan; said Sullivan assignor to M. Sullivan, Lowell, Mass. Stop-motion for circular-knitting machines	588,761	Aug. 24	2647	611	80	1208
White, Albert, and D. F. Sullivan; said Sullivan assignor to M. Sullivan, Lowell, Mass. Automatic drop-wire support for knitting-machine stop-motions	588,762	Aug. 24	2648	611	80	1209
White, Albert E., Eau Claire, Wis. Saw-swage	587,539	Aug. 3	460	108, 109	80	749
White, Andrew J. (See Steele and White.)						
White, Casabianca B., Goldfield, Colo. Bottle	587,895	Aug. 10	1089	251	80	883
White, Charles, and A. R. Middleton, Baltimore, Md. Igniter for gas-engines	588,917	Aug. 24	2907	661	80	1257
White, Charles E., assignor to United Gas Improvement Company, Philadelphia, Pa. Hydrocarbon-lamp	586,209	July 13	1230	278	80	253
White, Charles W. (See Bessonette, Charles L., assignor.)						
White, Edward F., Bayonne, N. J. Evaporation and surface condenser	586,110	July 13	930	208, 209	80	199
White, Edward H. (See Parker, William D., assignor.)						
White, Enoch A., Hailey, Idaho. Lawn-sprinkler	588,846	Aug. 24	2791	649	80	1234
White, Ernest M., Philadelphia, Pa. Chimney for incandescent gas-burners	589,322	Aug. 31	3760	876	80	1443
White, Ernest M., assignor to T. White, Philadelphia, Pa. Chimney for incandescent gas-burners	589,323	Aug. 31	3762	877	80	1444

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White, Fred H. (See Heath and White.)						
White, George, Jersey City, N. J., assignor to J. R. Hatmaker New York, N. Y. Power and heat generator. (Reissue)	11,619	July 6	896	201	80	175
White, George W., Huntsville, Ala. Inflatable tire	589,770	Sept. 7	504	139	80	1595
White, Gustine S., Franklin, Pa. Record-book	587,167	July 27	2800	657, 658	80	601
White, Hawley C., North Bennington, Vt. Stereoscope	589,055	Aug. 31	3137	738	80	1319
White, Henry R., Arlington, Mass. Temperature-regulating apparatus	590,407	Sept. 21	1724	405	80	1833
White, James H., Brooklyn, assignor to Manhattan Brass Company, New York, N. Y. Lamp-burner hinge	586,946	July 13	1308	299	80	270
White, James H., Brooklyn, assignor to Manhattan Brass Company, New York, N. Y. Folding pedestal	587,896	Aug. 10	1090	251	80	883
White, John L., Leonore, Ill. Water-distribution system	588,305	Aug. 17	1817	419	80	1032
White, Louis L., assignor to L. L. White Tooth Crown Company, San Francisco, Cal. Manufacture of metallic tooth-crowns	590,799	Sept. 28	2427	576	80	1976
White Manufacturing Company. (See Lloyd, Marshall B., assignor.)						
White, Moses H., assignor of one-third to G. T. Richardson, Wenatchee, Wash. Water-wheel	590,178	Sept. 14	1324	314	80	1745
White, Rosa C., Waldoborough, Me. Heater-frame for lamps	589,056	Aug. 31	3138	739	80	1319
White, Thomas. (See White, Ernest M., assignor.)						
White, William H., Harrold, S. D. Lamp-burner	587,413	Aug. 3	227	56	80	709
White, William H., Harrold, S. D. Thread-cutter and addressing device for spools	587,414	Aug. 3	228	56	80	709
White, William H., Harrold, assignor of one-fourth to J. A. French, Pleasant, S. D. Nut-lock	587,664	Aug. 3	670	159	80	789
White, William R., Bloomington, Ill. Gate	587,415	Aug. 3	229	57	80	709
White, William W., Brooklyn, N. Y. Pneumatic tire	590,080	Sept. 14	1058	249	80	1603
Whitehead, Thomas P., assignor of one-half to M. Kaufman, Shreveport, La. Self-closing straining-faucet	587,416	Aug. 3	232	57	80	710
Whitehurst, W. J., *et al.* (See Hysore, Alphenas V., assignor.)						
Whiteley, Henry, Philadelphia, Pa. Plate and sheet furnace	586,300	July 13	1222	279	80	253
Whitley, Ralph, administrator. (See Weston, Buckley.)						
Whitney, Edwin H., East Providence, assignor to American Ship Windlass Company, Providence, R. I. Capstan	587,897	Aug. 10	1091	251	80	884
Whitney, Hugh M., assignor to Whitney Manufacturing Company, St. Louis, Mo. Flouring-machine	590,939	Sept. 28	2666	635	80	2024
Whitney Manufacturing Company. (See Whitney, Hugh M., assignor.)						
Whittlesey, Albert T., and F. B. Dodge, Cleveland, Ohio. Electric signal-box	587,565	Aug. 3	500	119, 120	80	757
Whyte, John D., Manchester, assignor of one-half to Whyte's Patents, Limited, Bradford, England. Yarn-winding machine	586,279	July 13	1190	272, 273	80	247
Whyte's Patents. (See Whyte, John D., assignor.)						
Wichmann, John, New York, N. Y. Adjustable spring	586,645	July 20	1850	430	80	401
Wick, John, assignor of one-half to J. Lane, South Chester, Pa. Car-fender	588,847	Aug. 24	2792	649	80	1235
Widder, Jakob, New York, N. Y. Churn	586,470	July 13	1520	356	80	309
Wiederhold, Oscar, Summit, N. J. Thermostat	586,301	July 13	1223	279	80	254
Wiedersheim, Theodore E., Jr., Philadelphia, Pa. Knockdown box	586,646	July 20	1851	430	80	401
Wiegand, S. Lloyd, Philadelphia, Pa. Support and driving mechanism for spinning-spindles	589,994	Sept. 14	985	234	80	1679
Wiegand, S. Lloyd, Philadelphia, Pa. Support and driving mechanism for spinning-spindles	589,995	Sept. 14	986	235	80	1679
Wiesenfeld, Robert S., Baltimore, Md. Soft-tread horseshoe	589,488	Sept. 7	140	31	80	1508
Wight, Jas. A., *et al.* (See Smith, George R., assignor.)						
Wightman, Merle J., *et al.* (See Phelps, Fred A., Jr., assignor.)						
Wightman, Newell F., Meriden, Conn. Bag-fastener	588,848	Aug. 24	2795	650	80	1235
Wilbur, Lebbeus H., Owego, N. Y. Bridge	587,540	Aug. 3	462	109	80	750
Wilbur, William O., Girard, Mich. Buggy-top attachment	589,394	Aug. 31	3763	877	80	1444
Wilcox, Arthur B., Meriden, Conn. Carpet-fastener	590,812	Sept. 28	2446	581	80	1980
Wilcox, Dutee, *et al.* (See Burrows, Frank L., assignor.)						
Wilcox, Edward M., Denver, Colo., assignor to Perfect Letter Opener Company, Los Angeles, Cal. Attachment for envelop-machines	587,898	Aug. 10	1094	251, 252	80	884
Wilcox, Ernest C., and B. L. Lawton, Meriden, Conn. Telephone-transmitter	585,896	July 6	446	108	80	88
Wilcox Manufacturing Company. (See Ives, Albert J., assignor.)						
Wilcox, Samuel H., Lebanon, assignor to American Buncher Manufacturing Company, Indianapolis, Ind. Divider for mowing or reaping machines	586,150	July 13	998	224	80	210
Wilcox, W. Asher, assignor of one-half to W. T. Marsh, Rich Hill, Mo. Saw shaping and sharpening device	590,869	Sept. 28	2545	608	80	2000
Wilds, Louis T., *et al.* (See Weston, Thomas L., assignor.)						
Wilentahlk, Bernhard, New York, N. Y. Pocket-book	587,251	July 27	2942	691, 692	80	629
Wilhelmi, Otto, Dusseldorf, Germany. Rocket	585,805	July 6	278	64	80	57
Wiley, Lewis, Westmoreland, N. Y. Bob-sled	589,057	Aug. 31	3139	739	80	1319
Wilfley, Arthur R., Denver, Colo. Ore-concentrator	590,675	Sept. 28	2210	524	80	1957
Wilhelm, John F., New York, N. Y. Mailing-envelop and packing-case	588,892	Aug. 24	2965	667	80	1249
Wilken, Frederick J., *et al.* (See Bourke, Alphege, assignor.)						
Wilken, Rienhart, Sterling, Ill. Adjustable roof-jack	590,949	Sept. 28	2664	642	80	2030
Wilkins, Edward S., Brooklyn, N. Y. Fender or guard for tramway-cars	586,205	Aug. 17	1636	377	80	1001
Wilkinson, Charles A., *et al.* (See Burrows, Frank L., assignor.)						
Wilkinson, John F., Pepperell, Mass., assignor of five-eighths to R. Brown, New Ipswich, N. H., and R. G. Davis, Boston, Mass. Bicycle-crank pedal	590,557	Sept. 21	1993	469	80	1889
Wilkinson, Joseph B., New Orleans, La. Apparatus for defecating saccharine juices	588,521	Aug. 17	2188	508, 509	80	1103
Wilkinson, Walter. (See Wood and Wilkinson.)						
Willett, William, Johnstown, Pa. Trolley	586,647	July 20	1852	430	80	401
William Ellison & Sons Manufacturing Company. (See Rice, Lewis C., assignor.)						
William Sellers & Company. (See Lewis and Ramsden, assignors.)						
William Wharton, Jr., & Company, Incorporated. (See Angerer, Victor, assignor.)						
Williams, Adolph A., Duluth, Minn. Gas-engine	587,627	Aug. 3	617	148, 149	80	779
Williams, Alexander G. (See Bullard, Ezekiel W., assignor.)						
Williams, Alfred G., and A. H. Meyer, Newark, N. J. Bicycle-lamp with bracket	588,008	Aug. 10	1486	333	80	948
Williams, Arthur E., Randolph, N. Y. Receptacle for merchandise	587,899	Aug. 10	1098	252	80	883
Williams, Arthur H., Fort Plain, N. Y. Sewing-machine attachment	587,252	July 27	2943	692	80	629
Williams, Arthur S., Newton, assignor to American Bell Telephone Company, Boston, Mass. Telephone signaling relay and circuit	586,888	July 20	2223	523	80	472
Williams, Arthur S., Newton, assignor to American Bell Telephone Company, Boston, Mass. Protective appliance for electrical apparatus	588,206	Aug. 17	1637	377	80	1001

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Williams, Charles N. (See Owen, Williams, and Donaldson.)						
Williams, Edward, Chester, England. Apparatus for forming and driving staples into boxes	589,058	Aug. 31	3140	739, 740	80	1320
Williams, Elza R. and L., and E. B. Harvey, Elwood, Ind. Cultivator	590,694	Sept. 28	2240	531	80	1942
Williams, Elzy R., assignor of one-half to W. E. Burnett, St. Joseph, Mo. Mechanical movement for time-locks	590,027	Sept. 28	2647	631, 632	80	2020
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lantern	589,586	Sept. 7	305	74, 75	80	1589
Williams, George H., *et al.* (See Elliott, Sterling, assignor.)						
Williams, George H., Newton, Mass. Bicycle-support	588,542	Aug. 17	2231	518	80	1112
Williams, George H., Newton, assignor to F. W. Whitcher, Boston, Mass. Heel or sole protector	587,500	Aug. 3	388	92	80	735
Williams, George W., Brooklyn, N. Y. Bicycle handle or grip	586,830	July 20	2139	500	80	454
Williams, Harry M., Bloomington, Ill. Combined till alarm and lock	590,249	Sept. 21	1458	343	80	1783
Williams, Henry J., Boston, Mass. Calorimeter	590,408	Sept. 21	1726	407	80	1884
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Horace D. (See Spitzmiller, John, assignor.)						
Williams, Horace S., assignor of one-half to P. Petersen, Brisbane, Queensland. Convertible step-ladder	586,889	July 20	2228	523, 524	80	472
Williams, James E. (See Boyer, John H., assignor.)						
Williams, John N., Derby, Conn. Type-writing machine	586,255	July 13	1153	263, 264	80	240
Williams, John N., Derby, Conn. Type-writing machine	588,522	Aug. 17	2191	509, 510	80	1104
Williams, John R., East Orange, N. J., assignor to John R. Williams Company, New York, N. Y. Cigarette-making machine	589,883	Sept. 14	783	183, 184, 185, 186	80	1643
Williams, John R., East Orange, N. J., assignor to John R. Williams Company, New York, N. Y. Machine for cutting wrappers and binders for cigars	589,884	Sept. 14	795	186, 187, 188, 189	80	1645
Williams, John T., Carbondale, Pa. Domestic truck and elevator	586,408	July 13	1414	325, 326	80	290
Williams, Levi. (See Williams and Harvey.)						
Williams, Martha M., La Plata, Mo. Oven	588,624	Aug. 24	2390	548	80	1159
Williams, Milton F., St. Louis, Mo. Crusher and pulverizer	589,236	Aug. 31	3466	812, 813	80	1381
Williams, Milton F., and E. H. Frickey, assignors to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Crusher	590,748	Sept. 28	2331	552	80	1959
Williams Patent Crusher and Pulverizer Company. (See Williams and Frickey, assignors.)						
Williams, Percy G., Brooklyn, N. Y. Amusement apparatus	590,783	Sept. 28	2401	570, 571	80	1971
Williams, Robert H., Powellton, assignor of one-fourth to E. P. and F. Buford, Lawrenceville, Va. Car-coupling	585,806	July 6	278	65	80	57
Williams, Robert J., Vincennes, Ind. Nutmeg-grater	588,207	Aug. 17	1639	377	80	1001
Williams, William H., Sharpsburg, Pa. Test for manufacturing litharge	586,783	July 20	2064	480	80	440
Williamson, William A., Newark, N. J. Corkscrew	587,900	Aug. 10	1099	252, 253	80	885
Williston, Belvin T. (See Park and Williston.)						
Wills, Katherine A. (See Kolar, Antonin R., assignor.)						
Wilson Laboratory Company. (See Chalmot, Guillaume de, assignor.)						
Wilson, William W., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyer	587,901	Aug. 10	1100	253	80	885
Wilson, Alexander B., Holywood, Ireland. Conduit and pulley for cable traction	587,353	Aug. 3	132	32	80	690
Wilson, Benjamin F., North Tonawanda, N. Y. Piston	588,256	Aug. 17	1726	396	80	1017
Wilson, Benjamin P., Reddick, Fla. Self-adjusting inflatable pessary	590,124	Sept. 14	1235	292	80	1796
Wilson, Edward L., St. Louis, Mo. Ledger	587,064	July 27	2623	620	80	568
Wilson, Ellen H., La Crosse, Wis. Green-corn cutter and scraper	590,081	Sept. 14	1143	270	80	1708
Wilson, Elmer E. (See Deplanty and Wilson.)						
Wilson, Elmer E., Cynthiana, Ind. Scythe heel and fastener	588,257	Aug. 17	1729	397	80	1017
Wilson, Frank N. (See Morris and Wilson.)						
Wilson, George, Rochester, assignor to United States Voting-Machine Company, Jamestown, N. Y. Voting-machine	588,671	Aug. 24	2482	571, 572	80	1177
Wilson, George H., administrator. (See Miller, Alexander T.)						
Wilson, James R., Chicago, Ill. Memorandum-calendar	585,944	July 6	539	127	80	104
Wilson, John C., Allegheny, Pa. Gas-engine	589,150	Aug. 31	3328	782	80	1355
Wilson, John J., *et al.* (See Sherman, Willis D., assignor.)						
Wilson, Luther. (See Liston and Wilson.)						
Wilson, Matthew, Garrison, Iowa. Bridle	586,648	July 20	1853	430	80	402
Wilson, Richard J. (See Boling, Baily, assignor.)						
Wilson, Robert, Louisville, Ky., assignor to Sulzer-Vogt Machine Company, of Kentucky. Automatic rheostat-controller	588,306	Aug. 17	1818	419, 420	80	1033
Wilson, Thomas E., Farmland, Ind. Handle-fastener	585,857	July 6	379	88	80	75
Wilson, William B., Aberdeen, Wash. Fire-escape	589,541	Sept. 7	221	53	80	1524
Wilson, William P., Trenton, N. J. Device for draining, drying, and preserving hose-pipes	587,902	Aug. 10	1102	253	80	886
Wilson, Willie D., Sidney, Ill. Swinging gate	590,870	Sept. 28	2547	608, 609	80	2000
Wilson, Wyle T. (See Noble, Henry A., assignor.)						
Winburn, James B. M., Gainesville, Ga. Thill-coupling	590,507	Sept. 21	1868	449	80	1864
Winchell, James F., assignor to Foos Manufacturing Company, Springfield, Ohio. Grinding-mill	586,984	July 27	2440	577	80	534
Winchester Repeating Arms Company. (See Bennett, Thomas G., assignor.)						
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)						
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Wincqz, Gregoire, and H. Machepy, Soignies, Belgium. Cutting stone	589,199	Aug. 31	3399	797	80	1368
Windle, John E., Worcester, Mass. Friction-clutch	586,784	July 20	2065	481	80	441
Windle, John W., Ormstown, Canada. Four-wheeled vehicle	587,628	Aug. 3	619	149	80	779
Windler, John, Jr., and L., Canton, Kans. Wagon end-gate	587,566	Aug. 3	507	120	80	758
Windler, Louis. (See Windler, John, Jr., and L.)						
Wines, Harriet H., Westhampton Beach, N. Y. Lemon-juice extractor and grater	587,903	Aug. 10	1103	254	80	886
Winfrey, Edgar M., Wichita Falls, Tex. Curtain-fixture	589,542	Sept. 7	223	53	80	1524
Wingrove, Franklin R., Waxahachie, Tex. Muzzle for stock	590,409	Sept. 21	1733	407	80	1835
Winkler, Charles, Dallas, Tex. Marking-tag	590,179	Sept. 14	1326	314	80	1745
Winkley, Erastus E. (See Alley and Winkley.)						
Winnard, George T., and J. Bedford, Sheffield, England. Pulley-block	590,250	Sept. 21	1461	344	80	1784

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Winningham, Jesse W., assignor to Winningham Mileage Ticket Company, Indianapolis, Ind. Mileage-ticket	586,347	July 13	1309	300	80	270
Winningham Mileage Ticket Company. (See Winningham, Jesse W., assignor.)						
Winslow, Francis A. (See Winslow, William H. and F. A.)						
Winslow, George H. (See Borrowe and Winslow.)						
Winslow, Sidney W., trustee. (See Hodgkins, Edward F., assignor.)						
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting prism-tiles	586,256	July 13	1159	264	80	242
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting tile-sections	586,257	July 13	1160	265	80	242
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light and prism-plate	586,258	July 13	1161	265	80	242
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting tile-sections	586,259	July 13	1163	265	80	242
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mounting tiles or the like	586,260	July 13	1164	266	80	242
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prismatic plate and frame for same	586,261	July 13	1165	266	80	243
Winslow, William H. and F. A., Chicago, Ill. Building construction	586,941	July 20	2351	554, 555	80	495
Winspear, James H., F. R. Smith, and S. Y. Sansom, assignors to Cyclone Street Cleaner, Omaha, Nebr. Street-sweeper	590,288	Sept. 21	1522	361	80	1795
Winters, Frederick V., assignor of one-half to J. A. York, New York, N. Y. Steam-radiator and means for heating same	587,072	July 27	2606	616	80	565
Winters, Frederick V., assignor of one-half to J. A. York, New York, N. Y. Stand-boiler for stoves or ranges	589,454	Sept. 7	88	19	80	1498
Winters, Frederick V., assignor of one-half to J. A. York, New York, N. Y. Stand-boiler	589,455	Sept. 7	89	20	80	1498
Winters, Frederick V., assignor of one-half to J. A. York, New York, N. Y. Stand or range boiler	589,456	Sept. 7	91	20	80	1499
Winters, George T., Cameron, W. Va. Washing-machine	589,059	Aug. 31	3142	740	80	1320
Winzer, Charles B. (See Hancock and Winzer.)						
Wippermann, Friedrich, Stotzheim, Germany. Web-drying cylinder	590,998	Sept. 28	2650	632	80	2021
Wirt, Herbert C., Schenectady, N. Y., assignor to General Electric Company, of New York. Lamp-socket	587,027	July 27	2523	598	80	549
Wirt, Rush. (See Hall, Peter C., assignor.)						
Wiseman, Claude J., *et al.* (See Crowell, Beverly, assignor.)						
Wiseman, Edmund. (See Wordsworth, Wiseman, and Holroyd.)						
Witherell, George E., assignor to Hartford Machine Screw Company, Hartford, Conn. Automatic screw-machine	589,379	Aug. 31	3347	899, 900	80	1460
Witherspoon, Sewall A., St. Louis, Mo. Burglar-alarm	587,541	Aug. 3	463	109	80	780
Witt, William, Ripon, Wis. Cow-tie	589,914	Sept. 14	854	208	80	1655
Witte, William H., Baltimore, Md. Greenhouse	589,677	Sept. 7	450	107	80	1567
Witteck, Charles. (See Lancaster and Witteck.)						
Wittig, William, Voss, N. D. Dumping device	590,637	Sept. 28	2138	506	80	1934
Wittke, Carl. (See Ulrich and Wittke.)						
Wittmann, Hermann, La Crosse, Wis. Vessel-tilter	587,417	Aug. 3	233	57	80	710
Wittnauer, Albert. (See Lugrin, Henry A., assignor.)						
Wittram, Frederick, San Francisco, Cal. Broom attachment	585,897	July 6	448	108	80	89
Witts, Nelson, Alma City, Minn. Rotary engine	587,904	Aug. 10	1104	254	80	886
Witzel, John J., Cold Water, N. Y. Button	590,197	Sept. 14	1358	321	80	1751
Wock, John, assignor to Berger Manufacturing Company, Canton, Ohio. Tubular or hurricane lantern	589,060	Aug. 31	3145	741	80	1320
Wock, John, assignor to Berger Manufacturing Company, Canton, Ohio. Tubular or hurricane lantern	589,061	Aug. 31	3145	741	80	1320
Woerner, Theodore, Sr., Bellevue, Ky. Ice-cream freezer	590,445	Sept. 21	1798	421	80	1846
Woillard, Eugene F., Sugden, Fla. Gas or vapor engine	586,409	July 13	1415	326	80	290
Woisard, Edgar E., Pittston, Pa. Waxing-pad	588,985	July 27	2441	577	80	535
Wolcott, Amos A., New York, N. Y., assignor to E. Simmons, Keyport, N. J. Bicycle-bell	587,665	Aug. 3	671	160	80	789
Wolf, Louis J., Buffalo, N. Y. Flue-cleaner	589,589	Sept. 7	307	75	80	1540
Wolf, Louis J., Buffalo, N. Y. Flue-cleaner	589,590	Sept. 7	309	75	80	1540
Wolf, Theodore, *et al.* (See Koll, Henry F., assignor.)						
Wolfe, Frank C., assignor, by mesne assignments, to L. M. Wolfe, Allentown, Pa. Shoe	586,325	July 13	1270	290	80	268
Wolfe, James W., Belvidere, Ill. Car-coupling	589,457	Sept. 7	92	20	80	1499
Wolfe, Lizzie M. (See Wolfe, Frank C., assignor.)						
Wolff, August, Berlin, Germany. Lamp-screen	589,499	Sept. 7	141	31	80	1508
Wolff, George T., Bird Island, Minn. Martingale-buckle	586,649	July 20	1854	431	80	402
Wolhaupter, Benjamin, Morgan Park, Ill. Brake mechanism	590,446	Sept. 21	1794	421	80	1846
Wolhaupter, Benjamin, Morgan Park, Ill. Fastening device	587,723	Aug. 10	987	204	80	847
Woltereck, Herman C., New York, N. Y. Manufacturing white lead	589,901	Sept. 7	652	[illegible]	80	1607
Woltereck, Herman C., assignor to Electro Chemical Storage Battery Co., New York, N. Y. Recovering iron from scrap	589,915	Sept. 14	855	208	80	1655
Womersley, William, Brooklyn, N. Y., and J. Keating, Lawrence, Mass., assignors to Economic Machine Company, New York, N. Y. Paper-feeding machine	589,107	Aug. 31	3239	761	80	1337
Wood, Abraham, Ramsbottom, England. Loom-shuttle	588,935	Aug. 24	2384	656, 657	80	1963
Wood, Albert J., Springfield, Mass. Take-up device for trolley-cords	586,308	July 13	1224	279	80	254
Wood, Charles D. (See Booth, John, assignor.)						
Wood, George, assignor, by mesne assignments, of one-half to A. Milne, Newark, N. J. Ball-bearing	586,921	July 20	2317	545	80	489
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Cylinder printing-press	585,995	July 6	728	163	80	143
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Printing-machine	589,519	Sept. 7	191	44	80	1518
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Printing machine	590,604	Sept. 28	2072	491, 492	80	1912
Wood, Hubert K., Hartford, assignor to Landers, Frary & Clark, New Britain, Conn. Valve	590,011	Sept. 14	1032	243	80	1698
Wood, Joseph, and W. Wilkinson, assignors of one-third to S. Bateman, Philadelphia, Pa. Music-leaf holder	587,774	Aug. 10	869	205	80	847
Woodard, Lyman E. (See Ruebekam, Charles A., assignor.)						
Woodard, Orson J., Mannsville, N. Y. Water-power apparatus	589,678	Sept. 7	452	108	80	1598
Woodbridge, Frank, Indianapolis, Ind. Cash register and recorder	585,996	July 6	732	164, 165	80	144
Woodbury, Charles J. H., Lynn, Mass. Means for heating and ventilating buildings	589,771	Sept. 7	597	139, 140	80	1598

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Woodbury, Charles J. H., Lynn, Mass. Air-purifying apparatus	589,772	Sept. 7	599	140	80	1596
Woodbury, Roger W., Denver, Colo. Water-bag	586,650	July 20	1855	431	80	402
Woodbury, Stephen W., Winchester, N. H. Feeding attachment for carding-machines	587,029	Aug. 3	290	149	80	779
Woodle, Carrie N., Fort Scott, Kans. Non-refillable bottle	585,807	July 6	279	65	80	58
Woodman, George F., assignor of one-half to J. F. Carens, Newburyport, Mass. Adjustable steering-head for bicycles	586,962	July 13	1166	266	80	243
Woodruff, Wilson J., Foster, Iowa. Fire-shield	589,068	Aug. 31	3146	741	80	1321
Woods, Frank A., Racine, Wis. Furniture	588,208	Aug. 17	1640	377	80	1001
Woods, Leonard, De Soto, Mo. Revolving egg-cabinet	586,410	July 13	1418	326	80	291
Woods, William S., Sulphur Springs, Ind. Railway-crossing signal	586,471	July 13	1520	356	80	309
Woodward, Joseph W., Omaha, Nebr. Ambidexter or left-hand reference-book	589,885	Sept. 14	802	189	80	1645
Woodward, Thaddeus H., Lincoln, Nebr. Truss	589,773	Sept. 7	601	140	80	1596
Woodward, William C., Los Angeles, Cal. Pump	589,458	Sept. 7	98	20, 21	80	1499
Woolley, Amos G., *et al.* (See Waer, Luis M., assignor.)						
Woolley, Leonidas G., Grand Rapids, Mich. Combined syringe and electrical apparatus	586,679	July 20	1895	441	80	410
Woolley, Richard, *et al.* (See Waer, Luis M., assignor.)						
Woolson, James B. (See Frost, Kilbourn, and Woolson.)						
Wooster, Charles, New York, N. Y. Tilting saddle-bar and seat-post for bicycles	585,858	July 6	280	88	80	75
Wootton, Robert, Birmingham, England, and F. L. Middleton, Washington, D. C., ancillary administrator of B. Hewitt, deceased, assignors to British Tube Company, Limited. Machine for drying tubes	585,808	July 6	280	65	80	58
Wootton, Robert, Birmingham, England, and F. L. Middleton, Washington, D. C., ancillary administrator of B. Hewitt, deceased, assignors to British Tube Company, Limited. Machine for manufacturing seamless steel tubes	585,809	July 6	281	65	80	58
Wordsworth, Christopher T., Manchester, E. Wiseman, Luton, and J. Holroyd, London, England. Mechanism for transmitting motive power	588,625	Aug. 24	2391	549, 550	80	1159
Wordsworth, Christopher T., Manchester, E. Wiseman, Luton, and J. Holroyd, London, England. Motor worked by hydrocarbon or other gases	588,672	Aug. 24	2486	572, 573, 574	80	1177
Wordsworth, Christopher T., Manchester, E. Wiseman, Luton, and J. Holroyd, London, England. Motor worked by hydrocarbon or other gases	589,108	Aug. 31	3240	761, 762	80	1337
Wormwood, Daniel W. (See Sawyer, Howard D., assignor.)						
Worrall, Duodecimus, Chicago, Ill. Stocking-folding apparatus	587,354	Aug. 3	134	32	80	690
Worrall, Thomas H., and A. Lesperance, Laconia, N. H.; said Lesperance assignor to said Worrall. Power-shifting device for clutch mechanisms	586,203	July 13	1167	267	80	243
Worrest, Alfred H., Lancaster, Pa. Thill-coupling	589,063	Aug. 31	3147	741, 742	80	1321
Worsley, Samuel L., Taunton, Mass., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Metal-screw machine	586,922	July 20	2318	546, 547	80	489
Worth, Joseph B., *et al.* (See Markley, John A., assignor.)						
Worthington, Thomas E., New Haven, Conn. Non-refillable bottle	586,719	July 20	1958	456	80	422
Wren, George R. G., Philadelphia, Pa. Lathe-dog	590,605	Sept. 28	2078	492	80	1913
Wrench, Alfred, London, England. Kinetographic camera	587,516	Aug. 3	419	98, 99	80	741
Wright, Charles H. (See Griffiths, William H., assignor.)						
Wright, Edgar A., assignor to Deering Harvester Company, Chicago, Ill. Hay-rake	586,264	July 13	1168	267, 268	80	243
Wright, Fred W. (See Baker and Wright.)						
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Door-check	590,052	Sept. 14	1089	257, 258	80	1699
Wright, Jacob P., New Haven, Conn., assignor to Diamond Match Company, Chicago, Ill. Machine for making matches	586,800	July 20	2229	524, 525, 526, 527, 528	80	473
Wright, John R. (See Last and Wright.)						
Wright, John R., Wheeling, Mo. Gravity and lever motor	590,198	Sept. 14	1359	321	80	1751
Wright, Lindley A., O. L. Percival, and W. E. Ankrum, Champaign, Ill. Coin-operated machine	585,730	July 6	140	32	80	31
Wright, Parvin, Keswick, Cal. Wave-motor	589,520	Sept. 7	193	44, 45	80	1518
Wright, Robert S. (See Hopkins and Wright.)						
Wright, Samuel, Beatrice, Nebr. Step-ladder	589,916	Sept. 14	855	203	80	1655
Wright, William H., Bristol, Conn. Clock-gearing	589,886	Sept. 14	808	189	80	1645
Wright's Automatic Tobacco Packing Machine Company. (See Rose, William, assignor.)						
Wuggenig, Franz, Feldkirch, Austria-Hungary. Ice-velocipede	590,351	Sept. 21	1638	385, 386	80	1818
Wundt, Michael. (See Faerber, Beck, and Wundt.)						
Wyckoff, Seamans & Benedict. (See Brooks, Byron A., assignor.)						
Wyckoff, Seamans & Benedict. (See Stackhouse, Thomas H., assignor.)						
Wyckoff, William F. (See Raymond, François, assignor.)						
Wyman, Albert O., assignor of one-half to J. A. Gunn, Turner's Falls, Mass. Knob-spindle fastener	588,673	Aug. 24	2489	574	80	1178
Wyman, Albert O., assignor of one-half to J. A. Gunn, Turner's Falls, Mass. Trolley	589,109	Aug. 31	3243	763	80	1338
Wynn, Solomon C., *et al.* (See Clouse, Joseph N., assignor.)						
Wynne, Walter P., and T. Tregurtha, Ballarat, Victoria. Concentrating or separating machine for treatment of pyrites	587,630	Aug. 3	021	149	80	779
Wynne, William R., London, England. Mechanical toy	589,917	Sept 14	856	203, 204	80	1655
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)						
Yamabe, Zenjiro, San Francisco, Cal. Hot-water bag	588,043	Aug. 10	1346	312	80	932
Yarnell, Leon J., and J. H. Schmidt, Deepwater, Tex. Car-coupling	590,352	Sept. 21	1639	386	80	1818
Yellowley, William, Allegheny, Pa. Cigar-bunching machine	590,180	Sept. 14	1327	314, 315	80	1745
Yockel, Frank J., Allegheny, Pa. Clamp	587,775	Aug. 10	870	205	80	847
Yocum, Elra A., Mendon, Ohio. Holder and adjuster for casket-handles	588,209	Aug. 17	1641	378	80	1001
York, John A. (See Winters, Frederick V., assignor.)						
York, Levi D., Portsmouth, Ohio. Safe	587,028	July 27	2524	593	80	550
York, Raymond D., assignor to Portsmouth Structural Steel and Iron Company, Portsmouth, Ohio. Metallic grating	587,631	Aug. 3	622	150	80	779
Young, Albert, assignor of three-fourths to A. E. Bissinger and A. Davis, Philadelphia, Pa. Machine for printing hosiery	585,945	July 6	541	127	80	105
Young, Charles F., Hartford, Conn. Bottle	587,776	Aug. 10	871	205	80	848
Young, Charles H., New York, N. Y. Bicycle-saddle	589,521	Sept. 7	196	45	80	1519
Young, Ella B., Red Oak, Iowa. Water-tight bag	590,606	Sept. 28	2079	492	80	1913
Young, Ernest W., Austin, assignor to Morgan & Wright, Chicago, Ill. Cement-injector for pneumatic tires	590,607	Sept. 28	2080	492	80	1913
Young, Fred S., Iuka, Ill. Device for distributing fence-wire	589,490	Sept. 7	142	32	80	1508

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Young, Harry R., New Orleans, La. Folding boat	587,905	Aug. 10	1106	254	80	886
Young, Henry L., assignor to Buescher Manufacturing Company, Elkhart, Ind. Toe-clip	589,988	Sept. 14	976	233	80	1677
Young, Jonas F. (See Neumeyer and Young.)						
Young, James K., Meriden, Conn. Car-fender	588,849	Aug. 24	2796	650	80	1335
Young, John, Newark, N. J. Valve connection for steam-engines	587,168	July 27	2803	658	80	608
Young, John H., Rantoul, Kans. Egg-tray for incubators	588,044	Aug. 10	1348	312	80	932
Young, Marion M., Philadelphia, Pa. Bicycle-lamp	589,459	Sept. 7	95	21	80	1500
Young, William H., Aurora, Ill. Milk-aerator	589,774	Sept. 7	603	140	80	1597
Youngken, John H., Butte, Mont. Mechanical movement	590,929	Sept. 28	2650	632	80	2021
Youngstown Iron and Steel Roofing Company. (See McNutt, Cornelius C., Jr., assignor.)						
Youtz, Harry E. and H. Z., Mountville, Pa. Direct central draft or drive hay-tedder	588,523	Aug. 17	2194	510	80	1104
Youtz, Harvey Z. (See Youtz, Harry E. and H. Z.)						
Zacher, Georg F., Hamburg, Germany. Obtaining oxalic acid	587,777	Aug. 10	872	.....	80	848
Zamel, Albert G. (See Schumacher and Zamel.)						
Zauche, Oscar, assignor to Elgin Silver Plate Company, Elgin, Ill. Casket-handle	588,210	Aug. 17	1643	378	80	1002
Zea, Harlen, Milwaukee, Wis. Swivel	590,749	Sept. 28	2334	552	80	1959
Zeh, Seneca D. (See Vosburgh, Cornelius S., assignor.)						
Zelber, John P., Malden, W. Va. Bucket-top	587,140	July 27	2751	645	80	592
Zeller, Edward N., Portland, Oreg. Cold-tire-setting machine	585,997	July 6	738	165	80	145
Ziegler, Alfred M., Boston, Mass. Elastic covered cord	590,199	Sept. 14	1361	321	80	1751
Ziegler, Jacob, Arlington, Nebr. Neck-yoke	589,335	Aug. 31	3764	877	80	1444
Ziegler, John F., Toledo, Ohio. Filter	589,887	Sept. 14	805	190	80	1646
Ziegler, Oscar J., Freeport, Ill. Mechanical movement	587,380	Aug. 3	175	43	80	698
Zier, Michael, New Albany, Ind. Vertical boiler	585,898	July 6	449	109	80	80
Zietzke, Wilhelm A., Bozeman, Mont. Combination-tool	589,200	Aug. 31	3399	798	80	1368
Zika, Frank, Cedar Rapids, Iowa. Adjustable rule	589,064	Aug. 31	3150	742	80	1321
Zimmerly, Frank, Newark, N. J. Attachment for citherns	586,651	July 20	1855	431	80	402
Zimmerman, John, assignor to National Key-Opening Can Company, Chicago, Ill. Sheet-metal can	586,326	July 13	1272	290	80	268
Zink, James L., and C. W. Meggenhofen, Indianapolis, Ind. Caster	590,249	Sept. 21	1524	361	80	1795
Zinsel, John J., Monroe, La. Razor-case and tool-box combined	587,418	Aug. 3	234	58	80	710
Zook, Jacob H., Gunn City, Mo. Device for raising or lowering coffins	588,307	Aug. 17	1820	420	80	1033
Zuber, Katie V., *et al.* (See Prenzel, Adam H., assignor.)						
Zur-Muhlen, Michel de, and A. Wetrems, Brussels, Belgium. Coin-freed mechanism for releasing box-lids	587,666	Aug. 3	672	160	80	789
Zweigbergk, Thorsten von, Cleveland, Ohio. Trolley and conductor for electric railways	590,092	Sept. 14	1144	270	80	1709
Zweigbergk, Thorsten von, assignor to Walker Company, Cleveland, Ohio. Controller circuit-breaker	590,813	Sept. 28	2447	581, 582	80	1980
Zwick, Joseph, assignor to himself and A. N Jesbera, New York, N. Y. Toy or puzzle	586,942	July 20	2353	555	80	496
Zwiesler, August, assignor to Gem Fastener Co., Dayton, Ohio. Table-leg fastener	589,679	Sept. 7	453	106	80	1568
Zwietusch, Otto, Milwaukee, Wis. Apparatus for recovering waste gases in breweries	585,899	July 6	452	109	80	80
Zwietusch, Otto, Milwaukee, Wis. Apparatus for recovering waste gases in breweries	585,900	July 6	455	110	80	90
Zwietusch, Otto, Milwaukee, Wis. Method of and apparatus for treating beer	589,065	Aug. 31	3151	742	80	1322

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
A. M. Collins Manufacturing Company. (See Odgers, John P., assignor.)				
Adams Company. (See Farwell, Fay O., assignor.)				
Adams, Peter, assignor of one-half to W. J. Shepard, Buffalo, N. Y. Toy savings-bank	27,565	Aug. 24	80	1266
Allen, Joseph D., Fall River, Mass. Protector for shuttle-binders	27,539	Aug. 17	80	1118
Almeter, John, assignor of one-half to P. Whiting, Los Angeles, Cal. Knife-blade	27,640	Sept. 14	80	1753
American Ring Company. (See Chesson, Frederick W., assignor.)				
American Saw Company. (See Freas, Samuel T., assignor.)				
American Type Founders Company. (See Ihlenburg, Herman, assignor.)				
Andersen, Johan M., Boston, Mass. Bicycle-frame	27,618	Aug. 31	80	1473
Anschuetz, Rudolph A., Meriden, Conn. Handle-bar for cycles	27,660	Sept. 21	80	1895
Apel, Alfred, St. Louis, Mo. Top	27,459	Aug. 3	80	798
Arrott, Charles F., Allegheny, Pa. Leg for bath-tubs	27,599	Aug. 31	80	1470
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Lamp-burner	27,530	Aug. 17	80	1117
Aufuldish, John B., Dayton, Ohio. Stove-leg	27,598	Aug. 31	80	1470
Babbitt, Seth W., Meriden, Conn. Silversmith's stock	27,557	Aug. 31	80	1469
Back, James S., Ottawa, Canada. Guitar-body	27,561	Aug. 24	80	1265
Bailey, Alice C. (See Ball and Bailey.)				
Bailey, Charles A., Cromwell, Conn. Toy safe	27,526	Aug. 17	80	1116
Bailey, Charles A., Cromwell, Conn. Toy safe	27,527	Aug. 17	80	1116
Bailey, Charles A., Cromwell, Conn. Toy safe	27,566	Aug. 24	80	1268
Bailey, Charles J., Newton, Mass. Crutch or chair tip	27,665	Sept. 21	80	1895
Baker, Winthrop M., Waltham, Mass. Display-stand	27,314	July 6	80	180
Baldwin, William W., assignor to Cleveland Co-Operative Stove and Hollow Ware Foundry Company, Cleveland, Ohio. Sheet-metal stove	27,506	Aug. 10	80	960
Ball, James C., Star Hill, La. Cutter attachment for plows	27,434	July 27	80	647
Ball, William E., and A. C. Bailey, Zanesville, Ohio. Curtain-holder	27,400	July 20	80	507
Banks, Henry N., Kingsland, Tex. Railway-spike	27,694	Sept. 7	80	1609
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,323	July 13	80	336
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,324	July 13	80	337
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,343	July 13	80	339
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,344	July 13	80	339
Bassett, George B., Buffalo, N. Y. Cyclometer-case	27,544	Aug. 17	80	1119
Bassett, George B., Buffalo, N. Y. Water-meter case	27,697	Sept. 28	80	2081
Bausch, George, Syracuse, N. Y. Eyeglass-guard	27,636	Sept. 14	80	1752
Bayhouse, William, Boise, Idaho. Heel-plate	27,680	Sept. 7	80	1611
Beall, George A., Velasco, Tex. Sugar-cane hook	27,450	July 27	80	646
Beck, George H., Philadelphia, Pa. Screw-propeller	27,452	July 27	80	646
Becker, John J., Fort Wayne, Ind. Name-plate and card-holder	27,564	Aug. 24	80	1266
Beesley, James, Brooklyn, N. Y. Chandelier	27,706	Sept. 28	80	2082
Behal, Joseph. (See Hirsh, Julius, assignor.)				
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,325	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,326	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,327	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,328	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,329	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,330	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,331	July 13	80	337
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,332	July 13	80	338
Beloud, Leon G., assignor to Bernhard Mattress Company, San Francisco, Cal. Frame for bed-lounges	27,666	Sept. 21	80	1895
Bennett, Ernest H., East Orange, N. J., assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug	27,681	Sept. 21	80	1895
Bentz, Jason S., Columbus, Ohio. Disk for lawn-pool	27,399	July 20	80	507
Bergen, James D., assignor to J. D. Bergen Company, Meriden, Conn. Glass vessel	27,457	Aug. 3	80	798
Berlin Iron Bridge Company. (See Jarvis, Charles M., assignor.)				
Bernhard Mattress Company. (See Beloud, Leon G., assignor.)				
Bertram, William L. (See Cope and Bertram.)				
Bigelow Carpet Company. (See Brown, Walter B., assignor.)				
Bigelow Carpet Company. (See Brown, William F., assignor.)				
Bigelow Carpet Company. (See Merry, John, assignor.)				
Bigelow Carpet Company. (See Moffat and Brown, assignors.)				
Bigelow Carpet Company. (See Paret, Louis, assignor.)				
Biggs, Joseph E., Clay City, Ind. Flower-pot	27,390	July 20	80	504
Blethen, Adelbert O., and W. J. Evans, Minneapolis, Minn. Bicycle-rack	27,662	Sept. 21	80	1895
Bloomberg, William, New York, N. Y. Suspender-end	27,584	Aug. 31	80	1469
Boal, Stanhope, Piqua, Ohio. Heating-stove	27,629	Sept. 7	80	1610
Bogar, Fred A., Denison, Tex. Tack or nail	27,570	Aug. 24	80	1266
Bradley, James O., Memphis, Tenn. Shelf-tray	27,354	July 13	80	341
Brand Stove Company. (See Garrison, Albert H., assignor.)				
Bray, Mellen N., Boston, Mass. Rivet	27,639	Sept. 14	80	1752
Bray, William C., Newton, Mass. Rivet	27,567	Aug. 24	80	1268
Bray, William C., Newton, Mass. Rivet	27,568	Aug. 24	80	1268
Bray, William C., Newton, Mass. Rivet	27,569	Aug. 24	80	1268
Brayshaw, William V. (See Standing and Brayshaw.)				
Brewer, Ella G., Brooklyn, N. Y. Tape-measure	27,306	July 6	80	176
Brickley, Charles A., Providence, R. I. Bracket	27,311	July 6	80	179
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Surface ornamentation of glass	27,445	July 27	80	643
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Surface ornamentation of glass	27,446	July 27	80	643
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Surface ornamentation of glass	27,447	July 27	80	643

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Bromley, Edward, *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, Edward, *et al.* (See Petzold, Adolph, assignor.)				
Bromley, John H., *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, John H., *et al.* (See Petzold, Adolph, assignor.)				
Brown Bros. Manufacturing Company. (See Sullivan, Eugene J., assignor.)				
Brown, John W., Jr., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Casing for pumps	27,698	Sept. 28	80	2032
Brown, Thomas P. (See Walters and Brown.)				
Brown, Walter B., Newark, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,410	July 20	80	509
Brown, Walter B., Newark, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,496	Aug. 3	80	804
Brown, William F. (See Moffat and Brown.)				
Brown, William F., Newark, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,619	Aug. 31	80	1473
Brown, Willis S. (See McDivitt and Brown.)				
Brownlee, John N., Detroit, Mich. Pole for electric wires, &c	27,516	Aug. 10	80	962
Bryce, Howard M., Brooklyn, assignor to A. A. Vantine & Co., New York, N. Y. Woven fabric	27,711	Sept. 28	80	2034
Buck's Stove and Range Company. (See Thompson, William, assignor.)				
Buck's Stove and Range Company. (See Van Cleave, James W., assignor.)				
Buick, David D., Detroit, Mich. Bath-tub rim	27,487	Aug. 3	80	802
Buick, David D., Detroit, Mich. Bath-tub	27,669	Sept. 21	80	1886
Burnham, Frank A., assignor to Chandler & Price Company, Cleveland, Ohio. Frame for paper-cutters	27,546	Aug. 17	80	1119
Burns, George E., Central Falls, R. I. Ring or similar article	27,524	Aug. 17	80	1115
Bussinger, Harry, Partridge, Kans. Milliner's display-tree	27,318	July 6	80	179
Caldwell, Henry M., Hartwell, Ohio. Badge	27,621	Sept. 7	80	1609
Cameron, Alexander, Jr., Richmond, Va. Box or can	27,458	Aug. 3	80	798
Canedy, William E., Chicago Heights, Ill. Blower-frame	27,518	Aug. 10	80	962
Carroll, James, New York, N. Y. Puzzle box or case	27,363	July 13	80	342
Carter, James C., Decatur, Ill. Casing for coin-actuated wheels	27,481	Aug. 3	80	801
Cates, John W. (See Cooper and Cates.)				
Cattell, William H., assignor of one-half to F. T. Phillips, Decatur, Ill. Casing and support for coin-actuated wheels	27,579	Aug. 24	80	1268
Chamberlain, George A., Greene, N. Y. Check-hook	27,387	July 20	80	505
Chandler & Price Company. (See Burnham, Frank A., assignor.)				
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount	27,397	July 20	80	507
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount for bedsteads	27,478	Aug. 3	80	801
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount for bedsteads	27,509	Aug. 10	80	961
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount	27,510	Aug. 10	80	961
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount	27,511	Aug. 10	80	961
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount	27,512	Aug. 10	80	961
Chesson, Frederick W., assignor to American Ring Company, Waterbury, Conn. Metal mount	27,513	Aug. 10	80	961
Christopher Lipps Company. (See Webb, William G., assignor.)				
Christy, Henry A., Jackson, Mich. Saddle-seat for bicycles	27,577	Aug. 24	80	1267
Clark, Allen L., Jackson, Tenn. Whiffletree-hook	27,608	Aug. 31	80	1471
Clark, Allison N., Plainville, Conn. Glove-buttoner	27,500	Aug. 10	80	959
Clemons, Henry, Castalia, Ohio. Frame for lifting-jacks	27,395	July 20	80	506
Cleveland Co-Operative Stove and Hollow Ware Foundry Company. (See Baldwin, William W., assignor.)				
Cleveland Wire Spring Company. (See Knox, Wilm, assignor.)				
Coale, Lewis E., Lansing, Ill. Rope-tightener	27,472	Aug. 3	80	880
Codman, William C., Providence, R. I., assignor to Greenleaf & Crosby Company, Jacksonville, Fla. Handle for knives	27,588	Aug. 31	80	1468
Coes, Frederic L., assignor to Coes Wrench Company, Worcester, Mass. Wrench	27,470	Aug. 3	80	800
Coes Wrench Company. (See Coes, Frederic L., assignor.)				
Coleman, Robert J. (See Foster and Coleman.)				
Collier, John C., Galveston, Tex. Insect-guard for furniture	27,312	July 6	80	179
Conchar, James W., assignor to Schrieber & Conchar Manufacturing Company, Dubuque, Iowa. Sad-iron top plate	27,700	Sept. 28	80	2032
Consolidated Car Fender Company. (See Woodworth, Albert C., assignor.)				
Cooper, David P., Struthers, Ohio. Perch-iron	27,642	Sept. 14	80	1753
Cooper, William M., and J. W. Cates, La Salle, Tex. Horseshoe	27,644	Sept. 14	80	1753
Cooperative Foundry Company. (See Kennedy and Heister, assignors.)				
Cope, George W., and W. L. Bertram, Detroit, Mich., assignors to C. Emrich, Columbus, Ohio. Cook-stove	27,667	Sept. 21	80	1886
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Gearing-cover	27,437	July 27	80	647
Cox, Lewis J., Terre Haute, Ind. Metallic truck-frame	27,431	July 27	80	646
Cox, Wallace M. (See Magee and Cox.)				
Cox, Wallace M., New York, assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,687	Sept. 21	80	1888
Cozzino, Harriette G., New York, N. Y. Hat-support	27,558	Aug. 24	80	1264
Crooker, James F., Buffalo, N. Y. Bicycle-stand	27,309	July 6	80	179
Cross, Clarence W., Grinnell, Iowa. Clothes-pounder	27,358	July 13	80	341
Crouch, George, New York, N. Y. Trunk-roller frame	27,547	Aug. 17	80	1120
Culp, Thomas S., Canton, Ohio. Bicycle-frame	27,438	July 27	80	647
Curley, Thomas, Waltham, Mass. Pedal-hub	27,463	Aug. 3	80	799
Cutter Electrical and Manufacturing Company. (See Robbins, Charles, assignor.)				
Dake, Charles W., assigner to Grand Rapids Cycle Company, Grand Rapids, Mich. Crank-bearing bracket	27,576	Aug. 24	80	1267
Dandaraw, Roswell A., and G. E. Gordon, Rensselaer, N. Y. Game-board	27,501	Aug. 31	80	1469
Danley, Robert C., Macomb, Ill. Trace-supporter	27,302	July 6	80	178
Darby, Robert J., assignor of one-half to G. W. Shaw, Troupe, Tex. Colter-brace	27,391	July 20	80	506
Darling, Charles C., Providence, R. I. Badge	27,373	July 20	80	508
Darling, George E., Providence, R. I. Badge-pin	27,490	July 27	80	645
Davies, Benjamin H., Cincinnati, Ohio. Pedal for bicycles, &c	27,631	Sept. 7	80	1611
Deal, Jasper C., Sam, Ga. Cabinet	27,709	Sept. 28	80	2033
Dean, George, Derby, England. Pattern for fabric	27,366	July 13	80	342
Dean, Richard, Fall River, Mass. Frying-pan	27,496	July 27	80	647
Decelle, Jerry D., Fort Collins, Colo. Door-fastener	27,477	Aug. 3	80	801
Dennett, Fred A., Sheboygan, Wis. Bent-wood chair-seat	27,595	Aug. 31	80	1469
Devore, Levi M., Freeport, Ill. Covering-plate	27,661	Sept. 21	80	1885
Dieterich, Fred G. (See Wright and Dieterich.)				
Dodd, Willis G., San Francisco, Cal. Frame for ore-stamp batteries	27,479	Aug. 3	80	801
Doran, John W., assignor to Wilkes-Barré Manufacturing Company, Wilkes-Barré, Pa. Curtain	27,522	Aug. 17	80	1115

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Downey, Chris F., Waterbury, Conn. Clip for coffee-pot strainers	27,594	Aug. 31	80	1469
Duncan, William G., *et al.* (See Twomey, Timothy M., assignor.)				
Dunklee, Delano D., Greenfield, Mass. Photographic card-mount	27,498	Aug. 10	80	959
Dunn, Willie, Dobbs Ferry, N. Y. Golf-ball	27,441	July 27	80	648
Eames, Harold H., Hartford, Conn. Dash for vehicles	27,602	Sept. 28	80	2031
Eddy Electric Manufacturing Company. (See Heath, Harry E., assignor.)				
Edge, William C., Newark, N. J. Pattern for belts or bands	27,285	July 6	80	175
Edward Miller & Company. (See Williams, Frank T., assignor.)				
Emrich, C. (See Cope and Bertram, assignors.)				
Enterprise Manufacturing Company of Pennsylvania. (See Brown, John W., Jr., assignor.)				
Evans, William J. (See Blethen and Evans.)				
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,333	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,334	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,335	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,336	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,337	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,338	July 13	80	338
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,345	July 13	80	339
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,346	July 13	80	340
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,347	July 13	80	340
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,677	Sept. 21	80	1887
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,678	Sept. 21	80	1887
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,679	Sept. 21	80	1888
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,680	Sept. 21	80	1888
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,606	Aug. 31	80	1471
Farwell, Fay O., assignor of one-half to Adams Company, Dubuque, Iowa. Hot-air-register plate	27,647	Sept. 14	80	1754
Faxon, Alfred A., Philadelphia, Pa. Binder for paper boxes	27,475	Aug. 3	80	801
Feeney, Patrick, Walker's Mills, Pa. Reamer-drill	27,632	Sept. 7	80	1611
Felton, Frank B., Bridgeport, Conn. Bicycle-support	27,670	Sept. 21	80	1886
Ferguson, John F. G., Bowie, Tex. Kitchen-cabinet	27,698	Sept. 28	80	2030
Field, Albert D., Waterbury, Conn. Body-plate for buckles	27,710	Sept. 28	80	2034
Filer, Joseph A., New York, N. Y. Lace-heading	27,300	July 6	80	178
Fineallver, Isaac, New York, N. Y. Knob	27,659	Sept. 21	80	1884
Fisher, Joseph, assignor to T. W. Thompson and C. H. Woeltje, Brooklyn, N. Y. Bicycle-tool	27,465	Aug. 3	80	799
Fletcher, Edward C., assignor to Indianapolis Chain and Stamping Company, Indianapolis, Ind. Side plate for bicycle-chains	27,573	Aug. 24	80	1267
Foster, David E. and R. J. Coleman, Baltimore, Md. Ice-shave				
Frank, David, Brooklyn, assignor of one-half to J. Trounstine, New York, N. Y. End frame for metal bedsteads	27,508	Aug. 10	80	960
Fraser, Thomas A., *et al.* (See Thompson, Frank, assignor.)				
Freas, Samuel T., assignor to American Saw Company, Trenton, N. J. Wrench	27,471	Aug. 3	80	800
Friedberger, Simon, Philadelphia, Pa. Trimming	27,409	July 20	80	509
Friedberger, Simon, Philadelphia, Pa. Trimming	27,495	Aug. 3	80	804
Froehlich, Anne S., Philadelphia, Pa. Window-guard	27,401	July 20	80	507
Gallison, William H. (See McHugh, Timothy J., assignor.)				
Gardner, George C., Chicago, Ill. Casing for door-hanger frames	27,290	July 6	80	178
Garrison, Albert H., assignor to Brand Stove Company, Milwaukee, Wis. Stove or range	27,358	July 13	80	342
General Electric Company. (See Thomson, Elihu, assignor.)				
Gérard, Dufraisseix & Abbot. (See Gérard, Emile, assignor.)				
Gérard, Emile, Limoges, France, assignor to Gérard, Dufraisseix & Abbot, New York, N. Y. Plate or dish	27,528	Aug. 17	80	1117
Gibson, James, Brooklyn, N. Y. Bedstead	27,315	July 6	80	180
Gilfillan, Essington N., Chicago, Ill. Thread case or cabinet	27,405	July 20	80	508
Gilfillan, Essington N., Chicago, Ill. Thread case or cabinet	27,406	July 20	80	508
Gilman, Sumner A., Boston, Mass. Roof-fender	27,515	Aug. 10	80	961
Girard, Etienne, Louisville, Ky. Cigarette-holder	27,375	July 20	80	503
Golucke, Edmund, Crawfordville, Ga. Bed-rail fastener	27,533	Aug. 17	80	1118
Goodell, Dexter W. (See Maynard, Charles A., assignor.)				
Gordon, George E. (See Dandaraw and Gordon.)				
Graessl., George G., Seymour, Ind. Calendar and paper-weight	27,519	Aug. 17	80	1114
Graham, Robert S., assignor of one-half to R. J. Lucas, St. Louis, Mo. Lock-plate for bottle-stoppers	27,541	Aug. 17	80	1119
Grand Rapids Cycle Company. (See Dake, Charles W., assignor.)				
Gray, Albert L., St. Louis, Mo. Shield for syringes	27,638	Sept. 14	80	1752
Green, Herman, New York, N. Y. Cord	27,365	July 13	80	342
Greenleaf & Crosby Company. (See Codman, William C., assignor.)				
Greger, Thomas P., Philadelphia, Pa. Manhole-cover	27,673	Sept. 21	80	1887
Greger, Thomas P., Philadelphia, Pa. Manhole-cover	27,674	Sept. 21	80	1887
Greger, Thomas P., Philadelphia, Pa. Manhole-cover	27,675	Sept. 21	80	1887
Greger, Thomas P., Philadelphia, Pa. Manhole-cover	27,676	Sept. 21	80	1887
Gresset, William T., Richmond, Va. Cigar	27,525	Aug. 17	80	1115
Grinberg, Lassar J., New York, N. Y. Gas-stove	27,612	Aug. 31	80	1472
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Ewer	27,651	Sept. 21	80	1883
Griswold, Frank B., Troy, N. Y. Band-tightener for tires	27,305	July 6	80	178
Grubb, William I., Pottstown, Pa. Crank-hanger for bicycles	27,578	Aug. 24	80	1266
Guinzburg, Edwin A., New York, N. Y. Bathing-stocking	27,582	Aug. 31	80	1468
Hackett, Mary A. E., New York, N. Y. Hat-pin	27,649	Sept. 21	80	1883
Hahn, Charles H., New Haven, Conn. Tray for cigars, &c	27,601	Aug. 31	80	1470
Hall, Jesse T., Chicago, Ill. Foot-rest for bicycle-pedals	27,304	July 6	80	178
Hall, Miller, Chicago, Ill. Bedstead	27,489	Aug. 3	80	803
Hamilton, William M. (See Smith and Hamilton.)				
Hannover Gummi-Kamm Company, Actien Gesellschaft. (See Lehmann, Julius, assignor.)				
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Sheet-glass	27,322	July 13	80	336
Haviland, Charles E., Limoges, France. Plate	27,376	July 20	80	503
Haviland, Charles E., Limoges, France. Cover-dish	27,377	July 20	80	504
Haviland, Charles E., Limoges, France. Cup	27,378	July 20	80	504
Heath, Harry E., assignor to Eddy Electric Manufacturing Company, Windsor, Conn. Shell for electric motors	27,433	July 27	80	646
Heister, John F. (See Kennedy and Heister.)				
Hewitt, Joseph F. and R., Allegheny, Pa. Fireplace gas-burner	27,355	July 13	80	341
Hewitt, Robert. (See Hewitt, Joseph F. and R.)				
Hill, Joseph M., and J. C. Renner, Chicago, Ill. Show-card holder	27,364	July 13	80	342
Hirsh, Julius, assignor to himself and J. Behal, Philadelphia, Pa. Undergarment	27,408	July 20	80	508
Hoefler, Katharine D., Philadelphia, Pa. Mitten	27,635	Sept. 7	80	1612
Hogg & Son, William J. (See Wishart, Joseph S., assignor.)				
Holman, William A., Philadelphia, Pa. Mounting for book-covers, &c	27,530	Aug. 17	80	1115

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Hopewell, Frank B., Cambridge, Mass. Tire	27,464	Aug. 3	80	799
Horton, Charles M., Duluth, Minn. Building strut or column	27,394	July 20	80	506
Hostetter, Amos B., assignor to Specialty Novelty Company, Lancaster, Pa. Grater-disk	27,531	Aug. 17	80	1117
Howard, William H., New York, N. Y. Bank-check, &c	27,620	Sept. 7	80	1608
Howe, Edward F., Watertown, Mass. Mandolin-body	27,559	Aug. 24	80	1265
Howe, Edward F., Watertown, Mass. Guitar-body	27,560	Aug. 24	80	1265
Hubbard, George M., assignor to W. & E. T. Fitch Company, New Haven, Conn. Lever for sash-fasteners	27,572	Aug. 24	80	1267
Husted, Hubert G., Oberlin, Ohio. Receptacle for communion-cups	27,454	Aug. 3	80	798
Husted, Hubert G., Oberlin, Ohio. Individual communion-cup	27,455	Aug. 3	80	798
Ihlenburg, Herman, Philadelphia, Pa., assignor to American Type Founders Company, Newark, N. J. Font of printing-type	27,548	Aug. 17	80	1120
Indianapolis Chain and Stamping Company. (See Fletcher, Edward C., assignor.)				
Ipsen, Ludvig S., Malden, Mass., assignor to Richard Briggs Company, of Massachusetts. Plate or analogous article	27,289	July 6	80	176
Ipsen, Ludvig S., Malden, Mass., assignor to Richard Briggs Company, of Massachusetts. Plate or analogous article	27,290	July 6	80	176
Ipsen, Ludvig S., Malden, Mass., assignor to Richard Briggs Company, of Massachusetts. Plate or analogous article	27,562	Aug. 24	80	1265
Ipsen, Ludvig S., Malden, Mass., assignor to Richard Briggs Company, of Massachusetts. Plate or analogous article	27,563	Aug. 24	80	1266
Ives, John C., Waterbury, Conn. Movable jaw for wrenches	27,575	Aug. 24	80	1267
J. D. Bergen Company. (See Bergen, James D., assignor.)				
Jacobs, Jacob, Brooklyn, N. Y. Lens for gratings	27,490	Aug. 3	80	803
Jacobs, Jacob, Brooklyn, N. Y. Lens for gratings	27,491	Aug. 3	80	803
Jacobs, Jacob, Brooklyn, N. Y. Lens for gratings	27,492	Aug. 3	80	803
Jacobs, Jacob, Brooklyn, N. Y. Lens for gratings	27,493	Aug. 3	80	804
Jacobs, Jacob, Brooklyn, N. Y. Lens	27,708	Sept. 28	80	2082
Jacobs, Jacob, Brooklyn, N. Y. Glass or light	27,704	Sept. 28	80	2083
Jacobs, Jacob, Brooklyn, N. Y. Glass or light	27,705	Sept. 28	80	2083
Jarvis, Charles M., assignor to Berlin Iron Bridge Company, Berlin, Conn. Clevis	27,469	Aug. 3	80	800
Jezuit, Walenty, Fisherville, Mass. Brush	27,658	Sept. 21	80	1884
Jirdinston, William C., Auburn, N. Y. Bicycle-support	27,310	July 6	80	179
Johnson, Robert M., Hainesport, N. J. Sink	27,507	Aug. 10	80	960
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Cartridge packet or holder	27,657	Sept. 21	80	1884
Jones, Samuel C., Maryville, Mo. Horseshoe-calk	27,499	July 27	80	646
Kallenbach, Ferdinand J., Brooklyn, N. Y. Toothpick	27,650	Sept. 21	80	1883
Kane, Dennis J., Boston, Mass. Bed-bottom	27,534	Aug. 17	80	1118
Kaschenbach, John, Wilkes-Barré, Pa. Letter-file	27,316	July 6	80	180
Kendall, David W., assignor to Phoenix Furniture Company, Grand Rapids, Mich. Chair	27,596	Aug. 31	80	1469
Kendall, David W., assignor to Phoenix Furniture Company, Grand Rapids, Mich. Chair	27,597	Aug. 31	80	1470
Kennedy, Thomas R., and J. F. Heister, assignors to Cooperative Foundry Company Rochester, N. Y. Heating-stove	27,668	Sept. 21	80	1886
Kershaw, Francis A., Kenosha, Wis. Frame for bicycles	27,551	Aug. 17	80	1120
Keystone Meter Company. (See Mansur, John H., assignor.)				
King, Alphonse, Chicago, Ill. Advertising-frame	27,404	July 20	80	506
King, Charles J., San Francisco, Cal. Dish	27,593	Aug. 31	80	1469
King, Walter S., Brooklyn, N. Y., assignor to Phenix Tube Company, Brooklyn, N. Y., and Jersey City, N. J. Crown for bicycle-forks	27,306	July 6	80	179
King, William H., and H. B. Taylor, Newark, N. J. Case for wage-calculating machines	27,398	July 20	80	507
Kitselman, Alva L., Ridgeville, Ind. Pattern for wire feacing	27,495	July 27	80	647
Klauber, Moses L., and A. W. Matz, Chicago, Ill. Game-board	27,708	Sept. 28	80	2088
Kline, John A., and C. S. Prizer, assignors to Reading Stove Works, Orr, Painter & Co., Reading, Pa. Stove or range	27,628	Sept. 7	80	1610
Knapp, George W., Baltimore, Md. Baking-pan	27,486	Aug. 3	80	802
Knippenberg, August, Ichtershausen, Germany. Hair-pin	27,493	July 27	80	645
Knox, Wilm, assignor to Cleveland Wire Spring Company, Cleveland, Ohio. Wall-tie	27,643	Sept. 14	80	1753
Koch, Henry C. F., *et al.* (See Twomey, Timothy M., assignor.)				
Kogler, Daniel, New York, N. Y., assignor to M. Redgrave, Jersey City, N. J. Game-board	27,443	July 27	80	648
Koller, Elizabeth, Bloomville, Ohio. Fruit-jar shield	27,383	July 20	80	505
Konn, Fred, Denver, Colo. Velocipede-saddletree	27,307	July 6	80	179
Kunzler, John W., Pittsburg, Pa. Conduit	27,287	July 6	80	176
Lamb, Levi L., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Elevator chain bucket	27,625	Sept. 7	80	1609
Landers, Frary & Clark. (See Smith, James A., assignor.)				
Lanouette, Philip, Naugatuck, Conn. Carriage-jack	27,473	Aug. 3	80	800
Lazarus, Augustus A. (See Schwarz, Isaac A., assignor.)				
Lee, James L., Chicago, Ill. Cam for printing-press frames	27,550	Aug. 17	80	1120
Lehmann, Julius, New York, N. Y., assignor to Hannover Gummi-Kamm Company, Actien Gesellschaft, Hanover, Germany. Comb	27,284	July 6	80	175
Leist, Nicholas, New Albany, Ind. Badge	27,374	July 20	80	506
Lindner, Ernst, New York, N. Y. Gas-burner fixture	27,652	Sept. 21	80	1883
Lindner, Ernst, New York, N. Y. Gas-burner fixture	27,653	Sept. 21	80	1883
Lindner, Ernst, New York, N. Y. Gas-burner fixture	27,654	Sept. 21	80	1884
Long, John C. (See Smith, Joseph P., assignor.)				
Long, Philip H., Newark, N. J. Handle for button-hooks, &c	27,501	Aug. 10	80	959
Long, Philip H., Newark, N. J. Handle for button-hooks	27,590	Aug. 31	80	1469
Lovett, Thomas J., Chicago, Ill. Mat-link	27,648	Sept. 14	80	1754
Lowell Manufacturing Company. (See Rose, Arthur M., assignor.)				
Lublin, Alfred W., Boston, Mass. Dress-stay	27,494	Aug. 3	80	804
Lucas, George C., Cleveland, Ohio. Guard for railway-frogs, &c	27,655	Sept. 21	80	1884
Lucas, Robert J. (See Graham, Robert S., assignor.)				
Lund, Olaf H., Kenyon, Minn. Coat-hook and hat-holder	27,385	July 20	80	505
Luxfer Prism Patents Company. (See Basquin, Olin H., assignor.)				
Luxfer Prism Patents Company. (See Belcher, Henry F., assignor.)				
Luxfer Prism Patents Company. (See Ewen, John M., assignor.)				
Luxfer Prism Patents Company. (See Winslow, William H., assignor.)				
Macintosh, William R., assignor to M. A. Young, Buffalo, N. Y. Clip or fastener	27,514	Aug. 10	80	961
Mack, Herman; Chicago, Ill. Bicycle-cover	27,645	Sept. 14	80	1754
Maddock, Thomas, *et al.* (See Simons, John F., assignor.)				
Magee, Walter C., and W. M. Cox, New York, assignors to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,371	July 13	80	343
Magee, Walter C., and W. M. Cox, New York, assignors to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,372	July 13	80	343

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Malloch, Andrew M. (See Brogan and Malloch.)				
Mansur, John H., Royersford, Pa., assignor to Keystone Meter Company, of Pennsylvania. Frame for gas-meter provers	27,611	Aug. 31	80	1471
Mark, Jacob, New York, N. Y. Glass or lens	27,701	Sept. 28	80	2082
Mark, Jacob, New York, N. Y. Glass or lens	27,702	Sept. 28	80	2082
Mark, John W., New York, N. Y. Lens for tiles	27,502	Aug. 10	80	959
Martin, Gilbert S., Myrtle, Mo. Tombstone	27,418	July 20	80	510
Martin, Mary A., Detroit, Mich. Toy bank	27,442	July 27	80	648
Martindale, Frederick N., Watertown, N. Y. Kettle-cover	27,505	Aug. 10	80	960
Matz, August W. (See Klauber and Matz.)				
Maxim, Hiram P., Hartford, Coun. Running-gear frame	27,663	Sept. 21	80	1885
Maynard, Charles A., Springfield, assignor to D. W. Goodell, Greenfield, Mass. Fulcrum-shoe for nail-pullers	27,571	Aug. 24	80	1267
McConnellogue, Belle, New York, N. Y. Slate	27,461	Aug. 3	80	799
McDivitt, Edward L., and W. S. Brown, assignors to National Sewing Machine Company, Belvidere, Ill. Velocipede-crank	27,532	Aug. 17	80	1120
McHugh, Timothy J., Cambridge, assignor of one-half to W. H. Gallison, Boston, Mass. Trap	27,535	Aug. 17	80	1118
Meinecke, Christian W., Jersey City, N. J. Box	27,294	July 6	80	177
Mente, Adolf, assignor to Norddeutsche Wollkämmerei und Kammgarnspinnerei, Bremen, Germany. Packing-pot	27,382	July 20	80	505
Meriden Britannia Company. (See Silber, Chris, assignor.)				
Merry, John, Newark, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,580	Aug. 24	80	1268
Merry, John, Newark, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,581	Aug. 24	80	1268
Meysenburg, Otto W., *et al.* (See Thompson, Frank, assignor.)				
Minott, John E., Aurora, Ill. Sash-holder	27,695	Sept. 28	80	2081
Moffat, John B., Yonkers, N. Y., and W. F. Brown, Newark, N. J., assignors to Bigelow Carpet Company, of Massachusetts. Carpet	27,411	July 20	80	509
Molidor, George, Independence, Kans. Can-opener	27,532	Aug. 17	80	1117
Murphy, William T., Brooklyn, N. Y., assignor to E. Packham, Jr., Baltimore, Md. Bottle	27,390	July 13	80	336
Nickel, David, Morris, Ill. Casing for door-hanger frames	27,297	July 6	80	177
Nickel, David, Morris, Ill. Casing for door-hanger frames	27,298	July 6	80	177
National Computing Scale Company. (See Swihart, John H., assignor.)				
National Sewing Machine Company. (See McDivitt and Brown, assignors.)				
Neel, Joseph O., Kingsland, Ark. Basket	27,574	Aug. 24	80	1267
Nelken, Abraham, Cleveland, Ohio. Hat or cap	27,523	Aug. 17	80	1115
Nelson, Thomas, Pendleton, Oreg. Printer's job-case	27,549	Aug. 17	80	1120
Neverslip Manufacturing Company. (See Whitaker, Richard, assignor.)				
Norddeutsche Wollkämmerei und Kammgarnspinnerei. (See Mente, Adolf, assignor.)				
Northern Electrical Manufacturing Company. (See Richards, Edgar G., assignor.)				
Odgers, John P., assignor to A. M. Collins Manufacturing Company, Philadelphia, Pa. Cardmount	27,497	Aug. 10	80	959
Ohio Flint Glass Company. (See Schreiber, Herman, assignor.)				
Ohlsson, Olof, Newark, N. J. Bottle	27,391	July 6	80	177
Oliver Brothers. (See Pine, William K., assignor.)				
Oliver, Miles, Ruthville, Tenn. Link for clothes-lines	27,699	Sept. 28	80	2082
Onderdonk, Lansing, Winthrop, Mass. Bicycle-seat support	27,359	July 13	80	342
Owen, Richard W., Glen Ellyn, Ill. Lock-plate	27,498	July 27	80	646
Ozias, Orange O., Dayton, Ohio. Computing member for scales	27,641	Sept. 14	80	1753
Packham, Eldridge, Jr. (See Murphy, William T., assignor.)				
Paret, Louis, Union Hill, N. J., assignor to Bigelow Carpet Company, of Massachusetts. Carpet	27,412	July 20	80	509
Parritt, Frank T., Bloomington, Ill. Casing for coin-actuated machines	27,482	Aug. 3	80	802
Pelouze, William N., Chicago, Ill. Casing for weighing-scales	27,486	Aug. 3	80	799
Pendleton, Gurdon, Jr., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Jar-mount	27,381	July 20	80	504
Pendleton Manufacturing Company. (See Pendleton, Gurdon, Jr., assignor.)				
Penfold, Charles C., assignor to G. S. Penfold, Buffalo, N. Y. Badge	27,318	July 13	80	336
Penfold, Grace S. (See Penfold, Charles C., assignor.)				
Pennsylvania Globe Gas Light Company. (See Prendergast, Daniel J., assignor.)				
Pennycuick, James G., Toronto, Canada. Prism-light	27,340	July 13	80	339
Pennycuick, James G., Toronto, Canada. Prism-plate	27,341	July 13	80	339
Pennycuick, James G., Toronto, Canada. Prism-plate	27,342	July 13	80	339
Petzold, Adolph, assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug	27,682	Sept. 21	80	1888
Petzold, Adolph, assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug	27,683	Sept. 21	80	1888
Petzold, Adolph, assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug	27,684	Sept. 21	80	1888
Phenix Tube Company. (See King, Walter S., assignor.)				
Phillips, Fletcher T. (See Cattell, William H., assignor.)				
Phoenix Furniture Company. (See Kendall, David W., assignor.)				
Pine, William K., assignor to Oliver Brothers, Lockport, N. Y. Mount for bedsteads	27,600	Aug. 31	80	1470
Piper, Hiram L., Toronto, Canada. Wall-support for bicycles	27,439	July 27	80	647
Pitcairn, William S. (See Grindley, William H., assignor.)				
Plume & Atwood Manufacturing Company. (See Atwood, Lewis J., assignor.)				
Pollard, Frederick E., New York, N. Y. Wardrobe	27,671	Sept. 21	80	1886
Pollard, Frederick E., New York, N. Y. Wardrobe	27,672	Sept. 21	80	1886
Pope Manufacturing Company. (See Copeland, James S., assignor.)				
Prendergast, Daniel J., New York, N. Y., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Dome for street-lamps	27,605	Aug. 31	80	1471
Prickett, Edwin L., Mount Holly, N. J. Watch-fob	27,319	July 13	80	336
Prizer, Charles S. (See Kline and Prizer.)				
Purdy, Charley C., Gilead, Mo. Nut-lock	27,427	July 27	80	646
Ray, Lees, Wavertree, England. Nose-clamp	27,424	July 27	80	645
Reading Stove Works, Orr, Painter & Co. (See Kline and Prizer, assignors.)				
Redgrave, Montague. (See Kogler, Daniel, assignor.)				
Reece, Ether H. (See Reece, Floyd N. and E. H.)				
Reece, Floyd N. and E. H., Troy Mills, Iowa. Snap-hook	27,386	July 20	80	505
Reese, Durand A., Philadelphia, Pa. Badge	27,451	Aug. 3	80	797
Renner, John C. (See Hill and Renner.)				
Rennie, William, Tishomingo, Ind. Ter. Vehicle-step	27,390	July 20	80	506
Richard Briggs Company. (See Ipsen, Ludvig S., assignor.)				
Richards, Edgar G., assignor to Northern Electrical Manufacturing Company, Madison, Wis. Motor-frame	27,480	Aug. 3	80	801
Richards, Joseph T., Philadelphia, Pa. Spike	27,601	Sept. 28	80	2080
Richardson, William S., Boston, Mass. Socket member for separable fasteners	27,536	Aug. 17	80	1116
Richardson, William S., Boston Mass. Socket member for separable fasteners	27,537	Aug. 17	80	1118
Richardson, William S., Boston, Mass. Socket member for detachable fasteners	27,538	Aug. 17	80	1118
Ripley, Daniel C., assignor to United States Glass Company, Pittsburg, Pa. Glass vessel	27,288	July 6	80	176
Robbins, Arthur C., Oakland, Cal. Coupling for battery-plates	27,694	Sept. 28	80	2081

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Robbins, Charles, Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Brush for electric switches	27,392	July 20	80	506
Robbins, Charles, Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Brush for electric switches	27,393	July 20	80	506
Roberts, Woodbury D., Centralia, Wash. Lock-casing	27,609	Aug. 31	80	1471
Rogers, Arthur G., assignor to C. Rogers & Bros., Meriden, Conn. Handle for spoons, &c	27,589	Aug. 31	80	1469
Rogers & Bros., C. (See Rogers, Arthur G., assignor.)				
Rose, Arthur M., Yonkers, N. Y., assignor to Lowell Manufacturing Company, of Massachusetts. Carpet	27,555	Aug. 17	80	1121
Rountree, Harrison H., Chicago, Ill. Sprocket-wheel chain-guard	27,389	July 20	80	505
Rusch, Henry A., Newark, N. J., assignor of one-half to N. Schroder, Brooklyn, N. Y. Saddle-seat	27,616	Aug. 31	80	1472
S. S. White Dental Manufacturing Company. (See Weston, Henry, assignor.)				
Sanders, Louis, Brooklyn, N. Y. Belt	27,689	Sept. 28	80	2030
Sanders, Newell, Chattanooga, Tenn. Base for cane-mills	27,626	Sept. 7	80	1609
Sanford & Sons, Stephen. (See Cox, Wallace M., assignor.)				1887
Sanford & Sons, Stephen. (See Magee and Cox, assignors.)				
Sanford & Sons, Stephen. (See Stewart, Nelson S., assignor.)				
Schloer, Frederick J., Trenton, N. J. Indicator-board	27,707	Sept. 28	80	2033
Schrieber & Conchar Manufacturing Company. (See Conchar, James W., assignor.)				
Schreiber, Herman, Dunkirk, Ind., assignor to Ohio Flint Glass Company, of Ohio. Glass dish	27,321	July 13	80	336
Schroder, Nicholas. (See Rusch, Henry A., assignor.)				
Schwarz, Isaac A., assignor to himself and A. A. Lazarus, Philadelphia, Pa. Trimming	27,448	July 27	80	649
Schwarzenberg, Henry L., Cleveland, Ohio. Fish-scaler	27,508	Aug. 10	80	959
Schwarzenberg, Henry L., Cleveland, Ohio. Ice-shredder	27,613	Aug. 31	80	1472
Schwarzenberg, Henry L., Cleveland, Ohio. Kitchen utensil	27,614	Aug. 31	80	1472
Scott, Edward W., assignor to Watson & Newell Company, Incorporated, Attleborough, Mass. Handle for spoons, &c	27,283	July 6	80	175
Scott, William F., Alexandria, Ind. Display-rack	27,603	Aug. 31	80	1470
Scott, William F., Alexandria, Ind. Display-rack	27,604	Aug. 31	80	1470
Scovill Manufacturing Company. (See Wolff, Adrian E., assignor.)				
Seibert, William P., assignor to Standard Manufacturing Company, Allegheny, Pa. Bath-tub	27,488	Aug. 3	80	805
Selden, Arthur R., Rochester, N. Y. Plate for ironing-machines	27,396	July 20	80	506
Shaw, George W. (See Darby, Robert J., assignor.)				
Shepard, Walter J. (See Adams, Peter, assignor.)				
Sherman, Amy A., Ithaca, N. Y. Curtain	27,634	Sept. 7	80	1612
Sherwood, Mary, Baltimore, Md. School-desk body	27,403	July 20	80	507
Shoup, Sandford H., Dayton, Ohio. Footstool	27,647	Sept. 14	80	1754
Silber, Chris, assignor to Meriden Britannia Company, Meriden, Conn. Handle for spoons, &c	27,452	Aug. 3	80	797
Simons, Edward S., *et al.* (See Simons, John F., assignor.)				
Simons, Frederic M., *et al.* (See Simons, John F., assignor.)				
Simons, John F., assignor to himself, T. Maddock, Philadelphia, F. M. Simons, Swarthmore, Pa., and E. S. Simons, Orange, N. J. Show or display card	27,521	Aug. 17	80	1115
Sisson, Charles, Providence, R. I. Cover for dress-stays	27,557	Aug. 24	80	1264
Slotkin, Mayer, New York, N. Y. Leg-brace, &c	27,460	Aug. 3	80	799
Small, Frank E., Brooklyn, N. Y., assignor of one-half to F. E. Small, Boston, Mass. Handkerchief-clip	27,360	July 13	80	342
Small, Frederick E. (See Small, Frank E., assignor.)				
Smith, Edward F. (See Smith, John P., assignor.)				
Smith, Charles E., New York, N. Y. Necktie-holder	27,499	Aug. 10	80	959
Smith, George L., Bayonne, N. J. Puzzle box or case	27,592	Aug. 31	80	1469
Smith, James A., assignor to Landers, Frary & Clark, New Britain, Conn. Case for spring-balances	27,545	Aug. 17	80	1119
Smith, John P., assignor of one-half to E. F. Smith, New Haven, Conn. Parcel-carrier	27,617	Aug. 31	80	1472
Smith, Joseph P., assignor of one-half to J. C. Long, Hartford, Conn. Socket for window-fasteners	27,467	Aug. 3	80	800
Smith, Joseph P., assignor of one-half to J. C. Long, Hartford, Conn. Socket for window-fasteners	27,468	Aug. 3	80	800
Smith, Walter B., and W. M. Hamilton, Marlborough, Mass. Game-board	27,444	July 27	80	648
Smith, William T., Dayton, Ohio. Wagon-body	27,352	July 13	80	341
Snow, George B., Oneida, N. Y. Screen	27,407	July 20	80	508
Specialty Novelty Company. (See Hostetter, Amos B., assignor.)				
Spektorsky, Joseph, New York, N. Y. Feather-duster handle	27,295	July 6	80	177
Sprague, Edwin L., Boston, Mass. Shoe-vamp	27,585	Aug. 31	80	1468
Standard Manufacturing Company. (See Seibert, William P., assignor.)				
Standing, Thomas B., and W. V. Brayshaw, Fall River, Mass. Wedge-block	27,388	July 20	80	505
Starr, William H., Decatur, Ill. Girdle	27,422	July 27	80	645
Steindler, Robert M., New York, N. Y. Skirt-holder	27,586	Aug. 31	80	1468
Steiner, Marie, Milwaukee, Wis. Undergarment-reinforce	27,583	Aug. 31	80	1468
Stephens, Dexter B., Youngstown, Ohio. Key-fastener	27,362	July 13	80	342
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,367	July 13	80	343
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,368	July 13	80	343
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,369	July 13	80	343
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,370	July 13	80	343
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,413	July 20	80	509
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,414	July 20	80	509
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,415	July 20	80	510
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,416	July 20	80	510
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,417	July 20	80	510
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,685	Sept. 21	80	1888
Stewart, Nelson S., assignor to S. Sanford & Sons, Amsterdam, N. Y. Carpet	27,686	Sept. 21	80	1888
Stiebel, Sophie, Philadelphia, Pa. Bicycle drinking-cup	27,379	July 20	80	504
Stiebel, Sophie, Philadelphia, Pa. Pocket-book carrier	27,529	Aug. 17	80	1117
Stivers, Jerome, New Rochelle, N. Y. Vehicle-body	27,664	Sept. 21	80	1885
Stophlet, Samuel, Kansas City, Mo. Watch-charm, &c	27,421	July 27	80	645
Sullivan, Eugene J., River Forest, assignor to Brown Bros. Manufacturing Company, Chicago, Ill. Lens for skylights, &c	27,402	July 20	80	507
Swan, James, Seymour, Conn. Tool-handle	27,301	July 6	80	176
Swenson, Nils O., Brooklyn, N. Y. Swing-support	27,517	Aug. 10	80	962
Swihart, John H., assignor to National Computing Scale Company, Cleveland, Ohio. Face-plate for scales	27,607	Aug. 31	80	1471
Swihart, John H., assignor to National Computing Scale Company, Cleveland, Ohio. Face plate for scales	27,627	Sept. 7	80	1610
Tatum, Charles A., assignor to Whitall, Tatum & Co., New York, N. Y. Pill cylinder-mold	27,293	July 6	80	177
Tayler, Herbert B. (See King and Taylor.)				
Thompson, Albert F., Adel, Iowa. Badge	27,419	July 27	80	645

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Thompson, Frank, assignor of two-thirds to T. A. Fraser and O. W. Meysenburg, Chicago, Ill. Body-bolster for railway-cars	27,351	July 13	80	340
Thompson, Thomas W., *et al.* (See Fisher, Joseph, assignor.)				
Thompson, William, assignor to Buck's Stove and Range Company, St. Louis, Mo. Stove	27,356	July 13	80	341
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Wing for air-blasts	27,698	Sept. 28	80	2031
Titus, Henry E., Plainfield, N. J. Frame for shoe-polishers	27,504	Aug. 10	80	960
Traut, Justus A., New Britain, Conn. Plane-body	27,474	Aug. 3	80	800
Trimont Manufacturing Company. (See Vinton, John H., assignor.)				
Trounstine, John. (See Frank, David, assignor.)				
Twomey, Timothy M., assignor of two-thirds to H. C. F. Koch and W. G. Duncan, New York, N. Y. Top for golf-stockings	27,440	July 27	80	648
Underhill, Francis M., assignor to Whitall, Tatum & Co., New York, N. Y. Bottle	27,292	July 6	80	177
United States Glass Company. (See Ripley, Daniel C., assignor.)				
Van Cleave, James W., assignor to Buck's Stove and Range Company, St. Louis, Mo. Stove	27,357	July 13	80	341
Vantine & Co., A. A. (See Bryce, Howard M., assignor.)				
Vinton, John H., Boston, Mass., assignor to Trimont Manufacturing Company, Portland, Me. Movable jaw for wrenches	27,540	Aug. 17	80	1118
W. & E. T. Fitch Company. (See Hubbard, George M., assignor.)				
Wagandt, Charles L., Baltimore, Md. Oil-can	27,615	Aug. 31	80	1472
Waite, Alfred A., Wilmington, Del. Tooth-brush holder	27,690	Sept. 28	80	2030
Walsh, Edward, Jr. (See Hartung, Charles C., assignor.)				
Walter, Albert F., Chatsworth, Ill. Cabinet	27,633	Sept. 7	80	1611
Walters, James H., and T. P. Brown, Harlansburg, Pa. Window-shade bracket	27,436	July 27	80	646
Wanamaker, John, Philadelphia, Pa. Delivery-wagon body	27,553	Aug. 17	80	1120
Ward, William W., Pelham, Ga. Mop-head	27,354	July 20	80	505
Waters, Henry, Bisbee, Ariz. Ter. Metallic shoe-tip	27,361	July 13	80	342
Watson & Newell Company. (See Scott, Edward W., assignor.)				
Webb, Robert D., Philadelphia, Pa. Can-opener blade	27,296	July 6	80	177
Webb, William G., Baltimore, Md., assignor to Christopher Lipps Company, of Maryland. Cake or bar of soap	27,556	Aug. 24	80	1264
Weil, Lazarus, New York, N. Y. Tray	27,602	Aug. 31	80	1470
Wells, James, New Rochelle, assignor to J. Whalen, New York, N. Y. Clock case or column	27,453	Aug. 3	80	798
West, George R., Pittsburg, Pa. Glass vessel	27,456	Aug. 3	80	798
Weston, Henry, assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dentist's pliers	27,637	Sept. 14	80	1752
Whalen, John. (See Wells, James, assignor.)				
Whitaker, Richard, assignor to Neversilp Manufacturing Company, New Brunswick, N. J. Horse-shoe-calk	27,542	Aug. 17	80	1119
Whitall, Tatum & Co. (See Tatum, Charles A., assignor.)				
Whitall, Tatum & Co. (See Underhill, Francis M., assignor.)				
Whiting, Perry. (See Almeter, John, assignor.)				
Whitman & Barnes Manufacturing Company. (See Lamb, Levi L., assignor.)				
Whitney, Henry H., Deering, Me. Check-hook	27,476	Aug. 3	80	801
Whitney, James S., Wallingford, Conn. Car-wheel	27,554	Aug. 17	80	1121
Whitworth, Ernest, Lowell, Mass. Bicycle-frame	27,308	July 6	80	179
Wiard, Harry, Syracuse, N. Y. Shin-piece for moldboards for plows	27,349	July 13	80	340
Wiard, Harry, Syracuse, N. Y. Shoe for landsides for plows	27,350	July 13	80	340
Wilkes-Barre Manufacturing Company. (See Doran, John W., assignor.)				
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Bicycle-lantern	27,303	July 6	80	178
Williams, James A., Essex, Conn. Puzzle-case	27,317	July 6	80	180
Willis, Mary J., Kansas City, Mo. Gas-range	27,485	Aug. 3	80	802
Wilmot, Frank A., Bridgeport, Conn. Sheet-metal tube-blank	27,543	Aug. 17	80	1119
Wilson, James D., St. Louis, Mo. Flushing-tank	27,696	Sept. 28	80	2031
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)				
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,339	July 13	80	339
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,348	July 13	80	340
Wishart, Joseph S., Brooklyn, N. Y., assignor to W. J. Hogg & Son, Worcester, Mass. Carpet	27,449	July 27	80	649
Wishart, Joseph S., Brooklyn, N. Y., assignor to W. J. Hogg & Son, Worcester, Mass. Carpet	27,450	July 27	80	649
Woeltje, Charles H., *et al.* (See Fisher, Joseph, assignor.)				
Wolff, Adrian F., assignor to Scovill Manufacturing Company, Waterbury, Conn. Oil-can	27,462	Aug. 3	80	799
Woodworth, Albert C., assignor to Consolidated Car Fender Company, Providence, R. I. Guard or cushion for street-cars	27,656	Sept. 21	80	1884
Work, Bertram G., Akron, Ohio. Water-bottle stopper	27,623	Sept. 7	80	1609
Wright, William J., Pittsburg, Pa., and F. G. Dieterich, Washington, D. C.; said Dieterich assignor to said Wright. Snap-hook	27,425	July 27	80	645
Young, Malcolm A. (See Macintosh, William R., assignor.)				
Zoerb, William, Dedham, Mass. Eyeglass or spectacle case	27,622	Sept. 7	80	1609
Zwoyer, Ellsworth B. A., Reading, Pa. Fuel	27,483	Aug. 3	80	802
Zwoyer, Ellsworth B. A., Reading, Pa. Fuel	27,484	Aug. 3	80	802

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. A. Griffing Iron Company, Jersey City, N. J. Steam-traps, feed-water heaters, steam and oil separators, exhaust-pipe heads, and low-water alarms	30,450	July 27	80	652
A. A. Griffing Iron Company, Jersey City, N. J. Steam traps and pumps	30,573	Sept. 21	80	1890
Aktienbrauerei zum Löwenbräu in München, Munich, Germany. Lager-beer	30,527	Aug. 31	80	1474
Aktienbrauerei zum Löwenbräu in München, Munich, Germany. Lager-beer	30,528	Aug. 31	80	1474
Albright & Wilson, Limited, Oldbury, England. Phosphorus and analogous chemical compounds	30,400	July 20	80	513
Allen, David H., Miamisburg, Ohio. Electric batteries	30,302	July 13	80	345
Alonzo O. Bliss Co., Washington, D. C. Powdered herbs	30,403	July 20	80	512
American Mutoscope Company, New York, N. Y. Consecutive-view or moving-picture apparatus	30,564	Sept. 21	80	1889
American National Red Cross, Washington, D. C. Books, pamphlets, paper, and envelops	30,428	July 27	80	650
Anchor S Chemical Co., Lebanon, Oreg. Remedies for constipation and liver diseases	30,547	Sept. 14	80	1756
Angene & Veon, Clarksville, Va. Certain named mineral water	30,488	Aug. 10	80	968
Ansbacher & Co., A. B., New York, N. Y. Dry and pulp pigments for paints	30,333	July 6	80	183
Anthony & Co., H. H., Fall River, Mass. Corn-fed steers	30,531	Aug. 31	80	1474
Ashe, Walter F., Atlanta, Ga. Insect-destroyer	30,553	Sept. 14	80	1757
Austin, Frederick C., Chicago, Ill. Grading and ditching machines	30,348	July 6	80	184
Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyestuff	30,494	Aug. 10	80	964
Ball, Irving J., Brock, Nebr. Insecticide for poultry, stock, and vegetation	30,480	Aug. 3	80	808
Ballard & Ballard Company, Louisville, Ky. Wheat-flour	30,537	Sept. 14	80	1755
Bauer & Co., John F., Mount Morris, N. Y. Substitutes for coffee	30,502	Aug. 17	80	1123
Becker, Napoleon C., Amsterdam, N. Y. Medicinal plasters	30,595	Sept. 28	80	2086
Bernheimer & Walter, New York, N. Y. Dress-linings	30,317	July 6	80	181
Bernheimer & Walter, New York, N. Y. Dress-linings	30,318	July 6	80	181
Bernheimer & Walter, New York, N. Y. Dress-linings	30,364	July 13	80	344
Besson & Company, Limited, London, England. Brass, wood, or like wind musical instruments	30,349	July 6	80	184
Birney, Bascom H. (See Birney, Charles A. and B. H.)				
Birney, Charles A. and B. H., Chicago, Ill. Pills, ointments, and tablets, and remedies for catarrh and female troubles	30,341	July 6	80	183
Blaisdell Paper Pencil Company, Philadelphia, Pa. Pencils, pencil attachments, pens, and other stationery	30,429	July 27	80	650
Blaney, Frank M., Baltimore, Md. Pills	30,340	July 6	80	183
Bleistiftfabrik, vormals Johann Faber, Actien-Gesellschaft, Nuremberg, Germany. Lead and colored pencils, copying-pencils, slate-pencils, and pencils with movable leads	30,563	Sept. 21	80	1889
Blum, Emma C., Portland, Oreg. Coffee substitute	30,470	Aug. 3	80	807
Böhler & Co., Gebrüder, Vienna, Austria-Hungary. Bicycle-chains	30,427	July 20	80	514
Booth, Walter E., Detroit, Mich. Bath-tubs	30,559	Sept. 14	80	1758
Borsum Bros., New York, N. Y. Dry fine powder for polishing metal	30,334	July 6	80	183
Boss & Son, C. D., New London, Conn. Crackers, biscuits, cakes, and kindred articles of food	30,321	July 6	80	181
Boss & Son, C. D., New London, Conn. Crackers, biscuits, cakes, and kindred articles of food	30,322	July 6	80	181
Boss & Son, C. D., New London, Conn. Crackers, biscuits, cakes, and kindred articles of food	30,323	July 6	80	182
Boss & Son, C. D., New London, Conn. Crackers, biscuits, cakes, and kindred articles of food	30,324	July 6	80	182
Boss & Son, C. D., New London, Conn. Crackers, biscuits, cakes, and kindred articles of food	30,325	July 6	80	183
Brighton, Levi L., Hutchinson, Kans. Liniments	30,570	Sept. 21	80	1890
Brooklyn Daily Eagle, Brooklyn, N. Y. Newspapers	30,532	Sept. 14	80	1755
Brown Chemical Co., St. Paul, Minn. Tablets of an antiseptic and germicidal character	30,412	July 20	80	513
Buffalo Meter Company, Buffalo, N. Y. Cyclometers, odometers, engine-counters, and fluid-meters	30,361	July 13	80	345
Bunker Saddle Company, Chicago, Ill. Bicycle-saddles	30,574	Sept. 21	80	1890
C. & J. Michel Brewing Company, La Crosse, Wis. Beer	30,372	July 13	80	345
C. M. Hapgood Shoe Company, Easton, Pa. Boots and shoes	30,452	Aug. 3	80	805
Campbell & Stephens, Troy, N. Y. Shirts, collars, cuffs, and shirt-waists	30,535	Sept. 14	80	1755
Campion & Co., J. W., Philadelphia, Pa. Medicinal plasters	30,596	Sept. 28	80	2086
Canapa, Frank. (See Cecconello and Canapa.)				
Cecconello, Louis A., and F. Canapa, Irvine, Cal. Liniment for horses and other animals	30,446	July 27	80	651
Cedar Rapids Candy Company, Cedar Rapids, Iowa. Chocolate drops, chocolate cream drops, and analogous confections	30,330	July 6	80	181
Cephalgine Co., Spencer, Mass. Remedies for headache, neuralgic or rheumatic pains, and nervous diseases	30,336	July 6	80	183
Cherashny, Zeidel, Philadelphia, Pa. Indigo-powder and liquid blue	30,407	July 20	80	513
Chicago Varnish Company, Chicago, Ill. Enamels	30,441	July 27	80	651
Clark, Henry S., New York, N. Y. Antiseptic medicinal preparation	30,597	Sept. 28	80	2086
Claussen, Frank H., Chicago, Ill. Remedies for rheumatism	30,548	Sept. 14	80	1756
Clement, Gladiator & Humber, (France,) Limited, Paris, France, and London, England. Bicycles and other velocipedes	30,448	July 27	80	652
Climax Serial Coffee Company, Auburn, Me. Cereal coffee	30,517	Aug. 24	80	1270
Cohen, Charles J., Philadelphia, Pa. Paper and envelops	30,387	July 20	80	511
Cole, Corydon L., and R. G. Donaldson, Washington, D. C. Remedy for morphine and alcohol habits	30,416	July 20	80	514
Cole, William W., Omaha, Nebr. Baking-powder	30,503	Aug. 17	80	1122
Colgate & Co., New York, N. Y. Soaps, perfumes, powders, and liquids	30,566	Sept. 21	80	1889
Colket & Co., Geo. H., Philadelphia, Pa. Bicycles, tandems, and articles accessory thereto	30,575	Sept. 21	80	1890
Colket & Co., Geo. H., Philadelphia, Pa. Bicycles, tandems, and articles accessory thereto	30,576	Sept. 21	80	1890
Colket & Co., Geo. H., Philadelphia, Pa. Bicycles, tandems, and articles accessory thereto	30,577	Sept. 21	80	1890
Computing Scale Company, Dayton, Ohio. Weighing and computing scales	30,422	July 20	80	514
Computing Scale Company, Dayton, Ohio. Weighing and computing scales	30,423	July 20	80	514
Computing Scale Company, Dayton, Ohio. Weighing-scales	30,464	Aug. 3	80	806
Consolidated Fireworks Company of America, New York, N. Y. Fire-crackers	30,359	July 13	80	344
Contoocook Mills Company, Hillsborough Bridge, N. H. Knit underwear	30,315	July 6	80	181
Court Perfumery Company, New York, N. Y. Toilet soaps, perfumes, waters, powders, and cosmetics	30,458	Aug. 3	80	851
Craig, John, Jr., London, England. Mechanical pipe-cleaners	30,525	Aug. 24	80	1200
Crofut & Knapp Company, South Norwalk, Conn. Hats	30,389	July 20	80	571

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Crosby Steam Gage and Valve Company, Boston, Mass. Indicators for steam-engines	30,451	July 27	80	652
Cubberly, Samuel D., Warsaw, Ill. Remedies for diseases of swine and other stock	30,360	July 13	80	345
Cummings & Bro., N. C., Portland, Me. Canned fruits and vegetables	30,520	Aug. 31	80	1474
Deere & Company, Moline and Decatur, Ill., Council Bluffs, Des Moines, and Keokuk, Iowa, Kansas City and St. Louis, Mo., Minneapolis, Minn., and San Francisco, Cal. Wagons	30,580	Sept. 21	80	1890
Deschamps Frères, Vieux Jeand'heurs, France. Colors, especially ultramarine-blue	30,330	July 6	80	182
Dexter & Bros., Nathaniel, Portland, Me. Bitters	30,583	Sept. 28	80	2035
Diamond Wall Cement Company, Williamsport, Pa. Preparation of mortar or cement in a dry state for plastering walls	30,356	July 13	80	344
Dizer & Co., Marshall C., Weymouth, Mass. Finished leather and boots and shoes	30,496	Aug. 10	80	963
Dolge & Son, Alfred, New York, N. Y. Music-wire	30,363	July 13	80	345
Donaldson, Robert G. (See Cole and Donaldson.)				
Donovan, Walter B., New Haven, Conn. Laundry starch	30,431	July 27	80	650
Dudley, William B., New York, N. Y. Canned fruits	30,520	Aug. 24	80	1270
Dudley, William B., New York, N. Y. Canned fruits	30,521	Aug. 24	80	1270
Dudley, William B., New York, N. Y. Canned fruits	30,522	Aug. 24	80	1270
Durkee & Co., E. B., New York, N. Y. Laundry starch	30,408	Aug. 3	80	806
Durkee & Co., E. B., New York, N. Y. Laundry starch	30,535	Sept. 14	80	1757
Eccardt, Christian F., Kreuznach, Germany. Wines, sparkling wines, and liquors	30,370	July 13	80	345
Eggebrecht & Bernhardt, New York, N. Y. Kid and lambskin gloves	30,352	July 13	80	344
Elgin Creamery Company, Chicago, Ill. Butter	30,329	July 6	80	182
Elgin Creamery Company, Chicago, Ill. Butter	30,406	July 20	80	518
Elgin Creamery Company, Chicago, Ill. Butter	30,473	Aug. 3	80	807
Elgin Creamery Company, Chicago, Ill. Butter	30,504	Aug. 17	80	1122
Elgin Creamery Company, Chicago, Ill. Butter	30,530	Aug. 31	80	1474
Eschmann, Frederick W. R., Yonkers, N. Y. Dietetic compound of highly nutritive substance	30,461	Aug. 3	80	806
Eureka Fire Hose Company, New York, N. Y. Hydraulic hose	30,394	July 20	80	511
Evans, Firm of George T., Indianapolis, Ind. Flour	30,518	Aug. 24	80	1270
Everett, Aughenbaugh & Co., Waseca, Minn. Wheat, rye, and buckwheat flour and other products from reducing cereals to comminuted condition	30,404	July 20	80	512
Ewart Manufacturing Company, Chicago, Ill., and Indianapolis, Ind. Drive-chains made of malleable cast-iron	30,425	July 20	80	514
Fahlberg, List & Company, Salbke-Westerhüsen, Germany. Impure and pure or refined benzoic sulfinid or benzoic sulfinid combined with sodium oxid	30,524	Aug. 24	80	1270
Farbenfabriken of Elberfeld Company, New York, N. Y. Alizarin colors	30,331	July 6	80	182
Fiedler, Albert R. H., Philadelphia, Pa. Remedies for catarrh, colds, headache, sore throat, asthma, and lost sense of smell	30,544	Sept. 14	80	1756
Fisher, John M., New York, N. Y. Roach-powders	30,552	Sept. 14	80	1757
Flaccus & Elliott Company, Wheeling, W. Va. Catsup, vinegar, preserves, jellies, table-sauces, pickles, chow-chow, pepper-sauce, olives, and extracts	30,472	Aug. 3	80	807
Foster & Co., F. A., Boston, Mass., and New York, N. Y. Cotton linings	30,430	July 27	80	650
Francis, John H., Jr., Peoria, Ill. Candies, ice-cream, and soda-water beverages	30,397	July 20	80	512
Frey & Co., Augustus, New York, N. Y. Pearl buttons	30,508	Aug. 24	80	1269
Gas Light and Coke Company, London, England. Coal derivatives	30,440	July 27	80	651
Gas Light and Coke Company, London, England. Chemical substances for sanitary purposes	30,457	Aug. 3	80	805
George G. Fox Company, Boston, Mass. Bread, cake, and pies	30,379	July 13	80	346
Geyser Chemical Co., Brooklyn, N. Y. Laxative medicine	30,339	July 6	80	183
Globe Refining Company, Louisville, Ky. Laundry soap	30,567	Sept. 21	80	1889
Gorham, William J., San Francisco, Cal. Rubber packing	30,465	Aug. 3	80	806
Graham & Black Co., Lancaster, Ohio. Wheat-flour	30,328	July 6	80	182
Grand Forks Mercantile Company, Grand Forks, N. D. Tea	30,501	Aug. 17	80	1122
Grand Rapids Brush Company, Grand Rapids, Mich. Hair and flesh brushes	30,366	July 13	80	345
Griswold, Frank B., Troy, N. Y. Bicycles and like vehicles and appurtenances	30,347	July 6	80	184
Grout & Grout, Orange, Mass. Gelatin	30,519	Aug. 24	80	1270
Grove Company, Salem, Ohio. Chewing-gum	30,434	July 27	80	650
H-O (Hornby's Oatmeal) Company, New York, N. Y. Soap	30,467	Aug. 3	80	806
Hammill & Gillespie, New York, N. Y. Cements	30,335	July 6	80	183
Hance Bros. & White, Philadelphia, Pa. Remedies for diseases of the respiratory organs	30,545	Sept. 14	80	1756
Harding, Samuel D., Boston, Mass. Salves	30,456	Aug. 3	80	805
Harvey Chemical Co., Lafayette, Ind. Metal-polish	30,421	July 20	80	514
Haurwitz, Max, St. Louis, Mo. Remedies for venereal diseases	30,549	Sept. 14	80	1757
Hawes, Benjamin F., New York, N. Y. Men's hats of felt, silk, and straw	30,314	July 6	80	181
Herb Medicine Co., Springfield, Ohio. Pills or tablets	30,591	Sept. 28	80	2036
Herb Medicine Co., Springfield, Ohio. Pills or tablets	30,592	Sept. 28	80	2036
Hermsdorf, Louis, Wittgensdorf, Germany. Chemical preparations in the nature of ink for marking fabrics	30,388	July 20	80	511
Hezel Milling Company, East St. Louis, Ill. Flour	30,380	July 13	80	346
Homan Silver Plate Company, Cincinnati, Ohio, and Chicago, Ill. Articles used by Catholics for family devotions and religious ceremonies	30,562	Sept. 21	80	1889
Hopkins, Jason R., Washington, D. C. Watches	30,533	Sept. 14	80	1755
Hoppe & Strub Bottling Company, Toledo, Ohio. Mineral water	30,374	July 13	80	346
House & Sons, L., Syracuse, N. Y. Carbonated beverages	30,373	July 13	80	345
House, Walter B., Detour, Mich. Tablets for medicinal purposes	30,413	July 20	80	513
Howard, Frederick, Boston, Mass. Printed publications	30,350	July 13	80	344
Hughes & Co., R. M., Louisville, Ky. Vinegars	30,492	Aug. 10	80	963
Hüpfel, Adolph G., New York, N. Y. Bottled lager-beer	30,498	Aug. 17	80	1122
Hüpfel, Adolph G., New York, N. Y. Bottled lager-beer	30,499	Aug. 17	80	1122
Ice and Cold Storage Company of Los Angeles, Los Angeles, Cal., and Carbondale, Pa. Distilled water	30,489	Aug. 10	80	963
Improved Mailing Case Company, New York, N. Y. Mailing-cases	30,474	Aug. 3	80	807
India Rubber Comb Company, New York, N. Y. Artificial gum used in dentistry	30,565	Sept. 21	80	1889
India Wharf Brewing Company, Brooklyn, N. Y. Certain named brewers' grains and malt-sprouts	30,491	Aug. 10	80	963
Isenburg, Emanuel J., Newark, N. J. Remedies for gout and rheumatism	30,454	Aug. 3	80	805
Iver Johnson Sporting Goods Company, Fitchburg and Worcester, Mass. Bicycles	30,490	Aug. 10	80	964
J. E. Tilt Shoe Company, Chicago, Ill. Bicycle-shoes	30,316	July 6	80	181
J. & J. Colman, Limited, London, England. Table-mustard	30,561	Sept. 21	80	1890
J. & P. Baltz Brewing Company, Philadelphia, Pa. Beer	30,511	Aug. 24	80	1269
J. & P. Baltz Brewing Company, Philadelphia, Pa. Beer	30,512	Aug. 24	80	1269
J. & P. Baltz Brewing Company, Philadelphia, Pa. Beer	30,513	Aug. 24	80	1269
J. & P. Coats, Limited, Paisley, Scotland. Cotton yarn and sewing-cotton	30,390	July 20	80	511
J. & P. Coats, Limited, Paisley, Scotland. Cotton yarn and sewing-cotton	30,391	July 20	80	511
J. & P. Coats, Limited, Paisley, Scotland. Cotton yarn and sewing-cotton	30,392	July 20	80	511
J. & P. Coats, Limited, Paisley, Scotland. Cotton yarn and sewing-cotton	30,393	July 20	80	511
Jackson, Harriet A., New York, N. Y. Remedies for the treatment of the skin, eye, and ear, and nervous and heart troubles and female complaints	30,590	Sept. 28	80	2035

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Jammes, Albert F., New York, N. Y. Perfumery and soap	30,408	July 20	80	513
Javarye Coffee Co., Portsmouth, Ohio. Coffee compounds	30,469	Aug. 3	80	808
Jonas, Arthur H., New York, N. Y. Aperient and laxative compounds	30,546	Sept. 14	80	1756
Jones & Co., W. H., Boston, Mass. Whisky	30,459	Aug. 3	80	805
Judson Pin Company, Rochester, N. Y. Pins	30,364	July 13	80	345
Judson Pin Company, Rochester, N. Y. Pins	30,365	July 13	80	345
Koenig Medicine Company, Chicago, Ill. Medicines	30,550	Sept. 14	80	1757
Königslow, Otto, Cleveland, Ohio. Bicycles	30,345	July 6	80	184
Kranz, John, Chicago, Ill. Chocolate creams	30,385	July 13	80	346
Landreth & Sons, D., Philadelphia and Bristol, Pa. Seed-peas	30,582	Sept. 28	80	2035
Lee, James A., New Iberia, La. Liniment for internal and external use	30,455	Aug. 3	80	805
Lehmer, James D., St. Louis, Mo. Preserved lemon-juice	30,515	Aug. 24	80	1270
Lighthiser, Charles H., Baltimore, Md. Crabs, lobsters, turtles, frogs, oysters, and fish, fresh and processed	30,432	July 27	80	650
Little & M. M. Schoetz Pulley Coating Co., O. C., Menasha, Wis. Pulley-coating	30,442	July 27	80	651
Livingston's Sons, A. W., Columbus, Ohio. Flower, garden, and field seeds	30,351	July 13	80	344
Loftus & Co., W. C., New York, N. Y. Men's wearing-apparel	30,453	Aug. 3	80	805
Longevity Apple Company, Omaha, Nebr. Hardy fruit-trees	30,396	July 20	80	511
Lord, Loren B., Burlington, Vt. Stock food in powdered form	30,410	July 20	80	513
Lozier Manufacturing Company, Toledo, Ohio. Bicycles, velocipedes, and articles accessory thereto	30,578	Sept. 21	80	1890
Lyon, Henrietta J., Newark, N. J. Corsets, dress-shields, and waists	30,478	Aug. 3	80	807
Lytle Manufacturing Co., Danville, Ill. Meat-curries	30,402	July 20	80	512
MacKenzie, John, Troy, N. Y. Floor-oils	30,557	Sept. 14	80	1757
Manhattan Cement Company, New York, N. Y. Portland cement	30,357	July 13	80	344
Maypole Company, Limited, London, England. Dyes	30,466	Aug. 3	80	806
Maypole Company, Limited, London, England. Soap for cleansing and dyeing	30,554	Sept. 14	80	1757
McCanna & Fraser Company, Burlington, Wis., and Philadelphia, Pa. Butter	30,481	Aug. 3	80	808
McConnon & Co., Winona, Minn. Tonic, alterative, and blood purifier	30,420	July 20	80	514
McFaddin & Co., H. G., New York, N. Y. Lamp-chimneys	30,495	Aug. 10	80	964
Meyberg, Maude, Chicago, Ill. Remedy for female complaints	30,588	Sept. 28	80	2035
Meyer & Lange, New York, N. Y. Coffee substitutes	30,375	July 13	80	346
Mitchell, Fletcher & Co., Philadelphia, Pa. Cereals, dried fruit, corn-starch, spices, and baking-powder	30,462	Aug. 3	80	806
Monarch Portland Cement Company, Bronson, Mich., and Cleveland, Ohio. Portland cement	30,358	July 13	80	344
Morrill, Estate of Charles, New York, N. Y. Saw-sets, bench-stops, punches, seal-presses, cutting-nippers, and similar hardware specialties	30,572	Sept. 21	80	1890
Müller, Antonio and A., Charlottenburg, Germany. Medicated confections	30,541	Sept. 14	80	1756
Müller, Arthur. (See Müller, Antonio and A.)				
Mulligan, Edward H., Corning, N. Y. Liniments	30,571	Sept. 21	80	1890
Mundell & Co., John, Philadelphia, Pa. Women's and children's shoes	30,485	Aug. 10	80	963
Muñoz, Gomez, New York, N. Y. Hair-tonics	30,343	July 6	80	183
Muscatine Oat Meal Company, Muscatine, Iowa. Rolled oats and oatmeal	30,471	Aug. 3	80	807
Murray Drug Company, Columbia, S. C. Remedy for use as a febrifuge, anodyne, and antipyretic	30,587	Sept. 28	80	2035
Nahm, Benedict, New York, N. Y. Compounds for female diseases	30,589	Sept. 28	80	2035
National Starch Manufacturing Company, Covington, Ky., and New York, N. Y. Corn-flour and corn-starch and laundry starch	30,327	July 6	80	182
Nave & McCord Mercantile Company, St. Joseph, Mo. Baking-powder	30,326	July 6	80	182
New York Biscuit Company, Chicago, Ill., and Newburyport, Mass. Biscuit, crackers, and pilot-bread	30,490	Aug. 10	80	963
New York Condensed Milk Company, Jersey City, N. J., and New York, N. Y. Milk, condensed milk, butter, cream, and cheese	30,378	July 13	80	346
Newton Manufacturing and Chemical Company, Jersey City, N. J., and New York, N. Y. Rat-poison	30,445	July 27	80	651
Noble, Estate of Charles, Philadelphia, Pa. Stoves	30,424	July 20	80	514
North, John, Toledo, Ohio. Laundry starch	30,556	Sept. 14	80	1757
O'Donohue's Sons, Joseph J., New York, N. Y. Coffee and tea	30,376	July 13	80	346
O'Meara, William P., Salt Lake City, Utah. Baking-powder	30,382	July 13	80	346
Ohio Gum Company, Lisbon, Ohio. Chewing-gum and artificial straws	30,396	July 20	80	512
Olmsted, Allen S., Le Roy, N. Y. Powders for the feet	30,551	Sept. 14	80	1757
Otsego Fork Mills Company, Limited, Girard, Pa. Agricultural and other forks, hoes, shovels, and rakes	30,526	Aug. 24	80	1270
Otto Kuehne Preserving Company, Topeka, Kans. Certain named table delicacies	30,401	July 20	80	512
Our Home Granula Co., Dansville, N. Y. Cereal warm drink of special preparation	30,516	Aug. 24	80	1270
Penn Manufacturing Company, Erie, Pa. Bicycles	30,476	Aug. 3	80	807
Perceval, Charles, New York, N. Y. Cheese	30,383	July 13	80	346
Pine Spring Water Company, Brunswick, Me. Ginger-ale	30,500	Aug. 17	80	1122
Plumer & Co., George, Boston, Mass. Fancy leathers	30,319	July 6	80	181
Pope Tube Company, Hartford, Conn. Metal tubing	30,395	July 20	80	512
Portland Packing Co., Portland, Me. Certain named canned goods	30,523	Aug. 24	80	1270
Portsmouth Shoe Company, Portsmouth, N. H. High-cut men's or women's shoes	30,479	Aug. 3	80	808
Power Brothers & Co. (See Power, Son & Co. and Power Brothers & Co.)				
Power, Son & Co., New York, N. Y., and Power Brothers & Co., London, England. Flour	30,405	July 20	80	512
Priesmeyer, William H., St. Louis, Mo. Borax	30,493	Aug. 10	80	964
Princess of Wales Company, New York, N. Y. Corsets, waists, stays, and similar articles	30,353	July 13	80	344
Procter & Gamble Company, Cincinnati, Ohio. Soap	30,568	Sept. 21	80	1889
Quesenberry, Daniel P., Gatesville, Tex. Weevil-exterminator	30,411	July 20	80	513
Ragsdale & Peck, Springfield, Tenn. Whisky	30,538	Sept. 14	80	1755
Reese, Durand A., Philadelphia, Pa. Emblems, badges, and jewels, and boxes or packages containing same	30,477	Aug. 3	80	807
Reliable Incubator and Brooder Company, Quincy, Ill. Incubators	30,482	Aug. 3	80	808
Retail Merchants Association of New Jersey, Paterson, N. J. Soap	30,569	Sept. 21	80	1889
Reynolds, Frank R., Eau Claire, Wis. Medicines for treating the eye	30,415	July 20	80	513
Reynolds, Sarah A., Port Huron, Mich. Cough-syrup	30,542	Sept. 14	80	1756
Riemann, Hermann, Chemnitz, Germany. Cycle-lanterns	30,475	Aug. 3	80	807
Robbins, William M., New York, N. Y. Bicycles and other cycles	30,560	Sept. 14	80	1758
Roberts & Co., A. F., New York, N. Y. Wheat-flour	30,381	July 13	80	346
Roger & Gallet, Paris, France. Toilet preparations, including soap, dentifrice, and hair restoratives	30,437	July 27	80	651
Roger & Gallet, Paris, France. Toilet preparations, including soap, dentifrice, and hair restoratives	30,438	July 27	80	651
Roger & Gallet, Paris, France. Toilet rice-powder	30,439	July 27	80	651
Rosenfeld & Co., M., Brooklyn, N. Y. Leather and imitation-leather upholstery goods and fringe	30,506	Aug. 24	80	1269
Rosskam, Gerstley & Co., Philadelphia, Pa. Whisky	30,435	July 27	80	650
Rosskam, Gerstley & Co., Philadelphia, Pa. Whisky, wines, gins, and brandies	30,436	July 27	80	650

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Royal Copenhagen Porcelain Manufactory, Copenhagen, Denmark. Goods of art, household wares, and luxury wares	30,487	Aug. 10	80	963
S. S. White Dental Manufacturing Company, Philadelphia, Pa., Chicago, Ill., New York and Brooklyn, N. Y., Boston, Mass., Atlanta, Ga., and Berlin, Germany. Dental and surgical burs	30,360	July 13	80	344
Scharff Brothers, St. Louis, Mo. Table-sauce	30,400	July 20	80	512
Schweinburg, Emil, New York, N. Y. Corsets	30,484	Aug. 10	80	963
Selden Cypress Door Company, Palatka, Fla. Cypress doors	30,355	July 13	80	346
Sell & Co., Ludwig, Munich, Germany. Powders, pastes, salves, and pills	30,503	Sept. 28	80	2036
Seville Packing Company, New York, N. Y. Pickled olives	30,384	July 13	80	345
Shoenberger Steel Company, Pittsburg, Pa. Horseshoes	30,483	Aug. 3	80	806
Smith & Co., Stephen, London, England. Liquors, cordials, and wines, including medicated preparations	30,540	Sept. 14	80	1756
Smith, Roland H., and H. K. L. Snyder, Pittsburg, Pa. Certain named liquors and beverages	30,371	July 13	80	344
Snyder, Henry K. L. (See Smith and Snyder.)				
Solinger & Co., New York, N. Y. Linens and cotton goods	30,505	Aug. 24	80	1269
Somers, Henry P., Norwich, Conn. Canned meats, fruits, and dairy products, such as butter and cheese	30,493	July 27	80	650
Speeder Cycle Company, New Castle, Ind. Bicycles, tricycles, tandems, and goods of identical character	30,449	July 27	80	652
Standard Oil Company of New York, New York, N. Y. Illuminating-oils	30,558	Sept. 14	80	1756
Stanley, Mary E., Watervliet, N. Y. Mayonnaise, a relish or salad-dressing	30,426	July 20	80	514
Stern, Lehman, Middletown, N. Y. Cough remedy	30,543	Sept. 14	80	1756
Strauss, Sachs & Co., New York, N. Y. Certain named articles of apparel and dry goods	30,497	Aug. 17	80	1122
Stroschein, Johann E., Berlin, Germany. Pharmaceutical preparations for the cure of chlorosis and all forms of anemia	30,338	July 6	80	183
Sweet Brothers, New York, N. Y. Hooks and eyes, buttons, pins, buckles, and similar garment-fasteners	30,509	Aug. 24	80	1269
Tempest, Mark, Olneyville, R. I. Salves, ointments, corn-cure, liniment, and kindred preparations	30,414	July 20	80	513
Thomas Manufacturing Company, Springfield, Ohio. Bicycles	30,447	July 27	80	651
Thompson, Samuel B., Los Angeles, Cal. Remedies for rheumatism and diseases of the liver and kidneys	30,418	July 20	80	514
Turner, Thomas J., Philadelphia, Pa. Tonics for brain and blood	30,584	Sept. 28	80	2035
Turner, Thomas J., Philadelphia, Pa. Remedies for diseases of the digestive organs	30,586	Sept. 28	80	2035
Turner, Thomas J., Philadelphia, Pa. Ointments	30,594	Sept. 28	80	2036
Turpin, Frank W., New Orleans, La. Roofing-cement	30,443	July 27	80	651
Ulrici, Charles J., New York, N. Y. Remedies for dyspepsia and stomach troubles	30,419	July 20	80	514
Union Pacific Tea Company, New York, N. Y. Cocoa, flavoring extracts, and condensed milk	30,377	July 13	80	346
United States Printing Company, Cincinnati, Ohio. Prints	30,536	Sept. 14	80	1755
Vacuum Oil Company, Rochester, N. Y. Oils for use upon wool and other like fibers	30,332	July 6	80	182
Vail Brothers, Philadelphia, Pa. Perfumery, waters, salts, powders, and soaps	30,367	July 13	80	345
Vaughan, Alice, Salem, Ill. Jellies, canned and preserved fruits, vegetables, and pickled edibles	30,398	July 20	80	512
Vereinigte Gummiwaaren-Fabriken Harburg-Wien, vormals Menier-J. N. Reithoffer, Harburg-on-the-Elbe, Germany. Bandaging material for use in dressing wounds, sores, &c	30,344	July 6	80	184
Walbridge, Charles E. and H., Buffalo, N. Y. Bicycles	30,579	Sept. 21	80	1890
Walbridge, Harry. (See Walbridge, Charles E. and H.)				
Wanamaker, John, Philadelphia, Pa. Bicycles	30,346	July 6	80	184
Ware Remedy Co., Dr. James, Lake Charles, La. Remedies for dyspepsia and derangements of the stomach and bowels	30,337	July 6	80	183
Waterbury Watch Company, Waterbury, Conn. Watches	30,561	Sept. 21	80	1889
Weisbrod & Hess, Philadelphia, Pa. Dark lager-beer	30,514	Aug. 24	80	1269
Weld Co., Brockport, N. Y. Confection used as a breath-perfume	30,460	Aug. 3	80	805
Weller, Samuel A., Zanesville, Ohio. Earthenware	30,463	Aug. 3	80	806
Wetmore & Pride Manufacturing Company, Chicago, Ill. Chewing-gum	30,510	Aug. 24	80	1269
Whitall Manufacturing Company, Lowell, Mass. Corset-covers, drawers, night-robes, skirts, chemises, and dressing-sacks	30,534	Sept. 14	80	1755
Whitman, Charles H., Los Angeles, Cal. Emulsion of cod-liver oil with hypophosphites lime and soda and guaical	30,585	Sept. 28	80	2035
Williams & Co., R. C., New York, N. Y. Canned and preserved fruits, vegetables, and fish, except salmon	30,399	July 20	80	512
Williams & Jackman, Lima, Ohio. Liniments, tonics, and blood purifiers	30,368	July 13	80	345
Wilson, George C., Tyrone, Pa. Salve	30,342	July 6	80	183
Wolff & Co., William, San Francisco, Cal. Whisky	30,539	Sept. 14	80	1755
Wood, John, Farmington, Mo. Remedy for eczema	30,417	July 20	80	514
Zenith Wall Plaster and Finish Company, Minneapolis, Minn. Wall plaster and finish	30,444	July 27	80	651

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Bergner & Engel Brewing Company, Philadelphia, Pa. "Old Stock Lager"	6,550	July 27	80	524
Francis, John H., Jr., Peoria, Ill. "Francis Original and Only Silk Molasses Candy"	6,551	July 27	80	524
Mellwood Distillery Company, Louisville, Ky. "Runnymede Club Whiskey"	6,552	Aug. 17	80	972
Mellwood Distillery Company, Louisville, Ky. "Runnymede Club Pure Rye"	6,553	Aug. 17	80	972
Mellwood Distillery Company, Louisville, Ky. "Mellwood Whiskey"	6,554	Aug. 17	80	972
Mellwood Distillery Company, Louisville, Ky. "Runnymede Club Bourbon"	6,555	Aug. 17	80	972
Rocky Ford Melon Growers Association, Rocky Ford, Colo. "Registered Label of the Rocky Ford Melon Growers Association"	6,556	Aug. 31	80	1210

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
American Lithographic Company, New York, N. Y. "American Beauty." (For Cigars)	53	Aug. 3	80	664

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abrasive materials. Applying	W. L. Kann	588,441	Aug. 17	2048	477	80	1076
Accumulator-battery	J. V. and H. H. Sherrin	588,189	Aug. 17	1616	371	80	996
Acetanilid. Manufacturing	F. W. A. Frerichs	586,551	July 20	1675	390	80	369
Acid and making it. Naphthylenediamin-sulfo	I. Rosenberg and F. Krecke	587,757	Aug. 10	842	.....	80	842
Acid and making same. Trimethylbenzyl-uric	E. Fischer	588,412	Aug. 17	1998	.....	80	1067
Acid. Apparatus for producing carbonic	G. Tresenreuter	588,037	Aug. 10	1337	310	80	980
Acid. Obtaining oxalic	G. F. Zacher	587,777	Aug. 10	872	.....	80	848
Adding-machine	C. H. Bigelow	588,260	Aug. 17	1734	398	80	1018
Adding-machine	W. J. Ensworth	588,409	Aug. 17	1994	462	80	1066
Adding-machine	W. J. Ensworth	590,097	Sept. 14	1172	277	80	1715
Adding-machine	F. H. Richards	590,277	Sept. 21	1501	355, 356	80	1791
Adjustable spring	J. Wichmann	586,645	July 20	1850	430	80	401
Adjustable table	E. E. Bennett	589,461	Sept. 7	97	21	80	500
Adjustable wrench	W. J. Jones	587,972	Aug. 10	1234	286	80	911
Advertisements. Machine for exhibiting movable	H. L. Peters	588,172	Aug. 17	1589	367	80	992
Advertising apparatus. Automatic	A. W. Kirkpatrick	586,500	July 13	1568	366	80	319
Advertising-card	C. F. Engstrom	588,636	Aug. 24	2415	556	80	1164
Advertising-clock	J. A. Peterson and W. F. Kelsey	586,366	July 13	1340	308	80	276
Advertising device	W. G. Hingher	587,122	July 27	2699	634	80	582
Advertising form. Corset	D. Kops	587,553	Aug. 3	484	114	80	754
Advertising-vehicle	C. S. Stafford	588,788	Aug. 24	2675	618, 619	80	1214
Aerating and refrigerating liquids. Means for	G. Mills	587,987	Aug. 10	1256	290	80	915
Aerator. Milk	W. H. Young	589,774	Sept. 7	608	140	80	1597
Aging liquors artificially. Process of and apparatus for	D. J. Ely	590,306	Sept. 21	1561	370	80	1802
Air-brake	W. K. Omick	588,913	Aug. 24	2000	679	80	1256
Air-brake alarm-cock	A. McIntosh	589,265	Aug. 31	3022	826	80	1393
Air-brake coupling	F. G. Buckpitt	589,957	Sept. 14	914	219	80	1667
Air-brake slack-adjuster	W. K. Connees	587,519	Aug. 3	424	100	80	742
Air-brake mechanism	E. A. Trapp	586,927	July 6	506	121	80	99
Air-car	A. Brodbeck	586,590	July 20	1750	406	80	382
Air compressing and cooling apparatus	J. Flindall	585,955	July 6	558	131	80	108
Air-compressing apparatus	E. C. Nichols	589,190	Aug. 31	3381	794, 795	80	1365
Air-compressor	W. H. Knight	586,100	July 13	915	205	80	196
Air-compressor	A. Shedlock	586,669	July 20	1876	437	80	406
Air-compressor	I. H. Spencer	588,296	Aug. 17	1799	416	80	1030
Air-cooling apparatus	A. S. Haslam	586,766	July 20	2039	474	80	436
Air cooling, cleansing, and ventilating device	J. McCreery	586,363	July 13	1336	306, 307	80	275
Air cooling, cleansing, and ventilating device	J. McCreery	586,365	July 13	1339	308	80	276
Air-motor	J. H. Hoadley	586,127	July 13	957	215	80	204
Air-purifying apparatus	C. J. H. Woodbury	589,772	Sept. 7	599	140	80	1595
Air-ship	T. M. Crepar	588,556	Aug. 24	2255	524	80	1133
Alarm: *See* Bicycle-alarm. Burglar-alarm. Electric alarm. Electropneumatic alarm. Fire-alarm. Gas-alarm.							
Alkaline metals. Producing hydrates or other salts of	C. Kellner	590,548	Sept. 21	1974	465	80	1879
Alkaline silicates and nitric acid. Making	W. Garroway	590,143	Sept. 14	1269	300	80	1733
Alloy	F. A. Cothias	586,094	July 13	904	.....	80	194
Alloy	F. A. Cothias	586,095	July 13	905	.....	80	194
Alloy	F. A. Cothias	586,116	July 13	939	.....	80	200
Alloy	F. A. Cothias	586,163	July 13	1015	.....	80	215
Alloy	A. F. Cothias	589,985	Sept. 14	885	.....	80	1660
Alloy	F. A. Ellis	587,308	Aug. 3	42	.....	80	674
Alloy. Silicon	G. de Chalmot	589,415	Sept. 7	28	.....	80	1487
Amalgam-washing apparatus	H. C. F. Stormer	586,635	July 20	1835	426	80	398
Amalgamating apparatus	T. E. Teegarden	586,324	July 13	1268	289, 290	80	263
Amalgamating. Art of and apparatus for	W. A. Thacher	590,504	Sept. 21	1884	448	80	1863
Amalgamating-machine	A. Allen	590,291	Sept. 21	1527	362	80	1796
Amalgamator and concentrator	T. G. Barlow-Massicks	585,812	July 6	284	66	80	59
Ammonia. Purifying	F. W. A. Frerichs	586,950	July 20	2373	561	80	500
Ammunition. Subcaliber	F. J. Rabbeth	587,857	Aug. 10	1025	237	80	872
Amusement apparatus	W. Wharton, Jr	586,718	July 20	1957	456	80	421
Amusement apparatus	W. Wharton, Jr	586,983	July 27	2437	576	80	584
Amusement apparatus	P. G. Williams	590,783	Sept. 28	2401	570, 571	80	1971
Anchor	D. Hoyt	588,767	Aug. 24	2654	612	80	1210
Animal-guard	I. B. Taylor	587,466	Aug. 3	329	79	80	736
Animal-holding apparatus	J. Ralston	589,615	Sept. 7	352	86	80	1548
Animal-trap	J. W. Anderson	587,255	July 27	2950	693	80	631
Animal-trap	T. E. Anderson	590,032	Sept. 14	1000	250	80	1603
Animal-trap	A. Frey	587,548	Aug. 3	477	111	80	753
Animal-trap	J. W. Greene	590,756	Sept. 28	2348	556	80	1902
Animal-trap	W. B. Hargan	590,723	Sept. 28	2293	542	80	1951

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol	Page.
Animal-trap	W. H. McWhirter	588,167	Aug. 17	1575	303	80	989
Animal-trap	J. W. West	587,894	Aug. 10	1088	250	80	883
Annealing-furnace	J. Timms	586,883	July 20	2218	521, 522	80	471
Annealing plant	F. I. Freeman	589,507	Sept. 7	319	79, 80	80	1542
Annunciator. Switchboard	N. H. Holland	587,204	July 27	2854	670	80	612
Annunciator system	E. H. Owen, C. N. Williams, and F. H. Donaldson.	589,747	Sept. 7	563	132	80	1589
Anvil. Guide	J. L. Thomson	588,505	Aug. 17	2163	502	80	1098
Arbor and attachment for holding articles to be polished and finished.	C. H. Bartlett	587,170	July 27	2806	658	80	602
Arbor. Supporting	Z. R. Tucker	586,210	July 13	1092	246	80	229
Arc-light holder	C. A. Haney	586,435	July 13	1462	338	80	299
Arch center	G. A. Schillinger	586,870	July 20	2201	515	80	467
Arch for culverts. Metal	R. Gray	587,392	Aug. 3	189	47, 48	80	702
Arm-rest for school-chairs, &c	C. F. Haynes	585,913	July 6	477	115	80	94
Armature	S. H. Short	587,871	Aug. 10	1052	243	80	877
Armature for dynamo-electric machines	S. H. Short	587,765	Aug. 10	853	201	80	845
Armature for induction-motors	A. L. Cushman	588,692	Aug. 24	2511	579	80	1182
Armature-windings. Wire for	S. H. Short	587,764	Aug. 10	852	201	80	845
Armature for electrical generators and motors	B. G. Lamme	589,839	Sept. 14	714	167	80	1631
Ash-conveying apparatus	F. J. Weber	588,518	Aug. 17	2185	507, 508	80	1102
Ashes. Device for handling locomotive	J. M. Wallis and G. W. Strattan	586,581	July 20	1735	404	80	380
Ashes. Receptacle for holding tobacco	F. R. Baker	589,152	Aug. 31	3330	782, 783	80	1355
Atomizer	H. B. Weaver	587,890	Aug. 10	1080	249	80	882
Autographic register	C. E. Bechtel	590,638	Sept. 28	2140	506, 507	80	1924
Autographic register	H. C. Blette	587,422	Aug. 3	239	59	80	711
Autographic register	W. H. Breakspear, O. Spannaus, and C. Weisbecker.	587,567	Aug. 3	508	120, 121	80	758
Autographic register	T. F. Schirmer	588,359	Aug. 17	1901	440	80	1049
Autoharp	J. A. Taylor and W. Eschemann	588,366	Aug. 17	1913	443	80	1051
Automatic gate	D. F. Baker	585,881	July 6	416	100	80	83
Automatic gate	J. L. Kreider	589,837	Sept. 14	711	167	80	1631
Automatic switch	A. E. Burland	587,277	July 27	2995	702	80	639
Automatic switch	G. T. Pratt	585,890	July 6	434	105	80	86
Awning	L. T. Hagan	589,257	Aug. 31	3513	824	80	1391
Awning-ventilator	H. J. Lentz and A. J. Robinson	590,706	Sept. 28	2258	534	80	1945
Ax	J. B. Latimer	588,072	Aug. 10	1394	324	80	941
Axle box. Car	W. H. Hancock	585,753	July 6	186	43	80	39
Axle-box dust-guard. Vehicle	J. Loesewitz	589,211	Aug. 31	3415	801	80	1371
Axle-box lid	N. H. Davis	588,960	Aug. 31	2979	698	80	1298
Axle-box-reaming machine	R. R. Spears	585,715	July 6	105	26, 27	80	23
Axle. Buggy	L. M. Presnall	590,490	Sept. 7	125	28	80	1505
Axle for vehicles. Antifriction	S. W. Taylor	588,092	Aug. 10	1326	307	80	928
Axle-lubricator	T. T. Watts	589,451	Sept. 7	83	18	80	1497
Axle lubricator. Car	J. Donovan	587,188	July 27	2832	664	80	607
Axle lubricator. Car	J. S. Patten	586,272	July 13	1178	270	80	245
Axle lubricator. Car	J. S. Patten	586,564	July 20	1699	394, 395	80	378
Axle lubricator. Railway	W. Silver	588,947	Aug. 17	1712	393	80	1015
Axles. Means for securing vehicle-irons to	T. L. Bosart	585,735	July 6	149	34	80	32
Axle-skein	A. A. March	589,605	Sept. 7	337	83	80	1545
Axle sleeve. Vehicle	B. F. Westmoreland and R. H. Babington.	588,759	Aug. 24	2644	610	80	1208
Axle. Vehicle spring	J. and J. McTurk	590,234	Sept. 21	1431	337	80	1778
Back. Adjustable	A. Mauchain	590,045	Sept. 14	1076	254	80	1696
Back-support	J. Stretch	586,674	July 20	1888	439	80	408
Bag: *See* Bicycle tool-bag. Feed-bag. Hot-water bag. Mail-bag. Nose-bag. Paper bag. Telescope-bag. Water-bag. Water-tight bag.							
Bag-fastener	J. A. Law	588,717	Aug. 24	2557	591	80	1191
Bag-fastener	T. J. P. Maus	588,802	Aug. 24	2715	630	80	1220
Bag-fastener	N. F. Wightman	588,848	Aug. 24	2795	650	80	1235
Bag-holder	J. Littlejohn	588,078	Aug. 10	1395	325	80	941
Bag-lock	H. S. Gaskill	586,792	July 20	2075	483	80	443
Bag or purse frame	C. Hiering and A. Fuller	588,334	Aug. 17	1864	431	80	1042
Bag-tie	A. Davison	588,855	Aug. 24	2804	652	80	1237
Bait. Artificial	H. R. Osborn	586,620	July 20	1806	419	80	394
Bake-pan. Covered	N. Strack	589,229	Aug. 31	3438	806	80	1375
Balance-wheels. Construction of	J. W. Sargent	590,554	Sept. 21	1987	468	80	1881
Bale-band machine	P. K. Dederick	586,331	July 13	1291	295	80	266
Bale-band machines. Straightening and cutting attachment for	P. K. Dederick	587,590	Aug. 3	426	100	80	742
Bale-tie	J. C. Edinger and F. M. Crane	586,682	July 20	1900	442	80	411
Bale-tie	C. C. Warren	588,514	Aug. 17	2179	505	80	1101
Bale-tie. Adjustable	P. K. Dederick	586,839	July 20	2152	503	80	457
Bale-tie machine. Electric	W. O. Bates and W. J. Hutchins	587,296	Aug. 3	10	3	80	667
Bale-ties. Machine for forming hooked heads on wire	G. Lehberger	585,823	July 6	307	72	80	62
Bales. Method of and apparatus for compressing	S. R. Montgomery	590,158	Sept. 14	1295	307, 308	80	1739
Baling apparatus. Cotton	C. L. Melcher	590,110	Sept. 14	1196	281, 282	80	1719
Baling-press	H. Albrecht and J. R. Bitner	588,938	Aug. 31	2941	688	80	1281
Baling-press	P. K. Dederick	586,332	July 13	1292	295	80	266
Baling-press	J. D. Lane and W. S. James	586,191	July 13	1055	238	80	221
Baling-press. Roller	J. F. Swinnerton	586,574	July 20	1721	401	80	377
Ball: *See* Inflatable ball. Return-ball.							
Ball-coupling for railway-wagons. Automatic	H. F. Oberläuter	587,061	July 27	2588	610	80	561

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol	Page.
Ball-float	G. B. Moore	588,461	Aug. 17	2082	495	80	1033
Band-cutter and feeder	J. P. Olson and O. Isaacson	589,534	Sept. 7	212	51	80	1522
Bandage-cutting machine	J. R. Volz	588,844	Aug. 24	2787	647, 648	80	1234
Bandaging material. Sterilizing and packing	F. Achenbach	585,645	July 6	1	1	80	3
Bar: *See* Bicycle handle-bar. Car draw-bar. Rail splice-bar. Spring-bar. Velocipede handle-bar.							
Bar-actuating device	W. R. Roney, W. W. Churchill, and J. T. Arnold.	586,976	July 27	2427	574	80	532
Barrel, &c	G. W. Bigley	589,494	Sept. 7	148	33	80	1509
Barrel-cleaner	E. O. French	585,841	July 6	353	82	80	70
Barrel-closure	R. G. Guerard	586,178	July 13	1037	234	80	218
Barrel-filler	W. A. Smith	586,077	July 6	869	195	80	169
Barrel-head	J. F. Adams	588,763	Aug. 24	2649	611	80	1209
Barrel-head	T. R. Howard	589,790	Sept. 7	612	142	80	1598
Barrel Knockdown	F. W. C. Schäperkötter	590,810	Sept. 28	2444	551	80	1960
Barrel vent and bushing. Combined	F. W. Schlager	587,613	Aug. 3	594	144	80	774
Base-ball pitchers. Device for use of	E. J. Prindle	590,113	Sept. 14	1207	283	80	1721
Basement-light	F. C. Soper	586,252	July 13	1150	262	80	240
Basin-clamp	H. Mueller	589,196	Aug. 31	3301	776	80	1349
Basin. Portable shampooing	J. H. Haines	590,583	Sept. 28	2480	560	80	1967
Basket-making machine	E. Horton	587,734	Aug. 10	804	189, 190	80	835
Basket. Wire	A. J. Munger	586,342	July 13	1303	298	80	269
Bath: *See* Electric bath.							
Bath-tub basin attachment	H. Biddle	586,415	July 13	1428	330	80	293
Batteries. Application of solar heat to thermo	H. C. Reagan, Jr	588,177	Aug. 17	1598	369	80	998
Batteries. Automatic switch for charging or discharging secondary	A. S. Hubbard	589,128	Aug. 31	3290	774	80	1346
Battery: *See* Accumulator-battery. Electric battery. Electric storage or secondary battery. Galvanic battery. Primary battery. Secondary battery. Storage battery.							
Battery plates. Active material for secondary	S. A. Rosenthal	586,027	July 20	1821		80	396
Battery plugs. Machine for making storage	C. Potter	590,557	Sept. 28	2521	601, 602	80	1905
Beaming attachment	O. W. Schaum	585,878	July 6	413	99	80	82
Beaming-machine	R. Mochrie	587,396	Aug. 3	197	49	80	704
Bearing	J. W. Sheard and J. Done. (Reissue.)	11,630	Sept. 21	1995	470	80	1882
Bearing. Adjustable	E. J. Muller	589,137	Aug. 31	3302	776, 777	80	1349
Bearing. Axle-box	W. B. Smith	589,625	Sept. 7	366	90	80	1551
Bearing. Ball	G. M. Beard	590,203	Sept. 21	1370	323	80	1767
Bearing. Ball	W. Hoag	586,769	July 20	2043	476	80	437
Bearing. Ball	W. F. Lee	587,446	Aug. 3	295	71	80	720
Bearing. Ball	H. Leitelt	589,474	Sept. 7	114	26	80	1503
Bearing. Ball	T. J. Reid	590,627	Sept. 28	2111	500	80	1918
Bearing. Ball	G. T. Warwick	590,713	Sept. 28	2275	538	80	1948
Bearing. Ball	G. Wood	586,921	July 20	2317	545	80	489
Bearing. Cone	R. G. Cornforth	590,034	Sept. 14	1062	251	80	1694
Bearing for bicycles. Dust-proof ball	L. H. Cobb	589,204	Aug. 31	3407	799	80	1369
Bearing for car-journals. Roller	W. J. Tripp	587,248	July 27	2837	669	80	628
Bearing for king-bolts for vehicles	T. L. Bosart	590,251	Sept. 21	1462	344	80	1784
Bearing. Roller	G. J. S. Collins	585,909	July 6	471	114	80	93
Bearing. Roller	J. R. Richardson	588,537	Aug. 24	2777	644	80	1232
Bearing. Side	E. S. Marshall	587,152	July 27	2733	640	80	589
Bearing. Step	T. H. Springer	588,117	Aug. 10	1483	342	80	957
Bearings. Oil retainer and distributer for hollow rolls of roller	T. J. Tellefsen and C. S. Lockwood	588,667	Aug. 24	2475	589	80	1176
Beating-engine	T. P. Flaherty	586,382	July 13	1368	315	80	280
Bed	G. W. Bent	589,230	Aug. 31	3472	814	80	1383
Bed attachment	D. B. Ware	588,622	Aug. 24	2388	548	80	1159
Bed-bottom. Spring	A. H. Freese	589,942	Sept. 14	893	213	80	1662
Bedclothes-holder	D. E. Morgan	590,401	Sept. 21	1717	404	80	1832
Bedclothing-retainer	C. F. Heath	586,427	Aug. 17	2023	470	80	1072
Bed-cover controller	L. H. Goodwin	590,005	Sept. 14	1024	240	80	1696
Bed-fastening	S. B. Regester	588,475	Aug. 17	2111	491	80	1088
Bed. Folding	J. P. Hayes	590,395	Sept. 21	1704	401	80	1830
Bed. Folding	E. A. Ohliger	587,853	Aug. 10	1017	235, 236	80	871
Bed. Folding table	P. T. South	585,794	July 6	256	59	80	52
Bed. Hot-air and vapor	N. N. Hay	586,386	July 6	799	178, 179	80	156
Bed. Invalid	P. Jermain	587,796	Aug. 10	809	191	80	836
Bed. Invalid's	H. A. Ames	585,646	July 6	2	1	80	3
Bed-lock	A. E. Kenney	590,042	July 6	806	180	80	158
Bed-lounge	L. G. Beloud	589,950	July 27	2396	565	80	526
Bed or crib. Folding	P. E. Dornan	586,333	July 13	1294	296	80	267
Bed-pan	C. Voorhies	586,749	July 20	2010	468	80	432
Bed-slat	J. B. Ryah and E. R. Weber	587,864	Aug. 10	1035	239	80	873
Bed. Spring	G. H. McBride	585,691	July 6	71	17	80	17
Bedstead	W. S. Foster	586,550	July 20	1674	390	80	369
Bedstead	A. E. Jacobson	590,365	Sept. 21	1481	349	80	1788
Bedstead	M. S. Keeler	588,442	Aug. 17	2049	477	80	1077
Bedstead	A. E. Strang	589,316	Aug. 31	3752	874	80	1442
Bedstead. Folding	W. D. Snyder	587,495	Aug. 3	381	90	80	734
Bedstead and frame. Folding	H. A. Kean	585,846	July 6	364	84	80	73
Bedstead and mattress-frame therefor	F. G. Gale	585,666	July 6	37	9	80	10
Bedstead-lock	G. H. Cline	586,948	July 20	2371	560	80	499
Bedstead-securing device	W. E. Cross	589,960	Sept. 14	925	220	80	1668

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Beehive. Self-hiving	A. Duncan	590,366	Sept. 21	1657	391	80	1691
Beer-drawing apparatus	H. Metzger	587,844	Aug. 10	1007	233	80	866
Beer. Method of and apparatus for treating	O. Zwietusch	589,065	Aug. 31	3151	742	80	1322
Beer-pipe cleaner	P. F. Gaynor	588,418	Aug. 17	2009	466	80	1060
Bell	S. Jevons and W. Collins	589,897	Sept. 14	823	193 194	80	1649
Bell. Bicycle	I. H. Abell and G. W. Goff	590,814	Sept. 28	2451	582	80	1961
Bell. Bicycle	J. G. Dunton and T. V. Lilly	590,433	Sept. 21	1773	416	80	1842
Bell. Bicycle	P. Flucks and G. F. McDonnell	590,659	Sept. 28	2176	516	80	1931
Bell. Bicycle	J. S. Foley and J. H. Birch	588,800	Aug. 24	2813	654	80	1239
Bell. Bicycle	W. E. Gard	588,890	Aug. 24	2745	637	80	1226
Bell. Bicycle	W. E. Hammond	587,578	Aug. 3	536	126	80	704
Bell. Bicycle	H. G. Martin	586,954	July 20	2383	563	80	502
Bell. Bicycle	J. Ostermann	585,790	July 6	233	54	80	48
Bell. Bicycle	W. A. Penfield	589,220	Aug. 31	3497	804	80	1373
Bell. Bicycle	W. A. Penfield	590,854	Sept. 28	2515	600	80	1994
Bell. Bicycle	H. S. Pullman	587,137	July 27	2745	644	80	591
Bell. Bicycle	H. S. Pullman	589,752	Sept. 7	570	133	80	1591
Bell. Bicycle	W. G. Rankin	590,593	Sept. 28	2056	487	80	1908
Bell. Bicycle	C. Rosenholz and J. W. Carlson	586,344	July 13	1305	299	80	209
Bell. Bicycle	A. A. Wolcott	587,665	Aug. 3	671	160	80	789
Bell. Door	I. M. Hoffman	590,414	Sept. 21	1741	409	80	1836
Bell door-knob	E. H. Kinnaman and B. F. Flouers	590,192	Sept. 14	1353	319	80	1750
Bell. Electric	J. T. O'Brien	587,062	July 27	2589	611	80	561
Bell-striking mechanism	G. M. Stevens	585,718	July 6	115	28	80	26
Belt	L. B. Bronson and J. Parmenter	587,386	Aug. 3	164	45	80	700
Belt and gun-case. Combined	J. H. Gates	586,533	July 13	1644	388	80	334
Belt-applying device	F. A. Savage and M. G. Wade	588,838	Aug. 24	2778	644	80	1232
Belt-coupling	J. C. Hoshor	587,966	Aug. 10	1225	284	80	909
Belt-coupling	S. Knowles	586,338	July 13	1300	297	80	208
Belt-fastener	J. Boucher	590,356	Sept. 21	1645	387	80	1819
Belt-fastener	D. von Vital	587,025	July 27	2520	592	80	549
Belt for sprocket-wheels. Driving	E. A. Parker	590,461	Sept. 21	1813	427	80	1849
Belt-pin	B. G. Clark	590,358	Sept. 21	1646	388	80	1819
Belt-shifter	H. A. Fergusson and A. J. Kline	588,967	Aug. 31	2991	703	80	1291
Belt-shifter	F. Lombard	587,041	July 27	2548	600	80	554
Belt-tightener	W. L. Chipley	590,208	Sept. 21	1392	328	80	1771
Belt-tightener	J. Howard and O. B. Frazier	587,205	July 27	2856	670	80	612
Belt-tightener	A. F. Snyder	587,877	Aug. 10	1002	244	80	878
Bench: *See* Gas-retort bench. Washbench.							
Bending-machine	J. F. Doolittle	589,167	Aug. 31	3347	786 787	80	1358
Berry-box. Folding	D. W. Leatherman	589,840	Sept. 14	715	168	80	1631
Berth register. Sleeping-car	S. C. Skanks	587,165	July 27	2796	656 657	80	600
Bicycle	I. F. Alger	589,920	Sept. 14	960	205	80	1656
Bicycle	W. T. Barker	586,002	July 6	747	167	80	147
Bicycle	H. F. Blank	588,628	Aug. 24	2396	551	80	1160
Bicycle	M. Côté and A. Vuillier	587,116	July 27	2682	632	80	579
Bicycle	E. Dederick	586,596	July 20	1763	409	80	385
Bicycle	A. Durey and L. Schréiner	589,941	Sept. 14	892	213	80	1662
Bicycle	J. H. Eickershoff	588,606	Aug. 24	2521	582 583	80	1184
Bicycle	C. R. Harris	588,274	Aug. 17	1758	407	80	1023
Bicycle	H. W. Henneberg	587,550	Aug. 3	481	113	80	754
Bicycle	H. W. Hoeft	588,109	Aug. 10	1470	340	80	954
Bicycle	F. W. Mallett	586,611	July 20	1790	415	80	391
Bicycle	T. D. and A. S. McCall	587,992	Aug. 10	1267	292 293	80	917
Bicycle	J. J. Naregang	589,743	Sept. 7	553	131	80	1588
Bicycle	G. P. Ohlgart	589,394	Aug. 31	3683	905	80	1466
Bicycle	W. J. Pine	589,750	Sept. 7	567	133	80	1590
Bicycle	A. Prager	586,367	July 13	1342	308	80	276
Bicycle	J. C. Raymond	588,472	Aug. 17	2108	490	80	1068
Bicycle	W. F. Stoll	587,069	July 27	2601	615	80	564
Bicycle	W. M. Sutton	585,719	July 6	117	28	80	26
Bicycle	W. Turner	590,732	Sept. 28	2307	545	80	1954
Bicycle air-pump	J. G. Foote	589,711	Sept. 7	507	121	80	1579
Bicycle-alarm	W. E. Crump	586,420	July 13	1434	331	80	294
Bicycle-alarm	R. and A. Hartmann and G. F. Reinhard.	588,573	Aug. 24	2285	530	80	1139
Bicycle attachment	W. P. Brodbeck	588,551	Aug. 24	2249	522	80	1132
Bicycle attachment	W. C. Burbank	586,591	July 20	1751	406	80	382
Bicycle attachment. Self-balancing	J. B. Erwin	590,568	Sept. 28	2012	474	80	1901
Bicycle-balancer	D. J. Reardon	587,859	Aug. 10	1090	238	80	873
Bicycle-brake	F. J. Coombs	587,185	July 27	2827	663 664	80	606
Bicycle-brake	E. and C. K. Davis	590,700	Sept. 28	2250	533	80	1944
Bicycle-brake	T. S. Miller	587,104	July 27	2658	627	80	575
Bicycle-brake	M. L. Nichols	586,142	July 13	984	221	80	209
Bicycle-brake	E. D. Rockwell	586,088	Aug. 10	1419	330	80	945
Bicycle-brake	J. L. Sackett	587,611	Aug. 3	591	143	80	774
Bicycle-brake	W. D. Smith	588,023	Aug. 10	1314	304	80	926
Bicycle-brake	C. J. Staberg and C. J. Pihl	590,489	Sept. 21	1860	440	80	1858
Bicycle-brake	C. F. Steele and A. J. White	588,538	Aug. 17	2225	517	80	1110
Bicycle canopy attachment	F. Ehmann	587,569	Aug. 3	512	121	80	759
Bicycle-carrier	E. Bonham	586,266	July 13	1172	268	80	244
Bicycle chain adjustment	W. L. Decker	587,710	Aug. 10	764	180	80	827
Bicycle change-gear	B. T. Nedland and C. Fredrickson	589,266	Aug. 31	3523	827	80	1394
Bicycle change-gearing	V. Bélanger	590,126	Sept. 14	1238	293 294	80	1727
Bicycle connection	M. B. Peugnet	590,667	Sept. 28	2231	529	80	1940
Bicycle construction	J. F. Black	589,240	Aug. 31	3473	814	80	1353
Bicycle crank-hanger	W. R. Bell	587,384	Aug. 3	181	45	80	700
Bicycle crank-hanger	F. P. Burnham and J. D Alsup	589,496	Sept. 7	150	33	80	1510

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Bicycle crank-hangers. Mechanism for making	N. E. Parish	588,804	Aug. 24	2720	631	80	1221
Bicycle-crank pedal	J. F. Wilkinson	590,557	Sept. 21	1998	469	80	1883
Bicycle crank-shaft	J. S. Alcorn	590,695	Sept. 28	2241	531	80	1942
Bicycle crank-shaft	H. L. Flint and G. W. Gregory	589,709	Sept. 7	502	120	80	1578
Bicycle cyclometer attachment	F. Mackintosh	587,010	July 27	2484	585	80	543
Bicycle-fastener	C. F. Carlson	589,336	Aug. 31	3779	862	80	1447
Bicycle-fitting	C. S. Smith	587,337	Aug. 3	104	26	80	695
Bicycle flagstaff-holder	G. E. Koch and C. Rehm	589,961	Aug. 31	3518	825	80	1393
Bicycle foot-rest	E. Mercier	585,963	July 6	573	134	80	111
Bicycle foot-rest	W. W. Nisbet	588,573	Aug. 24	2385	659 660	80	1243
Bicycle-fork	L. Sturges	589,147	Aug. 31	3323	781	80	1353
Bicycle fork-crown	A. T. Matthews	587,964	Aug. 10	1250	289	80	914
Bicycle fork-crown cover-plate	C. S. Smith	588,190	Aug. 17	1617	372	80	997
Bicycle-frame	H. Cooper	589,305	Aug. 31	3408	799	80	1369
Bicycle-frame	J. Spruce and C. H. Kellermann	589,808	Sept. 14	756	177	80	1639
Bicycle-frame	A. F. Temple	586,639	July 20	1689	427	80	399
Bicycle-frame	A. F. Temple	589,950	Sept. 14	906	217	80	1665
Bicycle gear-case	H. J. Buell	588,194	Aug. 17	1406	344 345	80	973
Bicycle gear-case	H. J. Buell	588,334	Aug. 17	1964	454	80	1061
Bicycle-gearing	M. L. Nichols	586,141	July 13	983	221	80	208
Bicycle guide and lantern-bracket	F. G. Smith	588,495	Aug. 17	2146	499	80	1094
Bicycle-handle	P. Stein	586,371	July 13	1346	310	80	277
Bicycle-handle. Adjustable	F. Vollmer	587,626	Aug. 3	616	148	80	778
Bicycle-handle. Adjustable detachable	M. Wallis	586,468	July 13	1517	355	80	309
Bicycle-handle attachment	J. Godfrey	586,897	July 20	2264	531	80	479
Bicycle handle-bar	C. C. Candy	589,418	Sept. 7	26	7	80	1486
Bicycle handle-bar	L. H. Cobb	586,162	July 13	1015	228	80	215
Bicycle handle-bar	J. H. La Fave	590,894	Sept. 28	2592	618	80	2010
Bicycle handle-bar	S. Palmiter	589,671	Sept. 7	439	105	80	1565
Bicycle handle-bar	A. F. Temple	589,045	Aug. 31	3123	735	80	1316
Bicycle handle-bar	J. G. Walsh	586,678	July 20	1804	441	80	409
Bicycle handle-bar. Adjustable	J. Dickson	586,307	July 13	1229	281	80	255
Bicycle handle-bar. Adjustable	H. Muir	585,690	July 6	70	17	80	16
Bicycle handle-bar. Adjustable	J. J. Rexroth	588,242	Aug. 17	1706	391	80	1014
Bicycle handle-bar. Detachable and adjustable	G. W. Mosier	590,402	Sept. 21	1718	404	80	1832
Bicycle-handle-bar fastening	R. Dawes	587,938	Aug. 10	1174	271	80	899
Bicycle handle or grip	G. W. Williams	586,830	July 20	2139	500	80	454
Bicycle-hanger	A. B. Pruden	590,773	Sept. 28	2387	567	80	1969
Bicycle-holder	J. F. Bengert	587,917	Aug. 10	1426	259	80	890
Bicycle-holder	G. W. Douglas	586,681	July 20	1899	442	80	411
Bicycle-holder	S. Elliott	587,945	Aug. 10	1189	275 276	80	902
Bicycle-lamp support	L. J. Atwood	587,912	Aug. 10	1117	257	80	889
Bicycle-lock	E. J. Baker	589,491	Sept. 7	143	32	80	1508
Bicycle-lock	F. A. Clarry	590,803	Sept. 28	2433	577	80	1978
Bicycle-lock	P. A. Chevalier	587,793	Aug. 10	901	211	80	852
Bicycle-lock	W. Melvin	589,440	Sept. 7	68	15	80	1494
Bicycle-lock	W. F. Stearns	589,869	Sept. 14	760	177	80	1639
Bicycle mud-guard	N. Hoyt	588,922	Aug. 24	2914	682	80	1259
Bicycle or other vehicle	J. H. Eickershoff	588,607	Aug. 24	2519	581 582	80	1184
Bicycle or other velocipede	L. Sturges	586,880	July 20	2213	520	80	460
Bicycle or tricycle attachment	H. Schneider	589,305	Aug. 31	3788	870	80	1440
Bicycle or vehicle brake	F. Ecaubert	588,270	Aug. 17	1753	406	80	1022
Bicycle or velocipede saddle	J. W. and G. D. Upson	588,089	Aug. 10	1339	311	80	980
Bicycle parcel-carrier	C. H. Stephenson	586,294	July 13	1213	277	80	252
Bicycle-pedal	C. F. Lancaster	586,608	July 20	1786	415	80	390
Bicycle-pedal	H. Tudor	588,038	Aug. 10	1338	310	80	980
Bicycle-propelled boat	B. H. Brazelton	587,074	July 27	2608	617	80	565
Bicycle propelling device	W. G. Calderwood and D. W. Edwards.	590,492	Sept. 21	1864	441	80	1859
Bicycle propelling mechanism	I. W. Conselyea	588,955	Aug. 31	2971	696	80	1287
Bicycle propelling mechanism	W. Hammacher	590,413	Sept. 21	1738	408 409	80	1836
Bicycle propulsion	R. S. Abernethy	589,952	Sept. 14	908	218	80	1665
Bicycle pump and wrench. Combined	J. W. Taylor	587,514	Aug. 3	415	98	80	741
Bicycle-rack	F. X. Hein	587,147	July 27	2761	648	80	594
Bicycle-rack. Folding	A. F. Temple	585,722	July 6	121	29	80	27
Bicycle-rack. Folding	A. F. Temple	590,443	Sept. 21	1789	420	80	1845
Bicycle rack or holder	S. B. Mench	586,506	July 13	1579	368	80	321
Bicycle. Rear-driving safety	F. D. Owen	589,852	Sept. 14	733	171	80	1634
Bicycle-rest	E. Church	589,464	Sept. 7	101	22	80	1501
Bicycle-saddle	J. C. Grout	586,997	July 27	2461	582	80	539
Bicycle-saddle	H. A. Lerch	589,661	Sept. 7	424	102	80	1562
Bicycle-saddle	W. G. Schnee	586,246	July 13	1144	261	80	230
Bicycle-saddle	W. W. Shoe	589,581	Sept. 7	202	21	80	1537
Bicycle-saddle	C. H. Young	589,521	Sept. 7	196	45	80	1519
Bicycle saddle-support	W. L. Decker	587,711	Aug. 10	765	180	80	828
Bicycle saddle-support	H. R. Heyl	587,672	Aug. 3	648	164	80	792
Bicycle-saddles. Ornamental screen for ladies'	J. J. Dougherty	586,165	July 13	1017	229	80	215
Bicycle-seat	C. B. McDonald	590,439	Sept. 21	1782	419	80	1844
Bicycle seat-clamp	E. P. Chalfant	590,256	Sept. 21	1467	346	80	1785
Bicycle seat-post	A. C. Goodenough	590,455	Sept. 21	1806	425	80	1848
Bicycle-shade	J. Mašek and L. Čápek	590,270	Sept. 21	1490	351	80	1789
Bicycle shade-holder	C. D. Baltzell	590,125	Sept. 14	1237	293	80	1726
Bicycle shoulder-brace	A. Roberts	588,861	Aug. 24	2848	662	80	1245
Bicycle speed-gearing. Adjustable	L. T. Buckler	587,787	Aug. 10	892	209	80	851
Bicycle spring-wheel	W. G. Gibbs	587,196	July 27	2841	667	80	609
Bicycle-stand	A. L. and G. A. Banker	588,376	Aug. 17	1929	447 448	80	1054
Bicycle-stand	G. B. La Barre and C. V. Hill	586,741	July 20	1908	465	80	429
Bicycle-stand	F. A. Pearsons	590,769	Sept. 28	2281	565	80	1967
Bicycle-stand	H. K. Porter	588,291	Aug. 17	1766	414	80	1026
Bicycle stand or rack	A. J. De Mers	589,643	Sept. 7	396	96	80	1537

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle steering-lock. Safety	R. W. Smith	588,665	Aug. 24	2472	568, 569	80	1175
Bicycle-step	A. M. Irby	586,385	July 13	1297	296	80	267
Bicycle step and brake. Combined	J. M. Keen	590,105	Sept. 14	1189	279	80	1718
Bicycle-support	P. A. Barr	589,925	Sept. 14	870	207	80	1658
Bicycle-support	H. D. Brundage	585,739	July 6	154	35	80	93
Bicycle-support	J. C. Crisp and J. C. Smith	585,910	July 6	474	114	80	93
Bicycle-support	E. W. Gram	587,811	Aug. 10	928	216	80	856
Bicycle-support	W. Hayball, Jr	586,817	July 20	2117	494	80	450
Bicycle-support	J. Judge	586,040	July 6	804	180	80	157
Bicycle-support	A. S. Lang	585,917	July 6	486	117	80	96
Bicycle-support	J. E. Norelius	586,619	July 20	1804	419	80	394
Bicycle-support	D. Rudomin	587,236	July 27	2918	684	80	625
Bicycle-support	G. H. Williams	588,542	Aug. 17	2231	518	80	1112
Bicycle support and lock	G. L. Campbell	590,609	Sept. 28	3083	498	80	1914
Bicycle support and rest	E. L. Hussong and G. B. Robson	587,089	July 27	2545	600	80	553
Bicycle-support. Folding	H. H. Hunter and E. G. Pendleton	586,902	July 20	2278	537	80	481
Bicycle-support. Pedal	W. J. Simonis	586,629	July 20	1823	423	80	396
Bicycle tilting saddle-bar and seat-post	C. Wooster	585,858	July 6	380	88	80	75
Bicycle tool-bag	N. E. Badgley	589,402	Sept. 7	3	1	80	1483
Bicycle tool-bag	D. D. Frothingham	588,059	Aug. 10	1375	319	80	937
Bicycle tool-bag	F. C. Perkins	590,936	Sept. 28	2602	634	80	2023
Bicycle training-machine	M. J. Dwyer	589,705	Sept. 7	495	118	80	1576
Bicycle. Trolley	R. T. Oney	588,465	Aug. 17	2091	487	80	1084
Bicycle two-speed driving-gear	W. Reilly and C. Haigh	588,657	Aug. 24	2458	565	80	1173
Bicycle-valve	J. A. Steurer	588,364	Aug. 17	1911	443	80	1051
Bicycle. Water	C. L. Knepper	586,651	July 20	2171	508	80	460
Bicycle-wheel	M. E. Anderson	587,357	Aug. 3	188	38	80	691
Bicycle-wheel	C. H. Gary	588,975	Aug. 31	3004	706	80	1294
Bicycle-wheel	G. Hayes	588,332	Aug. 17	1861	430	80	1041
Bicycles. Adjustable steering-head for	G. F. Woodman	586,262	July 13	1166	266	80	243
Bicycles. Locking means for	C. P. R. Schroeder	589,961	Sept. 14	747	175	80	1687
Bicycles. Pneumatic grip for	H. W. Conard	587,388	Aug. 3	185	46	80	701
Bicycles. Power-driver for	J. H. Fox	587,806	Aug. 10	921	215	80	855
Bicycles. Rear-fork end for	R. G. Cornforth	587,983	Aug. 10	1154	267	80	896
Bicycles, &c. Transportation chest or trunk for	C. E. Benton	588,050	Aug. 10	1356	315, 316	80	933
Bier	J. W. Smiser	590,282	Sept. 21	1515	358	80	1798
Billiard-cue	R. Ghezzi and F. Bertoncini	587,195	July 27	2840	666	80	609
Billiard-cue-tip sharpener	C. H. Paine	587,016	July 27	2501	588	80	546
Billiard-cue trimmer and tip-fastener	C. Schoenleber	589,225	Aug. 31	3433	805	80	1374
Bin: *See* Coal-bin.							
Binder and mower brake mechanism	C. H. Anspach	588,941	Aug. 31	2946	689	80	1282
Binder. Cloth-sample	M. Steinthal	587,881	Aug. 10	1067	245	80	880
Binder. Music	G. Jack	589,504	Sept. 7	164	36	80	1518
Binder Temporary	J. S. McDonald, Jr	587,044	July 27	2556	602	80	555
Binder. Temporary	H. C. Miller and J. Bauer	587,986	Aug. 10	1253	290	80	914
Binder tension device. Twine	E. Hallstrom	590,190	Sept. 14	1348	318	80	1749
Bit-holder	W. H. Mohr	589,608	Sept. 7	343	84	80	1546
Bit-tongs	J. Martin	587,677	Aug. 3	692	166	80	794
Blank-heading machine. Pointed	H. K. Jones	590,576	Sept. 28	2024	477, 478	80	1908
Blanks, &c. Device for feeding	C. C. Freeman	589,385	Aug. 31	3866	902, 76	80	1468
Blanking or studding machine	J. Draher	589,595	Sept. 7	315	77, 78	80	1541
Blast-furnace	F. H. Foote	587,522	Aug. 3	429	101	80	743
Blind-fastener	P. Brown, Jr	589,811	Sept. 14	669	156	80	1622
Blind-fastening device	H. Spencer, Jr	590,711	Sept. 28	2271	537	80	1947
Blind-rollers. Apparatus for forming	E. A. Powell	587,490	Aug. 3	370	88	80	733
Blind. Venetian	G. W. Johns	589,834	Sept. 14	708	166	80	1630
Block: *See* Fuse-block. Pulley-block. Printer's block.							
Blotter. Revolving	G. S. Foster	586,815	July 20	2115	494	80	449
Blower and exhauster	W. Schuster	588,735	Aug. 24	2594	598	80	1197
Blower or exhauster	D. R. Ward	588,513	Aug. 17	2177	505	80	1101
Blower. Rotary	T. W. Green	588,329	Aug. 17	1858	429	80	1040
Blower. Window	H. L. Parker and C. R. Meston	587,373	Aug. 3	162	40	80	696
Blowpipe	J. C. Van Slyke	588,200	Aug. 17	1631	375	80	1000
Blowpipes or brazers. Burner for compound	W. Sams	586,066	July 6	842	187	80	164
Board: *See* Miter-board.							
Boat	F. E. Mills	590,845	Sept. 28	2503	595	80	1991
Boat-detaching device	J. Murphy	586,316	July 13	1254	287	80	200
Boat. Folding	H. R. Young	587,905	Aug. 10	1106	254	80	886
Boat. Life	R. and B. Bethke	585,903	July 6	459	110, 111	80	91
Boat. Sectional folding	A. J. Haggen	588,986	Aug. 31	3021	710	80	1297
Boats. Device for launching life or other	G. W. Beebe	586,927	July 20	2330	549	80	401
Bobbin and thread holder	T. J. Murdock	587,748	Aug. 10	826	195	80	840
Bobbin holder or clamp	G. T. Bowman	589,690	Sept. 7	471	113	80	1572
Boiler: *See* Range-boiler. Steam-boiler. Sectional safety-boiler. Steam and hot-water boiler. Stand-boiler. Vertical boiler. Stand or range boiler. Water-heating boiler. Water-tube boiler.							
Boiler	W. Radcliff	586,934	July 20	2342	552	80	493
Boiler-cleaner	J. M. McMichael	587,999	Aug. 10	1278	295	80	919
Boiler furnace. Steam	F. B. Giesler	587,121	July 27	2697	633, 634	80	581
Boiler furnace. Steam	J. Milton	590,846	Sept. 28	2505	596	80	1992
Boiler safety appliance. Steam	F. W. Greengrass	589,944	Sept. 14	897	214	80	1663
Boiler-tube cleaner	P. Hoerlein	589,126	Aug. 31	3288	773	80	1346
Boiler-tubes. Machine for removing incrustation from	J. L. Lockhart	589,551	Sept. 7	237	58	80	1596
Boiler water-gage. Steam	J. Robinson and D. Donald	588,605	Aug. 24	2335	540	80	1150
Boilers. Apparatus for removing sediment from steam	J. Watt	586,805	July 20	2098	489	80	446
Boilers. Apparatus for supplying oil to	W. R. Park	587,854	Aug. 10	1020	236	80	871
Bolster-plate	B. Markham	586,135	July 13	973	219	80	207
Bolt: *See* Shear-bolt.							
Bolt-lock for communicating doors	W. H. Taylor	586,675	July 20	1888	440	80	408
Bolt-machine	C. Lanz	589,438	Sept. 7	65	14	80	1494
Bolt or wire cutter	R. Rowe	588,187	Aug. 17	1613	371	80	996
Bolt-threading machine. Automatic	J. A. Plopper	590,463	Sept. 21	1815	426, 429	80	1850
Bone-black. Apparatus for decarbonizing	J. O. Donner	585,658	July 6	21	6, 7	80	7
Bone-black. Revivifying	M. Weinrich	586,278	July 13	1188	272	80	247
Bonus-determining device	A. Barnes	589,154	Aug. 31	3332	783	80	1356
Book	J. Dehn	587,076	July 27	2611	618	80	566
Book	J. D. Eagar	590,805	Sept. 28	2438	578	80	1979
Book. Ambidexter or left-hand reference	J. W. Woodward	589,885	Sept. 14	802	189	80	1645
Book and carbon-sheet holder therefor. Manifold memorandum	F. M. Turck	586,040	July 20	1841	428	80	399
Book-back protector	G. W. Crane and J. W. Bloomfield	587,389	Aug. 3	186	46	80	701
Bookbinder's tape	B. F. Kendig	586,070	July 6	847	189	80	165
Bookbinding	T. C. Kenworthy	586,604	July 20	1780	413	80	388
Bookcase attachment	F. M. Hopkins and G. C. Bowles	587,580	Aug. 3	539	129	80	764
Book. Cashier's and salesman's check	C. I. Lozano	586,925	July 20	2327	540	80	491
Book. Catholic prayer	L. Hunke	585,672	July 6	43	11	80	11
Book. Continuous balance	E. Lehmkuhl	589,900	Sept. 14	825	194	80	1649
Book-holder	W. C. Miller	589,978	Sept. 14	945	236	80	1672
Book-holder	W. E. Warner	586,081	July 6	874	197	80	170
Book. Manifolding	W. Assheton	589,632	Sept. 7	379	93	80	1553
Book-mark	R. S. Pickett	589,907	Sept. 14	839	197	80	1652
Book or file, &c. Scrap	G. C. Baker	590,561	Sept. 28	2008	472	80	1899
Book. Record	G. S. White	587,167	July 27	2800	657, 658	80	601
Book-support	J. F. A. Spaet	585,714	July 6	102	26	80	23
Book-supporter	H. L. Pinney and F. Lenzner	586,391	July 13	1381	318	80	283
Boot. Felt	G. H. Brockman	590,295	Sept. 21	1537	364	80	1798
Boot or shoe	L. Hill	587,483	Aug. 3	359	85	80	731
Boot or shoe shaping machine	J. E. Lawton	589,732	Sept. 7	538	128	80	1565
Boot or shoe shaping or treeing machine	G. H. Clark	589,696	Sept. 7	481	115	80	1574
Boot or shoe tree	J. E. Lawton	589,731	Sept. 7	537	127	80	1585
Boot or shoe tree	H. W. Mobbs and A. Lewis	589,666	Sept. 7	429	104	80	1563
Boot or shoe treeing machine	G. H. Clark	589,697	Sept. 7	485	116	80	1575
Boot-polisher, perfumer, mirror, and gum-machine. Automatic	J. W. Kirby	590,067	Sept. 14	1114	264	80	1708
Boots or shoes. Appliance for easing	S. Learoyd	588,708	Aug. 24	2535	596	80	1186
Boots or shoes. Work-support for	L. A. Casgrain	587,144	July 27	2756	647	80	593
Booth. Portable knockdown	H. A. Kephart	589,971	Sept. 14	941	224, 225	80	1672
Borer. Angle	W. H. McCoy	586,053	July 6	817	183	80	160
Boring apparatus for deep borings with oscillating beams.	A. Raky	587,065	July 27	2592	612	80	562
Boring machine. Stud	A. I. Jacobs	585,763	July 6	202	46, 47	80	42
Boring-machines. Combined gage and stop for	H. W. McCormick	587,993	Aug. 10	1269	293	80	917
Boring or drilling machine with means for driving rods, bars, or tubes into holes drilled. Combined multiple	V. and G. Jetley	586,603	July 20	1777	413	80	388
Boshing bars, &c. Apparatus for	S. V. Huber	585,868	July 6	398	93	80	79
Bottle	A. Bourke	588,216	Aug. 17	1650	380	80	1003
Bottle	H. L. Brown	587,426	Aug. 3	246	60	80	712
Bottle	P. A. Campbell	586,475	July 13	1527	357	80	311
Bottle	G. F. Dye and E. C. O'Neill	586,424	July 13	1446	335	80	295
Bottle	G. T. Fitzgerald	588,413	Aug. 17	1999	463	80	1067
Bottle	H. Flanders	590,040	Sept. 14	1069	252	80	1695
Bottle	F. C. von Heydebrand und der Lasa	590,224	Sept. 21	1417	334	80	1786
Bottle	A. Rodgers and G. Peden	587,234	July 27	2916	684	80	625
Bottle	V. Rouillot	587,331	Aug. 3	92	23	80	683
Bottle	G. V. Stallings	589,196	Aug. 31	3304	797	80	1307
Bottle	D. J. Sweeney	589,044	Aug. 31	3122	735	80	1316
Bottle	L. S. Travis	590,027	Sept. 14	1054	249	80	1692
Bottle	C. B. White	587,895	Aug. 10	1089	251	80	883
Bottle	C. F. Young	587,776	Aug. 10	871	205	80	848
Bottle and nipple. Nursing	H. Meier	590,768	Sept. 28	2262	535	80	1945
Bottle and stopper	W. J. Hope	586,088	July 6	802	179	80	157
Bottle and stopper for aerated drinks	C. Kemper	586,971	July 27	2418	571, 572	80	580
Bottle and stopper therefor	C. R. Gibson	587,955	Aug. 10	1206	280	80	905
Bottle and stopper therefor	J. H. Springfield	588,499	Aug. 17	2153	500	80	1096
Bottle. Antirefilling	A. Lemleux	589,004	Sept. 7	396	83	80	1545
Bottle-cap	W. Polson	589,366	Aug. 31	3827	804	80	1456
Bottle cap and fastener	A. L. Bernardin	587,275	July 27	2991	701	80	639
Bottle-closure	M. Altstaedter	588,939	Aug. 31	2943	688	80	1281
Bottle-closure	R. Flanigan. (Reissue)	11,629	Sept. 14	1363	322	80	1752
Bottle cork-retainer	M. O. Reilfuss	590,798	Sept. 28	2419	574	80	1975
Bottle-filling machine	T. Roberts	586,747	July 20	2007	467, 468	80	431
Bottle-heads. Tool for forming	T. C. Duffield	586,532	July 13	1643	382	80	334
Bottle-locker. Automatic	J. J. Redfgraber	586,693	July 20	1915	446	80	413
Bottle. Non-fillable	P. C. Brown	589,956	Sept. 14	913	219	80	1666
Bottle. Non-fillable	L. P. Straube	589,871	Sept. 14	764	177	80	1639
Bottle. Non-refillable	E. C. Bartlett	587,295	Aug. 3	9	3	80	636
Bottle. Non-refillable	A. A. Bliss	590,575	Sept. 28	2554	610	80	2001
Bottle. Non-refillable	W. P. Bliss	588,947	Aug. 31	2959	693	80	1284
Bottle. Non-refillable	G. W. Coates and A. J. Schutz	589,164	Aug. 31	3344	785	80	1357

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bottle. Non-refillable	J. M. Doolittle	590,054	Sept. 14	1092	258	80	1699
Bottle. Non-refillable	W. C. Flannery	590,259	Sept. 21	1472	347	80	1786
Bottle. Non-refillable	H. P. Frear	590,309	Sept. 21	1566	371	80	1808
Bottle. Non-refillable	J. Fultz	589,207	Aug. 31	3410	800	80	1370
Bottle. Non-refillable	W. E. Gaston	590,218	Sept. 21	1407	332	80	1774
Bottle. Non-refillable	W. J. Hadra	587,577	Aug. 3	534	128	80	763
Bottle. Non-refillable	C. M. Johnson	587,008	July 27	2469	583	80	540
Bottle. Non-refillable	E. E. Kerns	590,741	Sept. 28	2222	549	80	1956
Bottle. Non-refillable	O. J. Moussette	589,741	Sept. 7	551	130	80	1587
Bottle. Non-refillable	C. G. Norman	585,898	July 6	432	104	80	86
Bottle. Non-refillable	C. C. Palmer	590,331	Sept. 21	1608	378	80	1811
Bottle. Non-refillable	L. N. Ralph	585,905	July 6	577	134	80	112
Bottle. Non-refillable	E. Riley	588,608	Aug. 24	2332	539	80	1150
Bottle. Non-refillable	W. L. and V. R. Roth	588,295	Aug. 17	1798	415	80	1029
Bottle. Non-refillable	J. Schreiber and J. Holler	590,075	Sept. 14	1131	267	80	1707
Bottle. Non-refillable	G. W. Scott	589,035	Aug. 31	3104	731	80	1313
Bottle. Non-refillable	C. N. Woodle	585,807	July 6	279	65	80	58
Bottle. Non-refillable	T. E. Worthington	586,719	July 20	1958	456	80	422
Bottle. Non-refilling	N. F. T. Hunt	589,435	Sept. 7	61	13	80	1498
Bottle. Nursing	W. D. Butz	586,611	July 6	759	160	80	149
Bottle safety-closure	D. Blum	589,926	Sept. 14	871	207 / 208	80	1658
Bottle-stopper	T. Burbidge	589,544	Sept. 7	230	56	80	1525
Bottle-stopper	J. B. Burrow	587,790	Aug. 10	896	210	80	851
Bottle-stopper	W. A. Coghlan	589,698	Sept. 7	488	116	80	1575
Bottle-stopper	C. De Witt	589,704	Sept. 7	494	118	80	1576
Bottle-stopper	G. F. Johnson	589,505	Sept. 7	165	37	80	1513
Bottle-stopper	C. J. Malone	590,791	Sept. 28	2417	574	80	1974
Bottle-stopper	C. Meyer	588,285	Aug. 17	1779	412	80	1027
Bottle-stopper	D. T. Phillips	588,775	Aug. 24	2663	614	80	1211
Bottle-stopper	C. De Quillfeldt	588,009	Aug. 10	1292	299	80	922
Bottle-stopper	O. Selg	587,759	Aug. 10	845	198	80	843
Bottle-stopper	J. H. Stone	586,980	July 27	2433	575	80	533
Bottle-stopper	G. Vodicka	586,981	July 27	2434	575	80	533
Bottle-stopper lock	G. L. Abbott	588,211	Aug. 17	1644	378	80	1002
Bottle-washer	H. H. Miller	589,135	Aug. 31	3299	776	80	1348
Bottle-washer	B. V. Nordberg and A. Uihlein	587,397	Aug. 3	198	50	80	704
Bottle-washer	G. J. Stein	590,745	Sept. 28	2327	551	80	1958
Bottle-wrapper machine	H. S. Gordon	585,748	July 6	176	39,40	80	37
Bottles, &c. Closing-piece for	G. W. Steffens	588,784	Aug. 24	2077	519	80	1214
Bottles, jars, &c. Closure for	T. Diebold	586,017	July 6	769	171	80	151
Bottles. Machine for feeding stoppers automatically to	N. Muslar	586,618	July 20	1795	416	80	392
Bottles. Machine for wiring corked	J. Karlsson	590,496	Sept. 21	1872	443 / 444	80	1861
Bottles, &c. Means for preventing fraudulent refilling of	A. and L. Braly	589,400	Sept. 7	10	3	80	1484
Bottles or similar vessels. Stopper for	G. Wear	587,350	Aug. 3	127	31	80	689
Bottles or other vessels with gases by means of capsules or containers charged with liquefied or compressed gases. Apparatus for charging	E. Sterné	586,632	July 20	1828	424	80	307
Bow	H. C. Peters	586,713	July 20	1944	454	80	419
Box: *See* Berry-box. Butter-box. Cardboard box. Dumping-box. Electric contact-box. Electrical junction-box. Fare-box. Folding box. Journal-box. Knockdown box. Letter-box. Mail-box. Match-box. Musical box. Paper box. Pencil-box. Sand-box. Signal-box. Stuffing-box. Work-box.							
Box	F. Bonheim	585,905	July 6	464	111	80	91
Box	H. S. Munson	588,871	Aug. 24	2890	658 / 659	80	1242
Box attachment	J. H. Morlan	589,188	Aug. 31	3379	794	80	1364
Box-closure	W. Scott and J. W. Holey	585,709	July 6	93	24	80	21
Box corner-fitting	H. A. Gale	586,122	July 13	948	214	80	202
Box-covering machine	H. Inman	585,820	July 6	296	70,71	80	61
Box-covering machine	A. H. Morrison	585,921	July 6	496	119	80	97
Box-covering machine	W. S. Smith and E. R. Bullock	588,887	Aug. 24	2856	664 / 665 / 666	80	1247
Box for bottled beverages	W. H. Price	590,858	Sept. 28	2534	602	80	1995
Box-filling apparatus	W. B. Thomson	587,083	July 27	2622	620	80	567
Box-lids. Coin-freed mechanism for releasing	M. de Zur-Muhlen and A. Wetrems	587,666	Aug. 3	672	160	80	789
Box-making machine. Automatic	W. T. McRae	585,887	July 6	426	103 / 104	80	85
Box-molding apparatus. Ash-	H. V. Moore	586,241	July 13	1136	258 / 259	80	237
Brace: *See* Ratchet-brace. Shoulder-brace.							
Bracket: *See* Clamp-bracket. Lamp-bracket. Shelf-bracket.							
Bracket	A. Taubert	586,881	July 20	2215	520	80	470
Braiding-machine	A. V. Groupe	588,421	Aug. 17	2015	467	80	1070
Brake: Bicycle-brake. Bicycle or vehicle brake. Car-brake. Fluid-pressure brake. Railway safety-brake. Sewing-machine brake. Track-brake. Vehicle-brake. Velocipede-brake. Wagon-brake.							
Brake and fender. Combined	A. H. Wheeler	588,255	Aug. 17	1724	305 / 306	80	1017

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brake-beam	J. Player	589,269	Aug. 31	3327	898	80	1394
Brake-beam	J. Player	589,270	Aug. 31	3328	898	80	1395
Brake-beam	J. Timms	587,071	July 27	2005	616	80	595
Brake-beams. Lever-support for interchangeable	H. H. Vaughan	585,725	July 6	128	31	80	98
Brake-beams. Lever-support for interchangeable	H. H. Vaughan	590,348	Sept. 21	1454	342 / 343	80	1788
Brake mechanism	B. Wolhaupter	590,446	Sept. 21	1794	431	80	1846
Brake mechanism. Fluid-pressure	O. B. Mosher	586,561	July 20	1605	394	80	373
Brake-shoe	W. D. Sargent	587,493	Aug. 3	375	89	80	733
Brake-shoe	W. D. Sargent	587,661	Aug. 3	666	158 / 159	80	789
Brake-shoe and wheel-guard. Combined	M. F. Crotty	587,648	Aug. 3	646	154	80	784
Brake system	F. M. Ashley	587,690	Aug. 10	713	171	80	817
Brake system	F. M. Ashley	587,691	Aug. 10	715	171	80	818
Brake system	F. M. Ashley	587,911	Aug. 10	1115	267	80	888
Branding-machine	J. Ingle	589,067	Aug. 31	3199	752	80	1329
Branding-machine	A. Stollstorff	587,562	Aug. 3	494	117	80	756
Bread-cutter	G. A. J. Joetten and E. J. Marckle	590,312	Sept. 21	1573	372	80	1805
Breech-loaders. Limiting and retaining device for operating bars of	W. Mason	586,856	July 20	2180	510	80	402
Breweries. Apparatus for recovering waste gases in	O. Zwietusch	585,899	July 6	452	109	80	89
Breweries. Apparatus for recovering waste gases in	O. Zwietusch	585,900	July 6	455	110	80	90
Brick-die	C. M. Steele	586,461	July 13	1305	352	80	306
Brick-drier	H. H. Walsh	588,021	Aug. 24	2386	547 / 548	80	1158
Brick machinery	A. Gord	589,892	Sept. 14	813	191	80	1647
Brick or tile cutting machine	J. O. Ludlam and J. L. McKittrick	586,192	July 13	1057	238	80	223
Bridge	L. H. Wilbur	587,540	Aug. 3	462	109	80	750
Bridge. Draw-	W. H. Breithaupt	587,926	Aug. 10	1141	263	80	893
Bridge. Draw-	T. E. Brown	590,787	Sept. 28	2407	572	80	1973
Bridge-gate	F. Rassch	585,701	July 6	83	21	80	19
Bridges. Guard-gate for swing-	W. Filiatreault	587,665	Aug. 3	704	169	80	796
Bridle	F. J. Ettinger	586,020	July 6	774	172	80	152
Bridle	M. Wilson	586,648	July 20	1853	430	80	402
Bridles, headstalls, &c. Guiding device for	O. R. Routh	589,859	Sept. 14	744	174	80	1636
Bristle-washing machine	C. E. Tyler and J. Dempster	586,404	July 13	1407	324	80	288
Broiler or toaster	M. E. Bible	587,470	Aug. 3	335	79	80	727
Brooder	C. C. and G. E. Shoemaker	587,494	Aug. 3	378	89,90	80	734
Broom attachment	F. Wittram	585,897	July 6	448	108	80	89
Broom dust-collector	A. A. Sawyer	590,775	Sept. 28	2390	568	80	1969
Broom-handle	D. S. Perry	590,909	Sept. 28	2616	624	80	2015
Broom-head	W. T. Watts	589,052	Aug. 31	3133	738	80	1318
Broom-holder	H. A. Swan	588,030	Aug. 10	1324	307	80	927
Brush	C. Abrell and E. Burjes	590,871	Sept. 28	2549	609	80	2000
Brush	M. Allen	586,411	July 13	1419	327	80	291
Brush	A. C. Estabrook	590,720	Sept. 28	2287	540	80	1950
Brush	H. E. Henry	587,964	Aug. 10	1222	284	80	909
Brush	H. C. Topp	587,048	July 27	2560	604	80	556
Brush and dauber. Blacking-	L. Barberie	587,636	Aug. 3	629	151	80	781
Brush and mop holder. Combined scrubbing-	F. E. Matthews	586,857	July 20	2181	510	80	403
Brush and soap-holder. Combined scrub-	F. J. Creque and F. R. Moore	586,305	July 13	1227	280	80	254
Brush-bridle retainer	W. Lewis and E. L. Raborg	587,317	Aug. 3	62	14	80	676
Brush. Clothes-	R. T. Hewlett	588,148	Aug. 17	1546	350	80	964
Brush. Dusting-	J. C. Libe	589,550	Sept. 7	236	58	80	1526
Brush. Fountain-	M. Arbuckle	588,047	Aug. 10	1354	314 / 315	80	933
Brush. Fountain-	A. L. Siegfortner	590,405	Sept. 21	1722	405	80	1833
Brush-handle attachment	A. B. Clarke and T. Armstrong	590,751	Sept. 28	2339	553	80	1960
Brush-holder	N. M. Beede	586,957	July 27	2394	564	80	525
Brush-holder	H. Geisenhöner	585,746	July 6	174	39	80	37
Brush-holder	H. G. Reist	589,794	Sept. 7	641	149	80	1604
Brush or mop holder	P. H. Humbach	589,351	Aug. 31	3808	889	80	1452
Brush. Scrubbing-	B. F. C. Grimes	589,171	Aug. 31	3356	789	80	1360
Brush slip-joint. Scrub-	A. Harter and C. E. Sheckler	590,835	Sept. 28	2483	591	80	1987
Bucket. Berry-	W. W. Roland	588,980	Aug. 24	2924	684	80	1261
Bucket-top	J. P. Zeiher	587,140	July 27	2751	645	80	592
Buckle	C. F. Francisco	587,571	Aug. 3	517	122	80	760
Buckle	J. E. Hill	590,738	Sept. 28	2318	548	80	1956
Buckle	L. D. Rank	586,746	July 20	2006	467	80	431
Buckle. Back-band	D. T. Bryan	586,008	July 6	756	168	80	148
Buckle. Bridle blinder-	J. Mealey	588,590	Aug. 24	2309	535	80	1144
Buckle. Harness-	N. F. Mathewson	586,240	July 13	1135	258	80	237
Buckle. Martingale-	G. T. Wolff	586,649	July 20	1854	431	80	402
Buffing-machine pad	E. F. Hodgkins	587,038	July 27	2542	600	80	553
Buffing or polishing device	H. A. Webster	590,714	Sept. 28	2278	538	80	1949
Buggy-top attachment	W. W. Krutsch	586,271	July 13	1177	270	80	245
Buggy-top attachment	W. O. Wilbur	589,324	Aug. 31	3763	877	80	1444
Building construction	W. H. and F. A. Winslow	586,941	July 20	2351	554 / 555	80	495
Bulkhead-doors. Means for automatically operating	C. T. Dörr and M. Stühler	588,703	Aug. 24	2694	623	80	1217
Bulkheads on board ships, &c. Hydraulic system for closing water-tight	W. B. Cowles	589,958	Sept. 14	915	220	80	1667
Bullet. Lubricated	S. C. Stewardson	587,342	Aug. 3	314	28	80	687
Bunching-machine	B. Poulson	588,007	Aug. 10	1287	298	80	921
Bung	H. F. Koll	586,101	July 13	916	205	80	196
Bung-branding machine	J. F. Theurer	589,231	Aug. 31	3442	807	80	1376
Bung-starter	H. Sternkopf, Jr	586,323	July 13	1267	289	80	902
Buoy-whistle	E. C. Bates	585,882	July 6	419	100 / 101	80	83
Burglar-alarm	C. Coleman	587,931	Aug. 10	1150	266	80	895
Burglar-alarm	C. L. Knapp	587,977	Aug. 10	1240	287	80	912
Burglar-alarm	T. J. Sutton	587,377	Aug. 3	169	42	80	697
Burglar-alarm	J. P. Towler	589,540	Sept. 7	218	52	80	1523
Burglar-alarm	S. A. Witherspoon	587,541	Aug. 3	463	109	80	750
Burglar-alarm. Electric	C. Coleman. (Reissue)	11,626	Aug. 17	2236	520	80	1113
Burglar-alarm. Electric	H. M. Dumas	588,695	Aug. 24	2515	580	80	1163

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Burglar-alarm system	W. T. Arnold	587,669	Aug. 3	675	162	80	799
Burglar-guard	T. D. Avara	590,013	Sept. 14	1035	244	80	1689
Burial-casket	H. T. Loomis	586,071	July 6	848	189	80	165
Burial-casket	C. A. Ruebekam	588,483	Aug. 17	2120	498	80	1090
Burner:							
See Gas-burner. Gas-lighting burner. Hydrocarbon-burner. Hydrocarbon incandescent burner. Incandescent burner. Lamp-burner. Oil-burner. Petroleum-burner. Regenerative burner.							
Burning apparatus. Liquid-fuel	H. T. Russell	585,792	July 6	251	59	80	52
Burning naphtha, &c. Apparatus for	W. Solomin	588,191	Aug. 17	1618	372, 373	80	907
Bushing and faucet for barrels	M. S. Norton	587,157	July 27	2777	653	80	597
Bustle	M. C. Hartman	586,034	July 6	795	178	80	156
Butter-box	S. Piché	589,948	Sept. 14	901	215, 216	80	1664
Butter-cutting machine	C. T. Colby	588,814	Aug. 24	2738	635	80	1224
Butter-mold	D. E. Ballam	585,811	July 6	283	60	80	58
Butter-mold	D. R. Dix	586,590	July 13	1040	232	80	338
Butter printer or molder	G. Lusted	586,387	July 13	1374	316, 317	80	282
Button	B. H. Cook	588,956	Aug. 31	2973	697	80	1237
Button	R. M. Tench	590,092	Sept. 28	2238	530	80	1942
Button	J. J. Witzel	590,197	Sept. 14	1358	321	80	1751
Button and necktie-fastener. Combined collar-	V. H. Geisler	590,519	Sept. 21	1916	453	80	1879
Button. Collar-	A. Watson	590,506	Sept. 21	1897	449	80	1868
Button. Double collar-	H. Z. Kimball	590,618	Sept. 28	2100	497	80	1917
Button fastener. Eyeless or other	A. T. Miller	585,994	July 6	726	162, 163	80	143
Button-making machine	S. Menkin	586,821	July 20	2121	495, 496	80	451
Buttons or eyelets. Machine for setting	E. Pringle	585,882	July 6	324	76,77	80	66
Cabin-table. Adjustable folding	F. V. Raymond and A. E. Otway	590,165	Sept. 14	1305	310	80	1741
Cabinet	J. F. Barrows	587,160	July 27	2805	658	80	602
Cabinet	F. E. Case	589,463	Sept. 7	99	22	80	1500
Cabinet. Machine-inclosing	J. R. McLaren, Jr., and E. H. Boyce	589,976	Sept. 14	950	227, 228	80	1673
Cabinet. Milk-	A. R. Clarke	589,934	Sept. 14	882	210, 211	80	1660
Cabinet or paper-case	J. T. Hoyt	588,066	Aug. 10	1387	322	80	939
Cabinet. Ticket or label	A. F. McIntyre	589,016	Aug. 31	3080	726	80	1308
Cable mechanism. Secondary-	J. T. and W. J. Hunter	586,901	July 20	2275	530	80	481
Cable-strand	E. P. Frederick	586,706	July 20	1933	450	80	417
Caissons in the ground. Means for sinking	J. McAdams	587,126	July 27	2704	635	80	583
Cake-icing machine	T. L. Green	589,718	Sept. 7	519	123	80	1561
Cake-turner	A. H. Ramey and J. Eye	589,753	Sept. 7	571	134	80	1591
Calcining friable materials	W. H. Fahrney	590,057	Sept. 14	1095	259	80	1700
Calcining or roasting furnace	F. Brandenburg	588,949	Aug. 31	2961	693, 694	80	1285
Calcium carbid. Composition of matter for manufacturing	S. Blum	589,592	Sept. 7	312	------	80	1541
Calcium carbids. Composition for manufacturing	R. F. S. Heath	589,967	Sept. 14	937	------	80	1671
Calculator. Ready	C. F. and C. K. Christopher	588,128	Aug. 17	1517	347	80	978
Calendar-holder	H. Brown	588,631	Aug. 24	2401	553	80	1162
Calendar. Memorandum-	J. R. Wilson	585,944	July 6	539	127	80	104
Calk-sharpener and hoof-trimmer	A. B. Smith	589,866	Sept. 14	753	176	80	1638
Calking-machine	J. D. Maglin	585,848	July 6	307	85	80	73
Calorimeter	H. J. Williams	590,408	Sept. 21	1726	407	80	1634
Cam	G. W. Borrowe and G. H. Winslow	586,417	July 13	1430	390	80	298
Camera. Kinetographic	T. A. Edison	589,168	Aug. 31	3348	787	80	1358
Camera. Kinetographic	L. Grubman	587,720	Aug. 10	797	188	80	834
Camera. Kinetographic	F. Morand	590,766	Sept. 28	2377	564	80	1966
Camera. Kinetographic	J. Rous	588,014	Aug. 10	1300	301	80	923
Camera. Kinetographic	A. Wrench	587,516	Aug. 3	419	98, 99	80	741
Camera. Magazine-	E. E. Flora	589,346	Aug. 31	3793	885	80	1450
Camera. Magazine-	H. W. Locke	589,475	Sept. 7	114	26	80	1503
Camera. Panoramic	L. Jeffery	586,097	July 13	908	204	80	194
Camera. Photographic	L. J. R. Holst	589,349	Aug. 31	3805	887, 888	80	1452
Camera. Photographic	S. Ritter	589,304	Aug. 31	3736	870	80	1439
Camera. Roll-holding	P. K. Stern	588,611	Aug. 24	2354	543, 544	80	1154
Camera. Roll-holding flash-light	J. E. Blackmore	590,204	Sept. 21	1372	324	80	1767
Camera shutter. Photographic	W. F. Cook	590,752	Sept. 28	2340	553	80	1960
Can:							
See Oil-can. Varnish-can. Sheet-metal can.							
Can	A. W. Livingston	588,800	Aug. 24	2707	627	80	1219
Can-capping machine	M. E. Howard	588,337	Aug. 17	1870	432	80	1043
Can-casing machine	J. P. Simmons	589,226	Aug. 31	3435	805	80	1375
Can-closure	A. S. Lambert	587,486	Aug. 3	363	86	80	731
Can-filling machine	C. S. Bucklin	590,788	Sept. 28	2410	572, 573	80	1973
Can float. Fruit-	G. B. Deardorff and C. E. Kreiter	590,389	Sept. 21	1607	400	80	1899
Can-opener	W. N. Anderson	587,419	Aug. 3	235	58	80	710
Can-opener	F. Hoyt	588,911	Aug. 24	2695	677	80	1254
Can-opener	E. E. Robbins	588,243	Aug. 17	1708	392	80	1014
Can-opener	W. A. Simond	586,874	July 20	2205	518	80	468
Cans. Machine for testing sheet-metal	B. J. Malmfelt	586,072	July 6	848	189, 190	80	166
Cans. Means for removing superfluous solder from sheet-metal	O. S. Fellows	586,964	July 27	2404	567, 568	80	527
Cans. Means for removing superfluous solder from sheet-metal	O. S. Fellows	586,965	July 27	2406	568	80	528

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cans. Means for removing superfluous solder from sheet-metal	O. S. Fellows	586,966	July 27	2407	569	80	528
Cans. Means for removing superfluous solder from sheet-metal	O. S. Fellows	586,967	July 27	2409	569, 570	80	528
Canceling stamps and affixing postmarks to letters. Machine for	J. T. Killeen	588,152	Aug. 17	1555	358	80	985
Candle-holder. Swinging	F. Ebeling	589,621	Sept. 14	687	159	80	1626
Candlestick	J. F. and W. J. Lehr	586,395	July 13	1372	316	80	281
Candlestick. Miner's folding	R. Clinch	589,594	Sept. 7	314	76	80	1541
Cane and umbrella. Combined	J. H. Nolan	588,595	Aug. 24	2315	537	80	1146
Cane-splitting machine	G. A. Watkins	588,516	Aug. 17	2190	506, 507	80	1101
Canister. Combination-	A. E. Carter	586,758	July 20	2028	471	80	434
Cannon muzzle attachment	J. H. Hammer	587,781	Aug. 10	801	180	80	834
Canvas-stretcher	H. G. Tarnke	587,882	Aug. 10	1008	240	80	880
Cape for gossamers	F. G. Lane	586,182	July 13	964	217	80	205
Capstan	E. H. Whitney	587,897	Aug. 10	1091	251	80	884
Capsule	J. R. Planten	587,827	Aug. 3	84	20	80	689
Capsule-filling machine	L. Starkenstein	590,502	Sept. 21	1880	446, 447, 448	80	1862
Capsules. Apparatus for filling and closing metal	E. Sterné	586,633	July 20	1829	425	80	397
Car	R. McCoy	586,450	July 13	1486	344, 345	80	308
Car and brake-pipe coupling. Combined	J. W. Bryan	588,052	Aug. 10	1360	316	80	934
Car-bolster	J. W. Cloud	588,555	Aug. 24	2254	523, 524	80	1133
Car. Boudoir-	E. Flagg	585,954	July 6	556	130, 131	80	108
Car-brake	J. L. Black	585,648	July 6	7	2	80	4
Car-brake	W. H. Carter	590,579	Sept. 28	2558	611	80	2002
Car-brake	W. B. Essick	590,038	Sept. 14	1066	251	80	1695
Car-brake	L. E. Herrington	589,968	Sept. 14	937	224	80	1671
Car-brake	W. L. and Z. M. Hibbard	586,951	July 20	2375	561	80	500
Car-brake	R. Ingram	586,496	July 13	1559	364, 365	80	317
Car-brake	J. M. Reeves	586,204	July 13	1084	244	80	226
Car-brake	J. G. Schumann	585,988	July 6	721	101	80	142
Car brake and fender. Emergency	A. Grieves	588,824	Aug. 24	2750	638	80	1227
Car-brake. Automatic	A. J. Harpole	586,489	July 13	1549	362	80	315
Car-brake for inclined railways	G. G. Bittner	588,122	Aug. 17	1494	344	80	973
Car-chuck	P. H. Jacobus	590,662	Sept. 28	2183	517	80	1932
Car. Combination freight-	S. Dunn	590,904	Sept. 28	2435	578	80	1978
Car. Convertible	M. E. Post	586,243	July 13	1139	259	80	236
Car-coupling	J. R. Beard	589,501	Sept. 7	310	75	80	1540
Car-coupling	A. Benton, Sr	589,498	Sept. 7	146	32	80	1509
Car-coupling	P. C. Brown	586,598	July 13	1636	380	80	333
Car-coupling	A. J. Glenn	589,714	Sept. 7	512	122	80	1580
Car-coupling	J. Goettel	590,708	Sept. 28	2255	533	80	1944
Car-coupling	J. A. Graham and J. A. McGee	588,821	Aug. 24	2746	637	80	1226
Car-coupling	A. M. Gustafson	589,938	Sept. 14	999	164	80	1629
Car-coupling	H. G. Harrington	590,150	Sept. 14	1285	305	80	1737
Car-coupling	B. F. Haugh and G. H. Vincett	586,183	July 13	1044	235	80	219
Car-coupling	G. C. Lewis	590,896	Sept. 28	2595	619	80	2010
Car-coupling	C. G. Lind	587,218	July 27	2676	675	80	617
Car-coupling	J. Miller	589,363	Aug. 31	3223	803	80	1455
Car-coupling	D. W. Murphy	590,111	Sept. 14	1196	289	80	1720
Car-coupling	J. W. Paisley	587,229	July 27	2909	692	80	624
Car-coupling	W. Quisenberry	587,452	Aug. 3	307	74	80	722
Car-coupling	P. M. Reagan	589,140	Aug. 31	3309	778	80	1350
Car-coupling	W. Reese	590,859	Sept. 28	2525	602	80	1996
Car-coupling	W. B. Rice	589,027	Aug. 31	3091	729	80	1310
Car-coupling	W. F. Richards	586,273	July 13	1182	271	80	246
Car-coupling	W. F. Richards	586,274	July 13	1183	271	80	246
Car-coupling	R. W. Riggins	590,022	Sept. 14	1049	247	80	1691
Car-coupling	W. C. Robinson and W. S. Palmer	587,658	Aug. 3	660	158	80	788
Car-coupling	T. H. Smith	590,488	Sept. 21	1857	440	80	1858
Car-coupling	W. H. H. and W. Tabbert	589,530	Sept. 7	218	52	80	1523
Car-coupling	H. Thuirer	589,875	Sept. 14	771	179	80	1640
Car-coupling	J. Timms	587,070	July 27	2602	615, 616	80	564
Car-coupling	R. H. Williams	585,906	July 6	278	65	80	57
Car-coupling	J. W. Wolfe	589,457	Sept. 7	92	20	80	1499
Car-coupling	L. J. Yarnell and J. H. Schmidt	590,352	Sept. 21	1639	386	80	1818
Car-coupling. Automatic	R. D. Green	588,490	Aug. 17	2014	466	80	1070
Car-coupling. Automatic	J. Peiffer	586,144	July 13	987	222	80	209
Car-door	H. Pries and J. W. Meyer	590,074	Sept. 14	1129	267	80	1706
Car-door	A. G. Steinbrenner	588,500	Aug. 17	2154	500, 501	80	1096
Car-door closure	C. H. Welch	586,469	July 13	1518	355	80	309
Car door. Grain-	W. D. Palmetier	590,332	Sept. 21	1604	378	80	1811
Car door. Grain-	H. M. Tyrrell	589,198	Aug. 31	3397	797	80	1367
Car-door guard	H. T. Krider	590,309	Sept. 21	1714	403	80	1832
Car-door latch. Mine-	J. M. Wesley	587,412	Aug. 3	226	56	80	709
Car draft apparatus. Railway-	W. Thornburgh	588,722	Aug. 24	2562	592	80	1192
Car draft-rigging	W. H. Stark	587,376	Aug. 3	167	41, 42	80	697
Car draw-bar. Railway-	W. T. Van Dorn	586,701	July 20	1927	449	80	416
Car. Dumping-	J. D. Cleek and C. Humphrey	588,953	Aug. 31	2968	696	80	1236
Car. Dumping-	J. A. Hughes	587,207	July 27	2859	672	80	613
Car. Dumping-	W. A. Smith	589,313	Aug. 31	3747	872, 873	80	1441
Car. Electric-motor	H. P. Brown	589,543	Sept. 7	223	53, 54, 55, 56	80	1594
Car-equalizer	T. C. Kennedy	587,834	Aug. 10	984	229	80	865

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car-fender	H. Boom	589,156	Aug. 31	3336	783	80	1356
Car-fender	H. Burden	587,739	Aug. 10	895	309	80	851
Car-fender	W. Cline	590,699	Sept. 28	2249	532	80	1943
Car-fender	M. Dettmar	588,816	Aug. 24	2741	635 636	80	1225
Car-fender	H. H. Doll	587,490	Aug. 3	253	61	80	714
Car-fender	G. W. Donning	587,187	July 27	2830	664	80	607
Car-fender	M. Fernandez	590,187	Sept. 14	1343	317	80	1749
Car-fender	W. H. Griffiths	590,189	Sept. 14	1347	318	80	1749
Car-fender	E. Groat	589,651	Sept. 7	407	99	80	1559
Car-fender	T. R. H. Johnson	588,226	Aug. 17	1669	383 384	80	1006
Car-fender	N. Kohler	585,871	July 6	402	94, 95	80	80
Car-fender	J. Landau, Jr.	589,660	Sept. 7	422	102	80	1502
Car-fender	L. Mercier	588,160	Aug. 17	1567	361	80	967
Car-fender	C. S. Meyers	586,449	July 13	1478	344	80	302
Car-fender	T. A. Remsen	586,290	July 13	1207	275	80	251
Car-fender	J. D. Schmidt	590,487	Sept. 21	1855	439	80	1858
Car-fender	J. N. Welkly	585,729	July 6	133	32	80	29
Car-fender	J. Wick	588,847	Aug. 24	2793	649	80	1235
Car-fender	J. K. Young	588,849	Aug. 24	2796	650	80	1235
Car fender or guard	A. Barnes	589,153	Aug. 31	3331	783	80	1355
Car fender or guard. Tramway-	E. S. Wilkins	588,205	Aug. 17	1636	377	80	1001
Car fender. Street-	W. S. Bowen	587,178	July 27	2816	661	80	604
Car fender. Street-	J. D. Lamb and J. E. Chapman	587,315	Aug. 3	59	14	80	677
Car fender. Street-	J. Steele	587,880	Aug. 10	1065	245	80	879
Car. Gondola	S. G. Fairley	589,647	Sept. 7	402	97	80	1558
Car. Gondola	W. S. Schroeder	589,960	Sept. 14	746	174	80	1636
Car grip. Cable-	T. Millen	590,438	Sept. 21	1780	418	80	1843
Car. Hand-	I. N. Glover	586,601	July 20	1773	412	80	387
Car-heating apparatus	W. C. Baker	590,470	Sept. 21	1838	432	80	1852
Car-indicator	W. F. Bücher	590,296	Sept. 21	1538	364	80	1798
Car-loading apparatus	C. W. Underwood	586,641	July 20	1843	428 429	80	400
Car. Motor-	G. K. Munro, Jr	590,848	Sept. 28	3509	596	80	1992
Car platform and step	H. Schmidt	585,793	July 6	254	59	80	52
Car. Railway-	J. L. Finley	588,563	Aug. 24	2966	526	80	1135
Car. Railway-	L. Moss	589,215	Aug. 31	3419	802	80	1372
Car-replacer	D. Q. Walker	586,992	July 27	2435	576	80	533
Car. Reversible street-	J. J. Thompson	590,776	Sept. 28	3298	569	80	1970
Car-roof	J. J. McCarthy	590,272	Sept. 21	1495	358	80	1790
Car running-gear. Mine-	L. R. Faught	588,325	Aug. 17	1851	428 429	80	1039
Car running-gear. Mine-	L. R. Faught	588,326	Aug. 17	1854	429	80	1040
Car safety-guard and fender	G. Glennie and R. Boone	587,524	Aug. 3	433	101	80	744
Car side bearing. Railway-	J. C. Wands	590,286	Sept. 21	1519	359 360	80	1794
Car sign. Street-	G. E. Weis	586,583	July 20	1738	404	80	380
Car-signal	R. Z. Cassel and G. M. Finckel	586,418	July 13	1431	331	80	293
Car-step	A. Blum	587,073	July 27	2607	617	80	565
Car-step	F. G. Brubaker	588,123	Aug. 17	1495	344	80	973
Car-step	L. G. Heyward	587,095	July 27	2647	625	80	573
Car-step attachment	C. McLennon	585,692	July 6	71	17	80	17
Car-step. Extension	J. A. Campbell	586,012	July 6	760	169	80	149
Car-step. Folding	S. R. Hamilton	587,479	Aug. 3	353	84	80	730
Car step. Revolving extension passenger-	W. Garstang and M. Rickert	588,417	Aug. 17	2007	465	80	1068
Car-strap and handhold	F. E. Benton	588,803	Aug. 24	2966	668	80	1249
Car-switcher. Automatic	H. H. Roche	590,794	Sept. 28	3490	574 575	80	1975
Car-tank	P. Brown	588,742	Aug. 24	2816	608	80	1202
Car-unloader	F. J. Weber	589,516	Sept. 7	187	42, 43	80	1517
Car-unloading apparatus	L. D. Howard	587,206	July 27	2657	671	80	613
Car-ventilating wind-wheel	W. Robinson and M. S. Raher	589,195	Aug. 31	3393	796 797	80	1357
Car ventilation	H. F. Stanley	586,939	July 20	2348	553	80	495
Car-ventilator	J. M. Daly	590,642	Sept. 28	2145	508	80	1995
Car-wheel	T. J. Lewis and A. A. Stevenson	589,356	Aug. 31	3315	891	80	1454
Car-wheel-grinding machine	D. C. Sweet	585,836	July 6	342	79	80	68
Car-wheels. Apparatus for manufacturing	G. Althausse	587,141	July 27	2752	646	80	592
Car-wheels. Forging solid-metal	S. H. Ralston	587,401	Aug. 3	206	52	80	705
Car-window	J. Adams	587,080	July 27	2631	597	80	551
Car-window. Pneumatic	W. H. Heffley	589,831	Sept. 14	705	165	80	1629
Car window. Railway-	S. S. Bradshaw	588,543	Aug. 17	2232	518	80	1112
Cars. Air-brake for railway-	J. F. Coffin	586,836	July 20	2149	502	80	456
Cars. Automatic switching device for street-railway	B. J. Titus	588,086	Aug. 10	1334	309 310	80	930
Cars. Combination truss-rod and corner-brace for	F. Heidelberg	589,432	Sept. 7	57	13	80	1492
Cars. Electrical alarm for	A. Nathan	587,534	Aug. 3	450	105	80	747
Cars or snow-plows. Sand-box for electric	E. C. Collins	586,014	July 6	766	170	80	150
Carbids. Means for manufacturing	J. W. Kenevel	588,866	Aug. 24	2934	656 657	80	1241
Carbids. Process of and apparatus for making metallic	I. L. Roberts	587,509	Aug. 3	406	90	80	738
Carbids. Process of and apparatus for making metallic	I. L. Roberts	588,012	Aug. 10	1296	300	80	923
Carbids. Process of and apparatus for manufacturing metallic	I. L. Roberts	587,138	July 27	2746	644	80	591
Carbonating apparatus. Liquid-	G. D. Rhinehart	589,371	Aug. 31	3335	806	80	1458
Carbonating apparatus. Liquid-	S. Twitchell	586,577	July 20	1726	402	80	378
Carbonizing-machine	A. H. Eyles	588,136	Aug. 17	1529	350	80	980
Carbureter	D. Best	588,351	Aug. 17	1941	450	80	1056
Carbureter	D. Best	589,634	Sept. 7	382	93, 94	80	1554
Carbureter	D. J. Byrne	590,640	Sept. 28	3143	507	80	1925
Carbureter	J. Ormerod	589,094	Aug. 31	3315	756	80	1332
Carbureter	F. H. Shaver	587,867	Aug. 10	1044	241	80	875
Card. Packing and display	E. Sachs	588,945	Aug. 17	1709	393	80	1014

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cardboard box	H. Schmeer	586,827	July 20	2135	498 499	80	453
Cardboard obliquely. Machine for cutting	A. W. Darré	589,075	Aug. 31	3175	747	80	1325
Card-feeding machine	J. F. Geb	590,541	Sept. 21	1957	462	80	1876
Cards. Machine for punching and stacking jacquard-	V. Royle	585,876	July 6	411	98	80	82
Carding-engine	R. Griffin	587,813	Aug. 10	930	216	80	856
Carding-engine	J. T. Meats and J. S. Eaton	587,267	July 27	2972	697	80	635
Carding-engine cover	B. A. Dobson and W. I. Bromiley	588,132	Aug. 17	1524	348 349	80	979
Carding-engine feeding mechanism	J. Hearn	587,815	Aug. 10	933	217	80	857
Carding-machine feeder	G. D. Secor	586,458	July 13	1496	350	80	305
Carding-machine feeding attachment	S. W. Woodbury	587,029	Aug. 3	620	149	80	779
Carding-machines. Protecting-cover for	W. E. Sharples and F. J. Snell	590,340	Sept. 21	1614	381	80	1818
Carousel	R. M. Hunter	589,390	Aug. 31	3375	904	80	1465
Carpenter's combination-gage	A. T. Binkerd	589,688	Sept. 7	469	112	80	1571
Carpet-beating machine	J. H. Ibel	588,678	Aug. 24	2494	575	80	1179
Carpet-cleaner	J. Chapman	590,255	Sept. 21	1466	346	80	1785
Carpet-cleaner	K. Girvin	585,843	July 6	357	83	80	71
Carpet-fastener	C. H. Crawford	587,935	Aug. 10	1165	269	80	898
Carpet-fastener	A. B. Wilcox	590,812	Sept. 28	2446	581	80	1960
Carpet fastener. Stair-	H. C. Adams	587,633	Aug. 3	624	150	80	780
Carpet-stretcher	E. H. Gurney and H. D. Larned	586,659	July 20	1864	433	80	404
Carpet-sweeper	I. E. Stump	587,617	Aug. 3	599	145	80	775
Carriage and wheel-chair. Combined baby-	J. A. Crandall	586,760	July 20	2031	472	80	434
Carriage. Baby-	L. G. Loye	585,769	July 6	214	50	80	45
Carriage. Baby-	J. Paulsen	587,755	Aug. 10	840	197	80	842
Carriage-curtain knob	F. A. Neider	590,768	Sept. 28	2380	565	80	1967
Carriage. Horseless	P. Flucks	589,710	Sept. 7	504	120 121	80	1578
Carriage. Motor-	J. F. Duryea	586,084	July 6	877	198 199	80	171
Carriage parasol-holder. Baby-	J. A. Crandall	588,958	Aug. 31	2976	697	80	1288
Carriage storm-apron	A. F. Brandenburg	589,069	Aug. 31	3162	745	80	1323
Carriage-wheel	J. Lindsay	588,682	Aug. 24	2498	576	80	1180
Carriage-wheel	W. A. Pentecost	588,081	Aug. 10	1405	326	80	943
Carrier: *See* Bicycle-carrier. Bicycle parcel-carrier. Hay-carrier. Lantern-slide carrier. Package-carrier.							
Carrier	F. Butler and J. K. Stansbury	590,566	Sept. 28	2009	474	80	1900
Carrier	W. F. Morse	587,849	Aug. 10	1012	234 235	80	869
Cart. Dumping-	C. Haeske	587,200	July 27	2846	668	80	610
Cart. Dumping-	F. R. Smith	590,242	Sept. 21	1443	339 340	80	1780
Carton-blank	W. B. and H. W. Howe and F. B. Davidson.	587,967	Aug. 10	1226	285	80	909
Cartridge	T. G. Bennett	590,428	Sept. 21	1766	414	80	1841
Cartridge	M. P. Boss	588,764	Aug. 24	2651	612	80	1209
Cartridge	J. B. Kendall	588,443	Aug. 17	2050	478	80	1077
Cartridge-clip. Temporary	T. C. Johnson	587,970	Aug. 10	1231	285	80	910
Cartridge-holder. Temporary	W. F. Travis	586,309	July 13	1091	246	80	229
Cartridge-holding clip. Temporary	T. C. Johnson	587,584	Aug. 3	546	131	80	766
Cartridge-loading implement	E. H. Cant	586,013	July 6	761	170	80	149
Cartridge-shells. Automatic machine for wadding and cupping paper	W. Mason	588,801	Aug. 24	2709	627 628 629	80	1220
Cartridges. Automatic machine for burnishing tubes for paper-shell	W. Mason	587,133	July 27	2735	641 642 643	80	589
Carving-machine	A. D. Seaman	588,602	Aug. 24	2464	567	80	1174
Case: *See* Bicycle gear-case. Eyeglass-case. Packing-case. Paper case. Razor-case. Retailing-case. Show-case. Sketching-case. Spectacle-case.							
Casein. Making ammoniacal	W. Majert	586,654	July 20	2177		80	461
Cash-register	F. H. Bickford	589,114	Aug. 31	3252	764 765	80	1340
Cash-register	T. Carney	587,702	Aug. 10	734	175 176 177	80	822
Cash-register	T. Carney	589,245	Aug. 31	3479	816 817 817	80	1384
Cash-register	J. P. Cleal	589,246	Aug. 31	3489	618 819	80	1387
Cash-register	A. Macauley	587,042	July 27	2550	601 602	80	554
Cash-register	A. Macauley	589,476	Sept. 7	119	26, 27	80	1504
Cash-register	C. J. Ryberg	588,733	Aug. 24	2583	596 597	80	1196
Cash-register	E. F. Spaulding	590,344	Sept. 21	1619	388	80	1814
Cash register and indicator	J. P. Cleal	587,208	Aug. 3	16	4, 5, 6	80	608
Cash register and indicator	E. B. Hess	590,946	Sept. 28	2088	630	80	2037
Cash register and indicator	E. S. Smith	590,556	Sept. 21	1989	468 469	80	1881
Cash register and indicator	A. Smithson	586,401	July 13	1401	323	80	287
Cash register and recorder	T. Carney	588,127	Aug. 17	1503	346 347	80	975
Cash register and recorder	F. Woodbridge	585,906	July 6	732	164 165	80	144
Casket-handle	A. R. Krum	590,947	Sept. 28	2090	640	80	2039
Casket-handle	O. Zauche	588,210	Aug. 17	1643	378	80	1008

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Casket-handle holder and adjuster	E. A. Yocum	588,209	Aug. 17	1641	378	80	1001
Casks, barrels, &c. Apparatus for manufacturing wooden	J. Anthon	585,810	July 6	282	66	80	58
Caster	G. E. Neuberth	589,217	Aug. 31	3422	803	80	1373
Caster	G. E. Neuberth	590,650	Sept. 14	720	170	80	1633
Caster	J. L. Zink and C. W. Meggenhofen	590,290	Sept. 21	1524	361	80	1795
Caster, Spring-	J. W. Spurlock	586,460	July 13	1504	352	80	306
Casting car-wheels. Mold for	J. Connolly	590,452	Sept. 21	1803	424	80	1846
Casting-machine	J. Hall	590,148	Sept. 14	1281	304, 305	80	1796
Casting. Truck end	E. S. Marshall	587,266	July 27	2970	696, 697	80	684
Castings. Apparatus for forming molds for	J. Allenson	587,356	Aug. 3	137	33	80	691
Castings. Machining	W. W. Doolittle	587,477	Aug. 3	350	83	80	729
Cattle-guard	F. C. Seymour	590,500	Sept. 21	1878	445	80	1802
Cauterizing apparatus	W. Scheerer	589,484	Sept. 7	131	29	80	1506
Cell-cases. Means for making	H. C. Herr	586,519	July 13	1611	375, 376, 377	80	327
Cement-gravel mill and crusher	J. M. Rademaker	590,423	Sept. 21	1758	413	80	1839
Cement sidewalk	W. P. Beckwith	586,540	July 20	1658	387	80	365
Cementing device	G. A. Watkins	588,517	Aug. 17	2183	507	80	1102
Centering-tool	I. Stratton and J. K. Roberts	589,872	Sept. 14	765	178	80	1639
Centrifugal drier	D. Aikman	587,292	Aug. 3	1	1	80	665
Centrifugal separator	E. W. Beach	587,171	July 27	2807	659	80	602
Centrifugal separator	O. Linders	585,936	July 6	527	124	80	102
Chain-adjusting device	F. J. Osmond	586,912	July 20	2300	541	80	485
Chain bucket	A. W. Robinson	588,531	Aug. 17	2212	514	80	1108
Chain coupling. Drive-	E. F. Morse	588,704	Aug. 24	2537	586	80	1187
Chain. Drive-	T. J. Christy	587,387	Aug. 3	184	46	80	700
Chain. Drive-	F. A. Foster	587,950	Aug. 10	1200	278	80	904
Chain for cycles. Drive-	A. Appleby	589,683	Sept. 7	458	109	80	1569
Chain for sprocket-wheels	G. W. Bufford	589,903	Aug. 31	3405	799	80	1369
Chain-link	W. H. Griffith	590,479	Sept. 21	1845	436	80	1856
Chain-link	W. H. Griffith	590,480	Sept. 21	1846	436	80	1856
Chain-link	W. H. Griffith	590,481	Sept 21	1847	436	80	1856
Chain. Sprocket-	F. W. Barker and V. Cruser	586,956	July 27	2392	564	80	525
Chair:							
See Dental and surgical chair.	Reclining-chair.						
Electrocution-chair.	Reclining and folding chair.						
Folding chair.	Rocking-chair.						
Invalid-chair.	Window-chair.						
Nursery-chair.	Window-cleaning chair.						
Rail-chair.							
Chair	L. Johnson	588,829	Aug. 24	2761	640	80	1228
Chair and foot-rest. Combined	A. Harte	590,520	Sept. 21	1917	454	80	1870
Chair and foot-rest. Combination	C. A. Lee	586,610	July 20	1788	415	80	390
Chair bellows attachment. Rocking-	B. Lilly and R. R. Kinney	587,008	July 27	2480	585	80	542
Chair or stool. Combination	J. Mitchell	587,845	Aug. 10	1009	233	80	808
Chalking device	C. A. Rittman	587,863	Aug. 10	1034	239	80	873
Chamber-vessel attachment	W. H. and G. M. G. Weston	588,304	Aug 17	1816	419	80	1032
Change-maker. Automatic	G. W. Hollingsworth	590,435	Sept. 21	1775	416, 417	80	1842
Channel-flap turner	W. E. Fischer	588,970	Aug. 31	2904	704	80	1202
Check-branding apparatus	E. E. Angell	588,940	Aug. 31	2944	688, 689	80	1261
Checkrein-hook	A. W. Laughlin	588,341	Aug. 17	1874	433	80	1044
Checkrein-loop	J. T. Fogg	587,282	July 27	3001	703	80	640
Check-row wires. Anchor for	W. R. Waggoner	587,538	Aug. 3	459	108	80	749
Check sorter or separator	J. M. Macrae	590,666	Sept. 28	2198	520	80	1984
Chimney-cowl	F. W. Simmons	588,492	Aug. 17	2138	496	80	1094
Chimney-sweeper	G. W. Middleton	589,012	Aug. 31	3070	724	80	1306
Chimney-top	C. Kuhnhold and W. Steup	587,978	Aug. 10	1242	287	80	912
China-kiln	G. Jeffery	585,765	July 6	200	49	80	44
Chlorate of potash by electrolysis. Apparatus for manufacturing	F. Hurter	587,437	Aug. 3	278	66	80	717
Chocolate drops. Machine for dipping	P. Panoulias	588,349	Aug. 17	1885	435	80	1046
Chopper:							
See Cotton-chopper.							
Cotton or corn stalk chopper.							
Christmas-tree holder	J. N. Jarboe	589,896	Sept. 14	821	193	80	1648
Churn	P. N. Green, J. H. Thompson, and A. Fowler.	589,717	Sept. 7	517	123	80	1580
Churn	J. P. Mathis	589,736	Sept. 7	544	129	80	1586
Churn	A. Mearns	586,908	July 20	2294	539	80	484
Churn	C. L. Monroe	586,731	July 20	1977	460	80	425
Churn	J. S. Mumaugh	590,160	Sept. 14	1299	308	80	1739
Churn	N. Ofer	588,286	Aug. 17	1781	413	80	1027
Churn	J. Widder	586,470	July 13	1520	356	80	309
Churn-dasher	P. C. Barlow	586,754	July 20	2021	469	80	433
Churn-dasher	W. Dulin	588,408	Aug. 17	1998	461	80	1066
Churn-dasher	N. J. Tubbs and C. W. Steele	589,951	Sept. 14	907	218	80	1665
Churn-motor	W. P. Bliss	585,837	July 6	344	80	80	69
Churn-motor	A. B. Talbott	588,193	Aug. 17	1622	373	80	998
Cigar and cigarette holder. Combined	A. Seidenspiner	589,623	Sept. 7	363	99	80	1550
Cigar-bunching machine	H. Jerstrum	588,912	Aug. 24	2896	678, 679	80	1254
Cigar-bunching machine	W. Yellowley	590,180	Sept. 14	1327	314, 315	80	1745
Cigar-lighter. Electrical	T. C. Dobbins	589,938	Sept. 14	889	212	80	1661
Cigar-lighting implement	A. H. Stevens	585,808	July 6	443	107	80	98
Cigar-mouthpiece	A. Pollak	586,343	July 13	1304	298	80	269
Cigar or cigarette holder for blowing smoke rings	C. Löffler	590,684	Sept. 28	2295	527	80	1929
Cigar-shaper	J. H. Ogden	587,600	Aug. 3	573	138	80	771
Cigar-tip cutter	C. E. Billings	590,405	Sept. 7	8	2	80	1484

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cigar-vending machine	A. J. Hoskins	589,471	Sept. 7	109	24, 25	80	1502
Cigar-wrapper cutter	E. Robards	588,477	Aug. 17	2114	491	80	1068
Cigar wrappers and binders. Machine for cutting	J. R. Williams	589,884	Sept. 14	795	186, 187, 188, 189	80	1645
Cigarette	W. A. Hudson	587,827	Aug. 10	908	224, 225	80	802
Cigarette-machine	J. A. Bonsack	589,116	Aug. 31	3256	705, 706, 707, 708, 709	80	1340
Cigarette-machine	F. Girard	586,599	July 20	1768	410, 411	80	386
Cigarette-machine	G. H. Hilgartner	588,900	Aug. 24	2887	673, 674, 675, 676, 677	80	1253
Cigarette-machine	W. A. Hudson	587,825	Aug. 10	903	223, 224	80	861
Cigarette-machine	F. H. Richards	590,629	Sept. 28	2114	500, 501, 502, 503	80	1919
Cigarette machine. Continuous-	K. H. Carper	589,121	Aug. 31	3270	771	80	1344
Cigarette machine. Continuous-	W. A. Hudson and J. F. Hartigan	587,828	Aug. 10	971	225, 226, 227	80	802
Cigarette-making device. Pocket	W. T. Fitz Gerald	587,570	Aug. 3	514	121	80	759
Cigarette-making machine	J. R. Williams	589,883	Sept. 14	783	183, 184, 185, 186	80	1643
Cigarette-mouthpieces. Machine for manufacturing	J. S. Beeman	587,172	July 27	2809	659	80	603
Cigarette-ripping machine	E. Rankin	587,858	Aug. 10	1028	237, 238	80	872
Cigarettes as delivered from cigarette-machines. Mechanism for disposing and arranging	D. B. Strouse	589,873	Sept. 14	767	178, 179	80	1640
Cigarettes. Making	W. A. Hudson	587,826	Aug. 10	907	224	80	802
Cigarettes. Process of and apparatus for making	W. A. Hudson	587,824	Aug. 10	960	222, 223	80	861
Cinder-shield	J. F. Adams	588,739	Aug. 24	2611	601	80	1201
Circuit-breaker	H. Lemp	587,838	Aug. 10	989	230	80	866
Circuit-breaker. Controller	T. von Zweigbergk	590,613	Sept. 28	2447	661, 662	80	1980
Circuit-closer	S. C. Houghton	587,260	July 27	2958	694	80	632
Circuit-closer. Electropneumatic	B. C. Batcheller	585,647	July 6	5	1, 2	80	4
Cistern-cover lock	H. Oberjohann	586,800	July 20	2080	467	80	444
Cithern attachment	P. Renk	587,454	Aug. 3	309	75	80	723
Cithern attachment	F. Zimmerly	586,651	July 20	1855	431	80	402
Clamp:							
See Basin-clamp.	Wire-clamp.						
Bicycle seat-clamp.	Single tree coupling-clamp.						
Cultivator-tooth clamp.	Tentering-machine clamp.						
Door-clamp.	Trousers-clamp.						
Floor-clamp.							
Rail-clamp.							
Clamp	G. M. Dougall	587,094	July 27	2537	598	80	552
Clamp	F. J. Yockel	587,775	Aug. 10	870	205	80	847
Clamp-bracket	M. E. Crowell	588,401	Aug. 17	1981	458	80	1064
Clapboard-machine	P. Conway	585,741	July 6	156	36	80	34
Clasp:							
See Garment-clasp.							
Clasp	C. R. Bradley, G. B. Pilkington, and I. G. Platt.	588,674	Aug. 24	2490	574	80	1178
Clasp	A. W. Evans	588,500	Aug. 24	2264	526	80	1134
Clasp	J. Walker	589,450	Sept. 7	82	18	80	1497
Clasp	J. F. Walsh	590,286	Sept. 14	779	182	80	1642
Clay-working machinery. Feed-regulator for	H. C. Ingraham	588,715	Aug. 24	2554	590	80	1190
Cleaner:							
See Barrel-cleaner.	Fruit-cleaner.						
Beer-pipe cleaner.	Grain-cleaner.						
Boiler-cleaner.	Knife-cleaner.						
Boiler-tube cleaner.	Pipe-cleaner.						
Carpet-cleaner.	Rake-cleaner.						
Dish-cleaner.	Tooth-cleaner.						
Flue-cleaner.							
Clevis	W. E. A. Pipher	589,478	Sept. 7	123	27	80	1505
Clevis. Plow-	O. Lade	588,583	Aug. 24	2298	533	80	1142
Clip:							
See Cartridge-holding clip.	Letter-clip.						
	Paper-clip.						
Hose-clip.	Toe-clip.						
Clipper. Hair-	G. H. Coates	588,954	Aug. 31	2969	696	80	1226
Clock	W. E. Porter	587,136	July 27	2743	644	80	591
Clock. Alarm-	A. Bannatyne	588,809	Aug 24	2726	632	80	1223
Clock. Alarm-	J. W. Brewster	588,550	Aug. 24	2248	522	80	1138
Clock and lamp. Combination alarm-	A. Pherson	587,064	July 27	2591	611, 612	80	562
Clock-case	W. S. Ingraham	589,436	Sept. 7	63	14	80	1498
Clock. Electric program-	E. Bobsien and S. L. Prager	587,143	July 27	2754	645	80	592
Clock-gearing	W. H. Wright	589,866	Sept. 14	803	189	80	1645

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cloisonné-work for windows, &c	A. Navarein	587,225	July 27	2002	661	80	622
Closet: *See* Water-closet.							
Cloth crisping or folding apparatus	H. R. Ross	590,630	Sept. 28	2127	508 504	80	1921
Cloth-cutting machine	G. P. Eastman	590,140	Sept. 14	1964	296 299	80	1732
Cloth-folding machine	J. H. Riley and E. O'Connor	587,017	July 27	2502	589	80	546
Cloth sponging and finishing machine	J. Teuscher	590,731	Sept. 28	2305	545	80	1953
Clothes from boiling water. Device for removing	W. Krause	586,607	July 20	1785	414	80	390
Clothes-hanger	J. E. Irvine	590,311	Sept. 21	1673	371	80	1805
Clothes-line hanger	W. W. Smith and D. J. Doyle	589,967	Sept. 14	755	176	80	1638
Clothes-line holder	A. Campbell	585,951	July 6	551	129	80	107
Clothes-line prop	J. H. Stockman and L. A. Thornton	589,586	Sept. 7	217	52	80	1523
Clothes-line support	T. T. Parker	589,023	Aug. 31	3088	728	80	1309
Clothes-line support	W. A. Rowe	589,963	Sept. 14	968	231	80	1676
Clothes-line tightener	H. Vedder	589,877	Sept. 14	774	180	80	1641
Clothes-pin	L. J. Brown	587,987	Aug. 10	1143	264	80	808
Clothes-pin	J. H. Grapes	586,177	July 13	1096	233	80	218
Clothes-pounder	W. P. Rylander	589,390	Aug. 31	3868	907	80	1467
Clothes-wringer	M. H. Griffin	585,749	July 6	179	40	80	36
Clothes-wringer	W. A. Lippold	588,453	Aug. 17	2071	483	80	1081
Clutch	F. J. Lyons	590,068	Sept. 14	1117	264	80	1708
Clutch. Friction	G. C. Bardons and J. G. Oliver	586,882	July 20	2142	500	80	455
Clutch. Friction	J. E. Windle	586,784	July 20	2065	481	80	441
Clutch. Magnetic	A. de Bovet	586,006	July 6	752	168	80	147
Clutch mechanism	C. L. Higgins	590,007	Sept. 14	1024	241	80	1686
Clutch mechanism	C. W. Hunt	587,208	July 27	2803	672	80	614
Clutch mechanism. Traction-engine	E. Huber	586,664	July 20	1871	435 436	80	405
Clutch mechanisms. Power-shifting device for	T. H. Worrall and A. Lesperance	586,203	July 13	1167	267	80	243
Clutch. Sprocket-wheel	J. and H. M. Copeland	589,338	Aug. 31	3782	862 863	80	1448
Coal-bin	A. G. Hamburger	587,969	Aug. 10	1217	286	80	907
Coal-carrying vehicle	T. Meht	590,697	Sept. 28	2396	619	80	2010
Coal-grading machine	C. W. Parsons	586,510	July 13	1583	370	80	328
Coal-separating machine	M. Davis, Jr	590,526	Sept. 21	1948	461	80	1675
Coat-hanger	B. M. Lincoln and A. Summerfield	589,901	Sept. 14	826	195	80	1649
Coat-hanger	G. E. Rideout	586,456	July 13	1498	350	80	304
Coat-holder	R. J. Stuart	587,246	July 27	2933	688	80	628
Coat-holder	R. J. Stuart	587,616	Aug. 3	597	144	80	775
Coating metals	W. Banfield	589,361	Aug. 31	3861	901	80	1462
Coating sheet-metal plates. Apparatus for	C. C. Roberts and L. S. Stoddard	588,478	Aug. 17	2115	492	80	1089
Cock. Ball-	F. Jewett	590,558	Sept. 21	1994	470	80	1682
Cock. Gas or vapor	O. F. Comlbe	587,428	Aug. 3	250	61	80	713
Cock. Stop-	W. L. Stevenson	590,091	Sept. 28	2237	530	80	1941
Cock. Stop and waste	J. H. Lyons	586,710	July 20	1939	452	80	418
Cock. Water-gage	J. C. Jensen	587,202	July 27	2963	695	80	633
Cock with driving parts entirely isolated from liquids	E. Draullette	588,765	Aug. 24	2651	612	80	1209
Coffee or tea pot	A. Macy	589,005	Aug. 31	3056	719	80	1304
Coffee-pot and boiler appliance	F. Pardo	590,026	Sept. 28	2110	500	80	1918
Coffee pot. Drip-	A. Burckard	590,429	Sept. 21	1766	415	80	1841
Coffee-roaster	D. B. Fraser	587,000	July 27	2634	622	80	570
Coffee-roaster	C. H. Duehring	585,659	July 6	24	7	80	7
Coffee-roasting machine	E. Crawley, Jr., and W. T. Johnston	590,134	Sept. 14	1252	297	80	1729
Coffee-roasting machine	E. Crawley, Jr., and W. T. Johnston	590,135	Sept. 14	1254	297	80	1730
Coffee-roasting machine	E. Crawley, Jr., and W. T. Johnston	590,567	Sept. 28	2010	474	80	1900
Coffin raising or lowering device	J. H. Zook	588,307	Aug. 17	1620	420	80	1033
Coin-controlled apparatus	O. S. Garretson	590,518	Sept. 21	1914	453	80	1869
Coin-freed apparatus	C. Peters	587,286	Aug. 3	82	20	80	681
Coin-holder	W. Robinson	587,018	July 27	2503	589	80	546
Coin holder and register	T. O'Donnell	587,599	Aug. 3	570	137 138	80	770
Coin-operated machine	L. A. Wright, O. L. Percival, and W. E. Ankrum.	585,730	July 6	140	32	80	31
Collar	S. K. Meyerhoff	586,448	July 13	1478	343 344	80	302
Collar-fastener	P. Mullane	587,850	Aug. 10	1015	235	80	870
Collar fastener. Horse-	H. L. Quigley	586,056	July 6	829	185	80	162
Collar pad. Horse-	S. B. Parsons	590,069	Sept. 28	2200	522	80	1985
Collating-machine	T. C. Dexter	588,635	Aug. 24	2411	555 556	80	1164
Coloring yarns. Method of and apparatus for	C. L. Horack	590,547	Sept. 21	1970	465	80	1879
Colors. Developing azo	A. Weinberg	588,203	Aug. 17	1634		80	1000
Colter and scraper for cotton-cultivators. Adjustable	H. W. Smith	589,311	Aug. 31	3745	872	80	1441
Column or other structural support. Composite	W. M. Poindexter	588,290	Aug. 17	1784	413 414	80	1087
Column. Wood	E. Koll	589,836	Sept. 14	710	167	80	1690
Columns. Means for sinking wall or other supporting	R. S. Gillespie	590,080	Sept. 28	2218	526	80	1938
Comb: *See* Currycomb.							
Combs. Machine for manufacturing	F. W. Grell	585,818	July 6	292	68, 69	80	60
Combination-knife	A. R. Kolar	589,308	Aug. 31	3681	905	80	1466
Combination-lock	C. A. Bailey	589,327	Aug. 31	3706	878	80	1445
Combination-lock	H. D. Chipman	590,131	Sept. 14	1249	296	80	1728
Combination-lock	C. D. Logan	588,220	Aug. 17	1575	385	80	1007
Combustion-engine	A. G. Pace	588,466	Aug. 17	2093	497	80	1084
Commutator and lead	S. H. Short	587,868	Aug. 10	1046	241 242	80	875
Commutator and means for assembling same	S. H. Short	590,466	Sept. 21	1823	431	80	1851
Commutator-truing device	P. B. Bosworth	586,514	July 13	1509	372	80	332
Commutators of dynamo-electric machines. Mounting for	E. Caemmerer	590,000	Sept. 14	1000	238	80	1669
Compass. Ship's	L. Gathmann	587,954	Aug. 10	1205	279	80	905

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Composition of matter and applying same	J. O. Dixon	587,799	Aug. 10	913		80	854
Composition of matter and article treated therewith	A. L. Kennedy	587,097	July 27	2648		80	573
Concentrating machine	W. M. Moore	588,382	Aug. 24	2768	642	80	1299
Concentrating-machine	S. W. Vale	588,984	Aug. 24	2951	685 686	80	1902
Concentrator	G. Gates	590,780	Sept. 28	2413	573	80	1974
Concentrator and amalgamator	A. McKellar	586,451	July 13	1489	345 346	80	303
Concentrator. Endless-belt	J. Jacobs	586,311	July 13	1237	289	80	256
Concrete arch and fireproof construction	G. F. and H. N. Gray	585,911	July 6	474	114	80	98
Condenser	C. O. Lindroth	588,585	Aug. 24	2302	534	80	1142
Condenser	C. O. Lindroth	588,586	Aug. 24	2303	534	80	1143
Condenser. Electric	C. S. Bradley	587,114	July 27	2678	631	80	579
Condenser. Exhaust-steam	C. A. Johnson	590,740	Sept. 28	2320	549	80	1956
Condenser. Steam-engine	W. T. Snell	588,497	Aug. 17	2150	499	80	1095
Condenser. Vapor-	S. G. Merrick	587,849	Aug. 10	980	232	80	867
Conductor	J. Swinburne	590,190	Sept. 14	1296	308	80	1735
Conduit	A. S. Kreas, W. P. Allen, and O. S. Kelly.	587,213	July 27	2870	673 674	80	615
Conduit and pulley for cable traction	A. B. Wilson	587,353	Aug. 3	132	32	80	690
Conduit for buildings. Interior	H. G. Osburn	590,373	Sept. 21	1068	303 304	80	1893
Connection. Universal	F. N. Stevens	590,523	Sept. 21	1960	459	80	1873
Conveyer	C. H. Notter	585,668	July 6	72	18	80	17
Conveyer	C. Thompson	588,397	Aug. 17	1805	417	80	1081
Conveyer	W. W. Wilson	587,901	Aug. 10	1100	253	80	865
Conveyer. Pneumatic	A. P. Heklop	588,906	Aug. 24	2884	672 673	80	1938
Conveyers. Adjusting mechanism for feed-chutes for	K. Dodge	588,901	Aug. 24	2874	670 671	80	1951
Conveyers. Automatic feed-spout for	J. M. Dodge	588,899	Aug. 24	2873	669 670	80	1950
Conveyers. Chute for feeding	J. M. Dodge	588,900	Aug. 24	2873	670	80	1950
Conveying apparatus	T. S. Miller and J. G. Delaney	585,984	July 6	574	134	80	111
Cooker	A. B. Eighmy	589,040	Sept. 7	400	97	80	1538
Cooking apparatus. Compartment	L. Moser	585,923	July 6	498	119	80	97
Cooking utensil	S. S. Black	586,005	July 6	750	168	80	147
Cooking utensil	M. Daesch	590,213	Sept. 21	1899	390	80	1772
Cooking utensil	E. R. Inman	587,232	Aug. 3	440	108	80	745
Cooking utensil	O. P. Monroe	586,195	July 13	1070	240	80	225
Cooking utensils. Ventilating device for	C. Hoopes	589,737	Sept. 7	531	126,	80	1589
Cooler: *See* Milk-cooler.							
Cooling apparatus	J. T. Bentley	590,718	Sept. 28	2285	540	80	1950
Coop. Chicken-	W. R. Hoff	587,551	Aug. 3	488	113	80	754
Coop or crate. Folding	O. Terry	588,368	Aug. 17	1915	444	80	1059
Copper. Hardening	J. Reuter	587,861	Aug. 10	1062		80	873
Copper or other metals. Process of and apparatus for electrorefining	C. R. Fletcher	586,171	July 13	1029	238	80	217
Copper sulfids. Treating	J. J. Crooke	589,959	Sept. 14	918	220	80	1667
Copy-holder	F. Jones	590,104	Sept. 14	1186	279	80	1718
Copy-holder and line-indicator	J. L. Callanan	590,206	Sept. 21	1879	396	80	1769
Copying device. Manifold-	F. E. Bacon	588,311	Aug. 17	1895	421	80	1064
Copying-machine	F. T. Miller	590,737	Sept. 28	2300	544	80	1952
Cord. Elastic covered	A. M. Ziegler	590,199	Sept. 14	1361	321	80	1751
Cord or twine cutter	H. E. Evans	587,716	Aug. 10	775	182	80	829
Cork	L. Landau	587,535	Aug. 10	986	229	80	865
Cork and extractor therefor. Combined	J. McMurtrie	587,751	Aug. 10	834	196	80	841
Cork-extractor	M. Redlinger	589,574	Sept. 7	274	66	80	1534
Corking apparatus	C. von der Linden	587,981	Aug. 10	1247	288	80	913
Corking-machine	J. W. Flower and R. J. Cousins	588,414	Aug. 17	2001	463 464	80	1067
Corkscrew	W. A. Williamson	587,900	Aug. 10	1099	252 253	80	885
Corn cutter and scraper, Green-	E. H. Wilson	590,081	Sept. 14	1143	270	80	1709
Corn-holder	P. H. Reardon	586,058	July 6	832	185	80	162
Corn-holder	C. W. Stebbins	587,339	Aug. 3	105	26	80	685
Corn-husker and stalk-cutter	G. C. Janney	589,782	Sept. 7	615	143 144	80	1599
Corn-popper	C. L. Cole	589,817	Sept. 14	680	158	80	1634
Corn-sheller	J. Q. Adams	587,906	Aug. 10	1107	255 256	80	887
Corn-shock loader	L. and J. W. Shanks	587,082	July 27	2621	619	80	567
Cornice-brake and folder	D. Irons	590,364	Sept. 21	1479	349	80	1787
Corset-fastener	F. Carlson	586,217	Aug. 17	1651	380	80	1003
Corset-stiffener	W. G. Steward	588,038	Aug. 10	1330	306	80	927
Cot or bedstead. Folding	E. H. Rimmelin	589,482	Sept. 7	127	26	80	1506
Cot. Trunk-	J. B. Goesman	588,979	Aug. 31	3009	708	80	1295
Cotton-chopper	J. H. Bonner	589,810	Sept. 14	667	155 156	80	1622
Cotton-chopper	E. George	585,747	July 6	175	30	80	37
Cotton-chopper	W. D. Latta	590,107	Sept. 14	1191	280	80	1719
Cotton-chopper	L. T. McKay	586,140	July 13	962	220	80	208
Cotton elevator and cleaner. Seed-	G. Lemoine	588,906	July 20	2291	530	80	494
Cotton-gin	J. H. Heffner	590,622	Sept. 28	2222	537	80	1930
Cotton-gin feeder	T. F. Marlow	586,778	July 20	2054	479	80	430
Cotton-gin stop attachment	H. Rembert	586,304	July 13	1300	230	80	208
Cotton-opening-machine beater	A. T. Atherton	590,580	Sept. 28	2031	472	80	1890
Cotton or corn stalk chopper	D. G. Irby	587,309	July 27	2664	573	80	514
Cotton-picker	D. S. Deaderick	590,090	Sept. 14	1158	274	80	1712
Cotton-picking machine	P. P. Haring	587,201	July 27	2847	599 600	80	610
Cotton-press	M. Swenson	587,618	Aug. 3	600	145	80	776
Cotton. Printing and mercerizing	J. Weiss	586,750	July 20	2011		80	488
Cotton samples. Machine for wrapping	C. H. Robinson	586,065	July 6	841	187	80	164

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Couch. Adjustable	W. Edeler	590,096	Sept. 14	1170	276	80	1715
Couch-bottom	J. Healy	590,522	Sept. 21	1919	454	80	1870
Couch. Box-	R. G. Coates	586,476	July 13	1528	358	80	311
Counting and signaling apparatus	B. E. Waters	588,670	Aug. 24	2481	571	80	1176
Coupler. Pneumatic	F. W. Hedgeland	590,545	Sept. 21	1961	463	80	1877
Coupling: *See* Air-brake coupling. Ball-coupling. Belt-coupling. Car-coupling. Car and brake-pipe coupling. Chain-coupling. Hay-loader coupling. Hose-coupling. Pipe-coupling. Shaft-coupling. Thill-coupling. Vehicle-spring coupling. Yoke-coupling.							
Coupling	M. Dillenburg	587,546	Aug. 3	473	110	80	752
Coupling	H. L. Flint	589,706	Sept. 7	502	120	80	1577
Coupling-link. Detachable	R. Holcombe	590,575	Sept. 28	2023	476	80	1908
Cover for washtubs, &c	M. Delaney	586,421	July 13	1496	332	80	294
Cover-support, box-opener, hammer, and stamp-eraser.	R. L. Dobson	588,407	Aug. 17	1992	461	80	1006
Cow-tie	W. Witt	589,014	Sept. 14	854	208	80	1655
Cradle. Automatic	A. W. Peterson	585,852	July 6	373	87	80	74
Cradle. Child's	G. F. Packard	587,014	July 27	2405	587 588	80	545
Crane	C. W. Parsons	586,454	July 13	1486	346 347 348 349	80	304
Crane. Overhead traveling	W. H. Morgan	590,547	Sept. 28	2506	596 597 598	80	1902
Crank	T. S. James	589,728	Sept. 7	531	126	80	1584
Crate. Egg-	J. H. Hammer	586,846	July 20	2163	505 506	80	459
Crate. Folding	O. Hausmann	587,481	Aug. 3	356	85	80	731
Crate. Folding egg-	T. Ellenbecker	586,725	July 20	1966	458	80	423
Crate. Folding egg-	J. J. Goldbaum	586,843	July 20	2158	504	80	458
Crate. Folding egg and berry	J. L. Ferren	590,367	Sept. 21	1658	391 392	80	1821
Crate-machine	F. B. Sites	586,671	July 20	1879	437 438	80	407
Crate. Shipping-	J. Bonta, Jr	590,510	Sept. 21	1891	450	80	1864
Crate. Shipping-	S. E. McDougal	587,995	Aug. 10	1272	294	80	918
Cream-separator	T. Collins and E. L. Hartmann	589,641	Sept. 7	398	96	80	1536
Cream-separator. Centrifugal	C. Hohnsbehn	590,574	Sept. 28	2022	476	80	1903
Crib. Child's	F. D. Palmer	588,001	Aug. 10	1290	295	80	919
Crock-press	W. H. Rook, Jr	586,291	July 13	1208	276	80	251
Crucible and making same	R. W. Wallace	585,908	July 6	725	.....	80	142
Crucibles or lining of furnaces. Brasquing of	P. E. Placet	589,221	Aug. 31	3428	.....	80	1373
Crusher	M. F. Williams and E. H. Frickey	590,748	Sept. 28	2331	552	80	1959
Crusher and pulverizer	N. F. Williams	589,236	Aug. 31	3466	812 813	80	1881
Crushing and grinding mill	W. H. Coward	589,248	Aug. 31	3499	820 821	80	1886
Crushing-machine	T. L. and T. J. Sturtevant	588,618	Aug. 24	2379	546	80	1157
Culinary utensil	C. R. Jones	588,440	Aug. 17	2047	477	80	1076
Culinary vessel	A. Leavitt	587,152	July 27	2770	651	80	506
Cultivator	E. Ackors	590,358	Sept. 21	1640	386	80	1818
Cultivator	F. Benfield	586,655	July 20	1860	482	80	408
Cultivator	G. L. Robey	587,066	July 27	2593	612 613	80	562
Cultivator	G. L. Robey	587,067	July 27	2595	613 614	80	563
Cultivator	E. R. and L. Williams and E. B. Harvey.	590,694	Sept. 28	2240	531	80	1942
Cultivator. Disk	W. H. Holsclaw	590,191	Sept. 14	1349	318 319	80	1749
Cultivator-tooth clamp	E. C. Lester	590,844	Sept. 28	2502	595	80	1991
Cultivator-truck	O. Phinney	589,193	Aug. 31	3390	796	80	1366
Cultivator. Wheeled	H. G. Thompson	588,033	Aug. 10	1327	307 308	80	928
Culvert	J. and W. R. Thomas	590,490	Sept. 21	1802	440	80	1859
Cup and can. Combined	C. P. Kertell	589,391	Aug. 31	3880	905	80	1466
Cupboard	F. C. Geiger	588,138	Aug. 17	1583	352	80	961
Cupboard and sink. Combined	M. M. Belknap	587,113	July 27	2677	630 631	80	579
Curling-irons to be attached to gas-burners. Device for holding	W. E. Fuller	587,118	July 27	2685	632	80	580
Current generator. Alternating-	H. Fairbanks	590,098	Sept. 14	1174	277	80	1716
Current generator. Alternating-	F. H. Sleeper	589,674	Sept. 7	445	106	80	1567
Current generator. Direct-	B. G. Lamme	588,279	Aug. 17	1767	409	80	1024
Current meter. Alternating-	R. Shand	590,650	Sept. 28	2157	510	80	1927
Current-motor	A. B. Frame	590,142	Sept. 14	1367	299 300	80	1733
Current recorder. Excessive-	J. R. Cravath	586,723	July 20	1963	457	80	423
Currents to motors. Regulating admission of	F. E. Herdman	587,311	Aug. 3	59	12, 13	80	675
Currents. Transmission of energy by alternating	C. S. Bradley	589,556	Sept. 7	245	60	80	1526
Currycomb	J. D. O'Neill	587,451	Aug. 3	306	74	80	722
Currycomb	L. Powell	588,352	Aug. 17	1899	496	80	1047
Curtain. Adjustable	G. G. F. Boswell	588,390	Aug. 17	1955	452	80	1050
Curtain-fixture	J. M. Barnard and J. P. Ruppert	589,633	Sept. 7	351	98	80	1554
Curtain-fixture	T. H. Lloyd	588,454	Aug. 17	2072	483	80	1061
Curtain-fixture	E. A. Roberts	588,244	Aug. 17	1709	392	80	1014
Curtain-fixture	A. J. Roth	586,935	July 20	2344	552	80	494
Curtain-fixture	A. Southwell	588,094	Aug. 10	1315	305	80	926
Curtain-fixture	E. M. Winfrey	590,542	Sept. 7	222	53	80	1524
Curtain-fixtures, &c. Bracket for use with	E. W. Farnham	587,084	Aug. 3	708	168	80	796

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Curtain-hanger	J. Altman	586,152	July 13	995	224	80	211
Curtain-pole	E. K. West	587,166	July 27	2799	657	80	601
Curtain-pole ring	G. R. Steinert and F. E. Babb	589,375	Aug. 31	3843	898	80	1459
Curtain-stretcher	W. A. Mayr	589,263	Aug. 31	3520	826	80	1398
Cushion: *See* Pneumatic seat-cushion.							
Cushion, pad, &c	G. Muller	590,328	Sept. 21	1600	377	80	1811
Cuspidor. Antiseptic pocket-	M. B. Baldwin	587,549	Aug. 3	465	109	80	751
Cut-off. Rain-water	F. E. Snyder	586,572	July 20	1719	400	80	377
Cut-out. Automatic	C. N. Black	585,904	July 6	460	111	80	91
Cut-out. Fusible	C. G. Perkins and J. Tregoning	586,565	July 20	1708	395	80	374
Cutter: *See* Band-cutter. Bolt-cutter. Bread-cutter. Cigar-tip cutter. Cigar-wrapper cutter. Cord or twine cutter. Corn-cutter. Paper-cutter. Pipe-cutter. Potato-cutter. Thread-cutter. Vegetable-cutter. Weed-cutter.							
Cutter-head	G. A. Ensign	590,403	Sept. 21	1867	441 442	80	1860
Cutter-head	C. Mattison	590,422	Sept. 21	1757	412	80	1839
Cutter-head and knife	J. B. Vuncanon	588,041	Aug. 10	1343	311	80	931
Cutting-off mechanism	E. P. Noyes	587,598	Aug. 3	567	136 137	80	770
Cutting-tool holder	W. T. Smith	590,341	Sept. 21	1615	381 382	80	1814
Cyanids. Making	A. Frank and N. Caro	590,217	Sept. 21	1406	332	80	1774
Cycle	T. Hill	589,348	Aug. 31	3797	896 897	80	1451
Cycle	B. F. Shurz	588,361	Aug. 17	1905	441	80	1050
Cycle-chains. Adjusting means for	B. S. Roberts and W. Morton	586,624	July 20	1816	422	80	395
Cycle. Circle-	E. I. Brannan	589,408	Sept. 7	12	3, 4	80	1485
Cycle drive-chain	A. Appleby	586,472	July 13	1523	357	80	310
Cycle driving mechanism	J. T. Pedersen	587,601	Aug. 3	574	139	80	771
Cycle-driving mechanism	F. W. Quin	586,057	July 6	831	185	80	102
Cycle driving mechanism	W. H. Trengrove	588,198	Aug. 17	1698	375	80	999
Cycle-fitting	R. G. Cornforth	590,825	Sept. 28	2469	585	80	1985
Cycle-gear cases. Apparatus for manufacturing	H. W. Dover	586,840	July 20	2154	503	80	457
Cycle-hub	W. H. Binns	589,954	Sept. 14	911	218	80	1666
Cycle or automobile car. Chainless	D. C. Mérigeault	589,906	Sept. 14	837	197	80	1652
Cycle-saddle	J. B. Brooks	589,243	Aug. 31	3477	815 816	80	1383
Cycle-stand	T. W. Patton	587,856	Aug. 10	1024	237	80	872
Cycle-support. Folding portable	G. Adcock	589,919	Sept. 14	859	204	80	1656
Cycle-tubes. Mechanism for joining sections of	J. G. Inshaw	588,438	July 13	1465	339 340	80	300
Cycle-wheel	D. N. Gleason	586,600	July 20	1771	412	80	387
Cyclometer	L. J. Burdick	588,796	Aug. 24	2569	593	80	1193
Cyclometer	W. L. Shepard	589,910	Sept. 14	849	201	80	1654
Cyclometer or registering-machine	L. J. Burdick	588,727	Aug. 24	2572	594	80	1194
Cylinder drier	J. Hundhausen	589,362	Aug. 31	3809	889	80	1453
Cylinder-lock	W. H. Taylor	588,196	Aug. 17	1626	374	80	998
Dado-cutter and tenoning-machine	W. J. Perkins	588,082	Aug. 10	1406	326 327	80	943
Damper	J. E. Slentz	586,571	July 20	1718	399	80	377
Damper. Stove-	G. W. Cope	590,431	Sept. 21	1770	415	80	1841
Dampers. Counterbalance for	J. H. Cox	587,033	July 27	2536	598	80	552
Danger-signal	J. McConayhy and C. H. McCormick.	590,840	Sept. 28	2510	598	80	1993
Decoy. Hunting-	J. Sievers, Jr	586,145	July 13	988	222	80	209
Dehorning implement	C. J. Lindquist	587,589	Aug. 3	554	133	80	767
Deborning implement	G. Webster	586,806	July 20	2099	490	80	447
Dental and surgical chair	H. H. Elbreg	589,409	Sept. 7	154	34	80	1511
Dental appliance	C. F. C. Mehlig	590,460	Sept. 21	1812	427	80	1849
Dental engine	G. Valley	590,246	Sept. 21	1451	342	80	1782
Dental-engine attachment	F. W. Ketner	588,444	Aug. 17	2051	478	80	1077
Dental-engine handpiece	H. F. Jones	585,845	July 6	363	83, 84	80	72
Dental furnace	W. Dall	590,214	Sept. 21	1408	331	80	1773
Dental furnace. Electric	C. A. Timme	589,048	Aug. 31	3128	736	80	1317
Dental instrument	J. W. Hard	586,727	July 20	1970	458	80	424
Depurator	K. L. Sandrowski	588,092	Aug. 10	1425	331	80	946
Desk	J. H. Butler and L. B. Cobb	587,473	Aug. 3	339	80	80	727
Desk	W. W. Cook	586,330	July 13	1290	294	80	266
Desk	J. P. L. Nelson	589,018	Aug. 31	3061	726	80	1308
Desk. Adjustable school-	F. R. Beal	586,156	July 13	1005	227	80	213
Desk. Adjustable school-	W. F. Spieth	590,076	Sept. 14	1132	267	80	1707
Desk attachment. School-	G. W. Boyd	590,819	Sept. 28	2458	583	80	1983
Desk-lid support	B. E. Kipp	588,228	Aug. 17	1672	384 385	80	1007
Desk-light	A. H. Ryder	589,032	Aug. 31	3099	730	80	1312
Detector: *See* Railway-switch detector.							
Die: *See* Brick-die. Glove-cutting die. Printing-die. Saddle-seat die. Screw-blank-heading die.							
Dizzer: *See* Post-hole digger. Potato-digger.							
Dilator: Uterine	T. A. Lewis	588,776	July 20	2052	478	80	439
Direct-acting engine	W. A. Kidd	585,960	July 6	568	133	80	110
Diseases. Apparatus for treating	H. Sanche	587,237	July 27	2990	684 685	80	625
Dish. Butter-	H. R. Phillips	588,782	July 6	235	55	80	49
Dish-cleaner	R. M. Daniels	588,219	Aug. 17	1653	380	80	1003

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dish-pan	A. F. Morgan	590,620	Sept. 28	2102	497	80	1017
					498		
Disinfecting apparatus	R. Westphal	589,054	Aug. 31	3136	729	80	1319
Display-rack	J. W. Ennis	587,946	Aug. 10	1192	276	80	903
Display-rack. Rotary insect-proof	S. S. Goldman	589,425	Sept. 7	41	11	80	1487
Distilling and aerating apparatus	F. Rosebrook	587,162	July 27	2785	655	80	590
Distilling apparatus	H. J. Krebs	589,000	Aug. 31	3047	717	80	1302
Distilling apparatus. Water-	W. O. Pierce and B. F. Bigelow	587,506	Aug. 3	401	95	80	737
Distilling liquids. Process of and apparatus for	A. G. Waterhouse	585,943	July 6	536	126	80	104
					127		
Ditching-jack	R. Rue	587,274	July 27	2990	701	80	638
Ditching-machine	D. K. Smith	590,118	Sept. 14	1233	287	80	1734
Diving outfit	J. B. Pollard	587,604	Aug. 3	579	140	80	772
Dock. Floating or submergeable	M. Guastavino	590,147	Sept. 14	1278	303	80	1735
					304		
Door and screen combined. Storm-	S. A. Addis	587,382	Aug. 3	178	44	80	699
Door-check	G. W. Wright	590,052	Sept. 14	1089	257	80	1699
					258		
Door check and tightener	E. Conklin	589,418	Sept. 7	32	8	80	1487
Door-check. Liquid	A. A. Page	590,048	Sept. 14	1081	256	80	1698
Door-check. Pneumatic	C. H. Ocumpaugh	589,992	Sept. 14	982	234	80	1678
Door-clamp	C. E. Ovenshire	590,047	Sept. 14	1079	255	80	1697
Door-closing appliance	E. F. Holbrook and E. N. Goodwillie	587,823	Aug. 10	950	222	80	861
Door for poultry-houses	T. N. Banner	589,111	Aug. 31	3246	763	80	1338
Door-hanger	T. C. Prouty	587,491	Aug. 3	371	86	80	733
Door-hanger	T. C. Prouty	587,492	Aug. 3	373	88	80	733
Door-holder	J. F. Sullivan	588,619	Aug. 24	2381	546	80	1156
Door-indicator	H. Hinckley	588,149	Aug. 17	1547	356	80	984
Door-indicator	E. A. Langford	590,418	Sept. 21	1747	410	80	1837
Door-lock	J. F. Rutledge	587,659	Aug. 3	662	158	80	788
Door-opener	K. Schiek	590,169	Sept. 14	1311	311	80	1742
Door opener or closer	D. B. Akard	586,375	July 13	1356	312	80	278
					313		
Door opener or closer	D. B. Akard	590,200	Sept. 21	1525	362	80	1796
Door or window-sash	S. J. Horcheler	588,527	Aug. 17	2201	511	80	1105
					512		
Door. Panel-	J. Martin	587,983	Aug. 10	1249	289	80	914
Door-saddle	T. Vogel	586,467	July 13	1516	355	80	308
Door-securer	C. E. Stone	587,496	Aug. 3	382	90	80	734
Door-spring	J. M. Henton	589,656	Sept. 7	415	100	80	1561
					101		
Door-stay. Adjustable	C. F. Deplanty and E. E. Wilson	588,962	Aug. 31	2983	701	80	1289
Door-stop	G. J. Markert	587,181	July 27	2782	640	80	588
Door-stop	J. E. Minott	589,264	Aug. 31	3521	826	80	1303
Door structure. Storm-	T. Van Kannel	588,620	Aug. 24	2382	546	80	1158
					547		
Door structure. Storm-	T. Van Kannel	588,888	Aug. 24	2860	666	80	1247
Doubletree	L. M. Stevens	586,462	July 13	1506	352	80	307
Dough working and shaping machine	W. S. and C. I. Corby	590,133	Sept. 14	1249	296	80	1729
					297		
Drafting and plotting instrument	S. L. O'Neal	586,975	July 27	2424	573	80	531
Drafting-tool	E. H. Rooney	586,626	July 20	1818	423	80	396
Drain	C. Traub and J. W. Helfrecht	590,770	Sept. 28	2995	699	80	1970
Drapery pin or hook	J. Smith	588,886	Aug. 24	2855	664	80	1247
Drapery-suspending device	S. W. Cushing	589,703	Sept. 7	493	118	80	1576
Drawer. Antifriction-	I. C. Friesen	588,565	Aug. 24	2370	527	80	1136
Drawer or file-box	F. L. G. Straubel	586,512	July 13	1590	371	80	323
Drawers	J. A. Scriven	590,595	Sept. 28	2059	498	80	1909
Drawers	J. A. Scriven	590,596	Sept. 28	2059	498	80	1909
Drawers. Device for covering and protecting contents of	H. R. Burt	589,159	Aug. 31	3339	784	80	1357
Drawers-support	W. H. Kephart	588,750	Aug. 24	2632	606	80	1205
Drawing-rolls of cotton machinery. Clearer for	J. Thomson, Jr	590,920	Sept. 28	2629	627	80	2017
Dress-shields. Detachable fastener for	G. Roberts	590,807	Sept. 28	2440	579	80	1979
Drier:							
See Brick-drier. Centrifugal drier. Cylinder drier. Tobacco-stem drier.							
Drill:							
See Screw-drill. Seed-drill. Grain-drill. Rock-drill.							
Drill	F. Raymond	588,929	Aug. 24	2923	684	80	1260
Drill	H. Richter, Jr	586,064	July 6	839	187	80	164
Drill and oyster dredge. Combined	T. Thomas	589,047	Aug. 31	3126	726	80	1317
Drill-bit sharpening and dressing apparatus	B. F. Anderson	587,909	Aug. 10	1118	256	80	888
Drill-frame	P. Broadbooks	588,712	Aug. 24	2549	589	80	1189
Drilling apparatus	T. L. Armstrong	589,110	Aug. 31	3244	763	80	1338
Drilling-machine	F. Fanning	590,721	Sept. 28	2280	541	80	1950
Drinking-fountain	H. F. Jenks	586,813	July 13	1242	284	80	257
Drinking-fountain	M. Meeres	588,772	Aug. 24	2660	614	80	1211
Drive-wheels. Releasing device for brakes of	W. O. Pelham	586,455	July 13	1492	349	80	304
Driving wheel. Chain-	H. Morrison	587,848	Aug. 10	1011	234	80	809
Drums and cymbals. Attachment for playing bass.	H. A. Bower	590,182	Sept. 14	1331	315	80	1746
					316		
Drying apparatus	J. Webster	590,287	Sept. 21	1521	360	80	1795
					361		
Drying cylinder. Web-	F. Wippermann	590,028	Sept. 28	2050	632	80	2021
Drying-kiln	D. and J. S. Hill	589,895	Sept. 14	820	193	80	1648
Dumping box or bucket	M. W. Peterson	589,749	Sept. 7	566	132	80	1590
Dumping device	W. Wittig	590,637	Sept. 28	2138	506	80	1924
Dumping or discharging device	F. Scripture	590,594	Sept. 28	2057	487	80	1909
Duplicating pad or sheet	H. P. Brown	589,372	Aug. 31	3338	807	80	1458
Dust-collector	J. Charlton	590,033	Sept. 14	1061	250	80	1694
Dust-collector	D. W. Marmon	586,742	July 20	2000	465	80	430
					466		
Dust from air. Apparatus for separating	J. E. Mathewson	588,457	Aug. 17	2075	484	80	1061
Dust-pan	L. A. Hannigan	586,358	July 13	1327	304	80	274

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dust-pan	L. P. Ray	587,607	Aug. 3	586	142	80	773
Dust-pan	A. L. Vuillier	586,919	July 20	2311	544	80	488
Dye. Black disazo	C. Bülow	590,088	Sept. 14	1155		80	1712
Dye. Blue	C. De la Harpe	585,934	July 6	525		80	102
Dye. Bluish-scarlet	I. Rosenberg	588,180	Aug. 17	1604		80	994
Dye. Brown substantive	I. Rosenberg	588,183	Aug. 17	1608		80	995
Dye. Gray	A. Cobenzl	588,897	Aug. 17	1974		80	1062
Dye. Mixed substantive	I. Rosenberg	588,182	Aug. 17	1606		80	995
Dye. Red	J. Ville	589,766	Sept. 7	590		80	1545
Dye. Reddish-violet	I. Rosenberg	588,181	Aug. 17	1605		80	994
Dyeing	V. G. Bloede	588,887	Aug. 17	1952		80	1059
Dyeing anilin-black	V. G. Bloede	588,888	Aug. 17	1953		80	1059
Dyeing apparatus	T. C. Dill	583,117	July 13	940	211	80	201
					212		
Dyeing, &c. Apparatus for	T. Halliwell	585,732	July 6	183	41, 42	80	39
Dyeing black	E. von Portheim	586,865	July 20	2193		80	465
Dyeing-horse	J. Knott	585,935	July 6	526	124	80	102
Dyeing. Process of and apparatus for	L. Le Blois and G. Picent. (Reissue.) 11,630	July 13	1651	385	80	335
Dynamite-heater	G. Rickert	589,029	Aug. 31	3006	729	80	1310
Dynamo-brush	F. J. Chaplin	589,102	Aug. 31	3343	785	80	1357
Dynamo brush-holder	J. A. Marsh	589,904	Sept. 14	831	196	80	1651
Dynamometer	E. H. McHenry	590,046	Sept. 14	1077	254	80	1697
Dynamo, motor, or rotary transformer. Multipolar	S. H. Short	588,491	Aug. 17	2136	496	80	1093
Dynamo or motor	A. W. Smith	588,459	July 13	1490	351	80	305
Dynamos. Electric regulator for	W. H. Chapman	589,073	Aug. 31	3160	746	80	1334
Ear and tooth pick. Combined	F. E. Rockstroh	590,280	Sept. 21	1513	358	80	1798
Earthworks. System for anchoring	H. Rabitz	589,856	Sept. 14	739	172	80	1635
Eaves-trough hanger	D. P. Isham	588,151	Aug. 17	1554	358	80	985
Edge-finishing machine	S. D. Tripp	587,378	Aug. 3	171	42	80	698
Edging. Garment-	H. Haase	589,720	Sept. 7	524	124	80	1582
Edible tablets. Preparing	W. Horlick	585,758	July 6	192		80	40
Educational appliance	J. M. Lamb	589,180	Aug. 31	3369	791	80	1362
					792		
Egg-beater	W. J. Johnson	588,112	Aug. 10	1478	341	80	956
Egg-beater	E. E. Reedy	585,708	July 6	85	22	80	30
Egg-beater	E. J. Scopes	589,795	Sept. 7	643	149	80	1605
Egg-beater	C. F. Smith	588,663	Aug. 24	2466	568	80	1174
Egg-cabinet. Revolving	L. Woods	586,410	July 13	1418	336	80	291
Egg-tester	H. C. Timms	588,736	Aug. 24	2507	590	80	1198
Egg-tray for incubators	J. H. Young	588,044	Aug. 10	1348	312	80	932
Egg tray or carrier	A. B. Vaag	590,468	Sept. 21	1826	431	80	1852
					432		
Elastic wheel	J. H. Peterson	586,566	July 20	1705	395	80	374
Election purposes. Portable building for	J. H. Van Dorn	590,079	Sept. 14	1139	269	80	1705
Electric alarm	J. C. Kenmouth	590,267	Sept. 21	1485	350	80	1789
Electric alarm	R. Penney	588,004	Aug. 10	1264	297	80	920
Electric alarm and call-bell	F. C. Jordan	588,907	Aug. 31	3057	714	80	1309
Electric bath	J. J. Stanger	590,171	Sept. 14	1314	312	80	1742
Electric battery	W. Mills	588,591	Aug. 24	2310	535	80	1144
					536		
Electric battery	W. Mills	588,592	Aug. 24	2312	536	80	1145
Electric car-lighting system	F. M. Bennett	589,112	Aug. 31	3247	763	80	1339
Electric-circuit switch	H. B. Shallenberger	589,665	Sept. 14	752	176	80	1638
Electric conductors. Method of and means for supporting and insulating	H. W. Leonard	586,133	July 13	965	218	80	205
Electric contact	A. J. Moxham	587,594	Aug. 3	502	135	80	769
Electric contact. Auxiliary	W. M. Brown	589,412	Sept. 7	25	6	80	1486
Electric contact-box	W. M. Brown	587,642	Aug. 3	637	153	80	783
Electric contact device	D. S. Shallenberger	588,188	Aug. 17	1615	371	80	996
Electric controller	S. Harris	587,733	Aug. 10	802	189	80	834
Electric controller	A. F. Macdonald	585,772	July 6	219	51	80	46
Electric currents. Apparatus for generating constant	C. N. Black	587,921	Aug. 10	1133	261	80	892
					262		
Electric currents. Method of and apparatus for multiple rate-metering for	E. Oxley	588,170	Aug. 17	1584	366	80	991
					367		
Electric cut-out	N. Marshall	588,686	Aug. 24	2502	577	80	1181
Electric furnace	G. de Chalmot	587,182	July 27	2821	662	80	605
					663		
Electric furnace	G. de Chalmot	588,267	Aug. 17	1747	405	80	1021
Electric furnace	R. F. S. Heath	586,686	July 20	1907	444	80	412
Electric furnace	R. F. S. Heath	586,687	July 20	1908	444	80	412
Electric furnace	F. J. Patten	586,822	July 20	2124	496	80	451
Electric furnace	F. J. Patten	586,824	July 20	2127	497	80	452
Electric furnace	G. S. Strong	587,343	Aug. 3	115	28	80	687
Electric generators or motors. Brush-holder support for	S. H. Short	588,490	Aug. 17	2134	496	80	1093
Electric heater	J. F. McElroy	586,615	July 20	1798	417	80	392
					418		
Electric heater	R. A. L. Snyder and A. F. Tinnerholm.	590,915	Sept. 28	2023	626	80	2016
Electric herb pad	A. Roedel	588,479	Aug. 17	2117	492	80	1089
Electric-light fixture	L. McCarthy	586,317	July 13	1256	298	80	260
Electric-light raising or lowering machine	N. McLeod	585,778	July 6	230	54	80	48
Electric lights. Adjustable device for incandescent	C. A. Carmany	586,378	July 13	1260	314	80	279
Electric lights. Carbon-holder for	O. S. Moss	588,233	Aug. 17	1680	386	80	1008
Electric-lighting system	F. W. Lord	588,683	Aug. 24	2499	576	80	1180
Electric-machine brush-holder. Dynamo-	R. Lundell	585,872	July 6	403	95	80	80
Electric machine. Dynamo-	V. A. Fynn	587,573	Aug. 3	519	122	80	760
					123		
Electric machine. Dynamo-	C. M. Green	587,576	Aug. 3	531	127	80	763
Electric machine. Dynamo-	L. C. Rice	588,602	Aug. 24	2330	532	80	1149
Electric machine. Dynamo-	S. W. Rushmore	587,164	July 27	2791	656	80	600
Electric machine. Dynamo-	E. P. Warner and H. H. Wait	587,379	Aug. 3	174	43	80	698
Electric machine. Multipolar dynamo-	S. W. Rushmore	587,163	July 27	2787	655	80	599
					656		

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric machine or electric motor. Dynamo	A. R. Griebov	586,234	July 13	1121	255	80	235
Electric machines. Field-magnet for dynamo	S. H. Short	587,869	Aug. 10	1048	242	80	676
Electric machines. Form for winding coils for dynamo	H. Geisenhöner	586,995	July 27	2457	581	80	538
Electric meter	J. F. De Bauw	587,798	Aug. 10	909	212 213	80	954
Electric meter	E. J. King	588,909	Aug. 31	3045	715 716	80	1301
Electric meter	W. D. Marks and G. R. Green	586,560	July 20	1692	598	80	372
Electric meter	G. F. Packard	587,015	July 27	2498	588	80	545
Electric meter	C. C. Schumacher and A. G. Zamel	589,672	Sept. 7	440	105	80	1505
Electric-meter-shielding device	E. Thomson	590,653	Sept. 28	2164	512	80	1988
Electric motor	F. A. Perret	586,825	July 20	2129	497 498	80	452
Electric motor	J. L. Thoma	587,769	Aug. 10	802	203	80	846
Electric motor for elevators	J. D. Ihlder	585,780	July 6	196	45	80	41
Electric motor or dynamo-electric machine	R. Lundell	587,551	Aug. 3	445	104	80	746
Electric-motor starting-box	R. B. Hirst	589,433	Sept. 7	58	13	80	1498
Electric motors. Means for controlling	S. H. Short	588,061	Aug. 10	1311	304	80	925
Electric motors. Regulating	A. G. Davis	587,987	Aug. 10	1168	269 270	80	898
Electric storage or secondary battery	F. King	586,044	July 6	808	181	80	158
Electric switch	F. D. Hall	586,029	July 6	787	175	80	154
Electric switch	J. F. McElroy	586,933	July 20	2340	531 532	80	498
Electric switch	E. Oxley	586,075	July 6	860	191	80	168
Electric switch	H. W. Smith	587,458	Aug. 3	316	76	80	734
Electric switch	J. B. Smith, A. W. Ferrin, and A. L. Clough	589,582	Sept. 7	294	71	80	1537
Electric-switch connection	H. A. Bullard	586,543	July 20	1660	387	80	366
Electric trap	G. B. Vaughan	590,121	Sept. 14	1227	288	80	1725
Electric trip-knife switch	A. C. Carey	590,396	Sept. 21	1692	398	80	1892
Electric wick-lighting device	H. Van Hoevenbergh	588,609	Aug. 24	2479	571	80	1176
Electric-wire cable-head	H. A. Tobey	586,463	July 13	1506	352 353	80	307
Electric-wire cable-head	H. A. Tobey	586,464	July 13	1509	353	80	307
Electric-wire holder	C. J. Stram	587,614	Aug. 3	595	144	80	774
Electric wires or cables and making same. Joint or splice for	F. Schwedtmann	585,707	July 6	90	23	80	21
Electrical apparatus. Coin-operated	W. B. Wheeler	590,427	Sept. 21	1763	414	80	1840
Electrical apparatus. Protective appliance for	A. S. Williams	588,306	Aug. 17	1637	377	80	1001
Electrical body appliance	J. P. McGill	589,015	Aug. 31	3078	725	80	1308
Electrical conducting-wires. Connector for	S. P. Hull and J. Du Bois	586,665	July 20	1872	436	80	406
Electrical conductor	J. D. Bishop	588,382	Aug. 17	1943	451	80	1057
Electrical conductor	C. N. Dutton	586,811	July 20	2108	492	80	448
Electrical-conductor raceway	J. H. Bleoo	586,282	July 13	1197	273	80	249
Electrical conductors. Interior conduit for	H. G. Osburn	590,374	Sept. 21	1669	394	80	1838
Electrical conductors. Joint-piece for	E. Ivins	586,439	July 13	1466	340	80	300
Electrical conduit. Armored	E. T. Greenfield	585,863	July 6	369	91	80	77
Electrical conduit. Armored	E. T. Greenfield	585,864	July 6	390	91	80	77
Electrical devices. Safety-fuse for	D. J. Cartwright	590,750	Sept. 28	2335	552 553	80	1959
Electrical distribution. Multiple-series system of	C. D. Haskins	589,429	Sept. 7	47	12	80	1491
Electrical-distribution system	C. D. Haskins	589,430	Sept. 7	49	12	80	1491
Electrical junction-box	G. Taillieur	589,760	Sept. 7	581	136	80	1503
Electrical-machine coil	J. P. Mallett	589,845	Sept. 14	721	169	80	1632
Electrical-machine coil and making same	B. G. Lamme	589,888	Sept. 14	712	167	80	1631
Electrical meter	W. D. Marks	586,559	July 20	1689	393	80	371
Electrical regulating device. Automatic	E. W. G. C. Hoffmann and J. H. F. Görges.	587,822	Aug. 10	956	221 222	80	860
Electrical transformer	W. D. and J. W. Packard	590,672	Sept. 28	2314	599	80	1994
Electrically-driven mechanism. Regulating	W. H. Knight and W. B. Potter	587,442	Aug. 3	285	09, 70	80	719
Electrically-driven mechanism. Regulating apparatus for	W. H. Knight and W. B. Potter	587,441	Aug. 3	282	67, 68	80	718
Electricity-meter	A. W. Staveley, I. H. Parsons, and T. J. Murday.	585,892	July 6	440	106 107	80	87
Electrochemical treatment of fibrous material. Method of and apparatus for	G. H. Pond	588,065	Aug. 10	1410	328	80	944
Electrochemical treatment of straw or other fibrous materials. Process of and apparatus for	G. H. Pond	588,064	Aug. 10	1409	328	80	944
Electrocution-chair	E. F. Davis	587,649	Aug. 3	647	155	80	784
Electrodepositing device	J. Bossard	586,894	July 20	2256	529 530	80	477
Electrodepositing device	J. Bossard	587,782	Aug. 10	885	207	80	849
Electrodes for secondary batteries. Manufacturing	H. Leitner	589,842	Sept. 14	717	168	80	1632
Electrodes of electric accumulators. Active material for	S. Hammacher	588,905	Aug. 24	2880		80	1252
Electrodes. Treating alloys for manufacturing	L. P. Hulin	587,829	Aug. 10	976	227	80	863
Electrolysis. Apparatus for	A. E. W. Boucher	587,696	Aug. 10	724	173	80	819
Electrolysis. Method of and apparatus for effecting	C. Kellner	586,720	July 20	1972	459 460	80	424
Electrolysis of underground pipes and locating transmission losses. Apparatus for detecting	H. P. Brown	587,698	Aug. 10	726	174	80	820
Electrolytic apparatus	E. Balbach, Jr	588,524	Aug. 17	2197	510	80	1104
Electrolytic apparatus	W. Thum	588,035	Aug. 10	1332	308 309	80	929
Electrolytic apparatus. Porous diaphragm for	J. D. Darling	590,826	Sept. 28	2469	586	80	1985
Electrolytic decomposition of solutions	L. P. Hulin	586,236	July 13	1196	255 256	80	236
Electrolytic process and apparatus therefor	C. Kellner	588,276	Aug. 17	1760	407	80	1023
Electromagnetic and mechanical brake	J. E. Parker	585,937	July 6	529	125	80	103
Electromagnetic motor	F. J. Patten	586,823	July 20	2125	497	80	451
Electropneumatic alarm	G. W. MacKenzie	587,986	Aug. 10	1276	295	80	919
Electrotherapeutic apparatus	F. Geiger	587,436	Aug. 3	276	66	80	717
Elevating-gear attachment	W. H. Bevans	590,817	Sept. 28	2455	583	80	1982

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Elevator: *See* Cotton-elevator. Lamp-elevator. Grain-elevator. Water-elevator.							
Elevator	G. V. Barnes	590,655	Sept. 28	2166	512 513	80	1989
Elevator	W. P. and H. D. Hill	586,187	July 13	1048	236 237	80	230
Elevator	B. W. Tucker and W. S. Corwin	587,049	July 27	2561	604 605	80	556
Elevator	G. H. Reynolds	587,508	Aug. 3	404	95, 96	80	726
Elevator attachment	H. Mattullath	590,667	Sept. 28	2196	521	80	1994
Elevator-bucket	A. W. Brash	587,697	Aug. 10	725	173	80	820
Elevator clutch and brake	W. Welsmantel	586,985	July 20	2220	522	80	471
Elevator-controller	M. W. Day	589,891	Sept. 14	810	191	80	1647
Elevator-controller lock	W. C. Fahy	588,106	Aug. 10	1461	336 339	80	951
Elevator-controllers. Means for locking	T. G. Turner	588,540	Aug. 17	2238	517	80	1111
Elevator-doors. Means for opening on closing	C. L. Bell	587,490	Aug. 3	236	58	80	711
Elevator-gearing	C. I. Hall	590,722	Sept. 28	2291	541 542	80	1951
Elevator hatch-openings. Cover for closing	H. Mattullath	589,567	Sept. 7	265	64	80	1532
Elevator safety device	J. Cooper	590,257	Sept. 21	1468	346	80	1786
Elevator safety device	C. Russell and A. C. Welchans	587,610	Aug. 3	500	143	80	773
Elevator safety-lock	G. W. MacKenzie	588,588	Aug. 24	2306	535	80	1143
Elevator-slipper	M. McNamara	588,651	Aug. 24	2443	563	80	1169
Elevator-stop	J. P. Altizer	589,082	Sept. 7	457	109	80	1509
Elevators. Electric signal device for	O. Raacke and G. Hensel	587,507	Aug. 3	403	95	80	727
Elevators. Electrically-operated locking device for	T. W. Jenkins	587,002	July 27	2468	583	80	540
Elevators. Means for preventing accidents in	A. A. Roth and G. C. Hiltz	590,494	Sept. 21	1761	413	80	1840
Elevators. Mechanism for operating valves of hydraulic	W. F. Cole	586,990	July 27	2450	579 580	80	537
Eliminator or water-separator	S. Bancroft	589,492	Sept. 7	144	32	80	1509
Elliptic spring	T. G. Mandt	586,777	July 20	2063	478	80	439
Embroidery-hoop	C. S. Bucklin	586,947	July 20	2370	560	80	499
Enamel	E. Trainer	589,554	Sept. 7	243		80	1527
Enamel. Device for supporting bath-tubs when applying	W. C. Degelman	588,404	Aug. 17	1985	459	80	1065
End-gate	J. C. Milnes	589,665	Sept. 7	428	103	80	1503
End-gate. Wagon	J., Jr., and L. Windler	587,506	Aug. 3	507	120	80	738
Engine: *See* Beating-engine. Carding-engine. Combustion-engine. Dental engine. Direct-acting engine. Explosive-engine. Fire-engine. Fluid-pressure engine. Gas-engine. Gas or vapor engine. Heat-engine. Hoisting-engine. Hydraulic engine. Pumping-engine. Rock-drill engine. Rotary engine. Rotary steam-engine. Steam-engine. Traction-engine.							
Engine	J. Boyer	590,511	Sept. 21	1892	450 451	80	1864
Engine	F. M. Comstock	590,656	Sept. 28	2160	513 514	80	1989
Engine	J. P. Dorau	587,361	Aug. 3	142	34, 35	80	692
Engine compensating device	F. Haselwander	585,755	July 6	188	44	80	40
Engine indicators. Reducing mechanism for steam-	A. C. Lippincott	589,358	Aug. 31	3017	691	80	1454
Engine igniter. Explosive-	L. Bly	588,629	Aug. 24	2397	551	80	1161
Engine igniter. Explosive-	P. Mueller	587,747	Aug. 10	824	194	80	839
Engine igniter. Gas-	C. White and A. R. Middleton	588,917	Aug. 24	2607	601	80	1257
Engine releasing-gear	B. S. Hughes	590,064	Sept. 14	1108	262 263	80	1702
Engine starting mechanism. Gas-	S., Sr., and S. Colley, Jr	585,952	July 6	553	129	80	107
Engine tender. Traction-	P. Schmitt	590,671	July 20	2202	516	80	467
Engine-tenders. Draft-gearing for	R. M. Galbraith	587,523	Aug. 3	431	101	80	743
Engines. Brake-wheel for hoisting-	G. S. Binckley	589,261	Aug. 17	1735	399	80	1018
Engines. Cut-off apparatus for marine	F. Bittner	586,868	July 20	2254	529	80	477
Engines. Electric igniter for gas-	H. S. Dosh	586,479	July 13	1533	359	80	312
Engines. Electrical igniter for gas-	E. R. Moffitt	589,509	Sept. 7	169	38	80	1514
Engines. Igniter for explosive-	E. J. Pennington	586,511	July 13	1587	370 371	80	322
Engines. Winding-reel for hoisting-	S. H. Pitkin	586,522	July 13	1623	378	80	329
Engraving	W. S. Eaton	588,558	Aug. 24	2250	525	80	1134
Engraving-machine	F. W. Sabel	587,332	Aug. 3	93	23, 24	80	683
Envelop	B. G. Button	586,115	July 13	938	211	80	200
Envelop	J. G. Griffith	588,985	Aug. 31	3020	710	80	1297
Envelop	R. Johnston	588,679	Aug. 24	2495	575	80	1179
Envelop	A. C. Kinsley	590,372	Sept. 21	1666	393	80	1823
Envelop	E. L. Miller	590,765	Sept. 28	2376	564	80	1966
Envelop	A. M. Moylan	588,078	Aug. 10	1401	325	80	943
Envelop	F. E. Munn	590,900	Sept. 28	2601	620	80	2011
Envelop	P. A. Roberts	586,625	July 20	1817	422	80	395
Envelop	C. E. Sackett	587,060	Aug. 3	664	158	80	786
Envelop and packing-case. Mailing-	J. F. Wilhelm	588,802	Aug. 24	2965	667	80	1249
Envelop-fastener	W. A. Selts	586,277	July 13	1187	272	80	247
Envelop-fastening device	E. A. Goodchild	585,816	July 6	289	67	80	60
Envelop-machine attachment	E. M. Wilcox	587,898	Aug. 10	1094	251 252	80	864
Envelop-opener	W. Fairbairn	586,170	July 13	1028	231	80	216
Envelop or paper box. Carton	K. Lanz	587,836	Aug. 10	988	230	80	805
Envelop. Reversible merchandise-	F. V. Sleeth	590,795	Sept. 28	2421	575	80	1975
Envelop. Safety-	J. A. Holly	590,800	Sept. 28	2583	616	80	2008
Envelop. Safety-	M. J. McConnell	589,609	Sept. 7	344	84	80	1546
Envelop safety device	C. H. Brown	589,158	Aug. 31	3338	784	80	1357

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Eophones or sound-receiving instruments. Screen for	L. E. Thorne	588,034	Aug. 10	1331	308	80	929
Eraser. Mechanical	E. C. and A. J. Smith	590,598	Sept. 28	2062	499	80	1909
Evacuating device	A. Akeson	589,775	Sept. 7	605	141	80	1597
Evaporating apparatus	A. M. Hugill, J. Overton, and R. H. Catley.	585,819	July 6	294	69	80	61
Evaporation and surface condenser	E. F. White	586,110	July 13	990	208 / 209	80	199
Evaporator	H. A. Merriam	589,091	Aug. 31	3205	753	80	1331
Evaporator	G. Stiff	589,553	Sept. 7	241	59	80	1527
Evaporator. Fruit-	W. K. Allen	590,354	Sept. 21	1641	396 / 397	80	1819
Excavating and conveying machine	J. L. Potter	586,006	Aug. 10	1285	297 / 298	80	920
Excavating-machine	M. A. Wheaton	590,926	Sept. 28	2636	629 / 630 / 631	80	2019
Excavator	G. W. King	586,089	July 13	910	204 / 205	80	195
Excavator	G. W. King	589,505	Sept. 7	256	62, 63	80	1530
Exercising device	F. P. Perkins	588,350	Aug. 17	1888	436	80	1046
Exercising-machine	E. Sandow	588,017	Aug. 10	1305	302	80	994
Exhauster-hood	H. N. Middleton	587,370	Aug. 3	157	38	80	695
Explosive-engine	F. A. Redmon	586,826	July 20	2133	498	80	453
Expressing-press	F. Stitzel	586,673	July 20	1865	439	80	408
Extension-table	E. O. Abbey	587,381	Aug. 3	177	44	80	699
Extension-table	D. J. Haynes and V. Lapham	589,398	Aug. 31	3870	908	80	1464
Extension-table	C. N. Smith	590,915	Sept. 28	2621	625	80	2016
Extension-table. Flexible	H. E. Moomaw	586,196	July 13	1070	240	80	225
Extract. Animal	E. Reinert	586,623	July 20	1815	.....	80	395
Extractor: *See* Cork-extractor. Pen-extractor. Lemon-juice extractor.							
Eyeglass-holder and cord attachment	W. D. Fennimore	587,192	July 27	2398	606	80	606
Eyeglass-case	J. Z. Le Page	590,043	Sept. 14	1074	253	80	1696
Eyeglasses	D. C. Prudden and E. F. Jensen	588,175	Aug. 17	1595	369	80	993
Eyeglasses	A. M. Ward	588,723	Aug. 24	2564	592	80	1192
Eyeglasses. Holder for adjustable guards for	F. L. Burrows	585,813	July 6	286	66	80	59
Eyelet	E. Kempshall	586,770	July 20	2044	476	80	437
Fabric: *See* Stiffening fabric.							
Fabric and apparatus for making same	L. P. Warner	587,349	Aug. 3	124	30	80	688
Fabrics. Ornamenting or decorating	J. Lancaster and C. Witteck	590,457	Sept. 21	1808	426	80	1849
Fan attachment	C. E. Mayo	588,282	Aug. 17	1772	410	80	1085
Fan. Fly-	G. E. Painter	588,754	Aug. 24	2638	609	80	1207
Fan, Ventilating-	C. H. Larmore	586,046	July 6	810	181	80	158
Fanning-mill	W. F. Frambach	588,972	Aug. 31	3000	704 / 705	80	1208
Fare-box	J. Quinn	588,778	Aug. 24	2668	616	80	1212
Farm-gate	A. J. Brown and J. K. Drake	590,449	Sept. 21	1799	422	80	1847
Farm-gate	H. C. Gutermuth	585,750	July 6	180	41	80	38
Fastener	W. B. H. Dowse	586,118	July 13	944	218	80	201
Fastening device	W. H. Bomm	589,333	Aug. 31	3726	860	80	1447
Fastening device	C. W. Garis	589,525	Sept. 7	203	47	80	1530
Fastening device	B. Wolhaupter	587,773	Aug. 10	867	204	80	847
Fastening for boots, shoes, corsets, &c.	J. W. Denno	585,655	July 6	18	5	80	6
Faucet	H. C. Hoyt	589,472	Sept. 7	111	25	80	1502
Faucet	R. Rowe	588,357	Aug. 17	1899	439	80	1049
Faucet	J. L. Sullivan	586,079	July 6	871	196	80	170
Faucet. Measuring-	B. F. Beard	590,491	Sept. 21	1803	441	80	1850
Faucet. Piston-	E. R. Greene	586,434	July 13	1461	338	80	299
Faucet. Self-closing straining-	T. P. Whitehead	587,416	Aug. 3	232	57	80	710
Feed-bag	A. W. Tooley	587,468	Aug. 3	333	79	80	726
Feed-grinding mill	T. L. Phillips	587,585	Aug. 3	486	114 / 115	80	755
Feed-trough. Portable	W. M. Hornbeck	590,307	Sept. 21	1707	402	80	1830
Feed-water feeding and heating apparatus. Boiler	E. P. Holly	586,932	July 20	2377	561 / 562 / 587	80	500
Feed-water heater	L. M. G. Delaunay-Belleville	590,880	Sept. 28	2475	588 / 589	80	1986
Feed-water heater	J. Pimbley	589,364	Aug. 31	3825	898	80	1456
Feed-water heater and purifier	J. E. Crawley	585,928	July 6	516	122	80	100
Feed-water heater and purifier	B. F. Kelley	586,498	July 13	1564	365 / 366	80	318
Feed-water heater and water-heating system	J. Hervey	587,055	July 27	2579	608	80	550
Feed-water heater for gas-making apparatus	A. G. Glasgow	586,968	July 27	2412	570	80	529
Feed-water heater. Locomotive	J. B. Barnes	588,377	Aug. 17	1931	448	80	1054
Feed-water heating and purifying apparatus. Boiler	J. E. Carroll	585,814	July 6	287	67	80	59
Feed-water purifier	A. M. Duffy	588,323	Aug. 17	1849	428	80	1039
Feed-water regulator	R. Berg	589,113	Aug. 31	3249	764	80	1339
Feeder and safety attachment. Boiler-	W. A. Garrigus and R. Galling	590,884	Sept. 28	2575	614	80	2006
Feeding and watering device	N. Reuter	587,329	Aug. 3	86	21	80	692
Feeding and watering device. Poultry	S. D. Strong	589,230	Aug. 31	3439	806	80	1376
Feeding mechanism	E. M. Lamb and E. Bales	588,450	Aug. 17	2060	480	80	1079
Felt buffing or finishing machine	C. E. T. Dedicke	588,055	Aug. 10	1367	317 / 318	80	935
Fence	J. B. Graham	589,943	Sept. 14	895	214	80	1663
Fence	J. H. Penner	587,602	Aug. 3	577	139	80	771
Fence. Combined hedge and wire	D. W. Crider, S. C. Heird, and T. Cocking.	588,400	Aug. 17	1979	458	80	1063
Fence machine. Wire-	P. M. Mishler	587,043	July 27	2555	602	80	555
Fence machine. Wire-and-picket-	B. L. Coutant	589,165	Aug. 31	3345	786	80	1358
Fence-post	Q. C. Grant	590,100	Sept. 14	1178	277	80	1716

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fence-post	J. B. Johnston	589,808	Sept. 14	824	194	80	1649
Fence-post	T. W. Larrabee	590,843	Sept. 28	2500	595	80	1991
Fence-post	F. E. Randolph	589,980	Sept. 14	963	229	80	1675
Fence-post	C. Shuh	590,914	Sept. 28	2620	625	80	2016
Fence-post	H. Taylor	588,195	Aug. 17	1625	374	80	993
Fence-post	D. Vanlman	589,220	Aug. 31	3757	875	80	1443
Fence-post anchor	H. G. Thomson	589,763	Sept. 7	587	137	80	1594
Fence-stay	R. V. Clark	589,508	Sept. 7	313	76	80	1541
Fence-stay-fastening tongs	G. B. Sechrist	586,607	July 20	1922	448	80	415
Fence stay. Wire-	W. Robbins	586,715	July 20	1947	454	80	420
Fence stretcher. Wire-	C. H. Salisbury	586,902	July 20	2002	466	80	445
Fence-tool. Combination	J. H. Brown	589,524	Sept. 7	201	46	80	1530
Fence tool. Wire-	L. W. Orton	587,228	July 27	2908	682	80	623
Fence-weaving machine. Wire-	W. A. Holmes	590,484	Sept. 21	1850	437 / 438	80	1857
Fence. Wire-	C. C. Carter	588,896	Aug. 24	2880	668	80	1249
Fence. Wire-	A. and C. A. Church	590,357	Sept. 21	1645	388	80	1819
Fence. Wire-	S. Peck	590,402	Sept. 21	1814	427	80	1850
Fence. Wire-	J. C. Perry	588,774	Aug. 24	2662	614	80	1211
Fence. Wire-	N. Steele	590,917	Sept. 28	2624	626	80	2016
Fence-wire-distributing device	F. S. Young	589,490	Sept. 7	142	32	80	1508
Fence-wire-stretching apparatus	J. N. Fyeatt	590,164	Sept. 14	1204	309	80	1740
Fence-wiring machine. Picket-	T. B. Ferguson, Jr.	590,701	Sept. 28	2252	533	80	1944
Fences. Device for applying stay-wires to wire	C. W. Holm	588,065	Aug. 10	1365	322	80	980
Fences. Device for attaching stay-wires to wire	W. J. Jacobs	590,042	Sept. 14	1073	253	80	1696
Fences. Visible strip for wire	M. M. Shellaberger	586,068	July 6	844	198	80	165
Fencing device	C. M. Graham	587,810	Aug. 10	927	215	80	856
Fencing. Wire	B. Scarles	586,869	July 20	2300	515	80	467
Fender: *See* Car-fender. Vehicle-fender.							
Fender and brake. Combined automatic	J. J. Dougherty	586,166	July 13	1018	229	80	215
Ferrule for tool-handles	J. Swan	589,043	Aug. 31	3130	734	80	1316
Ferrule-forming machine. Bushing-	C. T. Pratt	590,275	Sept. 21	1499	354	80	1791
Fertilizer-distributer	J. B. Crownover	589,546	Sept. 7	232	57	80	1535
Fertilizer-distributer	L. C. Ellison	586,010	July 6	773	173	80	151
Fertilizer-distributer and planter. Hand	J. L. Pede	590,906	Sept. 28	2610	622	80	2014
Fertilizer-distributer. Hand	B. F. Anderson	588,045	Aug. 10	1343	315	80	982
Fibrous materials. Machine for working	A. T. Atherton	587,085	July 27	2526	590	80	568
Fifth-wheel	J. Koenig, Jr	588,644	Aug. 24	2426	559	80	1166
Fifth-wheel lock. Wagon	C. W. Robinson	585,788	July 6	246	57	80	51
Fifth-wheel. Vehicle	J. McLaughlin	586,911	July 20	2299	541	80	485
Fifth-wheel. Wagon	M. M. Sherwood	586,670	July 20	1878	437	80	406
Filaments for incandescing mantles. Making	W. L. Voelker	588,040	Aug. 10	1342	311	80	981
File and handle	A. Weed	586,592	July 20	1737	404	80	380
File-cutting machine	J. Turner	587,885	Aug. 10	1071	246 / 247	80	660
File-cutting machine	J. Turner	589,232	Aug. 31	3444	808	80	1377
File for deposit-slips	J. H. Rand	586,691	July 20	1912	445	80	418
File. Letter and bill	W. Haddock	587,398	Aug. 3	191	48	80	708
File. Letter or bill	W. Lumley	586,134	July 13	971	218	80	906
Filter	M. H. Allen	590,081	Sept. 14	1058	250	80	1698
Filter	A. L. and L. J. Barthelemy	586,474	July 13	1525	357	80	310
Filter	C. A. Kunzel, Jr	586,709	July 20	1938	451	80	418
Filter	W. B. Lindsay and W. E. Tonner	590,764	Sept. 28	2374	563 / 564	80	1966
Filter	T. Linke	590,707	Sept. 28	2259	534	80	1945
Filter	J. A. Mullen	589,180	Aug. 31	3380	794	80	1365
Filter	W. Myers	590,020	Sept. 14	1045	246	80	1691
Filter	L. Wanner, Jr., and R. T. Weaver	590,808	Sept. 28	2543	607 / 608	80	1960
Filter	J. F. Ziegler	589,887	Sept. 14	805	190	80	1646
Filter. Barrel-	E. D. Sloan	587,874	Aug. 10	1056	243 / 244	80	877
Filter-cleaning apparatus	I. H. Jewell	587,969	Aug. 10	1229	285	80	910
Filter. Faucet-	S. H. Jones	585,674	July 6	45	11	80	11
Filter. Gravity-	M. H. Allen and H. C. Ellis	590,293	Sept. 21	1534	369	80	1797
Filter. Oil-	W. G. Arbuckle	590,535	Sept. 21	1943	460	80	1874
Filter. Oil-	W. F. Warden	587,348	Aug. 3	123	29	80	689
Filter-press plate	H. P. Chamberlain	586,598	July 20	1759	407 / 408	80	384
Filter. Water-	W. P. Robertson	589,223	Aug. 31	3431	804	80	1374
Filter. Water-	W. F. Stewart	586,345	July 13	1306	299	80	209
Filtering cane-juice. Machine for	J. A. Lombas	588,074	Aug. 10	1396	325	80	941
Finger-nail trimmer	W. J. Sloan	587,243	July 27	2930	687	80	627
Fire-alarm	J. W. Arnold	588,942	Aug. 31	2948	690	80	1288
Fire-alarm system. Electric	J. L. and G. B. Walker	590,608	Sept. 28	2070	490	80	1911
Firearm. Automatic magazine	A. Burgess	589,118	Aug. 31	3269	769 / 770	80	1342
Firearm. Breakdown	J. H. Brown	585,960	July 6	382	89	80	76
Firearm. Gas-operated	A. Burgess	589,119	Aug. 31	3273	770	80	1343
Firearm. Gas-operated	A. Burgess	589,120	Aug. 31	3277	770 / 771	80	1344
Firearm. Magazine	A. Burgess	589,117	Aug. 31	3267	769	80	1341
Firearms. Lever-locking means for	T. G. Bennett	589,687	Sept. 7	467	112	80	1571
Firearms. Locking means for operating-levers of	T. G. Bennett	589,901	Aug. 31	3400	798	80	1368
Fire-door	A. J. Ives	590,724	Sept. 28	2294	542	80	1951
Fire-engine. Electric	G. W. Cox	588,399	Aug. 17	1977	457 / 458	80	1063
Fire-escape	A. Boemmel	588,389	Aug. 17	1954	452	80	1059
Fire-escape	R. M. Ellis	590,016	Sept. 14	1039	245	80	1690
Fire-escape	H. Frahm	586,178	July 13	1031	232	80	217
Fire-escape	C. E. Harvey	589,428	Sept. 7	46	11	80	1490
Fire-escape	W. Müller	589,569	Sept. 7	268	64	80	1539
Fire-escape	W. S. Parman	590,403	Sept. 21	1719	404 / 405	80	1832

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fire-escape	W. B. Wilson	589,541	Sept. 7	221	53	80	1594
Fire-escape. Portable	W. E. Wabnitz	588,889	Aug. 24	2963	667	80	1246
Fire-escape. Portable automatic	J. H. Bryan	588,894	Aug. 24	2967	668	80	1249
Fire-extinguisher	B. S. Brown	589,202	Aug. 31	3402	796	80	1368
Fire-extinguisher	A. J. Knight	589,905	Sept. 14	978	233	80	1677
Fire-extinguisher. Hand chemical	W. C. Pomfret and T. B. Keating	588,005	Aug. 10	1284	297	80	930
Fire-extinguishing apparatus	C. Nuhring	586,105	July 13	921	206	80	107
Fire-hose-cleaning machine	R. V. Carey	589,559	Sept. 7	250	61	80	1528
Fire-hydrant	G. E. Martin	590,269	Sept. 21	1498	351	80	1760
Fire-kindler	L. H. Clark	588,633	Aug. 24	2407	554	80	1163
Fire-plug frost-jacket	J. Link	589,357	Aug. 31	3816	891	80	1454
Fireproof floor	G. Rader	587,556	Aug. 3	487	115	80	755
Fireproof floor and ceiling construction	C. F. T. Kandeler	590,663	Sept. 28	2185	518	80	1993
Fireproof floor, ceiling, wall, &c	J. J. Moffat	587,050	July 27	2585	609	80	561
Fireproofing	R. W. Lyle	590,327	Sept. 21	1599	377	80	1811
Fire-screen	J. H. Havecotte	588,146	Aug. 17	1544	355	80	984
Fire-screen	H. A. Sykes	590,284	Sept. 21	1517	359	80	1794
Fire-shield	W. J. Woodruff	589,062	Aug. 31	3146	741	80	1321
Fires. Extinguishing	F. Cantoré	589,244	Aug. 31	3478	816	80	1384
Fish and animal trap. Combined	J. Cartier	589,640	Sept. 7	391	95	80	1556
Fish-bait. Artificial	C. R. Harris	588,729	Aug. 24	2578	595	80	1195
Fish-hook	J. T. Killmeier	590,705	Sept. 28	2257	534	80	1945
Fish-hook	H. Mills	586,902	July 27	2454	580	80	537
Fish-plate and means for holding same	J. Johnston	589,729	Sept. 7	533	126	80	1584
Fish-trap and boat. Combined	G. W. Nelson	586,863	July 20	2190	512 513	80	465
Fishing-nets. Lead-line controller for	T. Lindsay	587,839	Aug. 10	991	231	80	866
Fishing-seines. Reefing-strap for	J. W. McFarland	587,268	July 27	2974	698	80	635
Flanger	W. H. Bohnenkamp and W. J. Lindsey.	590,677	Sept. 28	2213	524 525	80	1938
Float-trap	J. F. McElroy	586,617	July 20	1801	418 419	80	398
Floor-clamp. Joiner's	A. M. White	589,518	Sept. 7	190	43	80	1518
Floor-sleeve and ceiling-plate	A. J. Beaton	590,717	Sept. 28	2283	540	80	1949
Flooring	A. T. Hersee	586,900	July 20	2274	536	80	481
Flour, Manufacture of germ	J. T. O'Callaghan	589,978	Sept. 14	954		80	1674
Flouring-machine	H. M. Whitney	590,939	Sept. 28	2666	635 636	80	2024
Flower-holder	J. K. Saario	588,659	Aug. 24	2462	566	80	1173
Flower-pot	J. F. Guyn	586,485	July 13	1542	361	80	314
Flower-pot support	W. D. Gridley	585,931	July 6	519	123	80	101
Flower-support	J. Horan	587,581	Aug. 3	540	129	80	764
Flue-cleaner	H. W. Hubbard	590,096	Aug. 31	3197	752	80	1329
Flue-cleaner	L. J. Wolf	589,589	Sept. 7	307	75	80	1540
Flue-cleaner	L. J. Wolf	589,590	Sept. 7	309	75	80	1540
Flue-cleaner. Rotary	L. J. Jones	588,830	Aug. 24	2763	640	80	1229
Flue. Water-jacketed	F. Habich	587,309	Aug. 3	49	12	80	675
Fluid handling and utilizing device	G. W. Cole	586,283	July 13	1199	274	80	249
Fluid-pressure brake	H. O. Müller	585,628	July 6	315	74	80	63
Fluid-pressure engine	F. M. Comstock	590,657	Sept. 28	2172	514 515	80	1930
Fluid-pressure engine	W. H. Knight	589,354	Aug. 31	3812	890	80	1453
Fluid-pressure motor	J. H. Hoadley	586,384	July 13	1371	316	80	281
Fluid-pressure motor	W. H. Knight	589,355	Aug. 31	3814	890	80	1454
Fluid-pressure motor	W. H. Knight	590,228	Sept. 21	1424	335	80	1777
Flume. Sheet-metal	C. S. Hamlin	586,189	July 13	1040	234	80	218
Flush switch	L. Heck	588,428	Aug. 17	2024	471	80	1072
Flushing apparatus	C. I. Daggett	587,996	Aug. 10	1166	269	80	898
Flushing apparatus for water-closets, &c	W. A. Eberhart	589,423	Sept. 7	38	10	80	1489
Flushing-tank	J. C. Fisher	586,924	July 20	2326	548	80	490
Fly-exterminator	E. W. Bullard	589,776	Sept. 7	607	141	80	1597
Fly-wheel	H. E. Campbell and T. E. Murray	589,558	Sept. 7	248	60	80	1528
Fodder-loader	D. J. Farthing	585,744	July 6	170	38	80	36
Folding and wrapping machine	L. C. Crowell	587,475	Aug. 3	341	81, 82	80	728
Folding box	R. H. Filmer	587,804	Aug. 10	919	214	80	855
Folding box	R. H. Filmer	590,058	Sept. 14	1097	259 260	80	1700
Folding box	G. W. Hart	590,394	Sept. 21	1703	401	80	1830
Folding box	S. Klein	586,819	July 20	2120	495	80	450
Folding box	J. H. Kreuziger	587,814	Aug. 3	58	14	80	677
Folding box, satchel, valise, trunk, &c	J. G. Garels	589,208	Aug. 31	3411	800	80	1370
Folding chair	T. A. Matthews	588,159	Aug. 17	1565	361	80	987
Folding gate	B. Hummers	589,503	Sept. 7	163	36	80	1513
Folding knife, fork, or spoon	F. Praunegger	588,174	Aug. 17	1503	368	80	992
Folding-machine	A. Blomfeldt	589,068	Aug. 31	3159	744 745	80	1323
Folding-machine	F. Hart	589,083	Aug. 31	3189	750 751	80	1328
Folding table	O. C. Beloin	586,112	July 13	935	210	80	200
Food articles from milk. Preparing	A. Bernstein	589,155	Aug. 31	3335		80	1356
Foot-form	E. G. Stevens	587,341	Aug. 3	113	28	80	686
Foot-guard	H. Kelly	587,485	Aug. 3	362	86	80	731
Foot. Pneumatic	W. Roberts	589,537	Sept. 7	216	52	80	1523
Foot-rest	C. A. Lee	590,208	Sept. 21	1487	351	80	1789
Foot-rest and guard	W. Fehling	586,022	July 6	778	173	80	152
Foot-support	R. T. Jones	590,416	Sept. 21	1744	409 410	80	1837
Fork: *See* Pitchfork. Trolley-wheel fork.							
Fountain: *See* Drinking-fountain. Stock-fountain. Luminous fountain.							
Fountain	E. Schoyen	587,404	Aug. 3	211	54	80	706
Fracture apparatus	N. Paquette	590,625	Sept. 28	2109	499	80	1918
Fracture apparatus	T. W. Sloan	590,531	Sept. 21	1938	459	80	1873

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Frame: *See* Bag or purse frame. Pocket-book or bag frame. Bicycle-frame. Storm or screen frame. Picture-frame.							
Frame-joint	F. Billing and W. E. Partridge	587,605	Aug. 10	723	173	80	819
Frame-joint	E. J. Finley	590,307	Sept. 21	1564	370	80	1803
Framework for concrete-iron construction. Tubular	J. S. Small	590,090	Sept. 28	2235	530	80	1941
Fringe-knotting machine	C. W. Arnold	586,413	July 13	1422	327 328 329	80	292
Fruit-cleaner	A. Chambers	588,854	Aug. 24	2803	652	80	1237
Fruit cleaning and assorting machine	W. P. and H. Rice	589,141	Aug. 31	3312	778	80	1351
Fruit-gatherer	O. A. Norlund	590,935	Sept. 28	2661	634	80	2023
Fruit-gatherer	W. J. Thomas	588,197	Aug. 17	1627	374	80	999
Fruit-jar	W. Heston	586,126	July 13	956	215	80	203
Fruit-picker	J. H. Martindale	589,009	Aug. 31	3062	721	80	1305
Fruit-picker	C. H. and J. W. Wald	590,923	Sept. 28	2632	628	80	2018
Fruit-picking machine	J. H. and A. W. Cramphin	587,647	Aug. 3	645	154	80	784
Fruit to receiving-tanks. Apparatus for crushing, pressing, and conveying	B. Toulouse and J. Delorieux	585,800	July 6	266	61, 62	80	54
Fuel for power. Apparatus for utilizing liquid or gaseous	S. A. Reeve	588,178	Aug. 17	1000	370	80	994
Fulling-machine	J. W. Millet	586,052	July 6	816	183	80	159
Fumigator	L. W. Cock	586,759	July 20	2020	471 472	80	434
Fumigator	J. W. Hill	586,768	July 20	2041	475 476	80	436
Fumigator	O. Sallady	588,090	Aug. 10	1421	331	80	945
Funnel. Self-stopping	T. I. Weston	587,249	July 27	2988	689	80	629
Funnel, strainer, &c. Combined	P. C. Smith	590,343	Sept. 21	1445	340	80	1781
Furnace: *See* Annealing-furnace. Hot-air furnace. Blast-furnace. Hot-water furnace. Boiler-furnace. Melting-furnace. Calcining or roasting furnace. Muffle-furnace. Dental furnace. Plate and sheet furnace. Electric furnace. Self-feeding furnace. Glass-making furnace. Smelting-furnace. Heating-furnace. Smelting and refining furnace.							
Furnace	W. Brothers	588,630	Aug. 24	2400	552	80	1161
Furnace	J. Cruze	587,796	Aug. 10	906	211 212	80	853
Furnace	C. D. Howard	586,129	July 13	959	216	80	204
Furnace	W. O. A. Lowe	586,050	July 6	814	182	80	159
Furnace	N. B. Trist	587,515	Aug. 3	416	98	80	741
Furnace-charging apparatus. Charging-box for	S. T. and C. H. Wellman	589,708	Sept. 7	592	138	80	1595
Furnace-charging mechanism	J. P. Eck	587,942	Aug. 10	1179	272 273	80	900
Furnace-door	R. B. Hobson	586,552	July 20	1677	390	80	369
Furnace-door. Automatic	H. Fahrmeier and A. H. Warren	589,468	Sept. 7	105	24	80	1502
Furnace-door-operating device	H. B. Sprague	588,025	Aug. 10	1316	305	80	926
Furnace or heater	W. H. Riley	590,167	Sept. 14	1309	310	80	1742
Furnace or stove	S. T. Bryce	590,450	Sept. 21	1800	423	80	1847
Furnace port end. Metallurgical	S. T. and C. H. Wellman	589,709	Sept. 7	593	139	80	1595
Furnaces. Fire-bridge for boiler	J. Reagan	589,909	Sept. 14	848	201	80	1654
Furnaces. Forced-draft device for	J. Apsey	590,355	Sept. 21	1643	387	80	1819
Furnaces. Pulverizing and feeding fuel to	E. C. Smith	587,127	July 27	2706	636	80	563
Furniture	F. A. Woods	588,208	Aug. 17	1640	377	80	1001
Furniture. Knockdown	A. H. Ginley	585,667	July 6	88	9	80	10
Fuse-block	H. A. Sinclair	588,536	Aug. 17	2221	516	80	1110
Fuse-holder and electric cut-out	H. A. Lewis	587,217	July 27	2875	675	80	616
Fuse. Shell	F. M. Hale and J. B. Reavil	588,861	Aug. 24	2814	654	80	1239
Gage: *See* Boiler water-gage. Saw-table gage. Carpenter's combination-gage. Screw-thread gage. Nose-gage. Track-gage. Prism-gage. Water-gage.							
Galvanic battery	J. Sully	585,854	July 6	875	87	80	75
Galvanic battery	J. Sully	585,855	July 6	877	88	80	75
Game apparatus	J. R. Brennan	588,264	Aug. 17	1759	400	80	1019
Game apparatus	R. S. and F. B. Crooks	587,281	July 27	2999	703	80	640
Game apparatus	D. Du Bois	590,068	Sept. 14	1167	275	80	1714
Game apparatus	G. M. Howe	586,437	July 13	1465	339	80	299
Game apparatus	S. H. Strasser	589,447	Sept. 7	79	17	80	1496
Game apparatus	E. H. Turner	590,078	Sept. 14	1137	268	80	1708
Game apparatus. Parlor	W. L. Bass	588,511	Aug. 24	2730	633 634	80	1223
Game-board	N. W. Barnett	590,785	Sept. 28	2404	571	80	1972
Game-board	G. W. Gephart	589,825	Sept. 14	692	161	80	1627
Game-counter	L. W. Heath	590,526	Sept. 21	1921	451	80	1870
Game-counter	H. H. Turner	590,921	Sept. 28	2630	628	80	2017
Garbage-incinerating apparatus	J. J. Kennedy	588,298	Aug. 31	3040	714 715	80	1300
Garden-tool. Combination	E. O. Simmons	588,757	Aug. 24	2643	610	80	1208
Garden-tool. Hand	G. W. McComas	590,583	Sept. 28	2094	480	80	1905
Garment-binding	G. H. Stedwell	587,879	Aug. 10	1063	245	80	879
Garment-clasp	J. Stern	588,841	Aug. 24	2795	641	80	1233
Garment-hanger	H. W. Kennison	586,972	July 27	2419	572	80	520
Garment-rack	E. L. Sibley	586,977	July 27	2430	574	80	522
Garment-support	G. H. Phelps	585,781	July 6	234	55	80	40
Garment-supporter	G. A. Sueppel and J. M. Kenney	589,317	Aug. 31	3753	874	80	1442

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Garment-supporter loop	C. W. Stimson	586,108	July 13	926	207	80	198
Garment-supporter loop	C. W. Stimson	586,109	July 13	926	208	80	196
Garment-supporting loop	E. W. Jewett	587,832	Aug. 10	961	228	80	864
Garment. Union	J. L. Boyer	589,241	Aug. 31	3475	814	80	1333
Gas-alarm. Electrical	J. Erikson	586,813	July 20	2112	498	80	449
Gas apparatus	J. Leede	588,154	Aug. 17	1559	359	80	986
Gas apparatus	J. W. Ogden	589,219	Aug. 31	3434	803, 804	80	1373
Gas. Apparatus for producing acetylene	C. F. J. B. Becherel	587,914	Aug. 10	1121	256	80	869
Gas-burner	R. Gäbel	586,175	July 13	1034	233	80	218
Gas-burner	L. Henkle	586,085	July 6	882	199	80	172
Gas-burner	G. E. Sharpe	587,334	Aug. 3	97	25	80	684
Gas-burner	J. Stubbers	586,748	July 20	2008	468	80	431
Gas burner. Acetylene	L. Henkle	590,223	Sept. 21	1416	334	80	1775
Gas-burner attachment. Incandescent	W. R. Clay and B. Walmsley	590,360	Sept. 21	1649	389, 390	80	1690
Gas-burner. Automatic-cut-off	F. F. Cushman	590,008	Sept. 14	1018	240	80	1685
Gas-burner chimney. Incandescent	E. M. White	589,322	Aug. 31	3760	876	80	1443
Gas-burner chimney. Incandescent	E. M. White	589,323	Aug. 31	3762	877	80	1444
Gas burner. Dry-oil	C. H. West	588,520	Aug. 17	2187	508	80	1108
Gas-burner for lighting	V. Jarre and E. J. Usannaz	590,526	Sept. 21	1928	456	80	1872
Gas-burner heating apparatus	T. Gühring	585,982	July 6	529	123	80	101
Gas-burner. Incandescent	J. B. P. W. de Malberg	585,919	July 6	491	118	80	96
Gas-burner. Incandescent	J. Warry	590,068	Sept. 28	2230	531	80	1942
Gas-burner. Self-closing	F. P. Barney	585,902	July 6	458	110	80	90
Gas-burner tip	I. Harrison and A. M. Kilberg	586,182	July 13	1042	235	80	219
Gas-burner tip. Acetylene	E. J. Dolan	589,342	Aug. 31	3767	884	80	1449
Gas-burner. Welsbach	J. Lines	590,419	Sept. 21	1750	411	80	1858
Gas-burners. Automatic cut-off for	D. W. Ketcham	586,490	July 13	1566	366	80	316
Gas-burners. Automatic regulating device for	C. W. Knight	590,802	Sept. 28	2586	618	80	2009
Gas-burners. Mounting incandescent mantles on	W. H. A. Sieverts	590,865	Sept. 28	2540	606	80	1999
Gas by means of currents of liquids. Apparatus for compelling flow of	J. Heaton	587,208	July 27	2362	669, 670	80	611
Gas. Device for indicating escape of	M. O'Donovan	589,745	Sept. 7	558	131	80	1588
Gas-engine	F. Burger	585,651	July 6	11	3	80	5
Gas-engine	J. A. Charter	585,652	July 6	13	4	80	5
Gas-engine	H. C. Hart	586,061	Aug. 10	1377	320	80	937
Gas-engine	H. C. Hart	586,062	Aug. 10	1379	320	80	937
Gas-engine	C. Jacobson	586,312	July 13	1239	283, 284	80	256
Gas-engine	C. Quast	588,876	Aug. 24	2889	660	80	1244
Gas-engine	J. D. Russ	585,321	July 13	1264	289	80	262
Gas-engine	A. J. Tackle	590,796	Sept. 28	2494	575	80	1976
Gas-engine	A. A. Williams	587,637	Aug. 3	617	148, 149	80	779
Gas-engine	J. C. Wilson	589,150	Aug. 31	3328	782	80	1355
Gas engine. Explosive	J. S. Walch	590,080	Sept. 14	1141	269, 270	80	1709
Gas-exhausting apparatus	J. W. T. Olán	585,831	July 6	320	75	80	65
Gas-fixture	E. and O. W. Stenstrom	587,109	July 27	2673	629	80	578
Gas-fixtures. Swing-joint for	H. P. Drew	586,841	July 20	2155	503	80	457
Gas from carbids. Generating	E. F. Mackusick	588,230	Aug. 17	1676	.....	80	1008
Gas-furnace. Regenerative	F. Siemens	590,864	Sept. 28	2539	606	80	1998
Gas-generating apparatus. Acetylene	J. J. McGrane	587,538	Aug. 3	449	105	80	747
Gas-generating apparatus. Acetylene	D. C. Morency	588,593	Aug. 24	2313	536	80	1145
Gas-generating apparatus. Acetylene	H. L. Pyle, L. Lichtenstein, and J. C. Brison.	590,592	Sept. 28	2053	486, 487	80	1908
Gas generator. Acetylene	F. Simonson	588,535	Aug. 17	2218	515, 516	80	1109
Gas-generating apparatus. Acetylene	A. A. Strom	590,674	Sept. 28	2308	523	80	1986
Gas generator. Acetylene	N. Likins	589,991	Sept. 14	990	234	80	1678
Gas generator. Acetylene	C. Matthews, Jr	586,194	July 13	1065	239, 240	80	224
Gas generator. Acetylene	D. J. Reynolds	590,441	Sept. 21	1784	419	80	1844
Gas generator. Acetylene	G. Taylor	589,799	Sept. 7	650	152	80	1606
Gas-generator. Range	M. Vélez	589,466	Sept. 7	133	30	80	1507
Gas heating-burners. Regulating contrivance for	H. Kikow	588,227	Aug. 17	1671	384	80	1007
Gas-incandescent	R. Moscheles	588,077	Aug. 10	1400	.....	80	949
Gas-incandescent	R. Moscheles	589,393	Aug. 31	3662	.....	80	1466
Gas-lighter. Electric	F. Rhind	586,587	July 13	1650	384	80	335
Gas-lighting. Burner for incandescent	W. R. Clay	590,359	Sept. 21	1648	388, 389	80	1890
Gas-lighting. Manufacturing filaments and mantles for incandescent	W. L. Voelker	587,026	July 27	2521	592	80	549
Gas-lights. Manufacture of mantles for incandescent	K. Trobach	589,376	Aug. 31	3844	898	80	1460
Gas-mains. Means for closing	R. B. Meany	587,102	July 27	2655	626	80	575
Gas-manufacturing apparatus	A. E. Aldrich	586,923	July 20	2322	547, 548	80	490
Gas-meter	R. H. Buckingham	588,632	Aug. 24	2408	559	80	1162
Gas-meter casing	W. H. Hopper and S. Milsted	590,086	July 6	893	199	80	172
Gas. Method of and apparatus for manufacturing	J. H. Ladd	590,893	Sept. 28	2598	618	80	2009
Gas. Method of and apparatus for manufacturing carbureted water	A. C. Humphreys and A. G. Glasgow	586,970	July 27	2415	571	80	580
Gas. Method of and apparatus for producing air-free carbonic-acid	J. F. Theurer and P. Fischer	586,523	July 13	1624	378	80	330
Gas or vapor engine	E. P. Woillard	588,409	July 13	1415	326	80	290
Gas-pressure regulator	A. Hall	586,089	July 6	894	201	80	174
Gas. Process of and apparatus for generating acetylene	J. C. Gallagher	589,713	Sept. 7	509	121, 122	80	1579
Gas. Process of and apparatus for making	W. F. Browne	586,968	July 27	2446	578	80	536
Gas-retort bench	J. Twamley	586,466	July 13	1515	355	80	308
Gases. Apparatus for causing chemical changes in	N. Van der Sleen and A. Schneller	587,770	Aug. 10	863	204	80	846
Gases. Apparatus for mixing liquids with	O. Franz	587,952	Aug. 10	1202	278, 279	80	905

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gate: *See* Automatic gate. Bridge-gate. End-gate. Farm-gate. Folding gate. Hinge-roller gate. Irrigation-gate. Race-track starter's gate. Railway cattle-gate. Railway-crossing gate. Starting-gate. Swinging gate. Tilting gate. Water-wheel cylinder-gate. Water-wheel register-gate.							
Gate	E. A. Brandenburg	588,544	Aug. 17	2233	518, 519	80	1112
Gate	J. Chaney	587,183	July 27	2625	663	80	606
Gate	T. Davidson	586,016	July 6	768	171	80	150
Gate	S. H. D. Freed	590,517	Sept. 21	1913	453	80	1869
Gate	A. Mason	590,069	Sept. 14	1119	265	80	1704
Gate	J. B. Miesse	589,134	Aug. 31	3296	776	80	1348
Gate	J. F. Murphy	588,165	Aug. 17	1572	363	80	988
Gate	J. Q. Primm	585,784	July 6	240	55	80	50
Gate	B. P. Rice	586,732	Aug. 24	2282	505, 506	80	1195
Gate	C. W. Terpening	587,563	Aug. 3	497	117, 118	80	757
Gate	W. R. White	587,415	Aug. 3	220	57	80	709
Gate opening or closing device	F. G. and A. J. Gibbons	590,702	Sept. 28	2354	533	80	1944
Gate-operator	C. E. Morris	587,647	Aug. 10	1010	234	80	869
Gauntlet	W. E. Harloe	588,426	Aug. 17	2062	470	80	1078
Gear. Drive	T. Curley	590,991	July 27	2452	580	80	537
Gear. Shifting or reversing	H. Brinkmann	585,649	July 6	9	2, 3	80	4
Gear. Sprocket	T. S. Brown	588,950	Aug. 31	2062	694	80	1285
Gear-teeth. Machine for generating	H. C. Warren	588,738	Aug. 24	2599	599, 600, 601	80	1199
Gearing	W. A. McCollough	586,614	July 20	1798	417	80	392
Gearing. Chain	T. Hewett	586,054	Aug. 10	1384	322	80	938
Gearing. Changeable	L. G. Billings	588,316	Aug. 17	1832	423, 424	80	1096
Gearing. Differential	A. de Dion, G. Bouton, and F. Chaplet.	588,856	Aug. 24	2805	652	80	1237
Gearing. Planetary	W. S. Rogers	588,356	Aug. 17	1807	420	80	1048
Gearing. Sprocket-and-chain	G. E. Humphreys	588,577	Aug. 24	2290	531	80	1140
Generator: *See* Current-generator. Steam-generator. Gas-generator. Power and heat generator.							
Generator	E. P. Waggoner	585,803	July 6	272	63, 64	80	55
Generator	E. P. Waggoner	587,280	July 27	2012	705, 706	80	642
Generators and storage batteries in conjunction. Means for operating	W. Meredith and A. M. Hunt	589,186	Aug. 31	3377	793	80	1364
Gin-feed for roller-compresses	C. L. Bessonette	588,812	Aug. 24	2782	634	80	1223
Ginning-machine attachment	N. R. Coursey	589,339	Aug. 31	3783	883	80	1448
Glass: *See* Magnifying-glass. Opera-glass.							
Glass articles. Apparatus for manufacturing	H. Brooke	588,318	Aug. 17	1838	425	80	1057
Glass articles. Apparatus for manufacturing pressed	H. H. Pitt	588,173	Aug. 17	1591	357, 358	80	992
Glass-blower's mold	M. J. Owens	588,926	Aug. 24	2919	668	80	1260
Glass. Combined prism and ornamental	H. F. Belcher	586,226	July 13	1110	252	80	253
Glass-cutting apparatus	J. W. Seiter	589,308	Aug. 31	3741	871	80	1440
Glass-making furnace	J. H. Higgins	587,673	Aug. 3	686	164	80	703
Glass. Making plate	C. C. Hartung	588,574	Aug. 24	2237	530	80	1139
Glass. Molding	H. Brooke	588,319	Aug. 17	1840	425	80	1057
Glass. Ornamental prismatic	O. H. Basquin	586,210	July 13	1099	249	80	231
Glass-press	R. G. Hemingray	588,795	Aug. 24	2907	634	80	1218
Glass. Prismatic	F. C. Soper	586,247	July 13	1145	261	80	239
Glass tubing. Process of and apparatus for manufacturing	A. A. Houghton	586,188	July 13	1052	237	80	220
Glassware. Apparatus for manufacturing	E. Robinson	588,013	Aug. 10	1298	300	80	923
Glassware-finishing machine	G. E. Cleveland	589,816	Sept. 14	678	157	80	1694
Glassware. Method of and apparatus for making articles of	P. J. McDonough and T. E. Shelly	586,388	July 13	1377	317	80	922
Glazier's point	C. A. Bryant	586,989	July 27	2449	579	80	537
Globe-mounting	T. Ellis	587,304	Aug. 3	43	10	80	674
Globe or shade holder	F. A. Dirkes	589,547	Sept. 7	233	57	80	1596
Glove	E. L. Blun	586,586	July 20	1748	406	80	382
Glove attachment	G. A. Moss	586,139	July 13	961	220	80	208
Glove-cutting die	L. A. Van Praag	586,579	July 20	1732	403	80	379
Glove-fastener	W. R. Page	586,928	July 20	2332	549	80	491
Glove-fastener	F. F. Raymond, 2d	586,692	July 20	1913	446	80	413
Glove. Husking	T. A. Rowse	587,045	July 27	2357	603	80	556
Gloves. Hand-measurer for	T. C. De Lisle	587,940	Aug. 10	1176	271	80	900
Glycerin therefrom. Refining glycerides and producing	J. Glatz and O. Lugo	585,844	July 6	359	83	80	72
Gold and silver or other precious metals from their ores. Separating	H. A. Rhodes	588,476	Aug. 17	2112	.....	80	1088
Gold and silver ores. Apparatus for treating	B. Becker	588,740	Aug. 24	2612	602	80	1201
Gold and silver ores. Treatment of	J. H. Burfeind	587,179	July 27	2617	661	80	604
Gold from gold ores. Extracting	W. Majert	587,079	July 27	2516	.....	80	566
Gold-separator. Hydraulic	J. H. Barr and J. F. Johnson	587,780	Aug. 10	880	206	80	849
Gold-washing pan	F. Sletcher	585,980	July 6	721	161	80	142
Governor	S. J. Tutthill	589,378	Aug. 31	3846	899	80	1460
Governor and speed-indicator. Non-centrifugal	J. F. Raders	588,653	Aug. 24	2450	564, 565	80	1171
Governor and speed-indicator. Non-centrifugal	J. F. Raders	588,656	Aug. 24	2455	565	80	1172

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Governor for air-brake-cylinder pressure. Automatic	A. J. Clark	587,643	Aug. 3	638	153	80	783
Governor. Gas-engine	R. Caldwell	589,335	Aug. 31	3778	880, 881, 882	80	1447
Governor. Gas-engine	F. W. Spacke	589,588	Sept. 7	296	72	80	1537
Governor. Marine-engine	W. G. Hannah	589,172	Aug. 31	3257	799	80	1360
Governor stop-motion	G. F. Boos	589,635	Sept. 7	384	94	80	1554
Grader. Prune	G. M. Peterson	585,695	July 6	75	18, 19	80	18
Graders. Gravel-colter attachment for road	W. L. Caverley	588,554	Aug. 24	2252	553	80	1133
Grading and scraping machine	J. Heuermann	588,992	Aug. 31	3029	712	80	1299
Grain-binder	M. Kane	586,181	July 13	962	217	80	905
Grain-binder butt-adjuster	B. F. Stewart	586,634	July 20	1880	425	80	397
Grain-binder tension device	M. L. Pratt	589,222	Aug. 31	3429	804	80	1373
Grain cleaner and separator	J. C. Benson	586,756	July 20	2024	470	80	433
Grain-drill	C. H. Pelton	588,240	Aug. 17	1700	390	80	1013
Grain-drill gearing	C. H. Pelton	588,239	Aug. 17	1699	389	80	1012
Grain-elevator	E. Blanchard	590,084	Sept. 14	1148	271, 272	80	1710
Grain-elevator	S. M. Peterson	587,271	July 27	2981	699, 700	80	636
Grain feeder and conveyer	B. S. Constant	588,815	Aug. 24	2739	635	80	1224
Grain-pipes. Swivel for pneumatic	F. J. Weber	589,800	Sept. 7	652	152	80	1607
Grain-separator	J. W. Russell	589,621	Sept. 7	360	88	80	1550
Grain, &c. Separator for	C. P. Fullmer	587,549	Aug. 3	478	112	80	754
Grain-transfer apparatus	F. J. Weber	589,106	Aug. 31	3237	760	80	1336
Grain-transfer systems. Feeder for	F. J. Weber	585,804	July 6	276	64	80	57
Grain-washer	W. H. Hastings and C. E. Foster	586,125	July 13	952	215	80	906
Graining-tool	M. J. Davis	589,307	Sept. 7	104	23	80	1501
Grass collector or gatherer	M. C. Richards	589,028	Aug. 31	3003	729	80	1310
Grate	W. L. Church	588,305	Aug. 17	1966	454	80	1062
Grate-bar and shaker therefor	A. Stroh	589,629	Sept. 7	375	91, 92	80	1553
Grate. Fire-	R. Meyer	587,320	Aug. 3	66	15	80	679
Grate. Open	W. Schmitt	589,985	Sept. 14	971	231	80	1676
Grater. Nutmeg-	R. J. Williams	588,207	Aug. 17	1639	377	80	1001
Grating. Metallic	R. D. York	587,631	Aug. 3	622	150	80	779
Grave-platform	B. P. Walker	587,888	Aug. 10	1077	248	80	882
Gravity and lever motor	J. R. Wright	590,198	Sept. 14	1359	321	80	1751
Greenhouse	W. H. Witte	589,677	Sept. 7	450	107	80	1567
Grinding and polishing machine	F. Rudolphi	589,398	Aug. 31	3887	907	80	1467
Grinding-machine	J. J. Brannagan	589,407	Sept. 7	11	3	80	1484
Grinding-machine	A. Espinasse	588,637	Aug. 24	2416	556, 557	80	1165
Grinding-machine	C. H. Norton	590,498	Sept. 21	1876	445	80	1862
Grinding-machine. Automatic	C. F. Spery	588,249	Aug. 17	1714	398	80	1015
Grinding machine. Ball-	D. Roche	588,915	Aug. 24	2903	680	80	1256
Grinding machine. Roll-	H. L. Baker and F. W. Wright	587,393	Aug. 3	179	44	80	699
Grinding machine. Sickle-	C., W., and A. Miessner	590,309	Sept. 28	2599	630	80	2011
Grinding-machines. Micrometric adjustment for	C. H. Norton	590,850	Sept. 28	2511	599	80	1903
Grinding-mill	M. F. Abbé	587,688	Aug. 10	711	170	80	817
Grinding-mill	D. W. Bovee	587,177	July 27	2815	661	80	604
Grinding-mill	J. F. Winchell	586,984	July 27	2440	577	80	534
Grip. Hand-	E. G. Archbold	587,634	Aug. 3	625	150	80	780
Grip or bicycle lock. Automatic telescope	W. F. Garrett	590,613	Sept. 28	2089	494	80	1915
Grooming and clipping machines. Balance-arm for power	C. W. Potter	588,706	Aug. 24	2540	597, 598	80	1187
Ground-lever switch	M. F. Moore and C. E. Fink	589,187	Aug. 31	3378	794	80	1364
Guard: *See* Sewing-machine needle-guard. Trolley-guard.							
Guide-post	O. Leuschner	587,744	Aug. 10	821	193	80	838
Gumming apparatus	W. H. Burland	586,010	July 6	757	169	80	148
Gun-barrel	C. D. Dunsford	587,801	Aug. 10	916	213	80	854
Gun. Gas-operated	L. V. Benet and H. A. Mercié	588,380	Aug. 17	1935	450	80	1056
Gun. Gas-operated	H. S. Maxim	586,802	July 13	1333	305, 306	80	275
Gun. Magazine bolt-	T. R. R. Ashton	589,684	Sept. 7	460	109, 110	80	1570
Gun. Magazine bolt-	J. Hanson	590,834	Sept. 28	2481	590	80	1967
Gun rifle attachment. Shot-	H. A. Darms	590,411	Sept. 21	1737	408	80	1835
Gun small lock. Bolt-	P. Mauser	590,271	Sept. 21	1491	352	80	1790
Guns. Lever-locking mechanism for lever-	T. G. Bennett	588,315	Aug. 17	1890	423	80	1035
Gypsum-rock to imitate marble. Treating	G. W. Parker	588,287	Aug. 17	1781	413	80	1027
Hair-crimper	F. E. Barnickle	587,142	July 27	2753	646	80	592
Hair-crimper	C. Burch	586,009	July 6	757	169	80	148
Hair-cutting machine	C. P. Volland	586,526	July 13	1633	379	80	332
Hair-singer. Electric	D. Seide	589,445	Sept. 7	75	17	80	1496
Hair-straightener	R. E. Rhodes	589,397	Aug. 31	3880	907	80	1467
Hame. Sheet-metal	C. F. Mock. (Reissue)	11,627	Aug. 24	2938	687	80	1264
Hammer	J. S. Kelly	589,178	Aug. 31	3267	791	80	1362
Hammer	E. G. Minnemeyer	587,154	July 27	2773	632, 633	80	506
Hammer	E. G. Minnemeyer	587,155	July 27	2775	653	80	507
Hammer	E. Shepard	587,242	July 27	2920	687	80	627
Hammer. Claw-	A. H. Harriman and C. B. Ring	590,368	Sept. 21	1650	302	80	1822
Hammer. Mechanical or drop	C. Grüber	588,422	Aug. 17	2017	468	80	1071
Hammer. Pneumatic	J. Moore	589,214	Aug. 31	3418	802	80	1371
Hammers. Nail-holding attachment for	A. R. Treat	587,623	Aug. 3	612	147	80	778
Hammering machine. Die-	C. H. Morgan and V. E. Edwards	587,372	Aug. 3	159	39, 40	80	695
Hand-guard	N. Sylvestre	590,347	Sept. 21	1653	384	80	1817
Handle: *See* Bicycle-handle. Casket-handle.							
Handle-bar. Adjustable	A. B. Simons	590,672	Sept. 28	2203	523	80	1935
Handle-covering. Removable	J. F. Dickson	585,657	July 6	20	6	80	7
Handle-fastener	T. E. Wilson	585,857	July 6	379	88	80	75
Handle for sheet-metal vessels	C. L. Wagandt	590,781	Sept. 28	2397	570	80	1971

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Handle for tools and bicycle handle-bars	K. H. Granger	588,794	Aug. 24	2096	634	80	1218
Hanger: *See* Bicycle crank-hanger. Eaves-trough hanger. Clothes-line hanger. Garment-hanger. Coat-hanger. Paint-pail hanger. Curtain-hanger. Picture-hanger. Door-hanger. Trolley-wire hanger.							
Harmonica	W. B. Fairfield	588,107	Aug. 10	1466	339	80	963
Harmonica. Mouth-	J. Hohner	588,920	Aug. 24	2012	681	80	1256
Harmonium	C. F. von Bassus	589,066	Aug. 31	3156	743	80	1323
Harness	G. R. Smith	586,978	July 27	2431	574, 575	80	533
Harness attachment	S. A. D. Reynolds	589,536	Sept. 7	216	51	80	1523
Harness attachment	H. L. Steel	589,040	Aug. 31	3117	734	80	1315
Harness-hanger	A. B. McCoy	585,776	July 6	227	53	80	47
Harness-work. Setting-tool for	J. L. Thomson	588,909	Aug. 17	1916	444	80	1052
Harp	P. Stark	586,573	July 20	1720	400	80	377
Harrow	W. L. Marshall	587,011	July 27	2485	586	80	543
Harrow	P. McLaughlin	590,529	Sept. 21	1932	457, 458	80	1872
Harrow	W. D. Parks and T. S. Kirby	590,274	Sept. 21	1498	353	80	1791
Harrow	A. V. Ryder	585,941	July 6	534	126	80	104
Harrow	C. S. Sharp	589,087	Aug. 31	3113	733	80	1314
Harrow	J. S. Weckman	589,517	Sept. 7	188	43	80	1517
Harrow attachment for cutting thistles	C. F. Mavis	585,902	July 6	572	133	80	111
Harrow. Disk	T. E. Bissell and G. R. Thomson	588,383	Aug. 17	1944	451	80	1057
Harrow. Disk	C. S. Sharp	589,707	Sept. 7	645	150, 151	80	1605
Harrow. Drag-	I. T. Evans	586,540	July 20	1671	389	80	369
Harrow for race-courses	G. E. Guerne	586,737	July 20	1994	464	80	428
Harrow. Riding-	J. L. Sturgis and J. T. Taylor	588,192	Aug. 17	1620	373	80	997
Harrow. Rotary	E. T. Curry and C. M. Slinker	586,595	July 20	1761	408	80	384
Harrow seeder attachment	F. H. Storm	589,623	Sept. 7	372	91	80	1552
Harrow. Spading-	C. Maul	586,505	July 13	1577	368	80	321
Harvester	L. Hammer	588,893	Aug. 24	2317	535	80	1240
Harvester	E. A. Peck	588,599	Aug. 24	2321	538	80	1147
Harvester and separator. Combined	J. L. Slatton	586,782	July 20	2061	480	80	440
Harvester. Corn-	I. M. Blanchard	586,960	July 27	2398	505, 506	80	526
Harvester. Corn-	D. T. Phillips	587,535	Aug. 3	451	105, 106	80	747
Harvester. Corn-	J. W. Pridmore	585,696	July 6	79	20	80	18
Harvester. Potato-	W. Chater	590,184	Sept. 14	1335	316, 317	80	1747
Harvester. Potato-	H. R. Kuersten	588,582	Aug. 24	2297	532	80	1141
Harvester reel-supporting device	C. A. A. Rand	590,464	Sept. 21	1819	430	80	1851
Harvester rubbish-conveyer attachment	D. E. Loger	589,439	Sept. 7	67	15	80	1494
Harvester. Self-binding	J. F. Appleby	587,668	Aug. 3	674	161, 162	80	790
Harvester shock binding and ejecting mechanism. Corn-	W. M. Platt	588,469	Aug. 17	2100	489	80	1086
Harvesters. Bundle-carrier for corn-	J. W. Pridmore	586,008	Aug. 10	1290	299	80	921
Harvesting-machine	T. H. Brown	590,821	Sept. 28	2460	584	80	1963
Harvesting-machine bundle-carrier	M. Kane	587,833	Aug. 10	982	228, 229	80	864
Harvesting-machine bundle-carrier	M. Kane	589,657	Sept. 7	417	101	80	1561
Harvesting machine. Corn-	R. B. Robbins	585,786	July 6	243	56	80	50
Harvesting machine. Grain-	C. P. Alling	589,380	Aug. 31	3853	900, 901	80	1461
Hat-brim-curling machine	G. Segschneider	588,020	Aug. 10	1309	303	80	925
Hat-brim-stiffening machine	E. S. Alvord	588,372	Aug. 17	1920	446	80	1053
Hat-brim-stiffening machine	L. R. Heim	590,370	Sept. 21	1660	392, 393	80	1822
Hat-brims. Machine for paring curled edges of	C. Eickemeyer	587,943	Aug. 10	1183	273, 274	80	901
Hat-brims. Machine for setting curled edges of	C. Eickemeyer	587,944	Aug. 10	1187	274, 275	80	902
Hat-carrier	E. W. Hawley	589,829	Sept. 14	701	164	80	1629
Hat-fastener	E. B. Alexander	589,888	Sept. 14	806	190	80	1646
Hat-fastener	A. J. Carlson	590,802	Sept. 28	2483	577	80	1978
Hat-fastener	E. Hundhausen	590,639	Sept. 28	2494	593	80	1989
Hat-fastener	T. G. McPherson	586,200	July 13	1076	243	80	226
Hat-fastener	D. O'Brien	590,904	Sept. 28	2607	622	80	2013
Hat-pin	J. Stauber	586,630	July 20	1824	423	80	397
Hat-pin	B. H. Cook	590,362	Sept. 21	1653	390	80	1821
Hat-plate holder	L. A. Scott	589,145	Aug. 31	3320	780	80	1353
Hat-rack and case. Combined	R. H. Innes	585,761	July 6	199	45	80	41
Hat. Sunshade-	L. J. King	587,741	Aug. 10	817	192	80	838
Hat-trimming fastener	R. Ray	588,241	Aug. 17	1703	390, 391	80	1013
Hats. Apparatus for manufacturing felt	G. Barnum	588,851	Aug. 24	2790	651	80	1237
Hats. Heating device used in making or renovating	R. Stalker and G. Batty	585,796	July 6	261	60	80	53
Hatchway and door mechanism. Sidewalk	E. A. Oswald and C. M. Kirchgessner	590,236	Sept. 21	1453	338	80	1779
Hay and stock rack. Combined	P. H. Jackson	587,210	July 27	2806	673	80	615
Hay-carrier	J. P. Hansen	590,614	Sept. 28	2090	494, 495	80	1915
Hay-loader coupling	W. Louden	589,902	Sept. 14	627	195	80	1650
Hay-press	P. H. Conner	590,610	Sept. 28	2085	493	80	1914
Hay-press	J. C. Couch	587,709	Aug. 10	763	179	80	827
Hay-rake	N. H. Hawk	587,000	July 27	2465	582	80	540
Hay-rake	A. Fournier	589,334	Aug. 31	3864	902	80	1463
Hay-rake	B. Mellinger	586,447	July 13	1476	343	80	302
Hay-rake	E. A. Wright	586,264	July 13	1168	267, 268	80	243

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hay rake and loader	S. M. Jenks	590,103	Sept. 14	1182	278 279	80	1717
Hay-tedder	C. S. Sharp	589,796	Sept. 7	644	149	80	1605
Hay-tedder. Direct central draft or drive	H. E. and H. Z. Youtz	588,523	Aug. 17	2194	510	80	1104
Hay-ties. Machine for making	J. A. Scharf	590,338	Sept. 21	1611	380	80	1813
Headlight	C. Bash	586,584	July 20	1740	405	80	381
Headlight. Dash electric	J. Kirby, Jr.	586,774	July 20	2048	477	80	437
Headlight. Dash electric	J. Kirby, Jr.	589,783	Sept. 7	618	144	80	1600
Headlight. Electric	J. Kirby, Jr.	589,130	Aug. 31	3293	775	80	1346
Headlight. Locomotive	G. B. Ralt	588,878	Aug. 24	2844	661	80	1244
Head-rest	S. D. McKelvey	587,223	July 27	2900	680	80	622
Head-rest pad	S. D. McKelvey	587,224	July 27	2901	681	80	622
Heat-engine	S. A. Reeve	588,293	Aug. 17	1790	415	80	1029
Heat-retaining or protecting package for foods, &c.	S. H. Street	590,406	Sept. 21	1723	406	80	1833
Heat. Transmitting	G. F. Dinsmore	589,340	Aug. 31	3784	884	80	1448
Heater: *See* Dynamite-heater. Pail-heater. Electric heater. Storage-heater. Feed-water heater. Tire-heater. Hot-water heater. Water-heater.							
Heater	C. W. Aldrich	590,447	Sept. 21	1796	422	80	1846
Heater	R. M. Hermance	589,085	Aug. 31	3195	752	80	1329
Heaters. Packing-joint for	R. J. Schwab	585,706	July 6	80	23	80	20
Heating and ventilating buildings. Means for	C. J. H. Woodbury	589,771	Sept. 7	597	139 140	80	1596
Heating apparatus	B. Price	588,601	Aug. 24	2326	539	80	1148
Heating apparatus. Electrolytic	G. D. Burton	587,568	Aug. 3	511	121	80	759
Heating apparatus. Gas	G. Schoonjans	589,306	Aug. 31	3739	870	80	1440
Heating apparatus. Steam	R. M. Dixon	586,761	July 20	2032	472 473	80	434
Heating attachment for illuminating-burners	G. E. Rust and J. J. Phelan	590,337	Sept. 21	1610	379	80	1812
Heating-furnace	A. Laughlin and J. Reuleaux	588,702	Aug. 24	2534	585 586	80	1186
Heddle-frame	C. H. Niedner	585,890	July 6	319	75	80	65
Heel-attaching machine	C. W Glidden	589,501	Sept. 7	157	35, 36	80	1511
Heel-attaching machine	F. F. Raymond, 2d	589,896	Aug. 31	3885	906	80	1467
Heel or sole protector	G. H. Williams	587,500	Aug. 3	398	92	80	735
Heel-protector	T. P. Boulger	585,859	July 6	381	89	80	75
Heel-rands. Machine for making	A. C. Heath and F. H. White	587,283	July 27	3002	703 704	80	640
Heeling-machine	J. H. Pope	588,936	Aug. 24	2935	687	80	1263
Helmet	J. R. Hopkins and R. S. Wright	586,089	July 6	808	179	80	157
Hemoglobinometer	H. Orford	585,004	July 6	73	18	80	17
Hides, skins, or leather. Machine for treating	W. Evans	587,717	Aug. 10	775	182 183	80	830
Hinge	W. B. Arnold	590,873	Sept. 28	2552	609	80	2001
Hinge	C. Froelich	589,963	Sept. 14	929	222	80	1669
Hinge	T. J. Goodwin	588,567	Aug. 24	2573	597	80	1136
Hinge	E. C. Hoffman	588,642	Aug. 24	2422	558	80	1166
Hinge	R. W. Hubbard	586,663	July 20	1869	435	80	405
Hinge	R. Rowe	590,960	Sept. 28	2526	603	80	1996
Hinge. Ball-bearing	A. Steinfeldt	586,146	July 13	900	223	80	210
Hinge. Blind	G. W. Meserve	585,826	July 6	312	73, 74	80	63
Hinge for water-closet seats and covers	C. F. Streit	588,720	Aug. 24	2560	591	80	1191
Hinge. Gate	J. S. Berry	587,173	July 27	2810	659 660	80	603
Hinge. Gate	G. H. Choate	590,880	Sept. 28	2559	611	80	2003
Hinge. Lock	J. Dubbelde	586,355	July 13	1325	303	80	273
Hinge-roller gate	J. Askew	588,374	Aug. 17	1927	447	80	1054
Hinge. Spring	W. K. Henry	590,572	Sept. 28	2018	476	80	1902
Hinge. Spring	W. A. Place	589,854	Sept. 14	737	172	80	1635
Hinge. Strap	J. H. Lawrence	588,925	Aug. 24	2918	683	80	1259
Hitching device	S. King and M. Myers	585,678	July 6	52	13	80	13
Hitching device	E. L. Propst	589,855	Sept. 14	737	172	80	1635
Hitching-post	C. P. Ebersol	586,480	July 13	1534	359	80	312
Hod	G. Lane	587,316	Aug. 3	61	14	80	678
Hoe	W. B. Chamblin	587,088	July 27	2032	621	80	570
Hoe	W. A. Scott	589,863	Sept. 14	750	175	80	1637
Hog-catcher	W. E. Tidler	590,747	Sept. 28	2330	551	80	1958
Hoisting and conveying machine	G. C. Avery	586,350	July 13	1315	300	80	271
Hoisting and tripping apparatus	W. S. Reese	588,756	Aug. 24	2641	609	80	1207
Hoisting-buckets. Automatic dump for	M. Liston and L. Wilson	587,590	Aug. 3	556	133	80	767
Hoisting, conveying, and dumping apparatus	O. N. Gardner	589,964	Sept. 14	930	222 223	80	1669
Hoisting device	J. Cline	585,908	July 6	470	113	80	93
Hoisting device	J. H. Hammer	588,627	Aug. 24	2756	639	80	1228
Hoisting-engine	A. E. Norris	590,587	Sept. 28	2089	482	80	1906
Hoisting or dredging apparatus. Clam-shell	C. P. Dole	586,536	July 13	1648	384	80	334
Holdback	C. M. Gonne	589,826	Sept. 14	693	161	80	1627
Holdback attachment for vehicles	J. Meskill	585,827	July 6	314	74	80	63
Holder	J. F. Gates	587,724	Aug. 10	788	186	80	832
Hoodwink	H. Seffer	589,307	Aug. 31	3740	870	80	1440
Hoof-cutting tool	W. L. Bliss	589,809	Sept. 14	666	155	80	1622
Hoof-pad	W. T. Rollins	590,553	Sept. 21	1986	467	80	1881
Hook: *See* Checkrein-hook. Singletree-hook. Fish-hook. Snap-hook. Lacing-hook. Whiffletree-hook.							
Hook and eye	I. P. Doolittle	587,189	July 27	2833	665	80	607
Hoop: *See* Embroidery-hoop.							
Hopper for granular material	F. A. von Boyneburgk	587,640	Aug. 3	634	152	80	782
Hopple	L. Carr	589,071	Aug. 31	3165	746	80	1324
Horn	W. A. Dunlap	586,356	July 13	1326	303	80	273
Horn	W A. Dunlap	586,357	July 13	1327	303	80	273
Horse-checking device	F. X. Lussier	589,181	Aug. 31	3370	792	80	1362

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Horse-detacher	J. L. Bouma	587,924	Aug. 10	1138	262	80	892
Horse-detacher	G. H. Davis	590,735	Sept. 28	2313	547	80	1955
Horse-detacher and wagon-brake	W. Ostendorff	589,612	Sept. 7	347	85	80	1547
Horse-nail machine	B. J. Abbott	587,029	July 27	2525	593 594 595 596 597	80	550
Horse-rake	C. S. Sharp	587,761	Aug. 10	848	199 200	80	844
Horse-rake	C. S. Sharp	587,762	Aug. 10	849	200	80	844
Horse-starter	R. E. Sherman	586,929	July 20	2333	550	80	491
Horse-tail controller	F. M. Sharp	587,763	Aug. 10	851	200	80	844
Horses. Device for regulating gait of	C. C. Jerome	589,564	Sept. 7	255	62	80	1529
Horses. Means for checking or stopping	H. Dalwigk	590,658	Sept. 28	2175	516	80	1930
Horses. Undercheck device for	T. Harrington	586,999	July 27	2464	582	80	539
Horseshoe	H. Atwell	589,804	Sept. 14	661	154	80	1621
Horseshoe	G. T. Berryhill	590,874	Sept. 28	2553	610	80	2001
Horseshoe	I. M. Billings	589,803	Sept. 7	654	152	80	1607
Horseshoe	V. F. Coons and L. C. S. Frick	586,304	July 13	1226	280	80	254
Horseshoe	D. S. Jaffray	589,129	Aug. 31	3291	774	80	1346
Horseshoe	G. Singleton	588,022	Aug. 10	1313	304	80	926
Horseshoe-calk	A. J. Walker	585,992	July 6	725	162	80	142
Horseshoe. Cushioned	A. Otte	587,399	Aug. 3	202	51	80	704
Horseshoe. Elastic	C. E. Burroughs	590,513	Sept. 21	1908	452	80	1868
Horseshoe. Elastic	M. W. Lowes	586,558	July 20	1688	392	80	371
Horseshoe-guard	J. F. Selberling	587,758	Aug. 10	844	198	80	843
Horseshoe ice-creeper appliance	D. R. Porter	589,095	Aug. 31	3216	756	80	1333
Horseshoe ice-creeper appliance	G. C. Hale	586,487	July 13	1544	362	80	314
Horseshoe-pad	G. C. Hale	586,498	July 13	1546	362	80	315
Horseshoe-pad	H. W. Billington	587,919	Aug. 10	1131	261	80	891
Horseshoe roughing attachment	M. Hallanan	590,030	July 6	788	176	80	155
Horseshoe. Rubber-tread	W. J. Maier	588,987	Aug. 24	2937	687	80	1263
Horseshoe. Soft-tread	H. Schmid	588,734	Aug. 24	2593	597	80	1197
Horseshoe. Soft-tread	F. Galley	587,722	Aug. 10	786	185	80	831
Horseshoe. Soft-tread	L. D. Saxton	586,696	July 20	1921	447	80	414
Horseshoeing apparatus	R. S. Wiesenfeld	589,488	Sept. 7	140	31	80	1508
Hose	G. Barcus	590,800	Sept. 28	2429	576 577	80	1977
Hose-bridge	J. Murphy	587,679	Aug. 3	697	167	80	795
Hose-bridge	F. P. Gerstner	590,754	Sept. 28	2345	555	80	1961
Hose bridge. Fire	J. Owen	587,159	July 27	2751	654	80	598
Hose-clip	W. T. Slider	586,205	July 13	1068	245	80	228
Hose-coupling	J. T. Duncan	590,094	Sept. 14	1168	276	80	1714
Hose-coupling	H. C. Campbell	589,813	Sept. 14	674	156	80	1623
Hose-coupling. Railway	C. Prevet	590,590	Sept. 28	2052	486	80	1906
Hose-covering	S. Walters	587,111	July 27	2675	630	80	578
Hose-fitting	A. Bott	586,113	July 13	996	210	80	200
Hose-nozzle	A. McKee	589,216	Aug. 31	3420	802	80	1372
Hose-nozzle	J. Askins	586,955	July 27	2391	564	80	525
Hose-pipes. Device for draining, drying, and preserving	G. W. Tinsley	587,344	Aug. 3	117	28	80	687
Hose-reel	W. P. Wilson	587,902	Aug. 10	1102	258	80	886
Hose reel. Garden	E. Cliff	585,861	July 6	384	89, 90	80	76
Hose. Rubber	J. P. Casselman	588,897	Aug. 24	2870	669	80	1249
Hose-supporter	H. B. Cobb	587,545	Aug. 3	471	110	80	752
Hose to nipples. Connecting	O. Bagley	590,676	Sept. 28	2212	524	80	1937
Hot-air blast	C. H. Dale	590,258	Sept. 21	1471	347	80	1796
Hot-air furnace	J. H. Evans	590,612	Sept. 28	2067	494	80	1914
Hot-air motor	H. H. Rice	586,002	July 6	836	186	80	163
Hot-water bag	W. Trewhella	588,509	Aug. 17	2167	503 504	80	1099
Hot-water-bag nipple	Z. Yamabe	588,043	Aug. 10	1346	312	80	932
Hot-water furnace	J. Lines	589,734	Sept. 7	541	128	80	1586
Hot-water heater	E. A. Manny	586,974	July 27	2423	572 573	80	531
Hot-water heater	S. H. Paxton	588,003	Aug. 10	1283	296 297	80	920
Hot-water heater and steam-generator	J. Walther	585,727	July 6	130	31	80	29
House: *See* Greenhouse.	W. C. Higgins	590,063	Sept. 14	1106	262	80	1702
Hub-attaching device	S. J. Harry	588,863	Aug. 24	2820	655	80	1241
Hub-attaching device	A. J. Walker	587,411	Aug. 3	225	56	80	709
Hub or wheel bearing. Antifriction	J. H. Vinton	586,535	July 13	1646	383	80	334
Hub-shield	A. P. Morehouse	588,163	Aug. 17	1570	302	80	998
Hub. Vehicle-wheel	H. L. Eaton	586,548	July 20	1669	389	80	368
Hub. Wagon-wheel	J. D. Mattison	587,841	Aug. 10	997	232	80	867
Humidifier	H. J Barnes	588,944	Aug. 31	2950	691	80	1283
Humidifying apparatus	O. Hoffmann	588,643	Aug. 24	2423	559	80	1166
Hydrant	J. A. Brown	586,092	July 13	902	202	80	193
Hydrant	F. M. Farwell	587,364	Aug. 3	151	36	80	693
Hydraulic apparatus	E. S. Cobb	587,427	Aug. 3	248	60	80	718
Hydraulic engine	J. N. Paddock	586,202	July 13	1081	243	80	227
Hydraulic motor	J. R. de Remer	586,059	July 6	833	185 186	80	162
Hydrocarbon-burner	J. Leede	588,155	Aug. 17	1560	360	80	986
Hydrocarbon-burner	G. C. Roberts	588,658	Aug. 24	2460	565 566	80	1173
Hydrocarbon incandescent burner	V. H. Slinack	589,446	Sept. 7	77	17	80	1496
Hygienic pipe	J. E. Turner	586,149	July 13	992	223	80	210
Ice chest or box	J. A. Hilcken	587,819	Aug. 10	952	221	80	859
Ice-cream cabinet	C. Meincke	589,568	Sept. 7	266	64	80	1532
Ice-cream disher	J. E. and W. H. Crea	586,907	July 20	2101	490	80	447
Ice-cream disher and mold	T. F. Handly	586,161	July 13	1042	234	80	219
Ice-cream freezer	C. H. Ackerman	586,538	July 20	1655	386	80	365

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ice-cream freezer	J. W. Hart	585,754	July 6	187	43	80	39
Ice-cream freezer	T. Woerner, Sr	590,445	Sept. 21	1793	421	80	1846
Ice-cutting apparatus	E. F. Brown	588,393	Aug. 17	1963	453 454	80	1061
Ice-manufacturing apparatus	J. H. Martin	587,840	Aug. 10	992	231 232	80	866
Ice-pick	W. B. Pollard	585,697	July 6	78	19	80	18
Ice scraper or shaver	R. M. Pancoast	587,230	July 27	2010	682	80	624
Ice-tool	J. S. Field and W. J. Shedd	589,254	Aug. 31	3500	623	80	1390
Incandescent burner	J. H. Dubrow	589,343	Aug. 31	3789	694	80	1449
Incandescent burner	F. Rhind	586,060	July 6	835	186	80	163
Incandescent-lighting substance	W. Mahler	588,685	Aug. 24	2501	.....	80	1181
Incubator	H. B. Corridean	587,646	Aug. 3	643	154	80	784
Incubator and brooder	W. P. Jones	586,088	July 6	885	200 201	80	173
Index	H. L. Motter	587,322	Aug. 3	72	18	80	660
Index	C. C. Smith	586,875	July 20	2207	518	80	468
Indicator: *See* Car-indicator. Door-indicator. Liquid-indicator. Order-indicator. Scale-indicator. Speed-indicator. Station-indicator. Timepiece-winding-indicator. Valve-indicator. Watch winding-indicator.							
Indicator	A. H. Walker	588,254	Aug. 17	1723	395	80	1017
Indicator with automatic stopping mechanism	W. F. Braun	590,512	Sept. 21	1907	451	80	1868
Inflatable ball	E. I. Manley	590,421	Sept. 21	1756	412	80	1839
Inhaler	G. W. Pickin	590,376	Sept. 21	1675	395	80	1824
Injector	L. Friedmann	588,676	Aug. 24	2491	575	80	1178
Injector	W. T. Messinger	587,843	Aug. 10	1000	233	80	867
Injector	G. A. Oncken	586,201	July 13	1079	243	80	227
Ink. Making printing-	D. J. Ogilvy	587,852	Aug. 10	1017	.....	80	870
Ink preparation	L. E. Dunlap	590,139	Sept. 14	1263	296	80	1732
Inkstand	G. Hauman	586,492	July 13	1555	363	80	316
Inkstand	W. L. Stewart	586,878	July 20	2212	519	80	469
Inkstand. Automatic reservoir or fountain	R. Bell and L. Hall	586,958	July 27	2395	564	80	525
Inkstand. Self-closing	A. K. Sagen	586,668	July 20	1875	437	80	406
Ink-well	E. B. Nourse	589,977	Sept. 14	953	228	80	1673
Ink-well and penholder. Combined	W. B. North	586,143	July 13	985	221	80	209
Inking-pad	J. H. Melven	590,808	Sept. 28	2597	619	80	2011
Inking-pad receptacle	W. C. Robinson	590,499	Sept. 21	1877	445	80	1862
Insect-destroyer	W. Devolld	587,429	Aug. 3	252	61	80	714
Insect-exterminating machine	G. J. Moeller, Jr	588,752	Aug. 24	2634	607	80	1206
Insect-guard for poultry-perches	C. A. Polson	590,237	Sept. 21	1434	338	80	1779
Insect-proof roller or pedestal	W. H. and A. M. Curry	589,465	Sept. 7	102	22	80	1501
Insecticide	W. Wallace	587,469	Aug. 3	335	.....	80	727
Insulated conductor. Flexibly-	J. H. Kelman	586,554	July 20	1680	391	80	370
Insulating material. Making	J. Gray and C. H. Case	589,256	Aug. 31	3512	.....	80	1391
Insulator	F. B. Grimm and J. H. Nessler	590,832	Sept. 28	2479	590	80	1987
Insulator	F. M. Locke	590,806	Sept. 28	2439	579	80	1979
Insulator	H. Rudolf	587,273	July 27	2089	701	80	638
Insulator	H. W. Steinberg, Jr	586,872	July 13	1347	310	80	278
Insulator. Electric-line	J. J. Tracy	586,700	July 20	1926	449	80	415
Insulator. Wire-	G. Ashby	588,048	Aug. 10	1355	315	80	933
Invalid-chair	S. Gower	586,432	July 13	1458	337	80	298
Invalid-rest	J. Drawe	586,531	July 13	1642	382	80	333
Iron: *See* Sad-iron. Switch-iron. Soldering-iron.							
Iron from scrap. Recovering	H. C. Woltereck	589,915	Sept. 14	855	203	80	1655
Iron or steel. Apparatus for pouring molten	G. W. Bierer	588,549	Aug. 24	2347	522	80	1133
Iron sponge. Continuous process of reducing	G. M. Westman	590,925	Sept. 28	2634	629	80	2018
Iron. Treating phosphoric	A. J. Rossi	590,239	Sept. 21	1436	.....	80	1779
Ironing boards. Neckband-ring for shirt-	J. H. Mount	590,070	Sept. 14	1122	265	80	1705
Ironing-machine	C. J. Richardson	589,575	Sept. 7	276	66, 67	80	1534
Irrigation-gate	J. Moffatt	590,728	Sept. 28	2302	544	80	1953
Irrigation. Underground	J. N. Swanson	585,856	July 6	378	88	80	75
Irrigator. Tree-	H. Kling	588,278	Aug. 17	1765	408	80	1024
Jack: *See* Ditching-jack. Pumping-jack. Lifting-jack. Scaffolding-jack. Roof-jack. Wagon-jack.							
Jack for turning fly-wheels of engines, &c	J. S. Roberts	589,031	Aug. 31	3098	790 391	80	1311
Japan. Method of and apparatus for applying	J. H. Kelman	586,555	July 20	1682	392	80	370
Jar: *See* Fruit-jar. Milk-jar. Non-refillable jar.							
Jar and sealing device for same	J. Schies	587,239	July 27	2022	685 686	80	626
Jar-closing machine	A. L. Weissenthanner	590,196	Sept. 14	1356	320	80	1750
Jar-closure	C. S. Alden	589,151	Aug. 31	3329	782	80	1355
Jar for preserving butter, &c	J. J. Carter	590,098	Sept. 28	2248	532	80	1943
Jar holder. Fruit-	E. K. and W. S. Sheppard	590,710	Sept. 28	2270	537	80	1947
Jar-top	T. F. Sullivan	586,636	July 20	1836	426	80	399
Jewels by Roentgen rays. Device for examining	E. Thomson	587,883	Aug. 10	1069	246	80	880
Joinery *See* Brush slip-joint. Frame-joint. Rail-joint. Railway-joint. Railway-rail joint. Rule-joint.	P. Seelinger	586,276	July 13	1186	271	80	247
Journal-box	F. H. Gasseld	590,434	Sept. 21	1774	416	80	1842
Journal-box	E. D. Johnston and W. W. Wainwright.	588,529	Aug. 17	2209	513	80	1107
Keg-register. Electrical	W. Kraft	588,797	Aug. 24	2700	625	80	1218
Kettle. Dinner-	W. MacCallum	589,300	Aug. 31	3890	892	80	1455
Key and door fastener	C. E. Smith	588,758	Aug. 24	2643	610	80	1208

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Key-fastener	J. R. Hemmelwright	586,883	July 13	1370	315	80	281
Key-ring	G. O. Walton	586,407	July 13	1413	325	80	290
Key-seat-cutting machine	W. Merrill	589,010	Aug. 31	3064	721 722	80	1305
Key-seat-cutting machine	W. Merrill	589,011	Aug. 31	3067	723	80	1306
Kiln: *See* China-kiln. Drying-kiln. Malt-kiln.							
Kiln	C. Schlimp and R. Honzik	588,885	Aug. 24	2353	664	80	1246
Kiln for baking or firing earthenware	C. D., A. D., L. D., and S. D. d'Enghien.	586,169	July 13	1023	230 231	80	216
Kinematographic lantern or apparatus	J. W. Holst	587,527	Aug. 3	439	102 103	80	745
Kinetoscope	W. G. Steward and E. F. Frost	588,916	Aug. 24	2905	680	80	1257
Kinetoscopic films, &c. Means for guiding	L. E. Henriet	590,837	Sept. 28	2491	593	80	1989
Kit. Portable	F. H. Smith	585,718	July 6	101	25, 26	80	23
Kitchen-cabinet	J. S. Gill	585,842	July 6	355	82	80	71
Kitchen-cabinet	W. H. Herrick and H. C. Crossley	586,185	July 13	1045	235 236	80	219
Kitchen-cabinet	G. N. Tague	590,285	Sept. 21	1518	359	80	1794
Kite-string traveler	E. Folsom and E. H. Packard	589,373	Aug. 31	3839	897	80	1459
Kneading machine. Dough-	L. Durand	589,250	Aug. 31	3504	822	80	1389
Knee-protector	A. Herbelin	588,907	Aug. 24	2883	672	80	1252
Knife: *See* Combination-knife. Folding knife. Leather-splitting knife. Pocket-knife.							
Knife-cleaner	A. D. Canfield	589,639	Sept. 7	390	95	80	1555
Knit fabrics. Machine for uniting	S. Henshall	589,723	Sept. 7	526	124	80	1582
Knitting-machine	S. S. Cook	588,398	Aug. 17	1974	456 457	80	1062
Knitting-machine	R. W. Gormly	587,957	Aug. 10	1209	280 284	80	906
Knitting-machine	G. D. Munsing	586,315	July 13	1246	285 286 287	80	258
Knitting-machine fashioning mechanism	L. C. Huse	589,174	Aug. 31	3359	790	80	1361
Knitting-machine needle	G. E. Philbrick	589,094	Aug. 31	3089	728	80	1309
Knitting-machine needle-dial	H. Eddishaw, G. E. Knowles, and J. E. Eddishaw.	588,559	Aug. 24	2262	525	80	1134
Knitting-machine stop-motion. Circular-	A. White and D. F. Sullivan	587,351	Aug. 3	128	31	80	689
Knitting-machine stop-motion. Circular-	A. White and D. F. Sullivan	588,760	Aug. 24	2645	610	80	1208
Knitting-machine stop-motion. Circular-	A. White and D. F. Sullivan	588,761	Aug. 24	2647	611	80	1208
Knitting-machine stop-motions. Automatic drop-wire support for	A. White and D. F. Sullivan	588,762	Aug. 24	2648	611	80	1209
Knob-locking device	T. F. Oetjen and V. Fourcher	589,021	Aug. 31	3083	727	80	1309
Knob-spindle fastener	A. O. Wyman	588,673	Aug. 24	2489	574	80	1178
Knockdown box	T. E. Wiedersheim, Jr	586,646	July 20	1851	430	80	401
Label for bottles	A. S. Jackson	587,368	Aug. 3	156	38	80	694
Labeling machine. Can-	J. P. Simmons	589,673	Sept. 7	441	106	80	1566
Lace-fastener	R. R. T. Grant	588,961	Aug. 31	3013	708	80	1295
Lace-fastener	E. D. Heinemann	586,818	July 20	2118	495	80	450
Lace-fastening device. Shoe-	G. W. Patterson	589,571	Sept. 7	270	65	80	1533
Lace-making machine	A. Mattisch	586,136	July 13	974	219	80	207
Lacing-hook	E. Kempshall	586,772	July 20	2046	477	80	437
Lacing hook and eyelet. Combination	R. C. Pleins	589,395	Aug. 31	3884	905	80	1466
Lacing. Tipped	E. Kempshall	586,771	July 20	2045	476	80	437
Ladder	J. N. Richey	587,608	Aug. 3	588	142	80	778
Ladder. Convertible step-	H. S. Williams	586,889	July 20	2228	523 524	80	472
Ladder. Extension step-	T. W. Alexander	589,326	Aug. 31	3764	877	80	1444
Ladder. Fruit-picking	A. Cole	588,130	Aug. 17	1521	348	80	979
Ladder. Rope	W. P. Buckley	590,475	Sept. 21	1838	434	80	1855
Ladder. Step-	A. B. Maguire	586,341	July 13	1302	298	80	269
Ladder. Step-	W. Price	590,335	Sept. 21	1608	379	80	1812
Ladder. Step-	S. Wright	589,916	Sept. 14	855	203	80	1655
Lamp	C. L. Betts	589,262	Sept. 14	910	218	80	1666
Lamp	W. J. Smart	587,875	Aug. 10	1058	244	80	878
Lamp	G. Washington	589,051	Aug. 31	3132	737	80	1318
Lamp. Acetylene-gas	G. Bettini	589,404	Sept. 7	6	2	80	1484
Lamp. Acetylene-gas	C. G. Hawley	586,517	July 13	1607	374	80	326
Lamp. Acetylene-gas-generating	F. Rhind	589,098	Aug. 31	3220	757	80	1333
Lamp. Acetylene-gas-generating	F. Rhind	589,099	Aug. 31	3221	757	80	1334
Lamp. Bicycle-	W. S. Hamm	588,904	Aug. 24	2878	671 672	80	1252
Lamp. Bicycle-	C. Maschmeyer	590,044	Sept. 14	1075	253	80	1696
Lamp. Bicycle-	W. S. and C. H. Miller	588,400	Aug. 17	2060	485	80	1062
Lamp. Bicycle-	I. M. Rose	588,115	Aug. 10	1481	342	80	957
Lamp. Bicycle-	H. W. Sturges	590,919	Sept. 28	2627	627	80	2017
Lamp. Blowpipe-	M. M. Young	589,459	Sept. 7	95	21	80	1500
Lamp bracket. Bicycle-	W. A. Chapman	589,815	Sept. 14	677	157	80	1624
Lamp-burner	E. D. Terry	586,295	July 13	1215	277	80	252
Lamp-burner	L. J. Atwood	588,788	Aug. 24	2685	621	80	1216
Lamp-burner	W. C. Homan	586,269	July 13	1175	269	80	245
Lamp-burner	F. Rhind	586,061	July 6	836	186	80	163
Lamp-burner	W. H. White	587,413	Aug. 3	227	56	80	709
Lamp-burner hinge	J. H. White	586,346	July 13	1308	299	80	270
Lamp. Central-draft	L. F. Griswold	586,028	July 6	784	175	80	154
Lamp. Central-draft	J. Jauch	590,415	Sept. 21	1742	409	80	1836
Lamp-chimney	J. Collinge	589,416	Sept. 7	29	7	80	1487
Lamp-chimney	H. R. Hill	590,483	Sept. 21	1850	437	80	1857
Lamp-chimney holder	R. E. Alfred	590,608	Sept. 28	2081	498	80	1918
Lamp-chimney holder	W. L. Braddock	587,471	Aug. 3	336	80	80	727
Lamp. Cycle-	L. J. Atwood	586,348	July 13	1311	300	80	271
Lamp. Electric-arc	T. E. Adams	589,996	Sept. 14	969	225 226	80	1680
Lamp. Electric-arc	S. Bergmann and E. Lavens	587,421	Aug. 3	238	58, 59	80	711

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Lamp. Electric-arc	B. F. Greene	588,822	Aug. 24	2748	637	80	1226
Lamp. Electric-arc	H. Leitner	590,725	Sept. 28	2206	543	80	1951
Lamp. Electric-arc	J. McLaughlin	587,750	Aug. 10	830	195 196	80	840
Lamp. Electric-arc	A. Poulsen	590,670	Sept. 28	2201	522	80	1935
Lamp. Electric-arc	W. R. Eldings, G. F. Bull, and L. B. Codd.	590,238	Sept. 21	1435	338	80	1779
Lamp. Electric-arc	T. Spencer	588,610	Aug. 24	2352	543	80	1154
Lamp. Electric-arc	B. A. Stowe	586,208	July 13	1069	246	80	229
Lamp. Electric-arc	E. F. Taylor	587,465	Aug. 3	327	78	80	725
Lamp. Electric-arc	J. J. Walsh	585,726	July 6	129	31	80	28
Lamp elevator. Railway	J. H. Miller	586,314	July 13	1249	284	80	257
Lamp-extinguisher	M. Fischhaber	590,216	Sept. 21	1405	331	80	1773
Lamp fixture. Incandescent-electric	B. B. Hoffman	590,838	Sept. 28	2493	593	80	1989
Lamp for cycles, &c	E. M. Harley	585,885	July 6	424	101 102	80	84
Lamp for generating and burning acetylene gas	C. W. Beck	590,941	Sept. 28	2672	637	80	2025
Lamp for street use. Incandescent gas	A. C. Niermeyer	590,586	Sept. 28	2038	481	80	1906
Lamp for vehicles. Electric	M. P. Ryder	586,399	July 13	1397	322	80	286
Lamp having regenerative burner	T. Gordon and W. R. Swift	585,817	July 6	200	68	80	60
Lamp heater-frame	R. C. White	589,056	Aug 31	3138	739	80	1319
Lamp holder. Incandescent	C. H. Otis	588,348	Aug. 17	1884	435	80	1046
Lamp. Hydrocarbon	C. E. White	586,299	July 13	1220	278	80	253
Lamp-igniting device. Bicycle	W. Rafel and C. G. Knoerzer	590,911	Sept. 28	2017	624	80	2015
Lamp. Incandescent	J. Bradley	590,786	Sept. 28	2406	572	80	1972
Lamp. Incandescent electric	H. F. Schaedel	586,275	July 13	1184	271	80	246
Lamp. Mining	R. A. Miller	589,441	Sept. 7	69	15	80	1494
Lamp or lantern	W. Thornley	588,506	Aug. 17	2164	503	80	1098
Lamp. Safety	F. Daintree	589,936	Sept. 14	886	211	80	1660
Lamp-screen	A. Wolff	589,489	Sept. 7	141	31	80	1508
Lamp-socket	H. C. Wirt	587,027	July 27	2523	598	80	549
Lamp socket. Cycle	C. A. and F. J. Miller	586,507	July 13	1580	369	80	321
Lamp. Street gas	C. R. Bellamy	588,379	Aug. 17	1984	449	80	1055
Lamp-support	N. Jenkins	587,001	July 27	2467	583	80	540
Lamp support. Bicycle	L. J. Atwood	586,349	July 13	1313	300	80	271
Lamp support. Incandescent-electric	E. L. P. Wetmore	588,890	Aug. 24	2864	667	80	1248
Lamp suspending, raising, and lowering apparatus. Electric	M. R. Warner, C. O. Bulock, and A. E. McLauchlin.	589,881	Sept. 14	779	182	80	1642
Lamp wicks. Raising mechanism for center-draft	W. H. Ginder	588,140	Aug. 17	1537	358	80	982
Lamp with bracket. Bicycle	A. G. Williams and A. H. Meyer	588,098	Aug. 10	1486	333	80	948
Lamps. Electrical igniting device for	S. M. Meyer	590,497	Sept. 21	1874	444 445	80	1861
Lamps. Manufacture of incandescent	J. W. T. Olán	586,055	July 6	820	184	80	160
Lamps. Manufacture of mantles for incandescent gas	J. F. Duke	586,904	July 27	2456	581	80	588
Lamps. Mica chimney for gas	A. P. Storrs	590,846	Sept. 21	1632	384	80	1817
Lamps. Primary battery for bicycle	T. F. Boland and H. C. Hubbell	586,416	July 13	1428	330	80	293
Land-roller	G. W. Deweese	590,139	Sept. 14	1262	298	80	1732
Land-roller	J. M. Miller	586,909	July 20	2295	540	80	484
Land-roller	H. Taylor	588,194	Aug. 17	1624	373 374	80	998
Lantern	W. J. Bycraft	587,791	Aug. 10	897	210	80	852
Lantern	C. I. Mitchell	590,550	Sept. 21	1978	466	80	1880
Lantern	F. T. Williams	589,588	Sept. 7	305	74, 75	80	1539
Lantern and illuminated sign for street-cars	W. I. Larzelere	586,775	July 20	2051	478	80	438
Lantern and torch. Combined	N. M. Hinman and J. F. Hertzler	585,756	July 6	190	44	80	40
Lantern. Bicycle	I. H. Atwood	586,000	July 6	745	166	80	146
Lantern. Oil	J. L. Wandler	585,728	July 6	132	32	80	29
Lantern. Signal	E. S. Manning	587,153	July 27	2771	652	80	596
Lantern-slide carrier	H. J. Riley	586,245	July 13	1143	260	80	238
Lantern-slide-moving device	H. Newman	590,903	Sept. 28	2804	631	80	2012
Lantern. Tubular	R. Hermance	587,579	Aug. 3	537	128	80	764
Lantern. Tubular or hurricane	W. Batdorff	588,945	Aug. 31	2951	691	80	1283
Lantern. Tubular or hurricane	J. Wock	589,060	Aug. 31	3145	741	80	1320
Lantern. Tubular or hurricane	J. Wock	589,061	Aug. 31	3145	741	80	1320
Lap-ring	W. G. Gatewood	588,976	Aug. 31	3005	706	80	1294
Last	F. A. Mills and J. Mundell	588,718	Aug. 24	2558	591	80	1191
Last-block fastener	F. E. Benton	590,719	Sept. 28	2286	540	80	1950
Last-heel-shaping machine	A. G. Fitz	588,971	Aug. 31	2999	704	80	1293
Last. Shoemaker's	T. Therrien	590,349	Sept. 21	1636	385	80	1818
Lasting-machine	F. P. Bullard and W. S. Hamm	590,639	Sept. 28	2142	507	80	1924
Lasting-machine	E. F. Grandy	588,568	Aug. 24	2274	528	80	1137
Lasting-machine	E. F. Grandy	588,569	Aug. 24	2276	529	80	1137
Lasting-pincers	A. F. Preston	585,940	July 6	532	126	80	103
Latch	H. H. Freeman	587,572	Aug. 3	518	122	80	760
Latch	H. Fröhlich	588,639	Aug. 24	2420	557	80	1165
Lath. Metal	D. B. Hilton	588,576	Aug. 24	2289	531	80	1140
Lathe	W. G. Bixby	590,384	Sept. 21	1686	397	80	1826
Lathe	E. Childs	590,387	Sept. 21	1698	398 399	80	1828
Lathe and milling-machine. Combined	C. E. Van Norman	587,537	Aug. 3	457	107 108	80	749
Lathe attachment. Turret	J. Hartness	587,480	Aug. 3	354	84, 85	80	780
Lathe. Ball-turning	D. Roche	589,914	Aug. 24	2002	480	80	1256
Lathe-dog	G. R. G. Wren	590,605	Sept. 28	2078	492	80	1913
Lathe-dog. Adjustable	E. A. Anthony	589,899	Sept. 14	807	190	80	1646
Lathe. Double-turreted chucking	G. G. Prentice	589,138	Aug. 31	3305	777 778	80	1350
Lathe or planer indicator	F. Coffin	587,890	Aug. 10	1148	266	80	894
Lathe speed-controlling apparatus	E. Smith	585,712	July 6	99	25	80	22
Lathe stop mechanism. Engine	E. Earle	590,736	Sept. 28	2314	548	80	1955
Lathe tapering attachment	J. Berg	587,385	Aug. 3	163	45	80	700
Lathe tool-support block	C. W. Weddell	590,051	Sept. 14	1088	257	80	1699
Lathe. Wood-turning	A. Hendrich	590,222	Sept. 21	1415	334	80	1775
Latrine. Automatic flushing	I. D. Smead	588,609	Aug. 24	2351	543	80	1158
Lawn-sprinkler	I. W. P. Buchanan	586,161	July 13	1012	228	80	214

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lawn-sprinkler	C. L. Travis	590,780	Sept. 28	2397	569	80	1970
Lawn-sprinkler	E. A. White	588,646	Aug. 24	2791	649	80	1234
Lawn-sweeper	G. M. Warfel	586,513	July 13	1591	371	80	323
Lead from lead ore. Making litharge or protoxid of	P. G. Salom	588,883	Aug. 24	2851	663	80	1246
Lead from lead sulfate and lead chlorid. Making oxysalts of	S. Ganelin	587,806	Aug. 10	924	.....	80	856
Lead. Manufacturing white	H. C. Woltereck	589,801	Sept. 7	632	.....	80	1607
Lead pigments. Process of and apparatus for manufacturing white	A. B. Walker	588,042	Aug. 10	1344	311 312	80	981
Leaf-turner	J. Berron	587,053	July 27	2577	607	80	539
Leaf-turning apparatus	C. R. Hill	590,761	Sept. 28	2356	558	80	1963
Leather-blacking machine	C. B. Kimball	589,506	Sept. 7	166	37	80	1513
Leather. Coloring	W. M. Norris	588,000	Aug. 10	1278	.....	80	919
Leather-cutting tool	G. R. Rank	588,923	Aug. 24	2922	684	80	1260
Leather-dressing machine. Morocco	H. A. Quigley	588,471	Aug. 17	2107	490	80	1067
Leather glazing and pebbling machine	C. A. Southwick	589,103	Aug. 31	3227	758	80	1335
Leather-like substances. Producing	R. Lissauer	586,907	July 20	2293	.....	80	484
Leather. Manufacturing	C. Dreher	590,036	Sept. 14	1004	.....	80	1694
Leather-splitting knife	F. J. Bringham	587,783	Aug. 10	996	207	80	849
Leather-splitting knife	F. J. Bringham	587,784	Aug. 10	996	208	80	850
Ledger	E. L. Wilson	587,064	July 27	2023	620	80	568
Leg-shield	E. A. Gray	589,502	Sept. 7	253	61	80	1529
Leggings. Supporter for gentlemen's trousers	C. Fisher	587,434	Aug. 3	263	64	80	716
Lemon-juice extractor	N. Gilroy	587,197	July 27	2843	667	80	609
Lemon-juice extractor and grater	H. H. Wines	587,908	Aug. 10	1108	254	80	896
Lemon-squeezer	W. J. Heath	590,221	Sept. 21	1414	333	80	1775
Lemon-squeezer	F. A. Redmon	587,960	Aug. 10	1031	238	80	873
Lemonade-shaker	N. Rossi	590,336	Sept. 21	1609	379	80	1812
Lenses of light-projectors. Protective device for dispersing	F. Nerz	586,799	July 20	2066	486	80	444
Letter-box. Street	J. N. Clouse	589,074	Aug. 31	3172	747	80	1325
Letter-clip	C. C. McPhee	590,373	Sept. 21	1497	353	80	1790
Level	A. H. Patrick	585,850	July 6	371	86	80	74
Level. Carpenter's	E. T. Clowe	585,653	July 6	16	4	80	6
Lever and grip. Controlling	G. Harmelink	587,733	Aug. 10	801	189	80	834
Lever. Controlling	A. L. Parsons	588,598	Aug. 24	2320	538	80	1147
Lever. Hand	G. S. Binckley	589,890	Sept. 14	809	190	80	1646
Lever. Rope-tightening	D. J. Campbell	590,254	Sept. 21	1465	345	80	1785
Life-raft	L. H. Raymond	589,139	Aug. 31	3308	778	80	1350
Lifter: *See* Pan or plate lifter, Skirt-lifter.							
Lifting device	T. B. Jachimiak and J. Kendzierski	590,840	Sept. 28	2495	594	80	1990
Lifting-jack	R. Baker	588,212	Aug. 17	1645	378	80	1002
Lifting-jack	W. H. Cox	589,701	Sept. 7	491	117	80	1575
Lifting-jack	J. C. Hackett	587,730	Aug. 10	799	188	80	834
Lifting-jack	F. P. Johnson	588,579	Aug. 24	2292	531	80	1140
Light: *See* Basement-light, Desk-light, Headlight, Prism-light, Prismatic light, Skylight, Vault-light, Welsbach or other light, Window-light.							
Light. Adjustable	F. A. Lavercombe	587,151	July 27	2768	651	80	595
Light-diffusing device	O. H. Basquin	586,217	July 13	1100	249	80	231
Lighting device. Basement	F. C. Soper	586,251	July 13	1149	262	80	240
Lighting interiors of buildings. Apparatus for	H. N. H. Lugrin	585,770	July 6	216	50	80	45
Lightning-arrester	C. S. Bradley	589,557	Sept. 7	247	60	80	1538
Lightning-arrester	C. C. Chesney	588,320	Aug. 17	1841	425 426	80	1087
Lightning-arrester	E. M. Hewlett	587,818	Aug. 10	950	220	80	859
Lightning-arrester. Switchboard	A. M. Taylor	586,575	July 20	1723	402	80	378
Lightning-rod	E. Marshall	589,566	Sept. 7	263	63	80	1531
Line-holder	J. A. Bean and W. L. Cook	588,378	Aug. 17	1933	449	80	1055
Linotype-distributing tool	W. Lyon	588,770	Aug. 24	2658	613	80	1210
Linotype-machine	D. S. Kennedy	586,337	July 13	1209	297	80	208
Liquid-holder and wringer	M. Knowles	586,239	July 13	1134	258	80	237
Liquid-indicator. Automatic	F. A. Morse	588,650	Aug. 24	2441	562	80	1169
Liquid shut-off	J. H. Glauber	586,996	July 27	2459	581	80	539
Liquid vessel	G. W. Brown	586,833	July 20	2144	501	80	455
Liquids by pressure of gas. Apparatus for dispensing	P. Bach	587,635	Aug. 3	626	151	80	780
Liquids under pressure. Apparatus for projecting	A. Morgan	587,532	Aug. 3	447	105	80	746
Litharge. Test for manufacturing	W. H. Williams	586,783	July 20	2064	480	80	440
Loading or unloading machine	F. O. Kilgore	588,277	Aug. 17	1762	408	80	1024
Lock: *See* Bag-lock, Bed-lock, Bedstead-lock, Bicycle-lock, Bolt-lock, Bottle-stopper lock, Cistern-cover lock, Combination-lock, Cylinder-lock, Door-lock, Fifth-wheel lock, Grip or bicycle lock, Mail-bag lock, Master-key pin-lock, Nut-lock, Nut and bolt lock, Oar-lock, Padlock, Permutation-lock, Sash-lock, Seal-lock, Switch-lock, Time-lock, Trunk-lock, Whip-lock.							
Lock	C. J. Blackburn	590,818	Sept. 28	2457	583	80	1988
Lock	R. A. Bonine	587,424	Aug. 3	244	60	80	712
Lock	D. O. Booth and C. E. Davisson	586,757	July 20	2026	470	80	433
Lock	V. R. Dunning	589,940	Sept. 14	890	212	80	1661
Lock	A. Fairhurst	588,561	Aug. 24	2265	526	80	1135
Lock	S. C. Houghton	588,747	Aug. 24	2627	605	80	1204
Lock	C. J. Petgen	586,790	July 20	2059	479	80	440
Lock	J. J. Peterson	590,334	Sept. 21	1607	379	80	1812

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lock	G. Piccioni	587,603	Aug. 3	578	139	80	771
Lock	J. D. Ross	586,628	July 20	1821	423	80	396
Lock	T. N. Scott	587,456	Aug. 3	312	75	80	723
Lock-jaw wrench	E. L. Keith and J. E. Colton	587,974	Aug. 10	1236	286	80	911
Locking device	W. J. Smart	590,425	Sept. 21	1762	413	80	1840
Locomotive-cab window	W. P. F. Carroll	586,896	July 20	2263	536	80	479
Locomotive. Combined rack and adhesion	S. M. Vauclain and J. Y. McConnell	586,405	July 13	1409	324 325	80	289
Locomotive-crane	O. Crosby	587,299	Aug. 3	32	6	80	671
Locomotive draft hood and regulator	J. Farrell, E. Gorman, and E. Purcell.	586,429	July 13	1454	336	80	297
Locomotive. Electric	R. Eickemeyer	588,104	Aug. 10	1451	336 337 338	80	950
Locomotive. Electric	R. Eickemeyer	588,105	Aug. 10	1458	338	80	951
Locomotive. Road-	E. K. Dutton	587,714	Aug. 10	769	181 182	80	828
Locomotive sanding attachment	E. Jones	587,504	Aug. 3	308	94	80	737
Locomotive smoke-stack	C. S. Burton	589,812	Sept. 14	671	156	80	1622
Locomotive-wheels. Tool for redressing crank-pins of	E. Priest	586,244	July 13	1140	259 260	80	238
Log-raft construction	H. R. Robertson	590,279	Sept. 21	1511	357	80	1793
Log rolling and turning machine	G. M. Pelton	588,652	Aug. 24	2445	563	80	1170
Log-turner	G. M. Pelton	588,600	Aug. 24	2324	538	80	1148
Logging-truck	J. W. Smith	590,119	Sept. 14	1224	288	80	1725
Loom	W. F. Draper	587,652	Aug. 3	652	156	80	786
Loom	W. F. Draper and J. H. Northrop	590,092	Sept. 14	1163	275	80	1713
Loom	A. Giroux	586,233	July 13	1118	254	80	235
Loom	W. P. Kirkpatrick	586,904	July 20	2283	537 538	80	482
Loom	J. H. Northrop	590,112	Sept. 14	1200	282 283	80	1720
Loom	W. Weaver	589,913	Sept. 14	852	202	80	1654
Loom. Circular	R. Weiss	590,122	Sept. 14	1228	288 289 290 290	80	1725
Loom. Circular	R. Weiss	590,123	Sept. 14	1233	291 292	80	1726
Loom-dobbies. Leno-motion for	H. Bardsley	586,753	July 20	2019	469	80	433
Loom. Electrically-operated	E. D. Chaplin and H. G. Halloran	588,101	Aug. 10	1442	335	80	949
Loom for cross-weaving	I. E. Palmer	587,824	Aug. 3	77	18, 19	80	680
Loom heddle. Jacquard-	E. Butcher	587,472	Aug. 3	337	80	80	727
Loom. Lappet-	E. H. Ryon	587,865	Aug. 10	1037	240	80	874
Loom let-off	H. C. Cockerille	590,001	Sept. 14	1001	238	80	1682
Loom-lingo	G. W. Stafford	586,322	July 13	1267	289	80	262
Loom multiplier mechanism	W. Wattie	586,374	July 13	1349	311 312	80	278
Loom-picker	F. A. Wardwell	586,208	July 13	1219	278	80	253
Loom picker mechanism	D. Durkin	587,653	Aug. 3	653	156	80	786
Loom-picker-stick bearing	H. M. Schadewald	588,660	Aug. 24	2462	566	80	1173
Loom picker-strap	O. A. Sawyer and M. M. Lahue	585,877	July 6	412	99	80	82
Loom-reeds. Process of and apparatus for cleaning and polishing	M. Walter	587,892	Aug. 10	1085	250	80	863
Loom-shuttle	A. Wood	588,085	Aug. 24	2084	686 687	80	1263
Loom shuttle-box motion	T. Birchall	587,086	July 27	2628	621	80	568
Loom shuttle-box-operating mechanism	H. Bardsley	590,383	Sept. 21	1683	396 397	80	1826
Loom shuttle-box-operating mechanism	T. Birchall	587,087	July 27	2630	621	80	569
Loom shuttle-box-operating mechanism	B. Smith	588,494	Aug. 17	2142	497 498	80	1094
Loom-shuttle cop-skewer	C. F. Roper	588,179	Aug. 17	1608	370	80	994
Loom-shuttle tension device	B. Weston	587,352	Aug. 3	181	31	80	689
Loom-temple	J. S. Ludlam and J. A. Claus	586,288	July 13	1204	275	80	250
Loom-temple	T. Sykes	589,585	Sept. 7	801	72	80	1538
Loom warp stop-motion	G. O. Draper	587,651	Aug. 3	650	155	80	785
Loom warp stop-motion	J. H. Northrop	590,551	Sept. 21	1980	466	80	1880
Looms. Warp-beam brake for	O. S. Pierce and A. J. McAllen	586,745	July 20	2004	466	80	481
Lozenge-cutting machine	F. P. Rosback	585,789	July 6	247	57, 58	80	51
Lubricating journals under pressure. Apparatus for	C. E. Emery	588,699	Aug. 24	2524	563	80	1184
Lubricating material for machinery-bearings	J. W. Haley	590,369	Sept. 21	1660	------	80	1822
Lubricator: *See* Axle-lubricator.							
Lubricator	G. W. Bowen	585,736	July 6	150	34	80	32
Lubricator	J. Buckley	590,297	Sept. 21	1589	364 365	80	1798
Lubricator	G. E. Davis	590,611	Sept. 28	2066	494	80	1914
Lubricator	H. Glanz	588,566	Aug. 24	2271	527	80	1136
Lubricator	H. W. Leavitt	587,264	July 27	2067	606	80	633
Lubricator	J. K. Reese	586,714	July 20	1945	454	80	419
Lubricator	J. E. Taylor	587,409	Aug. 3	222	55	80	708
Lubricator	W. H. and R. Thompson	589,449	Sept. 7	81	18	80	1497
Luggage-carrier	O. Reznick	585,833	July 6	333	77	80	67
Lumber-drying apparatus	P. P. Toale	585,895	July 6	445	108	80	88
Luminous fountain	F. H. Humphreville	586,310	July 13	1234	282	80	256
Macaroni-drying apparatus	W. Vater	586,642	July 20	1847	429	80	400
Magnetic brake	W. Stanley	590,777	Sept. 28	2362	568	80	1970
Magneto-spindle	A. Gartner	586,790	July 20	2073	482	80	442
Magnifying-glass	A. Wagner	590,798	Sept. 28	2427	576	80	1976
Mail-bag	B. S. Bayless	586,720	July 20	1959	456 457	80	422
Mail-bag catcher	M. S. Cody	587,115	July 27	2679	631	80	579
Mail-bag catcher and deliverer	J. H. Kalvalage	586,130	July 13	960	216 217	80	204

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mail-bag-crane attachment	H. H. and D. D. Schurter	590,025	Sept. 14	1051	248	80	1692
Mail-bag lock	J. C. Helden	587,526	Aug. 3	437	102	80	745
Mail-box	W. McEndree	585,777	July 6	229	53	80	48
Mail catching and delivering apparatus	W. L. G. Appleby	588,310	Aug. 17	1853	421	80	1084
Mail-crane	J. C. Taylor and J. W. Dennis	590,172	Sept. 14	1314	312	80	1743
Mail-pouch crane	L. E. Hunt	585,673	July 6	44	11	80	11
Mail-sack-delivering apparatus	L. A. Fisher	587,721	Aug. 10	785	185	80	831
Maize or other cereals. Degerming	W. M., J. A. D., and N. M. MacKean	587,676	Aug. 3	690	165	80	794
Malt-house	W. H. Prinz	587,161	July 27	2783	654 655	80	598
Malt-kiln	P. G. Toepfer	588,507	Aug. 17	2165	503	80	1098
Malt-turning machine	E. Kraft	587,444	Aug. 3	292	70, 71	80	730
Malting-machines. Sprinkling device for pneumatic	W. Heiser and G. J. Meyer	590,546	Sept. 21	1963	464 465	80	1878
Manganate and producing same	E. B. Stuart	588,614	Aug. 24	2367	545	80	1156
Mangle	E. A. Rusden	586,868	July 20	2198	515	80	467
Manhole	A. F. Hegewald	589,528	Sept. 7	204	48	80	1521
Manhole and cover	J. T. Cullen	588,402	Aug. 17	1983	459	80	1064
Manhole-closure	A. Hewens	588,063	Aug. 10	1382	321	80	988
Marker. Corn-row	O. Billingsley	589,808	Sept. 14	666	155	80	1622
Mask. Storm-	U. Harder	587,087	Aug. 3	707	169	80	797
Master-key pin-lock	H. R. Stadtmuller	588,026	Aug. 10	1317	305	80	927
Master-key pin-lock	H. G. Voight	587,564	Aug. 3	499	118	80	757
Match-box	R. J. Ashworth	589,921	Sept. 14	861	205	80	1657
Match-box	T. W. Davies	587,287	July 27	3008	705	80	641
Match-box	M. Vanderpoole	586,940	July 20	2350	554	80	495
Match-box	A. W. Warnock	589,050	Aug. 31	3131	737	80	1317
Match box or safe	B. W. Karst	589,885	Sept. 14	709	166	80	1630
Match-box. Pocket	H. G. Johnson	587,040	July 27	2546	600	80	554
Match-machine	B. T. Steber	589,315	Aug. 31	3749	873 874	80	1442
Match-making machine	B. T. Steber	587,461	Aug. 3	321	77	80	724
Match-making machine	B. T. Steber	590,077	Sept. 14	1133	268	80	1707
Match-making machine	J. P. Wright	586,890	July 20	2229	524 525 526 527 528	80	473
Match-safe	H. H. Brown	585,541	July 20	1659	387	80	306
Match-safe	G. Fortescue	589,906	Aug. 31	3408	799	80	1370
Match-safe and cigar-cutter. Combined	J. Bond	587,781	Aug. 10	883	207	80	849
Match-splint making and framing machine	M. S. Levé	587,130	July 27	2717	638 639 640 400 401	80	585
Matches. Apparatus for automatically filling boxes with	V. Carassale	588,265	Aug. 17	1740	402 403 404	80	1019
Matches, &c. Receptacle for	E. I. Nottingham	587,269	July 27	2976	698	80	635
Matrix	T. S. Heath	589,470	Sept. 7	108	24	80	1502
Mattress	L. F. Ruth	585,834	July 6	334	77	80	67
Mattress and frame therefor. Wire	F. G. Gale	585,664	July 6	32	8	80	9
Mattress and frame therefor. Wire	F. G. Gale	585,665	July 6	34	8	80	9
Mattress-filling machine	J. Kapp	590,266	Sept. 21	1482	350	80	1788
Mattress. Spring-	I. Alter	590,309	Sept. 21	1969	333	80	1767
Measure and register. Automatic liquid	C. R. Sabin	587,333	Aug. 3	94	24, 25	80	663
Measure. Tailor's	A. Vaughn	586,406	July 13	1411	325	80	289
Measuring and cost-indicating apparatus. Combined	A. Smith	589,310	Aug. 31	3743	871 872	80	1440
Measuring apparatus. Electric	J. C. Henry	590,263	Sept. 21	1476	348	80	1787
Measuring apparatus for coal, &c	C. W. Hunt	587,552	Aug. 3	483	114	80	754
Measuring contents of cooling-vats. Apparatus for	A. Staecker	590,501	Sept. 21	1879	446	80	1862
Measuring device. Liquid-	F. P. Nourse	587,597	Aug. 3	566	136	80	770
Measuring ingredients in compounds. Method of and apparatus for	E. Aglot	587,254	July 27	2947	693	80	630
Measuring instrument	J. La Grange	590,290	Sept. 21	1426	336	80	1777
Measuring instrument. Electric	E. Thomson	590,654	Sept. 28	2165	512	80	1928
Measuring machine. Cloth-	E. T. Butler	589,160	Aug. 31	3340	784	80	1357
Measuring machine. Liquid-	T. E. Mather	590,109	Sept. 14	1193	281	80	1719
Measuring machine. Pill-	Z. W. Sturtevant	590,635	Sept. 28	2136	505	80	1923
Meat-block trough	J. L. Foltz	588,057	Aug. 10	1371	318	80	936
Meat-cutting machine	C. W. Hinrichs	588,828	Aug. 24	2756	639 640	80	1228
Meat-shaver	C. R. Turner	586,403	July 13	1405	323	80	288
Meat-tenderer	F. E. Maisonville	589,477	Sept. 7	121	27	80	1505
Mechanical motor	H. Evans	585,953	July 6	554	130	80	107
Mechanical motor for bicycles or other purposes	C. P. Labatt	586,443	July 13	1471	341 342	80	301
Mechanical movement	W. H. H. Knight	588,447	Aug. 17	2054	479	80	1078
Mechanical movement	H. Koch	590,973	July 27	2421	572	80	331
Mechanical movement	J. Manigold	586,445	July 13	1474	342	80	301
Mechanical movement	P. C. N. Pederson	585,851	July 6	372	87	80	74
Mechanical movement	S. M., J. T., and J. A. Polson	589,614	Sept. 7	351	86	80	1548
Mechanical movement	J. H. Youngken	590,920	Sept. 28	2050	632	80	2021
Mechanical movement	O. J. Ziegler	587,280	Aug. 3	175	43	80	696
Mechanical power. Reversible-screw	B. F. and F. B. Martindale	585,825	July 6	311	73	80	63
(Medical.) Apparatus for treatment of diseases	H. Sanche	588,483	Aug. 17	2122	493	80	1090
Medical apparatus. Induction-coil	H. C. Porter	586,622	July 20	1813	422	80	395
Medical exercising apparatus. Electric	W. A. Webb	590,050	Sept. 14	1066	257	80	1699
Medicated confectionery. Preparing	O. Marcsch	586,504	July 13	1576	------	80	321
Melting-furnace. Portable	H. W. Falk	587,718	Aug. 10	777	183 184	80	830
Merchandise in transit. Receptacle for	H. D. Bokop	587,923	Aug. 10	1137	202	80	852

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Merchandise-receptacle	A. E. Williams	587,899	Aug. 10	1098	232	80	885
Merry-go-round. Marine	A. A. Soderberg	586,699	July 20	1924	448 449	80	415
Metal. Apparatus for pickling or washing	G. Mesta	586,858	July 20	2182	510 511	80	463
Metal bars while in motion. Shears for cutting	V. E. Edwards	587,362	Aug. 3	145	35	80	692
Metal blanking and studding machine	J. W. Grant	589,598	Sept. 7	321	80, 81	80	1542
Metal bodies. Manufacture of combined	J. Pedder	586,819	July 13	1260	288	80	261
Metal-cutting shears. Apparatus for controlling	V. E. Edwards	587,363	Aug. 3	146	36	80	693
Metal. Machine for sawing off bars or strips of	A. P. Hanscom	586,847	July 20	2164	506 507	80	459
Metal-mold	J. K. Griffith and J. Slattery	587,728	Aug. 10	795	187 188	80	833
Metal wheel	H. C. Bruning, Jr	585,950	July 6	551	129	80	107
Metals by electrolysis. Apparatus for refining	J. O. S. Elmore	589,251	Aug. 31	3505	822	80	1389
Metals by electrolysis. Apparatus for refining	J. O. S. Elmore	589,252	Aug. 31	3506	823	80	1390
Metals by electrolysis. Coating	H. Alexander. (Reissue)	11,624	Aug. 3	708		80	797
Metals from their ores. Apparatus for manufacturing or producing	W. F. Berner	587,052	July 27	2509	606 607	80	558
Metallic carbids. Producing	A. H. Cowles	590,514	Sept. 21	1909	452	80	1868
Metallic wheel	I. Davis	589,961	Sept. 14	926	221	80	1668
Meter: *See* Current-meter. Gas-meter. Electric meter. Rotary meter. Electrical meter. Water-meter. Electricity-meter.							
Meter	F. Lambert	588,646	Aug. 24	2421	560	80	1167
Meter-register	L. H. Nash	587,106	July 27	2661	627 628	80	576
Meters. Mechanism for operating registering devices of	F. Lambert	588,924	Aug. 24	2916	689	80	1259
Micrometer. Double-image	A. König	587,443	Aug. 3	299	70	80	719
Microscope attachment	E. Bausch	588,689	Aug. 24	2506	578	80	1181
Microtelephone. Pendent	F. Müller	586,699	July 20	1910	445	80	413
Middlings-purifier	H. Seck	587,240	July 27	2924	686	80	626
Milk. Apparatus for pasteurizing	H. Atwood	586,831	July 20	2140	500	80	454
Milk-cooler	L. R. Lewis	587,309	Aug. 3	156	38	80	695
Milk jar and tester combined	L. E. Brown	589,392	Aug. 31	3862	901	80	1463
Milk-sheet holder	C. H. Thornton	590,505	Sept. 21	1886	448	80	1903
Mill: *See* Cement-gravel mill. Pulverizing-mill. Crushing and grinding mill. Rolling-mill. Fanning-mill. Sawmill. Grinding-mill. Seed-mill. Muller-mill. Stamp-mill. Windmill.							
Mill	A. F. Davis	586,381	July 13	1366	315	80	280
Milling-machine	C. E. Van Norman	588,510	Aug. 17	2169	504	80	1099
Mining dredge. Placer-	A. W. Robinson	589,858	Sept. 14	743	173 174	80	1636
Mining-giant. Hydraulic	J. P. Simmons	586,988	July 20	2347	553	80	494
Mining-machine	H. H. Bliss	588,051	Aug. 10	1358	316	80	994
Mining-machine	C. E. Davis. (Reissue)	11,625	Aug. 10	1488	343	80	958
Mining-post. Extension	J. J. Sullivan	587,403	Aug. 3	324	78	80	725
Mirror attachment for theater-chairs	S. Walker	588,845	Aug. 24	2789	648	80	1234
Miter board or block	P. Denere	586,096	July 13	906	208	80	194
Mixing apparatus for cake, &c	A. Webber	590,782	Sept. 28	2399	570	80	1971
Mixing-drum	E. Gauhe	586,483	July 13	1539	360 361	80	313
Moistening device	H. D. Saylor and F. Keiser	590,465	Sept. 21	1822	430	80	1851
Mold: *See* Butter-mold. Potter's mold. Glass-blower's mold. Suppository-mold. Metal-mold. Vulcanizing-mold.							
Mold for hollow articles	H. V. Moore	585,689	July 6	69	16	80	16
Molds. Method of and apparatus for forming sand	S. J. Adams	587,031	July 27	2532	597	80	551
Molds. Method of and apparatus for making sand	S. J. Adams	586,751	July 20	2014	468 469	80	433
Molding-bits. Device for facilitating making and sharpening	W. Ross	588,185	Aug. 17	1611	370	80	995
Molding device	E. Fabian	590,039	Sept. 14	1068	252	80	1695
Molding device	C. C. Jerome	586,336	July 13	1206	297	80	268
Molding-machine automatic attachment	A. J. Lerch	585,886	July 6	425	102	80	85
Mole-trap	M. N. Loehr	590,326	Sept. 21	1599	376	80	1811
Money-changing machine	S. M. Whipkey	587,250	July 27	2089	689 690 691	80	629
Monkey-wrench	C. H. Harvey and M. D. Archer	588,906	Aug. 24	2882	672	80	1252
Monuments. Adjustable letter and figure for inscribing	P. S. McGee	590,668	Sept. 28	2199	522	80	1935
Mop holder and wringer	G. G. Schroeder	588,534	Aug. 17	2216	515	80	1109
Mop or broom holder	H. King	586,238	July 13	1133	258	80	237
Mop-tub and mop-wringer. Combined	C. Gifford	590,144	Sept. 14	1270	300	80	1734
Mop-wringer	W. E. Grigg	588,141	Aug. 17	1539	354	80	982
Morocco-glassing machine	E. T. Ems	589,123	Aug. 31	3281	771 772	80	1344
Mortise and marking gage	L. H. Pynten	586,393	July 13	1388	320	80	284
Mosaic work	G. H. Jones	586,795	July 20	2079	484 485	80	443
Motion. Apparatus for transmitting rotary	E. K. Dutton	587,713	Aug. 10	767	181	80	828
Motion into rotary motion. Mechanism for converting reciprocating	J. Ulrich and C. Wittke	586,829	July 20	2137	499 500	80	454
Motion. Means for transmitting	F. F. Parsons	586,563	July 20	1696	394	80	373

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Motor: *See* Air-motor. Hydraulic motor. Churn-motor. Mechanical motor. Current-motor. Rotary motor. Electric motor. Spring-motor. Electromagnetic motor. Tidal motor. Fluid-pressure motor. Water-motor. Gravity and lever motor. Wave-motor. Hot-air motor. Wave or swell motor. Washing-machine motor. Pressure-operated motor.							
Motor	H. H. Vaughan	589,105	Aug. 31	3234	759 760	80	1336
Motor worked by hydrocarbon or other gases	C. T. Wordsworth, E. Wiseman, and J. Holroyd.	588,672	Aug. 24	2486	572 573 574	80	1177
Motor worked by hydrocarbon or other gases	C. T. Wordsworth, E. Wiseman, and J. Holroyd.	589,108	Aug. 31	3240	761 762	80	1337
Motors. Charging apparatus for fluid-pressure	J. H. Hoadley	587,087	July 27	2541	590	80	553
Motors. Controller for fluid-pressure	W. H. Knight	586,605	July 20	1781	414	80	389
Motors. Operating alternating	C. P. Steinmetz	587,340	Aug. 3	107	27	80	686
Mouthpiece for preventing snoring	S. Anderson	587,358	Aug. 3	139	33	80	691
Mower	L. J. Ring	589,616	Sept. 7	353	80	80	1548
Mower. Lawn	D. M. Kyle	587,005	July 27	2477	584	80	542
Mowing and reaping machine	L. J. Northern	589,611	Sept. 7	346	85	80	1547
Mowing-machine	J. Pine	586,621	July 20	1807	420 421	80	394
Mowing-machine	H. E. Pridmore	586,892	July 13	1383	318 319 320	80	283
Mowing-machine attachment	J. W. Cypher	590,388	Sept. 21	1696	400	80	1899
Mowing-machine bunching attachment	C. T. Boyer	586,114	July 13	936	210	80	200
Mowing-machine bunching attachment	J. M. Doddridge	588,321	Aug. 17	1842	426	80	1038
Mowing-machine hedge-trimming attachment	J. T. Coulter	589,430	Sept. 7	34	8	80	1488
Mowing-machines. Device for connecting bunching attachments to	C. T. Boyer	590,565	Sept. 28	2009	473	80	1900
Mowing or reaping machine divider	S. H. Wilcox	586,150	July 13	993	224	80	210
Mowing or reaping machine sickle	W. Brenton	589,157	Aug. 31	3337	784	80	1356
Muffle-furnace for treating glass or pottery ware	A. Helzel	590,737	Sept. 28	2315	548	80	1955
Muller-mill. Centrifugal	C. E. Seymour	589,086	Aug. 31	3107	731 732 733	80	1313
Music-holder	R. Schumacher	589,862	Sept. 14	749	175	80	1637
Music-leaf holder	O. Sell	586,937	July 20	2346	533	80	494
Music-leaf holder	J. Wood and W. Wilkinson	587,774	Aug. 10	999	205	80	847
Music-leaf turner	J. P. Knout and H. A. Cook	587,742	Aug. 10	818	193	80	838
Music-leaf turner	C. Nicholson	589,851	Sept. 14	730	170 171	80	1634
Music-pulpit	T. J. Palmer	589,748	Sept. 7	565	132	80	1590
Music-turner	W. G. Curry	590,432	Sept. 21	1771	415	80	1842
Musical box	G. Bourquin	587,925	Aug. 10	1140	263	80	893
Musical box	L. Hössly	588,433	Aug. 17	2031	472 473	80	1073
Musical box	P. C. Jaccard	587,831	Aug. 10	980	228	80	864
Musical instrument	A. G. Duck	587,069	July 27	2633	621	80	570
Musical instrument	R. G. Miller	590,232	Sept. 21	1427	336	80	1778
Musical instrument	W. Schneider	590,631	Sept. 28	2128	504	80	1922
Musical instrument	G. W. Sherman	587,561	Aug. 3	493	116	80	756
Musical-instrument attachment. Stringed-	J. L. Kelman	589,658	Sept. 7	419	101 102	80	1502
Musical-instrument bridge	H. E. Townsend	587,884	Aug. 10	1070	246	80	880
Musical-instrument electric attachment	W. B. Fleming	585,663	July 6	80	8	80	8
Musical instrument. Electropneumatic	R. W. Pain	589,535	Sept. 7	213	51	80	1522
Musical instrument. Mechanical	G. A. Brachhausen	585,737	July 6	152	34, 35	80	33
Musical instrument. Mechanical	L. Stocker	590,018	Sept. 28	2025	626 627	80	2017
Musical instrument. Stringed	P. M. E. Carstens	589,414	Sept. 7	27	7	80	1487
Musical instruments. Detachable pedal for	F. H. Dernell and P. H. Brehmer	589,644	Sept. 7	397	96, 97	80	1557
Musical instruments. Feed mechanism for mechanical	E. L. Cuendet	589,421	Sept. 7	35	8	80	1488
Musical instruments. Key touch-regulator for	W. Hay	590,521	Sept. 21	1918	454	80	1870
Mustache-protector	J. F. Haygood	586,268	July 13	1174	269	80	244
Mustache-shaper	P. S. Ferdy	587,198	July 27	2839	666	80	608
Muzzle. Stock	F. R. Wingrove	590,409	Sept. 21	1733	407	80	1835
Nail: *See* Shoe-nail.							
Nail machine. Wire	E. S. Morton	588,462	Aug. 17	2083	485 486	80	1068
Nail or tack heading apparatus	A. H. Brigham	590,495	Sept. 7	149	33	80	1510
Nail-puller	E. C. Fowler	588,744	Aug. 24	2620	604	80	1208
Nail-puller	T. F. Stevenson	589,041	Aug. 31	3117	734	80	1315
Nails. Machine for making continuous lengths of wire	I. Fréchette	588,137	Aug. 17	1530	350 351 352	80	961
Nailing-machine	G. A. Ambler	586,153	July 13	997	225	80	211
Nailing-machine	G. A. Ambler	586,154	July 13	1000	225 226	80	212
Nailing-machine	H. W. Morgan	586,711	July 20	1940	452 453	80	418
Nailing-machine	H. W. Morgan	587,321	Aug. 3	69	16, 17	80	679
Name-plate	J. C. Ives	587,312	Aug. 3	56	13	80	677
Neckband-adjuster	T. J. Redwine	589,754	Sept. 7	572	134	80	1501
Necktie	C. W. T. Davies	586,284	July 13	1200	274	80	249
Necktie-fastener	A. B. Jones	588,864	Aug. 24	2821	656	80	1242
Necktie-holder	W. B. Cleary	586,379	July 13	1362	314	80	719

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Needle	R. H. Posey	590,193	Sept. 14	1354	319	80	1750
Needle and needle-filling machine	G. W. Raymond	588,836	Aug. 24	2775	643	80	1231
Needle for weaving cane fabrics	E. G. Watkins	588,515	Aug. 17	2179	506	80	1101
Net-holder	S. A. Alling	590,083	Sept. 14	1145	271	80	1709
Net-leader	E. Haataja	587,308	Aug. 3	47	11	80	674
Newspaper folding and addressing machine. Automatic	C. N. Walls	590,733	Sept. 28	2308	546 547	80	1954
Nickel-in-the-slot-machine attachment	J. Paupa	586,690	July 20	1911	445	80	413
Nickel. Treating	P. Manhes	586,289	July 13	1205	.....	80	250
Nigger-bar air-cushion	W. E. Dean	590,213	Sept. 21	1400	330	80	1772
Night-robe	C. Arnold	587,910	Aug. 10	1114	257	80	888
Nipple	J. C. Michael	589,212	Aug. 31	3416	801	80	1371
Nipple-holder	O. B. Hall	587,478	Aug. 3	352	83	80	730
Nipple. Nursing	W. M. Decker	587,939	Aug. 10	1175	271	80	900
Non-refillable jar or bottle	J. Gonorovsky	589,965	Sept. 14	935	223	80	1671
Noodle-machine	P. Warner	589,049	Aug. 31	3129	737	80	1317
Nose-bag	W. F. Kellett	589,809	Sept. 14	825	194	80	1649
Nose-gage. Combination	S. C. Hirschberg	589,549	Sept. 7	236	57	80	1526
Nozzle. Variable	D. B. Adams	590,534	Sept. 21	1942	460	80	1874
Numbering-machine	E. G. Bates	587,913	Aug. 10	1118	257 258	80	889
Nursery-chair	E. R. Sleeper	588,707	Aug. 24	2542	598	80	1188
Nut and bolt lock	T. W. Murphy	587,012	July 27	2487	586	80	543
Nut for spindles. Lock	A. Josephs	587,737	Aug. 10	810	191	80	836
Nut-lock	U. S. Archer	590,294	Sept. 21	1536	364	80	1798
Nut-lock	D. C. Benjamin	588,314	Aug. 17	1829	422	80	1035
Nut-lock	J. P. Birmingham	589,689	Sept. 7	470	112	80	1572
Nut-lock	W. Comra	589,545	Sept. 7	231	56	80	1525
Nut-lock	J. Dickason	586,546	July 20	1664	388	80	367
Nut-lock	H. R. Eby	589,596	Sept. 7	318	79	80	1542
Nut-lock	C. P. Ellis	590,454	Sept. 21	1805	425	80	1848
Nut-lock	H. Evans	589,424	Sept. 7	40	10	80	1489
Nut-lock	L. Fleischman	590,412	Sept. 21	1738	408	80	1836
Nut-lock	D. H. Gabriel	586,024	July 6	780	174	80	153
Nut-lock	H. K. Hallopeter	586,660	July 20	1865	434	80	404
Nut-lock	R. D. Hardy	589,599	Sept. 7	325	81	80	1543
Nut-lock	H. R. Harris	589,966	Sept. 14	936	223	80	1671
Nut-lock	J. H. Hartman	587,962	Aug. 10	1220	288	80	908
Nut-lock	W. Jobson	590,647	Sept. 28	2153	509	80	1926
Nut-lock	J. W. Ka Vear and C. E. Gibbs	588,338	Aug. 17	1871	432	80	1043
Nut-lock	A. W. Lawson	586,905	July 20	2290	539	80	483
Nut-lock	R. Lowe	590,156	Sept. 14	1293	307	80	1737
Nut-lock	G. Millen	589,013	Aug. 31	3071	724	80	1906
Nut-lock	L. E. Milner and D. A. Beck	585,773	July 6	223	52	80	46
Nut-lock	A. Mireault	588,346	Aug. 17	1861	434	80	1045
Nut-lock	M. Reardon	587,557	Aug. 3	488	115	80	755
Nut-lock	W. J. Reynolds	590,628	Sept. 28	2114	500	80	1919
Nut-lock	W. F. Schlabach	589,984	Sept. 14	970	231	80	1676
Nut-lock	H. Schweitzer	588,661	Aug. 24	2463	566	80	1174
Nut-lock	B. F. Skiles and J. H. Maust	589,309	Aug. 31	3742	871	80	1440
Nut-lock	J. A. Temple	587,110	July 27	2674	630	80	578
Nut-lock	J. Walker	587,889	Aug. 10	1079	248	80	893
Nut-lock	W. H. White	587,664	Aug. 3	670	159	80	789
Nut-locks. Machine for forming	G. Langer	587,149	July 27	2764	649 650	80	594
Nut-tapping machine	J. A. Plopper	589,442	Sept. 7	70	15, 16	80	1494
Nut. Vehicle-axle	H. M. Scarritt	590,912	Sept. 28	2619	624	80	2015
Nut-wrench	C. H. Lambkin	587,006	July 27	2478	584	80	542
Nut-wrench	T. F. Vandegrift	589,765	Sept. 7	589	138	80	1594
Nuts on bolts. Machine for putting	J. S. Broughton	587,785	Aug. 10	887	208	80	850
Oar	M. F. Davis	588,220	Aug. 17	1654	381	80	1004
Oar-lock	J. S. Lofberg and A. McIntosh	588,455	Aug. 17	2073	483	80	1081
Oar-lock	A. Smith	590,555	Sept. 21	1988	468	80	1861
Oil-burner	T. R. Browne	588,691	Aug. 24	2569	578	80	1182
Oil-burner	A. L. Larwill and F. E. Small	585,822	July 6	304	71, 72	80	62
Oil-burners. Burning liquid hydrocarbons for producing incandescent	W. and I. Darby and J. H. Punchard	589,819	Sept. 14	683	158 159	80	1625
Oil-cake former	T. De Armon	586,353	July 13	1321	302	80	272
Oil-can	H. F. Maranville	589,735	Sept. 7	542	128 129	80	1586
Oil-can	G. A. Rawhouser	586,781	July 20	2060	480	80	440
Oil-can	E. Robards	588,011	Aug. 10	1295	300	80	922
Oil-can	B. F. Shepherd	587,457	Aug. 3	315	75	80	723
Oil-can	D. True	589,515	Sept. 7	186	42	80	1517
Oil-can and funnel	W. W. Krack	589,659	Sept. 7	421	102	80	1562
Oil-cloth-making machine	W. D. Cragin	589,497	Sept. 7	152	33, 34	80	1510
Ore-concentrator	A. R. Willey	590,675	Sept. 28	2210	524	80	1937
Oil-extracting apparatus	W., Sr., A. P., and W. Sager, Jr	587,189	July 27	2749	644 645	80	592
Oil-extracting apparatus	P. Vauchey and J. G. D. de Miomandre	588,299	Aug. 17	1810	417	80	1031
Oil-extracting apparatus	C. S. Vosburgh	587,410	Aug. 3	228	55	80	708
Oil-press box	J. H. Hubbell	589,389	Aug. 31	3873	904	80	1464
Oiling device	J. H. Porter and T. J. Hennessey	587,272	July 27	2688	701	80	538
Oiling device for road-rollers. Automatic	W. G. King	588,445	Aug. 17	2062	478	80	1077
Onyx, &c. Imitating	J. D. McDaniel	587,284	July 27	3005	.....	80	641
Opera-glass	W. G. and B. W. King	590,549	Sept. 21	1977	466	80	1879
Operator's seat	F. Bell	588,525	Aug. 17	2199	511	80	1105
Order-blank and receipt holder. Metallic	J. F. Cordes	586,594	July 20	1760	408	80	384
Order-indicator	W. H. Reynolds	588,805	Aug. 24	2721	651	80	1221
Ordnance. Breech-loading	H. P. Hurst	585,957	July 6	503	132	80	109
Ore and making same. Composition for massing fine iron	J. J. Czepull	588,702	Aug. 24	2693	.....	80	1217
Ore-concentrator	L. M. Waer	588,252	Aug. 17	1720	395	80	1016
Ore-concentrator. Endless-belt	A. C. Springer	589,627	Sept. 7	368	90, 91	80	1551
Ore-separating apparatus	T. G. Barlow-Massicks	585,732	July 6	142	33	80	31

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ore-separator. Magnetic	L. G. Rowand	590,808	Sept. 28	2441	579 580	80	1979
Ore-separator. Magnetic	L. G. Rowand	590,809	Sept. 28	2443	580	80	1980
Ore. Treating sulfid	B. Mohr	588,076	Aug. 10	1399	.....	80	942
Ores by chlorination. Treating	H. F. Brown	589,999	Sept. 14	996	237 238	80	1681
Ores. Process of and apparatus for electrically treating	F. H. Soden	590,673	Sept. 28	2206	523	80	1986
Ores. Process of and apparatus for roasting	C. W. Stickney	587,008	July 27	2597	614	80	563
Ores. Separating	B. F. House	590,739	Sept. 28	2319	549	80	1956
Ores. Treating argentiferous sulfid	E. F. Turner	587,128	July 27	2709	636	80	584
Ores. Treating rebellious	W. L. Brown	590,801	Sept. 28	2431	577	80	1977
Organ. Reed	F. D. Dexter	588,713	Aug. 24	2550	590	80	1189
Organ. Reed	S. Jenkinson	588,067	Aug. 10	1388	322 323	80	939
Organs. Pneumatic action and coupler for	J. T. Austin	585,946	July 6	544	127 128	80	106
Ornamenting strips or frames of wood, &c. Apparatus for	F. A. Brausil	590,200	Sept. 14	1362	322	80	1752
Oven	I. Kinsey	589,090	Aug. 31	3202	753	80	1330
Oven	M. M. Williams	588,624	Aug. 24	2390	548	80	1159
Oven shelf. Baker's	W. P. O'Connor	587,398	Aug. 3	201	51	80	704
Overalls	A. M. Lundgard	586,102	July 13	917	206	80	197
Overshoe	D. J. Fry	588,919	Aug. 24	2911	681	80	1258
Overshoe	A. F. Marsh	588,158	Aug. 17	1565	360	80	987
Ownership-indicating device	C. F. Steel	588,537	Aug. 17	2223	516	80	1110
Oxygen and making same. Compound for separating	E. B. Stuart	588,613	Aug. 24	2362	544	80	1155
Oxygen and nitrogen from air. Obtaining	E. B. Stuart	588,617	Aug. 24	2374	545	80	1156
Oxygen. Process of and compound for separating	E. B. Stuart	588,615	Aug. 24	2368	545	80	1156
Oxygen-separating compound and making same	E. B. Stuart	588,616	Aug. 24	2370	545	80	1156
Oyster-dredge	A. H. Van Sciver	590,712	Sept. 28	2273	538	80	1948
Oyster-opening machine	W. C. Essex and A. Reame	589,548	Sept. 7	235	57	80	1526
Oyster or clam tongs. Automatic	J. W. Steeves and G. A. Stewart	588,589	Aug. 17	2227	517	80	1111
Package-carrier. Folding	V. A. and J. W. Reed	587,558	Aug. 3	489	116	80	755
Package-closure	G. Pendleton, Jr	590,907	Sept. 28	2613	623	80	2014
Package-closure	G. Pendleton, Jr	590,908	Sept. 28	2614	623	80	2014
Package-filling apparatus	W. E. Nickerson	588,168	Aug. 17	1576	364 365	80	989
Package folding or wrapping machine	F. C. Helmuth	586,899	July 20	2268	532 533 534 535	80	480
Package for laundered or other articles	W. E. Locke	588,587	Aug. 24	2305	534	80	1143
Package for powdered material	B. Bar	587,517	Aug. 3	421	99	80	741
Package, grater, slicer, mouse and fly trap. Combined grocer's	R. M. Gardiner	586,925	July 6	781	174	80	153
Packing and storing vessel	A. Baker	587,050	July 27	2563	605	80	557
Packing and storing vessel	W. C. Snow	587,876	Aug. 10	1060	244	80	878
Packing-case	W. D. Uptegraff	585,879	July 6	415	99	80	82
Packing-case. Folding	G. Sparrow	590,283	Sept. 21	1516	359	80	1794
Packing for journal-boxes	E. B. Johnston	587,971	Aug. 10	1233	286	80	910
Packing-gasket	G. N. Raymond	590,276	Sept. 21	1500	354	80	1791
Packing. Joint	W. M. Stewart	590,345	Sept. 21	1630	384	80	1817
Packing. Steam	P. F. Leary	588,081	Aug. 24	2497	576	80	1180
Pad: *See* Buffing-machine pad. Head-rest pad. Hoof-pad. Collar-pad. Horseshoe-pad. Duplicating-pad. Inking-pad. Electric herb pad. Waxing-pad.							
Padlock	H. S. Dowling	590,055	Sept. 14	1093	258	80	1700
Padlock	T. McGlashan	586,104	July 13	919	206	80	197
Padlock	L. H. Pennepacker	588,654	Aug. 24	2448	564	80	1171
Padlock	H. Roland	587,809	Aug. 3	589	142	80	773
Padlock	W. H. Taylor	586,676	July 20	1990	440	80	409
Padlock. Alarm	E. N. Case	589,980	Sept. 14	877	209	80	1659
Padlock. Permutation	F. L. Arlington	586,943	July 20	2354	555	80	496
Padlock. Permutation	C. P. Chase	587,708	Aug. 10	756	177	80	826
Padlock. Permutation	E. S. Hodgson, Jr	587,821	Aug. 10	954	221	80	860
Pail heater. Dinner	W. W. Montague and W. G. Dougall	589,667	Sept. 7	430	104	80	1564
Pail. Milk	W. F. Bossinger	586,877	July 13	1359	313	80	279
Pail. Milk	C. R. McKinstry	587,323	Aug. 3	76	18	80	680
Pail. Milk	J. Turck	586,884	July 20	2219	522	80	471
Paint-pail hanger	J. L. Isbell	589,088	Aug. 31	3200	752	80	1330
Pan: *See* Bake-pan. Dish-pan. Bed-pan. Dust-pan.							
Pan for culinary purposes. Covered	G. Deiseroth	586,705	July 20	1932	450	80	417
Pan or plate lifter	F. Carlson	587,701	Aug. 10	733	174	80	821
Paper-bag fastener	O. M. Chesney	587,928	Aug. 10	1143	264	80	894
Paper-bag machine	E. E. Claussen	586,735	July 20	1988	402 403	80	428
Paper-bag machine	E. E. Claussen	587,929	Aug. 10	1145	264 265	80	894
Paper-bag machine	S. T. Murchie	587,135	July 27	2742	643	80	590
Paper-bag machine	H. Salmon	588,782	Aug. 24	2671	617 618	80	1218
Paper bag. Square-bottom	D. Appel	590,559	Sept. 28	1999	471 472	80	1899
Paper box	J. M. Guilbert	588,423	Aug. 17	2019	469	80	1071
Paper box	J. C. Hewitt	590,102	Sept. 14	1181	278	80	1717
Paper box	M. B. Morris and F. N. Wilson	590,159	Sept. 14	1296	308	80	1739
Paper-box machine	A. Birnie	590,697	Sept. 28	2246	532	80	1943

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Paper-box machine	C. F. Taylor	586,803	July 20	2094	488, 489	80	446
Paper-box machine	E. H. Taylor	590,652	Sept. 28	2161	511, 512	80	1928
Paper cabinet. Toilet-	J. N. Moehn	587,554	Aug. 3	485	114	80	755
Paper case or tube	R. M. Clark	586,704	July 20	1931	450	80	417
Paper-clip	J. H. Grant	587,812	Aug. 10	929	216	80	856
Paper cutter. Roll-	C. O. Sobinski	586,672	July 20	1884	438	80	407
Paper-cutting machine	F. A. Bessey	590,472	Sept. 21	1832	433	80	1653
Paper-fastener	G. H. Bennett	586,008	July 6	749	167	80	147
Paper-feeding device	C. F. Förste	588,058	Aug. 10	1372	318, 319	80	936
Paper-feeding machine	W. Womersley and J. Keating	589,107	Aug. 31	2239	761	80	1337
Paper-feeding machines. Automatic stopping device for	G. F. Leiger	588,452	Aug. 17	2069	482	80	1080
Paper-folding machines. Header-up device for	T. C. Dexter	588,694	Aug. 24	2513	579, 580	80	1183
Paper from slipping on winders. Device for preventing rolls of	F. H. Dudley	586,167	July 13	1021	230	80	216
Paper holder and printing-machine. Roll-	J. K. Thompson	587,247	July 27	2284	688	80	628
Paper holder. Toilet-	F. H. Hoberg	586,128	July 13	958	216	80	204
Paper-holding device	E. A. Trussell	590,175	Sept. 14	1318	313	80	1743
Paper into sheets. Machine for cutting	F. Meisel	588,283	Aug. 17	1774	410, 411	80	1026
Paper-making machine	G. L. Bidwell and S. C. Reynolds	587,918	Aug. 10	1128	260	80	891
Paper-making machines. Dandy-roll for	J. Lister	589,131	Aug. 31	3295	775	80	1347
Paper-registering mechanism	T. C. Dexter	590,476	Sept. 21	1840	435	80	1855
Paper-trimming machine	R. N. Adams	585,998	July 6	741	166	80	145
Paper tubes. Machine for making coiled	H. A. Noble	586,054	July 6	818	183, 184	80	160
Paper tubes, &c. Tool for shaping ends of	R. M. Clark	586,708	July 20	1930	450	80	416
Paraffin vessel	M. A. Emerson	588,324	Aug. 17	1850	428	80	1099
Parcel-fastening device	J. E. Purdy	590,591	Sept. 28	2052	486	80	1908
Paring and coring machine	W. H. Boutell	590,205	Sept. 21	1374	324, 325	80	1768
Passe-partout	E. Carraine	589,695	Sept. 7	480	115	80	1574
Pasting-machine	W. B. Howe	588,434	Aug. 17	2094	473, 474	80	1074
Path delineating, recording, and measuring machine.	J. Riddell	589,080	Aug. 31	3094	729, 730	80	1311
Pattern. Adjustable garment-	A. O. Hancock	590,495	Sept. 21	1869	442, 443	80	1860
Pavement. Illuminating area-spanning	P. M. Bruner	588,725	Aug. 24	2567	598	80	1193
Paving-plant. Portable	F. A. Heatherington	585,867	July 6	394	92, 93	80	78
Pawl and ratchet	O. Crosby	587,300	Aug. 3	34	7	80	672
Peanut-roaster	N. Rossi	589,483	Sept. 7	129	29	80	1506
Pedal and toe-clip. Combined spring-	M. Matthews	590,685	Sept. 28	2226	528	80	1940
Pedestal. Folding	J. H. White	587,896	Aug. 10	1090	251	80	983
Pen attachment	J. G. Jordan	588,965	Aug. 24	2822	656	80	1241
Pen-extractor	J. R. Adams	588,306	Aug. 17	1821	420	80	1083
Pen-extractor holder	C. O. Feldman and M. J. Konold	586,949	July 20	2372	561	80	499
Pen. Fountain-	J. Blair	587,032	July 27	2235	508	80	552
Pen. Fountain-	B. V. Eaton	586,547	July 20	1665	389	80	367
Pen. Fountain-	S. W. Frazer	589,561	Sept. 7	252	60	80	1529
Pen. Fountain-	F. J. Pribyl	589,368	Aug. 31	3330	805	80	1457
Pen. Fountain-	W. W. Stewart	588,708	Aug. 24	2542	588	80	1188
Pen. Fountain-	W. W. Stewart	588,709	Aug. 24	2544	588	80	1188
Pen. Fountain marking-	J. W. Graves	589,716	Sept. 7	515	122	80	1580
Penholder	A. L. Adams	589,918	Sept. 14	858	204	80	1656
Penholder	E. D. Chadwick	590,183	Sept. 14	1334	316	80	1746
Penholder	J. C. Panter	586,242	July 13	1138	259	80	238
Penholder. Duplex	L. C. Van Voorhis	586,254	July 13	1152	263	80	240
Pen reservoir attachment	M. A. Alves	589,401	Sept. 7	2	1	80	1483
Pen. Shading-	W. C. Denison	587,476	Aug. 3	349	82	80	729
Pen. Shading-	W. R. Spencer	586,979	July 27	2432	575	80	533
Pen. Stock-	J. L. Paxton	587,325	Aug. 3	61	20	80	681
Pencil	G. H. Knight	588,867	Aug. 24	2826	657	80	1242
Pencil and tape-measure. Combination	A. J. Miller	589,847	Sept. 14	724	169	80	1633
Pencil-box	A. Thompson	589,702	Sept. 7	586	137	80	1594
Pencil. Detachable	E. D. Hicks	586,405	July 13	1558	364	80	317
Pencil-holder	W. H. Benford	586,585	July 20	1742	405	80	381
Pencil-holder. Vest	E. F. Gould	585,669	July 6	41	10	80	11
Pencil. Lead-	D. S. Hewitt	586,186	July 13	1047	236	80	220
Pencil-sharpener	J. O. Graves	585,670	July 6	41	10	80	11
Perfumes. Making	M. Ekenberg	588,766	Aug. 24	2653	.....	80	1210
Permutation-lock	C. W. Judson	587,586	Aug. 3	549	131	80	766
Permutation-lock	P. W. Lownes	589,844	Sept. 14	720	169	80	1632
Peroxids and caustic alkalies. Process of and apparatus for manufacturing metallic	L. P. Hulin	587,830	Aug. 10	978	228	80	863
Pessary. Self-adjusting inflatable	B. P. Wilson	590,124	Sept. 14	1285	292	80	1726
Petroleum-burner	H. Kretschmann	588,449	Aug. 17	2059	480	80	1079
Petroleum. Refining	G. H. Moore	586,520	July 13	1619	377	80	329
Phantoscope	C. F. Jenkins and T. Armat	586,953	July 20	2379	562	80	501
Phonograph	T. L. Dennis, Jr	590,643	Sept. 28	2147	508	80	1925
Phosphate and making same	J. E. Stead	589,197	Aug. 31	3306	.....	80	1367
Phosphates. Treatment of	G. de Chalmot	588,266	Aug. 17	1745	405	80	1020
Photographer's drying-rack	W. H. Lewis	589,843	Sept. 14	719	168	80	1632
Photographic apparatus. Automatic	C. Mann	587,221	July 27	2880	676, 677, 678	80	618
Photographic-background carrier	L. C. Overpeck	588,507	Aug. 24	2318	537	80	1146
Photographic developing-tray	W. V. Esmond	586,902	July 27	2401	567	80	527
Photographic films. Method of and apparatus for making	T. H. Blair and S. E. Waterman	588,790	Aug. 24	2688	621, 622	80	1216
Photographic finder	L. J. R. Holst	587,056	July 27	2580	608, 609	80	560

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Photographic-negative washer	F. C. Barnum	586,803	July 13	1225	279	80	254
Photographic-plate holder	A. Mutschler and J. A. Robertson	587,991	Aug. 10	1265	292	80	917
Photographic-print washer	D. Argerbright	586,280	July 13	1194	273	80	248
Photographic-print washer	F. Shurig	590,632	Sept. 28	2130	504, 505	80	1922
Photographic vignetter	W. C. Farrand	586,963	July 27	2402	567	80	527
Photographs. Embossing	D. F. Hulbert	589,260	Aug. 31	3517	825	80	1392
Photometer	J. L. Fuelling	589,649	Sept. 7	404	98	80	1536
Piano	J. H. Block	589,331	Aug. 31	3373	879	80	1446
Piano-action	H. Kaim	586,270	July 13	1176	269	80	245
Piano-action	A. Nickel	585,829	July 6	318	75	80	64
Piano-action	M. Steinert	585,716	July 6	111	27	80	25
Piano-action	M. Steinert	585,717	July 6	113	27	80	25
Piano attachment	C. C. Polk	589,751	Sept. 7	560	133	80	1591
Piano. Automatic combination-	W. D. Parker	587,270	July 27	2978	698, 699	80	636
Piano damper-action. Grand-	A. Nickel	588,594	Aug. 24	2314	536, 537	80	1146
Piano. Electric	J. L. Fulkerson	589,347	Aug. 31	3396	885	80	1450
Pianoforte-action	B. F. Carr	585,740	July 6	155	35	80	34
Pianoforte action. Upright-	F. L. Becker	587,543	Aug. 3	466	110	80	751
Piano-hammers. Machine for making	A. Dolge	586,018	July 6	770	171, 172	80	151
Piano legato attachment	R. C. Schirmer	589,100	Aug. 31	3223	757	80	1334
Piano-players. Hand and arm support for	E. V. Thompson	585,799	July 6	264	61	80	54
Piano. Upright	J. B. Henry	586,184	July 13	1045	235	80	219
Pick	P. Bishop	587,920	Aug. 10	1132	261	80	891
Pick. Miner's	W. H. Kelso	588,339	Aug. 17	1872	432	80	1044
Picker: *See* Cotton-picker. Loom-picker. Fruit-picker.							
Picker check-strap	T. Mooney	586,796	July 20	2082	485	80	444
Picture-frame	E. Oldenbusch	590,071	Sept. 14	1123	266	80	1705
Picture-frame	G. M. Seidel	587,241	July 27	2927	687	80	626
Picture-frame attachment	P. H. Flynn	586,120	July 13	946	213	80	202
Picture-hanger	G. H. Groat	589,945	Sept. 14	896	214	80	1663
Picture. Illuminated	M. E. Lefebvre	587,007	July 27	2479	585	80	542
Pile-core	A. A. Raymond	589,026	Aug. 31	3090	728	80	1310
Pile. Protected	C. W. Kennon	587,077	July 27	2613	618	80	566
Pillow or cushion	J. T. Cowley	588,957	Aug. 31	2974	697	80	1287
Pin: *See* Belt-pin. Hat-pin. Clothes-pin. Safety-pin. Drapery-pin.							
Pin	H. C. Conkle	588,675	Aug. 24	2491	574	80	1178
Pipe: *See* Blowpipe. Sheet-metal pipe. Hygienic pipe. Tobacco-pipe.							
Pipe and earthenware manufacturing machine. Sewer-	D. Spooner	589,104	Aug. 31	3229	759	80	1335
Pipe-bending machine	H. E. Fowler	588,223	Aug. 17	1662	382	80	1005
Pipe-cleaner	F. W. Milward and J. C. McGee	589,740	Sept. 7	550	130	80	1587
Pipe-coupling	A. W. Finlayson	588,411	Aug. 17	1997	462	80	1067
Pipe-coupling	J. S. Miles	589,362	Aug. 31	3322	892	80	1455
Pipe-coupling	N. E. Smith	590,342	Sept. 21	1616	382	80	1814
Pipe-coupling	T. Waite	587,347	Aug. 3	123	29	80	686
Pipe. Coupling and closing	C. Eibee	590,056	Sept. 14	1094	259	80	1700
Pipe covering. Refrigerating-	R. W. Lysle	590,459	Sept. 21	1811	427	80	1849
Pipe-covering. Sectional	R. W. Lysle	589,903	Sept. 14	849	195	80	1651
Pipe-cutter	D. W. French	587,098	July 27	2644	624	80	572
Pipe-cutter	W. Scholes	589,101	Aug. 31	3224	758	80	1334
Pipe-cutter and branch connection	D. W. French	587,091	July 27	2634	622, 623	80	570
Pipe-holder	H. S. Frost, C. S. Kilbourn, and J. B. Woolson.	588,974	Aug. 31	3003	706	80	1294
Pipe. Interiorly-lined	E. C. Storrow	590,811	Sept. 28	2445	581	80	1980
Pipe. Machine for making spiral riveted	L. W. Noyes	588,236	Aug. 17	1684	387, 388, 396	80	1009
Pipe-making machine	W. D. Sherman	586,569	July 20	1710	397, 398	80	375
Pipe or rod wrench	T. J. Baker	590,562	Sept. 28	2004	473	80	1899
Pipe-truing lathe	C. S. Hamlin	585,865	July 6	391	91	80	77
Pipe-wrench	J. Bell	587,916	Aug. 10	1125	250	80	890
Pipe-wrench	D. A. Henderson	588,991	Aug. 31	3028	712	80	1298
Pipe-wrench	P. W. Lownes	589,751	Aug. 24	2633	607	80	1206
Pipe-wrench	H. Parmelee	590,653	Sept. 28	2515	599	80	1994
Pipe-wrench	H. H. Sauer	586,484	Aug. 17	2123	494	80	1090
Pipe-wrench	J. K. Sheffy	589,038	Aug. 31	3114	733	80	1314
Pipe-wrench. Adjustable	A. E. Fauver	586,597	July 20	1764	409	80	385
Pipes and electrical conduits. Outlet-box for gas-	W. J. Billings and M. Mauer	589,115	Aug. 31	3255	765	80	1340
Pipes. Apparatus for manufacturing soil-	R. Campbell	590,823	Sept. 28	2464	595	80	1984
Pipes, cigar-holders, and cigarette-holders. Attachment for	J. J. Lynch	588,609	Aug. 24	2636	657	80	1242
Pipes. Universal joint for coupling	H. H. Gorter	586,176	July 13	1085	233	80	218
Piston	B. F. Wilson	588,256	Aug. 17	1736	396	80	1017
Piston for rotary pumps, blowers, &c.	W. L. Ames and T. Gray	587,907	Aug. 10	1110	256	80	887
Piston-rod support	E. H. Carroll	587,300	Aug. 3	141	34	80	691
Piston. Steam-engine	H. M. Hunt	587,304	Aug. 3	198	48	80	702
Pitcher. Molasses-	O. Hulback	589,833	Sept. 14	707	166	80	1630
Pitchfork	E. Lind	587,980	Aug. 10	1246	298	80	913
Plane	A. A. Page	585,899	July 6	433	105	80	96
Plane	C. A. Paul	586,712	July 20	1943	453	80	419
Plane. Floor-	P. Denere	586,164	July 13	1016	229	80	215

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Planer and sander. Double	E. B. Hayes	590,836	Sept. 28	2485	591, 592, 593	80	1068
Planetarium	J. McWade	589,552	Sept. 7	230	58, 59	80	1527
Planing-machine cutter-head	E. B. Hayes	590,988	Sept. 28	2581	616	80	2008
Planter	J. S. Earhart and C. Miller	587,190	July 27	2335	665	80	607
Planter	J. A. Pritchard	586,867	July 20	2196	514	80	466
Planter	J. E. Ransheck	589,096	Aug. 31	3217	756	80	1333
Planter	J. D. Schofield	588,496	Aug. 17	2125	494	80	1001
Planter attachment	C. L. Kelso and J. C. Johanus	587,975	Aug. 10	1238	287	80	911
Planter. Check-row	W. L. Beall	588,313	Aug. 17	1827	422	80	1035
Planter. Corn-	W. L. Beall	587,694	Aug. 10	719	172	80	816
Planter. Corn-	D. R. Vivion	589,321	Aug. 31	3758	876	80	1443
Planter, fertilizer-distributer, and cultivator. Combined	J. L. O. King	585,916	July 6	484	116, 117	80	95
Planter marker attachment	E. B. Guenzel	589,502	Sept. 7	162	36	80	1513
Planter plow attachment	M. C. Conoley	589,419	Sept. 7	33	8	80	1486
Planter. Potato-	M. F. Myers	590,621	Sept. 28	2108	498	80	1917
Planting implement	W. S. Blaisdell	588,886	Aug. 17	1951	452	80	1058
Plants or flowers. Stake for	T. N. Parker	587,231	July 27	2013	683	80	624
Plaster casts. Tool for cutting	J. O. Pearson	590,163	Sept. 14	1302	309	80	1740
Plastic material. Device for working	A. C. Estabrook	590,539	Sept. 21	1951	462	80	1876
Plastic material. Machine for molding screw bottle-stoppers, &c., from	C. H. Gray	590,145	Sept. 14	1271	300, 301, 302	80	1734
Plastic material. Method of and means for molding	W. G. Bristow	589,637	Sept. 7	386	95	80	1555
Plate and sheet furnace	H. Whiteley	586,300	July 13	1222	279	80	253
Platform: *See* Grave-platform. Well or cistern platform.							
Plow	C. T. Craton	586,545	July 20	1663	388	80	367
Plow	H. A. Fridén and A. Swanson	590,494	Sept. 21	1868	442	80	1860
Plow	G. W. Garst	590,018	Sept. 14	1043	245, 246	80	1690
Plow	W. H. G. Greaves	590,146	Sept. 14	1276	302	80	1735
Plow	N. Jerry	590,371	Sept. 21	1666	393	80	1823
Plow	R. Jones	589,374	Aug. 31	3841	897, 898	80	1459
Plow	H. O. Kruschke	589,179	Aug. 31	3367	791	80	1362
Plow	R. H. Purnell	589,025	Aug. 31	3089	728	80	1310
Plow	S. G. Sevier	587,512	Aug. 3	411	97	80	740
Plow and harrow. Combined	J. Rife	590,671	Sept. 28	2201	523	80	1935
Plow and seed-planter	B. Jassen	586,360	July 13	1330	304	80	274
Plow. Bedding-	E. C. Atkins	586,787	Aug. 24	2663	630	80	1215
Plow controller. Turn-	C. Carnahan	589,337	Aug. 31	3780	882	80	1448
Plow attachment	B. F. Rudy	585,791	July 6	250	58	80	52
Plow cutting attachment	U. M. Stone	585,797	July 6	262	61	80	54
Plow. Gang-	G. W. De Witt	587,521	Aug. 3	428	100	80	743
Plow harrow attachment	W. S. Payne	588,875	Aug. 24	2838	660	80	1243
Plow or cultivator	E. Haiman	585,751	July 6	182	41	80	38
Plow or cultivator	W. W. Martin and W. D. King	585,685	July 6	64	15	80	15
Plow-point	E. L. Troup	585,900	July 6	723	161	80	142
Plow-point. Removable	J. Sutton	590,776	Sept. 28	2391	568	80	1969
Plow. Rotary	G. Spalding and J. S. Robbins	587,459	Aug. 3	317	76	80	724
Plow. Rotary-disk	W. H. Chaffe	589,931	Sept. 14	877	209	80	1659
Plow. Swivel or hillside	W. L. Casaday	589,072	Aug. 31	3167	746	80	1324
Plucking instrument	J. Joffriaud	585,958	July 6	565	132	80	109
Plumb and level. Combined	J. A. Weigert and H. Oyen	586,092	July 6	875	197	80	170
Plumber's smoke-test apparatus	M. Schnaier	590,241	Sept. 21	1441	339	80	1780
Pneumatic conveyer-tubes. Electrical signaling device for use on	G. W. Hook	589,832	Sept. 14	706	165, 166	80	1630
Pneumatic-despatch apparatus	L. G. Bostedo	588,948	Aug. 31	2960	698	80	1284
Pneumatic-despatch tube	J. Jacques	589,781	Sept. 7	613	142, 143	80	1599
Pneumatic-despatch-tube carrier	B. C. Batcheller	590,181	Sept. 14	1329	315	80	1745
Pneumatic-despatch-tube switch	C. F. Pike	590,770	Sept. 28	2382	565	80	1967
Pneumatic-despatch tubes. Expansion-joint for	C. F. Pike	590,771	Sept. 28	2383	565	80	1967
Pneumatic-despatch tubes. Gate-operating device for	C. B. Allen	590,784	Sept. 28	2402	571	80	1972
Pneumatic motive power	L. H. Mayer	590,686	Sept. 28	2227	528, 529	80	1940
Pneumatic press	P. C. Blaisdell	586,946	July 20	2369	560	80	499
Pneumatic seat-cushion	L. L. Petett	588,288	Aug. 17	1782	413	80	1027
Pneumatic seat-support	P. J. Hindmarsh	588,993	Aug. 31	3052	712	80	1299
Pneumatic tool	F. E. Harthan	590,661	Sept. 28	2179	516, 517	80	1931
Pocket-book	B. Wilentshik	587,251	July 27	2042	691, 692	80	629
Pocket-book or bag frame	C. Hiering	588,333	Aug. 17	1862	431	80	1041
Pocket-knife	J. Ball	587,692	Aug. 10	716	171	80	818
Pocket-knife	G. W. Miller	589,737	Sept. 7	545	129	80	1586
Pocket-knife	G. W. Miller	589,738	Sept. 7	546	129	80	1586
Pocket-knife	A. Normand	586,453	July 13	1485	346	80	308
Pocket. Trousers-	J. M. Crossley	587,474	Aug. 3	340	81	80	728
Poke. Animal-	J. H. Moore	586,743	July 20	2008	466	80	430
Pole-base. Metal	G. W. Glazier	589,079	Aug. 31	3181	749	80	1326
Polishing-machine	H. Fletcher	590,059	Sept. 14	1099	260, 261	80	1701
Polishing-wheels. Process of and apparatus for manufacturing	A. Johnston	588,068	Aug. 10	1389	323	80	989
Polo-stick	A. W. Walker	586,373	July 13	1348	310	80	278
Polysulfids. Making	B. von Schenk	586,567	July 20	1706		80	375
Pool and billiard table. Convertible	A. M. Gerstle	588,961	Aug. 31	2979	698, 699, 700, 701	80	1289
Popcorn-popper	N. Rossi	588,186	Aug. 17	1612	371	80	995

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Post: *See* Fence-post. Hitching-post. Guide-post. Mining-post.							
Post-hole digger	H. L. T. Overbey	588,833	Aug. 24	2770	643	80	1230
Pot: *See* Coffee-pot. Flower-pot. Coffee or tea pot.							
Potato-cutter	S. A. Graham	586,844	July 20	2159	504	80	458
Potato-digger	E. Greenberg	587,305	Aug. 3	44	10	80	674
Potato-digger	C. Hartmann	590,571	Sept. 28	2017	475	80	1908
Potato-digger	W. F. and C. Maves	589,846	Sept. 14	722	169	80	1588
Potato-digger	C. Oehrlein	589,020	Aug. 31	3063	727	80	1309
Potato-digger and plow. Convertible	D. Y. Hallock	588,826	Aug. 24	2753	639	80	1227
Potato-digging machine	A. R. Gibbons	587,725	Aug. 10	799	186	80	839
Potter's mold	W. A. Dechant	590,365	Sept. 21	1656	391	80	1821
Pottery muffle or kiln	F. Hancock and C. B. Winzer	586,967	Aug. 31	3023	710	80	1297
Powder and making same. Smokeless	J. B. Bernadou	586,586	July 20	1743		80	361
Powders. Process of and apparatus for making smokeless	F. G. Du Pont	590,931	Sept. 28	2653	633	80	2032
Power: *See* Mechanical power. Pumping-power. Pneumatic motive power.							
Power and heat generator	G. White. (Reissue)	11,619	July 6	896	201	80	175
Power-converting mechanism	B. J. Ross	588,461	Aug. 17	2120	498	80	1090
Power. Electrical transmission of	E. Lanhoffer	588,831	Aug. 24	2764	640, 641, 642	80	1229
Power. Mechanism for transmitting motive	C. T. Wordsworth, E. Wiseman, and J. Holroyd.	588,695	Aug. 24	2391	549, 550	80	1159
Power-transmitting apparatus	S. M. Jones	590,313	Sept. 21	1574	373	80	1805
Power-transmitting device	E. A. Sperry	587,019	July 27	2504	589	80	547
Precious metals from black sand, &c. Apparatus for extracting	C. A. Hitchcock	590,524	Sept. 21	1922	455	80	1871
Precious metals from their ores. Separating	G. M. Westman	588,904	Aug. 17	1636		80	1000
Precious metals from their solutions. Recovering	H. L. Sulman	587,408	Aug. 3	219	55	80	707
Preserving and shipping vessel	A. Burson	587,699	Aug. 10	729	174	80	830
Preserving food	D. A. Rosenstiehl	589,756	Sept. 7	575		80	1592
Press: *See* Baling-press. Pneumatic press. Cotton-press. Printing-press. Crock-press. Sausage-stuffer press. Expressing-press. Seal-press. Glass-press. Sheet-metal press. Hay-press. Skim-press.							
Press	G. L. Peabody	590,588	Sept. 28	2042	482, 483, 484, 485	80	1906
Press and preserving-receptacle. Combined	M. W. Quirk, Jr	589,993	Sept. 14	983	234	80	1679
Pressing device	I. N. Bundren	588,125	Aug. 17	1498	345	80	974
Pressing-machine. Tailor's	A. N. Bresel	588,317	Aug. 17	1835	424	80	1036
Pressing trousers, &c. Apparatus for	G. Whitaker	586,687	July 20	2223	523	80	472
Pressure-gage tester	C. B. Bosworth	585,983	July 6	421	101	80	84
Pressure-operated motor	G. Valley	590,247	Sept. 21	1453	342	80	1782
Pressure-reducing apparatus. Differential	C. G. P. de Laval	587,150	July 27	2766	651	80	595
Pressure-regulator	J. M. Foster. (Reissue)	11,621	July 20	2385	563	80	502
Pressure-regulator	A. Krastin	588,118	Aug. 10	1479	341	80	956
Pressure regulator. Hydraulic	F. R. French	586,598	July 20	1765	409	80	385
Primary battery. Reversible	L. W. Pullen	585,699	July 6	81	20	80	19
Printers' adjustable furniture	G. E. Lincoln	587,745	Aug. 10	821	193	80	839
Printer's block	J. L. Lee	586,557	July 20	1686	392	80	371
Printers' blocks. Machine for dressing	C. Schraubstadter, Jr., and C. R. Schilling.	586,917	July 20	2306	543	80	487
Printing and perforating machine. Strip	C. H. Palmer and J. W. Denmead	589,570	Sept. 7	208	64, 65	80	1532
Printing device	R. J. Bentley and G. H. Schiek	588,353	Aug. 24	2801	651	80	1237
Printing device. Duplicate	W. H. Pike, Jr	590,772	Sept. 28	2384	506, 507	80	1968
Printing-die	F. G. Jahn	587,261	July 27	2059	695	80	632
Printing fabrics	G. Stokes	590,245	Sept. 21	1448	341	80	1781
Printing-machine	J. J. Clause	585,907	July 6	467	112, 113	80	92
Printing-machine	W. E. Crane	587,934	Aug. 10	1155	267, 268	80	896
Printing-machine	W. E. Crane	590,002	Sept. 14	1004	238, 239	80	1682
Printing-machine	A. F. and C. G. Harris and W. H. Smiley.	586,898	July 20	2264	531, 532	80	479
Printing-machine	F. Meisel and H. L. Chapin	588,284	Aug. 17	1777	411, 412	80	1036
Printing-machine	J. Ovens	589,613	Sept. 7	348	85	80	1547
Printing-machine	V. Turati	586,465	July 13	1510	353, 354	80	307
Printing-machine	H. A. W. Wood	589,519	Sept. 7	191	44	80	1518
Printing-machine	H. A. W. Wood	590,004	Sept. 28	2072	491, 492	80	1913
Printing machine. Hosiery	A. Young	585,945	July 6	541	127	80	105
Printing machines. Doctor for fabric	H. E. Green	590,060	Sept. 28	2178	516	80	1961
Printing. Preparing onyx marble for use in relief	J. G. Weaver	590,177	Sept. 14	1303		80	1744
Printing-press	W. Scott	588,467	Aug. 17	2129	495	80	1093
Printing-press. Cylinder	H. A. W. Wood	585,995	July 6	728	163	80	143
Printing-press delivery device	S. G. Goss	588,738	Aug. 24	2675	594	80	1194
Printing-press feeder	J. T. Robertson	590,115	Sept. 14	1213	285, 286	80	1732
Printing-press feeder attachment	J. T. Robertson	590,114	Sept. 14	1207	284	80	1731
Printing-press feeding device	C. G. Harris	586,490	July 13	1558	363	80	315
Printing-press. Flat-form rotary	H. S. Merrill	588,231	Aug. 17	1677	385	80	1008

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Printing-press folding mechanism	W. H. Jessup	586,908	July 20	2280	537	80	492
Printing-press gripper. Job-	E. Campbell	588,805	Aug. 24	2988	668	80	1949
Printing-press ink-fountain	C. E. Kayser	590,790	Sept. 28	2415	573	80	1974
Printing-press registering and tripping mechanism	W. S. Huson	590,617	Sept. 28	2095	496 / 497	80	1916
Printing-press sheet-delivery apparatus	R. Miehle	585,930	July 6	492	118 / 119	80	97
Printing-press sheet-delivery mechanism	W. Scott	586,716	July 20	1948	485	80	480
Printing-press throw-off	J. E. Lee	586,951	July 20	2335	550	80	492
Printing presses. Foot-power attachment for job-	C. E. Fralick and O. C. Fodrea	587,951	Aug. 10	1901	376	80	905
Printing-roll	J. W. Fries	587,953	Aug. 10	1903	379	80	905
Prism-canopy. Adjustable	O. H. Basquin	586,222	July 13	1107	251	80	223
Prism. Erecting-	C. S. Hastings	586,708	July 20	1936	451	80	417
Prism-gage	E. Bausch	587,637	Aug. 3	630	151	80	781
Prism-light	O. H. Basquin	586,219	July 13	1102	249	80	223
Prism-light	O. H. Basquin	586,220	July 13	1103	250	80	223
Prism-light	O. H. Basquin	586,213	July 13	1095	247	80	220
Prism light and plate	W. H. Winslow	586,258	July 13	1161	265	80	242
Prism-light and prism-plate	H. F. Belcher	586,227	July 13	1112	258	80	224
Prism-lights and ornamental glass. Mounting	H. F. Belcher	586,225	July 13	1110	259	80	223
Prism-lights. Framing	O. H. Basquin	586,218	July 13	1101	249	80	221
Prism-lights. Mounting	O. H. Basquin	586,226	July 13	1112	258	80	224
Prism-lights. Mounting	H. F. Belcher	586,229	July 13	1113	253	80	224
Prism lights or tiles. Framing	H. F. Belcher	586,212	July 13	1094	247	80	220
Prismatic canopy	O. H. Basquin	586,221	July 13	1105	250	80	223
Prismatic light	W. H. Winslow	586,261	July 13	1165	266	80	243
Prismatic plate and frame for same	O. H. Basquin	586,223	July 13	1106	250	80	223
Prison-cell, vault, &c.	F. Peterhansl and G. H. Rothmann	588,634	Aug. 24	2771	642 / 643	80	1220
Propeller. Buoyant	G. H. Pond	586,914	July 20	2304	543	80	486
Propeller. Buoyant	G. H. Pond	586,915	July 20	2305	543	80	486
Propeller. Buoyant	G. H. Pond	586,916	July 20	2306	543	80	486
Propeller. Marine screw-	W. Stellner	587,245	July 27	2093	668	80	627
Propelling and steering barges. Means for	A. D. Archibald	587,256	July 27	2951	693	80	631
Propelling device. Ship-	F. A. L. Grunow	589,946	Sept. 14	899	215	80	1663
Propelling mechanism for vessels	C. N. Dutton	586,810	July 20	2105	491 / 492	80	448
Propelling ships, &c. Means for	J. B. Pinchard	586,390	July 13	1380	317	80	268
Protector: *See* Book-back protector. Storm-protector. Trousers-protector. Heel or sole protector.							
Protonuclein and preparing same	J. Carnrick	587,278	July 27	2265	------	80	639
Protractor. Bevel-	R. T. Huntington	590,236	Sept. 21	1419	335	80	1776
Pruning implement	D. C. Baker	588,943	Aug. 31	2949	690 / 691	80	1262
Pruning implement	J. L. Miller	589,739	Sept. 7	548	130	80	1587
Pruning implement	T. H. Springston	589,987	Sept. 14	974	232	80	1677
Pruning-shears	G. A. Kemper	586,850	July 20	2170	508	80	460
Puller: *See* Nail-puller.							
Pulley	E. F. Hartshorn	590,758	Sept. 28	2352	557	80	1963
Pulley	E. F. Hartshorn	590,759	Sept. 28	2353	558	80	1963
Pulley-block	G. Agobian	588,309	Aug. 17	1821	420	80	1053
Pulley-block	G. T. Winnard and J. Bedford	590,250	Sept. 21	1461	344	80	1784
Pulley-covering	B. C. Morse	588,232	Aug. 17	1679	366	80	1006
Pulley. Expansible	F. I. Dana	588,808	Aug. 24	2870	669	80	1250
Pulley. Interlocking cone-	W. H. Griffiths	589,999	Sept. 14	977	233	80	1677
Pulley-locking device	W. H. Kirkman	587,976	Aug. 10	1939	387	80	911
Pulley. Loose	L. J. Smith	587,338	Aug. 3	105	26	80	695
Pulley. Split	F. X. Eckstein	586,119	July 13	945	213	80	202
Pulp-grating machine	J. C. Kemp	588,340	Aug. 17	1873	433	80	1044
Pulp-screen	H. J. Dickerson	585,656	July 6	19	5, 6	80	6
Pulp-strainer	D. N. Bertram	589,329	Aug. 31	3709	678 / 679	80	1445
Pulverizer. Quartz-	W. S. Isham	590,227	Sept. 21	1422	335	80	1777
Pulverizers, &c. Feed-supply regulator for	G. Frisbee	587,696	Aug. 3	706	160	80	797
Pulverizing-machine	J. C. Clark	586,835	July 20	2146	501 / 502	80	455
Pulverizing-mill. Rotary	C. M. Day	587,501	Aug. 3	389	92	80	735
Pump	A. W. Armstrong	585,901	July 6	457	110	80	90
Pump	S. M. Chase	588,218	Aug. 17	1668	390	80	1003
Pump	H. Denney and W. H. Bromley	586,354	July 13	1324	303	80	273
Pump	J. A. Fink	588,918	Aug. 24	2909	681	80	1258
Pump	W. W. James	587,194	July 27	2701	635	80	583
Pump	E. E. Johnson	588,995	Aug. 31	3034	713	80	1300
Pump	S. C. Sawyer	587,455	Aug. 3	310	75	80	723
Pump	M. D. Temple	590,349	Sept. 21	1634	385	80	1817
Pump	W. C. Woodward	589,458	Sept. 7	98	20, 21	80	1499
Pump. Air-	H. S. Bills	587,636	Aug. 3	631	152	80	781
Pump and equalizing-valve for pumps	B. Thoens	590,173	Sept. 14	1315	312	80	1743
Pump. Beer-	A. L. Heideman	587,963	Aug. 10	1221	284	80	908
Pump-condenser	L. Schutte	586,568	July 20	1707	396	80	375
Pump. Diaphragm-	G. F. Flodman	589,078	Aug. 31	3180	748 / 749	80	1326
Pump. Double-acting force-	D. Lippy	585,961	July 6	570	133	80	110
Pump for acids or other liquids	J. T. Morrow	586,698	July 20	1909	445	80	412
Pump for liquid-dispensers. Hydraulic	A. Moldenhauer	590,233	Sept. 21	1428	337	80	1778
Pump for tubular wells	G. O. Snyder	586,206	July 13	1087	245	80	226
Pump. Force-	A. Munden	590,161	Sept. 14	1300	309	80	1740
Pump. Lifting or irrigating	A. B. McCoskey	589,532	Sept. 7	210	50	80	1523
Pump. Oil-well	F. A. Garbutt	586,707	July 20	1933	451	80	417
Pump. Power-	M. L. Severy	590,802	Sept. 28	2531	604	80	1997
Pump. Rotation-	E. Bibus	589,402	Sept. 7	98	22	80	1500
Pump-valve spring	J. E. Mathewson	588,456	Aug. 17	2074	488	80	1081
Pump. Wave-power	O. W. Parker	590,072	Sept. 14	1124	266	80	1705

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pumping apparatus. Well-	J. S. Thompson	586,524	July 13	1628	379	80	331
Pumping apparatus. Well-	J. S. Thompson	586,525	July 13	1632	379	80	331
Pumping-engine	A. W. Austin	586,054	July 20	1659	432	80	408
Pumping-jack for oil-well pumps	T. G. Laney	586,502	July 13	1572	367	80	319
Pumping-jack for oil-wells	T. G. Laney	586,501	July 13	1570	367	80	319
Pumping-jack for wells	F. J. Moser	586,860	July 20	2185	511	80	464
Pumping power. Well-	G. W. Grimes	587,525	Aug. 3	435	102	80	744
Pumping power. Well-	G. W. Grimes	590,488	Sept. 21	1848	437	80	1856
Pumping-regulator	W. E. Bonin	587,359	Aug. 3	140	34	80	691
Pumping-rigging. Oil-well	J. N. Maher	587,220	July 27	2679	676	80	617
Punch and numbering and dating device. Ticket-	W. C. Downing	588,322	Aug. 17	1844	426 / 427 / 428	80	1038
Punching and eyeleting machine	S. P. Steen, Jr.	585,835	July 6	336	78	80	67
Punching and eyeleting machine	T. C. and S. Thompson	587,023	July 27	2517	591	80	549
Puncture-burning device	J. E. Newton	590,440	Sept. 21	1783	419	80	1844
Purse	H. W. Pitz	587,160	July 27	2762	654	80	598
Purse, parcel-carrier, and belt-buckle. Combined	J. Sauze	586,369	July 13	1344	309	80	277
Push-bar	E. L. Webb	589,767	Sept. 7	591	138	80	1595
Puzzle	J. S. Alston	587,112	July 27	2676	630	80	578
Puzzle	C. V. Emerson and J. A. Hilcken	586,168	July 13	1092	220	80	216
Puzzle	S. F. Estell	590,622	Sept. 14	988	159	80	1693
Puzzle	W. M. Geyer	586,693	July 20	1901	443	80	411
Puzzle	M. E. B. Lane	586,330	July 13	1300	297	80	263
Puzzle	L. S. Market	589,132	Aug. 31	3396	775	80	1347
Puzzle	C. W. Mead	589,507	Sept. 7	168	37	80	1514
Puzzle	C. W. Mead	589,508	Sept. 7	168	38	80	1514
Puzzle	E. Nelson	588,705	Aug. 24	2539	587	80	1187
Puzzle	J. G. Schweinfurth	588,116	Aug. 10	1482	342	80	957
Puzzle	I. E. Vance	585,801	July 6	270	62	80	55
Puzzle	L. G. Warner	588,666	Aug. 24	2505	578	80	1161
Puzzle. Picture-	H. C. French	590,060	Sept. 14	1101	261	80	1701
Pyrites. Concentrating or separating machine for treatment of	W. P. Wynne and T. Tregurtha	587,630	Aug. 3	621	149	80	779
Pyrotechnic compound	E. Leusmann	590,231	Sept. 21	1426	------	80	1778
Pyrotechnic signal	C. Brunot	590,822	Sept. 28	2461	584	80	1984
Pyroxylin compound	J. H. Stevens	589,870	Sept. 14	761	------	80	1639
Quartz-milling machine	A. T. Van Horn	589,596	Sept. 7	301	73	80	1536
Quick-action wrench	F. F. De Voe	589,166	Aug. 31	3346	786	80	1358
Quilting-frame. Portable	J. H. Gibson	589,526	Sept. 7	203	47	80	1530
Race-horse starter	J. E. Curry	589,818	Sept. 14	682	158	80	1625
Race-track starter's gate	M. H. Dill	590,477	Sept. 21	1842	435	80	1855
Rack: *See* Bicycle-rack. Hay and stock rack. Display-rack. Hat-rack. Garment-rack. Towel-rack.							
Radiator	W. M. Barber	588,312	Aug. 17	1836	421	80	1035
Radiator and means for heating same. Steam-	F. V. Winters	587,072	July 27	2606	616	80	565
Radiator air-box	R. Scott	585,708	July 6	91	23, 24	80	21
Radiator attachment	C. H. Knowlton	586,045	July 6	809	181	80	158
Radiator. Oil-	H. Ruppel	588,780	Aug. 24	2089	616	80	1212
Rail-bond	J. A. Mosher	587,134	July 27	2741	643	80	590
Rail-bond. Electric	W. B. Cleveland	588,791	Aug. 24	2092	623	80	1217
Rail-bond. Electric	G. H. Scott	589,485	Sept. 7	132	29	80	1507
Rail-chair	J. E. Shope	588,360	Aug. 17	1905	441	80	1050
Rail clamp. Guard-	H. Morris	588,164	Aug. 17	1571	362	80	988
Rail Detector-	S. H. Stupakoff	588,508	Aug. 17	2160	502	80	1097
Rail-fastening	W. C. Kemble	590,106	Sept. 14	1190	280	80	1718
Rail-joint	J. Beadle	590,816	Sept. 28	2454	582	80	1983
Rail-joint	W. Cooper	589,247	Aug. 31	3499	820	80	1388
Rail-joint	J. H. Fowler	590,679	Sept. 28	2217	526	80	1968
Rail-joint	J. H. Johnson	589,175	Aug. 31	3363	790	80	1361
Rail-joint	E. Norton	588,396	Aug. 24	2317	537	80	1146
Rail-joint	J. Rohlin	587,226	July 27	2917	684	80	625
Rail-joint	J. Wayland	590,028	Sept. 14	1055	249	80	1693
Rail-joint and nut-lock therefor	E. Peace	586,389	July 13	1378	317	80	283
Rail-joint. Lock-	G. W. Shindelbower	589,757	Sept. 7	576	135	80	1592
Rail-joint support	W. Brugler	590,878	Sept. 28	2557	611	80	2062
Rail splice-bar	M. W. Thomson	586,904	July 20	2097	489	80	446
Rail system. Electromagnetic third-	W. Grunow, Jr.	586,845	July 20	2160	505	80	458
Railway-barrier. Electrically-operated	C. C. Van der Valk	586,578	July 20	1727	403	80	379
Railway-brake. Fluid-pressure	J. Olson	587,450	Aug. 3	299	72 / 73 / 74	80	721
Railway cattle-gate	J. M. Westmoreland and B. Strange	588,308	Aug. 17	1815	418 / 419	80	1039
Railway cattle-guard	B. F. Parker	588,171	Aug. 17	1588	367	80	991
Railway. Closed-conduit electric	W. B. Potter	589,787	Sept. 7	628	146	80	1602
Railway. Closed-conduit electric	W. B. Potter	589,789	Sept. 7	632	146	80	1603
Railway. Closed-conduit electric	W. B. Potter	589,790	Sept. 7	633	147	80	1603
Railway. Conduit electric	W. B. Potter	589,792	Sept. 7	637	147	80	1603
Railway cross-tie	W. E. M. Jackson	588,602	July 20	1774	412	80	987
Railway-crossing	O. M. Knox	590,456	Sept. 21	1807	425	80	1848
Railway-crossing	C. E. Baker	588,780	Aug. 24	2086	621	80	1216
Railway-crossing danger-signal	A. H. Tyler	588,737	Aug. 24	2598	599	80	1196
Railway-crossing gate	O. P. Bonner	590,877	Sept. 28	2556	610	80	2062
Railway-crossing gate	H. W. Burleigh	586,502	July 20	1752	407	80	383
Railway-crossing signal	L. Harris	590,757	Sept. 28	2350	557	80	1962
Railway danger-signaling	W. S. Woods	586,471	July 13	1520	356	80	309
Railway draft appliance	J. K. Kendrick	585,676	July 6	40	12	80	12
Railway. Electric	J. E. Brown and E. E. Pettit	586,160	July 13	1010	228	80	214
Railway. Electric	R. L. Caldwell	587,792	Aug. 10	898	210	80	852
Railway. Electric	J. W. Darley, Jr.	590,881	Sept. 28	2560	611 / 612	80	2008

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway. Electric	J. W. Darley, Jr	590,892	Sept. 28	2565	613	80	2004
					614		
Railway. Electric	R. M. Hunter	587,674	Aug. 3	686	164	80	798
Railway. Electric	R. M. Hunter	588,528	Aug. 17	2203	519	80	1105
Railway. Electric	R. M. Hunter	590,310	Sept. 21	1568	371	80	1803
Railway. Electric	R. Lundell	590,420	Sept. 21	1782	411	80	1838
					412		
Railway. Electric	J. A. Roche and J. C. Bley	590,552	Sept. 21	1982	466	80	1880
					467		
Railway-gate	C. R. McDaniel	589,583	Sept. 7	211	50	80	1522
Railway grip. Cable	C. B. Martin	585,873	July 6	404	95	80	80
Railway-joint	H. L. Stillman	586,078	July 6	871	196	80	109
Railway rail-bond. Electric	V. E. Hunter	588,435	Aug. 17	2089	474	80	1075
Railway-rail chair	M. Lewis	590,108	Sept. 14	1192	281	80	1719
Railway-rail joint	F. A. Humme	586,309	July 13	1233	282	80	256
Railway-rail joint	A. W. Thompson	588,807	Aug. 24	2723	632	80	1222
Railway-rail joint	H. M. Svebillus	586,253	July 13	1151	263	80	240
Railway-rail joint	W. Daves	586,788	July 20	2070	482	80	442
Railway-rails. Detector-bar for	F. Marsellis	588,771	Aug. 24	2659	613	80	1211
Railway-rails. Electric connection between	E. L. Orcutt	589,069	Sept. 7	447	104	80	1564
Railway safety appliance. Electric	G. Hancock	590,544	Sept. 21	1961	463	80	1877
Railway safety-brake. Inclined	C. W. Grant	589,170	Aug. 31	3353	788	80	1359
					789		
Railway-signal	W. H. J. Lance	586,609	July 20	1796	415	80	300
Railway-signal	P. W. Sawyer and C. J. Perley	588,358	Aug. 17	1900	440	80	1049
Railway-signal compensator	J. A. Markley	589,606	Sept. 7	339	83	80	1546
Railway signaling apparatus	G. V. Allen	585,909	July 6	744	166	80	146
Railway signaling. Electric	J. B. Struble	590,509	Sept. 28	2063	489	80	1910
Railway signaling system	H. Bezer	585,733	July 6	144	33	80	81
Railway. Street	W. Pierpoint	590,792	Sept. 28	2418	574	80	1975
Railway. Surface-contact	E. M. Hewlett	589,894	Sept. 14	618	192	80	1648
Railway. Surface-contact electric	L. H. Parker	589,785	Sept. 7	623	145	80	1601
Railway-switch	V. Angerer	586,802	July 20	2253	528	80	477
Railway-switch	R. Cady	588,951	Aug. 31	2964	694	80	1985
Railway-switch	G. M. Ervin	588,410	Aug. 17	1907	462	80	1067
Railway-switch	C. F. Kress, Jr	588,561	Aug. 24	2296	539	80	1141
Railway-switch	J. A. Palmer	586,203	July 13	1082	244	80	227
Railway-switch	C. V. Richey	587,657	Aug. 3	659	157	80	787
Railway-switch	C. H. Sherwood	586,570	July 20	1715	398	80	376
					399		
Railway-switch	C. Troup	586,918	July 20	2309	544	80	487
Railway-switch. Automatic	A. G. Lawrence	590,948	Sept. 28	2691	641	80	2029
Railway-switch. Automatic	L. A. Moore	589,093	Aug. 31	3214	755	80	1359
Railway-switch. Automatic pneumatic	J. H. Johnson and D. J. McKeithen	590,153	Sept. 14	1289	306	80	1787
Railway-switch detector or indicator	A. Keiser	586,041	July 6	805	180	80	157
Railway switch. Electric	M. J. M. O'Hara	587,752	Aug. 10	836	196	80	841
Railway-switch-operating device	G. M. Patterson	588,467	Aug. 17	2096	488	80	1085
Railway-switch-point-controlling apparatus	C. W. Munson	586,797	July 20	2083	485	80	444
Railway switch. Street	J. F. E. Feltner	588,966	Aug. 31	2989	702	80	1291
Railway system. Closed-conduit electric	W. B. Potter	589,786	Sept. 7	625	145	80	1601
Railway system. Closed-conduit electric	W. B. Potter	589,788	Sept. 7	630	146	80	1602
Railway system. Electric	J. Claret and O. Vuilleumier	588,396	Aug. 17	1968	454	80	1062
					455		
					456		
Railway system. Electric	L. K. Devlin	586,422	July 13	1437	332	80	294
Railway system. Electric	S. D. Field	587,720	Aug. 10	781	184	80	831
					185		
Railway system. Electric	L. E. Walkins	588,097	Aug. 10	1432	333	80	947
Railway system. Electric	H. P. Wellman	586,920	July 20	2312	544	80	488
					545		
Railway system. Electrical	W. B. Purvis	588,176	Aug. 17	1507	369	80	993
Railway system. Surface-contact	W. B. Potter	589,791	Sept. 7	635	147	80	1603
Railway-tie	S. K. Miller	589,664	Sept. 7	427	103	80	1563
Railway-tie and fastening	W. R. McDowell	586,103	July 13	918	208	80	197
Railway-tie and lock. Combined	G. A. Butler	590,253	Sept. 21	1464	345	80	1784
Railway-track fastening	W. M. Keeney	587,212	July 27	2360	573	80	615
Railway-track structure	J. Pennie	588,080	Aug. 10	1403	328	80	942
Railways. Adjustable gage-bar for	P. Olson	589,268	Aug. 31	3526	828	80	1394
Railways. Automatic switch for surface-contact	E. M. Hewlett	589,893	Sept. 14	814	192	80	1647
Railways. Current-collecting device for electric	R. M. Hunter	585,111	Aug. 10	1472	341	80	954
Railways. Current-conducting rail for electric	L. E. Walkins	588,541	Aug. 17	2290	517	80	1111
Railways. Rope-gripper for cable	E. Eaves and A. J. Tonge	586,762	July 20	2035	473	80	435
Railways. Traveling contact for electric	W. F. Weiss	589,452	Sept. 7	85	19	80	1498
Railways. Underground system for electric	A. S. Krotz and W. P. Allen	586,852	July 20	2172	508	80	461
					509		
Raising or lowering heavy weights or building materials. Apparatus for	E. B. Demarest	587,301	Aug. 3	35	7	80	672
Rake:							
See Hay-rake. Horse-rake.							
Rake-cleaner	W. H. Green	588,330	Aug. 17	1869	430	80	1040
Ramie. Machine for treating	A. Price	589,309	Aug. 31	3331	805	80	1457
Range-boiler	T. J. McKeone	590,584	Sept. 28	2085	480	80	1905
Range-finder	G. M. Searle and G. N. Saegmuller	588,093	Aug. 10	1426	331	80	946
					332		
Range-finder	G. M. Searle and G. N. Saegmuller	588,094	Aug. 10	1428	332	80	946
Range-finder for field-glasses	J. W. Price	586,667	July 20	1875	436	80	406
Range. Sheet-flue	S. S. Webber	589,882	Sept. 14	789	189	80	1642
Rat-trap	O. P. Hill	590,646	Sept. 28	2151	505	80	1926
Ratchet-brace	H. H. Quinby	587,232	July 27	2014	683	80	625
Ratchet-wrench	C. E. Swick and J. M. Reid	587,464	Aug. 3	326	78	80	725
Razor	E. Scharff	590,168	Sept. 14	1311	311	80	1742
Razor-case and tool-box combined	J. J. Zinsel	587,418	Aug. 3	234	58	80	710
Razor-guard	H. T. Fisher	588,564	Aug. 24	2269	527	80	1136
Razor hone and strop	C. H. Ballew	589,805	Sept. 14	662	154	80	1621

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Razor. Safety	R. S. Bradley	586,589	July 20	1749	406	80	382
Razor. Safety	W. Greenfield	589,080	Aug. 31	3182	749	80	1395
Razor. Safety	P. W. Strong	589,513	Sept. 7	180	41	80	1515
Razor-strop	F. G. Farnham	586,081	July 6	776	173	80	152
Reamer. Expanding	W. T. Beard	589,067	Aug. 31	3158	743	80	1393
Reaping-machine	M. Alexandrescu	588,850	Aug. 24	2798	650	80	1236
					651		
Reaping or mowing machine	S. S. Sedoris	585,704	July 6	86	22	80	20
Receptacle for plastic or other materials	R. Cowen	588,545	Aug. 17	2234	519	80	1113
Reclining and folding chair. Combined	G. I. Haswell	588,106	Aug. 10	1468	340	80	954
Reclining-chair. Swinging	W. G. Croom	586,787	July 20	2069	481	80	441
					482		
Recorder:							
See Current-recorder. Time-recorder. Speed-recorder.							
Recording instrument	W. Thomson	588,251	Aug. 17	1719	394	80	1016
Rectifier	E. Thomson	587,024	July 27	2518	592	80	549
Reel:							
See Hose-reel.							
Reel for dress-facings, ribbons, &c	H. B. Moore	588,162	Aug. 17	1509	392	80	998
Reflector. Electric-arc-light	C. M. Bolles	589,986	July 27	2442	577	80	535
Refrigerating-machine. Compressed-air	H. B. Roelker	589,620	Sept. 7	357	87, 88	80	1549
Refrigerator	J. C. Ayers	589,922	Sept. 14	993	205	80	1657
Refrigerator	E. H. Giesy	588,139	Aug. 17	1534	352	80	981
					353		
Refrigerator	E. Sack	588,781	Aug. 24	2670	617	80	1213
Refrigerator-car	F. Thompson	587,407	Aug. 3	393	90, 91	80	794
Refrigerator-car trap	C. W. Bradley	589,998	Sept. 14	995	227	80	1661
Refrigerator-car ventilator	E. T. Earl	588,134	Aug. 17	1525	349	80	980
Refrigerator-car ventilator	J. Norling and C. E. Johnson	585,779	July 6	231	54	80	48
Refrigerator. Cleanable	G. J. Smith and S. M. Atherton	588,664	Aug. 24	2467	568	80	1174
Refrigerator-door	F. M. Keith	586,098	July 13	908	204	80	195
Refrigerator meat-wagon	H. J. Kelly	590,891	Sept. 28	2584	617	80	2008
Refrigerator-tank car	C. L. Rogers	588,089	Aug. 10	1420	330	80	945
Refrigerator water-cooler	F. H. Trumbull	589,377	Aug. 31	3645	898	80	1460
Regenerative burner	T. Gordon and W. R. Swift	586,272	Aug. 17	1756	406	80	1032
Register:							
See Autographic register. Cash-register. Keg-register. Berth-register. Meter-register.							
Register foot-rest	C. M. Dechant	588,693	Aug. 24	2513	579	80	1182
Registering device	T. J. Houck	588,150	Aug. 17	1548	356	80	984
					357		
Regulator:							
See Feed-water regulator. Pumping-regulator. Gas-pressure regulator. Speed-regulator. Hydraulic-pressure regulator. Temperature-regulator. Pressure-regulator. Water-regulator. Windmill-regulator. Windmill speed-regulator.							
Rein-fastening	O. Bagley	589,997	Sept. 14	994	226	80	1661
Rein-guard	G. Tolmie	590,194	Sept. 14	1354	319	80	1750
Rein-holder	R. R. Richardson	586,063	July 6	838	187	80	164
Rein-holder	L. M. Schulz	589,622	Sept. 7	362	99	80	1550
Remedies. Device for applying	P. J. Fouquier	589,712	Sept. 7	508	121	80	1579
Renovator	W. H. Thompson	586,882	July 20	2217	521	80	470
Resawing-machine. Band	J. Connell	590,909	Sept. 21	1308	328	80	1771
					329		
Reservoir. Carbonic-acid	J. A. Griffiths	586,084	July 20	1903	443	80	417
Resuscitating apparatus	J. C. Walker	587,801	Aug. 10	1081	249	80	982
					250		
Retailing-case	E. Maybin	588,075	Aug. 10	1397	325	80	941
Retort	D. Jarves	587,057	July 27	2582	609	80	560
Return-ball	A. A. Freeman	589,500	Sept. 7	156	35	80	1511
Reversing mechanism	J. Lizotte	587,319	Aug. 3	64	15	80	678
Rheostat	O. H. and A. F. Pieper	586,864	July 20	2191	513	80	465
Rheostat	T. M. Pusey	590,910	Sept. 28	2616	634	80	2016
Rheostat-controller. Automatic	R. Wilson	588,306	Aug. 17	1818	419	80	1038
					420		
Rice-hulling machine	H. A. Barnard	586,090	July 13	899	202	80	198
Rim-spacing machine	H. T. Kingsbury	586,441	July 13	1468	340	80	300
					341		
Ring:							
See Curtain-pole ring. Lap-ring. Key-ring.							
Rivers, &c. Means for preventing floating masses of plants moving upstream in	C. Brainerd	590,473	Sept. 21	1835	434	80	1854
Riveter	T. R. Morgan, Sr	586,197	July 13	1072	241	80	225
Riveter. Hydraulic	T. R. Morgan, Sr	586,198	July 13	1074	241	80	226
					242		
Riveting-tool. Hand	J. L. Thomson	588,370	Aug. 17	1917	445	80	1052
Roaster:							
See Coffee-roaster. Peanut-roaster.							
Rock-drill	J. H. Smith	589,911	Sept. 14	851	201	80	1654
Rock-drill engine	J. Grandmaison	587,575	Aug. 3	529	126	80	769
Rock-drill. Hand	A. M. Southard	585,795	July 6	257	60	80	53
Rock-drilling and channeling machines. Device for operating feed of	H. C. Sergeant	589,864	Sept. 14	750	175	80	1637
Rocket	O. Wilhelmi	585,805	July 6	278	64	80	57
Rocking-chair	C. J. Michaelson	586,850	July 20	2184	511	80	463
Rocking-chair	T. L. Holt	590,396	Sept. 21	1706	408	80	1880
Rod or bolt wrench	M. Billmire	586,004	July 6	750	167	80	147
Rod-polishing accessory	L. Kahn and M. Longfellow	587,973	Aug. 10	1235	286	80	911
Rods or the like. Machine for threading	C. H. Penning and J. J. S. Heslop	587,400	Aug. 3	204	51	80	705
Roll-truing device	J. Phillips	589,572	Sept. 7	271	65	80	1533

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Roller:							
See Land-roller.							
Separating and husking roller.							
Roller-mill belt-feed	E. E. Protheroe	587,606	Aug. 3	585	142	80	772
Rolling-machine for finishing shafts or rods of metal	J. Illingworth	587,395	Aug. 3	195	49	80	703
Rolling metallic beams, columns, girders, &c. Apparatus for	H. Grey	587,958	Aug. 10	1210	281 282	80	906
Rolling-mill	C. H. Morgan	586,732	July 20	1979	460	80	426
Rolling-mill catcher's table	S. V. Huber	585,869	July 6	399	94	80	79
Rolling-mill feed-table	S. V. Huber	588,225	Aug. 17	1667	382 383	80	1006
Rolling-mill feed-table	J. A. Potter	586,866	July 20	2194	513 514	80	466
Rolling railway-car axles, &c. Machine for	F. A. Phelps, Jr	590,855	Sept. 28	2517	600 601	80	1994
Rolling wire and round bars. Means for	G. Lürmann	590,400	Sept. 21	1716	403 404	80	1632
Roof-jack. Adjustable	R. Wilken	590,949	Sept. 28	2604	649	80	2080
Rope-fastener	W. T. Gillen	588,908	Aug. 24	2377	671	80	1251
Rope grip and take-up	J. Samuelson	589,224	Aug. 31	3422	805	80	1874
Rope-hauling machine	W. B. Lantz. (Reissue)	11,628	Sept. 7	656	153	80	1608
Ropeway-carriers. Mechanical feeder for	A. S. Hallidie	589,654	Sept. 7	410	99 100	80	1550
Rotary engine	R. H. Coon	590,453	Sept. 21	1808	424	80	1848
Rotary engine	C. E. Duncan	589,076	Aug. 31	3177	748	80	1295
Rotary engine	O. C. Fitts	590,882	Sept. 28	2573	614	80	2006
Rotary engine	B. M. Long	590,581	Sept. 28	2082	479	80	1904
Rotary engine	N. Witts	587,904	Aug. 10	1104	254	80	886
Rotary engine. Compound	R. H. Isbell	586,497	July 13	1561	365	80	318
Rotary meter	J. H. Turner	587,346	Aug. 3	121	29	80	688
Rotary motor	G. B. Shepard	586,717	July 20	1953	455 456	80	421
Rotary motor	G. B. Shepard	586,733	July 20	1980	461	80	426
Rotary shears	J. F. Dittman	586,806	July 20	2102	490	80	447
Rotary steam-engine	C. A. Callender and E. W. Parno	586,895	July 20	2260	530 531	80	478
Rotary steam-engine	J. Davenport	588,131	Aug. 17	1522	348	80	970
Rotary steam-engine	L. S. Hayes	587,202	July 27	2849	669	80	611
Rotary steam-engine	H. F. Renz	586,694	July 20	1917	446 447	80	414
Rotary steam-engine. Reciprocating	F. W. Reeves	587,402	Aug. 3	307	52, 53	80	705
Rounding and channeling machine. Rough-	A. E. Smith	590,597	Sept. 28	2060	486	80	1909
Roving stop-motion	E. H. Ryon	589,033	Aug. 31	3101	731	80	1312
Rowing-gear	A. Boerger	587,639	Aug. 3	633	152	80	782
Rub-iron	O. W. Orell	590,235	Sept. 21	1432	337	80	1776
Rubber-dam clamp	S. E. Knowles	587,058	July 27	2583	609	80	560
Rudder	A. Viert	588,512	Aug. 17	2176	505	80	1101
Rudder and support	H. Brusstar	585,650	July 6	10	3	80	5
Rule. Adjustable	F. Zika	589,064	Aug. 31	3150	742	80	1321
Rule and circle-marker. Combination tape-	J. E. Clough	588,129	Aug. 17	1519	348	80	979
Rule-joint	C. E. Riecker	588,294	Aug. 17	1796	415	80	1020
Ruler	W. R. Boisvert	586,157	July 13	1006	227	80	213
Ruler	F. M. Brittain	585,738	July 6	154	35	80	33
Ruler and scale. Combined desk-	M. F. Connett, Jr	589,642	Sept. 7	395	96	80	1557
Ruler plumb and level attachment	E. D. Beatty	588,852	Aug. 24	2900	651	80	1237
Ruling-machine	E. Graber and L. Hepworth	589,827	Sept. 14	694	161 162 163 164	80	1627
Saccharine juices. Apparatus for defecating	J. B. Wilkinson	588,521	Aug. 17	2188	508 509	80	1103
Sack-holder	F. H. Gilbert	586,484	July 13	1541	361	80	314
Sad-iron	G. W. Kennedy and J. B. Moery	590,066	Sept. 14	1112	263	80	1703
Sad-iron	E. H. Strickler	587,407	Aug. 3	217	55	80	707
Saddle	L. Erselius	586,481	July 13	1536	359	80	313
Saddle-seat die	F. Latulip	585,682	July 6	58	14	80	14
Safe	W. Kock	586,930	July 20	2334	550	80	492
Safe	H. G. Moorman	586,521	July 13	1621	377 378	80	329
Safe	J. W. Peck	588,238	Aug. 17	1698	389	80	1019
Safe	L. D. York	587,028	July 27	2624	598	80	550
Safe-door. Circular	W. Corry	590,943	Sept. 28	2678	633	80	2027
Safety-pin	E. T. Greenfield	587,306	Aug. 3	45	11	80	674
Safety-pin	E. McConnell	590,622	Sept. 28	2106	498	80	1918
Safety-pin	J. L. Phillips	588,776	Aug. 24	2665	615	80	1212
Safety-trap	J. Noll	586,618	July 20	1903	419	80	393
Sail	R. R. Smith	587,046	July 27	2558	603	80	556
Salt-holder for cattle	H. A. Lee	590,458	Sept. 21	1810	426	80	1849
Salt-lick	G. P. Tobias	586,148	July 13	991	223	80	210
Salt solutions. Apparatus for electrolytical decomposition of	C. Kellner	585,959	July 6	566	133	80	110
Salts. Process of and apparatus for electrolyzing fused	J. Boelsterli	589,523	Sept. 7	200	46	80	1520
Sample-plate	O. C. Little	586,386	July 13	1373	316	80	288
Sand-band	J. L. Fressler	588,818	Aug. 24	2743	636	80	1225
Sand-box	F. H. Stuart	587,462	Aug. 3	323	78	80	725
Sand-molding machine	W. Porteous	587,605	Aug. 3	581	140 141	80	772
Sander	T. F. Reilley	588,355	Aug. 17	1896	439	80	1048
Sanding apparatus	E. Picard	585,988	July 6	530	125	80	103
Sandpapering or analogous machine	J. H. Manning	589,006	Aug. 31	3057	720	80	1304
Sash attachment. Window-	G. Gibson	590,645	Sept. 28	2151	509	80	1926
Sash-cord fastener	E. W. Phillips	588,730	Aug. 24	2580	595	80	1195
Sash-cord guide	U. G. McQueen	590,329	Sept. 21	1601	377	80	1811
Sash-fastener	G. V. Cornell	587,682	Aug. 3	701	168	80	796
Sash-fastener	W. E. Hill	590,295	Sept. 21	1419	335	80	1766

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sash-fastener	R. D. Morgan	587,966	Aug. 10	1256	291	80	915
Sash-fastener	G. F. Stansbury and E. W. Smith	587,878	Aug. 10	1068	245	80	879
Sash-fastener	J. Weathers	588,902	Aug. 17	1633	376	80	1000
Sash-holder	G. W. Beck	587,915	Aug. 10	1124	258	80	890
Sash-holder	A. Lowry	589,359	Aug. 31	3819	891	80	1455
Sash-holder	T. Martin	589,261	Aug. 31	3821	892	80	1455
Sash-holder	P. McBride	589,849	Sept. 14	729	170	80	1633
Sash-holder	H. A. Waas	590,797	Sept. 28	2426	576	80	1976
Sash holding or removing device	R. Bohrisch	590,086	Sept. 14	1152	273	80	1711
Sash-lock	R. A. Haegelin	589,553	Sept. 7	409	99	80	1550
Sash-lock	C. T. Redfield	588,473	Aug. 17	2109	491	80	1068
Sash-lock. Adjustable	A. J. Ashley	587,294	Aug. 3	8	2, 3	80	666
Sash-raiser	A. W. Boyte and W. B. Houston	589,691	Sept. 7	472	113	80	1572
Sash. Window-	G. Moore	587,846	Aug. 10	1009	234	80	869
Sausage linking or twisting machine	W. F. Schönland	590,578	Sept. 7	387	68, 69	80	1536
Sausage-stuffer press	J. Finnegan	589,824	Sept. 14	691	160	80	1696
Saw. Crosscut-	S. Hershey	587,817	Aug. 10	948	220	80	859
Saw filing and setting machine	F. J. Stallings	585,891	July 6	437	105 106	80	87
Saw-filing device	G. Morrison	586,506	July 13	1581	369	80	321
Saw. Hack-	G. W. Griffin	589,719	Sept. 7	523	123	80	1581
Saw-handle	H. S. Bloom	585,734	July 6	148	34	80	33
Saw jointer. Circular	G. W. Kunze	586,442	July 13	1470	341	80	301
Saw-machine. Sweep or shaping	A. Waechter	588,201	Aug. 17	1632	376	80	1000
Saw mill. Band-	G. M. Pelton	588,653	Aug. 24	2447	563 564	80	1170
Saw resawing-machines. Feed mechanism for band-	F. McDonough	589,014	Aug. 31	3072	724 725	80	1307
Saw-set	H. Niedhardt	589,267	Aug. 31	3525	827	80	1394
Saw shaping and sharpening device	W. A. Wilcox	590,869	Sept. 28	2545	609	80	2000
Saw-stretching machine	A. Carrier	589,814	Sept. 14	675	157	80	1633
Saw-swage	A. E. White	58, 539	Aug. 3	460	108 109	80	749
Saw-table gage	F. H. Saxton	586,695	July 20	1920	447	80	414
Sawing and grooving machine. Swing	B. G. Luther	589,008	Aug. 31	3054	719	80	1303
Sawing and planing device. Combination	C. S. Coom	589,999	Sept. 7	480	117	80	1575
Sawing-machine. Swing	B. G. Luther	589,004	Aug. 31	3055	719	80	1304
Sawing machine. Wood-	P. Bott, Jr	587,176	July 27	2814	660 661	80	608
Sawing machine. Wood-	L. S. Proctor and F. Neudorff	589,793	Sept. 7	638	148	80	1603
Scaffold	W. H. Gray	588,993	Aug. 31	3014	708 709	80	1296
Scaffolding. Extensible support for	G. J. Rexroth	590,774	Sept. 28	2389	568	80	1969
Scaffolding-jack	A. O. Manning	588,845	Aug. 17	1880	434	80	1045
Scale. Automatic computing-	E. C. and A. U. Smith	586,876	July 20	2208	518 519	80	466
Scale-beam. Computing	W. R. Dunn	586,857	Aug. 24	2806	653	80	1238
Scale. Computing-	W. R. Dunn	588,596	Aug. 17	2300	511	80	1105
Scale. Computing-	J. E. Pitrat	589,365	Aug. 31	3820	888	80	1456
Scale. Controlling and registering	O. Lindemann	587,100	July 27	2632	626	80	574
Scale. Hand-scoop weighing-	W. H. Davidson	590,055	Sept. 14	1063	251	80	1694
Scale-indicator	E. Stebinger	586,631	July 20	1825	434	80	397
Scale-scraping device	W. M. Reed	589,370	Aug. 31	3833	896	80	1457
Scale. Spring-balance computing-	W. A. Hallenbeck	590,543	Sept. 21	1960	463	80	1877
Scale. Spring-balance computing-	F. C. Hoyt	589,612	Sept. 7	332	82	80	1544
Scale. Spring-balance computing-	G. B. and F. C. Hoyt	588,748	Aug. 24	2628	606	80	1205
Scale. Weighing and computing	M. R. Hubbell	586,533	July 20	1677	391	80	370
Scale weighing-machine	D. C. B. Griffith	589,081	Aug. 31	3184	749 750	80	1337
Scenery. Fastening attachment for stage-	C. L. Hagen	586,486	July 13	1543	361	80	314
Scissors	J. W. Jahn	587,968	Aug. 10	1228	285	80	909
Scissors or shears	S. A. Nolen	590,330	Sept. 21	1602	377	80	1811
Scorer. Quadruple	J. T. Robinson, H. J. Chamberlain, and D. M. Smith.	589,577	Sept. 7	280	67, 68	80	1535
Scraper	J. B. Crapp	588,959	Aug. 31	2977	698	80	1288
Scraper	F. Sisson	587,698	Aug. 10	1055	248	80	877
Scraper for removing snow, &c	J. S. Field and W. J. Shedd	589,255	Aug. 31	3510	823 824	80	1391
Scraper. Road-	T. R. McKnight	588,758	Aug. 24	2635	608 609	80	1206
Scraper. Vessel-	N. Gilroy	587,198	July 27	2844	667	80	609
Screen:							
See Fire-screen. Separating-screen. Lamp-screen. Window-screen. Pulp-screen.							
Screw	S. W. English	586,232	July 13	1117	253	80	235
Screw-blank-heading die	H. K. Jones	590,577	Sept. 28	2027	476	80	1904
Screw-cutting machine	A. Green	587,727	Aug. 10	794	187	80	833
Screw-cutting machine	A. Nicoll and S. Lambert	585,849	July 6	368	85, 86	80	73
Screw-cutting tool	F. G. Echols	588,024	Aug. 10	1309	318	80	966
Screw-drill. Differential	P. Mitsch	589,848	Sept. 14	725	170	80	1633
Screw. Jack-	J. W. Evans	587,146	July 27	2760	648	80	564
Screw-machine	H. B. Sargent and A. A. Page	589,143	Aug. 31	3316	779	80	1302
Screw-machine	H. B. Sargent and A. A. Page	589,144	Aug. 31	3318	779 780	80	1303
Screw-machine. Automatic	G. E. Witherell	589,379	Aug. 31	3847	899 900	80	1460
Screw-machine feed mechanism	A. Swasey and H. M. Lucas	585,894	July 6	444	107	80	86
Screw machine. Metal-	S. L. Worsley	586,922	July 20	2318	546 547	80	489
Screw-thread gage	B. E. Sawyer	590,486	Sept. 21	1854	439	80	1857
Screw-wrench	C. Hall	588,738	July 20	1995	464	80	439
Scrubbing and mopping machine	J. Ledwon	588,584	Aug. 24	2899	533 534	80	1142
Sculling and propelling mechanism	D. Morgan	589,974	Sept. 14	946	226	80	1672
Scuttle-cover	W. L. Springer	589,314	Aug. 31	3748	873	80	1441
Scythe-bars, &c. Tool for removing sections from	C. N. Robinson	590,023	Sept. 14	1050	248	80	1698

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scythe heel and fastener	E. E. Wilson	588,257	Aug. 17	1729	397	80	1017
Seal	E. J. Brooks	588,392	Aug. 17	1962	453	80	1061
Seal	L. A. Brown	588,007	July 6	753	168	80	148
Seal and tag	E. J. Brooks	588,100	Aug. 10	1489	334	80	949
Seal. Bottle-	C. W. Davison	588,260	Aug. 17	1752	406	80	1021
Seal. Bottle-	F. S. Grant	587,199	July 27	2344	567	80	610
Seal. Car-	F. H. Heath and J. R. Nagell	588,575	Aug. 24	2268	530	80	1130
Seal. Envelop-	O. Delong and B. F. De Long	590,678	Sept. 28	2716	625	80	1988
Seal-lock	F. W. Leslie	590,395	Sept. 21	1506	376	80	1810
Seal-press. Portable	J. G. Barron	590,716	Sept. 28	2269	530	80	1949
Sealing device. Bottle-	T. J. Parkinson	588,927	Aug. 24	2021	694	80	1260
Sealing device. Bottle-	C. P. Behrens	586,378	July 13	1357	313	80	279
Seam or joint. Sheet-metal	L. Kalling	590,578	Sept. 28	2029	476	80	1904
Seat:	G. M. Gross	586,656	July 20	1663	433	80	408
See Operator's seat. Vehicle-seat. Spring-seat.							
Seat or bench	S. K. Helmer	589,529	Sept. 7	205	48	80	1321
Secondary battery	M. de Contades	590,980	Sept. 28	2029	633	80	2029
Secondary battery	G. Hart	590,151	Sept. 14	1287	305	80	1737
Secondary battery	H. W. Headland	589,880	Sept. 14	702	164 165	80	1629
Secondary battery	I. Samuels	585,853	July 6	374	87	80	74
Sectional safety-boiler	J. F. Allen	590,298	Sept. 21	1529	362	80	1796
Seed-delinting machine. Cotton-	W. A. Ragsdale	589,857	Sept. 14	740	173	80	1635
Seed-distributer	W. Taylor	588,367	Aug. 17	1914	443	80	1052
Seed-drill and cultivator	F. M. Wallace	589,879	Sept. 14	776	444 180	80	1641
Seed-drill disk-shoe	W. Stephenson	588,027	Aug. 10	1819	181 305	80	927
Seed-dropping attachment	W. N. Rook	586,457	July 13	1494	306 350	80	304
Seed mill. Cotton-	W. A. Brown	587,641	Aug. 3	635	153	80	782
Seeds. Apparatus for treating oleaginous	A. Euston	587,902	Aug. 10	917	213	80	854
Seeder	I. Irigoyen	587,508	Aug. 3	397	93, 94	80	736
Seeding-machine	L. M. Jones and W. F. Johnston	590,154	Sept. 14	1290	306	80	1738
Seeding-machine furrow-opening device	F. R. Packham	586,107	July 13	925	207	80	198
Self-feeding furnace	T. Murphy	587,678	Aug. 3	692	166	80	794
Seltzogene	D. McAllister	590,589	Sept. 28	2033	480	80	1905
Separating and husking rollers	A. Rosenthal	588,184	Aug. 17	1609	370	80	995
Separating-machine	O. M. Morse	587,990	Aug. 10	1969	291 292	80	916
Separating-screen	T. H. Edmonds	586,724	July 20	1965	458	80	423
Separator: *See* Centrifugal separator. Cream-separator. Gold-separator. Grain-separator. Ore-separator. Steam-separator.							
Sewage. Purifying	W. E. Adeney and W. K. Parry	589,460	Sept. 7	96		80	1500
Sewed articles. Overseam for	R. L. Plumley	585,989	July 6	531	125	80	108
Sewing looped fabrics. Machine for	S. Henshall	586,518	July 13	1609	375	80	327
Sewing looped fabrics. Machine for	J. G. Powell	589,511	Sept. 7	173	38 39 40	80	1515
Sewing-machine	W. M. Ammerman and E. J. Toof	587,908	Aug. 10	1111	256	80	887
Sewing-machine	F. O. Jerram	590,683	Sept. 28	2294	587	80	1989
Sewing-machine	W. N. Parkes	589,979	Sept. 14	955	228 229	80	1674
Sewing-machine	E. J. Toof	587,620	Aug. 3	608	145 146	80	776
Sewing-machine attachment	J. Tripp	585,724	July 6	194	30	80	27
Sewing-machine attachment	W. J. Dix	590,091	Sept. 14	1161	274	80	1713
Sewing-machine attachment	J. H. Gaskins	588,677	Aug. 24	2493	575	80	1179
Sewing-machine attachment	W. A. Scott	586,872	July 20	2202	516	80	467
Sewing-machine-attachment holder	A. H. Williams	587,258	July 27	2043	692	80	629
Sewing-machine binders. Tension device for	J. M. Greist	587,258	July 27	2055	694	80	631
Sewing-machine binding attachment	F. W. Coan and W. S. Eaton	587,707	Aug. 10	760	179	80	827
Sewing-machine braiding attachment	P. Schoen	588,019	Aug. 10	1707	303	80	995
Sewing-machine brake	M. E. Tynes	589,764	Sept. 7	598	137	80	1504
Sewing machine. Buttonhole-	T. A. Teate	586,576	July 20	1725	402	80	378
Sewing-machine buttonhole attachment	F. F. Raymond, 2d	588,353	Aug. 17	1890	437 438 439 440	80	1047
Sewing-machine clutch	E. J. Toof	590,444	Sept. 21	1790	421	80	1845
Sewing-machine fan attachment	J. Higham	588,275	Aug. 17	1759	407	80	1023
Sewing-machine feeding device	L. E. Fisher	589,706	Sept. 7	497	119	80	1577
Sewing-machine feeding device	F. W. Coan and W. S. Eaton	587,706	Aug. 10	759	178	80	827
Sewing-machine for lasting boots or shoes	F. W. Coan and W. S. Eaton	590,132	Sept. 14	1248	296	80	1729
Sewing-machine lamp attachment	T. K. Keith	585,675	July 6	46	11, 12	80	11
Sewing-machine needle-guard	H. Loeffler	586,340	July 13	1301	298	80	268
Sewing-machine presser-foot and embroidering attachment.	W. B. Davis	586,888	July 20	2151	502	80	457
	A. Raussen	587,223	July 27	2915	683	80	695
Sewing-machine presser-foot-lifting mechanism	F. W. Merrick	590,796	Sept. 28	2299	543 544	80	1952
Sewing-machine ripping attachment	J. R. Scott and G. W. Spink	586,229	July 13	1210	276	80	251
Sewing-machine ripping attachment	C. H. Stuart	587,615	Aug. 3	596	144	80	775
Sewing-machine ruffler	J. M. Greist	587,257	July 27	2053	694	80	631
Sewing machine. Shoe-	F. L. Alley and E. E. Winkley	587,778	Aug. 10	874	205 206 198 199 200 201	80	848
Sewing machine. Shoe-	A. H. Prenzel	589,908	Sept. 14	889	215 217	80	1652
Sewing machine. Shoe-	A. H. Prenzel	589,949	Sept. 14	902	215 217	80	1664

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine spool-support	H. L. Webster	589,053	Aug. 31	3134	735	80	1316
Sewing-machine table or cabinet	T. Kundtz	586,798	Aug. 24	2701	635	80	1319
Sewing-machine table or cabinet	T. Kundtz	590,417	Sept. 21	1746	410	80	1887
Sewing-machine thread-cutting mechanism	A. H. Kinder	588,153	Aug. 17	1556	358 359	80	985
Sewing-machine tuck-marking attachment	E. J. Toof	590,350	Sept. 21	1637	386	80	1818
Sewing-machine. Wax-thread	J. E. Bertrand	589,408	Sept. 7	4	1, 2	80	1453
Sewing-machines. Friction driving-pulley for	G. H. Dimond and W. A. Dial	588,983	Aug. 31	2984	701	80	1290
Sewing or other machines. Operating mechanism for	M. Freedman	588,973	Aug. 31	3003	705	80	1296
Sewing sweat-bands in hats. Machine for	C. Necker	585,874	July 6	406	96, 97	80	81
Shade and curtain holding device	P. Vincent	585,991	July 6	723	162	80	142
Shade attachment. Window-	E. J. Clayton	586,722	July 20	1961	457	80	422
Shade-bracket holder	P. Augusto	590,508	Sept. 21	1890	449	80	1884
Shade. Door-	R. H. Fishbaugh	586,656	July 20	1951	453	80	406
Shade-holder	M. D. Greengard	588,570	Aug. 24	2278	529	80	1137
Shade-holder	M. D. Greengard	588,571	Aug. 24	2280	529	80	1138
Shade-holder	M. D. Greengard	588,984	Aug. 31	3016	709	80	1296
Shade-roller support	A. F. Wahlberg	588,710	Aug. 24	2546	590	80	1189
Shade rollers. Holder or support for window-	B. A. Slocum	586,696	July 20	1923	448	80	415
Shades. Adjustable support for window-	W. H. Bisbee	587,276	July 27	2994	702	80	639
Shaft and sprocket-wheel connection therefor. Crank-	W. Charters	590,490	Sept. 21	1769	415	80	1841
Shaft coupling. Driving-	H. A. House	590,616	Sept. 28	2028	495	80	1945
Shaft-support	A. M. Tippit	590,174	Sept. 14	1317	313	80	1743
Shaft. Variable-speed counter-	M. O. Reeves and E. K. Hood	588,354	Aug. 17	1805	428 429	80	1048
Shafts. Means for supporting rotating	W. Stanley and F. Darlington	588,666	Aug. 24	2473	569	80	1175
Shaping or treeing machine	B. J. Noyes	589,744	Sept. 7	554	131	80	1588
Sharpener and burnisher. Knife	R. Loeb	586,361	July 13	1332	305	80	274
Sharpener. Knife-	J. Paquet	590,694	Sept. 28	2106	499	80	1918
Sharpener. Scissors-	J. P. Sollers	589,626	Sept. 7	367	90	80	1551
Sharpener. Shears-	A. L. Smith	585,942	July 6	535	126	80	104
Sharpening wheat-grinding rolls. Machine for	T. W. Smith	588,496	Aug. 17	2148	499	80	1095
Shawl-strap and luggage-carrier	E. A. Lefebre, Jr	586,048	July 6	812	189	80	159
Shears: *See* Pruning-shears. Rotary shears.							
Shears-bolt	E. W. Scales	586,067	July 6	843	188	80	165
Shearing-machine	G. Guild and C. A. Bertsch	590,041	Sept. 14	1069	252 253	80	1695
Shearing-machine	F. J. Roth and C. A. Bertsch	590,049	Sept. 14	1083	256	80	1698
Sheave	J. A. Clark	589,560	Sept. 7	251	60	80	1529
Sheet carrying and piling or feeding mechanism	R. Miehle	586,078	July 6	854	190 191	80	167
Sheet-metal can	F. Westerbeck	590,029	Sept. 14	1056	249	80	1693
Sheet-metal can	J. Zimmerman	586,336	July 13	1272	290	80	263
Sheet-metal pipe	C. S. Hamlin	586,179	July 13	1088	234	80	218
Sheet-metal press	C. C. McNutt, Jr	585,923	July 6	499	120	80	98
Sheet-metal vessels. Machine for operating on	E. P. Holden	586,061	July 20	1866	434 435	80	404
Sheet-metal-working machine	N. James and F. Rust	588,436	Aug. 17	2040	474 475 480	80	1075
Sheet separating and feeding machine. Pneumatic	G. F. Leiger	588,451	Aug. 17	2061	481 482	80	1079
Shelf	G. M. Welker	588,519	Aug. 17	2186	508	80	1103
Shelf-bracket	F. Lombard and W. L. Maynard	587,101	July 27	2654	626	80	574
Shelving. Portable	L. C. Tabb	589,318	Aug. 31	3754	875	80	1442
Sheller: *See* Corn-sheller.							
Shingle. Metallic	L. H. Montross	588,161	Aug. 17	1568	361	80	988
Shingle-sawing machine	E. H. Kriger	587,215	July 27	2872	674	80	616
Shingling-stool	W. H. Allen	590,872	Sept. 28	2350	609	80	2001
Ship	E. Modersitzki	587,286	July 27	3007	704 705	80	641
Ship-cleaning device. Electrically-operated	E. T. Thomas	588,983	Aug. 24	2930	685	80	1262
Ship construction	J. Haug	586,436	July 13	1464	339	80	299
Ships. Ammunition-hoist for	W. Rhodes	587,330	Aug. 3	88	21 22 23	80	662
Ship's form	O. Hartwich	590,101	Sept. 14	1179	278	80	1717
Ship's-port ventilator	D. R. Rose	588,480	Aug. 17	2118	492	80	1089
Shirt	G. D. Eighmie	586,425	July 13	1447	335	80	295
Shirt	G. D. Eighmie	586,426	July 13	1448	335	80	295
Shirt	G. D. Eighmie	586,427	July 13	1449	335	80	295
Shirt	G. D. Eighmie	589,777	Sept. 7	608	141	80	1598
Shirt-bosom	E. Stern	589,778	Sept. 7	608	142	80	1598
Shoe	D. B. Closson	589,919	Sept. 14	853	208	80	1654
Shoe	J. E. Kennedy	587,705	Aug. 10	758	178	80	826
Shoe	A. Leach	588,769	Aug. 24	2657	613	80	1310
Shoe	L. F. Norman and E. E. Bennett	590,580	Sept. 28	2030	479	80	1904
Shoe	F. C. Wolfe	586,452	July 13	1484	346	80	303
Shoe attachment	E. T. Gilbert	586,325	July 13	1270	290	80	262
Shoe attachment	H. W. Shephard	588,977	Aug. 31	3000	706	80	1294
Shoe-fastening	E. Föhn	587,335	Aug. 3	99	25	80	634
Shoe-horn	W. H. Lewis	589,063	Aug. 10	1408	327	80	943
Shoe-linings. Machine for marking	L. T. Adams	588,156	Aug. 17	1562	360	80	986
Shoe-nail	C. F. Roth	588,706	Aug. 24	2690	630	80	1315
Shoe. Rider's	J. B. Rathbun	588,996	July 20	2345	553	80	494
Shoe. Sanitary	C. F. Medger	589,443	Sept. 7	73	16	80	1495
Shoe-stretchers. Expansible cover for	J. Herbst	588,137	July 13	979	220	80	208
Shoulder-brace	E. Flicek	587,965	Aug. 10	1223	264	80	909
Shovel: *See* Steam-shovel.		588,842	July 20	2157	504	80	458
Show-case. Plate-glass	A. Moorman	588,647	Aug. 24	2435	560	80	1166

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shower. Overhead	W. and J. Boekel	588,262	Aug. 17	1737	399	80	1019
Shutter bower and fastener	D. M. Stauffer	589,039	Aug. 31	3116	733	80	1315
Shutter bower and lock	I. Forster	586,172	July 13	1080	232	80	217
Shutter-fastener	E. Axthelm	588,375	Aug. 17	1928	447	80	1054
Shutter fastener. Window-	C. F. Moyer	588,463	Aug. 17	2065	486	80	1083
Shutter-worker	A. Lagarigne	585,847	July 6	366	84	80	73
Sickle	J. C. H. Vaught	588,843	Aug. 24	2787	647	80	1334
Sieve. Ash-	M. W. Hill	588,335	Aug. 17	1867	431	80	1042
Sifter. Ash-	J. B. Goesman	588,980	Aug. 31	3011	708	80	1295
Sifter. Ash-	A. Haenichen	586,745	Aug. 24	2021	004	80	1203
Sifter. Ash-	R. Lehmann	589,841	Sept. 14	716	168	80	1632
Sifter. Flour-	S. K. Ogden	586,106	July 13	922	207	80	197
Sifting attachment for ash-chutes	T. Connor	587,962	Aug. 10	1153	267	80	895
Sifting-machine	W. Bunge	589,929	Sept. 14	875	208	80	1658
Sifting machines. Cut-off conveyer for flour-	T. C. Pease	588,468	Aug. 17	2008	486 / 489	80	1085
Signal: *See* Car-signal. Railway-crossing danger-signal. Danger-signal. Pyrotechnic signal. Telephone-switchboard signal. Railway-signal. Railway-crossing signal.							
Signal-box	A. C. Robbins	589,617	Sept. 7	304	86	80	1549
Signal-box. Electric	A. T. Whittlesey and F. B. Dodge	587,565	Aug. 3	500	119 / 120	80	757
Signal mechanism	J. P. Coleman	590,299	Sept. 21	1543	365	80	1799
Signal-receiving apparatus	W. F. Banks	587,693	Aug. 10	718	171 / 172	80	818
Signal system. Municipal	H. F. Eaton	588,965	Aug. 31	2967	702	80	1290
Signals. Compensating attachment for semaphore-	A. E. Eckert	587,145	July 27	2758	647	80	598
Signals on locomotives. Arrangement for notifying and recording way-	G. D. Puyvallée and J. A. Meunier	589,272	Aug. 31	3030	629	80	1395
Signals. Transmitting electrical	G. Marconi	586,193	July 13	1058	230	80	222
Signaling	J. B. Struble	590,000	Sept. 28	3066	459	80	1910
Signaling apparatus	J. P. Coleman	590,300	Sept. 21	1546	366	80	1799
Signaling apparatus	J. P. Coleman	590,301	Sept. 21	1549	367	80	1800
Signaling apparatus	J. P. Coleman	590,302	Sept. 21	1552	368	80	1800
Signaling apparatus	J. P. Coleman	590,303	Sept. 21	1554	368 / 369	80	1801
Signaling apparatus and circuit. Electric	E. H. Owen, C. N. Williams, and F. H. Donaldson.	589,746	Sept. 7	560	132	80	1589
Signaling apparatus. Electric	M. Du Perow	587,433	Aug. 3	262	64	80	715
Signaling apparatus. Electrical	A. A. Andersen	586,891	July 20	2251	528	80	476
Signaling. Electric	S. de Jager	590,398	Sept. 21	1708	402 / 403	80	1831
Silk or thread package	J. P. Fraley	586,121	July 13	947	214	80	202
Singletree coupling-clamp	W. Rodenhausen	585,987	July 6	719	161	80	142
Singletree-hook	I. Burgett	588,126	Aug. 17	1592	345	80	975
Sink	G. L. Ferdig	589,648	Sept. 7	402	98	80	1558
Sink draining-board and support	J. Foran	587,949	Aug. 10	1199	277	80	904
Siphon. Beer-	W. Krüger	586,190	July 13	1054	238	80	221
Siphon. Preserving-	H. Levi	587,099	July 27	2651	625	80	574
Skate	J. R. Harrison	585,866	July 6	302	91	80	78
Skate	H. and P. Thielscher	587,708	Aug. 10	859	202 / 203	80	845
Skate ankle-brace	C. Engberg	589,253	Aug. 31	3507	823	80	1390
Sketching case. Rapid-field-	M. A. Batson	590,696	Sept. 28	2242	531	80	1942
Skin-opening machine	C. E. Sackett	589,444	Sept. 7	74	16, 17	80	1495
Skim-press	R. Ruetschi	590,116	Sept. 14	1220	296 / 297	80	1723
Skirt	M. C. Hartman	586,033	July 6	794	177	80	156
Skirt lifter. Dress-	E. Manning	586,446	July 13	1475	343	80	302
Skirts, belts, and waists. Fastening device for	I. L. Oldham	587,449	Aug. 3	299	73	80	721
Skiving-machine	B. F. Dunham	586,308	July 13	1231	281	80	255
Skiving-machine	J. N. Moulton	590,984	Sept. 28	3060	634	80	2063
Skylight	F. C. Soper	586,250	July 13	1149	263	80	239
Slate	R. T. Patton	586,913	July 20	2303	542	80	486
Slate-sprinkler	L. F. Polley	588,731	Aug. 24	2681	595	80	1195
Sled. Bob-	L. Wiley	589,057	Aug. 31	3130	750	80	1319
Sled. Hand-	J. Wale	586,644	July 20	1840	429	80	401
Sled-propeller	C. F. Wagoner	589,487	Sept. 7	137	31	80	1507
Sleigh-runner. Attachable	J. E. Hobbs and B. M. Wentworth	586,848	July 20	2167	507	80	459
Slicer	J. E. and H. R. Stuart	589,514	Sept. 7	183	41, 42	80	1516
Slotting-machine	W. T. Smith and B. Walmsley	590,343	Sept. 21	1618	382	80	1814
Smelting and refining furnace	M. L. Trapp	587,622	Aug. 3	609	147	80	777
Smelting and refining furnace. Reverberatory	B. Hall	589,210	Aug. 31	3413	800 / 801	80	1370
Smelting-furnace	J. D. McDonald	586,910	July 20	2296	540	80	485
Smelting galena	C. V. Petraeus	588,289	Aug. 17	1783	.....	80	1027
Smocking. Machine for making	J. G. Blount and F. P. Robinson	588,099	Aug. 10	1437	333 / 334	80	948
Smoke-clearing apparatus	E. E. Dulier	590,516	Sept. 21	1911	452	80	1869
Smoke-consumer	J. A. Crawford	586,477	July 13	1530	358	80	311
Smoke-consuming apparatus	A. A. Freeland	589,169	Aug. 31	3351	798	80	1359
Smoke-consuming device	W. L. Denio	588,405	Aug. 17	1987	460 / 461	80	1065
Smoke-stack	G. M. Pierce	588,351	Aug. 17	1868	436	80	1046
Snap-hook	T. A. Lueders	590,988	Sept. 28	2659	634	80	2063
Snap-hook	H. Olson	590,623	Sept. 28	2107	499	80	1918
Snap-hook	P. J. Rock	586,397	July 13	1305	321	80	266
Snap-hook	W. H. Sharp	590,913	Sept. 28	2019	625	80	2015
Snow melting and removing apparatus	P. R. Hansbury	586,124	July 13	951	214	80	203
Snow-plow	H. V. Guertin	590,992	Sept. 28	2657	633	80	2062
Snow plow, shovel, and sweeper. Combined	J. A. Stauffer	588,363	Aug. 17	1900	442	80	1051
Soap	E. S. Boynton	586,231	July 13	1116	.....	80	235
Soldering-iron	W. Mitchell	585,688	July 6	67	16	80	10

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Soldering-iron. Self-heating	C. Holmberg	589,970	Sept. 14	940	224	80	1671
Soldering machine. Can-	N. M. Bain	588,808	Aug. 24	2784	633	80	1323
Sole	I. E. Booth	590,564	Sept. 28	2007	478	80	1900
Sole cutting-out machine. Boot or shoe	J. J. Breach	589,409	Sept. 7	14	4, 5, 6	80	1495
Sole indenting machine. Boot or shoe	W. Gordon	588,978	Aug. 31	3007	707	80	1294
Sole. Pneumatic shoe-	J. F. Bascom	586,155	July 13	1004	227	80	218
Sole. Shoe-	J. E. Kennedy	588,768	Aug. 24	2656	612	80	1310
Sower. Hand seed-	G. L. Gerhard	589,386	Aug. 31	3067	902	80	1463
Sowing machine. Seed-	J. M. Rickey	587,374	Aug. 3	164	40	80	696
Spacing mechanism	W. Lewis and J. T. Ramsden	588,799	Aug. 24	2708	625 / 626	80	1319
Spanner. Adjustable	R. Stocker	588,365	Aug. 17	1912	443	80	1051
Spark-arrester	R. Briggs	587,425	Aug. 3	245	60	80	712
Spark-arrester	B. Minnesheimer	589,213	Aug. 31	3417	801 / 802	80	1371
Spark-arrester	J. H. Swartzbaugh	588,096	Aug. 10	1431	333	80	947
Spark-deflector for smoke-stacks	W. Abbott and D. E. Hughes	590,012	Sept. 14	1034	243	80	1669
Sparrow-guard	G. B. Durfee	588,133	Aug. 17	1525	349	80	980
Spectacle-case	J. H. Hammer	586,816	July 20	2116	494	80	450
Spectacle-case	R. L. Warren	589,676	Sept. 7	449	107	80	1567
Spectacle-frame	H. E. Kirstein	589,437	Sept. 7	64	14	80	1493
Spectacles	J. P. Orr	586,074	July 6	859	191	80	166
Speed-changing mechanism for lathes, drills, or similar machines.	J. E. Smith	586,298	July 13	1211	276	80	251
Speed-governor attachment	N. Lombard	587,675	Aug. 3	698	165	80	793
Speed-indicating and distance-measuring mechanism.	E. G. Dorchester	587,302	Aug. 3	37	7, 8, 9	80	672
Speed-indicating bell	J. Clements	586,544	July 20	1661	388	80	366
Speed-indicator	A. L. Parcelle	586,318	July 13	1258	288	80	261
Speed-indicator	W. S. Scales	588,931	Aug. 24	2925	685	80	1361
Speed-indicator and cyclometer. Combined	W. H. Ostrander	590,670	Sept. 7	437	105	80	1545
Speed-indicator and holder therefor	J. E. Lonergan	587,530	Aug. 3	443	104	80	746
Speed-indicator. Recording	E. P. Decker	586,961	July 27	2400	566	80	526
Speed-recorder	W. J. Smith	589,248	Aug. 17	1713	398	80	1015
Speed-regulator for motors	T. H. Macdonald	587,265	July 27	2968	696	80	634
Speed-varying mechanism	M. O. Reeves and E. K. Hood	587,408	Aug. 3	200	53	80	705
Spindle: *See* Magneto-spindle.							
Spindle	A. Gartner	586,789	July 20	2072	482	80	442
Spindle	A. Gartner	586,791	July 20	2074	483	80	443
Spindle	A. Gartner	590,260	Sept. 21	1473	347	80	1786
Spindle	C. Scheid	590,377	Sept. 21	1677	395	80	1894
Spindle	C. Scheid	590,378	Sept. 21	1678	395	80	1895
Spindle	C. Scheid	590,379	Sept. 21	1679	395	80	1895
Spindle	C. Scheid	590,380	Sept. 21	1680	396	80	1895
Spindle	A. Scheid	590,381	Sept. 21	1681	396	80	1895
Spindle	A. Scheid	590,382	Sept. 21	1682	396	80	1895
Spindle and bolster	W. H. Dunkerley	590,087	Sept. 14	1065	251	80	1694
Spindle-bearing	J. Kilburn	590,314	Sept. 21	1576	373	80	1806
Spindle-bearing	J. Kilburn	590,315	Sept. 21	1577	373	80	1806
Spindle-bearing	J. Kilburn	590,317	Sept. 21	1582	373	80	1807
Spindle-bearing	J. Kilburn	590,318	Sept. 21	1584	374	80	1808
Spindle-bearing	J. Kilburn	590,319	Sept. 21	1587	374	80	1808
Spindle-bearing	J. Kilburn	590,320	Sept. 21	1589	374	80	1809
Spindle-bearing	J. Kilburn	590,322	Sept. 21	1593	375	80	1809
Spindle-bearing	J. Kilburn	590,323	Sept. 21	1595	375	80	1810
Spindle-driving mechanism	W. T. Noah	588,235	Aug. 17	1682	387	80	1009
Spindle-support	J. Kilburn	590,316	Sept. 21	1580	373	80	1807
Spindle-support	J. Kilburn	590,321	Sept. 21	1591	374 / 375	80	1809
Spinning-frame	J. C. Judge	589,176	Aug. 31	3364	790	80	1361
Spinning-frames. Lever-screw for	S. M. Hamblin	588,273	Aug. 17	1757	407	80	1023
Spinning-machine yarn-separator	A. D. Chandler	589,982	Sept. 14	879	209 / 210	80	1659
Spinning or twisting and drawing machine	R. Dawes	587,650	Aug. 3	648	155	80	785
Spinning-ring	G. O. Draper	588,617	Aug. 24	2742	636	80	1225
Spinning-spindle support and driving mechanism	S. L. Wiegand	589,994	Sept. 14	995	234	80	1679
Spinning-spindle support and driving mechanism	S. L. Wiegand	589,995	Sept. 14	996	235	80	1679
Spittoon	J. W. Kron	586,189	July 13	1054	237	80	221
Spittoon	J. Soltwedel and E. Mathias	586,207	July 13	1068	245	80	229
Spoke. Vehicle-	E. Brulé	586,542	July 20	1660	387	80	366
Spokes to vehicle-wheels. Means for fastening	A. P. Morrow	586,138	July 13	980	220	80	208
Spool-holder	G. H. Bliss, Jr.	590,876	Sept. 28	2658	616	80	2003
Spraying apparatus	A. G. Browning	590,128	Sept. 14	1242	294	80	1737
Spraying apparatus. Liquid-	H. J. Schulte	587,602	Aug. 3	668	159	80	789
Spraying-machine	J. Buckley	590,537	Sept. 21	1947	461	80	1875
Spring bar. Bolster-	J. F. Bickel	588,214	Aug. 17	1647	379	80	1002
Spring-rollers. Apparatus for making helical	J. W. Hyatt	587,582	Aug. 3	541	129 / 130	80	765
Spring: *See* Adjustable spring. Elliptic spring. Door-spring. Velocipede-spring.							
Spring-bar and body-loop. Combined	M. J. McNamara and C. Gussett	590,787	Sept. 28	2378	564	80	1967
Spring-motor	P. A. Tarbox	590,533	Sept. 21	1940	459	80	1873
Spring-seat	J. Compin	586,857	July 20	2150	502	80	456
Sprinkler: *See* Lawn-sprinkler. Slate-sprinkler.							
Sprocket-wheel	D. J. Sheldrick	585,710	July 6	95	24	80	23
Sprocket wheel and chain	M. J. Ribyn, Jr	590,649	Sept. 28	2156	510	80	1927
Square	S. G. Edwards	590,215	Sept. 21	1404	331	80	1773
Square. Carpenter's	F. F. Norden	590,739	Sept. 28	2308	544	80	1953
Square. T-	M. B. Templin	587,021	July 27	2510	591	80	547
Square. Try and center	G. W. Reed	587,458	Aug. 3	308	74	80	788
Stacker. Pneumatic straw-	J. J. Green	588,983	Aug. 31	3017	709	80	1296
Stacker. Pneumatic straw-	C. C. Hiers	589,125	Aug. 31	3285	772 / 773	80	1345

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stacker. Pneumatic straw-	E. Huber and J. W. Miller	586,728	July 20	1971	459	80	494
Stacker. Pneumatic straw-	L. D. Parmley	589,853	Sept. 14	735	171	80	1634
Stacker. Pneumatic straw-	F. Stanley	589,146	Aug. 31	3321	780	80	1353
Stacker. Straw-	W. A. Hinkle	588,910	Aug. 24	2894	677	80	1264
Stackers. Blower for pneumatic straw-	S. H., D., and P. A. Garst	588,416	Aug. 17	3006	465	80	1068
Stairs. Molding for edges of	C. E. Knapp	586,739	July 20	1997	464	80	499
Stamp-affixer	W. Forward	590,570	Sept. 28	3015	475	80	1902
Stamp-affixing machine	W. A. Carney	590,894	Sept. 28	3467	585	80	1935
Stamp-affixing machine	S. Tousey and E. De Long	587,621	Aug. 3	605	146	80	776
Stamp-affixing machine. Postage-	W. Forward	590,569	Sept. 28	3013	474	80	1901
Stamp. Hand-	C. W. Martin	589,007	Aug. 31	3060	731	80	1304
Stamp-holder	V. B. Putnam	585,700	July 6	88	21	80	19
Stamp-mill	G. M. Ross	588,806	Aug. 24	2729	632	80	1221
Stamp-mill. Ore	W. W. Edwards	587,890	Aug. 3	187	47	80	701
Stamp. Mucilage-	W. E. Gibbs	587,736	Aug. 10	798	186	80	833
Stamp. Rotary hand-	A. C. Adler	587,253	July 27	2945	698	80	630
Stamping apparatus for tickets. Date and time	C. C. Van der Valk	588,668	Aug. 24	2477	570, 571	80	1176
Stand: *See* Bicycle-stand. Washtub-stand. Waiting-stand.							
Stand and ironing-table. Combined	W. H. Dana	586,806	July 13	1228	280, 281	80	265
Stand-boiler	F. V. Winters	589,455	Sept. 7	89	20	80	1498
Stand-boiler for stoves or ranges	F. V. Winters	589,454	Sept. 7	88	19	80	1498
Stand or range boiler	F. V. Winters	589,456	Sept. 7	91	20	80	1499
Staple-fastener	A. H. Swett	589,584	Sept. 7	300	72	80	1536
Stapling into boxes. Apparatus for forming and driving	E. Williams	589,058	Aug. 31	3140	739, 740	80	1290
Stapling-machine	L. S. Burridge	586,515	July 13	1595	372	80	394
Starching-machine	E. Hamilton	590,681	Sept. 28	2920	595	80	1909
Starting-gate	B. E. Harris	587,285	July 27	3006	704	80	641
State-room for vessels	E. L. Hazard	587,469	Aug. 3	357	85	80	731
Static machine	C. H. Myers and H. C. Rose	589,742	Sept. 7	558	130, 131	80	1567
Station-indicator	S. P. Bentley	589,522	Sept. 7	198	45, 46	80	1519
Station-indicator	G. A. Hunt and W. C. Trussell	586,087	July 6	884	200	80	172
Station-indicator	E. Polhamus and W. S. Myers	588,835	Aug. 24	2772	643	80	1231
Station-indicator	G. S. Weaver	590,176	Sept. 14	1320	313, 314	80	1744
Station-indicator for tramway or other cars	H. W. Langschmidt and R. F. Le Brocq.	588,701	Aug. 24	2529	584, 585	80	1185
Stave-forming device	T. J. Sullivan	589,759	Sept. 7	579	135, 136	80	1598
Stay. Dress-	A. Trisdorfer	586,828	July 20	2136	499	80	454
Steam and hot-water boiler	A. Catchpole	588,952	Aug. 31	2965	694, 695	80	1236
Steam-boiler	S. Alley	587,667	Aug. 3	673	160, 161	80	790
Steam-boiler	W. C. Baker	590,471	Sept. 21	1890	492, 493	80	1858
Steam-boiler	J. B. Fleming	586,431	July 13	1456	337	80	207
Steam-boiler	C. C. Parsons	590,905	Sept. 28	2908	622	80	2018
Steam-boiler	J. H. Peck	590,073	Sept. 14	1126	266	80	1705
Steam-boiler	L. E. Solignac	589,227	Aug. 31	3436	806	80	1375
Steam-boiler	W. C. Stuckel	586,879	July 20	2213	520	80	460
Steam-boiler	P. Trettin	585,723	July 6	122	29, 30	80	27
Steam-boiler	J. F. Wakefield	586,677	July 20	1891	440	80	409
Steam-boiler. Water-tube	A. S. Krotz	585,680	July 6	55	13	80	13
Steam-dome	S. M. Vauclain	590,867	Sept. 28	3542	607	80	1999
Steam-engine	C. N. Dutton	586,812	July 20	2110	488	80	446
Steam-engine	W. T. Girling	590,755	Sept. 28	3346	556	80	1961
Steam-engine	P. Mundt	587,595	Aug. 3	563	135	80	760
Steam-engine	L. Serpollet	587,760	Aug. 10	846	198, 199	80	843
Steam-engine	M. L. Severy	590,861	Sept. 28	2527	603, 604	80	1906
Steam-engine	M. L. Severy	590,863	Sept. 28	2534	604, 605	80	1907
Steam-engine	C. F. Sparks	586,877	July 20	2209	519	80	468
Steam-engine and steam-generator. Combined	W. Schmidt	585,705	July 6	87	22, 23	80	20
Steam-engine. Oscillating	W. H. Stuckey and C. J. Heuberger	586,069	July 6	845	189	80	165
Steam-generator	L. M. G. Delaunay-Belleville	590,829	Sept. 28	2474	587	80	1903
Steam-generator	V. H. Ernst	587,683	Aug. 3	702	168	80	796
Steam-generator	A. G. Hohenstein	587,148	July 27	2702	648, 649	80	594
Steam-generator	J. A., F. E., and M. E. Normand	588,464	Aug. 17	2086	486, 487	80	1084
Steam-generator	C. W. Siddle and R. Field	587,875	Aug. 3	165	40, 41	80	696
Steam-generators. Pneumatic attachment for cleaning	W. D. Hoxie	585,956	July 6	502	131, 132	80	109
Steam-generators. Water-return system for	E. P. Holly	587,290	July 27	3014	706	80	643
Steam-generators. Water-return system for	E. P. Holly	587,291	July 27	3018	706	80	643
Steam-separator	G. I. Roberts	587,560	Aug. 3	491	116	80	756
Steam-shovel	J. Campbell	586,008	July 13	908	208	80	194
Steam-trap	F. Lamplough	590,895	Sept. 28	2594	619	80	2010
Steam-trap	J. Spitzmiller	590,866	Sept. 28	2541	606	80	1999
Steamer and heater. Wheat	F. Amendt	586,111	July 13	933	209	80	199
Steamer. Grace-	M. E. Harris	588,989	Aug. 31	3026	711	80	1295
Steamer. Grain-	E. T. Butler	589,334	Aug. 31	3777	880	80	1447
Steamer. Wheat-	J. D. Nagel	588,079	Aug. 10	1402	326	80	948
Steel. Hard body for rifling chromated	F. Chaplet	589,161	Aug. 31	3341	765	80	1357
Steel ingots. Manufacture of	N. McConnell	587,105	July 27	2660		80	576
Steel. Manufacturing	F. B. Last and J. R. Wright	586,047	July 6	811	181	80	158
Stentering-machine regulator	W. Mather and D. P. Smith	586,051	July 6	816	182	80	159
Steering apparatus. Steam	B. Boling	590,536	Sept. 21	1944	460	80	1874

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steering-gear. Fluid-pressure	C. E. Bergman	588,946	Aug. 31	2952	691, 692	80	1263
Stereopticons. Dissolving-key for	O. A. Hillard	588,429	Aug. 17	2027	471	80	1073
Stereoscope	H. C. White	589,055	Aug. 31	3157	739	80	1319
Stereoscope-frame	H. S. Walbridge	590,922	Sept. 28	2931	628	80	2016
Sterilizer. Liquid-	J. C. Nielsen	587,851	Aug. 10	1016	236	80	870
Stick or umbrella holder	H. de Soto	588,498	Aug. 17	2152	499	80	1095
Stiffening fabric. Woven	E. K. Warren	588,301	Aug. 17	1813	418	80	1038
Stiffening fabric. Woven	E. K. Warren	588,302	Aug. 17	1814	418	80	1038
Stock and die	G. G. Doyle	589,645	Sept. 7	400	97	80	1538
Stock distributing and collecting apparatus	M. M. Suppes	590,467	Sept. 21	1825	431	80	1852
Stock-fountain	J. W. Herron	590,615	Sept. 28	2091	495	80	1915
Stock-guard	J. M. Lee	588,868	Aug. 24	2827	657	80	1242
Stocking-folding apparatus	D. Worrall	587,854	Aug. 3	134	32	80	690
Stoker for furnaces. Mechanical	N. S. Beebe and A. A. Bourgeois	586,265	July 13	1171	268	80	244
Stoking apparatus for steam-boilers. Automatic	G. Claydon	590,410	Sept. 21	1736	408	80	1835
Stone. Cutting	G. Wincgz and H. Machepy	589,199	Aug. 31	3309	797	80	1368
Stone-dressing machine	D. W. Darling	588,634	Aug. 24	2408	554	80	1163
Stone for street-pavements. Manufacturing artificial	J. Jungbluth	587,484	Aug. 3	361		80	781
Stone-jointer	A. Larson	587,588	Aug. 3	553	132, 133	80	767
Stone. Manufacture of objects of imitation	L. A. Garchey	587,809	Aug. 10	986		80	856
Stool	N. O. Gandy	587,391	Aug. 3	188	47	80	701
Stool. Folding and extensible piano-	J. W. Stanton	588,932	Aug. 24	2929	665	80	1262
Stool. Knockdown	H. Jensen	589,947	Sept. 14	900	215	80	1664
Stool. Piano-	J. D. Clay	585,839	July 6	351	81	80	70
Stool. Pocket-	E. R. Root	586,320	July 13	1263	288	80	261
Stool. Shoe-	C. J. Sawyer and T. F. Harris	588,607	Aug. 24	2340	541	80	1151
Stopper: *See* Bottle-stopper.							
Stopper or cover for bottles, jars, or similar vessels	V. Reiser and T. Sutcliffe	589,097	Aug. 31	3219	756	80	1338
Storage battery	W. J. Still	589,042	Aug. 31	3119	734	80	1315
Storage-heater	J. F. McElroy	586,982	July 20	2338	550, 551	80	498
Storage-tank. Self-measuring	J. H. Martindale	586,855	July 20	2177	510	80	462
Store-service apparatus	T. E. Barrow	589,238	Aug. 31	3470	814	80	1382
Store-service apparatus	G. Staib	589,758	Sept. 7	578	135	80	1598
Storm or screen frame	B. J. Danielson	590,004	Sept. 14	1020	240	80	1686
Storm-protector	G. W. Harmer	586,998	July 27	2463	582	80	539
Stove	C. T. Andreas	589,631	Sept. 7	377	92	80	1533
Stove	F. Falkowski	589,823	Sept. 14	689	160	80	1626
Stove	F. A. Kiefer, L. Kahn, and H. Osterberger.	585,677	July 6	50	12	80	12
Stove	G. Laube	589,473	Sept. 7	112	25	80	1503
Stove	W. S. Nicolson	590,102	Sept. 14	1302	309	80	1740
Stove	J. P. Pool	588,755	Aug. 24	2640	609	80	1207
Stove and burner. Vapor	J. G. Harvey and C. Munzner	587,030	July 27	2540	599	80	533
Stove. Cooking and heating	H. D. Sawyer	588,884	Aug. 24	2851	663	80	1246
Stove cooking attachment	G. B. Dunstan	588,606	Aug. 24	2518	581	80	1183
Stove. Gas-	C. E. Dressler	585,815	July 6	288	67	80	50
Stove. Gas-	J. Johnson	587,313	Aug. 3	57	13	80	677
Stove. Gas-	J. Johnson	587,583	Aug. 3	545	130, 131	80	766
Stove. Gas-	J. A. Roe	588,532	Aug. 17	2213	514	80	1108
Stove-grate	E. E. Flint	588,859	Aug. 24	2812	654	80	1239
Stove-griddle lifter	J. E. Gaitley	588,819	Aug. 24	2744	636	80	1226
Stove-hood	C. A. Singewald	587,766	Aug. 10	856	202	80	845
Stove-lid and pan lifter. Combined	J. A. Blomberg	590,509	Sept. 21	1800	440	80	1864
Stove or furnace. Downdraft	E. D. McLean. (Reissue)	11,623	July 27	3023	707	80	644
Stove or range grate	E. Weiss	586,896	July 20	2221	522	80	471
Stove or range still attachment	A. M. Millett	585,696	July 6	65	15	80	15
Stove oven. Vapor or gas	L. Lentz	589,972	Sept. 14	944	225	80	1672
Stovepipe	R. McPhail	589,610	Sept. 7	344	84	80	1547
Stovepipes for joining. Apparatus for preparing ends of	E. Graham and J. Jacquart	586,334	July 13	1296	296	80	267
Stove-top. Swinging	A. K. Beckwith	589,686	Sept. 7	466	112	80	1571
Stove-ventilator	F. Frasher	586,174	July 13	1693	232	80	217
Stoves. Combined fire-pot and grate for	E. G. Germer	587,366	Aug. 3	153	37	80	694
Stoves. Drip-pan for gasolene-	W. H. Loop and W. J. Melkleham	587,448	Aug. 3	208	52	80	721
Stoves. Heating and cooking attachment for oil, gas, or vapor	A. M. Hess and S. Mulholland	586,037	July 6	801	179	80	157
Stoves or furnaces. Lock-joint pipe and collar coupling for	H. A. Tinkham	590,938	Sept. 28	2905	635	80	2024
Strainer	T. D. Irwin	587,488	Aug. 3	279	66	80	718
Strainer	L. E. Nearing	590,902	Sept. 28	2903	621	80	2012
Strainer. Cistern-	I. Holmes	586,662	July 20	1868	435	80	405
Strainer. Pump-	S. A. Brownsworth	590,053	Sept. 14	1091	258	80	1699
Strainer. Removable sink-	J. Riley	587,559	Aug. 3	490	116	80	756
Strap: *See* Picker check-strap. Shawl-strap.							
Street-sprinkler machine	A. Johnson	588,437	Aug. 17	2043	476	80	1075
Street-sweeper	A. Brown	589,692	Sept. 7	473	113, 114	80	1572
Street-sweeper	J. A. Hanlon	585,933	July 6	523	123, 124	80	101
Street-sweeper	J. H. Winspear, F. R. Smith, and S. Y. Sansom.	590,288	Sept. 21	1522	361	80	1795
Stringed instrument	F. J. Hartman	586,082	July 6	792	177	80	155
Strop	J. D. and J. T. Rader	587,328	Aug. 3	85	21	80	688
Stud-cutting machine	A. I. Jacobs	585,782	July 6	200	45, 46	80	41
Stuffing-box. Valve	W. F. Hodge and H. M. Geer	589,725	Sept. 7	527	125	80	1563
Submarine plow and river-mining machine	C. B. Emerson	590,392	Sept. 21	1700	401	80	1829
Sucker-rod elevator	F. R. Gosnell	590,542	Sept. 21	1958	463	80	1877
Sugar conveyer, elevator, and bin	M. M. Neames	590,742	Sept. 28	2323	549, 550	80	1957

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sugar. Machine for agitating	J. A. Lombas	586,444	July 13	1473	342	80	901
Sugar. Machine for packing cube	J. O. Donner	587,800	Aug. 10	914	213	80	854
Sunshade	C. M. Speer	587,460	Aug. 3	330	77	80	724
Suppository-mold	L. J. Harvey	588,990	Aug. 31	3027	711	80	1298
Surgeon's scissors	F. A. Koch	590,528	Sept. 21	1931	457	80	1873
Surgical appliance	M. McCormick	587,994	Aug. 10	1270	294	80	917
Suspender attachment	J. R. Blankenship	587,922	Aug. 10	1196	282	80	898
Suspenders	J. J. Burke	590,298	Sept. 21	1541	365	80	1799
Swaging-machine	A. J. Morse	588,648	Aug. 24	2496	561 592	80	1168
Swaging-machine	A. J. Morse	588,649	Aug. 24	2439	562	80	1168
Sweeping-machine	G. W. Taft	588,250	Aug. 17	1716	394	80	1015
Swimming apparatus	J. Uster	587,499	Aug. 3	387	91	80	735
Swing	N. Thomas	587,022	July 27	2514	591	80	548
Swing. Rocking	A. Mathews	589,262	Aug. 31	3519	825 826	80	1309
Swinging gate	W. H. Jones	589,730	Sept. 7	535	127	80	1584
Swinging gate	W. D. Wilson	590,670	Sept. 28	2547	608 609	80	2000
Switch: *See* Automatic switch. Car-switch. Electric switch. Electric-circuit switch. Electric trip-knife switch. Flush switch. Ground-lever switch. Pneumatic-despatch-tube switch. Railway-switch. Telegraph-switch. Tramway-switch.							
Switch	M. F. Finnerty	587,655	Aug. 3	655	156 157	80	787
Switchboard	C. E. Egan	586,285	July 13	1201	274	80	249
Switchboard apparatus	W. F. Banks	588,256	Aug. 17	1730	397 398	80	1018
Switchboard. Common-battery multiple	H. M. Crane	590,304	Sept. 21	1556	369	80	1801
Switchboard system. Central-office	W. S. and E. M. Harrison	587,502	Aug. 3	392	93	80	735
Switch-box	J. C. Mock	587,746	Aug. 10	823	194	80	889
Switch device	H. M. Doak, Jr	586,478	July 13	1532	359	80	312
Switch-iron	J. H. Boyer	588,263	Aug. 17	1738	399 400	80	1019
Switch-lock. Magnetic	S. H. Short	588,489	Aug. 17	2133	498	80	1093
Switch-mate	J. Delane, Jr., and J. F. Blue	587,712	Aug. 10	766	180	80	828
Switch mechanism. Automatic	J. E. Tryon	587,625	Aug. 3	614	148	80	776
Switch mechanism. Electrically-actuated	W. S. Browne	586,702	July 20	1928	450	80	416
Switch-operating mechanism	C. E. Harris	589,655	Sept. 7	413	100	80	1560
Switch or signal mechanism	S. R. Payne	590,333	Sept. 21	1604	378	80	1812
Switch-stand	H. M. Abernethy	587,699	Aug. 10	712	170	80	817
Switch-stand	H. Elliot	590,015	Sept. 14	1038	244	80	1089
Swivel	H. Zea	590,749	Sept. 28	2334	552	80	1959
Syringe	J. A. Groeninger	586,657	July 20	1862	433	80	403
Syringe and electrical apparatus. Combined	L. G. Woolley	586,679	July 20	1895	441	80	410
Syringe cut-off	C. L. Bard	589,806	Sept. 14	663	154	80	1621
Syringe-nozzle	A. McTernen	589,017	Aug. 31	3080	726	80	1308
Syrup. Manufacturing beet-root	F. H. Werner	588,623	Aug. 24	2389	548	80	1159
Table: *See* Adjustable table. Cabin-table. Extension-table. Folding table. Pool and billiard table. Rolling-mill feed-table. Whist-table.							
Table	N. Bartelle	587,518	Aug. 3	423	99	80	742
Table	A. A. Busch and A. Miller	587,181	July 27	2890	662	80	005
Table	J. R. Vaughn	585,802	July 6	271	602 603	80	55
Table-leg fastener	A. Zwiesler	589,679	Sept. 7	453	108	80	1568
Table-leveling device	H. Patten	587,489	Aug. 3	370	87	80	732
Tablet. Sleeve	F. A. Carlson	588,553	Aug. 24	2251	523	80	1133
Tack driver or drawer. Draftsman's	C. F. Heath	590,760	Sept. 28	2355	558	80	1963
Tacks. Assembling and transferring device for use in molding coverings upon heads of	A. C. Estabrook	587,117	July 27	2083	632	80	580
Tag. Marking	C. Winkler	590,179	Sept. 14	1326	314	80	1745
Tank: *See* Flushing-tank. Storage-tank. Water-closet tank. Water-closet flush-tank. Watering-tank.							
Tanning	C. O. Shaw	590,170	Sept. 14	1312	311	80	1742
Tanning apparatus	E. H. Dewson	590,390	Sept. 21	1698	400	80	1829
Tanning leather. Rotary drum for	V. Gallien	590,061	Sept. 14	1103	261	80	1701
Tap. Automatic extensible and collapsible adjustable	F. A. Errington	587,715	Aug. 10	771	182	80	829
Tap, cooler, and pump. Combined beer	W. B. Baker	589,237	Aug. 31	3468	813	80	1382
Tapping wrench. Barrel	C. E. Swingle and C. Frantz	590,730	Sept. 28	2304	545	80	1953
Tawing or tanning hides or skins	W. M. Norris	588,374	Aug. 24	2236	.....	80	1245
Teaching arithmetic, &c. Apparatus for	G. G. Altman	588,371	Aug. 17	1918	445	80	1052
Teaching time in music. Device for	C. Latta	585,681	July 6	57	14	80	14
Teeth and making same. Artificial	H. E. Dennett	589,383	Aug. 31	3363	902	80	1463
Teeth. Artificial	S. S. Bloom	589,332	Aug. 31	3775	880	80	1447
Teeth to mouth-plates. Appliance for use in soldering artificial	J Fletcher	586,023	July 6	779	173	80	158
Telautograph	L. O. McPherson	587,013	July 27	2488	586 587	80	544
Telautograph	G. S. Tiffany	587,663	Aug. 3	669	159	80	789
Telegraph-cable	J. M. Barr	586,755	July 20	2022	470	80	438
Telegraph. Printing	E. M. D. André	588,046	Aug. 10	1349	313 314	80	933
Telegraph. Printing	R. Kübler	590,664	Sept. 28	2187	518 519	80	1933
Telegraph-switch	J. S. Allen	585,731	July 6	140	33	80	31
Telegraphy	F. M. Short	587,396	Aug. 3	101	26	80	684

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Telemeter	C. Gulliksen	589,527	Sept. 7	204	47	80	1521
Telephone attachment	W. W. Beck	586,539	July 20	1657	386	80	305
Telephone attachment	S. C. Houghton	586,703	July 20	2078	483	80	443
Telephone-booth	E. B. Cadwell	587,700	Aug. 10	732	174	80	821
Telephone-boxes. Electric switch and cut-out for	A. C. Robbins	589,618	Sept. 7	355	87	80	1540
Telephone central-station signaling-circuit	G. K. Thompson	587,467	Aug. 3	330	79	80	726
Telephone. Coin-operated	F. Hoffman	590,726	Sept. 7	539	126	80	1583
Telephone-exchange	M. G. Kellogg	587,004	July 27	2472	584	80	541
Telephone-exchange apparatus	F. R. McBerty	587,081	July 27	2619	619	80	567
Telephone-exchange system	W. W. Dean	590,136	Sept. 14	1255	297	80	1730
Telephone-exchange system	W. W. Dean	590,185	Sept. 14	1336	317	80	1747
Telephone-exchanges. Operator's switch for	L. Johnston	585,915	July 6	492	116	80	95
Telephone signaling relay and circuit	A. S. Williams	586,668	July 20	2223	523	80	472
Telephone-stations. Switchboard for central	C. E. Egan	585,602	July 6	28	6	80	8
Telephone-switchboard	H. V. Hayes	586,685	July 20	1903	443 444	80	411
Telephone-switchboard apparatus	C. E. Scribner	587,406	Aug. 3	215	54	80	707
Telephone-switchboard signal	C. E. Scribner	587,405	Aug. 3	213	54	80	706
Telephone-switchboards. Calling appliance for	F. R. McBerty	587,080	July 27	2617	619	80	567
Telephone system	W. W. Davis	586,529	July 13	1638	380 381	80	333
Telephone system	W. W. Dean	590,137	Sept. 14	1250	296	80	1731
Telephone system	W. W. Dean	590,186	Sept. 14	1341	317	80	1748
Telephone system	G. Dilliberg and P. Rabbidge	586,998	July 27	2455	580	80	536
Telephone system. Automatic	M. Freudenberg	587,435	Aug. 3	264	64, 65	80	716
Telephone system and telephone-exchange mechanism	H. P. Snow	590,633	Sept. 28	2131	505	80	1988
Telephone systems. Multiple cut-out for	A. B. Strowger and A. E. Keith	589,798	Sept. 7	648	151	80	1606
Telephone-transmitter	O. A. Enholm	587,654	Aug. 3	654	156	80	786
Telephone-transmitter	O. Morari	587,593	Aug. 3	561	135	80	762
Telephone-transmitter	E. C. Wilcox and B. L. Lawton	585,896	July 6	446	108	80	88
Telephone-transmitter for signal-boxes	A. C. Robbins	589,619	Sept. 7	356	87	80	1549
Telephone trunk-circuit	J. J. O'Connell	587,226	July 27	2903	681	80	623
Telephonic measured-service system	H. V. Hayes and T. C. Wales, Jr	589,431	Sept. 7	51	12	80	1492
Telephony	J. W. Gibboney	587,119	July 27	2686	632 633	80	580
Telephony	J. W. Gibboney	587,120	July 27	2691	633	80	581
Telescope-bag	G. C. Thomas	586,296	July 13	1216	277	80	252
Temperature-regulating apparatus	H. R. White	590,407	Sept. 21	1734	406	80	1833
Temperature-regulator	R. W. King	589,603	Sept. 7	332	83	80	1545
Tension device	E. A. Hadley	588,424	Aug. 17	2020	469	80	1071
Tent	H. Jensen	589,563	Sept. 7	254	63	80	1529
Tentering-machine clamp	I. E. Palmer	587,753	Aug. 10	898	197	80	842
Tentering-machine clamp	I. E. Palmer	587,754	Aug. 10	899	197	80	842
Testing device	O. H. Basquin	586,215	July 13	1098	248	80	231
Testing-machine	W. Shay	589,986	Sept. 14	972	239	80	1676
Theater-seat hat-support	E. J. Guenzel	589,469	Sept. 7	94	30	80	1502
Therapeutic apparatus	H. Sanche	588,091	Aug. 10	1423	331	80	946
Thermal results. Apparatus for producing	H. Sanche	587,612	Aug. 3	598	143	80	774
Thermometer and fountain-pen. Combined	A. P. Hafner	590,362	Sept. 21	1475	346	80	1787
Thermometer. Clinical	J. J. Hicks	588,796	Aug. 24	2699	634	80	1216
Thermometer. Oven	W. Bright	586,329	July 13	1238	294	80	266
Thermostat	O. Wiederhold	586,301	July 13	1223	279	80	254
Thill-coupling	N. M. Brinkerhoff	590,127	Sept. 14	1240	294	80	1727
Thill-coupling	J. E. Cryderman	585,654	July 6	16	5	80	6
Thill-coupling	V. Dumas, Jr., and A. Knapp, Jr	585,660	July 6	25	7	80	7
Thill-coupling	A. C. Kane	587,440	Aug. 3	252	67	80	718
Thill-coupling	C. C. Lapham	588,260	Aug. 17	1709	409	80	1025
Thill-coupling	R. Raby	590,744	Sept. 28	2325	550	80	1957
Thill-coupling	F. F. Wheeler	590,010	Sept. 14	1081	243	80	1688
Thill-coupling	J. B. M. Winburn	590,507	Sept. 21	1866	449	80	1864
Thill-coupling	A. H. Worrest	589,063	Aug. 31	3147	741 742	80	1321
Thill-coupling. Antirattling	W. Abraham	587,355	Aug. 3	136	32	80	690
Thill-coupling. Detachable	W. C. Fox	590,099	Sept. 14	1176	277	80	1716
Thill-support	J. C. Coffee	587,644	Aug. 3	641	153	80	783
Thimble	W. J. Ferguson	585,930	July 6	518	122	80	101
Thimble	L. Holcomb	587,123	July 27	2700	635	80	582
Thread-cutter and addressing device for spools	W. H. White	587,414	Aug. 3	228	56	80	709
Thread cutter and reel or spool. Combined	H. V. Dodd	589,341	Aug. 31	3786	884	80	1449
Thread cutter. Internal	A. Collet	586,419	July 13	1433	331	80	294
Thread fastening and cutting device for spools	Z. B. Osgood	590,851	Sept. 28	2512	599	80	1998
Thread-guide	C. Koffnke	587,098	July 27	2649	625	80	573
Thresher and separator. Combined	F. E. McNall	588,803	Aug. 24	2716	630 631	80	1220
Threshing-machine band-cutter and feeder	B. J. Kime	590,324	Sept. 21	1596	375 376	80	1810
Threshing-machine stacker	W. Hart	590,890	Sept. 28	2577	616	80	2007
Threshold	C. Baumann	588,626	Aug. 24	2368	550	80	1160
Thyroid compound	C. F. M. Schaerges	585,926	July 6	505	.....	80	99
Ticket-holder	S S. Eccleston	589,344	Aug. 31	3790	885	80	1449
Ticket. Mileage	J. W. Winningham	586,347	July 13	1309	300	80	270
Ticket or pass. Railway	G. H. Megquier	588,114	Aug. 10	1480	341	80	956
Ticket. Passage	C. N. Souther	590,651	Sept. 28	2158	510 511	80	1927
Ticket. Railway	J. Gillespie	590,308	Sept. 21	1702	401	80	1829
Ticket. Street-railway transfer	F. Mutschler	590,485	Sept. 21	1853	439	80	1857
Tidal motor	C. A. Prescott	589,907	Aug. 31	3828	894 895	80	1456
Tie: *See* Bag-tie. Bale-tie. Cow-tie. Railway-tie. Railway cross-tie. Wall-tie.							
Tie-holder and collar-brace	W. W. McCall	585,775	July 6	226	53	80	47
Tie-plate	D. Servis	590,699	Sept. 28	2234	530	80	1941
Tile for permanent centering to fireproof floors	G. R. Dawnay	587,797	Aug. 10	908	212	80	853

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tile-sections. Mounting	W. H. Winslow	586,257	July 13	1160	265	80	242
Tile-sections. Mounting	W. H. Winslow	586,259	July 13	1163	265	80	242
Tiles. Mounting prism-	W. H. Winslow	586,256	July 13	1159	264	80	242
Tiles or the like. Mounting	W. H. Winslow	586,260	July 13	1164	266	80	242
Tilework	D. N. Lanyon	587,263	July 27	2965	695 696	80	633
Till alarm and lock. Combined	H. M. Williams	590,249	Sept. 21	1458	343	80	1788
Till. Check-	G. H. Himus	587,220	Aug. 10	953	221	80	860
Tilter. Vessel-	H. Wittmann	587,417	Aug. 3	223	57	80	710
Tilting gate. Automatic	S. Royer	585,790	July 6	249	58	80	51
Timbal. Chromatic	G. F. Lyon	586,503	July 13	1575	367	80	330
Time-lock	I. G. Blake	588,627	Aug. 24	2398	550 551	80	1160
Time-locks. Mechanical movement for	E. R. Williams	590,927	Sept. 28	2647	631 633	80	2020
Time-recorder	F. Barker	589,924	Sept. 14	805	206 207	80	1657
Time-recorder and transfer-stamp	E. Jackson	590,525	Sept. 21	1924	455 456	80	1871
Time-recorder. Watchman's electric	C. H. Phinney	589,510	Sept. 7	170	38	80	1514
Timepiece winding-indicator	F. Gurley	588,331	Aug. 17	1860	490	80	1041
Tin-operating machine. Sheet-	W. B. Page and A. E. Hopkins	590,709	Sept. 28	2962	535 536 537	80	1946
Tip-applying machine	C. A. Seeley	589,579	Sept. 7	298	69	80	1536
Tire	H. R. Collins	590,201	Sept. 14	1364	322	80	1752
Tire	F. J. Freese	586,764	July 20	2037	474	80	435
Tire	W. B. Gregory	588,823	Aug. 24	2749	637 638	80	1226
Tire	T. J. Lovett	588,343	Aug. 17	1877	434	80	1045
Tire	W. D. Snow	587,344	July 27	2931	687	80	627
Tire and making same. Rawhide	O. A. Hensel	587,671	Aug. 3	661	163	80	792
Tire armor. Bicycle-	M. Choquette	589,163	Aug. 31	3343	785	80	1357
Tire. Armored pneumatic	I. S. McGlehan	587,997	Aug. 10	1275	295	80	918
Tire. Bicycle-	C. J. Bailey	588,724	Aug. 24	2565	593	80	1192
Tire. Bicycle-	G. W. Dorr	589,939	Sept. 14	889	212	80	1661
Tire. Bicycle-	J. H. Hayes and H. K. Nash	590,152	Sept. 14	1298	306	80	1737
Tire. Bicycle-	C. Hooper	589,434	Sept. 7	60	13	80	1493
Tire. Bicycle-	S. Kohn	585,079	July 6	53	13	80	13
Tire. Bicycle-	J. C. Lighthouse	589,733	Sept. 7	540	128	80	1585
Tire. Bicycle-	W. B. Mann	587,656	Aug. 3	657	157	80	787
Tire. Bicycle-	I. S. McGlehan	587,996	Aug. 10	1274	294	80	918
Tire. Bicycle-	A. Schwehr	586,400	July 13	1401	322	80	287
Tire-casings. Device for drawing air-tubes into	H. S. Lewis	586,853	July 20	2176	509	80	461
Tire-cover. Vehicle-wheel	J. C. Grant	589,426	Sept. 7	42	11	80	1490
Tire. Cushion-	T. J. Lovett	588,342	Aug. 17	1875	433	80	1040
Tire. Cushion-	G. A. Smith	588,362	Aug. 17	1907	442	80	1045
Tire. Cycle-	J. McConechy	586,509	July 13	1582	369	80	322
Tire. Elastic	B. H. Chameroy	587,544	Aug. 3	470	110	80	752
Tire. Epicycular	W. N. Murdock	588,872	Aug. 24	2831	659	80	1243
Tire for wheels. Spring-	F. Clench and T. S. King	587,794	Aug. 10	905	211	80	853
Tire guard. Bicycle-	J. S. Doughty and E. Z. Collings	588,221	Aug. 17	1655	381	80	1004
Tire-heater	J. J. A. Morath	586,612	July 20	1794	416	80	391
Tire. Inflatable	G. W. White	589,770	Sept. 7	594	139	80	1595
Tire-inflater in cycle-framework	H. D. Simpson	588,840	Aug. 24	2784	646	80	1233
Tire. Non-puncturable bicycle-	J. A. O'Dell	587,227	July 27	2906	681	80	623
Tire. Pneumatic	F. R. Chamberlain	586,352	July 13	1320	302	80	272
Tire. Pneumatic	A. H. Crockford	587,075	July 27	2610	617 618	80	566
Tire. Pneumatic	W. I. Dreisbach	588,557	Aug. 24	2257	524	80	1134
Tire. Pneumatic	J. R. Johns	585,870	July 6	401	94	80	80
Tire. Pneumatic	H. J. La Force	588,680	Aug. 24	2496	576	80	1179
Tire. Pneumatic	L. J. M. Loisel	587,009	July 27	2481	585	80	543
Tire. Pneumatic	W. Menzies	589,185	Aug. 31	3376	793	80	1364
Tire. Pneumatic	J. G. Schiller	588,018	Aug. 10	1306	302	80	925
Tire. Pneumatic	A. Straus	588,612	Aug. 24	2361	544	80	1155
Tire. Pneumatic	G. C. Taylor	590,503	Sept. 21	1883	448	80	1868
Tire. Pneumatic	C. K. Welch	590,715	Sept. 28	2279	539	80	1949
Tire. Pneumatic	W. W. White	590,030	Sept. 14	1058	249	80	1693
Tire pump. Pneumatic-	T. L. Murphy	586,199	July 13	1077	242	80	226
Tire. Rubber	C. H. Palmer and J. W. Denmead	589,022	Aug. 31	3067	727	80	1309
Tire-securing device	P. G. Gardner	587,723	Aug. 10	787	185	80	831
Tire-setting machine	P. D Dupont	587,035	July 27	2530	599	80	552
Tire-setting machine. Cold-	E. N. Zeller	585,997	July 6	738	165	80	145
Tire shield. Pneumatic-	M. O'Brien	589,019	Aug. 31	3032	726	80	1308
Tire-tightener	J. G. Sarter	587,238	July 27	2922	685	80	626
Tire. Vehicle-wheel	J. M. Farmer	588,562	Aug. 24	2266	526	80	1135
Tire. Vehicle-wheel	J. A. Lewis and W. G. Spiegel	589,662	Sept. 7	425	103	80	1563
Tire. Velocipede-	J. Deborde	585,929	July 6	517	122	80	100
Tires. Air-pump for pneumatic	C. Diss	586,736	July 20	1908	453	80	428
Tires. Apparatus for repairing pneumatic	J. O. De Wolf	588,546	Aug. 17	2235	519	80	1119
Tires. Cement-injector for pneumatic	E. W. Young	590,607	Sept. 28	2090	492	80	1913
Tires. Compound for closing punctures in pneumatic	W. L. Lyman	587,982	Aug. 10	1249	288	80	913
Tires. Device for inflating pneumatic	E. V. Peirson	585,924	July 6	501	120	80	98
Tires. Leak-stopper for pneumatic	P. E. Matthes	586,820	July 20	2120	495	80	450
Tires. Means for closing leaks in pneumatic	F. J. and G. W. Jones	587,211	July 27	2908	673	80	615
Tires. Means for healing punctures in pneumatic	S. B. Dunn	585,661	July 6	26	7	80	8
Tires, &c. Pump for pneumatic	H. Leineweber	587,979	Aug 10	1243	288	80	915
Tires puncture-proof. Rendering textile pneumatic	L. H. Stodder	586,936	July 20	2329		80	491
Tires to vehicle-wheels. Means for securing	A. B. Friedrich and D. O. Eustice	586,765	July 20	2035	474	80	436
Tires to wheels. Device for applying rubber	T. B. Blosser	590,065	Sept. 14	1151	273	80	1710
Tires to wheels. Means for connecting pneumatic	T. Dunn	590,095	Sept. 14	1169	276	80	1714
Tires. Valve for inflating pneumatic	W. Brookes	590,474	Sept. 21	1887	434	80	1854
Tires, &c. Valve for use with pneumatic	G. F. A. H. Bagot	586,752	July 20	2017	469	80	432
Toaster	J. F. Elliott	590,478	Sept. 21	1844	426	80	1856

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Toaster or broiler	E. Wall	585,890	July 6	415	100	80	88
Tobacco container and pipe	C. W. Betts	588,259	Aug. 17	1732	398	80	1016
Tobacco gum or retainer	T. H. Betty	586,414	July 13	1496	329 330	80	293
Tobacco, &c., in packets. Machine for making up	W. Rose	586,076	July 6	861	192 193 194 195	80	168
Tobacco-leaf stripping or stemming machine	S. Reid and E. G. Tremaine	589,961	Sept. 14	964	230	80	1675
Tobacco-ordering apparatus	J. K. Proctor	588,530	Aug. 17	2211	513 514	80	1105
Tobacco-pipe	P. Brown, Jr.	589,938	Sept. 14	874	206	80	1658
Tobacco-pipe	H. D. Fanders	587,947	Aug. 10	1194	276	80	908
Tobacco-pipe	W. S. Hannaford	589,258	Aug. 31	3514	824	80	1391
Tobacco-pipe	C. W. Valentine	586,734	July 20	1987	462	80	427
Tobacco-pipe mouthpiece attachment	D. B. Kinch	586,043	July 6	807	180	80	158
Tobacco. Preparing smoking-	J. Cohen	587,184	July 27	2896	663	80	606
Tobacco-stem drier	D. C. Mayo	588,459	Aug. 17	2078	484 485	80	1082
Tobacco-stemming machine	M. C. Baughan	589,685	Sept. 7	462	110 111	80	1570
Tobacco-treating apparatus	A. V. Hysore	585,759	July 6	194	44, 45	80	40
Toe blank. Box-	I. H. Fish	588,636	Aug. 24	2418	557	80	1165
Toe-calk machine	E. Childs and W. Sangster	590,451	Sept. 21	1801	423 424	80	1847
Toe-clip	H. L. Young	589,988	Sept. 14	976	223	80	1677
Tombstone or monument	W. A. Hammond and R. W. Taylor	589,722	Sept. 7	535	124	80	1582
Tongs. Ingot-	H. B. A. Keiser	588,070	Aug. 10	1302	304	80	940
Tongue-bar-supporting clamp	J. H. Moyer	588,057	Aug. 24	2504	577	80	1161
Tool	J. and J. F. Gunning	586,123	July 13	949	214	80	208
Tool	J. M. Rauhoff	588,879	Aug. 24	2845	662	80	1245
Tool-chest. Sheet-metal	W. Vanderman	586,397	July 13	1217	277 278	80	262
Tool. Combination-	B. Ibelli	586,849	July 20	2169	507	80	460
Tool. Combination-	W. A. Zietzke	589,900	Aug. 31	3399	798	80	1368
Tool. Combination mechanical	G. M. McElliott	585,798	July 20	2085	486	80	444
Tool-holder	F. G. Echols	588,222	Aug. 17	1657	381	80	1004
Tool-holder	J. M. Richardson	589,308	Aug. 31	3735	869	80	1439
Tooth-cleaner	F. D. Gould	589,909	Aug. 31	3412	800	80	1370
Tooth-crowns. Device for forming seamless	L. S. Skiff	590,442	Sept. 21	1788	430	80	1845
Tooth-crowns. Manufacture of metallic	L. L. White	590,799	Sept. 28	2427	576	80	1976
Toothpick-making machine	E. M. Lamb and E. Bales	588,645	Aug. 24	2498	559 560	80	1167
Topophone	D. P. Heap	590,062	Sept. 14	1104	262	80	1708
Torch. Gasolene-	L. Anderson	586,785	July 20	2066	481	80	441
Towel-rack, &c.	G. L. Thompson	586,080	July 6	872	196 197 198	80	170
Towing system. Electric telpher	H. F. Gray	586,516	July 13	1599	373 374	80	334
Toy	E. A. Bondurant	587,493	Aug. 3	343	89	80	712
Toy	A. Breanecke	589,410	Sept. 7	22	6	80	1485
Toy	S. H. Harrington	589,966	Aug. 31	2084	711	80	12
Toy	F. E. Henke	589,173	Aug. 31	3358	789	80	1361
Toy	O. Rousseau	589,962	Sept. 14	966	230 231	80	1675
Toy	J. A. Weltzel	589,555	Sept. 7	244	59	80	1522
Toy. Figure	R. D. Shafer	590,339	Sept. 21	1813	380	80	1813
Toy gun or catapult	A. S. Mann	585,870	Aug. 24	2329	658	80	1242
Toy lung-tester	F. G. Kollenberg	590,299	Sept. 21	1425	336	80	1777
Toy. Mechanical	W. R. Wynne	589,917	Sept. 14	856	203 204	80	1655
Toy or puzzle	J. Zwick	586,949	July 20	2353	555	80	496
Toy. Trick	L. D. Crosby and J. F. Healy	587,795	Aug. 10	906	211	80	853
Trace	W. H. Haglock	590,006	Sept. 14	1023	240	80	1686
Trace-eye. Safety	O. L. Myaer	586,847	Aug. 17	1883	435	80	1045
Trace-holder	T. J. Hatfield	586,767	July 20	2040	475	80	436
Track-brake	J. U. Elwood	586,858	Aug. 24	2810	653	80	1238
Track-cleaning device. Rotary	G. W. Baehre	586,711	Aug. 24	2547	589	80	1189
Track-clutch	C. R. Watson	587,772	Aug. 10	867	204	80	847
Track-gage	O. S. Kepler	587,739	Aug. 10	813	192	80	837
Track sand-box. Car-	A. W. Ham	590,220	Sept. 21	1411	333	80	1774
Track-sanding device	F. Mertsheimer	587,108	July 27	2656	627	80	575
Track-sanding device for street-railway cars	E. C. Collins	589,417	Sept. 7	30	7	80	1487
Traction-engine	C. Quast	588,877	Aug. 24	2840	660 661	80	1244
Traction-engine	H. H. Shepherd	586,873	July 20	2204	516 517	80	467
Trains. Indicating and delivering special orders to moving	A. M. Mozier	589,975	Sept. 14	948	226 227	80	1673
Tramway-switch	W. G. Lewi	585,767	July 6	211	49, 50	80	44
Tramways. Apparatus for working electric	C. Anderson	586,652	July 20	1856	431 432	80	402
Transom-sash pivot	T. F. Dolen	585,840	July 6	352	81	80	70
Transmitter	A. Van Wagenen	588,511	Aug. 17	2171	505	80	1100
Trap: *See* Animal-trap. Electric trap. Fish-trap. Fish and animal trap. Float-trap. Mole-trap. Rat-trap. Safety-trap. Steam-trap. Vent-trap.							
Trap	H. S. Mariner	589,183	Aug. 31	3373	798	80	1368
Trap	E. T. Moore	590,019	Sept. 14	1044	246	80	1690
Trap	B. D. B. Smock	589,802	Sept. 7	653	152	80	1607
Trap jaw. Steel-	J. A. Nisbet	588,169	Aug. 17	1584	366	80	901
Tree-protector	J. A. Strickler	588,039	Aug. 10	1323	306	80	927

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Treenails. Tool for screwing	A. Collet	587,645	Aug. 3	642	154	80	784
Treenails. Tool for trimming off	A. Collet	590,069	Sept. 14	1157	273	80	1712
Trellis	G. W. Warren and F. D. Clark. (Reissue.)	11,622	July 20	2386	563	80	508
Trellises. Means for fastening vines to	T. J. Forde	587,365	Aug. 3	158	57	80	694
Trestle. Extensible	A. Ritter	590,278	Sept. 21	1510	357	80	1799
Trestle. Work-	W. A. Reardon	589,573	Sept. 7	273	66	80	1533
Trimmer: *See* Finger-nail trimmer. Welt-trimmer.							
Tripod	F. A. Brownell	588,552	Aug. 24	2260	523	80	1132
Tripod attachment. Photographer's	A. F. Walter	590,636	Sept. 28	2137	506	80	1923
Trolley	F. W. Canales	589,602	Sept. 7	475	114	80	1578
Trolley	F. Krabal	588,448	Aug. 17	2057	479	80	1078
Trolley	A. S. Krotz, W. P. Allen, and O. S. Kelly.	587,214	July 27	2371	674	80	616
Trolley	G. W. Sell, Jr.	588,488	Aug. 17	2138	495	80	1092
Trolley	S. H. Short	587,870	Aug. 10	1050	242	80	876
Trolley	W. Willett	586,647	July 20	1858	430	80	401
Trolley	A. O. Wyman	589,109	Aug. 31	3843	763	80	1338
Trolley and conductor for electric railways	T. von Zweigbergk	590,092	Sept. 14	1144	270	80	1709
Trolley and railway. Suspension-	A. Huber	588,714	Aug. 24	2558	590	80	1190
Trolley-cord take-up device	A. J. Wood	586,302	July 13	1294	279	80	254
Trolley device and conductor construction therefor. Electric	S. Harris	588,145	Aug. 17	1543	355	80	963
Trolley device. Electric	S. Harris	588,144	Aug. 17	1542	354	80	963
Trolley device. Electric	A. B. du Pont	590,589	Sept. 28	2051	495	80	1907
Trolley. Electric-railway	W. E. Kenway	590,527	Sept. 21	1929	457	80	1872
Trolley for electric railways. Underrunning	S. H. Short	589,624	Sept. 7	364	89	80	1551
Trolley-guard	J. M. Kirker	586,556	July 20	1685	392	80	371
Trolley-guard	H. C. Reed	590,166	Sept. 14	1306	310	80	1741
Trolley-hanger	T. Fletcher	587,805	Aug. 10	920	214	80	855
Trolley-pole	C. N. Dutton	586,809	July 20	2103	491	80	447
Trolley system for electric railways. Overhead-	S. H. Cauffiel	588,053	Aug. 10	1361	316, 317	80	984
Trolley-truck	T. M. Kenna	587,738	Aug. 10	811	191, 192	80	837
Trolley-wheel. Electric-car	J. A. Crawford and T. E. Crow	590,702	Sept. 7	493	118	80	1576
Trolley-wheel fork	S. B. Thompson	587,047	July 27	2559	608	80	556
Trolley-wire hanger	G. E. Johnson	588,923	Aug. 24	2915	682	80	1259
Trolley-wire hanger	J. F. Faulkner and R. Campbell	590,141	Sept. 14	1266	299	80	1732
Trolley-wire hanger and splicer	C. K. King	587,740	Aug. 10	815	192	80	838
Trough: *See* Feed-trough. Meat-block trough.							
Trousers	P. G. Hercht	587,310	Aug. 3	51	12	80	675
Trousers-clamp for bicycle-riders	L. P. Converse	587,280	July 27	2998	702	80	640
Trousers-guard	E. W. Hanauer	586,286	July 13	1202	274	80	250
Trousers-guard	M. B. Holmes	586,432	Aug. 17	2081	472	80	1073
Trousers-leg bottom ends. Machine for finishing	L. Newman	590,585	Sept. 28	2037	481	80	1905
Trousers-protector	J. B. Neuendorff	586,666	July 20	1873	436	80	406
Trousers protector and adjuster	L. D. Tredway	586,402	July 13	1404	323	80	287
Truck	P. J. and J. H. Marvel	590,426	Sept. 21	1778	417	80	1843
Truck	J. H. Marvel and W. H. Peirsol	590,437	Sept. 21	1779	418	80	1843
Truck and elevator. Domestic	J. T. Williams	586,408	July 13	1414	325, 326	80	290
Truck and stand. Barrel	P. F. Swart	586,638	July 20	1838	427	80	399
Truck. Automatic dumping-	J. H. Hammer	587,960	Aug. 10	1218	283	80	908
Truck. Barrel-	L. A. Wagner	588,253	Aug. 17	1722	395	80	1016
Truck-bolster	H. Pries and J. J. Casey	588,777	Aug. 24	2666	615, 616	80	1212
Truck. Car-	J. C. Barber	588,810	Aug. 24	2726	633	80	1223
Truck. Car-	R. Beeson	590,563	Sept. 28	2006	473	80	1900
Truck. Car-	J. A. Brill	586,987	July 27	2443	578	80	555
Truck. Car-	G. G. Floyd	586,462	July 13	1536	360	80	313
Truck. Car-	G. G. Floyd	587,948	Aug. 10	1195	277	80	903
Truck. Car-	J. Linden	589,008	Aug. 31	3053	718	80	1808
Truck. Car-	M. F. Noraconk	587,060	July 27	2586	610	80	561
Truck. Car-	J. Player	589,271	Aug. 31	3539	828, 829	80	1395
Truck. Electric-motor-car	G. M. and J. A. Brill	588,391	Aug. 17	1957	458	80	1060
Truck for supporting vehicles	L. P. Pomeroy	590,743	Sept. 28	2324	550	80	1957
Truck-frame for railway-cars	A. S. Vogt	587,896	Aug. 10	1073	247	80	881
Truck frame. Railway-car-	G. R. Joughins	588,580	Aug. 24	2294	539	80	1140
Truck. Hand-	J. C. W. Feerrar	587,719	Aug. 10	779	184	80	830
Trunk	M. Lyons	587,592	Aug. 3	559	134	80	766
Trunk	E. W. Morgenthaler	586,774	July 6	223	52, 53	80	46
Trunk	F. J. Palica	587,488	Aug. 3	367	87	80	732
Trunk attachment	J. Newman and L. Weinberg	588,234	Aug. 17	1680	386	80	1008
Trunk-lock	C. E. Parker	588,237	Aug. 17	1698	388, 389	80	1011
Trunk-strap fastening and tightening device	W. J. Davis	588,208	Aug. 17	1750	405	80	1021
Trunk. Telescopic	F. J. Palica	587,487	Aug. 3	364	86	80	732
Trunk. Wardrobe-	E. M. Thomas	588,721	Aug. 24	2551	592	80	1191
Trunks, valises, &c. Frame for	E. M. Turner	588,199	Aug. 17	1639	375	80	999
Truss	S. Ide	588,578	Aug. 24	2291	531	80	1140
Truss	T. H. Woodward	590,773	Sept. 7	601	140	80	1596
Truss. Hernial	J. T. Dugger	588,964	Aug. 31	2986	701	80	1290
Tub: *See* Mop-tub.							
Tube-drying machine	R. Wootton and B. Hewitt	585,808	July 6	280	65	80	58
Tube-forming machine	G. J. Capewell	589,694	Sept. 7	476	114, 115	80	1573
Tube or hose	H. F. Watson	588,785	Aug. 24	2679	619	80	1214
Tubes, &c., and apparatus therefor. Manufacture of	R. Bungeroth	590,130	Sept. 14	1244	295	80	1728
Tubes. Machine for manufacturing seamless steel	R. Wootton and B. Hewitt	585,809	July 6	281	65	80	58
Tubing or shafting. Machine for straightening	Z. and C. N. Teetor	585,720	July 6	118	28, 29	80	26

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tug attachment. Hame-	J. Mealey	588,589	Aug. 24	2307	535	80	1144
Tug. Hame-	W. F. Dale	586,015	July 6	767	171	80	150
Tug. Hame-	W. D. Jackson	590,065	Sept. 14	1111	263	80	1708
Tug. Hame-	W. O. Schellhammer	589,084	Aug. 31	3108	731	80	1312
Tug. Harness shaft-	W. Fawcett	586,430	July 13	1456	336	80	297
Tug support. Harness-	A. F. Dietz	588,408	Aug. 17	1991	461	80	1065
Tunneling-shield. Hydraulic or pneumatic	C. G. Hastings	590,287	Sept. 28	2579	615	80	2007
Turbine. Elastic-fluid	C. G. Curtis	589,422	Sept. 7	86	9, 10	80	1488
Turbine. Elastic-fluid	C. G. Curtis	589,466	Sept. 7	108	23	80	1501
Turbine. Elastic-fluid	C. G. Curtis	590,210	Sept. 21	1397	339	80	1771
Turbine. Elastic-fluid	C. G. Curtis	590,211	Sept. 21	1398	340	80	1772
Turnbuckle-forming machine	H. Markhoff, Sr	589,188	Aug. 31	3372	798	80	1368
Turning machine. Ball-	E. Rivett	586,801	July 20	2087	487	80	445
Turning machine. Stud-	A. I. Jacobs	585,764	July 6	306	48	80	43
Turning machine. Wood-	N. Meyers	589,098	Aug. 31	3206	754, 755	80	1331
Turning slender work. Machine for	J. D. Mattison	589,905	Sept. 14	894	196	80	1658
Turn-table	J. M. Hess	589,794	Sept. 7	527	125	80	1589
Twist-drill. Lubricating	W. J. Rickey	589,576	Sept. 7	278	67	80	1534
Twister ring-traveler	J. Booth	586,280	July 13	1115	253	80	235
Twisting and winding machine	R. Dawes	590,888	Sept. 28	2472	586	80	1965
Twisting frames. Ring for ring-	W. Rigby	588,190	Aug. 10	1487	343	80	958
Twisting-machine	E. and R. Dawes	590,887	Sept. 28	2471	586	80	1965
Twyer-iron. Forge	A. R. Thompson	589,761	Sept. 7	584	137	80	1594
Type-font	L. K. Johnson and A. A. Low	588,906	Aug. 31	3086	713	80	1300
Type-forming machines. Machine for preparing perforated record-strips of	T. Lanston	590,763	Sept. 28	2360	559, 560, 561, 562, 563	80	1954
Type-setting and line-casting machine	C. J. Bots	589,536	Sept. 7	385	94	80	1554
Type-setting apparatus	L. K. Johnson and A. A. Low	586,337	July 13	1131	257	80	236
Type-setting appliance	L. K. Johnson and A. A. Low	586,387	July 13	1208	275	80	250
Type-writer	A. R. Bailey	587,388	July 27	3009	705	80	642
Type-writer	J. Gilbert	589,387	Aug. 31	3368	908	80	1463
Type-writer attachment	E. C. Lewis	585,918	July 6	498	117, 118	80	96
Type-writer attachment	W. J. Reno	590,404	Sept. 21	1721	405	80	1833
Type-writer cabinet	M. Foley	590,540	Sept. 21	1955	468	80	1876
Type-writer cabinet	R. C. Haase	590,261	Sept. 21	1473	347	80	1786
Type-writer desk	J. H. Heyward	585,914	July 6	478	115, 116	80	94
Type-writer ribbon	H. A. Doty	587,941	Aug. 10	1178	272	80	900
Type-writer roll	M. C. Mengis	589,663	Sept. 7	496	103	80	1563
Type-writer scale	G. M. Kitzmiller and H. A. Gillis	587,587	Aug. 3	551	139	80	766
Type-writing machine	B. A. Brooks	586,351	July 13	1317	301	80	271
Type-writing machine	L. S. Burridge	585,838	July 6	345	80, 81	80	69
Type-writing machine	M. S. Carmona	590,207	Sept. 21	1861	326, 327	80	1769
Type-writing machine	H. S. Dukes	587,431	Aug. 3	255	62, 63	80	714
Type-writing machine	H. S. Dukes	587,432	Aug. 3	260	63	80	715
Type-writing machine	F. A. Heiss	588,746	Aug. 24	2622	605	80	1208
Type-writing machine	J. B. Price	585,788	July 6	296	55	80	49
Type-writing machine	W. S. Shirk	588,608	Aug. 24	2341	541, 542, 543	80	1151
Type-writing machine	J. C. Sinclair	588,498	Aug. 17	2140	497	80	1004
Type-writing machine	T. H. Stackhouse	587,020	July 27	2505	589, 590	80	547
Type-writing machine	O. Tyberg	589,233	Aug. 31	3445	808, 809, 810, 811	80	1377
Type-writing machine	O. Tyberg	589,234	Aug. 31	3460	811, 812	80	1380
Type-writing machine	J. N. Williams	586,255	July 13	1153	262, 263, 264	80	240
Type-writing machine	J. N. Williams	588,522	Aug. 17	2191	509, 510	80	1104
Type-writing-machine copy-holder	E. B. Bingham	589,330	Aug. 31	3772	879	80	1446
Type-writing-machine key-action	C. Elliott	588,185	Aug. 17	1527	349, 350	80	980
Type-writing-machine key-action	W. P. Kidder	585,766	July 6	210	49	80	44
Type-writing-machine ribbon-feed mechanism	G. A. Seib	590,117	Sept. 14	1222	287	80	1734
Type-writing machines. Word-counter for	C. H. Menck	586,730	July 20	1976	460	80	495
Typographic impressions. Machine for justifying	I. Risley	588,087	Aug. 10	1413	328, 329, 330	80	944
Typographic machine	T. T. Heath	587,816	Aug. 10	934	217, 218, 219, 220	80	857
Umbrella	E. Charageat	589,933	Sept. 14	880	210	80	1660
Umbrella or parasol	F. H. Mitchell	588,773	Aug. 24	2661	614	80	1211
Undertaker's sanitary sheet	W. A. Griffith and S. Lovell	590,188	Sept. 14	1346	318	80	1749
Underwaist	I. N. Fooks	586,736	July 20	1967	458	80	422
Unicycle	J. W. Dornseif and O. Y. Moser	589,249	Aug. 31	3502	821	80	1366
Urinal. Portable	S. Ewer	587,808	Aug. 10	918	214	80	855
Valve	M. Abt	587,632	Aug. 3	623	150	80	780
Valve	C. E. Brown	587,786	Aug. 10	890	208	80	850
Valve	J. H. Brown	586,721	July 20	1960	457	80	422
Valve	E. Evertsen	589,194	Aug. 31	3283	772	80	1345
Valve	G. W. Griffin	586,433	July 13	1459	336	80	298
Valve	L. J. Hirt	588,480	Aug. 17	2028	471	80	1073
Valve	W. G. Milner	585,667	July 6	66	16	80	16
Valve	W. R. Park and B. T. Williston	587,855	Aug. 10	1023	236	80	872

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol.	Page.
Valve	H. H. Riggin	588,015	Aug. 10	1308	301	80	934
Valve	M. R. Sherrerd	587,107	July 27	2602	626	80	576
Valve	H. K. Wood	590,011	Sept. 14	1032	243	80	1668
Valve. Air-brake triple	J. T. and G. W. Hayden	587,054	July 27	2577	608	80	559
Valve apparatus	F. Veith	589,878	Sept. 14	775	180	80	1641
Valve applicable to vessels containing compressed gas.	J. C. Plunkett and G. Donat	589,479	Sept. 7	124	27	80	1505
Valve. Balanced slide	I. C. Griffith	588,119	Aug. 10	1485	343	80	957
Valve. Bleeder	W. Kennedy	586,773	July 20	2047	477	80	437
Valve. Brake	W. J. Bradley	586,158	July 13	1006	227 228	80	213
Valve. Check	H. Reinach	588,779	Aug. 24	2068	616	80	1212
Valve. Combined equalizing stop and check	A. S. Roseberry	589,142	Aug. 31	3313	779	80	1851
Valve. Combined high-pressure throttle and reducing	A. W. Cash	587,670	Aug. 3	679	163	80	791
Valve. Combined pressure and vacuum	H. Goehring	587,094	July 27	2646	625	80	573
Valve connection for steam-engines	J. Young	587,168	July 27	2803	658	80	602
Valve. Cut-off	C. S. Kellogg	590,841	Sept. 28	3497	594	80	1990
Valve device for compound engines. Emergency	C. J. Mellin	589,184	Aug. 31	3374	798	80	1363
Valve device. Quick-action triple	H. E. Grant	588,419	Aug. 17	2011	466	80	1069
Valve. Electrically-operated	F. McDonald	586,861	July 20	2186	512	80	464
Valve. Engine reversing	D. W. Roy	588,533	Aug. 17	2215	515	80	1109
Valve for air or gas compressors, &c	J. Clayton	587,704	Aug. 10	757	178	80	826
Valve for bicycles, &c	E. F. Pickett	586,534	July 13	1646	388	80	334
Valve for car-heating systems	J. F. McElroy	586,616	July 20	1800	418	80	308
Valve for locomotive-engines. Overpass	C. J. Mellin	587,505	Aug. 3	400	94, 95	80	737
Valve for steam-boilers. Wash-out	J. Rooney	586,368	July 13	1343	309	80	277
Valve for water and steam piping systems. Waste	H. F. Neumeyer and J. F. Young	586,779	July 20	2056	479	80	439
Valve. Four-way reverse	F. V. Matton	588,458	Aug. 17	2076	484	80	1089
Valve. Gate	O. N. Guldlin	585,912	July 6	476	115	80	94
Valve. Gate	G. E. Martin	585,684	July 6	62	15	80	15
Valve-gear. Pumping-engine	J. A. Towler	588,508	Aug. 17	2166	508	80	1098
Valve-gear. Pumping-engine	J. A. Towler	588,842	Aug. 24	2786	647	80	1233
Valve. Governor	G. E. Foster	588,415	Aug. 17	2005	464	80	1068
Valve. Governor	J. N. Rundle	590,281	Sept. 21	1513	358	80	1793
Valve-indicator	J. Knickerbacker	586,740	July 20	1997	464	80	429
Valve-operating mechanism	B. S. Cowles	589,700	Sept. 7	490	117	80	1575
Valve or faucet	L. Simmons	589,102	Aug. 31	3225	758	80	1334
Valve. Quick-action triple	J. A. Hoff	588,336	Aug. 17	1868	431	80	1042
Valve. Reducing pressure	C. Smith	585,711	July 6	96	24, 25	80	22
Valve-registering device	C. L. Quimby	588,010	Aug. 10	1293	299	80	922
Valve. Safety	C. B. Bosworth	585,864	July 6	423	101	80	84
Valve. Safety	C. S. Waybright	590,195	Sept. 14	1355	320	80	1750
Valve. Sealed gate	G. E. Martin	589,008	Aug. 31	3051	721	80	1305
Valve-seat recutting-tool	A. F. Rickert	586,395	July 13	1393	321	80	295
Valve. Slide	W. Goodspeed	587,267	Aug. 3	154	37	80	694
Valve. Slide	B. H. Taylor	585,798	July 6	263	61	80	54
Valve. Stop	J. H. Hoadley and W. H. Knight	586,235	July 13	1124	255	80	236
Valve. Straightway	C. Jenkins	587,439	Aug. 3	280	66	80	718
Valves. Electrical indicator for	W. J. Rickard	588,860	Aug. 24	2847	662	80	1245
Valves. Grouping and mounting air	T. W. Brooks	589,927	Sept. 14	873	208	80	1658
Valves in pipes or mains. Means for inserting	D. W. French	587,092	July 27	2639	623 624	80	571
Valves in pipes or mains. Means for inserting	M. R. Sherrerd	587,108	July 27	2666	628 629	80	576
Vaporizer	A. R. Miranda	587,371	Aug. 3	158	38, 39	80	695
Varnish-can	W. H. Barber	588,121	Aug. 17	1493	344	80	973
Varnish-gum. Manufacture of	J. Todd	587,345	Aug. 3	119	.....	80	688
Vault. Grave	F. C. Rheubottom	588,086	Aug. 10	1412	326	80	944
Vault-light	O. H. Basquin	586,214	July 13	1096	248	80	230
Vault-light	F. C. Soper	586,248	July 13	1147	261	80	239
Vegetable-cutter	O. A. Bulette	590,129	Sept. 14	1243	295	80	1728
Vegetable-cutter	J. F. Rote	588,606	Aug. 24	2337	541	80	1151
Vehicle-brake	J. Ferrel	588,968	Aug. 31	2993	706	80	1291
Vehicle-brake	E. S. Hall	589,779	Sept. 7	609	142	80	1598
Vehicle-brake	J. F. Murphy	587,596	Aug. 3	564	135 136	80	769
Vehicle-brake	F. Rittenhouse	589,755	Sept. 7	573	134 135 469	80	1591
Vehicle-brake. Automatic	J. S. Hainsworth	588,425	Aug. 17	2021	470	80	1072
Vehicle draft attachment	A. MacAlpine	587,078	July 27	2615	618	80	566
Vehicle-fender	W. H. Gregg	585,862	July 6	398	90	80	77
Vehicle. Four-wheeled	J. W. Windle	587,628	Aug. 3	619	149	80	779
Vehicle. Motor	C. E. and J. F. Duryea	588,103	Aug. 10	1449	336	80	950
Vehicle. Motor	G. Langer	590,001	Aug. 31	3450	718	80	1302
Vehicle running-gear	A. A. Holt	589,127	Aug. 31	3298	773	80	1346
Vehicle-seat	J. Q. Black	587,175	July 27	2813	660	80	603
Vehicle. Self-propelled	F. Damour	588,054	Aug. 10	1366	317	80	935
Vehicle-spring	J. Blum and T. J. Anderson	588,813	Aug. 24	2736	635	80	1224
Vehicle-spring coupling	H. H. Uckotter	589,876	Sept. 14	772	180	80	1641
Vehicle spring-wheel	E. D. Greene	586,026	July 6	782	174	80	153
Vehicle storm-front	S. E. Farrow	586,763	July 20	2036	473	80	435
Vehicle-washing device	C B. Emery	589,345	Aug. 31	3702	885	80	1450
Vehicle-wheel	W. T. Faizey	587,191	July 27	2837	665	80	608
Vehicle-wheel	M. D. Goodwin	586,267	July 13	1178	269	80	244
Vehicle-wheel	C. K. Welch	589,235	Aug. 31	3464	812	80	1351
Vehicle-wheels. Rail-climbing device for	C. C. Durfee	590,391	Sept. 21	1699	400	80	1839
Vehicles. Brake mechanism for power-driven	J. R. Price	590,021	Sept. 14	1046	247	80	1691
Vehicles. Circuit-controller for electric	K. Knudsen	586,606	July 20	1783	414	80	389
Vehicles. Elastic handhold for	B. Theremin	589,874	Sept. 14	771	179	80	1640
Vehicles. Mechanical movement for propelling	H. J. Jensen	589,853	Aug. 31	3810	889 890	80	1458
Velocimeter	K. Tornberg	587,498	Aug. 3	395	91	80	735
Velocipede	E. L. Barton	589,328	Aug 31	3768	878	80	1445
Velocipede	C. E. Beckman	587,051	July 27	2567	606	80	558

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol.	Page.
Velocipede	B. C. Hicks	586,494	July 13	1557	364	80	316
Velocipede	F. Latimer	587,837	Aug. 10	998	230	80	865
Velocipede	M. A. Lilly	587,318	Aug. 3	63	15	80	678
Velocipede	H. G. Meumann	589,531	Sept. 7	206	49	80	1521
Velocipede brake and coasting sprocket-wheel	N. Wallerich	589,149	Aug. 31	3326	782	80	1354
Velocipede driving-gear	F. E. Macmahon and A. J. Postans	588,694	Aug. 24	2500	577	80	1180
Velocipede-fitting	W. Dicks	589,498	Sept. 7	153	34	80	1511
Velocipede handle-bar	B. C. Hicks	586,493	July 13	1556	364	80	316
Velocipede handle-bar	R. F. McCoy	588,166	Aug. 17	1574	363	80	989
Velocipede handle-protector	M. Goodman, J. J. and W. R. Rawlings.	587,956	Aug. 10	1208	280	80	908
Velocipede. Ice	C. O. Anderson	586,412	July 13	1421	327	80	291
Velocipede. Ice	A. Scherrer	588,488	Aug. 17	2124	494	80	1091
Velocipede. Ice	F. Wuggenig	590,351	Sept. 21	1698	395 396	80	1818
Velocipede-pedal	P. Terver	587,536	Aug. 3	456	107	80	749
Velocipede-saddles to their supports. Attachment for securing	C. L. Goodrich	588,271	Aug. 17	1754	406	80	1033
Velocipede-spring. Pneumatic	W. and D. Doig	589,690	Sept. 14	696	159	80	1585
Velocipede steering-gear	T. H. Simmonds	587,572	Aug. 10	1054	243	80	877
Velocipede steering-head	J. S. Copeland	586,786	July 20	2068	481	80	441
Velocipedes. Pneumatic or cushion wheel for	H. C. Bewin and W. R. James	587,174	July 27	2811	660	80	603
Vending apparatus. Prepayment	F. E. Morgan and R. C. Blakeslee	587,990	Aug. 10	1259	291	80	915
Veneer doors, &c. Press for making	J. S. Carter	585,908	July 6	465	113	80	98
Vent-trap	S. J. Rand	587,661	Aug. 3	700	167	80	795
Ventilating and heating apparatus	J. McCreery	586,364	July 13	1338	307	80	276
Ventilating cars or vessels	A. M. Cushing	590,515	Sept. 21	1910	452	80	1809
Ventilating system for buildings	G. T. Finagin	588,969	Aug. 31	2993	703	80	1291
Ventilation. Fresh-air inlet for sanitary	P. Ayres	589,923	Sept. 14	864	206	80	1657
Ventilator: *See* Awning-ventilator. Ship's-port ventilator. Car-ventilator. Stove-ventilator. Refrigerator-car ventilator. Window-ventilator.							
Ventilator	T. R. Harper	587,259	July 27	2957	694	80	632
Vertical boiler	M. Zier	585,898	July 6	449	109	80	89
Vessel ballast-log	S. Menzies	589,133	Aug. 31	3296	775	80	1347
Vessel-loading apparatus	C. C. Allen	586,151	July 13	994	234	80	211
Veterinary obstetrical instrument	J. Barry and M. L. Shaughnessy	585,947	July 6	546	128	80	106
Veterinary obstetrical instrument	J. I. Sare	590,024	Sept. 14	1051	248	80	1668
Vibrating or gyrating device	H. K. Nold	587,156	July 27	2776	653	80	597
Violin	G. W. Swalley	590,096	Sept. 14	1053	248	80	1668
Viscous substances. Receptacle for	F. L. Littlefield	586,049	July 6	814	182	80	159
Vise	J. A. Blake	590,385	Sept. 21	1690	398	80	1827
Vise	R. A. Breul	590,820	Sept. 28	2450	584	80	1988
Vise	W. B. Holt	586,359	July 13	1328	304	80	274
Vise	G. A. McKenzie	587,749	Aug. 10	898	195	80	840
Vise	W. E. Snediker	586,370	July 13	1345	309 310	80	277
Volt-graduator. Combination	W. J. Shields	588,246	Aug. 17	1710	396	80	1014
Voting-booth and registering device	C. A. Evans	587,547	Aug. 3	475	111	80	753
Voting-machine	C. L. Bancroft	586,328	July 13	1283	293 294	80	265
Voting-machine	E. B. Cummings	585,742	July 6	157	36, 37	80	34
Voting-machine	E. B. Cummings	585,743	July 6	161	37, 38	80	35
Voting-machine	J. G. Hardie, Jr., and J. F. Post	587,120	July 27	2713	637	80	585
Voting-machine	R. A. Hart	586,031	July 6	789	176 177	80	155
Voting-machine	G. Wilson	588,671	Aug. 24	2482	571 572	80	1177
Voting-machine booth	J. Boma	590,942	Sept. 28	2674	657 658 678	80	2026
Voting-machine. Mechanical	J. A. Markoe	587,222	July 27	2690	579 690	80	619
Vulcanizing atomizer or syringe bulbs, &c. Mold for	J. C. Hagdman	587,961	Aug. 10	1219	283	80	908
Vulcanizing-mold	C. L. Higgins	590,578	Sept. 28	2080	476	80	1908
Wagon body and gear	W. S. Reynolds	587,862	Aug. 10	1033	239	80	873
Wagon-brake	S. Berreyesa	586,063	July 6	876	197	80	171
Wagon-brake	A. W. Burkholder	587,180	July 27	2818	662	80	604
Wagon-brake	C. Garver	588,640	Aug. 24	2420	558	80	1165
Wagon-brake	W. J. Skidmore	590,745	Sept. 28	2326	550	80	1957
Wagon-brake. Automatic	H. A. Hibbard	586,969	July 27	2413	570 571	80	529
Wagon-brake. Automatic	E. Skaar	589,512	Sept. 7	178	41	80	1515
Wagon. Convertible	G. H. Goodwin	589,715	Sept. 7	514	122	80	1580
Wagon. Dumping	W. Beckert	585,948	July 6	547	128	80	106
Wagon. Dumping	W. Rodenhausen	588,882	Aug. 24	2849	662 663 840 841	80	1246
Wagon. Dumping	W. O. Shadbolt	587,906	Aug. 10	1042	241	80	874
Wagon-dumping apparatus	O. G. Taber	590,601	Sept. 28	2067	489	80	1911
Wagon-jack	C. H. Brenton	586,091	July 13	901	202	80	198
Wagon-jack	H. Sutherland	588,504	Aug. 17	2168	502	80	1097
Wagon-jack	I. L. Thompson	590,608	Sept. 28	2069	490	80	1911
Wagon or other vehicle	E. W. Loomis	585,768	July 6	213	50	80	45
Wagon-standard	J. G. and H. E. Kernek	586,440	July 13	1467	340	80	300
Wagon-step	M. J. Leathers	590,155	Sept. 14	1229	306	80	1738
Wagon-step and chair. Combined	H. G. Harrington	590,149	Sept. 14	1263	305	80	1736
Wagon-wrench	A. Albrecht	589,400	Sept. 7	1	1	80	1483
Waiting-stand for dining-tables	J. P. Keating	590,579	Sept. 28	2089	478 479	80	1904
Wall-tie	W. R. Raywood and T. R. Gockel	589,481	Sept. 7	126	28	80	1505
Warp-chains. Machine for wrapping	E. T. Garsed	587,194	July 27	2840	666	80	908

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Warp-threads. Thread-selecting device for machines for drawing in	R. H. Ingersoll	590,008	Sept. 14	1027	241	80	1667
					249		
Warping-frame	H. Eastwood	590,045	Sept. 28	2681	630	80	2027
Washbench and step-ladder. Combined	J. H. Pflieger	589,192	Aug. 31	3399	705	80	1366
Washboard	L. O. Brown	589,070	Aug. 31	3164	745	80	1323
Washboard	M. B. Lloyd	585,884	July 6	310	73	80	68
Washboard	A. Poehlman	585,925	July 6	504	120	80	99
Washer:							
See Bottle-washer. Grain-washer. Photographic-print washer. Photographic-negative washer.							
Wash for trees, &c.	C. Tatge	588,081	Aug. 10	1395	.....	80	928
Washing-machine	C. Dietz, H. Diephaus, and E. Grapy	588,118	Aug. 10	1484	349	80	957
Washing-machine	R. G. Ferguson	586,814	July 20	2114	493	80	449
					494		
Washing-machine	F. D. Harding	589,427	Sept. 7	43	11	80	1490
Washing-machine	L. D. and A. J. Hart	589,084	Aug. 31	3194	751	80	1328
Washing-machine	W. H. Heninger	588,147	Aug. 17	1545	356	80	964
Washing-machine	J. D. Locke	587,447	Aug. 3	296	71, 73	80	721
Washing-machine	S. B. and T. M. Raley	589,194	Aug. 31	3398	796	80	1366
Washing-machine	H. B. Roach	588,604	Aug. 24	2333	540	80	1150
Washing-machine	L. Ryder	587,510	Aug. 3	408	96	80	739
Washing-machine	H. C. Swafford	586,687	July 20	1837	426	80	399
Washing-machine	R. Teitzrow	585,721	July 6	190	29	80	96
Washing-machine	I. N. Turnbaugh	589,319	Aug. 31	3756	875	80	1448
Washing-machine	W. A. Wallingford	586,580	July 20	1784	408	80	379
Washing-machine	G. T. Winters	589,059	Aug. 31	3149	740	80	1320
Washing-machine motor	H. F. Brammer	590,252	Sept. 21	1463	345	80	1784
Washtub-stand	H. and A. Maes	587,219	July 27	2878	675	80	617
Watchmaker's tool	E. L. Ovrejorde	586,568	July 20	1697	394	80	373
Watch. Repeating	W. A. Gabriel	587,574	Aug. 3	582	123	80	761
					124		
					125		
					126		
Watch-rim centers. Device for manufacturing	H. P. Kent	585,821	July 6	302	71	80	92
Watch. Stem winding and setting	O. Ohlson	587,158	July 27	2779	654	80	597
Watch. Stem winding and setting	W. E. Porter	590,356	Sept. 28	2619	601	80	1994
Watch. Stop	H. A. Lugrin	588,344	Aug. 17	1879	434	80	1045
Watch winding-indicator	E. Antoine	588,373	Aug. 17	1985	446	80	1054
					447		
Watches. Repeating mechanism for	B. Le Coultre	588,281	Aug. 17	1770	409	80	1025
Water-bag	R. W. Woodbury	586,650	July 20	1855	431	80	402
Water by alternating electric currents. Purifying	E. Verstraete	586,643	July 20	1848	429	80	401
Water-closet	J. H. Gavin and J. McGuire	588,224	Aug. 17	1665	382	80	1006
Water-closet	J. P. Putnam	588,292	Aug. 17	1768	414	80	1028
Water-closet	J. H. Stevens, Jr	590,244	Sept. 21	1446	340	80	1781
Water-closet cistern	G. D. Ackley	589,690	Sept. 7	454	108	80	1598
Water-closet flush-tank	B. M. Carney	586,834	July 20	2145	501	80	455
Water-closet. Pump	G. B. Howell	589,601	Sept. 7	327	82	80	1543
Water-closet. Ship's	H. Ives	587,735	Aug. 10	807	190	80	896
Water-closet tank	B. Crowell	590,944	Sept. 28	2679	632	80	2027
Water-closet valve	J. H. Savill	590,240	Sept. 21	1439	339	80	1780
Water-cooling apparatus. Waste	J. E. Beckman	586,361	July 13	1196	278	80	248
Water-distribution system	J. L. White	588,305	Aug. 17	1817	419	80	1022
Water-elevator	M. G. Bunnell	587,788	Aug. 10	898	209	80	851
Water-elevator. Pneumatic	J. Haas	588,625	Aug. 24	2752	638	80	1227
Water-elevator. Pneumatic	J. G. Leyner	585,688	July 6	59	14	80	14
Water-gage	D. Best	587,297	Aug. 3	13	4	80	667
Water-gage	J. Hopkinson and J. Lowis	589,259	Aug. 31	3516	824	80	1392
					825		
Water-heater	J. A. Hollenbeck	588,431	Aug. 17	2089	471	80	1073
					472		
Water-heater	E. J. Verrue	588,300	Aug. 17	1811	418	80	1031
Water heating and circulating apparatus	M. M. Brophy	590,014	Sept. 14	1086	244	80	1689
Water-heating boiler	J. P. B. Sadtler	588,016	Aug. 10	1304	302	80	924
Water, &c. Hydraulic apparatus for raising or forcing	H. D. Pearsall	587,063	July 27	2590	611	80	562
Water-meter	F. W. Hood	585,757	July 6	191	44	80	40
Water-meter	A. H. Kennedy	587,125	July 27	2708	635	80	588
Water-motor	M. I. Cortright	588,102	Aug. 10	1448	336	80	950
Water-motor	C. M. Kemp	590,768	Sept. 28	2356	559	80	1964
Water-motor	B. Pickering	588,470	Aug. 17	2104	489	80	1097
					490		
Water-motor. Current	F. G. Harford	587,814	Aug. 10	982	216	80	857
					217		
Water-pillow and douche. Combined	A. A. Stoll	587,767	Aug. 10	858	202	80	845
Water-pipe system	E. W. Giles	589,650	Sept. 7	405	98	80	1559
Water-power apparatus	O. J. Woodard	589,678	Sept. 7	452	108	80	1568
Waterproof cloth and making same	A. L. Kennedy	590,842	Sept. 28	2499	595	80	1991
Waterproof material	A. L. Kennedy	587,096	July 27	2648	.....	80	573
Waterproofing material upon fabrics. Machine for spreading	J. J. Mann	590,157	Sept. 14	1294	307	80	1738
Water-purifier for steam-boilers	W. Irving	586,794	July 20	2078	484	80	443
Water-purifying apparatus	J. Demoulin	589,937	Sept. 14	887	211	80	1661
					212		
Water-purifying composition	A. Busch and G. Sanders	589,698	Sept. 7	399	.....	80	1555
Water-registering device	S. J. Evans	586,428	July 13	1450	336	80	296
Water-regulator	J. B. Runk	586,396	July 13	1396	321	80	286
Water-supply regulator	J. E. Crawley	590,641	Sept. 28	2143	506	80	1925
Water-supply system	A. W. Austin	586,653	July 20	1858	432	80	406
Water-tight bag	E. B. Young	590,606	Sept. 28	2079	492	80	1913
Water-tube boiler	W. Sellers, H. B. Bradford, and B. D. Coppage.	588,639	Aug. 24	2779	644	80	1232
					645		
Water-wheel	L. J. Holzhauser	589,350	Aug. 31	3606	868	80	1452

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Water-wheel	M. H. White	590,178	Sept. 14	1294	314	80	1745
Water-wheel cylinder-gate. Duplex	E. R. Stilwell	588,502	Aug. 17	2159	501	80	1037
Water-wheel register-gate. Duplex	E. R. Stilwell	588,501	Aug. 17	2158	501	80	1036
Watering-tank	C. E. Irwin	588,716	Aug. 24	2556	590	80	1190
Wattmeter. Recording	W. H. Pratt	590,648	Sept. 28	2153	510	80	1988
Wave and swell motor	H. Schomberg	587,511	Aug. 3	409	97	80	739
Wave-motor	T. Harding	588,641	Aug. 24	2421	558	80	1166
Wave-motor	H. Voelmy	589,675	Sept. 7	448	106	80	1567
					107		
Wave-motor	P. Wright	589,520	Sept. 7	198	44, 45	80	1518
Wax-sheeting apparatus	T. Evans	590,017	Sept. 14	1040	245	80	1690
Waxing-pad	E. E. Woisard	586,985	July 27	2441	577	80	535
Weather-strip	J. H. Eller	590,644	Sept. 28	2150	509	80	1988
Weather-strip	H. W. Ward	587,808	Aug. 10	1086	250	80	883
Weed-cutter	E. V. Stine	590,634	Sept. 28	2135	505	80	1988
Weigher. Automatic grain	A. and J. H. McLeod	587,680	Aug. 3	608	167	80	795
Weighing and bagging apparatus	F. H. Richards	589,296	Aug. 31	3683	860	80	1437
					861		
Weighing and bagging machine	F. H. Richards	589,297	Aug. 31	3698	848	80	1415
					849		
Weighing and bagging machine	F. H. Richards	589,295	Aug. 31	3677	858	80	1436
					859		
					860		
Weighing and dispensing apparatus. Coin-controlled	F. H. Richards	589,294	Aug. 31	3671	857	80	1494
					858		
Weighing and dumping vehicle	G. H. Fletcher	589,707	Sept. 7	498	119	80	1577
Weighing and package-filling machine. Automatic	H. Richardson	590,580	Sept. 21	1934	458	80	1969
Weighing and packing apparatus	F. H. Richards	589,301	Aug. 31	3718	866	80	1435
					867		
					868		
Weighing apparatus	F. H. Richards	585,981	July 6	674	153	80	131
Weighing apparatus. Automatic	M. E. Reisert	585,785	July 6	241	56	80	50
Weighing-machine	F. H. Richards	585,966	July 6	578	135	80	118
					136		
Weighing-machine	F. H. Richards	585,967	July 6	584	136	80	118
					137		
Weighing-machine	F. H. Richards	585,968	July 6	594	137	80	115
					138		
					139		
Weighing-machine	F. H. Richards	585,969	July 6	606	139	80	119
					140		
Weighing-machine	F. H. Richards	585,970	July 6	611	140	80	120
					141		
Weighing-machine	F. H. Richards	585,971	July 6	614	141	80	120
Weighing-machine	F. H. Richards	585,972	July 6	630	142	80	121
Weighing-machine	F. H. Richards	585,973	July 6	634	144	80	122
Weighing-machine	F. H. Richards	585,974	July 6	632	145	80	123
Weighing-machine	F. H. Richards	585,975	July 6	637	146	80	124
Weighing-machine	F. H. Richards	585,976	July 6	640	146	80	124
					147		
Weighing-machine	F. H. Richards	585,977	July 6	647	147	80	125
					148		
Weighing-machine	F. H. Richards	585,978	July 6	656	149	80	127
Weighing-machine	F. H. Richards	585,980	July 6	668	150	80	130
Weighing-machine	F. H. Richards	585,982	July 6	678	152	80	132
Weighing-machine	F. H. Richards	585,984	July 6	700	154	80	136
					155		
					156		
Weighing-machine	F. H. Richards	585,985	July 6	705	157	80	138
					158		
Weighing-machine	F. H. Richards	585,986	July 6	713	159	80	139
					160		
Weighing-machine	F. H. Richards	589,273	Aug. 31	3532	829	80	1395
					830		
Weighing-machine	F. H. Richards	589,274	Aug. 31	3540	830	80	1397
					831		
Weighing-machine	F. H. Richards	589,276	Aug. 31	3554	833	80	1399
Weighing-machine	F. H. Richards	589,278	Aug. 31	3566	834	80	1402
Weighing-machine	F. H. Richards	589,279	Aug. 31	3572	836	80	1403
					837		
Weighing-machine	F. H. Richards	589,280	Aug. 31	3580	838	80	1404
					839		
Weighing-machine	F. H. Richards	589,281	Aug. 31	3584	839	80	1405
					840		
Weighing-machine	F. H. Richards	589,282	Aug. 31	3591	840	80	1407
					841		
					842		
Weighing-machine	F. H. Richards	589,283	Aug. 31	3599	842	80	1408
					843		
Weighing-machine	F. H. Richards	589,284	Aug. 31	3606	844	80	1409
					845		
Weighing-machine	F. H. Richards	589,285	Aug. 31	3612	846	80	1411
					847		
Weighing-machine	F. H. Richards	589,288	Aug. 31	3633	849	80	1416
					850		
Weighing-machine	F. H. Richards	589,289	Aug. 31	3641	851	80	1418
					852		
Weighing-machine	F. H. Richards	589,290	Aug. 31	3644	852	80	1419

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weighing-machine	F. H. Richards	589,291	Aug. 31	3655	854, 855	80	1421
Weighing-machine	F. H. Richards	589,292	Aug. 31	3660	855, 856	80	1422
Weighing-machine	F. H. Richards	589,293	Aug. 31	3667	856, 857	80	1424
Weighing-machine	F. H. Richards	589,297	Aug. 31	3698	861, 862, 863	80	1428
Weighing-machine	F. H. Richards	589,298	Aug. 31	3693	863, 864	80	1430
Weighing-machine	F. H. Richards	589,299	Aug. 31	3706	864, 865	80	1433
Weighing-machine	F. H. Richards	589,300	Aug. 31	3711	865, 866	80	1434
Weighing-machine	F. H. Richards	589,302	Aug. 31	3727	868, 869	80	1437
Weighing-machine. Automatic	F. H. Richards	585,979	July 6	663	151	80	129
Weighing-machine. Automatic	F. H. Richards	585,983	July 6	668	156, 157, 681	80	136
Weighing-machine. Automatic	F. H. Richards	589,275	Aug. 31	3647	832, 833	80	1397
Weighing-machine. Automatic	F. H. Richards	589,277	Aug. 31	3659	835	80	1400
Weighing-machine. Automatic	F. H. Richards	589,286	Aug. 31	3693	847, 848	80	1415
Weighing-scoop	C. D. Colley	590,361	Sept. 21	1651	390	80	1820
Weight-indicating device	D. K. Simonds	585,719	Aug. 24	2559	591	80	1191
Weir. Adjustable distributing	J. B. Pope	585,875	July 6	409	97, 98	80	81
Welding compound	T. Odlum	589,218	Aug. 31	3433		80	1372
Well. Artesian or tube	D. L. Barker	587,779	Aug. 10	877	206	80	848
Well-drilling machine	H. S. and C. E. Glenn	585,668	July 6	39	9	80	10
Well fishing-tool. Oil	J. A. Mills	589,607	Sept. 7	341	84	80	1546
Well operating power. Oil or water	G. W. Grimes	586,097	July 6	783	174	80	153
Well or cistern platform	L. A. Brigel	589,411	Sept. 7	23	6	80	1486
Well packer. Deep	D. W. Black	588,384	Aug. 17	1946	451	80	1056
Well packer. Deep	D. W. Black	588,385	Aug. 17	1949	458	80	1058
Well tools. Means for coupling or uncoupling oil	L. E. Brackney	586,527	July 13	1634	379, 380	80	332
Well-tubing cleaner. Oil	F. W. Ballard	586,001	July 6	747	167	80	146
Welsbach or other light	G. S. and W. E. Barrows	590,815	Sept. 28	3458	589	80	1961
Welt-seam-trimming machine	Z. T. French and W. C. Meyer	590,831	Sept. 28	3477	590	80	1966
Welt-trimmer	A. F. Chandler	587,279	July 27	2998	702	80	689
Wheel: *See* Bicycle-wheel. Bicycle spring wheel. Car-wheel. Carriage-wheel. Cycle-wheel. Driving-wheel. Elastic wheel. Fifth-wheel. Fly-wheel. Metal wheel. Metallic wheel. Sprocket-wheel. Trolley-wheel. Vehicle-wheel. Vehicle spring-wheel. Water-wheel.							
Wheel	E. Griffitt	587,307	Aug. 3	46	11	80	674
Wheel	C. E. Guider	589,652	Sept. 7	408	99	80	1559
Wheel	J. C. Michie	589,784	Sept. 7	622	144	80	1600
Wheel	J. P. Northey	589,191	Aug. 31	3386	795	80	1366
Wheel attachment	A. N. Cross	590,734	Sept. 28	3312	547	80	1954
Wheels. Machine for assembling parts of	J. H. Player	585,696	July 6	77	19	80	16
Wheelbarrow	G. N. Meves	587,985	Aug. 10	1251	289, 290	80	914
Wheelbarrow	J. J. Snyder	588,095	Aug. 10	1429	332	80	947
Whiffletree	C. A. Gaylord	585,745	July 6	172	38	80	36
Whiffletree clip and hook. Combined	C. E. Coe	589,122	Aug. 31	3260	771	80	1344
Whiffletree-hook	J. P. Elkjer	589,077	Aug. 31	3179	748	80	1326
Whiffletree-hook	G. A. Grappotte	588,328	Aug. 17	1857	429	80	1040
Whiffletree-hook	N. F. Reed	588,474	Aug. 17	2110	491	80	1088
Whip-lock	A. Eggleston	589,962	Sept. 14	928	222	80	1669
Whip-socket	R. A. Hartley	586,491	July 13	1554	363	80	316
Whip-socket and rein-holder. Combination	M. D. Peterson	586,744	July 20	2004	466	80	451
Whist table. Duplicate	J. W. Johnson	589,069	Aug. 31	3201	758	80	1330
Wick-adjuster	E. D. Tuthill	590,426	Sept. 21	1762	414	80	1840
Wick-and flame regulator. Burner	W. S. Reamer	585,702	July 6	84	22	80	20
Wick-puller	E. M. Roberts, J. F. Blackwood, and J. P. Cahill.	585,787	July 6	245	57	80	51
Winding and warping machine indicator	R. J. Risk	586,396	July 13	1394	321	80	285
Winding machine. Cop	S. W. Wardwell, Jr	589,587	Sept. 7	308	73, 74	80	1539
Winding machine. Thread	A. Dewhurst	586,423	July 13	1440	332, 333, 334	80	295
Winding machine. Yarn	J. D. Whyte	586,279	July 13	1190	272, 273	80	247
Windlass	F. H. Ayer	590,940	Sept. 28	2671	637	80	2025
Windmill	C. H. Barker	589,807	Sept. 14	664	155	80	1621
Windmill	J. P. F. Flaig	590,753	Sept. 28	2343	554, 555	80	1961
Windmill	J. P. Fruit	588,060	Aug. 10	1376	319	80	937
Windmill	P. C. Hall	588,143	Aug. 17	1540	354	80	963
Windmill	R. E. Hardaway	588,572	Aug. 24	2283	529, 530	80	1138
Windmill	T. V. P. Vreeland	587,887	Aug. 10	1076	248	80	861
Windmill. Automatic	G. E. Knowlton	589,580	Sept. 7	207	48	80	1521
Windmill-regulator	H. Barthels	588,348	Aug. 24	2245	521, 522	80	1131
Windmill speed-regulator	O. R. Lale	587,445	Aug. 3	294	71	80	790

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Window	H. F. Belcher	586,224	July 13	1108	251	80	223
Window	L. S. Bradshaw	589,342	Aug. 31	3476	815	80	1382
Window	J. C. Dunham	590,305	Sept. 21	1559	370	80	1808
Window	J. Lumsden	585,771	July 6	217	51	80	45
Window and casing for cars, &c	C. A. Wellington	589,453	Sept. 7	86	19	80	1498
Window-chair	F. Kawecky	589,177	Aug. 31	3366	790	80	1361
Window-cleaning chair or platform	T. Welch	590,284	Sept. 28	3033	698	80	2018
Window-cleaning device	O. Hilcken	589,999	Sept. 14	980	234	80	1671
Window fastener. Storm	E. Svensen	589,448	Sept. 7	80	18	80	1497
Window frame and sash	F. E. Brown	585,949	July 6	549	129	80	105
Window-light	O. H. Basquin	586,211	July 13	1094	247	80	220
Window-light	F. C. Soper	586,349	July 13	1148	261	80	239
Window-light fastener	C. P. Hendricks	589,600	Sept. 7	396	81	80	1543
Window-screen	W. Halsey, Jr	585,671	July 6	42	10	80	11
Window-screen	A. Lambert	587,743	Aug. 10	819	198	80	836
Window-screen	W. Scott	590,666	Sept. 28	3232	680	80	1941
Window-screen	O. Vollrath	590,469	Sept. 21	1827	432	80	1852
Window-screen. Extensible	A. M. Bentley	590,448	Sept. 21	1798	428	80	1847
Window. Sliding and swinging	F. Faerber, L. Beck, and M. Wundt.	586,700	Aug. 24	2527	588, 589	80	1185
Window-stop adjuster	C. A. Taplin	586,147	July 13	990	223	80	210
Window-stop fastener. Adjustable	W. F. Johnston	587,585	Aug. 3	548	131	80	766
Window-ventilator	M. A. W. Louis	588,157	Aug. 17	1563	360	80	967
Windows, &c. Device for insuring closing of	H. I. Lurye and M. H. Lewis	587,501	Aug. 3	557	134	80	768
Wine-gasifying apparatus	C. Ameye	586,547	Aug. 24	2043	521	80	1151
Wine-making. Apparatus for handling pulp in	L. J. Borie	588,215	Aug. 17	1648	379	80	1002
Wire-barbing machine	A. J. Bates	586,945	July 20	2364	558, 559	80	498
Wire-clamp	J. M. Klein	588,446	Aug. 17	2053	479	80	1078
Wire-drawing machine	G. B. Lamb	588,071	Aug. 10	1393	324	80	940
Wire-holder	J. B. Lawrence	587,216	July 27	2974	675	80	616
Wire machine. Barb	C. F. Hintze	590,350	Sept. 28	2638	616	80	2005
Wire or cable tightener	A. Huber	588,094	Aug. 31	3063	713	80	1300
Wire-stretcher	W. Z. Brannon	590,037	Sept. 14	1153	273	80	1711
Wire-stretcher	J. J. Brooks	588,741	Aug. 24	2615	602	80	1201
Wire-stretcher	A. Davison	588,408	Aug. 17	1964	459	80	1064
Wire-stretcher	P. Frantz	590,808	Sept. 21	1565	371	80	1808
Wire-stretcher	W. H. Grafford	590,595	Sept. 28	2577	515	80	2007
Wire-stretcher	S. A. Grubb	590,219	Sept. 21	1410	332	80	1774
Wire-stretcher	G. Hanke	589,099	Aug. 31	3187	750	80	1327
Wire-stretcher	Z. F. Howard	588,981	Aug. 24	2913	662	80	1256
Wire-stretcher	J. N. Parker	588,002	Aug. 10	1261	296	80	919
Wire-stretching and staple-pulling device	J. R. McElroy	585,862	July 20	2188	512	80	464
Wire-swaging machine	L. Cook	586,660	July 20	1907	441, 442	80	410
Wire-tightener	I. B. Beekly	588,218	Aug. 17	1646	379	80	1003
Wire-weaving-machine pull-out	G. H. Shellaberger	590,937	Sept. 28	2664	635	80	2034
Wires, &c. Compensating device for	H. Bezer	585,587	July 20	1745	405	80	361
Wires or steels. Machine for putting tips on ends of covered	C. A. Seeley	589,590	Sept. 7	201	70	80	1536
Wiring the edges of covers, &c. Mechanism for	H. H. Hull	588,749	Aug. 24	2620	606	80	1205
Wood-bending machine	H. H. Burgett and L. W. Brown	588,743	Aug. 24	2619	603, 604, 555	80	1203
Wood-bundling machine	A. Ball	586,944	July 20	2355	556, 557, 558	80	496
Wood-graining machine	W. R. Hassett	586,035	July 6	796	178	80	156
Wood sanding and polishing machine	D. J. Lattimore	590,665	Sept. 28	2190	519, 520	80	1933
Wooden-rim-shaping machine	C. H. Cowdrey	586,380	July 13	1364	314, 147	80	280
Woodworking-machine	H. T. Redlake and R. C. Abelt	587,756	Aug. 10	840	196, 199	80	842
Wool-drying apparatus	J. McCreath	590,901	Sept. 28	2601	630	80	2012
Work-box	E. J. Johanson	590,704	Sept. 28	2256	534	80	1944
Work-box. Lady's	A. E. Conety	587,708	Aug. 10	703	170	80	827
Work-holder	O. R. Johnson	588,495	Aug. 17	2045	476, 477	80	1076
Work-registering instrument	W. O. Amsler	587,998	Aug. 3	3	1, 2	80	665
Wrapper for fruits or vegetables	C. M. Brown	588,080	Aug. 24	2508	578, 290	80	1189
Wrapping, folding, and addressing newspapers, &c. Machine for	L. A. Agnew	586,327	July 13	1273	291, 292, 293	80	263
Wrench: *See* Adjustable wrench. Lock-jaw wrench. Monkey-wrench. Nut-wrench. Pipe-wrench. Pipe or rod wrench. Quick-action wrench. Ratchet-wrench. Rod or bolt wrench. Screw-wrench. Tapping-wrench. Wagon-wrench.							
Wrench	H. Althoff	589,681	Sept. 7	456	109	80	1509
Wrench	C. H. Avery	588,049	Aug. 10	1355	315	80	933
Wrench	R. R. Barrow	586,473	July 13	1525	357	80	310
Wrench	R. F. Crosbie	590,303	Sept. 21	1655	390	80	1821
Wrench	C. Crumpler	587,186	July 27	2880	664	80	607
Wrench	H. W. Hoeft	588,110	Aug. 10	1471	340	80	954
Wrench	J. F. Jansohn and E. R. Minhinnick.	587,539	Aug. 3	442	108	80	745
Wrench	J. W. Johnson and R. Whitaker	588,438	Aug. 17	2044	476	80	1076
Wrench	A. Katzki	588,069	Aug. 10	1391	324	80	940
Wrench	J. W. Lind	590,619	Sept. 28	2102	497	80	1917
Wrench	H. S. Noble and C. M. Tussing	589,666	Sept. 7	451	104	80	1564
Wrench	L. A. Smith	589,312	Aug. 31	3746	822	80	1441
Wrench	J. N. Stephens and S. Prudhomme	589,228	Aug. 31	3487	806	80	1375

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wrench	C. A. Terry	589,046	Aug. 31	3125	735, 736	80	1316
Wrench	I. B. Tripp	587,694	Aug. 3	614	148	80	778
Wringer:							
See Clothes-wringer. Mop-wringer.							
Writer's cramp. Device for preventing	C. M. Einfeldt and C. C. Brace	588,908	Aug. 24	2676	671	80	1251
Writing-pad attachment	E. F. Black	589,955	Sept. 14	912	219	80	1666
Xanthin derivatives. Obtaining	E. Fischer	588,387	Aug. 17	1286	------	80	1040
Yeast	F. Vredenburg	587,771	Aug. 10	866	------	80	847
Yeast separating and assorting apparatus	H. Taussky	587,619	Aug. 3	608	145	80	776
Yoke center. Neck-	G. W. Furby	587,807	Aug. 10	983	215	80	856
Yoke coupling. Neck-	C. Shuman	587,513	Aug. 3	413	97	80	740
Yoke. Neck-	J. Ziegler	589,235	Aug. 31	3764	877	80	1444
Zinc-sulfid ores. Treating	H. Brewer	586,159	July 13	1008	------	80	213

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising-frame	A. King	27,404	July 20	80	508
Air-blast wing	E. Thomson	27,698	Sept. 28	80	2081
Badge	H. M. Caldwell	27,621	Sept. 7	80	1609
Badge	C. C. Darling	27,373	July 20	80	503
Badge	N. Leist	27,374	July 20	80	503
Badge	C. C. Penfold	27,318	July 13	80	326
Badge	D. A. Reese	27,451	Aug. 3	80	797
Badge	A. F. Thompson	27,419	July 27	80	645
Badge-pin	G. E. Darling	27,420	July 27	80	647
Baking-pan	G. W. Knapp	27,466	Aug. 3	80	802
Balance case. Spring-	J. A. Smith	27,545	Aug. 17	80	1119
Basket	J. O. Neel	27,574	Aug. 24	80	1267
Bath-tub	D. D. Buick	27,669	Sept. 21	80	1666
Bath-tub	W. P. Seibert	27,468	Aug. 3	80	802
Bath-tub leg	C. F. Arrott	27,599	Aug. 31	80	1470
Bath-tub rim	D. D. Buick	27,467	Aug. 3	80	802
Batteries. Frame for ore-stamp	W. G. Dodd	27,479	Aug. 3	80	801
Battery-plate coupling	A. C. Robbins	27,694	Sept. 28	80	2081
Bed-bottom	D. J. Kane	27,534	Aug. 17	80	1116
Bed-lounge frame	L. G. Beloud	27,666	Sept. 21	80	1665
Bed-rail fastener	E. Golucke	27,533	Aug. 17	80	1116
Bedstead	J. Gibson	27,315	July 6	80	180
Bedstead	M. Hall	27,469	Aug. 3	80	803
Bedstead-mount	W. K. Pine	27,600	Aug. 31	80	1470
Bedsteads. End frame for metal	D. Frank	27,508	Aug. 10	80	960
Bedsteads. Metal mount for	F. W. Chesson	27,478	Aug. 3	80	801
Bedsteads. Metal mount for	F. W. Chesson	27,509	Aug. 10	80	961
Belt	L. Sanders	27,689	Sept. 28	80	2080
Belt or band pattern	W. C. Edge	27,295	July 6	80	175
Bicycle-chains. Side plate for	E. C. Fletcher	27,495	Aug. 3	80	799
Bicycle-cover	H. Mack	27,645	Sept. 14	80	1734
Bicycle crank-hanger	W. I. Grubb	27,578	Aug. 24	80	1268
Bicycle fork-crown	W. S. King	27,306	July 6	80	179
Bicycle-frame	J. M. Andersen	27,618	Aug. 31	80	1473
Bicycle-frame	T. S. Culp	27,438	July 27	80	647
Bicycle-frame	F. A. Kershaw	27,551	Aug. 17	80	1120
Bicycle-frame	E. Whitworth	27,308	July 6	80	179
Bicycle-pedal foot-rest	J. T. Hall	27,304	July 6	80	178
Bicycle-rack	A. O. Blethen and W. J. Evans	27,667	Sept. 21	80	1665
Bicycle saddle-seat	H. A. Christy	27,577	Aug. 24	80	1267
Bicycle seat-support	L. Onderdonk	27,359	July 13	80	348
Bicycle-stand	J. F. Crooker	27,309	July 6	80	179
Bicycle-support	F. B. Felton	27,632	Sept. 7	80	1611
Bicycle-support	W. C. Jirdinston	27,310	July 6	80	179
Bicycle-tool	J. Fisher	27,659	Sept. 21	80	1664
Bicycles &c. Pedal for	B. H. Davies	27,631	Sept. 7	80	1611
Bicycles. Wall-support for	H. L. Piper	27,439	July 27	80	649
Blower-frame	W. E. Canedy	27,518	Aug. 10	80	962
Book-covers, &c. Mounting, &c., for	W. A. Holman	27,580	Aug. 17	80	1115
Bottle	W. T. Murphy	27,320	July 13	80	326
Bottle	O. Ohlsson	27,291	July 6	80	177
Bottle	F. M. Underhill	27,292	July 6	80	177
Bottle-stopper lock-plate	R. S. Graham	27,541	Aug. 17	80	1119
Bottle stopper. Water-	B. G. Work	27,622	Sept. 7	80	1609
Box	C. W. Meinecke	27,294	July 6	80	177
Box or can	A. Cameron, Jr.	27,458	Aug. 3	80	798
Bracket	C. A. Brickley	27,311	July 6	80	179
Bracket. Crank-bearing	C. W. Dake	27,576	Aug. 24	80	1267
Brush	W. Jesuit	27,656	Sept. 21	80	1664
Brush holder. Tooth-	A. A. Waite	27,690	Sept. 28	80	2080
Buckle body-plate	A. D. Field	27,688	Sept. 28	80	2080
Building strut or column	C. M. Horton	27,394	July 20	80	506
Button-hook handle	P. H. Long	27,500	Aug. 31	80	1469
Button-hooks, &c. Handle for	P. H. Long	27,501	Aug. 10	80	959
Buttoner. Glove-	A. N. Clark	27,500	Aug. 10	80	959
Cabinet	J. C. Deal	27,709	Sept. 28	80	2082
Cabinet	A. F. Walter	27,633	Sept. 7	80	1611
Calculating machines. Case for wage	W. H. King and H. B. Taylor	27,398	July 20	80	507
Calendar and paper-weight	G. G. Graessle	27,519	Aug. 17	80	1114
Can-opener	G. Molidor	27,538	Aug. 17	80	1117
Can-opener blade	R. D. Webb	27,296	July 6	80	177
Cane-mill base	N. Sanders	27,626	Sept. 7	80	1609
Car body-bolster. Railway-	F. Thompson	27,351	July 13	80	340
Car guard or cushion. Street-	A. C. Woodworth	27,656	Sept. 21	80	1664
Car-wheel	J. S. Whitney	27,554	Aug. 17	80	1121
Card holder. Show-	J. M. Hill and J. C. Renner	27,354	July 13	80	342
Card-mount	J. P. Odgers	27,497	Aug. 10	80	959
Card. Show or display	J. F. Simons	27,581	Aug. 17	80	1115
Carpet	W. B. Brown	27,410	July 20	80	509
Carpet	W. B. Brown	27,496	Aug. 3	80	804
Carpet	W. F. Brown	27,619	Aug. 31	80	1473
Carpet	W. M. Cox	27,657	Sept. 21	80	1665

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Carpet	W. C. Magee and W. M. Cox	27,371	July 13	80	343
Carpet	W. C. Magee and W. M. Cox	27,372	July 13	80	343
Carpet	J. Merry	27,580	Aug. 24	80	1268
Carpet	J. Merry	27,581	Aug. 24	80	1268
Carpet	J. B. Moffat and W. F. Brown	27,411	July 20	80	509
Carpet	L. Paret	27,412	July 20	80	509
Carpet	A. M. Rose	27,555	Aug. 17	80	1121
Carpet	N. S. Stewart	27,367	July 13	80	343
Carpet	N. S. Stewart	27,368	July 13	80	343
Carpet	N. S. Stewart	27,369	July 13	80	345
Carpet	N. S. Stewart	27,370	July 13	80	343
Carpet	N. S. Stewart	27,413	July 20	80	509
Carpet	N. S. Stewart	27,414	July 20	80	509
Carpet	N. S. Stewart	27,415	July 20	80	510
Carpet	N. S. Stewart	27,416	July 20	80	510
Carpet	N. S. Stewart	27,417	July 20	80	510
Carpet	N. S. Stewart	27,685	Sept. 21	80	1888
Carpet	N. S. Stewart	27,686	Sept. 21	80	1888
Carpet	J. S. Wishart	27,449	July 27	80	645
Carpet	J. S. Wishart	27,450	July 27	80	649
Carriage-jack	P. Lanouette	27,473	Aug. 3	80	800
Cartridge packet or holder	T. C. Johnson	27,657	Sept. 21	80	1884
Chair	D. W. Kendall	27,596	Aug. 31	80	1469
Chair	D. W. Kendall	27,597	Aug. 31	80	1470
Chair-seat. Bent-wood	F. A. Dennett	27,595	Aug. 31	80	1469
Chandelier	J. Beesley	27,705	Sept. 28	80	2033
Check, &c. Bank-	W. H. Howard	27,620	Sept. 7	80	1608
Check-hook	G. A. Chamberlain	27,397	July 20	80	505
Check-hook	H. H. Whitney	27,476	Aug. 3	80	801
Cigar	W. T. Gresset	27,595	Aug. 17	80	1115
Cigarette-holder	E. Girard	27,375	July 20	80	503
Clevis	C. M. Jarvis	27,469	Aug. 3	80	800
Clip or fastener	W. R. Macintosh	27,514	Aug. 10	80	961
Clock case or column	J. Wells	27,453	Aug. 3	80	798
Clothes-line link	M. Oliver	27,699	Sept. 28	80	2032
Clothes-pounder	C. W. Cross	27,353	July 13	80	341
Coat-hook and hat-holder	O. H. Lund	27,395	July 20	80	505
Coffee-pot-strainer clip	C. F. Downey	27,594	Aug. 31	80	1469
Coin-actuated machines. Casing for	F. T. Parritt	27,482	Aug. 3	80	802
Coin-actuated wheels. Casing and support for	W. H. Cattell	27,579	Aug. 24	80	1268
Coin-actuated wheels. Casing for	J. C. Carter	27,481	Aug. 3	80	801
Colter-brace	R. J. Darby	27,391	July 20	80	506
Comb	J. Lehmann	27,284	July 6	80	175
Communion-cup. Individual	H. G. Husted	27,455	Aug. 3	80	798
Communion-cups. Receptacle for	H. G. Husted	27,454	Aug. 3	80	798
Condult	J. W. Kunzler	27,287	July 6	80	176
Cord	H. Green	27,365	July 13	80	342
Covering-plate	L. M. Devore	27,661	Sept. 21	80	1885
Crutch or chair tip	C. J. Bailey	27,665	Sept. 21	80	1885
Cup	C. E. Haviland	27,378	July 20	80	504
Curtain	J. W. Doran	27,522	Aug. 17	80	1115
Curtain	A. A. Sherman	27,634	Sept. 7	80	1612
Curtain-holder	W. E. Ball and A. C. Bailey	27,400	July 20	80	507
Cycle handle-bar	R. A. Anschuetz	27,660	Sept. 21	80	1885
Cyclometer-case	G. B. Bassett	27,544	Aug. 17	80	1115
Dentist's pliers	H. Weston	27,687	Sept. 14	80	1752
Desk body. School-	M. Sherwood	27,403	July 20	80	507
Dish	C. J. King	27,598	Aug. 31	80	1469
Dish. Cover-	C. E. Haviland	27,377	July 20	80	504
Display-rack	W. F. Scott	27,603	Aug. 31	80	1470
Display-rack	W. F. Scott	27,604	Aug. 31	80	1470
Display-stand	W. M. Baker	27,314	July 6	80	180
Display-tree. Milliner's	H. Bussinger	27,312	July 6	80	179
Door-fastener	J. D. Decelle	27,477	Aug. 3	80	801
Door-hanger-frame casing	G. C. Gardner	27,299	July 6	80	178
Door-hanger-frame casing	D. Nickel	27,297	July 6	80	177
Door-hanger-frame casing	D. Nickel	27,298	July 6	80	177
Drinking-cup. Bicycle	S. Stiebel	27,379	July 20	80	504
Duster handle. Feather-	J. Spektorsky	27,295	July 6	80	177
Electric switches. Brush for	C. Robbins	27,392	July 20	80	505
Electric switches. Brush for	C. Robbins	27,393	July 20	80	506
Elevator chain bucket	L. L. Lamb	27,625	Sept. 7	80	1609
Ewer	W. H. Grindley	27,651	Sept. 21	80	1883
Eyeglass-guard	G. Bausch	27,696	Sept. 14	80	1752
Eyeglass or spectacle case	W. Zoerb	27,622	Sept. 7	80	1609
Fabric pattern	G. Dean	27,366	July 13	80	342
Fasteners. Socket member for detachable	W. S. Richardson	27,538	Aug. 17	80	1118
Fasteners. Socket member for separable	W. S. Richardson	27,536	Aug. 17	80	1118
Fasteners. Socket member for separable	W. S. Richardson	27,537	Aug. 17	80	1118
Fencing. Pattern for wire	A. L. Kitselman	27,435	July 27	80	347
File. Letter-	J. Kaschenbach	27,316	July 6	80	180
Fish-scaler	H. L. Schwarzenberg	27,503	Aug. 10	80	959
Flower-pot	J. E. Biggs	27,390	July 20	80	504
Flushing-tank	J. D. Wilson	27,696	Sept. 28	80	2031
Fruit-jar shield	E. Koller	27,383	July 20	80	505
Frying-pan	R. Dean	27,486	July 27	80	647
Fuel	E. B. A. Zwoyer	27,483	Aug. 3	80	802
Fuel	E. B. A. Zwoyer	27,484	Aug. 3	80	802
Game-board	R. A. Dandaraw and G. E. Gordon	27,591	Aug. 31	80	1469
Game-board	M. L. Klauber and A. W. Matz	27,708	Sept. 28	80	2033
Game-board	D. Kogler	27,449	July 27	80	648
Game-board	W. B. Smith and W. M. Hamilton	27,444	July 27	80	648
Gas-burner. Fireplace	J. F. and R. Hewitt	27,355	July 13	80	341
Gas-burner fixture	E. Lindner	27,652	Sept. 21	80	1883
Gas-burner fixture	E. Lindner	27,653	Sept. 21	80	1883
Gas-burner fixture	E. Lindner	27,654	Sept. 21	80	1884

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Gas-meter-prover frame	J. H. Mansur	27,611	Aug. 31	80	1471
Gearing-cover	J. S. Copeland	27,457	July 27	80	647
Girdle	W. H. Starr	27,422	July 27	80	645
Glass dish	H. Schreiber	27,321	July 13	80	336
Glass or lens	J. Mark	27,701	Sept. 28	80	2032
Glass or lens	J. Mark	27,702	Sept. 28	80	2032
Glass or light	J. Jacobs	27,704	Sept. 28	80	2032
Glass or light	J. Jacobs	27,705	Sept. 28	80	2032
Glass. Sheet-	C. C. Hartung	27,322	July 13	80	336
Glass. Surface ornamentation of	A. D. Brogan and A. M. Malloch	27,445	July 27	80	648
Glass. Surface ornamentation of	A. D. Brogan and A. M. Malloch	27,446	July 27	80	649
Glass. Surface ornamentation of	A. D. Brogan and A. M. Malloch	27,447	July 27	80	649
Glass vessel	J. D. Bergen	27,457	Aug. 3	80	798
Glass vessel	D. C. Ripley	27,288	July 6	80	176
Glass vessel	G. R. West	27,456	Aug. 3	80	798
Golf-ball	W. Dunn	27,441	July 27	80	648
Grater-disk	A. B. Hostetter	27,531	Aug. 17	80	1117
Guitar-body	J. S. Back	27,561	Aug. 24	80	1265
Guitar-body	E. F. Howe	27,560	Aug. 24	80	1265
Hair-pin	A. Knippenberg	27,423	July 27	80	645
Handkerchief-clip	F. E. Small	27,360	July 13	80	342
Hat or cap	A. Nelken	27,523	Aug. 17	80	1115
Hat-support	H. G. Cozzino	27,558	Aug. 24	80	1264
Heel-plate	W. Bayhouse	27,630	Sept. 7	80	1611
Horseshoe	W. M. Cooper and J. W. Cates	27,644	Sept. 14	80	1753
Horseshoe-calk	S. C. Jones	27,439	July 27	80	646
Horseshoe-calk	R. Whitaker	27,543	Aug. 17	80	1119
Ice-shave	D. E. Foster and R. J. Coleman	27,578	Aug. 24	80	1267
Ice-shredder	H. L. Schwarzenberg	27,613	Aug. 31	80	1472
Indicator-board	F. J. Schloer	27,707	Sept. 28	80	2033
Insect-guard for furniture	J. C. Collier	27,312	July 6	80	179
Ironing-machine plate	A. R. Selden	27,393	July 20	80	506
Jar	G. Pendleton, Jr.	27,361	July 20	80	504
Kettle-cover	F. N. Martindale	27,505	Aug. 10	80	960
Key-fastener	D. B. Stephens	27,362	July 13	80	342
Kitchen-cabinet	J. F. G. Ferguson	27,670	Sept. 21	80	1886
Kitchen utensil	H. L. Schwarzenberg	27,614	Aug. 31	80	1472
Knife-blade	J. Almeter	27,640	Sept. 14	80	1753
Knife-handle	W. C. Codman	27,598	Aug. 31	80	1469
Knob	I. Finesilver	27,300	July 6	80	178
Lace-heading	J. A. Filer	27,710	Sept. 28	80	2034
Lamp-burner	L. J. Atwood	27,530	Aug. 17	80	1117
Lamp dome. Street-	D. J. Prendergast	27,605	Aug. 31	80	1471
Lantern. Bicycle-	F. T. Williams	27,303	July 6	80	178
Lawn-pool. Disk for	J. S. Bents	27,399	July 20	80	507
Leg-brace, &c.	M. Slotkin	27,460	Aug. 3	80	799
Lens	J. Jacobs	27,703	Sept. 28	80	2032
Lens for gratings	J. Jacobs	27,490	Aug. 3	80	803
Lens for gratings	J. Jacobs	27,491	Aug. 3	80	803
Lens for gratings	J. Jacobs	27,492	Aug. 3	80	803
Lens for gratings	J. Jacobs	27,493	Aug. 3	80	804
Lens for skylights, &c	E. J. Sullivan	27,401	July 20	80	507
Lens for tiles	J. W. Mark	27,502	Aug. 10	80	959
Lifting-jack frame	H. Clemons	27,395	July 20	80	506
Lock-casing	W. D. Roberts	27,609	Aug. 31	80	1471
Lock-plate	R. W. Owen	27,488	July 27	80	646
Mandolin-body	E. F. Howe	27,559	Aug. 24	80	1265
Manhole-cover	T. P. Greger	27,672	Sept. 21	80	1887
Manhole-cover	T. P. Greger	27,674	Sept. 21	80	1887
Manhole-cover	T. P. Greger	27,675	Sept. 21	80	1887
Manhole-cover	T. P. Greger	27,676	Sept. 21	80	1887
Mat-link	T. J. Lovett	27,648	Sept. 14	80	1754
Measure. Tape-	E. G. Brewer	27,286	July 6	80	176
Metal mount	F. W. Chesson	27,397	July 20	80	507
Metal mount	F. W. Chesson	27,510	Aug. 10	80	961
Metal mount	F. W. Chesson	27,511	Aug. 10	80	961
Metal mount	F. W. Chesson	27,512	Aug. 10	80	961
Metal mount	F. W. Chesson	27,513	Aug. 10	80	961
Mitten	K. D. Hoefler	27,635	Sept. 7	80	1612
Mop-head	W. W. Ward	27,384	July 20	80	505
Motor-frame	E. G. Richards	27,480	Aug. 3	80	801
Motors. Shell for electric	H. E. Heath	27,433	July 27	80	646
Nail-puller fulcrum-shoe	G. A. Maynard	27,571	Aug. 24	80	1267
Name-plate and card-holder	J. J. Becker	27,564	Aug. 24	80	1266
Necktie-holder	C. E. Smith	27,499	Aug. 10	80	959
Nose-clamp	L. Ray	27,424	July 27	80	645
Nut-lock	C. C. Purdy	27,427	July 27	80	646
Oil-can	C. L. Wagandt	27,615	Aug. 31	80	1472
Oil-can	A. F. Wolff	27,402	Aug. 3	80	799
Packing-pot	A. Mente	27,368	July 20	80	505
Paper-box binder	A. A. Faxon	27,646	Sept. 14	80	1754
Paper-cutter frame	F. A. Burnham	27,546	Aug. 17	80	1119
Parcel-carrier	J. P. Smith	27,617	Aug. 31	80	1472
Pedal-hub	T. Curley	27,463	Aug. 3	80	799
Perch-iron	D. P. Cooper	27,643	Sept. 14	80	1753
Photographic card-mount	D. D. Dunklee	27,493	Aug. 10	80	959
Pill cylinder-mold	C. A. Tatum	27,298	July 6	80	177
Pin. Hat-	M. A. E. Haskett	27,640	Sept. 21	80	1885
Plane-body	J. A. Traut	27,474	Aug. 3	80	800
Plate	C. E. Haviland	27,376	July 20	80	503
Plate or analogous article	L. S. Ipsen	27,300	July 6	80	178
Plate or analogous article	L. S. Ipsen	27,302	July 6	80	178
Plate or analogous article	L. S. Ipsen	27,562	Aug. 24	80	1265
Plate or analogous article	L. S. Ipsen	27,563	Aug. 24	80	1266
Plate or dish	E. Gérard	27,626	Aug. 17	80	1117
Plow landside-shoe	H. Wiard	27,350	July 13	80	340

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Plow-moldboards. Shin-piece for	H. Wiard	27,349	July 13	80	340
Plows. Cutter attachment for	J. C. Ball	27,434	July 27	80	647
Pocket-book carrier	S. Stiebel	27,529	Aug. 17	80	1117
Pole for electric wires, &c	J. N. Brownlee	27,516	Aug. 10	80	962
Printer's job-case	T. Nelson	27,549	Aug. 17	80	1120
Printing-press-frame cam	J. L. Lee	27,550	Aug. 17	80	1120
Prism-light	O. H. Basquin	27,323	July 13	80	336
Prism-light	O. H. Basquin	27,324	July 13	80	337
Prism-light	H. F. Belcher	27,325	July 13	80	337
Prism-light	H. F. Belcher	27,326	July 13	80	337
Prism-light	H. F. Belcher	27,327	July 13	80	337
Prism-light	H. F. Belcher	27,328	July 13	80	337
Prism-light	H. F. Belcher	27,329	July 13	80	337
Prism-light	H. F. Belcher	27,330	July 13	80	337
Prism-light	H. F. Belcher	27,331	July 13	80	337
Prism-light	H. F. Belcher	27,332	July 13	80	338
Prism-light	J. M. Ewen	27,333	July 13	80	338
Prism-light	J. M. Ewen	27,334	July 13	80	338
Prism-light	J. M. Ewen	27,335	July 13	80	338
Prism-light	J. M. Ewen	27,336	July 13	80	338
Prism-light	J. M. Ewen	27,337	July 13	80	338
Prism-light	J. M. Ewen	27,338	July 13	80	338
Prism-light	J. M. Ewen	27,677	Sept. 21	80	1887
Prism-light	J. M. Ewen	27,678	Sept. 21	80	1887
Prism-light	J. M. Ewen	27,679	Sept. 21	80	1888
Prism-light	J. M. Ewen	27,680	Sept. 21	80	1888
Prism-light	J. G. Pennycuick	27,340	July 13	80	339
Prism-light	W. H. Winslow	27,339	July 13	80	339
Prism-plate	O. H. Basquin	27,343	July 13	80	339
Prism-plate	O. H. Basquin	27,344	July 13	80	339
Prism-plate	J. M. Ewen	27,345	July 13	80	339
Prism-plate	J. M. Ewen	27,346	July 13	80	340
Prism-plate	J. M. Ewen	27,347	July 13	80	340
Prism-plate	J. G. Pennycuick	27,341	July 13	80	339
Prism-plate	J. G. Pennycuick	27,342	July 13	80	339
Prism-plate	W. H. Winslow	27,348	July 13	80	340
Propeller. Screw-	G. H. Beck	27,432	July 27	80	646
Pump-casing	J. W. Brown, Jr	27,698	Sept. 28	80	2032
Puzzle box or case	J. Carroll	27,363	July 13	80	342
Puzzle box or case	G. L. Smith	27,592	Aug. 31	80	1469
Puzzle-case	J. A. Williams	27,317	July 6	80	180
Railway-frogs, &c. Guard for	G. C. Lucas	27,655	Sept. 21	80	1884
Railway-spike	H. N. Banks	27,624	Sept. 7	80	1609
Range. Gas-	M. J. Willis	27,485	Aug. 3	80	802
Reamer-drill	P. Feeney	27,475	Aug. 3	80	801
Register plate. Hot-air-	F. O. Farwell	27,606	Aug. 31	80	1471
Ring or similar article	G. E. Burns	27,524	Aug. 17	80	1115
Rivet	M. N. Bray	27,639	Sept. 14	80	1753
Rivet	W. C. Bray	27,567	Aug. 24	80	1266
Rivet	W. C. Bray	27,568	Aug. 24	80	1266
Rivet	W. C. Bray	27,569	Aug. 24	80	1266
Roof-fender	S. A. Gilman	27,515	Aug. 10	80	961
Rope-tightener	L. E. Coale	27,472	Aug. 3	80	800
Rug	E. H. Bennett	27,681	Sept. 21	80	1888
Rug	A. Petzold	27,682	Sept. 21	80	1888
Rug	A. Petzold	27,683	Sept. 21	80	1888
Rug	A. Petzold	27,684	Sept. 21	80	1888
Running-gear frame	H. P. Maxim	27,603	Sept. 21	80	1885
Sad-iron top plate	J. W. Conchar	27,700	Sept. 28	80	2032
Saddle-seat	H. A. Rusch	27,616	Aug. 31	80	1472
Sash-fastener lever	G. M. Hubbard	27,572	Aug. 24	80	1267
Sash-holder	J. E. Minott	27,695	Sept. 28	80	2031
Scale face-plate	J. H. Swihart	27,607	Aug. 31	80	1471
Scale face-plate	J. H. Swihart	27,627	Sept. 7	80	1610
Scales. Casing for weighing-	W. N. Pelouze	27,466	Aug. 3	80	799
Scales. Computing member for	O. O. Ozias	27,641	Sept. 14	80	1753
Screen	G. B. Snow	27,407	July 20	80	508
Shade bracket. Window-	J. H. Walters and T. P. Brown	27,426	July 27	80	646
Shoe-polisher frame	H. E. Titus	27,504	Aug. 10	80	960
Shoe-tip. Metallic	H. Waters	27,361	July 13	80	342
Shoe-vamp	E. L. Sprague	27,585	Aug. 31	80	1468
Shuttle-binder protector	J. D. Allen	27,539	Aug. 17	80	1118
Silversmith's stock	S. W. Babbitt	27,587	Aug. 31	80	1468
Sink	R. M. Johnson	27,507	Aug. 10	80	960
Skirt-holder	R. M. Steindler	27,596	Aug. 31	80	1468
Slate	B. McConnellogue	27,461	Aug. 3	80	799
Snap-hook	F. N. and E. H. Reece	27,398	July 20	80	505
Snap-hook	W. J. Wright and F. G. Dieterich	27,425	July 27	80	645
Soap cake or bar	W. G. Webb	27,556	Aug. 24	80	1264
Spike	J. T. Richards	27,691	Sept. 28	80	2030
Spoons, &c. Handle for	A. G. Rogers	27,590	Aug. 31	80	1469
Spoons, &c. Handle for	E. W. Scott	27,293	July 6	80	175
Spoons, &c. Handle for	C. Silber	27,452	Aug. 3	80	797
Sprocket-wheel chain-guard	H. H. Rountree	27,399	July 20	80	505
Stay cover. Dress-	C. Sisson	27,557	Aug. 24	80	1264
Stay. Dress-	A. W. Lublin	27,494	Aug. 3	80	804
Stocking. Bathing-	E. A. Guinzburg	27,592	Aug. 31	80	1468
Stockings. Top for golf-	T. M. Twomey	27,440	July 27	80	648
Stool. Foot-	S. H. Shoup	27,647	Sept. 14	80	1754
Stool-leg	J. B. Aufuldish	27,598	Aug. 31	80	1470
Stove	W. Thompson	27,356	July 13	80	341
Stove	J. W. Van Cleave	27,357	July 13	80	341
Stove. Cook-	G. W. Cope and W. L. Bertram	27,667	Sept. 21	80	1886
Stove. Gas-	L. J. Grinberg	27,612	Aug. 31	80	1472
Stove. Heating-	S. Boal	27,629	Sept. 7	80	1610
Stove. Heating-	T. R. Kennedy and J. F. Heister	27,668	Sept. 21	80	1886

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Stove or range	A. H. Garrison	27,358	July 13	80	342
Stove or range	J. A. Kline and C. S. Prizer	27,698	Sept. 7	80	1610
Stove. Sheet-metal	W. W. Baldwin	27,506	Aug. 10	80	960
Sugar-cane hook	G. A. Beall	27,430	July 27	80	646
Suspender-end	W. Bloomberg	27,584	Aug. 31	80	1468
Swing-support	N. O. Swenson	27,517	Aug. 10	80	962
Syringe-shield	A. L. Gray	27,638	Sept. 14	80	1753
Tack or nail	F. A. Bogar	27,570	Aug. 24	80	1266
Thread case or cabinet	E. N. Gilfillan	27,405	July 20	80	508
Thread case or cabinet	E. N. Gilfillan	27,406	July 20	80	508
Tire	F. B. Hopewell	27,464	Aug. 3	80	799
Tire band-tightener	F. B. Griswold	27,305	July 6	80	178
Tombstone	G. S. Martin	27,418	July 20	80	510
Tool-handle	J. Swan	27,301	July 6	80	178
Toothpick	F. J. Kallenbach	27,650	Sept. 21	80	1883
Top	A. Apel	27,459	Aug. 3	80	798
Toy bank	M. A. Martin	27,442	July 27	80	648
Toy safe	C. A. Bailey	27,526	Aug. 17	80	1116
Toy safe	C. A. Bailey	27,527	Aug. 17	80	1116
Toy safe	C. A. Bailey	27,566	Aug. 24	80	1266
Toy savings-bank	P. Adams	27,565	Aug. 24	80	1266
Trace-supporter	R. C. Danley	27,302	July 6	80	178
Trap	T. J. McHugh	27,535	Aug. 17	80	1118
Tray	L. Weil	27,602	Aug. 31	80	1470
Tray for cigars, &c	C. H. Hahn	27,601	Aug. 31	80	1470
Tray. Shelf-	J. O. Bradley	27,354	July 13	80	341
Trimming	S. Friedberger	27,400	July 20	80	509
Trimming	S. Friedberger	27,495	Aug. 3	80	804
Trimming	I. A. Schwarz	27,448	July 27	80	649
Truck-frame. Metallic	L. J. Cox	27,431	July 27	80	646
Trunk-roller frame	G. Crouch	27,547	Aug. 17	80	1120
Tube-blank. Sheet-metal	F. A. Wilmot	27,543	Aug. 17	80	1119
Type. Font of printing-	H. Ihlenburg	27,548	Aug. 17	80	1120
Undergarment	J. Hirsh	27,408	July 20	80	508
Undergarment-reinforce	M. Steiner	27,583	Aug. 31	80	1468
Vehicle body	J. Stivers	27,654	Sept. 21	80	1885
Vehicle-dash	H. H. Eames	27,692	Sept. 28	80	2031
Vehicle-step	W. Rennie	27,360	July 20	80	505
Velocipede-crank	E. L. McDivitt and W. S. Brown	27,552	Aug. 17	80	1120
Velocipede-saddletree	F. Konn	27,307	July 6	80	179
Wagon-body	W. T. Smith	27,352	July 13	80	341
Wagon body. Delivery-	J. Wanamaker	27,553	Aug. 17	80	1120
Wall-tie	W. Knox	27,642	Sept. 14	80	1753
Wardrobe	F. E. Pollard	27,671	Sept. 21	80	1886
Wardrobe	F. E. Pollard	27,672	Sept. 21	80	1887
Watch-charm, &c	S. Stophlet	27,421	July 27	80	645
Watch-fob	E. L. Prickett	27,319	July 13	80	336
Water-meter case	G. B. Bassett	27,697	Sept. 28	80	2031
Wedge-block	T. B. Standing and W. V. Brayshaw	27,398	July 20	80	505
Whiffletree-hook	A. L. Clark	27,606	Aug. 31	80	1471
Window-fastener socket	J. P. Smith	27,467	Aug. 3	80	800
Window-fastener socket	J. P. Smith	27,468	Aug. 3	80	800
Window-guard	A. S. Froehlich	27,401	July 20	80	507
Woven fabric	H. M. Bryce	27,711	Sept. 28	80	2034
Wrench	F. L. Coes	27,470	Aug. 3	80	800
Wrench	S. T. Freas	27,471	Aug. 3	80	800
Wrenches. Movable jaw for	J. C. Ives	27,575	Aug. 24	80	1267
Wrenches. Movable jaw for	J. H. Vinton	27,540	Aug. 17	80	1118

ALPHABETICAL LIST OF TRADE-MARKS.

Title	Name.	No.	Date.	Official Gazette. Volume.	Page.
Ale. Ginger	Pine Spring Water Company	30,500	Aug. 17	80	1122
Aperient and laxative compounds	A. H. Jonas	30,546	Sept. 14	80	1756
Apparel and dry goods. Certain named articles of	Strauss, Sachs & Co	30,497	Aug. 17	80	1122
Apparel, Men's wearing	W. C. Loftus & Co	30,453	Aug. 3	80	805
Articles used by Catholics for family devotions and religious ceremonies.	Homan Silver Plate Company	30,562	Sept. 21	80	1889
Baking-powder	W. W. Cole	30,503	Aug. 17	80	1122
Baking-powder	W. P. O'Meara	30,282	July 13	80	346
Baking-powder	Nave & McCord Mercantile Company.	30,326	July 6	80	182
Bandaging material for use in dressing wounds, sores, &c.	Vereinigte Gummiwaaren-Fabriken Harburg-Wien, vormals Menier-J. N. Reithoffer.	30,344	July 6	80	184
Bath-tubs	W. E. Booth	30,559	Sept. 14	80	1758
Beer	J. & P. Baltz Brewing Company	30,511	Aug. 24	80	1269
Beer	J. & P. Baltz Brewing Company	30,512	Aug. 24	80	1269
Beer	J. & P. Baltz Brewing Company	30,513	Aug. 24	80	1269
Beer	C. & J. Michel Brewing Company	30,372	July 13	80	345
Beer. Bottled lager	A. G. Hüpfel	30,498	Aug. 17	80	1122
Beer. Bottled lager	A. G. Hüpfel	30,499	Aug. 17	80	1122
Beer. Dark lager	Weisbrod & Hess	30,514	Aug. 24	80	1269
Beer. Lager	Aktienbrauerei zum Löwenbräu in München.	30,527	Aug. 31	80	1474
Beer. Lager	Aktienbrauerei zum Löwenbräu in München.	30,528	Aug. 31	80	1474
Benzoic sulfinid or benzoic sulfinid combined with sodium oxid. Impure and pure or refined	Fahlberg, List & Company	30,524	Aug. 24	80	1270
Beverages. Carbonated	L. House & Sons	30,378	July 13	80	345
Bicycle-chains	Gebrüder Bühler & Co	30,427	July 20	80	514
Bicycle-saddles	Bunker Saddle Company	30,574	Sept. 21	80	1890
Bicycles	Iver Johnson Sporting Goods Company.	30,496	Aug. 10	80	964
Bicycles	O. Konigslow	30,345	July 6	80	184
Bicycles	Penn Manufacturing Company	30,476	Aug. 3	80	807
Bicycles	Thomas Manufacturing Company	30,447	July 27	80	651
Bicycles	C. E. and H. Walbridge	30,579	Sept. 21	80	1890
Bicycles	J. Wanamaker	30,346	July 6	80	184
Bicycles and like vehicles and appurtenances	F. B. Griswold	30,347	July 6	80	184
Bicycles and other cycles	W. M. Robbins	30,560	Sept. 14	80	1758
Bicycles and other velocipedes	Clement, Gladiator & Humber. (France.)	30,448	July 27	80	652
Bicycles, tandems, and articles accessory thereto	G. H. Colket & Co	30,575	Sept. 21	80	1890
Bicycles, tandems, and articles accessory thereto	G. H. Colket & Co	30,576	Sept. 21	80	1890
Bicycles, tandems, and articles accessory thereto	G. H. Colket & Co	30,577	Sept. 21	80	1890
Bicycles, velocipedes, and articles accessory thereto	Lozier Manufacturing Company	30,578	Sept. 21	80	1890
Bicycles, tricycles, tandems, and goods of identical character.	Speeder Cycle Company	30,449	July 27	80	652
Biscuit, crackers, and pilot-bread	New York Biscuit Company	30,490	Aug. 10	80	963
Bitters	N. Dexter & Bro	30,583	Sept. 28	80	2035
Books, pamphlets, paper, and envelops	American National Red Cross	30,428	July 27	80	650
Boots and shoes	C. M. Hapgood Shoe Company	30,452	Aug. 3	80	805
Borax	W. H. Priesmeyer	30,493	Aug. 10	80	964
Bread, cake, and pies	George G. Fox Company	30,379	July 13	80	346
Brewers' grains and malt-sprouts. Certain named	India Wharf Brewing Company	30,491	Aug. 10	80	963
Brushes. Hair and flesh	Grand Rapids Brush Company	30,366	July 13	80	345
Butter	Elgin Creamery Company	30,329	July 6	80	182
Butter	Elgin Creamery Company	30,406	July 20	80	513
Butter	Elgin Creamery Company	30,473	Aug. 3	80	807
Butter	Elgin Creamery Company	30,504	Aug. 17	80	1122
Butter	Elgin Creamery Company	30,530	Aug. 31	80	1474
Butter	McCanna & Fraser Company	30,481	Aug. 3	80	806
Buttons. Pearl	A. Frey & Co	30,508	Aug. 24	80	1269
Candies, ice-cream, and soda-water beverages	J. H. Francis, Jr	30,397	July 20	80	512
Canned and preserved fruits, vegetables, and fish, except salmon.	R. C. Williams & Co	30,399	July 20	80	512
Canned fruits	W. B. Dudley	30,520	Aug. 24	80	1270
Canned fruits	W. B. Dudley	30,521	Aug. 24	80	1270
Canned fruits	W. B. Dudley	30,522	Aug. 24	80	1270
Canned fruits and vegetables	N. C. Cummings & Bro	30,529	Aug. 31	80	1474
Canned goods. Certain named	Portland Packing Co	30,523	Aug. 24	80	1270
Canned meats, fruits, and dairy products, such as butter and cheese.	H. P. Somers	30,433	July 27	80	650
Catsup, vinegar, preserves, jellies, table-sauces, pickles, chow-chow, pepper-sauce, olives, and extracts.	Flaccus & Elliott Company	30,472	Aug. 3	80	807
Cement. Portland	Manhattan Cement Company	30,357	July 13	80	344
Cement. Portland	Monarch Portland Cement Company.	30,358	July 13	80	344
Cement. Roofing	F. W. Turpin	30,443	July 27	80	651
Cements	Hammill & Gillespie	30,335	July 6	80	183
Cereals, dried fruit, corn-starch, spices, and baking-powder.	Mitchell, Fletcher & Co	30,462	Aug. 3	80	806
Chains made of malleable cast-iron. Drive	Ewart Manufacturing Company	30,425	July 20	80	514
Cheese	C. Perceval	30,353	July 13	80	346
Chemical substances for sanitary purposes	Gas Light and Coke Company	30,457	Aug. 3	80	805
Chocolate creams	J. Franz	30,385	July 13	80	346

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Chocolate drops, chocolate cream drops, and analogous confections.	Cedar Rapids Candy Company	30,320	July 6	80	181
Coal derivatives	Gas Light and Coke Company	30,440	July 27	80	651
Cocoa, flavoring extracts, and condensed milk	Union Pacific Tea Company	30,377	July 13	80	346
Coffee and tea	J. J. O'Donohue's Sons	30,376	July 13	80	346
Coffee. Cereal	Climax Serial Coffee Company	30,517	Aug. 24	80	1270
Coffee compounds	Javarye Coffee Co	30,469	Aug. 3	80	806
Coffee substitute	E. C. Blum	30,470	Aug. 3	80	807
Coffee substitutes	J. F. Bauer & Co	30,502	Aug. 17	80	1129
Coffee substitutes	Meyer & Lange	30,375	July 13	80	346
Colors. Alizarin	Farbenfabriken of Elberfeld Company.	30,331	July 6	80	189
Colors, especially ultramarine-blue	Deschamps Frères	30,330	July 6	80	189
Compound for female diseases	B. Nahm	30,589	Sept. 28	80	2085
Confection used as a breath-perfume	Weld Co	30,460	Aug. 3	80	806
Corset-covers, night-robes, skirts, chemises, and dressing-sacks.	Whitall Manufacturing Company	30,534	Sept. 14	80	1755
Corsets	E. Schweinburg	30,484	Aug. 10	80	963
Corsets, dress-shields, and waists	H. J. Lyon	30,478	Aug. 3	80	807
Corsets, waists, stays, and similar articles	Princess of Wales Company	30,353	July 13	80	344
Cough-syrup	S. A. Reynolds	30,542	Sept. 14	80	1756
Crabs, lobsters, turtles, frogs, oysters, and fish, fresh and processed.	C. H. Lighthiser	30,432	July 27	80	650
Crackers, biscuits, cakes, and kindred articles of food	C. D. Boss & Son	30,321	July 6	80	181
Crackers, biscuits, cakes, and kindred articles of food	C. D. Boss & Son	30,322	July 6	80	181
Crackers, biscuits, cakes, and kindred articles of food	C. D. Boss & Son	30,323	July 6	80	182
Crackers, biscuits, cakes, and kindred articles of food	C. D. Boss & Son	30,324	July 6	80	182
Crackers, biscuits, cakes, and kindred articles of food	C. D. Boss & Son	30,325	July 6	80	182
Cyclometers, odometers, engine-counters, and fluid-meters.	Buffalo Meter Company	30,361	July 13	80	345
Delicacies. Certain named table	Otto Kuehne Preserving Company	30,401	July 20	80	512
Dental and surgical burs	S. S. White Dental Manufacturing Company.	30,360	July 13	80	344
Dentistry. Artificial gum used in	India Rubber Comb Company	30,565	Sept. 21	80	1889
Dietetic compound of highly nutritive substance	F. W. R. Eschmann	30,461	Aug. 3	80	806
Doors. Cypress	Selden Cypress Door Company	30,355	July 13	80	344
Dress-linings	Bernheimer & Walter	30,317	July 6	80	181
Dress-linings	Bernheimer & Walter	30,318	July 6	80	181
Dress-linings	Bernheimer & Walter	30,354	July 13	80	344
Drink of special preparation. Cereal warm	Our Home Granula Co	30,516	Aug. 24	80	1270
Dyes	Maypole Company	30,466	Aug. 3	80	806
Dyestuff	Badische Anilin and Soda Fabrik	30,494	Aug. 10	80	964
Earthenware	S. A. Weller	30,463	Aug. 3	80	806
Electric batteries	D. H. Allen	30,362	July 13	80	345
Emblems, badges, and jewels, and boxes or packages containing same.	D. A. Reese	30,477	Aug. 3	80	807
Emulsion of cod-liver oil with hypophosphites lime and soda and guaical.	C. H. Whitman	30,585	Sept. 28	80	2085
Enamels	Chicago Varnish Company	30,441	July 27	80	651
Engine indicator. Steam	Crosby Steam Gage and Valve Company.	30,451	July 27	80	652
Fire-crackers	Consolidated Fireworks Company of America.	30,359	July 13	80	344
Flour	Firm of G. T. Evans	30,518	Aug. 24	80	1270
Flour	Hezel Milling Company	30,380	July 13	80	346
Flour	Power, Son & Co. and Power Brothers & Co.	30,405	July 20	80	512
Flour and corn-starch and laundry starch. Corn-	National Starch Manufacturing Company.	30,327	July 6	80	188
Flour and other products from reducing cereals to comminuted condition. Wheat, rye, and buckwheat	Everett, Aughenbaugh & Co	30,404	July 20	80	512
Flour. Wheat	Ballard & Ballard Company	30,537	Sept. 14	80	1755
Flour. Wheat	Graham & Black Co	30,328	July 6	80	182
Flour. Wheat	A. F. Roberts & Co	30,381	July 13	80	346
Food in powdered form. Stock	L. B. Lord	30,410	July 20	80	513
Forks, hoes, shovels, and rakes. Agricultural and other	Otsego Fork Mills Company	30,526	Aug. 24	80	1270
Gelatin	Grout & Grout	30,519	Aug. 24	80	1270
Gloves. Kid and lambskin	Eggebrecht & Bernhardt	30,352	July 13	80	344
Goods of art, household wares, and luxury wares	Royal Copenhagen Porcelain Manufactory.	30,457	Aug. 10	80	963
Grading and ditching machines	F. C. Austin	30,348	July 6	80	184
Gum and artificial straws. Chewing	Ohio Gum Company	30,396	July 20	80	512
Gum. Chewing	Grove Company	30,434	July 27	80	650
Gum. Chewing	Wetmore & Pride Manufacturing Company.	30,510	Aug. 24	80	1269
Hair-tonics	G. Muñoz	30,343	July 6	80	183
Hats	Crofut & Knapp Company	30,389	July 20	80	511
Hats of felt, silk, and straw. Men's	B. F. Hawes	30,314	July 6	80	181
Herbs. Powdered	Alonzo O. Bliss Co	30,403	July 20	80	512
Hooks and eyes, buttons, pins, buckles, and similar garment-fasteners.	Sweet Brothers	30,509	Aug. 24	80	1269
Horseshoes	Shoenberger Steel Company	30,483	Aug. 3	80	808
Hose. Hydraulic	Eureka Fire Hose Company	30,394	July 20	80	511
Incubators	Reliable Incubator and Brooder Company.	30,482	Aug. 3	80	808
Insect-destroyers	W. F. Ashe	30,553	Sept. 14	80	1757
Indigo-powder and liquid blue	Z. Cherashny	30,407	July 20	80	512
Ink for marking fabrics. Chemical preparations in the nature of	L. Hermsdorf	30,398	July 20	80	511
Insecticide for poultry, stock, and vegetation	I. J. Ball	30,480	Aug. 3	80	808
Jellies, canned and preserved fruits, vegetables, and pickled edibles	A. Vaughan	30,398	July 20	80	512
Knit underwear	Contoocook Mills Company	30,315	July 6	80	181
Lamp-chimneys	H. G. McFaddin & Co	30,495	Aug. 10	80	964
Lanterns. Cycle	H. Riemann	30,475	Aug. 3	80	807
Leather and boots and shoes. Finished	M. C. Dizer & Co	30,496	Aug. 10	80	963
Leather and imitation-leather upholstering goods and fringe.	M. Rosenfeld & Co	30,508	Aug. 24	80	1269

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Leathers. Fancy	G. Plumer & Co	30,319	July 6	80	181
Lemon-juice. Preserved	J. D. Lehmer	30,515	Aug. 24	80	1270
Linens and cotton goods	Solingen & Co	30,505	Aug. 24	80	1269
Liniment for horses and other animals	L. A. Cecconello and F. Canapa	30,446	July 27	80	651
Liniment for internal and external use	J. A. Lee	30,455	Aug. 3	80	808
Liniments	L. I. Brighton	30,570	Sept. 21	80	1890
Liniments	E. H. Mulligan	30,571	Sept. 21	80	1890
Liniments, tonics, and blood purifiers	Williams & Jackman	30,366	July 13	80	345
Linings. Cotton	F. A. Foster & Co	30,430	July 27	80	650
Liquors and beverages. Certain named	R. H. Smith and H. K. L. Snyder	30,371	July 13	80	345
Liquors, cordials, and wines, including medicated preparations.	S. Smith & Co	30,540	Sept. 14	80	1756
Mailing-cases	Improved Mailing Case Company	30,474	Aug. 3	80	807
Mayonnaise, a relish or salad-dressing	M. E. Stanley	30,426	July 20	80	514
Meat-curries	Lytle Manufacturing Co	30,402	July 20	80	512
Medicated confections	A. and A. Müller	30,541	Sept. 14	80	1756
Medicinal plasters	N. C. Becker	30,595	Sept. 28	80	2086
Medicinal plasters	J. W. Campion & Co	30,596	Sept. 28	80	2086
Medicinal preparation. Antiseptic	H. S. Clark	30,597	Sept. 28	80	2086
Medicine. Laxative	Geyser Chemical Co	30,339	July 6	80	183
Medicines	Koenig Medicine Company	30,550	Sept. 14	80	1757
Medicines for treating the eye	F. R. Reynolds	30,415	July 20	80	513
Metal. Dry fine powder for polishing	Borsum Bros	30,334	July 6	80	183
Metal-polish	Harvey Chemical Co	30,421	July 20	80	514
Milk, condensed milk, butter, cream, and cheese	New York Condensed Milk Company.	30,378	July 13	80	346
Mineral water	Hoppe & Strub Bottling Company	30,374	July 13	80	346
Mineral water. Certain named	Agene & Veon	30,488	Aug. 10	80	963
Mortar or cement in a dry state for plastering walls. Preparation of	Diamond Wall Cement Company	30,356	July 13	80	344
Music-wire	A. Dolge & Son	30,363	July 13	80	345
Musical instruments. Brass, wood, or like wind	Besson & Company	30,349	July 6	80	184
Mustard. Table	J. & J. Colman	30,561	Sept. 21	80	1890
Newspapers	Brooklyn Daily Eagle	30,532	Sept. 14	80	1755
Oats and oatmeal. Rolled	Muscatine Oat Meal Company	30,471	Aug. 3	80	807
Oils. Floor	J. MacKenzie	30,557	Sept. 14	80	1757
Oils for use upon wool and other like fibers	Vacuum Oil Company	30,332	July 6	80	183
Oils, Illuminating	Standard Oil Company of New York	30,558	Sept. 14	80	1758
Ointments	T. J. Turner	30,594	Sept. 28	80	2086
Olives. Pickled	Seville Packing Company	30,384	July 13	80	346
Paints. Dry and pulp pigments for	A. B. Ansbacher & Co	30,333	July 6	80	183
Paper and envelops	C. J. Cohen	30,397	July 20	80	511
Peas. Seed	D. Landreth & Sons	30,592	Sept. 28	80	2085
Pencils and pencils with movable leads. Lead, colored, copying, and slate	Bleistiftfabrik, vormals Johann Faber, Actien-Gesellschaft.	30,563	Sept. 21	80	1889
Pencils, pencil attachments, pens, and other stationery	Blaisdell Paper Pencil Company	30,429	July 27	80	650
Perfumery and soap	A. F. Jammes	30,408	July 20	80	513
Perfumery, waters, salts, powders, and soaps	Vall Brothers	30,367	July 13	80	345
Pharmaceutical preparations for the cure of chlorosis and all forms of anemia.	J. E. Stroschein	30,338	July 6	80	183
Phosphorus and analogous chemical compounds	Albright & Wilson	30,409	July 20	80	513
Picture apparatus. Consecutive-view or moving	American Mutoscope Company	30,564	Sept. 21	80	1889
Pills	F. M. Blaney	30,340	July 6	80	183
Pills, ointments, and tablets, and remedies for catarrh and female troubles.	C. A. and B. H. Birney	30,341	July 6	80	183
Pills or tablets	Herb Medicine Co	30,591	Sept. 28	80	2086
Pills or tablets	Herb Medicine Co	30,592	Sept. 28	80	2086
Pins	Judson Pin Company	30,364	July 13	80	345
Pins	Judson Pin Company	30,365	July 13	80	345
Pipe-cleaners. Mechanical	J. Craig, Jr	30,525	Aug. 24	80	1270
Plaster and finish. Wall	Zenith Wall Plaster and Finish Company.	30,444	July 27	80	651
Poison. Rat	Newton Manufacturing and Chemical Company.	30,445	July 27	80	651
Powders for the feet	A. S. Olmsted	30,551	Sept. 14	80	1757
Powders, pastes, salves, and pills	L. Sell & Co	30,593	Sept. 28	80	2086
Powders. Roach	J. M. Fisher	30,552	Sept. 14	80	1757
Printed publications	F. Howard	30,350	July 13	80	344
Prints	United States Printing Company	30,536	Sept. 14	80	1755
Pulley-coating	O. C. Little & M. M. Schoetz Pulley Coating Co.	30,442	July 27	80	651
Remedies for catarrh, colds, headache, sore throat, asthma, and lost sense of smell.	A. R. H. Fiedler	30,544	Sept. 14	80	1756
Remedies for constipation and liver diseases	Anchor S Chemical Co	30,547	Sept. 14	80	1756
Remedies for diseases of swine and other stock	S. D. Cubberly	30,399	July 13	80	345
Remedies for diseases of the digestive organs	T. J. Turner	30,586	Sept. 28	80	2085
Remedies for diseases of the respiratory organs	Hance Bros. & White	30,545	Sept. 14	80	1756
Remedies for dyspepsia and derangements of the stomach and bowels.	Dr. James Ware Remedy Co	30,337	July 6	80	183
Remedies for dyspepsia and stomach trouble	C. J. Ulrici	30,419	July 20	80	514
Remedies for gout and rheumatism	E. J. Isenburg	30,454	Aug. 3	80	808
Remedies for headache, neuralgic or rheumatic pains, and nervous diseases.	Cephalgine Co	30,336	July 6	80	183
Remedies for rheumatism	F. H. Claussen	30,548	Sept. 14	80	1756
Remedies for rheumatism and diseases of the liver and kidneys.	S. B. Thompson	30,418	July 20	80	514
Remedies for the treatment of the skin, eye, and ear, and nervous and heart troubles and female complaints.	H. A. Jackson	30,590	Sept. 28	80	2085
Remedies for venereal diseases	M. Haurwitz	30,549	Sept. 14	80	1757
Remedy. Cough	L. Stern	30,543	Sept. 14	80	1756
Remedy for eczema	J. Wood	30,417	July 20	80	514
Remedy for female complaints	M. Meyberg	30,587	Sept. 28	80	2085
Remedy for morphine and alcohol habits	C. L. Cole and R. G. Donaldson	30,416	July 20	80	514
Remedy for use as a febrifuge, anodyne, and antipyretic	Murray Drug Company	30,587	Sept. 28	80	2085
Rice-powder. Toilet	Roger & Gallet	30,439	July 27	80	651
Rubber packing	W. J. Gorham	30,465	Aug. 3	80	806

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Salve	G. C. Wilson	30,342	July 6	80	188
Salves	S. D. Harding	30,456	Aug. 3	80	805
Salves, ointments, corn-cure, liniment, and kindred preparations.	M. Tempest	30,414	July 20	80	513
Sauce. Table	Scharff Brothers	30,400	July 20	80	512
Saw-sets, bench-stops, punches, seal-presses, cutting-nippers, and similar hardware specialties.	Estate of C. Morrill	30,572	Sept. 21	80	1800
Scales. Weighing	Computing Scale Company	30,464	Aug. 3	80	806
Scales. Weighing and computing	Computing Scale Company	30,422	July 20	80	514
Scales. Weighing and computing	Computing Scale Company	30,423	July 20	80	514
Seeds. Flower, garden, and field	A. W. Livingston's Sons	30,351	July 13	80	344
Shirts, collars, cuffs, and shirt-waists	Campbell & Stephens	30,535	Sept. 14	80	1755
Shoes. Bicycle	J. E. Tilt Shoe Company	30,316	July 6	80	181
Shoes. High-cut men's or women's	Portsmouth Shoe Company	30,479	Aug. 3	80	806
Shoes. Women's and children's	J. Mundell & Co	30,485	Aug. 10	80	963
Soap	H-O (Hornby's Oatmeal) Company	30,467	Aug. 3	80	806
Soap	Procter & Gamble Company	30,568	Sept. 21	80	1889
Soap	Retail Merchants Association	30,569	Sept. 21	80	1889
Soap for cleansing and dyeing	Maypole Company	30,554	Sept. 14	80	1757
Soap. Laundry	Globe Refining Company	30,567	Sept. 21	80	1889
Soaps, perfumes, powders, and liquids	Colgate & Co	30,566	Sept. 21	80	1889
Soaps, perfumes, waters, powders, and cosmetics. Toilet	Court Perfumery Company	30,458	Aug. 3	80	805
Starch. Laundry	W. R. Donovan	30,431	July 27	80	650
Starch. Laundry	E. R. Durkee & Co	30,466	Aug. 3	80	806
Starch. Laundry	E. R. Durkee & Co	30,555	Sept. 14	80	1757
Starch. Laundry	J. North	30,556	Sept. 14	80	1757
Steam traps and pumps	A. A. Griffing Iron Company	30,573	Sept. 21	80	1890
Steam-traps, feed-water heaters, steam and oil separators, exhaust-pipe heads, and low-water alarms.	A. A. Griffing Iron Company	30,450	July 27	80	652
Steers. Corn-fed	H. H. Anthony & Co	30,531	Aug. 31	80	1474
Stoves	Estate of C. Noble	30,424	July 20	80	514
Tablets for medicinal purposes	W. B. House	30,413	July 20	80	513
Tablets of an antiseptic and germicidal character	Brown Chemical Co	30,412	July 20	80	513
Tea	Grand Forks Mercantile Company	30,501	Aug. 17	80	1122
Toilet preparations, including soap, dentifrice, and hair restoratives.	Roger & Gallet	30,437	July 27	80	651
Toilet preparations, including soap, dentifrice, and hair restoratives.	Roger & Gallet	30,438	July 27	80	651
Tonic, alterative, and blood purifier	McConnon & Co	30,420	July 20	80	514
Tonics for brain and blood	T. J. Turner	30,584	Sept. 28	80	2035
Trees. Hardy fruit	Longevity Apple Company	30,386	July 20	80	511
Tubing. Metal	Pope Tube Company	30,305	July 20	80	512
Vinegars	R. M. Hughes & Co	30,492	Aug. 10	80	963
Wagons	Deere & Company	30,580	Sept. 21	80	1890
Watches	J. R. Hopkins	30,533	Sept. 14	80	1755
Watches	Waterbury Watch Company	30,561	Sept. 21	80	1889
Water. Distilled	Ice and Cold Storage Company of Los Angeles.	30,489	Aug. 10	80	963
Weevil-exterminator	D. P. Quesenberry	30,411	July 20	80	513
Whisky	W. H. Jones & Co	30,459	Aug. 3	80	805
Whisky	Ragsdale & Peck	30,538	Sept. 14	80	1755
Whisky	Rosskam, Gerstley & Co	30,435	July 27	80	650
Whisky	W. Wolf & Co	30,539	Sept. 14	80	1755
Whisky, wines, gins, and brandies	Rosskam, Gerstley & Co	30,436	July 27	80	650
Wines, sparkling wines, and liquors	C. F. Eccardt	30,370	July 13	80	345
Yarn and sewing-cotton. Cotton	J. & P. Coats	30,390	July 20	80	511
Yarn and sewing-cotton. Cotton	J. & P. Coats	30,391	July 20	80	511
Yarn and sewing-cotton. Cotton	J. & P. Coats	30,392	July 20	80	511
Yarn and sewing-cotton. Cotton	J. & P. Coats	30,396	July 20	80	511

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Francis Original and Only Silk Molasses Candy"	J. H. Francis, Jr	6,551	July 27	80	524
"Mellwood Whiskey"	Mellwood Distillery Company	6,554	Aug. 17	80	972
"Old Stock Lager"	Bergner & Engel Brewing Company	6,550	July 27	80	524
"Registered Label of the Rocky Ford Melon Growers Association."	Rocky Ford Melon Growers Association.	6,556	Aug. 31	80	1280
"Runnymede Club Bourbon"	Mellwood Distillery Company	6,555	Aug. 17	80	972
"Runnymede Club Pure Rye"	Mellwood Distillery Company	6,553	Aug. 17	80	972
"Runnymede Club Whiskey"	Mellwood Distillery Company	6,552	Aug. 17	80	972

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"American Beauty." (For Cigars)	American Lithographic Company	53	Aug. 3	80	664

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